

# VERMONT YANKEE NUCLEAR POWER STATION

## EMERGENCY PREPAREDNESS OPERATING PROCEDURE

EPOP-PAR-3511

REVISION 02

### OFF-SITE PROTECTIVE ACTION RECOMMENDATIONS

USE CLASSIFICATION: **REFERENCE**

CATEGORY: **TECHNICAL**

RESPONSIBLE PROCEDURE OWNER: **Manager, Emergency Preparedness**

#### REQUIRED REVIEWS

V-EN-LI-100 IS NOT REQUIRED  
10CFR50.54(q)

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**NOTE**

Guidance for developing Protective Action Recommendations beyond the 10-mile Emergency Planning Zone is provided in Section 9.3.

**1.0 PURPOSE**

To specify the criteria that is utilized for making a Protective Action Recommendation (PAR) to the appropriate Emergency Planning Zone States.

**2.0 REFERENCES****2.1. Performance References**

- 2.1.1. AP 3125, Emergency Plan Classification and Action Level Scheme
- 2.1.2. EPOP-RAD-3513, Evaluation of Off-Site Radiological Conditions
- 2.1.3. EPOP-CR-3540, Control Room Actions During an Emergency
- 2.1.4. EPOP-EOF-3546, Operation of the Emergency Operations Facility/Recovery Center (EOF/RC)

**2.2. Developmental References**

- 2.2.1. Vermont Yankee Nuclear Power Station Emergency Plan
- 2.2.2. NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of the Radiological Emergency Response Plans at Nuclear Power Plants
- 2.2.3. EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Accidents," October 1991
- 2.2.4. USNRC IE Notice 83-28, "Criteria for Protective Action Recommendations for General Emergencies", May 4, 1983
- 2.2.5. YAEC Memorandum J.G. Parillo to S.R. Miller, "Monitor Indications for Failed Fuel", dated 6/27/95, REG 110/95
- 2.2.6. V-EN-AD-103, Document Control and Records Management Programs

### 3.0 REQUIREMENTS

#### 3.1. Technical Specification Requirements

3.1.1. None

#### 3.2. Commitments & Obligations

3.2.1. None

#### 3.3. Internal Commitments

3.3.1. ER2000-1363

3.3.2. ER2003-0481\_01

### 4.0 DEFINITIONS

- 4.1. Elevated Release: An elevated radiological release is any release discharged from the plant stack.
- 4.2. Ground Release: A radiological ground release is any release that is not discharged from the plant stack.
- 4.3. Release: A release is any release where activity levels are above Technical Specification (Offsite Dose Calculation Manual) limits,

OR

Activity levels at the Site Boundary are above background as indicated by field monitoring team instrumentation or dose assessment results.

### 5.0 RESPONSIBILITIES

- 5.1. The Shift Manager is responsible for authorizing initial Protective Action Recommendations to the State authorities until relieved by the Emergency Director.
- 5.2. The Radiological Assessment Coordinator evaluates radiological data used to determine the appropriate Protective Action Recommendation and provides recommendation to the Emergency Director.
- 5.3. The Emergency Director is the cognizant individual with the overall responsibility and authority to provide the appropriate Protective Action Recommendation to the State authorities.

## 6.0 PRECAUTIONS AND LIMITATIONS

### 6.1. Precautions

- 6.2. If a Protective Action Recommendation (shelter or evacuation) is warranted, ensure that a General Emergency has been declared, consistent with AP 3125.
- 6.3. An Initial Protective Action Recommendation (PAR), based on classification conditions, must be developed and notification must be initiated to state authorities within 15 minutes of the time of a General Emergency declaration.
- 6.4. If available, two individuals should be assigned to formulate the PAR independently to ensure accuracy.
- 6.5. If the initial PAR is based on Category A, "Abnormal Rad Release / Rad Effluent", it should be based on available dose assessment information.
- 6.6. If the initial 15 minute PAR notification for Category H, "Hazards", will be delayed awaiting dose assessment results, then make an initial PAR based on plant conditions using InForm or Section I of Attachment 5. Follow up with a second PAR based on dose assessment if it is different from the first PAR using InForm or Section II of Attachment 5.
- 6.7. A Protective Action Recommendation is approved by the senior manager in charge of emergency activities at the time the recommendation is made. This person reviews and approves the recommendation, then transmits it to the states.
- 6.8. If conditions change requiring a PAR to be upgraded, the new PAR must be developed within 15 minutes of the recognition of the change in conditions. An upgraded PAR becomes valid and the 15-minute notification clock begins when the senior manager in charge of emergency activities at the time the recommendation is made approves the PAR form.
- 6.9. If possible and if time permits, confer with the appropriate State and Federal authorities to ensure that questions on protective actions to be applied are answered prior to formal recommendation.
- 6.10. Emphasize to States' representatives that no compensation in the recommendation is made for the time to implement and complete protective actions.
- 6.11. A PAR is reviewed against protective action actually implemented prior to re-issuing an updated recommendation.
- 6.12. A PAR should not be downgraded until the radiological/hazard threat is fully under control.

