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10 CFR 50, Appendix E

RS-03-124

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Clinton Power Station, Unit 1
Facility Operating License NPF-62
NRC Docket Nos. STN 50-461

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

LaSalle County Station, Units 1 and 2
Facility Operating License NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Revisions to the Exelon Nuclear Standardized Radiological Emergency Plan Implementing Procedure

In accordance with 10 CFR 50, Appendix E, Section V, "Implementing Procedures," Exelon Generation Company, LLC (EGC) and AmerGen Energy Company (AmerGen) are submitting changes to Exelon procedure, EP-AA-111, "Emergency Classification and Protective Action Recommendations," for the Braidwood, Byron, Clinton Power, Dresden Nuclear Power, LaSalle County, and Quad Cities Nuclear Power Stations. The changes to the procedure are a result of

the addition of a generic Protective Action Recommendation flowchart for Three Mile Island and other administrative changes made for clarification purposes. No changes are being implemented that impact the determination of plant or dose-based Protective Action Recommendations for the Mid-West Regional Operating Group stations. These changes were implemented on May 23, 2003, and are being submitted within 30 days of implementation.

Attachment A provides EP-AA-111, Revision 6, "Emergency Classification and Protective Action Recommendations."

Should you have any questions concerning this letter, please contact Ms. Marcia Lesniak at 630-657-2814.

Respectfully,

Keith R. Jury
Director – Licensing
Exelon Generation Company, LLC
AmerGen Energy Company, LLC

cc: Regional Administrator – NRC Region III (two copies)
NRC Senior Resident Inspector – Braidwood Station
NRC Senior Resident Inspector – Byron Station
NRC Senior Resident Inspector – Clinton Power Station
NRC Senior Resident Inspector – Dresden Nuclear Power Station
NRC Senior Resident Inspector – LaSalle County Station
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

Attachment A – Exelon Nuclear Procedure, "EP-AA-111, Revision 6, "Emergency Classification and Protective Action Recommendations."

ATTACHMENT A

EP-AA-111, EMERGENCY CLASSIFICATION AND PROTECTIVE ACTION RECOMMENDATION

EMERGENCY CLASSIFICATION AND PROTECTIVE ACTION RECOMMENDATIONS

1. PURPOSE

1.1 This procedure provides guidance for the classification of an emergency condition.

1.2 This procedure provides guidelines for determining Protective Action Recommendations (PARs) to be made to offsite authorities during a General Emergency.

1.3 This procedure provides guidance for event termination and entry into Recovery.

2. TERMS AND DEFINITIONS

2.1 Classification – Emergency classifications are divided into FIVE (5) categories or conditions, covering the postulated spectrum of emergency situations. The first four (4) emergency classifications are characterized by Emergency Action Levels (EALs) associated with Initiating Conditions and address emergencies of increasing severity. The fifth, the Recovery classification, is unique in that it may be viewed as a phase of the emergency, requiring specific criteria to be met and/or considered prior to its declaration. The classifications are as follows:

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

2.1.2 Alert - events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guideline (PAG) exposure levels.

2.1.3 Site Area Emergency - Events are in progress or have occurred that involve actual or likely major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA PAG exposure levels except near the site boundary.

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

2.1.5 Recovery - That period when the emergency phase is over and activities are being taken to return the situation to a normal state (acceptable condition). The plant is under control and no potential for further degradation to the plant or the environment is believed to exist.

2.2 Emergency Action Levels (EALs) - a Pre-determined, Site-specific, observable threshold for a plant Initiating Condition that places the plant in a given emergency class. An EAL can be: an instrument reading; an equipment status indicator; a measurable parameter; a discrete, observable event; or another phenomenon which, if it occurs, indicates entry into a particular emergency class.

2.3 Emergency Director (ED) - the Director of the facility in Command and Control. One of the following: the Shift Emergency Director (CR), Station Emergency Director (TSC) or the Corporate Emergency Director (EOF).

2.4 EPA Protective Action Guideline - exposure levels determined by the Environmental Protection Agency for the evacuation of the offsite public following a release of radioactive materials. These levels have been established at one (1) Rem TEDE or five (5) Rem CDE Thyroid.

2.5 Imminent - mitigation actions have been ineffective and trended information indicates that the event or condition will occur within 2 hours.

2.6 Initiating Condition (IC) - one of a predetermined subset of nuclear power plant conditions where either the potential exists for a radiological emergency, or such an emergency has occurred.

2.7 Potential - mitigation actions are not effective and trended information indicates that the parameters are outside desirable bands and not stable or improving.

2.8 Protective Action Recommendations (PARs) - PARs are made by Exelon personnel whenever a General Emergency is declared. Additionally, if in the opinion of the Emergency Director, conditions warrant the issuance of PARs, a General Emergency will be declared (Exelon will not issue PARs for any accident classified below a General Emergency).

2.8.1 Offsite protective actions provided in response to a radioactive release include evacuation and taking shelter.

1. Evacuation is the preferred action unless external conditions impose a greater risk from the evacuation than from the dose received.

2. Exelon personnel do not have the necessary information to determine whether offsite conditions would require sheltering instead of an evacuation. Therefore, an effort to base PARs on external factors (such as road conditions, traffic/traffic control, weather or offsite emergency worker response) should not be attempted.

2.8.2 At a minimum, a plant-based PAR to evacuate a 2-mile radius and 5 miles downwind, is issued at the declaration of a General Emergency based on NUREG-0654, Rev.1 Supplement 3. Depending on plant conditions (e.g., a **LOSS** of all three fission product barriers per the EALs), a PAR to evacuate a 5-mile radius and 10 miles downwind may be issued instead of the minimum PAR.

TMI

At a minimum, a plant-based PAR to evacuate a 5-mile radius is issued at the declaration of a General Emergency. Depending on plant conditions (e.g., a **LOSS** of all three fission product barriers per the EALs), a PAR to evacuate a 10-mile radius may be issued instead of the minimum PAR.

1. The PAR must be provided to the State, and designated local agencies as applicable, within 15 minutes of (1) the classification of the General Emergency or (2) any change in recommended actions.

2. The PAR must be provided to the NRC as soon as possible and within 60 minutes of (1) the classification of the General Emergency or (2) any change in recommended actions.

2.8.3 The Emergency Director may elect to specify PARs for any combinations of [MWROG] Subareas / [PB/LG] Sectors / [TMI] Radius or the entire EPZ (or beyond) regardless of plant and dose based guidance.

2.8.4 PARs should not be extended based on the results of dose projections unless the postulated release is likely to occur within a short period of time. Plant based PARs are inherently conservative such that expanding the evacuation zone as an added precaution would result in a greater risk from the evacuation than from the radiological consequences of a release. It also would dilute the effectiveness of the offsite resources used to accommodate the evacuation.

