October 24, 1995

Mr. Nicholas J. Liparulo
Nuclear Safety and Regulatory Activities
Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, Pennsylvania 15230

SUBJECT: RESULTS OF NRC SOIL-STRUCTURE INTERACTION CONFIRMATORY ANALYSIS

Dear Mr. Liparulo:

The Nuclear Regulatory Commission Civil Engineering and Geosciences Branch has completed its soil-structure interaction (SSI) confirmatory analysis for the AP600 nuclear island structures. The purpose of these confirmatory analyses is to compare the analysis results obtained by the staff based on an additional site condition with the seismic design envelope floor response spectra documented in the standard safety analysis report (SSAR) in order to verify the adequacy of the AP600 seismic design floor response spectra. The additional site condition selected by the staff is the upper bound of the soft rock site used by Westinghouse and the shear wave velocity of the supporting material being 3,500 ft/sec. This site condition was not considered in the AP600 design.

Enclosed is a set of floor response spectrum plots at four different locations of the nuclear island structures. As shown in these plots, results from the confirmatory analyses exceed design envelopes at the control room (Node 3004), shield building roof (Node 3016), top containment vessel (Node 3115) and polar crane (Node 3110). There is an indication that the four design site conditions documented in the SSAR may not adequately envelope the spectrum of potential sites in the United States. The staff realizes that Westinghouse is in the process of performing its SSI analyses for generating the final design floor response spectra. The enclosed floor response spectrum plots are for comparison and discussion at a future meeting with the staff.

If you have any questions regarding this matter, you can contact me at (301) 415-8548.

Sincerely,

Original signed by
Diane T. Jackson, Project Manager
Standardization Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Docket No. 52-003

Enclosure: As stated

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Mr. Nicholas J. Liparulo
Westinghouse Electric Corporation

Docket No. 52-003
AP600

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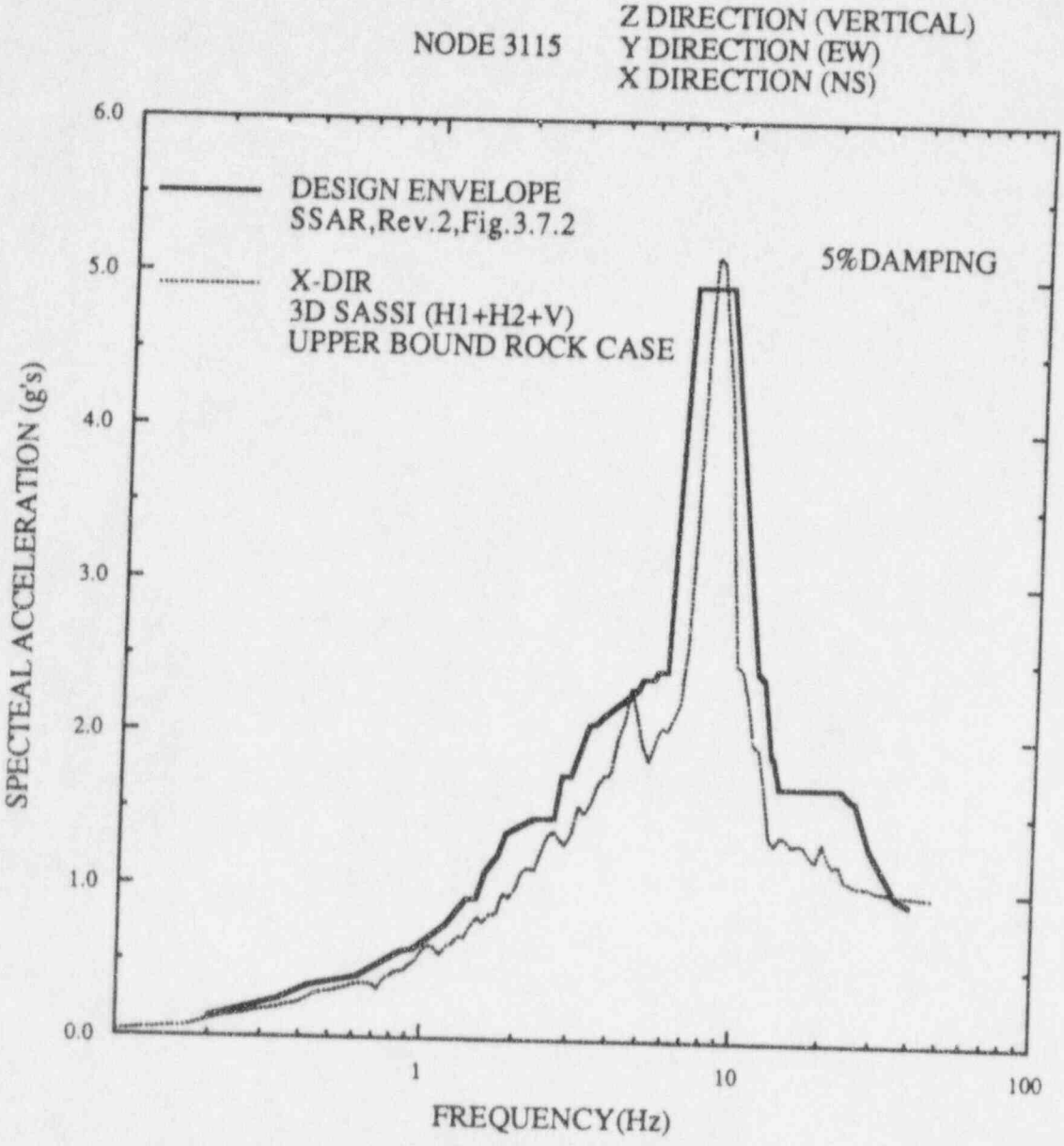
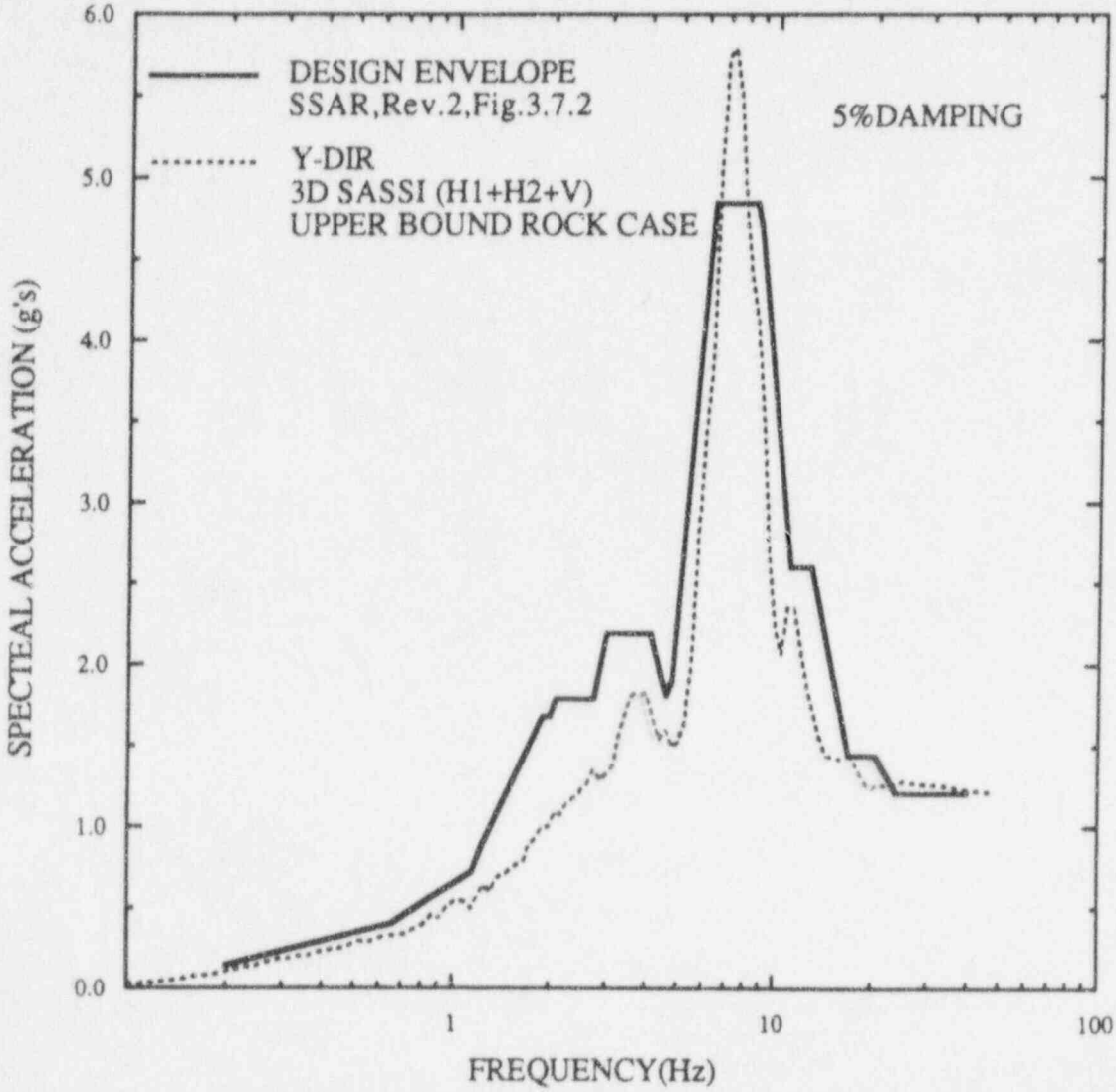