### 6.13. Limitations

None

## 7.0 PREREQUISITES

- 7.1. None

## 8.0 SPECIAL INSTRUCTIONS

- 8.1. The decision making process to determine the Protective Action Recommendation for the plume exposure emergency planning zone is based on two criteria. The criteria include the consideration of plant conditions at the General Emergency classification, and projected and measured radiological doses in the environment.
- 8.2. For a Protective Action Recommendation based on release of radioactivity, the appropriate information concerning projected and measured dose rates in the environment is utilized. Determination of the population at risk is based upon meteorological data (wind speed, wind direction, and stability class). The exposure time is based upon available information such as plant conditions or type of accident. In the event that this cannot be readily approximated, a default release duration estimate is utilized. The projected and measured dose is calculated from this information.
- 8.3. The projected or measured dose is then utilized to determine the appropriate Protective Action Recommendation based upon Environmental Protection Agency (EPA) guidance.
- 8.4. If the projected or measured dose is not available, then a Protective Action Recommendation based on plant conditions at the General Emergency classification is obtained using in-core fuel conditions, fission product inventory in containment, containment integrity, and release conditions. This information is then utilized to determine the appropriate Protective Action Recommendation (i.e., shelter or evacuation) based upon the guidance contained in InForm or Attachment 4.

## 9.0 PROCEDURE

### **NOTE**

Sections 9.1 and 9.2 may be performed out of sequence and independent of each other.

### 9.1. Protective Action Recommendation Based on Plant Conditions

- 9.1.1. Immediate actions by the senior manager in charge or designated alternate (General Emergency Declared).

### **NOTE**

InForm may be used in place of Attachments 1 through 5 for PAR development.

Attachment 4 "General Emergency Protective Action Recommendations (PARs) Flowchart" has been built into the InForm Smart Form by clicking on "Help with PARs". When this option is selected, PAR information is automatically populated once the questions have been answered.

- A. Use InForm or Attachment 4 and Attachment 1 to determine the appropriate Protective Action Recommendation (PAR) based on plant conditions.
  1. In all cases, if possible, use field team data to verify the actual downwind direction of the plume. Adjust the PAR as appropriate.
  2. If the actual or potential release pathway is a stack release, use the upper wind direction.
  3. If the actual or potential release pathway is a ground release, use the lower wind direction.
  4. If the actual or potential release pathway is a multiple release (stack and ground), use both the upper and lower wind direction.
- B. If available, a second individual should independently verify the PAR. The verification may be performed by the individual who is approving the PAR (Shift Manager or Emergency Director).
- C. Any prior protective action recommendations that are still in effect are included when using InForm and shall be added with updated information and documentation if using Attachment 5.
- D. Verify the inputs in InForm or record appropriate PAR information in Section I of Attachment 5.
- E. Review PAR with the Emergency Director or senior manager in charge to obtain approval.

- F. Transmit approved PAR to State authorities using InForm or as delineated in EPOP-CR-3540 (Shift Manager) or EPOP-EOF-3546 (Emergency Director).
- G. Forward a copy of the completed InForm Notification or Attachment 5 to the Emergency Director or senior manager in charge.

9.1.2. Subsequent Actions

- A. Continue to obtain updated information on plant conditions.
- B. If significant changes occur with plant or meteorological conditions, repeat steps in Section 9.1.1. to re-evaluate Protective Action Recommendation.
- C. When possible, use field teams to verify the actual downwind direction of the plume. Adjust the PAR as appropriate.

