

## **5.0 Site Parameters**

Table 5.0-1 identifies the key site parameters that are specified for the design of safety-related aspects of structures, systems, and components for the AP600. An actual site is acceptable if its site characteristics fall within the AP600 plant site design parameters in Table 5.0-1.

<b>Table 5.0-1 Site Parameters</b>	
Maximum Ground Water Level	Plant elevation 98 ft
Maximum Flood Level	Plant elevation 100 ft (design grade elevation)
Precipitation	
Rain	19.4 in./hr (6.3 in./5 min)
Snow/Ice	Ground snow load of 75 lb/ft <sup>2</sup> with exposure factor of 1.0 and importance factor of 1.2
Air Temperature	Limits based on historical data excluding peaks of less than 2 hours duration Maximum temperature of 115° dry bulb/80°F coincident wet bulb Maximum wet bulb 81°F (noncoincident) Minimum temperature of -40°F
Tornado Wind Speed Maximum Pressure Differential	Maximum wind speed of 300 mph Maximum pressure differential of 2.0 lb/in <sup>2</sup>
Tornado Missile Spectra	4000-lb automobile at 105 mph horizontal, 74 mph vertical 275-lb, 8-in. shell at 105 mph horizontal, 74 mph vertical 1-in.-diameter steel ball at 105 mph horizontal and vertical

Table 5.0-1 (cont.) Site Parameters													
<p>Soil</p> <p>Average Allowable Static Soil Bearing Capacity</p> <p>Lateral Variability</p> <p>Shear Wave Velocity</p> <p>Liquefaction Potential</p>	<p>Greater than or equal to 8,000 lb/ft<sup>2</sup> over the footprint of the nuclear island at its excavation depth</p> <p>Soils supporting the nuclear island should not have extreme variations in subgrade stiffness.</p> <p>Case 1: For a layer with a low strain shear wave velocity greater than or equal to 2500 feet per second, the layer should have approximately uniform thickness, should have a dip not greater than 20 degrees, and should have less than 20 percent variation in the shear wave velocity from the average velocity within any layer.</p> <p>Case 2: For a layer with a low strain shear wave velocity less than 2500 feet per second, the layer should have approximately uniform thickness, should have a dip not greater than 20 degrees, and should have less than 10 percent variation in the shear wave velocity from the average velocity within any layer.</p> <p>Greater than or equal to 1000 ft/sec based on low-strain, best-estimate soil properties</p> <p>None</p>												
<p>Seismic</p> <p><u>Safe Shutdown Earthquake (SSE)</u></p> <p>Fault Displacement Potential</p>	<p>SSE free field peak ground acceleration of 0.30 g at plant grade with modified Regulatory Guide 1.60 response spectra (see Figures 5.0-1 and 5.0-2) and the response spectra shown in Figures 5.0-3 and 5.0-4 at the foundation level 40 feet below Design Plant Grade.</p> <p>None</p>												
<p>Atmospheric Dispersion Factors (X/Q)</p> <p>Site Boundary</p> <p>Low Population Zone Boundary</p>	<table border="0"> <tr> <td style="padding-right: 20px;">0- to 2-hour time interval</td> <td style="text-align: right;"><math>\leq 1.0 \times 10^{-3} \text{ sec/m}^3</math></td> </tr> <tr> <td>Annual average</td> <td style="text-align: right;"><math>\leq 2.0 \times 10^{-5} \text{ sec/m}^3</math></td> </tr> <tr> <td>0 to 8 hours</td> <td style="text-align: right;"><math>\leq 1.35 \times 10^{-4} \text{ sec/m}^3</math></td> </tr> <tr> <td>8 to 24 hours</td> <td style="text-align: right;"><math>\leq 1.0 \times 10^{-4} \text{ sec/m}^3</math></td> </tr> <tr> <td>24 to 96 hours</td> <td style="text-align: right;"><math>\leq 5.4 \times 10^{-5} \text{ sec/m}^3</math></td> </tr> <tr> <td>96 to 720 hours</td> <td style="text-align: right;"><math>\leq 2.2 \times 10^{-5} \text{ sec/m}^3</math></td> </tr> </table>	0- to 2-hour time interval	$\leq 1.0 \times 10^{-3} \text{ sec/m}^3$	Annual average	$\leq 2.0 \times 10^{-5} \text{ sec/m}^3$	0 to 8 hours	$\leq 1.35 \times 10^{-4} \text{ sec/m}^3$	8 to 24 hours	$\leq 1.0 \times 10^{-4} \text{ sec/m}^3$	24 to 96 hours	$\leq 5.4 \times 10^{-5} \text{ sec/m}^3$	96 to 720 hours	$\leq 2.2 \times 10^{-5} \text{ sec/m}^3$
0- to 2-hour time interval	$\leq 1.0 \times 10^{-3} \text{ sec/m}^3$												
Annual average	$\leq 2.0 \times 10^{-5} \text{ sec/m}^3$												
0 to 8 hours	$\leq 1.35 \times 10^{-4} \text{ sec/m}^3$												
8 to 24 hours	$\leq 1.0 \times 10^{-4} \text{ sec/m}^3$												
24 to 96 hours	$\leq 5.4 \times 10^{-5} \text{ sec/m}^3$												
96 to 720 hours	$\leq 2.2 \times 10^{-5} \text{ sec/m}^3$												

