

**Ma, John**

**Subject:** FW: AP1000 Public Meeting on Shield Building Design Methodology (Part B) Day 2  
**Location:** ACRS Room T-2B3

**Start:** Wed 01/20/2010 8:30 AM  
**End:** Wed 01/20/2010 2:30 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Gleaves, Bill

-----Original Appointment-----

**From:** Gleaves, Bill  
**Sent:** Wednesday, December 30, 2009 11:20 AM  
**To:** Gleaves, Bill; Dudes, Laura; Akstulewicz, Frank; Brian Thomas\_SEB1\_calendar Resource; McKenna, Eileen; Hogan, Rosemary; Kallan, Paul; Pires, Jose; Ma, John; Patel, Pravin; Tegeler, Bret; Hodgdon, Ann; Scott Altmayer ([altmaysa@westinghouse.com](mailto:altmaysa@westinghouse.com)); Jackson, Rahsean; Seat, Jamin  
**Cc:** Williams, Donna; Snyder, Amy; Jaffe, David; Candra, Hernando  
**Subject:** AP1000 Public Meeting on Shield Building Design Methodology (Part B) Day 2  
**When:** Wednesday, January 20, 2010 8:30 AM-2:30 PM (GMT-05:00) Eastern Time (US & Canada).  
**Where:** ACRS Room T-2B3

When: Wednesday, January 20, 2010 8:30 AM-2:30 PM (GMT-05:00) Eastern Time (US & Canada).  
Where: ACRS Room T-2B3

Note: The GMT offset above does not reflect daylight saving time adjustments.

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The purpose of this meeting is to complete the discussions started on Dec 21-22 on AP1000 Shield Building Design Methodology, Integration, Testing, and Analysis (including seismic reanalysis). This "Part B" information was provided by WEC in the 12/21-22 meeting but was not discussed due to time. The "Part B" information may be found in ADAMS at ML093641006 titled "Enclosure 11". That Enclosure 11 information is proprietary, so please handle appropriately. If you need the information but don't have access, then please call your contract manager or call me (Billy).

I will include in this scheduler, the approved meeting announcement and agenda when that is approved.

- 1) Non-Proprietary (public) bridge opens at 8am and closes at 10am EST. The phone # is: 888-324-7819, passcode (b)(2) *exD*
- 2) The Proprietary bridge is opens at 9am and closes at 4pm EST. (call Scott Altmayer @ WEC for the info. His number is (412) 374-6079.) We are doing it this way so WEC knows who will be listening to the proprietary information.

Billy Gleaves  
work 301-415-5848  
cell (b)(6) *et*

Information in this record was deleted in accordance with the Freedom of Information Act. Exemptions 216 FOIAPA 2010-0290

*5/4*

**Ma, John**

**Subject:** FW: AP1000 Public Meeting on Shield Building Design Methodology (Part B)  
**Location:** ACRS Room T-2B3  
**Start:** Tue 01/19/2010 8:30 AM  
**End:** Tue 01/19/2010 4:30 PM  
**Show Time As:** Tentative  
**Recurrence:** (none)  
**Meeting Status:** Not yet responded  
**Organizer:** Gleaves, Bill

-----Original Appointment-----

**From:** Gleaves, Bill  
**Sent:** Wednesday, December 30, 2009 11:20 AM  
**To:** Gleaves, Bill; Dudes, Laura; Akstulewicz, Frank; Brian Thomas\_SEB1\_calendar Resource; McKenna, Eileen; Hogan, Rosemary; Kallan, Paul; Pires, Jose; Ma, John; Patel, Pravin; Tegeler, Bret; Hodgdon, Ann; Scott Altmayer ([altmaysa@westinghouse.com](mailto:altmaysa@westinghouse.com)); Seat, Jamin; Jackson, Rahsean  
**Cc:** Snyder, Amy; Williams, Donna; Jaffe, David  
**Subject:** AP1000 Public Meeting on Shield Building Design Methodology (Part B)  
**When:** Tuesday, January 19, 2010 8:30 AM-4:30 PM (GMT-05:00) Eastern Time (US & Canada).  
**Where:** ACRS Room T-2B3

When: Tuesday, January 19, 2010 8:30 AM-4:30 PM (GMT-05:00) Eastern Time (US & Canada).  
Where: ACRS Room T-2B3

Note: The GMT offset above does not reflect daylight saving time adjustments.

