

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CROSS SECTION OF CONTAINMENT

FIGURE 3A-1

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

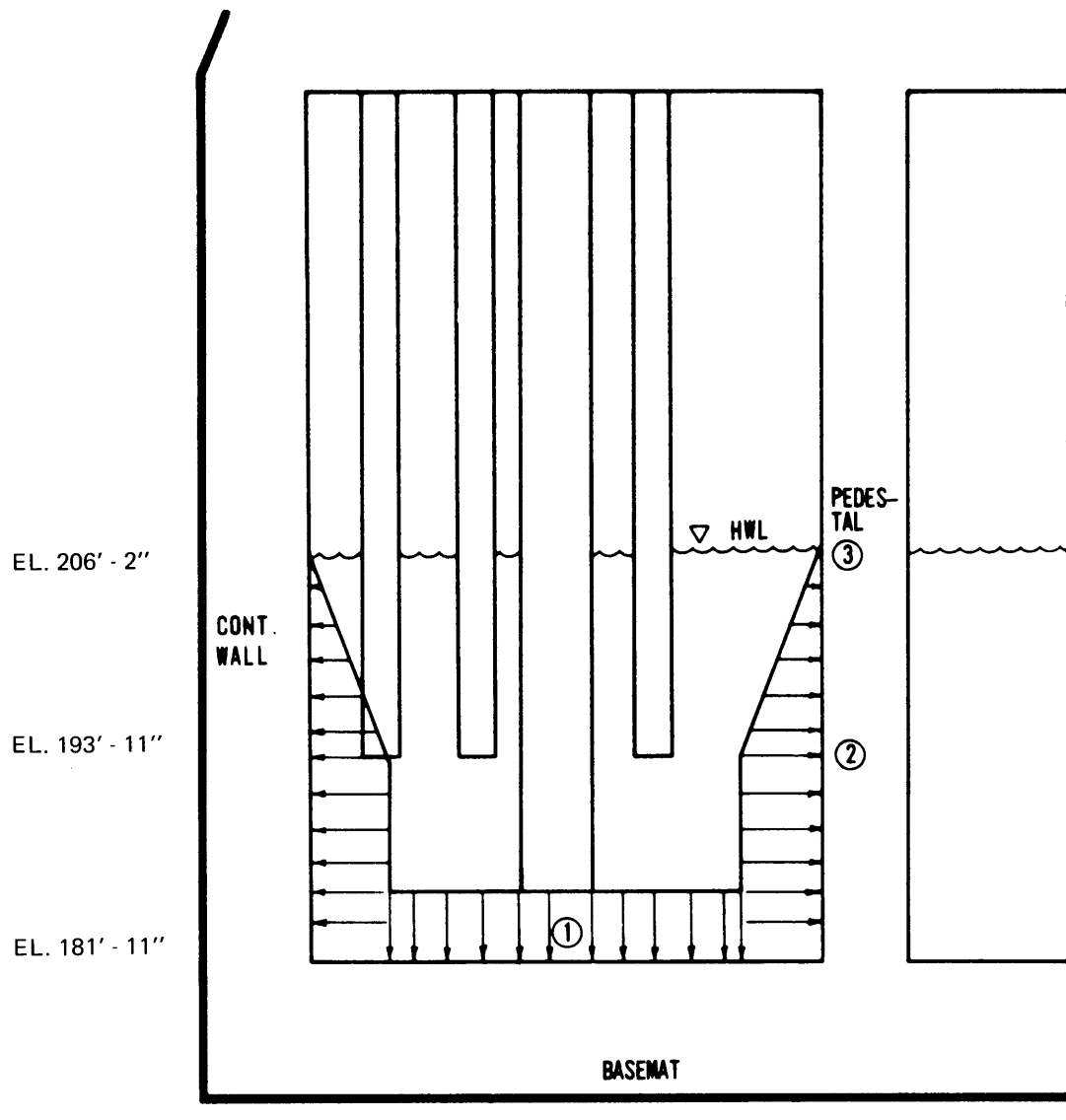
DESIGN ASSESSMENT REPORT  
SUPPRESSION CHAMBER AND  
PEDESTAL INTERIOR -  
SECTION VIEW

FIGURE 3A-2





**FIGURE 3A-3**

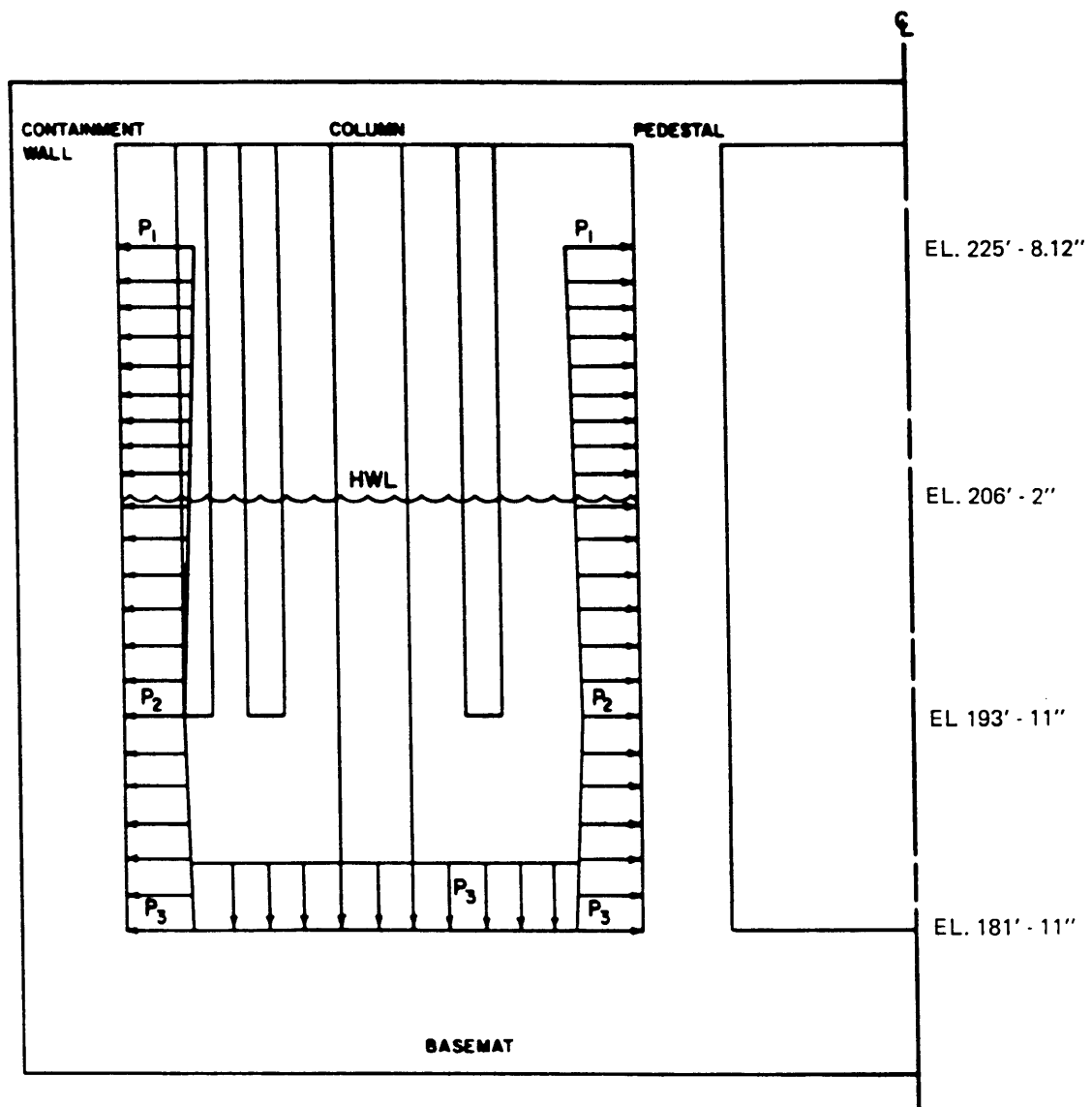


- ①  $24 + 14.7 + 10.51 = 49.21$  psia
- ②  $24 + 14.7 + 5.2 = 43.9$  psia
- ③  $0 + 14.7 + 0 = 14.7$  psia

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
**VENT CLEARING  
PRESSURE DISTRIBUTION**

FIGURE 3A-4



$P_1 = 53.64$  psia

$P_2 = 48.25$  psia

$P_3 = 58.76$  psia

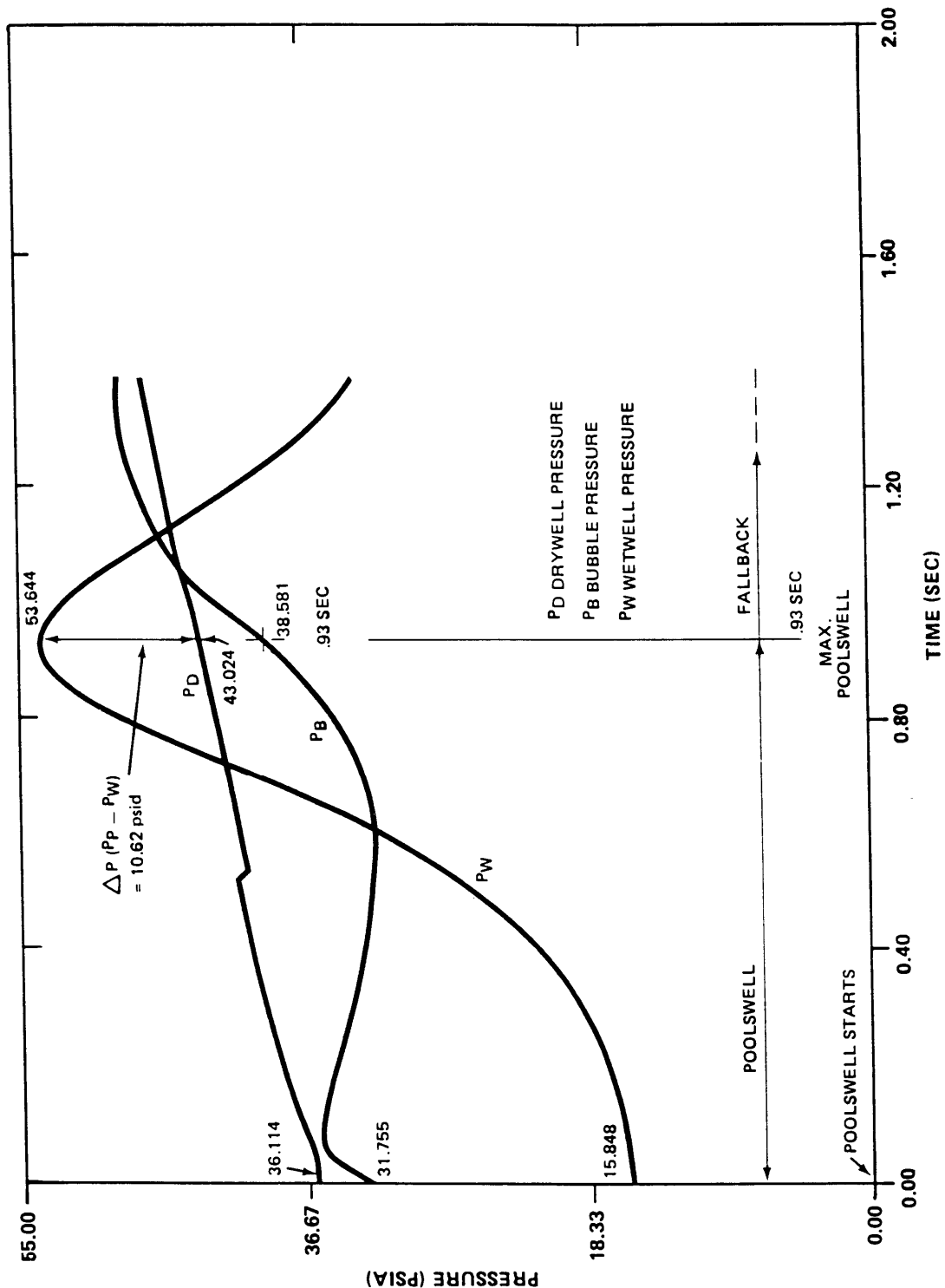
**NOTE:** The information presented in this figure is based on the original design basis conditions. Refer to Section 3A.4.2.1.4 for the pool swell air bubble distribution at the current operations.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
POOLSWELL AIR BUBBLE  
PRESSURE ON  
SUPPRESSION POOL WALLS

FIGURE 3A-5

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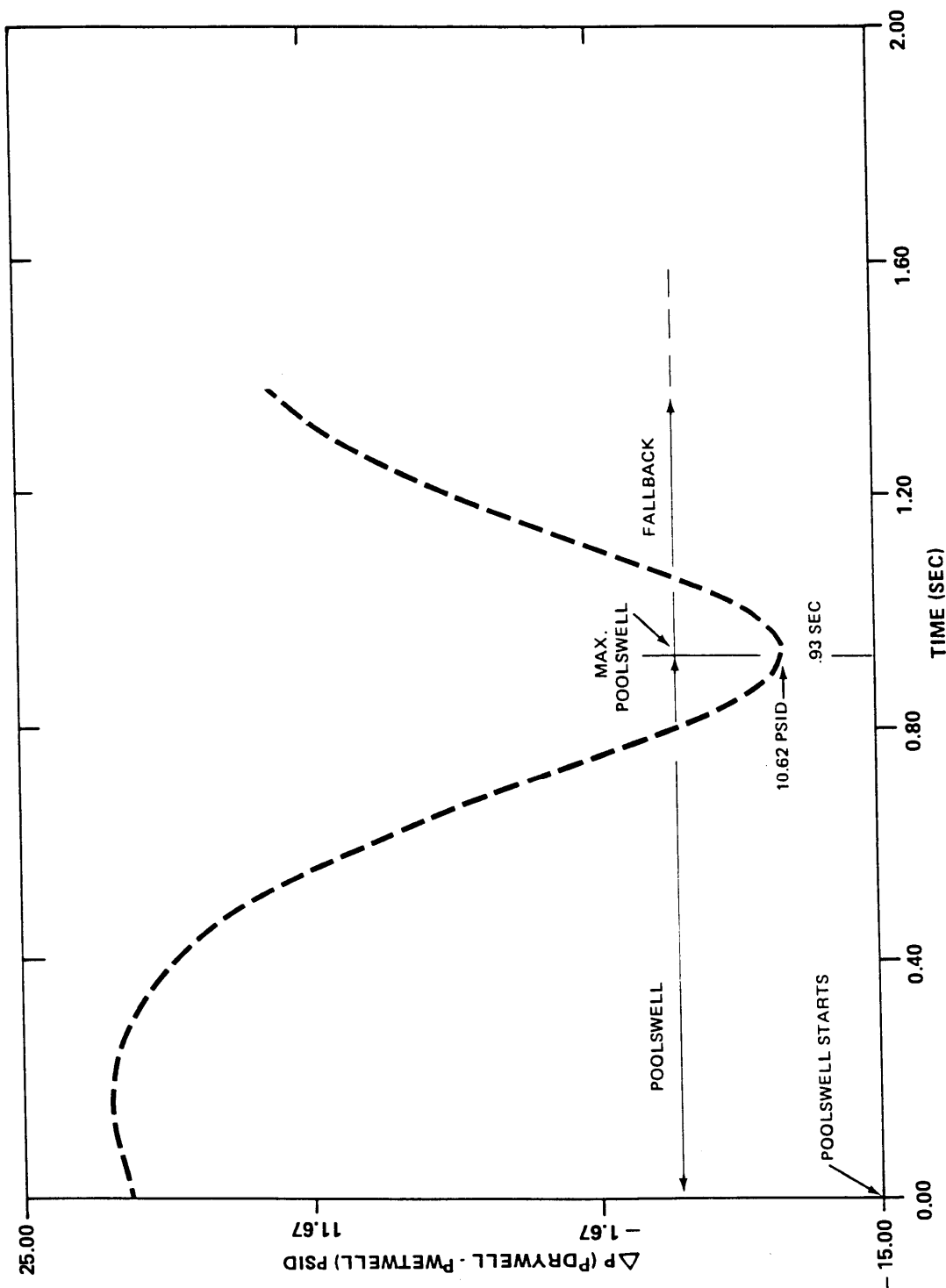
**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Section 3A.4.2.1.6 for the pool swell evaluation at the current operating conditions. The results presented here reasonably represent the general characteristics of the pressure response during pool swell.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
WETWELL, DRYWELL, AND  
AIR BUBBLE PRESSURES  
DURING POOLSWELL

FIGURE 3A-6

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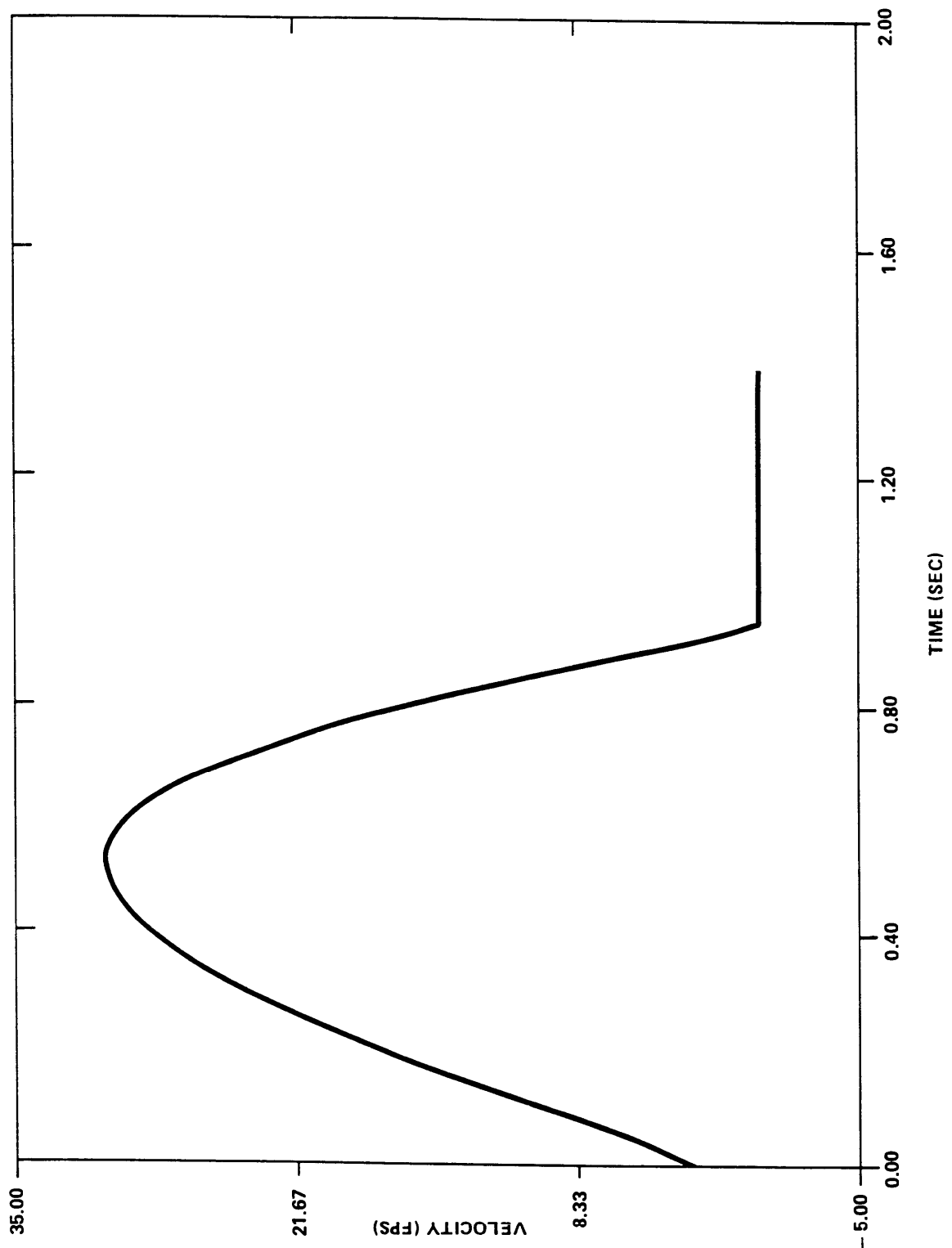
**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Section 3A.4.2.1.6 for the pool swell evaluation at the current operating conditions. The results presented here reasonably represent the general characteristics of the pressure response during pool swell.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
**DRYWELL AND WETWELL  
 $\Delta P$  DURING POOLSWELL**

FIGURE 3A-7

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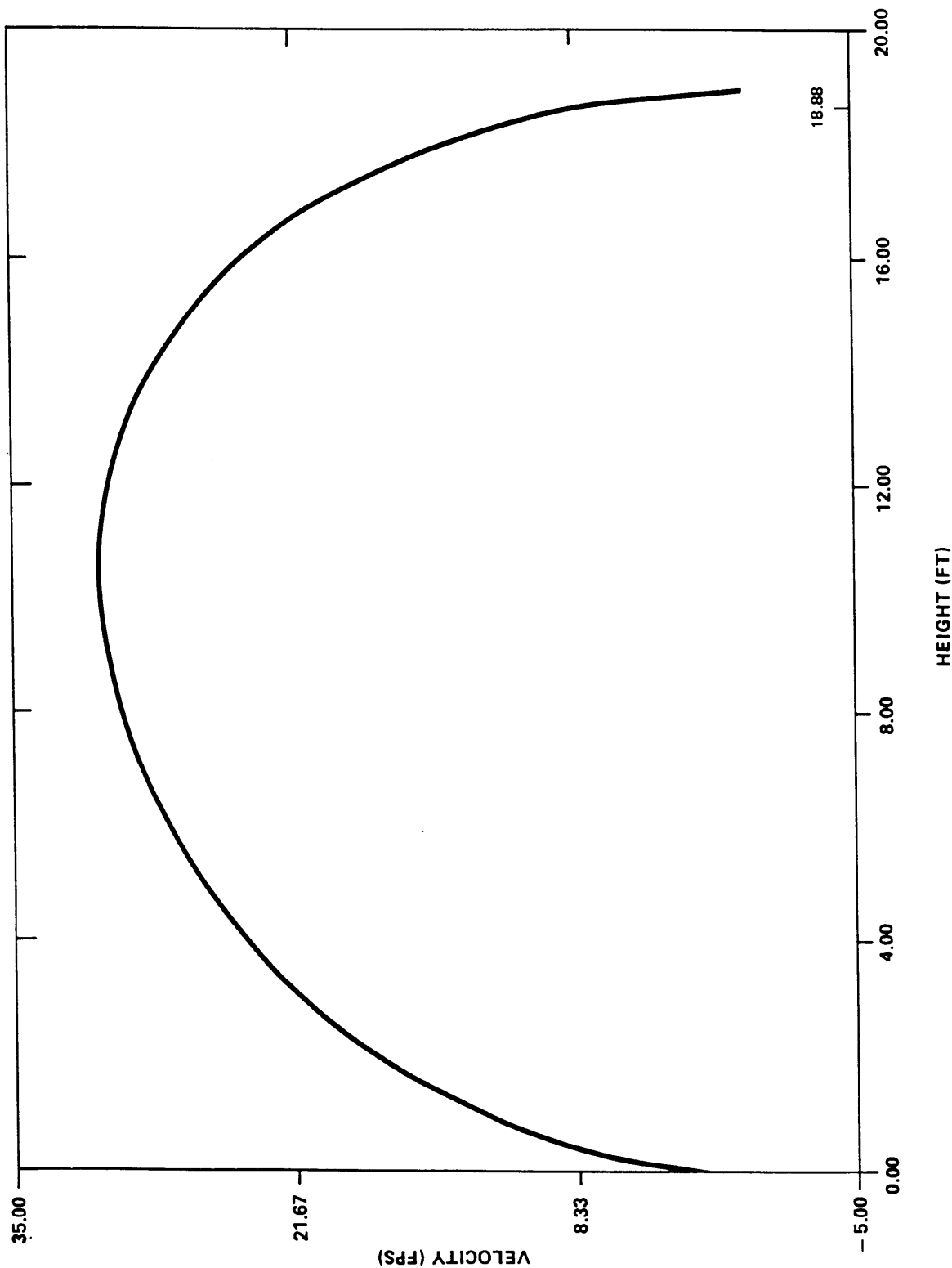
**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Section 3A.4.2.1.6 for the pool swell evaluation at the current operating conditions. The results presented here reasonably represent the general characteristics of the pressure response during pool swell.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
POOL SURFACE VELOCITY  
DURING POOLSWELL

FIGURE 3A-8

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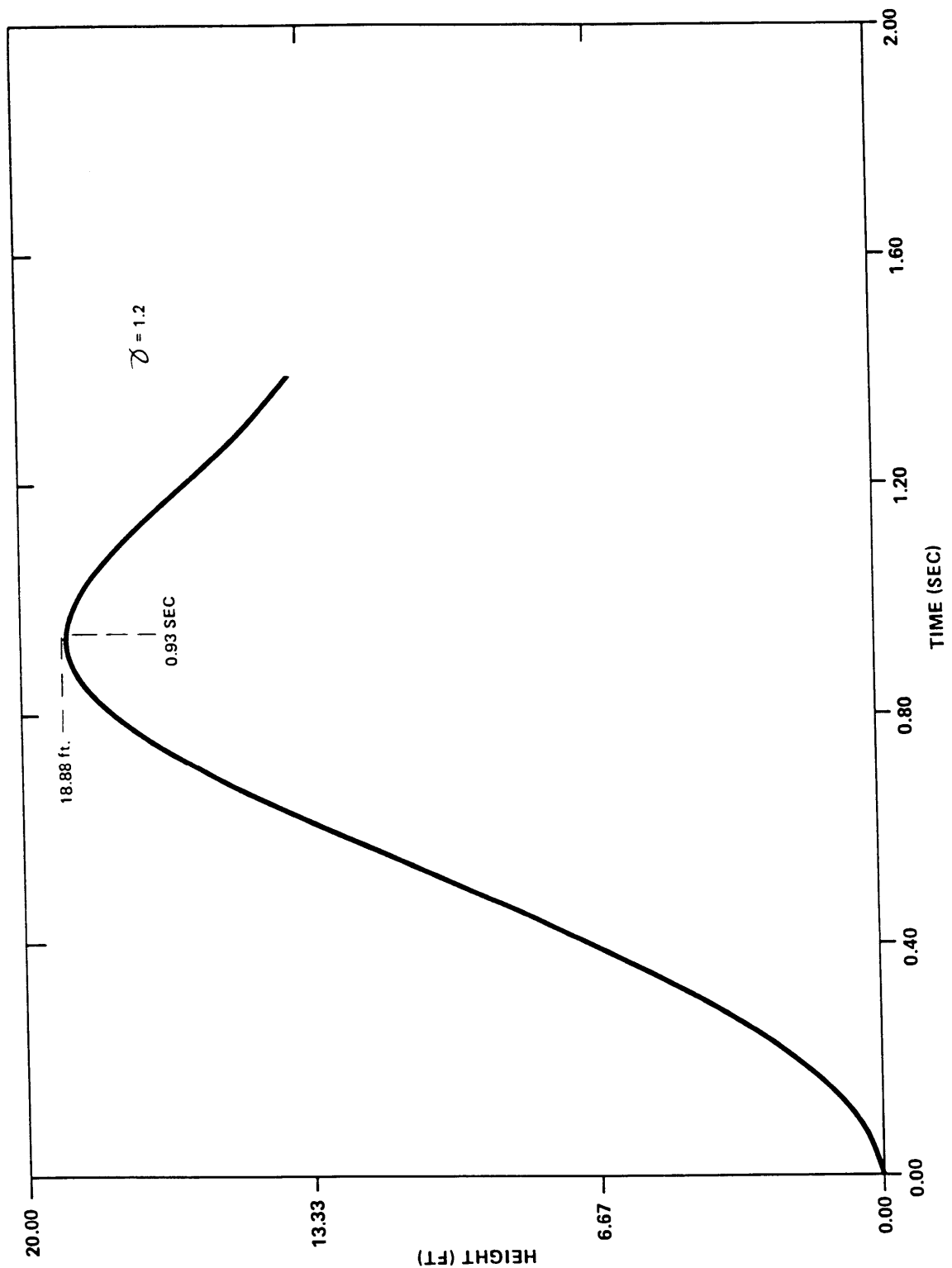
**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Section 3A.4.2.1.6 for the pool swell evaluation at the current operating conditions. The results presented here reasonably represent the general characteristics of the pressure response during pool swell.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
POOL SURFACE VELOCITY  
VERSUS POOL HEIGHT

FIGURE 3A-9

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**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Section 3A.4.2.1.6 for the pool swell evaluation at the current operating conditions. The results presented here reasonably represent the general characteristics of the pressure response during pool swell.

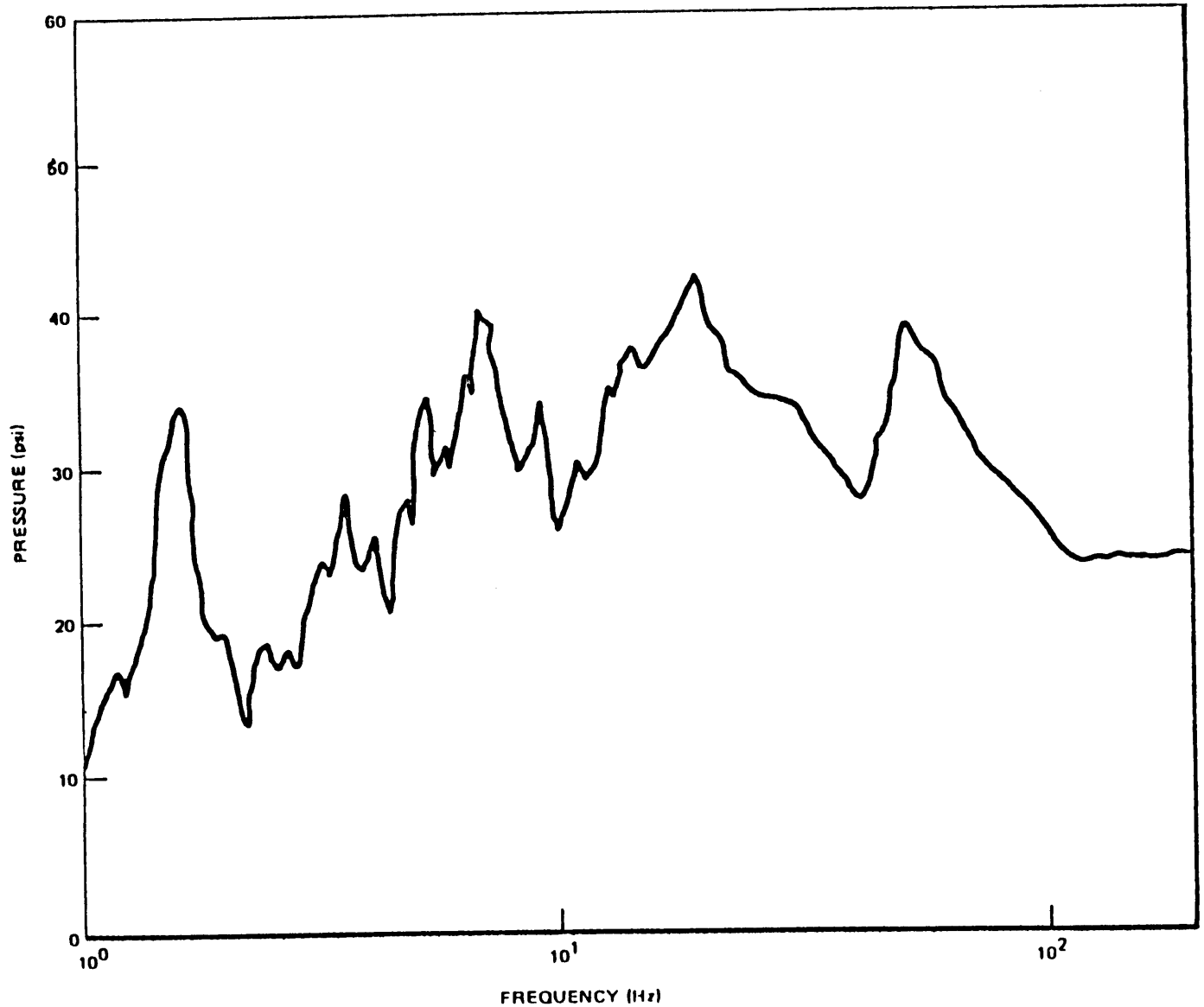
LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
**POOL HEIGHT  
DURING POOLSWELL**

FIGURE 3A-10

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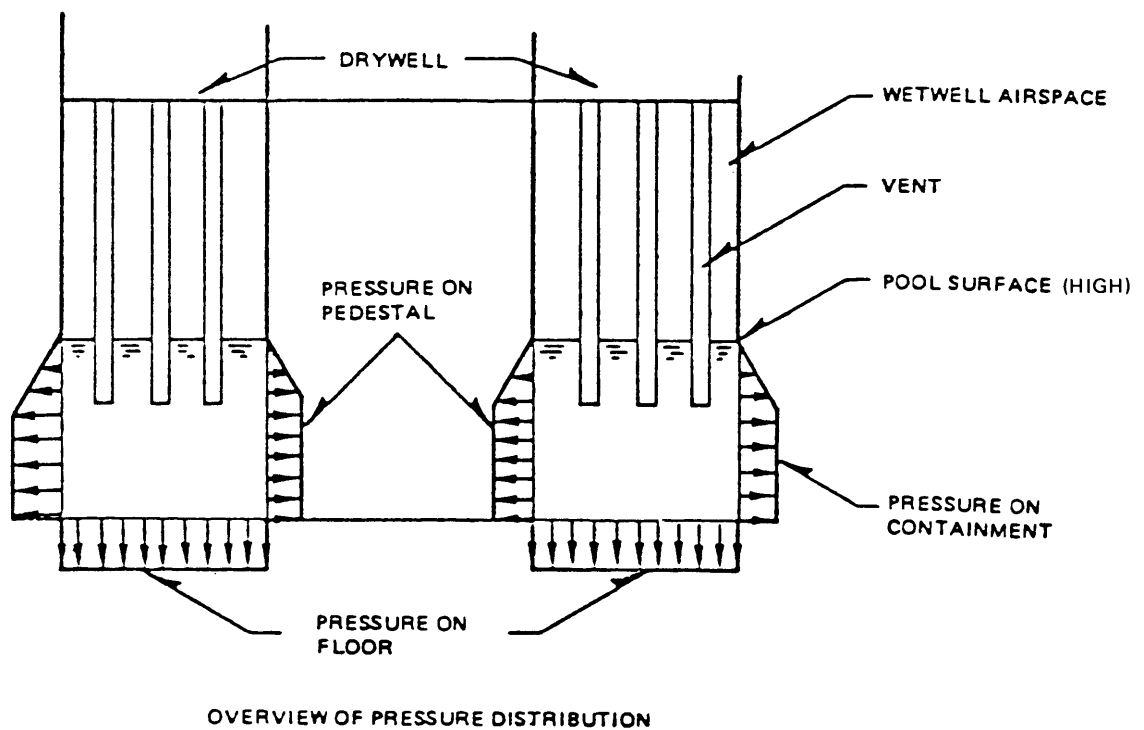
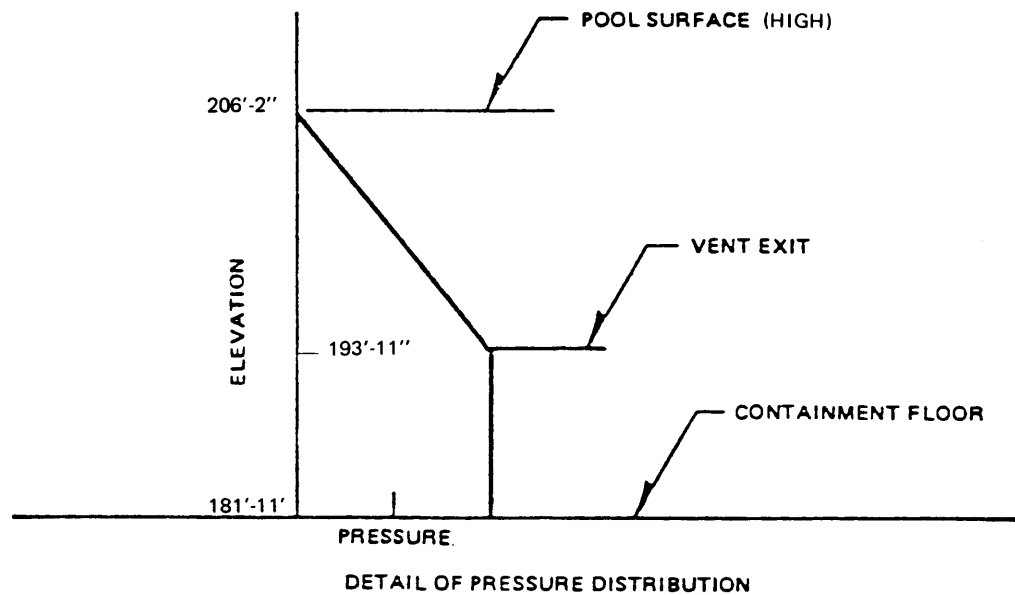




LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
PRESSURE-RESPONSE-SPECTRUM  
ENVELOPE FOR TIME PERIODS  
SELECTED FOR CO LOAD DEFINITION

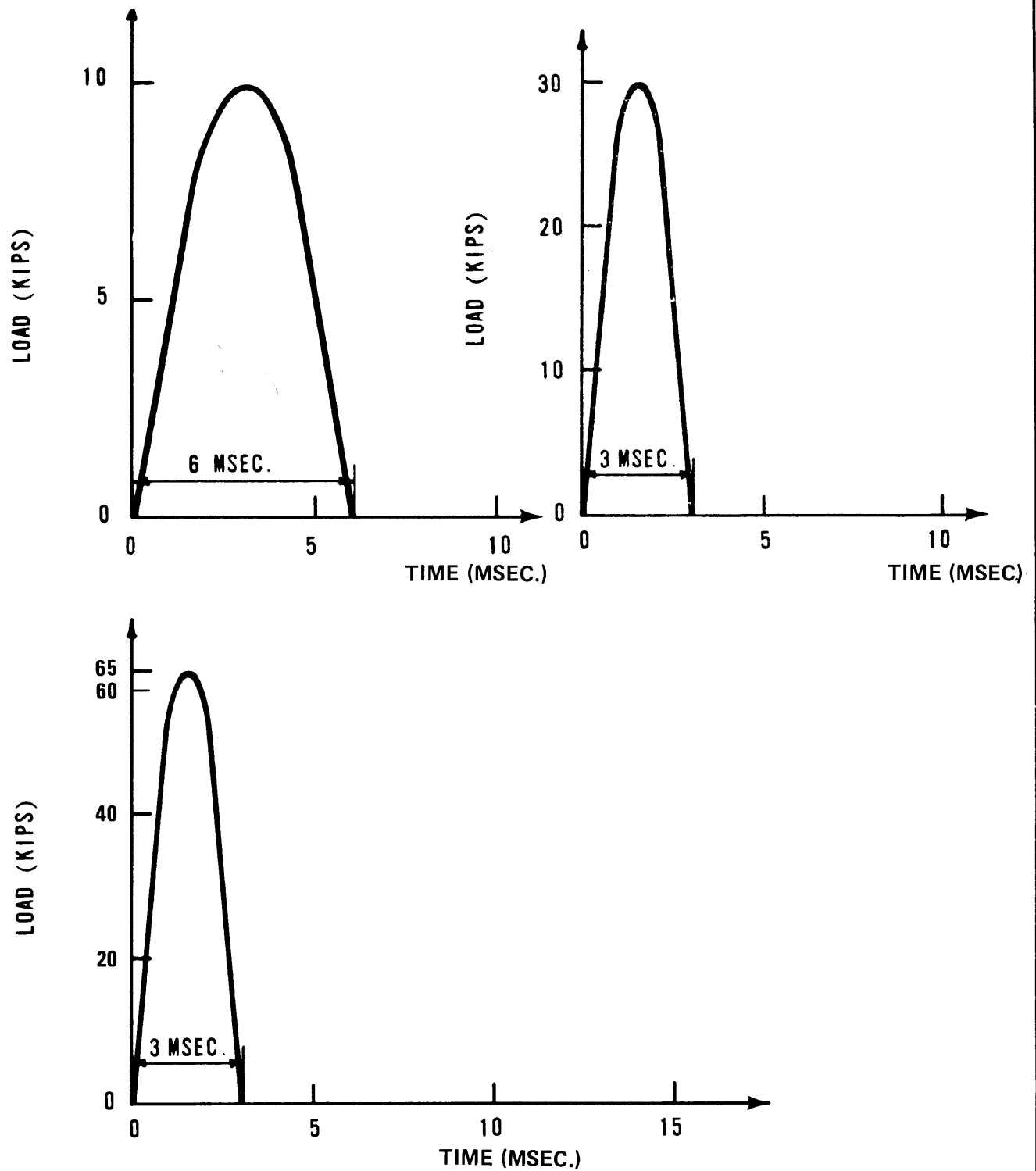
FIGURE 3A-11



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
SPATIAL DISTRIBUTION OF  
CO LOAD

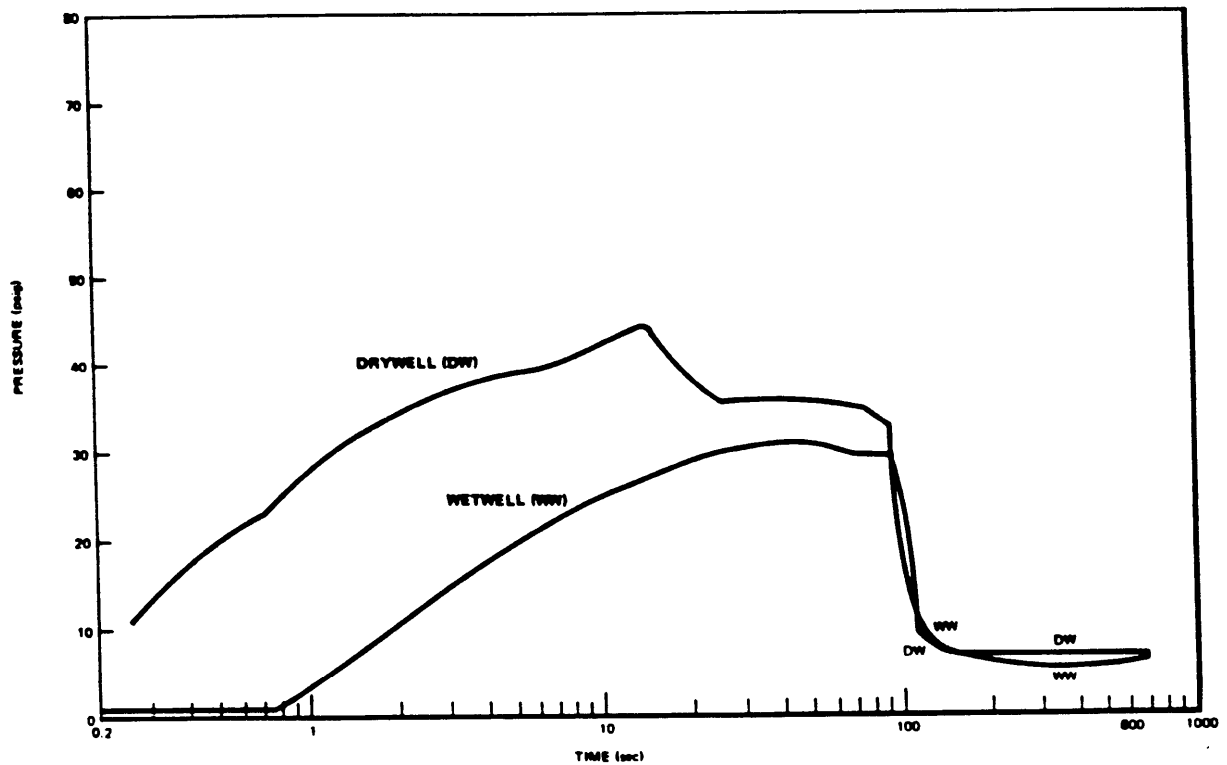
FIGURE 3A-12



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DYNAMIC DOWNCOMER LATERAL  
LOAD DUE TO CHUGGING

FIGURE 3A-13



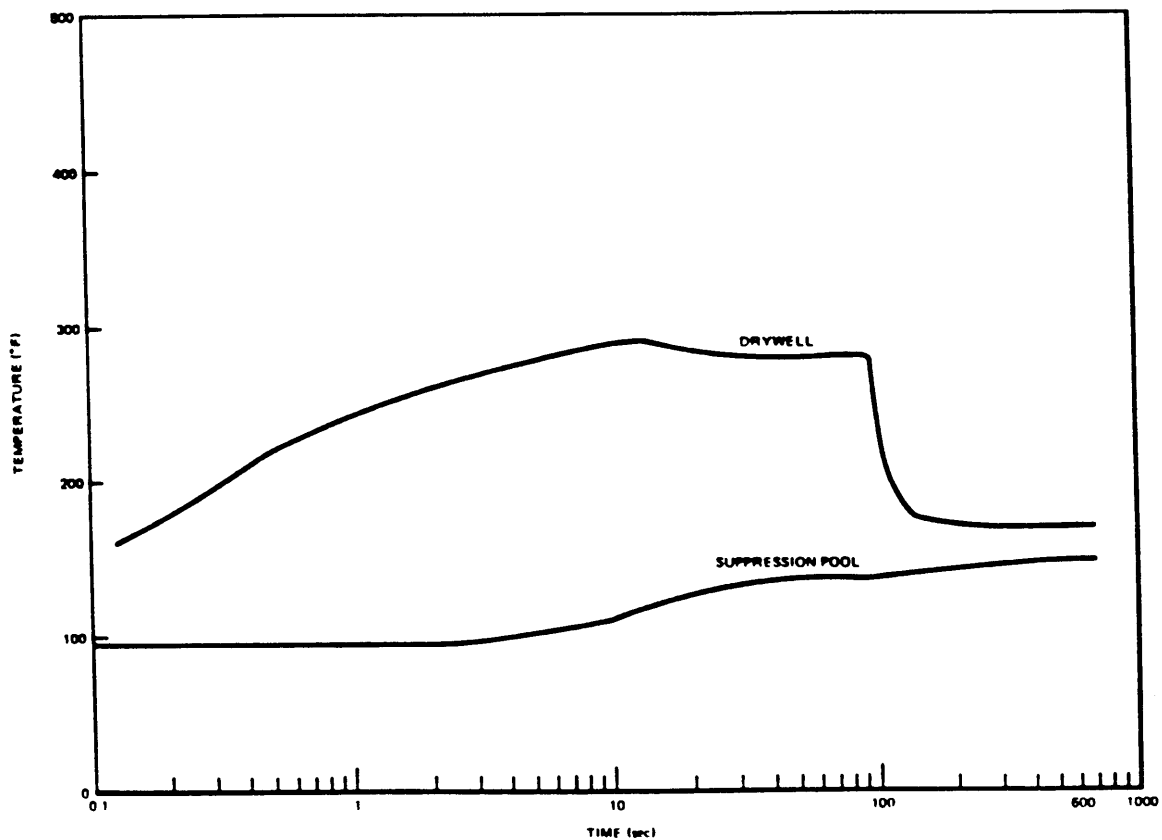
**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Figure 6.2-3A for the recirculation line break results for current plant conditions.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SHORT-TERM CONTAINMENT  
PRESSURE RESPONSE  
FOLLOWING RECIRCULATION  
LINE BREAK**

**FIGURE 3A-14**

**Rev. 5, 4/96**



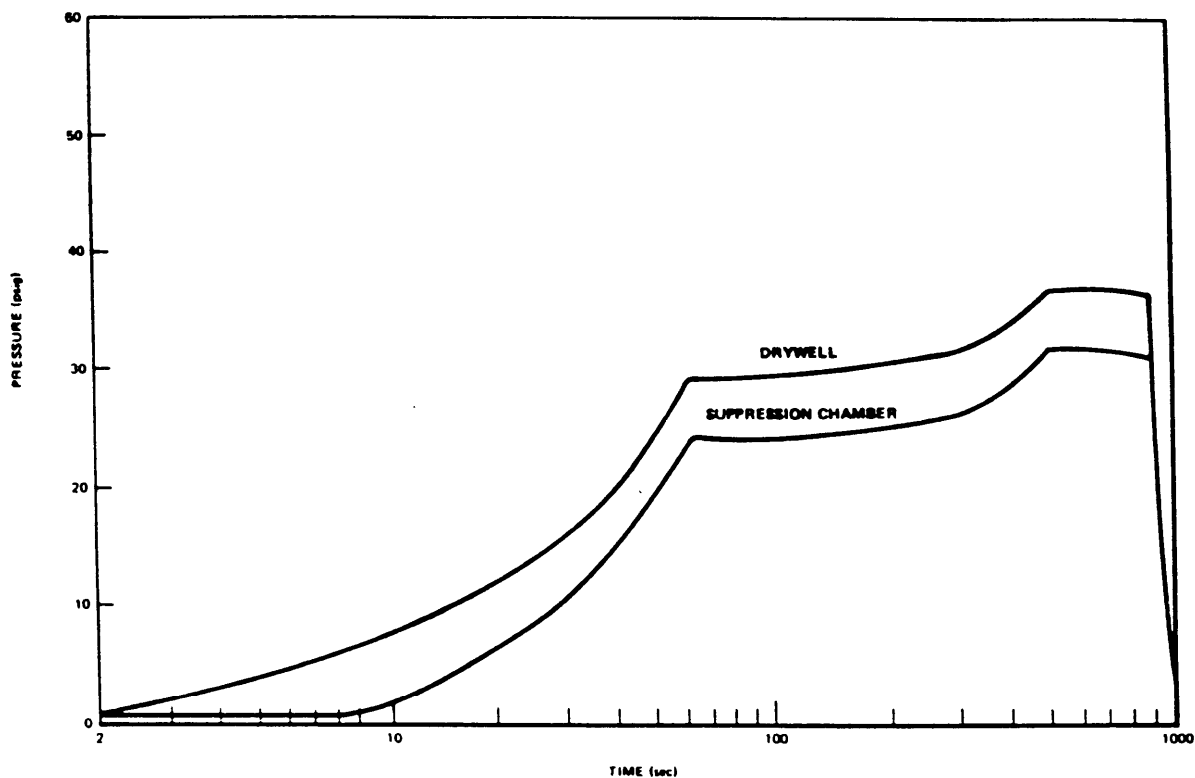
**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. Refer to Figure 6.2-4A for the recirculation line break results for current plant conditions.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
SHORT-TERM CONTAINMENT  
TEMPERATURE RESPONSE  
FOLLOWING RECIRCULATION  
LINE BREAK

FIGURE 3A-15

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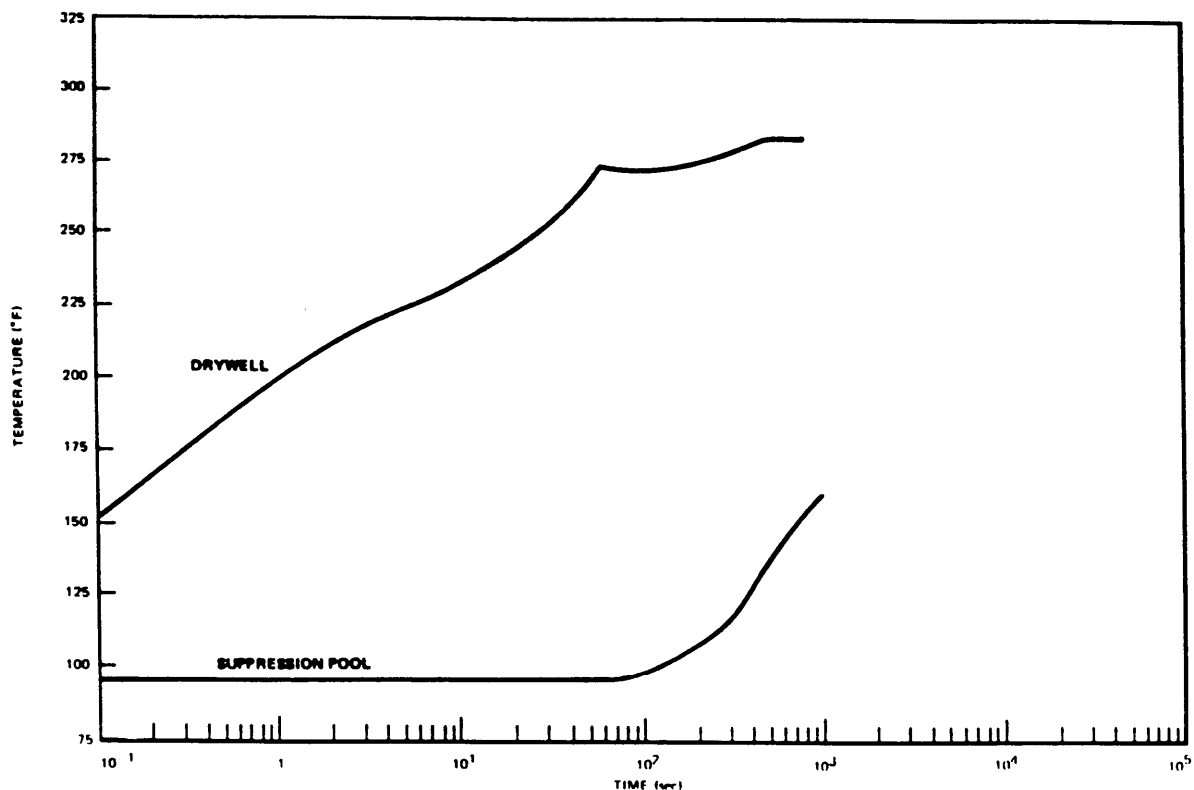
**NOTE:** The information presented in this figure is based on the original design basis conditions. As described in Section 6.2.1.1.3, the intermediate size break was not reanalyzed for the current conditions; however, the results presented here reasonably represent the general characteristics of an intermediate size break analysis results.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
SHORT-TERM CONTAINMENT  
PRESSURE RESPONSE FOLLOWING  
AN INTERMEDIATE SIZE BREAK  
(0.1 ft<sup>2</sup> LIQUID BREAK)

FIGURE 3A-16

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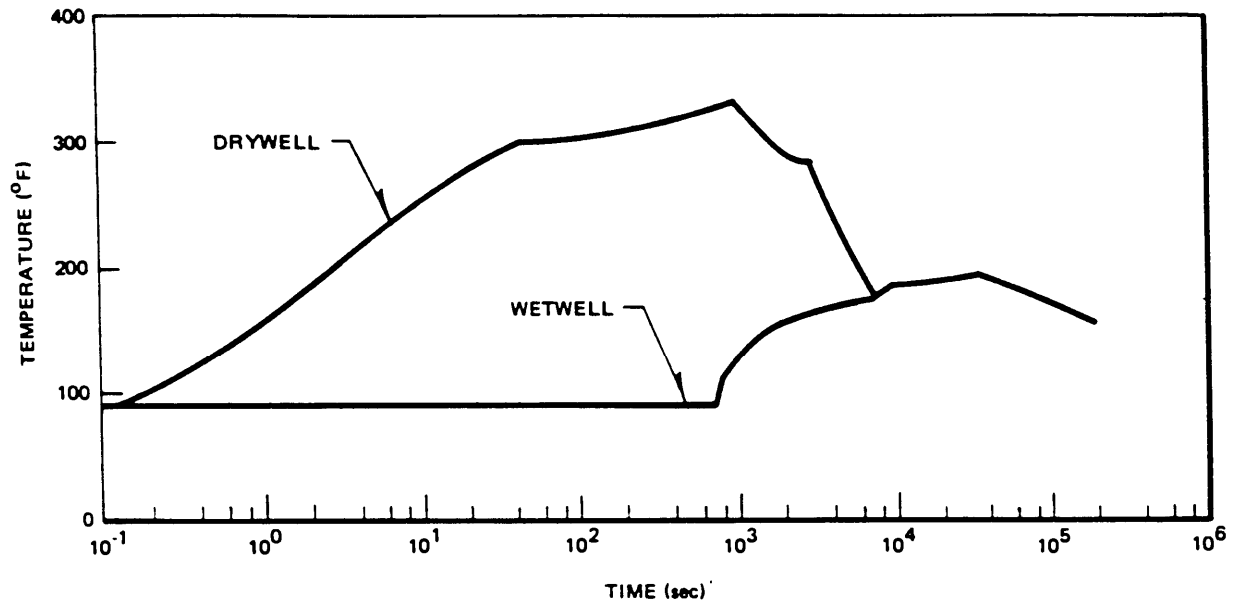


**NOTE:** The information presented in this figure is based on the original design basis conditions. As described in Section 6.2.1.1.3, the intermediate size break was not reanalyzed for the current conditions; however, the results presented here reasonably represent the general characteristics of an intermediate size break analysis results.

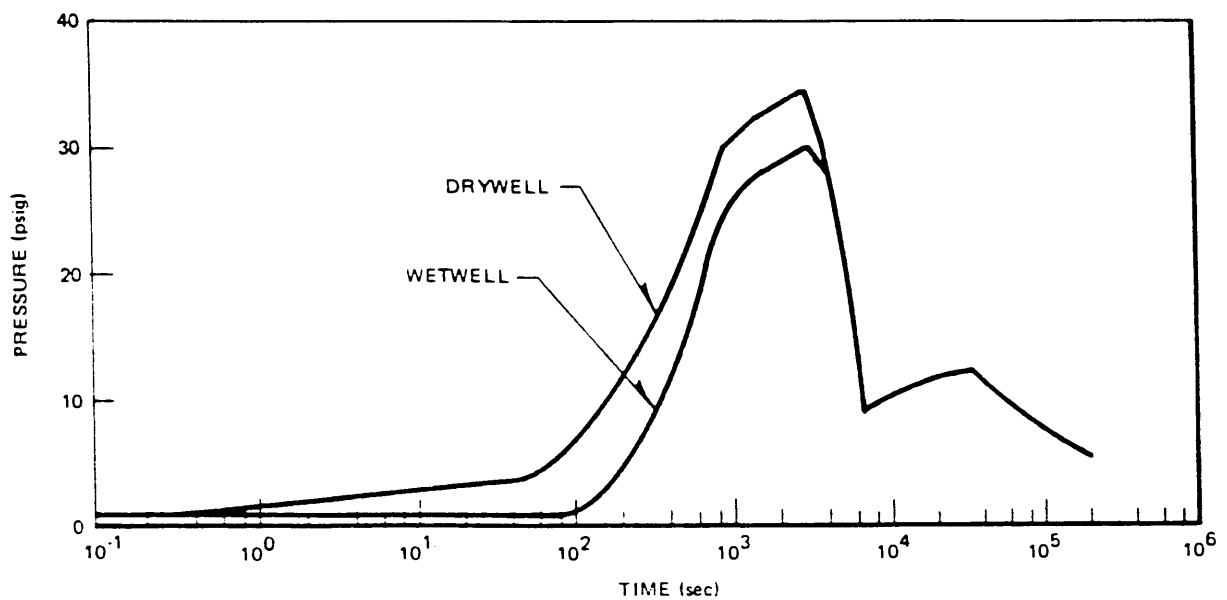
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UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT  
DESIGN ASSESSMENT REPORT  
SHORT-TERM CONTAINMENT  
TEMPERATURE RESPONSE FOLLOWING  
AN INTERMEDIATE SIZE BREAK  
(0.1 ft<sup>2</sup> LIQUID BREAK)

FIGURE 3A-17

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CONTAINMENT TEMPERATURE RESPONSE FOLLOWING SMALL BREAK



CONTAINMENT PRESSURE RESPONSE FOLLOWING SMALL BREAK

**NOTE:** The information presented in this figure is based on the original design basis conditions. As described in Section 6.2.1.1.3, the small break was not reanalyzed for the current conditions; however, the results presented here reasonably represent the general characteristics of an small break analysis results.

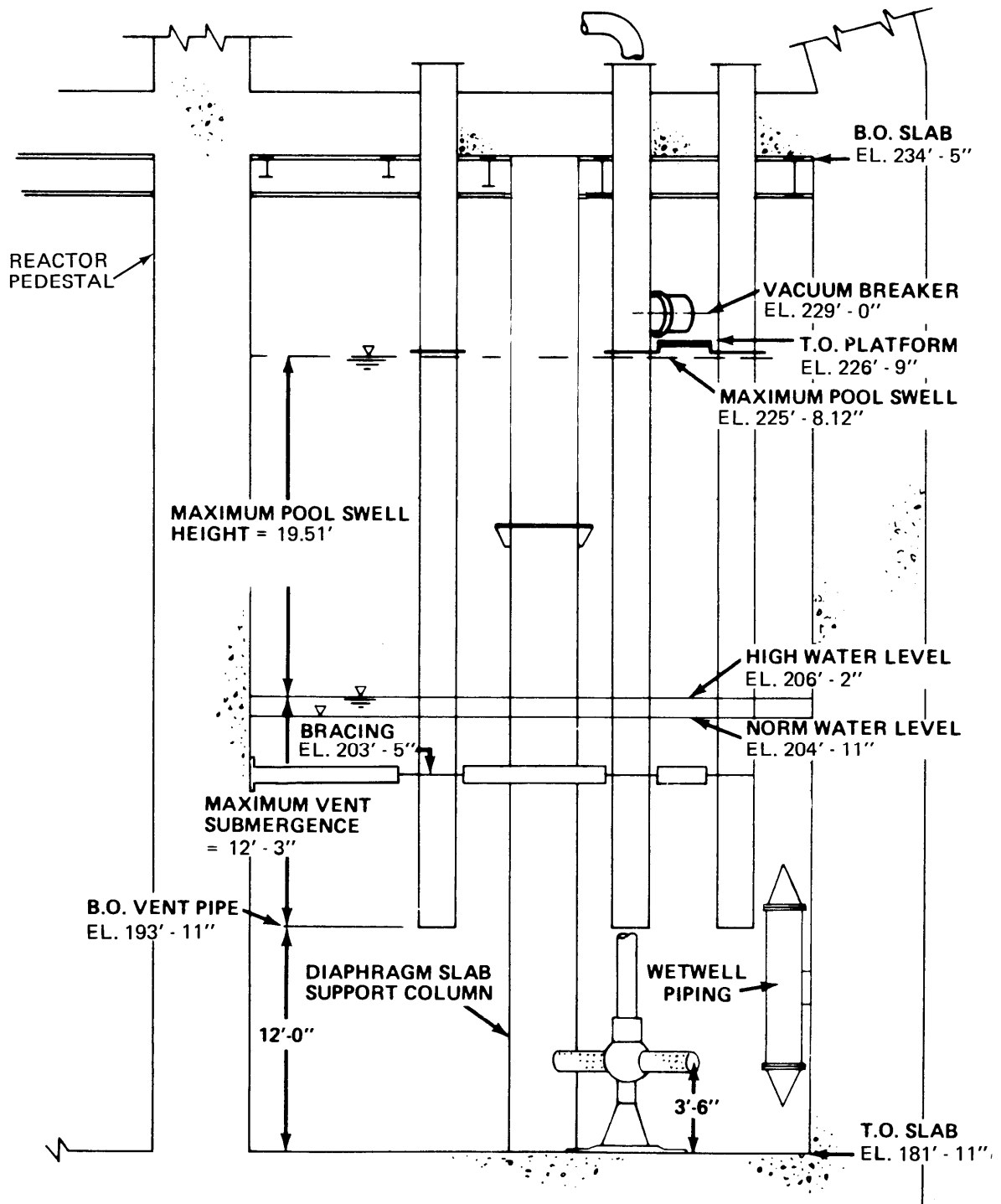
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UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
TYPICAL MARK II CONTAINMENT  
RESPONSE TO THE SBA**

**FIGURE 3A-18**

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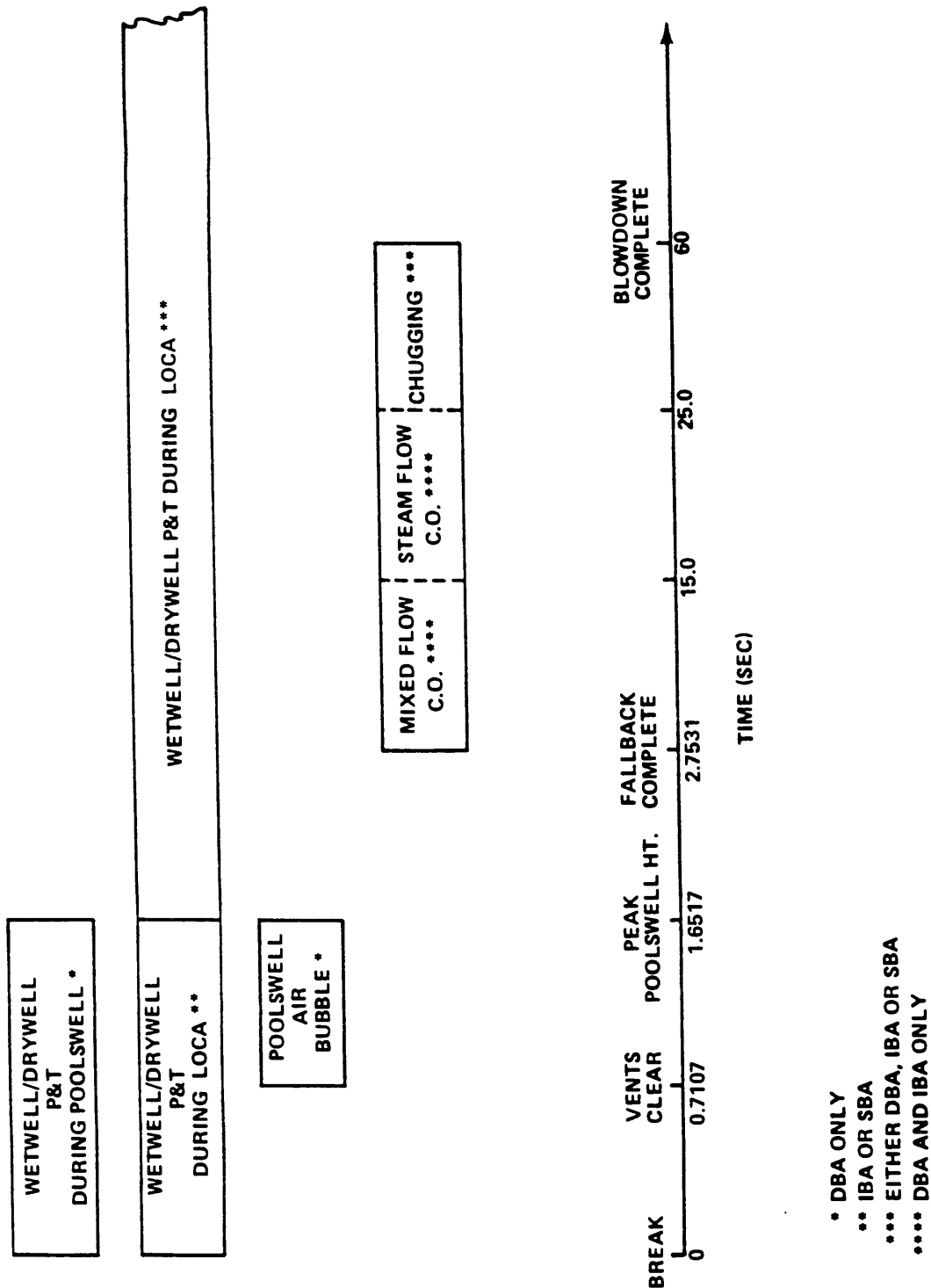


LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
COMPONENTS  
AFFECTED BY LOCA LOADS

FIGURE 3A-19

**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.



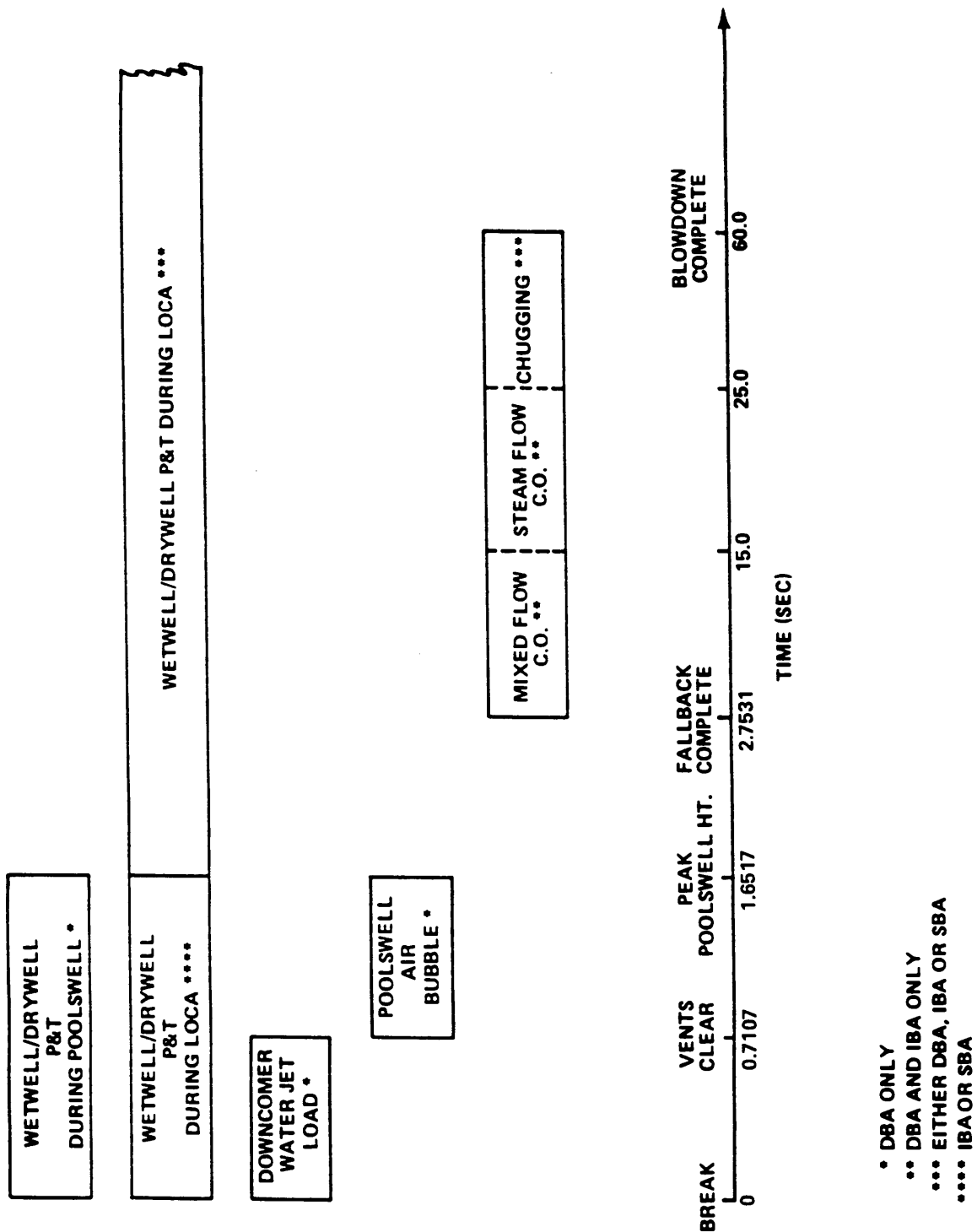
LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 LOCA LOADING HISTORY FOR  
 THE CONTAINMENT WALL AND  
 PEDESTAL

FIGURE 3A-20

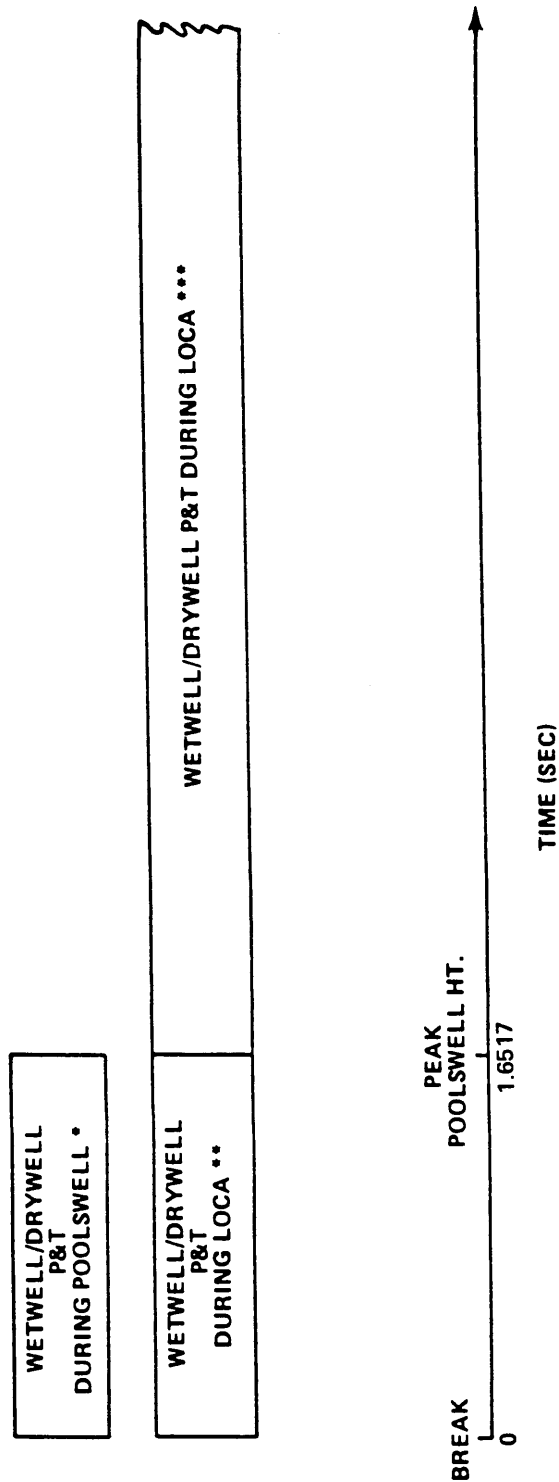
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**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.



LIMERICK GENERATING STATION  
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DESIGN ASSESSMENT REPORT  
LOCA LOADING HISTORY FOR  
THE BASEMAT AND LINER PLATE



\* DBA ONLY  
 \*\* IBA OR SBA  
 \*\*\* EITHER DBA, IBA OR SBA

**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.

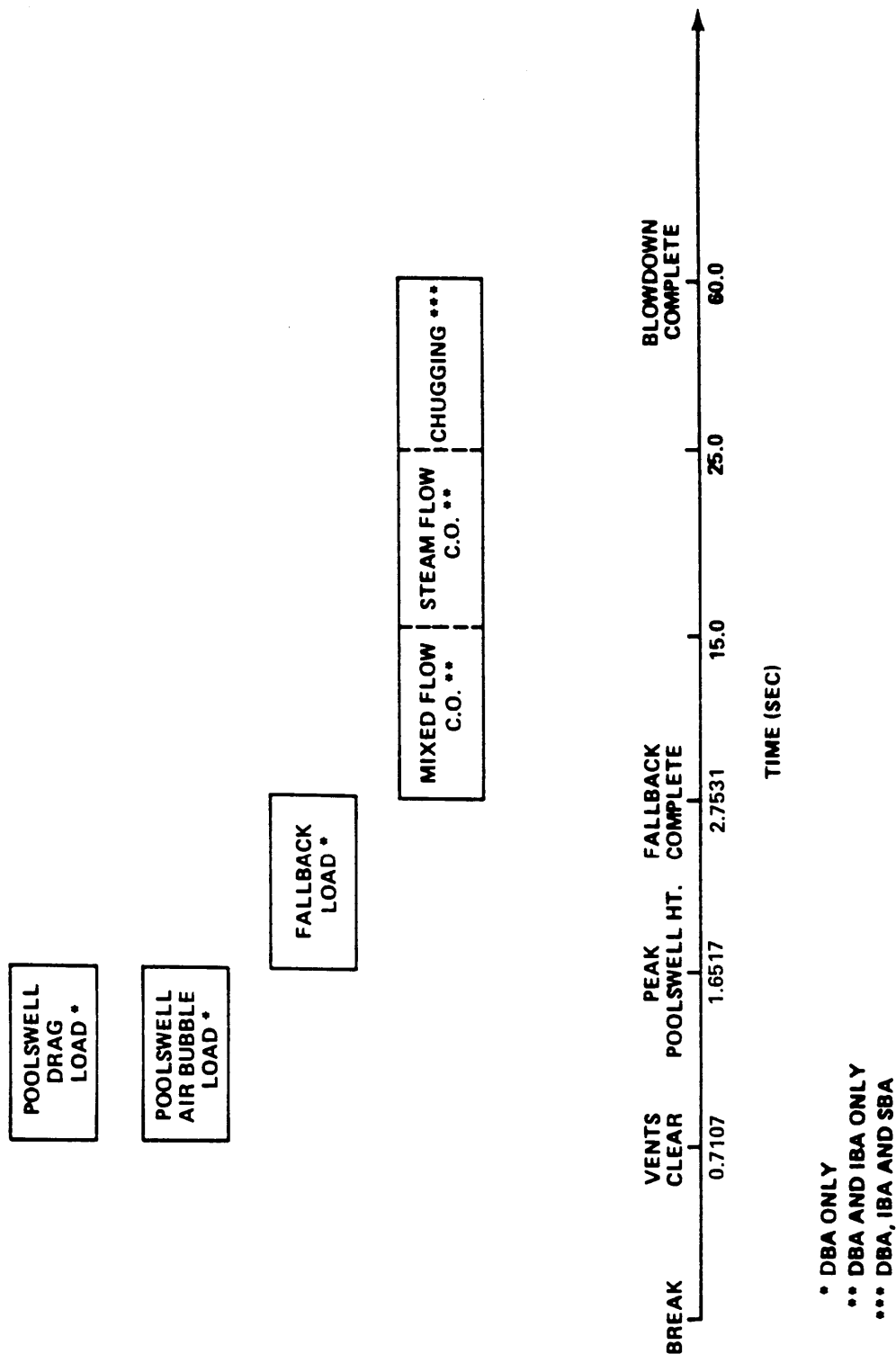
LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
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DESIGN ASSESSMENT REPORT  
 LOCA LOADING HISTORY FOR  
 THE DRYWELL AND DRYWELL FLOOR

FIGURE 3A-22

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**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.

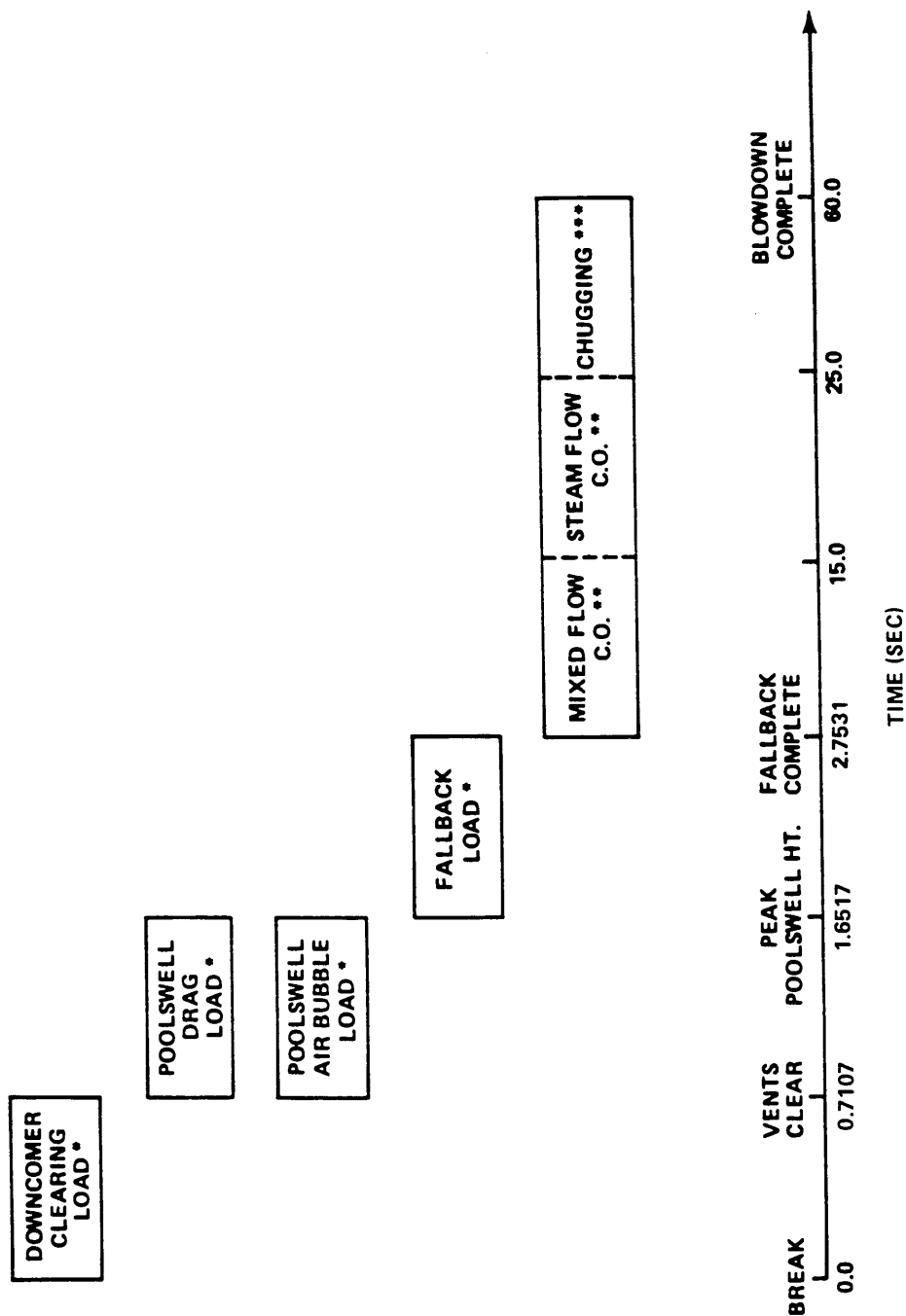


LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 LOCA LOADING HISTORY FOR  
 THE COLUMNS

FIGURE 3A-23

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**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.

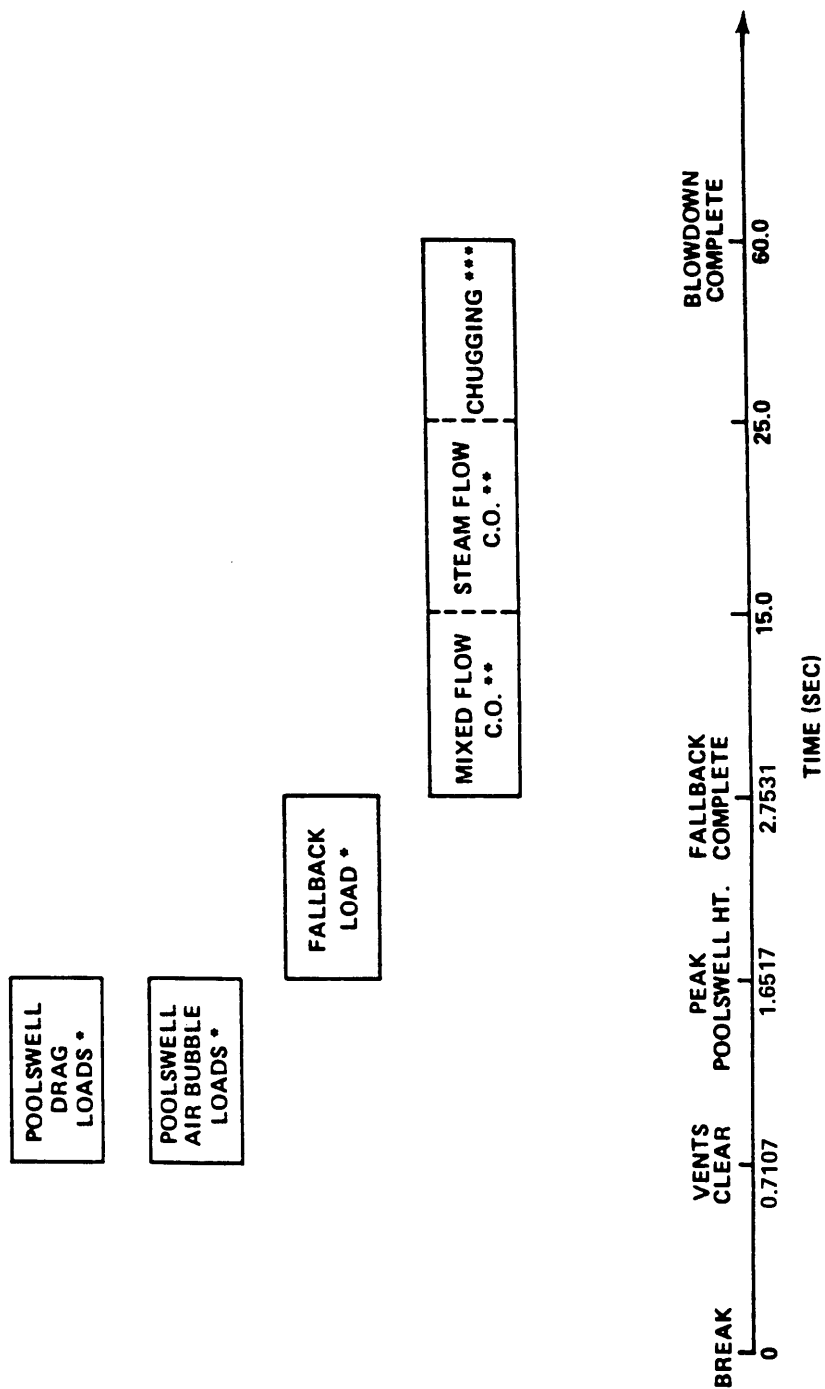
LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 LOCA LOADING HISTORY FOR  
 THE DOWNCOMERS

FIGURE 3A-24

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**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.



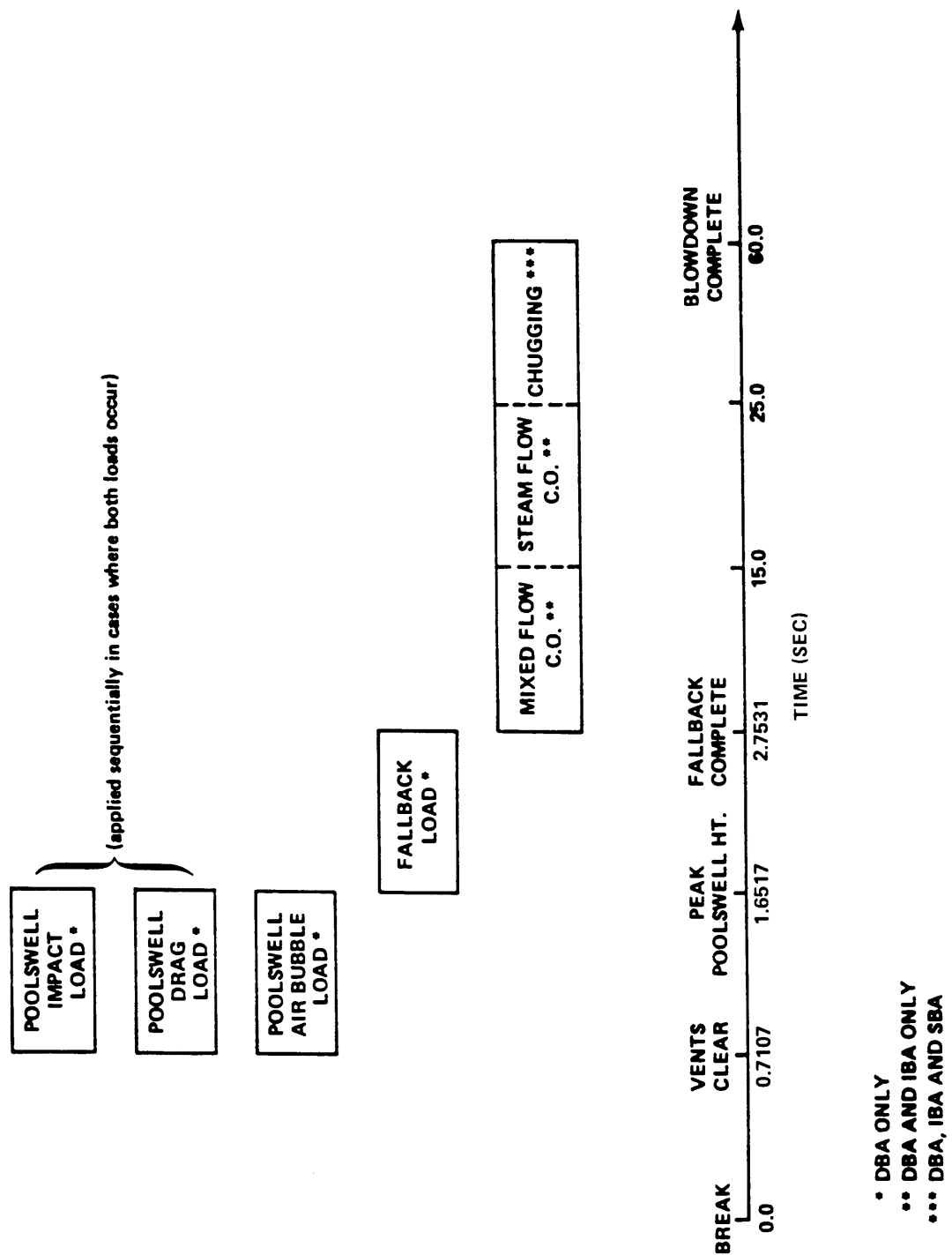
LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA LOADING HISTORY FOR  
THE DOWNCOMER BRACING SYSTEM

FIGURE 3A-25

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**NOTE:** The information presented in this figure is historical and is based on the original design basis conditions. The results reasonably represent the general characteristics of the LOCA loading history.



LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
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DESIGN ASSESSMENT REPORT  
 LOCA LOADING HISTORY FOR  
 THE WETWELL PIPING

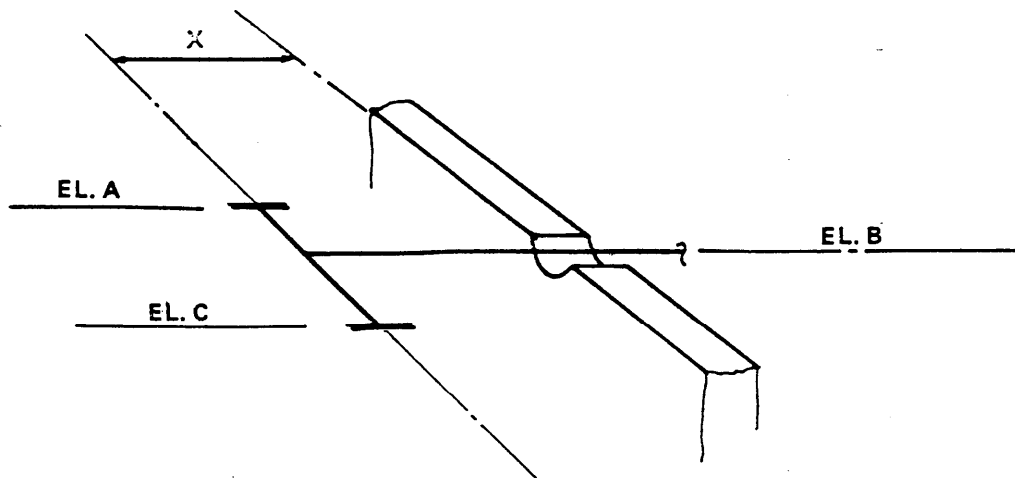
FIGURE 3A-26

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# LGS UFSAR

LINE No.	QTY	SYSTEM	PENE- TRATION NO.	TYPE OF PENE- TRATION	ELEVATION			DIMENSION X
					A	B	C	
16"-HBB-120	4	CORE SPRAY	X-206A, B, C, D	EMBEDDED	192'-0"	192'-0"	192'-0"	1'-8"
24"-HBB-117	4	RHR	X-203A, B, C, D	EMBEDDED	192'-0"	192'-0"	192'-0"	1'-11"
6"-HBB-102	1	RCIC	X-214	EMBEDDED	192'-9 1/8"	192'-0"	191'-2 7/8"	0'-11 5/8"
16"-HBB-109	1	HPCI	X-209	EMBEDDED	193'-5"	192'-0"	190'-7"	1'-6"



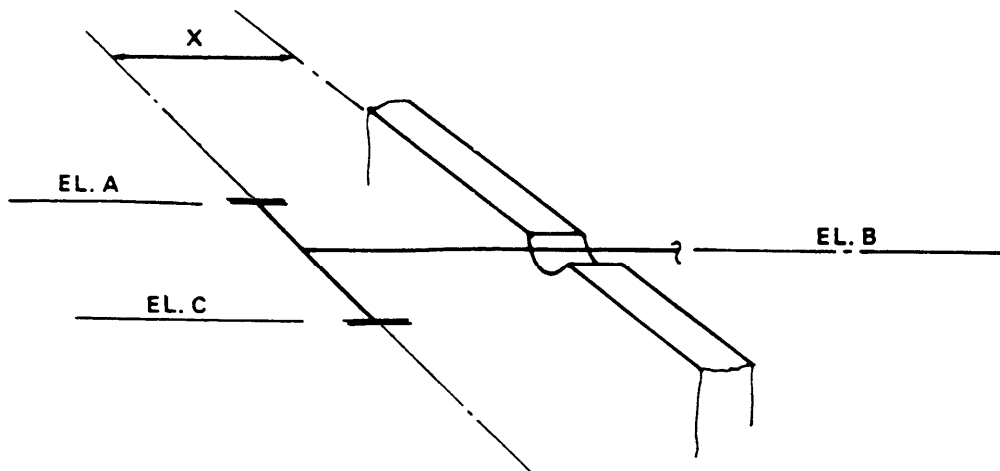
PECO ENERGY COMPANY  
LIMERICK GENERATING STATION  
UNIT 1  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
STRESS DIAGRAMS AND TABLES FOR  
PIPING SYSTEMS BELOW SUPPRESSION  
CHAMBER WATER LEVEL

FIGURE 3A-27 Sht 1 of 2 Rev. 09 11/99

# LGS UFSAR

LINE No.	QTY	SYSTEM	PENE- TRATION No.	TYPE OF PENE- TRATION	ELEVATION			DIMENSION X
					A	B	C	
16"-HBB-220	4	CORE SPRAY	X-206A, B, C, D	EMBEDDED	192'-0"	192'-0"	192'-0"	1'-6"
24"-HBB-217	4	RHR	X-203A, B, C, D	EMBEDDED	192'-0"	192'-0"	192'-0"	1'-11"
6"-HBB-202	1	RCIC	X-214	EMBEDDED	192'-9 1/8"	192'-0"	191'-2 7/8	0'-11 5/8"
16"-HBB-209	1	HPCI	X-209	EMBEDDED	193'-5"	192'-0"	190'-7"	1'-6"

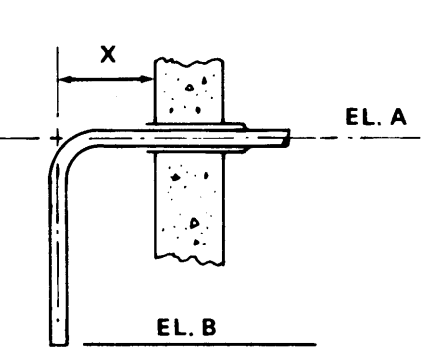


PECO ENERGY COMPANY  
LIMERICK GENERATING STATION  
UNIT 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

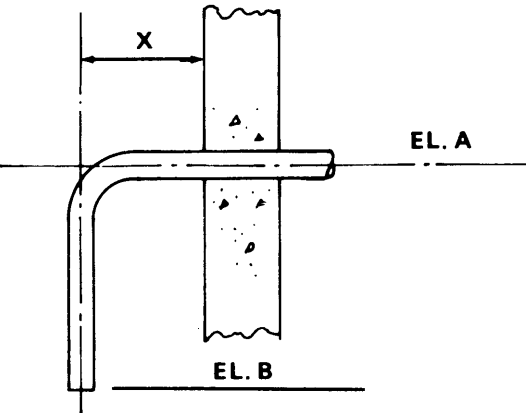
DESIGN ASSESSMENT REPORT  
STRESS DIAGRAMS AND TABLES FOR  
PIPING SYSTEMS BELOW SUPPRESSION  
CHAMBER WATER LEVEL

FIGURE 3A-27 Sht 2 of 2 Rev. 09 11/99

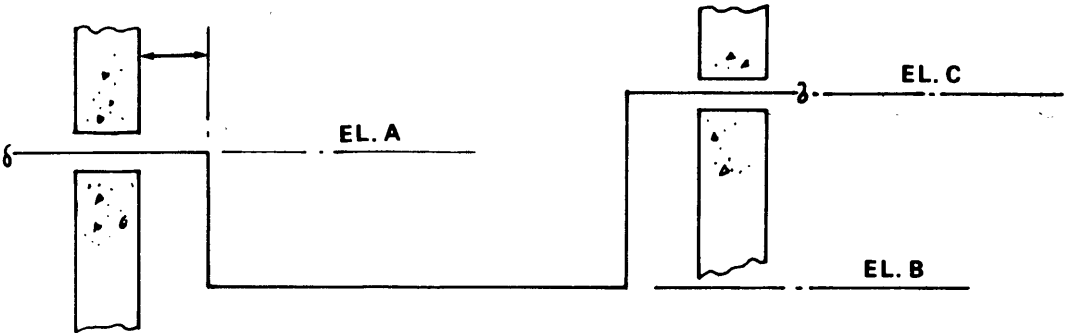
DWG No.	LINE No.	QTY	SYSTEM	PENE-TRATION No.	TYPE OF PENE-TRATION	ELEVATION			DIMENSION X
						A	B	C	
B	4"-HBD-187	1	HPCI	X-212	EMBEDDED	207'-6"	199'-11"	-	1'-0"
B	4"-HBD-188	1	HPCI	X-236	EMBEDDED	207'-6"	199'-11"	-	1'-0"
A	24"-HBD-189	1	HPCI	X-210	SLEEVE	207'-6"	192'-8"	-	6'-9"
B	4"-HBD-171	2	CORE SPRAY	X-208B X-235	EMBEDDED	207'-6" 207'-0"	199'-11"	-	1'-0"
B	10"-HBD-169	2	CORE SPRAY	X-207A X-207B	EMBEDDED	219'-0"	199'-11"	-	1'-9"
A	18"-GBD-143	2	RHR	X-204A,B	SLEEVE	219'-0"	197'-8"	-	2'-6"
A	4"-GBD-144	2	RHR	X-226A,B	SLEEVE	207'-0"	199'-11 1/2"	-	0'-9"
A	12"-HBD-173	1	RCIC	X-215	SLEEVE	207'-6"	199'-11"	-	2'-9"
B	6"-HBB-139	1	RHR	X-240	EMBEDDED	207'-3 1/4"	199'-8 1/4"	-	1'-3"
A	10"-HBB-140	1	RHR	X-238	SLEEVE	207'-9"	199'-11"	-	1'-8"
A	10"-HBB-140	1	RHR	X-239	SLEEVE	207'-1"	199'-11"	-	1'-8"
C	4"-HCB-106	1	LIQ. AND SOLID RADWASTE	X-231A	SLEEVE	207'-5 1/16"	207'-3 3/8"	213'-9 3/4"	-
C	4"-HCB-107	1	LIQ. AND SOLID RADWASTE	X-231B	SLEEVE	207'-5 3/8"	207'-2 5/8"	213'-9 1/2"	-
B	2"-HBD-357	1	REACTOR CORE ISOLATION COOLING	X-217	EMBEDDED	207'-6"	199'-11"	-	0'-6"
B	2"-HBD-356	1	REACTOR CORE ISOLATION COOLING	X-216	EMBEDDED	207'-6"	199'-11"	-	0'-6"



DRAWING A

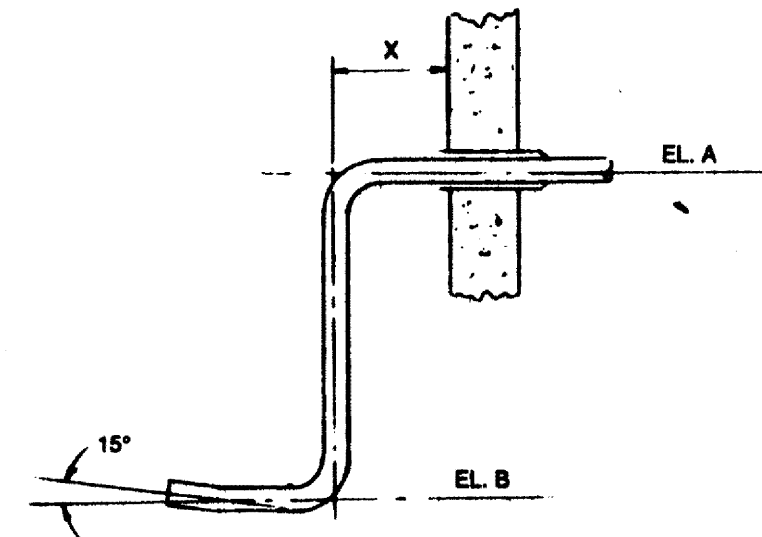


DRAWING B

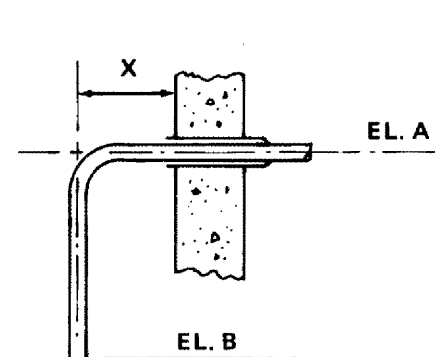


DRAWING C

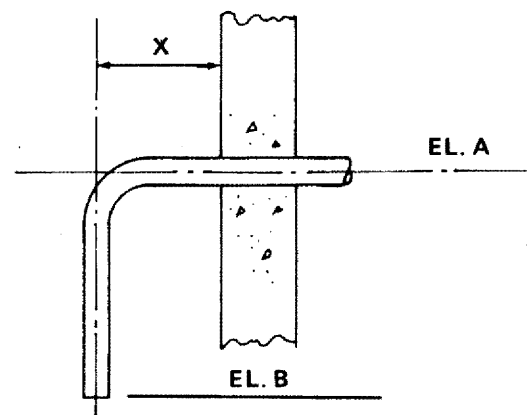
DWG No.	LINE No.	QTY	SYSTEM	PENE-TRATION No.	TYPE OF PENE-TRATION	ELEVATION			DIMENSION X
						A	B	C	
B	4"-HBD-287	1	HPCI	X-212	EMBEDDED	207'-6"	199'-11"	-	1'-0"
B	4"-HBD-288	1	HPCI	X-236	EMBEDDED	207'-6"	199'-11"	-	1'-0"
A	24"-HBD-289	1	HPCI	X-210	SLEEVE	207'-6"	199'-11"	-	6'-9"
B	4"-HBD-271	2	CORE SPRAY	X-208B X-235	EMBEDDED	207'-6" 207'-0"	199'-11"	-	1'-0"
B	10"-HBD-269	2	CORE SPRAY	X-207A X-207B	EMBEDDED	219'-0"	199'-11"	-	1'-9"
D	18"-GBD-243	2	RHR	X-204A,B	SLEEVE	219'-0"	199'-11"	-	2'-6"
A	4"-GBD-244	2	RHR	X-226A,B	SLEEVE	207'-0"	199'-11"	-	0'-9"
A	12"-HBD-273	1	RCIC	X-215	SLEEVE	207'-6"	199'-11"	-	2'-9"
B	6"-HBB-239	1	RHR	X-240	EMBEDDED	207'-6"	199'-11"	-	1'-3"
A	10"-HBB-240	1	RHR	X-238	SLEEVE	207'-9"	199'-11"	-	1'-6"
A	10"-HBB-240	1	RHR	X-239	SLEEVE	207'-1"	199'-11"	-	1'-6"
C	4"-HCB-206	1	LIQ. AND SOLID RADWASTE	X-231A	SLEEVE	207'-5"	207'-2 1/2"	213'-9 1/2"	-
C	4"-HCB-207	1	LIQ. AND SOLID RADWASTE	X-231B	SLEEVE	207'-6"	207'-3 1/4"	213'-9 5/8"	-
B	2"-HBD-457	1	REACTOR CORE ISOLATION COOLING	X-217	EMBEDDED	207'-6"	199'-11"	-	0'-6"
B	2"-HBD-456	1	REACTOR CORE ISOLATION COOLING	X-216	EMBEDDED	207'-6"	199'-11"	-	0'-4 1/2"



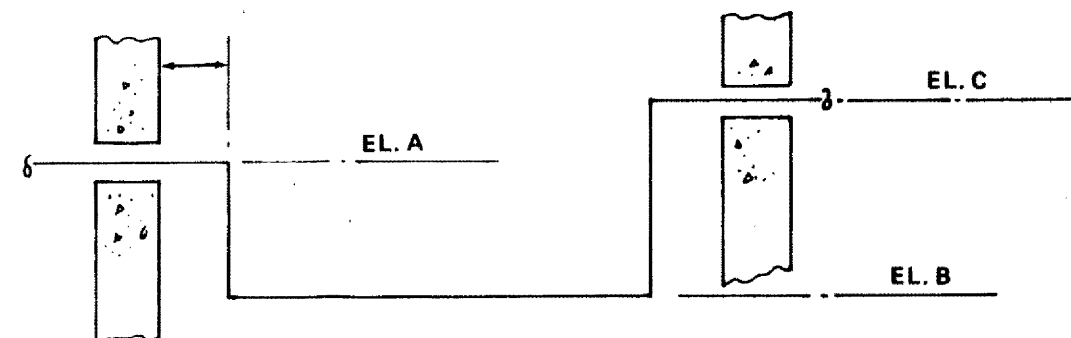
DRAWING D



DRAWING A



DRAWING B



DRAWING C

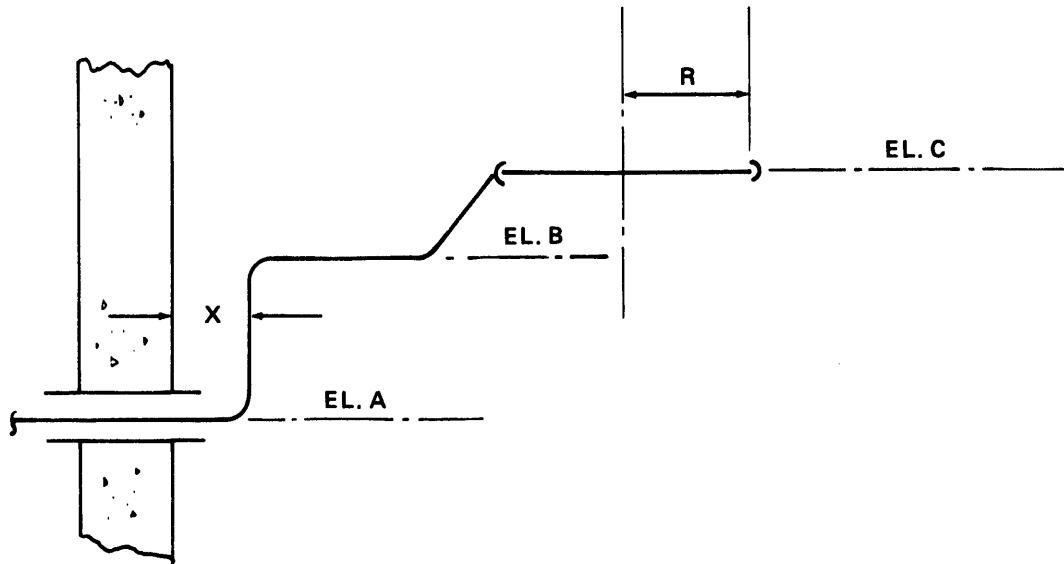
Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 & 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

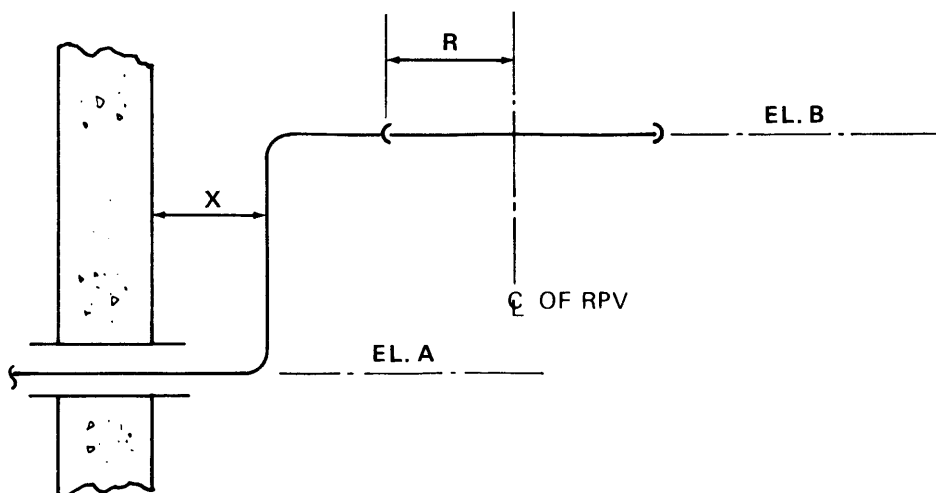
DESIGN ASSESSMENT REPORT  
STRESS DIAGRAMMS AND TABLES FOR  
PIPING WITHIN POOLSWELL ZONE

FIGURE 3A-29

DWG No.	LINE No.	QTY	SYSTEM	PENE-TRATION No.	RADIUS OF SPRAY RING, R	ELEVATION			DIMENSION
						A	B	C	X
A	6"-GBC-112	1	RHR	X-205A	21'-6"	222'-4 1/2"	229'-11 3/8"	230'-6"	3'-8"
B	6"-GBC-112	1	RHR	X-205B	32'-8"	222'-4 1/2"	—	230'-6"	3'-6 11/16"



DRAWING A



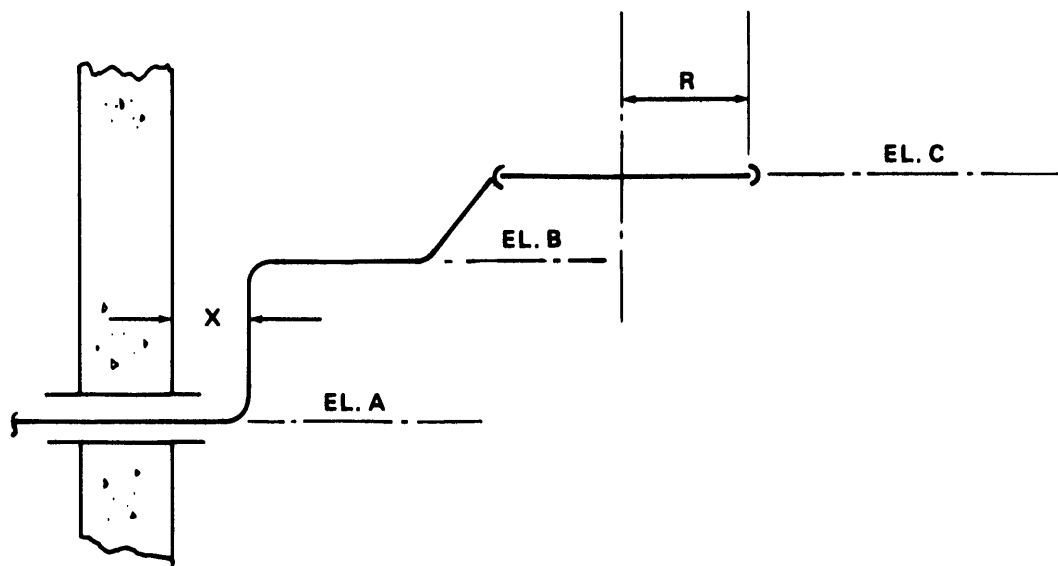
DRAWING B

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

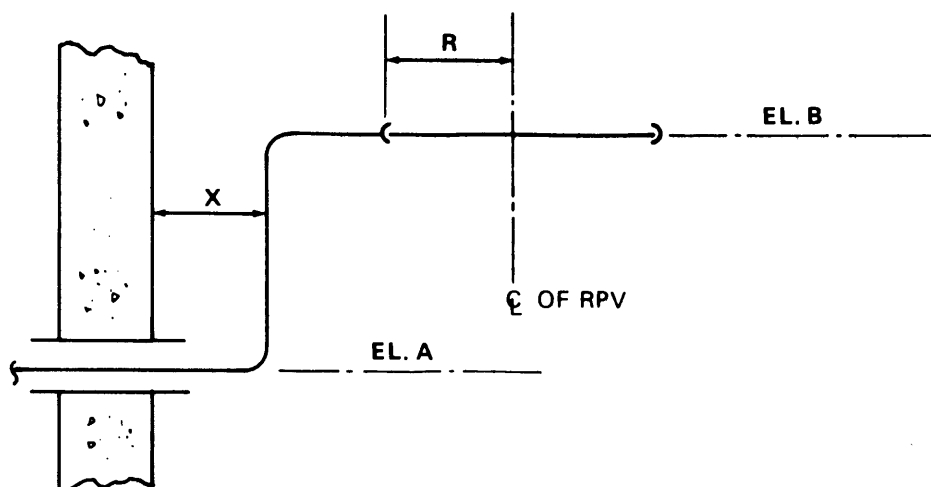
DESIGN ASSESSMENT REPORT  
STRESS DIAGRAMS AND TABLES FOR  
PIPING SYSTEMS WITHIN POOLSWELL ZONE  
(UNIT 1)  
SHEET 1 OF 2

FIGURE 3A-30

DWG No.	LINE No.	QTY	SYSTEM	PENE-TRATION No.	RADIUS OF SPRAY RING, R	ELEVATION			DIMENSION
						A	B	C	
A	6"-GBC-212	1	RHR	X-205A	21'-6 1/2"	222'-4 1/2"	229'-11 3/8"	230'-6"	3'-8"
B	6"-GBC-212	1	RHR	X-205B	32'-8"	222'-4 1/2"	-	230'-6"	3'-6 11/16"



DRAWING A



DRAWING B

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

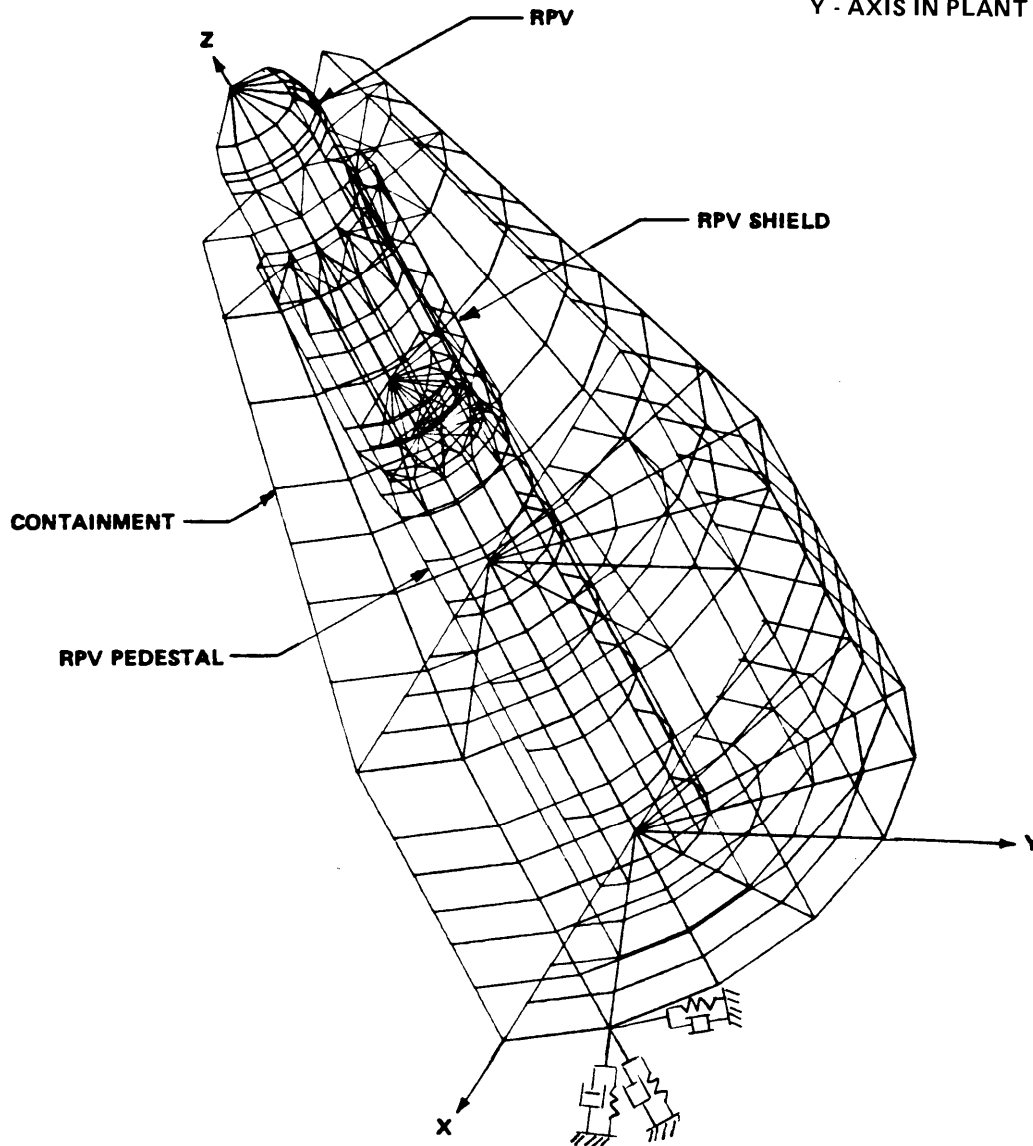
DESIGN ASSESSMENT REPORT  
STRESS DIAGRAM AND TABLES FOR  
PIPING SYSTEMS WITHIN POOLSWELL ZONE  
(UNIT 2)

SHEET 2 OF 2

FIGURE 3A-30

NOTE:

X - AXIS IS IN PLANT E-W AND  
Y - AXIS IN PLANT N-S DIRECTION

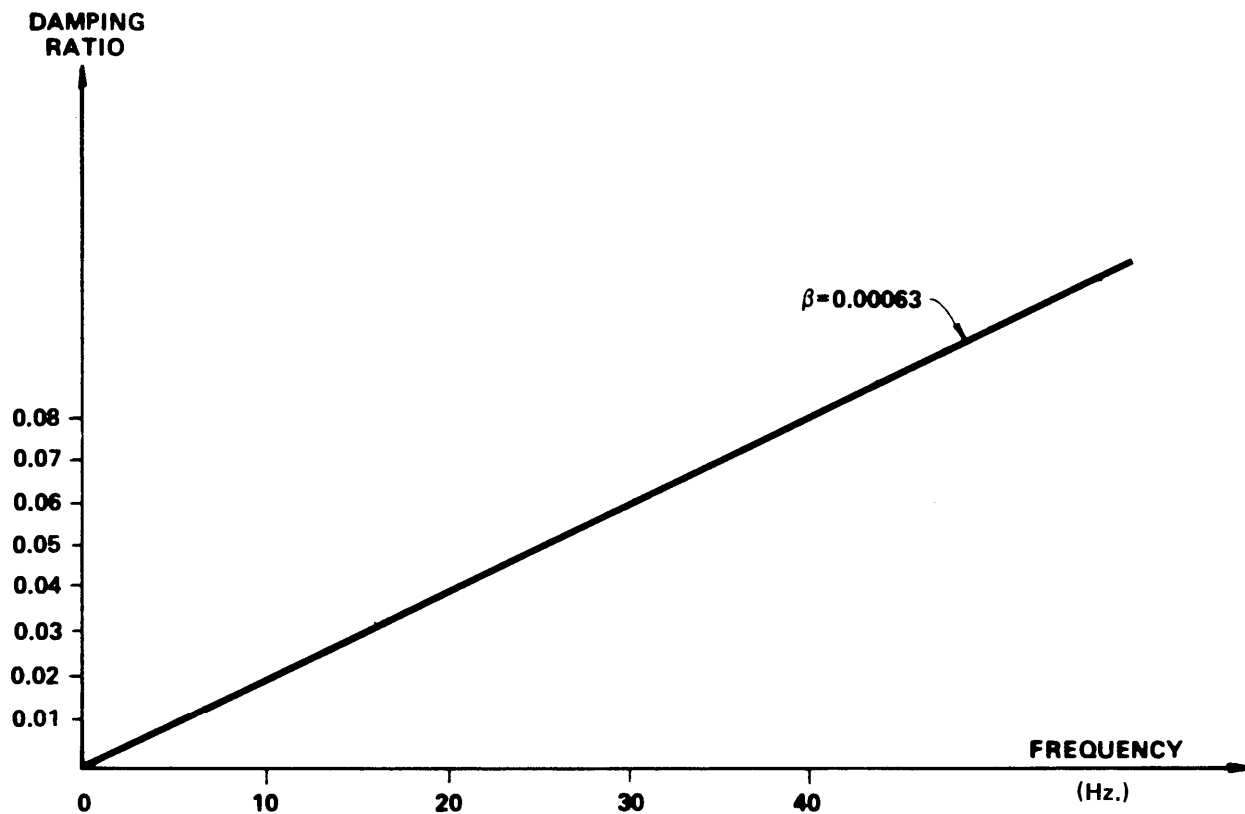


LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

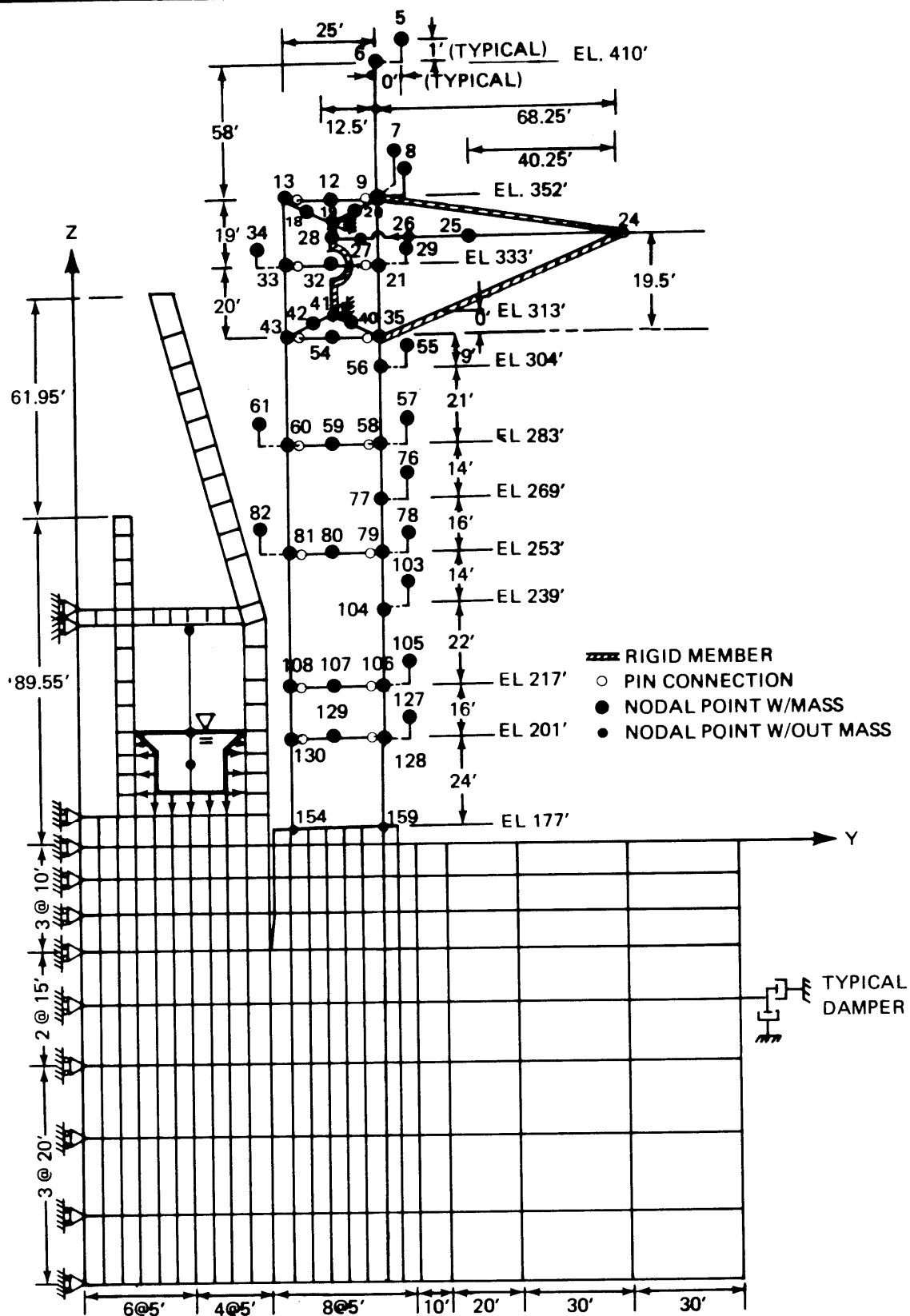
DESIGN ASSESSMENT REPORT  
3-D CONTAINMENT  
FINITE ELEMENT MODEL  
(ANSYS MODEL)

FIGURE 3A-31





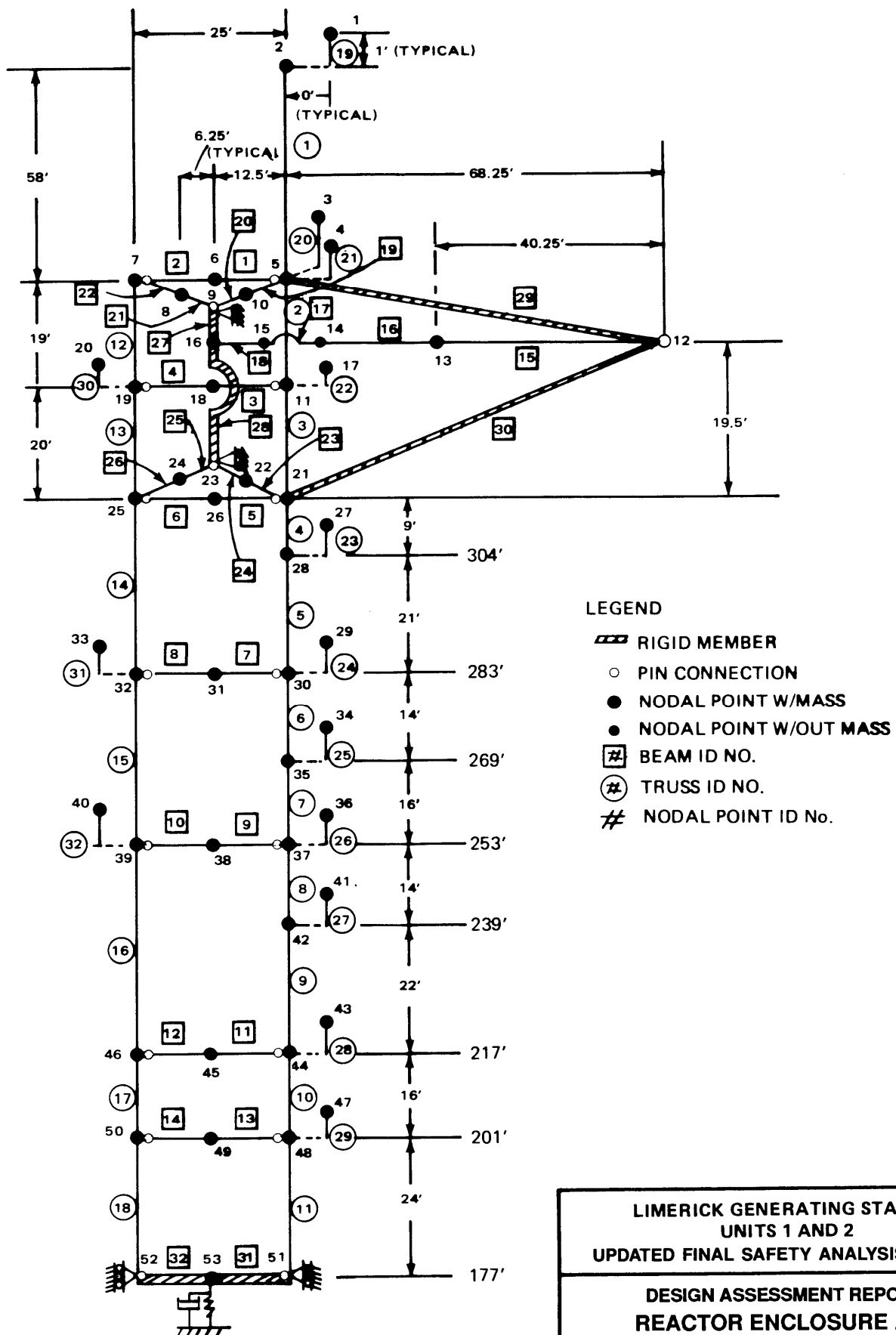
LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT  
DESIGN ASSESSMENT REPORT  
EQUIVALENT MODAL DAMPING RATIO VERSUS  
MODAL FREQUENCY FOR STRUCTURAL  
STIFFNESS PROPORTIONAL DAMPING  
(CONTAINMENT BUILDING)  
FIGURE 3A-32



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE VERTICAL AXISYMMETRIC  
COUPLED MODEL (FESS)

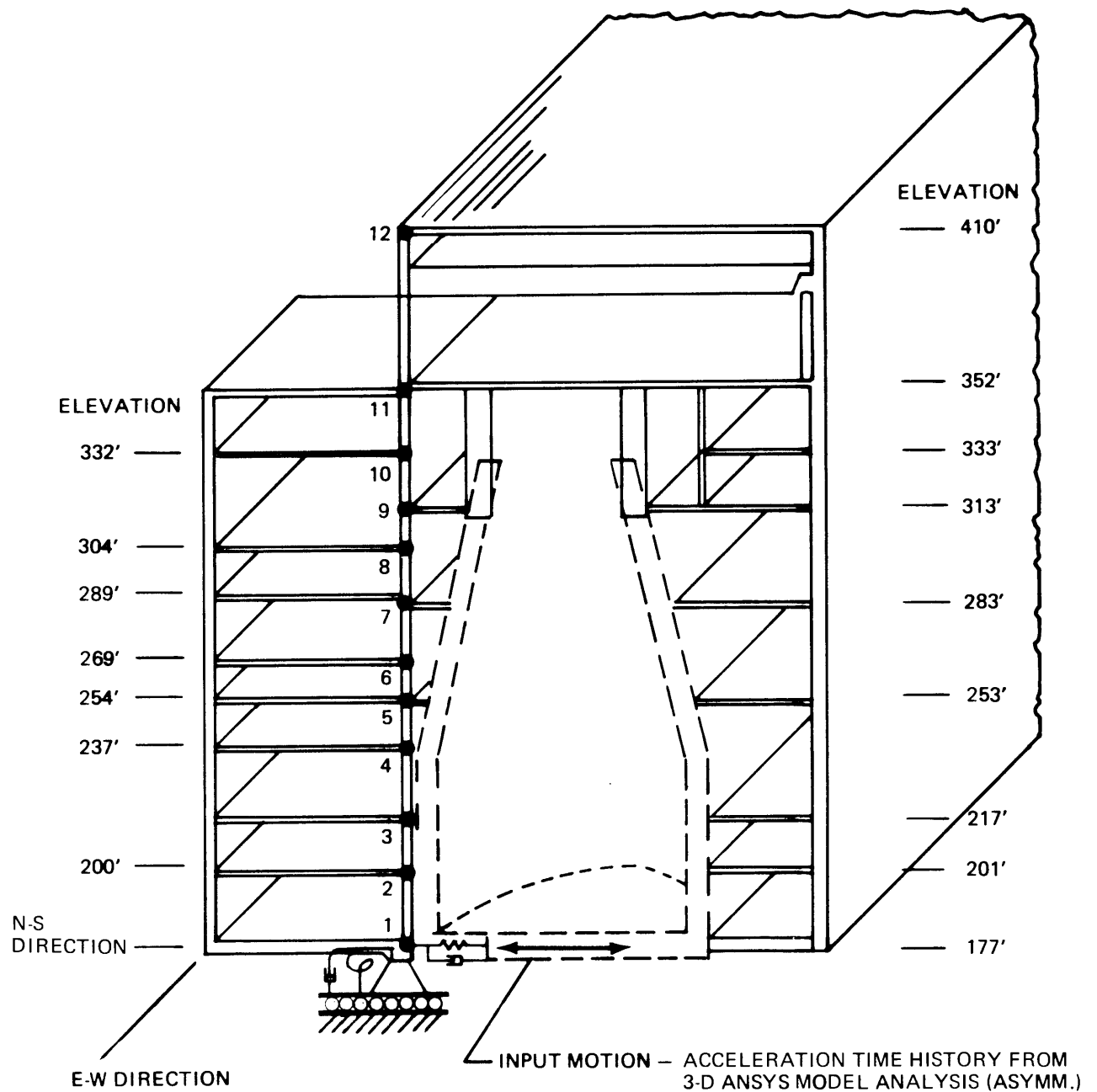
FIGURE 3A-33



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
VERTICAL STICK MODEL

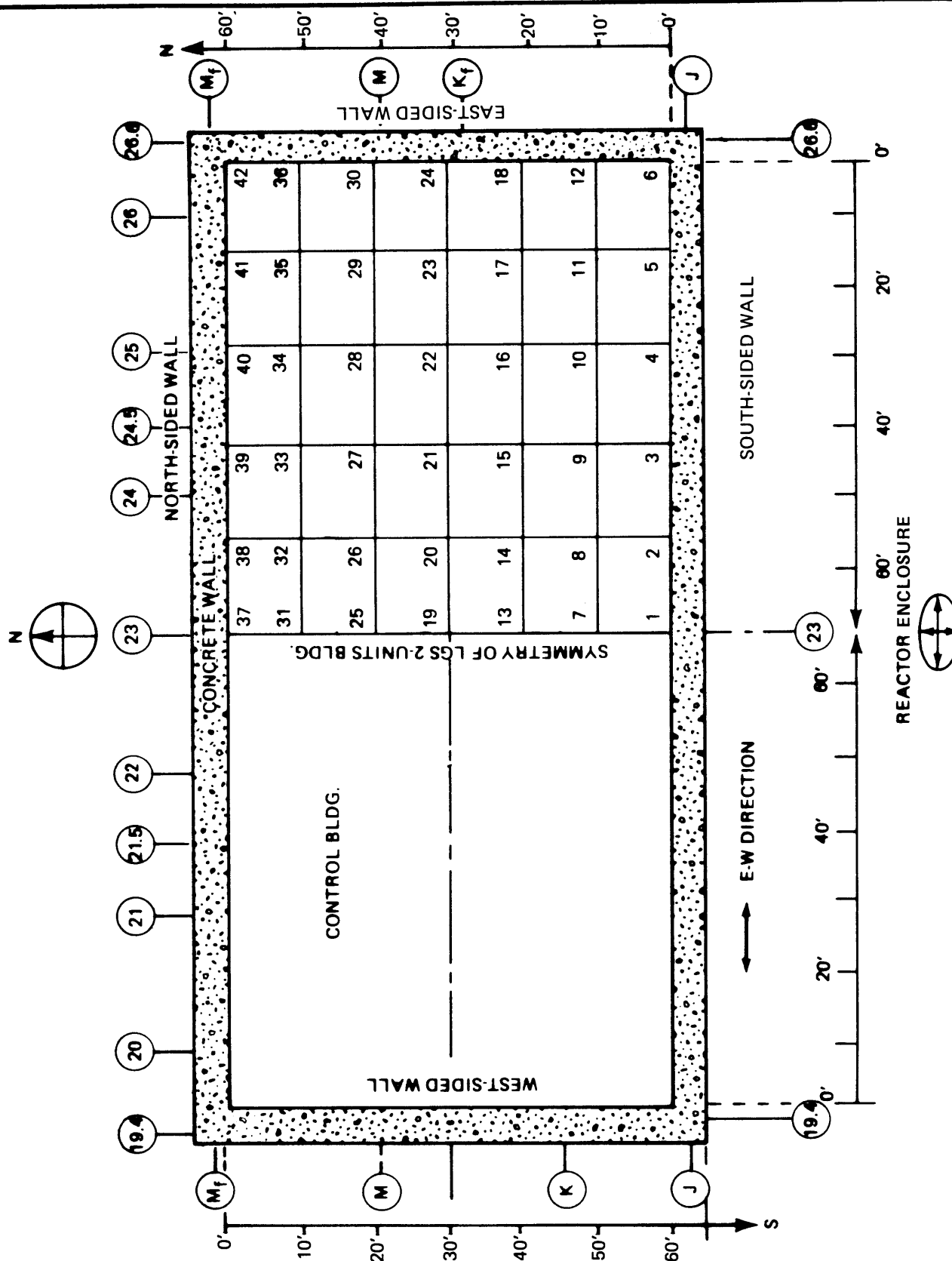
FIGURE 3A-34



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
HORIZONTAL STICK MODEL

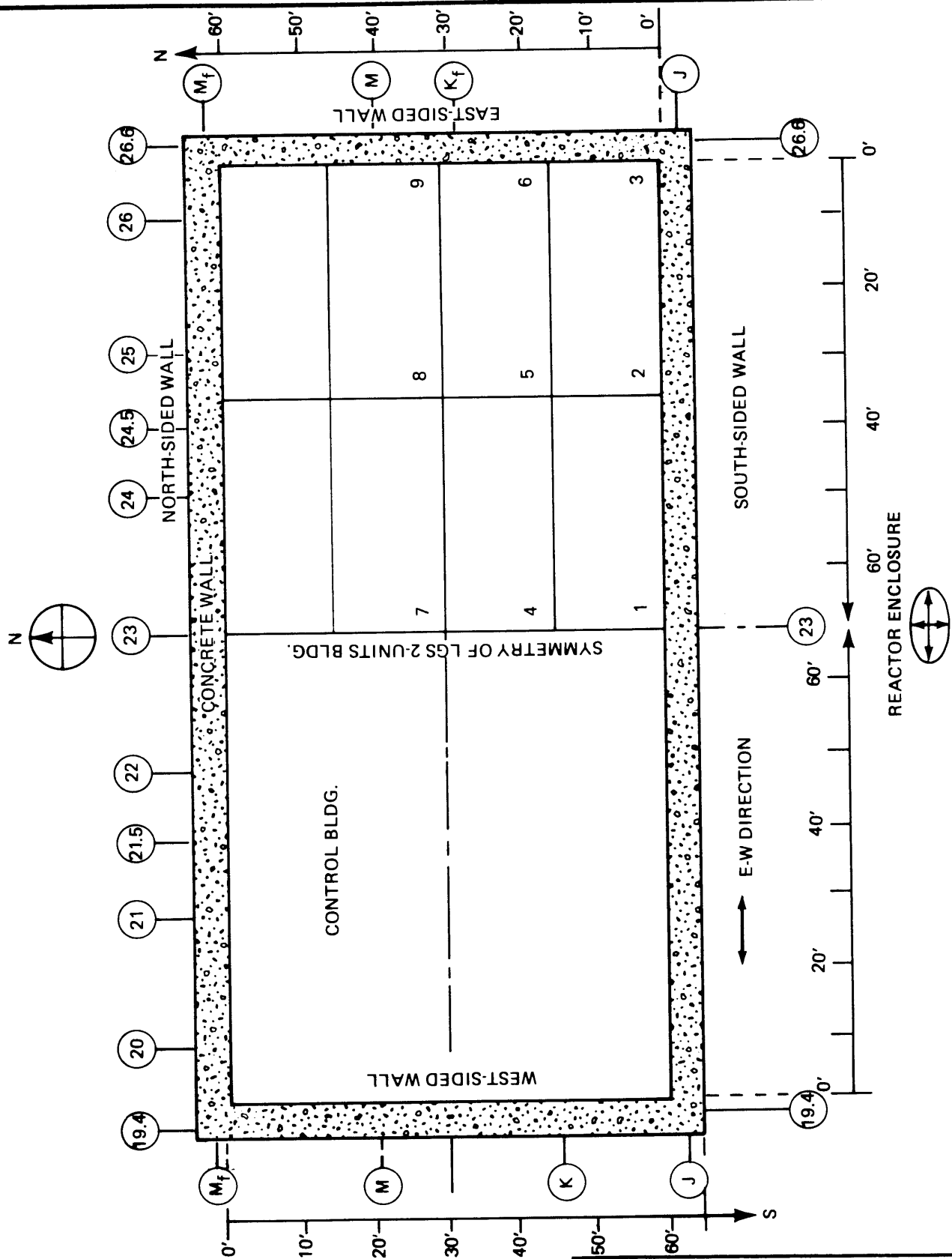
FIGURE 3A-35



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE FLOOR  
"HALF MODEL"

FIGURE 3A-36



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE FLOOR  
"QUARTER MODEL"

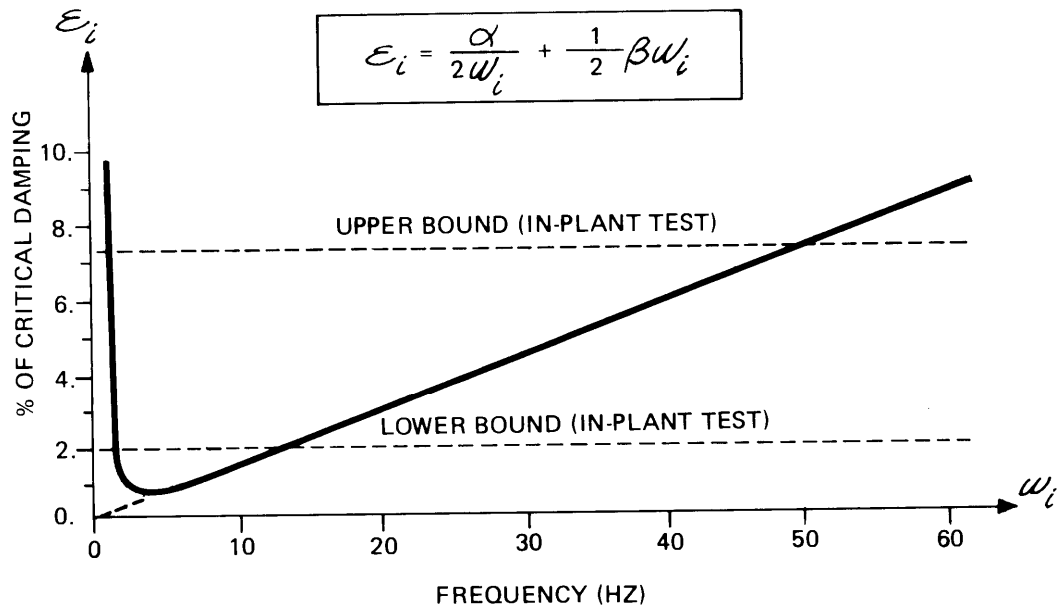
FIGURE 3A-37

MASS-PROPORTIONAL AND STIFFNESS-PROPORTIONAL

$$[C] = \alpha [M] + \beta [K]$$

VARIABLE DAMPING

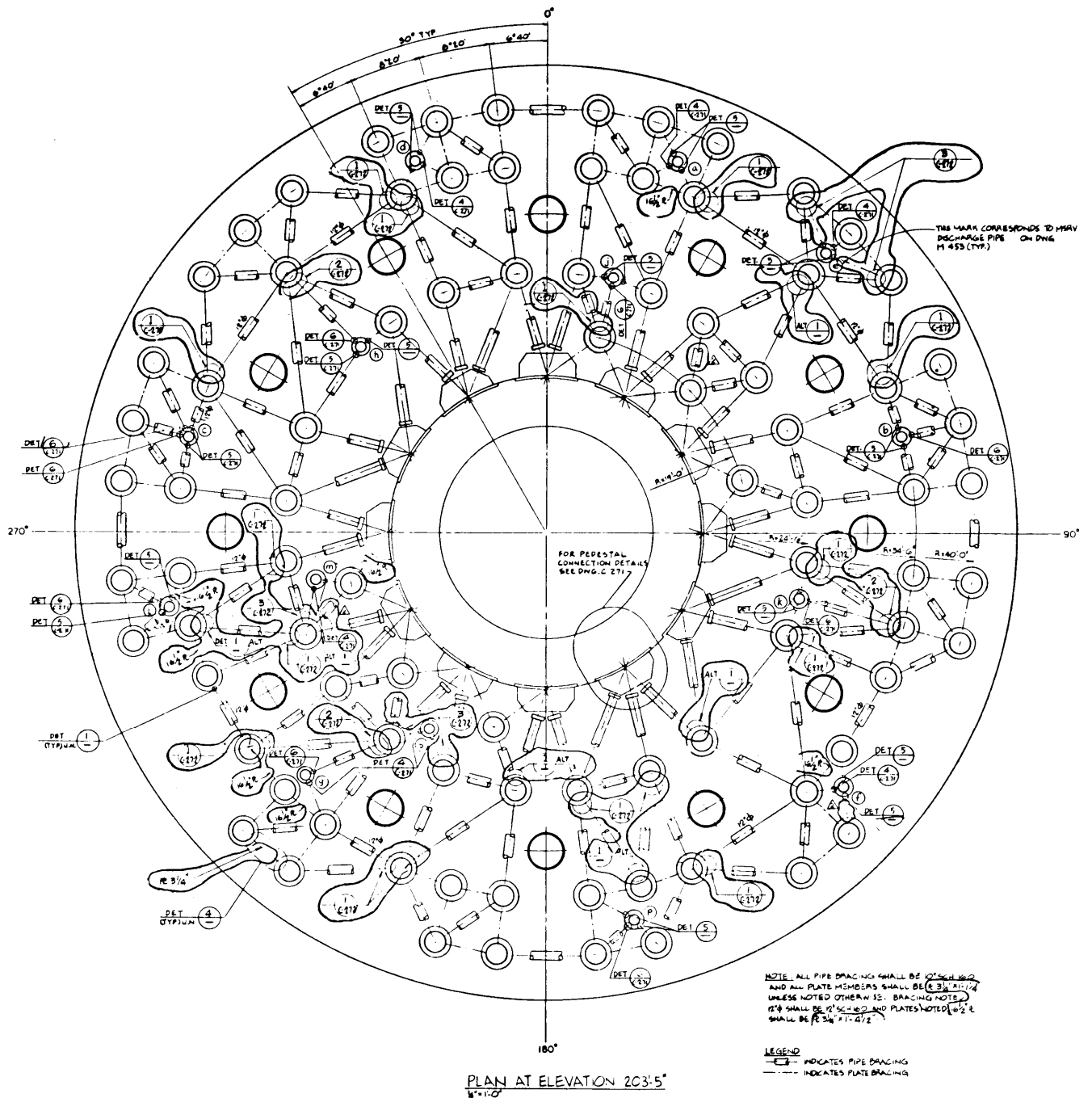
$$\epsilon_i = \frac{\alpha}{2\omega_i} + \frac{1}{2}\beta\omega_i$$



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
EQUIVALENT MODAL DAMPING RATIO VERSUS  
MODAL FREQUENCY FOR STRUCTURAL  
DAMPING (REACTOR ENCLOSURE AND  
CONTROL STRUCTURE)

FIGURE 3A-38



**NOTE:** MISCELLANEOUS PIPING THAT IS Laterally SUPPORTED ON THE BRACING SYSTEM IS NOT SHOWN.

**LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
 DOWNCOMER BRACING SYSTEM**

**FIGURE 3A-39**

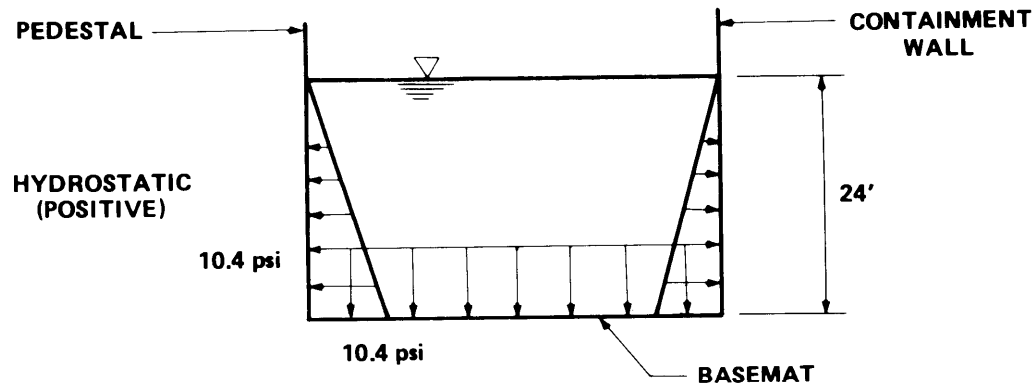


Security Related Information  
Figure Wittheld Under 10 CFR 2.390

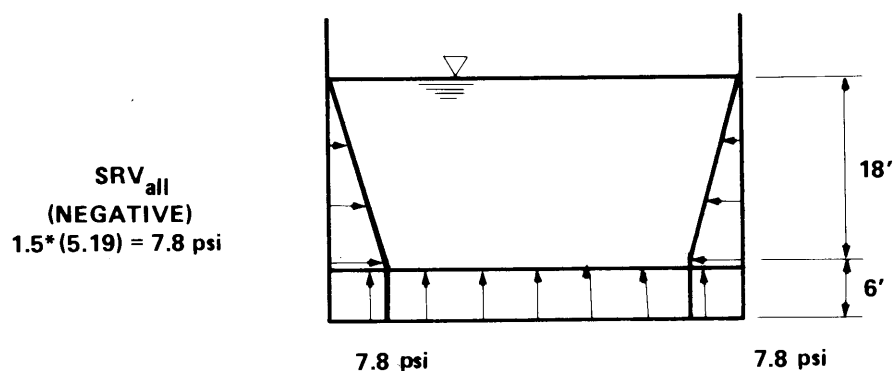
LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DOWNCOMER BRACING SYSTEM  
DETAILS

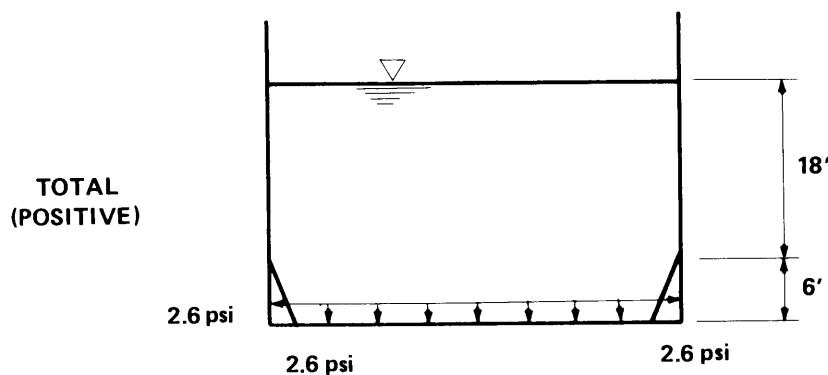
FIGURE 3A-40



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||

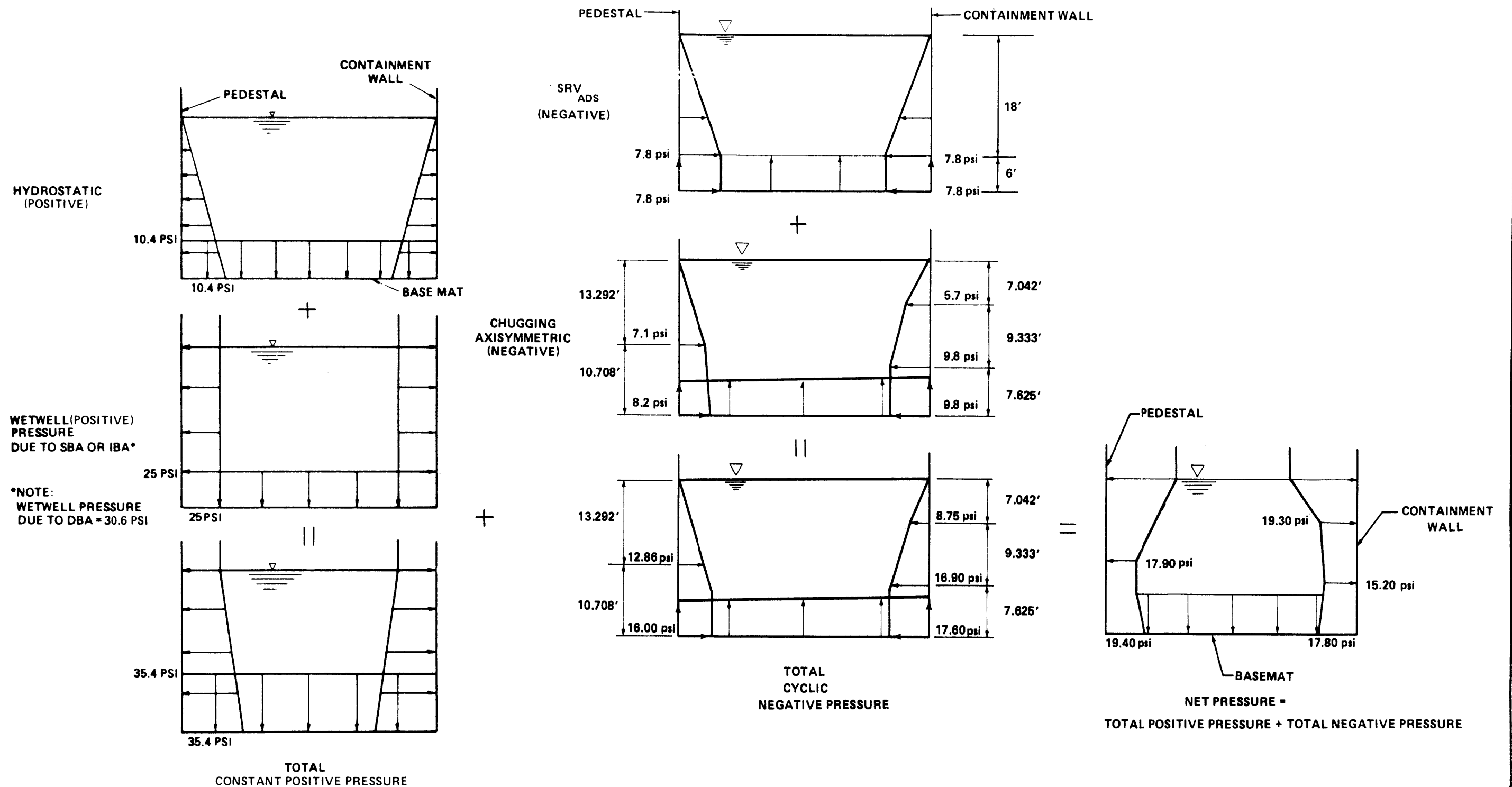


\*PRESSURE MULTIPLIER

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LINER PLATE PRESSURES  
NORMAL CONDITION

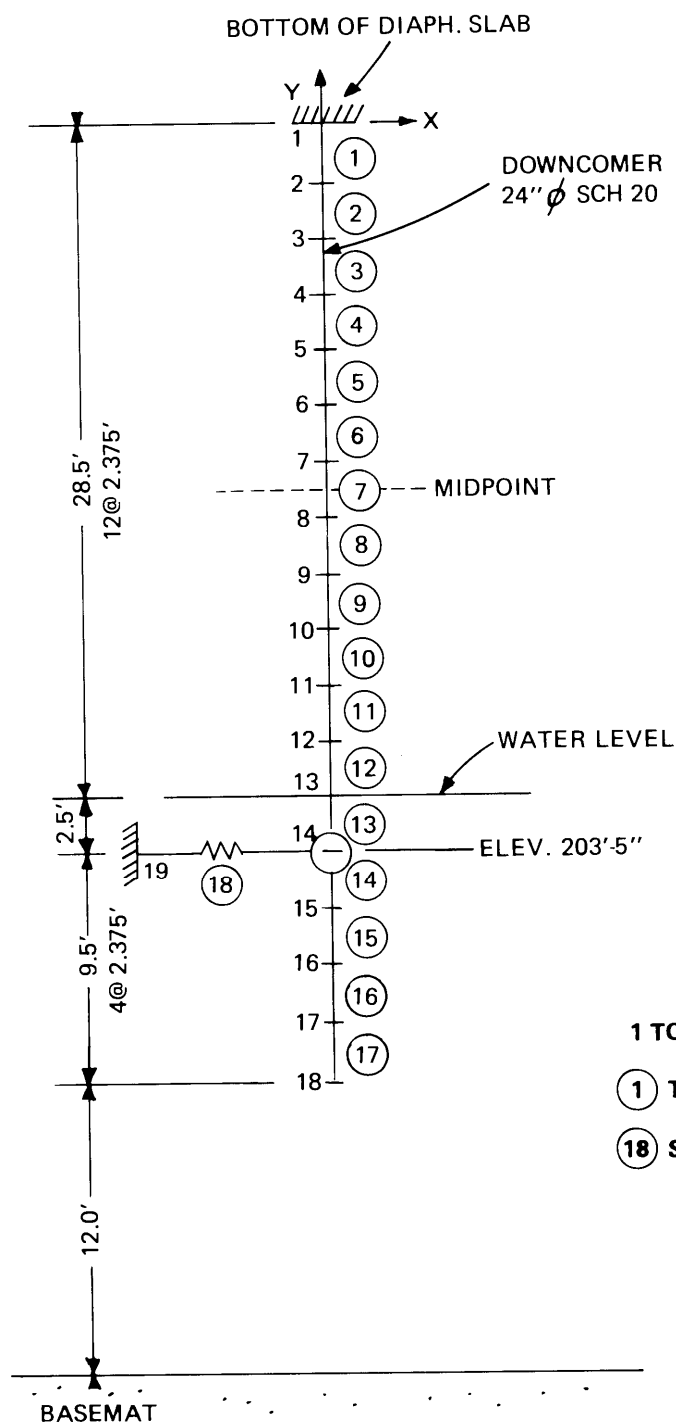
FIGURE 3A-41



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LINER PLATE PRESSURES  
ABNORMAL CONDITION

FIGURE 3A-42



1 TO 19 NODAL POINTS

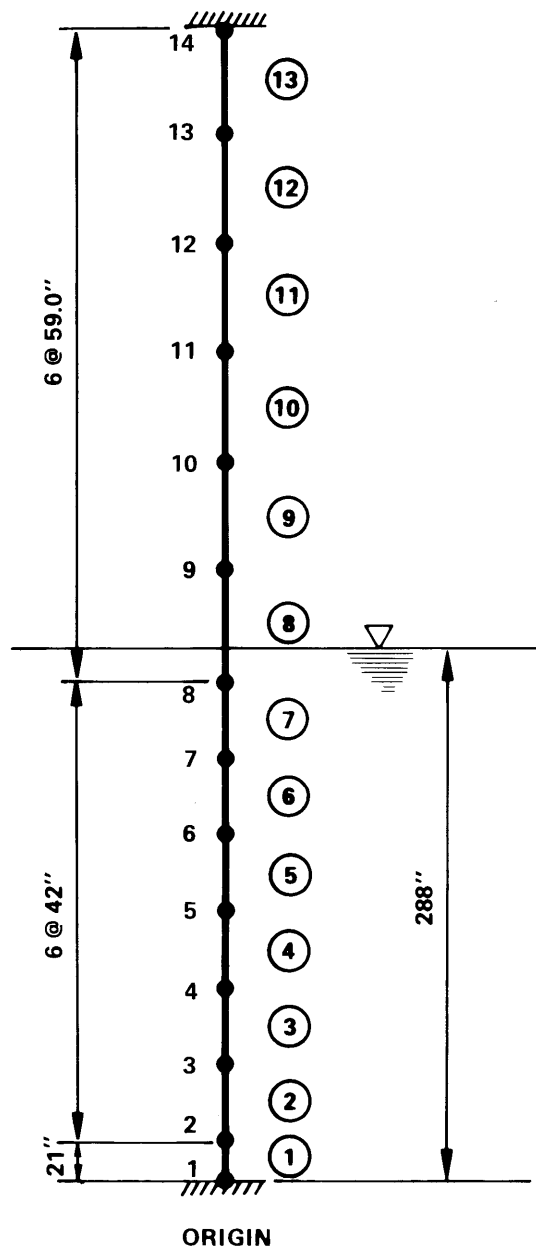
① TO ⑰ STRAIGHT PIPE ELEMENT

⑱ SPRING-DAMPER ELEMENT

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DOWNCOMER ANALYTICAL MODEL

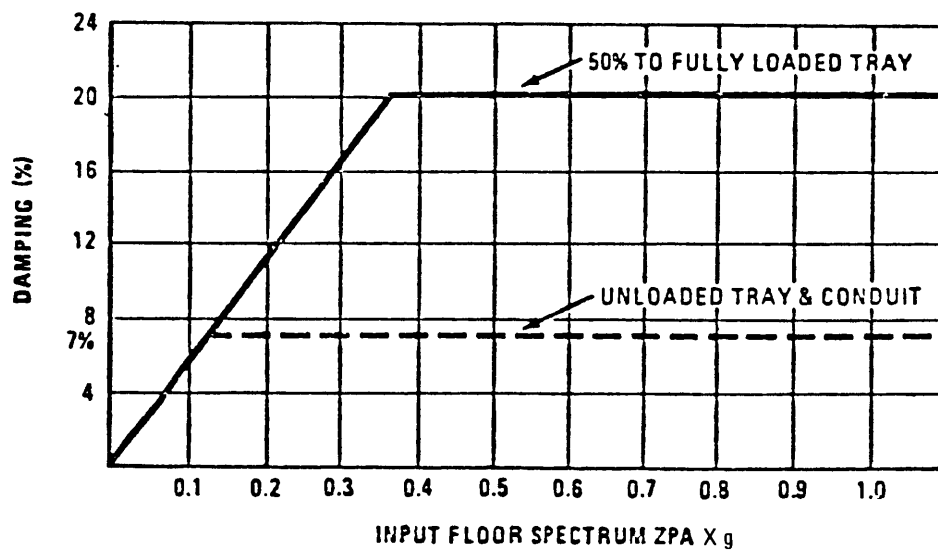
FIGURE 3A-43



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
SUPPRESSION CHAMBER COLUMN  
ANALYTICAL MODEL

FIGURE 3A-44



(SOURCE: DAR REF. 3A-32)

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

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**DESIGN ASSESSMENT REPORT DESIGN**

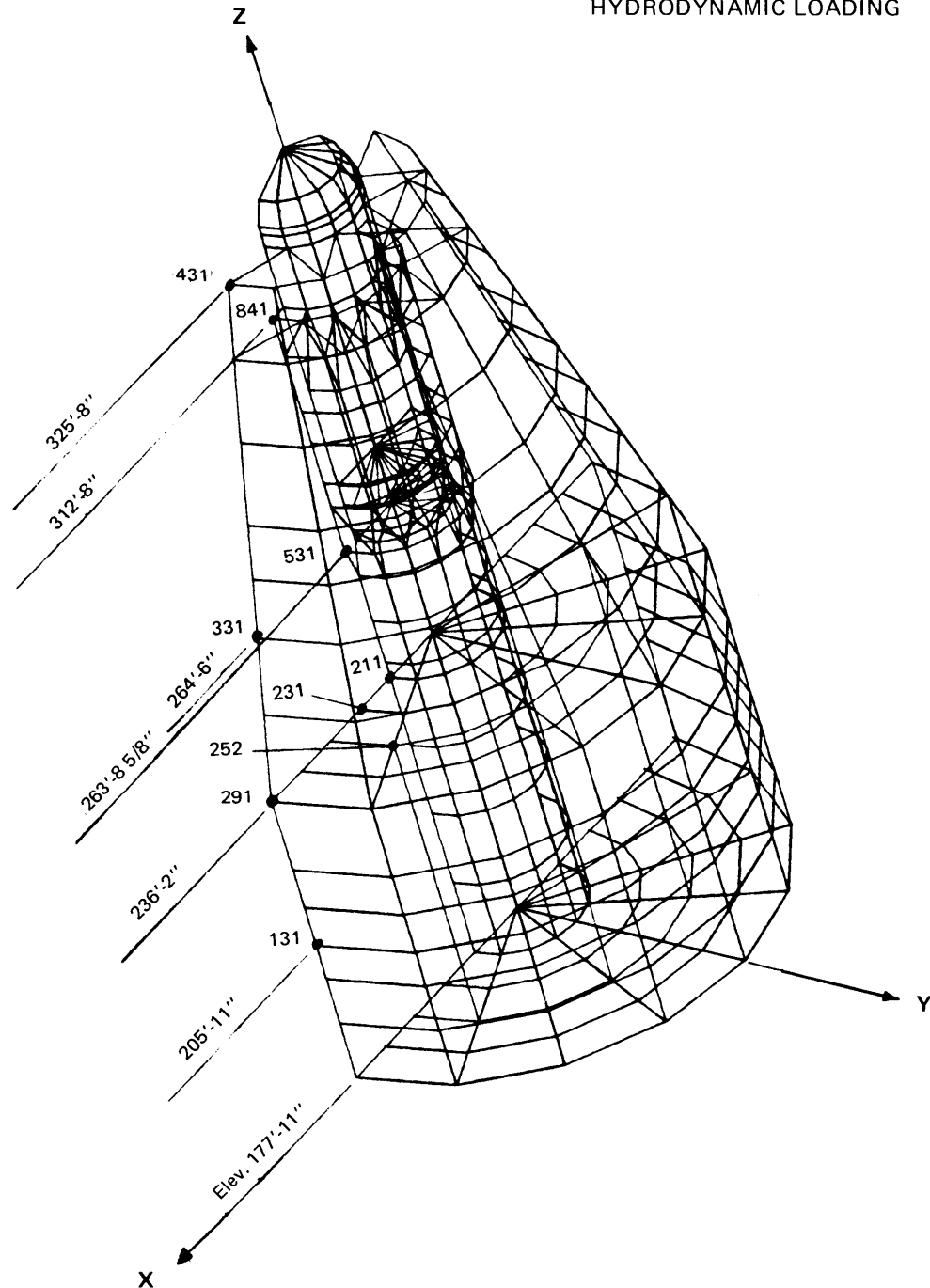
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**ALLOWABLE DAMPING VALUES FOR  
ELECTRICAL RACEWAY SYSTEM DESIGN**