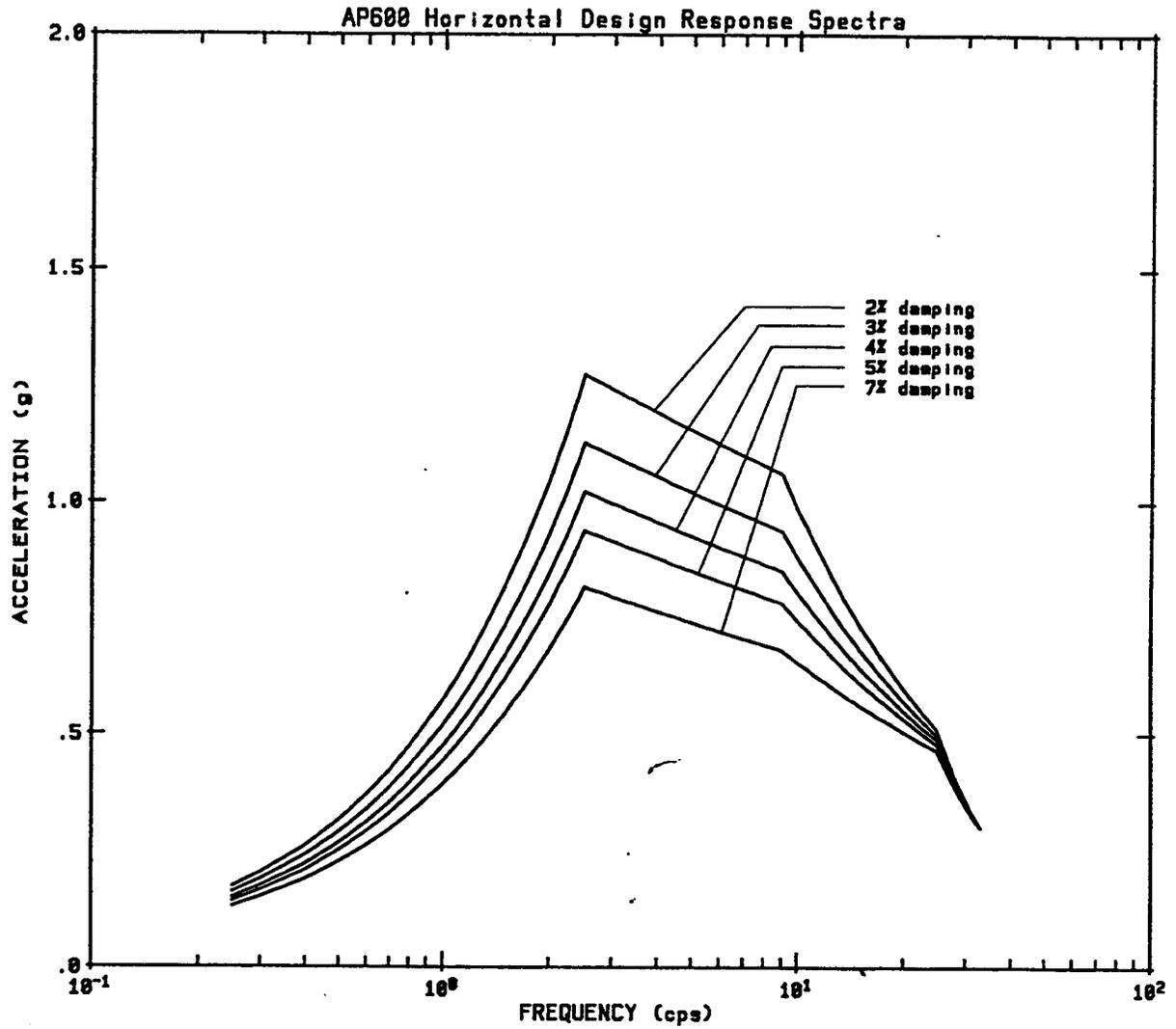


Figure 5.0-1  
Horizontal Design Response Spectra  
Safe Shutdown Earthquake

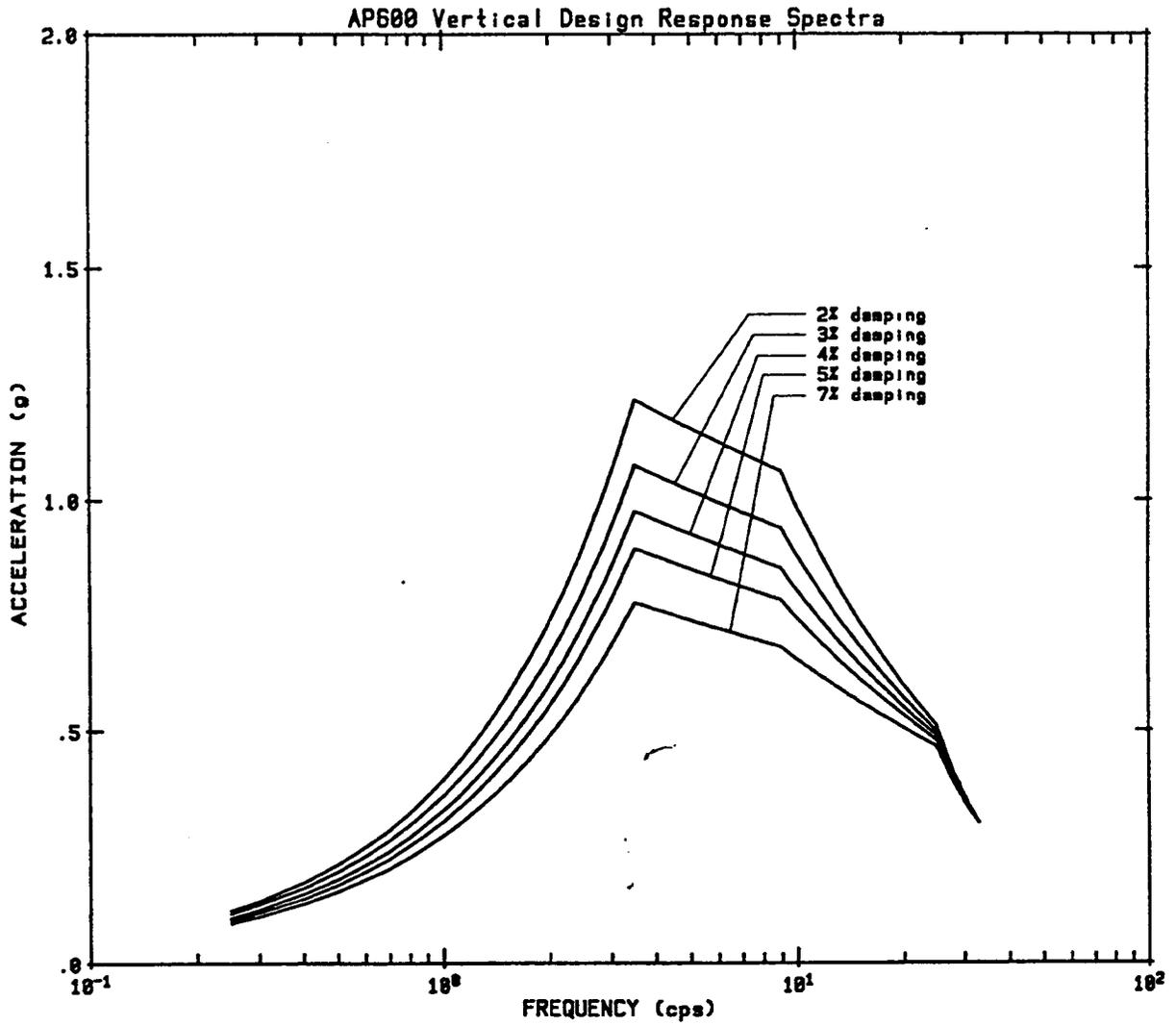


Figure 5.0-2  