RESPONSE SPECTRA@NODE 3115
AP6003D MOTION ALGEBRAIC SUM

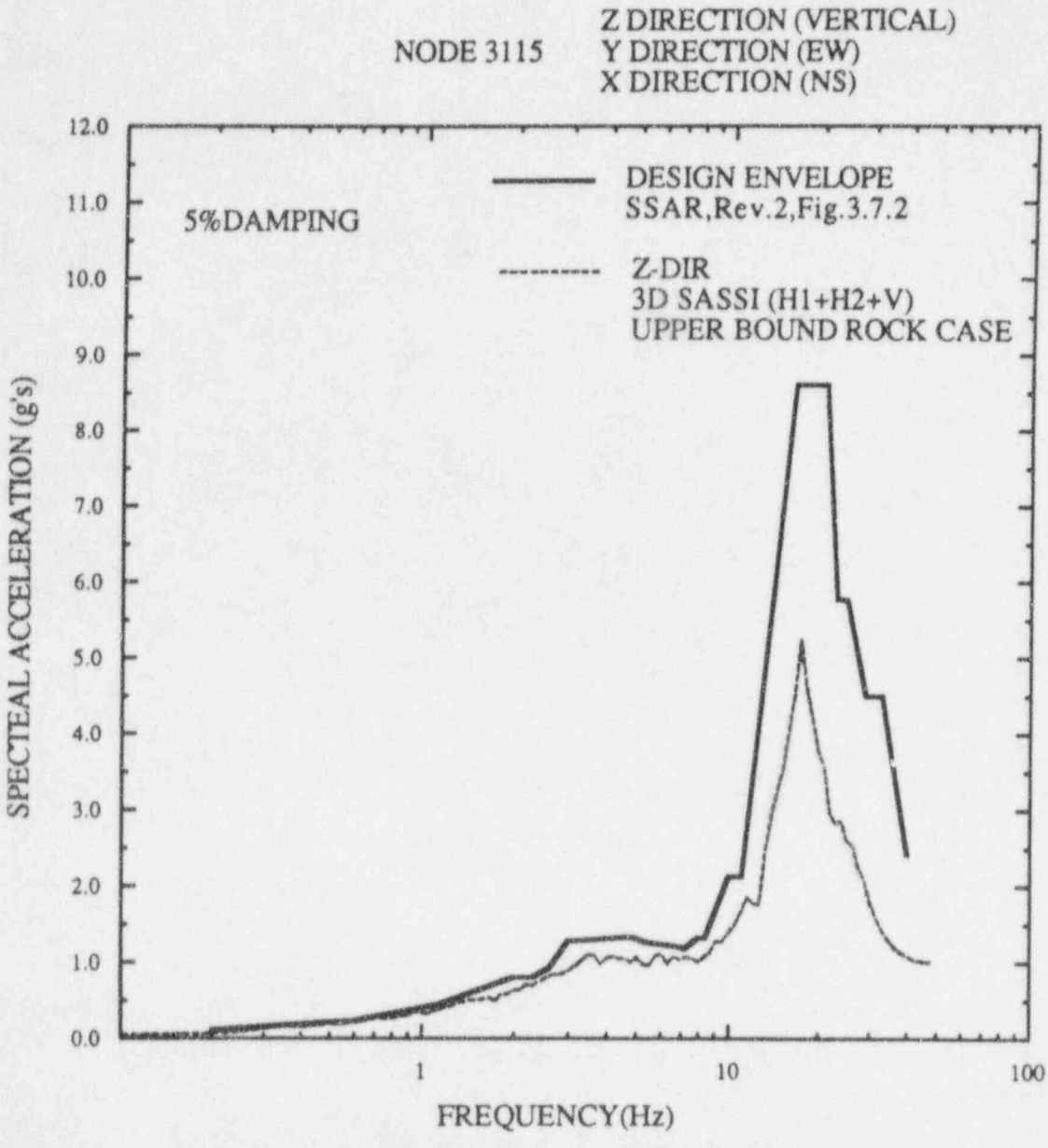
Enclosure

NODE 3115

Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



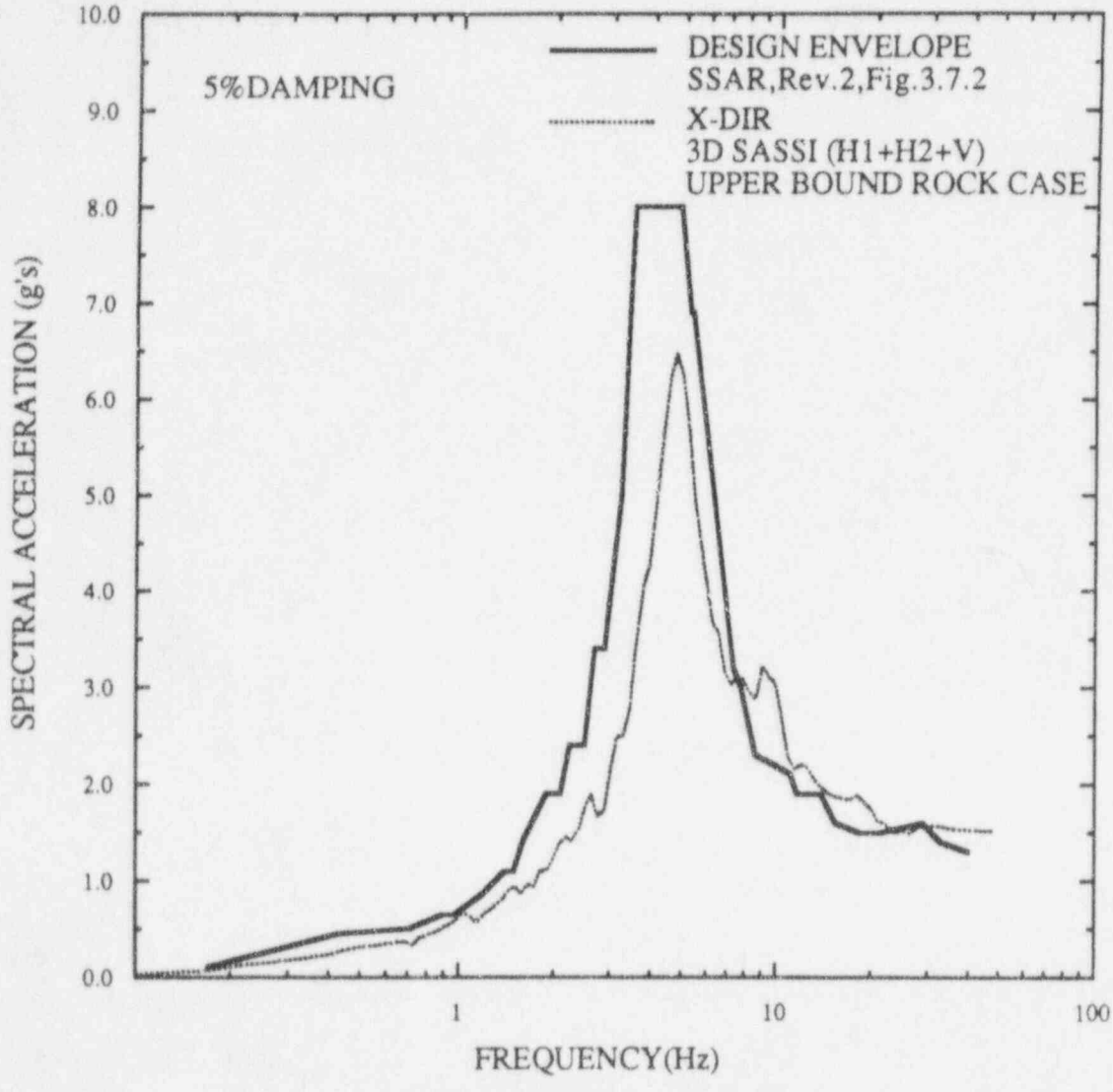
