R. R. Sgarro
Director - Regulatory Affairs

PPL Bell Bend, LLC
Two North Ninth Street
Allentown, PA 18101-1179
Tel. 610.774.7552 Fax 610.774.2618
rrsgarro@pplweb.com

November 15, 2013

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

BELL BEND NUCLEAR POWER PLANT
UPDATED FRACTILE CURVES FOR BBNPP
COLA PART 2, (FSAR); SECTION 2.5
BNP-2013-151 Docket No. 52-039

Reference: BNP-2013-050, R. R. Sgarro (PPL Bell Bend, LLC) to U.S. NRC, "Submittal of Bell Bend COLA Revision 4" dated April 12, 2013

In the referenced correspondence, PPL Bell Bend, LLC (PPL) submitted to the U.S. Nuclear Regulatory Commission (NRC), Revision 4 to the Combined License Application (COLA) for the Bell Bend Nuclear Power Plant (BBNPP). Subsequent to the submittal, an error was found in code used to calculate some of the Fractile Curves used in COLA Part 2 Final Safety Analysis Report (FSAR) Section 2.5. The purpose of this letter is to provide updated tables and figures based on the corrected Fractile Curves. The Enclosure provides marked-up tables and figures indicating which tables and figures are to be replaced.

The marked-up tables and figures will be included in a future COLA revision and that is the only new regulatory commitment in this correspondence.

Should you have questions, please contact the undersigned at 610.774.7552.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on November 15, 2013.

Respectfully,

Rocco R. Sgarro

RRS/kw

Enclosure: FSAR 2.5 Tables and Figures Mark-up

D102
A053

cc: w/ Enclosure

Mr. Michael Takacs
Project Manager
U.S. Nuclear Regulatory Commission
11545 Rockville Pike, Mail Stop T6-E55M
Rockville, MD 20852

w/o Enclosure

Mr. William Dean
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

Enclosure

FSAR 2.5 Tables and Figures Mark-up

Table 2.5-6— {Mean and Fractile Rock Hazard Curves for PGA}

Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	3.71E-03	1.91E-03	2.31E-03	3.28E-03	4.89E-03	6.41E-03
0.02	1.39E-03	6.63E-04	8.27E-04	1.19E-03	1.86E-03	2.59E-03
0.03	7.17E-04	3.32E-04	4.16E-04	6.14E-04	9.88E-04	1.37E-03
0.04	4.34E-04	2.02E-04	2.52E-04	3.70E-04	5.90E-04	8.42E-04
0.05	2.90E-04	1.36E-04	1.70E-04	2.48E-04	3.90E-04	5.51E-04
0.06	2.08E-04	9.99E-05	1.23E-04	1.78E-04	2.76E-04	3.86E-04
0.07	1.56E-04	7.62E-05	9.60E-05	1.35E-04	2.05E-04	2.85E-04
0.08	1.23E-04	6.00E-05	7.58E-05	1.07E-04	1.60E-04	2.18E-04
0.09	9.90E-05	4.86E-05	6.16E-05	8.92E-05	1.29E-04	1.74E-04
0.10	8.19E-05	4.02E-05	5.11E-05	7.41E-05	1.07E-04	1.42E-04
0.20	2.48E-05	1.14E-05	1.50E-05	2.25E-05	3.35E-05	4.26E-05
0.25	1.71E-05	7.81E-06	1.02E-05	1.51E-05	2.31E-05	2.96E-05
0.30	1.26E-05	5.51E-06	7.44E-06	1.11E-05	1.71E-05	2.22E-05
0.40	7.69E-06	3.11E-06	4.29E-06	6.90E-06	1.05E-05	1.40E-05
0.50	5.18E-06	1.94E-06	2.72E-06	4.54E-06	7.52E-06	9.99E-06
0.60	3.70E-06	1.29E-06	1.85E-06	3.15E-06	5.44E-06	7.62E-06
0.70	2.76E-06	9.42E-07	1.30E-06	2.31E-06	4.09E-06	5.88E-06
0.80	2.12E-06	6.85E-07	9.97E-07	1.72E-06	3.17E-06	4.65E-06
0.90	1.67E-06	5.10E-07	7.54E-07	1.32E-06	2.49E-06	3.75E-06
1.00	1.34E-06	3.90E-07	5.83E-07	1.05E-06	2.01E-06	3.08E-06
2.00	2.54E-07	5.14E-08	8.37E-08	1.74E-07	3.94E-07	7.18E-07
3.00	7.72E-08	1.19E-08	2.04E-08	4.82E-08	1.15E-07	2.40E-07
5.00	1.27E-08	1.36E-09	2.54E-09	6.79E-09	1.92E-08	4.49E-08

Replace with T2.5-6

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-6

Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	3.71E-03	1.32E-03	1.81E-03	3.07E-03	5.63E-03	8.11E-03
0.02	1.39E-03	4.21E-04	5.98E-04	1.09E-03	2.19E-03	3.37E-03
0.03	7.18E-04	2.10E-04	3.04E-04	5.45E-04	1.13E-03	1.82E-03
0.04	4.34E-04	1.25E-04	1.86E-04	3.32E-04	6.71E-04	1.09E-03
0.05	2.90E-04	8.12E-05	1.24E-04	2.25E-04	4.46E-04	7.17E-04
0.06	2.08E-04	5.78E-05	8.82E-05	1.65E-04	3.17E-04	5.10E-04
0.07	1.56E-04	4.29E-05	6.68E-05	1.26E-04	2.38E-04	3.79E-04
0.08	1.23E-04	3.33E-05	5.25E-05	9.80E-05	1.86E-04	2.94E-04
0.09	9.90E-05	2.66E-05	4.23E-05	8.01E-05	1.50E-04	2.36E-04
0.10	8.19E-05	2.15E-05	3.49E-05	6.70E-05	1.26E-04	1.95E-04
0.20	2.48E-05	5.22E-06	9.55E-06	2.10E-05	4.00E-05	5.79E-05
0.25	1.71E-05	3.31E-06	6.19E-06	1.41E-05	2.81E-05	4.12E-05
0.30	1.26E-05	2.23E-06	4.29E-06	1.02E-05	2.10E-05	3.12E-05
0.40	7.69E-06	1.17E-06	2.38E-06	5.86E-06	1.33E-05	2.03E-05
0.50	5.18E-06	6.71E-07	1.45E-06	3.80E-06	8.79E-06	1.45E-05
0.60	3.70E-06	4.24E-07	9.42E-07	2.60E-06	6.36E-06	1.09E-05
0.70	2.76E-06	2.80E-07	6.43E-07	1.88E-06	4.82E-06	8.26E-06
0.80	2.12E-06	1.96E-07	4.60E-07	1.40E-06	3.73E-06	6.63E-06
0.90	1.67E-06	1.38E-07	3.35E-07	1.05E-06	2.95E-06	5.40E-06
1.00	1.34E-06	9.92E-08	2.50E-07	8.03E-07	2.36E-06	4.43E-06
2.00	2.54E-07	8.73E-09	2.66E-08	1.14E-07	4.21E-07	9.57E-07
3.00	7.72E-08	1.58E-09	5.26E-09	2.82E-08	1.23E-07	3.25E-07
5.00	1.27E-08	1.09E-10	4.65E-10	3.36E-09	1.73E-08	6.15E-08

Table 2.5-7— {Mean and Fractile Rock Hazard Curves for 25-Hz PSA}

Pseudo- Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	8.08E-03	4.38E-03	5.26E-03	7.20E-03	1.05E-02	1.37E-02
0.02	4.08E-03	1.97E-03	2.40E-03	3.44E-03	5.61E-03	7.87E-03
0.03	2.60E-03	1.18E-03	1.47E-03	2.13E-03	3.61E-03	5.24E-03
0.04	1.82E-03	8.08E-04	9.99E-04	1.50E-03	2.56E-03	3.79E-03
0.05	1.36E-03	5.82E-04	7.35E-04	1.10E-03	1.90E-03	2.88E-03
0.06	1.06E-03	4.40E-04	5.58E-04	8.60E-04	1.48E-03	2.25E-03
0.07	8.46E-04	3.47E-04	4.41E-04	6.82E-04	1.20E-03	1.83E-03
0.08	6.94E-04	2.81E-04	3.57E-04	5.55E-04	9.98E-04	1.50E-03
0.09	5.79E-04	2.32E-04	2.96E-04	4.60E-04	8.38E-04	1.26E-03
0.10	4.91E-04	1.96E-04	2.50E-04	3.88E-04	7.12E-04	1.08E-03
0.20	1.55E-04	6.28E-05	8.11E-05	1.22E-04	2.17E-04	3.41E-04
0.25	1.05E-04	4.28E-05	5.55E-05	8.51E-05	1.44E-04	2.25E-04
0.30	7.64E-05	3.12E-05	4.06E-05	6.24E-05	1.05E-04	1.61E-04
0.40	4.61E-05	1.86E-05	2.48E-05	3.84E-05	6.47E-05	9.74E-05
0.50	3.11E-05	1.25E-05	1.67E-05	2.63E-05	4.35E-05	6.32E-05
0.60	2.26E-05	9.31E-06	1.20E-05	1.92E-05	3.16E-05	4.47E-05
0.70	1.72E-05	6.99E-06	9.50E-06	1.46E-05	2.40E-05	3.36E-05
0.80	1.36E-05	5.39E-06	7.41E-06	1.14E-05	1.91E-05	2.64E-05
0.90	1.10E-05	4.28E-06	5.92E-06	9.70E-06	1.55E-05	2.13E-05
1.00	9.15E-06	3.46E-06	4.83E-06	8.03E-06	1.29E-05	1.77E-05
2.00	2.54E-06	7.85E-07	1.11E-06	2.04E-06	3.84E-06	5.73E-06
3.00	1.12E-06	2.79E-07	4.30E-07	8.55E-07	1.71E-06	2.79E-06
5.00	3.60E-07	6.61E-08	1.05E-07	2.35E-07	5.61E-07	1.00E-06

Replace with T2.5-7

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-7

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	8.08E-03	3.25E-03	4.22E-03	6.67E-03	1.14E-02	1.79E-02
0.02	4.08E-03	1.36E-03	1.87E-03	3.15E-03	5.90E-03	1.04E-02
0.03	2.60E-03	7.62E-04	1.10E-03	1.94E-03	3.85E-03	6.97E-03
0.04	1.82E-03	5.00E-04	7.20E-04	1.32E-03	2.76E-03	5.10E-03
0.05	1.36E-03	3.55E-04	5.18E-04	9.50E-04	2.07E-03	3.93E-03
0.06	1.06E-03	2.67E-04	3.92E-04	7.27E-04	1.60E-03	3.12E-03
0.07	8.46E-04	2.08E-04	3.08E-04	5.75E-04	1.27E-03	2.54E-03
0.08	6.94E-04	1.68E-04	2.50E-04	4.69E-04	1.04E-03	2.08E-03
0.09	5.79E-04	1.38E-04	2.07E-04	3.87E-04	8.52E-04	1.77E-03
0.10	4.91E-04	1.15E-04	1.75E-04	3.29E-04	7.17E-04	1.50E-03
0.20	1.55E-04	3.26E-05	5.28E-05	1.06E-04	2.22E-04	4.82E-04
0.25	1.05E-04	2.17E-05	3.59E-05	7.27E-05	1.50E-04	3.23E-04
0.30	7.64E-05	1.53E-05	2.60E-05	5.38E-05	1.11E-04	2.34E-04
0.40	4.61E-05	8.59E-06	1.56E-05	3.34E-05	6.88E-05	1.34E-04
0.50	3.11E-05	5.50E-06	1.03E-05	2.32E-05	4.88E-05	8.70E-05
0.60	2.26E-05	3.82E-06	7.16E-06	1.70E-05	3.66E-05	6.20E-05
0.70	1.72E-05	2.77E-06	5.28E-06	1.31E-05	2.85E-05	4.64E-05
0.80	1.36E-05	2.09E-06	4.05E-06	9.91E-06	2.32E-05	3.68E-05
0.90	1.10E-05	1.59E-06	3.17E-06	7.98E-06	1.89E-05	3.01E-05
1.00	9.15E-06	1.26E-06	2.54E-06	6.54E-06	1.59E-05	2.53E-05
2.00	2.54E-06	2.23E-07	5.10E-07	1.58E-06	4.47E-06	8.17E-06
3.00	1.12E-06	6.69E-08	1.70E-07	5.81E-07	1.99E-06	4.02E-06
5.00	3.60E-07	1.21E-08	3.44E-08	1.45E-07	5.93E-07	1.40E-06

