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PRC|SECG-ATT.04|000	5	A	1	H	145928
PRC|SECG-ATT.08|000	8	A	1	H	146285
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A045

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SALEM GENERATING STATION
EVENT CLASSIFICATION GUIDE
September 26, 2002

CHANGE PAGES FOR
REVISION #38

The Table of Contents forms a general guide to the current revision of each section and attachment of the Salem ECG. The changes that are made in this TOC Revision #38 are shown below.

1. Check that your revision packet is complete.
2. Add the revised documents.
3. Remove and recycle the outdated material listed below.

ADD			REMOVE		
Pages	Description	Rev.	Pages	Description	Rev.
ALL	TOC	38	ALL	TOC	37
ALL	Section 3	01	ALL	Section 3	00
ALL	Attachment 1	04	ALL	Attachment 1	03
ALL	Attachment 2	04	ALL	Attachment 2	03
ALL	Attachment 3	04	ALL	Attachment 3	03
ALL	Attachment 4	05	ALL	Attachment 4	04
ALL	Attachment 8	08	ALL	Attachment 8	07
ALL	Attachment 24	06	ALL	Attachment 24	05

PSE&G CONTROL COPY # SEGG0101

SALEM EVENT CLASSIFICATION GUIDE
TABLE OF CONTENTS/SIGNATURE PAGE

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SALEM EVENT CLASSIFICATION GUIDE
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Licensing is responsible for the Reportable Action Level (Section 11) and associated Attachments (marked by "L")

REVISION SUMMARY Biennial Review Performed: Yes _X_ No ___

- Editorial changes in attachments 1 – 4, & 24 for location of the "Emergency Callout" envelope.
- Editorial change in Attachment 8 foir steps in starting and stopping ERDS, due to SPDS upgrade.

SIGNATURE PAGE

Prepared By: William L.Detwiler 08/14/02
(If Editorial Revisions Only, Last Approved Revision) Date

Section/Attachments Revised 3.3.3.b 08/14/02
(List Non Editorial Only - Section/Attachments) Date

Reviewed By: F. Hughes 8/14/02
10CFR50.54q Effectiveness Reviewer Date

Reviewed By: 9/7/02
Department Manager Date

Reviewed By: N/A N/A
Nuclear Safety and Licensing Manager Date
(Reportable Action Level (Section 11) and associated Attachments marked by "L")

Reviewed By 8/29/02
EP Manager Date

Reviewed By N/A
Manager - Quality Assessment - NBU Date
(If Applicable)

SORC Review and Station Approvals

N/A
Mtg. No. Salem Chairman

N/A
Date

Vice President Nuclear Operations

9/17/02
Date

Effective Date of this Revision: 9/26/02
Date

PSEG Internal Use Only

TABLE 3.0 FISSION PRODUCT BARRIERS

APPLICABLE MODES ARE 1, 2, 3, 4 ONLY

NOTE

If the Loss or Potential Loss is considered IMMINENT (may occur within 2 hours), use judgment and classify as if the threshold is exceeded.

Instructions:

1. In the table review the Emergency Action Levels of all columns and identify which need further review.
2. 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.
3. Add the point values circled for the three barriers and enter the sum below:
4. 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

5. Implement the appropriate ECG Attachment per above chart.
6. Continue to review the EALs on this Table for changes that could result in emergency escalation or deescalation.

PSE&G CONTROL COPY # SECG-01

3.1 Fuel Clad Barrier

3.1.1 CRITICAL SAFETY FUNCTION STATUS

POTENTIAL LOSS = 3 PTs	LOSS = 4 PTs
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 = 0 PTs	LOSS = 4 PTs
Not Applicable	EAL # 3.1.2 Reactor Coolant Activity > 300 µCi/gm Dose Equivalent I-131

3.1.3 CORE EXIT THERMOCOUPLES (CETS)

POTENTIAL LOSS = 3 PTs	LOSS = 4 PTs
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 INSTRUMENTATION SYSTEM (RVLIS)

POTENTIAL LOSS = 3 PTs	LOSS = 0 PTs
EAL # 3.1.4.a RVLIS Full Range <39% — OR — EAL # 3.1.4.b 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%	Not Applicable

3.1.5 CONTAINMENT RADIATION LEVELS

POTENTIAL LOSS = 0 PTs	LOSS = 4 PTs
Not Applicable	EAL # 3.1.5 R44A or R44B >300R/hr

3.1.6 EMERGENCY COORDINATOR JUDGMENT

POTENTIAL LOSS = 3 PTs	LOSS = 4 PTs
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 Reactor Coolant System Barrier

3.2.1 CRITICAL SAFETY FUNCTION STATUS

POTENTIAL LOSS = 3 PTs	LOSS = 0 PTs
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 = 3 PTs	LOSS = 4 PTs
EAL # 3.2.2.a One Centrifugal Charging Pump CANNOT maintain PZR level >17% as a result of a RCS leakage	EAL # 3.2.2.b Subcooling is 0 °F as a result of RCS leakage

3.2.3 STEAM GENERATOR TUBE RUPTURE (SGTR)

POTENTIAL LOSS = 3 PTs	LOSS = 4 PTs
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 = 0 PTs	LOSS = 4 PTs
Not Applicable	EAL # 3.2.4 Valid Containment Radiation level which exceeds ANY one of the following Containment Rad Monitors values: · R2 >1 R/hr · R44A >10 R/hr · R44B >10 R/hr

3.2.5 EMERGENCY COORDINATOR JUDGMENT

POTENTIAL LOSS = 3 PTs	LOSS = 4 PTs
EAL # 3.2.5.a ANY condition, in the opinion of the EC, that indicates a Potential Loss of the RCS Barrier	EAL # 3.2.5.b ANY condition, in the opinion of the EC, that indicates a Loss of the RCS Barrier