RESPONSE SPECTRA@NODE 3115
AP6003D MOTION ALGEBRAIC SUM



RESPONSE SPECTRA@NODE 3115
AP6003D MOTION ALGEBRAIC SUM

NODE 3016

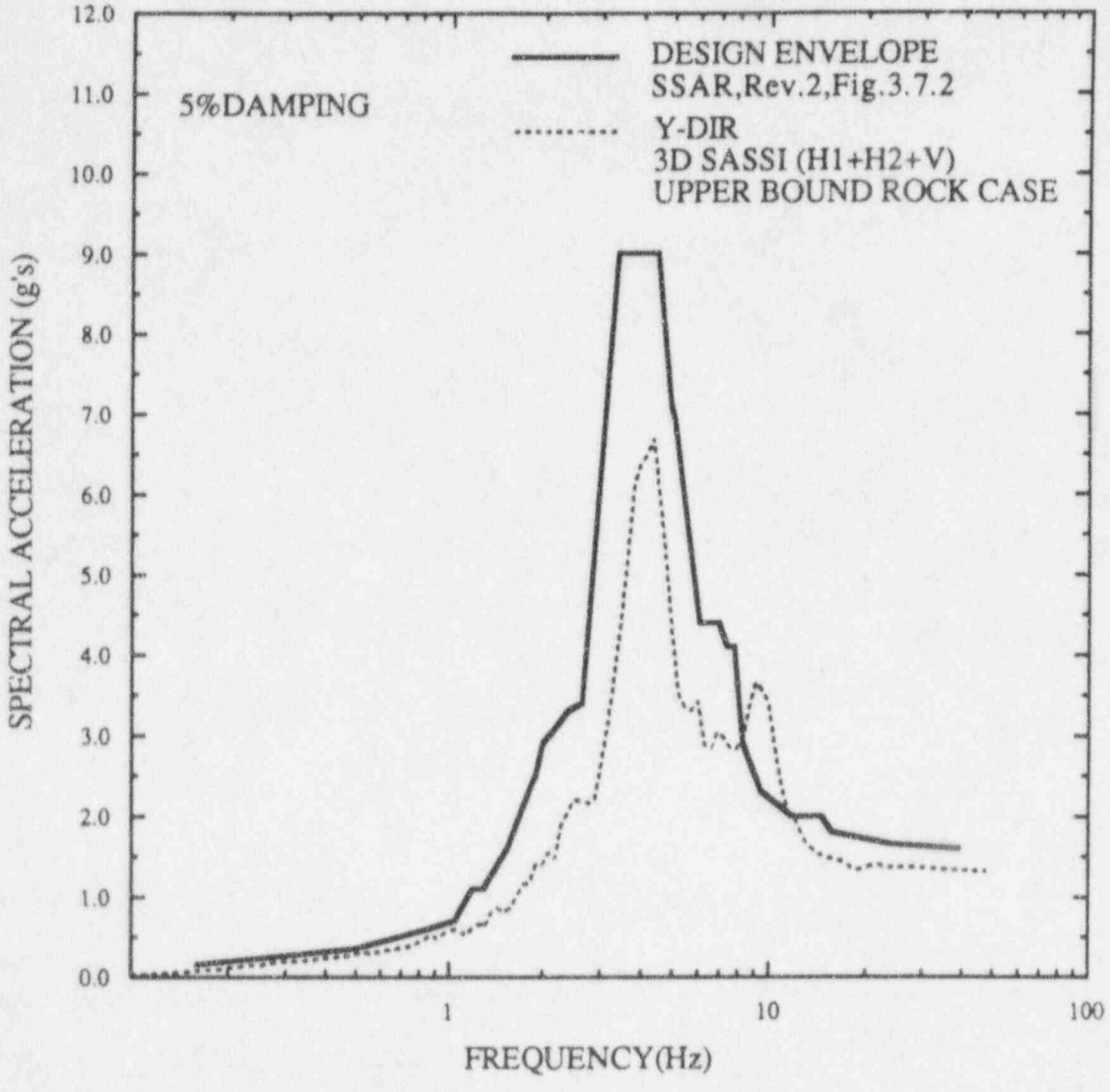
