FirstEnergy

Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, Ohio 43449-9760

Guy G. Campbell
Vice President - Nuclear

419-321-8588
Fax: 419-321-8337

Docket Number 50-346

License Number NPF-3

Serial Number 2651

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United States Nuclear Regulatory Commission
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Washington, D.C. 20555-0001

Subject: Request for Additional Information on the Resolution of Unresolved Safety Issue A-46 – Davis-Besse Nuclear Power Station, Unit 1 (TAC No. M69441)

Ladies and Gentlemen:

The enclosure to this letter provides FirstEnergy Nuclear Operating Company's (FENOC) response for the Davis-Besse Nuclear Power Station (DBNPS), Unit 1, to the subject Nuclear Regulatory Commission's Request for Additional Information dated November 15, 1999 (Log Letter Number 5579), regarding the Seismic Evaluation Report for the DBNPS.

The contents of the enclosure were discussed with NRC staff by telephone conference on March 9, 2000, and reflect revisions suggested by the staff during the conference.

Should you have any questions or require any additional information, please contact Mr. James L. Freels, Manager - Regulatory Affairs, at (419) 321-8466.

Very truly yours,

DHL/s

Enclosure

cc: J. E. Dyer, Regional Administrator, NRC Region III
D. V. Pickett, NRC Project Manager
K. S. Zellers, DB-1 Senior Resident Inspector
Utility Radiological Safety Board

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COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station in this document. Any other actions discussed in the submittal represent intended or planned actions by Davis-Besse. They are described only as information and are not regulatory commitments. Please notify the Manager – Regulatory Affairs (419-321-8466) at Davis-Besse of any questions regarding this document or associated regulatory commitments.

COMMITMENTS	DUE DATE
None	N/A

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR THE IPEEE PROGRAM DAVIS-BESSE NUCLEAR POWER STATION

Background

The Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) letter (Log Letter Number 5579, TAC No. M69441, dated November 15, 1999) identified 15 different floor elevations within 5 different structures wherein the median-centered realistic in-structure response spectra (ISRS) were reportedly greater than 1.5 times the ground response spectra. These floor levels and buildings were identified within the NRC RAI letter and are repeated in Table 1. The NRC posed the following question relative to the Table 1 information:

> *"The Seismic Qualification Utility Group Generic Implementing Procedure, Revision 2, specifies that Method A should only be applied if the amplification factor is less than or equal to 1.5 times the ground response spectrum. Please provide a technical justification for why it is acceptable to use Method A in each of these locations."*

FirstEnergy Nuclear Operating Company (FENOC), in conjunction with EQE International, Inc. (EQE), has performed a review of the NRC structural response and Method A questions and provides the technical justifications in this enclosure. EQE performed the structural response analyses referred to as median-centered realistic spectra and, as such, were relied upon to provide their authoritative opinions on the subject issue. In addition, the SQUG Steering Group has provided a peer review of this response and is supportive of the FENOC position.

Generation of Median-Centered Spectra for Davis-Besse Nuclear Power Station

As a part of the IPEEE program for the Davis-Besse Nuclear Power Station (DBNPS), ISRS were derived for each of the 5 structures referenced in Table 1, based on the defined Review Level Earthquake (RLE) for the site. The RLE is defined for the DBNPS as the NUREG/CR-0098, Development of Criteria for Seismic Review of Selected Nuclear Power Plants, May 1978, median rock spectrum anchored to 0.3g peak ground acceleration (PGA). These IPEEE spectra were referred to as being realistic, median-centered ISRS.

A summary of some of the elements of the IPEEE response analyses is given in the Table 2. As can be noted, there are both median and conservative elements represented in the analysis process.

