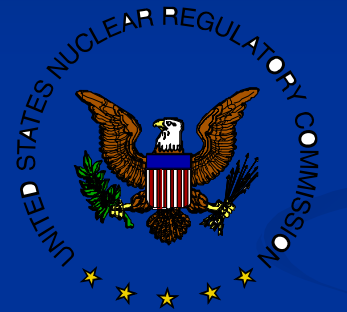
Commission Briefing
REACTOR EMERGENCY PLANNING



Office of Nuclear Reactor Regulation

Emergency Planning
A SUCCESS
Ongoing coordination, planning, practice, and refinement of emergency plans contribute to successful EP

Emergency planning:

- Develops workable plans
- Confirms that plans work
- Can identify, evaluate and react to a wide spectrum of emergency conditions

Emergency Preparedness

In the news…..

Lessons learned contributed to a robust EP infrastructure:

- Emergency planning/procedures
- Training
- Offsite response
- Drills/exercises
- Communications with public, media, offsite officials

Emergency planning is a part of NRC's "defense-in-depth" philosophy

Safety

- requires high quality in the design, construction and operation of nuclear plants
- requires safety systems to reduce the chances that malfunctions will lead to accidents
- requires containment structures and other safety features to prevent the release of fission products offsite

Security

Emergency Planning

Regulatory Standard

Reasonable Assurance that adequate protective measures can and will be taken to protect public health and safety.

Emergency Preparedness

Actions which can and should be performed prior to an emergency

Planning and coordination meetings

Procedure development/implementation

Training

Drills and exercises

Evaluations, critiques, continuous improvements

Lessons learned

Pre-positioning/maintenance of emergency equipment


FIRE


SAFETY

Emergency Response

- Actions taken in *response* to an actual event.

Successful planning

Successful response.

EP CRITERIA for Power Reactors

10 CFR 50.33

10 CFR 50.34 10 CFR 50.47

10 CFR 50.54 10 CFR 50.72

Appendix E to Part 50.

NUREG-0654/FEMA-REP-1, Rev. 1,

16 Planning Standards

- Assignment of responsibilities
- Onsite Emergency Organization
- Emergency Response Support and Resources
- Emergency Classification System
- Notification Methods and Procedures
- Emergency Communications
- Public Education and Information
- Emergency Facilities and Equipment
- Accident Assessment

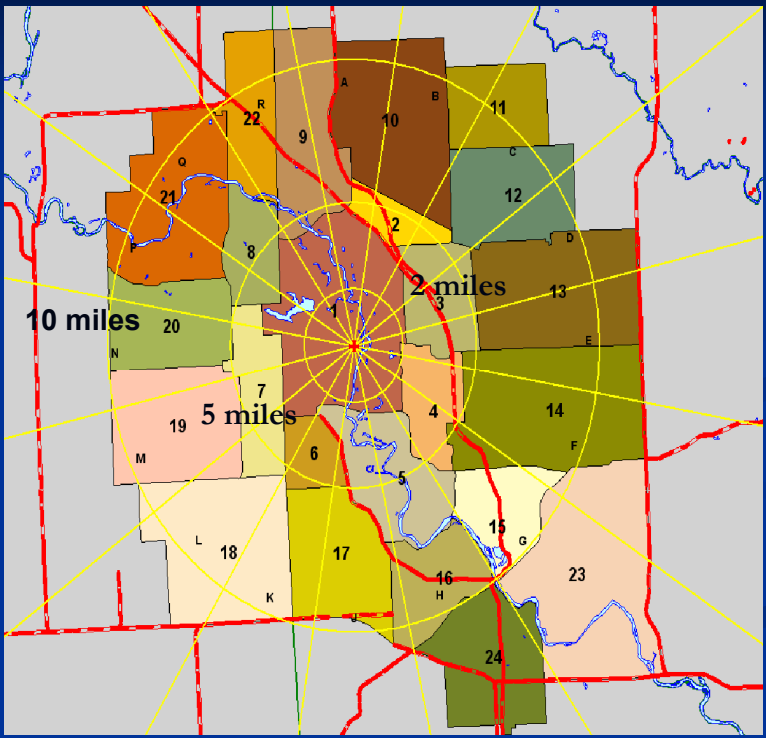
16 Planning Standards, cont'd

- Protective Actions
- Radiological Exposure Control for emergency workers
- Medical Support for Contaminated Injured Individuals
- Recovery and Reentry Planning, Post-Accident Operations
- Exercises and Drills
- Radiological Emergency Response Training Responsibility for Planning Effort: Development, Periodic Review, Distribution, Updates

