



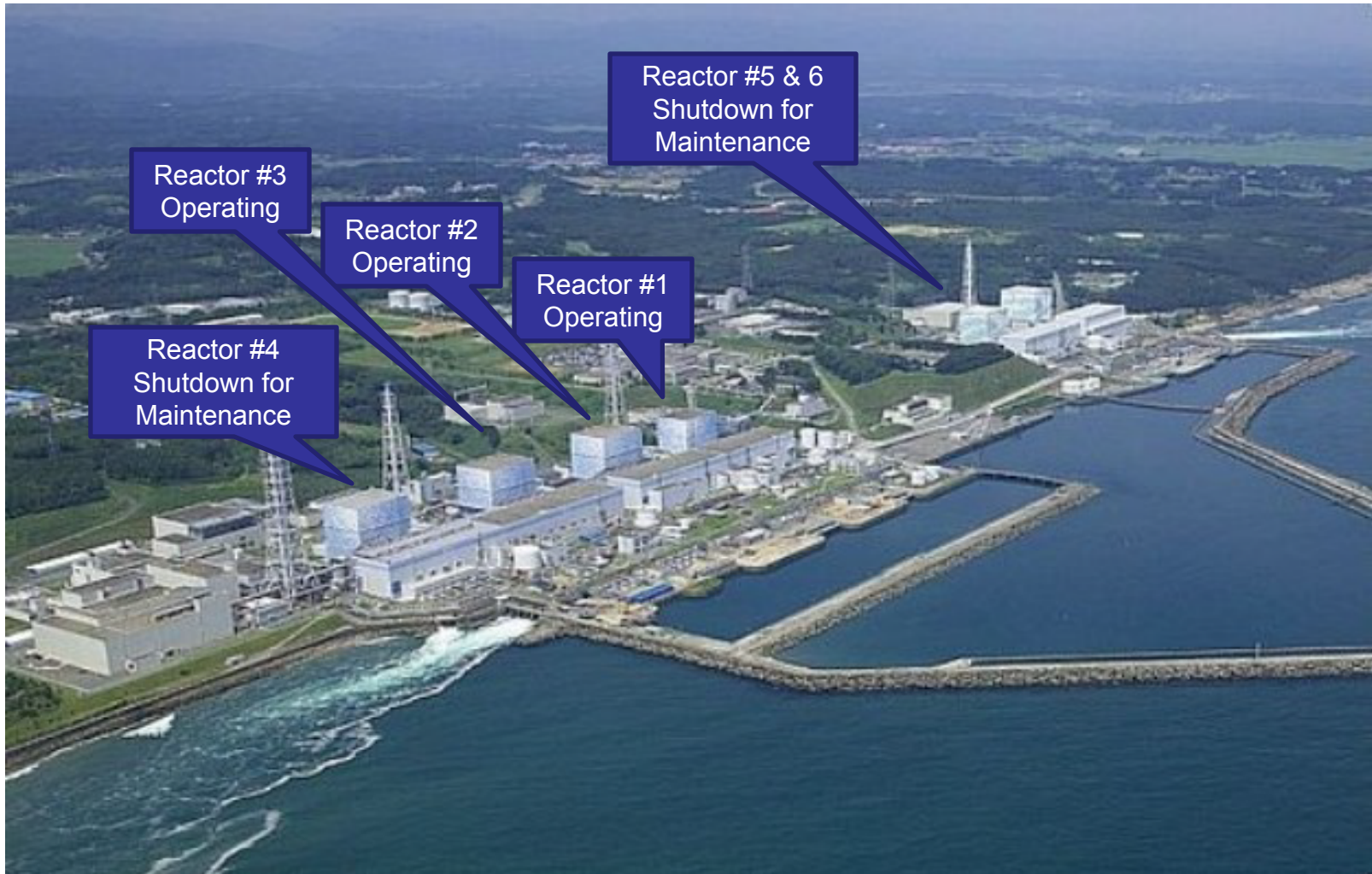
# **Presentation on Fukushima**

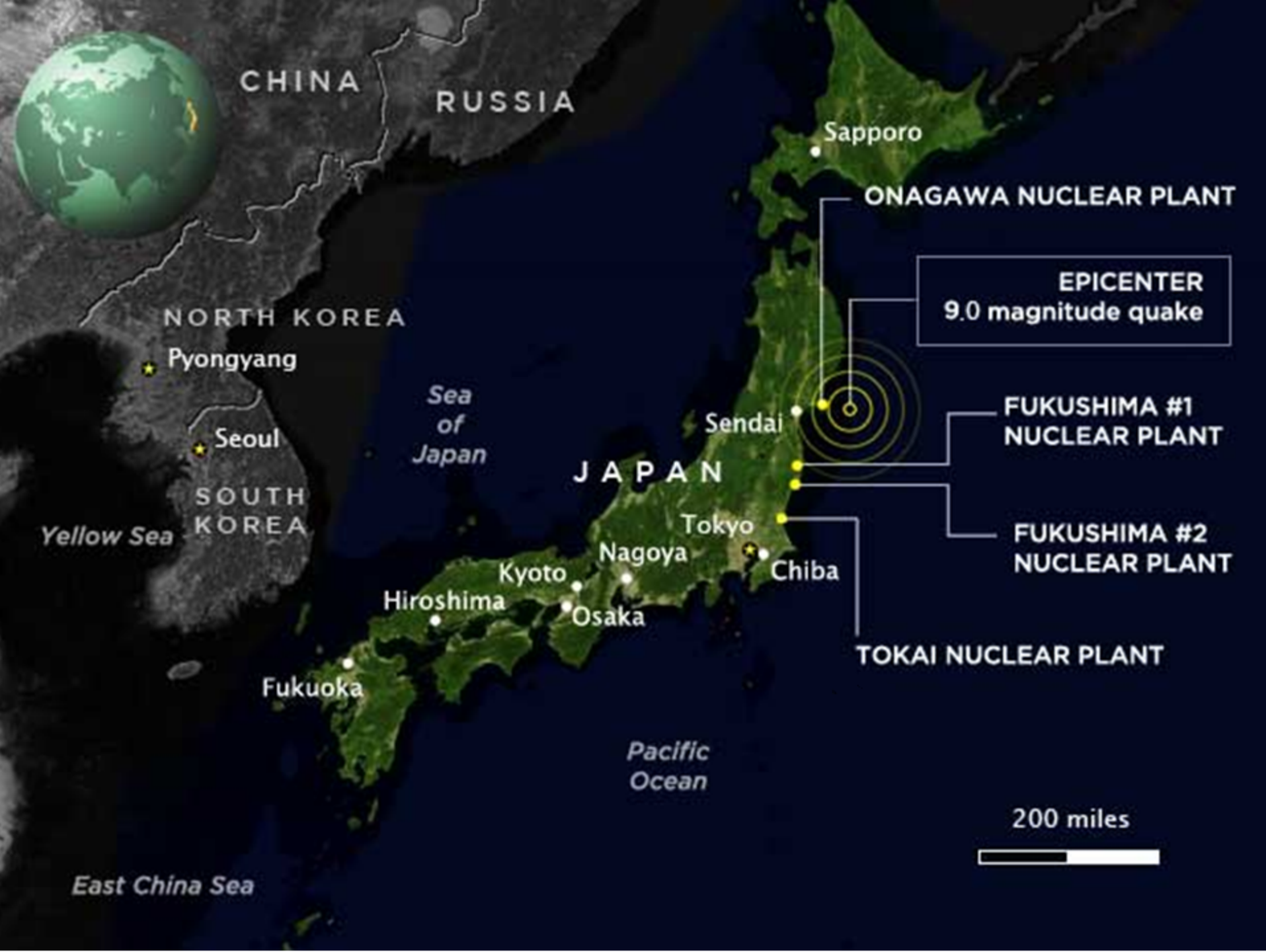
Eric Leeds, Director  
Office of Nuclear Reactor Regulation  
April 2011

## **NRC Mission – What Do We Do?**

- The mission of the NRC is to license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials in order to **protect public health and safety, promote the common defense and security, and protect the environment.**

# Overview of Fukushima Daiichi Nuclear Power Station





# Earthquake & tsunami sequence of events

Friday March 11<sup>th</sup> @ 2:36 pm local

- Magnitude 9.0 earthquake 231 miles northeast of Tokyo.
- Quake is fifth largest in the world (since 1900).
- Earthquake generated a 14m Tsunami

# Plant Response

## Earthquake

- Earthquake Caused Automatic Shutdown of 3 Operating Units
- Offsite Power Lost
- Initial indications were that Emergency Diesels operated

## 14m Tsunami (less than 1 hour later)

- All Emergency Back-up Power Lost
- 8-10 hours later Station Batteries Depleted



United States Nuclear Regulatory Commission

*Protecting People and the Environment*

- **Current status of the Reactors**
  - Core Damage in Unit 1,2, 3
  - Electrical Power Restored
  - Fresh Cooling Water supplied to  
All Units
  
- **Spent Fuel Pool Status**
  - Suspect Fuel Damage in  
Pools 3 & 4
  - Providing periodic make up water

## **NRC Response**

- Ops Center 24/7
- Team of experts to Tokyo
- Support to U.S. Ambassador and Japanese
- Coordinating Environmental Monitoring with DOE & EPA



# Domestic Considerations

- Harmful Levels of Radiation Not Expected in the U.S.
- U.S. Plants Designed for External Events
- U.S. Industry Initiated Review
- NRC has initiated additional inspections at all U.S. Plants
- NRC conducting Near-Term and Long-Term Reviews.

