

NRC Response to Nuclear Events in Japan

NRC Commissioner William C. Ostendorff

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Center for Biosecurity
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Washington, DC

Agenda

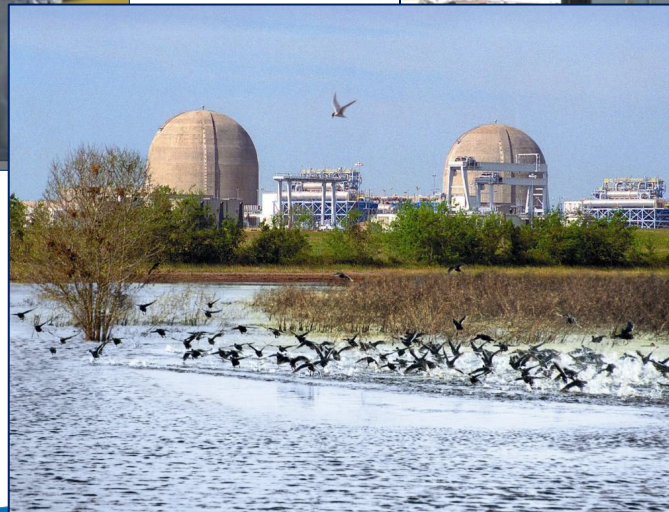
- About the NRC
- Fukushima Event
- NRC Actions
- Conclusion