Emergency Planning Zone

- A defined area around a nuclear power plant
  - Facilitates offsite emergency planning
- Supports response beyond the planning zone

10 MILE EPZ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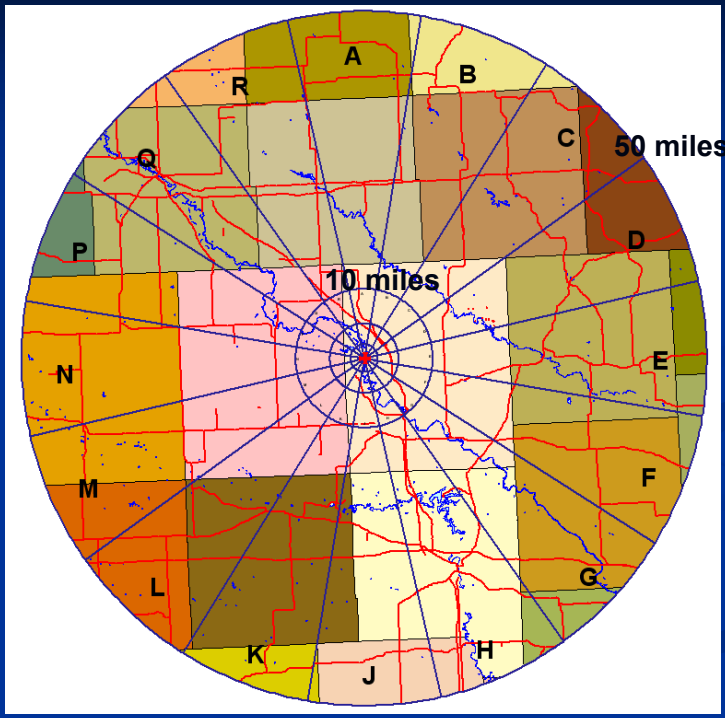
50 MILE EPZ

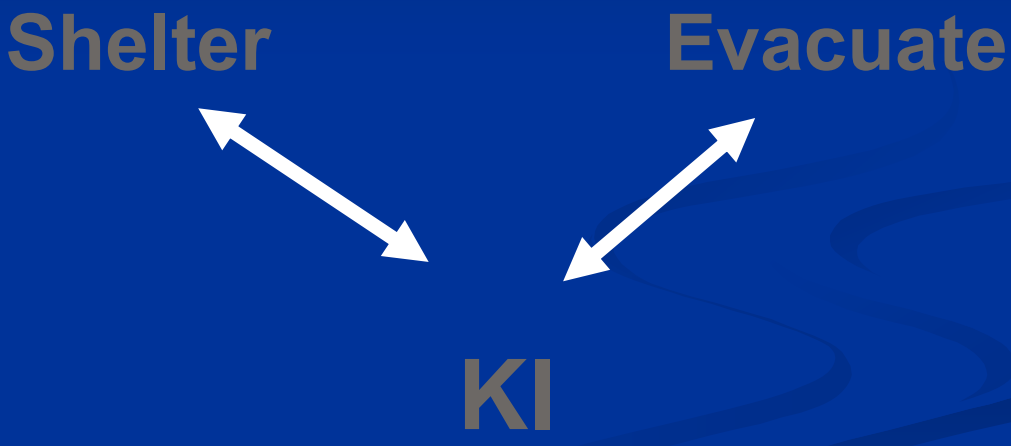


Protective Actions

- Risk of protective action
- Risk associated with dose that will be avoided

Protective actions

10 mile EPZ



Protective Actions