The last item on Table 2 refers to the process used at the DBNPS in calculating median-centered spectra for the USI A-46 program. The IPEEE spectra were conservatively scaled to calculate these USI A-46 spectra. The scaling was conducted by determining the maximum ratio between the RLE for IPEEE and the Safe Shutdown Earthquake (SSE) level earthquake used for USI A-46 over all frequencies. As stated above, the RLE for the DBNPS is a median NUREG/CR-0098 rock spectrum anchored to 0.3g PGA while the ground response spectrum used for USI A-46 median-centered spectra development was a NUREG/CR-0098 84 percent Non-Exceedance Probability (NEP) spectral shape anchored to the design basis SSE PGA. (Note, the DBNPS used Option B on page 4-19 of the SQUG Generic Implementation Procedure (GIP)). The ratio varied between 2 and 1.43 over all frequencies. The most conservative reduction factor of 1.43 was used to scale all IPEEE spectra in order to generate the A-46 median-centered spectra. This conservative factor exists only at the 1 hertz level and lower, which is not realistic for the 5 structures under consideration at the DBNPS. Depending on the structure and soil frequencies involved, this alone could represent a factor of conservatism up to 1.4 in these supposedly median-centered spectra.

These resulting scaled IPEEE spectra were labeled as median-centered because they have some median-centered elements and, because of that, they do not meet the requirements to be considered truly conservative design spectra. The labeling of these spectra as median-centered was appropriate and necessary since the use of median-centered spectra for USI A-46 purposes requires the use of additional factors of safety as outlined in Table 4-1 of the GIP Revision 2 (note that the GIP method only addresses two types of spectra, median-centered and conservative design). However, this labeling of the spectra has indirectly led to the conclusion that the submitted spectra were truly a representation of realistic, median-centered response and, thus, in apparent conflict with the premise that median-centered response would result in amplification factors of about 1.5 at elevations less than forty feet above grade.

Conservative Design Spectra

The above descriptions document the fact that the spectra which are the subject of the RAI have additional margin built in and should not be considered as realistic, median-centered with respect to the Method A issue on the USI A-46 program. These spectra were originally generated for IPEEE use and then scaled for USI A-46 use in a manner that leaves significant conservatisms in their response levels. These conservative assumptions were undertaken primarily for one of three reasons (depending on the analysis parameter assumption in question):

1. The conservative assumption allowed for a more cost-effective analysis.

2. The conservative assumption precluded the need to perform research into defining what might be considered median-centered for a specific parameter.

3. The conservative assumption avoided an issue that could have elicited questions by the peer reviewer at the end of the project, and, thus, avoided a potential schedule issue relative to the project completion.

The resulting USI A-46 analyses for the DBNPS Safe Shutdown Equipment List (SSEL) components validated the use of these conservatisms.

Auxiliary Buildings – Areas 7 and 8

In order to further demonstrate that the Realistic Median-Centered USI A-46 spectra used at the DBNPS had significant conservatism built in, additional conservative response analyses on two of the five structures were performed. These two structures were the Auxiliary Building Area 7 and Auxiliary Building Area 8. For these two structures, Standard Review Plan (SRP), Section 3.7.1, Seismic Design Parameters, Rev. 2, 1989; and Section 3.7.2, Seismic System Analysis, Rev. 2, 1989, type conservative design spectra were generated at the SSE ground motion levels. The results of these two re-analyses clearly demonstrate (using the reduction approach pioneered by SQUG for the Ginna RAI response on Method A) that Method A was applied correctly at the DBNPS. These new analyses for Auxiliary Building Areas 7 and 8 conform to the SRP. These SRP conformances include:

- Regulatory Guide (RG) 1.60; Design Response Spectra for Seismic Design of Nuclear Power Plants, Rev. 1, February 1973, shaped ground response spectra anchored to 0.15g

- Matching of the synthetic time histories to the target spectrum

- Low strain soil properties are scaled by one-half for the lower bound and 2.0 for the upper bound cases

- Envelope of the deconvolved motions from the 3 soil cases must envelope 60% of the free field ground surface target spectrum at the foundation level

- Modal damping values consistent with RG 1.61, Damping Values for Seismic Design of Nuclear Power Plants, October 1973.