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3016
AP6003D MOTION ALGEBRAIC SUM

NODE 3016

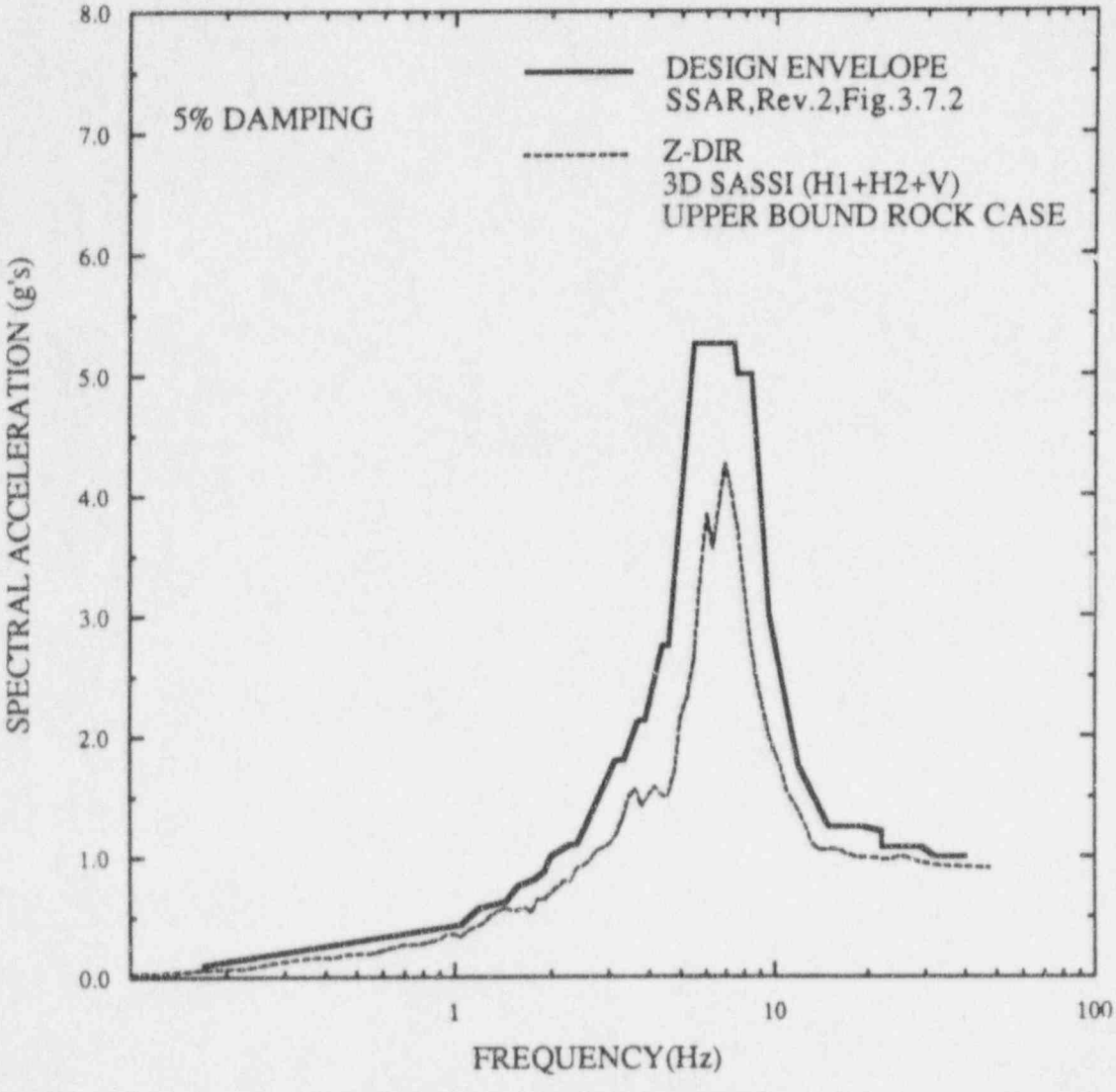
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3016
AP6003D MOTION ALGEBRAIC SUM