50 mile EPZ

Interdiction of contaminated food and milk

Relocation of population

Access control

Food animals on stored feed, not pasture

Sandia Laboratory Report 1982

Results often taken out of context

Unrealistic assumptions

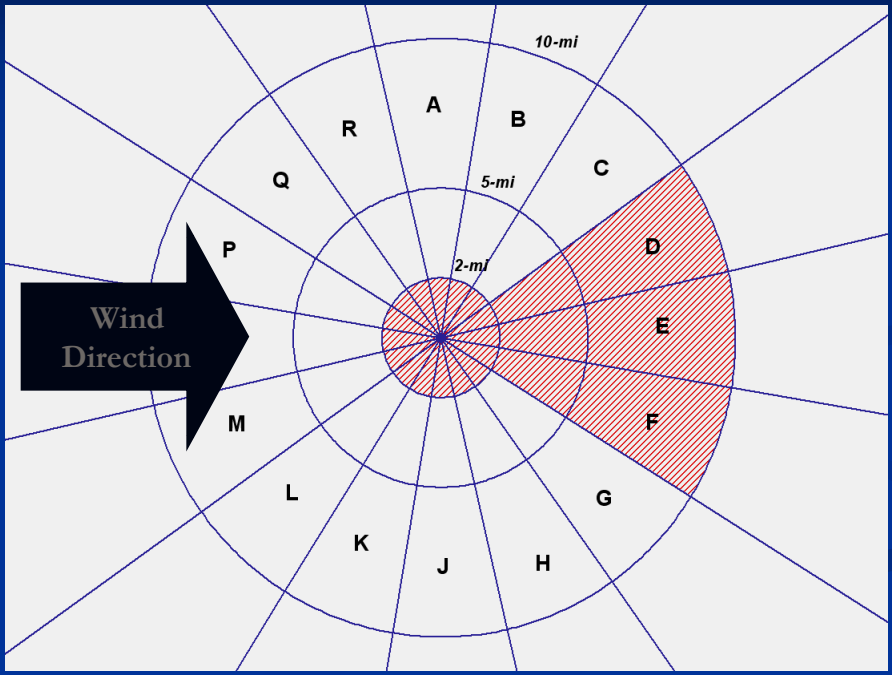
Never intended to be a basis for emergency planning

Evacuation

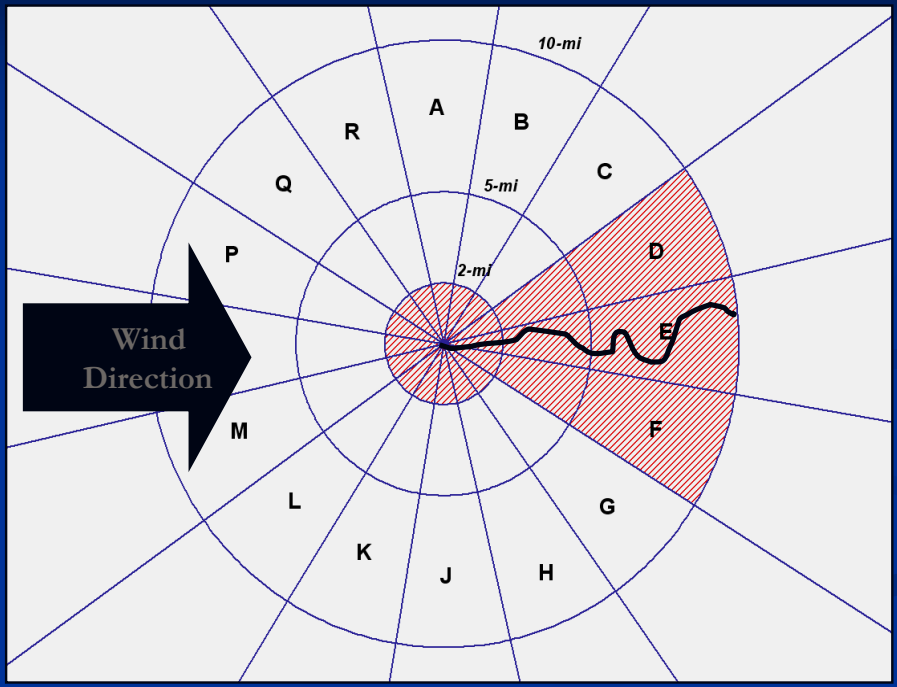
- Evacuation directs people away from the plume
- Reduces/eliminates radiological exposure

Shelter

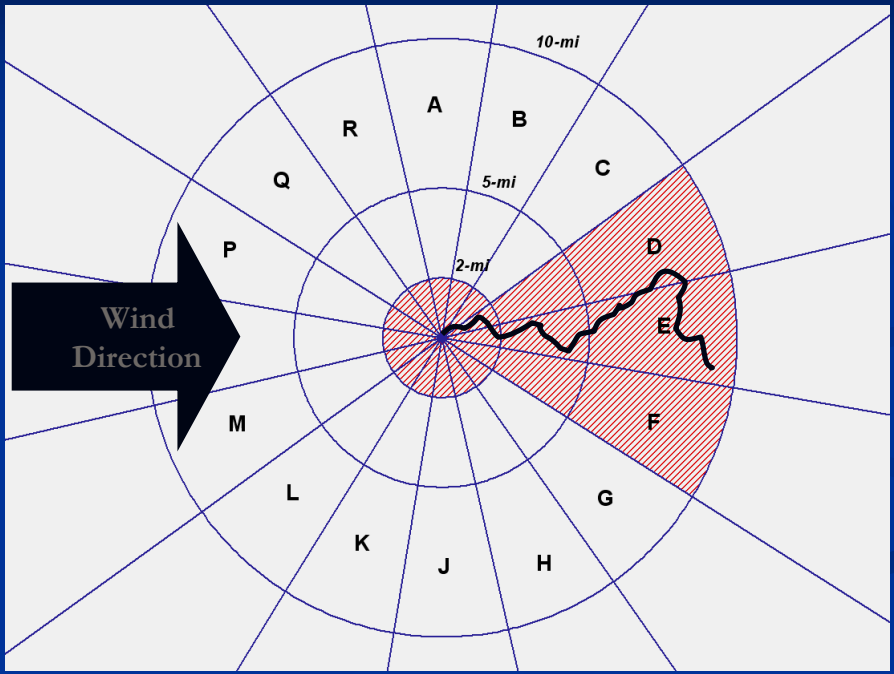
“Keyhole”