- Frequency points were chosen to ensure compliance with RG 1.122, Development of Floor Design Response Spectra for Seismic Design of Floor Supported Equipment for Components, Rev. 1, February 1978.

- Broadening of resulting spectra by +/- 15%

Table 3 shows the results of the Auxiliary Building Areas 7 and 8 conservative SRP spectra. The Peak Ratios between the floor spectra and the ground spectra (both North/South and East/West) have been delineated. Attachment 1 to this enclosure contains a justification for the reduction factor appropriate in order to reduce conservative design spectra and to estimate a median-centered spectra. This reduction factor was established to be 3.77 as part of a SQUG Steering Group Initiative and has been submitted and approved by the NRC for several SQUG utilities (the Ginna SER, June 17, 1999, had the initial usage of this 3.77 factor).

The column labeled, Ginna Reduced, in Table 3 tabulates the effect of reducing the peak amplification ratios by the 3.77 factor. As shown, the resulting effective amplification factors for these buildings are all below the Method A 1.5 factor.

The analyses of these two buildings (Auxiliary Building Areas 7 and 8) were extensive. Rather than conduct additional response analyses for the remaining 3 buildings (Auxiliary Building Area 6, Containment Internal Structure, and Intake Structure) a reasonable alternative has been conducted. The FENOC believes that the data obtained from the 2 SRP analyses can be used to estimate, via a scaling process, the results of conducting such an SRP analysis for these 3 remaining buildings.

Table 4 contains the SRP response analysis information from Table 3, as well as similar information from the original design basis conservative design spectra for the DBNPS. These design basis spectra are more conservative than the SRP spectra as very conservative analysis methods were used in the original spectra development. The last column in Table 4, Reduction Ratio, tabulates a comparison, by virtue of a new ratio, of the floor-to-ground peak ratios calculated for the SRP and for the original design spectra.

As is shown, the reduction in the floor-to-ground peak ratio varies from about 1.4 to 2.5 with an average value of 1.9. Using this average reduction value of 1.9, an estimation can be made of the SRP floor-to-ground peak (PR_{SRP}) from the existing original design floor-to-ground peak ratios (PR_{OL}) for the remaining 3 buildings:

$$PR_{SRP} \approx PR_{OL} \div 1.9$$

Table 5 contains these estimated values of the building amplification factors for the Auxiliary Building Area 6, the Containment Internal Structure and the Intake Structure. These factors range up to a value of 1.19, which is well below the target of 1.5 for using Method A.

Overall Method A Conclusion for the Davis-Besse Nuclear Power Station

The USI A-46 spectra which are labeled as being realistic, median-centered are, in fact, not truly median-centered from the USI A-46 Method A perspective. Thus, it would not be appropriate to expect these spectra to fall within the 1.5 amplification factor range due to conservatism still inherent in these spectra. Conservative SRP-type spectra were generated for two of the DBNPS structures and estimated for the three remaining structures. When scaled down by the NRC-accepted factor of 3.77 (factor to estimate a median response from a conservative response), all five the DBNPS structures fall below the desired 1.5 factor for Method A. Thus, the USI A-46 resolution for the DBNPS used spectra that were not median-centered resulting in amplification factors that exceeded 1.5. The spectra were labeled as median-centered but actually were scaled down spectra generated for IPEEE. For cost and schedule reasons, the inclusion of additional conservatism was judged acceptable for timely resolution of USI A-46.

Table 1: Davis-Besse Nuclear Power Station, Unit 1
Floor Elevations Referenced in the 11/15/99 NRC RAI

Structure **	Elevation	Direction	Page *
Auxiliary Building Area 7	585	E-W	C-6
Auxiliary Building Area 7	603	E-W	C-9
Auxiliary Building Area 7	612	E-W	C-12
Auxiliary Building Area 8	584	N-S	C-26
Containment Internal	574	N-S	C-47
Containment Internal	578	N-S	C-50
Containment Internal	585	N-S	C-53
Containment Internal	595	N-S	C-56
Containment Internal	603	E-W	C-60
Containment Internal	606	E-W	C-63
Auxiliary Building Area 6	585	E-W	C-81
Auxiliary Building Area 6	603	N-S	C-83
Intake Structure	561	E-W	C-93
Intake Structure	576	E-W	C-96
Intake Structure	585	E-W	C-99

* The page numbers are from Appendix C of the FirstEnergy submittal dated April 30, 1997, Serial No. 2460.

** These building floor levels represent those with amplification factors over the ground which exceeds 1.5.

Note: This list represents the direction at each elevation with the highest amplification factor. The orthogonal direction may also have an amplification factor higher than 1.5 times the ground response spectrum.

Table 2: Assessment of IPEEE Response Analysis for Davis-Besse

Analysis	Comment
• RLE Definition	Realistic/Median
• Time History Generation	Realistic/Median
• Definition of Soil Properties	Conservative – Envelope of 3 cases utilized: - Best Estimate Soil - 0.667 X Best Estimate - 1.5 X Best Estimate
• Soil Modeling	Conservative for embedded structures like the Intake Structure. Embedment was neglected (would have significant effect).
• Shake Analysis	Realistic/Median Best Estimate (other than the soil properties discussed above).
• Structural Damping	Realistic/Median
• Structural Model	Conservative – original design basis models were used, except for the inclusion of torsion.
• Torsional Model	Realistic – Design basis model utilized 2D models. EQE used these models and coupled them (accounting for eccentricities) to obtain a 3D model.
• Ground Motion Incoherence	Conservative – GMI was not included.
• Scaling of IPEEE spectra to obtain A-46 spectra	Conservative – Maximum ratio at any frequency, irrespective of soil and structure frequencies.

Table 3: Davis-Besse USI A-46 Amplification Factors for New Conservative SRP Spectra

			Reg Guide 1.60 Conservative SSE Spectra (SRP)				
Building	Elev.	Direction	Frequency	Peak S_a (5%, g's)	Ground S_a (5%, g's)	Peak Ratio	PR_{SRP}* (Ginna Reduced)
Aux. Building Area 7	565	N-S	7.5 Hz	0.59	0.407	1.45	0.385
			21 Hz	0.37	0.220	1.68	0.446
Aux. Building Area 7	565	E-W	21 Hz	0.34	0.220	1.55	0.410
Aux. Building Area 7	585	N-S	7.5 Hz	0.85	0.407	2.09	0.554
			21 Hz	0.48	0.220	2.18	0.579
Aux. Building Area 7	585	E-W	16.5 Hz	0.58	0.220	2.64	0.699
Aux. Building Area 7	603	N-S	7.5 Hz	1.28	0.407	3.14	0.834
			21 Hz	0.55	0.207	2.66	0.705
Aux. Building Area 7	603	E-W	16.5 Hz	0.76	0.250	3.04	0.806
Aux. Building Area 8	564	N-S	8 Hz	0.5	0.407	1.23	0.326
			21 Hz	0.28	0.220	1.27	0.338
Aux. Building Area 8	564	E-W	8 Hz	0.5	0.407	1.23	0.326
			21 Hz	0.24	0.214	1.12	0.297
Aux. Building Area 8	584	N-S	7-9 Hz	0.63	0.407	1.55	0.411
			21 Hz	0.41	0.214	1.92	0.508
Aux. Building Area 8	584	E-W	8-12 Hz	0.58	0.342	1.70	0.450
			21 Hz	0.24	0.214	1.12	0.297
Aux. Building Area 8	603	N-S	7-10 Hz	0.85	0.384	2.21	0.587
			21 Hz	0.48	0.179	2.68	0.711
Aux. Building Area 8	603	E-W	8-12 Hz	0.8	0.342	2.34	0.620
			21 Hz	0.25	0.179	1.40	0.370

Auxiliary Building Area 7 Effective Grade Plus Forty Feet = 562' + 40' = 602'
Auxiliary Building Area 8 Effective Grade Plus Forty Feet = 567' + 40' = 607'

* PR_{SRP} - defined as the Peak Ratio (Floor to Ground) for the SRP-type spectra, which have been reduced by the 3.77 reduction factor to reflect the "median-centered" response as opposed to the "conservative design" response.

Table 4: Davis-Besse Amplification Factors for Both the Original and the New Conservative Spectra

			Reg Guide 1.60 Conservative SSE Spectra (SRP)					Original Licensing (Conservative) Spectra					
Building	Elev.	Direction	Frequency	Peak S_a (5%, g's)	Ground S_a (5%, g's)	Peak Ratio	PR_{SRP} Ginna Reduced *	Frequency	Peak S_a (5%, g's)	Ground S_a (5%, g's)	Peak Ratio	PR_{OL} Ginna Reduced *	Reduction Ratio ** (Original Licensing/SRP)
Aux. Building Area 7	565	N-S	7.5 Hz	0.59	0.407	1.45	0.385	19.800	0.672	0.172	3.907	1.036	2.323
			21 Hz	0.37	0.220	1.68	0.446						
Aux. Building Area 7	565	E-W	21 Hz	0.34	0.220	1.55	0.410	15.400	0.621	0.253	2.455	0.651	1.588
Aux. Building Area 7	585	N-S	7.5 Hz	0.85	0.407	2.09	0.554	19.800	0.939	0.172	5.459	1.448	2.502
			21 Hz	0.48	0.220	2.18	0.579						
Aux. Building Area 7	585	E-W	16.5 Hz	0.58	0.220	2.64	0.699	19.800	0.655	0.172	3.808	1.010	1.444
Aux. Building Area 7	603	N-S	7.5 Hz	1.28	0.407	3.14	0.834	19.800	1.019	0.172	5.924	1.571	1.884
			21 Hz	0.55	0.207	2.66	0.705						
Aux. Building Area 7	603	E-W	16.5 Hz	0.76	0.250	3.04	0.806	19.800	0.81	0.172	4.709	1.249	1.549
Aux. Building Area 8	564	N-S	8 Hz	0.5	0.407	1.23	0.326	21.000	0.398	0.150	2.653	0.704	2.085
			21 Hz	0.28	0.220	1.27	0.338						
Aux. Building Area 8	564	E-W	8 Hz	0.5	0.407	1.23	0.326	21.000	0.332	0.150	2.213	0.587	1.802
			21 Hz	0.24	0.214	1.12	0.297						
Aux. Building Area 8	584	N-S	7-9 Hz	0.63	0.407	1.55	0.411	22.000	0.618	0.150	4.120	1.093	2.150
			21 Hz	0.41	0.214	1.92	0.508						
Aux. Building Area 8	584	E-W	8-12 Hz	0.58	0.342	1.70	0.450	12.309	0.845	0.310	2.726	0.723	1.607
			21 Hz	0.24	0.214	1.12	0.297						
Aux. Building Area 8	603	N-S	7-10 Hz	0.85	0.384	2.21	0.587	9.999	1.751	0.353	4.960	1.316	1.850
			21 Hz	0.48	0.179	2.68	0.711						
Aux. Building Area 8	603	E-W	8-12 Hz	0.8	0.342	2.34	0.620	12.309	1.467	0.310	4.732	1.255	2.023
			21 Hz	0.25	0.179	1.40	0.370						

Average = 1.901 ≈ 1.9

Auxiliary Building Area 7 Effective Grade Plus Forty Feet = 562' + 40' = 602'
Auxiliary Building Area 8 Effective Grade Plus Forty Feet = 567' + 40' = 607'

