



# ***NUCLEAR ENERGY IN A POST-FUKUSHIMA WORLD***

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Energy and Environment Panel Discussion

July 17, 2011

# Overview

- NRC: Who we Are and What we Do
- Fukushima Event
  - Initial NRC Response
  - Comparison of U.S. and Japanese Reactors
  - NRC Approach to Licensing and Oversight
  - NRC Actions and Insights
  - Near-Term and Long-Term Reviews
- International Response
- Conclusion

# Who We Are

- The Energy Reorganization Act of 1974 established the independent U.S. NRC to regulate commercial uses of nuclear material.
- Other duties of the former Atomic Energy Commission were assigned to DOE.
  - Military
  - Promotional
  - Educational

# **NRC Mission**

*To regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment*

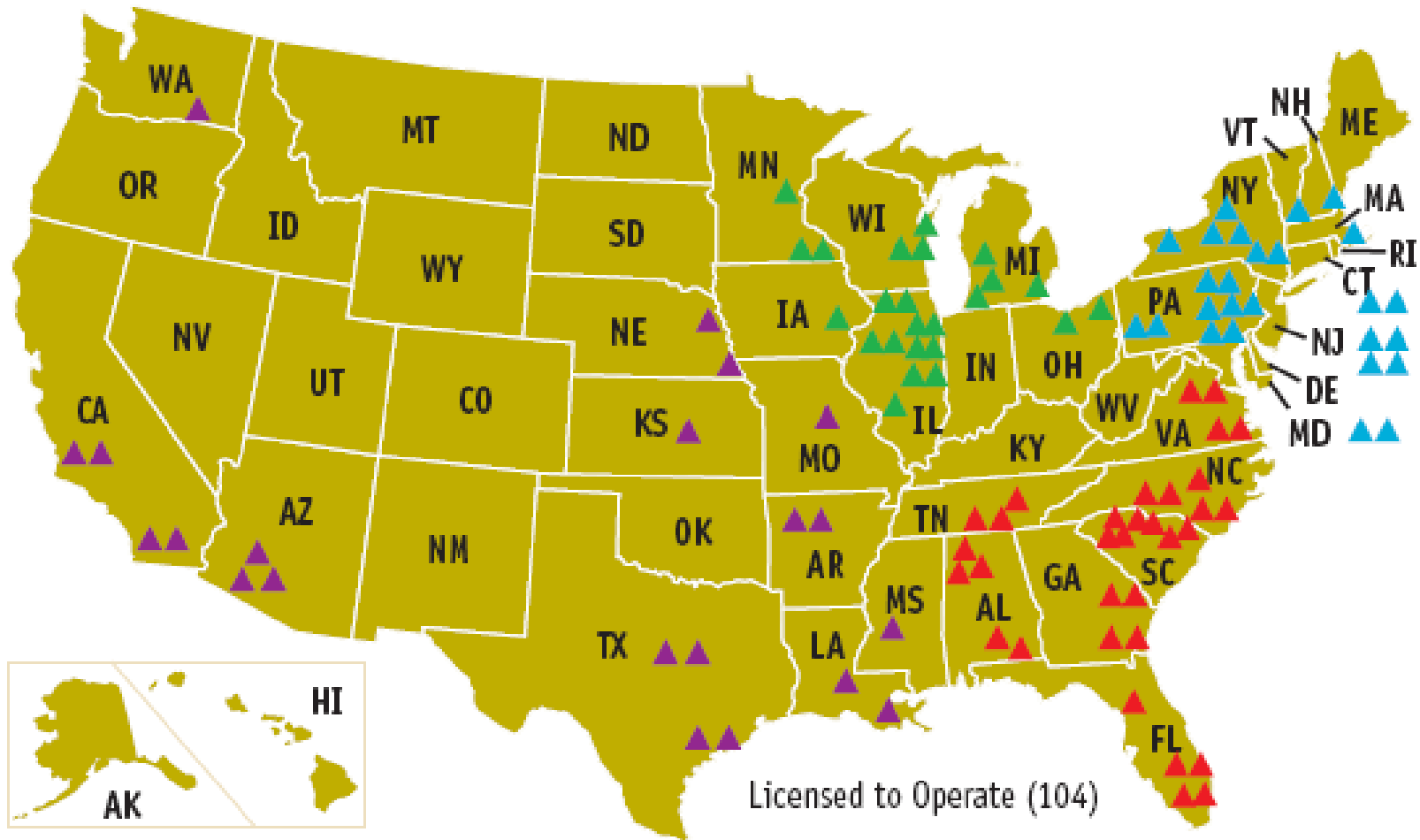
# What we Do

- Establish regulations
- Issue licenses
- Provide oversight
  - inspection
  - assessment
  - investigations
  - enforcement
  - operating experience
- Conduct research
- Respond to emergencies