Plume meander



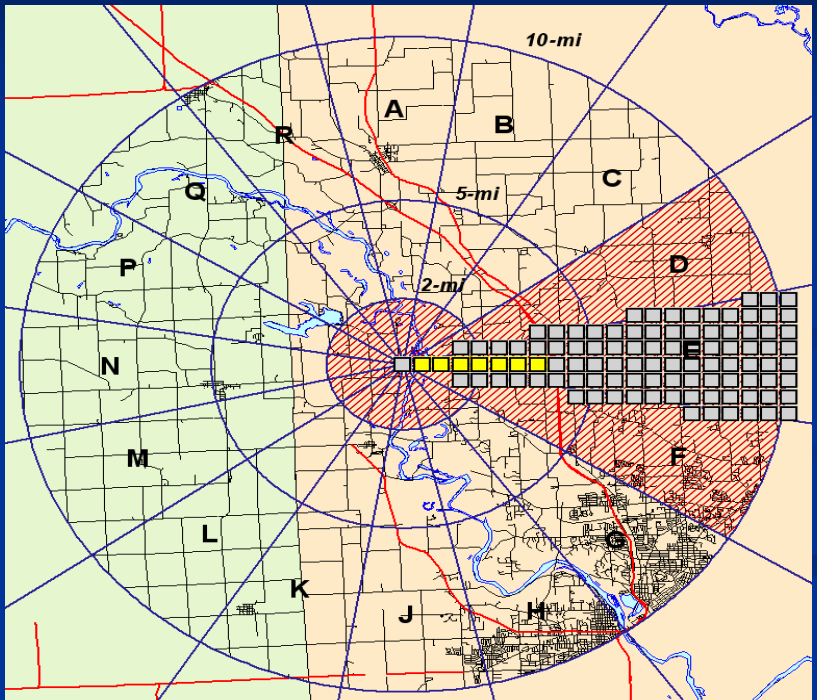
Plume meander



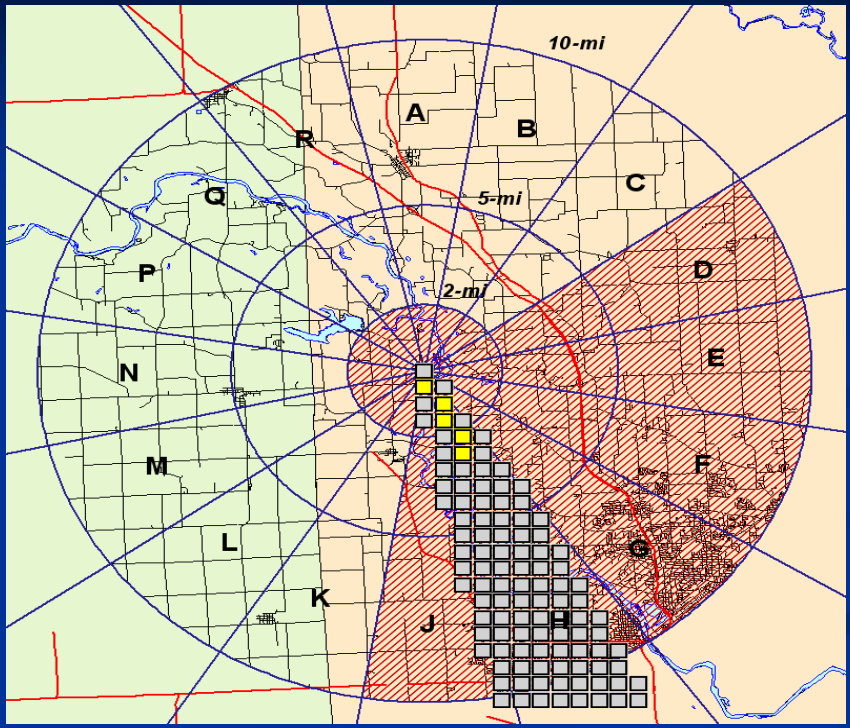
EVACUATION TIME ESTIMATE

- Assist decision makers in protective action strategies
- Assist authorities in traffic management
- Updated as demographics change
- Not linked to dose

Initial Plume

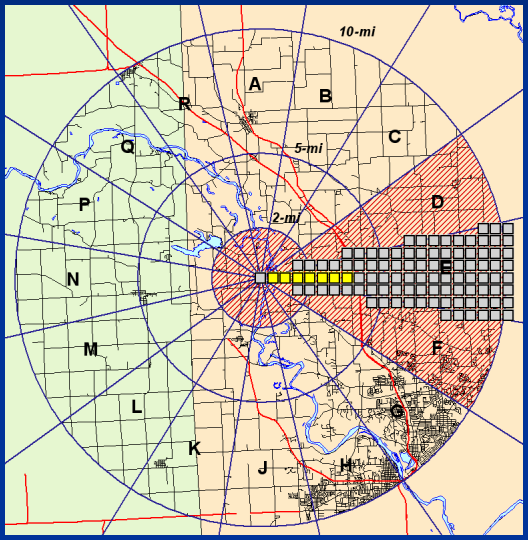


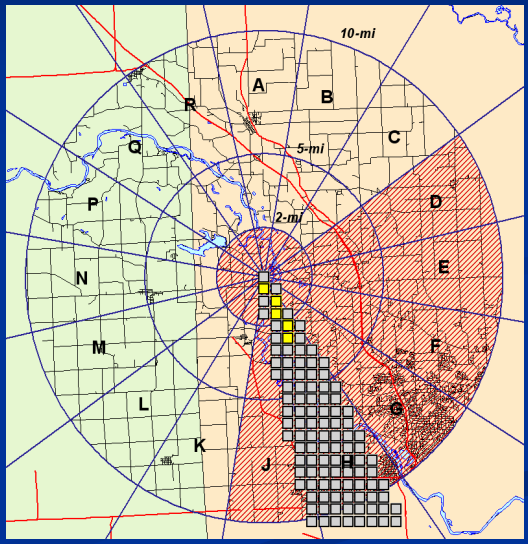
Windshift, keyhole expanded



Expanded keyhole

as wind shifts, protective action range expanded





Emergency Plans

Nuclear plant emergency plans have been implemented successfully in real-life non-nuclear situations:

- Cedar Rapids, IA, 10,000 people evacuated from toxic fumes from a fire
- St. Charles Parrish, LA, 17,000 people evacuated from leak at chemical plant
- Nanticoke, PA, 13,000 people evacuated from toxic smoke
- San Luis Obispo, CA, 3000 people evacuated from out-of-control fire

10 CFR 50.47(b)(10)

"in developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide"

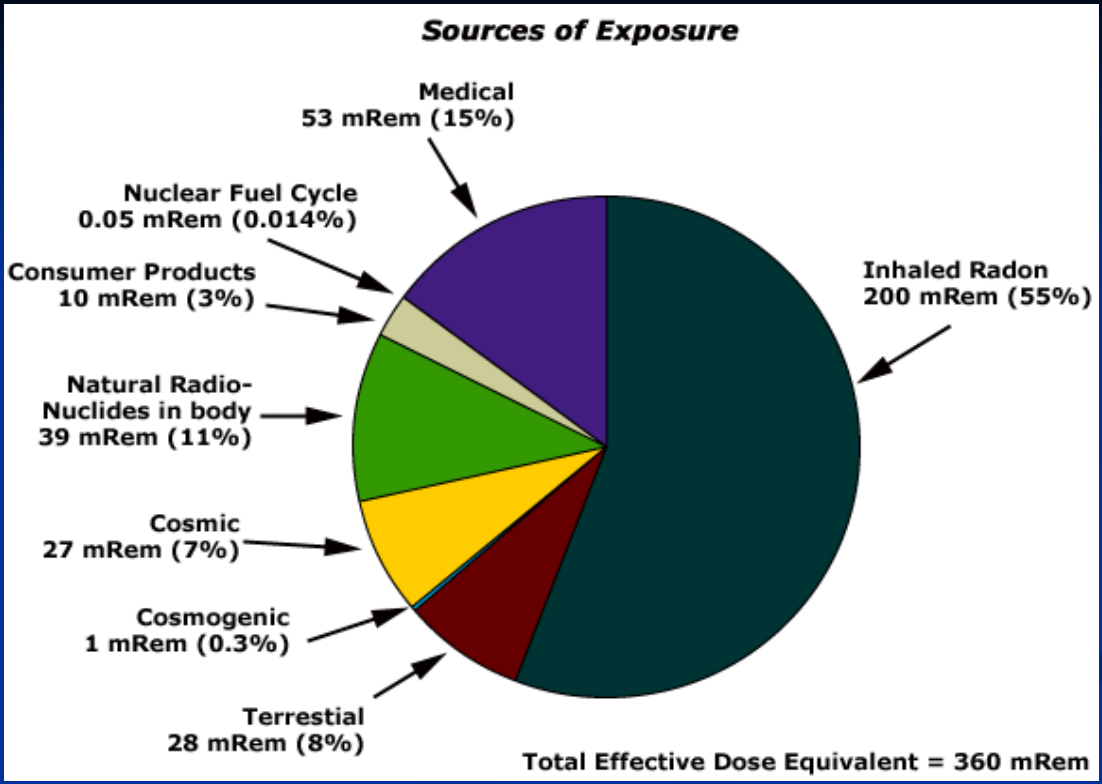
Potassium Iodide

- 18 states have received KI tablets from the NRC
- 10,100,000 KI tablets have been distributed

Shelter

Evacuate

KI


Sources of Exposure
Medical
53 mRem (15%)
Nuclear Fuel Cycle
0.05 mRem (0.014%)
Consumer Products
10 mRem (3%)
Natural Radio-
Nuclides in body
39 mRem (11%)
Cosmic
27 mRem (7%)
Cosmogenic
1 mRem (0.3%)
Terrestial
28 mRem (8%)
Inhaled Radon
200 mRem (55%)
Total Effective Dose Equivalent = 360 mRem

Emergency Planning in the New Threat Environment

Emergency Plans are not dependent on the initiating scenario

Emergency Planning basis remains valid in the post-9/11 threat environment

Emergency preparedness regulations **require** rapid notification of the public in the event of an emergency.