Table 2.5-8— {Mean and Fractile Rock Hazard Curves for 10 Hz PSA}

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	8.34E-03	5.13E-03	6.00E-03	7.76E-03	1.03E-02	1.25E-02
0.02	3.66E-03	2.07E-03	2.44E-03	3.27E-03	4.65E-03	6.05E-03
0.03	2.10E-03	1.14E-03	1.38E-03	1.86E-03	2.68E-03	3.60E-03
0.04	1.37E-03	7.43E-04	8.94E-04	1.21E-03	1.76E-03	2.39E-03
0.05	9.61E-04	5.13E-04	6.20E-04	8.56E-04	1.24E-03	1.68E-03
0.06	7.10E-04	3.76E-04	4.55E-04	6.28E-04	9.29E-04	1.24E-03
0.07	5.44E-04	2.89E-04	3.48E-04	4.82E-04	7.08E-04	9.70E-04
0.08	4.30E-04	2.29E-04	2.76E-04	3.80E-04	5.57E-04	7.61E-04
0.09	3.48E-04	1.86E-04	2.24E-04	3.07E-04	4.47E-04	6.05E-04
0.10	2.87E-04	1.54E-04	1.86E-04	2.55E-04	3.67E-04	4.95E-04
0.20	8.00E-05	4.37E-05	5.40E-05	7.46E-05	1.02E-04	1.27E-04
0.25	5.33E-05	2.86E-05	3.57E-05	4.98E-05	6.90E-05	8.52E-05
0.30	3.84E-05	2.02E-05	2.55E-05	3.59E-05	5.01E-05	6.16E-05
0.40	2.31E-05	1.15E-05	1.47E-05	2.13E-05	3.03E-05	3.74E-05
0.50	1.55E-05	7.69E-06	9.98E-06	1.41E-05	2.05E-05	2.56E-05
0.60	1.12E-05	5.32E-06	7.03E-06	1.02E-05	1.48E-05	1.86E-05
0.70	8.50E-06	3.88E-06	5.19E-06	7.89E-06	1.11E-05	1.42E-05
0.80	6.64E-06	2.94E-06	3.96E-06	6.12E-06	9.20E-06	1.13E-05
0.90	5.32E-06	2.27E-06	3.10E-06	4.85E-06	7.42E-06	9.62E-06
1.00	4.34E-06	1.80E-06	2.48E-06	3.93E-06	6.10E-06	7.99E-06
2.00	1.00E-06	3.58E-07	5.15E-07	8.78E-07	1.42E-06	2.01E-06
3.00	3.70E-07	1.16E-07	1.72E-07	3.08E-07	5.51E-07	8.06E-07
5.00	8.74E-08	2.37E-08	3.66E-08	6.98E-08	1.27E-07	2.02E-07

Replace with T2.5-8

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-8

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	8.34E-03	3.94E-03	5.09E-03	7.53E-03	1.14E-02	1.56E-02
0.02	3.66E-03	1.50E-03	2.04E-03	3.21E-03	5.10E-03	7.49E-03
0.03	2.10E-03	7.95E-04	1.11E-03	1.82E-03	3.00E-03	4.54E-03
0.04	1.37E-03	5.01E-04	6.95E-04	1.17E-03	1.99E-03	3.03E-03
0.05	9.61E-04	3.46E-04	4.83E-04	8.09E-04	1.41E-03	2.16E-03
0.06	7.10E-04	2.53E-04	3.57E-04	5.99E-04	1.04E-03	1.60E-03
0.07	5.44E-04	1.94E-04	2.75E-04	4.61E-04	7.84E-04	1.23E-03
0.08	4.30E-04	1.51E-04	2.18E-04	3.66E-04	6.19E-04	9.54E-04
0.09	3.48E-04	1.23E-04	1.77E-04	2.97E-04	5.02E-04	7.64E-04
0.10	2.87E-04	9.87E-05	1.47E-04	2.48E-04	4.15E-04	6.28E-04
0.20	8.00E-05	2.56E-05	3.97E-05	7.01E-05	1.21E-04	1.69E-04
0.25	5.33E-05	1.60E-05	2.59E-05	4.71E-05	8.07E-05	1.14E-04
0.30	3.84E-05	1.09E-05	1.82E-05	3.41E-05	5.93E-05	8.09E-05
0.40	2.31E-05	5.72E-06	1.03E-05	2.04E-05	3.64E-05	5.00E-05
0.50	1.55E-05	3.49E-06	6.37E-06	1.37E-05	2.49E-05	3.48E-05
0.60	1.12E-05	2.32E-06	4.36E-06	9.50E-06	1.86E-05	2.59E-05
0.70	8.50E-06	1.67E-06	3.15E-06	7.08E-06	1.41E-05	2.03E-05
0.80	6.64E-06	1.22E-06	2.36E-06	5.48E-06	1.12E-05	1.63E-05
0.90	5.32E-06	8.94E-07	1.83E-06	4.34E-06	8.84E-06	1.34E-05
1.00	4.34E-06	6.90E-07	1.44E-06	3.50E-06	7.29E-06	1.12E-05
2.00	1.00E-06	1.05E-07	2.53E-07	7.21E-07	1.77E-06	2.90E-06
3.00	3.70E-07	2.87E-08	7.71E-08	2.49E-07	6.53E-07	1.16E-06
5.00	8.74E-08	4.27E-09	1.39E-08	5.17E-08	1.58E-07	2.97E-07

Table 2.5-9— {Mean and Fractile Rock Hazard Curves for 5 Hz PSA}

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	7.50E-03	4.57E-03	5.41E-03	7.08E-03	9.29E-03	1.10E-02
0.02	2.91E-03	1.65E-03	1.96E-03	2.63E-03	3.65E-03	4.65E-03
0.03	1.55E-03	8.46E-04	1.01E-03	1.38E-03	1.95E-03	2.59E-03
0.04	9.51E-04	5.05E-04	6.13E-04	8.45E-04	1.21E-03	1.65E-03
0.05	6.41E-04	3.34E-04	4.06E-04	5.60E-04	8.19E-04	1.13E-03
0.06	4.58E-04	2.38E-04	2.89E-04	3.97E-04	5.82E-04	8.20E-04
0.07	3.43E-04	1.77E-04	2.15E-04	2.96E-04	4.31E-04	6.08E-04
0.08	2.65E-04	1.38E-04	1.68E-04	2.30E-04	3.33E-04	4.67E-04
0.09	2.11E-04	1.10E-04	1.34E-04	1.84E-04	2.64E-04	3.66E-04
0.10	1.72E-04	9.12E-05	1.10E-04	1.50E-04	2.15E-04	2.95E-04
0.20	4.37E-05	2.28E-05	2.85E-05	4.02E-05	5.67E-05	7.18E-05
0.25	2.83E-05	1.44E-05	1.83E-05	2.60E-05	3.68E-05	4.59E-05
0.30	1.99E-05	1.00E-05	1.26E-05	1.81E-05	2.59E-05	3.23E-05
0.40	1.14E-05	5.57E-06	7.25E-06	1.04E-05	1.48E-05	1.86E-05
0.50	7.34E-06	3.46E-06	4.56E-06	6.83E-06	9.98E-06	1.20E-05
0.60	5.10E-06	2.31E-06	3.08E-06	4.69E-06	7.00E-06	8.93E-06
0.70	3.73E-06	1.62E-06	2.19E-06	3.39E-06	5.15E-06	6.64E-06
0.80	2.82E-06	1.19E-06	1.62E-06	2.54E-06	3.92E-06	5.13E-06
0.90	2.20E-06	9.33E-07	1.23E-06	1.94E-06	3.04E-06	4.02E-06
1.00	1.75E-06	7.25E-07	9.97E-07	1.53E-06	2.43E-06	3.24E-06
2.00	3.35E-07	1.14E-07	1.65E-07	2.84E-07	4.86E-07	6.94E-07
3.00	1.10E-07	3.39E-08	5.06E-08	9.12E-08	1.59E-07	2.43E-07
5.00	2.28E-08	5.69E-09	8.97E-09	1.69E-08	3.43E-08	5.73E-08

Replace with T2.5-9

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-9

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	7.50E-03	3.43E-03	4.61E-03	6.99E-03	1.04E-02	1.33E-02
0.02	2.91E-03	1.16E-03	1.62E-03	2.63E-03	4.18E-03	5.68E-03
0.03	1.55E-03	5.71E-04	8.01E-04	1.36E-03	2.27E-03	3.23E-03
0.04	9.51E-04	3.39E-04	4.81E-04	8.11E-04	1.41E-03	2.08E-03
0.05	6.41E-04	2.24E-04	3.21E-04	5.43E-04	9.37E-04	1.43E-03
0.06	4.58E-04	1.58E-04	2.28E-04	3.87E-04	6.71E-04	1.03E-03
0.07	3.43E-04	1.17E-04	1.70E-04	2.91E-04	5.03E-04	7.62E-04
0.08	2.65E-04	8.84E-05	1.32E-04	2.27E-04	3.90E-04	5.86E-04
0.09	2.11E-04	6.98E-05	1.05E-04	1.82E-04	3.11E-04	4.65E-04
0.10	1.72E-04	5.62E-05	8.36E-05	1.48E-04	2.54E-04	3.76E-04
0.20	4.37E-05	1.31E-05	2.09E-05	3.84E-05	6.64E-05	9.25E-05
0.25	2.83E-05	7.77E-06	1.32E-05	2.50E-05	4.38E-05	6.03E-05
0.30	1.99E-05	5.11E-06	8.75E-06	1.75E-05	3.11E-05	4.31E-05
0.40	1.14E-05	2.62E-06	4.70E-06	9.74E-06	1.84E-05	2.56E-05
0.50	7.34E-06	1.54E-06	2.87E-06	6.20E-06	1.21E-05	1.73E-05
0.60	5.10E-06	9.78E-07	1.90E-06	4.27E-06	8.33E-06	1.23E-05
0.70	3.73E-06	6.69E-07	1.32E-06	3.08E-06	6.16E-06	9.03E-06
0.80	2.82E-06	4.74E-07	9.44E-07	2.31E-06	4.70E-06	6.98E-06
0.90	2.20E-06	3.49E-07	7.12E-07	1.77E-06	3.69E-06	5.52E-06
1.00	1.75E-06	2.62E-07	5.47E-07	1.41E-06	2.95E-06	4.50E-06
2.00	3.35E-07	3.24E-08	8.06E-08	2.39E-07	5.80E-07	9.60E-07
3.00	1.10E-07	7.71E-09	2.13E-08	7.05E-08	1.94E-07	3.47E-07
5.00	2.28E-08	9.06E-10	2.94E-09	1.23E-08	3.94E-08	8.01E-08

