PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE Revision and Approval Summary

TITLE: COMMUNICATIONS AND NOTIFICATIONS

1.	Prepared APAMAL 5/8/83 Griginator Date OR EN DELONG	2. QA Concurrence	Date
3.	Recommend Approval/Q-List Yes No No Department Head Date	PAIKuch PIC S3-010	5/19/53 Date
5.	Approved Plant Ranager Date Approved Plant Manager Date	6. ATMS Incorporated	5/20/83
7.	Biennial Review Date		

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TITLE: RELEASE RATE DETERMINATION FROM STACK GAS MUNITORS

1.0 PERSONNEL RESPONSIBILITY

The Chemistry/Health Physics Support Group Leader shall implement this procedure. In the absence of a Chemistry/Health Physics Support Group Leader, the Site Emergency Director (SED) shall delegate this responsibility.

2.0 PURPOSE

This procedure provides a release rate for radioactive effluents from the Plant stack. This data is used as input to offsite dose calculations.

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

- a. This procedure shall be implemented as required in EI-6.0.
- b. Data and results from this section should be recorded on the Dose Assessment Worksheet, Attachment 1 to EI-6.0, in Section I.1
- c. The preferred method of determining release rate is detailed Section 4.0 The backup method is detailed in Section 5.0.

4.0 RELEASE RATE DETERMINATION RIA-2326/RIA-2327 (PRIMARY METHOD)

4.1 STACK GAS MONITOR READING

- a. Obtain the stack gas monitor reading for RIA-2326 from chart recorder RR-2325 located behind the C-11A panel in the Control Room. If unavailable, obtain the reading for RIA-2327 from chart recorder RR-2327. Record on worksheet, item (A). Circle appropriate units and mark which monitor was used to provide the data.
- b. Obtain the background reading from the same recorder used above. Record background on worksheet item (B) circle the appropriate units.
- c. Obtain a net stack monitor reading by subtracting stack monitor background (B) from current stack monitor reading (A). Record on worksheet, item (C). Circle the appropriate units.

4.2 STACK FLOW RATE

- a. Obtain stack gas flow rate from the C-11A panel, located in the Control Room on chart recorder FR-2318. Record on worksheet, item (D). If a reading is unavailable use 82,000 ft /min as a default value.
- b. Convert flowstate to m³/sec by multiplying stack gas flow rate (D) by 4.72E ft³/min. Record on worksheet, item (E).

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TITLE: RELEASE RATE DETERMINATION FROM STACK GAS MONITORS

4.3 RELEASE RATE

- a. Obtain the conversion factor as follows:
 - For releases involving fuel melt or fuel failure, obtain the conversion factor for RIA-2326, RIA-2327 from Attachment 1 or Attachment 2 respectively using time after reactor shutdown as time post accident.
 - For releases other than fuel melt or fuel failure use the following conversion factors:

RIA-2326 = 1.98E-83
$$\frac{\text{Ci/m}^3}{\text{cpm}}$$
RIA-2327 = 3.5E-2

Record conversion factor on worksheet, item (F). Circle the appropriate units.

b. Calculate the noble gas release rate (QN) as follows:

Record results on worksheet, item (G).

c. Calculate the iodine release rate (QI) as follows:

Record results on worksheet, item (N).

Continue with next procedure, per EI-6.0.

5.0 RELEASE RATE DETERMINATION RIA-2318 /RIA-2319 (BACKUP METHOD)

5.1 STACK GAS MONITOR READING

- a. Obtain the stack gas monitor reading from chart recorder RR-2300 located behind the C-11 panel in the Control Room. RIA-2318 is the preferred monitor. RIA-2319 should be used as a backup. Record monitor reading on the worksheet, item (A). Mark which monitor was used to provide the data.
- b. Obtain the background reading from the name monitor taken at a time prior to the release. The default values for background are 1000 cpm for RIA-2318 and 50 cpm for RIA-2319. Record background reading on worksheet item (B).
- ground (B) from current stack monitor reading (A).

Record on worksheet, item (C).

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TITLE: RELEASE RATE DETERMINATION FROM STACK GAS MONITORS

5.2 STACK FLOW RATE

- S. Obtain stack gas flow rate from the C-11A panel, located in the Control Room on chart recorder FR-2318. Record on worksheet, item (D). If a reading is unavailable, use 82,000 ft³/min as a default value.
- b. Convert flow rate to m3/sec by multiplying stack gas flow rate (D) by 4.72E ft3/min

Record on worksheet, item (E).

5.3 RELEASE RATE

- a. Obtain the conversion factor as follows:
 - For releases involving fuel melt or fuel failure, obtain the conversion factor from Attachment 1, using time after reactor shutdown as the time post accident.
 - 2. For releases other than fuel melt or fuel failure use the following converson factors:

Record conversion factor on worksheet, item (F).

b. Calculate the moble gas release rate (QN) as follows:

QW (Ci/sec) = Net stack gas monitor reading (cpm) x stack gas flow rate (m³/sec) x conversion factor cpm

Record results on worksheet, item (G).

c. Calculate the iodine release rate (QI) as follows:

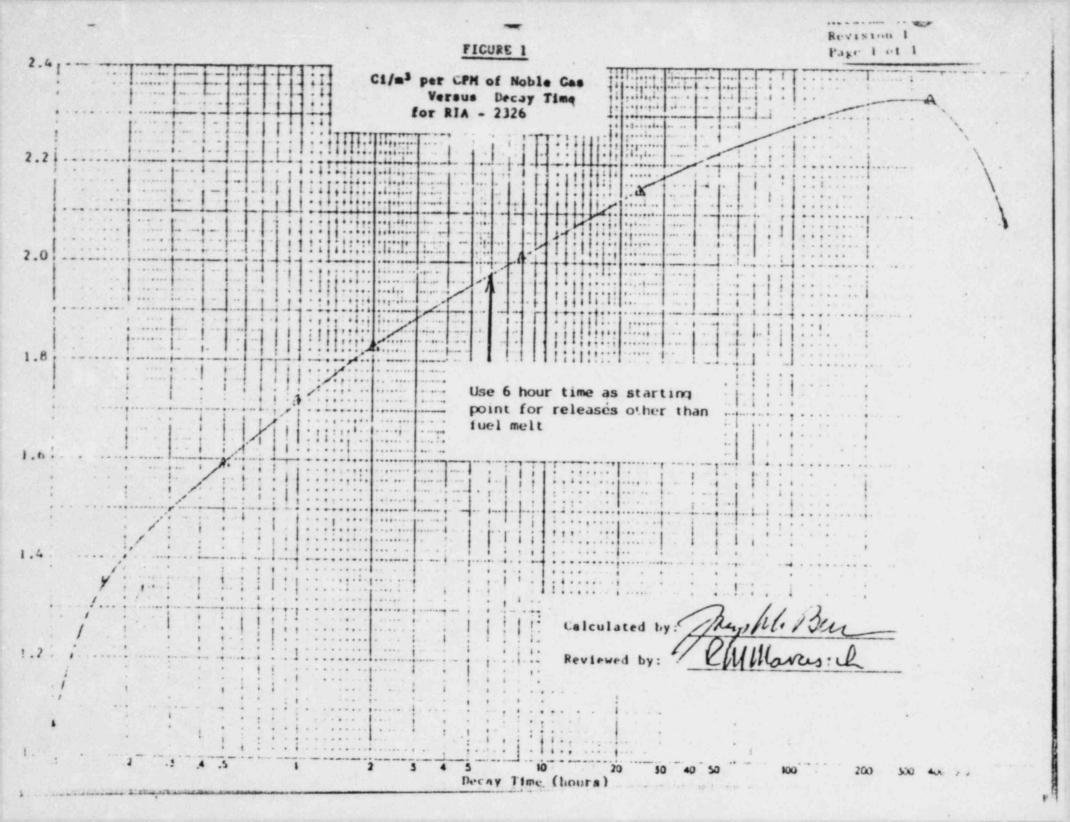
QI = QN x (1.0E-3)

Record results on worksheet, item (H).

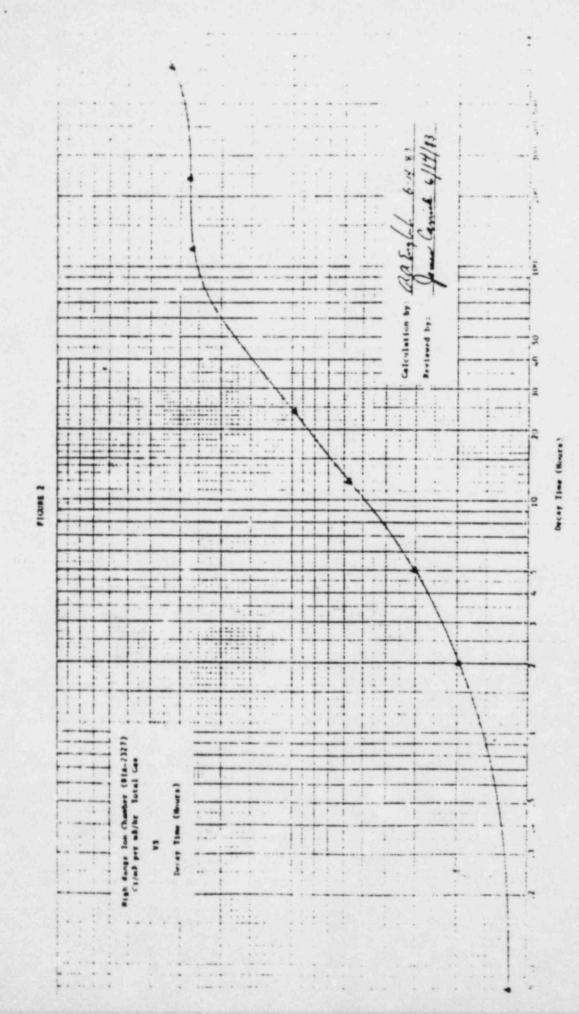
Continue with next procedure, per E1-6.0.

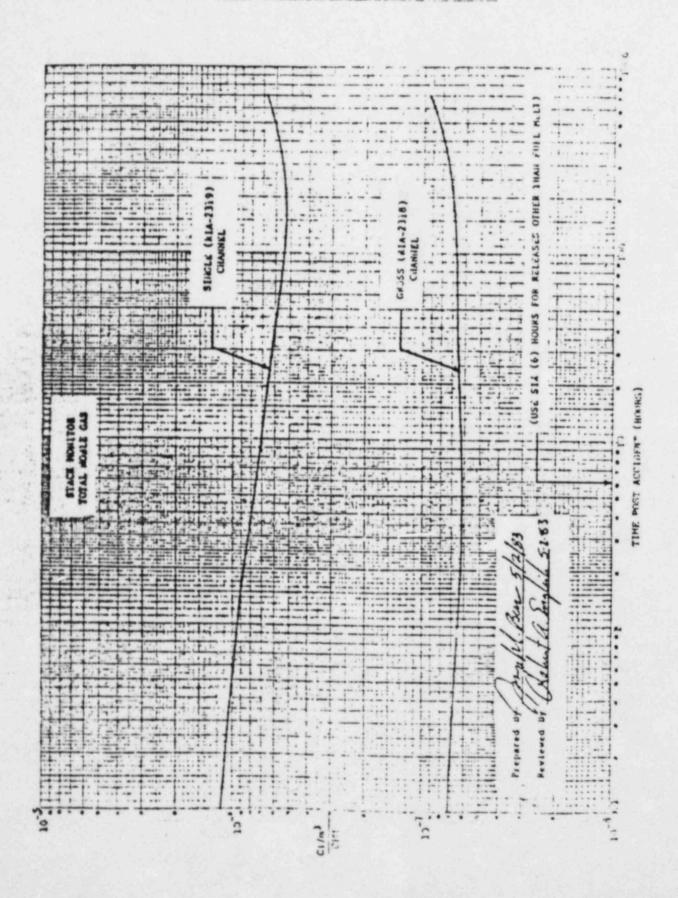
6.0 ATTACHMENTS

Attachment 1, "Stack Gas Monitor Conversion Factor, RIA-2320"
Attachment 2, "Stack Gas Monitor Conversion Factor, RIA-2327"
Attachment 3, "Stack Gas Monitor Conversion Factor, RIA-2318/RIA-2417"



STACK GAS MONITOR CONVERSION FACTOR, RIA-2327





PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE Revision and Approval Summary

TITLE: COMMUNICATIONS AND NOTIFICATIONS

1.	Prepared RGD. Jonator	6-23-93 Date	2.	QA Concurrence	Date
,	Recomment Approval/Q-L Department Head	ist Yes No 603/83 Date	4.	PRC Reviewed PHhick	Date
5 .	Approved Pungunas Plant Manager	6/27/83 Date	6.	ATMS Incorporated	6-20 P3 Date
7.	Biennial Review	Date			

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Attachments

Attachment 1, "Emergency Notification Form"
Attachment 2, "Hospital Notification Form"
Attachment 3, "Communications Matrix"
Attachment 4, "Emergency Call List"

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TITLE: COMMUNICATIONS AND NOTIFICATIONS

1.0 PERSONNEL RESPONSIBILITY

- a. The Site Emergency Director (SED) shall assure offsite notifications are performed per EI-2.1 and onsite notifications are performed per this procedure.
- b. Upon activation of the Technical Support Center (TSC), the Communicator (described in EI-4.1) shall perform the notifications requiring regular updates, including Power Controller/General Office Control Center/Emergency Operations Facility, State. County and Nuclear Regulatory Commission. Prior to activation of the TSC, the SED shall delegate this function.

