



Fukushima Dai-ichi Dominion Experience Overview

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Dominion Nuclear

Mitigation Strategies - FLEX

- Order EA-12-049 Mitigation Strategies
 - Guidance developed by Industry / endorsed by NRC
 - Strategies submitted – February 2013
 - Initial portable equipment available on-site
 - High capacity pump (Diesel driven)
 - Portable Diesel Generator sets
 - Communications gear—satellite phones, radios
 - Interim storage established
 - Plant modifications and equipment specifications in-progress

Spent Fuel Pool Level

- Order EA-12-051 Spent Fuel Pool Level
 - Guidance developed by Industry / endorsed by NRC
 - Integrated Plan submitted – February 2013
 - Technology and vendor chosen
 - Equipment specifications developed
 - Purchase order in-progress
 - Design changes in-progress
 - Implementation begins 1st quarter 2014

Seismic / Flooding Walkdowns and Hazard Re-evaluation

- NTTF 2.1 Hazard Re-evaluations
 - Seismic – Guidance developed by Industry / endorsed by NRC, starting analytical work
 - Flooding – in progress: North Anna complete, other stations scheduled
- NTTF 2.3 Walkdowns
 - Seismic – \$2M, current licensing basis confirmed
 - Flooding – \$2M, current licensing basis confirmed, identified some improvements

Lessons and Challenges

■ Lessons Learned

- Fast track analyses and plant modifications
- Projected Cost (\$30-40M / Unit)
- 65% FLEX / Spent Fuel Pool Instrumentation
35% Hazard Re-evaluations
- Limited Fleet-wide solutions due to differing site characteristics

■ Remaining Challenges

- FLEX Equipment Storage Building
- Seismic Re-evaluation scope vs. schedule
- Flooding: storm surge modeling underway

Dominion Statistics

■ Connections

- 9-10 mechanical connections per site at \$900K / connection
- 8 electrical connections per site at \$700K / connection

■ Spent Fuel Pool Instrumentation

- \$ 1.5M per channel (\$3.0M per pool)

■ Storage

- One protected 10,000 square foot building; \$ 10M per site

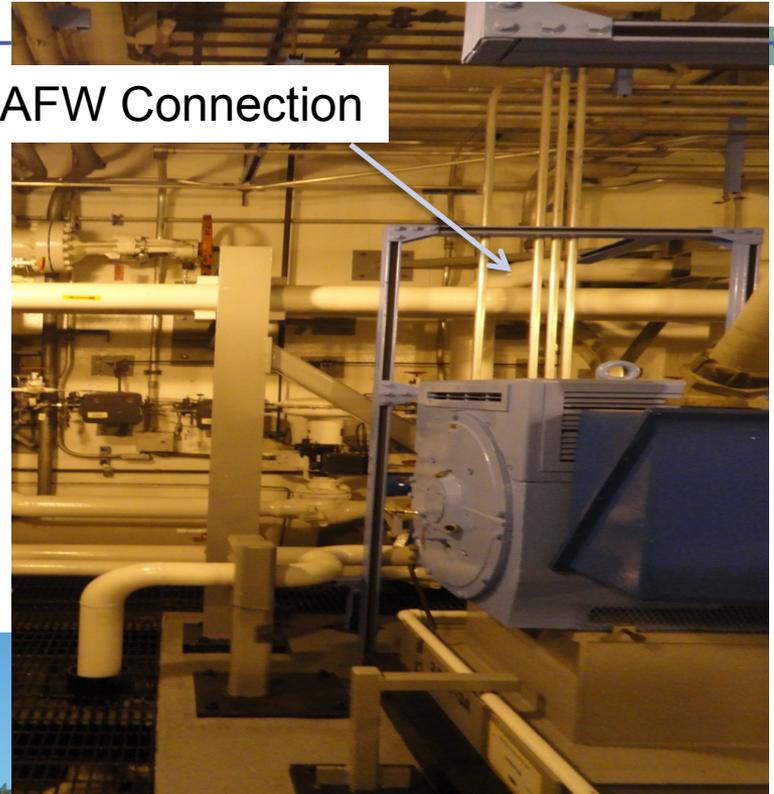
■ Seismic

- Walkdowns - \$0.5 M per site
- Re-evaluations - North Anna and Surry - \$5M each, Millstone - \$10M

