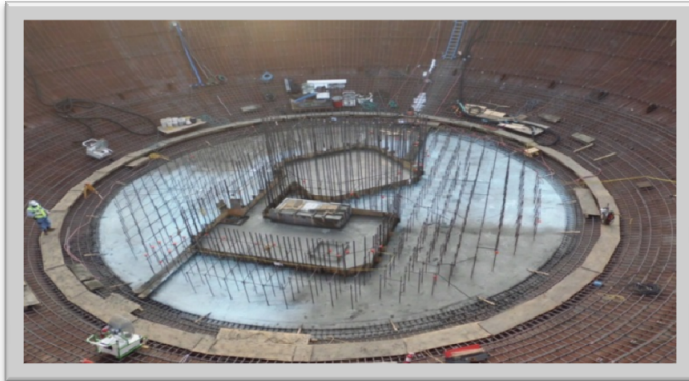


Ensuring Safety and Security: How a Technical Agency Operates in a Policy Environment

Allison Macfarlane, Chairman, US NRC
U.S. Energy Association Annual Meeting
and Public Policy Forum
April 23, 2014, Washington, DC

A Dynamic Environment



Research Science vs. Regulatory Science



Research Science

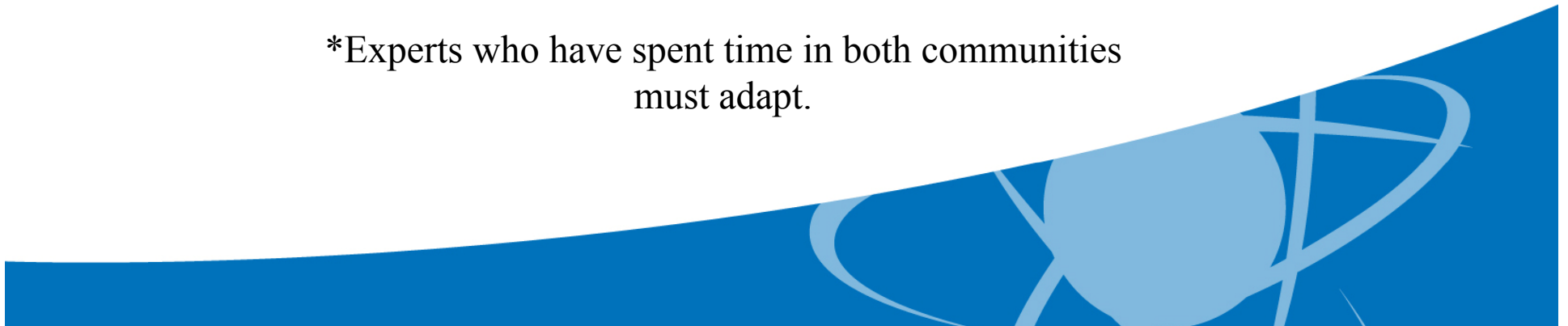
- Open-ended timeframes
- Accountability through professional peers

Regulatory Science

- Statutory deadlines, legal requirements
- Accountability through mandatory legislative or judicial oversight

*At some point, regulators must make decisions based on the best available information.

*Experts who have spent time in both communities must adapt.