2.0 PURPOSE

To provide for emergency communications to onsite personnel and offsite agencies.

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

- a. Initial notification shall be made at Unusual Event. Followup notification shall be made as conditions warrant or the emergency escalates.
- b. Alert and above followup notifications shall be made at approximately 15 minute intervals.

4.0 COMMUNICATIONS AND NOTIFICATIONS

4.1 ONSITE NOTIFICATIONS

- Emergency siren shall be sounded at the Alert, Site Area Emergency or General Emergency. When possible a public address announcement should be made prior to sounding the siren (see Section c below.
- b. The emergency siren shall be a continuous two minute blast.
- c. The Plant Public Address System should be used to notify Plant personnel of the emergency classification, location, and nature of the emergency.
- d. Additional information shall be provided to Plant personnel over the Public Address System as conditions warrant or the emergency escalates.

TITLE: COMMUNICATIONS AND NOTIFICATIONS

4.2 OFFSITE NOTIFICATIONS

4.2.1 Power Controller/General Office Control Center Emergency Operations Facility, State, County and NRC

- a. The Communicator shall use Attachment 1 to provide notification to above listed agencies as required in <u>Initial Conditions and/or</u> Requirements.
- b. Information to complete Attachment 1 may be obtained from TSC Status Boards.
- c. Notifications to the State, County and NPC should be turned over to the General Office Control Center or Emergency Operations Facility as soon as possible.
- d. A final call should be made to all agencies before notification turn over is completed to clearly establish the new point of contact.

4.2.2 Hospital Notification

Notification of hospitals receiving contaminated injured victims should be performed using Attachment 2, "Hospital Notification Form".

4.2.3 Message Authentication

- a. In the event commercial telephones are used to send or receive emergency notifications, the following method may be used to ensure the auther ticity of a message.
- b. Message authenticat. on should be performed in the following cases:
 - 1. The validity of the message is in doubt.
 - 2. The identity of the caller is in doubt.
 - The message requires extreme or unusual action (for example, public evacuation).
 - 4. At the option of the SED, Communicator, or offsite contact.
- c. Message authentication by the Palisades Staff shall be performed by informing the offsite caller that you will return the call. Return the call using the telephone number listed in 'I-2.1 or EI-3. Re-establish contact with the original caller.
- d. Message authentication by offsite organizations shall be performed at their request. Request that the organization return the call using the Palisaues Plant telephone number listed in their emergency plan, procedure or call list. After contact is reestablished, re-transmit the message.

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TITLE: COMMUNICATIONS AND NOTIFICALISMS

4.3 DOCUMENTATION OF NOTIFICATION

- a. Within 24 hours of completion of Attachment 1 or 2, these forms should be forwarded to Plant Licensing to verify that required notifications have been made.
- b. The Attachments shall be forwarded to Palisades Document Control and Retained for 5 years.

5.0 ATTACHMENTS

- 5.1 Attachment 1, "Emergency Notification Form"
- 5.2 Attachment 2, "Hospital Notification Form"
- 5.3 Attachment 3, "Communications Matrix"
- 5.4 Attachment 4, "Emergency Call List"

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2.	LOCATION - PALISADE	S PLANT
	A. Message #	Date: Time: C. Technical Support Center
	B. Control Room	C. Technical Support Center
3.	THIS IS IS N	OT A DRILL OR EXERCISE (CHECK ONE)
4.	CLASS OF EMERGENCY	(check one)
	A. Time declared	D. Site Area
	B. Unusual Event C. Alert	D. Site Area E. General
5.	DESCRIPTION OF EVEN	T; CHANGE OF STATUS:
6.	PROGNOSIS (CHECK ON	
6.	PROGNOSIS (CHECK ON	
6.		E)
6.	A. Stable B. Escalating	E) C. De-Escalating
6. 7.	A. Stable B. Escalating PLANT EMERGENCY RES	C. De-Escalating D. Terminating PONSE ACTIONS UNDERWAY (CHECK)
6.	A. Stable B. Escalating PLANT EMERGENCY RES A. Offsite assista	C. De-Escalating D. Terminating PONSE ACTIONS UNDERWAY (CHECK) nce previously requested: Yes N
7.	A. Stable B. Escalating PLANT EMERGENCY RES A. Offsite assista B. Fire	C. De-Escalating D. Terminating PONSE ACTIONS UNDERWAY (CHECK) ace previously requested: Yes No. Ambulance
7.	A. Stable B. Escalating PLANT EMERGENCY RES A. Offsite assista	C. De-Escalating D. Terminating PONSE ACTIONS UNDERWAY (CHECK) nce previously requested: Yes N
6. 7.	A. Stable B. Escalating PLANT EMERGENCY RES A. Offsite assista B. Fire C. Police	C. De-Escalating D. Terminating PONSE ACTIONS UNDERWAY (CHECK) nce previously requested: Yes

nes bear	8	KAL	TOLOGICAL BELLASE DATA				
		A.	Potential for referse				
		В.	Actual Release				
		C					
		D.	Airhorna				
		E.	Watuchurne				
		-					and the
		G	Surface Spill Potential Release Durati n, hours				
		٠.	Potential Release Duratt n, mairs	a was cond			
	9.	MET	TEOROLOGICAL DATA				
		A.	Stability Class				
			Based on AT (°C)				27. m
			Based on AT (°C)	S	igm: Ihe	ta tites	creens
		B.					
		C.	Wind Direction, degrees (from)				471.04
		D.					
	10.		SITE DOSE RADIOLOGICAL RELEASE DATA				
		A.	Estimated Measured	(check on	-)	
		-	Effluent Point:				
		C.	Noble Gas Release Rate, Ci/Sec:				
		D.	Average Energency per Disintegrati	ion, E, M	eV:		
		Ε.	Equivalent I-131 Release Rate, Ci/	sec:	-		
		F.	Potential Release Duration, hours:				
	11.	CAI	CULATED OFFSITE DOSE				
				Site	Boundar	у	
		A.	Distance, miles	.5	2	5	10
		B.	Whole Body Gamma				
			Dose Rate, rem/hr				
		C.	Whole Body Gamma	-			-
			Dose, rem				
		D.	Child Thyroid Dose				
			Rate, rem/hr				
		E.	Child Thyroid Dose,				
			rem				
				-	****		
		F.	Additional Data:				

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EMERGEN Y NOTIFICATION FORM

 12	PROTECTIVE ACTION RECOMMENDATIONS	Sector(s)	Miles
	A. None B. Sheltering Precautionary Evacuation D. Evacuation E. Contamination Control F. Food G. Water H. Milk I. Other		
 13.	REMARKS/ADDITIONAL INFORMATION:		
14.	THIS IS IS NOT A DRILL/EXER	CISE (CHECK ONE	,

HOSPITAL NOTIFICATION FORM

	communicator
A	Name:
В	. Title:
	. Telephone Number:
I	ocation: Palisades Plant
N	lumber of victims:
2	Method of transport:
	Estimated time of orrival:
	Extent of injuries:
- F	first aid and/or decontamination procedures initiated:

COMMUNICATIONS MATRIX

	Control	Technical Support Center	Operational Support Center	General Office Control Center	Emergency Operations Facility	Power Controller	NRC offsite	Mehigan State Police	Van Buren Cty Loc	Offsite Monitoring Teams
Offsite Monitoring . Teams	D	D	B,D*		B,D*					D
Van Buren Cty EOC	A*,B	A*,B	В	В	A,8	В	В	В		
Michigan State Police	A*,B	A*,B	В	В	A*,8	В	В			
NRC Offsite	A*,B	A*,B	В	В	A*,B	В				
Power Controller	A*,8	A*,B	В	В	3	-				
Emergency Operations Facility	A*,B,	A*.B.	B.C.	A*.B	E,F,H*					
General Office Control Center	A*,5	A*,B	В	Е						
Operational Support Center	3,C*,	A*.B. C.D.F	E							
Technical Support Center	B.C*. E.F.G	E.G*								
Control Room	E									

A - Dedicated telephones

B = Commercial telephones

C = Intraplant telephones

D = Radio

E . Face-to-face

F . Intercom

C . Sound powered telep nes

H * PA System

* - Preferred method

517-373-0617

EMERGENCY CALL LIST

44		4				-
M	m	. 5	*	pr.		1
1.9	96	5.8	*	90.1	a	

Memorial Hospital, St Joseph Mercy Hospital, Benton Harbor South Haven Community Hospital	927-5242 or	983-8300 927-5241 637271
Dale K Morgan, MD, South Haven David B Witte, MD, South Haven		637-3609

Local Response

City of South Haven	637-5211 (day)
Board of Public Utilities	637-5151 (night)

State Response

Michigan State Police

Emergency Services Division,	Lansing		517-337-6100		
			517-332-2521		
Michigan State Water		Toll Free	800-292-4706		
Resources Commission			517-373-7660		
Indiana Civil Defense			317-232-3830	(day)	
Indiana State Police			317-232-8250		

Federal Response

Department of Energy	312-972-4800 (day)		
Radiological Assistance Program	312-972-5731 (night)		

Insurers

American Nuclear Insurers	203-677-7305 (day)		
	203-677-7715 (night)		
Nuclear Mutual Limited	809-295-3278		

Technical Support

Institute of Nuclear	404-953-0904
Power Operations	(emergency response)
	404-953-3600
	(normal use)

REMS

Radiation Emergency Management	505-243-0236		
Services - Medical Consultant	505-848-6024 (ager)		

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE Revision and Approval Summary

TITLE: OFFSITE LOSE CALCULATION AND RECOMMENDATIONS FOR PROTECTIVE ACTIONS

1.	Prepared	2.	QA Concurrence	
	R Q D. 12 6-23-83 Originato Date		N.A.	Date
3.	Recommend Approval/Q-List Yes No Mill 6/33/83 Department Head Date	4.	PRC Reviewed RMKinch	Date
5.	RWM outen Uzil 83 Plant Manager Date	6.	ATMS Incorporated	29.83 Date
7	. Biennial Review Date			
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TITLE: OFFSITE DOSE CALCULATION AND RECOMMENDATIONS FOR PROTECTIVE ACTIONS

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Attachment 1, "Offsite Dose Worksheet"

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FITLE: OFFSITE DOSE CALCULATION AND RECOMMENDATIONS

1.0 PERSONNEL RESPONSIBILITY

The Chemistry/Health Physics Support Group Leader shall implement this procedure. In the absence of a Chemistry/Health Physics Support Group Leader, the Site Emergency Director shall delegate this function.

2.0 PURPOSE

To determine the appropriate steps required to calculate offsite dose and recommend offsite protective actions.