* **Reduction by a factor of 3.77**
** **Ratio of the Licensing Basis Peak Ratio to the SRP Peak Ratio**

Table 5: Estimation of Amplification Factors for Intake, Containment Internal and Aux Area 6 Buildings

			Original Licensing (Conservative) Spectra					Estimate Conservative SSE Spectra (SRP)
Building	Elev.	Direction	Frequency	Peak S_a (5%, g's)	Ground S_a (5%, g's)	Peak Ratio	Ginna Reduced (PR_{OL})	Ginna Reduced (PR_{SRP})
Aux. Building Area 6	585	N-S	7.700	2.421	0.390	6.208	1.647	0.867
Aux. Building Area 6	585	E-W	7.700	2.745	0.390	7.038	1.867	0.983
Aux. Building Area 6	603	N-S	7.700	3.1	0.390	7.949	2.108	1.110
Aux. Building Area 6	603	E-W	7.700	3.243	0.390	8.315	2.206	1.161

Auxiliary Building Area 6 Effective Grade Plus Forty Feet = 573' + 40' = 613'

			Original Licensing (Conservative) Spectra					Estimate Conservative SSE Spectra (SRP)
Building	Elev.	Direction	Frequency	Peak S_a (5%, g's)	Ground S_a (5%, g's)	Peak Ratio	Ginna Reduced (PR_{OL})	Ginna Reduced (PR_{SRP})
Containment Internal	570.75	N-S	21.000	0.331	0.150	2.207	0.585	*
Containment Internal	570.75	E-W	21.000	0.343	0.150	2.287	0.607	*
Containment Internal	574.00	N-S	21.000	0.333	0.150	2.220	0.589	*
Containment Internal	574.00	E-W	21.000	0.353	0.150	2.353	0.624	*
Containment Internal	578.00	N-S	21.000	0.334	0.150	2.227	0.591	*
Containment Internal	578.00	E-W	21.000	0.359	0.150	2.393	0.635	*
Containment Internal	585.00	N-S	21.000	0.346	0.150	2.307	0.612	*
Containment Internal	585.00	E-W	27.500	0.360	0.150	2.400	0.637	*
Containment Internal	595.00	N-S	10.350	1.021	0.347	2.942	0.780	*
Containment Internal	595.00	E-W	27.500	0.461	0.150	3.073	0.815	*
Containment Internal	603.00	N-S	13.200	1.335	0.294	4.541	1.204	*
Containment Internal	603.00	E-W	9.900	1.284	0.355	3.617	0.959	*
Containment Internal	606.00	N-S	13.200	1.486	0.294	5.054	1.341	*
Containment Internal	606.00	E-W	9.900	1.392	0.355	3.921	1.040	*

Containment Internal Effective Grade Plus Forty Feet = 565' + 40' = 605'

			Original Licensing (Conservative) Spectra					Estimate Conservative SSE Spectra (SRP)
Building	Elev.	Direction	Frequency	Peak S_a (5%, g's)	Ground S_a (5%, g's)	Peak Ratio	Ginna Reduced (PR_{OL})	Ginna Reduced (PR_{SRP})
Intake Structure	561.00	N-S	15.400	1.357	0.253	5.364	1.423	*
Intake Structure	561.00	E-W	22.000	0.583	0.150	3.887	1.031	*
Intake Structure	576.00	N-S	15.400	1.895	0.253	7.490	1.987	1.046
Intake Structure	576.00	E-W	22.429	0.998	0.150	6.653	1.765	0.929
Intake Structure	585.00	N-S	15.400	2.158	0.253	8.530	2.263	1.191
Intake Structure	585.00	E-W	22.429	1.202	0.150	8.013	2.126	1.119

Intake Structure Effective Grade Plus Forty Feet = 569' + 40' = 609'

* Since peak amplification ratios from the original conservative licensing basis spectra (PR_{OL}) already fall below 1.5 for this floor level, no further calculations required.