---

**FIGURE 3A-45**

● POINTS WHERE RESPONSE SPECTRUM  
CURVES ARE FURNISHED FOR  
HYDRODYNAMIC LOADING



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
MODEL FOR CONTAINMENT  
RESPONSE SPECTRA

FIGURE 3A-46

MODE NO.	FREQUENCY (Hz)	DIRECTION	LOCATION MAX. DISPLACEMENT
1	3.92	H	RPV INTERNAL
2	5.04	H	RPV INTERNAL
3	6.85	H	RPV INTERNAL
4	8.00	H	RPV INTERNAL
5	9.43	H	RPV INTERNAL
6	14.01	V	RPV INTERNAL
7	14.86	B	CONTAINMENT
8	16.59	H	RPV INTERNAL
9	18.32	V	CONTAINMENT
10	19.38	H	RPV INTERNAL
11	19.60	H	RPV INTERNAL
12	23.24	B	RPV SHIELD
13	23.94	B	RPV SHIELD
14	26.09	H	CONTAINMENT
15	26.42	H	PEDESTAL
16	27.88	B	CONTAINMENT
17	28.52	H	RPV SHIELD
18	32.08	V	RPV INTERNAL
19	32.54	H	CONTAINMENT
20	34.21	B	CONTAINMENT
21	34.87	H	RPV SHIELD
22	36.78	V	RPV INTERNAL
23	39.31	V	RPV INTERNAL

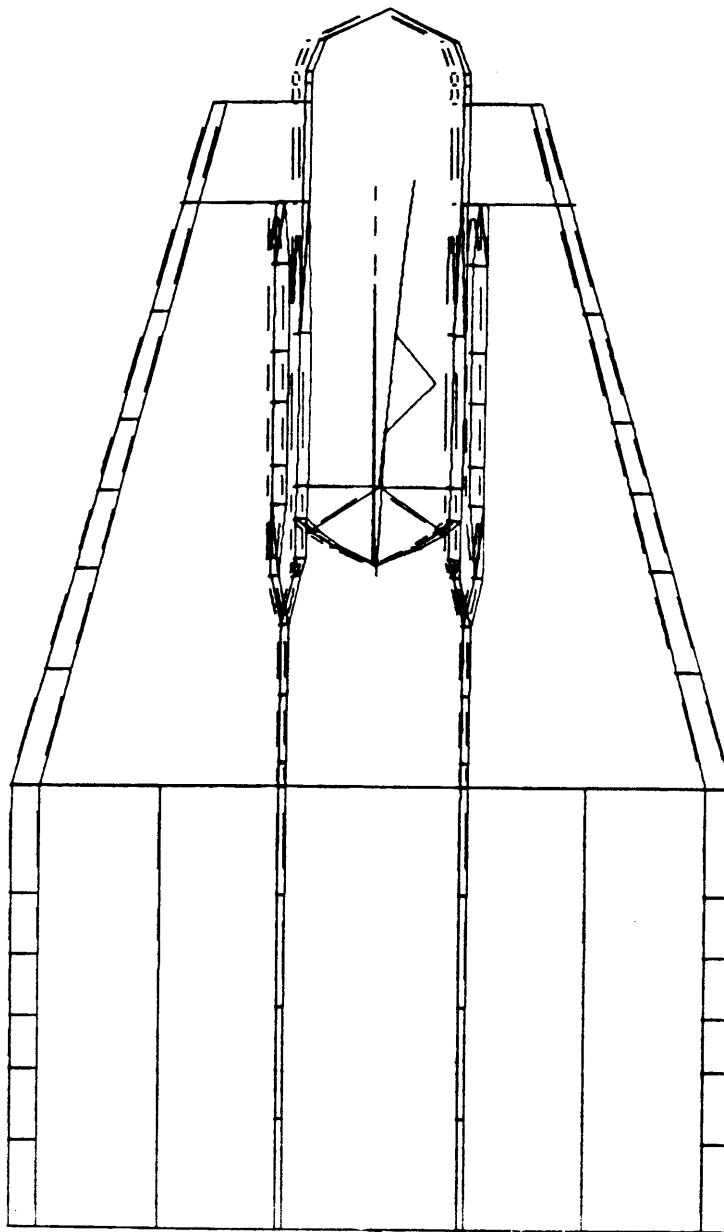
NOTES:      H - HORIZONTAL  
               V - VERTICAL  
               B - BREATHING

LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 CONTAINMENT MODES AND  
 FREQUENCIES

FIGURE 3A-47





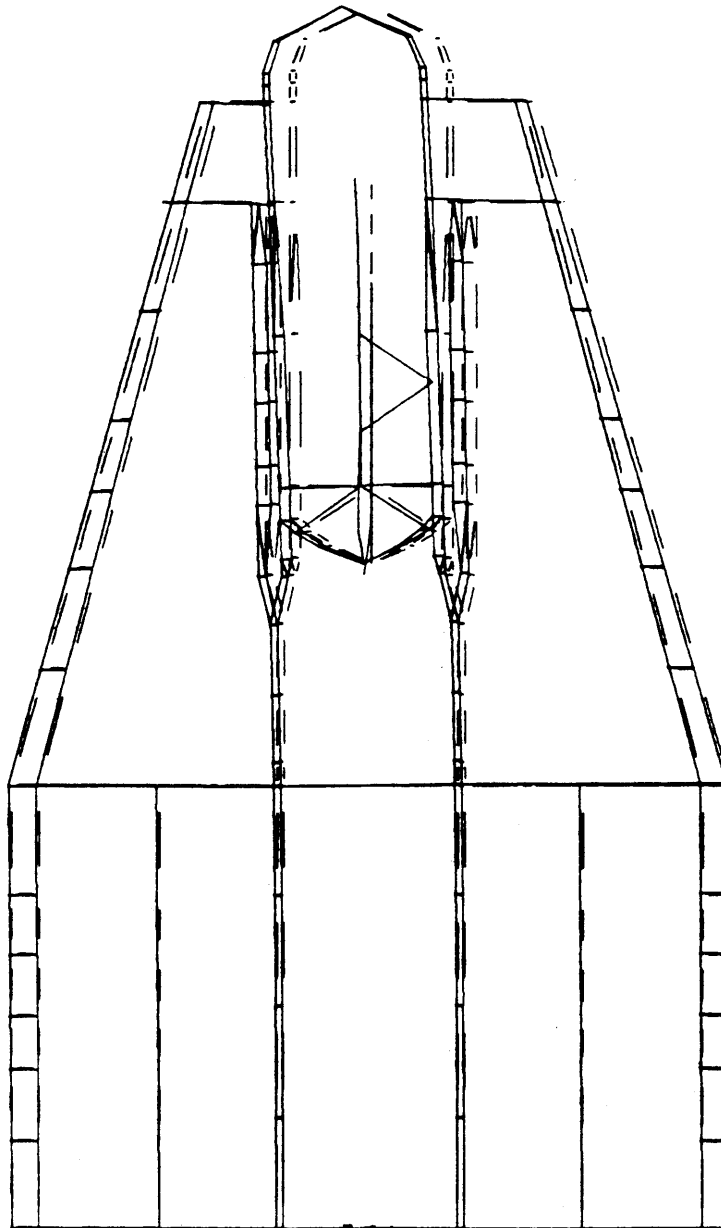
**MODE 1  
(WITH WATER MASS)**

**$f = 3.92 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-48**



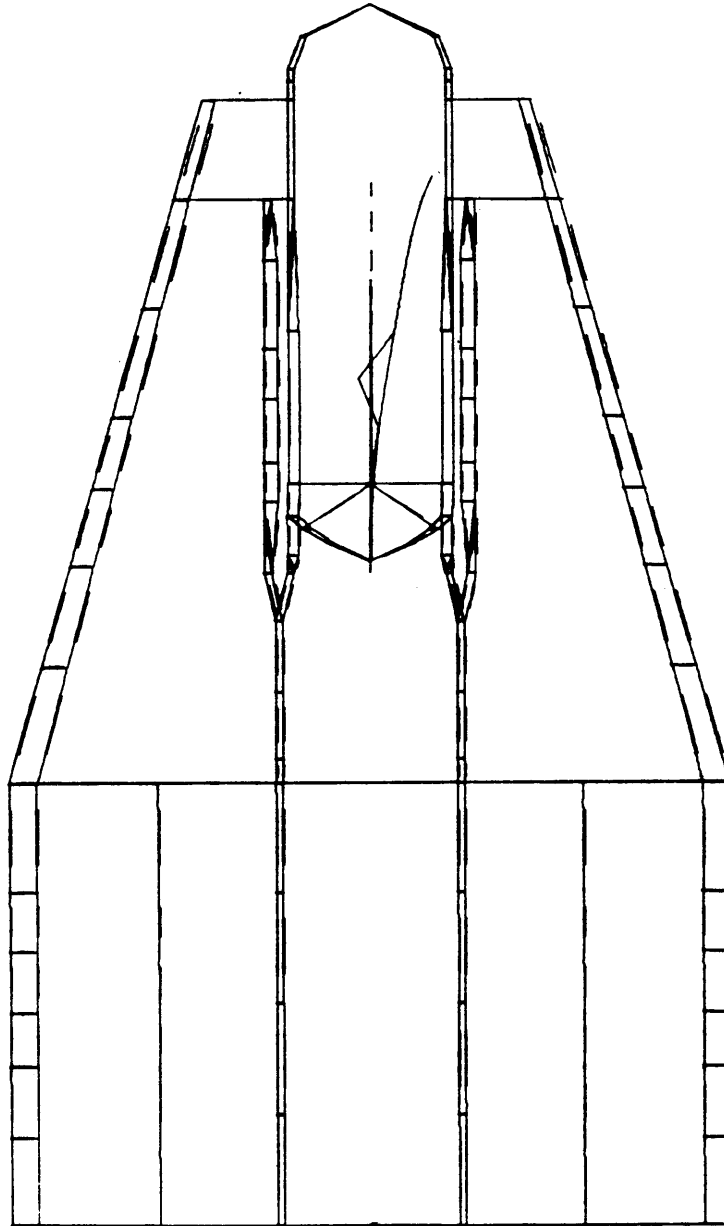
**MODE 2  
(WITH WATER MASS)**

**$f = 5.04 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-49**



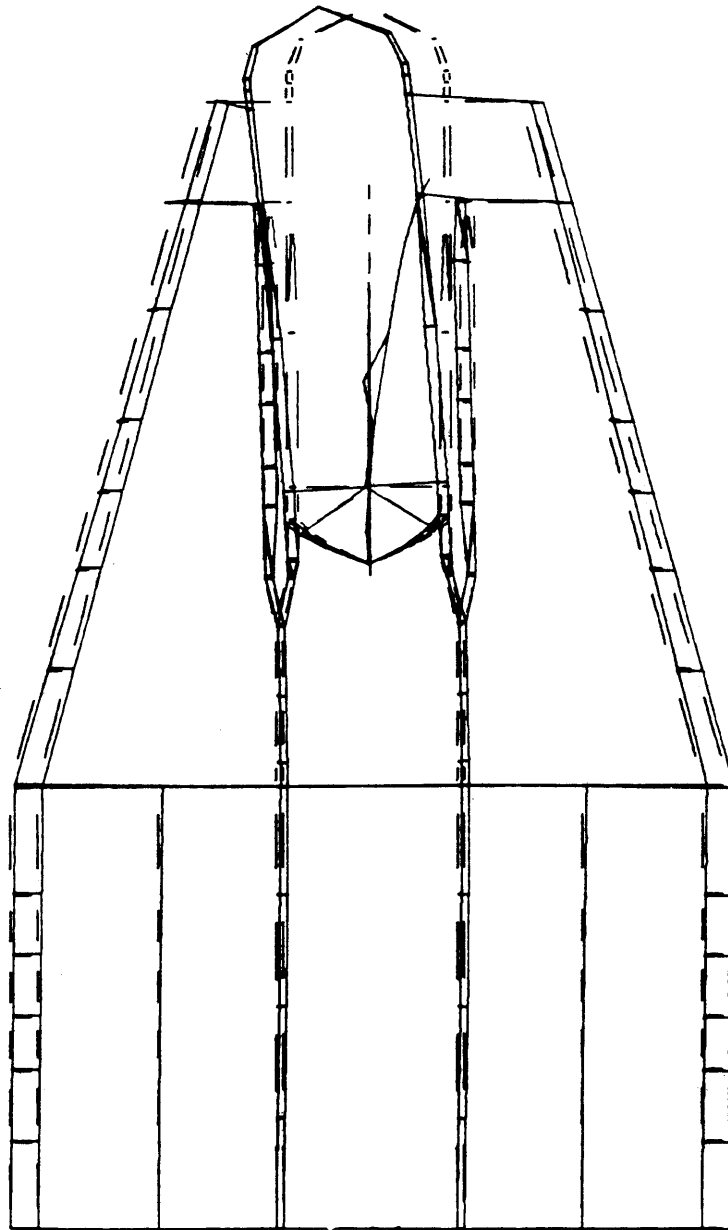
**MODE 3  
(WITH WATER MASS)**

**$f = 6.85 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-50**



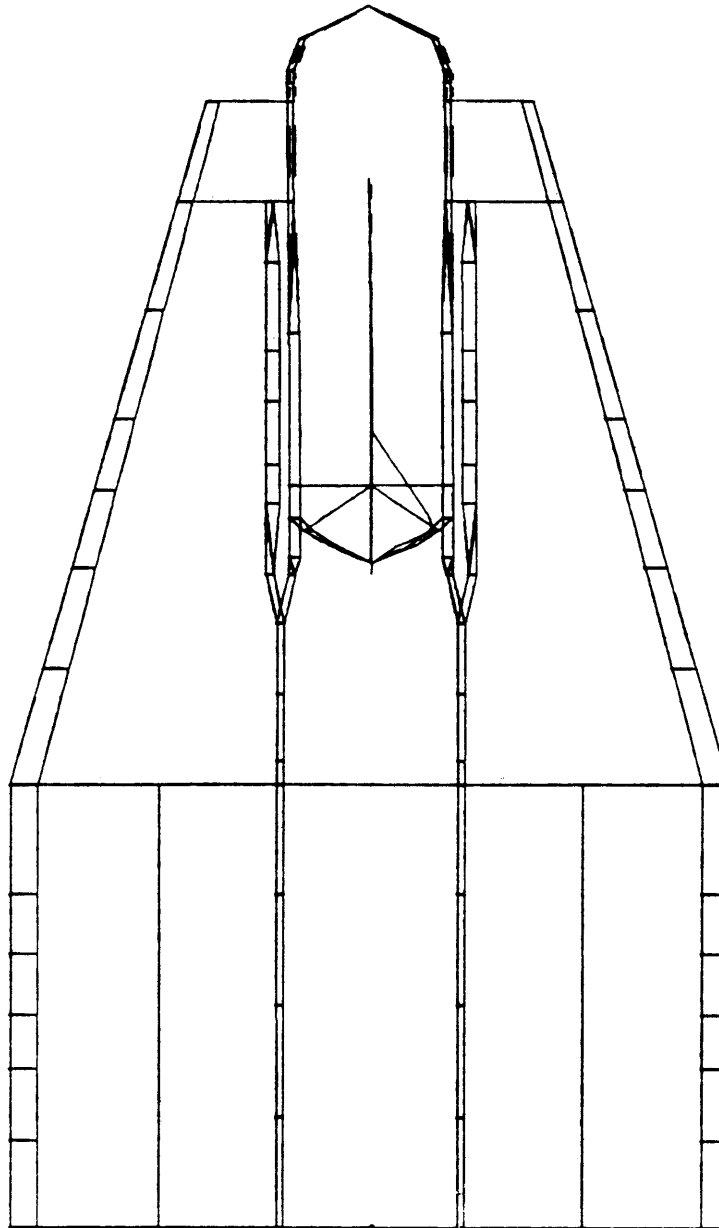
**MODE 4  
(WITH WATER MASS)**

**$f = 8.00 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-51**



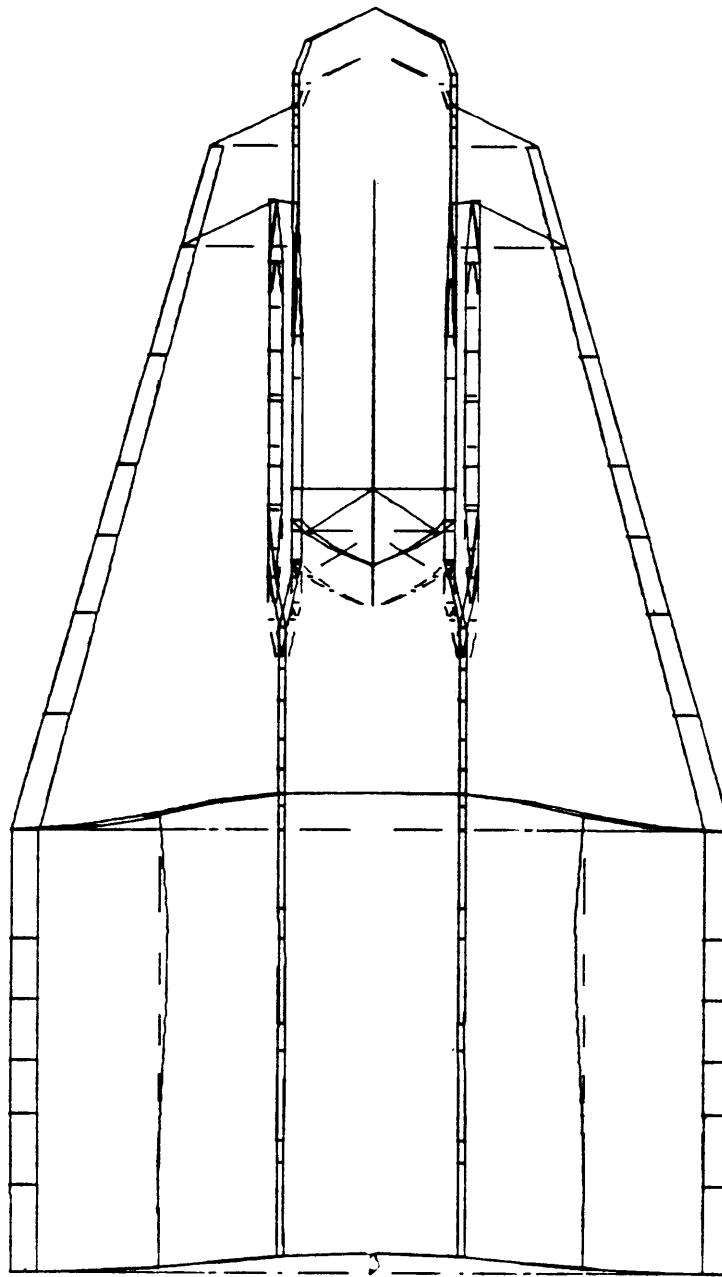
**MODE 5  
(WITH WATER MASS)**

**$f = 9.43 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-52**



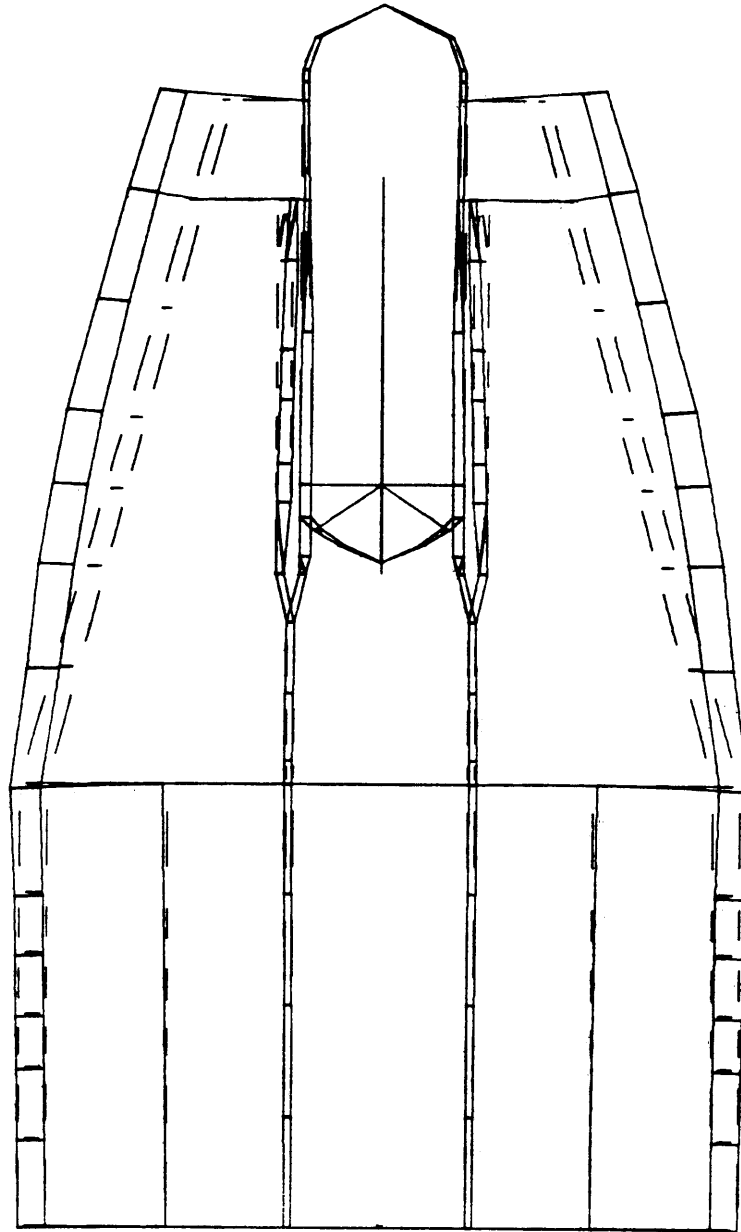
**MODE 6  
(WITH WATER MASS)**

**$f = 14.01 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-53**

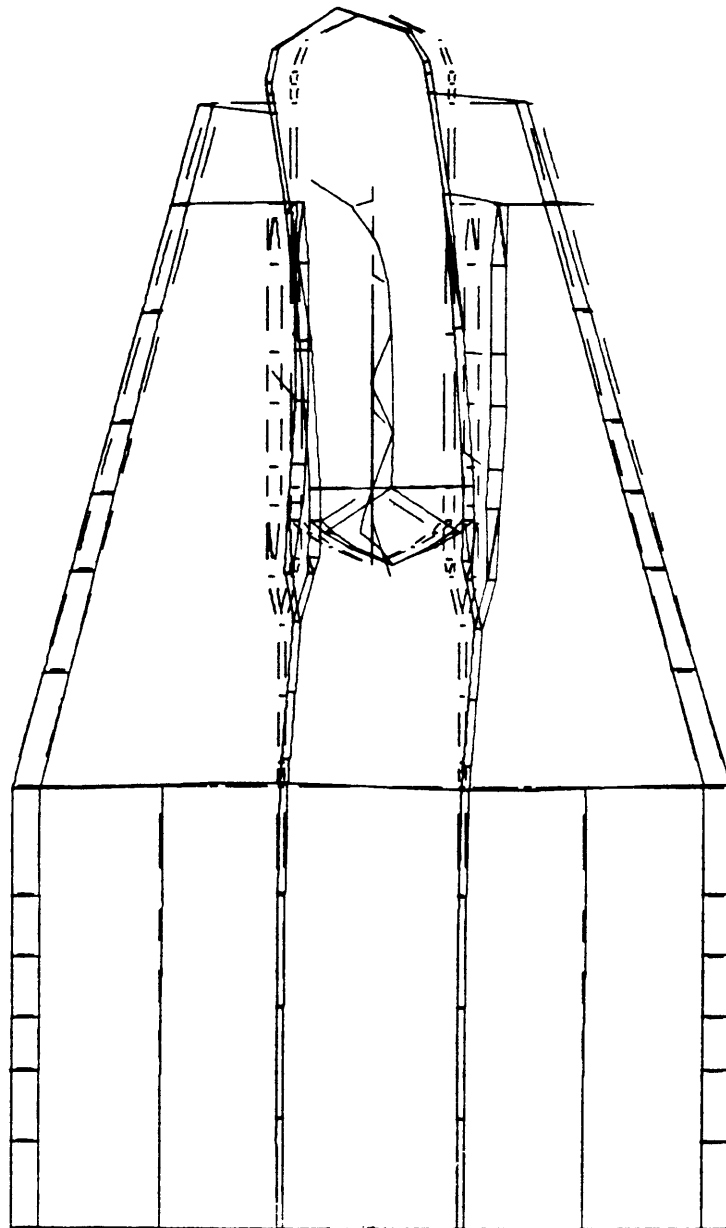


**MODE 7  
(WITH WATER MASS)**  
 **$f = 14.86 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-54**



**MODE 8  
(WITH WATER MASS)**

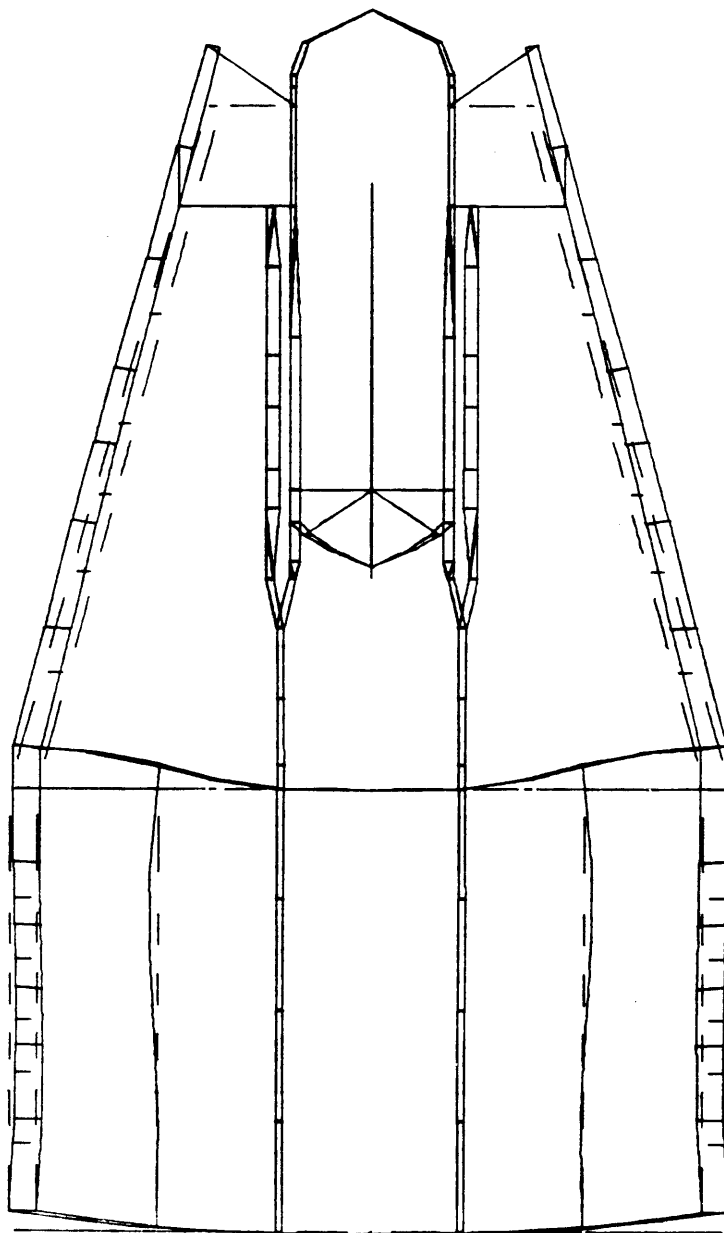
$f = 16.59 \text{ Hz}$

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-55**





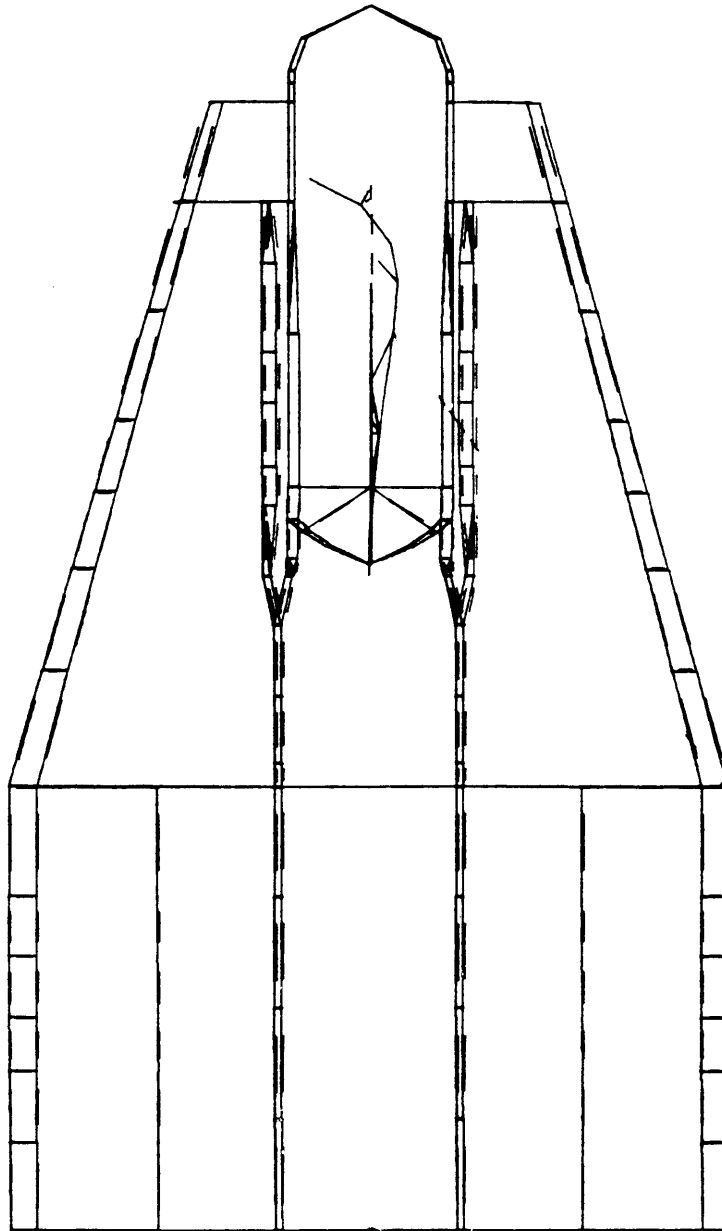
**MODE 9  
(WITH WATER MASS)**

**$f = 18.32 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-56**



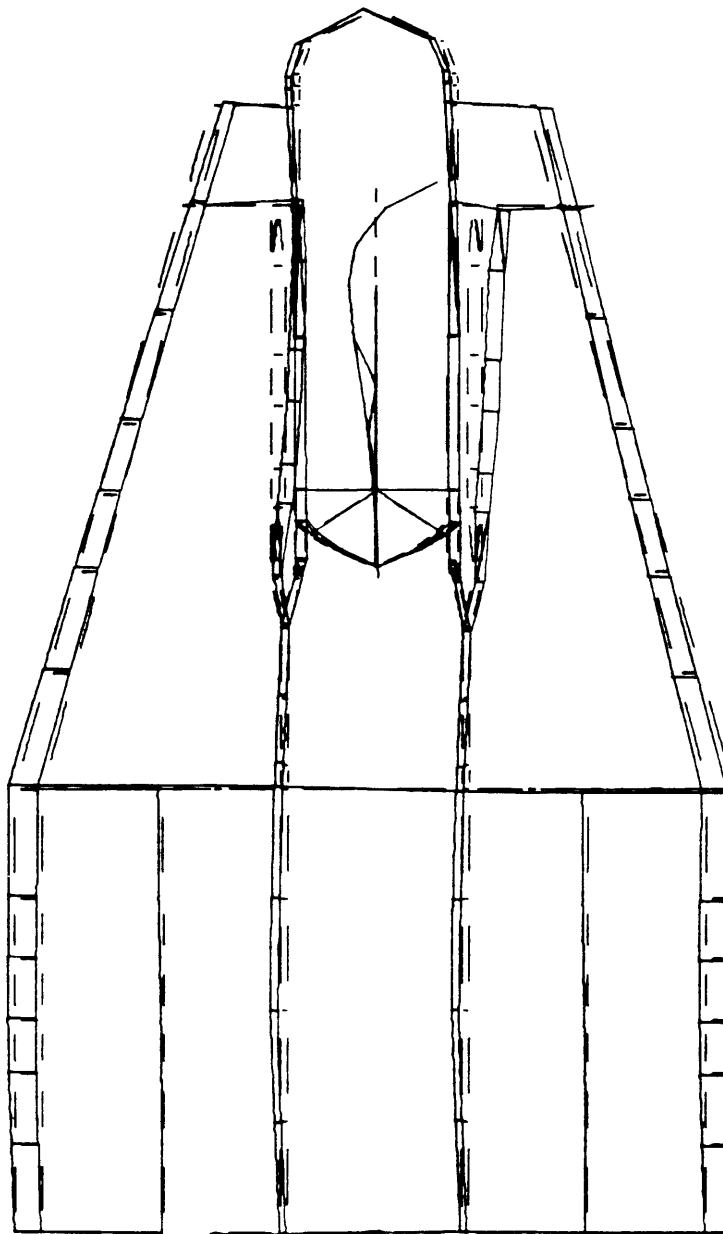
**MODE 10  
(WITH WATER MASS)**

**$f = 19.38 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-57**



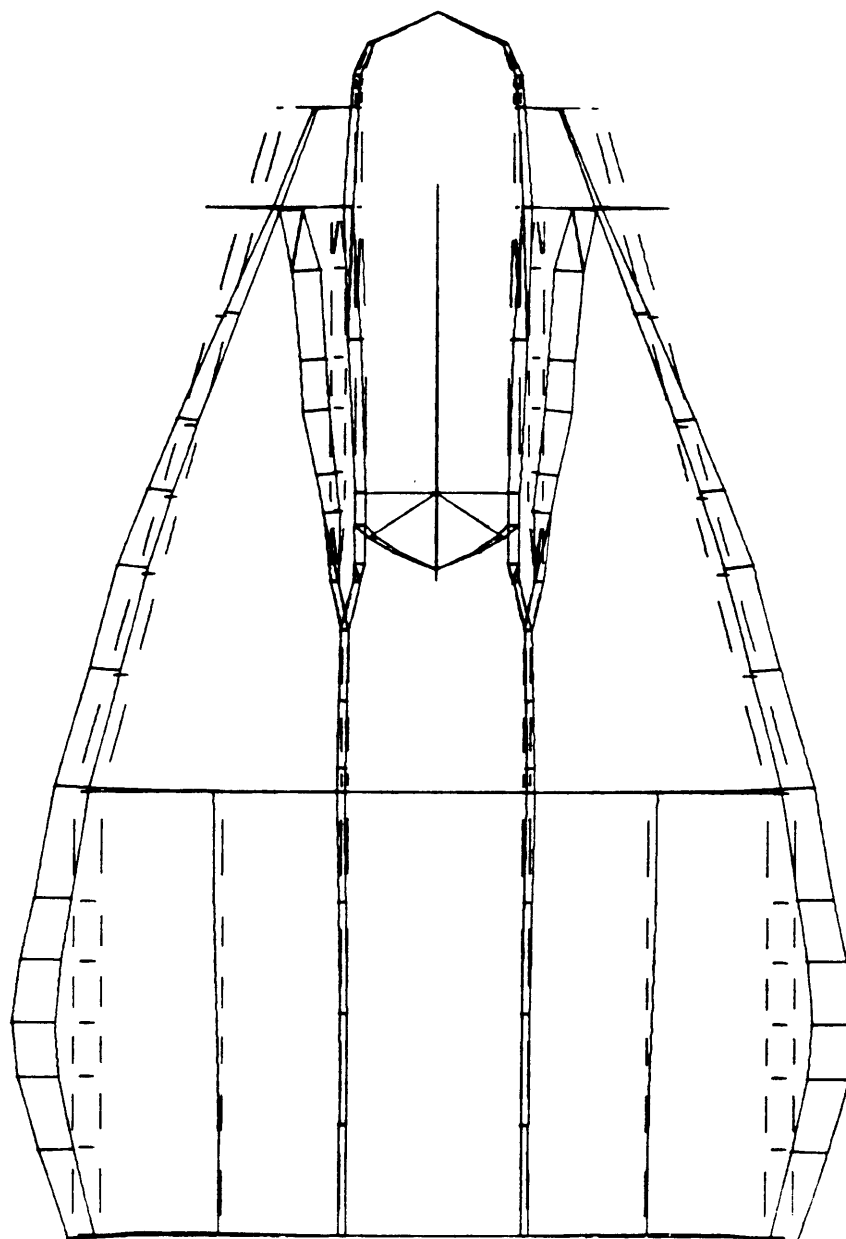
**MODE 11  
(WITH WATER MASS)**

**$f = 19.60 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-58**



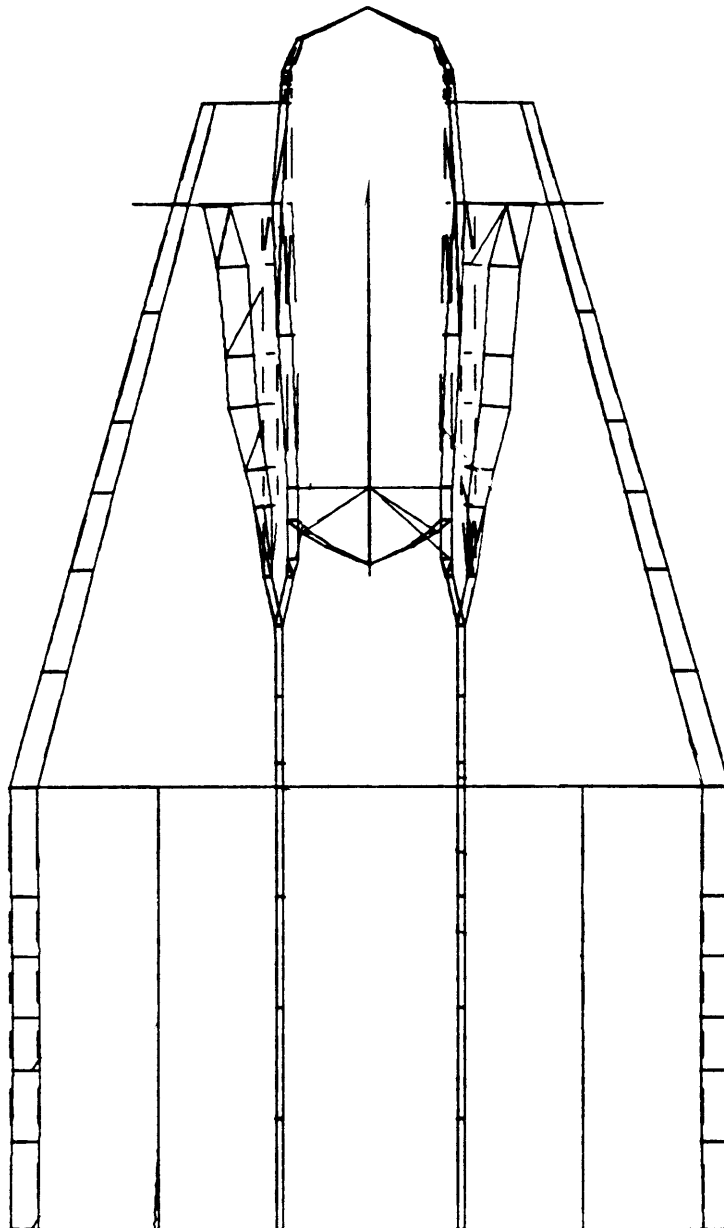
**MODE 12  
(WITH WATER MASS)**

**$f = 23.24 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-59**



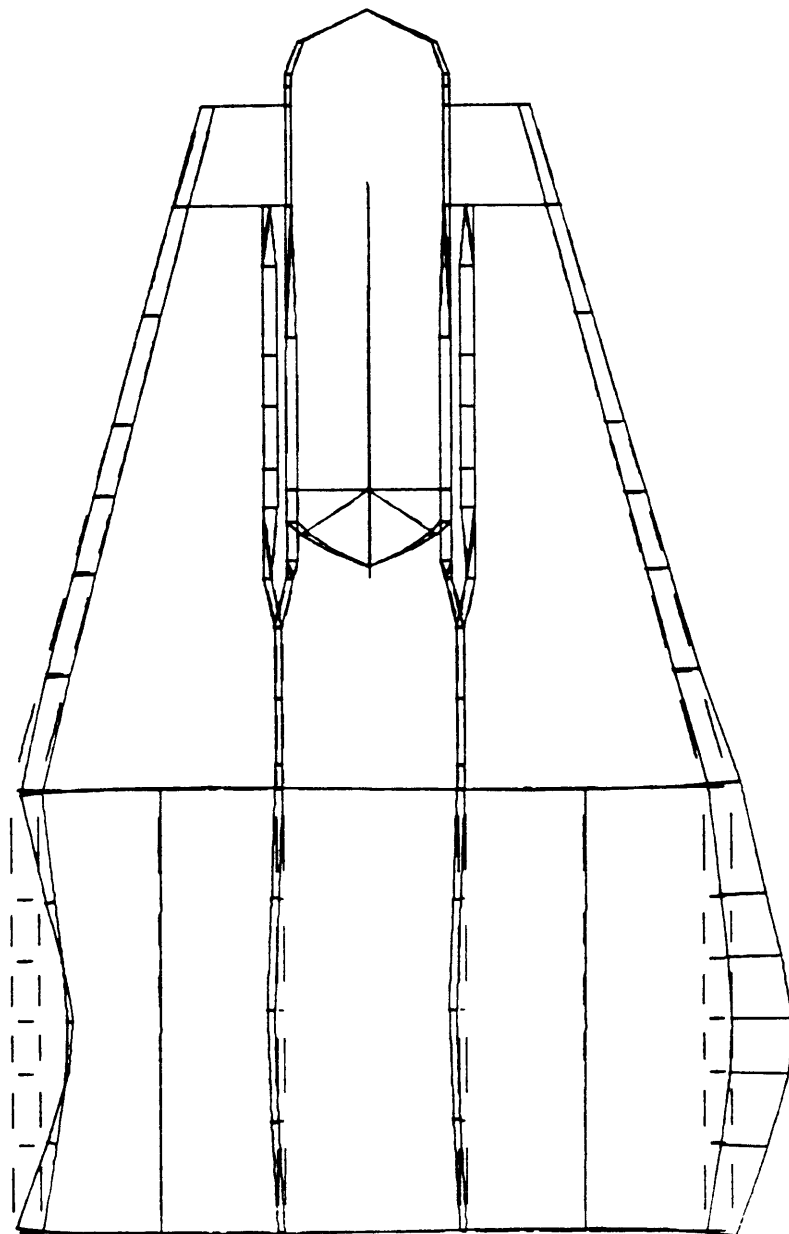
**MODE 13  
(WITH WATER MASS)**

**$f = 23.94 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-60**



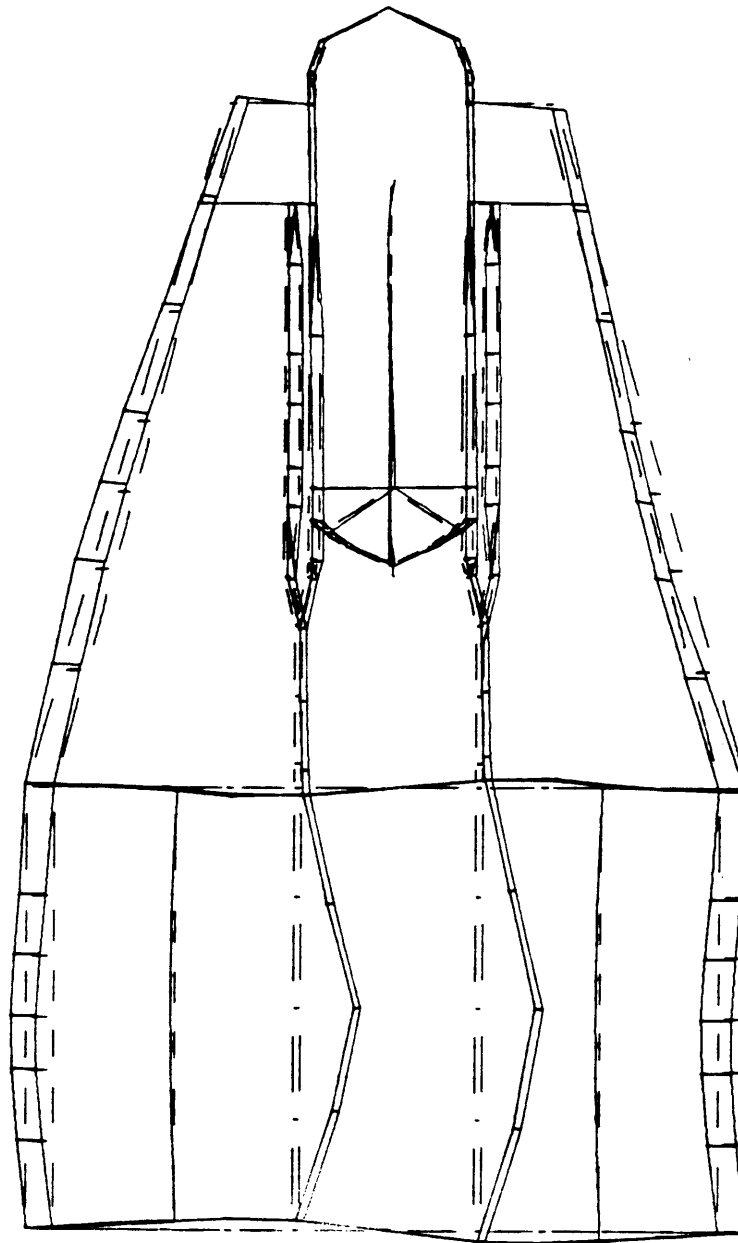
**MODE 14  
(WITH WATER MASS)**

**$f = 26.09 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-61**



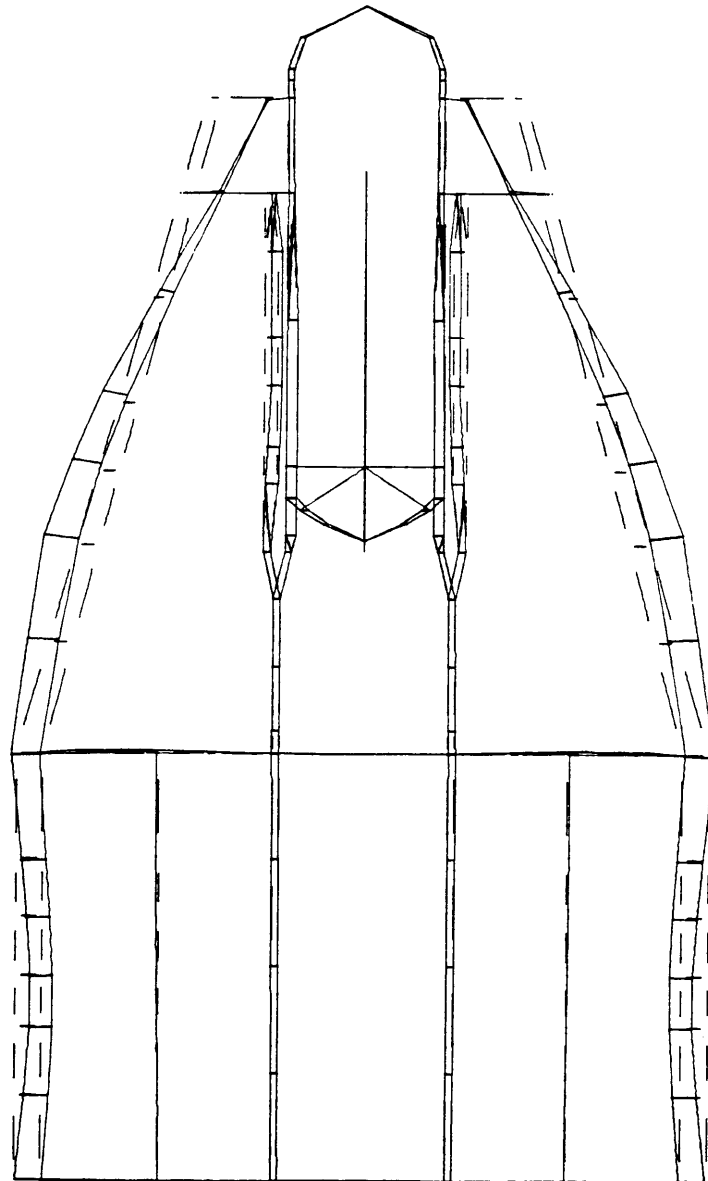
**MODE 15  
(WITH WATER MASS)**

**$f = 26.42 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-62**



**MODE 16  
(WITH WATER MASS)**

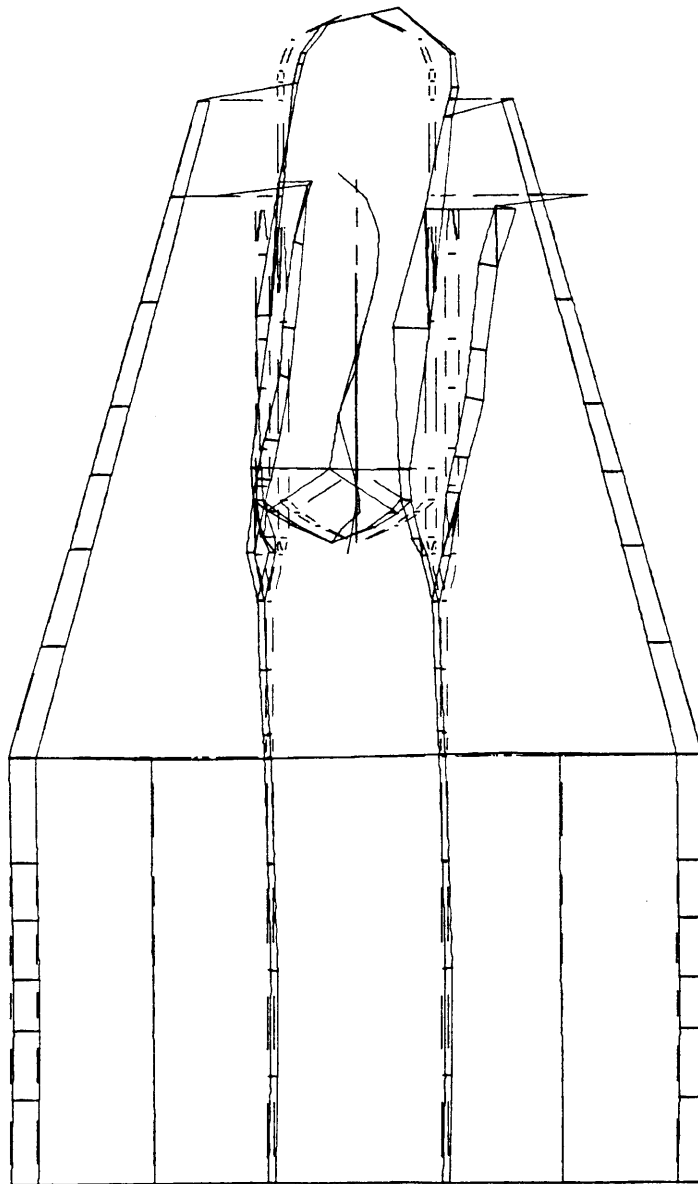
**$f = 27.88 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-63**





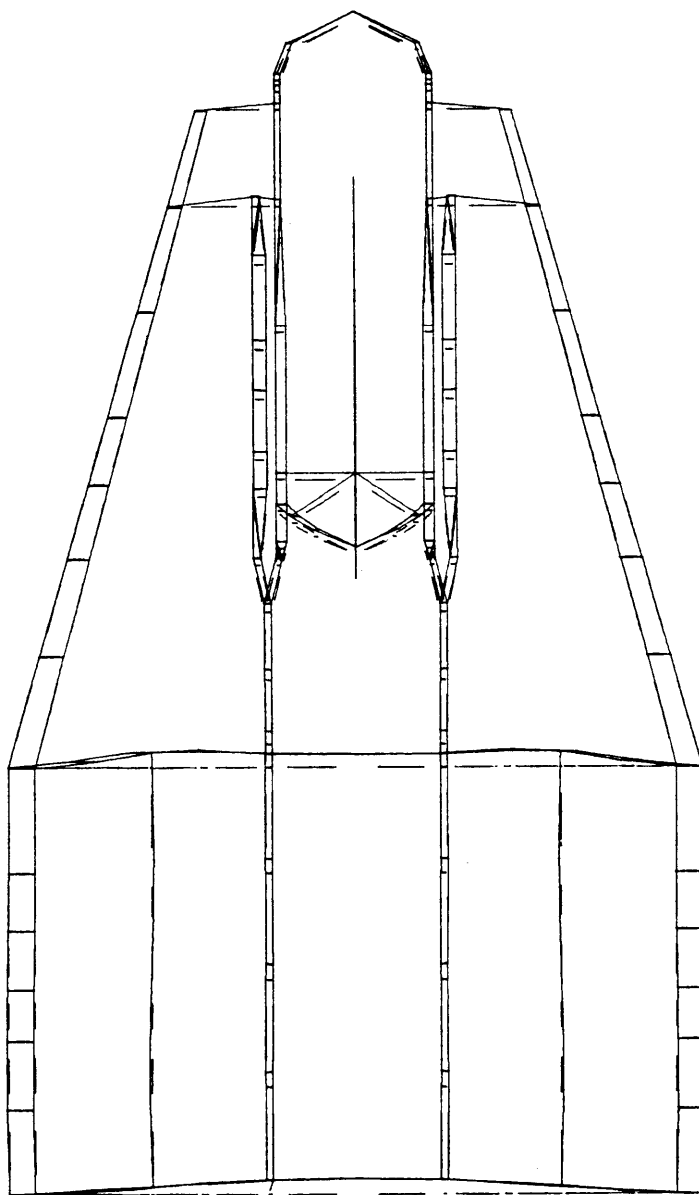
**MODE 17  
(WITH WATER MASS)**

**$f = 28.52 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-64**



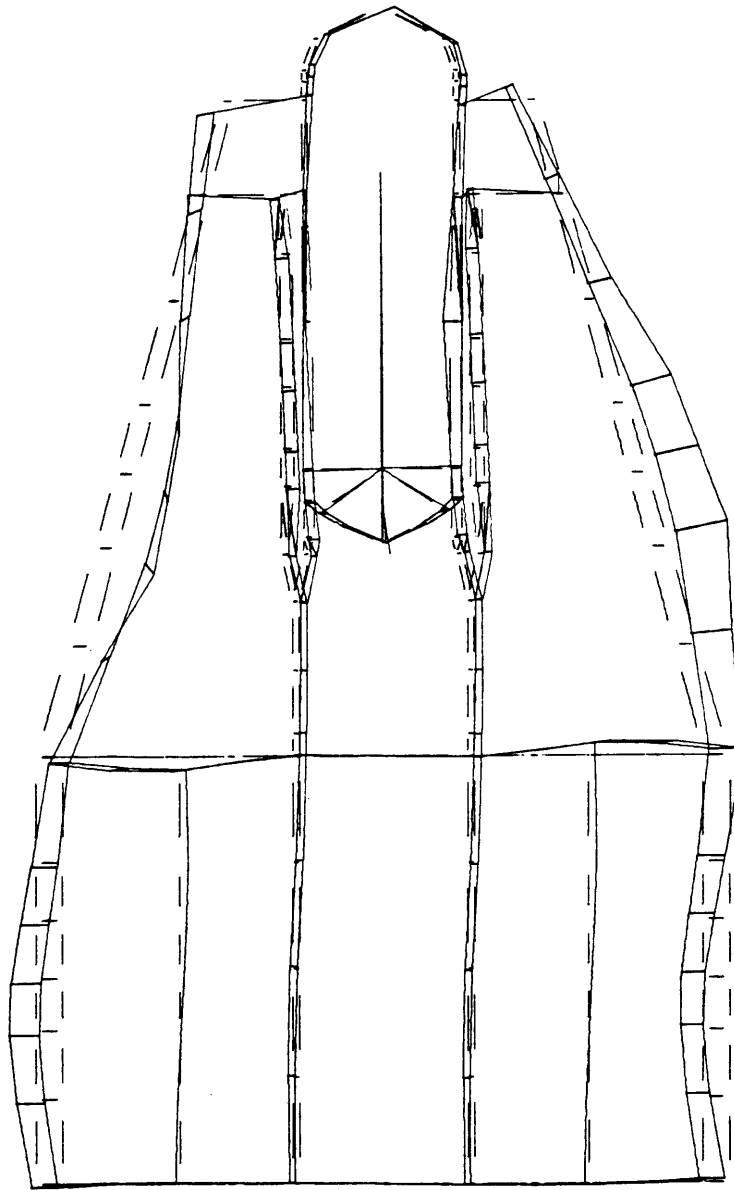
**MODE 18  
(WITH WATER MASS)**

$f = 32.08 \text{ Hz}$

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-65**



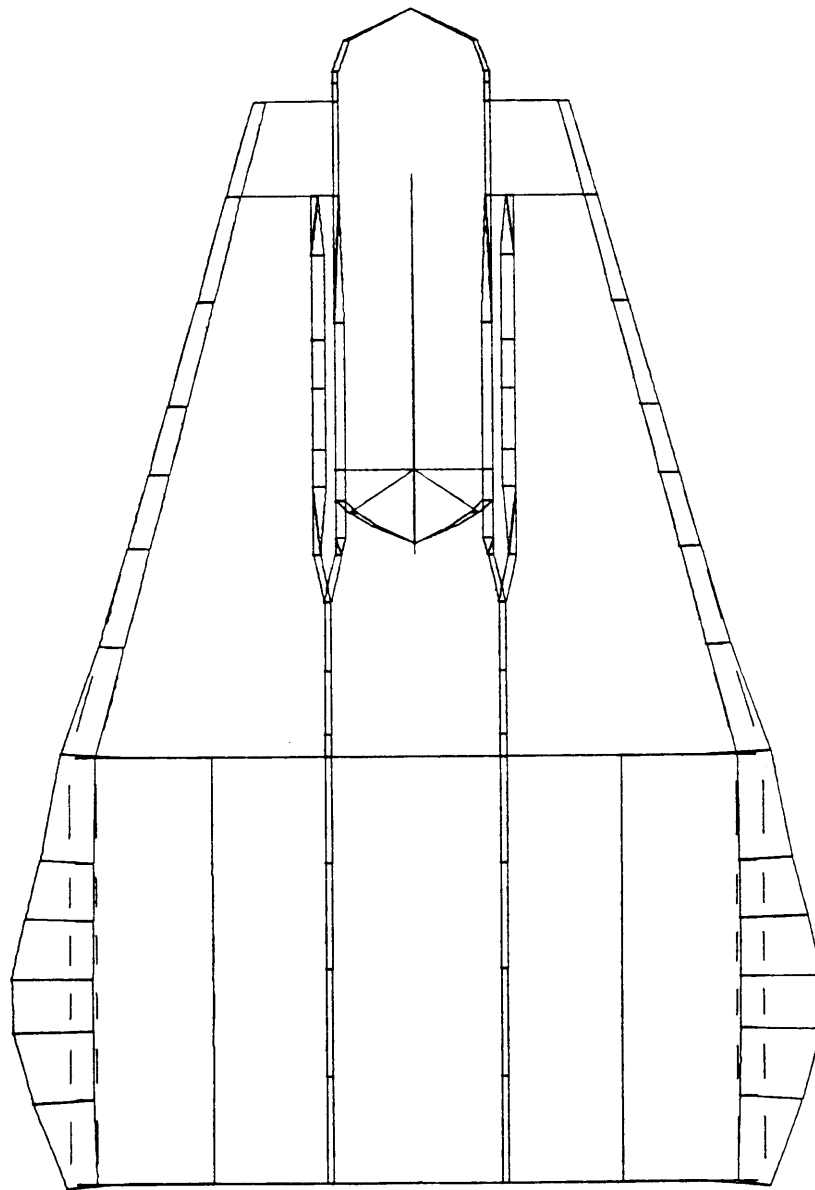
**MODE 19  
(WITH WATER MASS)**

**$f = 32.54 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-66**



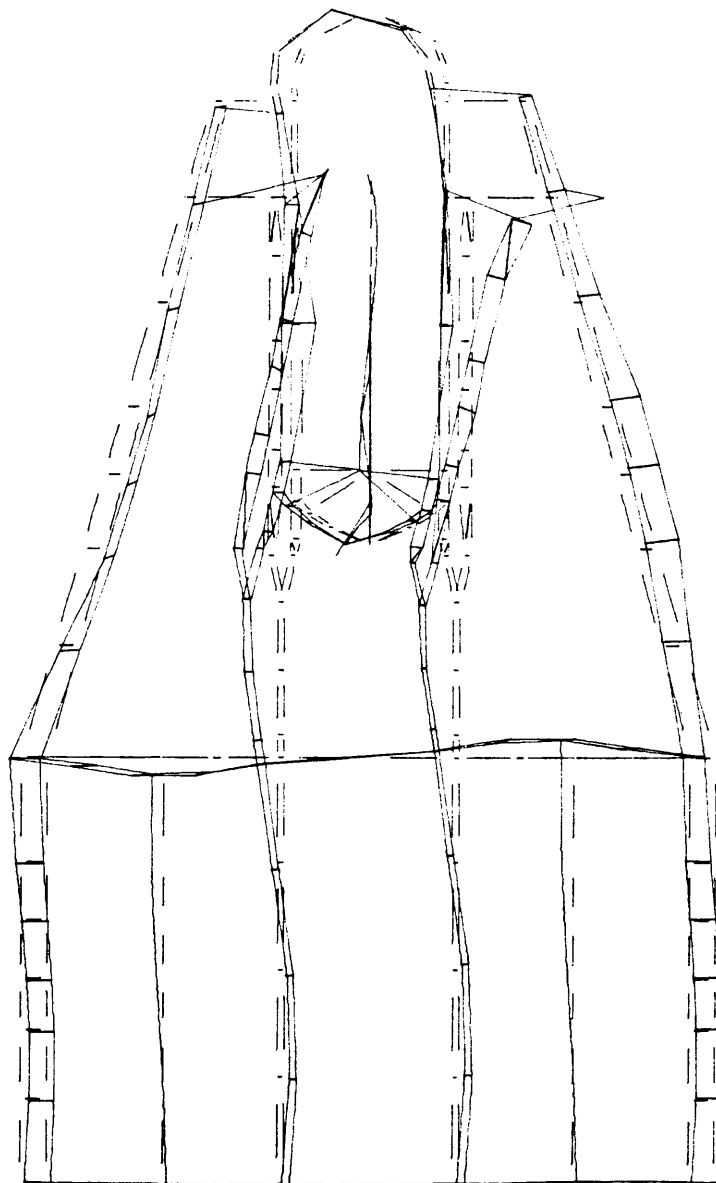
**MODE 20  
(WITH WATER MASS)**

**$f = 34.21 \text{ Hz}$**

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

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CONTAINMENT MODE SHAPES**

**FIGURE 3A-67**



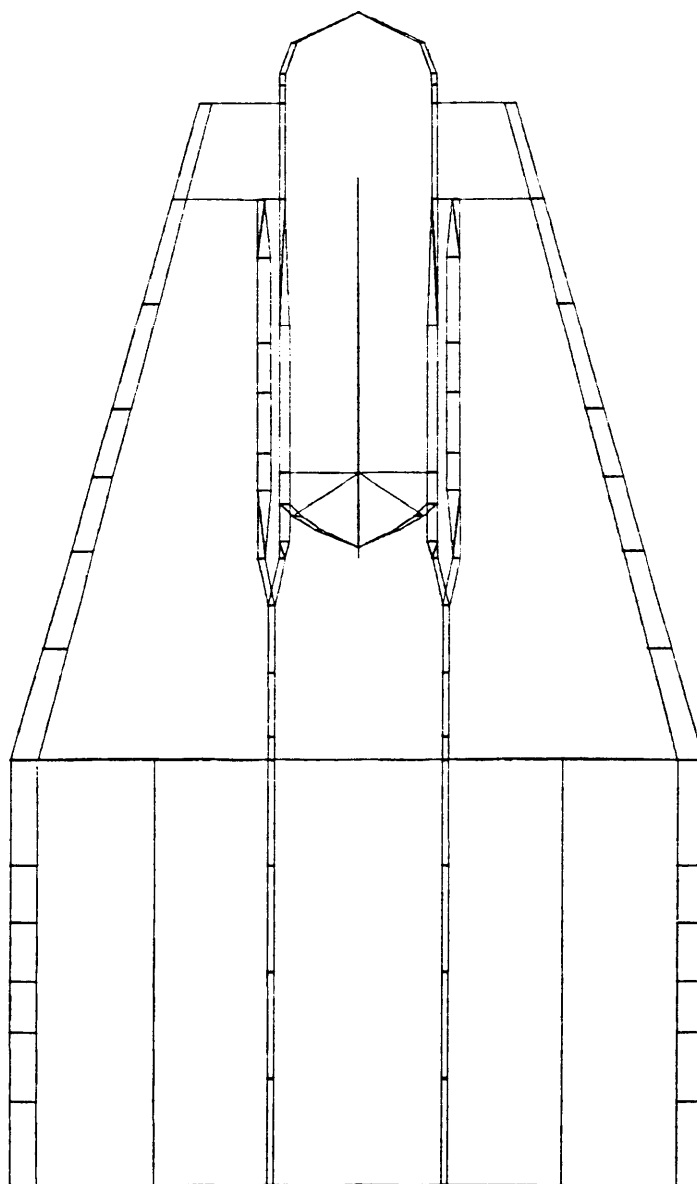
**MODE 21  
(WITH WATER MASS)**

**$f = 34.87 \text{ Hz}$**

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**FIGURE 3A-68**



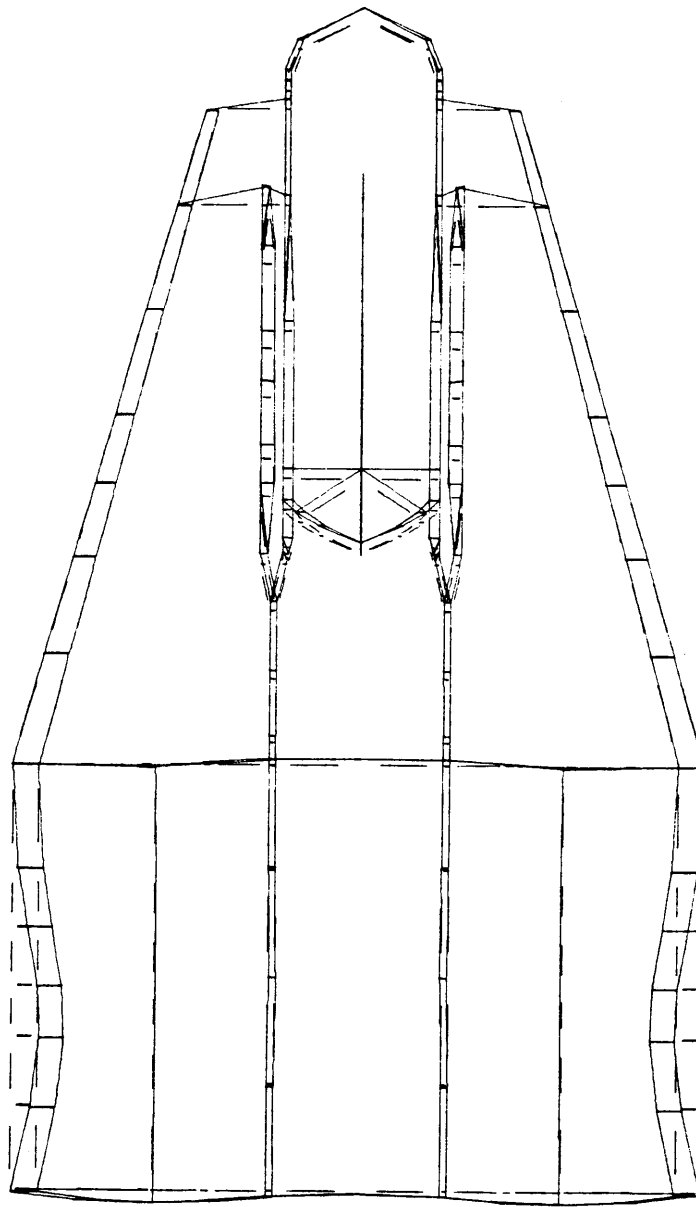
**MODE 22  
(WITH WATER MASS)**

**$f = 36.78 \text{ Hz}$**

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**DESIGN ASSESSMENT REPORT  
CONTAINMENT MODE SHAPES**

**FIGURE 3A-69**



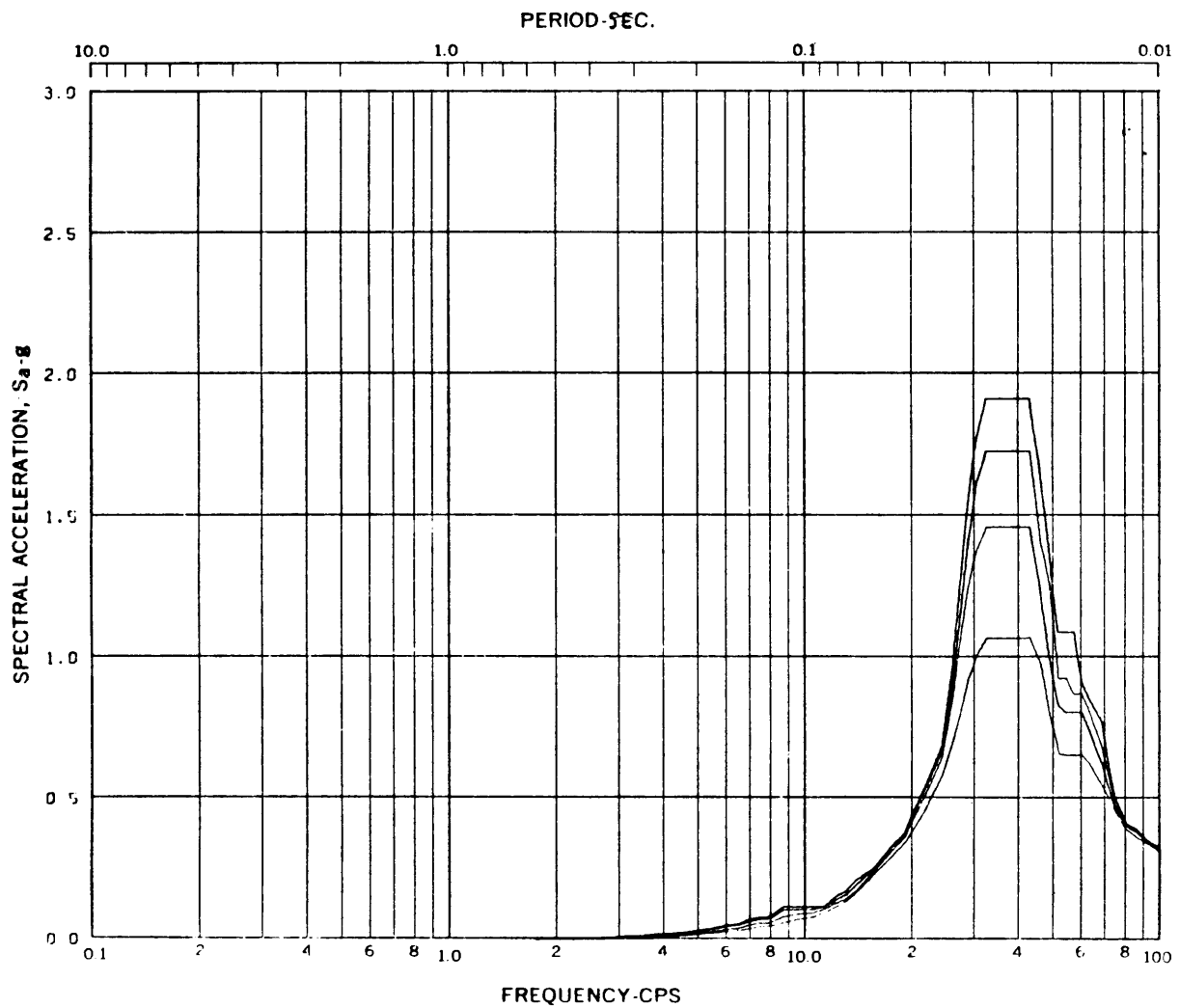
**MODE 23  
(WITH WATER MASS)**

**$f = 39.31 \text{ Hz}$**

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**FIGURE 3A-70**



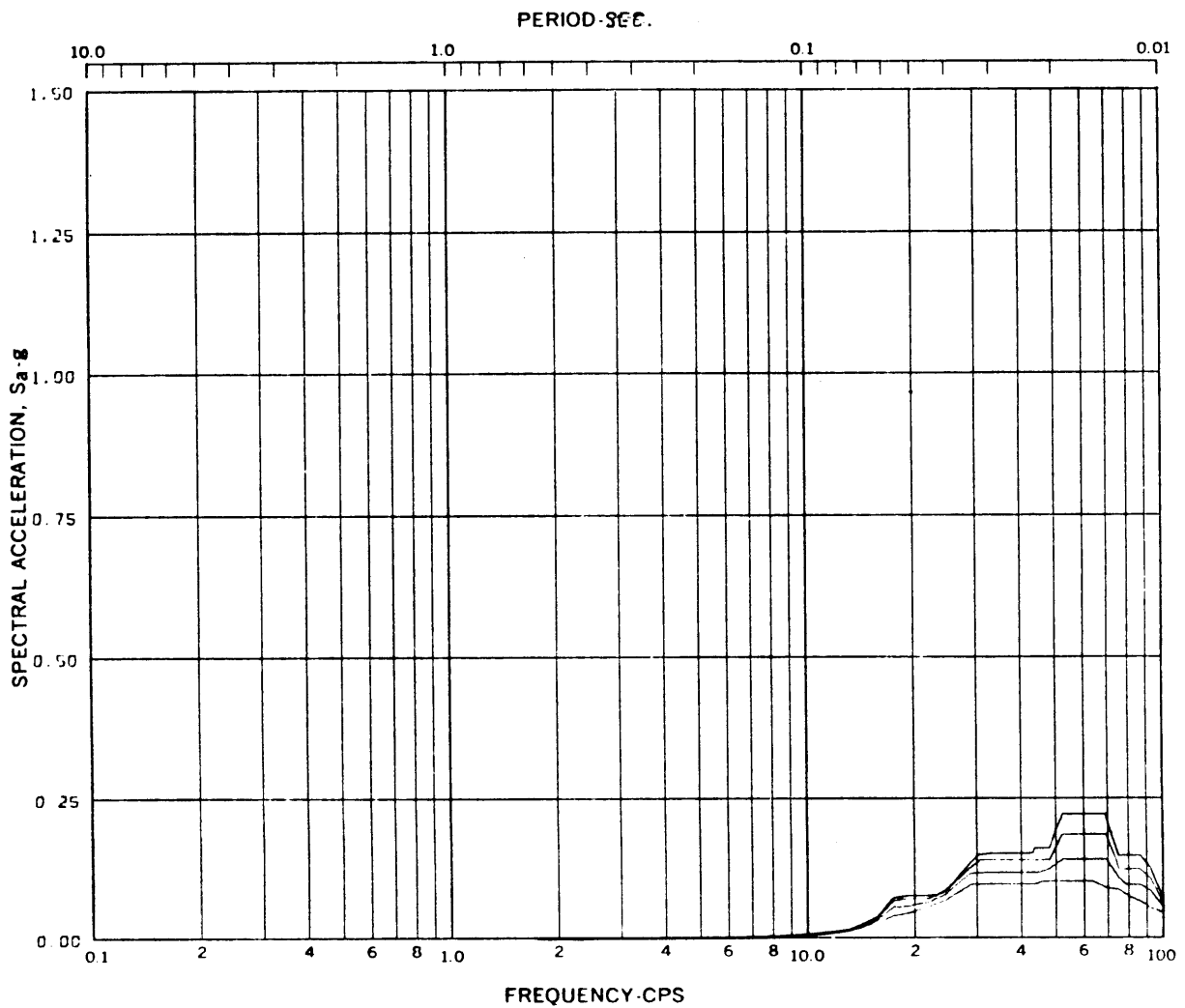
Acceleration Spectra for WETWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 131 Direction: HORIZ Elev: 205'-11" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 DIRECTION X

FIGURE 3A-71





Acceleration Spectra for WETWELL WALL

Load Case: SRV - AXISYMMETRIC

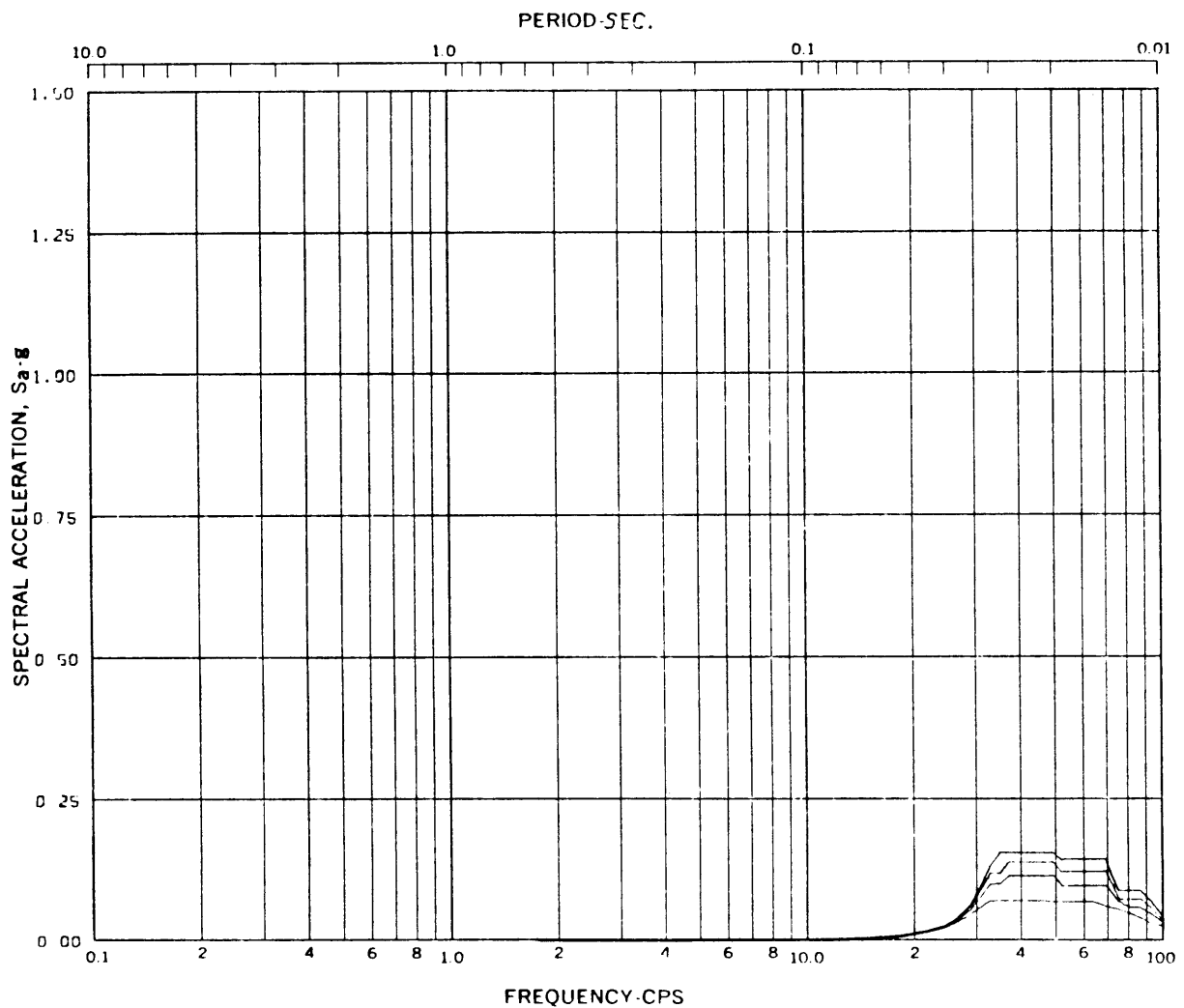
Node: 291 Direction: HORIZ Elev: 236'-2" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

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FIGURE 3A-72

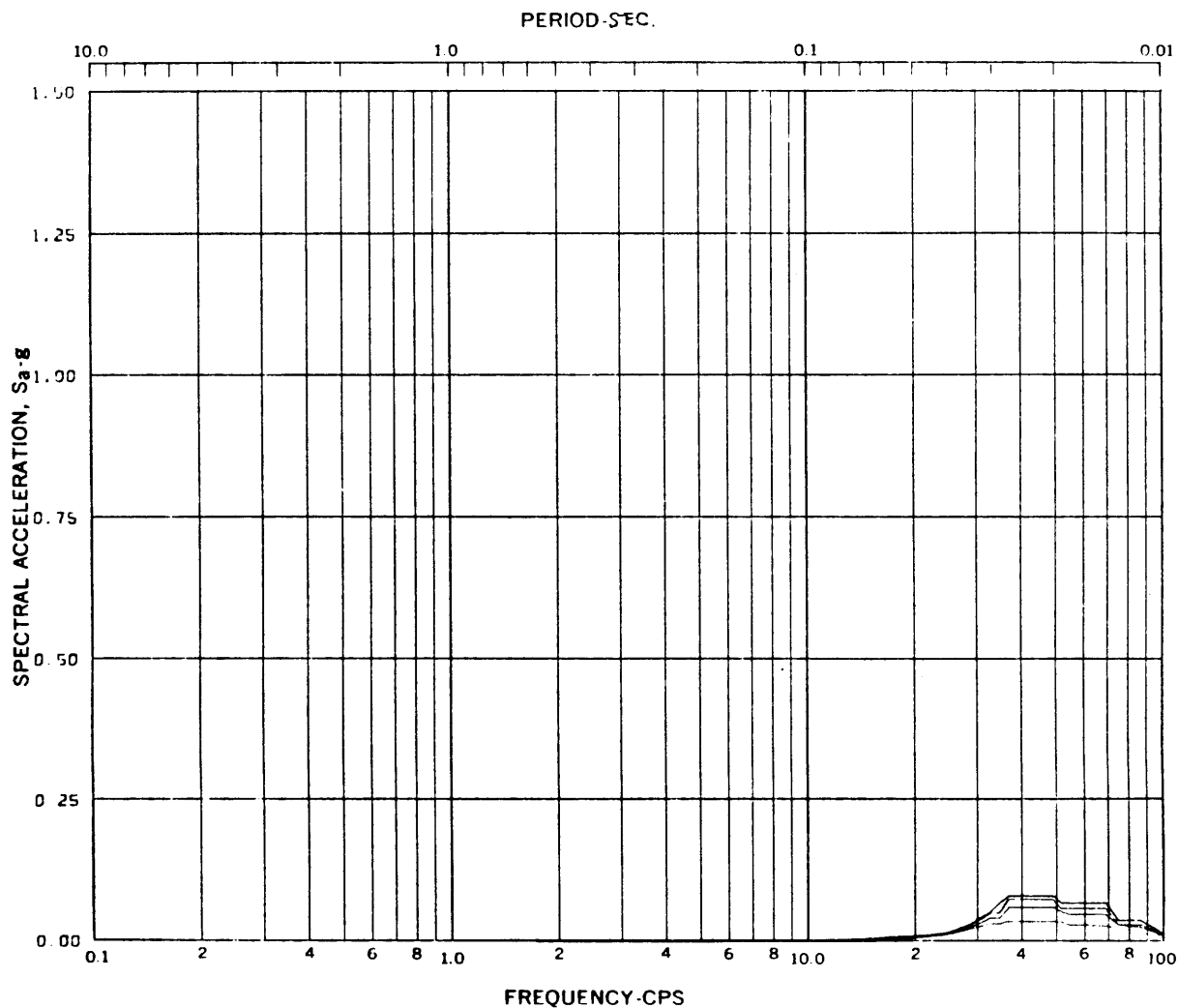


Acceleration Spectra for DRYWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 331 Direction: HORIZ Elev: 264'-6" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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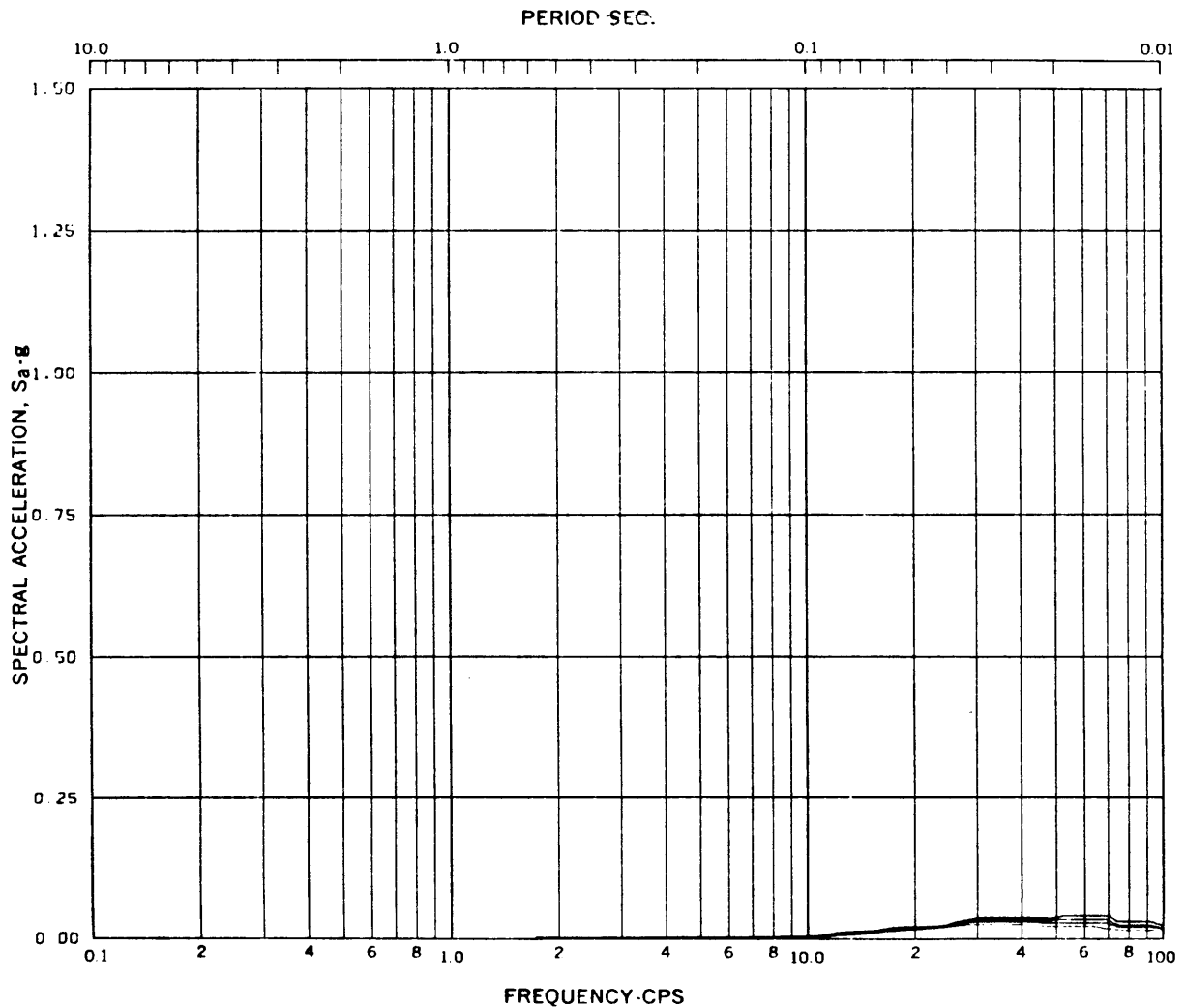
FIGURE 3A-73



Acceleration Spectra for DRYWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 431 Direction: HORIZ Elev: 325'-8" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 SRV AXISYMMETRIC  
 DIRECTION X

FIGURE 3A-74



Acceleration Spectra for PEDESTAL

Load Case: SRV - AXISYMMETRIC

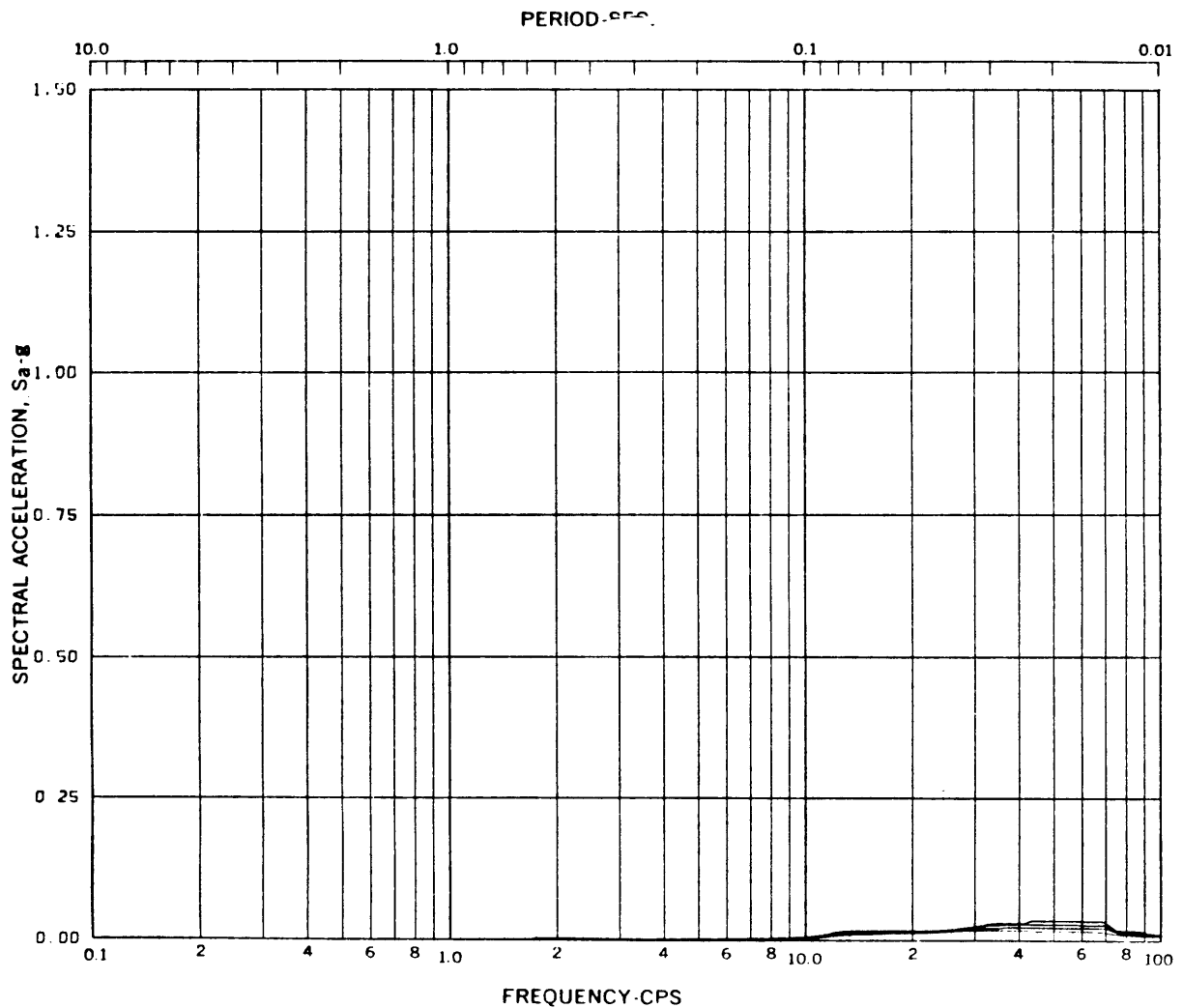
Node: 211 Direction: HORIZ Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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DIRECTION X

FIGURE 3A-75



Acceleration Spectra for PEDESTAL

Load Case: SRV - AXISYMMETRIC

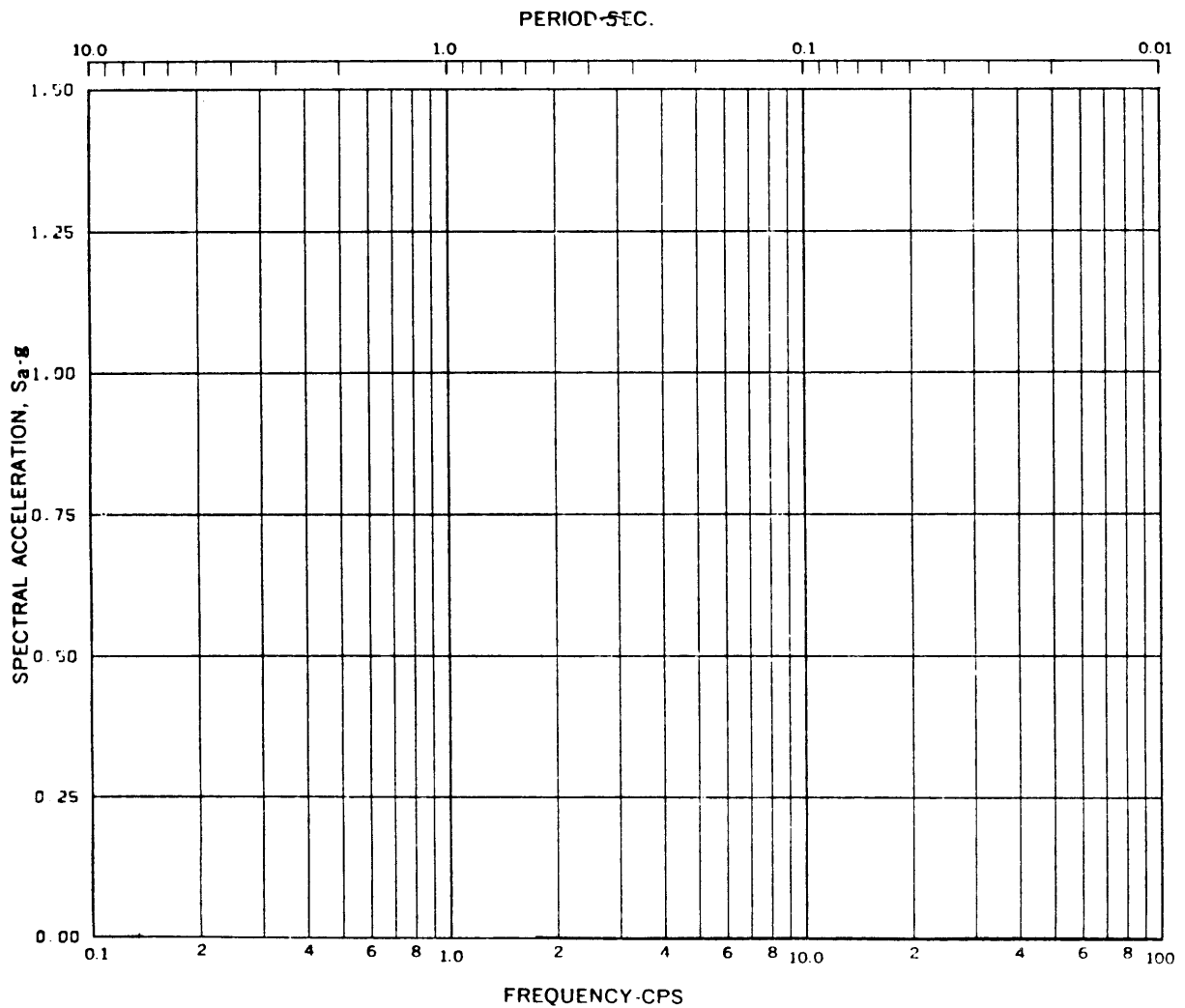
Node: 531 Direction: HORIZ Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-76



Acceleration Spectra for SHIELD WALL

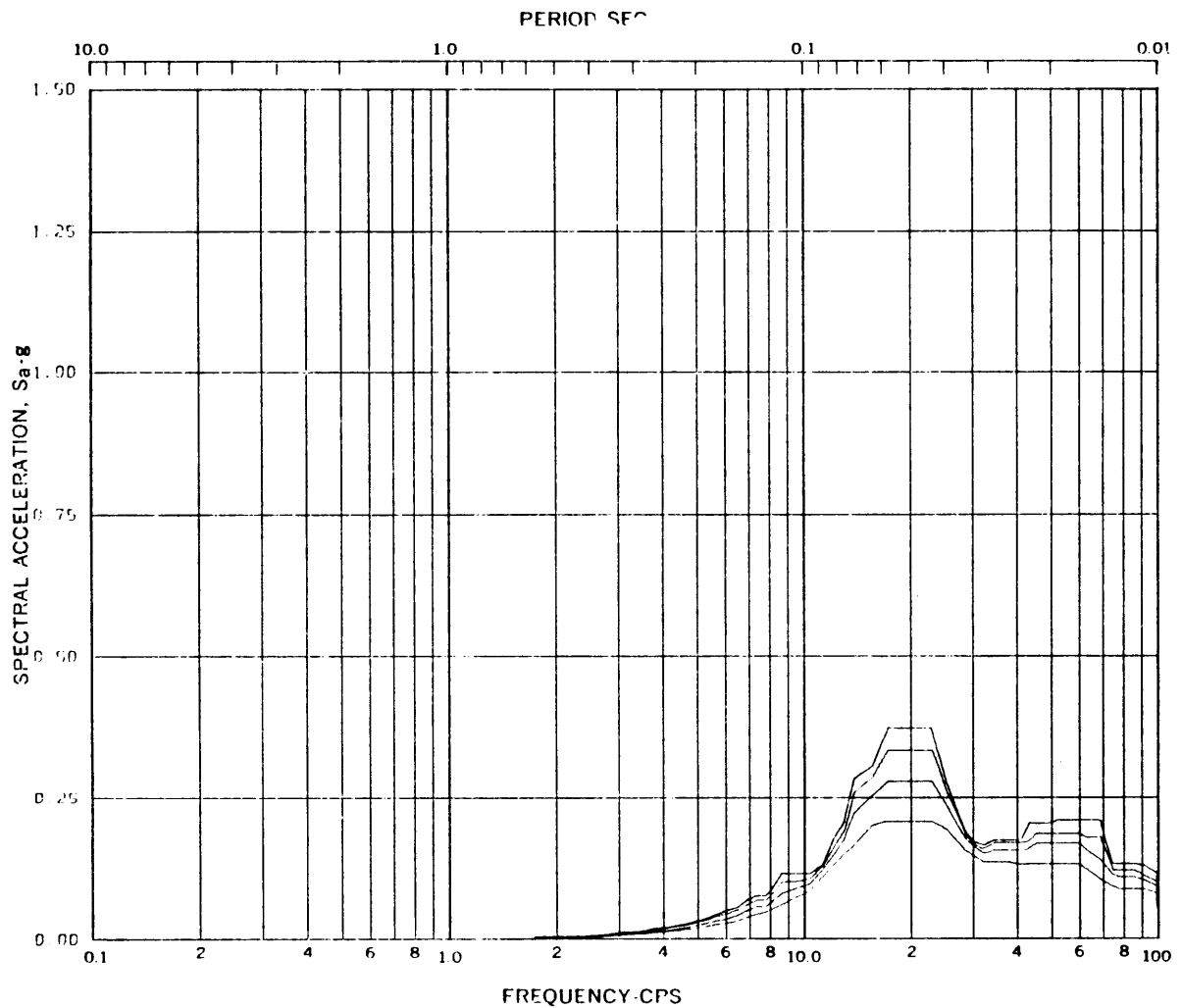
Load Case: SRV - AXISYMMETRIC

Node: 841 Direction: HORIZ Elev: 312'-8" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

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SRV AXISYMMETRIC  
DIRECTION X

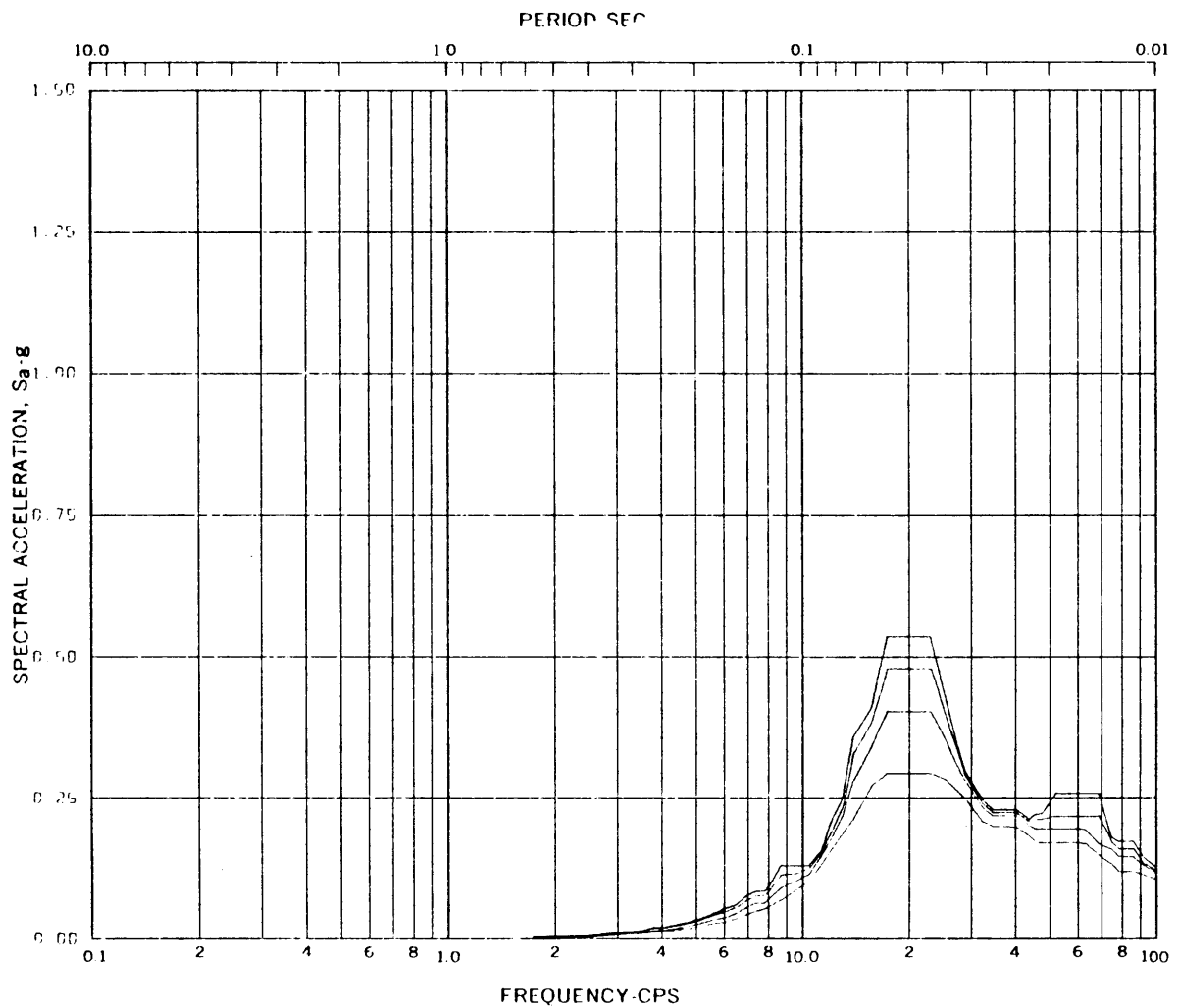
FIGURE 3A-77



Acceleration Spectra for WETWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 131 Direction: VERT Elev: 205'-11" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 SRV AXISYMMETRIC  
 DIRECTION Z

FIGURE 3A-78



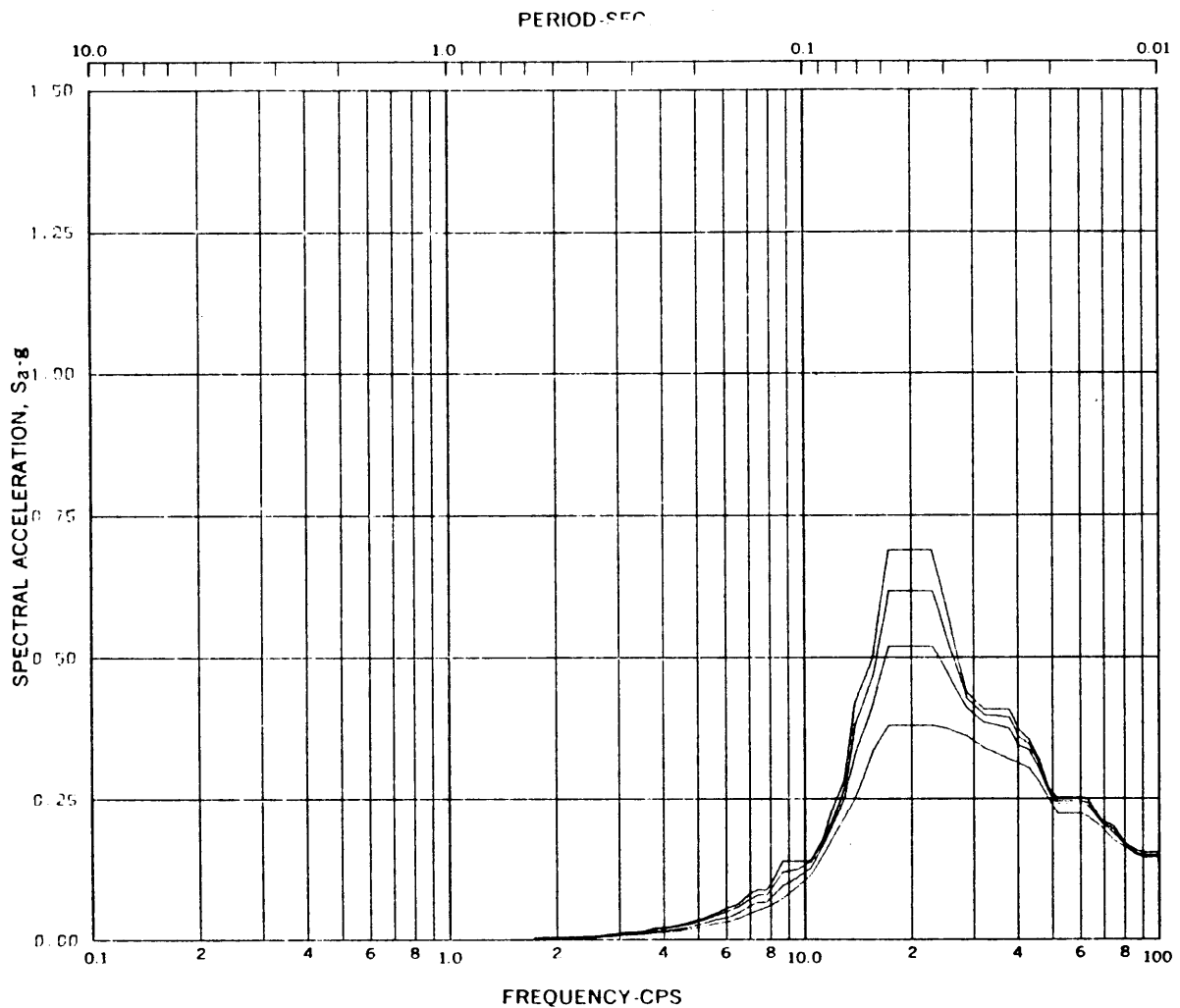
Acceleration Spectra for WETWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 291 Direction: VERT Elev: 236'-2" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-79

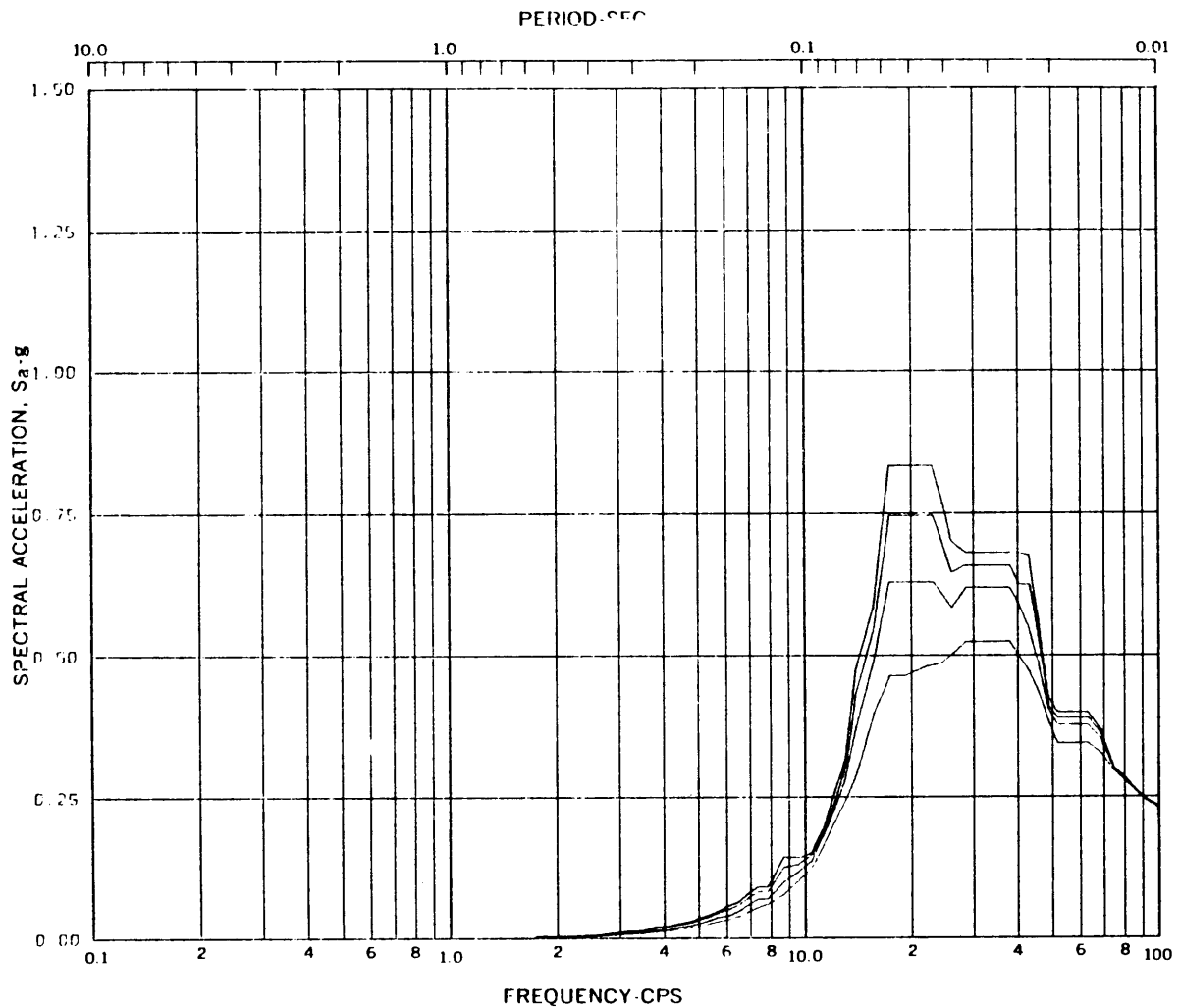




Acceleration Spectra for DRYWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 331 Direction: VERT Elev: 264'-6" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-80

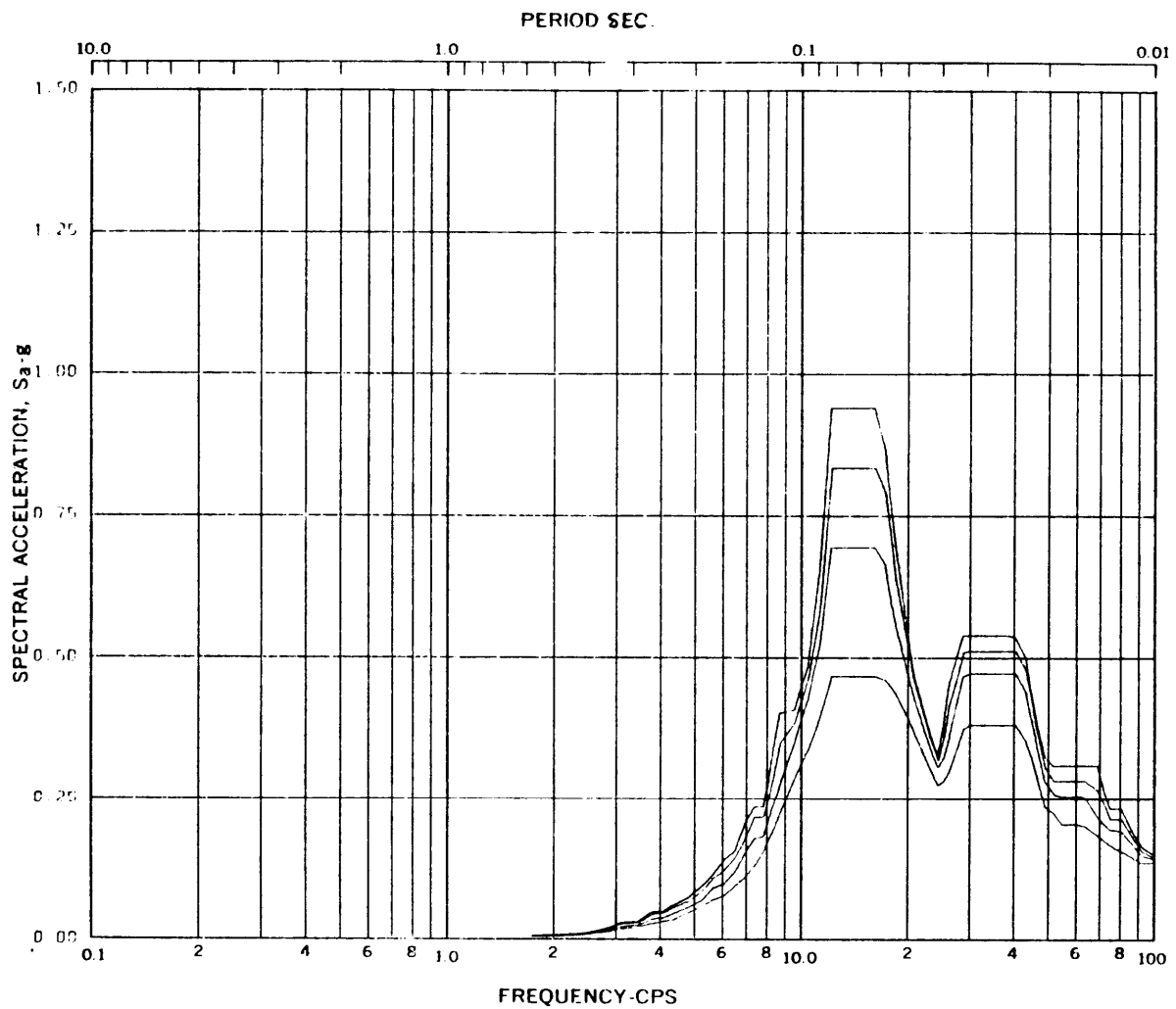


Acceleration Spectra for DRYWELL WALL  
 Load Case: SRV - AXISYMMETRIC  
 Node: 431 Direction: VERT Elev: 325'-8" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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**FIGURE 3A-81**



Acceleration Spectra for PEDESTAL

Load Case: SRV - AXISYMMETRIC

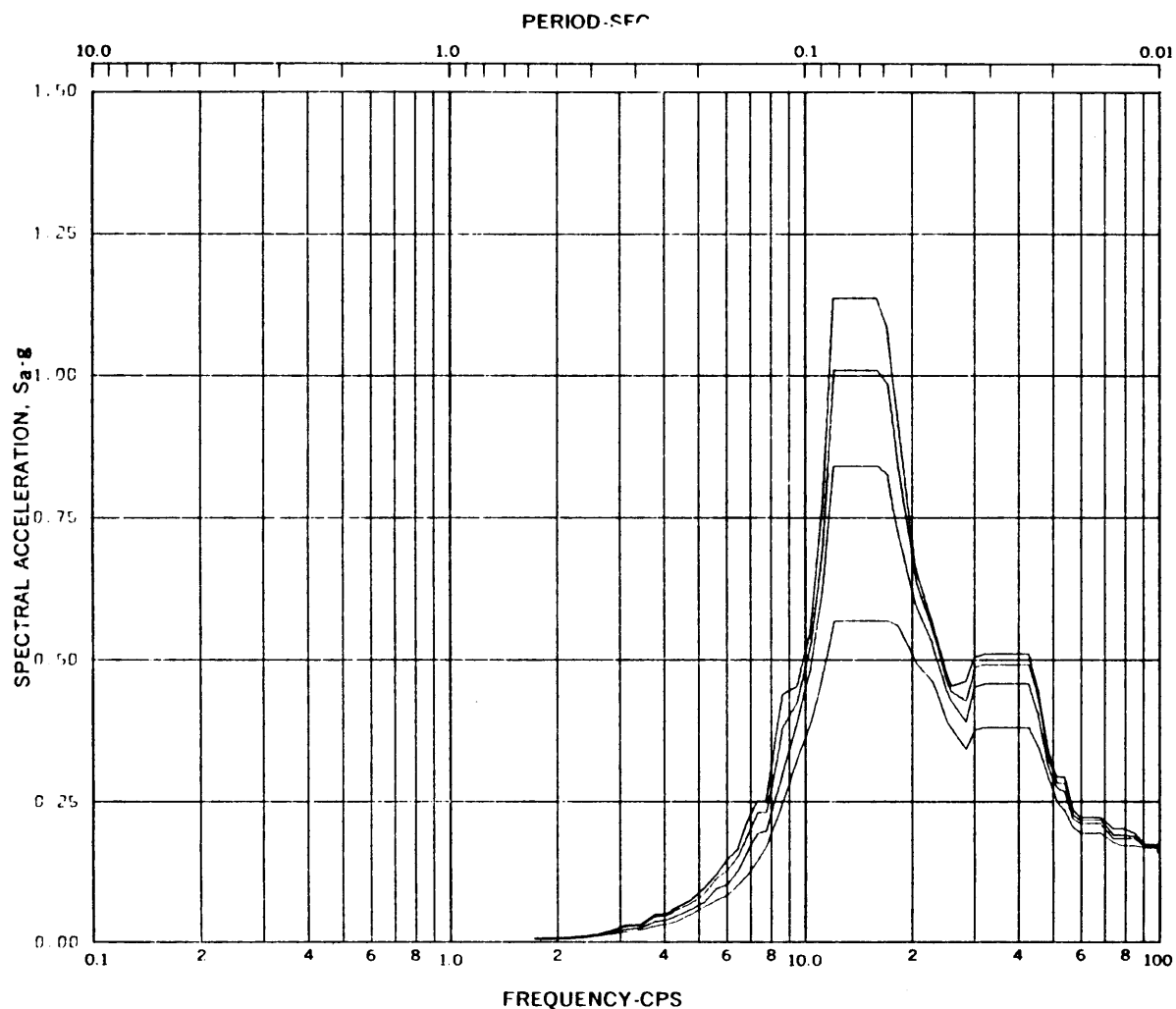
Node: 211 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-82



Acceleration Spectra for PEDESTAL

Load Case: SRV - AXISYMMETRIC

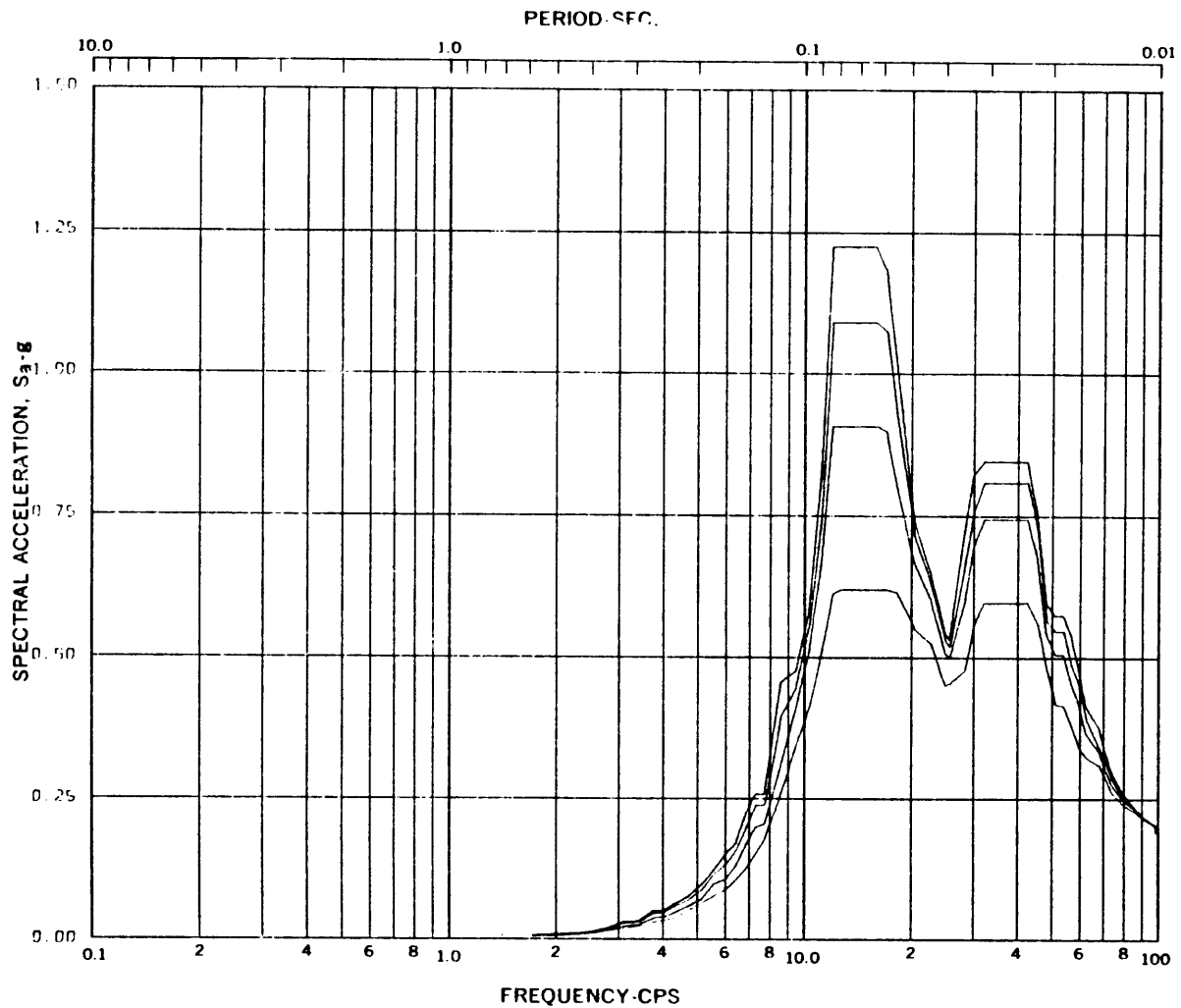
Node: 531 Direction: VERT Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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**FIGURE 3A-83**



Acceleration Spectra for SHIELD WALL

Load Case: SRV - AXISYMMETRIC

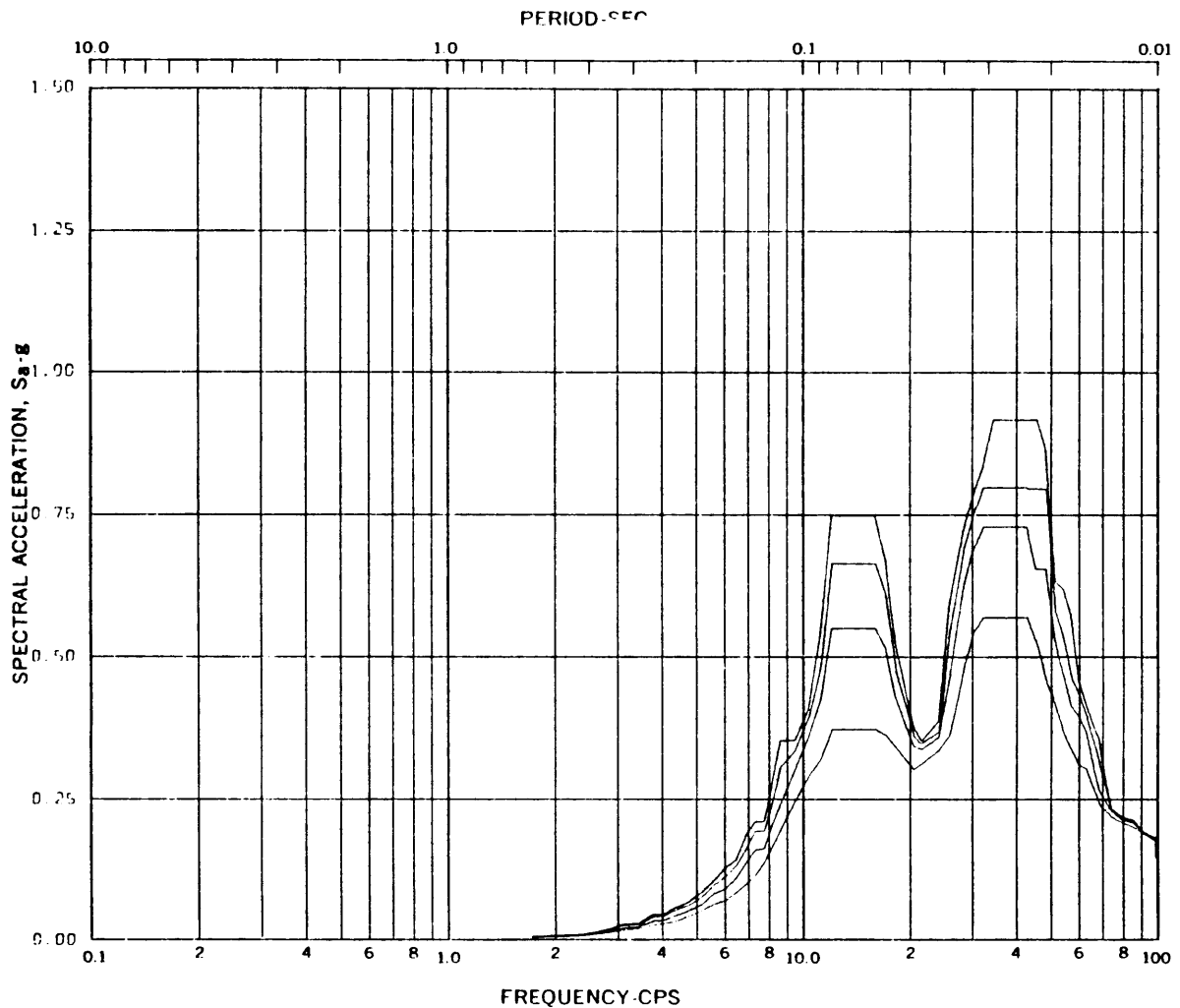
Node: 841 Direction: VERT Elev: 312'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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**FIGURE 3A-84**

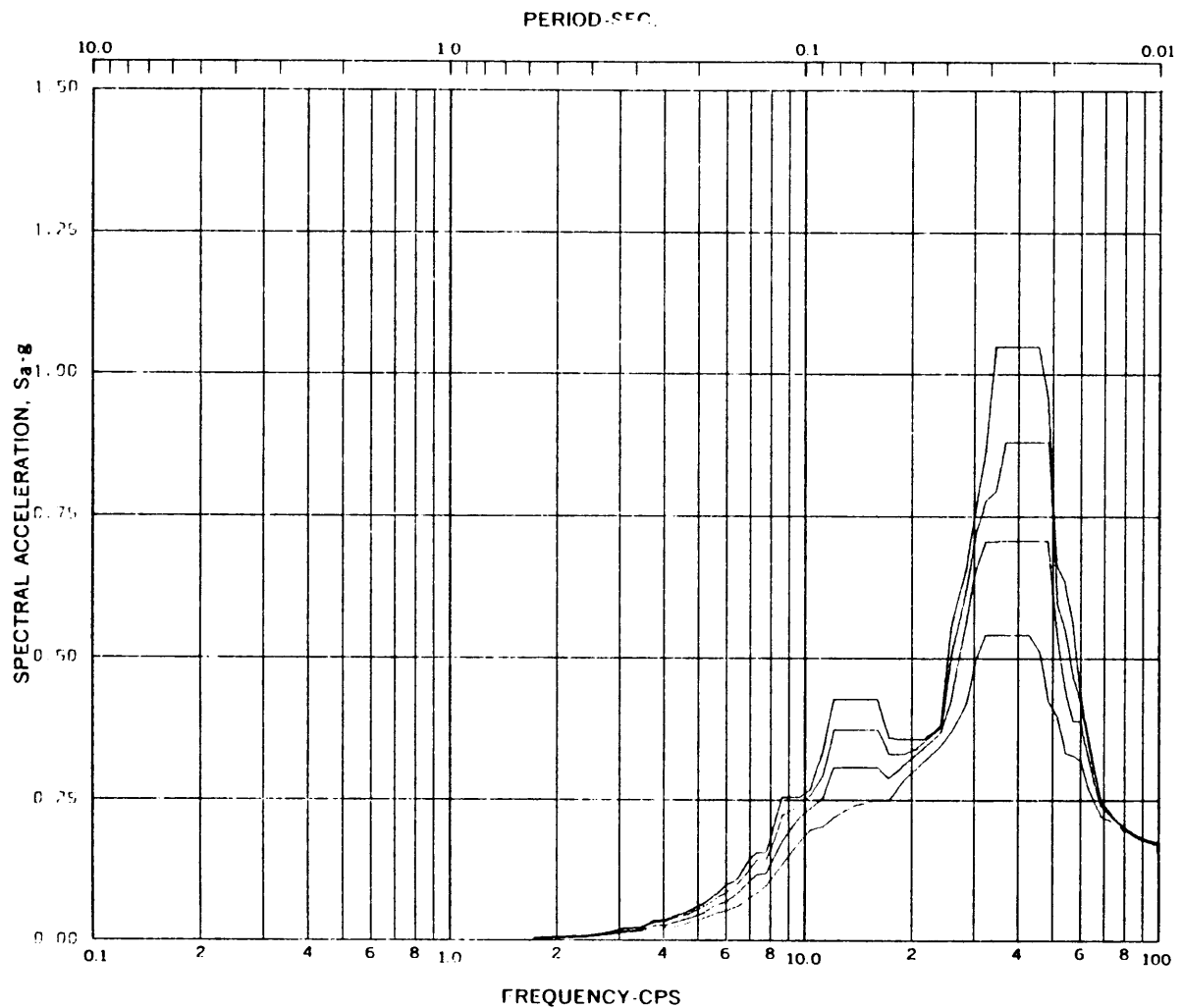


Acceleration Spectra for DIAPHRAGM SLAB  
 Load Case: SRV - AXISYMMETRIC  
 Node: 231 Direction: VERT Elev: 236'-2" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 DIRECTION Z**

**FIGURE 3A-85**



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: SRV - AXISYMMETRIC

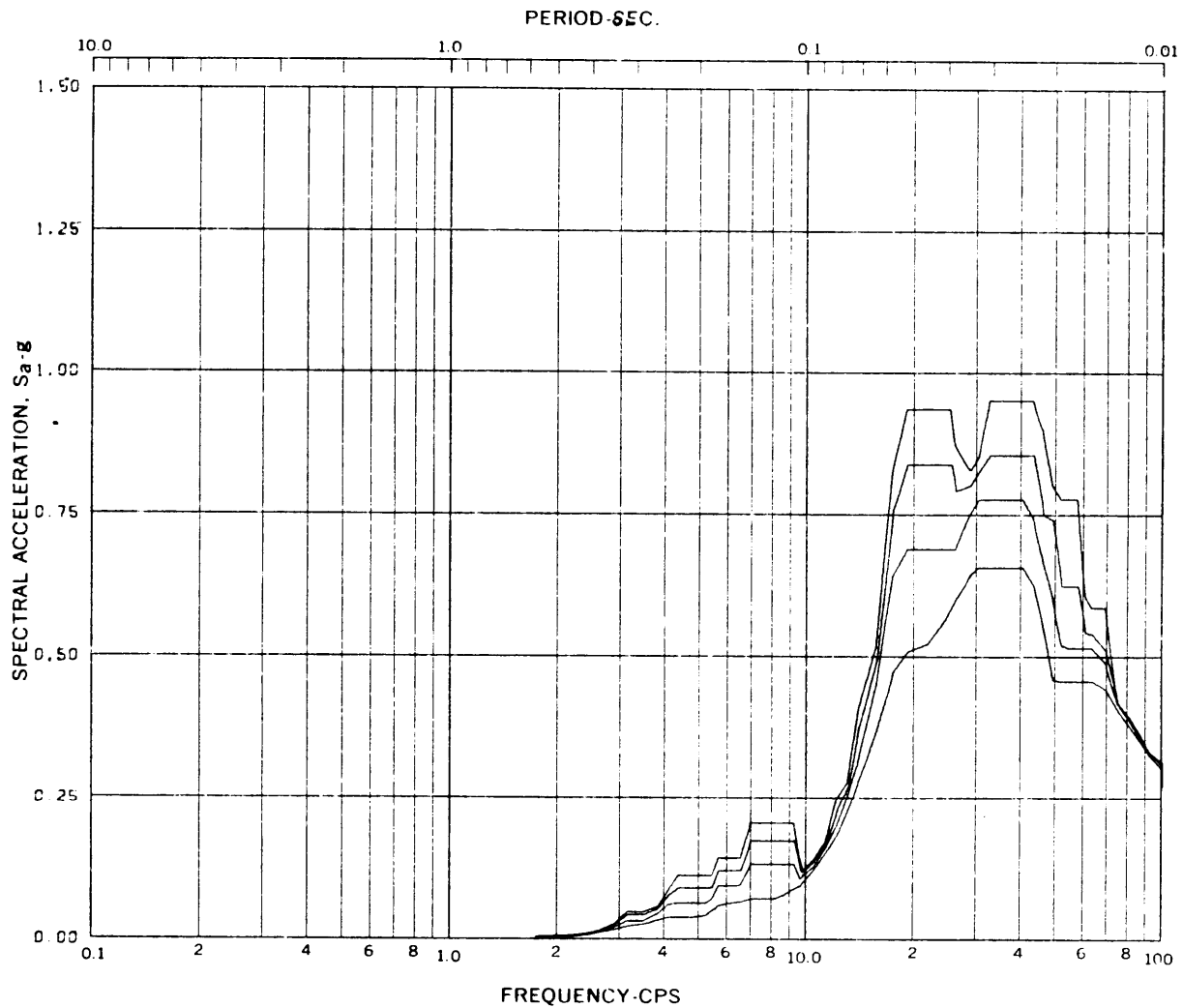
Node: 252 Direction: VERT Elev: 236'-2" Angle: 22°-30'

Damping: 0.005, 0.01, 0.02, 0.05

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DIRECTION Z**

**FIGURE 3A-86**



Acceleration Spectra for WETWELL WALL

Load Case: SRV - ASYMMETRIC

Node: 131 Direction: HORIZ Elev: 205'-11" Angle: 0°

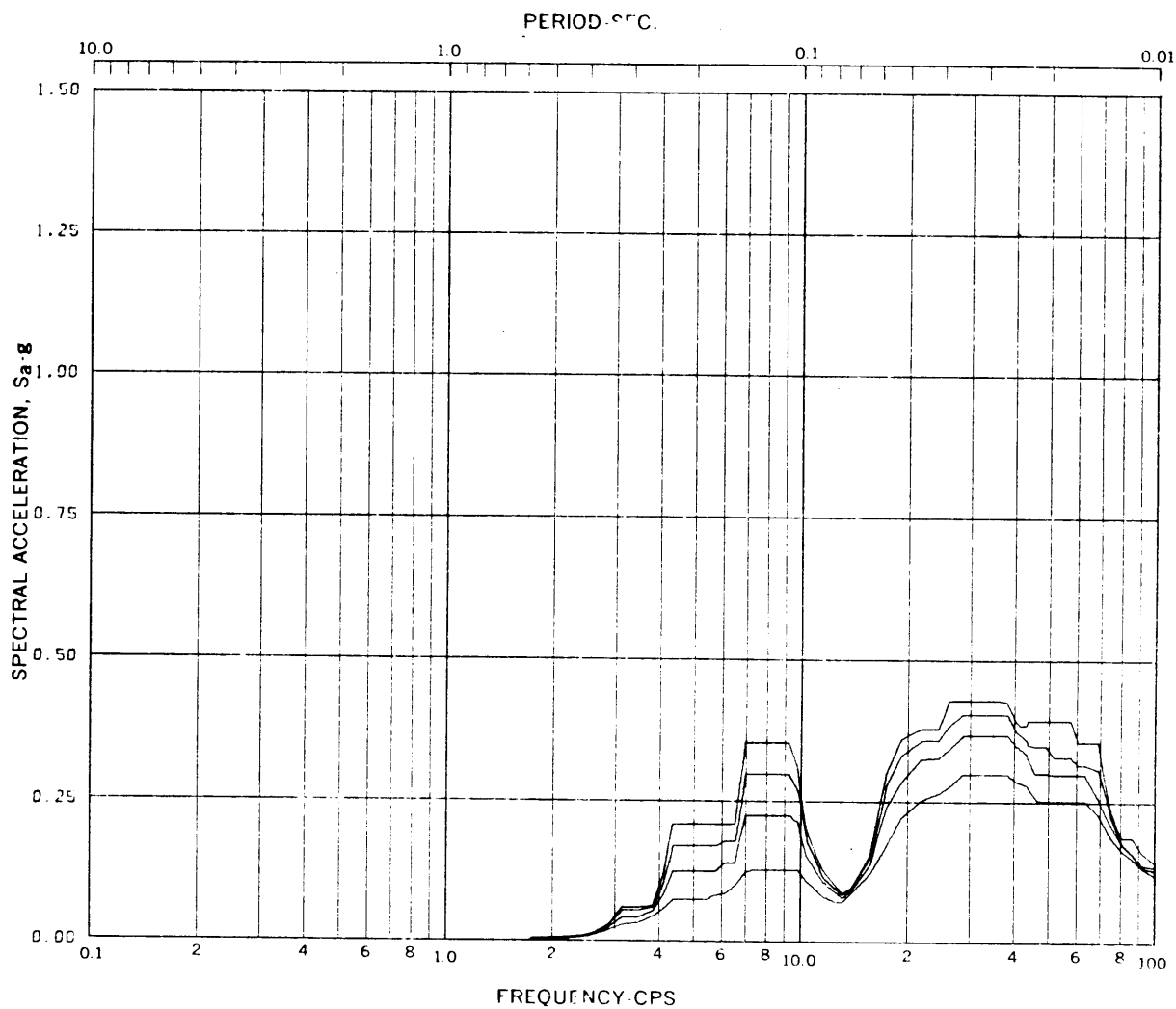
Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-87



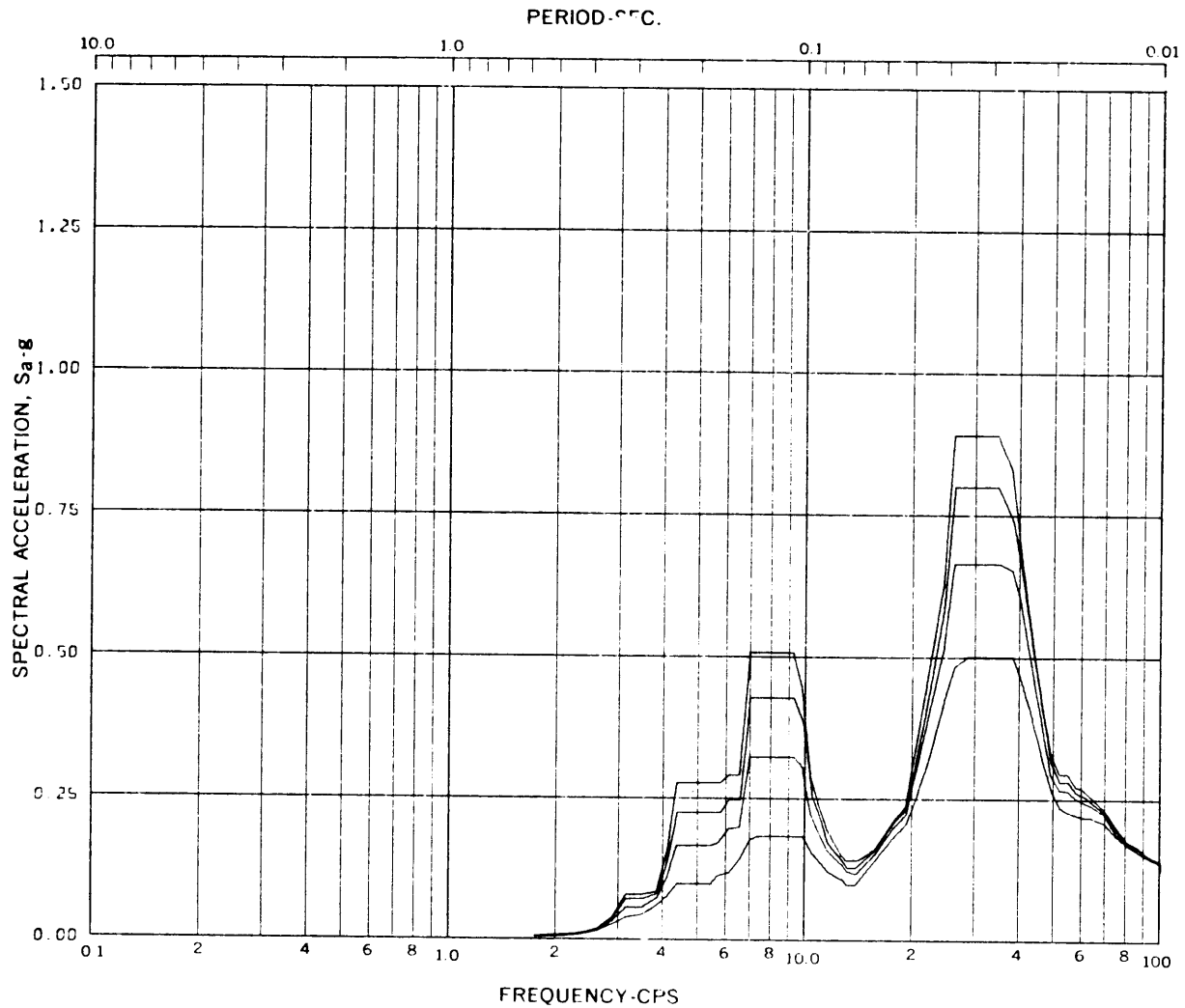


Acceleration Spectra for WETWELL WALL  
 Load Case: SRV - ASYMMETRIC  
 Node: 291 Direction: HORIZ Elev: 236'-2" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-88



Acceleration Spectra for DRYWELL WALL

Load Case: SRV - ASYMMETRIC

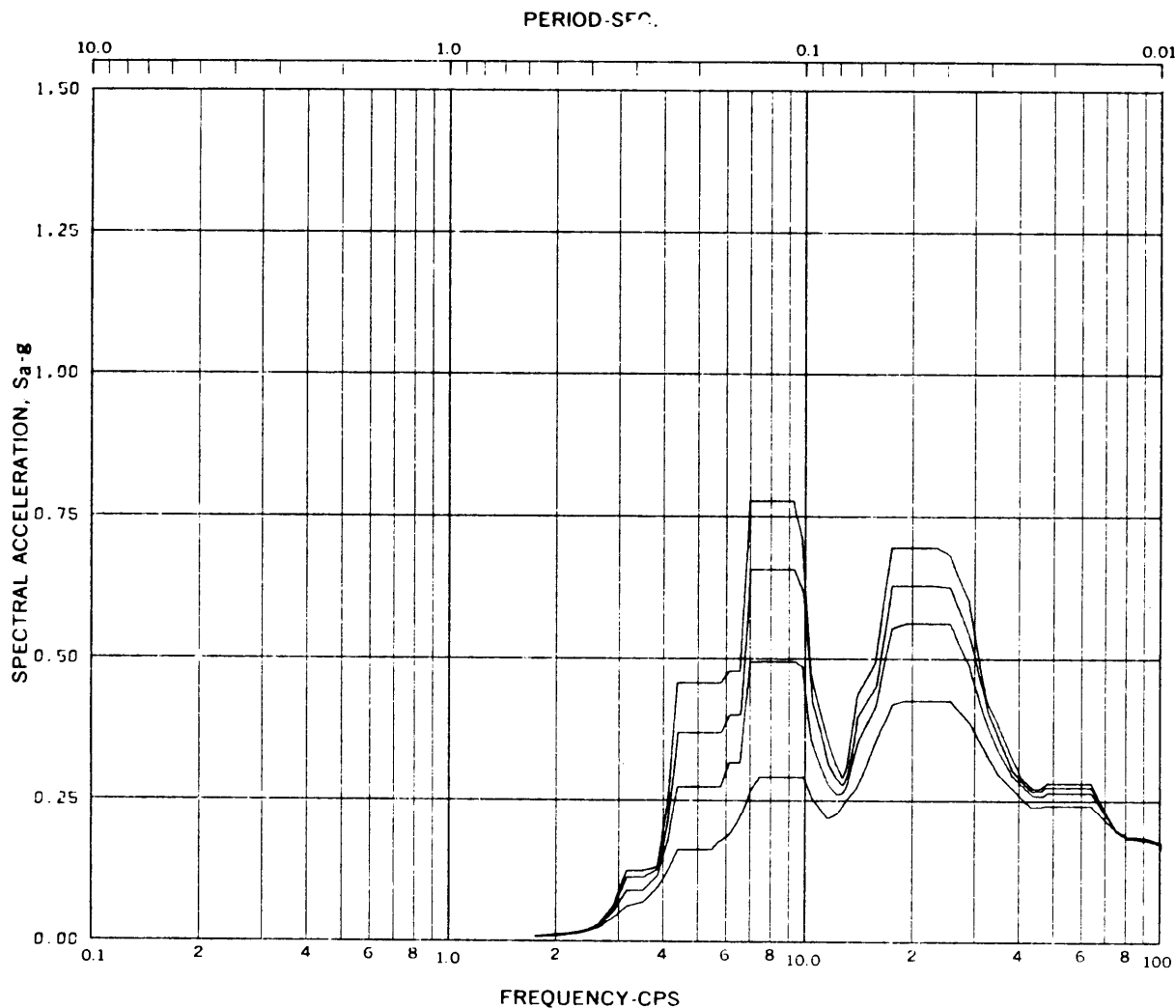
Node: 331 Direction: HORIZ Elev: 264'-6" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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**FIGURE 3A-89**

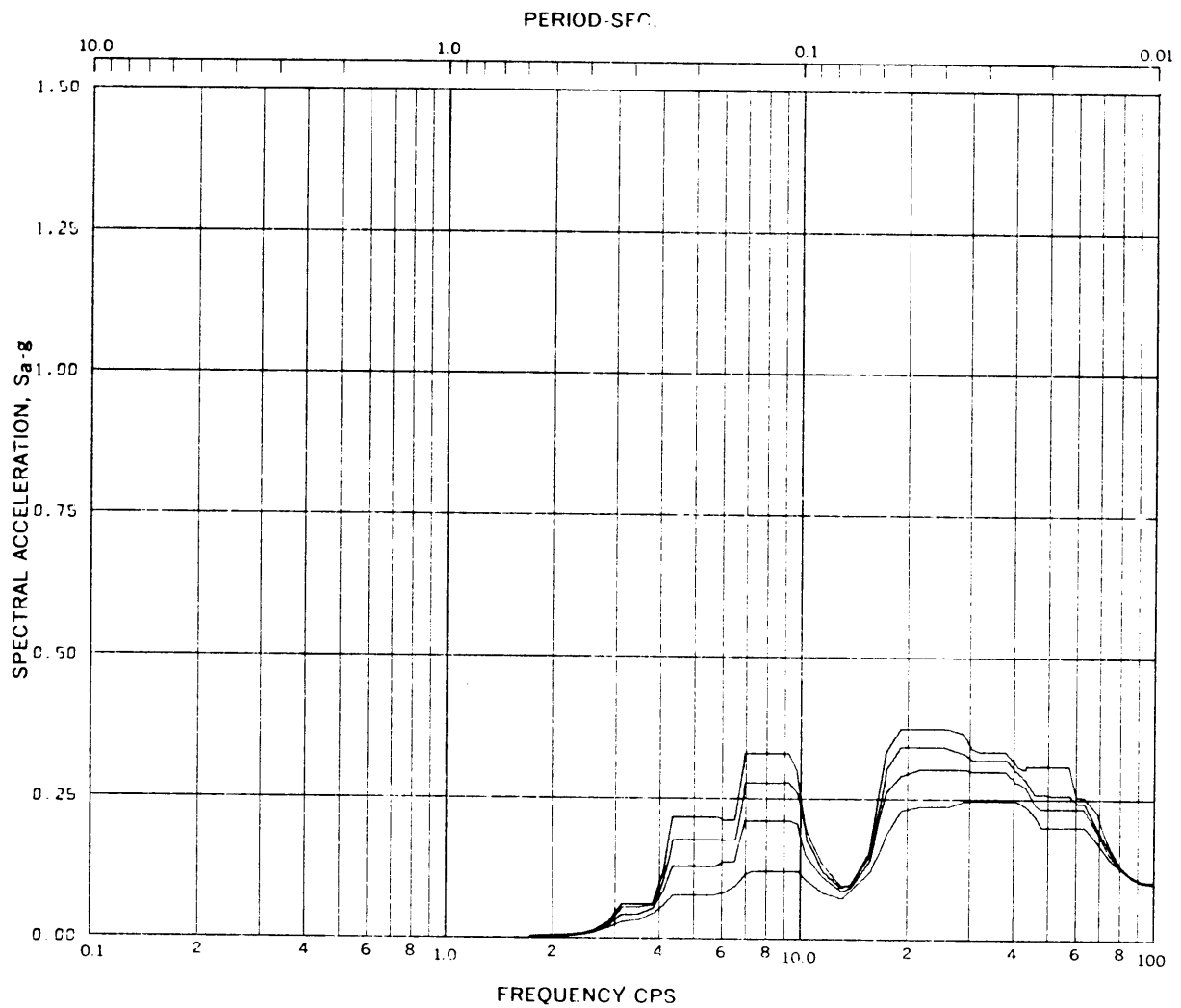


Acceleration Spectra for DRYWELL WALL  
 Load Case: SRV - ASYMMETRIC  
 Node: 431 Direction: HORIZ Elev: 325'-8" Angle: 0°  
 Damping: 0.005,0.01,0.02,0.05

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FIGURE 3A-90

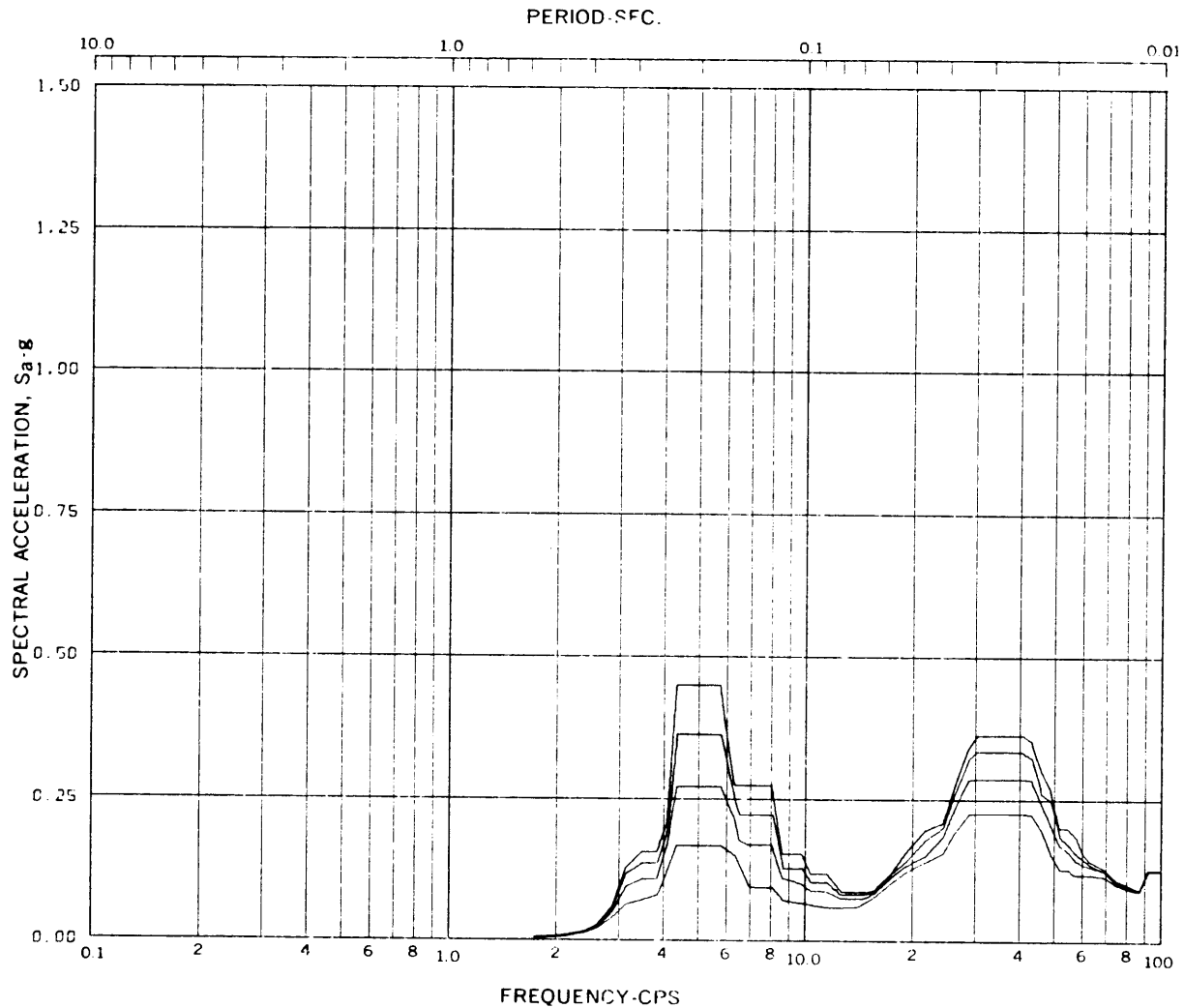


Acceleration Spectra for PEDESTAL  
 Load Case: SRV - ASYMMETRIC  
 Node: 211 Direction: HORIZ Elev: 236'-2" Angle: 0°  
 Damping: 0.005,0.01,0.02,0.05

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FIGURE 3A-91



Acceleration Spectra for PEDESTAL

Load Case: SRV - ASYMMETRIC

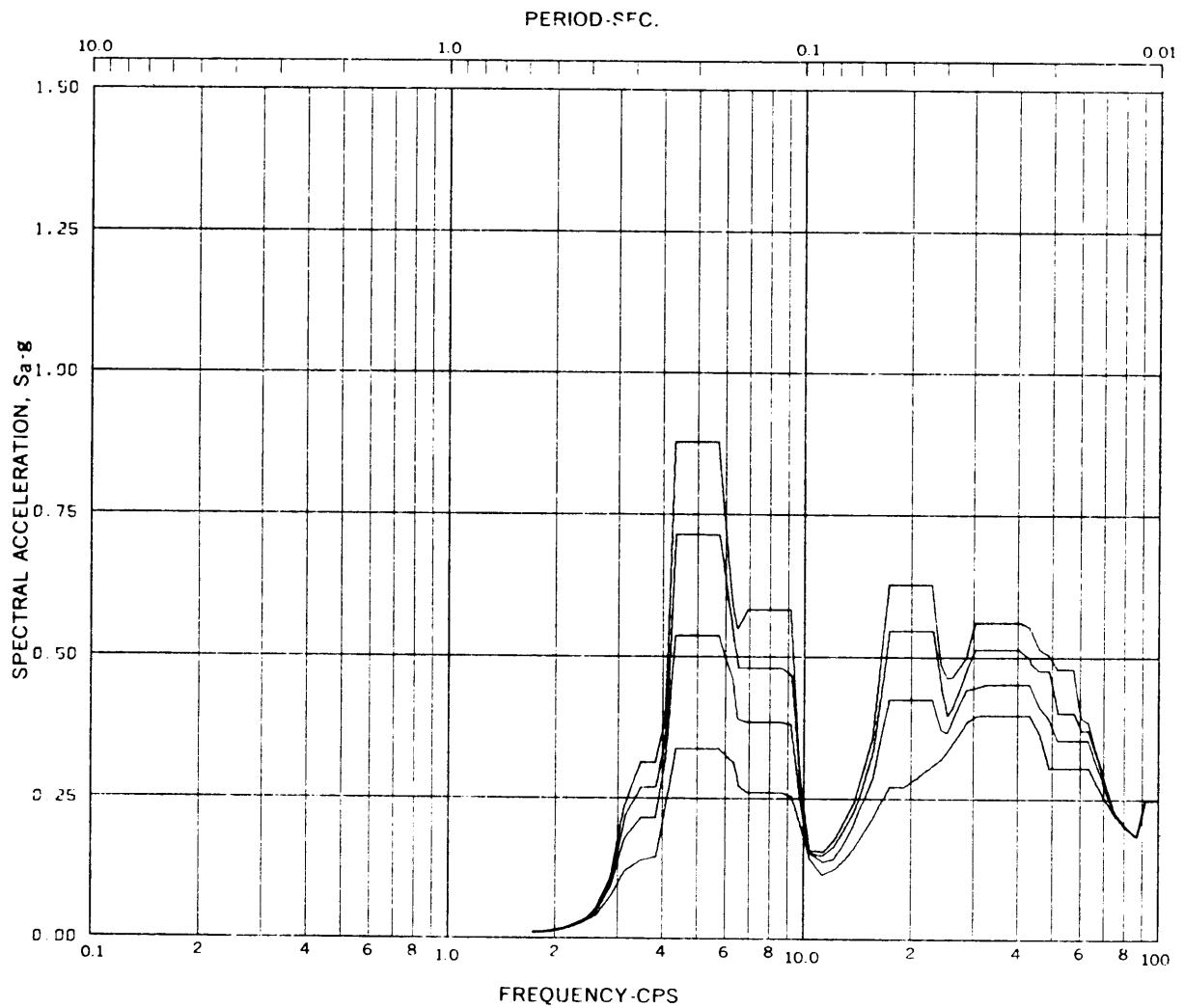
Node: 531 Direction: HORIZ Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-92



Acceleration Spectra for SHIELD WALL

Load Case: SRV - ASYMMETRIC

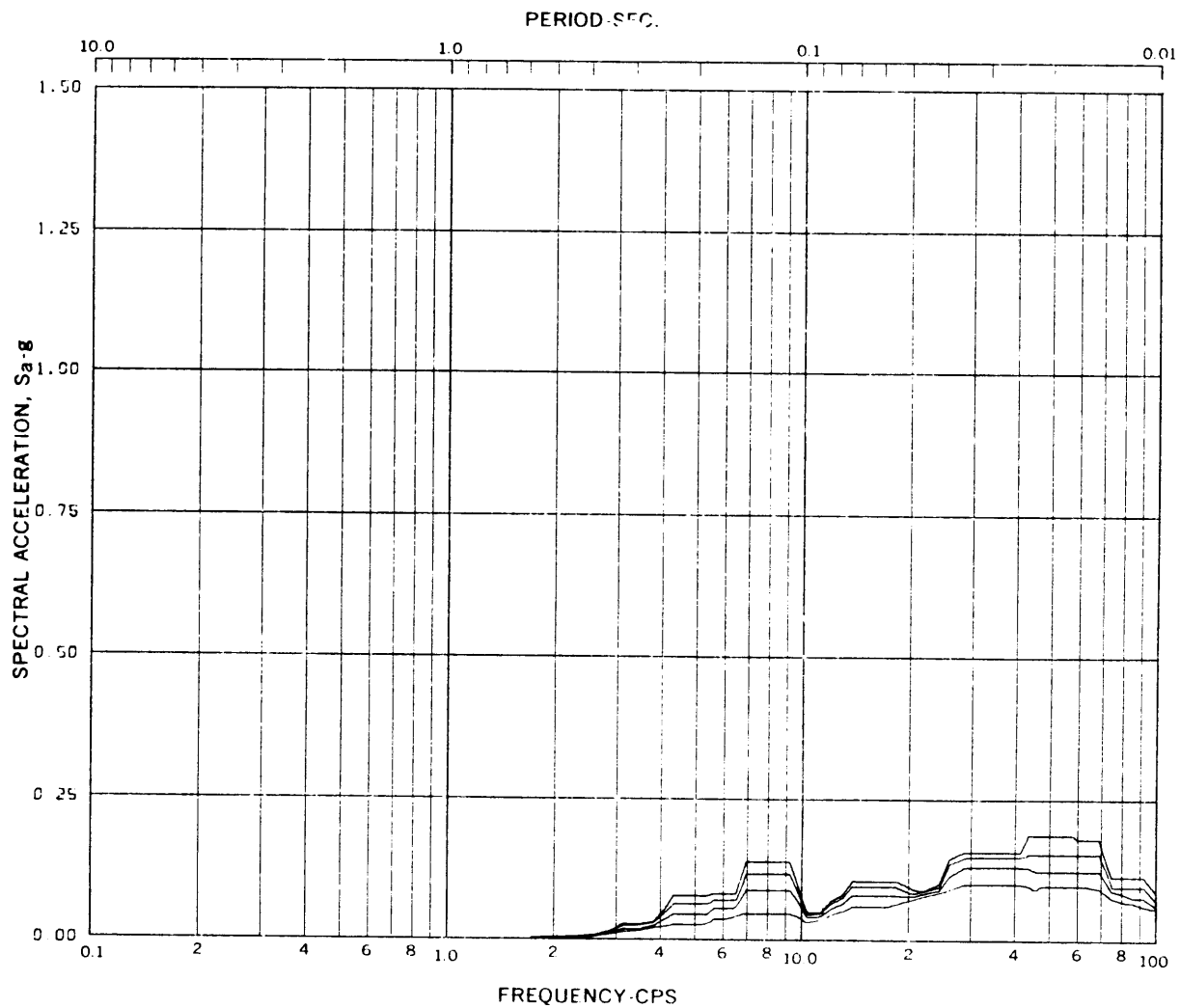
Node: 841 Direction: HORIZ Elev: 312'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-83

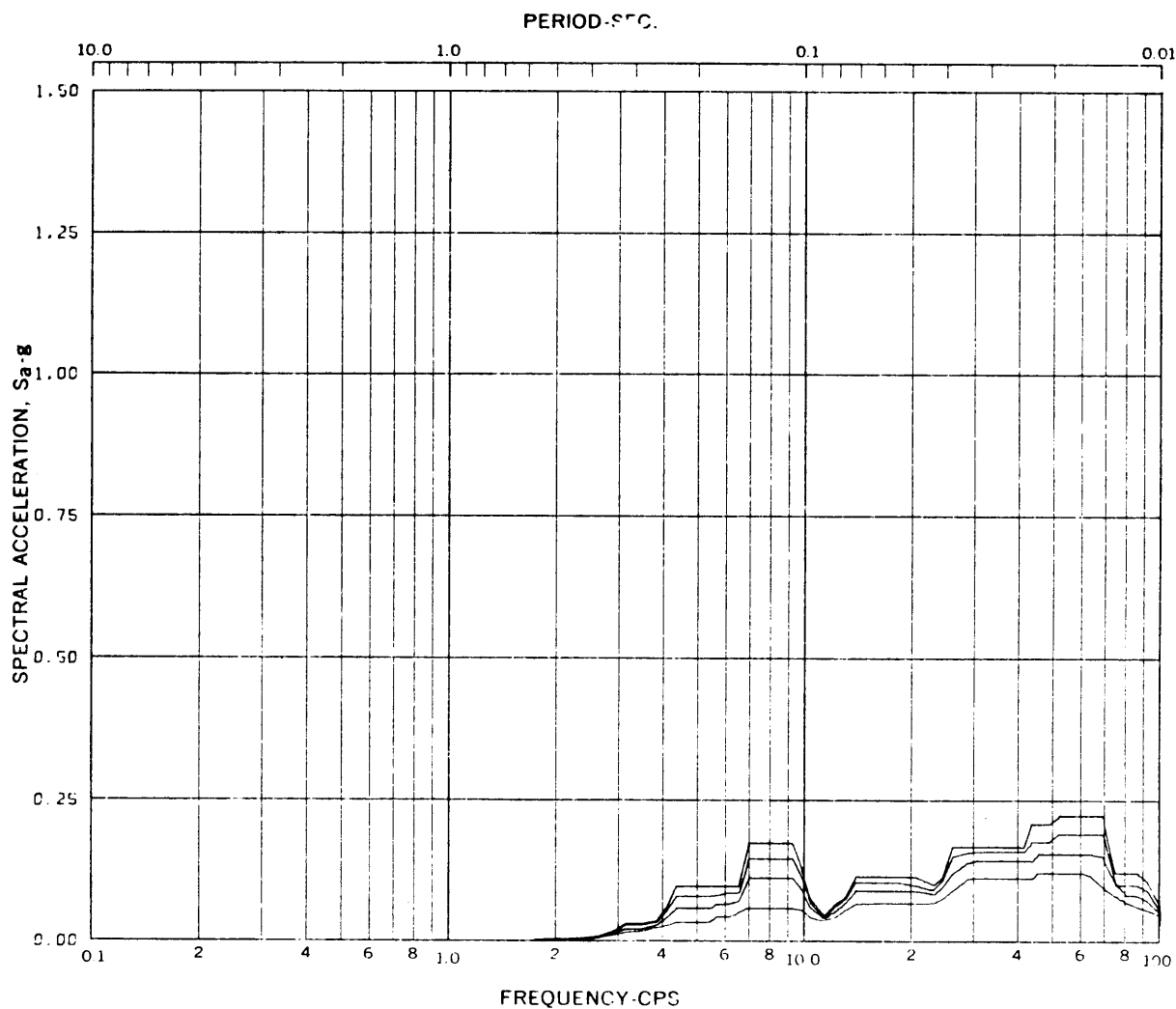


Acceleration Spectra for WETWELL WALL  
 Load Case: SRV - ASYMMETRIC  
 Node: 131 Direction: VERT Elev: 205'-11" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 DIRECTION Z