Potential Policy Issues



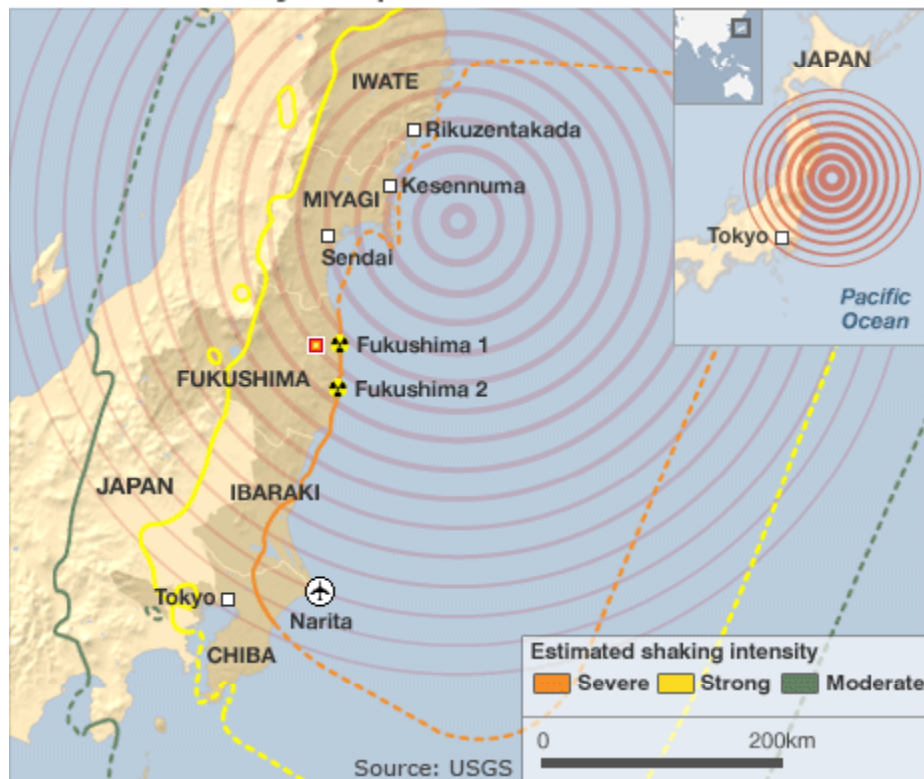
- Statutory requirements and procedures – e.g. rulemaking, licensing
- Legislative changes
- Court decisions
- Budget changes/constraints



The Fukushima Dai-ichi Accident

March 11, 2011

Areas affected by the quake



Fukushima: The NRC's Response

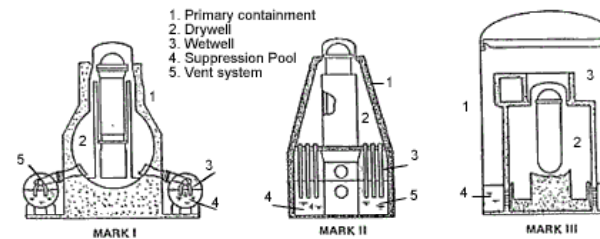
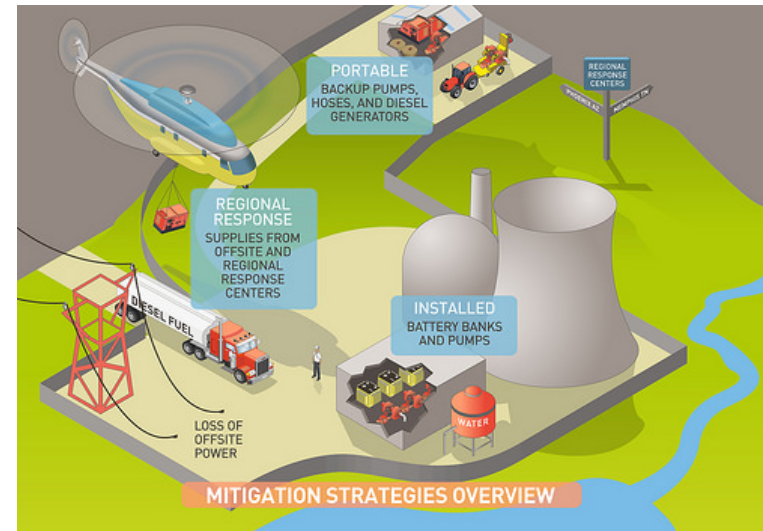
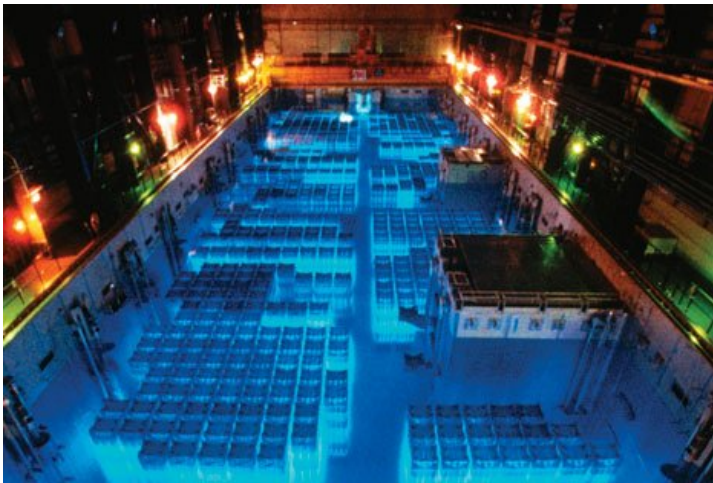


