

# PUBLIC SUBMISSION

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Public Protective Actions During a General Emergency

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## Submitter Information

**Name:** John Parillo  
**Address:**  
5440 Marinelli Road #124  
Rockville, MD, 20852  
**Email:** jgparillo@gmail.com

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## General Comment

The commission should consider the insights identified in PRM-50-123. I have been a member of the NRC incident response team as a dose assessor for many years. In training sessions and during drills and exercises I have often made the comment that we should "first, do no harm." In incident response dose assessment, my cardinal rule is that protective actions should never be recommended based on worst case conservative dose assessments. PRM-50-123 shows the harm that can occur from not following this caveat. The environmental protection agency (EPA) protective action guidelines (PAGs) are set at levels well below those that would cause harm from radiological exposure. As a result, even more realistic dose projections can result in unnecessarily restrictive PAGs and subsequently result in the harm described in PRM-50-123.

In addition, I would recommend that consideration be given to potential revisions aimed at providing better alignment of the design basis accident (DBA) dose criteria specified in regulation with protective action guidelines (PAGs). Currently this differential is substantial. The PAGs specify sheltering-in-place or evacuation recommendations at 1 to 5 rem total effective dose (TED) projected dose over four days. The limiting DBA dose criteria is 25 rem total effective dose equivalent (TEDE) in two hours at the exclusion area boundary and for the duration of the release at the outer boundary of the low population zone. In addition, there is a large discrepancy between the PAG for the administration of potassium iodide (KI) (5 rem projected child thyroid dose) and the thyroid dose criterion specified in 100.11. As described in PRM-50-121, with the conversion of the 100.11 dual criteria to the single TEDE criterion the associated thyroid dose can substantially exceed the previously limiting 300 rem thyroid dose. Additionally, the DBA dose analyses use adult dose conversion factors which aggravates the differential between DBA dose criteria and the PAG for administering KI. A revised PAG guideline of 10 rem for evacuation would provide a better balance between the risk from radiation exposure and the risk from

evacuation as described in PRM-50-123. Additionally, a revised DBA dose criterion of 10 rem would align better with current recommendations from the health physics community.