3.3 Containment Barrier

3.3.1 CRITICAL SAFETY FUNCTION STATUS

POTENTIAL LOSS = 1 PT	LOSS = 0 PTs
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 = 1 PT	LOSS = 2 PTs
EAL # 3.3.2.a Containment H_2 >4% — OR — EAL # 3.3.2.b 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"	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 = 1 PT	LOSS = 2 PTs
EAL # 3.3.3.a CNTMT Sump Level >78% (75% adverse)	EAL # 3.3.3.b UNISOLABLE leakage OUTSIDE Containment as indicated by one of the following: • Downstream pathway to the environment exists • Radiation monitor, area temperatures, flow or sump level AND Containment or system isolation is required due to any one of the following • Safety Injection • Containment pressure greater than 4 psig • Valid CNTMT Vent Isol Signal AND Cannot be ISOLATED from the Main Control Room

3.3.4 CONTAINMENT BYPASS

POTENTIAL LOSS = 1 PT	LOSS = 2 PTs
EAL # 3.3.4.a Unisolable, Faulted S/G OUTSIDE of Containment as indicated by S/G pressure dropping in an uncontrolled manner or completely depressurized AND Affected S/G tubes are intact	EAL # 3.3.4.b Primary to Secondary Leakage >Tech Spec Limits AND Prolonged, direct secondary leakage to the environment — OR — EAL # 3.3.4.c LOCA conditions AND CNTMT Press. OR Sump Level NOT rising as expected

3.3.5 CONTAINMENT RADIATION LEVELS

POTENTIAL LOSS = 1 PT	LOSS = 0 PTs
EAL # 3.3.5 R44A or R44B >2000R/hr	Not Applicable

3.3.6 EMERGENCY COORDINATOR JUDGMENT

POTENTIAL LOSS = 1 PT	LOSS = 2 PTs
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

ATTACHMENT 1

UNUSUAL EVENT

PSE&G CONTROL COPY # 3ECG0101

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

A. DECLARE AN UNUSUAL EVENT AT SALEM UNIT ____

EAL # _____ Declared at _____ (time) hrs on _____ (date) _____ EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. _____ OS

2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment). _____ EC

3. PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement **ECG Attachment 6.** _____ EC

4. DIRECT the Secondary Communicator to implement **ECG Attachment 8** for an Unusual Event. _____ EC

NOTE

Activation of the Emergency Response Organization (ERO) during an Unusual Event is implemented at the discretion of the Emergency Coordinator (EC). If additional support personnel are needed during an Unusual Event, then limited or full staffing of the TSC may be initiated at the discretion of the EC. Limited staffing may be initiated by contacting selected support personnel on an individual basis in lieu of activating the full ERO.

5. IF desired, ACTIVATE the Emergency Response Organization (ERO) or PERFORM a limited staffing of the Emergency Response Facilities. _____ EC

Full Staffing

LOCATE the confidential envelope in the front of the Operations Superintendent's (O.S.) copy of the ECG marked "Emergency Callout". Follow the directions. When complete return to this procedure. **(EP96-003)** _____ OS

6. IMPLEMENT EPEP 102 for OS. _____ EC

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.

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS.

} see NOTE for release definition

IV.

33 FT. LEVEL WIND DIRECTION (From):_____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

V. **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

_____
EC Initials
(Approval to Transmit ICMF)

NOTE:
Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 μCi/sec Noble Gas or 2.1E+01·μCi/sec I-131.

ATTACHMENT 2

ALERT

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

A. DECLARE AN ALERT AT SALEM UNIT _____

EAL # _____ Declared at _____ hrs on _____ _____
time date EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. _____ EC

2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment). _____ EC

3. PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement **ECG Attachment 6.** _____ EC

4. DIRECT the Secondary Communicator to implement **ECG Attachment 8** for an ALERT. _____ EC

5. **LOCATE** the confidential envelope in the front of the Operations Superintendent's (O.S.) copy of the ECG marked "Emergency Callout". Follow the directions. When complete return to this procedure. **(EP96-003)** _____ OS

6. IMPLEMENT EPEP 102 for OS, EDO or ERM. _____ EC

PSE&G
CONTROL
COPY # SECG0101

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.

☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS.

} see NOTE for release definition

IV.

33 FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

V. **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

_____
EC Initials
(Approval to Transmit ICMF)

NOTE:
Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 μCi/sec Noble Gas or 2.1E+01 μCi/sec I-131.

ATTACHMENT 3
SITE AREA EMERGENCY

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

A. DECLARE A SITE AREA EMERGENCY AT SALEM UNIT _____

EAL #(s) _____, _____, _____

Declared at _____ hrs on _____ _____
time date EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. _____ OS

2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment). _____ EC

3. PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement **ECG Attachment 6.** _____ EC

4. DIRECT the Secondary Communicator to implement **ECG Attachment 8** for a SITE AREA EMERGENCY. _____ EC

5. IF NOT done previously,
LOCATE the confidential envelope in the front of the Operations Superintendent's (O.S.) copy of the ECG marked "Emergency Callout". Follow the directions. When complete return to this procedure.
(EP96-003) _____ OS

6. IMPLEMENT EPEP 102 for OS, EDO or ERM. _____ EC

PSE&G
CONTROL
COPY # SECG0101

INITIAL CONTACT MESSAGE FORM

I. THIS IS _____, COMMUNICATOR IN THE ☐ CONTROL ROOM
(NAME) ☐ TSC
☐ EOF

AT THE **SALEM** NUCLEAR GENERATING STATION, **UNIT** NO. _____.

II. ☐ THIS IS NOTIFICATION OF A **SITE AREA EMERGENCY** WHICH WAS

DECLARED AT _____ ON _____.
(TIME - 24 HOUR CLOCK) (DATE)

EAL #(s) _____, _____, _____

DESCRIPTION OF EVENT: _____

_____

_____

_____

III. ☐ NO RADIOLOGICAL RELEASE IS IN PROGRESS.
☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS.
} see NOTE for release definition

IV.

33 FT. LEVEL WIND DIRECTION (From):_____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

V. **NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME**

_____
EC Initials
(Approval to Transmit ICMF)

NOTE:
Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 μCi/sec Noble Gas or 2.1E+01 μCi/sec I-131.