What we do

Safety



Security



Environment

What we regulate

Reactors



Materials



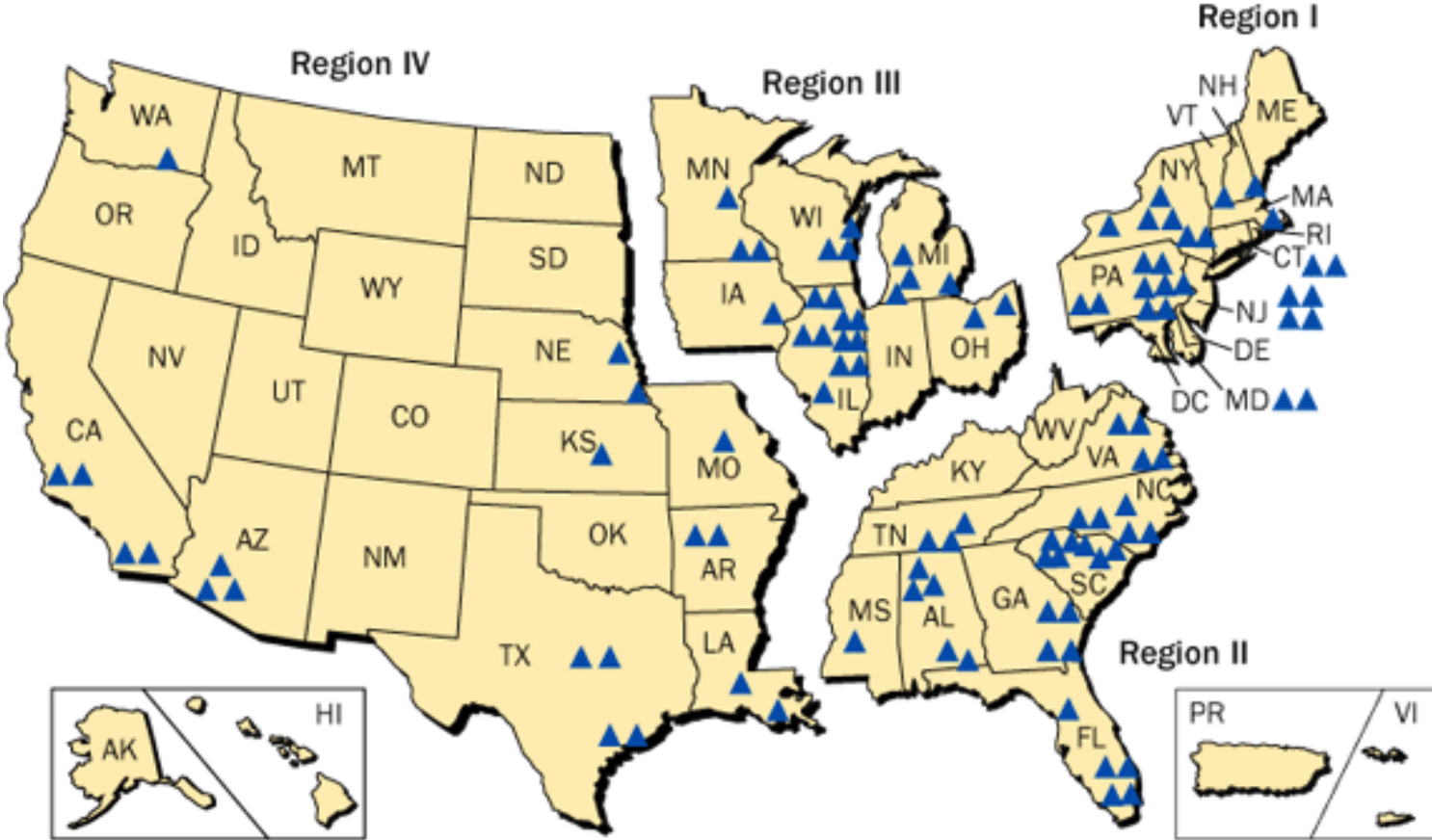
Waste



How we regulate

- Agencies operate only within the bounds of authority granted to them by Congress
- NRC → Atomic Energy Act
- Statutory hallmark
 - Reasonable assurance of adequate protection of public health and safety and common defense and security

US operating reactors



▲ Licensed to Operate (104)

The Commission

- Policy making
- Appointed by the President
- Confirmed by the Senate
- Decisions by majority vote