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

This procedure shall be implemented when there is a potential for, or an actual significant release of radioactive materials from the Plant site, per EI-2.1.

4.0 PROCEDURE

4.1 OVERVIEW

- a. All procedures in Emergency Implementation Procedures, Section EI-6 are for calculation of offsite dose and making recommendations for offsite protective actions. Not all procedures in this section are applicable to all release categories. The following paragraphs will direct the user to the appropriate procedures to complete this task.
- b. Use Attachment 1 of this procedure, (Offsite Dose Worksheet), when completing this procedure. Mark the blank in the left margin of the worksheet to designate which procedures should be performed, per the following paragraphs.

4.2 RELEASE RATE

This section selects the appropriate procedure to determine a release rate (Ci/sec) for input into the Offsite Dose calculation.

- 4.2.1 If the release is occurring through the Plant stack, the release rate should be determined in EI-6.1. Mark Section I.1 on the worksheet if this paragraph applies to the release.
- 4.2.2 If the release is occurring through the steam dump, the release rate should be determined in EI-6.2. Mark Section I.2 on the worksheet if this paragraph applies to the release.
- 4.2.3 If the release is occurring through the stack or steam dump and the stack monitors or main steam line gamma monitors respectively, are not functional, the release rate should be determined in El-6.3. Mark Section 1.3 on the worksheet if this paragraph applies to the release

Procedure Process. Profession : Page : left :

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- potential for release or an actual release taking place, the release rate should be included in ki-6 w, using the high range instance of monitors. Mark Section 1.4 on the worksheet if this paragraph applies to the (potential) release.
- 4.2.5 If the results from Post-Accident Sampling (E1-7) are available, confirmation of potential or actual release rates from the containment building or the Primary Coolant System may be determined in E1-6.5 This procedure may serve as a backup for E1-6.3 in the case of a containment building release, as time permits. Implementation of this procedure should not delay completion of Offsite Dose Calculations. Hark Section 1.5 of the worksheet if the above conditions are met for the use of Post-Accident Sampling input.
- 4.3 AVERAGE GALLA ENERGY (E)

£1-6.6 shall be used to determine the average gamma energy per disintegration to be used for Offsite Dose calculations. Section 11.1 is already marked on the worksheet.

4.4 METEOROLOGICAL DATA

This section selects the primary and backup methods of obtaining meteorological data, including wind speed, wind direction and stability class.

- 4.4.1 If the site meteorological station is functioning, current weather conditions should be determined in El-6.7. Mark Section III.1 on the worksheet if onsite meteorological data is available.
- 6.6.2 Backup meteorological data and weather forecasts are obtained in EI-6.5. The backup system should be used when the ousite system is not available. Weather forecasts may be used to anticipate changing conditions. Forecasts should be made only if staffing and time permits. Mark Section III.2 on the worksheet if backup meteorology is used.
- 4.5 CALCULATIONAL METHODS

This section describes the method(s) which should be used to calculate offsite dose,

4.5.1 The straight-line Gaussian method described in El-6.9 should be used to determine offsite dose. This method requires a pre-programmed dewlett-Packard 41 CV calculator (normally stored with fechnical Support Center emergency equipment). This method is in agreement with the state method and should be the primary used until the legiblical Support Center is staffed. Mark Section 17.1 on the worksheets if the above conditions are met.

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TITLE: OFFSITE DOSE CALCULATION AND RECONDENDATIONS
FOR PROTECTIVE ACTIONS

- 4.5.2 If a pre-programmed Hewlett-Packard 41 CV is not available, £1-6.10 should be used to determine offsite dose. The methodology and results are essentially identical to those in EI-6.9, but no calculator is required. Mark Section IV.2 on the worksheet if the backup method is used.
- 4.5.3 Segmented Gaussian Method, EI-6.11 to be developed.
- 4.6 OFFSITE MONITORING

EI-6.12 compares offsite monitoring results (EI-9), to Offsite Dose calculations made in this section. This comparison should be made as data becomes available and time permits. Mark section V.1 on the worksheet if the above conditions are met.

4.7 OFFSITE PROTECTIVE ACTIONS

EI-6.13 shall be used to determine recommendations for offsite protective actions. Section VI.1 is already marked on the worksheet.

4.8 COMPLETION OF REQUIRED CALCULATIONS

Initiate the first procedure as identified on the worksheet. Proceed to the next procedure identified on the worksheet upon completion of the first. Omit unmarked sections of the worksheet.

5.0 ATTACHMENTS

Attachment 1, "Offsite Dose Worksheet"

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-	1460		200 000 000
- 1	RP	ease	RILC

()	Section 1.1, Reference EI-6.1, Releas	e Rate Determinati	on from Stack was Monitors	
1.	Current stack gas monitor reading	= (circle ur	cpm (A) \$\frac{4000}{2000} \text{RIA-2318} (\$\frac{1000}{2000} \text{RIA-2319} (\$\frac{1000}{2000} \text{RIA-2326} (\$\frac{1000}{2000} \text{RIA-2327} (\$\frac{1000}{2000} \text{RIA-2320} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{10000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{1000} \text{RIA-2300} (\$\frac{1000}{2000} \text{RIA-2300} (\$\frac{10000}{2000} R)
2.	Stack monitor background reading	= (circle	cpm (B) mR/hr	
3.	Net stack reading	= (circle	cpm (C) mR/hr	
4.	Stack gas flow rate	=	ft ³ /min (D)	
5.	Stack gas flow rate (D) ft ³ /min x 4.72E-4 m ³ /sec ft ³ /min	•	m ³ /sec (E)	
3.	Conversion factor = (circle units)	Ci/m ³ (F) Ci/m ³ mR/hr		
7.	QN, Noble gas release rate = (C) x (E) x (F)	=	Ci/sec (G)	
3.	QI, Iodine release rate = (G) x (1.6	DE-3) =	Ci/sec (H)	
	Date: Time:	Completed By:		

(G) x (1.0E-3)	• •	Ci/sec (H)
$QN = \frac{(E) + (F)}{2}$		
, noble gas release rate release is from one S/G QN = (E) or release is from both S/G		Ci/sec (G)
B, noble gas release rate B S/G = (D) x (17.3E-2)	• —	Ci/sec (F)
A, noble gas release rate A S/G = (C) x (1.7 x 3E-2)	=	Ci/sec (E)
eam Line Monitor Reading S/G, **RIA-2323		net cpm (D)
eam Line Monitor Reading S/G, **RIA-2324		net cpm (C)
Time (A) Time (B)		

ATT.			
A11500			
1000000			
10000			

CONFIRMATION

()	Section 1.2, Reference EI-6.2, Release Rate Determination from Steam Line Monitors.
1.	Dite: Time:
2.	Steam Dump Start
	Date: Time:
3.	Tavgor
4.	PCP on? Yes: No:
5.	Secondary Pressurepsia
6.	Fully Open Dump Valve Saturated Steam Flow Ratecc/sec
7.	Tave error
8.	Fraction Valve Open
9.	Actual Steam Flow Rate from one Dump Valvecc/sec
.	S/G A dumps open? Yes: No:
11.	**RIA-2324 readingcpm
12.	S/G A Total Radionuclide ConcentrationµCi/cc
13.	S/G A Radionuclide Release RateµCi/sec
14.	S/G A Noble Gas Release RateµCi/sec
Prince.	8/G A Radioiodine Release RateuCi/sec
15.	S/G B dumps open? Yes: No:
16.	**RIA-2323 readingcpm
17.	S/G B Total Radionuclide ConcentrationµCi/cc
18.	S/G B Radionuclide Release RateµCi/sec
19.	S/G B Noble Gas Release RateµCi/sec
	S/G B Radioiodine Release RateµCi/sec
20.	Bypass Valve Open? Yes: No:

e10383-0027b154-89

CONFIRMATION

21.	S/G A MSIVs open? Yes: No:	
	S/G B MSIVs open? Yes: No:	
22.	Bypass Valve Noble Gas Release RatepCi/sec	
23.		Ci/sec
24.	S/G A T _{cold} °F	
25.	S/G B T _{cold} — °F S/G A Pressurepsia	
	S/G B Pressurepsia Fully Open Dump Valve Flow Rates:	
	S/G Acc/sec	
	Tavs error	(
	Fraction Valve Open	
29.	S/G A Actual Steam Flow Ratecc/sec	
	Date: Completed By:	

FESTE DOSE WORKSHELT

)	1.3. Reference El-o.J. Release Sate Determination from 1.gl Kange Eiffrent Mon
()	
1.	High range effluent monitor reading mR, hr (A)
	High range effluent monitor, () stack
	() steam .lump
2.	High range effluent monitor reading = (A) x (1.0E-3) = R/fir (B)
3.	Response factor(C)
4.	Corrected monitor reading = (B) x (C) = R/hr (D)
5.	Elapsed time from reactor shutdown to
æ.6.	Conversion factor $= \frac{R/hr}{Ci/sec}$ (F)
	from: Attachment 1 () Attachment 2 () Attachment 3 () Attachment 4 ()
7.	QN, noble gas release rate = (D) ÷ (F) = Ci/sec (G)
8.	QI, I-131 dose equivalent release rate = Ci/sec (H)
	Date: Completed By:

STREETE LOSE STREET

AL CHARLE

English St.

,	1.4. Reference hisola, Release/Estential Release Decrease Community Range Conitors.	
1	Time past shutdown = hours (A)	
2.	Monitor number () **RIA-2321 (B) () ***RIA-2322	
3.	Monitor reading = R/hr (C)	
4.	Noble gas conversion factor = $\frac{\mu C \iota / cc}{R/hr}$ (D)	
5.	Leak rate = cc/sec (E)	
6.	QN, noble gas release rate = C1/sec (F)	
7.	QI, I-131 dose equivalent release rate = C1/sec (G)	
	Date: Time: Completed By:	

Pros No Elect Attachment 1 Reviews 1 Elect 1 t 15

THE THE TUSE WORKSHIPFT

SEPERANCE LI-6

To Be Furnished Later

11 Gamma É Determinate

(x)	II 1, Reference EI-6.6		
1.	Decay time	hours (A)	
2.	Source of release ()	Fuel Melt or Fuel Failure Main Steam or Offgas (Air Ejector) Releases Surge Tank, Volume Control Tank, and Degasities Releases Waste Gas Decay Tank Releases Fuel Handling, Sipping and Cask Drop Releases	(B)
3.	Ê = MeV (C	<u>, </u>	
	Date: T	Completed By:	

111	Meteoro	LURICAL	Data
-----	---------	---------	------

WS, Wind Speed *	mph (A) () 10 meters () 60 meters, corrected
WD, Wind Direction =	* from (B) () 10 meters () 60 meters
6010 DELT =	(C) preferred
	OR
() 10-H SGHA =	(C) alternate
() 60-H SCHA =	
Stability Class =	(D)

Attachment 1
Revision 1
Page 10 of 15

OFFSITE DOSE WORKSHEET

	Wind direction = * From (A)
2.	Wind speed = knots (B)
3.	Wind speed = (B) x (1.15) mph/knot = mph (C)
4.	Pasquill Stability Class =(D) default for stability class: night rime or cloudy = E day time and clear = D
	Date: Completed By:

IV - OFFSITE DOSE CALCULATION

Required Calculations Optional Calculate Site				
dary				
*	- '			
hrs (D) Note: default is two hours.				
•				
otential (circle one) releases.				
	Site Boun- dary .5 mi 2 mi 5 mi 10 mi = hrs (D) Note: default is two hours.			