FIGURE 3A-94



Acceleration Spectra for WETWELL WALL

Load Case: SRV - ASYMMETRIC

Node: 291 Direction: VERT Elev: 236'-2" Angle: 0°

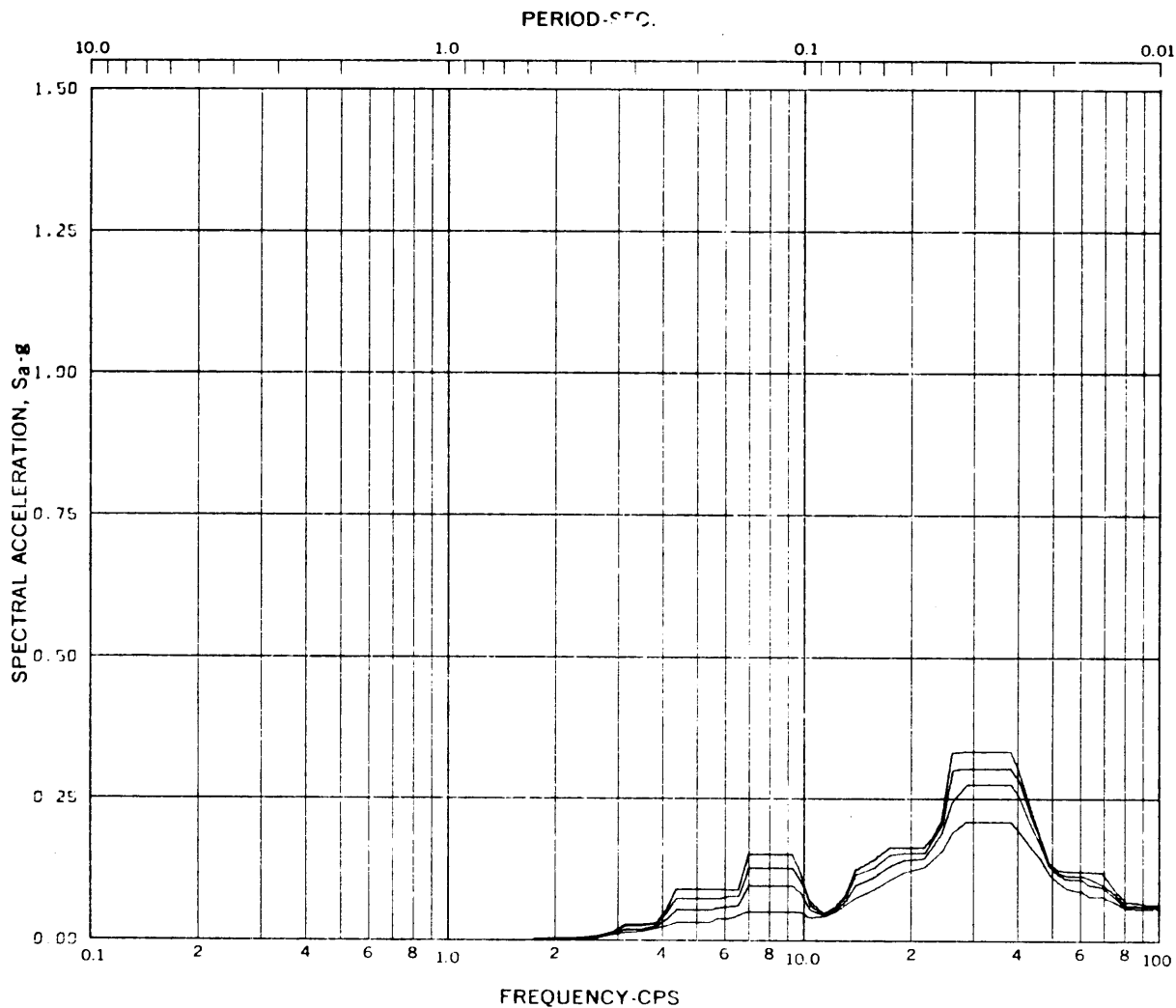
Damping: 0.005, 0.01, 0.02, 0.05

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FIGURE 3A-95





Acceleration Spectra for DRYWELL WALL

Load Case: SRV - ASYMMETRIC

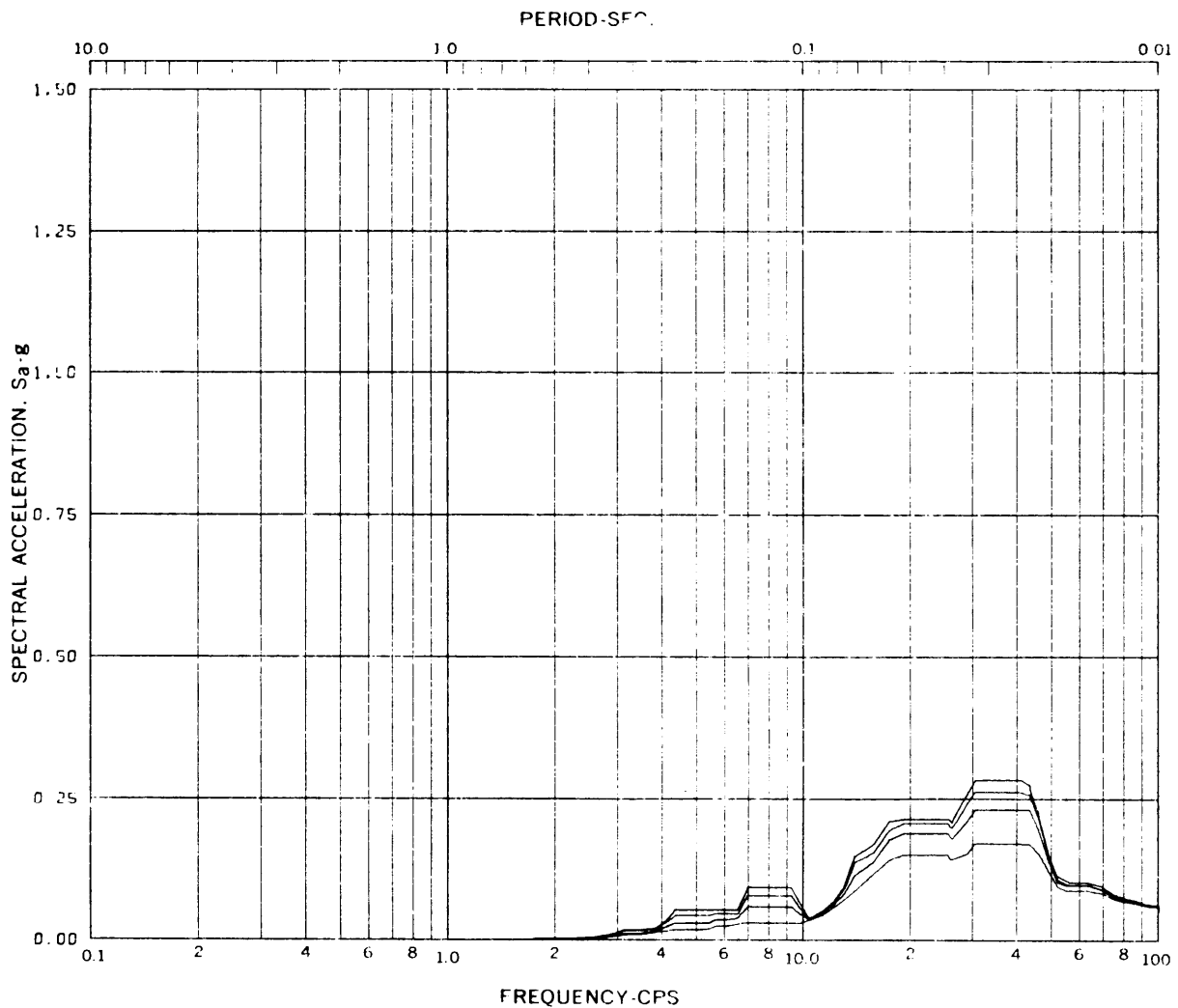
Node: 331 Direction: VERT Elev: 264'-6" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

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FIGURE 3A-96



Acceleration Spectra for DRYWELL WALL

Load Case: SRV - ASYMMETRIC

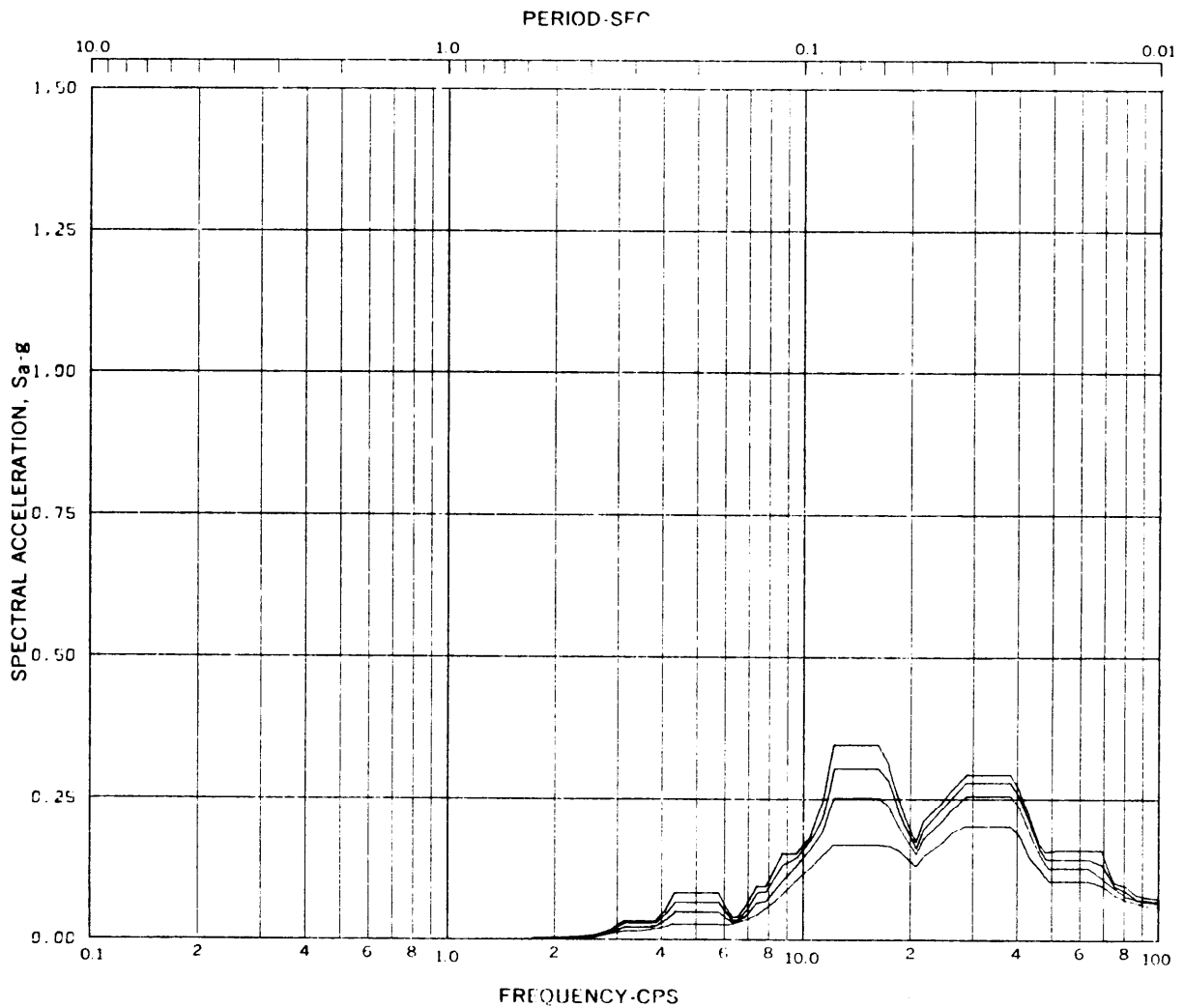
Node: 431 Direction: VERT Elev: 325'-8" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

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DIRECTION Z**

**FIGURE 3A-97**



Acceleration Spectra for PEDESTAL

Load Case: SRV - ASYMMETRIC

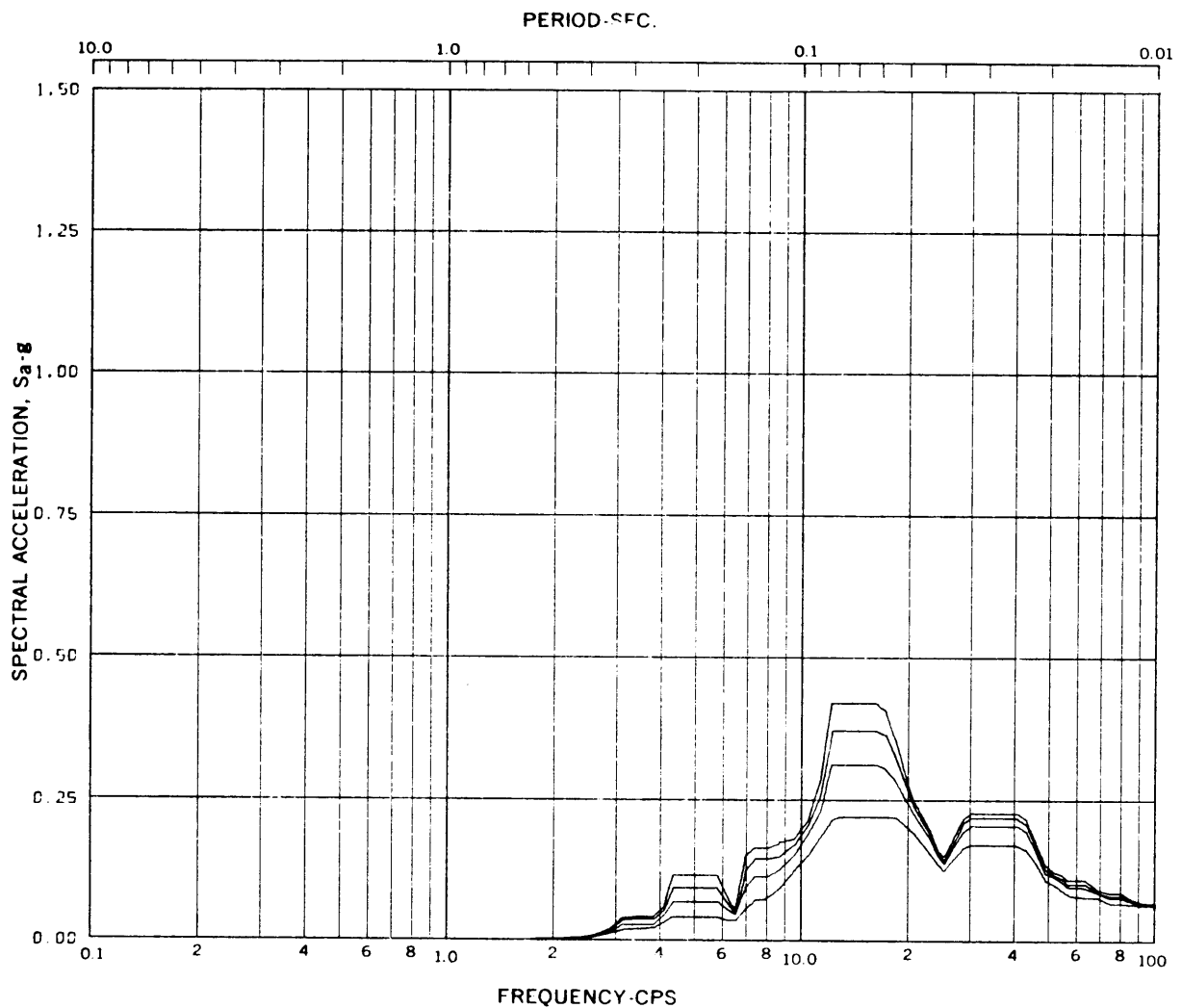
Node: 211 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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SRV ASYMMETRIC  
DIRECTION Z**

**FIGURE 3A-98**



Acceleration Spectra for PEDESTAL

Load Case: SRV - ASYMMETRIC

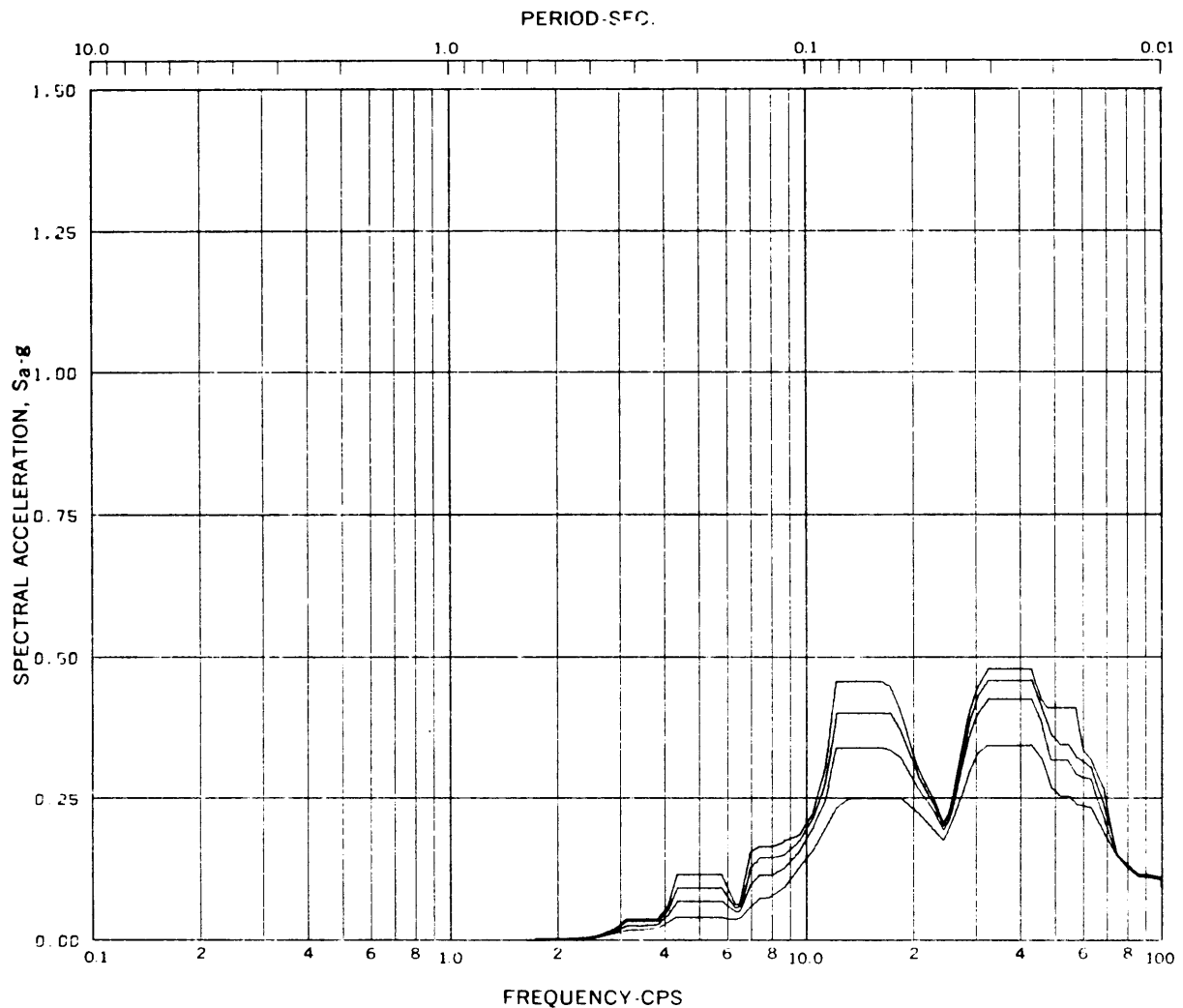
Node: 531 Direction: VERT Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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DIRECTION Z

FIGURE 3A-99



Acceleration Spectra for SHIELD WALL

Load Case: SRV - ASYMMETRIC

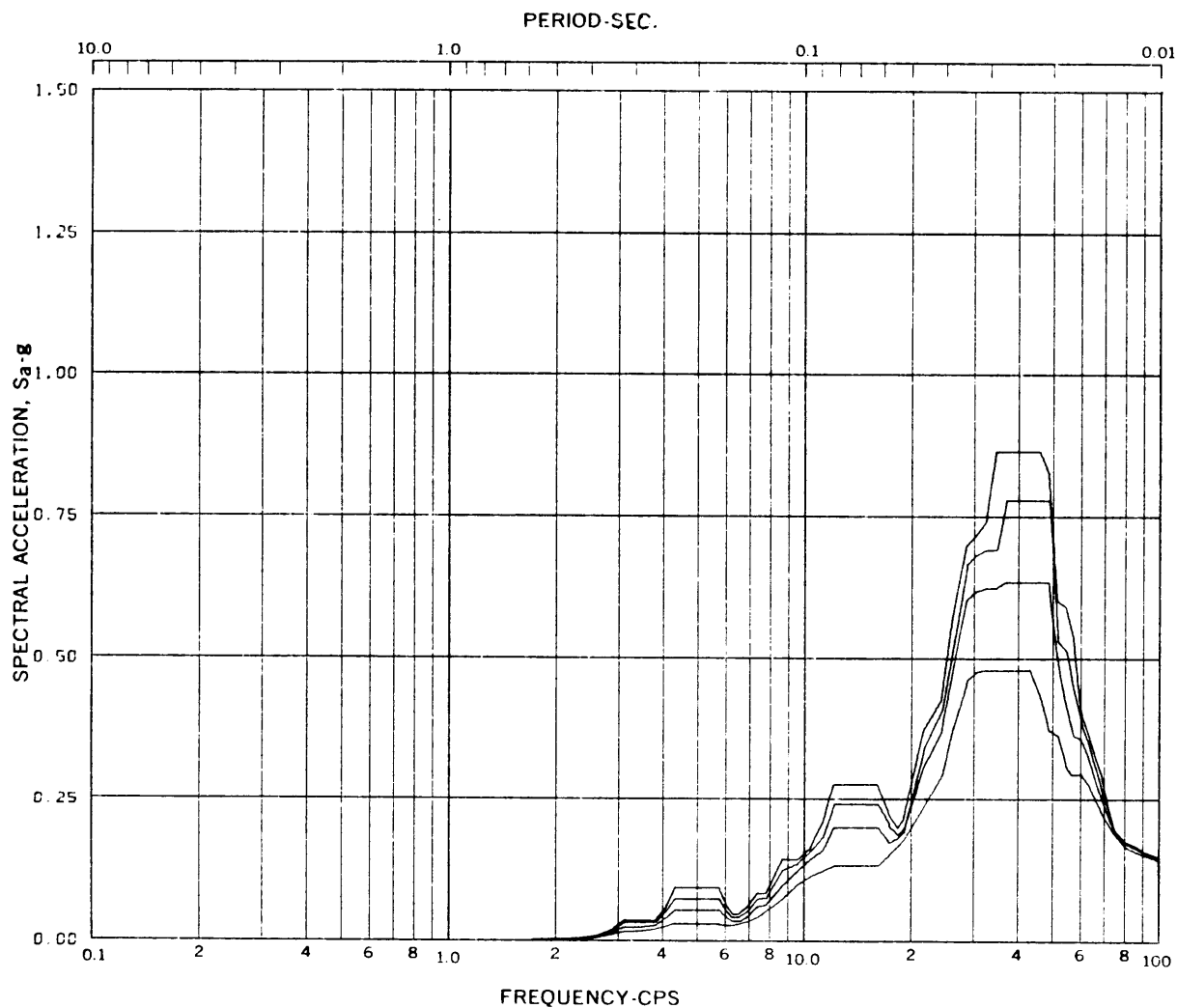
Node: 841 Direction: VERT Elev: 312'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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DIRECTION Z

FIGURE 3A-100



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: SRV - ASYMMETRIC

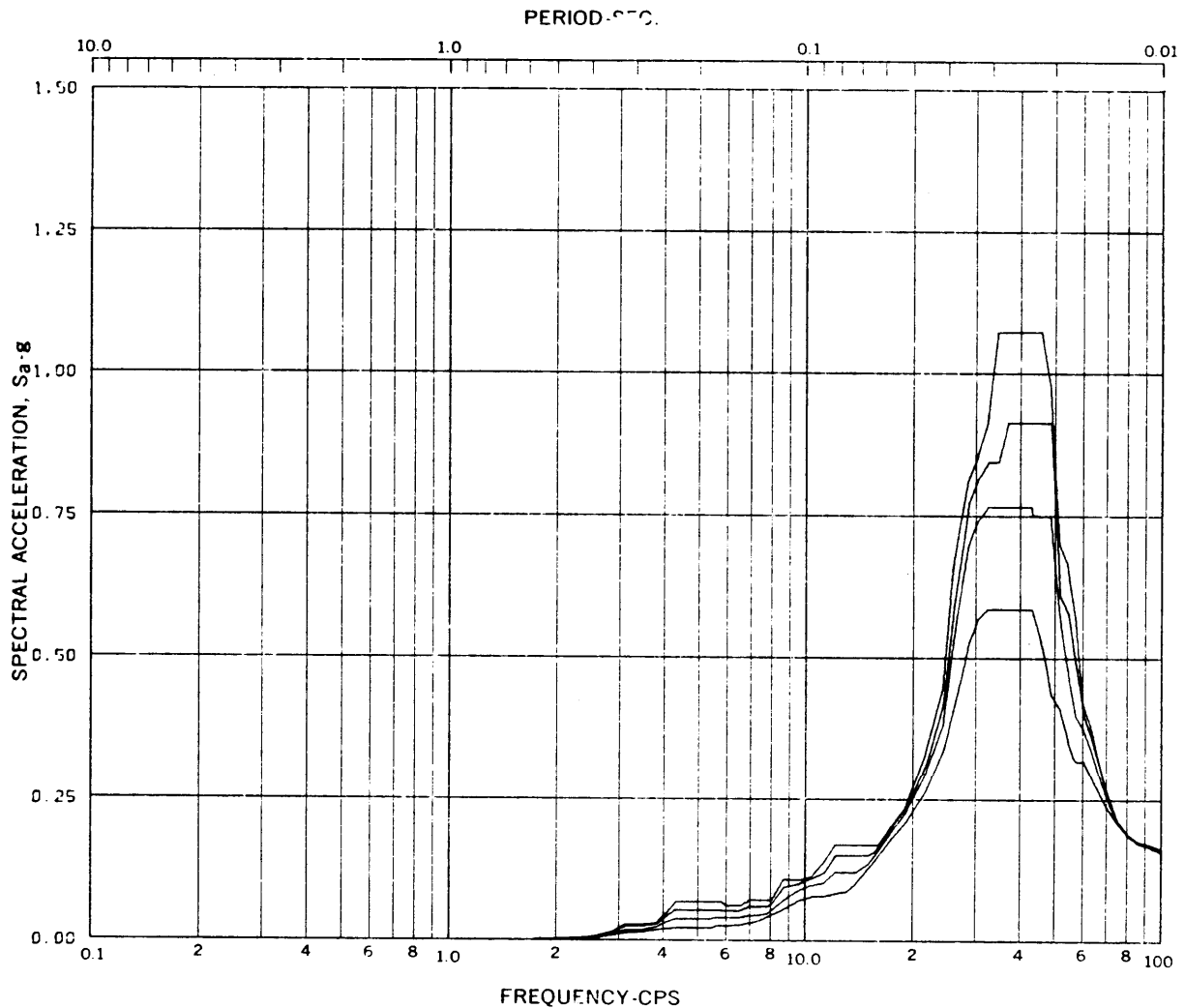
Node: 231 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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SRV ASYMMETRIC  
DIRECTION Z

FIGURE 3A-101



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: SRV - ASYMMETRIC

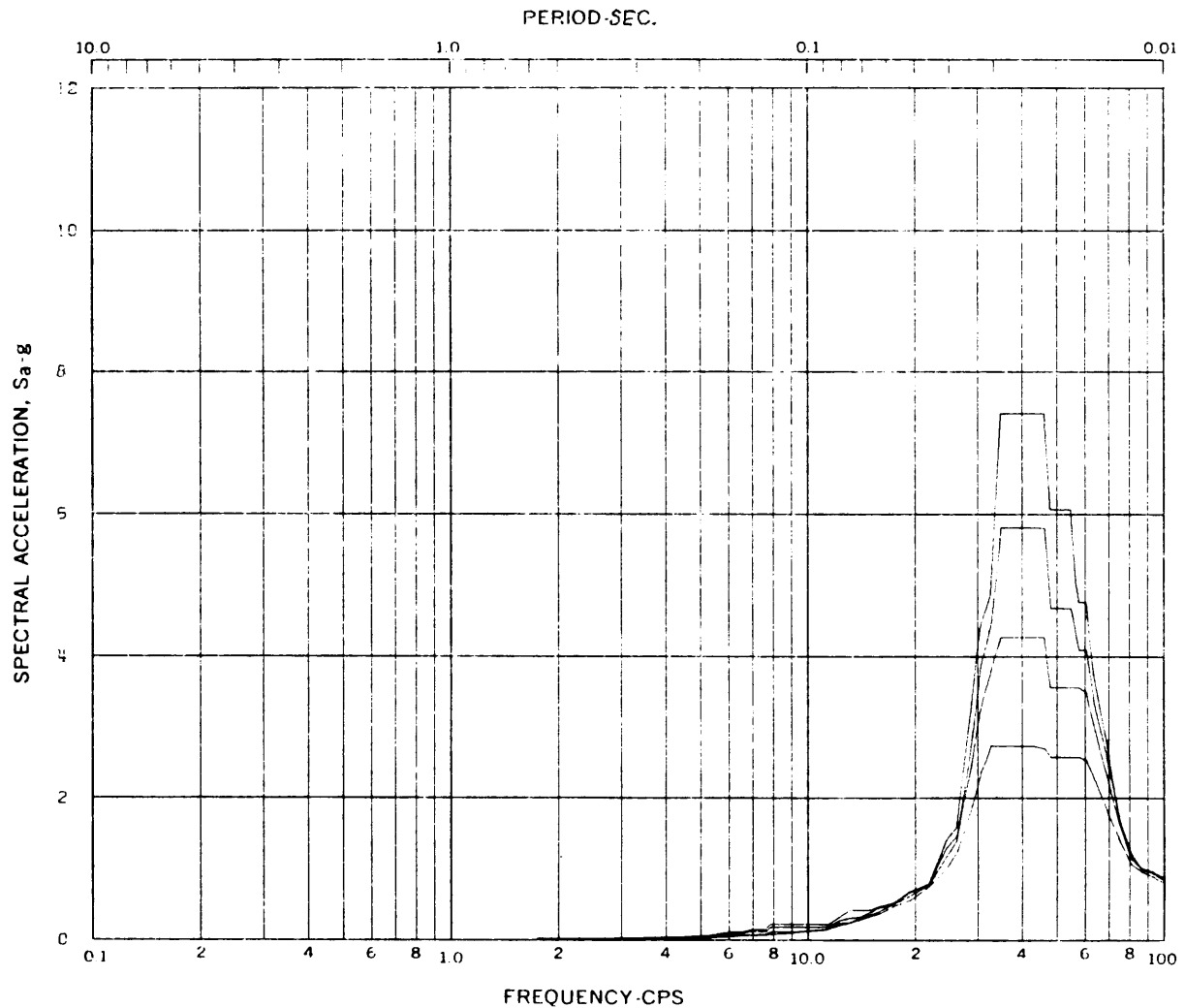
Node: 252 Direction: VERT Elev: 236'-2" Angle: 22°-30'

Damping: 0.005, 0.01, 0.02, 0.05

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CONTAINMENT RESPONSE SPECTRA  
SRV ASYMMETRIC  
DIRECTION Z**

**FIGURE 3A-102**



Acceleration Spectra for WETWELL WALL

Load Case: C04B

Node: 131 Direction: HORIZ Elev: 205'-11" Angle: 0°

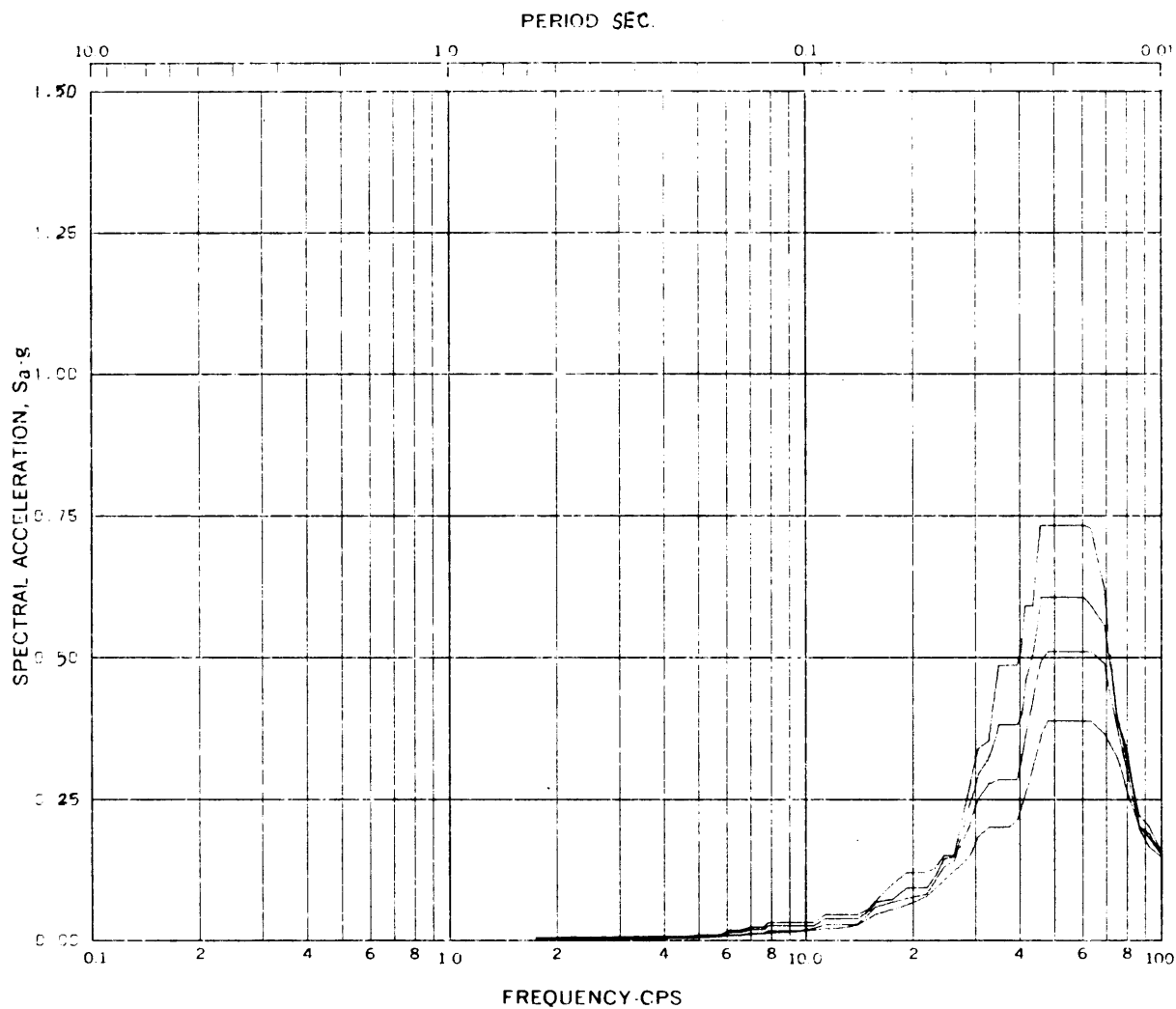
Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CONDENSATION OSCILLATION  
DIRECTION X**

**FIGURE 3A-103**





Acceleration Spectra for WETWELL WALL

Load Case: C04B

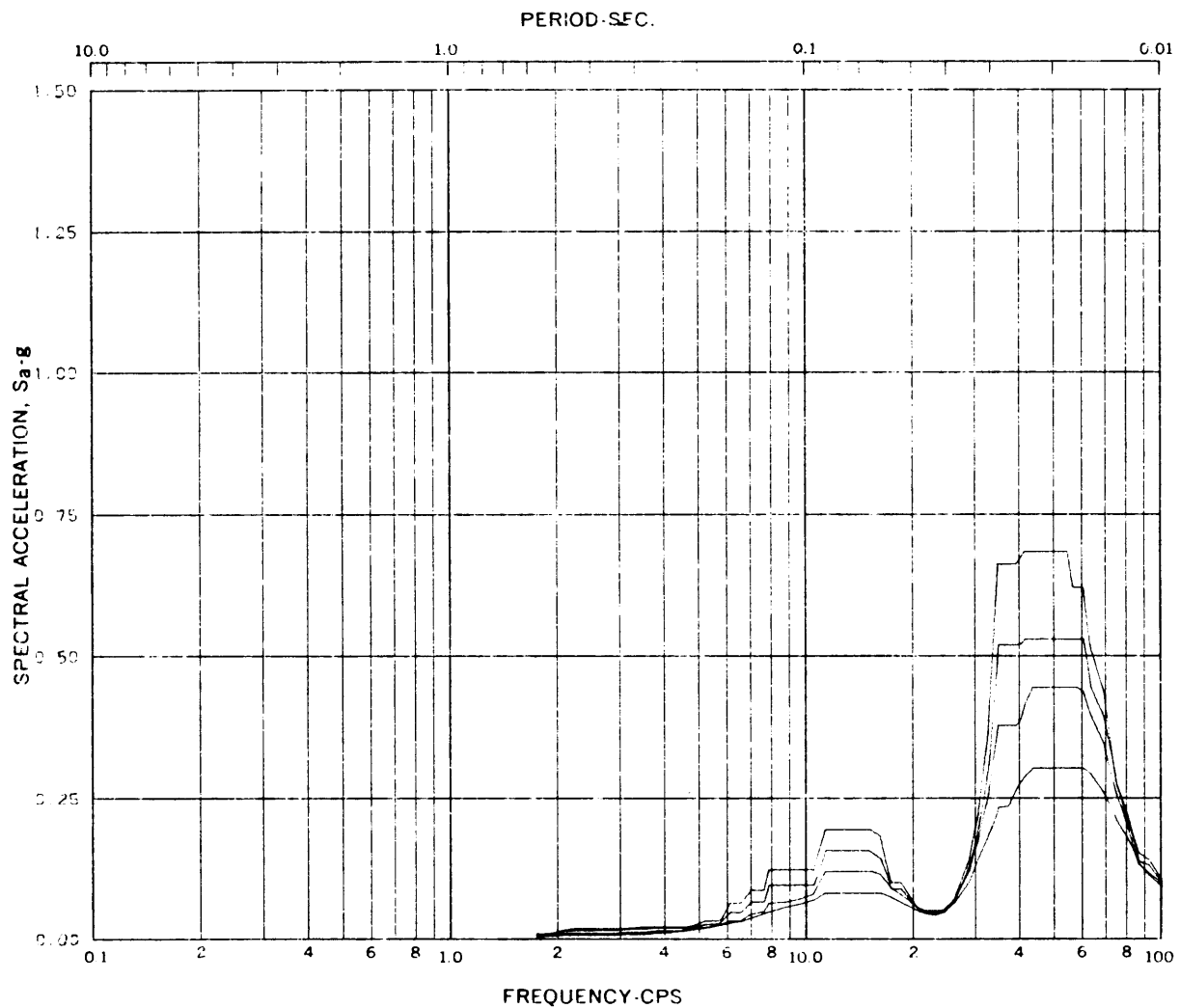
Node: 291 Direction: HORIZ Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CONDENSATION OSCILLATION  
DIRECTION X

FIGURE 3A-104



Acceleration Spectra for DRYWELL WALL

Load Case: C04B

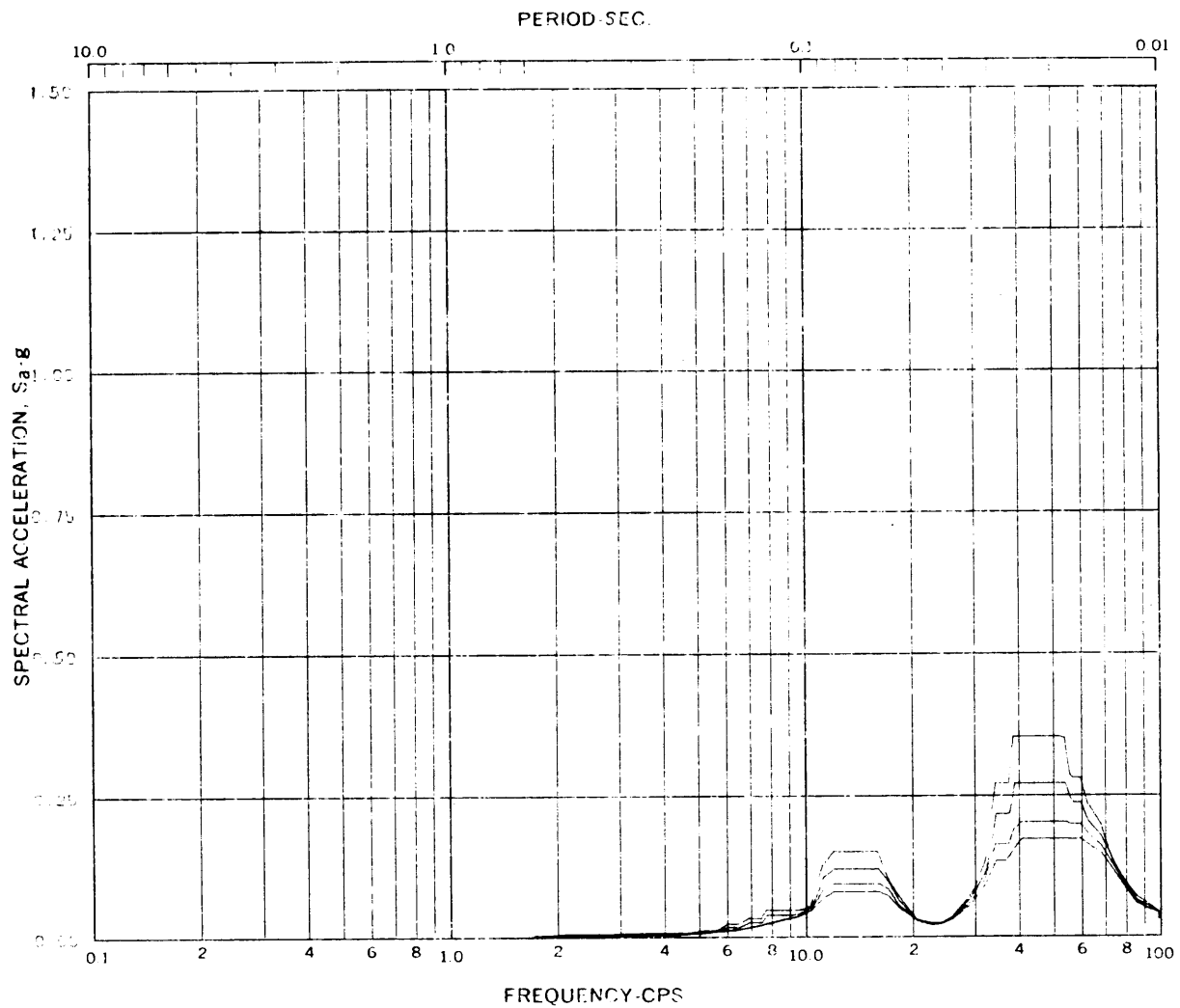
Node: 331 Direction: HORIZ Elev: 264'-6" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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DIRECTION X

FIGURE 3A-105



Acceleration Spectra for DRYWELL WALL

Load Case: C04B

Node: 431 Direction: HORIZ Elev: 325'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

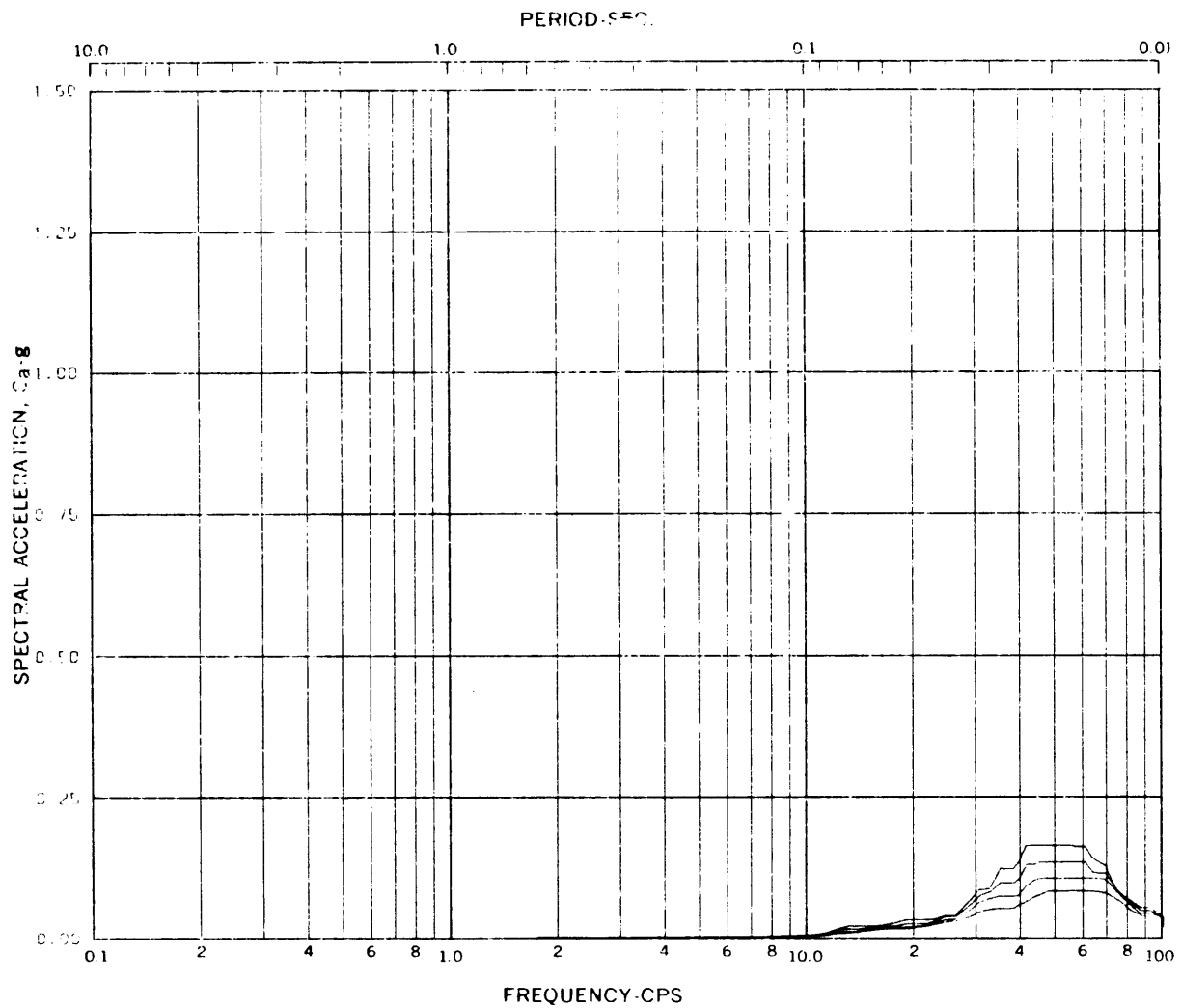
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CONDENSATION OSCILLATION  
DIRECTION X

FIGURE 3A-106

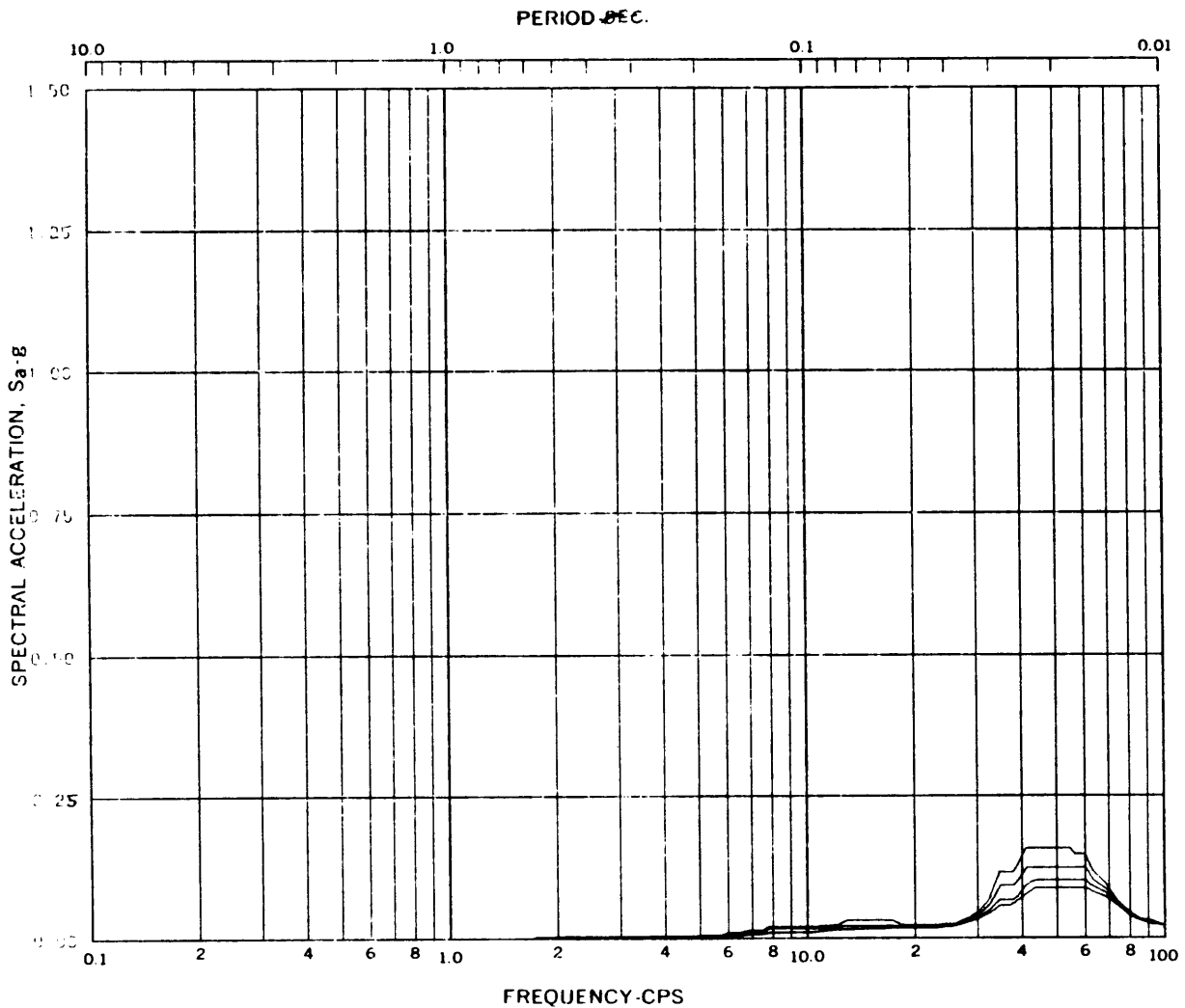


Acceleration Spectra for PEDESTAL  
 Load Case: C04B  
 Node: 211 Direction: HORIZ Elev: 236'-2" Angle: 0°  
 Damping: 0.005,0.01,0.02,0.05

LIMERICK GENERATING STATION  
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 DIRECTION X

FIGURE 3A-107



Acceleration Spectra for PEDESTAL  
 Load Case: C04B  
 Node: 531 Direction: HORIZ Elev: 263'-8 $\frac{5}{8}$ " Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.03

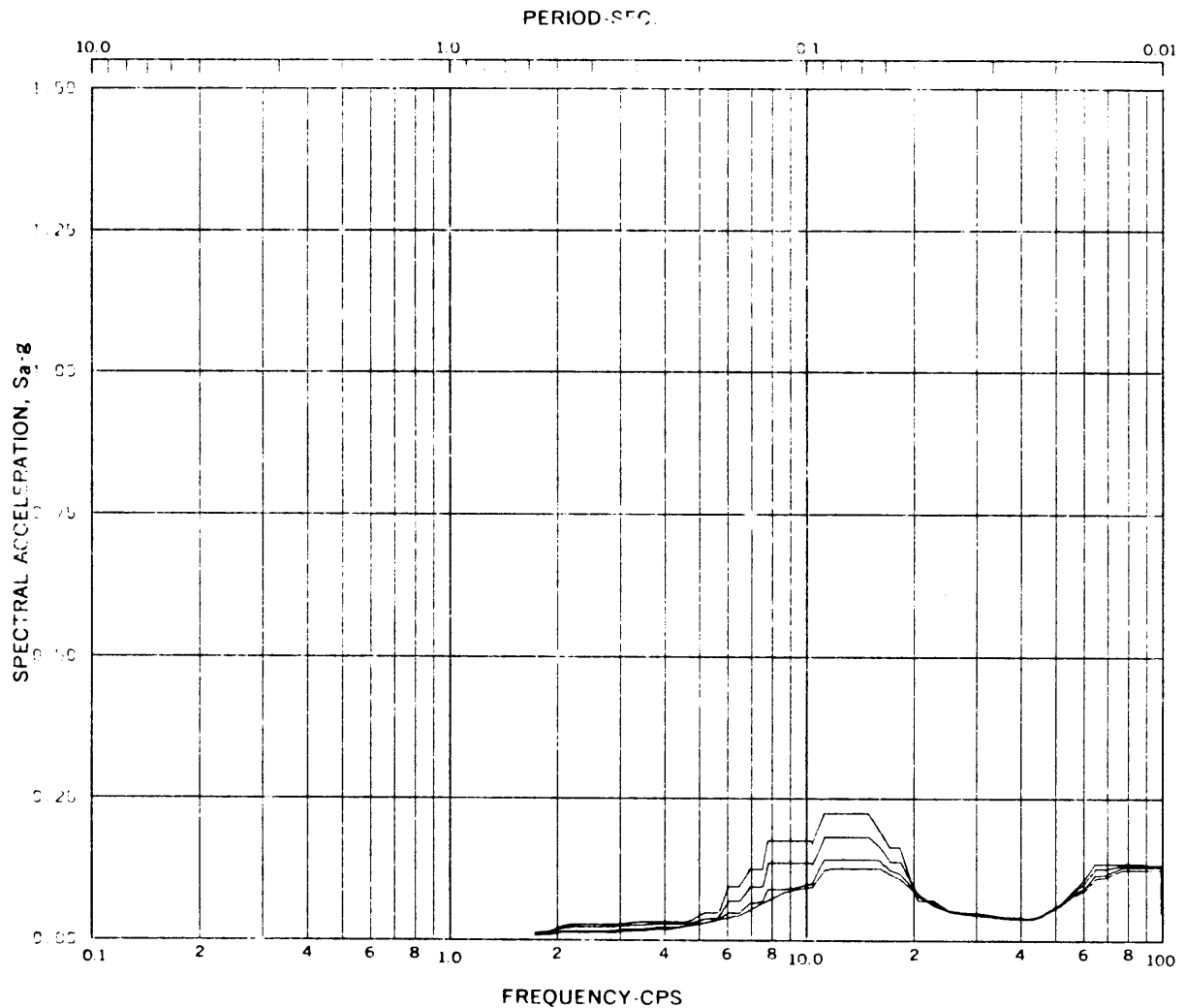
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

**LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
 CONTAINMENT RESPONSE SPECTRA  
 CONDENSATION OSCILLATION  
 DIRECTION X**

**FIGURE 3A-108**



Acceleration Spectra for SHIELD WALL

Load Case: C04B

Node: 841 Direction: HORIZ Elev: 312'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

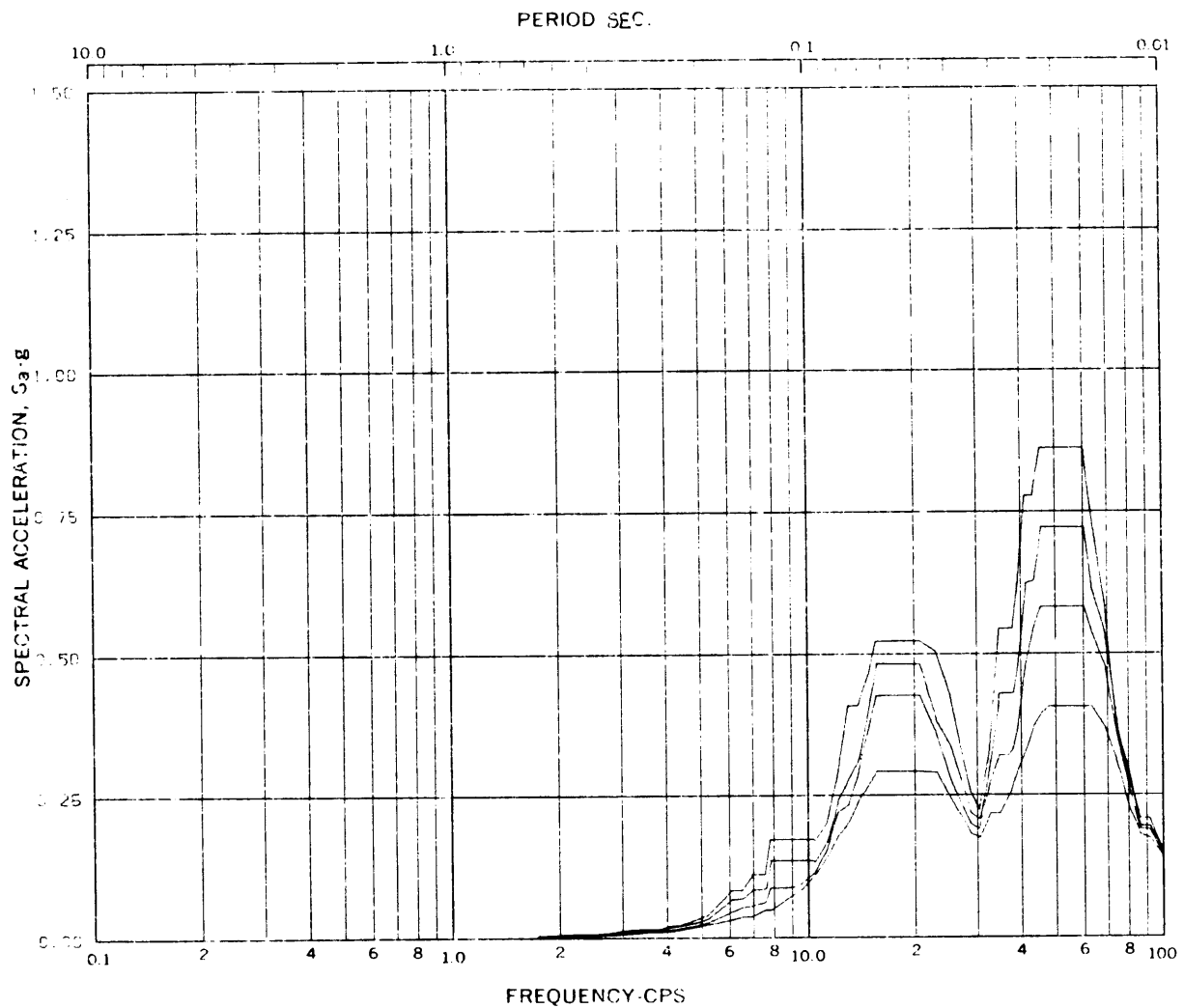
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

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DIRECTION X

FIGURE 3A-109



Acceleration Spectra for WETWELL WALL

Load Case: C04B

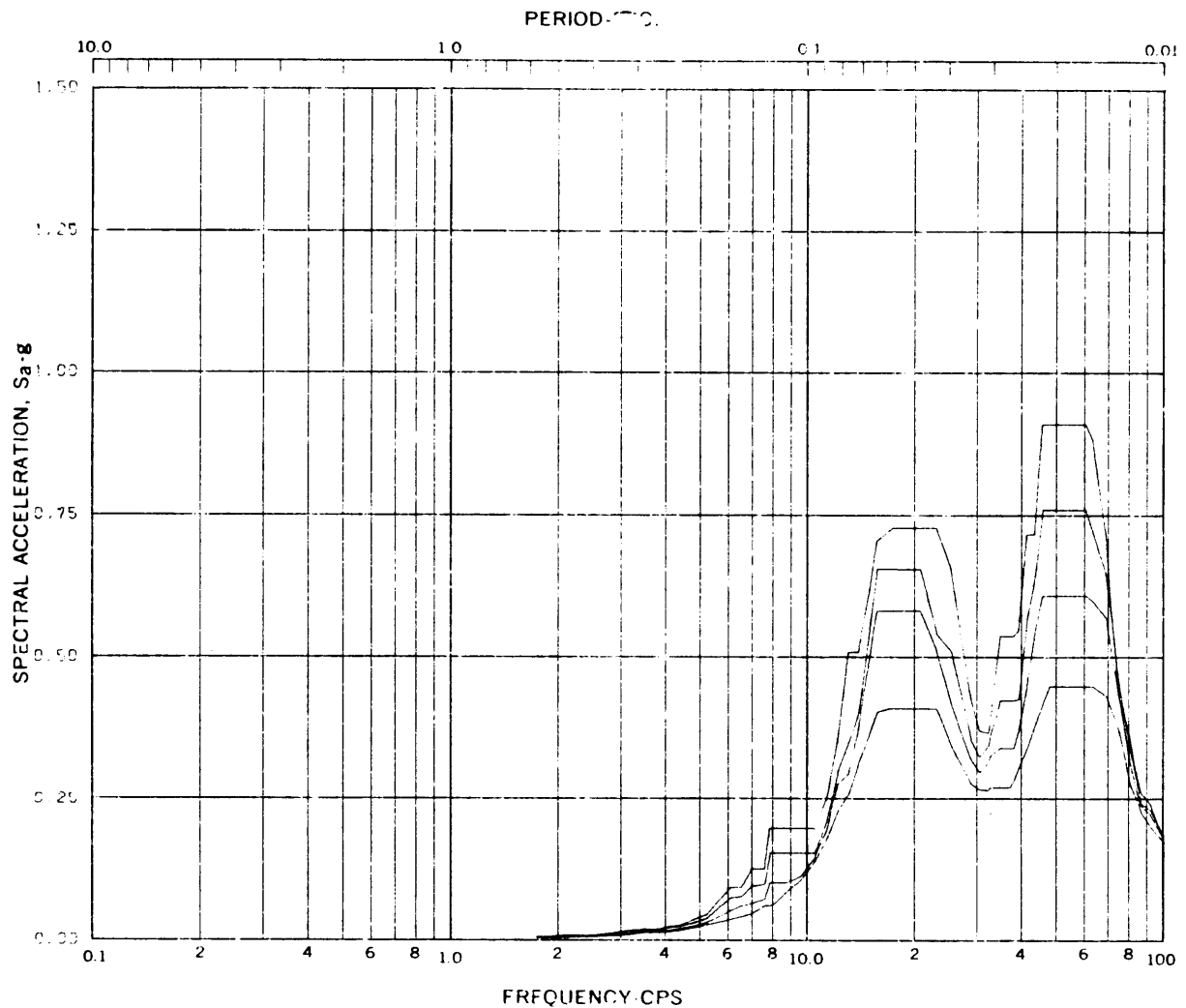
Node: 131 Direction: VERT Elev: 205'-11" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
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UPDATED FINAL SAFETY ANALYSIS REPORT

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DIRECTION Z

FIGURE 3A-110



Acceleration Spectra for WETWELL WALL

Load Case: C04B

Node: 291 Direction: VERT Elev: 236'-2" Angle: 0°

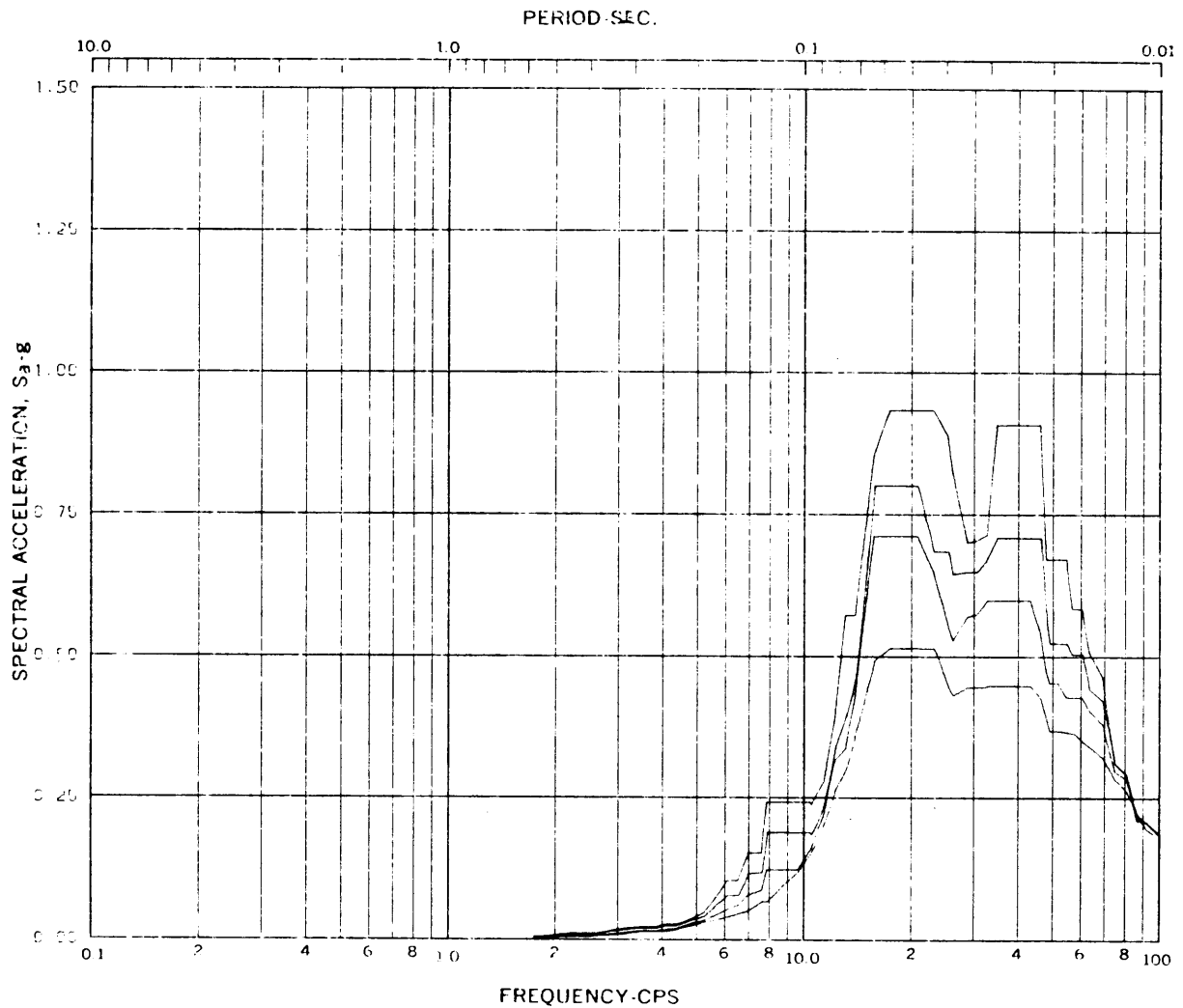
Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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**FIGURE 3A-111**





Acceleration Spectra for DRYWELL WALL

Load Case: C04B

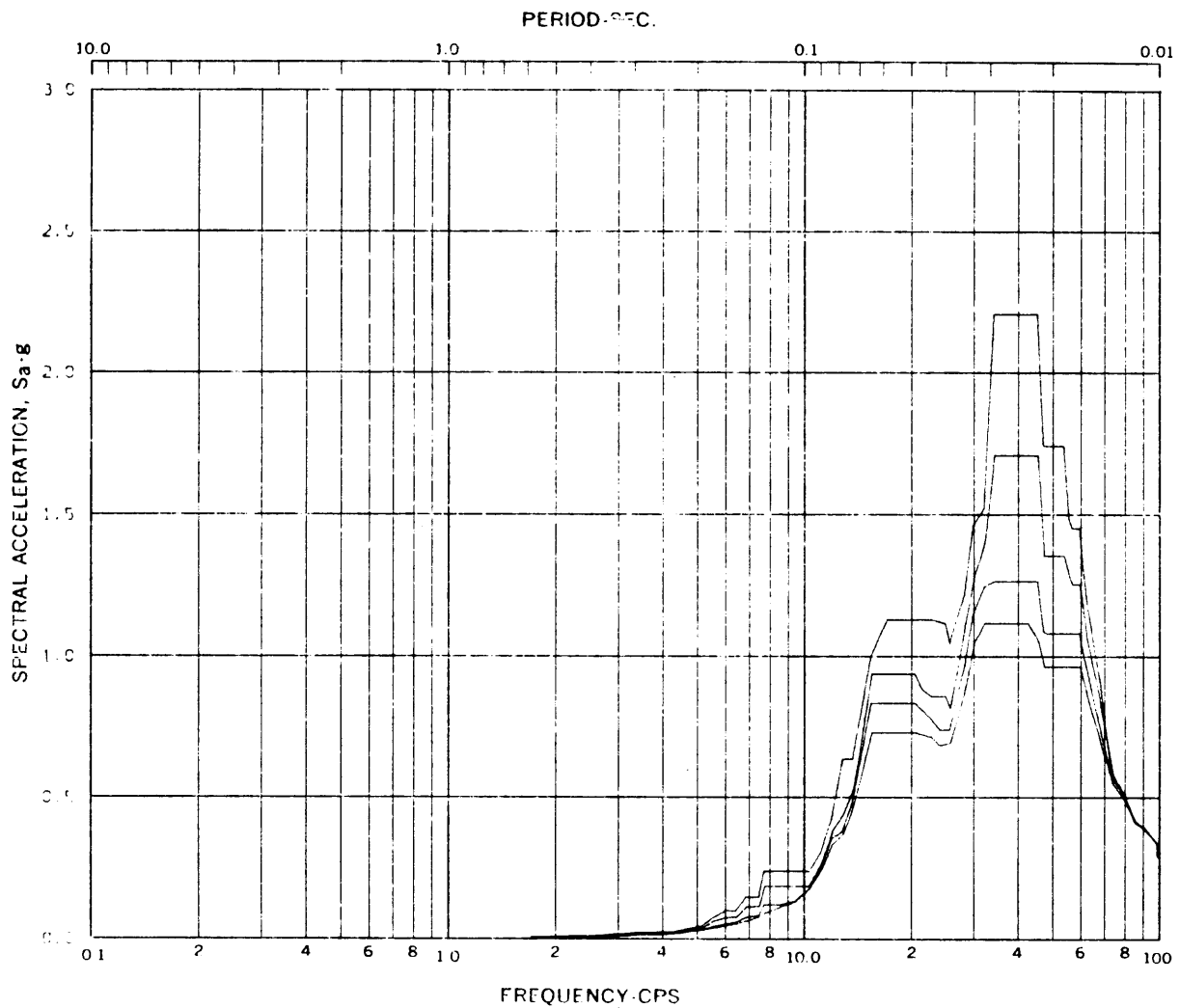
Node: 331 Direction: VERT Elev: 264'-6" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
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FIGURE 3A-112



Acceleration Spectra for DRYWELL WALL  
 Load Case: C04B  
 Node: 431 Direction: VERT Elev: 325'-8" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.03

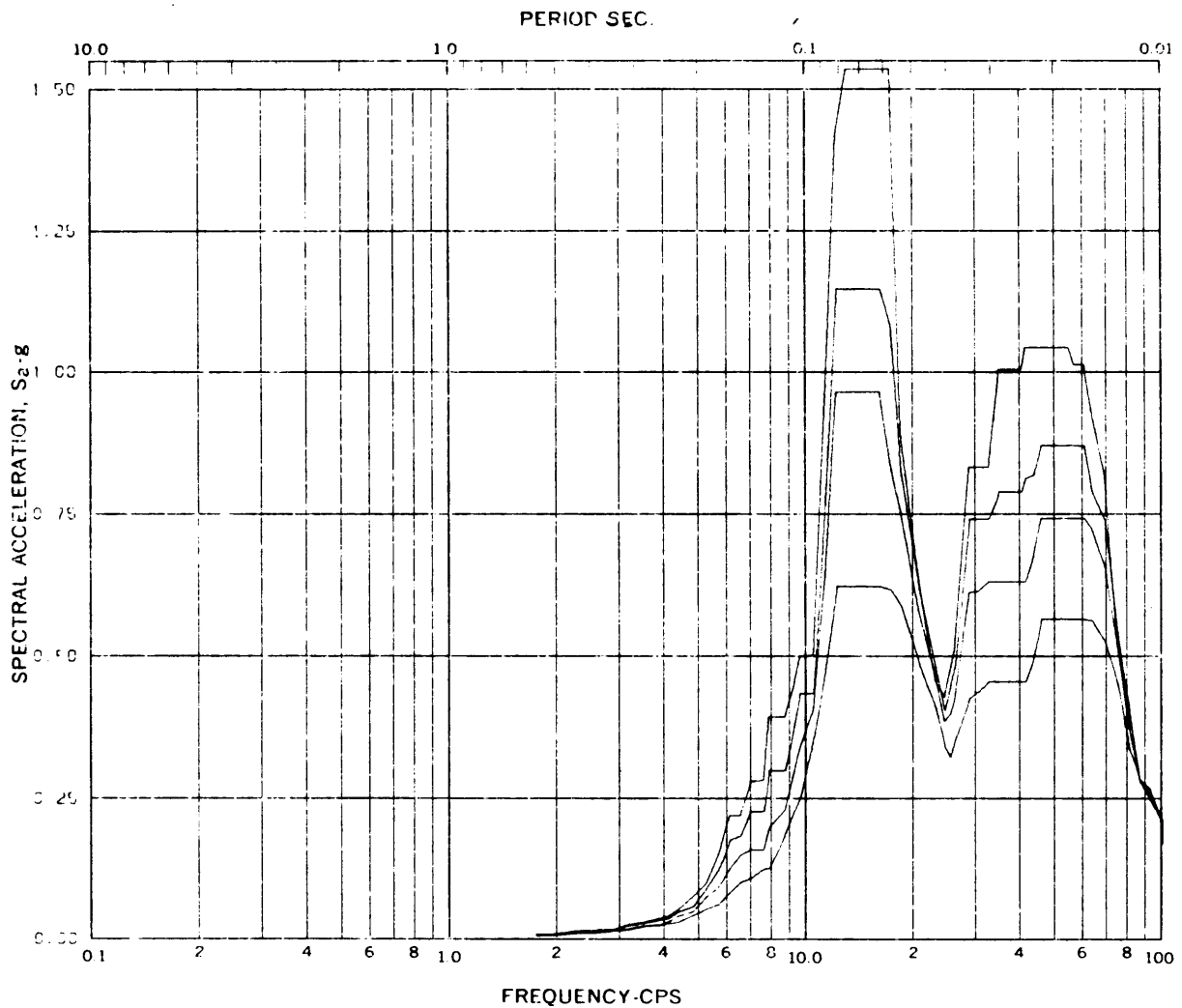
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
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 DIRECTION Z

FIGURE 3A-113



Acceleration Spectra for PEDESTAL

Load Case: C04B

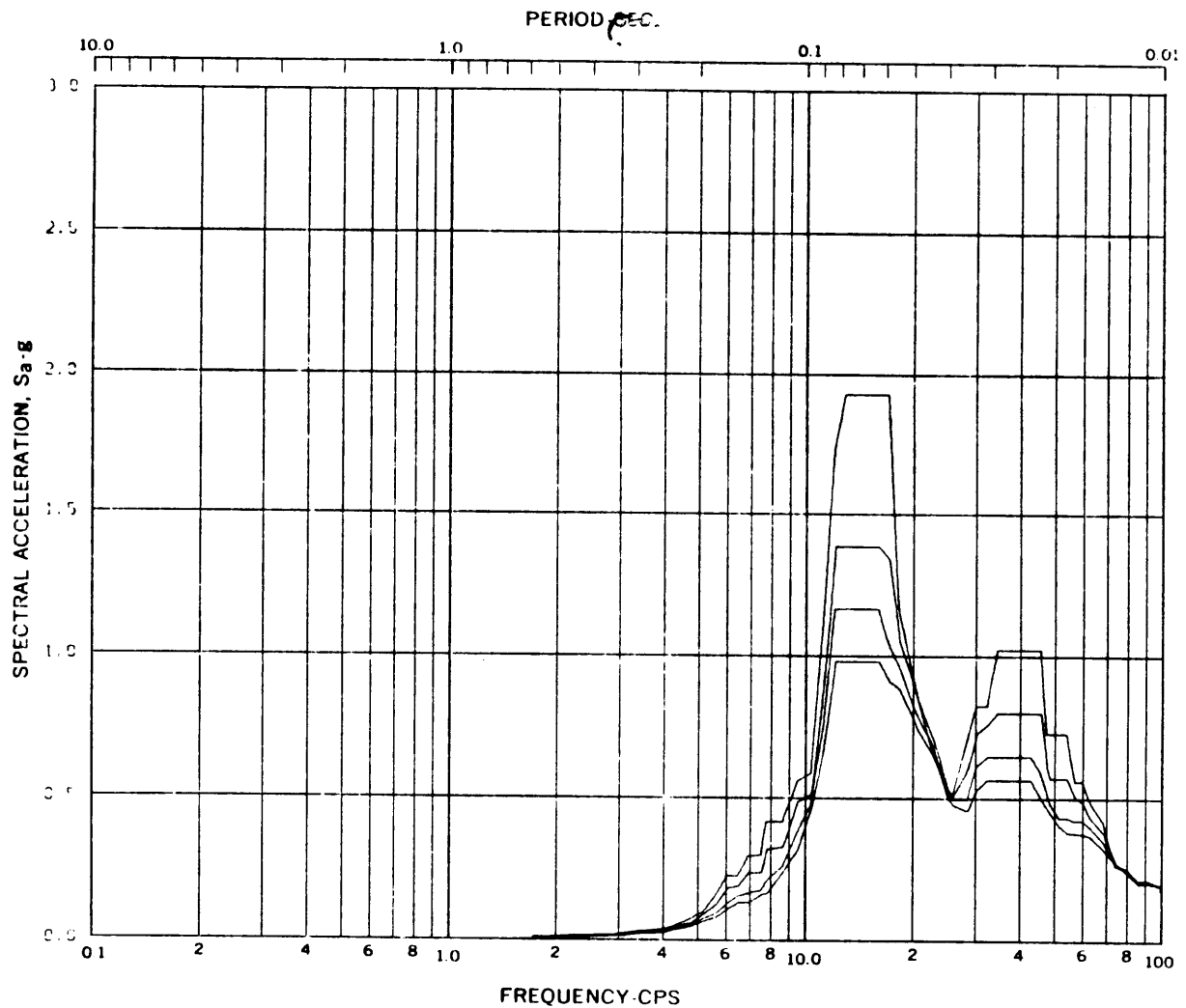
Node: 211 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

**LIMERICK GENERATING STATION  
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CONDENSATION OSCILLATION  
DIRECTION Z**

**FIGURE 3A-114**



Acceleration Spectra for PEDESTAL

Load Case: C04B

Node: 531 Direction: VERT Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

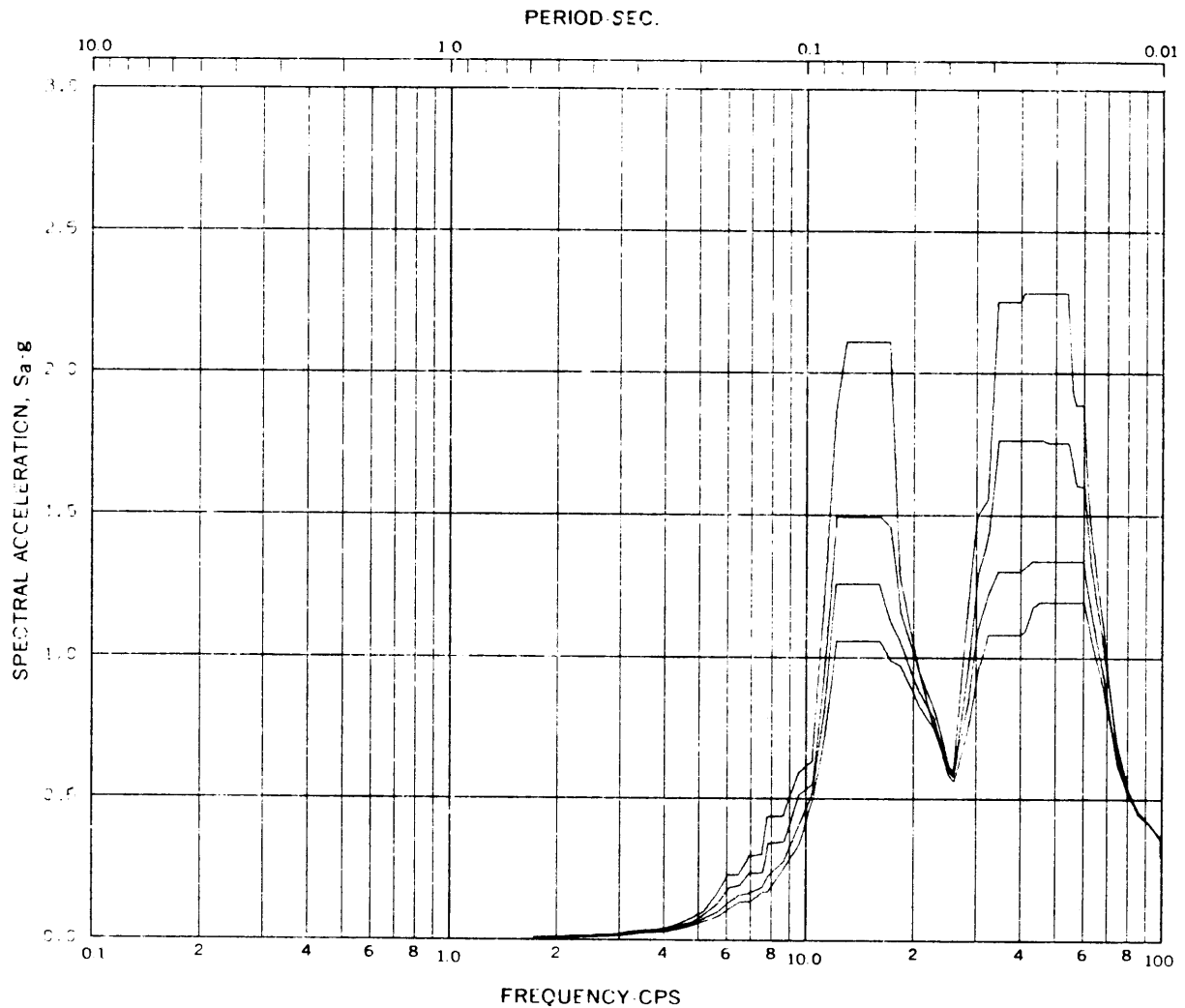
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
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DIRECTION Z

FIGURE 3A-115



Acceleration Spectra for SHIELD WALL

Load Case: C04B

Node: 841 Direction: VERT Elev: 312'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

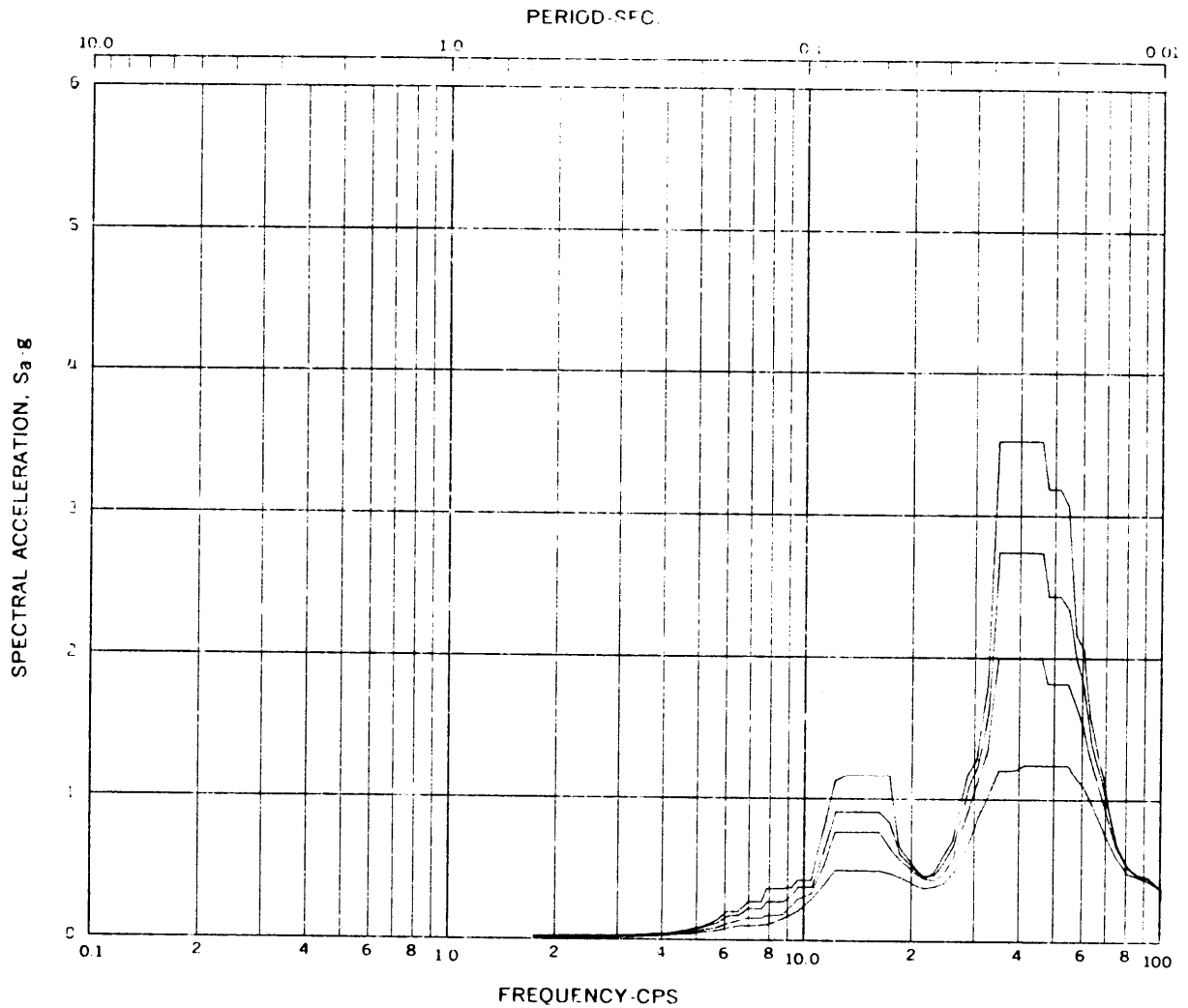
NOTE

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
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FIGURE 3A-116



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: C04B

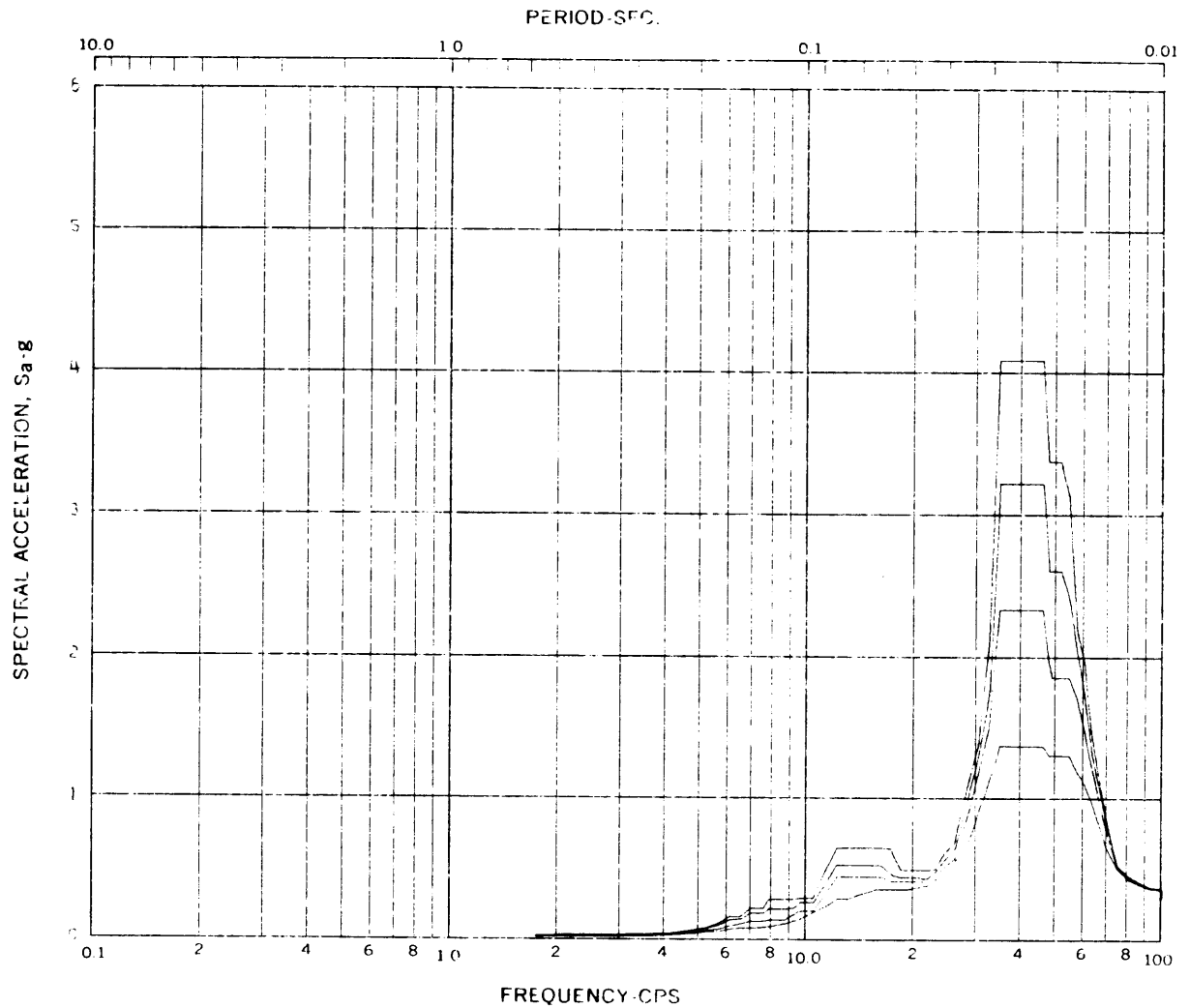
Node: 231 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.05

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DIRECTION Z

FIGURE 3A-117



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: C04B

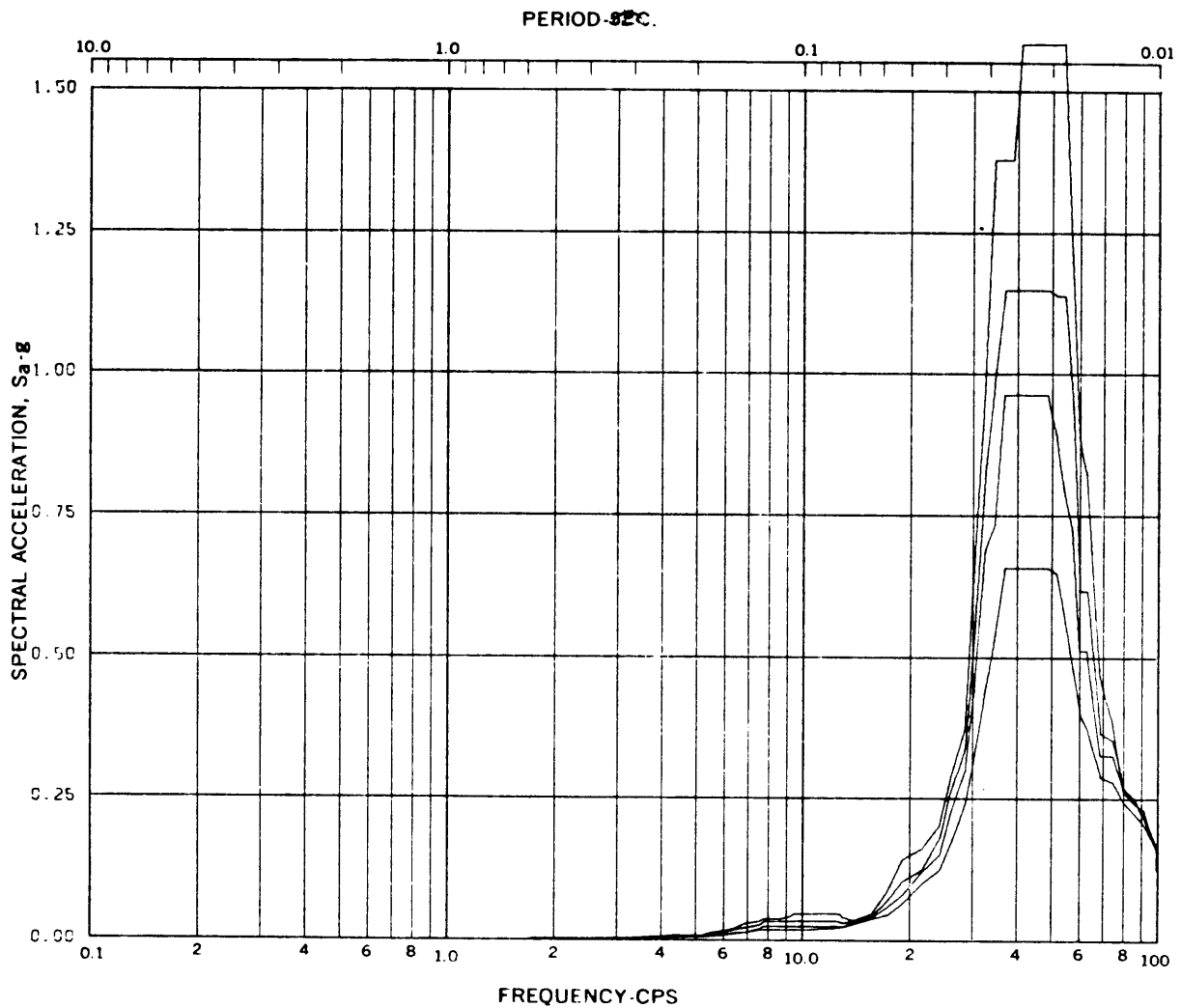
Node: 252 Direction: VERT Elev: 236'-2" Angle: 22°30'

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
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FIGURE 3A-118



Acceleration Spectra for WETWELL WALL

Load Case: CO FOR COMBINATION WITH ADS

Node: 131 Direction: HORIZ Elev: 205'-11" Angle: 0°

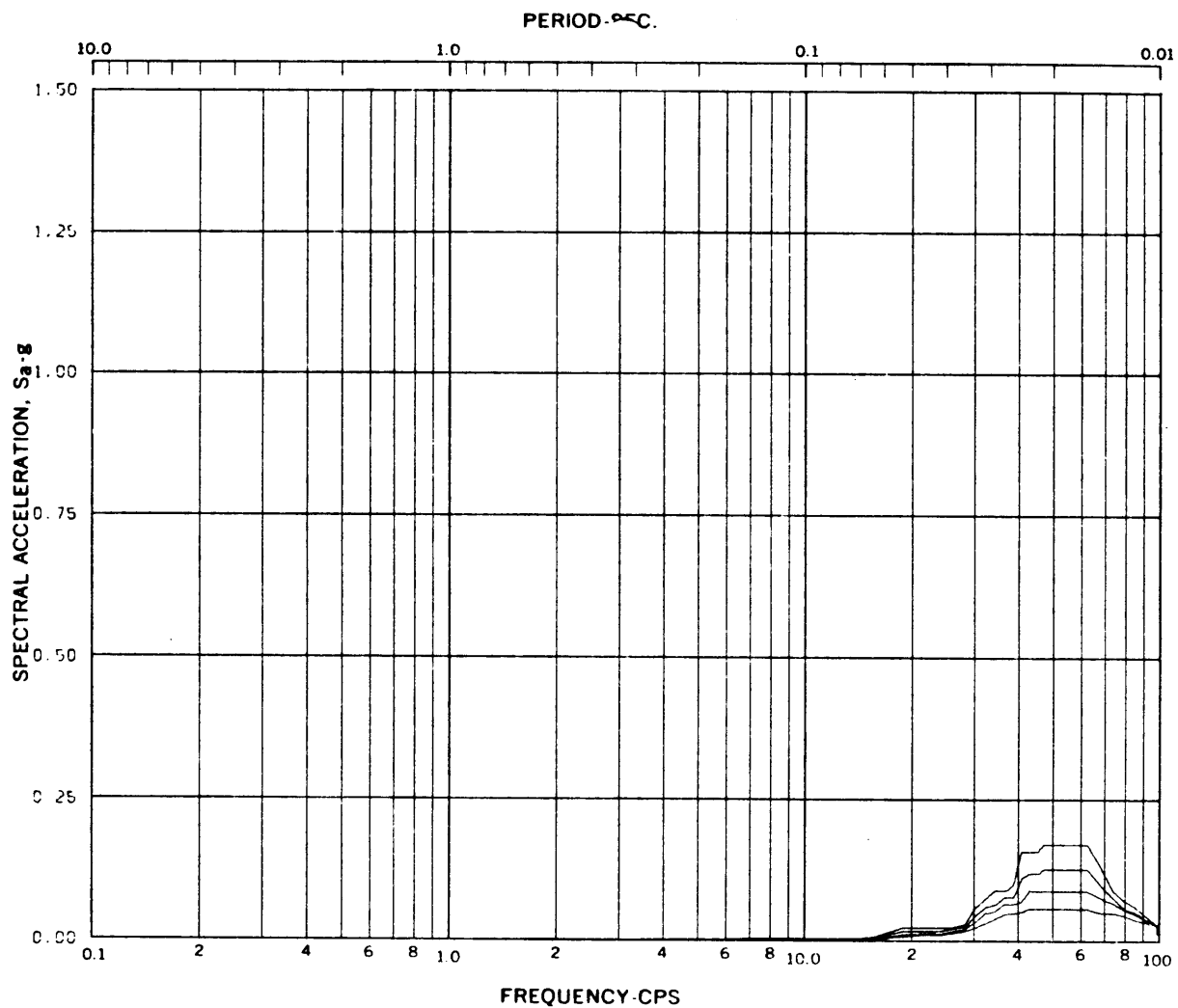
Damping: 0.005, 0.01, 0.02, 0.05

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DIRECTION X

FIGURE 3A-119





Acceleration Spectra for WETWELL WALL

Load Case: CO FOR COMBINATION WITH ADS

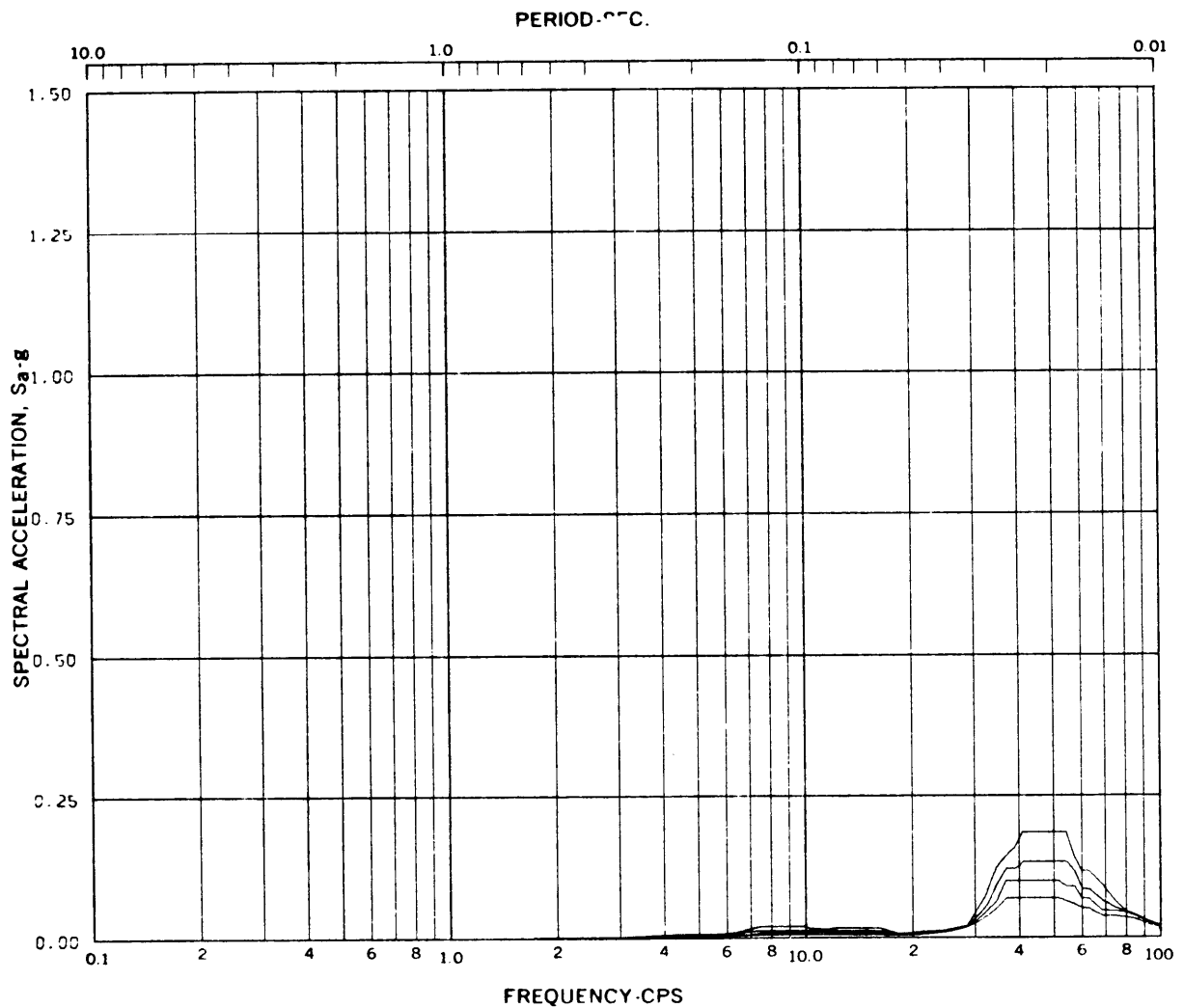
Node: 291 Direction: HORIZ Elev: 236'-2" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

LIMERICK GENERATING STATION  
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FIGURE 3A-120

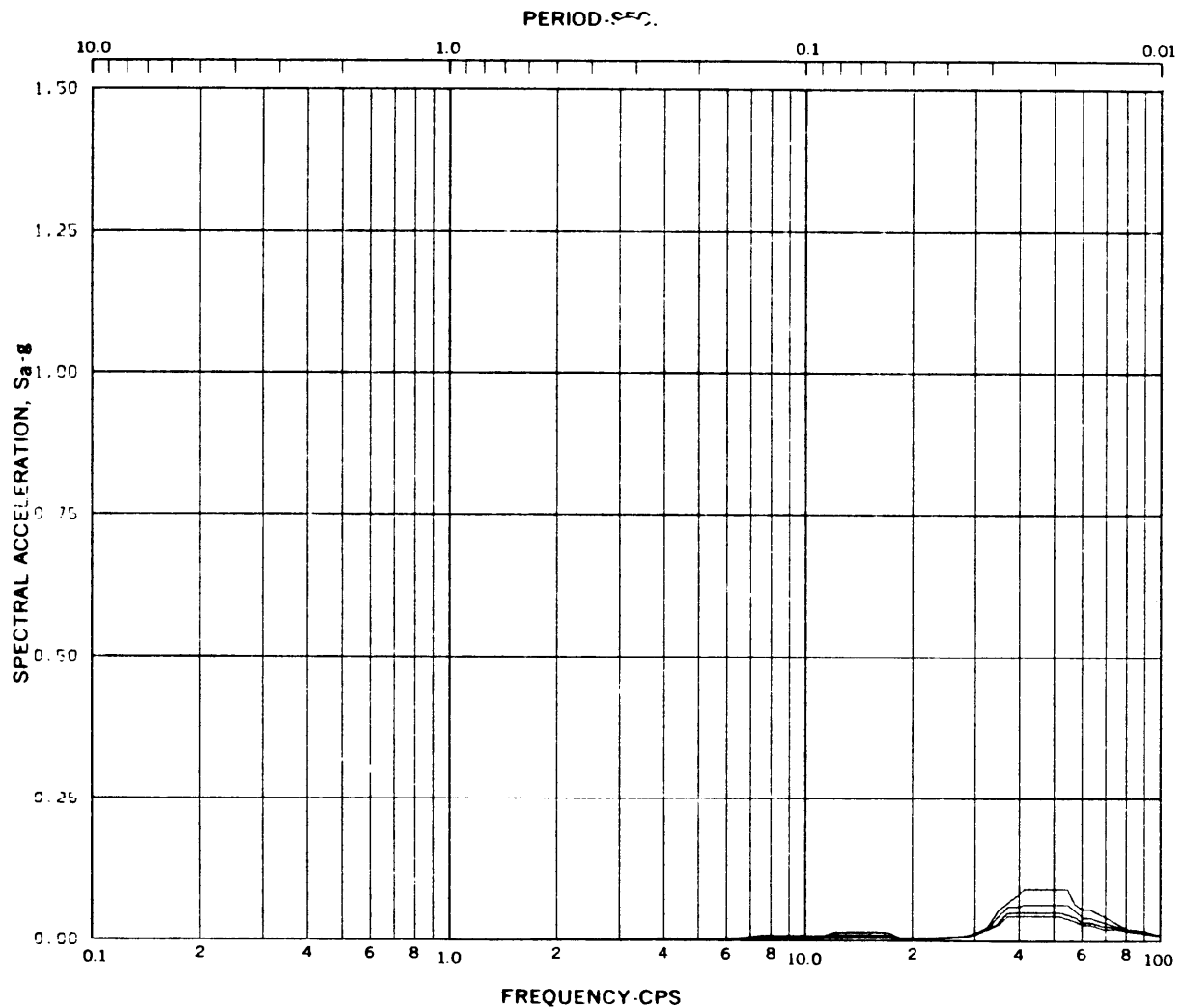


Acceleration Spectra for DRYWELL WALL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 331 Direction: HORIZ Elev: 264'-6" Angle: 0°  
 Damping: 0.005,0.01,0.02,0.05

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**DESIGN ASSESSMENT REPORT  
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 DIRECTION X**

**FIGURE 3A-121**



Acceleration Spectra for DRYWELL WALL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 431 Direction: HORIZ Elev: 325'-8" Angle: 0°  
 Damping: 0.005,0.01,0.02,0.03

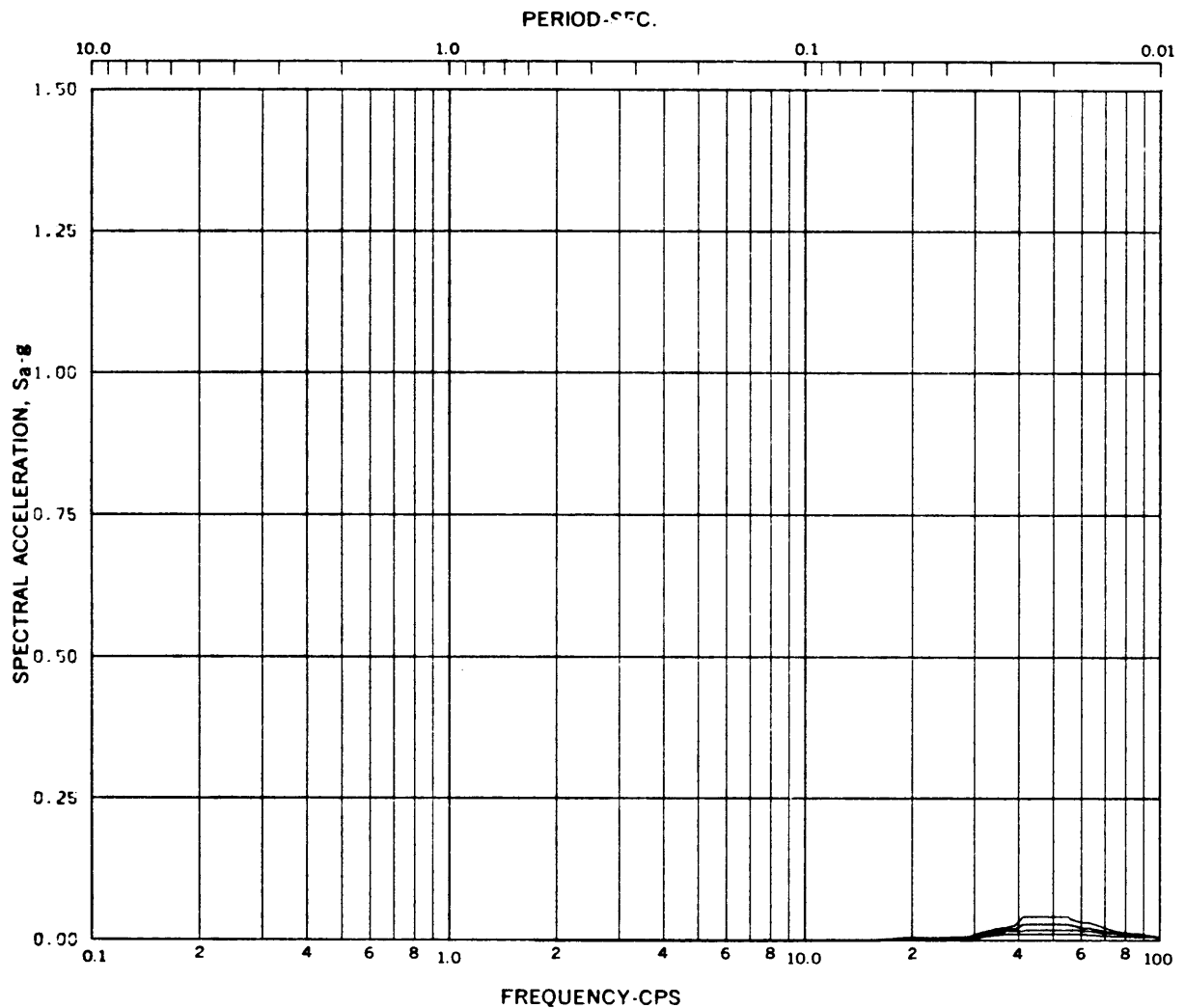
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

**LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
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**DESIGN ASSESSMENT REPORT  
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 CONDENSATION OSCILLATION WITH ADS  
 DIRECTION X**

**FIGURE 3A-122**



Acceleration Spectra for PEDESTAL

Load Case: CO FOR COMBINATION WITH ADS

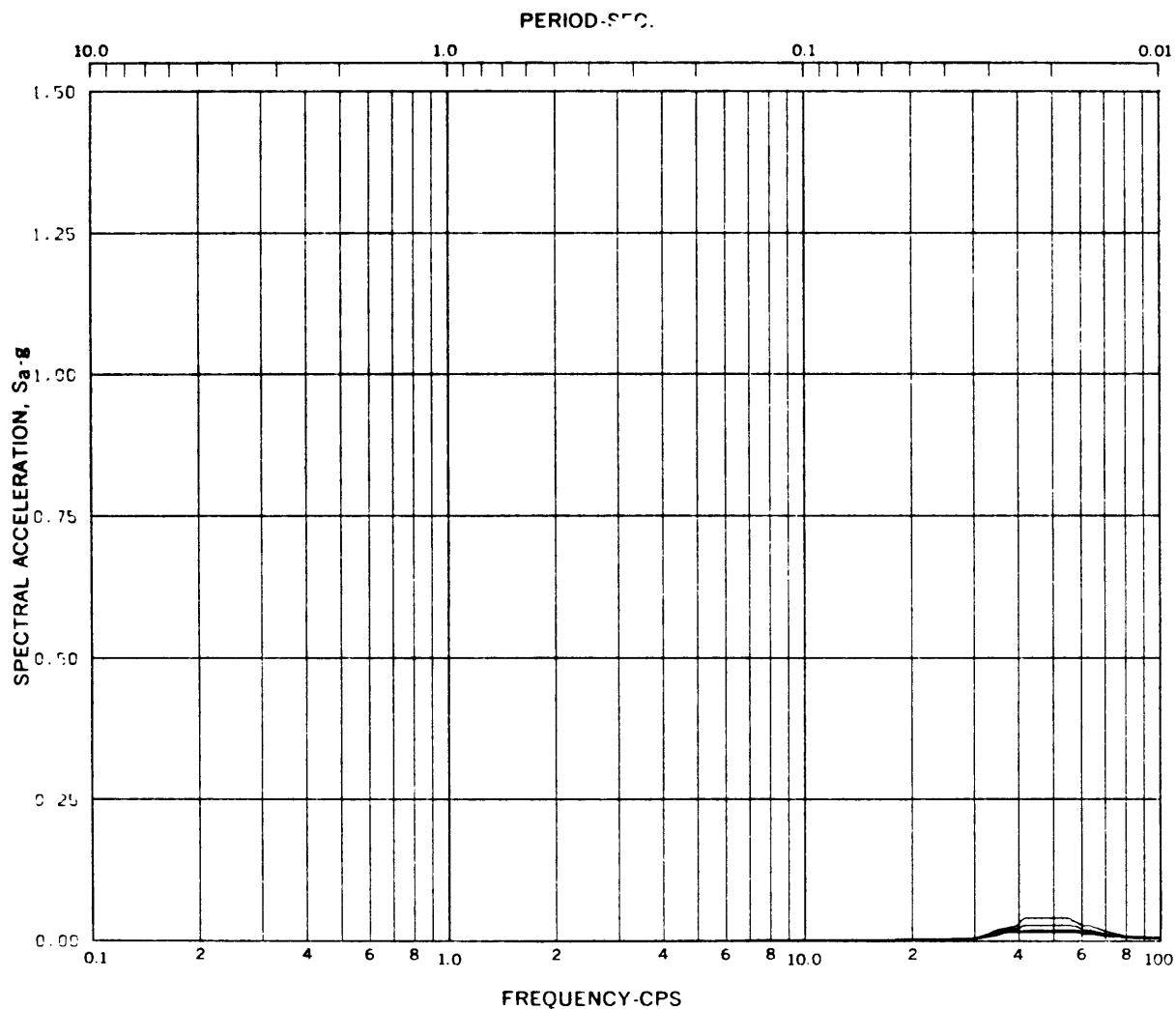
Node: 211 Direction: HORIZ Elev: 236'-2" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

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DIRECTION X

FIGURE 3A-123



Acceleration Spectra for PEDESTAL

Load Case: CO FOR COMBINATION WITH ADS

Node: 531 Direction: HORIZ Elev: 263'-8<sup>5</sup>" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

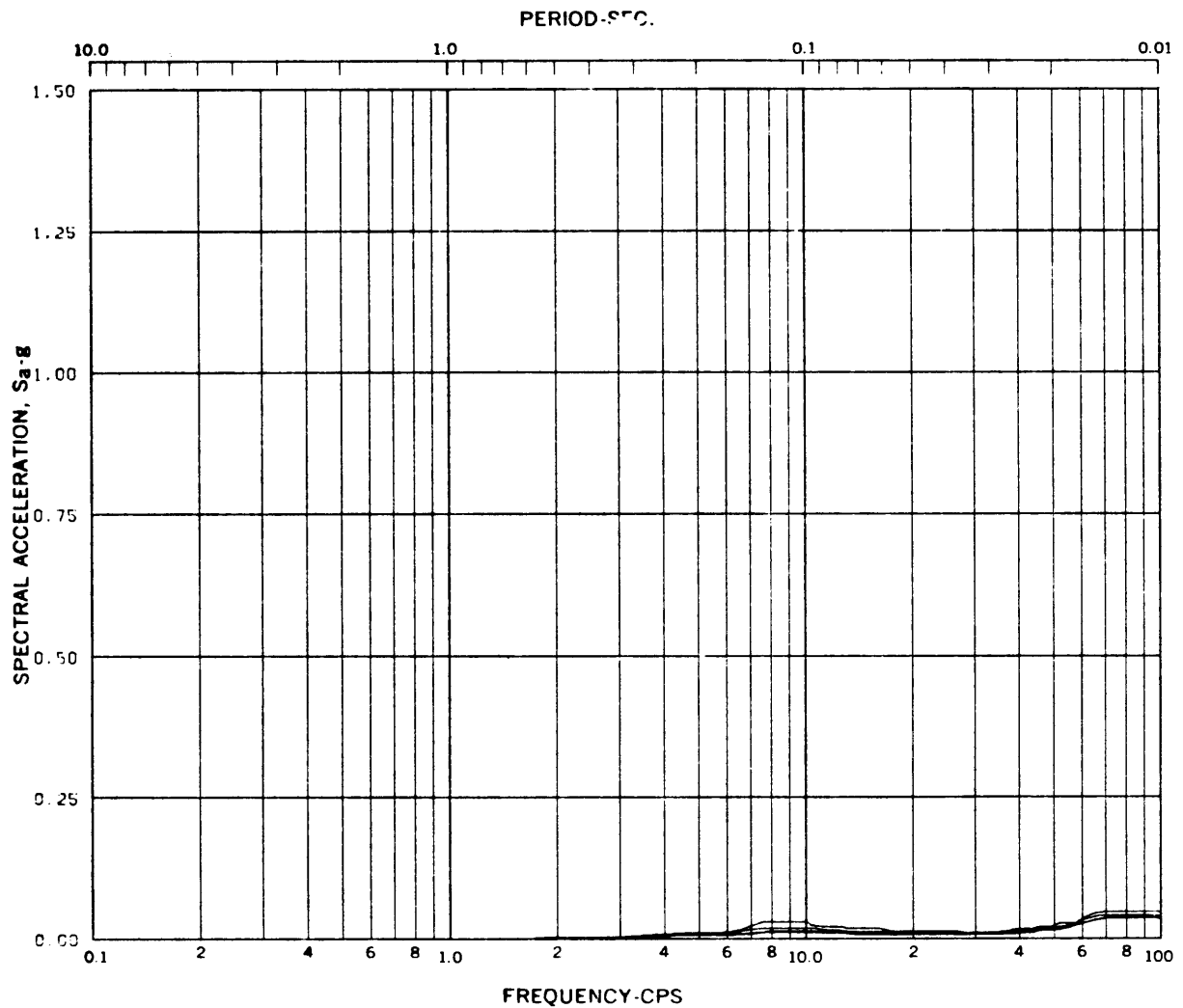
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
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DESIGN ASSESSMENT REPORT  
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DIRECTION X

FIGURE 3A-124



Acceleration Spectra for SHIELD WALL

Load Case: CO FOR COMBINATION WITH ADS

Node: 841 Direction: HORIZ Elev: 312'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

NOTE:

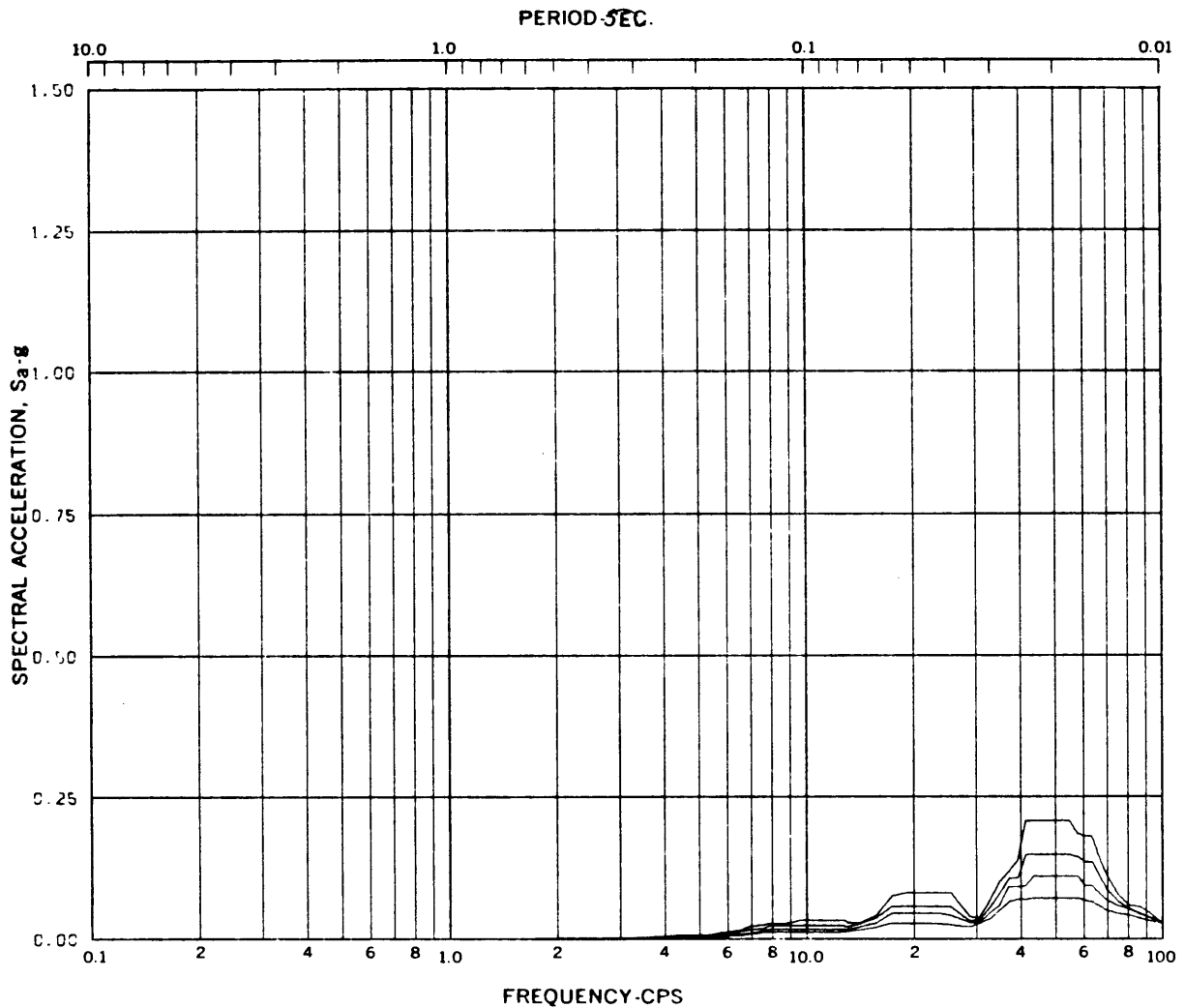
1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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DESIGN ASSESSMENT REPORT

CONTAINMENT RESPONSE SPECTRA  
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DIRECTION X

FIGURE 3A-125



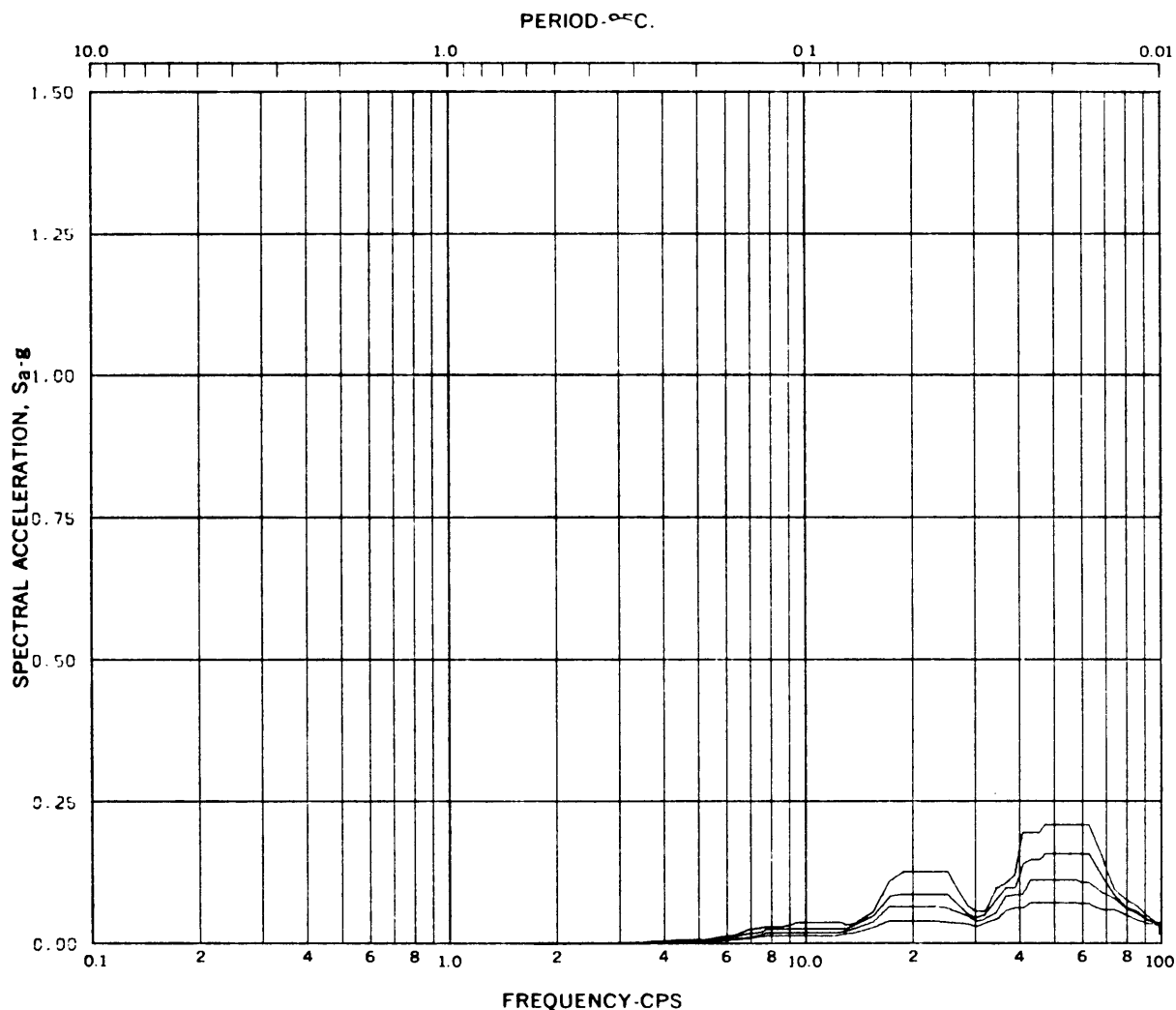
Acceleration Spectra for WETWELL WALL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 131 Direction: VERT Elev: 205'-11" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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**DESIGN ASSESSMENT REPORT**

**CONTAINMENT RESPONSE SPECTRA  
 CONDENSATION OSCILLATION WITH ADS  
 DIRECTION Z**

**FIGURE 3A-126**



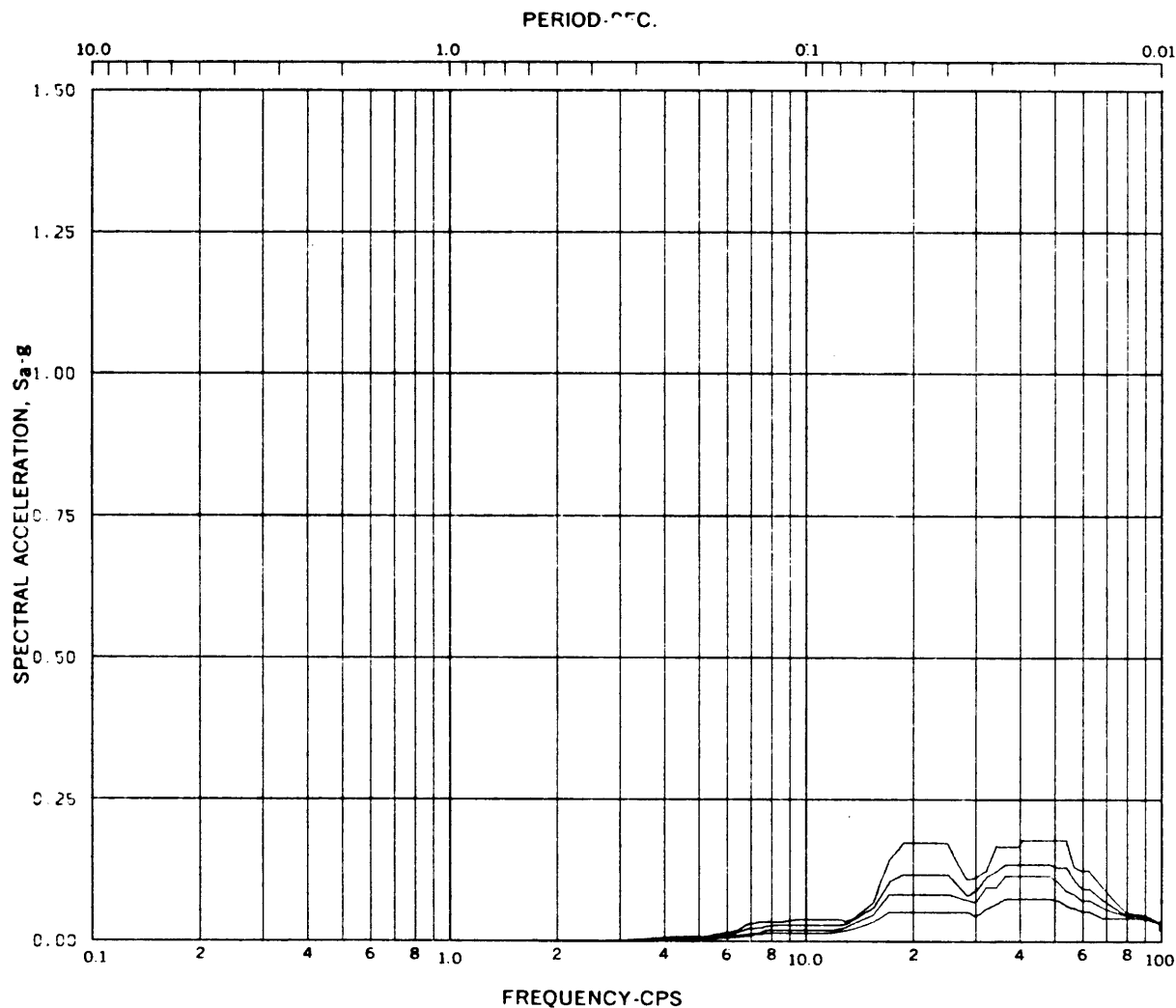
Acceleration Spectra for WETWELL WALL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 291 Direction: VERT Elev: 236'-2" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 DIRECTION Z

FIGURE 3A-127



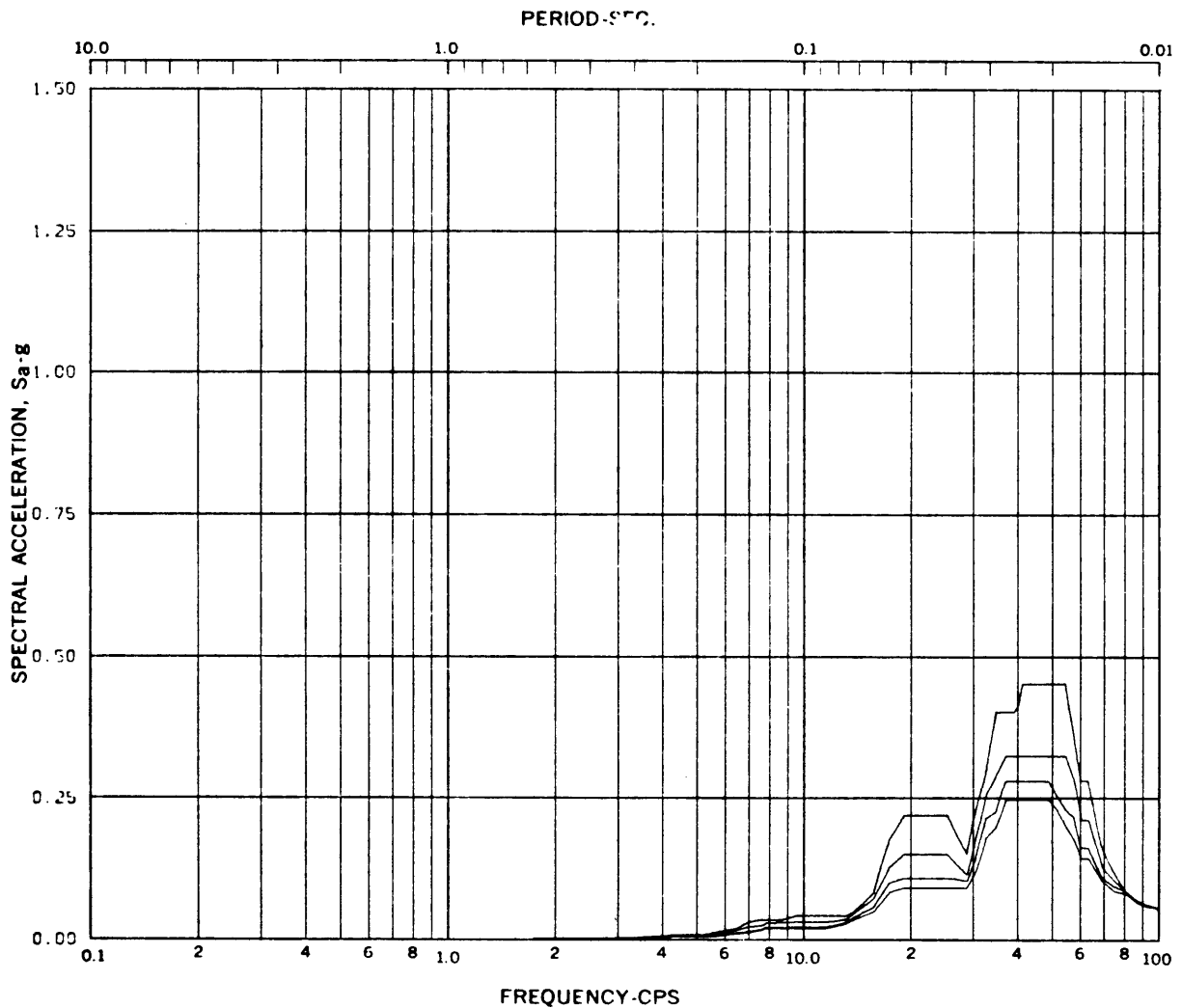


Acceleration Spectra for DRYWELL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 331 Direction: VERT Elev: 264'-6" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.05

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 DIRECTION Z**

**FIGURE 3A-128**



Acceleration Spectra for DRYWELL

Load Case: CO FOR COMBINATION WITH ADS

Node: 431 Direction: VERT Elev: 325'-8" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

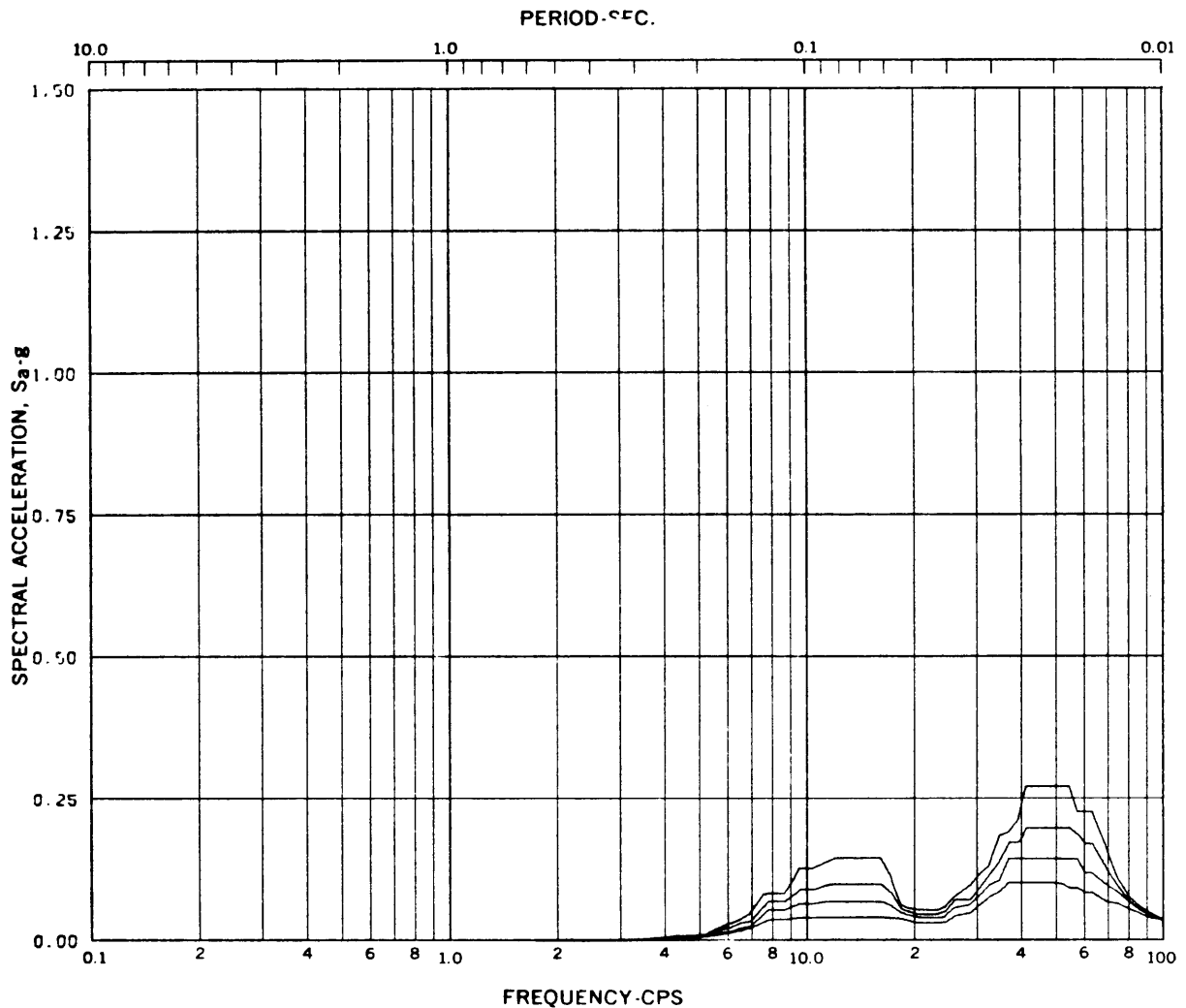
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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**DESIGN ASSESSMENT REPORT  
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CONDENSATION OSCILLATION WITH ADS  
DIRECTION Z**

**FIGURE 3A-129**



Acceleration Spectra for PEDESTAL

Load Case: CO FOR COMBINATION WITH ADS

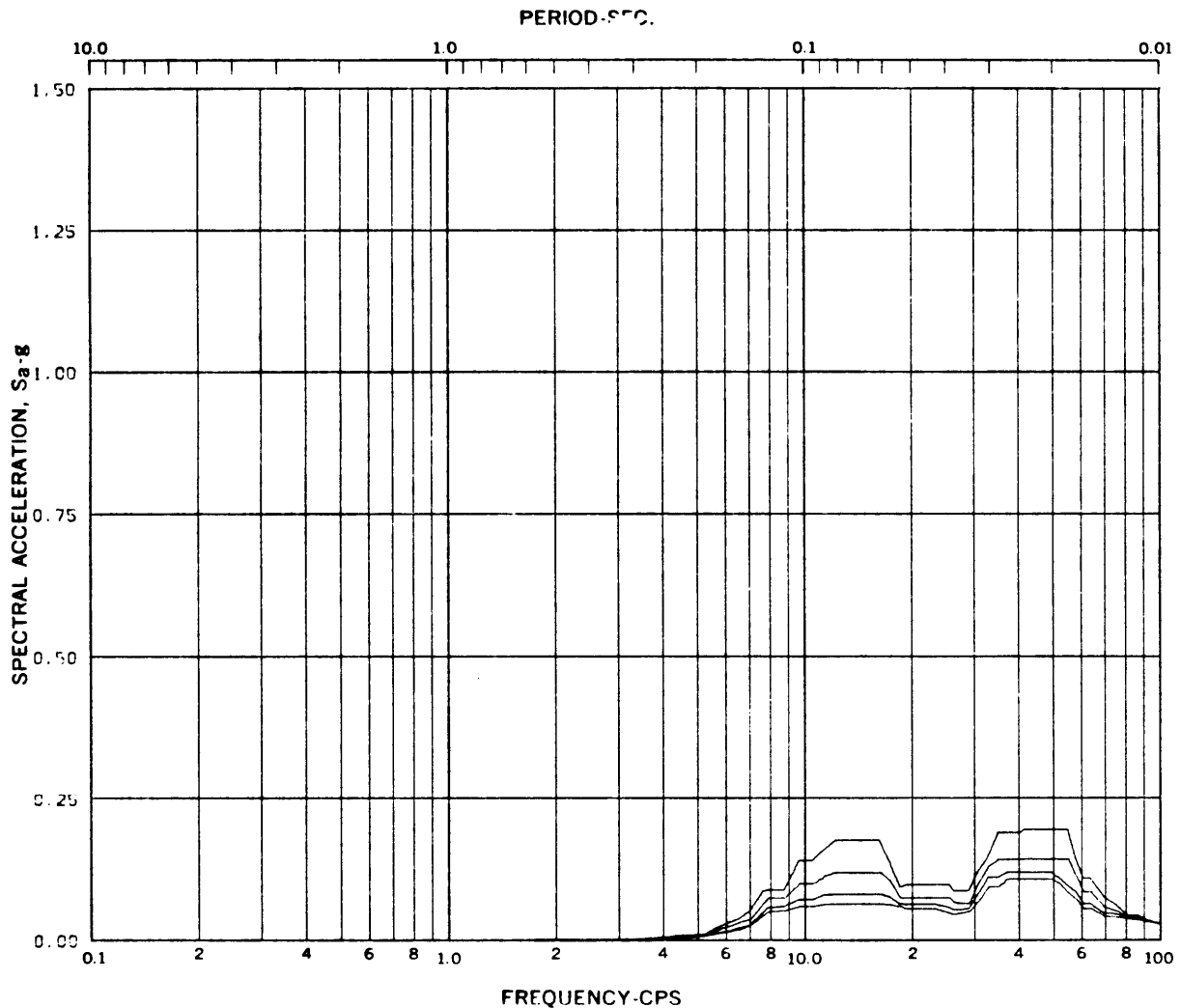
Node: 211 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005,0.01,0.02,0.05

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DIRECTION Z

FIGURE 3A-130



Acceleration Spectra for PEDESTAL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 531 Direction: VERT Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: 0°  
 Damping: 0.005, 0.01, 0.02, 0.03

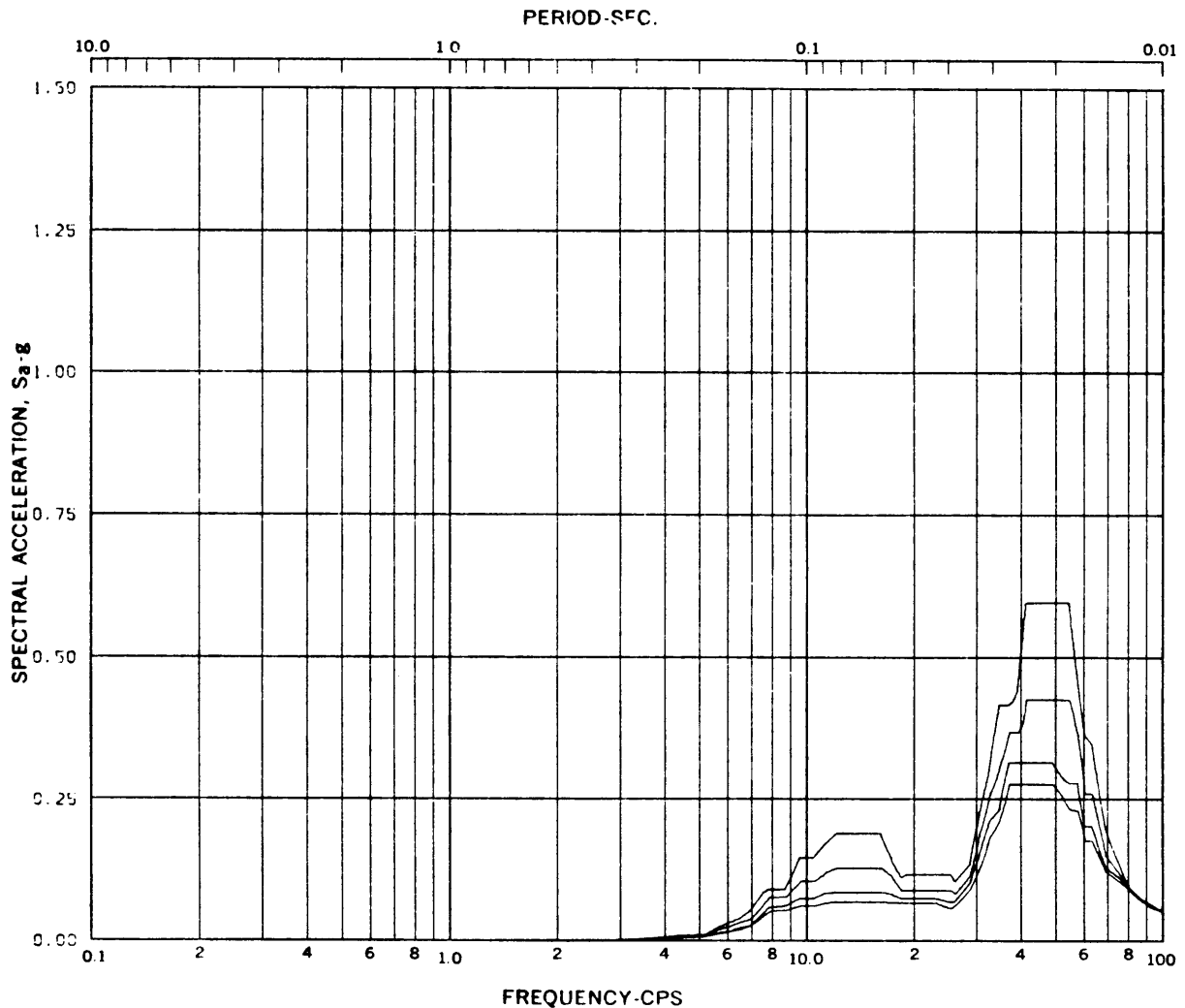
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
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 DIRECTION Z

FIGURE 3A-131



Acceleration Spectra for SHIELD WALL  
 Load Case: CO FOR COMBINATION WITH ADS  
 Node: 841 Direction: VERT Elev: 312'-8" Angle: 0°  
 Damping: 0.005,0.01,0.02,0.03

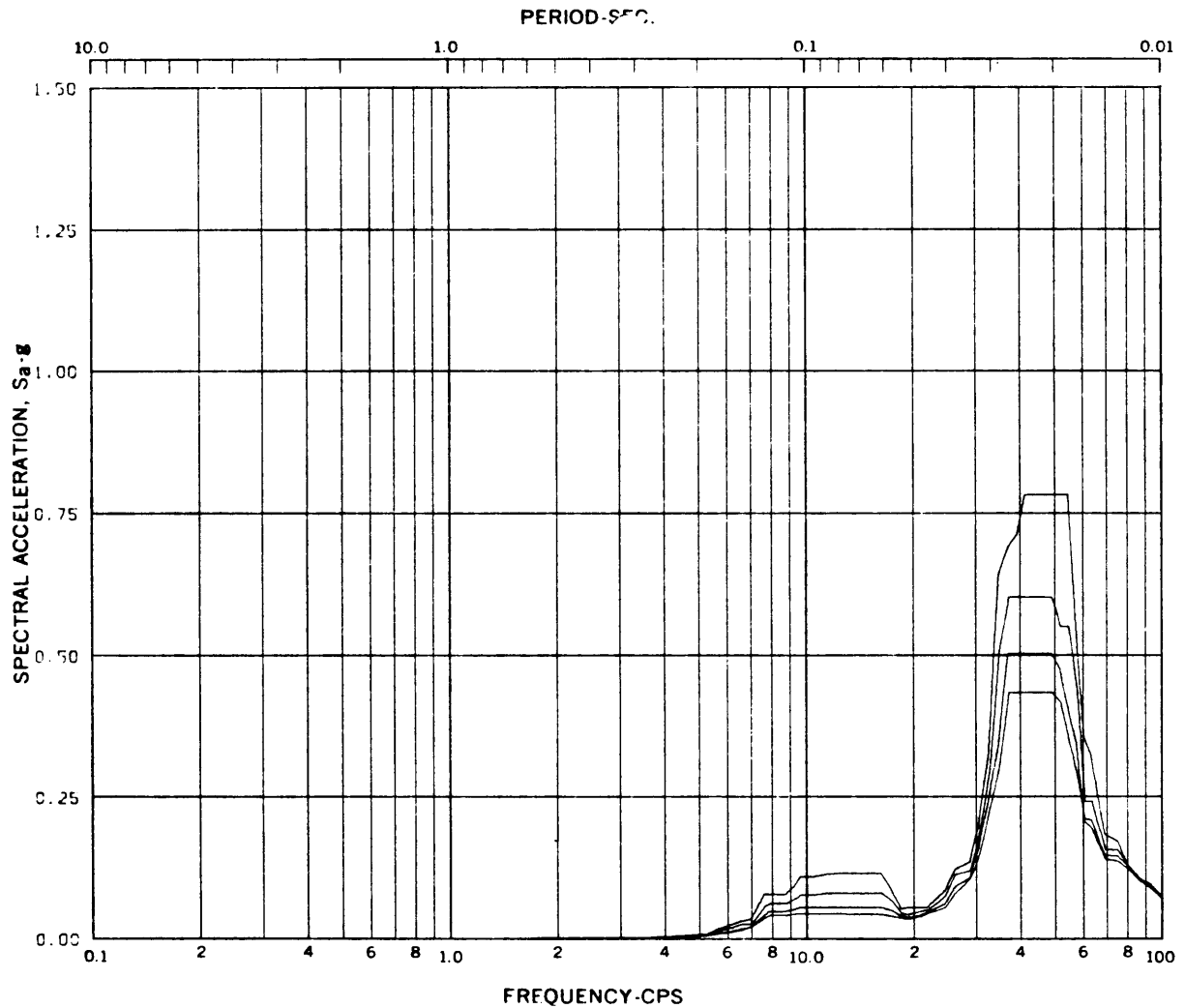
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
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DESIGN ASSESSMENT REPORT  
 CONTAINMENT RESPONSE SPECTRA  
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 DIRECTION Z

FIGURE 3A-132



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: CO FOR COMBINATION WITH ADS

Node: 231 Direction: VERT Elev: 236'-2" Angle: 0°

Damping: 0.005, 0.01, 0.02, 0.03

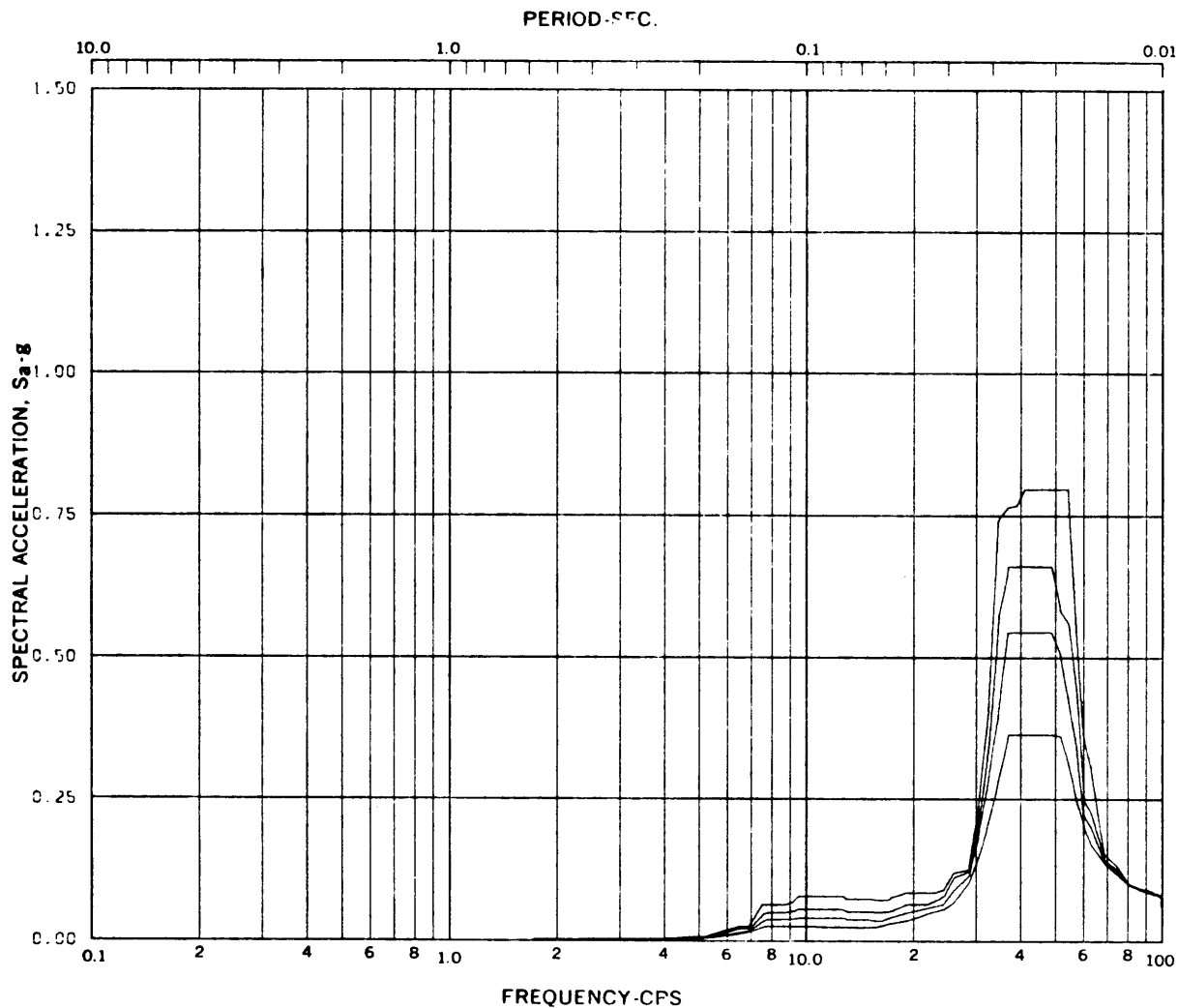
NOTE:

1. 0.05 DAMPING NOT INCLUDED.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CONDENSATION OSCILLATION WITH ADS  
DIRECTION Z

FIGURE 3A-133



Acceleration Spectra for DIAPHRAGM SLAB

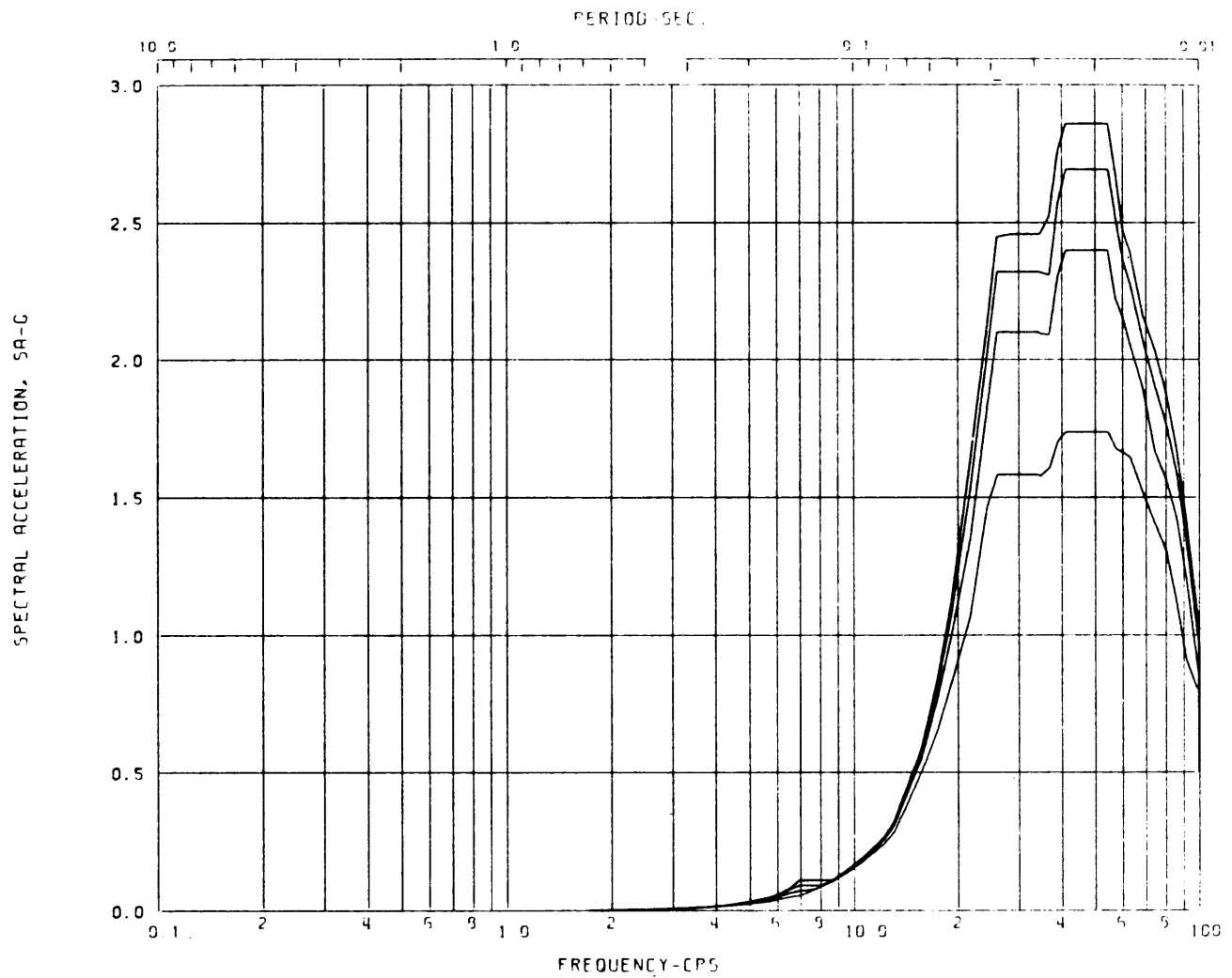
Load Case: CO FOR COMBINATION WITH ADS

Node: 252 Direction: VERT Elev: 236'-2" Angle: 22°30'

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
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CONTAINMENT RESPONSE SPECTRA  
CONDENSATION OSCILLATION WITH ADS  
DIRECTION Z

FIGURE 3A-134



Acceleration Spectra for WETWELL WALL

Load Case: CHUG 700 SYM/700A ASYM

Node: 131 Direction: HORIZ Elev: 205'-11" Angle: -

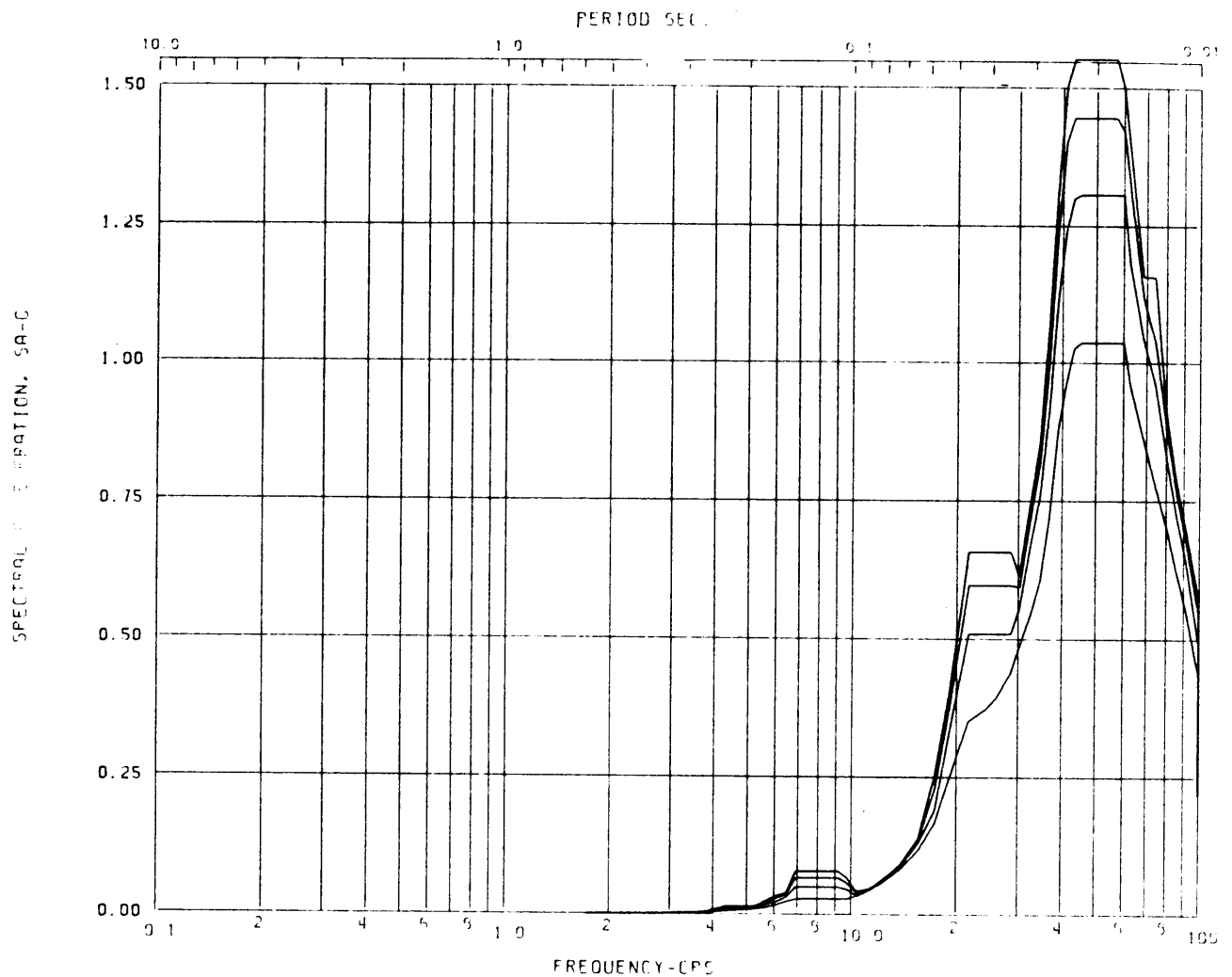
Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X**

**FIGURE 3A-135**





Acceleration Spectra for WETWELL WALL

Load Case: CHUG 700 SYM/700A ASYM

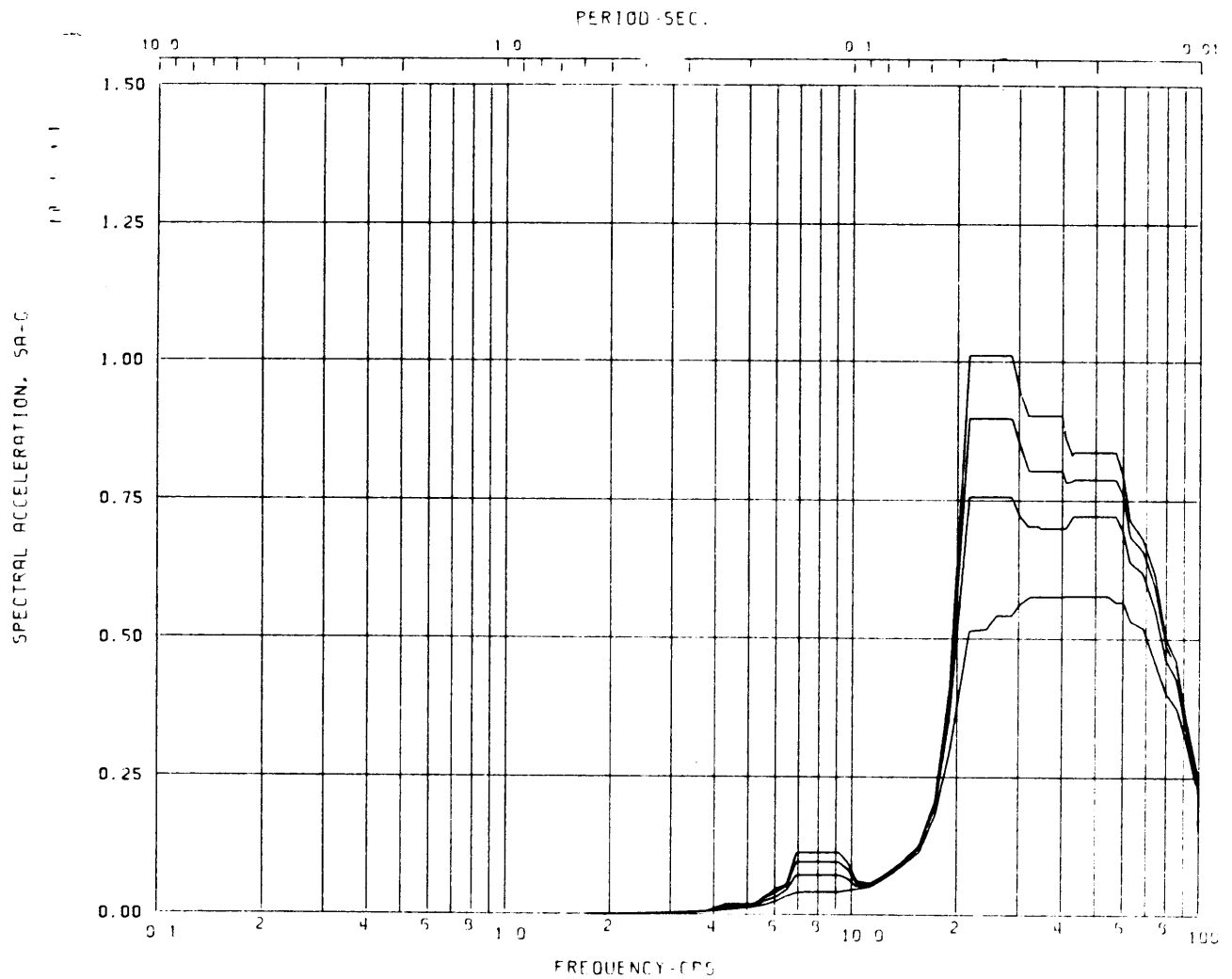
Node: 291 Direction: HORIZ Elev: 236'-2" Angle: -