Generic Reduction Factor: Conservative Design Amplification Factors vs. Median-Centered Amplification Factors

Generic Reduction Factor for Estimating Median-Centered Amplification Factors

In a May 25, 1999 letter from Rochester Gas & Electric to the NRC[1], a comparison evaluation of overall seismic margins between median-centered and design basis analysis for nuclear power plant structures at various facilities was presented. The information was developed by the Seismic Qualification Utility Group, (SQUG) and was meant to demonstrate that factors of safety in original design basis analysis can be shown to be in the range of 2.5 to 5. Table 6 with this information is attached to this letter.

The data in the table are from 5 reinforced concrete shear wall structures at 4 different plants typical of those found at nuclear power plants. The five structures at the Davis-Besse Nuclear Power Station (DBNPS) are all concrete shear wall structures and are similar from a structural response perspective to those summarized in Table 6. In the June 17, 1999 SER from the NRC to Rochester Gas & Electric[2], the staff considered the 5 ratios of the conservative design spectra to median-centered spectra. Factors of conservatism are seen to range from 2.3 to 5.4. The mean of the ratios is 3.77, which was used as part of the Ginna Method A RAI response and is also used with this response for DBNPS.

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[1] Letter from R.C. Mecredy (Rochester Gas and Electric) to G. Vissing (USNRC), "Additional Information of Use of GIP Method A, R.E. Ginna Nuclear Power Plant, Docket No. 50/244", May 25, 1999.

[2] Letter from G. Vissing (USNRC) to R.C. Mecredy (Rochester Gas and Electric), "Plant-Specific Safety Evaluation Report for USI A-46 Program Implementation at the R.E. Ginna Nuclear Power Plant (TAC No. M69449)", June 17, 1999.

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Table 6: Comparison of Design Basis to Median-Centered (Peak Spectral Response Comparison)

Plant	Building	Construction	Estimated Frequency	Comments	Damping**	Design Basis Analysis Peak S_a	Median Centered Peak S_a	Margin Design/ Median	Ground Spectra
A[1]	Auxiliary Building	5 Story, Reinforced Concrete Shear Wall	7-8 Hz	Rock Site	2%	3.8g	1.5g (Figure 1)	2.53	0.12g Reg Guide 1.60
B	Reactor Building Interior Structure	Reinforced Concrete Shear Wall	10-13 Hz	Rock/Soil	5%	5.8g*	1.1g (Figure 3)	5.3	0.12g Site Specific
B	Reactor Building Exterior Shell	Reinforced Concrete Shear Wall	4 Hz 12 Hz	Rock/Soil	5%	2.2g*	0.67g (Figure 6)	3.3	0.12g Site Specific
C[2]	Containment Interior Structure	Reinforced Concrete Shear Wall	10 Hz	Rock Site	5%	10.7g	4.7g (Figure 7)	2.3	0.75g Hosgri
D	Auxiliary Building	Reinforced Concrete Shear Wall	10 Hz	Rock/Soil	5%	1.4g	0.26g[3] (Figure 9)	5.4	0.1g Modified Newmark

* SSE defined as 2 x OBE for this Plant's Design Basis.
** Equipment damping value applies both to design basis ISRS and median-centered ISRS.
1 Plant A is Comanche Peak, information is on the NRC Docket.
2 Plant C is Diablo Canyon, information is on the NRC Docket. It should be noted that the reanalysis for the 0.75g Hosgri earthquake was done relative recently, and had less inherent conservatism in the design basis response analysis than older plants such as Ginna. Thus, the margin of 2.3 (design peak/median peak) is judged to be on the lower side of the margins expected for older plants.
3 Median Value was scaled to reflect the fact that the median ISRS were generated for a Reg Guide 1.60 shape (conservative), instead of the Plant D Design SSE.