NODE 3016

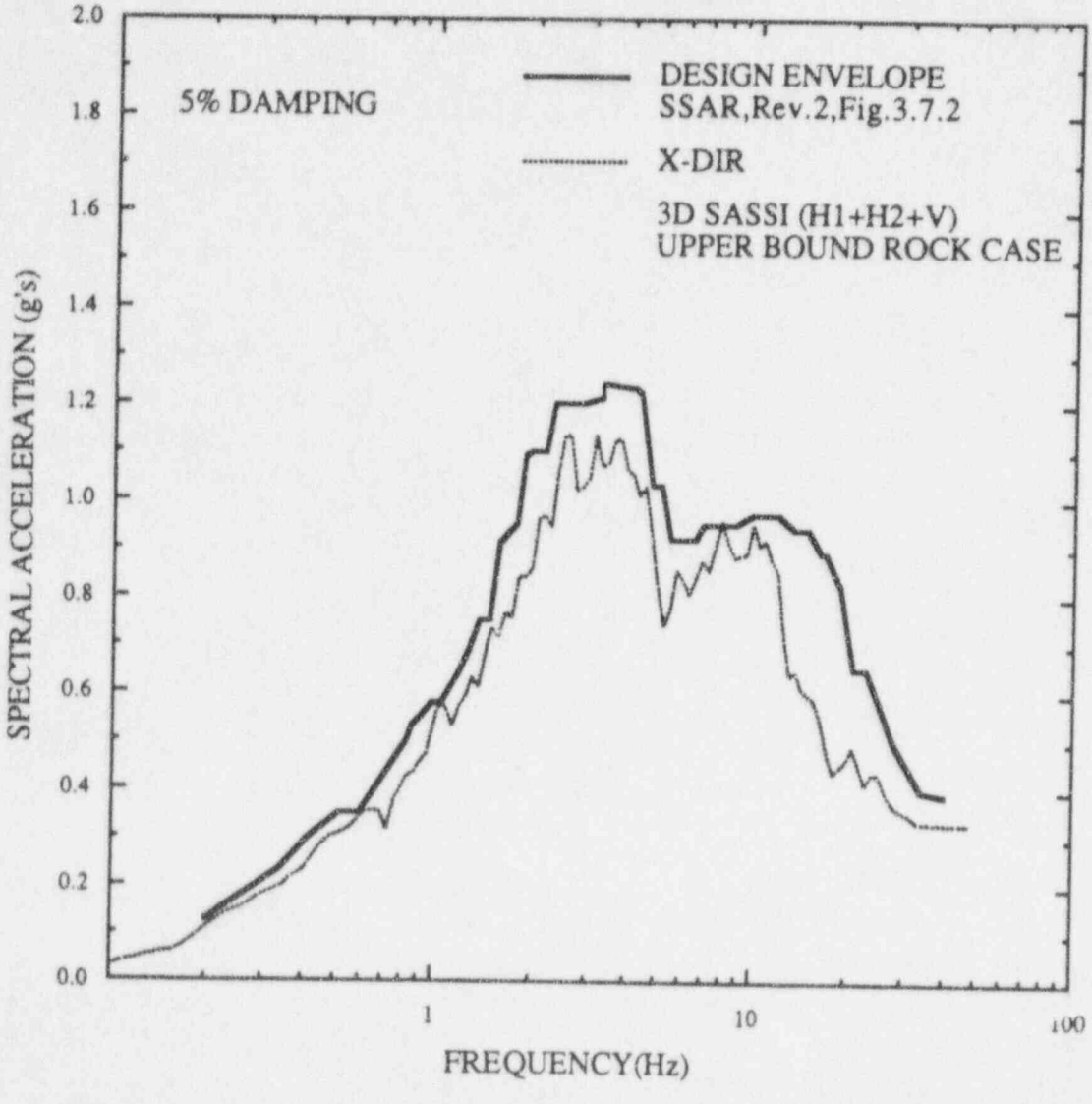
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3016
AP6003D MOTION ALGEBRAIC SUM