Table 2.5-10— {Mean and Fractile Rock Hazard Curves for 2.5-Hz PSA}

Pseudo- Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	4.88E-03	2.72E-03	3.29E-03	4.48E-03	6.22E-03	7.72E-03
0.02	1.67E-03	8.41E-04	1.02E-03	1.45E-03	2.19E-03	3.06E-03
0.03	8.22E-04	3.84E-04	4.75E-04	6.85E-04	1.06E-03	1.61E-03
0.04	4.81E-04	2.16E-04	2.67E-04	3.84E-04	6.09E-04	9.94E-04
0.05	3.11E-04	1.38E-04	1.71E-04	2.43E-04	3.83E-04	6.50E-04
0.06	2.15E-04	9.66E-05	1.18E-04	1.68E-04	2.58E-04	4.46E-04
0.07	1.56E-04	6.97E-05	8.70E-05	1.22E-04	1.86E-04	3.18E-04
0.08	1.18E-04	5.23E-05	6.55E-05	9.37E-05	1.40E-04	2.37E-04
0.09	9.13E-05	4.05E-05	5.09E-05	7.28E-05	1.09E-04	1.82E-04
0.10	7.27E-05	3.22E-05	4.05E-05	5.82E-05	8.86E-05	1.42E-04
0.20	1.55E-05	7.14E-06	9.23E-06	1.32E-05	2.00E-05	2.78E-05
0.25	9.43E-06	4.29E-06	5.61E-06	8.42E-06	1.23E-05	1.67E-05
0.30	6.29E-06	2.81E-06	3.71E-06	5.64E-06	8.61E-06	1.11E-05
0.40	3.33E-06	1.41E-06	1.90E-06	2.96E-06	4.60E-06	6.09E-06
0.50	2.02E-06	8.50E-07	1.12E-06	1.77E-06	2.82E-06	3.77E-06
0.60	1.34E-06	5.36E-07	7.40E-07	1.15E-06	1.85E-06	2.53E-06
0.70	9.38E-07	3.61E-07	5.04E-07	8.28E-07	1.30E-06	1.81E-06
0.80	6.85E-07	2.52E-07	3.57E-07	5.98E-07	9.92E-07	1.33E-06
0.90	5.17E-07	1.84E-07	2.62E-07	4.46E-07	7.53E-07	1.02E-06
1.00	3.99E-07	1.36E-07	1.96E-07	3.39E-07	5.81E-07	8.37E-07
2.00	6.34E-08	1.65E-08	2.59E-08	5.01E-08	9.64E-08	1.45E-07
3.00	1.85E-08	4.00E-09	6.64E-09	1.34E-08	2.83E-08	4.73E-08
5.00	3.22E-09	4.95E-10	9.04E-10	2.11E-09	5.10E-09	9.20E-09

Replace with T2.5-10

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-10

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	4.88E-03	2.11E-03	2.86E-03	4.51E-03	6.91E-03	8.96E-03
0.02	1.67E-03	6.01E-04	8.45E-04	1.45E-03	2.47E-03	3.57E-03
0.03	8.22E-04	2.72E-04	3.89E-04	6.73E-04	1.22E-03	1.93E-03
0.04	4.81E-04	1.50E-04	2.19E-04	3.81E-04	6.92E-04	1.18E-03
0.05	3.11E-04	9.18E-05	1.38E-04	2.42E-04	4.42E-04	7.68E-04
0.06	2.15E-04	6.16E-05	9.23E-05	1.66E-04	3.03E-04	5.37E-04
0.07	1.56E-04	4.38E-05	6.63E-05	1.21E-04	2.22E-04	3.92E-04
0.08	1.18E-04	3.23E-05	4.96E-05	8.94E-05	1.68E-04	2.95E-04
0.09	9.13E-05	2.48E-05	3.84E-05	6.99E-05	1.32E-04	2.28E-04
0.10	7.27E-05	1.95E-05	3.05E-05	5.61E-05	1.05E-04	1.79E-04
0.20	1.55E-05	3.56E-06	6.15E-06	1.28E-05	2.42E-05	3.67E-05
0.25	9.43E-06	2.05E-06	3.65E-06	7.71E-06	1.53E-05	2.26E-05
0.30	6.29E-06	1.28E-06	2.37E-06	5.16E-06	1.03E-05	1.54E-05
0.40	3.33E-06	5.97E-07	1.18E-06	2.71E-06	5.51E-06	8.25E-06
0.50	2.02E-06	3.27E-07	6.49E-07	1.60E-06	3.39E-06	5.22E-06
0.60	1.34E-06	1.94E-07	4.01E-07	1.04E-06	2.28E-06	3.59E-06
0.70	9.38E-07	1.23E-07	2.64E-07	6.97E-07	1.62E-06	2.60E-06
0.80	6.85E-07	7.92E-08	1.83E-07	4.98E-07	1.18E-06	1.95E-06
0.90	5.17E-07	5.47E-08	1.30E-07	3.71E-07	8.85E-07	1.52E-06
1.00	3.99E-07	3.84E-08	9.37E-08	2.81E-07	6.87E-07	1.20E-06
2.00	6.34E-08	2.81E-09	8.89E-09	3.59E-08	1.14E-07	2.21E-07
3.00	1.85E-08	4.55E-10	1.77E-09	8.64E-09	3.27E-08	6.91E-08
5.00	3.22E-09	3.13E-11	1.62E-10	1.12E-09	5.29E-09	1.36E-08

Table 2.5-11— {Mean and Fractile Rock Hazard Curves for 1 Hz PSA}

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	1.87E-03	7.58E-04	9.92E-04	1.55E-03	2.67E-03	3.93E-03
0.02	5.97E-04	1.84E-04	2.44E-04	4.10E-04	8.72E-04	1.59E-03
0.03	2.81E-04	7.58E-05	1.01E-04	1.72E-04	3.84E-04	8.28E-04
0.04	1.57E-04	3.85E-05	5.28E-05	9.17E-05	2.00E-04	4.73E-04
0.05	9.78E-05	2.26E-05	3.12E-05	5.41E-05	1.16E-04	2.89E-04
0.06	6.49E-05	1.46E-05	2.03E-05	3.51E-05	7.45E-05	1.93E-04
0.07	4.54E-05	1.01E-05	1.41E-05	2.42E-05	5.01E-05	1.31E-04
0.08	3.29E-05	7.39E-06	1.03E-05	1.76E-05	3.55E-05	9.55E-05
0.09	2.45E-05	5.48E-06	7.79E-06	1.32E-05	2.61E-05	6.98E-05
0.10	1.88E-05	4.19E-06	5.99E-06	1.03E-05	1.97E-05	5.22E-05
0.20	2.93E-06	7.19E-07	1.05E-06	1.89E-06	3.66E-06	6.85E-06
0.25	1.59E-06	3.93E-07	5.99E-07	1.10E-06	2.13E-06	3.68E-06
0.30	9.74E-07	2.39E-07	3.72E-07	7.19E-07	1.35E-06	2.27E-06
0.40	4.57E-07	1.08E-07	1.72E-07	3.49E-07	6.99E-07	1.08E-06
0.50	2.57E-07	5.77E-08	9.61E-08	1.95E-07	4.00E-07	6.36E-07
0.60	1.61E-07	3.33E-08	5.73E-08	1.20E-07	2.51E-07	4.04E-07
0.70	1.08E-07	2.05E-08	3.63E-08	8.16E-08	1.68E-07	2.75E-07
0.80	7.64E-08	1.34E-08	2.41E-08	5.63E-08	1.17E-07	1.95E-07
0.90	5.59E-08	9.42E-09	1.68E-08	4.01E-08	8.95E-08	1.43E-07
1.00	4.22E-08	6.58E-09	1.20E-08	2.94E-08	6.79E-08	1.11E-07
2.00	5.59E-09	4.95E-10	1.07E-09	3.27E-09	9.17E-09	1.68E-08
3.00	1.45E-09	8.62E-11	2.08E-10	7.51E-10	2.31E-09	4.87E-09
5.00	2.13E-10	6.90E-12	1.95E-11	8.70E-11	3.30E-10	7.73E-10

Replace with T2.5-11

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-11

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	1.87E-03	5.73E-04	8.49E-04	1.59E-03	2.91E-03	4.23E-03
0.02	5.97E-04	1.26E-04	2.02E-04	4.16E-04	9.52E-04	1.71E-03
0.03	2.81E-04	4.60E-05	7.80E-05	1.73E-04	4.28E-04	8.72E-04
0.04	1.57E-04	2.19E-05	3.90E-05	8.87E-05	2.27E-04	5.17E-04
0.05	9.78E-05	1.21E-05	2.24E-05	5.27E-05	1.33E-04	3.27E-04
0.06	6.49E-05	7.23E-06	1.41E-05	3.40E-05	8.40E-05	2.21E-04
0.07	4.54E-05	4.74E-06	9.31E-06	2.35E-05	5.74E-05	1.55E-04
0.08	3.29E-05	3.27E-06	6.52E-06	1.68E-05	4.11E-05	1.11E-04
0.09	2.45E-05	2.35E-06	4.74E-06	1.25E-05	3.08E-05	8.16E-05
0.10	1.88E-05	1.75E-06	3.57E-06	9.46E-06	2.40E-05	6.20E-05
0.20	2.93E-06	2.17E-07	4.95E-07	1.64E-06	4.55E-06	9.09E-06
0.25	1.59E-06	1.04E-07	2.55E-07	8.97E-07	2.70E-06	5.08E-06
0.30	9.74E-07	5.41E-08	1.47E-07	5.55E-07	1.74E-06	3.22E-06
0.40	4.57E-07	1.95E-08	5.64E-08	2.58E-07	8.35E-07	1.62E-06
0.50	2.57E-07	8.10E-09	2.65E-08	1.38E-07	4.81E-07	9.07E-07
0.60	1.61E-07	3.79E-09	1.39E-08	7.92E-08	3.03E-07	5.88E-07
0.70	1.08E-07	1.96E-09	7.56E-09	4.95E-08	2.04E-07	4.13E-07
0.80	7.64E-08	1.07E-09	4.48E-09	3.23E-08	1.44E-07	3.00E-07
0.90	5.59E-08	6.14E-10	2.77E-09	2.22E-08	1.05E-07	2.27E-07
1.00	4.22E-08	3.68E-10	1.77E-09	1.55E-08	7.68E-08	1.78E-07
2.00	5.59E-09	8.52E-12	6.63E-11	1.20E-09	8.91E-09	2.59E-08
3.00	1.45E-09	6.69E-13	7.00E-12	2.00E-10	2.09E-09	6.76E-09
5.00	2.13E-10	1.81E-14	3.05E-13	1.59E-11	2.45E-10	9.63E-10

Table 2.5-12— {Mean and Fractile Rock Hazard Curves for 0.5 Hz PSA}

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	9.72E-04	2.26E-04	3.29E-04	6.53E-04	1.55E-03	2.69E-03
0.02	3.30E-04	4.86E-05	7.44E-05	1.57E-04	4.76E-04	1.17E-03
0.03	1.65E-04	1.81E-05	2.82E-05	6.23E-05	1.94E-04	6.48E-04
0.04	9.82E-05	8.97E-06	1.40E-05	3.05E-05	9.70E-05	4.02E-04
0.05	6.39E-05	4.99E-06	8.14E-06	1.73E-05	5.38E-05	2.57E-04
0.06	4.40E-05	3.08E-06	5.09E-06	1.09E-05	3.28E-05	1.71E-04
0.07	3.17E-05	2.04E-06	3.39E-06	7.43E-06	2.12E-05	1.21E-04
0.08	2.34E-05	1.42E-06	2.39E-06	5.22E-06	1.44E-05	8.68E-05
0.09	1.77E-05	1.04E-06	1.75E-06	3.83E-06	1.05E-05	6.33E-05
0.10	1.37E-05	7.90E-07	1.32E-06	2.89E-06	7.98E-06	4.94E-05
0.20	1.94E-06	1.05E-07	1.96E-07	4.74E-07	1.22E-06	5.38E-06
0.25	9.47E-07	5.46E-08	1.05E-07	2.64E-07	7.05E-07	2.35E-06
0.30	5.16E-07	3.05E-08	6.27E-08	1.61E-07	4.39E-07	1.23E-06
0.40	1.95E-07	1.19E-08	2.61E-08	7.71E-08	2.07E-07	5.16E-07
0.50	9.22E-08	5.67E-09	1.29E-08	4.12E-08	1.14E-07	2.63E-07
0.60	5.08E-08	2.92E-09	7.37E-09	2.40E-08	7.26E-08	1.51E-07
0.70	3.12E-08	1.61E-09	4.36E-09	1.51E-08	4.78E-08	9.98E-08
0.80	2.07E-08	9.99E-10	2.74E-09	1.02E-08	3.34E-08	7.00E-08
0.90	1.45E-08	6.26E-10	1.77E-09	7.31E-09	2.40E-08	5.05E-08
1.00	1.06E-08	4.09E-10	1.20E-09	5.25E-09	1.76E-08	3.74E-08
2.00	1.32E-09	1.68E-11	7.09E-11	4.43E-10	2.10E-09	5.10E-09
3.00	3.44E-10	1.92E-12	9.99E-12	8.53E-11	5.33E-10	1.36E-09
5.00	5.09E-11	9.36E-14	6.36E-13	8.16E-12	7.21E-11	2.17E-10

Replace with T2.5-12

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

T2.5-12

Pseudo-Spectral Acceleration (g)	Annual Probability of Exceedance					
	Mean	5th	16th	50th	84th	95th
0.01	9.72E-04	1.55E-04	2.80E-04	6.68E-04	1.68E-03	2.81E-03
0.02	3.30E-04	2.61E-05	5.54E-05	1.59E-04	5.16E-04	1.23E-03
0.03	1.65E-04	8.08E-06	1.94E-05	6.09E-05	2.15E-04	6.66E-04
0.04	9.82E-05	3.39E-06	8.63E-06	3.00E-05	1.06E-04	4.11E-04
0.05	6.39E-05	1.68E-06	4.54E-06	1.69E-05	5.88E-05	2.69E-04
0.06	4.40E-05	9.25E-07	2.65E-06	1.04E-05	3.61E-05	1.82E-04
0.07	3.17E-05	5.59E-07	1.67E-06	6.79E-06	2.39E-05	1.31E-04
0.08	2.34E-05	3.59E-07	1.10E-06	4.74E-06	1.66E-05	9.31E-05
0.09	1.77E-05	2.42E-07	7.45E-07	3.42E-06	1.20E-05	6.88E-05
0.10	1.37E-05	1.68E-07	5.28E-07	2.54E-06	8.94E-06	5.36E-05
0.20	1.94E-06	1.29E-08	4.64E-08	3.31E-07	1.58E-06	6.19E-06
0.25	9.47E-07	5.01E-09	2.00E-08	1.70E-07	8.78E-07	2.94E-06
0.30	5.16E-07	2.25E-09	9.42E-09	9.53E-08	5.45E-07	1.74E-06
0.40	1.95E-07	5.53E-10	2.70E-09	3.72E-08	2.56E-07	7.36E-07
0.50	9.22E-08	1.78E-10	9.77E-10	1.74E-08	1.38E-07	3.93E-07
0.60	5.08E-08	6.60E-11	4.10E-10	8.79E-09	7.82E-08	2.39E-07
0.70	3.12E-08	2.78E-11	1.89E-10	4.97E-09	4.97E-08	1.56E-07
0.80	2.07E-08	1.25E-11	9.33E-11	2.99E-09	3.34E-08	1.05E-07
0.90	1.45E-08	6.00E-12	4.97E-11	1.83E-09	2.31E-08	7.29E-08
1.00	1.06E-08	3.14E-12	2.80E-11	1.20E-09	1.65E-08	5.28E-08
2.00	1.32E-09	2.30E-14	3.95E-13	4.31E-11	1.26E-09	6.27E-09
3.00	3.44E-10	2.67E-16	1.96E-14	4.40E-12	2.37E-10	1.63E-09
5.00	5.09E-11	0.00E+00	5.38E-17	1.79E-13	2.22E-11	2.11E-10

Replace with F2.5-37

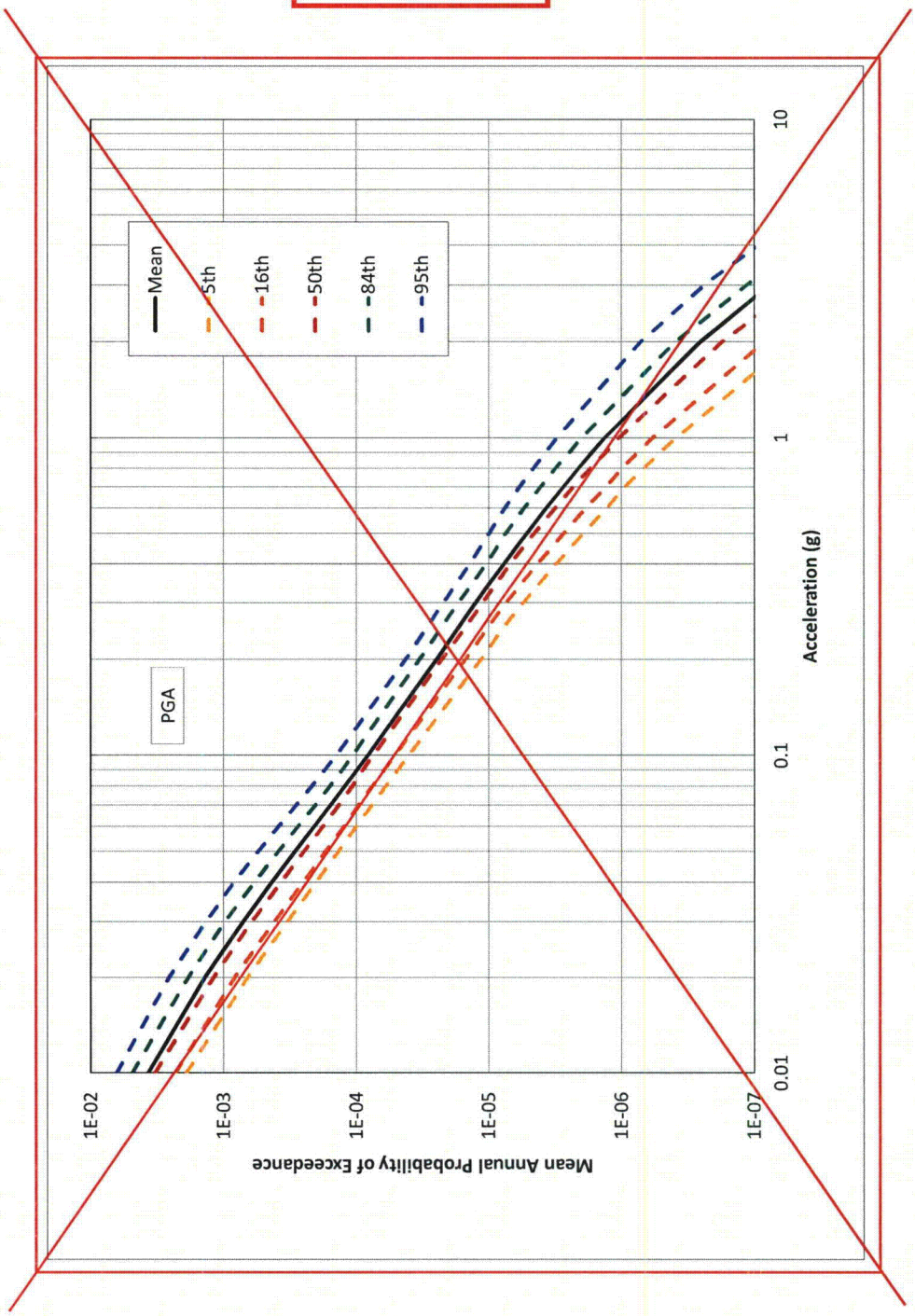
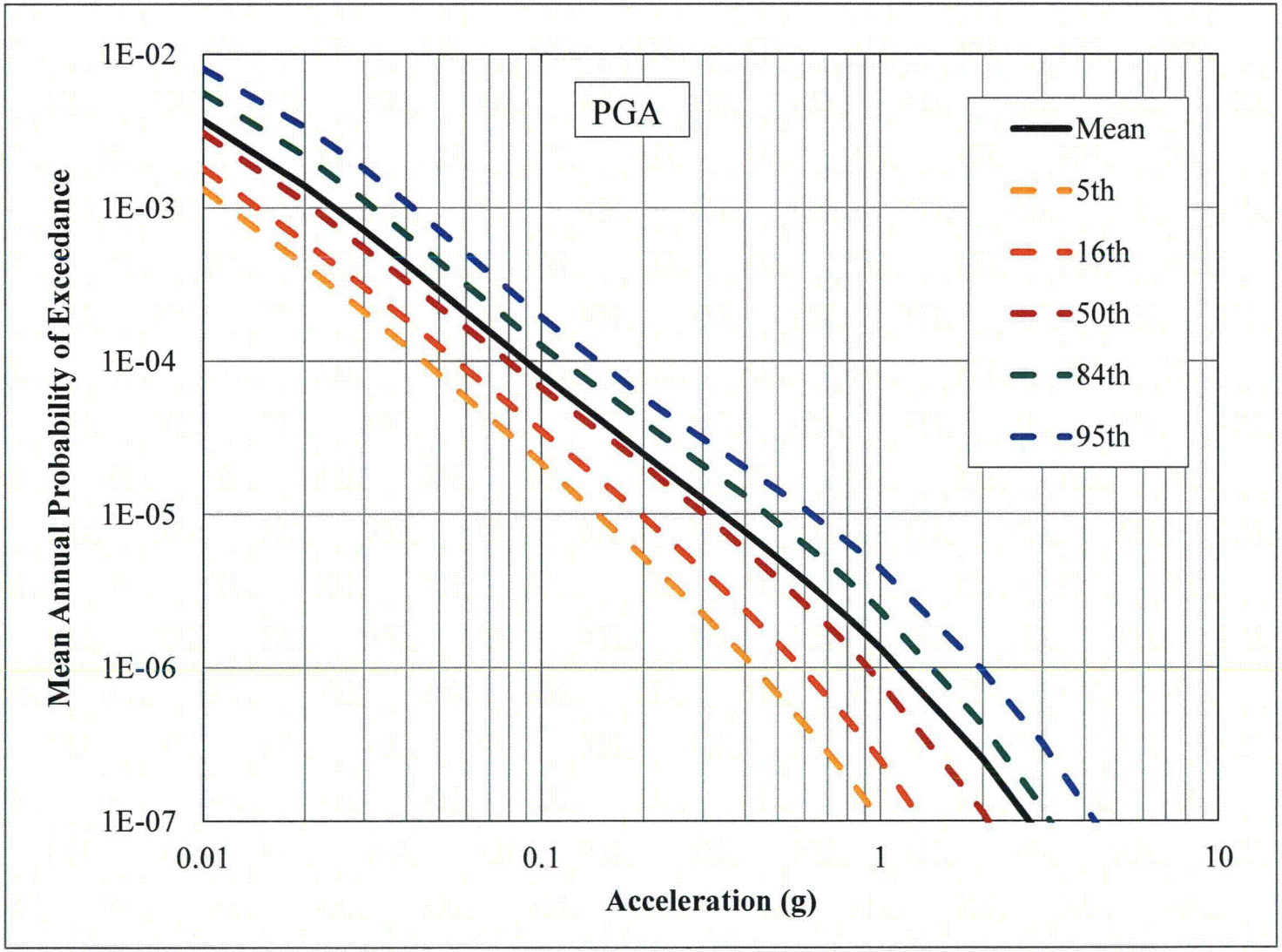


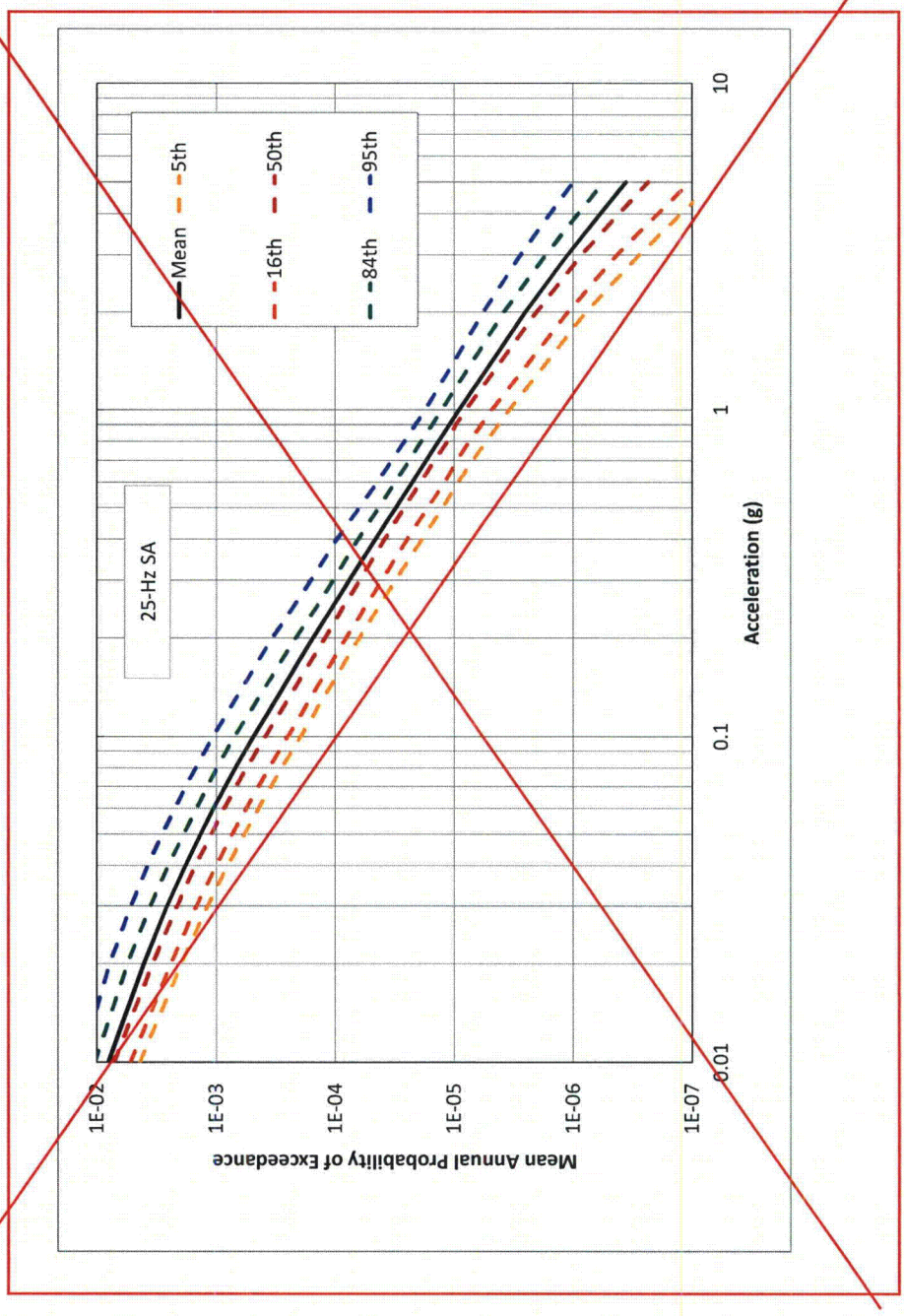
Figure 2.5-37— {Mean and Fractile Rock Hazard Curves for PGA}

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

F2.5-37


PGA
Mean
5th
16th
50th
84th
95th
Mean Annual Probability of Exceedance
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
0.01
0.1
1
10
Acceleration (g)

Replace with F2.5-38

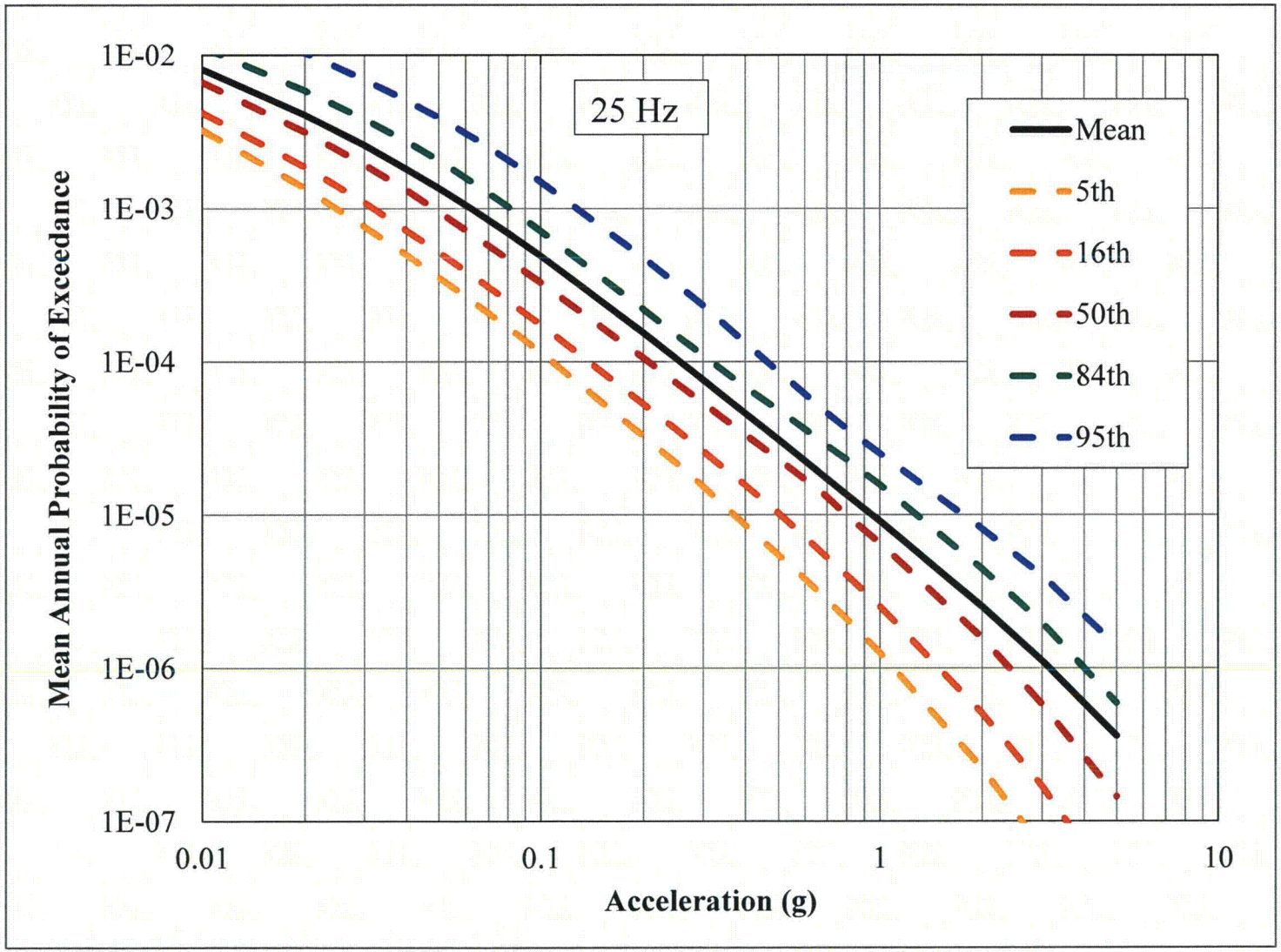


10-4310-GIS-A224

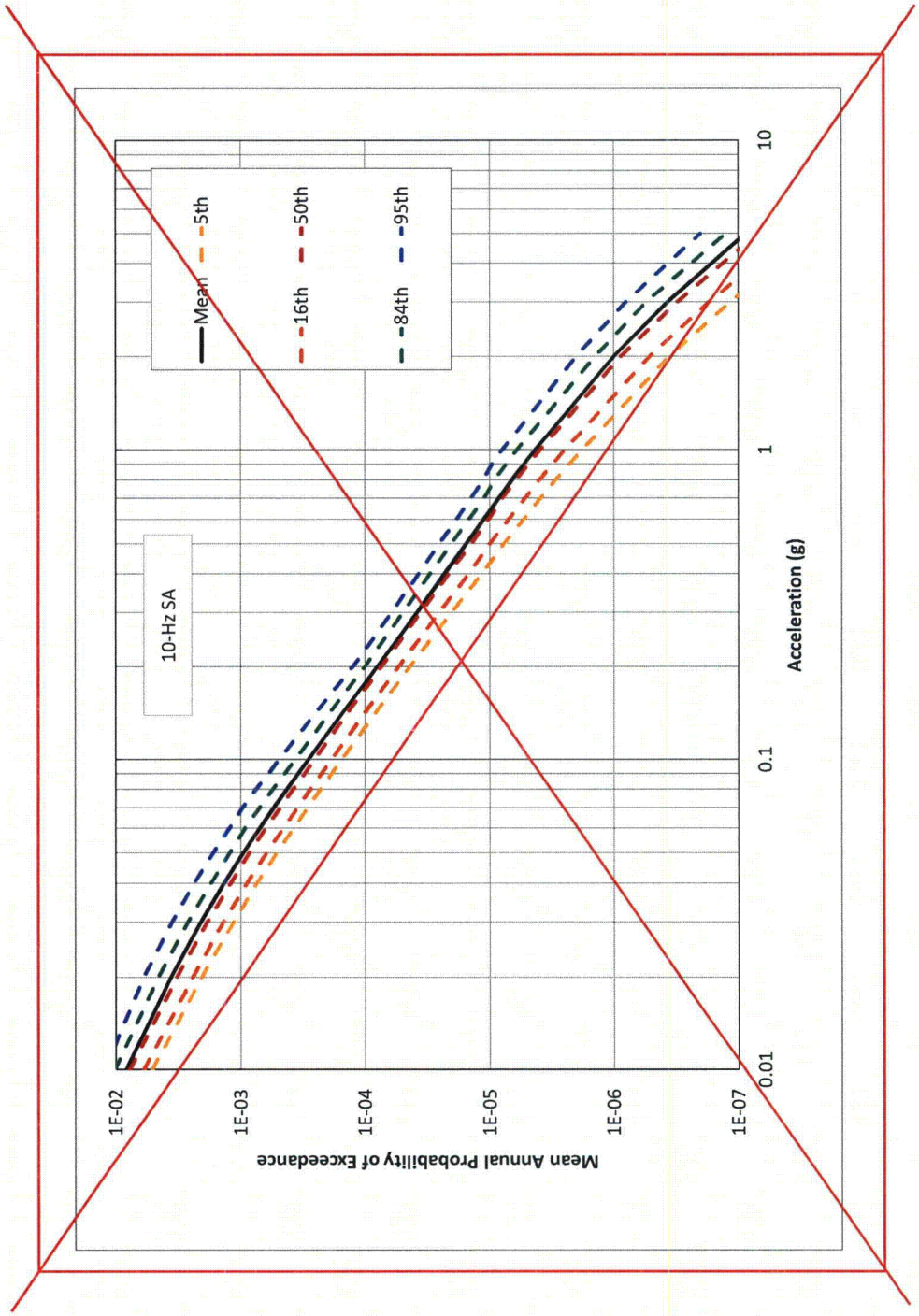
Figure 2.5-38— {Mean and Fractile Rock Hazard Curves for 25Hz}