ATTACHMENT 4

GENERAL EMERGENCY

PSE&G CONTROL COPY # SECG0101

I. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

A. DECLARE A GENERAL EMERGENCY AT SALEM UNIT _____

EAL #(s) _____, _____, _____

Declared at _____ hrs on _____ _____
time date EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. _____ OS

CAUTION

A Protective Action Recommendation (PAR) SHALL be made on the Initial Contact Message Form (ICMF).

2. MAKE A PAR as follows:
   a. REFER to Predetermined PAR Flowchart on Pg. 3 and DETERMINE the appropriate PAR. _____ EC
   b. IF a Radiologically Based PAR is IMMEDIATELY available, THEN COMPARE the two PARs and choose the most appropriate for inclusion on the ICMF. _____ EC
3. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment). _____ EC
4. PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement **ECG Attachment 6.** _____ EC
5. DIRECT the Secondary Communicator to implement **ECG Attachment 8** for a GENERAL EMERGENCY. _____ EC

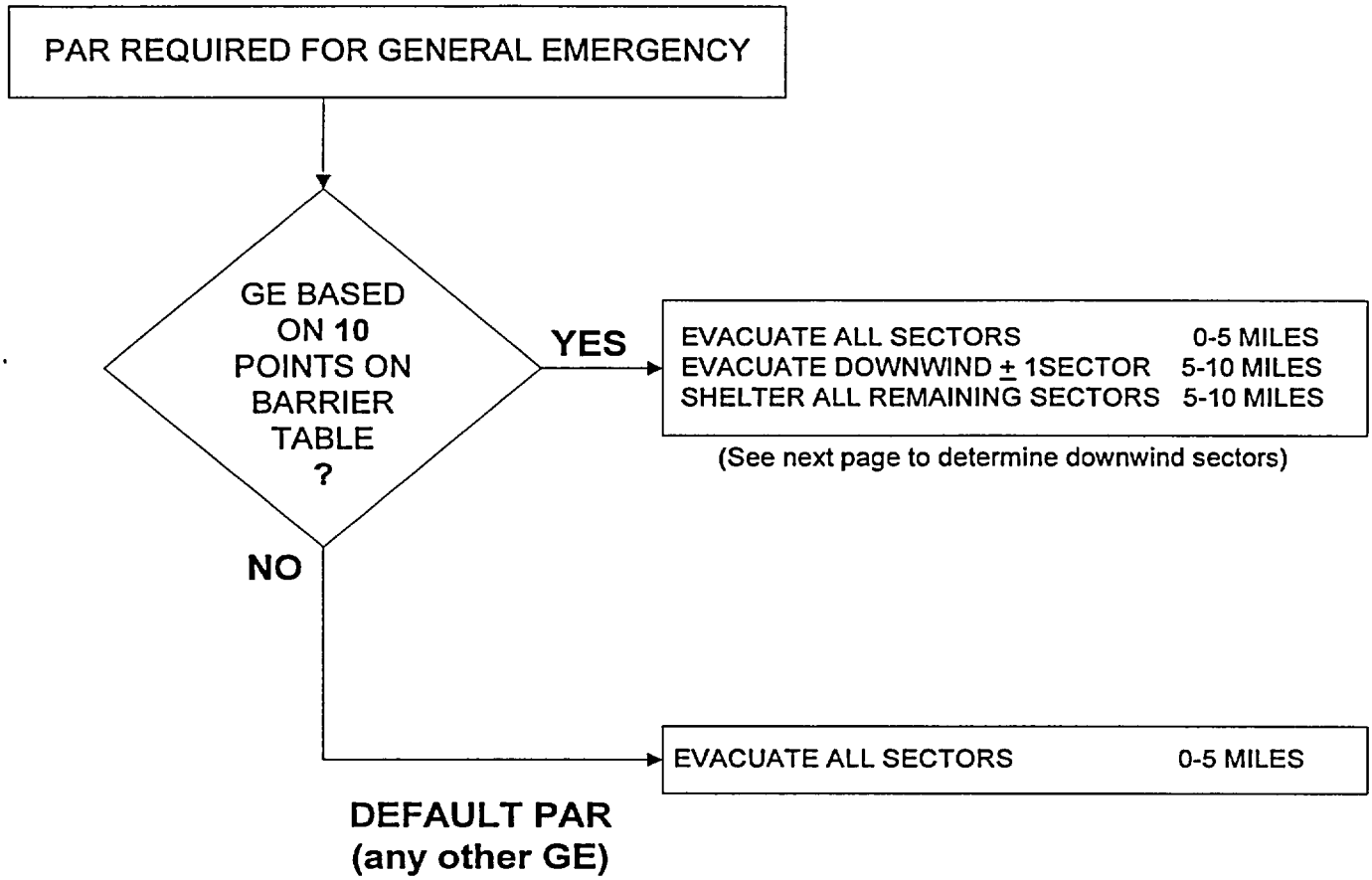
Initials

6. IF NOT done previously,
LOCATE the confidential envelope in the front of the Operations Superintendent's (O.S.) copy of the ECG marked "Emergency Callout". Follow the directions. When complete return to this procedure.
(EP96-003) _____ OS