NODE 3004

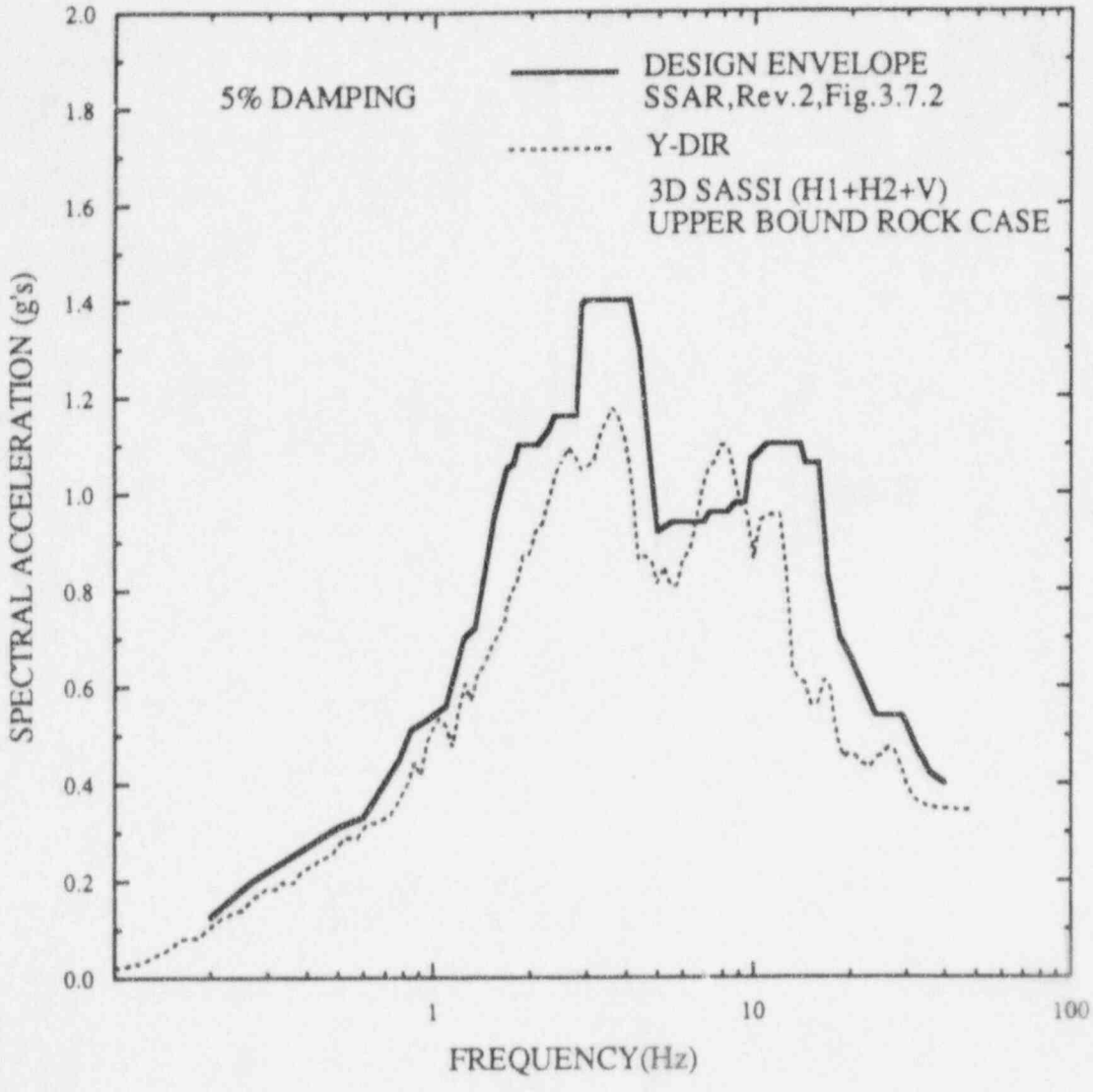
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3004
AP6003D MOTION ALGEBRAIC SUM

NODE 3004

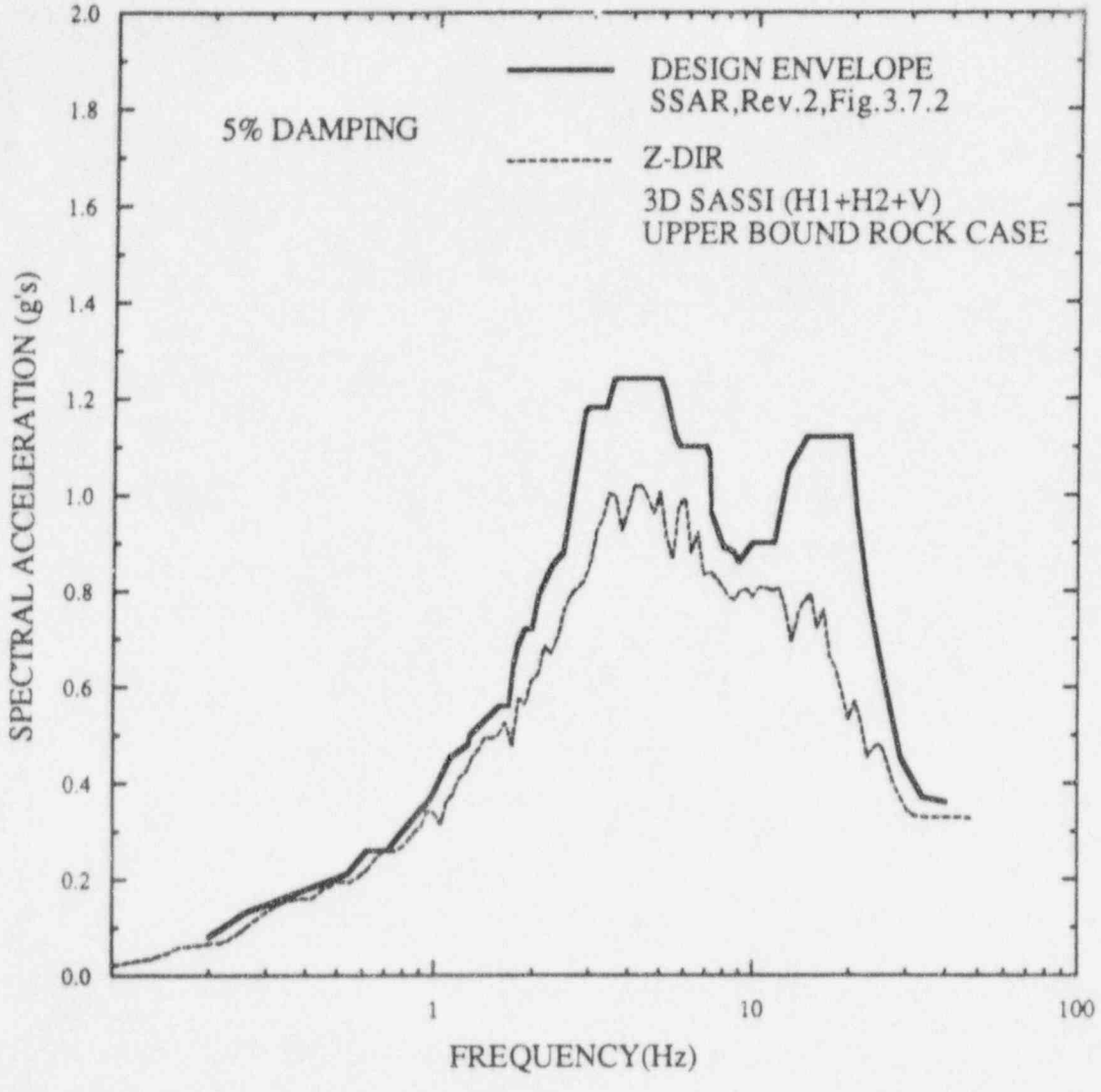
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3004
AP6003D MOTION ALGEBRAIC SUM

