ELECTRIC POWER RESEARCH INSTITUTE

New Plant Seismic Issues Resolution Program

Presentation to USNRC
By NEI/EPRI
August 29, 2006

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Purpose of Meeting

- Discuss NRC comments on G-task reports and responses to NRC RAIs
- Resolve any remaining open issues
- Discuss plans and schedule for completion of:
  - Task I1.1, Integration report
  - Task S2.1, Effect of incoherency
- Discuss Industry needs for acceptance of Task S2.1 results

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Topics to be Discussed

- Activities since NRC meetings on May 11 and 12, 2006
- EPRI Phase II reports and responses to NRC RAIs on:
  - Task G1.1a, Sensitivity of performance goal-based methodology; 28 sites
  - Task G1.2, Use of CAV-filtering in PHSA
  - Task G1.3, Updated variability on median ground motion, sigma for CEUS ground motion model (EPRI 04)
- Plans and schedule for remaining activities

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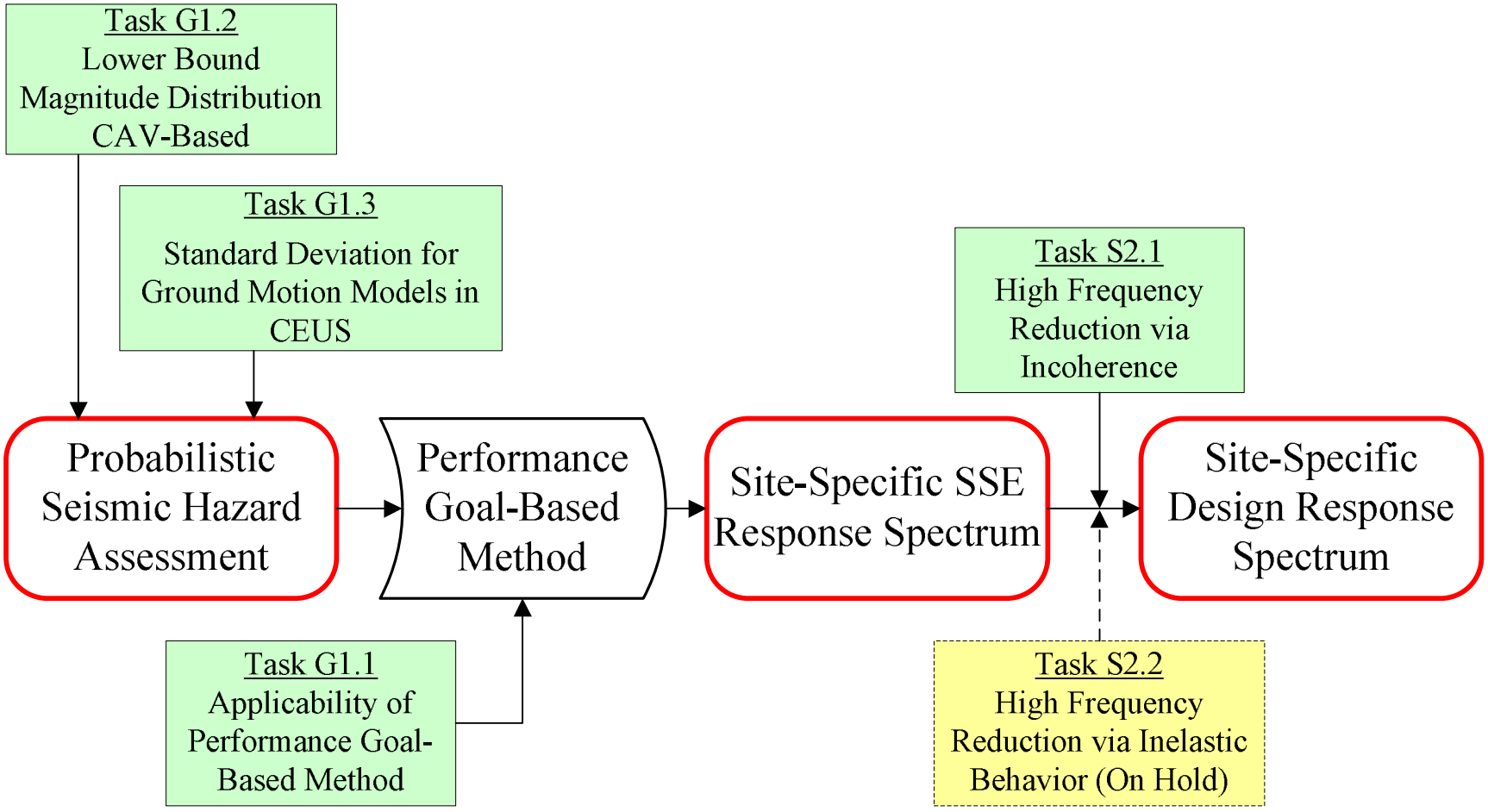
New Plant Seismic Issues Resolution Program – Tasks for Near-Term Resolution