2.8.5 Protective actions taken in areas affected by plume deposition following the release are determined and controlled by offsite governmental agencies.

1. Exelon is not expected to develop offsite recommendations involving ingestion or relocation issues following plume passage.

2. Exelon may be requested to provide resources to support the determination of post plume protective actions.

3. RESPONSIBILITIES

3.1 The ***Shift Emergency Director (Shift Manager),*** when in Command and Control (C&C), has the non-delegable responsibility for classification of emergencies and final determination of PARs.

3.2 The ***Station Emergency Director***, when in Command and Control, has the non-delegable responsibility for classification of emergencies and final determination of PARs.

3.3 The ***Corporate Emergency Director***, when in Command and Control, has the non-delegable responsibility for final determination of PARs. Classification remains with the Station Emergency Director.

3.4 The ***TSC groups*** (e.g., Technical Support, Operations, Facility Support, RP/Chemistry) are responsible for monitoring and assessing conditions within their areas in support of classification.

3.5 The ***Shift Emergency Director (CR) / Technical Manager (TSC) or Technical Support Manager (EOF),*** in the facility with the Emergency Director having Command and Control, is responsible for evaluating the plant-based PARs from the PAR flowcharts.

3.6 The ***designated Shift Dose Assessor (CR) / Radiation Protection Manager (TSC) / Radiation Protection Manager (EOF),*** in the facility with the Emergency Director having Command and Control, is responsible for evaluating the dose-based PARs from the results of the dose assessment analyses and field team surveys/samples.

4. MAIN BODY

4.1 Emergency Classification

NOTE: Once indication of an abnormal condition is available, classification declaration must be made within 15 minutes. This time is available to ensure that the classification and subsequent actions associated with the classification, if warranted, are appropriate. It **does not** allow a delay of 15 minutes if the classification is recognized to be necessary. It is meant to provide sufficient time to accurately assess the emergency conditions and then evaluate the need for an emergency classification based on the assessment performed.

The decision to downgrade or terminate the event and enter Recovery is NOT time dependent.

NOTE: If the event escalates to a higher classification before the notification can be made for an initial (or previous) declaration, the time requirements in the previous note restart and notification for the first classification is not made.

4.1.1 When an abnormal condition is being evaluated, **REFER** to the appropriate Station EAL Matrix and **PERFORM** the following:

1. **IDENTIFY** the Unit Mode for the state of the plant prior to the abnormal condition (Operating Modes are identified in respective EALs).

2. **REVIEW** the Initiating Conditions (ICs) applicable to the operating mode as follows.

   A. Starting with the highest (General Emergency) classification level on the left side of the matrix and continue to the lowest (Unusual Event) classification level on the right side of the matrix.

   B. **IF** more than one IC applies to the event, **SELECT** the highest IC that may be applicable (from all of the ICs that were determined to have been met).

NOTE: Classification is made on a Unit basis. For events affecting both Units, the highest classification on either Unit is used for notification.

3. **REVIEW** the EAL Threshold Values for the IC.

   A. **IF** the EAL Threshold Values have been met or exceeded, **THEN**:

   - **NOTE** the EAL number associated with the IC.
   - **DECLARE** the event.
   - **RETURN** to the appropriate EP-AA-112 ERO position checklist and immediately begin notifications.

B. **IF** the EAL Threshold Values have not been met or exceeded, **THEN** return to the appropriate EP-AA-112 ERO position checklist.

4.2 Downgrading an Emergency Classification

4.2.1 An Alert Classification may be downgraded to an Unusual Event if conditions warrant.

4.2.2 A Site Area Emergency or General Emergency **shall not** be downgraded to a lower classification.

1. A Site Area Emergency Classification, once declared, shall remain in effect until a General Emergency Classification is warranted or until such time as conditions warrant exiting to Recovery.

2. A General Emergency Classification, once declared, shall remain in effect until such time as conditions warrant exiting to Recovery.

4.3 Transition to Recovery/Termination

4.3.1 Complete the Termination/Recovery Checklist (Attachment 1).

1. If conditions will allow for the termination of the emergency and entry into Recovery, exit this procedure and enter EP-AA-115, "Recovery from a Classified Event".

2. If conditions do not support termination of the emergency and entry into Recovery, continue following the guidance provided in Section 4.1.1.

4.4 Plant-Based Protective Action Recommendations (PARs)

4.4.1 Upon declaration of a General Emergency, **EVALUATE** the results of the plant-based PARs using the following attachments:

- Attachment 2, Braidwood Plant-Based PAR Flowchart
- Attachment 3, Byron Station Plant-Based PAR Flowchart
- Attachment 4, Dresden Station Plant-Based PAR Flowchart
- Attachment 5, LaSalle Station Plant-Based PAR Flowchart
- Attachment 6, Quad Cities Station Plant-Based PAR Flowchart
- Attachment 7, Clinton Station Plant-Based PAR Flowchart
- Attachment 8, Limerick/Peach Bottom Plant-Based PAR Flowchart
- Attachment 9, Three Mile Island Plant-Based PAR Flowchart

4.4.2 Continue to **EVALUATE** plant based PARs as Fission Product Barrier status or wind direction changes.

4.5 Dose Assessment Based Protective Action Recommendations (PARs)

NOTE: If radiation monitor readings provide sufficient data for assessment, it is NOT appropriate to wait for field monitoring data to become available to confirm or expand a PAR within the 10-mile EPZ.

NOTE: Many assumptions exist in dose assessment calculations, involving both source term and meteorological factors, which make computer predictions over long distances highly questionable.

4.5.1 Dose projections are NOT required to support the decision process in the plant-based PAR Flowcharts. However, it is expected that a dose projection be performed as soon as possible by the facility in Command and Control at a General Emergency with a release in progress per EP-MW(MA)-110-200.

4.5.2 From the Control Room:

1. **If** a release is in progress at a General Emergency classification, and time permits, **then PERFORM** an offsite dose assessment using the "Quick Assessment" dose model option.

4.5.3 From the TSC or EOF:

1. **PERFORM** dose projections, using the "Full Assessment" dose model option, to determine whether the plant-based protective actions are adequate using the following methods as applicable:

2. Monitored Release:

   A. **IF** dose assessment results indicate the need to recommend actions beyond 10 miles, **then DISPATCH** Field Monitoring Teams to downwind areas to verify the calculated exposure rates prior to issuing PARs outside the 10 mile EPZ.

   B. **If** a release is in progress, **then ASSESS** the calculated impact to determine whether the plant based PARs are adequate.

   C. **If** a release is not in progress, **then USE** current meteorological and core damage data to project effluent monitor threshold values that would require 2, 5, and 10 mile evacuations.

