United States Nuclear Regulatory Commission

Protecting People and the Environment

Public Meeting to Discuss the Proposed Changes to NUREG-0654/FEMA-REP-1, Supplement 3 Guidance for Protective Action Recommendations for General Emergencies

July 21, 2010

DoubleTree Hotel Tampa Westshore Airport

Tampa, FL

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Housekeeping Items

- Safety first
  - Emergency egress from the room
- Restrooms
- Please put your cell phones & pagers on vibrate

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Agenda for Today

(Category 3 Public Meeting)

10 minutes	Welcome / Introduction / Logistics	Meeting Facilitator
20 minutes	Proposed changes to NUREG-0654/FEMA-REP-1, Supplement 3	NRC and FEMA
60 minutes	Discussion on Initiative	NRC, FEMA, and Public
15 minutes	BREAK	
60 minutes	Discussion on Initiative	NRC, FEMA, and Public
15 minutes	Closing Remarks	NRC and FEMA

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Options for Participation

- Multiple ways to participate today-
  - In-Person
  - “Viewing” using the Internet
  - “Listening” using the Toll-free 800#

Please

use the Microphone when speaking

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For Those Participating Remotely …

Out of respect for other listeners:

- Please mute your phone (*6)
- Don’t forget to un-mute (*6) to ask your question

For Everyone Who Asks a Question …

Please state your name, organization and your comment or question for the panel

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To Make a Formal Comment

- We will **NOT** be taking formal comments from the microphone at this meeting, but questions will be answered
- The NRC requests that you provide your comments in writing
- The deadline for submitting comments is August 9, 2010

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How to Comment

Online

www.regulations.gov, Docket ID: NRC-2010-0080

Mail

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Revision of NUREG-0654, Supplement 3

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Draft Supplement 3 to NUREG-0654

"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants – Guidance for Protective Action Recommendations for General Emergencies"

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Draft Supplement 3 to NUREG-0654

- Guidance for protective action recommendation and implementation
- Guidance for public information materials and emergency messaging

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Study of Protective Action Recommendation (PAR) Guidance

- PAR Study – NUREG/CR-6953, Volume 1
  - Alternative protective actions can reduce public dose during severe accidents
- PAR Study – NUREG/CR-6953, Volume 2
  - Insight into public tendencies in responding to protective action strategies
- PAR Study – NUREG/CR-6953, Volume 3 (now on regulations.gov)
  - Analyze protective action strategies for large early release

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Results

- Revise NUREG-0654, Supplement 3
  - 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

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Results

- People will implement protective actions when asked
- Message affects rate of compliance
- Emergency responders <u>will</u> report for duty

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Process

- Revise Supplement 3,
  - Draft PAR Logic Diagram
  - Draft communication guidance
- Align with FEMA
- Gather stakeholder feedback
  - Federal Register Notice
- Resolve comments
- Issue guidance (2011)