Damping: 0.005,0.01,0.02,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X**

**FIGURE 3A-136**



Acceleration Spectra for DRYWELL WALL

Load Case: CHUG 700 SYM/700A ASYM

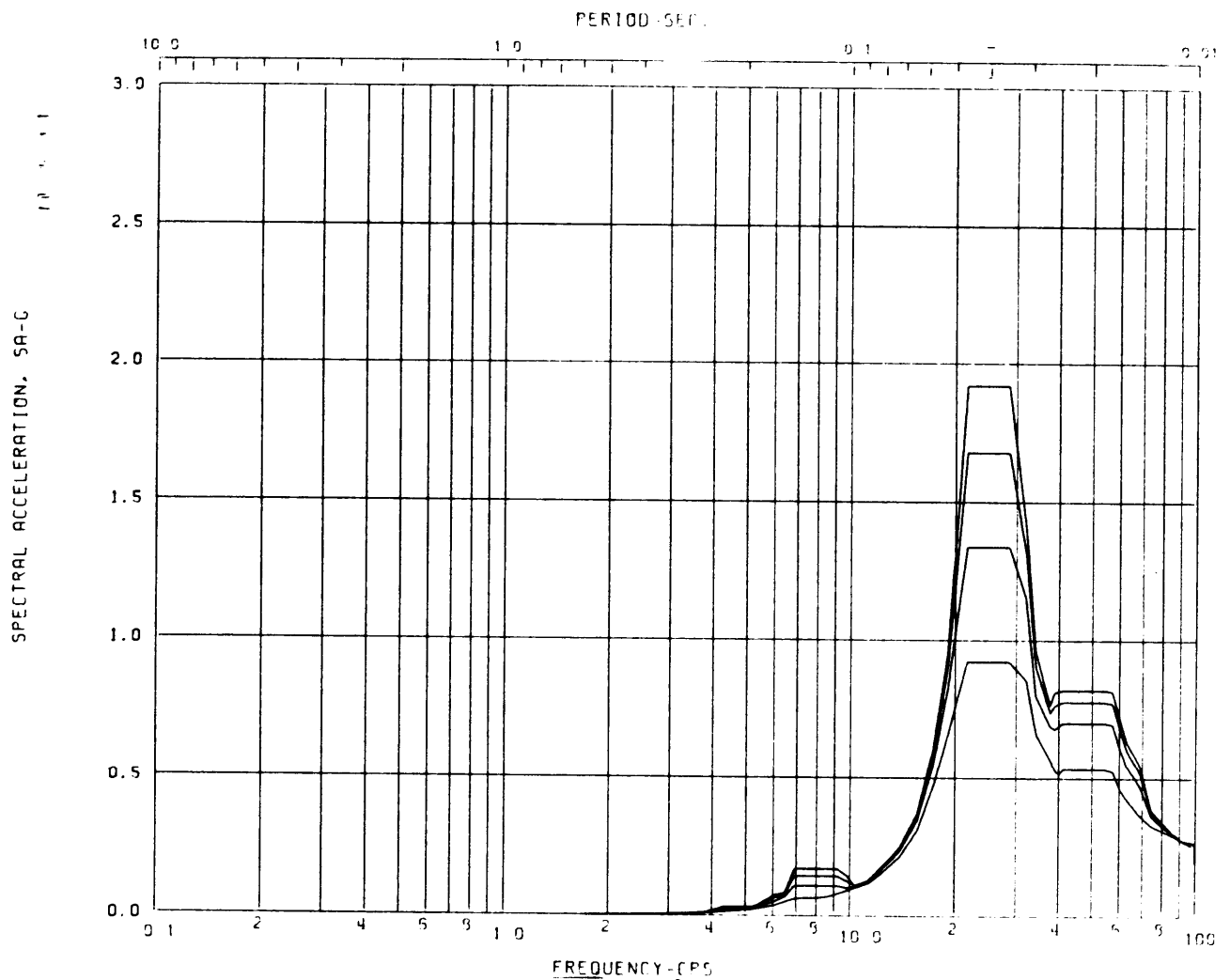
Node: 331 Direction: HORIZ Elev: 264'-6" Angle: -

Damping: 0.005,0.01,0.02,0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X

FIGURE 3A-137



Acceleration Spectra for DRYWELL WALL

Load Case: CHUG 700 SYM/700A ASYM

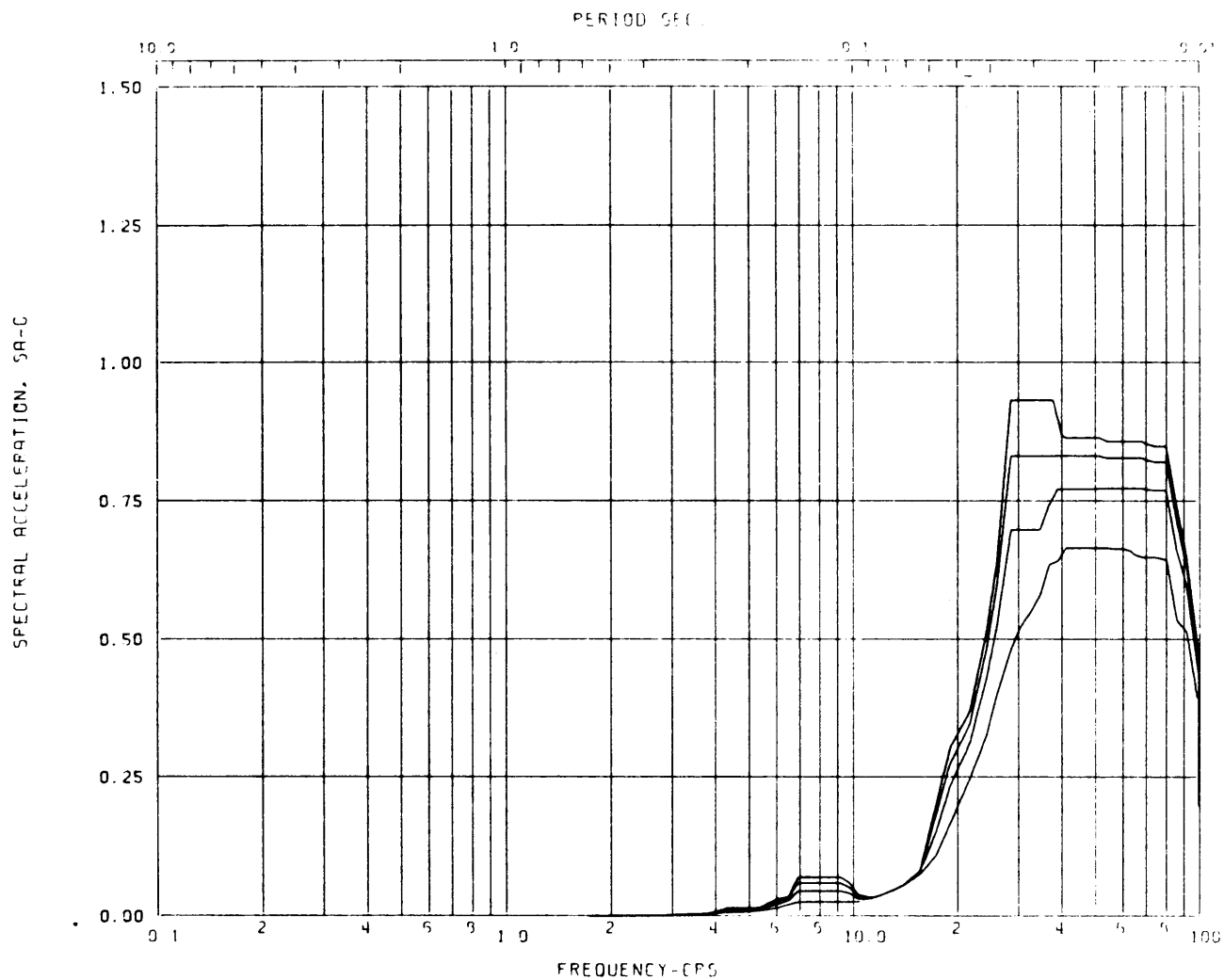
Node: 431 Direction: HORIZ Elev: 325'-8" Angle: -°

Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X**

**FIGURE 3A-138**



Acceleration Spectra for PEDESTAL

Load Case: CHUG 700 SYM/700A ASYM

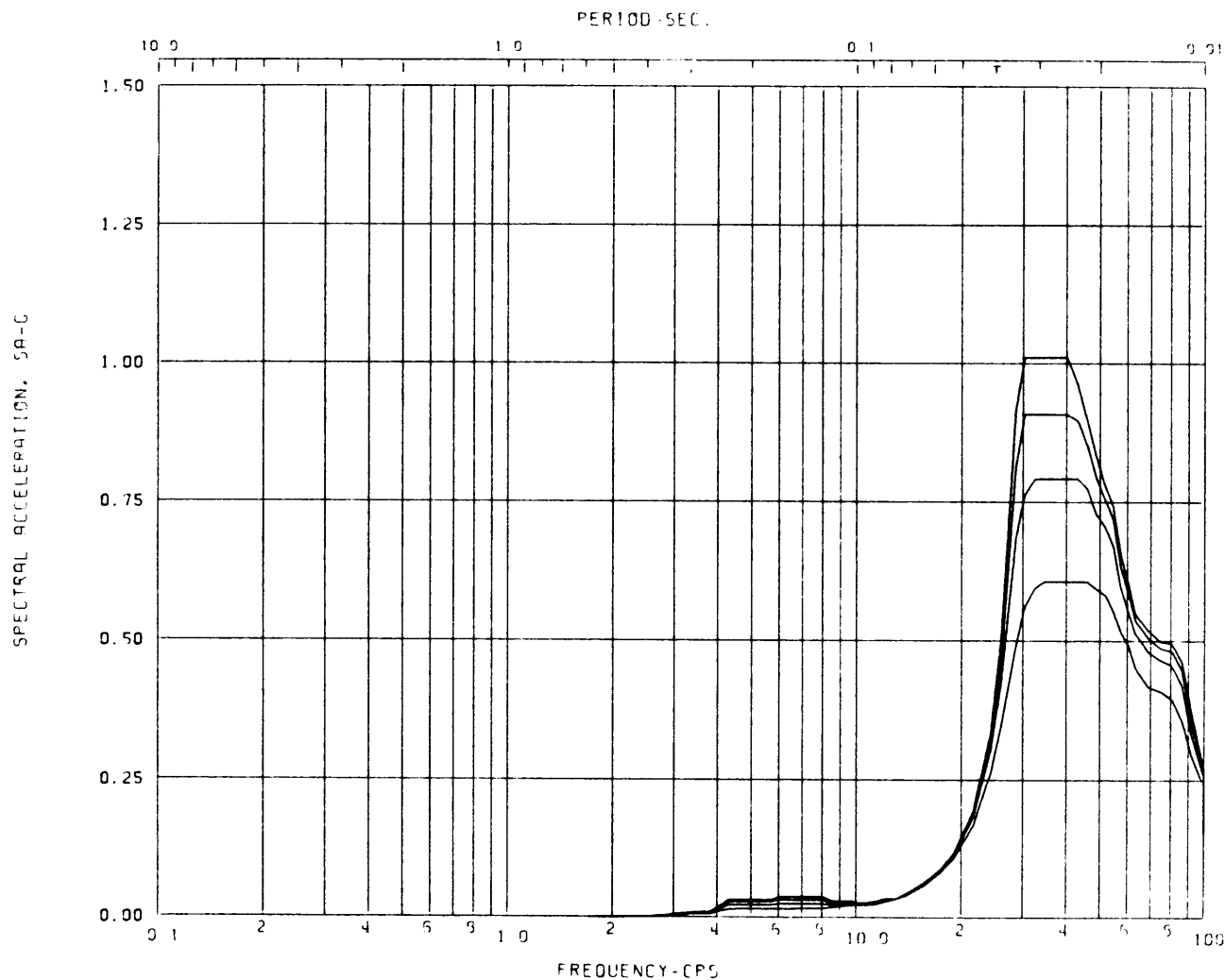
Node: 211 Direction: HORIZ Elev: 236'-2" Angle: -

Damping: 0.005,0.01,0.02,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X**

**FIGURE 3A-139**



Acceleration Spectra for PEDESTAL

Load Case: CHUG 700 SYM/700A ASYM

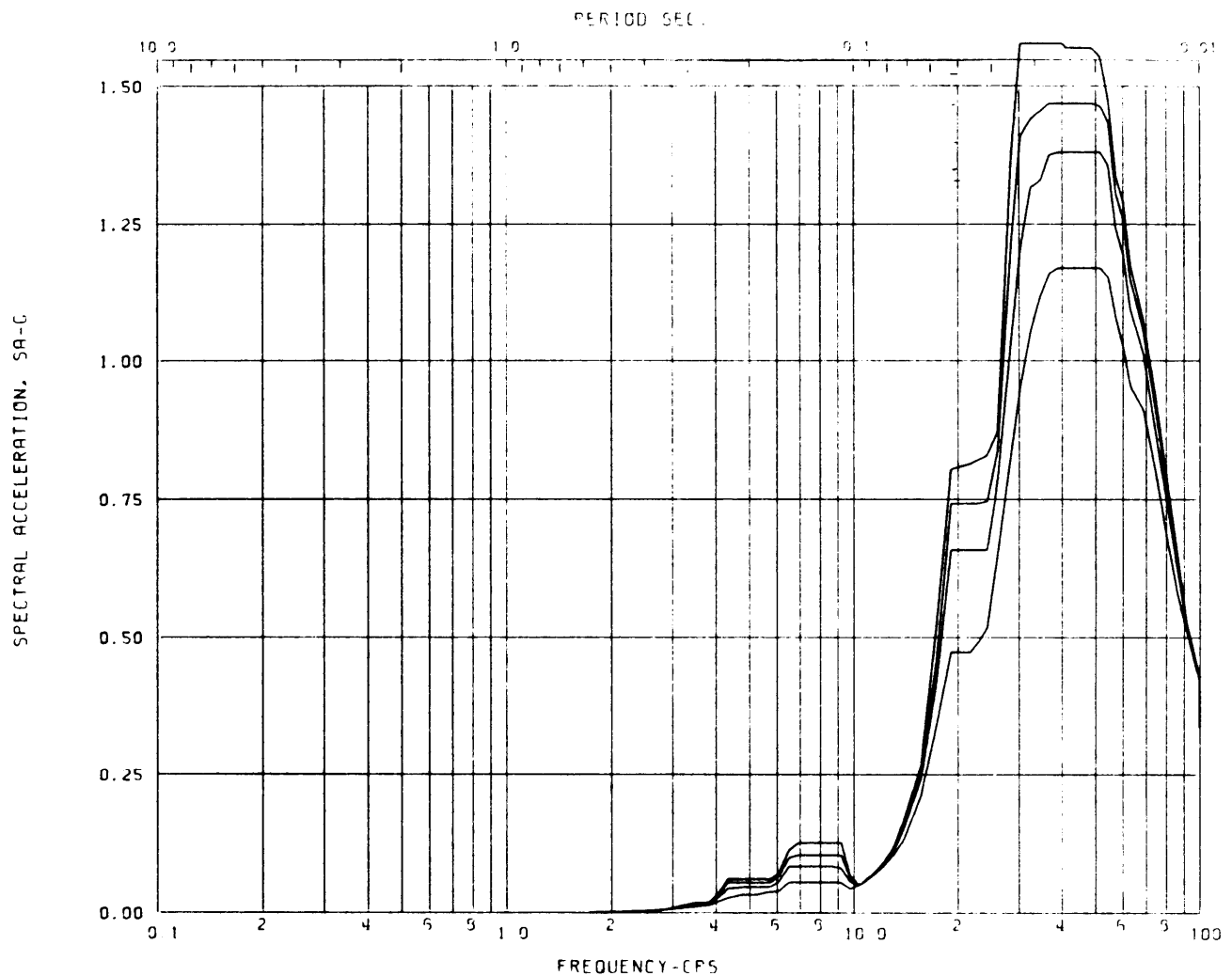
Node: 531 Direction: HORIZ Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: -

Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X**

**FIGURE 3A-140**



Acceleration Spectra for SHIELD WALL

Load Case: CHUG 700 SYM/700A ASYM

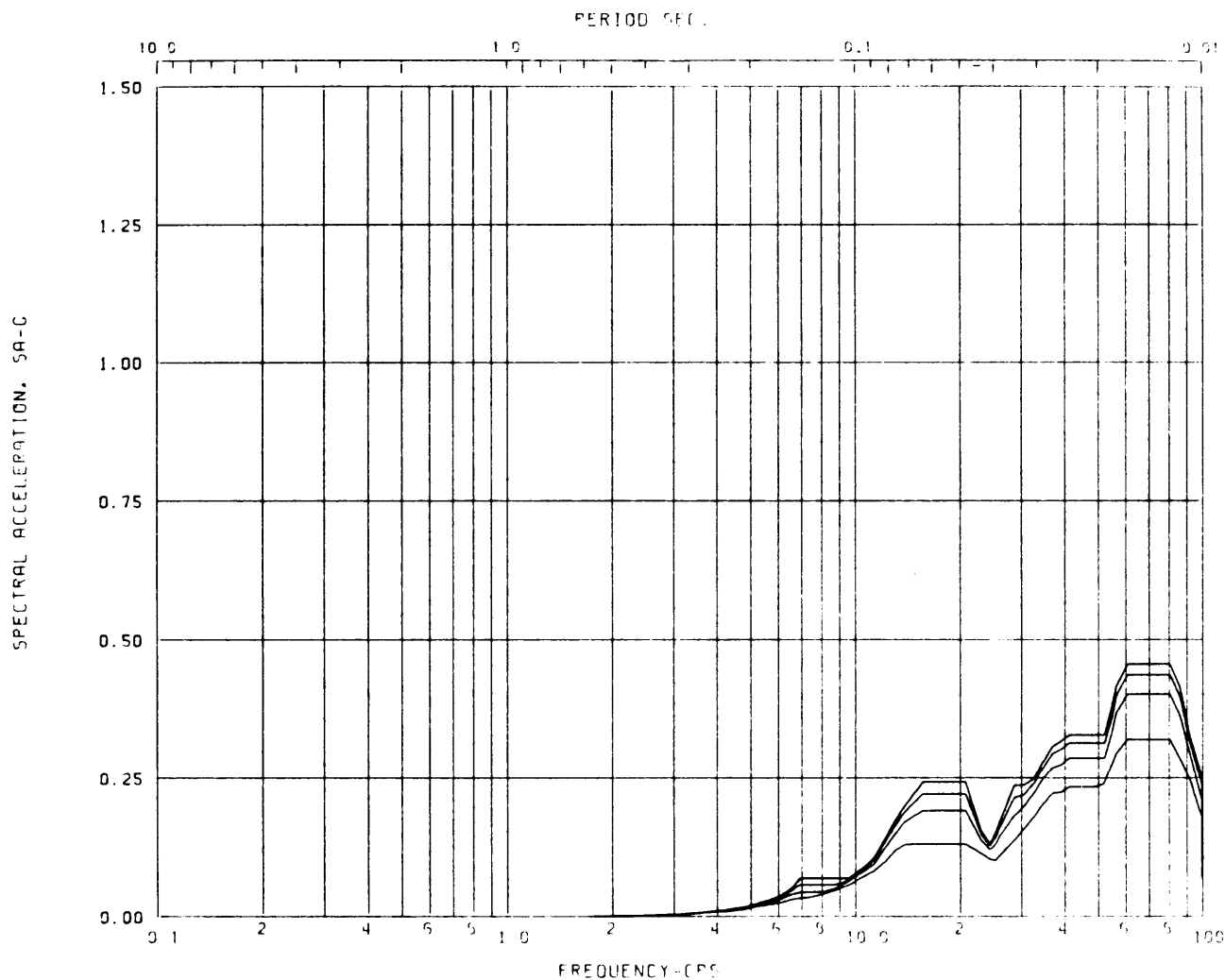
Node: 841 Direction: HORIZ Elev: 312'-8" Angle: -

Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION X

FIGURE 3A-141

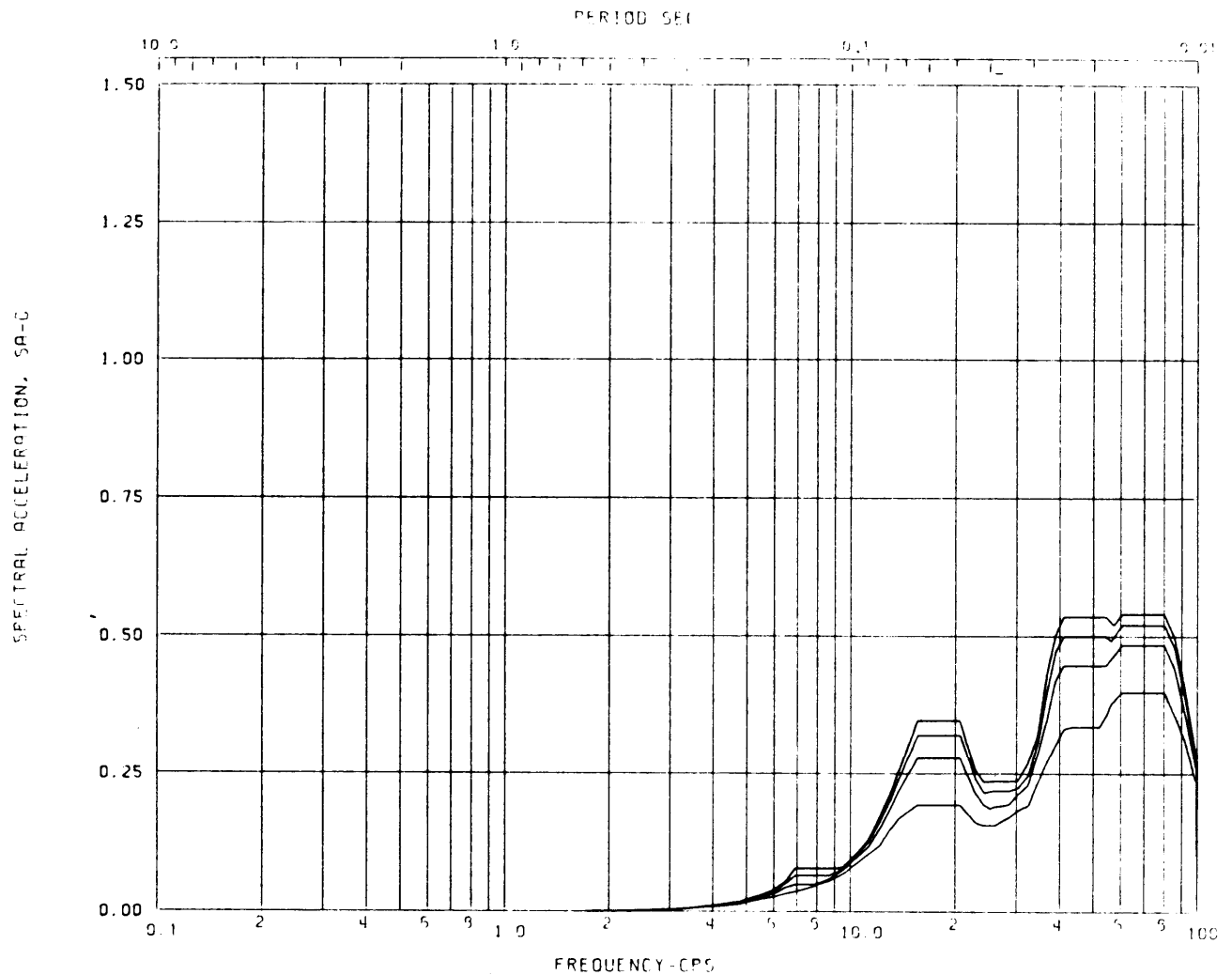


Acceleration Spectra for WETWELL WALL  
 Load Case: CHUG 700 SYM/700A ASYM  
 Node: 131 Direction: VERT Elev: 205'-11" Angle: -  
 Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
 CONTAINMENT RESPONSE SPECTRA  
 CHUGGING  
 DIRECTION Z**

**FIGURE 3A-142**



Acceleration Spectra for WETWELL WALL

Load Case: CHUG 700 SYM/700A ASYM

Node: 291 Direction: VERT Elev: 236'-2" Angle: -

Damping: 0.005, 0.01, 0.02, 0.05

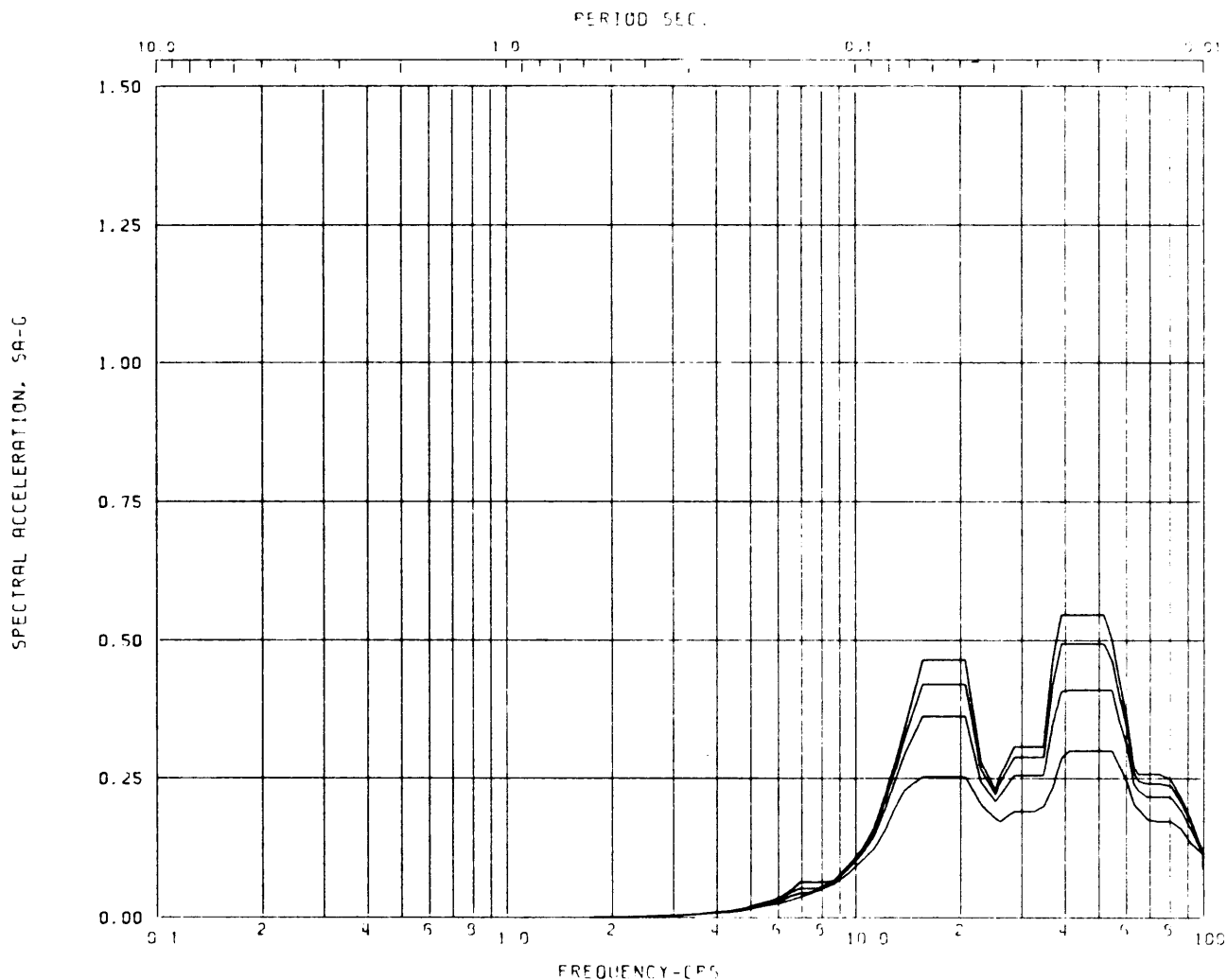
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION Z**

**FIGURE 3A-143**



**FIGURE 3A-144**



Acceleration Spectra for DRYWELL WALL

Load Case: CHUG 700 SYM/700A ASYM

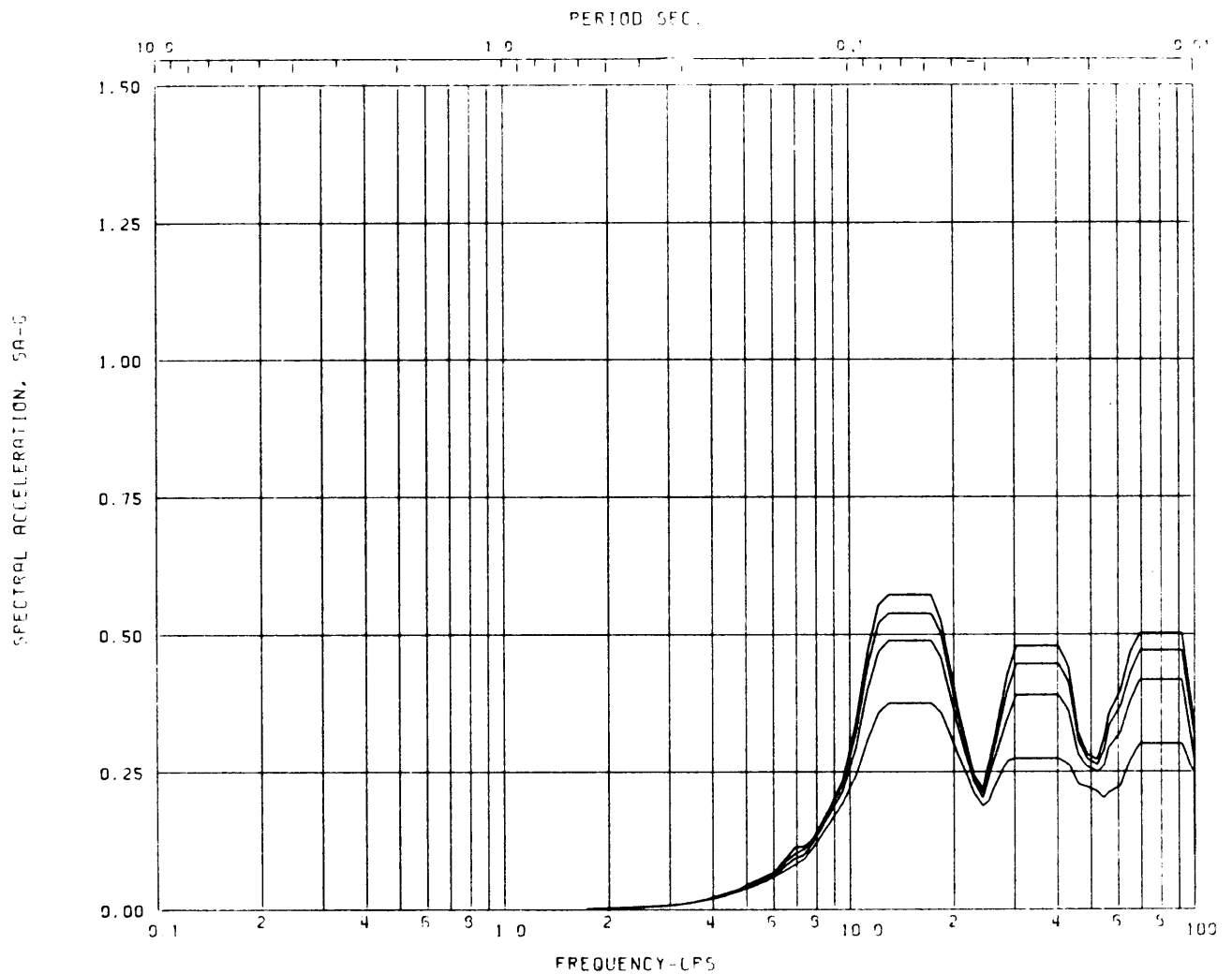
Node: 431 Direction: VERT Elev: 325'-8" Angle: -

Damping: 0.005,0.01,0.02,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION Z**

**FIGURE 3A-145**



Acceleration Spectra for PEDESTAL

Load Case: CHUG 700 SYM/700A ASYM

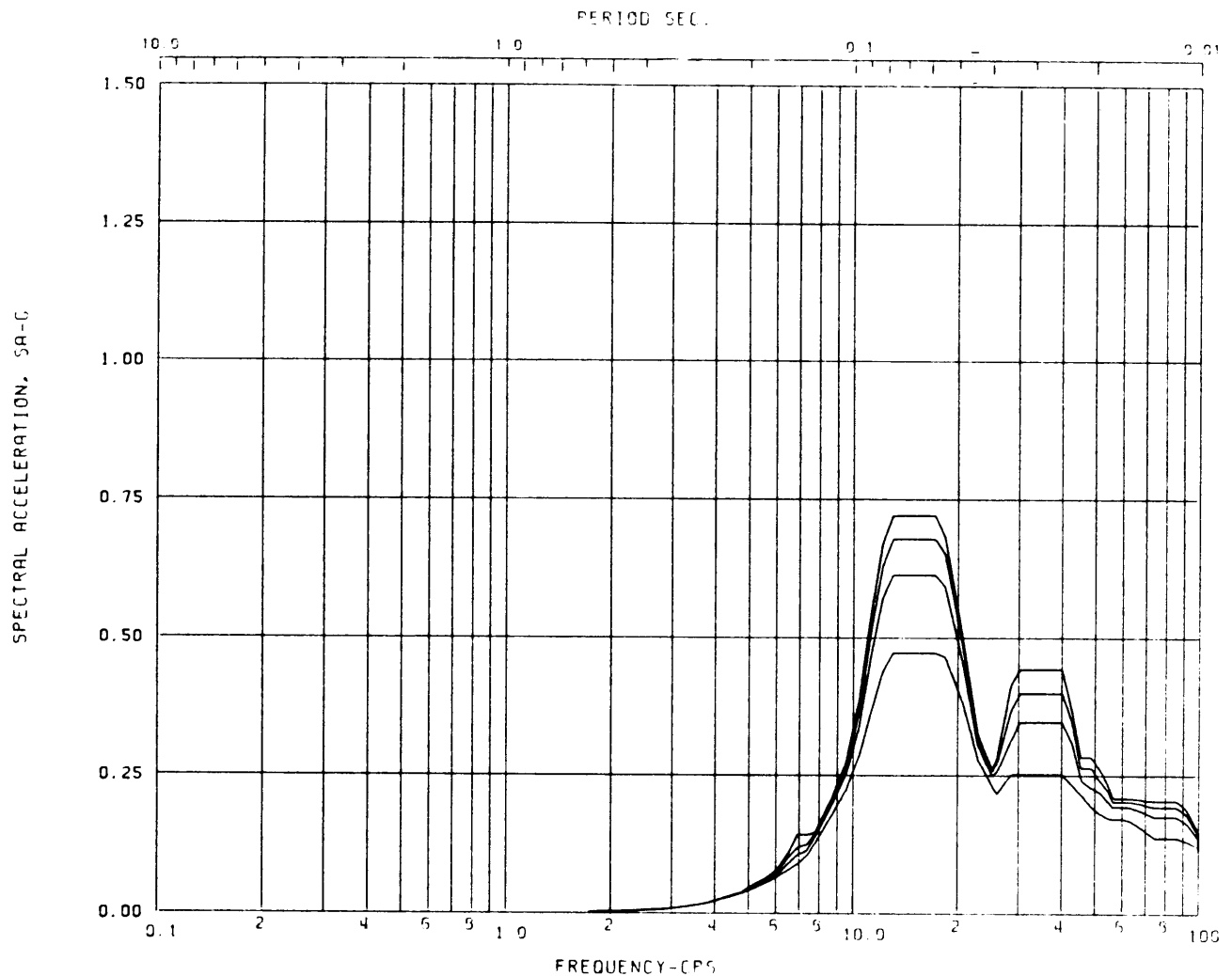
Node: 211 Direction: VERT Elev: 236'-2" Angle: -

Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION Z**

**FIGURE 3A-146**



Acceleration Spectra for PEDESTAL

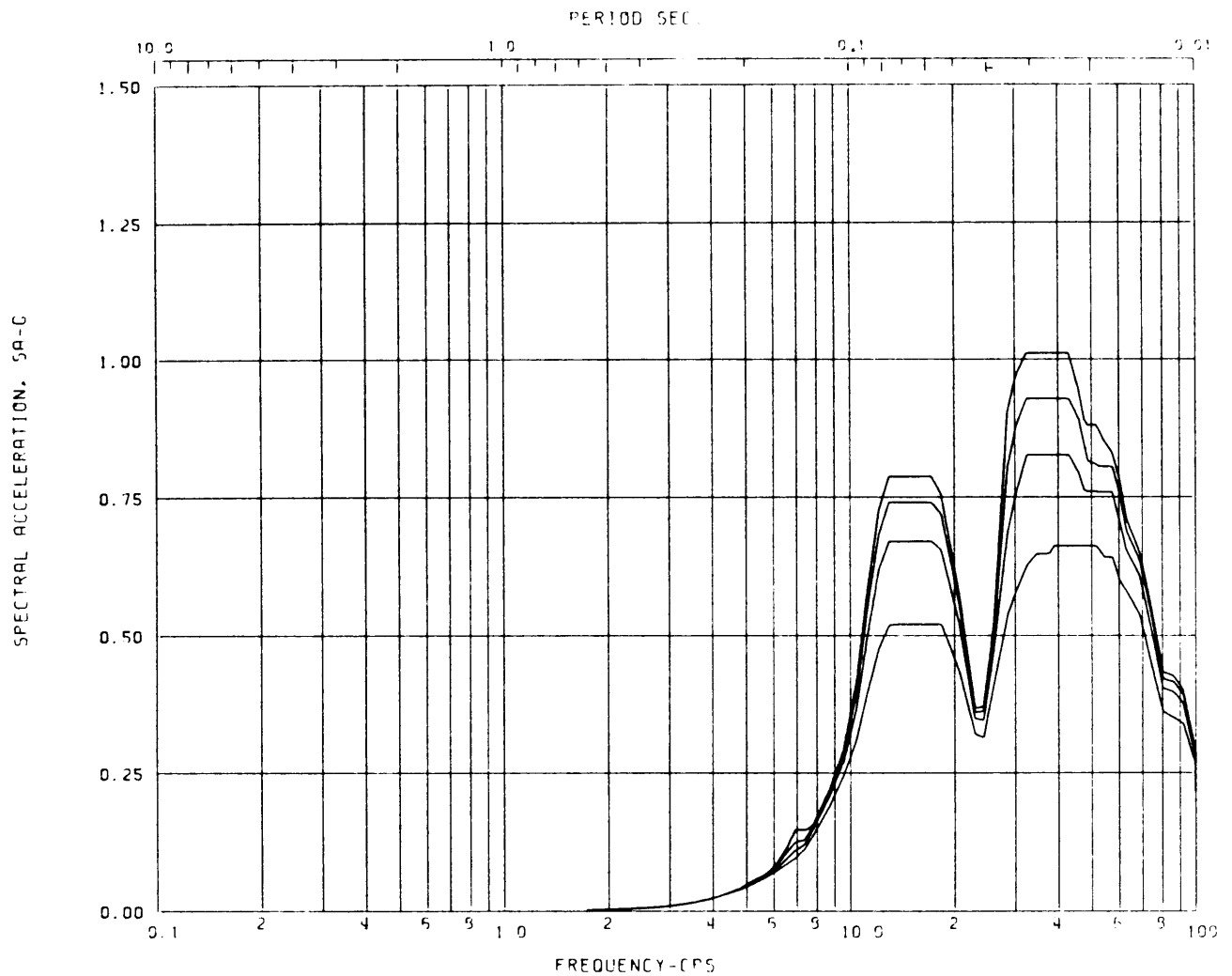
Load Case: CHUG 700 SYM/700A ASYM

Node: 531 Direction: VERT Elev: 263'-8<sup>5</sup>/<sub>8</sub>" Angle: -

Damping: 0.005, 0.01, 0.02, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT  
DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION Z**

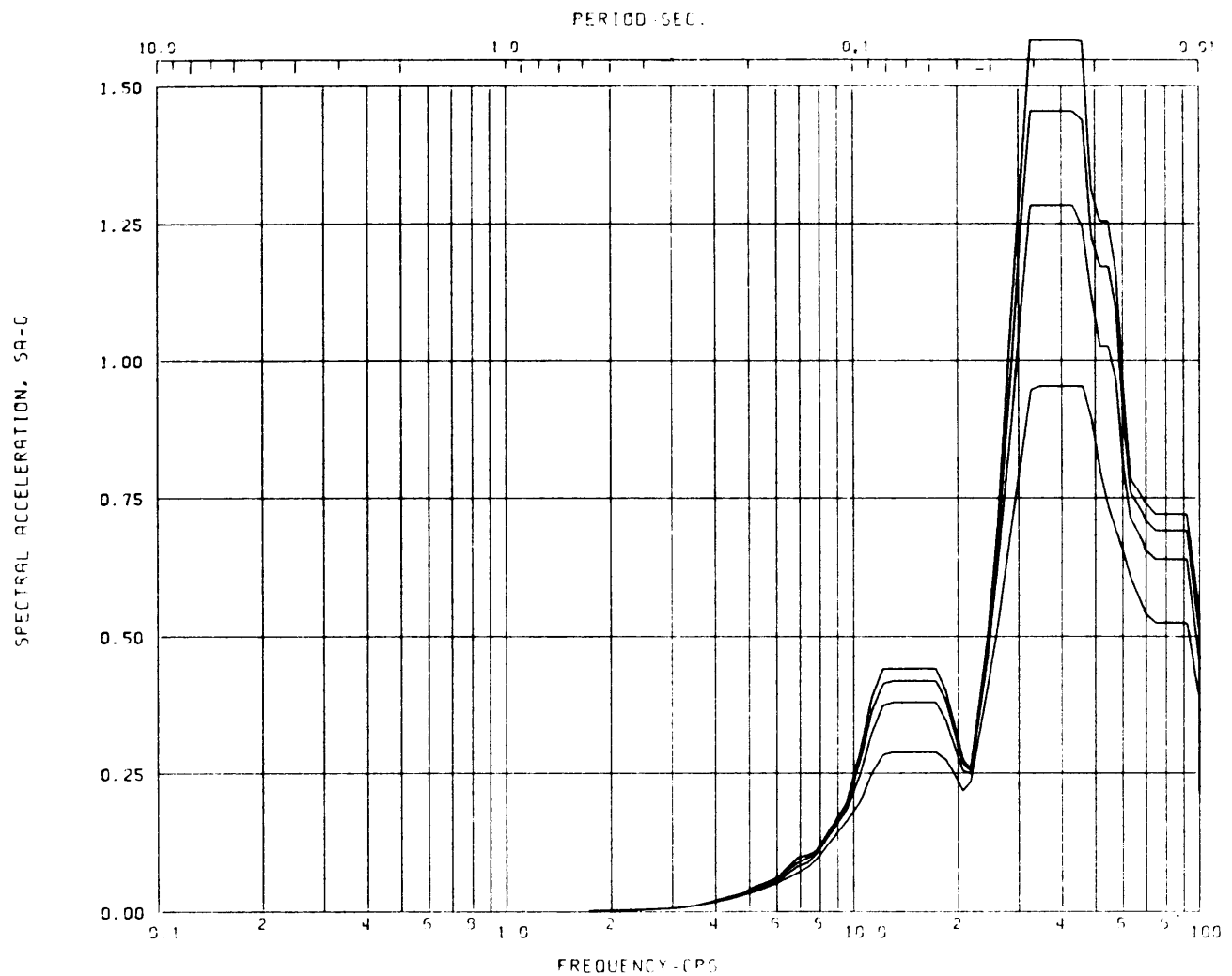
**FIGURE 3A-147**



Acceleration Spectra for SHIELD WALL  
 Load Case: CHUG 700 SYM/700A ASYM  
 Node: 841 Direction: VERT Elev: 312'-8" Angle: -  
 Damping: 0.005, 0.01, 0.02, 0.05

LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT  
 DESIGN ASSESSMENT REPORT  
 CONTAINMENT RESPONSE SPECTRA  
 CHUGGING  
 DIRECTION Z

FIGURE 3A-148



Acceleration Spectra for DIAPHRAGM SLAB

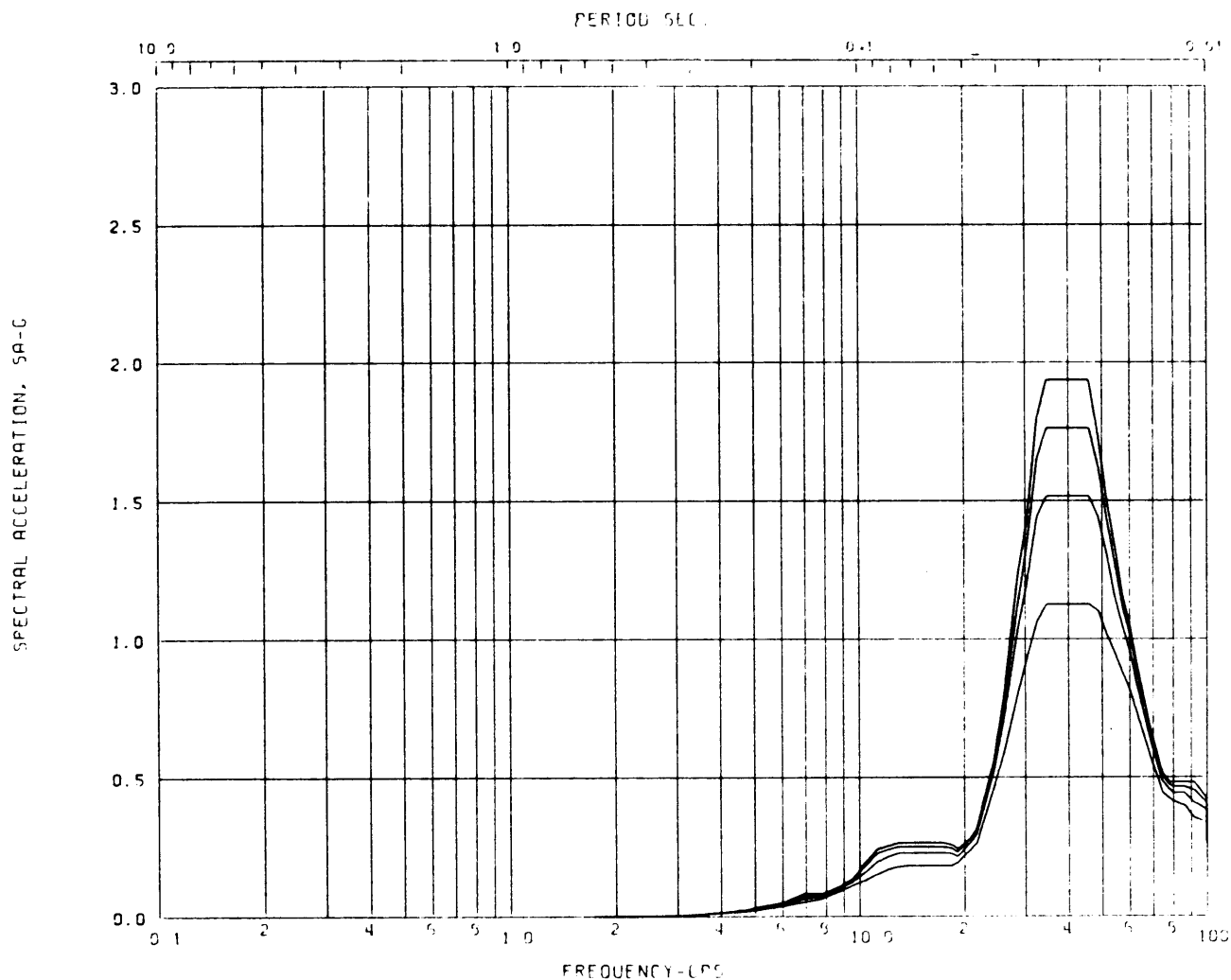
Load Case: CHUG 700 SYM/700A ASYM

Node: 231 Direction: VERT Elev: 236'-2" Angle: -

Damping: 0.005,0.01,0.02,0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT  
DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION Z

FIGURE 3A-149



Acceleration Spectra for DIAPHRAGM SLAB

Load Case: CHUG 700 SYM/700A ASYM

Node: 252 Direction: VERT Elev: 236'-2" Angle: -

Damping: 0.005,0.01,0.02,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT RESPONSE SPECTRA  
CHUGGING  
DIRECTION Z**

**FIGURE 3A-150**

HORIZONTAL EAST-WEST DIRECTION

MODE No.	FREQUENCY (Hz.)	PARTICIPATION FACTOR
1	3.96	-89.98
2	12.50	-32.68
3	18.77	-22.52
4	24.20	15.29
5	31.63	-12.80
6	44.39	4.77
7	58.78	15.41
8	76.17	10.67
9	90.00	0.0003
10	133.78	-0.008
11	139.92	0.002
12	148.41	-0.0003

HORIZONTAL NORTH-SOUTH DIRECTION

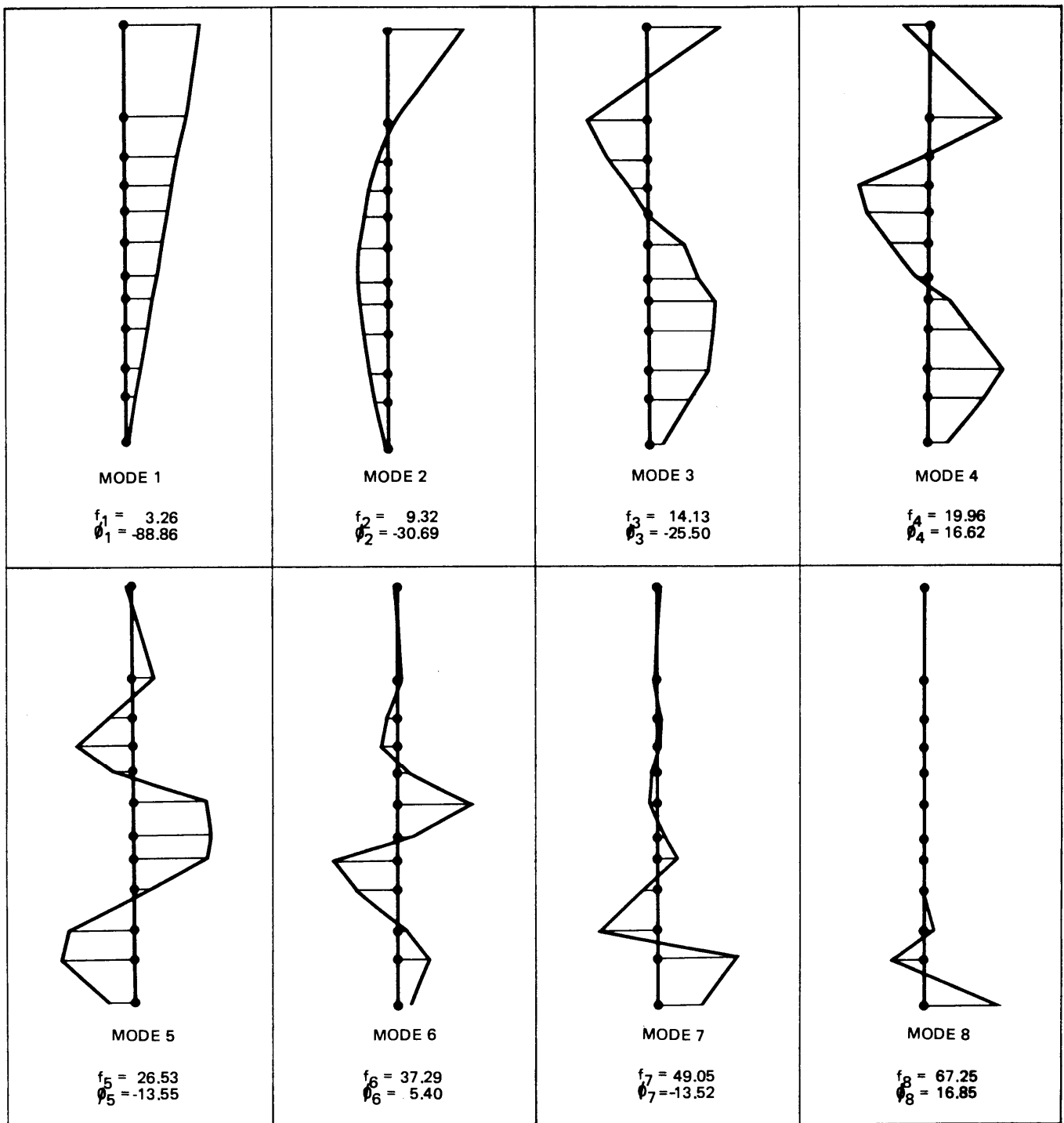
MODE No.	FREQUENCY (Hz.)	PARTICIPATION FACTOR
1	3.26	-88.86
2	9.32	-30.69
3	14.13	-25.50
4	19.96	16.62
5	26.53	-13.55
6	37.29	5.40
7	49.05	-13.52
8	67.25	16.85
9	76.13	0.0003
10	114.47	-0.007
11	118.02	-0.002
12	120.51	0.0007

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE MODE FREQUENCIES AND  
PARTICIPATION FACTORS  
(HORIZONTAL STICK MODEL)**

**FIGURE 3A-151**





NOTE:

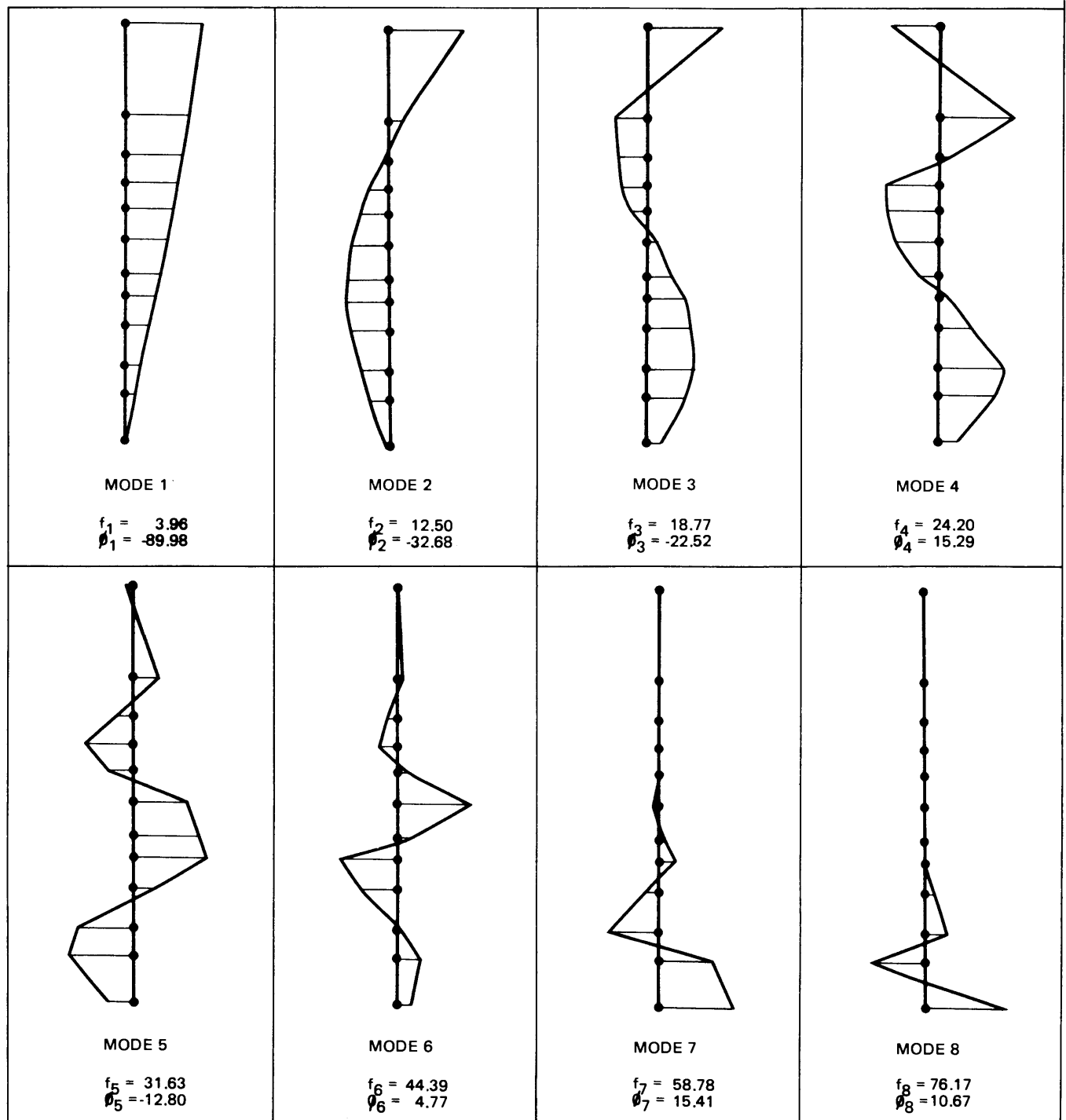
$f$  = FREQUENCY (Hz)

$\phi$  = PARTICIPATION FACTOR

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
HORIZONTAL N-S MODE SHAPES

FIGURE 3A-152



NOTE:

$f$  = FREQUENCY Hz  
 $\phi$  = PARTICIPATION FACTOR

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
HORIZONTAL E-W MODE SHAPES

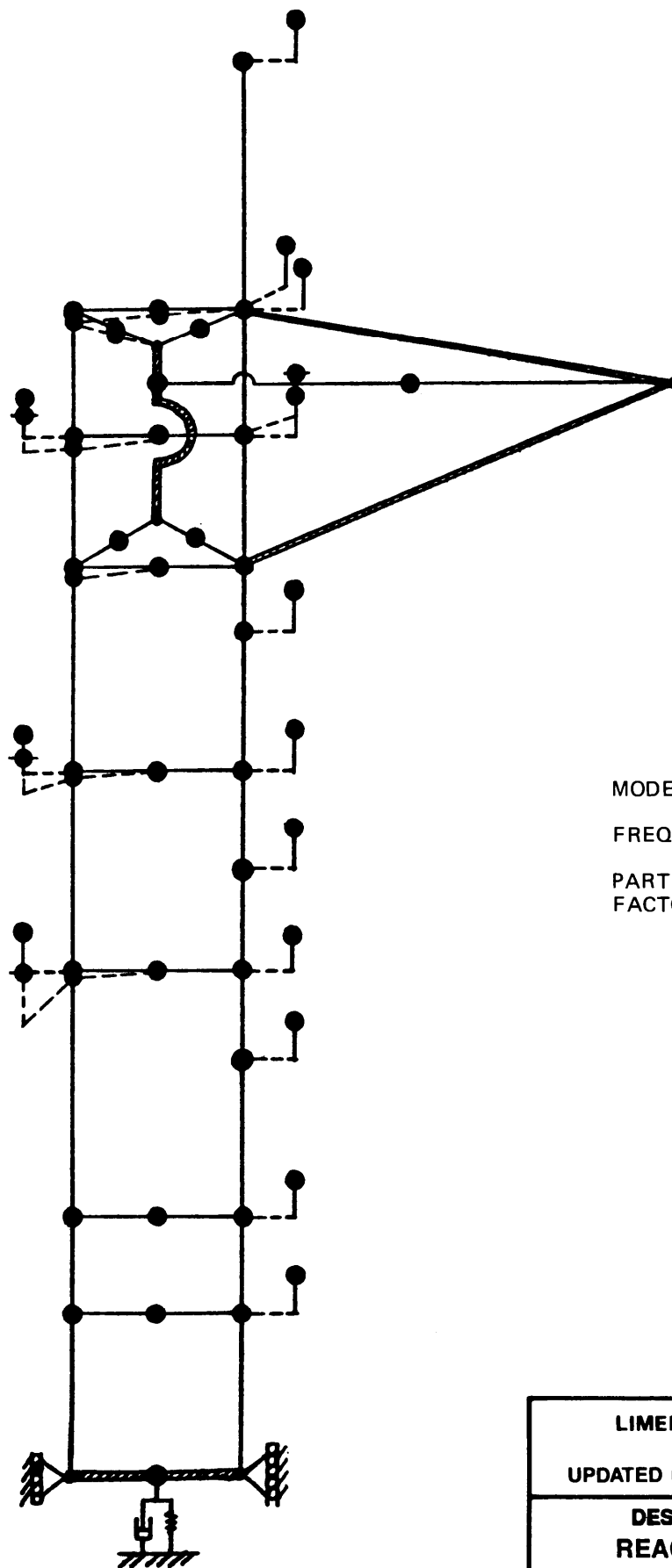
FIGURE 3A-153

MODE No.	FREQUENCY (Hz.)	PARTICIPATION FACTOR
1	2.00	20.14
2	3.01	11.16
3	3.28	-10.05
4	4.07	-13.13
5	4.25	-27.59
6	4.28	-24.40
7	4.32	-5.29
8	4.57	-11.99
9	4.58	-9.33
10	4.64	9.27
11	4.89	-8.56
12	5.91	17.06
13	7.82	-59.71
14	9.23	-38.78
15	10.42	-5.16
16	11.29	-18.72
17	11.72	-14.46
18	11.81	2.31
19	12.03	0.75
20	12.24	1.85
21	12.34	9.61
22	12.54	-0.26
23	13.58	10.44
24	13.94	-14.85
25	15.37	-14.46
26	15.50	5.37
27	18.39	27.28
28	20.22	5.36
29	29.86	-10.40
30	38.20	-23.12
31	47.54	7.00
32	51.75	-4.61
33	59.14	-0.63
34	74.39	7.82
35	103.48	3.19
36	114.33	4.43
37	121.98	0.07
38	128.79	-1.78
39	136.47	-0.24
40	171.12	-0.91
41	241.59	-0.0001
42	252.96	0.00004
43	334.43	-0.002
44	372.81	-0.00008
45	399.96	-0.0003

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE MODE FREQUENCIES AND  
PARTICIPATION FACTORS  
(VERTICAL STICK MODEL)**

**FIGURE 3A-154**



MODE No. 6

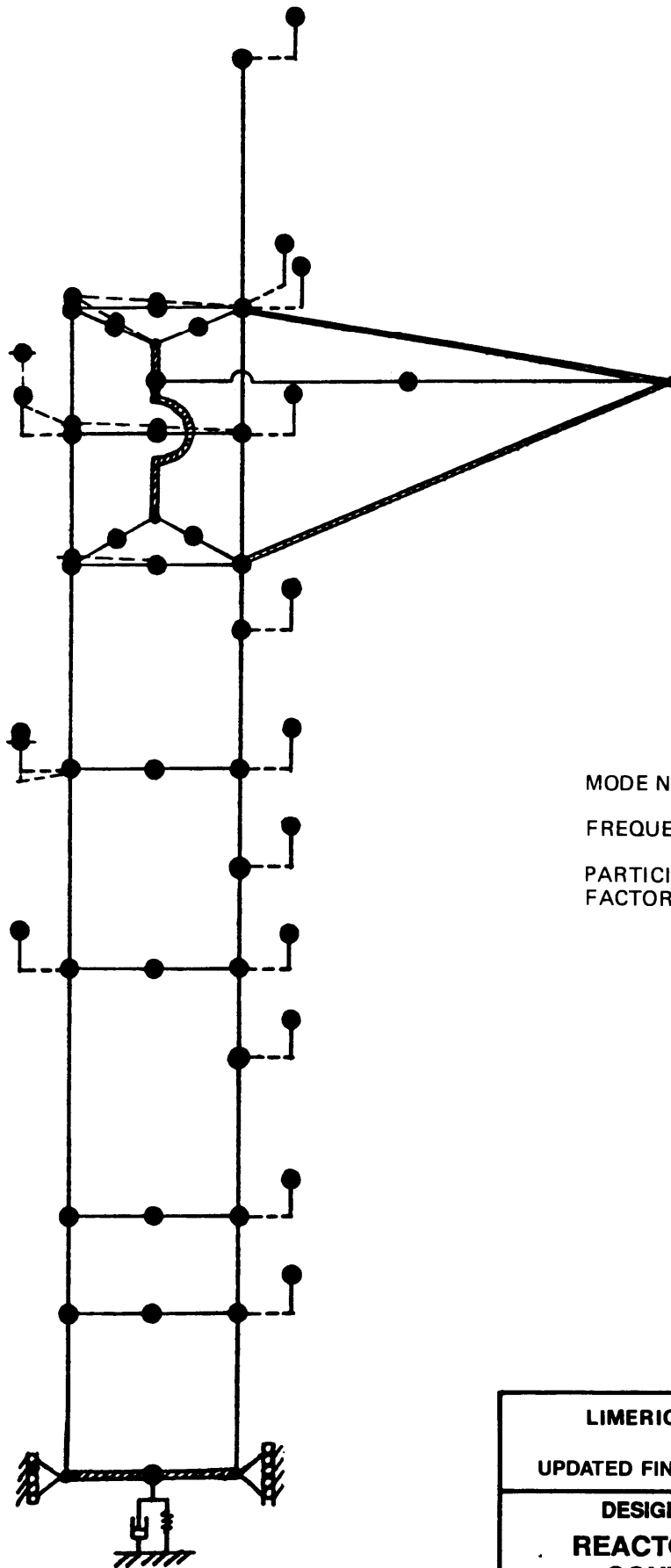
FREQUENCY = 4.28 Hz

PARTICIPATION  
FACTOR = -24.40

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
VERTICAL MODE SHAPES

FIGURE 3A-155



MODE No. 12

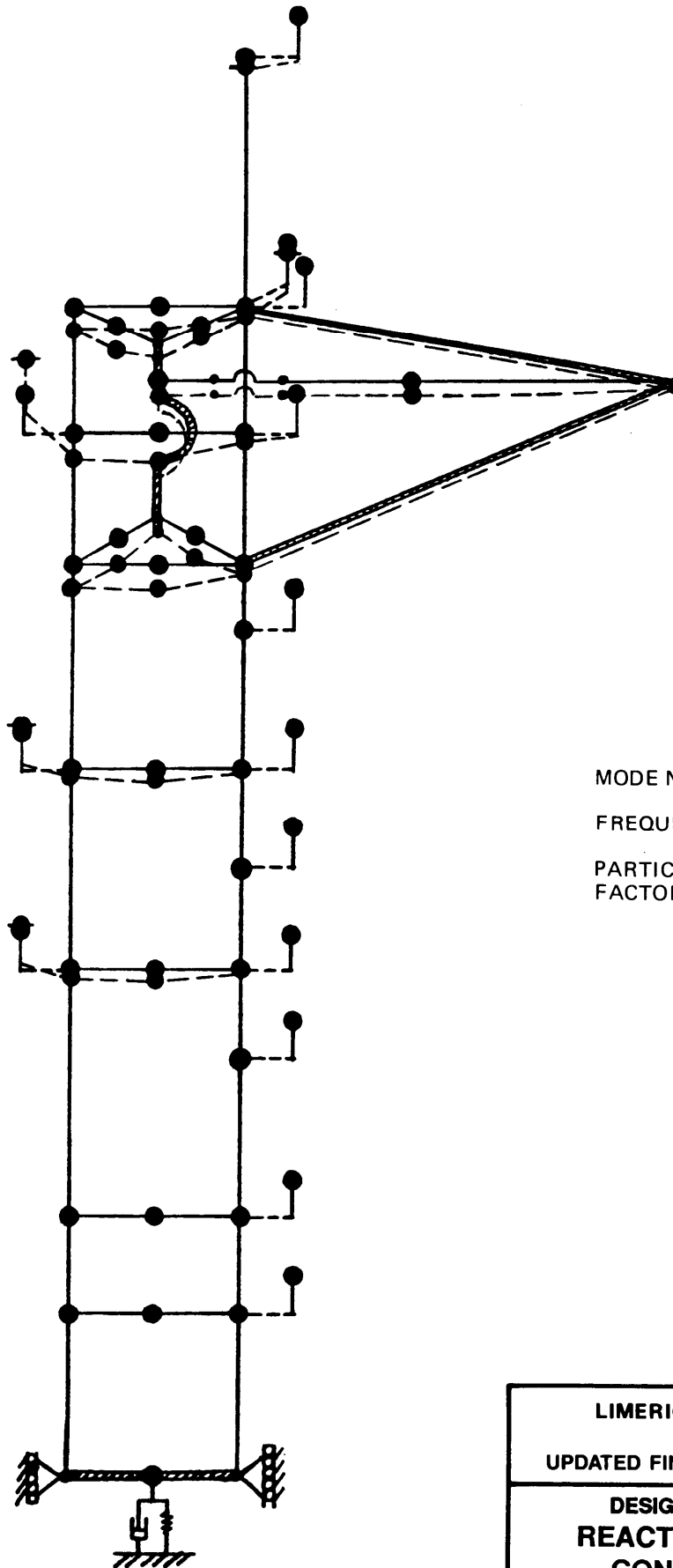
FREQUENCY = 5.91 Hz

PARTICIPATION  
FACTOR = 17.06

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-156



MODE No. 13

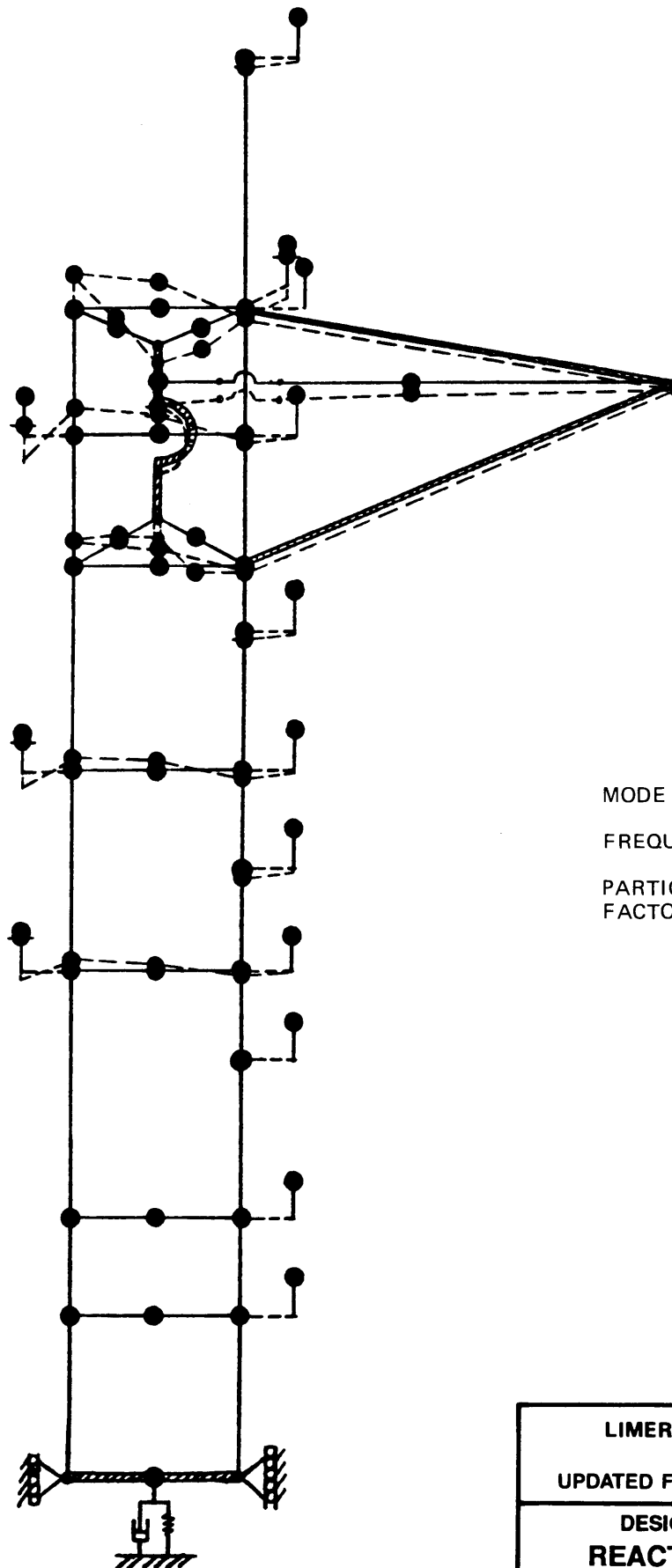
FREQUENCY = 7.82 Hz

PARTICIPATION  
FACTOR = -59.71

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-157



MODE No. 14

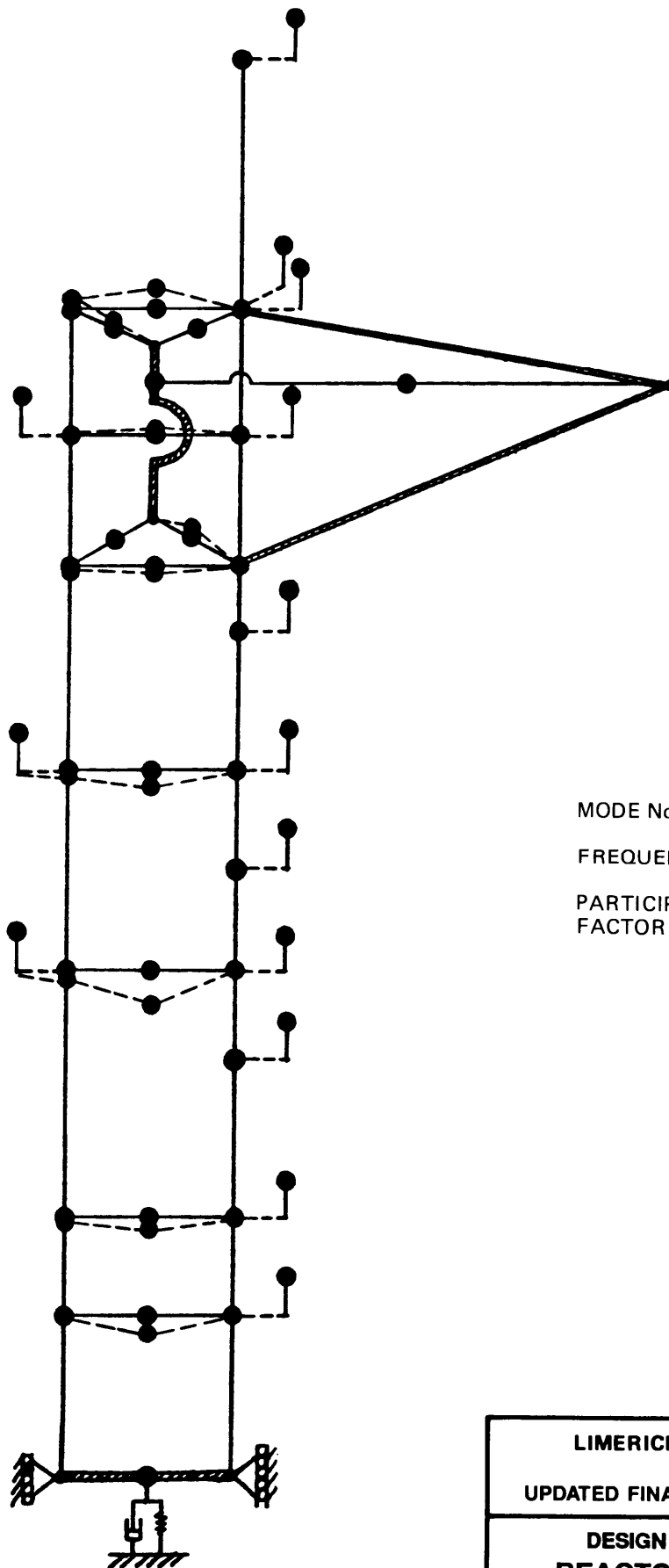
FREQUENCY = 9.23 Hz

PARTICIPATION  
FACTOR = -38.78

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-158



MODE No. 16

FREQUENCY = 11.29 Hz

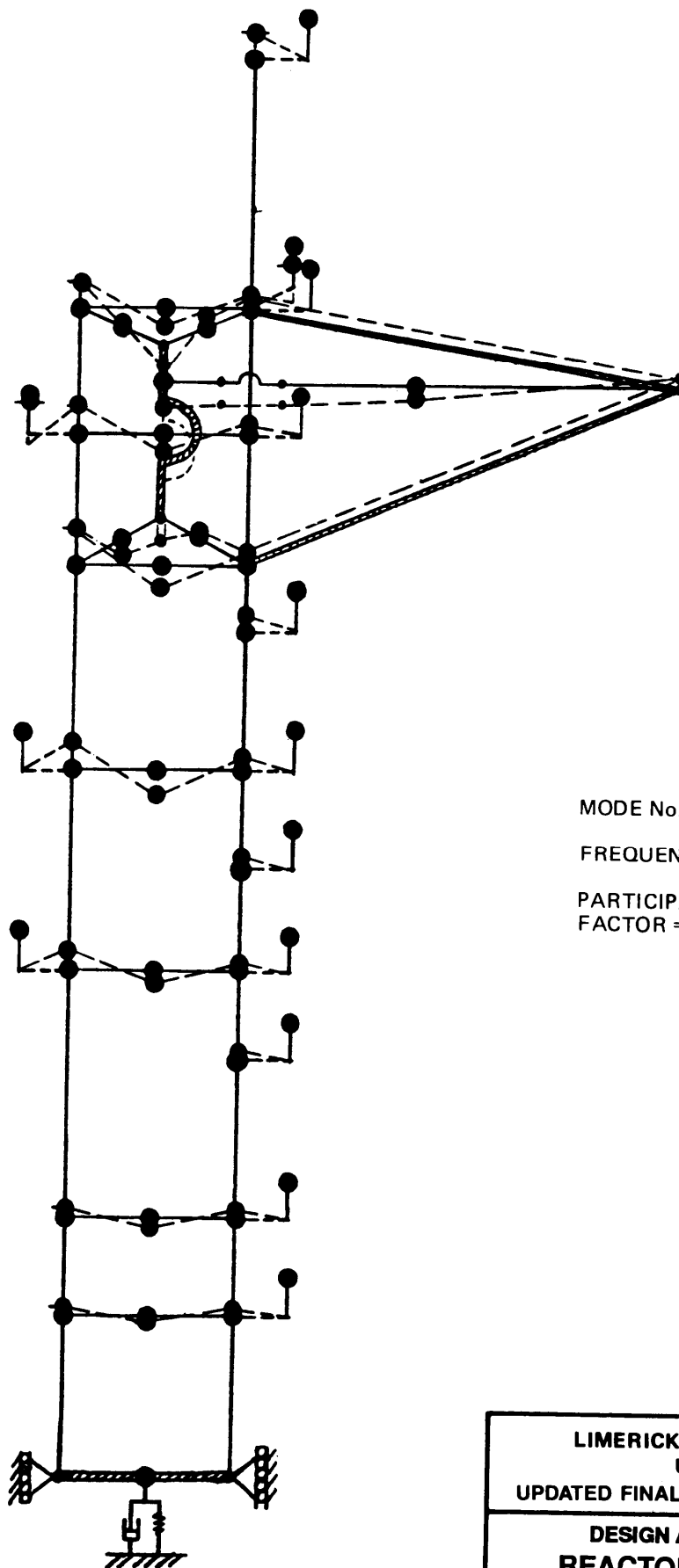
PARTICIPATION  
FACTOR = -18.72

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-159





MODE No. 27

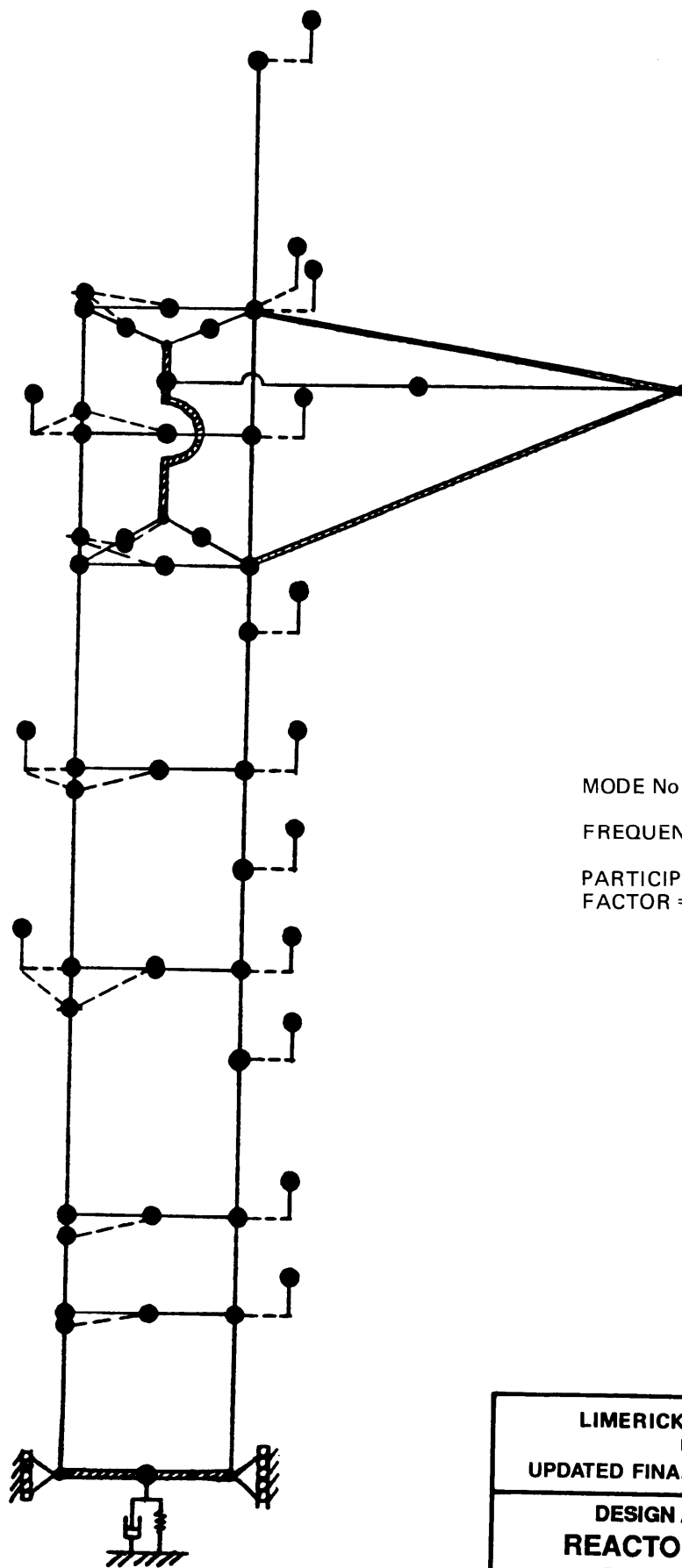
FREQUENCY = 18.39 Hz

PARTICIPATION  
FACTOR = 27.28

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-160



MODE No. 29

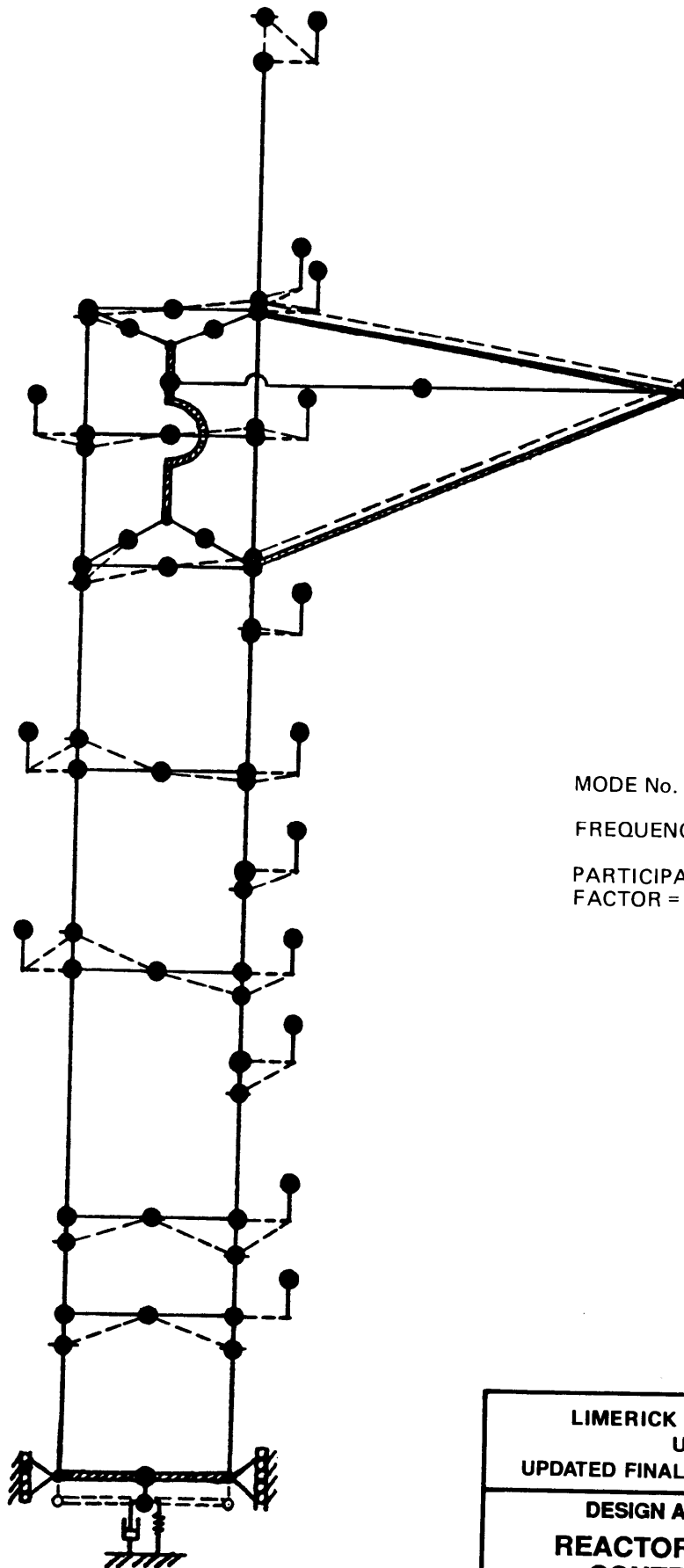
FREQUENCY = 29.86 Hz

PARTICIPATION  
FACTOR = -10.40

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-161



MODE No. 30

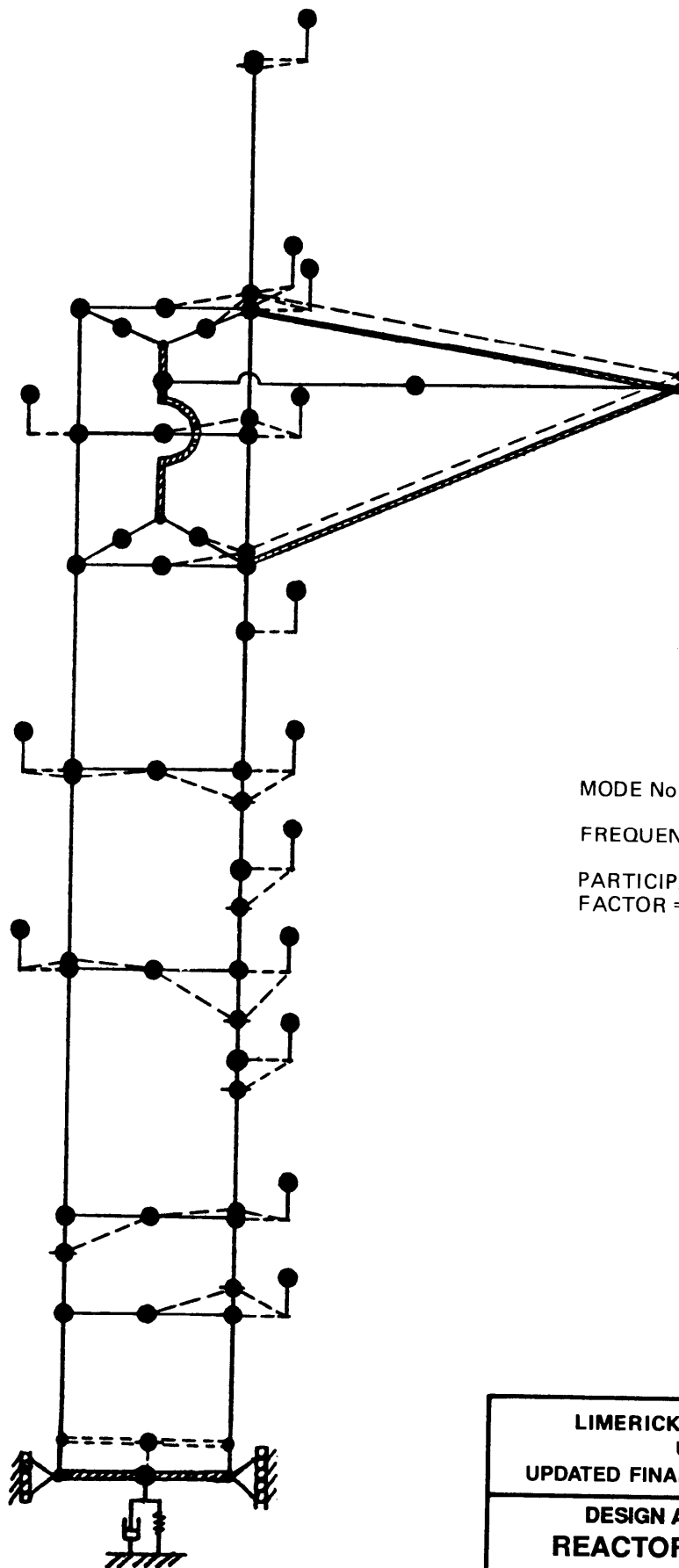
FREQUENCY = 38.20 Hz

PARTICIPATION  
FACTOR = -23.12

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

FIGURE 3A-162



MODE No. 34

FREQUENCY = 74.39 Hz

PARTICIPATION  
FACTOR = 7.82

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND  
CONTROL STRUCTURE  
MODE SHAPES

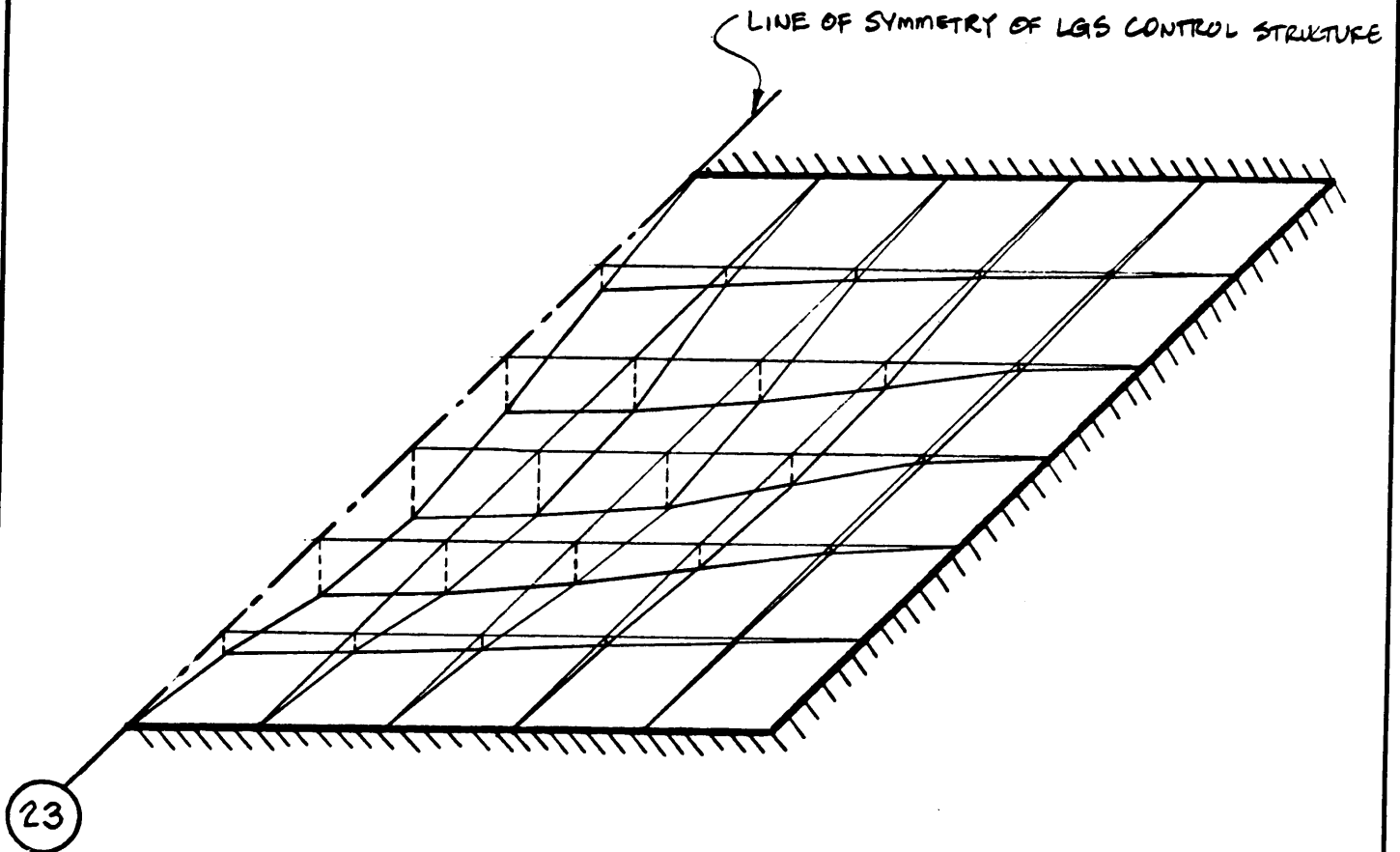
FIGURE 3A-163

MODE No.	FREQUENCY (Hz.)	PARTICIPATION FACTOR
1	14.20	-4.04
2	24.75	1.59
3	37.67	-0.0003
4	47.39	-1.04
5	48.03	-0.0001
6	68.63	-0.00005
7	73.01	1.77
8	78.53	0.71
9	82.70	0.59
10	94.42	-0.00007
11	99.84	-0.31

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE MODE  
FREQUENCIES AND PARTICIPATION  
FACTORS (VERTICAL LOCAL FLOOR  
MODEL AT EL. 269'-0")**

**FIGURE 3A-164**



MODE No. 1

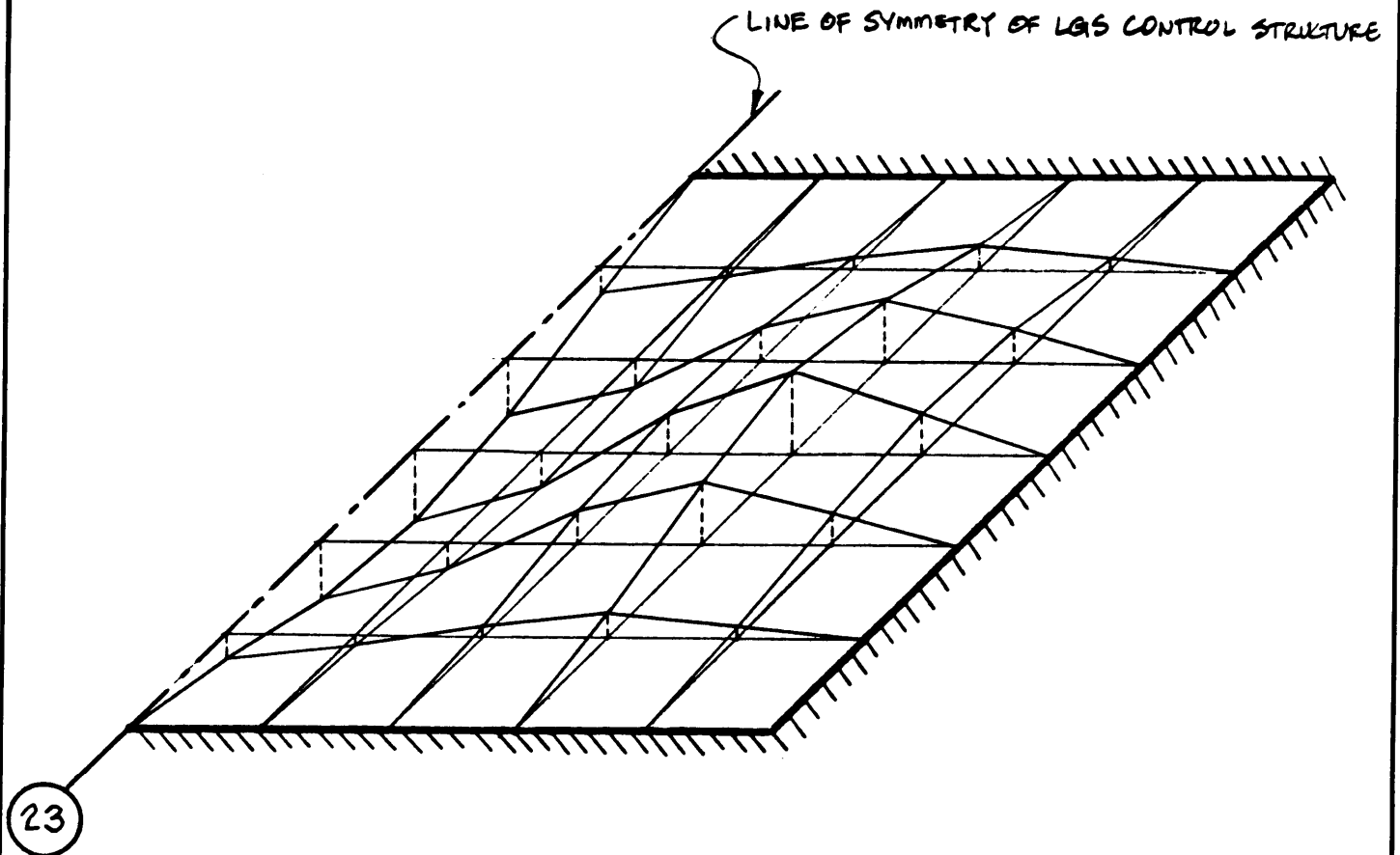
FREQUENCY = 14.20 Hz

PARTICIPATION  
FACTOR = -4.04

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE VERTICAL LOCAL  
FLOOR MODEL MODE SHAPES  
(EL. 269'-0")

FIGURE 3A-165



MODE No. 2

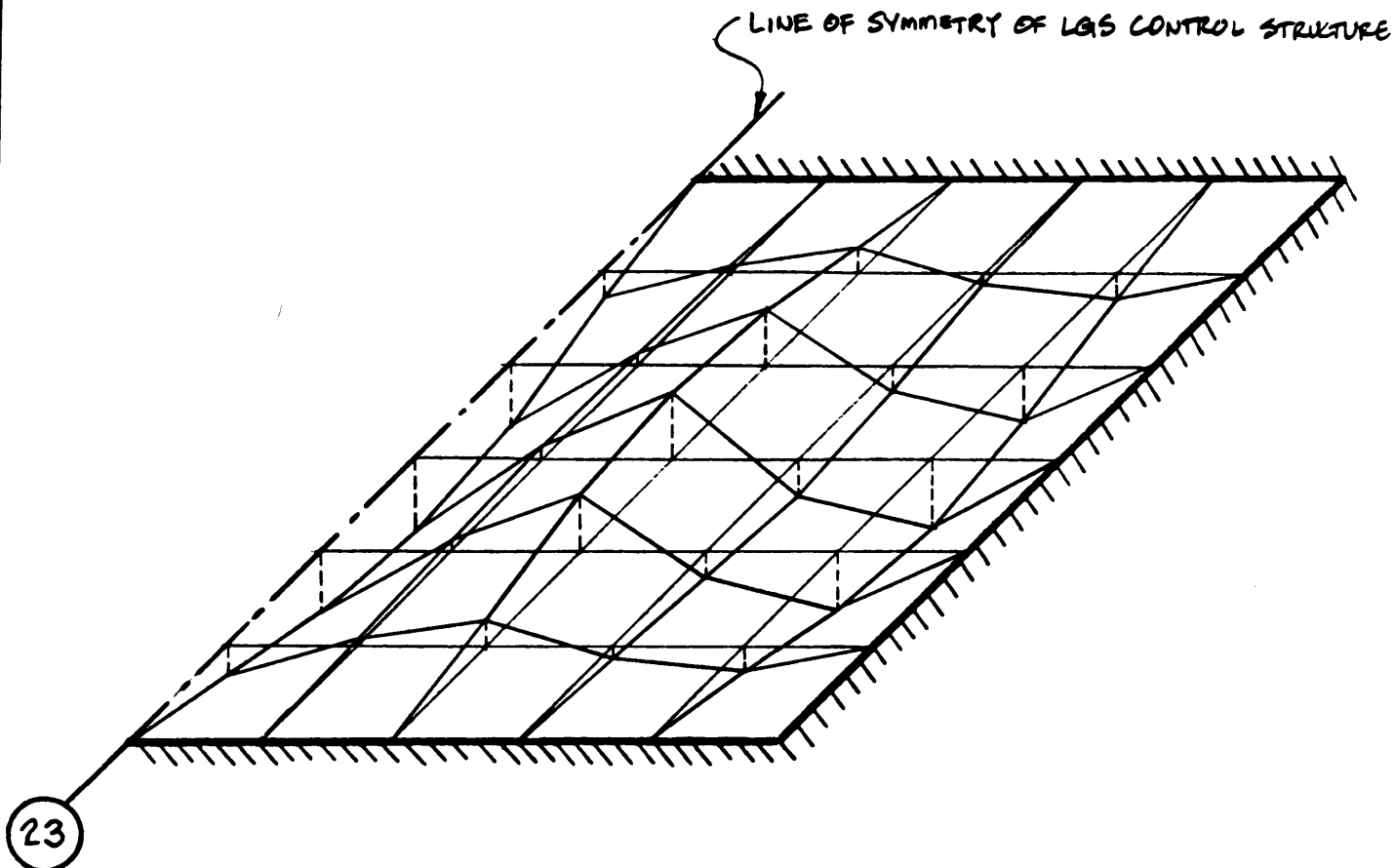
FREQUENCY = 24.75 Hz

PARTICIPATION  
FACTOR = 1.59

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE VERTICAL LOCAL  
FLOOR MODEL MODE SHAPES  
(EL. 269'-0")

FIGURE 3A-166



MODE No. 4

FREQUENCY = 47.39 Hz

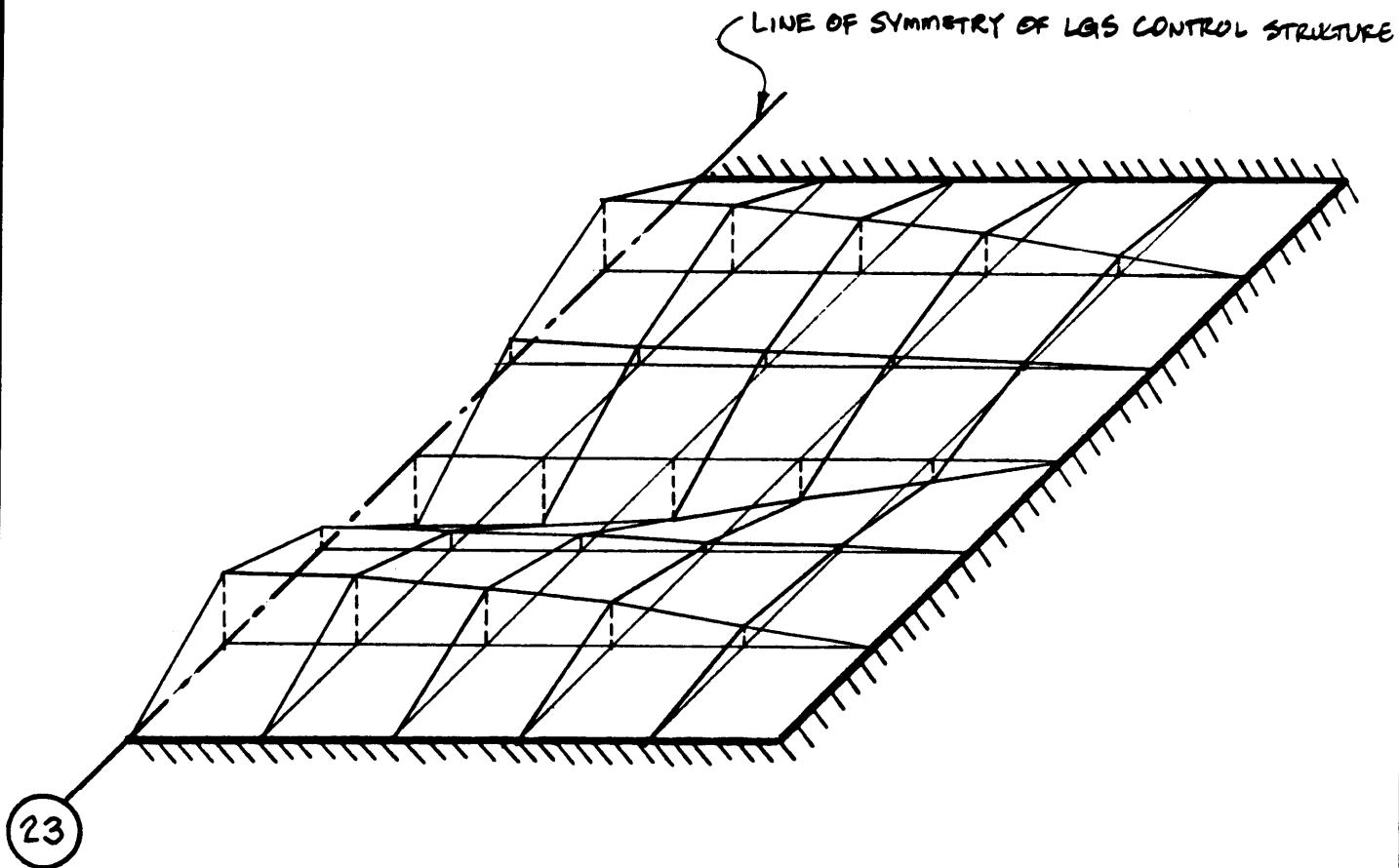
PARTICIPATION  
FACTOR = -1.04

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE VERTICAL LOCAL  
FLOOR MODEL MODE SHAPES  
(EL. 269'-0")

FIGURE 3A-167





MODE No. 7

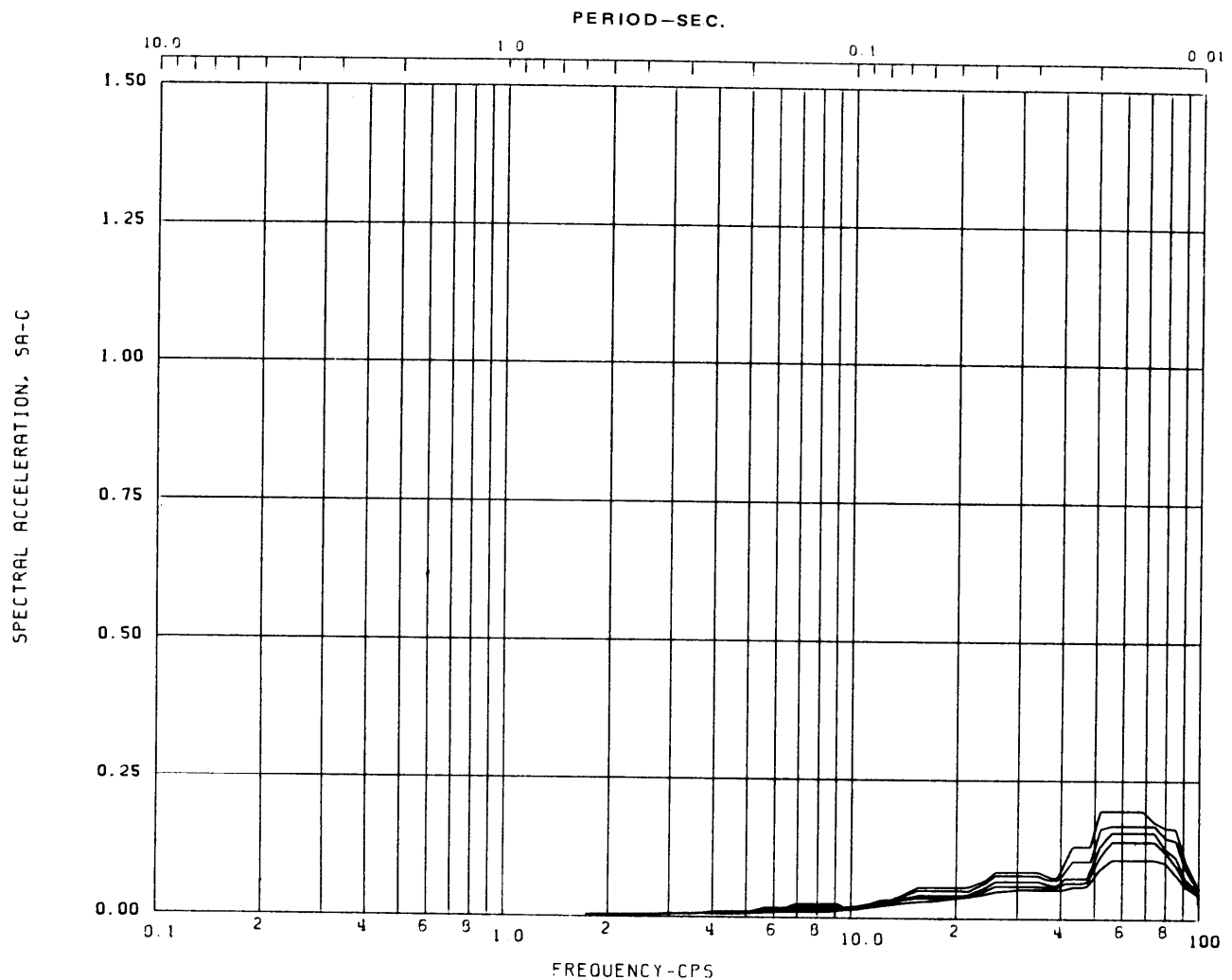
FREQUENCY = 73.01 Hz

PARTICIPATION  
FACTOR = 1.77

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE VERTICAL LOCAL  
FLOOR MODEL MODE SHAPES  
(EL. 269'-0")

FIGURE 3A-168



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

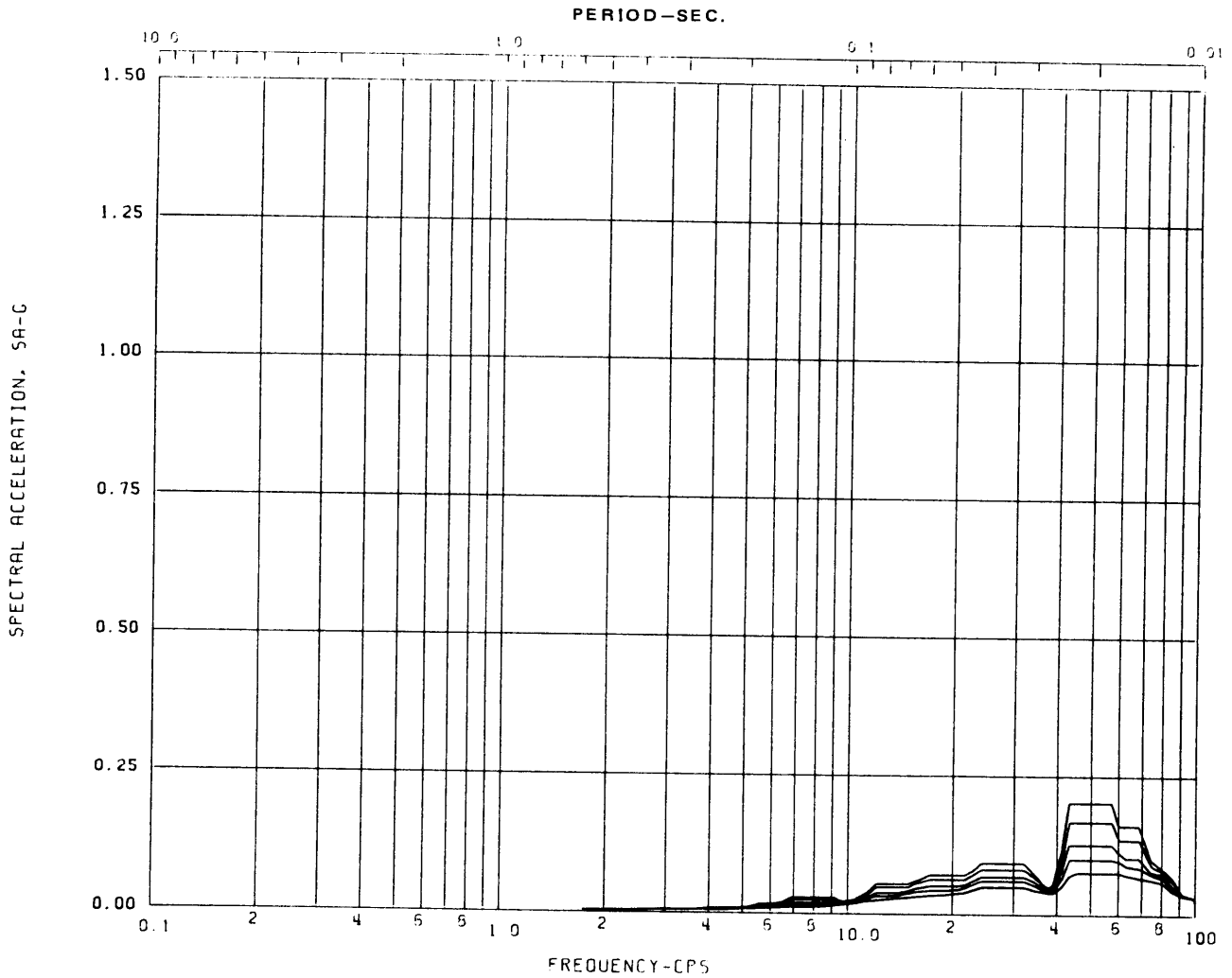
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 1 Direction: N-S HORIZ Elev: 177'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-169



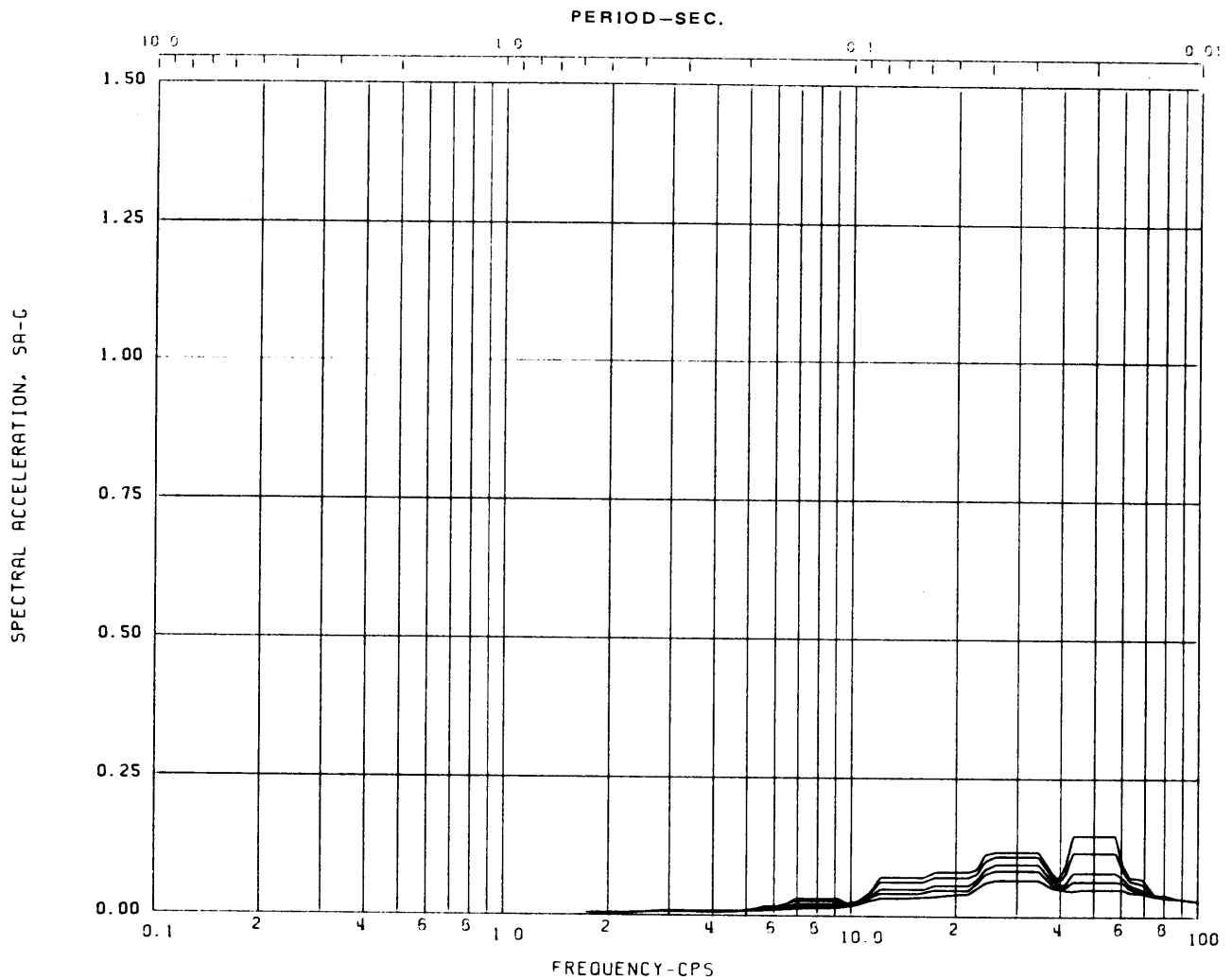
Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 2 Direction: N-S HORIZ Elev: 201'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT  
DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-170**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

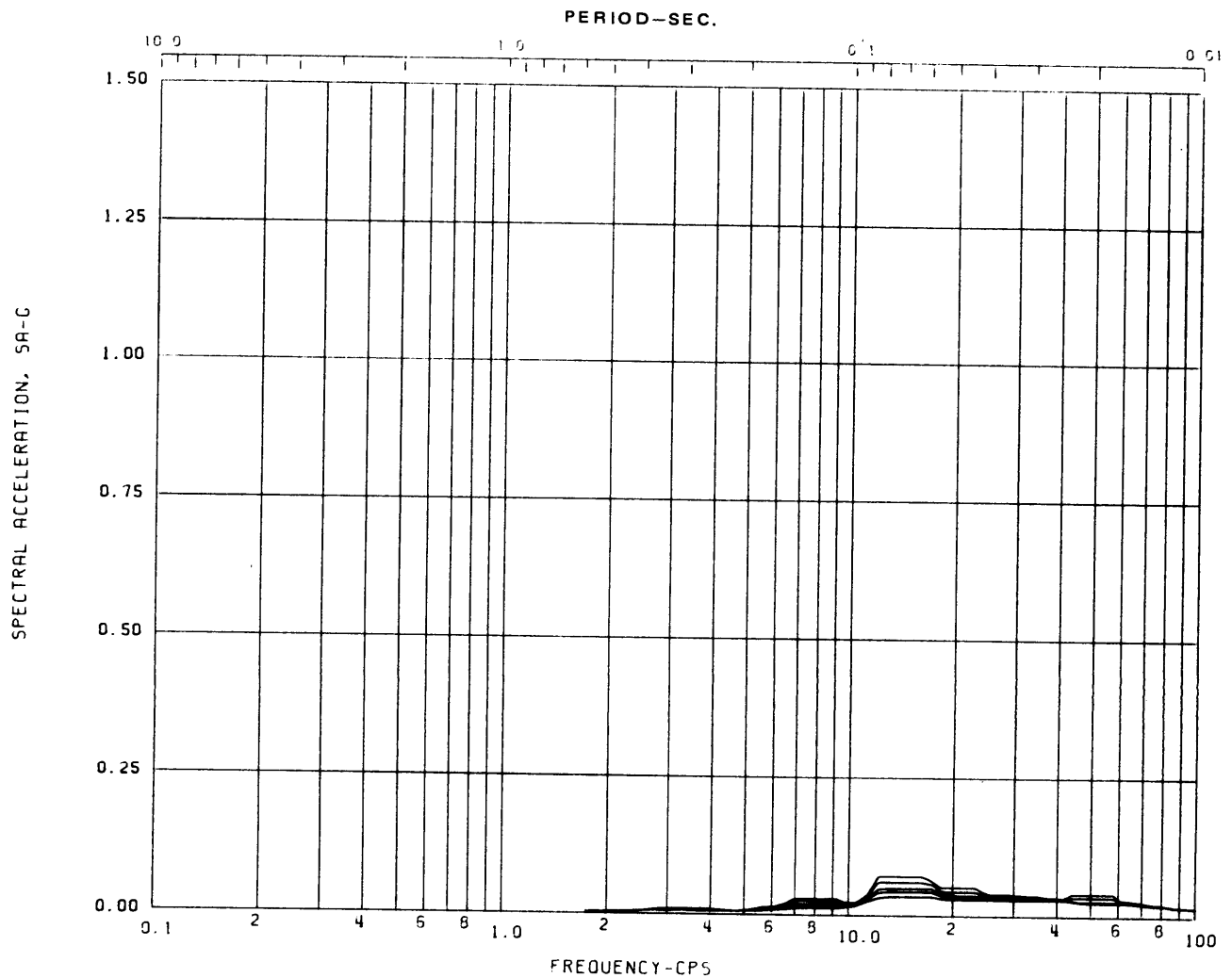
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 3 Direction: N-S HORIZ Elev: 217'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SPECTRA, N-S HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-171



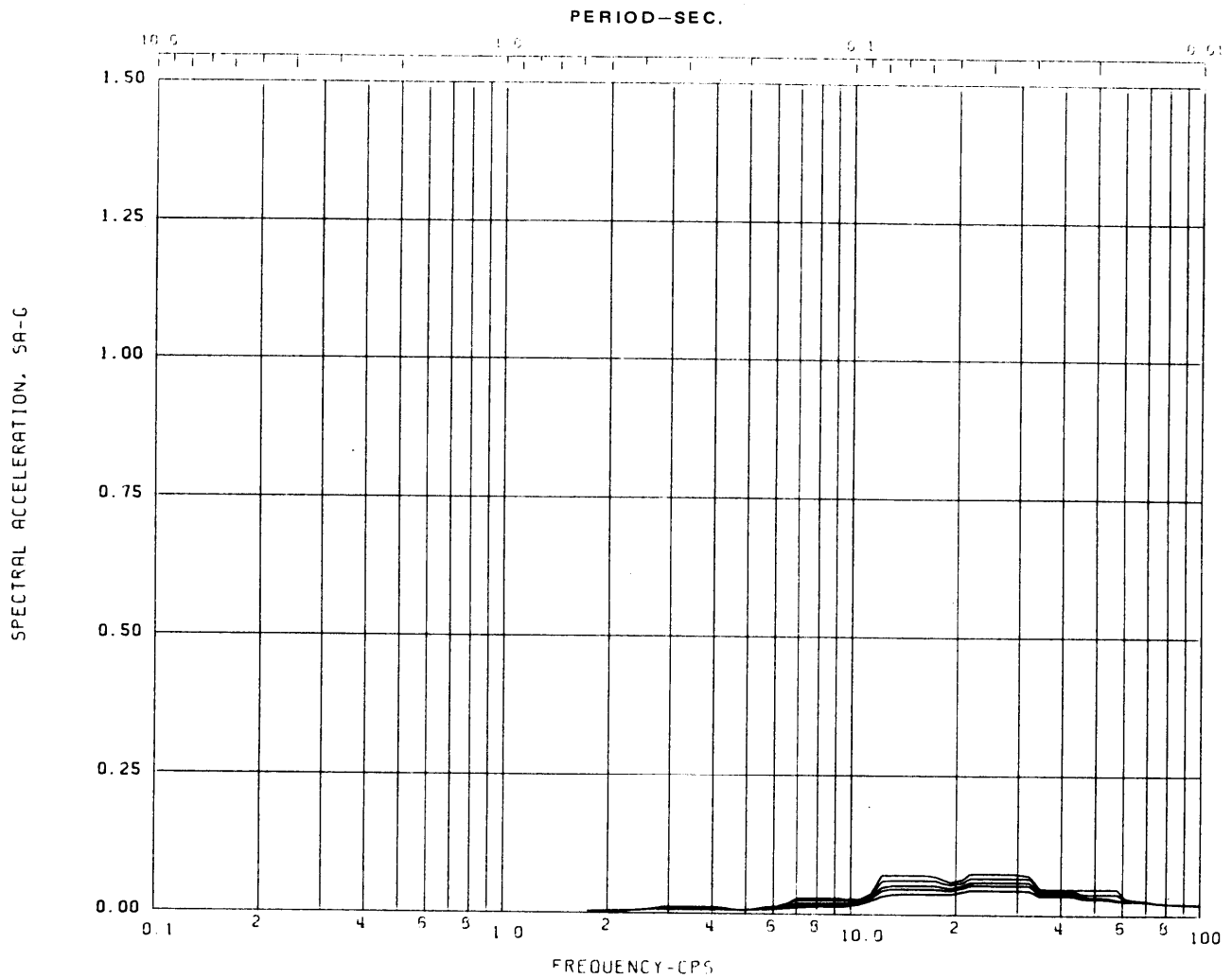
Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 4 Direction: N-S HORIZ Elev: 239'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-172



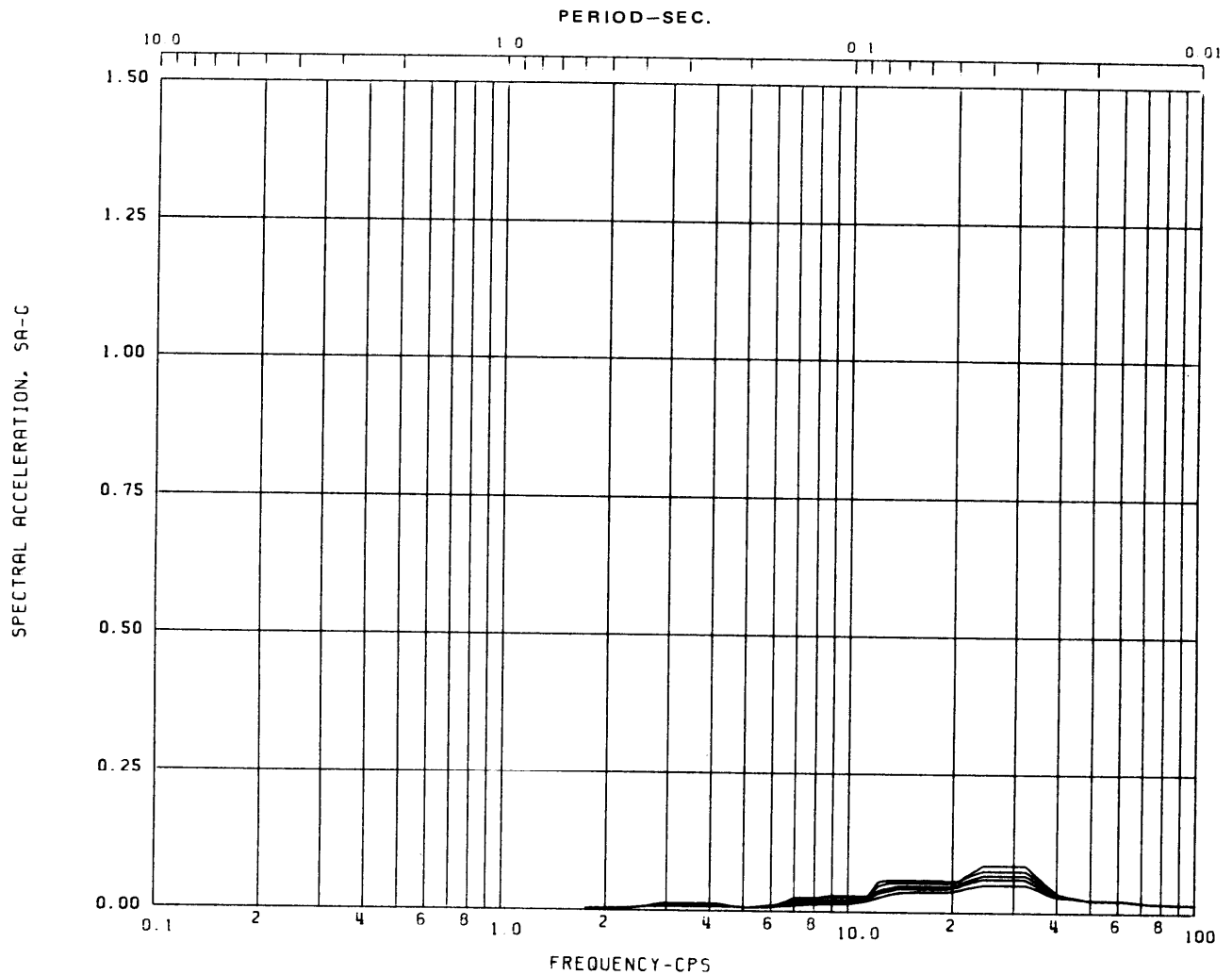
Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 5 Direction: N-S HORIZ Elev: 253'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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SRV ASYMMETRIC  
FIGURE 3A-173



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

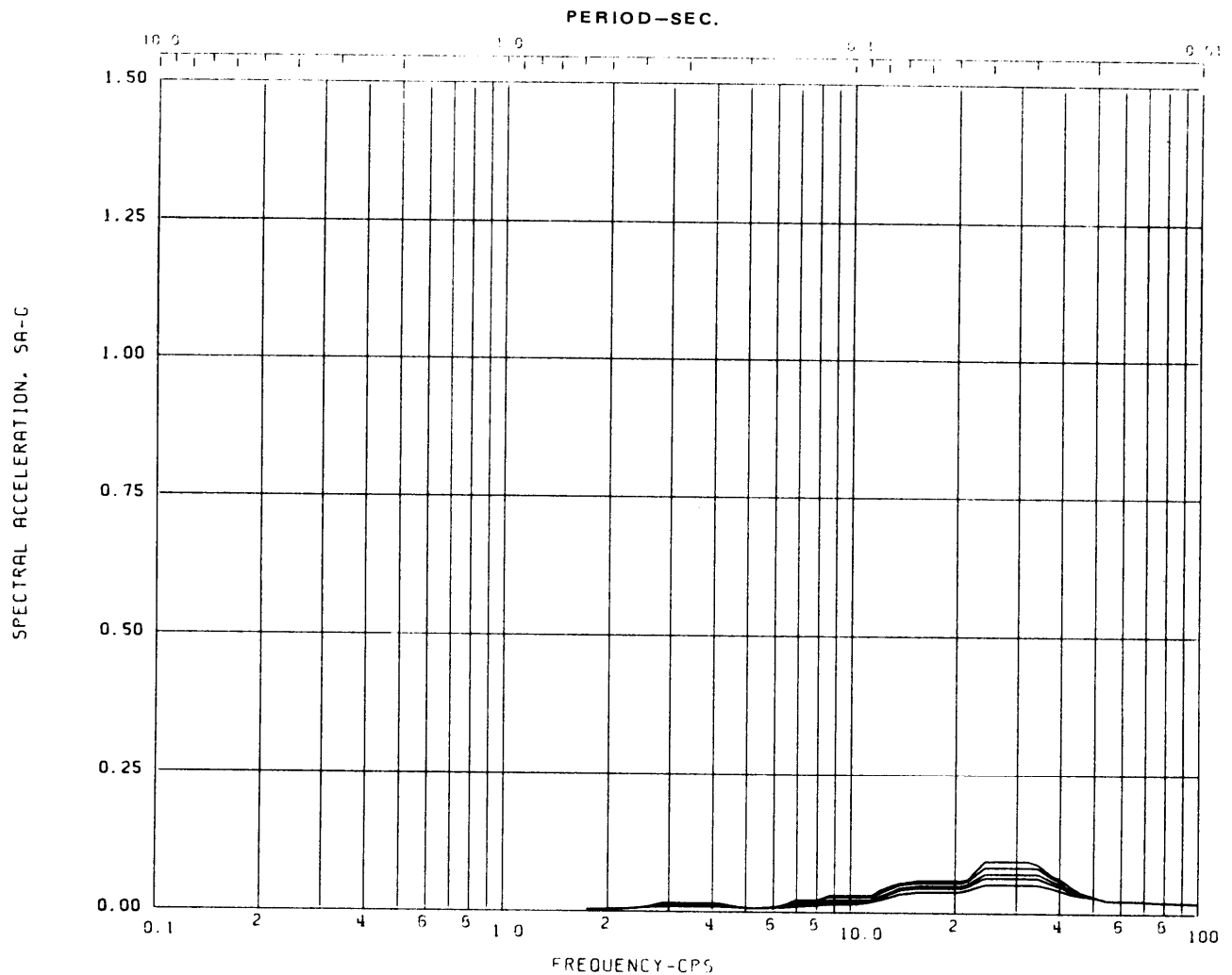
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 6 Direction: N-S HORIZ Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SPECTRA, N-S HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-174



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

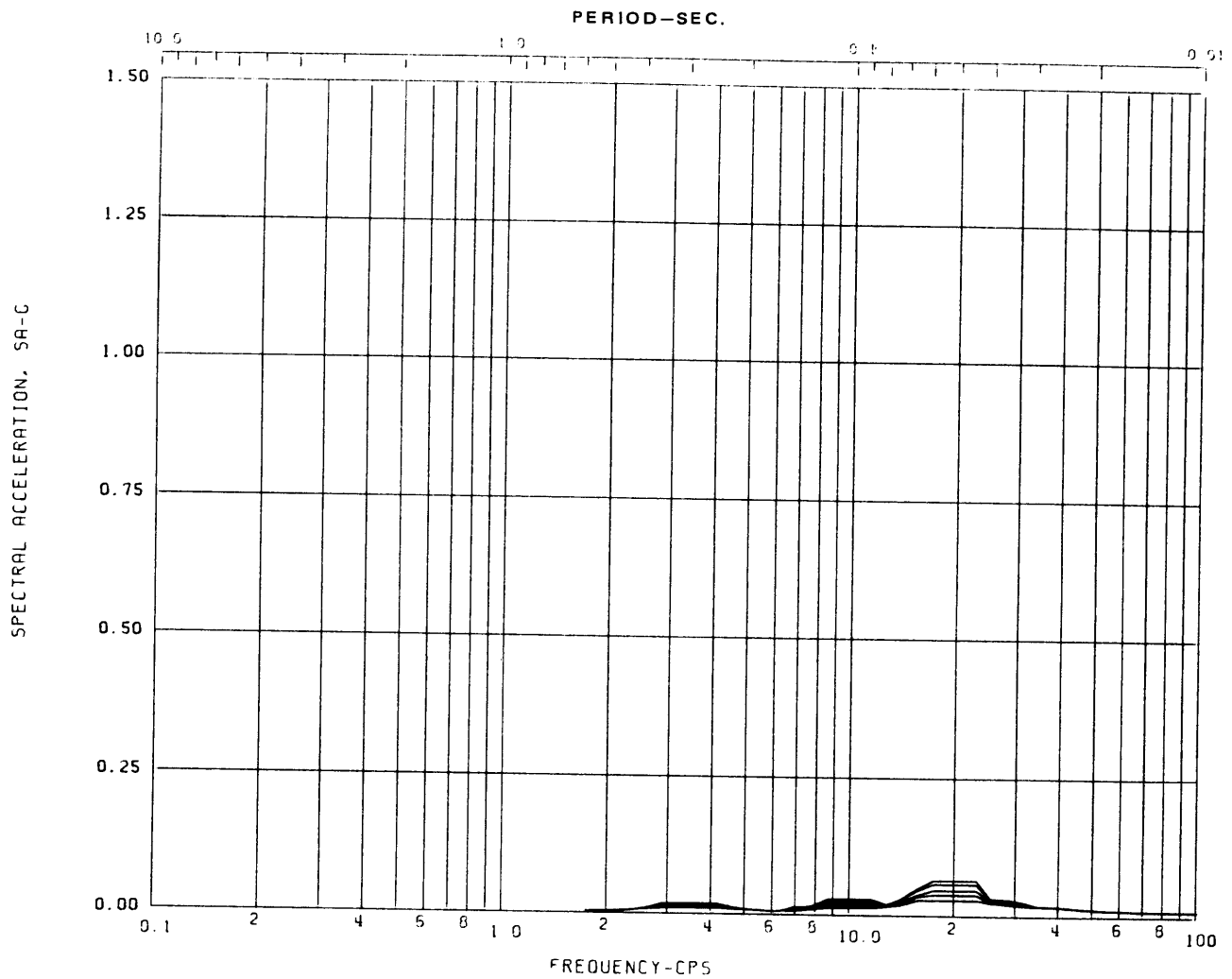
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 7 Direction: N-S HORIZ Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SPECTRA, N-S HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-175





Acceleration Spectra for REACTORENCL., CONTROL STRUCTURE

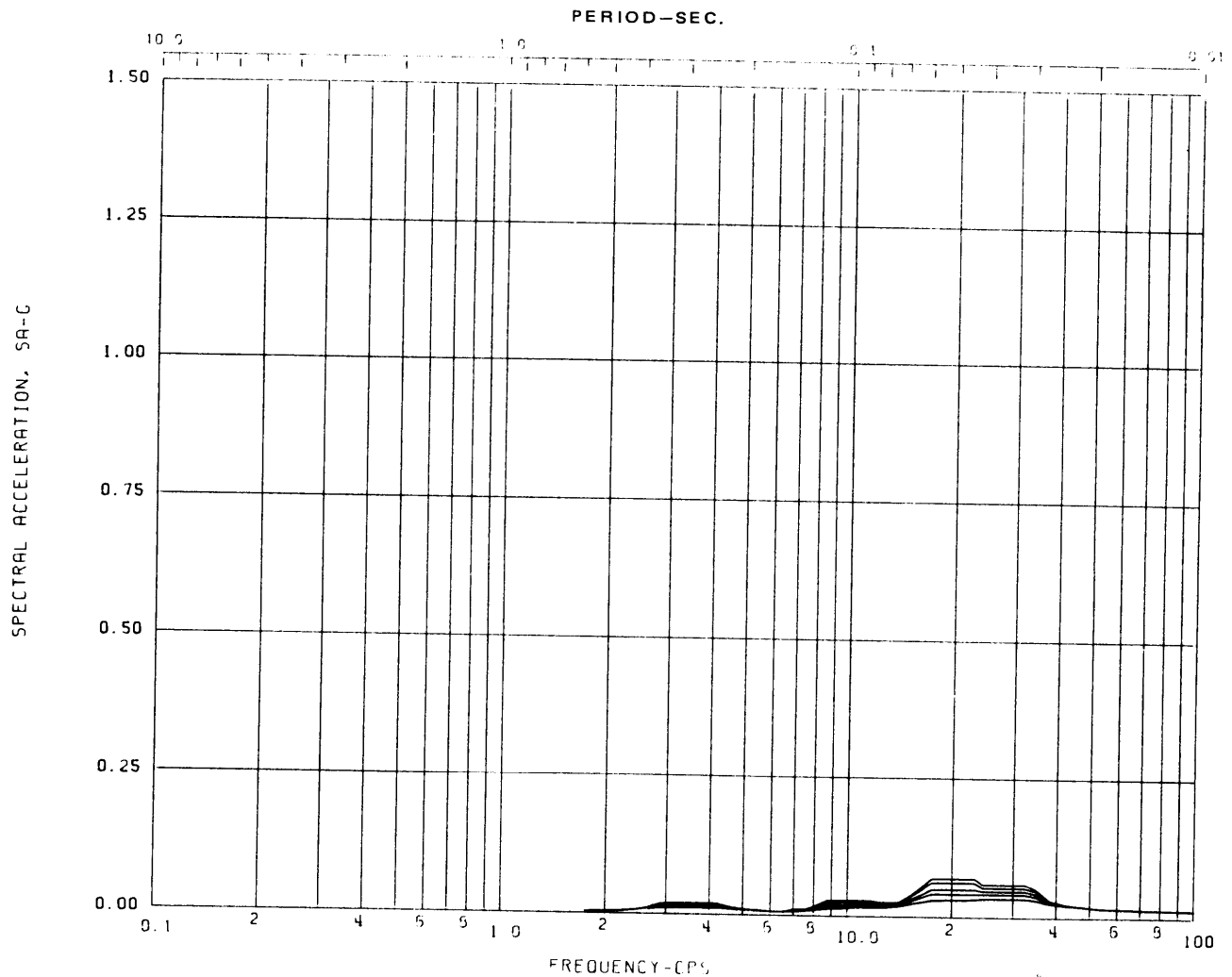
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 8 Direction: N-S HORIZ Elev: 304'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-176**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

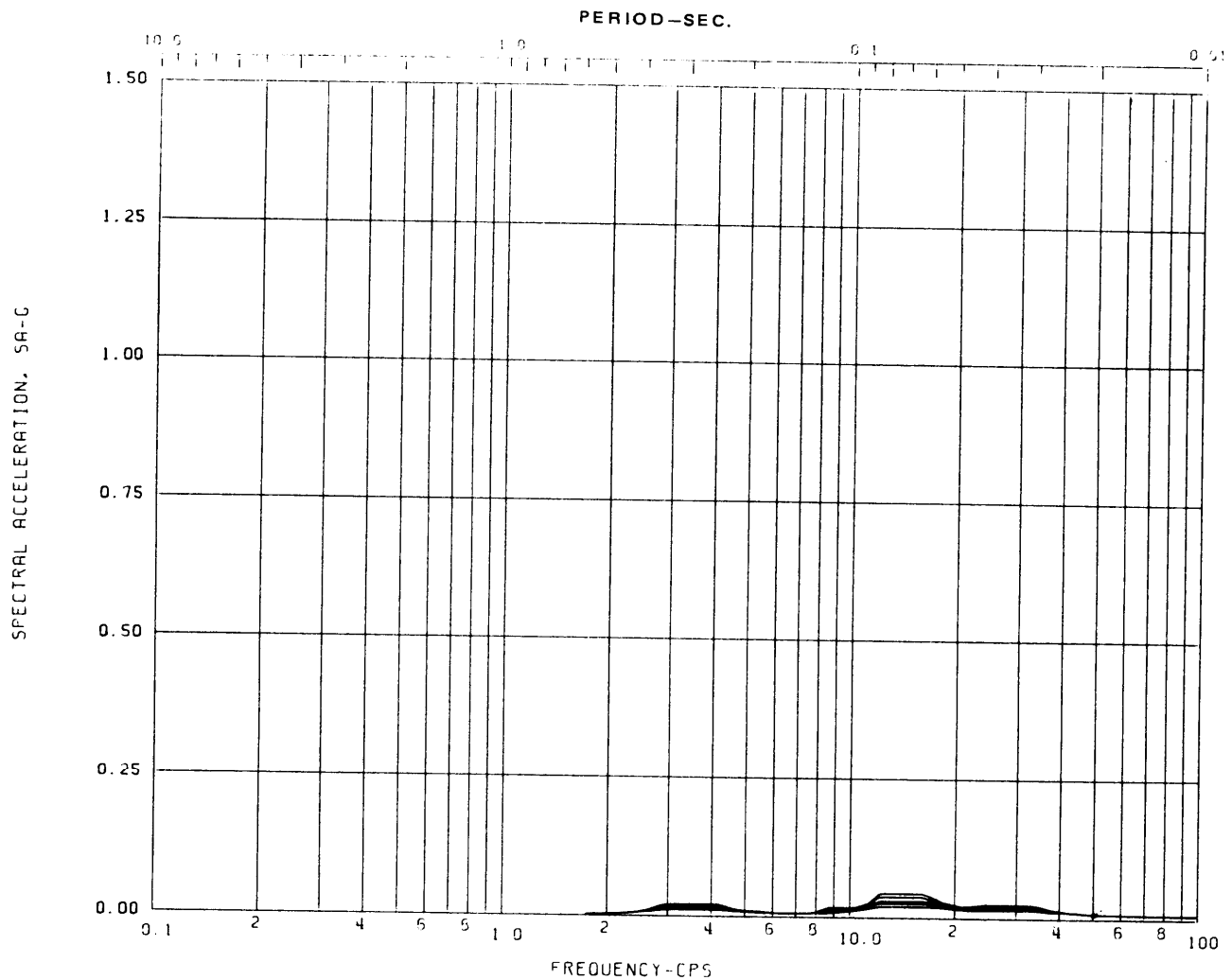
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 9 Direction: N-S HORIZ Elev: 313'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-177**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

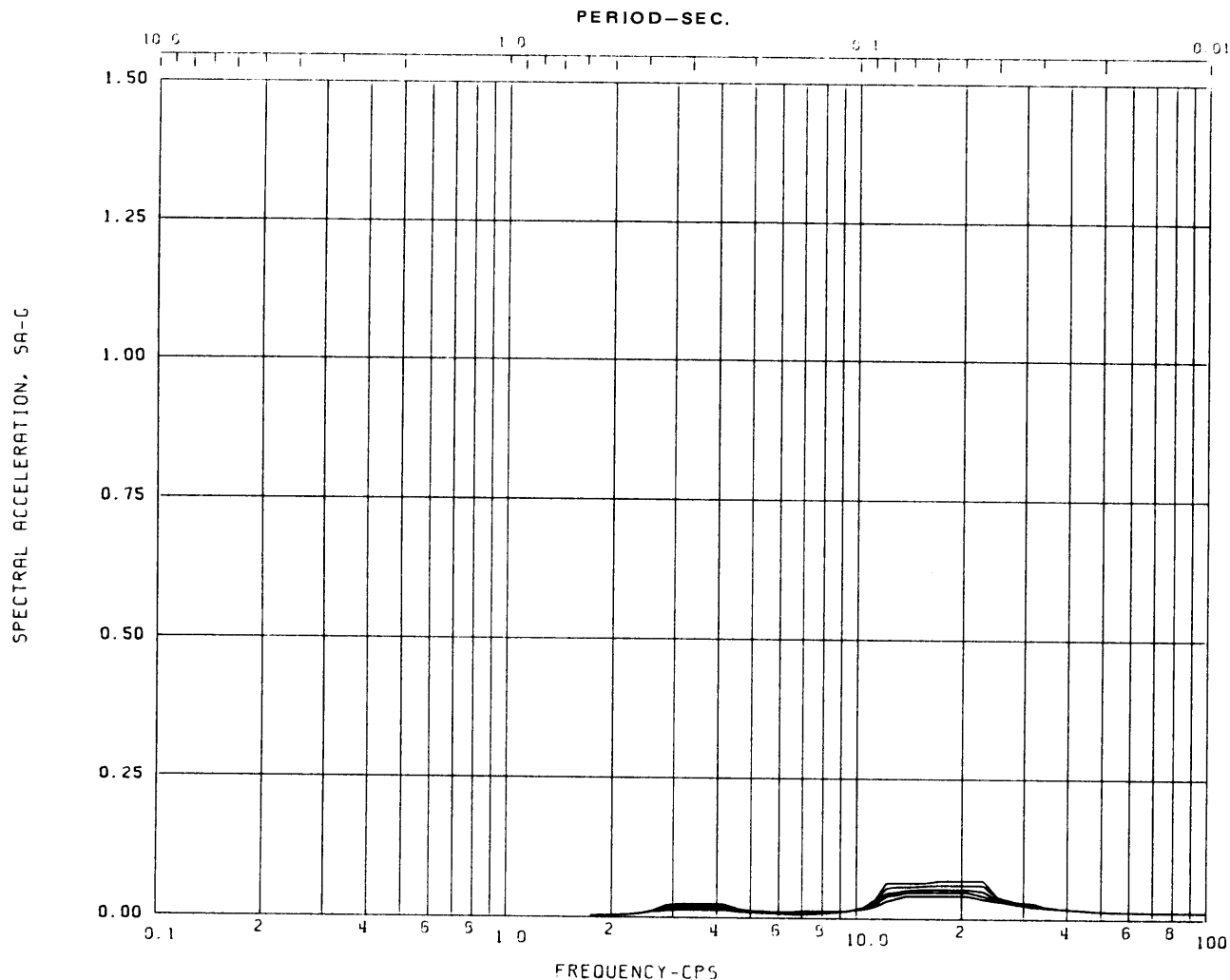
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 10 Direction: N-S HORIZ Elev: 332'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-178**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

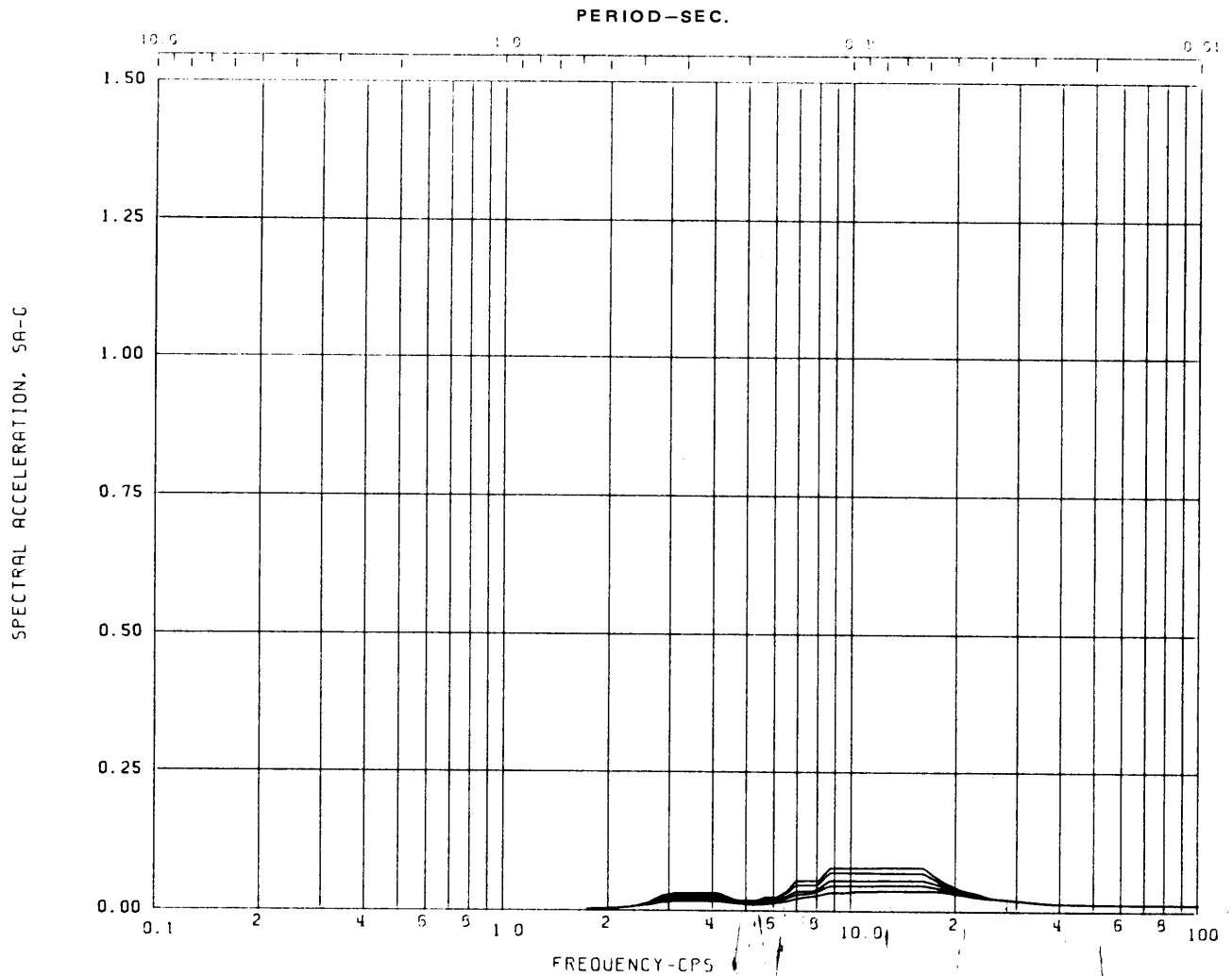
Node: 11 Direction: N-S HORIZ Elev: 352'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC

FIGURE 3A-179



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

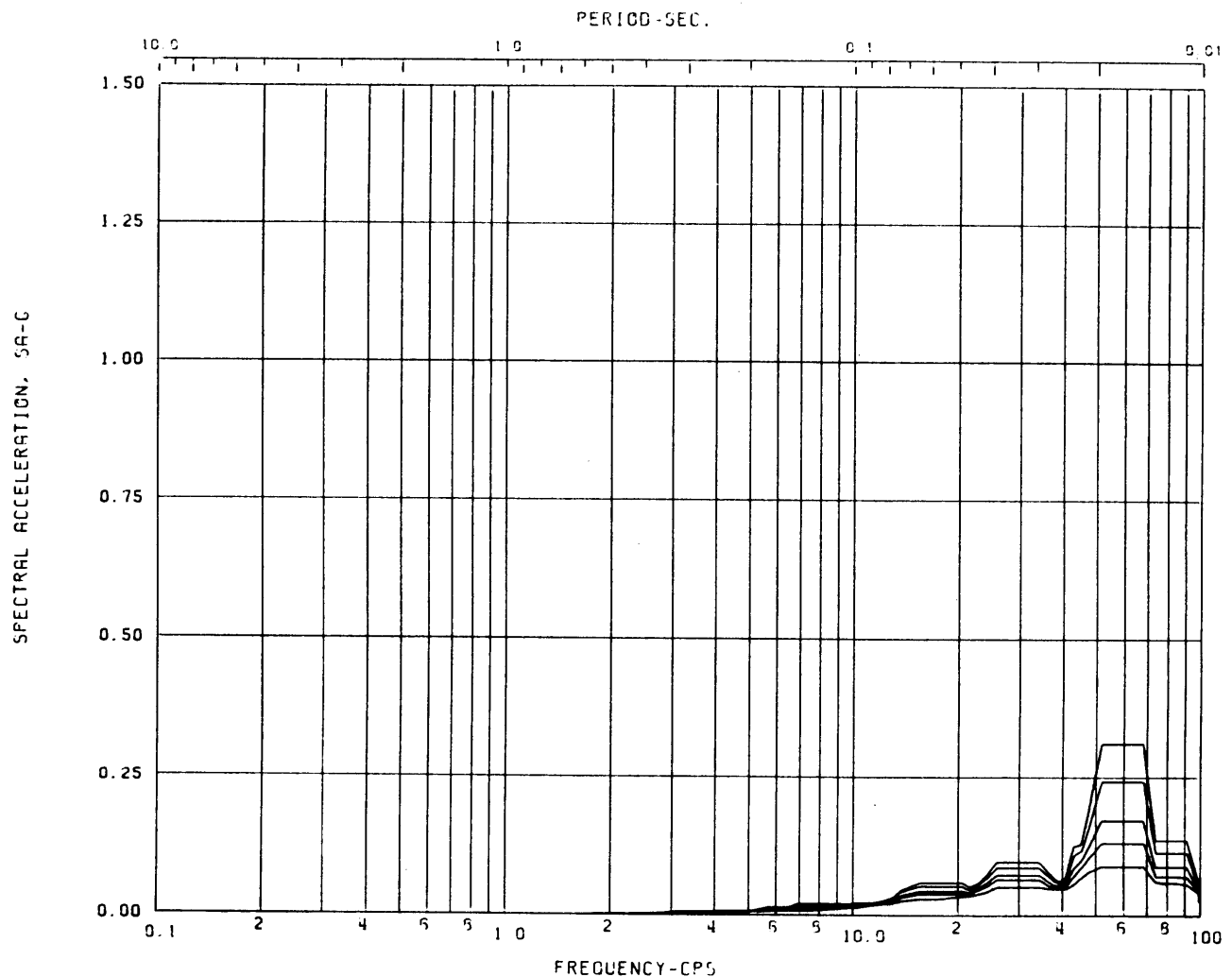
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 12 Direction: N-S HORIZ Elev: 410'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-180**

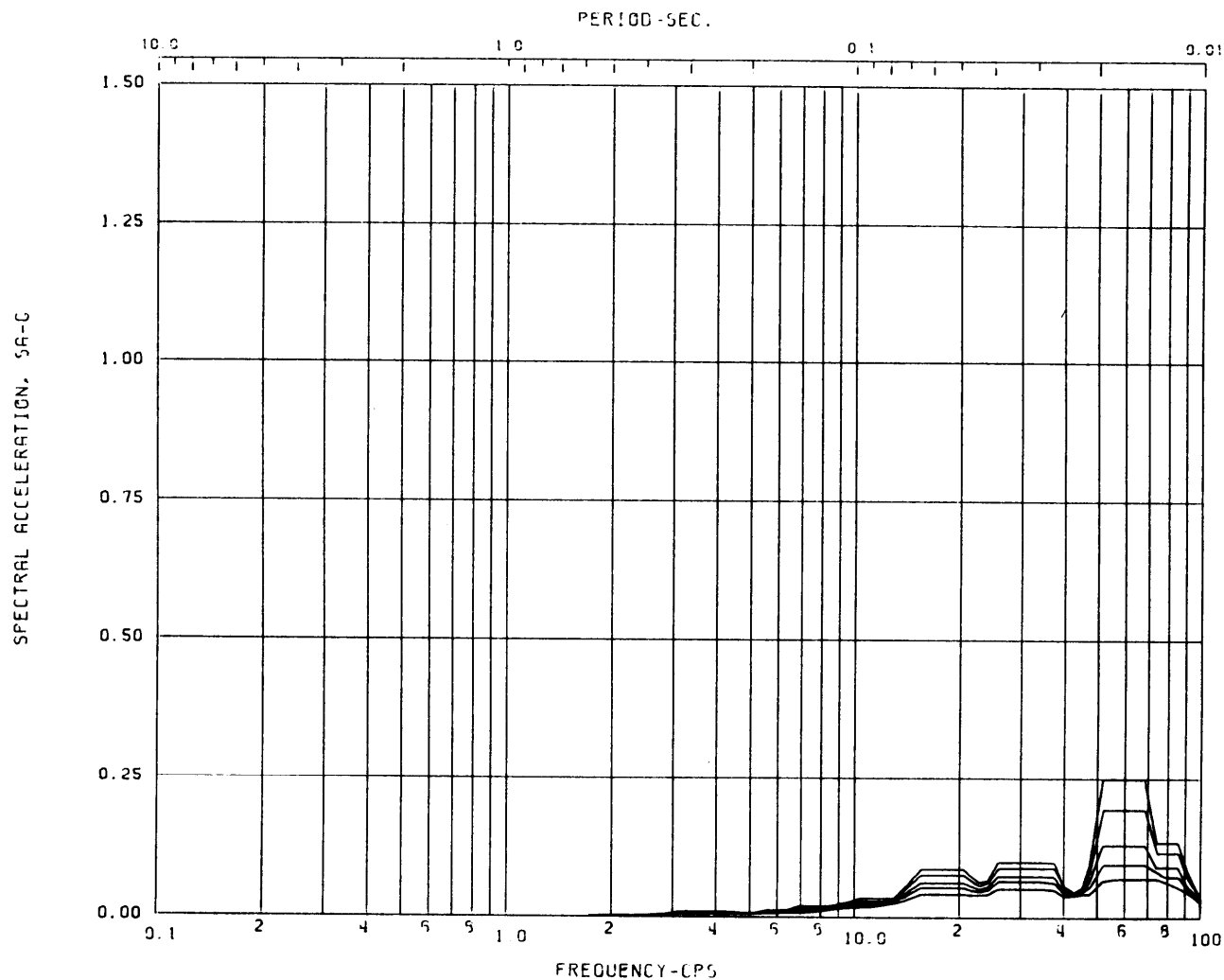


Acceleration Spectra for REACTOR ENCL. , CONTROL STRUCTURE  
 Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDFND - 15%)  
 Node: 1 Direction: E-W HORIZ Elev: 177'-0  
 Damping: 0.005,0.01,0.02,0.03,0.05

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 SPECTRA, E-W HORIZONTAL,  
 SRV ASYMMETRIC**

**FIGURE 3A-181**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

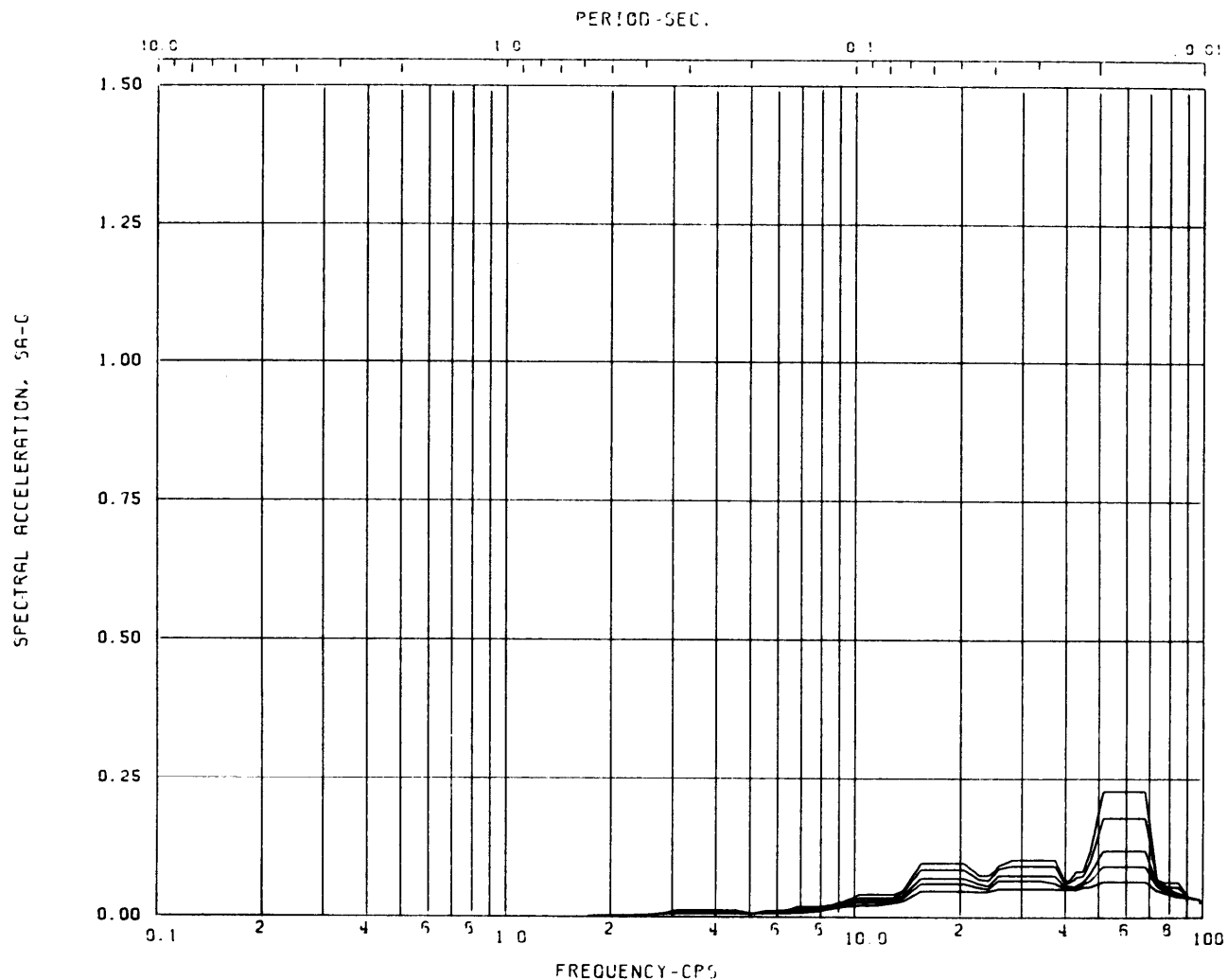
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 2 Direction: E-W HORIZ Elev: 201'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-182**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