      - **RE-ESTABLISH** threshold values whenever meteorological conditions or core damage assessment values change.

3. Containment Leakage/Failure:

   A. **If** a release is in progress, THEN assess the calculated impact to determine whether the plant based PARs are adequate.

   B. **If** a release is not in progress, **then USE** current meteorological and core damage data on various scenarios (design leakage, failure to isolate, catastrophic failure) to project the dose consequences and determine whether the plant based PARs are adequate.

4. Field Survey Analysis: Actual field readings from Field Teams should be compared to dose assessment results and used as a dose projection method to validate calculated PARs and to determine whether the plant or release based protective actions are adequate.

5. Release Point Analysis: Actual sample data from monitored or unmonitored release points should be utilized in conjunction with other dose assessment and projection methods to validate calculated PARs and to determine whether the plant based protective actions are adequate.

4.6 Overall Protective Action Recommendations (PARs)

4.6.1 **EVALUATE** the results of the plant based PARs and determine which Subareas/Sectors are to be evacuated.

TMI

If projected or actual dose is determined to be > 1 Rem TEDE or 5 Rem CDE Thyroid at or beyond 5 miles, **then EXTEND** the "minimum" plant-based PAR to a 10-mile radius.

4.6.2 **IF** a release is in progress, **THEN**:

1. **EVALUATE** the results of the dose based PARs and determine if EPA Protective Action Guides (EPA PAGs) of 1 Rem TEDE or 5 Rem CDE Thyroid are exceeded and if additional Subareas/Sectors/Area require evacuation.

2. **ADD** any Subarea/Sector/Area requiring evacuation as determined by dose assessment to the plant based PARs.

4.6.3 **IF** no release is in progress, **THEN**:

1. **PERFORM** dose projections on possible conditions as time permits to determine if PAGs could be exceeded.

2. **CONSIDER** adding any Subareas/Sectors/Areas requiring evacuation as determined by dose projection to the plant based PARs.

4.6.4 **COMBINE** the results of the plant based and appropriate dose based PARs onto the State/Local notification form.

4.6.5 **RETAIN** any copies of plant and/or dose based PAR reports (Attachments 1-9 or dose code printouts).

5. DOCUMENTATION

None

6. REFERENCES

None

7. ATTACHMENTS

Attachment 1, Termination/Recovery Checklist

Attachment 2, Braidwood Plant-Based PAR Flowchart

Attachment 3, Byron Plant-Based PAR Flowchart

Attachment 4, Dresden Plant-Based PAR Flowchart

Attachment 5, LaSalle Plant-Based PAR Flowchart

Attachment 6, Quad Cities Plant-Based PAR Flowchart

Attachment 7, Clinton Plant-Based PAR Flowchart

Attachment 8, Limerick/Peach Bottom Plant-Based PAR Flowchart

Attachment 9, Three Mile Island Plant-Based PAR Flowchart

ATTACHMENT 1

TERMINATION/RECOVERY CHECKLIST

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		True	False
1.	Conditions no longer meet an Emergency Action Level and it appears unlikely that conditions will deteriorate.	❑	❑

List any EAL(s) which is/are still exceeded and a justification as to why a state of emergency is no longer applicable:

_____

_____

_____

_____

_____

_____

2.	All required notifications for entry into the Recovery Phase have been prepared per EP-AA-114 (NRC) and EP-MW(MA)-114-100.	❑	❑

STOP for Unusual Event.

CONTINUE for Alert, Site Area and General Emergency classifications

3.	Plant releases of radioactive materials to the environment are under control (within Tech Specs) or have ceased and the potential for a uncontrolled radioactive release is acceptably low.	❑	❑
4.	The radioactive plume has dissipated and plume tracking is no longer required. The only environmental assessment activities in progress are those necessary to determine the extent of deposition resulting from passage of the plume.	❑	❑
5.	In-plant radiation levels are stable or decreasing, and acceptable given the plant conditions.	❑	❑
6.	The reactor is in a stable shutdown condition and long-term core cooling is available.	❑	❑
7.	The integrity of the Reactor Containment Building is within Technical Specification limits.	❑	❑

ATTACHMENT 1

TERMINATION/RECOVERY CHECKLIST

Page 2 of 2

		True	False
8.	The operability and integrity of radioactive waste systems, decontamination facilities, power supplies, electrical equipment and plant instrumentation including radiation monitoring equipment is acceptable.	❑	❑
9.	Any fire, flood, earthquake or similar emergency condition or threat to security no longer exists.	❑	❑
10.	Any contaminated injured person has been treated and/or transported to a medical care facility.	❑	❑
11.	Offsite conditions do not unreasonably limit access of outside support to the station and qualified personnel and support services are available.	❑	❑
12.	Discussions have been held with Federal, State and County agencies and agreement has been reached and coordination established to terminate the emergency.	❑	❑

It is not necessary that all responses listed above be 'TRUE'; however, all items must be considered prior to event termination or entry into Recovery. For example, it is possible that some conditions remain which exceed an Emergency Action Level following a severe accident but entry into Recovery is appropriate. Additionally, other significant items not included on this list may warrant consideration such as severe weather.

Comments:

_____

_____

_____

_____

_____

Approved: _____ Date/Time: _____
Emergency Director (in C&C of event classification)