7. IMPLEMENT EPEP 102 for OS, EDO or ERM. _____ EC

APPENDIX 1

PREDETERMINED PROTECTIVE ACTION RECOMMENDATIONS



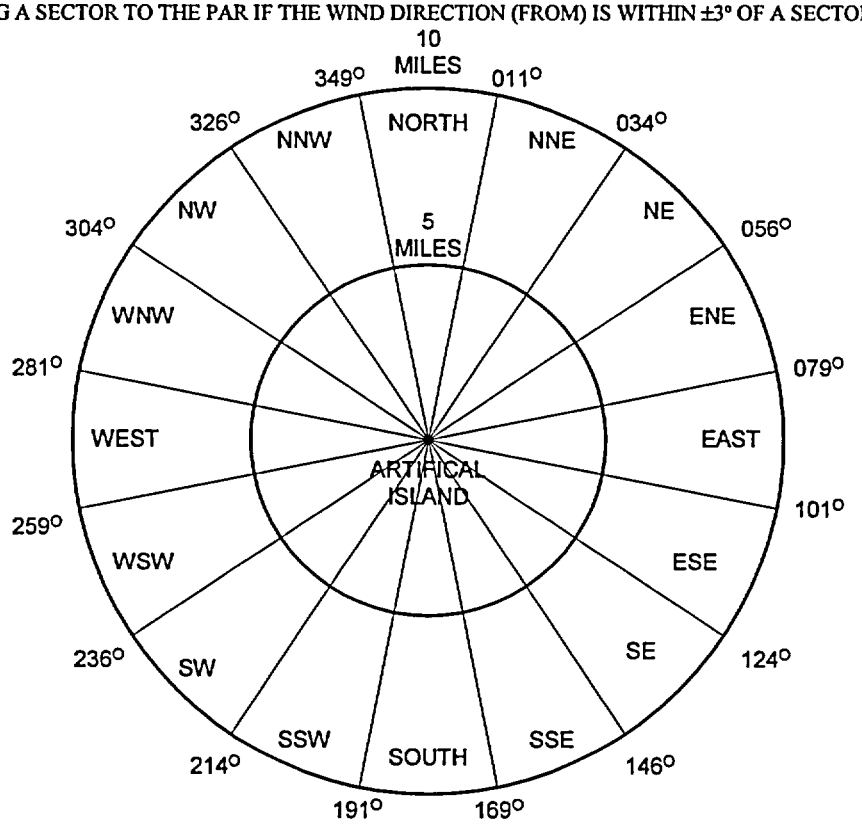
CAUTION:

IF TRAVEL CONDITIONS PRESENT AN EXTREME HAZARD (SEVERE ICE, SNOW, WIND, FLOOD, QUAKE DAMAGE, ETC.), CONSIDER SHELTER INSTEAD OF EVACUATE IN THE ABOVE SELECTED PAR

APPENDIX 1 (continued)
RECOMMENDED PROTECTIVE ACTION WORKSHEET

WIND DIRECTION FROM DEGREES	COMPASS		PAR AFFECTED SECTORS DOWNWIND ±1 SECTORS
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 DIVIDING 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.
☐ THERE IS A RADIOLOGICAL RELEASE IN PROGRESS.
} see NOTE for release definition

IV.

33 FT. LEVEL WIND DIRECTION (From):_____ WIND SPEED: _____
(From MET Computer) (DEGREES) (MPH)

V.

	Sectors	Dist.- Miles
☐ WE RECOMMEND **EVACUATION** AS FOLLOWS	_____	_____
	_____	_____
☐ WE RECOMMEND **SHELTERING** AS FOLLOWS	_____	_____
	_____	_____

_____
EC Initials
(Approval to Transmit ICMF)

NOTE:
Radiological Release is defined as: Plant Effluent > Federal Limit of 2.42E+05 μCi/sec Noble Gas or 2.1E+01 μCi/sec I-131.

ATTACHMENT 8

SECONDARY COMMUNICATOR LOG

PSE&G
CONTROL
COPY # SECG0101

Table of Contents

Emergency Classification: (circle) UE ALERT SAE GE

Name: _____ Position: CM2 /TSC2/ EOF2
(Print) (circle)

A. NOTIFICATIONS

NOTE

A new Attachment 8 is required to be implemented if the classification or protective action recommendation (PAR) changes.

Initials

1. OBTAIN a copy of Attachment 6 and ASSIST Primary Communicator with 15-minute notifications, as necessary. _____ CM2/TSC2/EOF2

2. DIRECT the Shift Rad Pro Tech (SRPT) (x2644) to implement **SC.EP-EP.ZZ-0301(Q)**, Shift Radiation Protection Technician Response. (N/A for Common Site).

   Name: _____ Time: _____ _____ CM2

3. For an ALERT or higher emergency;

( ) a. CALLOUT an additional SRO and have him/her report to the OSC.

   Name: _____ Time: _____ _____ CM2

   b. ACTIVATE **ERDS** within 60 minutes from the Affected Unit's SPDS terminal;

      1) CLICK **<ERDS>** button.
      2) CLICK **<Initiate>** button.
      3) CHECK for the following status:
         ERDS Active
         LINK Dialing Modem → Link Active _____ CM2

Initials

A. NOTIFICATIONS (cont'd)

4. OBTAIN a copy of the **ICMF** and FAX the ICMF to Group A. _____ CM2/TSC2/EOF2

5. COMPLETE a **Station Status Checklist (SSCL)** Form, Pg. 7 or Common Site UNUSUAL EVENT **Station Status Checklist (SSCL)** Form, Pg. 9;
   - ( ) a. OBTAIN OS (TSS/SSM) assistance, as needed for SSCL Pg.1.
   - ( ) b. OBTAIN SRPT (RAC/RSM) assistance, as needed for SSCL Pg.2. (N/A for Common Site)
   - ( ) c. FAX to Group B.
   - ( ) d. IF fax transmission of the SSCL is incomplete, THEN CONTACT the State Agencies listed below, READ the data, AND DOCUMENT on SSCL, Pg. 2.

DEMA	Delaware Emergency Management Agency	302-659-2290
BNE	NJ Bureau of Nuclear Engineering	609-984-7700

_____ CM2/TSC2/EOF2

6. OBTAIN completed **NRC Data Sheet** from the CM-1, and FAX form to Group B. _____ CM2/TSC2/EOF2

7. REPEAT Step 5 approximately every half hour OR IMMEDIATELY for significant changes in Station status, until either Turnover or relief. _____ CM2/TSC2/EOF2

8. TURNOVER responsibility for offsite notifications and offsite data updates (SSCLs) 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.

_____ CM2/TSC2

9. IF available for other duties AND TSC turnover is complete, THEN obtain headset, MAN the Ops Data line and CONTACT the TSC ops advisor and establish an open line of communication from the control room to the TSC. _____ CM-2

B. DATA COLLECTION/TRANSMISSION

1. WHEN in an ALERT or higher emergency OR AFTER significant changes in 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.