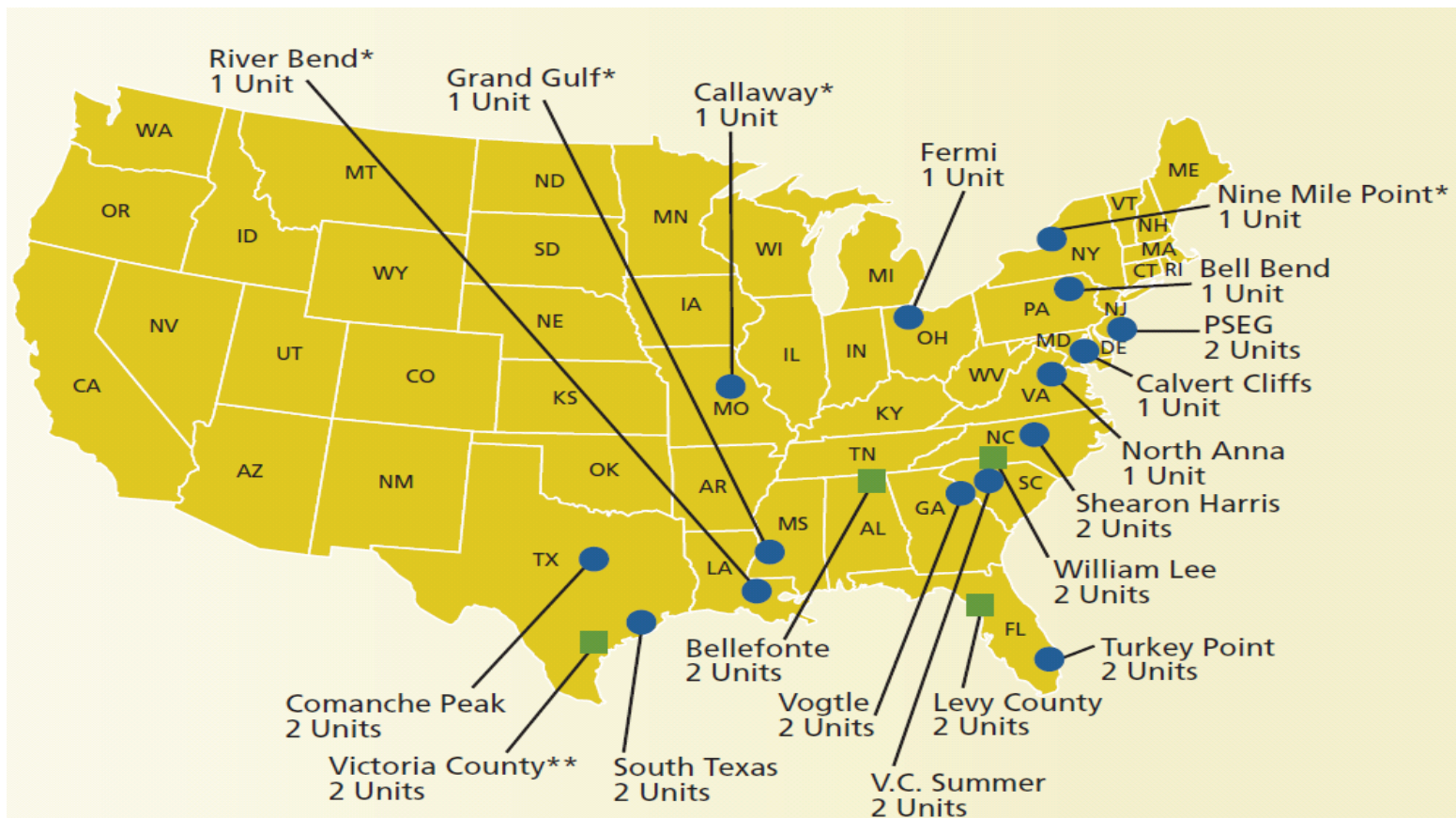
# We Regulate

- Nuclear reactors - commercial power reactors, research and test reactors, new reactor designs
- Nuclear materials - nuclear reactor fuel, radioactive materials for medical, industrial and academic use
- Nuclear waste – transportation, storage and disposal of nuclear material and waste, decommissioning of nuclear facilities

# Operating Power Reactors



# New Reactor Applicants



● A proposed new reactor at or near an existing nuclear plant

■ A proposed reactor at a site that has not previously produced nuclear power

\*Review suspended.