# NRC Near Term Actions

- Evaluate Fukushima Daiichi Events
- Domestic Operating Reactors and Spent Fuel Pools
  - External Events
  - Station Blackout
  - Severe Accident Mitigation
  - Emergency Preparedness
  - Combustible Gas Control
- Near Term Review due in 90 days (mid July)

# NRC Longer Term Actions

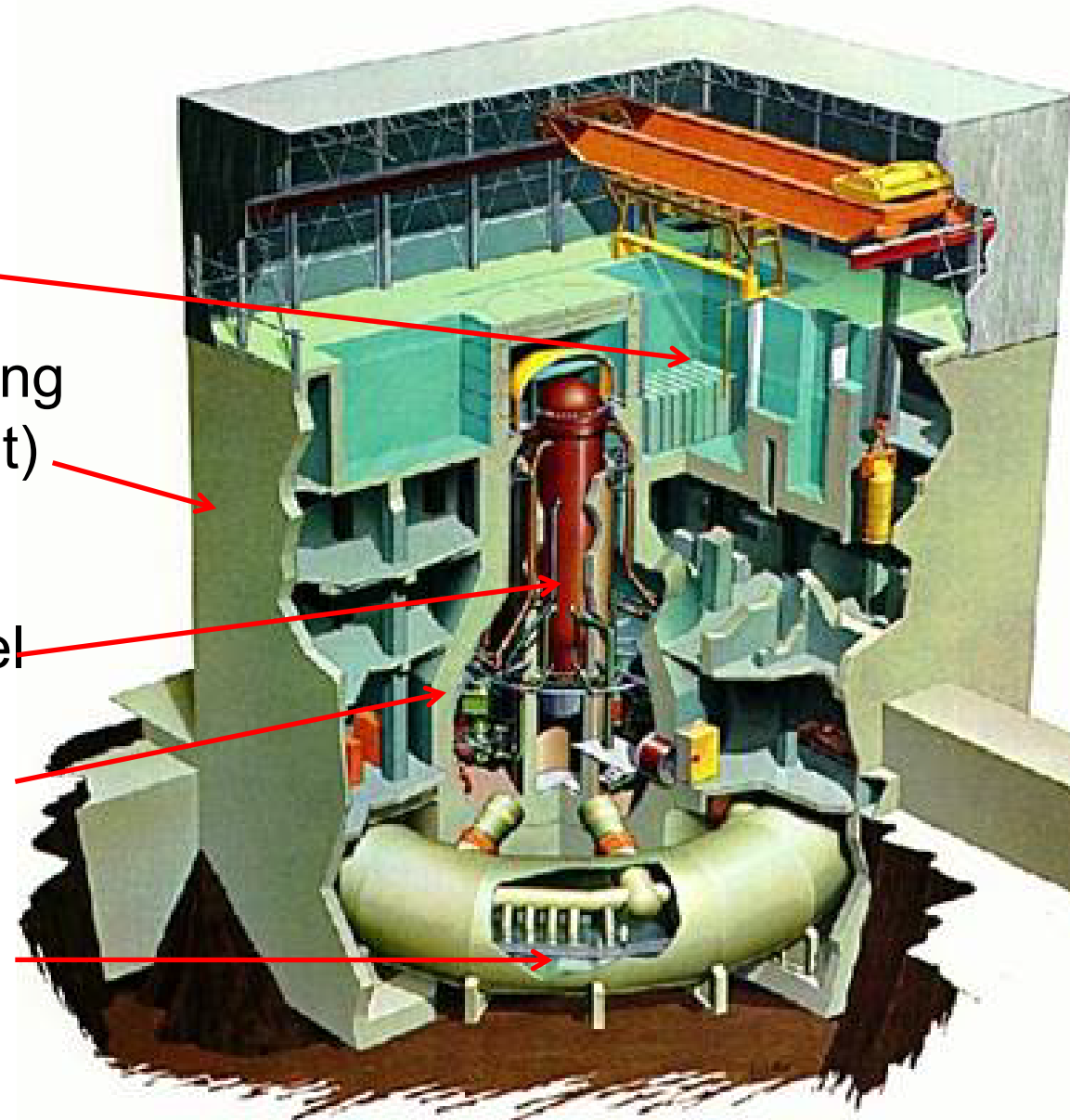
- Based on Near Term Review and Additional Insights from Fukushima Event
- Identify Potential Technical and Policy Issues
  - Research Activities
  - Generic Issues
  - Reactor Oversight Process
  - Regulatory Framework
  - Interagency Emergency Preparedness