Tangers and

Ci (mph)	Site Boun- dury				
Ci (mph)	dury				
Ci (mph)	5 mi				
Ci (mph)		2 mi	5 mi 10 mi	and the second	(A
$\chi \mu/Q \frac{C_1 \text{ (mph)}}{m^3 C_1/\text{sec}}$				100 mm	(B
<pre>x/Q (sec/m³) = (B) + wind speed (mph)</pre>	=				. (0
Semi-infinite cloud whole dose rate (mrem/hr) =					
(C) x (QN) x (E) x (9.0E+5)	=				- (1
Finite cloud correction factor	=				
Finite cloud whole body					
dose rate (mrem/hr =					()
(D) + (E)	*				
Estimated release duration (hour	rs)				(
Figite Cloud Whole body dose commitment (mrem) = (F) x (G)	•				_ (
I-131 dose equivalent concentra (Ci/m ³ = (QI) x (C)	tion =				_ (
Child thyroid dose rate (mrem/h (1) x (1.85E9)	r) = =				_ (
Child thyroid dose commitment ((J) x (G)	mrem) = = 				(
Above doses based on actual/pot	ential (circ	cle one)	releases. (L		

OF SITE DOSE WORKSHEET

PERFERENCE LI-6, 11

(To be included later)

OFFSITE DOSE WORKSHEET

V Offsite Monitoring

		1000					
	Distance =	Site boun-					
		dary	2 m1	5 m)	10 mi		
			1				
. 0	Offsite Monitoring Data						
	Mhole Body dose rate (mrem/hr)	•		-		(A)	
1	I-131 dose equivalent conc (µCi/co	c) =				(B)	
	Plume direction = degr						
. 0	Offsite Dose Calculations						
1	Finite Cloud Whole Body					(D)	
•	dose rate (mrem/hr)	1					
	I-131 dose equivalent conc (µCi/cc)					(E)	
	Wind direction = degrees fr	om (F)					
	Wind direction = degrees to	(6)					
. :	Data Comparison						
	(A) - (D)		-			(H)	
	(B) - (E)					(1)	
If	(H) or (I) > 0, circle in red.						
	(D) + (A)					(J)	
	(E) + (R)					(K)	
If	f (J) or (K) > 2.0, circle in red						
	[(C) - (G)] = degrees (L)					
1	f (L) > 10°, circle in red.				1		
	Date: Time:	Con	pleted B	v:			D

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTING PROCEDURE

Proc No EI-7.0 Revision 0 Page i

TITLE: EMERGENCY POST ACCIDENT SAMPLING

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4.0	EMERGENCY POST ACCIDENT SAMPLING	F-3
5.0	ATTACHMENTS	1



VI Protective Actions

Proc No El-6.0 Abbent 1 Revision 1 Page 15 of 15

(x) VI.1, Reference EI-6.13, Protective Action Recommendation for Offsite Population

RECOMMENDED PROTECTIVE ACTIONS TO REDUCE WHOLE BODY AND THYROID DOSE TO OUTSITE POPULATION FROM EXPOSURE TO A GASEOUS PLUME

Recommended (A) Protective	Affected* Sectors	for (C) Protective Actions	Projected Dose (Rem) to the Population	Recommended Actions (a)	Comments Previously recommended
Action	(B)	Accions	Wholebody < 0.5 Thyroid < 5	No required protective actions (b) State may issue an advisory to seek shelter and await further instructions. Monitor environmental radiation levels.	be reconsidered or terminated.
			Wholebody 0.5 to < 5 Thyroid 5 to < 25	Seek shelter as a minimum. Consider evacuation. Evacuate unless constraints make it impractical. Monitor environmental radiation levels. Control access.	onstraints exist, special consideration should be given for evacuation of hildren and pregnant women.
			Wholebody 5 and above Thyroid 25 and above	Conduct mandatory evacuation. Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels. Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible.

⁽a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration.

These dose rates are based on actual/potential (circle one) releases. (D)

Site Emerg

Will : Include the area within two miles of the plant (all sectors) in any recommended actions

		Date	Time
Completed	Ву:	 	
Reviewed	ву:		
ency Direct	or:		

⁽b) At the time of the incident, state officials may implement low-impact protective actions in keeping with the principle of maintaining radiction exposures as low as reasonably achievable.

TITLE: EMERGENCY POST ACCIDENT SAMPLING

1.0 PERSONNEL RESPONSIBILITY

The Chemistry/Health Physics Group Leader shall implement this procedure. In the absence of a Chemistry/Health Physics Group Leader, the Site Emergency Director shall delegate this responsibility.

2.0 PURPOSE

To provide the ability to take post accident samples of the Primary Coolant System, the containment atmosphere, and stack effluent.

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

This procedure shall be implemented per EI-2.1, "Emergency Actions/Notifications/Responsibilities".

4.0 EMERGENCY POST ACCIDENT SAMPLING

- a. Upon determination that a radioactive release is taking place through the stack that may warrant the activation of the Site Emergency Plan, (Refer to EI-1), the Chemistry/Health Physics Group Leader shall procede to EI-7.10, "Post Accident Sampling, Radioactive Gaseous Effluent Monitor" and perform post accident sampling per that procedure.
- b. Upon determination that a release of radioactivity may be taking place from the fuel into the Primary Coolant System that may warrant the activation of the Site Emergency Plan, (refer to EI-1), the Chemistry/Health Physics Group Leader shall procede to EI-7.1, "Post Accident Sampling", and perform post accident sampling per that procedure.
- c. Upon determination that a release of radioactivity to containment that warrants activation of the Site Emergency Plan, (refer to EI-1), may have occured, the Chemistry/Health Physics Group Leader shall procede to EI-7.1, Post Accident Sampling" and perform post accident sampling per that procedure.

5.0 ATTACHMENTS

None

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE Revision and Approval Summary

TITLE: EMERGENCY ACTIONS/NOTIFICATIONS/RESPONSIBILITIES

1.	Prepared	2. QA Concurrence
	RaD. 45 6-23-83 Originato Date	N.A. Date
3.	Recommend Approval/Q-List Yes No Department Head Date No	2H Kuch 6/24/83 PRESSOIZ Date
5.	Approved Plant Manager Date	6. ATMS Incorporated 6. ATMS Incorporated 6-29-83 Date
7.	Biennial Review Date	

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTING PROPERTY REVISION and Approval Summery

TITLE: EMERGENCY POST ACCIDENT SAMPLING

1. Prepared	2.	QA Concurrence	
RGD. 1	6-23-13 Date	N.A	Date
3. Recommend Approval/Q-Li	st (ves) No 4.	PRC Reviewed FILLER	Date
5. Approved Plant Hanager	Aziles Date	ATMS Incorporated	6-28-83 Date
7. Biennial Review	Date		

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE

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TITLE: EMERGENCY ACTIONS/NOTIFICATIONS/RESPONSIBILITIES

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EMERGENCY ACTIONS/NOTIFICATIONS			*		×			٠				
SITE EMERGENCY DIRECTOR RESPONSIBILITIES	٠											
DOCUMENTATION OF NOTIFICATIONS				*								
ATTACHMENTS												

Attachments

Attachment 1, Emergency Actions/Notifications

TITLE: EMERGENCY ACTIONS/NOTIFICATIONS/RESPONSIBILITIES

1.0 PERSONAL RESPONSIBILITIES

The Site Emergency Director (SED) shall implement this procedure.

2.0 PURPOSE

- 2.1 To provide the SED with a prepared course of action for each emergency identified in EI-1, Activation of the Site Emergency Plan/Emergency Classification.
- 2.2 To define the SEDs responsibilities in an emergency.
- 3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

This procedure shall be implemented after completion of EI-1.

- 4.0 EMERGENCY ACTIONS/NOTIFICATIONS/RESPONSIBILITIES
- 4.1 EMERGENCY ACTIONS/NOTIFICATIONS
 - a. The SED shall delegate the Actions/Notifications identified in EI-1 and marked on Attachment 1. Normally assigned personnel/groups are identified in fourth column.
 - b. The assignee should note the category of action as marked in column 1.
 - Mandatory Actions (M) Actions that should be performed within one hour.

NOTE: Initial notification to State and Local government should be performed within 15 minutes.

- Subsequent Actions (S) Actions that should be performed in an expeditious manner as conditions, time and personnel permit.
- If Needed Actions (I) Actions that are not required in every case, but may be needed.
- c. The assignee shall note the frequency the action should be performed in Column 5.
- d. Appropriate actions/notifications should be turned over upon activation of the General Office Control Center or Emergency Operations Facility. Note the time of turnover on Attachment 1 and notify the SED.

NOTE: A line through the box for time of turnover indicates this action/notification may not be appropriate for turned over to the GOCC/EOF.

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PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTING PROCEDURE

TITLE: EMERGLNCY ACTIONS/NOTIFICATIONS/RESIGNS/BILLITIES

4.2 SITE EMERGENCY DIRECTOR RESPONSIBILITIES

- a. In addition to the responsibilities listed in Attachment 1, the SED shall also perform or delegate those actions and responsibilities listed below.
 - Command and control of the Technical Support Center and Operational Support Center. Refer to EI-4.1 and EI-4.2.
 - *2. Approve recommendations to state and local agencies regarding protective actions for the public. Refer to EI-6.
 - *3. Approve decisions regarding Site evacuation. Refer to E1-13.
 - 4. Maintain a log of events and actions during the emergency and subsequent recovery.
 - 5. Request Federal assistance as necessary.
 - 6. Have PA announcements regarding emergency conditions made at regular intervals or when significant changes occur.
 - 7. Limit personnel access to the site.
 - Ensure on site first aid is performed and accident victims are transported to hospitals as necessary. Refer to EI-14.
 - *9. Authorization to exceed the 10CFR20 dose limits for emergency workers. The following guidelines should be used to establish emergency dose limits:

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTING PROCEDURE

TITLE: EMERGENCY ACTIONS/NOTIFICATIONS/RESPONSIBILITIES

Projected Dose (Rem) to Emergency Team Workers	Category	Comments
Whole Body 25 Thyroid 125	Control exposure of emergency team members to these levels except for lifesaving missions. (Appropriate controls for emergency workers, include time limitations, respirators, and stable iodine.)	Although respirators and stable iodine should be used where effective to control dose to emergency team workers, thyroid dose may not be a limiting factor for lifesaving missions.
Whole body 75 Thyroid (**)	Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of ex- posure will be most effective.)	

These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take into consideration the impact of existing constraints.

**No specific upper limit is given for thyroid exposure since complete loss might be an acceptable penalty for a life saved.

4.3 DOCUMENTATION OF NOTIFICATIONS

- a. Within 24 hours of completion of Attachment 1, this form should be forwarded to Plant Licensing to verify that required notifications have been made.
- b. The form shall be forwarded to Palisades Document Control and retained for 5 years.

5.0 ATTACHMENTS

Attachment 1, Emergency Actions/Notifications

*Indicates a responsibility that shall not be delegated.

