

Nuclear Power Plant Protective Action Strategies

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Nuclear Plant Regulation

- Statute allows operation of nuclear power plants if operated within regulations
- NRC sets the regulations and enforces compliance
- NRC can not shut down a plant in compliance
- Uncertainty was recognized in early design of nuclear plants
- Uncertainty may remain in modern designs
- The Commission issued a policy of Defense-in-Depth

Defense-in-Depth

- Policy long in effect
 - Containment buildings
 - Low population density
 - Construction oversight
 - Emergency preparedness

Nuclear Plant Emergency Plans

- Two main purposes
 - Mitigate the accident
 - Protect public health

Protective Action Strategy

- Operator is required to recommend evacuation or sheltering at most serious emergency (General Emergency)
- Civil authorities must decide and implement protective action
- 10 mile planning zone
- Planning for evacuation routes and care of evacuees
- Protective actions could be needed beyond planning zone

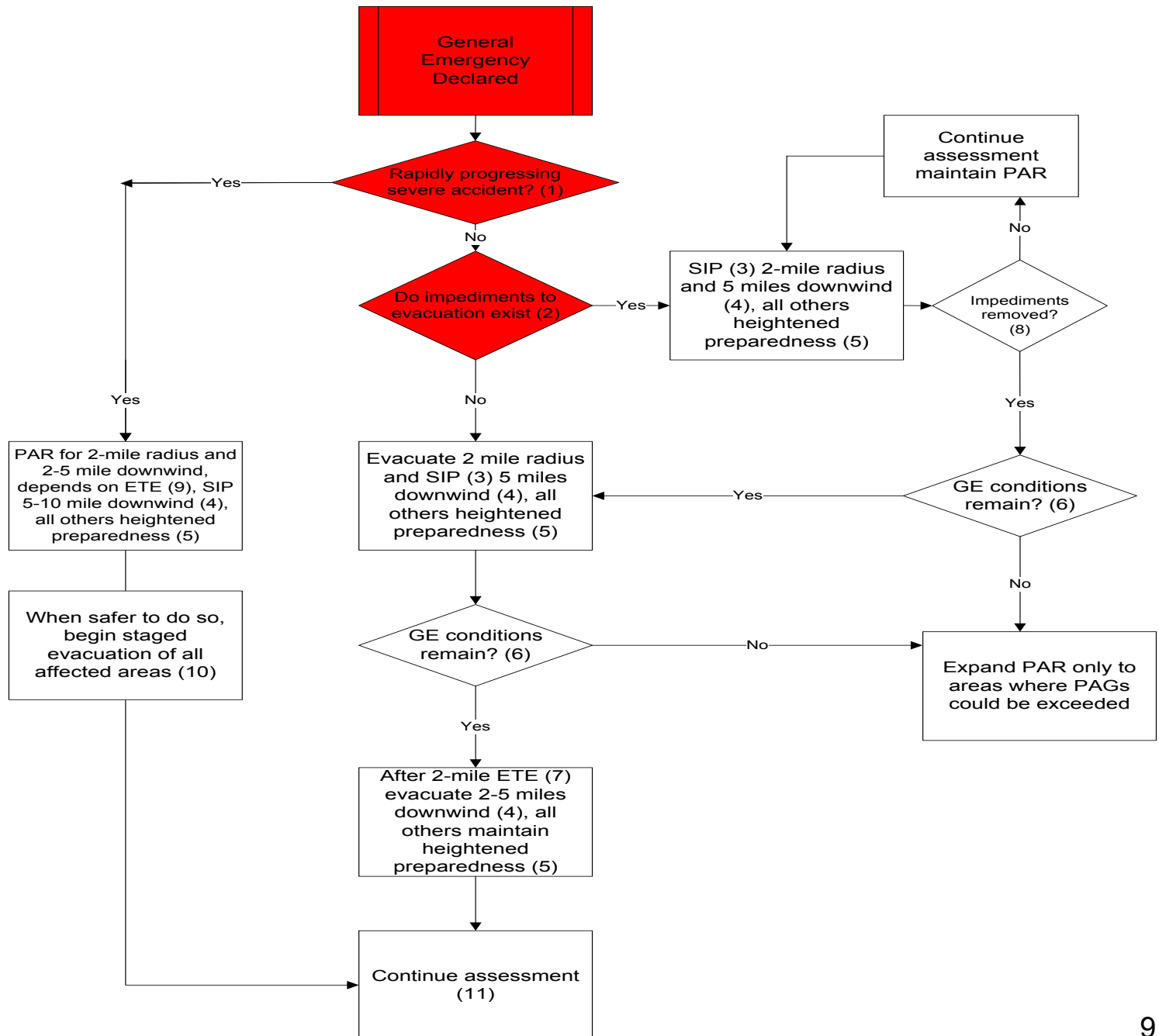
Study of Protective Action Recommendation (PAR) Guidance

