



Westinghouse
Electric Corporation

Energy Systems

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NSD-NRC-96-4693
DCP/NRC0499
Docket No.: STN-52-003

April 17, 1996

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: T. R. QUAY

SUBJECT: REVISED SEISMIC FLOOR RESPONSE SPECTRA

Dear Mr. Quay:

In your October 24, 1995 letter to Westinghouse, the NRC transmitted results of their soil-structure interaction confirmatory analyses of the AP600 nuclear island structures. The results indicated a number of locations where the floor response spectra developed by the NRC exceeded the AP600 design envelopes. The NRC analyses were performed using the latest seismic models provided for AP600. However, the results of their analyses were compared to floor response spectra based on previous models and three design soil cases. Subsequently, floor response spectra have been developed based on the current seismic models and four design soil cases. Enclosed are copies of the floor response spectra based on the current seismic models and the four design soil cases at the four locations that NRC made the comparisons (node nos. 3004, 3016, 3110, and 3115). These figures are being included in the AP600 SSAR Revision 7.

These new seismic design floor spectra should be used by the NRC staff for comparison with the NRC analysis. The floor response spectra envelope the NRC spectra in most cases. Exceedances are minor.

Electronic files for the spectra are being sent directly to Drs. Hossain and Costantino.

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PDR ADCK 05200003
A PDR

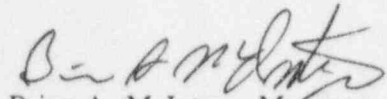
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April 17, 1996

If you have any questions, please contact Donald A. Lindgren on (412) 374-4856.



Brian A. McIntyre, Manager
Advanced Plant Safety and Licensing

/nja

Enclosures

cc: D. Jackson, NRC
Q. Hossain, LLNL
C. Costantino, CCNY
T. Cheng, NRC
N. J. Liparulo, Westinghouse (w/o enclosures)

The following files of response spectra for both the individual design soil profiles and the enveloped and broadened spectra are attached:

WS13115	19,389	03-21-96	5:00p
WS23115	19,389	03-21-96	5:00p
WS33115	19,389	03-21-96	5:00p
WS13110	19,389	03-21-96	5:00p
WS23110	19,389	03-21-96	5:00p
WS33110	19,389	03-21-96	5:00p
WS13004	19,389	03-20-96	9:17a
WS23004	19,389	03-20-96	9:17a
WS33004	19,389	03-20-96	9:17a
WS13016	19,389	03-20-96	9:17a
WS23016	19,389	03-20-96	9:17a
WS33016	19,389	03-20-96	9:17a
1G13004	9,801	03-18-96	5:04p
1G23004	9,801	03-18-96	5:04p
1G33004	9,801	03-18-96	5:04p
2G13004	9,801	03-18-96	5:19p
2G23004	9,801	03-18-96	5:19p
2G33004	9,801	03-18-96	5:19p
HR13004	9,799	03-18-96	5:26p
HR23004	9,799	03-18-96	5:26p
HR33004	9,799	03-18-96	5:26p
SR13004	9,801	03-18-96	5:01p
SR23004	9,801	03-18-96	5:01p
SR33004	9,801	03-18-96	5:01p
1G13016	9,801	03-18-96	5:04p
1G23016	9,801	03-18-96	5:04p
1G33016	9,801	03-18-96	5:04p
2G13016	9,801	03-18-96	5:20p
2G23016	9,801	03-18-96	5:20p
2G33016	9,801	03-18-96	5:20p
HR13016	9,799	03-18-96	5:26p
HR23016	9,799	03-18-96	5:26p
HR33016	9,799	03-18-96	5:26p
SR13016	9,801	03-18-96	5:01p
SR23016	9,801	03-18-96	5:01p
SR33016	9,801	03-18-96	5:01p
1G13110	9,801	03-20-96	5:32p
1G23110	9,801	03-20-96	5:32p
1G33110	9,801	03-20-96	5:32p
2G13110	9,801	03-20-96	5:33p
2G23110	9,801	03-20-96	5:33p
2G33110	9,801	03-20-96	5:33p
HR13110	9,799	03-20-96	5:35p
HR23110	9,799	03-20-96	5:35p
HR33110	9,799	03-20-96	5:35p
SR13110	9,801	03-20-96	5:31p
SR23110	9,801	03-20-96	5:31p

SR33110	9,801	03-20-96	5:31p
1G13115	9,801	03-20-96	5:32p
1G23115	9,801	03-20-96	5:32p
1G33115	9,801	03-20-96	5:32p
2G13115	9,801	03-20-96	5:33p
2G23115	9,801	03-20-96	5:33p
2G33115	9,801	03-20-96	5:33p
HR13115	9,799	03-20-96	5:35p
HR23115	9,799	03-20-96	5:35p
HR33115	9,799	03-20-96	5:35p
SR13115	9,801	03-20-96	5:31p
SR23115	9,801	03-20-96	5:31p
SR33115	9,801	03-20-96	5:31p

60 file(s) 703,092 bytes

The file name means the following:

1G	Soft-to-medium soil, 1XG
2G	Soft-to-medium soil, 2XG
HR	Hard rock
SR	Soft rock
WS	Enveloped and widened spectra
1st digit	1 x direction
	2 y direction
	3 z direction

last four digits Node number

In each file:

1st column	frequency
2nd column	period
3rd through 9th columns:	2, 3, 4, 5, 7, 10, and 20 % damping