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Action Type M, S, or I (From El-1)		Action/Notification	Reference/Telephone No	Normally Assigned To	Frequency	Turnover to GOCC/EOF (Time)
(FION EI-I)	1.	Notification of Duty and Call Superintendent	Duty Call List	SED/Comm	Initially at Unusual Event	
	2.	Perform Emergency Staff Augmentation	Contact Property Protection Supervisor or Security Shift Leader - EI-2.2	SED/Comm	Initially at Unusual Event	
	3.	General Office Notification Power Controller upon activation transfer notification to GOCC Upon activation transfer notification to Technical Support Center	Dedicated phone or 517-788-0990 Dedicated phone or 82-87001 Dedicated phone or	SED/Comm	Initially at Unusual Event Every 15 min above Unusual Event	
	4.	NRC Notification	1. Dedicated phone or 2. 202-951-0550 Bethseda Op Ctr or 3. 301-427-4056 Silver Springs or 4. Health Physics Network *22 (touch tone) 22 (dial phone) or 5. 301-492-7000 Bethseda Central Office	SED/Comm	Initially at Unusual Event Every 15 min above Unusual Event	

Action Type H, S, or I (From E1-1)		Reference/Telephone No	Normally Assigned To	Frequency	Turnover to GOCC/EOF (Time)
(From LI-1)	5. State Notification South Haven State Police Post	Dedicated Phone or 616-637-2125 or Security Radio	SED/Comm	Initially at Unusual Event Every 15 min above Unusual Event	
	6. Local Notification Van Buren County Sheriff	Dedicated Phone or 616-657-3101	SED/Comm,	Initially at Unusual Event Every 15 min above Unusual Event	
	7. Initiate Fire Protection Plan	Fire Protection Implementing Procedures	SED/SS	Initially	
	8. Covert Fire bept and Ambulance Service	616-764-1313	SED	As Needed	
	9. Backup Ambulance Service MEDIC 1 (St Joseph) South Haven Ambulance	925-2141 637-3305	SED	As seeded	

Action Type M, S, or I (From EI-1)		Action/Notification	Reference/Telephone No	Normally Assigned To	Frequency	Turnover to GOCC/EOF (Time)
	10.	Hospitals: Benton Harbor Mercy South Haven Community	616-927-5241 or · 616-927-5342 616-637-5271	SED	As Needed	
	11.	Property Protection Supervisor	Day: Call List Night: At Site Area Emergency Only 616-468-6370	SED	Initially	
	12.	Initiate Onsite Monitoring	E1-8	Chem/HP	Contin- uously	
	13.	Initiate Offsite Monitoring	EI-9	Chem/HP	Contin- uously	
	14.	Perform Offsite Dose Estimates, Obtain Meteorological Data	EI-3.0	Chem/HP	Per EI-6.0	
,	15.	Perform Post-Accident Sampling	EI-7.0	Chem/HP	As Needed	
	16.	Perform Environmental Assessment	EI-10	Chem/HP	As Needed	
	17.	Activate the Technical Support Center (TSC)	EI-4.1	SED	Initially at Alert	

Action Type M, S, or 1 (From El-1)	Action/Notification	Reference/Telephone No	Normally Assigned To	Frequency	Turnover to GOCC/EOF (Time)
	18. Activate the Operational Support Center (OSC)	EI-4.2 .	SED	Initially at Alert	
	19. Activate the Emergency Operations Facility (EOF)	EI-4.3	SED	Initially at Site Area Emerg	
	20. Activate the Joint Public Information Center (JPIC)	Nuclear Plant Emergency Public Information Policies and Procedures	Plant Public Affairs Director	Initially	
	21. Dispatch liasons to local Emergency Operations Centers		SED	Initially at Site Area Emerg	
	22. Perform Personnel Accountability	E1-12	SED/ Security	Initially at Alert	
	23. Evacuate non-essential personnel	E1-13	SED/ Chem/HP/ Security	Initially at Site Area Emer	8
	24. Notify Plant Public Affairs Director	Call List: (Days) 637-8769 or (night) 82-80333 or 517-788-0333	SED	Initially at Unusua Event	

Action Type M, S, or I (From EI-1)		Action/Notification	Reference/Telephone No	Normally Assigned To	Frequency	Turnover to GOCC/EOF (Time)
	25.	Perform Estimate Core Damage	EI-11	Tech	As Needed	
	26.	Backup Local Notification Berrien County AND Allegan County	616-983-7141 616-673-5441	SED/Comm	As Needed	
	27.	Michigan Dept of Public Health	517-373-1578 (Days) 517-373-0800 (Night)	Chem/HP	As Needed	
	28.	US Coast Guard Notification St Joseph Muskegon	616-983-1371 616-759-0951	SED/Comm	As Needed	
	29.	South Haven Water Dept Notification	616-637-5211 (Days) 616-637-5151 (Nights)	SED/Comm	As Needed	
	30.	Palisades Park Manager Notification	616-764-8272	SED/Comm	As Needed	
1	31.	Van Buren State Park Manager Notification	616-637-2788	SED/Comm	As Needed	
	32.	Federal Aviation Administration South Bend, IN	616-637-8075	SED/Comm	If light fails on Met Tower	

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Action Type M, S, or I (From El-1)	Action/Notification	Reference/Telephone No	Normally Assigned To	Frequency	GOCC/EOF (Time)
	33. Initiate reentry/recovery	E1-5	SED	*****	
	34. Initiate Event Report	Admin Procedures No 3.04	SED	Within 24 hrs at Unusual Event within 8 hrs above Unusual Event	

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE Revision and Approval Summary

TITLE: POST ACCIDENT SAMPLING,
RADIOACTIVE GASEOUS EFFLUENT MONITORING

1.	Prepared	2. QA Concurrence	
	Originator Date		ate
3.	Recommend Approval/Q-List Yes Approval/Q-List Yes 6/33/83 Date	No 4. PRC Reviewed PH Kuch 6/2 SPRESS SIZ D	4/35 ate
5.	Approved Plant Manager 6/27/83 Date	6. ATMS Incorporated	28-13
7.	Biennial Review		
	Date		

PALISADES NUCLEAR PLANT DMERGENCY IMPLEMENTATION PROCEDURE

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TITLE: POST ACCIDENT SAMPLING, RADIOACTIVE GASEOUS EFFLUENT MONITORING

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4.7	RESULTS	
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TITLE: POST ACCIDENT SAMPLING,
RADIOACTIVE GASEOUS EFFLUENT MONITORING

1.0 PERSONNEL RESPONSIBILITY

The Chemistry/Health Physics Group Leader shall implement this procedure. In the absence of a Chemistry/Health Physics Group Leader the Site Emergency Director shall delegate this responsibility.

2.0 PURPOSE

To provide the ability to take post accident samples of the stack effluent, using the Radioactive Gaseous Effluent Monitor (RGEM).

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

3.1 IMPLEMENTATION

- a. This procedure shall be implemented per EI-7.0, Emergency Post Accident Sampling.
- b. The normal range iodine and particulate filter should be sampled at high alarm, but may be sampled before this time at the direction of the Chemistry/Health Physics Group Leader. These filters isolate automatically at the RGEM high alarm.
- c. The automatic grab sample should be collected after the RGEM alert alarm.
- d. The high range iodine filter should be sampled after the high alarm at the direction of the Chemistry/Health Physics Group Leader.

3.2 DOSIMETRY REQUIREMENTS

Each individual that may handle a post accident sample shall as a minimum wear beta/gamma TLD's on their chest and on the inside of both wrists. Additionally, a ring TLD shall be worn on both index fingers with the TLD faced inward.

3.3 ANTI-CONTAMINATION CLOTHING REQUIREMENTS

Minimum clothing shall consist of full anti-C's, wetsuit with all seams taped, and a SCBA breathing unit. A lapel air sampler should be worn by the sampling technician. Any persons who will handle samples shall wear lineman's gloves in addition to their other clothing.

3.4 GENERAL RADIOLOGICAL PRECAUTIONS

a. Two people should be used to gather samples. A qualified Radiation Safety Technician shall accompany a second technician. The Radiation Safety Technician shall have as a minimum a teletector, an RO-2A, and a grab air sampler, or equivalent instruments. The Radiation Safety Technician shall monitor the

TITLE: POST ACCIDENT SAMPLING RADIOACTIVE GASEOUS EFFLUENT MONIF RING

area during all sampling operations. Samples shall be monitored for beta radiation prior to any hand handling.

- b. Sampling with general area radiation levels in excess of 10 R/hr shall not be performed without the approval of the Site Emergency Director.
- c. Stay times for technicians performing post accident sampling shall be based on the formula:

Stay Time =
$$\frac{RQ \times 0.8}{DR}$$

Where: "RQ" is the individuals remaining quarterly exposure and "DR" is the area's general area doserate. In cases where the doserates vary widely during sampling, the Radiation Safety Technician shall ensure that dosimeters are read frequently and do not exceed 80% of remaining quarterly exposure.

- d. Hand handling of samples shall be minimized. When samples must be handled, a beta radiation doserate reduction of 90% can be assumed for lineman's gloves. Dose to the extremities shall be limited to 7.5R as measured by the ring TLD pending a dose determination based on the beta/gamma TLDs.
- e. When not being handled, samples shall be stored in a shielded or removed location.
- f. RGEM control operations should be performed at the remote control panel located behind the C-11A panel in the Control Room.

4.0 RGEM SAMPLING

4.1 ACCESS ROUTES

- a. The primary access routes to the RGEM room is through the main Control Room door, to the Turbine Building, and up the staircase to the RGEM room.
- b. In the case of high radiation levels along the above route, the back door of the Control Room should be used to access the Turbine Building.

4.2 PRE-SAMPLING SURVEY

A pre-sampling survey may be performed in the RGEM room, but due to the short time required to sample, this precaution may be unnecessary. The Chemistry/Health Physics Group Leader shall make this determination.

TITLE: POST ACCIDENT SAMPLING, RADIOACTIVE GASEOUS EFFLUENT MONITORING

4.3 NORMAL RANGE IODINE/PARTICULATE FILTER CHANGEOUT

- a. Perform all control operations from the remote control panel in the Control Room.
- b. Switch System Control Purge to the on position. This will divert purge air through the system during filter change.
- c. Proceed to the RGEM room per Paragraph 4.1.
- d. The normal range iodine/particulate sampler is located inside the lower cabinet on the right side of the RGEM system.
- e. Open the cabinet and loosen the two wingnuts on the filter holder assembly. Turn the handle clockwise and draw the filter holder from the sampler.
- f. Unscrew the filter cap and remove the filters. Wrap the filters to prevent spread of contamination. Use forceps to handle the filters whenever possible. Samples should be marked with type, time and date.
- g. Inspect the O-rings on the filter holder assembly and replace if damaged.
- h. Install new filters by following Steps 4.3.e and 4.3.f in reverse
- Return to the Control Room and turn the System Control Purge to the off position. This will return the system to sampling mode.

4.4 AUTOMATIC GRAB SAMPLE

a. A 30 second grab sample will be initiated when the Alert alarm is given by the Normal Range Noble Gas Monitor (RIA-2326).

Proceed to:

- b. The RGEM room and close the two valves located on either side of the grap sampler.
- c. The grab sample can then be removed by releasing the two quick release couplings found on both sides of the sampler. Sample should be marked with type, time and date.
- d. The grab sampler can then be removed for counting.

4.5 HIGH RANGE IODINE FILTER CHANGEOUT

a. A high alarm will switch the RGEM system to the High Range sample mode.

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE

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TITLE: POST ACCIDENT SAMPLING.
RADIOACTIVE GASEOUS EFFLUENT MONITURING

- b. The Accident Filter Control Operating Mode Switch is kept in the sample position during normal operation and emergency sampling. During emergency sampling, the system will alternate between sampling and surge every minute in a pre-set ratio.
- c. To collect the high range iodine filter, switch the Accident Filter Control Operating Mode to the Filter Change position. In this mode purge air is continously diverted through the high range iodine filter. This change should be made on the Control Room RGEM remote control panel.
- d. Proceed to the RGEM room, per Paragraph 4.1.
- e. Upon arrival at the high range iodine filter, loosen the two thumbscrews and two wingnuts on the top of the unit and pull the retainer pin located behind the lid.
- f. Draw the filter holder into the carrier by pulling the filter changer handle to its fully extended position. Insert the small retainer pin on the top of the side bracket. The filter carrier can be removed for counting. Mark the carrier with sample type, time and date. The filter changer may be unscrewed and removed to facilitate transport.

4.6 SAMPLE COUNTING

- a. Samples should be counted initially with a PRM-6, (or equivalent), per EI-8 or 9. Samples containing less than 25 mCi may then be counted on the normal plant counting equipment.
- b. Iodine samples may be counted using a SAM-II, per EI-8, as a backup method.

4.7 RESULTS

- a. Counting results shall be reported to the Chemistry/Phalth Physics Group Leader.
- b. These results should be incorporated into Offsite Dose estimates (Refer to EI-6.0).