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Early 2006 Activities

- Issued reports of initial (Ph I) tasks on:
  - G1.1 – Performance goal-based method verification and results
  - G1.2 – CAV–filtering in PHSA
  - G1.3 – Variability of ground motion; Sigma
  - S2.1 – Effect of spatial incoherence
  - S2.2 – Effect of negligible inelastic deformation
- Initiated new (Ph II) tasks on:
  - Development of CDF-based, performance goal-based method, re-calculation of SSRS for 28 test sites
  - Development of integration report (Task I1.1)
  - Performance of evaluations requested by NRC (RAIs)

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Activities and actions since May NRC/Industry meeting

- NEI/EPRI issued response (June 23rd) to NRC requests for basis of:
  - Annual probability of unacceptable performance (FOSID)
  - CAV threshold value of 0.16 g-sec
- NRC issued RAIs on all Tasks (June 1st):
  - 3 on Task G1.1
  - 15 on Task G1.2
  - 13 on Task G1.3
  - 53 on Task S2.1a (Structure response)
  - 22 on Task S2.1b (Coherency model)
  - 48 on Task S2.2
- NEI/EPRI issued (July 20th) Phase II task reports on all 3 G-tasks, with responses to RAIs, and draft I-task (Integration report)
- NRC issued letter to NEI (July 25th) agreeing with use of RIPB method at FOSID of 1E-5, and with CAV threshold value of 0.16 g-sec.
- Further work on Task S2.2 placed on "hold"

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Main technical results of G-tasks

- Performance goal-based method based on FOSID results in lower DRS for most of the 28 test sites compared to RG 1.165 method
- CAV-based lower bound magnitude distribution reduces SSRS significantly for all sites whose SSRSs are not controlled by seismic sources with frequent, large earthquakes (e.g., Charleston and New Madrid)
- Truncation of variability not supportable, but change in sigma proposed. Minor impact

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Sigma and CAV Corrections – Small Effect

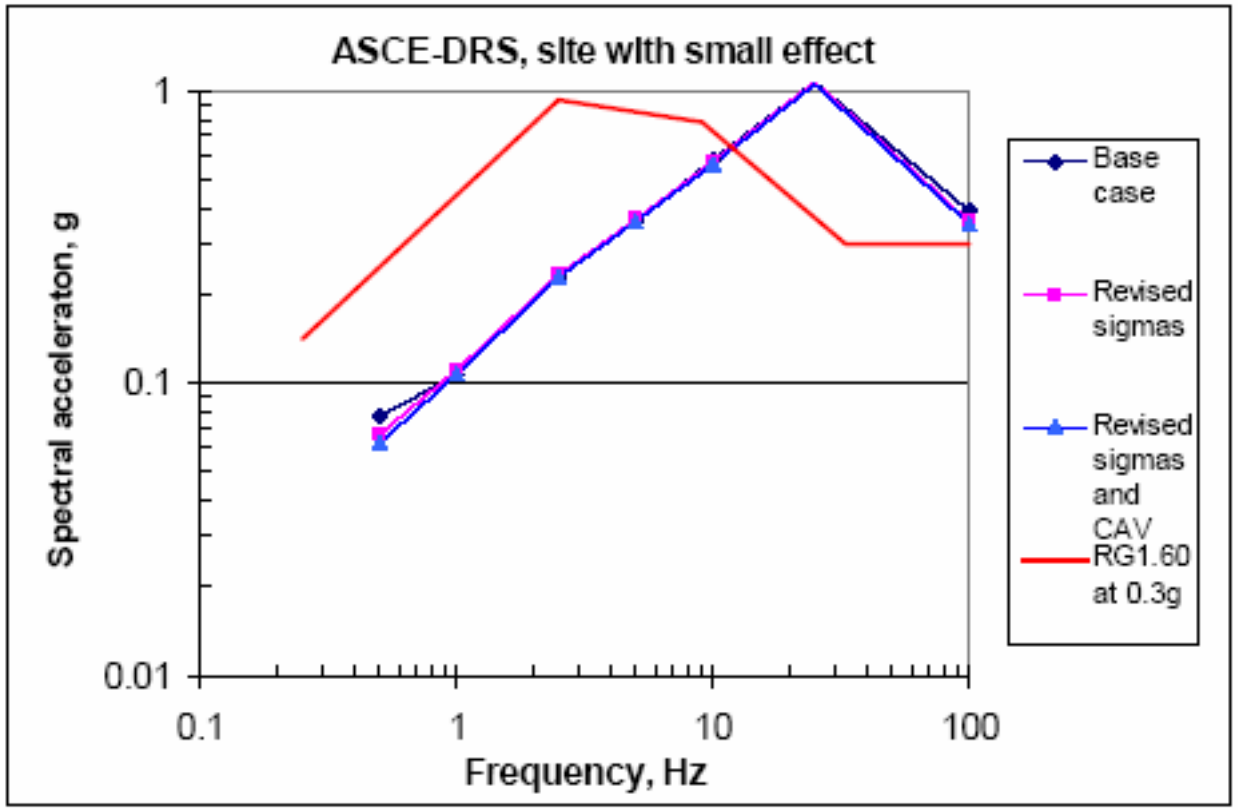

Figure 4-1
Sensitivity of ASCE DRS to Sigma and CAV Assumptions at Site With Small Effect.

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Sigma and CAV Corrections – Major Effect

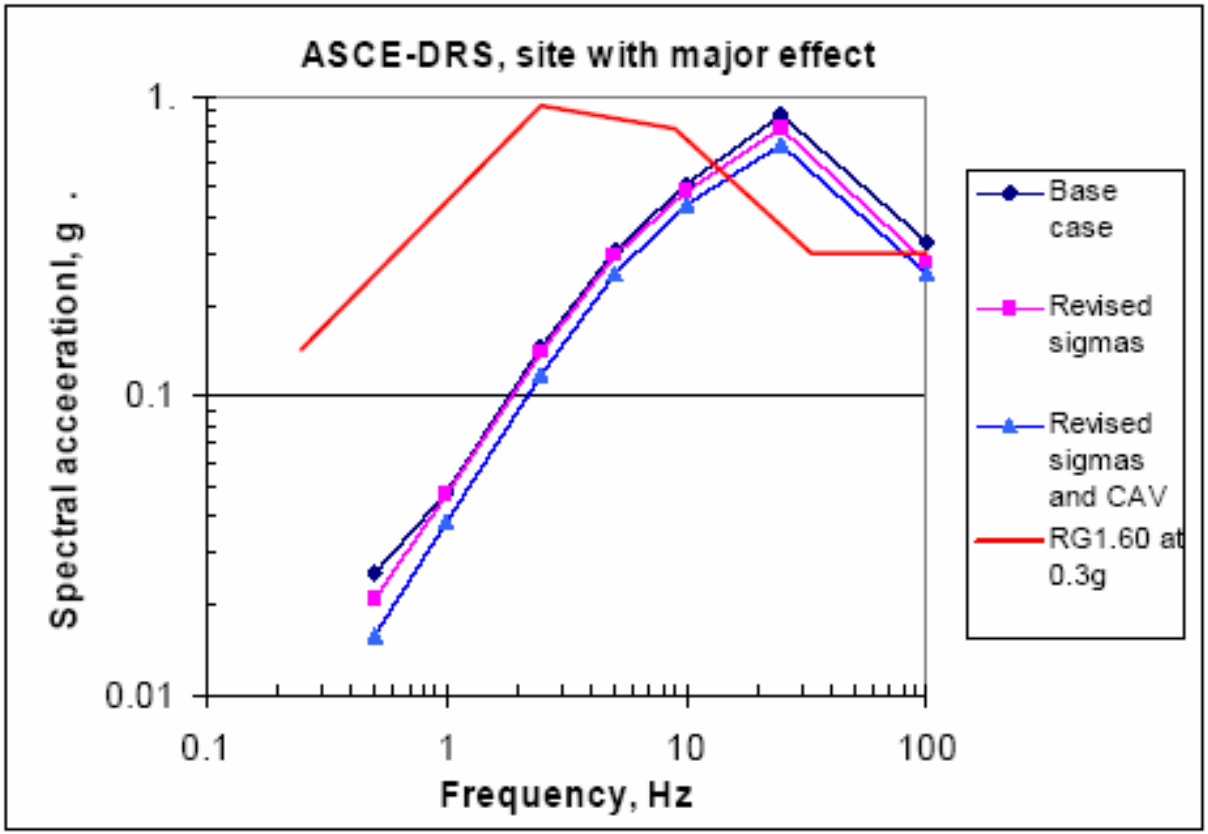

Figure 4-3
Sensitivity of ASCE DRS to Sigma and CAV Assumptions at Site With Major Effect.

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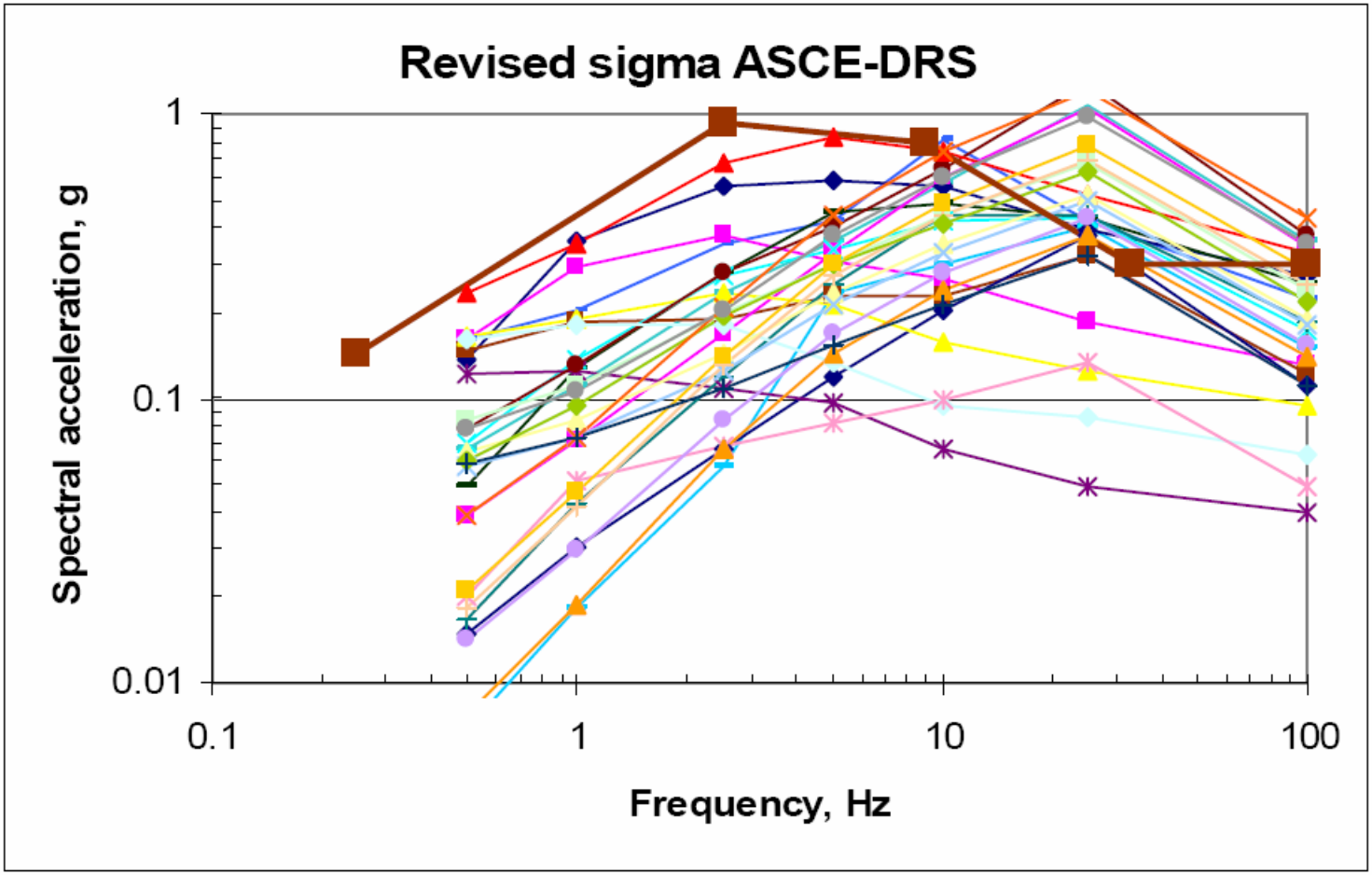

Figure 2-2
ASCR-DRS Spectra Using Revised-Sigma Ground Motions, Compared to RG1.60 Spectrum Anchored to 0.3g.