**Chairman
Gregory B.
Jaczko**



**Commissioner
Kristine L.
Svinicki**



**Commissioner
George
Apostolakis**

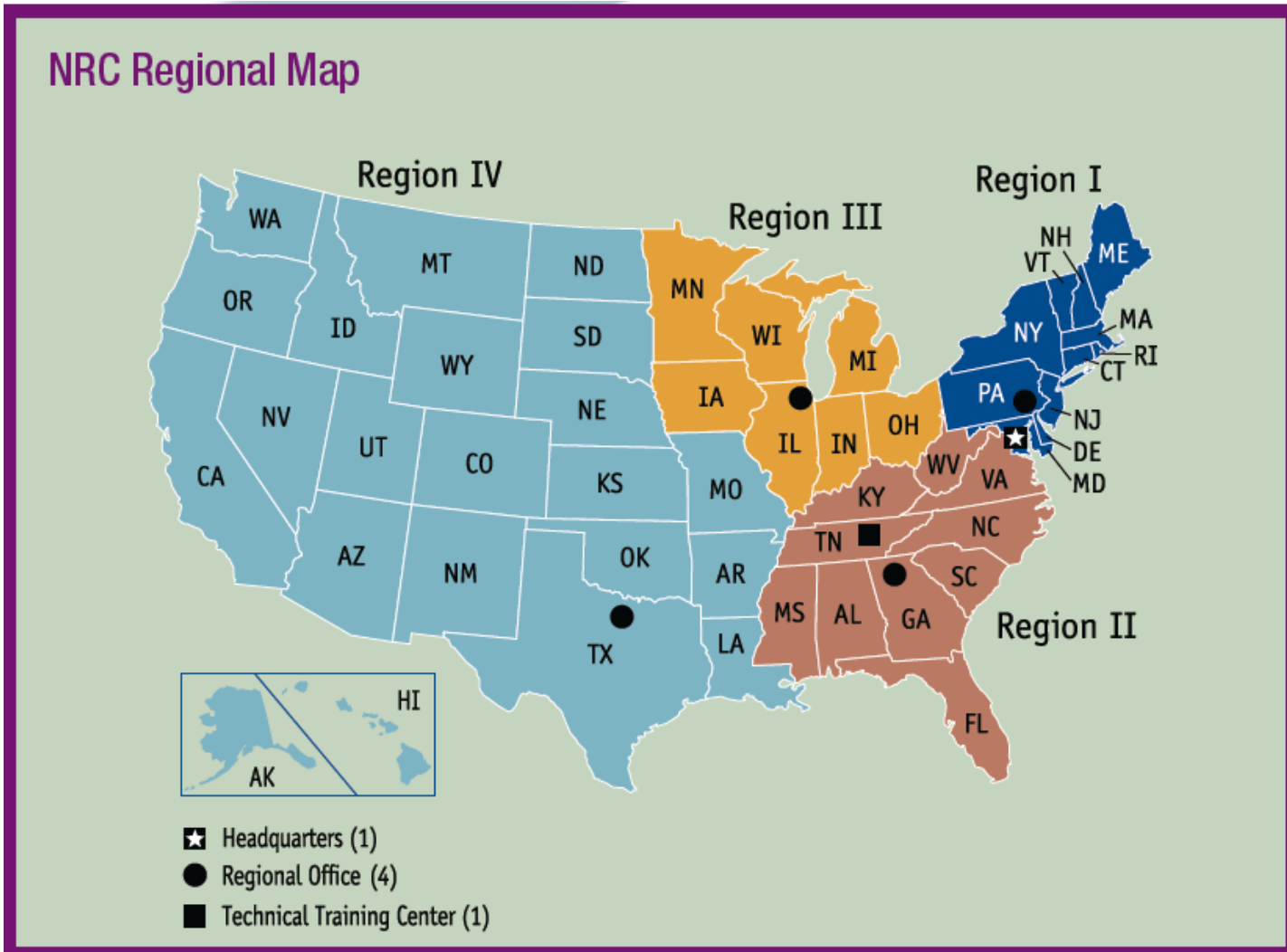


**Commissioner
William D.
Magwood**



**Commissioner
William C.
Ostendorff**

Where we are located



Source: NRC Strategic Plan Fiscal Years 2008-2013

Regulatory principles



Principles of Good Regulation
The NRC adheres to the following Principles of Good Regulation

Independence: Nothing but the highest possible standards of ethical performance and professionalism should influence regulation. However, independence does not imply isolation. All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered. Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated.

Openness: Nuclear regulation is the public's business, and it must be transacted publicly and candidly. The public must be informed about and have the opportunity to participate in the regulatory processes as required by law. Open channels of communication must be maintained with Congress, other government agencies, licensees, and the public, as well as with the international nuclear community.

Efficiency: The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required, and must be a constant agency goal. NRC must establish means to evaluate and continually upgrade its regulatory capabilities. Regulatory activities should be consistent with the degree of risk reduction they achieve. Where several effective alternatives are available, the option which minimizes the use of resources should be adopted. Regulatory decisions should be made without undue delay.

Clarity: Regulations should be coherent, logical, and practical. There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated. Agency positions should be readily understood and easily applied.

Reliability: Regulations should be based on the best available knowledge from research and operational experience. Systems interactions, technological uncertainties, and the diversity of licensees and regulatory activities must all be taken into account so that risks are maintained at an acceptably low level. Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition. Regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes.