Equipment, Modifications & Storage



AFW Connection

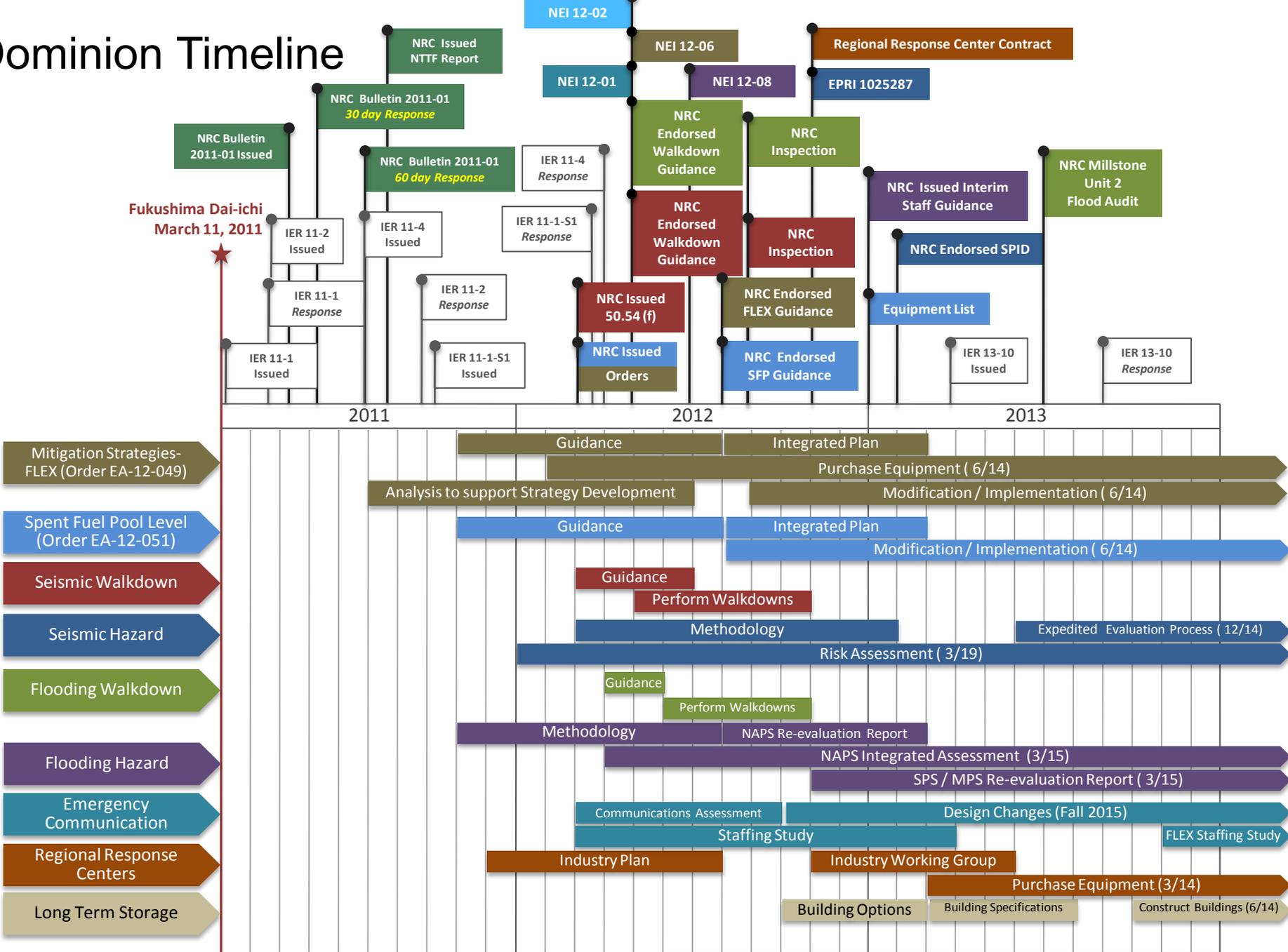


North Anna Modifications – In Progress



Dominion Timeline

Fukushima Dai-ichi
March 11, 2011



Acronyms

- EA – Enforcement Action
- EPRI – Electric Power Research Institute
- IER – INPO Event Report
- INPO – Institute of Nuclear Power Operations
- MPS – Millstone Power Station
- NAPS – North Anna Power Station
- NEI – Nuclear Energy Institute
- NTTF – Near Term Task Force
- SFP – Spent Fuel Pool
- SPID – Screening, Prioritization and Implementation Details
- SPS – Surry Power Station

Document List

- **Nuclear Regulatory Commission (NRC)**
 - **Bulletin 2011-01:** Mitigating Strategies, May 11, 2011
 - **Order EA-12-049:** Issuance of Order to Modify Licenses with Regard to requirements for Mitigation Strategies for Beyond-Design-Basis External Events
 - **Order EA-12-051:** Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation
 - **50.54 (f) Letter:** Request for Information Pursuant to title 10 of the code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

Document List (cont'd)

■ Nuclear Energy Institute (NEI)

- **12-01**: Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities
- **12-02**: Industry Guidance for Compliance with NRC Order EA-12-051, Revision 01
- **12-06**: Diverse and Flexible Coping Strategies (FLEX) Implementation Guide
- **12-08**: Overview of External Flooding Re-evaluations

■ Electric Power Research Institute (EPRI)

- **1025287**: Seismic Evaluation Guidance – Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1

Document List (cont'd)

- Institute of Nuclear Power Operations (INPO)
 - **11-1**: Fukushima Dai-ichi Nuclear Station Fuel Damage Caused by Earthquake and Tsunami
 - **11-1-S1**: Fukushima Dai-ichi Nuclear Station Fuel Damage Caused by Earthquake and Tsunami – Supplement 1
 - **11-2**: Fukushima Dai-ichi Nuclear Station Spent Fuel Pool Loss of Cooling and Makeup
 - **11-4**: Near-Term Actions to Address the Effects of an Extended Loss of All AC Power in Response to the Fukushima Dai-ichi Event
 - **13-10**: Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities