Southern Nuclear
Vogtle 3 & 4 Project
Piping DAC Closure
September 21, 2011

AP1000 DCWG
Plan for Piping &Pipe Rupture Hazards Design Acceptance Criteria (DAC)

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AP1000 DCWG

Agenda

- Summary from May 24, 2011 Meeting

- Piping Technical Issues

- Phased Approach to Piping Design Submittals

- Pipe Rupture Hazards Analysis

- WESTEMS Topical Report Strategy

- Future Interactions

Summary from May 24, 2011 Meeting

- ## Piping Design & Pipe Rupture Hazards Analysis ITAAC
  - Methodology / criteria in DCD
  - Scope
  - Closure plan

- ## Fatigue Analysis Methodology (WESTEMS)
  - NRC open issues
  - Benchmark plan

- ## ITAAC Maintenance
  - Specific to a change in methodology and not implementation of the methodology

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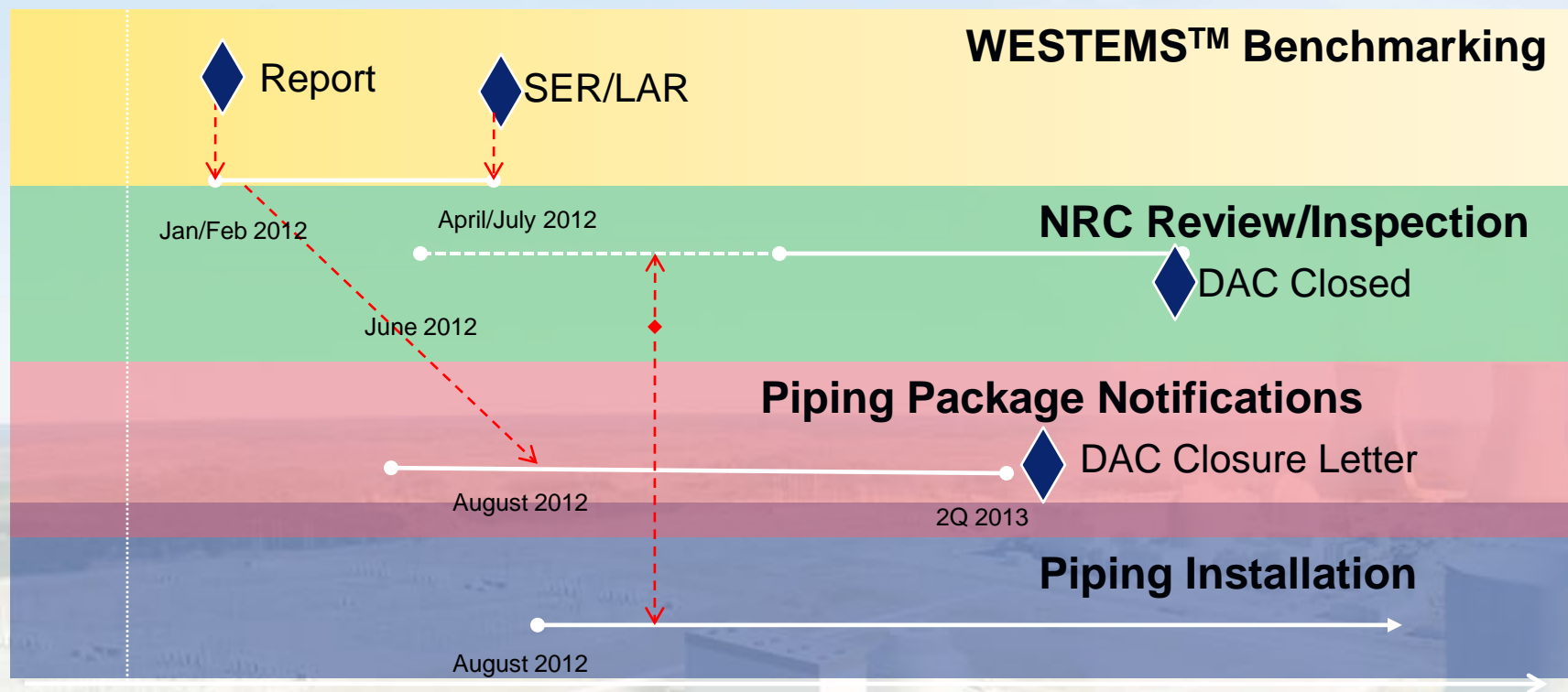Vogtle units 3&4 Nuclear Development

