

NUCLEAR
BUSINESS
UNIT



EVENT CLASSIFICATION GUIDE

TECHNICAL BASIS



PSEG

The Energy People

SALEM GENERATING STATION

9701310343 970121
PDR ADOCK 05000272
F PDR

SALEM ECG TECHNICAL BASIS
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January 21, 1997

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**SALEM ECG TECHNICAL BASIS
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**SALEM
ECG TECHNICAL BASIS
INTRODUCTION & USAGE**
Section i

NOTE

This document may be referenced for clarification of an EAL or RAL prior to declaration within the Assessment Time period, as appropriate to ensure the correct classification.

CAUTION

DO NOT delay classification of an Emergency by referring to this document unless significant doubt exists about the intent or meaning of an EAL.

1.0 PURPOSE OF THE ECG TECHNICAL BASIS (TB)

1.1 Classification Reference:

Provides a reference document which assists the Emergency Coordinator or SNSS in classifying emergency or non-emergency events by presenting;

- detailed basis information on each EAL and RAL
- analysis of the effect of the event on fission product barriers
- escalation criteria guidance

1.2 Training and Communication Reference:

Provides the basis and source of the action levels within the ECG to include in training and to reference when communicating with outside agencies the methodology and rationale of a classification.

2.0 TECHNICAL BASIS (TB) STRUCTURE

2.1 Basis Sections Format:

Items 2.1.1 thru 2.1.4 are taken directly from the Event Classification Guide. They are repeated in this document for the sake of convenience in cross referencing the information in items 2.1.5 thru 2.1.10.

- 2.1.1 **INITIATING CONDITION (IC):** A generic nuclear power plant condition or event where either the potential exists for a radiological emergency or non-emergency reportable event OR such an emergency or non-emergency reportable event has occurred.
- 2.1.2 **EAL NUMBER (EAL #):** Each Emergency Action Level (EAL) has been assigned a unique alpha numeric identifier. Each digit of the EAL # has a specific meaning that is not important to the users, but is important to the personnel who develop and maintain the ECGs. The digit and EAL # are defined in the ECG Introduction Section i.
- 2.1.3 **EMERGENCY ACTION LEVEL (EAL) OR REPORTABLE ACTION LEVEL (RAL):** A predetermined, site-specific, observable threshold used to define when the generic initiating condition has been met, placing the plant in a given emergency class or non-emergency report.
- 2.1.4 **MODE:** Refers to the Operational Mode at Salem during which a particular IC/EAL is applicable. The Mode that the plant was in when the event started, prior to any protection system or operator actions, should be utilized when classifying events.
- 2.1.5 **BASIS:** Provides an explanation of terms and expressions used in the action levels for better understanding of their meaning and, when appropriate, their derivation. Words contained in an EAL or RAL that are **bold face** are either threshold values associated with that action level or are words that are defined in the basis for that specific EAL/RAL.
- 2.1.6 **BARRIER ANALYSIS:** Provides a short statement about any of the three fission product barriers that may be affected by this event.
- 2.1.7 **ESCALATION CRITERIA:** Provides a brief description of any additional conditions or events that, should they occur, would require escalation of the emergency level. Other EAL #s may be included for reference.
- 2.1.8 **DISCUSSION:** Provides additional background information on the action level and concerns for plant safety. Basis calculations are included for some specific EAL thresholds where appropriate to aid in communicating the derivation and assumptions that were used in development.
- 2.1.9 **DEVIATION:** Provides a brief explanation of any differences between the Salem EAL and the NUMARC based EAL examples given in NESP-007.
- 2.1.10 **REFERENCES:** Provides a short list of the pertinent documents that are the basis for information included in this technical basis document.

3.0 **TECHNICAL BASIS (TB) USAGE**

NOTE

Event classification should always be made with direct reference to the ECG. If any numbering inconsistency or error should be discovered between the ECG and TB, the EAL #s from the ECG are to be used.

3.1 **Classification:** USE the Salem ECG to first of all;

- 3.1.1 ASSESS the event and/or plant conditions and DETERMINE which ECG section(s) is most appropriate.
- 3.1.2 REFER to Section EAL/RAL Flowchart diagram(s), review and identify the Initiating Conditions that are related to the event/condition that has occurred or is ongoing.
- 3.1.3 REVIEW the associated EALs or RALs as compared to the event and SELECT the highest appropriate emergency or reportable action level

NOTE

If there is any doubt with regard to assessment of a particular EAL or RAL, the ECG Technical Basis should be reviewed.

- 3.1.4 REFER to this document after initial notifications are begun to review escalation criteria and the technical basis in order to gain a broader understanding of the reasons for taking action at this time.

3.2 **Training and Communication Reference:**

- 3.2.1 This document is used in training Emergency Coordinators and those tasked with analyzing events and advising the EC on classifications.
- 3.2.2 Offsite Agencies that require further explanation of the EAL or RAL in effect may reference a copy of this document or Offsite Reference Manual (layperson's guide) if available.

SALEM
EVENT CLASSIFICATION GUIDE
Glossary of Acronyms & Abbreviations
Section ii

101

AAAG	-	Accident Assessment Advisory Group (Delaware)
AB	-	Auxiliary Building
AC	-	Alternating Current
AFST	-	Auxiliary Feedwater Storage Tank
AFW	-	Auxiliary Feedwater
ALARA	-	As Low As Reasonably Achievable
ARM	-	Area Radiation Monitor
AS	-	Administrative Supervisor
ASAP	-	As Soon As Possible
ASM	-	Administrative Support Manager
ATWT	-	Anticipated Transient Without Trip
BIT	-	Boron Injection Tank
BKGD	-	Background
BKR	-	Breaker (electrical circuit)
BNE	-	Bureau of Nuclear Engineering (NJDEPE)
CAS	-	Central Alarm Station
CCPM	-	Corrected Counts per Minute
CDE	-	Committed Dose Equivalent
CEDE	-	Committed Effective Dose Equivalent
CET	-	Core Exit Thermocouple
CFCU	-	Containment Fan Coil Unit
CFR	-	Code of Federal Regulations
CFST	-	Critical Safety Function Tree
CM1	-	Primary Communicator (CR)
CM2	-	Secondary Communicator (CR)
CNTMT	-	Containment (Barrier)
CP	-	Control Point
CPM	-	Counts Per Minute
CR	-	Control Room
CRD	-	Control Rod Drive
DC	-	Direct Current
DDE	-	Deep Dose Equivalent
DEI	-	Dose Equivalent Iodine
DEMA	-	Delaware Emergency Management Agency

DEP	-	Department of Environmental Protection (NJ)
DID	-	Direct Inward Dial (phone system)
DOE	-	Department of Energy
DOT	-	Department of Transportation
DPCC/DCR	-	Discharge Prevention, Containment, & Countermeasures/ Discharge Cleanup & Removal Plan
DPM	-	Decades per Minute
DPM	-	Disintegrations per Minute
DRCF	-	Dose Rate Conversion Factor
EACS	-	ESF Equipment Area Cooling System
EAL	-	Emergency Action Level
EAS	-	Emergency Alert System (Broadcast)
EC	-	Emergency Coordinator
ECCS	-	Emergency Core Cooling Systems
ECG	-	Emergency Classification Guide
EDG	-	Emergency Diesel Generator
EDO	-	Emergency Duty Officer
EMRAD	-	Emergency Radio (NJ)
ENC	-	Emergency News Center
ENS	-	Emergency Notification System (NRC)
EOC	-	Emergency Operations Center (NJ & DE)
EOF	-	Emergency Operations Facility
EOP	-	Emergency Operating Procedures
EPA	-	Emergency Preparedness Advisor
EPA	-	Environmental Protection Agency
EPID	-	Emergency Plan Implementing Procedure
EPM	-	Emergency Preparedness Manager
EPZ	-	Emergency Planning Zone
ERDS	-	Emergency Response Data System
ERF	-	Emergency Response Facility
ERM	-	Emergency Response Manager
ERO	-	Emergency Response Organization
ESF	-	Engineered Safety Feature
ESSX	-	Electronic Switch System Exchange (Centrex)
FC	-	Fuel Clad (Barrier)
FFD	-	Fitness For Duty
FHB	-	Fuel Handling Building
FPB	-	Fission Product Barrier
FRCC	-	Functional Restoration Core Cooling
FRCE	-	Functional Restoration Containment Environment
FRCI	-	Functional Restoration Coolant Inventory

FRERP	-	Federal Radiological Emergency Response Plan
FRHS	-	Functional Restoration Heat Sink
FRSM	-	Functional Restoration Shutdown Margin
FRTS	-	Functional Restoration Thermal Shock
FTS	-	Federal Telecommunications System (NRC)
GE	-	General Emergency
HEPA	-	High Efficiency Particulate Absorbers
HP	-	Health Physics
HVAC	-	Heating, Ventilation & Air Conditioning
HX	-	Heat Exchanger
IAW	-	In Accordance With
IC	-	Initiating Condition
ICMF	-	Initial Contact Message Form
IDLH	-	Immediately Dangerous to Life and Health
IR	-	Intermediate Range
I/S	-	In Service
ISOL	-	Isolation
KI	-	Potassium Iodide
KV	-	Kilovolt
LAC	-	Lower Alloways Creek
LCO	-	Limiting Condition for Operation
LDE	-	Lens Dose Equivalent
LEL	-	Lower Explosive Limit
LLD	-	Lowest Level Detectable
LOCA	-	Loss of Coolant Accident
LOP	-	Loss of Offsite Power
LPZ	-	Low Population Zone
MDA	-	Minimum Detectable Amount
MEA	-	Minimum Exclusion Area
MEES	-	Major Equipment & Electrical Status (Form)
MET	-	Meteorological
MIMS	-	Metal Impact Monitoring System
MOU	-	Memorandum of Understanding
MRO	-	Medical Review Officer
MSIV	-	Main Steam Isolation Valve
MSL	-	Main Steam Line

NAWAS	-	National Attack Warning Alert System
NCO	-	Nuclear Control Operator
NDAB	-	Nuclear Department Administration Building (TB2)
NEO	-	Nuclear Equipment Operator
NETS	-	Nuclear Emergency Telecommunications System
NFE	-	Nuclear Fuels Engineer
NFPB	-	Normal Full Power Background
NG	-	Noble Gas
NJSP	-	New Jersey State Police
NOAA	-	National Oceanographic and Atmospheric Administration
NR	-	Narrow Range
NRC	-	Nuclear Regulatory Commission
NSP	-	Nuclear Site Protection
NSS	-	Nuclear Shift Supervisor
NSTA	-	Nuclear Shift Technical Advisor
NUMARC	-	Nuclear Management and Resources Council
NWS	-	National Weather Service
OBE	-	Operating Basis Earthquake
OCA	-	Owner Controlled Area
ODCM	-	Offsite Dose Calculation Manual
OEM	-	Office of Emergency Management
OHA	-	Overhead Annunciators
OSB	-	Operational Status Board (Form)
OSC	-	Operations Support Center
PAG	-	Protective Action Guideline
PAR	-	Protective Action Recommendation
PASS	-	Post Accident Sample System
PIM	-	Public Information Manager
PMP	-	Pump
PORV	-	Power Operated Relief Valve
PSIG	-	Pounds per Square Inch Gauge
PWST	-	Primary Water Storage Tank
PZR	-	Pressurizer
RAC	-	Radiological Assessment Coordinator
RAD	-	Radiation
RAL	-	Reportable Action Level
RC	-	Reactor Coolant
RCA	-	Radiologically Controlled Area
RCAM	-	Repair and Corrective Action Mission
RCP	-	Reactor Coolant Pump

RCS	-	Reactor Coolant System (Barrier)
RHR	-	Residual Heat Removal
RM	-	Recovery Manager
RMO	-	Recovery Management Organization
RMS	-	Radiation Monitoring System
RPS	-	Radiation Protection Supervisor
RPS	-	Reactor Protection System
RSM	-	Radiological Support Manager
RVLIS	-	Reactor Vessel Level Instrumentation System
RWST	-	Refueling Water Storage Tank
SAE	-	Site Area Emergency
SAM	-	Severe Accident Management
SAS	-	Secondary Alarm Station (Security)
SAT	-	Satisfactory
SBO	-	Station Blackout
SCBA	-	Self Contained Breathing Apparatus
SCP	-	Security Contingency Procedure
SDE	-	Shallow Dose Equivalent
SDM	-	Shutdown Margin
S/G	-	Steam Generator
SGS	-	Salem Generating Station
SGTR	-	Steam Generator Tube Rupture
SI	-	Safety Injection
SJAE	-	Steam Jet Air Ejector
SNM	-	Special Nuclear Material
SNSS	-	Senior Nuclear Shift Supervisor
SOS	-	Systems Operations Supervisor (Security)
SPDS	-	Safety Parameter Display System
SRPT	-	Shift Radiation Protection Technician
SSCL	-	Station Status Checklist
SSE	-	Safe Shutdown Earthquake
SSM	-	Site Support Manager
SSNM	-	Strategic Special Nuclear Material
SUR	-	Startup Rate
T-COLD	-	Temperature Cold (Leg)
T-HOT	-	Temperature Hot (Leg)
TAF	-	Top of Active Fuel
TDR	-	Technical Document Room
TEDE	-	Total Effective Dose Equivalent
TPARD	-	Total Protective Action Recommendation Dose
T/S	-	Technical Specifications

TSC	-	Technical Support Center
TSS	-	Technical Support Supervisor
TSTL	-	Technical Support Team Leader
TSTM	-	Technical Support Team Member
UE	-	Unusual Event
UFSAR	-	Updated Final Safety Analysis Report
UHS	-	Ultimate Heat Sink
USCG	-	United States Coast Guard
VDC	-	Volts Direct Current
VLV	-	Valve
WB	-	Whole Body
WR	-	Wide Range

1.0 Fuel Clad Challenge

1.1 RCS Activity

UNUSUAL EVENT - 1.1.1.a/1.1.1.b

IC Fuel Clad Degradation

EAL

Reactor Coolant Activity > 1 $\mu\text{Ci/gm}$ Dose Equivalent I-131 for > 48 Hours

OR

Reactor Coolant Activity (Dose Equivalent Iodine) exceeds limits of Technical Specification Figure 3.4-1

MODE - 1, 2, 3, 4, 5, 6

BASIS

Coolant Iodine activity in excess of Technical Specifications is considered to be a precursor of more serious problems. The Technical Specification Iodine limit reflects a degrading or degraded core condition. This level is above any possible short duration Iodine spikes under normal conditions.

Barrier Analysis

This event does not reach the threshold for the loss of Fuel Clad Barrier, but does affect that barrier.

ESCALATION CRITERIA

This event will be escalated to an Alert when Reactor Coolant activity exceeds 300 $\mu\text{Ci/gm}$ Dose Equivalent I-131 per EAL Section 3.1.2.

EAL - 1.1.1.a/1.1.1.b
Rev. 00

DISCUSSION

An Unusual Event is only warranted when actual fuel clad damage is the cause of the elevated coolant sample (as determined by RCS sample analysis confirmation). The Technical Specification limit on RCS Activity of $100/\bar{E}\mu\text{Ci/gm}$ was not included in this EAL because it specifically excludes Iodine Activity.

DEVIATION

NUMARC requires this EAL to be applicable in all Modes of operation. Since there is no fuel in the Reactor vessel in Mode "Defueled", this EAL is not Applicable.

REFERENCES

NUMARC NESP-007, SU4.2
Technical Specification Section 3.4.8 - Unit 1
Technical Specification Section 3.4.9 - Unit 2

1.0 Fuel Clad Challenge

1.1 RCS Activity

UNUSUAL EVENT - 1.1.1.c

IC: Fuel Clad Degradation

EAL

Valid Letdown Line Monitor in Alarm (1R31A or 2R31)

MODE - 1, 2, 3, 4, 5, 6

BASIS

The letdown monitoring system (1-R31A and 2-R31) detects the RCS radiation concentration that is attributable to the fission products that are produced in the reactor and escapes to the coolant. This indicator of elevated coolant activity would be one of the first indicators of a degrading core, and is considered to be a precursor of more serious problems. "Valid" means confirmed by other indications on related or redundant instrumentation.

Barrier Analysis

This event does not reach the threshold for the loss of the Fuel Clad Barrier, but does affect this barrier.

ESCALATION CRITERIA

This event will be escalated to an Alert when RCS activity exceeds 300 $\mu\text{Ci/gm}$ Dose Equivalent Iodine 131 per EAL Section 3.1.2.

DISCUSSION

A **valid** Letdown Line Monitor alarm may indicate that the failed fuel level has reached 1% due to an increased number of failed fuel elements or a fuel gap activity release. Sample results are not required prior to classification; however, other radiation monitors should be used to confirm this alarm to prevent inaccurate classification based on an instrument malfunction.

EAL - 1.1.1.c
Rev. 00

DEVIATION

NUMARC requires this EAL to be applicable in all Modes of operation. Since there is no fuel in the Reactor vessel in Mode "Defueled", this EAL is not Applicable.

REFERENCES

SGS-UFSAR Section 11.4
NUMARC NESP-007, SU4.1
OP-AB.RC-0002(Q)
Salem U1/U2 Radiation Monitoring System Manual

2.0 RCS Challenge

2.1 RCS Leakage

UNUSUAL EVENT - 2.1.1.a/2.1.1.b/2.1.1.c

IC RCS Leakage

10/

EAL

Reactor Coolant System Pressure Boundary Leakage > 10 gpm

OR

Reactor Coolant System Unidentified Leakage > 10 gpm

OR

Reactor Coolant System Identified Leakage > 25 gpm

MODE - 1, 2, 3, 4

BASIS

This EAL addresses plant conditions where RCS leakage significantly exceeds limits imposed by Technical Specifications. A leak of such magnitude is consistent with an Unusual Event classification and should be declared immediately. Credit for the Technical Specification Action Statement time in deferring an Emergency Classification should only be given when the leakage exceeds Technical Specification limits but has not yet exceeded the Unusual Event threshold. These EALs are included as Unusual Events as they may be precursors to a more serious event. As such, it is considered to be a potential degradation of the level of safety of the plant. The unidentified or pressure boundary threshold value was chosen to be readily observable from the control room using normal indications. The identified leakage threshold value is set at a higher value due to its lesser significance compared to unidentified or pressure boundary leakage. Note that identified leakage includes Primary to Secondary leakage per Technical Specification definition.

Barrier Analysis

This event does not reach the threshold for the loss of the RCS Barrier, but does affect that barrier.

EAL - 2.1.1.a/2.1.1.b/2.1.1.c

Rev. 00

ESCALATION CRITERIA

This event will be escalated to an Alert or higher classification based on a loss or potential loss of fission product barriers per EAL section 3.0.

DISCUSSION

Utilizing the leak before break methodology, it is anticipated that there will be indication(s) of minor reactor coolant system boundary leakage prior to a fault escalating to a major leak or a system rupture. Detection of low levels of leakage while pressurized permits monitoring for catastrophic failure or rupture precursors.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SU5
EOP-TRIP-1
EOP-LOCA-1
Technical Specifications Definition 1.15.c
Technical Specifications 3.4.6.2 - Unit 1
Technical Specifications 3.4.7.2 - Unit 2

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.1 CRITICAL SAFETY STATUS

3.1.1.a

IC Potential Loss of Fuel Clad Barrier = 3 POINTS

EAL

101

CORE COOLING PURPLE PATH

MODE - 1, 2, 3, 4

BASIS

Core Cooling PURPLE Path, as verified by EOP-CFST-1, indicates that subcooling has been lost and that some clad damage may occur.

Barrier Analysis

Fuel Clad Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

DEVIATION

Salem Generating Station replaced the CFST "Orange Path" color designation with "Purple Path" due to the limitations imposed by the SPDS CRT's color gun configuration.

EAL - 3.1.1.a
Rev. 00

REFERENCES

NUMARC NESP-007, FC1
EOP-CFST-1
EOP-TRIP-1

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.1 CRITICAL SAFETY FUNCTION STATUS

3.1.1.b

IC Potential Loss of Fuel Clad Barrier = 3 POINTS

EAL

HEAT SINK RED PATH

MODE - 1, 2, 3, 4

BASIS

Heat Sink RED Path, as verified by EOP-CFST-1, indicates that Steam Generator dryout could occur. A loss of Heat Sink poses an extreme challenge to the Fuel Clad. A barrier loss classification should not be made if the Heat Sink RED Path is the result of procedurally required Auxiliary Feedwater flow control.

Barrier Analysis

Fuel Clad and RCS Barriers have been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

DEVIATION

None

EAL - 3.1.1.b
Rev. 00

REFERENCES

NUMARC NESP-007, FC1
EOP-CFST-1
EOP-TRIP-1
FRHS-1

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.1 CRITICAL SAFETY FUNCTION STATUS

3.1.1.c

IC Loss of Fuel Clad Barrier = 4 POINTS

EAL

CORE COOLING RED PATH

MODE - 1, 2, 3, 4

BASIS

Core Cooling RED Path, as verified by EOP-CFST-1, is definitive indication that the heat transfer from the fuel to the coolant has degraded leading to a fuel clad heatup, significant superheating and core uncover.

Barrier Analysis

Fuel Clad Barrier has been lost and the Primary Containment Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

DEVIATION

None

EAL - 3.1.1.c
Rev. 00

REFERENCES

NUMARC NESP-007, FC1

EOP-CFST-1

EOP-TRIP-1

FRCC-1

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.2 PRIMARY COOLANT IODINE CONCENTRATION

IC Loss of Fuel Clad Barrier = 4 POINTS

EAL

Reactor Coolant Activity > 300 $\mu\text{Ci/gm}$ Dose Equivalent I-131

MODE - 1, 2, 3, 4

BASIS

A reactor coolant sample activity of greater than 300 $\mu\text{Ci/gm}$ Dose Equivalent Iodine-131 (DEI-131) was determined to indicate significant clad heating or mechanical stress and is indicative of the loss of the fuel clad barrier. This concentration is well above that expected for iodine spikes and corresponds to approximately 2.5% clad damage.

Barrier Analysis

Fuel Clad Barrier has been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

The actual value of 300 $\mu\text{Ci/gm}$ Dose Equivalent Iodine-131 (DEI-131) was determined based upon an engineering calculation which is not included with this EAL. This calculation was prepared by the Nuclear Fuels Group and is on file with Emergency Preparedness under file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification" date 1/26/95.

DEVIATION

None

EAL - 3.1.2

Rev. 00

REFERENCES

NUMARC NESP-007, FC2

Reg. Guide 1.109, Table E-9

SGS-USFAR, Table 11.1-1

SGS-USFAR, Table 11.1-7

OP-AB.RC-0002(Q)

Calculation by Nuclear Fuels Group file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification" date 1/26/95.

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.3 CORE EXIT THERMOCOUPLES (CETS)

3.1.3.a

IC Potential Loss of Fuel Clad Barrier = 3 POINTS

EAL

5 or more CETs > 700 °F

MODE - 1, 2, 3, 4,

BASIS

The threshold value chosen is from the EOP-CFST-1 Core Cooling Status Tree and indicates a loss of core subcooling which could lead to clad damage.

Barrier Analysis

Fuel Clad Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based upon the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the EOP Critical Safety Function Tree (CFST) monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. Use of Core Exit Thermocouple (CET) temperature to indicate loss of subcooling is equivalent to the CFST Core Cooling status codes.

DEVIATION

Salem Generating Station replaced the CFST "Orange Path" color designation with "Purple Path" due to the limitations imposed by the SPDS CRT's color gun configuration.

REFERENCES

NUMARC NESP-007, FC3
EOP-CFST-1
EOP-TRIP-1
EOP-Setpoint Doc (G.03)

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.3 CORE EXIT THERMOCOUPLES (CETS)

3.1.3.b

IC Loss of Fuel Clad Barrier = 4 POINTS

EAL

5 or more CETs > 1200 °F

MODE - 1, 2, 3, 4

BASIS

Five Core Exit Thermocouple (CET) temperatures > 1200 °F indicates a significant superheating of the reactor coolant.

Barrier Analysis

Fuel Clad Barrier has been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The EAL threshold of > 1200 °F is equivalent to CFST Core Cooling RED Path.

DEVIATION

None

EAL - 3.1.3.b

Rev. 00

REFERENCES

NUMARC NESP-007, FC3
EOP-CFST-1
EOP-TRIP-1
EOP-Setpoint Doc (G.04)

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.4 RX VESSEL LEVEL INDICATION SYSTEM (RVLIS)

3.1.4.a

IC Potential Loss of Fuel Clad Barrier = 3 POINTS

EAL

RVLIS Full Range < 39%

MODE - 1, 2, 3, 4

BASIS

The threshold value of RVLIS Full Range < 39% is chosen from the EOP-CFST-1 Core Cooling Status Tree. This value approximates the "Top of Active Fuel" which is a water level at which clad damage may be expected to occur.

Barrier Analysis

Fuel Clad Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based upon the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the EOP Critical Safety Function Tree (CSFT) monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. Use of RVLIS to indicate reactor vessel water level is more specific than the CFST Core Cooling status codes. Full Range RVLIS indicates reactor vessel water level with no RCPs running. The intent of this EAL is to provide a RVLIS level which approximates core uncover. The actual RVLIS level which indicates "Top of Active Fuel" is somewhat higher than 39%; however, 39% was adopted to be consistent with the CFST value.

EAL - 3.1.4.a
Rev. 00

DEVIATION

Salem Generating Station replaced the CFST "Orange Path" color designation with "Purple Path" due to the limitations imposed by the SPDS CRT's color gun configuration.

REFERENCES

NUMARC NESP-007, FC4
EOP-CFST-1
EOP-TRIP-1
EOP-Setpoint Doc (G.03)

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.4 RX VESSEL LEVEL INDICATION SYSTEM (RVLIS)

3.1.4.b

IC Potential Loss of Fuel Clad Barrier = 3 POINTS

EAL

RVLIS Dynamic Range Indicates ANY one of the following:

- 4 RCPs I/S < 44%
- 3 RCPs I/S < 30%
- 2 RCPs I/S < 20%
- 1 RCP I/S < 13%

MODE - 1, 2, 3, 4

BASIS

The threshold values for RVLIS Dynamic Range levels with various combinations of RCPs is chosen from the EOP-CFST-1 Core Cooling Status Tree. These values correspond to a 50% void fraction which may result in clad damage.

Barrier Analysis

Fuel Clad Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based upon the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the EOP Critical Safety Function Tree (CSFT) monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. Use of RVLIS to indicate reactor vessel water level is more specific than the CFST Core Cooling Purple Path status codes. Dynamic Range RVLIS indicates reactor vessel water level when at least 1 RCP is

EAL - 3.1.4.b

Rev. 00

running. The intent of this EAL is to provide a RVLIS level which approximates a 50% RCS void fraction. With this void fraction, a loss of all operating RCPs could lead to core uncover.

DEVIATION

Salem Generating Station replaced the CFST "Orange Path" color designation with "Purple Path" due to the limitations imposed by the SPDS CRT's color gun configuration.

REFERENCES

NUMARC NESP-007, FC4
EOP-CFST-1
EOP-TRIP-1
EOP-Setpoint Doc (L.01)

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.5 CONTAINMENT RADIATION LEVELS

IC - Loss of Fuel Clad Barrier = 4 POINTS

EAL

R44A or R44B > 300 R/hr

MODE - 1, 2, 3, 4

BASIS

The reading of 300 R/hr on the containment high range monitor (R44A or R44B) indicates the loss of the Fuel Clad fission product barrier. The reading was calculated assuming an instantaneous release of the Reactor Coolant volume into the Primary Containment at an RCS Activity of 300 $\mu\text{Ci/gm}$ Dose Equivalent Iodine 131. This value is much larger than Technical Specification allowed Iodine spikes and corresponds to fuel clad damage of approximately 2.5%.

Barrier Analysis

Fuel Clad and RCS Barriers have been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based upon the loss or potential loss of the Primary Containment barrier per EAL Section 3.0

DISCUSSION

This calculation is based upon a concentration of 300 $\mu\text{Ci/gm}$ Dose Equivalent Iodine 131 as it relates to R44 measured Dose Rate values. This calculation was prepared by the Nuclear Fuels Group and is on file with Emergency Preparedness under file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification" date 1/26/95.

DEVIATION

None

REFERENCES

NUMARC NESP-007, FC5

Calculation by Nuclear Fuels file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification

3.0 Fission Product Barriers

3.1 Fuel Clad Barrier

3.1.6 EMERGENCY COORDINATOR JUDGMENT

3.1.6.a/ 3.1.6.b

IC Potential Loss (= 3 POINTS) or Loss of Fuel Clad Barrier (= 4 POINTS)

EAL

ANY condition, in the opinion of the EC, that indicates EITHER
a Potential Loss OR Loss of the Fuel Clad Barrier

MODE - 1, 2, 3, 4

BASIS

This EAL allows the Emergency Coordinator (EC) to address any factor not otherwise covered in the Fission Product Barrier Table to determine that the Fuel Clad barrier has been lost or potentially lost. A complete loss in the ability to monitor the Fuel Clad barrier should be considered a "Potential Loss" of that barrier.

Barrier Analysis

The Fuel Clad Barrier has been lost or potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the loss or potential loss of additional barriers per EAL section 3.0.

DISCUSSION

None

DEVIATION

None

EAL - 3.1.6.a/ 3.1.6.b
Rev. 00

REFERENCES

NUMARC NESP-007, FC7

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.1 CRITICAL SAFETY FUNCTION STATUS

3.2.1.a

IC Potential Loss of RCS Barrier = 3 POINTS

EAL

THERMAL SHOCK RED PATH

MODE - 1, 2, 3, 4

BASIS

Thermal Shock RED Path, as verified by EOP-CFST-1, indicates an excessive RCS cooldown has occurred and that RCS pressure and temperature conditions have resulted in significant Pressurized Thermal Shock concerns.

Barrier Analysis

RCS Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

DEVIATION

None

EAL - 3.2.1.a
Rev. 00

REFERENCES

NUMARC NESP-007, RC1
EOP-CFST-1
EOP-TRIP-1

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.1 CRITICAL SAFETY FUNCTION STATUS

3.2.1.b

IC Potential Loss of RCS Barrier = 3 POINTS

EAL

HEAT SINK RED PATH

MODE - 1, 2, 3, 4

BASIS

Heat Sink RED Path, as verified by EOP-CFST-1, indicates that Steam Generator dryout could occur. A loss of Heat Sink poses an extreme heat removal challenge to the RCS. A barrier loss classification should not be made if the Heat Sink RED Path is the result of procedurally required Auxiliary Feedwater flow control.

Barrier Analysis

Fuel Clad and RCS Barriers have been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

DEVIATION

None

EAL - 3.2.1.b
Rev. 00

REFERENCES

NUMARC NESP-007, RC1
EOP-CFST-1
EOP-TRIP-1
FRHS-1

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.2 RCS LEAK RATE

3.2.2.a

IC Potential Loss of RCS Barrier = 4 POINTS

EAL

One Centrifugal Charging Pump CANNOT maintain PZR level > 17% (as a result of RCS leakage).

MODE - 1, 2, 3, 4

BASIS

RCS leakage which results in an inability to maintain Pressurizer (PZR) Level with a normal charging lineup using one Centrifugal Charging Pump is indicative of an RCS inventory loss which would require initiation of Safety Injection (SI) and entry into EOP-TRIP-1 from OP-AB.RC-0001(Q), Reactor Coolant System Leak.

Non-RCS leakage events (such as steam/ feedwater system breaks) where no mass is lost from the RCS should not be classified under this EAL.

Barrier Analysis

RCS Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Significant leakage from the RCS will result in implementation of OP-AB.RC-0001(Q). Actions required by this procedure will result in one Centrifugal Charging Pump in service, discharging to the charging header, and Letdown secured. If Pressurizer Level cannot be maintained stable or rising with this lineup established, a manual Safety Injection will be initiated. This EAL assumes

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Rev. 00

that any event that would result in significant RCS mass loss will result in at least an ALERT declaration.

DEVIATION

None

REFERENCES

NUMARC NESP-007, RC2

EOP-TRIP-1

EOP-FRCE-1

EOP- Setpoint Doc (D.02)

OP-AB.RC-0001(Q)

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.2 RCS LEAK RATE

3.2.2.b

IC Loss of RCS Barrier = 4 POINTS

EAL

Subcooling is 0 °F as a result of RCS leakage

MODE - 1, 2, 3, 4

BASIS

This EAL attempts to classify a "Loss" of the RCS Barrier due to LOCA conditions. Non-RCS leakage events (such as steam/feedwater system breaks) where no mass is lost from the RCS should not be classified under this EAL. Subcooling equal to 0 °F is indication that leakage from the RCS boundary is greater than the available inventory control capacity. The loss of subcooling signifies that the inventory control systems are inadequate to maintain RCS pressure and inventory against the mass loss through the leak.

Loss of subcooling due to, or as a result of, EOP directed operator actions do not require classification under this EAL.

Barrier Analysis

RCS Barrier has been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Status Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab

EAL - 3.2.2.b
Rev. 00

to the ECG. The intent of using CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the control room.

The EAL threshold of 0 °F is reached by CFST Core Cooling YELLOW or Continuous Action Summary (CAS) monitoring. It is not intended to use this EAL for Primary to Secondary leakage events since adequate injection capability should exist for all ranges of these events including Steam Generator Tube Rupture (SGTR).

EOP directed actions resulting in deliberate subcooling reduction (e.g. during SGTR saturated recovery), steam/feedwater line breaks, or momentary reductions below 0°F that are recoverable (e.g. SI flow reduction sequence) should not be classified under this EAL.

DEVIATION

None

REFERENCES

NUMARC NESP-007, RC2
EOP-CFST-1
EOP-TRIP-1
EOP-Setpoint Doc (R.01)

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.3 STEAM GENERATOR TUBE RUPTURE

3.2.3.a

IC Potential Loss of RCS Barrier = 3 POINTS

EAL

One Centrifugal Charging Pump CANNOT maintain PZR level > 17% (as a result of a SGTR)

AND

Control Room has determined that an SGTR has occurred

MODE - 1, 2, 3, 4

BASIS

This EAL is indicative of a Loss of RCS from a Steam Generator Tube Rupture (SGTR). Non-RCS leakage events (such as steam/feedwater system breaks) where no mass is lost from the RCS should not be classified under this EAL. The threshold values for determining a SGTR are those used in the EOP network. Inability to maintain Pressurizer (PZR) Level with a normal charging lineup is indicative of a SGTR that would require initiation of SI and entry into EOP-TRIP-1.

Barrier Analysis

RCS Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

It is understood that this EAL is redundant to the RCS leakage EAL. Inclusion of this EAL ensures that significant SG tube leakage will be classified consistent with RCS leakage. Known SG tube leakage will result in implementation of OP-AB.SG-0001(Q). Actions required by this

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procedure may result in a manual Safety Injection initiation and entry into the EOP network. This EAL assumes that any SGTR that results in significant RCS mass loss will result in at least an ALERT classification.

For Ruptured SGs that are also faulted, further evaluation of the Containment Barrier is required. For faults that occur inside of Containment, this "Potential Loss" EAL will serve as the correct classification as long as no Containment challenges occur. For faults which occur outside the Containment, the RCS SGTR "Loss" EAL must also be considered.

DEVIATION

None

REFERENCES

NUMARC NESP-007, RC3
EOP-SGTR-1
S1(2).OP-AB.SG-0001(Q)
EOP-Setpoint Doc (D.02)

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.3 STEAM GENERATOR TUBE RUPTURE

3.2.3.b

IC Loss of RCS Barrier = 4 POINTS

EAL

One Centrifugal Charging Pump CANNOT maintain PZR level >17% (as a result of a SGTR)

AND

Ruptured Steam Generator pressure is **dropping in an uncontrolled manner or completely depressurized**

AND

Prolonged, direct secondary leakage to the environment (e.g. steam breaks, feed breaks, stuck open safety or relief valves) NOTE: SEE 3.3.4.b

MODE - 1, 2, 3, 4

BASIS

This EAL is indicative of a loss of RCS inventory due to a Steam Generator Tube Rupture (SGTR) and the Ruptured SG is also Faulted outside Containment. The threshold values for determining that a SGTR exist are those used in the EOP network. This condition results in a prolonged, direct release of radioactive fission and activation products to the environment.

This EAL does not include SG depressurization events that are a direct result of EOP directed operator action. The term "**dropping in an uncontrolled manner**" is defined consistent with the EOP definition of a Faulted S/G. A "**prolonged**" release is defined as an unisolable rupture (steam breaks, feed breaks, stuck open safety or relief valves excluding minor valve leakage) of a steam or feed line outside of Containment, or a stuck open relief valve on the ruptured SG.

The term "**direct secondary leakage to the environment**" is intended to include all flowpaths of contaminated secondary coolant to the environment either directly or via systems which exhaust to the Plant Vent (e.g., leakage to the Auxiliary Building ventilation system) with the following

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exception: If the EOPs require steaming the ruptured SG to the main condenser, the condenser off-gas (R15) pathway is excluded from this EAL provided the release is both controlled and monitored.

Barrier Analysis

RCS and Containment Barriers have been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of the Fuel Clad Barrier per EAL Section 3.1.

DISCUSSION

This "Loss" EAL addresses Ruptured SGs with an unisolable fault outside of Containment. This EAL is used in conjunction with the Containment Barrier Bypass "Loss" EAL and will always result in a loss of the Containment Barrier. Ruptured SGs that are faulted inside the Containment are excluded from this EAL. This EAL excludes classification based on a depressurization that results from an EOP induced cooldown of the RCS that does not involve prolonged release of contaminated secondary coolant from the affected SG to the environment. Releases which reach the environment via the Plant Vent should also be classified under this EAL.

DEVIATIONS

None

REFERENCES

NUMARC NESP-007, RC3
EOP-SGTR-1
S1(2).OP-AB.SG-0001(Q)
EOP-Setpoint Doc (D.02)

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.4 CONTAINMENT RADIATION LEVELS

IC Loss of RCS Barrier = 4 POINTS

EAL

Valid Containment Radiation level which exceeds ANY one of the following Containment Rad Monitor values:

- R2 > 1 R/hr
- R44A > 10 R/hr
- R44B > 10 R/hr

MODE - 1, 2, 3, 4

BASIS

A reading of >1 R/hr on 130' Containment Area Rad Monitor R2 is the preferred method of classification under this EAL. The measurement scales on R2 range from 0.1 mR/hr to 10 R/hr thus providing reasonable accuracy for this threshold value.

The term "**valid**" was added specifically for the Containment High Range R44 detectors as they are log scale detectors scaled only in R/hr and are extremely inaccurate at this low value. This reading is less than that specified for the loss of Fuel Clad Barrier since this EAL attempts to identify RCS leakage assuming RCS activity at the Technical Specification limit.

Classification under this EAL should not be made based upon crud burst evolutions or other non-RCS leakage events.

Barrier Analysis

RCS Barrier has been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the loss or potential loss of additional barriers per EAL Section 3.0.

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DISCUSSION

The R44A/B detectors were included in this EAL to ensure that classification of an RCS "loss" would occur for events which result in significant R/hr readings on these high range detectors which "over scale" the R2 detector. It is understood that these detectors are incapable of accurately reading 1 R/hr due to their log function (with 1 R/hr being the setpoint for coming "off the lower peg"). Therefore the EAL threshold value for these monitors has been increased to 10 R/hr which corresponds to the upper range of the R2 monitor.

The threshold value of 1 R/hr for the R2 monitor was calculated assuming an instantaneous release of the Reactor Coolant volume into the Primary Containment at a coolant concentration of 1.0 $\mu\text{Ci/gm}$ Dose Equivalent I-131 (Technical Specification limit). This calculation was prepared by the Nuclear Fuels Group and is on file with Emergency Preparedness under file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification" dated 1/26/95. This RAD monitor value is to be used as a backup indication to other systems designed to measure RCS leakage.

DEVIATION

None

REFERENCES

NUMARC NESP-007, RC4

Calculation by Nuclear Fuels Group file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification" dated 1/26/95.

3.0 Fission Product Barriers

3.2 RCS Barrier

3.2.5 EMERGENCY COORDINATOR JUDGMENT

3.2.5.a/ 3.2.5.b

IC Potential Loss (= 3 POINTS) or Loss of RCS Barrier (= 4 POINTS)

EAL

ANY condition, in the opinion of the EC, that indicates EITHER
a Potential Loss OR Loss of the RCS Barrier

MODE - 1, 2, 3, 4

BASIS

This EAL allows the Emergency Coordinator (EC) to address any factor not otherwise covered in the Fission Product Barrier Table to determine that the RCS barrier has been lost or potentially lost. A complete loss in the ability to monitor the RCS barrier should be considered a "Potential Loss" of that barrier.

Barrier Analysis

The RCS Barrier has been potentially lost or lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

None

DEVIATION

None

REFERENCES

NUMARC NESP-007, RC6

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.1 CRITICAL SAFETY FUNCTION STATUS

3.3.1.a

IC Potential Loss of Containment Barrier = 1 POINT

EAL

CNTMT ENVIRONMENT RED PATH

MODE - 1, 2, 3, 4

BASIS

Containment Environment RED Path, as verified by EOP-CFST-1, results from RCS barrier loss or a faulted S/G inside Containment and signifies that breach of the Primary Containment is imminent. For this condition, all Containment isolations, as well as automatic Containment Spray and CFCU "low speed" operation should be initiated before this threshold is reached.

Barrier Analysis

Containment Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

Although the yield strength of the Primary Containment may be much higher than 47 psig, for the purposes of event classification, the barrier is considered potentially lost at that value. Thus, this

EAL is primarily a discriminator between a Site Area Emergency and a General Emergency, representing a potential loss of the third barrier.

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC1

EOP-CFST-1

EOP-TRIP-1

EOP-FRCE-1

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.1 CRITICAL SAFETY FUNCTION STATUS

3.3.1.b

IC Potential Loss of Containment Barrier = 1 POINT

EAL

CORE COOLING RED PATH for > 15 minutes

MODE - 1, 2, 3; 4

BASIS

Core Cooling RED Path, as verified by EOP-CFST-1, represents an imminent melt sequence which if not corrected could lead to Reactor Vessel failure and potential for Containment failure. The 15 minutes is used as a threshold for indicating that operator actions have not been effective in restoring core cooling.

Barrier Analysis

Fuel Clad Barrier has been lost, RCS and the Containment Barriers have been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the loss of an additional barrier per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using confirmed CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room.

Severe accident analysis has concluded that functional restoration procedures can arrest core degradation within the Reactor Vessel in a significant fraction of the scenarios, and that the

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likelihood of Containment failure in these scenarios is small. It is appropriate, therefore, to allow a reasonable period of time for the functional restoration procedures to arrest the core melt sequence. It should be apparent within 15 minutes if the procedures will be effective. The Emergency Coordinator should make the classification as soon as it is determined that the procedures have been, or will be, ineffective.

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC6
EOP-CFST-1
EOP-TRIP-1

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.2 CONTAINMENT PRESSURE

3.3.2.a

IC Potential Loss of Containment Barrier = 1 POINT

EAL

Containment H ₂ > 4 %

MODE - 1, 2, 3, 4

BASIS

Hydrogen gas can be present in the Containment at the threshold level only as a result of an inadequate core cooling accident, substantial zirc-water reaction, and a breach of the RCS. Containment H₂ level above 4% signifies that an explosive mixture may exist.

Barrier Analysis

Containment Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

A 4% mixture of H₂ with normal Containment atmosphere represents the deflagration lower limit. Any subsequent ignition and burn of this level mixture releases a substantial amount of energy that must be absorbed by the Containment structure, which is already under stress due to the Loss of the RCS Barrier.

DEVIATION

None

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REFERENCES

NUMARC, NESP-007, PC2
EOP-TRIP-1
EOP-FRCE-1
EOP-Setpoint Doc (T.18)

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.2 CONTAINMENT PRESSURE

3.3.2.b

IC Potential Loss of Containment Barrier = 1 POINT

EAL

CNTMT Press. > 15 psig with EITHER one of the following:

- No CNTMT Spray AND < 5 CFCUs Running in "Low Speed"
- One CNTMT Spray Train I/S AND < 3 CFCUs Running in "Low Speed"

MODE - 1, 2, 3, 4

BASIS

Containment (CNTMT) pressure increase to > 15 psig (the CNTMT Spray initiation setpoint) indicates a major release of energy to the Containment. Failure of ALL Containment Spray with <5 Containment Fan Coil Units (CFCUs) running in "low speed", or only one train of Containment Spray in service with <3 CFCUs running in "low speed", indicates a condition where systems designed for containment heat removal and depressurization do not have the capacity to maintain Containment pressure below the structural design limit. The threshold value for available Containment Depressurization and Cooling Systems is based upon system design basis for maintaining Containment integrity.

Barrier Analysis

Containment Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

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The CFCUs and the Containment Spray system are redundant to each other in providing post accident cooling of the Containment atmosphere. With less than the minimum combination of sub-systems stated in the EAL threshold value, the ability to remove energy from the Containment atmosphere is severely impaired. Containment pressure >15 psig with a loss of Containment Cooling and Depressurization systems represents a potential loss of the Containment barrier.

DEVIATION

None

REFERENCES

NUMARC, NESP-007, PC2
EOP-TRIP-1
EOP-FRCE-1
EOP-Setpoint Doc (T.02)
Technical Specification Section 3.6.2

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.2 CONTAINMENT PRESSURE

3.3.2.c

IC Loss of Containment Barrier = 2 POINTS

EAL

A Rapid Unexplained Containment Pressure Drop following an initial Rise to > 4 psig

MODE - 1, 2, 3, 4

BASIS

Containment pressure increase to > 4 psig (the containment pressure Safety Injection initiation setpoint) indicates a major release of energy to the Containment. These releases can only be provided by a large release of either primary or secondary coolant into the Containment. For the cases that primary coolant provides the source of energy, a loss of the RCS barrier has also occurred. A rapid unexplained loss of Containment pressure following an initial pressure rise indicates a loss of Containment integrity.

Unexplained means that the pressure **drop** is not as a result of operator actions taken to reduce Containment pressure. The term **rapid** was added as an attempt to quantify the size of the Containment breach.

Emergency Coordinator judgment should be used to determine if this EAL applies for rapid, unexplained Containment pressure drops following initial rises to less than the 4 psig threshold.

Barrier Analysis

Containment Barrier has been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

EAL - 3.3.2.c

Rev. 00

DISCUSSION

The threshold value of 4 psig was selected to be consistent with the Safety Injection and Adverse Containment criteria. For those cases where secondary coolant provides the source of energy, a faulted Steam Generator is possible. This requires actions in EOP-LOSC-1 to isolate the Main Steam lines to maintain intact Steam Generators for an RCS Heat Sink, minimize Containment Pressure, and to minimize RCS cooldown.

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC2
EOP-TRIP-1
EOP-LOSC-1
Technical Specification Table 3.3-4

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.3 CONTAINMENT ISOLATION

3.3.3.a

IC Potential Loss of Containment Barrier = 1 POINT

EAL

CNTMT Sump Level > 78% (75% adverse)

MODE - 1, 2, 3, 4

BASIS

The Containment (CNTMT) Sump threshold of 78% (75% adverse) is based upon containment flooding concerns, and is consistent with the CFST level requiring implementation of EOP-FRCE-2. An indicated level greater than this value indicates that water has been introduced into the Containment from other sources. Potential flooding of critical system components and instrumentation required for responding to an accident or performing an orderly shutdown may be affected. Thus the Containment and associated systems may not be capable of performing their function as a fission product barrier.

Barrier Analysis

Containment Barrier has been potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring are integrated into this EAL. The CFSTs are contained as a tab to the ECG. The intent of using CFST status in this EAL is to simplify the identification of the EAL threshold criteria monitored in the Control Room. The EAL threshold of >78% (75% adverse) CNTMT sump level is consistent with the CFST criteria.

EAL - 3.3.3.a

Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC7
EOP-TRIP-1
EOP-FRCE-1
EOP-FRCE-2
EOP-Setpoint Doc (T.07, T.08)

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.3 CONTAINMENT ISOLATION

3.3.3.b

IC Loss of Containment Barrier = 2 POINTS

EAL

Valid CNTMT ϕA , ϕB or CNTMT Vent Isol Signal

AND

Flow path from CNTMT to the environment

MODE - 1, 2, 3, 4

BASIS

A **valid** Containment (CNTMT) Isolation Signal represents a situation that requires closure of selected Containment Isolation valves to maintain containment integrity under abnormal conditions. The lines required to be isolated under these conditions connect potentially contaminated systems or Containment volume with systems outside the Containment.

Classification under this EAL is not required if manual closure attempts from Control Room are successful in the event that the automatic isolation signal fails. The term "**valid**" is defined as an actual condition which requires a CNTMT isolation due to instrumentation setpoints being exceeded and was included to exclude those conditions where Containment Isolation is not required, but has somehow resulted in a violation of CNTMT integrity.

The term "**to the environment**" is intended to include ANY flow path to the environment either directly or via systems which exhaust to the Plant Vent (e.g.; leakage to the Auxiliary Building ventilation system).

Barrier Analysis

Containment Barrier has been lost.

EAL - 3.3.3.b

Rev. 00

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

Technical Specification 3.6.3 "Containment Isolation Valves" was used to determine the signals required for Containment isolation. Any reference to Main Steam Isolation or Steam Generator Blowdown Isolation is covered under the Containment Bypass "potential loss" EAL.

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC3
EOP-TRIP-1
OP-AR.ZZ-0003(Q)
SGS Technical Specifications

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.4 RCS LINE BREAK/CONTAINMENT BYPASS

3.3.4.a

IC Potential Loss of Containment Barrier = 1 POINT

EAL

Unisolable, Faulted Steam Generator OUTSIDE of Containment as indicated by S/G pressure dropping in an uncontrolled manner or completely depressurized

AND

Affected S/G tubes are intact

MODE - 1, 2, 3, 4

BASIS

S/Gs which have unisolable faults outside of the Containment will require feed isolation and secondary side dryout in order to stop the resultant excessive RCS cooldown rate. This subsequent dryout will result in significant thermal stress and differential pressures across the tube sheet and greater risk of a SGTR on an already faulted S/G. As such, this event is considered to be a precursor to a more serious event and will lead to at least an Unusual Event classification.

This EAL excludes S/G depressurization events that are a direct result of EOP directed operator action. The term "**dropping in an uncontrolled manner or completely depressurized**" is defined consistent with the EOP definition of a Faulted S/G. "**Unisolable**" is defined as a condition where manual isolation is not possible such as a pipe rupture with no accessible isolation valves, a stuck open safety or relief valve, etc. (excluding minor valve leakage).

Barrier Analysis

Containment Barrier has been potentially lost.

ESCALATION CRITERIA

EAL - 3.3.4.a

Rev. 00

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

This EAL was added to the Fission Product Barrier Table 3.0 as a Containment Bypass "Potential Loss" to ensure that all unisolable steam or feedwater break events, where the fault is outside of the Containment, are at least classified as an Unusual Event. The "potential loss" category (1 point) was selected to ensure that further challenges to other Fission Product Barriers result in Emergency Classifications consistent with current philosophy.

The Containment Barrier section was selected since Technical Specifications Section 3.6.3 "Containment Isolation Valves" require both Main Steam Isolation and Steam Generator Blowdown Isolation. The Containment Bypass sub-section was selected based upon the leakage being non-radioactive steam or feedwater with concerns for RCS integrity appropriately classified under the RCS Barrier section. An NRC inspection at Calvert Cliffs Nuclear Plant resulted in the addition of this EAL.

DEVIATION

This EAL was added as a Potential Loss of Containment due to the Containment Bypass concern discussed in HU5 "Uncontrolled RCS cooldown due to Secondary Depressurization". A review of NRC Inspection Report Nos. 50-317/94-27; 50-318/94-27 for the Calvert Cliffs Nuclear Power Plant indicated that an unisolable, faulted S/G outside of containment represents at least a UE Classification. Technical Specification 3.6.3 for Containment Isolation Valves require OPERABLE Main Steam Isolation valves MS7s and MS18s. The Main Steam Isolation Valves (MS167s) also receive a MSL Isolation Signal but are covered under their own Tech. Spec 3.7.1.5. Therefore, failure of any Main Steam Isolation valve to close upon demand represents a potential loss of Containment integrity and was included in the Fission Product Barrier Table in order to properly classify events in conjunction with the RCS and Fuel Clad Barriers.

REFERENCES

NUMARC NESP-007, PC7
NRC Inspection Report 50-317/94-27
EOP-TRIP-1
EOP-LOSC-1
OP-AB.STM-0001(Q)

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.4 RCS LINE BREAK/CONTAINMENT BYPASS

3.3.4.b

IC Loss of Containment Barrier = 2 POINTS

EAL

Primary to Secondary Leakage > Tech Spec Limits

AND

Prolonged, direct secondary leakage to the environment

MODE - 1, 2, 3, 4

BASIS

Primary to Secondary leakage greater than Technical Specifications along with indication of prolonged secondary side leakage outside the Containment indicates a Steam Generator (S/G) tube leak that is discharging directly to the environment. "Prolonged" is defined as an unisolable rupture (excluding minor valve leakage) of a steam or feed line outside of Containment, or a stuck open safety or relief valve on a secondary system connected to the steam side of the leaking S/G.

The term "**direct secondary leakage to the environment**" is intended to include all flow paths of contaminated secondary coolant to the environment either directly or via systems which exhaust to the Plant Vent (e.g.; leakage to the Auxiliary Building ventilation system) with the following exception: If the procedure in effect requires steaming the leaking S/G to the main condenser, the Condenser Air Ejector (R15) pathway is excluded from this EAL provided the release is both controlled and monitored.

For Steam Generator Tube Rupture (SGTR), this EAL is used in conjunction with the RCS Barrier SGTR EALs to ensure proper classification if the Ruptured S/G is also faulted outside of Containment.

Barrier Analysis

Containment Barrier has been lost.

EAL - 3.3.4.b
Rev. 00

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of additional barriers per EAL Section 3.0.

DISCUSSION

The primary intent of this EAL is to ensure, in conjunction with the RCS Barrier "Loss" SGTR EAL, that Ruptured S/Gs that are also faulted outside of Containment, are classified as at least a Site Area Emergency. The threshold for establishing the bypass of Containment was intended to be a prolonged release of radioactivity from the Ruptured S/G directly to the environment.

The secondary purpose of this EAL is to classify S/G tube leak events which exceed Technical Specification limits, but do not exceed the RCS Barrier SGTR thresholds. If a prolonged release occurs from a S/G during a leak, only an Unusual Event would be declared based on the "Loss" of the containment barrier.

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC4

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.4 RCS LINE BREAK/CONTAINMENT BYPASS

3.3.4.c

IC Loss of Containment Barrier = 2 POINTS

EAL

LOCA conditions

AND

CNTMT Press. OR Sump Level NOT rising as expected

MODE - 1, 2, 3, 4

BASIS

The threshold conditions require that a Loss of Coolant Accident (LOCA) is known to be occurring. Such events are accompanied by release of energy and inventory from the RCS to the Containment (CNTMT), and should result in pressure and sump level rise in the Containment. Failure of CNTMT Pressure or Sump Level indications to rise as expected following a known LOCA is an indication of a Containment Bypass situation.

Barrier Analysis

Containment and RCS Barriers have been lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the potential loss or loss of the Fuel Clad Barrier per EAL Section 3.1.

DISCUSSION

A LOCA is expected to result in CNTMT pressure rise to > 4 psig. This leak rate should result in the accumulation of RCS inventory in the CNTMT Sump as well as a CNTMT SUMP PMP

EAL - 3.3.4.c
Rev. 00

START OHA as the level rises. A lack of expected CNTMT Sump level response or CNTMT pressure not rising indicates that the Containment Barrier has been bypassed.

DEVIATION

None

REFERENCES

- NUMARC NESP-007, PC2
- EOP-TRIP-1
- EOP-LOCA-6, LOCA Outside Containment
- OP-AR.ZZ-0003(Q)

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.5 CONTAINMENT RADIATION LEVELS

IC Potential Loss of Containment Barrier = 1-POINT

EAL

R44A or R44B > 2000 R/hr

MODE - 1, 2, 3, 4

BASIS

A Containment High Range Monitor (R44) reading in excess of 2000 R/hr indicates significant Fuel Clad damage, well in excess of that corresponding to a loss of the RCS and Fuel Clad barriers. The value corresponds to a release of approximately 20% of the gap region. Regardless of whether Containment is challenged, this amount of activity in Containment, if released, could have severe consequences and it is prudent to treat this as a potential loss of the Containment Barrier.

Barrier Analysis

Containment Barrier has been potentially lost, the Fuel Clad and RCS Barriers have been lost.

ESCALATION CRITERIA

N/A

DISCUSSION

This calculation is based upon a calculation of 20% Clad Damage as it relates to R44 measured Dose Rate values. This calculation was prepared by the Nuclear Fuels Group and is on file with Emergency Preparedness under file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification" date 1/26/95.

DEVIATION

None

EAL - 3.3.5
Rev. 00

REFERENCES

NUMARC NESP-007, PC5

NUREG-1228 - Source Term Estimation During Incident Response to Severe Nuclear Power Plant Accidents

Calculation by Nuclear Fuels file title DS1.6-00XX "Verification of Emergency Action Levels for Event Classification

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.6 EMERGENCY COORDINATOR JUDGMENT

3.3.6.a/3.3.6.b

IC Potential Loss (= 1 POINT) or Loss of Containment Barrier (= 2 POINTS)

EAL

ANY condition, in the opinion of the EC, that indicates EITHER a Potential Loss OR Loss of the Containment Barrier

MODE - 1, 2, 3, 4

BASIS

This EAL allows the Emergency Coordinator (EC) to address any factor not otherwise covered in the Fission Product Barrier Table to determine that the Containment barrier has been lost or potentially lost. A complete loss in the ability to monitor the Containment barrier should be considered a "Potential Loss" of that barrier

Barrier Analysis

Containment Barrier has been lost or potentially lost.

ESCALATION CRITERIA

This event will be classified and/or escalated based on the loss or potential loss of additional barriers per EAL Section 3.0.

DISCUSSION

None

DEVIATION

None

REFERENCES

NUMARC NESP-007, PC8

4.0 EC Discretion

4.1 Emergency Coordinator Discretion

UNUSUAL EVENT - 4.1.1

IC Other Conditions Exist Which In the Judgment of the Emergency Coordinator Warrant Declaration of an Unusual Event

EAL

Events are in progress or have occurred which, in the judgment of the Emergency Coordinator, indicate a **Potential Degradation of Plant Safety**

MODE - All

BASIS

Emergency Coordinator (EC) judgment to declare an Unusual Event, based on the determination that the **Potential Degradation of Plant Safety** exists, should be implemented ONLY when conditions are not explicitly addressed elsewhere in the ECG. The phrase **Potential Degradation of Plant Safety** is intended to apply to those conditions that include a likely or actual breakdown of event mitigating actions or that hinder plant personnel from safely operating the plant.

The following examples are by no means all inclusive and are not intended to limit the discretion of the SNSS. Examples for consideration include the following:

- Inadequate emergency response procedures
- Failure or unavailability of emergency systems during an accident/transient condition
- Insufficient availability of equipment or support personnel to deal with the ongoing or anticipated events
- Aircraft crash on or near site
- Explosions near site (within Owner Controlled Area)

Barrier Analysis

Additional guidance on EC judgment for Fission Product Barriers is found on the Fission Product Barrier Table, Section 3.0.

ESCALATION CRITERIA

EAL - 4.1.1
Rev. 00

Emergency Coordinator Judgment

DISCUSSION

Dose consequences from an Unusual Event, if a Radiological Release is involved, would not require offsite response or field monitoring since any release at this level would be < 20 mRem TEDE. Refer to Section 6 of the ECG if a Radiological Release is ongoing.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.3, HU5, Section 3.7.

4.0 EC Discretion

4.1 Emergency Coordinator Discretion

ALERT - 4.1.2

IC Other Conditions Exist Which In the Judgment of the Emergency Coordinator Warrant Declaration of an Alert

EAL

Events are in progress or have occurred which, in the judgment of the Emergency Coordinator, indicate EITHER one of the following:

- Plant safety systems (**more than one**) are, or may be degraded
- ANY Plant Vital Structure is degraded or potentially degraded

AND

Increased monitoring of Safety Functions is warranted

MODE - All

BASIS

Emergency Coordinator (EC) judgment to declare an Alert, based on the determination that Plant Systems are, or may be degraded, should be implemented ONLY when conditions are not explicitly addressed elsewhere in the ECG. This includes a determination by the SNSS that hazards exist that have, or may have caused damage to **more than one** Safety System or to a Plant Vital Structure.

In addition, if plant conditions degrade to the point where increased monitoring of safety functions is warranted to better determine the plant's actual safety status, then an Alert classification may be appropriate.

Barrier Analysis

Additional guidance on EC judgment for Fission Product Barriers is found on the Fission Product Barrier Table, Section 3.0.

ESCALATION CRITERIA

Emergency Coordinator Judgment

EAL - 4.1.2
Rev. 00

DISCUSSION

Dose consequences for an Alert, if a Radiological Release was ongoing, would only be a small fraction of the EPA Protective Action Guideline (PAG) plume exposure level, i.e., 10 to 100 mRem TEDE. Refer to ECG Section 6 if a Radiological Release is ongoing.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA6, HA1.4, Section 3.7.
EPA-400

4.0 EC Discretion

4.1 Emergency Coordinator Discretion

SITE AREA EMERGENCY - 4.1.3

IC Other Conditions Exist Which In the Judgment of the Emergency Coordinator Warrant Declaration of a Site Area Emergency

EAL

Events are in progress or have occurred which, in the judgment of the Emergency Coordinator, indicate an Actual or likely major failure of plant functions needed for protection of the public

MODE - All

BASIS

Emergency Coordinator (EC) judgment to declare a Site Area Emergency, based on the determination that the potential exists for an uncontrolled radiological release or the source term available in the Containment atmosphere could result in Site Boundary dose rates in excess of 100 mRem/hr, should be implemented ONLY when conditions are not explicitly addressed elsewhere in the ECG.

In addition, any criteria that satisfies the definition of a Site Area Emergency in the ECG Introduction Section, also warrants declaration under this EAL. A Site Area Emergency is intended to be anticipatory of potential fission product barrier failure, and allows offsite agencies to commence preparation for emergency response.

Barrier Analysis

Additional guidance on EC judgment for Fission Product Barriers is found on the Fission Product Barrier Table, Section 3.

ESCALATION CRITERIA

Emergency Coordinator Judgment

DISCUSSION

Radiological release rates during a Site Area Emergency declaration are not expected to result in exposure levels which exceed the EPA Protective Action Guideline threshold values except within the Site Boundary. However, plume exposure levels of 100 to < 1000 mRem TEDE may be possible offsite and levels >1000 mRem TEDE could be experienced onsite. Refer to ECG Section 6 if a Radiological Release is ongoing.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HS3, Section 3.7.
EPA-400

4.0 EC Discretion

4.1 Emergency Coordinator Discretion

GENERAL EMERGENCY - 4.1.4

IC Other Conditions Exist Which In the Judgment of the Emergency Coordinator Warrant Declaration of a General Emergency

EAL

Events are in progress or have occurred which, in the judgment of the Emergency Coordinator, indicate an Actual or imminent substantial core degradation with the potential for loss of containment

MODE - All

BASIS

Emergency Coordinator (EC) judgment to declare a General Emergency, based on the determination that the potential for an uncontrolled Radiological Release exists, should be implemented ONLY when conditions are not explicitly addressed elsewhere in the ECG.

In addition, any criteria that satisfies the definition of a General Emergency in the ECG Introduction Section, also warrants declaration under this EAL. A General Emergency is intended to be anticipatory of fission product barrier failure, and permits maximum offsite intervention time.

Barrier Analysis

Additional guidance on EC judgment for Fission Product Barriers is found on the Fission Product Barrier Table, Section 3.0.

ESCALATION CRITERIA

N/A

DISCUSSION

Radiological release rates during a General Emergency may exceed the EPA Protective Action Guidelines, i.e., >1000 mRem TEDE, for more than the immediate site area. ECG Section 6, Radiological Releases/Occurrences should be consulted for releases of this magnitude.

EAL - 4.1.4
Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, HG2, Section 3.7.
EPA-400

5.0 Failure to Trip

5.1 ATWT

ALERT - 5.1.2.a/5.1.2.b

IC Failure of the RPS to Successfully Complete a Reactor Trip (Automatic or Manual)

EAL

EITHER one of the following conditions are met:

- Reactor Protection System Trip Setpoint Exceeded AND an Automatic Reactor Trip is NOT Confirmed
- ANY Manually Initiated Reactor Trip from the Control Room is NOT Confirmed

MODE - 1, 2, 3

BASIS

This condition indicates failure of the Reactor Protection System to trip the Reactor, either automatically or on manual demand. This condition is more than a potential degradation of a safety system in that a front line protection system did not function in response to a plant transient and thus the plant safety has been compromised, and design limits of the fuel or Reactor Vessel may have been exceeded. An Alert is indicated because conditions exist that could lead to a potential loss of the fuel clad or RCS barriers.

The term "**from the Control Room**" is defined as any action taken by the NCOs in the Control Room Area which results in a rapid insertion of Control Rods into the core. The term for expressing an unsuccessful trip as "**NOT confirmed**" is defined as listed in the EOP network. Confirmed Manual reactor trip is not considered successful if actions away from the Control Room Area (e.g. dispatch of an NEO to locally open the Reactor Trip Breakers) were required to trip the reactor.

ANY unsuccessful Manual attempt to trip the reactor will still be classified under this EAL regardless of the success of additional manual attempts. Any single manual attempt failure will constitute a major breakdown of a system designed to directly protect the health and safety of the General Public.

EAL - 5.1.2.a/5.1.2.b

Rev. 00

Barrier Analysis

This event does not reach the threshold for the loss of Fuel Clad or RCS Barriers, but conditions exist that could lead to a potential loss of those barriers.

ESCALATION CRITERIA

For the case in which the manual trip from the control room is not successful with Reactor Power $\geq 5\%$, this event would be escalated to a Site Area Emergency.

DISCUSSION

Entry into EOP-FRSM-1 may be required if the manual Reactor Trip from the console "Trip Handle" or P-9 is not successful. Additional control console actions taken in EOP-TRIP-1, such as opening the Reactor Trip or opening 2E6D or 2G6D breakers to deenergize the Rod Drive MG Sets, would constitute a successful manual reactor trip from the Control Room. Manual trip is any action by the reactor operator at the controls which causes the control rods to be rapidly inserted into the core and bring the reactor subcritical.

The threshold value of 5% reactor power for escalation criteria was selected to be consistent with EOP-FRSM-1 entry criteria. Under these low power conditions, the reactor is providing less heat than the maximum decay heat load for which the safety systems are designed.

DEVIATION

NUMARC EAL SA2 suggests that an Alert classification be based on an automatic RPS trip failure followed by a successful manual trip from the control room, with EAL SS2 escalating to a Site Area Emergency if the manual trip fails. In addition, EAL SS2 basis indicates that the SAE threshold should be such that following the automatic and manual trip failure, the reactor is producing more heat than the maximum for which the safety systems were designed. The EOPs indicate that this heat load is $\geq 5\%$.

The Salem Alert threshold was chosen so that unsuccessful manually initiated RPS trips from the control room, as well as unsuccessful automatically initiated trips via RPS would be classified at the Alert level. This will cover those situations which require a manual reactor trip under conditions where an automatic trip signal may not have been generated. In either case, failure of RPS to perform its intended function when demanded is indicated.

The Salem SAE threshold was chosen to include either automatic or manual failure (for the reasons stated above), with resulting power $\geq 5\%$ as suggested in NUMARC EAL SS2 bases.

By defining an unsuccessful trip as Reactor Trip NOT confirmed (as defined in the EOP network), partial trips that result in power levels $< 5\%$ would be classified as an Alert, whether automatically or manually initiated.

REFERENCES

NUMARC NESP-007, SA2
EOP-TRIP-1, Reactor Trip or Safety Injection
EOP-CFST-1, Critical Safety Function Trees

5.0 Failure to Trip

5.1 ATWT

SITE AREA EMERGENCY - 5.1.3

IC Failure of the RPS to Successfully Complete a Reactor Trip (Automatic or Manual) and Reactor Power is Above 5%

EAL

EITHER one of the following conditions are met:

- Reactor Protection System Trip Setpoint Exceeded AND an Automatic Reactor Trip is NOT Confirmed
- ANY Manually Initiated Reactor Trip from the Control Room is NOT Confirmed

AND

ALL Reactor Trip attempts from the Control Room DID NOT reduce (and maintain) Reactor Power to < 5%

MODE - 1, 2

BASIS

Failure to trip events should not be classified under this EAL before manual trips have been attempted. Automatic and manual trips are not considered successful if action away from the reactor control console were required to trip the reactor. Under these conditions, the reactor is producing more heat than the maximum decay heat load for which the safety systems are designed. A Site Area Emergency is indicated because conditions exist that could lead to imminent loss or potential loss of both the fuel clad and RCS barriers.

The term "**from the Control Room**" is defined as any action taken by the NCOs in the Control Room Area which result a rapid insertion of Control Rods into the core. The term "**reduce (and maintain)**" was included to ensure that return to power events are still classified under this EAL. Although this EAL may be viewed as redundant to the Fission Product Barrier Table EALs, its inclusion is necessary to better assure timely recognition and emergency response.

Barrier Analysis

This event does not reach the threshold for the loss of Fuel Clad or RCS Barriers, but conditions exist that could lead to a potential (perhaps imminent) loss of those barriers.