5.0 ATTACHMENTS

None

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE Revision and Approval Summary

TITLE: ACTIVATION OF THE SITE EMERGENCY PLAN/ EMERGENCY CLASSIFICATION

1.	Prepared Rapoly 6-23.93 Originate Date	2. QA Concurrence N.A.	Date
3.	Recommend Approval/Q-List Yes No Department Head Date	PMKuch PMKuch PRC Reviewed	10/24/35 Date
5.	Approved Approved Approved Glz7/83 Plant Manager Date	6. ATMS Incorporated	6-29-83 Date
7	. Biennial Review		

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE

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TITLE: ACTIVATION OF THE SITE EMERGENCY PLAN/ EMERGENCY CLASSIFICATION

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ATTACH	MENTS	
Attach	ment 1, "Site Emergency Plan Classification" ment 2, "Emergency Class Description"	

TITLE: ACTIVATION OF THE SITE EMERGENCY PLAN/ EMERGENCY CLASSIFICATION

1.0 PERSONNEL RESPONSIBILITIES

- 1.1 The Shift Supervisor shall implement this procedure and assume the title and responsibilities of the Site Emergency Director (SED) until relieved by Plant management identified below.
- 1.2 The line of succession for the SED is:
 - a. Plant Manager (days), Duty and Call Superintendent (nights)
 - b. Operations and Maintenance Superintendent (1st alternate)
 - Operations Superintendent (2nd alternate)
 - d. Technical Superintendent (3rd alternate)
 - e. Technical Engineer (4th alternate)

2.0 PURPOSE

To classify those emergency conditions that necessitate the activation of the Site Emergency Plan. To identify actions that should be taken to mitigate the consequences of an emergency.

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

This procedure shall be implemented any time an event occurs or conditions exist which, in the opinion of the Shift Supervisor/SED, may require activation of the Site Emergency Plan (SEP).

OR

When events occur or conditions exist after the activation of the SEP that, in the opinion of the SED, may require reclassification, either upgrading or downgrading.

4.0 ACTIVATION OF THE SITE EMERGENCY PLAN/EMERGENCY CLASSIFICATION

4.1 CLASSIFICATION/RECLASSIFICATION

a. The Shift Supervisor/SED shall classify emergency conditions/events as follows:

PALISADES NUCLEAR PLANT EMERGENCY IMPLEMENTATION PROCEDURE

Revision 8

TITLE: ACTIVATION OF THE SITE EMERGENCY PLAN-EMERGENCY CLASSIFICATION

 Determine the category that conditions/events best fit from the list of keywords below:

Alarms/Annunciators

Communication Loss

Containment Integrity

Engineered Safety Features

Evacuation - Control Room

Fire

Fission Product Barriers/Fuel Damage

Hazards - General

Injury

Meteorological Data Loss

Miscellaneous

Natural Phenomenon

Plant Power - Electrical

Primary Coolant System Integrity

Primary Coolant System - Temperature or Pressure

Radiation levels

Releases

Safety Injection System

Secondary Side

Security

 Use the keyword identified above and Attachment 1, Site Emergency Plan Classification to classify the conditions/event.

NOTE: Attachment 2, Emergency Class Description is provided for background information and should not be used for classification.

TITLE: ACTIVATION OF THE SITE EMERGENCY PLAN/ EMERGENCY CLASSIFICATION

4.2 DETERMINATION OF EMERGENCY ACTIONS/NOTIFICATIONS

- a. The numbers in the righthand column of Attachment 1 (Actions/Notifications) identifies actions that should be performed for each emergency. These numbers relate to the Actions/Notifications listed in EI-2.1, Attachment 1.
- b. The categories of actions are as follows:
 - Mandatory Actions Actions that shall be performed within one hour.
- NOTE: Initial notification to State and Local government should be performed within 15 minutes.
 - Subsequent Actions Action that should be performed in an expeditious manner as conditions, time, and personnel permit.
 - If Needed Actions Actions that are not required, but may be needed.
 - c. After determination of the emergency actions/notifications mark the lefthand column of EI-2.1, Attachment 1 with an M, S or I for Mandatory, Subsequent or If Needed Action respectively, for each identified emergency action. Date EI-2.1, Attachment 1.
- NOTE: Emergency actions identified in this section are in addition to the SED responsibilities identified in EI-2.1.

4.3 TURN OVER OF SED RESPONSIBILITIES

- a. The Shift Supervisor shall turn over the responsibilities of SED to the personnel identified in Section 1.0 as soon as possible, above Unusual Event. Turn over may occur before this time at the option of the Shift Supervisor or potential SED.
- b. Turn over should include verification of the emergency classification and pertinent information on Plant conditions.
- c. The turn over should be announced in the Technical Support Center (TSC) and Operational Support Center (OSC), if activated, to ensure continuity of command and control.
- d. Proceed to EI-2.1, "Emergency Actions/Notifications/Responsibilities"

5.0 ATTACHMENTS

- 5.1 Attachment 1, "Site Emergency Plan Classification"
- 5.2 Attachment 2, "Emergency Class Description"

ALARMS/ANNUNCIATORS

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Alert	Loss of most or all alarms (annunciators) in Control Room.	Observation	Mandatory:	1, 2, 3, 4, 5, 6, 11, 12, 14, 17, 22
			Subsequent: If Needed:	18, 24, 33, 34 19, 25, 30
Site Area Emergency	Loss of most or all alarms (annunciators) for 15 minutes AND Shift Supervisors opinion that a	Observation .	Mandatory:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22
	Plant transient has occurred or is in progress.		Subsequent:	16, 18, 19, 21 23, 24, 33, 34
			If Needed:	19, 25, 26

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COMMUNICATIONS LOSS

CLASSIFICATION	EMERGENCY ACTION LEVELS	METHOD OF DETECTION		ACTIONS
Unusual Event	Significant loss of offsite communication capability. (eg, loss of all commercial and	Observation	Mandatory: 1, 3, 4, 5, 8 Subsequent: 24, 34 If Needed: 2, 26, 33	
	dedicated phones)			

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CONTAINMENT INTEGRITY

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Loss of Containment integrity requiring shutdown due to Technical Specifications	Leak Rate Test Results OR Penetration Test Results OR Observation	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 24, 34 2, 26, 33
NOTE:	For incidents involving loss of of a second fission product barr third fission product barrier, s DAMAGE.	ier AND potential loss of the		

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ENGINEERED SAFETY FEATURES

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Loss of engineered safety features requiring Plant shut- down due to Technical Speci- fications 3.2, 3.3, 3.4.	Observation	Mandatory: Subsequent: If Reeded:	1, 3, 4, 5, 6 24, 34 2, 26, 33
	Loss of fire protection system requiring Plant shutdown due to Technical Specifications.	Observation		
Alert	Failure of Reactor Protection system to initiate and complete a trip AND the reactor is not subcritical.	Nuclear instrumentation AND Rod position indicator	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5 6, 11, 12, 14 17, 22 18, 24, 34 19, 25, 26
	Complete loss of any functions needed for Plant cold shutdown ie, Loss of Auxiliary Feed System and Shutdown Cooling Systems.	Observation		
Site Area Emergency	Complete loss of any function needed for hot shutdown	Annunciation OR Observation	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26
	Transient requiring operation of shutdown systems with failure to trip (continued power generation, but no core damage immediately evident).	Nuclear instrumentation AND Rod position indicator		

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ENGINEERED SAFETY FEATURES

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	1	ACTIONS
General Emergency	Transient requiring operation of shutdown system with failure to trip which	Nuclear instrumentation AND Rad position indicator AND Reactor pressure greater	Mandatory:	1, 2, 3, 4, 5, 6 11, 12, 13, 14, 17, 2
	results in core damage or additional failure of core cooling and makeup	then safety valve setpoint OR Rapidly increasing Containment pressure	Subsequent:	16, 18, 19, 21, 23, 24, 33, 34
	systems (which could lead to core melt).	OR Rapidly increasing Containment pressure OR Failed Fuel Monitor (**RIA-0202) off scale high confirmed by sample analysis	If Needed:	15, 25, 26
	Transient initiated by loss of feedwater and condensate systems (principal heat removal system) followed by failure of auxiliary feedwater system for an extended period. Core melting possible in several hours.	Observation - loss of feedwater AND Observation - loss of system AND Observation - failure of aux feedwater system for greater than 30 minutes.		
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EVACUATION, CONTROL ROOM

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Alert	Evacuation of Control Room anticipated or required with control of shutdown system	Observation	Mandatory:	1, 2, 3, 4, 5, 6, 11, 12, 14, 17, 22
	established at local stations.		Subsequent: If Needed:	18, 24, 32, 34 19, 25, 26
Site Area Emergency	Evacuation of Control Room and control of shutdown systems not established at local stations	Observation '	Mandatory:	1, 2, 3, 4, 5 6, 11, 12, 13, 14, 17, 22
	within 15 minutes.		Subsequent:	16, 18, 19, 21 23, 24, 33, 34
			If Needed:	15, 25, 26

FIRE

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Fire within the Plant lasting more than 10 minutes.	Observation OR Fire detection alarm confirmed by observation.	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6, 7, 11 24, 34 2, 8, 26, 33
Alert	Fire potentially affects a safety systems.	Shift Supervisor's opinion	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 7, 11, 12, 14, 17, 22 24, 34 2, 8, 26, 33
Site Area Emergency	Fire compromising the function of safety systems.	Observation	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 8, 15, 25, 26

FISSION PRODUCT BARRIERS/FUEL DAMAGE

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Primary Coolant Iodine-131 dose concentration equivalent > 1.0µCi/gm for more than 72 hrs.	Failed Fuel Monitor (**RIA-0202) Alarm confirmed by sample analysis.	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 24, 34 2, 26, 33
	> 0.1% increase in failed fuel within 30 minutes.	Observation **RIA-0202		
Alert	Primary Coolant Iodine-131 dose equivalent conceptration > 300μCi/gm	Failed Fuel Monitor (**RIA-0202) off scale high confirmed by sample analysis.		1, 2, 3, 4, 5 6, 11, 12, 14, 17, 22 18, 24, 33, 34 19, 25, 26
	> 1% increase in failed fuel within 30 minutes.	Observation		
	> 5% total failed fuel.	Failed Fuel Monitor (**RIA-0202) off scale high confirmed by sample analysis OR Observation		
	Fuel damage accident with release of radioactivity to Containment or Fuel Handling Building.	Radiation monitor alarm confirmed after observation of accident OR Observation of accident confirmed by sample analysis OR Shift Supervisor/SED's opinion		

FISSION PRODUCT BARRIERS/FUEL DAMAGE

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Alert (cont'd)	Coolant pump seizure leading to fuel failure	Coolant pump trip AND Failed Fuel Monitor Alarm confirmed by sample analysis.		
Site Area Emergency	Major damage to spent fuel in Containment or Fuel Handling Building. (eg, large object damages fuel or water loss below fuel level)	Radiation monitor alarm confirmed after observation of accident OR Observation of accident confirmed by sample analysis OR Shift Supervisor/SED's opinion	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26
	Degraded core with possible loss of coolable geometry.	High core temperature OR Inadequate subcooling mar- gin OR Core uncovered AND Temperature drop across the core increasing OR No temperature drop across the core OR Shift Supervisor/SED's opinion		
General Emergency	Loss of 2 of 3 fission product barriers with potential loss of third fission product barrier (eg, loss of Primary Coolant integrity, clad failure, and high potential for loss of Containment)	Detection dependent upon which barriers fail and to some extent, upon mechanism which causes failure.	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25 26

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HAZARDS - GENERAL

Unusual Event	Aircraft crash onsite or unusual aircraft activity over facility which could affect Plant operation. Near or onsite train deraiment which could affect Plant operation Near or onsite explosion which could affect Plant operation. Near or onsite explosion which could affect Plant operation.	Observation of event AND Shift Supervisor/SED's opinion Observation of event AND Shift Supervisor/SED's opinion Observation of event authorities AND Shift Supervisor/SED's opinion Observation of event OR notification from offsite authorities AND Shift Supervisor/SED's opinion Observation of event OR	Mandatory: Subsequent: If Needed:
	gas which could affect Plant operation.	notification from offsite authorities AND Shift Supervisor's opinion.	
	Turbine rotating component failure causing Plant shutdown	Turbine trip AND observation of turbine malfunction of	

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HAZARDS - GENERAL

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	ACTIONS
Alert	Aircraft crash on facility	Observation	Mandatory: 1, 2, 3, 4, 5, 6, 11, 12, 14, 17, 22
	Missile impact from whateers r source on facility.	Observation	Subsequent: 18, 24, 33, 34
	Know explosion damage to facility Observation affecting Plant operation.	Observation	If Needed: 19, 25, 26
	Entry into facility environs of uncontrolled toxic or flammable gases	Observation OR warning from offsite authorities OR Detection with portable instrumentation.	
	Turbine failure causing casing penetration.	Observation AND Turbine trip.	