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

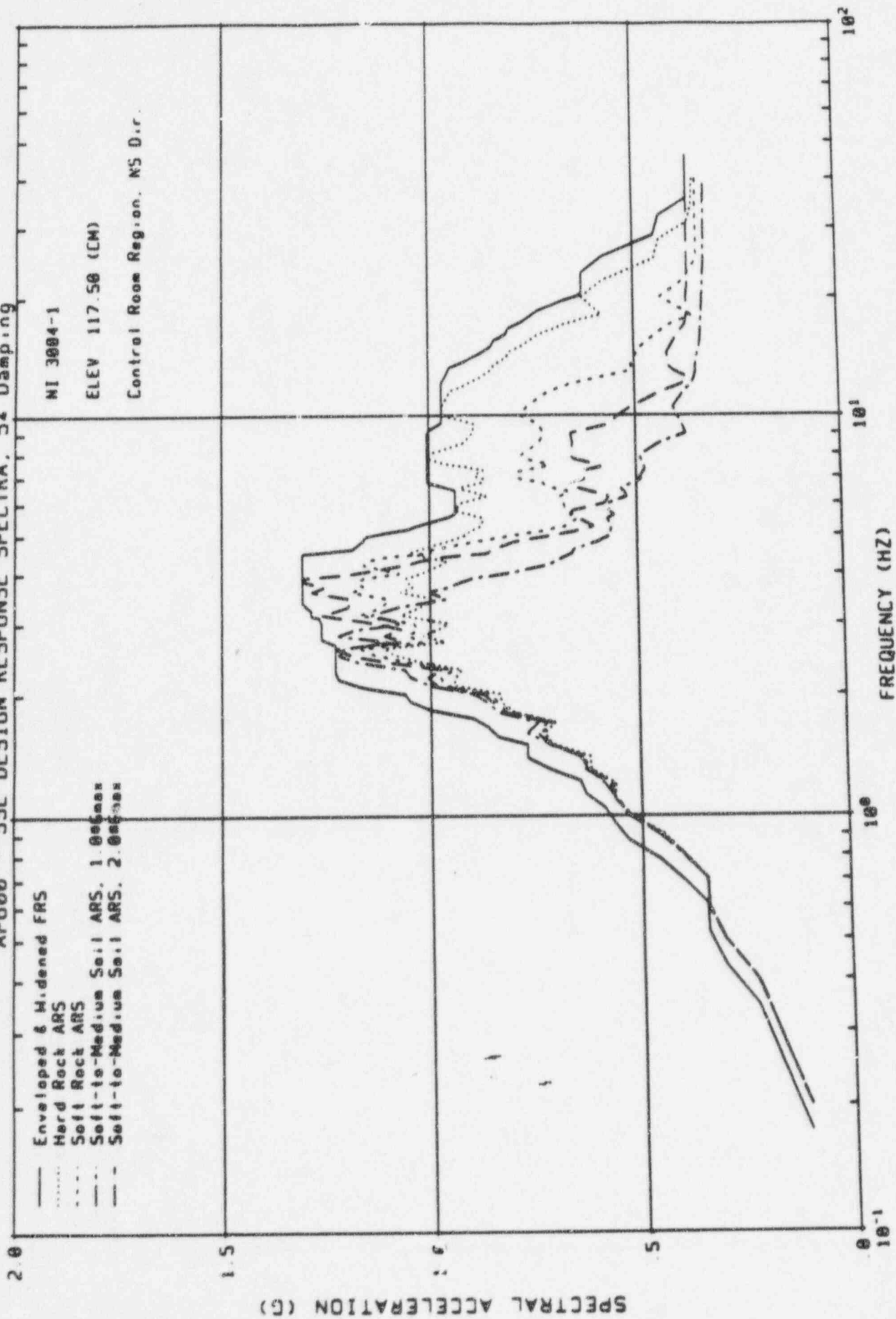


FIGURE 3.7.2 - 25(1029)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

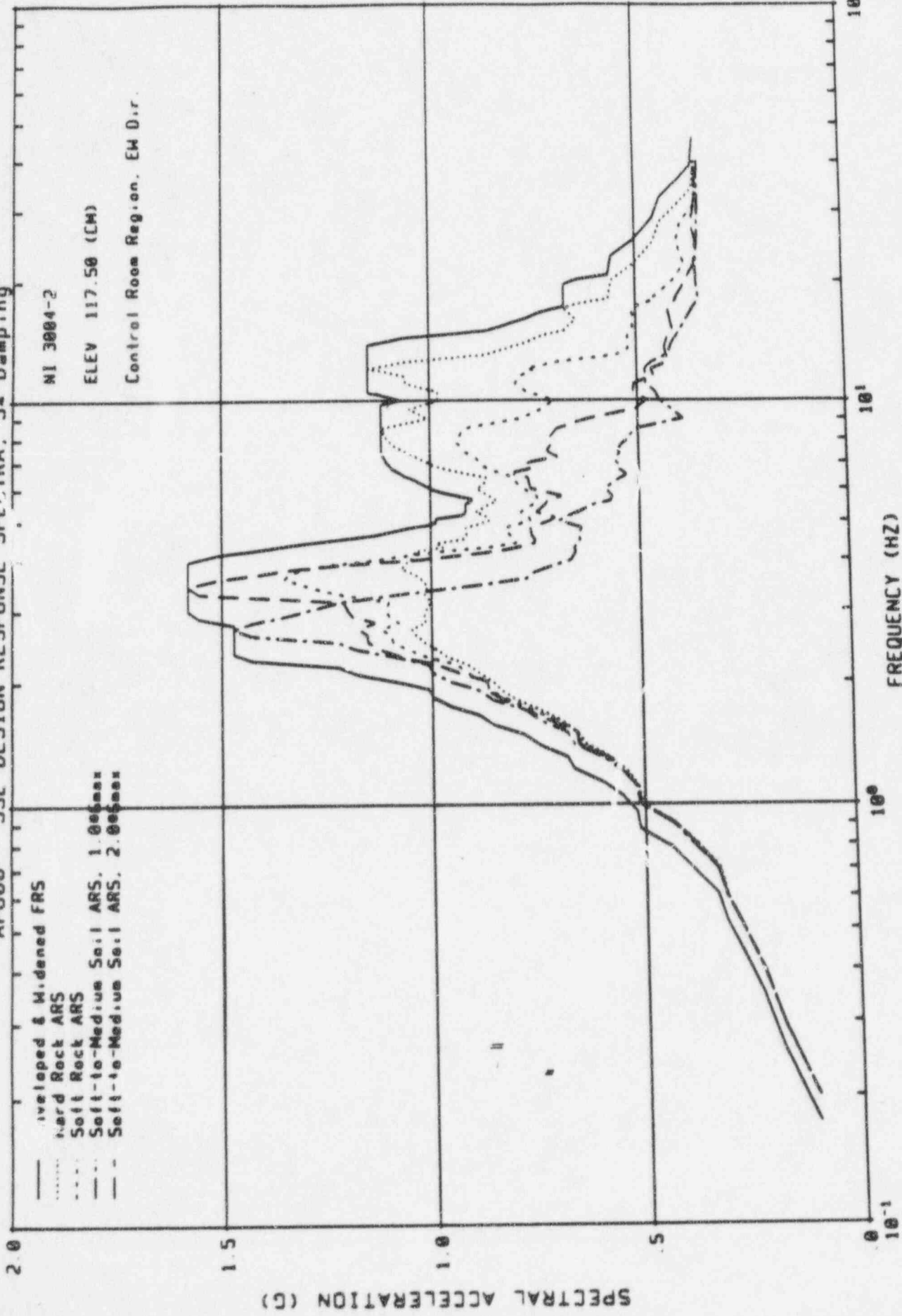


FIGURE 37.2 - 25 (2 of 9)

AP600 - SSE DESIGN RESPONSE SPECTRUM, 5% Damping

- Enveloped & Widened FRS
- Hard Rock ARS
- Soft Rock ARS
- Soft-to-Medium Soil ARS, 1.0g_{max}
- Soft-to-Medium Soil ARS, 2.0g_{max}

NI 3094-3
 ELEV 117.50 (CM)
 Control Room Region, Vert. Dir.