ESCALATION CRITERIA

For the case in which an adequate heat sink is not available, this event would be escalated to a General Emergency per EAL Section 5.1.4.

DISCUSSION

Entry into EOP-FRSM-1 will be required if the manual trip from the console "trip handle" or P-9 is not successful. EOP-FRSM-1 requires an Equipment Operator to locally open the Reactor Trip Breakers and trip the Rod Drive MG Sets. Since this action is outside the control room, a successful remote Reactor Trip will require classification under this EAL. The threshold value of 5% reactor power was selected to be consistent with CFST EOP-FRSM-1 entry criteria. For events which result in a return to > 5% reactor power from some lower value, classification under this EAL would be required.

DEVIATION

NUMARC EAL SA2 suggests that an Alert classification be based on an automatic RPS trip failure followed by a successful manual trip from the control room, with EAL SS2 escalating to a Site Area Emergency if the manual trip fails. In addition, EAL SS2 basis indicates that the SAE threshold should be such that following the automatic and manual trip failure, the reactor is producing more heat than the maximum for which the safety systems were designed. The EOPs indicate that this heat load is >5%.

The Salem Alert threshold was chosen so that unsuccessful manually initiated RPS trips from the control room, as well as unsuccessful automatically initiated trips via RPS would be classified at the Alert level. This will cover those situations which require a manual reactor trip under conditions where an automatic trip signal may not have been generated. In either case, failure of RPS to perform its intended function when demanded is indicated.

The Salem SAE threshold was chosen to include either automatic or manual failure (for the reasons stated above), with resulting power $\geq 5\%$ as suggested in NUMARC EAL SS2 bases.

By defining an unsuccessful trip as Reactor Trip NOT confirmed (as defined in the EOP network), partial trips that result in power levels < 5% would be classified as an Alert, whether automatically or manually initiated.

REFERENCES

NUMARC NESP-007, SS2

EOP-TRIP-1, Reactor Trip or Safety Injection

EOP-CFST-1, Critical Safety Function Trees

5.0 Failure to Trip

5.1 ATWT

GENERAL EMERGENCY - 5.1.4

IC Failure of the RPS to Complete an Automatic Trip and Manual Trip was Not successful and There is Indication of an Extreme Challenge to the Ability to Cool the Core

EAL

EITHER one of the following conditions are met:

- Reactor Protection System Trip Setpoint Exceeded AND an Automatic Reactor Trip is NOT Confirmed
- ANY Manually Initiated Reactor Trip from the Control Room is NOT Confirmed

AND

ALL Reactor Trip attempts from the Control Room DID NOT reduce (and maintain) Reactor Power to < 5%

AND

EITHER one of the following conditions exist:

- **CORE COOLING RED PATH**
- **HEAT SINK RED PATH**

MODE - 1, 2

BASIS

Automatic or manual trips are not considered successful if actions away from the reactor control console were required to trip the reactor. These conditions indicate a fundamental failure of the automatic and manual trip protection of the Reactor Protection System, and are indicative of heat generation significantly greater than the Heat Removal capabilities. The potential for rapid core degradation exists. The General Emergency declaration is intended to be anticipatory of fission product barrier failure and permits maximum offsite intervention time.

EAL - 5.1.4
Rev. 00

Barrier Analysis

If threshold for this EAL is met, Table 3.0 Fission Product Barriers for Loss of the Fuel Clad (Core Cooling RED) and/or Potential Loss of the RCS (Heat Sink RED) Barriers may have been exceeded.

ESCALATION CRITERIA

N/A

DISCUSSION

Entry into EOP-FRSM-1 will be required if the manual trip from the console "trip handle" or P-9 is not successful. EOP-FRSM-1 requires an Equipment Operator to locally open the Reactor Trip Breakers and trip the Rod Drive MG Sets. Since this action is outside the control room, a successful remote Reactor Trip will require classification under this EAL. The threshold value of 5% reactor power was selected to be consistent with CFST EOP-FRSM-1 entry criteria. For events which result in a return to > 5% reactor power from some lower value, classification under this EAL would be required.

If actions taken in EOP-FRSM-1 are ineffective, further CFST monitoring is utilized to determine when the additional thresholds are exceeded. Further degradation is indicated by the occurrence of valid CFST Core Cooling RED, or Heat Sink RED. These conditions are indicative of a loss or potential loss of the heat sink for core cooling.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SG2
EOP-TRIP-1, Reactor Trip or Safety Injection
EOP-CFST-1, Critical Safety Function Trees
EOP-FRSM-1, Response to Nuclear Power Generation
EOP-FRHS-1, Loss of Secondary Heat Sink

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

UNUSUAL EVENT - 6.1.1.a

IC Any Unplanned Release of Gaseous Radioactivity to the Environment that Exceeds 2 Times the Radiological Technical Specifications for 60 minutes or longer

EAL

Dose Assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose of $\geq 2.0E-01$ mRem
- Thyroid-CDE Dose of $\geq 6.8E-01$ mRem based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

AND

Release is ongoing for ≥ 60 minutes

MODE - All

BASIS

Dose Assessment at or beyond the MEA exceeding the EAL threshold, can result from a Gaseous Radiological Release in excess of 2 times Technical Specifications. This condition results from an uncontrolled release of radioactivity to the environment, resulting in elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within 60 minutes. The final integrated dose is very low and is not the primary concern. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

Dose Assessment using actual meteorological data provides an accurate indication of release magnitude. The use of dose assessment based EALs is therefore preferred over the use of Release Rate based EALs which utilize calculations which have built-in inaccuracies because ODCM default Meteorological data is used. As long as dose assessment is available, this EAL should be used in place of EAL 6.1.1.d.

EAL - 6.1.1.a
Rev. 00

It is not intended that the release be averaged over 60 minutes, but exceed 2 times the Technical Specification limit for 60 minutes or longer. In addition, it is intended that the event be declared as soon as it is determined that the release will exceed 2 times the limit for 60 minutes or longer.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert when the effluent release concentration increases to 200 times the Technical Specification limit.

DISCUSSION

Prorating the 500 mRem/yr criterion for the TEDE 4-day dose: time (8766 hr/yr); the 2 x Tech. Spec. multiplier; and, Artificial Island's Allocation Factor of 0.5 (50% per site), the associated site boundary dose rate would be 0.057 mRem/hr.

$$TEDE\ 4\text{-Day}\ MEA\ Dose\ Rate = \left(\frac{500\ mRem / yr}{8766\ hr / yr} \right) (2)(.5) = 0.057\ mRem/hr$$

This is rounded to .05 mRem/hr.

The TEDE 4-day Dose is based on a 4 hour release duration. Therefore .05 mRem/hr*4 hours = 0.2 mRem.

Prorating the 1500 mRem/yr criterion for the Thyroid-CDE Dose: time (8766 hr/yr); the 2 x Tech. Spec. multiplier; and, Artificial Island's Allocation Factor of 0.5 (50% per site), the associated site boundary dose rate would be 0.17 mRem/hr.

$$Thyroid\text{-CDE}\ MEA\ Dose\ Rate = \left(\frac{1500\ mRem / yr}{8766\ hr / yr} \right) (2)(.5) = 0.17\ mRem/hr$$

The Thyroid-CDE Dose is based on a 4 hour release duration. Therefore 0.17 mRem/hr*4 hours = 0.68 mRem.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AU1.4

Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents

NUMARC Draft White Paper, 7-25-94, 9-10-94

Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

UNUSUAL EVENT - 6.1.1.b

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that Exceeds 2 Times the Radiological Technical Specifications for 60 minutes or longer

EAL

Dose Rate measured at the Protected Area Boundary or beyond EXCEEDS
.05 mRem/hr above normal background

AND

Release is ongoing for ≥ 60 minutes

MODE - All

BASIS

Measured Dose Rate at or beyond the Protected Area Boundary exceeding the EAL threshold can result from a Gaseous Radiological Release in excess of 2 times Technical Specifications. This condition results from an uncontrolled release of radioactivity to the environment, resulting in elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within 60 minutes. The final integrated dose is very low and is not the primary concern. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

It is not intended that the release be averaged over 60 minutes, but exceed 2 times Tech. Spec. limits for 60 minutes or longer. Further, it is intended that the event be declared as soon as it is determined that the release will exceed 2 times the limit for 60 minutes or longer.

Barrier Analysis

N/A

EAL - 6.1.1.b
Rev. 00

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert when effluent release concentration increases to 200 times the Technical Specification limit.

DISCUSSION

Prorating the 500 mRem/yr criterion for: time (8766 hr/yr); the 2 x Tech. Spec. multiplier; and, Artificial Island's Allocation Factor of 0.5 (50% per site), the associated site boundary (MEA) dose rate would be 0.057 mRem/hr.

$$\text{Protected Area Boundary Dose Rate} = \left(\frac{500 \text{ mRem/yr}}{8766 \text{ hr/yr}} \right) (2)(.5) = 0.057 \text{ mRem/hr}$$

This is rounded to .05 mRem/hr

DEVIATION

None

REFERENCES

NUMARC NESP-007, AU1.3
Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents
NUMARC Draft White Paper, 7-25-94, 9-10-94.
Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

UNUSUAL EVENT - 6.1.1.c

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that Exceeds 2 Times the 10CFR20, Appendix B limits for 60 minutes or longer

EAL

Gaseous effluent release sample analysis on EITHER one of the following indicates a concentration of:

- $\geq 2.56E-03$ $\mu\text{Ci/cc}$ Total Noble Gas
- $\geq 3.71E-08$ $\mu\text{Ci/cc}$ I-131

AND

Dose Assessment results NOT available

AND

Release is ongoing for ≥ 60 minutes

MODE - All

BASIS

A sample analysis of the release from all vent paths in excess of 2 times 10CFR20, Appendix B limits that continues for 60 minutes or longer represent an uncontrolled situation and hence a potential degradation in the level of safety. The EAL thresholds are based on 2 times 10CFR20, Appendix B limits Noble Gas and Iodine release rates limits.

The final integrated dose is very low and is not the primary concern; rather it is the degradation in plant control implied by the fact that the release was not isolated within 60 minutes. It is not intended that the release be averaged over 1 hour, but exceed 2 times 10CFR20, Appendix B limit for 1 hour. Further, it is intended that the event be declared as soon as it is determined that the release will exceed 2 times the limit for greater than 1 hour. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeded the conditions on the applicable permit.

EAL - 6.1.1.c

Rev. 00

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert when the effluent release concentration increase to 200 times 10CFR20, Appendix B limit.

DISCUSSION

Refer to Basis Section for EAL 6.1.1.d for the 10CFR20, Appendix B Noble Gas release rate calculation.

10CFR20, Appendix B Thyroid Committed Dose release rate is calculated in the following manner:

$$\mu\text{Ci}/\text{sec} = \frac{50\text{mRem}/\text{year} * (\text{Allocation Factor})}{(\text{ODCM } \chi/Q) * (\text{ODCM THY DRCF})}$$

WHERE: $\mu\text{Ci}/\text{sec}$ = 10CFR20, Appendix B Thyroid Committed Dose Release Rate

50 mRem/year = 10CFR20, Appendix B thyroid Committed Dose limit

ODCM χ/Q = Salem specific dispersion factor at the Site Boundary in sec/m^3
($2.20\text{E}-06 \text{ sec}/\text{m}^3$)

ODCM DRCF THY = is the most limiting potential pathway
(inhalation, child, Thyroid I-131) dose rate conversion factor in
 $\text{mRem}/\text{year}/\mu\text{Ci}/\text{m}^3$ ($1.62\text{E}+07 \text{ mRem}/\text{year}/\mu\text{Ci}/\text{m}^3$)

Allocation Factor = $5.00\text{E}-01$

$$\mu\text{Ci}/\text{sec} = 50 \text{ mRem}/\text{year} * (5.00\text{E}-01) \\ (2.20\text{E}-06 \text{ sec}/\text{m}^3) * (1.62\text{E}+07 \text{ mRem}/\text{yr}/\mu\text{Ci}/\text{m}^3)$$

$$\mu\text{Ci}/\text{sec} = 7.01\text{E}-01$$

$$7.01\text{E}-01 \mu\text{Ci}/\text{sec} * 2 = 1.40 \mu\text{Ci}/\text{sec}$$

$1.40 \mu\text{Ci}/\text{sec}$ = 2 times the 10CFR20, Appendix B Release Rate for Thyroid Committed Dose

Calculation of the threshold sample concentrations are as follows:

$$\text{Noble Gas Sample Concentration} = \frac{9.68\text{E} + 04 \mu\text{Ci} / \text{sec}}{472 \times 80000 \text{ cfm}} = 2.56\text{E}-03 \mu\text{Ci}/\text{cc}$$

$$\text{I-131 Sample Concentration} = \frac{1.40\text{E} + 00 \mu\text{Ci} / \text{sec}}{472 \times 80000 \text{ cfm}} = 3.71\text{E}-08 \mu\text{Ci}/\text{cc}$$

Where: 472 = conversion factor (28,317 cc/ft³ x 1 min./60 sec.)
80000 cfm = Plant Vent Flow (normal)
The noble gas release rate of 9.68E+04 μ Ci/sec is obtained by multiplying the
10CFR20, Appendix B release rate of 4.84E+04 μ Ci/sec times 2.
The iodine release rate of 1.40E+00 μ Ci/sec is obtained by multiplying the
10CFR20, Appendix B release rate of 7.00E-01 μ Ci/sec times 2.

DEVIATION

The value for EAL 6.1.1.c is based on one meteorological case and one isotopic mixture found in the ODCM. A radiological release based on this specific release rate could produce a TEDE Dose which would require an Alert classification or not meet the Unusual Event classification, depending on the meteorological conditions and the isotopic mixture. EAL 6.1.1.c would not be used unless EAL 6.1.1.a (Dose Assessment) can not be used to determine the classification, if any, due to the potential of this "default" EAL.

Two times the 10CFR20, Appendix B limits for noble gas and Iodine 131 are being used for this EAL, due to concerns that the State of New Jersey have pertaining to this EAL and based on the above mentioned uncertainties.

REFERENCES

NUMARC NESP-007, AU1.2, AU1.1, AU1.4
Off-Site Dose Calculation Manual, Section 2.0
NUMARC Draft White Paper, 7/25/94; 9/10/94.
Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

UNUSUAL EVENT - 6.1.1.d

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that Exceeds 2 times the 10CFR20, Appendix B for 60 minutes or longer

EAL

<p>Valid Plant Vent Effluent Alarm</p> <p><u>AND</u></p> <p>Release Rate EXCEEDS $9.68E+04$ $\mu\text{Ci}/\text{sec}$ Total Noble Gas</p> <p><u>AND</u></p> <p>Dose Assessment results NOT available</p> <p><u>AND</u></p> <p>Release is ongoing for ≥ 60 minutes</p>

MODE - All

BASIS

Valid High alarm and effluent release rate values exceeding the EAL threshold, can result from a Gaseous Radiological Release in excess of 2 times 10CFR20, Appendix B limits. This condition results from an uncontrolled release of radioactivity to the environment, resulting in elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within 60 minutes. The final integrated dose is very low and is not the primary concern. **Valid** is defined as the High alarm actuating specifically due to a Gaseous Release exceeding 10 CFR 20, Appendix B limits, thus precluding unwarranted event declaration as the result of spurious actuation. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit

EAL - 6.1.1.d
Rev. 00

The EAL value for Total Plant Vent release rate was determined using default X/Q values from the ODCM which provides a less accurate method of evaluating release magnitude than using dose assessment with real time meteorological data. For that reason, this EAL should not be utilized if Dose Assessment is available. Dose Assessment will take in account actual meteorological conditions, plant vent flows and plant vent effluent concentrations to provide a more accurate assessment of a radiological release. If Dose Assessment is available, then refer to EAL 6.1.1.a for classification.

The Total Noble Gas monitored Release Rate can be obtained from SPDS or in accordance with S1.OP-AB.RAD-0001(Q) or S2.OP-AB.RAD-0001(Q) Abnormal Radiation.

It is not intended that the release be averaged over 60 minutes, but exceed 2 times 10 CFR20, Appendix B limits for 60 minutes or longer. In addition, it is intended that the event be declared as soon as it is determined that the release will exceed 2 times the limit for 60 minutes or longer.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will be escalate to an Alert when the effluent release concentration increases to 200 times the 10CFR20, Appendix B limits.

DISCUSSION

Release rate threshold for this EAL is obtained by multiplying the 10CFR20, Appendix B release rate for Noble Gas of 4.84E+04 µCi/sec times 2. This EAL does not include Iodine Release Rates, since the Plant Vent does not have an Iodine detector.

10CFR20, Appendix B Calculation for Noble Gas

$$\text{uCi/Second} = \frac{(100 \text{ mRem / year}) * (\text{Allocation Factor})}{(\text{ODCM X / Q}) * (\text{ODCM DRCF})}$$

WHERE: **uCi/Second** = Total Noble Gas Release Rate from Salem (Unit 1 & Unit 2) or Hope Creek (all Vents; NPV, SPV, FRVS, and HTV) which would result in a TEDE Dose Rate of 50 mRem/year.

ODCM X/Q = Site Specific (Salem or Hope Creek) dispersion factor at the Site Boundary in sec/m³.

ODCM DRCF = Site Specific (Salem or Hope Creek) dose rate conversion factor in mRem/year/uCi/m³.

ODCM X/Q = $2.20E-06 \text{ sec/m}^3$
 ODCM DRCF = $4.70E+02 \text{ mRem/yr/uCi/m}^3$
 Allocation Factor = $5.00E-01$

$$4.84E+04 \text{ uCi/Second} = \frac{(100 \text{ mRem / yr}) * (5.00E - 01)}{(2.20E - 06 \text{ sec/ m}^3) * (4.70E + 02 \text{ mRem / yr / } \mu\text{Ci / m}^3)}$$

$4.84E+04 \text{ uCi/Second} * 2 = \text{EAL value.}$

$9.68E+04 \mu\text{Ci/sec}$ is the EAL value.

DEVIATION

The value for EAL 6.1.1.d is based on one meteorological case and one isotopic mixture found in the ODCM. A radiological release based on this specific release rate could produce a TEDE Dose which would require an Alert classification or not meet the Unusual Event classification, depending on the meteorological conditions and the isotopic mixture. EAL 6.1.1.d would not be used unless EAL 6.1.1.a (Dose Assessment) can not be used to determine the classification, if any, due to the potential uncertainty of this "default" EAL.

Two times the 10CFR20, Appendix B limits for noble gas are being used for this EAL, due to concerns that the State of New Jersey have pertaining to this EAL and based on the above mentioned uncertainties.

REFERENCES

NUMARC NESP-007, AU1.1, AU1.4
 Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents
 NUMARC Draft White Paper, 7-25-94, 9-10-94.
 Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

ALERT - 6.1.2.a

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that exceeds 200 times Radiological Technical Specifications for 15 minutes or longer.

EAL

Dose Assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose $\geq 2.0E+01$ mRem
 - Thyroid-CDE Dose $\geq 6.8E+01$ mRem
- based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

AND

Release is ongoing for ≥ 15 minutes

MODE - All

BASIS

Dose Assessment at or beyond the MEA exceeding the EAL threshold, can result from a Gaseous Radiological Release in excess of 200 times Technical Specifications. This condition results from an uncontrolled release of radioactivity to the environment, resulting in significantly elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within 15 minutes. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

Dose Assessment using actual meteorological data provides an accurate indication of release magnitude. The use of dose assessment based EALs is therefore preferred over the use of Release Rate based EALs which utilize calculations which have built-in inaccuracies because ODCM default Meteorological data is used. As long as dose assessment is available, this EAL should be used in place of EAL 6.1.2.d.

EAL - 6.1.2.a
Rev. 00

It is not intended that the release be averaged over 15 minutes, but exceed 200 times the Technical Specification limit for 15 minutes or longer. In addition, it is intended that the event be declared as soon as it is determined that the release will exceed 200 times the limit for 15 minutes or longer.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will be escalated to a Site Area Emergency when the effluent release concentration increases to a level that would cause a 100 mRem dose at the Protective Area boundary.

DISCUSSION

Prorating the 500 mRem/yr criterion for the TEDE 4-day dose: time (8766 hr/yr); the 200 x Tech. Spec. multiplier; and, Artificial Island's Allocation Factor of 0.5 (50% per site), the associated site boundary dose rate would be 5.7 mRem/hr.

$$\text{TEDE 4-Day MEA Dose Rate} = \left(\frac{500 \text{ mRem / yr}}{8766 \text{ hr / yr}} \right) (200)(.5) = 5.7 \text{ mRem/hr}$$

This is rounded to 5.0 mRem/hr.

The TEDE 4-day Dose is based on a default (assumed) 4 hour release duration. Therefore 5.0 mRem/hr x 4 hours = **20 mRem**.

Prorating the 1500 mRem/yr criterion for the Thyroid-CDE Dose: time (8766 hr/yr); the 200 x Tech. Spec. multiplier; and, Artificial Island's Allocation Factor of 0.5 (50% per site), the associated site boundary dose rate would be 17 mRem/hr.

$$\text{Thyroid-CDE MEA Dose Rate} = \left(\frac{1500 \text{ mRem / yr}}{8766 \text{ hr / yr}} \right) (200)(.5) = 17 \text{ mRem/hr}$$

The Thyroid-CDE Dose is based on a 4 hour release duration. Therefore 17 mRem/hr x 4 hours = **68 mRem**.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA1.4
Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents
NUMARC Draft White Paper, 7/25/94; 9/10/94
Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

ALERT - 6.1.2.b

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that exceeds 200 times Radiological Technical Specifications for 15 minutes or longer

EAL

Dose Rate measured at the Protected Area Boundary or beyond EXCEEDS 5 mRem/hr

AND

Release is ongoing for ≥ 15 minutes

MODE - All

BASIS

Measured Dose Rates at or beyond the MEA exceeding the EAL threshold, can result from a Gaseous Radiological Release in excess of 200 times Technical Specifications. This condition results from an uncontrolled release of radioactivity to the environment, resulting in significantly elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within 15 minutes. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

It is not intended that the release be averaged over 15 minutes, but exceed 200 times the Technical Specification limit for 15 minutes or longer. In addition, it is intended that the event be declared as soon as it is determined that the release will exceed 200 times the limit for 15 minutes or longer.

Barrier Analysis

N/A

EAL - 6.1.2.b
Rev. 00

ESCALATION CRITERIA

Emergency Classification will escalate to a Site Area Emergency when effluent release concentration increases to a level that would cause a 100 mRem dose at the Protected Area Boundary

DISCUSSION

Prorating the 500 mRem/yr criterion for: time (8766 hr/yr); the 200 x Tech. Spec. multiplier; and, Artificial Island's Allocation Factor of 0.5 (50% per site), the associated site boundary dose rate would be 5.7 mRem/hr.

$$\text{Protected Area Boundary Dose Rate} = \left(\frac{500 \text{ mRem / yr}}{8766 \text{ hr / yr}} \right) (200) (.5) = 5.7 \text{ mRem/hr}$$

This is rounded to 5 mRem/hr

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA1.3
Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents
NUMARC Draft White Paper, 7/25/94; 9/10/94
Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

ALERT - 6.1.2.c

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that exceeds 200 times the 10CFR20, Appendix B limits for 30 minutes or longer.

EAL

Gaseous effluent release sample analysis on EITHER one of the following indicates a concentration of:

- $\geq 2.56E-01$ $\mu\text{Ci/cc}$ Total Noble Gas
- $\geq 3.71E-06$ $\mu\text{Ci/cc}$ I-131

AND

Dose Assessment results NOT available

AND

Release is ongoing for ≥ 30 minutes

MODE - All

BASIS

Total gaseous effluent sample analysis exceeding the EAL threshold for the Plant Vent, can result from a Gaseous Radiological Release in excess of 200 times 10CFR20, Appendix B limits. This condition results from an uncontrolled release of radioactivity to the environment, resulting in elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within **30 minutes**. The final integrated dose is very low and is not the primary concern. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

It is not intended that the release be averaged over 30 minutes, but exceed 200 times 10CFR20, Appendix B limit for 30 minutes or longer. Further, it is intended that the event be declared as soon as it is determined that the release will exceed 200 times the limit for 30 minutes or longer.

EAL - 6.1.2.c
Rev. 00

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a Site Area Emergency when effluent release concentration increases to a level that would cause a 100 mRem TEDE dose or Thyroid-CDE Dose of 500 mRem for I-131 at the Protected Area Boundary.

DISCUSSION

Refer to Basis Section for EAL 6.1.2.d for the 10CFR20, Appendix B Noble Gas release rate calculation or Basis Section for EAL 6.1.1.c for the 10CFR20, Appendix B Thyroid Committed Dose Release Rate Calculation.

Calculation of the threshold sample concentrations are as follows:

$$\text{Noble Gas Sample Concentration} = \frac{9.68E+06 \mu\text{Ci} / \text{sec}}{472 \times 80000 \text{ cfm}} = 2.56E-01 \mu\text{Ci/cc}$$

$$\text{I-131 Sample Concentration} = \frac{1.40E+02 \mu\text{Ci} / \text{sec}}{472 \times 80000 \text{ cfm}} = 3.71E-06 \mu\text{Ci/cc}$$

Where: 472 = conversion factor (28,317 cc/ft³ x 1 min./60 sec.)
80000 cfm = Plant Vent Flow (normal)

The noble gas release rate of 9.68E+06 $\mu\text{Ci}/\text{sec}$ is obtained by multiplying the 10CFR20, Appendix B release rate of 4.84E+04 $\mu\text{Ci}/\text{sec}$ times 200. The Iodine release rate of 1.40E+02 $\mu\text{Ci}/\text{sec}$ is obtained by multiplying the 10CFR20, Appendix B release rate of 7.00E-01 $\mu\text{Ci}/\text{sec}$ times 200.

DEVIATION

The value for EAL 6.1.2.c is based on one meteorological case and one isotopic mixture found in the ODCM. A radiological release based on this specific release rate could produce a TEDE Dose which would require an General Emergency classification or not meet the Alert classification, depending on the meteorological conditions and the isotopic mixture. EAL 6.1.2.c would not be used unless EAL 6.1.2.a (Dose Assessment) can not be used to determine the classification, if any, due to the potential of this "default" EAL.

Two hundred times the 10CFR20, Appendix B limits for noble gas and Iodine 131 are being used for this EAL, due to concerns that the State of New Jersey have pertaining to this EAL and based on the above mentioned uncertainties.

EAL - 6.1.2.c
Rev. 00

The time limit has been increased from 15 minutes to 30 minutes, to allow additional time to perform dose assessment, since the threshold for this EAL is only 20% of the value allowed per NESP-007 and we do not wish to use this "default" EAL, unless absolutely necessary.

REFERENCES

NUMARC NESP-007, AA1.2, AA1.1, AA1.4
Off-Site Dose Calculation Manual, Section 2.0
NUMARC Draft White Paper, 7/25/94; 9/10/94
Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

ALERT - 6.1.2.d

IC Any **Unplanned** Release of Gaseous Radioactivity to the Environment that exceeds 200 times 10CFR20, Appendix B Limit for 30 minutes or longer

EAL

Valid Plant Vent Effluent Alarm

AND

Release rate **EXCEEDS 9.68E+06 μ Ci/sec Total Noble Gas**

AND

Dose Assessment results **NOT** available

AND

Release is ongoing for **≥ 30 minutes**

MODE - All

BASIS

Valid High alarm and effluent release rate values exceeding the EAL threshold, can result from a Gaseous Radiological Release in excess of 200 times 10CFR20, Appendix B Limits. This condition results from an uncontrolled release of radioactivity to the environment, resulting in elevated offsite dose rates. The threshold for this EAL is NOT based on a specific offsite dose rate, but rather on the loss of plant control implied by a radiological release of this magnitude that was not isolated within 30 minutes. The final integrated dose is very low and is not the primary concern. **Valid** is defined as the High alarm actuating specifically due to a Gaseous Release exceeding Technical Specification limits, thus precluding unwarranted event declaration as the result of spurious actuation. Classification is based on an ongoing release that does not comply with a license condition. **Unplanned** is defined as any release for which a radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

EAL - 6.1.2.d
Rev. 00

The EAL value for Total Plant Vent release rate was determined using default X/Q values from the ODCM which provides a less accurate method of evaluating release magnitude than using dose assessment with real time meteorological data. For that reason, this EAL should not be utilized if Dose Assessment is available. Dose Assessment will take in account actual meteorological conditions, plant vent flows and plant vent effluent concentrations to provide a more accurate assessment of a radiological release. If Dose Assessment is available than refer to EAL 6.1.2.a for classification.

The Total noble gas monitored Release Rate can be obtained from SPDS or in accordance with S1.OP-AB.RAD-001(Q) or S2.OP-AB.RAD-001(Q), Abnormal Radiation.

It is not intended that the release be averaged over 30 minutes, but exceed 200 times 10CFR20, Appendix B limits for 30 minutes or longer. In addition, it is intended that the event be declared as soon as it is determined that the release will exceed 200 times the limit for 30 minutes or longer.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a Site Area Emergency when effluent release concentration increases to a level that would cause a 100 mRem dose at the Protected Area Boundary.

DISCUSSION

The release rate thresholds for this EAL are obtained by multiplying the 10CFR20, Appendix B Limit release rate of $4.84E+04$ $\mu\text{Ci}/\text{sec}$ for Noble Gases times 200. This EAL does not include Iodine Release Rates, since the Plant Vent does not have an Iodine detector.

10CFR20, Appendix B Calculation for Noble Gas

$$\text{uCi/Second} = \frac{100 \text{ mRem/year} * (\text{Allocation Factor})}{(\text{ODCM X/Q}) * (\text{ODCM DRCF})}$$

WHERE: **uCi/Second** = Total Noble Gas Release Rate from Salem (Unit 1 & Unit 2) or Hope Creek (all Vents; NPV, SPV, FRVS, and HTV) which would result in a TEDE Dose Rate of 50 mRem/year.

ODCM X/Q = Site Specific (Salem or Hope Creek) dispersion factor at the Site Boundary in sec/m^3 .

ODCM DRCF = Site Specific (Salem or Hope Creek) dose rate
conversion factor in mRem/year/uCi/m³.

$$\text{ODCM X/Q} = 2.20\text{E-}06 \text{ sec/m}^3$$

$$\text{ODCM DRCF} = 4.70\text{E+}02 \text{ mRem/yr/uCi/m}^3$$

$$\text{Allocation Factor} = 5.00\text{E-}01$$

$$4.84\text{E+}04 \text{ uCi/Second} = \frac{(100 \text{ mRem/year}) * (5.00\text{E-}01)}{(2.20\text{E-}06 \text{ sec/m}^3) * (4.70\text{E+}02 \text{ mRem/yr/uCi/m}^3)}$$

$$4.84\text{E+}04 \text{ uCi/sec} * 200 = \text{EAL value}$$

$$9.68\text{E+}06 \text{ } \mu\text{Ci/sec} = \text{EAL value.}$$

DEVIATION

The value for EAL 6.1.2d is based on one meteorological case and one isotopic mixture found in the ODCM. A radiological release based on this specific release rate could produce a TEDE Dose which would require a General Emergency classification or not meet the Alert classification, depending on the meteorological conditions and the isotopic mixture. EAL 6.1.2.d would not be used unless EAL 6.1.2.a (Dose Assessment) can not be used to determine the classification, if any, due to the potential uncertainty of this "default" EAL.

Two hundred times the 10CFR20, Appendix B limits of 100 mRem/year noble gas are being used for this EAL, due to concerns that the State of New Jersey had pertaining to this EAL and based on the above mentioned uncertainties.

The time limit has been increased from 15 minutes to 30 minutes, to allow additional time to perform dose assessment, since the threshold for this EAL is only 20% of the value allowed per NESP-007 and we do not wish to use this "default" EAL, unless absolutely necessary.

REFERENCES

NUMARC NESP-007, AA1.1, AA1.4
Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents
OP-AB.RAD-0001
NUMARC Draft White Paper, 7/25/94; 9/10/94
Technical Specification 3.11.2.1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

SITE AREA EMERGENCY - 6.1.3.a

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 100 mRem Total Effective Dose Equivalent (TEDE) or 500 mRem Thyroid-CDE Dose for the actual or projected duration of the release

EAL

Dose assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose $\geq 1.0E+02$ mRem
- Thyroid-CDE Dose $\geq 5.0E+02$ mRem

based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

MODE - All

BASIS

TEDE 4-Day Dose $\geq 1.0E+02$ mRem corresponds directly to the NUMARC dose of 100 mRem.

Thyroid-CDE Dose $\geq 5.0E+02$ mRem corresponds directly to the NUMARC dose of 500 mRem.

Dose Assessment using actual meteorological data provides an accurate indication of release magnitude. The use of dose assessment based EALs is therefore preferred over the use of Release Rate based EALs which utilize calculations which have built-in inaccuracies because ODCM default Meteorological data is used. **Imminent** is defined as expected to occur within 2 hours.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a General Emergency when actual or projected doses exceed EPA Protective Action Guidelines.

EAL - 6.1.3.a
Rev. 00

DISCUSSION

The EAL values provide a desirable gradient (one order of magnitude) between the Site Area Emergency and General Emergency classifications. No site allocation factor (.5) is used in this calculation due to the assumption that releases of this magnitude will be from one site.

The dose projection code assumes a 4 hour release utilizing current 15 minute average release rate data. For the TEDE 4-day dose, $100 \text{ mRem/hr} * 4 \text{ hr} = 400 \text{ mRem}$. For the Thyroid-CDE dose, $500 \text{ mRem/hr} * 4 \text{ hr} = 2000 \text{ mRem}$.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AS1.3

EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

NUMARC Draft White Paper 7-25-94; 9-10-94.

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

SITE AREA EMERGENCY - 6.1.3.b

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 100 mRem Total Effective Dose Equivalent (TEDE) or 500 mRem Thyroid CDE Dose for the actual or projected duration of the release

EAL

Dose Rate measured at the Protected Area Boundary or beyond **EXCEEDS 100 mRem/hr**

AND

Release is expected to continue for **≥ 15 minutes**

MODE - All

BASIS

An actual dose rate of **100 mRem/hr** which is expected to continue for ≥ 15 minutes indicates a substantial radiological release which could exceed the 10CFR20 Annual Average Population exposure limit of 100 mRem TEDE using the assumption of a one hour release duration.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a General Emergency when actual or projected doses exceed EPA Protective Action Guidelines.

EAL - 6.1.3.b
Rev. 00

DISCUSSION

An actual dose of 100 mRem Total Effective Dose Equivalent (TEDE) is based on the 10CFR20 annual average population exposure limit. Measured dose rates will be taken at the Protected Area Boundary and a ≥ 15 minute release duration threshold will be applied to be conservative. Unless otherwise indicated, the conversion from whole body dose to TEDE is 1:1.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AS1.4

EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

NUMARC Draft White Paper, 7/25/94; 9/10/94

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

SITE AREA EMERGENCY - 6.1.3.c

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 100 mRem Total Effective Dose Equivalent (TEDE) or 500 mRem Thyroid-CDE Dose for the actual or projected duration of the release

EAL

Analysis of field survey samples at the Protected Area Boundary indicates EITHER one of the following:

- $\geq 4.36E+02$ CCPM
- $\geq 3.85E-07$ $\mu\text{Ci/cc}$ I-131

MODE- All

BASIS

The Corrected Counts per Minute (CCPM) value is based on reading(s) obtained using a radiation count rate meter such as a RM-14 or E-140N with an HP260 probe attached. The Iodine-131 field survey sample concentration threshold is based on I-131 dose conversion factors (DCFs) from EPA-400. The thresholds are based on a Thyroid-CDE Dose Rate of 500 mRem/hr for I-131.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a General Emergency when actual or projected doses exceed EPA Protective Action Guidelines.

EAL - 6.1.3.c
Rev. 00

DISCUSSION

The release sample concentration calculations are as follows.

The sample concentration is calculated using the I-131 Dose Conversion Factor from EPA-400:
Solving the following equation for $\mu\text{Ci/cc}$:

$$\text{mRem/hr} = (\mu\text{Ci/cc})(\text{Dose Conversion Factor})$$

Then;

$$\text{I-131 Sample Concentration} = \left(\frac{500 \text{ mRem / hr}}{1.30 \text{ E} + 09 \text{ mRem / } \mu\text{Ci / cc / hr}} \right) = 3.85 \text{ E} - 07 \mu\text{Ci/cc}$$

Where 1.30E+09 mRem/ $\mu\text{Ci/cc/hr}$ is the Dose Conversion Factor from EPA-400, Table 5-4 and includes the EPA breathing rate.

The Corrected Counts per Minute reading is calculated using the I-131 Sample concentration, and factors for using an RM-14 or E-140N with an HP260 probe.

Solving the following equation for CCPM:

$$\mu\text{Ci/cc} = \frac{\text{CCPM}}{(\text{Detector Efficiency})(\text{Collection Efficiency})(\text{Conversion Factor - DPM to } \mu\text{Ci})(\text{Volume - ft}^3)(\text{Conversion Factor - cc to ft}^3)}$$

Then;

$$\text{CCPM} = (3.85 \text{ E} - 07 \mu\text{Ci/cc}) (2.00 \text{ E} - 03 \text{ CCPM/DPM}) (0.9) (2.22 \text{ E} + 06 \text{ DPM}/\mu\text{Ci}) * (10 \text{ ft}^3) (2.832 \text{ E} + 04 \text{ cc}/\text{ft}^3) = 4.36 \text{ E} + 02 \text{ CCPM}$$

Where:

- 2.00E-03 = Detector Efficiency - CCPM/DPM
- 0.9 (or 90%) = Collection Efficiency
- 2.22E+06 = Conversion factor - DPM/ μCi
- 10 ft³ = Volume
- 2.832E+04 = Conversion factor - cc to ft³
- CCPM = Corrected Counts per Minute using an RM-14 or E-140N with an HP260 probe.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AS1.4

EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

FEMA REP-2, Rev. 1/July 1987, Guidance on Offsite Emergency Radiation Measurement Systems, Phase-1 Airborne Release

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RPCS Thyroid Dose Commitment Factor Paper (NRP-94-0557), 11-22-94.

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

SITE AREA EMERGENCY - 6.1.3.d

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 100 mRem Total Effective Dose Equivalent (TEDE) or 500 mRem Thyroid-CDE Dose for the actual or projected duration of the release

EAL

Valid Plant Vent Effluent Alarm

AND

Total Plant Vent release rate **EXCEEDS 1.7E+09 μ Ci/sec Total Noble Gas**

AND

Dose Assessment results **NOT** available

AND

Release is ongoing for **≥ 15 minutes**

MODE - All

BASIS

Valid High alarm and effluent release rate values exceeding the EAL threshold, indicates a substantial Gaseous Radiological Release which could exceed the 10CFR20 average annual population exposure limit of 100 mRem TEDE, using the assumption of a one hour release duration.

The EAL value for Total Plant Vent release rate was determined using default X/Q values from the ODCM which provides a less accurate method of evaluation release magnitude then using dose assessment with real time meteorological data. For that reason, this EAL should not be utilized if Dose Assessment is available. Dose Assessment will take into account actual meteorological conditions, plant vent flows and plant vent effluent concentrations to provide a more accurate assessment of a radiological release. If Dose Assessment is available then Refer to EAL 6.1.3.a for classification.

EAL - 6.1.3.d
Rev. 00

The Total Noble Gas monitored Release Rate can be obtained from SPDS or in accordance with S1.OP-AB.RAD-001(Q) or S2.OP-AB.RAD-001(Q), Abnormal Radiation.

It is not intended that the release be averaged over 15 minutes, but that the Release Rate exceed the EAL value for >15 minutes.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a General Emergency when effluent release concentration increases to a level that would cause a 1000 mRem dose at the Protected Area Boundary

DISCUSSION

To obtain a site specific value to trigger the performance of dose assessment is not necessary, since this will be done when the UE value is reached. This value will supply a set point to classify a Site Area Emergency (SAE), if dose assessment has not been performed within 15 minutes. Iodine Release Rates for this EAL are excluded since the Plant Vent Radiation Monitoring System does not include an Iodine detector.

A release rate of $1.7E+09$ $\mu\text{Ci}/\text{sec}$ was backcalculated from a TEDE Dose of 100 mRem/hour at the Site MEA. The assumptions that went into this calculation were as follows:

Release Point: Plant Vent

Release Rate: 80,000cfm

ODCM $X/Q = 2.20E-06$ sec/m^3

Isotopic mixture: FSAR isotopic mixture for a design basis LOCA

Dose Rate Conversion Factors: EPA 400-R-92-001 (Manual of Protective Actions for Nuclear Incidents) Dose Rate Conversion Factors.

DEVIATION

The NUMARC basis states that the FSAR source term assumptions should be used in determining the indications for monitors. The NUMARC Draft White Paper states the FSAR source term should not be used unmodified.

This NUMARC EAL is calculated using the FSAR Isotopic Mixture for a Design Basis LOCA and the Dose Rate Conversion Factors found in EPA 400-R-001. The combination of using the FSAR Isotopic mixture and the EPA 400 dose Rate Conversion Factors calculate an accurate accident source term.

REFERENCES

NUMARC NESP-007, AS1.1, AS1.4
Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents
NUMARC Draft White Paper, 7-25-94; 9-10-94.
Technical Specification 3.11.2.1
FSAR Section 15
EPA 400-R-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

GENERAL EMERGENCY - 6.1.4.a

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 1000 mRem Total Effective Dose Equivalent (TEDE) or 5000 mRem Thyroid-CDE Dose for the actual or projected duration of the release

EAL

Dose Assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose $\geq 1.0E+03$ mRem
 - Thyroid-CDE Dose $\geq 5.0E+03$ mRem
- based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

MODE - All

BASIS

The TEDE 4-Day Dose of 1000 mRem corresponds directly to the NUMARC dose of 1000 mRem which exceeds EPA Protective Action Guideline Criteria for a General Emergency. The Thyroid-CDE Dose of 5000 mRem corresponds directly to the NUMARC dose of 5000 mRem, which exceeds EPA Protective Action Guideline criteria for a General Emergency. **Imminent** is defined as expected to occur within 2 hours.

Barrier Analysis

N/A

ESCALATION CRITERIA

N/A

DISCUSSION

No site allocation factor (.5) is used in this calculation due to the assumption that releases of this magnitude will be from one site.

EAL - 6.1.4.a
Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, AG1.3

EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

NUMARC Draft White Paper 7-25-94; 9-10-94.

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

GENERAL EMERGENCY - 6.1.4.b

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 1000 mRem Total Effective Dose Equivalent (TEDE) or 5000 mRem Thyroid CDE Dose for the actual or projected duration of the release

EAL

Dose Rate measured at the Protected Area Boundary or beyond EXCEEDS 1000 mRem/hr

AND

Release is expected to continue for ≥ 15 minutes

MODE - All

BASIS

An actual dose rate of 1000 mRem/hr indicates the EPA Protective Action Guide may be exceeded for the general public.

Barrier Analysis

N/A

ESCALATION CRITERIA

N/A

DISCUSSION

An actual projected dose of 1000 mRem Total Effective Dose Equivalent (TEDE) is based on the EPA protective action guidance which indicates that public protective actions are indicated if the dose exceeds 1 Rem whole body. This is consistent with the emergency class description for a General Emergency. A release rate equivalent to 1000 mRem/hr boundary dose rate may also be used if TEDE projections are not available. Unless otherwise indicated, the conversion from whole body dose to TEDE is 1:1.

EAL - 6.1.4.b

Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, AG1.4

EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

GENERAL EMERGENCY - 6.1.4.c

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 1000 mRem Total Effective Dose Equivalent (TEDE) or 5000 mRem Thyroid-CDE Dose for the actual or projected duration of the release

EAL

Analysis of field survey samples at the Protected Area Boundary indicates

EITHER one of the following:

- $\geq 4.36E+03$ CCPM
- $\geq 3.85E-06$ $\mu\text{Ci/cc}$ I-131

MODE - All

BASIS

The Corrected Counts per Minute (CCPM) value is based on reading(s) obtained using a radiation count rate meter such as a RM-14 or E-140N with an HP260 probe attached. The Iodine-131 field survey sample concentration threshold is based on I-131 dose factors from EPA-400. The thresholds are based on a dose rate of 5000 mRem/hr Thyroid CDE for I-131.

Barrier Analysis

N/A

ESCALATION CRITERIA

N/A

DISCUSSION

The release sample concentration calculations are as follows.

The sample concentration is calculated using the I-131 Dose Factor from EPA-400:

EAL - 6.1.4.c
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Solving the following equation for $\mu\text{Ci/cc}$:

$$\text{mRem/hr} = (\mu\text{Ci/cc})(\text{Dose Conversion Factor})$$

Then;

$$\text{I-131 Sample Concentration} = \left(\frac{5000 \text{ mRem/hr}}{1.30 \text{E} + 09 \text{ mRem} / \mu\text{Ci} / \text{cc} / \text{hr}} \right) = 3.85\text{E}-06 \mu\text{Ci/cc}$$

Where $1.30\text{E}+09 \text{ mRem}/\mu\text{Ci/cc/hr}$ is the Dose Conversion Factor (DCF) from EPA-400, Table 5-4 and includes the EPA breathing rate.

The Corrected Counts per Minute (CCPM) reading is calculated using the I-131 Sample concentration, and factors for using an RM-14 or E-140N with an HP260 probe.

Solving the following equation for CCPM:

$$\mu\text{Ci/cc} = \frac{\text{CCPM}}{(\text{Detector Efficiency})(\text{Collection Efficiency})(\text{Conversion Factor - DPM to } \mu\text{Ci})(\text{Volume - ft}^3)(\text{Conversion Factor - cc to ft}^3)}$$

Then;

$$\text{CCPM} = (3.85\text{E}-06 \mu\text{Ci/cc}) (2.00\text{E}-03 \text{ CCPM/DPM}) (0.9) (2.22\text{E}+06 \text{ DPM}/\mu\text{Ci}) * (10 \text{ ft}^3) (2.832\text{E}+04 \text{ cc}/\text{ft}^3) = 4.36\text{E}+03 \text{ CCPM}$$

Where:

$2.00\text{E}-03 =$	<i>Detector Efficiency - CCPM/DPM</i>
$0.9 \text{ (or } 90\%) =$	<i>Collection Efficiency</i>
$2.22\text{E}+06 =$	<i>Conversion factor - DPM/μCi</i>
$10 \text{ ft}^3 =$	<i>Volume</i>
$2.832\text{E}+04 =$	<i>Conversion factor - cc to ft³</i>
$\text{CCPM} =$	<i>Corrected Counts per Minute using an RM-14 or E-140N with an HP260 probe.</i>

DEVIATION

None

REFERENCES

NUMARC NESP-007, AG1.4

EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

FEMA REP-2, Rev. 1/July 1987, Guidance on Offsite Emergency Radiation Measurement Systems, Phase-1 Airborne Release

SORC Summary 07/10/89

RPCS Thyroid Dose Commitment Factor Paper (NRP-94-0557); 11-22-94.

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

GENERAL EMERGENCY - 6.1.4.d

IC Boundary Dose Resulting from an Actual or **Imminent** Release of Gaseous Radioactivity Exceeds 1000 mRem Total Effective Dose Equivalent (TEDE) or 5000 mRem Thyroid-CDE Dose for the actual or projected duration of the release

EAL

Valid Plant Vent Effluent Alarm

AND

Total Plant Vent release rate EXCEEDS 1.7E+10 μ Ci/sec Total Noble Gas

AND

Dose Assessment results NOT available

AND

Release is ongoing for ≥ 15 minutes

MODE - All

BASIS

Valid High alarm and effluent release rate values exceeding the EAL threshold, indicates a substantial Gaseous Radiological Release which could exceed the EPA Protective Action Guide exposure of 1000 mRem TEDE, using the assumption of a one hour release duration.

The EAL value for Total Plant Vent release rate was determined using default X/Q values from the ODCM which provides a less accurate method of evaluation release magnitude then using dose assessment with real time meteorological data. For that reason, this EAL should not be utilized if Dose Assessment is available. Dose Assessment will take in account actual meteorological conditions, plant vent flows and plant vent effluent concentrations to provide a more accurate assessment of a radiological release. If Dose Assessment is available then refer to EAL 6.1.4.a for classification. The Total Noble Gas monitor Release Rate can be obtained from SPDS or in accordance with S1.OP-AB.RAD-001(Q) or S2.OP-AB.RAD-0001(Q), Abnormal

EAL - 6.1.4.d
Rev. 00

Radiation. It is not intended that the release be averaged over 15 minutes, but that the Release Rate exceed the EAL value for ≥ 15 minutes.

Barrier Analysis

N/A

ESCALATION CRITERIA

None

DISCUSSION

To obtain a site specific value to trigger the performance of dose assessment is not necessary, since this will be done when the UE value is reached. This value will supply a set point to classify a General Emergency (GE), if dose assessment has not been performed within 15 minutes. Iodine Release Rates for this EAL are excluded since the Plant Vent Radiation Monitoring System does not include an Iodine detector.

A release rate of $1.7E+10$ $\mu\text{Ci}/\text{sec}$ was backcalculated from a TEDE Dose of 1000mRem/hour at the Site MEA. The assumptions that went into this calculation were as follows:

Release Point: Plant Vent

Release Rate: 80,000cfm

ODCM X/Q = $2.20E-06$ sec/m^3

Isotopic mixture: FSAR isotopic mixture for a design basis LOCA

Dose Rate Conversion Factors: EPA 400-R-92-001 (Manual of Protective Actions for Nuclear Incidents) Dose Rate Conversion Factors.

DEVIATION

The NUMARC basis states that the FSAR source term assumptions should be used in determining the indications for monitors. The NUMARC Draft White Paper states the FSAR source term should not be used unmodified.

This NUMARC EAL is calculated using the FSAR Isotopic Mixture for a Design Basis LOCA and the Dose Rate Conversion Factors found in EPA 400-R-001. The combination of using the FSAR Isotopic mixture and the EPA 400 dose Rate Conversion Factors calculate an accurate accident source term.

REFERENCES

NUMARC NESP-007, AS1.1, AS1.4

Off-Site Dose Calculation Manual, Section 2.0 - Gaseous Effluents

NUMARC Draft White Paper, 7-25-94; 9-10-94.

Technical Specification 3.11.2.1

FSAR Ssection 15

EPA 400-R-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

6.0 Radiological Releases/Occurrences

6.2 Liquid Effluent Release

UNUSUAL EVENT - 6.2.1

IC Any **Unplanned** Release of Liquid Radioactivity to the Environment that Exceeds Two Times the Radiological Technical Specifications for 60 minutes or longer

EAL

Valid Alarm from ANY one of the following RMS Channels:

- Containment Fan Coil Process (R13)
- Liquid Radwaste Disposal Process (R18)
- Steam Generator Blowdown Process (R19)
- Chemical Waste Basin Process (2R37)

AND

Sample analysis of liquid effluent indicates concentration in excess of **2 times Tech. Spec. Limits**

AND

Release continues for **≥ 60 minutes** after the alarm occurs

MODE - All

BASIS

Releases in excess of 2 times Technical Specifications that continue for ≥ 60 minutes represent an uncontrolled situation and hence a potential degradation in the level of safety. The final integrated dose is very low and is not the primary concern. Rather it is the degradation in plant control implied by the fact that the release was not isolated within 60 minutes. The calculation called for in this EAL should also be conducted whenever a liquid release occurs for which a radioactive release authorization wasn't prepared or that exceeds the conditions on the radioactive release authorization (e.g. minimum dilution, alarm setpoints, etc.).

It is not intended that the release be averaged over 60 minutes, but exceed 2 times Technical Specifications limit for 60 minutes or longer. Further, it is intended that the event be declared as soon as it is determined that the release will exceed 2 times the limit for 60 minutes or longer.

EAL - 6.2.1
Rev. 00

Unplanned is defined as any release for which radioactive discharge permit was not prepared, or a release that exceeds the conditions on the applicable permit.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to an Alert when Liquid Effluent Release exceeds 200 times Technical Specification limits.

DISCUSSION

The radiation monitors selected for this EAL monitor radioactivity before it is discharged into the Delaware River and warns site personnel of an excessive effluent concentration of radioactivity (greater than Technical Specification limits) being released to the environment.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AU1.2
Off-Site Dose Calculation Manual, Section 1.0 - Liquid Effluents
Technical Specifications 3.11.1.1 (U1 and U2)

6.0 Radiological Releases/Occurrences

6.2 Liquid Effluent Release

ALERT - 6.2.2

IC Any **Unplanned** Release of Liquid Radioactivity to the Environment that Exceeds 200 Times the Radiological Technical Specifications for 15 minutes or longer

EAL

Valid Alarm from ANY one of the following RMS Channels:

- Containment Fan Coil Process (R13)
- Liquid Radwaste Disposal Process (R18)
- Steam Generator Blowdown Process (R19)
- Chemical Waste Basin Process (2R37)

AND

Sample analysis of liquid effluent indicates concentration in excess of **200 times Tech. Spec. Limits**

AND

Release continues for **≥ 15 minutes** after the alarm occurs

MODE - All

BASIS

Releases in excess of 200 times Technical Specifications that continue for ≥ 15 minutes represent an uncontrolled situation and hence an actual degradation in the level of safety. This event escalates the Unusual Event by a factor of 100. The required release duration was reduced to 15 minutes in recognition of the increased severity of a release of this magnitude. The calculation called for in this EAL should also be conducted whenever a liquid release occurs for which a radioactive release authorization wasn't prepared or that exceeds the conditions on the radioactive release authorization (e.g. minimum dilution, alarm setpoints, etc.). **Unplanned** is defined as any release for which a radioactive permit was not prepared, or a release that exceeds the conditions on the applicable permit.

It is not intended that the release be averaged over 15 minutes, but exceed 200 times Technical Specifications limit for 15 minutes or longer. Further, it is intended that the event be declared as soon as it is determined that the release will exceed 200 times the limit for 15 minutes or longer.

Barrier Analysis

N/A

ESCALATION CRITERIA

N/A

DISCUSSION

The radiation monitors selected for this EAL monitor radioactivity before it is discharged into the Delaware River and warns site personnel of an excessive effluent concentration of radioactivity (greater than Technical Specification limits) being released to the environment.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA1.2

Off-Site Dose Calculation Manual, Section 1.0 - Liquid Effluents

6.0 Radiological Releases/Occurrences

6.3 In-Plant Radiation Occurrences

UNUSUAL EVENT - 6.3.1

IC - **Unplanned Increase in Plant Radiation**

EAL

Unplanned rise in radiation levels inside the Protected Area ≥ 1000 times normal as indicated by EITHER one of the following:

- Permanent or portable Area Radiation Monitors
- General Area Radiological Survey

MODE - All

BASIS

An **Unplanned** rise in radiation levels within the Protected Area by a factor of 1000 times over normal represents a degradation in the control of radioactive material and a potential degradation in the level of safety of the plant. **Unplanned** is defined as those events or conditions which are not associated with a planned evolution, such that radiation levels are rising in an uncontrolled manner. This condition specifically represents an uncontrolled rise in radiation levels within the Protected Area. Planned evolutions which cause elevated radiation levels do not warrant classification under this EAL.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to an Alert (6.3.2.a) when radiation levels rise to a level that would impede access to areas required for the safe shutdown of the plant.

DISCUSSION

Normal level is considered as the highest reading in the past 24-hours excluding current peak values. RMS strip charts, RMS computer and/or SPDS can be used to confirm these values.

EAL - 6.3.1

Rev. 00

DEVIATION

NUMARC IC AU2 includes unexpected increases in Airborne concentration in addition to plant radiation. The corresponding Salem IC does not address Airborne concentration, since an increase in Airborne concentration is not addressed in the example EALs or the basis for the Unusual Event or Alert. Apparently, the Airborne concentration example EAL was deleted by NUMARC, but the corresponding IC was overlooked.

REFERENCES

NUMARC NESP-007, AU2.4

6.0 Radiological Releases/Occurrences

6.3 In-Plant Radiation Occurrences

ALERT - 6.3.2.a

IC Release of Radioactive Material or increases in Radiation Levels within the facility that impedes operation of systems required to maintain safe operations or to establish or maintain cold shutdown

EAL

Unplanned Dose Rate >2000 mRem/hr in any area of the plant which requires ACCESS to maintain plant safety functions (excluding the Control Room or CAS) as indicated by EITHER one of the following:

- Permanent or portable Area Radiation Monitors
- General Area Radiological Survey

MODE - All

BASIS

The term "**unplanned**" is defined as those events which are not associated with pre-planned evolutions such that radiation levels are rising for reasons which cannot be immediately explained. The EAL addresses radiation levels which would impede operation of systems required to maintain safe operations or to establish or maintain Cold Shutdown. Radiation levels could be indicated by ARM or radiological survey.

It is the impaired ability to operate the plant that results in the actual or potential substantial degradation of the level of safety of the plant. The 2000 mRem/hr is not intended to be above the pre-existing background, but includes the pre-existing background. The Dose Rate of 2000 mRem/hr was chosen as a threshold based upon NAP-24 Administrative Dose Limits and Extension criteria which has Senior Radiation Protection Supervisor approval required prior to exceeding 2000 mRem/yr.

Barrier Analysis

N/A

EAL - 6.3.2.a
Rev. 00

ESCALATION CRITERIA

Emergency Classification will escalate to a Site Area Emergency when loss of control of radioactive materials causes significant offsite doses.

DISCUSSION

Emergency Coordinator judgment must be used to determine areas that contain systems that must be operated manually, or require local surveillances to assure reliable support of safe plant operation for the conditions that exist. Areas having equipment that must be operated locally during an accident and areas along associated access routes require HP coverage and continuous update of changing radiological conditions.

Areas of the plant which require access following an accident to maintain plant safety functions include, but are not limited to:

- | | |
|--------------------------------------|---|
| Areas for Remote Shutdown | Core Residual Heat Removal system areas |
| CCW Pump Room | Corridor next to the Spent Fuel Pit HX Room |
| CCW HX Room | Electrical Control Center |
| 4KV Switchgear Room | Boric Acid Evaporator Room Unit 1 |
| Diesel Generator Compartment | Boric Acid Evaporator Room Unit 2 |
| Diesel Generator Control Room | Aux Feedwater Pump & Valve Area |
| Diesel Oil Supply Tank Compartment | Radwaste Control Center |
| Electrical Relay and Switchgear Room | 100 ft Chiller Area |

DEVIATION

None

REFERENCES

- NUMARC NESP-007, AA3.2
- NC.NA-AP.ZZ-0024(Q)- Radiation Protection Program
- S-C-VAR-MDC-1518 Rev 0, Draft

6.0 Radiological Releases/Occurrences

6.3 In-Plant Radiation Occurrences

ALERT - 6.3.2.b

IC Release of Radioactive Material or increases in Radiation Levels within the facility that impedes operation of systems required to maintain safe operations or to establish or maintain cold shutdown

EAL

Unplanned radiation levels > 15 mRem/hr in EITHER one of the following:

- The Control Room
- The Security Central Alarm Station (CAS)

MODE - All

BASIS

The term "**unplanned**" is defined as those events which are not associated with a pre-planned evolutions such that radiation levels are rising for reasons which cannot be immediately explained. The EAL addresses radiation levels which would jeopardize continuous occupancy of the Control Room or Security CAS. Radiation levels could be indicated by ARM or radiological survey. It is the impaired ability to operate the plant that results in the actual or potential substantial degradation of the level of safety of the plant. In addition, unplanned rises in in-plant radiation levels represent a degradation in the control of radioactive materials and represent a degradation in the level of safety of the plant.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to a Site Area Emergency when loss of control of radioactive materials causes significant off-site doses.

DISCUSSION

The Control Room and Security Central Alarm Station general area radiation level threshold is set at 15 mRem/hr and was chosen because continuous occupancy is required. This is consistent with

EAL - 6.3.2.b
Rev. 00

General Design Criteria 19, which addresses continuous occupancy of the Control Room for 30 days after an accident. Additionally, since the Control Room is shielded, this radiation level represents a serious loss of control of radioactive material.

The Security Secondary Alarm Station (SAS) was excluded because it is fully redundant to the Security CAS. For a radiological event, SAS would be evacuated, with all Security functions performed by the CAS.

Events which may require Control Room evacuation to establish or maintain Cold Shutdown will be classified per Section 8 EALs.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA3.1
10CFR50

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

UNUSUAL EVENT - 6.4.1.a

IC Unplanned increase in Plant Radiation

EAL

An **uncontrolled** level drop in the Refueling Cavity as indicated by EITHER one of the following:

- Visual observation
- RVLIS - Refueling Mode

MODE - 6

BASIS

This EAL condition indicates a possible failure of the Refueling Cavity Seal or RHR System that results in inventory loss from the Refueling Cavity when flooded. Coverage of these events is appropriate due to the potential for higher doses to plant staff. These events have a long lead time relative to potential for radiological release outside the site boundary, thus the impact to public health and safety is very low. Classification as an Unusual Event is warranted as a precursor to a more serious event. **Uncontrolled** means that the level drop cannot be terminated, or level cannot be maintained by operator action.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to an Alert as a result of uncovering of a fuel assembly and/or indication of high radiation levels on the refueling floor.

DISCUSSION

Design of the Refueling Cavity is such that a liner failure in these volumes is unlikely; however, should such a failure occur, it would come under this EAL. If uncovering of fuel elements occur or if there is indication of high radiation levels on the refuel floor then the event will be classified as an Alert.

EAL - 6.4.1.a

Rev. 00

During refueling operations the Reactor Vessel and Refuel Cavity are flooded. During fuel handling operations, the Fuel Transfer Tube will connect the Reactor Cavity and the Spent Fuel Pool. An unexplained lowering of Refuel Cavity level or Spent Fuel Pool level can be an indication that these volumes are draining. A drop in Reactor Cavity and Spent Fuel Pool level may result in a Spent Fuel Pool low level alarm. This alarm would be validated by visual observation of lowering level in the Refuel Cavity/Spent Fuel Pool.

DEVIATION

NUMARC states that this EAL will be applicable in all modes of operation. In modes other than Mode 6 the Reactor Vessel head will be fully tensioned and there will be no interconnection between the Refueling Cavity and the Spent Fuel Pool. In other modes, a loss of Reactor Vessel inventory is addressed in Section 3. Uncontrolled loss of water level in the Spent Fuel Pool, however, is classified under EAL 6.4.1.b in all modes of operation.

REFERENCES

NUMARC NESP-007, AU2.1
OP-AR.ZZ-0003(Q) OHA-C35
OP-AB.FUEL-0002(Q)

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

UNUSUAL EVENT - 6.4.1.b

IC **Unplanned** increase in Plant Radiation

EAL

Valid SFP Low Level alarm - OHA C-35

AND

Visual observation of an **uncontrolled** level drop in the Spent Fuel Pool

MODE - All

BASIS

These EAL conditions indicate a possible failure of the Spent Fuel Pool Cooling System that results in inventory loss from the Spent Fuel Pool. This EAL also works in conjunction with the loss of Refueling Cavity EAL for Mode 6 operations, with the Spent Fuel Pool and Refueling Cavity connected via the Fuel Transfer Canal.

Coverage of this event is appropriate due to the potential for higher doses to plant staff. This event has a long lead time relative to potential for radiological release outside the site boundary, thus the impact to public health and safety is very low. Classification as an Unusual Event is warranted as a precursor to a more serious event. **Uncontrolled** means that the level drop cannot be terminated, or level cannot be maintained by operator action.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert as a result of uncovering of an irradiated fuel as indicated by high radiation levels in the Fuel Handling Building.

EAL - 6.4.1.b
Rev. 00

DISCUSSION

Design of the Spent Fuel Pool (SFP) is such that a liner failure in this volume is unlikely; however, should such a failure occur, it would be classified under this EAL. Lowering of water level in the SFP to below the level of the spent fuel bundles may result in a rise in the airborne contamination level in the Fuel Handling Building. If uncovering of fuel elements occurs or if there is indication of high radiation levels in the Fuel Handling Building, then the event will be classified as an Alert.

This alarm would be validated by visual observation of lowering level in the Spent Fuel Pool. The added requirement for an uncontrolled drop in SFP level with a low level alarm is included to allow normal makeup to recover level for minor level deviations due to evaporation losses, etc.

DEVIATION

None

REFERENCES

- NUMARC NESP-007, AU2.2
- OP-AR.ZZ-0003(Q) OHA-C35
- OP-AB.FUEL-0002(Q)

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

ALERT - 6.4.2.a

IC Major Damage to Irradiated Fuel or Loss of Water Level that has or will result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel

EAL

Major Damage to Irradiated Fuel reported in the Fuel Handling Bldg.

AND

Valid High Alarm is received on EITHER one of the following RMS channels:

- R5
- R32A

AND

Valid High Alarm received from EITHER one of the following RMS channels:

- R41
- R45

MODE - All

BASIS

Major Damage to an irradiated fuel bundle that results in a High Fuel Handling Building Radiation Monitor alarm coincident with a Plant Vent Effluent Process Radiation Monitor alarm warrants declaration of an Alert, due to the potential for an offsite release exceeding the Technical Specification limit. The intent of this EAL is to classify those events that result in the actual release of fission products from an irradiated Fuel Bundle, due to physical damage. Events that result in higher radiation levels due to shine, as a result of lowered shielding, but do not involve a release of fission products should not be classified under this EAL, but should be classified EAL 6.4.2.d, when those conditions exist.

Major Damage is defined as physical damage to an Irradiated Fuel Bundle that results from either dropping or physical contact with other components, such that the magnitude of the damage specifically results in actuation of an Area Radiation Alarm. **Valid** is defined as the High alarm occurring as a result of the damage to the irradiated fuel bundle.

EAL - 6.4.2.a

Rev. 00

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a Site Area Emergency when loss of control of radioactive materials causes significant offsite doses.

DISCUSSION

The Fuel Handling Building Area Monitors provide an early warning of developing problems which may be related to a damaged fuel bundle. The Plant Vent Exhaust Rad Monitors are Process Monitors and are designed to detect a release of Fission Products. Hence, they are included as part of the EAL threshold, to confirm the magnitude of damage to an irradiated fuel bundle.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA2.1
OP-AR.ZZ-0003(Q) OHA-C35
OP-AB.FUEL-0002(Q)
NUREG/CR-4982
NRC Information Notice no. 90-08
10CFR50

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

ALERT - 6.4.2.b

IC Major Damage to Irradiated Fuel or Loss of Water Level that has or will result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel

EAL

Major Damage to Irradiated Fuel reported in the Containment

AND

Valid High Alarm received on ANY one of the following RMS channels:

- R2
- R10A
- R10B

AND

Valid High Alarm received from ANY one of the following RMS channels:

- R11A
- R12A
- R12B

MODE - All

BASIS

Major Damage to an irradiated fuel bundle that result in a High Containment Area Radiation Monitor alarm coincident with a Containment Process Radiation Monitors alarm warrants declaration of an Alert, due to the potential for an offsite release exceeding the Technical Specification limit. The intent of this EAL is to classify those events that result in the potential release of fission products from an irradiated Fuel Bundle, due to physical damage. Events that result in higher radiation levels due to shine, as a result of lowered shielding, but do not involve a release of fission products should not be classified under this EAL, but should be classified EAL 6.4.2.d, when those conditions exist.

Major Damage is defined as physical damage to an Irradiated Fuel Bundle that results from either dropping or physical contact with other components, such that the magnitude of the

EAL - 6.4.2.b

Rev. 00

damage specifically results in actuation of an Area Radiation Alarm. **Valid** is defined as the High alarm occurring as a result of the damage to the irradiated fuel bundle.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to a Site Area Emergency when loss of control of radioactive materials causes significant offsite doses.

DISCUSSION

The Containment Area Monitors provide an early warning of developing problems which may be related to a damaged fuel bundle. The Containment Rad Monitors are Process Monitors and are designed to detect a release of Fission Products. Hence, they are included as part of the EAL threshold, to confirm the magnitude of damage to an irradiated fuel bundle.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA2.1
OP-AR.ZZ-0003(Q) OHA-C35
OP-AB.FUEL-0002(Q)
NUREG/CR-4982
NRC Information Notice no. 90-08
EPA 400-R-92-001, Manual of Protective Action Guide and Protective Actions for Nuclear Incidents

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

ALERT - 6.4.2.c/6.4.2.d

IC Major Damage to Irradiated Fuel or Loss of Water Level that has or will result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel

EAL

EITHER one of the following:

- **Unplanned** rise on ANY one of the following Area Rad Monitors or by general area rad survey indicates ≥ 2000 mRem/hr
 - R2
 - R5
 - R9
 - R32A
- Visual observation of Irradiated Fuel uncovered

MODE - All

BASIS

This EAL indicates a possible failure of the Refueling Cavity Seal, RHR System, or Spent Fuel Pool Cooling System that results in inventory loss from the Refueling Cavity when flooded or the Spent Fuel Pool. Design of the Refueling Cavity and Spent Fuel Pool is such that a liner failure in these volumes is unlikely; however, should such a failure occur, it would come under this EAL. Lowering of water level in the Spent Fuel Pool to such a value as to cause Dose Rates to increase to this value will result in evacuation of the local areas. Uncovery of irradiated fuel elements can lead to their fuel clad failure due to loss of cooling.

The term "**unplanned**" is defined as those events which are not associated with a pre-planned evolutions such that radiation levels are increasing for reasons which cannot be immediately explained. The EAL addresses radiation levels which would impede operation of systems required to continue efforts to stop the loss of Refueling water level. Radiation levels could be indicated by ARM or radiological survey. The Dose Rate of 2000 mRem/hr was chosen as a threshold based upon NAP-24 Administrative Dose Limits and Extension criteria which has Senior Radiation Protection Supervisor approval required prior to exceeding 2000 mRem/yr. This value is low enough to ensure classification of an Alert before personnel access is severely

EAL - 6.4.2.c/ 6.4.2.d

Rev. 00

hampered and high enough to allow any unplanned rise in normal radiation level, by a factor of 1000, to be classified as an Unusual Event per EAL 6.3.1.