NRC Post-Fukushima Safety Enhancements



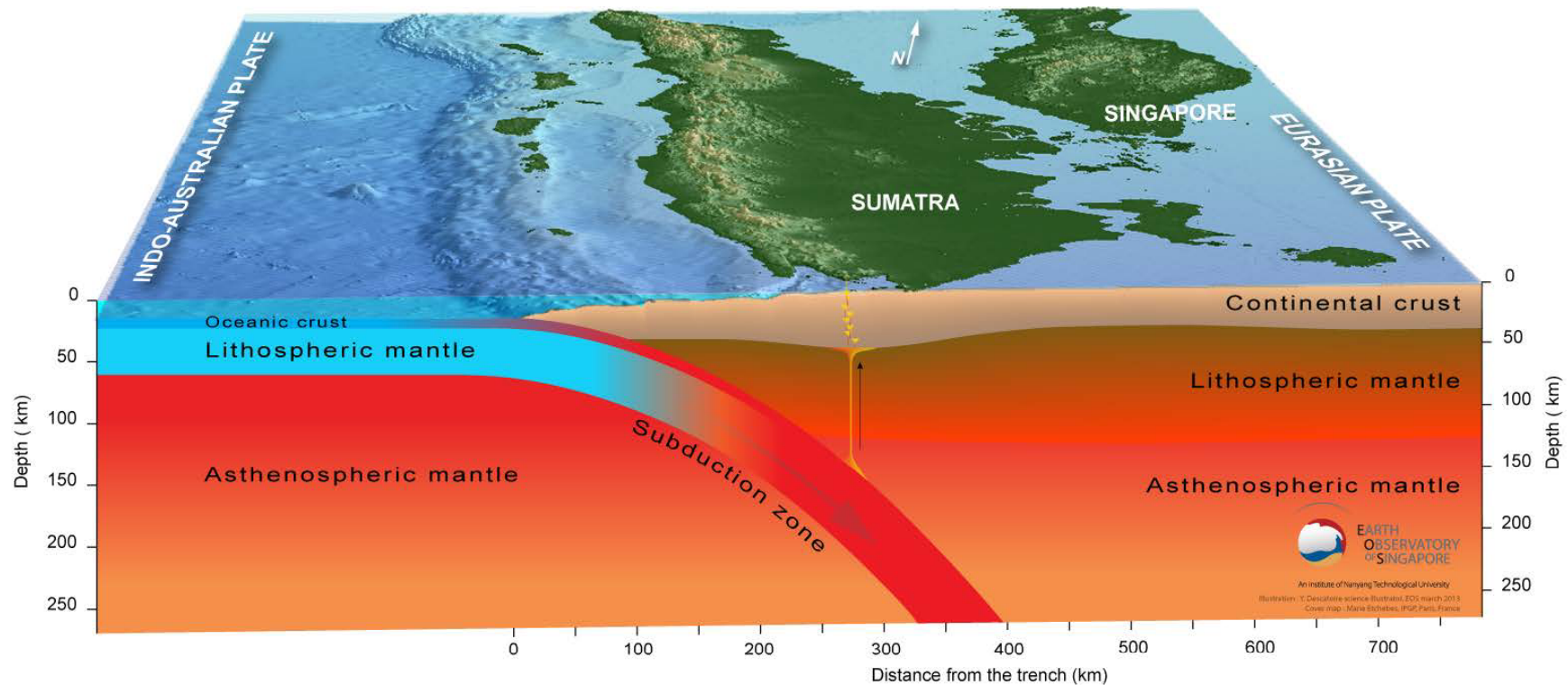
Fukushima: Commission Orders

- Mitigating strategies
- Spent fuel pool instrumentation
- Hardened, severe-accident-capable vents



