EPRI | ELECTRIC POWER RESEARCH INSTITUTE

New Plant Seismic Issues Resolution Program

Presentation to USNRC

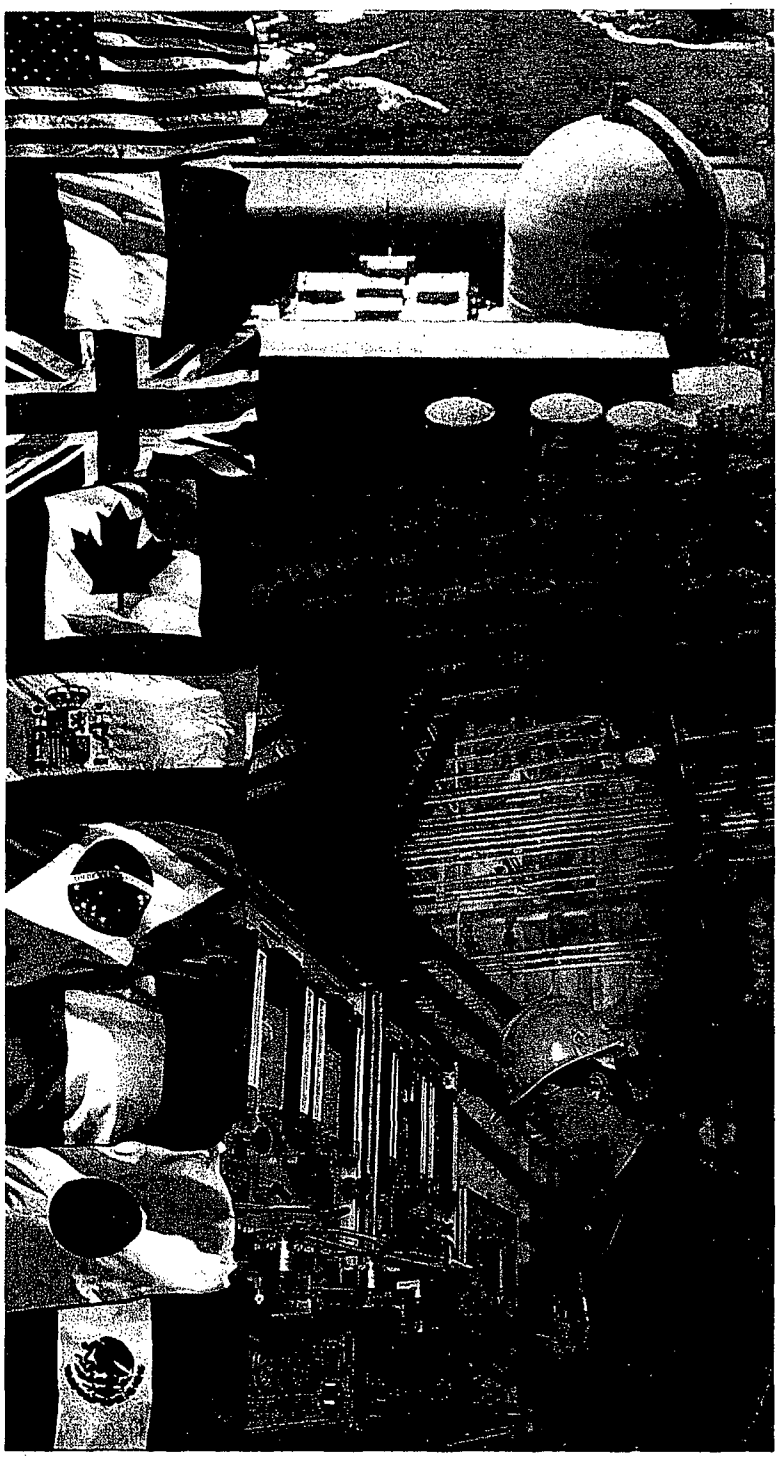
By EPRI/NEI

May 11 and 12, 2006

B2N

Topics to be Discussed

- Status of action items and deliverables
- Industry plan for integration of task results and proposed revisions to regulatory guidance
- Industry reports on Tasks:
  - S2.1(a), Effect of Seismic Wave Incoherence on foundation and Building Response
  - S2.1(b), Spatial Coherency Models for Soil-Structure Interaction
  - S2.2, Effect of Negligible Inelastic Behavior on HF Response
- New NRC RAIs – Impact/approach for responding



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Status of Action Items/RAIs

Action Items / RAIs from October, 05 Mtg.