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HAZARDS - GENERAL

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	ACTIONS
Site Area Emergency	Aircraft crash affecting vital structures by impact or fire AND Plant not in cold shutdown.	Observation	Mandatory: 1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 Subsequent: 16, 18, 19, 21 23, 24, 33, 34 If Needed: 15, 25, 26
	Severe damage to equipment required for safe shutdown from missile explosion - see ENGINEERED SAFETY FEATURES		
	Entry of uncontrolled flammable gas into vital areas OR Entry of uncontrolled toxic gas into vital areas that constitutes a safety problem AND Plant not in Cold Shutdown.	Observation OR Detection with portable instrumentation.	

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INJURY

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Transportation of injured contam- inated individual from site to offsite hospital.	Qbservation .	10 Subsequent:	1, 3, 4, 5, 6, 8, 24, 34 2, 9, 26 Notify county to which victim is taken.

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METEOROLOGICAL DATA LOSS

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Loss of onsite meteorological data AND Loss of all backup meteorological data		Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 24, 34 2, 26

MISCELLANEOUS

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Plant conditions exist that warrant increased awareness on the part of the Plant staff or State and/or local authorities OR require Plant shutdown under Technical Specifications requirements OR involve other than normal shutdown.	Shift Supervisor/SED's opinion	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 24, 34 2, 26, 33
Alert	Plant conditions exist that war- rant precautionary activation of Technical Support Center and placing Emergency Operations Facility and other emergency personnel on standby.	Shift Supervisor/SED's opinion	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 14 17, 22 18, 24, 33, 34 19, 25, 26
Site Area Emergency	Plant conditions warrent the activation of emergency centers and monitoring teams or a precautionary notification to the public near the site.	Shift Supervisor/SED's opinion	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26
General Emergency	Conditions exist that make release of large amounts of radio-activity in a short time possible, (eg, any core melt situation)	Shift Supervisor/SED's opinion	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26

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MISCELLANEOUS

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	ACTIONS
General Emergency (Cont'd)	Any major internal or external events (eg, fires, earthquakes, substantially beyond design basis) which could cause massive common damage to plant systems.	Shift Supervisor/SEDs opinion	

NATURAL PHENOMENON

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Any earthquake felt in-Pi.	Observation Flood, seiche - Observation of	Mandatory:	1, 3, 4, 5, 6
	Abnormal water levels including flood or low water or seiche.	water approaching 590' level. Low water - Observation.	Subsequent:	24, 34
	Torqado onsite	Observation	If Needed:	2, 26, 30, 31, 33
Alert	Earthquake greater than OBE levels surface acceleration greater than 0.1g	"To Be Added Later"	Mandatory:	1, 2, 3, 4, 5, 6, 11, 12, 14,
		Flood, seiche - Observation of		
	Flood, low water, or seiche near design basis.	water above 590' level. Low water - Observation.	Subsequent:	18, 24, 33, 34
	Tornado striking facility	Observation	If Needed:	19, 25, 26, 30, 31
Site Area Emergency	Earthquake greater than SSE levels Surface acceleration greater than 0.2g	"To Be Added Later"	Mandatory:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22
	Flood, low water, or seiche greater than design levels OR Failure of protection of vital equipment at lower levels.	Flood, seiche - Observation of water above 594' level. Others - Observation	Subsequent: If Needed:	16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26, 30

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NATURAL PHENOMENON

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	ACTIONS
Site Area Emergency (Cont'd)	Tornado in or sustained winds in excess of design level.	Observation, notification by offsite agencies; Peripheral tangential velocity > 300 mph with tornado center traveling > 60 mph	

PLANT POWER - ELECTRICAL

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Loss of offsite power	Annunciation switchyard non- critical alarms <u>OR</u> startup transformer trouble alarm <u>OR</u> Automatic start of Emergency Diesel Generator.	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 24, 34 2, 26, 32, 33
	Loss of all onsite AC power	Observation: both Emergency Diesel Generators inoperable		
Alert	Loss of offsite power AND loss of all onsite AC power for less than 15 minutes.	Bus IC & ID low voltage alarms	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 14, 17, 22 18, 24, 33, 34 19, 25, 26, 32
	Loss of all onsite DC power for less than 15 minutes	DC Bus #1 and #2 low voltage alarms.		
Site Area Emergency	Loss of offsite power AND loss of onsite AC for more than 15 minutes.	Observation	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26, 32
	Loss of all vital onsite DC power for more than 15 minutes, AND Plant not in cold shutdown.	Observation		

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PLANT POWER - ELECTRICAL

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
General Emergency	Loss of offsite and onsite AC power AND	Bus 1C and 1D low voltage alarms		1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17,
	loss of auxiliary feedwater makeup	AND Observation of failure	Subsequent:	16, 18. 19, 21, 23, 24, 33, 34
	capability for greater than 2 hours.	of aux feedwater	If Needed:	15, 25, 26, 32

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PRIMARY COOLANT SYSTEM INTEGRITY

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Primary Coolant System leakage in excess of Technical Specifications but < 50 GPM		Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 24, 34 2, 26, 33
	Steam Generator secondary water activity > 0.1µCi/gm of dose equivalent I-131.	Chemical analysis		
	Primary to secondary leakage rate exceeds Technical Specifications limits of 0.3 GPM steady state or 0.6 GPM for transients, but < 50 GPM.	Offgas monitor (**RIA-0631) alarm confirmed by chemical analysis		
Alert	Rapid gross failure of one Steam Generator tube with loss of offsite power.	Offgas monitor (**RIA-0631) alarm confirmed by sample analysis AND Decreasing pressurizer level AND Observation of loss of offsite power	Mandatory:	1, 2, 3, 4, 5 6, 11, 12, 14, 17, 22
	Rapid failure of Steam Generator tubes resulting in primary to secondary leak rate of several	Offgas monitor (**RIA 0631) alarm confirmed by sample analysis OR Rapidly de-	Subsequent:	18, 24, 33, 34
	hundred GPM.	creasing pressurizer low level (**LI-0103A)	If Needed:	19, 25, 26
	Steam line break with > 10 GPM primary to secondary leak rate.	Increased containment pressure OR Increased Containment radiation levels; Decreasing pressurizer levels, OR Offgas Monitor (**RIA-0631) alarm confirmed by sample analysis		

PRIMARY COOLANT SYSTEM INTEGRITY

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
lert (cont'd)	Primary Coolant System leak > 50 GPM but less than charging pump capacity.	Containment sump high level alarms AND mismatch between charging flow and letdown flow		
Site Area Emergency	Loss of coolant accident greater than charging pump capacity.	Low-low pressurizer level (**LIC-0101A) OR Safety Injection actuation alarm OR Pressurizer low-pressure alarm OR Containment high pressure alarm	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26
	Rapid failure of Steam Generator tubes (several hundred GPM) with loss of offsite power.	Offgas monitor (**RIA-0631) alarm confirmed by sample analysis AND Pressurizer level decrease AND Observation of loss of offsite power.		
	Steam line break AND > 50 GPM primary to secondary leak rate AND indication of fuel damage.	Increased Containment pressure OR Increased Containment radiation levels OR decreasing pressurizer levels OR Steam Generator pressure instruments OR PCS leak rate determination (D/WO-1) AND Offgas Monitor (**RIA-0631) alarm confirmed by sample analysis AND Failed Fuel Monitor Alarm confirmed OR PCS sample analysis confirms fuel damage.		
NOTE:	For incidents involving loss of Pa a second fission product barrier product barrier, see FISSION PRODU	AND potential loss of the third i	AND loss of fission	

PRIMARY COOLANT SYSTEM INTEGRITY

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
General Emergency	Small and large LOCAs with failure of SIS leading to severe core degradation.	Decreasing pressurizer level OR pressurizer low- pressure alarm OR Safety Injection System actuation alarm AND Observation that SIS is not functioning AND Failed Fuel Monitor (**RIA-0202) off scale high confirmed by sample analysis	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 13; 14, 17, 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26
	Small or large LOCA and initially successful Safety Injection System. Subsequent failure of containment heat removal systems over several hours	Decreasing pressurizer level OR Pressurizer low-pressure alarm AND Safety Injection System actuation alarm AND Observation - Failure of containment cooling for greater than 2 hours		

PRIMARY COCLANT SYSTEM - TEMPERATURE OR PRESSURE

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Any challenge to over-pressure Protection System (OPPS).	Annunciation SV and/or PORV open	Mandatory:	1, 3, 4, 5, 6
	Critical operation at PCS temper- ature < 525°F (except for physics tests).	Temperature recorder (**TR-0121 or **TR-0111)	Subsequent:	24, 34
	Reactor high-pressure trip. (Initiating event)	Annunciator (RPS alarms) Event recorder	If Needed:	2, 26, 33
	Pressurizer code safety operation.	Acoustical monitors (**RI-1039 **FI-1039, **FI-1041) Quench Tank high level (**LIA-0116) Quench Tank high pressure (**PIA-0116) Quench Tank high temperature (**TIA-0116) Discharge temperature alarms (**TIA-0107, **TIA-0108, **TIA-0109)		
Alert	PCS temperature < 50°F subcooled; sustained for more than 5 minutes or < 50°F subcooled, and subcooling margin decreasing. Not applicable when Plant is in cold shutdown or refueling shutdown condition.	Subcooling margin alarm	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5 6, 11, 12, 14, 17, 22 18, 24, 33, 34 19, 25, 26

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RADIATION LEVELS

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RELEASES

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Short term radiological effluent Technical Specifications exceeded.	Stack monitor (**RIA-2326) reaches Alert Alarm setpoint for greater than two hours. Confirmed by Lab sample analysis. Stack Monitor (**RIA2318) reaches high alarm setpoint for two or more hours. Con- firmed by Lab sample analysis. Liquid waste discharge monitor (**RIA-1049) reaches alarm setpoint and automatic dis- charge trip function fails. Confirmed by Lab sample analysis.	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6 15, 24, 34 2, 12, 13, 26 33
	Significant solid or liquid waste spill outside restricted areas with threatened offsite release.	Observation confirmed by survey results.		
Alert	Radiological effluents > 10 times the Technical Specifications limits (an instantaneous rate which, if continued over two hours would result in a dose of approximately 1 mR at the site boundary under average meteorological conditions).	A valid stack monitor (**RIA-2326) reading of ≥ 3.0E+4 cpm above background for longer than 15 minutes. A valid stack monitor (**RIA-2318) reading of ≥ 4400 cpm above background for longer than 15 minutes. OR Liquid Waste Discharge Monitor (**RIA-1049) reaches 10 times alarm setpoint and automatic discharge trip function fills. Confirmed by Lab sample analysis.	Mandatory: Subsequent: If Needed:	1, 2, 3, 4, 5, 6, 11, 12, 14, 17, 22 15, 18, 24, 33, 34 13, 19, 25, 26, 27, 28, 39, 30, 31

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RELEASES

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Site Area Emergency	Effluent monitors detect levels corresponding to > 50 mR/hr for ½ hour or > 500 mR/hr whole body for 2 minutes (or 5 times these levels to the child thyroid)	Any of the following valid radiation monitor readings for longer than 0.5 hour: Stack monitor (**RIA-2326); reaches High Alarm setpoint;	Mandatory: Subsequent:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 15, 16, 18, 19, 2
	at the site boundary for adverse meteorological conditions. These levels are projected based on other Plant parameters (eg, radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. EPA Protective Action Guidelines (see EI-6.13) are projected to be exceeded outside the site boundary.	≥ 2.5E+6 cpm above bkgd. Stack monitor (**RIA-2318); ≥ 3.75E+5 cpm above bkgd. Main Steam Monitors (**RIA-2323 or **RIA-2324) with a main steam release occurring; ≥ 850 con above bkgd and confirmation of dose from procedure EI-6.0 Containment high range monitors (**RIA-2321 or **RIA-232 with no breach of containment; ≥ 2.4E+4 R/hr above bkgd. OR Any of the following valid radiation monitor readings for longer than 2 minutes: Stack monitor (**RIA-2327) ≥ 20 mR/hr above bkgd. Stack Monitor (**RIA-2318) is offscale and the High Range Stack Monitor is ≥ 3.2E-3 R/h above bkgd. Main Steam Monitors (**RIA-2324) with a main	ur.	23, 24, 33, 34 25, 26, 27, 28, 29, 30, 31

RELEASES

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	ACTIONS
Site Area Emergency (Cont'd)		≥ 8500 cpm above bkgd and confirmation of dose projection from procedura: EI-6.0 Containment High Range Monitors (**RIA-2321 or **RIA-2322)	
		with no breach of contain- ment; ≥ 2.4E+5 R/hr above bkgd. OR	
		Radiation monitoring teams at the site boundary measure whole body dose rates > 50 mRem/hr for 0.5 hr or > 500 mRem/hr for 2 min or thyroid dose rates	
		> 250 mRem/hr (1.95E-7 µCi/cc dose equivalent I-131) for 0.5 hr or 2500 mRem/hr (1.95E-6 µCi/cc dose equivalent I-131) for 2 minutes.	