NODE 3004

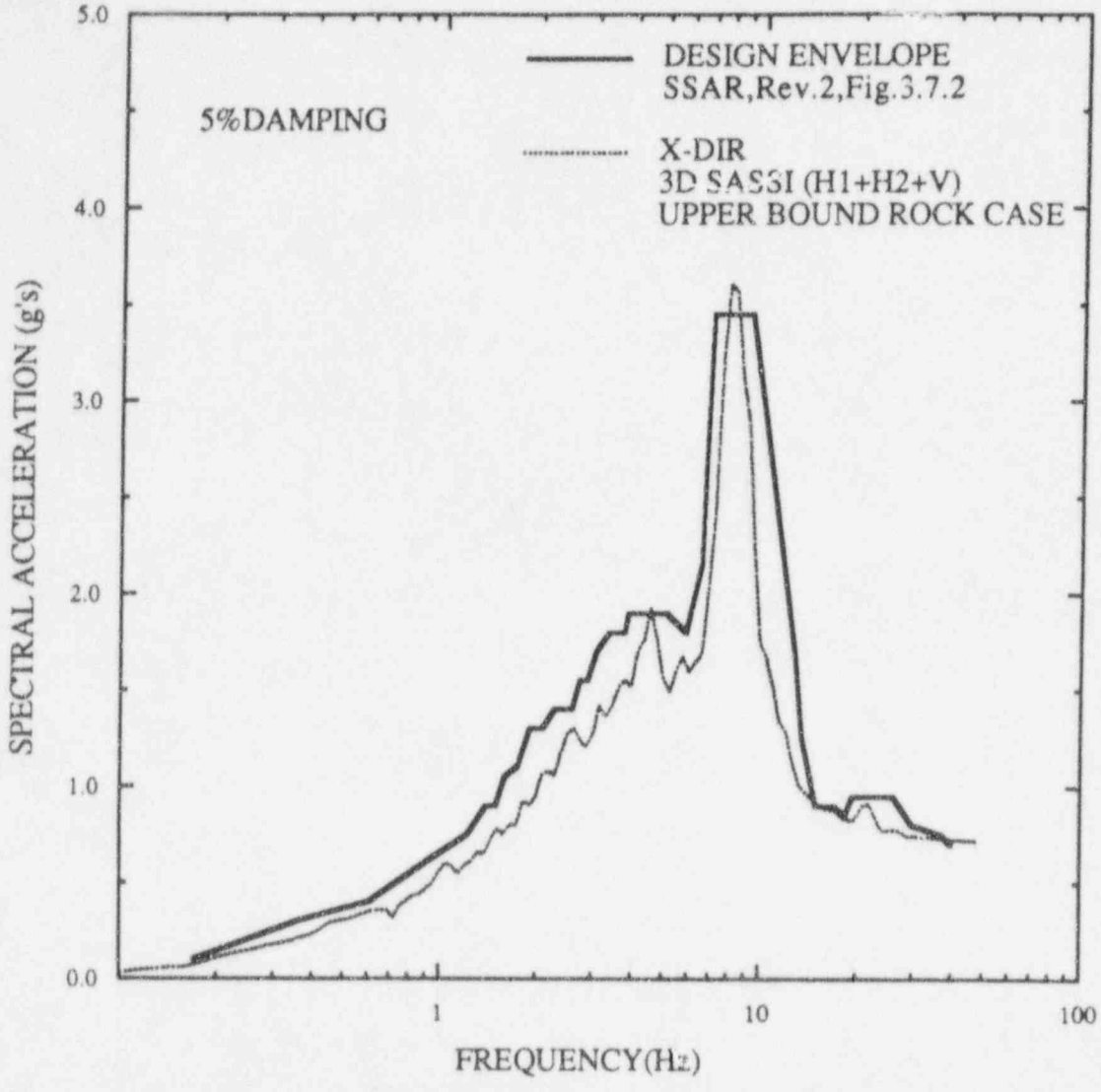
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3004
AP6003D MOTION ALGEBRAIC SUM