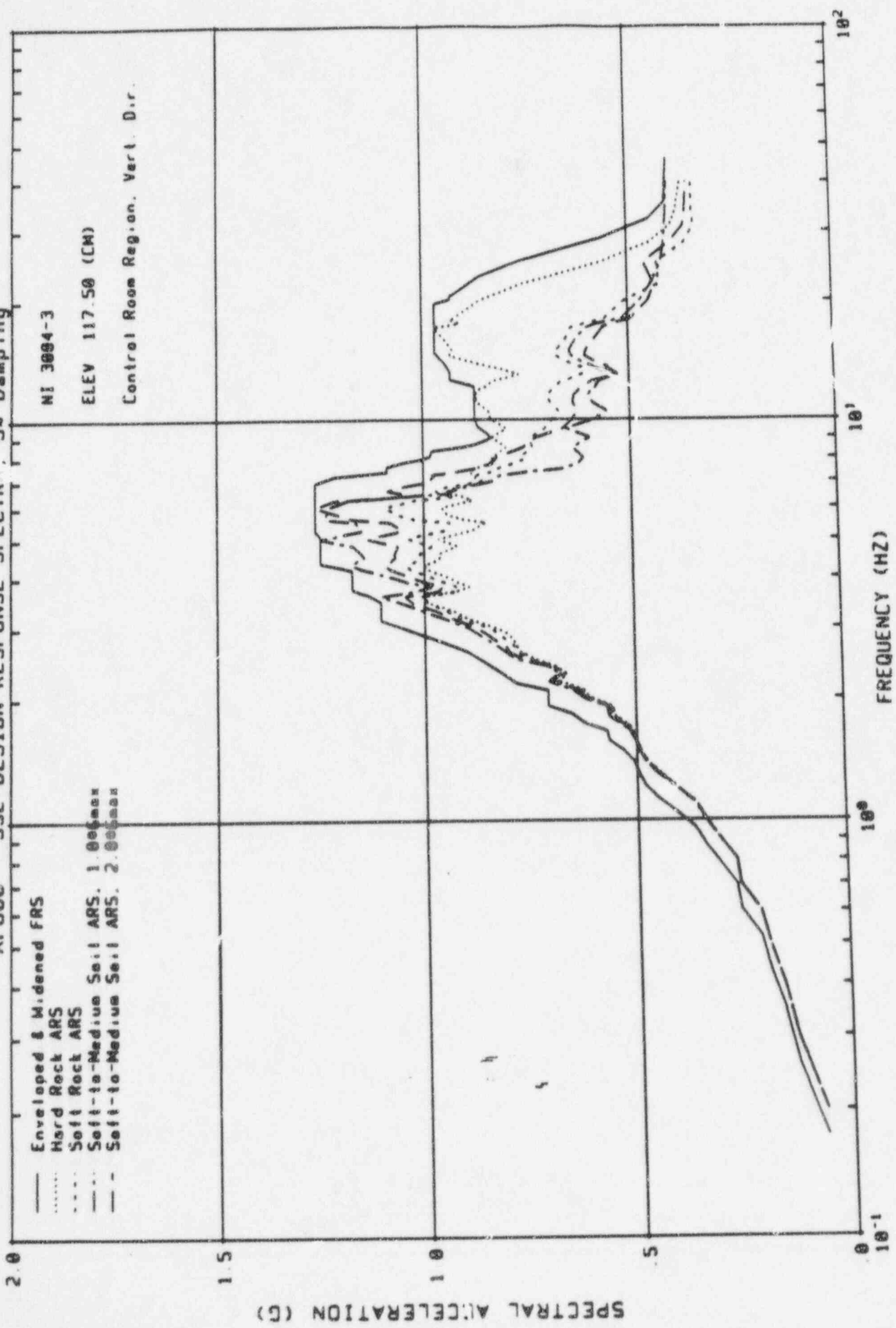


FIGURE 37.2-25 (3 of 9)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

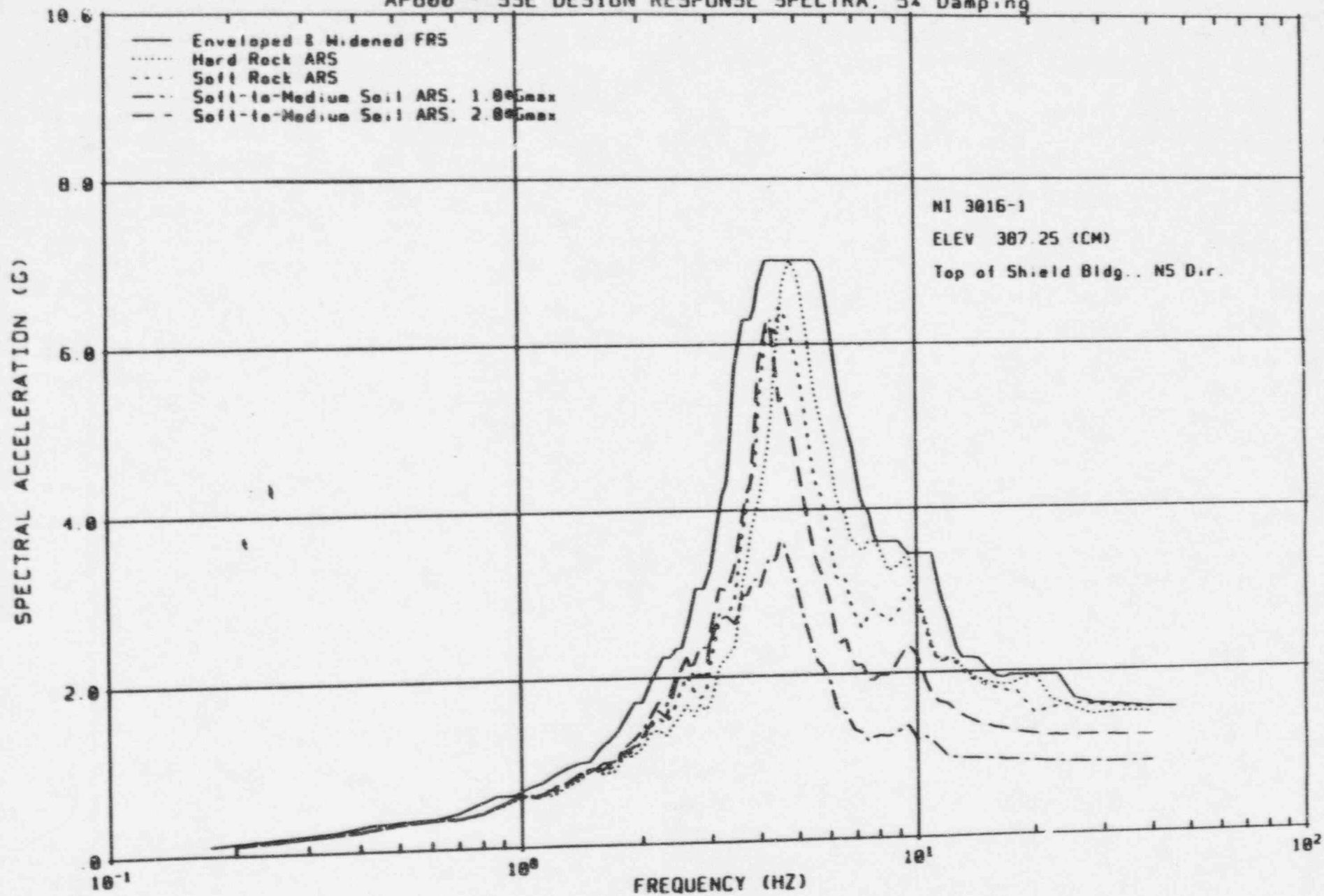


FIGURE 372-2r (7 of 