






# TOPOFF 4 Exercise

Portland, Oregon




## Blast Area & Relocation Action Guidelines

### Legend

NARAC Product for HE  
OR Set 3 - FRMAC-IMAAC Blast Effects from High Explosives

-  > 100 psi  
Fatalities in over 99% of the population.
-  > 25 psi  
Onset of lethality
-  > 10 psi  
Onset of lung damage
-  > 5.0 psi  
Onset of eardrum rupture
-  > 0.5 psi  
Onset of shattered glass from blast effects.

NARAC Product for CS-137 + daughters  
OR Set 3 - FRMAC-IMAAC EPA Relocation Protective Action Guidelines

-  > 2.0 rem  
Exceeds EPA first-year relocation PAG.  
Population : 17,000
-  > 0.5 rem  
Exceeds EPA second-year relocation PAG.  
Population : 31,400
-  > 5.0 rem  
Exceeds EPA 50-year relocation PAG.  
Population : 40,300



**EXERCISE EXERCISE  
TOPOFF 4**

**IMACC OR-Set3**

Geospatial Technology  
Operations

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Source:  
ESRI  
IMAAC



Disaster Services