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

F2.5-38


25 Hz
Mean
5th
16th
50th
84th
95th
Mean Annual Probability of Exceedance
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
0.01
0.1
1
10
Acceleration (g)

Replace with F2.5-39

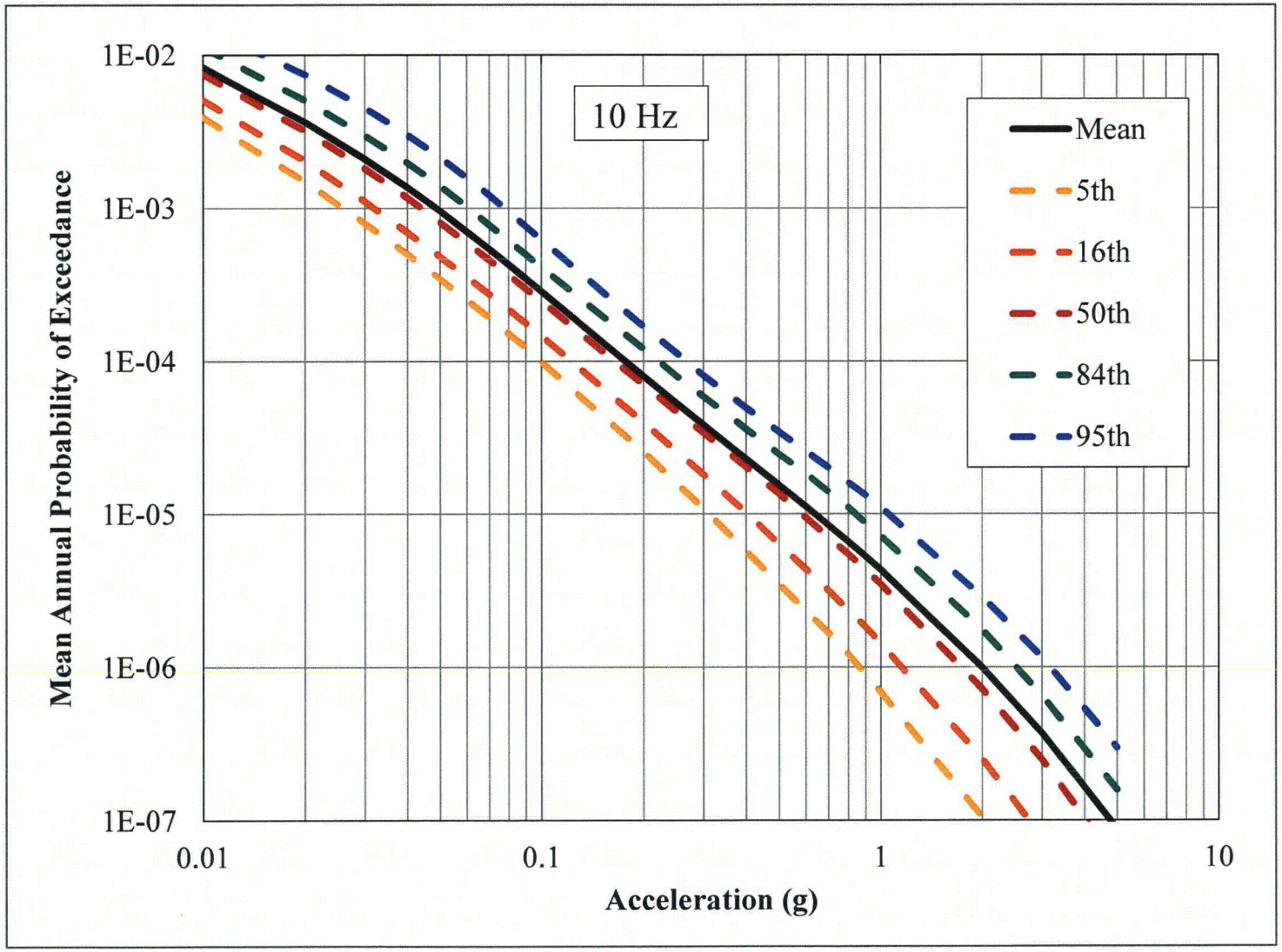


10-4310-GIS-A225

Figure 2.5-39— {Mean and Fractile Rock Hazard Curves for 10 Hz}

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

F2.5-39


10 Hz
Mean
5th
16th
50th
84th
95th
Mean Annual Probability of Exceedance
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
0.01
0.1
1
10
Acceleration (g)

Replace with F2.5-40

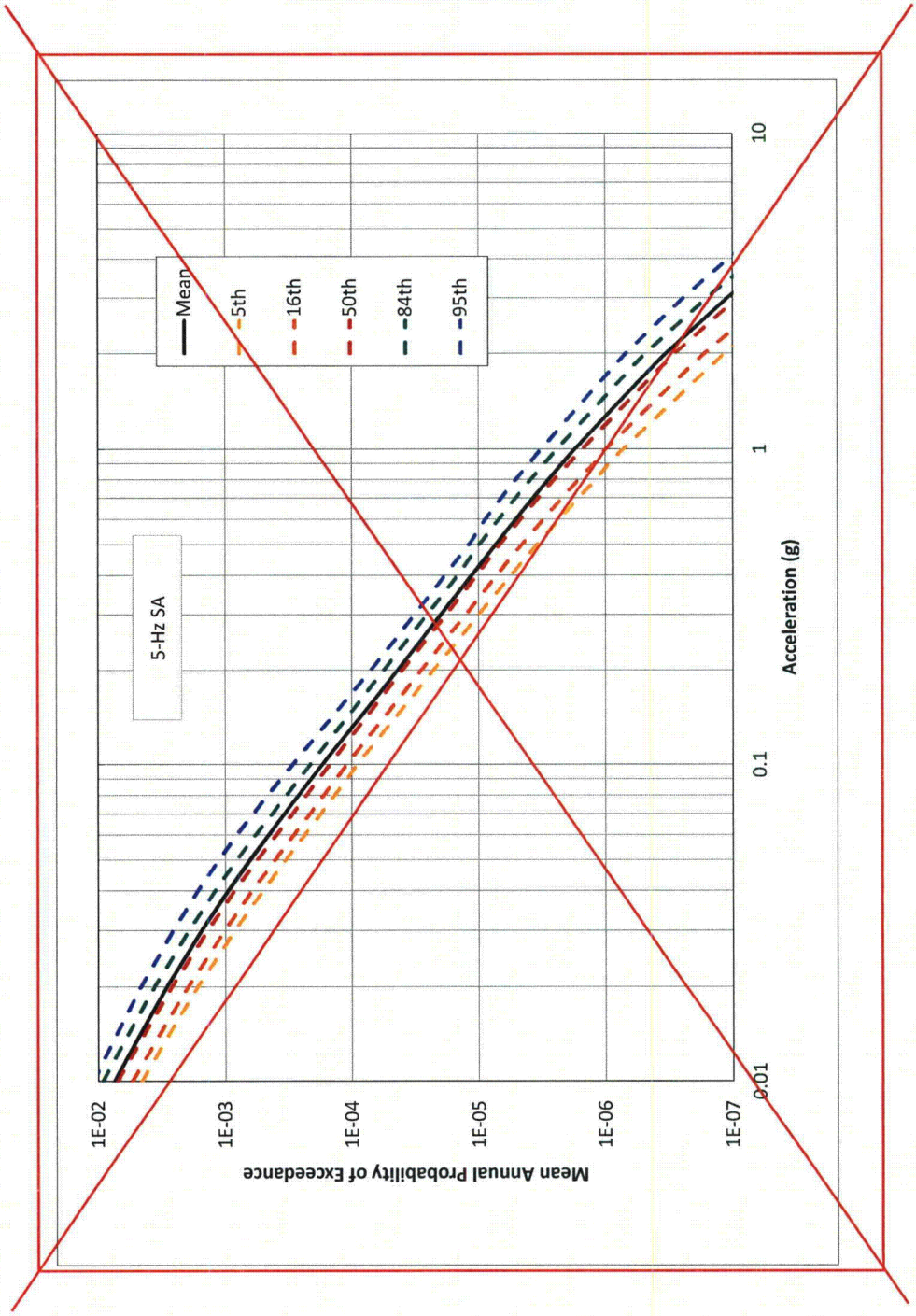
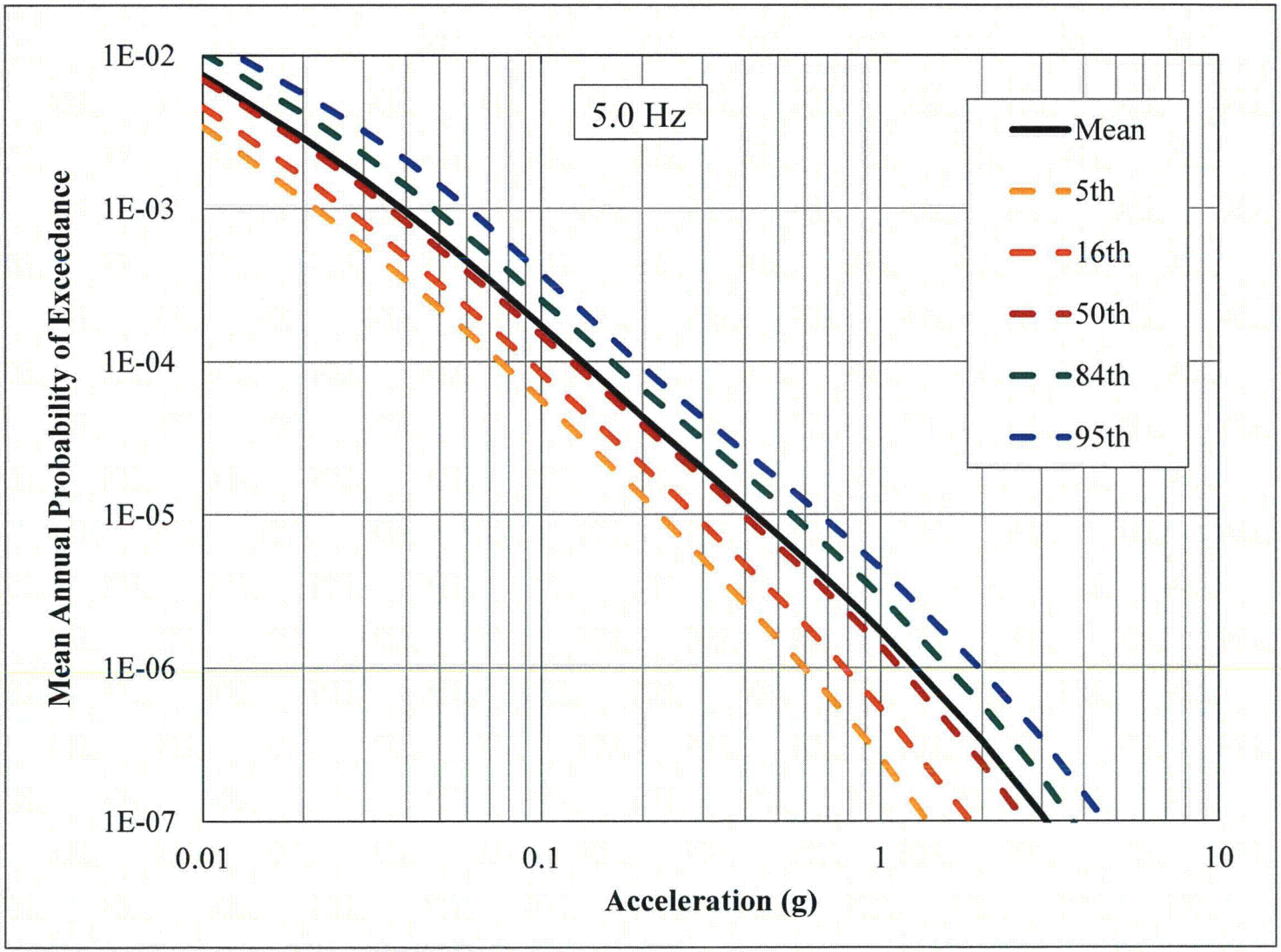