- Modify ASCE method to base on SCDF vs. FOSID; propose target SCDF

  Complete. Recommendation of SCDF (5E-6) made 3/24
- Select/apply minimum SSE level and shape

  Done. RG 1.60 spectra at 0.1g PGA selected
- Compute SCDF values for 28 sites for 1,2.5,5,&10 hz.

  Complete. Results submitted to NRC
- Re-calculate G1.1 results for SCDF and FOSID criteria incorporating G1.2 and G1.3 results

  Results incl. G1.3 done, submitted to NRC. Results for G1.2 (w/ and w/o CAV-filtering) due end of June

Action Items / RAIs from October, 05 Mtg

- Obtain peer review of Task G1.2

  Complete.
- Obtain peer review of Task S2.1(b) (coherency model by Nour)

  Complete.
- Verify wave incoherency effect on response of a structure with recorded data

  In progress. Req'd seismic recording data difficult to obtain. Discussion of recorded data correlation status and Kim/Stewart paper Friday.
- Present a tutorial to NRC/SITAG on performance-based, risk-informed methodology

  Completed February 28, 06

Action Items / RAIs from October 05 Mtg.

- Obtain equipment vendors review of Task S2.2 report

  In progress. Comments received from 2 of 3 vendors. Comments from one resolved; working with second.

- Develop and provide to NRC a revised schedule of deliverables

  Done. Schedule for Phase II task and integration reports provided at March 24th meeting

Action Items from March, 06 Meeting

- NEI to send letter to NRC confirming recommended SCDF target and bases

  Done. Letter sent w/o March 27th.
- NRC to respond to NEI letter as soon as possible

  Awaiting NRC response
- EPRI/NEI to submit results of GM hazard/spectra calcs incorporating results of Task G1.3 to NRC

  Done. Results transmitted w/o May 1st .
- EPRI/NEI to provide date for submittal of integration report covering G-tasks

  Done. NRC advised at March meeting of end of June submittal date

Action Items from March, 06 Meeting

- NRC to provide RAIs on Tasks G1.2 and G1.3 and any available RAIs on S2.1 within 3 to 4 weeks after March meeting

  RAIs received on G1.2 and S2.1; RAIs on G1.3 expected shortly

- EPRI/NEI to advise NRC of schedule for submittal of Task reports incorporating peer review comments

  Complete. Final reports incorporating results of peer reviews due end of June, 06. Mark-up drafts of reports will be transmitted to NRC shortly.