9.2. **Protective Action Recommendation Based on Radiological Dose Information**

9.2.1. Immediate Actions by the Radiological Assessment Coordinator

**NOTES**

If the EOF/RC is not activated, the Shift Manager will be responsible for implementing this section.

The Shift Manager may use InForm in place of Attachments 1 through 5 for PAR development

- 9.2.2. Obtain current off-site dose projection results and meteorological data (wind direction and stability class) from EPOP-RAD-3513.
- 9.2.3. URI will automatically compare EPA Protective Action Guidelines with off-site dose projection results.
- 9.2.4. When using URI to determine if the EPA Protective Action Guideline is exceeded, request the TSC to provide a realistic estimate of the release duration based on actual plant conditions.
  - A. Use the 8-hour default release duration only if a more realistic and timely estimate of the release duration cannot be obtained.
  - B. If using the 8-hour default release duration, then continue to check with the TSC for a more realistic estimate as the emergency progresses.
- 9.2.5. Determine appropriate Protective Action Recommendations (PAR) as follows: (Use Section II of Attachment 5).
  - A. Compare the calculated dose projection results with EPA Protective Action Guidelines delineated below to determine whether EPA Protective Action Guidelines have been exceeded. If the EPA Protective Action Guidelines have not been exceeded, then complete Attachment 5 Section II, indicating that there is no PAR based on radiological conditions.



**EPA PROTECTIVE ACTION GUIDELINES**

Total Effective Dose Equivalent (TEDE)	Committed Dose Equivalent (CDE) to the Thyroid	Protective Action
≥1 rem	≥5 rem	<p style="text-align: center;"><b>EVACUATION</b></p> <p>Sheltering may be the preferred protective action if the following are present:</p> <ul style="list-style-type: none"> <li>• severe weather,</li> <li>• competing disasters,</li> <li>• local physical factors which impede evacuation</li> </ul> <p>LOCAL/STATE OFF-SITE OFFICIALS WILL DETERMINE THE SIGNIFICANCE OF THESE FACTORS TO THE PAR SUBSEQUENT TO THE ISSUANCE OF THE PAR BY VY.</p>

B. Attachment 2 and Attachment 3 are conservatively based on the river valley effect for stability classes E, F and G, and plume width.

**NOTE**

The Town of Marlboro, VT is not a VY EPZ town.

C. In all cases, use the field team data to verify the actual downwind direction of the plume. Adjust the PAR as appropriate.

D. Choose the towns affected by the PAR as follows:

1. If EPOP-RAD-3513 Attachment 19 method shows that the PAR (evacuation) is exceeded, then use Attachment 3 and appropriate meteorological data (wind direction and stability class A) to obtain affected towns out to five miles downwind.
2. If URI shows that the PAR (evacuation) is exceeded between five and ten miles, then use Attachment 2 and appropriate meteorological data (wind direction and stability class) to obtain affected towns out to ten miles downwind.
  - a. If URI identifies town that are not includes on Attachment 2 then ensure they are added to the PAR recommendation.
3. If URI shows that the PAR (evacuation) is exceeded between the site boundary and five miles, then use Attachment 3 and appropriate meteorological data (wind direction and stability class) to obtain affected towns out to five miles downwind.

- a. If URI identifies town that are not included on Attachment 3 then ensure they are added to the PAR recommendation.
  - E. Any prior protective action recommendations that are still in effect should be included with updated information and documentation (Attachment 5).
  - F. Barring impediments, (e.g., weather or a competing disaster) once a town has been recommended to evacuate, the more conservative action will be followed even if updated analyses or conditions indicate that sheltering in place would be sufficient.
  - G. If available, a second individual should independently verify the PAR. The verification may be performed by the individual who is approving the PAR (Shift Manager or Emergency Director).
  - H. Record appropriate PAR information in Section II of Attachment 5.
- 9.2.6. Forward completed Attachment 5 to the Emergency Director or senior manager in charge if actual plant or field monitoring team data reveals that EPA Protective Action Guides will be exceeded.
- 9.2.7. Review the PARs with the Emergency Director or senior manager in charge to obtain approval.
- 9.2.8. Transmit approved PARs to State authorities using InForm or as delineated in EPOP-CR-3540 (Shift Manager) or EPOP-EOF-3546 (Emergency Director).

