



Emergency Preparedness for New Reactors

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I/24

*3/17/10
Being Released for
their Entirety (CSRB)
11*



Three Mile Island Event

- Enhanced Emergency Preparedness
 - New regulations
 - 10 CFR 50.47 implemented
 - EPZ concept formally adopted
 - Prompt notification of the NRC
 - NRC operations center staffed 24 hours a day
 - Periodic exercises and drills required
 - Emergency plan approval for new plants
 - Additional EP guidance in NUREG-0654
 - Strengthened onsite and offsite preparedness
 - Established emergency response facilities



September 11, 2001 Event

- Issued Order and Guidance containing EP Actions
 - Emergency Action Levels (EALs) must address hostile actions
 - Early notification to the NRC
 - Onsite protective measures
 - Alternate facility
 - Hostile action-based drills and exercises



Today's Discussion

- Large, light-water power reactors
 - Generation III and III+, advanced light-water reactors (U.S. DOE)
 - Primary EP Regulations
 - 10 CFR 50.47
 - Appendix E to 10 CFR Part 50
 - The same for Generation I, II, III and III+ reactors



What Won't Be Discussed

- Will not include the next generation of advanced reactors (*Generation IV*)
- Power reactors under 250MW or gas cooled reactors (per Appendix E to 10 CFR Part 50)
- Small modular reactors