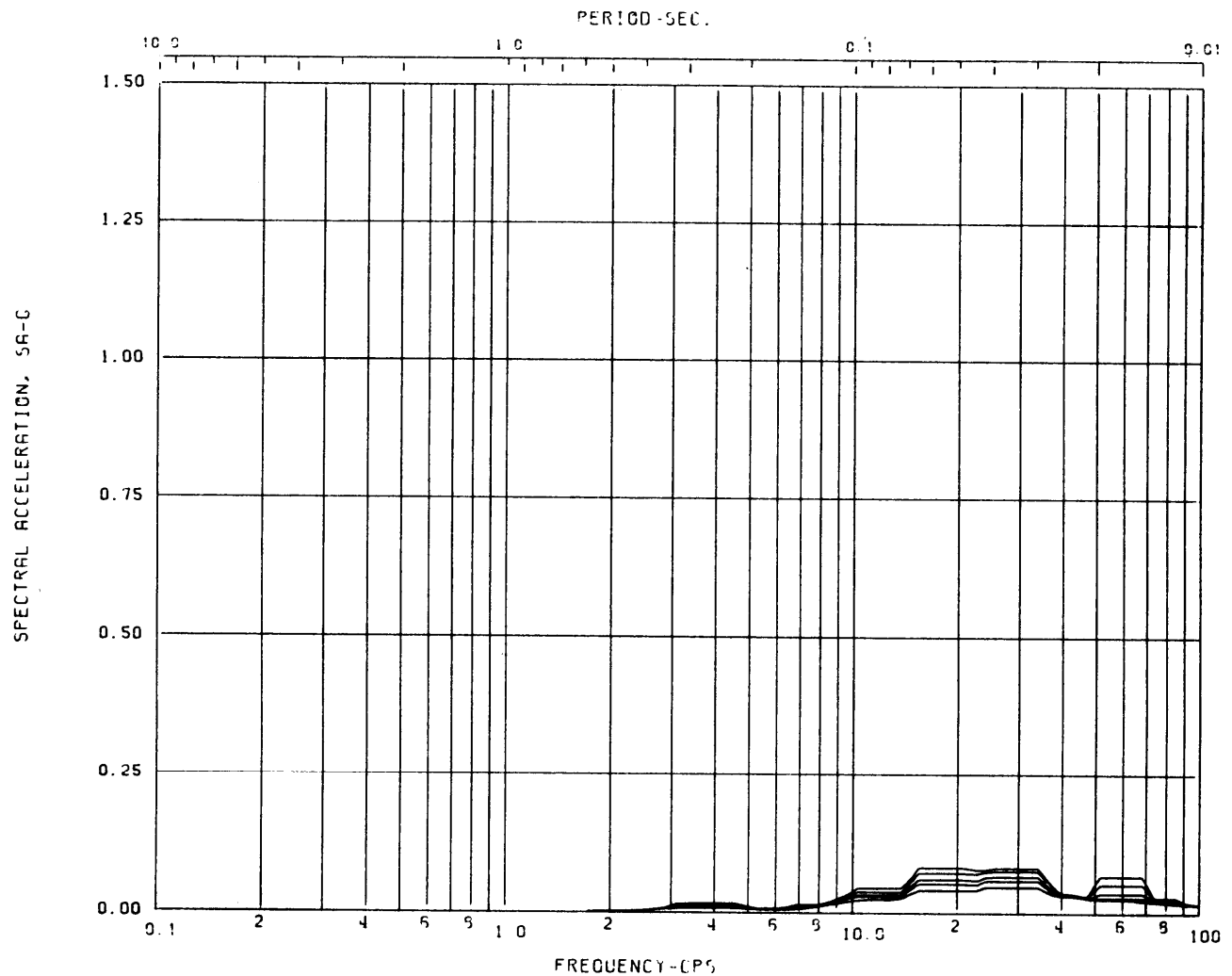
Node: 3 Direction: E-W HORIZ Elev: 217'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-183**





Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

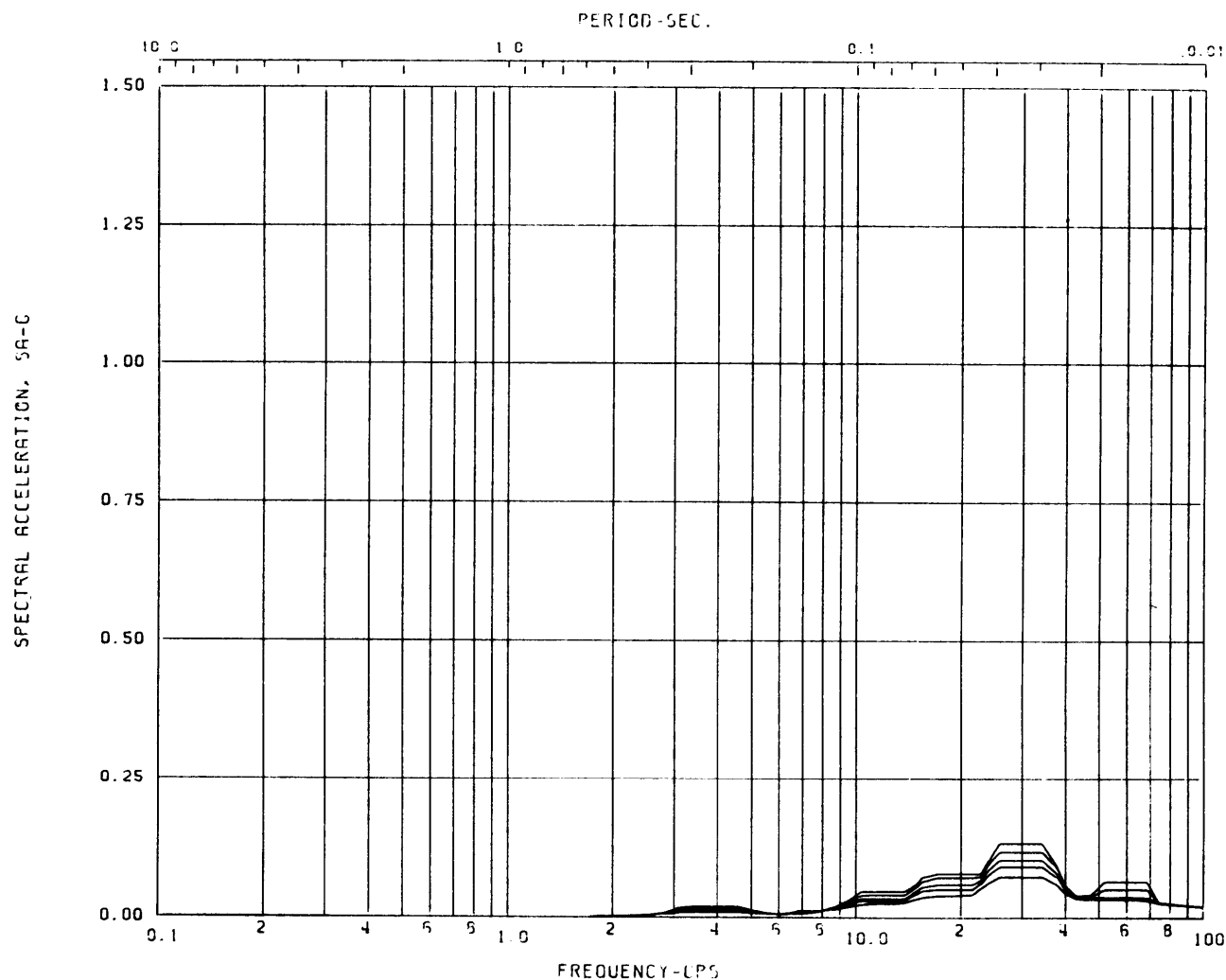
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 4 Direction: E-W HORIZ Elev: 239'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SPECTRA, E-W HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-184**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

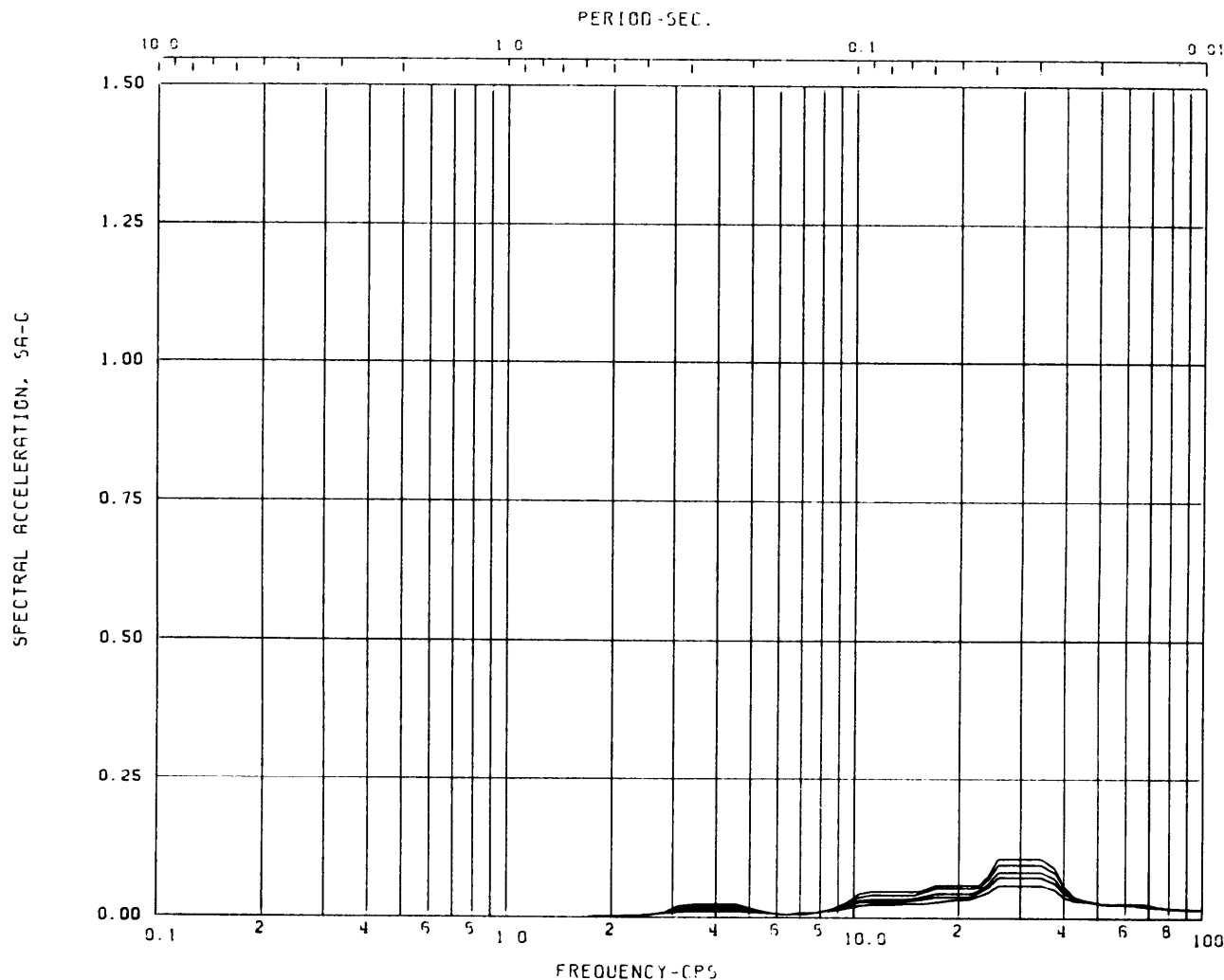
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDFED - 15%)

Node: 5 Direction: E-W HORIZ Elev: 253'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SPECTRA, E-W HORIZONTAL,  
SRV ASYMMETRIC  
FIGURE 3A-185**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

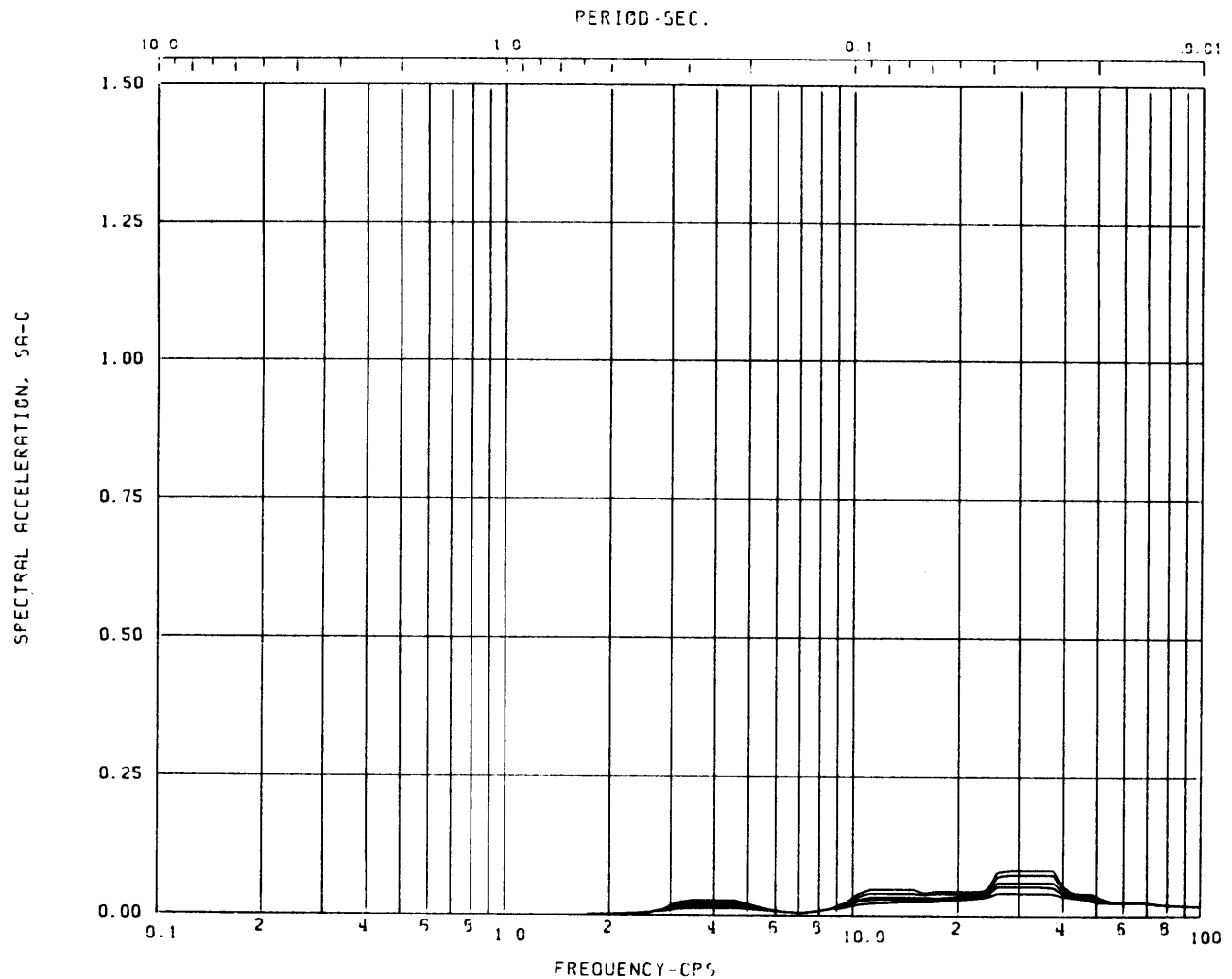
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 6 Direction: E-W HORIZ Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-186**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

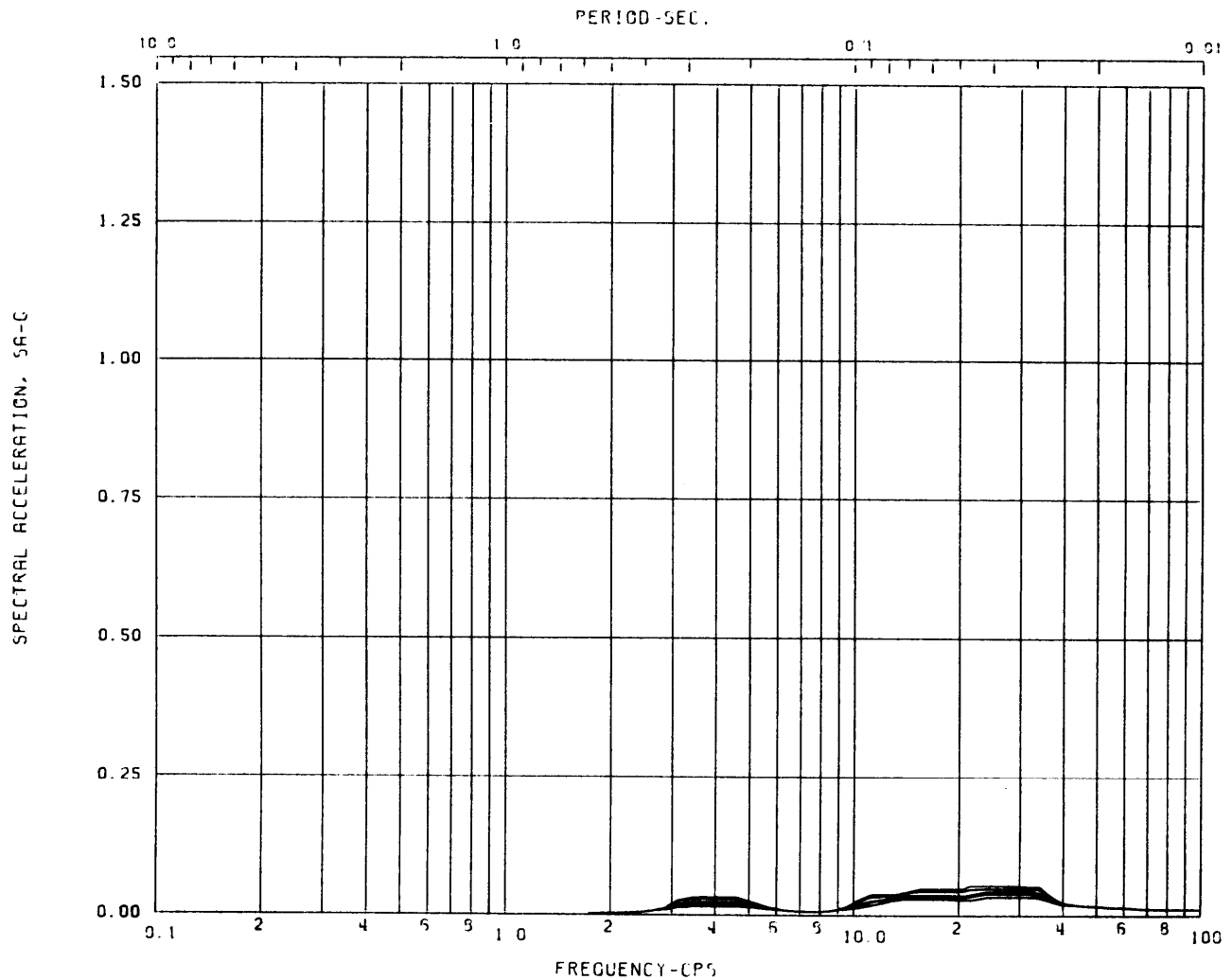
Node: 7 Direction: E-W HORIZ Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC**

**FIGURE 3A-187**



Acceleration Spectra for REACTOR ENCL. , CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDFNE - 15%)

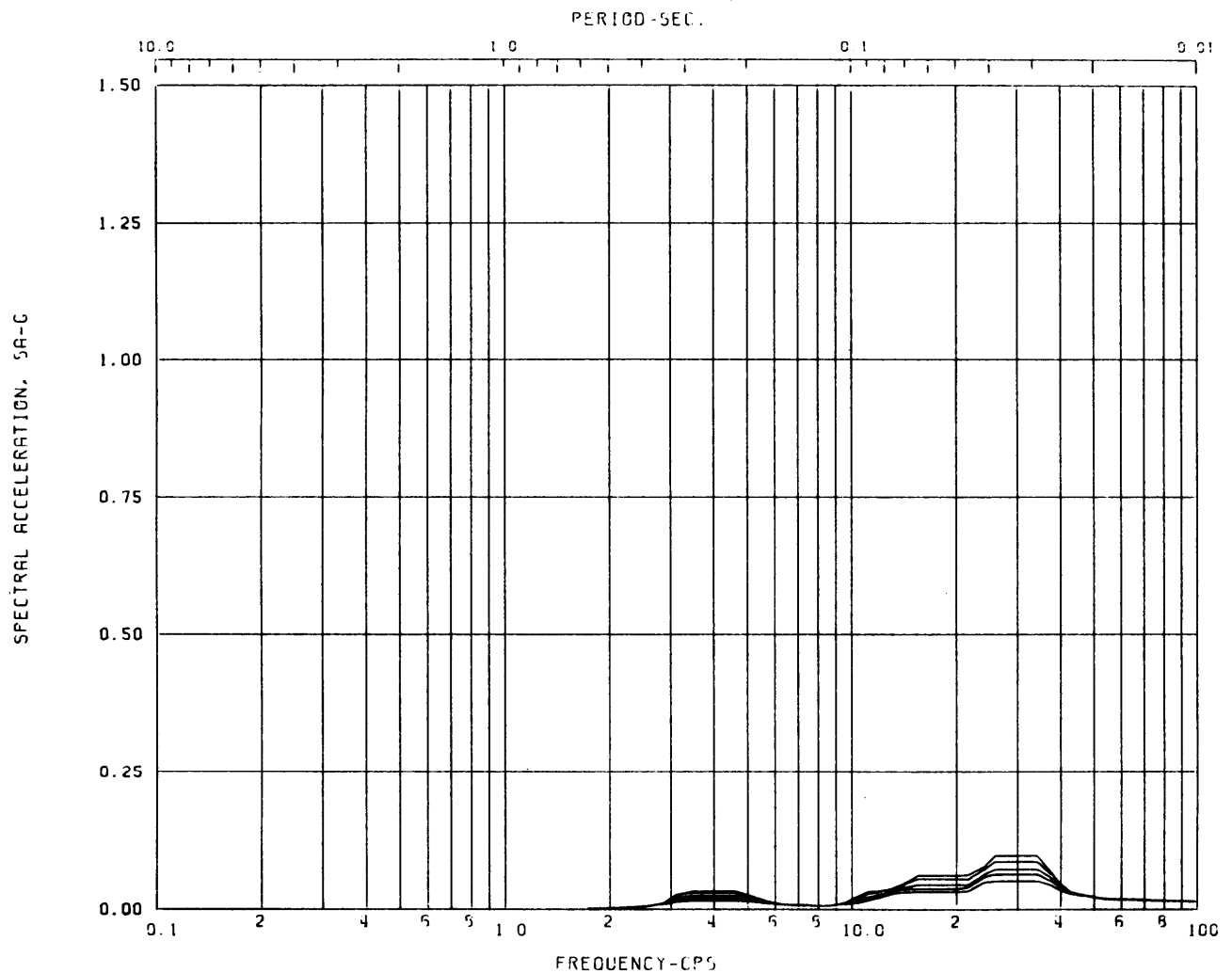
Node: 8 Direction: E-W HORIZ Elev: 304'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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SRV ASYMMETRIC

FIGURE 3A-188



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

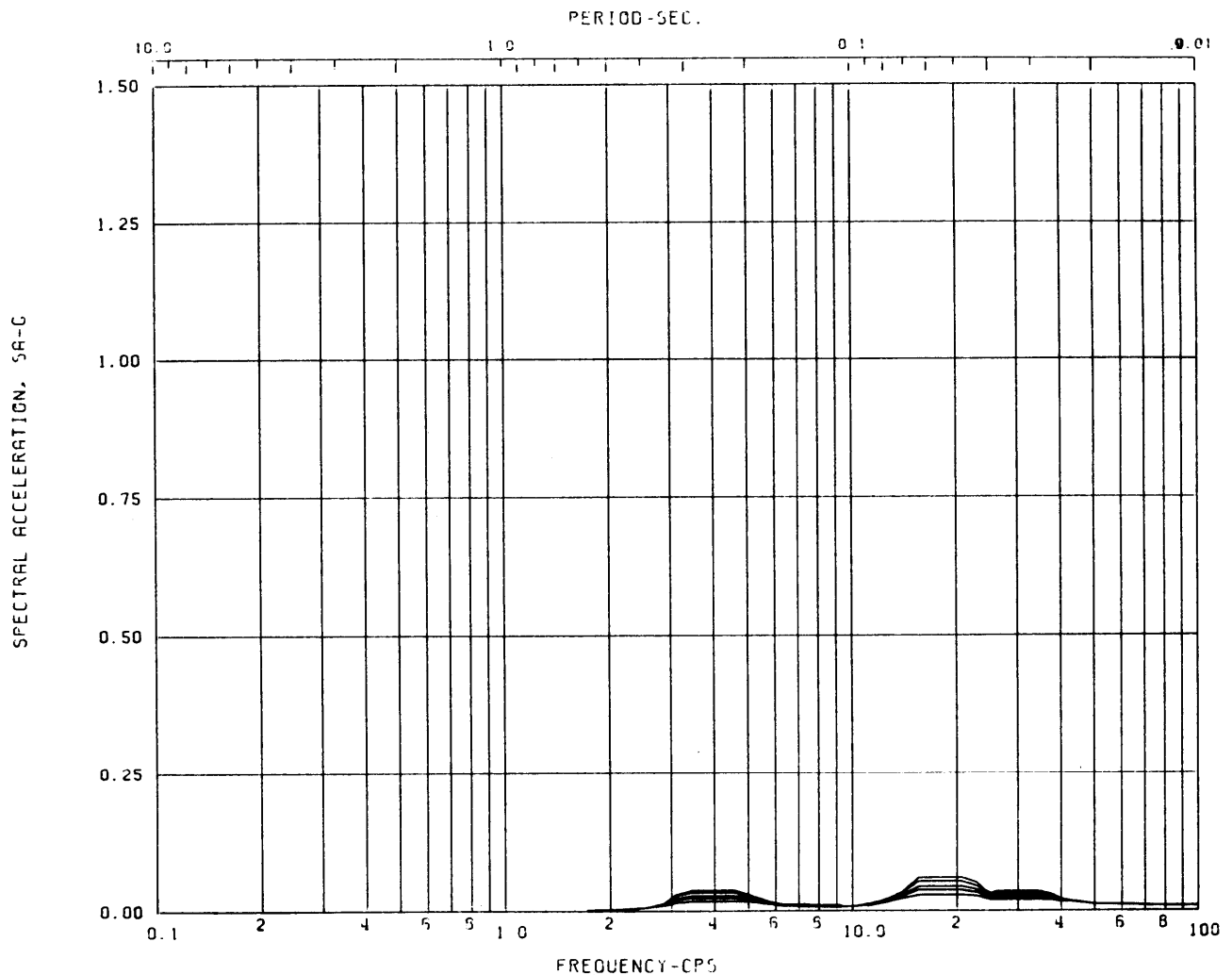
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 9 Direction: E-W HORIZ Elev: 313'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-189**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

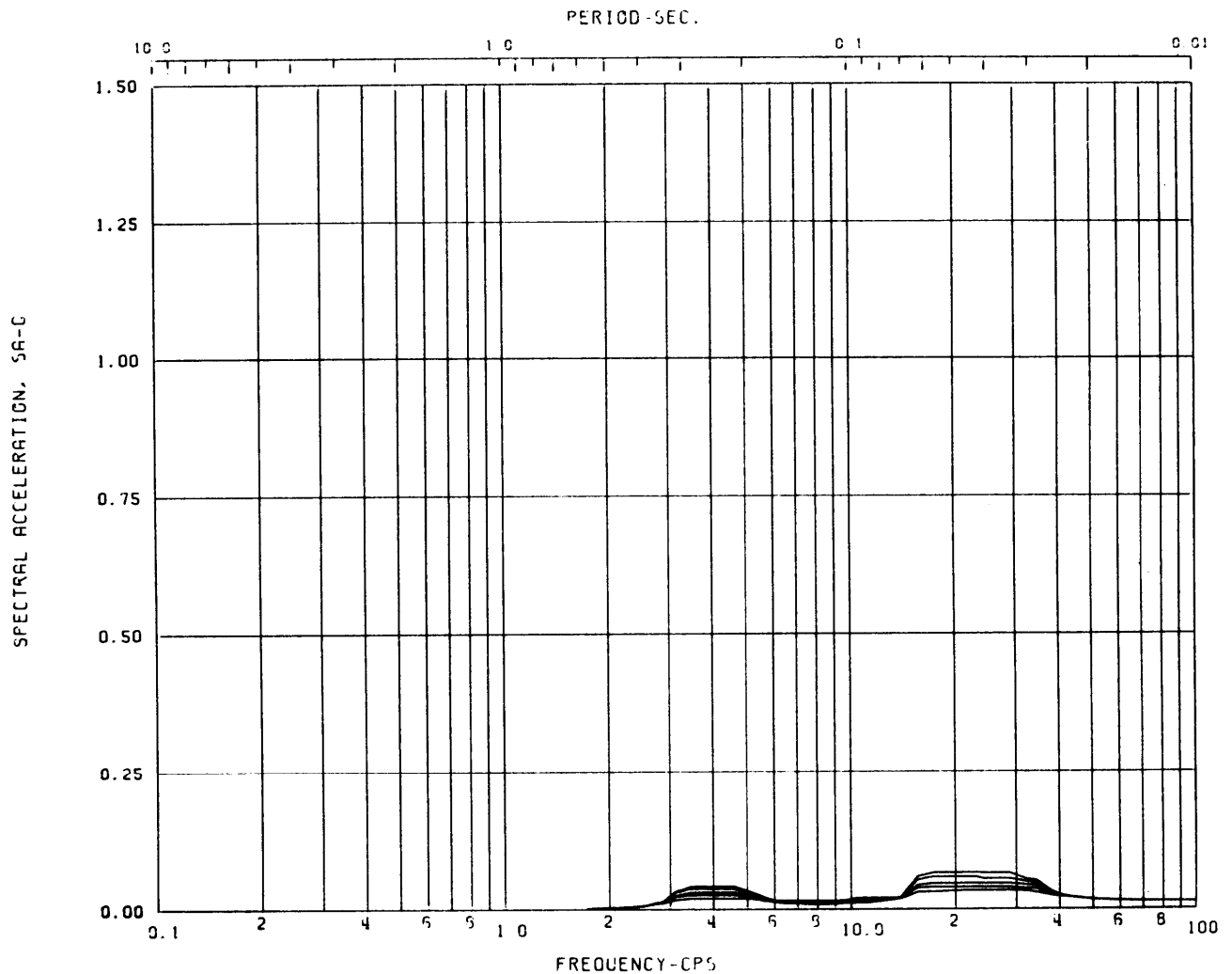
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 10 Direction: E-W HORIZ Elev: 332'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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SRV ASYMMETRIC  
FIGURE 3A-190**



Acceleration Spectra for REACTOR ENCL. , CONTROL STRUCTURE

Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

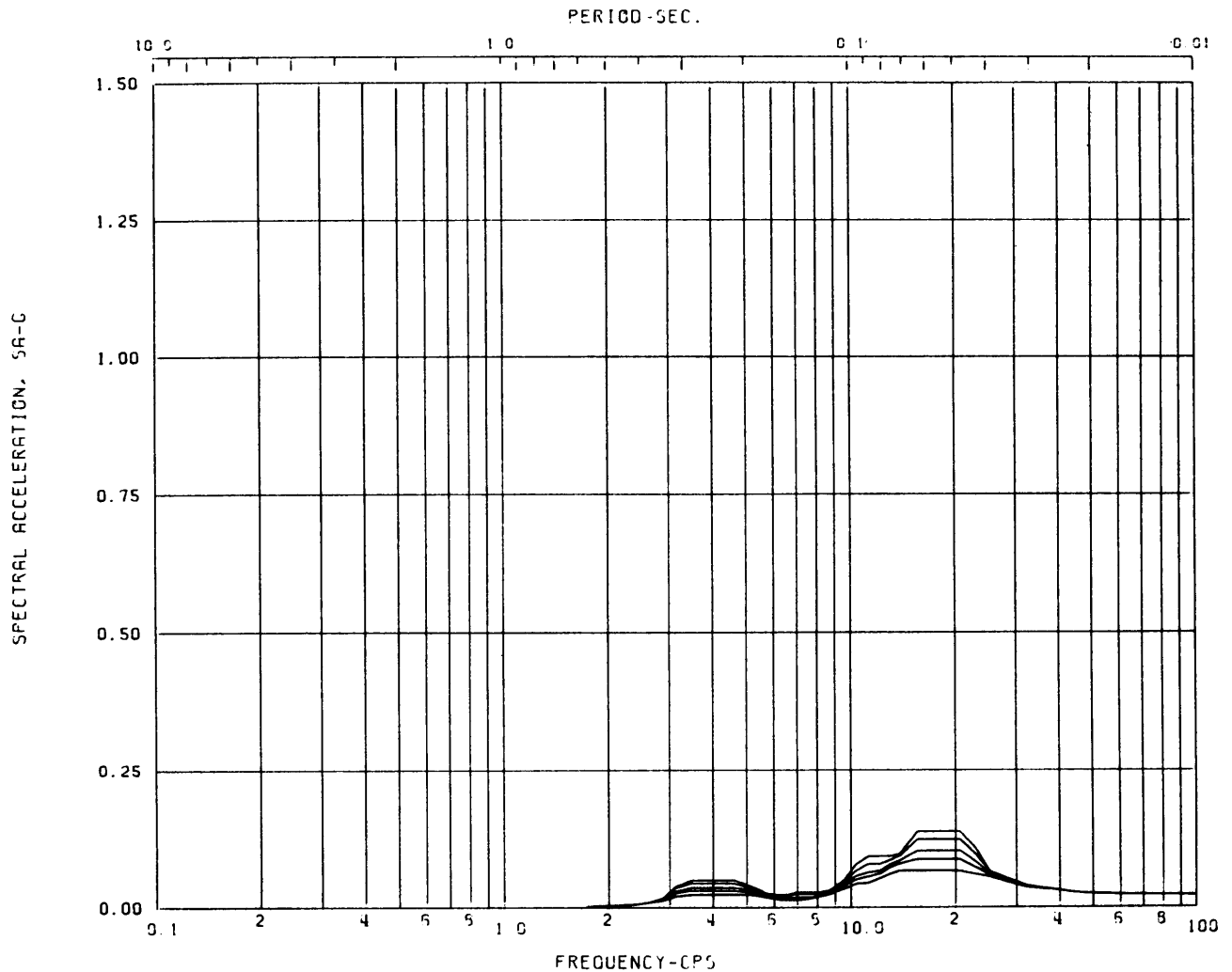
Node: 11 Direction: E-W HORIZ Elev: 352'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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SRV ASYMMETRIC  
FIGURE 3A-191**





Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

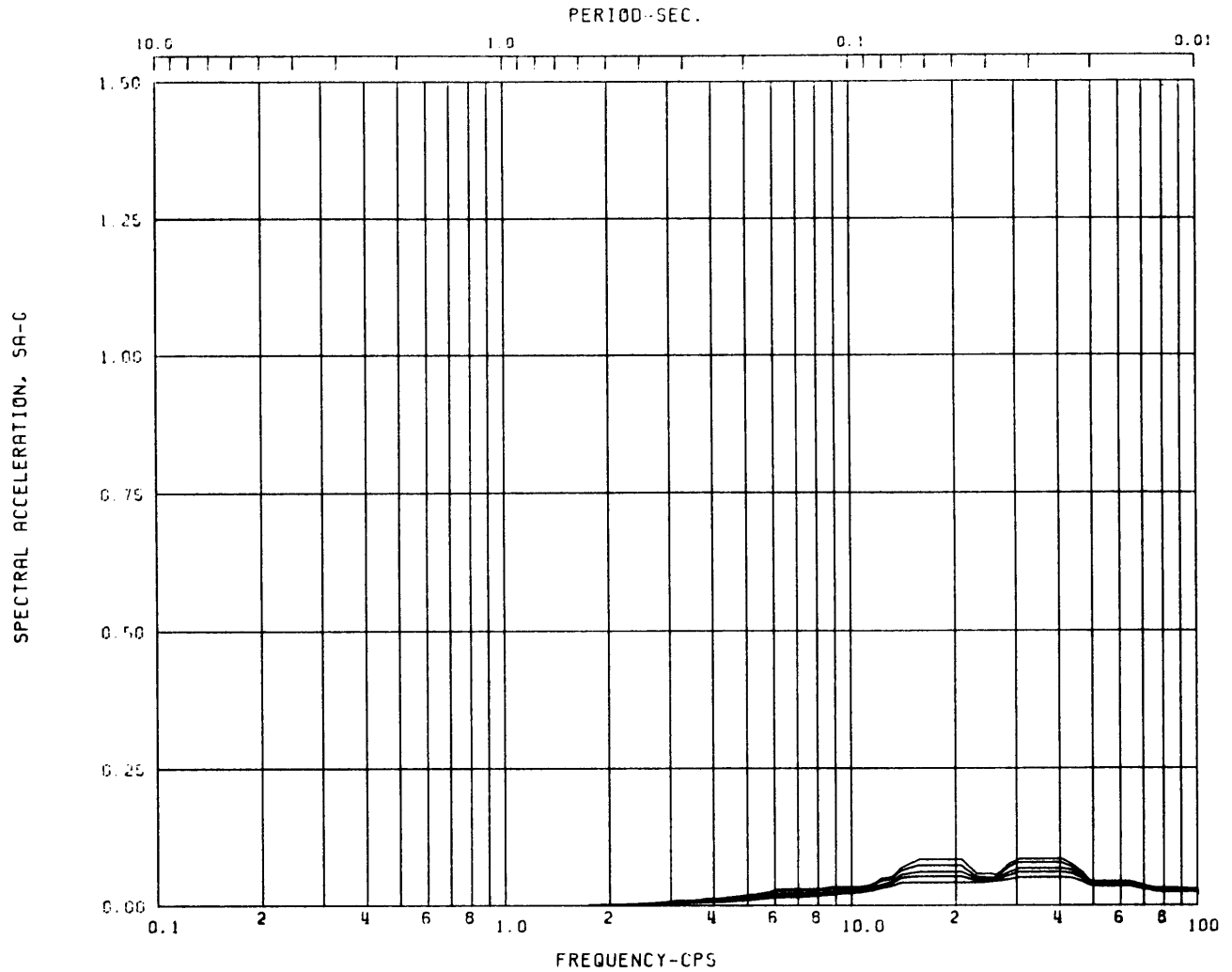
Load Case: KWU SRV ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 12 Direction: E-W HORIZ Elev: 410'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SRV ASYMMETRIC  
FIGURE 3A-192**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

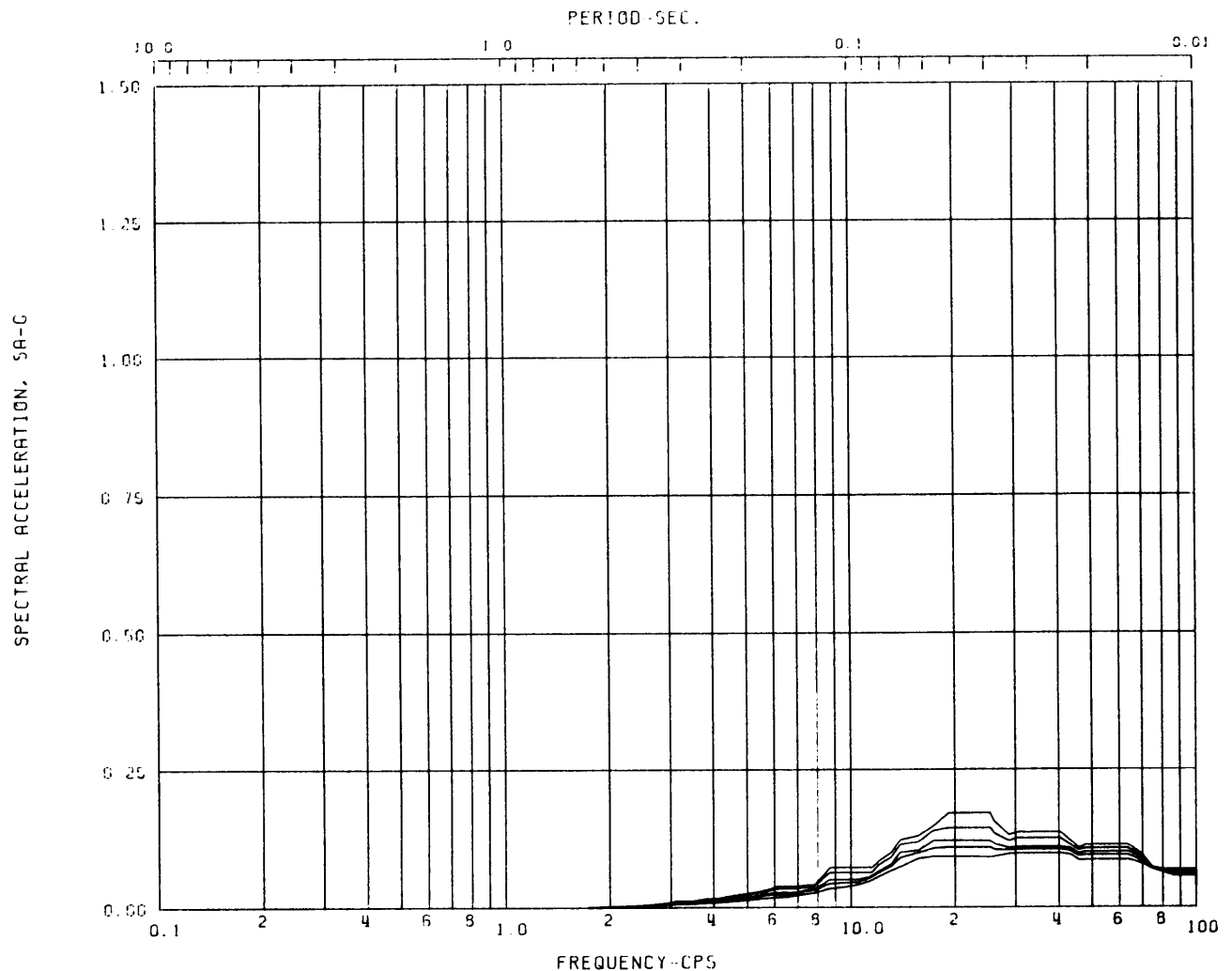
Node: 159 Direction: VERTICAL Elev: 177'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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FIGURE 3A-193



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

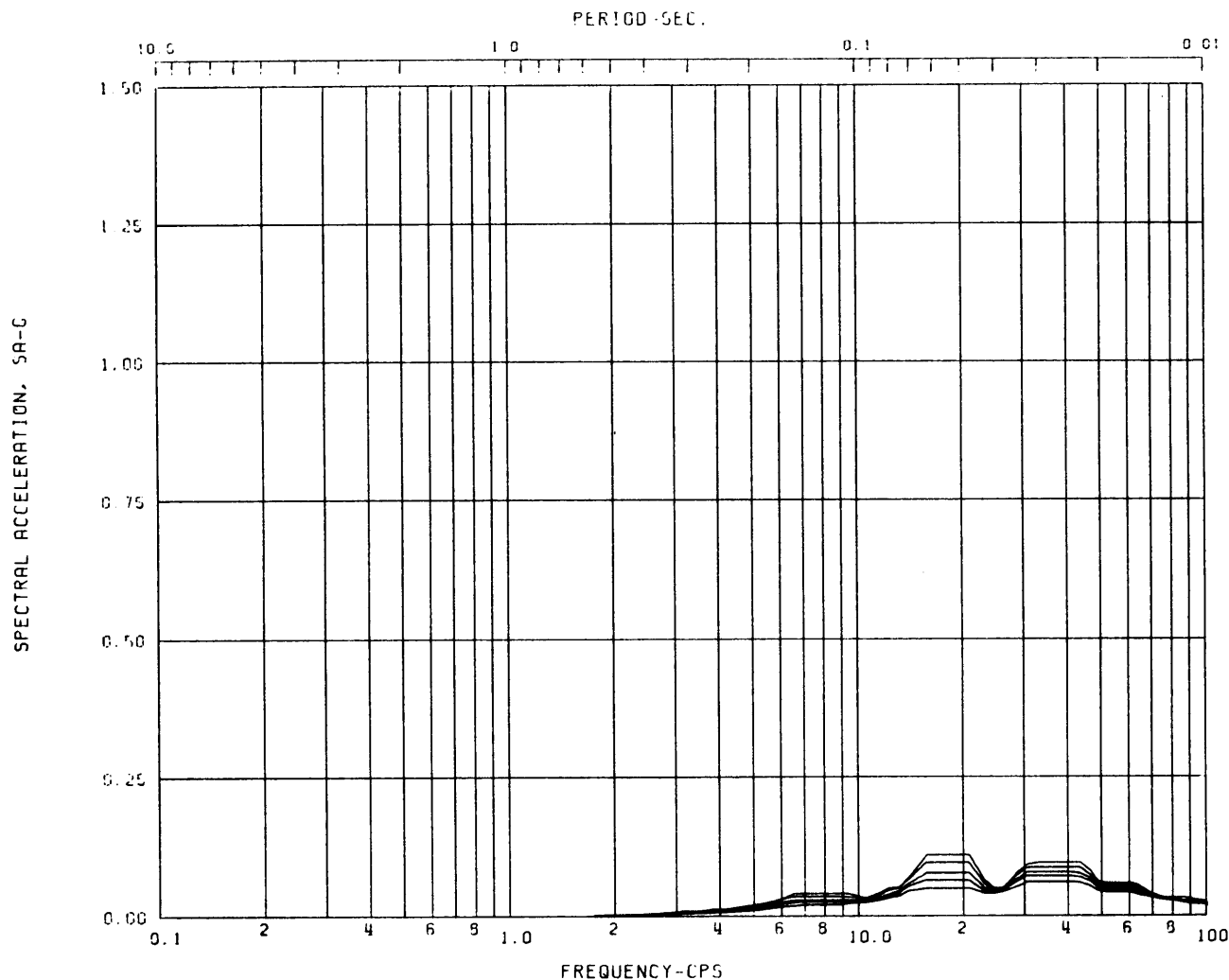
Node: 154 Direction: VERTICAL Elev: 177'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-194**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

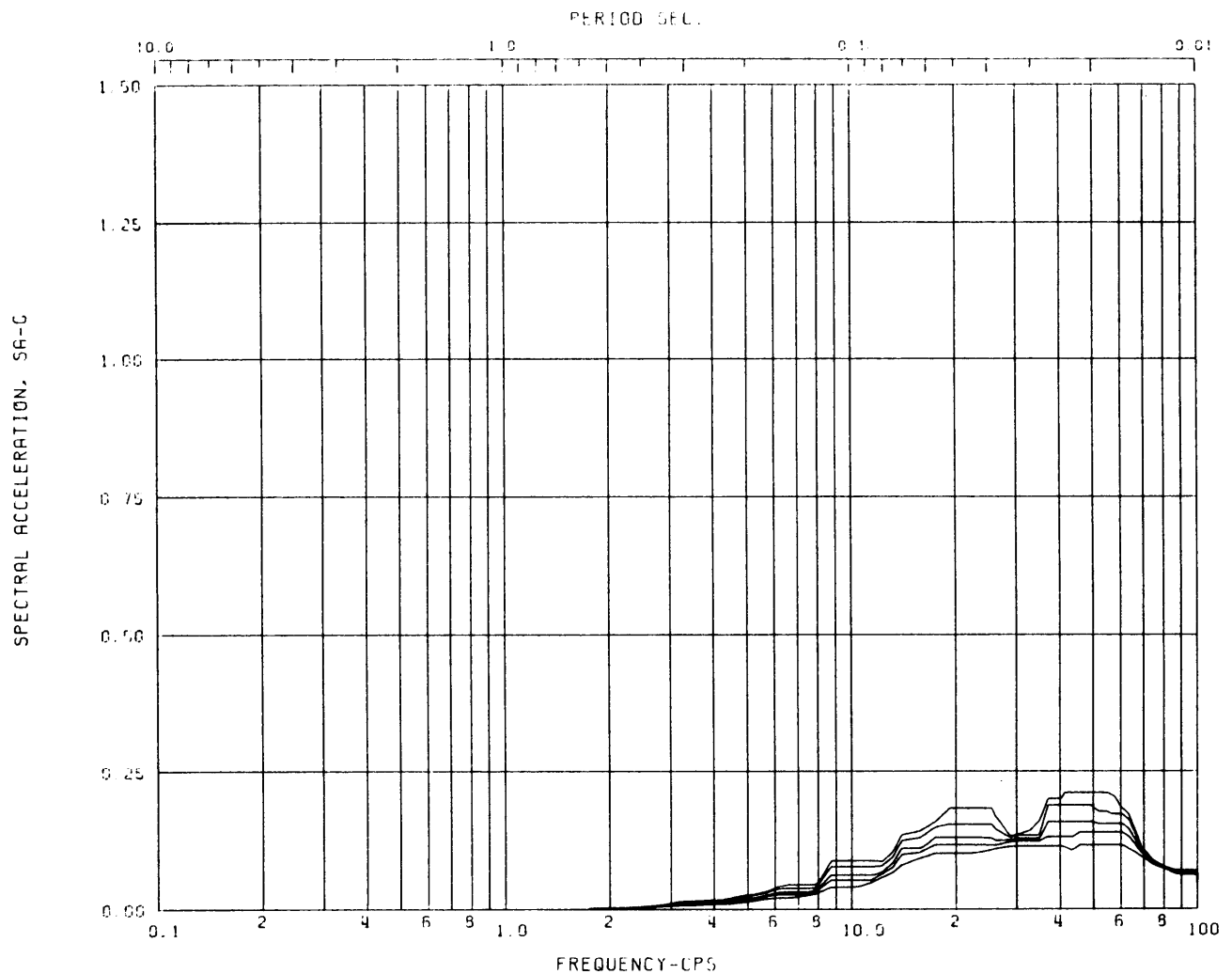
Node: 128 Direction: VERTICAL Elev: 201'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-195**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

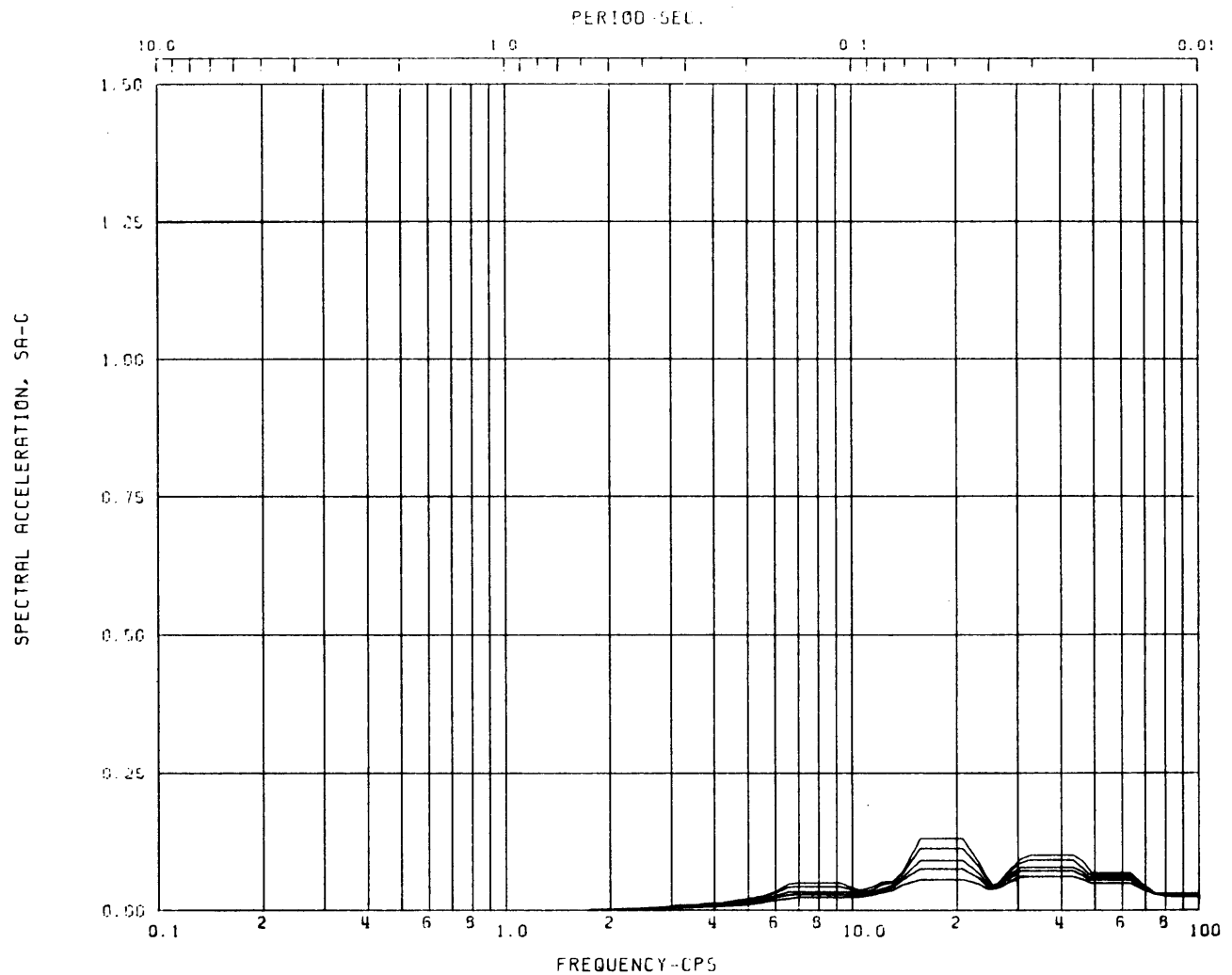
Node: 130 Direction: VERTICAL Elev: 201'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-196**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

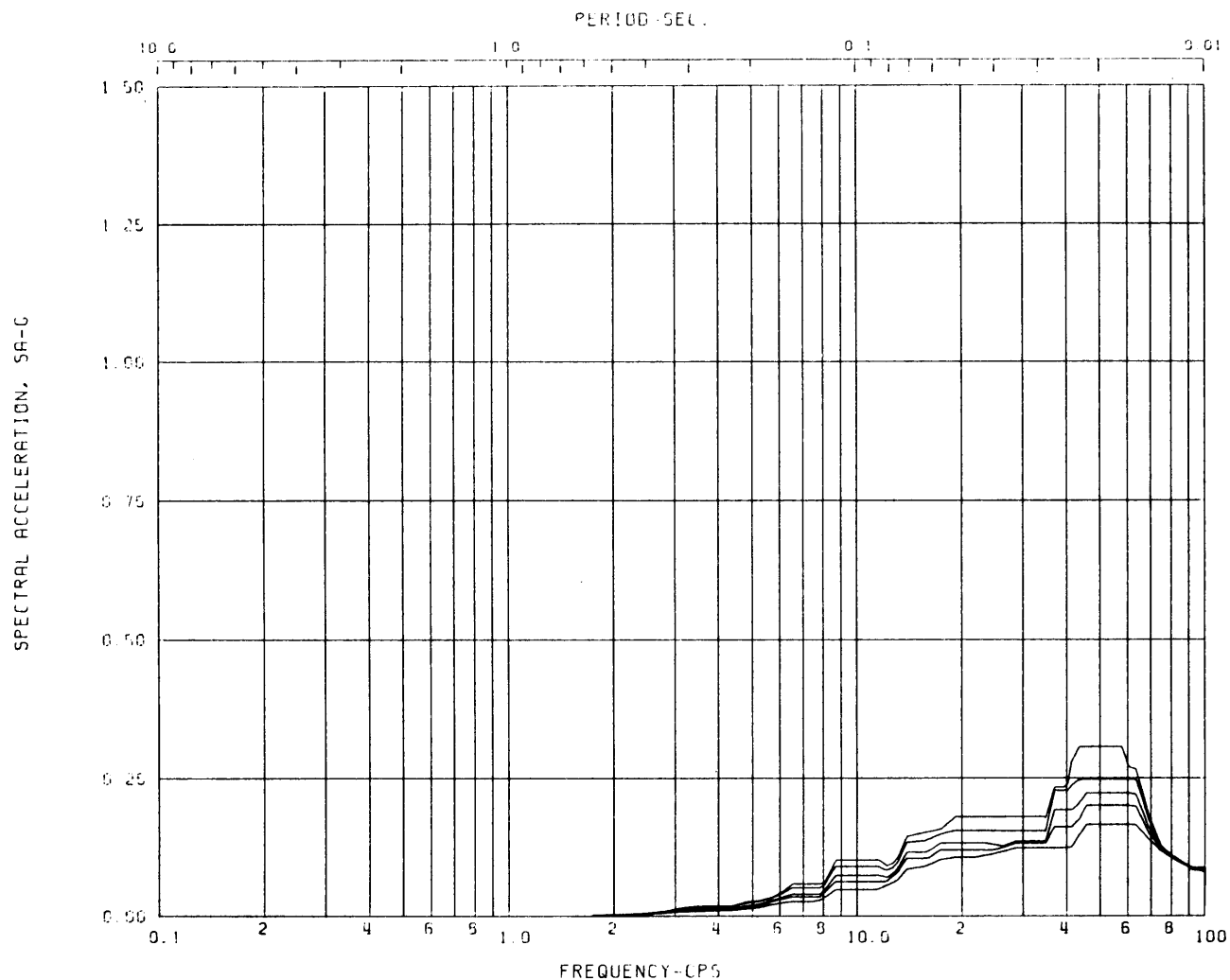
Node: 106 Direction: VERTICAL Elev: 217'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-197**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

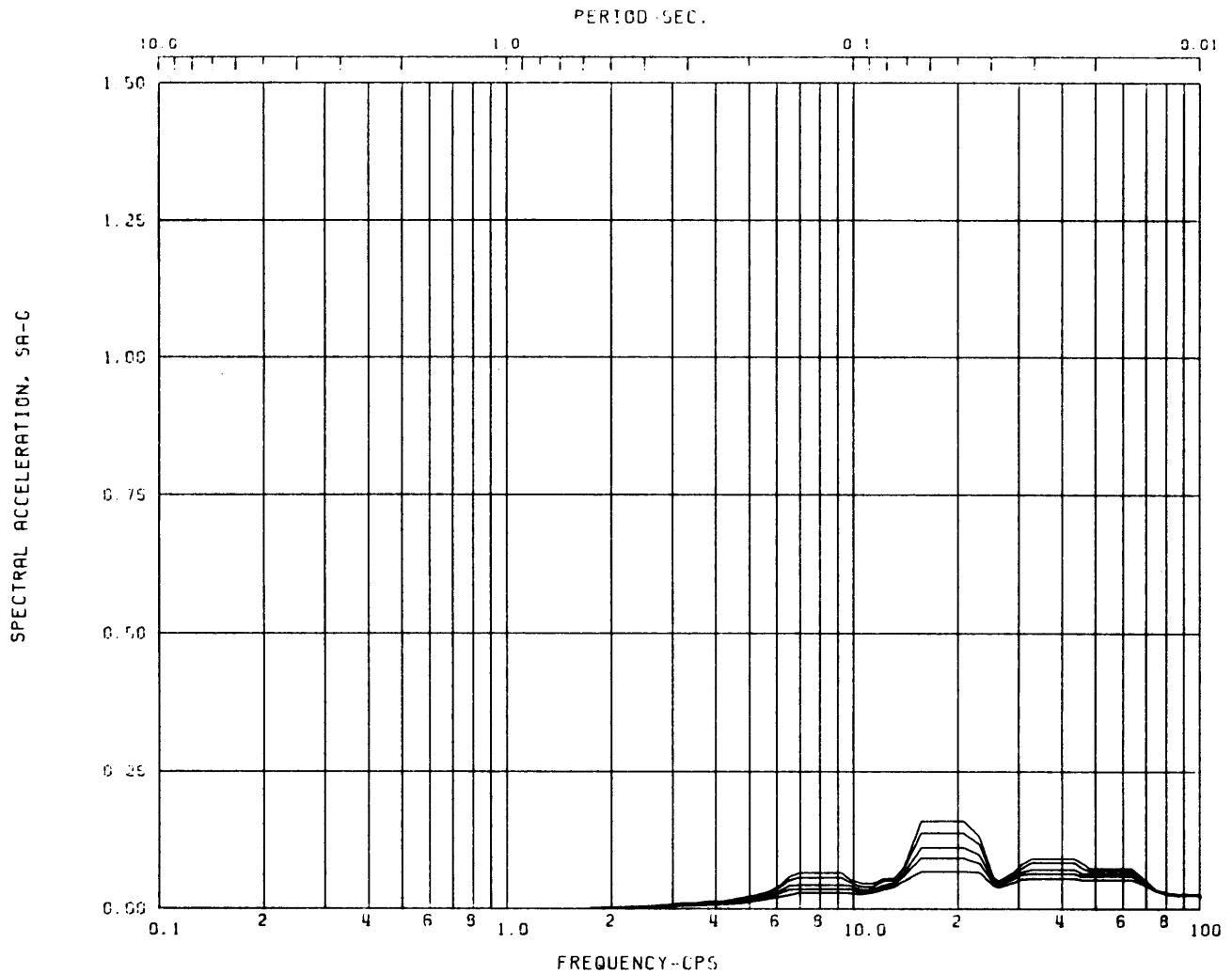
Node: 108 Direction: VERTICAL Elevation: 217'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-198**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 104 Direction: VERTICAL Elev: 239'

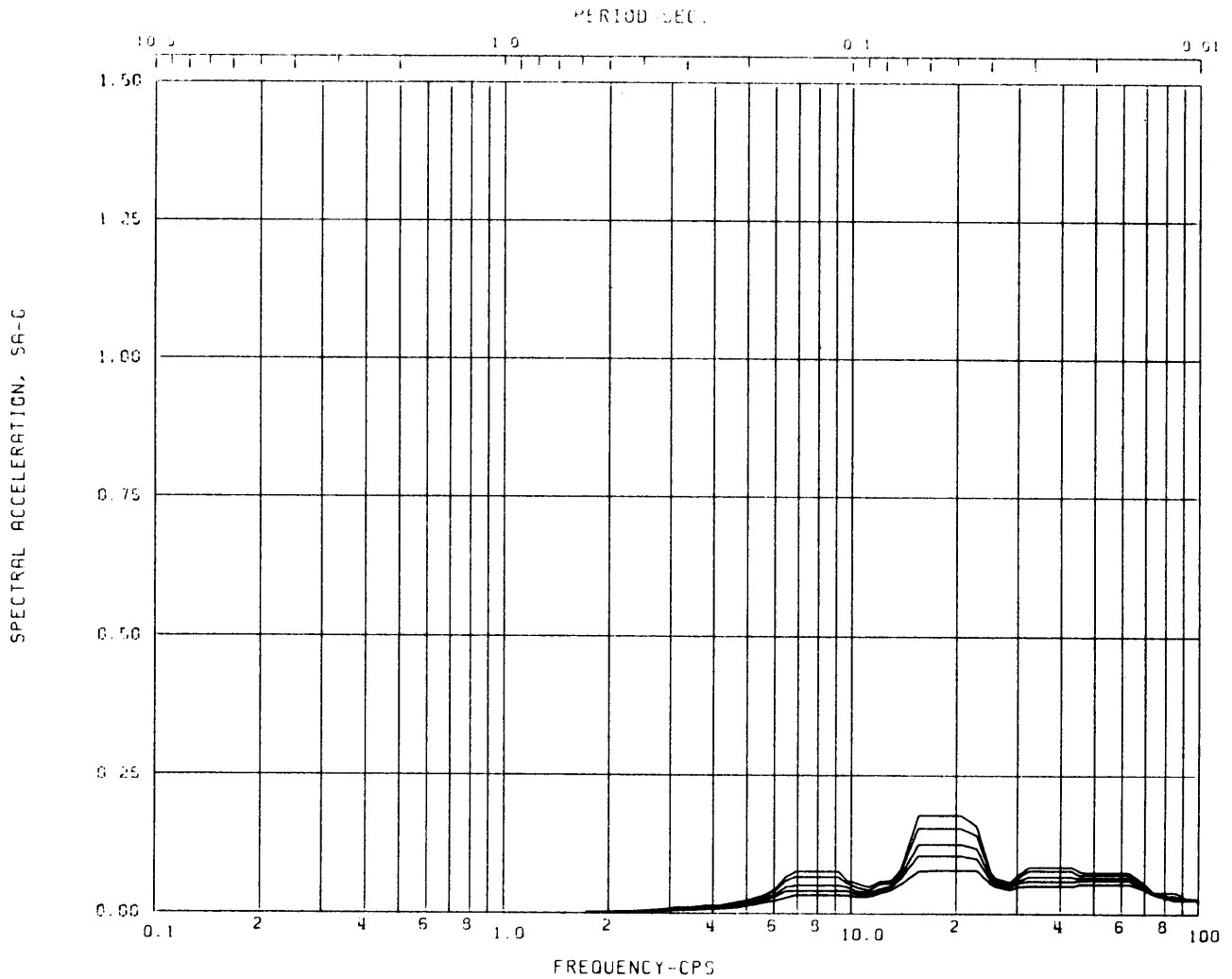
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-199**





Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

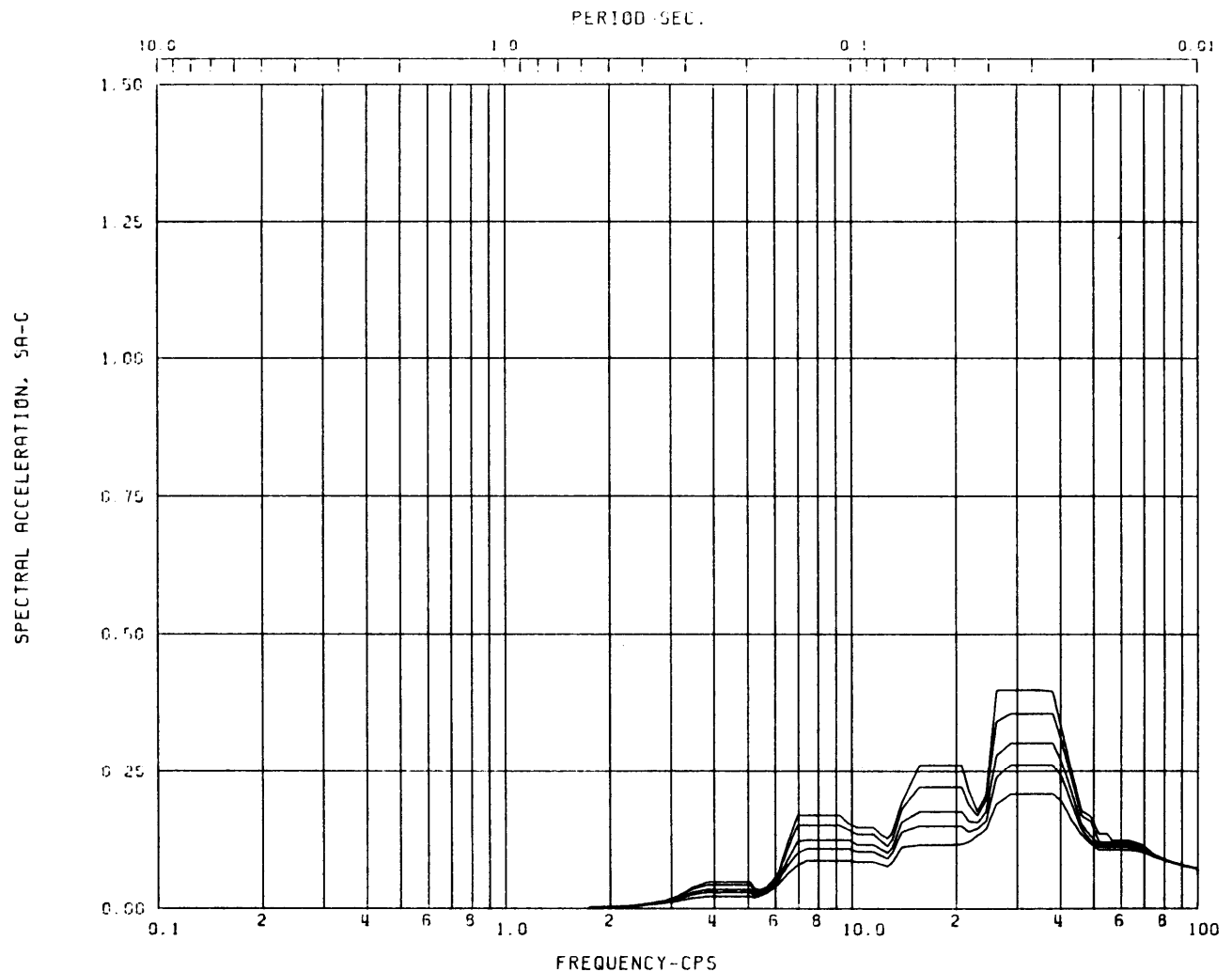
Node: 79 Direction: VERTICAL Elev: 253'

Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL,SRV AXISYMMETRIC**

**FIGURE 3A-200**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

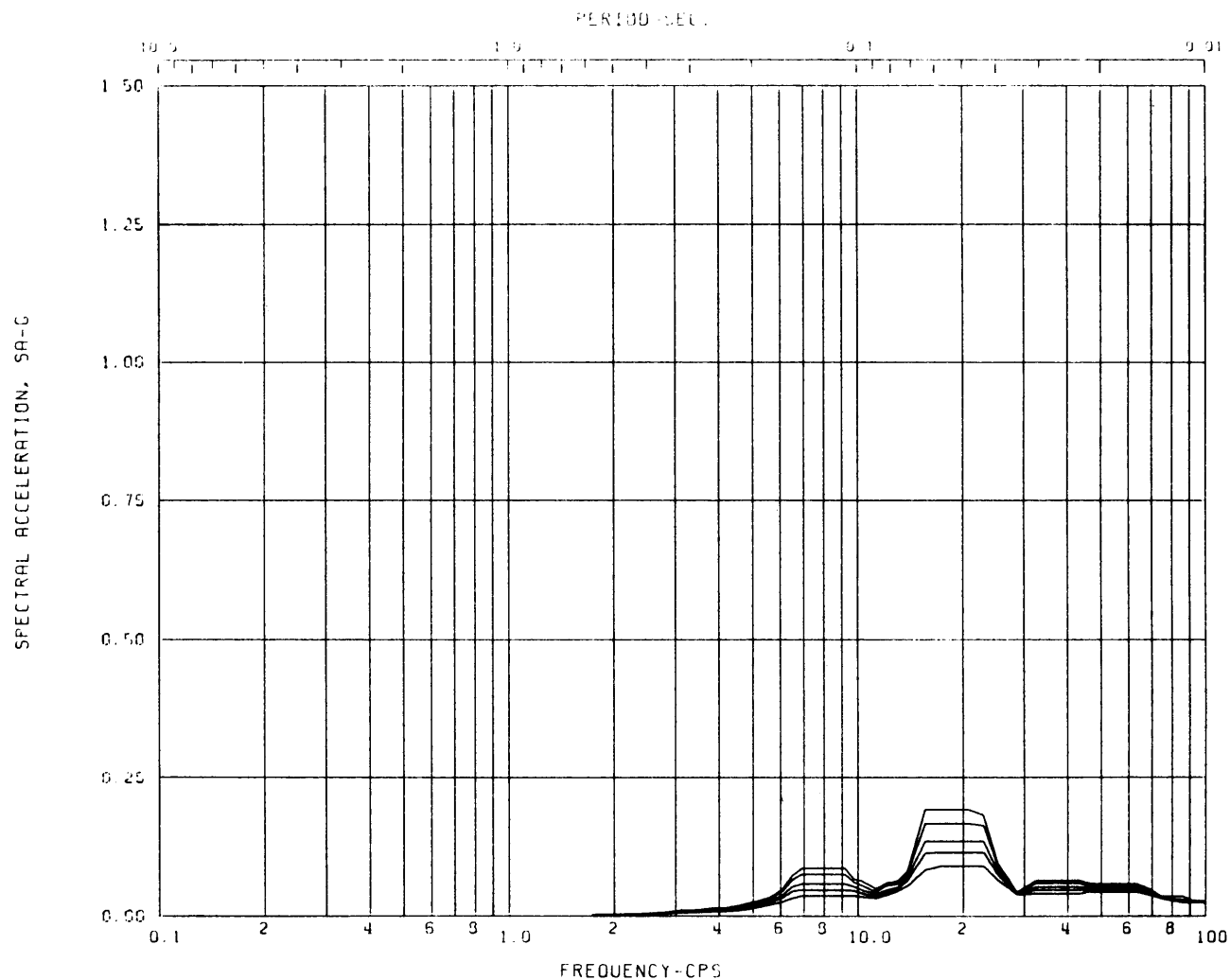
Node: 81 Direction: VERTICAL Elev: 253'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-201**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

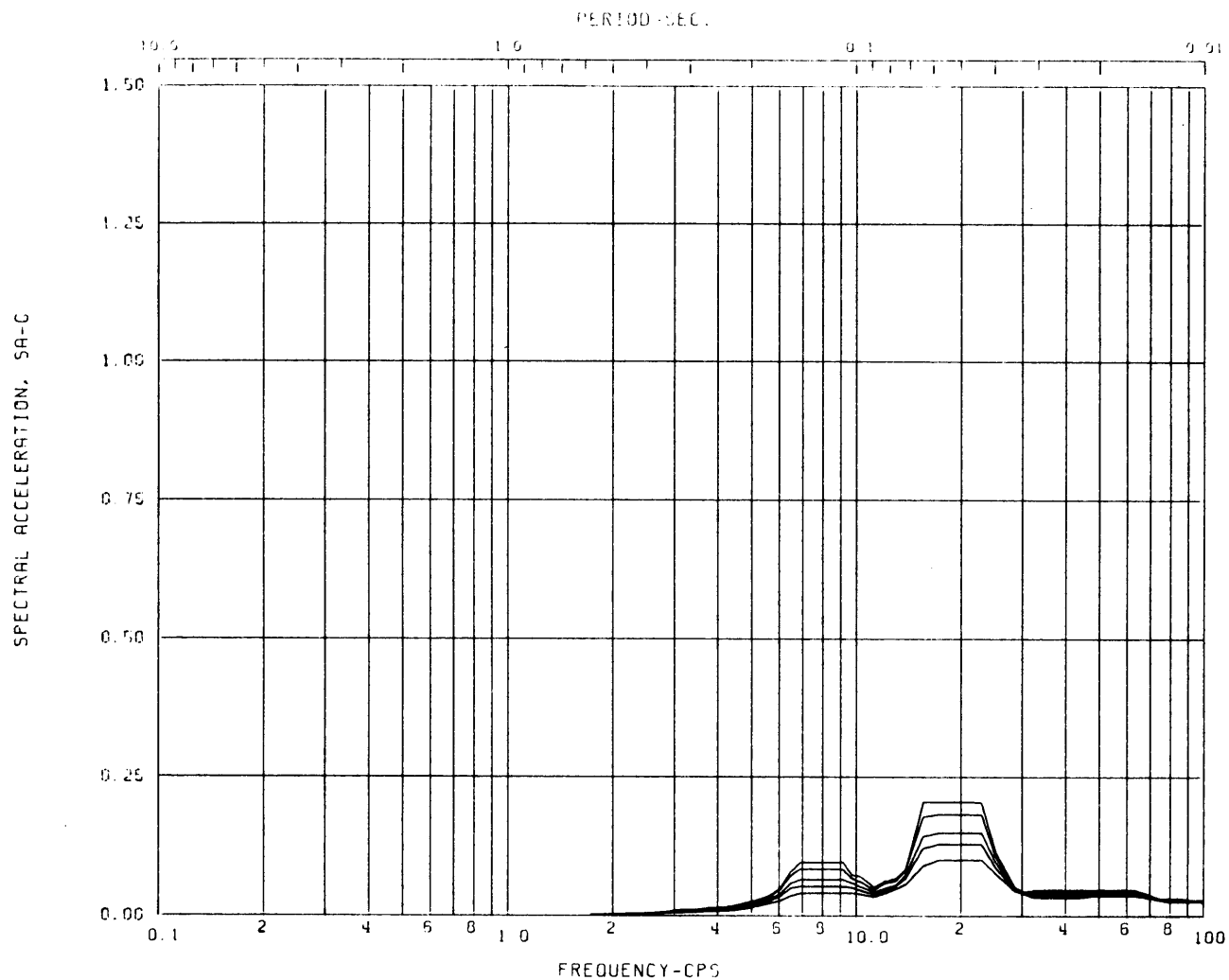
Node: 77 Direction: VERTICAL Elev: 269'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL,SRV AXISYMMETRIC**

**FIGURE 3A-202**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

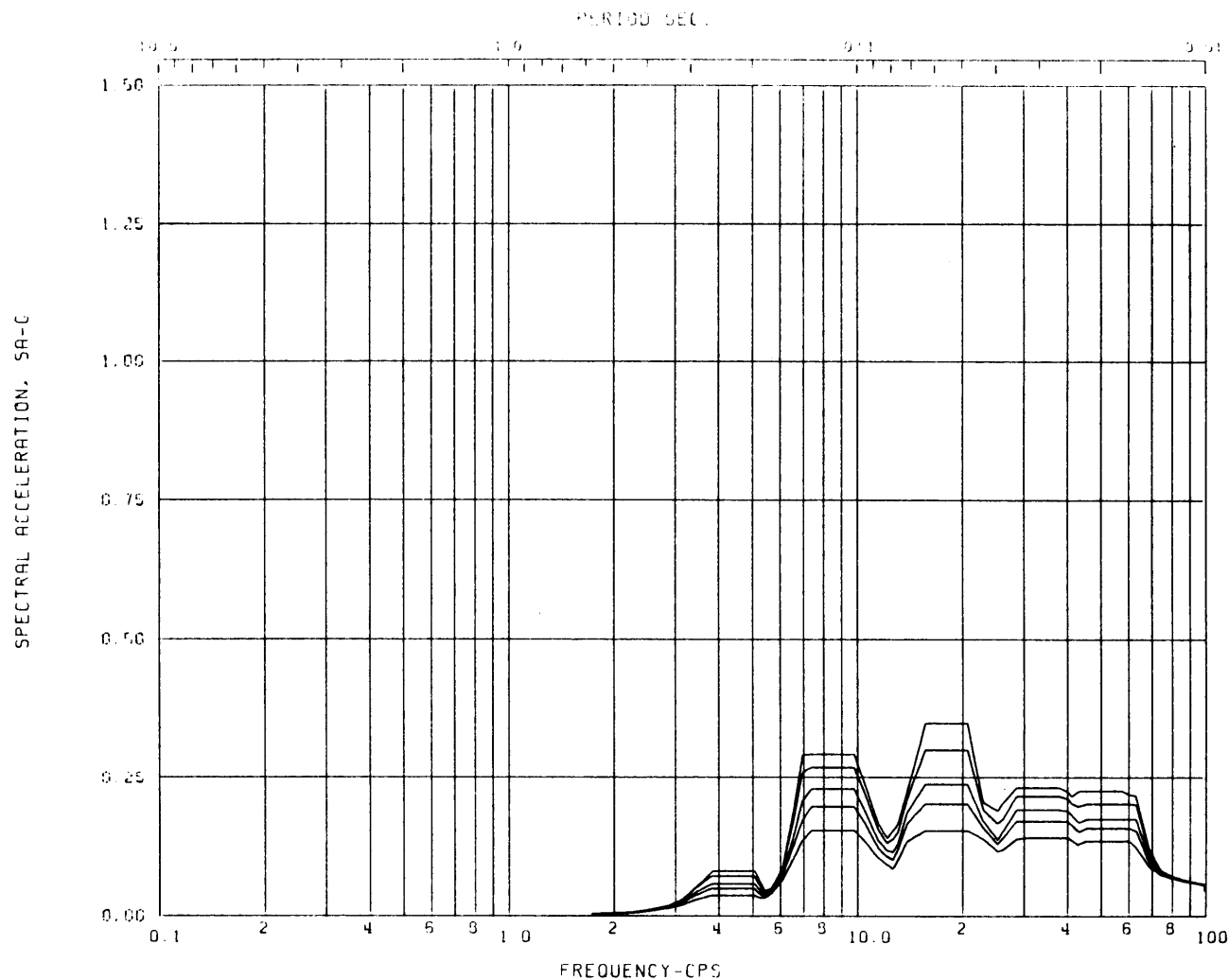
Node: 58 Direction: VERTICAL Elev: 283'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-203**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

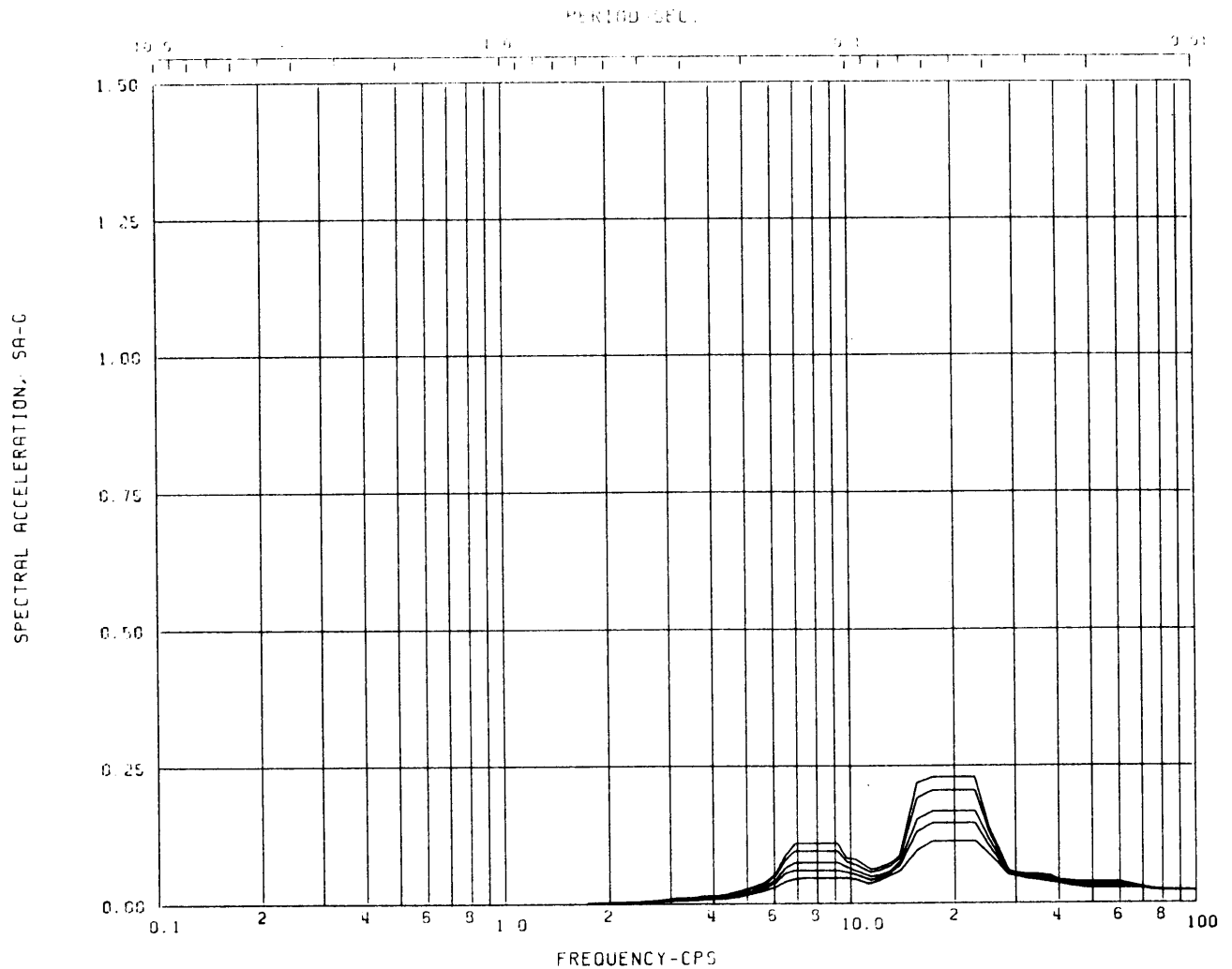
Node: 60 Direction: VERTICAL Elev: 283'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-204**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

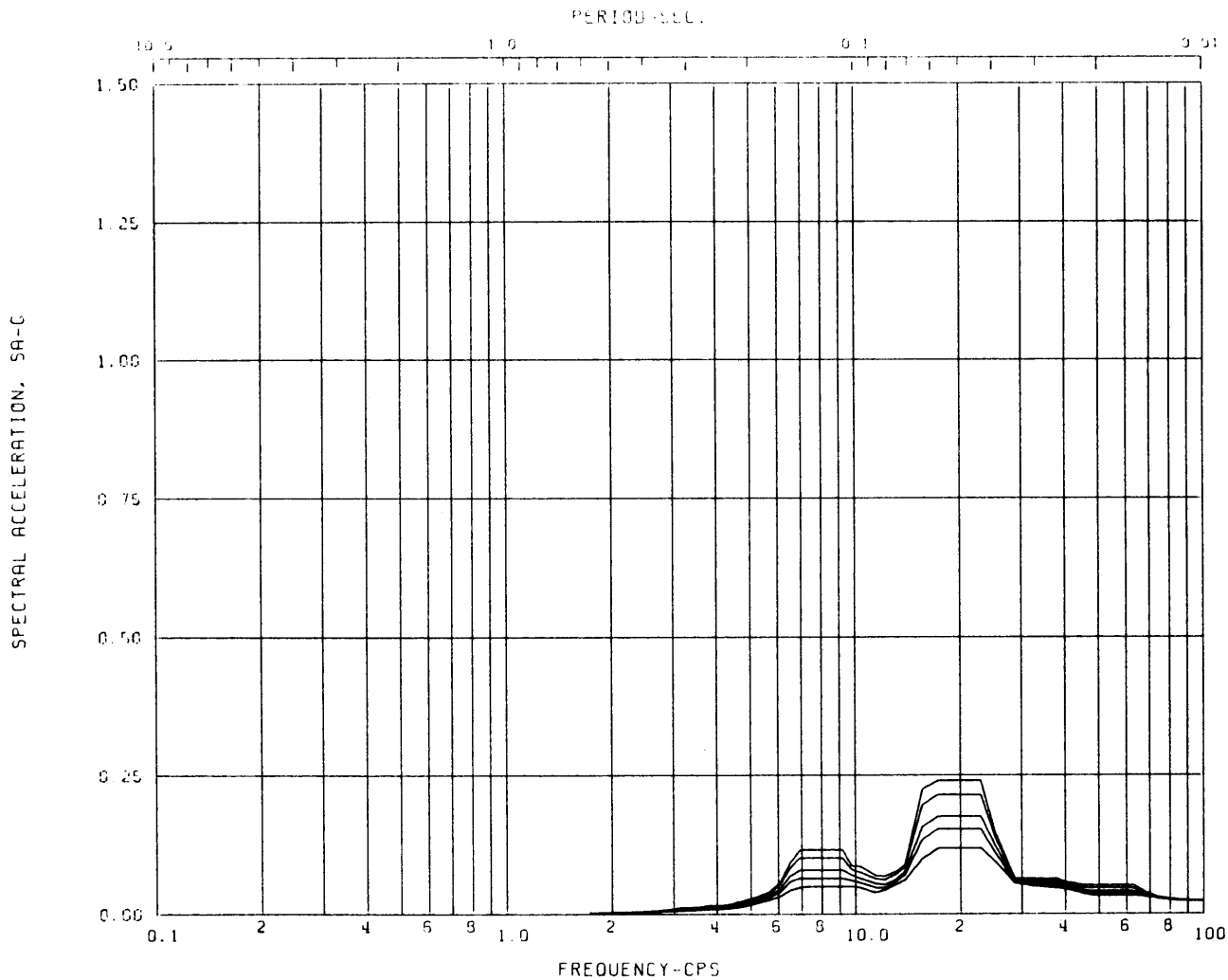
Node: 56 Direction: VERTICAL Elev: 304'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-205**

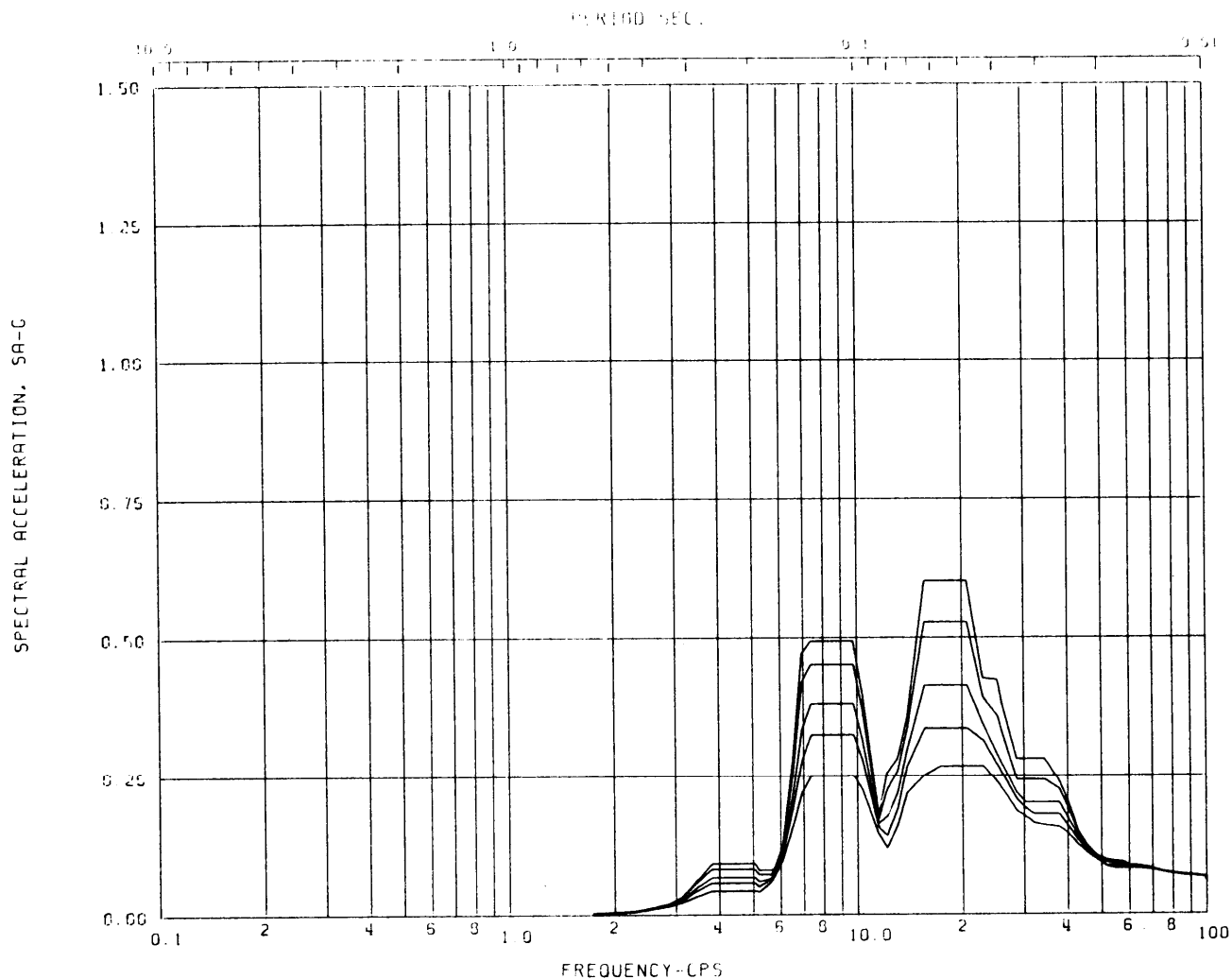


Acceleration Spectra for REACTOR ENCL.  
 Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)  
 Node: 35 Direction: VERTICAL Elev: 313'  
 Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
 REACTOR ENCLOSURE  
 GLOBAL RESPONSE SPECTRA  
 VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-206**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 43 Direction: VERTICAL Elev: 313'

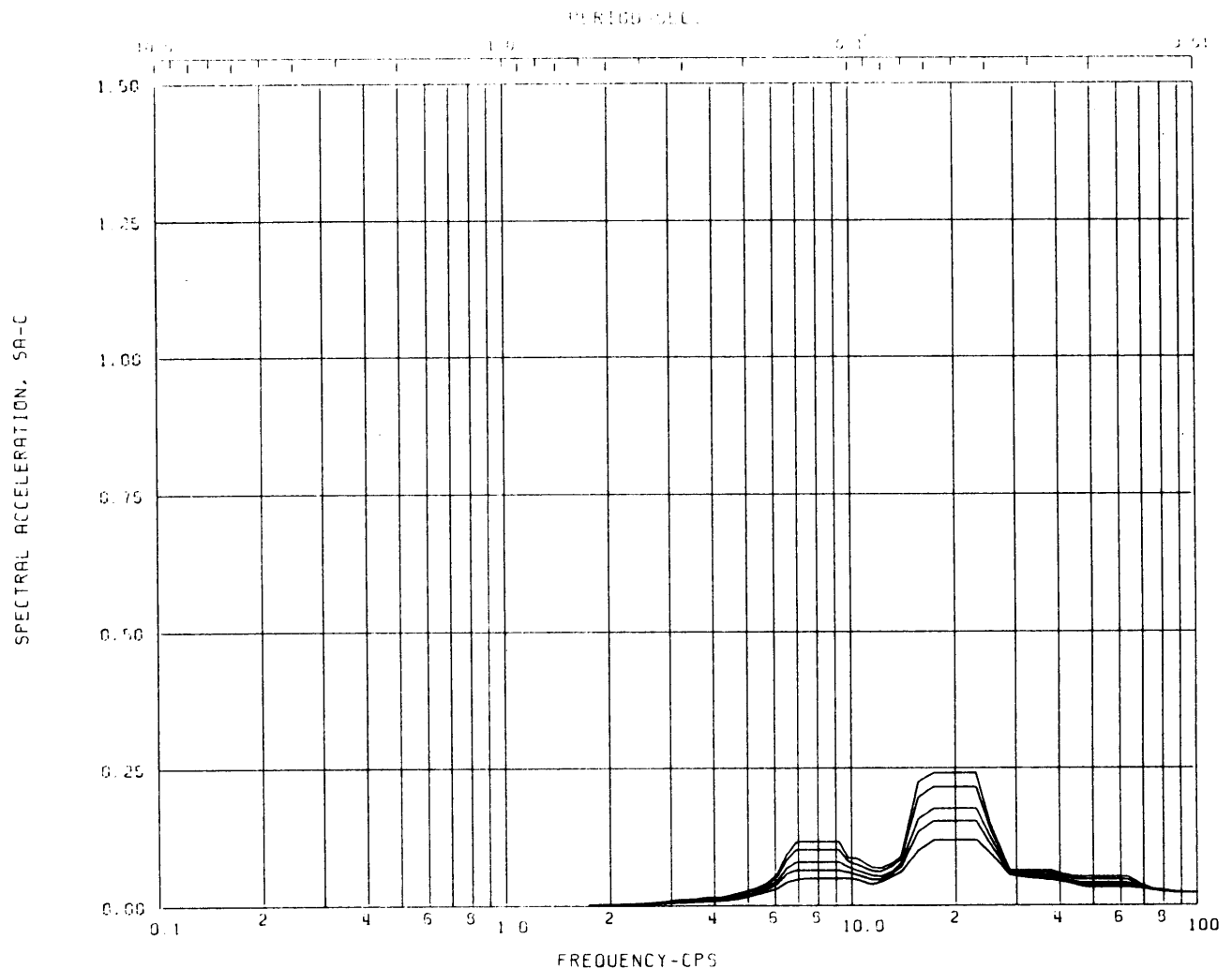
Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-207**





Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

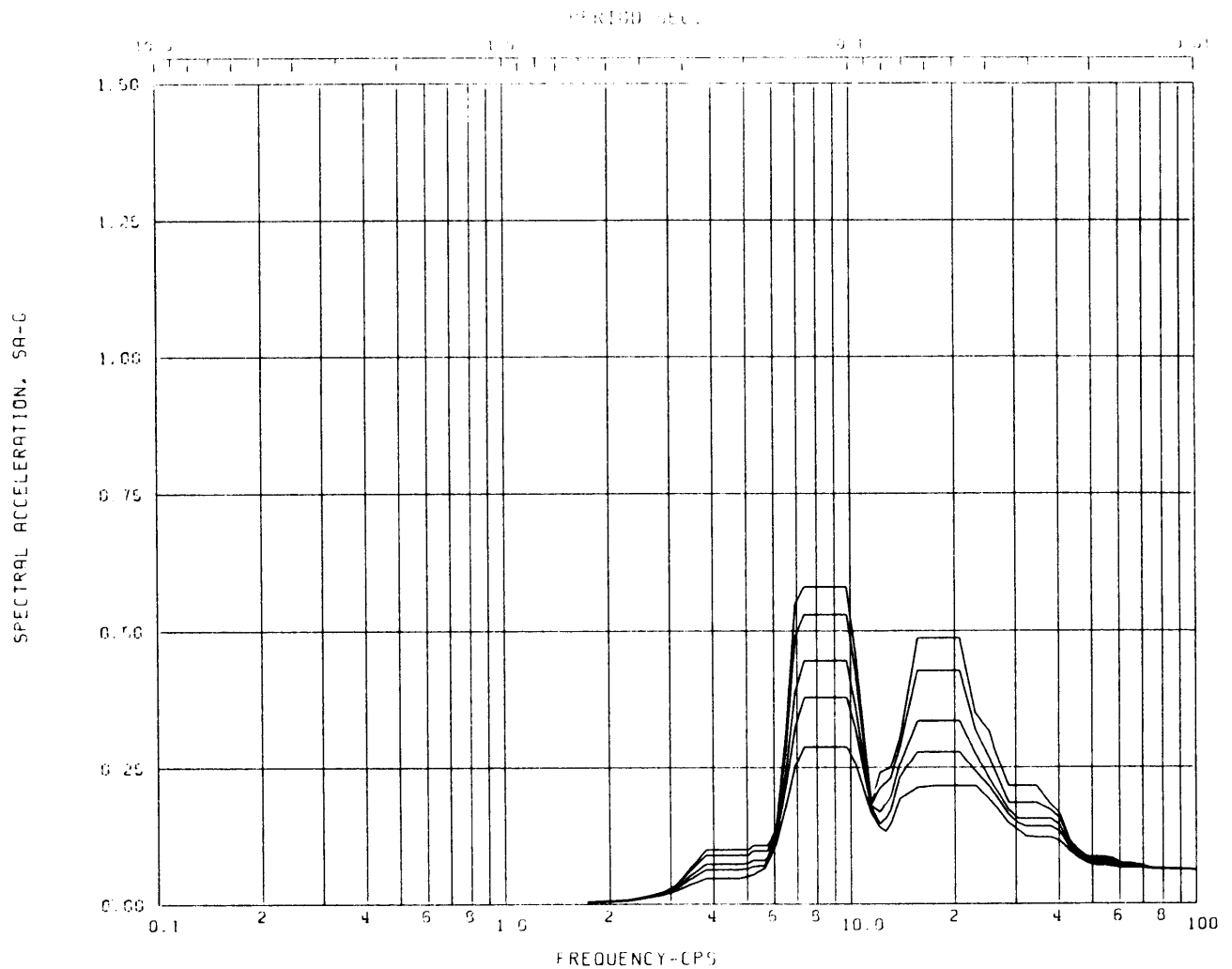
Node: 21 Direction: VERTICAL Elev: 333'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-208**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

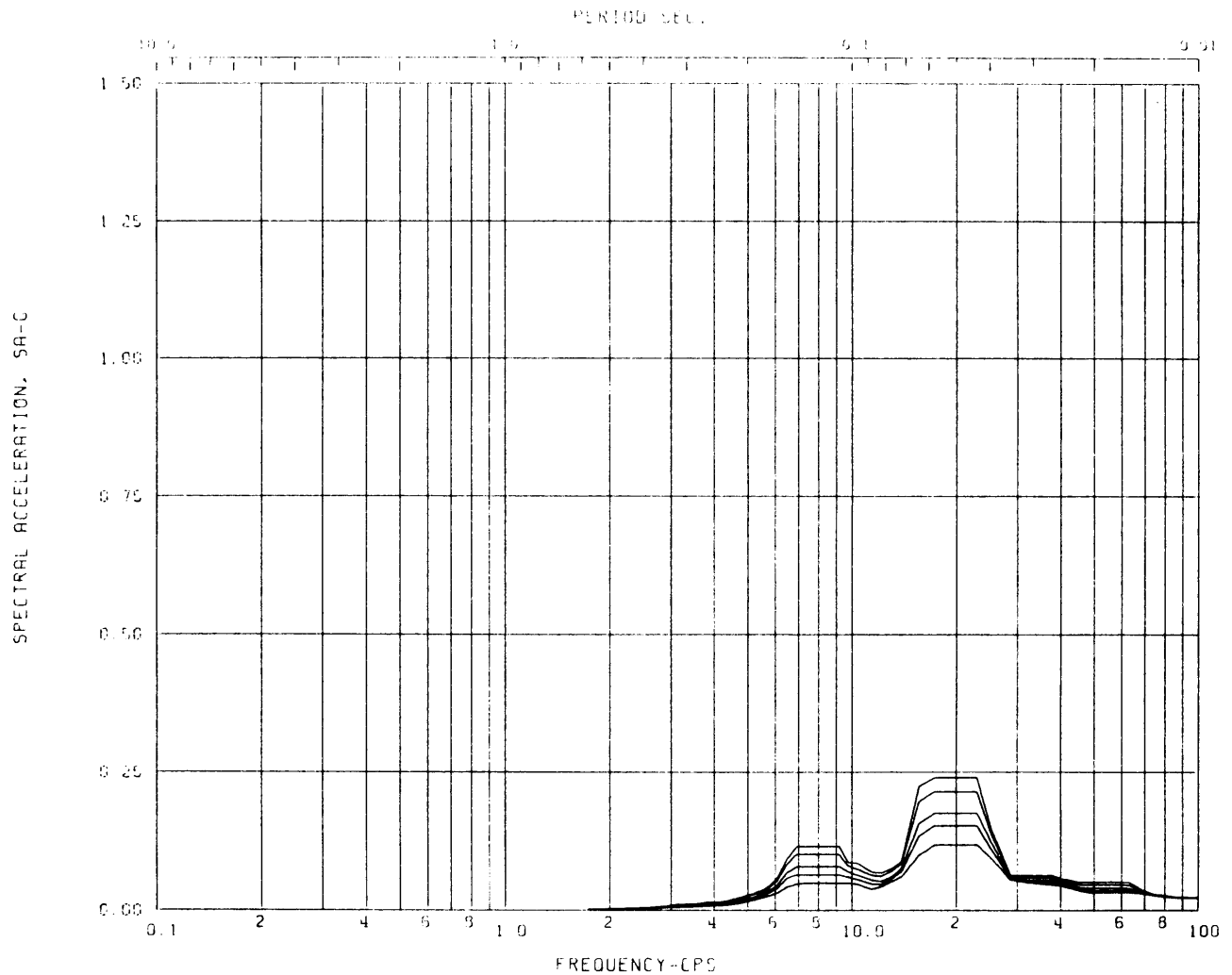
Node: 33 Direction: VERTICAL Elev: 333'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-209**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

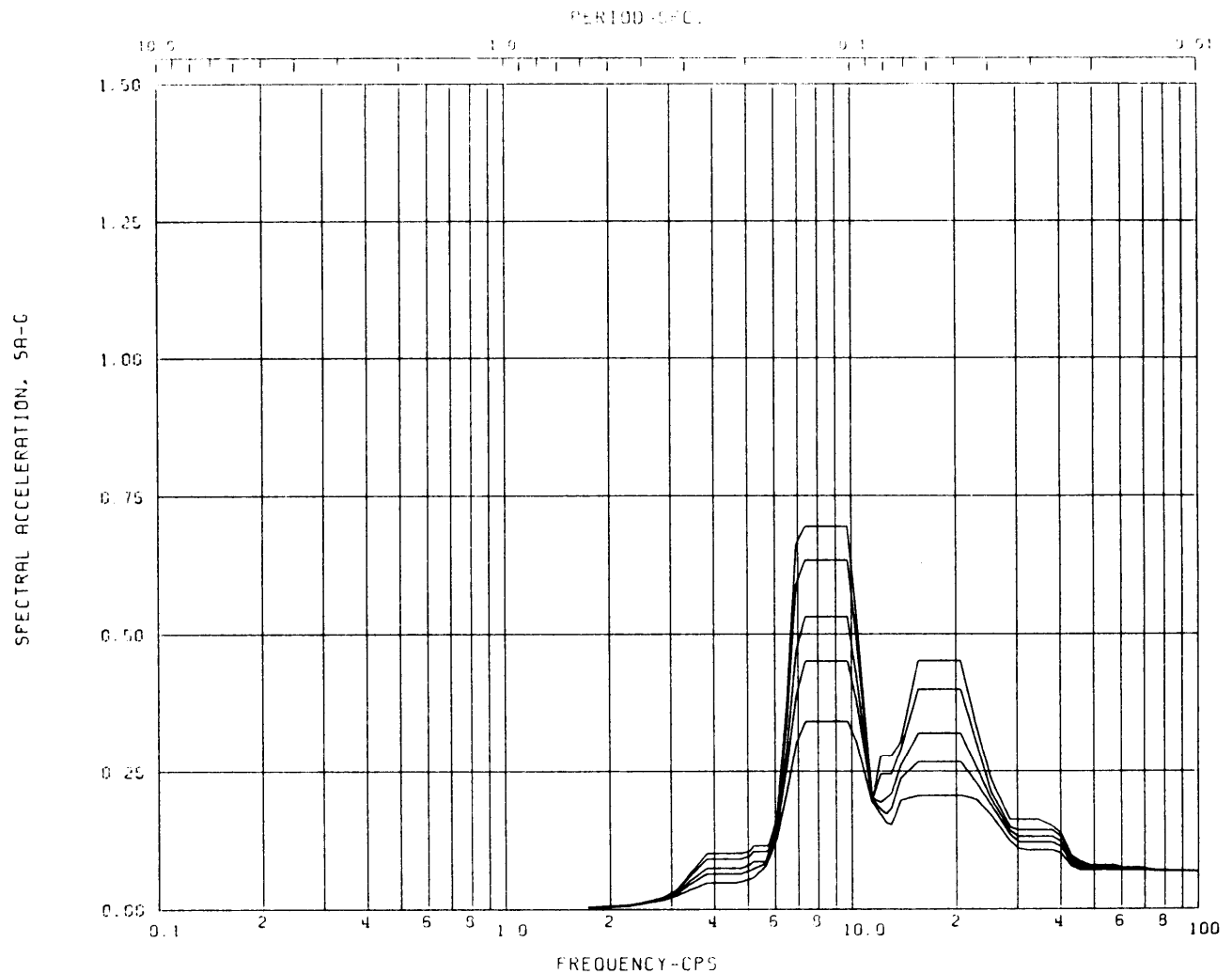
Node: 9 Direction: VERTICAL Elev: 352'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-210**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

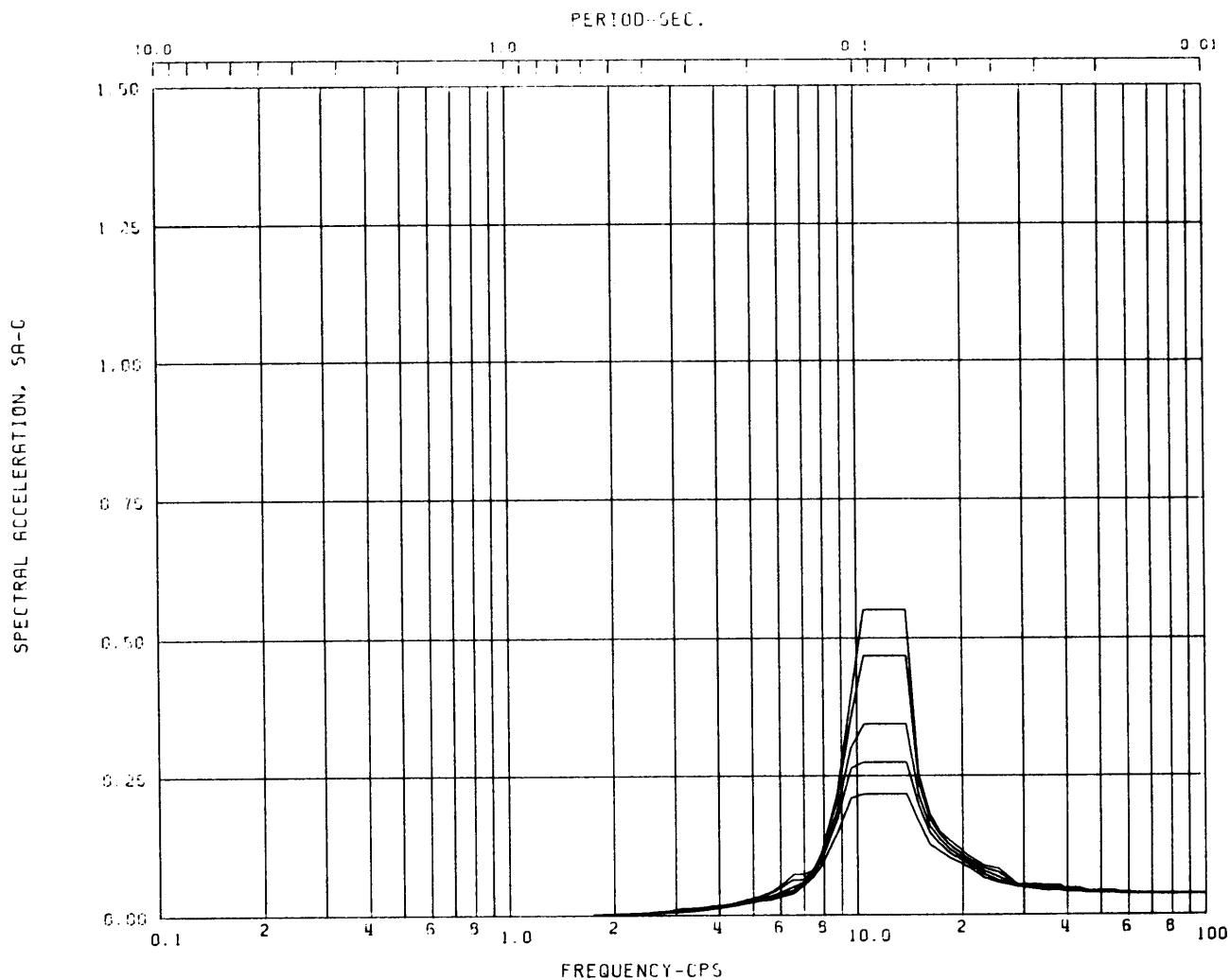
Node: 13 Direction: VERTICAL Elev: 352'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-211**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

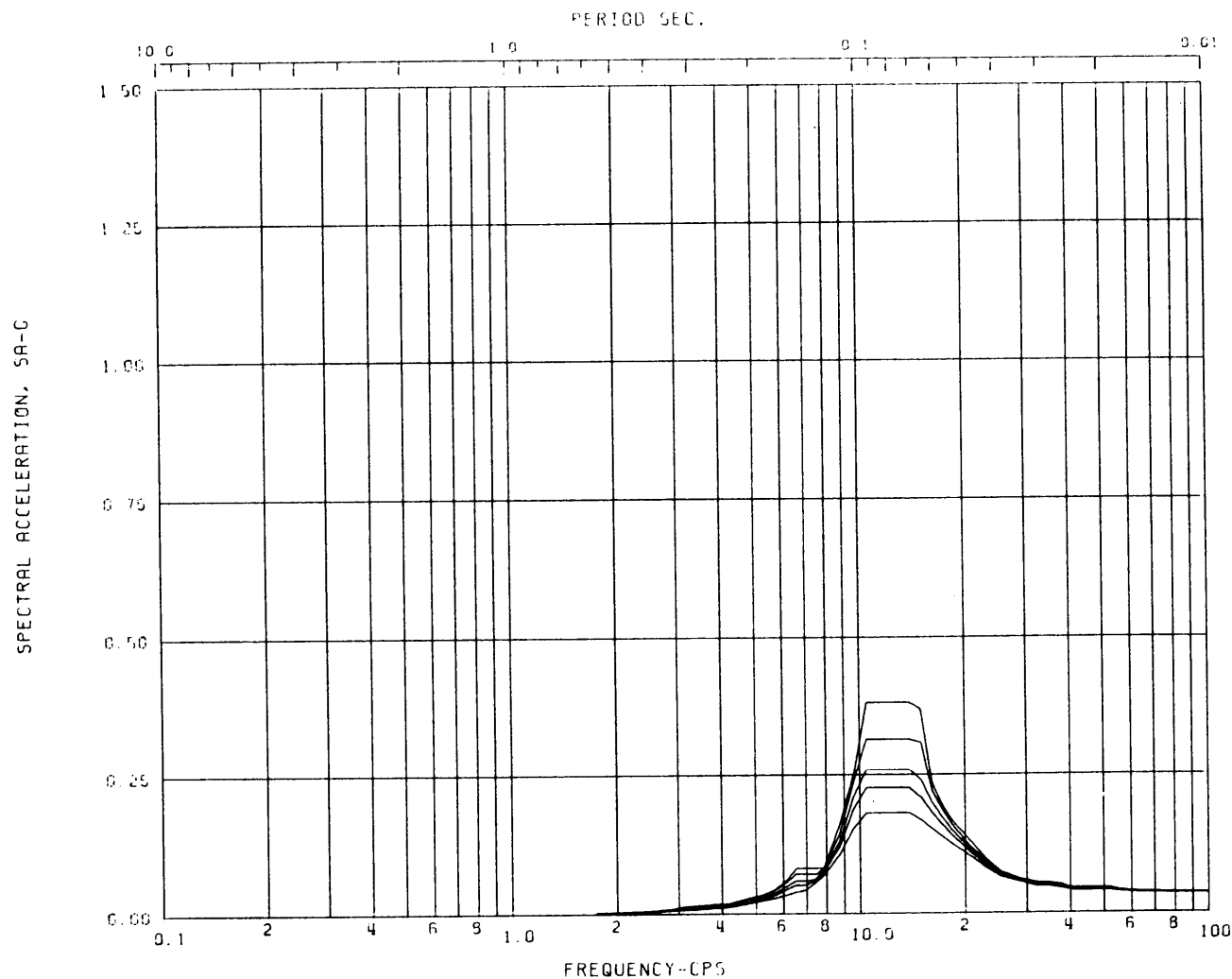
Node: 129 Direction: VERTICAL Elev: 201'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-212**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

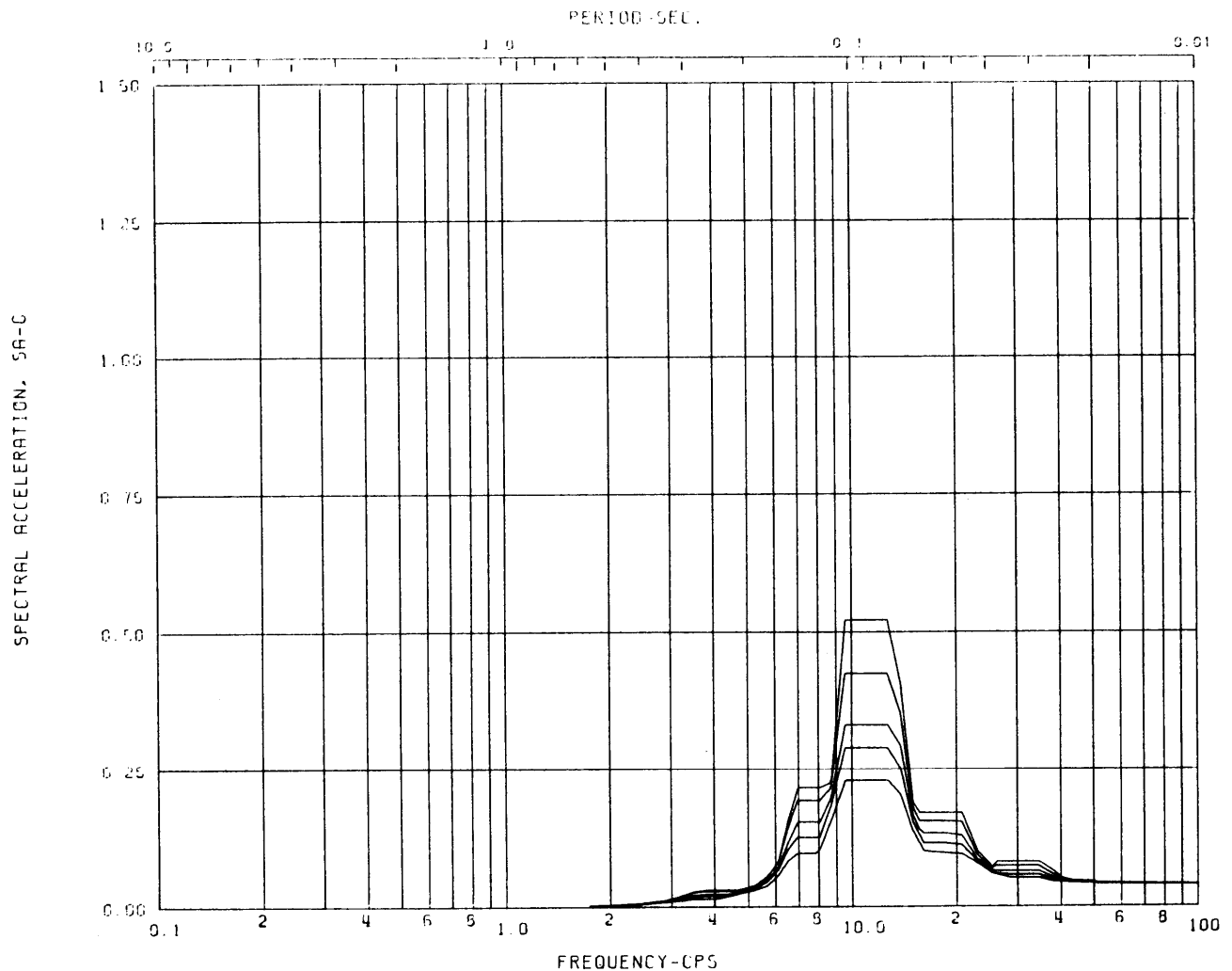
Node: 107 Direction: VERTICAL Elev: 217'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-213**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

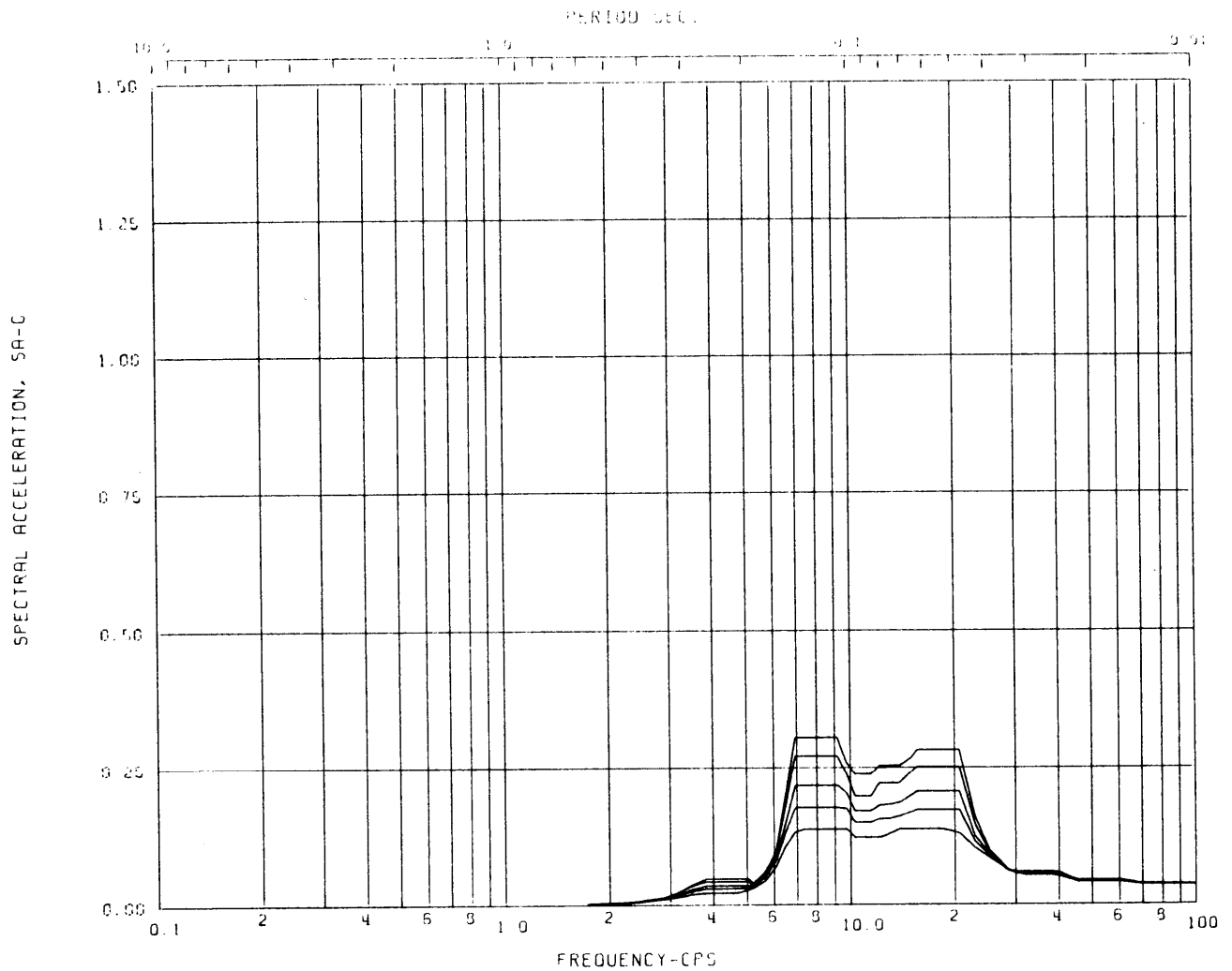
Node: 80 Direction: VERTICAL Elev: 253'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-214**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 59 Direction: VERTICAL Elev: 283'

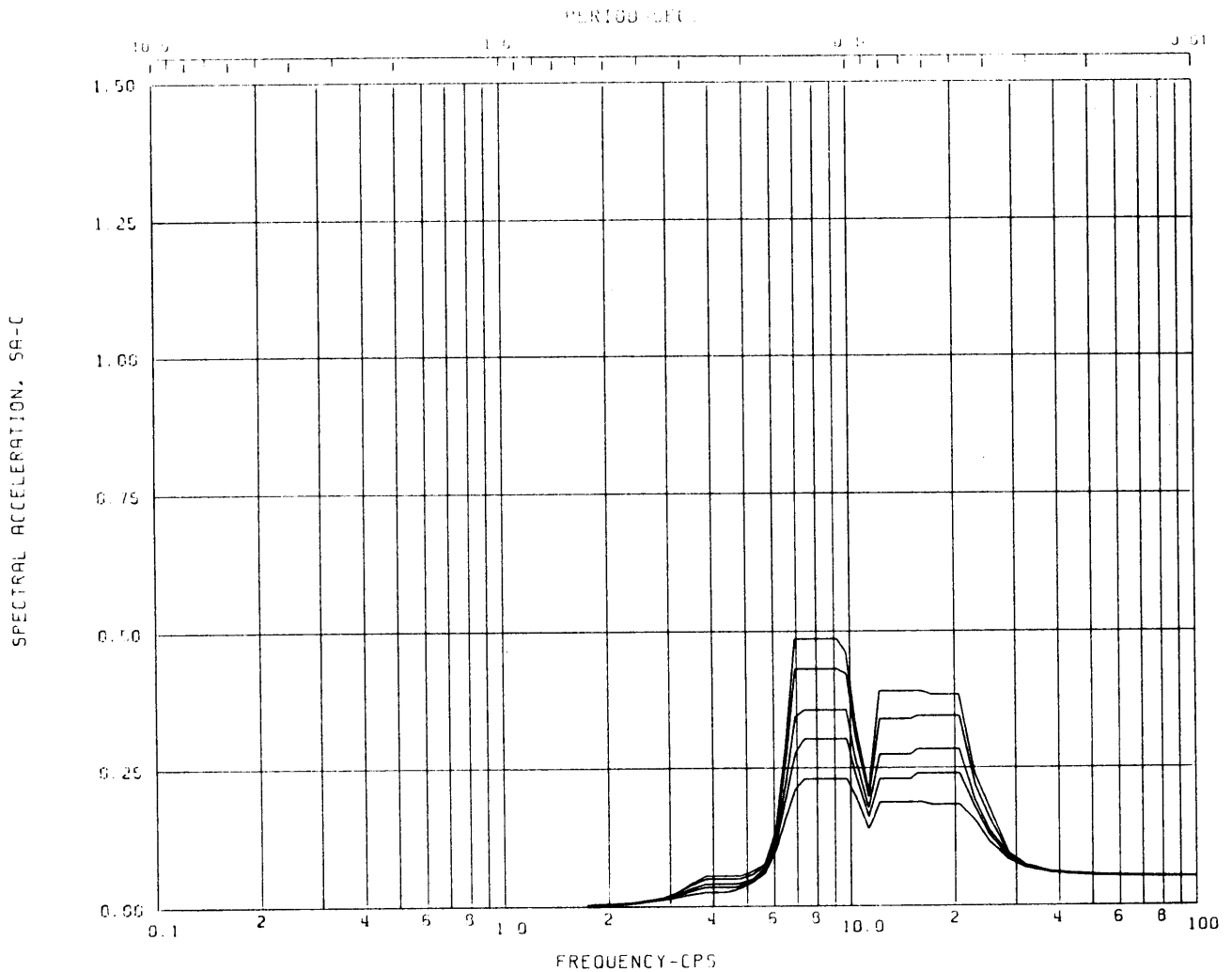
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-215**





Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

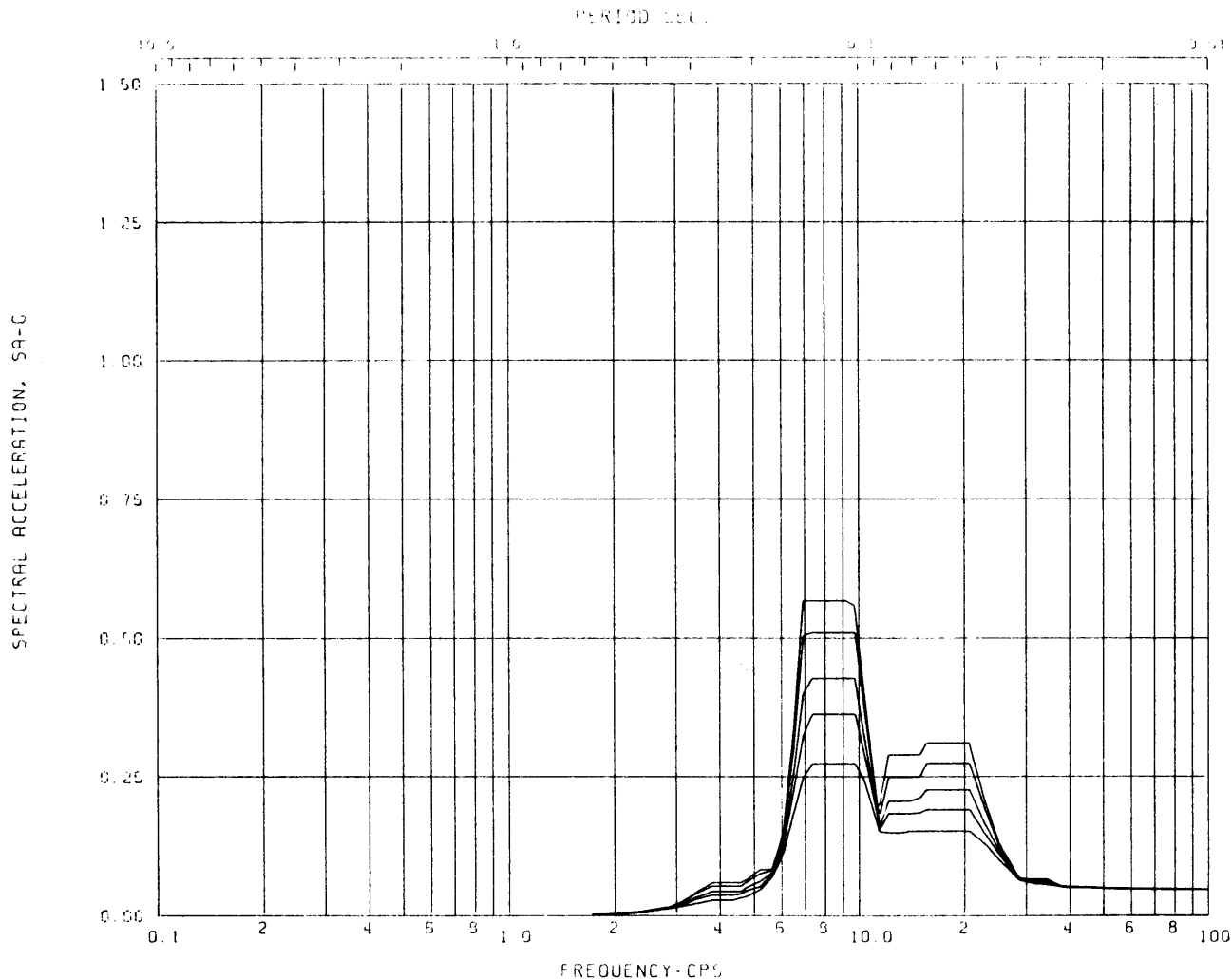
Node: 54 Direction: VERTICAL Elev: 313'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-216**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

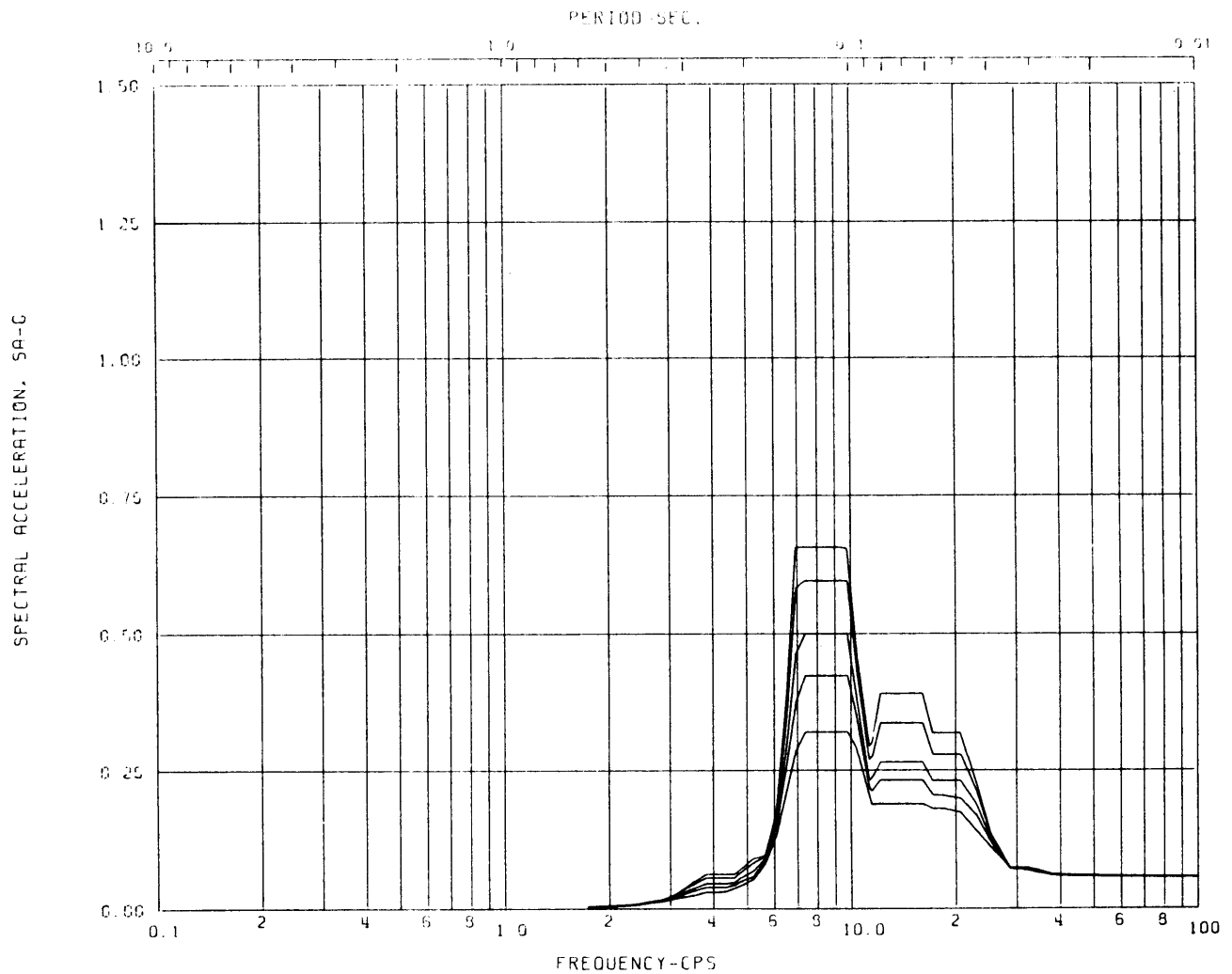
Node: 32 Direction: VERTICAL Elev: 333'

Damping: 0.005,0.01,0.02,0.03,0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC

FIGURE 3A-217



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

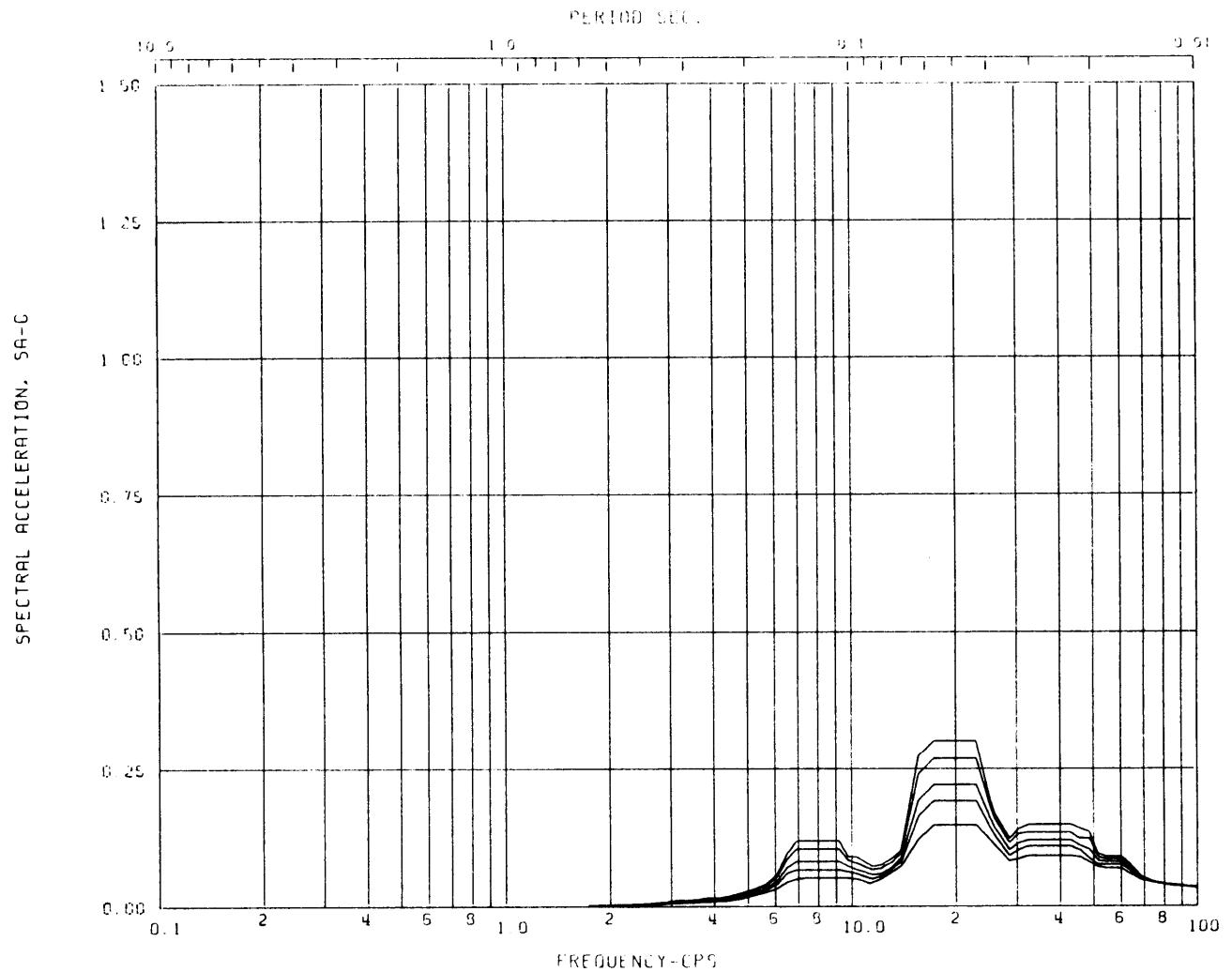
Node: 12 Direction: VERTICAL Elev: 352'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-218**



Acceleration Spectra for REACTOR ENCL.

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

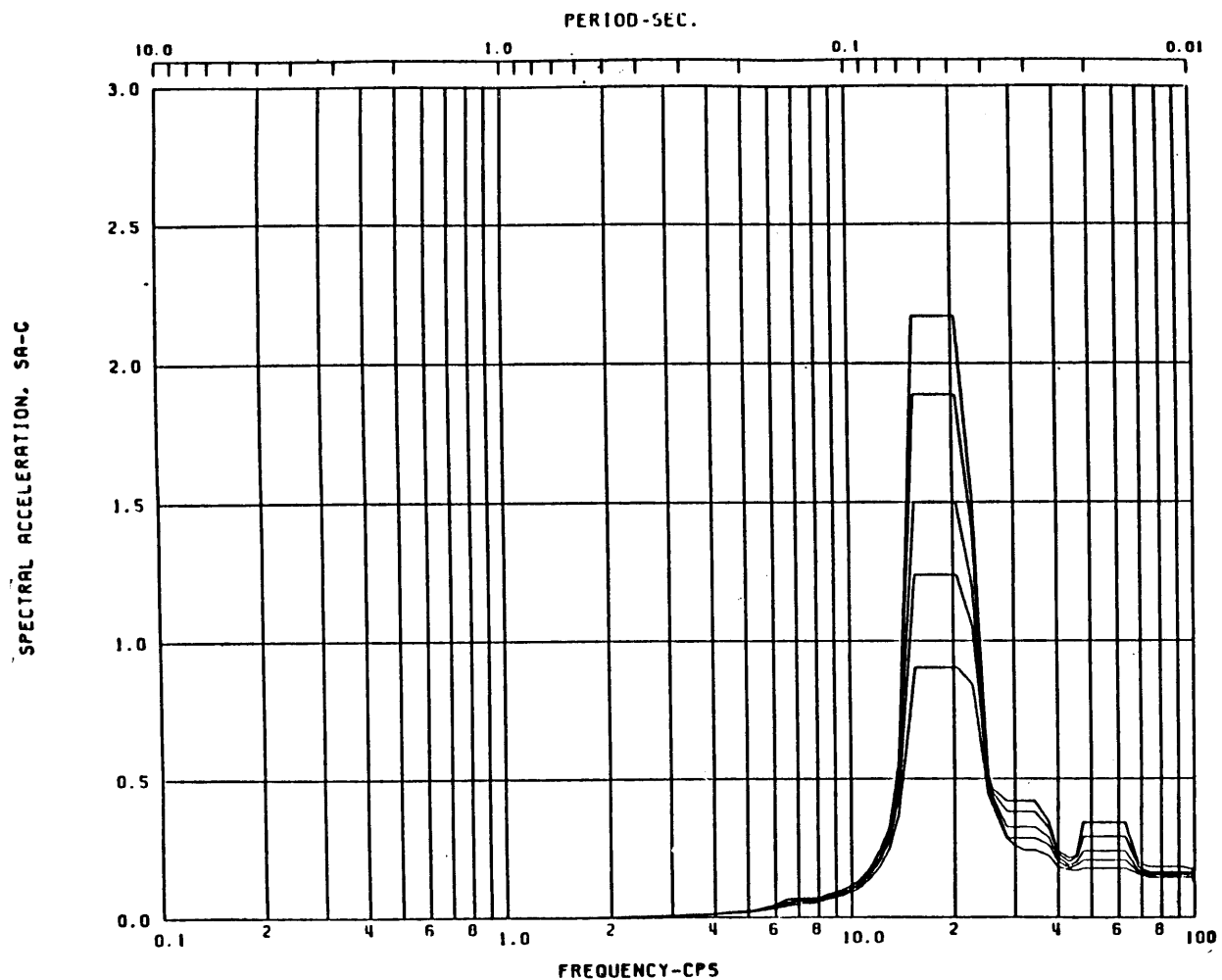
Node: 6 Direction: VERTICAL Elev: 410'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
GLOBAL RESPONSE SPECTRA  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-219**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

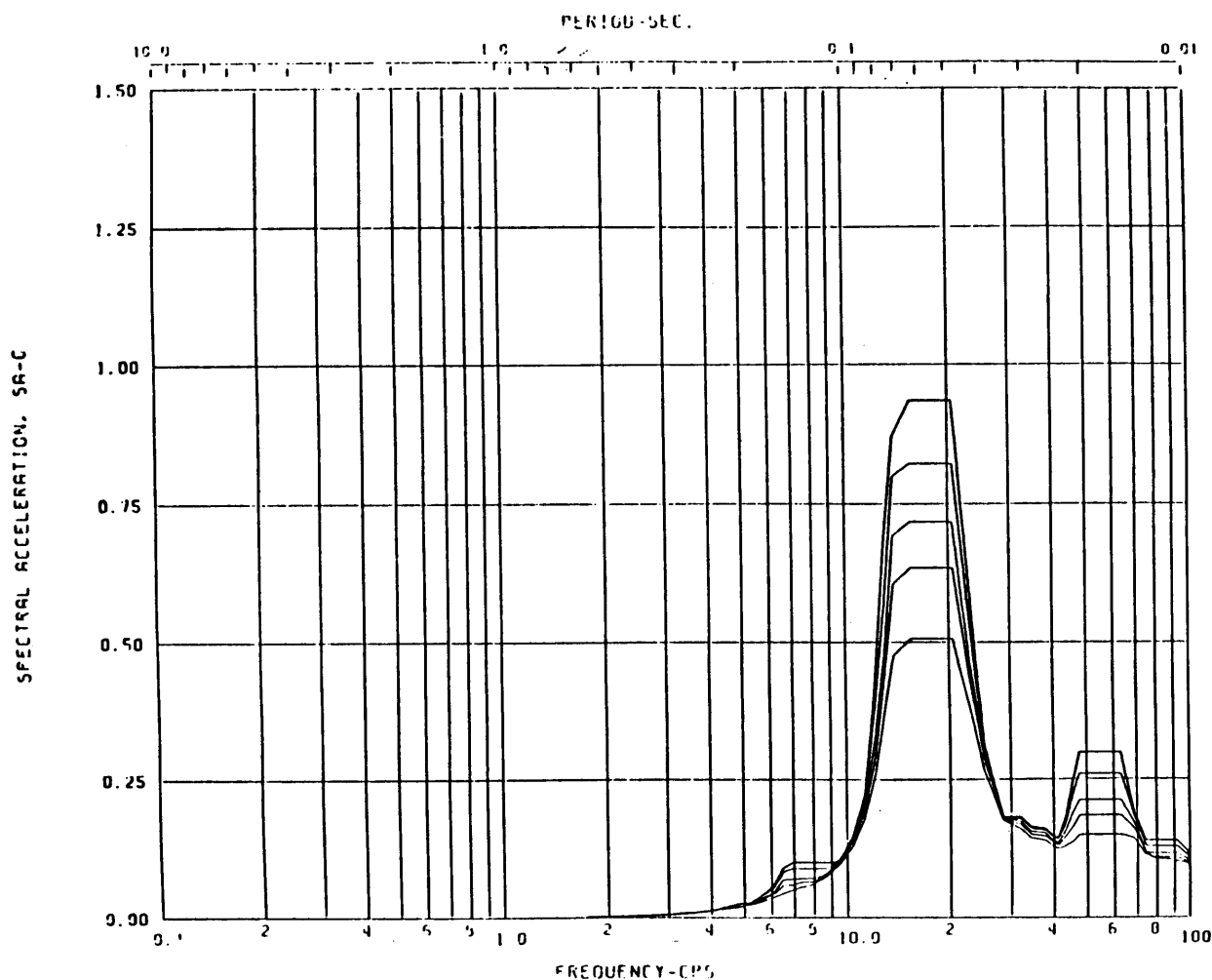
Node: 19 Direction: VERTICAL Elev: 217'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-220**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

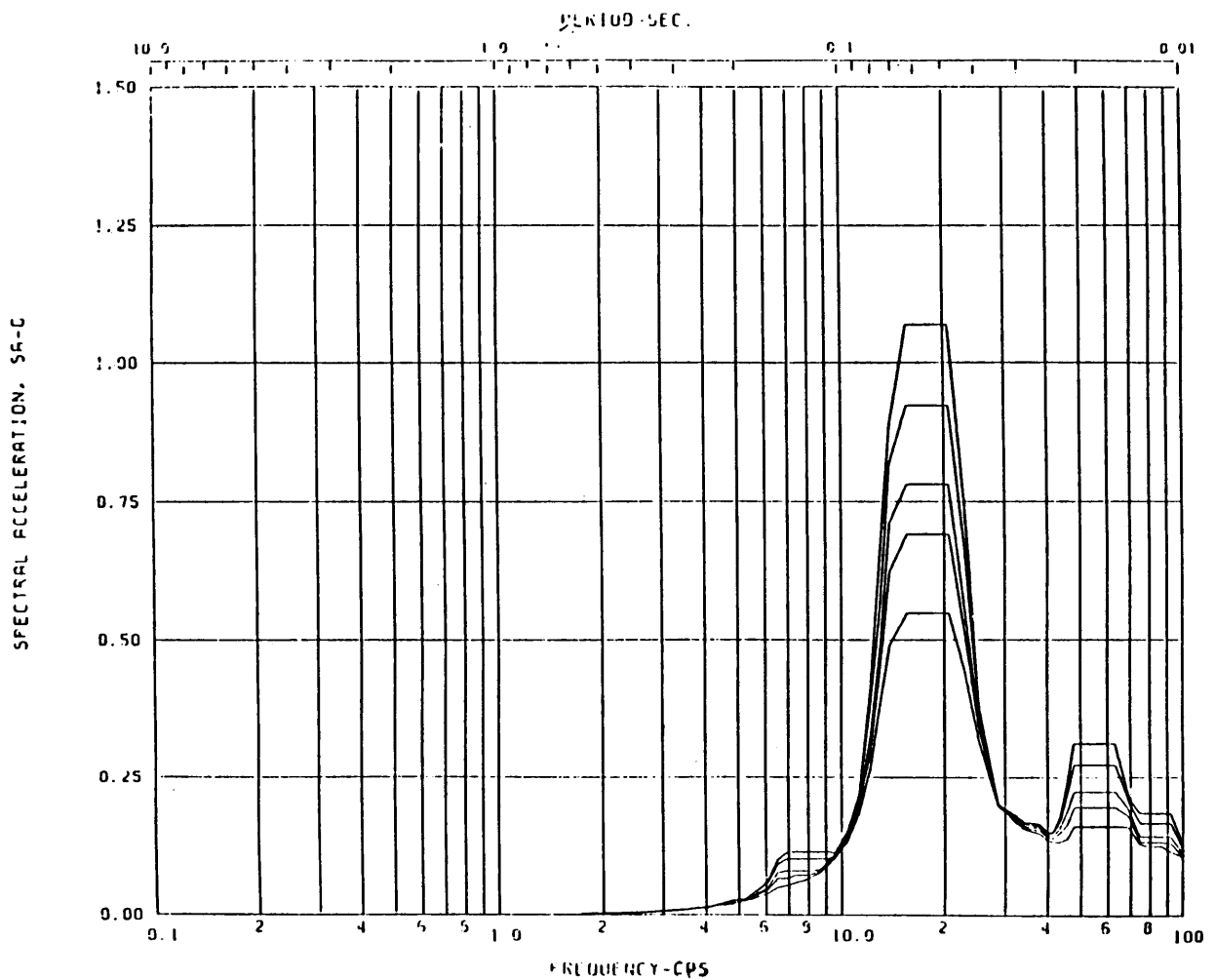
Node: 19 Direction: VERTICAL Elev: 239'

Damping: 0.005,0.01,0.02,0.03,0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC

FIGURE 3A-221



Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

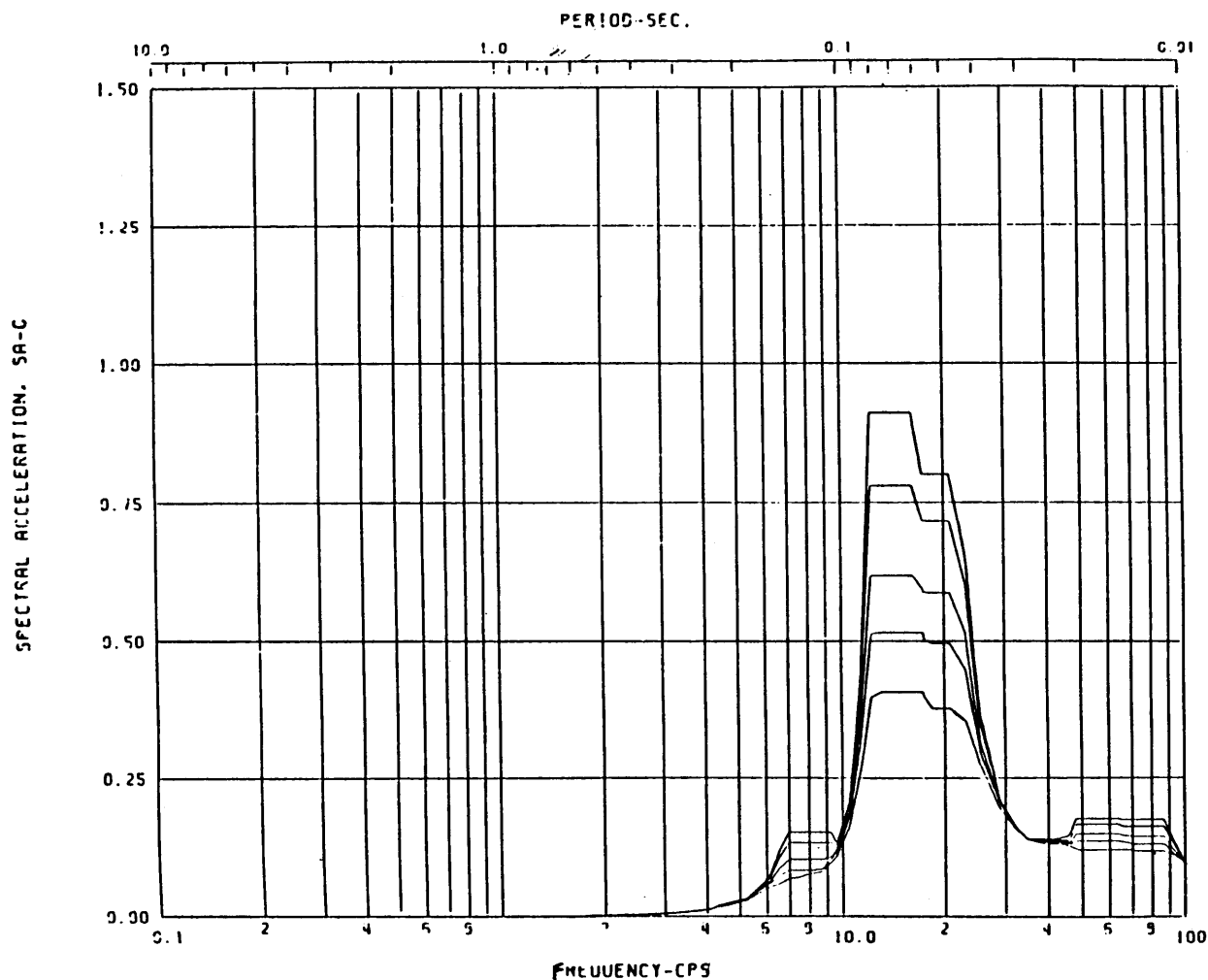
Node: 19 Direction: VERTICAL Elev: 254'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-222**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 19 Direction: VERTICAL Elev: 269'-0

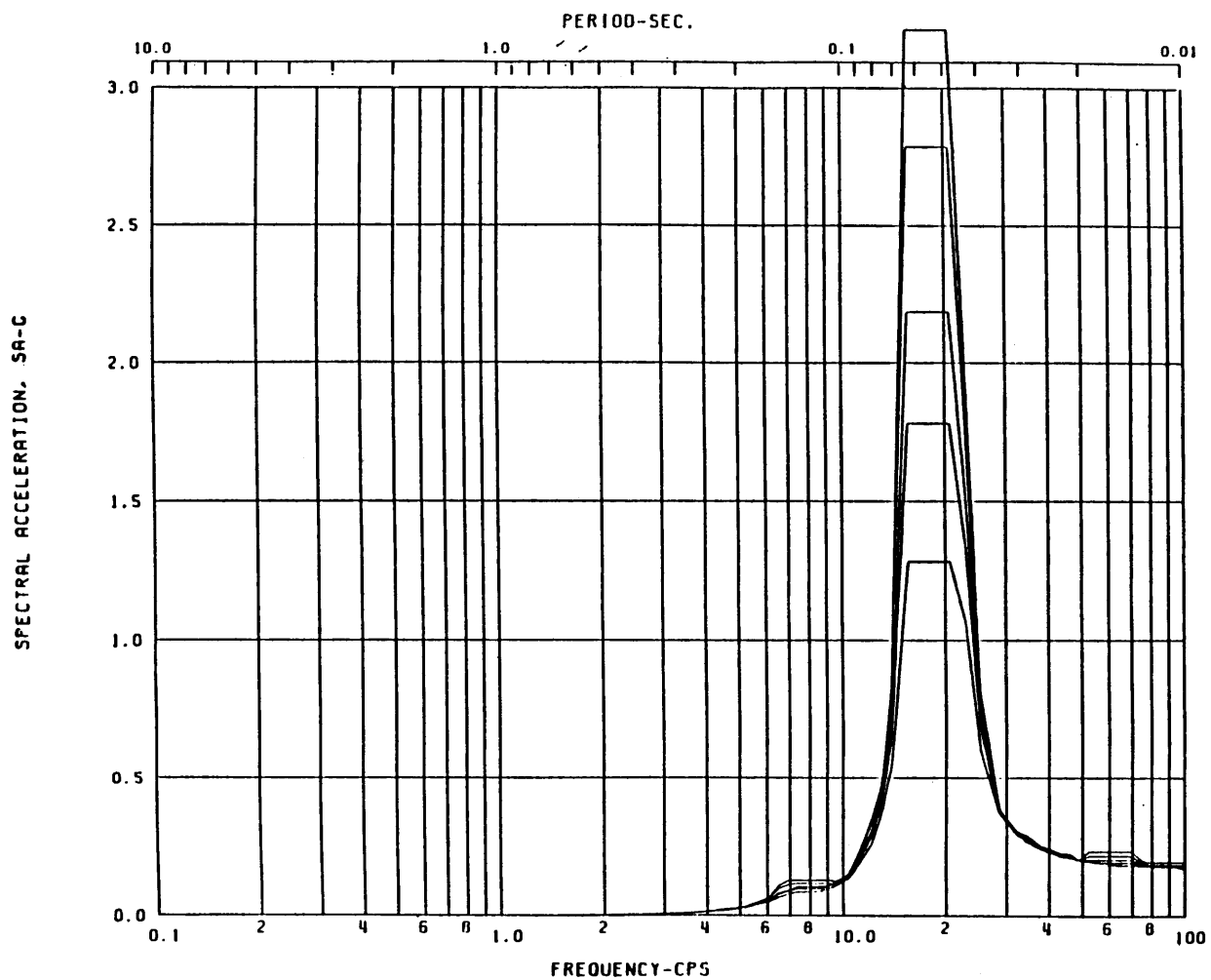
Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-223**





Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

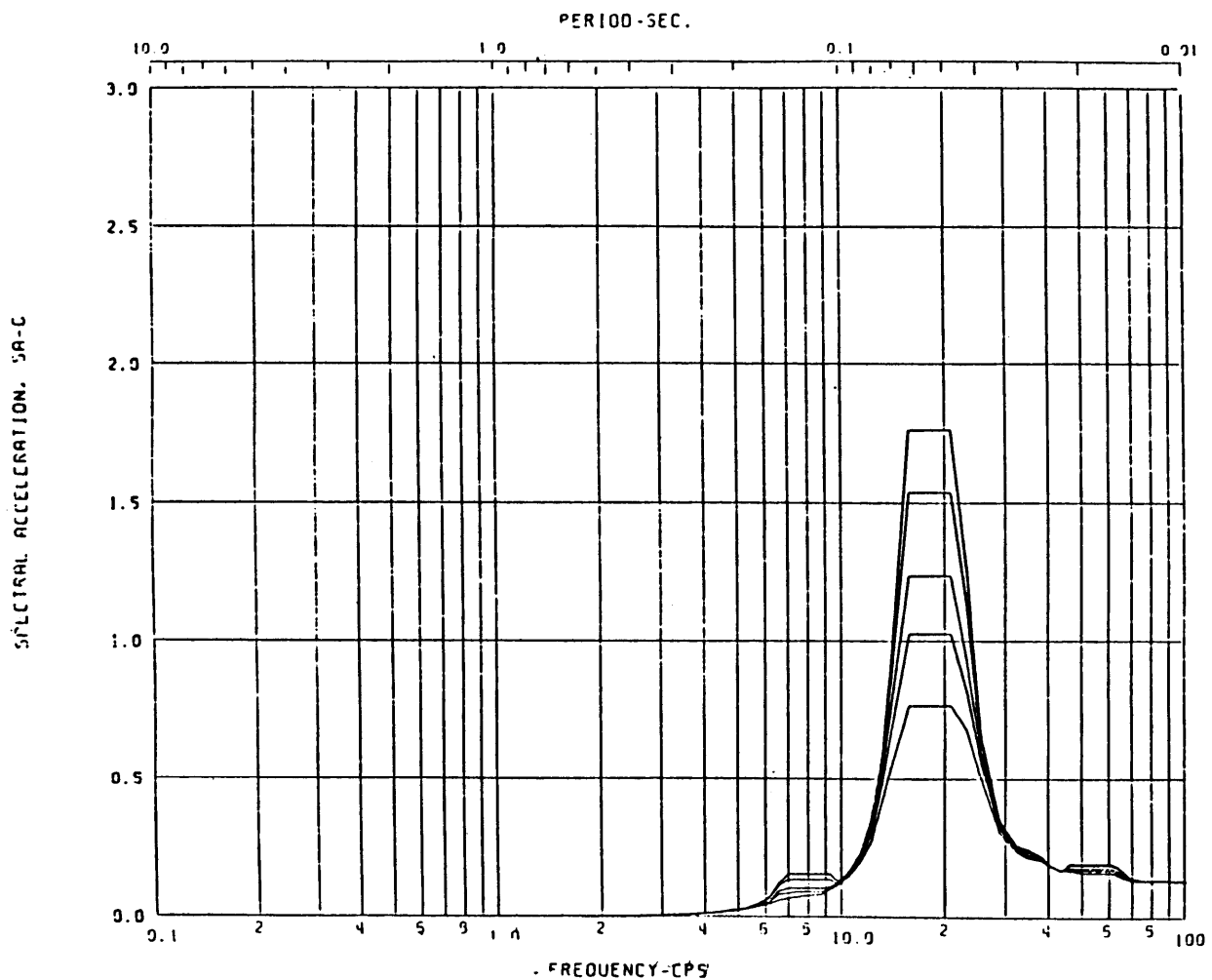
Node: 19 Direction: VERTICAL Elev: 289'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC**

**FIGURE 3A-224**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU-SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

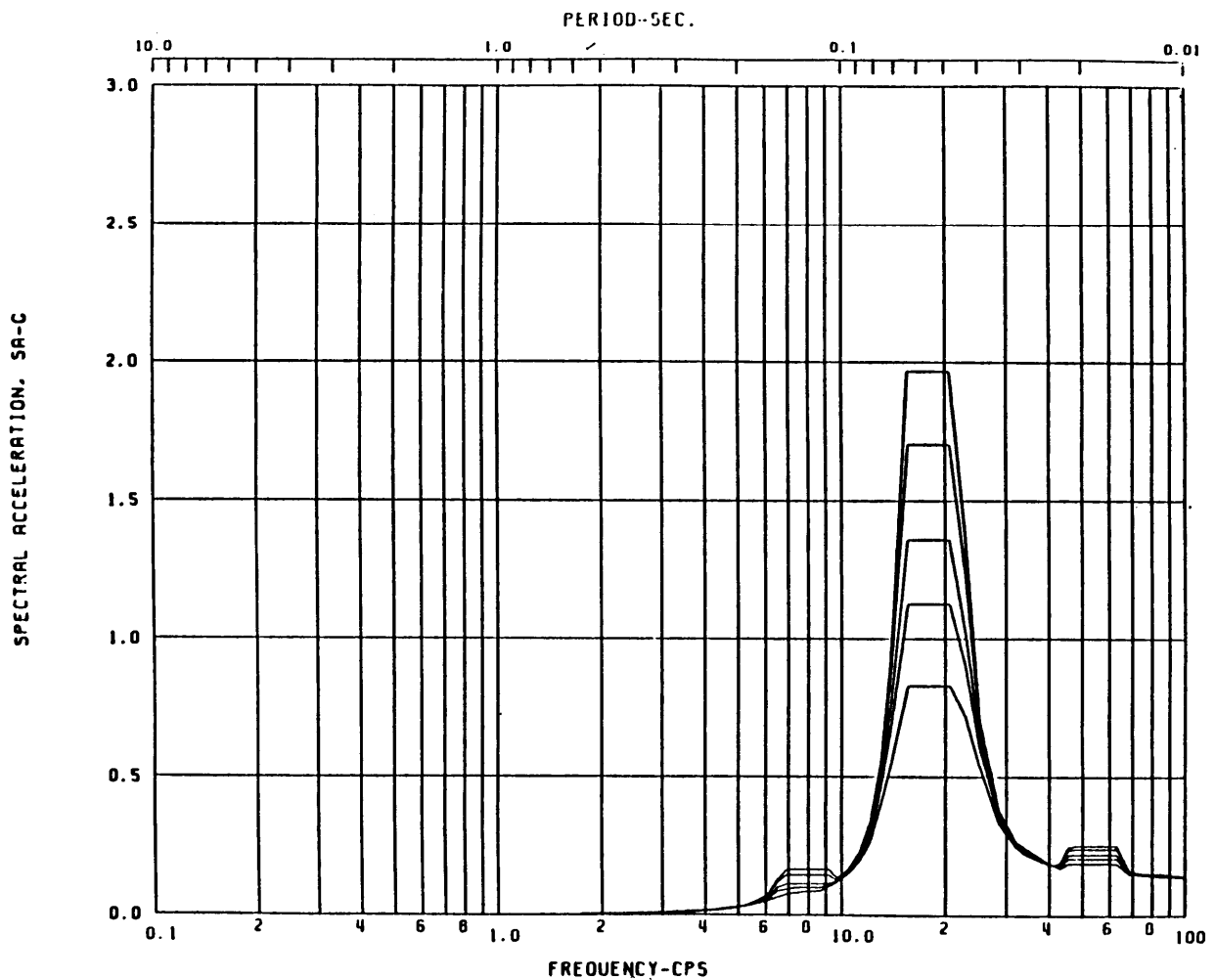
Node: 19 Direction: VERTICAL Elev: 304'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC

FIGURE 3A-225



Acceleration Spectra for CONTROL STRUCTURE

Load Case: KWU-SRV AXISYMMETRIC ENVELOPE (WIDENED - 15%)