**NOTES**

- Development of 10-mile EPZ Protective Action Recommendations should not be delayed to develop the ad-hoc Protective Action Recommendations for areas outside the 10-mile EPZ.
- Ad-hoc Protective Action Recommendations may be included in the 10-mile EPZ Emergency Notification or may be issued subsequently. The 15 minute notification criterion does not apply to developing Protective Action Recommendations for areas outside the 10-mile EPZ.

**9.3. Protective Action Recommendations beyond the 10-mile Emergency Planning Zone**

- 9.3.1. Protective Action Recommendations beyond the 10-mile EPZ shall be coordinated with state and local government officials.
- 9.3.2. If dose projections or field measurements correspond to  $\geq 1000$  mRem TEDE or 5000 mRem CDE at  $\geq 10$  miles, then ad-hoc Protective Action Recommendations for affected areas outside of the 10-mile EPZ shall be expeditiously developed and recommended using the Section 9.2 as a guide.
- 9.3.3. Predetermined Protective Action Recommendations for areas outside the 10-mile EPZ have not been established.
- 9.3.4. Ad-hoc PARs extend to appropriate distances outside the 10 mile EPZ and encompass appropriate areas as determined by the radiological assessment staff in coordination with state and local government officials.

**9.4. Subsequent Actions****NOTE**

For PARs issued from the Control Room, the steps below do not apply. Subsequent PARs are based on an extension of the initial default PAR and modified for other areas farther downwind based on dose assessment results as necessary.

- 9.4.1. If an initial default PAR has been developed due to declaration of a General Emergency and a new PAR is being considered based on a wind shift or for any other reason, then assess the following criteria to determine whether the new PAR should be issued based on dose assessment or on plant conditions.

- 9.4.2. If the condition described in A. exists, then provide the new PAR as indicated by that condition.
- A. If radiological assessment data shows EPA PAGs will be exceeded in the new area based on an actual release, then recommend a new PAR based on dose assessment results using Section II of Attachment 5.
- 9.4.3. If the criteria in 9.4.2.A does not apply:

**NOTE**

In this case, PARs are based on dose assessment results.

- A. If any items in notes 1 and 2 of Attachment 4 are true and note 3 is true, or the information is not available, then base the new PAR on dose assessment results and not on an extension of the initial plant condition PAR.
- B. If any answer for questions 1 through 3 is "no," and a wind shift occurs, then extend the initial plant condition PAR for the new area and modify for other areas farther downwind based on dose assessment results as necessary.
1. Are plant conditions understood that could impact or cause additional damage to spent fuel (e.g., stable and/or magnitude of source term, spent fuel uncovered, decreasing spent fuel pool inventory)?
  2. Is the radiological release pathway understood (filtered, non-filtered, monitored, unmonitored with little or no potential for release rate to increase, little or no potential for RCS leak to increase)?
  3. If available, does off-site radiological data support the protective action recommendation methodology based on dose assessment?

## 10.0 RECORDS

- 10.1. Ensure that all documentation is maintained in an orderly fashion and route all documentation to the Emergency Planning Manager for review and filing at the conclusion of the emergency response process.
- 10.2. All Attachments and other records generated during an actual emergency shall be considered quality records and maintained in accordance with V-EN-AD-103.

## 11.0 REVISION SUMMARY

11.1. Procedure numbers corrected to match SAFSTOR throughout

11.2. Precautions

- Bullet 6.5 reworded to clarify protective action recommendation (PAR) requirements for Category A classifications
- Bullet 6.6 enhanced to add a reference to Category H

11.3. Section 9.2 Protective Action Recommendation Based on Radiological Dose Information

- Deleted reference to EPOP-RAD-3513, Attachment 11
- 9.2.5.D.1 – Corrected attachment reference from 1 to 19
- 9.2.5.D.2.a – Added a statement for adding additional towns to the PAR
- 9.2.5.D.3.a – Added a statement for adding additional towns to the PAR

