



Emergency Preparedness Rulemaking & NUREG-0654, Supplement 3

NEI EP & Communication Forum

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Emergency Preparedness Rulemaking

- Rulemaking will address 11 issues from EP program review in SECY-06-0200
- Several security event-related topics in Bulletin 2005-02 & EA-02-026 addressed:
 - Emergency actions levels for security events
 - Emergency response organization augmentation & use of alternate facilities
 - Assignment of multiple functions to on-shift personnel
 - Licensee coordination with offsite response organizations (OROs)
 - Protection for onsite personnel

Emergency Preparedness Rulemaking

- Other issues addressed include:
 - Updating evacuation time estimates (ETEs)
 - Challenging drills & exercises
 - Reduction in emergency plan effectiveness - 50.54(q)
 - Emergency classification timeliness
 - Alert & notification system backup means
 - Performance-based approach for consolidating emergency operations facilities

Emergency Preparedness Rulemaking

- Rulemaking plan & draft preliminary rule language developed in 2007
- Initial public meeting held on March 5, 2008
- Guidance changes to be developed with FEMA
- Proposed rule and draft guidance changes to be published in Spring 2009
- Additional public meetings will be conducted in 2009
- Final rule to be published in 2010

Emergency Preparedness Rulemaking

- Feedback accepted on draft preliminary rule language
 - Documents available at www.regulations.gov
 - Docket number: NRC-2008-0122
 - Feedback will not be publicly addressed by NRC
- Some documents also available on NRC website
 - Draft preliminary rule language: ML080370069
 - Summary of issues: ML080370068

NUREG-0654, Supplement 3 Background

- Provides guidance for developing protective action recommendations (PARs) during severe accidents
- Published as draft report for interim use & comment in 1996
- PAR evaluation study began in 2004
- Results summarized in SECY-07-0225 & published as NUREG/CR-6953, Vol.1, in 2007
- Public survey results to be published in Vol. 2 in 2008
- Changes to Supplement 3 targeted for late 2009

NUREG-0654, Supplement 3

Recommendations

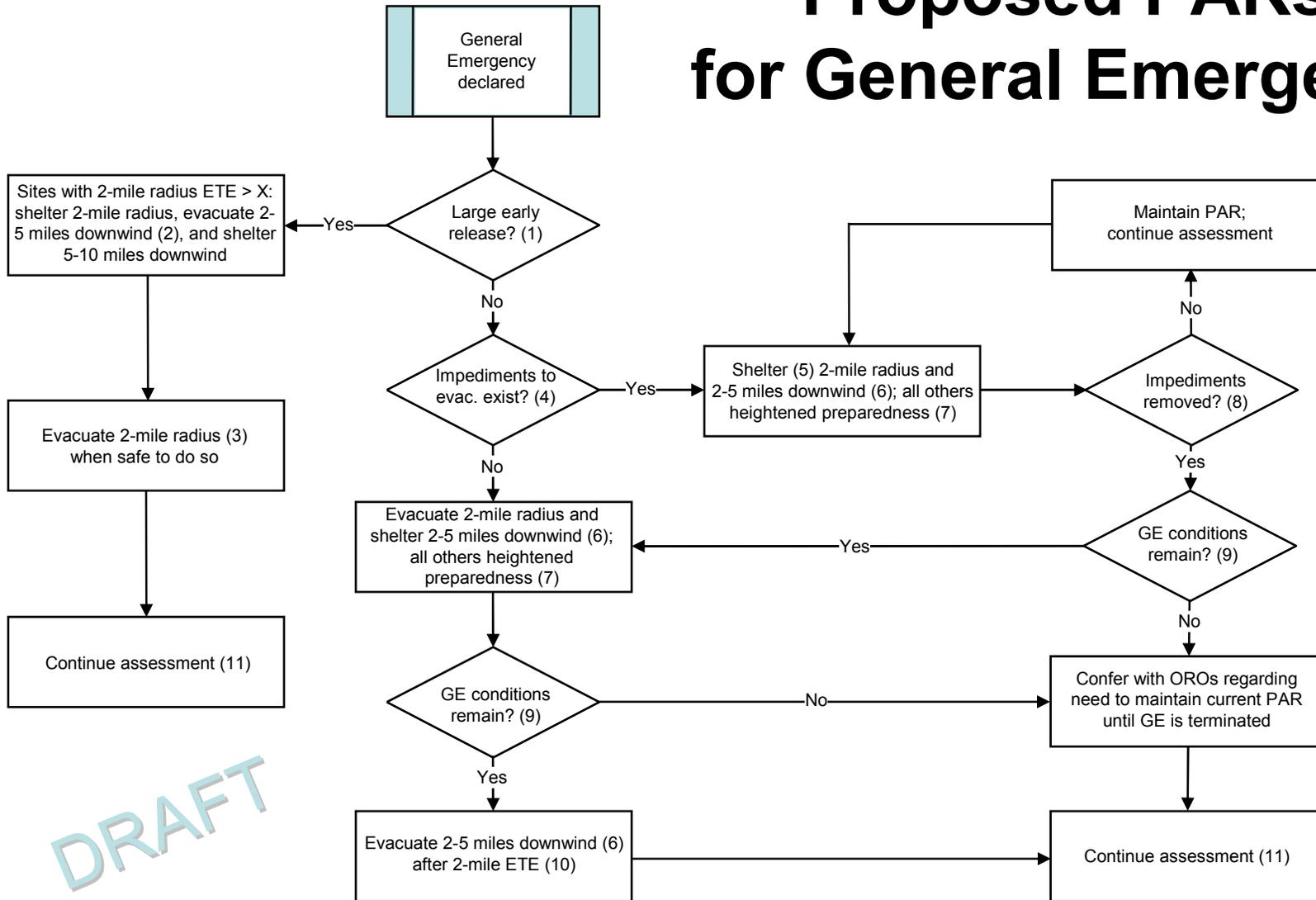
- Precautionary actions at Site Area Emergency are prudent
- Shelter-in-place followed by evacuation is more protective than standard PAR for large early release at sites with longer evacuation times
- Staged evacuation, wherein the public close to the plant is evacuated first while those farther out shelter, should be considered
- Sheltering of special needs individuals followed by evacuation can reduce consequences
- ETEs are important in preplanning PAR strategies