NODE 3110

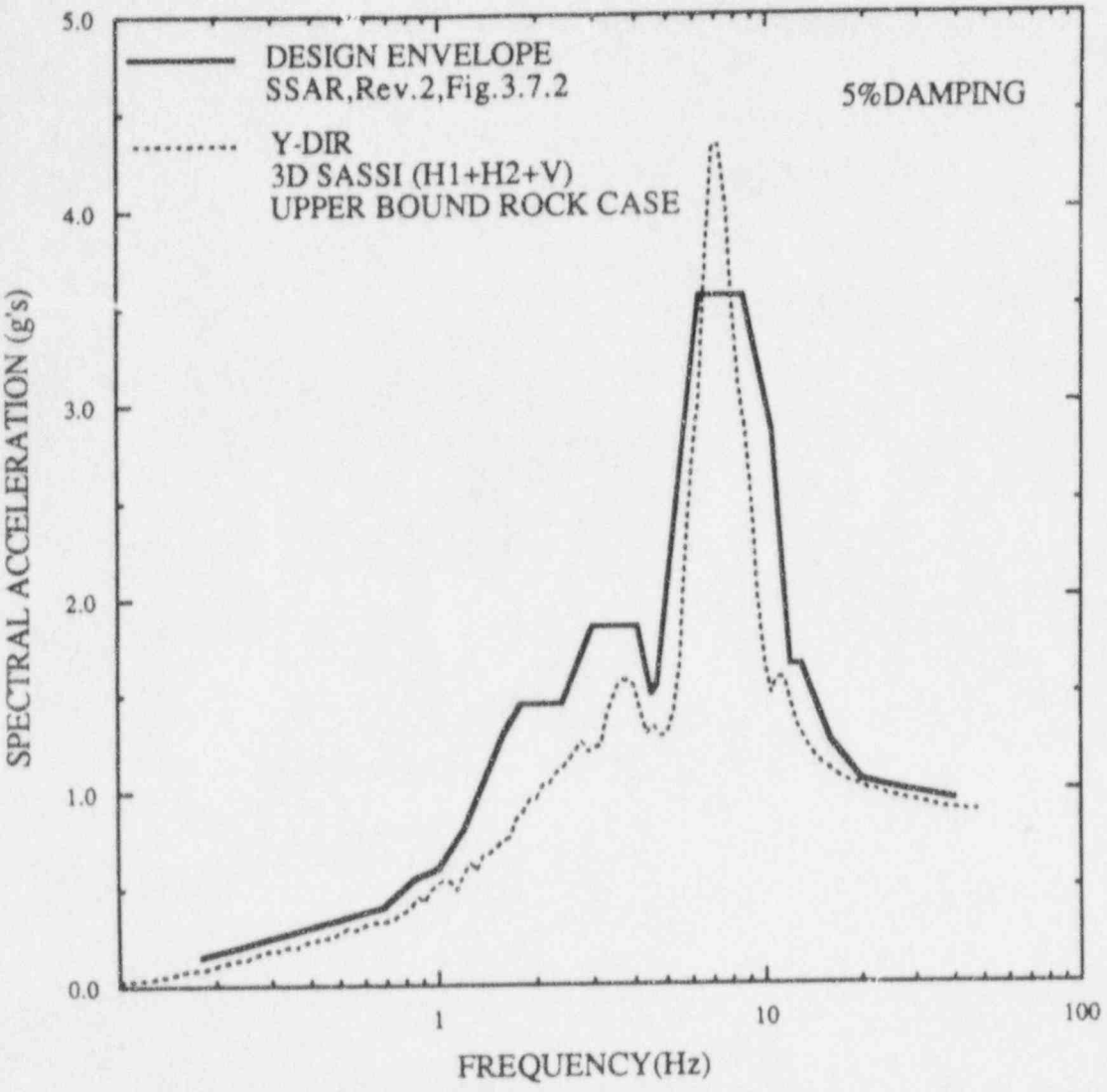
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3110
AP6003D MOTION ALGEBRAIC SUM

NODE 3110

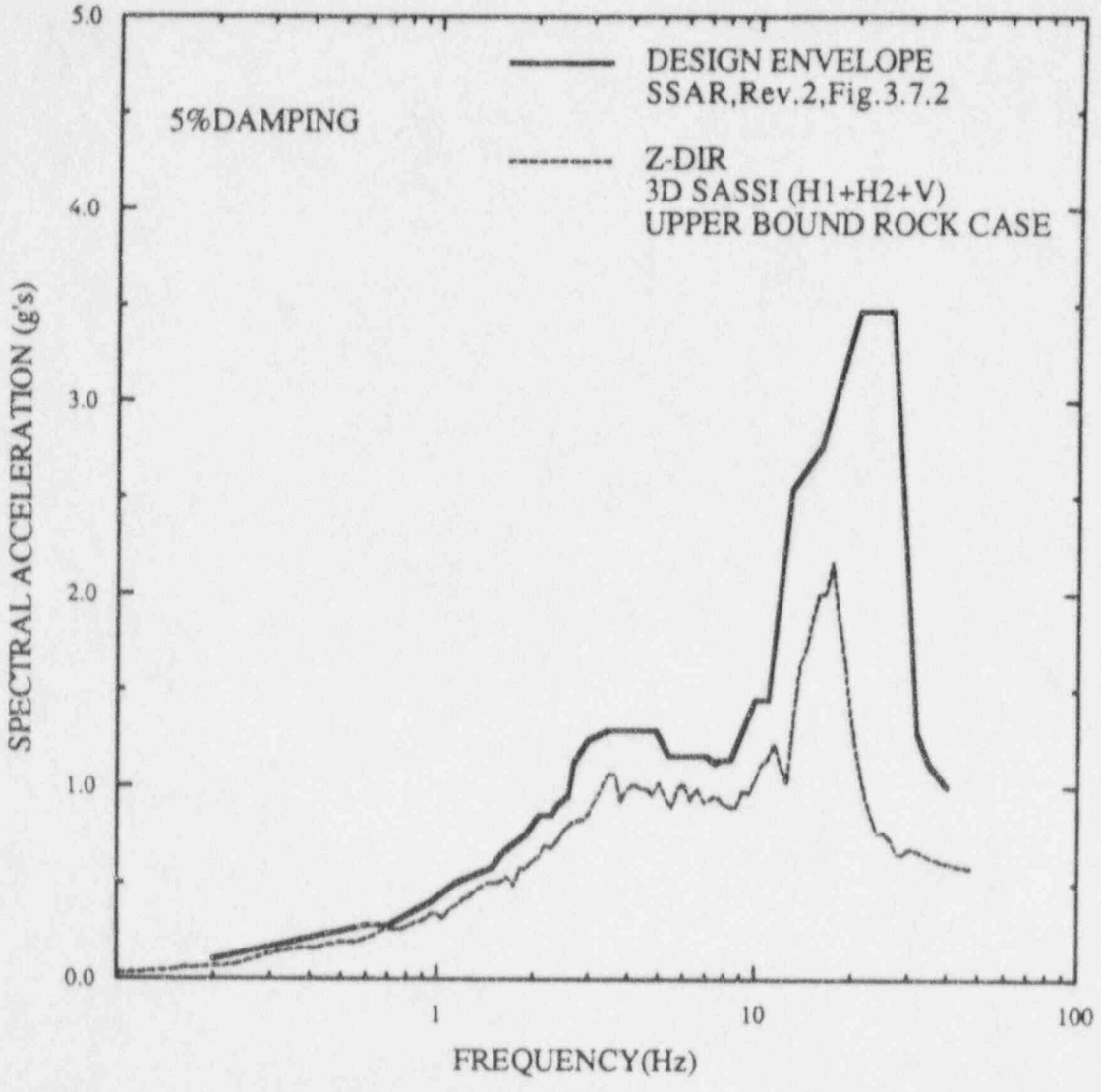
Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3110
AP6003D MOTION ALGEBRAIC SUM

NODE 3110

Z DIRECTION (VERTICAL)
Y DIRECTION (EW)
X DIRECTION (NS)



RESPONSE SPECTRA@NODE 3110
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