_____ CM2

Initials

B. DATA COLLECTION/TRANSMISSION (cont'd)

2. IF requested by the TSC,
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.

_____ CM2

3. ENSURE the Facility OSB and MEES Status Boards are updated as follows:

( ) a. OBTAIN OSB Data from **SPDS** "STATUS BOARD PARAMETERS."
( ) 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.

_____ TSC2/EOF2

4. WHEN the emergency is terminated,
THEN FORWARD this document and all completed Forms to the OS (TSS/SSM).

_____ CM2/TSC2/EOF2

C. INCOMING CALLS

STATE OFFICIALS

1. IF Notifications authority has transferred,
THEN DIRECT the caller to contact the TSC (or EOF if activated).

_____ CM2/TSC2

2. WHEN contacted by any State Agency Officials (listed here),

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;

Agency	Caller's Name	Phone #
_____	_____	_____
_____	_____	_____

( ) 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.

_____
CM2/TSC2/EOF2

NEWS MEDIA

CAUTION

Communicators are NOT authorized to release any information to the News Media.

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 the following number: 856-339-1186."

( ) 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: 856-273-0188, -0282, -0479, or -0586."

_____
CM2/TSC2/EOF2

NRC OPERATIONS CENTER

4. WHEN directed by the NRC to TERMINATE ERDS transmission,
THEN GO TO any SPDS terminal of the affected Unit AND PROCEED as follows;

a. CLICK **<ERDS>** button.
b. CLICK **<Terminate>** button.
c. CHECK for the following status:

ERDS	Inactive
LINK	Not Connected

d. WHEN completed, NOTIFY the OS.

_____
CM2

SALEM UNIT _____

MAJOR EQUIPMENT AND ELECTRICAL STATUS

DATE: _____
UPDATE TIME: _____

NOTE: Y = IN SERVICE
N = OUT OF SERVICE
(CIRCLE ANY UNAVAILABLE EQUIPMENT)

COOLING SYSTEMS		ELECT. FEED	Y/N
AUX FD. PUMPS	1	A1D	
	2	B1D	
	3	STM.	
SERVICE WATER PUMPS	1	3D	
	2	8D	
	3	B3D	
	4	B8D	
	5	3D	
	6	8D	
COMP. COOLING PUMPS	1	A10D	
	2	B10D	
	3	C10D	
REACTOR COOLANT PUMPS	1	H4D	
	2	E4D	
	3	F4D	
	4	G4D	
CONDENSATE PUMPS	1	H1D	
	2	E1D	
	3	F1D	
CIRC WATER PUMPS		U1 / U2	
	1A	2AD/2AD	
	1B	7BD/7BD	
	2A	3AD/3AD	
	2B	6BD/6BD	
	3A	4AD/4AD	
	3B	5BD/5BD	

ECCS SYSTEMS		ELECT. FEED	Y/N
CHARGING PUMPS	1	B9D	
	2	C9D	
	3	A7X	
SAFETY INJ PUMPS	1	A5D	
	2	C5D	
RHR PUMPS	1	A7D	
	2	B7D	

ELECTRICAL STATUS		Y/N
OFFSITE AC POWER AVAILABLE		

EMERGENCY DIESELS		RUN	LOADED
EDG	A		
	B		
	C		
#3 GAS TURBINE			

ELEC DISTRIBUTION AVAILABLE?		Y/N
VITAL BUS	A	
	B	
	C	
GROUP BUS	E	
	F	
	G	
	H	

CONTAINMENT CONTROL		ELECT. FEED	Y/N
CONT. SPRAY PUMPS	1	A2D	
	2	C2D	

CFCU		HI		LOW
1	A3X A4X		A2X	
2	B3X B4X		B2X	
3	C3X C4X		C2X	
4	B7X B8X		B6X	
5	C7X C8X		C6X	

		ELECT. FEED	Y/N
IODINE REMOVAL	1	G7X	
	2	E7X	
H^2 RECOM	1	A15X	
	2	B15X	

MISC. EQUIPMENT		Y/N
FIRE PUMPS (DIESEL)	1	
	2	

STATION AIR COMP.	ELECT. FEED	Y/N
1	1H6D	
2	2G1D	
3	1G1D	

EMERGENCY AIR COMP.	ELECT. FEED	Y/N
1	IC14X	
2	2C14X	

COMMENTS:

LICENSED OPERATOR REVIEW: _____
INITIALS

Operational Status Board – Salem

UPDATE: _____ TIME _____ DATE

UNIT # _____

I. EMERGENCY CORE COOLING SYSTEM

Cent. Charg. Pump Flow (BIT flow)		GPM
SI P flow # __1		GPM
SI P flow # __2		
RHR P flow # __1		GPM
RHR P flow # __2		GPM
RWST LEVEL		FT

II. CONTAINMENT

Cont. Pressure		PSIG
Cont. Temperature (AVG)		F
Cont. H_2 Concen.		%
Cont. Sump level		%
Cont. Rad (hi range) __R44A		R/hr
Cont. Rad (hi range) __R44B		R/hr

III. REACTOR COOLANT SYSTEM

# of RCPs Running		
RVLIS (full range)		%
Core Exit Thermocouple (hottest)		F
# of Thermocouples > 1200 °F		
Tc Loop __1		F
Tc Loop __2		F
Tc Loop __3		F
Tc Loop __4		F
*Tave (Autioneered) *If no RCPs running, Tave on the Control Console is invalid.		F
PZR/RCS Pressure		PSIG
PZR Level (hot)		%
Th Loop __1		F
Th Loop __2		F
Th Loop __3		F
Th Loop __4		F
Reactor Power/Neutron flux		%/amps/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 pressure		PSIG
NO. __2 SG pressure		PSIG
NO. __3 SG pressure		PSIG
NO. __4 SG pressure		PSIG
NO. __1 SG feedflow		% or LBS/HR
NO. __2 SG feedflow		% or LBS/HR
NO. __3 SG feedflow		% or LBS/HR
NO. __4 SG feedflow		% 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?		
Two or more diesels available?		
Did ECCS actuate?		
Is the containment barrier failed?		