ATTACHMENT 2

BRAIDWOOD PLANT-BASED PAR FLOWCHART

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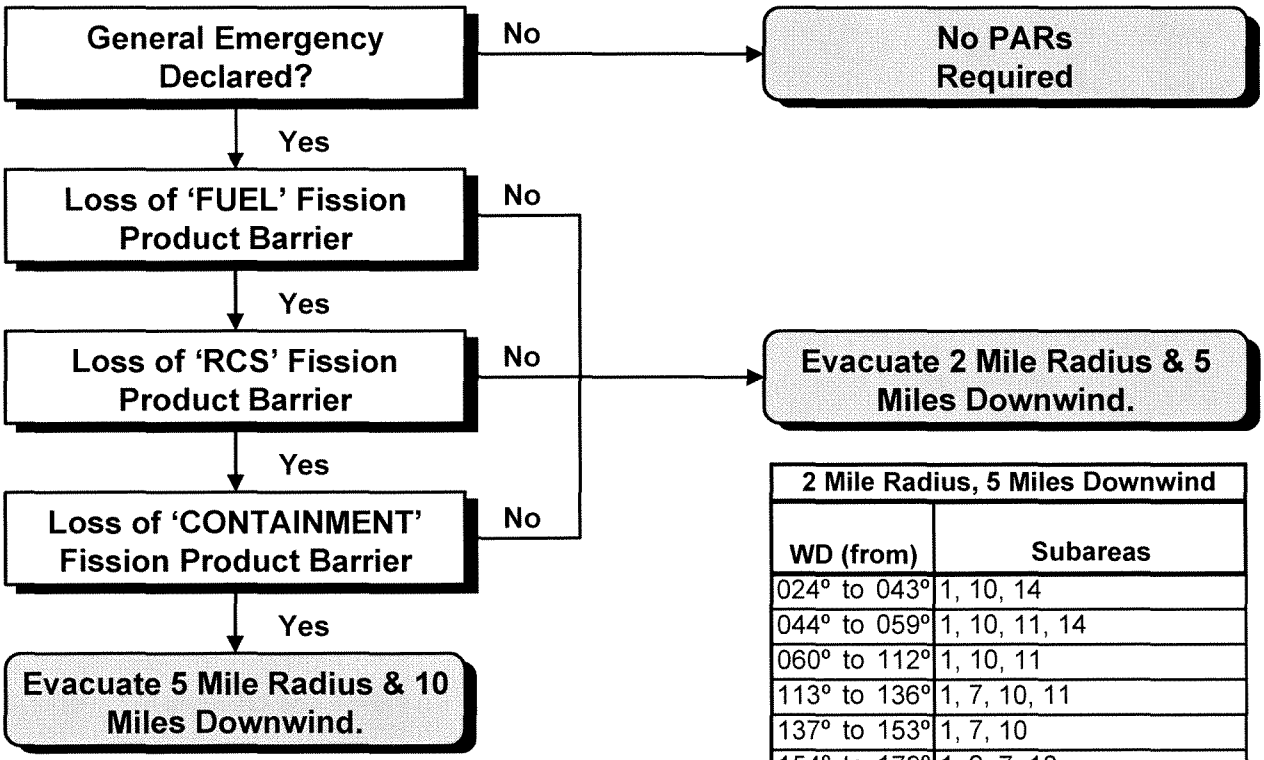


2 Mile Radius, 5 Miles Downwind	
WD (from)	**Subareas**
024° to 043°	1, 10, 14
044° to 059°	1, 10, 11, 14
060° to 112°	1, 10, 11
113° to 136°	1, 7, 10, 11
137° to 153°	1, 7, 10
154° to 179°	1, 2, 7, 10
180° to 204°	1, 2, 10
205° to 236°	1, 2, 3, 10
237° to 289°	1, 3, 10
290° to 329°	1, 3, 6, 10
330° to 354°	1, 6, 10
355° to 023°	1, 6, 10, 14

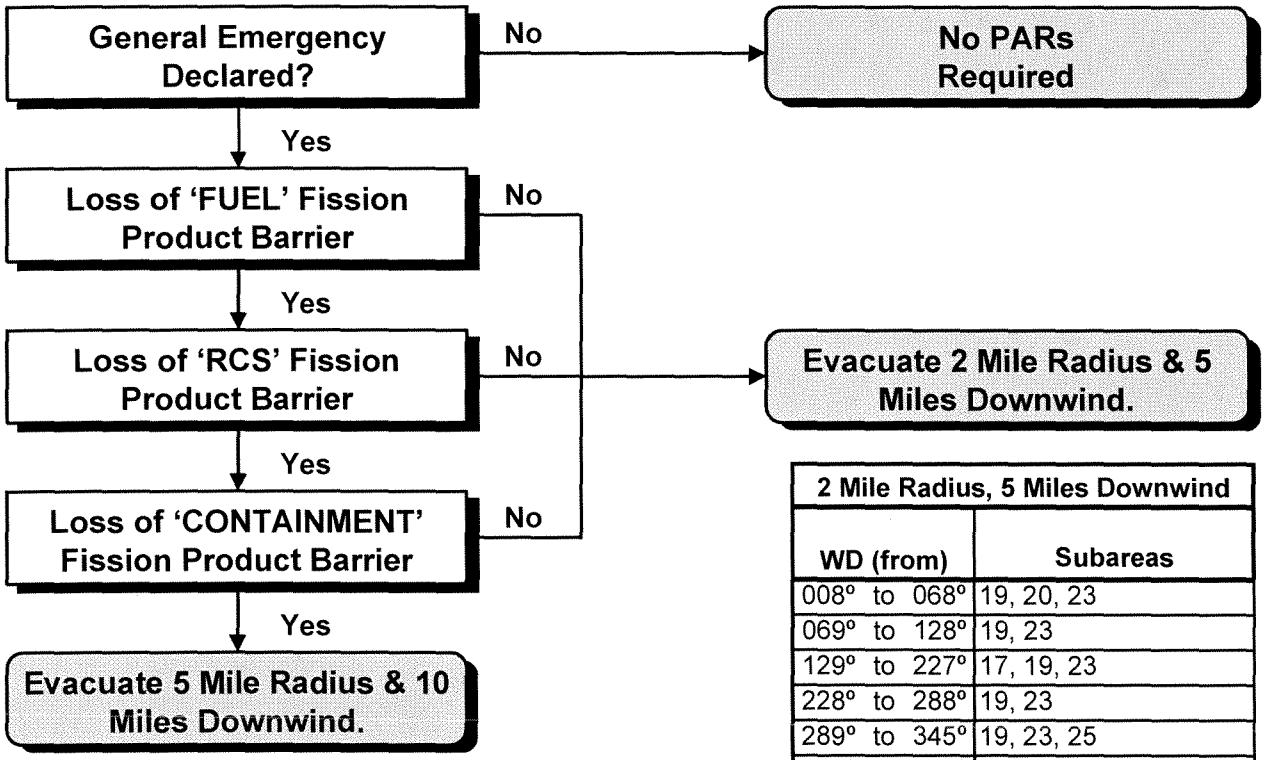
5 Mile Radius, 10 Miles Downwind	
WD (from)	**Subareas**
014° to 027°	1, 2, 3, 6, 7, 10, 11, 14, 15
028° to 056°	1, 2, 3, 6, 7, 10, 11, 14, 15, 16
057° to 073°	1, 2, 3, 6, 7, 10, 11, 12, 14, 15, 16
074° to 083°	1, 2, 3, 6, 7, 10, 11, 12, 14, 16
084° to 093°	1, 2, 3, 6, 7, 10, 11, 12, 14
094° to 104°	1, 2, 3, 6, 7, 8, 10, 11, 12, 14
105° to 121°	1, 2, 3, 4, 6, 7, 8, 10, 11, 12, 14
122° to 149°	1, 2, 3, 4, 6, 7, 8, 10, 11, 14
150° to 163°	1, 2, 3, 4, 6, 7, 10, 11, 14
164° to 181°	1, 2, 3, 4, 5, 6, 7, 10, 11, 14
182° to 210°	1, 2, 3, 5, 6, 7, 10, 11, 14
211° to 242°	1, 2, 3, 5, 6, 7, 10, 11, 13, 14
243° to 274°	1, 2, 3, 6, 7, 10, 11, 13, 14
275° to 307°	1, 2, 3, 6, 7, 9, 10, 11, 13, 14
308° to 013°	1, 2, 3, 6, 7, 9, 10, 11, 14

NOTE: Ensure dose based PARs are evaluated when a release is in progress.