## 12.0 ATTACHMENTS

ATTACHMENT 1 - GENERAL EMERGENCY PROTECTIVE ACTION GUIDELINES BASED ON PLANT CONDITIONS

ATTACHMENT 2 - DOSE PROJECTION PROTECTIVE ACTION GUIDELINES TOWNS 10 MILES DOWNWIND

ATTACHMENT 3 - DOSE PROJECTION PROTECTIVE ACTION GUIDELINES TOWNS 5 MILES DOWNWIND

ATTACHMENT 4 - GENERAL EMERGENCY PROTECTIVE ACTION RECOMMENDATIONS (PARS) FLOWCHART

ATTACHMENT 5 - PROTECTIVE ACTION RECOMMENDATION WORKSHEET

**ATTACHMENT 1 - GENERAL EMERGENCY PROTECTIVE ACTION GUIDELINES  
 BASED ON PLANT CONDITIONS**

WIND IS FROM:	TOWNS 5 MILES DOWNWIND	
Sector A (348.75° - 11.25°) North	Vernon Hinsdale	Bernardston Northfield Winchester
Sector B (11.25° - 33.75°) NorthNorthEast	Vernon Hinsdale Bernardston	Guilford Winchester Northfield
Sector C (33.75° - 56.25°) NorthEast	Vernon Hinsdale	Brattleboro Guilford Winchester Bernardston Northfield
Sector D (56.25° - 78.75°) EastNorthEast	Vernon Hinsdale	Brattleboro Guilford Bernardston
Sector E (78.75° - 101.25°) East	Vernon Hinsdale	Brattleboro Guilford Bernardston
Sector F (101.25° - 123.75°) EastSouthEast	Vernon Hinsdale	Brattleboro Guilford
Sector G (123.75° - 146.25°) SouthEast	Vernon Hinsdale	Brattleboro Guilford
Sector H (146.25° - 168.75°) SouthSouthEast	Vernon Hinsdale	Brattleboro Guilford
Sector J (168.75° - 191.25°) South	Vernon Hinsdale	Brattleboro Guilford Winchester

WIND IS FROM:	TOWNS 5 MILES DOWNWIND	
Sector K (191.25° - 213.75°) SouthSouthWest	Vernon Hinsdale	Brattleboro Guilford Winchester
Sector L (213.75° - 236.25°) SouthWest	Vernon Hinsdale	Brattleboro Guilford Winchester Northfield
Sector M (236.25° - 258.75°) WestSouthWest	Vernon Hinsdale	Winchester Northfield
Sector N (258.75° - 281.25°) West	Vernon Hinsdale	Winchester Northfield
Sector P (281.25° - 303.75°) WestNorthWest	Vernon Hinsdale	Winchester Northfield
Sector Q (303.75° - 326.25°) NorthWest	Vernon Hinsdale	Winchester Northfield
Sector R (326.25° - 348.75°) NorthNorthWest	Vernon Hinsdale	Winchester Bernardston Northfield

**ATTACHMENT 2 - DOSE PROJECTION PROTECTIVE ACTION GUIDELINES TOWNS  
10 MILES DOWNWIND**

<b>Wind From/ Stability Class</b>	<b>Sector A (348.75°-11.25°) North</b>	<b>Sector B (11.25°-33.75°) North NorthEast</b>	<b>Sector C (33.75°-56.25°) NorthEast</b>	<b>Sector D (56.25°-78.75°) East NorthEast</b>
A, B, C (Unstable)	Vernon Hinsdale Bernardston Gill Greenfield Leyden Northfield	Guilford Vernon Hinsdale Bernardston Colrain Gill Greenfield Leyden Northfield	Guilford Vernon Hinsdale Bernardston Colrain Greenfield Leyden	Guilford Halifax Vernon Hinsdale Bernardston Colrain Leyden
D (Neutral)	Vernon Hinsdale Bernardston Gill Greenfield Northfield	Vernon Hinsdale Bernardston Colrain Gill Greenfield Leyden Northfield	Guilford Vernon Hinsdale Bernardston Colrain Greenfield Leyden	Guilford Halifax Vernon Hinsdale Bernardston Colrain Leyden
E, F, G (Stable)	Vernon Hinsdale Winchester Bernardston Gill Northfield	Vernon Hinsdale Winchester Bernardston Gill Northfield	Brattleboro Dummerston Guilford Vernon Hinsdale Chesterfield Winchester Bernardston Gill Northfield	Brattleboro Dummerston Guilford Halifax Vernon Chesterfield Hinsdale