\*\*COL application amended by applicant to ESP on 03/25/2010.

Note: Data as of July 30, 2010.

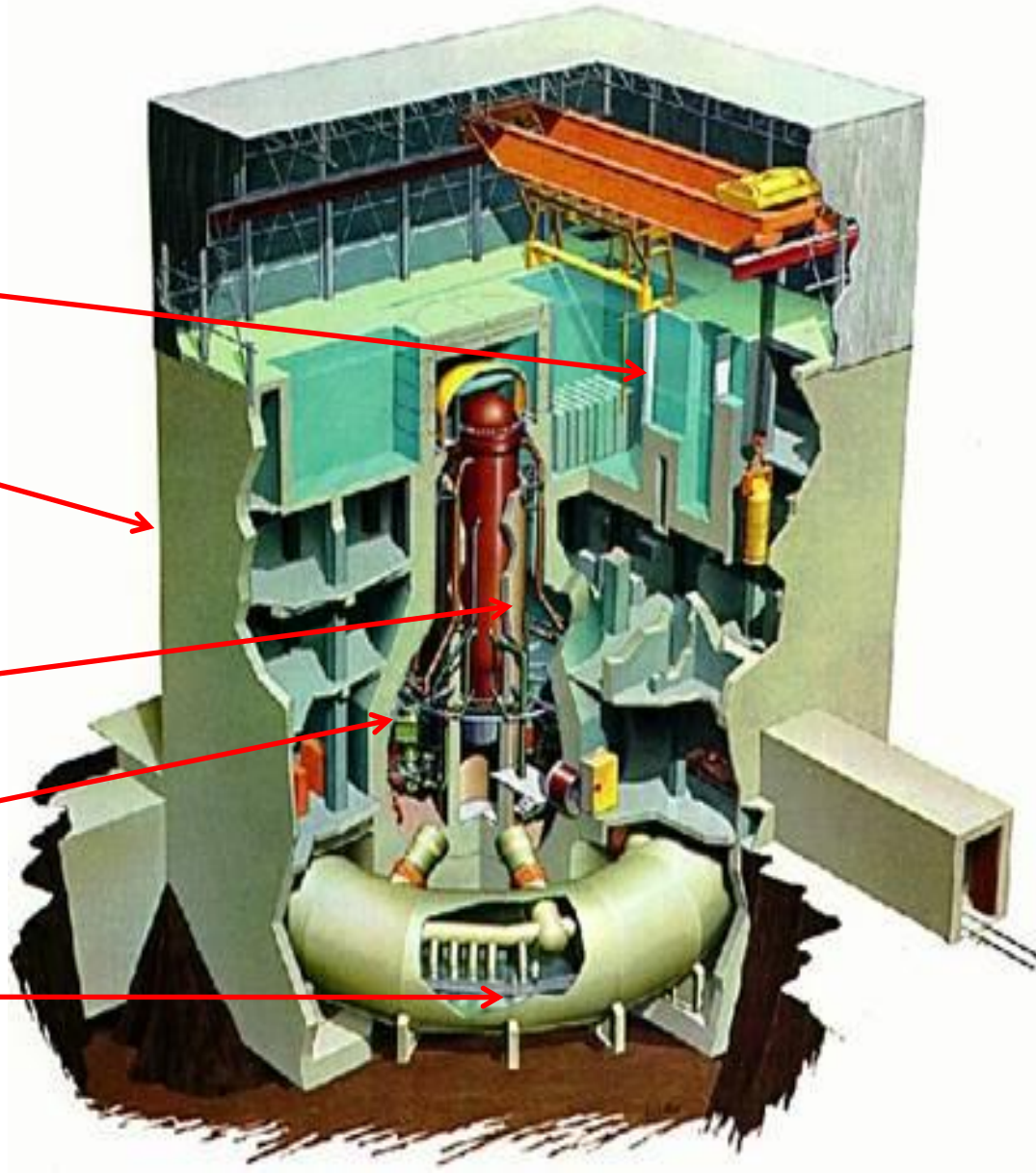


# NRC's Initial Response



# BWR Mark I

- ▶ Spent Fuel Pool
- ▶ Concrete Reactor Building (secondary Containment)
- ▶ Reactor Pressure Vessel
- ▶ Containment (Drywell)
- ▶ Containment (Wet Well)