Figure 2.5-40— {Mean and Fractile Rock Hazard Curves for 5.0 Hz}

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

F2.5-40


5.0 Hz
Mean
5th
16th
50th
84th
95th
Mean Annual Probability of Exceedance
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
0.01
0.1
1
10
Acceleration (g)

Replace with F2.5-41

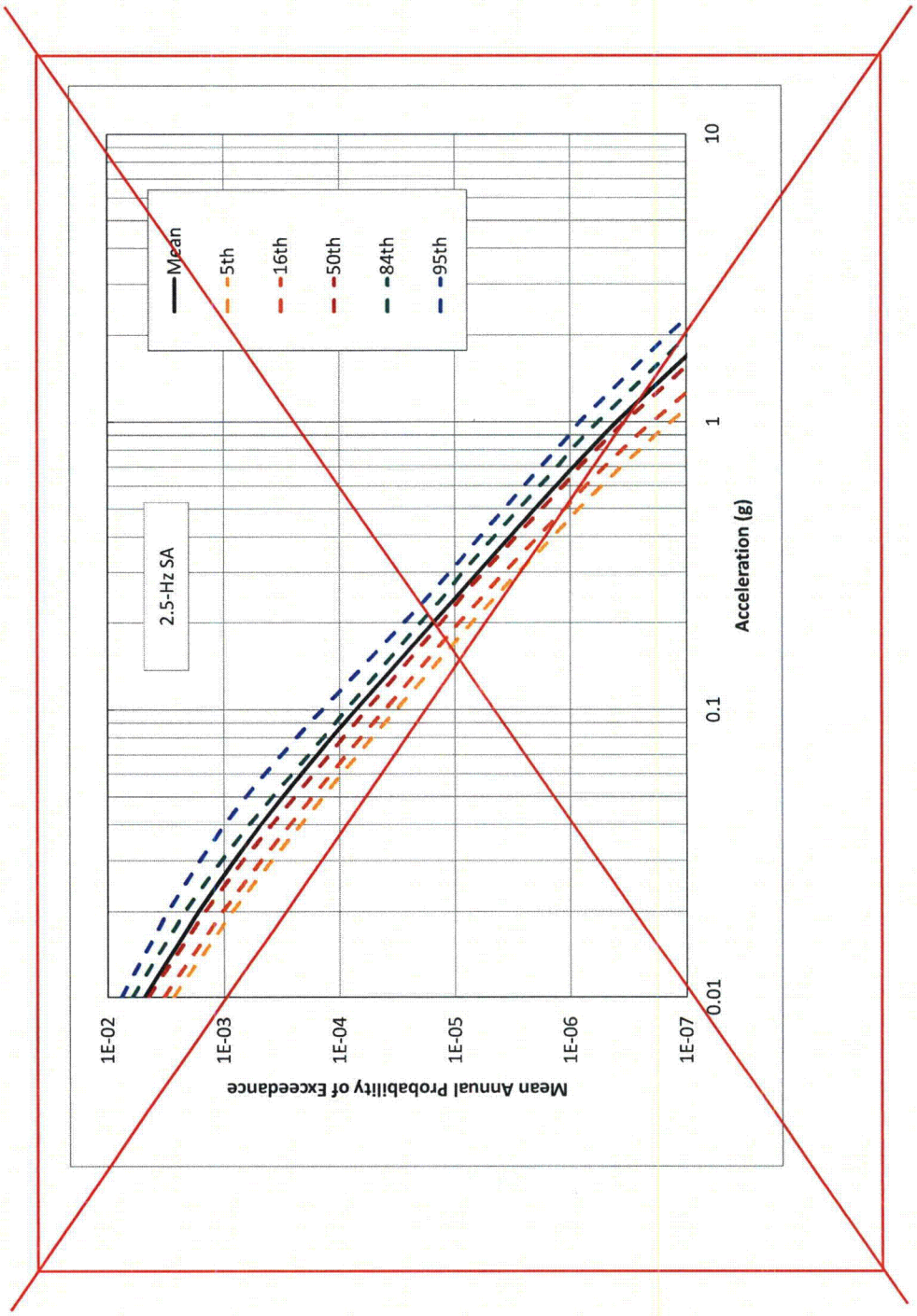
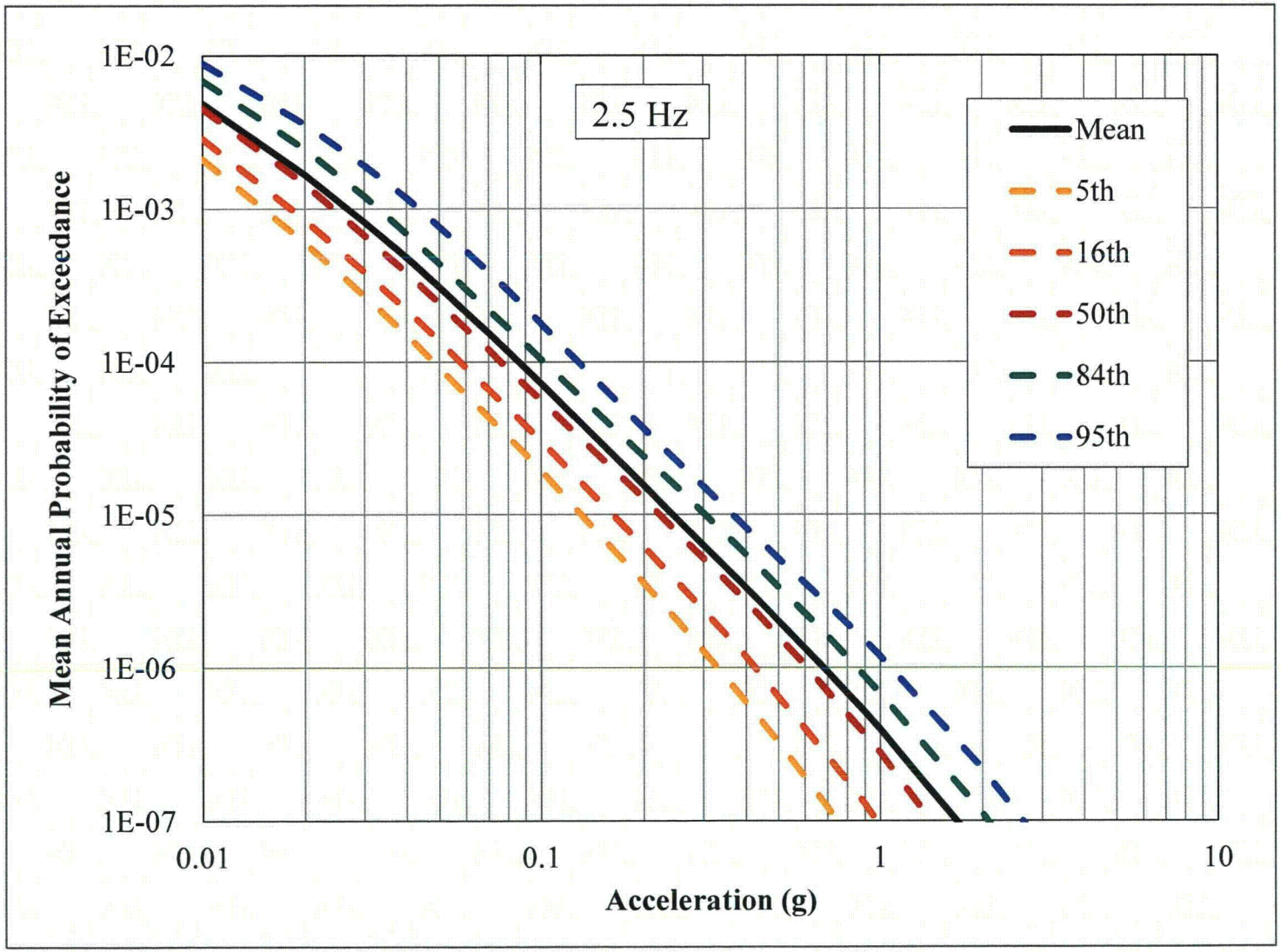