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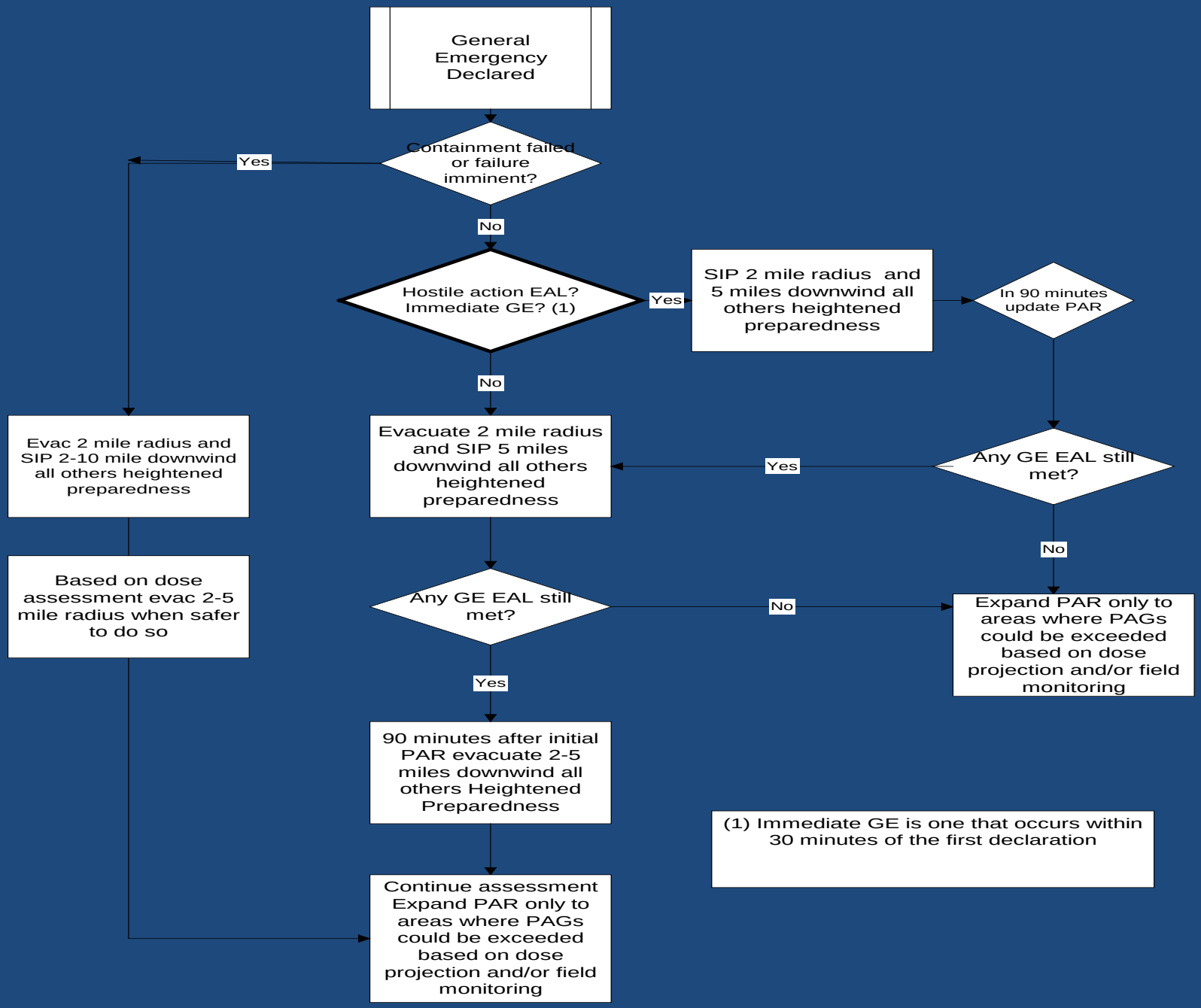
PAR Logic Diagram for a Hypothetical Site


General Emergency Declared
Containment failed or failure imminent?
Yes
No
Hostile action EAL? Immediate GE? (1)
Yes
SIP 2 mile radius and 5 miles downwind all others heightened preparedness
In 90 minutes update PAR
Any GE EAL still met?
Yes
No
Expand PAR only to areas where PAGs could be exceeded based on dose projection and/or field monitoring
No
Evacuate 2 mile radius and SIP 5 miles downwind all others heightened preparedness
Any GE EAL still met?
Yes
90 minutes after initial PAR evacuate 2-5 miles downwind all others Heightened Preparedness
Continue assessment Expand PAR only to areas where PAGs could be exceeded based on dose projection and/or field monitoring
Evac 2 mile radius and SIP 2-10 mile downwind all others heightened preparedness
Based on dose assessment evac 2-5 mile radius when safer to do so
(1) Immediate GE is one that occurs within 30 minutes of the first declaration

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NOTE 1

- Rapidly progressing severe accident: This is a General Emergency (GE) with rapid loss of containment integrity and loss of ability to cool the core. This path is only used for very unlikely scenarios where containment integrity can be determined as bypassed or immediately lost during a GE with core damage and a radiological release expected in less than 1 hour. If this scenario cannot be identified, assume it is not taking place and answer “no” to this decision block.

NOTE 1 DISPOSITION:

- Condensed to GE with containment failure imminent

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NOTE 2

Impediments include the following:

- Evacuation support not yet in place - For example, the GE is the initial notification to offsite response organizations or if there is a previous emergency classification notification, the GE notification occurs before preparations to support evacuation. Many sites have a low population density within 2 miles (3.2 kilometers) and evacuation support readiness will not be considered an impediment. This element should be discussed and agreed to with offsite response organizations (OROs). The expected time for evacuation support to be put in place should be agreed to with OROs in advance and embodied in the site-specific protective action recommendation (PAR) logic diagram for those sites where delay of a 2-mile (3.2-kilometer) radius evacuation is necessary, pending support setup. The licensee would base the recommendation on the agreement and would not confer with OROs on this matter before making the initial PAR.

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NOTE 2 Disposition:

- Condensed to GE within 30 minutes IAW ORO direction
  - Hostile action event - Many OROs consider that initial shelter-in-place is preferred in this type of event. The licensee would discuss this element with OROs and reach agreement. The licensee would then base its recommendation on the agreement and would not confer with OROs before making the initial PAR.
- Condensed to “Hostile Action EAL?”
  - Licensees are not responsible for soliciting information or making a determination that weather or other impediments (e.g., earthquake, wildfire) to safe public evacuation exist at the time of the emergency. However, the licensee will consider an impediment to exist, if OROs notify the licensee of such an impediment (e.g., roadways are closed because of deep snow, flooding, construction, etc.).
- ORO directed licensee to not consider and/or issue is discussed in PAR procedure and training

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NOTE 3

- "Shelter-in-Place" (SIP in the diagram) is intended to mean that instructions are given to remain indoors, turn off heating or air conditioning (as appropriate for the region and season), close windows, monitor communications channels and prepare to evacuate. The instructions should specify that shelter-in-place is safer than evacuation at this time, or alternatively, shelter-in-place is being implemented in order that the public remain off roadways to allow other areas, under an evacuation order, to evacuate unimpeded. The intent is for members of the public to remain where they are, or seek shelter close by, but not to return home to shelter.

NOTE 3 Disposition:

- This information is contained in PAR procedure and training

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NOTE 4

- This includes downwind sector(s) and adjacent sectors.

- Site-specific wind persistence analysis may indicate the need to include additional sectors with the initial recommendation. The licensee must discuss this element with OROs and reach agreement.

NOTE 4 Disposition:

Wind persistence analysis did not indicate the need for additional sectors, this information is contained in the PAR procedure and training

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NOTE 5

- "Heightened Preparedness" is intended to mean that the population within the plume exposure pathway emergency planning zone (EPZ) is informed of the emergency at the nuclear power plant and that they should monitor the situation and prepare for the possibility of evacuation, shelter-in-place or other protective actions. Further, if an evacuation is taking place, the public not residing in the evacuation areas should be asked to remain off the roadways to allow those instructed to evacuate to do so. Communications with this population must be clear and frequent to be effective.

NOTE 5 Disposition:

- This information is contained in the PAR procedure and training.

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NOTE 6

- Once a GE is declared, terminating the declaration will take time. If the conditions that caused the declaration have improved (i.e., core cooling is restored), it may not be necessary to expand the PAR to evacuate additional areas. However, if there is a source term in containment that exceeds the GE emergency action level, expansion of the PAR in areas where protective action guidelines (PAGs) could be exceeded is appropriate, as GE conditions remain.

NOTE 6 Disposition:

- Condensed to “GE EAL still met?”

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NOTE 7

- At T=X hours, where X equals the site-specific 2-mile (3.2-kilometer) ETE for 90 percent evacuation, (e.g., 3 hours after the public is notified of the initial PAR), the licensee should evaluate the need to expand the PAR, based on plant conditions. The licensee identifies the value of T using the site-specific ETE and shall consider TD for a daytime ETE and TN for a nighttime ETE. These values should be representative for the site and should not include special events. The shift staff is expected to make this PAR without conferring with OROs, and the PAR is based on the ETE time value alone, not on verification of evacuation progress. If the augmenting emergency response organization (ERO) has been activated, there should be sufficient resources available for the licensee to confer with OROs more fully.

NOTE 7 Disposition:

- In this hypothetical example, the 2 mile 90% ETE is 90 minutes and that figure is used in the diagram.

