

July 28, 2014
RSM-072814-085

To: Utility Seismic Hazard and GMRS Contacts

Subject: Central and Eastern United States Seismic Source Characterization (CEUS SSC) for Nuclear Facilities, EPRI report number 1021097

Dear Utility Seismic Hazard and GMRS Contacts:

An error has been identified in the Central and Eastern United States Seismic Source Characterization (CEUS SSC) for Nuclear Facilities, EPRI report number 1021097 (published jointly with NRC and DOE as NUREG-2115 and DOE/NE-0140, respectively). While this report was not developed under a 10CFR50 Appendix B Quality Assurance program, it is being applied in conjunction with important activities. Therefore, prompt communication of the error, its anticipated impact and the follow up actions that will be taken is warranted. This error has been entered in a Corrective Action Report in the EPRI Condition Reporting System.

Error Description

The specific error is that the Maximum Magnitude (Mmax) distributions for three of the CEUS SSC seismotectonic model zones listed in Table H-4-4 of the CEUS SSC report are incorrect. The affected zones are PEZ-N, PEZ-W, and IBEB. The published and corrected Mmax values are provided in the table below.

Published and Corrected Mmax Values

PEZ-N		PEZ-W		IBEB	
CEUS SSC Report	Corrected Value	CEUS SSC Report	Corrected Value	CEUS SSC Report	Corrected Value
5.9	6.0	5.9	6.0	6.5	6.4
6.4	6.5	6.4	6.4	6.9	6.7
6.8	6.9	6.8	6.9	7.4	7.0
7.2	7.4	7.2	7.4	7.8	7.3
7.9	8.0	7.9	8.0	8.1	7.9

Figures 4.2.4-2 and 4.2.4-3 in the CEUS SSC report show the seismotectonic zones and are reproduced below. Figure 4.2.4-2 includes the PEZ-N and IBEB zones and Figure 4.2.4-3 includes the PEZ-W and IBEB zones.

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Preliminary Impact Assessment

A preliminary sensitivity study has been performed to assess the impacts of the corrected Mmax distribution using the Chattanooga test site from Chapter 8 of the CEUS SSC report. This site is located on the edge of the PEZ-N and PEZ-W seismotectonic zones, which are two of the zones with slightly increased Mmax values. The table below shows impacts on seismic hazard estimates at three frequencies (peak ground acceleration or PGA, 10 Hz, and 1 Hz) and at three annual exceedance frequencies (1E-4, 1E-5, and 1E-6). The ground motion response spectrum (GMRS) impacts are calculated from the 1E-4 and 1E-5 seismic hazard estimates and are also provided in the table.

The results of the preliminary assessment indicate that the impacts of the error are minor (on the order of a 1% to 1½% increase) for seismic hazards and GMRS.

Chapter 4
Conceptual Seismic Source Characterization Framework

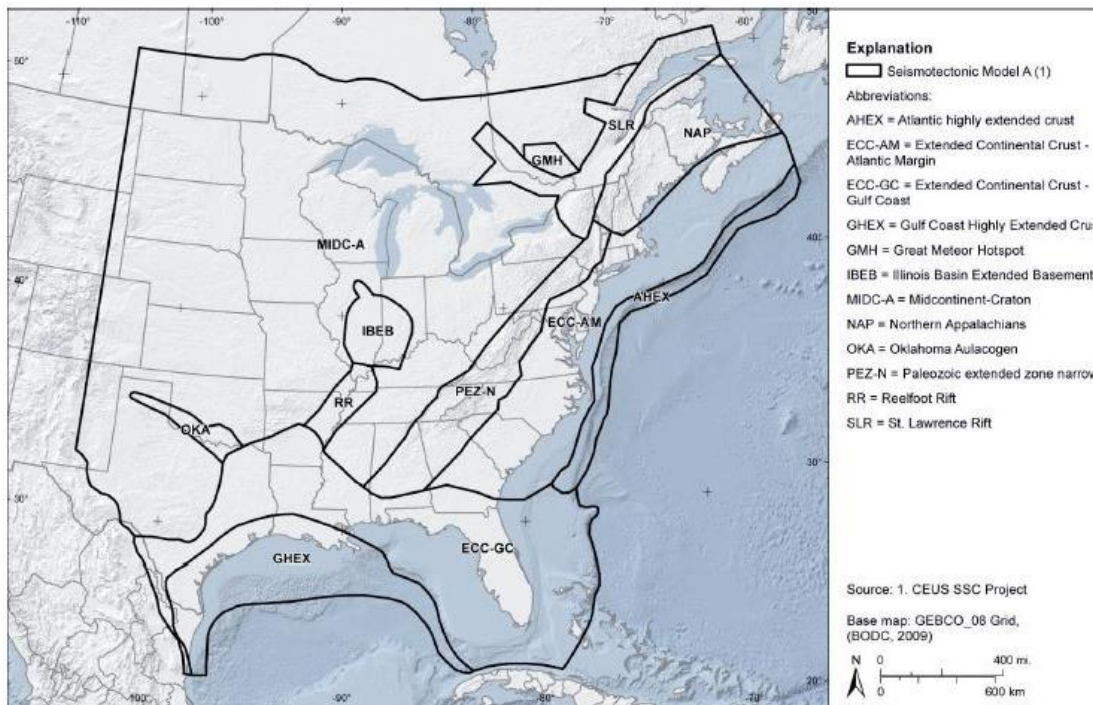


Figure 4.2.4-2
Seismotectonic zones shown in the case where the Rough Creek Graben is not part of the Reelfoot Rift (RR), and the Paleozoic Extended Zone is narrow (PEZ-N)

Chapter 4
 Conceptual Seismic Source Characterization Framework

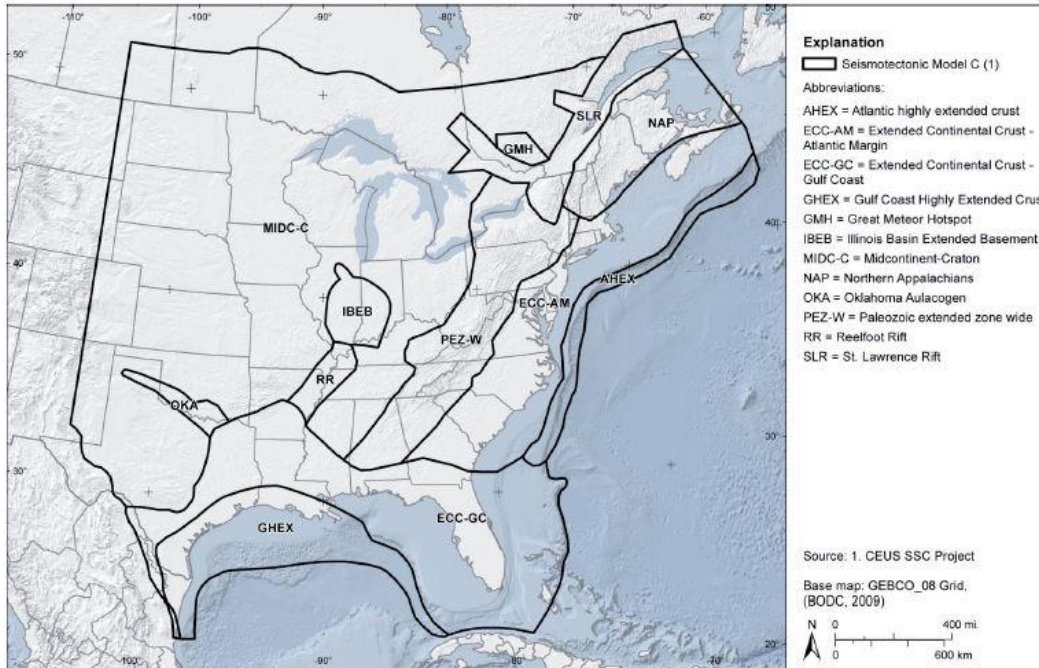


Figure 4.2.4.4
 Seismotectonic zones shown in the case where the Rough Creek Graben is not part of the Reelfoot Rift (RR), and the Paleozoic Extended Crust is wide (PEZ-W)

Preliminary Sensitivity Study Results

Frequency	Annual Exceedance Frequency	Seismic Hazard			Equivalent GMRS at Hard Rock		
		Using CEUS SSC Report Mmax (g)	Using Corrected Mmax (g)	Change (%)	Using CEUS SSC Report Mmax (g)	Using Corrected Mmax (g)	Change (%)
PGA	1.00E-04	0.338	0.340	0.6%	0.526	0.531	0.9%
	1.00E-05	1.113	1.124	1.0%			
	1.00E-06	2.592	2.622	1.2%			
10 Hz PSA	1.00E-04	0.624	0.629	0.8%	0.937	0.947	1.1%
	1.00E-05	1.963	1.986	1.27%			
	1.00E-06	4.542	4.610	1.5%			
1 Hz PSA	1.00E-04	0.115	0.116	0.9%	0.144	0.146	1.3%
	1.00E-05	0.288	0.292	1.4%			
	1.00E-06	0.677	0.698	3.1%			

Planned Actions

EPRI is performing the following actions.

1. Extent of condition. Further evaluation of the extent of condition is underway to determine if there are additional Mmax distribution errors in other seismotectonic zones.
2. Impact characterization. Additional sensitivity analyses will be performed at selected locations to characterize the impacts on seismic hazards and GMRS.
3. Coordination of CEUS sponsors. EPRI will work with the other report sponsors at NRC and DOE to determine the best process for publishing the corrections to the report and updated CEUS SSC model parameters.
4. Communications. EPRI will communicate additional information as it becomes available.

If you have any questions about this information please contact John Richards at jrichards@epri.com or (704)-595-2707.

Sincerely,



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RSM-072814-085/JR/le

Enclosures:

1. List of Utility Seismic Hazard and GMRS Contacts
2. List of Non-Utility, Technical, Seismic Hazard and GMRS Contacts

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