General Electric pressure suppression system designs

Subduction Zones and Megaquakes

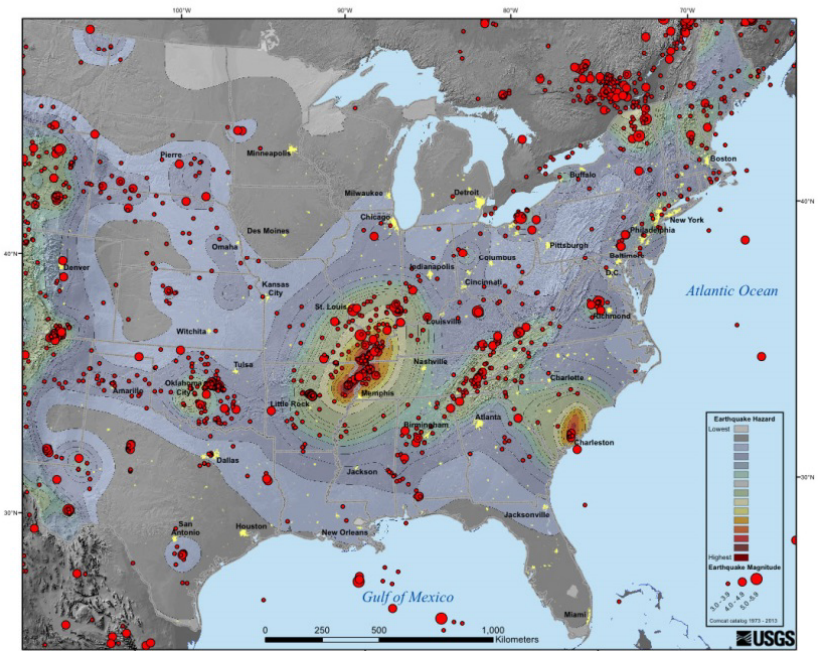


Reevaluating Seismic Hazards in the Central and Eastern U.S.

- Importance of taking scientific developments into account
- 2012: New information on earthquake sources → update of seismic source model
- Post-Fukushima: Using updated source model to reevaluate plant safety



EPRI | ELECTRIC POWER
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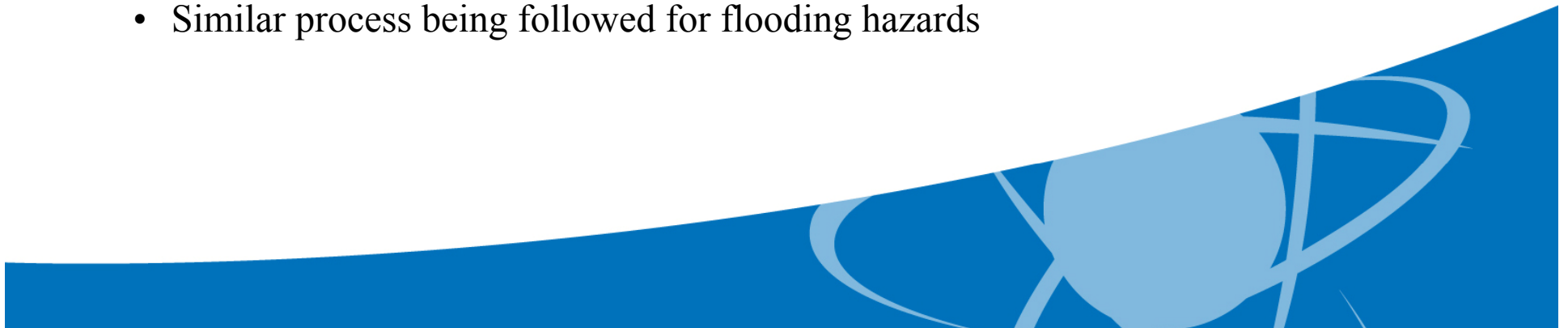


Earthquakes greater than magnitude 3.0, 1974-2013
Source: USGS

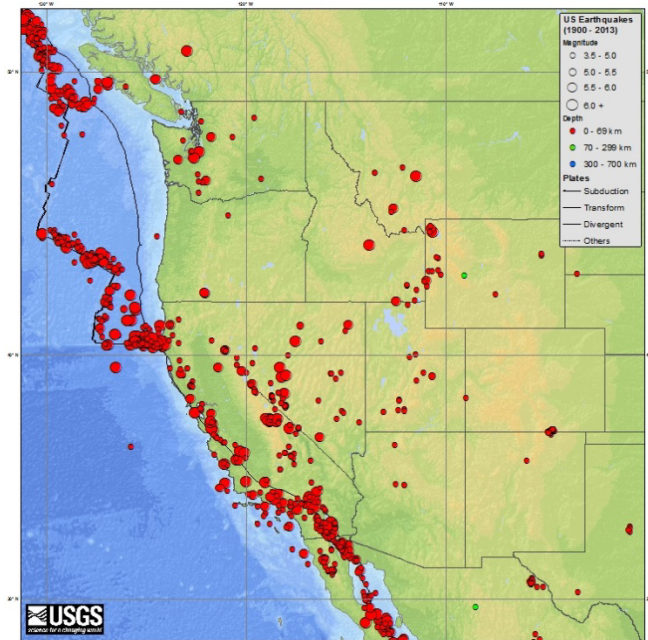
Seismic Hazard Reevaluation: The Process