Visual observation of irradiated fuel uncovered will result in onsite dose levels changing significantly.

The Area Radiation Monitors included in this EAL are:

- R2 Containment, General Area Low
- R5 Fuel Handling Building Area Fuel Pool
- R9 Fuel Handling Building Fuel Storage Area
- R32A Spent Fuel Handling Crane, Area Monitor

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to a Site Area Emergency when loss of control of radioactive materials causes significant offsite doses.

DISCUSSION

It is understood that a drop in Refueling Cavity water level will cause Dose Rates to rise due to the uncovering of irradiated Reactor components other than a spent fuel assembly. However, Dose Rates in excess of 2 Rem/hr indicate a loss of level such that recovery options may be limited and thus an Alert declaration is warranted.

DEVIATION

None

REFERENCES

NUMARC NESP-007, AA2.3 and AA2.4
OP-AR.ZZ-0003(Q) OHA-C35
OP-AB.FUEL-0002(Q)
NUREG/CR-4982
NRC Information Notice no. 90-08

7.0 Electrical Power

7.1 Loss of AC Power Capabilities

UNUSUAL EVENT - 7.1.1

IC Loss of All Offsite Power to Vital Buses for Greater Than 15 Minutes

EAL

Loss of 13KV Offsite Power Availability to ALL 4KV Vital Buses as evidenced by a **loss of function** of

- BOTH Station Power Transformers 13 (23) and 14 (24)

AND

> 15 minutes have elapsed

MODE - All

BASIS

Loss of Station Power Transformers 13(23) and 14(24) will result in a loss of offsite power to all 4KV Vital Busses for Unit 1 (Unit 2). The intent of this EAL is to identify a loss of off-site 500 KV or 13 KV power availability such that the 13(23) and 14(24) Station Power Transformers are unable to provide power to the 4KV Vital Buses.

Events which result in all available 4KV Vital Buses being supplied by their respective Diesel Generator with off-site power available should not be classified under this EAL (e.g.; all available 4KV vital buses in blackout loading during shutdown conditions due to inadvertent SEC Mode 2 "Blackout" loading with off-site power available).

Prolonged loss of AC power reduces redundancy and potentially degrades the level of safety by increasing plant vulnerability to a complete loss of AC power. 15 minutes was chosen to exclude transient or momentary power losses. Resetting of the 15 minute "clock" should not occur until a reliable source of power has been restored to the vital bus.

The term Power Availability to ALL 4KV Vital Busses is defined as the ability to restore off-site power to the Vital Bus (not just an open breaker which can reenergize the vital bus from an offsite source). The term **loss of function** is defined as the inability of these transformers to provide reliable offsite power due to transformer failure or other problems associated with equipment/power lines normally available.

EAL - 7.1.1
Rev. 00

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to the Alert classification level on loss of power to two 4KV Vital Buses.

DISCUSSION

All Emergency Operating Procedures, except EOP-LOPA-1, are written assuming that at least two 4KV Vital Busses have power available. Two 4KV Vital Buses are required to ensure that at least one full train of ESF equipment is available. In Modes 1 and 2, a loss of all offsite power will result in or require a reactor trip and transition into the EOP Network. For Modes 3 and 4, OP-AB.LOOP procedures provide additional guidance.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SU1
EOP-TRIP-1
EOP-LOPA-1
OP-AB.LOOP-0001(Q)
OP-AB.LOOP-0002(Q)
OP-AB.4KV-0001(Q)
OP-AB.4KV-0002(Q)
OP-AB.4KV-0003(Q)
SGS 1(2) Technical Specifications Section 3/4.8

7.0 Electrical Power

7.1 Loss of AC Power Capabilities

ALERT - 7.1.2.a

IC AC power capability to vital buses reduced to a single power source for greater than 15 minutes such that any additional single failure would result in station blackout

EAL

Loss of 4KV Vital Bus Power Sources (Offsite and Onsite) which results in the availability of only one 4KV Vital Bus Power Source (Offsite or Onsite)

AND

> 15 minutes have elapsed

MODE - 1, 2, 3, 4

BASIS

The condition indicated by this EAL is the degradation of offsite and onsite power systems supply to the 4KV Vital Buses, with two separate concerns. First, this EAL declares an Alert for conditions such that any additional, single power source failure would result in a loss of power to ALL 4KV Vital Buses. Second, an Alert would also be declared for < 2 4KV Vital Buses energized to be consistent with EOP-LOPA-1 entry conditions. At least 2 4KV Vital Buses are required to ensure one full train of ESF equipment is available for plant control. These conditions reduce redundancy and potentially degrade the level of safety by increasing plant vulnerability to a complete loss of Vital AC power. **Availability** means that the power source can be aligned to provide power to the bus within 15 minutes or is currently supplying power to at least one Vital Bus. Fifteen (15) minutes was chosen to exclude transient or momentary power losses. Resetting of the 15 minute "clock" should not occur until a reliable source of power has been restored to the vital bus.

Barrier Analysis

None

EAL - 7.1.2.a
Rev. 00

ESCALATION CRITERIA

This event will be escalated to the Site Area Emergency classification level on loss of power to all 4KV Vital Buses for > 15 minutes.

DISCUSSION

The intent of this EAL is to classify events strictly as they relate to 4KV Vital Bus power availability. For the purposes of the EAL, availability of Diesel Generators that have not been challenged to start during degradation of AC power sources to the 4KV Vital Buses should be based on meeting Technical Specification action requirements for loss of offsite AC power sources. There are two separate conditions addressed by this EAL.

The first condition is directly related to the Initiating Condition, and is precautionary in classifying the event as an Alert if a single failure of one power source could result in a total loss of all 4KV Vital power. Should such a loss actually occur, it would result in classification at the Site Area Emergency Level after 15 minutes if no other power sources are available. Examples of this condition are:

- 1) Failure of the 13(23) Station Power Transformer with all Diesel Generators inoperable; or
- 2) loss of all offsite power with a failure of two Diesel Generators (results in only one 4KV Vital Bus energized by its associated Diesel Generator).

The second condition is unique to Salem Generating Station due to the three 4KV Vital Bus vs. two trains of ESF equipment arrangement. Two energized 4KV Vital Buses are required to ensure the availability of one full train of ESF equipment. This threshold is consistent with EOP-LOPA-1 entry conditions used in the EOP Network.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SA5
EOP-TRIP-1
EOP-LOPA-1
OP-AB.LOOP-0001(Q)
OP-AB.LOOP-0002(Q)
OP-AB.4KV-0001(Q)
OP-AB.4KV-0002(Q)
OP-AB.4KV-0003(Q)
SGS 1(2) Technical Specifications Section 3/4:8

EAL - 7.1.2.a
Rev. 00

7.0 Electrical Power

7.1 Loss of AC Power Capabilities

ALERT - 7.1.2.b

IC Loss of All Offsite Power and All Onsite AC Power to 4 KV Vital Buses While the Plant is in Cold Shutdown , Refueling or Defueled Mode

EAL

Loss of power to **ALL** 4KV Vital Buses

AND

> 15 minutes have elapsed

MODE - 5, 6, Defueled

BASIS

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Fan Coil Unit, Spent Fuel Pool Cooling and Service Water. When in cold shutdown, refueling, or defueled modes, this event can be classified as an Alert. This is because of the significantly reduced decay heat load with lower temperatures and pressures. Fifteen (15) minutes was chosen to exclude transient or momentary power losses. Resetting of the 15 minute "clock" should not occur until a reliable source of power has been restored to the vital bus.

Barrier Analysis

None

ESCALATION CRITERIA

Escalation to a Site Area Emergency would occur on Radiological Release (EAL Section 6.0), or on the long term inability to remove Decay Heat (EAL Section 8.0).

DISCUSSION

In Modes 5, or 6, OP-AB.LOOP-0001(Q) provides guidance for maintaining plant control regardless of power remaining to the 4KV Vital Buses.

EAL - 7.1.2.b
Rev. 00

It is assumed that the plant will be maintained in a Cold Shutdown condition. If the plant is not able to be maintained in this mode, then escalation to Site Area Emergency would be appropriate based on Loss of Decay Heat Removal Capability EALs in Section 8.0.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SA1
OP-AB.LOOP-0001(Q)
OP-AB.4KV-0001(Q)
OP-AB.4KV-0002(Q)
OP-AB.4KV-0003(Q)
SGS 1(2) Technical Specifications Section 3/4.8

7.0 Electrical Power

7.1 Loss of AC Power Capabilities

SITE AREA EMERGENCY - 7.1.3

IC Loss of All Offsite Power and All Onsite AC Power to Vital AC Buses

EAL

Loss of power to All 4KV Vital Buses

AND

> 15 minutes have elapsed

MODE - 1, 2, 3, 4

BASIS

Loss of power to Station Power Transformers 13 and 14 (23 and 24) will result in a loss of all offsite power to all 4KV Vital Buses for Unit 1 (Unit 2). With a failure of the Emergency Diesels to energize the 4KV Vital Buses, all plant safety system functions are compromised. Prolonged loss of AC power will cause core uncover and loss of Containment integrity. The high potential decay heat loads in these modes warrants classification at the Site Area Emergency level. Fifteen minutes is chosen as a threshold to exclude transient or momentary power losses. Resetting of the 15 minute "clock" should not occur until a reliable source of power has been restored to the vital bus.

Barrier Analysis

Prolonged loss of all AC power has the potential for causing a potential loss or loss of the Fission Product Barriers.

ESCALATION CRITERIA

Escalation to General Emergency classification level will be via fission product barrier loss, or prolonged loss of offsite and onsite AC power.

EAL - 7.1.3
Rev. 00

DISCUSSION

All Emergency Operating Procedures except EOP-LOPA-1 are written assuming that at least two 4KV Vital Buses have power available. In Modes 1 and 2, a loss of all offsite power will result in or require a reactor trip. The threshold for this EAL is consistent with actions required by EOP-LOPA-1 to maintain the RCS Barrier, performing a rapid plant cooldown and depressurizing in order to minimize the potential of Reactor Coolant Pump seal failure, while continuing attempts to restore 4KV Vital Bus power. In Mode 3, operation within OP-AB.LOOP-0002(Q) is allowed without transition to EOP-TRIP-1 and EOP-LOPA-1. In Mode 4, OP-AB.LOOP-0001(Q) provide guidance for maintaining plant control regardless of the status of the 4KV Vital Buses.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SS1
Station Blackout Coping Studies
EOP-TRIP-1
EOP-LOPA-1
OP-AB.LOOP-0002(Q)
OP-AB.4KV-0001(Q)
OP-AB.4KV-0002(Q)
OP-AB.4KV-0003(Q)
SGS 1(2) Technical Specifications Section 3/4.8

7.0 Electrical Power

7.1 Loss of AC Power Capabilities

GENERAL EMERGENCY - 7.1.4.a/7.1.4.b/7.1.4.c

IC Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power to Vital AC Buses

EAL

Loss of power to ALL 4KV Vital Buses

AND

> 15 minutes have elapsed

AND

ANY one of the following:

- Restoration of Power to at least one 4KV Vital Bus within 2 hours is NOT likely
- CFST CORE COOLING RED PATH
- CFST HEAT SINK RED PATH

MODE - 1, 2, 3, 4

BASIS

Loss of all AC power compromises all plant safety systems requiring electric power. Prolonged loss of all AC power will lead to loss of Fuel Clad, RCS and Containment. Restoration of at least one 4KV Vital Bus within 2 hours is based on the station blackout coping analysis, and may still lead to core damage. Prudence in timely Protective Action Recommendation is necessary since core damage may occur even if AC power is restored.

CFST Core Cooling RED Path and Heat Sink RED Path provide indication of the loss or potential loss of fission product barriers. Because plant control strategies are limited with a prolonged loss of all AC power, these should be considered to indicate a loss of the fuel clad barrier, and a potential loss of the RCS or Primary Containment barriers. These threshold conditions are used to provide the Emergency Coordinator criteria for declaring a General Emergency based on degrading fission product barriers.

EAL - 7.1.4.a/7.1.4.b/7.1.4.c

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Barrier Analysis

Prolonged loss of all AC power has the potential for causing a potential loss or loss of the Fission Product Barriers.

ESCALATION CRITERIA

N/A

DISCUSSION

This EAL is based on a station blackout occurring while the unit is in mode 1,2, 3 or 4 and power not being restored for > 2 hours.

The status and availability of DC power may limit or prevent restoration activities. When prolonged powering of inverters and DC loads has occurred without AC power available for the battery chargers, DC voltage will degrade. This degradation of DC power may limit monitoring and assessment capabilities as instrumentation and control power may not be available. Since monitoring of overall plant conditions will be difficult with no AC power, CFST indications for determining barrier loss are used.

The likelihood of restoring at least one emergency bus should be based on a realistic appraisal of the situation since a delay in an upgrade decision based on only a chance of mitigating the event could result in a loss of valuable time in preparing and implementing public protective actions. In addition, under these conditions, fission product barrier monitoring capability may be degraded. Although it may be difficult to predict when power can be restored, it is necessary to give the Emergency Coordinator a reasonable idea of how quickly he may need to declare a General Emergency based on two major considerations:

1. Are there any present indications that core cooling is already degraded to the point that loss or potential loss of fission product barriers is imminent?
2. If there are no present indications of such core cooling degradation, how likely is it that power can be restored in time to assure that a loss of two barriers with a potential loss of the third barrier can be prevented?

It is estimated that several hours are required to fully evacuate the 10 mile EPZ. Taking into consideration the above factors, declaring a General Emergency leaves sufficient time for the offsite authorities to implement Protective Actions well before a radioactive release would occur while providing sufficient time for on-site and off-site mitigation activities to restore AC power.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SG1
Station Blackout Coping Studies
EOP-TRIP-1
EOP-LOPA-1
OP-AB.LOOP-0002(Q)
OP-AB.4KV-0001(Q)
OP-AB.4KV-0002(Q)
OP-AB.4KV-0003(Q)
SGS 1(2) Technical Specifications Section 3/4.8

7.0 Electrical Power

7.2 Loss of DC Power Capabilities

UNUSUAL EVENT - 7.2.1.a

IC Unplanned Loss of Required DC Power While the Unit is in Either Cold Shutdown or Refueling Mode for Greater Than 15 Minutes

EAL

Unplanned drop in Voltage to < 114 VDC on ALL 125VDC Vital buses

AND

> 15 minutes have elapsed

MODE - 5, 6

BASIS

A loss of all DC power compromises the ability to monitor and control plant functions. 125 volt DC system provides control power to decay heat removal systems, diesel generator auxiliaries, plant alarm and indication circuits as well as the control power for the associated loads. If 125 volt DC power is lost for an extended period of time (greater than 15 minutes) critical plant functions required to maintain safe plant conditions may not operate and core uncovering with subsequent reactor coolant system and primary containment failure might occur.

15 minutes was chosen to exclude transient or momentary power losses. Although this EAL threshold is not met unless ALL 125 VDC is lost, EC judgment should be used to classify an event that results in loss of two of the three 125 VDC Vital buses if the loss causes an extensive loss of control of the plant and/or safety systems. Threshold values for bus voltage were derived from SC.MD-ST.125-0004(Q).

Barrier Analysis

None

ESCALATION CRITERIA

This event would be escalated to an Alert based on Loss of Decay Heat Removal Capability.

EAL - 7.2.1.a
Rev. 00

DISCUSSION

Two of the three 125 VDC buses are required operable in Modes 5 or 6 per Technical Specifications. This EAL addresses an unplanned loss of ALL 125 VDC buses such that Technical Specification requirements are not met. The minimum voltage value was selected based on the minimum allowable voltage (rounded to 114.0 for consistency and readability on Control Room analog indications) required for DC bus operability as per SC.MD-ST.125-0004(Q). Although continued operation may occur with degraded voltage, this value signifies the minimum operable voltage allowed. Loss of DC power may result in the loss of control power and instrumentation associated with equipment necessary to maintain Cold Shutdown conditions.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SU7
OP-AR.ZZ-0002(Q)
SGS 1(2) Technical Specifications, 3/4.8
CBD DE-CB, 125-0018(Q)
SC.MD-ST.125-0004(Q)

7.0 Electrical Power

7.2 Loss of DC Power Capabilities

UNUSUAL EVENT - 7.2.1.b

IC Unplanned Loss of Required DC Power While the Unit is in Either Cold Shutdown or Refueling Mode for Greater Than 15 Minutes

EAL

Unplanned drop in Voltage to < 25 VDC on ALL 28VDC Vital buses

AND

> 15 minutes have elapsed

AND

Loss of control of Safety Related Equipment from the Control Room has been confirmed

MODE - 5, 6

BASIS

A loss of all DC power compromises the ability to monitor and control plant functions. 28 volt DC system provides control power to provide for remote operation of switchgear, annunciators, vital instrument buses, communications to auxiliary control system relay cabinets for manual control of ESF equipment, non-safety related equipment, and 1RP4 Status Board indications. If 28 volt DC power is lost for an extended period of time (greater than 15 minutes) critical plant functions required to maintain safe plant conditions may not operate and core uncover with subsequent reactor coolant system and primary containment failure might occur.

The requirement to have a confirmed loss of equipment control was added to ensure that classification will not be made if sufficient voltage is available to operate the required safety related equipment. The term **loss of control** is defined as the inability to manipulate the required piece of equipment. The term **from the Control Room** ensures that local manipulation is excluded from this EAL. The term **confirmed** is defined as evidence of a failure to operate such as the absence of a confirmatory push-button bezel light with associated changes in system parameters not observed (flow, pressure, etc.). Fifteen (15) minutes was chosen to exclude transient or momentary power losses. Threshold values for bus voltage were derived from SC.MD-ST.28D-0004(Q).

EAL - 7.2.1.b

Rev. 00

Barrier Analysis

None

ESCALATION CRITERIA

This event would be escalated to an Alert based on Loss of Decay Heat Removal Capability.

DISCUSSION

One 28 VDC bus is required operable in Modes 5 or 6 per Technical Specifications. This EAL addresses an unplanned loss of ALL 28 VDC buses such that Technical Specification requirements are not met. The minimum voltage value was selected based on the minimum allowable voltage (rounded to 25.0 for consistency and readability on Control Room analog indications) required for DC bus operability as per SC.MD-ST.28D-0004(Q). Loss of DC power may result in the loss of control power and instrumentation associated with equipment necessary to maintain Cold Shutdown conditions.

DEVIATION

Since Salem has a 28VDC system which is required to operate push-button controls in the Control Room, this EAL was added. There are only two 28VDC busses, and as such, a confirmation of the inability to operate safety related equipment was added to prevent inappropriate classification.

REFERENCES

NUMARC NESP-007, SU7
SGS 1(2) Technical Specifications, 3/4.8
CBD DE-CB, 28D-0019(Q)
SC.MD-ST.28D-0004(Q)

7.0 Electrical Power

7.2 Loss of DC Power Capabilities

SITE AREA EMERGENCY - 7.2.3.a

IC Loss of All Vital (1E) DC Power

EAL

Unplanned drop in Voltage to < 114 VDC on ALL 125VDC Vital buses

AND

> 15 minutes have elapsed

MODE - 1, 2, 3, 4

BASIS

A loss of all DC power compromises the ability to monitor and control plant functions. 125 volt DC system provides control power to Engineered Safety Features actuation, diesel generator auxiliaries, plant alarm and indication circuits as well as the control power for the associated loads. If 125 volt DC power is lost for an extended period of time (greater than 15 minutes) critical plant functions required to maintain safe plant conditions may not operate and core uncover with subsequent Reactor Coolant System and Primary Containment failure might occur.

15 minutes was chosen to exclude transient or momentary power losses. Although this EAL threshold is not met unless ALL 125 VDC is lost, EC judgment should be used to classify an event that result in loss of two of the three 125 VDC Vital buses if the loss causes an extensive loss of control of the plant and/or safety systems. Threshold values for each individual bus voltage were derived from SC.MD-ST.125-0004(Q).

Barrier Analysis

None

EAL - 7.2.3.a
Rev. 00

ESCALATION CRITERIA

There is no direct escalation to a General Emergency. Escalation would be based on other EALs indicating Radiological Release (EAL Section 6.0) or loss of Fission Product Barriers (EAL Section 3.0).

DISCUSSION

This EAL addresses plant conditions resulting in a loss of all 125VDC Vital power while the plant is in mode 1, 2, 3, or 4. The voltage selected was the minimum voltage on the bus based on the minimum allowable voltage required for DC Bus operability as per SC.MD-ST.125-0004(Q).. Although continued operation may occur with degraded voltage, this value signifies the minimum operable voltage allowed.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SS3
OP-AR.ZZ-0002(Q)
SGS 1(2) Technical Specifications, 3/4.8
CBD DE-CB.125-0018(Q)
SC.MD-ST.125-0004(Q)

7.0 Electrical Power

7.2 Loss of DC Power Capabilities

SITE AREA EMERGENCY - 7.2.3.b

IC Loss of All Vital (1E) DC Power

EAL

Unplanned drop in Voltage to < 25 VDC on ALL 28VDC Vital buses

AND

> 15 minutes have elapsed

AND

Loss of control of Safety Related Equipment from the Control Room has been confirmed

MODE - 1, 2, 3, 4

BASIS

A loss of all DC power compromises the ability to monitor and control plant functions. 28 volt DC system provides control power to provide for remote operation of switchgear, annunciators, vital instrument buses, communications to auxiliary control system relay cabinets for manual control of ESF equipment, non-safety related equipment, and 1RP4 Status Board indications. If 28 volt DC power is lost for an extended period of time (greater than 15 minutes) critical plant functions required to maintain safe plant conditions may not operate and core uncover with subsequent Reactor Coolant System and Primary Containment failure might occur.

The requirement to have a confirmed loss of equipment control was added to ensure that classification will not be made if sufficient voltage is available to operate the required safety related equipment. The term **loss of control** is defined as the inability to manipulate the required piece of equipment. The term **from the Control Room** ensures that local manipulation is excluded from this EAL. The term **confirmed** is defined as evidence of a failure to operate such as the absence of a confirmatory push-button bezel light with associated changes in system parameters not observed (flow, pressure, etc.). Fifteen (15) minutes was chosen to exclude transient or momentary power losses. Threshold values for bus voltage were derived from SC.MD-ST.28D-0004(Q).

EAL - 7.2.3.b

Rev. 00

Barrier Analysis

None

ESCALATION CRITERIA

There is no direct escalation to a General Emergency. Escalation would be based on other EALs indicating Radiological Release (EAL Section 6.0) or loss of Fission Product Barriers (EAL Section 3.0).

DISCUSSION

This EAL addresses plant conditions resulting in a loss of all 28VDC Vital power while the plant is in Mode 1, 2, 3, or 4. The voltage selected was the minimum voltage on the bus based on the minimum allowable voltage required for DC Bus operability as per SC.MD-ST.28D-0004(Q).

DEVIATION

Since Salem has a 28VDC system which is required to operate push-button controls in the Control Room, this EAL was added. There are only two 28VDC busses, and as such, a confirmation of the inability to operate safety related equipment was added to prevent inappropriate classification.

REFERENCES

NUMARC NESP-007, SS3
OP-AR.ZZ-0002(Q)
SGS 1(2) Technical Specifications, 3/4.8
CBD DE-CB.125-0018(Q)
SC.MD-ST.125-0004(Q)

8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

ALERT - 8.1.2

IC Inability to Maintain the Plant in Cold Shutdown

EAL

An **Unplanned, Complete loss of ALL systems providing Decay Heat Removal functions**

AND

EITHER one of the following occur:

- RCS Temperature has risen to > 200°F
(Excluding a < 15 minutes rise > 200°F with a **heat removal function** restored)
- An **UNCONTROLLED** temperature rise is **RAPIDLY** approaching 200°F
(with **NO** **heat removal functions** restored)

MODE -5, 6

BASIS

The intent of this EAL is to declare an Alert prior to boiling in the core when **ALL** RHR capability is lost in Cold Shutdown or Refueling. The specification of a temperature rise, rather than specific equipment failures, recognizes the potential for long heatup times providing adequate time for restoration of some form of alternate cooling.

The term "**ALL systems providing Decay Heat Removal functions**" is intended to represent a **complete loss** of functions **providing** core cooling during the Cold Shutdown and Refueling Modes including available injection pathways. The term "**Unplanned**" is included to preclude the declaration of an emergency for circumstances in which the RHR System is intentionally removed from service. This EAL allows actions taken in the appropriate OP-AB RHR procedures to re-establish RHR Cooling or provide for alternate methods of decay heat removal, such as Hot Leg Injection, with the intent of maintaining RCS temperature below 200°F. For loss of "in-service" RHR events with alternate cooling methods available, actions taken to provide for alternate DHR functions may require time to implement.

If the event results in RCS temperature momentarily (not to exceed 15 minutes) rising above 200°F with heat removal capability restored, Emergency Coordinator judgment will be required to

EAL - 8.1.2

Rev. 00

determine whether heat removal systems are adequate to prevent boiling in the core and restoration of RCS temperature control. **Momentary (not to exceed 15 minutes) unplanned excursions above 200°F, when alternate decay heat removal capabilities exist, should not be classified under this EAL.** NRC analysis has shown that specific sequences can result in core uncover within 15 to 20 minutes and severe core damage within an hour after decay heat removal capability has been lost.

Barrier Analysis

None

ESCALATION CRITERIA

This event would be escalated to a Site Area Emergency if RCS temperatures cannot be restored to below 350°F, or if the core becomes uncovered.

DISCUSSION

Separate criteria was included in this EAL for the 200°F limit in order to recognize additional methods available to provide core cooling. A loss of Technical Specification components alone is not intended to be classified under this EAL. The same is true for momentary unplanned excursions above 200°F when an alternate cooling method is available and functioning to lower RCS temperature below 200°F, thus representing successful implementation of the loss of RHR Abnormal Operating Procedure network. The EAL guidance related to uncontrolled temperature rise is necessary to preserve the anticipatory philosophy of NUREG-0654 for events starting from much lower than the Cold Shutdown temperature limit. With Core Exit Thermocouple indications available, this classification can be easily made in a timely manner. Wide range Hot or RHR System temperature indications are not considered accurate as they are dependent on RHR System flow. Reference to the Abnormal Procedures may be required for determining heatup rate when the CETs are disconnected for refueling operations or otherwise unavailable. Use of these curves provides sufficient detail to determine core heat up rate. This EAL satisfies the concerns of Generic Letter 88-17.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SA3
 NUMARC Questions and Answers, June 1993, "System Malfunction Question #6b"
 OP-AB.RHR-0001(Q)
 OP-AB.RHR-0002(Q)
 Generic Letter 88-17

8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

SITE AREA EMERGENCY - 8.1.3.a

IC Complete Loss of Functions Needed to Achieve or Maintain the Plant in Hot Shutdown

EAL

An Unplanned, Complete loss of ALL systems providing Decay Heat Removal functions

AND

EITHER one of the following occur:

- RCS Temperature has risen to > 200°F
(Excluding a < 15 minutes rise > 200°F with a heat removal function restored)
- An UNCONTROLLED temperature rise is RAPIDLY approaching 200°F
(with NO heat removal functions restored)

AND

Actions required by OP-AB.RHR have NOT maintained RCS temperature < 350°F

MODE - 4 on RHR Cooling, 5, 6

BASIS

This EAL is a direct result of a loss of RHR event and takes advantage of the various RCS cooling options offered by the Abnormal Operating procedures for a loss of RHR capabilities. Should this loss of RHR cooling event result in an RCS heatup to >350 F, this EAL will allow classification based upon a significant loss of plant control and work in conjunction with the Fission Product Barrier Table or Radiological Releases/Occurrences EALs.

Barrier Analysis

None

EAL - 8.1.3.a
Rev. 00

ESCALATION CRITERIA

This event would be escalated to a General Emergency on loss of Fission Product Barriers or abnormal radiological releases.

DISCUSSION

This EAL works in conjunction with EALs 8.1.2 and 8.1.3.d, depending upon the initial plant conditions. When in Modes 5 or 6 and RHR capability is lost (EAL 8.1.2), OP-AB.RHR-0001 and -0002 provide guidance on controlling the RCS temperature rise by various methods including injection or steaming of the Secondary plant. When a cooldown from Mode 3 into Mode 4 is required, EAL 8.1.3.d provides threshold values for a loss of Heat Sink event until RHR cooling can be established.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SS4
EOP-CFST-1
OP-AB.RHR-0001(Q)
OP-AB.RHR-0002(Q)

8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

SITE AREA EMERGENCY - 8.1.3.b

IC Loss of Reactor Vessel Level that has or will Uncover Fuel in the Reactor Vessel

EAL

RVLIS Full Range < 57%

MODE - 5, 6

BASIS

This EAL is an extension of the Loss of Decay Heat Removal Capabilities EAL Alert classification as well as guidance for Modes 5 & 6 LOCA conditions. This EAL addresses loss of inventory events such that the active fuel will be uncovered. The threshold value of RVLIS Full Range < 57% is chosen from the EOP SET DOC for Top of Active Fuel level with no flow.

Barrier Analysis

None

ESCALATION CRITERIA

This event would be escalated to a General Emergency on loss of Fission Product Barriers or abnormal radiological releases.

DISCUSSION

This EAL addresses the effects of prolonged core boiling following a loss of decay heat removal or Mode 5/6 LOCA conditions. Full Range RVLIS indicates reactor vessel water level with no RCPs running. The intent of this EAL is to provide a RVLIS level which approximates core uncover.

DEVIATION

None

EAL - 8.1.3.b
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REFERENCES

NUMARC NESP-007, SS5
EOP Setpoint Doc - K.02

8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

SITE AREA EMERGENCY - 8.1.3.c

IC Complete Loss of Functions Needed to Achieve or Maintain the Plant in Hot Shutdown

EAL

HEAT SINK RED PATH

MODE - 1, 2, 3, & 4 with RHR in Injection Mode

BASIS

This EAL addresses complete loss of a function required to reach Hot Shutdown conditions while operating in Mode 1, 2, 3, or Mode 4 with both trains of RHR aligned for injection. The ability to place the plant in Mode 3 from any "at Power" condition represents the loss of Reactivity Control which is adequately addressed in Section 5.0, ATWS. CFST Heat Sink RED PATH will limit the ability of the Control Room crew to place the plant in a Hot Shutdown condition due the inability to remove heat from the RCS. This represents an actual loss of functions intended for protection of the public and is consistent with the Fission Product Barrier Table threshold values; thus declaration of a Site Area Emergency is warranted. This EAL works in conjunction with EAL 8.1.3.a for events which occur while the plant is in on RHR cooling.

Barrier Analysis

Fuel Clad and RCS Barriers have been potentially lost.

ESCALATION CRITERIA

Escalation to a General Emergency would be based on loss of Fission Product Barriers or Radiological Releases.

DISCUSSION

Symptom based criteria from the Emergency Operating Procedures Critical Safety Function Tree (CFST) Monitoring program. The CFSTs are contained as a tab to the ECG. The intent of using CFST status is to simplify the identification of the threshold criteria.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SS4
EOP-CFST-1

8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

SITE AREA EMERGENCY - 8.1.3.d

IC Complete Loss of Functions Needed to Achieve or Maintain the Plant in Hot Shutdown

EAL

ALL Turbine Stop Valve Closed (MS 28)

AND

LOSS of ALL Steam Dump Valves (TB 10, 20, 30, 40)

AND

LOSS of ALL MS10 (Steam Generator Power-Operated Relief Valves) Valve Control (BOTH
Auto AND Manual)

AND

>15 minutes have elapsed

MODE - 1, 2, 3, and 4 with RHR in Injection Mode

BASIS

This EAL addresses complete loss of a function required to reach Hot Shutdown conditions while operating in Mode 1, 2, 3, or Mode 4 with both trains of RHR aligned for injection. The inability to place the plant in Mode 3 from any "at Power" condition represents the loss of Reactivity Control which is adequately addressed in Section 5.0, ATWS. A total loss of Steam Generator heat removal capability will limit the ability of the Control Room crew to place the plant in a Hot Shutdown condition due to the inability to remove heat from the RCS. The 15 minute threshold value was added to allow for restoration of unavailable systems. This represents an actual loss of functions intended for protection of the public; thus declaration of a Site Area Emergency is warranted. This EAL works in conjunction with EAL 8.1.3.a for events which occur while the plant is in on RHR cooling.

EAL - 8.1.3.d
Rev. 00

Barrier Analysis

N/A

ESCALATION CRITERIA

Escalation to a General Emergency would be based on loss of Fission Product Barriers or Radiological Releases.

DISCUSSION

This EAL attempts to identify a condition where all secondary heat removal capabilities have been lost due to inability of the Steam Generators to transfer heat either to the atmosphere or the Main Condenser. This loss of heat removal capabilities will result in an inability to cooldown the RCS to a Hot Shutdown condition.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SS4

8.0 System Malfunctions

8.2 Loss of Overhead Annunciators

UNUSUAL EVENT - 8.2.1

IC Unplanned Loss of Most or All Annunciation or Indication in the Control Room for Greater Than 15 minutes

EAL

Unplanned loss of > 75% of Control Room Overhead Annunciators

AND

EITHER one of the following:

- 15 minutes have elapsed since the loss of OHAs
- A **significant transient** is in progress

MODE - 1, 2, 3, 4

BASIS

A unplanned loss of most or all Control Room Overhead Annunciators without a plant transient in MODES 1, 2, 3, or 4 for greater than 15 minutes warrants a heightened awareness by Control Room Operators. Quantification of >75 is left to the discretion of the Senior Nuclear Shift Supervisor (SNSS), and is considered approximately 75%. It is not intended that a detailed count be performed, but that a rough approximation be used to determine the severity of the loss.

OP-AB.ANN-0001(Q) details increased monitoring and surveillance requirements as well as alternate indicators. 15 minutes is used as a threshold to exclude transient or momentary power losses. The 15 minutes clock starts when the annunciators have been lost, or are determined to have been lost. If upon time of discovery it is determined that the annunciators have been lost for at least 15 minutes prior to discovery, classification should be made under this EAL regardless of time required for restoration. If it is determined that the annunciators were lost for at least 15 minutes with the annunciators available at the time of discovery, classification is not required under this EAL, but a review of the "After The Fact" RAL should be completed.

Unplanned loss of annunciators excludes scheduled maintenance and testing activities.

EAL - 8.2.1
Rev. 00

A **significant transient** is left to the determination of the SNSS/EC, but as a minimum, plant transients for this EAL should include:

- Reactor Trips (Manual and Automatic)
- Load Rejections > 25% Thermal Power
- ECCS Injections
- Thermal Power Oscillation > 10%

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to an Alert if a transient is in progress or if alternate indications become unavailable and 15 minutes have elapsed since the loss of OHAs.

DISCUSSION

This EAL is not required in Modes 5 or 6 due to the limited number of safety systems required for operation.

In judging the severity of the annunciator loss, consideration should be given to those annunciators needed by the operating staff for operation in abnormal and emergency operating procedures.

DEVIATION

An EAL threshold for declaring an UE has been added if a significant transient is in progress when the loss of annunciators occurs, as requested by the NJ-BNE. These two independent events occurring at the same time warrants an expeditious notification and not waiting the 15 minutes for the Unusual Event declaration.

REFERENCES

NUMARC NESP-007, SU3
OP-AB.ANN-0001(Q)

8.0 System Malfunctions

8.2 Loss of Overhead Annunciators

ALERT - 8.2.2.a/8.2.2.b

IC Unplanned Loss of Most or All Control Room Annunciators and a Significant Transient is in Progress or Compensatory Indicators are Unavailable

EAL

Unplanned loss of > 75% of Control Room Overhead Annunciators

AND

EITHER one of the following:

- Alternate Indications are NOT AVAILABLE per OP-AB.ANN-0001(Q)
- A **significant transient** is in progress

AND

15 minutes have elapsed since the loss of OHAs

MODE - 1, 2, 3, 4

BASIS

A unplanned loss of most or all Control Room Overhead annunciators without a plant transient in MODES 1, 2, 3, or 4 for greater than 15 minutes warrants a heightened awareness by Control Room Operators. Quantification of "most" is left to the discretion of the Senior Nuclear Shift Supervisor (SNSS), and is considered approximately 75%. It is not intended that a detailed count be performed, but that a rough approximation be used to determine the severity of the loss.

OP-AB.ANN-0001(Q) details increased monitoring and surveillance requirements as well as alternate indicators. 15 minutes is used as a threshold to exclude transient or momentary power losses. The 15 minutes clock starts when the annunciators have been lost, or are determined to have been lost. If upon time of discovery it is determined that the annunciators have been lost for at least 15 minutes prior to discovery, classification must be made under this EAL regardless of time required for restoration. If it is determined that the annunciators were lost for at least 15 minutes with the annunciators available at the time of discovery, classification is not required under this EAL, but a review of the "After The Fact" RAL should be completed.

EAL - 8.2.2.a/8.2.2.b

Rev. 00

Unplanned loss of annunciators excludes scheduled maintenance and testing activities.

A **significant transient** is left to the determination of the SNSS/EC; but, as a minimum, plant transients for this EAL should include:

- Reactor Trips (Manual and Automatic)
- Load Rejections > 25% Thermal Power
- ECCS Injections
- Thermal Power Oscillation > 10%

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to a Site Area Emergency with a failure of alternate indications and a plant transient in progress.

DISCUSSION

Without Control Room annunciators, it may be difficult to monitor conditions associated with normal plant operations. During a transient event such as those listed in the EAL, the difficulty becomes more acute.

This EAL is not required in Modes 5 or 6 due to the limited number of safety systems required for operation.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SA4
OP-AB.ANN-0001(Q)

8.0 System Malfunctions

8.2 Loss of Overhead Annunciators

SITE AREA EMERGENCY - 8.2.3

IC Inability to Monitor a Significant Transient in Progress

EAL

Loss of > 75% of Control Room Overhead Annunciators

AND

A significant transient is in progress

AND

Alternate Indications are NOT AVAILABLE per OP-AB.ANN-0001(Q)

AND

Control Room indications are NOT AVAILABLE to monitor ANY one of the following:

- RCS Status
- Reactivity Control
- ECCS
- Secondary Systems (SGs, AFW)
- Containment Parameters

MODE - 1, 2, 3, 4

BASIS

A loss (planned or unplanned) of most or all Control Room Overhead Annunciators with a plant transient in MODES 1, 2, 3, or 4 for any amount of time warrants a heightened awareness by Control Room Operators. Quantification of >75% left to the discretion of the Senior Nuclear Shift Supervisor (SNSS), and is considered approximately 75%. It is not intended that a detailed count be performed, but that a rough approximation be used to determine the severity of the loss.

EAL - 8.2.3

Rev. 00

A **significant transient** is left to the determination of the SNSS/EC, but as a minimum, plant transients for this EAL should include:

- Reactor Trips (Manual and Automatic)
- Load Rejections > 25% Thermal Power
- ECCS Injection
- Thermal Power Oscillations $\geq 10\%$

The list of systems requiring Control Room monitoring ability (e.g., RCS, Reactivity Control, ECCS, etc.) was included to ensure all safety functions (including the ability to shut down the reactor, maintain core cooling, maintain the RCS intact, provide for a heat sink, and maintain an intact Containment) can be determined by some form of Control Room instrumentation. OP-AB.ANN-0001(Q), Loss of Overhead Annunciator System, details increased monitoring and surveillance requirements as well as alternate indicators.

Barrier Analysis

None

ESCALATION CRITERIA

This event would be escalated to a General Emergency based on the loss of Fission Product Barriers or abnormal radiological releases.

DISCUSSION

Without Control Room Overhead Annunciators, it may be difficult to monitor conditions associated with normal plant operations. During significant transient events such as those listed in the EAL, the difficulty becomes more acute. Compounding these, a concurrent loss of Control Room backup monitoring will further hinder Operations staff decision making needed to respond to the transient.

DEVIATION

None

REFERENCES

NUMARC NESP-007, SS6
OP-AB.ANN-0001(Q)

8.0 System Malfunctions

8.3 Loss of Communications Capability

UNUSUAL EVENT - 8.3.1.a

IC Unplanned Loss of All Onsite or Offsite Communications Capabilities

EAL

Unplanned Loss of ALL ONSITE communications as evidenced by the loss of ALL of the following systems:

- Station Page System (Gaitronics)
- Station Radio System
- Direct Inward Dial System (DID)

MODE - All

BASIS

An **Unplanned** loss of communication ability significantly degrades the operating crew's ability to perform tasks necessary for plant operations and/or the ability to communicate with offsite authorities, warrants declaration of an Unusual Event. The loss of **ALL ONSITE** communications capability is more comprehensive than that addressed by 10CFR50.72.b.

Unplanned is defined as the loss of communication capabilities not being the result of planned maintenance activities, where compensatory measures would be taken.

Barrier Analysis

N/A

ESCALATION CRITERIA

None

DISCUSSION

None

EAL - 8.3.1.a
Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, SU6

8.0 System Malfunctions

8.3 Loss of Communications Capability

UNUSUAL EVENT - 8.3.1.b

IC Unplanned Loss of All Onsite or Offsite Communications Capabilities

EAL

Unplanned Loss of ALL OFFSITE communications as evidenced by the loss of ALL of the following systems:

- Direct Inward Dial System (DID)
- Nuclear Emergency Telephone System (NETS)
- ESSX (Centrex) Phone System

MODE - All

BASIS

An **Unplanned** loss of communication ability significantly degrades the operating crew's ability to perform tasks necessary for plant operations and/or the ability to communicate with offsite authorities, warrants declaration of an Unusual Event. The loss of ALL OFFSITE communications capability is more comprehensive than that addressed by 10CFR50.72.b.

Unplanned is defined as the loss of communication capabilities not being the result of planned maintenance activities, where compensatory measures would be taken.

Barrier Analysis

N/A

ESCALATION CRITERIA

None

DISCUSSION

None

EAL - 8.3.1.b
Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, SU6

8.0 System Malfunctions

8.4 Control Room Evacuation

ALERT - 8.4.2

IC Control Room Evacuation has been Initiated

EAL

Control Room Evacuation has been initiated

MODE - All

BASIS

Control Room evacuation represents a serious situation since the degree of plant control at the remote shutdown locations is not as complete as it would be from the Control Room. The intent of this EAL is to declare an Alert when the determination to evacuate the Control Room has been made based on environmental/personnel safety concerns, and physical process of evacuating the Control Room has commenced.

Barrier Analysis

None

ESCALATION CRITERIA

This event will escalate to a Site Area Emergency if Plant control cannot be established within 15 minutes from outside the Control Room.

DISCUSSION

Control Room evacuation requires establishment of plant control from outside the Control Room (local control and Hot Shutdown Panels) and support from the Technical Support Center (TSC) and/or the Emergency Operations Facility (EOF) as necessary.

EAL - 8.4.2

Rev. 00

The establishment of remote system control will bypass many protective trips and interlocks. In addition, much of the instrumentation and assessment tools available in the Control Room will not be available. Operator actions upon deciding that the Control Room should be evacuated include tripping the Reactor and Main Turbine, starting Auxiliary Feed Water Pumps, initiating a Main Steam Line Isolation and placing all Lockout Switches on RP4 in the Valve Operable Position.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA5
OP-AB.CR-0001 (Q)
OP-AB.CR-0002 (Q)

8.0 System Malfunctions

8.4 Control Room Evacuation

SITE AREA EMERGENCY - 8.4.3

IC Control Room Evacuation has been Initiated and Plant Control Cannot Be Established

EAL

Control Room Evacuation has been initiated

AND

Control of the plant CANNOT be established from outside the Control Room within 15 minutes

MODE - All

BASIS

Transfer of safety system control has not been performed in an expeditious manner and it is unknown if any damage has occurred to the fission product barriers. During this transitional period the function of monitoring and/or controlling parameters necessary for plant safety may not be occurring and as a result there may be a threat to plant safety. The **15 minute** time limit for transfer of control is based on a reasonable time period for personnel to leave the control room, arrive at the hot shutdown areas, and reestablish plant control to preclude core uncover and/or core damage. The term "**control of the plant**" will require SNSS judgment in deciding whether sufficient control has been established to maintain core cooling based upon initial reports of equipment status from Hot Shutdown Panel 213.

Barrier Analysis

None

ESCALATION CRITERIA

This event will escalate based upon loss of Fission Product Barriers or abnormal radiological releases.

EAL - 8.4.3
Rev. 00

DISCUSSION

This EAL is designed to address the conditions where due to environmental/personnel safety concerns Control Room evacuation is required. Additionally, Plant control cannot be established from outside the Control Room within 15 minutes.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HS2
OP-AB.CR-0001 (Q)
OP-AB.CR-0002 (Q)

8.0 System Malfunctions

8.5 Technical Specifications

UNUSUAL EVENT - 8.5.1

IC Inability to Reach Required Mode Within Technical Specification Limits

EAL

Plant is NOT brought to the required Mode within the Technical Specification required time limit

MODE - 1, 2, 3, 4

BASIS

Entry into this EAL should occur when it is discovered that a Technical Specification Limiting Condition for Operation (LCO) action statement requiring a plant Mode change has not been complied with. Limiting Conditions for Operation (LCOs) require the plant to be brought to a safe Mode when the Technical Specification required plant system or component configuration cannot be maintained/restored. This Unusual Event is entered when the plant fails to COMPLY WITH THE ACTION STATED in a LCO, not when the action is required.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated based upon system malfunctions or other conditions covered in various other EAL sections.

DISCUSSION

Depending on the circumstances, this may or may not be a precursor to a more severe condition. A shutdown required by the site Technical Specifications requires a report under 10 CFR 50.72 (b) Non-emergency events. The plant is within its safety envelope when actions are completed within the allowable action statement time in the Technical Specifications. If the times specified within the action statements are not met, the plant may be in an unsafe condition. The declaration is based on exceeding the LCO action time period and is not related to how long a plant condition may have existed.

EAL - 8.5.1
Rev. 00

DEVIATION

None

REFERENCES

NUMARC NESP-007, SU2
SGS Technical Specifications
10CFR50.72

9.0 Hazards - Internal/External

9.1 Security Threats

10

UNUSUAL EVENT - 9.1.1

IC Confirmed Security Event Which Indicates a Potential Degradation in the Level of Safety of the Plant

EAL

Confirmed security threat directed towards the station as evidenced by ANY one of the following:

- Credible threat of malicious acts or destructive device within the Protected Area resulting in SCP-5 implementation
- Credible intrusion or assault threat to the Protected Area resulting in SCP-5 implementation
- Attempted intrusion or assault to the Protected Area resulting in SCP-7 OR SCP-11 implementation
- Malicious acts attempted or discovered within the Protected Area resulting in SCP-10 implementation
- Hostage/Extortion situation that threatens normal plant operations resulting in SCP-8 implementation
- Destructive Device discovered within the Protected Area resulting in SCP-10 implementation

MODE - All

BASIS

A security threat that is identified as being directed towards the station represents a potential degradation in the level of safety of the plant. The intent of this EAL is to classify security events which threaten the Protected Area, but have not been determined to threaten plant vital areas.

A security threat is confirmed if physical evidence supporting the threat exists, if information independent from the actual threat exists, or if a specific group claims responsibility for the threat. The SNSS/EC will declare an Unusual Event upon consulting with Security to determine the validity of the entry conditions. Security Contingency Procedure (SCP) numbers are referenced following each EAL threshold. Since some SCP numbers appear in more than one EAL, the on-duty PSE&G Security Supervisor will provide information concerning the specific event to aid in classification.

EAL - 9.1.1
Rev. 00

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to an Alert based upon an actual Protected Area intrusion, malicious acts, or destructive devices discovered within a Vital Area.

DISCUSSION

Security events which do not represent a potential degradation in the level of safety of the plant are reported under RAL 11.7.1.a as a One Hour Non-Emergency Safeguards event.

The following is an index of Security Contingency Procedures referenced by this event:

- SCP-5, "Security Threat"
- SCP-7, "Internal Disturbance"
- SCP-8, "Hostage Situation"
- SCP-10, "Discovery of Destructive Devices or Evidence of Malicious Acts"
- SCP-11, "Civil Disturbance"

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU4.1, HU4.2
Safeguards Contingency Plan

9.0 Hazards - Internal/External

9.1 Security Threats

ALERT - 9.1.2

IC Security Event in a Plant Protected Area

EAL

Confirmed hostile intrusion or malicious acts as evidenced by ANY one of the following:

- Discovery of an intruder(s), armed and violent, within the Protected Area resulting in SCP-6 implementation
- Hostage held on-site in a non-vital area resulting in SCP-8 implementation

MODE - All

BASIS

This class of security event represents an escalated threat to the level of safety of the plant. This event is confirmed if physical evidence supporting the hostile intrusion or assault exists. The intent of this EAL is to classify security events which represent an actual intrusion into the plant Protected Area. The SNSS/EC will declare an Alert upon consulting with the Security to determine the validity of the entry conditions.

Security Contingency Procedure (SCP) numbers are referenced following each EAL threshold. Since some SCP numbers appear in more than one EAL, the on-duty PSE&G Security Supervisor will provide information concerning the specific event to aid in classification.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to a Site Area Emergency based upon a hostile intrusion in plant Vital Areas.

EAL - 9.1.2
Rev. 00

DISCUSSION

The following is an index of Security Contingency Procedures referenced by this event:

- SCP-6, "Discovery of Intruders or Attack"
- SCP-8, "Hostage Situation"

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA4.1, HA4.2
Safeguards Contingency Plan

9.0 Hazards - Internal/External

9.1 Security Threats

SITE AREA EMERGENCY - 9.1.3

IC Security Event in a Plant Vital Area

EAL

Confirmed hostile intrusion or malicious acts in Plant Vital Areas as evidenced by:

- Discovery of an intruder(s), armed and violent, within the Vital Area, resulting in SCP-6 implementation
- Malicious acts or destructive device discovered in a Vital Area, resulting in SCP-10 implementation

MODE - All

BASIS

This class of security event represents an escalated threat to plant safety above that contained in an Alert in that a hostile intrusion or assault has progressed from the Protected Area to a Vital Area. The Vital Areas are within the Protected Area and are generally controlled by key card readers. These areas contain vital equipment which includes any equipment, system, device or material required for safe shutdown and for protection of the health and safety of the public and plant personnel.

The Security Contingency Procedure (SCP) number is referenced following the EAL threshold. Since some SCP numbers appear in more than one EAL, the on-duty PSE&G Security Supervisor will provide information concerning the specific event to aid in classification.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to a General Emergency based upon the loss of physical control of the Control Room or Remote Shutdown Capability.

EAL - 9.1.3
Rev. 00

DISCUSSION

The following is an index of the Security Contingency Procedure referenced by this event:

- **SCP-6**, "Discovery of Intruders or Attack"
- **SCP-10**, "Discovery of Destructive Devices or Evidence of Malicious Acts"

DEVIATION

None

REFERENCES

NUMARC NESP-007, HS1.1, HS1.2
Safeguards Contingency Plan

9.0 Hazards - Internal/External

9.1 Security Threats

GENERAL EMERGENCY - 9.1.4

IC Security Event Resulting in Loss of Ability to Reach and Maintain Cold Shutdown

EAL

Security event resulting in the **actual loss of physical control** of EITHER one of the following:

- Control Room
- Remote Shutdown Panel 213

MODE - All

BASIS

Security events classified under this EAL represent conditions under which a hostile force has ken physical control of areas required to reach and maintain Cold Shutdown. Both the Control Room and Remote Shutdown Panel are included, since control of either could hamper the operating crew's ability to perform a safe plant shutdown. **Actual loss of physical control** is defined as the condition where licensed Control Room Operators can no longer take required action to operate the plant, including unauthorized transfer of plant equipment controlled from the Control Room.

Barrier Analysis

None

ESCALATION CRITERIA

N/A

DISCUSSION

The Remote Shutdown Panel 213 was the only panel included in this EAL due to its central location and ability to allow for **physical control** of multiple Safety Related components without detailed knowledge of plant operations. Security threats which meet the threshold for declaration of a General Emergency are an actual loss of physical control of the Control Room or remote

EAL - 9.1.4
Rev. 00

shutdown locations. This situation places the plant in a potentially unstable condition with high potential of multiple fission product barrier failures.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HG1
Safeguards Contingency Plan

9.0 Hazards - Internal/External

9.2 Fire

UNUSUAL EVENT - 9.2.1

IC Fire Within the Protected Area Boundary Not Extinguished Within 15 Minutes of Detection

EAL

Valid Fire Alarm is received in the Control Room **OR**
Report of a **fire** from personnel at the scene

AND

Fire is within **ANY** one of the following Plant Structures (**EXCLUDING** small **fires** that have **NO** potential to affect **Safety Systems** or Protected Area Permanent Plant Structures)

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area
- Turbine Building

AND

Fire is **NOT** extinguished within **15 minutes** of **EITHER** one of the following:

- Receipt of a **Valid Fire Alarm**
- Report of a fire from the scene

MODE - All

BASIS

Fires classified under this EAL include those of a magnitude and extent that may be a potential precursor to damage to **Safety Systems**, and hence have safety significance. This EAL includes Plant Vital Structures and also structures and areas that are contiguous to Plant Vital Structures,

EAL - 9.2.1
Rev. 00

due to the potential for a fire to spread from a non-safety related structure to an adjoining safety related structure.

A fire alarm received in the Control Room is considered to be **Valid** when the alarm is substantiated by the receipt of related independent alarms (fire, temperature, deluge, etc.) in the Control Room or by visual confirmation if only a single detector is alarming.

This EAL EXCLUDES such items as fires in Plant Structures other than those listed in the EAL, waste-basket fires, and other small fires of no safety significance based on the judgment of the SNSS that NO potential to affect a **Safety System** exists. Emergency Coordinator judgment must be exercised to determine if a fire within a Plant Structure is of any safety significance.

The 15 minute clock starts upon receipt of a **Valid Fire Alarm** or report of a fire from personnel at the scene. 15 minutes was determined to be a reasonable time limit for small fires to be extinguished. A **Safety System** is defined as any system or component included within the Technical Specification.

Fire is defined as combustion characterized by the generation heat and smoke. Sources of smoke such as overheated electrical equipment and slipping drive belts, for example, do not constitute fires. Observation of a flame is preferred but is NOT required if large quantities of smoke and heat are observed.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert if the fire damages more than one plant Safety System or damages any Plant Vital Structures.

DISCUSSION

The presence of a fire within the specified areas must be evaluated to determine the potential impact on **Safety Systems**, even if initial reports are that the fire is effecting a non-safety related portion of the plant, but has the potential to spread.

Excluded or non-vital structures include:

Unit 3
Main or Aux Guard House
Circulating Water Structure
Main, Aux, and Switchyard Transformers
B-building

Onsite Trailers
Salem Admin. Building
Onsite Warehouses
Nuclear Services Building

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU2
M10-FRS-I-0001, Control Room Fire Response
NUMARC Q & A, JUNE 1993

9.0 Hazards - Internal/External

9.2 Fire

ALERT - 9.2.2

IC Fire Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown

EAL

Fire within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

The Fire is of a magnitude that it SPECIFICALLY results in **Damage** to ANY one of the following:

- TWO OR MORE Trains of a **Safety System**
- MORE THAN ONE Safety System
- Any Plant Vital Structure which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present **MODE** of operation

MODE - All

BASIS

The primary concern in this EAL is the magnitude of the fire and the effects on **safety systems** required for the present **MODE** of Operation. Specific system degradation is addressed in the System Malfunction EALs. A detailed assessment of system damage is not required prior to

EAL - 9.2.2
Rev. 00

classification. The term "**Damage**" is defined as evidence that the fire has caused component malfunction (pump trip, breaker trip, etc.) or a report of visible scorching, blistering or other deformation that may have resulted in the equipment/structure being **INOPERABLE** or otherwise incapable of performing its design function. A **Safety System** is defined as any system required to maintain safe operation or to establish or maintain Cold Shutdown. In those cases where it is believed that the fire may have caused damage to **Safety Systems**, then an Alert declaration is warranted, since the full extent of the damage may not be known. For Plant Vital Structure damage, classification is required under this EAL if the structure houses or otherwise supports **Safety Systems** required for the present **MODE** of operation.

For example, a fire that has been confirmed to be localized to a single piece of equipment, like a 4KV Breaker, with no potential to spread to adjacent equipment, does not warrant classification as an Alert. In the event, however, that the fire has spread or is believed to be spreading to other 4KV Breakers for component(s) required for the present **MODE** of Operation, then an Alert is warranted.

Fire is defined as combustion characterized by the generation heat and smoke. Sources of smoke such as overheated electrical equipment and slipping drive belts, for example, do not constitute fires. Observation of a flame is preferred but is **NOT** required if large quantities of smoke and heat are observed.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated based on further damage to plant safety systems, loss of fission product barriers, or abnormal radiological releases. The EC may use Emergency Coordinator Discretion and escalate the classification to SAE based on the nature of the fire.

DISCUSSION

No lengthy and time consuming assessment of damage is required prior to classification. In this EAL, no attempt is made to quantify the magnitude of the damage to any Safety System but instead an attempt is made to identify any damage in order to quantify the magnitude and extent of the fire. In short, if the fire is big enough that it has damaged **MORE THAN ONE** Safety System, or more than one train of a safety system, then the fire is big enough to justify an Alert declaration.

Damage to Plant Vital Structures must be to the extent that EC judgment must be used to determine if the structure is still capable of performing its design function. Electrical failures (such as shorts, grounds, arcing, etc.) should be evaluated for the possibility of a fire. Any security aspects of this event should be considered under EAL sections covering Security Events.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA2
M10-FRS-I-001, Control Room Fire Response

9.0 Hazards - Internal/External

9.3 Explosion

UNUSUAL EVENT - 9.3.1

IC Natural and Destructive Phenomena Affecting the Protected Area

EAL

Confirmed Explosion within the Protected Area

AND

Report of visible damage to Plant equipment or Protected Area Permanent Plant Structures

MODE - All

BASIS

Occurrence of this event within the Protected Area, that causes visible damage to plant equipment or Protected Area Permanent Plant Structures warrant declaration as an Unusual Event under this EAL. Confirmed Explosions outside the Protected Area should not be classified under this EAL. No attempt should be made to assess the magnitude of the damage. The confirmed occurrence of the explosion with a report of damage (deformation/scorching) is sufficient for declaration. A **confirmed explosion** is defined as visual evidence that a rapid, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to damage permanent plant structures, systems or components, has occurred.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to Alert if the explosion damages more than one safety system or damages any plant vital structure as per EAL 9.3.2.

EAL - 9.3.1
Rev. 00

DISCUSSION

Electrical failures (such as shorts, grounds, arcing, etc.) should not be considered an explosion; however, they should be evaluated for the possibility of a fire. Any security aspects of this event should be considered under EAL sections covering Security Events.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.5
M10-FRS-I-0001, Control Room Fire Response

9.0 Hazards - Internal/External

9.3 Explosion

ALERT - 9.3.2

IC Explosion Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown

EAL

Confirmed Explosion within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

The Explosion is of a magnitude that it SPECIFICALLY results in **Damage** to ANY one of the following:

- TWO OR MORE Trains of a **Safety System**
- MORE THAN ONE **Safety System**
- Any Plant Vital Structure which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present **MODE** of operation

MODE - All

BASIS

The primary concern in this EAL is the magnitude of the explosion and the effects on **Safety Systems** required for the present **MODE** of Operation. Specific system degradation is addressed in the System Malfunction EALs. A detailed assessment of system damage is not required prior to classification. The term "**Damage**" is defined as evidence that the explosion has caused component malfunction (pump trip, breaker trip, etc.) that may have resulted in the

EAL - 9.3.2
Rev. 00

equipment/structure being INOPERABLE or otherwise incapable of performing its design function. A **Safety System** is defined as any system required to maintain safe operation or to establish or maintain Cold Shutdown. In those cases where it is believed that the explosion may have caused damage to **Safety Systems**, then an Alert declaration is warranted, since the full extent of the damage may not be known. For Plant Vital Structure damage, classification is required under this EAL if the structure houses or otherwise supports **Safety Systems** required for the present MODE of Operation.

A **confirmed explosion** is defined as visual evidence that a rapid, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to damage or potentially damage permanent plant structures, systems or components.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated based on further damage to plant safety systems, loss of fission product barriers, or abnormal radiological releases. The EC may use Emergency Coordinator Discretion and escalate the classification to SAE based on the nature of the explosion.

DISCUSSION

No lengthy and time consuming assessment of damage is required prior to classification. In this EAL, no attempt is made to quantify the magnitude of the damage to any Safety System, but instead an attempt is made to identify any damage in order to quantify the magnitude and extent of the explosion. In short, if the explosion is big enough that it has damaged MORE THAN ONE safety system, or more than one train of a Safety System, then the explosion is big enough to justify an Alert declaration.

Damage to Plant Vital Structures must be to the extent that EC judgment must be used to determine if the structure is still capable of performing its design function. Electrical failures (such as shorts, grounds, arcing, etc.) should not be considered an explosion; however, they should be evaluated for the possibility of a fire. Any security aspects of this event should be considered under EAL sections covering Security Events.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA2
M10-FRS-I-001, Control Room Fire Response

EAL - 9.3.2
Rev. 00

9.0 Hazards - Internal/External

9.4 Toxic/ Flammable Gases

UNUSUAL EVENT - 9.4.1.a

IC Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant

EAL

Notification by Local, County, or State Officials for the potential need to EVACUATE non-essential personnel due to an Offsite **Toxic Gas** release

AND

SNSS deems evacuation of non-essential personnel is required

MODE - All

BASIS

Notification by Local, County, or State Officials for the potential need to EVACUATE non-essential personnel due to an Offsite Toxic Gas release, along with SNSS concurrence that such action is appropriate warrants declaration of an Unusual Event, since a release that has occurred offsite, may have an impact on routine plant operations. An offsite event (such as a tanker accident or a barge accident) may place the Protected Area within the evacuation area. The evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials.

A **Toxic Gas** is considered to be any substance that is dangerous to life or limb by reason of inhalation or skin contact. A **Toxic Gas** release is considered to be a threat to plant personnel if concentrations are high enough to endanger the health of those personnel.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert if the Toxic Gas enters either a Plant Vital Area or an area contiguous to a Plant Vital Area.

DISCUSSION

EAL - 9.4.1.a

Rev. 00

None

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU3.2
SC.OP-AB.CR-0003(Q)

9.0 Hazards - Internal/External

9.4 Toxic/ Flammable Gases

UNUSUAL EVENT - 9.4.1.b

IC Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant

EAL

Uncontrolled Toxic Gas release within the Protected Area in ANY area which does not normally require an atmospheric survey or Respiratory Protection for entry

AND

Routine Plant Operations are IMPEDED based on EITHER one of the following:

- **Access restrictions** caused by the **uncontrolled release**
- Personnel injuries have occurred as a result of the release

MODE - All

BASIS

An **uncontrolled Toxic Gas** release within the Protected Area, in high enough concentrations, will adversely affect the health and safety of plant personnel, along with the safe operation of the plant. This EAL specifically addresses those areas within the Protected Area that do not normally require an atmospheric survey or Respiratory Protection for entry, since the atmosphere in an area that does require an atmospheric survey or Respiratory Protection does not meet the intent of this EAL.

Releases classified under this EAL include those that originate both onsite and offsite. A **Toxic Gas** is considered to be any substance that is dangerous to life or limb by reason of inhalation or skin contact. **Uncontrolled Toxic Gas** releases are considered to be those releases that can not be isolated / confined to a single compartment or area, or are not as the result of a designed plant safety feature.

For example, an **uncontrolled release** of chlorine/ammonia into the Turbine Building warrants declaration of an Unusual Event. A Cardox discharge inside any area that contains this safety feature (i.e. Diesel Room) does not warrant Unusual Event declaration, unless personnel injuries have occurred as a direct result of the discharge or personnel must enter the area using respiratory equipment.

EAL - 9.4.1.b
Rev. 00

A **Toxic Gas** release is considered to be IMPEDING normal plant operations if concentrations are high enough to restrict routine operator movements. **Access restrictions** includes those conditions where access is only possible with appropriate personnel protection equipment, since this equipment restricts normal vision and mobility.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert if the Toxic Gas enters either a Plant Vital Area or an area contiguous to a Plant Vital Area.

DISCUSSION

This EAL should not be construed to include confined spaces that must be ventilated prior to entry or situations involving Site Protection personnel who are using respiratory equipment during the performance of their duties unless it also affects personnel not involved with Site Protection activities. These areas include ALL Confined Spaces. In addition, those situations that require personnel to wear respiratory protection equipment as the result of airborne contamination as required by Radiation Protection personnel do not meet the intent of this EAL.

An offsite event (such as a tanker accident or a barge accident) may place the Protected Area within the evacuation area. The evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU3.1
SC.OP-AB.CR-0003(Q)

9.0 Hazards - Internal/External

9.4 Toxic/ Flammable Gases

UNUSUAL EVENT - 9.4.1.c

IC Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant

EAL

Uncontrolled Flammable Gas release within the Protected Area that RESULTS in Flammable Gas concentrations EXCEEDING 25% of the LEL

AND

Routine Plant Operations are IMPEDED based on EITHER one of the following:

- **Access restrictions** caused by the **uncontrolled** release
- Personnel injuries have occurred as a result of the release

MODE - All

BASIS

An **uncontrolled Flammable Gas** release within the Protected Area, in high enough concentrations, will adversely affect the health and safety of plant personnel, along with the safe operation of the plant. This EAL specifically addresses those conditions where a Flammable Gas concentration EXCEEDING 25% of the LEL (Lower Explosive Limit) exists anywhere within the Protected Area. Releases classified under this EAL include those that originate both onsite and offsite.

A **Flammable Gas** is considered to be any substance that can result in an ignition, sustained burn or detonation. **Uncontrolled Flammable Gas** releases are considered to be those releases that can not be isolated / confined to a single compartment or area.

For example, an **uncontrolled release** of hydrogen into the Turbine Building in concentration exceeding 25% of the LEL warrants declaration of an Unusual Event. In comparison, a controlled release of Hydrogen during Generator purging or Hydrogen Tank trailer purging does not warrant event declaration, as these evolutions are controlled.

Flammable Gas release is considered to be IMPEDING normal plant operations if concentrations are high enough to restrict routine operator movements. **Access restrictions**

includes those conditions where access is only possible with appropriate personnel protection equipment, since this equipment restricts normal vision and mobility.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will escalate to an Alert if the Flammable Gas enter either a Plant Vital Area or an area contiguous to a Plant Vital Area.

DISCUSSION

For Hydrogen Gas, the explosive limit is 4%. Hence, a threshold of 25% of the LEL equates to 1% Hydrogen. This EAL should not be construed to include those controlled evolutions that may discharge a Flammable Gas within the Protected Area, but present no danger to plant safety, since the evolution is planned and controlled.

An offsite event (such as a tanker accident or a barge accident) may place the Protected Area within the evacuation area. The evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU3.1
SC.OP-AB.CR-0003(Q)

9.0 Hazards - Internal/External

9.4 Toxic/ Flammable Gases

ALERT - 9.4.2.a

IC Release of Toxic or Flammable Gases Within a Facility Structure Which Jeopardizes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown Conditions

EAL

Uncontrolled Toxic Gas release within ANY one of the following Plant Vital Structures

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Area
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

Toxic Gas concentrations result in ANY one of the following:

- An IDLH atmosphere
- Plant personnel report severe adverse health reactions, including burning eyes, nose, throat, or dizziness
- The Threshold Limit Value (TLV) being EXCEEDED

AND

Plant personnel are unable to perform actions necessary to complete a Safe Shutdown of the plant without appropriate personnel protection equipment

MODE - All

BASIS

An **uncontrolled Toxic Gas** release entering any of the plant structures listed in the EAL, that threatens the ability of plant personnel to perform actions required for safe shutdown of the plant, warrants declaration of an Alert. The EAL threshold includes those conditions that present a

EAL - 9.4.2.a

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significant challenge to plant personnel. This EAL specifically addresses only those plant structures that either contain safe shutdown equipment or are contiguous to those areas. Release classified under this EAL include those that originate both onsite and offsite. A **Toxic Gas** is considered to be any substance that is dangerous to life or limb by reason of inhalation or skin contact. **Uncontrolled Toxic Gas** releases are considered to be those releases that can not be isolated / confined to a single compartment or area, or are not as the result of a designed plant safety feature.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will be escalated based on further damage to plant safety systems, loss of fission product barriers, or abnormal radiological releases. The EC may use Emergency Coordinator Discretion and escalate the classification to SAE based on the nature of the toxic gas release.

DISCUSSION

Access is considered impeded if the Toxic Gas concentrations are life threatening, i.e. require the use of personnel protective equipment. Use of protective equipment also limits the mobility and vision. The cause or magnitude of the gas concentration is not the major concern in this EAL, but rather that access required to an area that may be impeded. An IDLH atmosphere is any atmosphere that is determined to be Immediately Dangerous to Life and Health.

This EAL should not be construed to include confined spaces that must be ventilated prior to entry or situations involving Site Protection personnel who are using respiratory equipment during the performance of their duties unless it also affects personnel not involved with Site Protection activities. In addition, those situations that require personnel to wear respiratory protection equipment as the result of airborne contamination as required by Radiation Protection personnel do not meet the intent of this EAL.

An offsite event (such as a tanker accident or a barge accident) may place the Protected Area within the evacuation area. The evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA3.1
SC.OP-AB.ZZ-0003(Q)

9.0 Hazards - Internal/External

9.4 Toxic/ Flammable Gases

ALERT - 9.4.2.b

IC Release of Toxic or Flammable Gases Within a Facility Structure Which Jeopardizes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown Conditions

EAL

Uncontrolled Flammable Gas release within ANY one of the following Plant Vital Structures

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Area
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

Flammable Gas concentrations EXCEED 50% of the LEL

AND

Plant personnel are unable to perform actions necessary to complete a Safe Shutdown of the plant without appropriate personnel protection equipment

MODE - All

BASIS

An **uncontrolled Flammable Gas** release entering any of the Plant Structures listed in the EAL, that threatens the ability of plant personnel to perform actions required for safe shutdown of the plant, warrants declaration of an Alert. The EAL threshold includes those conditions that present a significant challenge to plant personnel. This EAL specifically addresses only those Plant Structures that either contain safe shutdown equipment or are contiguous to those areas. Releases classified under this EAL include those that originate both onsite and offsite.

EAL - 9.4.2.b
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A **Flammable Gas** is considered to be any substance that is capable of being easily ignited or burning quickly. **Uncontrolled Flammable Gas** releases are considered to be those releases that can not be isolated / confined to a single compartment or area, or are not as the result of a designed plant safety feature. For example, an **uncontrolled release** of hydrogen into the Auxiliary Building in concentration exceeding 50% of the LEL (Lower Explosive Limit) warrants declaration of an Alert. In comparison, a controlled release of Hydrogen during Generator purging does not warrant event declaration, as this evolution is controlled.

Barrier Analysis

N/A

ESCALATION CRITERIA

Emergency Classification will be escalated based on subsequent damage to plant safety systems, loss of fission product barriers, or abnormal radiological releases. The EC may discretion and escalate the classification to SAE based on the nature of the flammable gas release.

DISCUSSION

For Hydrogen Gas, the explosive limit is 4%. Hence, a threshold of 50% of the LEL equates to 2% Hydrogen. This EAL should not be construed to include those controlled evolutions that may discharge a Flammable Gas within the Protected Area, but present no danger to plant safety, since the evolution is planned and controlled.

An offsite event (such as a tanker accident or a barge accident) may place the Protected Area within the evacuation area. The evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA3.2
SC.OP-AB.ZZ-0003(Q)

9.0 Hazards - Internal/External

9.5 Seismic Events

UNUSUAL EVENT - 9.5.1.a/9.5.1.b

IC Natural and Destructive Phenomena Affecting the Protected Area

EAL

EITHER one of the following conditions:

- Seismic Event felt by personnel within the Protected Area
- **Valid** actuation of the Seismic Trigger (**>0.01g**) has occurred as verified by the SMA-3 Event Indicator (flag) being **White** on the Seismic Monitor System cabinet in the # 1 CR Equipment Room

MODE - All

BASIS

An earthquake of this magnitude is not expected to affect the capability of plant safety functions. A seismic event recording a magnitude of $>0.01g$ is the threshold level at which the Seismic Monitoring System would monitor the event. The actual value can be determined by engineering evaluation of the acceleration of gravity as read on the seismic recorder, information provided by Hope Creek station, or confirmation by the National Earthquake Center.

The Overhead Annunciator , "SEIS RCDR SYS ACT" will alert operators to this event and the seismic monitoring instrumentation would begin to monitor the event. This value is well below the Operating Basis Earthquake of $0.1g$.

Barrier Analysis

None

ESCALATION CRITERIA

Escalation of this event would occur if actuation of the Hope Creek Seismic Switch ($>0.1g$) has occurred. Call the Hope Creek SNSS to request this information.

EAL - 9.5.1.a/9.5.1.b

Rev. 00

DISCUSSION

An earthquake of this magnitude is not expected to affect the capability of plant safety functions.

For further information, the National Earthquake Center can be contacted at (303) 273-8500. An approximate relationship between acceleration of gravity and magnitude is as follows:

An Acceleration of:	is approx. equal to a Richter Scale Magnitude of:
0.01g	4.0
0.02g	4.5
0.1g	5.5
0.2g	6.5

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.1
UFSAR, Chapter 52, Seismic Monitoring System

9.0 Hazards - Internal/External

9.5 Seismic Events

ALERT - 9.5.2

IC Natural and Destructive Phenomena Affecting the Plant Vital Area

EAL

Valid Actuation of the Hope Creek Seismic Switch (> 0.1g) has occurred as verified by the Hope Creek SNSS

MODE - All

BASIS

The Operating Basis Earthquake of 0.1g has been exceeded for both Salem and Hope Creek. At this level, plant safety systems are designed to remain functional and within design stress and deformation limits. Thus, an earthquake of this magnitude is not expected to affect the capability of plant safety functions required to shut down the plant and place it in a cold shutdown condition.

The actual value can be determine by engineering evaluation of the acceleration of gravity as read on the seismic recorder, information provided by Hope Creek station, or confirmation by the National Earthquake Center. The Overhead Annunciator , "SEIS RCDR SYS ACT" will alert operators to this event and the seismic monitoring instrumentation would begin to monitor the event.

Barrier Analysis

N/A

ESCALATION CRITERIA

Escalation of this event would occur if the seismic event caused additional damage to plant safety systems, loss of fission product barriers, or abnormal radiological releases. The EC may use discretion and escalate the classification to SAE based on the nature of the event.

EAL - 9.5.2
Rev. 00

DISCUSSION

The Overhead Annunciator , "SEIS RCDR SYS ACT" will alert operators to this event and the seismic monitoring instrumentation would begin to monitor the event. If analysis of the event indicates that the threshold value has been exceeded, immediate plant shutdown is required to evaluated possible equipment damage. This threshold value is well below the Design Basis Earthquake of 0.2g that is the maximum seismic event that is expected to occur based on local geological and seismological factors.

For further information, the National Earthquake Center can be contacted at (303) 273-8500. An approximate relationship between acceleration of gravity and magnitude is as follows:

An Acceleration of:	is approx. equal to a Richter Scale Magnitude of:
0.01g	4.0
0.02g	4.5
0.1g	5.5
0.2g	6.5

DEVIATION

None

REFERENCES

- NUMARC NESP-007, HA1.1
- UFSAR, Chapter 52, Seismic Monitoring System

9.0 Hazards - Internal/External

9.6 High Winds

UNUSUAL EVENT - 9.6.1.a/9.6.1.b

IC Natural and Destructive Phenomena Affecting the Protected Area

EAL

Report of a Tornado TOUCHING DOWN within the Protected Area

OR

Sustained wind speeds > 75 MPH for 15 minutes, from ANY elevation of the Met Tower

MODE - All

BASIS

This EAL addresses either a tornado reported onsite or sustained, high winds being detected onsite. A tornado touching down within the Protected Area or sustained wind speeds in excess of 75 MPH are of sufficient velocity to have the potential to cause damage to Plant Vital Structures. These conditions are indicative of unstable weather conditions and represent a potential degradation in the level of safety of the plant. "Sustained" wind speed means winds in excess of the threshold value for greater than 15 minutes.

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to an Alert if the tornado or high winds cause damage to Plant Vital Structures. If it is determined that the abnormal weather condition results in a loss of shutdown cooling, then the event will be escalated based on the Loss of Decay Heat Removal Capability.

DISCUSSION

These conditions are indicative of unstable weather conditions and represent a potential degradation in the level of safety of the plant. The windspeed threshold is well below the structure design basis of 108 mph, and is set slightly above the threshold value used to

EAL - 9.6.1.a/9.6.1.b

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characterize Category Level 1 Hurricane force winds (74 mph). Setting this threshold value at > 75 mph ensures site accessibility for emergency response.

NOTE: The Wind Speed indication from the Met Tower instrumentation is full scale at 100 mph.

The National Weather Service can be contacted for further information about existing or projected Adverse Weather Conditions:

Wilmington	(302) 573-6142
Mount Holly	(609) 261-6604
Mount Holly	(609) 261-6602

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.2 and HU1.7
OP-AB.ZZ-0001(Q), Severe Weather
SGS UFSAR, Sections 2.3, 3.3

9.0 Hazards - Internal/External

9.6 High Winds

ALERT - 9.6.2

IC Natural and Destructive Phenomena Affecting the Plant Vital Area

EAL

EITHER one of the following:

- Report of a Tornado TOUCHING DOWN within the Protected Area
- **Sustained** wind speeds > 75 MPH for 15 minutes, from ANY elevation of the Met Tower

AND

The Wind Speed is of a magnitude that it SPECIFICALLY results in **Damage** to ANY one of the following:

- TWO OR MORE Trains of a **Safety System**
- MORE THAN ONE **Safety System**
- Rendering ANY of the following structures incapable of performing its Design Function:
 - Auxiliary Building
 - Service Water Intake Structure
 - Control Point Area
 - Inner/Outer Penetration Areas
 - Containment
 - Fuel Handling Building
 - Service Building
 - RWST, PWST, and AFWST Area

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present MODE of operation

MODE - All

EAL - 9.6.2
Rev. 00

BASIS

The primary concern in this EAL is the magnitude of the high winds and the effects on safety functions. Specific system degradation is addressed in the System Malfunction EALs. A detailed assessment of system **damage** is not required prior to classification. The term "**Damage**" is defined as evidence that the high winds have caused component malfunction (pump trip, breaker trip, etc.) or a report of visible deformation that may have resulted in the equipment/structure being **INOPERABLE** or otherwise incapable of performing its design function.

A **Safety System** is defined as any system required to maintain safe operation or to establish or maintain cold shutdown. In those cases where it is believed that the high winds may have caused damage to **Safety Systems**, then an Alert declaration is warranted, since the full extent of the damage may not be known. For Plant Vital Structure **damage**, classification is required under this EAL if the structure houses or otherwise supports **safety systems** required for safe shutdown of the Plant.

It is not intended that a lengthy engineering analysis be performed to determine if damage has affected structural design but EC judgment must determine whether to exclude minor exterior damage which does not affect the structural design capability. The value of 75 MPH is below the design basis wind speed of 108 MPH determined for Salem Generating Station. "**Sustained**" wind speed means winds in excess of the threshold value for greater than 15 minutes.

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to higher classifications based upon damage consequences covered under various other EAL sections. The EC may use Emergency Coordinator Discretion and escalate the classification to SAE based on the nature of the winds.

DISCUSSION

With damage to these areas confirmed, an actual degradation in the level of plant safety has occurred. EC judgment must be used to discriminate between minor "cosmetic" and "design function" structural damage.

NOTE: The Wind Speed indication from the Met Tower instrumentation is full scale at 100 mph.

The National Weather Service can be contacted for further information about existing or projected Adverse Weather Conditions:

Wilmington	(302) 573-6142
Mount Holly	(609) 261-6604
Mount Holly	(609) 261-6602

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA1.2 and HA1.3
OP-AB.ZZ-0001(Q), Severe Weather
SGS UFSAR, Sections 2.3, 3.3

9.0 Hazards - Internal/External

9.7 Flooding

UNUSUAL EVENT - 9.7.1

IC Internal Flooding in Excess of Sump Handling Capability Affecting Safety Related Areas of the Plant

EAL

Severe Flooding of Safety System Areas **HAS ENDANGERED** safety related equipment per OP-AB.ZZ-0002

MODE - All

BASIS

This EAL addresses conditions where severe flooding is occurring in areas that affect safety related equipment. **Endangered** means that a determination has been made that the flooding is severe enough to jeopardize safe operation of Safety related equipment.

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to an Alert based upon the loss of vital equipment due to flooding.

DISCUSSION

Severe flooding can occur from several sources including the Circulating Water System, Service Water System, Demineralized Water, Component Cooling Water, Fire Protection and Refueling Water Storage Tank.

Flooding is detailed in these areas by visual report from staff or by confirmation of sump alarms. OP-AB.ZZ-0002(Q) directs the operators to determine the exact location and severity of flooding. Attachments in this procedure delineates the affected plant areas, potential source(s) of water, affected vital equipment, flood rate and time to submerge vital equipment.

EAL - 9.7.1

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DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.7
OP-AB.ZZ-0002(Q), Flooding

9.0 Hazards - Internal/External

9.7 Flooding

ALERT - 9.7.2

IC Internal Flooding Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown

EAL

Visual Observation of Flooding within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Fuel Handling Building
- Service Building
- Containment

AND

The Flooding is of a magnitude that it SPECIFICALLY results in **Damage** to ANY one of the following:

- TWO OR MORE Trains of a **Safety System**
- MORE THAN ONE **Safety System**
- Any of the above listed Plant Vital Structures which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present **MODE** of operation

MODE - All

BASIS

The primary concern in this EAL is the magnitude of the internal flooding and the effects on **safety systems** required for the present **MODE** of operation. Specific system degradation is addressed in the System Malfunction EALs. A detailed assessment of system **damage** is not required prior to classification. The term "**Damage**" is defined as evidence that the internal flooding has caused component malfunction (pump trip, breaker trip, etc.) that may have resulted in the equipment/structure being **INOPERABLE** or otherwise incapable of performing its design

EAL - 9.7.2

Rev. 00

function. A **Safety System** is defined as any system required to maintain safe operation or to establish or maintain cold shutdown . In those cases where it is believed that the internal flooding may have caused damage to **Safety Systems**, then an Alert declaration is warranted, since the full extent of the damage may not be known. For Plant Vital Structure **damage**, classification is required under this EAL if the structure houses or otherwise supports **safety systems** required for the present MODE of operation.

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated based upon the consequences of the loss of vital equipment as covered in various other EAL sections. The EC may use Emergency Coordinator Discretion and escalate the classification to SAE based on the nature of the flooding.

DISCUSSION

Severe flooding can occur from several sources including the Circulating Water System, Service Water System, Demineralized Water, Component Cooling Water, Fire Protection and Refueling Water Storage Tank.

Flooding is detailed in these areas by visual report from staff or by confirmation of sump alarms. OP-AB.ZZ-0002(Q) directs the operators to determine the exact location and severity of flooding. Attachments of this procedure delineates the affected plant areas, potential source(s) of water, affected vital equipment, flood rate and time to submerge vital equipment.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA1.7
OP-AB.ZZ-0002(Q), Flooding

9.0 Hazards - Internal/External

9.8 Turbine Failure / Vehicle Crash / Missile Impact

UNUSUAL EVENT - 9.8.1.a

IC Natural and Destructive Phenomena Affecting Certain Structures Within the Protected Area

EAL

Catastrophic damage to the Main Turbine as evidenced by EITHER one of the following:

- Main Turbine casing penetration
- Main Turbine/Generator Damage potentially releasing Lube Oil or Hydrogen Gas to the Turbine Building

MODE - All

BASIS

Turbine failure of sufficient magnitude to cause damage to the turbine casing or generator seals increases the potential for leakage of combustible/explosive gases and of combustible liquids to the Turbine Building or damage to plant systems due to missiles. The presence of H₂ gas in sufficient quantities may present a flammable/explosive hazard. Oil may also be present which may contribute to the flammability hazard.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated to an Alert based upon damage done by missiles generated by the failure.

DISCUSSION

Turbine rotating component failures may also result in other direct damage to plant systems and components. Damage may rupture the turbine lubricating oil system, which would release flammable liquids to the Turbine Building. Potential rupture of the condenser and condenser tubes may cause flooding in the lower levels of the Turbine Building. This damage should be readily observable.

EAL - 9.8.1.a

Rev. 00

Escape of hydrogen gas from the generator due to a loss of seal oil pumps or turbine lube oil without a turbine rotating component failure should not be classified under this event.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.6
EOP-TRIP-1

9.0 Hazards - Internal/External

9.8 Turbine Failure / Vehicle Crash / Missile Impact

UNUSUAL EVENT - 9.8.1.b

IC Natural and Destructive Phenomena Affecting Certain Structures Within the Protected Area

EAL

Vehicle Crash / Missile Impact with or within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

MODE - All

BASIS

A **Vehicle Crash / Missile Impact** with or within a listed Plant Vital Structure represents a potential challenge to plant safety. Events classified under this EAL include those of a magnitude and extent that may be a potential precursor to damage to **Safety Systems**, and hence has safety significance. **Vehicle Crash** includes Aircraft, Helicopters, Ships, Barges, or any other vehicle types of sufficient momentum to potentially damage the structure. **Missile Impact** includes flying objects from both offsite and onsite, rotating equipment or turbine failure causing turbine casing penetration.

Barrier Analysis

None

ESCALATION CRITERIA

This event will be escalated to Alert if the crash or missile impact causes damage to Plant Vital Structures.

EAL - 9.8.1.b
Rev. 00

DISCUSSION

Any security aspects of this event should be considered under EAL sections covering Security Events.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.4

NUMARC Questions and Answers, June 1993, "Hazards Question #6"

9.0 Hazards - Internal/External

9.8 Turbine Failure / Vehicle Crash / Missile Impact

ALERT - 9.8.2

IC Natural and Destructive Phenomena Affecting Certain Structures Within the Plant Vital Area

EAL

Vehicle Crash / Missile Impact with or within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

The **Vehicle Crash / Missile Impact** is of a magnitude that it SPECIFICALLY results in **Damage** to ANY one of the Following:

- TWO OR MORE Trains of a **Safety System**
- MORE THAN ONE Safety System
- ANY of the above Plant Vital Structures which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present **MODE** of operation

MODE - All

BASIS

The primary concern in this EAL is the magnitude of the vehicle crashes / missile impact and the effects on **safety systems** required for the present **MODE** of operation. Specific system degradation is addressed in the System Malfunction EALs. A detailed assessment of system

EAL - 9.8.2
Rev. 00

damage is not required prior to classification. The term "**Damage**" is defined as evidence that the vehicle crash / missile impact has caused component malfunction (pump trip, breaker trip, etc.) that may have resulted in the equipment/structure being **INOPERABLE** or otherwise incapable of performing its design function.

A **Safety System** is defined as any system required to maintain safe operation or to establish or maintain cold shutdown. In those cases where it is believed that the vehicle crash / missile impact may have caused damage to Safety Systems, then an Alert declaration is warranted, since the full extent of the damage may not be known. For Plant Vital Structure **damage**, classification is required under this EAL if the structure houses or otherwise supports safety systems required for the present **MODE** of operation.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated based on further damage to plant safety systems, fission product barriers, or abnormal radiation releases in other EAL sections. The EC may use discretion and escalate the classification to SAE based on the nature of the damage.

DISCUSSION

No lengthy or time consuming assessment of damage is required prior to classification. In this EAL, no attempt is made to quantify the magnitude of the damage to any safety system but instead an attempt is made to identify any damage in order to quantify the magnitude and extent of the vehicle crashes / missile impact.

In short, if the vehicle crash / missile impact is big enough that it has damaged more than one safety system, or more than one train of a safety system, then the vehicle crash / missile impact is big enough to justify an Alert declaration. Damage to Plant Vital Structures must be to the extent that EC judgment must be used to determine if the structure is still capable of performing its design function. Any security aspects of this event should be considered under EAL sections covering Security Events.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA1.5 and HA1.6
NUMARC Questions and Answers, June 1993, "Hazards Question #6"

9.0 Hazards - Internal/External

9.9 River Level

UNUSUAL EVENT - 9.9.1.a

IC Natural and Destructive Phenomena Affecting the Protected Area

EAL

River Level > 99.5'

MODE - All

BASIS

This EAL indicates river level conditions that can threaten the level of safety of the plant due to flooding.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated based on damage to plant safety systems, loss of fission product barriers, or abnormal radiological releases in other EAL sections.

DISCUSSION

River level greater than 99.5' is indication of impending site flood conditions. Flood protection measures are required by Salem Technical Specifications and procedure at 99.5'(+10.5'MSL). At this river level precautionary actions are taken, including filling outside tanks and ensuring that perimeter flood doors are closed. These actions ensure that the facility flood protection features are in place prior to a river level which would necessitate their use. Hope Creek performs these actions at 95.0' (+6.0'MSL).

The High river level threshold is below the river level that would require a plant shutdown. Technical Specification actions required by a River Level of >100.5' includes placing the plant in at least Hot Standby within the next 6 hours and in Cold Shutdown within the next 30 hours. This is based on the river level at which facility flood protection features provide protection to safety related equipment. Hope Creek required actions are at 99.5' (+10.5'MSL).

EAL - 9.9.1.a
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The grade level at the Salem station is lower than that for Hope Creek (Salem = 99.5', Hope Creek = 101.5').

The National Weather Service can be contacted for further information about existing or projected Adverse Weather Conditions:

Mount Holly	(609) 261-6604
Mount Holly	(609) 261-6602

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.7
OP-AB.CW-0001(Q)
OP-AB.ZZ-0001 (Q)
SGS UFSAR, Section 2.4.11.2, Figure 3.4-1
HCGS UFSAR, Section 2.4, Figure 2.4-3

9.0 Hazards - Internal/External

9.9 River Level

UNUSUAL EVENT - 9.9.1.b

IC Natural and Destructive Phenomena Affecting the Protected Area

EAL

River Level < 80.0'

MODE - All

BASIS

This EAL indicates a river level condition that is one foot lower than the historical low water level of 81.0' (-8.0' MSL) (December 31, 1962) and is higher than the Service Water pumps design level.

Barrier Analysis

N/A

ESCALATION CRITERIA

This event will be escalated based on damage to plant safety systems (Service Water pumps, Diesels, Cooling Water pumps, etc.) in the High Winds section, Heat Removal Capabilities, loss of Fission Product Barriers, or abnormal Radiological Releases/Occurrences section.

DISCUSSION

River level less than 80.0' (-9.0' MSL) is indication of approaching loss of the Ultimate Heat Sink. This EAL threshold is set to correspond to river conditions that provide adequate early notification of approaching loss of the Ultimate Heat Sink that could jeopardize the level of safety of the plant due to potential loss of Service Water Intake (Ultimate Heat Sink).

The National Weather Service can be contacted for further information about existing or projected Adverse Weather Conditions:

Mount Holly (609) 261-6604
Mount Holly (609) 261-6602

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DEVIATION

None

REFERENCES

NUMARC NESP-007, HU1.7
OP-AB.CW-0001(Q)
S1.OP-AB.ZZ-0001 (Q)
S2.OP-AB.ZZ-0001 (Q)
HC Operability Determination 961001148
SGS UFSAR, Section 2.4.11.2, Figure 3.4-1
HCGS UFSAR, Section 2.4, Figure 2.4-3

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.1.a

IC INITIATION OF ANY UNIT SHUTDOWN REQUIRED BY THE TECHNICAL SPECIFICATIONS [10CFR50.72(b)(1)(i)(A)]

RAL

Unit shutdown is INITIATED to comply with Technical Specifications

MODE - 1, 2

BASIS

This RAL addresses the conditions requiring a one hour report in accordance with 10CFR50.72(b)(1)(i)(A). This RAL is intended to capture those events for which a Technical Specification required shutdown is initiated. Thus, this RAL ensures that the NRC is provided with early warning of safety significant conditions serious enough to warrant a plant shutdown.

Unit shutdown INITIATED is defined as the performance of any action(s) to start reducing reactor power to achieve a plant shutdown as required by technical specifications. This includes any means of power reduction such as rod insertion or boron concentration changes.

A reduction of power for some other purpose, not constituting initiation of a shutdown required by Technical Specifications, is not reportable under this RAL. This includes reducing power only for the purpose of repairing a component.

For example: The plant has seven days to fix a component or be shut down. If the plant shuts down (not required by T/S yet), the component is fixed, and the plant returns to power prior to the end of the seven day period, it need not be reported IAW 10CFR50.72.

REFERENCES

10CFR50.72(b)(1)(i)(A)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.1.b

IC EXCEEDING ANY TECHNICAL SPECIFICATION SAFETY LIMIT
[10CFR50.36(c)(1)]

RAL

Exceeding EITHER one of the following Technical Specification Safety Limits:

- T/S 2.1.1, Thermal Power, Pressurizer Pressure, Coolant Temperature combination
- T/S 2.1.2, RCS Pressure

MODE - 1, 2, 3, 4, 5 (as applicable in T/S)

BASIS

This RAL addresses the conditions requiring a one hour report IAW 10CFR50.36(c)(1) which states that exceeding a Technical Specification (T/S) Safety limit requires going to Hot Standby (Mode 3) by T/S (or, if already in Modes 3, 4, or 5, a restoration of RCS pressure to within its limits within 5 minutes).

For ANY Mode of Operation, exceeding EITHER Safety Limit in T/S Section 2.1 shall be reported under this RAL.

REFERENCES

10CFR50.36(c)(1)
T/S 6.7

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.1.c

IC ANY DEVIATION FROM T/S OR LICENSE CONDITION PURSUANT TO 10CFR50.54(x) [10CFR50.72(b)(1)(i)(B)]

RAL

Deviation from written procedures because no action consistent with Technical Specifications or license condition can provide adequate or equivalent protection in an emergency (see NC.NA-AP.ZZ-0005(Q) for guidance on deviation from procedures)

MODE - All

BASIS

This RAL addresses conditions that require a one hour report in accordance with 10CFR50.72(b)(1)(i)(B). 10CFR50.54(x) generally permits licensees to take reasonable action in an emergency even though the action departs from license conditions or plant Technical Specifications if,

- 1) the action is immediately needed to protect the public health and safety, including site personnel, AND
- 2) NO action consistent with the license conditions and Technical Specifications is immediately apparent that can provide adequate or equivalent protection.

Such action requires, at a minimum, prior approval by a licensed Senior Reactor Operator who is a member of the Operating Shift of the affected Unit.

Refer to NC.NA-AP.ZZ-0005(Q), Station Operating Practices, for more information concerning the use of 10CFR50.54(x).

REFERENCES

10CFR50.54(x)
10CFR50.54(y)
10CFR50.72(b)(1)(i)(B)
NC.NA-AP.ZZ-0005(Q)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.2.a

IC STEAM GENERATOR TUBE INSPECTIONS WHICH FALL INTO CATEGORY C-3 THAT HAVE BEEN EVALUATED FOR REPORTABILITY
[10CFR50.72(b)(2)(i); T/S 4.4.5.2(6.2)]

RAL

Results of S/G tube inspections which fall into Category C-3 of T/S 4.4.5.2 (Unit 1) or T/S 4.4.6.2 (Unit 2)

AND

An Engineering Evaluation has determined that it is reportable pursuant to 10CFR50.72(b)(2)(i)

MODE - 5, 6, Defueled

BASIS

T/S 4.4.5.5c (U-1) and 4.4.6.5c (U-2) Category C-3 require that the results of any Steam Generator Tube inspections that are performed while in Mode 5, 6 or defueled be evaluated for Steam Generator operability before exiting these Modes.

10CFR50.72(b)(2)(i) requires a 4 hour report on any event, found while the reactor is shutdown, that, had it been found while the reactor was in operation, would have resulted in the plant's principal safety barriers being seriously degraded.

REFERENCES

10CFR50.72(b)(2)(i)
TS 4.4.5.5c(U/1)
TS 4.4.6.5c(U/2)

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.2.b

IC ABNORMAL DEGRADATION OF THE CONTAINMENT STRUCTURE DETECTED DURING SHUTDOWN THAT HAS BEEN EVALUATED FOR REPORTABILITY [10CFR50.72(b)(2)(i); T/S 4.6.1.6.2]

RAL

Any abnormal degradation of the Containment structure detected by visual inspection of exposed accessible interior and exterior surfaces during shutdown

AND

An Engineering Evaluation has determined that it is reportable pursuant to 10CFR50.72(b)(2)(i)

MODE - 3, 4, 5, 6, Defueled

BASIS

This RAL is based on the reporting requirements of 10CFR50.72(b)(2)(i), which requires a four hour report for any event found while the reactor is shutdown that, had it been found while the reactor was in operation, would have resulted in a principal safety barrier being seriously degraded or being in an unanalyzed condition.

REFERENCES

10CFR50.72 (b)(2)(i)
T/S 4.6.1.6.2

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.3.a

IC VIOLATION OF THE REQUIREMENTS CONTAINED IN THE OPERATING LICENSE [Salem Unit 2 Operating License, Sections 2.I]

RAL

Violation of ANY one of the requirements contained in Section 2.C (Items 3 through 25) or Section 2E, 2F, or 2G of the Salem Unit 2 Operating License

MODE - All

BASIS

This RAL addresses the conditions for a twenty-four hour report in accordance with Item 2.I of the Operating License of SGS Unit 2.

SGS Unit 1 Facility Operating License does not contain similar reporting criteria.

REFERENCES

Salem Unit 2 Facility Operating License, Sections 2.C and 2.I

11.0 Reportable Action Levels

11.1 Technical Specifications

REPORTABLE ACTION LEVEL - 11.1.3.b

IC ANY EVENT REQUIRING AN ENGINEERING EVALUATION BY TECHNICAL SPECIFICATIONS OR COMMITMENT

[U1 T/S 3.4.9.1, 3.4.9.2, 3.4.7, 3.7.9, JAN 1983, LTR TO NRC, 3.7.2.1]

[U2 T/S 3.4.10.1, 3.4.10.2, 3.4.8, 3.7.9, JAN 1983, LTR TO NRC, 3.7.2]

RAL

As judged by the SNSS/EDO, ANY one of the following conditions have been satisfied:

- Any of the T/S LCOs for RCS or PZR heatup or cooldown rates **are exceeded**
- The concentration of either chloride or fluoride in the RCS is **in excess** of its Steady State Limit for **more than 24 hours** or **in excess of its Transient Limit**, thereby requiring - an engineering evaluation to determine the effects of the out of limit condition on the structural integrity of the RCS
- **One or more** snubbers are found to be INOPERABLE and require an engineering evaluation performed in accordance with T.S.4.7.9 action statement
- Any PZR code safety valve **discharges**
- The temperature of EITHER the Primary or Secondary Coolant in any S/G $\leq 70^{\circ}$ F WHEN the pressure of either the Primary or Secondary Coolant in the S/G is **> 200 psig**

MODE - All

BASIS

NOTE: This event may be reportable to the NRC based on other RALs or EALs. Refer to any other RAL or EAL reporting requirements that are applicable and implement those notifications in parallel with initiating an Engineering Evaluation.

These events require an Engineering Evaluation of the effects of the transient on plant materials and future operation. This RAL ensures that timely internal notification is initiated to implement the evaluations.

REFERENCES

1. [T/S 3.4. 9.1 OR 9.2] U1
[T/S 3.4.10.1 OR 10.2] U2
2. T/S 3.4.7 U1
T/S 3.4.8 U2
3. T/S 3.7.9
4. JAN 1983, LTR TO NRC
5. T/S 3.7.2.1 U1
T/S 3.7.2 U2

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.1.a

IC ANY EVENT OR CONDITION DURING OPERATION THAT RESULTS IN THE CONDITION OF THE PLANT BEING SERIOUSLY DEGRADED
[10CFR50.72(b)(1)(ii)]

RAL

As judged by the SNSS/EDO, an event or condition found during plant operations that results in ANY one of the following:

- The condition of the plant, including its principal safety barriers, being seriously degraded
- The plant being in an unanalyzed condition that significantly compromises plant safety
- The plant being in a condition outside the design basis of the plant
- The plant being in a condition not covered by normal/abnormal or emergency operating procedures

MODE - 1, 2

BASIS

Reporting at the component, system, and structure level is required per the above condition.

The condition of the plant, including its principal safety barriers, being seriously degraded includes material (e.g., metallurgical or chemical) problems that cause abnormal degradation of the principal safety barriers, (Fuel Clad, RCS, Containment). Examples include:

- Fuel clad failure in reactor or spent fuel pool that exceed expected values, are unique or wide spread, are caused by unexpected factors and involve a release of significant quantities of fission products.
- Cracks and breaks in RCS piping, reactor vessel or major RCS components.
- Significant welding or material defects in the RCS.
- Serious temperature or pressure transients.
- Loss of relief/safety valve functions.
- Loss of containment integrity including excessive containment leakage, loss of containment isolation valve function, loss of containment cooling.

The plant being in an unanalyzed condition that significantly compromises plant safety refers to conditions potentially affecting a system, structure or component which are more than of a minor safety significance. It is not intended that this Action level (RAL) apply to minor variations in

parameters or to problems concerning single pieces of equipment. The NRC understands that PSE&G will use engineering judgment and experience to determine if an unanalyzed condition exist.

When applying engineering judgment, if there is doubt as to whether to report or not, the NRC recommends that the licensee make the report.

The plant being in a condition that is outside design bases would include errors found in the actual design of structures, systems or components which perform safety functions.

It would not include minor infractions such as:

- Cases of technical inoperability where a component is declared inoperable because a surveillance is overdue.
- Case where LCO allowed outage time is slightly exceeded.
- Example of conditions that would be reportable under this RAL include:
- Discovery that an ECCS design does not meet single failure criteria
- Discovery that require high energy line break restraints not being installed.
- One train of a safety system has been incapable of performing its design function for an extended time.

REFERENCES

10CFR50.72(b)(1)(ii)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.1.b

IC PIPE CRACKS IN STAGNANT BORATED WATER SYSTEMS [IE Bulletin 79-17]

RAL

Cracks in weld areas of Borated Safety Related piping (as reported by Engineering or ISI)

MODE - All

BASIS

This RAL deals with cracks in safety-related stainless steel piping systems and portions of systems which contain oxygenated, stagnant (or essentially stagnant) borated water.

REFERENCES

IE Bulletin 79-17

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.2.a

IC ANY EVENT FOUND WHILE SHUTDOWN THAT, HAD IT BEEN FOUND DURING OPERATION, WOULD HAVE SERIOUSLY DEGRADED THE PLANT OR RESULTED IN BEING IN AN UNANALYZED CONDITION [10CFR50.72(b)(2)(i)]

RAL

Any event, found while the reactor is shutdown, that, had it been found during operation, would have resulted in the plant, including its principal safety barriers being in EITHER one of the following conditions:

- Seriously degraded
- In an unanalyzed condition that significantly compromises plant safety

MODE - 3, 4, 5, 6, Defueled

BASIS

See RAL 11.2.1.a for more information concerning the two plant conditions described in the above RAL.

REFERENCES

10CFR50.72(b)(2)(i)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.2.b

IC EVENT/CONDITION THAT ALONE COULD HAVE PREVENTED CERTAIN SAFETY FUNCTIONS [10CFR50.72 (b)(2) (iii)]

RAL

Any event or condition that **alone could have prevented** the fulfillment of the safety function of structures or systems that are needed to perform ANY one of the following:

- Control the release of radioactive material
- Shutdown the reactor and maintain it in a safe shutdown condition
- Remove residual heat
- Mitigate the consequences of an accident

MODE - All

BASIS

The intent of this RAL is to require reporting of events or conditions that could have prevented systems from performing their safety functions (actually or potentially) regardless of when the failure was discovered, whether the system was needed at the time, or whether an alternate system or means was available to perform the safety function.

The phrase "alone could have prevented" means the event or condition was, or would be, sufficient by itself to prevent the performance of the safety function(s) of a system or structure (i.e. no additional single failure is assumed or needed to prevent the function).

This RAL covers an event or condition where structures, components or trains of a Safety System could have failed to perform their intended functions because of:

- One or more personnel errors including procedure violations or inadequate maintenance.
- Design analysis, fabrication, equipment qualification, construction, or procedural deficiencies.
- Equipment failure if the failure constitutes a condition where there is reasonable doubt that the redundant train or channel is operable.

Note: For systems with 3 or more trains, the failure of ≥ 2 trains should be reported if, in your judgment, the functional capability of the overall system is/was jeopardized.

For a single train safety system, loss of the single train would prevent the fulfillment of the safety function of that system and is therefore reportable even though the plant technical specifications may allow such a condition to exist for a limited time.

Individual component failure need not be reported under this RAL if redundant equipment in the same system was operable and available to perform the required safety function.

REFERENCES

10CFR50.72 (b)(2) (iii)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.2.c

IC PRESENCE OF A LOOSE PART IN THE REACTOR COOLANT SYSTEM
[Reg. Guide 1.133]

RAL

Presence of a loose part in the RCS is **confirmed**

MODE - All

BASIS

This RAL addresses the conditions requiring a prompt notification with written follow-up report of operating information in accordance with Regulatory Guides 1.133 and 1.16. Presence of a loose part maybe indicated by an overhead alarm and can be monitored both visually and audibly on the Metal Impact Monitoring System (MIMS).

The presence of a loose part (i.e., disengaged and drifting) in the primary coolant system can be indication of degraded reactor safety resulting from failure or weakening of a safety restraint component. Loose parts may also come from an item left in the RCS during refueling, or maintenance and can contribute to component damage and material wear by frequently impacting on other parts of the system. In addition, loose parts can pose a serious threat to flow blockage which could lead to localized cladding failure or control rod jamming.

Confirmed indicates that an evaluation of a loose parts alarm has determined that the alarm is due to a loose part and not due to detector failure or other plant events.

REFERENCES

Reg. Guide 1.16
Reg. Guide 1.133, Rev.1

11.0 Reportable Action Levels

11.3 Engineered Safety Features (ESF)

REPORTABLE ACTION LEVEL - 11.3.1

IC ANY EVENT THAT RESULTS OR SHOULD HAVE RESULTED IN ECCS DISCHARGE INTO THE RCS AS THE RESULT OF A VALID SIGNAL
[10CFR50.72(b)(1)(iv)]

RAL

Valid SI Actuation signal received (or demanded)

AND

ANY ECCS Pump start or Accumulator depressurization that results in or should have resulted in, discharge to the RCS

MODE - All

BASIS

NRC experience has shown that events that involve ECCS discharge to the vessel are generally more serious than ESF actuations without discharge to the vessel and thus warrant a one-hour report. Those events that result in either automatic or manual SI actuation or would have resulted in SI actuation if some component had not failed or an operator action had not been taken are reportable.

For example, while performing a RCS cooldown following a controlled Reactor Shutdown, a Main Steam Line ΔP SI is inadvertently generated. However, the Charging Pumps fail to start and RCS pressure remains above the SI Pump shutoff head pressure. Although no ECCS discharge to the vessel occurred, the event is reportable.

A **valid** signal refers to actual plant conditions or parameters satisfying the requirements for SI initiation. Valid actuations also include intentional manual actuations unless the actuation is part of a preplanned test. Excluded from this reporting requirement would be those instances in which instrument drift, spurious signals, human error or other invalid signals caused SI actuation (e.g. jarring a cabinet, an error in the use of jumpers or lifted leads, error in actuation of controls switches, or equipment failures or radio frequency interference).

IF the SI Actuation discharges or should have discharged into the RCS as result of an INVALID signal, THEN a report under this RAL is not required, however RAL 11.3.2 (ESF Actuation) should be reviewed for applicability.

REFERENCES

NC.NA-AP.ZZ-0000(Q), Action Request Process
SGS UFSAR
10CFR50.72(b)(1)(iv)
10CFR50.73
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.3 Engineered Safety Features (ESF)

REPORTABLE ACTION LEVEL - 11.3.2

IC ACTUATION OF ENGINEERED SAFETY FEATURE (INCLUDING THE REACTOR PROTECTION SYSTEM) EXCEPT PREPLANNED [10CFR50.72(b)(2)(ii)]

RAL

Any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF), except as part of a preplanned sequence during reactor operation or testing, including the Reactor Protection System (RPS)

AND

ESF/RPS Actuation is determined to be reportable IAW NC.NA-AP.ZZ-0000(Q), Action Request Process.

MODE - All

BASIS

This RAL addresses the conditions requiring a four hour report in accordance with 10CFR50.72(b)(2)(ii). All ESF actuations, including those of the RPS, are reportable regardless of the plant operating mode or power level, the significance of the structure, system, or component that initiated the event, or whether initiated manually or automatically. The fact that the safety analysis assumes that an ESF system will actuate automatically under certain plant conditions does not preclude the need to report such actuations.

The following exceptions apply:

1. Actuations that result from and are part of the preplanned sequence during testing or reactor operation. This implies that the procedural step indicates the specific ESF/RPS actuation that will be generated, and Control Room personnel are aware of the specific signal generation before its occurrence or indication in the Control Room.

However, if the ESF actuates during the planned operation or test in such a way that it is not part of the planned procedure, such as at a wrong step, that event is reportable.

2. Invalid actuations that occur when a system has been properly removed from service if all requirements of plant procedures for removing equipment from service have been met.

This would include required documentation, equipment and control board tagging, and properly positioned valves and power supply breakers.

NC.NA-AP.ZZ-0000(Q), Action Request Process, Attachment 6, provides specific guidance on the reportability and reporting requirements for such events and should be referenced prior to determining reportability.

REFERENCES

NC.NA-AP.ZZ-0000(Q), Action Request Process
SGS UFSAR
10CFR50.72(b)(2)(ii)
10CFR50.73
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

REPORTABLE ACTION LEVEL - 11.4.1

IC ANY INCIDENT OR EVENT INVOLVING BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL CAUSING ANY OF THE LISTED RESULTS
[10CFR20.2202(a)]

RAL

PERSONNEL OVEREXPOSURE or potential for overexposure as indicated by ANY one of the following:

- **TEDE exposure \geq 25 Rem**
- **LDE exposure \geq 75 Rem**
- **SDE exposure \geq 250 Rem**
- Release of radioactive material inside or outside of a Restricted Area so that, had an individual been present for 24 hours, the individual could have received \geq 5 times the occupational ALI (Annual Limit of Intake) which would usually equate to \geq 25 Rem CEDE. This DOES NOT apply to areas where personnel are NOT normally stationed during routine operations

MODE - All

BASIS

This RAL addresses those conditions requiring an immediate report IAW 10CFR20.2202(a). Annual Limits on Intake (ALI) are discussed in Appendix B of 10CFR20.

Terms:

TEDE = Total Effective Dose Equivalent (integrated dose that consists of the sum of the external dose equivalent (DDE) and committed effective dose equivalent (CEDE).

LDE = Lens Dose Equivalent (dose equivalent to the eye)

SDE = Shallow Dose Equivalent (dose equivalent to the skin or extremities)

CEDE = Committed Effective Dose Equivalent

ALI = Annual Limit of Intake

REFERENCES

10CFR20.2202(a)
10CFR20, App. B

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

REPORTABLE ACTION LEVEL - 11.4.2.a

IC ANY INCIDENT OR EVENT INVOLVING LOSS OF CONTROL OF LICENSED MATERIAL CAUSING ANY OF THE LISTED RESULTS [10CFR20.2202(b)]

RAL

PERSONNEL OVEREXPOSURE or potential for overexposure, as indicated by ANY one of the following:

- **TEDE exposure > 5 Rem**
- **LDE exposure > 15 Rem**
- **SDE exposure > 50 Rem**
- Release of radioactive material inside or outside of a Restricted Area so that had an individual been present for 24 hours the individual could have received > 1 times the occupational ALI (Annual Limit of Intake) which would usually equate to > 5 Rem CEDE. This **DOES NOT** apply to areas where personnel are NOT normally stationed during routine operations.

MODE - All

BASIS

This RAL addresses those conditions requiring a 24 hour report IAW 10CFR20.2202(b). Annual Limits on Intake (ALI) are discussed in Appendix B of 10CFR20.

However, because events that result in acute personnel overexposure may result in media interest or notifications to other government agencies, the RAL will result in a 4 hour report IAW 10CFR50.72(b)(2)(vi).

Terms: (The below listed terms are defined in RAL 11.4.1)

TEDE = Total Effective Dose Equivalent
LDE = Lens Dose Equivalent
SDE = Shallow Dose Equivalent
CEDE = Committed Effective Dose Equivalent
ALI = Annual Limit of Intake

REFERENCES

10CFR20.2202(b)
10CFR20, App. B
10CFR50.72(b)(2)(vi)

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

REPORTABLE ACTION LEVEL - 11.4.2.b

IC ONSITE FATALITY [10CFR50.72(b)(2)(vi)]

RAL

Any fatality has occurred within the Owner Controlled Area (OCA)

MODE - All

BASIS

The above condition is reportable because an "Onsite" fatality will most likely involve notification of other government agencies and may involve the media. Other government agencies and the media often rely on the NRC for an independent explanation of the safety implication of events at nuclear power plants; therefore, timely NRC notification is required.

In this RAL, the normal definition of ONSITE which pertains to the PROTECTED AREA is expanded to include the entire OWNER CONTROLLED AREA (OCA) due to anticipated media interest in any fatality of an individual working at the site (i.e., Artificial Island)

REFERENCES

10CFR50.72(b)(2)(vi)
NUREG 1022, Rev.1, 2nd Draft

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

REPORTABLE ACTION LEVEL - 11.4.2.c

IC RADIOACTIVELY CONTAMINATED PERSON TRANSPORTED FROM THE SITE TO AN OFFSITE MEDICAL FACILITY FOR TREATMENT [10CFR50.72(b)(2)(v)]

RAL

Transportation of a radioactively contaminated or **potentially contaminated individual** from the site to an offsite medical facility for treatment.

MODE - All

BASIS

This RAL addresses the conditions requiring a four hour report in accordance with 10CFR50.72(b)(2)(v). Transportation of a radioactively contaminated individual to an offsite medical facility has the potential for spreading the contamination to individuals and institutions that are not trained or prepared to deal with radioactive materials. The NRC requires notification of any event with the potential to contaminate Unrestricted Areas in the public domain.

A **potentially contaminated individual** means a person who, due to injuries or first aid treatments cannot be adequately surveyed for contamination prior to transport to an offsite medical facility.

REFERENCES

10CFR50.72(b)(2)(v)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

REPORTABLE ACTION LEVEL - 11.4.3.a

IC SIGNIFICANT FITNESS FOR DUTY EVENTS [10CFR26.73]

RAL

Any event that is determined to be reportable by the Medical Review Officer (MRO) or designee IAW PSE&G's Fitness for Duty Program (NC.NA-AP.ZZ-0042(Q))

AND

The reportable details of the event are made available to the SNSS by the MRO or designee.

MODE - All

BASIS

NC.NA-AP.ZZ-0042(Q) provides the guidance to determine reportability of Significant Fitness for Duty event which requires a 24 hour report IAW 10CFR26.73. Only the Medical Review Officer or designee may determine reportability of these events for PSE&G, unless the event has safeguards significance, in which case the determination to report is made by Security.

REFERENCES

NC.NA-AP.ZZ-0042(Q)
10CFR26.73

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

REPORTABLE ACTION LEVEL - 11.4.3.b

IC FITNESS FOR DUTY PROGRAM: FALSE POSITIVE DUE TO ADMINISTRATIVE ERROR (BLIND TEST BY LAB) [10CFR26, APP. A, 2.8(e)(5)]

RAL

The occurrence of a false positive error on a blind lab performance test specimen under 10CFR26 as determined by the Medical Review Officer (MRO) IAW PSE&G's Fitness for Duty Program (NC.NA-AP.ZZ-0042(Q))

AND

The reportable details of the event are made available to the SNSS by the MRO or designee.

MODE - All

BASIS

NC.NA-AP.ZZ-0042(Q) provides the guidance to determine reportability of administrative errors occurring in the lab testing program which requires a 24 hour report IAW 10CFR26.

Blind Quality Control proficiency monitoring of DHHS LABS are performed on a regular basis. Any occurrence of a false positive error which, after investigation by the MRO, is determined to be the result of an administrative error (clerical, sample mix-up, etc.) is reportable to the NRC.

Only the Medical Review Officer or designee may determine reportability of these events for PSE&G.

REFERENCES

NC.NA-AP.ZZ-0042(Q)
10CFR26, Appendix A 2.8(e)(5)

11.0 Reportable Action Levels

11.5 Environmental

REPORTABLE ACTION LEVEL - 11.5.2.a

IC SPILL/DISCHARGE OF ANY NON-RADIOACTIVE HAZARDOUS SUBSTANCE
[10CFR50.72(b)(2)(vi); N.J.A.C. 7:1E]

RAL

Spill/discharge of an industrial chemical or petroleum product outside of a Plant Structure within the Owner Controlled Area (OCA) that results in EITHER one of the following:

- Spill / discharge that has passed through the engineered fill and into the ground water as confirmed by Licensing
- Spill / discharge that CANNOT be cleaned up within 1 hour and no contact with groundwater is suspected

NOTE:

This event MAY require IMMEDIATE (15 minute) notifications. DO NOT delay implementation of Attachment 16.

MODE - All

BASIS

This RAL addresses the conditions requiring reports IAW PSE&G's DPCC/DCR Plan. The intent of this RAL is to direct IMMEDIATE implementation of ECG Attachment 16, which will provide further direction on reportability based upon the nature of the Spill/Discharge as well as the expertise of Environmental Licensing personnel concerning requirements.

REFERENCES

10CFR50.72(b)(2)(vi)
N.J.A.C. 7:1E
DPCC/DCR Plan, Part III

11.0 Reportable Action Levels

11.5 Environmental

REPORTABLE ACTION LEVEL - 11.5.2.b

IC SPILL/DISCHARGE OF ANY NON-RADIOACTIVE HAZARDOUS SUBSTANCE INTO OR UPON THE RIVER [10CFR50.72(b)(2) (vi); N.J.A.C.7:1E]

RAL

EITHER one of the following events occur:

- Observation of a spill/discharge of an **industrial chemical** or **petroleum product** from on-site into the Delaware River or into a storm drain
- Observation of an oil slick on the Delaware River from any source.

NOTE:

This event MAY require IMMEDIATE (15 minute) notifications. DO NOT delay implementation of Attachment 16.

MODE - All

BASIS

This RAL addresses the conditions requiring reports IAW PSE&G's DPCC/DCR Plan. The intent of this RAL is to direct IMMEDIATE implementation of ECG Attachment 16, which will provide further direction on reportability based upon the nature of the Spill/Discharge as well as the expertise of Environmental Licensing personnel concerning requirements.

REFERENCES

10CFR50.72(b)(2) (vi)
N.J.A.C.7:1E
DPCC/DCR Plan, Part III

11.0 Reportable Action Levels

11.5 Environmental

REPORTABLE ACTION LEVEL - 11.5.2.c

IC UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS
[ENVIRONMENTAL PROTECTION PLAN SECTION 4.1]

RAL

As judged by the SNSS/EDO ANY one of the following events has occurred:

- Unusually large fish kill
- Protected aquatic species impinge on Circulating or Service Water intake screens (e.g., sea turtle, sturgeon) as reported by Site personnel
- Any occurrence of an unusual or important event that indicates or could result in significant environmental impact casually related to plant operation; such as the following:
 - * Onsite plant or animal disease outbreaks
 - * Mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973
 - * Increase in nuisance organisms or conditions
 - * Excessive bird impactation
 - * NJPDES Permit violations
 - * Excessive opacity (smoke)

MODE - All

BASIS

This RAL addresses the conditions requiring reports IAW the Environmental Protection Plan. Final determination or reportability will be made by Environmental Licensing as a result of implementing Attachment 15.

REFERENCES

SGS Technical Specifications, ENVIRONMENTAL PROTECTION PLAN

11.0 Reportable Action Levels

11.6 After The Fact

REPORTABLE ACTION LEVEL - 11.6.1

IC EMERGENCY CONDITIONS DISCOVERED AFTER-THE-FACT

RAL

Discovery of events or conditions that had previously occurred (event was NOT ongoing at the time of discovery) which EXCEEDED an Emergency Action Level (EAL) and was NOT declared as an emergency

AND

There are currently NO adverse consequences in progress as a result of the event

MODE - All

BASIS

In the event a condition is discovered to have previously occurred or existed that exceeded an Emergency Action Level threshold, but that no emergency was declared and the basis for the Emergency Classification no longer exists at the time of discovery, then a one hour report is required.

This situation might arise due to a condition existing without detection by operating personnel.

The NRC does not consider actual declaration of the emergency classification to be necessary in these circumstances.

REFERENCES

Salem ECG Introduction Section
NUREG 1022, Rev. 1, 2nd Draft, Pg. 20

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capability

REPORTABLE ACTION LEVEL - 11.7.1.a

IC SAFEGUARDS EVENTS THAT ARE DETERMINED TO BE NON-EMERGENCIES, BUT ARE REPORTABLE TO THE NRC WITHIN ONE HOUR [10CFR73.71(b)(1)]

RAL

Any Non-Emergency safeguards event that is reportable in accordance with 10CFR73.71 as determined by Security (SCP-15)

MODE - All

BASIS

This RAL addresses the conditions requiring a one hour report in accordance with 10CFR73.71(b)(1). These non-emergency events are outlined in Security Contingency Procedure #15. The on-duty PSE&G Security Supervisor should provide information concerning the specific event.

REFERENCES

10CFR73.71(b)(1)
SCP-15

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capability

REPORTABLE ACTION LEVEL - 11.7.1.b

IC MAJOR LOSS OF EMERGENCY ASSESSMENT CAPABILITY, OFFSITE RESPONSE CAPABILITY, OR COMMUNICATIONS CAPABILITY
[10CFR50.72(b)(1)(v)]

RAL

SNSS/EC determines that an event (excluding a scheduled test or preplanned maintenance activity) has occurred that would impair the ability to deal with an accident or emergency as indicated by the Loss of ANY one of the following:

- Nuclear Emergency Telecommunications System (NETS) for > 1 hr
- ENS for > 1 hr in the Control Room, TSC, or EOF (N/A if reported by the NRC)
- More than seven Offsite Sirens for > 1 hr
- Use of the EOF for > 8 hrs
- All Meteorological data (Salem AND Hope Creek) for > 8 in hrs
- Site access due to Acts of Nature (snow, flood, etc.)

MODE - All

BASIS

NOTE: IF losses are part of a scheduled test or preplanned maintenance activity AND WHEN compensatory actions have been taken, THEN NO report is required.

This RAL addresses conditions that are COMMON to both Salem and Hope Creek and may be reported to the NRC by EITHER station as a Common Site Event.

1. Loss of the NETS or ENS for > 1 hour directly affects the ability to promptly notify and communicate with the NRC and/or Offsite officials.

IF a total loss of communications capabilities has occurred, THEN REFER to ECG Section 8.2.

IF notified by the NRC Operations Officer of an inoperable ENS line,
THEN NO further notification is necessary.

2. Loss of Offsite Sirens (>10%) represents a loss of ability to promptly notify a large portion of the population, and warrants an immediate notification. There are 71 offsite sirens in the Plume EPZ and therefore a loss of ≥ 8 is a >10% loss which represents a loss of Offsite Response Capability.
3. Use of the EOF may be vital in responding to an emergency. Loss of use of this facility or its supporting equipment, or ability to staff represents a significant loss of emergency response capability.
4. Loss of meteorological data for an extended period of time limits the ability to predict radiological conditions during an emergency situation. An extended loss warrants notification of the loss of this capability.
5. Limited site access may affect the ability to staff the site personnel and/or emergency response facilities, and the ability of off-site agencies to implement emergency plan requirements.

WHEN site reaction to anticipated conditions is commenced,
THEN notification should be made, if possible.

REFERENCES

10CFR50.72(b)(1)(v)
NUREG-1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capability

REPORTABLE ACTION LEVEL - 11.7.1.c

IC MAJOR LOSS OF EMERGENCY ASSESSMENT CAPABILITY, OFFSITE RESPONSE CAPABILITY, OR COMMUNICATIONS CAPABILITY
[10CFR50.72(b)(1)(v)]

RAL

SNSS/EC determines that an event (excluding a scheduled test or preplanned maintenance activity) has occurred that would impair the ability to deal with an accident or emergency as indicated by the Loss of ANY one of the following:

- P250 or Aux Annunciator System for > 24 hrs
- SPDS for > 8 hrs (> 2 CFSTs Inop, not due to plant conditions)
- ERDS, NRC phone line. Modem for > 1 hr (N/A if reported by the NRC)
- Use of the TSC for > 8 hrs
- ALL Plant vent radiation effluent monitors for > 8 hrs
- More than 75% of the OHAs for < 15 minutes
- Concurrent multiple accident or emergency condition indicators which in the judgment of the SNSS significantly impairs assessment capabilities

MODE - All

BASIS

NOTE: IF losses are part of a scheduled test or preplanned maintenance activity AND WHEN compensatory actions have been taken, THEN NO report is required.

1. Loss of the P250 or Aux Annunciator System for a prolonged time is considered a loss of emergency assessment capability.
2. Use of the TSC may be vital in responding to an emergency. Loss of use of this facility, or its supporting equipment, or ability to staff represents a significant loss of emergency response capability.

3. Loss of SPDS for > 8 hours (> 2 CFSTs Inop, not due to plant conditions) is considered an event that significantly impairs safety assessment capabilities.
4. Loss of ERDS, NRC phone line, Modem need to be reported to the NRC, so the NRC can have them repaired.
5. Loss of ALL Plant Vent Effluent Radiation monitors (R41A, B, C and R45B & C) for an extended period of time limits the ability to predict radiological conditions during an emergency situation. An extended loss warrants notification of the loss of this capability.
6. Loss of OHAs for a short period of time (< 15 minutes) is considered a loss of emergency assessment capability.

IF OHAs are lost or were lost for \geq 15 minutes,
THEN REFER to ECG Section 8.2.

7. Concurrent multiple accident or emergency condition indicators which in the judgment of the SNSS significantly impairs assessment capabilities is specific to Salem in this RAL.

IF the loss of assessment capability is COMMON to both Salem and Hope Creek,
THEN REFER to RAL 11.7.1.b.

REFERENCES

10CFR50.72(b)(1)(v)
NUREG-1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.8 Public Interest

REPORTABLE ACTION LEVEL - 11.8.2.a

IC UNUSUAL CONDITIONS WARRANTING A NEWS RELEASE OR NOTIFICATION OF GOVERNMENT AGENCIES [10CFR50.72(b)(2)(vi)]

RAL

SNSS/EDO judges that an event or situation has occurred that is related to ANY one of the following:

- The health and safety of the public
- The health and safety of onsite personnel
- Protection of the environment

AND

EITHER one of the following:

- A news release is planned
- Notification to a Local, State or Federal agency has been or will be made

MODE - All

BASIS

Events that require the NRC to respond due to media or public interest, or other government agency involvement are reportable to the NRC. Examples of the events would include, but not be limited to:

- release of contaminated tools or equipment to public areas
- non-routine releases of radioactive effluents
- inadvertent operation of the offsite siren system
- state agency contacted due to fish kill
- toxic material release from the site

PSE&G generally does not have to report media and government interaction or notify the NRC of every press release issued unless they are related to, or are perceived by the public or media to be related to, the radiological health and safety of the public or onsite personnel, or protection of the environment.

REFERENCES

10CFR50.72(b)(2)(vi)
NUREG 1022, Rev. 1, 2nd Draft.

11.0 Reportable Action Levels

11.8 Public Interest

REPORTABLE ACTION LEVEL - 11.8.2.b

IC UNUSUAL CONDITIONS DIRECTLY AFFECTING LOWER ALLOWAYS CREEK TOWNSHIP (LACT) [LAC - M.O.U.]

RAL

As judged by the SNSS/EDO, events which are the responsibility of PSE&G which have or may result in EITHER one of the following:

- Anticipated unusual movement of equipment or personnel which may significantly affect local traffic patterns.
- Onsite events which involve alarms, sirens or other noise which may be heard off-site.

MODE - All

BASIS

This RAL addresses conditions that are otherwise not reportable to the NRC, but are considered to warrant a prompt report IAW the Lower Alloways Creek Township Memorandum of Understanding (M.O.U.) with PSE&G because they are of local interest only.

IF an NRC report is required by any other EAL or RAL, THEN REFER to that section of the ECG for action required which will ensure that LAC Township is notified appropriately.

PSE&G shall notify LAC Township as soon as sufficient details are available, but in no case should this time frame exceed twelve hours. Sufficient details are those needed to convey a general understanding of the condition or event to a lay public.

Four hours is specified in this RAL (rather than the twelve allowed) as a reasonable time period for taking the actions required and well within the agreed time frame of the M.O.U.

REFERENCES

LAC - M.O.U.

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.1.a

IC UNPLANNED / ACCIDENTAL CRITICALITY [10CFR70.52(a)]

RAL

Any unplanned or accidental criticality

MODE - All

BASIS

This RAL is intended to provide immediate notification to the NRC for events which constitute a "loss" of Reactivity Control due to errors in calculations, dilution or mis-operation.

This condition can be detected from the Control Room using available Nuclear Instrumentation by observation of a sustained positive startup rate on the Source or Intermediate Range NIs.

Increases in neutron population due to subcritical multiplication can be expected during Core Alterations and should not be classified using this RAL.

REFERENCES

10CFR70.52(a)

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.1.b

IC LOSS AND INVESTIGATION OF THE LOSS OF SPECIAL NUCLEAR MATERIALS/ SPENT FUEL [10CFR73.27(c), 10CFR73.71(a)]

RAL

ANY one of the following events occur involving Special Nuclear Material (SNM) or Spent Fuel:

- Shipment of **formula quantities of strategic SNM (SSNM)** or Spent Fuel that is lost or unaccounted for after the estimated time of arrival
- A lost or unaccounted for shipment of SSNM or Spent Fuel has been recovered or accounted for
- Results of a trace investigation of lost or unaccounted for SSNM shipment are received

MODE - All

BASIS

This RAL addresses those conditions requiring a one hour report IAW 10CFR73.27(c) or 10CFR73.71(a).

Strategic Special Nuclear Material (SSNM) means uranium-235 (contained in uranium enriched to 20 percent or more in uranium-235 isotope), uranium-233, or plutonium.

Formula quantity means 5000 grams SSNM in any combination, computed by the formula,

$$\text{grams SSNM} = (\text{grams contained U-235}) + 2.5 (\text{grams U-233} + \text{grams plutonium})$$

10CFR73.71(a)(1) requires a one hour report of a shipment loss, and on recovery of a lost shipment.

10 CFR 73.27(c) requires an immediate trace investigation of lost or unaccounted for shipments and reporting in accordance with 10CFR73.71.

REFERENCES

10CFR73.27(c)
10CFR73.71(a)

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.1.c

IC THEFT OR LOSS OF LICENSED MATERIAL [10CFR20.2201(a)(1)(i)]

RAL

Lost, stolen or missing **licensed material** > 1000 times the quantity specified in 10CFR20 Appendix C, in such circumstances that an exposure could result to persons in **Unrestricted Areas**.

MODE - All

BASIS

This RAL addresses those conditions requiring an immediate report IAW 10CFR20.2201(a)(1)(i).

Licensed material means source material, special nuclear material (SNM), or by-product material received, possessed, used, or transferred under a general or specific license issued by the NRC pursuant to the regulations in 10CFR20.

Unrestricted Areas are any areas beyond the Minimum Exclusion Area (MEA). (outside the Owner Controlled Area (OCA) boundary)

REFERENCES

10CFR20.2201(a)(1)(i)

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.1.d

IC RECEIPT OF SSNM MATERIAL [10CFR73.27(b)]

RAL

Receipt of shipment of **Strategic Special Nuclear Material (SSNM)**

MODE - All

BASIS

This RAL addresses, in part, the conditions requiring an immediate report in accordance with 10CFR73.27(b).

Strategic Special Nuclear Material (SSNM) is uranium 235 (contained in uranium enriched to 20% or more in the U-235 isotope), U-233 or plutonium.

REFERENCES

10CFR73.27(b)

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.1.e

IC EXCESSIVE CONTAMINATION AND/ OR RADIATION LEVELS ON A PACKAGE
[10CFR20.1906(d)]

RAL

Receipt survey indicates that package contamination / radiation levels equal or exceeds
ANY one of the following:

- 2200 dpm/100 cm²
- 200 mR/hr on contact
- 10 mR/hr at 3 feet

MODE - All

BASIS

This RAL addresses the conditions requiring an immediate report IAW 10CFR20.1906(d). This requirement refers to values provided in 10CFR71.87(i)(1) for contamination, and to 10CFR71.47 for radiation levels.

The RAL contamination level is based on the limit, adjusted for the standard swipe area used at Salem Generating Station. 10CFR71.87(i)(2) allows contamination levels of 10 times the above limits for Exclusive Use Shipments.

Exclusive Use means the sole use of a conveyance by a single consignor and for which loading and unloading are carried out with the direction of the consignor or consignee.

REFERENCES

10CFR20.1906(d)
10CFR71.4
10CFR71.47
10CFR71.87(i)(1)/(2)

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.2.a

IC ACCIDENT OCCURRING DURING TRANSPORTATION OF LICENSED
MATERIAL [10CFR71.5(a)(1)(v)]

RAL

Accidents during the transportation of **radioactive material** which are reported to PSE&G as the shipper that involve (or potentially involve) damage to the cargo.

MODE - All

BASIS

10CFR71.5(a)(1)(v) refers to 49CFR171.15/16 for transportation of licensed material accident reporting.

Note: Vehicle breakdowns or delays enroute may also be reported by the driver, but are not reportable to the NRC unless an accident is involved (cargo damage).

Radioactive Material means any item, gas, liquid, flowable solid, or material with radioactivity levels in excess of the limits for unconditional release found in Section 5.12.1. of NC.NA-AP.ZZ-0024(Q), Radiation Protection Program.

REFERENCES

10CFR71.5(a)(1)(v)
49CFR171.15/16
NC.NA-AP.ZZ-0024(Q)

11.0 Reportable Action Levels

11.9 Accidental Criticality/Special Nuclear Material /Rad Material Shipments - Releases

REPORTABLE ACTION LEVEL - 11.9.2.b

IC CONTAMINATION OUTSIDE OF THE RADIOLOGICALLY CONTROLLED AREA
[10CFR50.72(b)(2)(vi)]

RAL

Discovery of a Contaminated Area OUTSIDE of the RCA with removable activity

AND

EITHER one of the following:

- Location of Contaminated Area is such that a contaminated person or material may have left the Protected Area
- Location of Contaminated Area is OUTSIDE of Plant Structures AND Size of Contaminated Area is LARGE (>100 ft²)

MODE - All

BASIS

The purpose of the RAL is to ensure that the NRC is made aware of issues that may cause heightened public or government concern related to the radiological health and safety of the public or onsite personnel or protection of the environment. These RAL contamination levels are based on the likelihood that a news release and/or notifications to government agencies may need to be made for these conditions.

Examples of conditions that would require classification under this RAL would include:

- Release of contaminated tools, equipment, trash, vehicles, personnel to areas outside the Protected Area.
- Unusual or abnormal release of radioactive effluents. Unusual or abnormal can be considered a release that has the potential to generate public, media, or other government agency attention.

Radiological effluent releases that are >2 times Technical Specifications limits are classified in accordance with ECG Section 6.

REFERENCES

Commitment #: EP95-002
10CFR50.72(b)(2)(vi)
NUREG 1022, Rev. 1, 2nd Draft

11.0 Reportable Action Levels

11.10 Voluntary Notifications

REPORTABLE ACTION LEVEL - 11.10.2

IC EVENTS/CONDITIONS WARRANT VOLUNTARY/COURTESY NRC NOTIFICATIONS [10CFR50.72 - VOLUNTARY REPORT]

RAL

In the judgment of the SNSS,
notification to the NRC is warranted

AND

NO other EALs or RALs appear to be applicable

MODE - All

BASIS

Salem may make voluntary or courtesy Emergency Notification System (ENS) notifications about events or conditions the NRC may be interested in. This is true when it is unique to our facility, but especially when it appears to have generic implications. The NRC responds to any voluntary notification of an event or condition as its safety significance warrants, regardless of our classification of the reporting requirement.

IF it is determined later that the event IS reportable,
THEN the SNSS can change the ENS notification to a required notification under the appropriate 10 CFR 50.72 reporting criterion.

Salem may continue with plant operation provided there is a reasonable expectation that the equipment in question is OPERABLE.

WHEN this reasonable expectation no longer exists, **OR** significant doubts begin to arise,
THEN the equipment should be considered INOPERABLE and appropriate actions, including required reporting, should be taken.

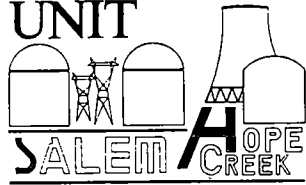
In some cases, such as discovery of an existing, but previously unrecognized condition, it may be necessary to undertake an evaluation in order to determine if an event or condition is reportable. If so, the guidance provided in Generic Letter 91-18, which applies primarily to operability determinations, is appropriate for reportability determinations as well. This guidance indicates that

an evaluation should generally proceed on a schedule commensurate with the safety significance of the question.

REFERENCES

Commitment #: EP95-001
Salem ECG Introduction Section
NUREG 1022, Rev. 1, 2nd Draft
NRC Generic Letter 91-18

NUCLEAR
BUSINESS
UNIT



EVENT CLASSIFICATION GUIDE



SALEM GENERATING STATION

SALEM EVENT CLASSIFICATION GUIDE
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(If Editorial Revisions Only, Last Approved Revision) ~~1-13-97~~
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Station Qualified Reviewer Date

Reviewed By: [Signature] 1-15-97
Department Manager Date

Reviewed By: [Signature] 1-15-97
Emergency Preparedness Manager Date

Reviewed By: NA _____
Director - QA/Nuclear Safety Review Date
(If Applicable)

SORC Review and Station Approvals

97-009 [Signature] [Signature]
Mtg. No. Salem Chairman General Manager - Salem Operations
1-16-97 1-16-97
Date Date

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Date

SALEM
EVENT CLASSIFICATION GUIDE
INTRODUCTION & USAGE

Section i

101

I. PURPOSE OF THE EVENT CLASSIFICATION GUIDE (ECG)

- A. To provide a central reference document which enables the Senior Nuclear Shift Supervisor (SNSS) or the Emergency Coordinator (EC) to classify emergency or non-emergency events and conditions.
- B. To provide the required procedures for immediate and prompt notifications and direction to other required written reports.
- C. To direct the Emergency Coordinator to implement procedures which will ensure appropriate response as required by the classified emergency level.