Technical Discussion

- Hot Gap
  - Implementing AP1000 position as defined in the DCD 3.9.3.4

- Hydrodynamic Loading
  - Where applicable, are included in the piping design

- Piping Support Design
  - All loading conditions are considered for piping supports

- Fatigue Analysis Methodology(WESTEMS)
  - Resolution path defined, further discussion to follow

Phased Approach to Piping Design Submittals

- Implemented to meet license condition in draft COL
  - "Before commencing installation of individual piping segments, identified in AP1000 DCD, Rev. 19, Section 3.9.8.7, and connected components in their final locations in the facility, SNC shall complete the analysis of the as-designed individual piping segments…"

- Piping stress packages to be completed in support of license condition schedule constraints
  - ASME design reports prepared following completion of stress packages within scope of DAC
  - Piping design is complete (as-designed condition)
  - Design completion schedule supports construction schedule

Phased Approach
to Piping Design Submittals

WESTEMS™ Benchmarking

◆ Report

◆ SER/LAR

Jan/Feb 2012

April/July 2012

NRC Review/Inspection

◆ DAC Closed

June 2012

Piping Package Notifications

◆ DAC Closure Letter

August 2012

2Q 2013

Piping Installation

August 2012

COL Issuance

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Phased Approach
to Piping Design Submittals

- WESTEMS benchmark complete / topical report submitted for NRC inspection – **JAN/FEB 2012**

- First non-Class 1 piping package completed and made available for NRC inspection – **APR/JULY 2012** (supporting construction schedule)

- License Amendment Request to add WESTEMS for use in Class 1 fatigue analysis submitted to NRC – **AUGUST 2012**

- First Class 1 Piping package completed and made available for NRC inspection – **AUGUST 2012** (supporting construction schedule)

- All packages completed, design reports prepared and made available for NRC ispection – **2Q 2013**

- As-built reconciliation – **ITAAC** (system basis)

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As-designed Pipe Rupture Hazards Analysis (PRHA)

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- End product is as-designed PRHA report

- License condition in draft COL

  - "Before commencing installation of individual piping segments and connected components in their final locations, SNC shall complete the as-designed pipe rupture hazards analysis for compartments (rooms) containing those segments in accordance with the criteria outlined in the AP1000 DCD, Rev. 19, Sections 3.6.1.3.2 and 3.6.2.5…"

- Pipe rupture hazards analysis is part of piping design

  - PRHA is based on as-designed piping layouts, routings and isometrics

  - PRHA is based on piping stress and fatigue analysis

  - ASME design reports include input from PRHA (LBB compliance, BEZ compliance, HE lines evaluated for dynamic effects)

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As-designed Pipe Rupture Hazards Analysis (PRHA)

- As-designed calculations completed to meet DAC and associated license condition

  – As Piping Analyses are completed, any additional break locations required by stress/fatigue results will be incorporated into PRHA using same methodology

- As-built reconciliation per ASME Code requirement

Pipe Rupture Hazards Analysis (PRHA) Schedule Milestone

- As-designed PRHA calculations to support license condition prepared and available for NRC inspection - **JULY 2012**

- All piping stress packages completed, design reports prepared and made available for NRC inspection – **2Q 2013**

- Updated PRHA report reflecting final piping analyses will be available – **2Q 2013**

- As-built reconciliation - **ITAAC**

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Future Interactions

Questions