General Emergency Proposed PARs

- The proposed diagram is to serve as a basis to develop a site-specific diagram that would simplify many of the decision points.
- Many of the decision criteria must be discussed with OROs and the agreed-upon PAR strategies embedded in the site-specific PAR EP implementing procedure.
- There is no intent for the control room to confer with OROs on the initial PAR, just implement what was agreed to.

NUREG-0654, Supp. 3

Proposed PARs for General Emergency



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GE PAR Logic Diagram Notes*

Note (1)

This is a General Emergency (GE) with rapid loss of containment integrity and loss of ability to cool the core. If containment integrity cannot be determined as bypassed or immediately lost, assume it is not taking place and answer “No” to this decision block.

Note (2)

Initial sheltering is only appropriate for sites with a 2-mile radius evacuation time > X hours; otherwise immediate evacuation of the 2-mile radius and 5-mile downwind sectors is appropriate. The site must perform an analysis to determine whether initial sheltering is more protective than immediate evacuation for large early releases. It is expected that only sites with high population densities within 2 miles would shelter.

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* Some notes have been abridged for this presentation.

GE PAR Logic Diagram Notes

Note (3)

Accident analyses show that the source term is expected to be initially large and that it will be reduced within a couple of hours due to exhaustion of the available radionuclides. Mitigative actions should also be implemented to reduce the source term. While the timing of this reduction cannot be specified, the licensee must identify when it would be safer for the 2-mile radius to evacuate. This is expected to be within 4 hours, but a set time cannot be specified and the determination would be based on information available to the licensee.

It is also expected that this PAR would be discussed with OROs and plans made for rapid evacuation of the public through potentially contaminated areas (e.g., lateral evacuation could reduce exposure if plume meander has been minimal).

Note (4)

- (a) Evacuation support is not yet in place. However, many sites have a low population density within 2 miles and evacuation support readiness would not be considered an impediment. This element must be discussed and agreed to with OROs.
- (b) A hostile action event is occurring. Many OROs consider that initial sheltering is preferred in this type of event.
- (c) Weather or other impediment (e.g., earthquake, wildfire) to safe public evacuation is known by plant operators. It is realized that the plant operators may not be as well informed on this matter as OROs. Some OROs have expressed the view that licensees should not make this determination.