VIII. SIGNIFICANT PLANT EVENTS

Licensed Operator Review _____ Initials

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. RZR/RCS Pressure _____ psig Core Exit TC _____ °F

6. Is offsite power available? ☐ YES ☐ NO

7. Are two or more diesel generators available? ☐ YES ☐ NO

8. Did any Emergency Core Cooling Systems actuate? ☐ YES ☐ NO

9. Is the Containment barrier failed? (Loss per EAL section 3.3) ☐ 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: 2.42 E+05 µCi/sec NG or 2.1E+01 µCi/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 [ ] R45 [ ] R44 [ ] R46 [ ]
G. NG RELEASE RATE: R41_____ R45___ _____ R44_____
R46_____(µCi/sec)
H. I-131 RELEASE RATE: R41_____ R45 _____ R44_____
R46_____ DEFAULT (µCi/sec) (circle if default)
I. TOTAL RELEASE RATE NOBLE GAS: _____(µCi/sec)
J. TOTAL RELEASE RATE IODINE-131: _____(µCi/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)	TIME FOR PLUME TO TRAVEL (MIN)
MEA 0.79	_____	_____	_____	_____	_____	_____
2.00	_____	_____	_____	_____	_____	_____
LPZ 5.00	_____	_____	_____	_____	_____	_____
EPZ 10.00	_____	_____	_____	_____	_____	_____

3. OTHER PERTINENT INFORMATION: _____

_____

_____

_____

4. UPDATE TO STATES (IF VERBALLY TRASMITTED):

	NAME	TIME	INITALS
STATE OF NEW JERSEY:	_____	_____	_____
STATE OF DELAWARE :	_____	_____	_____
AGENCY:	_____	_____	_____

APPROVED: _____
EC or RAC or RSM

Common Site **Unusual Event**
STATION STATUS CHECKLIST

Operational Information Message Date _____ Time _____

Transmitted by: Name _____ Position _____

1. Date and Time Event Declared: Date _____ Time: _____

2. Cause of event: Primary Initiating Condition used for declaration

EAL# _____

Description of the event:

_____

_____

33FT. LEVEL WIND DIRECTION (From): _____ WIND SPEED _____
(From MET Computer) (DEGREES) (MPH)

3. Status of the Reactors	Mode: (Power, Startup, Hot Standby, Hot S/D, Cold S/D, Refuel)	Rx Pressure	Hottest Core Exit TC / Rx Temp	Rx Water Level
Salem 1		psig	°F	covered
Salem 2		psig	°F	covered
Hope Creek		psig	°F	in.

	Salem 1		Salem 2		Hope Creek	
	YES	NO	YES	NO	YES	NO
4. Is offsite power available?						
5. Are two or more diesel generators operable?						
6. Did any Emergency Core Cooling Systems actuate?						
7. Is any Containment Barrier failed? (Loss per EAL section 3.3)						
8. Radiological release (> Tech Spec Limit) in progress		X		X		X

9. Other pertinent information _____

_____

_____

_____
EC Initials
(Approval to Transmit ICMF)

PSE&G
CONTROL
COPY # SECG061

ATTACHMENT 24

UNUSUAL EVENT (COMMON SITE)

NOTE

ONLY one OS is required to declare this event and assume the responsibilities of **Emergency Coordinator (EC).** The other OS should perform the duties of the Unaffected Station OS 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 OPERATIONS SUPERINTENDENT (OS) SHOULD:

A. NOTIFICATION OF HOPE CREEK OS

1. CONTACT the Hope Creek OS (NETS 5224, DID 3027, or 3059) 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 OS will assume EC responsibilities.

Emergency Coordinator: _____ _____
OS

2. IF the Hope Creek OS is the EC,
THEN.
   - Contact the Salem Operations Manager and Salem NRC resident and provide them with a briefing on the UE.
   - Assist the Hope Creek OS as needed. _____
OS

3. IF the Salem OS is the EC,
THEN IMMEDIATELY IMPLEMENT this attachment as EC. _____
OS

II. EMERGENCY COORDINATOR (EC) LOG SHEET

Initials

A. DECLARE AN UNUSUAL EVENT AT SALEM and HOPE CREEK

EAL # _____ Declared at _____ hrs on _____ _____
time date EC

B. NOTIFICATIONS

1. CALL communicators to the Control Room. _____ OS

2. COMPLETE the INITIAL CONTACT MESSAGE FORM (ICMF) (last page of this attachment). _____ EC

3. PROVIDE the ICMF to the Primary Communicator and DIRECT the Communicator to implement **ECG Attachment 6.** _____ EC

4. DIRECT the Secondary Communicator to implement **ECG Attachment 8** for an Unusual Event. _____ EC

NOTE

Activation of the Emergency Response Organization (ERO) during an Unusual Event is implemented at the discretion of the Emergency Coordinator (EC). If additional support personnel are needed during an Unusual Event, then limited or full staffing of the TSC may be initiated at the discretion of the EC. Limited staffing may be initiated by contacting selected support personnel on an individual basis in lieu of activating the full ERO.

5. IF desired, ACTIVATE the Emergency Response Organization (ERO) or PERFORM a limited staffing of the Emergency Response Facilities. _____ EC

Full Staffing

LOCATE the confidential envelope in the front of the Operations Superintendent's (O.S.) copy of the ECG marked "Emergency Callout". Follow the directions. When complete return to this procedure. **(EP96-003)** _____ OS

6. IMPLEMENT EPEP 102 for OS. _____ EC

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)

SALEM GENERATING STATION
EVENT CLASSIFICATION GUIDE TECHNICAL BASIS
September,26, 2002

CHANGE PAGES FOR
REVISION #14

The Table of Contents forms a general guide to the current revision of each section and attachment of the Salem ECG Technical Basis. The changes that are made in this TOC Revision #14 are shown below.

1. Check that your revision packet is complete.
2. Add the revised documents.
3. Remove and recycle the outdated material listed below.