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The purpose of this meeting is to complete the discussions started on Dec 21-22 on AP1000 Shield Building Design Methodology, Integration, Testing, and Analysis (including seismic reanalysis). This "Part B" information was provided by WEC in the 12/21-22 meeting but was not discussed due to time. The "Part B" information may be found in ADAMS at ML093641006 titled "Enclosure 11". That Enclosure 11 information is proprietary, so please handle appropriately. If you need the information but don't have access, then please call your contract manager or call me (Billy).

I will include in this scheduler, the approved meeting announcement and agenda when that is approved.

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Billy Gleaves  
work 301-415-5848  
cell (b)(6) Ex. 6

**Ma, John**

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**From:** Ma, John  
**Sent:** Wednesday, December 30, 2009 4:08 PM  
**To:** (b)(6) E+6  
**Subject:** FW: 2nd- Update-Monday's meeting  
**Attachments:** Presentation12\_21\_09.ppt

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**From:** Ma, John  
**Sent:** Sunday, December 20, 2009 7:36 PM  
**To:** Dudes, Laura  
**Subject:** FW: 2nd- Update-Monday's meeting

Laura:

I'll be in office for the meeting. Attached is the chart that you requested.

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**From:** Dudes, Laura  
**Sent:** Sunday, December 20, 2009 7:03 PM  
**To:** Thomas, Brian; Gleaves, Bill; McKenna, Eileen; Ma, John; Patel, Pravin; Kallan, Paul; Tegeler, Bret; Hodgdon, Ann  
**Cc:** Johnson, Michael; Holahan, Gary  
**Subject:** 2nd- Update-Monday's meeting

All,  
Regardless of the OPM closing-We are still trying to have this meeting at 10am tomorrow. Although the Gov is closed we should still have access to the building. If not, we can hold the meeting at W's Twinbrook offices.

Billy is working logistics for the conference line.

As I said before, please use your judgment when traveling and consider your safety first.  
Thanks,  
Laura

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**From:** Dudes, Laura  
**Sent:** Sunday, December 20, 2009 9:38 AM  
**To:** Thomas, Brian; Gleaves, Bill; McKenna, Eileen; Ma, John; Patel, Pravin; Kallan, Paul; Tegeler, Bret; Hodgdon, Ann  
**Cc:** Johnson, Michael; Holahan, Gary  
**Subject:** Update-Monday's meeting

Brian,

I spoke with Rob Sisk this morning, they are traveling today. We will start the meeting on Monday at 10am to allow people time to get into the office.

Everyone should use their best judgement regarding travel and BE SAFE!!

Hope everyone is doing well after the big storm.  
Laura

**Ma, John**

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**From:** Ma, John  
**Sent:** Sunday, December 20, 2009 9:37 PM  
**To:** (b)(6) *Ex. 6*  
**Subject:** 12/21/09 meeting will be delayed to 10:00am

Chun Lin:

Tomorrow (12/21/09) meeting will start at 10:00am. The NRC front door will be closed, and therefore you need to come through the car garage security place to the office. If you have problem, call my office phone 301-415-2732 after 9:00am. John Ma

**Ma, John**

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**From:** Ma, John  
**Sent:** Monday, January 25, 2010 8:50 AM *at 8*  
**To:** (b)(6) Mo, Yi-Lung  
**Subject:** FW: SB Enclosure 5B2  
**Attachments:** Enc5B-105-224prop-small\_Part2-encrypt.pdf

Fyi

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**From:** Tegeler, Bret  
**Sent:** Monday, January 25, 2010 8:05 AM  
**To:** Ma, John  
**Subject:** FW: SB Enclosure 5B2

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**From:** Altmayer, Scott A [mailto:[altmaysa@westinghouse.com](mailto:altmaysa@westinghouse.com)]  
**Sent:** Friday, January 22, 2010 11:17 PM  
**To:** Gleaves, Bill; Thomas, Brian; McKenna, Eileen; Jaffe, David; Dudes, Laura; Tegeler, Bret; Kallan, Paul  
**Subject:** [WARNING: MESSAGE ENCRYPTED]SB Enclosure 5B2

Enclosure 5B2

**Scott Altmayer, PE**  
AP 1000 Licensing Integration Engineer  
Licensing and Customer Interface  
Cube 520H

Westinghouse Electric Company  
1000 Westinghouse Dr.  
Suite #115  
Cranberry Township, PA 16066  
Phone: +1 (412) 374-6079  
Fax: +1 (724)-940-8505  
Email: [altmaysa@westinghouse.com](mailto:altmaysa@westinghouse.com)  
Home Page: [www.westinghousenuclear.com](http://www.westinghousenuclear.com)

**Thomas, Vaughn**

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**From:** Thomas, Vaughn  
**Sent:** Thursday, January 07, 2010 11:52 AM  
**To:** Chuang, Tze-Jer; Jain, Bhagwat; Ma, John; Park, Sunwoo; Patel, Pravin; Tegeler, Bret; Thomas, Vaughn; Valentin, Milton; Chakrabarti, Samir; Chakravorty, Manas; Gilanshahi, Nikki; Jeng, David; Kazi, Abdul; Xu, Jim; hou chunlin  
**Cc:** Thomas, Brian; Hawkins, Kimberly; Bagchi, Goutam  
**Subject:** REMINDER - SEB Comments on ISG-017  
**Attachments:** SEB Staff Comments on ISG-017\_r2.doc

All,

This is just a reminder that the SEB staff plans to provide DSER it's ISG-017 follow-up comments by COB Friday (1/8). For those who have provided responses, please disregard.

Thanks  
Vaughn

## SEB Staff Comments and Questions on Draft ISG-017

Comments and Questions	Responses (DSER)	Follow-up Comments and Questions	Follow-up Responses
<p>(GMRS vs. PBSRS) In the new ISG-017, both GMRS and PBSRS are used to refer to performance-based response spectra at the ground surface. However, the distinction and relationship between GMRS and PBSRS are not clearly addressed in the new ISG. In the NEI paper, GMRS has not even been mentioned at all. However, GMRS is a key parameter in SRP 3.7 and RG 1.208.</p> <p>Is GMRS intended to be replaced with PBSRS in ISG-017? How do they differ? Distinction and relationship between GMRS and PBSRS should be clarified to prevent potential confusion or misuse.</p>	<p>GMRS is the site SSE derived from the global understanding of the site soil layers above the rock condition as determine from the site exploration activities. This global characterization of the site soil layers does not take into account strictly local conditions surrounding specific building foundations that may be caused by concrete backfill or heterogeneity in soil layers beneath a particular building. PBSRS plays a role in verifying and ensuring the adequacy of the deterministic (three soil properties: BE, UB and LB) soil columns to be used in the SSI analyses.</p>	<p>(1) Is it fair to say that GMRS is 'site' specific and PBSRS is 'building' specific, and that there exists a single GMRS for a given NPP site but there could be multiple PBSRSs depending on the local conditions surrounding the buildings?</p> <p>(2) Suppose a proposed building is to be founded on concrete backfill. Then, are PBSRS and FIRS established through performance-based approach using 60+ randomized soil columns that include the concrete backfill as a soil layer?</p> <p>(3) If PBSRS and FIRS are used in comparing site-specific seismic demand (COL) with CSDRS (DCD) and also in developing SSI input motion, does GMRS have any use?</p>	
<p>(Outcrop Definitions) Existing SRP 3.7 and RG 1.208 use "geologic" outcrop definition for GMRS/FIRS. In ISG-017, both geologic and "full-column" outcrop definitions are accepted as long as they are used</p>	<p>The computation of site response should not be different depending on which outcrop definition is used. Additional words were added to the effect of overburden in the soil profile properties.. No additional burden is placed in the</p>	<p>The BNL paper warns of potential inconsistent use of outcrop definitions by analysts and designers and its consequence in terms of compromised conservatism in seismic demand calculation. Existing SRP 3.7 and</p>	

<p>consistently throughout the site response and SSI analysis phases. This additional option would provide added flexibility to the applicant and require added effort in staff review.</p> <p>This shift in staff position on allowing alternative outcrop definitions for applicants to choose is a significant move and should be noted accordingly in the body.</p>	<p>staff review of SSI analysis.</p>	<p>RG 1.208 plainly endorse 'geologic' outcrop and there has been less room for misuse. However, the new ISG allows both geologic and full-column outcrop definitions (TSCR and SCOR in NEI notations) to be used. This appears to be a notable move from the existing NRC position and may have to be noted accordingly in the new ISG.</p> <p>In DCD/COL design review per new ISG, the staff must determine what outcrop definition the applicant is using to establish FIRS, and then make sure the same outcrop definition is used in developing SSI input motion.</p>	
<p>(Verification of SSI Input Motion) In the NEI approach, a verification that the input motion (FIRS) for SSI analysis adequately bounds the PBSRS at the ground surface is required for embedded structures. However, the purpose or rationale of this verification is not clearly addressed. Is the verification to ensure that the three soil columns used in deterministic SSI analysis are reasonably compatible with the 60+ randomized soil columns used in the probabilistic site</p>	<p>Contrary to this statement, the ISG clearly indicates that the input time history corresponding to the FIRS when propagated through the three deterministic soil profiles should produce three surface response spectra, the envelope of the three surface response spectra should fully bound the PBSRS. If not, either additional soil profiles are added to the three deterministic soil profiles or the input time histories are modified to adequately bound the PBSRS with the envelope of the three deterministic soil</p>	<p>Yes, the verification process (to make sure the FIRS is acceptable for SSI input) is described in the NEI paper in great detail.</p> <p>Here, the question is what is the purpose of such an elaborate verification process? Are we testing the adequacy of the three bounding soil columns (BE/UB/LB) that will be used in SSI analysis - whether these three columns are reasonably compatible with the 60+ randomized soil columns used in the probabilistic site response analysis?</p>	

<p>response analysis?</p> <p>A statement concerning the purpose and rationale of the verification process would help the reader understand and implement the verification process more effectively.</p>	<p>profiles. No change is needed.</p>		
<p>(Ground Motions Review Responsibilities) The existing practice is that DE/RGS reviews the development of site-specific GMRS in SRP 2.5, and DE/SEB reviews the development of FIRS for Seismic Category I structures in SRP 3.7 space. The new ISG implies that FIRS and PBSRS now need to be reviewed by RGS because their development involves PSHA and performance-based site response analysis. However, verification of FIRS as acceptable SSI input should reside in SEB.</p> <p>It would be desirable that any change in seismic ground motion review responsibilities between SRP 2.5 and SRP 3.7 be clarified and addressed in the ISG.</p>	<p>SRP changes are completed when they are revised. No additional review responsibility should be discussed in the ISG.</p>	<p>(1) Will the review of the acceptance of PBSRS and FIRS be conducted in SRP 2.5 (DE/RGS) or SRP 3.7 (DE/SEB) space?</p> <p>It is understood that site-specific GMRS has been reviewed in SRP 2.5, and development of FIRS reviewed in SRP 3.7 space so far. However, it appears that both PBSRS and FIRS now need to be reviewed in SRP 2.5 because their development involves PSHA and performance-based site response analysis.</p> <p>(2) The new ISG requires a verification process to ensure that the FIRS is acceptable for SSI input (in the case of embedded structures). It appears that this verification part is to be reviewed by SRP 3.7.</p> <p>A clarification would be needed.</p>	
<p>(Referencing NEI and BNL Papers) The current structure of ISG-017</p>	<p>The ISG would become unnecessarily voluminous. The two documents can be put into a</p>		

<p>refers the reader to NEI and BNL papers for detailed procedures for developing site-consistent seismic input and soil profiles for SSI analysis as Option One and Two, respectively (Section 5.2).</p> <p>It would allow the reader to deal with the ISG as a stand-alone copy if the relevant materials in the NEI and BNL papers are excerpted and incorporated directly into the ISG.</p>	<p>CD or in a shared agency drive, such as the G drive for staff use.</p>		
<p>(Notation: UHS and UHRS) ISG-017 uses UHS and RG1.208 uses UHRS both referring to Uniform Hazard Response Spectrum.</p> <p>Consistent use of Acronym would be desirable.</p>	<p>This is true, however, it would take a large effort to ensure the use of a single term, UHS or UHRS in all the reference documents and the ISG. It is not practical to implement this.</p>		
<p>(Editorial) On Page 1, Line 7, "Section 3.3 of this ISG ..." can be corrected as follows (retaining the expression used in the earlier draft version):</p> <p>"Section 3.3 of this ISG..." → "As a part of further guidance in ISG-01, Section 3.3, this ISG ..."</p>	<p>The latest version does not seem to be incorrect.</p>		