II. EMERGENCY CLASSIFICATION DESCRIPTIONS

A. Emergency Classes:

- 1. The NRC and Federal Emergency Management Agency (FEMA) established four emergency classes for fixed nuclear facilities.
- 2. An emergency class is used for grouping off-normal nuclear power plant conditions according to their relative radiological seriousness and the time sensitive onsite and offsite actions needed to respond to such conditions.
- 3. The four emergency classes are (in order):

Unusual Event (UE)	Least Severe
Alert (A)	
Site Area Emergency (SAE)	
General Emergency (GE)	Most Severe

B. Unusual Event:

- 1. Plant events which are in progress or have occurred which indicate a potential degradation of the plant safety level.
- 2. The lowest level of emergency at the plant, which can usually be handled by the normal operating shift.

3. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Dose consequences in Unrestricted Areas would not reach 20 mRem TEDE.

C. Alert:

1. Plant events which are in progress or have occurred that are more serious than an Unusual Event which involve an actual or potential substantial degradation of the plant safety level.
2. Emergency Response personnel are required in addition to the normal operating shift. The entire emergency response organization is called in. The TSC is activated, and the EOF and ENC are manned and may activate if needed for support.
3. Any release of radioactive material is expected to be limited to a small fraction of the EPA Protective Action Guideline exposure levels. Dose consequences in Unrestricted Areas would not reach 100 mRem TEDE.

D. Site Area Emergency:

1. Serious plant events are in progress or have occurred which involve actual or likely major failure of plant functions required for protection of the public.
2. The entire emergency response organization is activated.
3. Any release of radioactive material is not expected to exceed EPA Protective Action Guideline exposure levels beyond the plant boundary. Dose consequences in Unrestricted Areas not to exceed 1000 mRem TEDE.

E. General Emergency:

1. Serious plant events are in progress or have occurred which involve actual or imminent core degradation or core melting with potential for loss of containment integrity.
2. The entire emergency response organization is activated.
3. Release of radioactive material can be expected to exceed EPA Protective Action Guideline exposure levels of 1000 mRem TEDE in Unrestricted Areas.

III. EVENT CLASSIFICATION GUIDE (ECG) STRUCTURE

A. Overall Layout: The ECG is divided into 4 segments which are:

1. Front Matter: Information which includes the Table of Contents, Introduction & Usage, a Glossary of Acronyms, and Critical Function Status Trees (CFSTs).
2. Classification Sections: Flow chart diagrams used to classify events/conditions as emergencies or non-emergencies.
3. Attachments: Implementing documents that provide direction for emergency/non-emergency notification, reporting requirements, references and forms required to facilitate event communications.
4. ECG Chart: Wall chart (Located at Emergency facilities) used to classify events/conditions as emergencies.

B. Classification Sections Format

With the exception of ECG Section 3.0, the ECG section flowcharts are comprised of the following elements:

1. Initiating Condition (IC): A generic nuclear power plant condition or event where either the potential exists for a radiological emergency or non-emergency reportable event OR such an emergency or non-emergency reportable event has occurred.
2. MODE: Refers to the Operational Mode at Salem during which a particular IC/EAL is applicable. The Mode that the plant was in when the event started, prior to any protection system or operator actions, should be utilized when classifying events.
(from SGS Technical Specifications, Sect. 1, Definitions)

MODE	K_{eff}	THERMAL POWER *	T_{AVG}
1. POWER OPERATION	≥ 0.99	$> 5 \%$	$\geq 350 \text{ }^{\circ}\text{F}$
2. STARTUP	≥ 0.99	$\leq 5 \%$	$\geq 350 \text{ }^{\circ}\text{F}$
3. HOT STANDBY	< 0.99	0	$\geq 350 \text{ }^{\circ}\text{F}$
4. HOT SHUTDOWN	< 0.99	0	$> 200 \text{ }^{\circ}\text{F} \text{ \& } < 350 \text{ }^{\circ}\text{F}$
5. COLD SHUTDOWN	< 0.99	0	$\leq 200 \text{ }^{\circ}\text{F}$
6. REFUELING **	< 0.95	0	$\leq 140 \text{ }^{\circ}\text{F}$

- * Excluding Decay Heat
- ** Fuel in the RPV with the head closure bolts less than fully tensioned or with the head removed.

3. EAL Number (EAL#): Each Emergency Action Level (EAL) has been assigned a unique alpha numeric identifier. EAL# s are used in communication within PSE&G's Emergency Response Organization as well as when communicating with offsite officials who use an Offsite Reference Manual which is indexed in accordance with the EAL#s.

Each digit of the EAL# has a specific meaning that is not important to the users, but is important to the personnel who develop and maintain the ECGs. The digit and EAL# are defined below.

Example EAL# = 9.4.1.a

First Digit = Identifies which section of the ECG that a particular EAL is contained in. In the example the Digit 9 identifies that the EAL is from Section 9, Hazards - Internal/External.

Second Digit = Identifies the subsection that the EAL is contained in. In the above example the Digit 4 identifies that the EAL is found in subsection 4 of Section 9 thus 9.4, Toxic Gases.

Third Digit = The third digit identifies the emergency class associated with that particular EAL as follows:

If 3rd Digit is a 1, then EAL results in UE
If 3rd Digit is a 2, then EAL results in A
If 3rd Digit is a 3, then EAL results in SAE
If 3rd Digit is a 4, then EAL results in GE

If looking at a RAL in Section 11 ONLY, the Third Digit identified the type of non-emergency event report to be made as follows.

If 3rd Digit is a 1, then RAL is 1 hr report
If 3rd Digit is a 2, then RAL is 4 hr report
If 3rd Digit is a 3, then RAL is 24 hr report
OR GREATER

Fourth Digit = If a fourth digit is used, it is always a lower case letter and delineates one of multiple events which lead to similar emergency or non-emergency class levels. In the above example the "a" delineates 1 of 3 EALs that result in an Unusual Event and fall under a common Initiating Condition.

4. Emergency Action Level (EAL) or Reportable Action level (RAL): A predetermined, site-specific, observable threshold used to define when the generic initiating condition has been met, placing the plant in a given emergency class or non-emergency report. An EAL/RAL can be an instrument reading, an equipment status indicator, a measurable parameter, a discrete observable event, analysis results, entry into specific EOPs, or another phenomenon which indicates the need for classification of an emergency or non-emergency.
5. Action Required: Identifies the specific emergency class or non-emergency report that is required and refers the user to a specific ECG Attachment for implementation direction for the emergency or non-emergency event declared.

C. ECG Attachments:

The ECG Attachments are written in various formats depending on their intended use. The attachments are used for implementing notifications, protective actions, directions to Emergency Plan Implementing Procedures (EPIPs), as well as providing essential phone listings and informational data for immediate reference.

D. ECG Chart: (Located at Emergency Facilities)

1. Emergency Action Level (EAL): A predetermined, site-specific, observable threshold used to define when the generic initiating condition has been met, placing the plant in a given emergency class. An EAL can be an instrument reading, an equipment status indicator, a measurable parameter, a discrete observable event, analysis results, entry into specific EOPs, or another phenomenon which indicates the need for classification of an emergency.
2. MODE: Refers to the Operational Mode at Salem during which a particular IC/EAL is applicable. The Mode that the plant was in when the event started, prior to any protection system or operator actions, should be utilized when classifying events.
(from SGS Technical Specifications, Sect. 1, Definitions)

MODE	K_{eff}	THERMAL POWER *	T_{AVG}
1. POWER OPERATION	≥ 0.99	$> 5 \%$	$\geq 350 \text{ }^{\circ}\text{F}$
2. STARTUP	≥ 0.99	$\leq 5 \%$	$\geq 350 \text{ }^{\circ}\text{F}$
3. HOT STANDBY	< 0.99	0	$\geq 350 \text{ }^{\circ}\text{F}$
4. HOT SHUTDOWN	< 0.99	0	$> 200 \text{ }^{\circ}\text{F} \text{ \& } < 350 \text{ }^{\circ}\text{F}$
5. COLD SHUTDOWN	< 0.99	0	$\leq 200 \text{ }^{\circ}\text{F}$
6. REFUELING **	< 0.95	0	$\leq 140 \text{ }^{\circ}\text{F}$

* Excluding Decay Heat

** Fuel in the RPV with the head closure bolts less than fully tensioned or with the head removed.

3. The specific emergency classification identifies the ECG Attachment for implementation. Specific EALs identify "Common Site Events - Attachment 24" for implementation.

IV. EVENT CLASSIFICATION GUIDE (ECG) USE

CAUTION

ECG Sections referenced in other documents may have incorrect numbers, ASSESS the event and/or plant conditions and DETERMINE which ECG section(s) is most appropriate.

- A. EC Judgment: The EALs described in the ECG are not all inclusive and will not identify each and every condition, parameter or event which could lead to an event classification. The following guidance should be used by the EC;

IF an EAL has been exceeded, but satisfaction of the IC is in question,
THEN CLASSIFY the event IAW the EAL.

IF however, it is clear that the EAL has NOT been exceeded (and will not),
THEN DO NOT classify the event based solely on the IC.

IF an IC has been satisfied, but exceeding the specific EAL is in question,
THEN CLASSIFY the event IAW the IC.

In any case,

IF the plant conditions are equivalent to one of the four emergency classes as described in Section II above,
THEN CLASSIFY the event based on EC discretion IAW ECG Section 4.0.

Assessment Time: Assessment of an Emergency Condition should be completed in a timely manner which is considered to be within about 15 minutes of recognition of an event. If an EAL specifies a duration time (e.g. loss of annunciators for >15 min.), then the assessment time runs concurrently with the EAL duration time and is the same length.

If an event is recognized or reported and the required duration time is known to have already been exceeded then the duration portion of the EAL should be considered as being satisfied and the assessment time for the remaining portions of the EAL should be within about 15 minutes from the time of recognition.

- B. Implementing Actions: The ECG is not a stand alone document. At times, the ECG will refer the user to other attachments or procedures for accomplishment of specific evolutions such as: Accountability, Recovery, development of PARs, etc. They should be followed in a step-by-step fashion.

The ECG should be considered an "Implementing Procedure" and used in accordance with the requirements of a "Category II" procedure as defined in NC.NA-AP.ZZ-0001(Q). The ECG's classification sections allow for judgment and decision making as to whether or not an EAL or RAL is exceeded.

- C. Classification: To use this ECG volume, follow this sequence:

NOTE

Confirmation of actual plant conditions should be made by comparing redundant instrumentation, indications, and/or alarms.

1. ASSESS the event and/or plant conditions and DETERMINE which ECG section(s) is most appropriate.
2. REFER to Section EAL/RAL Flowchart diagram(s), review and identify the Initiating Conditions that are related to the event/condition that has occurred or is ongoing.

(ECG Section 3.0 has its own unique usage instruction as part of the Fission Product Barrier Table 3.0)

NOTE

The Emergency Coordinator should classify and declare an emergency before an Emergency Action Level (EAL) is exceeded if, in the EC's judgment, it is determined that the EAL will be exceeded.

3. REVIEW the associated EALs or RALs as compared to the event and SELECT the highest appropriate emergency or reportable action level. If identification of an EAL is questionable refer to paragraph IV.A above. If there is any doubt with regard to assessment of a particular EAL or RAL, the ECG Technical Basis Document should be reviewed. Words contained in an EAL or RAL that are bold face are either threshold values associated with that action level or are words that are defined in the basis for that specific EAL/RAL.
4. IDENTIFY and IMPLEMENT the referenced Attachment under Action Required..
5. CONTINUE assessment after classification and attachment initiation, by returning to the ECG Sections to review EALs that may result in escalation/deescalation of the emergency level.

D. Emergency/Non-Emergency Conditions Discovered After-The-Fact Guidance

NOTE

Plant emergency events that are in progress or that have occurred with ongoing adverse consequences/effects should not be considered "After-The-Fact" events and should therefore be classified and declared as an ongoing emergency event.

1. EMERGENCY CONDITIONS - if "After-The-Fact" (not on-going at the time of discovery) it is discovered that an event or condition occurred that exceeded an Emergency Action Level (EAL), but was not declared as an emergency, then an emergency declaration is NOT required. A non-emergency, One-Hour Report should be initiated in accordance with ECG Section 11.6, After-The-Fact.
2. NON-EMERGENCY CONDITIONS - if After-The-Fact (regardless of whether the event is on-going at the time of discovery) it is discovered that an event or condition had occurred that should have resulted in the classification and implementation of a non-emergency report (1 hour, 4

hour, 24 hour), the applicable non-emergency report attachment in the ECG should be implemented.

E. NRC Communications During An Emergency Guidance

1. Complete and accurate communications with the NRC Operations Center during emergencies is required and expected. The purpose of notifying the NRC within one-hour of an emergency, is to provide event information when immediate NRC action may be required to protect the public health and safety OR when the NRC needs accurate and timely information to respond to heightened public concern. If the information we provide is not accurate or does not contain sufficient detail, then we hamper the NRC from doing their job.
2. The NRC Data Sheet, along with the Initial Contact Message Form, is the primary vehicle to ensure the NRC is kept informed. General Guidance on completing the event description portion of the NRC Data Sheet is provided in Attachment 5 of the ECG.

F. Voluntary/Courtesy Reporting of Non-Emergency Events Guidance

In accordance with NUREG 1022, Rev 1, voluntary reporting is encouraged. PSE&G may make voluntary or courtesy NRC notification (RAL 11.10.2) concerning events or conditions which may be of interest to the NRC.

The NRC responds to any voluntary notification of an event or conditions as its safety significance warrants, regardless of how PSE&G classifies the event.

IF it is determined at some later time that the event was reportable under a specific part of 10CFR50.72 as defined in the ECG,
THEN PSE&G should update the NRC with this information.

G. Event Retraction Guidance

IF an ENS notification to the NRC was made as directed by the applicable ECG Attachment AND
it is later determined that the event or condition is not reportable,
THEN the notification may be retracted as follows:

1. OBTAIN both the Salem General Manager's and Operations Manager's approval of any proposed retractions.

2. COMPLETE "page 1" of the NRC Data Sheet which was implemented to make the original notification. Event Description Section of NRC Data Sheet should explain the rationale for the retraction.
3. CONTACT the NRC Operations Center using the ENS and provide the "NRC Data Sheet" information.
4. RECORD on the "NRC Data Sheet" the name of the NRC Contact that received the retraction information.
5. FORWARD the retraction "NRC Data Sheet" with the rest of the original attachment of the ECG that was implemented when the original notification was made.

H. Non-emergency Information Update Guidance

IF additional information needs to be transmitted to the NRC concerning a previously reported non-emergency event,
THEN MAKE notifications as follows:

1. COMPLETE Page 3 of the NRC Data Sheet form for event update.
2. OBTAIN the approval of the SNSS to release the information.
3. NOTIFY all organizations and individuals who were initially contacted AND DOCUMENT the update.
4. FORWARD all update paperwork with the original ECG Attachment package.

I. Common Site Events Guidance

Selected EALs (Unusual Event level only) and selected RALs have been designated as "Common Site" events. These events will be annotated with the words, "Common Site" in the Action Required portion of the EAL sections.

Common Site Events need not be reported by both Salem and Hope Creek. The referenced ECG Attachment will direct the SNSS's to establish agreement on which SNSS will declare and report the event.

Events classified at an Alert or higher level require plant specific information to be provided to the states of New Jersey and Delaware, the NRC, and to PSE&G Emergency Response Facilities and therefore will not be classified as common site events.

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SALEM
EVENT CLASSIFICATION GUIDE
Glossary of Acronyms & Abbreviations
Section ii

AAAG	-	Accident Assessment Advisory Group (Delaware)
AB	-	Auxiliary Building
AC	-	Alternating Current
AFST	-	Auxiliary Feedwater Storage Tank
AFW	-	Auxiliary Feedwater
ALARA	-	As Low As Reasonably Achievable
ARM	-	Area Radiation Monitor
AS	-	Administrative Supervisor
ASAP	-	As Soon As Possible
ASM	-	Administrative Support Manager
ATWT	-	Anticipated Transient Without Trip
BIT	-	Boron Injection Tank
BKGD	-	Background
BKR	-	Breaker (electrical circuit)
BNE	-	Bureau of Nuclear Engineering (NJDEPE)
CAS	-	Central Alarm Station
CCPM	-	Corrected Counts per Minute
CDE	-	Committed Dose Equivalent
CEDE	-	Committed Effective Dose Equivalent
CET	-	Core Exit Thermocouple
CFCU	-	Containment Fan Coil Unit
CFR	-	Code of Federal Regulations
CFST	-	Critical Safety Function Tree
CM1	-	Primary Communicator (CR)
CM2	-	Secondary Communicator (CR)
CNTMT	-	Containment (Barrier)
CP	-	Control Point
CPM	-	Counts Per Minute
CR	-	Control Room
CRD	-	Control Rod Drive
DC	-	Direct Current
DDE	-	Deep Dose Equivalent
DEI	-	Dose Equivalent Iodine
DEMA	-	Delaware Emergency Management Agency

DEP	-	Department of Environmental Protection (NJ)
DID	-	Direct Inward Dial (phone system)
DOE	-	Department of Energy
DOT	-	Department of Transportation
DPCC/DCR	-	Discharge Prevention, Containment, & Countermeasures/ Discharge Cleanup & Removal Plan
DPM	-	Decades per Minute
DPM	-	Disintegrations per Minute
DRCF	-	Dose Rate Conversion Factor
EACS	-	ESF Equipment Area Cooling System
EAL	-	Emergency Action Level
EAS	-	Emergency Alert System (Broadcast)
EC	-	Emergency Coordinator
ECCS	-	Emergency Core Cooling Systems
ECG	-	Emergency Classification Guide
EDG	-	Emergency Diesel Generator
EDO	-	Emergency Duty Officer
EMRAD	-	Emergency Radio (NJ)
ENC	-	Emergency News Center
ENS	-	Emergency Notification System (NRC)
EOC	-	Emergency Operations Center (NJ & DE)
EOF	-	Emergency Operations Facility
EOP	-	Emergency Operating Procedures
EPA	-	Emergency Preparedness Advisor
EPA	-	Environmental Protection Agency
EPIP	-	Emergency Plan Implementing Procedure
EPM	-	Emergency Preparedness Manager
EPZ	-	Emergency Planning Zone
ERDS	-	Emergency Response Data System
ERF	-	Emergency Response Facility
ERM	-	Emergency Response Manager
ERO	-	Emergency Response Organization
ESF	-	Engineered Safety Feature
ESSX	-	Electronic Switch System Exchange (Centrex)
FC	-	Fuel Clad (Barrier)
FFD	-	Fitness For Duty
FHB	-	Fuel Handling Building
FPB	-	Fission Product Barrier
FRCC	-	Functional Restoration Core Cooling
FRCE	-	Functional Restoration Containment Environment
FRCI	-	Functional Restoration Coolant Inventory

FRERP	-	Federal Radiological Emergency Response Plan
FRHS	-	Functional Restoration Heat Sink
FRSM	-	Functional Restoration Shutdown Margin
FRTS	-	Functional Restoration Thermal Shock
FTS	-	Federal Telecommunications System (NRC)
GE	-	General Emergency
HEPA	-	High Efficiency Particulate Absorbers
HP	-	Health Physics
HVAC	-	Heating, Ventilation & Air Conditioning
HX	-	Heat Exchanger
IAW	-	In Accordance With
IC	-	Initiating Condition
ICMF	-	Initial Contact Message Form
IDLH	-	Immediately Dangerous to Life and Health
IR	-	Intermediate Range
I/S	-	In Service
ISOL	-	Isolation
KI	-	Potassium Iodide
KV	-	Kilovolt
LAC	-	Lower Alloways Creek
LCO	-	Limiting Condition for Operation
LDE	-	Lens Dose Equivalent
LEL	-	Lower Explosive Limit
LLD	-	Lowest Level Detectable
LOCA	-	Loss of Coolant Accident
LOP	-	Loss of Offsite Power
LPZ	-	Low Population Zone
MDA	-	Minimum Detectable Amount
MEA	-	Minimum Exclusion Area
MEES	-	Major Equipment & Electrical Status (Form)
MET	-	Meteorological
MIMS	-	Metal Impact Monitoring System
MOU	-	Memorandum of Understanding
MRO	-	Medical Review Officer
MSIV	-	Main Steam Isolation Valve
MSL	-	Main Steam Line

NAWAS	-	National Attack Warning Alert System
NCO	-	Nuclear Control Operator
NDAB	-	Nuclear Department Administration Building (TB2)
NEO	-	Nuclear Equipment Operator
NETS	-	Nuclear Emergency Telecommunications System
NFE	-	Nuclear Fuels Engineer
NFPB	-	Normal Full Power Background
NG	-	Noble Gas
NJSP	-	New Jersey State Police
NOAA	-	National Oceanographic and Atmospheric Administration
NR	-	Narrow Range
NRC	-	Nuclear Regulatory Commission
NSP	-	Nuclear Site Protection
NSS	-	Nuclear Shift Supervisor
NSTA	-	Nuclear Shift Technical Advisor
NUMARC	-	Nuclear Management and Resources Council
NWS	-	National Weather Service
OBE	-	Operating Basis Earthquake
OCA	-	Owner Controlled Area
ODCM	-	Offsite Dose Calculation Manual
OEM	-	Office of Emergency Management
OHA	-	Overhead Annunciators
OSB	-	Operational Status Board (Form)
OSC	-	Operations Support Center
PAG	-	Protective Action Guideline
PAR	-	Protective Action Recommendation
PASS	-	Post Accident Sample System
PIM	-	Public Information Manager
PMP	-	Pump
PORV	-	Power Operated Relief Valve
PSIG	-	Pounds per Square Inch Gauge
PWST	-	Primary Water Storage Tank
PZR	-	Pressurizer
RAC	-	Radiological Assessment Coordinator
RAD	-	Radiation
RAL	-	Reportable Action Level
RC	-	Reactor Coolant
RCA	-	Radiologically Controlled Area
RCAM	-	Repair and Corrective Action Mission
RCP	-	Reactor Coolant Pump

RCS	-	Reactor Coolant System (Barrier)
RHR	-	Residual Heat Removal
RM	-	Recovery Manager
RMO	-	Recovery Management Organization
RMS	-	Radiation Monitoring System
RPS	-	Radiation Protection Supervisor
RPS	-	Reactor Protection System
RSM	-	Radiological Support Manager
RVLIS	-	Reactor Vessel Level Instrumentation System
RWST	-	Refueling Water Storage Tank
SAE	-	Site Area Emergency
SAM	-	Severe Accident Management
SAS	-	Secondary Alarm Station (Security)
SAT	-	Satisfactory
SBO	-	Station Blackout
SCBA	-	Self Contained Breathing Apparatus
SCP	-	Security Contingency Procedure
SDE	-	Shallow Dose Equivalent
SDM	-	Shutdown Margin
S/G	-	Steam Generator
SGS	-	Salem Generating Station
SGTR	-	Steam Generator Tube Rupture
SI	-	Safety Injection
SJAE	-	Steam Jet Air Ejector
SNM	-	Special Nuclear Material
SNSS	-	Senior Nuclear Shift Supervisor
SOS	-	Systems Operations Supervisor (Security)
SPDS	-	Safety Parameter Display System
SRPT	-	Shift Radiation Protection Technician
SSCL	-	Station Status Checklist
SSE	-	Safe Shutdown Earthquake
SSM	-	Site Support Manager
SSNM	-	Strategic Special Nuclear Material
SUR	-	Startup Rate
T-COLD	-	Temperature Cold (Leg)
T-HOT	-	Temperature Hot (Leg)
TAF	-	Top of Active Fuel
TDR	-	Technical Document Room
TEDE	-	Total Effective Dose Equivalent
TPARD	-	Total Protective Action Recommendation Dose
T/S	-	Technical Specifications

TSC	-	Technical Support Center
TSS	-	Technical Support Supervisor
TSTL	-	Technical Support Team Leader
TSTM	-	Technical Support Team Member
UE	-	Unusual Event
UFSAR	-	Updated Final Safety Analysis Report
UHS	-	Ultimate Heat Sink
USCG	-	United States Coast Guard
VDC	-	Volts Direct Current
VLV	-	Valve
WB	-	Whole Body
WR	-	Wide Range

10

The Salem Unit 1 Critical Function Safety Trees are still in draft and will be incorporated before Unit 1 goes to mode 4.

FIGURE 1
SHUTDOWN MARGIN STATUS TREE

EOP-CFST-1

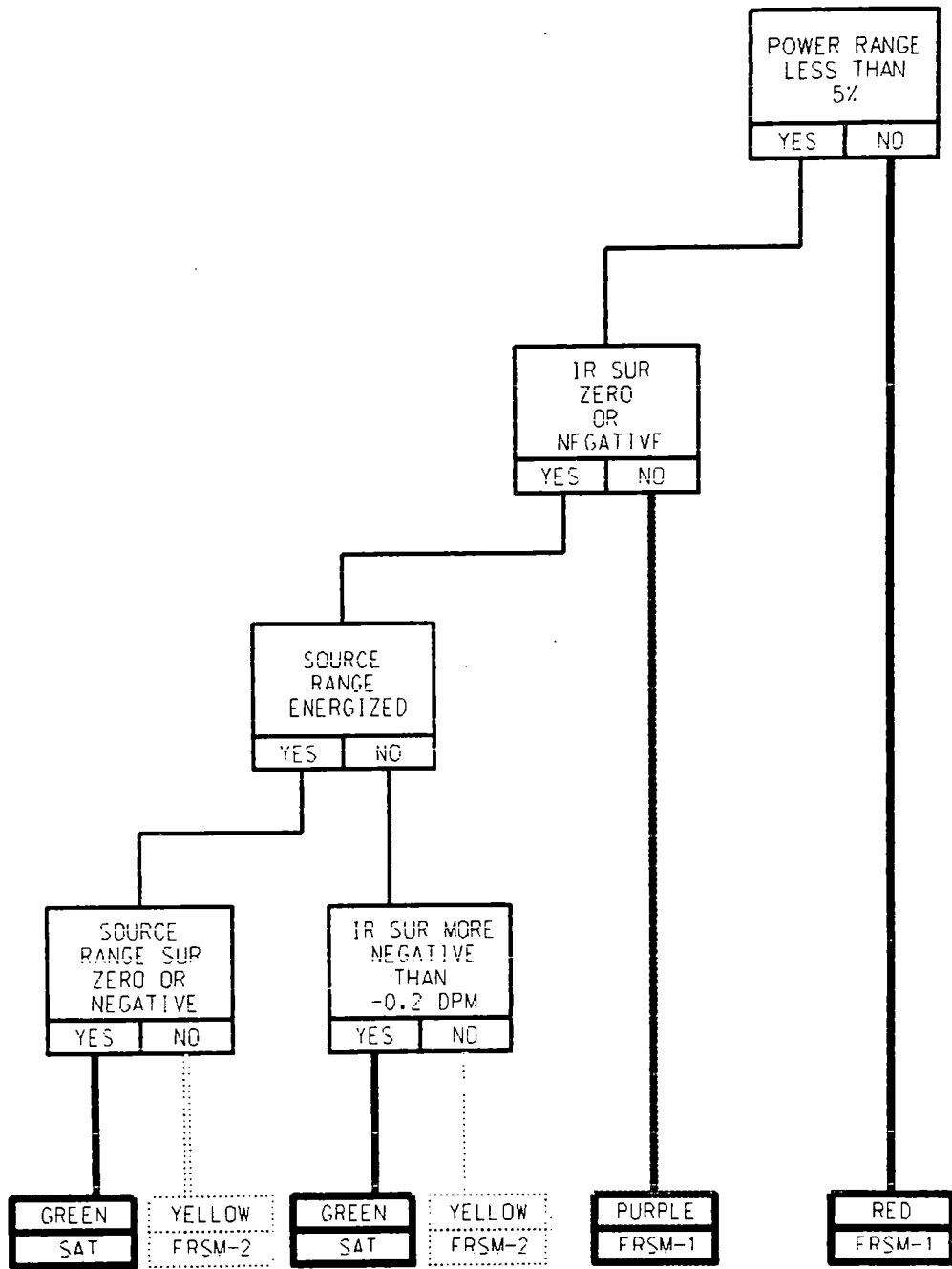
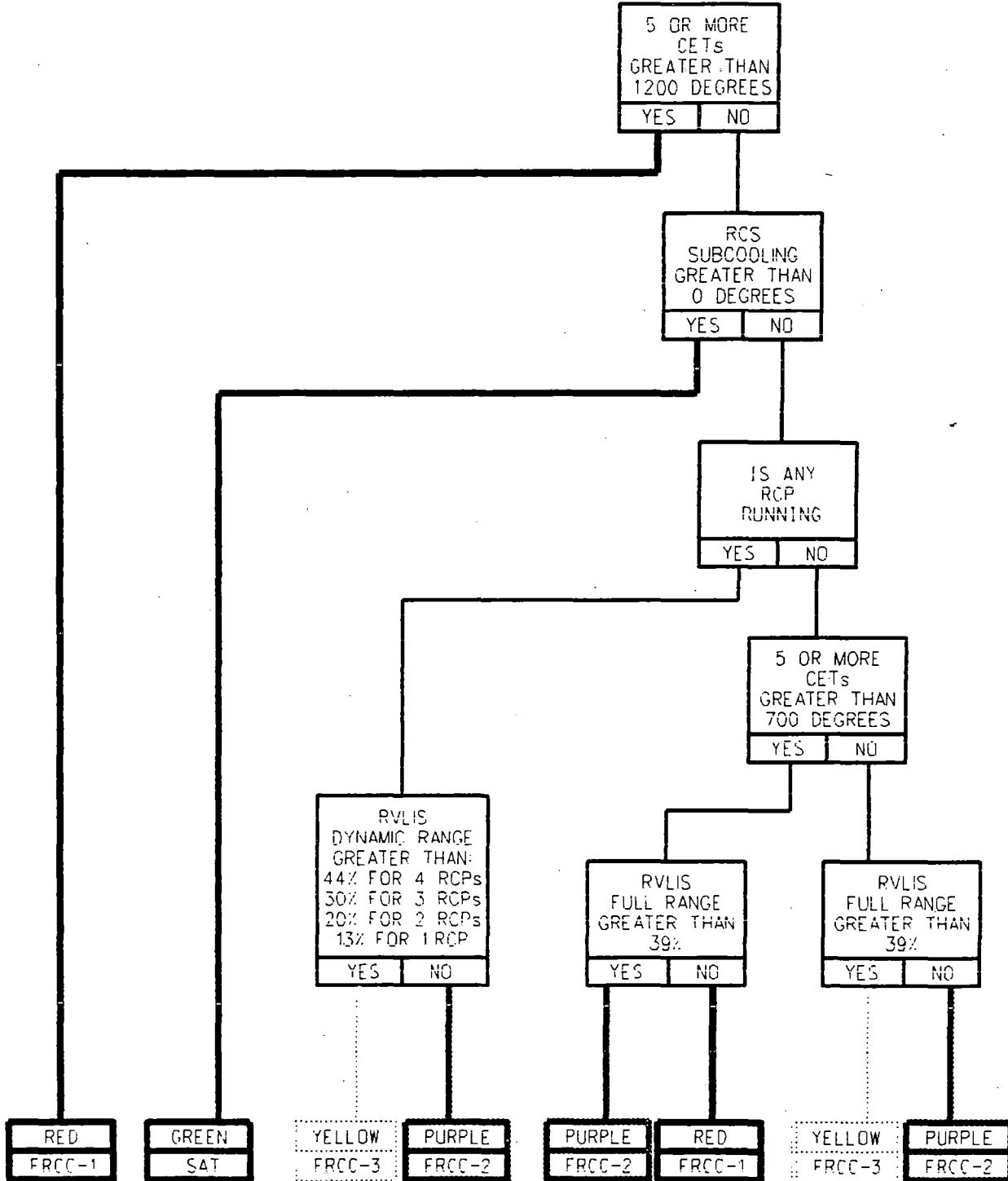


FIGURE 2
CORE COOLING STATUS TREE

EDP-CFST-1



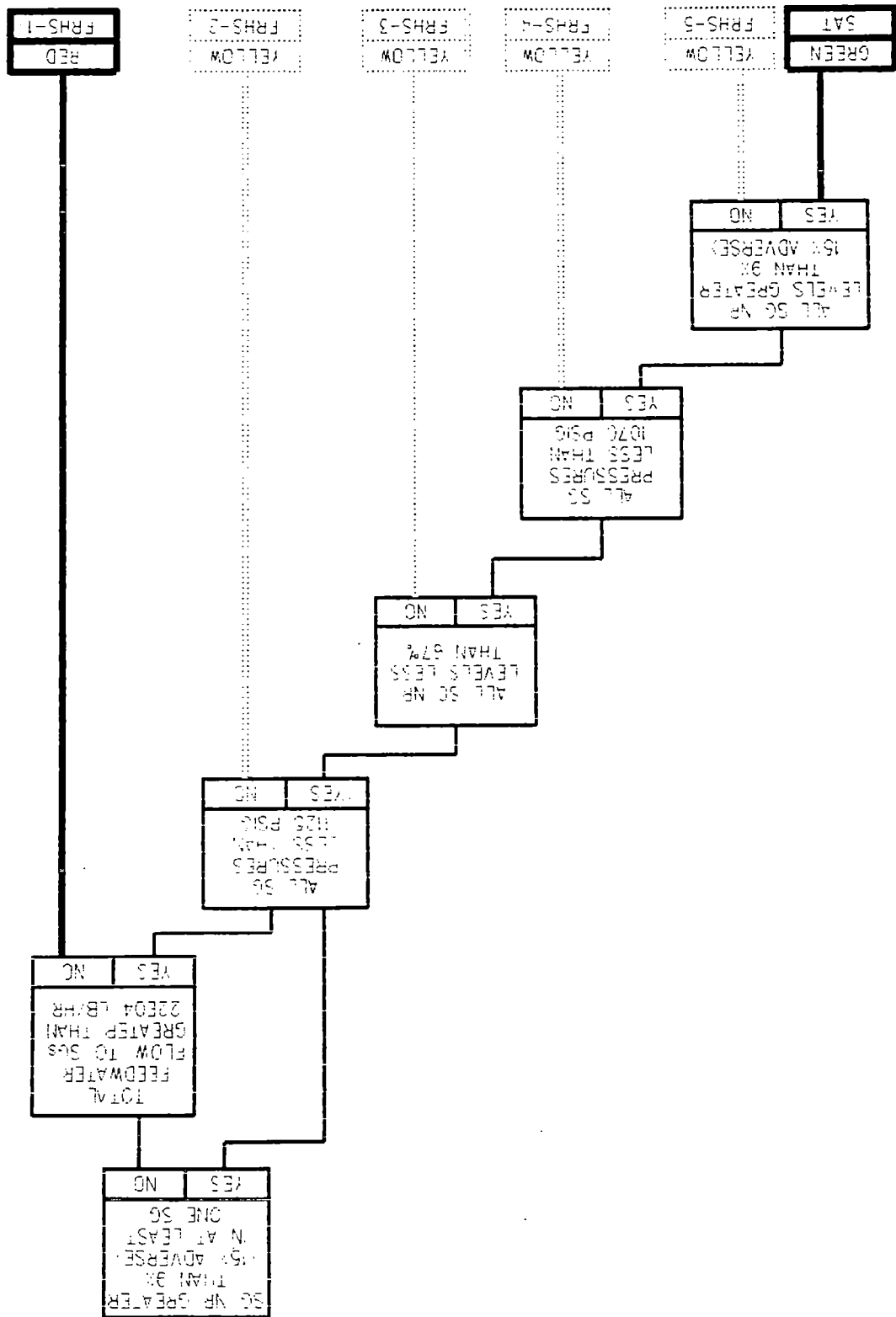
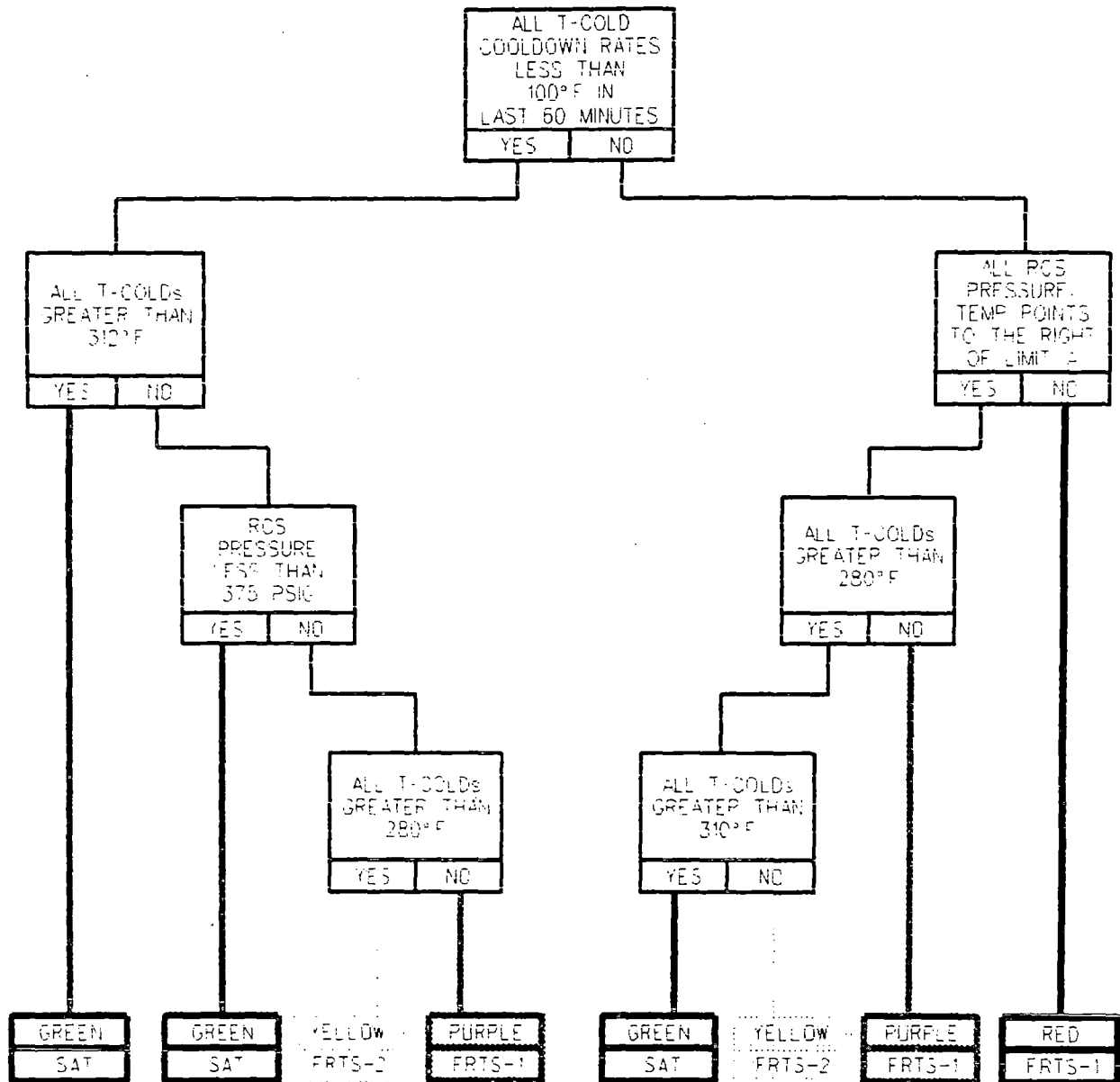


FIGURE 3 HEAT SINK STATUS TREE

**FIGURE 4
THERMAL SHOCK STATUS TREE**

EOP-CFST-1



**FIGURE 5
CONTAINMENT ENVIRONMENT STATUS TREE**

EOP-CFST-1

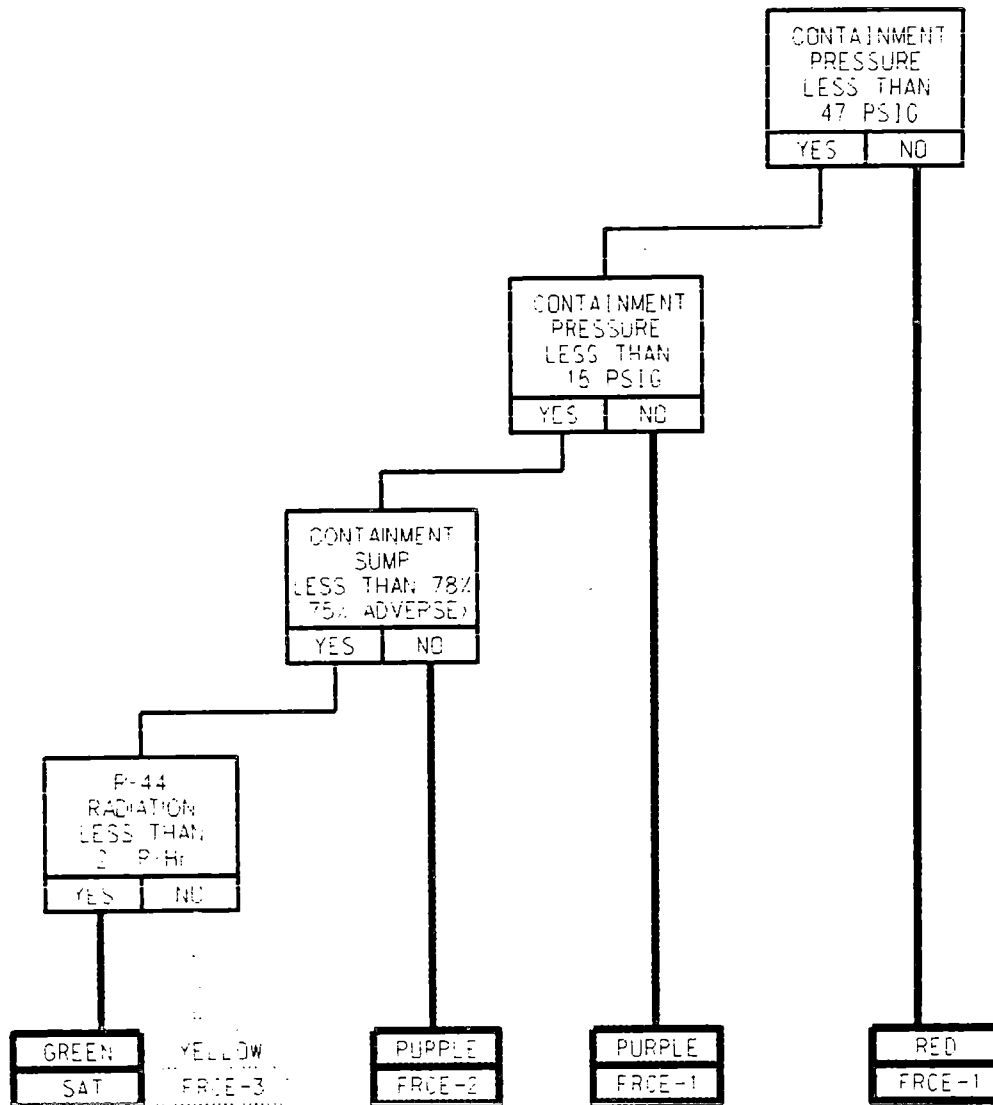
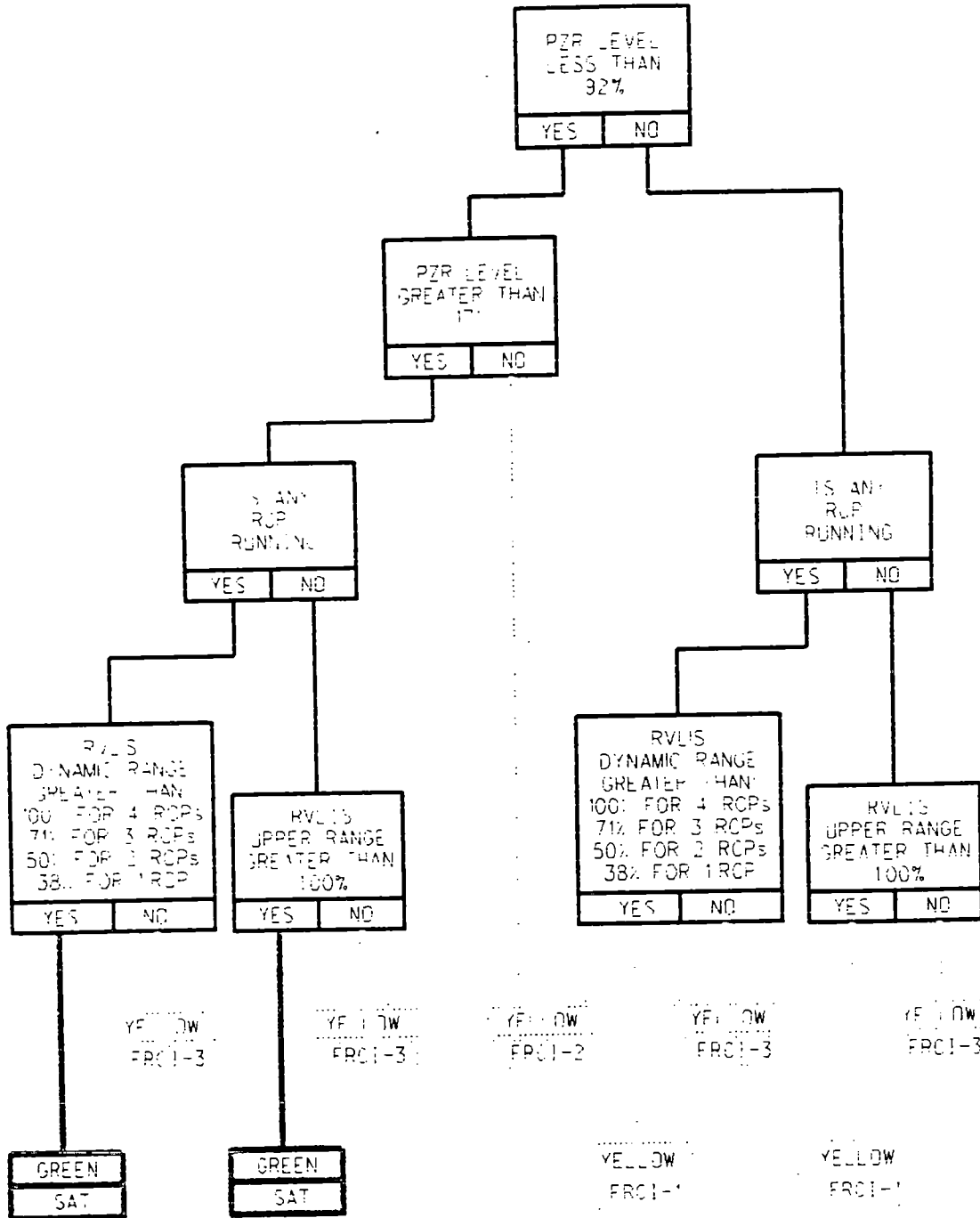


FIGURE 6
COOLANT INVENTORY STATUS TREE

EOP-CFST-1



1.0 Fuel Clad Challenge

1.1 RCS Activity

Fuel Clad Degradation

1, 2, 3, 4, 5, 6

1.1.1.a

IF

Reactor Coolant Activity
> 1 $\mu\text{Ci/gm}$ Dose
Equivalent Iodine 131 for
> 48 Hours

1, 2, 3, 4, 5, 6

1.1.1.b

IF

Reactor Coolant Activity
(Dose Equivalent Iodine)
exceeds limits
of Technical Specification
Figure 3.4-1

1, 2, 3, 4, 5, 6

1.1.1.c

IF

Valid Letdown Line
Monitor
in Alarm
(1R31A or 2R31)

THEN

NOTE:
Refer to Section 3.0,
Fission Product Barrier Table
prior to Event Classification

Refer to Attachment I
UNUSUAL EVENT

Initiating
Condition

MODE

EAL#

E
M
E
R
G
E
N
C
Y

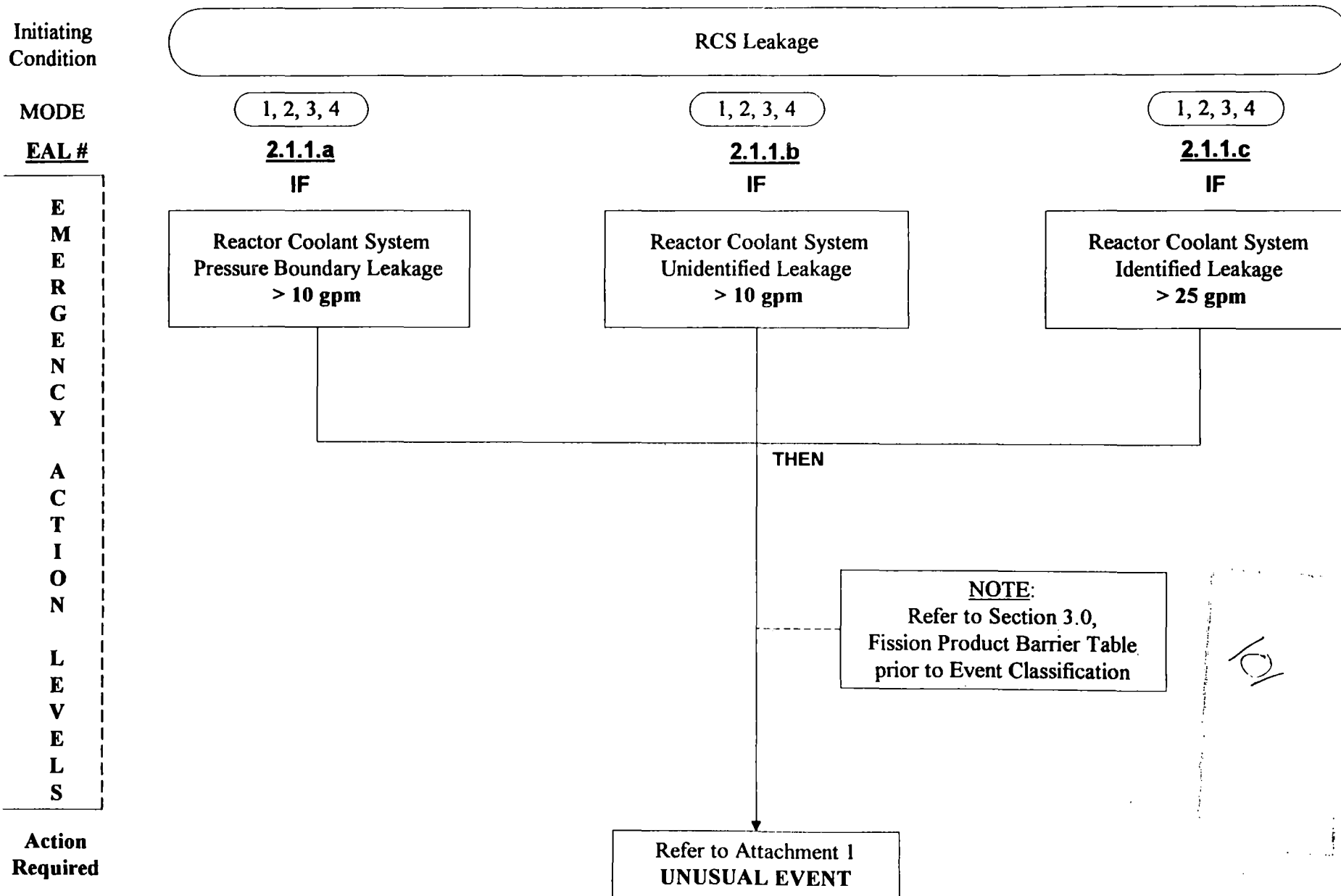
A
C
T
I
O
N

L
E
V
E
L
S

Action
Required

2.0 RCS Challenge

2.1 RCS Leakage



10

TABLE 3.0 FISSION PRODUCT BARRIERS

APPLICABLE
MODES ARE
1,2,3,4 ONLY

NOTE

If the Loss or Potential Loss is considered IMMEDIATE (may occur within 2 hours), use judgment and classify as if the threshold is exceeded.

Instructions:

- In the table review the Emergency Action Levels of all columns and identify which need further review.
 - For each of the three barriers, determine the EAL with the highest point value, and circle the corresponding EAL # and point value. No more than one EAL should be selected for each barrier.
 - Add the point values circled for the three barriers and enter the sum below:
 - Classify based on the point value sum as follows:
- | If the sum is: | Classify as: | Refer to: |
|----------------|---------------|--------------|
| 1,2 | UNUSUAL EVENT | Attachment 1 |
| 3,4 | ALERT | Attachment 2 |
| 5,6,7,8 | SITE AREA | Attachment 3 |
| 9,10 | GENERAL | Attachment 4 |
- Implement the appropriate ECG Attachment per above chart.
 - Continue to review the EALs on this Table for changes that could result in emergency escalation or deescalation.

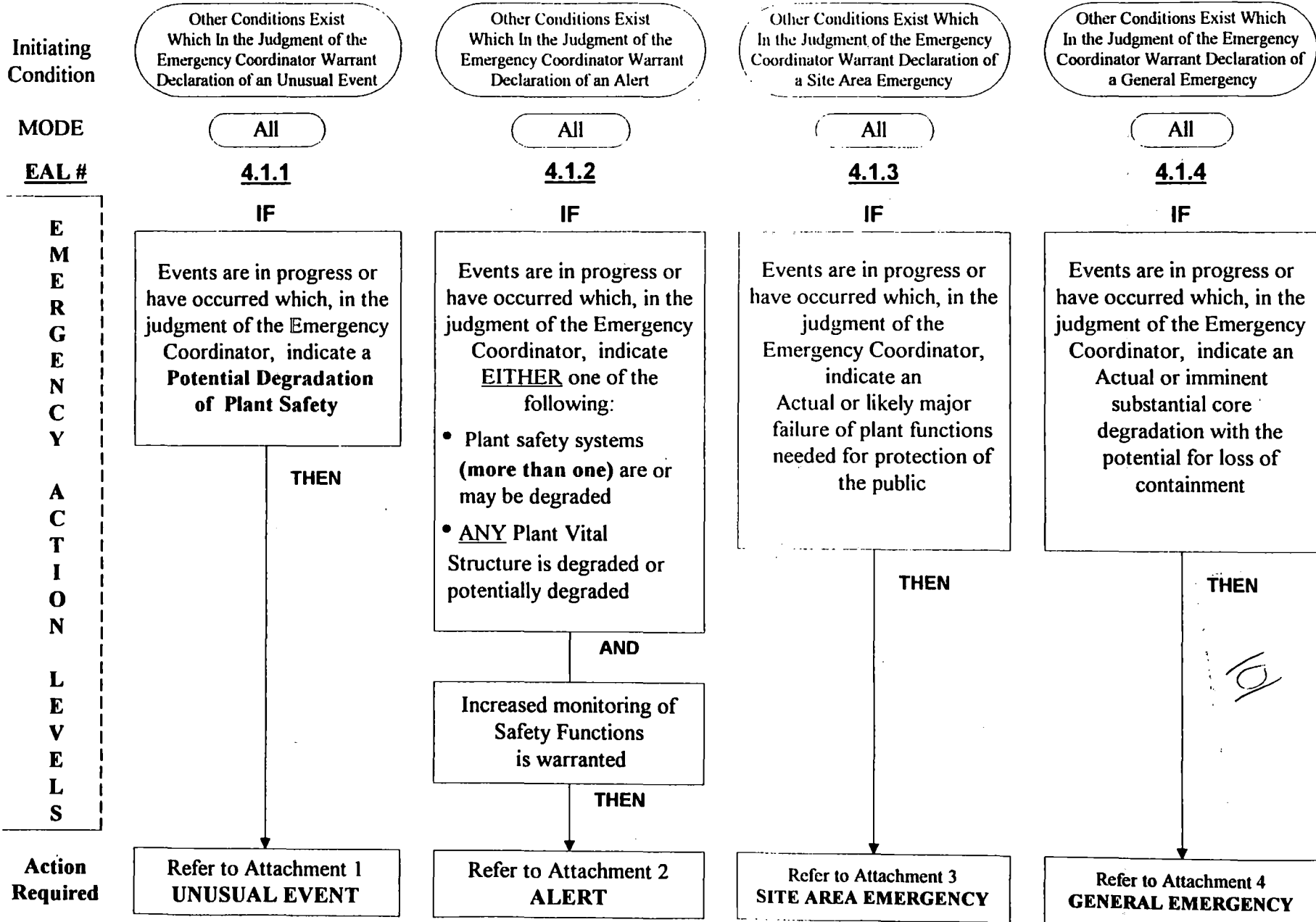
3.1 Fuel Clad Barrier	
3.1.1 CRITICAL SAFETY FUNCTION STATUS	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.1.1.a CORE COOLING PURPLE PATH OR EAL # 3.1.1.b HEAT SINK RED PATH	EAL # 3.1.1.c CORE COOLING RED PATH
3.1.2 PRIMARY COOLANT IODINE CONCENTRATION	
POTENTIAL LOSS = 0PT _s	LOSS = 4PT _s
Not Applicable	EAL # 3.1.2 Reactor Coolant activity > 800 uCi/gm Dose Equivalent I-131
3.1.3 CORE EXIT THERMOCOUPLES (CETs)	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.1.3.a 5 or more CETs > 700 °F	EAL # 3.1.3.b 5 or more CETs > 1200 °F
3.1.4 RX VESSEL LEVEL INDICATION SYSTEM (RVLIS)	
POTENTIAL LOSS = 3PT _s	LOSS = 0PT _s
EAL # 3.1.4.a RVLIS Full Range < 80% EAL # 3.1.4.b RVLIS Dynamic Range indicates ANY one of the following: • 4 RCPs I/S < 44% • 3 RCPs I/S < 80% • 2 RCPs I/S < 20% • 1 RCPs I/S < 13%	Not Applicable
3.1.5 CONTAINMENT RADIATION LEVELS	
POTENTIAL LOSS = 0PT _s	LOSS = 4PT _s
Not Applicable	EAL # 3.1.5 B44A or B44B > 300 R/hr
3.1.6 EMERGENCY COORDINATOR JUDGMENT	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.1.6.a ANY condition, in the opinion of the EC, that indicates a Potential Loss of the Fuel Clad Barrier	EAL # 3.1.6.b ANY condition, in the opinion of the EC, that indicates a Loss of the Fuel Clad Barrier

3.2 RCS Barrier	
3.2.1 CRITICAL SAFETY FUNCTION STATUS	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.2.1.a THERMAL SHOCK RED PATH OR EAL # 3.2.1.b HEAT SINK RED PATH	Not Applicable
3.2.2 RCS LEAK RATE	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.2.2.a One Centrifugal Charging Pump CANNOT maintain PZR level > 17% (as a result of RCS leakage).	EAL # 3.2.2.b Subcooling is 0 °F as a result of RCS leakage.
3.2.3 STEAM GENERATOR TUBE RUPTURE	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.2.3.a One Centrifugal Charging Pump CANNOT maintain PZR level > 17% (as a result of a SGTR) AND Control Room has determined that an SGTR has occurred	EAL # 3.2.3.b One Centrifugal Charging Pump CANNOT maintain PZR level > 17% (as a result of a SGTR) AND Ruptured Steam Generator pressure is dropping in an uncontrolled manner or completely depressurized AND Prolonged, direct secondary leakage to the environment (steam breaks, feed breaks, stuck open safety or relief valves) NOTE: SEE 3.3.4.b
3.2.4 CONTAINMENT RADIATION LEVELS	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
Not Applicable	EAL # 3.2.4 Valid Containment Radiation level which exceeds ANY one of the following Containment Rad Monitor values: • B2 > 1 R/hr • B44A > 10 R/hr • B44B > 10 R/hr
3.2.5 EMERGENCY COORDINATOR JUDGMENT	
POTENTIAL LOSS = 3PT _s	LOSS = 4PT _s
EAL # 3.2.5.a ANY condition, in the opinion of the EC, that indicates a Potential Loss of RCS Barrier	EAL # 3.2.5.b ANY condition, in the opinion of the EC, that indicates a Loss of RCS Barrier

3.3 CNTMT Barrier	
3.3.1 CRITICAL SAFETY FUNCTION STATUS	
POTENTIAL LOSS = 1PT	LOSS = 0PT _s
EAL # 3.3.1.a CNTMT ENVIRONMENT RED PATH OR EAL # 3.3.1.b CORE COOLING RED PATH for > 15 minutes	Not Applicable
3.3.2 CONTAINMENT PRESSURE	
POTENTIAL LOSS = 1PT	LOSS = 2PT _s
EAL # 3.3.2.a Containment H ₂ > 4% EAL # 3.3.2.b CNTMT Press. > .5psig with EITHER one of the following: • No CNTMT Spray AND < 5 CFUs Running in "Low Speed" • One CNTMT Spray Train IS AND < 3 CFUs Running in "Low Speed"	EAL # 3.3.2.c A Rapid Unexplained Containment Pressure Drop following an Initial Rise to > 4 psig
3.3.3 CONTAINMENT ISOLATION	
POTENTIAL LOSS = 1PT	LOSS = 2PT _s
EAL # 3.3.3.a CNTMT Sump Level > 70% (75% adverse)	EAL # 3.3.3.b Valid CNTMT # A, # B or CNTMT Vent Isol Signal AND Flow path from CNTMT to the environment
3.3.4 RCS LINE BREAK/CONTAINMENT BYPASS	
POTENTIAL LOSS = 1PT	LOSS = 2PT _s
EAL # 3.3.4.a Unisolable, Faulted steam Generator OUTSIDE of Containment as Indicated by RG pressure dropping in an uncontrolled manner or completely depressurized AND Affected SG tubes are intact	EAL # 3.3.4.b Primary to secondary leakage > Tech Spec Limits AND Prolonged, direct secondary leakage to the environment EAL # 3.3.4.c LOCA conditions AND CNTMT Press. or Sump Level NOT increasing as expected
3.3.5 CONTAINMENT RADIATION LEVELS	
POTENTIAL LOSS = 1PT	LOSS = 0PT _s
EAL # 3.3.5 B44A or B44B > 2000 R/hr	Not Applicable
3.3.6 EMERGENCY COORDINATOR JUDGMENT	
POTENTIAL LOSS = 1PT	LOSS = 2PT _s
EAL # 3.3.6.a ANY condition, in the opinion of the EC, that indicates a Potential Loss of the Containment Barrier	EAL # 3.3.6.b ANY condition, in the opinion of the EC, that indicates a Loss of the Containment Barrier

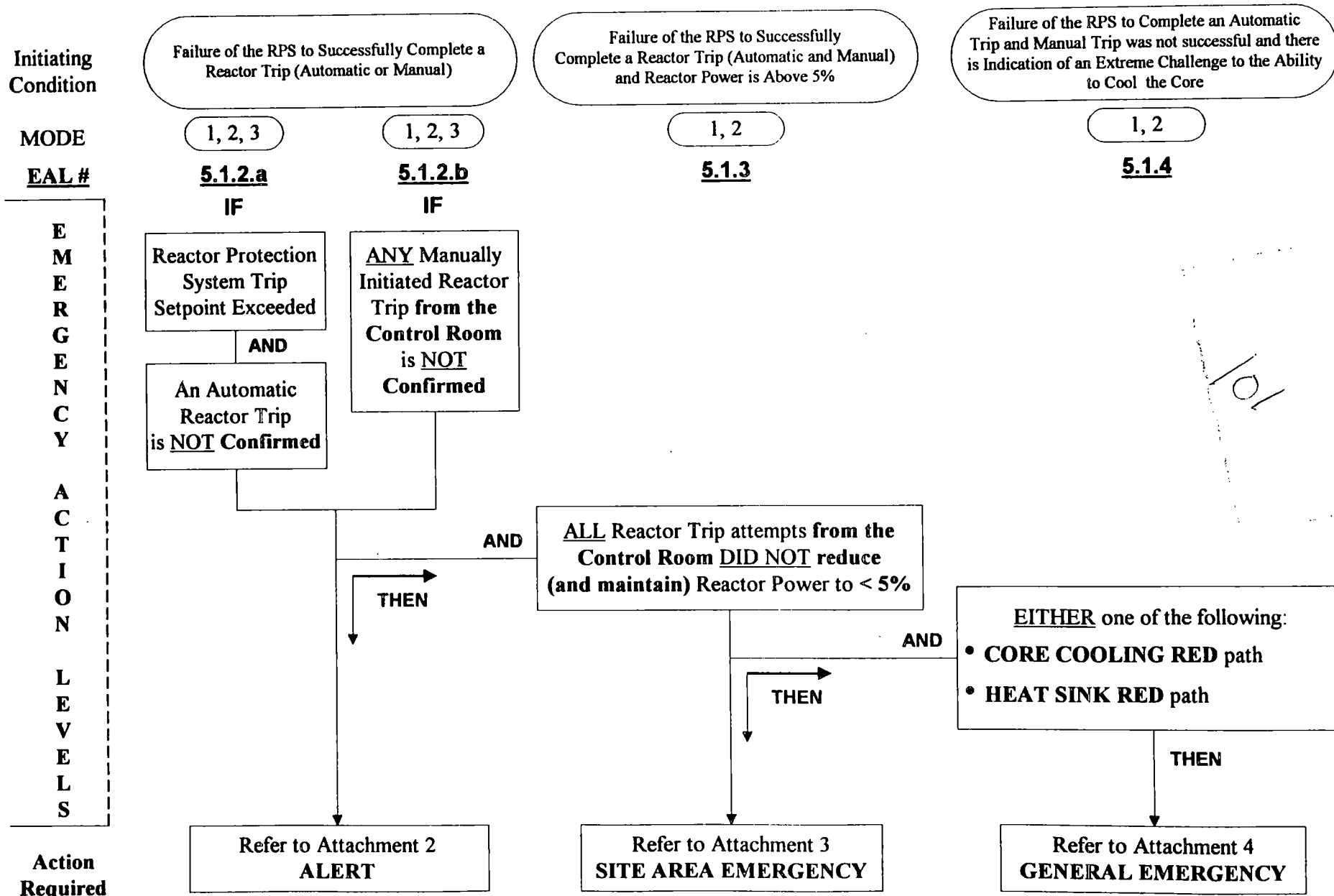
4.0 E C Discretion

4.1 Emergency Coordinator Discretion



10

5.0 Failure to Trip 5.1 ATWT



10/1

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

Initiating Condition

Any Unplanned Release of Gaseous Radioactivity to Environment that Exceeds 2 Times the Radiological Technical Specifications for 60 minutes or longer

Any Unplanned Release of Gaseous Radioactivity to the Environment that Exceeds 2 times the 10CFR20, Appendix B limits for 60 minutes or longer

MODE

All

All

All

All

EAL#

6.1.1.a

6.1.1.b

6.1.1.c

6.1.1.d

EMERGENCY ACTION LEVELS

Dose Assessment

IF

Dose Assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose $\geq 2.0E-01$ mRem
- Thyroid-CDE Dose $\geq 6.8E-01$ mRem based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

Field Measured Dose Rate

IF

Dose Rate measured at the Protected Area Boundary or beyond EXCEEDS .05 mRem/hr above normal background

Sample Analysis

IF

Gaseous effluent release sample analysis on EITHER one of the following indicates a concentration of:

- $\geq 2.56E-03$ $\mu\text{Ci/cc}$ Total Noble Gas
- $\geq 3.71E-08$ $\mu\text{Ci/cc}$ I-131

Alarm Indications

IF

Valid Plant Vent Effluent Alarm

AND

Release rate EXCEEDS $9.68E+04$ $\mu\text{Ci/sec}$ Total Noble Gas

AND

Dose Assessment results NOT available

AND

Release is ongoing for ≥ 60 minutes

THEN

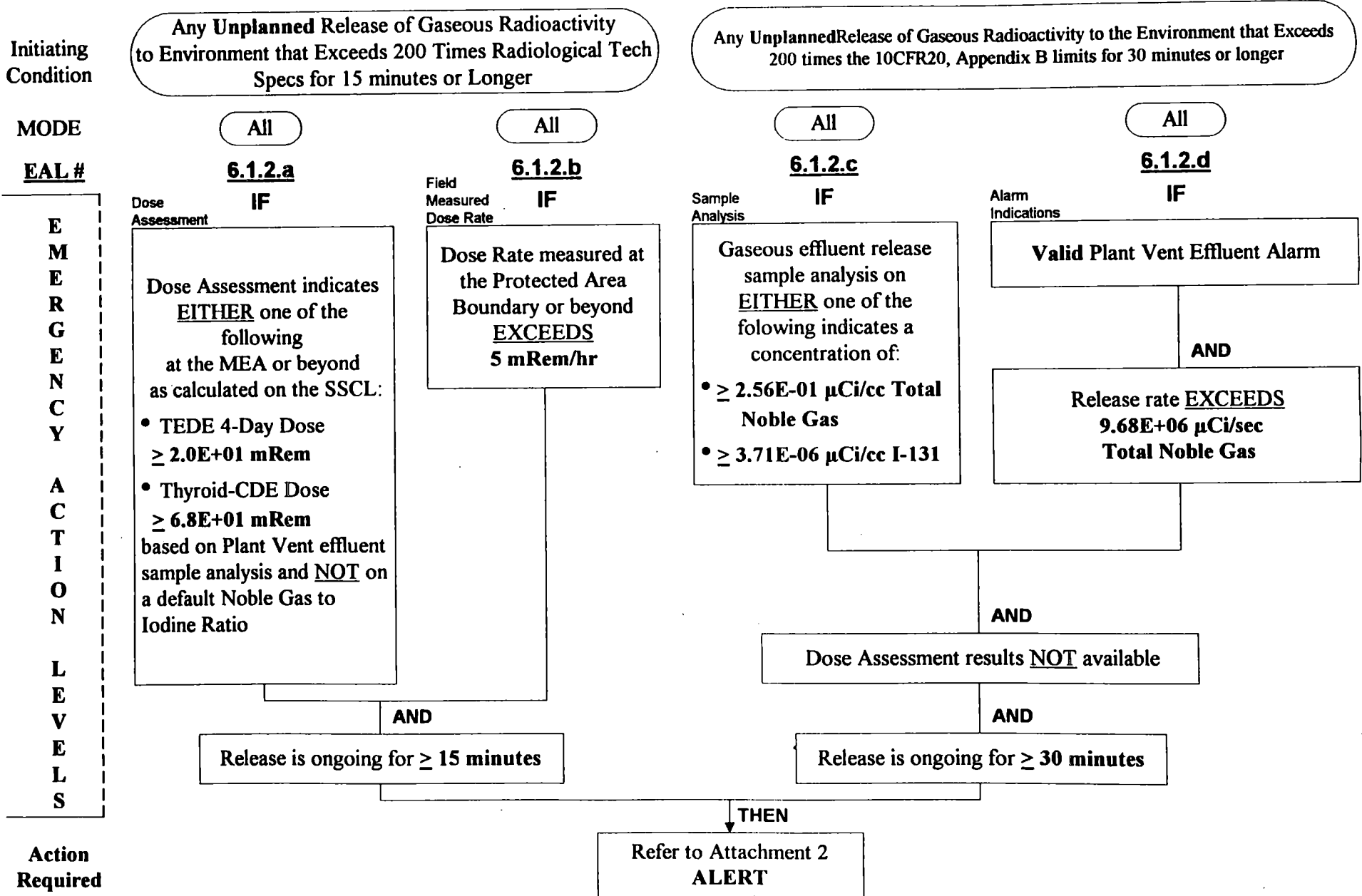
Refer to Attachment 1
UNUSUAL EVENT

Action Required

151

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release



**E
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S**

Action Required

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

Initiating Condition

Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mRem Total Effective Dose Equivalent (TEDE) or 500 mRem Thyroid-CDE Dose for the Actual or Projected Duration of the Release