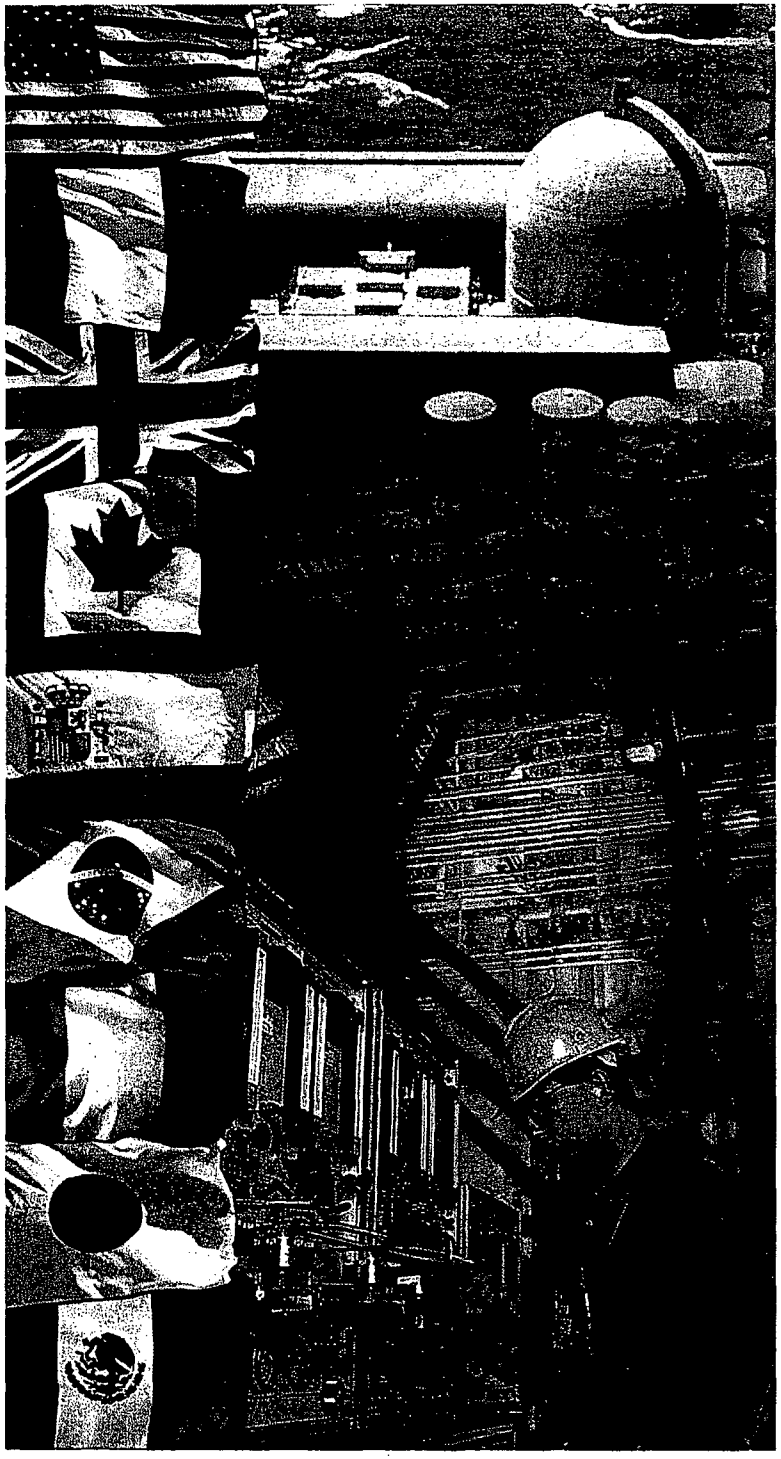
Action Items from March, 06 Meeting

- EPRI/NEI will re-assess plans to respond to October RAI #9 (vendor review).

  Response in progress. See item above under Oct. RAIs.

- EPRI/NEI to prioritize remaining efforts on those tasks which impact proposed revisions of Reg. Guide 1.165.

  Done.



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Integration Report Outline

Preliminary Outline – Technical Bases for Updating Seismic Regulatory Guidance for Determination of SSE Ground Motion

1. Introduction
   - 1.1 Purpose
   - 1.2 Background
   - 1.3 Scope
2. Updating PSHA Computational Model
3. Procedures for Determination of Performance-Based, Risk-Informed SSE Ground Motion
4. Procedures for Site Response Analysis

Preliminary Outline – Technical Bases for Updating Seismic Regulatory Guidance for Determination of SSE Ground Motion

1. Introduction

1.1 Purpose

[Will provide integrated results of New Plant Seismic Issues Resolution (NPSIR) Program; describe integrated bases for updating of NRC seismic regulatory guidance for determination of SSE ground motion, RG 1.165 and affected sections of the SRP to implement performance-based, risk-informed (PBRI) procedures; obtain NRC acceptance of updated procedures.]

Preliminary Outline (con'd)

1.2 Background

– [Will discuss need for updated seismic regulatory guidance, lack of stability of reference hazard probability as basis for determining SSE Ground Motion; evolution of performance-based procedures; implementation of the Commission's risk-informed regulation policy statement; advances in ground motion modeling, PSHA modeling; development of hazard-consistent site response analysis procedures…]

Preliminary Outline (Con'd)

1.3 Scope

[Will describe procedures for determining site-specific PBRI SSE ground motion to be used for determination of performance-based, risk-informed Seismic Design Spectra.]

2. Updating PSHA Computational Model

[This section will describe the results of Task G1.2 supporting the adoption of the CAV filtered lower-bound magnitude for hazard integration together with guidance for its implementation in the seismic hazard computational model. The section will also describe implementation of the results of Task G1.3 for updating the ground motion model element of the PSHA computational model for the CEUS. Modification of the EPRI 04 ground motion model is expected to be performed later.]

Preliminary Outline (Con'd)

3. Procedures for Determination of Performance-Based, Risk-Informed SSE Ground Motion

[This section will describe the results of Task G1.1 and present the bases for establishing the agreed on probability target (i.e., based either on the SCDF or FOSID approach) for determination of performance-based, risk-informed (PBRI) SSE ground motion. The section also will describe procedural guidance for determination of PBRI SSE ground motion, given rock-level PSHA results for a site.]

Preliminary Outline (Con'd)

4. Procedures for Site Response Analysis

[This section will provide guidance for development of hazard-consistent site response transfer functions for obtaining ground motion at the free-field surface that are hazard-consistent with the rock-level UHS. The section will describe the de-aggregated hazard information and give procedural guidance for development of a hazard-consistent transfer function. The technical basis for this section will be drawn largely from NUREG/CR-6728.]

070-055-7876

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