<b>Wind From/ Stability Class</b>	<b>Sector E (78.75°-101.25°) East</b>	<b>Sector F (101.25°-123.75°) East SouthEast</b>	<b>Sector G (123.75°-146.25°) SouthEast</b>	<b>Sector H (146.25°-168.75°) South SouthEast</b>
A, B, C (Unstable)	Guilford Halifax Vernon Hinsdale  Bernardston Colrain Leyden	Brattleboro Guilford Halifax Vernon Hinsdale	Brattleboro Dummerston Guilford Halifax Vernon Hinsdale	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale
D (Neutral)	Guilford Halifax Vernon Hinsdale Colrain Leyden	Brattleboro Guilford Halifax Vernon Hinsdale	Brattleboro Dummerston Guilford Vernon Hinsdale	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale
E, F, G (Stable)	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale

Wind From/ Stability Class	Sector J (168.75°-191.25°) South	Sector K (191.25°-213.75°) SouthSouthWest	Sector L (213.75°-236.25°) SouthWest	Sector M (236.25°-258.75°) WestSouthWest
A, B, C (Unstable)	Brattleboro Dummerston Vernon Chesterfield Hinsdale Winchester	Brattleboro Dummerston Vernon Chesterfield Hinsdale Swanzey Winchester	Vernon Chesterfield Hinsdale Swanzey Winchester	Vernon Chesterfield Hinsdale Richmond Swanzey Winchester
D (Neutral)	Brattleboro Dummerston Vernon Chesterfield Hinsdale	Vernon Chesterfield Hinsdale Winchester	Vernon Chesterfield Hinsdale Swanzey Winchester	Vernon Chesterfield Hinsdale Richmond Swanzey Winchester
E, F, G (Stable)	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale	Brattleboro Dummerston Guilford Vernon Chesterfield Hinsdale Winchester	Brattleboro Guilford Dummerston Vernon Chesterfield Hinsdale Winchester Gill Northfield	Vernon Hinsdale Richmond Winchester Bernardston Gill Northfield