Figure 2.5-41— {Mean and Fractile Rock Hazard Curves for 2.5 Hz}

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

Replace with F2.5-41



Replace with F2.5-42

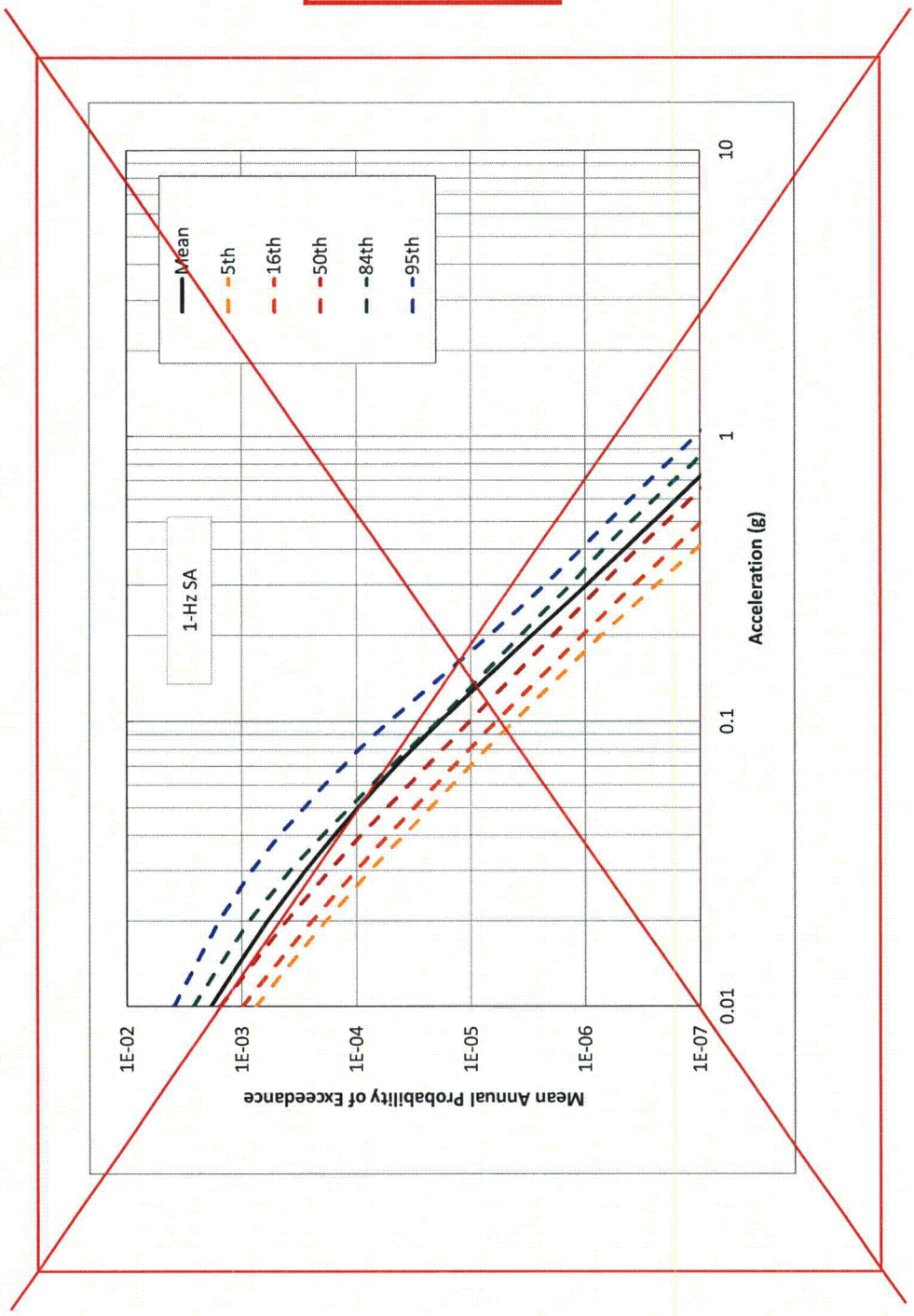
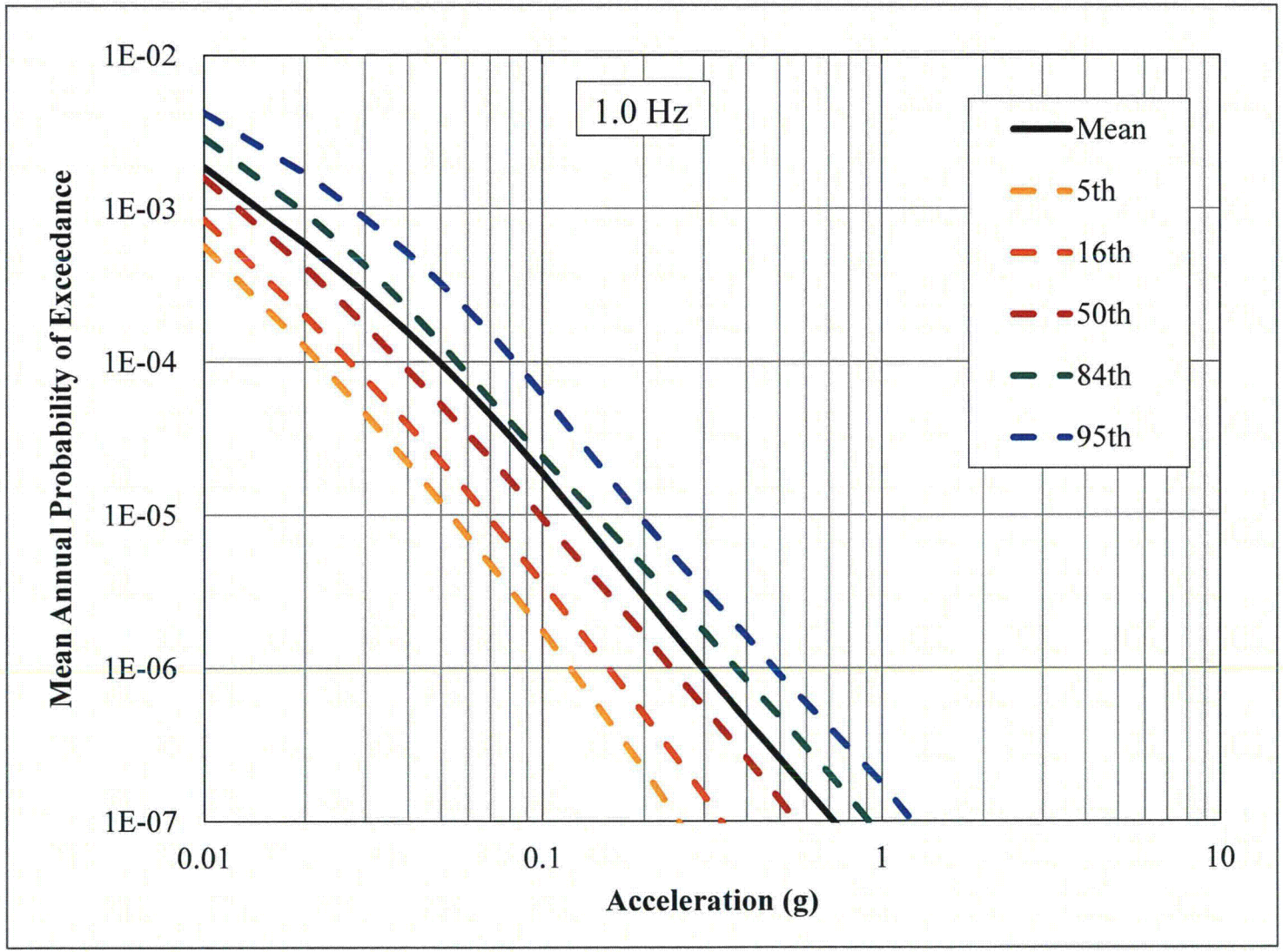


Figure 2.5-42— {Mean and Fractile Rock Hazard Curves for 1.0 Hz}

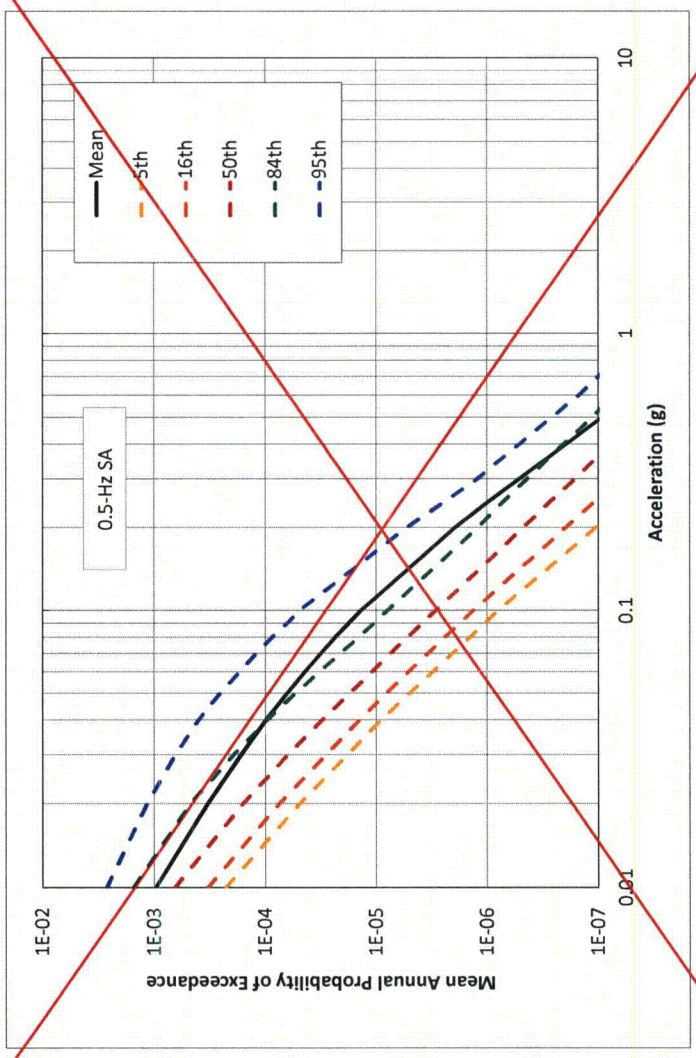
© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

F2.5-42


1.0 Hz
Mean
5th
16th
50th
84th
95th
Mean Annual Probability of Exceedance
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
0.01
0.1
1
10
Acceleration (g)

Replace with F2.5-43

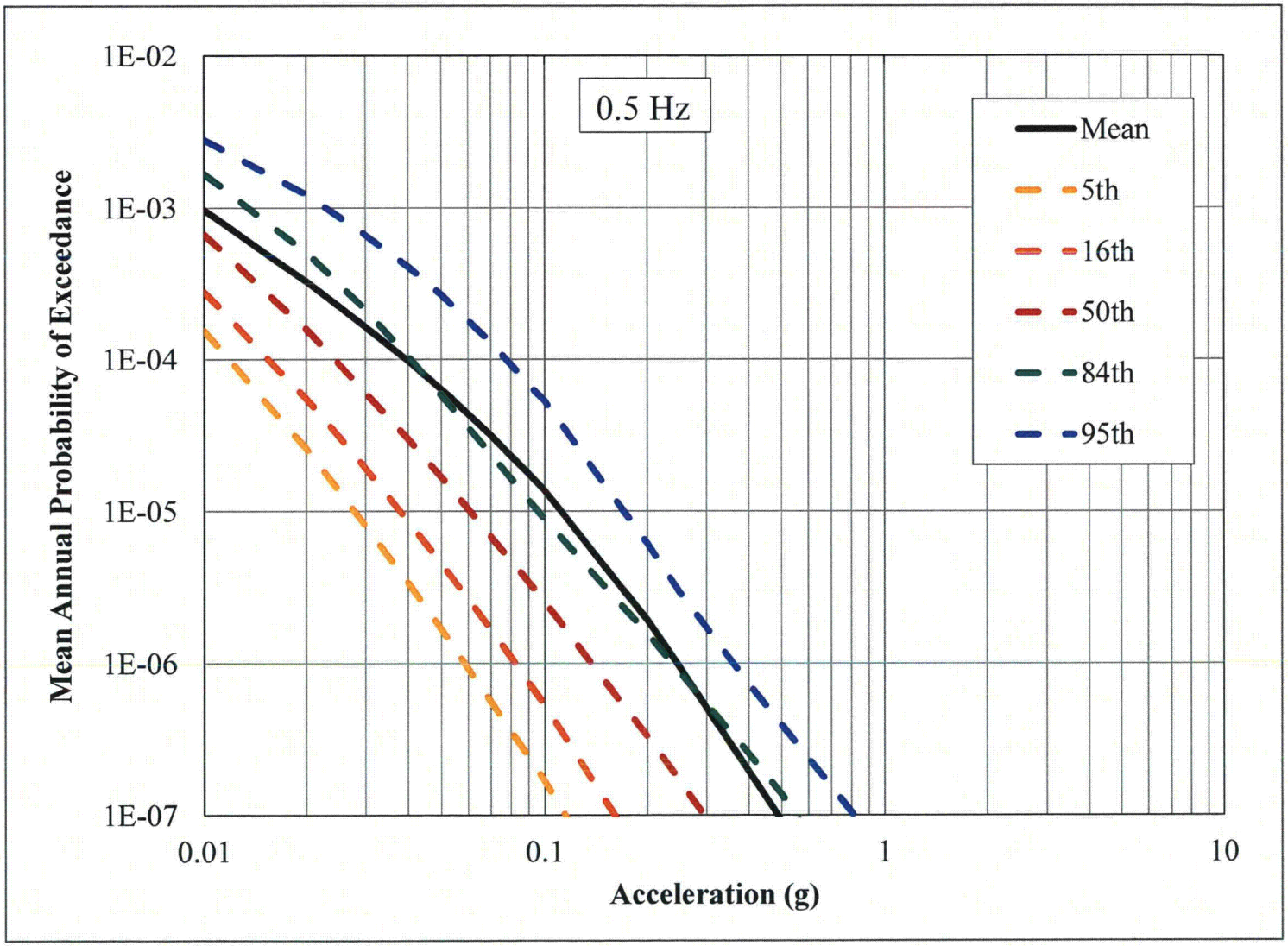
Figure 2.5-43— {Mean and Fractile Rock Hazard Curves for 0.5 Hz}
~~(Page 1 of 2)~~



10-4310-GIS-A229

© 2007-2013 UniStar Nuclear Services, LLC. All rights reserved.
COPYRIGHT PROTECTED

F2.5-43


0.5 Hz
Mean
5th
16th
50th
84th
95th
Mean Annual Probability of Exceedance
1E-02
1E-03
1E-04
1E-05
1E-06
1E-07
0.01
0.1
1
10
Acceleration (g)