ADD			REMOVE		
Pages	Description	Rev.	Pages	Description	Rev.
All	TOC	14	All	TOC	13
All	Section 3.3	04	All	Section 3.3	03
All	Section 9.4	03	All	Section 9.4	02
All	Section 9.5	02	All	Section 9.5	01

SALEM ECG TECHNICAL BASIS
TABLE OF CONTENTS/SIGNATURE PAGE

PSE&G
CONTROL
COPY # SECG0101

SALEM ECG TECHNICAL BASIS
TABLE OF CONTENTS/SIGNATURE PAGE

REVISION SUMMARY Biennial Review Performed: Yes ____ No _X_

Emergency Action Level (EAL) 3.3.3.b wording changed to clarify conditions necessary to consider the containment barrier lost. The intent of the EAL has not been changed.

– 9.4.1 Technical Basis - added statements that clarify uncontrolled toxic gas release.

SIGNATURE PAGE

Prepared By: William Detwiler, 08/14/02
(If Editorial Revisions Only, Last Approved Revision) Date

Section/Attachments Revised: 3.3.3.b & 9.4 8/14/02
(List Non Editorial Only - Section/Attachments) Date

Reviewed By: F J Hughes 8/14/02
10CFR50.54q Effectiveness Reviewer Date

Reviewed By: 9/11/02
Department Manager Date

Reviewed By: N/A N/A
Manager - Licensing Date
(Reportable Action Level (Section 11)

Reviewed By: 9/19/02
EP Manager Date

Reviewed By: NA N/A
Manager - Quality Assurance Date
(If Applicable)

SORC Review and Station Approvals

NA
Mtg. No. Salem Chairman

NA
Date

Vice President - Nuclear Operations

9/17/02
Date

Effective Date of this Revision: 9/26/02
Date

3.0 Fission Product Barriers

3.3 Containment Barrier

3.3.1 CRITICAL SAFETY FUNCTION STATUS

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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 that 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. CFST status will not be used for event classification until the Control Room Staff has implemented the CFSTs.

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

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. CFST status will not be used for event classification until the Control Room Staff has implemented the CFSTs.

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 H_2 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 H_2 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

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

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 <u>either</u> 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 <u>not</u> 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.

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.

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

UNISOLABLE leakage OUTSIDE Containment as indicated by one of the following:

- Downstream pathway **to the environment** exists
- **Radiation monitor**, area temperatures, flow or sump level

AND

Containment or system isolation is required due to any one of the following:

- Safety Injection
- Containment pressure greater than 4 psig
- Valid CNTMT Vent Isol Signal

AND

Cannot be ISOLATED from the main Control Room

MODE - 1, 2, 3, 4

BASIS

A high Containment pressure or a Containment Vent Isolation Signal represents a situation that requires the containment to be isolated from the outside environment. The term **"valid"** is defined as an actual condition that requires CNTMT Vent isolation due to an instrumentation setpoint being exceeded.

This EAL is intended to cover inability to isolate the containment when containment isolation is required. This EAL addresses conditions where RCS or Containment atmosphere is being transported OUTSIDE the Containment. This EAL is associated with an Isolation signal being generated as the result of an RCS Break with a failure of the isolation valves to close or fully close (downstream pathway to the environment) and any other containment failure that results in

the containment environment being in direct communications with any areas outside of the containment. Indications (symptoms) of containment failure may be evident without the exact pathway being understood at the time of the failure. If the containment or part of the RCS is required to be isolated and there are valid indications that the containment or system is are not isolated, the containment barrier should be considered lost.

UNISOLABLE means the flowpath through all valves in a penetration cannot be immediately stopped from the Control Room. This EAL ALLOWS for valve closure from the Main Control Room to isolate any systems not completely isolated, prior to event classification. Isolation is defined as the closure of ANY valve from the Main Control Room in the system(s) not completely isolated. For example, if the isolation logic fails to cause valve closure, but operator actions implemented in the Main Control Room successfully isolates the containment breach path, then classification under this EAL is not warranted.

The term "**to the environment**" is intended to include, ANY **UNISOLABLE** leakage to the environment either directly or via systems that exhaust to the Plant Vent (e.g.; leakage to the Auxiliary Building ventilation system) or directly to any other area outside the containment.

Radiation monitor indications are those that exceed normal release rate indications without a reason to expect another release source, such as a gas decay tank, spill, or fuel handling problem, and indicate a loss of the containment.

Area temperatures, system flow indications or rising sump level indications outside the containment may also indicate a loss of the containment. If the containment barrier is lost without a loss of the fuel barrier, effluent radiation readings may not increase significantly, however, unexpected area temperatures, flow rates, or sump increases outside of the containment may provide the indications that the containment atmosphere is no longer isolated.

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.

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.

Containment or system isolations are associated with systems that are part of the RCS boundary and penetrate the Containment. Isolation requirements for these lines are covered in 10CFR50, App. A, General Design Criteria 55. These systems form a closed loop outside the Containment, and are not open to the environment (e.g. RHR, SI). They are included in this EAL because they represent an extension of the RCS boundary beyond the Containment, and are a potential release path from the RCS to the environment. Without a completed isolation, continuing leakage represents a Primary System discharging outside the Containment (Containment Bypass), including areas in the Auxiliary Building.

Systems are lines that either: 1) connect directly to the Containment atmosphere and penetrate the Containment; or 2) penetrate the Containment and are neither part of the RCS boundary nor connected directly to the Containment atmosphere (e.g. Chilled Water). Isolation requirements for these lines are covered in 10CFR50, App. A, General Design Criteria 56 and 57, respectively. Therefore, this event may potentially connect the RCS or the Containment atmosphere to the environment. Without a completed isolation, continuing flow/leakage represents a release path from the RCS or containment to the environment.

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 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 Steam Generator Tube Rupture (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 isolation is not possible from the Control Room 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

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" requires both Main Steam Isolation and Steam Generator Blowdown Isolation. Therefore, failure of any Main Steam Isolation valve to close upon demand and whose flowpath cannot be isolated by the closure of a valve from the Control Room represents a potential loss of containment integrity. Valves specifically included in this EAL as Main Steam Isolation valves are:

1. MS 167, MSIV
2. MS 7, MSIV drain
3. MS 18, MSIV Bypass
4. MS 10, SG PORV
5. GB 4, SG Blowdown

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.

Steam generator tube ruptures are not considered a potential loss of containment barrier by definition due to the limited radiation releases (below Tech Specs) assumed in the SGTR accident analysis based on plant design. A SGTR would, by itself, be a potential loss of the RCS barrier.

DEVIATION

This EAL was added due to a Containment Bypass concern.

REFERENCES

NUMARC NESP-007, PC7
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.

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 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

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

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 OS 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 Department of Transportation (DOT) Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials. The DOT Emergency Response Guide for Hazardous Materials may be obtained from fire department. Salem County Office of Emergency Management will notify the fire departments of offsite release concerns from both sides of the river.

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

None

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU3.2
SC.OP-AB.CR-0003(Q)
DOT Emergency Response Guide for Hazardous Materials

9.0 Hazards - Internal/Extèrnal

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. Classification under this EAL is **not warranted** for small or incidental releases. This EAL assumes an uncontrolled process that has the potential to affect plant operations or personnel safety.

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 cannot be isolated and/or 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 that requires evacuation 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 since this does not meet the definition of an **Uncontrolled Toxic Gas** release. Regardless of resulting personnel injury or access restrictions, a Cardox discharge, operating as designed, as this condition is not a precursor for an uncontrolled gas release should not be classified under this EAL.

An **Uncontrolled Toxic Gas** release is considered to be IMPEDING normal plant operations if the release results in **Access Restrictions** or **Personnel Injuries**.

Access Restrictions are those actions that are put-in-place or left-in-place (evacuation of an area, no entry into an area, SCBA required for entry into an area), **after an initial assessment** of the release conditions is performed by the fire department. Access restrictions do not include short-term precautionary actions put in place prior to or during the initial assessment by the fire department.

- If the fire department's initial assessement results in implementation of or continuation of access restrictions, then the UE should be declared.
- If the fire department's initial assessement results in no access restrictions then the event does not warrant UE declaration.

This EAL does not require a detailed assessment or quantification. If the initial assessment is delayed, cannot be completed or is inconclusive, and access restrictions are in place then classification of this event should be promptly made.

Personnel Injuries are considered any conditions that resulted for the uncontrolled toxic gas release that require transport of an individual(s) to the hospital for further evaluation or treatment. Injury to an individual for a small or incidental gas release (not an uncontrolled toxic gas release) is not included under this EAL. For example, an inhalation injury from a small or incidental release (small amount of localized fuming when a system is opened for maintenance) does not warrant classification under this EAL, however, an injury sustained when a leaking chemical pipe fills an area with hazardous fumes and a worker(s) is overcome and requires hospital evaluation/treatment, would warrant classification under this EAL.

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 adjoining to a Plant Vital Area and safe shutdown could be impeded.

DISCUSSION

This EAL should not be construed to include confined spaces that must be ventilated prior to entry or situations involving The fire department personnel who are using respiratory equipment during the performance of their duties unless it also affects personnel not involved with The fire department 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 Department of Transportation (DOT) Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials. The DOT Emergency Response Guide for Hazardous Materials may be obtained from the fire department. Salem County Office of Emergency Management will notify the fire departments of offsite release concerns from both sides of the river.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU3.1
NEI 99-01, HU3 - Draft
SC.OP-AB.CR-0003(Q)
DOT Emergency Response Guide for Hazardous Materials

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 resulting in Access Restrictions. **Access Restrictions** are those actions that are put-in-place or left-in-place (evacuation of an area, no entry into an area, SCBA required for entry into an area), **after an**

initial assessment of the release conditions is performed by the fire department. Access restrictions do not include short-term precautionary actions put in place prior to or during the initial assessment by the fire department.

- If fire department's initial assessement results in implementation or continuation of access restrictions, then the UE should be declared.
- If fire department's initial assessement results in no access restrictions required, then the event does not warrant UE declaration.

This EAL does not require a detailed assessment or quantification. If the initial assessment is delayed, cannot be completed or is inconclusive, and access restrictions are in place then classification of this event should be promptly made.

Personnel Injuries are considered any conditions that resulted for the **Uncontrolled Flammable Gas** release that require transport of an individual(s) to the hospital for further evaluation or treatment.

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 adjoining 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 Department of Transportation (DOT) Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials. The DOT Emergency Response Guide for Hazardous Materials may be obtained from fire department. Salem County Office of Emergency Management will notify the fire department of offsite release concerns from both sides of the river.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HU3.1
SC.OP-AB.CR-0003(Q)
DOT Emergency Response Guide for Hazardous Materials

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 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 activates. 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 need for the evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials and may be obtained from the fire department.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA3.1
SC.OP-AB.ZZ-0003(Q)
DOT Emergency Response Guide for Hazardous Materials

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.

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 use 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 need for an evacuation is determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials and may be obtained from the fire department.

DEVIATION

None

REFERENCES

NUMARC NESP-007, HA3.2
SC.OP-AB.ZZ-0003(Q)
DOT Emergency Response Guide for Hazardous Materials

9.0 Hazards - Internal/External

9.5 Seismic Events

PSE&G
CONTROL
COPY # SECG0101

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.

A seismic event felt within the protected area is defined as an earthquake of sufficient intensity such that the ground motion is felt onsite and recognized as an earthquake based on a consensus of control room operators/supervisors on duty at the time of the event.

Additional information can be obtained by contacting the National Earthquake Center in Denver, Colorado at (303) 273-8500.

However, it is important to realize that it will take the Earthquake Center approximately 30 minutes to provide the requested information. The time required to obtain this additional information should not result in a delay of event classification for a **valid** actuation.

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.

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, Section 7.7.2.12, Seismic Monitoring Instrumentation
NEI 99-01, Rev. 4, HU1 – Earthquake Basis

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.

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, Section 7.7.2.12, Seismic Monitoring Instrumentation