Vertical Design Response Spectra  
Safe Shutdown Earthquake

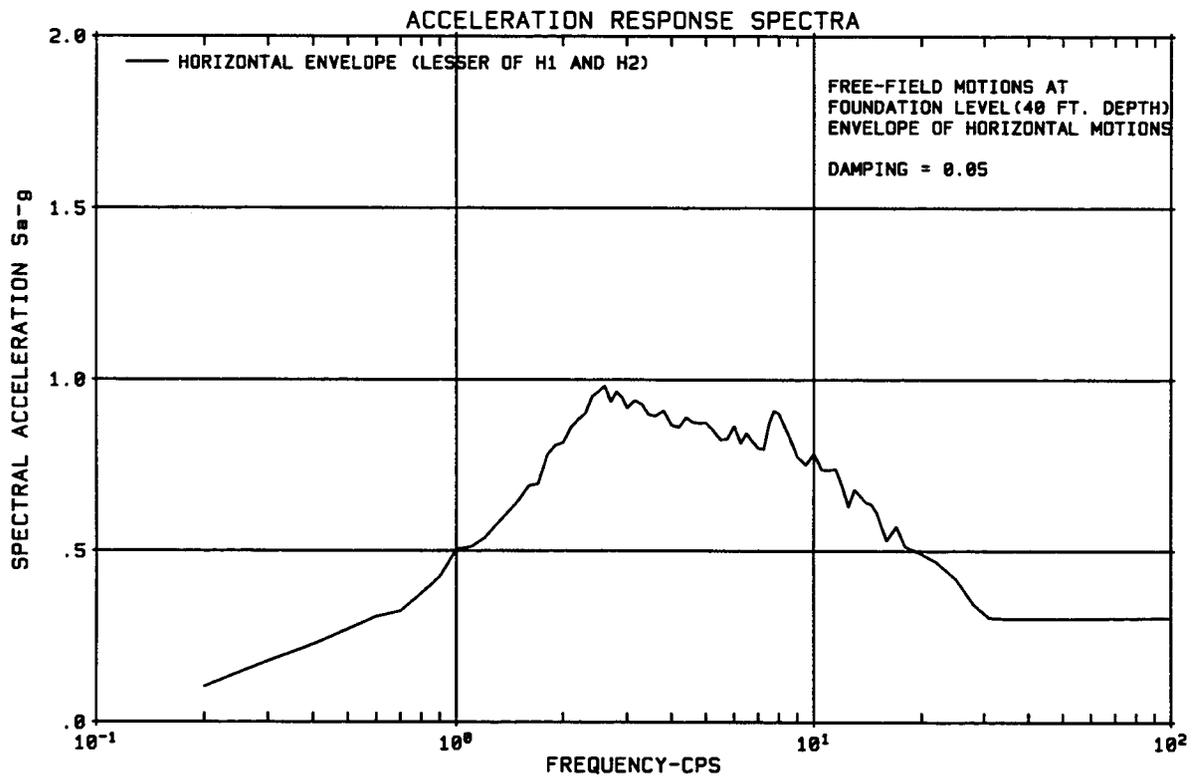


Figure 5.0-3  
Free-Field Motions at Foundation Level (40 ft Depth)  