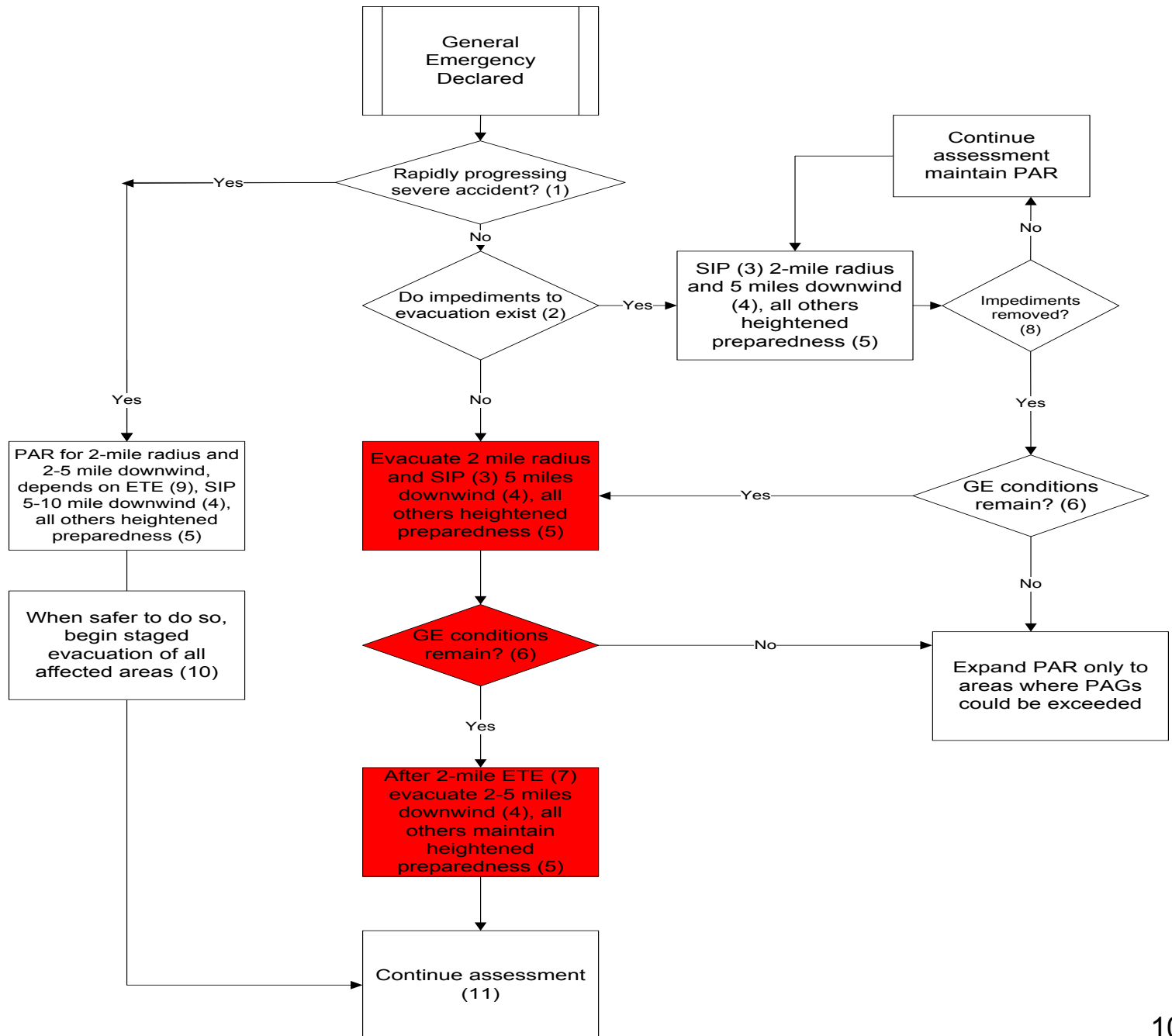
- NUREG/CR-6953, Volume 1
 - Alternative protective actions can reduce public dose during severe accidents
- NUREG/CR-6953, Volume 2
 - Insight into public tendencies in responding to protective action strategies
- NUREG/CR-6953, Volume 3 (in process)
 - Analyze protective action strategies for large early release