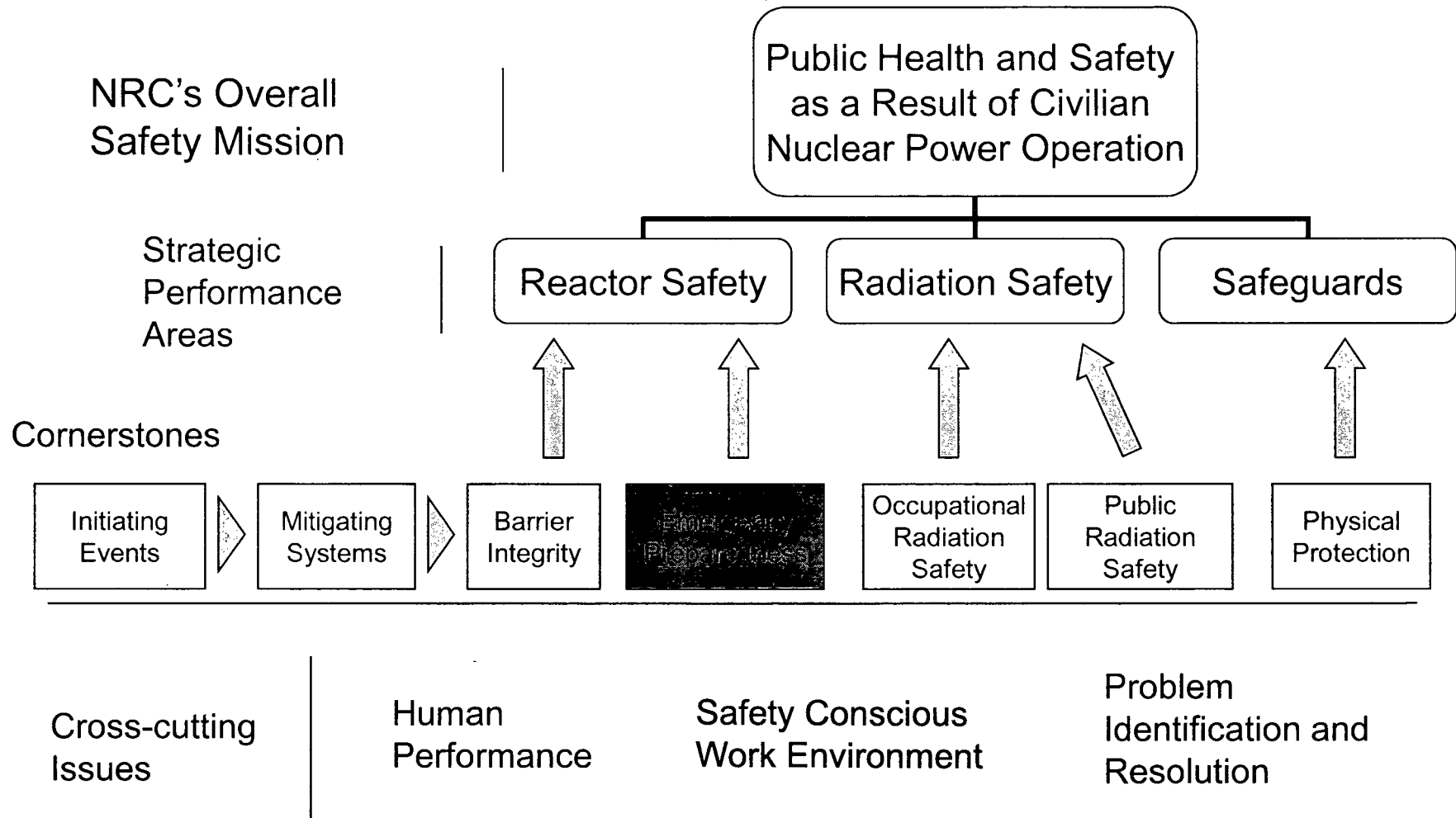


Overall Objective of Emergency Preparedness (EP)

- To ensure that emergency plans provide reasonable assurance that adequate measures can and will be taken to protect public health and safety in the event of a radiological emergency.



Reactor Oversight Process (ROP)





FEMA-NRC Partnership

- Federal Emergency Management Agency (FEMA):
 - Determines “*reasonable assurance*” of the adequacy of “offsite” State/Local/Tribal emergency plans and preparedness
 - Forwards their findings to NRC
 - Notifies NRC of issues in the offsite response plans
 - Oversees resolution of offsite EP issues
 - FEMA regulations contain the NRC/FEMA MOU



FEMA-NRC Partnership

- NRC
 - Determines the adequacy of “onsite” plans made by the Licensee
 - Gives overall reasonable assurance of the integrated emergency plans of both Onsite and Offsite response organizations
 - Has overall regulatory authority
 - Makes the final approval of emergency plans as required for the plant to operate



Key Elements of EP

- Emergency Classification Levels (ECLs)
 - Determines the extent of response actions
 - Notification of Unusual Event (least severe)
 - Alert
 - Site Area
 - General (most severe)
 - On-shift manager makes the declaration
 - Line of succession with authority
 - State/local governments notified first, then NRC is notified within about 1 hour