Envelope of Horizontal Motions

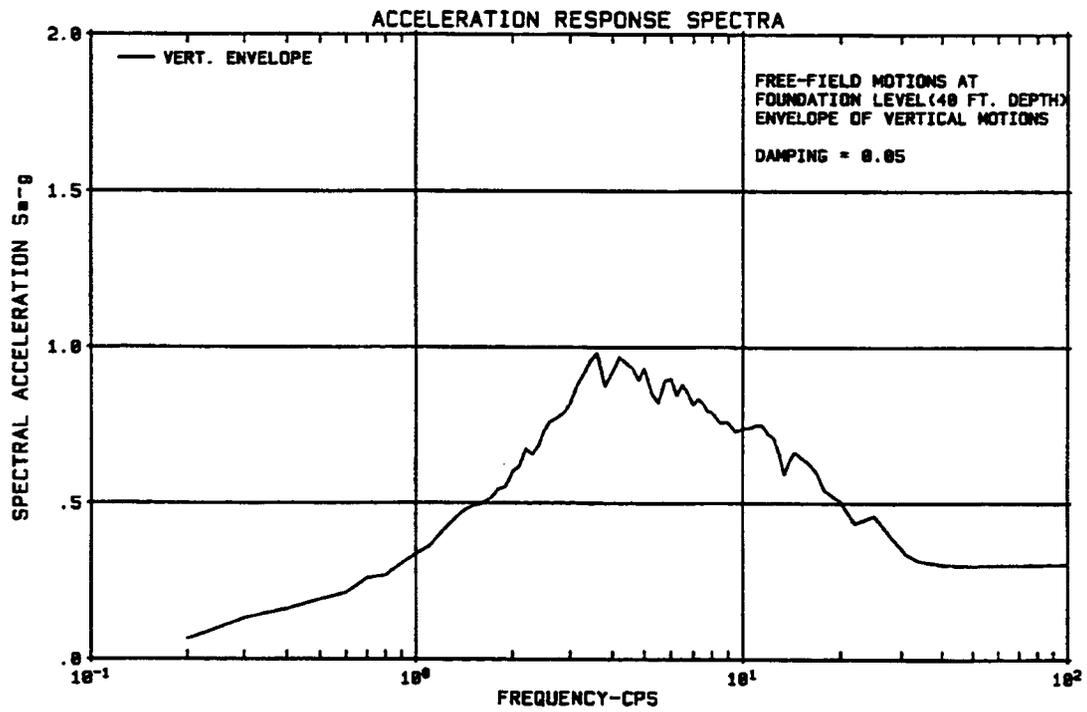


Figure 5.0-4  
Free-Field Motions at Foundation Level (40 ft Depth)  
Envelope of Vertical Motions