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GE PAR Logic Diagram Notes

Note (5)

“**Shelter**” means that instructions are given to remain indoors, turn off ventilation (as appropriate for the region and season), seal windows, monitor communications channels, and prepare to evacuate. The instructions should also specify that sheltering is safer than evacuation at this time or, alternately, that others more immediately threatened are evacuating and the roads should remain open for them. Communications with the sheltered population must be clear and frequent to be effective.

Note (6)

Both the downwind sector(s) and adjacent sectors should be included. Site-specific wind persistence analysis may indicate the need to include additional sectors with initial PAR. This element must be discussed and agreed to by OROs.

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GE PAR Logic Diagram Notes

Note (7)

“**Heightened Preparedness**” means that the population within the plume exposure pathway emergency planning zone (EPZ) is informed of a serious emergency at the nuclear plant, told that they should monitor the situation, and advised to prepare for the possibility of evacuation, sheltering and/or other protective actions. Further, if an evacuation is taking place, the public not involved should be asked to stay off the roads to allow those immediately threatened to evacuate. Communications with this population must be clear and frequent to be effective.

Note (8)

- (a) For evacuation support (high population site), when the agreed upon time has elapsed for evacuation support to be in place (e.g., 1 hour), the PAR should be changed. It is not intended that licensees would confer with OROs prior to changing the PAR.
- (b) For a hostile action event, within 1 hour of the initial PAR, the licensee must 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.
- (c) For weather or other causes, if the licensee and OROs have agreed that OROs are responsible to determine evacuation route impediments, the licensee has no responsibility for further PARs unless plant or meteorological conditions change. If this agreement has not been reached, then the licensee is responsible to confer with OROs to determine whether evacuation route impediments have been removed and evacuation of the 2-mile radius is safe.

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GE PAR Logic Diagram Notes

Note (9)

Once a GE is declared, termination will not likely occur for some time. However, if the conditions that caused the declaration are ameliorated (e.g., core cooling is restored), it may not be necessary to evacuate additional areas. The criteria to be embodied in the site-specific PAR logic diagram are:

- Core cooling is not established, or
- Release is probable or occurring and dose projections show protective action guidelines are likely to be exceeded in areas not evacuated.

Note (10)

Expand the evacuation to the downwind sectors when the time estimate for the 2-mile radius evacuation has lapsed. This may be less than an hour for many sites. The licensee is expected to make this PAR without conferring with OROs. It is not based on verification of evacuation progress.

Note (11)

Continue radiological and meteorological assessment and evacuate any areas where dose projections or field measurements indicate that protective action guidelines are likely to be exceeded. Shelter additional areas as appropriate. Maintain heightened preparedness. OROs should communicate frequently with the public while protective actions are in effect. Also continue plant assessment to determine if accident conditions warrant changes to PAR.

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PAR Study Public Survey

- How will the general public respond to alternative protective actions?
- 800 telephone surveys (within EPZs) completed in March 2008
- Preliminary data analyzed for selected questions
- Full analysis to be published as NUREG/CR-6953, Vol. 2, in 2008

PAR Study Public Survey

Q5: On a scale from 0 to 7, where 0 is not at all informed and 7 is extremely informed, how informed would you say you are about what to do if the sirens for the nuclear power plant in your area were to sound?

Average Response = 4.51

This indicates the public within EPZs is reasonably well informed.

PAR Study Public Survey

Q6: To the best of your recollection, have you ever received any information, such as a booklet or pamphlet, calendar, utility or electric bill, TV or radio message, phone book, or something else, that informs you about what to do if there was an incident at a nuclear plant in your area?

Yes:	79%
No:	19%
Don't know:	2%

This indicates that the EPZ population is well aware of efforts to provide emergency response information.

PAR Study Public Survey

Q7: What type of information did you receive?

Booklet or pamphlet:	44%
Calendar:	24%
Utility or electric bill:	5%
TV or radio message:	7%
Phone book:	9%
Something else:	9%
Don't know:	<1%

PAR Study Public Survey

Q32: During an evacuation, how likely is it that you would stop to assist or provide a ride to an evacuee that you observed waiting at a bus stop for public transportation (on a scale from 0 to 7, where 0 is not at all likely and 7 is extremely likely)?

Average Response = 5.49

As the sociologists have said, most people would stop and provide a ride for a stranger during an emergency evacuation.

Questions?

EP Rulemaking

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NUREG-0654, Supp. 3

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