RELEASES

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
General Emergency	Effluent monitors detect levels corresponding to 1 rem/hr whole body or 5 rem/hr thyroid at the	Any of the following valid radiation monitor readings may indicate a General Emergency	Mandatory:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22
	site boundary under actual meteor- ological conditions. These levels	Classification: Stack monitor (**RIA-2327)	Subsequent:	15, 16, 18, 19, 21
	are projected based on other Plant	reaches an Alert Alarm;	If Needed:	23, 24, 33, 34 25, 26, 27,
	parameters (eg, radiation levels	≧ 45 mR/hr above bkgd.	11 needed.	28, 29, 30, 31
	in containment with leak rate	Stack monitor (**RIA-2318)		
	appropriate for existing contain-	is offscale and the high		
	ment pressure) or are measured in the environs.	range stack monitor is:		
	In the environs.	≥ 6.3E-3 R/hr above bkgd; Main Steam Monitors (**RIA-23	23	
		or **RIA-2324) with a main	1	
		steam release occuring is:		
		≥ 17,000 cpm above bkgd.		
		Containment High Range Mon- itors (**RIA-2321 or **RIA-23	22)	
		with no leakage greater	22)	
		than design leakage limit;		
		≥ 4.8E+5 R/hr above bkgd.		
NOTE:	Consider evacuation only within	A General Emergency is indica-		
	about 2 miles of the site boundary	ted if the dose projection from		
	unless these site boundary levels are exceeded by a factor of 10 or	procedure EI-6.0 is ≥ 1 Rem/hr whole body or ≥ 5 Rem/hr		
	projected to continue for 10 hours			
1	or EPA Protective Action Guide-	for the existing meteorolo-	188 3 7 7	
	lines exposure levels (see	gical conditions.		
	EI-6.13) are predicted to be	OR II		
	exceeded at longer distances.	Radiation monitoring teams at the site boundary measure a		
		whole body dose rate ≥ 1 Rem/hr		
		or a thyroid dose rate	Automatic Comments	
		≥ 5 Rem/hr (3.9E-6 μCi/cc		
		dose equivalent I-131)		

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SAFETY INJECTION SYSTEM

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	ACTIONS
	Safety Injection initiated and discharged to vessel	Annunciation flow verified (Ckt1, Ckt2)	Mandatory: 1, 3, 4, 5, 6 Subsequent: 24, 34 If Needed: 2, 26, 33

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SECONDARY SIDE

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION	1	ACTIONS
Unusual Event	Failure of a safety or relief valve in a safety related system to close following reduction of applicable pressure.	Annunciation AND pressure indications, OR Observation	Mandatory: Subsequent; If Needed:	1, 3, 4, 5, 6 24, 34 2, 26, 33
	Rapid depressurization of secondary side	Low Steam Generator pressure alarm		
	For accidents involving primary to secondary leakage see "Pri- mary Coolant System Integrity"			

SECURITY

CLASSIFICATION	EMERGENCY ACTION LEVEL	METHOD OF DETECTION		ACTIONS
Unusual Event	Security threat or Attempted entry or Attempted sabotage	Security alarms OR Observation AND Activation of Safeguards Contingency Procedures.	Mandatory: Subsequent: If Needed:	1, 3, 4, 5, 6, 24, 34 2, 26, 33
Alert	Security threat exists that results in adversaries commandering an area of the Plant, but not control over shutdown capability or of any vital areas	Security Alarms OR Observation AND Activation of Safeguards Contingency Procedures		1, 2, 3, 4, 5, 6, 11, 12, 14, 17, 22 18, 24, 33, 34 19, 25, 26
Site Area Emergency	Physical attach on the Plant involving imminent occupancy of the Control Room, auxiliary shutdown panels, or other vital areas.	Security alarms OR Observation AND Activation of Safeguards Contingency Procedures		1, 2, 3, 4, 5, 6, 11, 12, 13 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26
General Emergency	Physical attack on the Plant has resulted in unauthorized personne? occupying the Control Room or any other vital areas.	Security alarms OR Observation Addi Activation of Safeguards Contingency Procedures	Subsequent:	1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 22 16, 18, 19, 21, 23, 24, 33, 34 15, 25, 26

UNUSUAL EVENT

Class

Licensee Actions

State and/or Local Off-Site Authority Actions

UNUSUAL EVENT

Class Description

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

Purpose

Purpose of off-site notification is to (1) assure that the first step in any response later found to be necessary has been carried out, (2) bring the operating staff to a state of readiness and (3) provide systematic handling of Unusual Events information and decision making.

- Promptly inform
 State and/or local
 off-site authori ties of nature of
 unusual condition
 as soon as dis covered.
- Augment on-shift resources as needed.
- Assess and respond.
- Escalate to a more severe class, if appropriate,

or

 Close out with verbal summary to offsite authorities; followed by written summary.

- Provide fire or security assistance if requested.
- Escalate to a more severe class, if appropriate.
- Stand by until verbal closeout.

ALERT

Class

Licensee Actions

State and/or Local Off-Site Authority Actions

ALERT

Class Description

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

Purpose

Purpose of off-site alert is to (1) assure that emergency personnel are readily available to respond if situation becomes more serious or to perform confirmatory radiation monitoring if required, and (2) provide off-site authorities current status information.

- 1. Fromptly inform
 State and/or local
 authorities of
 alert status and
 reason for alert as
 soon as discovered.
- 2. Augment resources and activate onsite Technical Support Center and on-site Operational Support Center.
 Bring Emergency Operations Facility (EOF) and other key emergency personnel to standby status.
- 3. Assess and respond.
- Dispatch on-site monitoring teams and associated communications.
- Provide periodic plant status updates to off-site authorities (at least every 15 minutes).
- Provide periodic meteorological assessments to offsite authorities and, if any releases are occurring, dose estimates for actual releases.
- Escalate to a more severe class, if appropriate.

- Provide fire or security assistance if requested.
- Augment resources and bring primary response centers and Emerggency Broadcast System (EBS) to standby status.
- 3. Alert to standby status key emergency personnel including monitoring teams and associated communications.
- 4. Provide confirmatory
 off-site radiation monitoring and
 injestion
 pathway dose
 projections
 if actual releases sub
 stantially
 exceed Tech
 nical Specification
 limits.
- Escalate to a more severe class, if appropriate.

EMERGENCY CLASS DESCRIPTION

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The state of the s

ALERT

State and/or
Local Off-Site
Class Licensee Actions Authority Actions

- 8. Close out or recommend reduction in emergency class by verbal summary to off-site authorities followed by written summary.
- 6. Maintain
 Alert status
 until verbal
 closeout or
 reduction of
 emergency
 class.

SITE AREA EMERGENCY

Class

a validada d

State and/or Local Off-Site Authority Actions

SITE AREA EMERGENCY

Class Description

Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary.

Purpose

Purpose of the Site Area Emergency declaration is to (1) assure that response centers are manned, (2) assure that monitoring teams are dispatched. (3) assure that personnel required for evacuation of near-site areas are at duty stations if situation becomes more serious, (4) provide consultation with off-site authorities and (5) provide updates for the

 Promptly inform State and/or local off-site authorities of Site Area Emergency status and reason for emergency as soon as discovered.

Licensee Actions

- Augment resources by activating on-site Technical Support Center, on-site Operational Support Center and near-site Emergency Operations Facility (EOF).
- 3. Assess and respond.
- Dispatch on-site and off-site monitoring teams and associated communications.
- Designate an individual for plant status updates to off-site authorities and periodic press briefings (perhaps joint with off-site authorities).
- 6. Make senior technical and management staff on site available for consultation with NRC and State on a periodic basis.
- Provide meteorological and dose estimates to off-site authorities for actual releases via a designated individual or automated data transmission.
- Provide release and dose projections based on available plant condition

- Provide any assistance requested.
- If sheltering near the site is desirable, activate public notification system within at least two miles of the plant.
- Provide public within at least about 10 miles periodic updates on emergency status.
- Augment resources by activating primary response centers.
- Dispatch key emergency personnel including monitoring teams and associated communications.
- 6. Alert to standby status other emergency personnel (eg, those needed for evacuation) and dispatch personnel to near-site duty stations.
- Provide off-site monitoring results to licensee, DOE and others and jointly assess them.
- Continuously assess information from licensee and off-site monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.
- Recommend placing milk animals within two miles on stored feed and assess need to extend

SITE AREA EMERGENCY

Class	Licensee Actions	State and/or Local Off-Site Authority Actions
public through off-site authorities.	information and fore- seeable contingencies.	distance. 10. Provide press briefings,
	Excalate to General Emergency class, if	perhaps with licensee.
	appropriate,	11. Escalate to General Emergency class, if
	or	appropriate.
1	O. Close out or recommend reduction in emergency class by briefing of off-site authorities at EOF and by phone fol- lowed by written summary.	12. Maintain Site Area Emergency status until closeout or reduction of emergency class.

GENERAL EMERGENCY

Class

Licensee Actions

State and/or Local Off-Site Authority Actions

GENERAL EMERGENCY

Class Description

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

Purpose

Purpose of the General Emergency declaration is to (1) initiate predetermined protective actions for the public, (2) provide continuous assessment of information from licensee and offsite organization measurements, (3) initiate additional measures as indicated by actual or potential releases. (4) provide

- 1. Promptly inform State and local off-site and local off-site authorities of General Emergency status and reason for emergency as soon as discovered (parallel notification of State/local).
- Augment resources by activating on-site Technical Support Center, on-site Operational Support Center and nearsite Emergency Operations Facility (EOF).
- 3. Assess and respond.
- 4. Dispatch on-site and off-site monitoring teams and associated communications.
- Designate an individual for plant status updates to off-site authorities and periodic press briefings (perhaps joint with off-site authorities).
- Make senior technical and management staff on site available for consultation with NRC and State on a periodic basis.
- Provide meteorological and dose estimates to off-site authorities for actual releases via a designated individual or automated data transmission.
- consultation with 8. Provide release and dose

- Provide any assistance requested.
- Activate immediate public notification of Emergency status and provide public periodic updates.
- Recommend sheltering for two-mile radius and five miles downwind and assess need to extend distances. Consider advisability of evacuation (projected time available vs estimated evacuation times).
- Augment resources by activating primary response centers.
- Dispatch key emergency personnel including monitoring teams and associated communications.
- Dispatch other emergency personnel to duty stations within five-mile radius and alert all others to standby status.
- Provide off-site monitoring results to licensee, DOE and others and jointly assess them.
- 8. Continuously assess information from licensee and off-site monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.

GENERAL EMERGENCY

Class

Licensee Actions

State and/or Local Off-Site Authority Actions

off-site authorities and (5) provide updates for the public through off-site authorities.

projections based on available plant condition information and foreseeable contingencies.

- Close out or recommend reduction in emergency class by briefing of off-site authorities at EOF and by phone followed by written summary.
- Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance.
- Provide press briefings with licensee.
- lowed by written summary. 11. Maintain General Emergency status until closeout or reduction of emergency class.