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NOTE 8

- If the impediment was the time to set up evacuation support (e.g., at a high-population site)- When the agreed-to time (e.g., 1 hour) for evacuation support to be in place has elapsed, the PAR should be changed. Licensee shift staff is not expected to confer with OROs before changing the PAR although, if the ERO is activated, they may confer.
- If the impediment was a hostile action event - Within 1 hour of the initial PAR, the licensee should discuss with OROs whether the sheltering PAR should be changed. This will be dependent on plant status as well as local law enforcement support obtained by OROs.
- If the impediment was caused by weather or other roadway disruption - OROs will determine when it is appropriate to change the protective action. Licensees may inquire as resources allow, but have no responsibility for PAR modification unless a PAR change is necessary because of plant conditions. OROs determine when it is safe for the public to evacuate.

NOTE 8 Disposition:

- ORO and utility agreed that 90 minutes was the appropriate time to wait to update PAR if the GE is due to hostile action. Additionally, the ORO requested that 90 minutes be allowed for congregate care facility set up before an evacuation is recommended.

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NOTE 9

- The rapidly progressing severe accident is more severe than other GEs, and different protective actions are appropriate for all sites. However, differences in ETE will dictate the most appropriate protective actions. Sites where the time to evacuate 90 percent of the population within a 2-mile (3.2-kilometer) radius is 2 hours or less should immediately and urgently recommend evacuation of the 2-mile (3.2-kilometer) radius, otherwise recommend shelter-in-place. The licensee uses the site specific ETE for this decision and shall consider TD for a daytime ETE and TN for a nighttime ETE. The ETE values should be representative for the site and should not include special events. If the 2 to 5 mile (3.2 to 8 kilometer) downwind evacuation time for 90 percent completion is 3 hours or less then that area should also be immediately evacuated (this time should include any traffic control preparations where necessary), otherwise, recommend shelter-in-place. For all cases shelter-in-place should be recommended for the 5 to10 mile (8 to 16 kilometer) downwind areas.

NOTE 9 Disposition:

- At this hypothetical site, the 0-2 mile 90% ETE is less than 2 hours and so immediate evacuation is the recommended PAR.

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NOTE 10

- Evacuation after the initial shelter-in-place period is critical to reducing public exposure. However, the rapidly progressing severe accident scenario cannot be precisely characterized in advance. In general, accident analyses show that this source term may be initially large, but it will be reduced within several hours because of the exhaustion of the available radionuclide inventory (NRC, 1990). Mitigative actions may also be implemented to reduce the source term. While the timing of this reduction can not be specified in advance, the licensee must use available radiological monitoring information to identify when it would be safe to begin public evacuation from affected areas. PAR Study results showed that shelter-in-place times in excess of 4 hours reduce public exposure for the hypothetical events analyzed; and conversely, shelter-in-place for less than 4 hours did not reduce public exposure. However, the determination must be based on current information from effluent monitors, operational status, and field monitoring efforts.

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NOTE 10 Continued:

- The NRC expects that licensees would discuss evacuation of the sheltered population with OROs and plan for rapid evacuation of the public through potentially contaminated areas. Lateral evacuation should be considered, as it may reduce public exposure where the roadway network and plume meander are conducive.

- The evacuation should proceed from the areas most at risk. This is expected to be the 2-mile (3.2-kilometer) radius (if sheltered), unless field monitoring data shows otherwise. The 2 to 10 mile (3.2 to 16 kilometer) downwind sectors should be evacuated when the initial evacuation is nearing completion.

NOTE 10 Disposition:

- Expansion of protective actions will be based on dose assessment, condition of plant, source term and field measurements as best as can be done at the time. Additional information is contained in the PAR procedure and in training.

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NOTE 11

- Continue radiological and meteorological assessments and evacuate any areas where dose projections or field measurements indicate that protective action guidelines are likely to be exceeded. Recommend shelter-in-place for additional areas, as appropriate. Maintain heightened preparedness. OROs should communicate frequently with the public while protective actions are in effect.

- Continue plant assessments to determine if accident conditions warrant changes to the PAR.

NOTE 11 Disposition:

- Additional information is contained in the PAR Procedure and in training.

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Questions and Answers

- When asking your question, please include the following information:
  - Your Name
  - The presenter you are addressing

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BREAK!

The meeting will resume in 15 minutes.

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How to Comment

Online

www.regulations.gov, Docket ID: NRC-2010-0080

Mail

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