9)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

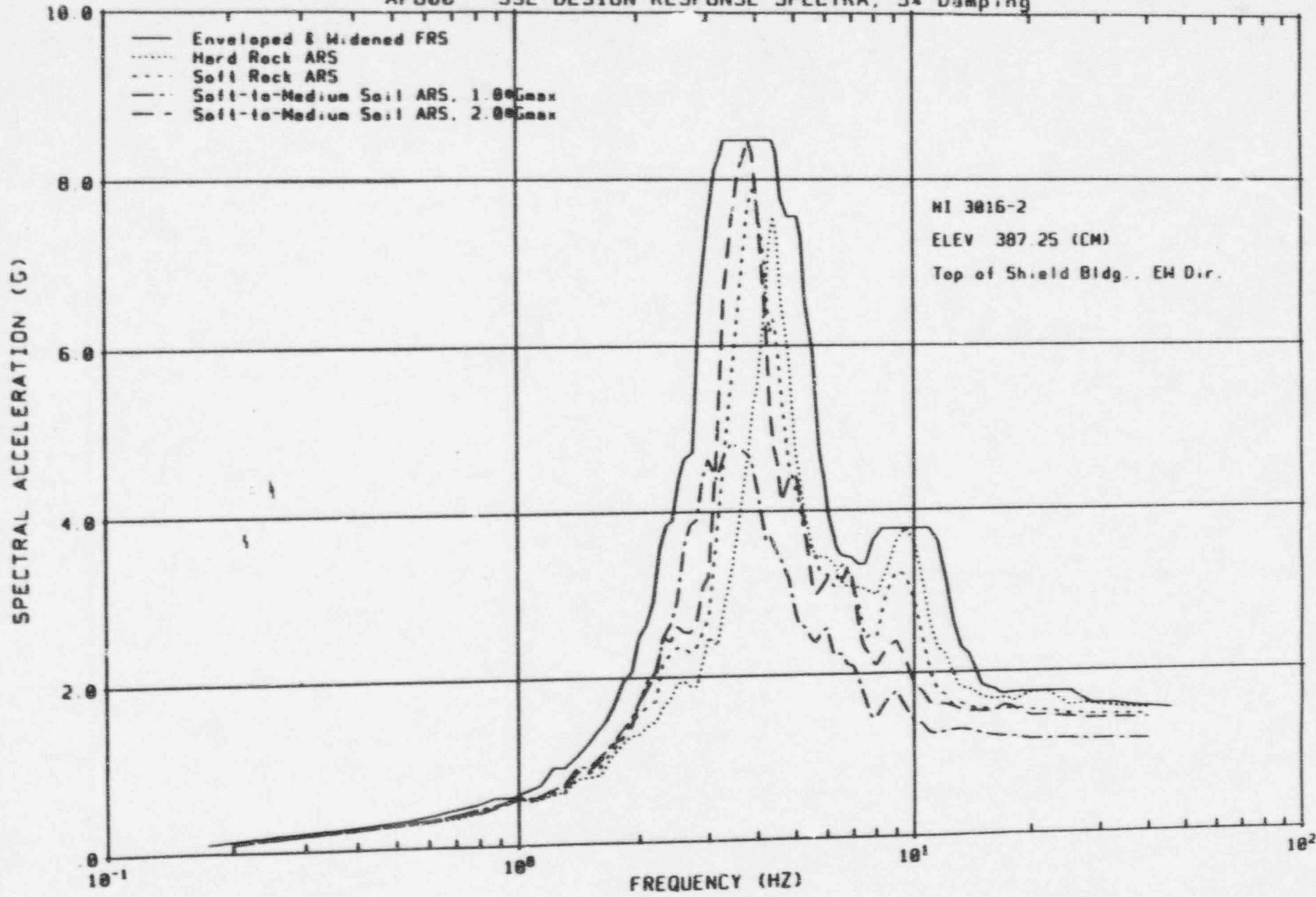


FIGURE 37.2-2r (8 of 9)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

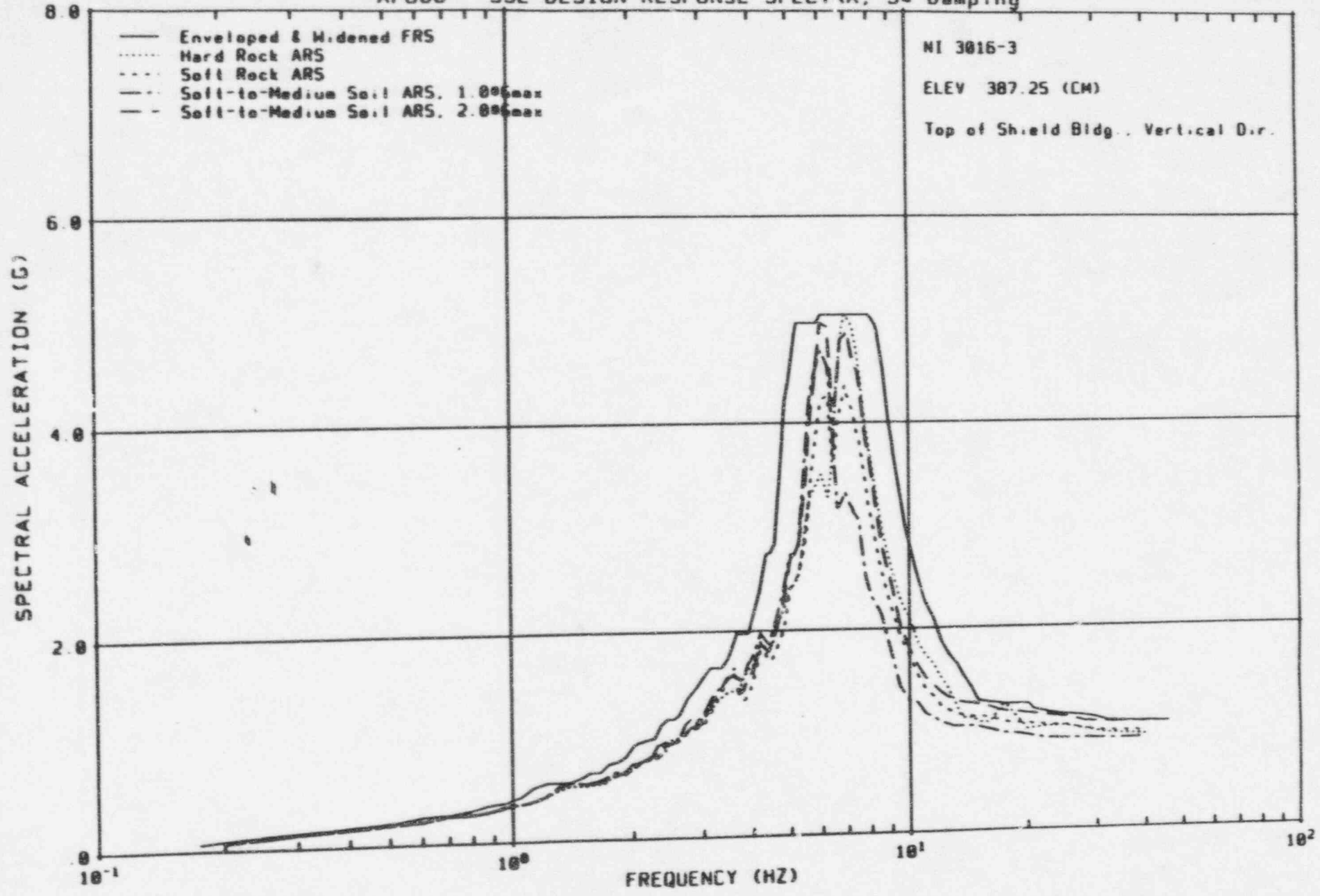