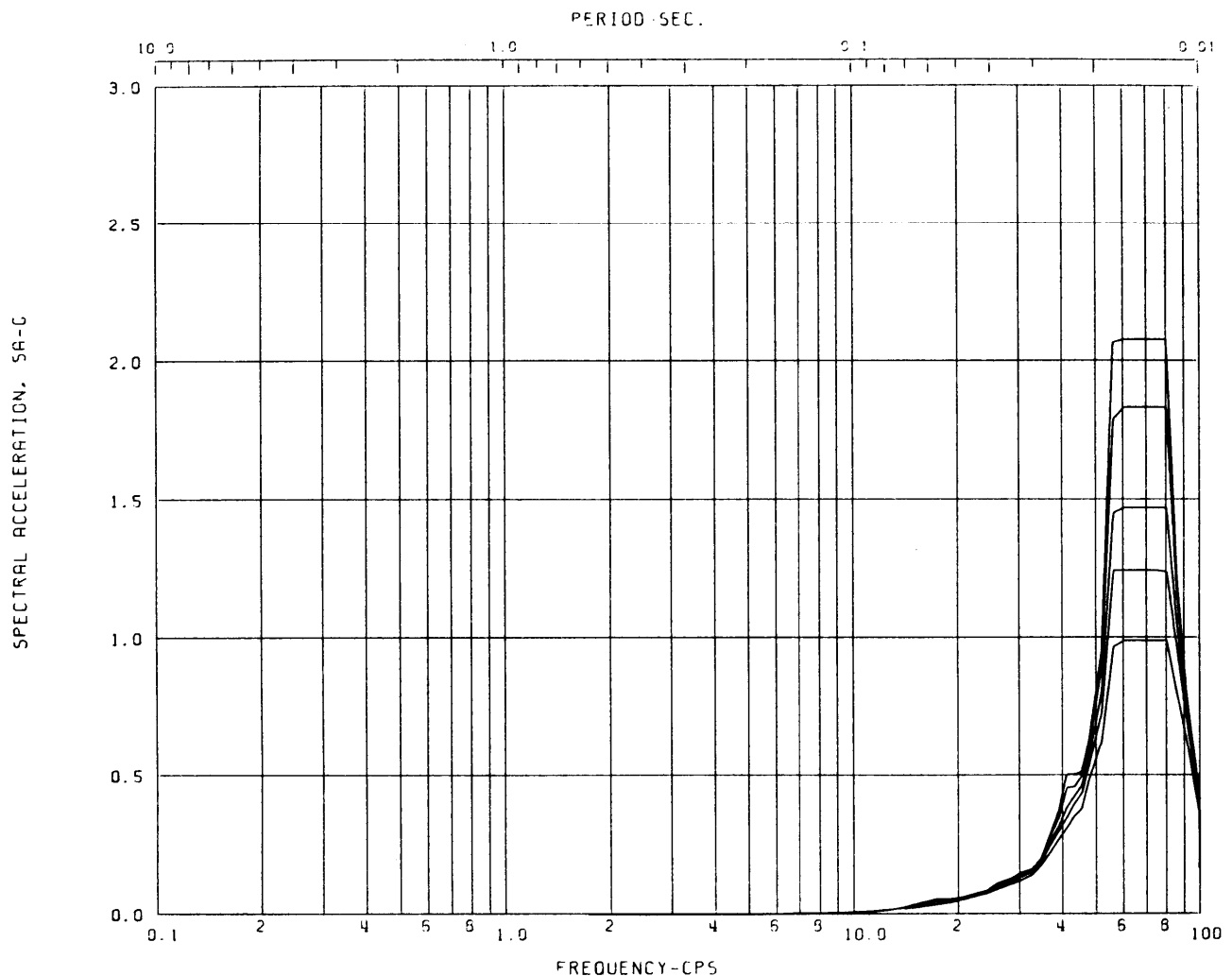
Node: 19 Direction: VERTICAL Elev: 332'

Damping: 0.005,0.01,0.02,0.03,0.05

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA,  
VERTICAL, SRV AXISYMMETRIC

FIGURE 3A-226



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

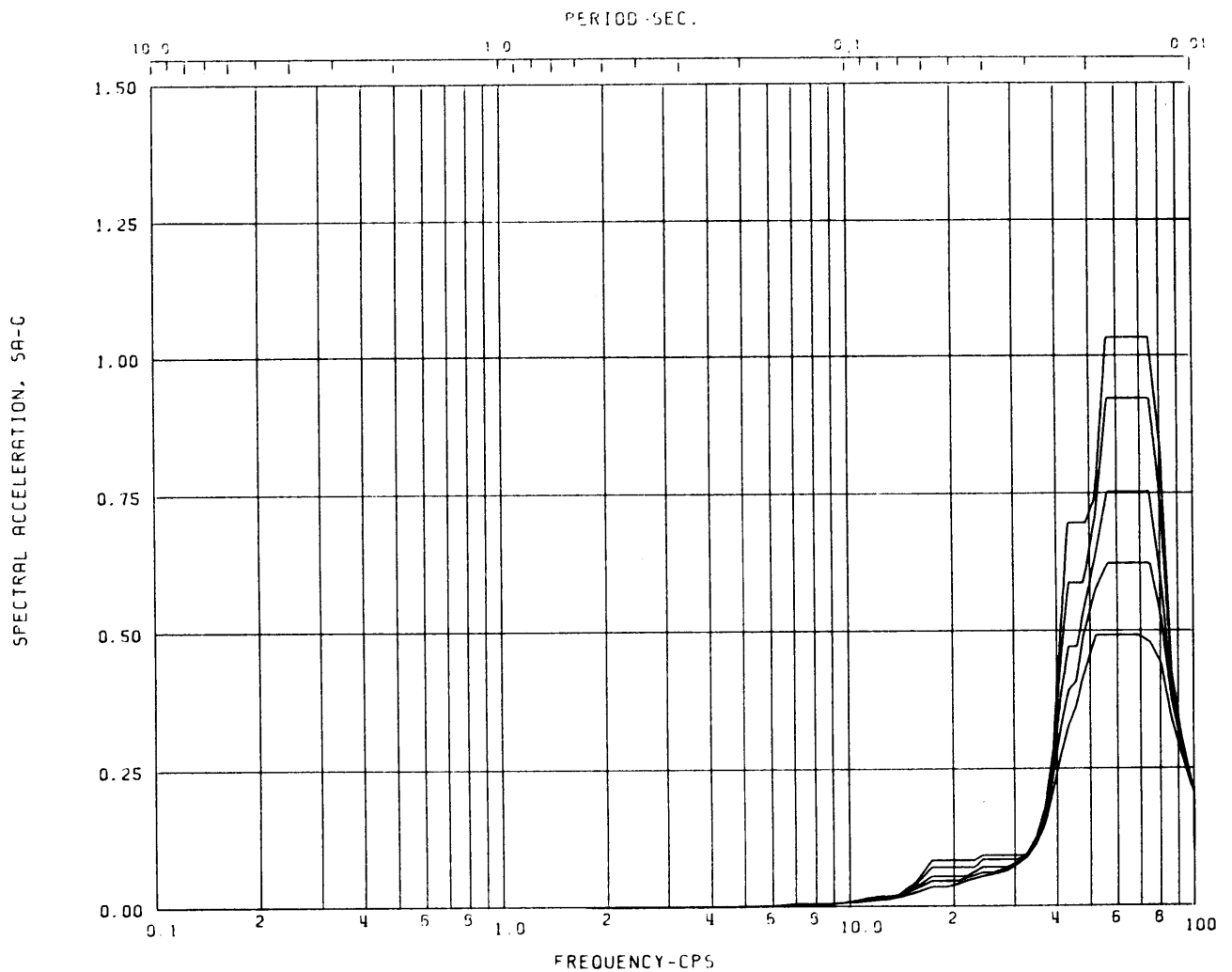
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 1 Direction: HORIZ N-S Elev: 177'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
CHUG ASYMMETRIC  
FIGURE 3A-227**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

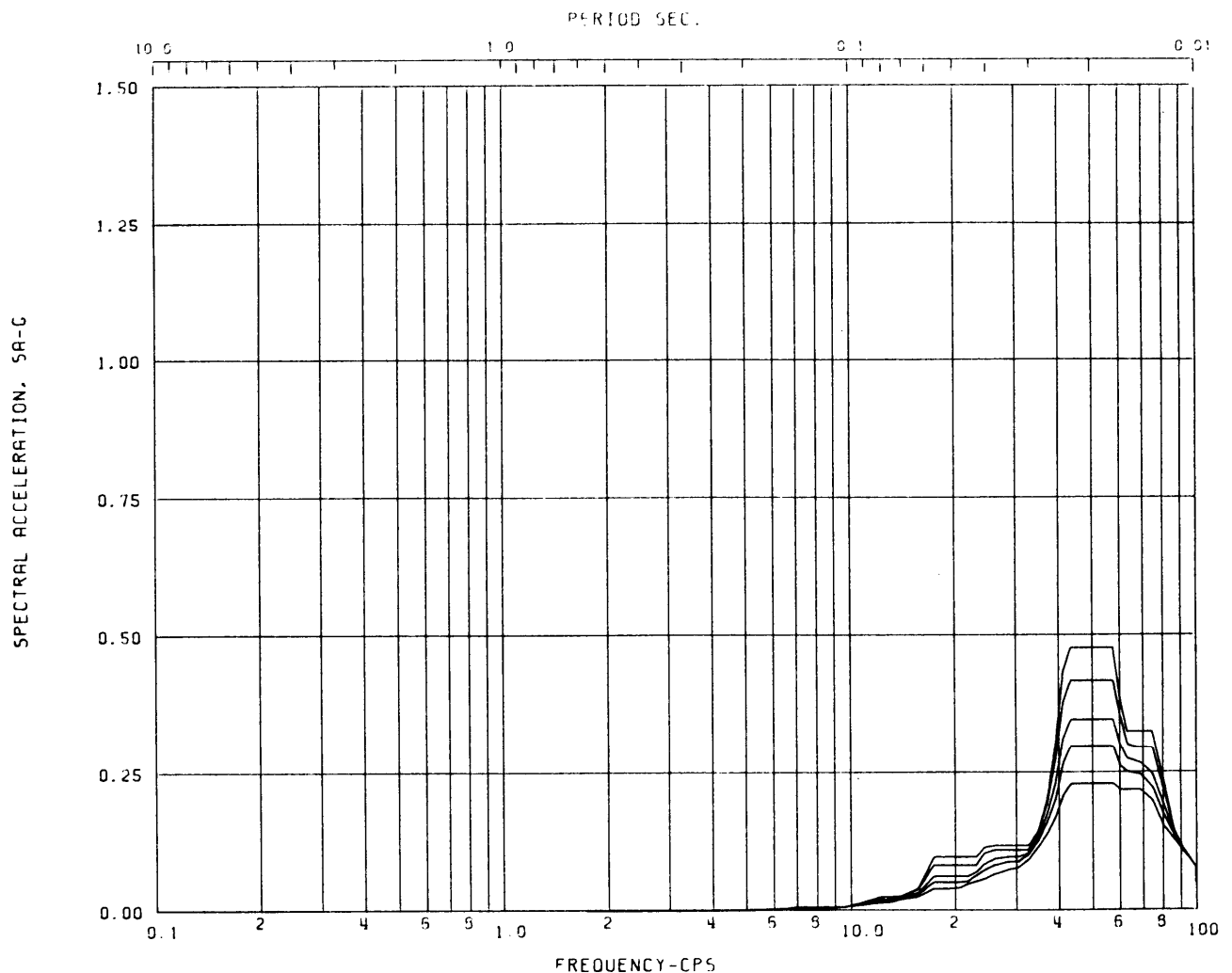
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 2 Direction: HORIZ N-S Elev: 201'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
CHUG ASYMMETRIC  
FIGURE 3A-228**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

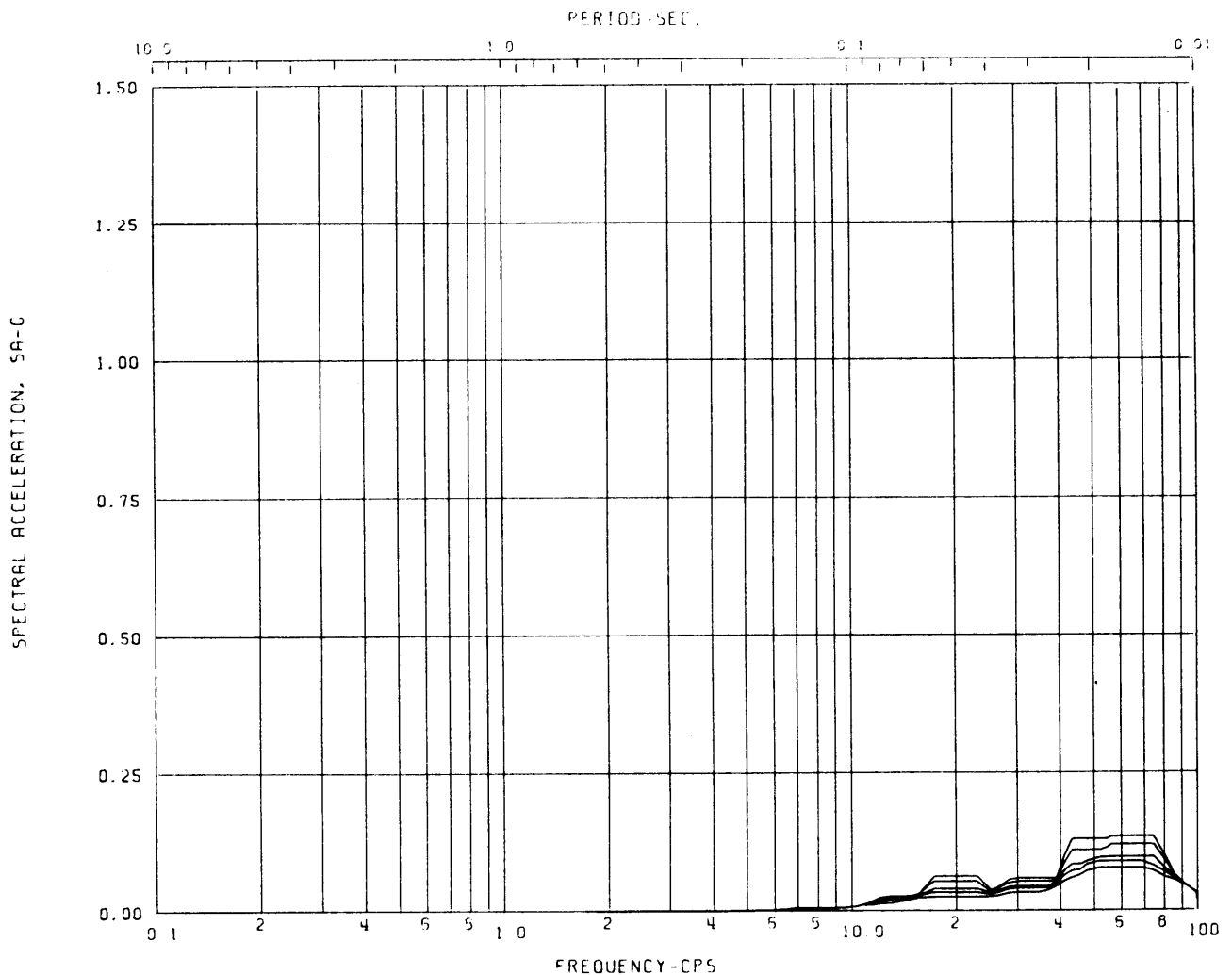
Node: 3 Direction: HORIZ N-S Elev: 217'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
CHUG ASYMMETRIC**

**FIGURE 3A-229**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

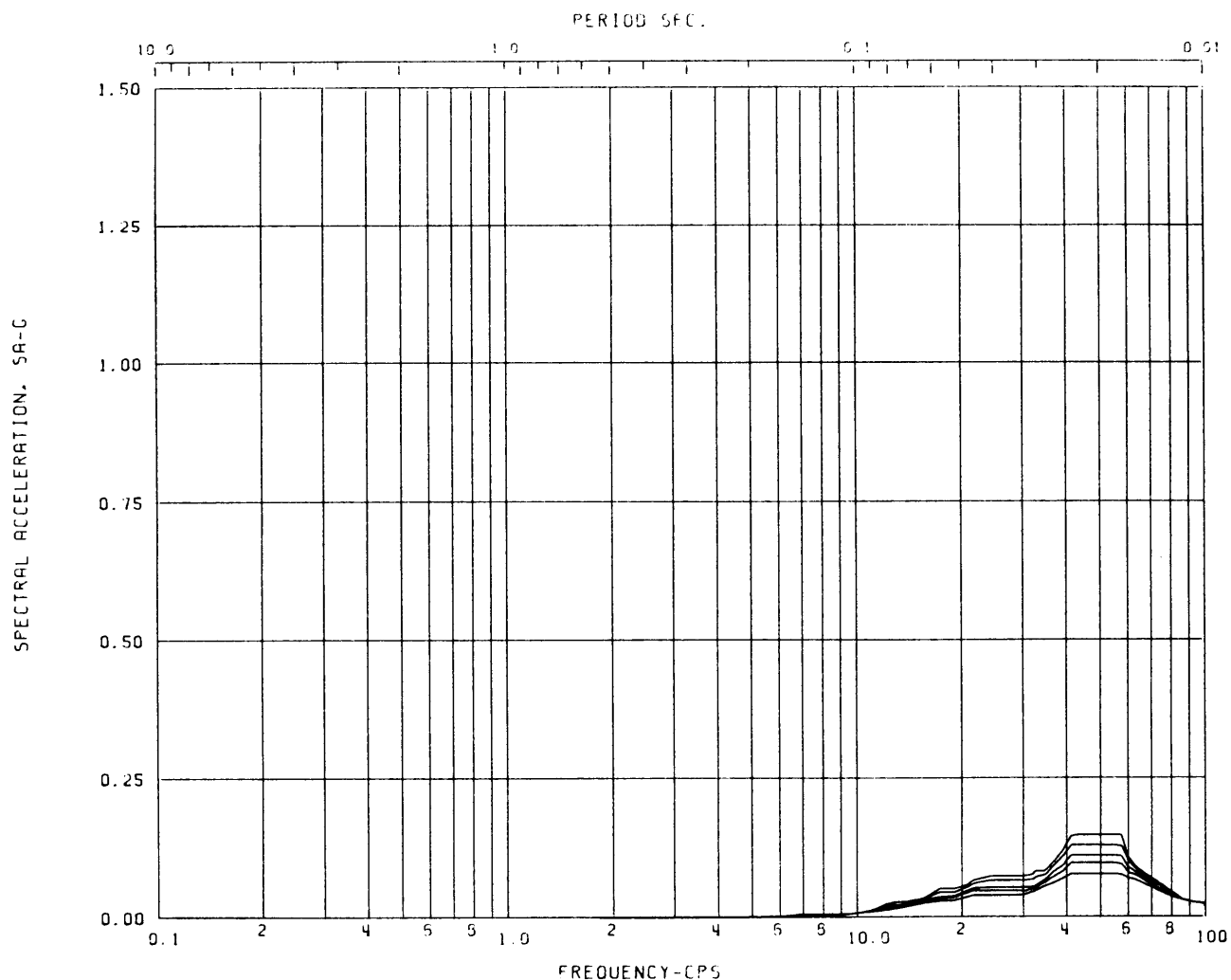
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 4 Direction: HORIZ N-S Elev: 239'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
CHUG ASYMMETRIC  
FIGURE 3A-230**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

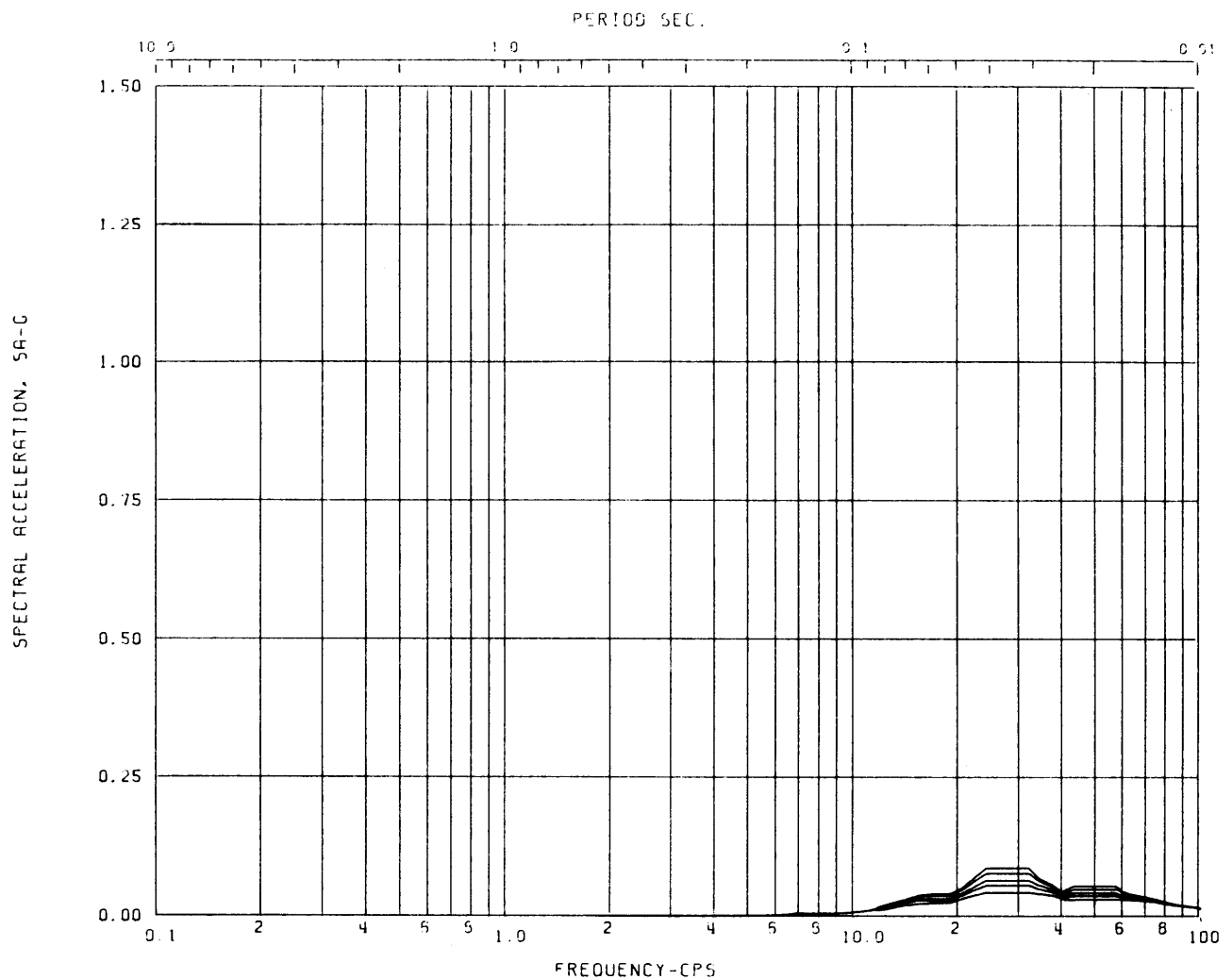
Node: 5 Direction: HORIZ N-S Elev: 253'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE AND CONTROL  
STRUCTURE GLOBAL RESPONSE  
SPECTRA, N-S HORIZONTAL,  
CHUG ASYMMETRIC  
FIGURE 3A-231**





Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

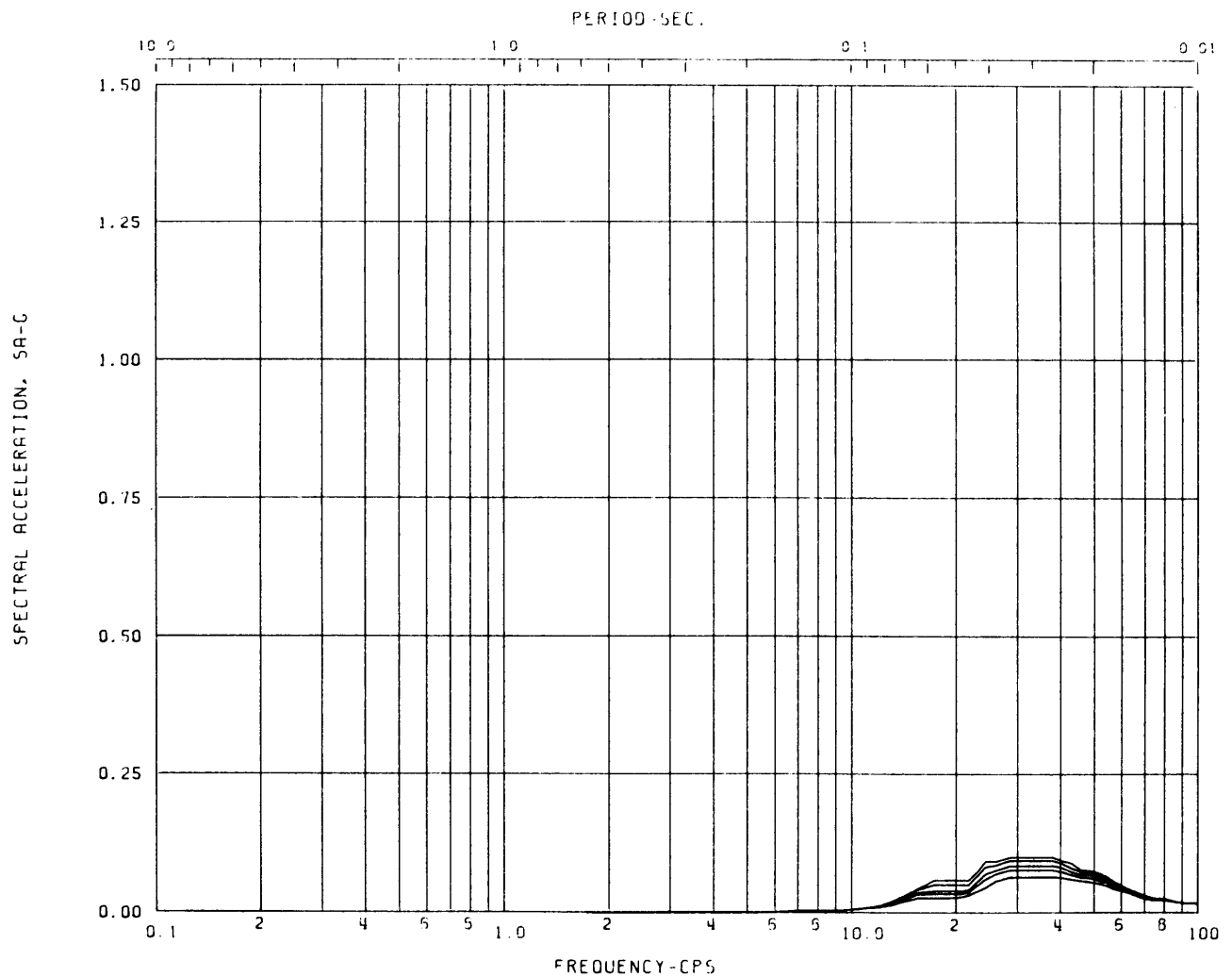
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 6 Direction: HORIZ N-S Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG ASYMMETRIC  
FIGURE 3A-232**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

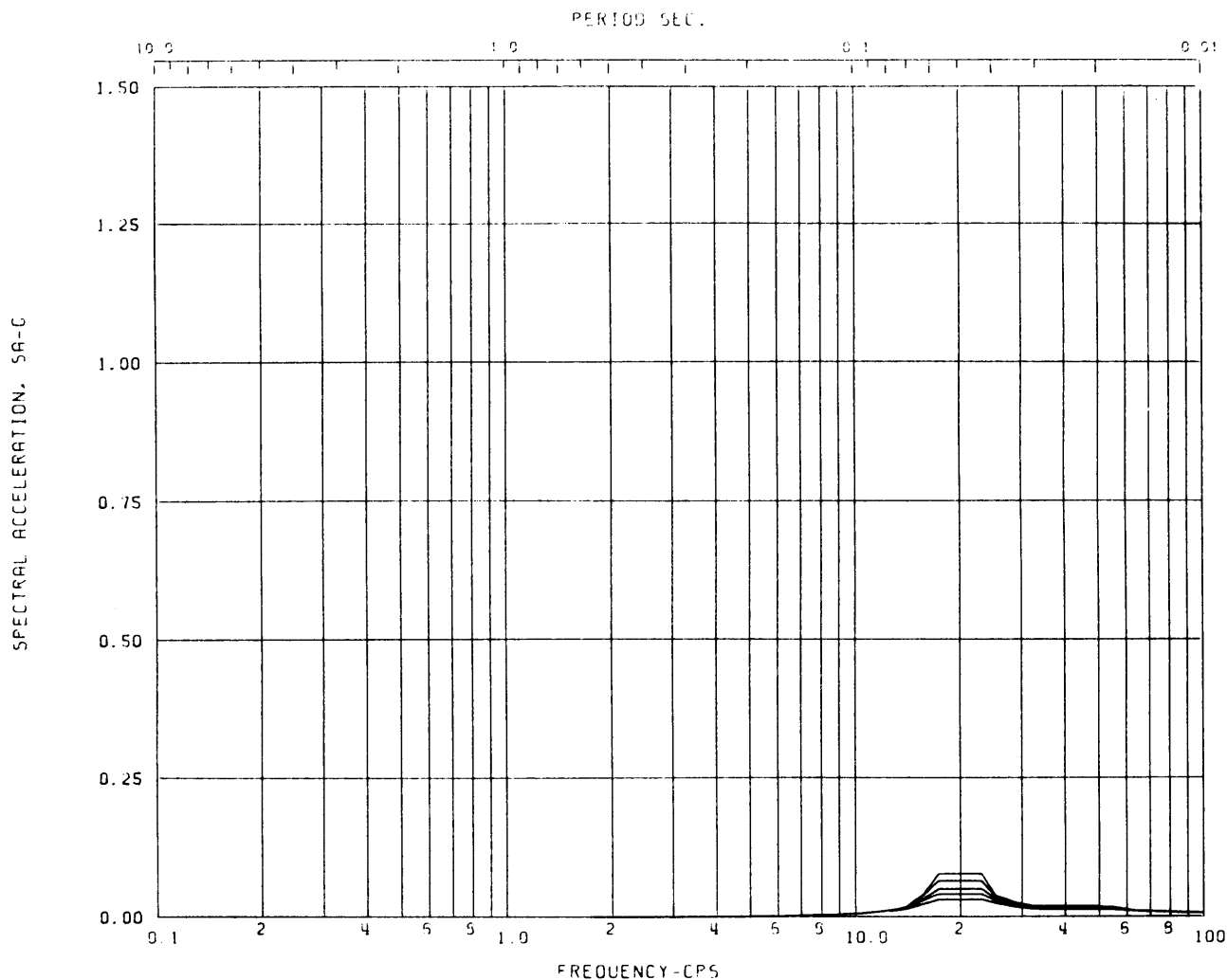
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 7 Direction: HORIZ N-S Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG ASYMMETRIC  
FIGURE 3A-233**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

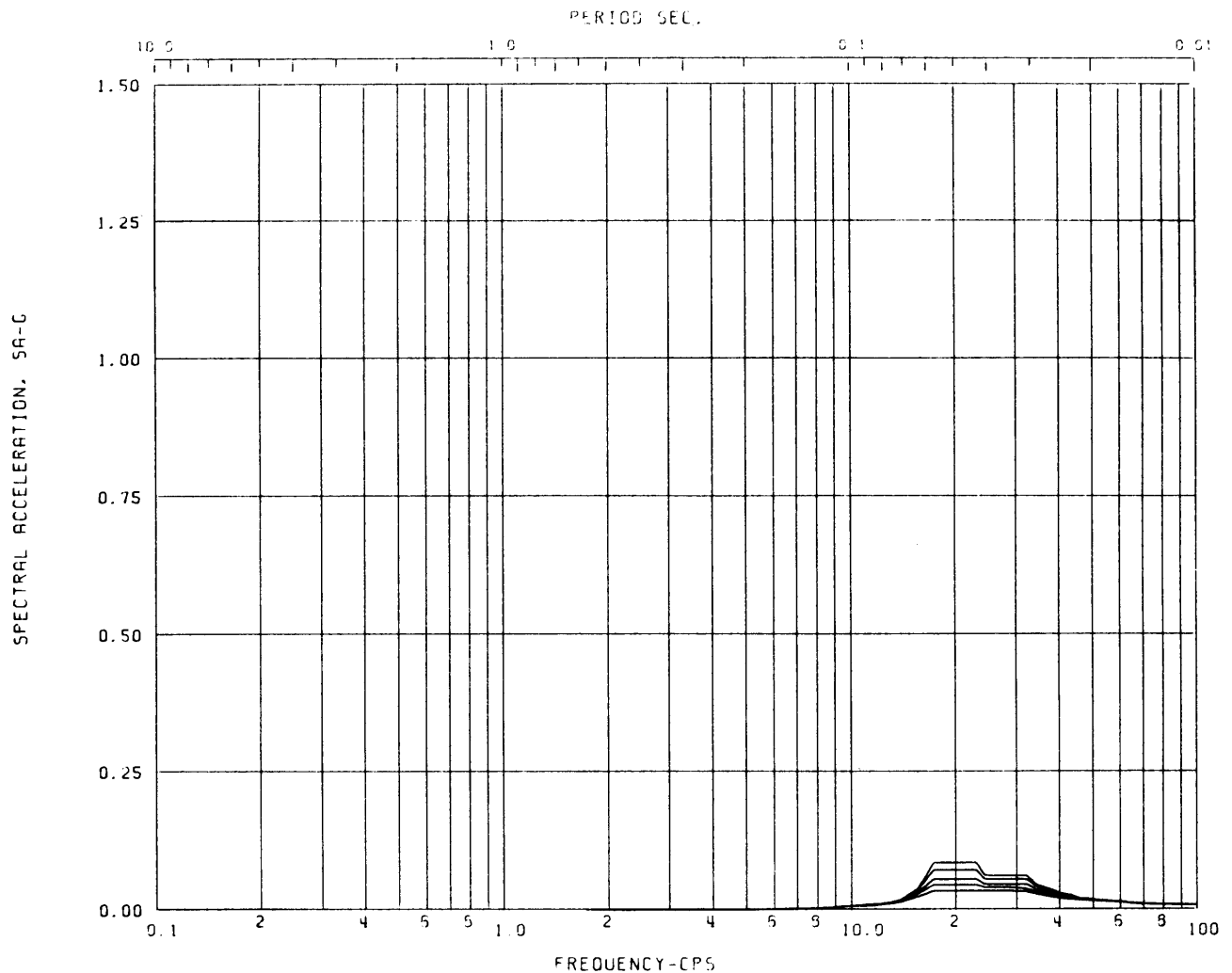
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 8 Direction: HORIZ N-S Elev: 304'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC  
FIGURE 3A-234**



Acceleration Spectra for REACTOR ENCL. , CONTROL STRUCTURE

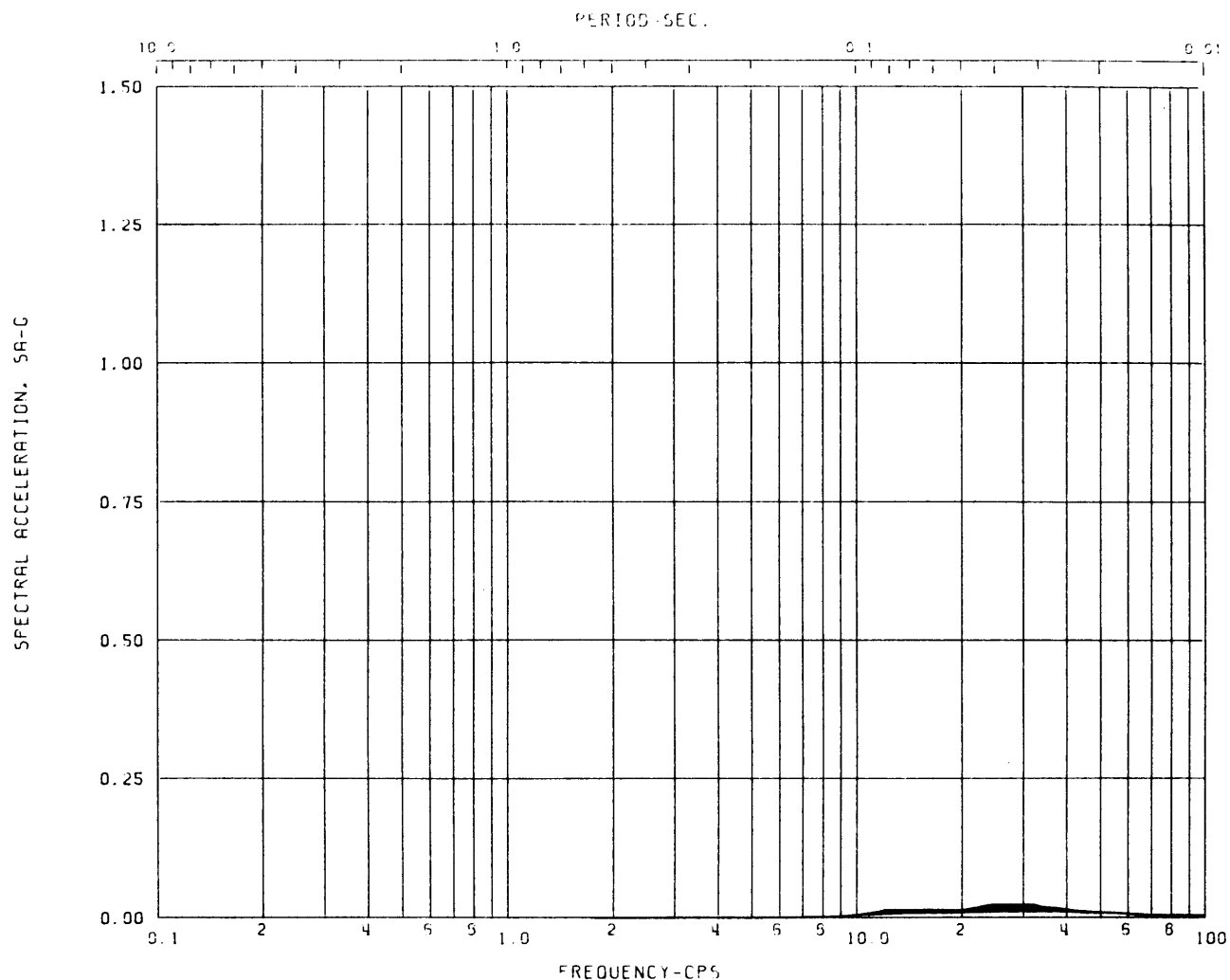
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 9 Direction: HORIZ N-S Elev: 313'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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SPECTRA, N-S HORIZONTAL,  
CHUG ASYMMETRIC  
FIGURE 3A-235**



Acceleration Spectra for REACTORENCL., CONTROL STRUCTURE

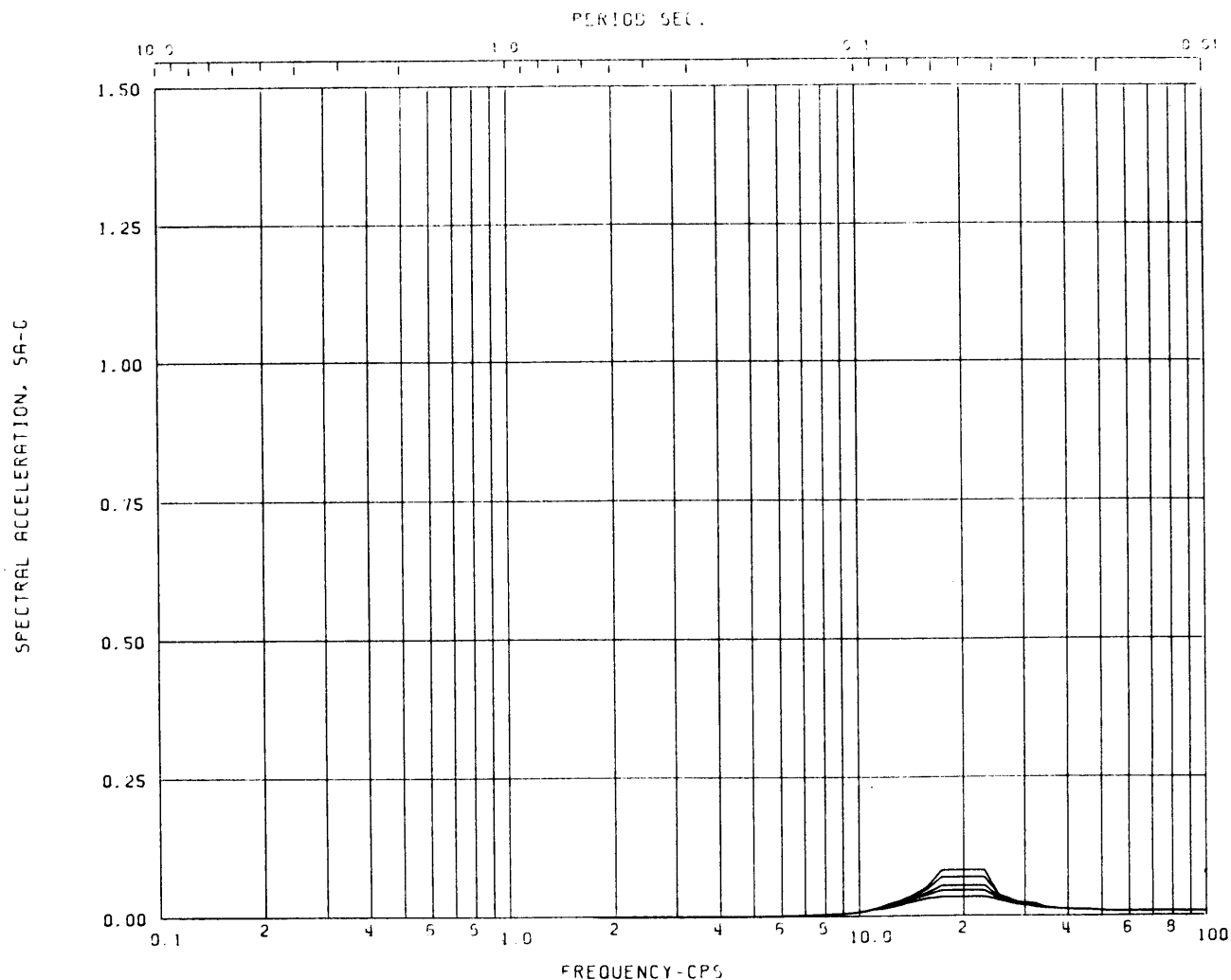
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 10 Direction: HORIZ N-S Elev: 332'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC  
FIGURE 3A-236**



Acceleration Spectra for REACTOR ENCL. , CONTROL STRUCTURE

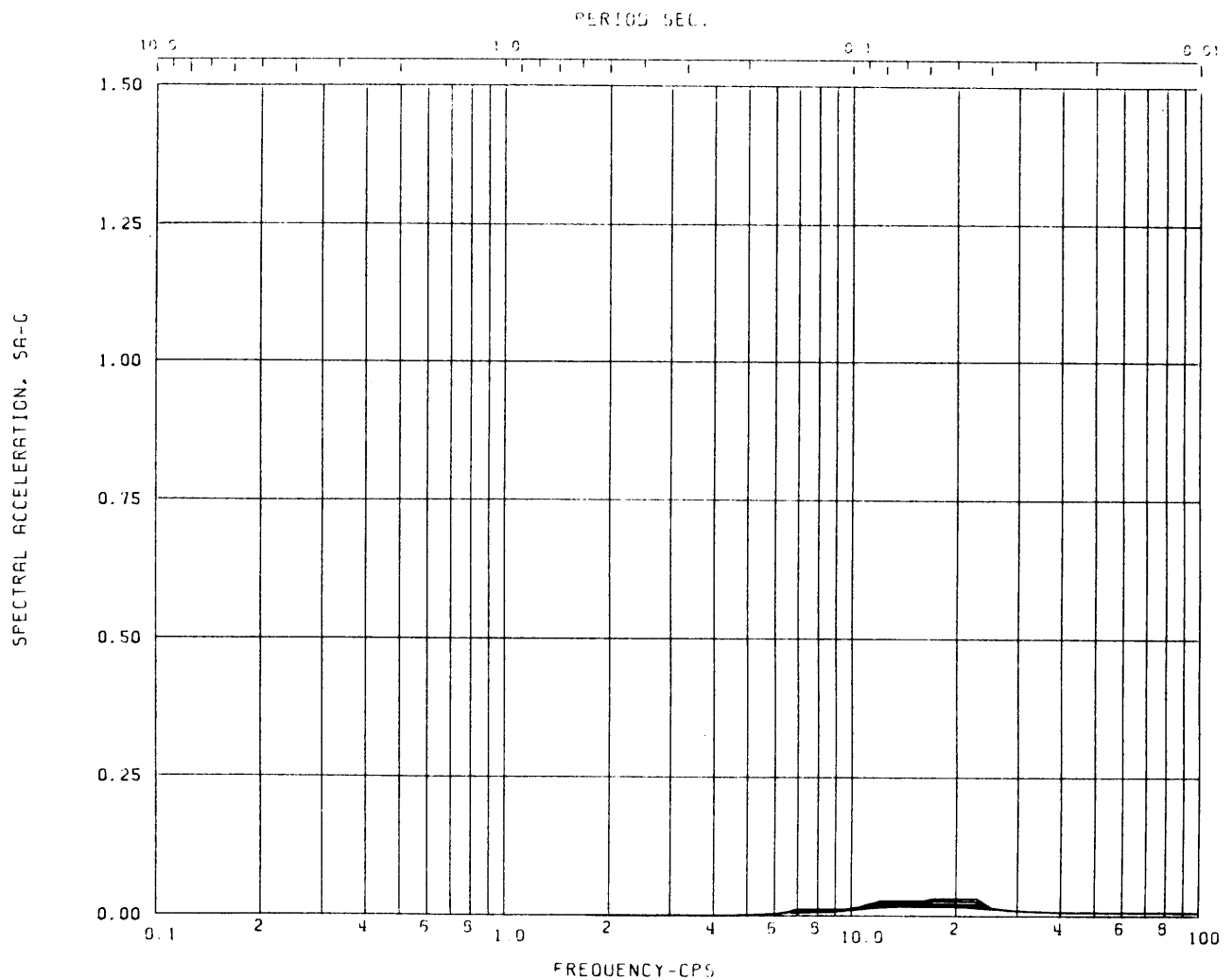
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 11 Direction: HORIZ N-S Elev: 352'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC  
FIGURE 3A-237**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

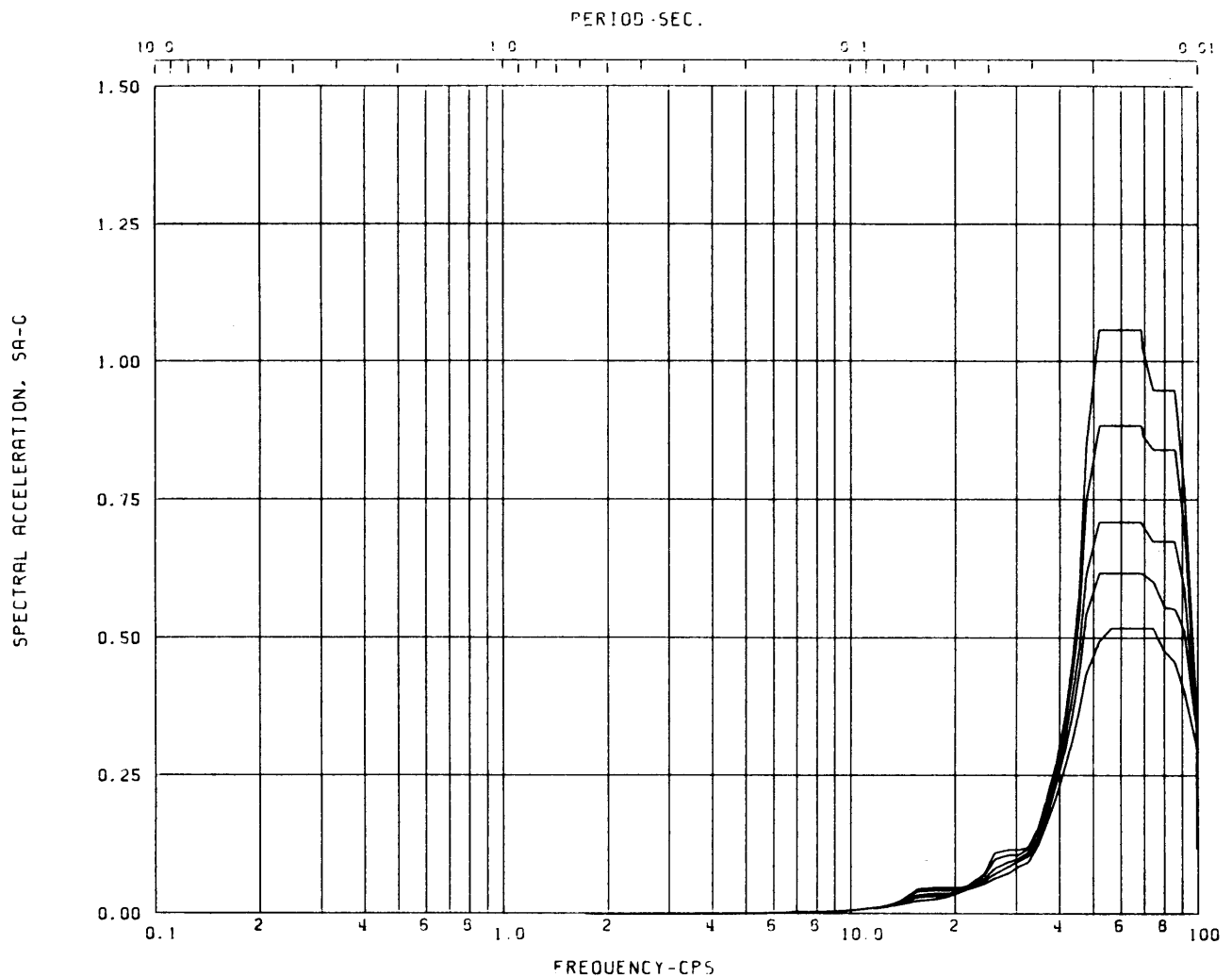
Load Case: CHUGGING GE700 SERIES ASYMMETRIC ENVELOPE (WIDENED - 15%)

Node: 12 Direction: HORIZ N-S Elev: 410'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC  
FIGURE 3A-238**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

Node: 1 Direction: HORIZ E-W Elev: 177'-0

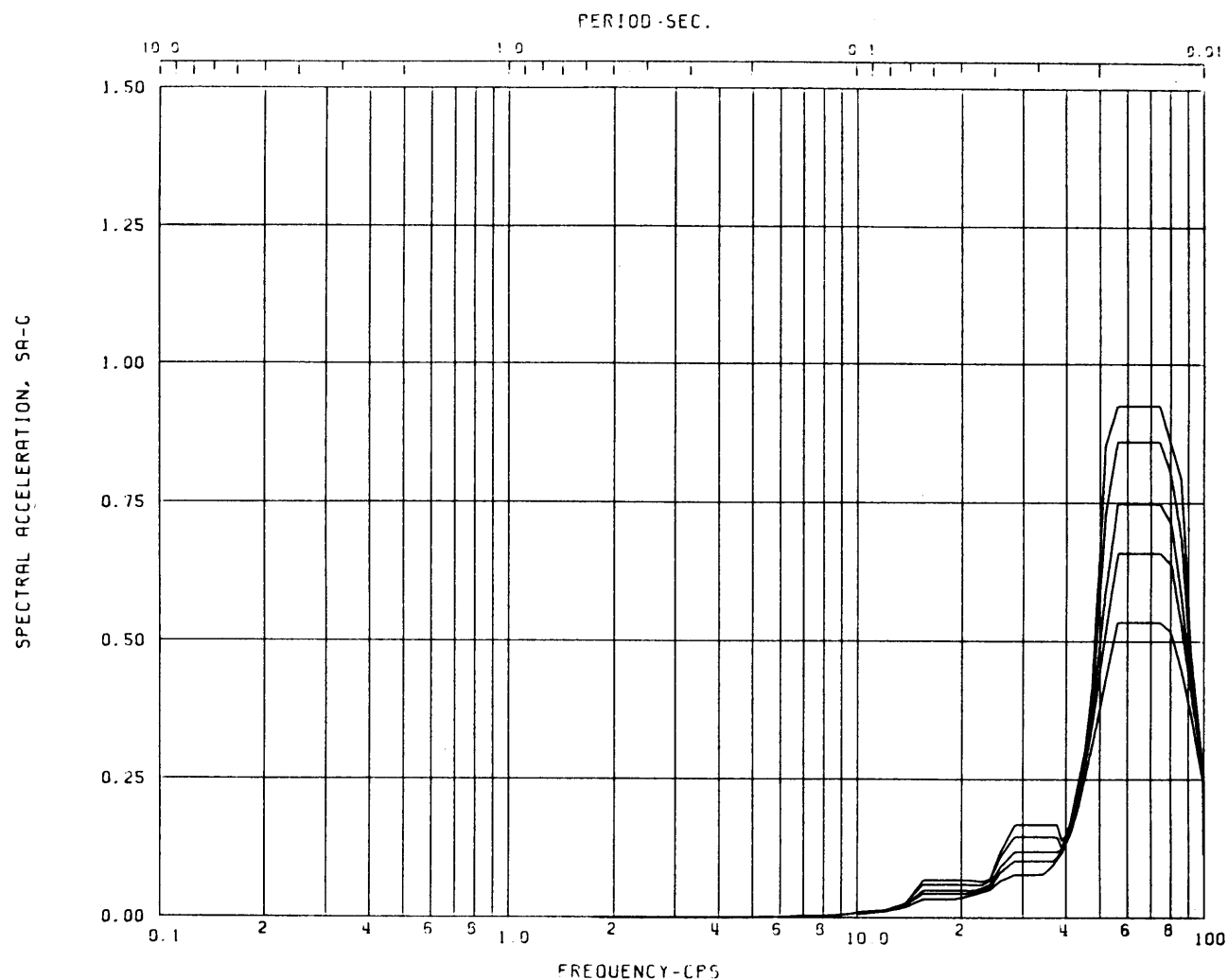
Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC**

**FIGURE 3A-239**





Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

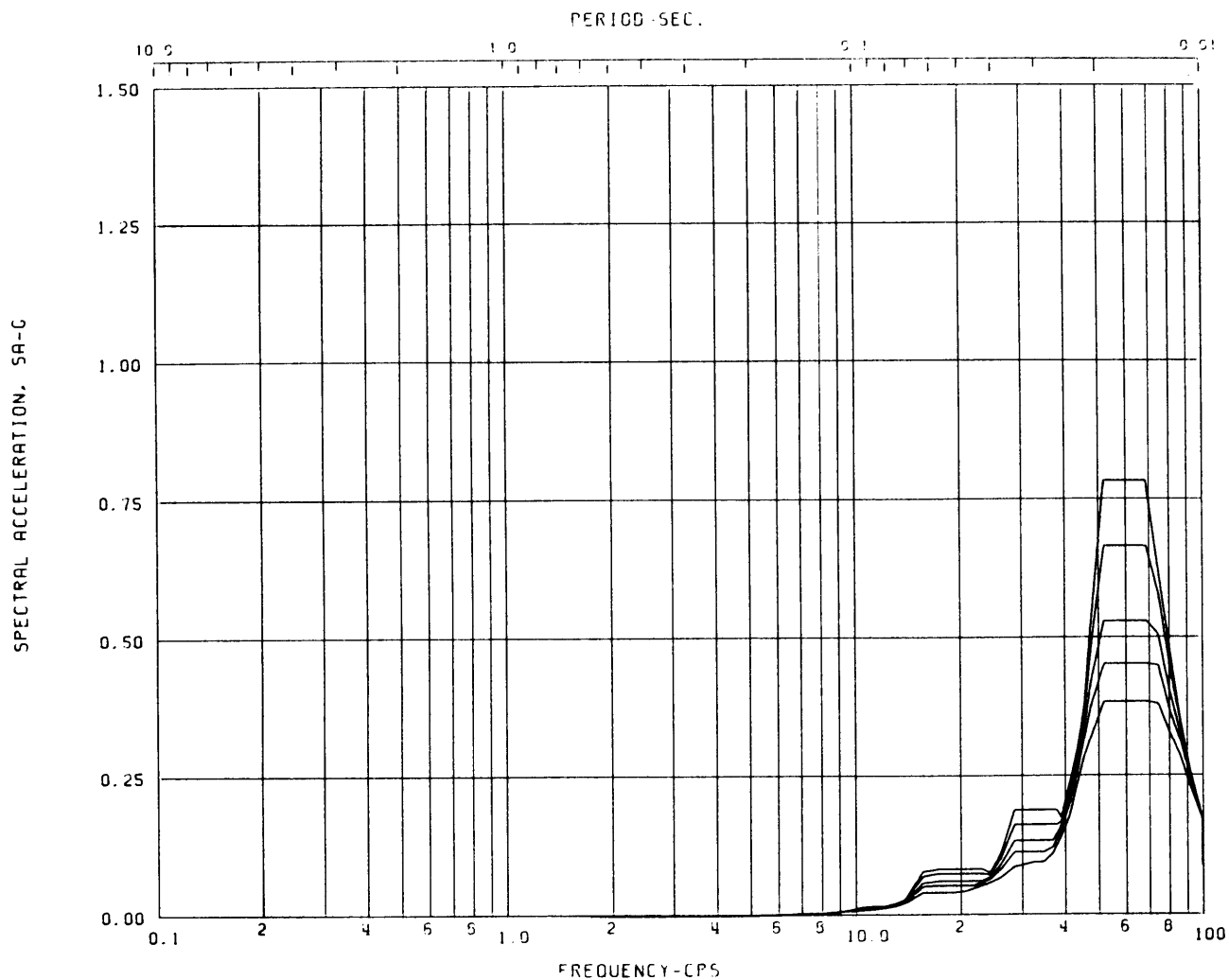
Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

Node: 2 Direction: HORIZ E-W Elev: 201'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC  
FIGURE 3A-240**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

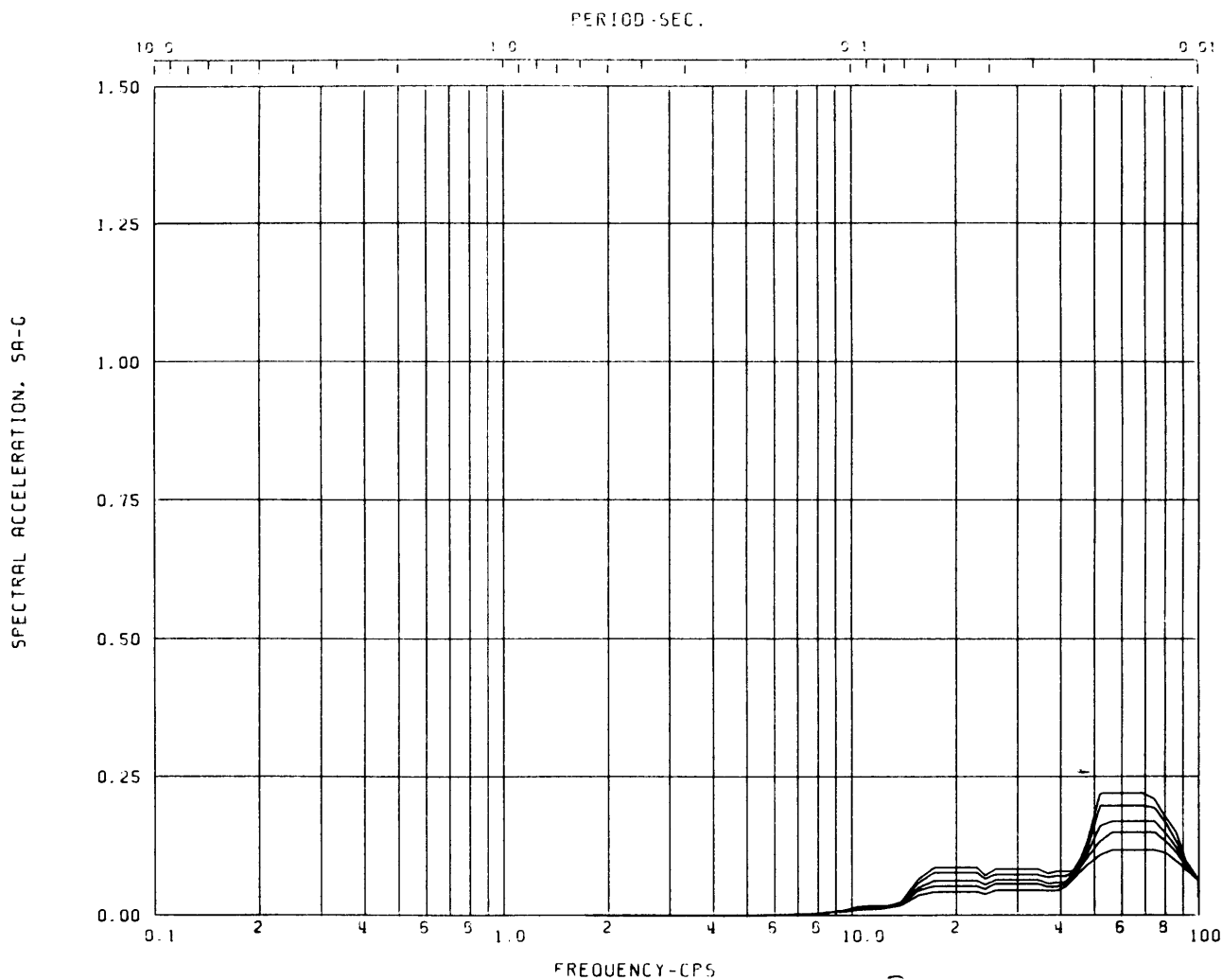
Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

Node: 3 Direction: HORIZ E-W Elev: 217'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC  
FIGURE 3A-241**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

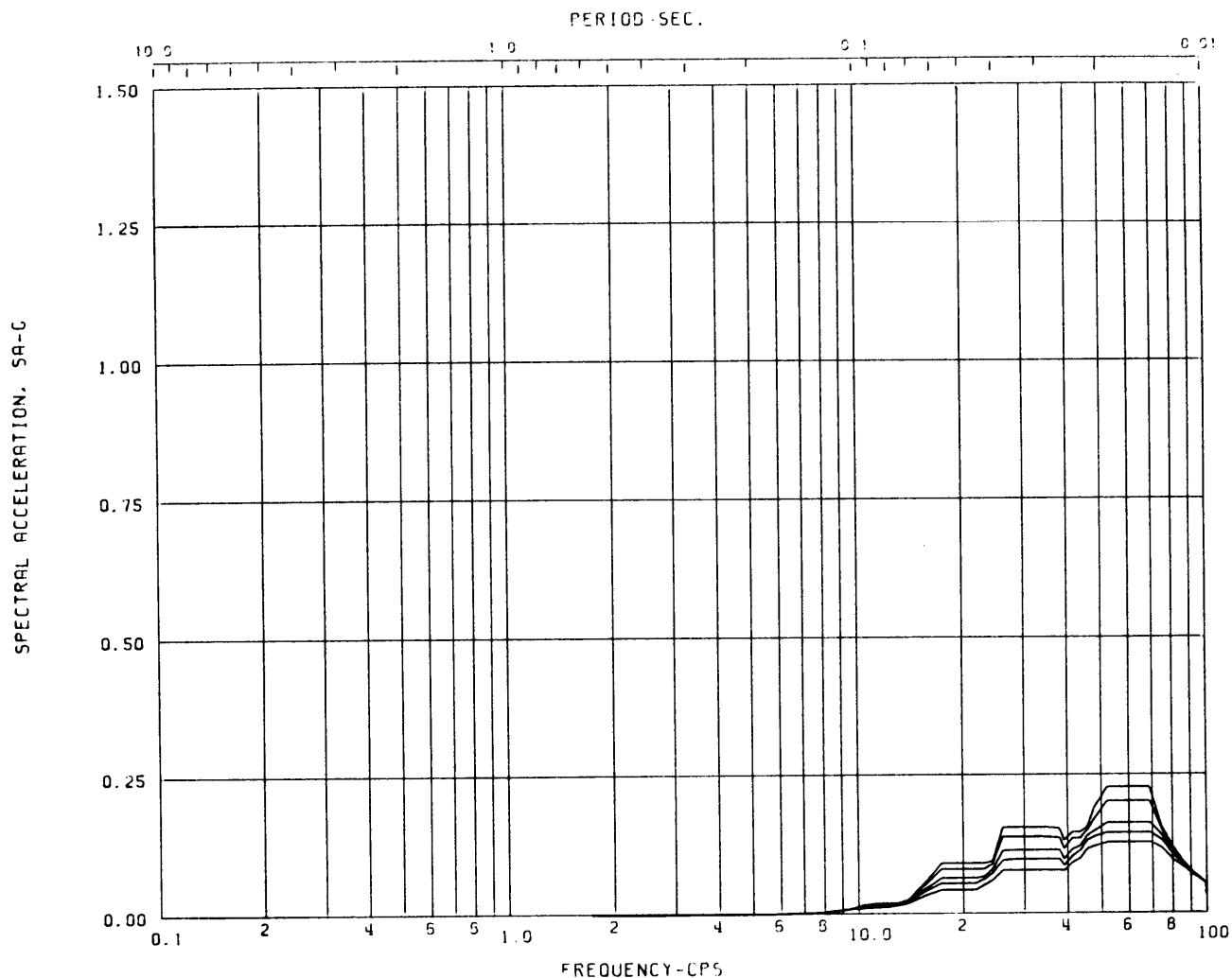
Node: 4 Direction: HORIZ E-W Elev: 239'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC**

**FIGURE 3A-242**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

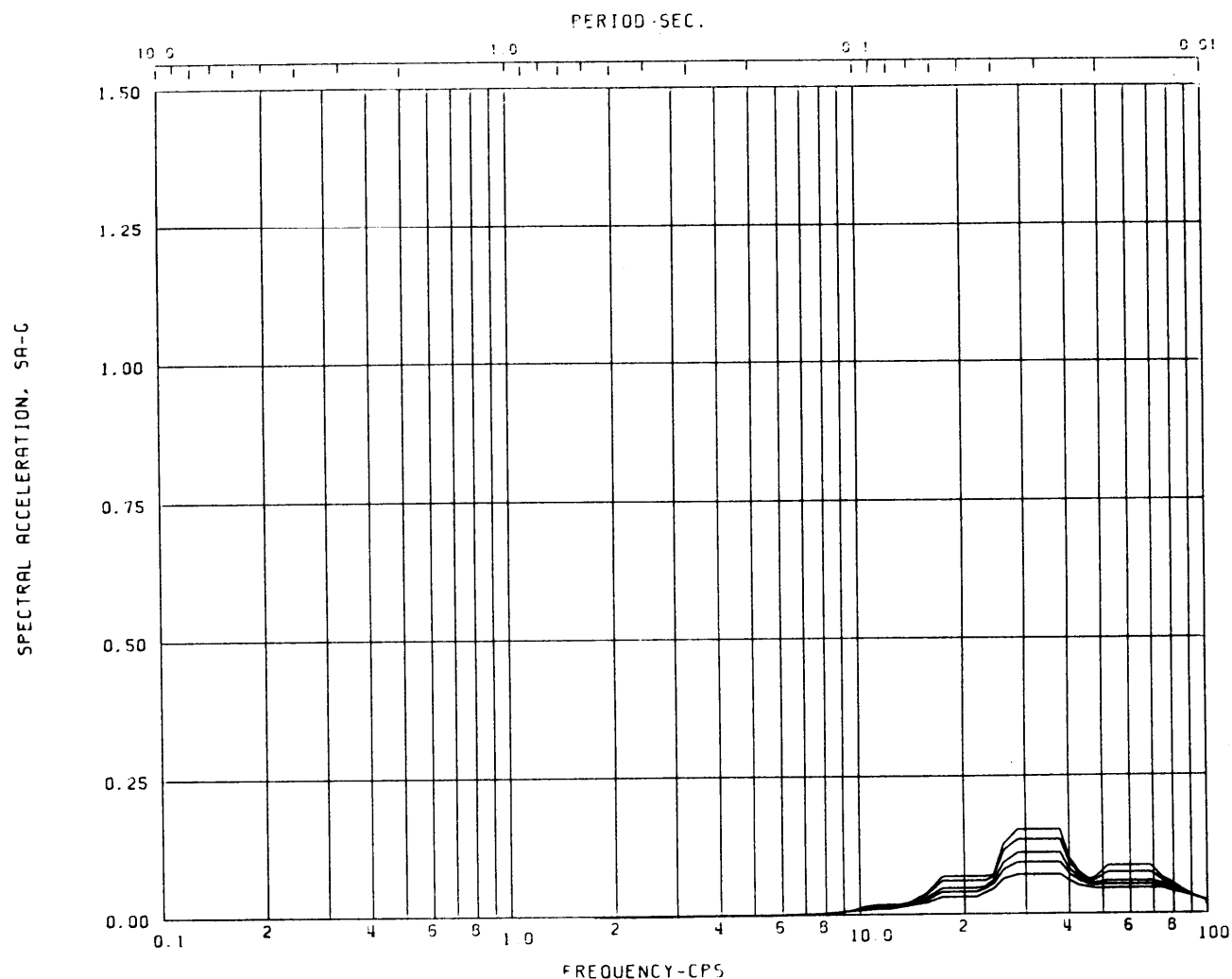
Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

Node: 5 Direction: HORIZ E-W Elev: 253'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG ASYMMETRIC  
FIGURE 3A-243**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

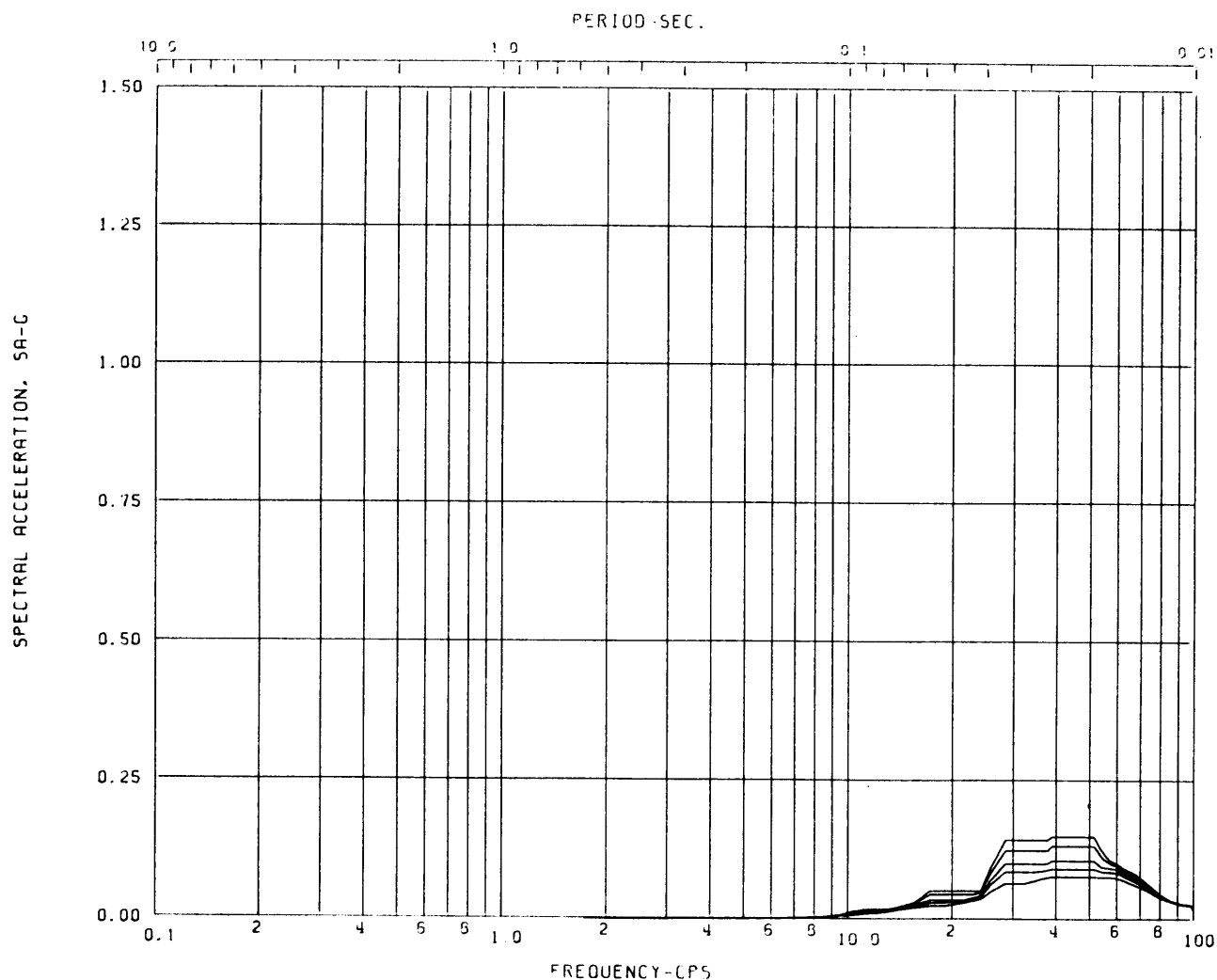
Node: 6 Direction: HORIZ E-W Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG ASYMMETRIC**

**FIGURE 3A-244**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

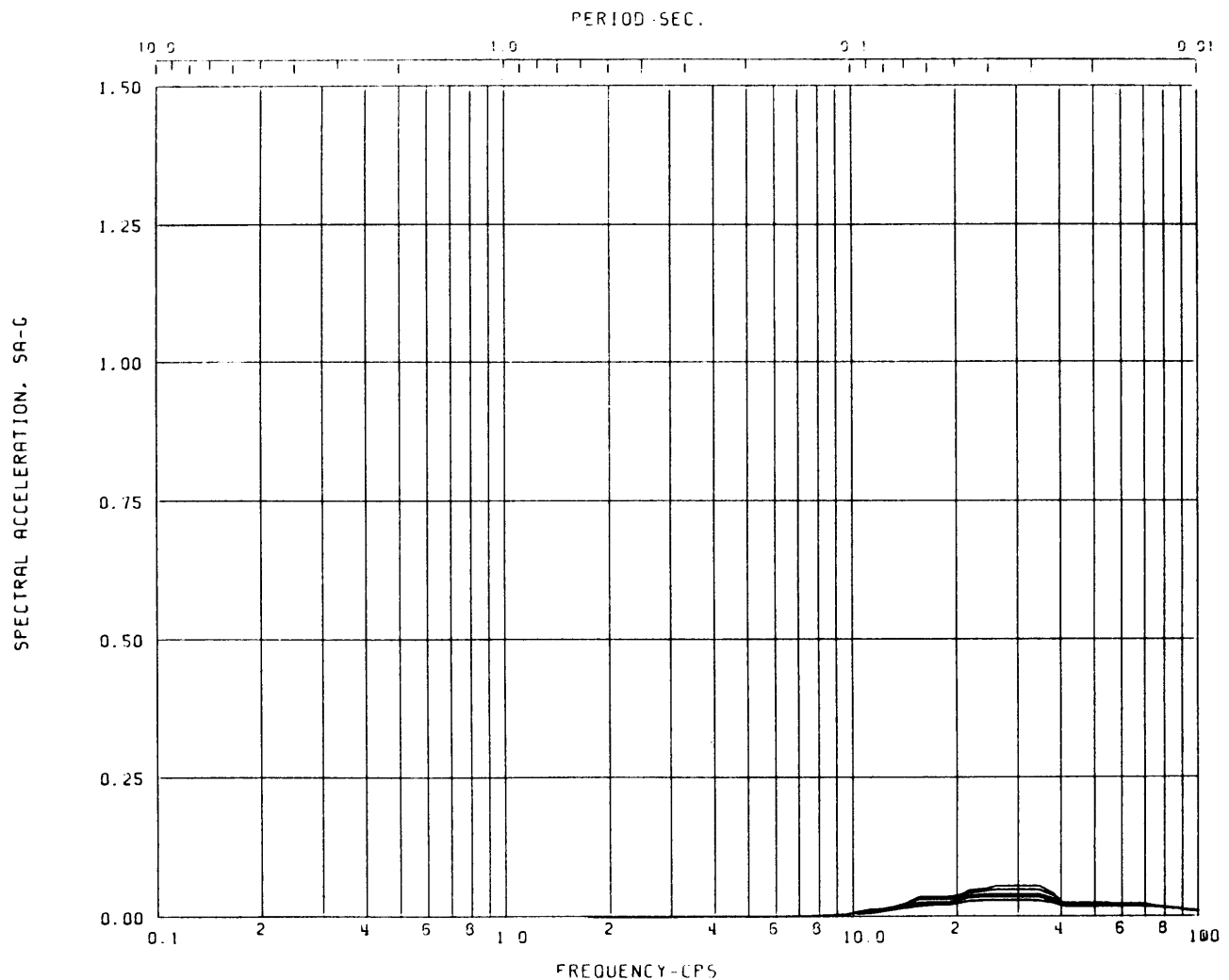
Node: 7 Direction: HORIZ E-W Elev: 283'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC

FIGURE 3A-245



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

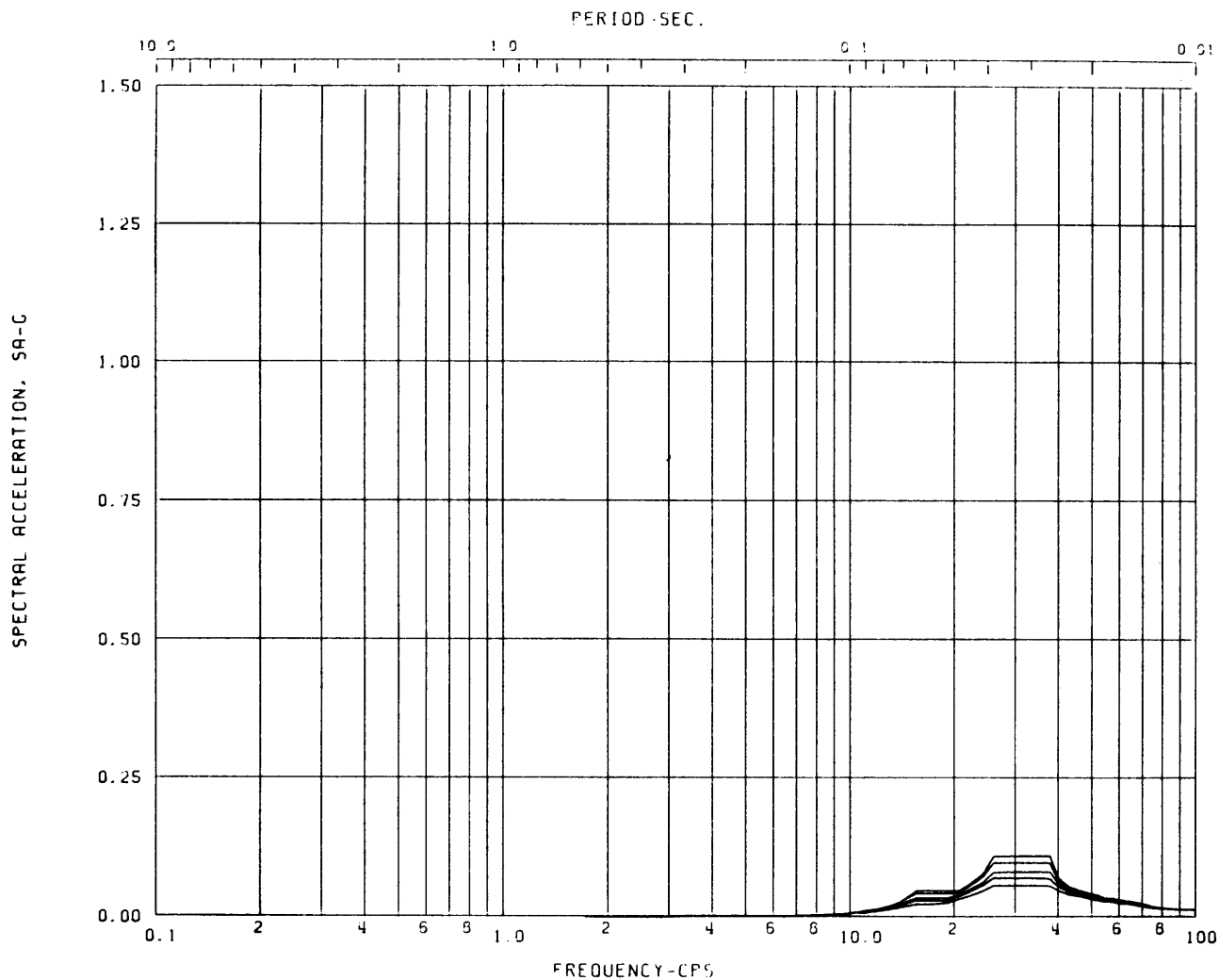
Node: 8 Direction: HORIZ E-W Elev: 304'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC**

**FIGURE 3A-246**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

Node: 9 Direction: HORIZ E-W Elev: 313'-0

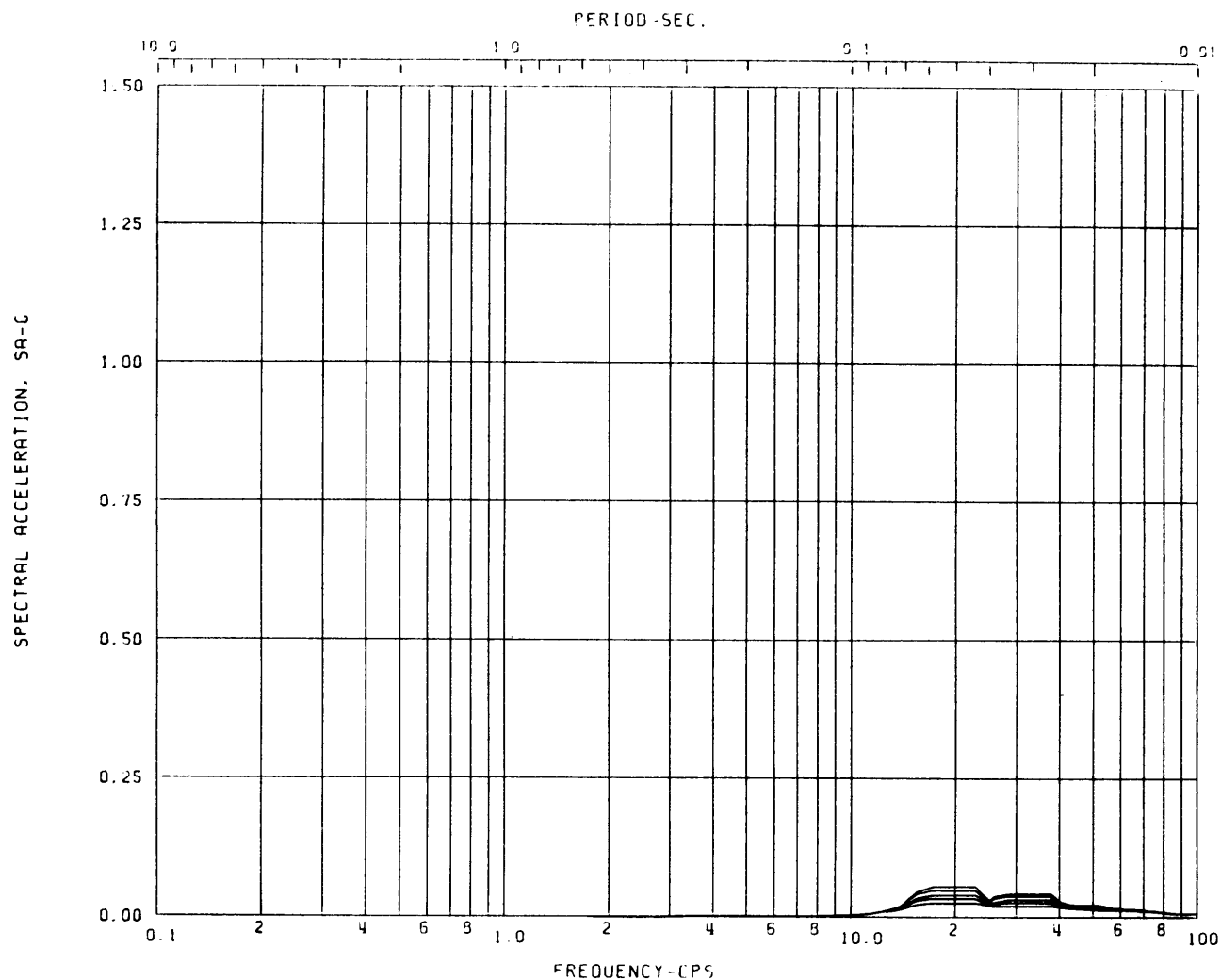
Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC**

**FIGURE 3A-247**





Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

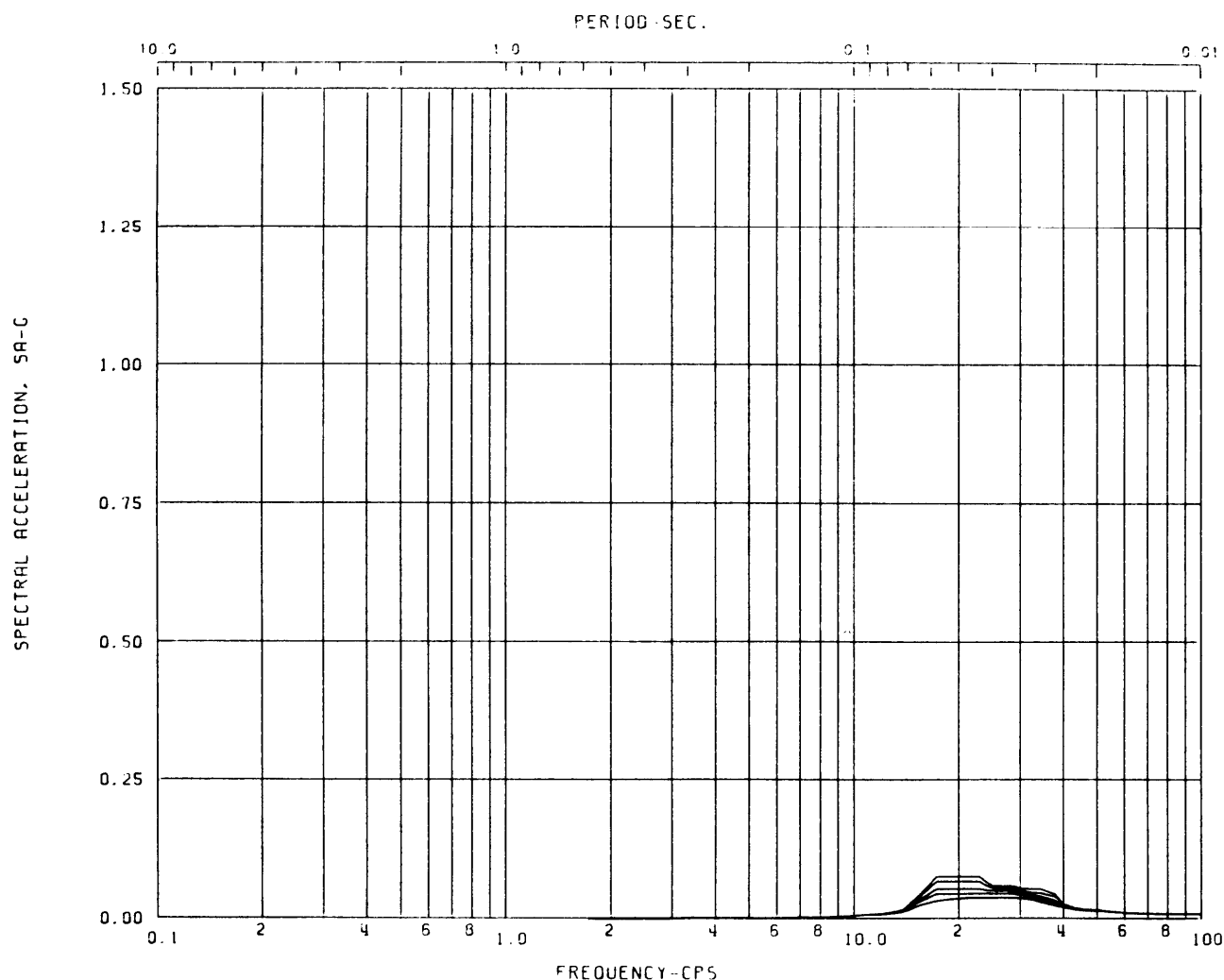
Node: 10 Direction: HORIZ E-W Elev: 332'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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SPECTRA, E-W HORIZONTAL,  
CHUG ASYMMETRIC**

**FIGURE 3A-248**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

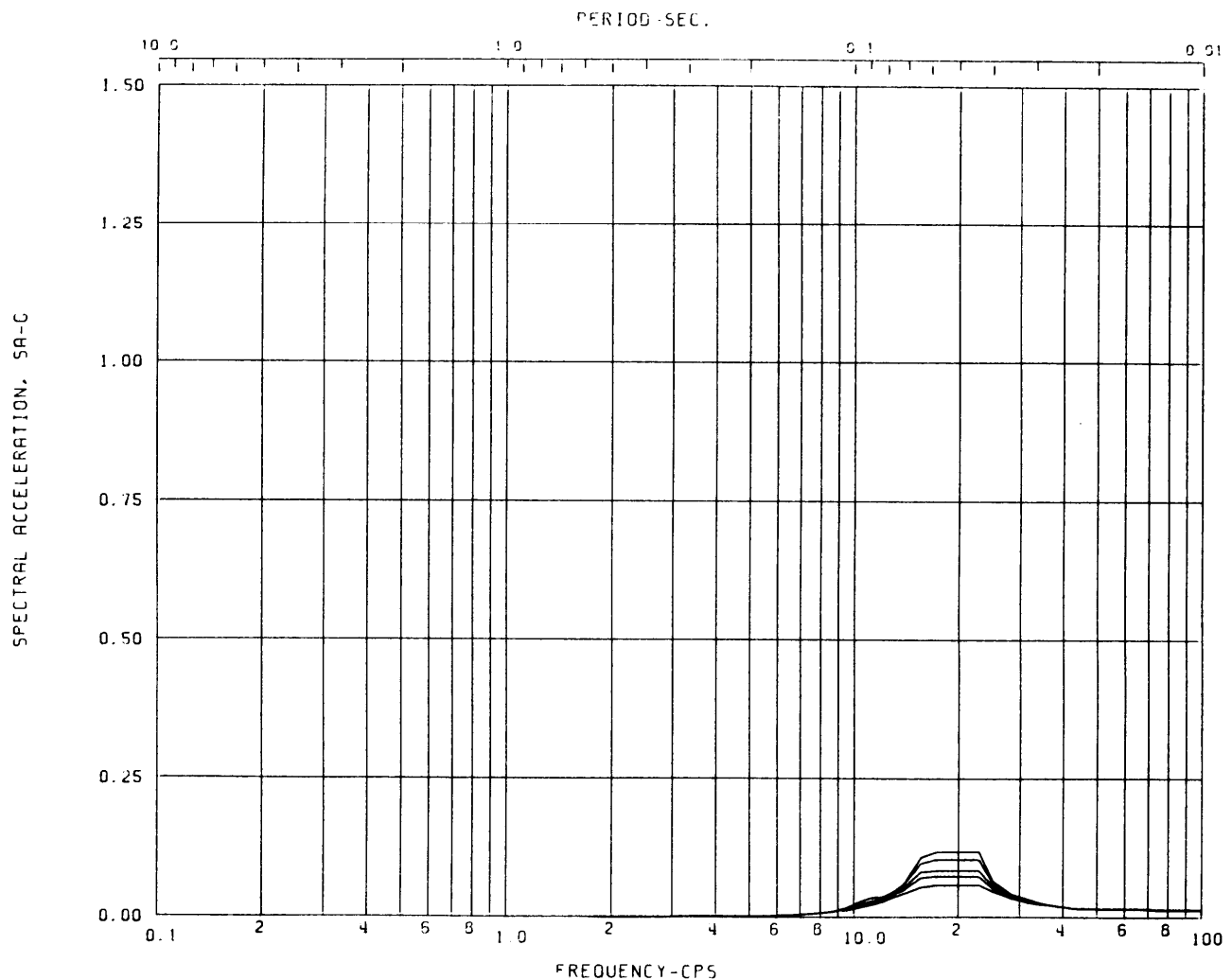
Node: 11 Direction: HORIZ E-W Elev: 352'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG ASYMMETRIC**

**FIGURE 3A-249**



Acceleration Spectra for REACTOR ENCL., CONTROL STRUCTURE

Load Case: ASYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

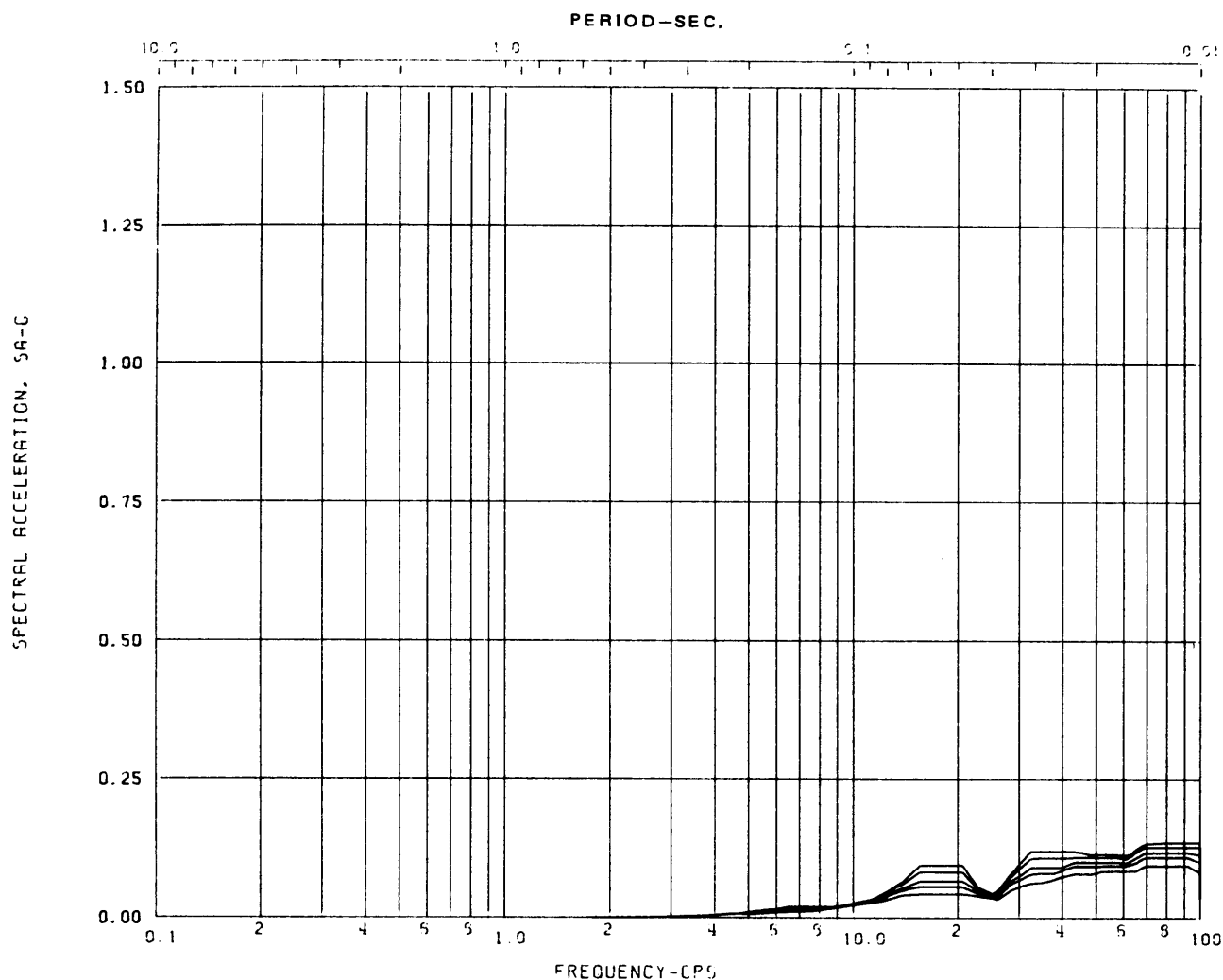
Node: 12 Direction: HORIZ E-W Elev: 410'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-250**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

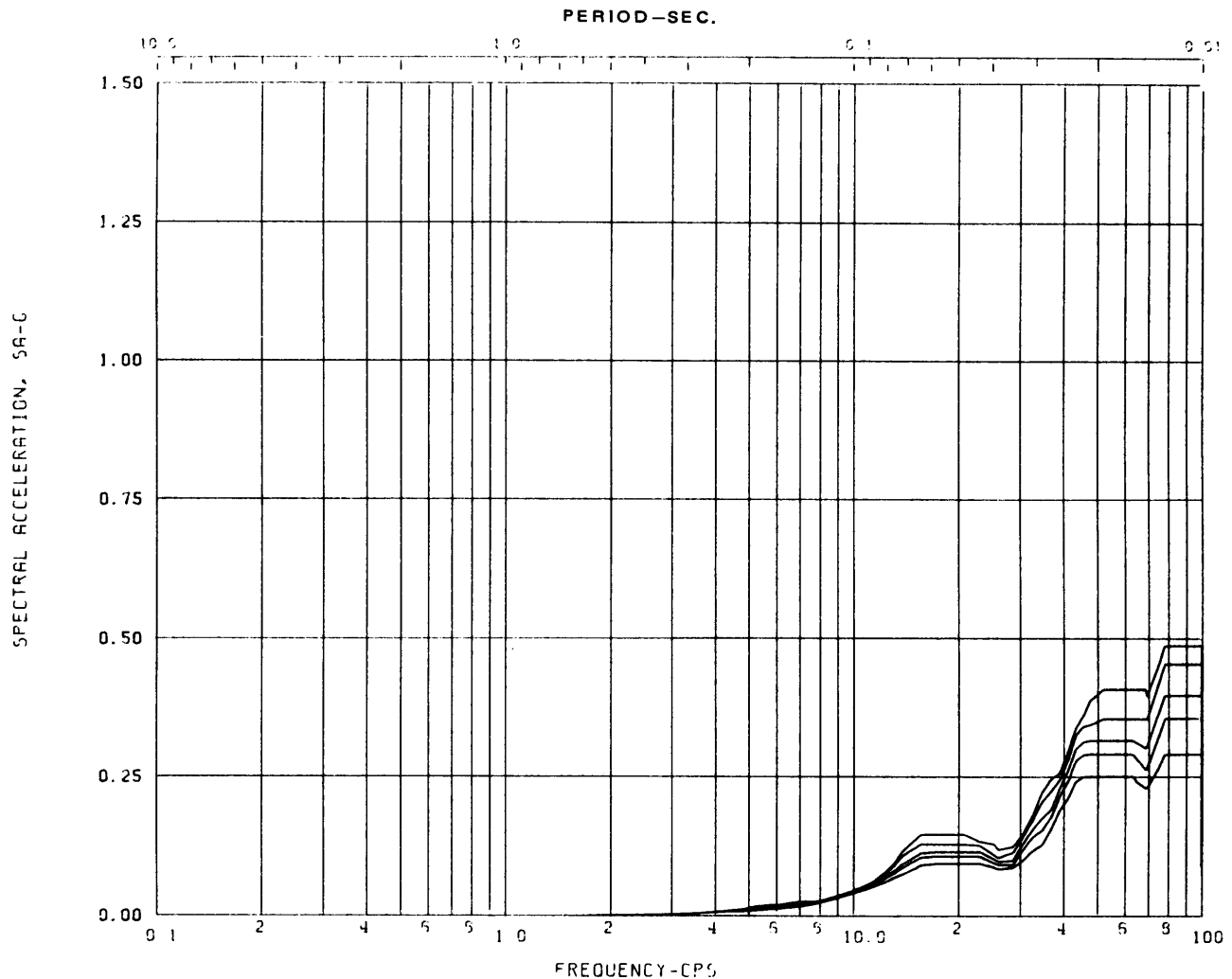
Node: 159 Direction: VERTICAL Elev: 177'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-251**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

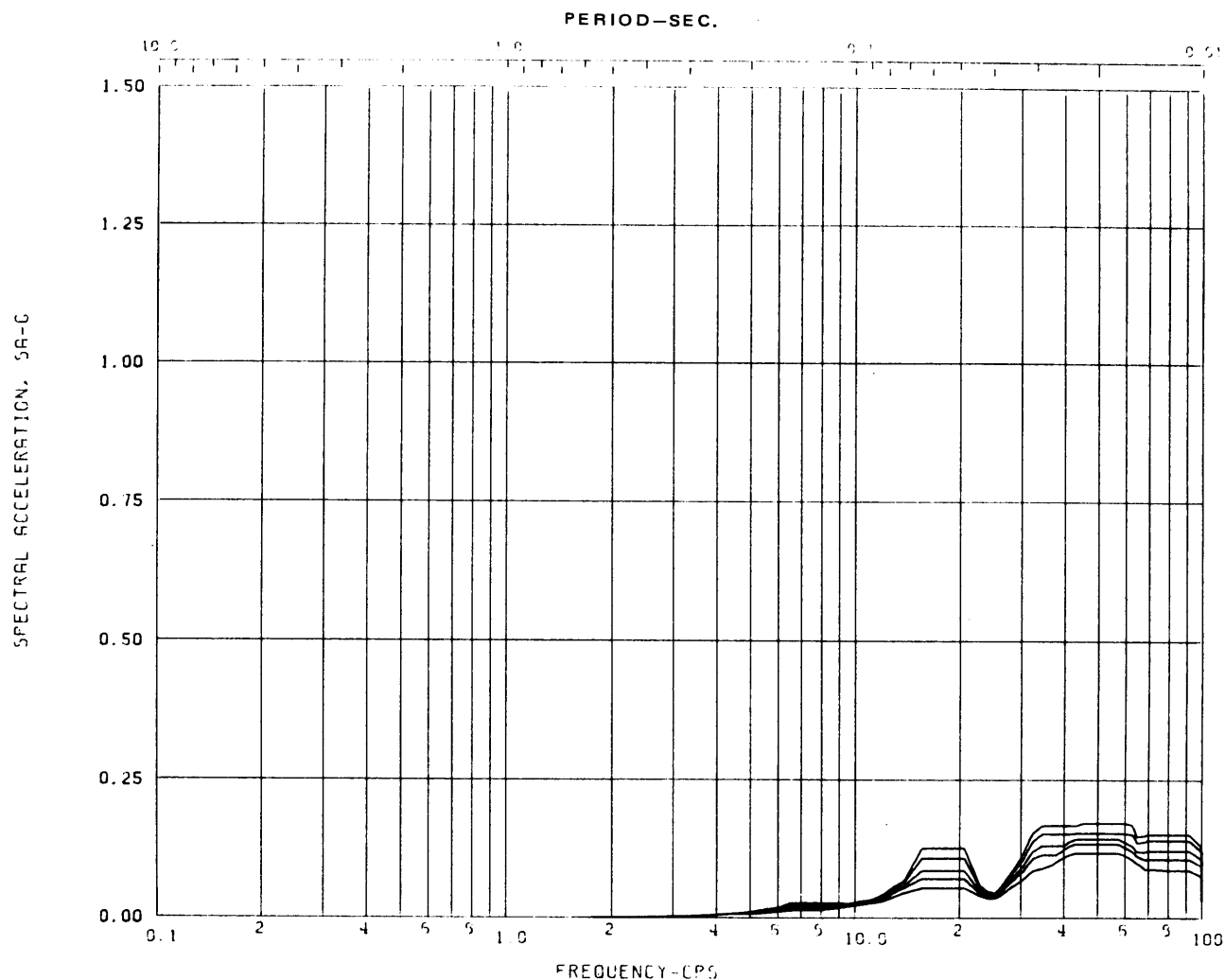
Node: 154 Direction: VERTICAL Elev: 177'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-252**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

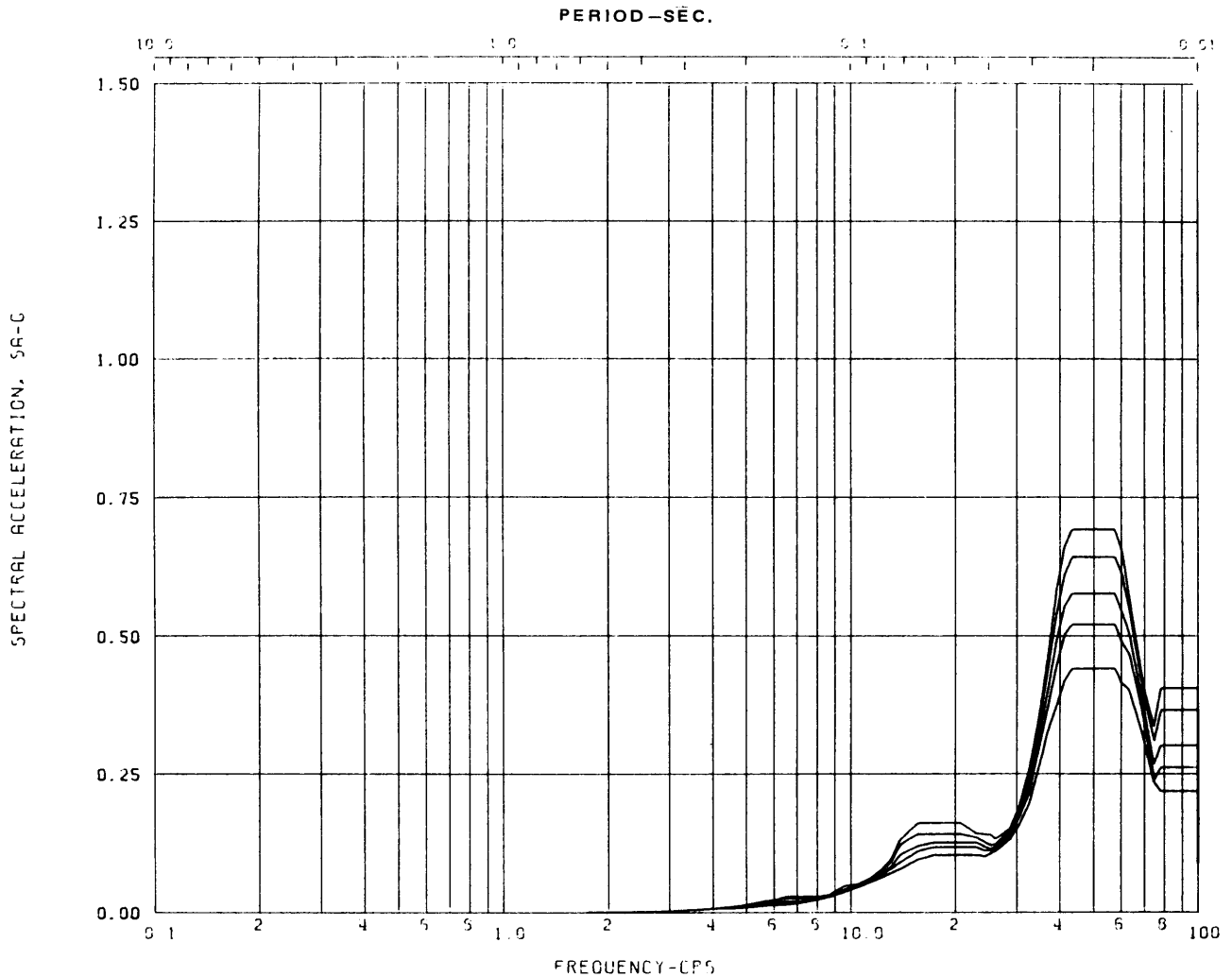
Node: 128 Direction: VERTICAL Elev: 201'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-253**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIFS ENVELOPE (WIDENED - 15%)

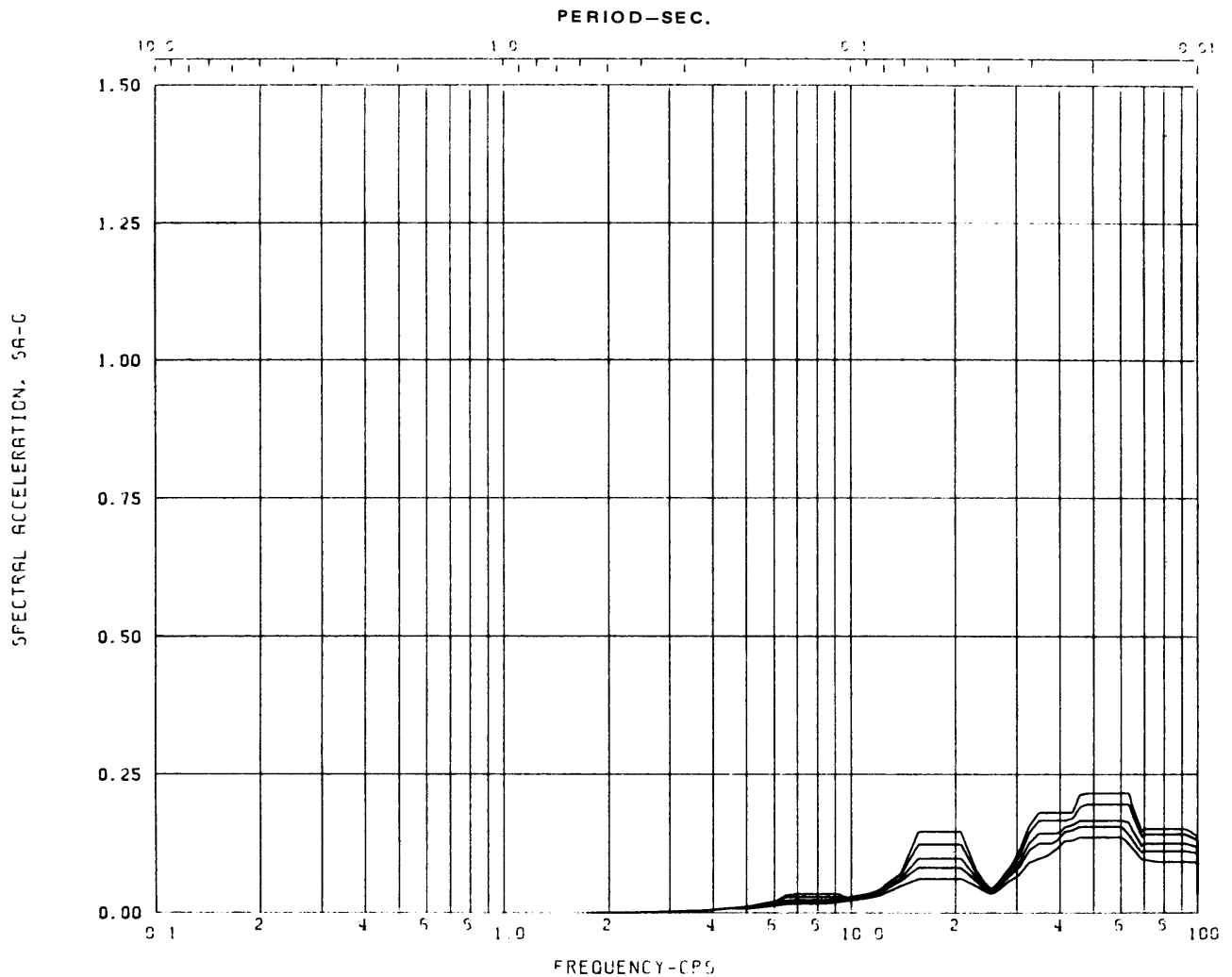
Node: 130 Direction: VERTICAL Elev: 201'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-254**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

Node: 106 Direction: VERTICAL Elev: 217'

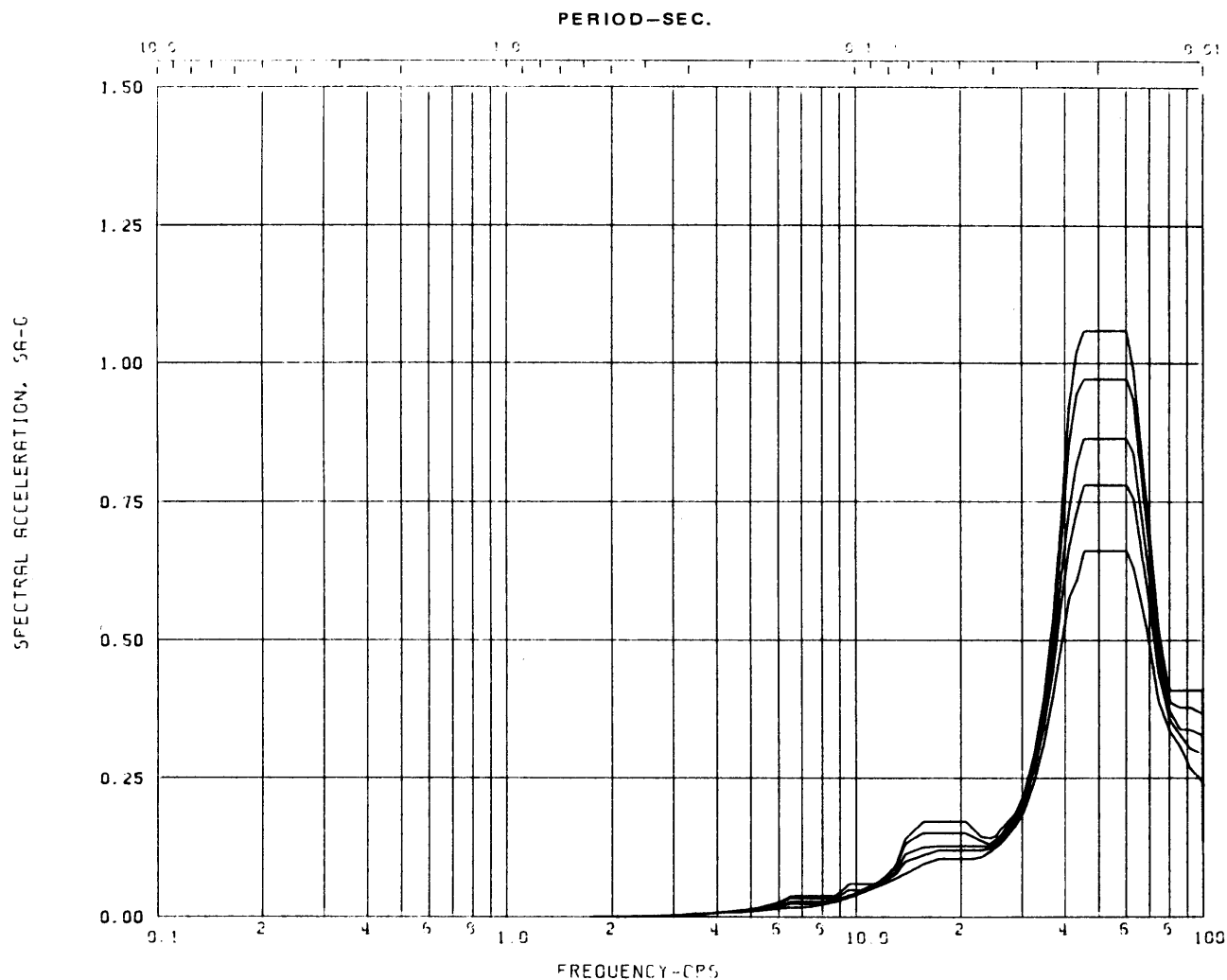
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-255**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

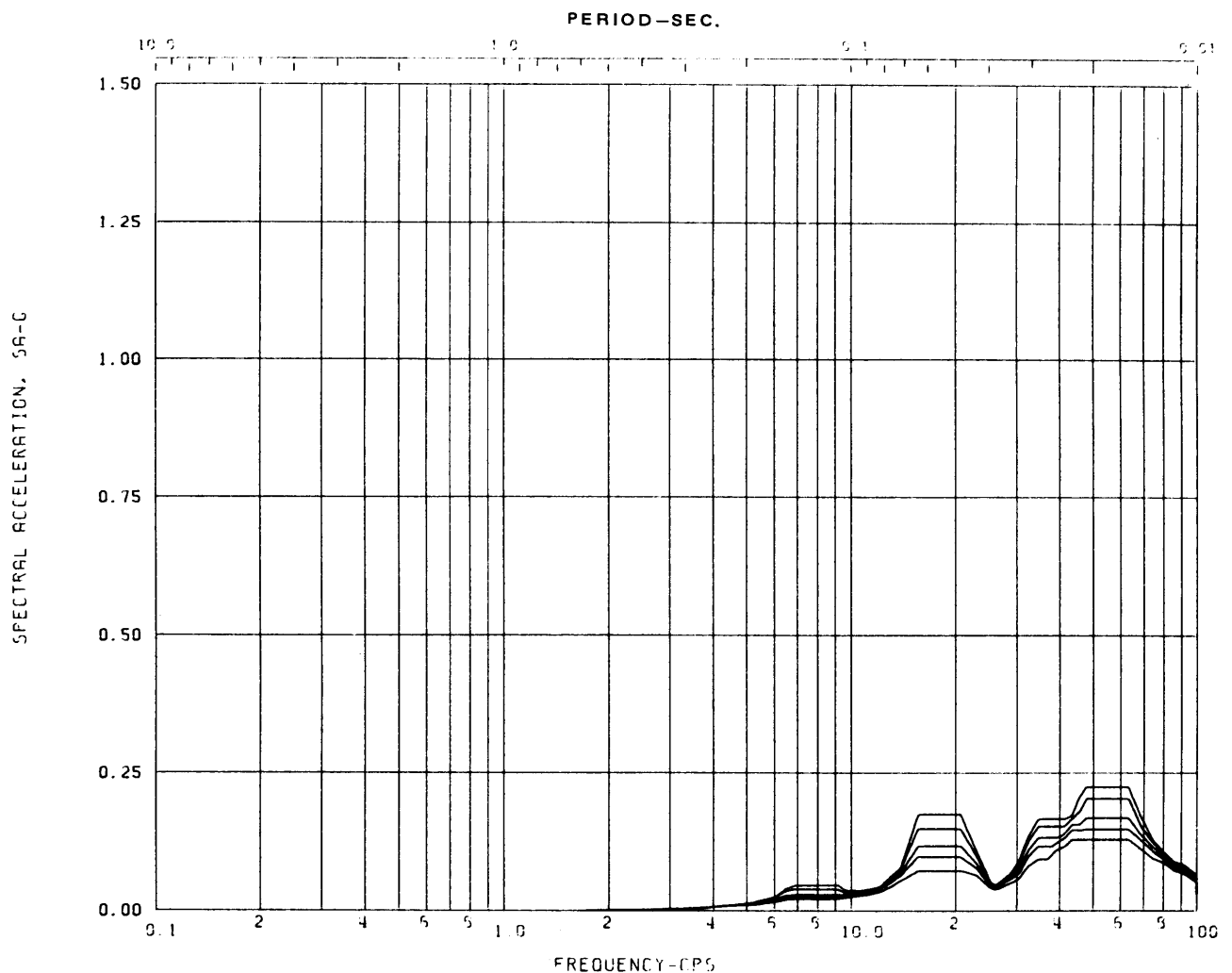
Node: 108 Direction: VERTICAL Elev: 217'

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-256**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

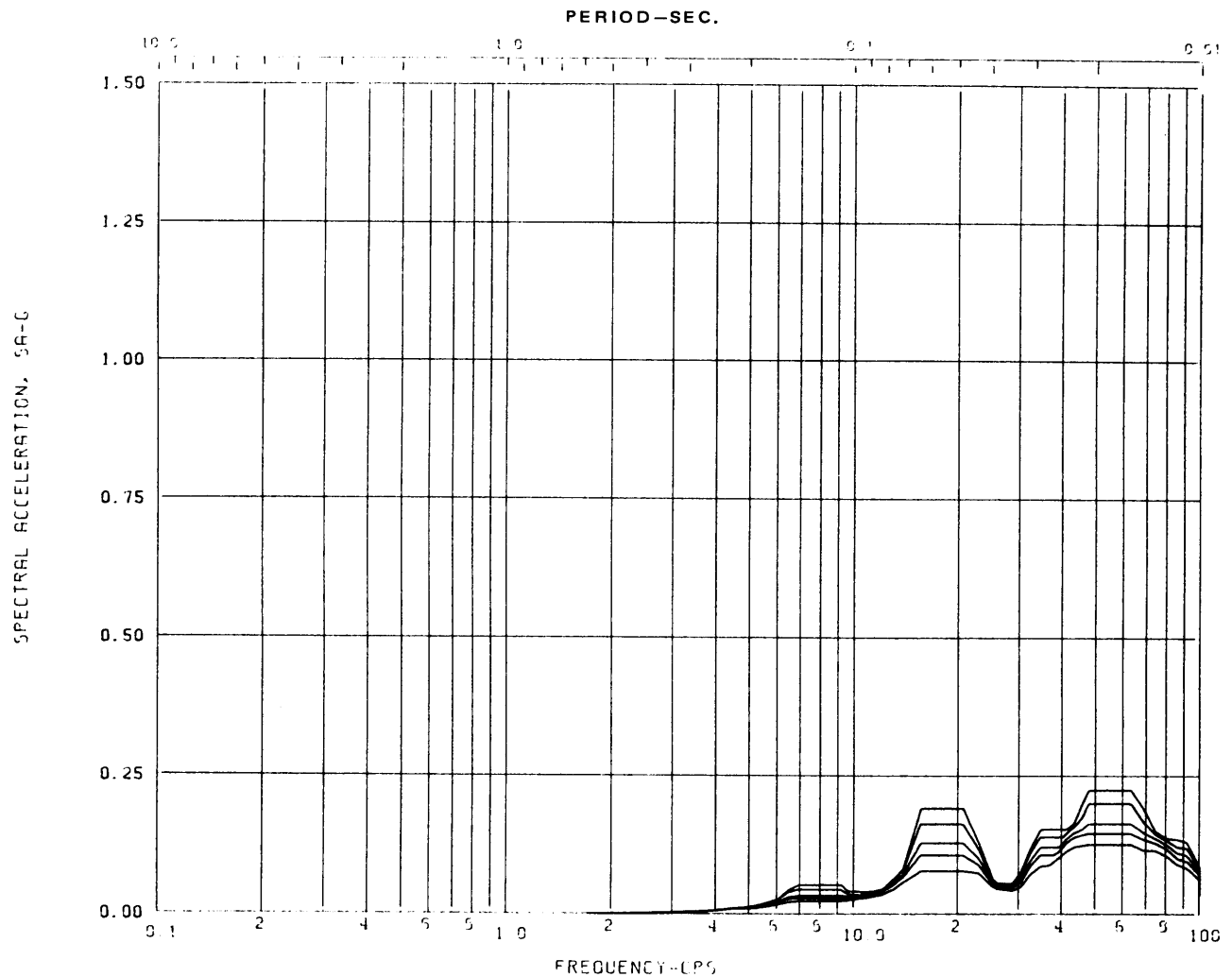
Node: 104 Direction: VERTICAL Elev: 239'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC

FIGURE 3A-257



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIFS ENVELOPE (WIDENED - 15%)

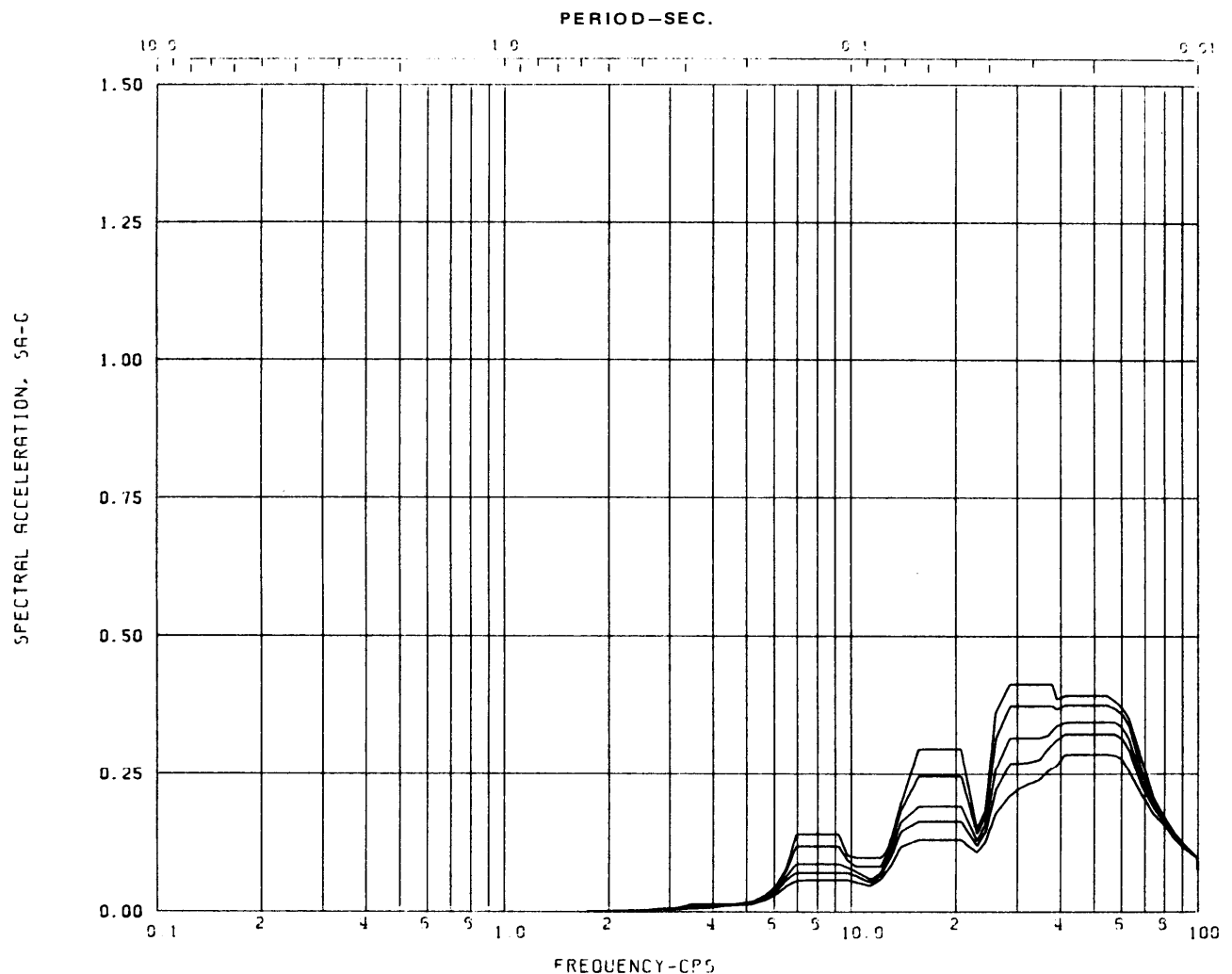
Node: 79 Direction: VERTICAL Elev: 253'

Damping: 0.005,0.01,0.02,0.03,0.05

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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-258**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

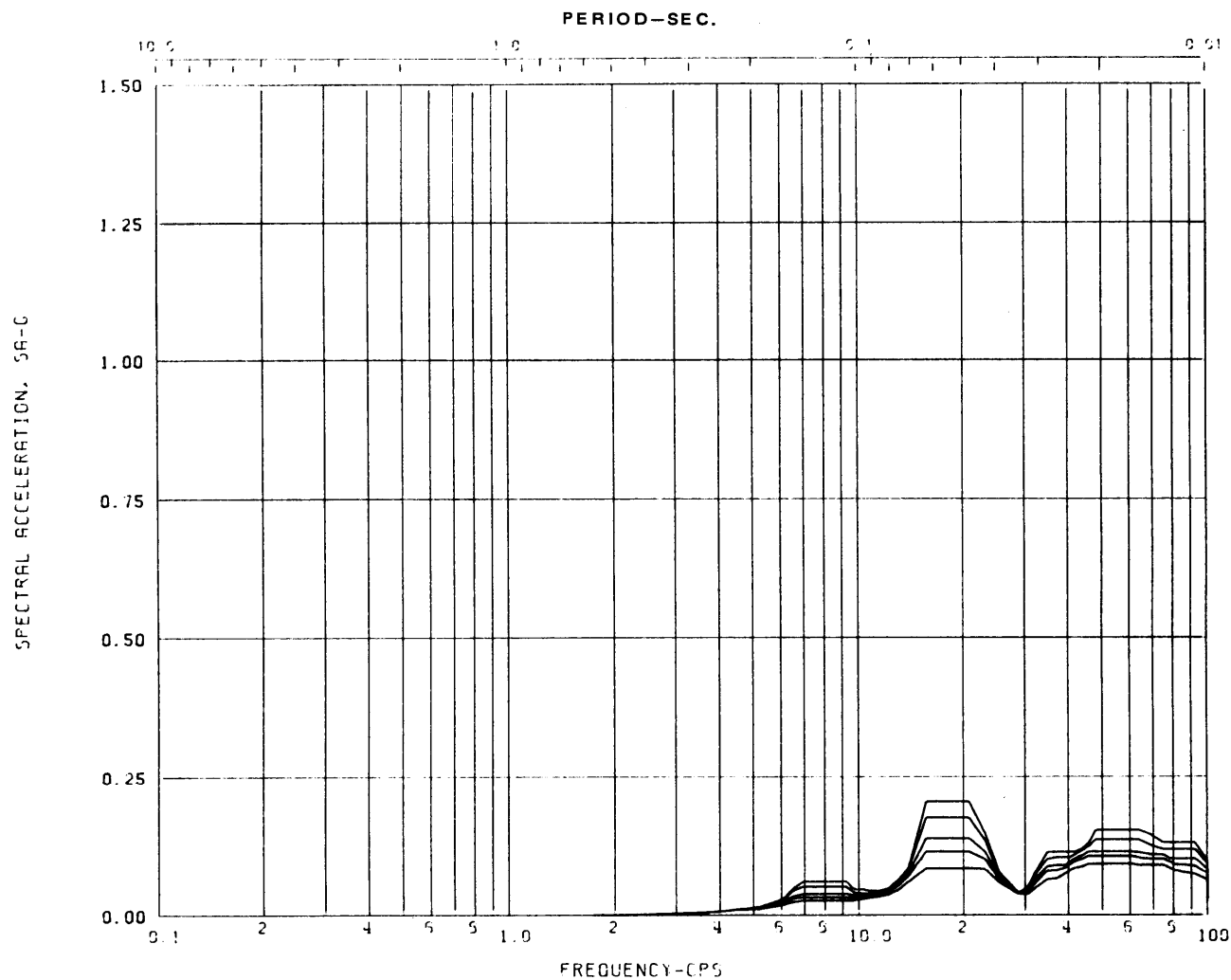
Node: 81 Direction: VERTICAL Elev: 253'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-259**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

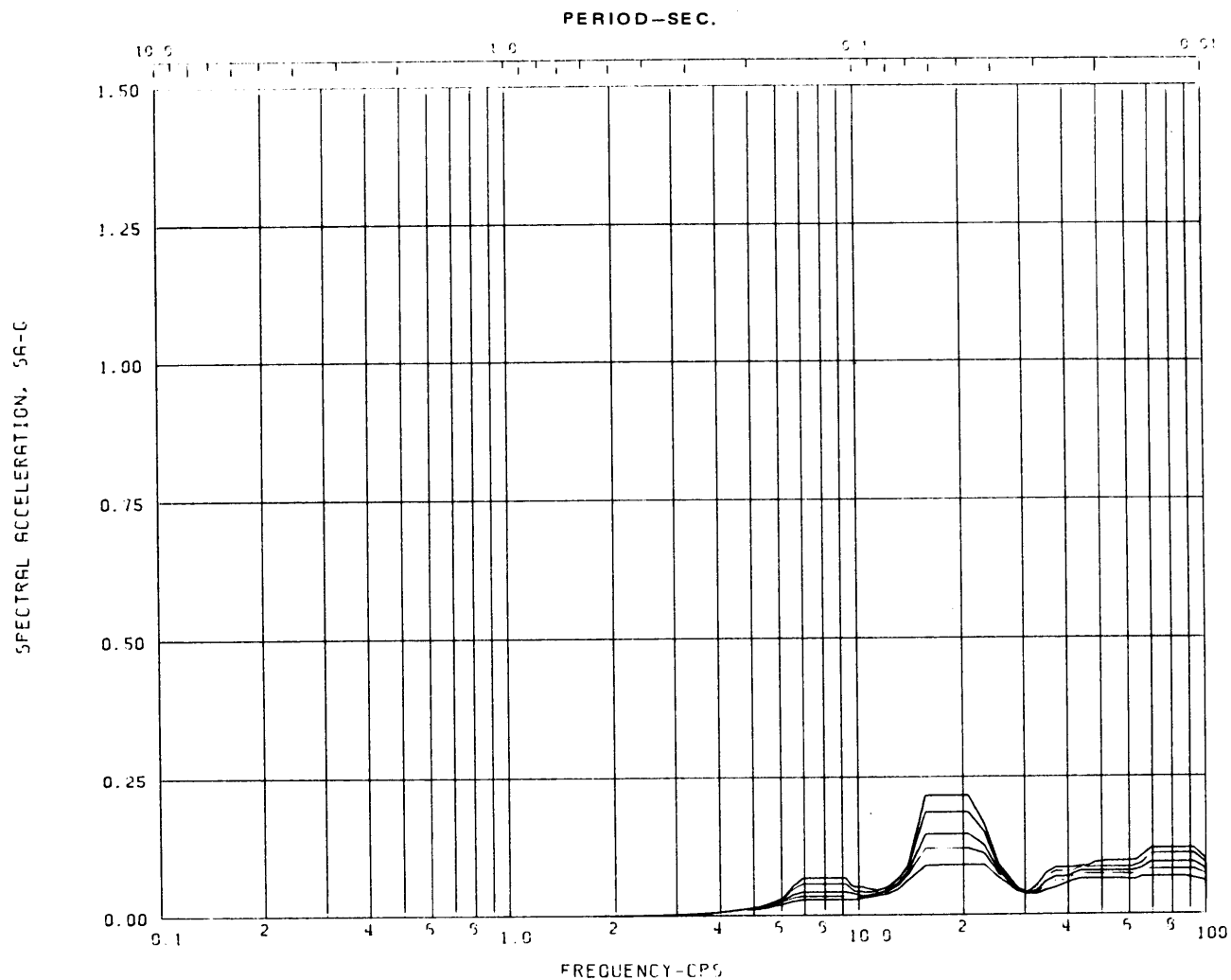
Node: 77 Direction: VERTICAL Elev: 269'

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-260**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

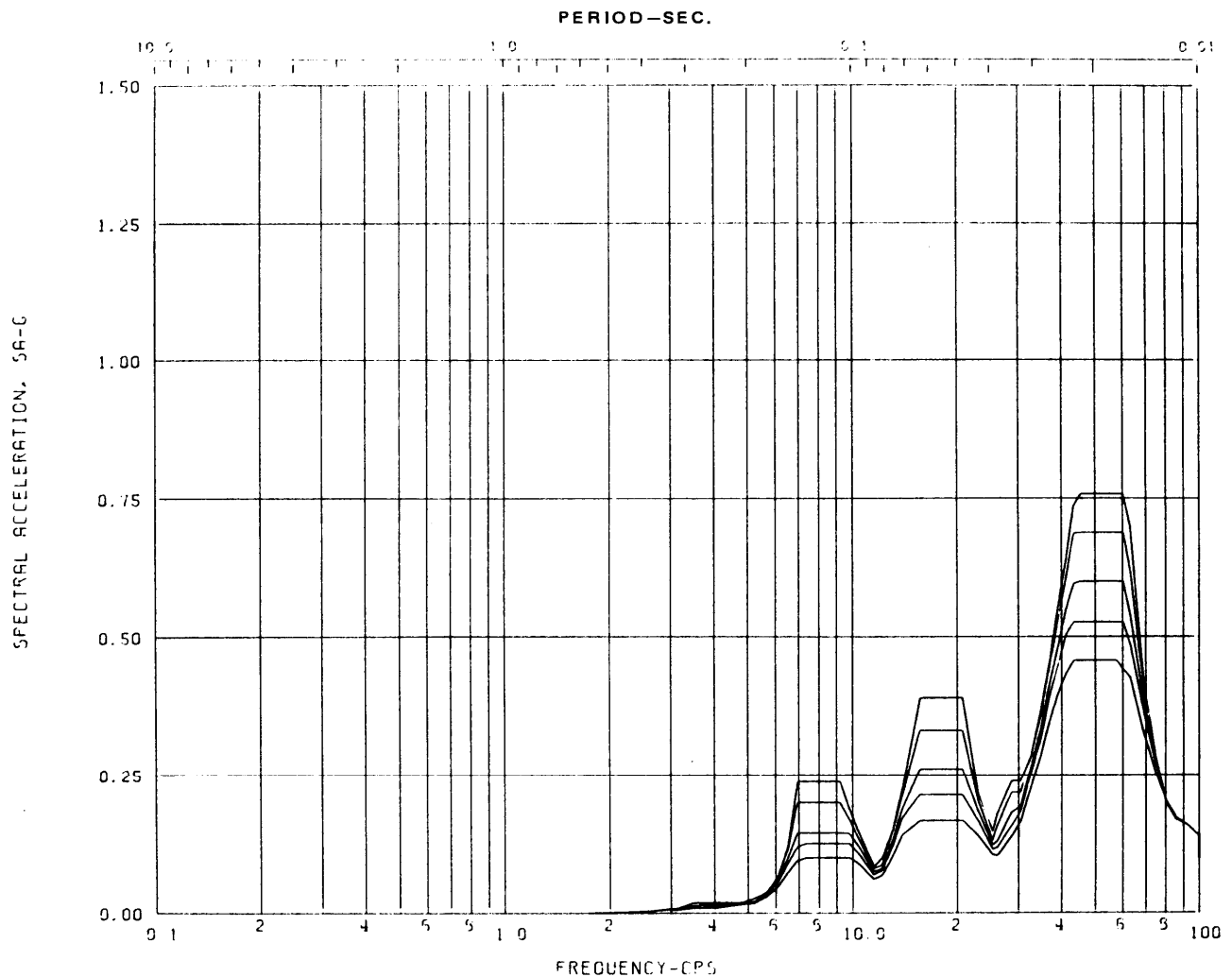
Node: 58 Direction: VERTICAL Elev: 283'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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CHUG AXISYMMETRIC**

**FIGURE 3A-261**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

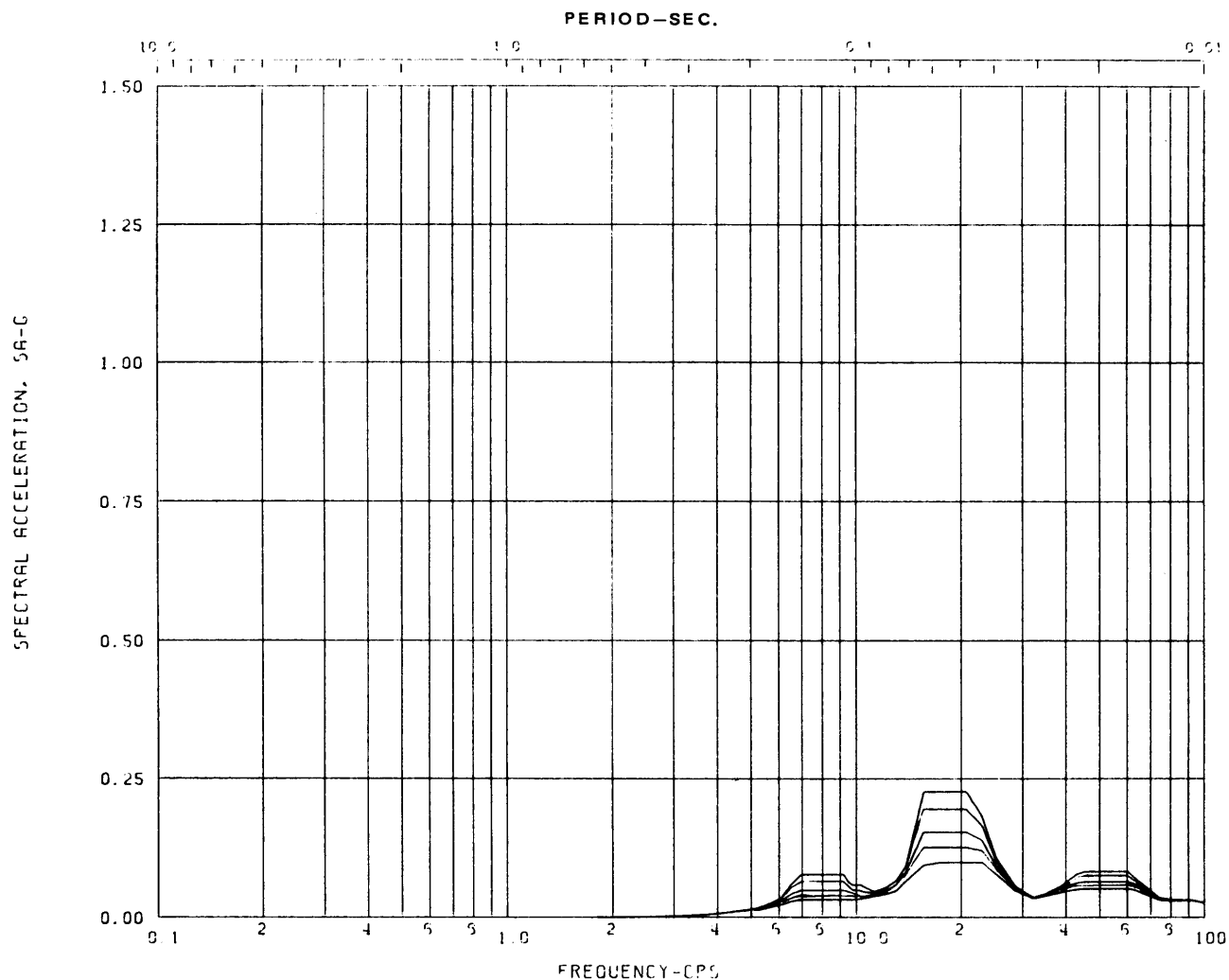
Node: 60 Direction: VERTICAL Elev: 283'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-262**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

Node: 56 Direction: VERTICAL Elev: 304'

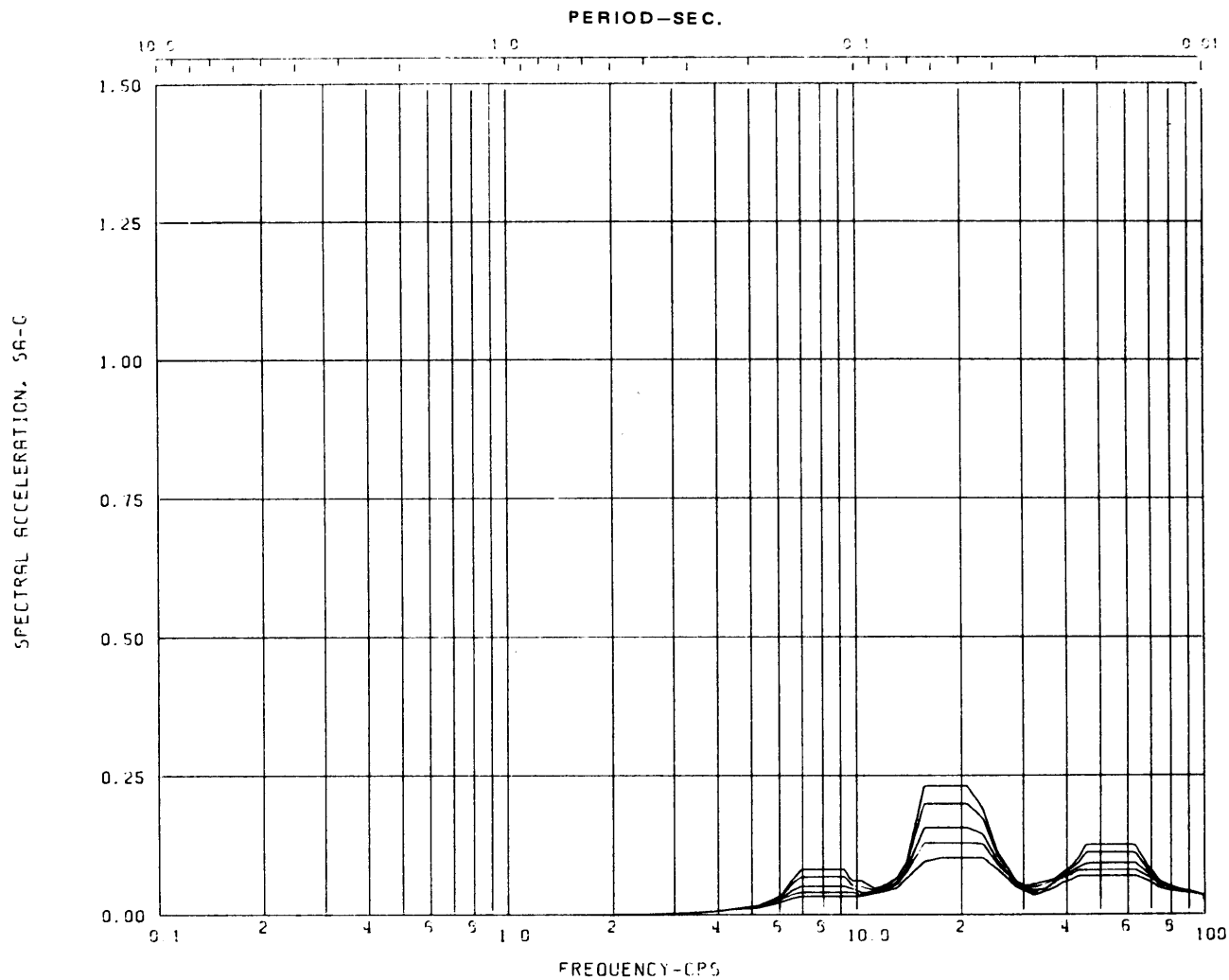
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-263**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

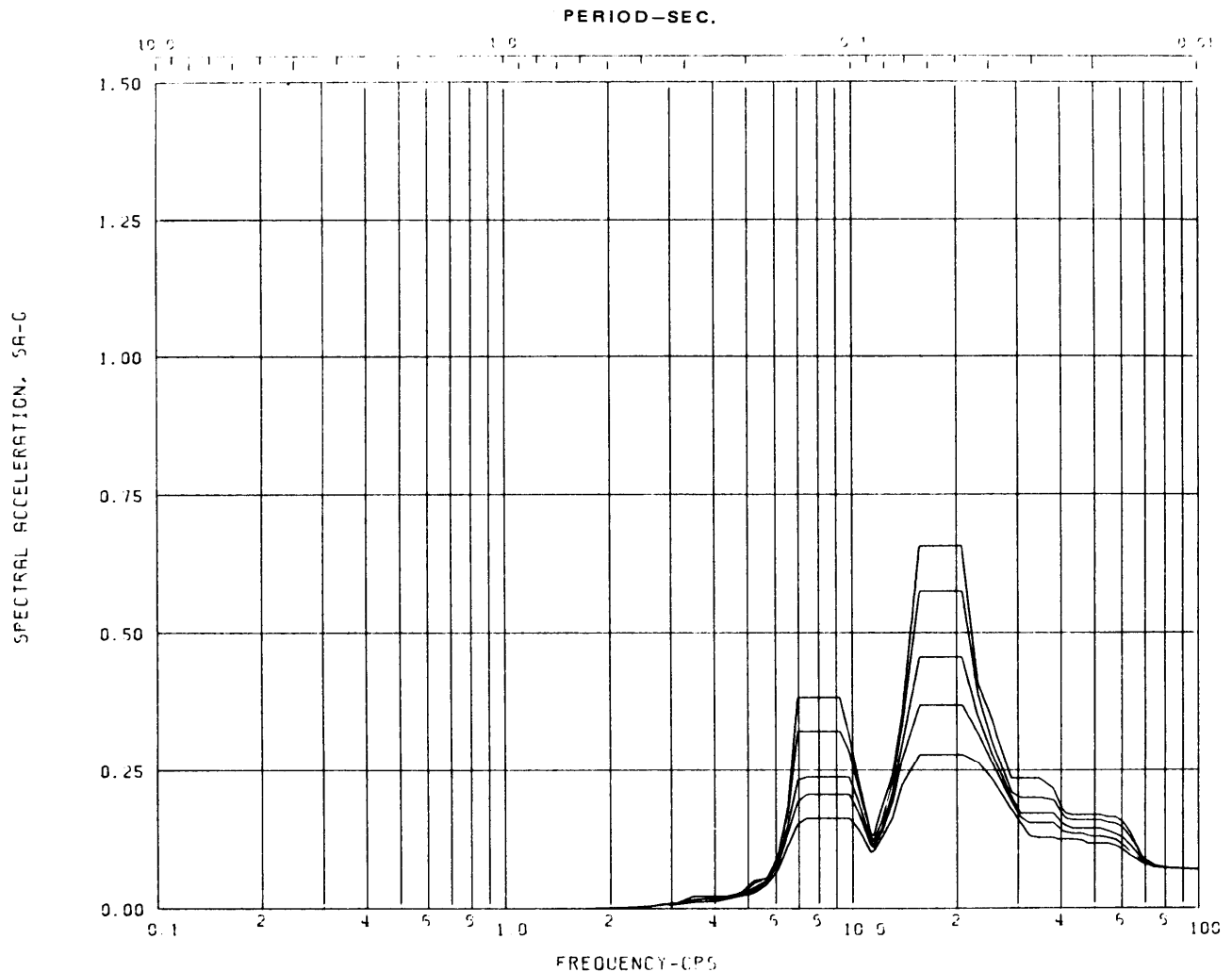
Node: 35 Direction: VERTICAL Elev: 313'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-264**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

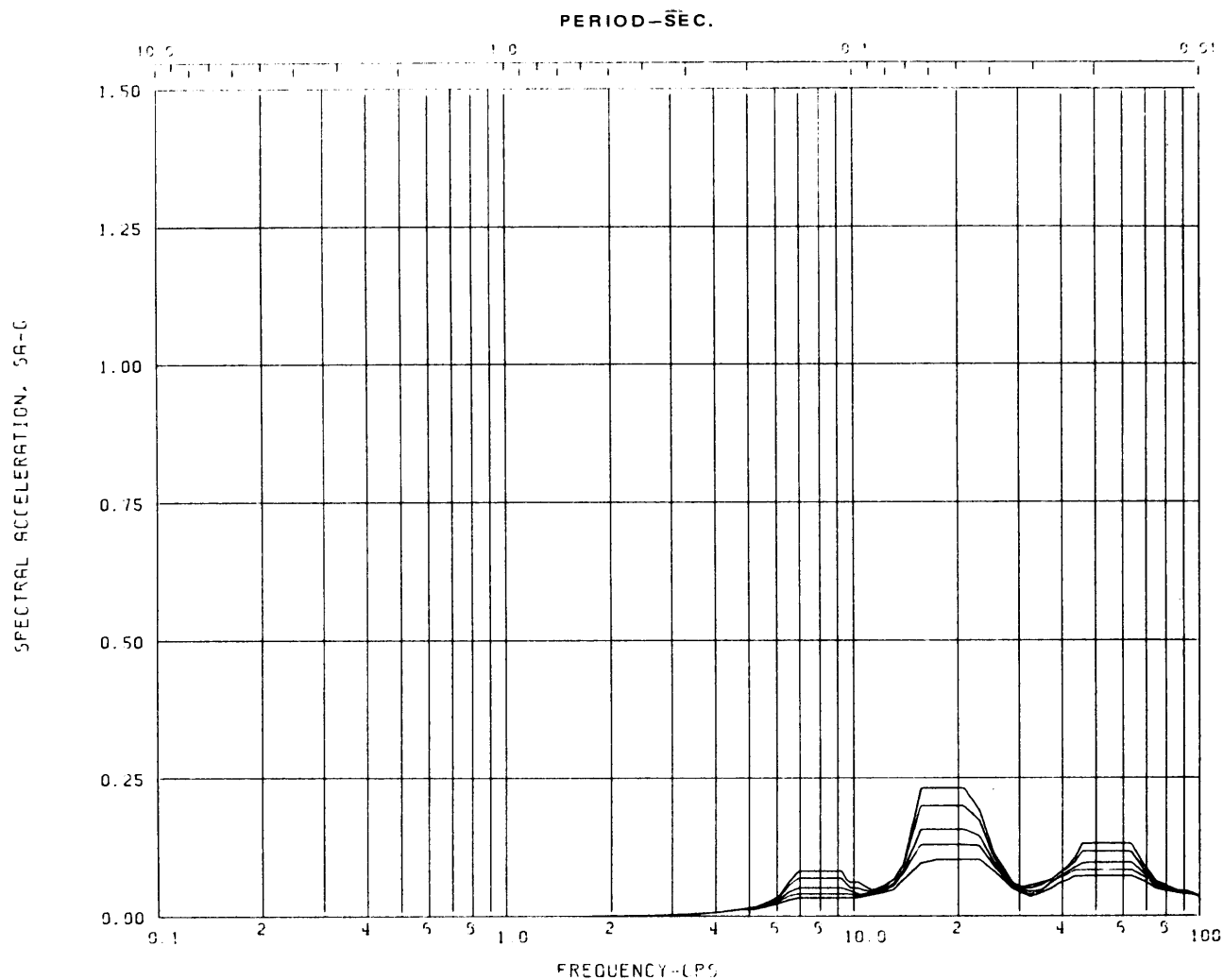
Node: 43 Direction: VERTICAL Elev: 313'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-265**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

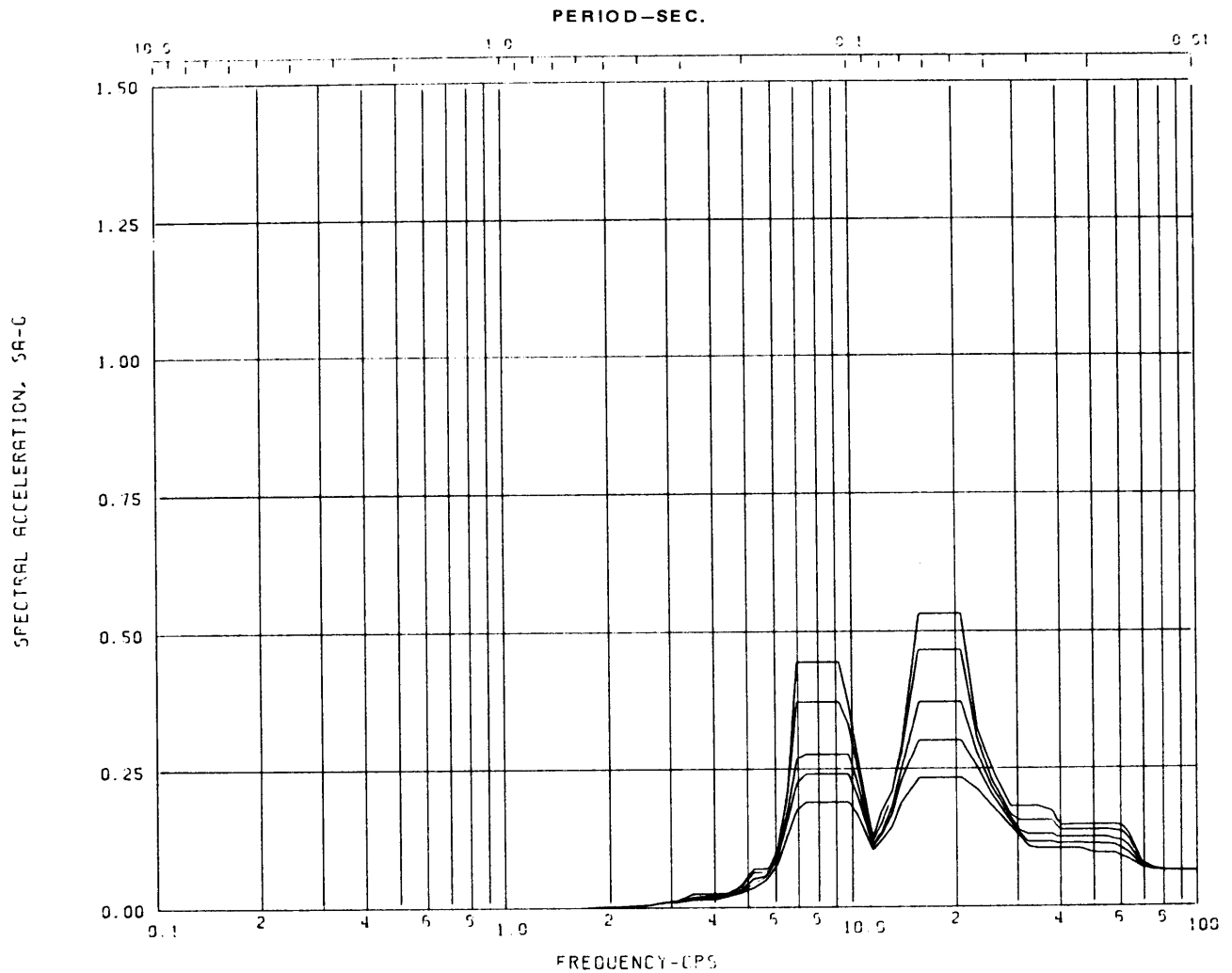
Node: 21 Direction: VERTICAL Elev: 333'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-266**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIFS ENVELOPE (WIDENED - 15%)

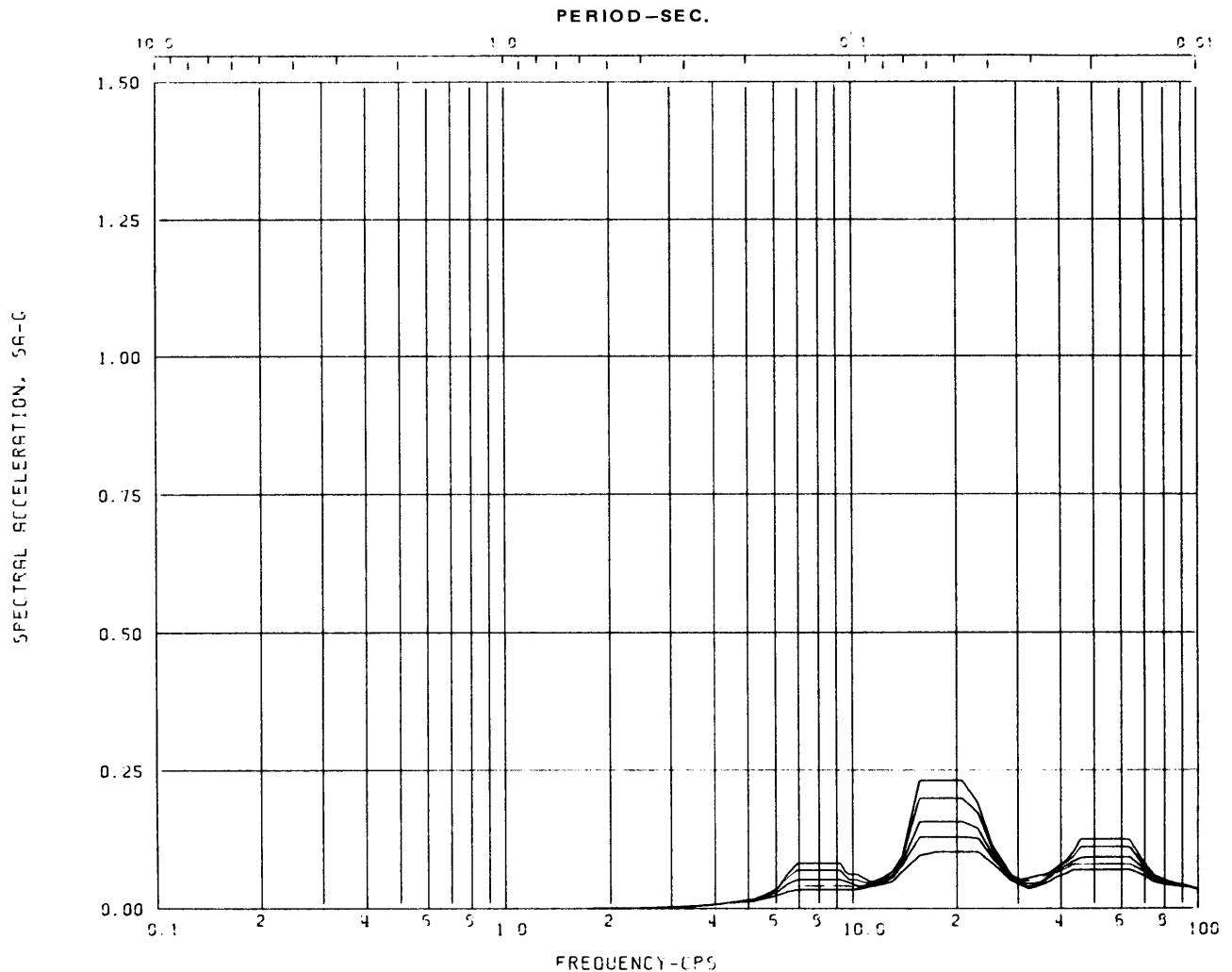
Node: 33 Direction: VERTICAL Elev: 333'

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-267**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

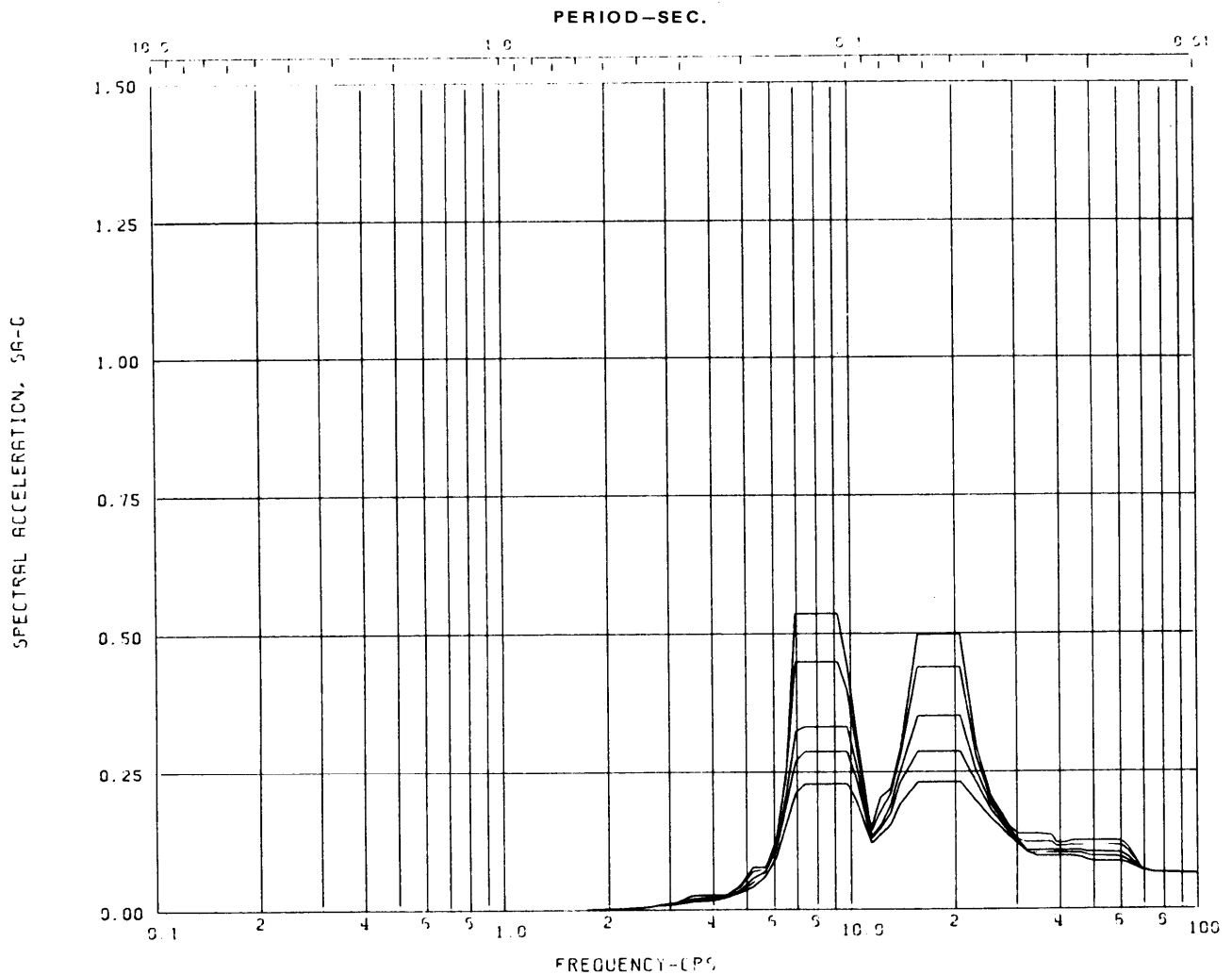
Node: 9 Direction: VERTICAL Elev: 352'

Damping: 0.005,0.01,0.02,0.03,0.05

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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-268**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

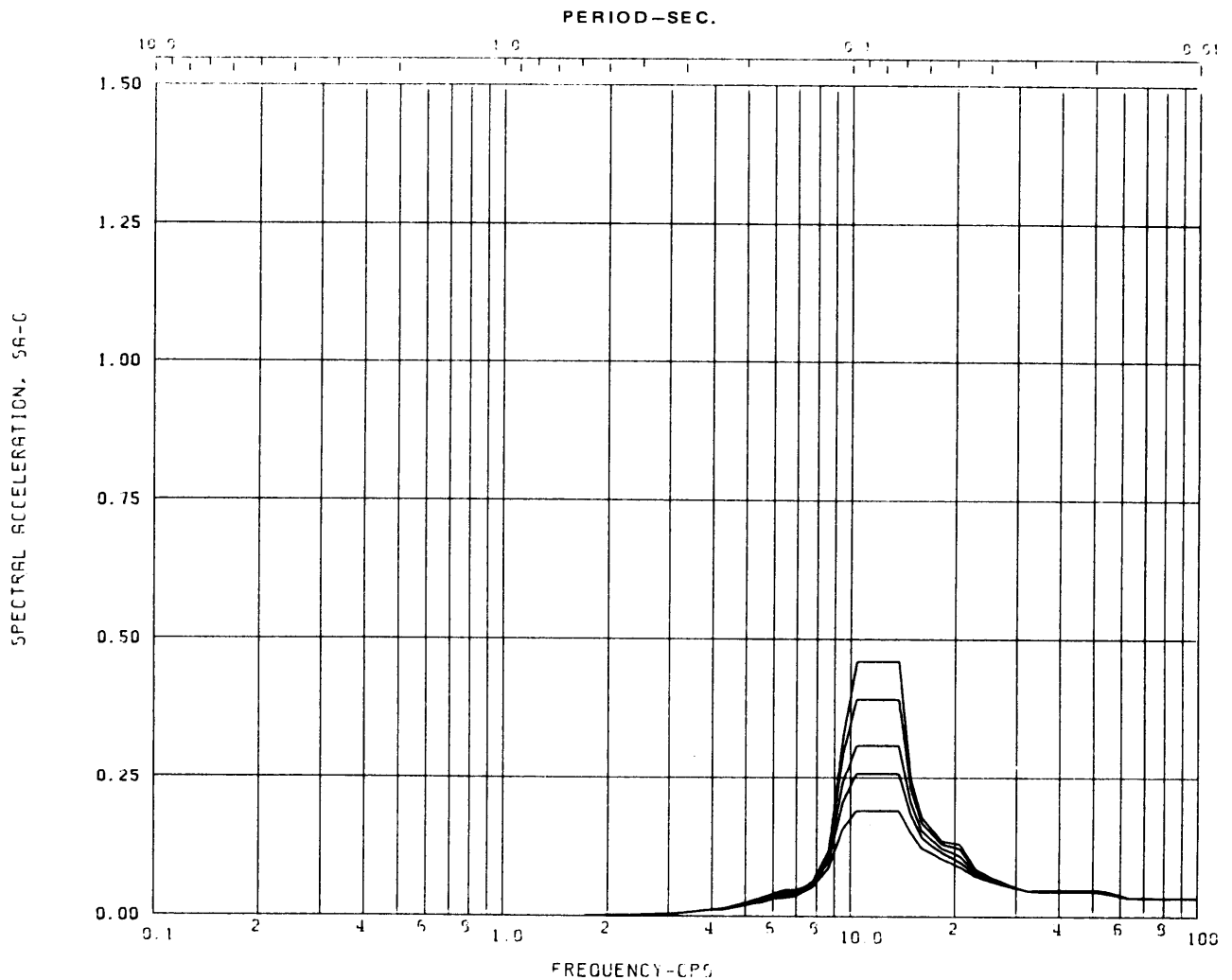
Node: 13 Direction: VERTICAL Elev: 352'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-269**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIFS ENVELOPE (WIDENED - 15%)