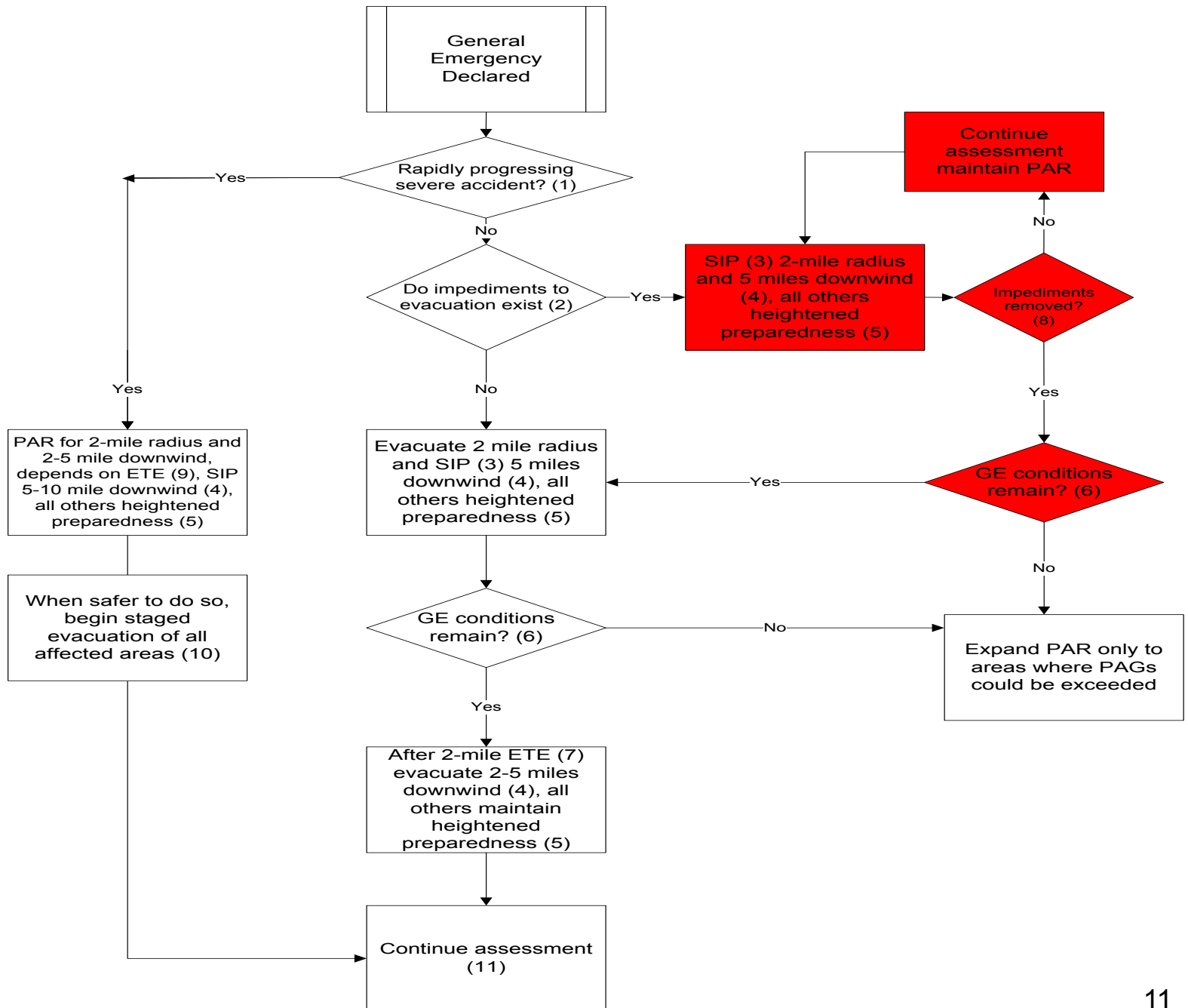
Results

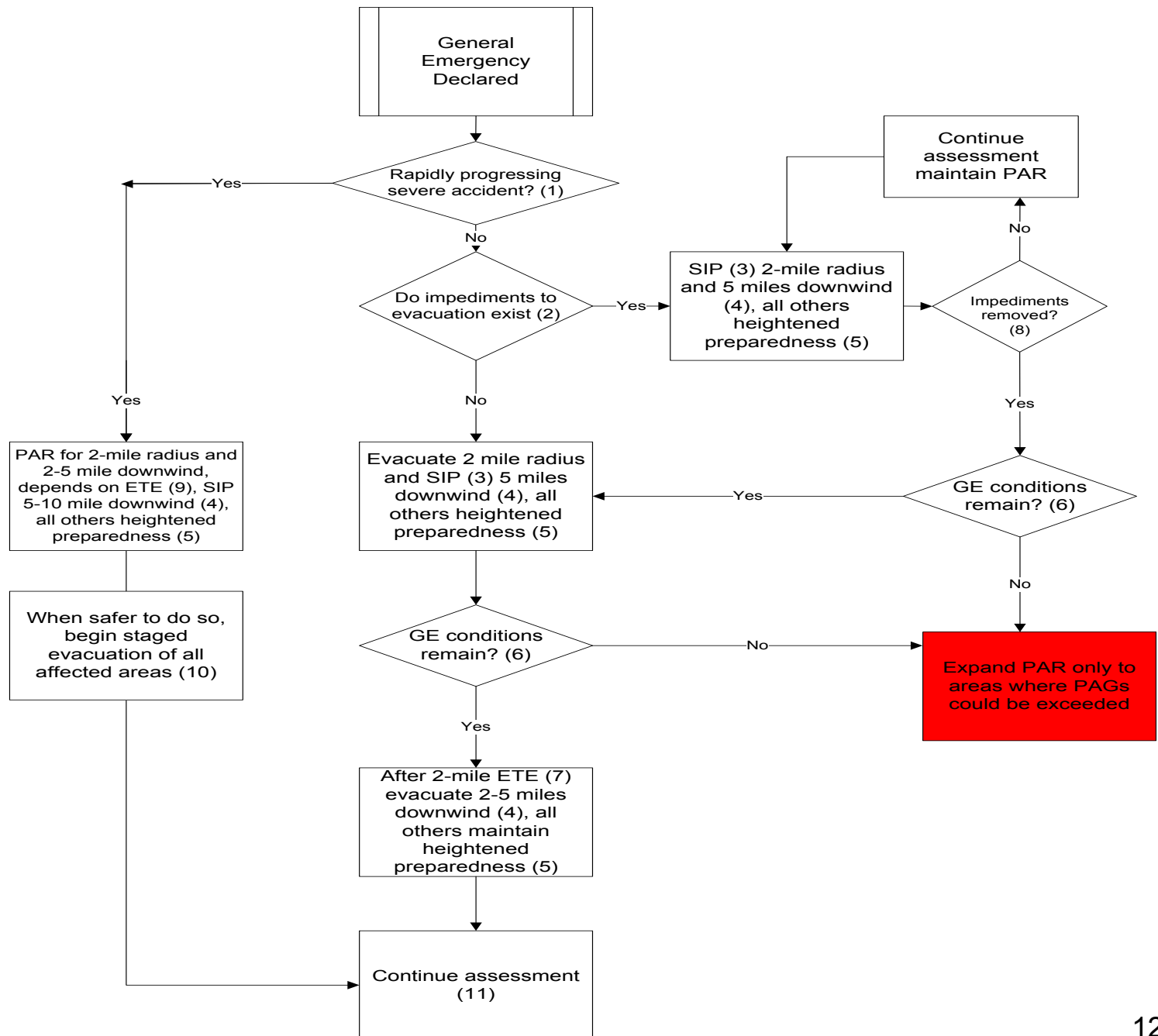
- NUREG-0654, Supplement 3 Revised
 - Evacuation remains major element
 - Staged evacuation is more protective
 - Shelter in place followed by evacuation is more protective for large early release at sites with longer evacuation times