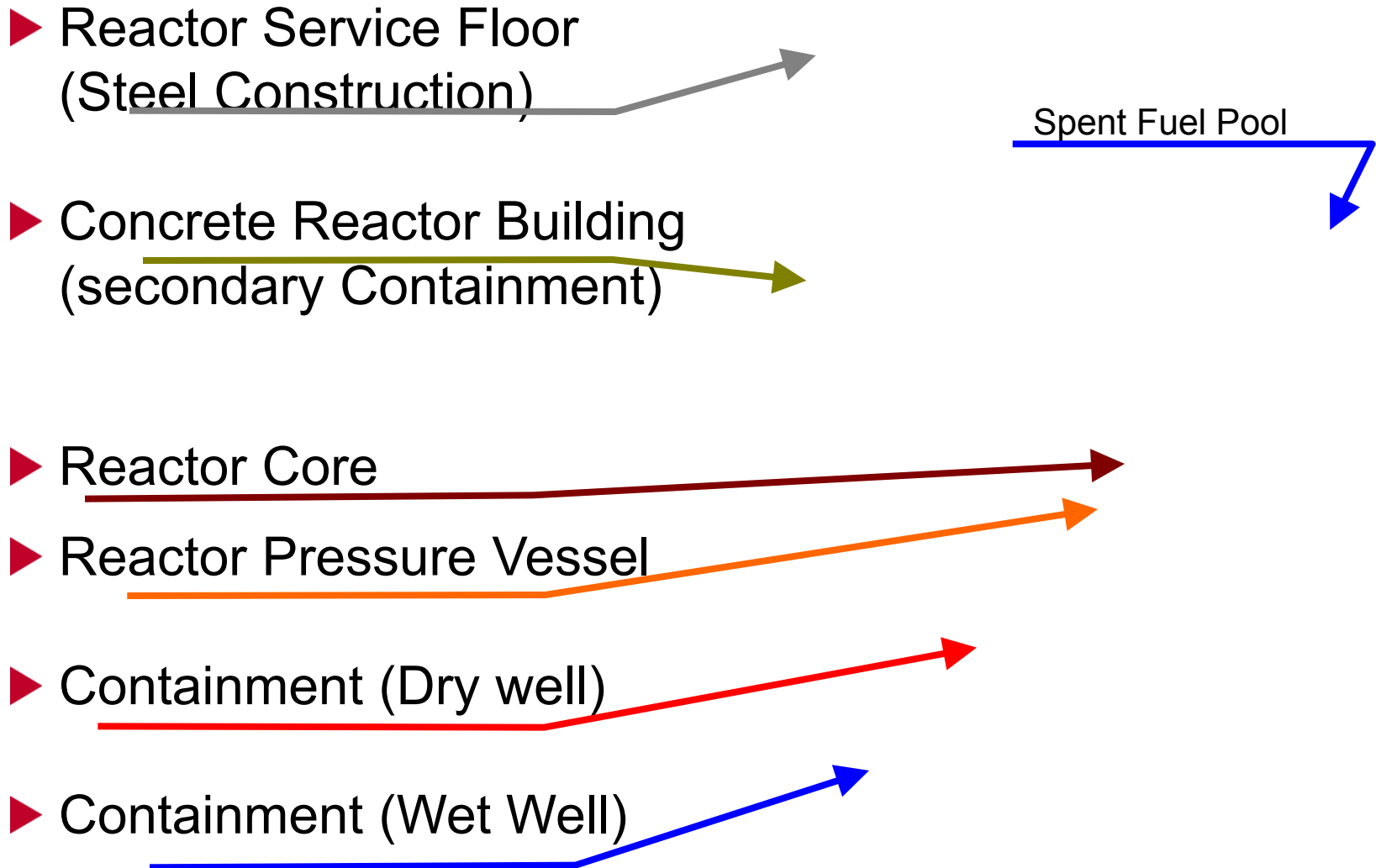
# Protective Action Recommendations

- NRC Regulations have 2 Emergency Planning Zones (EPZs) 10/50 miles
- EPZs are not limits, but frameworks that allow for expansion as needed
- 50 miles in Japan due to extraordinary situation
  - 4 units severely challenged
  - Unclear information as to state of reactors, mitigative strategies, radiological releases
  - Decision to evacuate conservative, better to err on conservative
- Precautionary evacuation occurred days before fuel melt.

# BWR Mark I

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





# Generic BWR