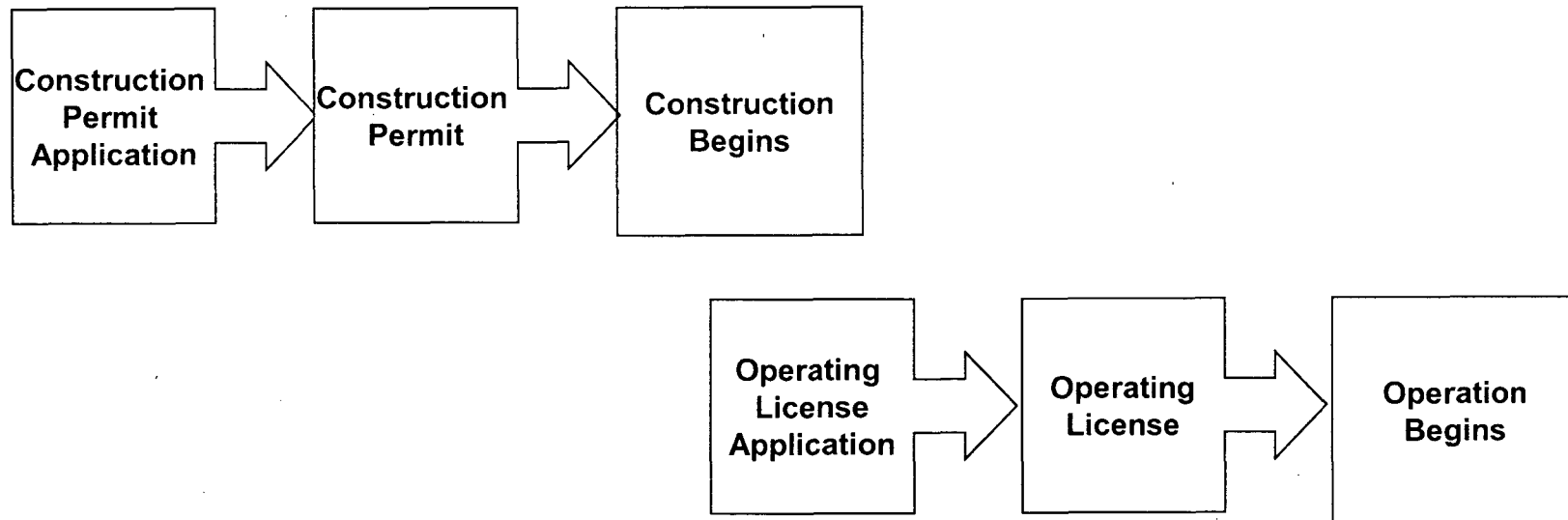


Key Elements of EP

- Emergency Planning Zones (EPZs)
- Emergency Plans and procedures
- Emergency Response Facilities (ERFs)
- Coordination of Plans between Licensees and State/Local and Tribal officials
- Exercises and Drills



Licensing Process for current fleet (10 CFR Part 50)

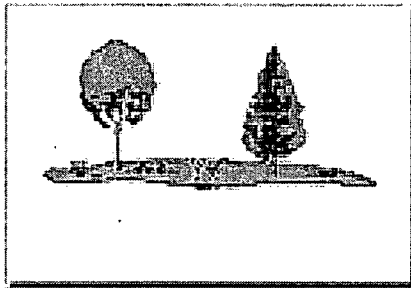


- Design effort proceeded throughout process
- Regulatory standards evolved as construction proceeded

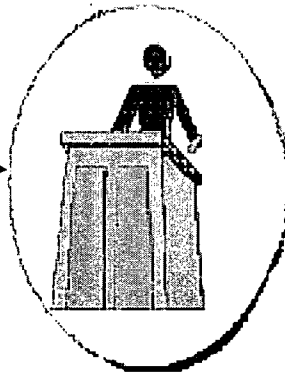


Reactor Licensing Process

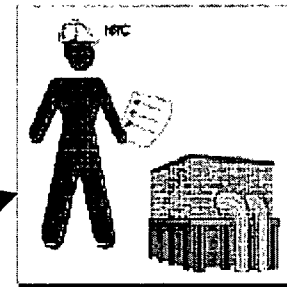
**Early Site
Permits
(maybe)**



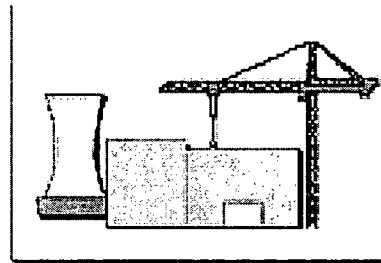
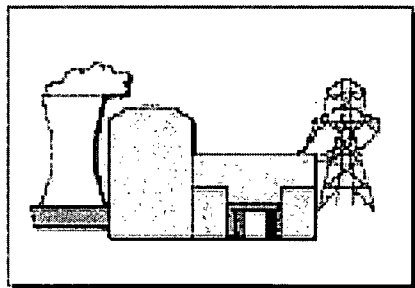
**Combined
License
Review and
Hearing**



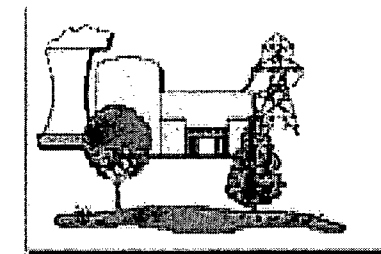
**Verification of Inspection,
Test, Analysis, and
Acceptance Criteria**



**Design
Certifications**



Reactor Construction



Reactor Operation



“New” Changes for New Reactors

- The “reasonable assurance” finding is issued earlier in the process (*with the Combined License (COL) prior to construction*).
- Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) require a successful EP exercise prior to fuel load.



Incident Response by the NRC

- Headquarters Operation Center
 - Focal point of NRC response
 - Staffed 24/7 with a minimum of 2 officers
 - Ability to monitor plant data
 - Support staff as needed 24/7
 - Threat assessment
- Exercise participation
 - Goal is to participate in 1 exercise per region per quarter per year



Key Messages for EP

- Any “new” reactors being built must meet existing EP regulations.
 - Protect the health and safety of the public
- The licensee works together with offsite partners to develop plans and procedures
- The NRC and FEMA work together to be sure that plans are workable.



Websites

- Emergency Preparedness
 - <http://www.nrc.gov/about-nrc/emerg-preparedness.html>