MODE

All

All

All

All

EAL #

6.1.3.a

6.1.3.b

6.1.3.c

6.1.3.d

Dose Assessment

IF

Field Measured Dose Rate

IF

Field Survey Analysis

IF

Alarm Indications

IF

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Dose Assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose $\geq 1.0E+02$ mRem
- Thyroid-CDE Dose $\geq 5.0E+02$ mRem based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

Dose Rate measured at the Protected Area Boundary or beyond EXCEEDS 100 mRem/hr

AND

Release is expected to continue for ≥ 15 minutes

Analysis of field survey samples at the Protected Area Boundary indicates EITHER one of the following:

- $\geq 4.36E+02$ CCPM
- $\geq 3.85E-07$ μ Ci/cc I-131

Valid Plant Vent Effluent Alarm

AND

Total Plant Vent release rate EXCEEDS $1.7E+09$ μ Ci/sec Total Noble Gas

AND

Dose Assessment results NOT available

AND

Release is ongoing for ≥ 15 minutes

THEN

Refer to Attachment 3
SITE AREA EMERGENCY

Action Required

6.0 Radiological Releases/Occurrences

6.1 Gaseous Effluent Release

Initiating Condition

Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 1000 mRem Total Effective Dose Equivalent (TEDE) or 5000 mRem Thyroid-CDE Dose for the Actual or Projected Duration of the Release

MODE

All

All

All

All

EAL #

6.1.4.a

6.1.4.b

6.1.4.c

6.1.4.d

E
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S

Dose Assessment

IF

Dose Assessment indicates EITHER one of the following at the MEA or beyond as calculated on the SSCL:

- TEDE 4-Day Dose $\geq 1.0E+03$ mRem
- Thyroid-CDE Dose $\geq 5.0E+03$ mRem based on Plant Vent effluent sample analysis and NOT on a default Noble Gas to Iodine Ratio

Field Measured Dose Rate

IF

Dose Rate measured at the Protected Area Boundary or beyond EXCEEDS 1000 mRem/hr

AND

Release is expected to continue for ≥ 15 minutes

Field Survey Analysis

IF

Analysis of field survey samples at the Protected Area Boundary indicates EITHER one of the following:

- $\geq 4.36E+03$ CCPM
- $\geq 3.85E-06$ μ Ci/cc I-131

Alarm Indications

IF

Valid Plant Vent Effluent Alarm

AND

Total Plant Vent release rate EXCEEDS $1.7E+10$ μ Ci/sec Total Noble Gas

AND

Dose Assessment results NOT available

AND

Release is ongoing for ≥ 15 minutes

THEN

Refer to Attachment 4
GENERAL EMERGENCY

Action Required

6.0 Radiological Releases/Occurrences

6.2 Liquid Effluent Release

Initiating
Condition

Any Unplanned Release of Liquid Radioactivity
to the Environment that Exceeds Two Times the Radiological
Technical Specifications for 60 Minutes or Longer

Any Unplanned Release of Liquid Radioactivity
to the Environment that Exceeds 200 Times the Radiological
Technical Specifications for 15 Minutes or Longer

MODE
EAL #

All

6.2.1

IF

All

6.2.2

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Valid Alarm from ANY one of the following RMS Channels:

- Containment Fan Coil Process (R13)
- Liquid Radwaste Disposal Process (R18)
- Steam Generator Blowdown Process (R19)
- Chemical Waste Basin Process (2R37)

THEN
AND

Sample analysis of liquid effluent indicates concentration
in excess of **2 times Tech. Spec. limits**

AND

Release continues for **≥ 60 minutes**
after the alarm occurs

THEN

Refer to Attachment 1
UNUSUAL EVENT

AND

Sample analysis of liquid effluent indicates concentration
in excess of **200 times Tech. Spec. limits**

AND

Release continues for **≥ 15 minutes**
after the alarm occurs

THEN

Refer to Attachment 2
ALERT

Action
Required

6.0 Radiological Releases/Occurrences

6.3 In-Plant Radiation Occurrences

Initiating Condition

Unplanned Increase in Plant Radiation

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

MODE

All

All

All

EAL #

6.3.1

6.3.2.a

6.3.2.b

IF

IF

IF

Unplanned rise in radiation levels inside the Protected Area ≥ 1000 times normal as indicated by EITHER one of the following:

- Permanent or portable Area Radiation Monitors
- General Area Radiological Survey

Unplanned Dose Rate > 2000 mRem/hr in any area of the plant which requires ACCESS to maintain plant safety functions (excluding the Control Room or CAS) as indicated by EITHER one of the following:

- Permanent or portable Area Radiation Monitors
- General Area Radiological Survey

Unplanned radiation levels > 15 mRem/hr in EITHER one of the following:

- The Control Room
- The Security Central Alarm Station (CAS)

THEN

THEN

Refer to Attachment 1
UNUSUAL EVENT

Refer to Attachment 2
ALERT

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Action Required

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

Initiating
Condition

Unplanned Increase in Plant Radiation

MODE

6

All

EAL #

6.4.1.a

6.4.1.b

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IF

An **uncontrolled** level drop in the Refueling Cavity as indicated by **EITHER** one of the following:

- Visual observation
- RVLIS- Refueling Mode

IF

Valid SFP Low Level alarm - OHA C-35

AND

Visual observation of an **uncontrolled** level drop in the Spent Fuel Pool

THEN

Note:
Refer to Rad Dose Rate EALs prior to classification

Action
Required

Refer to Attachment 1
UNUSUAL EVENT

6.0 Radiological Releases/Occurrences

6.4 Irradiated Fuel Event

Initiating Condition

Major Damage to Irradiated Fuel or Loss of Water Level that has or will result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel

MODE

All

All

All

All

EAL #

6.4.2.a

6.4.2.b

6.4.2.c

6.4.2.d

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IF

IF

IF

IF

Major Damage to Irradiated Fuel reported in the Fuel Handling Bldg

Major Damage to Irradiated Fuel reported in the Containment

Unplanned rise on ANY one of the following Area Rad monitors or by general area rad survey indicates ≥ 2000 mRem/hr:

- R2
- R5
- R9
- R32A

Visual observation of Irradiated Fuel uncovered

AND

AND

Valid High Alarm is received on EITHER one of the following RMS channels:

- R5
- R32A

Valid High Alarm received on ANY one of the following RMS channels:

- R2
- R10A
- R10B

AND

AND

Valid High Alarm received from EITHER one of the following RMS channels:

- R41
- R45

Valid High Alarm received from ANY one of the following RMS channels:

- R11A
- R12A
- R12B

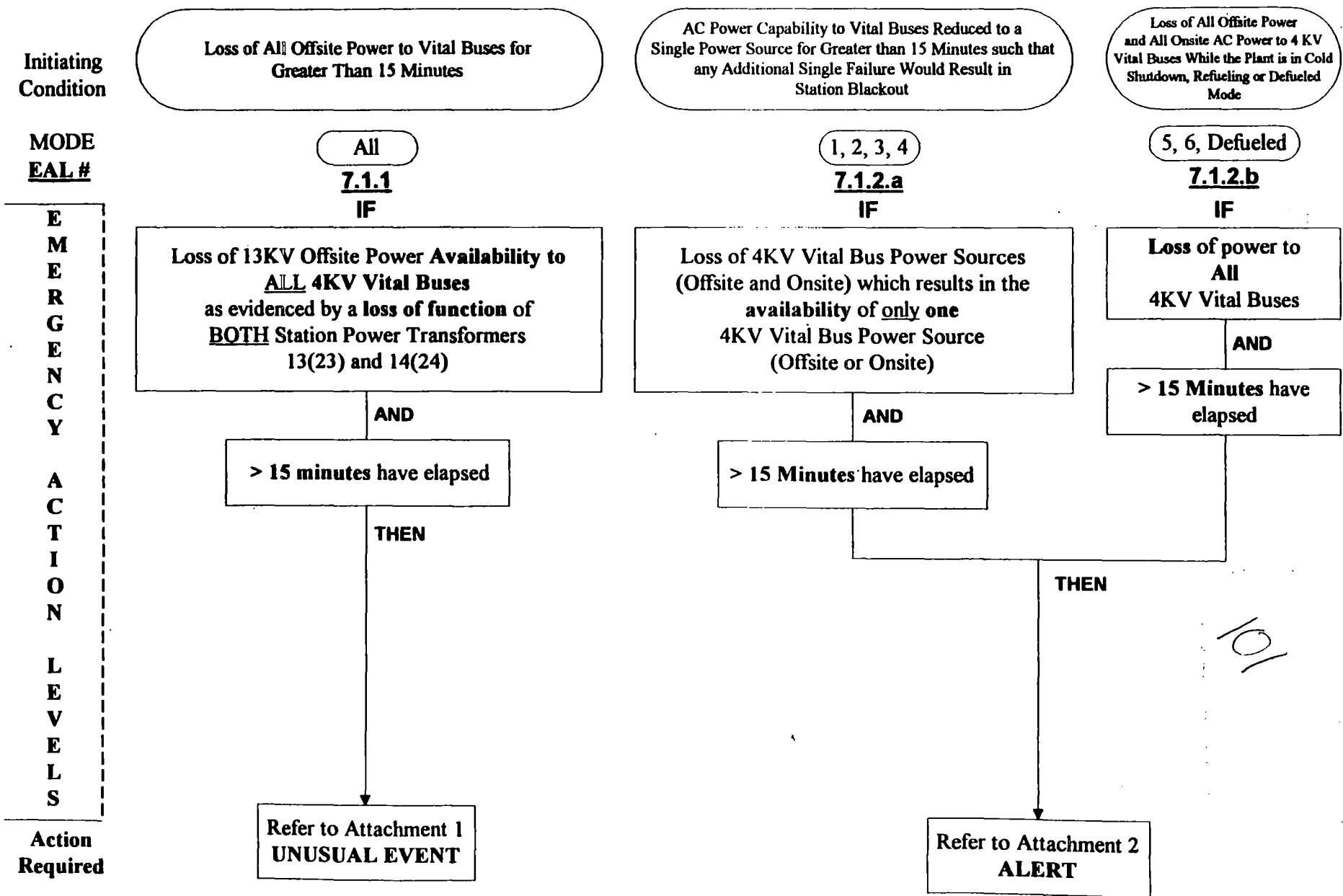
THEN

Action Required

Refer to Attachment 2
ALERT

7.0 Electrical Power

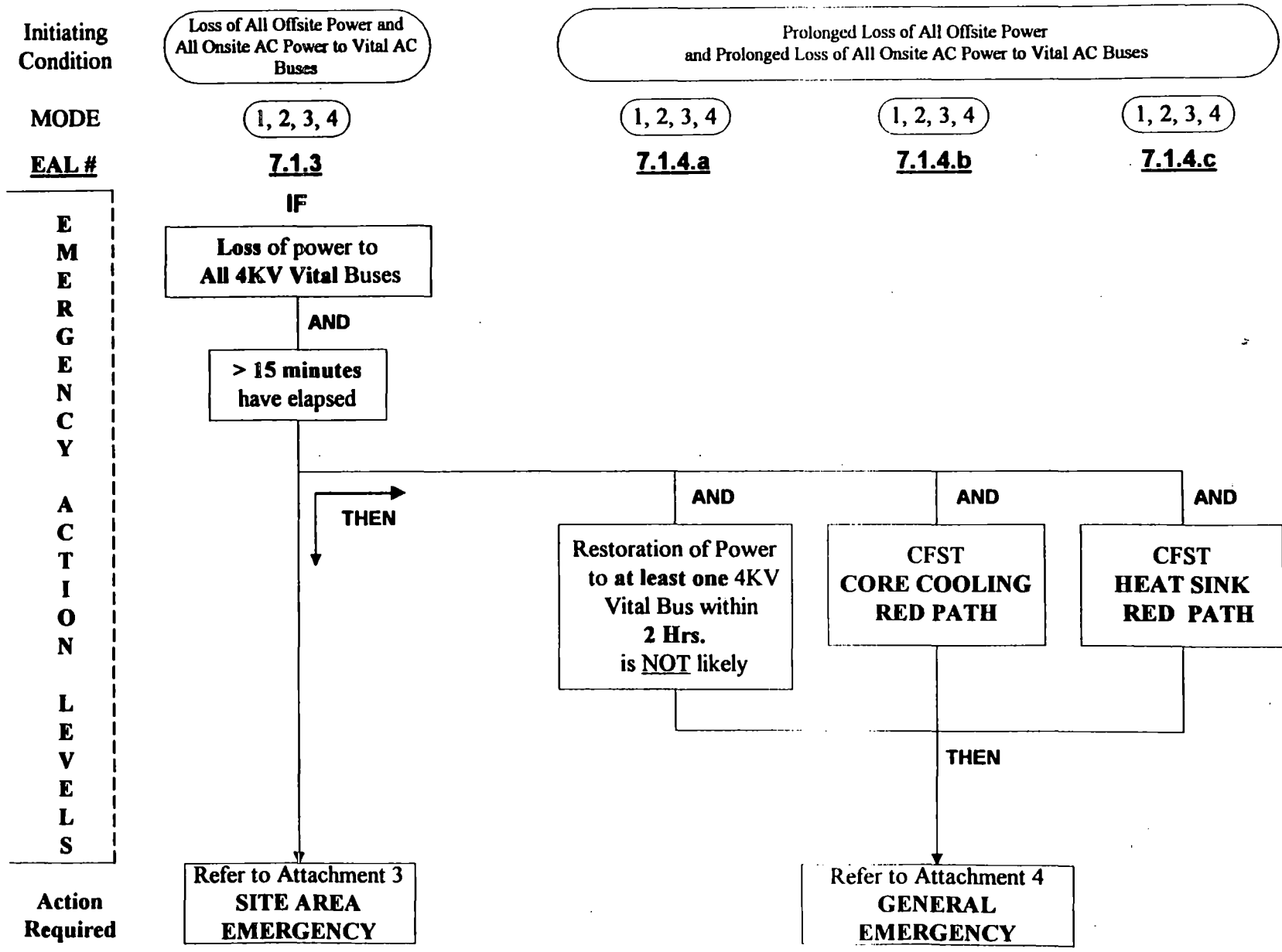
7.1 Loss of AC Power Capabilities



101

7.0 Electrical Power

7.1 Loss of AC Power Capabilities



Action Required

7.0 Electrical Power

7.2 Loss of DC Power Capabilities

Initiating
Condition

Unplanned Loss of Required DC
Power While the Unit is in Either Cold
Shutdown or Refueling Mode for > 15 Min.

Loss of All Vital (1E) DC Power

MODE

5, 6

5, 6

1, 2, 3, 4

1, 2, 3, 4

EAL #

7.2.1.a

7.2.1.b

7.2.3.a

7.2.3.b

IF

IF

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Unplanned drop in
Voltage to
< 114 VDC
on
ALL
125VDC Vital buses

Unplanned drop in
Voltage to
< 25 VDC
on
ALL
28VDC Vital buses

Unplanned drop in
Voltage to
< 114 VDC
on
ALL
125VDC Vital buses

Unplanned drop in
Voltage to
< 25 VDC
on
ALL
28VDC Vital buses

AND

AND

AND

AND

> 15 minutes have
elapsed

> 15 minutes have
elapsed

> 15 minutes have
elapsed

> 15 minutes have
elapsed

AND

AND

Loss of control of
Safety Related
Equipment from the
Control Room has
been confirmed

Loss of control of
Safety Related
Equipment from the
Control Room has
been confirmed

THEN

THEN

Action
Required

Refer to Attachment 1
UNUSUAL EVENT

Refer to Attachment 3
SITE AREA EMERGENCY

8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

Initiating Condition

MODE

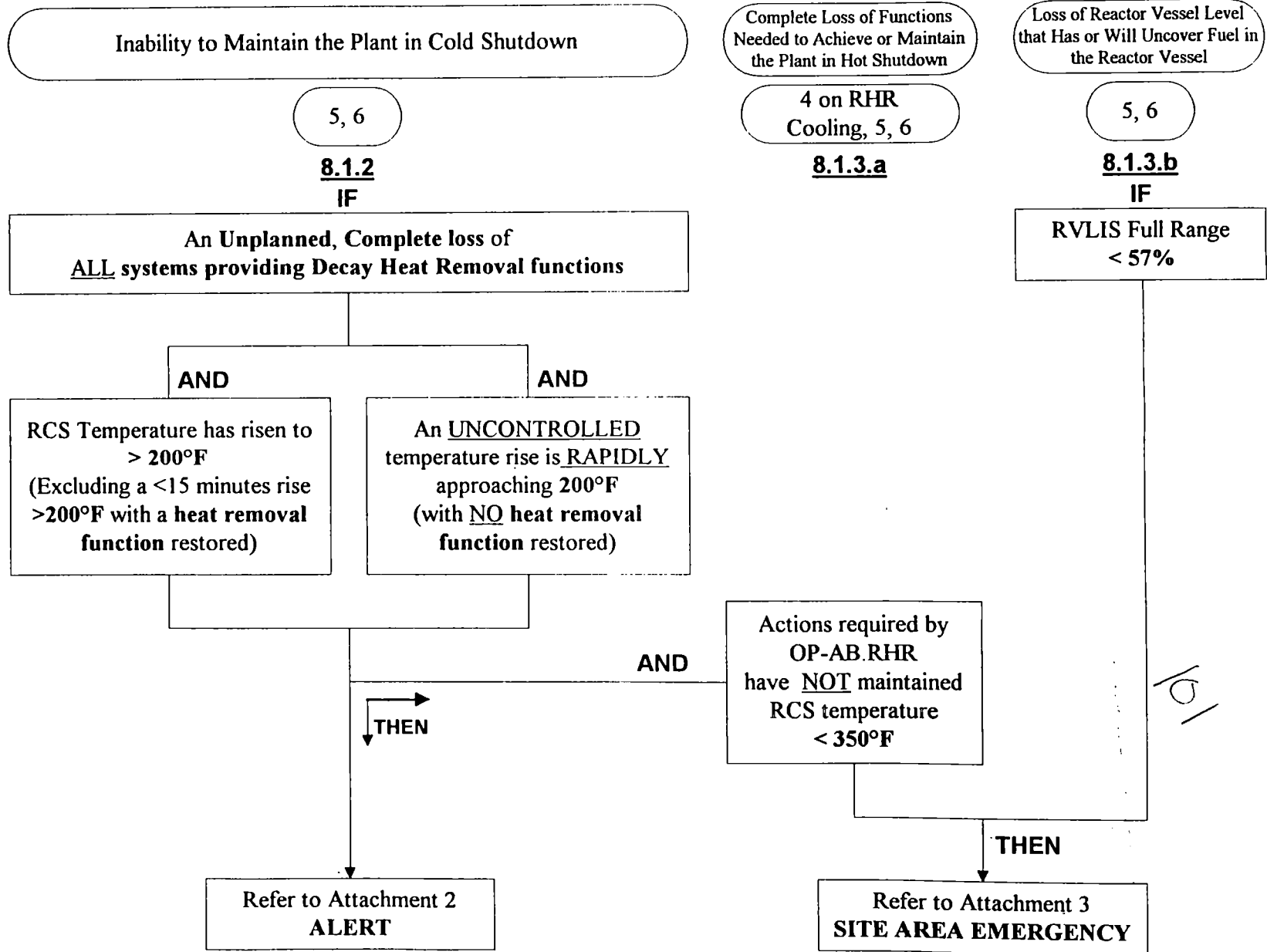
EAL #

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E
L
S

Action Required



8.0 System Malfunctions

8.1 Loss of Heat Removal Capability

Initiating
Condition

Complete Loss of Functions Needed to Achieve or Maintain the Plant in Hot Shutdown

MODE

1, 2, 3,
and 4 with RHR in Injection Mode

1, 2, 3,
and 4 with RHR in Injection Mode

EAL #

8.1.3.c

8.1.3.d

IF

IF

HEAT SINK RED PATH

ALL Turbine Stop Valve (MS 28)
Closed

AND

LOSS of ALL
Steam Dump Valves
(TB 10, 20, 30, 40)

AND

LOSS of ALL MS10 (Steam
Generator Power-Operated Relief
Valves) Valve Control
(BOTH Auto AND Manual)

AND

>15 minutes have elapsed

THEN

Refer to Attachment 3
SITE AREA EMERGENCY

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Action
Required

8.0 System Malfunctions

8.2 Loss of Overhead Annunciators

Initiating Condition

MODE

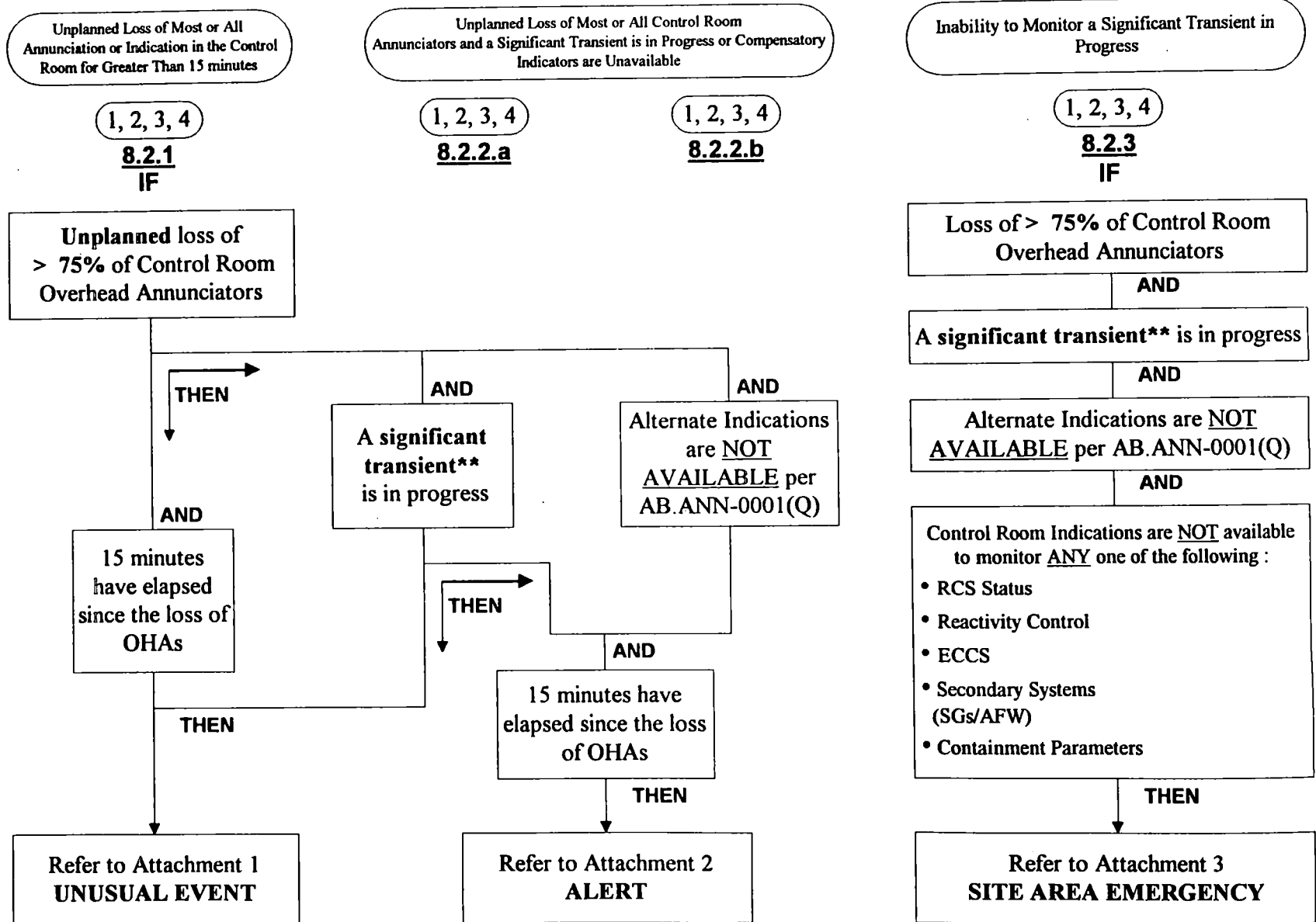
EAL #

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Action Required



** NOTE: A Significant Transient is based on EC judgement, but includes as a minimum any one of the following: RX TRIP, LOAD REJECTION >25% POWER, ECCS INJECTION, THERMAL POWER OSCILLATION >10% .

8.0 System Malfunctions

8.3 Loss of Communications Capability

Unplanned Loss of All Onsite or Offsite Communications Capabilities

All

8.3.1.a

IF

All

8.3.1.b

IF

Unplanned loss of ALL ONSITE communications as evidenced by the loss of ALL of the following systems:

- Station Page System (Gaitronics)
- Station Radio System
- Direct Inward Dial System (DID)

Unplanned loss of ALL OFFSITE communications as evidenced by the loss of ALL of the following systems:

- Direct Inward Dial System (DID)
- Nuclear Emergency Telephone System (NETS)
- Essx Phone System (Centrex)

THEN

Refer to Attachment 1
UNUSUAL EVENT

Initiating Condition

MODE

EAL #

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Action Required

8.0 System Malfunctions

8.4 Control Room Evacuation

Initiating
Condition

MODE

EAL #

E
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R
G
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N
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Y

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Action
Required

Control Room Evacuation has been
Initiated

All

8.4.2

IF

Control Room Evacuation
has been initiated

THEN

Refer to Attachment 2
ALERT

Control Room Evacuation has been Initiated
and Plant Control Cannot be Established

All

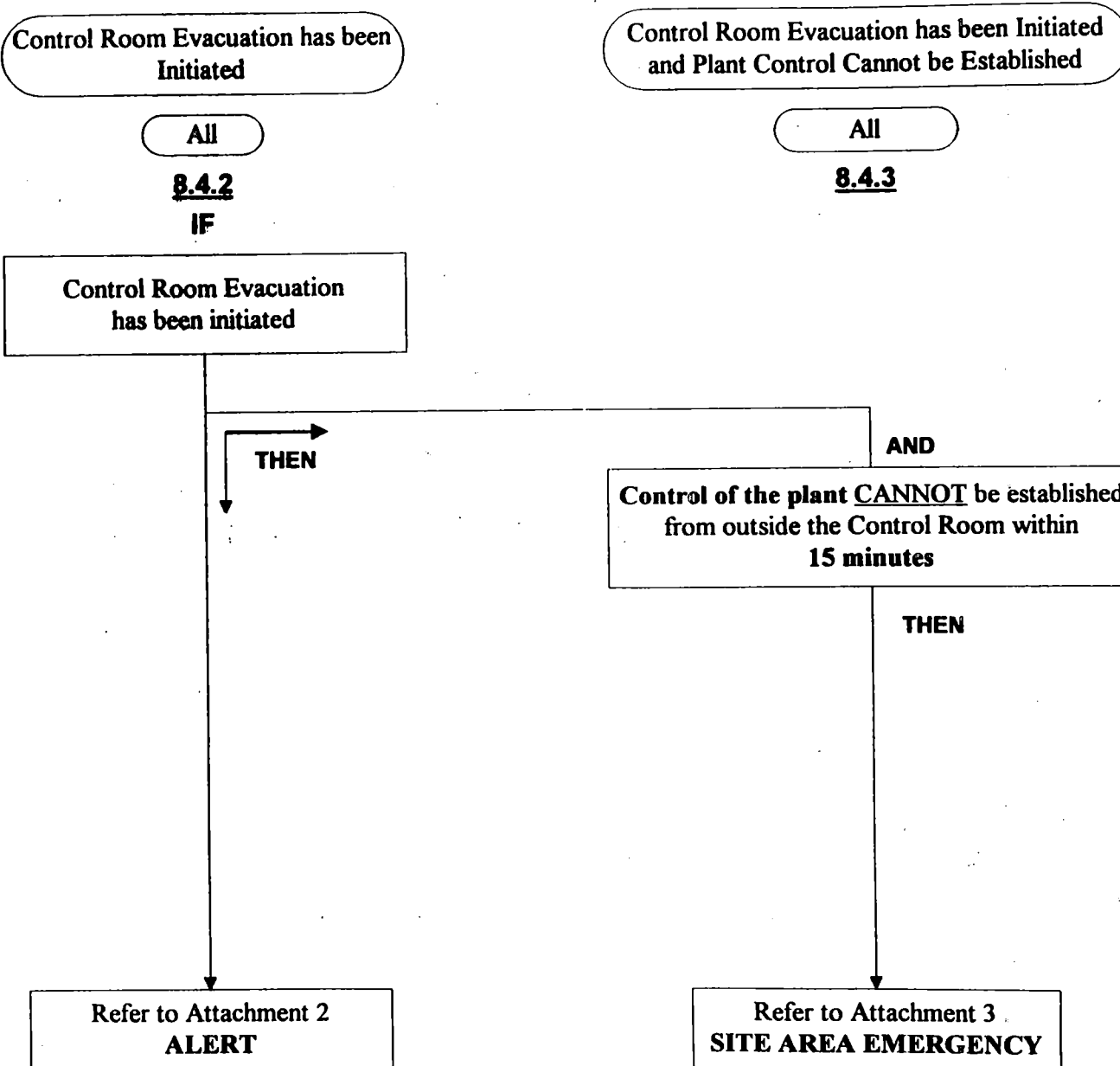
8.4.3

AND

Control of the plant **CANNOT** be established
from outside the Control Room within
15 minutes

THEN

Refer to Attachment 3
SITE AREA EMERGENCY



8.0 System Malfunctions

8.5 Technical Specifications

Initiating
Condition

MODE

EAL #

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L
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Action
Required

Inability to Reach Required Mode Within
Technical Specification Limits

1, 2, 3, 4

8.5.1

IF

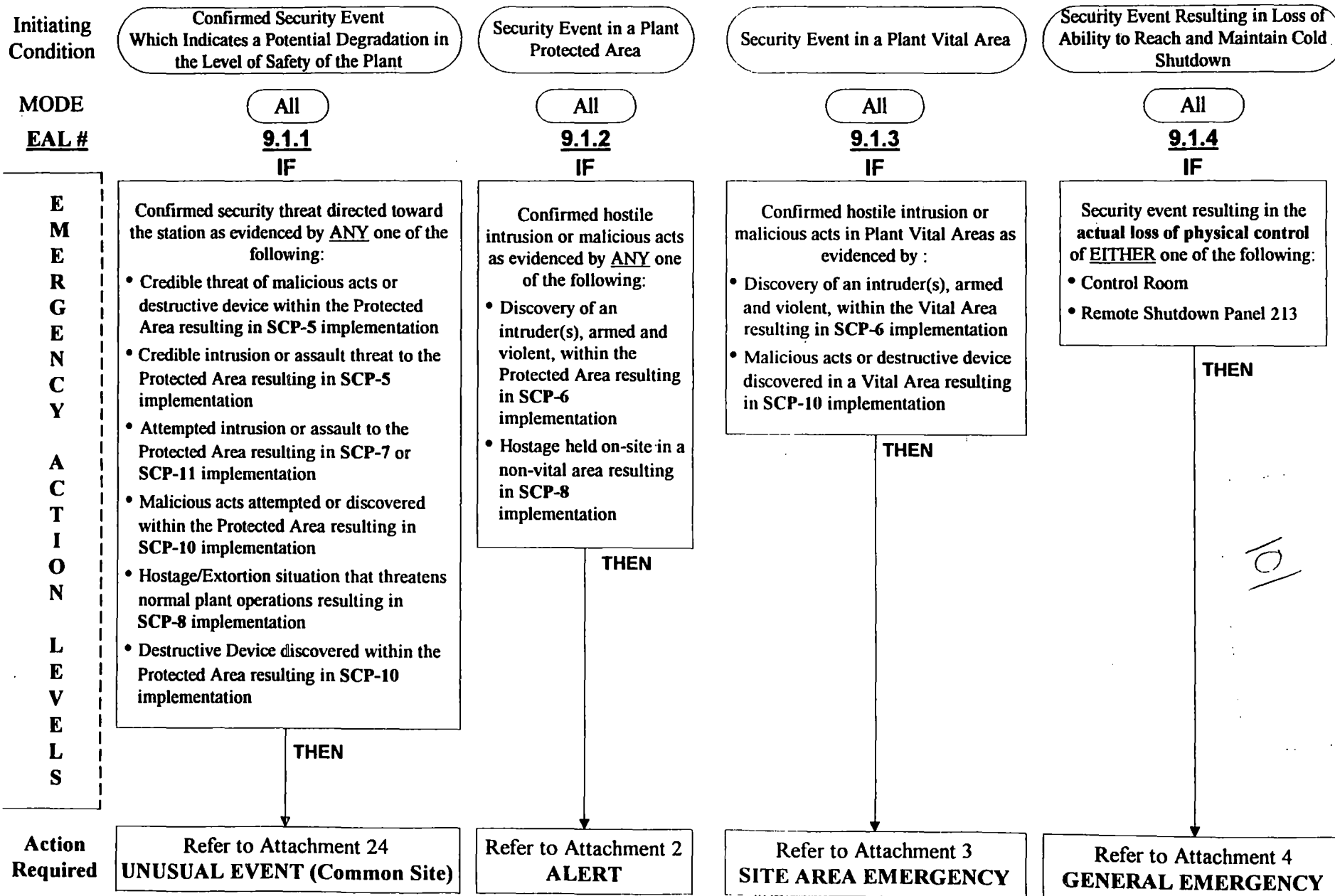
Plant is **NOT** brought to the required Mode within
the Technical Specification required time limit

THEN

Refer to Attachment 1
UNUSUAL EVENT

9.0 Hazards - Internal/External

9.1 Security Threats



9.0 Hazards - Internal/External

9.2 Fire

Initiating Condition

MODE
EAL #

E
M
E
R
G
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N
C
Y

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S

Action Required

Fire Within the Protected Area Boundary
Not Extinguished Within 15 Minutes of Detection

Fire Affecting the Operability of Plant
Safety Systems Required to Establish or Maintain Safe Shutdown

All
9.2.1
IF

All
9.2.1
IF

All
9.2.2
IF

Valid Fire Alarm is received in the Control Room

Report of a fire from personnel at the scene

AND

Fire within ANY one of the following Plant Structures (EXCLUDING small fires that have NO potential to affect Safety Systems or Protected Area Permanent Plant Structures)

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area
- Turbine Building

AND

The Fire is NOT extinguished within 15 minutes of EITHER one of the following:

- Receipt of a Valid Fire Alarm
- Report of a fire from the scene

THEN

Refer to Attachment 1
UNUSUAL EVENT

Fire within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

The Fire is of a magnitude that it SPECIFICALLY results in Damage to ANY one of the following:

- TWO OR MORE Trains of a Safety System
- MORE THAN ONE Safety System
- Any Plant Vital Structure which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present MODE of operation

THEN

Refer to Attachment 2
ALERT

9.0 Hazards - Internal/External

9.3 Explosion

Initiating Condition

MODE

EAL #

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Action Required

Natural and Destructive Phenomena Affecting the Protected Area

All

9.3.1

IF

Confirmed Explosion within the Protected Area

AND

Report of visible damage to Plant equipment or to Protected Area Permanent Plant Structures

THEN

Refer to Attachment 1
UNUSUAL EVENT

Explosion Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown

All

9.3.2

IF

Confirmed Explosion within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

The Explosion is of a magnitude that it SPECIFICALLY results in Damage to ANY one of the following:

- TWO OR MORE Trains of a Safety System
- MORE THAN ONE Safety System
- Any Plant Vital Structure which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present MODE of operation

THEN

Refer to Attachment 2
ALERT

9.0 Hazards - Internal/External

9.4 Toxic/Flammable Gases

Initiating
Condition

MODE

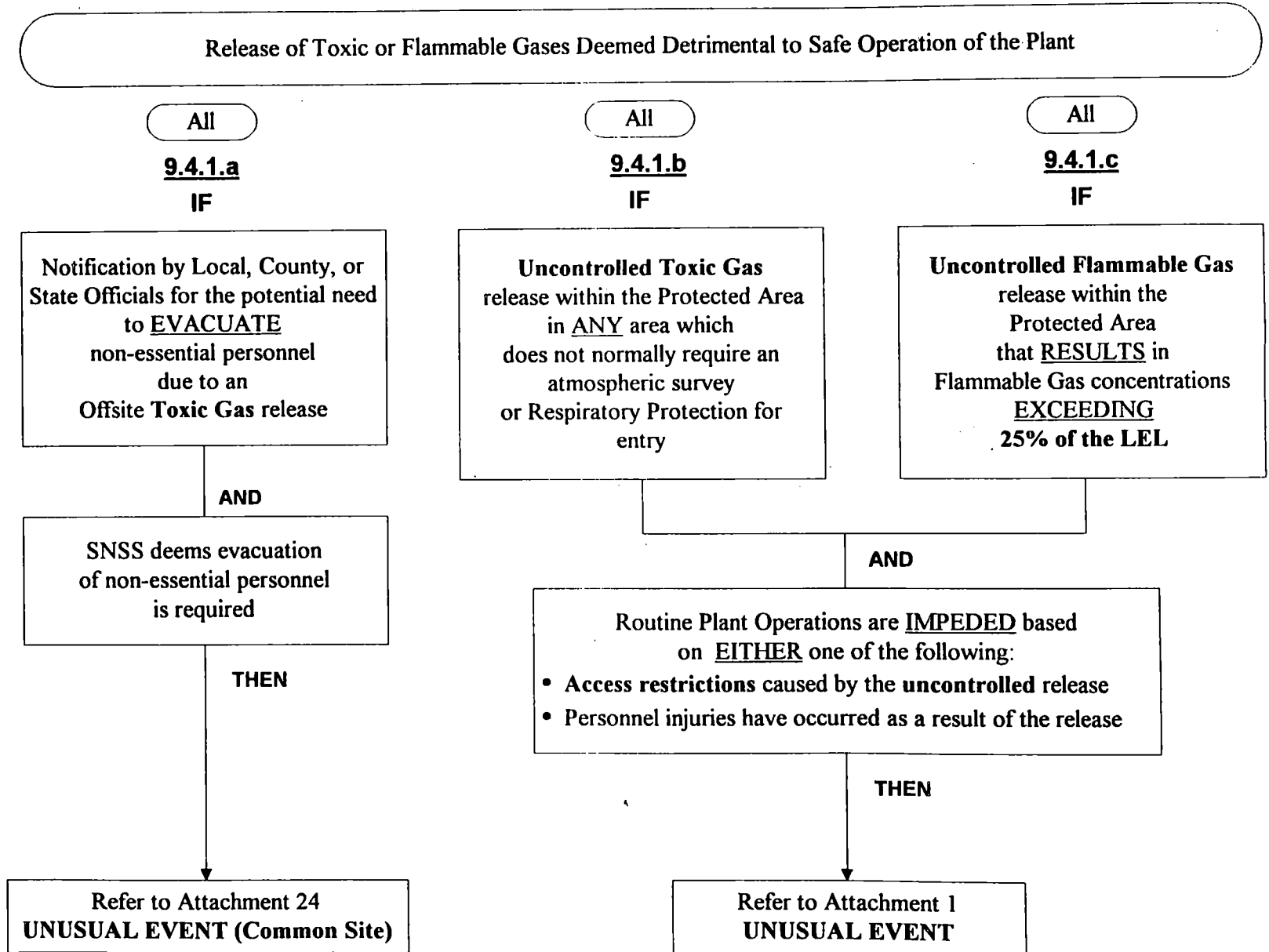
EAL #

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Action
Required



9.0 Hazards - Internal/External

9.4 Toxic/Flammable Gases

Initiating
Condition

Release of Toxic or Flammable Gases Within a Facility Structure Which Jeopardizes Operation of Systems
Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown Conditions

MODE

All

All

EAL #

9.4.2.a

9.4.2.b

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Uncontrolled Toxic Gas release within ANY one of the following Plant Vital Structures

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Area
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

Uncontrolled Flammable Gas release within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Control Point Area
- Inner/Outer Penetration Area
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

AND

AND

Toxic Gas concentrations result in ANY one of the following:

- An IDLH atmosphere
- Plant personnel report severe adverse health reactions, including burning eyes, nose, throat, dizziness
- The Threshold Limit Value (TLV) being EXCEEDED

Flammable Gas concentrations EXCEED
50% of the LEL

AND

Plant personnel are unable to perform actions necessary to complete a Safe Shutdown of the plant without appropriate personnel protection equipment

THEN

Refer to Attachment 2
ALERT

Action
Required

9.0 Hazards - Internal/External

9.5 Seismic Event

Initiating
Condition

MODE

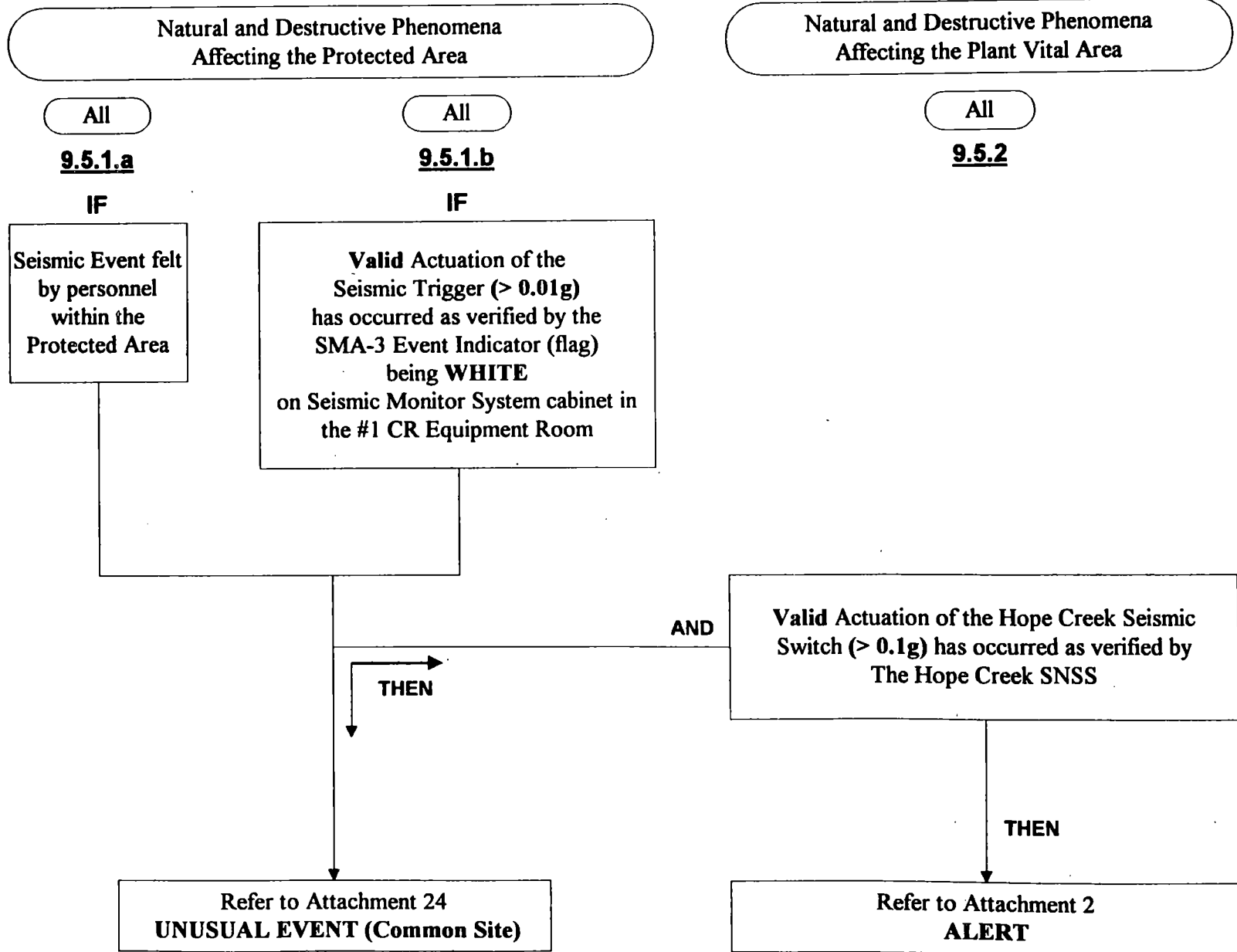
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Action
Required



9.0 Hazards - Internal/External

9.6 High Winds

Initiating Condition

Natural and Destructive Phenomena Affecting the Protected Area

Natural and Destructive Phenomena Affecting the Plant Vital Area

MODE

All

All

All

EAL #

9.6.1.a
IF

9.6.1.b
IF

9.6.2

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Report of a Tornado **TOUCHING DOWN** within the Protected Area

Sustained wind speeds > 75 MPH for 15 minutes, from ANY elevation of the Met Tower

The Wind Speed is of a magnitude that it **SPECIFICALLY** results in **Damage** to ANY of the following:

- **TWO OR MORE** Trains of a Safety System
- **MORE THAN ONE** Safety System
- Rendering ANY of the following structures incapable of performing its Design Function:
 - * Auxiliary Building
 - * Service Water Intake Structure
 - * Control Point Area
 - * Inner/Outer Penetration Areas
 - * Containment
 - * Fuel Handling Building
 - * Service Building
 - * RWST, PWST, and AFWST Area

AND

THEN

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present MODE of operation

THEN

Action Required

Refer to Attachment 24
UNUSUAL EVENT (Common Site)

Refer to Attachment 2
ALERT

9.0 Hazards - Internal/External

9.7 Flooding

Initiating
Condition

MODE

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Action
Required

Internal Flooding in Excess of
Sump Handling Capability Affecting Safety
Related Areas of the Plant

All

9.7.1

IF

Severe Flooding of Safety System Areas
HAS ENDANGERED
safety related equipment per
OP-AB.ZZ-0002

THEN

Refer to Attachment 1
UNUSUAL EVENT

Internal Flooding Affecting the
Operability of Plant Safety Systems Required
to Establish or Maintain Safe Shutdown

All

9.7.2

IF

Visual Observation of Flooding within ANY one
of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Fuel Handling Building
- Service Building
- Containment

AND

The Flooding is of a magnitude that it SPECIFICALLY
results in **Damage** to ANY one of the following:

- TWO OR MORE Trains of a Safety System
- MORE THAN ONE Safety System
- Any of the above listed Plant Vital Structures which
renders the structure incapable of performing its
Design Function

AND

Damaged Safety System(s) or Plant Vital Structure
is required for the present MODE of operation

THEN

Refer to Attachment 2
ALERT

9.0 Hazards - Internal/External

9.8 Turbine Failure / Vehicle Crash / Missile Impact

Initiating
Condition

Natural and Destructive Phenomena Affecting Certain Structures Within the Protected Area

MODE

All

All

All

EAL #

9.8.1.a

9.8.1.b

9.8.2

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Catastrophic damage to the Main Turbine as evidenced by EITHER one of the following:

- Main Turbine casing penetration
- Main Turbine/Generator Damage potentially releasing Lube Oil or Hydrogen Gas to the Turbine Building

Vehicle Crash / Missile Impact with or within ANY one of the following Plant Vital Structures:

- Auxiliary Building
- Service Water Intake Structure
- Inner/Outer Penetration Areas
- Containment
- Fuel Handling Building
- Service Building
- RWST, PWST, and AFWST Area

The **Vehicle Crash / Missile Impact** is of a magnitude that it SPECIFICALLY results in **Damage** to ANY one of the following:

- TWO OR MORE Trains of a Safety System
- MORE THAN ONE Safety System
- Any of the above Plant Vital Structures which renders the structure incapable of performing its Design Function

AND

Damaged Safety System(s) or Plant Vital Structure is required for the present MODE of operation

AND

THEN

THEN

THEN

Action
Required

Refer to Attachment 1
UNUSUAL EVENT

Refer to Attachment 2
ALERT

9.0 Hazards - Internal/External

9.9 River Level

Initiating
Condition

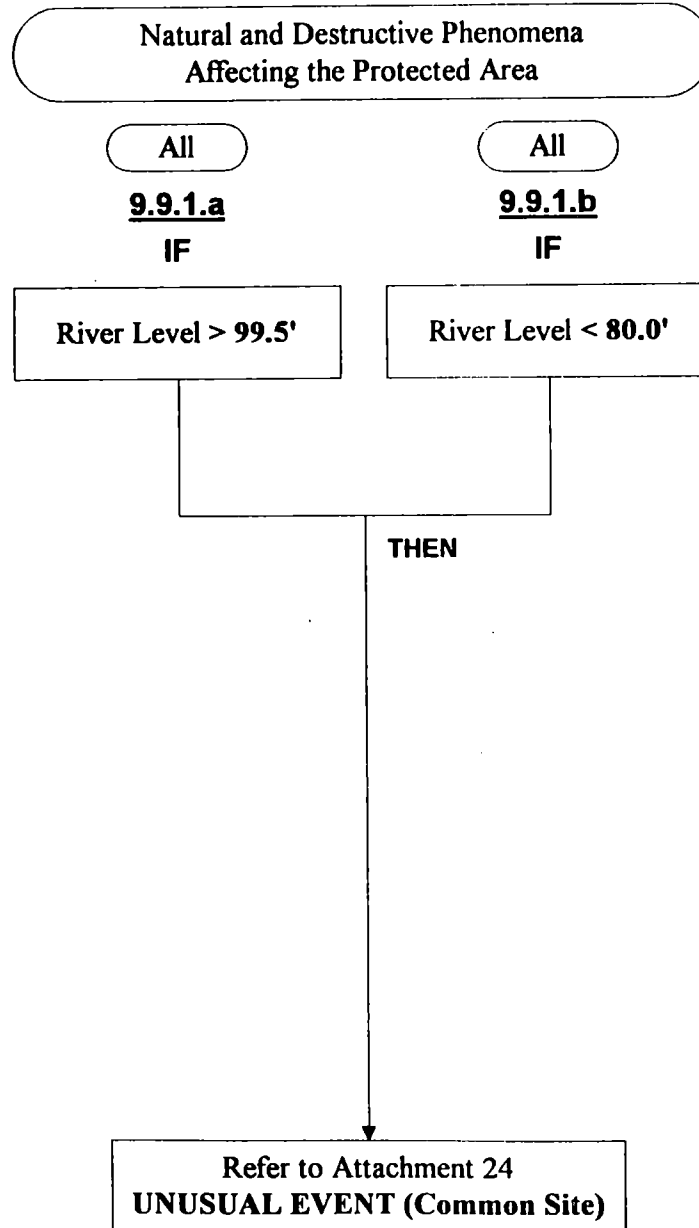
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Action
Required



11.0 Reportable Action Levels

11.1 Technical Specifications

Initiating Condition

INITIATION OF ANY UNIT SHUTDOWN
REQUIRED BY THE TECHNICAL SPECIFICATIONS
[10CFR50.72(b)(1)(i)(A)]

EXCEEDING ANY TECHNICAL SPECIFICATION
SAFETY LIMIT
[10CFR50.36(c)(1)]

ANY DEVIATION FROM T/S OR
LICENSE CONDITION PURSUANT TO
10CFR50.54(x) [10CFR50.72(b)(1)(i)(B)]

MODE

1, 2

1, 2, 3, 4, 5 (as applicable in T/S)

All

RAL #

11.1.1.a

11.1.1.b

11.1.1.c

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Unit shutdown is
INITIATED
to comply with
Technical Specifications

Exceeding EITHER one
of the following
Technical Specification Safety Limits:

- T/S 2.1.1, Thermal Power, Pressurizer Pressure, Coolant Temperature combination
- T/S 2.1.2, RCS Pressure

Deviation from written
procedures because no action
consistent with Technical
Specifications or license
condition can provide adequate
or equivalent protection in an
emergency
(see NC.NA-AP.ZZ-0005(Q) for
guidance on deviation from
procedures)

THEN

Refer to Attachment 12
1 Hour Report

Action Required

11.0 Reportable Action Levels

11.1 Technical Specifications

Initiating
Condition

STEAM GENERATOR TUBE INSPECTIONS WHICH FALL INTO
CATEGORY C-3 THAT HAVE BEEN EVALUATED FOR
REPORTABILITY [10CFR50.72(b)(2)(i); T/S 4.4.5.2(6.2)]

ABNORMAL DEGRADATION OF THE CONTAINMENT
STRUCTURE DETECTED DURING SHUTDOWN THAT HAS BEEN
EVALUATED FOR REPORTABILITY [10CFR50.72(b)(2)(i); T/S 4.6.1.6.2]

MODE

5, 6, Defueled

3, 4, 5, 6, Defueled

RAL #

11.1.2.a

11.1.2.b

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IF

IF

Results of SG tube inspections which fall into category
C-3 of T/S 4.4.5.2 (Unit 1) or T/S 4.4.6.2 (Unit 2)

Any abnormal degradation of the Containment structure
detected by visual inspection of exposed accessible interior and
exterior surfaces during shutdown

AND

An engineering evaluation has determined that it is reportable
pursuant to 10CFR50.72(b)(2)(i)

THEN

Refer to Attachment 14
4 Hour Report

Action
Required

11.0 Reportable Action Levels

11.1 Technical Specifications

Initiating Condition

VIOLETION OF THE REQUIREMENTS CONTAINED IN THE OPERATING LICENSE
[Salem U2 Operating License, Sections 2.I]

ANY EVENT REQUIRING AN ENGINEERING EVALUATION BY TECH SPECS OR COMMITMENT
[U1 T/S 3.4.9.1, 3.4.9.2, 3.4.7, 3.7.9, JAN 1983, LTR TO NRC, 3.7.2.1]
[U2 T/S 3.4.10.1, 3.4.10.2, 3.4.8, 3.7.9, JAN 1983, LTR TO NRC, 3.7.2]

MODE

All

All

RAL #

11.1.3.a

11.1.3.b

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Violation of ANY one of the requirements contained in Section 2.C
(Items 3 through 25)
or Section 2E, 2F or 2G
of the Salem Unit 2 Operating License

THEN

Refer to Attachment 20
24 Hour Report

As judged by the SNSS/EDO, ANY one of the following conditions have been satisfied:

- Any of the T/S LCOs for RCS or PZR heatup or cooldown rates are exceeded
- The concentration of either chloride or fluoride in the RCS is in excess of its Steady State Limit for more than 24 hours or in excess of its Transient Limit, thereby requiring an engineering evaluation to determine the effects of the out of limit condition on the structural integrity of the RCS
- One or more snubbers are found to be INOPERABLE and require an engineering evaluation performed in accordance with T.S.4.7.9 action statement
- Any PZR code safety valve discharges
- The temperature of EITHER the Primary or Secondary Coolant in any S/G is $\leq 70^\circ \text{F}$ WHEN the pressure of either the Primary or Secondary Coolant in the S/G is $> 200 \text{ psig}$

THEN

Refer to Attachment 22
OTHER Report

Action Required

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

Initiating
Condition

MODE
RAL #

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Action
Required

ANY EVENT OR CONDITION DURING OPERATION
THAT RESULTS IN THE CONDITION OF THE PLANT BEING
SERIOUSLY DEGRADED [10CFR50.72(b)(1)(ii)]

1,2

11.2.1.a

IF

As judged by the SNSS/EDO,
an event or condition found
during plant operations that results
in ANY one of the following:

- The condition of the plant, including its principal safety barriers, being seriously degraded
- The plant being in an unanalyzed condition that significantly compromises plant safety
- The plant being in a condition outside the design basis of the plant
- The plant being in a condition not covered by normal/abnormal or emergency operating procedures

PIPE CRACKS IN STAGNANT BORATED WATER SYSTEMS
[IE Bulletin 79-17]

All

11.2.1.b

IF

Cracks in weld areas of Borated Safety
Related piping
(as reported by Engineering or ISI)

THEN

Refer to Attachment 12
1 Hour Report

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

Initiating Condition

MODE

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Action Required

ANY EVENT FOUND WHILE SHUTDOWN THAT WOULD HAVE SERIOUSLY DEGRADED THE PLANT OR RESULTED IN BEING IN AN UNANALYZED CONDITION [10CFR50.72(b)(2)(i)]

3,4,5,6,defueled

11.2.2.a

IF

Any event, found while the Reactor is shutdown, that, had it been found during operation, would have resulted in the plant, including its principal safety barriers being in **EITHER** one of the following conditions:

- Seriously degraded
- In an unanalyzed condition that significantly compromises plant safety

EVENT/CONDITION THAT ALONE COULD HAVE PREVENTED CERTAIN SAFETY FUNCTIONS [10CFR50.72(b)(2)(iii)]

All

11.2.2.b

IF

Any event or condition that **alone could have prevented** the fulfillment of the safety function of structures or systems that are needed to perform **ANY** one of the following:

- Control the release of radioactive material
- Shutdown the reactor and maintain it in a safe shutdown condition
- Remove residual heat
- Mitigate the consequences of an accident

PRESENCE OF A LOOSE PART IN THE REACTOR COOLANT SYSTEM [Reg. Guide 1.133]

All

11.2.2.c

IF

Presence of a Loose Part in the RCS is **confirmed**

THEN

Refer to Attachment 14
 4 Hour Report

11.0 Reportable Action Levels

11.3 Engineered Safety Features (ESF)

Initiating
Condition

MODE

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Action
Required

ANY EVENT THAT RESULTS OR SHOULD HAVE RESULTED IN ECCS DISCHARGE INTO THE RCS AS THE RESULT OF A VALID SIGNAL [10CFR50.72(b)(1)(iv)]

All

11.3.1

IF

Valid SI Actuation signal received (or demanded)

AND

ANY ECCS Pump start or Accumulator depressurization that results in or should have resulted in, discharge to the RCS

THEN

Refer to Attachment 12
1 Hour Report

ACTUATION OF ENGINEERED SAFETY FEATURE (INCLUDING THE REACTOR PROTECTION SYSTEM) EXCEPT PREPLANNED [10CFR50.72(b)(2)(ii)]

All

11.3.2

IF

Any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF), except as part of a preplanned sequence during reactor operation or testing, including the Reactor Protection System (RPS)

AND

ESF / RPS Actuation is determined to be reportable in accordance with NC.NA-AP.ZZ-0000(Q), Action Request Process.

THEN

Refer to Attachment 14
4 Hour Report

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

Initiating
Condition

MODE

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Action
Required

ANY INCIDENT OR EVENT INVOLVING BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL CAUSING ANY OF THE LISTED RESULTS [10CFR20.2202(a)]

All

11.4.1

IF

PERSONNEL OVEREXPOSURE or potential for overexposure as indicated by ANY one of the following:

- TEDE exposure ≥ 25 Rem
- LDE exposure ≥ 75 Rem
- SDE exposure ≥ 250 Rem
- Release of radioactive material inside or outside of a Restricted Area so that, had an individual been present for 24 hours, the individual could have received ≥ 5 times the occupational ALI (Annual Limit of Intake) which would usually equate to 25 Rem CEDE. This DOES NOT apply to areas where personnel are NOT normally stationed during routine operations

THEN

Refer to Attachment 12
1 Hour Report

ANY INCIDENT OR EVENT INVOLVING LOSS OF CONTROL OF LICENSED MATERIAL CAUSING ANY OF THE LISTED RESULTS [10CFR20.2202(b)]

All

11.4.2.a

IF

PERSONNEL OVEREXPOSURE or potential for overexposure as indicated by ANY one of the following:

- TEDE exposure > 5 Rem
- LDE exposure > 15 Rem
- SDE exposure > 50 Rem
- Release of radioactive material inside or outside of a Restricted Area so that, had an individual been present for 24 hours, the individual could have received > 1 times the occupational ALI (Annual Limit of Intake) which would usually equate to 5 Rem CEDE. This DOES NOT apply to areas where personnel are NOT normally stationed during routine operations

THEN

Refer to Attachment 14
4 Hour Report

ONSITE FATALITY [10CFR50.72(b)(2)(vi)]

All

11.4.2.b

IF

Any fatality has occurred within the Owner Controlled Area (OCA)

THEN

Refer to Attachment 17
4 Hour Report

11.0 Reportable Action Levels

11.4 Personnel Safety / Overexposure

Initiating Condition

MODE

RAL #

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Action Required

RADIOACTIVELY CONTAMINATED PERSON TRANSPORTED FROM THE SITE TO AN OFFSITE MEDICAL FACILITY FOR TREATMENT [10CFR50.72(b)(2)(v)]

All

11.4.2.c

IF

Transportation of a radioactively contaminated or **potentially contaminated individual** from the site to an offsite medical facility for treatment

THEN

Refer to Attachment 17
4 Hour Report

SIGNIFICANT FITNESS FOR DUTY EVENTS [10CFR26.73]

All

11.4.3.a

IF

Any event that is determined to be reportable by the Medical Review Officer (MRO) or designee IAW PSE&G's Fitness for Duty Program (NC.NA-AP.ZZ-0042(Q))

AND

The reportable details of the event are made available to the SNSS by the MRO or designee.

THEN

Refer to Attachment 19
24 Hour Report

FITNESS FOR DUTY PROGRAM: FALSE POSITIVE DUE TO ADMINISTRATIVE ERROR (BLIND TEST BY LAB) [10CFR26, APP .A, 2.8(e)(5)]

All

11.4.3.b

IF

The occurrence of a false positive error on a blind lab performance test specimen under 10CFR26 as determined by the Medical Review Officer (MRO) IAW PSE&G's Fitness for Duty Program (NC.NA-AP.ZZ-0042(Q))

AND

The reportable details of the event are made available to the SNSS by the MRO or designee.

THEN

Refer to Attachment 19
24 Hour Report

11.0 Reportable Action Levels

11.5 Environmental

Initiating Condition

SPILL/DISCHARGE OF ANY NON-RADIOACTIVE HAZARDOUS SUBSTANCE [10CFR50.72(b)(2)(vi); N.J.A.C. 7:1E]

SPILL/DISCHARGE OF ANY NON-RADIOACTIVE HAZARDOUS SUBSTANCE INTO OR UPON THE RIVER [10CFR50.72(b)(2) (vi); N.J.A.C.7:1E]

UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS [E.P.P. SECTION 4.1]

MODE

All

All

All

RAL #

11.5.2.a

11.5.2.b

11.5.2.c

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Spill/discharge of an industrial chemical or petroleum product outside of a Plant Structure within the Owner Controlled Area that results in EITHER one of the following:

- Spill / discharge that has passed through the engineered fill and into the ground water as confirmed by licensing
- Spill / discharge that CANNOT be cleaned up within 1 hour and no contact with groundwater is suspected

EITHER one of the following events occur:

- Observation of a spill/discharge of an industrial chemical or petroleum product from on-site into the Delaware River or into a storm drain
- Observation of an oil slick on the Delaware River from any source

As judged by the SNSS/EDO, ANY one of the following events has occurred:

- Unusually large fish kill
- Protected aquatic species impinge on Circulating or Service Water intake screens (eg.; sea turtle, sturgeon) as reported by Site personnel
- Any occurrence of an unusual or important event that indicates or could result in significant environmental impact casually related to plant operation; such as the following:
 - * Onsite plant or animal disease outbreaks
 - * Mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973
 - * Increase in nuisance organisms or conditions
 - * Excessive bird impactation
 - * NJPDES Permit violations
 - * Excessive Opacity (smoke)

THEN

THEN

THEN

Note:
This event May require IMMEDIATE (15 minute) notifications. DO NOT delay implementation of Attachment 16.

Action Required

Refer to Attachment 16 Spill/Discharge Reporting

Refer to Attachment 16 Spill/Discharge Reporting

Refer to Attachment 15 Environmental Protection Plan

11.0 Reportable Action Levels

11.6 After-the-Fact

Initiating
Condition

EMERGENCY CONDITIONS DISCOVERED
AFTER-THE-FACT

MODE

All

RAL #

11.6.1

IF

Discovery of events or conditions that had
previously occurred
(event was NOT ongoing at the time of discovery)
which EXCEEDED an Emergency Action Level (EAL)
and was NOT declared as an emergency

AND

There are currently NO adverse consequences
in progress as a result of the event

THEN

Refer to Attachment 12
1 Hour Report

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Action
Required

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capabilities

Initiating Condition

SAFEGUARDS EVENTS THAT ARE DETERMINED TO BE NON-EMERGENCIES, BUT ARE REPORTABLE TO THE NRC WITHIN ONE HOUR [10CFR73.71(b)(1)]

MAJOR LOSS OF EMERGENCY ASSESSMENT CAPABILITY, OFFSITE RESPONSE CAPABILITY, OR COMMUNICATIONS CAPABILITY [10CFR50.72(b)(1)(v)]

MODE
RAL #

All

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All

11.7.1.a

11.7.1.b

11.7.1.c

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Any Non-Emergency safeguards event that is reportable in accordance with 10CFR73.71 as determined by Security (SCP-15)

SNSS/EC determines that an event (excluding a scheduled test or preplanned maintenance activity) has occurred that would impair the ability to deal with an accident or emergency as indicated by the Loss of ANY one of the following:

THEN

- Nuclear Emergency Telecommunications System (NETS) for >1 hr
- ENS for >1 hr in the Control Room, TSC, or EOF (N/A if reported by the NRC)
- More than seven Offsite Sirens for > 1 hr
- Use of the EOF for > 8 hrs
- All Meteorological data (Salem AND Hope Creek) for > 8 hrs
- Site access due to Acts of Nature (snow, flood, etc.)

