

# Historical Overview of Fukushima Forensics Work

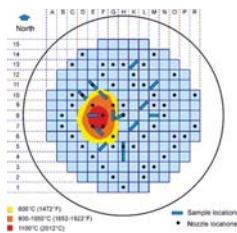
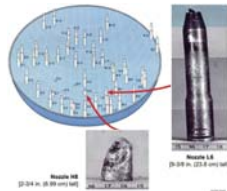
**Dr. John E. Kelly**

Vice-President/President Elect  
American Nuclear Society

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Forensics of the Fukushima  
Dai-ichi Accident  
RIC 2018

## US Response Relied on Knowledge from Severe Accident Research



### ■ Knowledge embedded in Systems Analysis Codes (MAAP, MELCOR) gained from:

- TMI-2 examinations
- Prototypic testing
- Subsequent applications (NUREG-1150, IPEs, SOARCA, etc.)

### ■ Coordinated US effort relied on long history of prior inter-agency and government-industry cooperation (US DOE, US NRC, EPRI, INPO, BWROG, PWROG, NEI, etc.)

- **Initial Analysis Effort** – Joint US NRC (assisted by DOE laboratory staff) and EPRI Effort
- **Longer-term Forensics Effort** - US DOE led efforts (included US NRC, EPRI, INPO, Owner Groups, Vendors, Plant Owners/Operators, etc.)

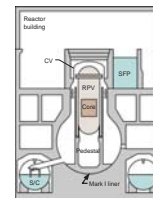
Graphics courtesy of INL

## Forensics Examination Information - Not an Academic Exercise

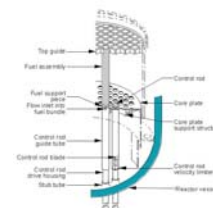


### ■ Full-scale prototypic data to reduce model uncertainties related to:

- SRV performance
- PCV leakage
- RPV failure
- BWR in-vessel melt progression
- Ex-vessel relocation
- Large-scale core-concrete interaction

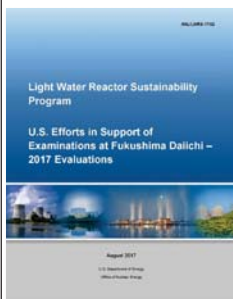


### ■ Information desired to inform industry severe accident management guidance, operator training, emergency planning



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## Long-Term Approach Used to Generate Forensic Effort Support



### ■ Domestic - DOE-sponsored US Forensics Effort

- Consensus US information need requests
- Input from industry (BWROG, PWROG, NEI, INPO, EPRI, TVA, Southern, Westinghouse, GE, AREVA, etc.), academia (Texas A&M, Wisconsin, etc.) and national laboratories (ANL, INL, SNL)
- Efforts informed by representatives from TEPCO, JAEA, US DOE, US NRC

### ■ Bilateral –Focused US/Japan Interactions under CNWG

- “Practical” Examination Plan Collaboration and Information Exchange
- TMI-2 Knowledge Transfer Workshop

### ■ International – Japan-led OECD Efforts

- BSAF, SAREF, PreADES, TCOFF, ARC-F



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## Summary



- Recovery and learning from a severe accident at a nuclear power plant is facilitated by domestic and international collaboration.
- After TMI-2, the collaboration between domestic (owner, vendor, EPRI, regulator, and DOE) and international organizations led to successful defueling and implementation of lessons learned to enhance global nuclear safety.
- The US has engaged in several activities to ensure that similar benefits from Daiichi examinations will provide
  - Japan access to US expertise in plant operations, reactor safety, and cleanup.
  - US access to information to reduce uncertainties in severe accident phenomena and to ensure the adequacy of revisions in severe accident guidance.

# Thank You

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