Independence

Openness

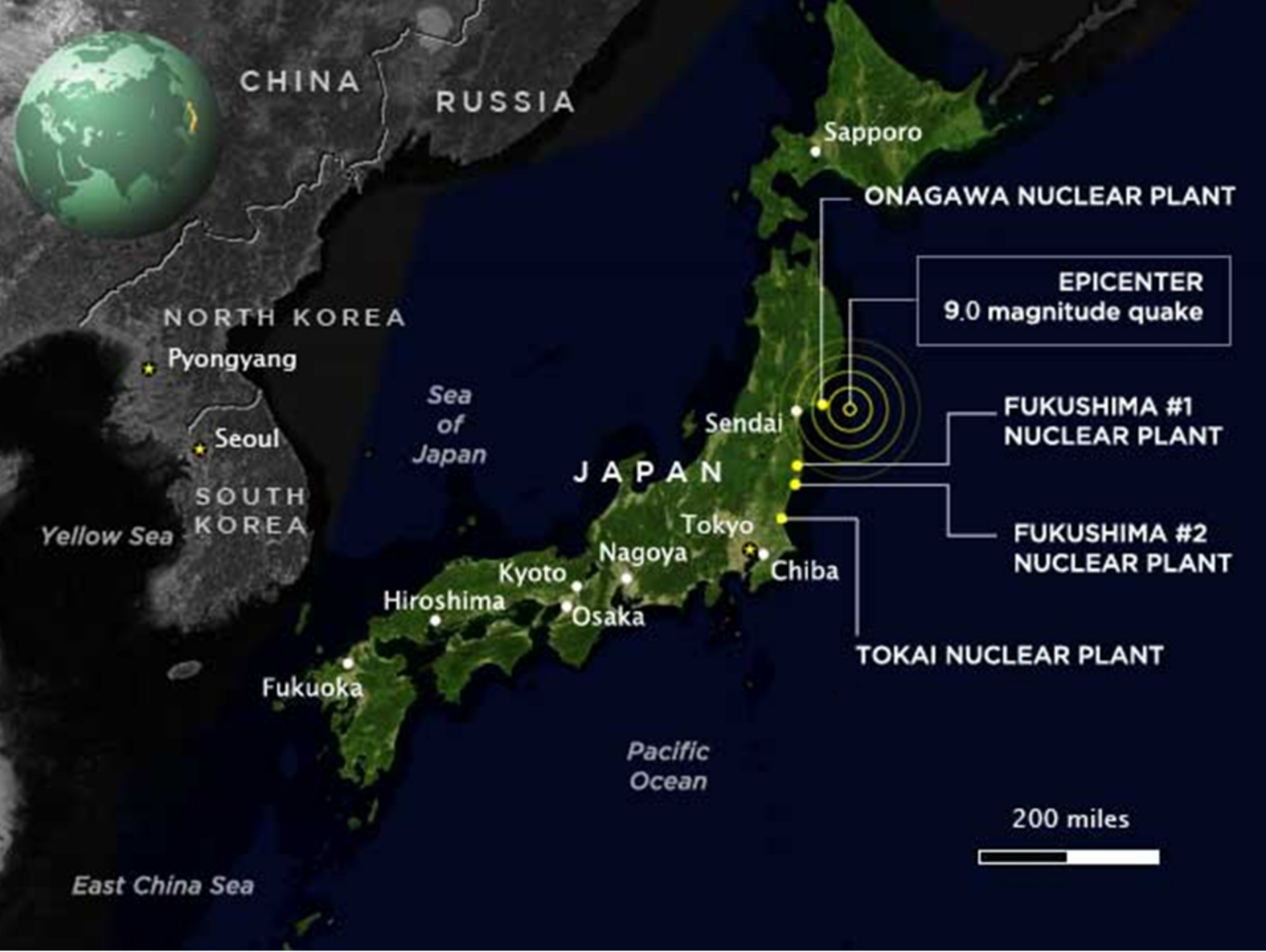
Efficiency

Clarity

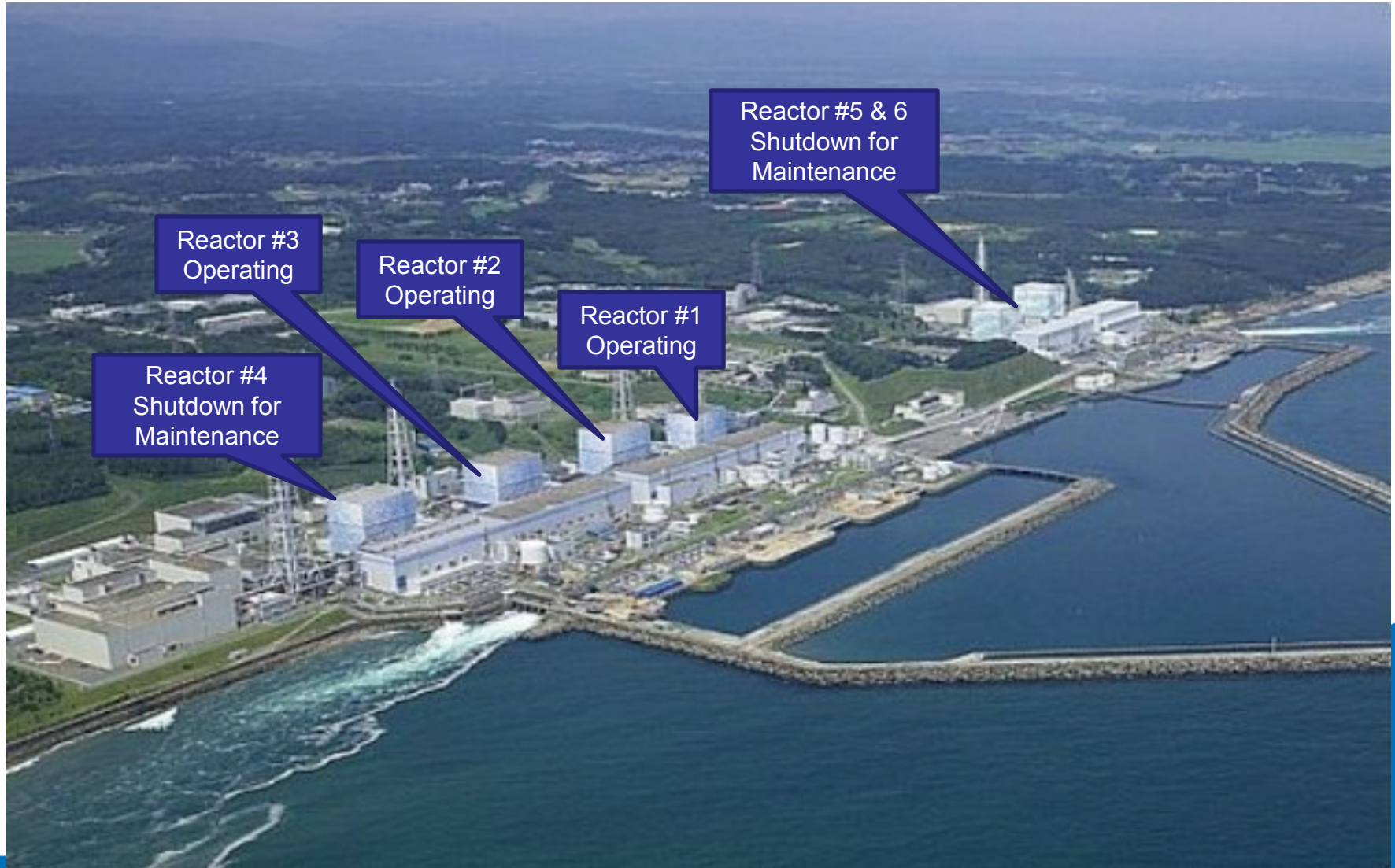
Reliability

Fukushima Daiichi

- Event background
- NRC actions
- Next steps



Fukushima Daiichi NPP



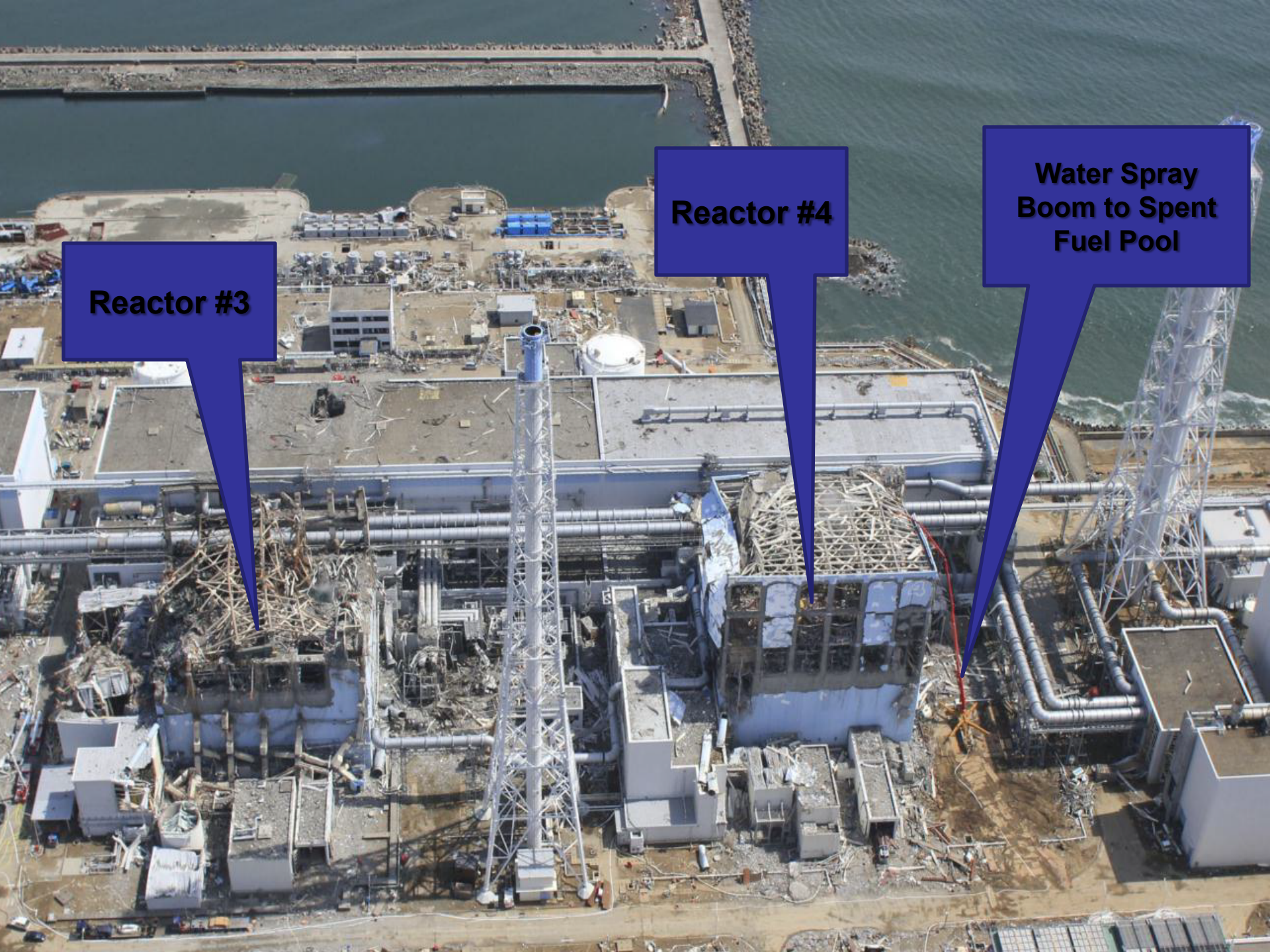
Sequence of Events

Friday, March 11, 2:36 pm local time:

- Magnitude 9.0 earthquake 231 miles northeast of Tokyo
 - Fifth largest in the world (since 1900)
- 15-meter tsunami at plant
 - Much higher in other locations in northern Japan

Sequence – Continued

- Three operating units shutdown at time of earthquake
- Offsite power lost; emergency diesels supply power
- Tsunami strikes site and wipes-out emergency power
- Extended station blackout – loss of all AC power
- DC batteries deplete and subsequent loss of reactor cooling
- Late injection of seawater using fire trucks
- Core damage estimated at 55, 35, and 30 percent for Units 1, 2, and 3 respectively
- Hydrogen generated from metal water reaction in cores
- Hydrogen explosions in Units 1, 3, and 4 reactor buildings



Reactor #3

Reactor #4