- P250 or Aux Annunciator System for > 24 hrs
- SPDS for > 8 hrs (> 2 CFSTs Inop, not due to plant conditions)
- ERDS, NRC phone line, Modem for >1 hr (N/A if reported by the NRC)
- Use of the TSC for > 8 hrs
- ALL Plant vent radiation effluent monitors for > 8 hrs
- More than 75% OHA's for < 15 min
- Concurrent multiple accident or emergency condition indicators which in the judgement of the SNSS significantly impairs assessment capabilities

THEN

THEN

Action Required

Refer to Attachment 11
1 Hour Report (Common Site)

Refer to Attachment 25
1 Hour Report (Common Site)

Refer to Attachment 12
1 Hour Report

11.0 Reportable Action Levels

11.8 Public Interest

Initiating Condition

MODE

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Action Required

UNUSUAL CONDITIONS WARRANTING A NEWS RELEASE OR NOTIFICATION OF GOVERNMENT AGENCIES [10CFR50.72(b)(2)(vi)]

All

11.8.2.a

IF

SNSS/EDO judges that an event or situation has occurred that is related to ANY one of the following:

- The health and safety of the public
- The health and safety of onsite personnel
- Protection of the environment

AND

A news release is planned

AND

Notifications to a Local, State or Federal agency has been or will be made

THEN

Refer to Attachment 14
4 Hour Report

UNUSUAL CONDITIONS DIRECTLY AFFECTING LOWER ALLOWAYS CREEK TOWNSHIP (LACT) [LAC -MOU]

All

11.8.2.b

IF

As judged by the SNSS/EDO, events which are the responsibility of PSE&G which have or may result in EITHER one of the following:

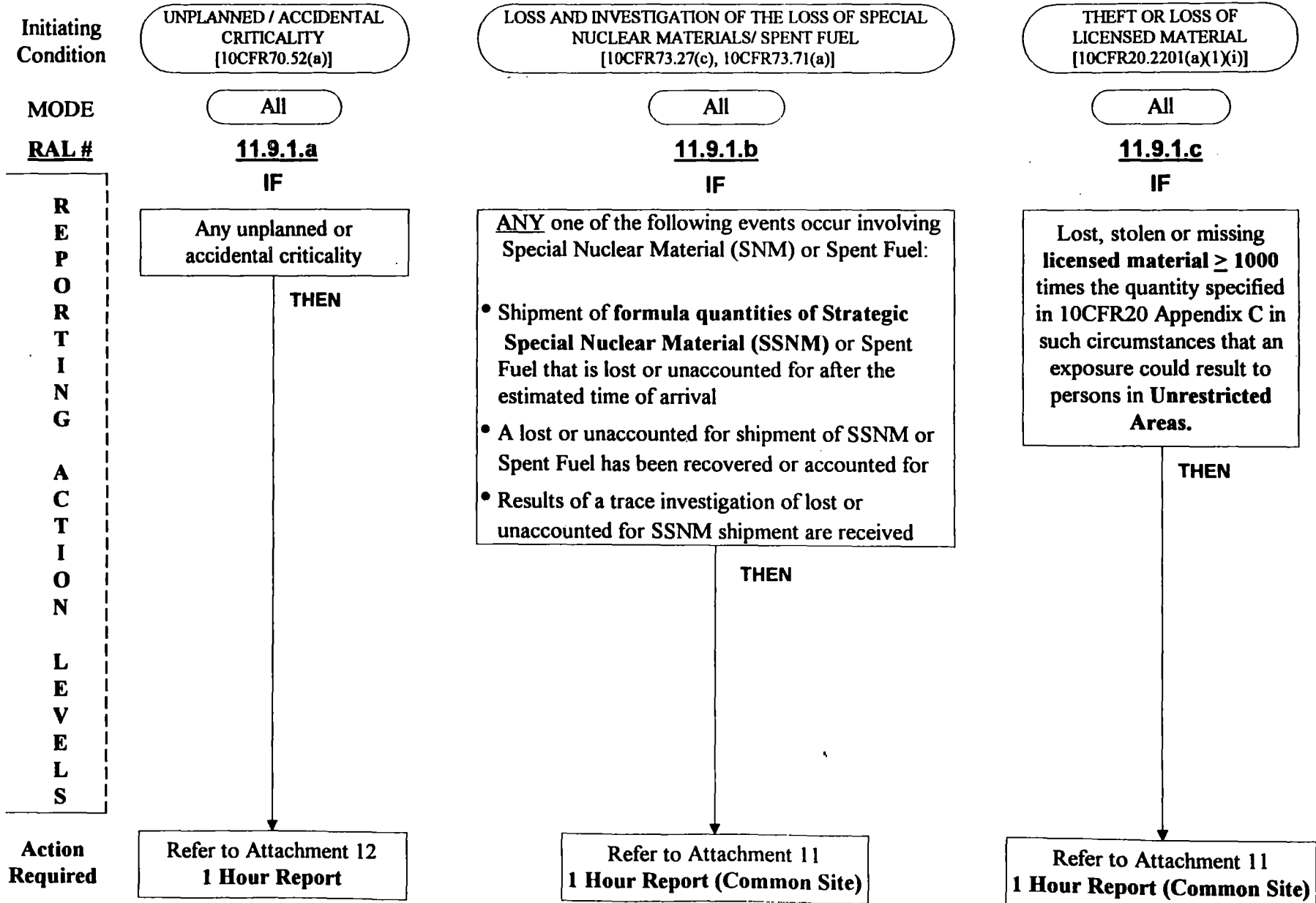
- Anticipated unusual movement of equipment or personnel which may significantly affect local traffic patterns
- Onsite events which involve alarms, sirens or other noise which may be heard off-site

THEN

Refer to Attachment 21
LACT / MOU Report

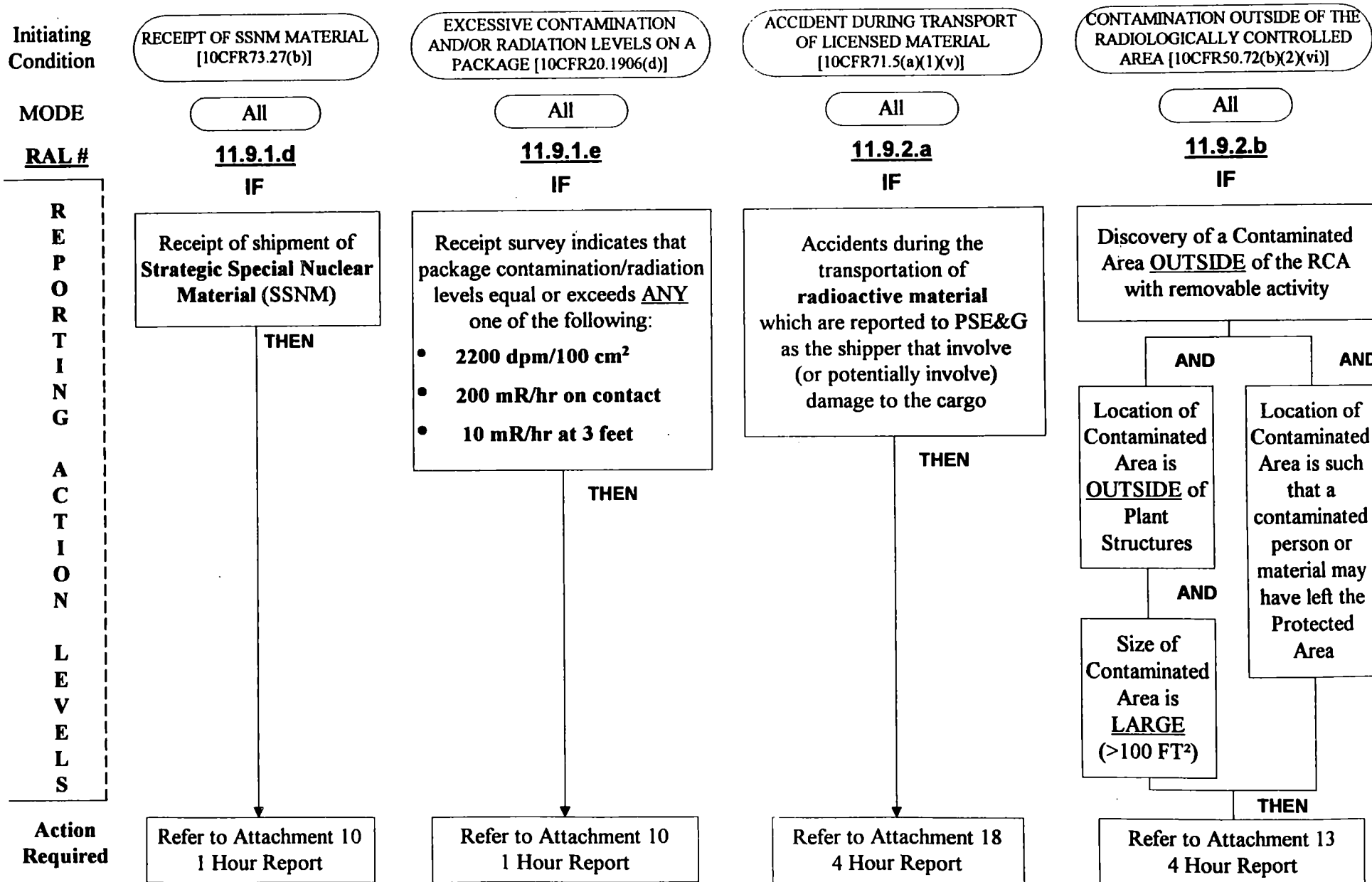
11.0 Reportable Action Levels

11.9 Accidental Criticality / Special Nuclear Material / Rad Material Shipments - Releases



11.0 Reportable Action Levels

11.9 Accidental Criticality / Special Nuclear Material / Rad Material Shipments - Releases



Action Required

11.0 Reportable Action Levels

11.10 Voluntary Notifications

EVENTS/CONDITIONS WARRANT VOLUNTARY/COURTESY
NRC NOTIFICATION [10CFR50.72 - VOLUNTARY REPORT]

Initiating
Condition

All

MODE

11.10.2

RAL #

IF

In the judgement of the SNSS,
notification to the NRC is warranted

AND

NO other EALs or RALs appear to be applicable

THEN

Refer to Attachment 14
4 Hour Report

R
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P
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L
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V
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L
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Action
Required

ATTACHMENT 1
UNUSUAL EVENT

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

EC A. DECLARE AN UNUSUAL EVENT AT SALEM UNIT _____

EAL # _____ Declared at _____ hrs on _____
time date

B. NOTIFICATIONS

- () 1. CALL communicators to the Control Room.
- () 2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).
- () 3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the CM1 to implement Attachment 6.
- () 4. DIRECT the Secondary Communicator (CM2) to implement Attachment 8 for an Unusual Event.
- () 5. SOUND the Radiation Alert Alarm and make the following page announcement:

"Attention all personnel. Attention all personnel."
"Salem Unit _____ is in an UNUSUAL EVENT condition due to

(Repeat)

C. SECURITY RELATED EVENT

EC 1. IF Security Related,
THEN DIRECT the PSE&G Security Supervisor (x2222) to implement the Security Contingency Plan.

EC 2. IF a bomb search is required,
THEN:
a. DIRECT the OSC Coordinator to;
() ACTIVATE the OSC IAW EPIP 202S, OSC Activation and Operations
AND
() IMPLEMENT Bomb Search Operations IAW Appendix 1.

() b. DIRECT the NCOs to check control boards for correct equipment lineups.

Initials

D. EMERGENCY COORDINATOR DUTIES

- () 1. NOTIFY the Hope Creek SNSS, (NETS 5224; DID 3027, 3059) with Event Description.
- () 2. IF required, IMPLEMENT Accountability by referring to the Accountability Instructions in Section II.
- EC 3. COMPLETE and APPROVE the NRC Data Sheet (Attachment 5) for transmittal by the CM1 within 60 minutes.
- EC 4. WHEN provided by the CM2, THEN REVIEW and APPROVE the Station Status Checklist (SSCL) for transmittal.
- () a. REPEAT this step approximately every half hour.
- () b. PERFORM immediately for any significant change in emergency status. (operational or radiological)

E. TURNOVER

EC IF relieved prior to termination of the Unusual Event, THEN DOCUMENT the name of your relief below:

_____ assumed EC duties at _____
Name time

F. ESCALATION

EC IF event classification escalates above **Unusual Event**, THEN EXIT this attachment and implement a new attachment as directed by the EALs.

G. TERMINATION

- EC 1. TERMINATE the UE IAW Section III., Emergency Termination/Reduction /Recovery (Pg. 5).
- SNSS 2. ENSURE appropriate reports are made IAW Section IV., Reporting, of this attachment.

II. ACCOUNTABILITY INSTRUCTION FOR THE PROTECTED AREA (CONT)

Initials/Time

 / 8. WHEN 20 minutes have elapsed from Step 6, ANNOUNCE the following;
(T+20 Min.)

**“Attention, Attention. All accountability stations
COMPLETE YOUR 30 MINUTE Accountability.” (Repeat)**

 / 9. WHEN 30 minutes have elapsed from Step 6,
EC (T+30 Min.) COORDINATE with the TSC Security Liaison and
 OBTAIN a list of unaccounted-for personnel.

Initials

B. LOCATION OF UNACCOUNTED-FOR PERSONNEL

- EC
1. LOCATE unaccounted-for personnel as follows:
 - () a. PAGE individuals over the plant page.
 - () b. OBTAIN feedback from co-workers/supervisors on the last known location/job assignment.
 - () c. DIRECT Security to assist in locating unaccounted for personnel.
 - () d. CALL individual's home to verify work schedule.
 - () e. IF REQUIRED,
THEN DIRECT the OSCC to INITIATE Search and Rescue Operations IAW EPIP 202S.

 - () 2. UPDATE Security as missing personnel are accounted for.

III. TERMINATION

Initials

- _____ EC 1. WHEN EITHER of the following conditions are met,
THEN TERMINATE the emergency by proceeding to Step 2.
- () a. NO EALs are exceeded AND the Plant is stable.
- () b. IF any EAL CONTINUES to be exceeded AND the Plant is stable
THEN REFER to the "RECOVERY CHECKLIST" (Pg. 6) AND
DETERMINE if the UE can be terminated by entering Recovery.
- _____ EC 2. WHEN the above Step is completed,
THEN COMPLETE the "UNUSUAL EVENT TERMINATION/RECOVERY
NOTIFICATION FORM," (Pg. 7), as follows:
- () a. IF terminating WITHOUT Recovery, COMPLETE Part A.
- () b. IF terminating WITH Recovery, COMPLETE Part B.
- _____ EC 3. IF termination with Recovery is chosen,
THEN DIRECT the EDO to assume the duties of the Recovery Manager including:
- EVALUATE the emergency and its consequences.
 - DETERMINE measures required to return the Plant to Normal Operations (termination of Recovery Status).
 - COORDINATE contractor support, as required.
- _____ EC 4. Make Reduction in Event Notifications (Termination) by;
- () a. PROVIDE the completed "EMERGENCY TERMINATION/ RECOVERY
NOTIFICATION FORM," to the CM1.
- () b. DIRECT the CM1 to make the termination notifications IAW ECG
Attachment 6.
- _____ EC 5. MAKE a PA announcement to update Plant personnel.
- _____ EC 6. NOTIFY the Hope Creek SNSS.
- _____ SNSS 7. GO TO Section IV., Reporting.

III. TERMINATION (cont'd)

UNUSUAL EVENT TERMINATION/RECOVERY
NOTIFICATION FORM

PART "A" - EMERGENCY TERMINATION WITHOUT RECOVERY:

THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM AT
THE SALEM NUCLEAR GENERATING STATION, UNIT _____.

THIS MESSAGE IS TO NOTIFY YOU THAT AS OF _____, ON _____,
time date
THE UNUSUAL EVENT HAS BEEN TERMINATED.

(EC Approval to transmit)

PART "B" - EMERGENCY TERMINATION WITH RECOVERY:

THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM AT
THE SALEM NUCLEAR GENERATING STATION, UNIT _____.

THIS MESSAGE IS TO NOTIFY YOU THAT AS OF _____, ON _____,
time date

THE UNUSUAL EVENT HAS BEEN TERMINATED AND SALEM IS NOW IN A
RECOVERY STATUS. _____ IS THE RECOVERY MANAGER.
(DUTY EDO)

(EC Approval to transmit)

IV. REPORTING

INSTRUCTIONS

1. This is a permanent document.
2. ATTACH appropriate documents to this form and EXPEDITE the package through all steps.

Initials

SNSS

1. PREPARE an Action Request (AR).

AR # _____

SNSS

2. FORWARD this attachment and supporting documentation to the Operations Manager (OM).

OM

3. REVIEW this attachment, the (AR) and any other relevant information for correct classification of event and corrective action taken.

OM

4. CONTACT the LER Coordinator (LERC) and request that the required reports be prepared. Provide this attachment and any other supporting documentation to the LERC.

LERC

5. PREPARE required reports.

Report or LER Number _____

LERC

6. FORWARD this attachment to the Central Technical Document Room for microfilming.

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM
(NAME)

AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. _____

II.

THIS IS NOTIFICATION OF AN UNUSUAL EVENT WHICH WAS

DECLARED AT _____ ON _____
(Time - 24 HR CLOCK) (DATE)

EAL # _____ DESCRIPTION OF EVENT: _____

III.

- NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE
 THERE IS A RADIOLOGICAL RELEASE IN PROGRESS. } for release
definition

33 FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

IV. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

NOTE: Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 2.42E+05 μ Ci/sec Noble Gas or 2.1E+01 μ Ci/sec I-131.

ATTACHMENT 2

ALERT

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

EC A. DECLARE AN ALERT AT SALEM UNIT _____

EAL # _____ Declared at _____ hrs on _____
time date

B. NOTIFICATIONS

- () 1. CALL communicators to the Control Room.
- () 2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).
- () 3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the CM1 to implement **Attachment 6**.
- () 4. DIRECT the Secondary Communicator (CM2) to implement **Attachment 8** for an ALERT.
- SNSS 5. NOTIFY the I.T.O.C. Operator on NETS x5027 (201-430-7191 or 201-430-8153) with the following message:

“This is (your name), Senior Nuclear Shift Supervisor at Salem. Please IMPLEMENT EPIP 204S, Salem Emergency Response Callout, immediately. This procedure is being implemented for an Actual Emergency.”

_____ notified at _____
I.T.O.C. Operator name time
(EP96-003)

- () 6. NOTIFY the Hope Creek SNSS. (NETS 5224; DID 3027, 3059)
 - a. PROVIDE a briefing on the ALERT conditions.
 - b. DIRECT implementation of EPIP 101H, Section 3.1.

EC 7. IF Security Related,
THEN DIRECT the PSE&G Security Supervisor (x2222) to implement the Security Contingency Plan.

C. EMERGENCY COORDINATOR DUTIES

Initials

EC

1. IF NOT done previously,
THEN DIRECT the OSC Coordinator to **ACTIVATE** the OSC IAW EPIP 202S,
OSC Activation and Operations.

EC

2. **IMPLEMENT** EPIP 102S, Alert, while continuing in this attachment.

EC

3. **COMPLETE** and **APPROVE** the NRC Data Sheet (Attachment 5) for transmittal
by the CM1 within 60 minutes.

EC

4. WHEN provided by the CM2,
THEN REVIEW and **APPROVE** the Station Status Checklist (SSCL) for
transmittal.

() a. **REPEAT** this step approximately every half hour.

() b. **PERFORM** immediately for any significant change in emergency status.
(operational or radiological)

D. TURNOVER

() 1. WHEN turning over EC duties,
THEN DIRECT your Communicators to turnover notifications responsibilities to
the oncoming facility communicators.

() 2. IF relieved as EC prior to termination of the ALERT,
THEN DOCUMENT the name of your relief below:

_____ assumed EC duties at _____
Name time

E. ESCALATION

EC IF the event classification escalates above an Alert,
THEN EXIT this attachment and implement a new attachment as directed by the EALs.

F. TERMINATION

EC

1. **TERMINATE** the ALERT IAW EPIP 106S, Emergency Termination/Reduction
/Recovery.

SNSS

2. **ENSURE** appropriate reports are made IAW Section III, Reporting, of this
attachment.

SGS

II. REPORTING

INSTRUCTIONS

1. This is a permanent document.
2. ATTACH appropriate documents to this form and EXPEDITE the package through all steps.

Initials

1. PREPARE an Action Request (AR).

SNSS
AR # _____
2. FORWARD this attachment and supporting documentation, to the Operations Manager (OM).

SNSS
3. REVIEW this attachment, the (AR) and any other relevant information for correct classification of event and corrective action taken.

OM
4. CONTACT the LER Coordinator (LERC) and request that the required reports be prepared. Provide this attachment and any other supporting documentation to the LERC.

OM
5. PREPARE required reports.

LERC
Report or LER Number _____
6. FORWARD this attachment to the Central Technical Document Room for microfilming.

LERC

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM
(NAME) TSC

AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. _____

II. THIS IS NOTIFICATION OF AN ALERT WHICH WAS
DECLARED AT _____ ON _____
(Time - 24 HR CLOCK) (DATE)

EAL # _____ DESCRIPTION OF EVENT: _____

III. NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE
 THERE IS A RADIOLOGICAL RELEASE IN PROGRESS. } for release
definition

33 FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

IV. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

NOTE: Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 2.42E+05 μ Ci/sec Noble Gas or 2.1E+01 μ Ci/sec I-131.

ATTACHMENT 3

SITE AREA EMERGENCY

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

101

_____ A. **DECLARE A SITE AREA EMERGENCY AT SALEM UNIT** _____
EC

EAL #(s) _____,

Declared at _____ hrs on _____
time date

B. NOTIFICATIONS

- () 1. CALL communicators to the Control Room.
- () 2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).
- () 3. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the CM1 to implement **Attachment 6**.
- () 4. DIRECT the Secondary Communicator (CM2) to implement **Attachment 8** for a SITE AREA EMERGENCY.
- _____ SNSS 5. IF NOT done previously, NOTIFY the I.T.O.C. Operator on NETS x5027 (201-430-7191 or 201-430-8153) with the following message:

“This is (your name), Senior Nuclear Shift Supervisor at Salem. Please IMPLEMENT EPIP 204S, Salem Emergency Response Callout, immediately. This procedure is being implemented for an Actual Emergency.”

_____ notified at _____
I.T.O.C. Operator name time
(EP96-003)

- () 6. NOTIFY the Hope Creek SNSS. (NETS 5224; DID 3027, 3059)
 - a. PROVIDE a briefing on the SAE conditions.
 - b. DIRECT implementation of EPIP 101H, Section 3.2.

- _____ EC 7. IF Security Related,
THEN DIRECT the PSE&G Security Supervisor (x2222) to implement the Security Contingency Plan.

C. EMERGENCY COORDINATOR DUTIES

Initials

- EC 1. IF NOT done previously,
THEN DIRECT the OSC Coordinator to ACTIVATE the OSC IAW EPIP 202S,
OSC Activation and Operations.
- SNSS/EDO 2. IF the Emergency Coordinator is the EDO or SNSS,
THEN REFER TO EPIP 103S, Site Area Emergency, AND
IMPLEMENT emergency actions assigned to the EDO until relieved while
continuing at Step C.4.
- ERM 3. IF the Emergency Coordinator is the ERM,
THEN continue to REFER to EPIP 401 AND
- () a. NOTIFY the EDO of SAE details;
- Time of declaration
 - EAL exceeded (Basis)
 - DIRECT the EDO to IMPLEMENT EPIP 103S, Site Area Emergency
- () b. NOTIFY EOF Staff of the change in classification.
- EC 4. COMPLETE and APPROVE the NRC Data Sheet (Attachment 5) for transmittal by
the CMI within 60 minutes.
- EC 5. WHEN provided by the CM2,
THEN REVIEW and APPROVE the Station Status Checklist (SSCL) for
transmittal.
- () a. REPEAT this step approximately every half hour.
- () b. PERFORM immediately for any significant change in emergency status.
(operational or radiological)
- EC 6. IF a Protective Action Recommendation (PAR) is developed with no escalation
of the SAE level,
THEN;
- () a. COMPLETE a new ICMF (ECG Attachment 3) for PAR UPGRADE.
- () b. PROVIDE the ICMF to the CM1 and DIRECT the CM1 to
IMPLEMENT a new ECG Attachment 6 for PAR UPGRADE notifications.

Initials

D. TURNOVER

- () 1. WHEN turning over EC duties,
THEN DIRECT your Communicators to turnover notifications responsibilities to
the oncoming facility communicators.
- () 2. IF relieved as EC prior to termination of the SAE,
THEN DOCUMENT the name of your relief below:

_____ assumed EC duties at _____
Name time

E. ESCALATION

EC IF event classification escalates above an SAE,
THEN EXIT this attachment and IMPLEMENT a new attachment as directed by the EALs.

F. TERMINATION

- _____
EC 1. TERMINATE the SAE IAW EPIP 106S, Emergency Termination/Reduction
/Recovery.
- _____
SNSS 2. ENSURE appropriate reports are made IAW Section II, Reporting, of this
attachment.

II. REPORTING

INSTRUCTIONS

1. This is a permanent document.
2. ATTACH appropriate documents to this form and EXPEDITE the package through all steps.

Initials

1. PREPARE an Action Request (AR).

SNSS
AR # _____
2. FORWARD this attachment and supporting documentation, to the Operations Manager (OM).

SNSS
3. REVIEW this attachment, the (AR) and any other relevant information for correct classification of event and corrective action taken.

OM
4. CONTACT the LER Coordinator (LERC) and request that the required reports be prepared. Provide this attachment and any other supporting documentation to the LERC.

OM
5. PREPARE required reports.

LERC
Report or LER Number _____
6. FORWARD this attachment to the Central Technical Document Room for microfilming.

LERC

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM
(NAME) TSC
 EOF
AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. _____

IIa. THIS IS NOTIFICATION OF A SITE AREA EMERGENCY WHICH WAS
DECLARED AT _____ ON _____
(TIME - 24 HOUR CLOCK) (DATE)
EAL #(s) _____
DESCRIPTION OF EVENT: _____

IIb. THIS IS NOTIFICATION OF A PROTECTIVE ACTION RECOMMENDATION
UPGRADE WHICH WAS MADE AT _____ HRS ON _____
(24 HOUR CLOCK) (DATE)
Reason for PAR Upgrade: _____

III. NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE
 THERE IS A RADIOLOGICAL RELEASE IN PROGRESS. } for release
definition
33 FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

IV. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

	<u>Sectors</u>	<u>Dist. -Miles</u>
<input type="checkbox"/> WE RECOMMEND EVACUATION AS FOLLOWS	_____	_____
	_____	_____
<input type="checkbox"/> WE RECOMMEND SHELTERING AS FOLLOWS	_____	_____
	_____	_____

EC Initials
(Approval to Transmit ICMF)

NOTE: Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 2.42E+05 μ Ci/sec Noble Gas or 2.1E+01 μ Ci/sec I-131.

ATTACHMENT 4

GENERAL EMERGENCY

101

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

_____ A. DECLARE A GENERAL EMERGENCY AT SALEM UNIT _____

EC

EAL #(s) _____

Declared at _____ hrs on _____
time date

B. NOTIFICATIONS

- () 1. CALL communicators to the Control Room.

CAUTION

A Protective Action Recommendation (PAR) SHALL be made on the Initial Contact Message Form (ICMF).

_____ 2. MAKE A PAR by the following steps;

EC

- () a. REFER to Predetermined PAR Flowchart on Pg. 5 and CHOOSE the appropriate PAR.
- () b. REFER to Recommended Protective Actions Worksheet on Pg. 6 to DETERMINE the compass designations for the downwind sectors affected.
- () c. IF a Radiologically Based PAR is IMMEDIATELY available, THEN COMPARE the two PARs and choose the most appropriate for inclusion on the ICMF.
- () 3. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment).
- () 4. PROVIDE the ICMF to the Communicator (CM1) and DIRECT the CM1 to implement Attachment 7.
- () 5. DIRECT the Secondary Communicator (CM2) to implement Attachment 8 for a GENERAL EMERGENCY.

Initials

SNSS

6. IF NOT done previously,
NOTIFY the I.T.O.C. Operator on NETS x5027 (201-430-7191 or
201-430-8153) with the following message:

“This is (your name) , Senior Nuclear Shift Supervisor at Salem. Please
IMPLEMENT EPIP 204S, Salem Emergency Response Callout, immediately. This
procedure is being implemented for an Actual Emergency.”

_____ notified at _____
I.T.O.C. Operator name time
(EP96-003)

- () 7. NOTIFY the Hope Creek SNSS. (NETS 5224; DID 3027, 3059)
a. PROVIDE a briefing on the GE conditions.
b. DIRECT implementation of EPIP 101H, Section 3.2.

EC

8. IF Security Related,
THEN DIRECT the PSE&G Security Supervisor (x2222) to implement the Security
Contingency Plan.

C. EMERGENCY COORDINATOR DUTIES

EC

1. IF NOT done previously,
THEN DIRECT the OSC Coordinator to ACTIVATE the OSC IAW EPIP 202S,
OSC Activation and Operations.

SNSS/EDO

2. IF the Emergency Coordinator is the EDO or SNSS,
THEN REFER TO EPIP 104S, General Emergency, AND
IMPLEMENT emergency actions assigned to the EDO until relieved while
continuing at Step C.4.

ERM

3. IF the Emergency Coordinator is the ERM,
THEN continue to REFER to EPIP 401, ERM Response, AND

- () a. NOTIFY the EDO of General Emergency details;
• Time of declaration
• EAL exceeded (Basis)
• DIRECT the EDO to IMPLEMENT EPIP 104S, General Emergency
- () b. NOTIFY EOF Staff of the change in classification.

EC

4. COMPLETE and APPROVE the NRC Data Sheet for transmittal (Attachment 5) by
the CM1 within 60 minutes.

Initials

EC 5. WHEN provided by the CM2,
THEN REVIEW and APPROVE the Station Status Checklist (SSCL) for
transmittal.

- () a. REPEAT this step approximately every half hour.
- () b. PERFORM immediately for any significant change in emergency status.
(operational or radiological)

D. TURNOVER

- () 1. WHEN turning over EC duties,
THEN DIRECT your Communicators to turnover notifications responsibilities to
the oncoming facility communicators.
- () 2. IF relieved as EC prior to termination of the GE,
THEN DOCUMENT the name of your relief below:

_____ assumed EC duties at _____
Name time

E. TERMINATION

EC 1. TERMINATE the GE IAW EPIP 106S, Emergency Termination/Reduction
/Recovery.

SNSS 2. ENSURE appropriate reports are made IAW Section II, Reporting, of this
attachment.

II. REPORTING

INSTRUCTIONS

1. This is a permanent document.
2. ATTACH appropriate documents to this form and EXPEDITE the package through all steps.

Initials

1. PREPARE an Action Request (AR).

SNSS
AR # _____
2. FORWARD this attachment and supporting documentation, to the Operations Manager (OM).

SNSS
3. REVIEW this attachment, the (AR) and any other relevant information for correct classification of event and corrective action taken.

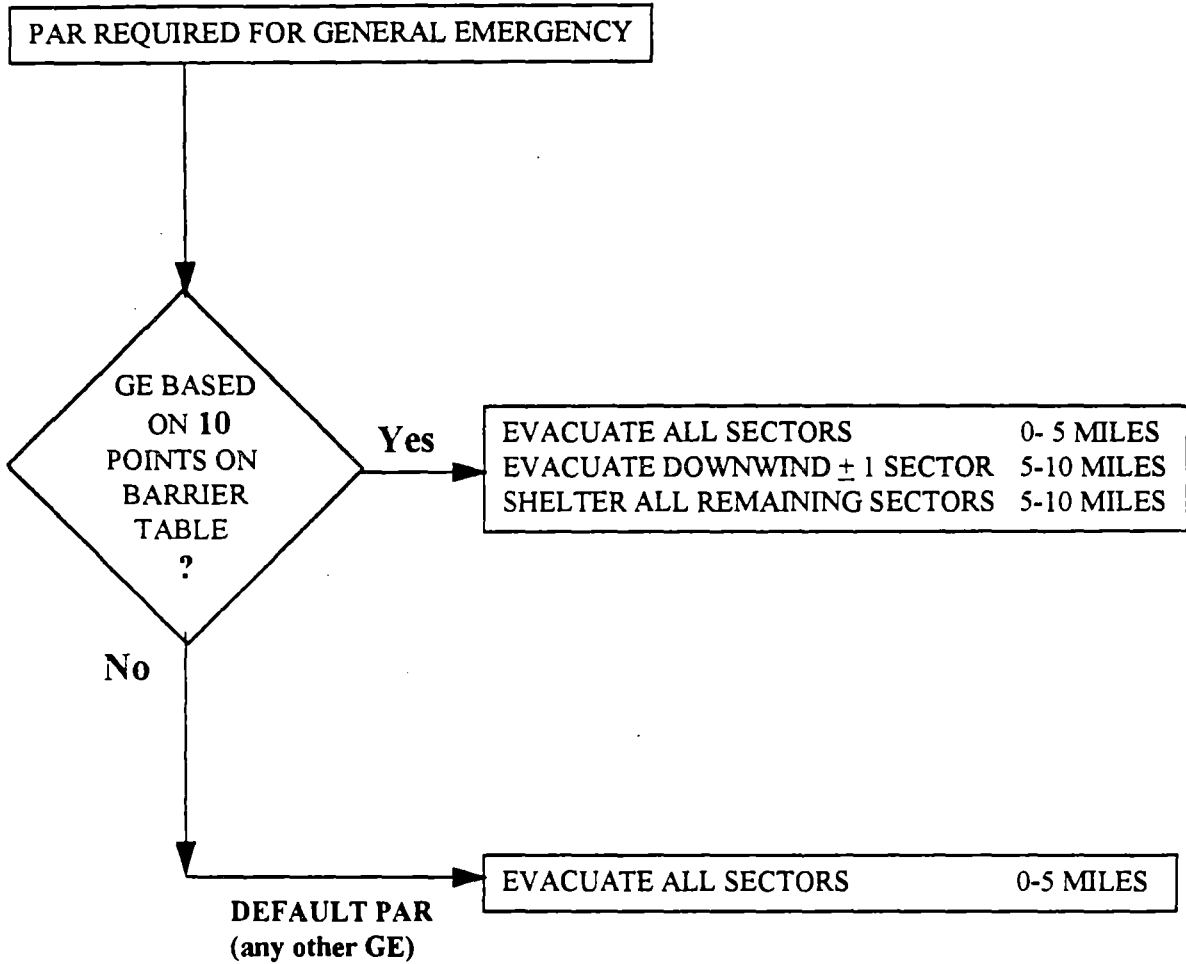
OM
4. CONTACT the LER Coordinator (LERC) and request that the required reports be prepared. Provide this attachment and any other supporting documentation to the LERC.

OM
5. PREPARE required reports.

LERC
Report or LER Number _____
6. FORWARD this attachment to the Central Technical Document Room for microfilming.

LERC

PREDETERMINED PROTECTIVE ACTION RECOMMENDATION CHART



CAUTION:

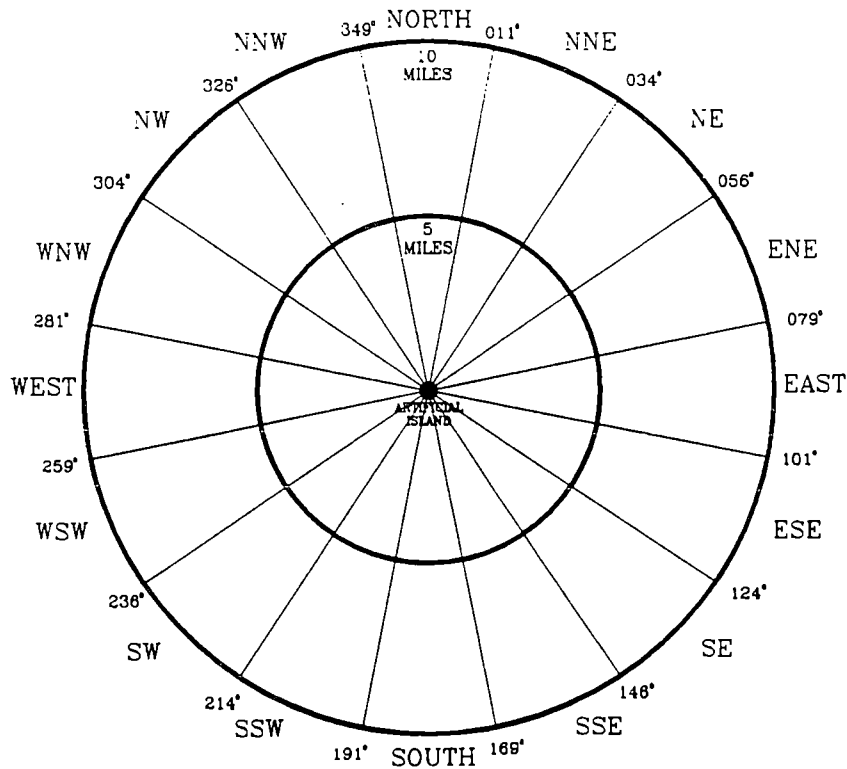
IF TRAVEL CONDITIONS PRESENT AN EXTREME HAZARD (SEVERE ICE, SNOW, WIND, FLOODS, QUAKE DAMAGE, ETC.), CONSIDER SHELTER INSTEAD OF EVACUATE IN THE ABOVE SELECTED PAR.

RECOMMENDED PROTECTIVE ACTIONS WORKSHEET

WIND DIRECTION FROM → PAR AFFECTED SECTORS
DEGREES COMPASS DOWNWIND ±1 SECTOR

349 - 011	N	SSE - S - SSW
011 - 034	NNE	S - SSW - SW
034 - 056	NE	SSW - SW - WSW
056 - 079	ENE	SW - WSW - W
079 - 101	E	WSW - W - WNW
101 - 124	ESE	W - WNW - NW
124 - 146	SE	WNW - NW - NNW
146 - 169	SSE	NW - NNW - N
169 - 191	S	NNW - N - NNE
191 - 214	SSW	N - NNE - NE
214 - 236	SW	NNE - NE - ENE
236 - 259	WSW	NE - ENE - E
259 - 281	W	ENE - E - ESE
281 - 304	WNW	E - ESE - SE
304 - 326	NW	ESE - SE - SSE
326 - 349	NNW	SE - SSE - S

NOTE CONSIDER ADDING A SECTOR TO THE PAR IF THE WIND DIRECTION (FROM) IS WITHIN ±3° OF A SECTOR BOUNDARY LINE.



INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM
(NAME) TSC
 EOF
AT THE SALEM NUCLEAR GENERATING STATION, UNIT NO. _____

IIa. THIS IS NOTIFICATION OF A **GENERAL EMERGENCY** WHICH WAS
DECLARED AT _____ ON _____
(TIME - 24 HOUR CLOCK) (DATE)
EAL #(s) _____
DESCRIPTION OF EVENT: _____

IIb. THIS IS NOTIFICATION OF A **PROTECTIVE ACTION RECOMMENDATION**
UPGRADE WHICH WAS MADE AT _____ HRS ON _____
(24 HOUR CLOCK) (DATE)
Reason for PAR Upgrade: _____

III. NO RADIOLOGICAL RELEASE IS IN PROGRESS. } see NOTE
 THERE IS A RADIOLOGICAL RELEASE IN PROGRESS. } for release
definition
33 FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

IV. WE RECOMMEND **EVACUATION** AS FOLLOWS _____
_____ Sectors Dist. -Miles
 WE RECOMMEND **SHELTERING** AS FOLLOWS _____

EC Initials
(Approval to Transmit ICMF)

NOTE: Radiological Release is defined as: Plant Effluent > Tech Spec Limit of 2.42E+05 µCi/sec Noble Gas or 2.1E+01 µCi/sec I-131.

ATTACHMENT 5

NRC DATA SHEET COMPLETION REFERENCE 101

I. INSTRUCTIONS

NOTE

This attachment is implemented when the NRC Operations Center or Regional Office is notified of an Emergency OR Non-Emergency as specified by the appropriate ECG Attachment. Information is offered as a GUIDELINE to personnel completing the Event Description and the NRC Event Update Sections of the NRC DATA SHEET.

- A. OBTAIN a working copy of the NRC Data Sheet (last three pages of this attachment) each time you are directed to complete it. (i.e., each change in classification or new event, begin again)
- B. COMPLETE the NRC Data Sheet with reference to the following information and guidance, as needed.
1. The following paragraphs briefly describe the type of information expected by the NRC when making notifications.
 2. Event Description Instructions from the NRC Data Sheet state:
“ Include systems affected, actuations & their initiating signals, causes, effect of event on plant, actions taken or planned, etc. note anything unusual or not understood. Indicate systems and safety-related equipment that are not operational. ”
 - a) *Include systems affected...*
Description: The NRC is primarily concerned about the safety significance of the event and the current conditions of the plant. However, some events may be caused by non-safety related equipment failures and this information should also be provided to the NRC.

Common information should be the response of available systems, (ESF or ECCS systems required to respond) or any other system utilized to mitigate the consequences of the event.

- b) ***...actuations and their initiating signals, causes,...***
Description: The NRC routinely needs to know what specific signal caused the Reactor trip or ECCS/ESF actuation. If the cause of the event or actuation is known, it should be provided. If the cause is not yet known, that information should be provided to the NRC. When the information becomes available, the NRC should be provided updated information (utilize the bottom of page two of the NRC DATA SHEET to provide the updated information).
- Common information should be the specific signal that caused the Reactor trip or ECCS/ESF actuation and, if known, whether the parameter has been restored to the previously established band for the current plant conditions.
- c) ***...effect of event on plant,...***
Description: This information should be complete to allow a clear evaluation of current plant conditions. Incorporated in the explanation should be a description of how the event has affected overall plant safety.
- Common information should be which safety parameters are affected. This explanation should also include how the parameters are being maintained. (Examples: Rx Press. control is being maintained by cycling SRVs or SG level is being maintained by the Aux. Feed water system)
- d) ***...actions taken or planned,...***
Description: This should be a description of the current plans to mitigate the event or restore the plant to a normal configuration. The focus should be on the short term considerations and not on what you expect to have to accomplish tomorrow or next week.
- Common information should be corrective actions taken to mitigate the consequences of the event and the OSC priorities to reestablish specific control of plant safety parameters.
- e) ***Note anything unusual or not understood.***
Description: The NRC is interested in what systems did NOT respond as you expected and there is no apparent reason why they did not function.

Common information should be systems that failed to respond, systems that had responded correctly, but are currently failing to properly restore monitored parameters to their nominal values, or any unexpected plant response.

- f) ***Indicate systems and safety related equipment that are not operational.***

Description: All non-operational safety related equipment should be provided. Also provide non-operational plant equipment that may be important to event response or assessment.

Common information should be equipment that was inoperable prior to the event that is safety related, non safety related equipment that caused the transient, or plant systems that would ease the operational response to the transient. Example: SPDS.

3. NRC Event Update Instructions from the NRC Data Sheet state:
“ (Document additional information provided to the NRC due to their request or as a result of plant/ event status changes). ”

- a) This section of the NRC Data Sheet is intended to be utilized to document additional information requested by the NRC. The individual communicating with the NRC should document the requested information and the response given. This section should also be utilized to update the NRC as plant conditions or equipment availability changes occur or any actions taken in accordance with 10CFR50.54(x). Also to report the results of investigations or event analysis that yields information previously reported as unknown OR that is now known to have been incorrect as reported earlier.
- b) If changing plant conditions result in a change in Emergency Classification, the Communicator should implement another ECG Attachment 8. This will result in a new NRC Data Sheet being completed and provided to the NRC within the 1 hour time limit.

II. NRC DATA SHEET FORM

- A. The following two page form with continuation sheet(s) is used for both emergencies and non-emergencies.
- B. NRC Data Sheet (Page 1 of ___) should always be completed as thoroughly as possible prior to notifying the NRC, but in no case should notifications be delayed because of missing information.
- C. (Page 2 of ___) may or may not be applicable as determined by the Emergency Coordinator (EC).
- D. (Page ___ of ___) is a continuation form to be used by the Communicator (or EC) to document any additional information reported to the NRC, as needed. Information recorded here as NRC updates should log the time that the NRC was updated.

NOTIFICATION TIME	FACILITY: SALEM GENERATING STATION _____	UNIT	CALLER'S NAME
EVENT DATE	EVENT TIME	POWER / MODE BEFORE EVENT	POWER / MODE AFTER EVENT
EASTERN TIME ZONE			

EVENT CLASSIFICATION (Check One)			
<input type="checkbox"/> GENERAL EMERGENCY	<input type="checkbox"/> ALERT	1HR 10CFR50.72(b)(1) *()	<input type="checkbox"/> 1-HR SECURITY / SAFEGUARDS
<input type="checkbox"/> SITE AREA EMERGENCY	<input type="checkbox"/> UNUSUAL EVENT	4HR 10CFR50.72(b)(2) *()	<input type="checkbox"/> TRANSPORTATION EVENT
<input type="checkbox"/> OTHER (DESCRIBE): _____			

* FOR NON-EMERGENCIES PROVIDE THE SPECIFIC SUBPART NUMBER OF THE 10CFR50.72 REPORTING REQUIREMENT FROM THE ECG INITIATING CONDITION STATEMENT.

EVENT DESCRIPTION
Include systems affected, actuations & their initiating signals, causes, effect of event on plant, actions taken or planned, etc. Note anything unusual or not understood. Indicate systems and safety-related equipment that are not operational.
(Use a continuation page if more room is needed)

RCS/TUBE LEAK DATA <small>(Complete only if event includes an RCS or SG tube leak)</small>
LOCATION OF LEAK (e.g. SG, VALVE, PIPE, etc.) : _____
TIME & DATE LEAK STARTED: _____ ON _____ DATE
LEAK RATE: _____ gpm or gpd. T/S LEAK LIMITS: _____
LAST KNOWN COOLANT ACTIVITY: PRIMARY (DEI - $\mu\text{Ci/cc}$) _____ SECONDARY (GBG - $\mu\text{Ci/cc}$) _____
WAS THIS LEAK A SUDDEN OR LONG-TERM DEVELOPMENT? _____

NOTIFICATIONS							
ORGANIZATION NOTIFIED	YES	NO	WILL BE	ORGANIZATION NOTIFIED	YES	NO	WILL BE
NRC RESIDENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	STATE OF NEW JERSEY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LOCAL (LAC TOWNSHIP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OTHER GOVERNMENT AGENCIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MODE OF OPERATION UNTIL CORRECTED: _____				ESTIMATED RESTART DATE: _____			
				ADDITIONAL INFO ON PAGE 2? <input type="checkbox"/>			

Additional Information for Non-Emergency Notifications:
Reportable Action Level (RAL #) 11.

SNSS/EC APPROVAL TO TRANSMIT

NOTIFICATION DATE/TIME: _____

RADIOLOGICAL RELEASE DATA: (This section is only required to be completed if a release exceeding Tech Specs is in progress or has already occurred).

Check **ALL correct statements and provide to the NRC.**

- ___ There is/was a gaseous release above Tech Spec limits in progress (Tech Spec Limit: Noble Gas = $2.42E+05$ $\mu\text{Ci}/\text{sec}$).
- ___ There is/was an Iodine release above Tech Spec limits in progress (Tech Spec Limit: Iodine-131 = $2.1E+01$ $\mu\text{Ci}/\text{sec}$).
- ___ There is/was a liquid release above Tech Spec limits in progress.
- ___ The release is ongoing (still above Tech Specs) at this time.
- ___ The release was terminated (no longer above Tech Specs) at _____ hrs.
- ___ The release was planned and can be isolated.
- ___ The release pathway is monitored by the Radiation Monitoring System.
- ___ Areas evacuated onsite due to release concerns are: _____
- ___ Station personnel have received exposure above 10CFR20 limits.
- ___ Station personnel have been contaminated to an extent requiring offsite assistance to decon.

SPECIFIC RADIOLOGICAL PARAMETERS: (Provide current values) Current Time: _____ hrs.

Total Release Rate Noble Gas (from SSCL) is: _____ $\mu\text{Ci}/\text{sec}$.
Total Release Rate Iodine-131 (from SSCL) is: _____ $\mu\text{Ci}/\text{sec}$.

RELEASE PATHWAY MONITORS: (Provide readings and alarm setpoints only for those below listed monitors in Alarm or that are included in the release pathway).

Monitor # and Name	Current Reading	Alarm Setpoint
2R41D Noble Gas Effluent	_____ $\mu\text{Ci}/\text{sec}$	$2.00E+04$ $\mu\text{Ci}/\text{sec}$
1R45B Mid Plant Vent Gas	_____ $\mu\text{Ci}/\text{cc}$	$3.00E-02$ $\mu\text{Ci}/\text{cc}$
1R45C High Plant Vent Gas	_____ $\mu\text{Ci}/\text{cc}$	$1.00E+02$ $\mu\text{Ci}/\text{cc}$
1(2)R46 Highest Steam Line (R46A thru D)	_____ mR/hr	$1.00E+01$ mR/hr
1(2)R15 Condenser Air Ejector	_____ cpm	_____ cpm
1(2)R19 Highest S/G Blowdown	_____ cpm	_____ cpm

OTHER PERTINENT INFORMATION: (Document additional information related to any radiological release).

(Use a continuation page if more room is needed)

NOTIFICATION DATE/TIME: _____

- EVENT DESCRIPTION** (Continued):
- OTHER PERTINENT INFORMATION** (Continued):
- NRC EVENT UPDATE** (Document additional information to NRC due to their request or as a result of plant/event status changes):

(Use a continuation page if more room is needed)

SNSS/EC APPROVAL TO TRANSMIT

ATTACHMENT 6

PRIMARY COMMUNICATOR LOG

Table of Contents

Pages

- 1 - 3 Notifications & Incoming Calls
- 4 Termination
- 5 - 8 Communications Log

101

Emergency Classification: (circle)	UE	ALERT	SAE
Name: _____	Position: CM1 /TSC1/ EOF1		
(Print)	(circle)		

A. NOTIFICATIONS

NOTE

A new Attachment 6 is required to be implemented if the classification changes.

Initials

- _____ 1. OBTAIN an approved Initial Contact Message Form (ICMF) from the Emergency Coordinator (EC).
CMI/TSC1
/EOF1

CAUTION

Fifteen minute clock for notification starts at time event was declared

- _____ 2. CALL each Organization or Individual identified on the Communications Log (Pgs. 5 - 8) and READ the ICMF.
CMI/TSC1
/EOF1
- _____ 3. **IF** required to activate an individual's pager, **THEN** PERFORM the following:
CMI/TSC1
/EOF1
- a. DETERMINE a non-NETS phone number for the pager holder to call back on and note it here.

Call Back #: 609-339-_____
 - b. DIAL the pager number of the individual you are trying to contact.

Initials

- c. WHEN you hear "Beep, Beep, Beep,"
THEN ENTER the Call Back #.
- d. HANG UP the phone and CONTINUE making other notifications per Step 2.

_____ 4. FAX the ICMF to Group A.
CM1/TSC1
/EOF1

B. TURNOVER

- _____ 1. WHEN CONTACTED by the TSC (or EOF) in preparing for notifications
CM1/TSC1 responsibilities,
THEN PROVIDE the following information;
- Organizations/Individuals notified.
 - Phone numbers or locations of Individuals for updates or changes in status.
- _____ 2. WHEN the EC function transfers to the oncoming facility,
CM1/TSC1 THEN contact the oncoming communicator and turnover notifications.

C. INCOMING CALLS

NOTE

Initial Notifications take priority over incoming calls.

STATE OFFICIALS

- _____ 1. IF Notifications authority has transferred,
CM1/TSC1 THEN DIRECT the caller to contact the TSC (or EOF if activated).
- _____ 2. WHEN contacted by any State Agency Officials (listed here),
CM1/TSC1
/EOF1
- DEMA** - Delaware Emergency Management Agency
 - AAAG** - Delaware Accident Assessment Advisory Group
 - BNE** - NJ Bureau of Nuclear Engineering
 - DEP** - NJ Dept. of Environmental Protection
 - OEM** - NJ Office of Emergency Management

Initials

PERFORM the following;

- () a. OBTAIN and RECORD;
Agency Caller's Name Phone #
- _____
- _____
- () b. READ the latest EC approved SSCL.

C. INCOMING CALLS (cont'd)

- () c. IF caller is NJ-BNE, DEMA, or AAAG,
THEN also READ the approved NRC Data Sheet Event Description
information.

NEWS MEDIA

<p><u>CAUTION</u></p> <p>Communicators are <u>NOT</u> authorized to release any information to the News Media.</p>
--

CM1/TSC1
/EOF1

3. WHEN contacted by any News Media representative,
READ the appropriate message below;
- () a. IF the ENC is not activated (Unusual Event), say;
- “You are requested to contact the Nuclear Communications Office at any of the following numbers; 609-339-1001, -1006, or -1002.”**
- () b. IF the ENC is activated (ALERT or higher), say;
- “You are requested to contact the Media Information Operator at any of the following numbers; 609-273-0188, -0282, -0386, -0479, or -0586.”**

D. CONTINUOUS DUTIES

- _____
CM1
1. ASSIST the CM2 gathering and faxing operational data.

Initials

- _____ 2. ASSIST the TSC2 (or EOF2) in maintaining facility status boards
TSC1/EOF1.
- _____ 3. IF the telecopier is NOT working correctly,
CM1 THEN CALL the TSC - Emergency Preparedness Advisor (EPA) for assistance.

E. TERMINATION/REDUCTION

- _____ 1. WHEN the Emergency has been terminated or reduced in classification,
CM1/TSC1 THEN;
EOF1
- () a. OBTAIN the EC approved EMERGENCY TERMINATION/
REDUCTION FORM.

NOTE

Time limits for notifications of Emergency Termination only apply to the NRC
(as soon as possible, but < 60 minutes)

- () b. CALL each Organization or Individual identified on the Communications Log
and READ the message.
- _____ 2. WHEN the emergency is terminated,
CM1/TSC1 THEN FORWARD this document and all completed Forms to the SNSS (TSS/SSM).
/EOF1

COMMUNICATIONS LOG		INITIAL NOTIFICATIONS			EVENT REDUCTION
TIME LIMIT	CLASSIFICATION: (UE/A/SAE) ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
15 MIN.	DELAWARE STATE POLICE/DEMA Primary: NETS 5406/5407 Secondary: (SP) 302-739-5851 or (DEMA) 302-834-7250 BACKUP: NAWAS				
	Call Back:				
	NOTES: IF DELAWARE IS CONTACTED, PROCEED WITH NEW JERSEY. IF NOT, THEN CONTACT BOTH COUNTIES IN DELAWARE.				
	<u>NEW CASTLE COUNTY</u> Primary: NETS 5408 Secondary: 302-738-3131				
<u>KENT COUNTY</u> Primary: NETS 5409 Secondary: 302-678-9111					
15 MIN.	NEW JERSEY STATE POLICE/OEM Primary: NETS 5400 Secondary: 882-4201 BACKUP: EMRAD				
	Call Back:				
	NOTES: IF NEW JERSEY IS CONTACTED, PROCEED WITH NEXT PAGE. IF NOT, THEN CONTACT ALL OF THE FOLLOWING.				
	<u>SALEM COUNTY</u> Primary: NETS 5402 Secondary: 769-2959				
	<u>CUMBERLAND COUNTY</u> Primary: NETS 5403 Secondary: 455-8770				
<u>U.S. COAST GUARD</u> (Speak Only to Duty Desk) Primary: 215-271-4940 Secondary: 215-271-4800					

COMMUNICATIONS LOG		INITIAL NOTIFICATIONS			EVENT REDUCTION
TIME LIMIT	CLASSIFICATION: (UE/A/SAE) ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
30 MIN.	LAC TOWNSHIP Primary: NETS 5404 Secondary: 935-7300				
<u>NRC OPS CENTER COMMUNICATIONS INSTRUCTIONS</u> 1. OBTAIN the approved NRC Data Sheet 2. READ <u>both</u> the ICMF and NRC Data Sheet. 3. DOCUMENT the notification below. 4. <u>IF</u> the NRC requests additional information concerning the event, <u>THEN</u> OBTAIN assistance from CR (TSC/EOF) Staff to ENSURE it is accurate and EC approved. 5. <u>IF</u> the NRC requests an open line be maintained, <u>THEN</u> OBTAIN assistance in completing any remaining calls. (see Note below)					
60 MIN.	NRC OPERATIONS CENTER (ICMF & NRC Data Sheet) Primary: (ENS) 301-816-5100 Secondary: 301-951-0550				

NOTE

An additional communicator (preferably an RO or SRO) may be assigned to provide continuous updates to the NRC under the following circumstances;

- o NRC requests an open line be maintained
- o Additional qualified communicator is available AND is not required for actions to mitigate the emergency (higher priority activities) in the judgment of the EC

TIME LIMIT	COMMUNICATIONS LOG	EVENT INITIAL NOTIFICATIONS			REDUCTION
	CLASSIFICATION: (UE/A/SAE) ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
70 MIN.	EMERGENCY DUTY OFFICER (EDO) Primary: Refer to Roster Secondary: (Contact One) Chris Bakken Office: 2613 Home: 769-5420 Pager: 478-5016 Car: 230-8814 Nick Conicella Office: 2124 Home: 223-0975 Pager: 478-5035 Car: 230-8164 Jay Laughlin Office: 2907 Home: 935-8545 Pager: 478-5004 Car: 230-7995 Dennis McCloskey Office: 5021 Home: 302-328-8520 Pager: 573-1417 Car: 302-563-5008	SEE NOTE 1			
70 MIN.	PUBLIC INFORMATION MANAGER NUCLEAR (Contact One) Trish DuBrois Office: 1186 Home: 769-2454 Pager: 223-3012 Nancy Sooy Office: 1007 Home: 795-6831 Pager: 223-3393	SEE NOTE 2			

NOTE 1 NOTIFY EDO for Unusual Events ONLY.

NOTE 2 After ENC activation, NOTIFY the ENC Manager (NETS -5300 or 609-273-1961)

EVENT COMMUNICATIONS LOG INITIAL NOTIFICATIONS
REDUCTION

TIME LIMIT	CLASSIFICATION: (UE/A/SAE) ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
75 MIN.	NRC RESIDENTS (Contact One) Charlie Marschall Office: 1078 or 935-3850 or 935-5151 Home: 610-444-0181 Pager: 772-4742 Joe Schoppy Office: 1041 or 935-3850 or 935-5151 Home: 384-1365 Pager: 772-4742 Todd Fish Office: 1017 or 935-3850 or 935-5151 Home: 302-654-6612 Pager: 772-4742				
90 MIN.	EXTERNAL AFFAIRS (Contact One) Ross Bell Office: 1239 Home: 455-7435 Pager: 478-5213 Max LeFevre Office: 1243 Home: 263-7677 Pager: 478-5094 Ed Johnson Office: 1486 Home: 678-2257 Pager: 478-5040	SEE NOTE 3			
90 MIN.	AMERICAN NUCLEAR INSURERS (ANI) 203-561-3433	SEE NOTE 4			

NOTE 3 Not required to notify External Affairs After the EOF is activated.

NOTE 4 Not required to notify ANI for Unusual Events

ATTACHMENT 7

PRIMARY COMMUNICATOR LOG (GE)

Table of Contents

Pages
1 - 3 Notifications & Incoming Calls
4 Termination
5 - 7 Communications Log

101

Emergency Classification:	GENERAL EMERGENCY or PAR UPGRADE
Name: _____	Position: CM1 /TSC1/ EOF1
(Print)	(circle)

A. NOTIFICATIONS

NOTE

A new Attachment 7 is required to be implemented if the PAR is changed.

Initials

- _____ 1. OBTAIN an approved Initial Contact Message Form (ICMF) from the Emergency Coordinator (EC).
CM1/TSC1
/EOF1

CAUTION

For 15 minute notifications use NETS x5555 conference call (separate contact required for Coast Guard). Notification clock starts at time event was declared.

- _____ 2. CALL each Organization or Individual identified on the Communications Log (Pgs. 5 - 7) and READ the ICMF. If needed obtain assistance from Secondary Communicator.
CM1/TSC1
/EOF1

- _____ 3. FAX the ICMF to Group A.
CM1/TSC1
/EOF1

Initials

- _____ 4. IF required to activate an individual's pager,
CM1/TSC1 THEN PERFORM the following:
/EOF1
- a. DETERMINE a non-NETS phone number for the pager holder to call back on and note it here.

Call Back #: 609-339- _____
 - b. DIAL the pager number of the individual you are trying to contact.
 - c. WHEN you hear "Beep, Beep, Beep,"
THEN ENTER the Call Back #.
 - d. HANG UP the phone and CONTINUE making other notifications per Step 2.

B. TURNOVER

- _____ 1. WHEN CONTACTED by the TSC (or EOF) in preparing for notifications
CM1/TSC1 responsibilities,
THEN PROVIDE the following information;
 - Organizations/Individuals notified.
 - Phone numbers or locations of Individuals for updates or changes in status.
- _____ 2. WHEN the EC function transfers to the oncoming facility,
CM1/TSC1 THEN contact the oncoming communicator and turnover notifications.

C. INCOMING CALLS

<p><u>NOTE</u></p> <p>Initial Notifications take priority over incoming calls.</p>

STATE OFFICIALS

- _____ 1. IF Notifications authority has transferred,
CM1/TSC1 THEN DIRECT the caller to contact the TSC (or EOF if activated).

Initials

C. INCOMING CALLS (cont'd)

_____ 2. WHEN contacted by any State Agency Officials (listed here),
CMI/TSC1
/EOF1

- DEMA - Delaware Emergency Management Agency
- AAAG - Delaware Accident Assessment Advisory Group
- BNE - NJ Bureau of Nuclear Engineering
- DEP - NJ Dept. of Environmental Protection
- OEM - NJ Office of Emergency Management

PERFORM the following;

- () a. OBTAIN and RECORD;

<u>Agency</u>	<u>Caller's Name</u>	<u>Phone #</u>
_____	_____	_____
_____	_____	_____
- () b. READ the latest EC approved SSCL.
- () c. IF caller is NJ-BNE, DEMA, or AAAG,
THEN also READ the approved NRC Data Sheet Event Description.

NEWS MEDIA

CAUTION

Communicators are **NOT** authorized to release any information to the News Media.

_____ 3. WHEN contacted by any News Media representative,
CMI/TSC1
/EOF1
READ the appropriate message below;

- () a. IF the ENC is not activated (Unusual Event), say;

“You are requested to contact the Nuclear Communications Office at any of the following numbers; 609-339-1001, -1006, or -1002.”
- () b. IF the ENC is activated (ALERT or higher), say;

“You are requested to contact the Media Information Operator at any of the following numbers; 609-273-0188, -0282, -0386, -0479, or -0586.”

Initials

D. CONTINUOUS DUTIES

- _____ 1. ASSIST the CM2 gathering and faxing operational data.
CM1
- _____ 2. ASSIST the TSC2 (or EOF2) in maintaining facility status boards
TSC1/EOF1
- _____ 3. IF the telecopier is NOT working correctly,
CM1 THEN CALL the TSC - Emergency Preparedness Advisor (EPA) for assistance.

E. TERMINATION/REDUCTION

- _____ 1. WHEN the Emergency has been terminated or reduced in classification,
CM1/TSC1 THEN;
EOF1
- () a. OBTAIN the EC approved EMERGENCY TERMINATION/ REDUCTION FORM.

NOTE

Time limits for notifications of Emergency Termination only apply to the NRC (as soon as possible, but < 60 minutes)

- () b. CALL each Organization or Individual identified on the Communications Log and READ the message.

- _____ 2. WHEN the emergency is terminated,
CM1/TSC1 THEN FORWARD this document and all completed Forms to the SNSS (TSS/SSM).
/EOF1

COMMUNICATIONS LOG		INITIAL NOTIFICATIONS			EVENT REDUCTION
TIME LIMIT	CLASSIFICATION: GENERAL EMERGENCY ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
15 MIN.	NEW JERSEY STATE POLICE/OEM Primary: NETS 5400 Secondary: 882-4201 BACKUP: EMRAD	Call Back:			
	DELAWARE STATE POLICE/DEMA Primary: NETS 5406/5407 Secondary: (SP) 302-739-5851 or (DEMA) 302-834-7250 BACKUP: NAWAS	Call Back:			
	LAC TOWNSHIP Primary: NETS 5404 Secondary: 935-7300	Call Back:			
	SALEM COUNTY Primary: NETS 5402 Secondary: 769-2959 Backup: EMRAD	Call Back:			
	CUMBERLAND COUNTY Primary: NETS 5403 Secondary: 455-8770 Backup: EMRAD	Call Back:			
	NEW CASTLE COUNTY Primary: NETS 5408 Secondary: 302-738-3131	Call Back:			
	KENT COUNTY Primary: NETS 5409 Secondary: 302-678-9111	Call Back:			
	15 MIN.	U.S. COAST GUARD (Speak Only to Duty Desk) Primary: 215-271-4940 Secondary: 215-271-4800	Call Back:		

Reminder: Use NETS - 5555 (conference call) for 15 min. notifications EXCEPT U.S. Coast Guard.

EVENT COMMUNICATIONS LOG INITIAL NOTIFICATIONS
 REDUCTION

TIME LIMIT	CLASSIFICATION: GENERAL EMERGENCY ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
	<u>NRC OPS CENTER COMMUNICATIONS INSTRUCTIONS</u>				
	1. OBTAIN the approved NRC Data Sheet 2. READ both the ICMF and NRC Data Sheet. 3. DOCUMENT the notification below. 4. <u>IF</u> the NRC requests additional information concerning the event, <u>THEN</u> OBTAIN assistance from CR (TSC/EOF) Staff to ENSURE it is accurate and EC approved. 5. <u>IF</u> the NRC requests an open line be maintained, <u>THEN</u> OBTAIN assistance in completing any remaining calls. (see Note below)				
60 MIN.	NRC OPERATIONS CENTER (ICMF & NRC Data Sheet) Primary: (ENS) 301-816-5100 Secondary: 301-951-0550				
70 MIN.	PUBLIC INFORMATION MANAGER NUCLEAR (Contact One) Trish DuBrois Office: 1186 Home: 769-2454 Pager: 223-3012 Nancy Sooy Office: 1007 Home: 795-6831 Pager: 223-3393	SEE NOTE 1			

NOTE

An additional communicator (preferably an RO or SRO) may be assigned to provide continuous updates to the NRC under the following circumstances;

- o NRC requests an open line be maintained
- o Additional qualified communicator is available AND is not required for actions to mitigate the emergency (higher priority activities) in the judgment of the EC

NOTE 1 After ENC activation, notify the ENC Manager (NETS -5300 or 273-1961)

COMMUNICATIONS LOG		INITIAL NOTIFICATIONS			EVENT REDUCTION
TIME LIMIT	CLASSIFICATION: GENERAL EMERGENCY ORGANIZATION/INDIVIDUALS	NAME OF CONTACT	DATE /TIME	CALLER	NAME OF CONTACT /TIME
75 MIN.	NRC RESIDENTS (Contact One) Charlie Marschall Office: 1078 or 935-3850 or 935-5151 Home: 610-444-0181 Pager: 772-4742 Joe Schoppy Office: 1041 or 935-3850 or 935-5151 Home: 384-1365 Pager: 772-4742 Todd Fish Office: 1017 or 935-3850 or 935-5151 Home: 302-654-6612 Pager: 772-4742				
90 MIN.	EXTERNAL AFFAIRS (Contact One) Ross Bell Office: 1239 Home: 455-7435 Pager: 478-5213 Max LeFevre Office: 1243 Home: 263-7677 Pager: 478-5094 Ed Johnson Office: 1486 Home: 678-2257 Pager: 478-5040	SEE NOTE 2			
90 MIN.	AMERICAN NUCLEAR INSURERS (ANI) 203-561-3433				

NOTE 2 Not required to notify External Affairs After the EOF is activated.

ATTACHMENT 8

SECONDARY COMMUNICATOR LOG

Table of Contents

Pages

- 1 - 2 Notifications & Data Collection/Transmission
- 3 - 4 Incoming Calls (BNE, DEMA, OEM, AAAG, etc.)
- 5 Major Equipment & Electrical Status (MEES) form
- 6 Operational Status Board (OSB) form
- 7 - 8 Station Status Checklist (SSCL) form

10

Emergency Classification: (circle)	UE	ALERT	SAE	GE
Name: _____ (Print)	Position: CM2 /TSC2/ EOF2 (circle)			

A. NOTIFICATIONS

NOTE

A new Attachment 8 is required to be implemented if the classification changes.

Initials

- _____ 1. If **GE** classification, assist Primary Communicator with 15 minute notifications.
CM2/TSC2
/EOF2
- _____ 2. DIRECT the Shift Rad Pro Tech (SRPT) (x2644) to implement **EPIP 301S**, RPT
CM2 Onshift Response.
Name: _____ Time: _____
- _____ 3. For an ALERT or higher emergency;
CM2 () a. DIRECT Security (x2223) to implement **both EPIP 901**, Onsite Security Response, and **EPIP 903**, Opening Emergency Operations Facility and Emergency News Center.
Name: _____ Time: _____
- () b. **ACTIVATE ERDS** within 60 minutes from the Affected Unit's SPDS terminal;
 - 1) PRESS <UNIT MASTER MENU> key.
 - 2) PRESS <ERDS> key.
 - 3) FOLLOW screen prompts.

Initials

A. NOTIFICATIONS (cont'd)

- _____ 4. **COMPLETE a Station Status Checklist (SSCL) Form;**
CM2/TSC2 () a. OBTAIN SNSS (TSS/SSM) assistance, as needed for Pg.1.
/EOF2 () b. OBTAIN SRPT (RAC/RSM) assistance, as needed for Pg.2.
() c. FAX to Group B.
() d. IF fax transmission of the SSCL is incomplete,
THEN CONTACT the State A agencies listed below, READ the data, AND
DOCUMENT on SSCL, Pg. 2.

DEMA	Delaware Emergency Management Agency	302-834-4531
BNE	NJ Bureau of Nuclear Engineering	984-7700

- _____ 5. OBTAIN completed **NRC Data Sheet** and FAX form to Group B.
CM2/TSC2
/EOF2
- _____ 6. REPEAT Step 4 approximately every half hour OR IMMEDIATELY for significant
CM2/TSC2 changes in Station status, until either Turnover or relief.
/EOF2
- _____ 7. **TURNOVER** responsibility for offsite notifications and offsite data updates (SSCLs)
CM2/TSC2 to the oncoming facility (TSC or EOF);
- () a. GIVE names and phone numbers of contacts already made with any Offsite
Agencies.
() b. GIVE time for next SSCL.
- _____ 8. IF Available for other duties
CM-2 THEN upon the SNSS request MAN the Ops Data line.

B. DATA COLLECTION/TRANSMISSION

- _____ 1. WHEN in an **ALERT** or higher emergency OR **AFTER** significant changes in
CM2 plant status;
THEN **COMPLETE the Major Equipment and Electrical Status (MEES) Form.**
- () a. OBTAIN Licensed Operator review.
() b. GIVE a copy to the OSC Coordinator.
() c. FAX to Group C.

Initials

B. DATA COLLECTION/TRANSMISSION (cont'd)

- _____ 2. IF requested by the TSC,
CM2 THEN COMPLETE the **Operational Status Board (OSB)** Form every 15 minutes;
(TSS may modify the frequency or data list as appropriate)
- () a. OBTAIN Licensed Operator review.
() b. FAX to Group C.
- _____ 3. ENSURE the Facility OSB and MEES Status Boards are updated as follows;
TSC2/EOF2
- () a. OBTAIN OSB Data from SPDS "Unit Master Menu."
() b. IF SPDS is Out of Service,
THEN REQUEST CM2 to perform step B.2, above. (data set and frequency
of updates may be revised by the TSS based on event circumstances)
() c. WHEN significant changes in plant status occur,
THEN REQUEST CM2 to perform step B.1, above.
- _____ 4. WHEN the emergency is terminated,
CM2/TSC2 THEN FORWARD this document and all completed Forms to the SNSS (TSS/SSM).
/EOF2

C. INCOMING CALLS

STATE OFFICIALS

- _____ 1. IF Notifications authority has transferred,
CM2/TSC2 THEN DIRECT the caller to contact the TSC (or EOF if activated).