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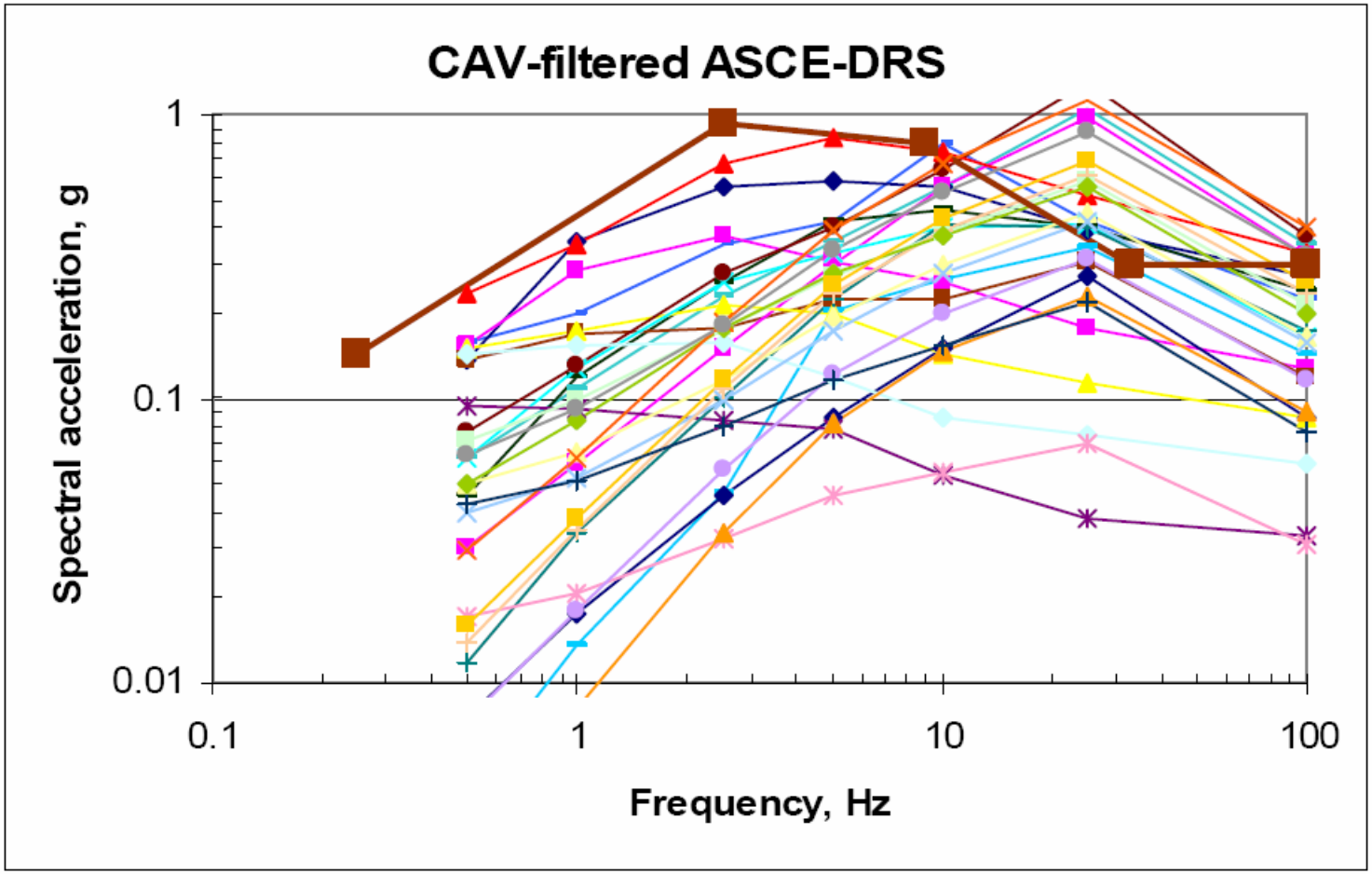

Figure 3-5
ASCE DRS Calculated With CAV Filter for 28 Sites

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Current status and schedule

- Report of Ph II task S2.1 with responses to all RAIs to be submitted end of September
- Final Task I1.1 integration report to be issued after S2.1 task is completed
- Meetings with NRC on Tasks S2.1 and I1.1 expected in 4th quarter of 2006.

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Backup

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Task I1.1 - Guidance for Determining RIPB Site Specific SSE Response Spectra

1. Introduction
2. Generic updating of CEUS seismic hazard model
   - 2.1 Lower bound earthquake magnitude – CAV filter
   - 2.2 Updated CEUS ground motion model
3. Site response analysis for UHRS at ground surface
4. Site-specific response spectra (SSRS) and RIPB response spectra (DRS)

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