- Thorough inspections at all reactor sites to ensure ability to withstand seismic event within design basis ✓
- NRC inspections to verify accuracy of licensee reporting ✓
- Reports from plants evaluating and updating seismic hazards at individual facilities ✓
- NRC review of licensee reports – in process
- NRC requirement for certain plants to conduct more extensive analyses - future
- Similar process being followed for flooding hazards



Seismic Hazard Reevaluation: Western States



Earthquakes greater than magnitude 3.0, 1900-2013
Source: USGS

- Complex geology – no single model
- Plants get more time to complete work



License Renewal Process



1. Application
2. Technical Information
3. Integrated Plant Assessment
 - Current Licensing Basis
 - Time Limited Aging Analyses
 - Final Safety Analysis Report
4. Technical Specifications
5. Standard Review Plan, Generic Aging Lessons Learned (GALL) Report, and Regulatory Guide
6. Environmental Review
 - Generic Environmental Impact Statement
 - Scoping Process
 - Standard Review Plan and Regulatory Guide
 - High-Level Waste
7. Review Time
8. Timely Renewal
9. Inspection Program



License Renewal: Aging Management Issues

- Degradation
- Corrosion
- Buried piping
- Concrete issues



EPRI Pipe Mockup



Public Engagement

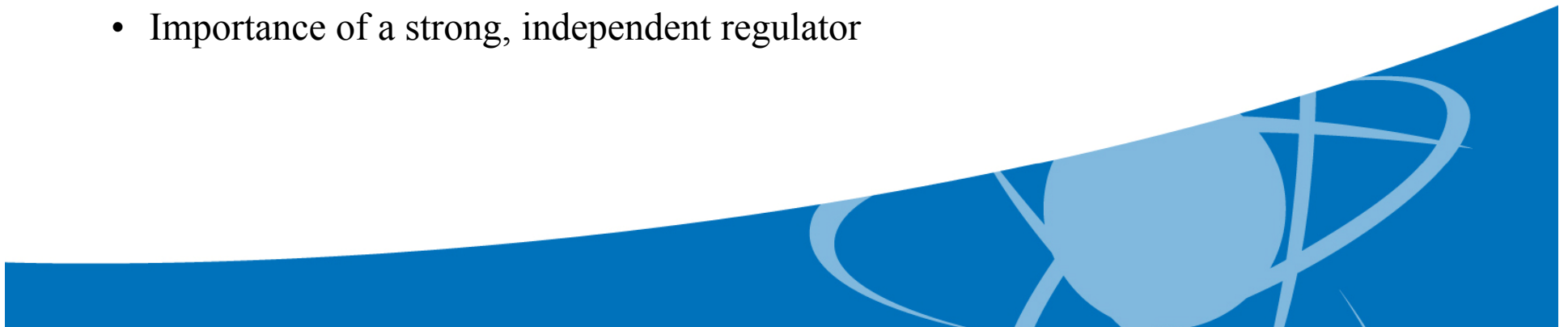
- Outreach to:
 - Industry
 - Congress
 - Academia
 - State, local, tribal governments
 - NGOs
 - Members of the public
 - International counterparts
- NRC public comment process
- Considering a full range of views



Global Implications for Regulators



- Ensuring safety is always the top priority
- Balancing human resource needs with national financial and policy circumstances (new construction, decommissioning)
- Importance of a strong, independent regulator



Confidence in Decision-Making

- Conduct the highest quality technical and scientific analysis based on best available information
- Consult the right people internally and externally
- Identify ways to periodically evaluate regulatory work to take new information into account



Conclusions



- Regulatory agencies like NRC need a balance of qualified experts from various disciplines.
- The NRC remains committed to protecting public health and safety through sound decision-making, regardless of changes in economic, policy, or other factors.

Thank You