**Water Spray
Boom to Spent
Fuel Pool**

NRC Task Force

- Senior level agency task force
- Methodical and systematic review
- Near term and long term objectives
- Recommendations to be provided to Commission
- Publicly available report

Near Term Review

- Evaluate Fukushima Daiichi accident
- US operating reactors and spent fuel pools
 - External events
 - Station blackout
 - Severe accident mitigation
 - Combustible gas control
 - Emergency preparedness
- Near term review due in 90 days (mid June)

Longer Term Review

- Based on near term review and additional insights from Fukushima accident
- Identify potential technical and policy issues
 - Research activities
 - Generic issues
 - Reactor Oversight Process
 - Regulatory framework
 - Interagency emergency preparedness

Actions to Date

- Information notice to NRC licensees
- Temporary inspections
 - Extensive damage and severe accident mitigation guidelines
 - Station blackout
 - Seismic and flooding
- Bulletin on mitigating strategy information
 - Maintenance and testing of equipment
 - Strategy implementation

EP Rulemaking

- Rulemaking initiated pre-Fukushima
 - Revisions to existing regulations
- Lessons learned over the last 30 years
- Some key elements:
 - Evacuation Time Estimate updating
 - Emergency Action Levels for hostile actions
 - Emergency Response Organization augmentation at alternate facility
 - Challenging drills and exercises
- Final rule before Commission for approval
- NRC Task Force also looking at EP

Other Key Areas

- **Emergency Command and Control**
 - Executing emergency procedures and actions under challenging plant conditions
- **External communication and outreach**
 - Shared responsibility of regulator and industry
 - Promote understanding of risks and the bases for regulatory activities
 - Proactive engagement



Conclusion

Maintaining a systematic and methodical review in response to Fukushima:

- Risk consideration
- Keeping concerns in context
- Follow regulatory processes for new requirements
- Supporting changes with solid analyses, and engagement with stakeholders
- Consideration of all regulatory tools

Thank You

Questions
Comments
Discussion