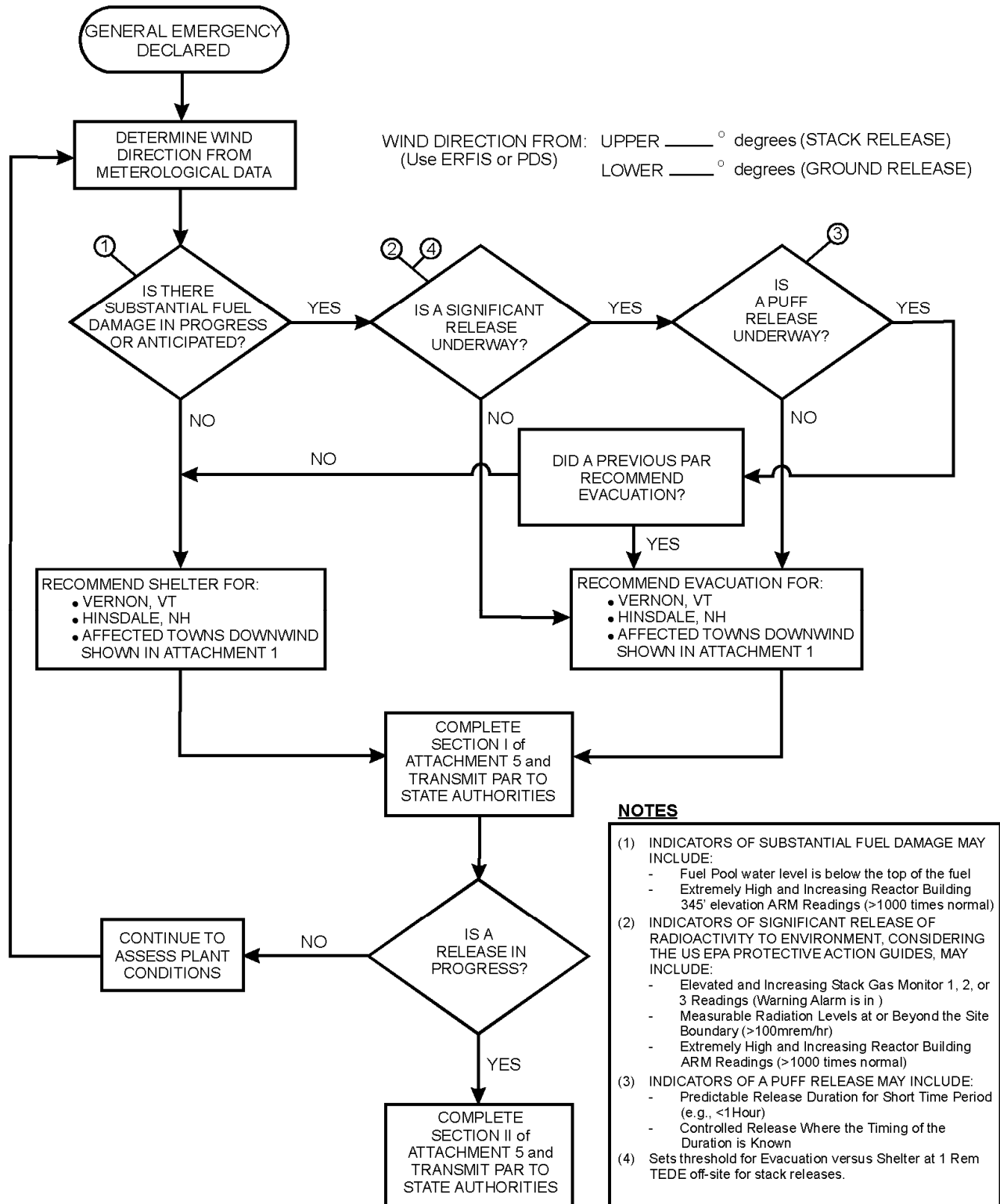
<b>Wind From/ Stability Class</b>	<b>Sector N (258.75°-281.25°) West</b>	<b>Sector P (281.25°-303.75°) West NorthWest</b>	<b>Sector Q (303.75°-326.25°) NorthWest</b>	<b>Sector R (326.25°-348.75°) North NorthWest</b>
A, B, C (Unstable)	Vernon Hinsdale Richmond Swanzey Winchester Warwick	Vernon Hinsdale Richmond Winchester Northfield Warwick	Vernon Hinsdale Winchester Northfield Warwick	Vernon Hinsdale Bernardston Gill Northfield Warwick
D (Neutral)	Vernon Hinsdale Richmond Swanzey Winchester	Vernon Hinsdale Richmond Winchester Northfield Warwick	Vernon Hinsdale Winchester Northfield Warwick	Vernon Hinsdale Bernardston Gill Northfield Warwick
E, F, G (Stable)	Vernon Hinsdale Winchester Bernardston Gill Northfield	Vernon Hinsdale Winchester Bernardston Gill Northfield	Vernon Hinsdale Winchester Bernardston Gill Northfield	Vernon Hinsdale Winchester Bernardston Gill Northfield

**ATTACHMENT 3 - DOSE PROJECTION PROTECTIVE ACTION GUIDELINES TOWNS 5 MILES DOWNWIND**

<b>Wind From/ Stability Class</b>	<b>Sector A 348.75°-11.25° North</b>	<b>Sector B 11.25°-33.75° North NorthEast</b>	<b>Sector C 33.75°-56.25° NorthEast</b>	<b>Sector D 56.25°-78.75° East NorthEast</b>
A, B, C (Unstable)	Vernon Hinsdale Bernardston Northfield	Guilford Vernon Hinsdale Bernardston Northfield	Guilford Vernon Hinsdale Bernardston	Guilford Vernon Hinsdale Bernardston
D (Neutral)	Vernon Hinsdale Bernardston Northfield	Vernon Hinsdale Bernardston Northfield	Guilford Vernon Hinsdale Bernardston	Guilford Vernon Hinsdale Bernardston
E, F, G (Stable)	Vernon Hinsdale Winchester Bernardston Northfield	Vernon Hinsdale Winchester Bernardston Northfield	Brattleboro Guilford Vernon Hinsdale Winchester Bernardston Northfield	Brattleboro Guilford Vernon Hinsdale
<b>Wind From/ Stability Class</b>	<b>Sector E 78.75°-101.25° East</b>	<b>Sector F 101.25°-123.75° East SouthEast</b>	<b>Sector G 123.75°-146.25° SouthEast</b>	<b>Sector H 146.25°-168.75° South SouthEast</b>
A, B, C (Unstable)	Guilford Vernon Hinsdale Bernardston	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale
D (Neutral)	Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale
E, F, G (Stable)	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale

<b>Wind From/ Stability Class</b>	<b>Sector J 168.75°-191.25° South</b>	<b>Sector K 191.25°-213.75° South SouthWest</b>	<b>Sector L 213.75°-236.25° SouthWest</b>	<b>Sector M 236.25°-258.75° West SouthWest</b>
A, B, C (Unstable)	Brattleboro Guilford Vernon Hinsdale Winchester	Vernon Hinsdale Winchester	Vernon Hinsdale Winchester	Vernon Hinsdale Winchester
D (Neutral)	Brattleboro Vernon Hinsdale	Vernon Hinsdale Winchester	Vernon Hinsdale Winchester	Vernon Hinsdale Winchester
E, F, G (Stable)	Brattleboro Guilford Vernon Hinsdale	Brattleboro Guilford Vernon Hinsdale Winchester	Brattleboro Guilford Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Winchester Northfield
<b>Wind From/ Stability Class</b>	<b>Sector N 258.75°-281.25° West</b>	<b>Sector P 281.25°-303.75° West NorthWest</b>	<b>Sector Q 303.75°-326.25° NorthWest</b>	<b>Sector R 326.25°-348.75° North NorthWest</b>
A, B, C (Unstable)	Vernon Hinsdale Winchester	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Bernardston Northfield
D (Neutral)	Vernon Hinsdale Winchester	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Bernardston Northfield
E, F, G (Stable)	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Winchester Northfield	Vernon Hinsdale Winchester Bernardston Northfield

**ATTACHMENT 4 - GENERAL EMERGENCY PROTECTIVE ACTION  
RECOMMENDATIONS (PARS) FLOWCHART**



**ATTACHMENT 5 - PROTECTIVE ACTION RECOMMENDATION WORKSHEET**

INFORMATION CURRENT AT: \_\_\_\_\_ / \_\_\_\_\_ (Date/Time)

<p><b>SECTION I: PLANT CONDITIONS</b></p> <p>(Check box for affected towns from Attachment 1)</p> <p>S= Shelter in Place OR E= Evacuate</p> <p><b>VERMONT TOWNS</b></p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Brattleboro</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Guilford</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Vernon</p> <p><b>NEW HAMPSHIRE TOWNS</b></p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Hinsdale</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Winchester</p> <p><b>MASSACHUSETTS TOWNS</b></p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Bernardston</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Northfield</p> <p>Performed By: _____</p> <p>Verified By: _____ (if available)</p> <p>Approved By: _____ (Date/Time) _____</p> <p><input type="checkbox"/> Shift Manager <span style="float: right;"><input type="checkbox"/> Emergency Director (Check one)</span></p>	<p><b>SECTION II: RADIOLOGICAL DOSE</b></p> <p>(Check box for affected towns)</p> <p>S = Shelter in Place OR E= Evacuate</p> <p>_____ NO PARs Based on Radiological Dose</p> <p><b>VERMONT TOWNS</b></p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Brattleboro</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Dummerston</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Guilford</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Halifax</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Vernon</p> <p><b>NEW HAMPSHIRE TOWNS</b></p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Chesterfield</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Hinsdale</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Richmond</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Swanzey</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Winchester</p> <p><b>MASSACHUSETTS TOWNS</b></p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Bernardston</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Colrain</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Gill</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Greenfield</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Leyden</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Northfield</p> <p>S <input type="checkbox"/> E <input type="checkbox"/> Warwick</p> <p>The following was used (Check as applicable):</p> <p><input type="checkbox"/> Nomogram <input type="checkbox"/> URI <input type="checkbox"/> Field Data</p> <p>Performed By: _____</p> <p>Verified By: _____</p>
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Transmit approved PAR to State Authorities as delineated in EPOP-CR-3540 or EPOP-EOF-3546

**This IS a Quality Record.**