FIGURE 3.2-3 (9 of 9)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

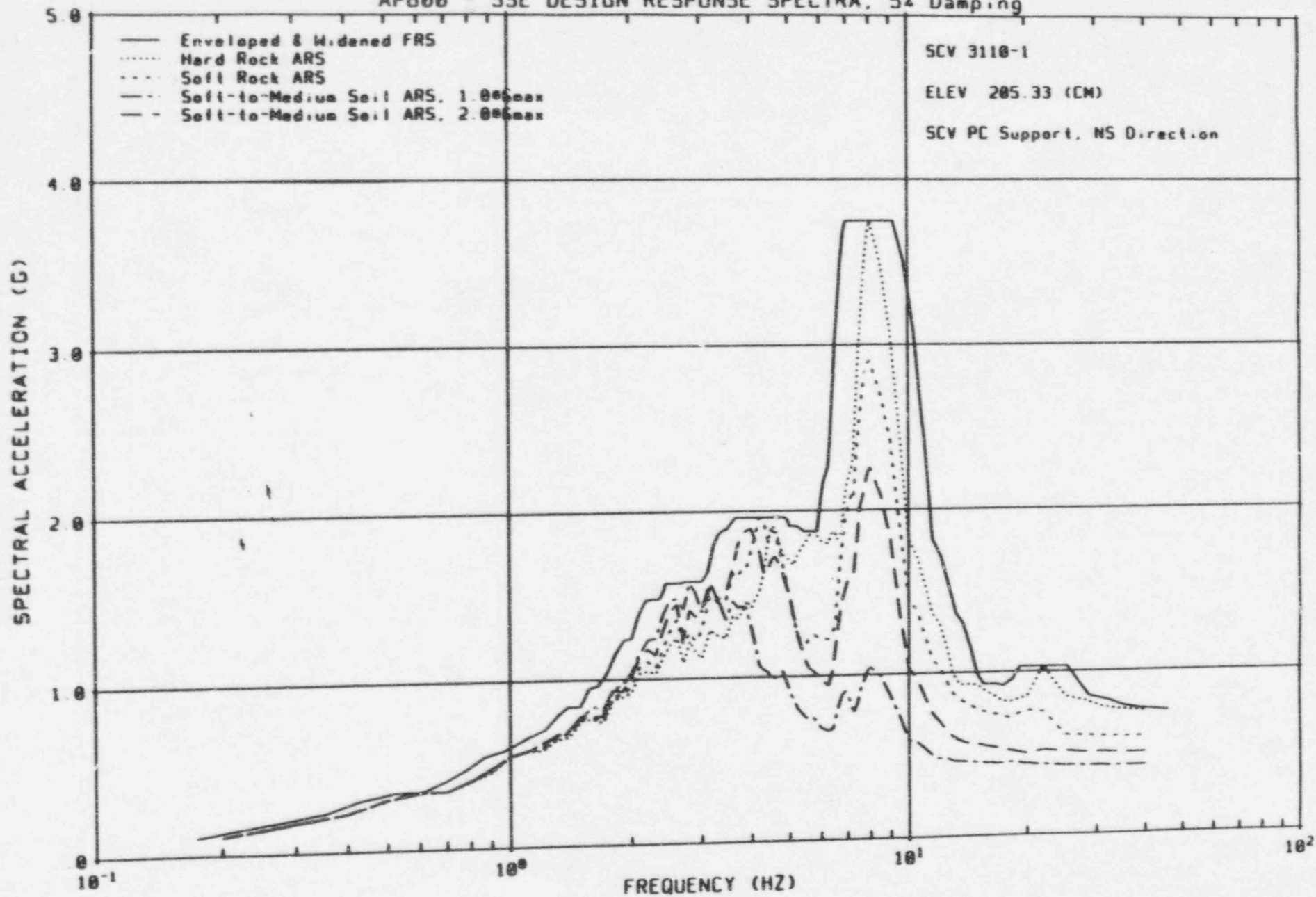


FIGURE 3.7.2 - ¹/₃₆ (1 of 6)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