ATTACHMENT 3

BYRON PLANT-BASED PAR FLOWCHART

Page 1 of 1



2 Mile Radius, 5 Miles Downwind	
WD (from)	**Subareas**
008° to 068°	19, 20, 23
069° to 128°	19, 23
129° to 227°	17, 19, 23
228° to 288°	19, 23
289° to 345°	19, 23, 25
346° to 007°	19, 20, 23, 25

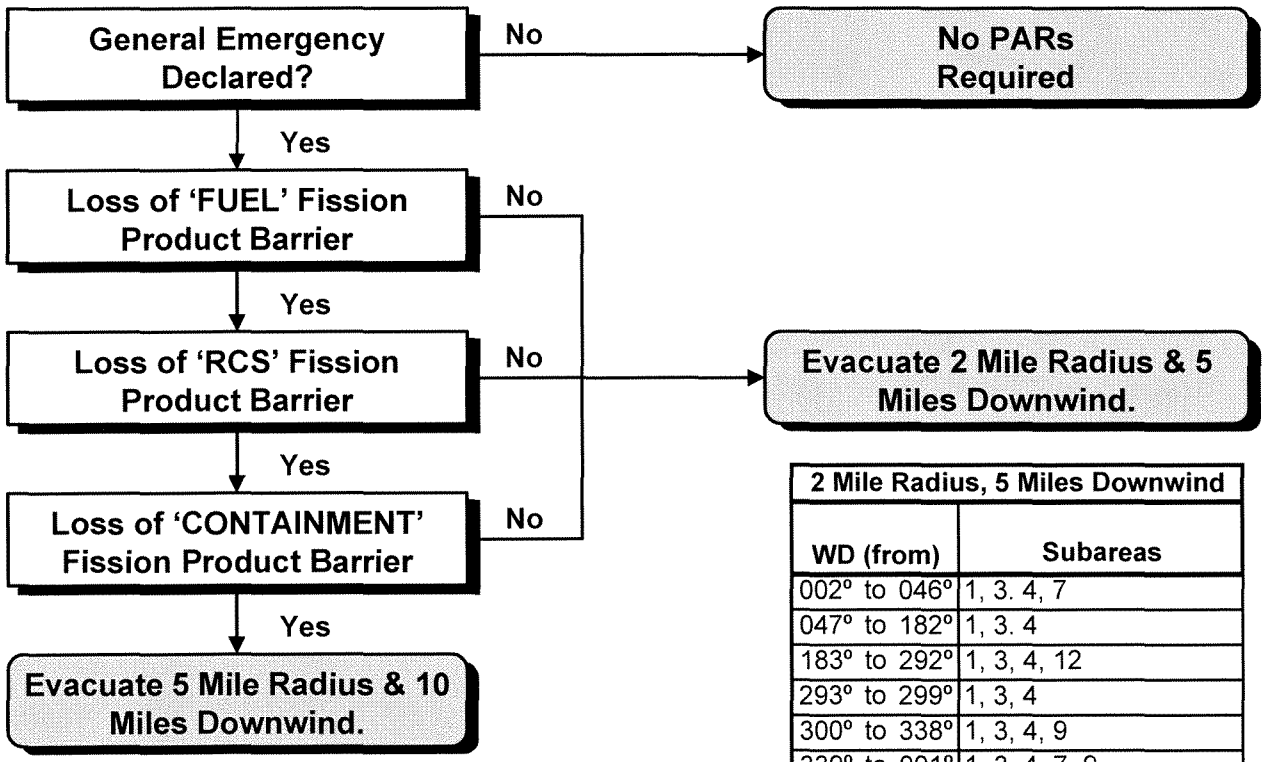
5 Mile Radius, 10 Miles Downwind	
WD (from)	**Subareas**
022° to 051°	14, 17, 19, 20, 23, 25
052° to 082°	12, 14, 17, 19, 20, 23, 25
083° to 100°	12, 17, 19, 20, 23, 25
101° to 125°	10, 12, 17, 19, 20, 23, 25
126° to 139°	10, 17, 19, 20, 23, 25
140° to 171°	10, 17, 19, 20, 23, 25, 40
172° to 209°	17, 19, 20, 23, 25, 40
210° to 220°	17, 19, 20, 23, 25, 39, 40
221° to 252°	17, 19, 20, 23, 25, 27, 39
253° to 264°	17, 19, 20, 23, 25, 27
265° to 285°	17, 19, 20, 23, 25, 27, 28
286° to 326°	17, 19, 20, 23, 25, 28
327° to 021°	17, 19, 20, 23, 25

NOTE: Ensure dose based PARs are evaluated when a release is in progress.

ATTACHMENT 4

DRESDEN PLANT-BASED PAR FLOWCHART

Page 1 of 1



2 Mile Radius, 5 Miles Downwind	
WD (from)	**Subareas**
002° to 046°	1, 3. 4, 7
047° to 182°	1, 3. 4
183° to 292°	1, 3, 4, 12
293° to 299°	1, 3, 4
300° to 338°	1, 3, 4, 9
339° to 001°	1, 3, 4, 7, 9