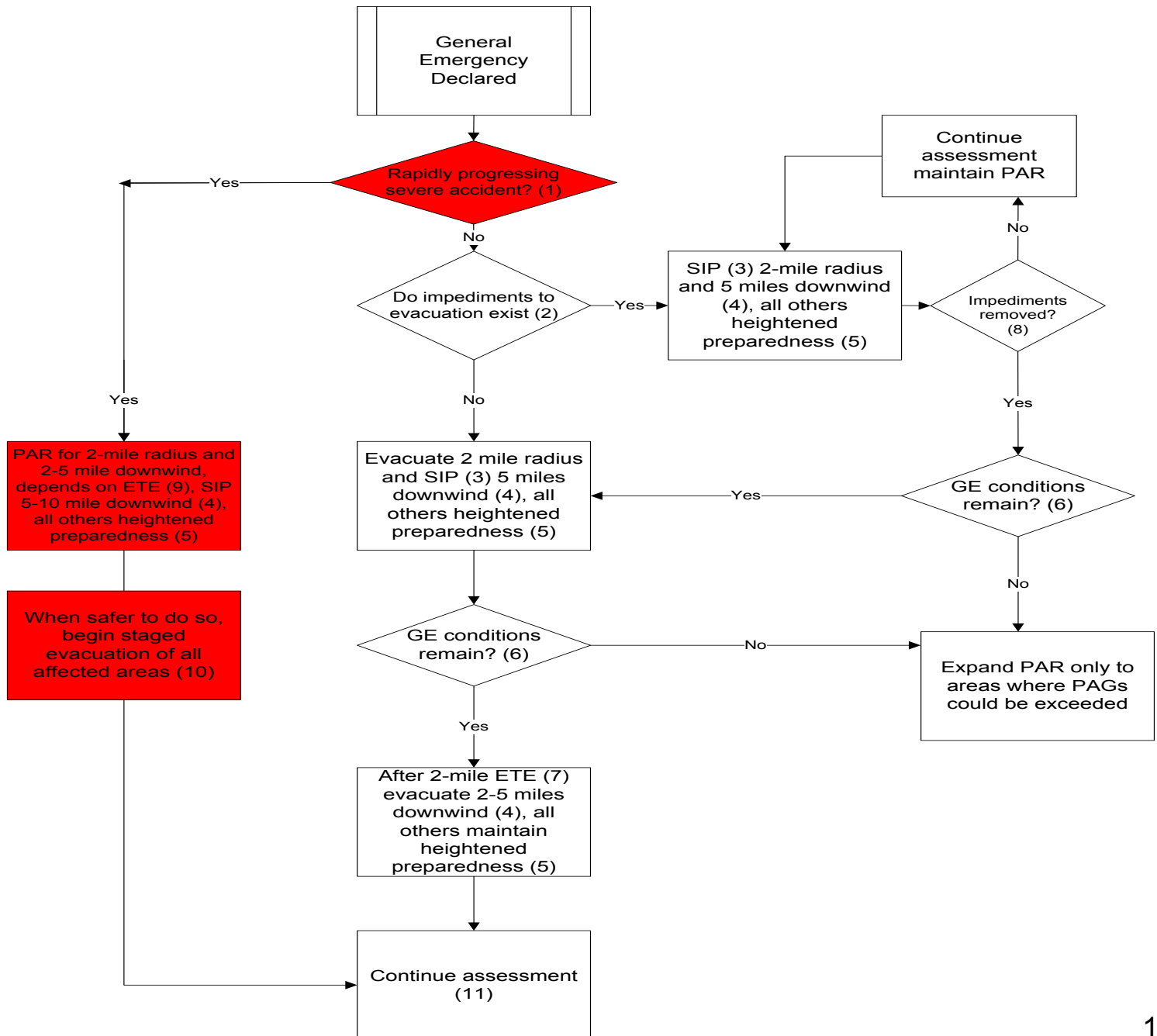
PAR Logic Diagram

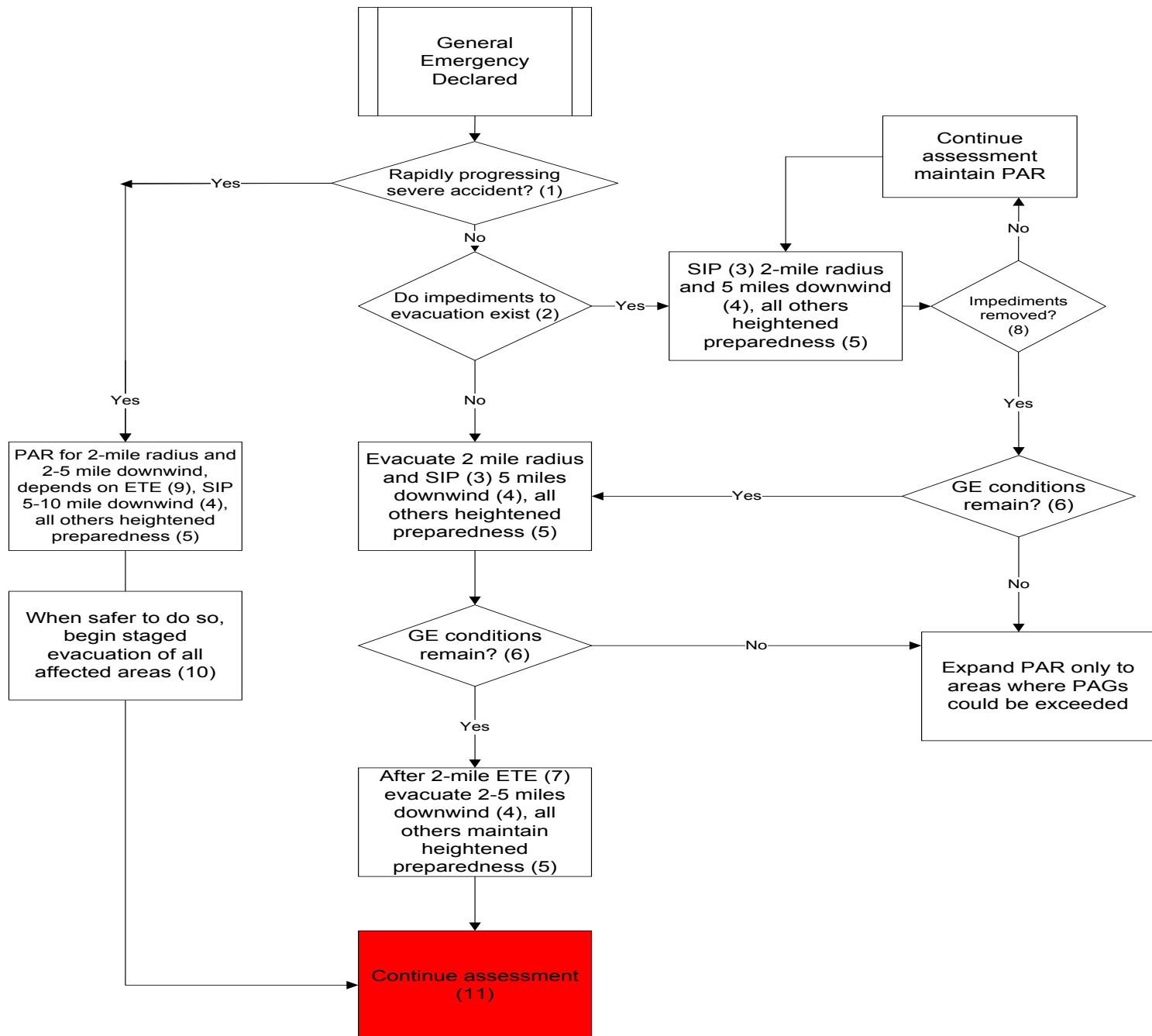












Questions?

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