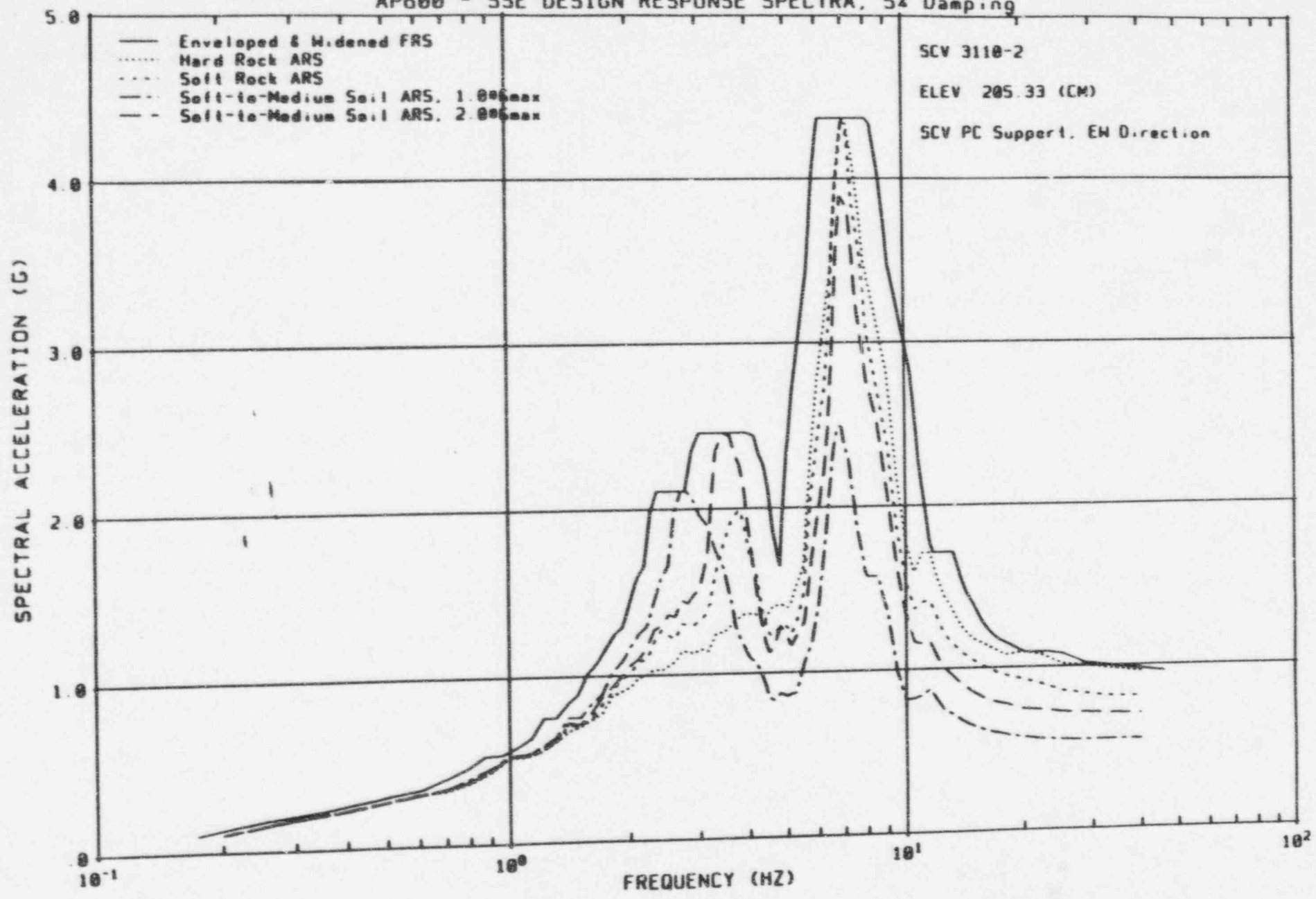


FIGURE 3.72-36(2 of 6)