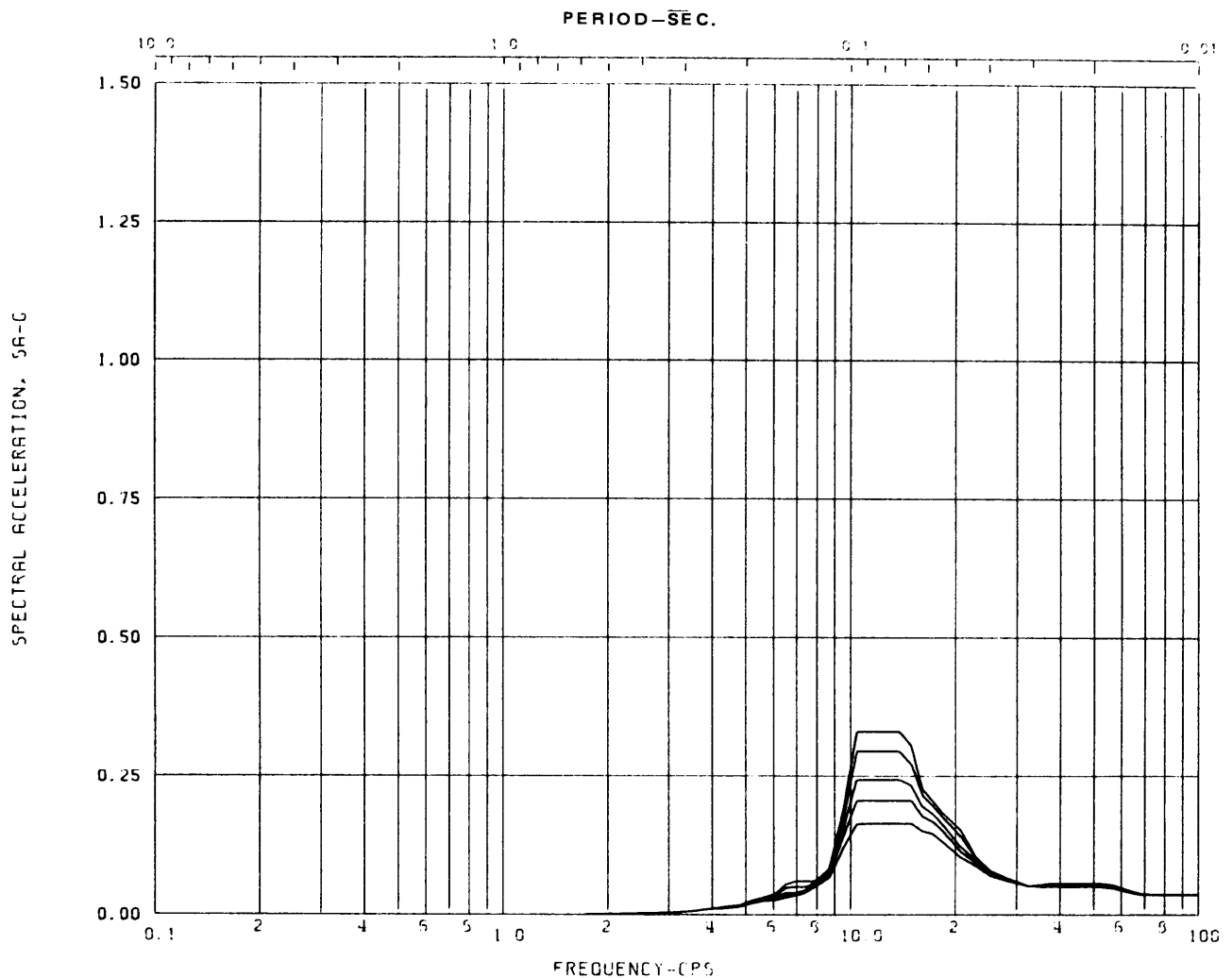
Node: 129 Direction: VERTICAL Elev: 201'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-270**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

Node: 107 Direction: VERTICAL Elev: 217'

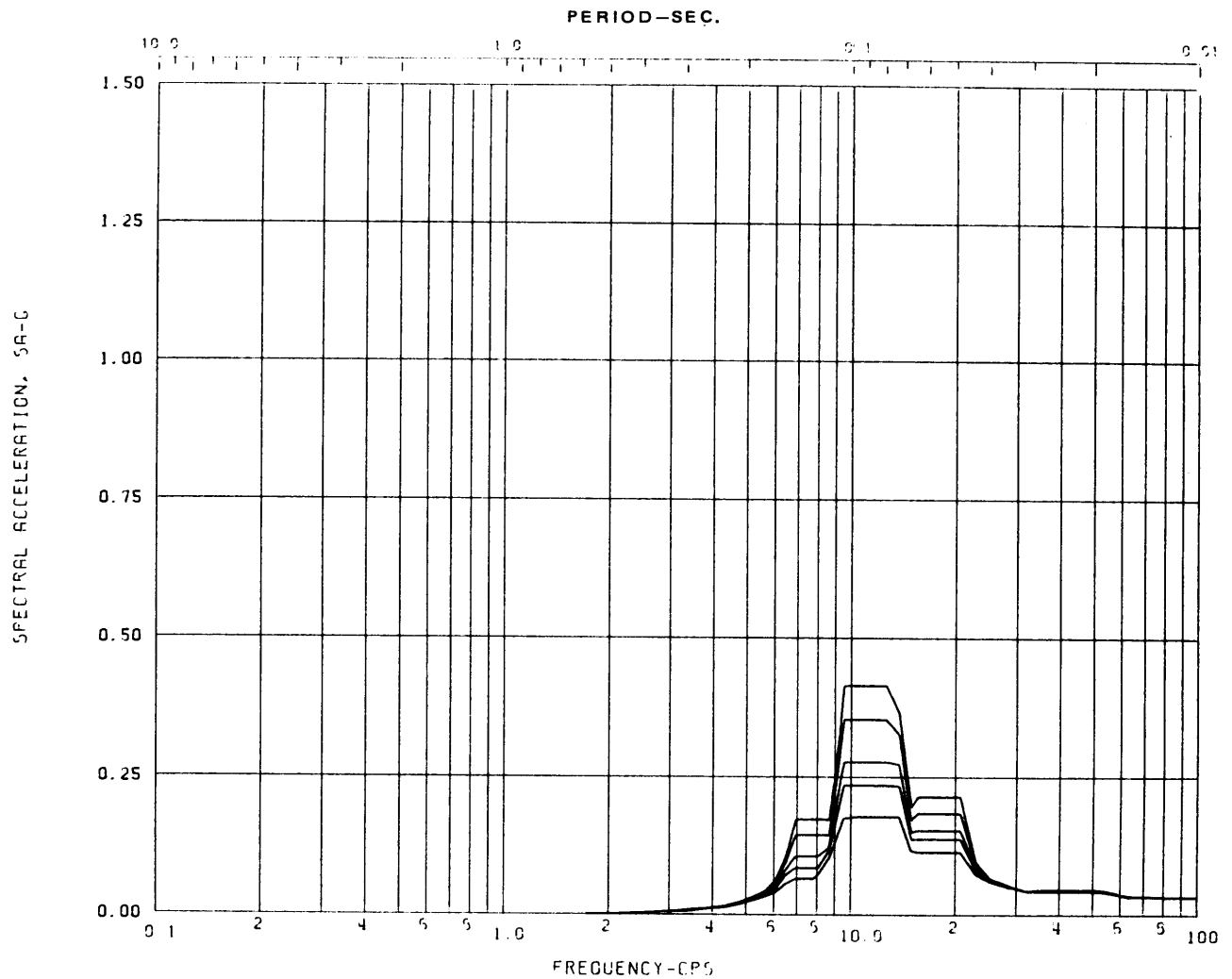
Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG AXISYMMETRIC

FIGURE 3A-271





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

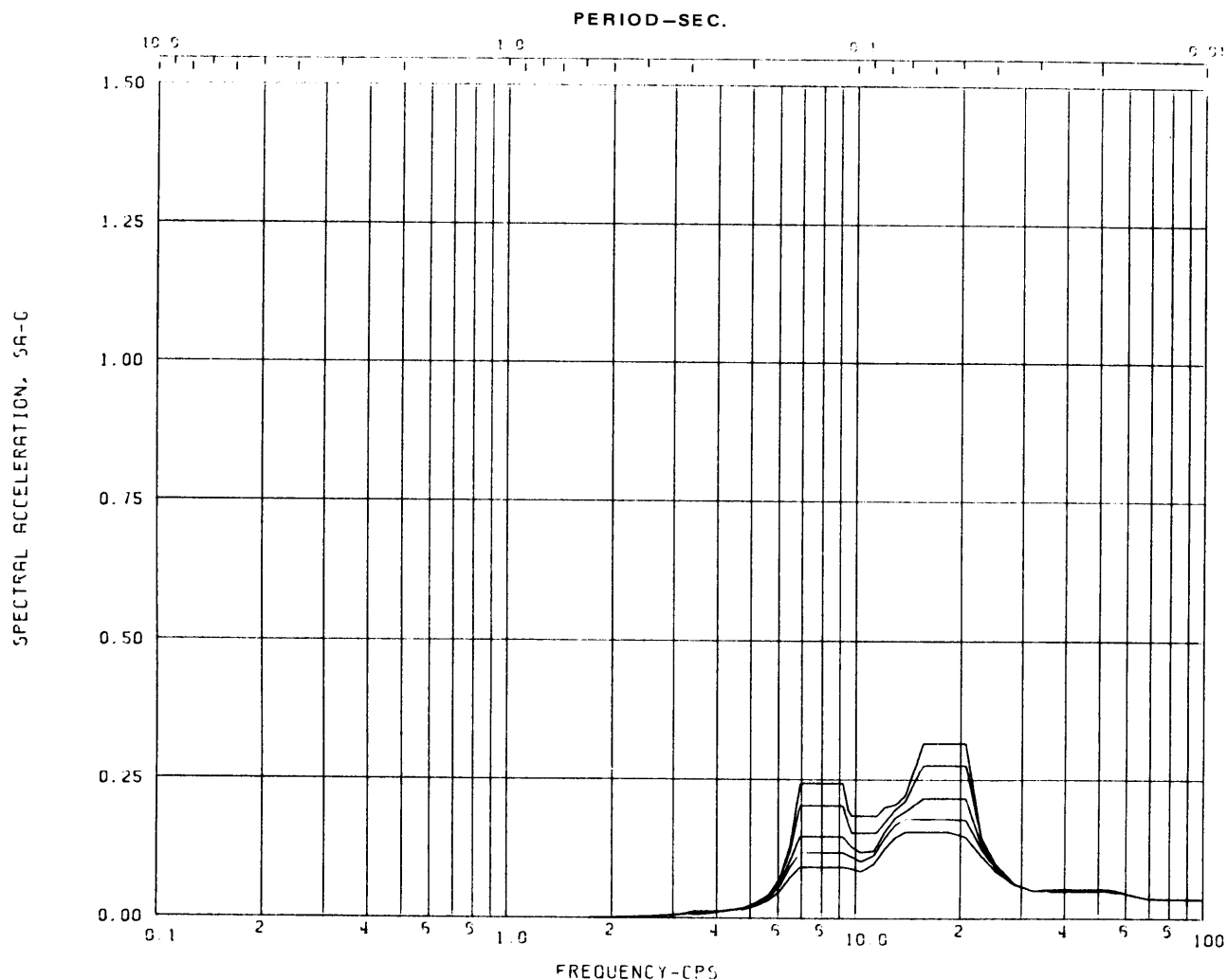
Node: 80 Direction: VERTICAL Elev: 253'

Damping: 0.005,0.01,0.02,0.03,0.05

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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-272**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

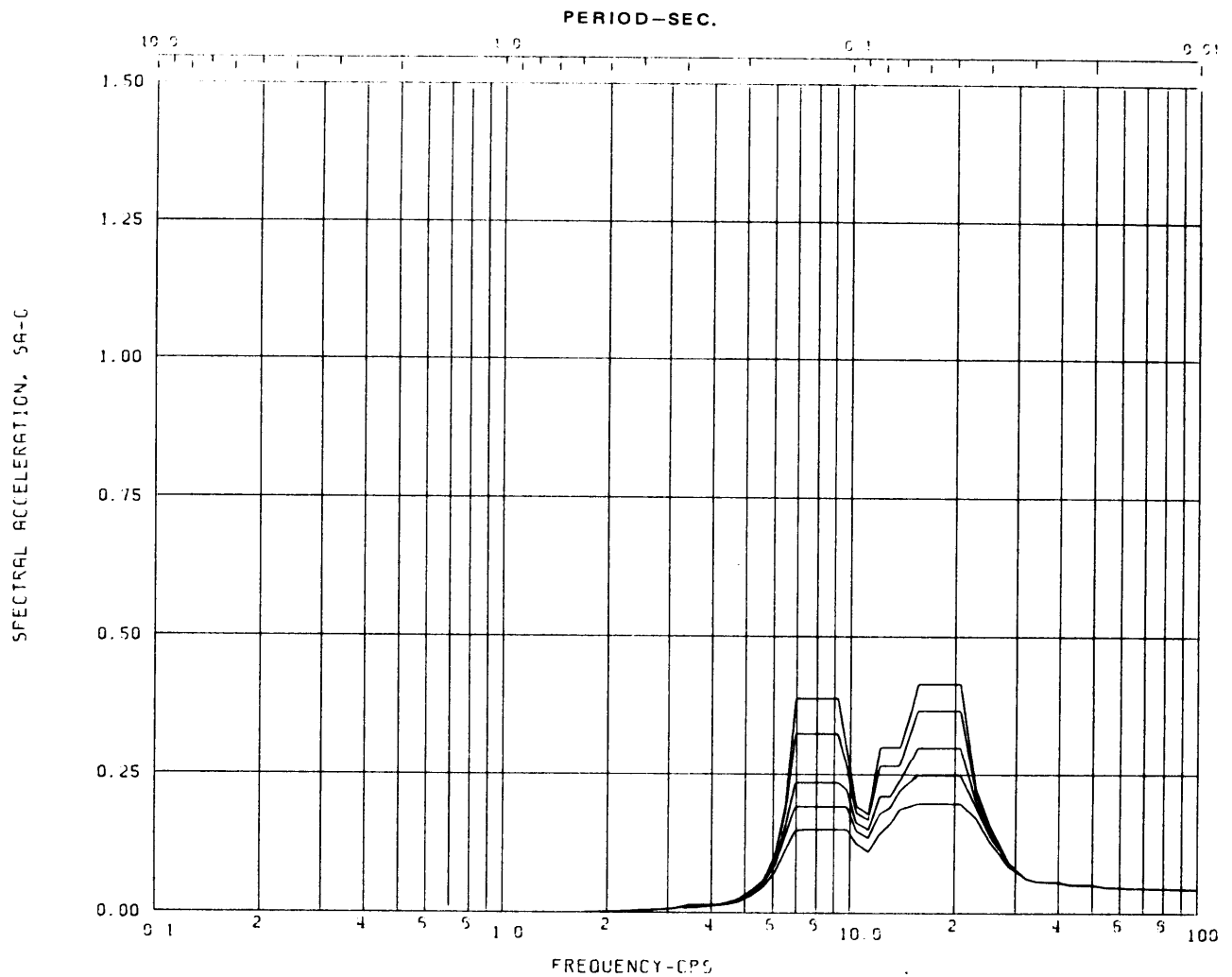
Node: 59 Direction: VERTICAL Elev: 283'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-273**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

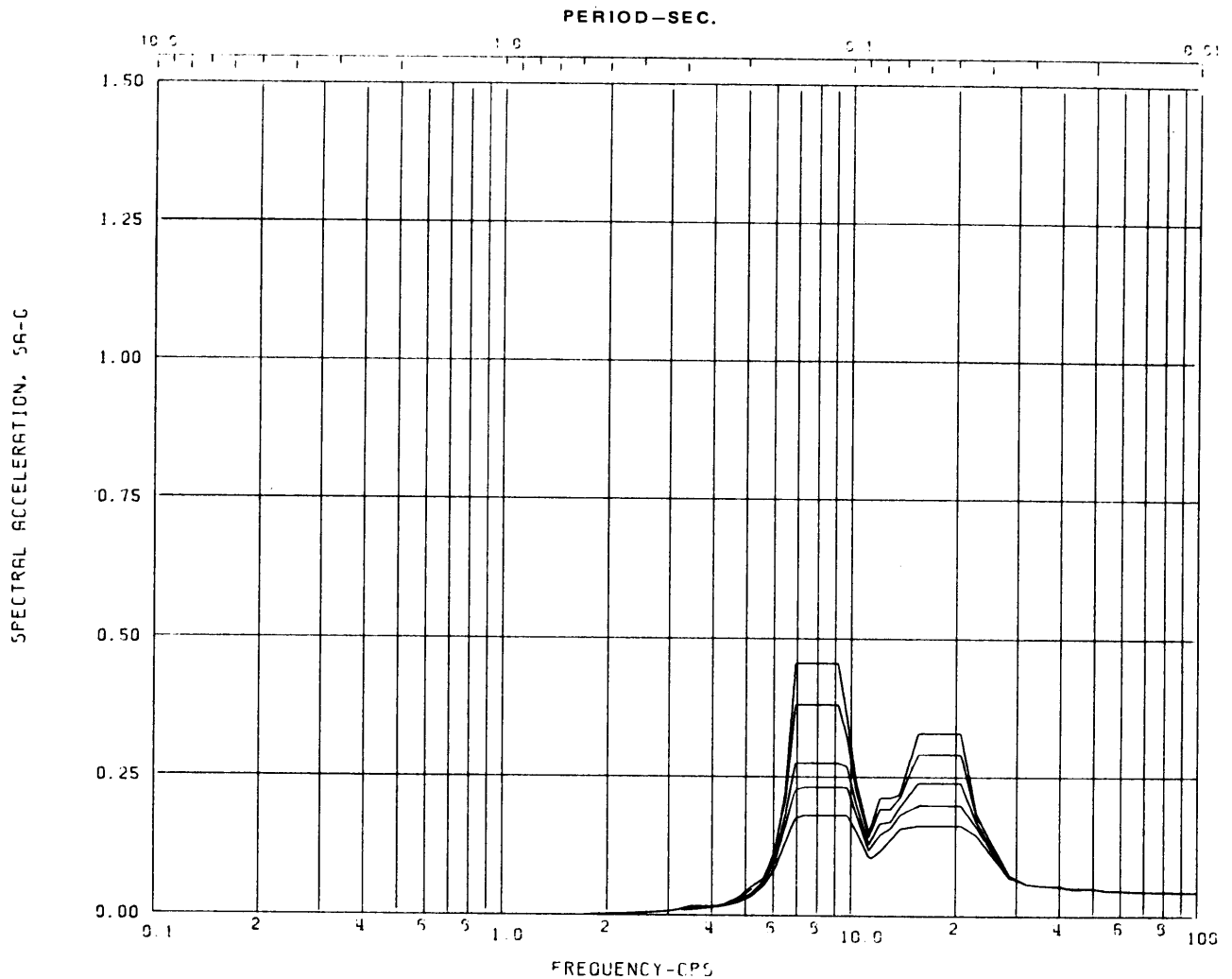
Node: 54 Direction: VERTICAL Elev: 313'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-274**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIFS ENVELOPE (WIDENED - 15%)

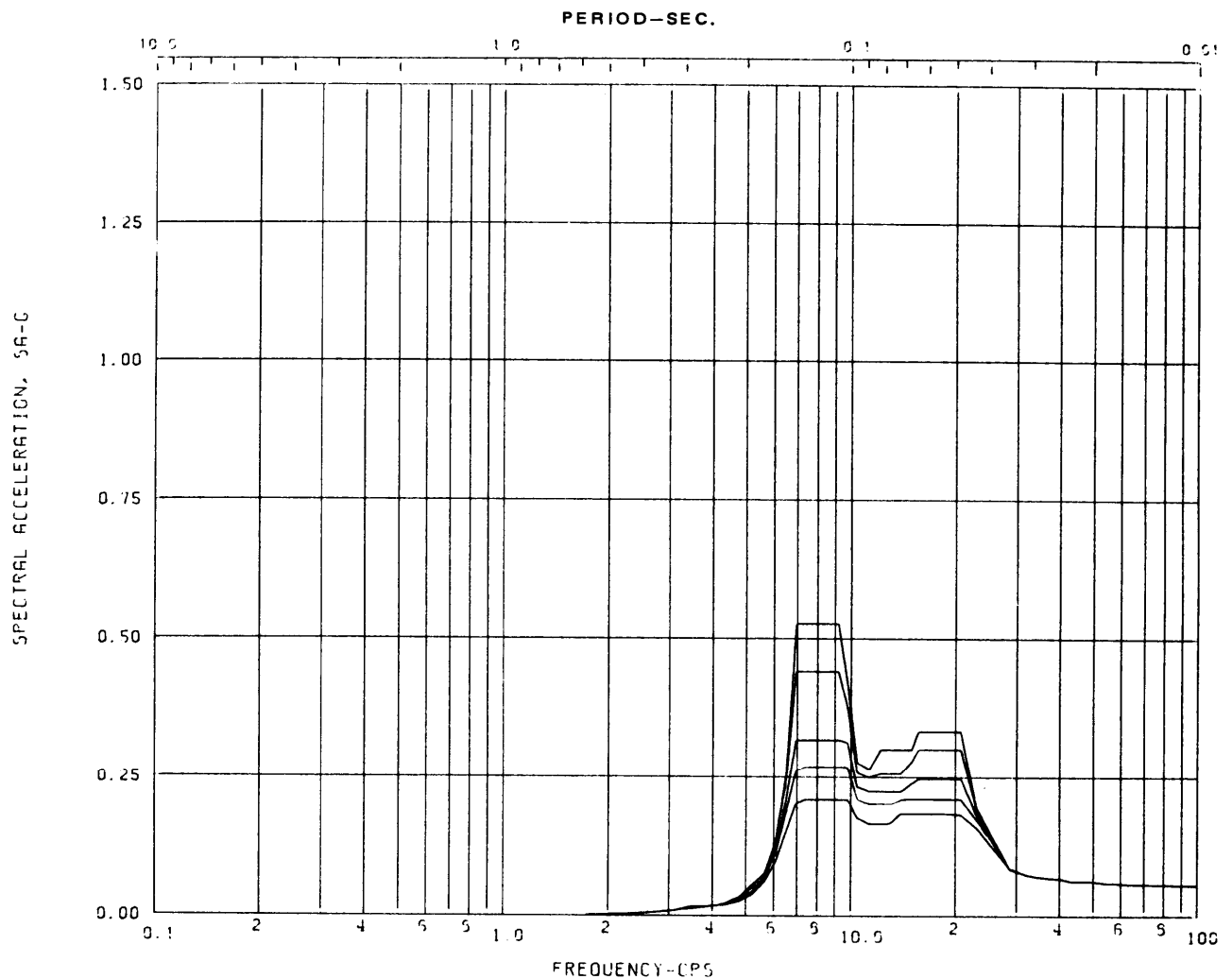
Node: 32 Direction: VERTICAL Elev: 333'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-275**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIFS ENVELOPE (WIDENED - 15%)

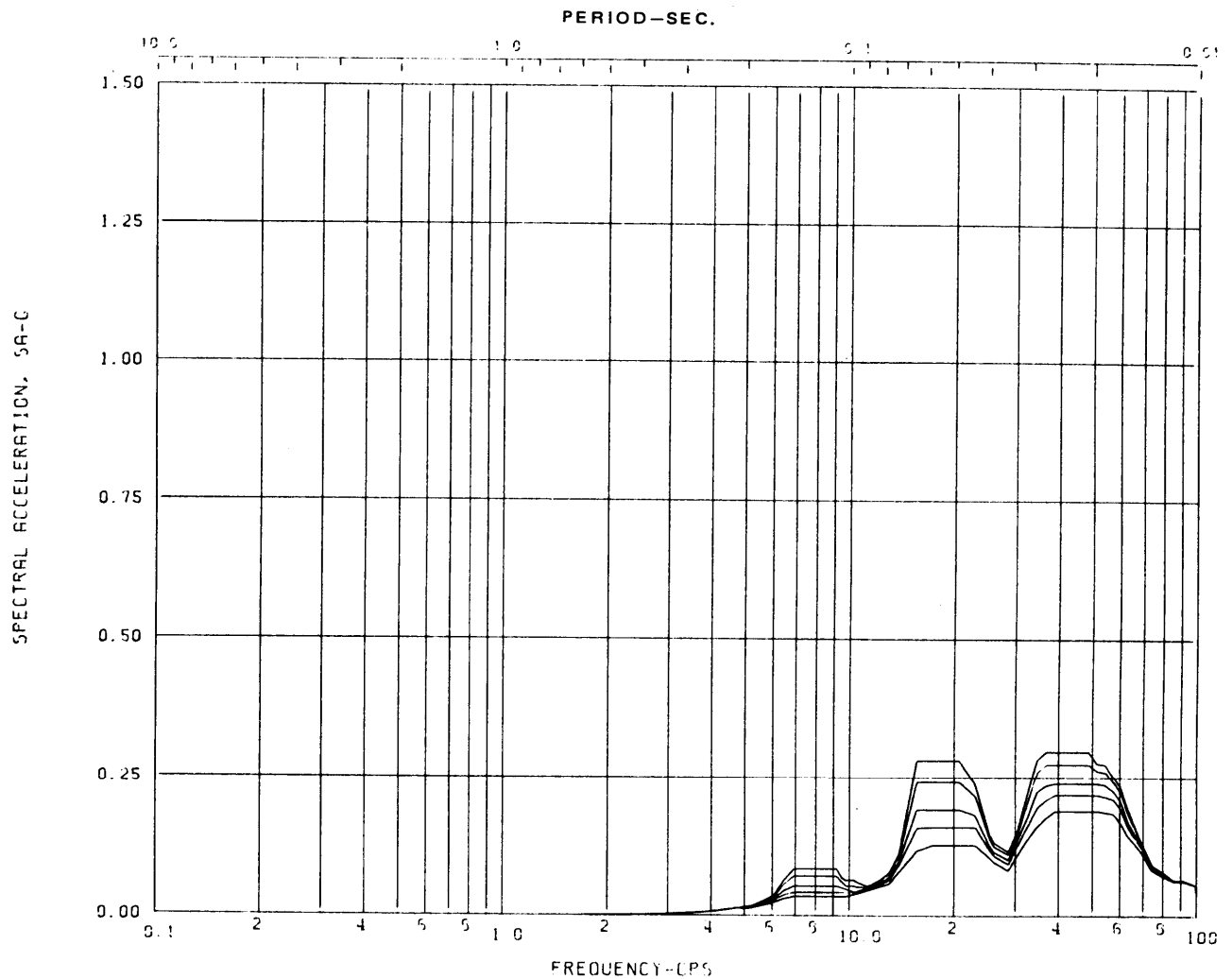
Node: 12 Direction: VERTICAL Elev: 352'

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-276**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC CHUGGING GE700 SERIES ENVELOPE (WIDENED - 15%)

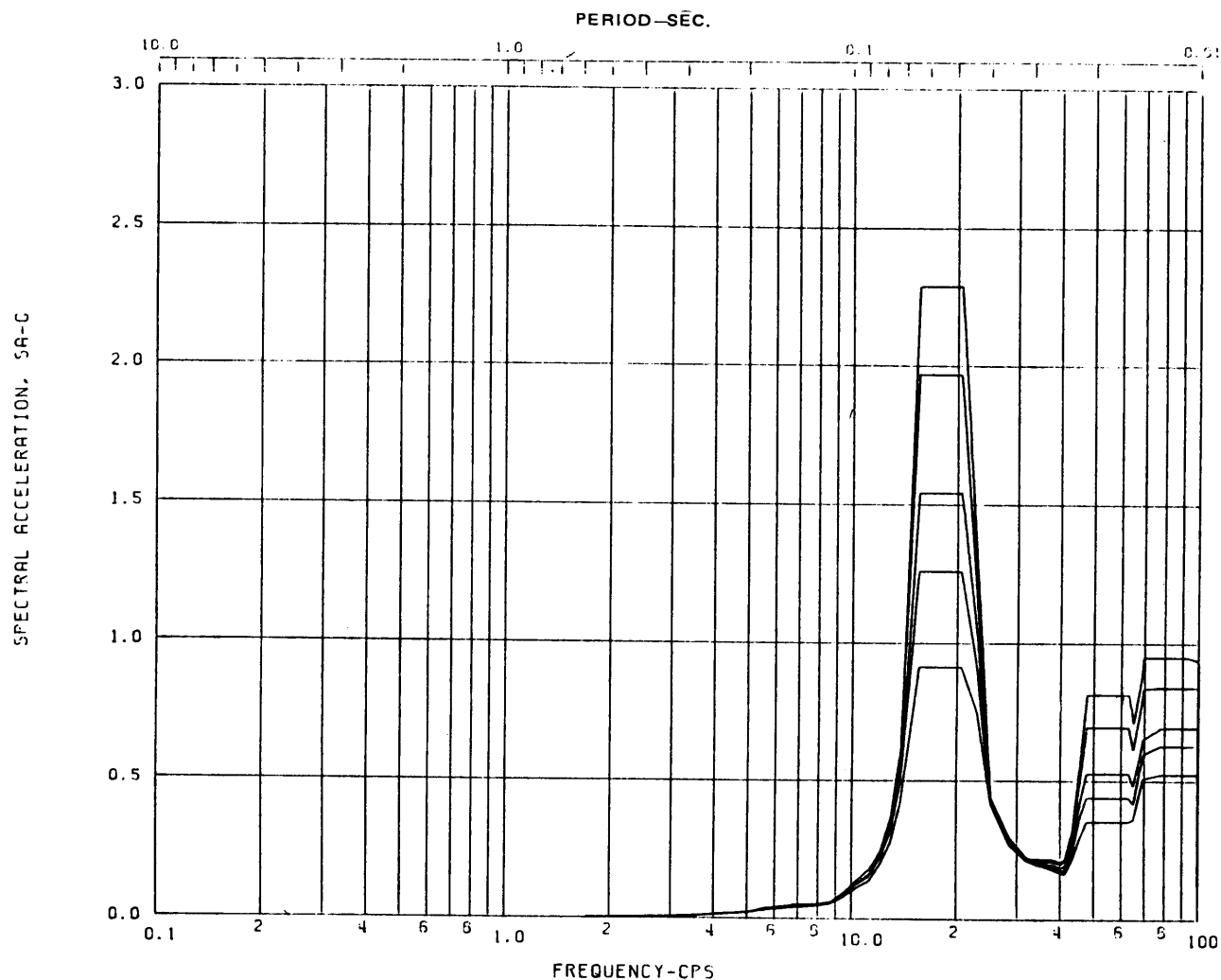
Node: 6 Direction: VERTICAL Elev: 410'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-277**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

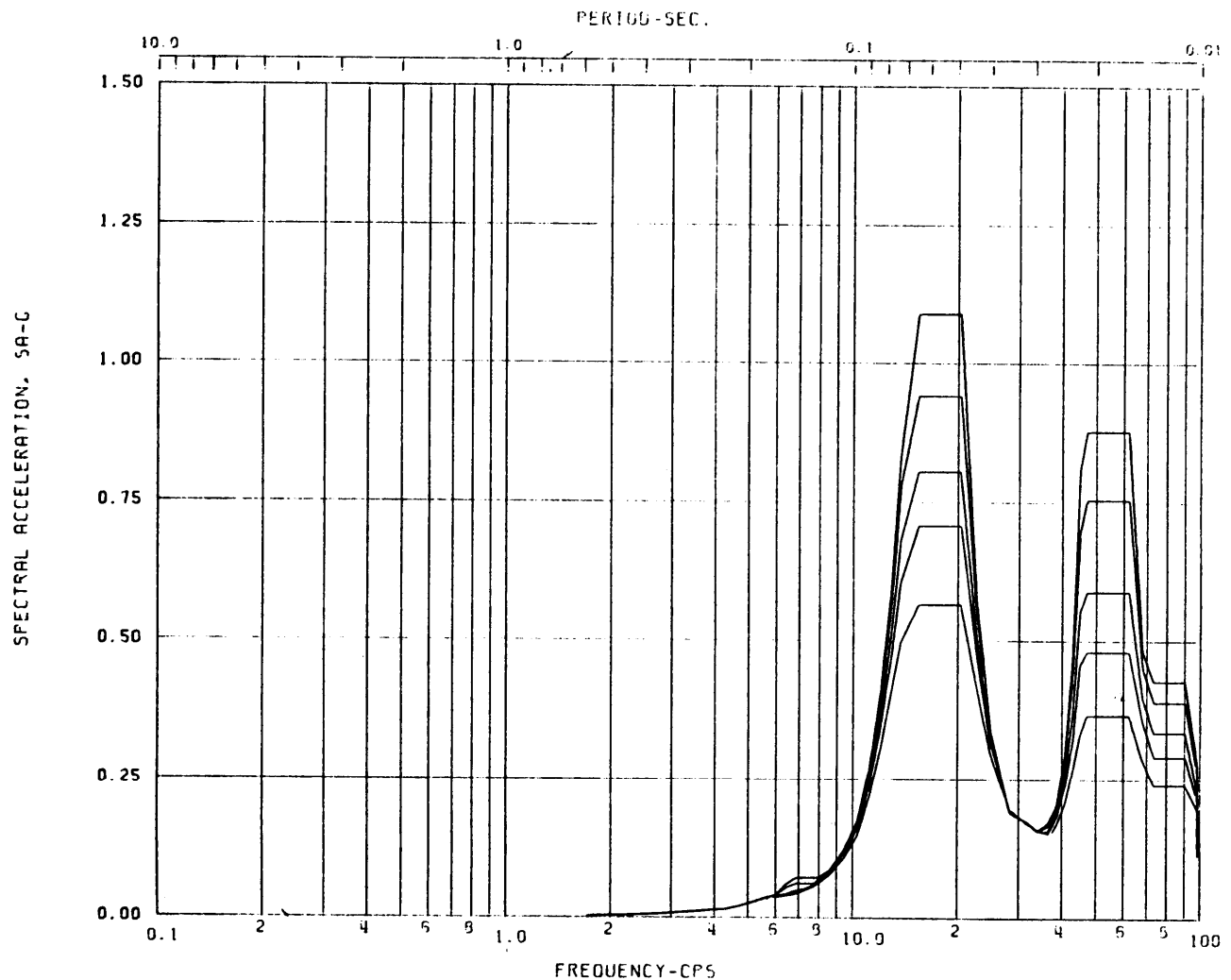
Node: 19 Direction: VERTICAL Elev: 217'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE LOCAL  
RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-278**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

Node: 19 Direction: VERTICAL Elev: 239'

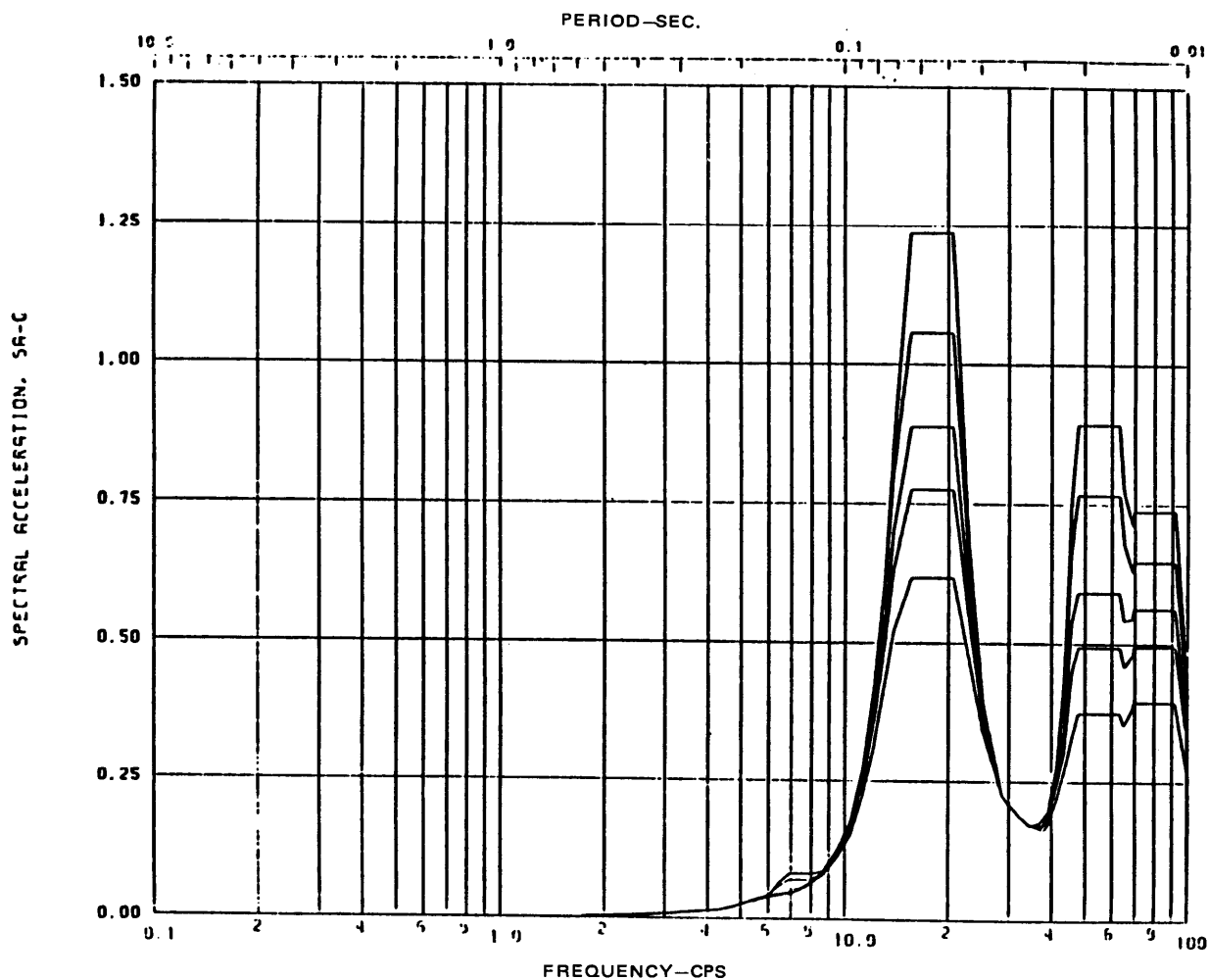
Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-279**





Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

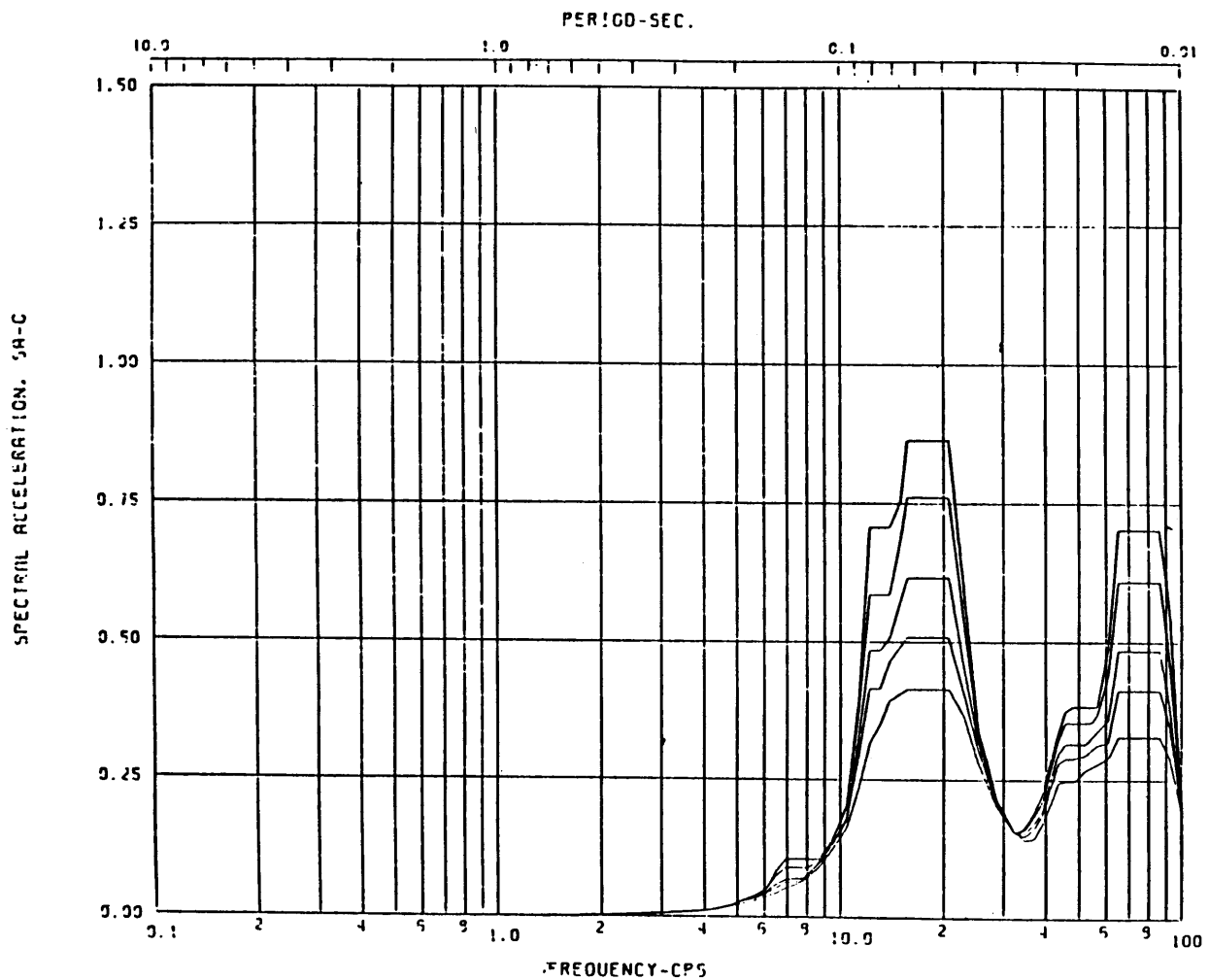
Node: 19 Direction: VERTICAL Elev: 254'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A- 280**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

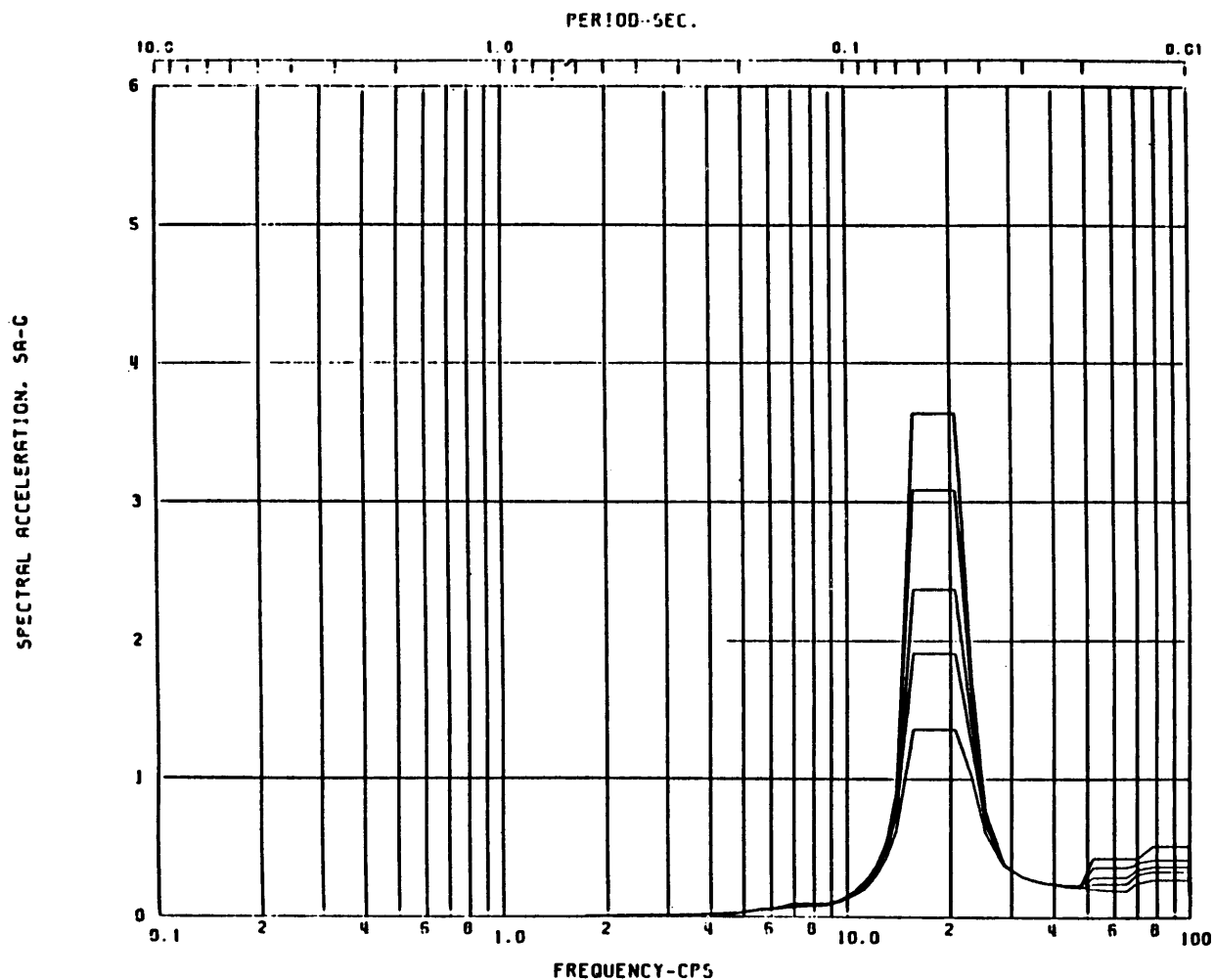
Node: 19 Direction: VERTICAL Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-281**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

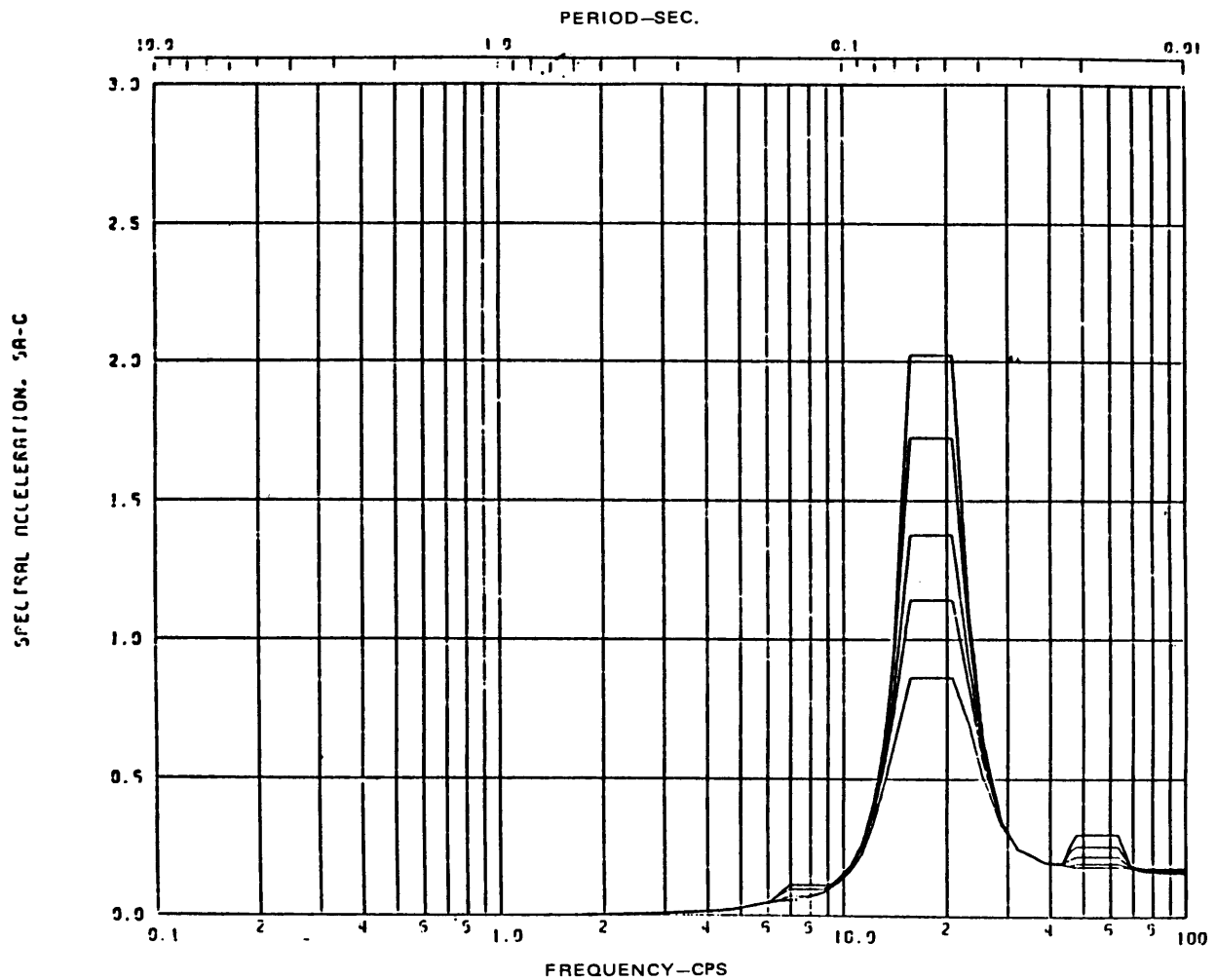
Node: 19 Direction: VERTICAL Elev: 289'

Damping: 0.005,0.01,0.02,0.03,0.05

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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC

FIGURE 3A-282



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

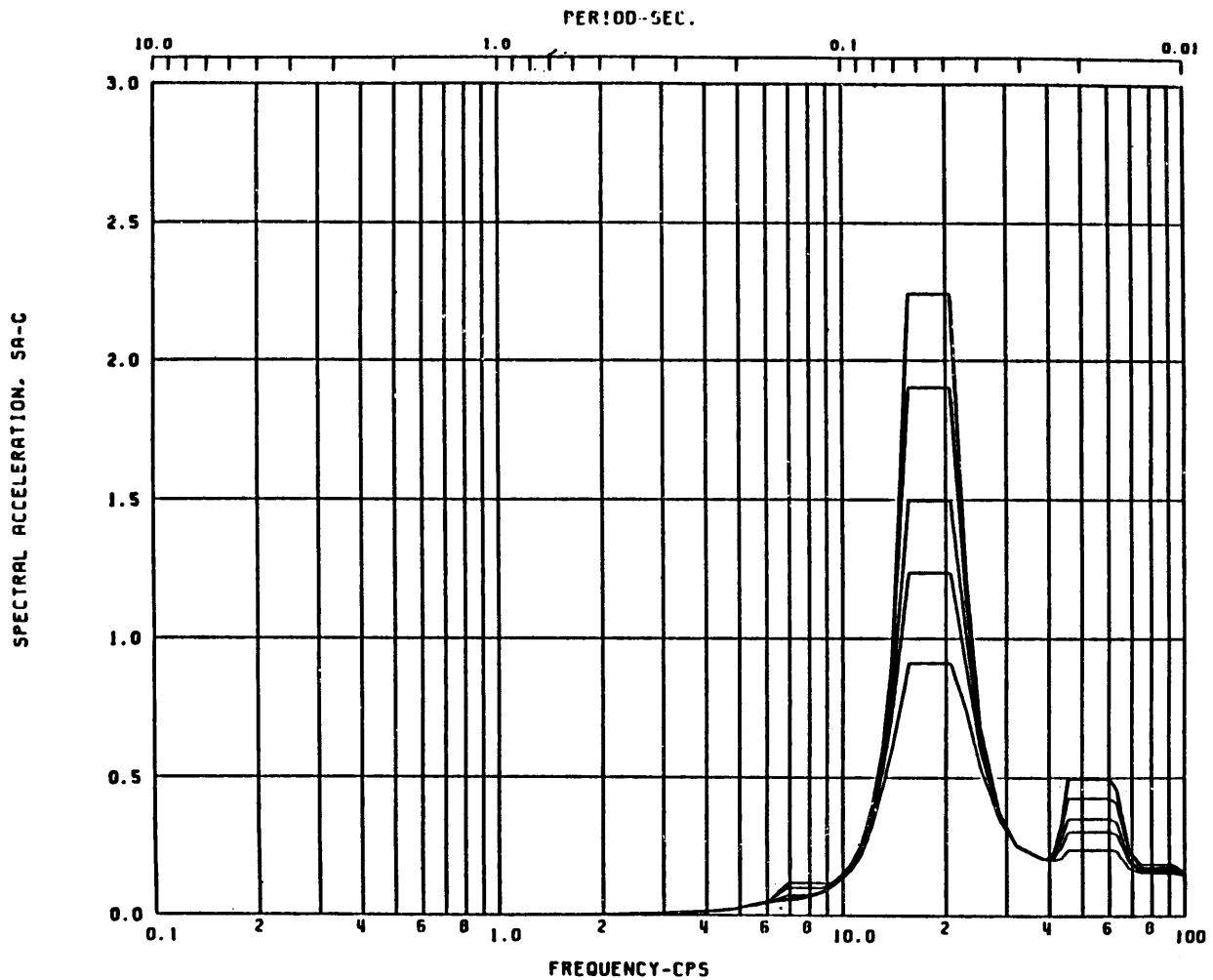
Node: 19 Direction: VERTICAL Elev: 304'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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RESPONSE SPECTRA, VERTICAL,  
CHUG AXISYMMETRIC**

**FIGURE 3A-283**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC CHUGGING GE 700 SERIES ENVELOPE (WIDENED - 15%)

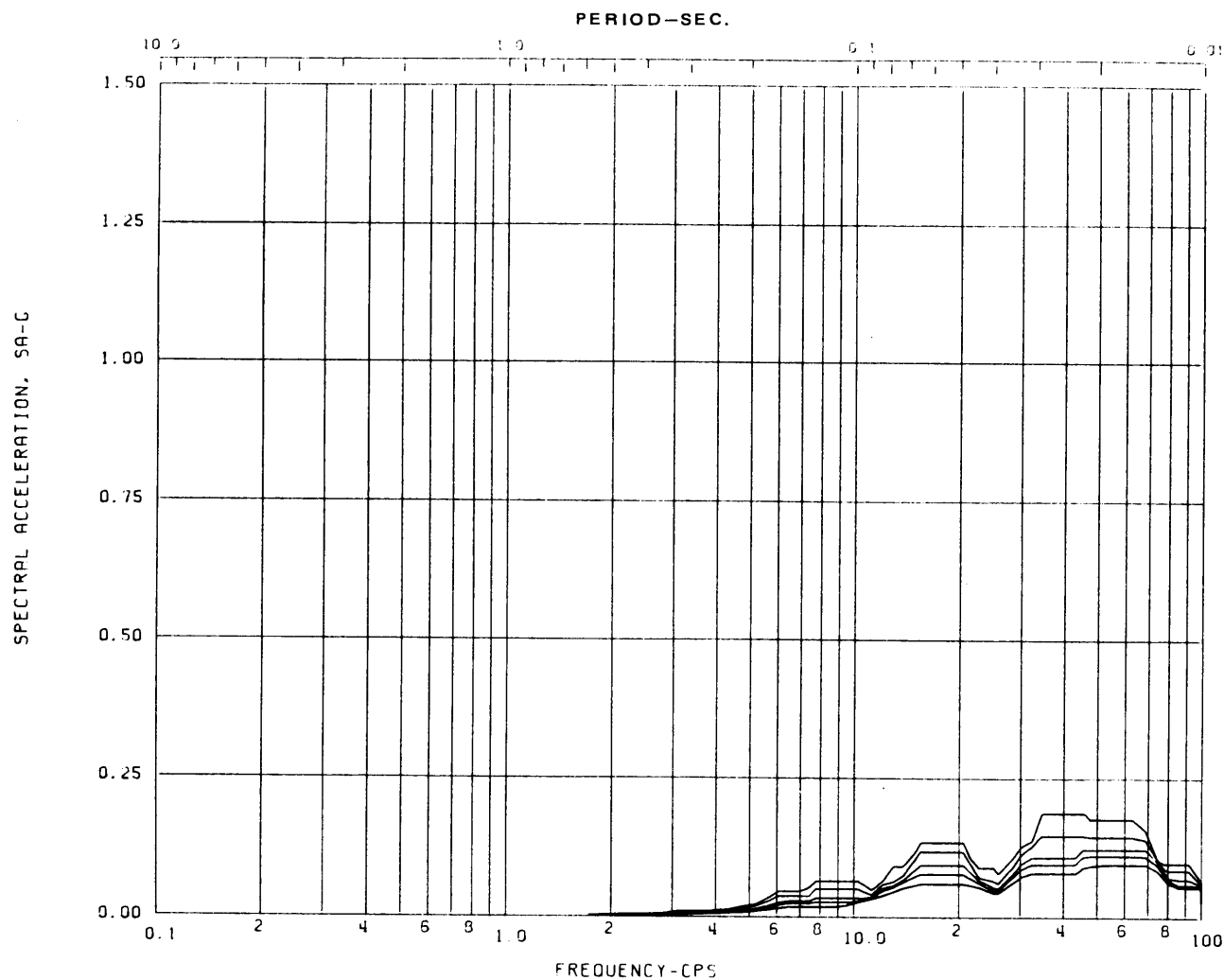
Node: 19 Direction: VERTICAL Elev: 332'

Damping: 0.005,0.01,0.02,0.03,0.05

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CHUG AXISYMMETRIC**

**FIGURE 3A-284**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

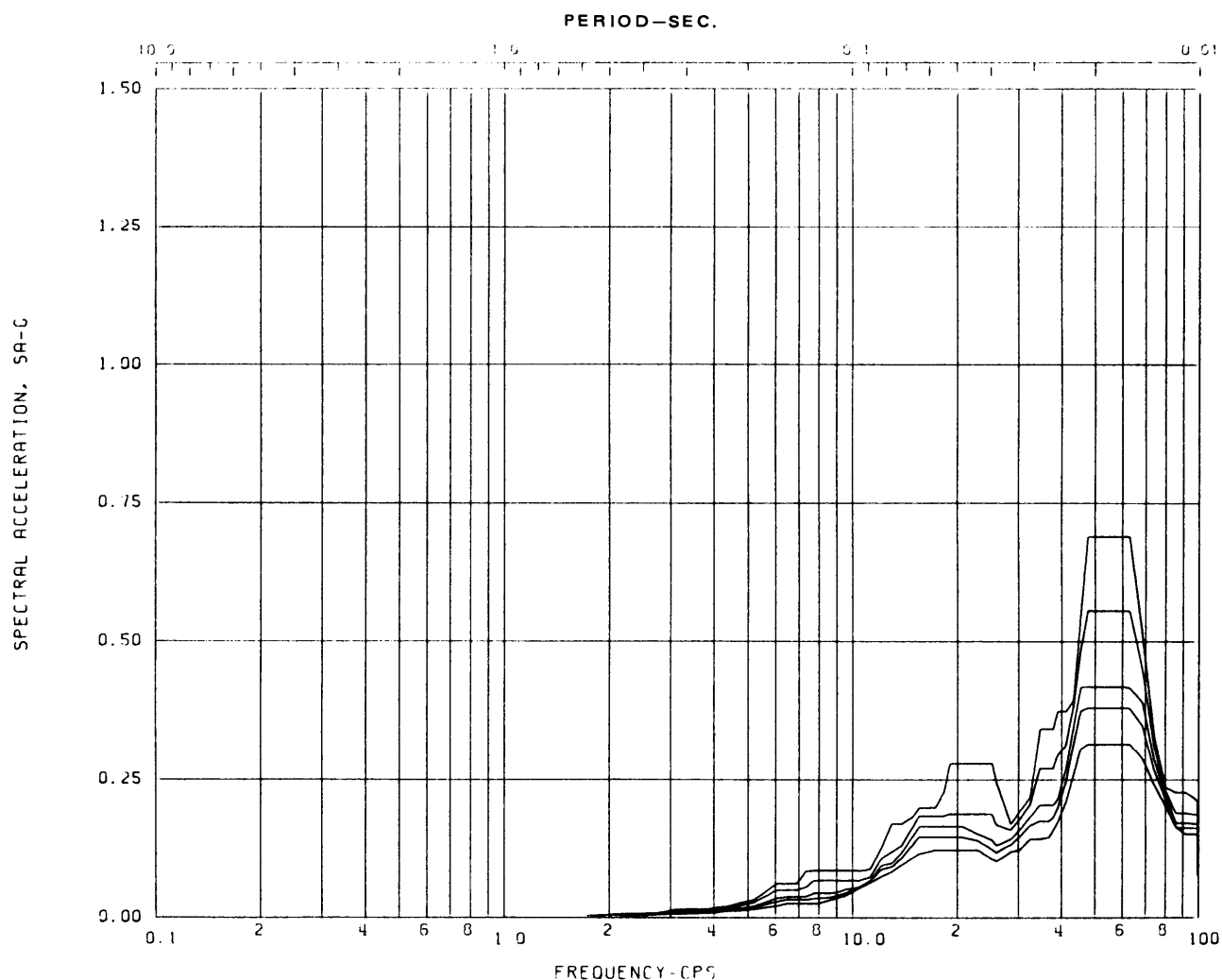
Node: 159 Direction: VERTICAL Elev: 177'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-285**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

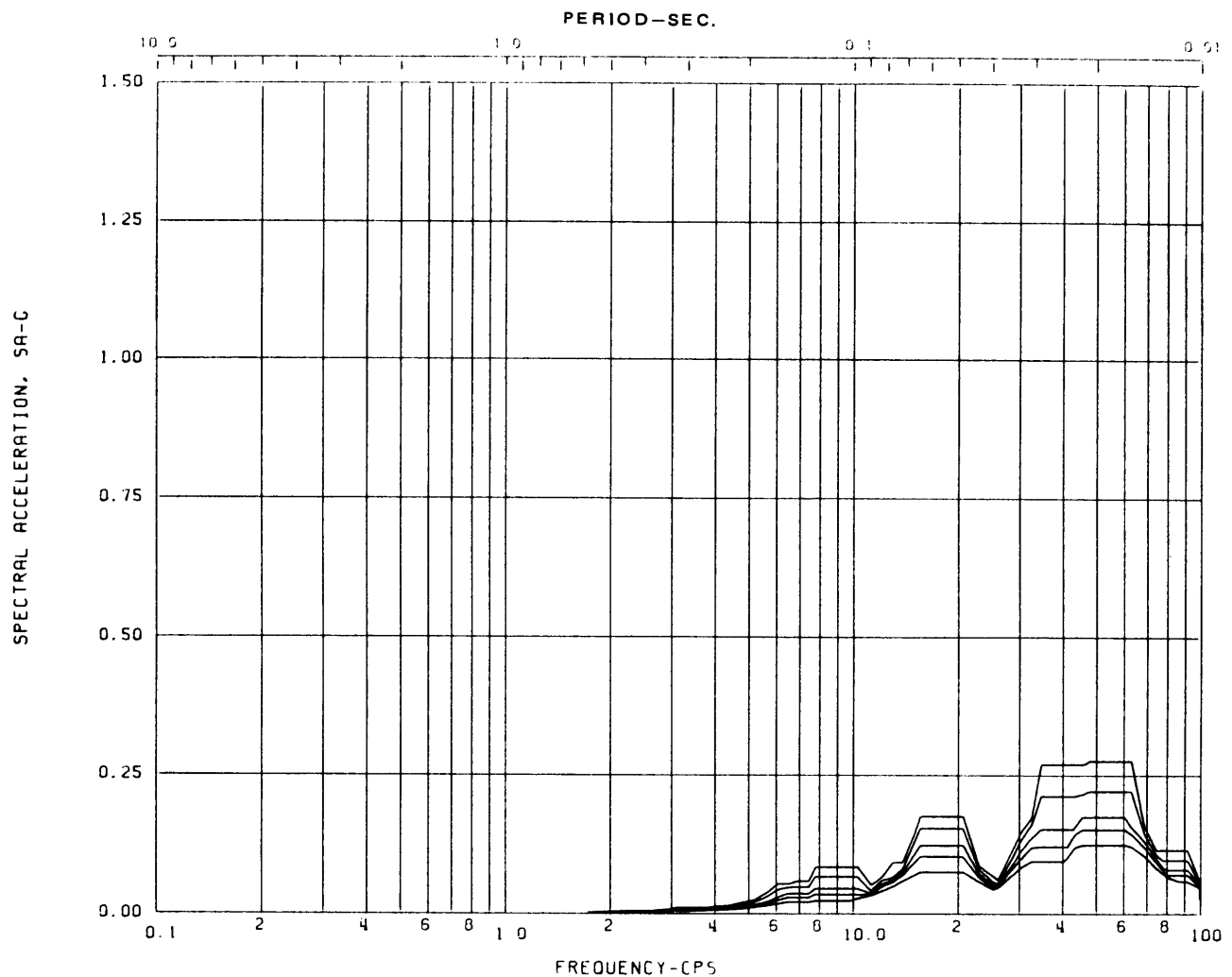
Node: 154 Direction: VERTICAL Elev: 177'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-286**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

Node: 128 Direction: VERTICAL Elev: 201'-0

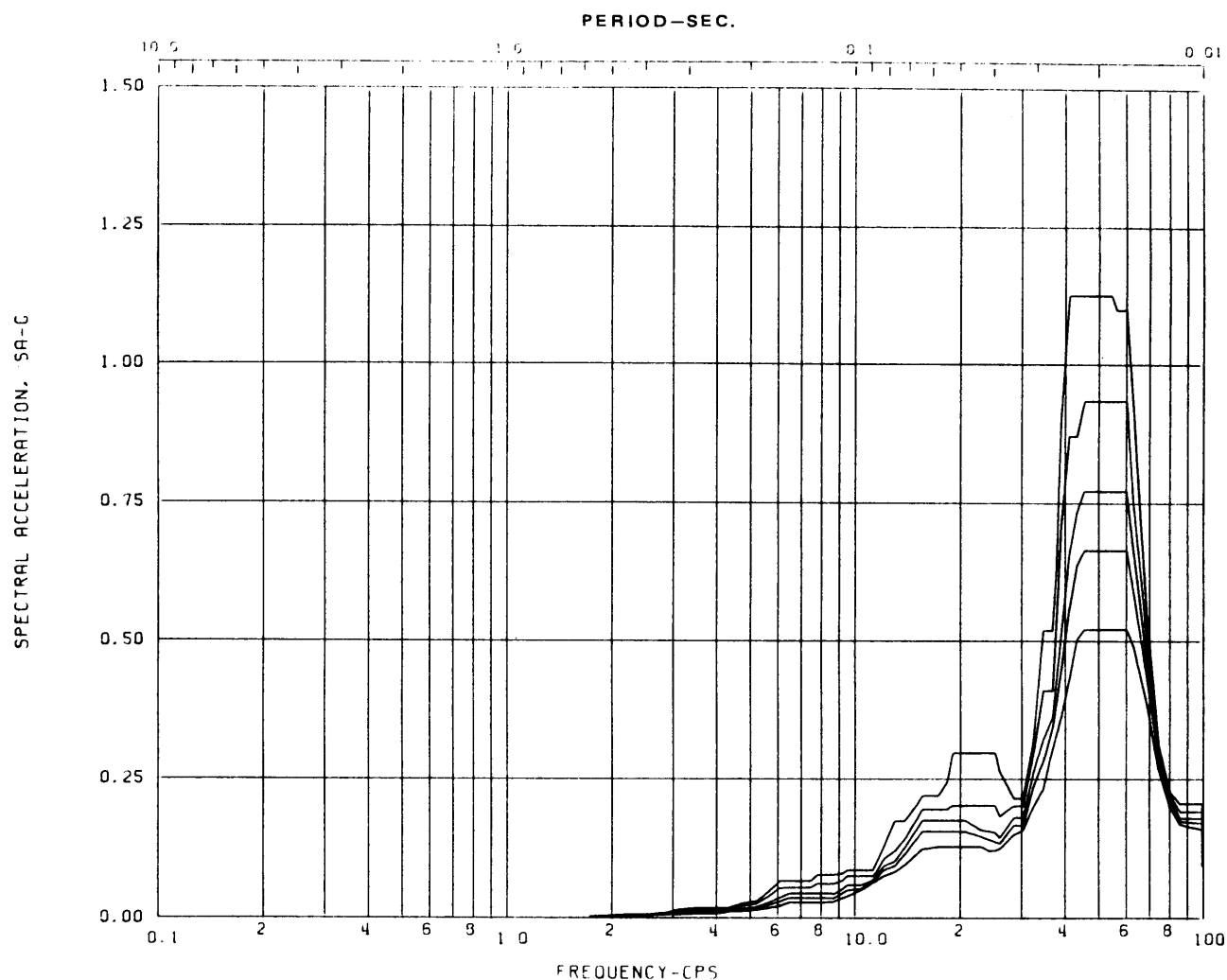
Damping: 0.005,0.01,0.02,0.03,0.05

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DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO - BASIC AXISYMMETRIC

FIGURE 3A-287





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPF (WIDENED - 15%)

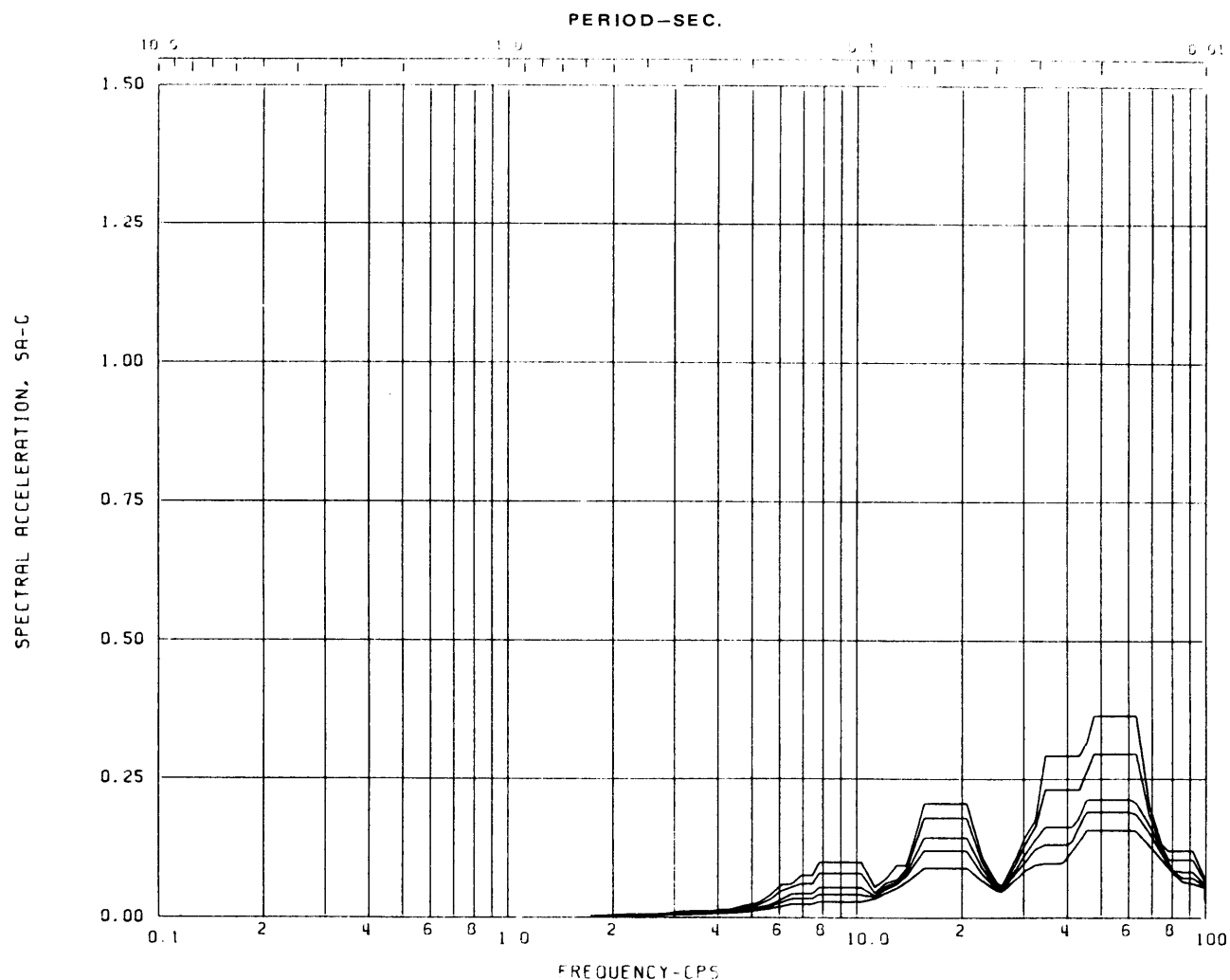
Node: 130 Direction: VERTICAL Elev: 201'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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RESPONSE SPECTRA, VERTICAL,  
CO - BASIC AXISYMMETRIC**

**FIGURE 3A-288**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

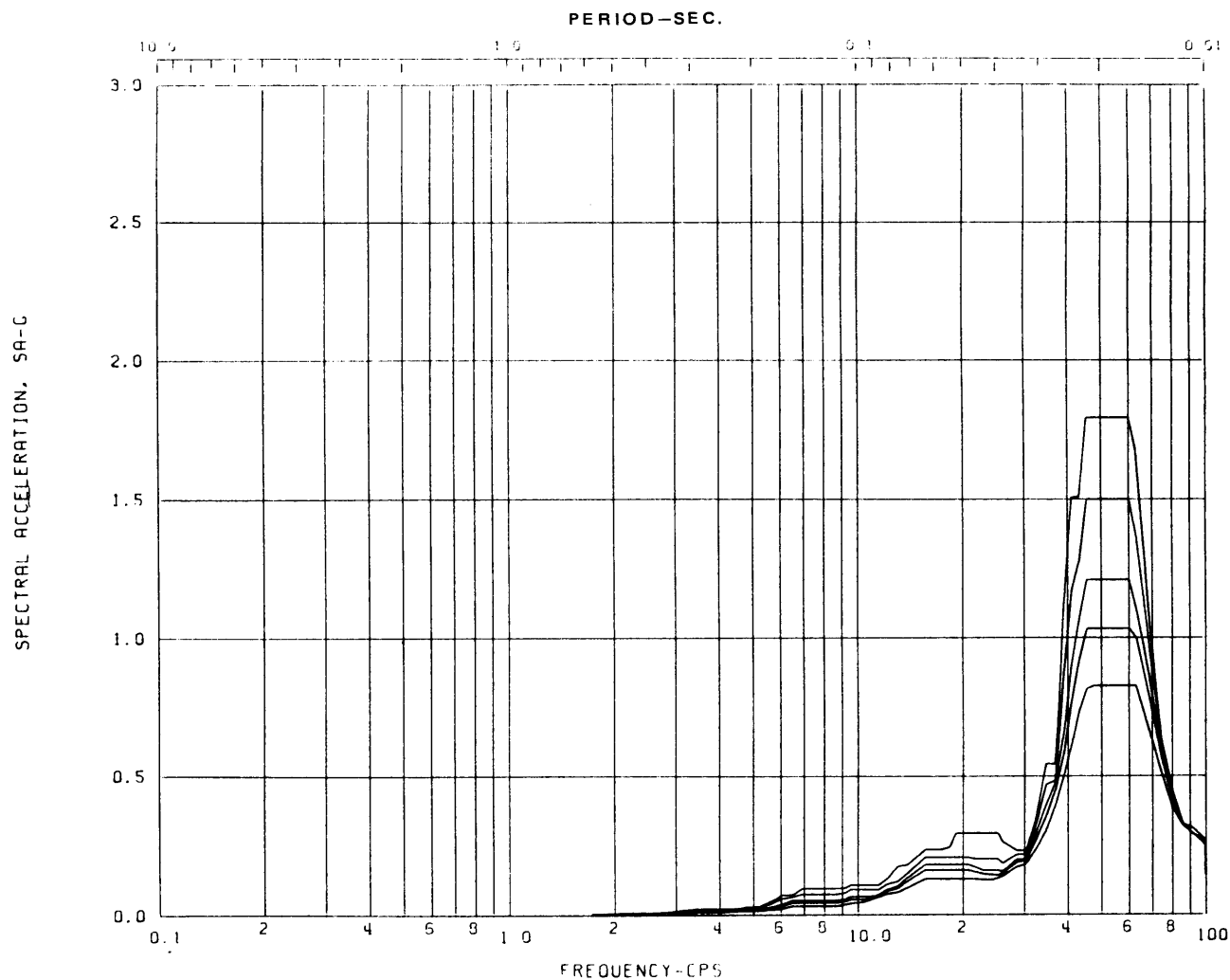
Node: 106 Direction: VERTICAL Elev: 217'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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RESPONSE SPECTRA, VERTICAL,  
CO - BASIC AXISYMMETRIC**

**FIGURE 3A-289**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

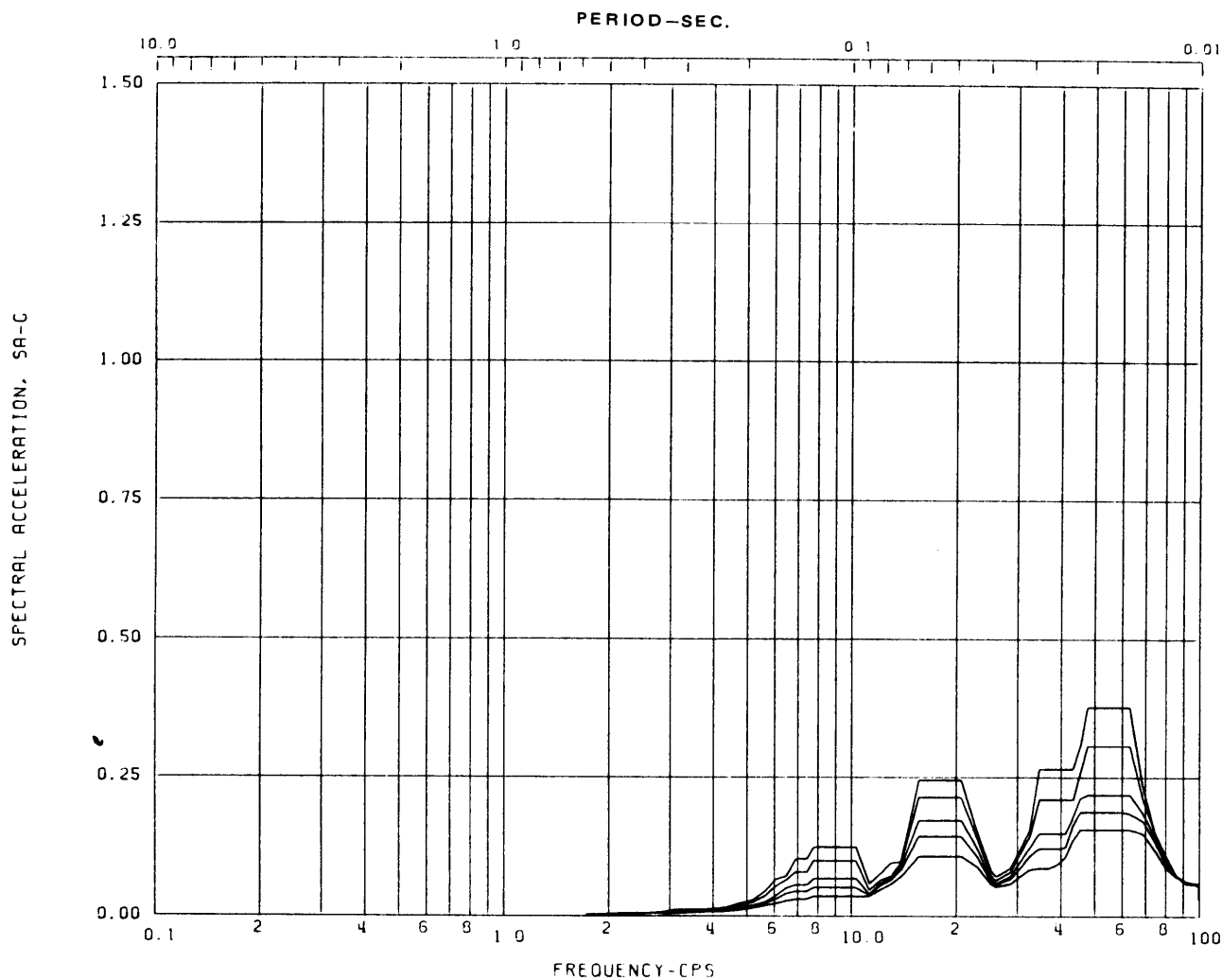
Node: 108 Direction: VERTICAL Elev: 217'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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RESPONSE SPECTRA, VERTICAL,  
CO - BASIC AXISYMMETRIC**

**FIGURE 3A-290**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPF (WIDENED - 15%)

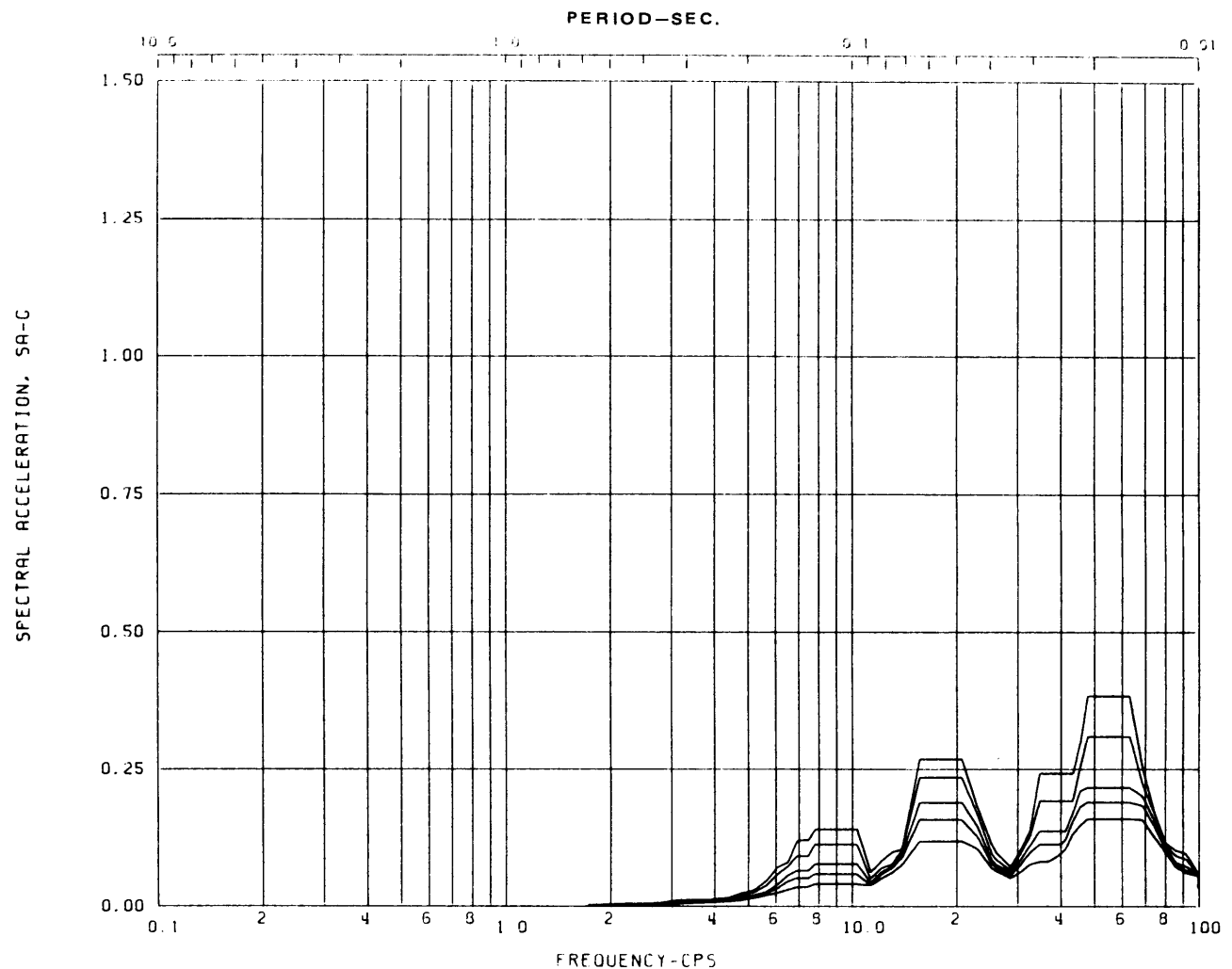
Node: 104 Direction: VERTICAL Elev: 239'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A- 291**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

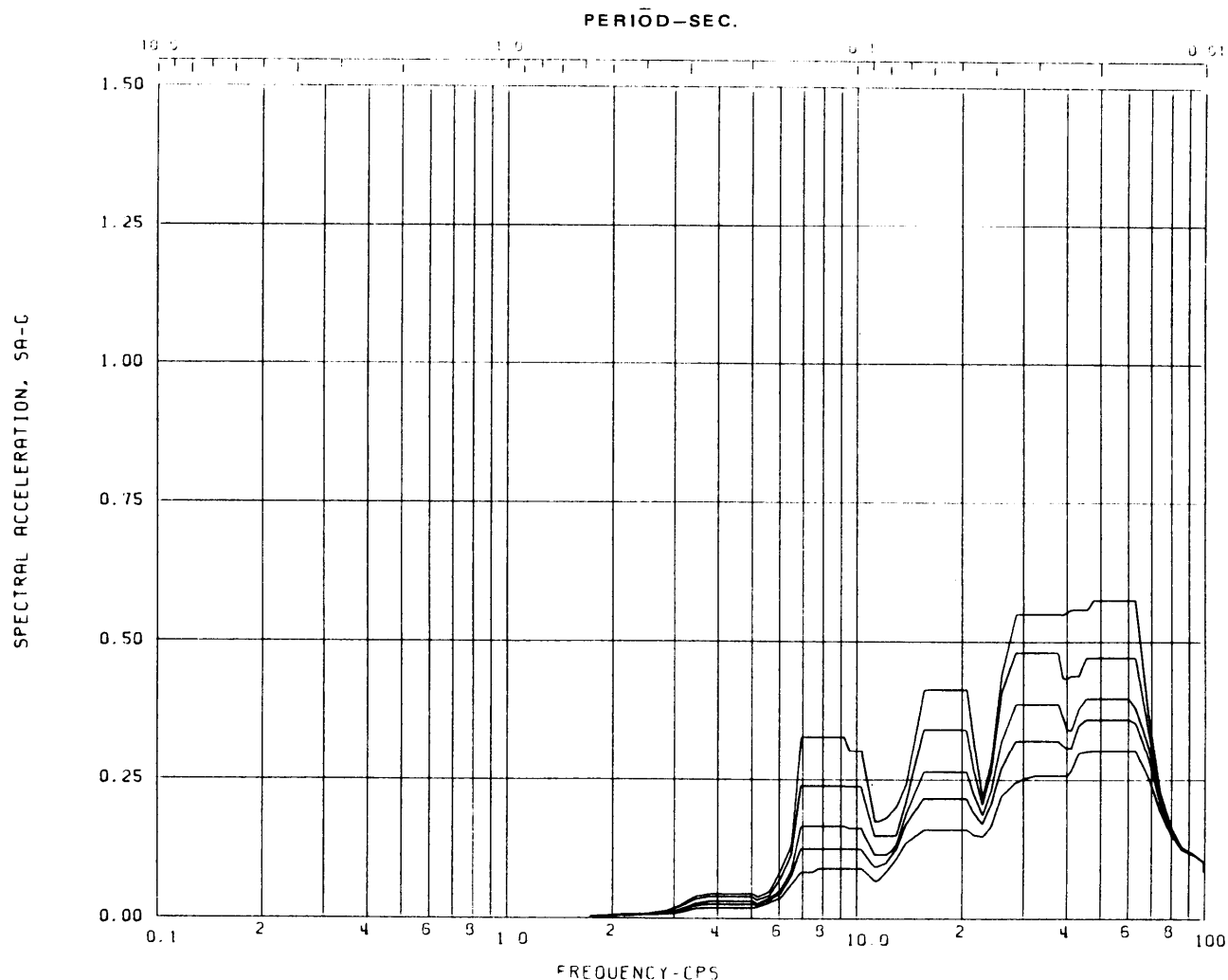
Node: 79 Direction: VERTICAL Elev: 253'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-292**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GF CO-BASIC ENVELOPE (WIDENED - 15%)

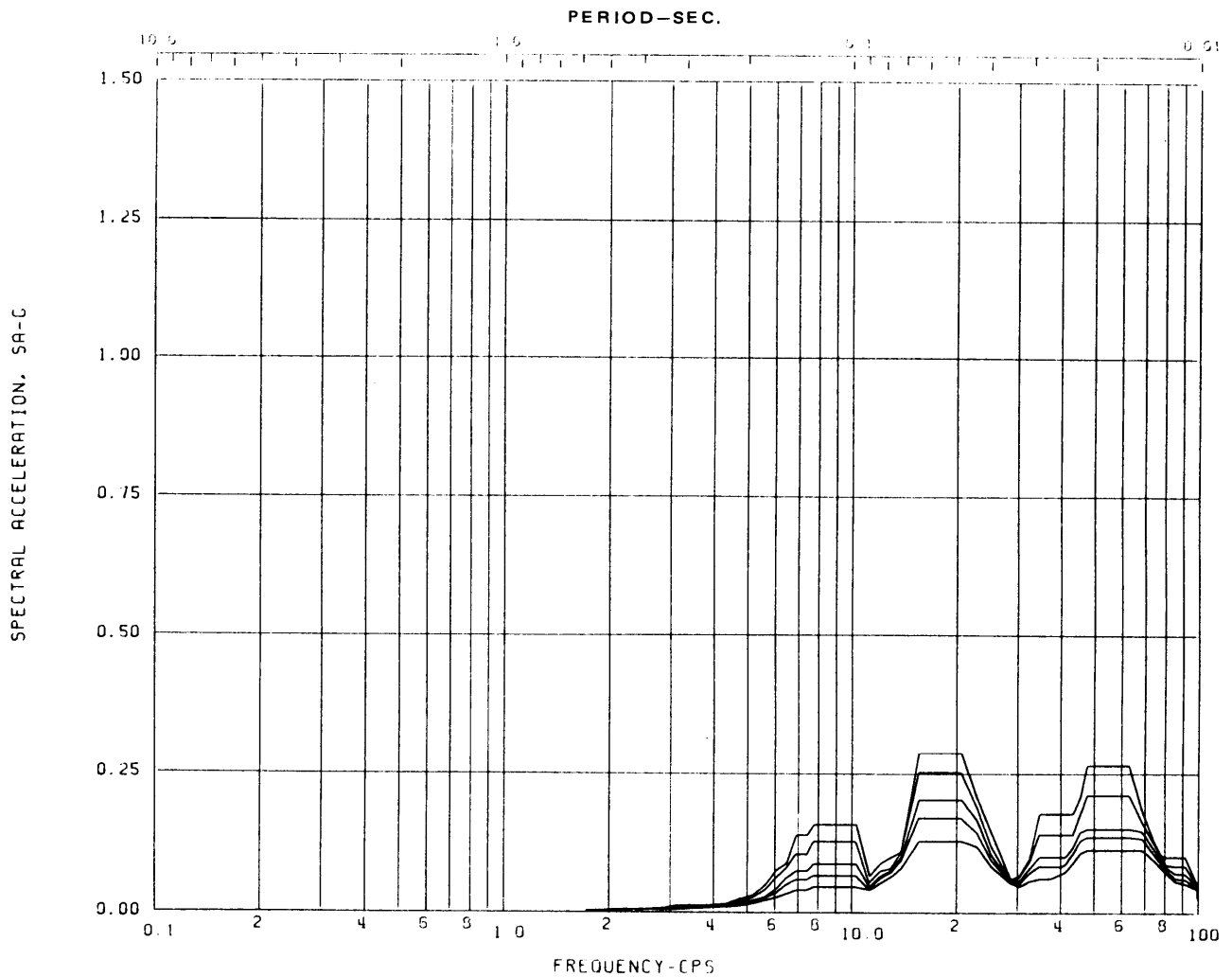
Node: 81 Direction: VERTICAL Elev: 253'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-293**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

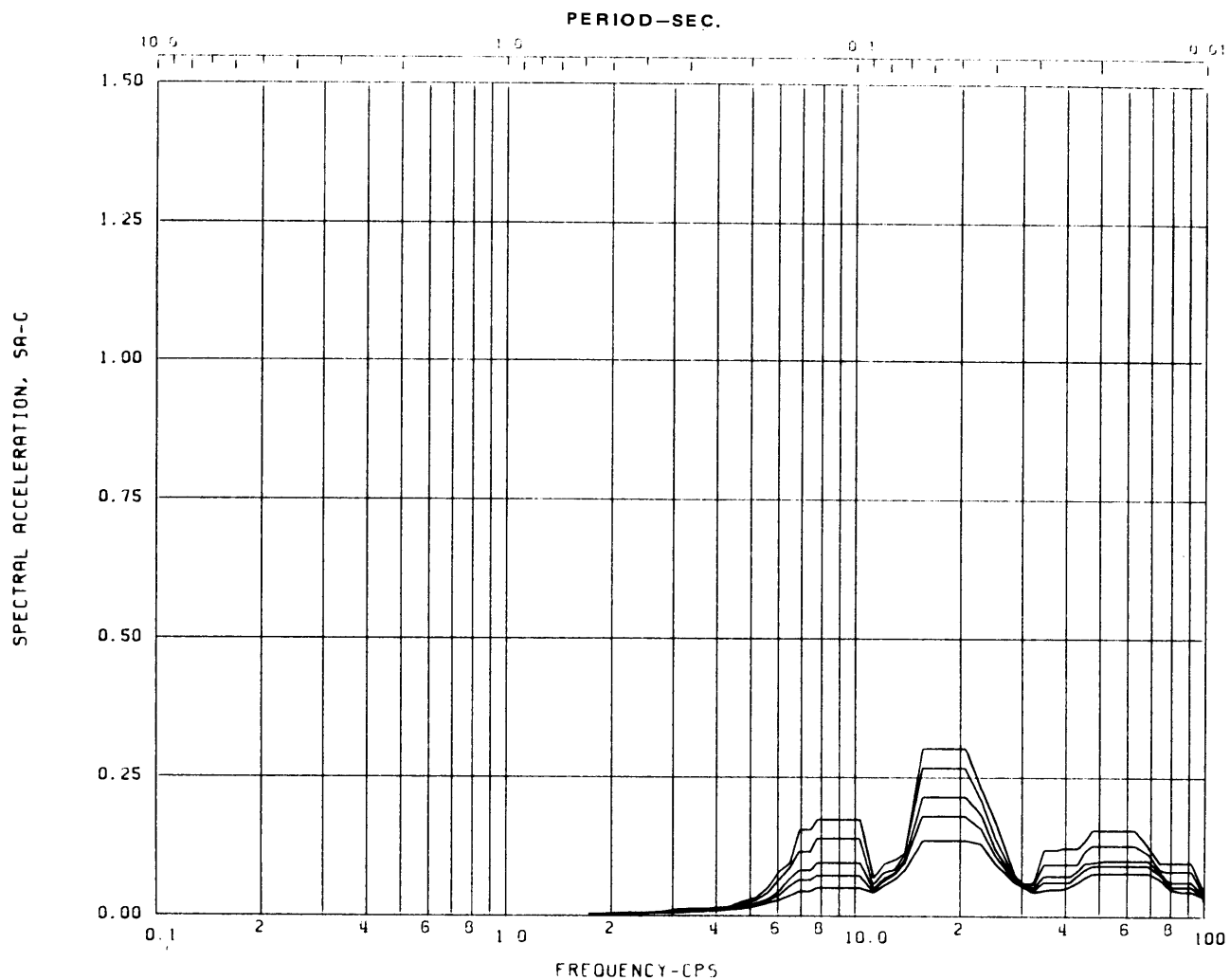
Node: 77 Direction: VERTICAL Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-294**



**Acceleration Spectra for REACTOR ENCL.**

**Load Case:** AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

**Node:** 58 **Direction:** VERTICAL **Elev:** 283'-0

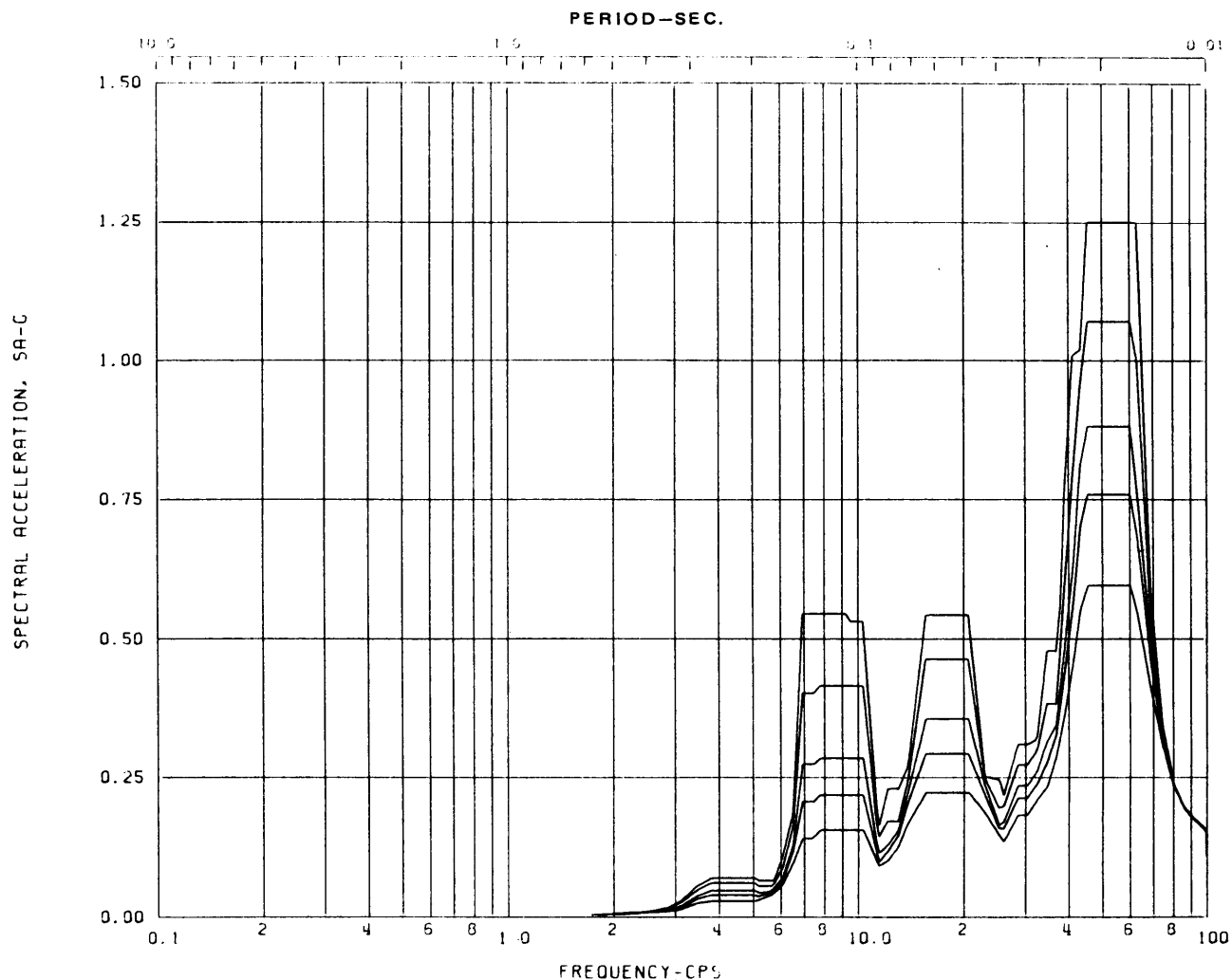
**Damping:** 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-295**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

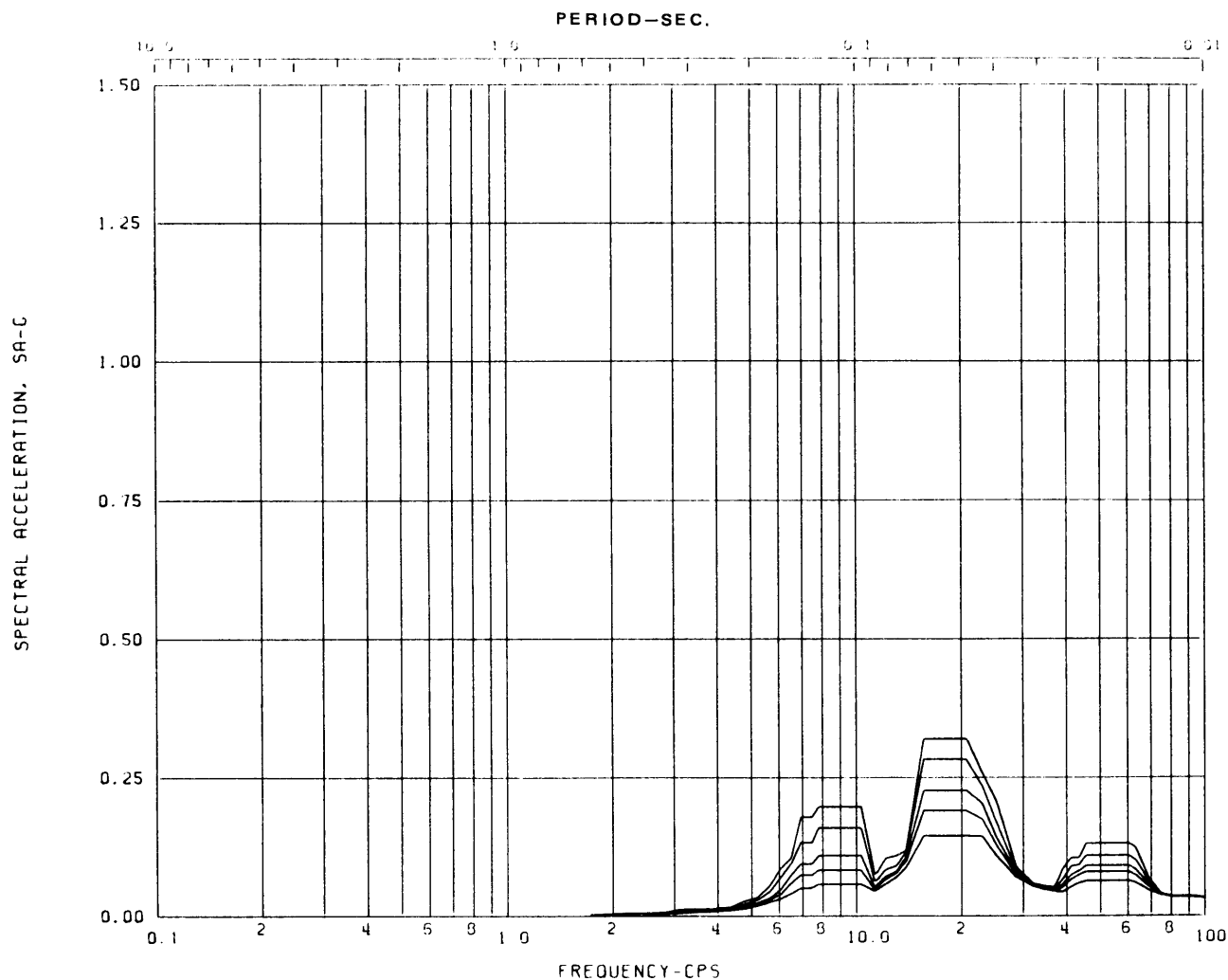
Node: 60 Direction: VERTICAL Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**FIGURE 3A-296**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

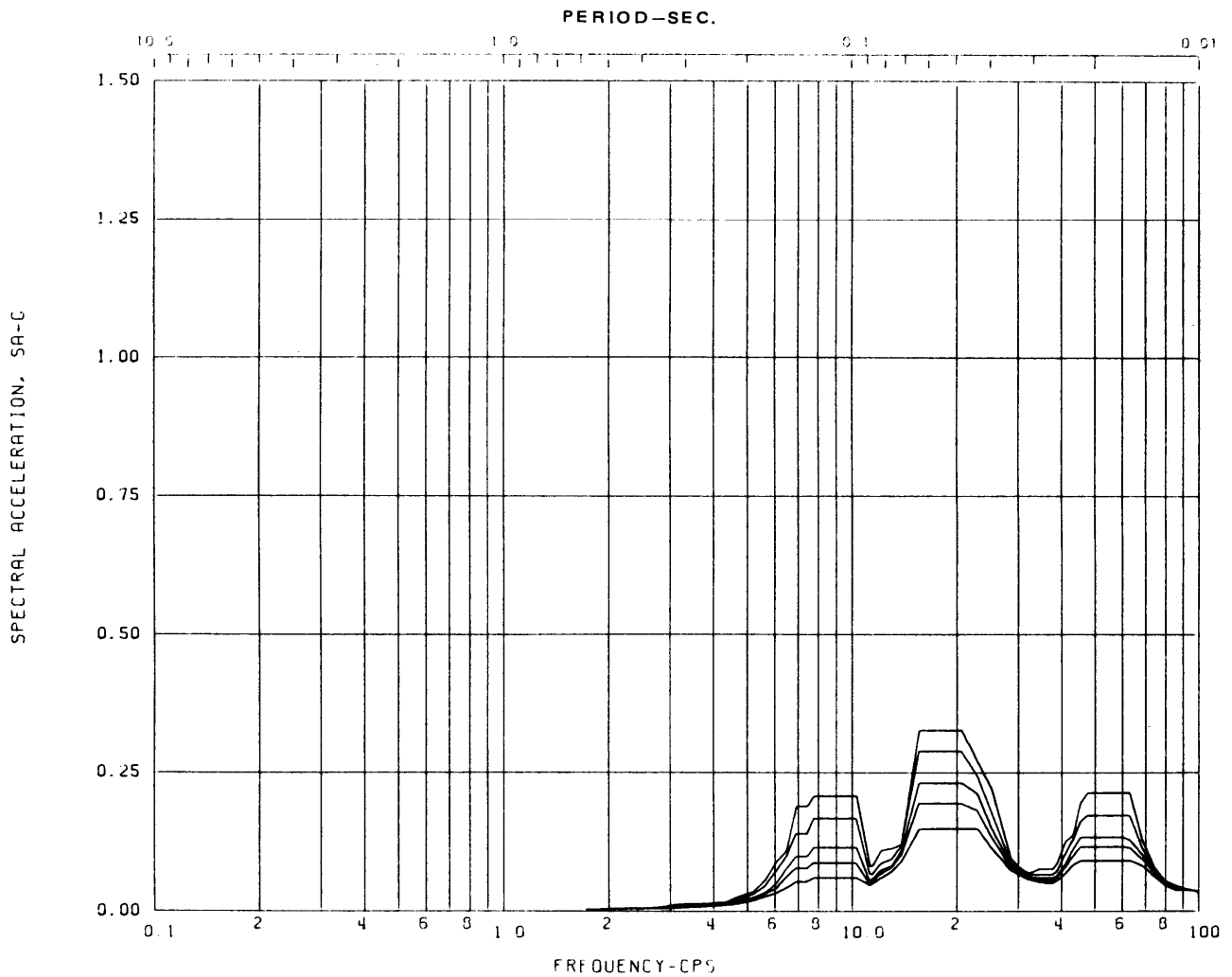
Node: 56 Direction: VERTICAL Elev: 304'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-297**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

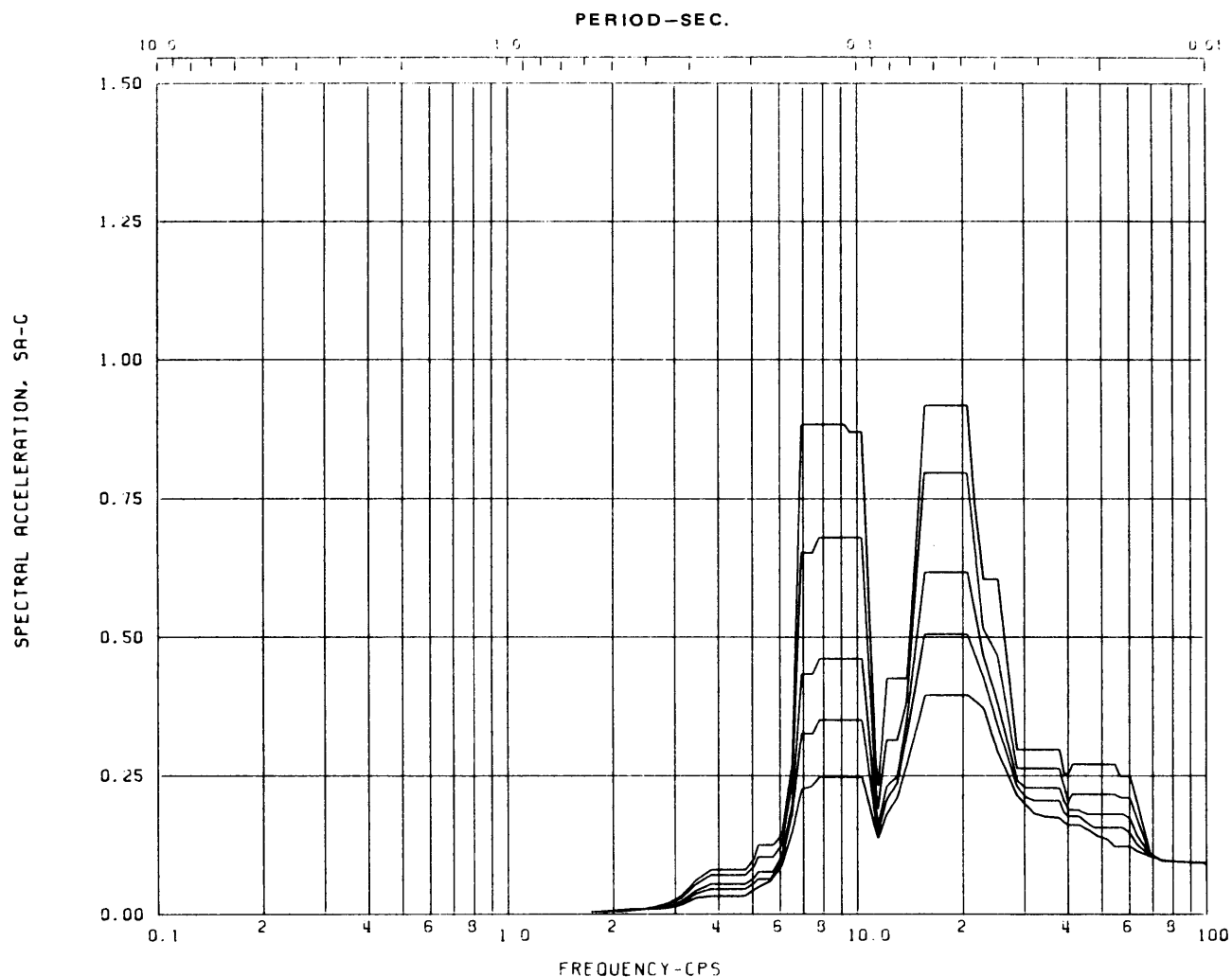
Node: 35 Direction: VERTICAL Elev: 313'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-298**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

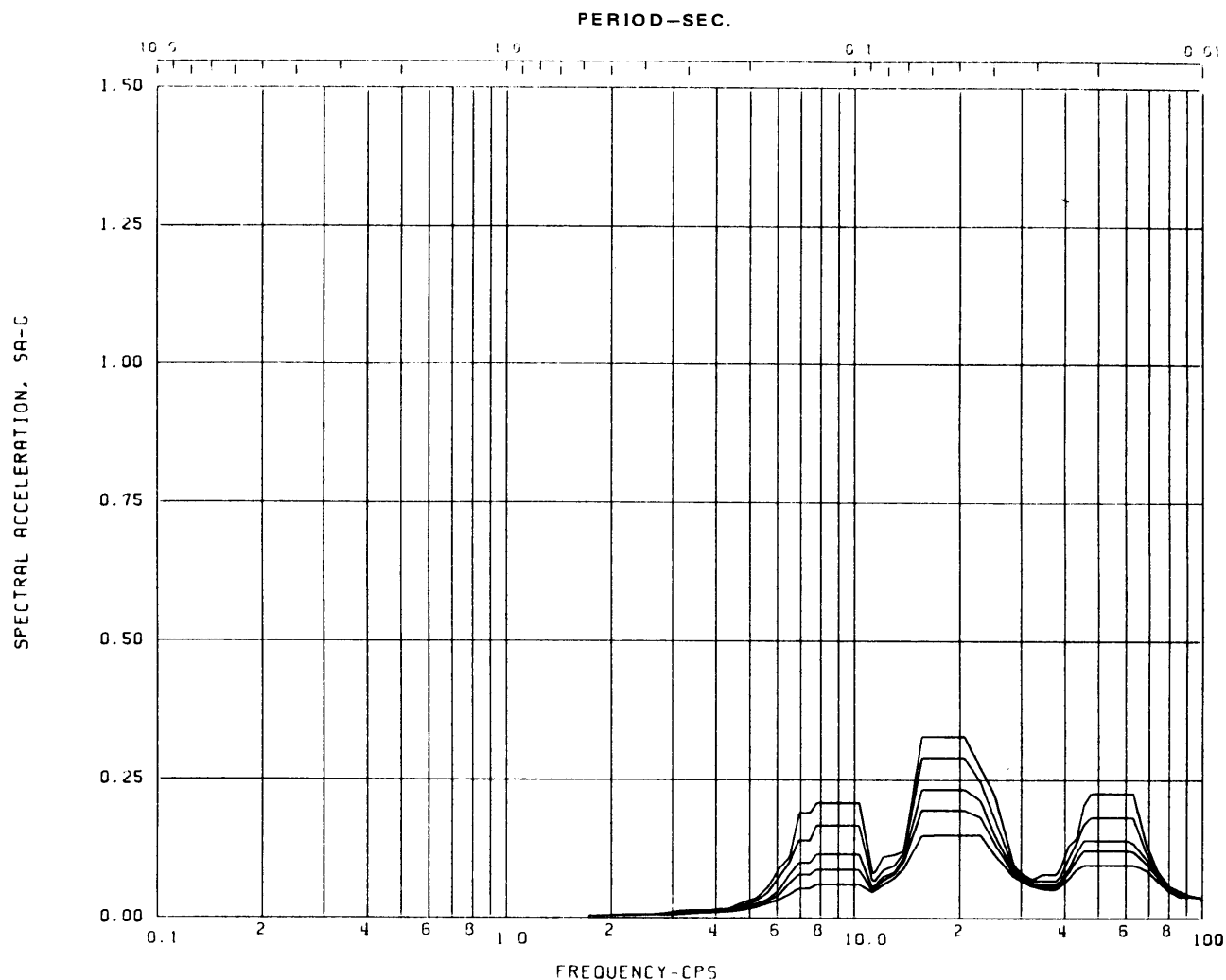
Node: 43 Direction: VERTICAL Elev: 313'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-299**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

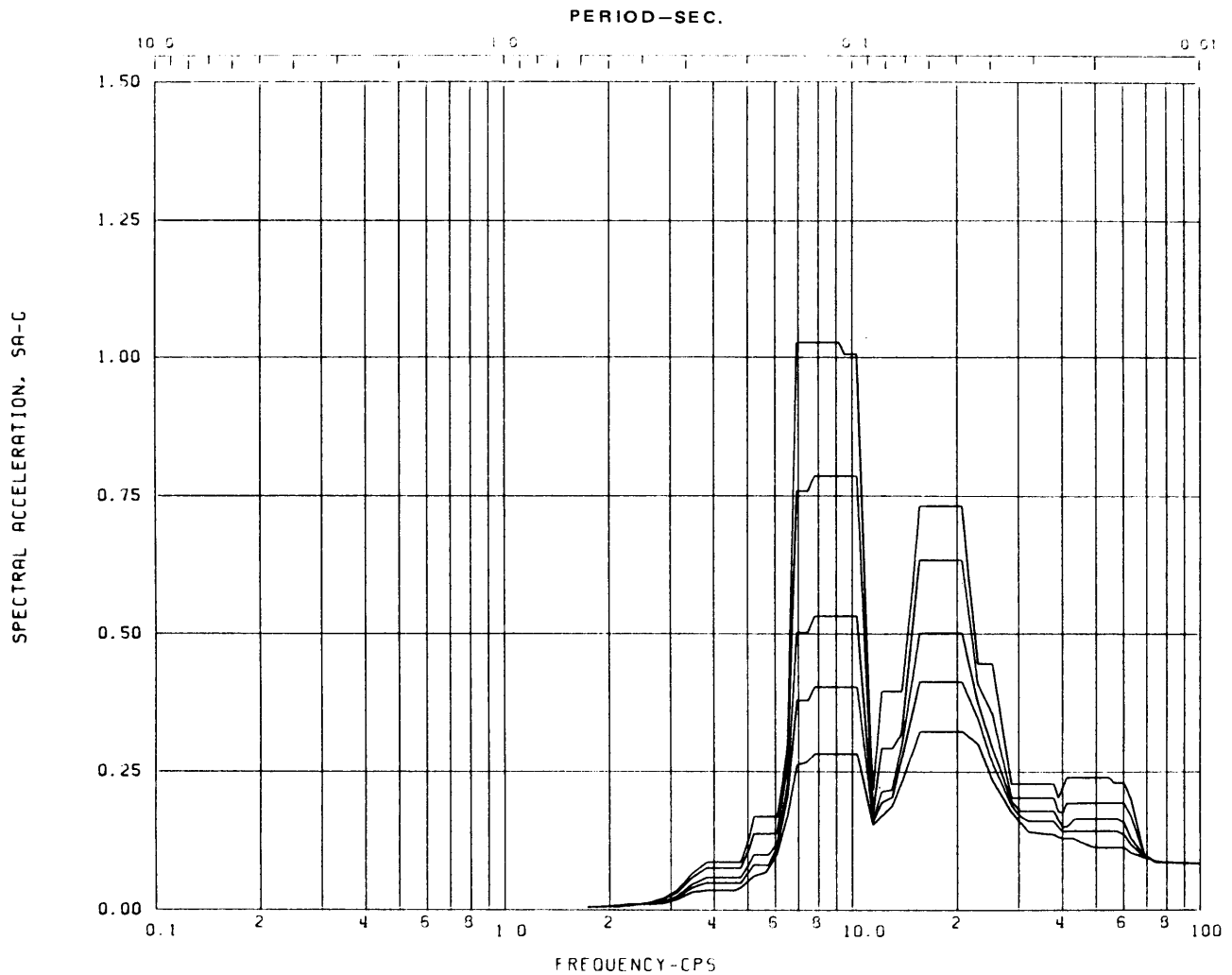
Node: 21 Direction: VERTICAL Elev: 333'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-300**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

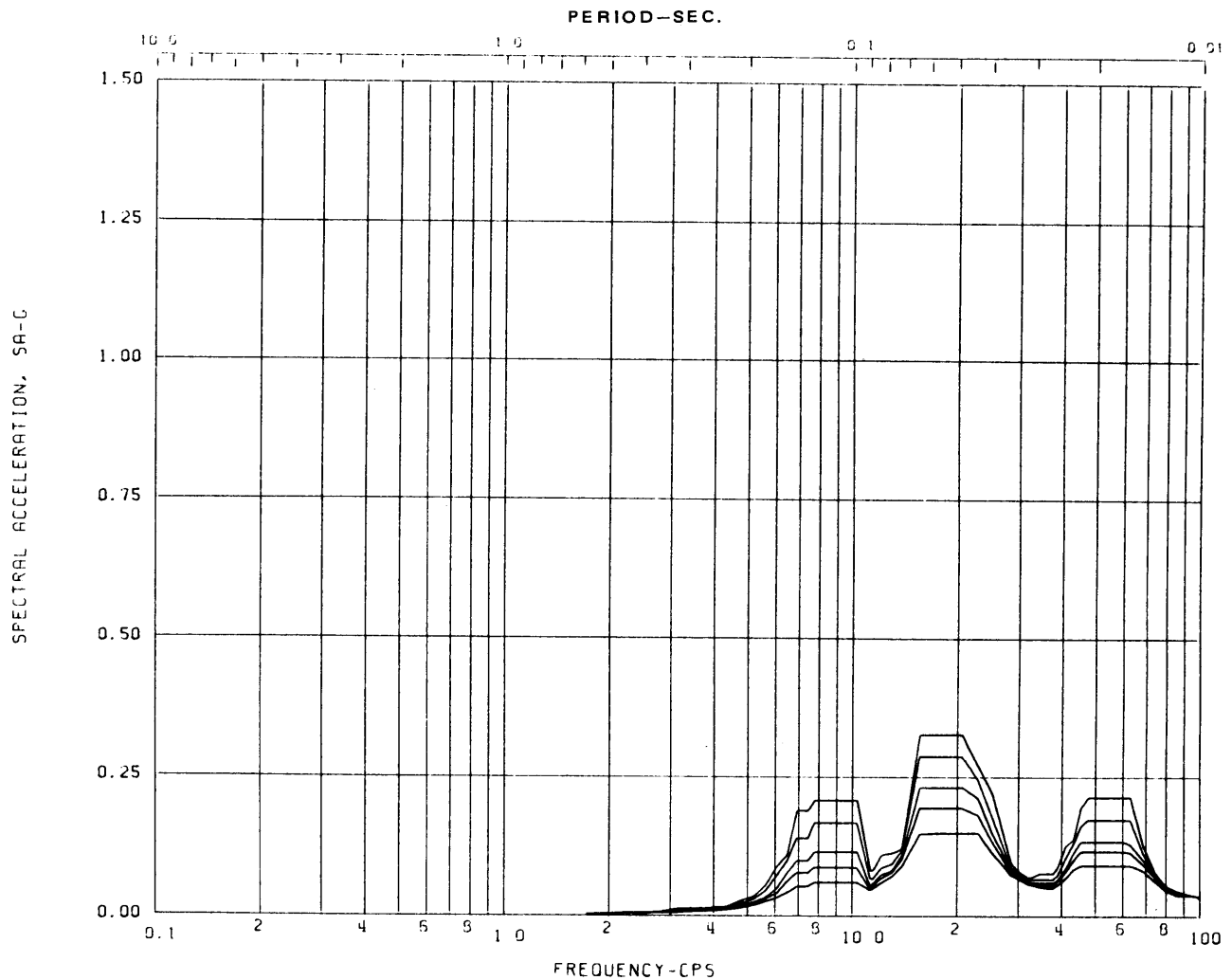
Node: 33 Direction: VERTICAL Elev: 333'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-301**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

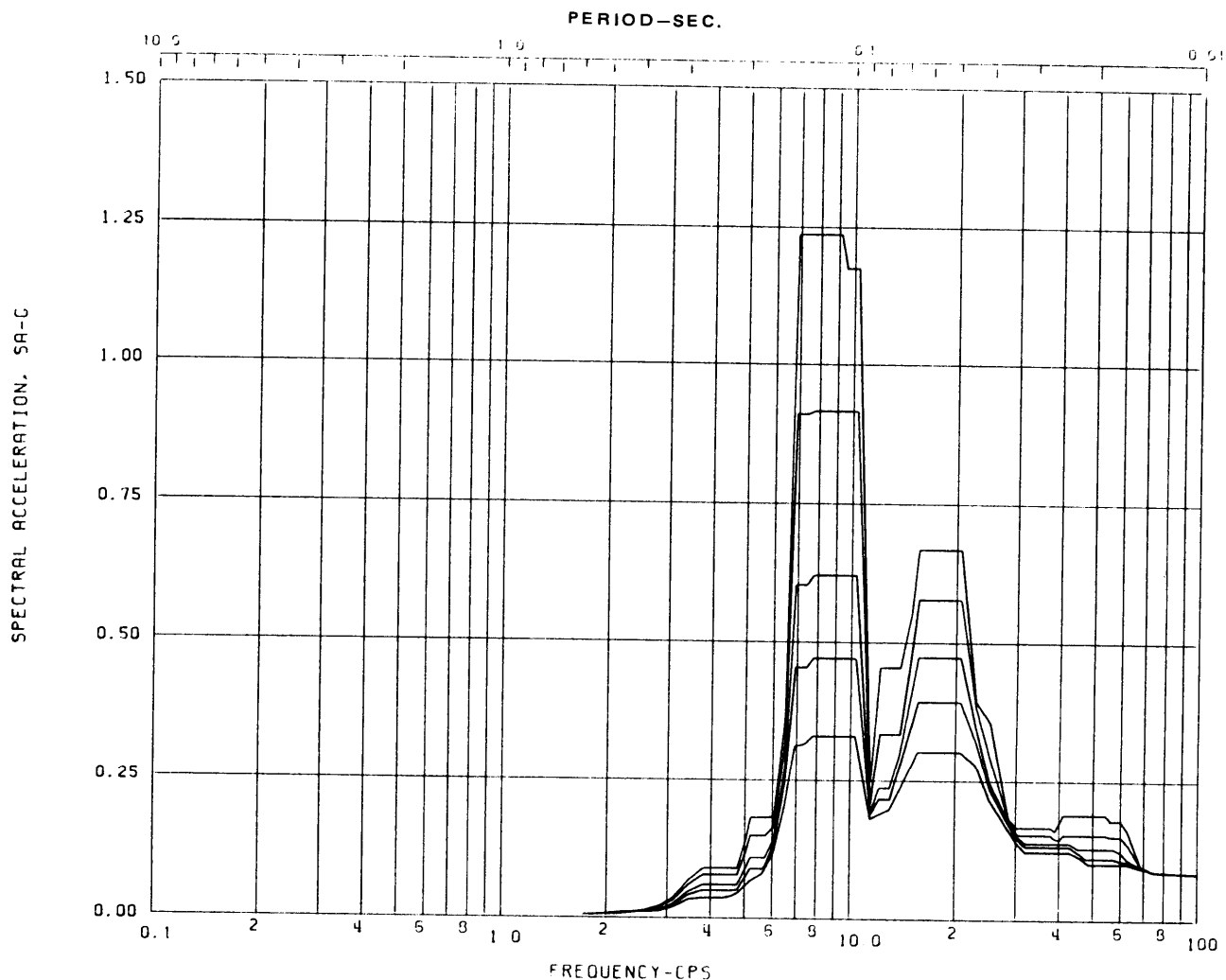
Node: 9 Direction: VERTICAL Elev: 352'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-302**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

Node: 13 Direction: VERTICAL Elev: 352'-0

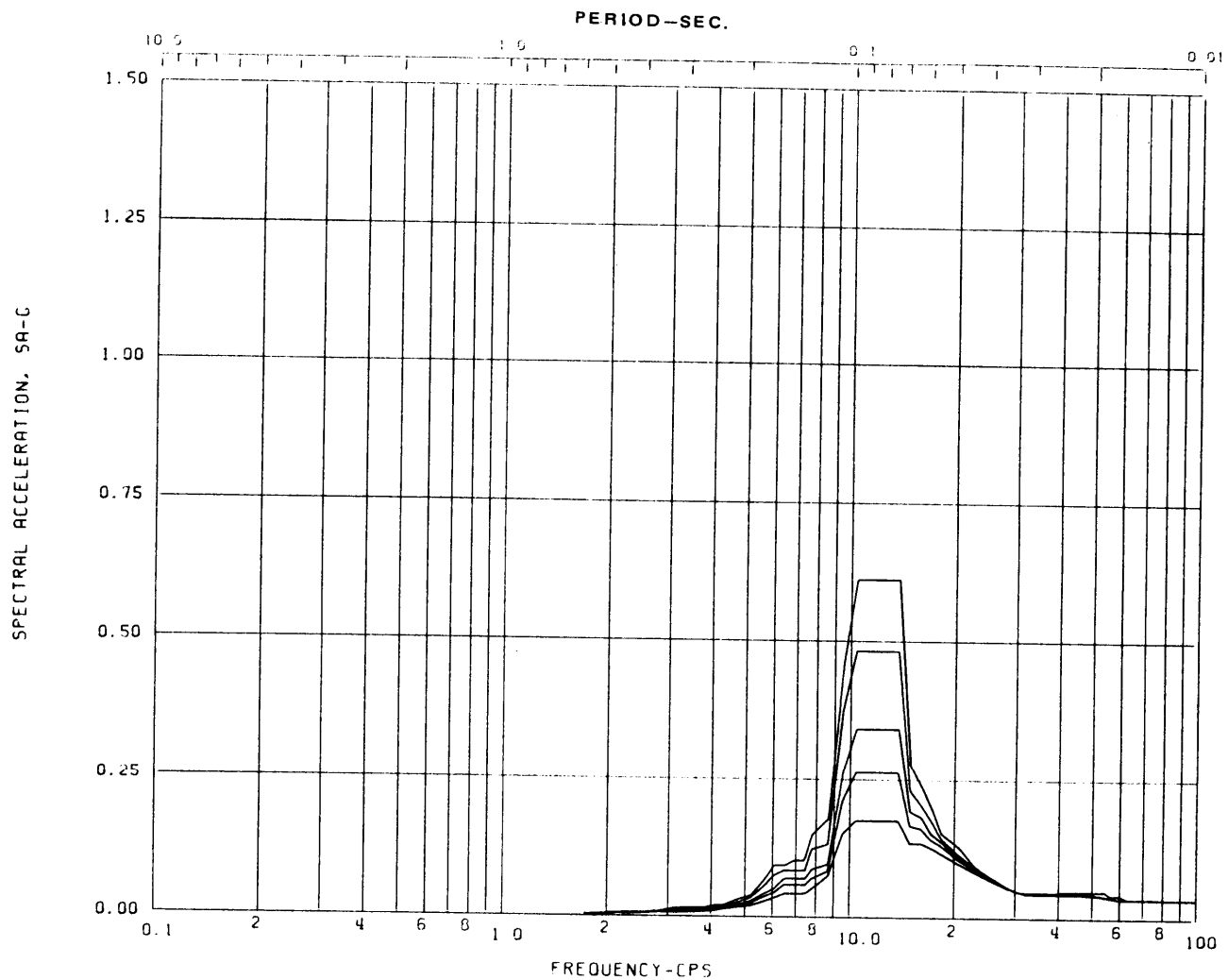
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**DESIGN ASSESSMENT REPORT  
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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-303**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPF (WIDENED - 15%)

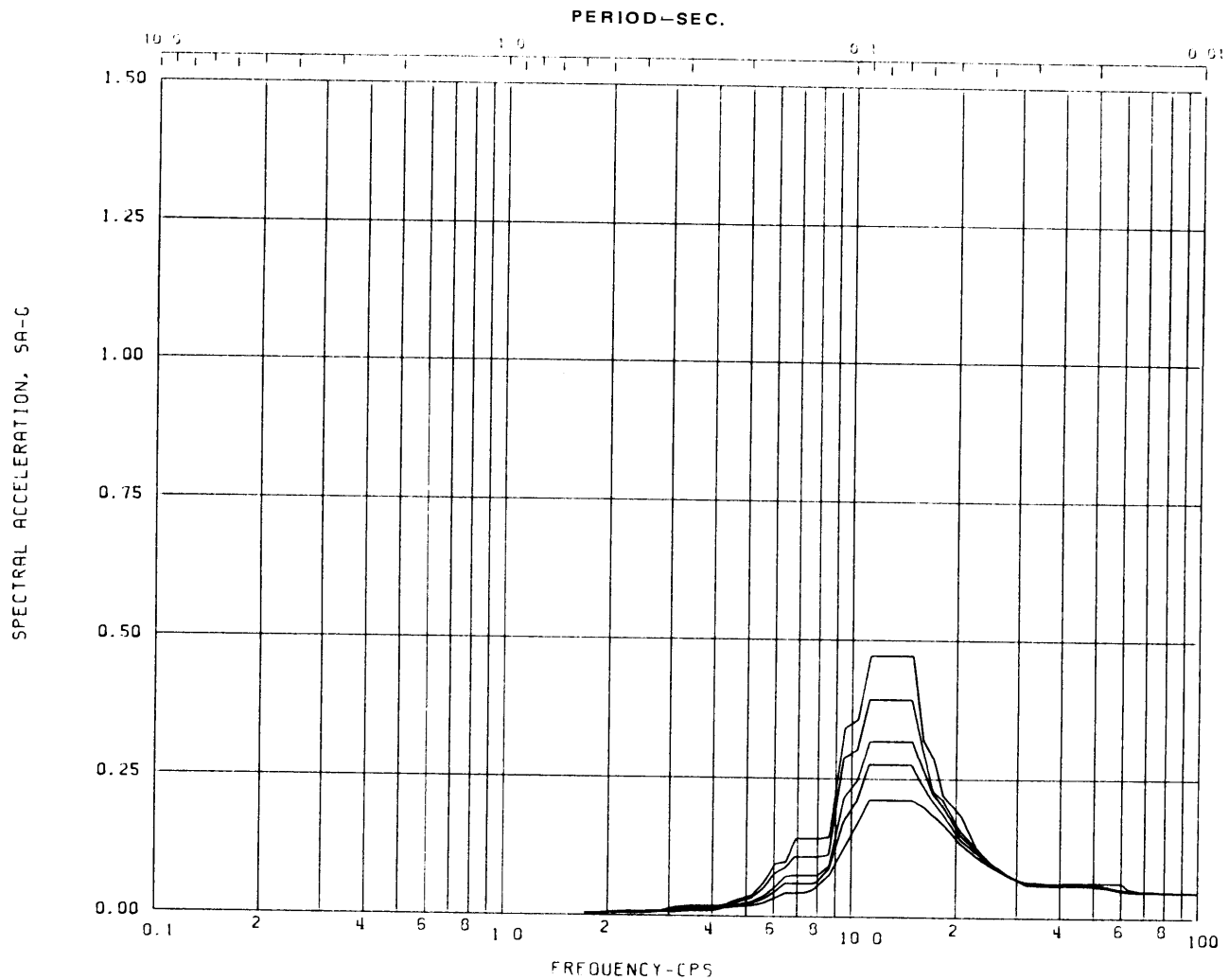
Node: 129 Direction: VERTICAL Elev: 201'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-304**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

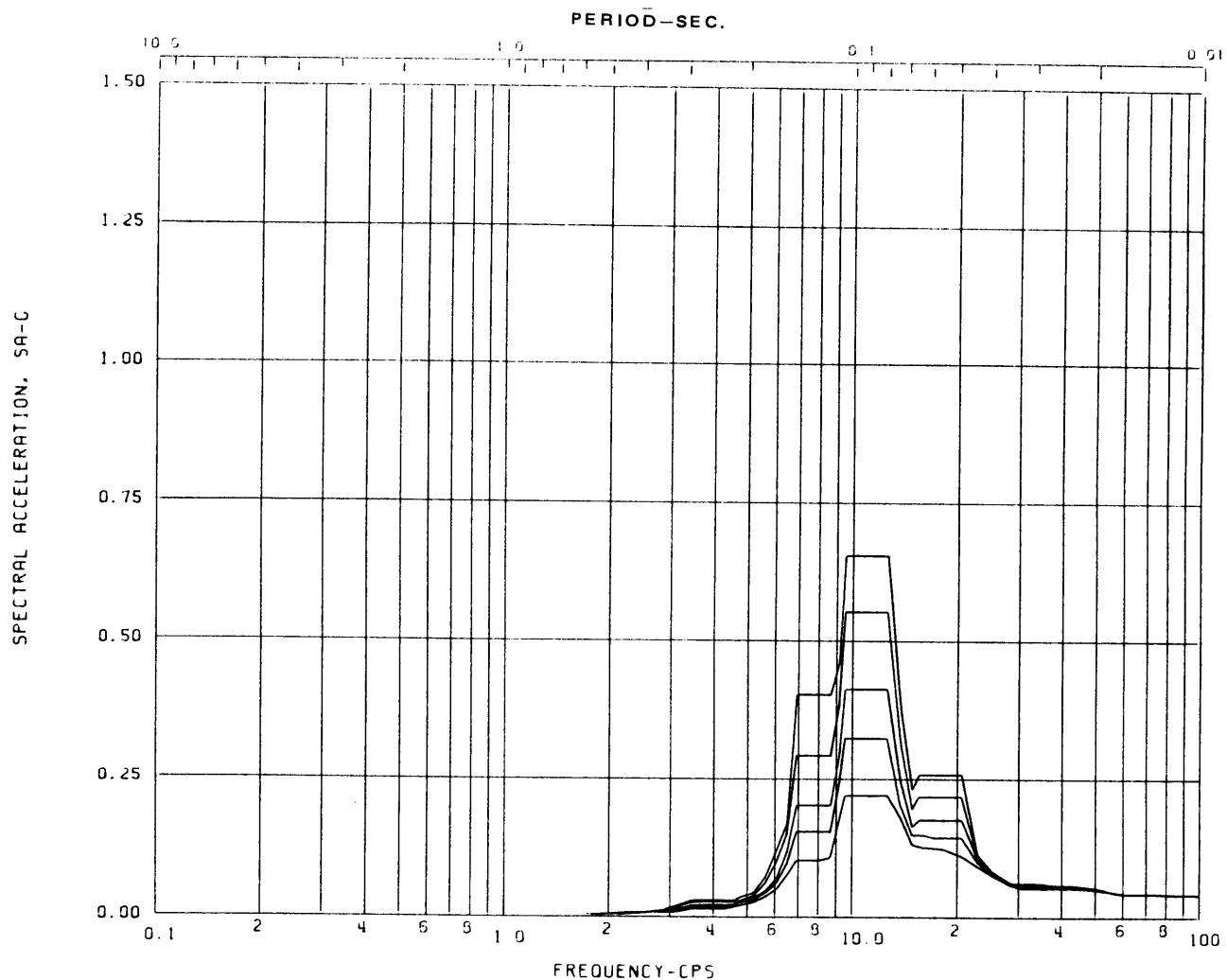
Node: 107 Direction: VERTICAL Elev: 217'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**FIGURE 3A-305**



Acceleration Spectra for REACTORENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

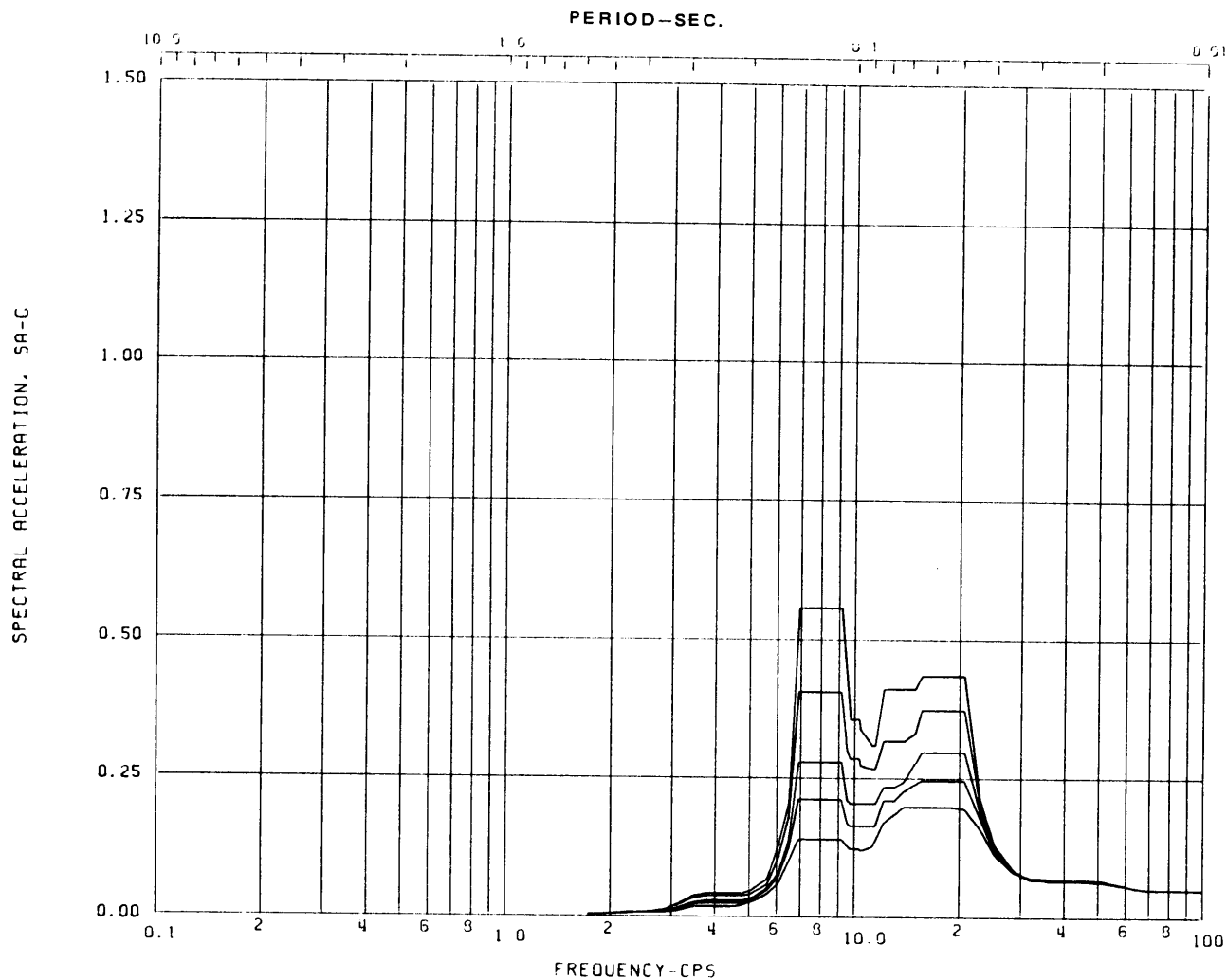
Node: 80 Direction: VERTICAL Elev: 253'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-306**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

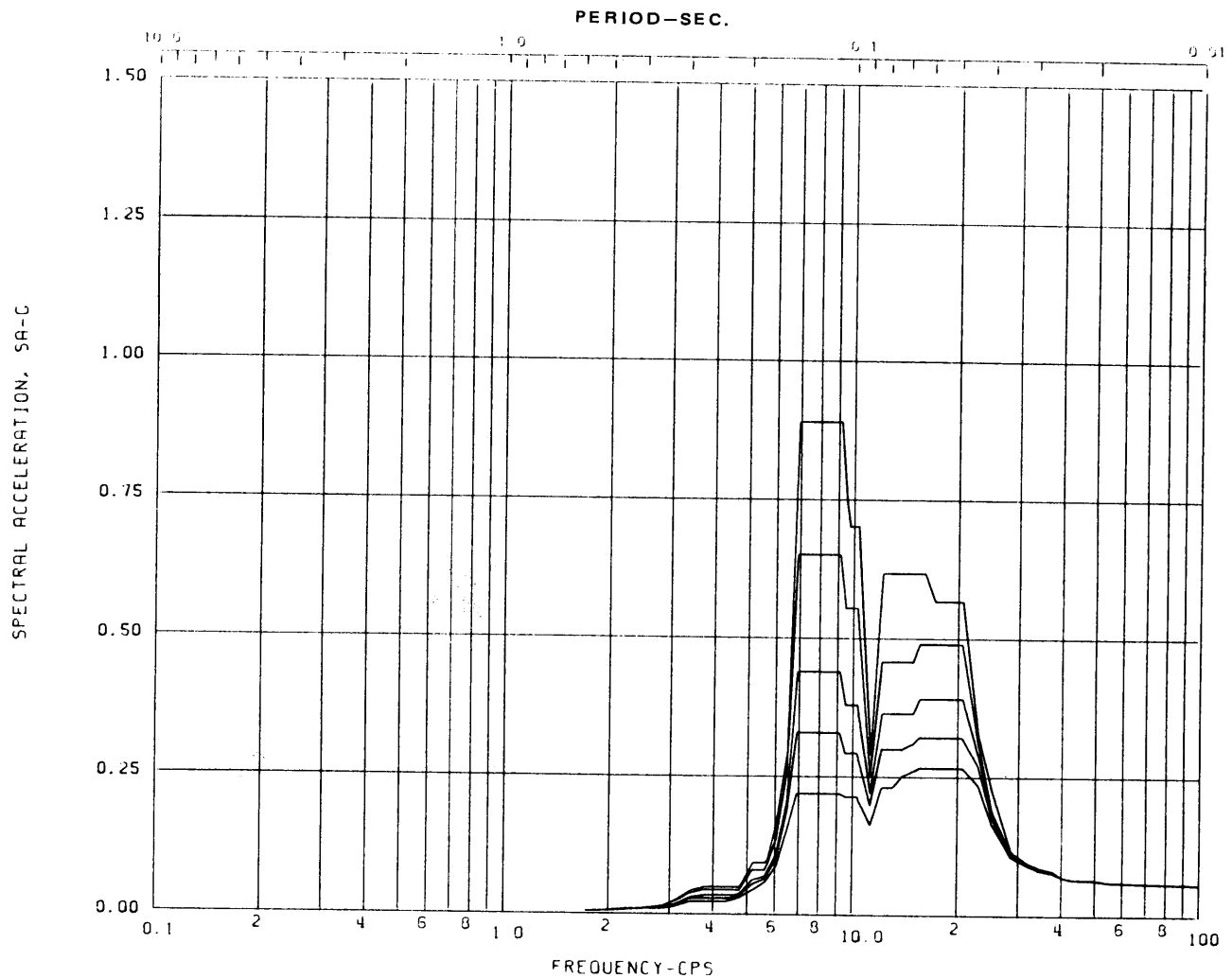
Node: 59 Direction: VERTICAL Elev: 283'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-307**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

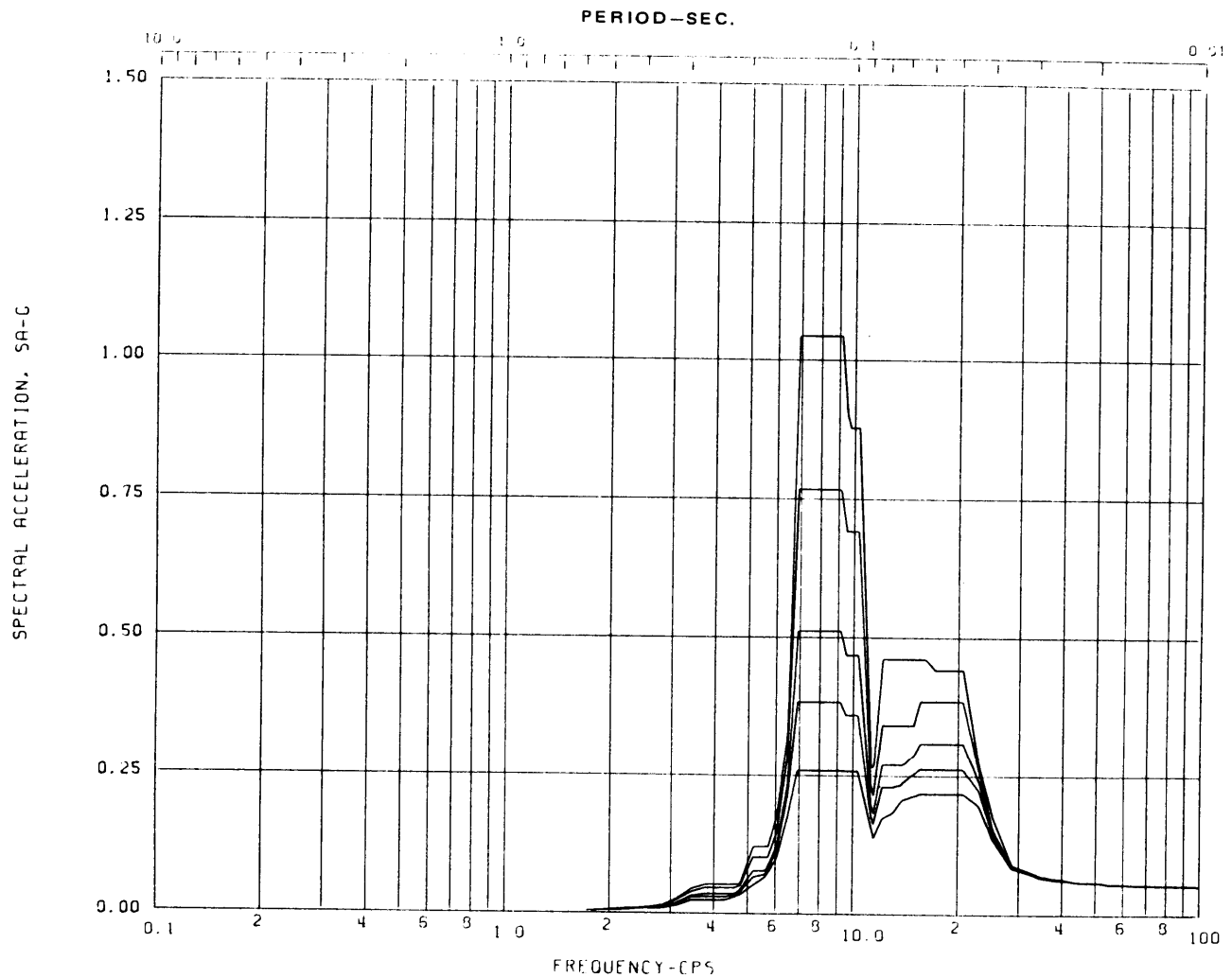
Node: 54 Direction: VERTICAL Elev: 313'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-308**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

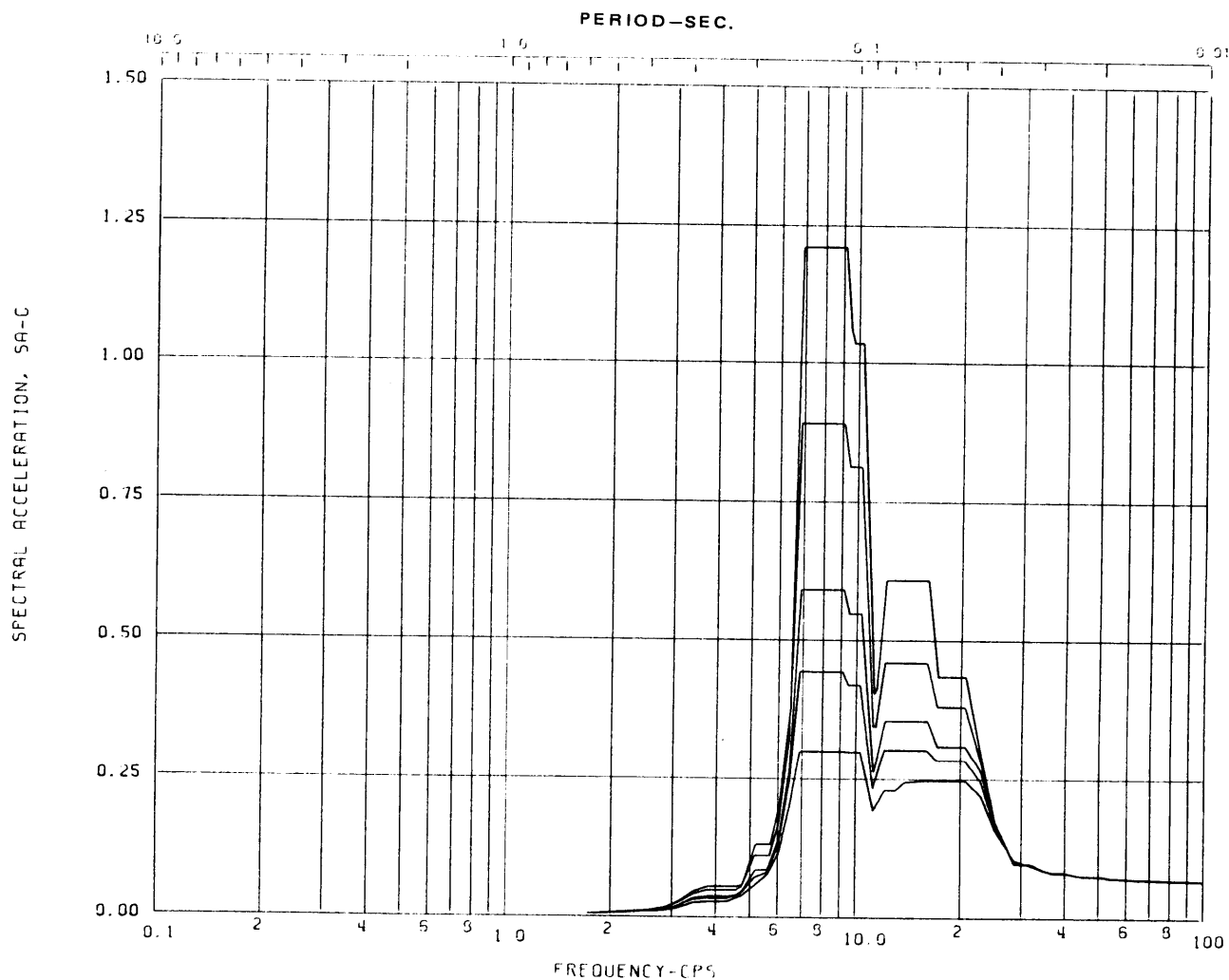
Node: 32 Direction: VERTICAL Elev: 333'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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FIGURE 3A-309



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

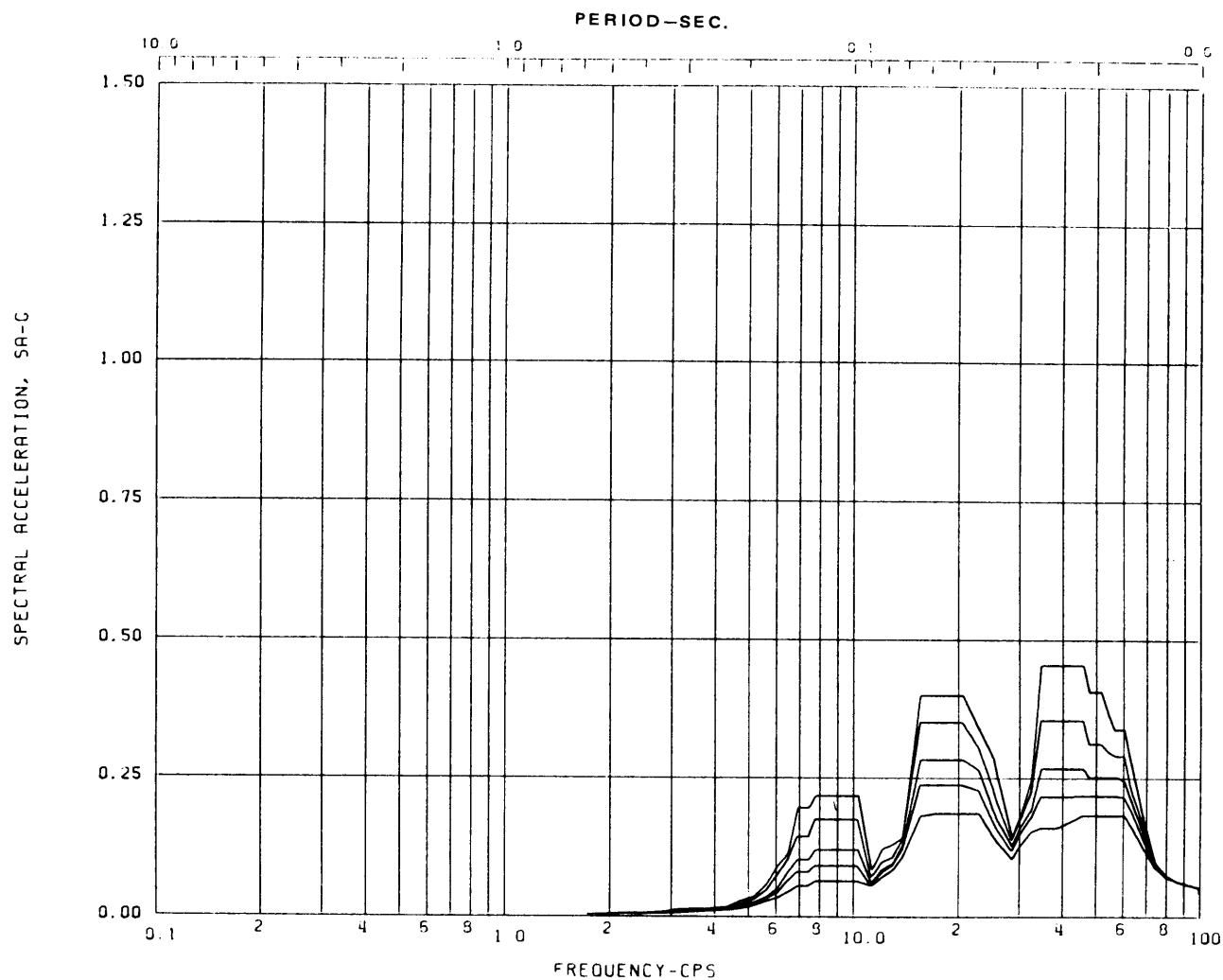
Node: 12 Direction: VERTICAL Elev: 352'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-310**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

Node: 6 Direction: VERTICAL Elev: 410'-0

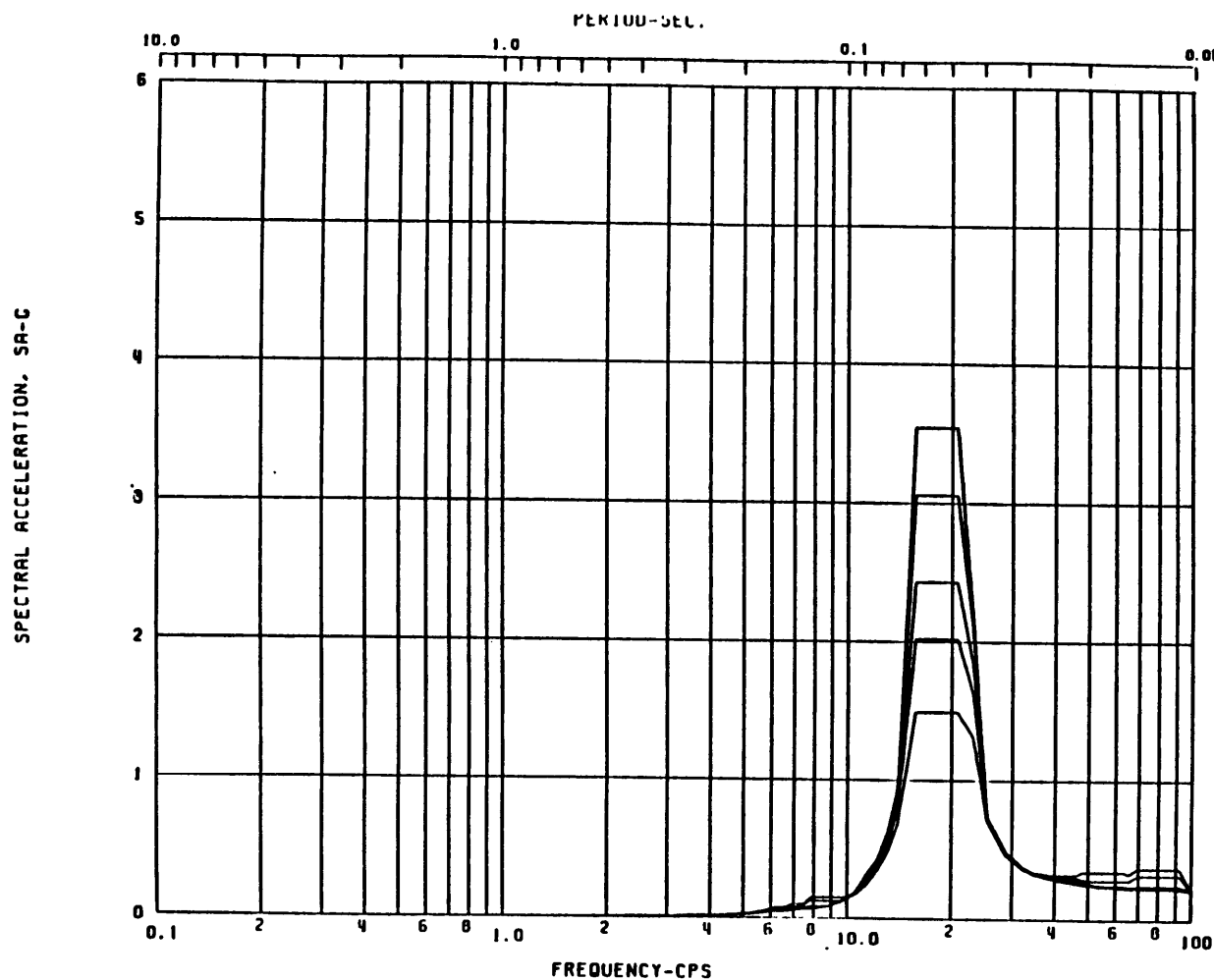
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-311**





Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

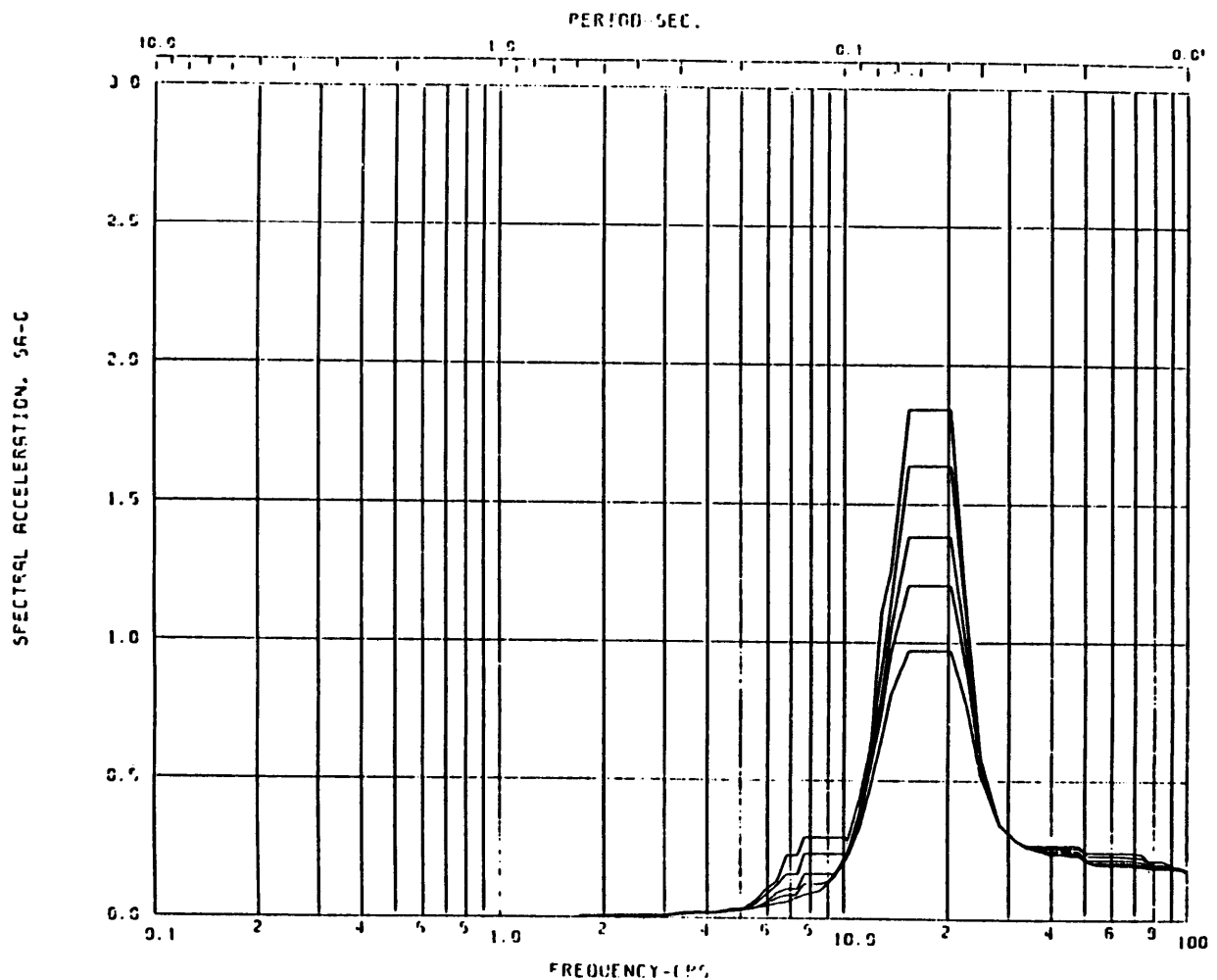
Node: 7 Direction: VERTICAL Elev: 217'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-312**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