- _____ 2. WHEN contacted by any State Agency Officials (listed here),
CM2/TSC2
/EOF2
- DEMA - Delaware Emergency Management Agency**
AAAG - Delaware Accident Assessment Advisory Group
BNE - NJ Bureau of Nuclear Engineering
DEP - NJ Department of Environmental Protection
OEM - NJ Office of Emergency Management

PERFORM the following:

- () a. OBTAIN and RECORD;
- | <u>Agency</u> | <u>Caller's Name</u> | <u>Phone #</u> |
|---------------|----------------------|----------------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
- () b. READ the latest EC approved SSCL.

Initials

C. INCOMING CALLS (cont'd)

STATE OFFICIALS

- () c. IF caller is NJ-BNE, DEMA, or AAAG,
THEN also READ the approved NRC Data Sheet Event Description.

NEWS MEDIA

CAUTION

Communicators are NOT authorized to release any information to the News Media.

- _____ 3. WHEN contacted by any News Media representative,
CM2/TSC2 READ the appropriate message below;
/EOF2
- () a. IF the ENC is not activated (Unusual Event), say;
- “You are requested to contact the Nuclear Communications Office at any of the following numbers; 609-339-1001, -1006, or -1002.”
- () b. IF the ENC is activated (ALERT or higher), say;
- “You are requested to contact the Media Information Operator at any of the following numbers; 609-273-0188, -0282, -0386, -0479, or -0586.”

NRC OPERATIONS CENTER

- _____ 4. WHEN directed by the NRC to TERMINATE ERDS transmission,
CM2 THEN GO TO any SPDS terminal of the affected Unit AND PROCEED as follows;
- a. PRESS <UNIT MASTER MENU> key.
b. PRESS <ERDS> key.
c. FOLLOW screen prompts.
d. WHEN completed, NOTIFY the SNSS.

SALEM UNIT _____

MAJOR EQUIPMENT AND ELECTRICAL STATUS

Y = IN SERVICE N = OUT OF SERVICE CIRCLE UNAVAILABLE EQUIP.						DATE: _____ UPDATE TIME: _____		
COOLING SYSTEMS	ELECTRICAL FEED	Y/N	ECCS SYSTEMS	ELECTRICAL FEED	Y/N	CONT. CONTROL SYSTEMS	ELECTRICAL FEED	Y/N
AUX FD PUMPS	1 A1D		CHARGING PUMPS	1 B9D		CONT. SPRAY PUMPS	1 A2D	
	2 B1D			2 C9D			2 C2D	
	3 STM.			3 A7X				
SERVICE WATER PUMPS	1 3D		SAFETY INJ PUMPS	1 A5D		CFCU	HI	LOW
	2 8D			2 C5D		1	A3X A4X	A2X
	3 B3D					2	B3X B4X	B2X
	4 B8D		RHR PUMPS	1 A7D		3	C3X C4X	C2X
	5 3D			2 B7D		4	B7X B8X	B6X
	6 8D		ELECTRICAL STATUS		Y/N	5	C7X C8X	C6X
COMP. COOLING PUMPS	1 A10D		IS OFFSITE AC POWER AVAILABLE?			Y/N		
	2 B10D		EMER. DIESEL		RUN	IODINE REMOVAL		
	3 C10D		EDG		A	1	G7X	
REACTOR COOLANT PUMPS	1 H4D				B	2	E7X	
	2 E4D				C			
	3 F4D		*3 GAS TURBINE			H ² RECOM	1 A15X	
	4 G4D		ELEC DISTRIBUTION AVAILABLE?		Y/N	2	B15X	
COND. PUMPS	1 H1D		VITAL BUS		A	MISC. EQUIPMENT Y/N		
	2 E1D				B	FIRE PUMPS (DIESEL)		
	3 F1D		GROUP BUS		E	1		
	(U1) / (U2)				F	2		
CIRC WATER PUMPS	1A 2AD/HYD				G	STATION AIR COMP. Y/N		
	1B 7BD/FTD				H	1 1H6D		
	2A 3AD/E7D					2 2G1D		
	2B 6BD/G7D					3 1G1D		
	3A 4AD/E3D					EMERGENCY AIR COMP. Y/N		
	3B 5BD/G3D					1 1C14X		
						2 2C14X		
COMMENTS: _____ _____ _____								

LICENSED OPERATOR REVIEW: _____
INITIALS

OPERATIONAL STATUS BOARD - SALEM

SGS

UPDATE:
TIME DATE

UNIT #:

I. EMERGENCY CORE COOLING SYSTEM

CENT. CHR. PUMP FLOW GPM
 SI PUMP FLOW # _1 GPM
 SI PUMP FLOW # _2 GPM
 RHR PUMP FLOW # _1 GPM
 RHR PUMP FLOW # _2 GPM
 RWST LEVEL FT

II. CONTAINMENT

CONT. PRESSURE PSIG
 CONT. TEMP (AVG) F
 CONT. H₂ CONCEN. %
 CONT. SUMP LEVEL %
 CONT. RAD (HI RANGE)
 _R44A R/hr
 _R44B R/hr

III. REACTOR COOLANT SYSTEM

OF RCP'S RUNNING
 RVLIS (FULL RANGE) %
 THERMOCOUPLE (HOTTEST) F
 # THERMOCOUPLES >1200 F
 Tc LOOP _1 F
 Tc LOOP _2 F
 Tc LOOP _3 F
 Tc LOOP _4 F
 * Tave (AUCTIONEERED) F
 PZR/RCS PRESSURE PSIG
 PZR LEVEL (HOT) %
 Th LOOP _1 F
 Th LOOP _2 F
 Th LOOP _3 F
 Th LOOP _4 F
 RX PWR/NEUTRON FLUX %/A/CPS
 SUBCOOLING MARGIN F

IV. C.V.C.S.

LETDOWN FLOW GPM
 CHARGING FLOW GPM

V. SECONDARY COOLANT SYSTEM

NO. _1 SG LEVEL % (NR or WR)
 NO. _2 SG LEVEL % (NR or WR)
 NO. _3 SG LEVEL % (NR or WR)
 NO. _4 SG LEVEL % (NR or WR)
 NO. _1 SG PRESS. PSIG
 NO. _2 SG PRESS. PSIG
 NO. _3 SG PRESS. PSIG
 NO. _4 SG PRESS. PSIG
 NO. _1 SG FEED FLOW % or LBS/HR
 NO. _2 SG FEED FLOW % or LBS/HR
 NO. _3 SG FEED FLOW % or LBS/HR
 NO. _4 SG FEED FLOW % or LBS/HR
 AFST LEVEL %

VI. MISC. TANKS LEVEL

WASTE HOLD-UP TANK # _1 %
 WASTE HOLD-UP TANK # _2 %
 WASTE MONITOR HUT %

VII. SSCL INFORMATION

	YES	NO
OFFSITE POWER AVAILABLE?	<input type="checkbox"/>	<input type="checkbox"/>
TWO OR MORE DIESELS AVAILABLE?	<input type="checkbox"/>	<input type="checkbox"/>
DID ECCS ACTUATE?	<input type="checkbox"/>	<input type="checkbox"/>
IS THE CONTAINMENT ISOLATED?	<input type="checkbox"/>	<input type="checkbox"/>
IS IT CAPABLE OF BEING ISOLATED?	<input type="checkbox"/>	<input type="checkbox"/>

VIII. SIGNIFICANT PLANT EVENTS

* WHEN NO RCP'S ARE RUNNING, Tave ON THE CONTROL CONSOLE IS INVALID.

LICENSED OPERATOR REVIEW
 INITIALS

Rev. 00

ECG
 ATT. 8
 Pg. 6 of 8

SSCL

STATION STATUS CHECKLIST
(Pg. 1 of 2)

Operational Information

SALEM GENERATING STATION Unit No. _____ Message Date _____ Time _____

Transmitted By: Name _____ Position: _____
(CR/TSC/EOF)

1. Date and Time Event Declared: Date _____ Time _____ (24 hr clock)
2. Event Classification: Unusual Event Site Area Emergency
 Alert General Emergency
3. Cause of Event: Primary Initiating Condition used for declaration

EAL #(s) _____

Description of the event _____

4. Status of Reactor: Tripped/Time _____ At Power Startup
 Hot Standby Hot Shutdown Cold Shutdown Refuel

5. PZR/RCS Pressure _____ psig Core Exit TC _____ ° F
Hottest

6. Is offsite power available? YES NO
7. Are two or more diesel generators operable? YES NO
8. Did any Emergency Core Cooling Systems actuate? YES NO
9. Containment:
 - A. Has the Containment been isolated? YES NO
 - B. Is it capable of being isolated? YES NO
10. Other pertinent information _____

Approved: _____
EC or TSS or SSM

STATION STATUS CHECKLIST
(PAGE 2 OF 2)
RADIOLOGICAL INFORMATION

SALEM GENERATING STATION UNIT NUMBER: _____ CALCULATION TIME: _____ DATE: _____

1. GASEOUS RELEASE>TECH SPEC (T/S) LIMITS:

(T/S LIMITS: 2.42E+05 μ Ci/sec NG or 2.10E+01 μ Ci/sec IODINE)

YES: [] RELEASE START TIME: _____ DATE: _____

NO: []

- A. RELEASE TERMINATED: YES [] NO [] N/A []
 B. ANTICIPATED OR KNOWN DURATION OF RELEASE: _____ HOURS
 C. TYPE OF RELEASE: GROUND [] ELEVATED [] N/A []
 D. ADJUSTED WIND SPEED: _____ (mph) _____ (m/sec) WIND DIR (deg from) _____
 E. STABILITY CLASS: _____ (A-G) DELTA T: _____ (deg C)
 F. VENT PATH OF RELEASE: R41 [] R45B/C [] R44 [] R46 []
 G. NG RELEASE RATE: R41 _____ R45B/C _____ R44 _____
 R46 _____ (μ Ci/sec)
 H. I-131 RELEASE RATE: R41 _____ R45B/C _____ R44 _____
 R46 _____ DEFAULT (μ Ci/sec) (circle if default)
 I. TOTAL RELEASE RATE NOBLE GAS: _____ (μ Ci/sec)
 J. TOTAL RELEASE RATE IODINE-131: _____ (μ Ci/sec)

2. PROJECTED OFFSITE DOSE RATE CALCULATIONS:

DISTANCE FROM VENT (IN MILES)	XU/Q (1/M2)	TEDE RATE (MREM/HR)	TEDE DOSE (4 DAY) (MREM)	THYROID-CDE RATE (MREM/HR)	THYROID-CDE DOSE (MREM)
MEA 0.79	_____	_____	_____	_____	_____
2.00	_____	_____	_____	_____	_____
LPZ 5.00	_____	_____	_____	_____	_____
EPZ 10.00	_____	_____	_____	_____	_____

3. OTHER PERTINENT INFORMATION: _____

4. UPDATE TO STATES (IF VERBALLY TRANSMITTED):

	NAME	TIME	INITIALS
STATE OF NEW JERSEY:	_____	_____	_____
STATE OF DELAWARE :	_____	_____	_____
AGENCY:	_____	_____	_____

APPROVED: _____

EC or RAC or RSM

ATTACHMENT 9
NON-EMERGENCY NOTIFICATIONS REFERENCE
(SALEM)

10

I. INSTRUCTIONS

NOTE

This attachment is the source of the names and telephone numbers for making Non-Emergency reports as directed by the ECG Attachment in effect at this time.

NOTE

The SNSS may direct a communicator to make the required notification calls. The responsibility to ensure completion of each step outlined in the ECG attachment and to ensure notification information is accurate remains with the SNSS.

- A. REFER to Section II of this Attachment and NOTIFY the required Individuals/ Organizations IAW the ECG Attachment in effect.
- B. IF required to activate an individual's pager, THEN PERFORM the following:
 - 1. DETERMINE a non-NETS phone number for the pager holder to call back on and MAKE a note of the full call back phone number.
 - 2. DIAL the pager number of the individual you are trying to contact listed in the Communications Log.
 - 3. WHEN you hear "Beep, Beep, Beep," THEN ENTER the call back phone number.
 - 4. HANG UP the phone.
 - 5. CONTINUE making other notifications per Step A.

II. TELEPHONE NUMBER REFERENCE

NOTE

NOTIFY ONLY those individuals by title required by the particular ECG Attachment in effect at this time.

TITLES/NAMES	WORK#	HOME#	PAGER#	CAR#
<u>OPERATIONS MGR</u>				
Chris Bakken	2613	769-5420	478-5016	230-8814
James Webster	2985	935-7678	478-5236	230-5671
Mike Gwartz	2622	358-7160	223-3830	230-5606
<u>GENERAL MANAGER</u>				
Dave Garchow	2900	610-274-3250	478-5096	230-5894
Chris Bakken	2613	769-5420	478-5016	230-8814

GOVERNMENT AGENCY	PRIMARY#	SECONDARY#
LAC DISPATCHER	NETS x5404	935-7300 935-8127 (FAX)
NRC OPERATIONS CENTER	(ENS)301-816-5100	301-951-0550 301-816-5151(FAX)
NRC REGION ONE OFFICE	610-337-5000	

TITLES/NAMES	WORK#	HOME#	PAGER#
<u>NRC RESIDENTS</u>			
Charlie Marschall	1078 or 935-3850	444-0181	772-4742
Joe Schoppy	1041 or 935-3850	384-1365	772-4742
Todd Fish	1017 or 935-3850	302-654-6612	772-4742
NRC Office	2962 or 935-5151		

II. TELEPHONE NUMBER REFERENCE (cont'd)

TITLES/NAMES	WORK#	HOME#	PAGER#
<u>PUBLIC INFO MGR</u>			
Trish DuBois	1186	769-2454	223-3012
Nancy Sooy	1007	795-6831	223-3393
<u>EMERG PREP REPRESENTATIVE</u>			
Craig Banner	1157	728-5043	478-5215
Jim Schaffer	1575	935-5606	478-5086
Dave Burgin	1595	582-1323	478-5062
<u>EXTERNAL AFFAIRS</u>			
Max LeFevre	1243	263-7677	478-5094
Ross Bell	1239	455-7435	478-5213
Ed Johnson	1486	678-2257	478-5040
<u>RADIOLOGICAL SUPPORT REPRESENTATIVE</u>			
John Russell	2410	451-0845	478-5082
Mark Simpson	2443	302-998-4792	478-5378
Bill Weckstein	1558	455-3237	478-5186
<u>RADIATION PROTECTION MANAGER</u>			
Eric Katzman	2659	468-0709	478-5204
Bill Hunkele	2617	455-1583	478-5179
Dave Ruyter	2625	299-9487	478-5143
<u>NUCLEAR LICENSING</u>			
DUTY PAGER HOLDER			779-4227
Gabe Salamon	5296	610-274-2297	573-1819
Dave Powell	2002	302-239-9912	573-2358
<u>ENVIRONMENTAL LICENSING (contact one)</u>			
Jim Eggers	1339	953-9075	573-4655
Dave Hurka	1275	299-7433	573-8278
Bob Boot	1169	302-836-8203	573-3700
Don Bowman *	1477	547-3795	573-8419
Paul Behrens *	1577	691-4766	573-2496
Ed Keating *	1459	678-8160	573-4139

* For Spills, Hazmat, NOT Protected Aquatic Species

ATTACHMENT 10

ONE HOUR REPORT
NRC REGIONAL OFFICE

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

- ____ 1. COMPLETE an NRC Data Sheet.
() OBTAIN a copy from ECG Attachment 5.
() OBTAIN assistance from Radiation Protection personnel, as needed.
() OBTAIN SNSS approval.

- ____ 2. NOTIFY NRC **Region I Office** of the event **within 1 hour**.
() RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
 name time

- ____ 3. NOTIFY the NRC Resident Inspector.

_____ notified at _____ hrs
 name time

- ____ 4. **IF** a package is received Onsite that was contaminated or exceeded external radiation limits,
THEN NOTIFY the final delivering carrier.

_____ notified at _____ hrs
 name time

II. REPORTING

Initials

1. ENSURE that an Action Request (AR) is prepared.

SNSS
AR # _____
2. FORWARD this attachment, along with the NRC Data Sheet and any supporting documentation, to the Operations Manager (OM).

SNSS
3. REVIEW this ECG attachment, the AR and any other relevant information for correct classification of event and corrective action taken.

OM
4. FORWARD this attachment and any other supporting documentation to the LER Coordinator (LERC).

OM
5. PREPARE required reports.

LERC
Report or LER Number _____
6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).

LERC
7. ENSURE offsite (state and local) reporting requirements are met.

MNLR
8. FORWARD this Attachment/LER package to the Central Technical Document Room for microfilming.

MNLR

ATTACHMENT 11

ONE HOUR REPORT
(COMMON SITE)
SECURITY/SAFEGUARDS

(10)

NOTE

ONLY one SNSS, Hope Creek or Salem is required to report this event which is common to BOTH stations.

I. EVENT ASSESSMENT AND DETERMINATION OF NOTIFICATION RESPONSIBILITY

Initials

- ___ 1. NOTIFY the Hope Creek SNSS (NETS x5224; DID 3027, 3059).
- ___ 2. DETERMINE which Station SNSS will implement this attachment.
- ___ 3. IF the Salem SNSS is responsible for this notification, THEN IMMEDIATELY CONTINUE with this attachment.
- ___ 4. IF the Hope Creek SNSS will implement this attachment, THEN NO further actions are required by Salem except to lend assistance as necessary in restoring the lost equipment or capabilities.

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

II. NOTIFICATIONS

- ___ 1. COMPLETE an NRC Data Sheet.
 - () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Security personnel, as needed.
 - () ENSURE SNSS approval.

Initials

- _____ 2. NOTIFY the NRC Operations Center of the event within 1 hour.
() RECORD additional information provided to the NRC on the NRC Data Sheet.
_____ notified at _____ hrs
name time
- _____ 3. NOTIFY the NRC Resident Inspector.
_____ notified at _____ hrs
name time
- _____ 4. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).
_____ notified at _____ hrs
name time
- _____ 5. NOTIFY the Public Information Manager (PIM) - Nuclear.
_____ notified at _____ hrs
name time
- _____ 6. NOTIFY Nuclear Licensing.
_____ notified at _____ hrs
name time
- _____ 7. NOTIFY External Affairs.
_____ notified at _____ hrs
name time
- _____ 8. FAX the NRC Data Sheet to BOTH Public Information and Licensing using the
programmed phone numbers on the telecopier.
- _____ 9. WHEN Security provides updated information on the event,
THEN NOTIFY the NRC Operations Center with appropriate updates on the event.
_____ notified at _____ hrs
name time

III. REPORTING

Initials

- ____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- ____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS documentation, to the Operations Manager (OM).
- ____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- ____ 4. CONTACT the Nuclear Security Support Supervisor (NSSS);
OM () FORWARD this attachment and any other supporting documentation received
from the SNSS.
() REQUEST a written report (required 30 days after the event).
- ____ 5. PREPARE the required Safeguards Event Report (30 day) IAW Security Contingency
NSSS Plan Procedure, SCP-14.
- ____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).
NSSS
- ____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- ____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNLR for microfilming.

ATTACHMENT 12

ONE HOUR REPORT - NRC OPERATIONS

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

- ____ 1. COMPLETE an NRC Data Sheet.
 - () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Radiation Protection personnel, as needed.
 - () OBTAIN SNSS approval.

- ____ 2. NOTIFY the NRC Operations Center of the event within 1 hour.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 3. NOTIFY the NRC Resident Inspector.

_____ notified at _____ hrs
name time

- ____ 4. **IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).**

_____ notified at _____ hrs
name time

- ____ 5. NOTIFY the Public Information Manager (PIM) - Nuclear.

_____ notified at _____ hrs
name time

Initials

___ 6. NOTIFY Nuclear Licensing.

_____ notified at _____ hrs
name time

___ 7. IF a major loss of communications capability has occurred (such as loss of ENS, NETS, DID, etc.)

THEN NOTIFY:

I.T. Client Service Center: (201-430-7500 or ESSX 7500)

() a. ENTER [1 - 3 - 1] in response to the automated answering system prompts.

() b. NOTIFY the Operator that the failed system is an "Emergency Priority Circuit."

_____ notified at _____ hrs
name time

___ 8. NOTIFY External Affairs.

_____ notified at _____ hrs
name time

___ 9. FAX the NRC Data Sheet to BOTH Public Information and Licensing using the programmed phone numbers on the telecopier.

II. REPORTING

Initials

- ____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- ____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS documentation, to the Operations Manager (OM).
- ____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- ____ 4. FORWARD this attachment and any other supporting documentation to the LER
OM Coordinator (LERC).
- ____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- ____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).
LERC
- ____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- ____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNLR for microfilming.

ATTACHMENT 13

FOUR HOUR REPORT
CONTAMINATION EVENTS OUTSIDE OF THE RCA

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

____ 1. RECORD the location of the Contaminated Area(s): _____

____ 2. DIRECT the **Shift Radiation Protection Technician (SRPT)** to IMPLEMENT the Onsite Contamination Event Checklist (Pages 5 - 7) of this attachment and ASSUME responsibility as the **Interim Radiological Incident Response Coordinator (RIRC)**.

_____ notified at _____ hrs
name time

____ 3. IF routinely accessed areas are contaminated, THEN use the Plant PA System to warn personnel to stand clear of those areas.

____ 4. NOTIFY a **Radiological Support (RS) Representative**;

() a. DIRECT the RS individual to REPORT to the Plant and ASSUME RIRC responsibility by relieving the SRPT.

() b. PROVIDE the name of the SRPT and the location of the Incident Response Control Center, if established.

_____ notified at _____ hrs
name time

Initials

- _____ 5. NOTIFY the **Hope Creek SNSS** (NETS x5224; DID x3027, or x3059)
- () a. PROVIDE a brief description of the event.
 - () b. DIRECT a similar PA announcement be made at Hope Creek to warn personnel.
 - () c. OBTAIN any available support needed to monitor and control the spread of contamination.

_____ notified at _____ hrs
name time

- _____ 6. NOTIFY **Environmental Licensing** and DIRECT that any notifications IAW the DPCC/DCR Plan be made as required.

_____ notified at _____ hrs
name time

- _____ 7. COMPLETE an NRC Data Sheet.
- () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Radiation Protection personnel, as needed.
 - () OBTAIN SNSS approval.

- _____ 8. NOTIFY the **LAC Dispatcher** of the event.

_____ notified at _____ hrs
name time

- _____ 9. NOTIFY the **Public Information Manager (PIM) - Nuclear**.

_____ notified at _____ hrs
name time

- _____ 10. NOTIFY the **NRC Operations Center** of the event **within 4 hours**.
- () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- _____ 11. NOTIFY the **NRC Resident Inspector**.

_____ notified at _____ hrs
name time

Initials

- _____ 12. IF NOT done previously,
THEN NOTIFY the **Operations Manager (OM)**.
_____ notified at _____ hrs
name time
- _____ 13. NOTIFY **Nuclear Licensing**.
_____ notified at _____ hrs
name time
- _____ 14. NOTIFY **External Affairs**.
_____ notified at _____ hrs
name time
- _____ 15. FAX the NRC Data Sheet to BOTH **Public Information** and **Licensing** using the
programmed phone numbers on the telecopier.

II. REPORTING

- _____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- _____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS documentation, to the Operations Manager (OM).
- _____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- _____ 4. FORWARD this attachment and any other supporting documentation to the LER
OM Coordinator (LERC).
- _____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- _____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).
LERC
- _____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- _____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNLR for microfilming.

ONSITE CONTAMINATION EVENT CHECKLIST

(Page 1 of 3)

A. PURPOSE

This checklist provides general guidance to the Interim and Long Term **Radiological Incident Response Coordinator (RIRC)** for the purpose of establishing Command and Control authority and responsibility for the non-emergency coordination of Nuclear Business Unit resources in mitigating the consequences of a radiological incident outside the normal RCA.

B. RESPONSIBILITY - Checklist Implemented By;

Name: _____ Time: _____ Date: _____
Interim RIRC (or SRPT)

Name: _____ Time: _____ Date: _____
Long Term RIRC

RIRC INSTRUCTIONS:

1. Checklist steps DO NOT need to be performed in order.
2. INITIAL or N/A each step as appropriate.
3. IF an emergency is declared,
THEN CONSULT with the Emergency Coordinator (EC) to determine revised priorities of the EC based upon current circumstances.

C. INITIAL ACTIONS

Initials/
Date/Time

1.	PERFORM surveys to establish contaminated area boundaries. (Temporary RCA)	
2.	POST signs and set up barriers (ropes) () RESTRICT access to the Temporary RCA until posted () <u>IF</u> access <u>CANNOT</u> be adequately controlled with available RP personnel, <u>THEN</u> request assistance from Security.	
3.	DIRECT Security to prohibit vehicles from entering any affected portion of the Owner Controlled Area (OCA).	
4.	<u>IF</u> areas within the Protected Area that can be routinely accessed are contaminated, <u>THEN</u> PROVIDE personnel monitoring at the Security Center.	
5.	NOTIFY the Salem RP Superintendent.	
6.	PROVIDE a briefing to the Hope Creek RP Superintendent and OBTAIN resource assistance (material and personnel), as needed.	

ONSITE CONTAMINATION EVENT CHECKLIST
 (Page 2 of 3)

D. SUBSEQUENT ACTIONS

Initials/
Date/Time

1.	ESTABLISH an Incident Response Control Center in an accessible location. (e.g., TSC, NOSF, RP Office Area) Location:	
2.	MAINTAIN a response log.	
3.	<u>IF</u> recovery actions will take > 24 hours, <u>THEN DEVELOP</u> an interim organization to handle the following aspects of the event; <ul style="list-style-type: none"> • Site Characterization and Decontamination • Dose Assessment • Communications • Site Access Control • Document Control 	

• SITE CHARACTERIZATION AND DECONTAMINATION

4.	DEVELOP a map of the contaminated areas. () ENSURE consistent survey techniques and reporting units are used.	
5.	PERFORM isotopic analysis on several samples before decontamination activities begin.	
6.	REDUCE contamination < LLD, if reasonably achievable.	
7.	<u>IF</u> contamination <u>CANNOT</u> be reduced < LLD, <u>THEN CONSIDER</u> fixing the contamination to prevent further spreading.	

• DOSE ASSESSMENT

8.	ESTABLISH a list of individuals who may have been contaminated.	
9.	<u>IF</u> the potential for personnel contamination is high among those who have left the Site, <u>THEN CONSIDER</u> having those individuals recalled.	
10.	<u>IF</u> recalled personnel are contaminated or may have carried contamination offsite, <u>THEN CONSIDER</u> surveying their clothing, vehicles, and homes.	
11.	PERFORM internal dose calculations and calculate external dose from groundshine. (both realistic and bounding case assessments)	
12.	PERFORM confirmatory WB Counts, as required.	
13.	COLLECT and PROCESS TLDs, as required.	

ONSITE CONTAMINATION EVENT CHECKLIST
 (Page 3 of 3)

D. SUBSEQUENT ACTIONS (cont'd)

Initials/
 Date/Time

• DOSE ASSESSMENT (cont'd)

14.	IF a radiological release from a plant system has occurred, THEN CALCULATE the source term (total amount of radioactive material released).	
-----	--	--

• COMMUNICATIONS

15.	ENSURE ALL Site Personnel are INFORMED as to the location of contaminated areas <u>and</u> any additional monitoring requirements via posting in the Security Center. () UPDATE postings periodically, as needed.	
16.	DEVELOP a communications plan to provide frequent updates to plant personnel.	

• DOCUMENTATION

17.	OBTAIN copies of <u>ALL</u> surveys, sample results and other related documentation AND ENSURE they are placed in the Radiological Support files.	
18.	FORWARD records of residual contamination, including contamination that was fixed in place, to Nuclear Licensing for inclusion in the 10CFR50.75(g) file.	
19.	RETURN this checklist to the Salem SNSS after all items on the checklist have been addressed.	

ATTACHMENT 14

FOUR HOUR REPORT - NRC OPERATIONS

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

- ____ 1. COMPLETE an NRC Data Sheet.
 - () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Radiation Protection personnel, as needed.
 - () OBTAIN SNSS approval.

- ____ 2. NOTIFY the NRC Operations Center of the event within 4 hours.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 3. NOTIFY the NRC Resident Inspector.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 4. NOTIFY the LAC Dispatcher of the event.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 5. NOTIFY the Public Information Manager (PIM) - Nuclear.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

Initials

- _____ 6. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).
_____ notified at _____ hrs
name time
- _____ 7. NOTIFY Nuclear Licensing.
_____ notified at _____ hrs
name time
- _____ 8. NOTIFY External Affairs.
_____ notified at _____ hrs
name time
- _____ 9. FAX the NRC Data Sheet to BOTH Public Information and Licensing using the
programmed phone numbers on the telecopier.

II. REPORTING

Initials

- ____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- ____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS documentation, to the Operations Manager (OM).
- ____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- ____ 4. FORWARD this attachment and any other supporting documentation to the LER
OM Coordinator (LERC).
- ____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- ____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR)
LERC
- ____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- ____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNLR for microfilming.

ATTACHMENT 15

ENVIRONMENTAL PROTECTION PLAN

101

INSTRUCTIONS (SALEM SNSS or Designee)	
A.	REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
B.	INITIAL each step when completed.
C.	Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

____ 1. RECORD the Event Description: _____

NOTE
Environmental Licensing will make the Determination of Reportability for Unusual or Important Environmental Events.

____ 2. NOTIFY Environmental Licensing.

_____ notified at _____ hrs

name time

- () a. OBTAIN a Determination of Reportability (check below).
- () b. RECORD "Determination Time": _____ hrs
- () c. CONTINUE based on the Determination, as follows;
 - () 1) **4 Hour Report to the NRC,**
EXIT this Attachment AND REFER to RAL # 11.8.2.a.
 - () 2) **24 Hour Report to the NRC Resident,**
GO TO Step 3. (next page)
 - () 3) Not reportable to the NRC,
GO TO Section II, Pg. 3.

NOTE

Required reports shall be made within the appropriate time limits from the Determination Time established in Step 2. above.

Initials

_____ 3. NOTIFY the NRC Resident Inspector within 24 hours.

_____ notified at _____ hrs
name time

_____ 4. IF the NRC Resident Inspector CANNOT be notified,
THEN NOTIFY the NRC Operations Center within 24 hours.

_____ notified at _____ hrs
name time

_____ 5. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).

_____ notified at _____ hrs
name time

II. REPORTING

Initials

- _____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- _____ 2. FORWARD this attachment, along with the AR and any supporting documentation,
SNSS to the Operations Manager (OM).
- _____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- _____ 4. FORWARD this attachment and any other supporting documentation to the LER
OM Coordinator (LERC).
- _____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- _____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR)
LERC
- _____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- _____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNLR for microfilming.

ATTACHMENT 16

SPILL/DISCHARGE REPORTING

101

CAUTION

15 minute notification to NJDEP may be required as identified in Step 4.

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference for the current listing of, individuals and phone numbers.
- B. INITIAL each indicated step when completed.
- C. Placekeeping Bracket () and Decision/Status Box use are optional, but recommended.
- D. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

- _____ 1. IMMEDIATELY DISPATCH **Site Protection** to the location of the Spill/Discharge to;
 - () a. COORDINATE clean-up and containment of the spilled material.
 - b. IF OIL is observed ON THE RIVER (more than just sheen),
THEN DIRECT **Site Protection** to position oil booms around the affected water intakes to limit uptake into plant systems (fouling heat exchangers).
- _____ 2. ASSESS and DETERMINE;
 - a. IF the Spill/Discharge was EITHER
 - into a secondary containment
 - onto an impervious surfaceAND the material CAN BE completely cleaned up;
OR
 - b. IF the material was EITHER
 - sewage
 - sanitary wasteAND it DID NOT enter a storm drain or water body;
() THEN spill is NOT reportable to NJDEP. GO TO Sect. II., REPORTING (Pg. 6).
 - c. OR IF OTHERWISE (more serious Spill/Discharge situation than above),
() THEN IMMEDIATELY GO TO Step 3 (next page).

Initials

NOTE

DO NOT implement notification UNTIL directed to by EITHER Step 4 OR 5.

- _____ 3. COMPLETE "SPILL/DISCHARGE NJDEP NOTIFICATION FORM" (last page) and EXPEDITIOUSLY CONTINUE at Step 4. (next)
4. IF EITHER the Spill/Discharge has;
- Passed through an Engineered Fill and INTO the ground water, **EAL 11.5.2.a.**
 - OR**
 - Entered INTO a storm drain or is observed on the Delaware River from ANY source, **EAL 11.5.2.b.**
- THEN IMMEDIATELY (within 15 min.),
- () a. NOTIFY the **NJDEP** with the NOTIFICATION FORM information completed in Step 3. (NJDEP phone #'s are on the form)
 - () b. **GO TO** Step 6.
5. IF Spill/Discharge DOES NOT meet the criteria in Step 4 AND cleanup is in progress, THEN PERFORM the following:
- () a. CONTINUE to coordinate cleanup activities and ENSURE personnel performing the cleanup activities keep the on-duty SNSS informed of their progress.
 - () b. NOTIFY **Environmental Licensing** with details and OBTAIN guidance concerning reportability to NRC.
- _____ notified at _____ hrs
name time
- IF **Environmental Licensing** determines the event IS reportable to the NRC,
- () THEN GO TO Step 7. (NRC 4 Hour Report)

Initials

5. (cont'd)

c. IF Spill/Discharge is cleaned up within 24 hrs,

() THEN NJDEP notification is NOT required.
GO TO Section II., REPORTING (Pg. 6).

d. IF after 24 hrs the Spill/Discharge is NOT yet cleaned up,

() THEN **CONTACT Environmental Licensing** again and
OBTAIN additional guidance regarding reportability and proceed as follows:

_____ notified at _____ hrs
name time

1) IF **Environmental Licensing** determines that the Spill/Discharge IS reportable to the NJDEP,

() THEN NOTIFY IMMEDIATELY (within 15 min) the NJDEP,
with the NOTIFICATION FORM information completed in Step 3.
(NJDEP phone #'s are on the form)

() **GO TO** to Step 6 (below).

2) IF at the completion of cleanup, **Environmental Licensing** determines that the Spill/Discharge is NOT reportable,

() THEN **GO TO** Section II., REPORTING (Pg. 6).

_____ 6. NOTIFY/UPDATE **Environmental Licensing** with event details and COMPLETE Substeps a, b, and c below:

_____ notified at _____ hrs
name time

() a. **INFORM Environmental Licensing** about status of 15 min. NJDEP call:

Call was made within 15 min. of discovery/ confirmation.

Call was NOT made within 15 min., but was made within _____ min. of discovery/confirmation.

() b. **DIRECT Environmental Licensing** to make any required notifications IAW the DPCC/DCR plan.

Initials

6. (cont'd)
() c. OBTAIN direction from **Environmental Licensing** concerning NRC reportability of the Event AND PROCEED as directed below:

1) IF **REPORTABLE** to the NRC and NOT done previously,
() THEN GO TO Step 7 (below).

2) IF **NOT REPORTABLE**, OR the NRC was previously contacted,
() THEN GO TO Section II., REPORTING (Pg. 6).

7. IF **NOT** done previously,
THEN NOTIFY the **Operations Manager (OM)**.

_____ notified at _____ hrs
name time

PERFORM all of the following Notification Steps.

_____ 8. NOTIFY **Hope Creek SNSS** and provide description of the event.

_____ notified at _____ hrs
name time

_____ 9. NOTIFY **LAC Dispatcher** within 4 hrs.

_____ notified at _____ hrs
name time

_____ 10. COMPLETE an NRC Data Sheet.

() OBTAIN a copy from ECG Attachment 5.

() OBTAIN assistance from Site Protection and **Environmental Licensing** personnel,
as needed.

() ENSURE SNSS approval.

_____ 11. NOTIFY **NRC Operations Center** within 4 hours.

() Use the NRC Data Sheet to record any additional information provided to the NRC.

_____ notified at _____ hrs
name time

Initials

- ____ 12. Notify the NRC Resident Inspector.
_____ notified at _____ hrs
name time
- ____ 13. NOTIFY Public Information Manager (PIM) - Nuclear.
_____ notified at _____ hrs
name time
- ____ 14. NOTIFY Nuclear Licensing.
_____ notified at _____ hrs
name time
- ____ 15. Notify External Affairs.
_____ notified at _____ hrs
name time
- ____ 16. FAX the NRC Data Sheet to BOTH Public Information and Licensing using the programmed phone numbers on the telecopier.
17. IF completion of Steps 7 thru 16 (Notifications) were DIRECTED by Step 5.b,
() THEN GO TO Step 5.c and CONTINUE assessment and coordination of cleanup.
18. IF OTHERWISE
() THEN GO TO Section II., REPORTING (Pg. 6).

II. REPORTING

Initials

- ____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- ____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS
documentation to the Operations Manager (OM).
- ____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM
classification of event and corrective action taken.
- ____ 4. CONTACT the LER Coordinator (LERC) and request that the required written reports be
OM
prepared. Provide this attachment and any other supporting documentation received from
the SNSS.
- ____ 5. PROVIDE Environmental Licensing, with a copy of this attachment including the
LERC
spill/discharge notification report received from the SNSS.
- ____ 6. PREPARE LER if required. If an LER is prepared, contact Licensing and ensure that the
LERC
information on the LER and on the NJDEP Confirmation Report are consistent.
Report or LER Number _____
- ____ 7. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNL).
LERC
- ____ 8. ENSURE that offsite (state and local) reporting requirements have been met.
MNL
- ____ 9. Forward this Attachment/LER package to the Central Technical Document Room
MNL
for microfilming.

SPILL/DISCHARGE NJDEP NOTIFICATION FORM

Primary phone # to NJDEP: 292-7172
Backup phone # to NJSP: 882-2000

1. CONTACT the NJDEP Operator using the above phone numbers.
2. WHEN PROMPTED by the voice answering machine, THEN SELECT 5 for reporting non-emergency releases and an Operator will take the report.
3. RECORD NOTIFICATION TIME: _____
4. PROVIDE the following information:

"This is notification of a Spill/Discharge."

This is (name) _____, from Salem Generating Station.

My call back phone # is 609-339-5200 or 609-339- _____.

The Spill/Discharge location is: (provide specific location) _____

at Salem Generating Station located at the Foot of Buttonwood Road,
Lower Alloways Creek Township in Salem County.

The Common name for the spilled/discharged substance is _____,

and we estimated the quantity spilled to be _____,

and the substance (HAS) or (HAS NOT) been contained.

The spill/discharge began at: _____ time on _____ date

The spill/discharge was discovered at: _____ on _____

The spill/discharge ended at: _____ on _____

A description of the Incident is: _____

Ongoing actions to contain/clean up the spill are: _____

33 ft. Wind Direction from: _____ degrees. Wind Speed: _____ mph (use MET Computer)

If the spill is NOT PSE&G's responsibility, THEN PROVIDE the following info.:

Responsible person(s): _____

Company Name, Address and Phone #: _____

May I have your Operator Number please? _____

May I have our CASE Number please? _____

ATTACHMENT 17

FOUR HOUR REPORT
FATALITY OR MEDICAL EMERGENCY

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

_____ 1. IF NOT done previously,
THEN IMPLEMENT SC.FP-EO.ZZ-0003(Z), Control Room Medical Emergency Response.

- _____ 2. COMPLETE an NRC Data Sheet.
 - () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Radiation Protection personnel, as needed.
 - () OBTAIN SNSS approval.

_____ notified at _____ hrs
name time

_____ 3. NOTIFY the LAC Dispatcher of the event.

_____ notified at _____ hrs
name time

- _____ 4. NOTIFY the NRC Operations Center of the event within 4 hours.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

Initials

____ 5. NOTIFY the NRC Resident Inspector.
_____ notified at _____ hrs
name time

____ 6. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).
_____ notified at _____ hrs
name time

____ 7. NOTIFY the Public Information Manager (PIM) - Nuclear.
_____ notified at _____ hrs
name time

____ 8. NOTIFY Nuclear Licensing.
_____ notified at _____ hrs
name time

____ 9. IF transportation of personnel to an Offsite Medical Facility is required,
THEN;
() a. COMPLETE the report on Pg. 4 of this attachment.
() b. NOTIFY the Safety Coordinator (refer to Pg. 4)
_____ notified at _____ hrs
name time

____ 10. IF an NBU Employee has died or been seriously injured, THEN;
() a. NOTIFY the employee's department manager
() b. DIRECT the manager to coordinate notification of the employee's family.
_____ notified at _____ hrs
name time

____ 11. NOTIFY External Affairs.
_____ notified at _____ hrs
name time

Initials

- _____ 12. FAX the NRC Data Sheet to **BOTH Public Information and Licensing** using the programmed phone numbers on the telecopier.

II. REPORTING

- _____ 1. ENSURE that an Injury Report is completed.
SNSS

- _____ 2. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____

- _____ 3. FORWARD this attachment, along with the NRC Data Sheet and any supporting documentation, to the Operations Manager (OM).
SNSS

- _____ 4. REVIEW this ECG attachment, the AR and any other relevant information for correct classification of event and corrective action taken.
OM

- _____ 5. FORWARD this attachment and any other supporting documentation to the LER Coordinator (LERC).
OM

- _____ 6. PREPARE required reports.
LERC
Report or LER Number _____

- _____ 7. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNL).
LERC

- _____ 8. ENSURE offsite (state and local) reporting requirements are met.
MNL

- _____ 9. FORWARD this Attachment/LER package to the Central Technical Document Room for microfilming.
MNL

**REPORT OF SERIOUS INJURY/DEATH
NUCLEAR BUSINESS UNIT EMPLOYEE**

EMPLOYEE INFORMATION

NAME _____ EMPLOYEE # _____ AGE _____

HOME ADDRESS _____

HOME PHONE # _____ MARITAL STATUS _____

JOB TITLE _____ LOCATION _____

SOCIAL SECURITY # _____

ACCIDENT/INJURY DESCRIPTION

DATE OF ACCIDENT _____ TIME _____ AM/PM

DID INJURIES RESULT IN DEATH YES NO

EXTENT OF INJURIES _____

DESCRIPTION OF ACCIDENT _____

WHERE TAKEN AFTER ACCIDENT _____

<u>SAFETY COORD.</u>	<u>WORK #</u>	<u>HOME #</u>	<u>PAGER #</u>
Cliff Knaub	2812	358-3074	478-5706
John Horner	2965	678-6308	342-5866
Andrew Caplinger	2828	-----	478-5983

ATTACHMENT 18

FOUR HOUR REPORT
RADIOLOGICAL TRANSPORTATION ACCIDENT

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

- _____ 1. COMPLETE the **ACCIDENT NOTIFICATION FORM** (last page) with initial details received regarding the accident.
- _____ 2. OBTAIN a copy of the applicable Radwaste Shipping document for reference during subsequent notifications.
- _____ 3. IF PSE&G is the carrier (driver is a PSE&G employee),
THEN NOTIFY the **Department of Transportation (DOT)** at 1-800-424-8802.
- () PROVIDE all information recorded on the ACCIDENT NOTIFICATION FORM.
- () RECORD any additional information requested by DOT.
- _____ notified at _____ hrs
name time
- _____ 4. DIRECT the **Radiation Protection Manager** (or alternate) to contact the carrier's dispatcher and coordinate assistance in implementing PSE&G's response, as required.
- _____ notified at _____ hrs
name time

Initials

- _____ 5. COMPLETE an NRC Data Sheet.
() OBTAIN a copy from ECG Attachment 5.
() OBTAIN assistance from Radiation Protection personnel, as needed.
() OBTAIN SNSS approval.
- _____ 6. NOTIFY the **Public Information Manager (PIM) - Nuclear**.
_____ notified at _____ hrs
name time
- _____ 7. NOTIFY the **NRC Operations Center within 4 hours**.
() RECORD additional information provided to the NRC on the NRC Data Sheet.
_____ notified at _____ hrs
name time
- _____ 8. NOTIFY the **NRC Resident Inspector**.
_____ notified at _____ hrs
name time
- _____ 9. IF NOT done previously,
THEN NOTIFY the **Operations Manager (OM)**.
_____ notified at _____ hrs
name time
- _____ 10. NOTIFY **Nuclear Licensing**.
_____ notified at _____ hrs
name time
- _____ 11. NOTIFY **External Affairs**.
_____ notified at _____ hrs
name time
- _____ 12. FAX the NRC Data Sheet to **BOTH Public Information and Licensing** using the programmed phone numbers on the telecopier.

II. REPORTING

Initials

- ____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- ____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS documentation, to the Operations Manager (OM).
- ____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- ____ 4. FORWARD this attachment and any other supporting documentation to the LER
OM Coordinator (LERC).
- ____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- ____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNL).
LERC
- ____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNL
- ____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNL for microfilming.

**RADIOLOGICAL TRANSPORTATION ACCIDENT
NOTIFICATION FORM**

INSTRUCTIONS:

- A. RECORD the minimum information required for an effective PSE&G response.
- B. RECORD any additional information provided as requested by the DOT.

Time of Call

Caller's Name:

Phone Number:

--	--	--

Are you the driver?

YES

NO

IF YES, Trucking Company Name: _____

IF NO, What is the status of the driver? _____

LOCATION of Accident:

Roadway/Mile Marker/Intersection

City/Town

State

--	--	--

Number of Vehicles involved?

1 - 2 - 3 - 4 - 5 - _____

State or Local Police on the scene?

YES

NO

Any personnel injuries?

YES

NO

Any Fire involving truck contents?

YES

NO

Trucking Company Dispatcher notified?

YES

NO

Extent of damage to truck/trailer, container and contents:

ASK THE CALLER TO DO THE FOLLOWING:

A. IF NOT yet done, NOTIFY the State or Local Police.

B. IF possible, ENSURE assistance personnel at the accident scene do the following:

1. TAKE all practical measures to protect life and property,
THEN stay back and wait for trained emergency personnel.
2. REMAIN upwind of the accident; DO NOT track thru any spills.

101

ATTACHMENT 19

TWENTY-FOUR HOUR REPORT
FITNESS FOR DUTY (FFD) PROGRAM EVENTS

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

CAUTION

The determination of reportability of significant FFD events is the responsibility of the Medical Review Officer (MRO).

In order to ensure compliance with NRC notification requirements of 10CFR26.73 and also protect the rights of the individual(s) involved, information provided to any of the below contacts SHALL be limited to that supplied by the MRO or designee.

I. NOTIFICATIONS

Initials

- _____ 1. COMPLETE the significant FFD Event report form (last page) with the details received from the Medical Review Officer (MRO) or designee per NC.NA-AP.ZZ-0042(Q).
- _____ 2. NOTIFY the NRC Operations Center within 24 hours of the time of discovery provided by the MRO.

_____ notified at _____ hrs
name time

- _____ 3. NOTIFY the NRC Resident Inspector.

_____ notified at _____ hrs
name time

Initials

- _____ 4. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).
_____ notified at _____ hrs
name time

II. REPORTING

CAUTION

ALL records of this report shall be handled as CONFIDENTIAL.

- _____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- _____ 2. FORWARD this attachment, along with any supporting documentation, to the
SNSS
Operations Manager (OM).
- _____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM
classification of event and corrective action taken.
- _____ 4. FORWARD this attachment and any other supporting documentation to the Medical
OM
Review Officer (MRO) at the Processing Center MC - N06.
- _____ 5. RETAIN this information on file IAW Nuclear Medical Department Standard Operating
MRO
Procedures AND
ENSURE that this event is included in the 6 month FFD Report to the NRC.

CONFIDENTIAL
FITNESS FOR DUTY (FFD) PROGRAM EVENT
NRC NOTIFICATION REPORT FORM

INSTRUCTIONS:

- A. SNSS should use this form to document the details of any FFD event determined by the Medical Review Officer (MRO) to be reportable per 10CFR26.73.
- B. Initial **NRC report** shall be completed within 24 hours from the time of discovery by the licensee, as determined by the MRO.
- C. IF the **NRC FFD Representative** requires additional or more detailed information, the NRC shall directly contact the MRO.

NRC NOTIFICATION:

Notification Time: _____ SNSS (name) _____

Facility: Salem/ Hope Creek Call back phone # 609-339-_____

EVENT DETAILS:

1. Medical Review Officer or designee: _____
Call back phone # 609-339-5600 (name)
MRO Beeper # 609-573-4588
2. Reporting Event
 - () Sale, use, or possession of illegal drugs within the **Protected Area** [10CFR26.73(a)(1)] OR
 - () Any acts, by **Licensed Reactor Operators, Security Force Members, or Supervisory personnel**: [10CFR26.73(a)(2)]
 - () Involving the sale, use, or possession of a controlled substance. (i)
 - () Resulting in a confirmed positive test on such persons. (ii)
 - () Involving use of alcohol within the **Protected Area**. (iii)
 - () Resulting in the determination of unfitness for scheduled work due to consumption of alcohol. (iv)
 - () False Positive Lab Results due to an administrative error. [10CFR26, APP. A, 2.8(e)(5)]
 - () Any other FFD related event determined reportable by the MRO IAW NC.NA-AP.ZZ-0042(Q).
3. Discovery Time: _____ hrs on _____ (date)
4. Work Dept. of individual(s): _____
5. Has plant safety been affected ? YES NO
6. Corrective actions taken or planned ? _____

7. Other pertinent information: _____

ATTACHMENT 20

TWENTY-FOUR HOUR REPORT
NRC REGIONAL OFFICE

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

- ____ 1. COMPLETE an NRC Data Sheet.
 - () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Radiation Protection personnel, as needed.
 - () OBTAIN SNSS approval.

- ____ 2. NOTIFY the NRC Region 1 Office within 24 hours.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 3. NOTIFY the NRC Resident Inspector.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 4. NOTIFY the NRC Operations Center within 24 hours.
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 5. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).
 - () RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

Initials

- _____ 5. NOTIFY the **Public Information Manager (PIM) - Nuclear**.
_____ notified at _____ hrs
name time
- _____ 6. NOTIFY **Nuclear Licensing**.
_____ notified at _____ hrs
name time
- _____ 7. NOTIFY **External Affairs**.
_____ notified at _____ hrs
name time
- _____ 8. FAX the NRC Data Sheet to **BOTH Public Information and Licensing** using the programmed phone numbers on the telecopier.

II. REPORTING

Initials

- ____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- ____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting
SNSS documentation, to the Operations Manager (OM).
- ____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
OM classification of event and corrective action taken.
- ____ 4. FORWARD this attachment and any other supporting documentation to the LER
OM Coordinator (LERC).
- ____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- ____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).
LERC
- ____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- ____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
MNLR for microfilming.

ATTACHMENT 21

REPORTABLE EVENT
LAC/MEMORANDUM OF UNDERSTANDING (M.O.U.)

101

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

Initials

____ 1. PROVIDE an event description: _____

____ 2. NOTIFY the LAC Dispatcher within four hours of the event.

name notified at _____ hrs
time

____ 3. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).

name notified at _____ hrs
time

____ 4. NOTIFY the Public Information Manager (PIM) - Nuclear.

name notified at _____ hrs
time

Initials

_____ 5. NOTIFY External Affairs.

_____ notified at _____ hrs
name time

II. REPORTING

_____ 1. ENSURE that an Action Request (AR) is prepared.

SNSS

AR # _____

_____ 2. FORWARD this attachment, along with any supporting documentation, to the
Operations Manager (OM).

SNSS

_____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
classification of event and corrective action taken.

OM

_____ 4. FORWARD this attachment and any other supporting documentation to the LER
Coordinator (LERC).

OM

_____ 5. PREPARE required reports.

LERC

Report or LER Number _____

_____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).

LERC

_____ 7. ENSURE offsite (state and local) reporting requirements are met.

MNLR

_____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
for microfilming.

MNLR

ATTACHMENT 22

T/S REQUIRED ENGINEERING EVALUATION

101

INSTRUCTIONS (SALEM SNSS or Designee)

A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.

B. INITIAL each step when completed.

C. Implemented by: _____ Date: _____

I. NOTIFICATIONS

NOTE

This attachment is for initiating an Engineering Evaluation required by Technical Specifications. No Offsite or external notifications are performed by this attachment, but should be implemented as determined by the results of the evaluation.

Initials

____ 1. PROVIDE an event description: _____

CAUTION

Refer to the ECG sections related to the Initiating Conditions of this event to determine if any NRC notifications are also required.

____ 2. **IF ANY NRC Notifications are ALSO required, THEN IMPLEMENT the other referenced attachment in parallel with this one.**

Initials

_____ 3. NOTIFY the **Technical Manager or Technical Engineer** with details of the event.

_____ notified at _____ hrs
name time

_____ 4. IF NOT done previously,
THEN NOTIFY the **Operations Manager (OM)**.

_____ notified at _____ hrs
name time

II. REPORTING

_____ 1. ENSURE that an Action Request (AR) is prepared.

SNSS

AR # _____

_____ 2. FORWARD this attachment, along with any supporting documentation, to the
Operations Manager (OM).

SNSS

_____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct
classification of event and corrective action taken.

OM

_____ 4. FORWARD this attachment and any other supporting documentation to the LER
Coordinator (LERC).

OM

_____ 5. PREPARE required reports.

LERC

Report or LER Number _____

_____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNL).
LERC

LERC

_____ 7. ENSURE offsite (state and local) reporting requirements are met.

MNL

_____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room
for microfilming.

MNL

ATTACHMENT 24

UNUSUAL EVENT (COMMON SITE)

NOTE

101
ONLY one SNSS is required to declare this event and assume the responsibilities of **Emergency Coordinator (EC)**. The other SNSS should perform the duties of the Unaffected Station SNSS during the implementation of this attachment.

CAUTION

IN THE EVENT OF OFFSITE TOXIC GAS RELEASE AFFECTING THE SITE, EVACUATION OF NON-ESSENTIAL PERSONNEL TAKES PRECEDENCE OVER NOTIFICATIONS.

I. COMMON SITE EVENT ASSESSMENT/ EC DETERMINATION

Initials

SALEM SENIOR NUCLEAR SHIFT SUPERVISOR (SNSS) SHOULD:

A. NOTIFICATION OF HOPE CREEK SNSS

SNSS

1. CONTACT the Hope Creek SNSS and brief him/her on the specific circumstances as follows:
 - () a. SHARE information about the externally initiated event in progress.
 - () b. OBTAIN agreement on the Unusual Event classification.
 - () c. DETERMINE which SNSS will assume EC responsibilities.

Emergency Coordinator: _____

SNSS

2. IF the Salem SNSS is the EC,
THEN IMMEDIATELY IMPLEMENT this attachment as EC.

EC

3. IF an Offsite Toxic Gas Release is threatening Site Personnel (EAL 9.4.1.a),
THEN IMMEDIATELY IMPLEMENT appropriate Protective Actions for Site Personnel including initiation of Accountability and Evacuation per Section III., Pg. 4, PRIOR TO notifications.

SGS

Rev. 00

II. EMERGENCY COORDINATOR (EC) LOG SHEET

EC A. **DECLARE A COMMON SITE UNUSUAL EVENT
AT HOPE CREEK AND SALEM**

EAL # _____ Declared at _____ hrs on _____
time date

B. **NOTIFICATIONS**

- () 1. CALL communicators to the Control Room.
- () 2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF)
(last page of this attachment).
- () 3. PROVIDE the ICMF to the Communicator (CM1) and
DIRECT the CM1 to implement **Attachment 6**.
- () 4. DIRECT the Secondary Communicator (CM2) to implement **Attachment 8** for an
Unusual Event.
- () 5. SOUND the Radiation Alert Alarm and make the following page announcement:

"Attention all personnel. Attention all personnel."
"Hope Creek and Salem are both in an UNUSUAL EVENT condition due to

(Repeat)

C. **SECURITY RELATED EVENT**

- EC 1. IF Security Related,
THEN DIRECT the PSE&G Security Supervisor (x2222) to implement the Security
Contingency Plan.
- EC 2. IF a bomb search is required,
THEN:
 - a. DIRECT the OSC Coordinator to;
 - () ACTIVATE the OSC LAW EPIP 202S, OSC Activation and Operations
AND
 - () IMPLEMENT Bomb Search Operations LAW Appendix 1.
 - () b. DIRECT the NCOs to check control boards for correct equipment lineups.

Initials

D. EMERGENCY COORDINATOR DUTIES

- () 1. NOTIFY the Hope Creek SNSS. (NETS 5224; DID 3027, or 3059)
- () 2. IF required, IMPLEMENT Accountability by referring to the Accountability Instructions in Section III.

EC

3. WHEN provided by the CM2,
THEN COMPLETE and APPROVE the NRC Data Sheet for transmittal by the CM1 within 60 minutes.

EC

4. WHEN provided by the CM2,
THEN REVIEW and APPROVE the Station Status Checklist (SSCL) for transmittal.

- () a. REPEAT this step approximately every half hour.
- () b. PERFORM immediately for any significant change in emergency status. (operational or radiological)

E. TURNOVER

EC

IF relieved prior to termination of the Unusual Event,
THEN DOCUMENT the name of your relief below:

_____ assumed EC duties at _____
Name time

F. ESCALATION

EC

IF event classification escalates above **Unusual Event**,
THEN EXIT this attachment and implement a new attachment as directed by the EALs.

G. TERMINATION

EC

1. TERMINATE the UE IAW Section IV., Emergency Termination/Reduction/Recovery (Pg. 6).

SNSS

2. ENSURE appropriate reports are made IAW Section V., Reporting, of this attachment.

III. ACCOUNTABILITY INSTRUCTION FOR THE PROTECTED AREA

A. IMPLEMENTATION OF ASSEMBLY AND ACCOUNTABILITY

Initials/Time

- / 1. IF NOT already done,
EC THEN DIRECT the OSC Coordinator to activate the OSC IAW EPIP 202S,
OSC Activation and Operations.
- / 2. IF Accountability AND Evacuation is required,
EC THEN DIRECT Security (x2222) to IMPLEMENT EPIP 901, Onsite Security
Response, and EPIP 902, Accountability/ Evacuation, Sections 3.2 and 3.3.
- / 3. IF NO EVACUATION is required,
EC THEN DIRECT Security (x2222) to IMPLEMENT EPIP 901, Onsite Security
Response, and EPIP 902, Accountability/ Evacuation, Sections 3.1 and 3.2
ONLY, for Assembly and Accountability.
- / 4. DIRECT the Hope Creek SNSS to implement EPIP 101H, Appendix 6,
EC Accountability Instructions For An Unusual Event at Salem.

NOTE A.5

Steps A.5 thru A.9 may be delegated by the EC to any available CR Staff member.

- / 5. SOUND the Radiation Alert Alarm and make the following page announcement:
"Attention all personnel. Attention all personnel."
"Salem and Hope Creek are both in an UNUSUAL EVENT condition due to
_____."
"All PSE&G personnel assemble at your Accountability Stations. All
contractors leave the Owner Controlled Area immediately". (Repeat)
- / 6. WAIT for 5 minutes for key personnel to reach their Accountability Stations,
EC THEN CONTINUE with Step 7.
- / 7. SOUND the Radiation Alert Alarm and ANNOUNCE the following;
(T= 0 Min.)
"Attention, Attention. All accountability stations,
IMPLEMENT Accountability." (Repeat)

III. ACCOUNTABILITY INSTRUCTION FOR THE PROTECTED AREA (Cont'd)

Initials/Time

- / 8. WHEN 10 minutes have elapsed from Step 7, ANNOUNCE the following;
(T+10 Min.)
"Attention, Attention. All accountability stations COMPLETE YOUR INITIAL Accountability." (Repeat)
- / 9. WHEN 20 minutes have elapsed from Step 7, ANNOUNCE the following;
(T+20 Min.)
"Attention, Attention. All accountability stations COMPLETE YOUR 30 minute Accountability." (Repeat)
- / 10. WHEN 30 minutes have elapsed from Step 7,
EC (T+30 Min.) COORDINATE with the TSC Security Liaison and
 OBTAIN a list of unaccounted-for personnel.

Initials

B. LOCATION OF UNACCOUNTED-FOR PERSONNEL

- EC
1. LOCATE unaccounted-for personnel as follows:
- () a. PAGE individuals over the plant page.
 - () b. OBTAIN feedback from co-workers/supervisors on the last known location/job assignment.
 - () c. DIRECT Security to assist in locating unaccounted for personnel.
 - () d. CALL individual's home to verify work schedule.
 - () e. **IF REQUIRED,**
THEN DIRECT the OSCC to INITIATE Search and Rescue Operations
IAW EPIP 202S.
- EC
2. UPDATE Security as missing personnel are accounted for.

IV. TERMINATION

Initials

- EC
1. WHEN EITHER of the following conditions are met,
THEN TERMINATE the emergency by proceeding to Step 2.
 - () a. NO EALs are exceeded AND the Plant is stable.
 - () b. IF any EAL CONTINUES to be exceeded AND the Plant is stable
THEN REFER to the "RECOVERY CHECKLIST" (Pg. 7) AND
DETERMINE if the UE can be terminated by entering Recovery.

 2. WHEN the above Step is completed,
THEN COMPLETE the "UNUSUAL EVENT TERMINATION/RECOVERY
NOTIFICATION FORM," (Pg. 8), as follows:
 - () a. IF terminating WITHOUT Recovery, COMPLETE Part A.
 - () b. IF terminating WITH Recovery, COMPLETE Part B.

 3. IF termination with Recovery is chosen,
THEN DIRECT the EDO to assume the duties of the Recovery Manager including:
 - a. EVALUATE the emergency and its consequences.
 - b. DETERMINE measures required to return the Plant to Normal Operations
(termination of Recovery Status).
 - c. COORDINATE contractor support, as required.

 4. Make Reduction in Event Notifications (Termination) by;
 - () a. PROVIDE the completed "EMERGENCY TERMINATION/ RECOVERY
NOTIFICATION FORM," to the CM1.
 - () b. DIRECT the CM1 to make the termination notifications IAW ECG
Attachment 6.

 5. MAKE a PA announcement to update Plant personnel.

 6. NOTIFY the Hope Creek SNSS.

 7. GO TO Section V., Reporting.

SNSS

SGS

SNSS

IV. TERMINATION (cont'd)

RECOVERY CHECKLIST FOR A COMMON SITE UNUSUAL EVENT

THE EMERGENCY COORDINATOR SHOULD:

A. ANSWER each of the following questions which are PREREQUISITES for Terminating WITH Recovery.

CHECK IF YES FOR BOTH SALEM AND HOPE CREEK

- () 1. Is the Radiological Release terminated (< Technical Specifications)?
- () 2. Are Radiation levels in ALL areas of the SITE EITHER stable or decreasing?
- () 3. Is the SITE in a safe, stable condition with NO reason to expect further degradation?
- () 4. Is the integrity of the Station power supplies and ECCS equipment required for safe shutdown intact?
- () 5. Can full time operations of BOTH OSCs be terminated?

B. IF ANY of the above are negative (unchecked),
THEN termination should NOT be performed, at this time. RETURN to Section II.

C. IF ALL of the above are checked as YES,
THEN PROCEED with Step D.

D. Salem and Hope Creek EDOs have both been briefed AND (**CHECK IF YES**);

- () 1. BOTH EDOs concur that terminating the UE with an EAL still exceeded is correct under the current circumstances?
- () 2. SALEM EDO is prepared to assume the duties of Recovery Manager.

SALEM EDO Name: _____ Time _____

E. IF EITHER of the above are negative (unchecked),
THEN termination should NOT be performed, at this time. RETURN to Section I.

F. IF BOTH D.1 & D.2 are checked as YES,
THEN SIGN below and GO TO Sect. IV., Step 2 for Terminating WITH Recovery.

Emergency Coordinator

Date

IV. TERMINATION (cont'd)

UNUSUAL EVENT TERMINATION/RECOVERY
NOTIFICATION FORM

PART "A" - EMERGENCY TERMINATION WITHOUT RECOVERY:

THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM AT
THE SALEM NUCLEAR GENERATING STATION, UNIT _____.

THIS MESSAGE IS TO NOTIFY YOU THAT AS OF _____, ON _____,
time date

THE COMMON SITE UNUSUAL EVENT AFFECTING
BOTH HOPE CREEK AND SALEM HAS BEEN TERMINATED.

(EC Approval to transmit)

PART "B" - EMERGENCY TERMINATION WITH RECOVERY:

THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM AT
THE SALEM NUCLEAR GENERATING STATION, UNIT _____.

THIS MESSAGE IS TO NOTIFY YOU THAT AS OF _____, ON _____,
time date

THE COMMON SITE UNUSUAL EVENT AFFECTING
BOTH HOPE CREEK AND SALEM HAS BEEN TERMINATED
AND RECOVERY OPERATIONS IMPLEMENTED.

_____ IS THE RECOVERY MANAGER
(SALEM DUTY EDO)

LOCATED AT SALEM.

(EC Approval to transmit)

V. REPORTING

INSTRUCTIONS

1. This is a permanent document.
2. APPEND appropriate documents to this form and EXPEDITE the package through all steps.

Initials

SNSS

1. PREPARE an Action Request (AR).

AR # _____

SNSS

2. FORWARD this attachment and supporting documentation, to the Operations Manager (OM).

OM

3. REVIEW this attachment, the (AR) and any other relevant information for correct classification of event and corrective action taken.

OM

4. CONTACT the LER Coordinator (LERC) and request that the required reports be prepared. Provide this attachment and any other supporting documentation to the LERC.

LERC

5. PREPARE required reports.

Report or LER Number _____

LERC

6. FORWARD this attachment to the Central Technical Document Room for microfilming.

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE CONTROL ROOM
(NAME)

AT THE SALEM NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF A COMMON SITE UNUSUAL EVENT AFFECTING
BOTH SALEM AND HOPE CREEK WHICH WAS

DECLARED AT _____ ON _____
(Time - 24 HR CLOCK) (DATE)

EAL # _____ DESCRIPTION OF EVENT: _____

III. NO RADIOLOGICAL RELEASE IS IN PROGRESS

33 FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

IV. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

ATTACHMENT 25

ONE HOUR REPORT
(COMMON SITE)
MAJOR LOSS OF EMERGENCY ASSESSMENT, OFFSITE RESPONSE, OR
COMMUNICATIONS CAPABILITY

NOTE

ONLY one SNSS, Hope Creek or Salem, is required to report this event which is common to both stations.

I. **EVENT ASSESSMENT AND DETERMINATION OF NOTIFICATION RESPONSIBILITY**

Initials

- ___ 1. NOTIFY the **Hope Creek SNSS** (NETS x5224; DID 3027, 3059).
- ___ 2. DETERMINE which Station SNSS will implement this attachment.
- ___ 3. IF the Salem SNSS is responsible for this notification, THEN IMMEDIATELY CONTINUE with this attachment.
- ___ 4. IF the Hope Creek SNSS will implement this attachment, THEN NO further actions are required by Salem except to lend assistance as necessary in restoring the lost equipment or capabilities.

INSTRUCTIONS (SALEM SNSS or Designee)

- A. REFER to Attachment 9, Non-Emergency Notifications Reference, for the current listing of individuals and phone numbers.
- B. INITIAL each step when completed.
- C. Implemented by: _____ Date: _____

II. **NOTIFICATIONS**

- ___ 1. COMPLETE an NRC Data Sheet.
 - () OBTAIN a copy from ECG Attachment 5.
 - () OBTAIN assistance from Radiation Protection personnel, as needed.
 - () ENSURE SNSS approval.

Initials

- ____ 2. NOTIFY the NRC Operations Center of the event within 1 hour.
() RECORD additional information provided to the NRC on the NRC Data Sheet.

_____ notified at _____ hrs
name time

- ____ 3. NOTIFY the NRC Resident Inspector.

_____ notified at _____ hrs
name time

- ____ 4. IF NOT done previously,
THEN NOTIFY the Operations Manager (OM).

_____ notified at _____ hrs
name time

- ____ 5. NOTIFY the Public Information Manager (PIM) - Nuclear.

_____ notified at _____ hrs
name time

- ____ 6. NOTIFY Nuclear Licensing.

_____ notified at _____ hrs
name time

- ____ 7. IF a major loss of communications capability has occurred (such as loss of ENS,
NETS, DID, etc.)
THEN NOTIFY:

I.T. Client Service Center: (201-430-7500 or ESSX 7500)

- () a. ENTER [1 - 3 - 1] in response to the automated answering system prompts.
() b. NOTIFY the Operator that the failed system is an "Emergency Priority Circuit."

_____ notified at _____ hrs
name time

- ____ 8. NOTIFY External Affairs.

_____ notified at _____ hrs
name time

Initials

- _____ 9. FAX the NRC Data Sheet to **BOTH Public Information and Licensing** using the programmed phone numbers on the telecopier.

III. REPORTING

- _____ 1. ENSURE that an Action Request (AR) is prepared.
SNSS
AR # _____
- _____ 2. FORWARD this attachment, along with the NRC Data Sheet and any supporting documentation, to the Operations Manager (OM).
SNSS
- _____ 3. REVIEW this ECG attachment, the AR and any other relevant information for correct classification of event and corrective action taken.
OM
- _____ 4. FORWARD this attachment and any other supporting documentation to the LER Coordinator (LERC).
OM
- _____ 5. PREPARE required reports.
LERC
Report or LER Number _____
- _____ 6. FORWARD this attachment to the Manager - Nuclear Licensing & Regulation (MNLR).
LERC
- _____ 7. ENSURE offsite (state and local) reporting requirements are met.
MNLR
- _____ 8. FORWARD this Attachment/LER package to the Central Technical Document Room for microfilming.
MNLR