AF600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

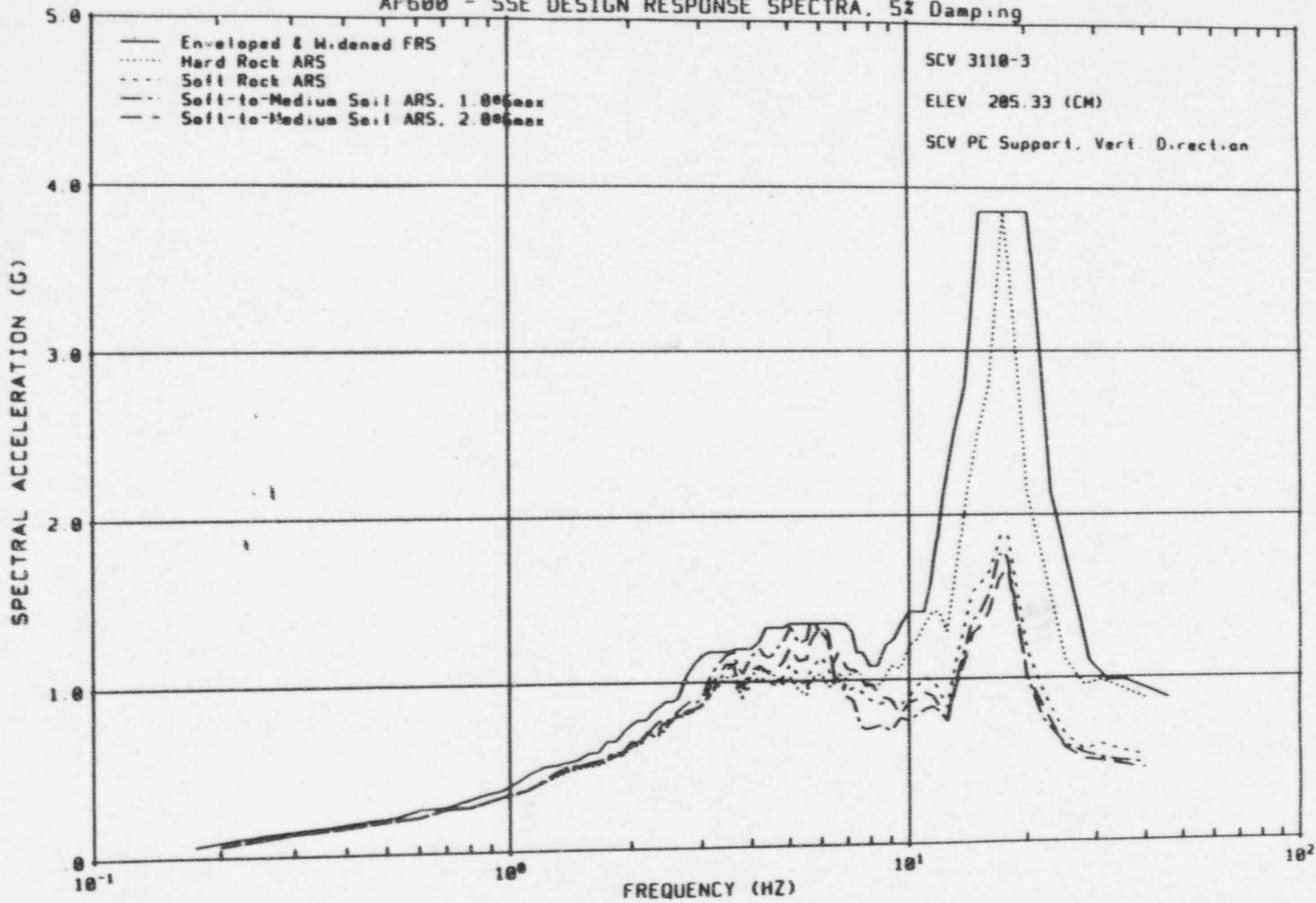


FIGURE 372-36(3 of 6)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

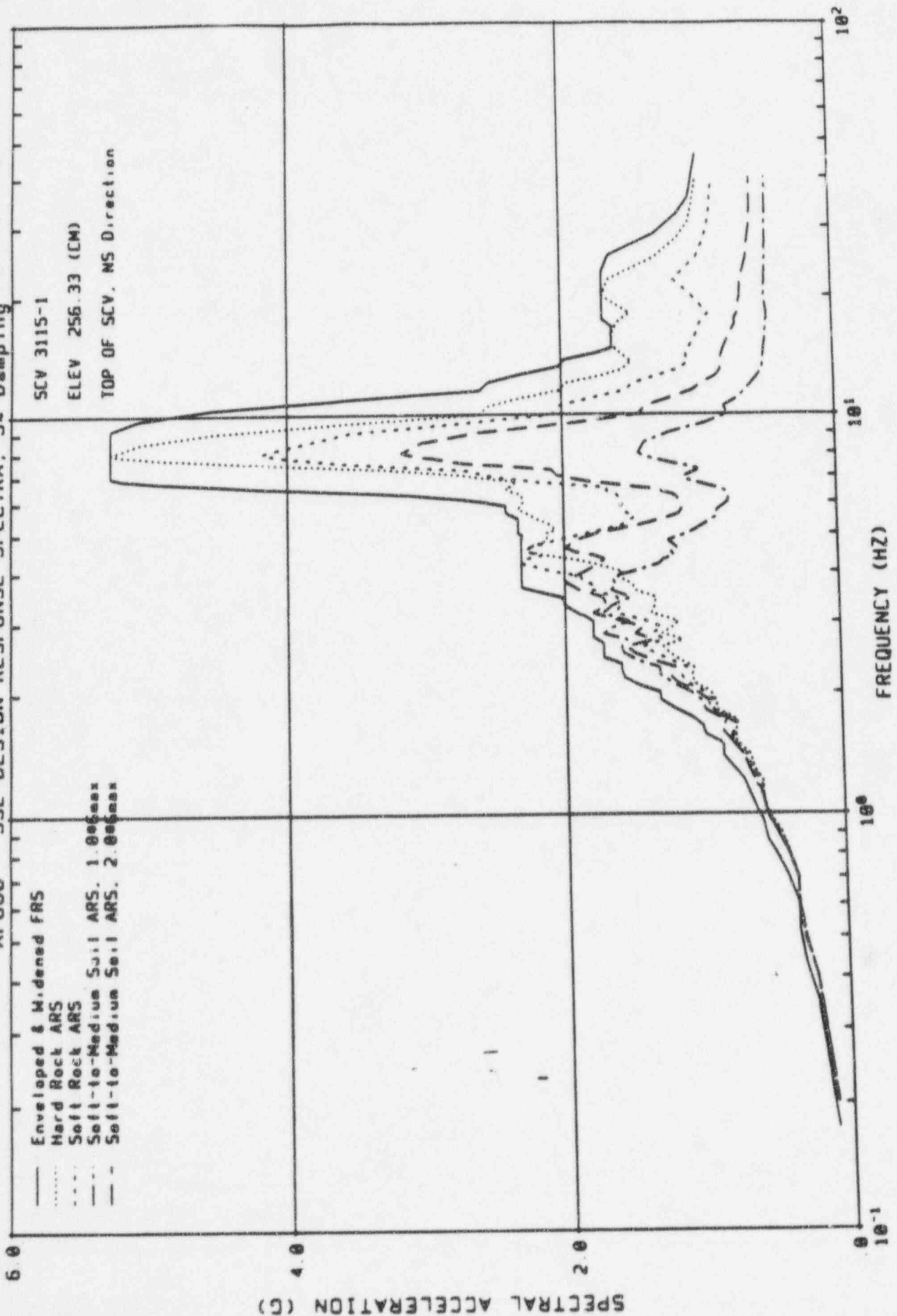