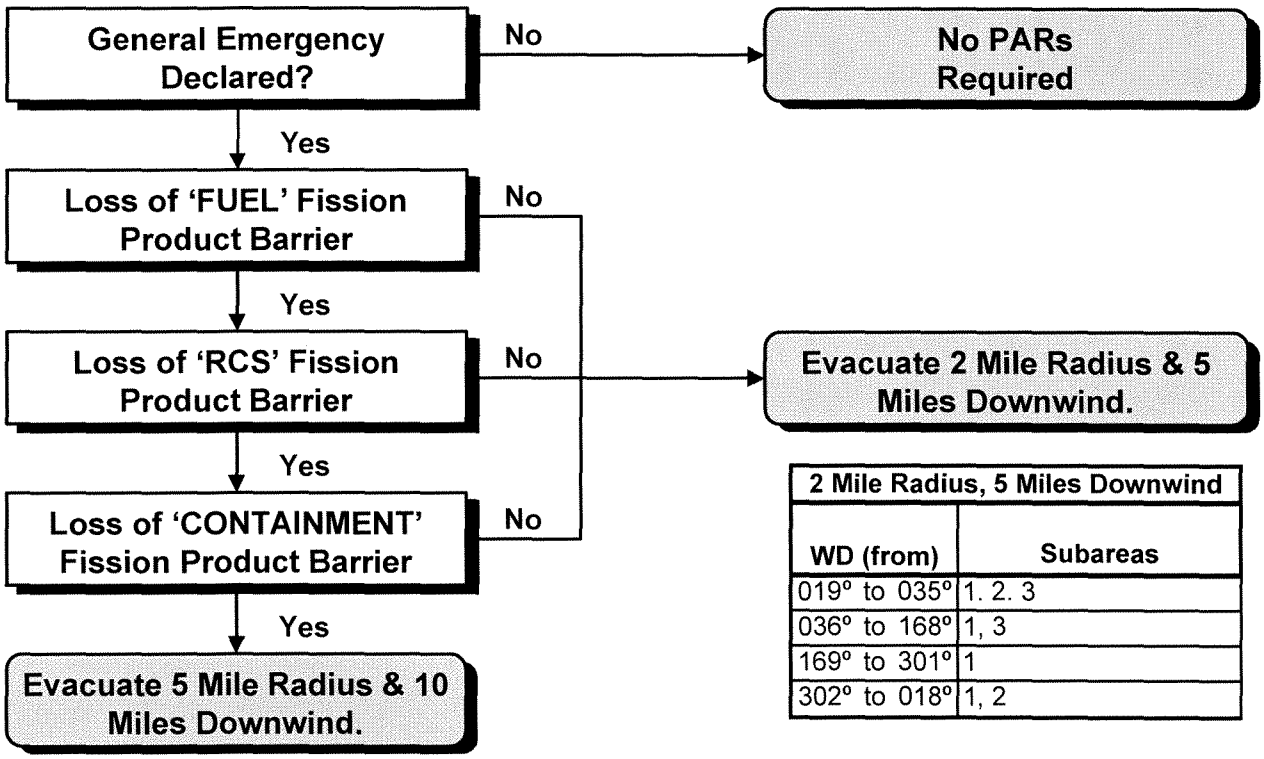
5 Mile Radius, 10 Miles Downwind	
WD (from)	**Subareas**
002° to 026°	1, 3, 4, 7, 9, 10, 11, 12
027° to 044°	1, 3, 4, 7, 8, 9, 11, 12
045° to 068°	1, 3, 4, 7, 8, 9, 12
069° to 083°	1, 2, 3, 4, 5, 7, 8, 9, 12
084° to 092°	1, 2, 3, 4, 5, 7, 9, 12
093° to 112°	1, 2, 3, 4, 7, 9, 12
113° to 143°	1, 2, 3, 4, 6, 7, 9, 12
144° to 177°	1, 3, 4, 6, 7, 9, 12
178° to 199°	1, 3, 4, 6, 7, 9, 12, 13
200° to 225°	1, 3, 4, 7, 9, 12, 13
226° to 249°	1, 3, 4, 7, 9, 12, 13, 14
250° to 266°	1, 3, 4, 7, 9, 12, 14
267° to 286°	1, 3, 4, 7, 9, 12, 14, 15
287° to 321°	1, 3, 4, 7, 9, 12, 15
322° to 344°	1, 3, 4, 7, 9, 12, 15, 16
345° to 353°	1, 3, 4, 7, 9, 10, 12, 15, 16
354° to 001°	1, 3, 4, 7, 9, 10, 12, 16

NOTE: Ensure dose based PARs are evaluated when a release is in progress.

ATTACHMENT 5

LASALLE PLANT-BASED PAR FLOWCHART

Page 1 of 1



2 Mile Radius, 5 Miles Downwind	
WD (from)	**Subareas**
019° to 035°	1. 2. 3
036° to 168°	1, 3
169° to 301°	1
302° to 018°	1, 2

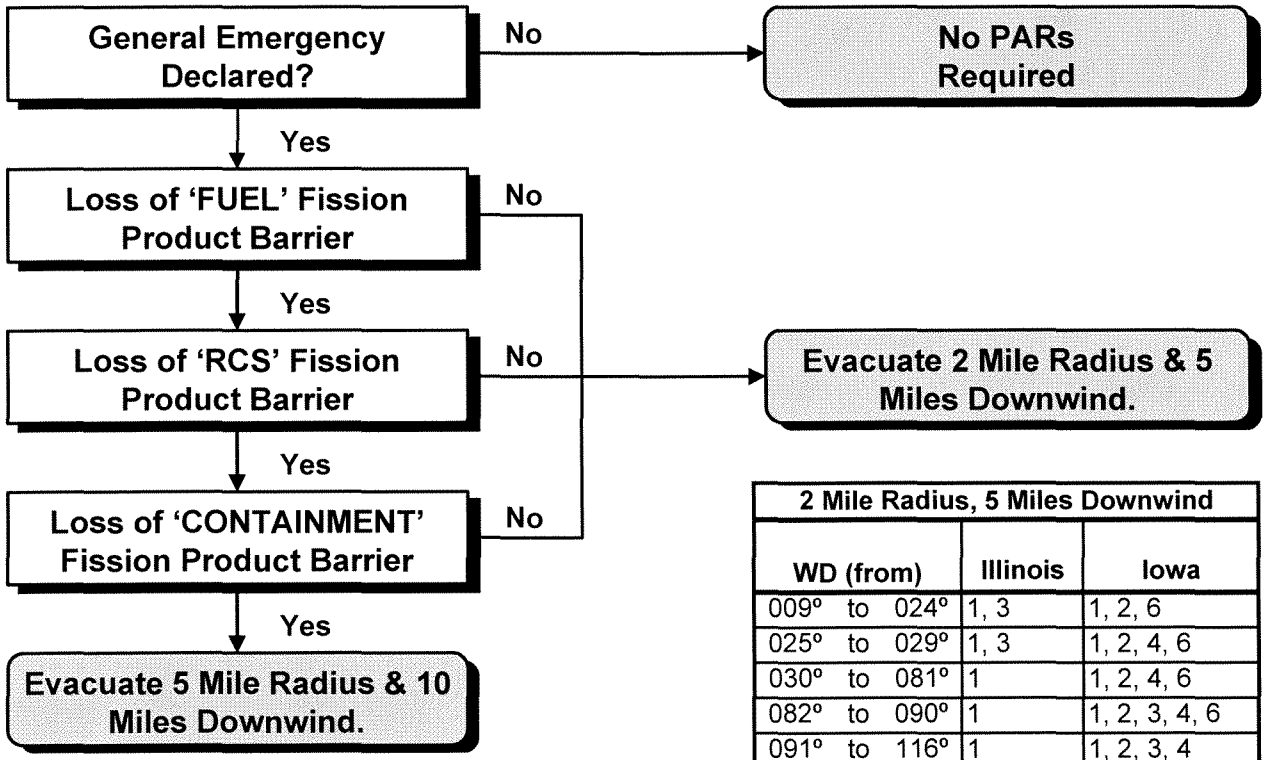
5 Mile Radius, 10 Miles Downwind	
WD (from)	**Subareas**
002° to 026°	1, 2, 3, 4, 5
027° to 056°	1, 2, 3, 4
057° to 076°	1, 2, 3, 4, 7
077° to 096°	1, 2, 3, 7
097° to 116°	1, 2, 3, 7, 8
117° to 121°	1, 2, 3, 8
122° to 149°	1, 2, 3, 8, 11
150° to 178°	1, 2, 3, 10, 11
179° to 197°	1, 2, 3, 10
198° to 218°	1, 2, 3, 6, 10
219° to 233°	1, 2, 3, 6, 9, 10
234° to 242°	1, 2, 3, 6, 9, 13
243° to 265°	1, 2, 3, 9, 13
266° to 281°	1, 2, 3, 13
282° to 316°	1, 2, 3, 13, 17
317° to 342°	1, 2, 3, 5, 17
343° to 001°	1, 2, 3, 5

NOTE: Ensure dose based PARs are evaluated when a release is in progress.

ATTACHMENT 6

QUAD CITIES PLANT-BASED PAR FLOWCHART

Page 1 of 1



5 Mile Radius, 10 Miles Downwind		
WD (from)	Illinois	Iowa
002° to 025°	1, 2, 3, 6	1, 2, 3, 4, 5, 6, 12
026° to 031°	1, 2, 3	1, 2, 3, 4, 5, 6, 12
032° to 049°	1, 2, 3	1, 2, 3, 4, 5, 6, 10, 12
050° to 058°	1, 2, 3	1, 2, 3, 4, 5, 6, 8, 10, 12
059° to 075°	1, 2, 3	1, 2, 3, 4, 5, 6, 8, 10
076° to 087°	1, 2, 3	1, 2, 3, 4, 5, 6, 8
088° to 106°	1, 2, 3	1, 2, 3, 4, 5, 6, 7, 8
107° to 116°	1, 2, 3	1, 2, 3, 4, 5, 6, 7
117° to 146°	1, 2, 3	1, 2, 3, 4, 5, 6, 7, 9
147° to 169°	1, 2, 3	1, 2, 3, 4, 5, 6, 9
170° to 186°	1, 2, 3	1, 2, 3, 4, 5, 6, 9, 11
187° to 215°	1, 2, 3	1, 2, 3, 4, 5, 6, 11
216° to 229°	1, 2, 3, 4	1, 2, 3, 4, 5, 6, 11
230° to 239°	1, 2, 3, 4	1, 2, 3, 4, 5, 6
240° to 267°	1, 2, 3, 4, 5	1, 2, 3, 4, 5, 6
268° to 296°	1, 2, 3, 5	1, 2, 3, 4, 5, 6
297° to 318°	1, 2, 3, 5, 6	1, 2, 3, 4, 5, 6
319° to 001°	1, 2, 3, 6	1, 2, 3, 4, 5, 6

2 Mile Radius, 5 Miles Downwind		
WD (from)	Illinois	Iowa
009° to 024°	1, 3	1, 2, 6
025° to 029°	1, 3	1, 2, 4, 6
030° to 081°	1	1, 2, 4, 6
082° to 090°	1	1, 2, 3, 4, 6
091° to 116°	1	1, 2, 3, 4
117° to 165°	1	1, 2, 3
166° to 186°	1	1, 2, 3, 5
187° to 215°	1	1, 2, 5
216° to 240°	1, 2	1, 2, 5
241° to 289°	1, 2	1, 2
290° to 318°	1, 2, 3	1, 2
319° to 008°	1, 3	1, 2

NOTE: Ensure dose based PARs are evaluated when a release is in progress.

ATTACHMENT 7

CLINTON PLANT-BASED PAR FLOWCHART

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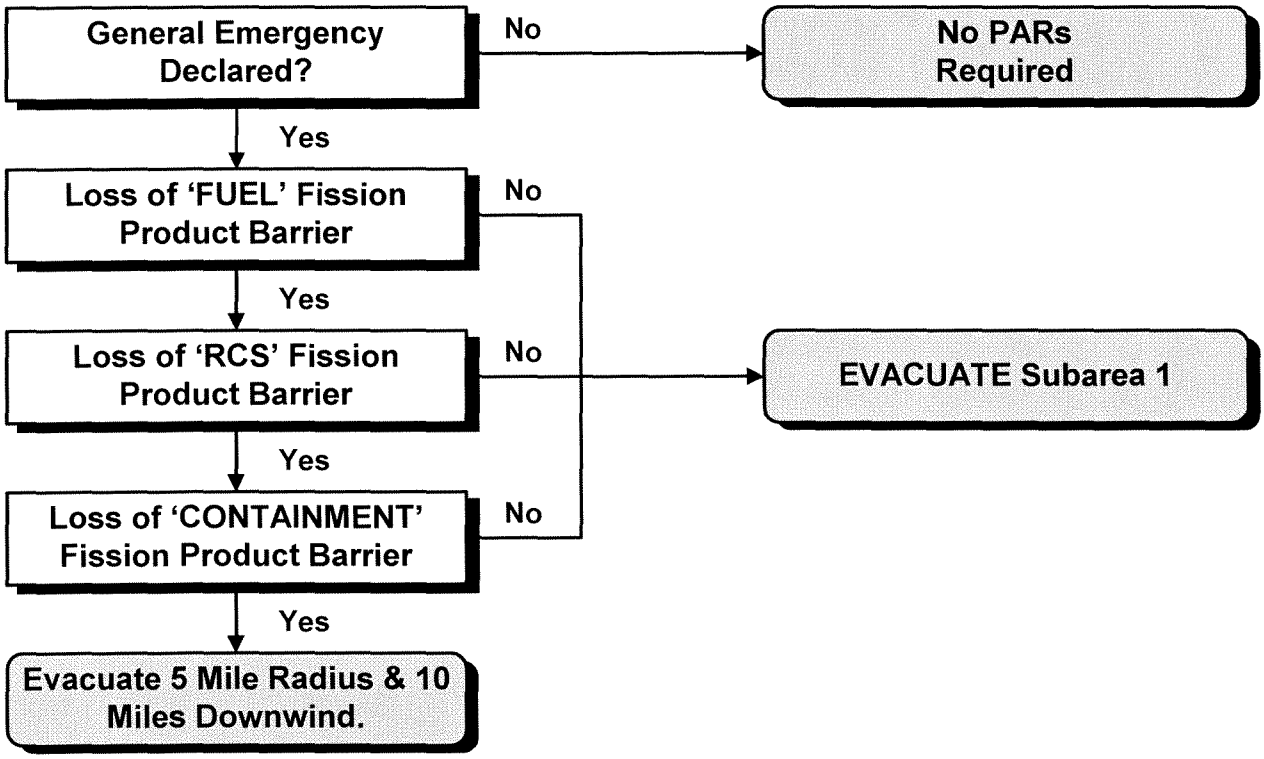

5 Mile Radius, 10 Miles Downwind	
WD (from)	**Subareas**
021° to 048°	1, 5, 6
049° to 066°	1, 6
067° to 090°	1, 6, 7
091° to 094°	1, 7
095° to 132°	1, 7, 8
133° to 157°	1, 2, 8
158° to 196°	1, 2
197° to 228°	1, 2, 3
229° to 251°	1, 3
252° to 281°	1, 3, 4
282° to 308°	1, 4
309° to 338°	1, 4, 5
339° to 020°	1, 5

NOTE: Ensure dose based PARs are evaluated when a release is in progress.

ATTACHMENT 8

LIMERICK/PEACH BOTTOM PLANT-BASED PAR FLOWCHART

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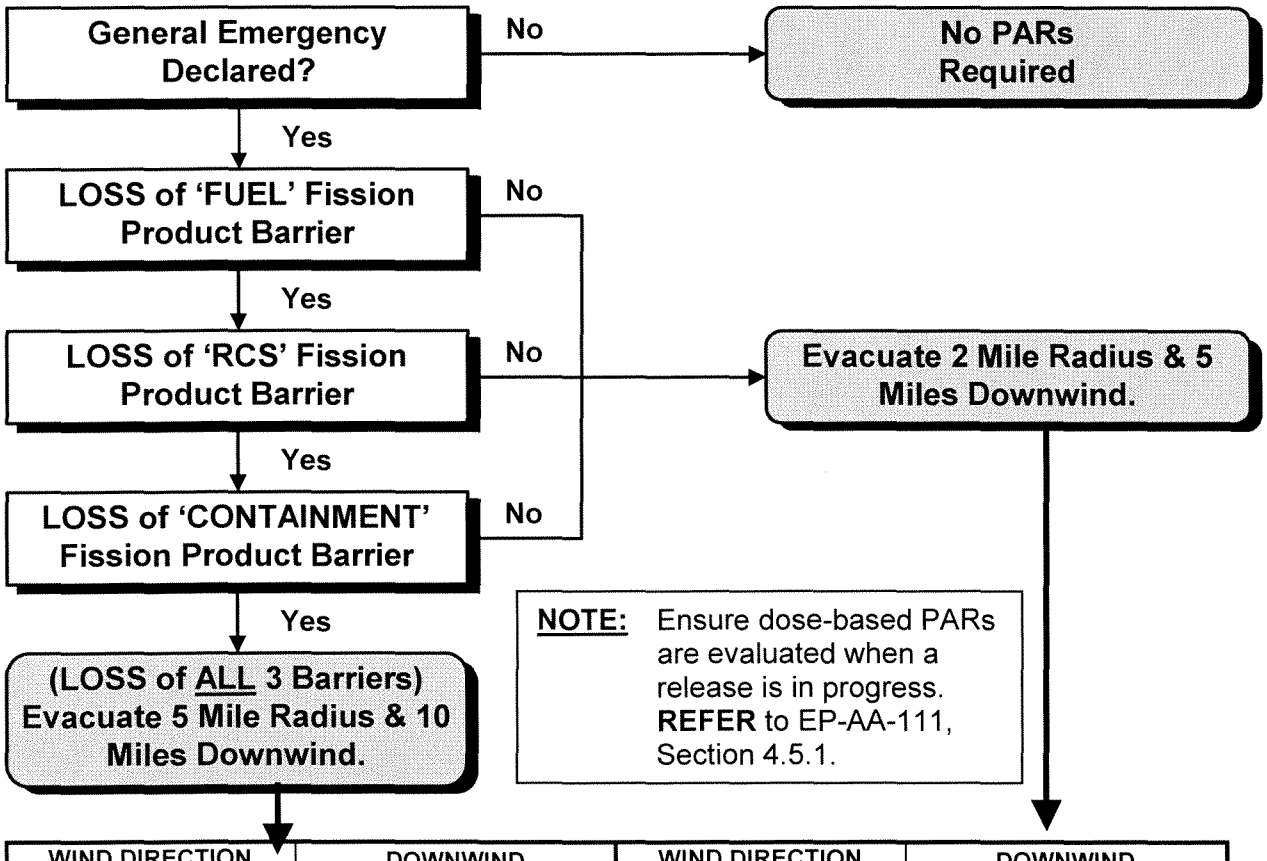

WIND DIRECTION (FROM)	DOWNWIND SECTOR(S)*	WIND DIRECTION (FROM)	DOWNWIND SECTOR(S)*
355 to 005	SSE / **S** / SSW	175 to 185	NNW / **N** / NNE
006 to 017	SSE / **S** / **SSW** /SW	186 to 197	NNW / **N** / **NNE** / NE
018 to 027	S / **SSW** /SW	198 to 207	N / **NNE** / NE
028 to 039	S / **SSW** /**SW** / WSW	208 to 219	N / **NNE** / **NE** / ENE
040 to 050	SSW /**SW** / WSW	220 to 230	NNE / **NE** / ENE
051 to 062	SSW /**SW** / **WSW** / W	231 to 242	NNE / **NE** / **ENE** / E
063 to 072	SW / **WSW** / W	243 to 252	NE / **ENE** / E
073 to 084	SW / **WSW** / **W** / WNW	253 to 264	NE / **ENE** / **E** / ESE
085 to 095	WSW / **W** / WNW	265 to 275	ENE / **E** / ESE
096 to 107	WSW / **W** / **WNW** / NW	276 to 287	ENE / **E** / **ESE** / SE
108 to 117	W / **WNW** / NW	288 to 297	E / **ESE** / SE
118 to 129	W / **WNW** / **NW** / NNW	298 to 309	E / **ESE** / **SE** / SSE
130 to 140	WNW / **NW** / NNW	310 to 320	ESE / **SE** / SSE
141 to 152	WNW / **NW** / **NNW** / N	321 to 332	ESE / **SE** / **SSE** / S
153 to 162	NW / **NNW** / N	333 to 342	SE / **SSE** / S
163 to 174	NW / **NNW** / **N** / NNE	343 to 354	SE / **SSE** / **S** / SSW

* **BOLD** refers to affected Sector(s). These sectors are based on dose model stability class "D", and in some cases, an extra sector was included for conservatism.

ATTACHMENT 9

THREE MILE ISLAND PLANT-BASED PAR FLOWCHART

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