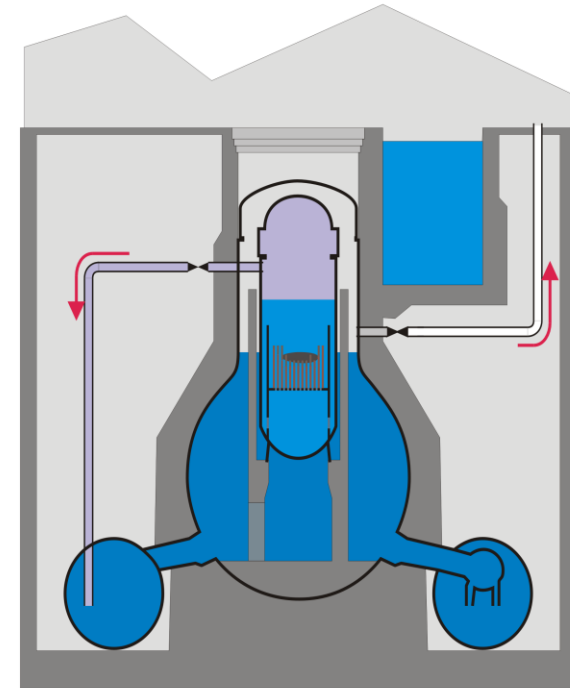


- **Current status of the Reactors**

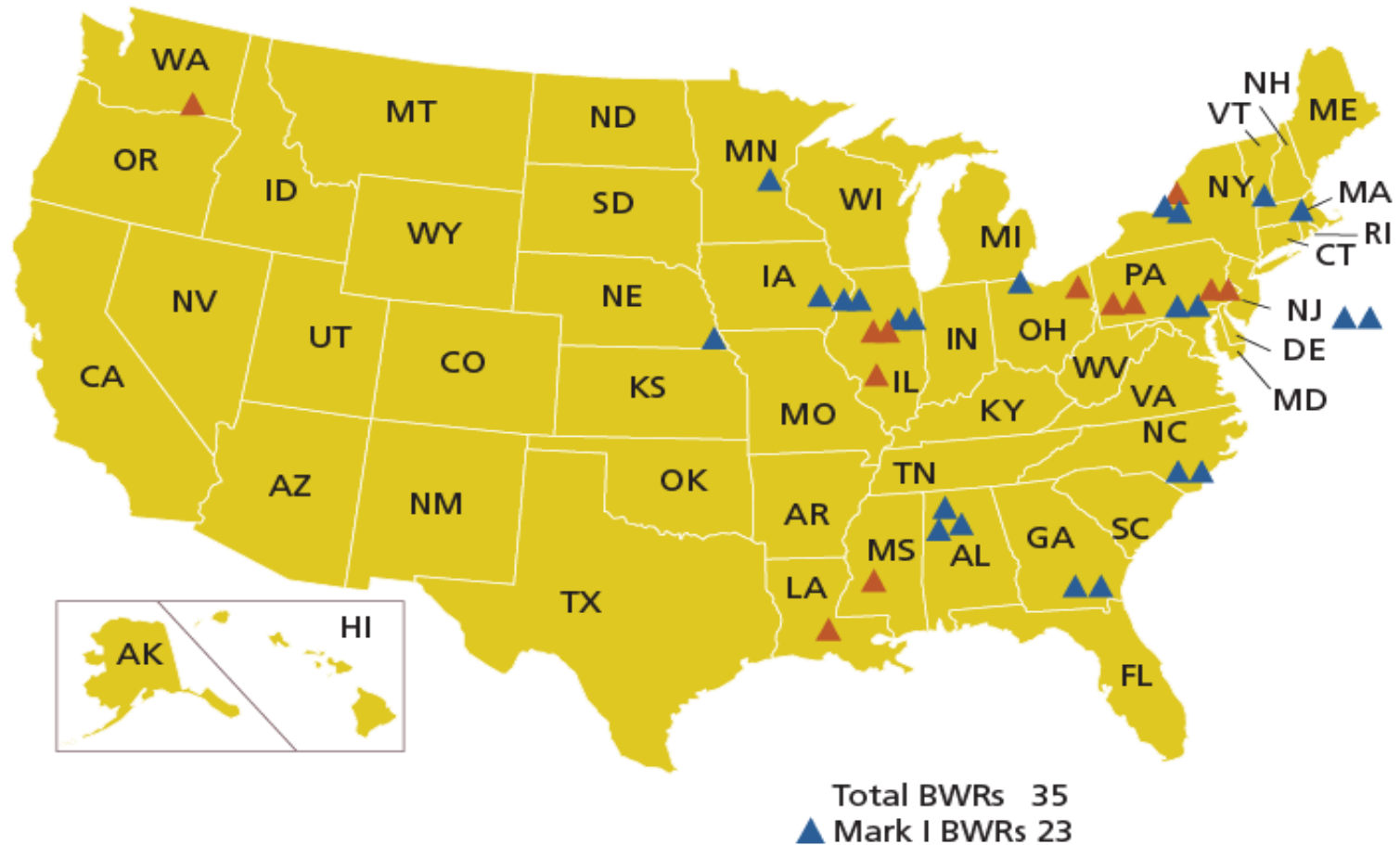
- **Significant Core Damage in Units 1,2, 3**
- **Electrical Power Restored**
- **Fresh Cooling Water supplied to All Units**