FIGURE 3.72-36 (A026)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

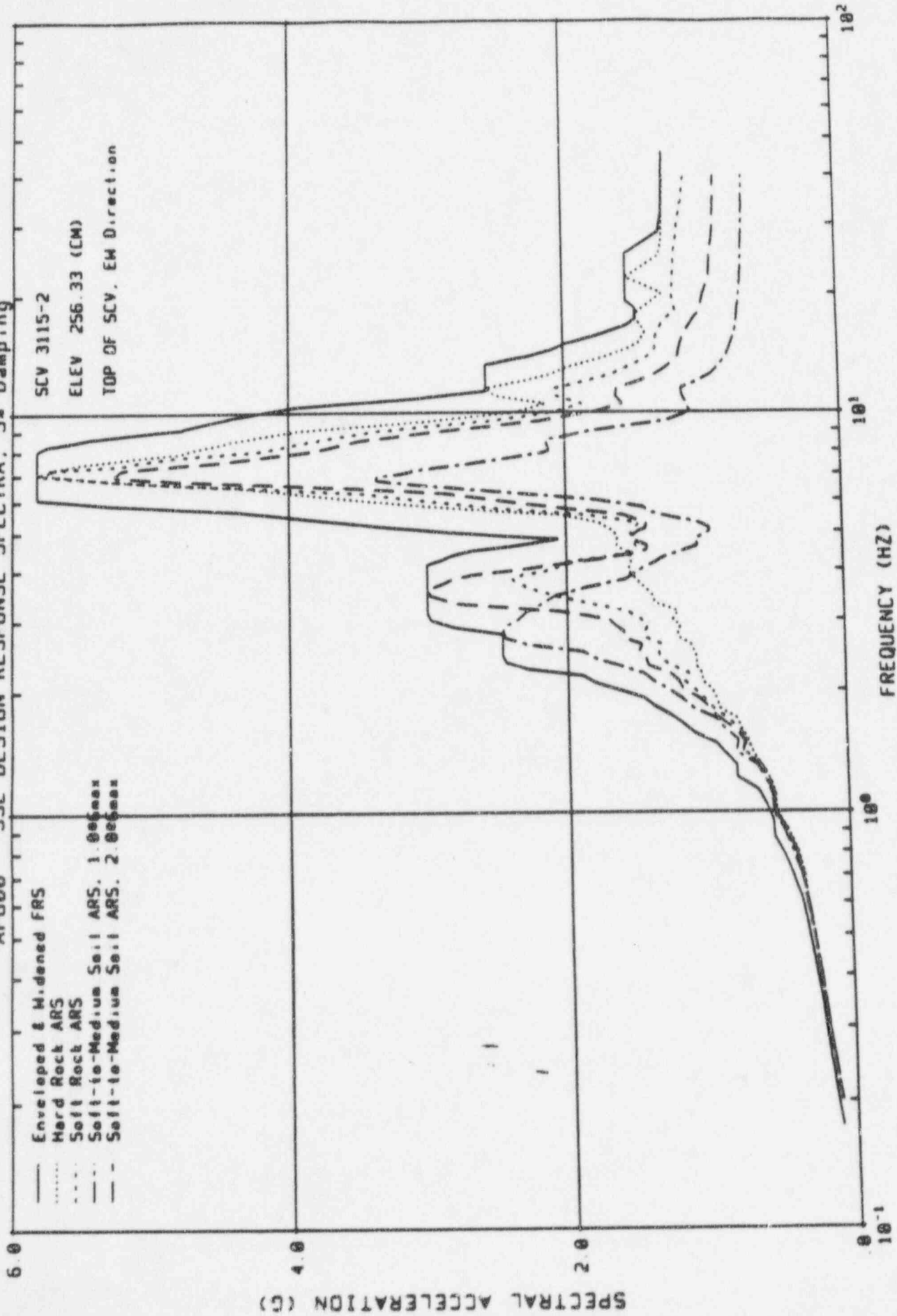


FIGURE 372-26(586)

AP600 - SSE DESIGN RESPONSE SPECTRA, 5% Damping

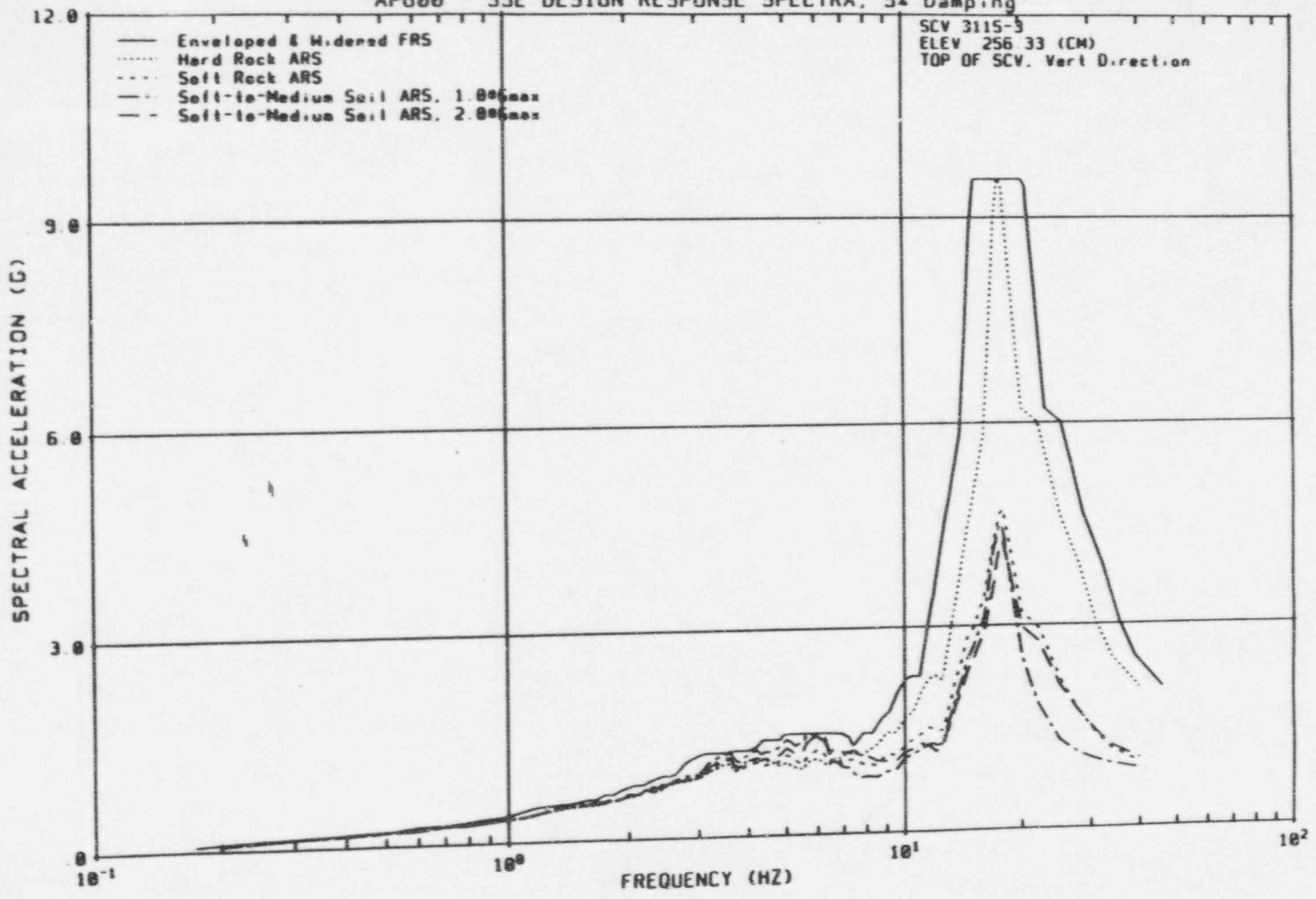


FIGURE 3.72-36 (6 of 6)