NRC & FEMA

Relationship is codified in regulations and in Memoranda of Understanding

FEMA/NRC steering committee, Regional Assistance Committee, Federal Radiological Preparedness Coordinating Committee

Fema slide

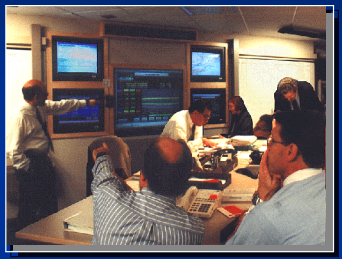
Fema slide

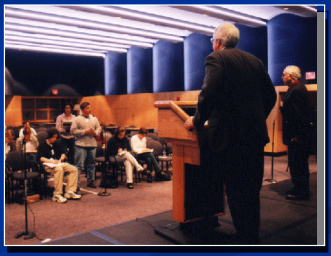
Fema slide

Fema slide

Emergency Response
NRC's Responsibilities

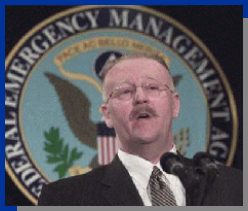
- Assess plant conditions
- Evaluate Protective Action Recommendations
- Support off-site officials
- Keep other agencies informed
- Keep news media informed

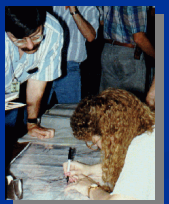


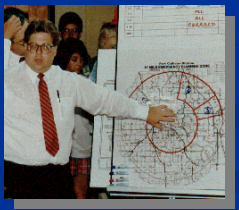


Coordination With Other Agencies

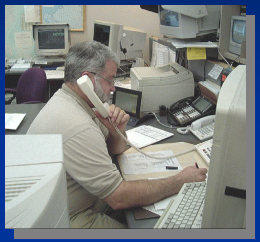
• Department of Homeland Security • Department of Defense
• Federal Aviation Administration • Department of Energy
• Environmental Protection Agency • Department of Justice
• Federal Emergency Management Agency • States • Locals





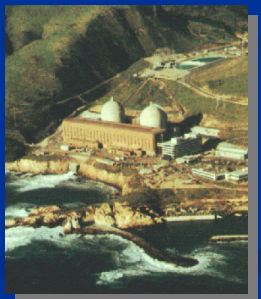


NRC's Response Organization

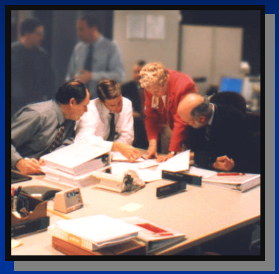


- HQ Operations Officer (HOO)
  - Executive Team

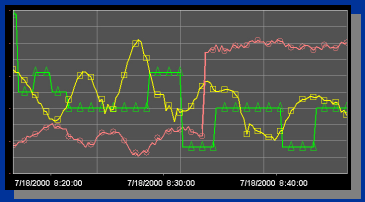
- HQ and Regional Assessment Teams
  - Site Team

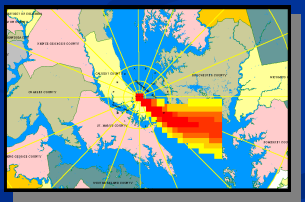


Assessment Teams



- Reactor Safety Team
- Fuel Cycle Safety Team
- Safeguards Team
- Protective Measures Team





Recent Activities

- TOPOFF 2 Interagency Exercise
- Coordination with DHS on National Response Plan
- Coordination with DOD on Interagency Exercise Planning
  - Unified Defense 04
  - Amalgam Virgo 04
- Continuing activities to Headquarters Operations Center and Regional Response Centers

The Nuclear Regulatory Commission's effective and robust emergency planning regulations continue to demonstrate our strong commitment to the protection of the public health and safety