- **Spent Fuel Pool Status**

- **Pending Confirmation of Suspect Fuel Damage in Pools 3 & 4**
- **Providing periodic make up water**



# US BWR Reactors



Source: U.S. Nuclear Regulatory Commission



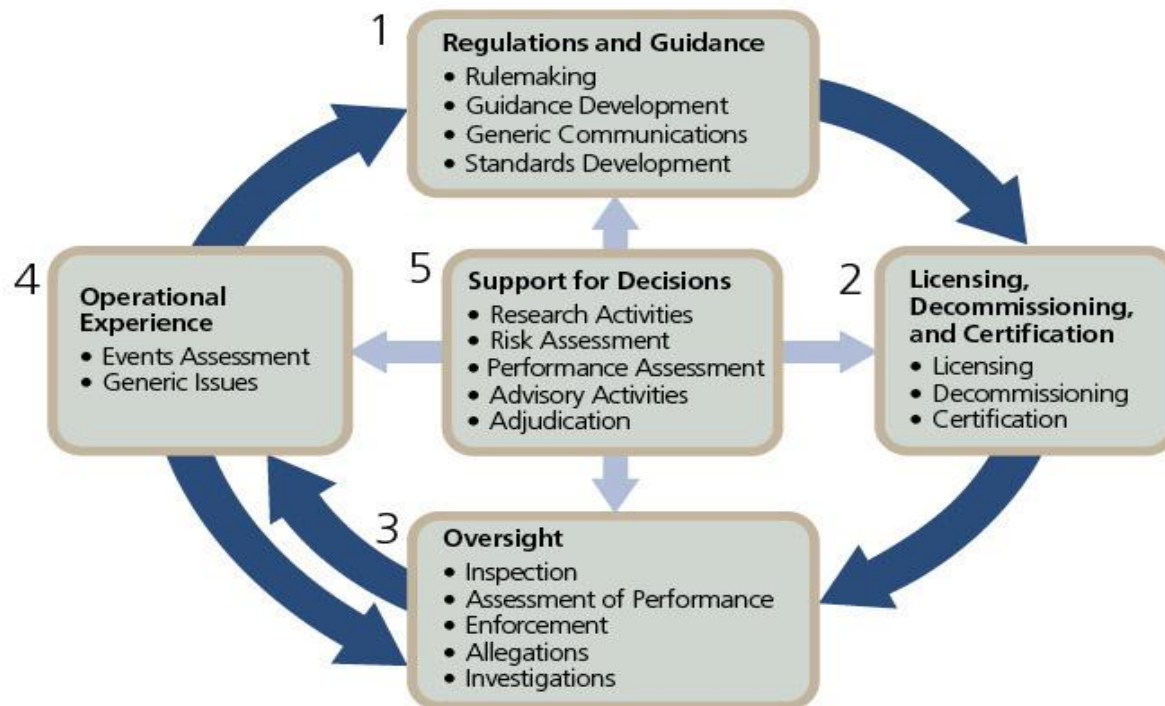
**U.S.NRC**

United States Nuclear Regulatory Commission

*Protecting People and the Environment*

# NRC Approach to Licensing and Oversight

## How We Regulate



Source: U.S. Nuclear Regulatory Commission



# Initial NRC Actions



### Temporary Instruction 183



### Temporary Instruction 184



**NRC Bulletin 2011-11: Mitigating Strategies**

## **Initial Findings/Insights**

- No significant safety issues identified that undermine our confidence in the continued safety and emergency planning of U.S. plants
- Some deficiencies noted in equipment and strategies to mitigate some design and beyond-design-basis event
- Task force recommend actions to enhance safety and preparedness

# Near-Term and Longer-Term Reviews

- Commission directed a methodical and systematic review of the safety of US facilities in light of events in Japan
- Task force issued report with 12 overarching recommendations.
- Steering Committee will guide implementation of Commission decisions and long term response.



# International Response

- Multinational level
- Regional level
- National level

## **Conclusion**

- Continuing confidence in safety of US fleet
- We are continuing with license renewal and new reactor licensing activities
- We will not hesitate to make changes to our regulatory and oversight activities, as appropriate.