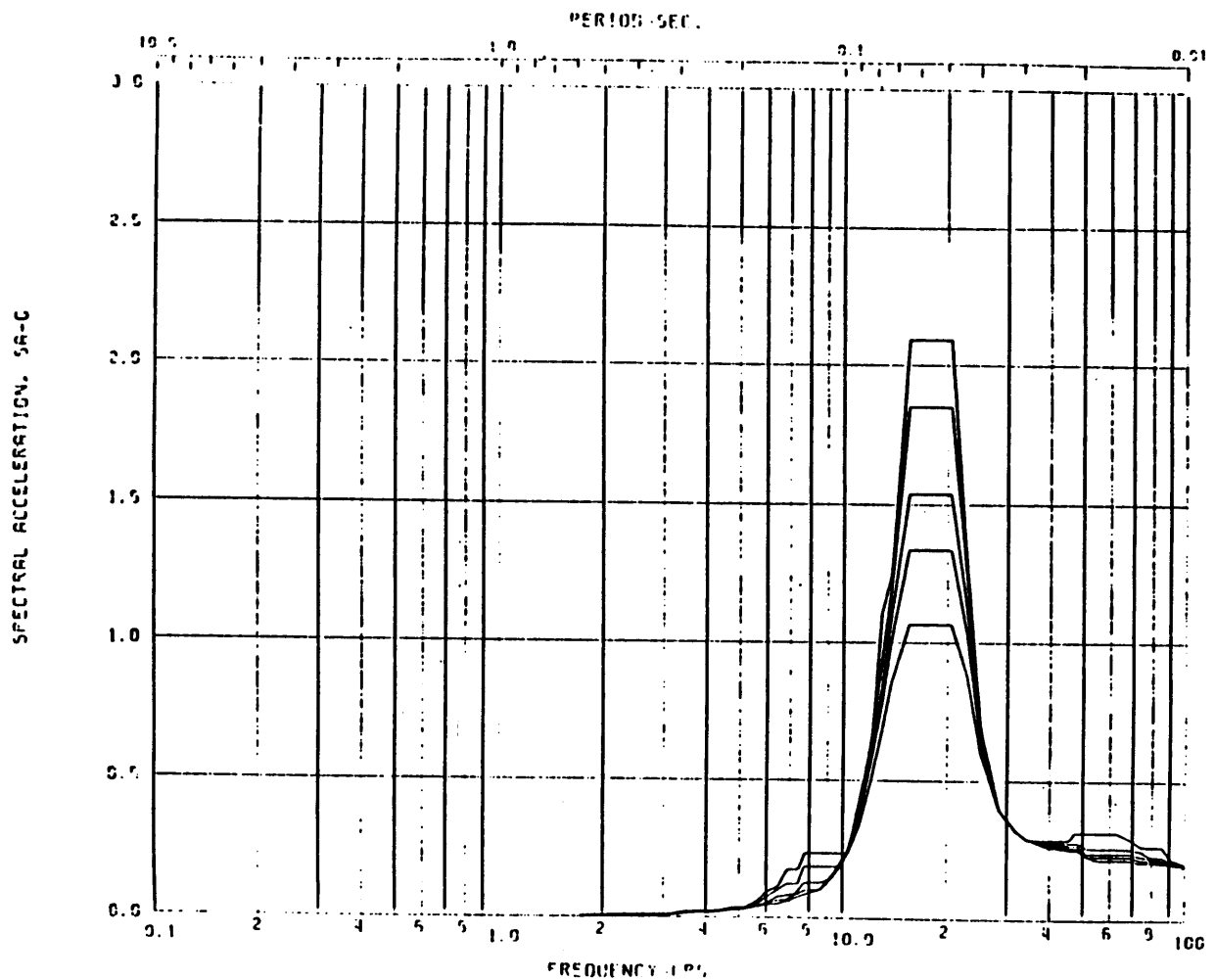
Node: 7 Direction: VERTICAL Elev: 239'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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CO - BASIC AXISYMMETRIC**

**FIGURE 3A-313**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

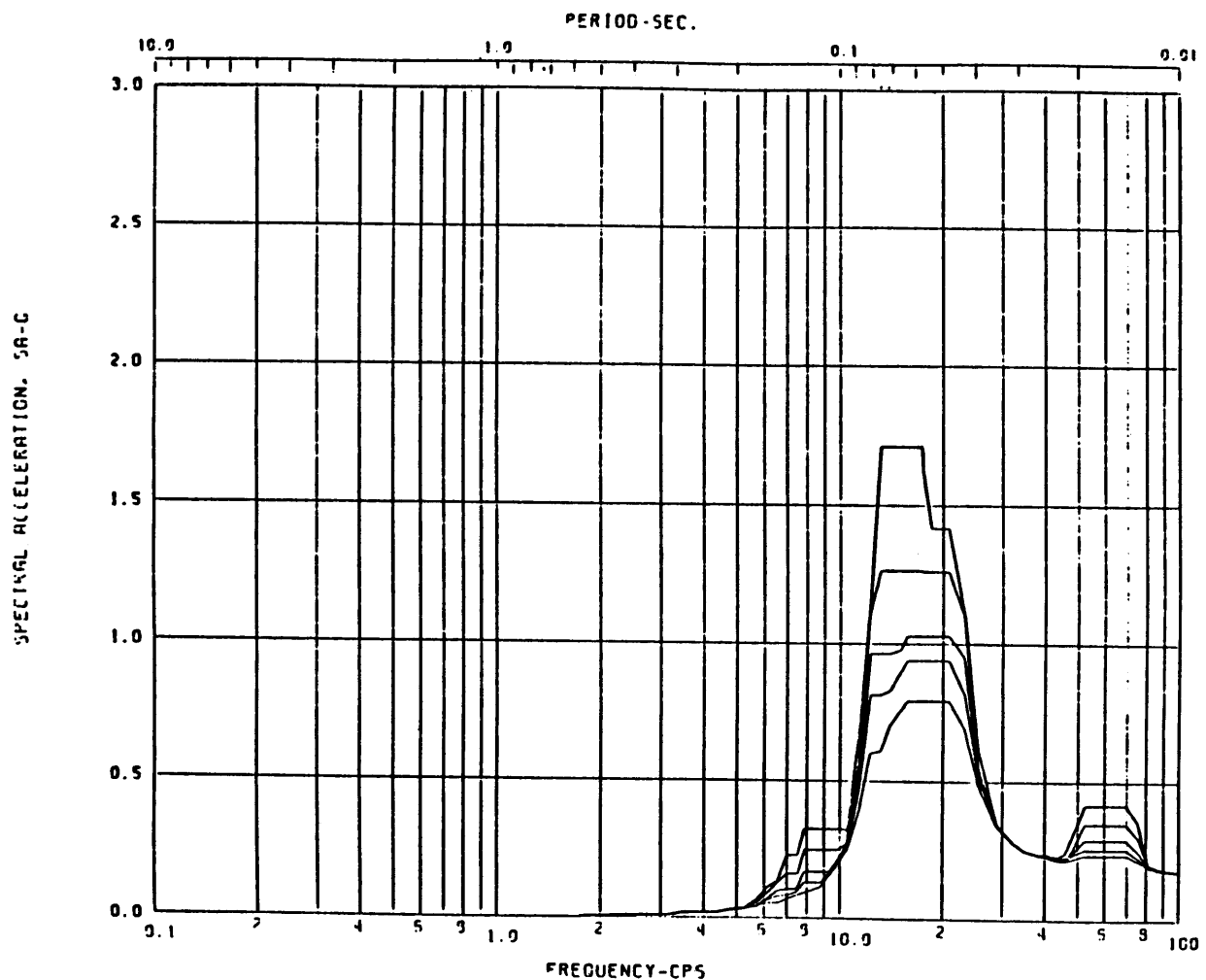
Node: 7 Direction: VERTICAL Elev: 254'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-314**



Acceleration Spectra for CONTROL STRUCTURE

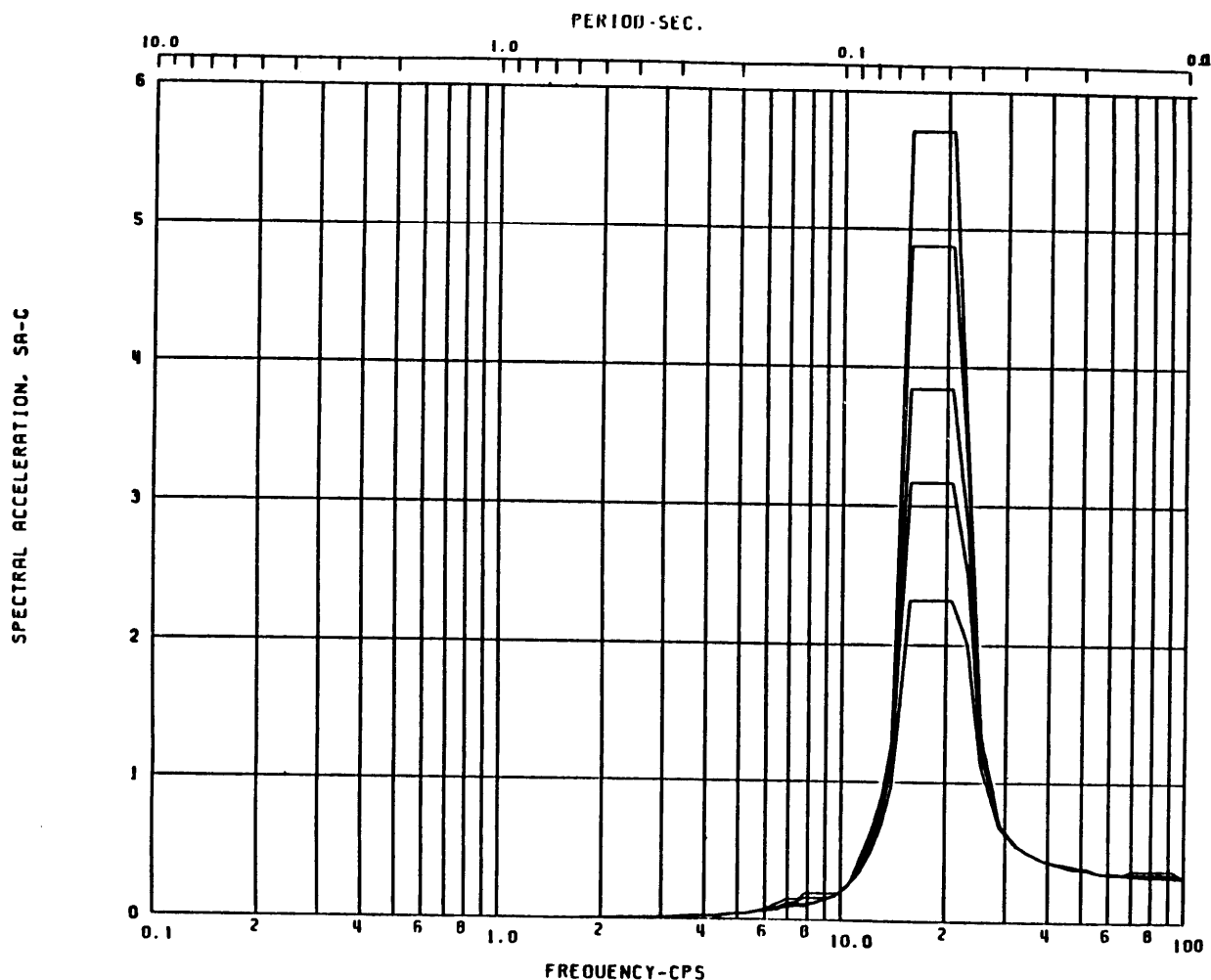
Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

Node: 7 Direction: VERTICAL Elev: 269'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CO - BASIC AXISYMMETRIC

FIGURE 3A-315



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

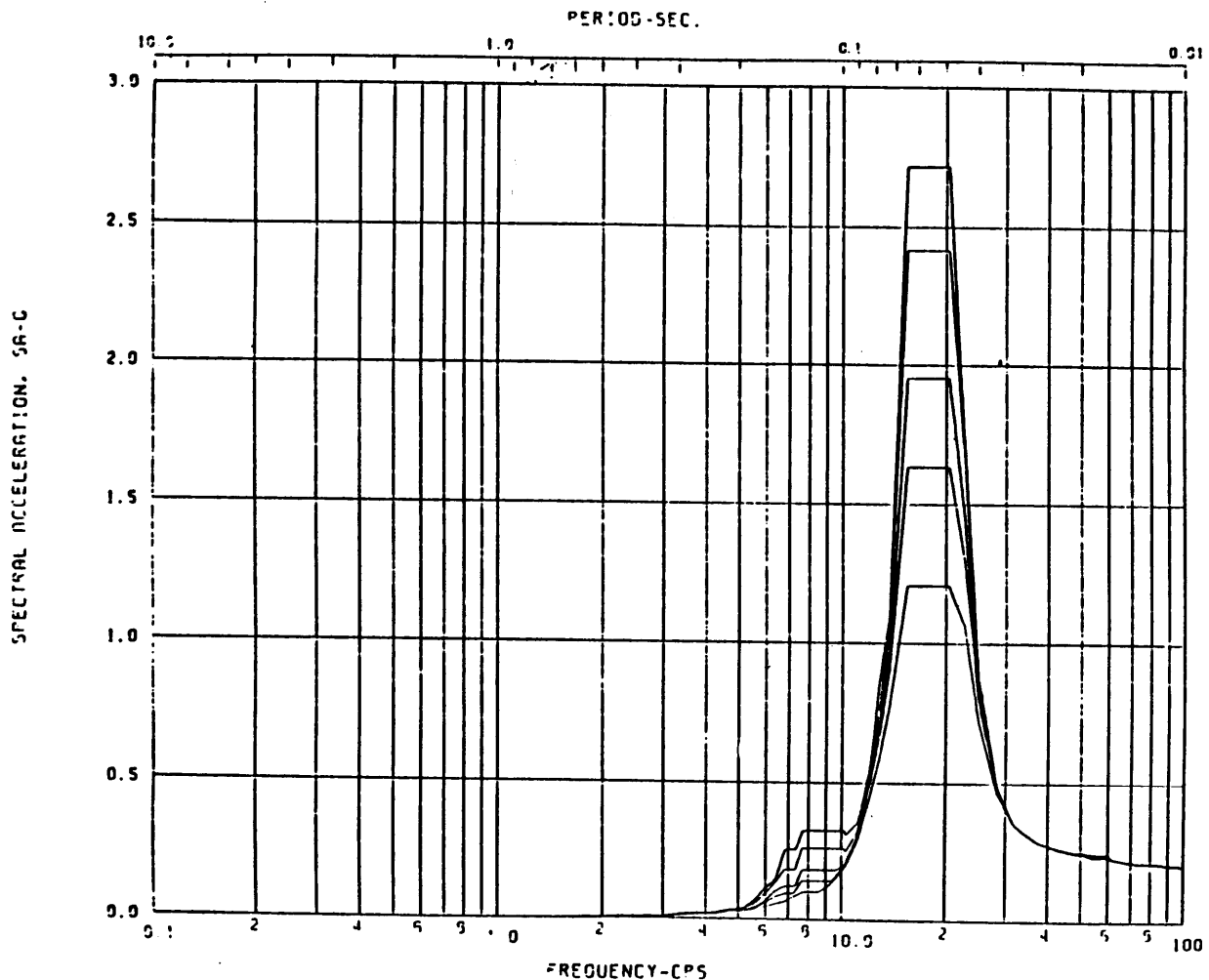
Node: 7 Direction: VERTICAL Elev: 289'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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FIGURE 3A-316



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

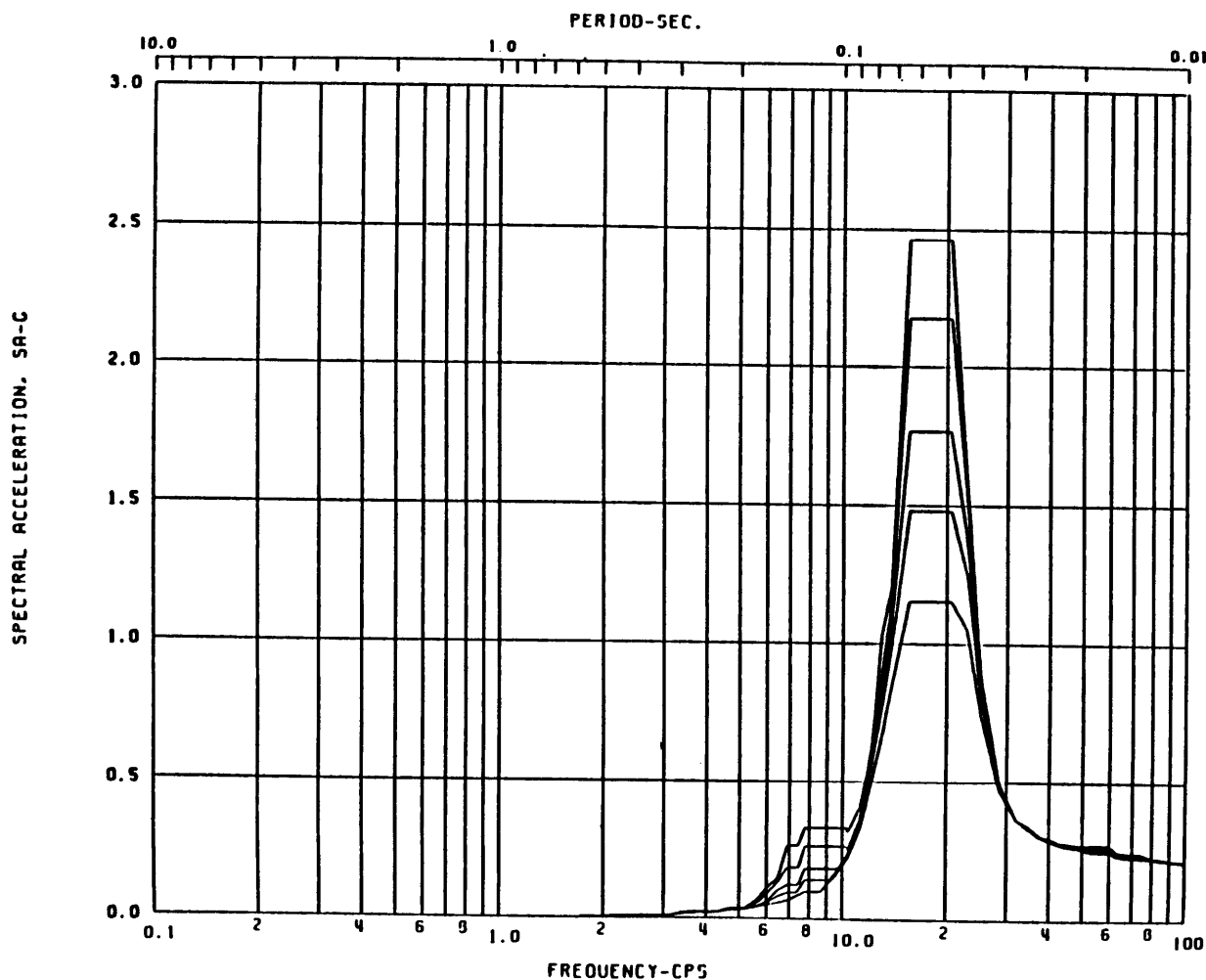
Node: 7 Direction: VERTICAL Elev: 304'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-317**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-BASIC ENVELOPE (WIDENED - 15%)

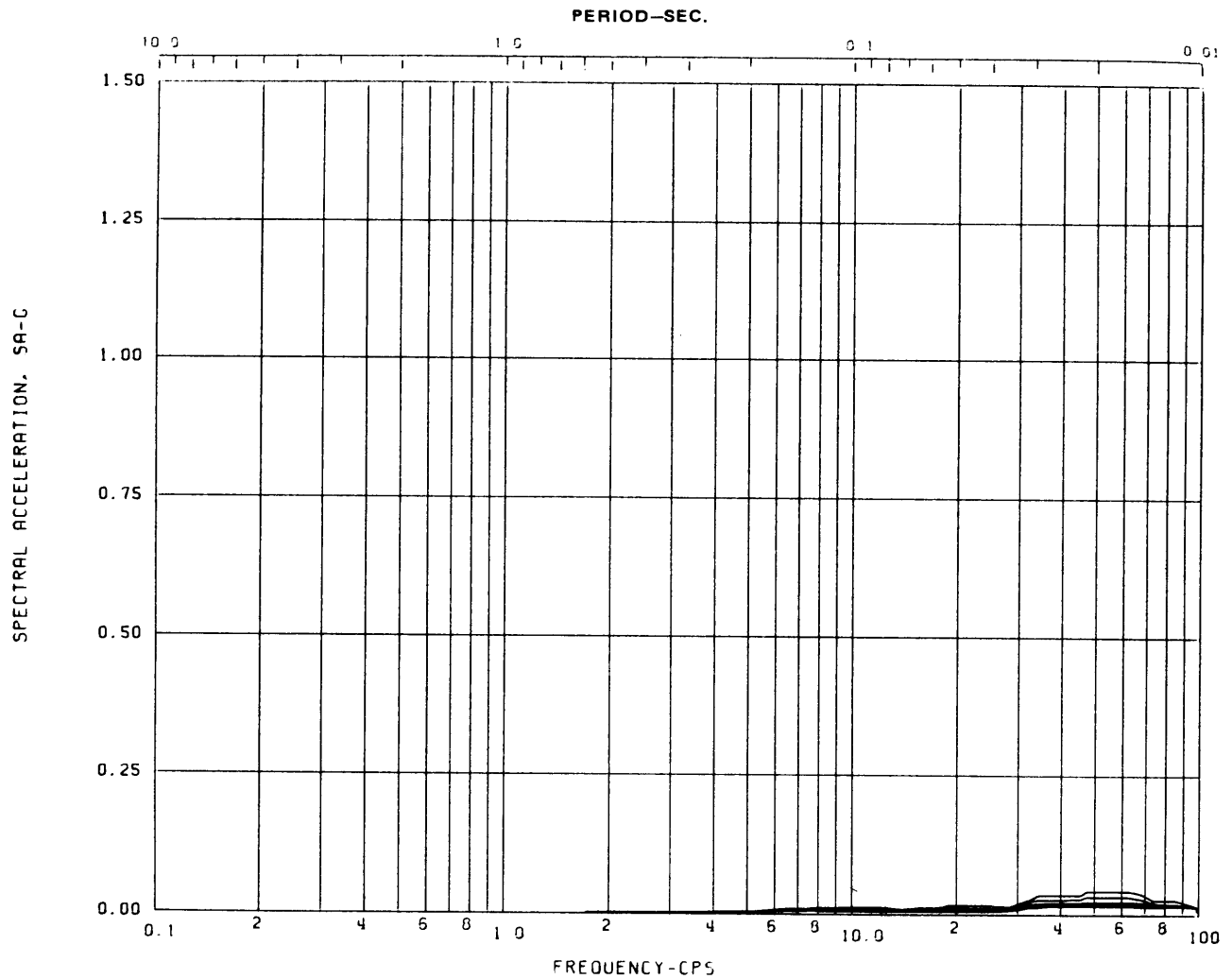
Node: 7 Direction: VERTICAL Elev: 332'

Damping: 0.005,0.01,0.02,0.03,0.05

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**FIGURE 3A-318**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

Node: 159 Direction: VERTICAL Elev: 177'-0

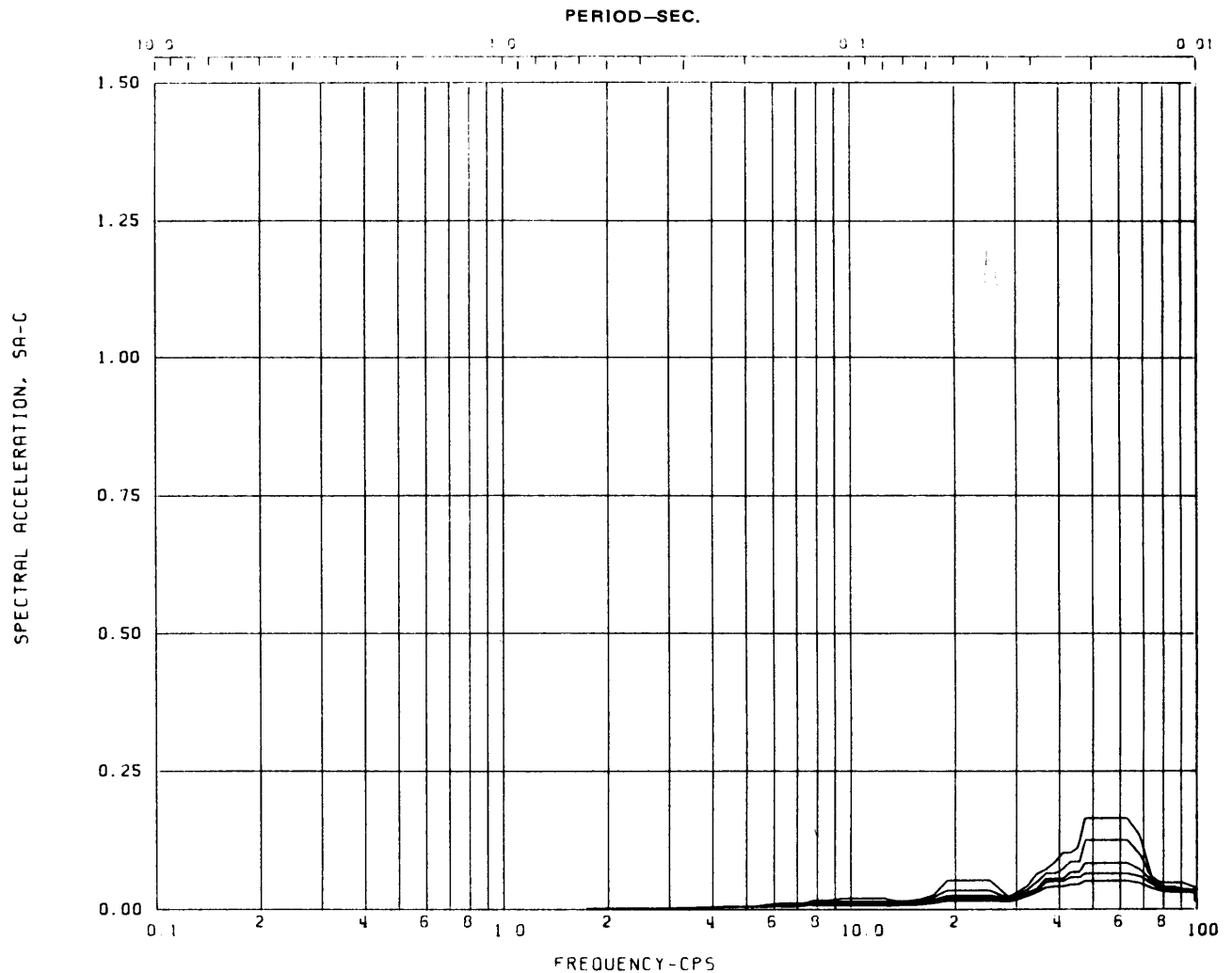
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - ADS AXISYMMETRIC**

**FIGURE 3A-319**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

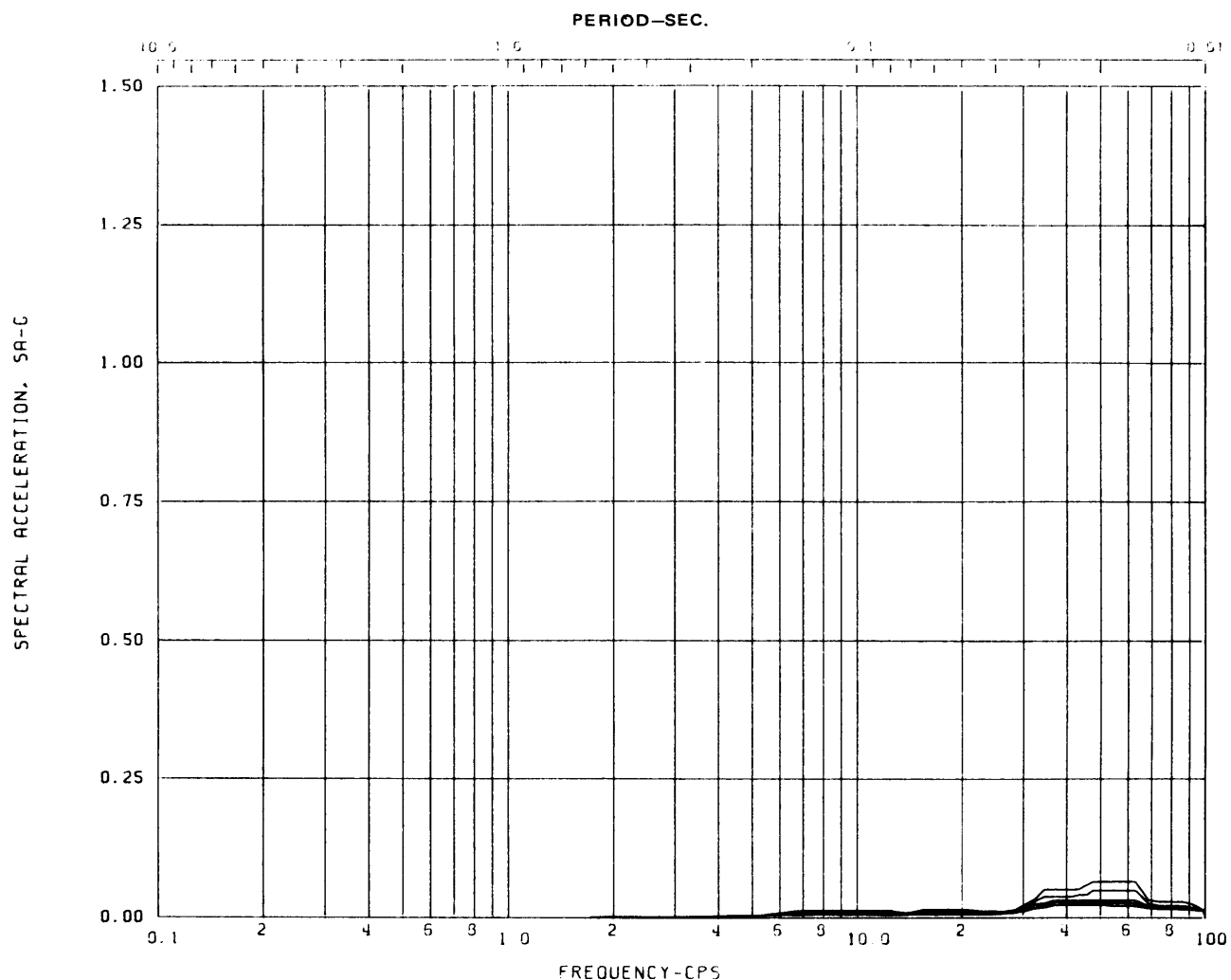
Node: 154 Direction: VERTICAL Elev: 177'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - ADS AXISYMMETRIC**

**FIGURE 3A-320**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

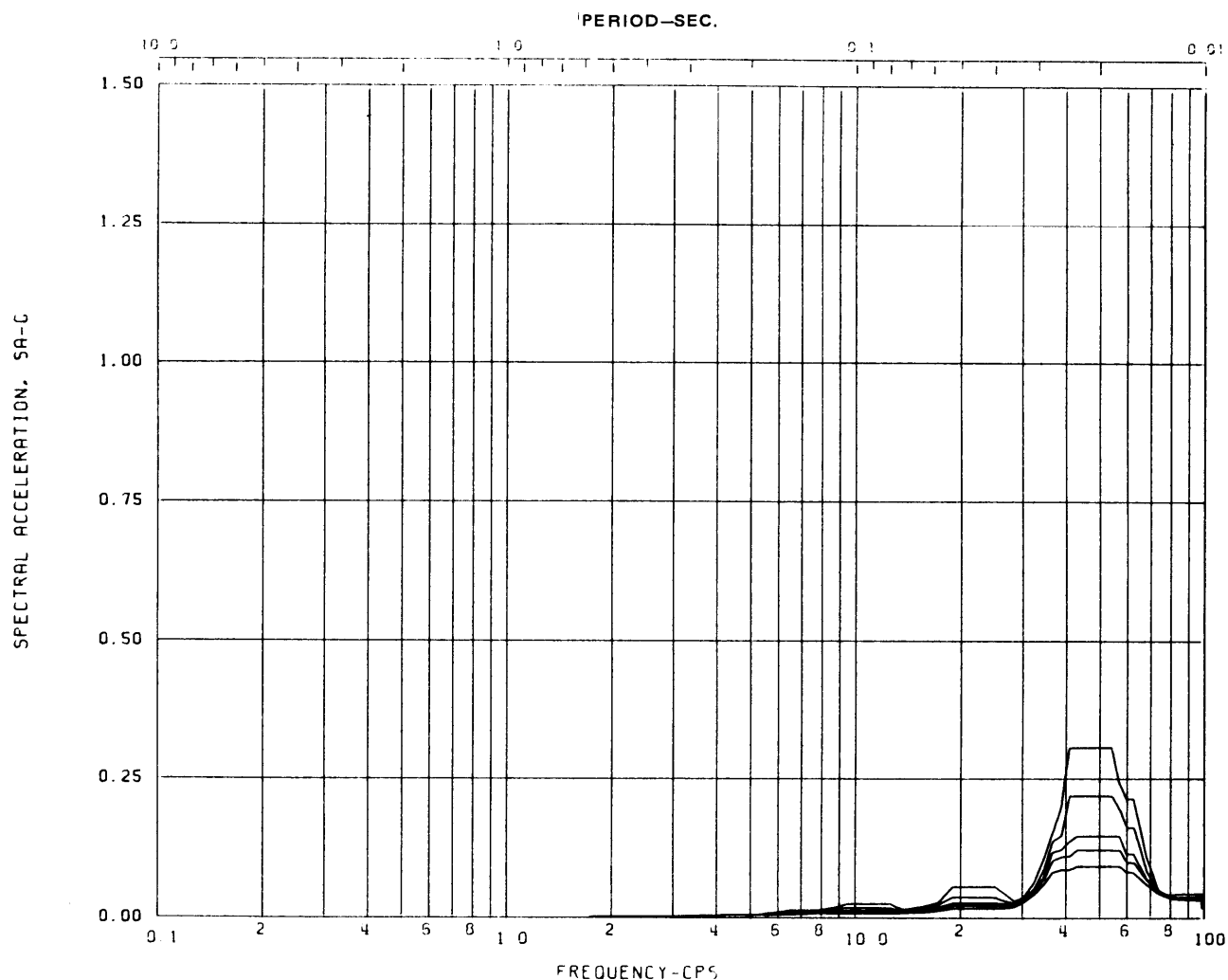
Node: 128 Direction: VERTICAL Elev: 201'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CO - ADS AXISYMMETRIC**

**FIGURE 3A-321**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

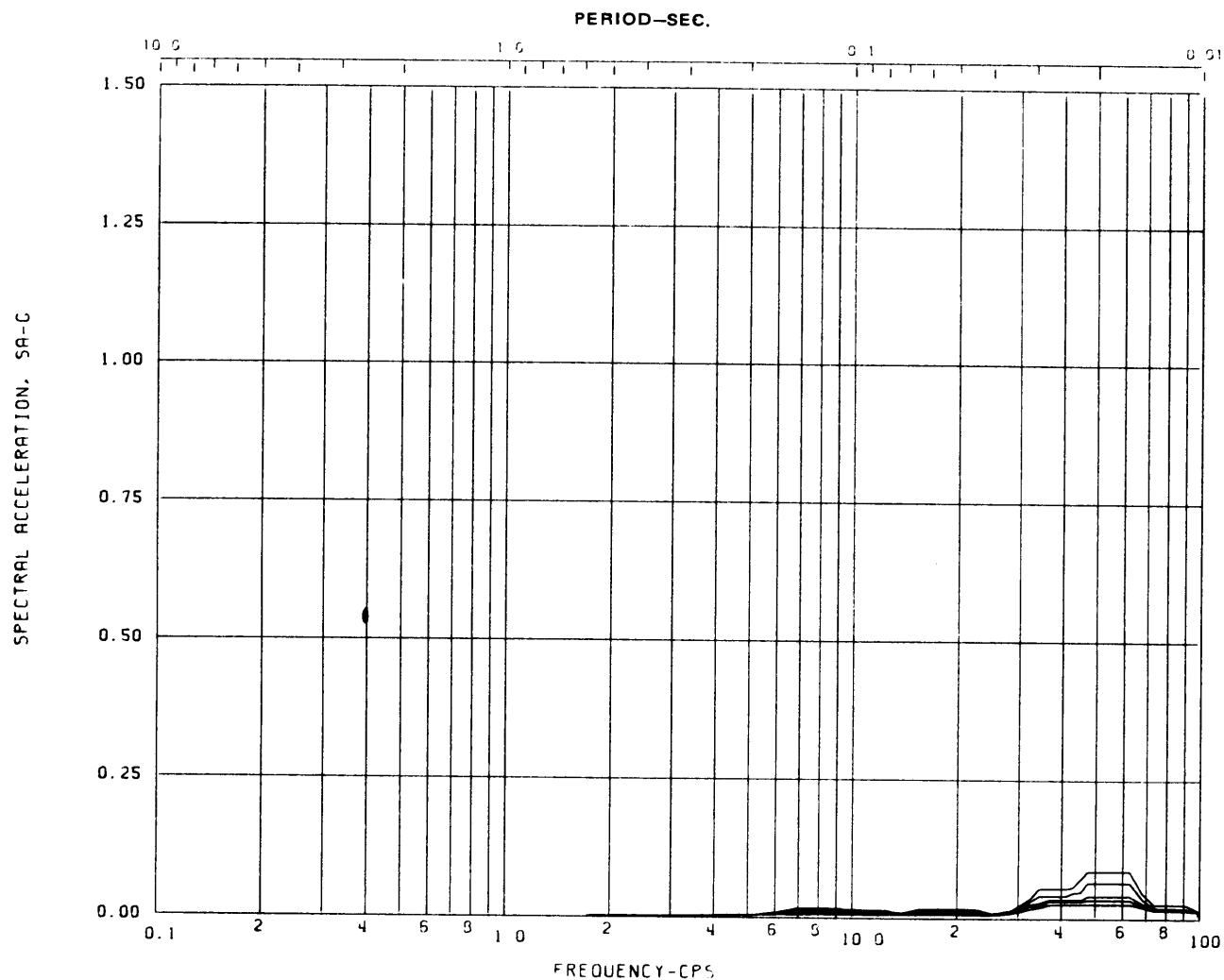
Node: 130 Direction: VERTICAL Elev: 201'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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CO - ADS AXISYMMETRIC**

**FIGURE 3A-322**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

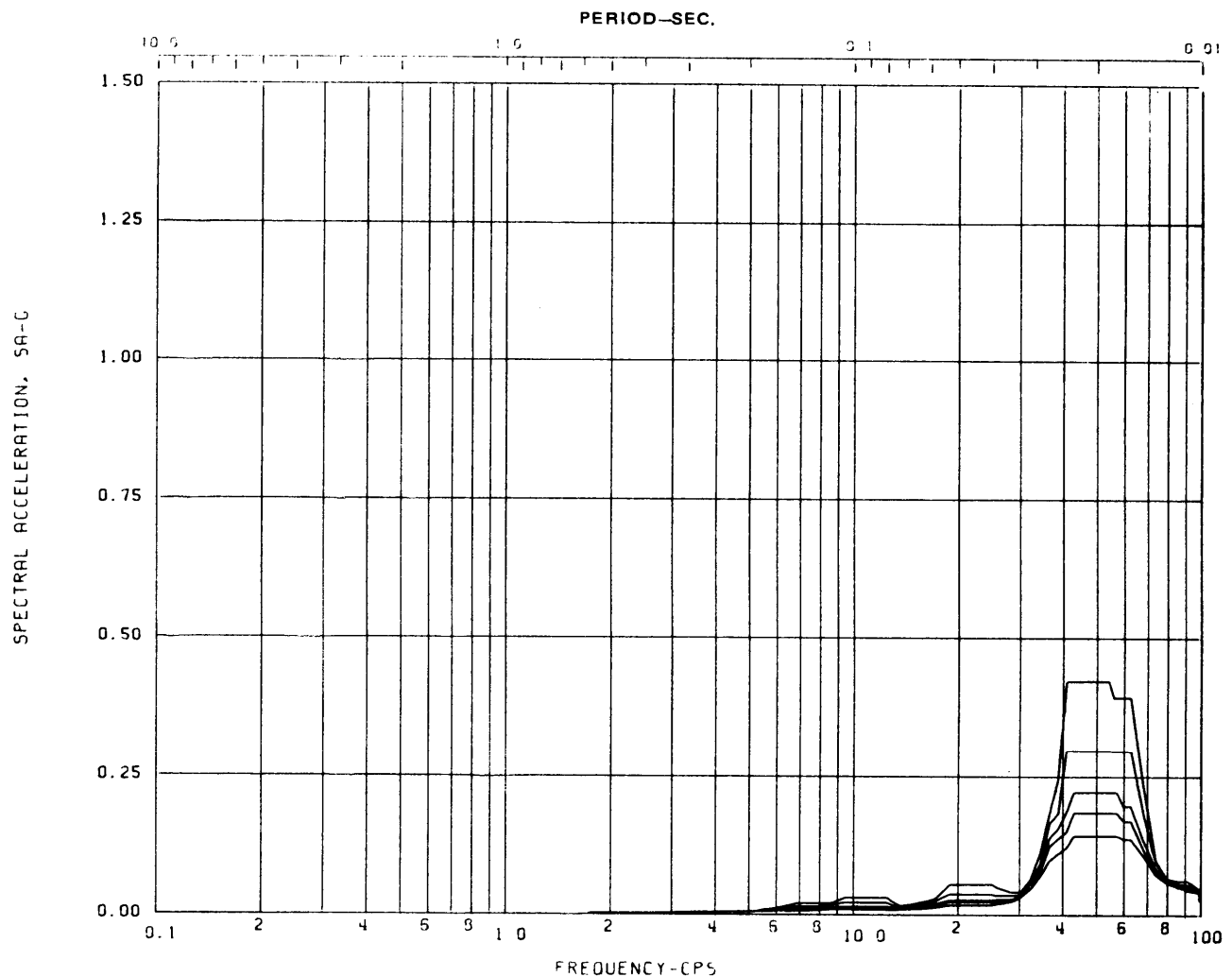
Node: 106 Direction: VERTICAL Elev: 217'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-323**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

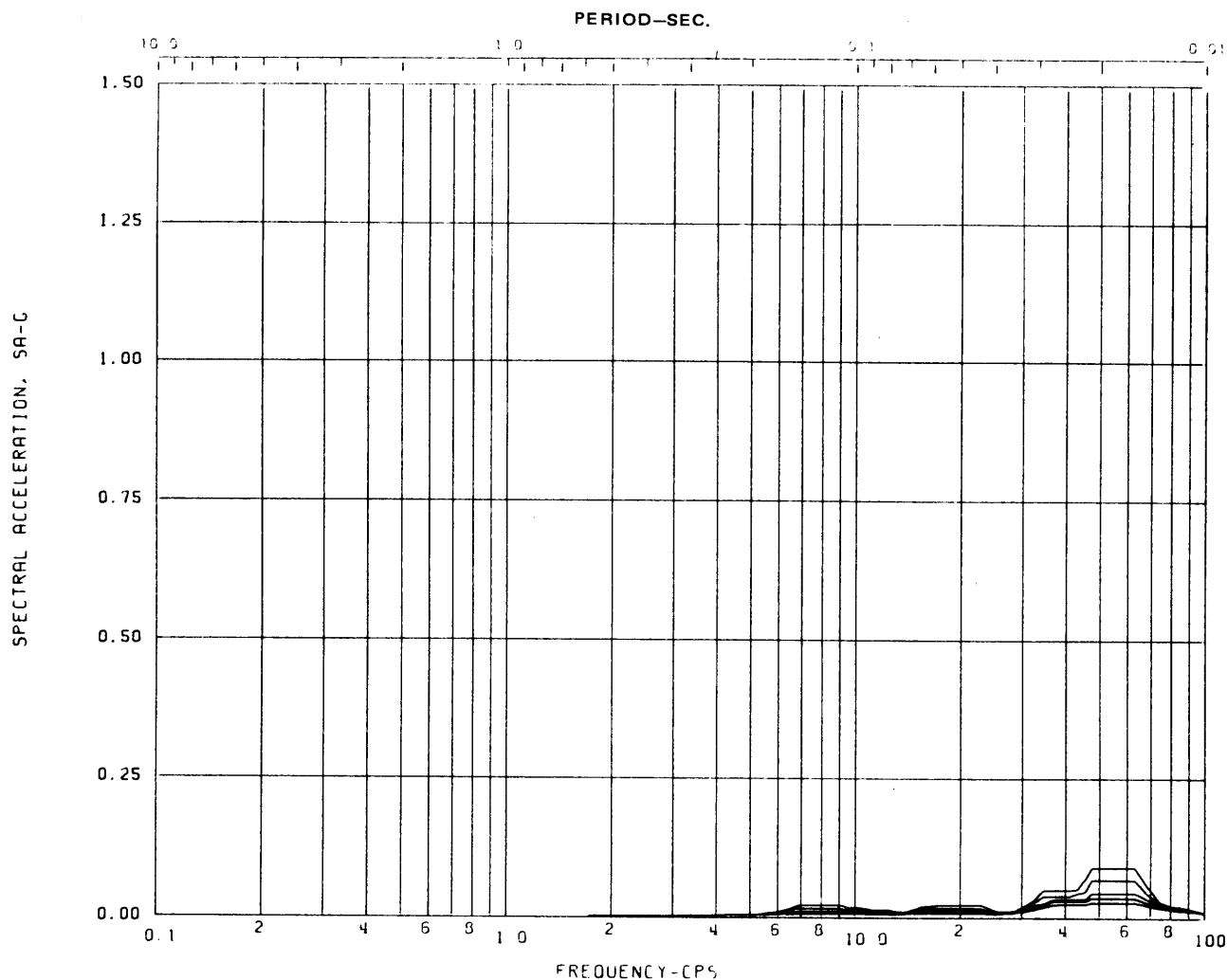
Node: 108 Direction: VERTICAL Elev: 217'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-324**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

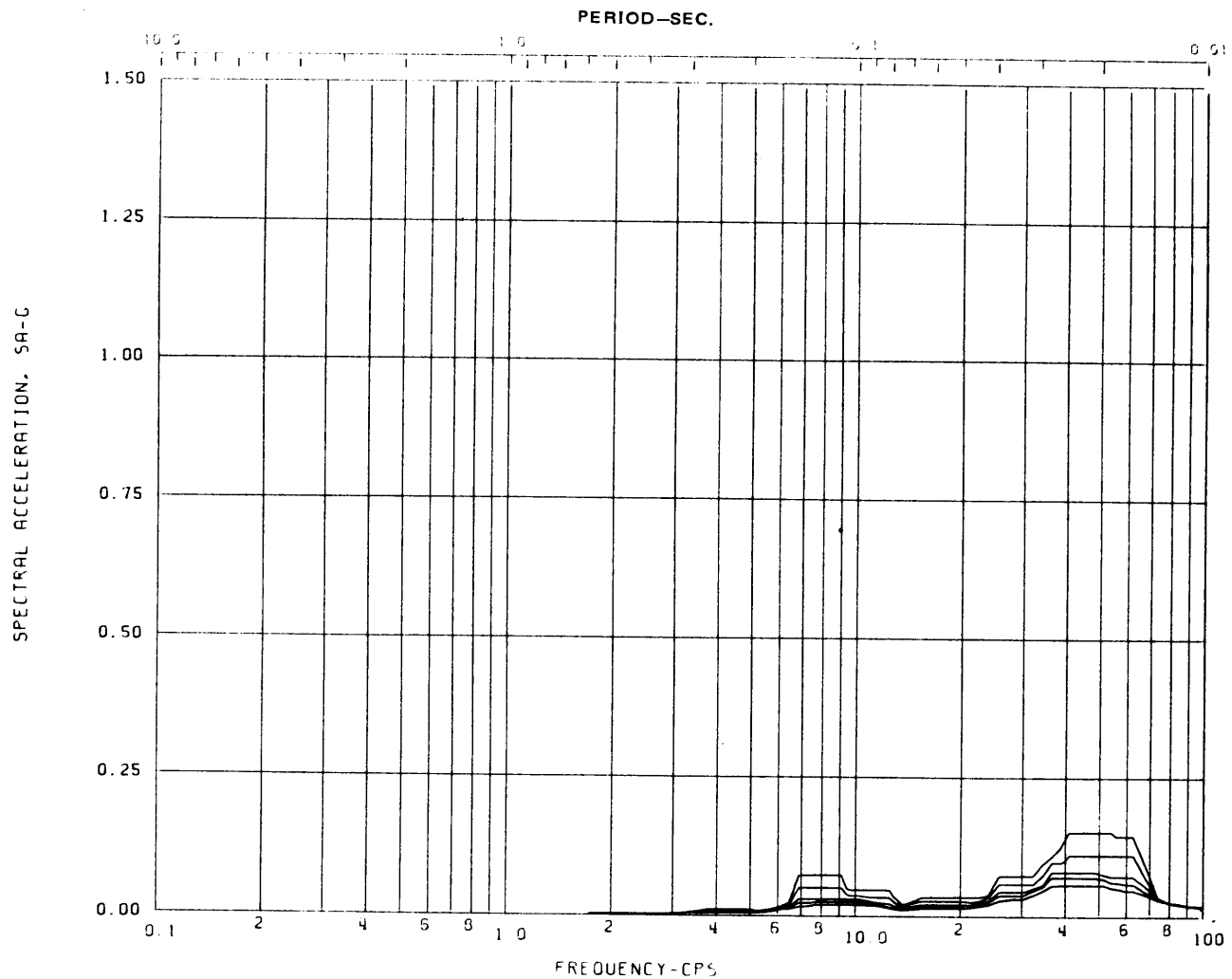
Node: 104 Direction: VERTICAL Elev: 239'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-325**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

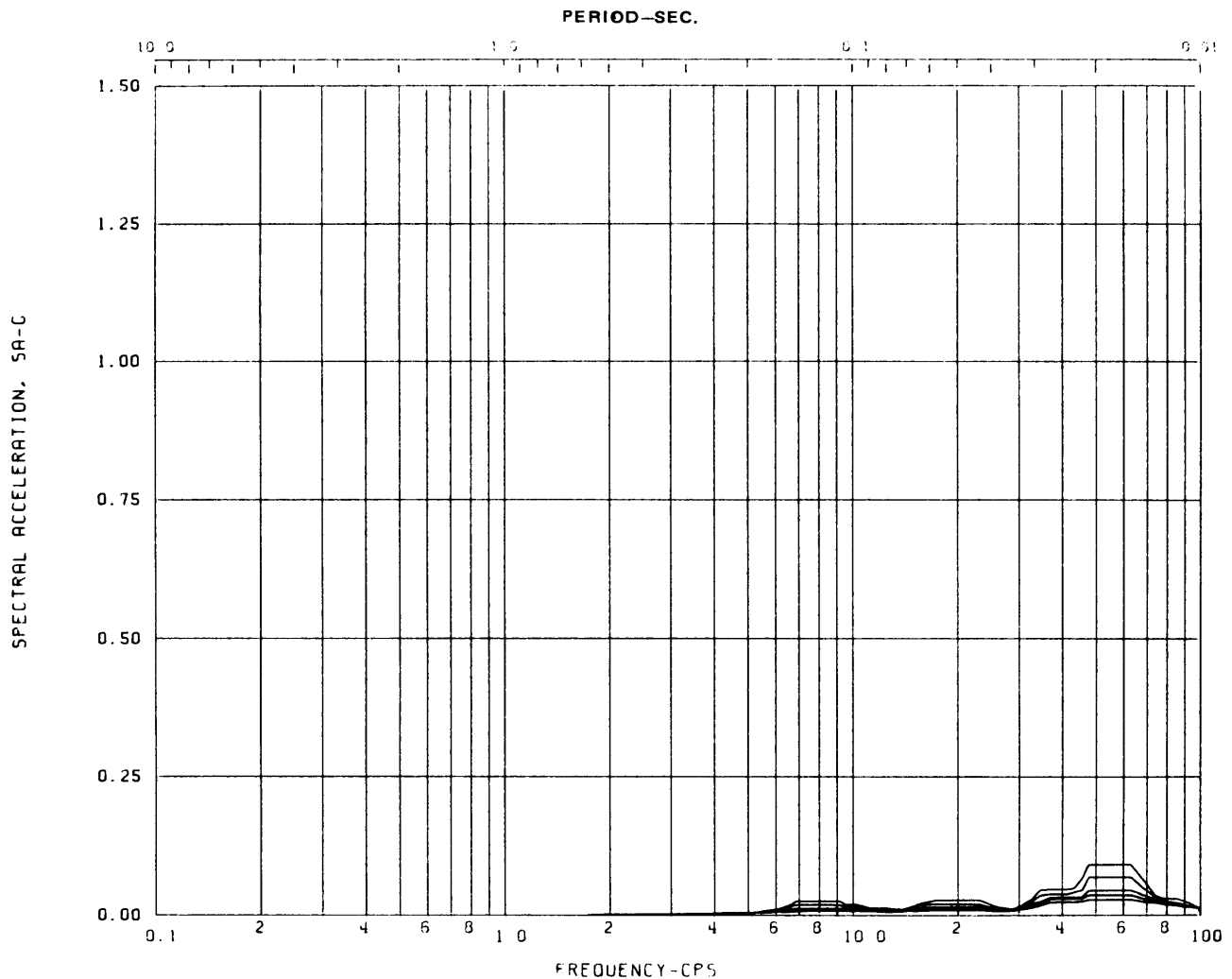
Node: 81 Direction: VERTICAL Elev: 253'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-326**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

Node: 19 Direction: VERTICAL Elev: 253'-0

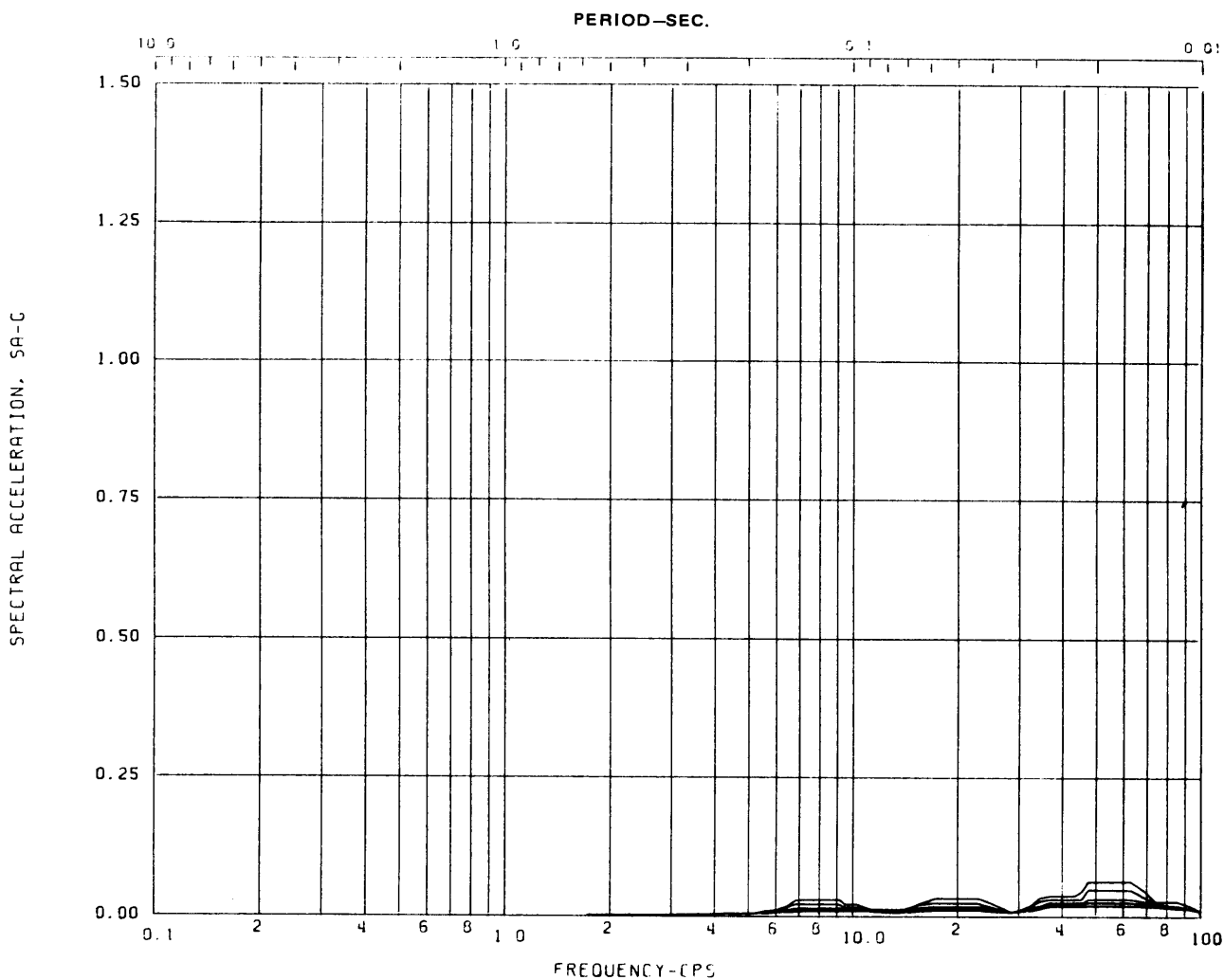
Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-327**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

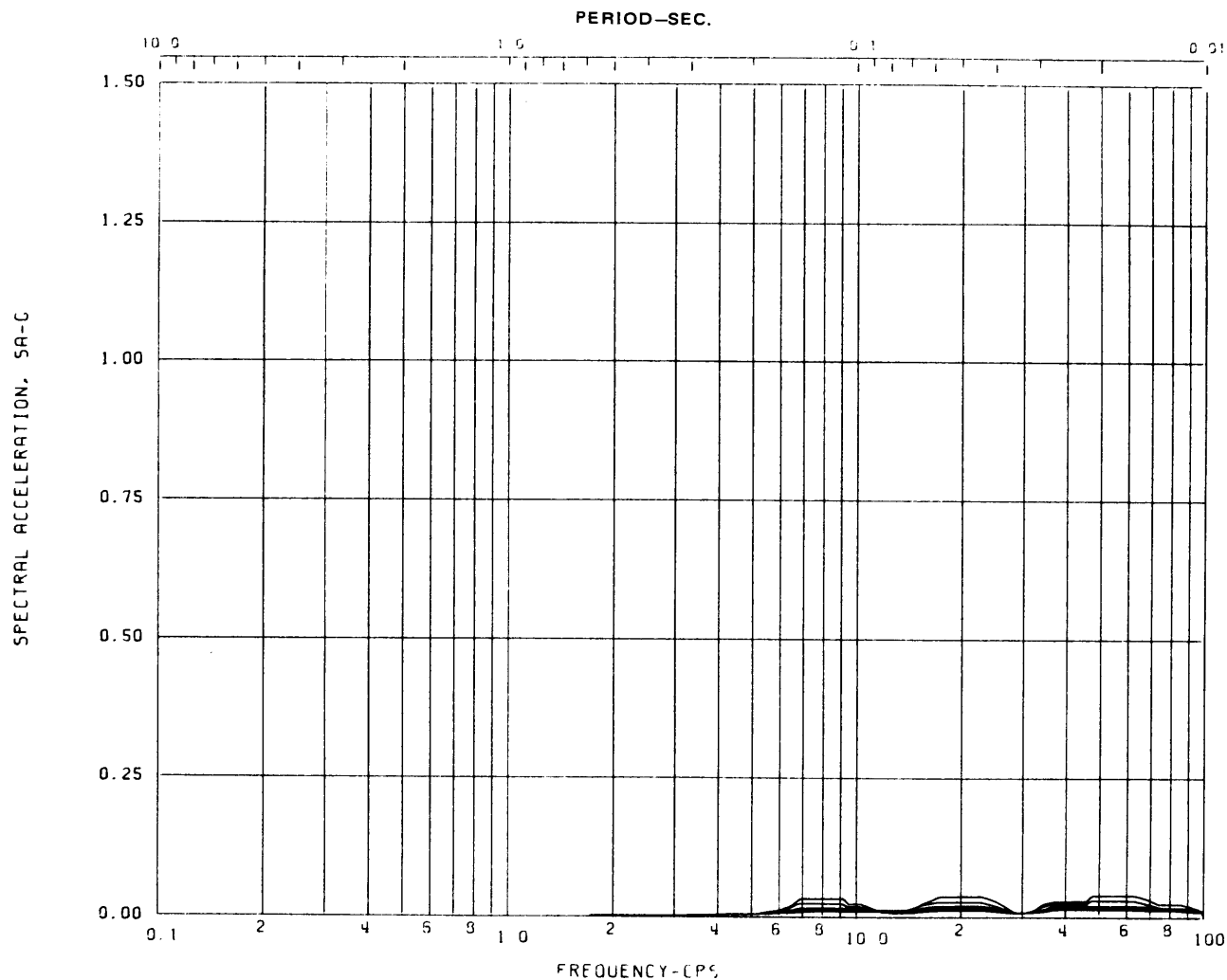
Node: 77 Direction: VERTICAL Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-328**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

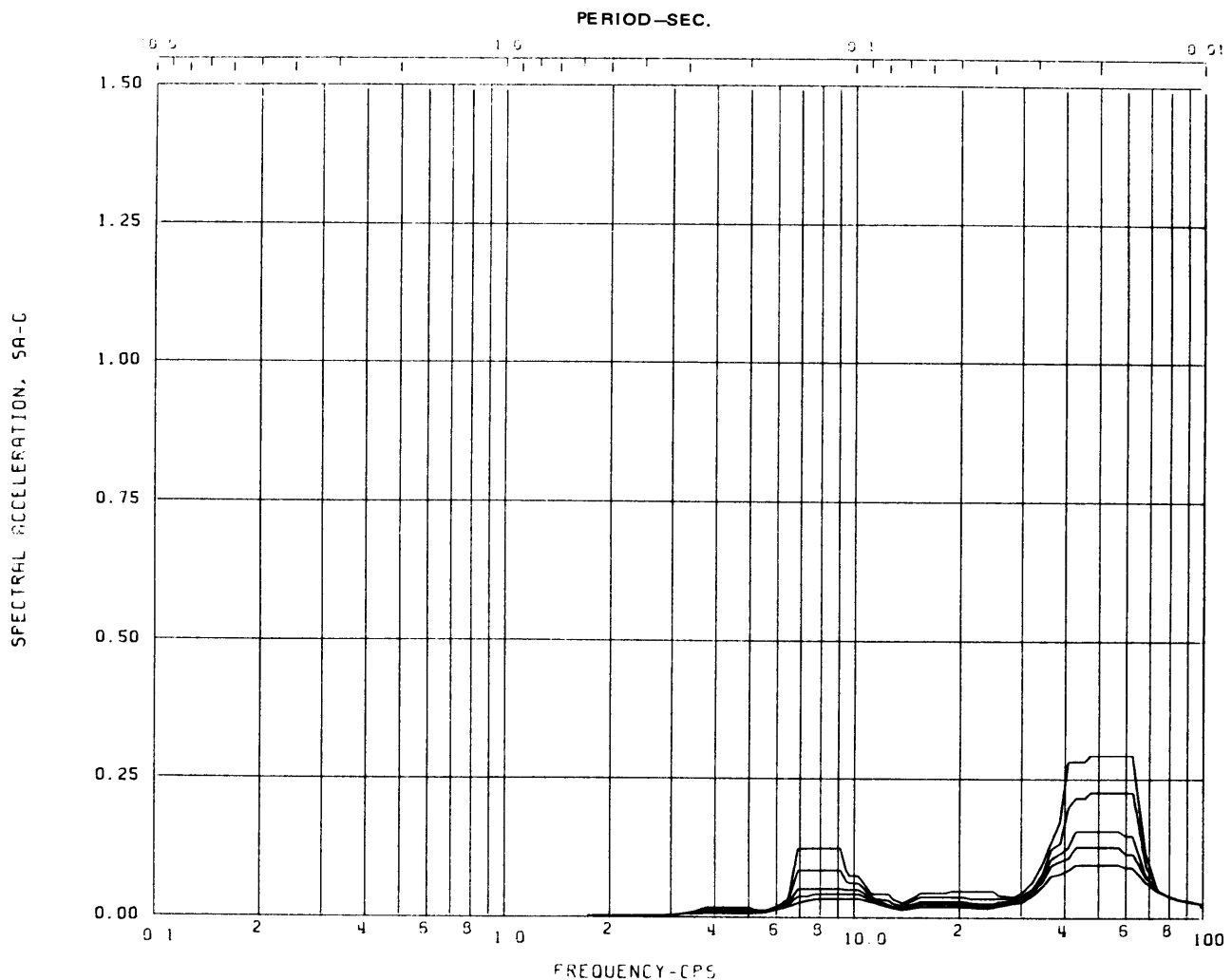
Node: 58 Direction: VERTICAL Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-329**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

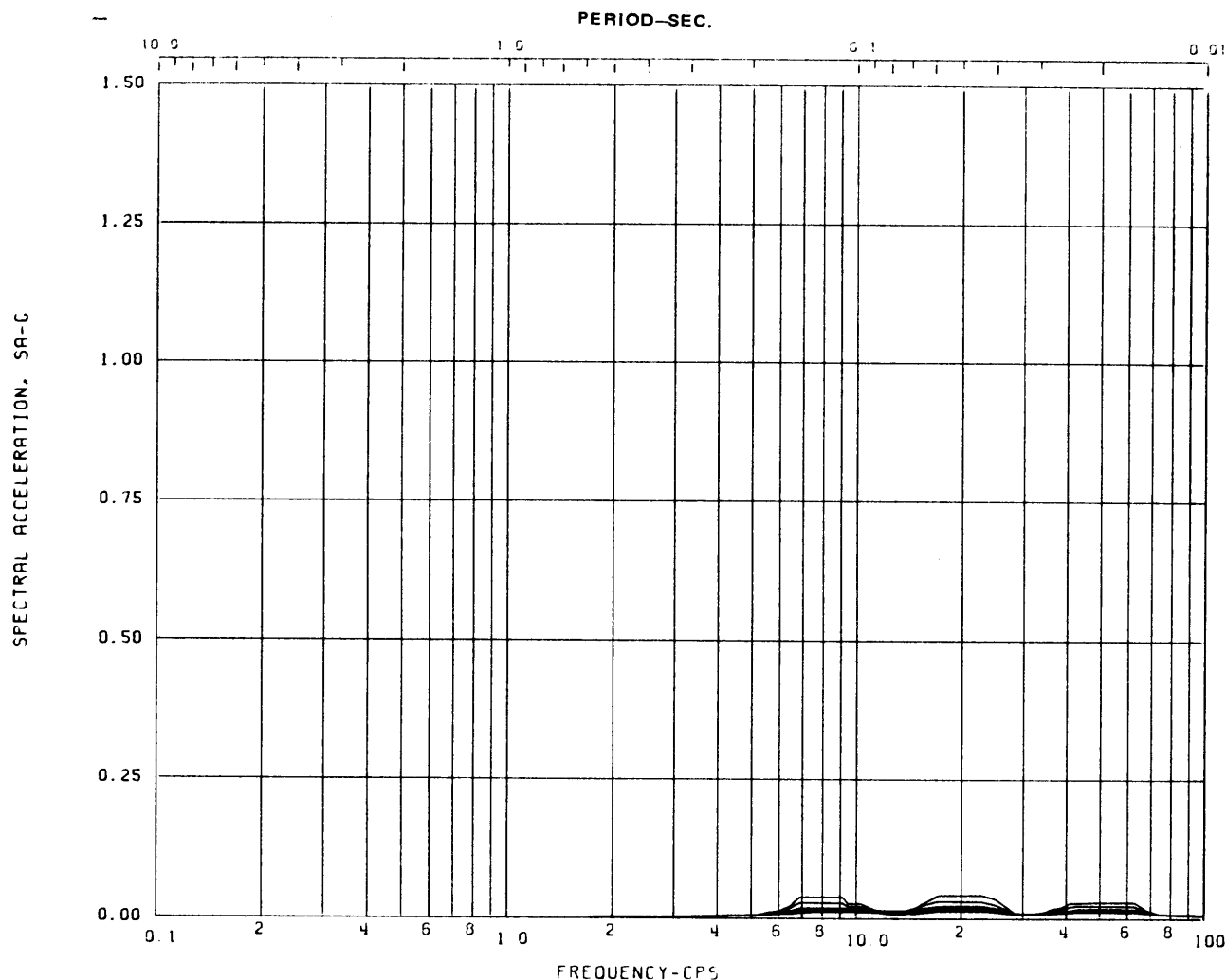
Node: 60 Direction: VERTICAL Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-330**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

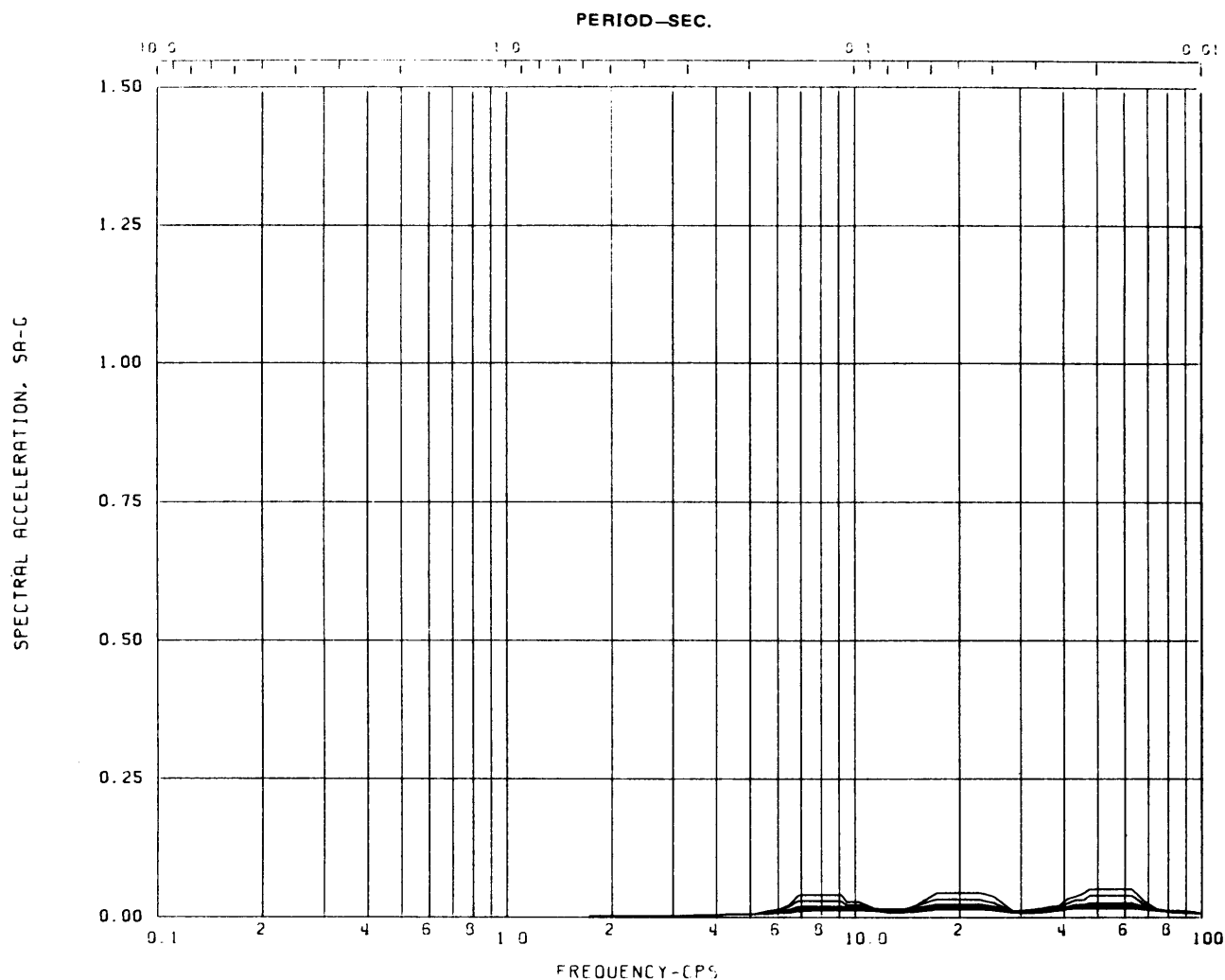
Node: 56 Direction: VERTICAL Elev: 304'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-331**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

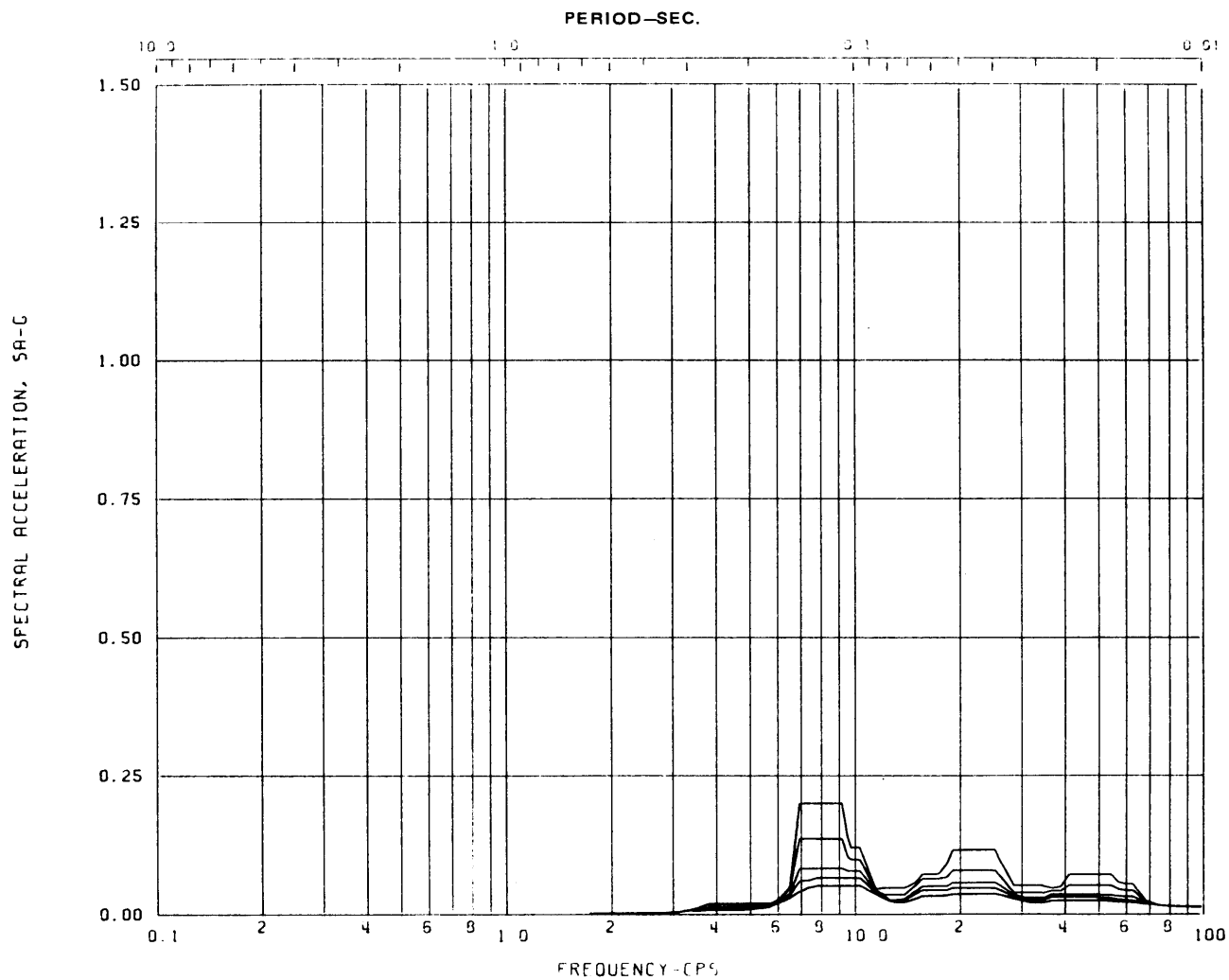
Node: 35 Direction: VERTICAL Elev: 313'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-332**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

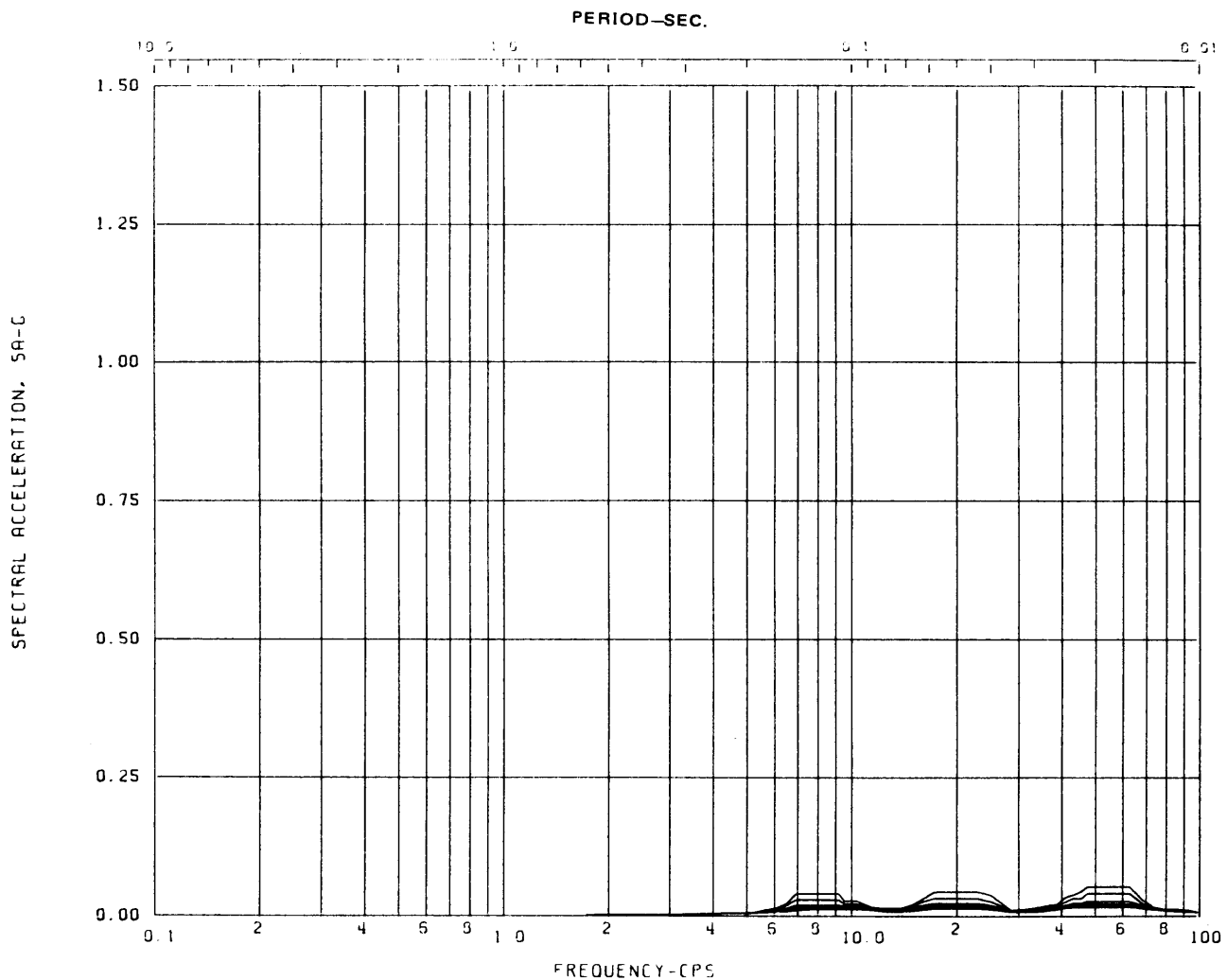
Node: 43 Direction: VERTICAL Elev: 313'-0

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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CO - ADS AXISYMMETRIC**

**FIGURE 3A-333**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

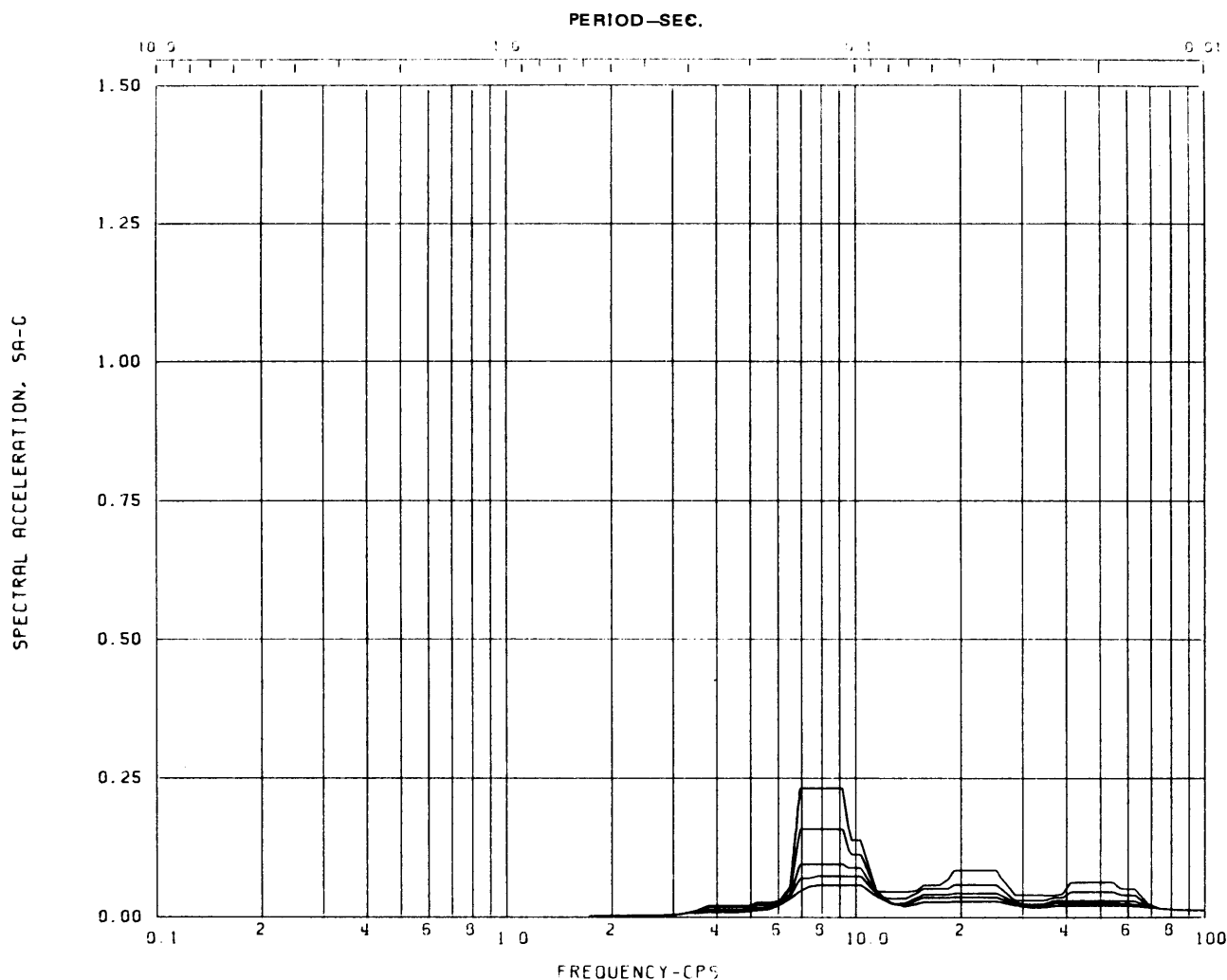
Node: 21 Direction: VERTICAL Elev: 333'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
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CO - ADS AXISYMMETRIC**

**FIGURE 3A-334**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

Node: 33 Direction: VERTICAL Elev: 333'-0

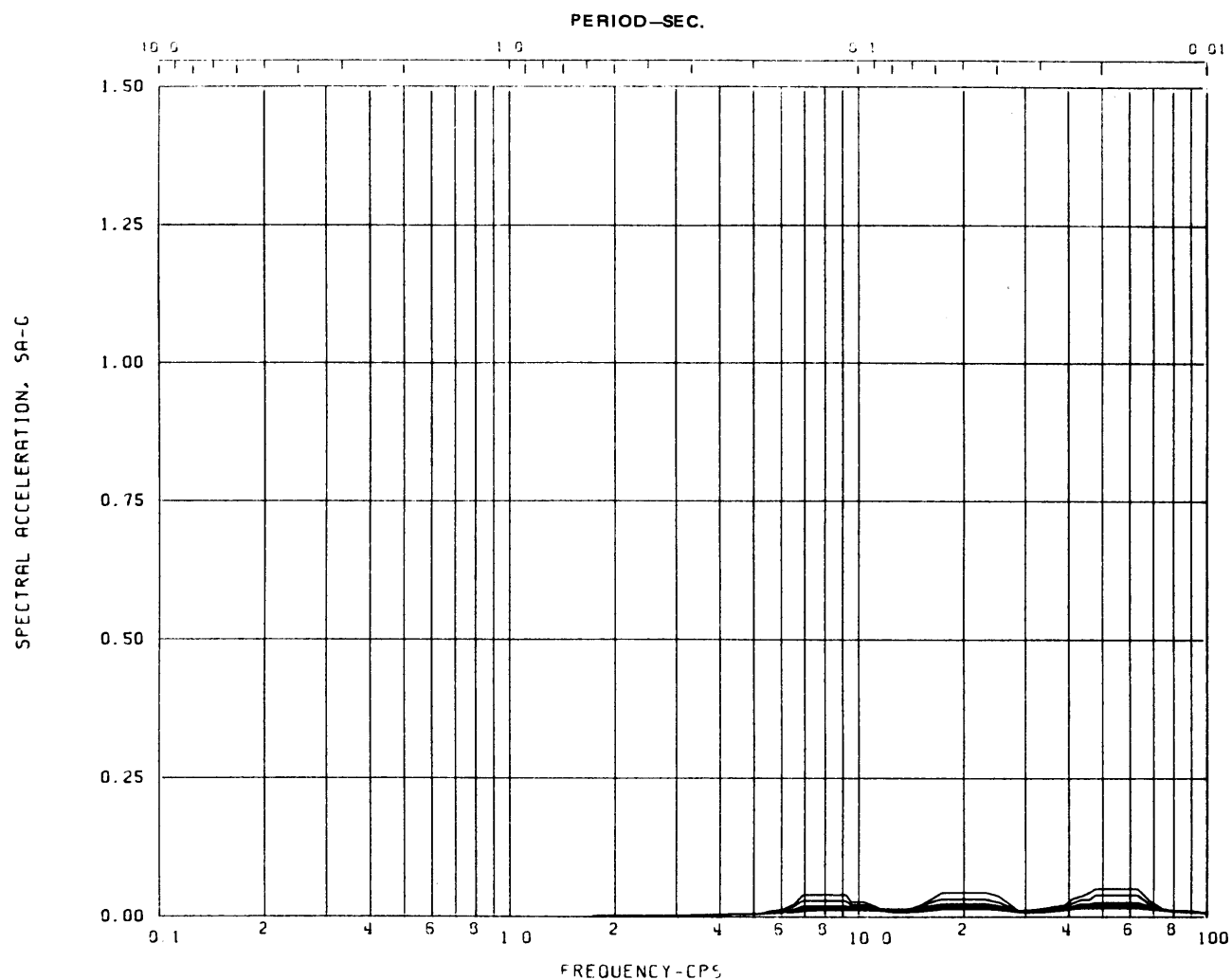
Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
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CO - ADS AXISYMMETRIC**

**FIGURE 3A-335**





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

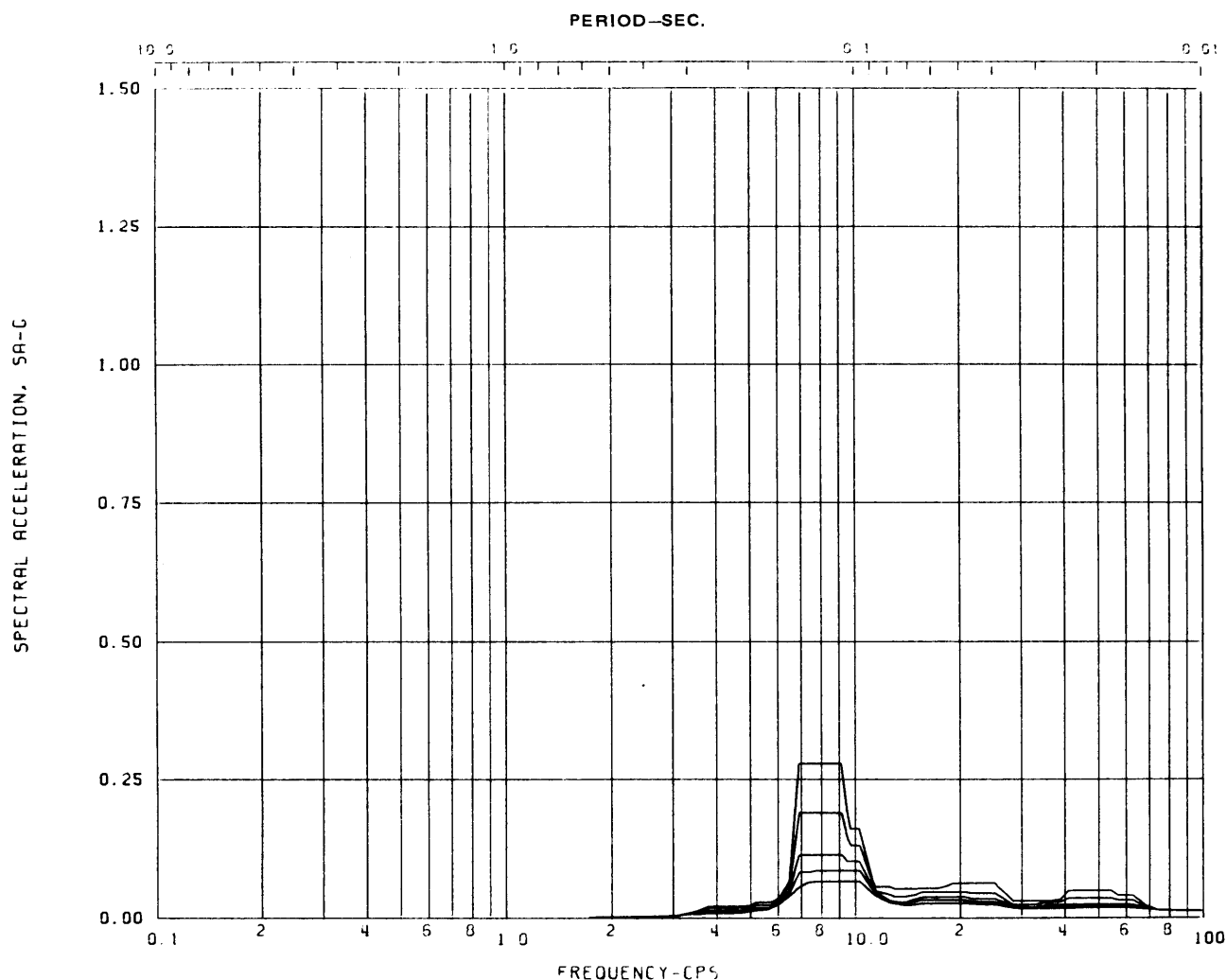
Node: 9 Direction: VERTICAL Elev: 352'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-336**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

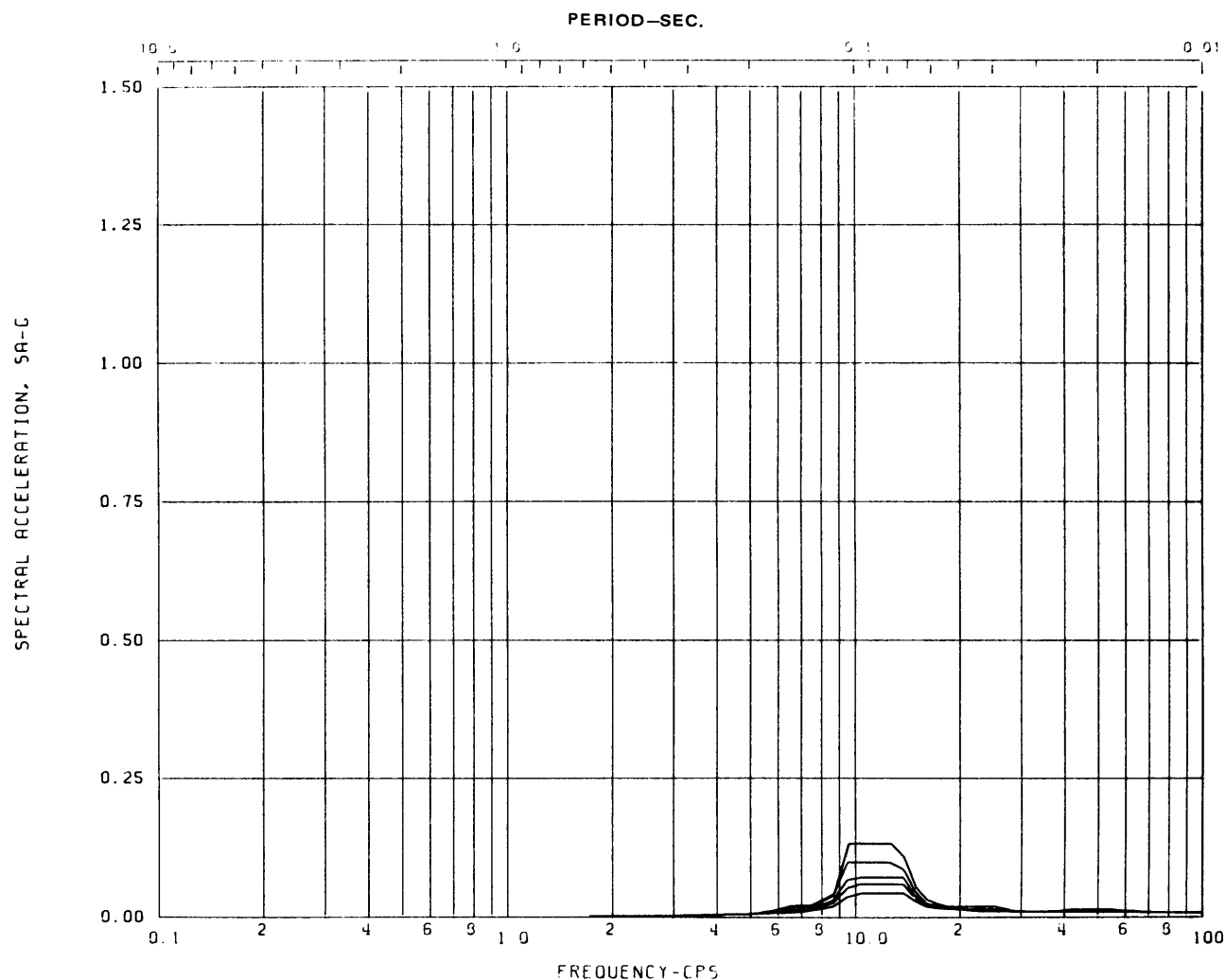
Node: 13 Direction: VERTICAL Elev: 352'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-337**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

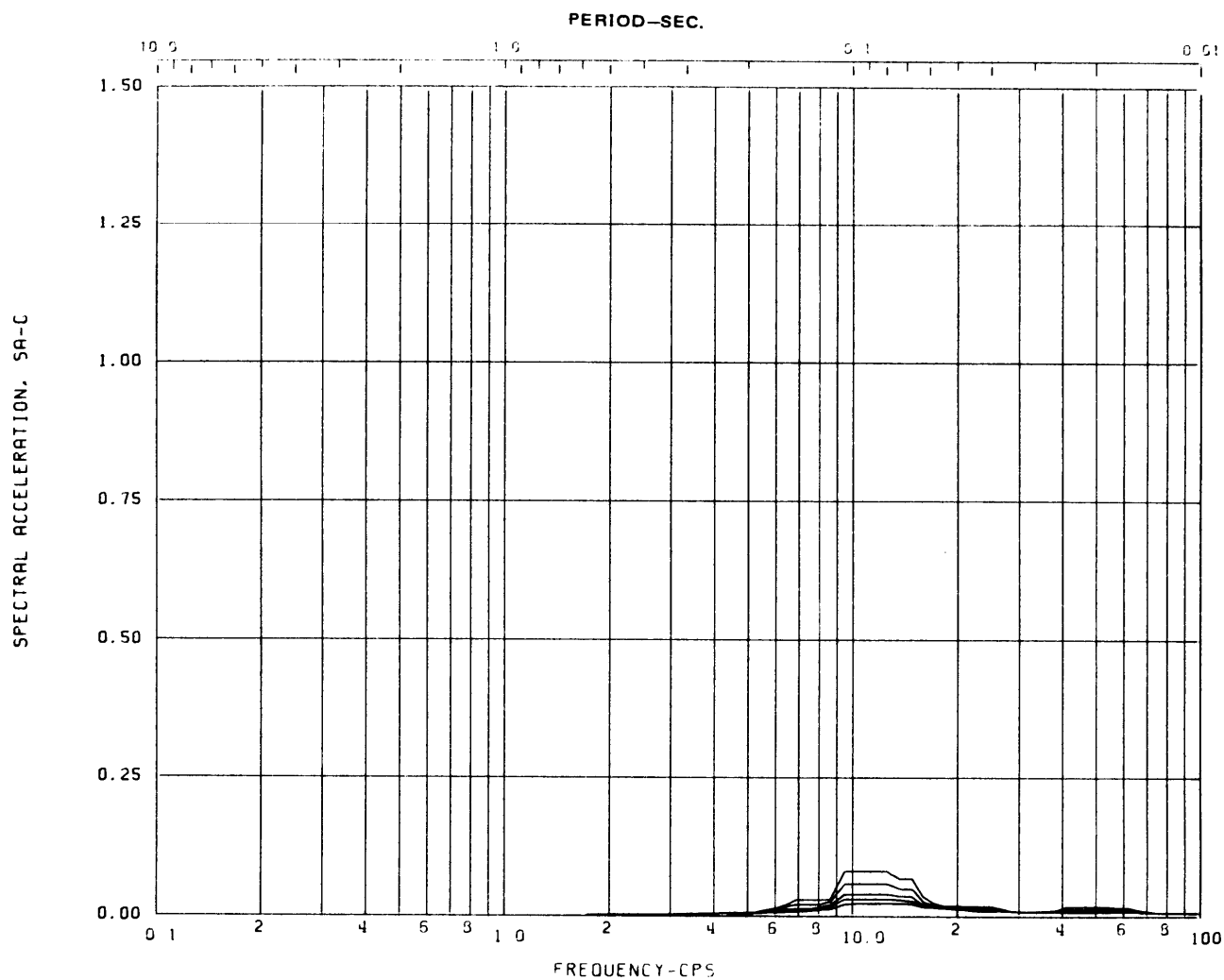
Node: 129 Direction: VERTICAL Elev: 201'-0

Damping: 0.005,0.01,0.02,0.03,0.05

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CO - ADS AXISYMMETRIC**

**FIGURE 3A-338**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

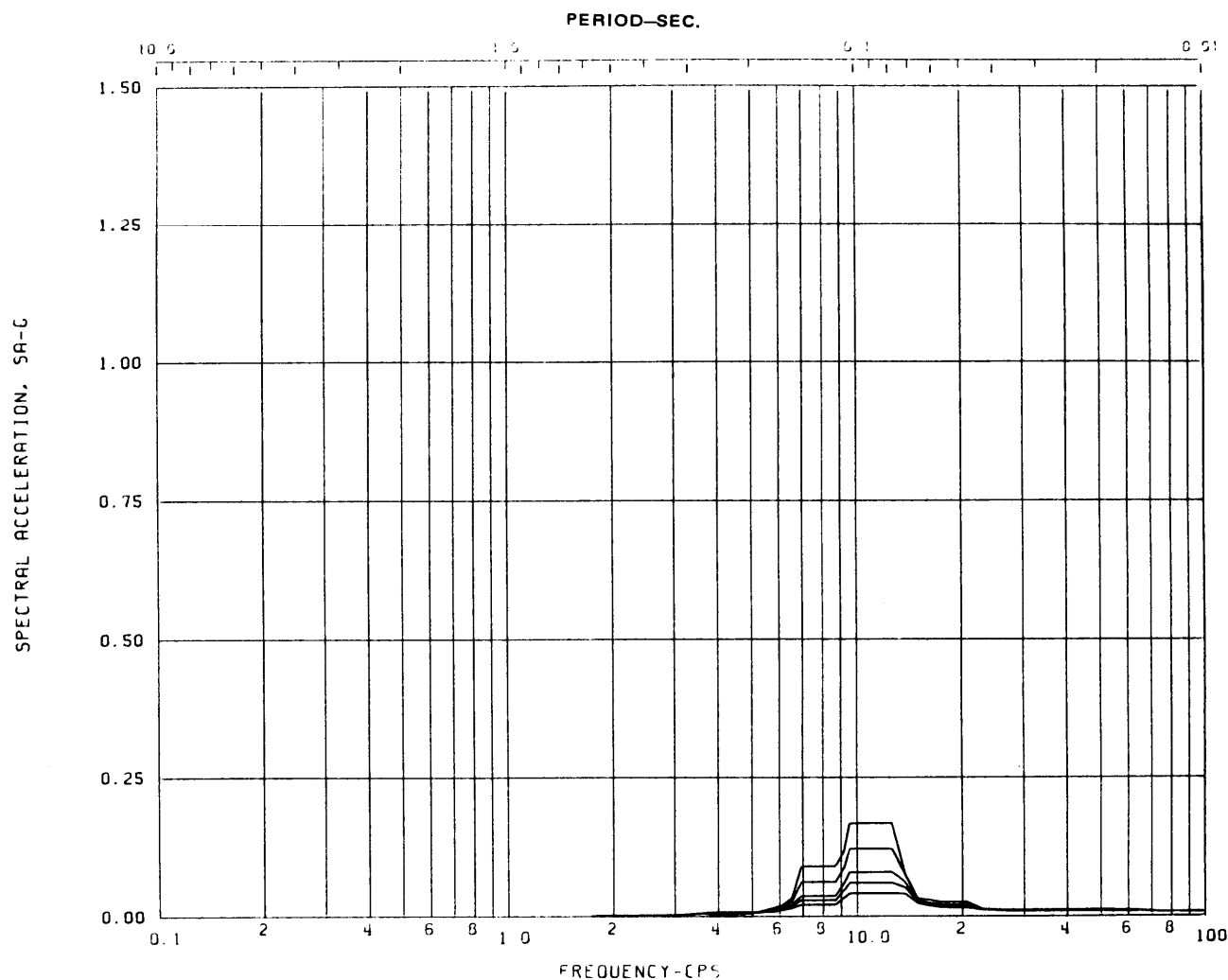
Node: 107 Direction: VERTICAL Elev: 217'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-339**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

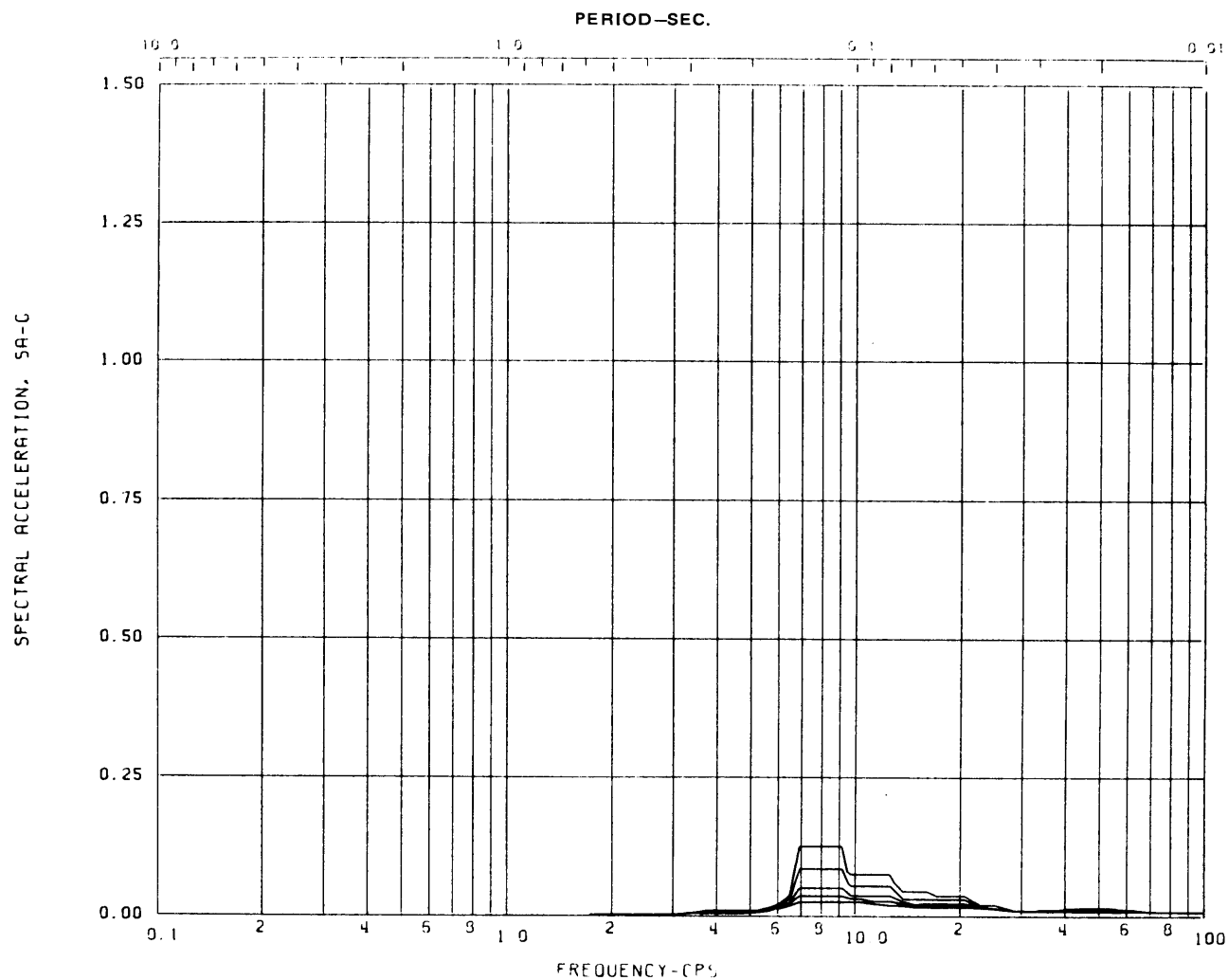
Node: 80 Direction: VERTICAL Elev: 253'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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CO - ADS AXISYMMETRIC**

**FIGURE 3A-340**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

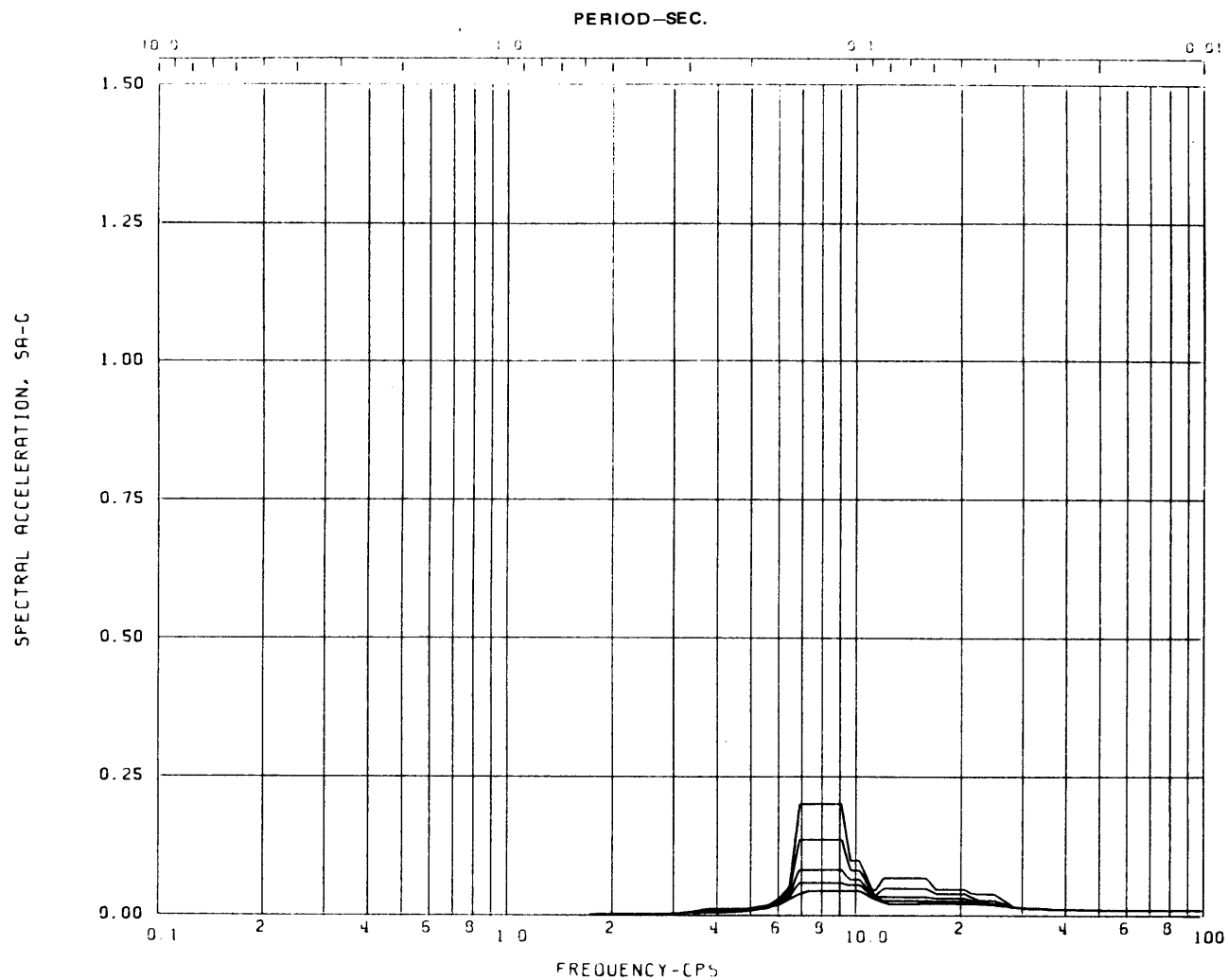
Node: 59 Direction: VERTICAL Elev: 283'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-341**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

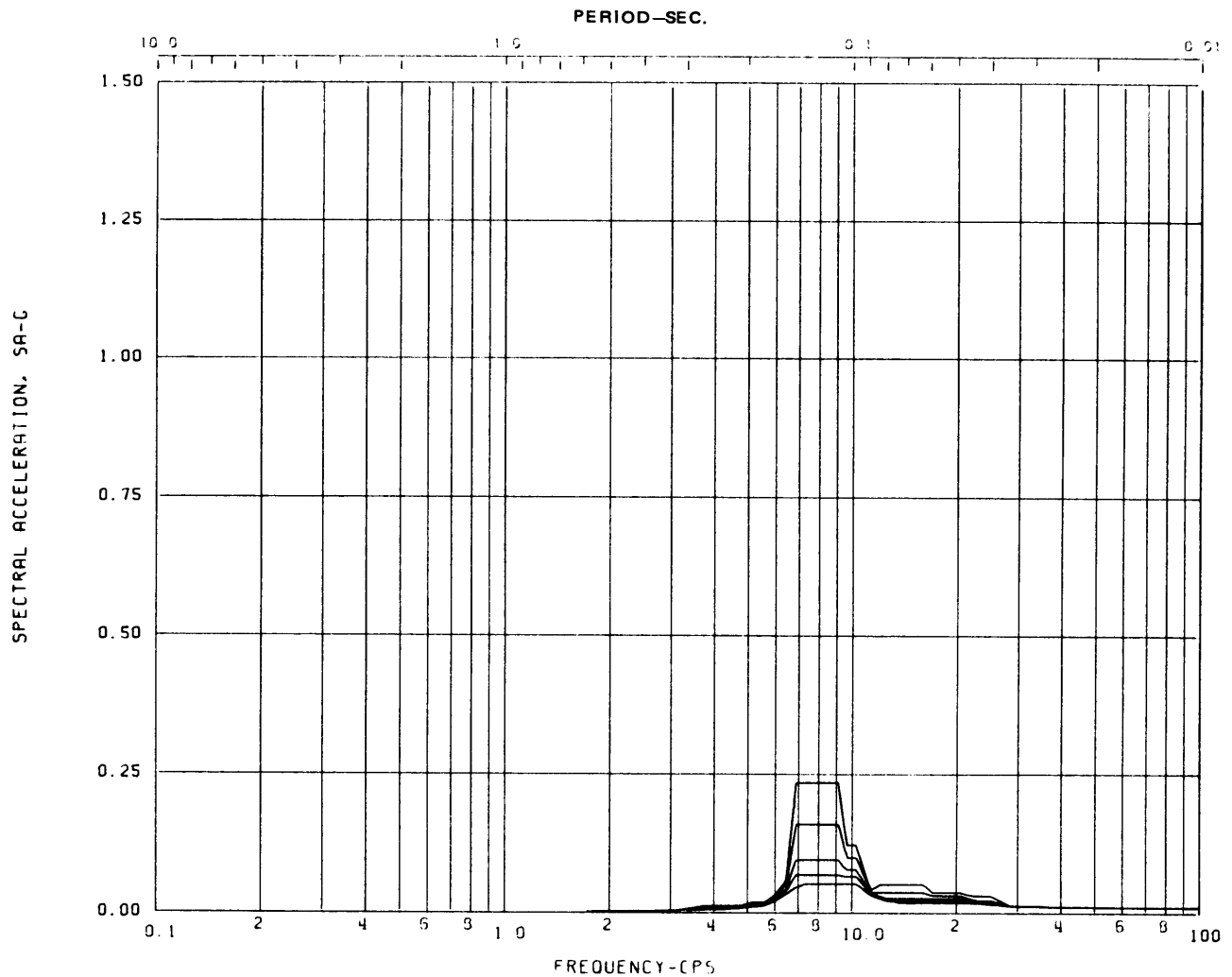
Node: 54 Direction: VERTICAL Elev: 313'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-342**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

Node: 32 Direction: VERTICAL Elev: 333'-0

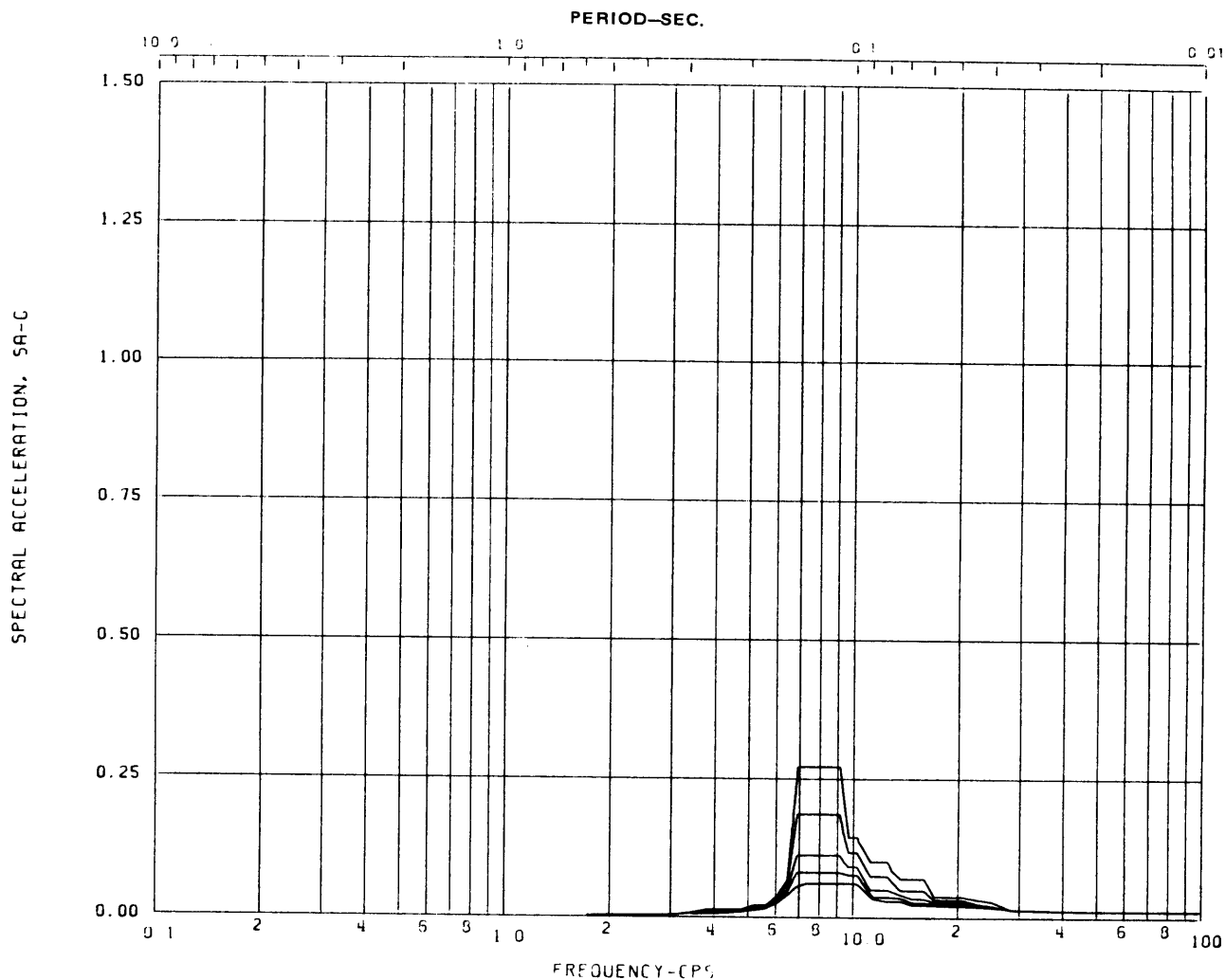
Damping: 0.005,0.01,0.02,0.03,0.05

LIMERICK GENERATING STATION  
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DESIGN ASSESSMENT REPORT  
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RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC

FIGURE 3A-343





Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

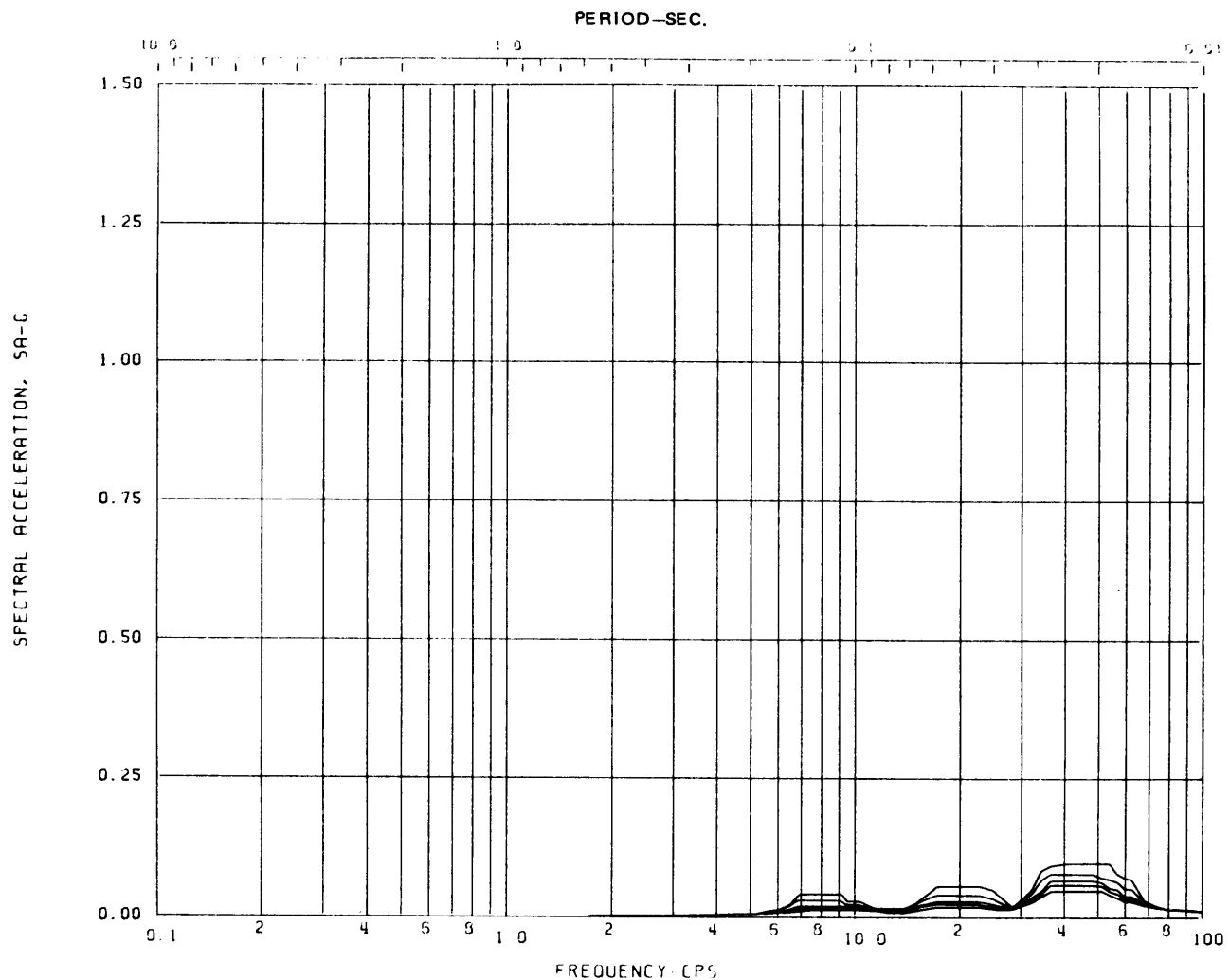
Node: 12 Direction: VERTICAL Elev: 352'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-344**



Acceleration Spectra for REACTOR ENCL.

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

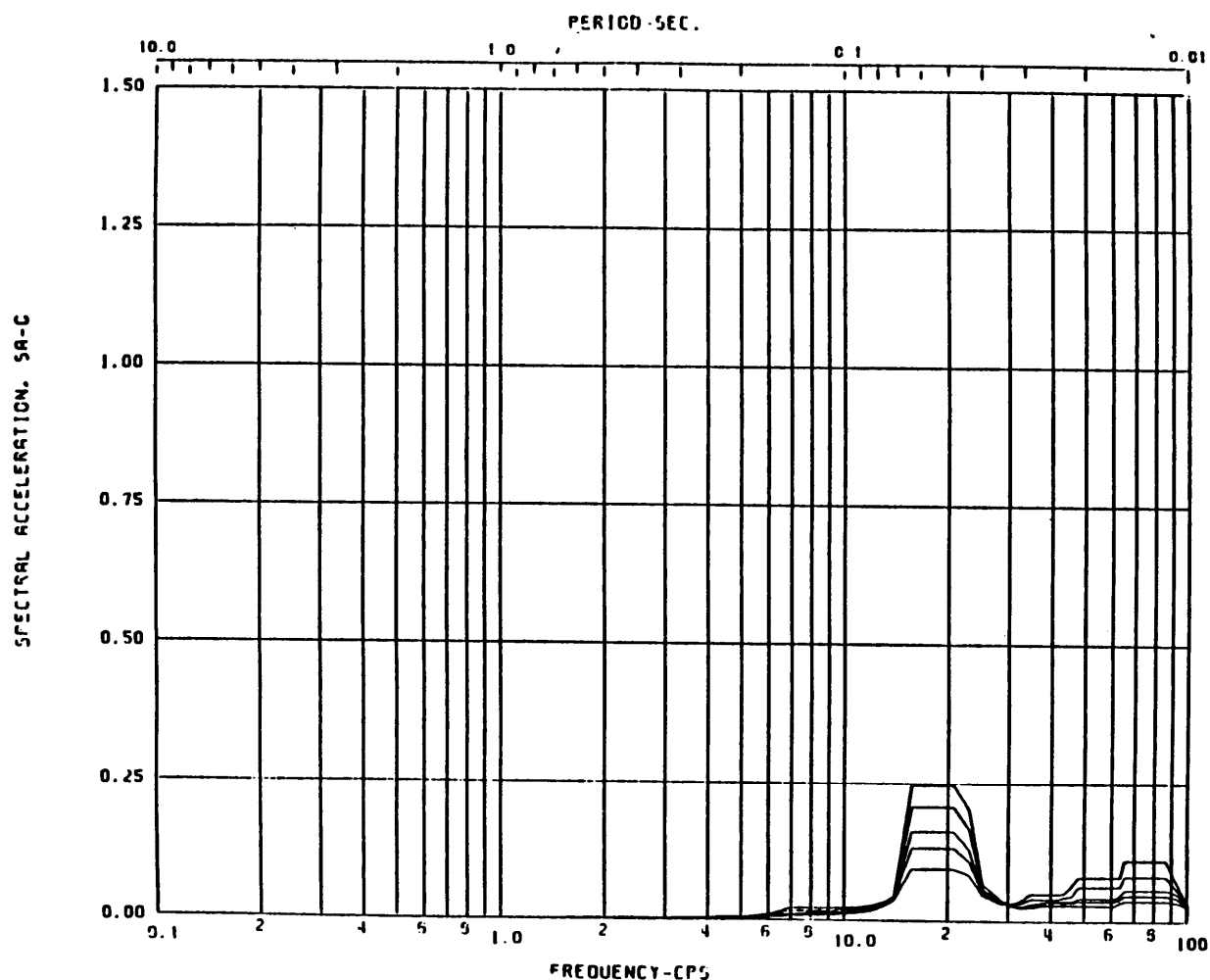
Node: 6 Direction: VERTICAL Elev: 410'-0

Damping: 0.005,0.01,0.02,0.03,0.05

LIMERICK GENERATING STATION  
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DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE GLOBAL  
RESPONSE SPECTRA, VERTICAL,  
CO-ADS AXISYMMETRIC

FIGURE 3A-345



Acceleration Spectra for CONTROL STRUCTURE

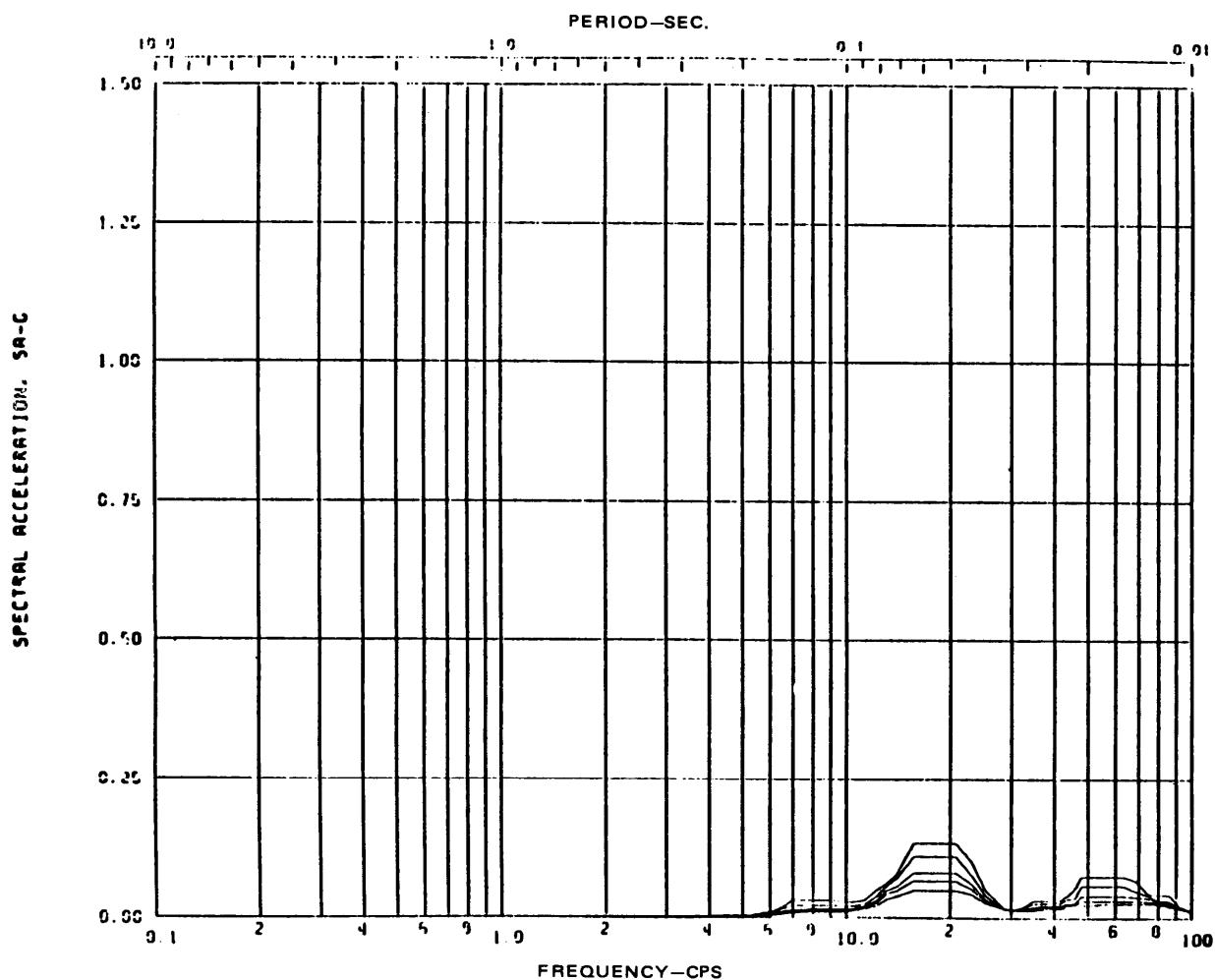
Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

Node: 7 Direction: VERTICAL Elev: 217'

Damping: 0.005,0.01,0.02,0.03,0.05

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DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC

FIGURE 3A-346



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

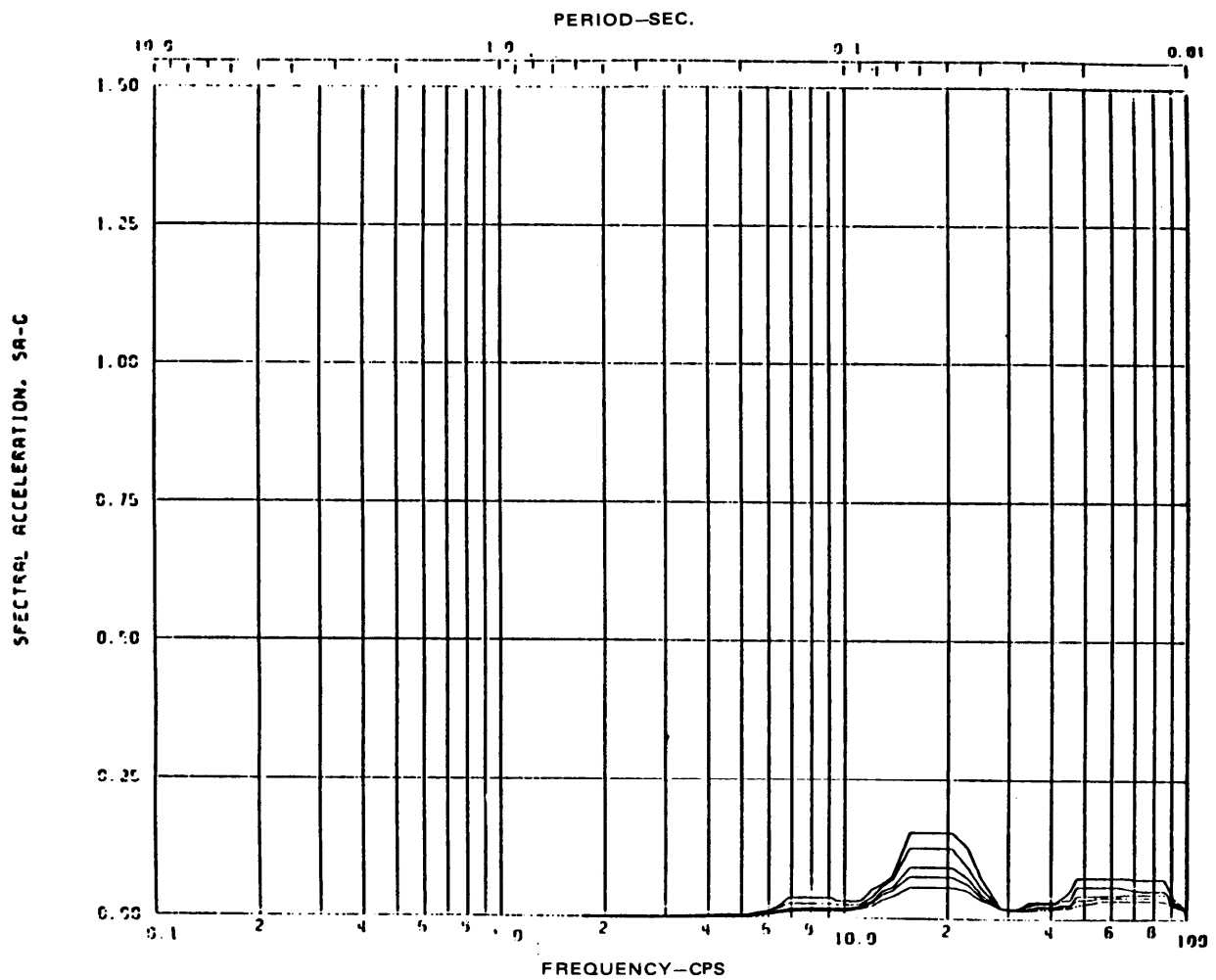
Node: 7 Direction: VERTICAL Elev: 239'

Damping: 0.005,0.01,0.02,0.03,0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-347**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

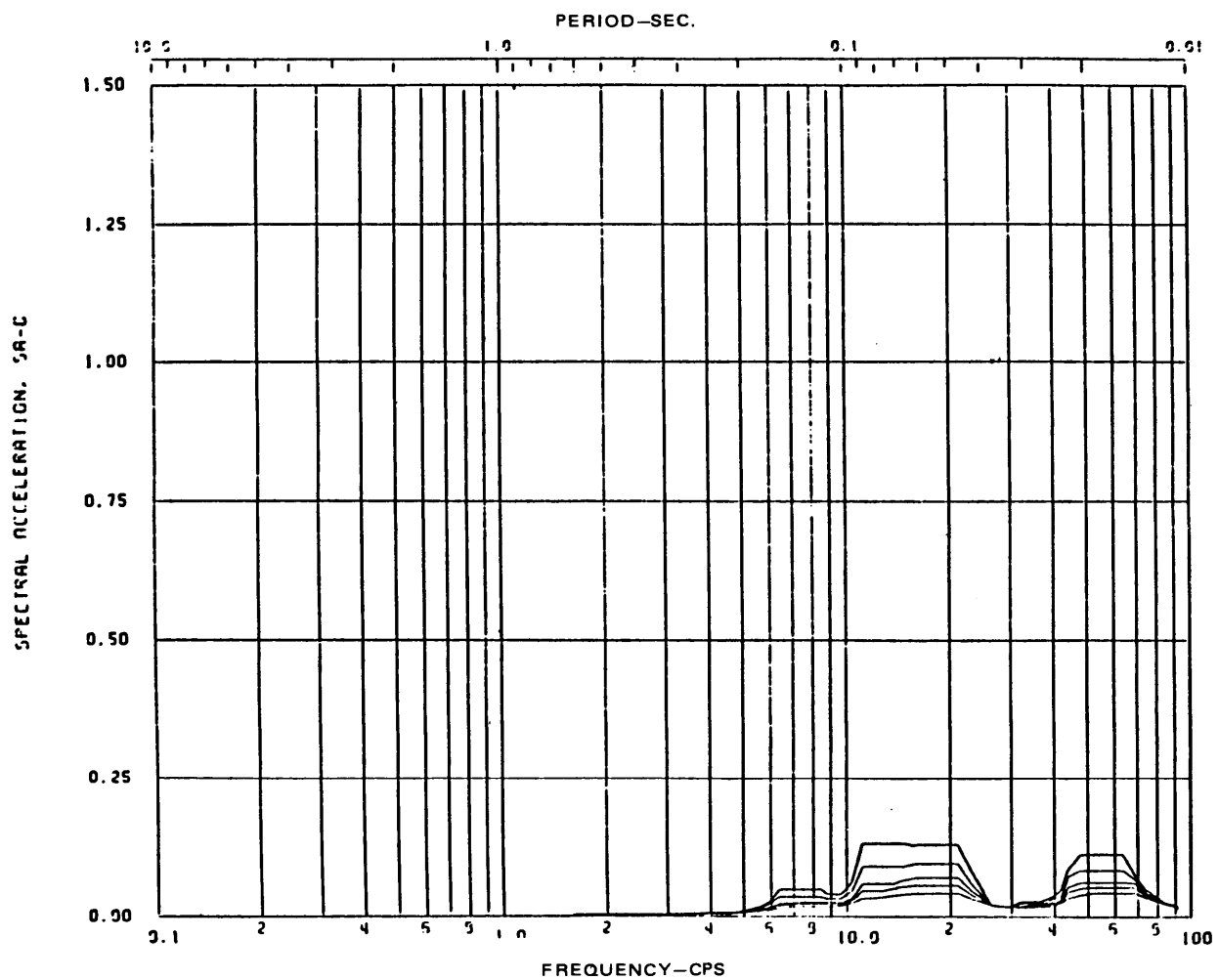
Node: 7 Direction: VERTICAL Elev: 254'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-348**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

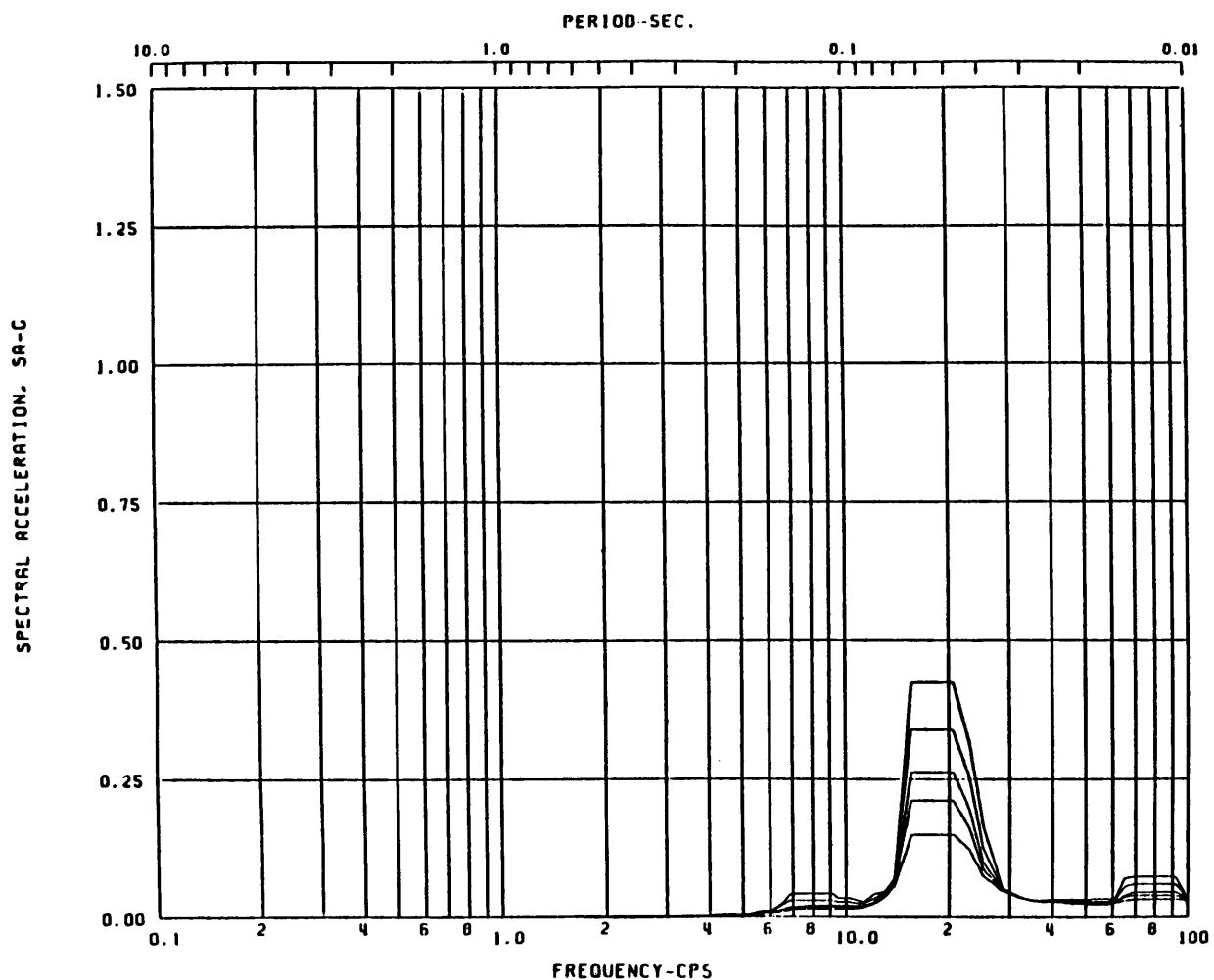
Node: 7 Direction: VERTICAL Elev: 269'-0

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-349**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

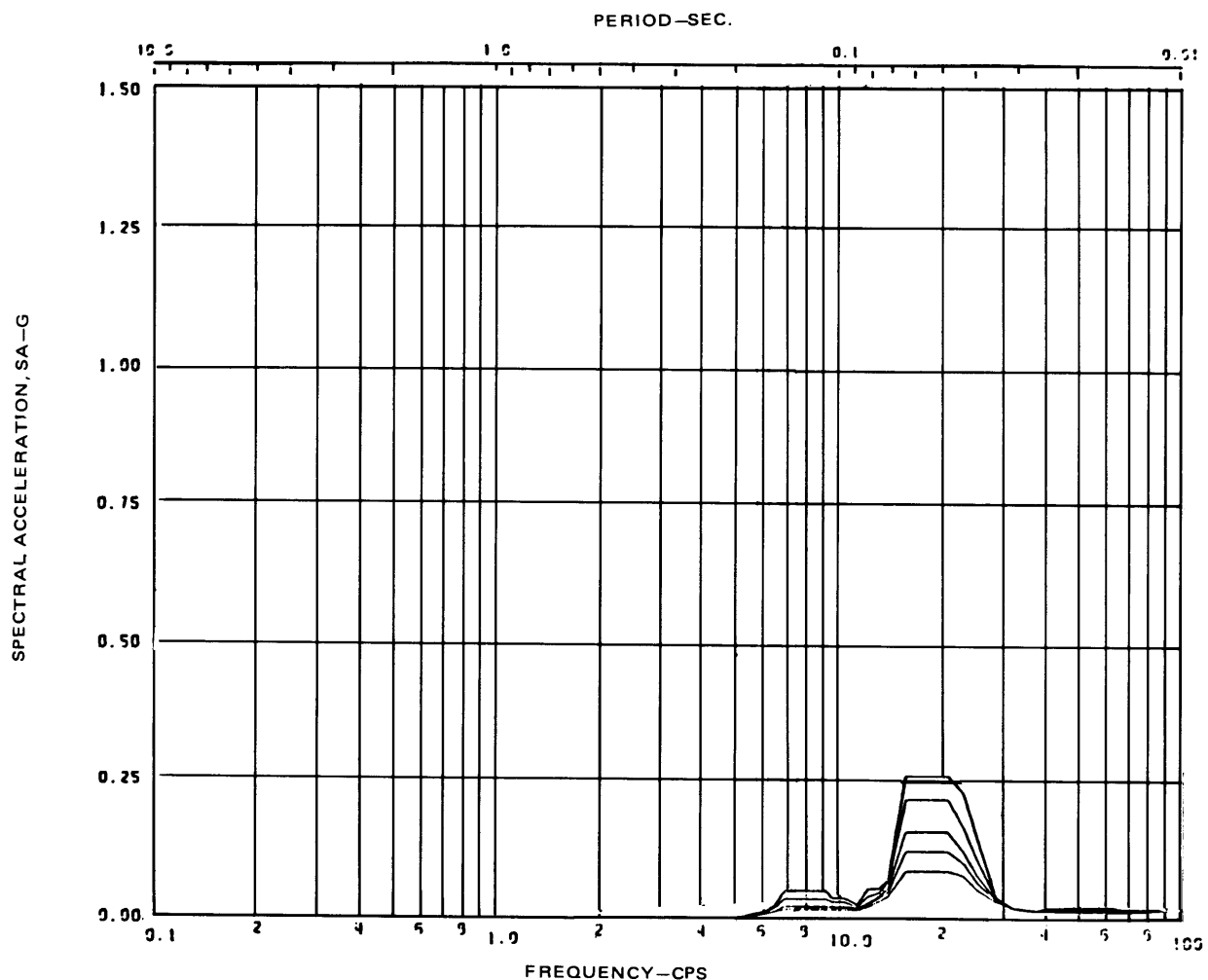
Node: 7 Direction: VERTICAL Elev: 289'

Damping: 0.005, 0.01, 0.02, 0.03, 0.05

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-350**



Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

Node: 7 Direction: VERTICAL Elev: 304'-0

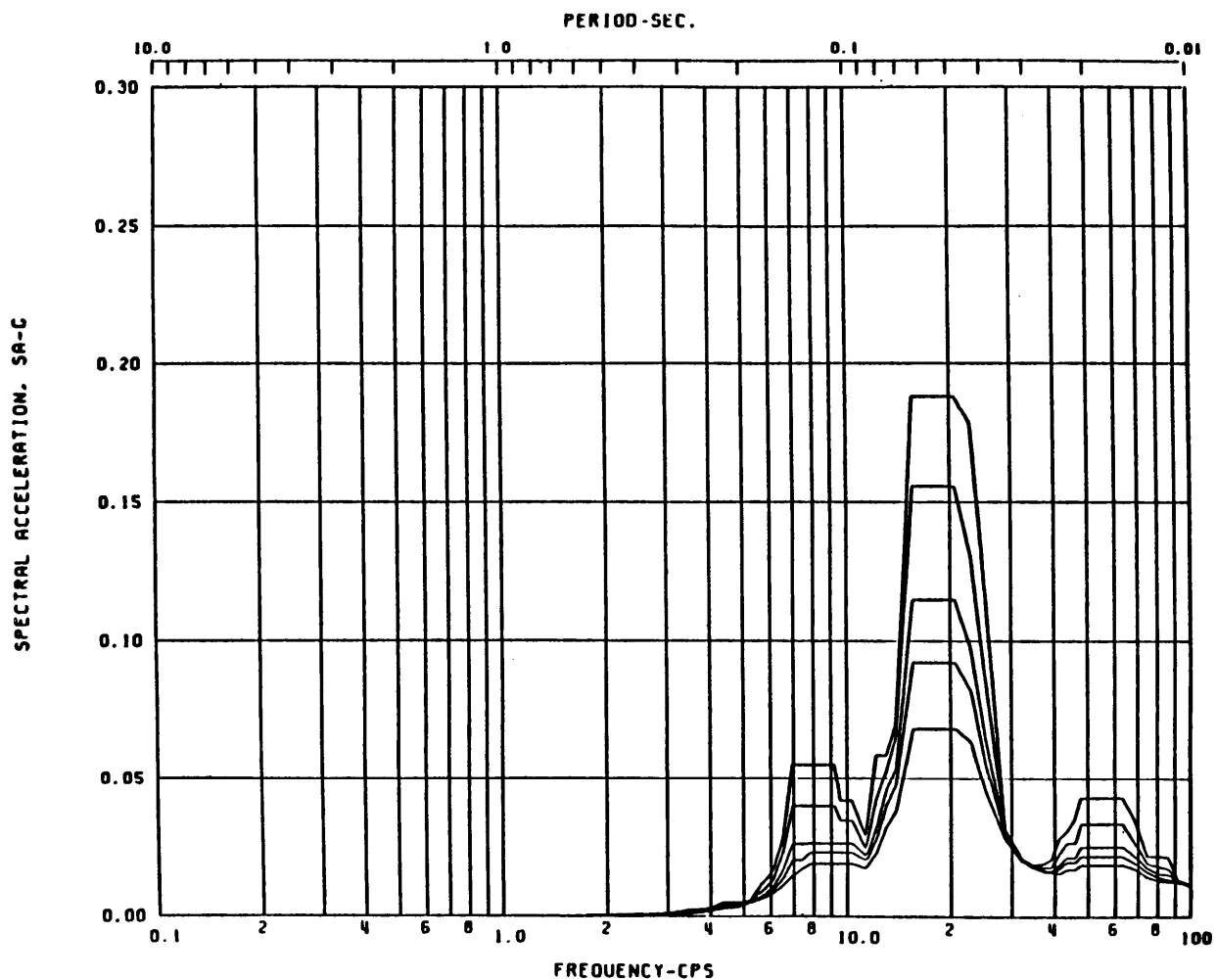
Damping: 0.005,0.01,0.02,0.03,0.05

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**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC**

**FIGURE 3A-351**





Acceleration Spectra for CONTROL STRUCTURE

Load Case: AXISYMMETRIC GE CO-ADS ENVELOPE (WIDENED - 15%)

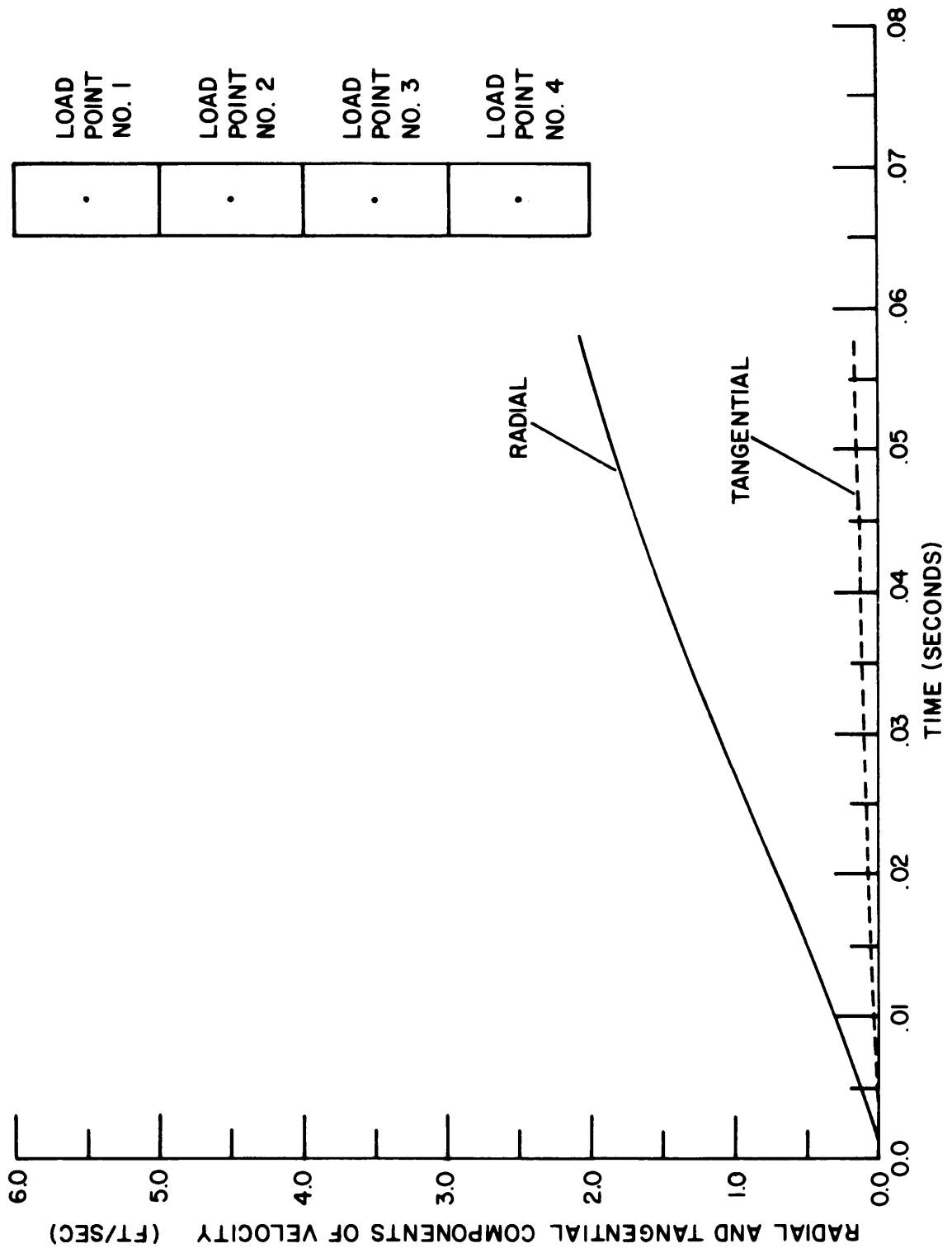
Node: 7 Direction: VERTICAL Elev: 332'

Damping: 0.005,0.01,0.02,0.03,0.05

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DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
LOCAL RESPONSE SPECTRA, VERTICAL,  
CO - ADS AXISYMMETRIC

FIGURE 3A-352



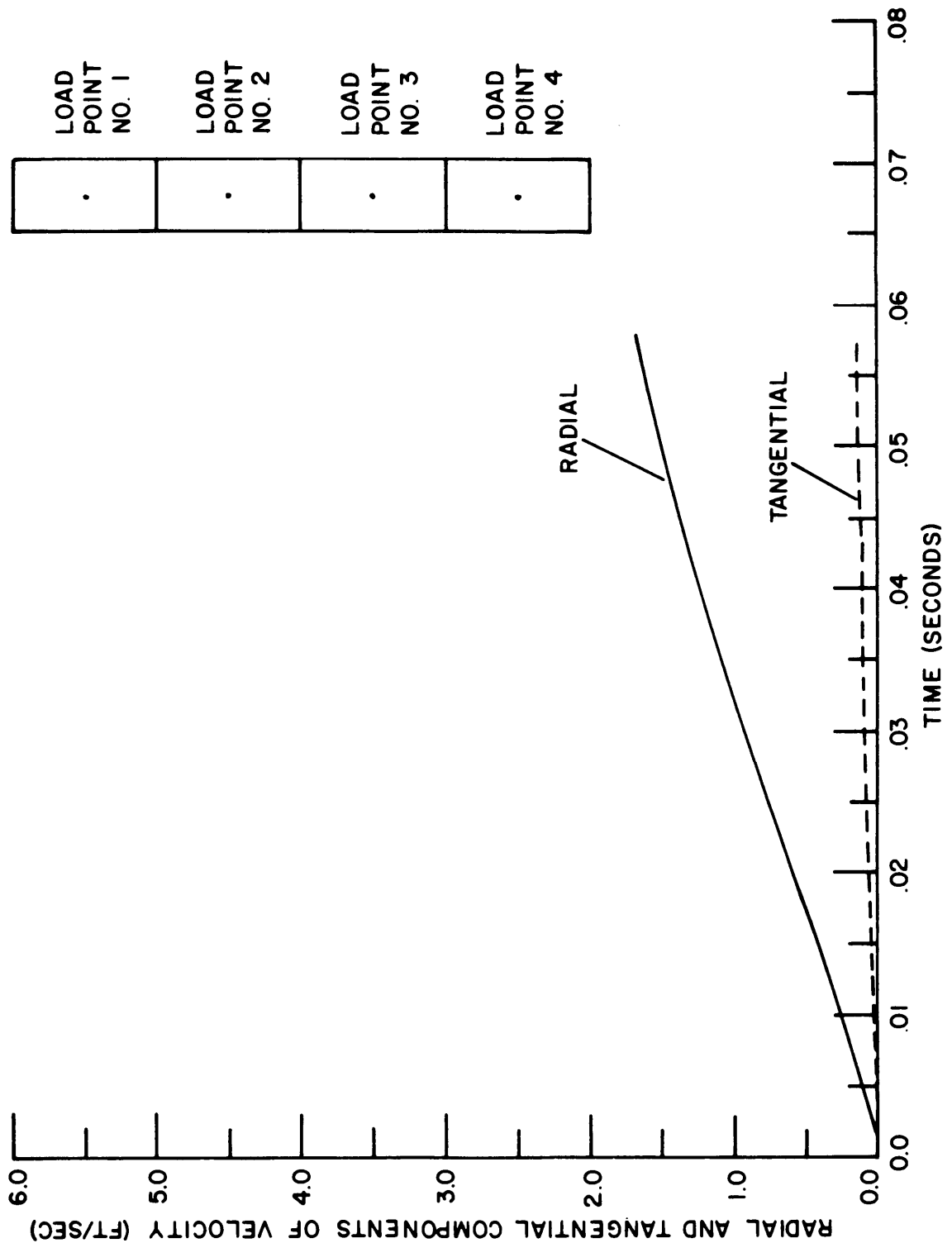
LOAD POINT NO. 1	LOAD POINT NO. 2	LOAD POINT NO. 3	LOAD POINT NO. 4
.	.	.	.

LOAD POINT NO. 1

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING VELOCITY  
(SHEET 1 OF 4)

FIGURE 3A-353



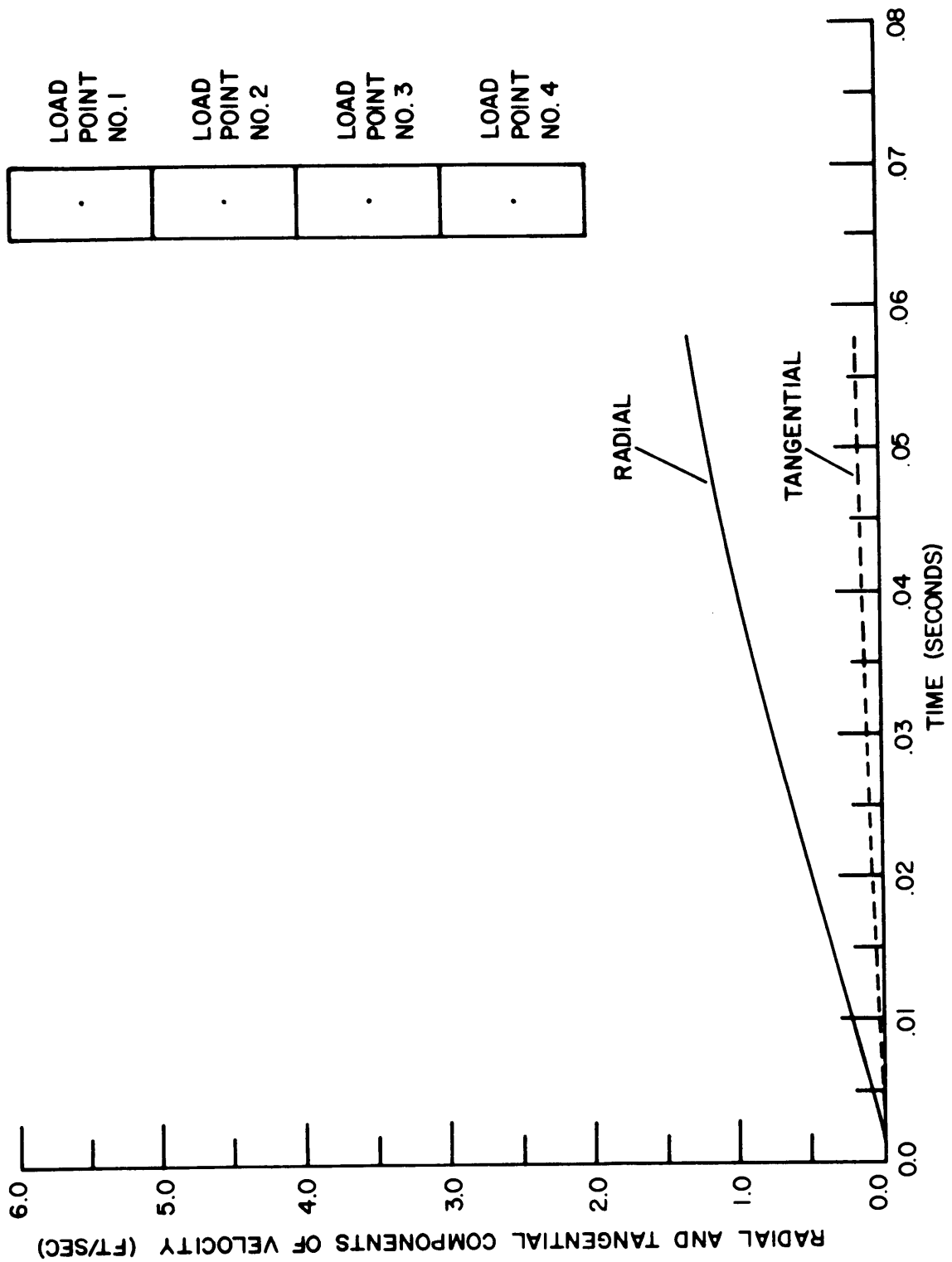
LOAD POINT NO. 1	LOAD POINT NO. 2	LOAD POINT NO. 3	LOAD POINT NO. 4
.	.	.	.

LOAD POINT NO. 2

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING VELOCITY  
(SHEET 2 OF 4)

FIGURE 3A-353



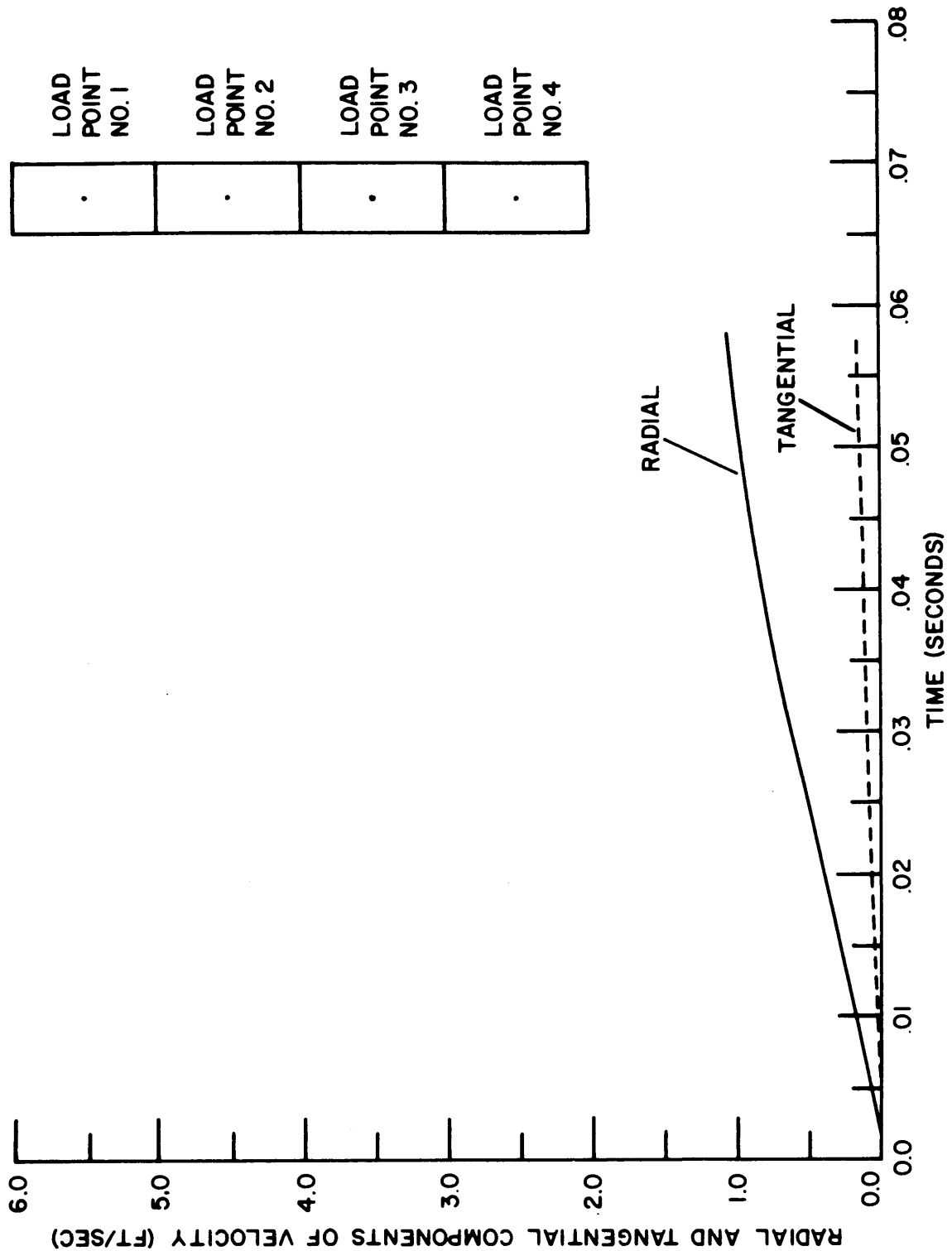
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LOAD POINT NO. 3

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING VELOCITY  
(SHEET 3 OF 4)

FIGURE 3A-353



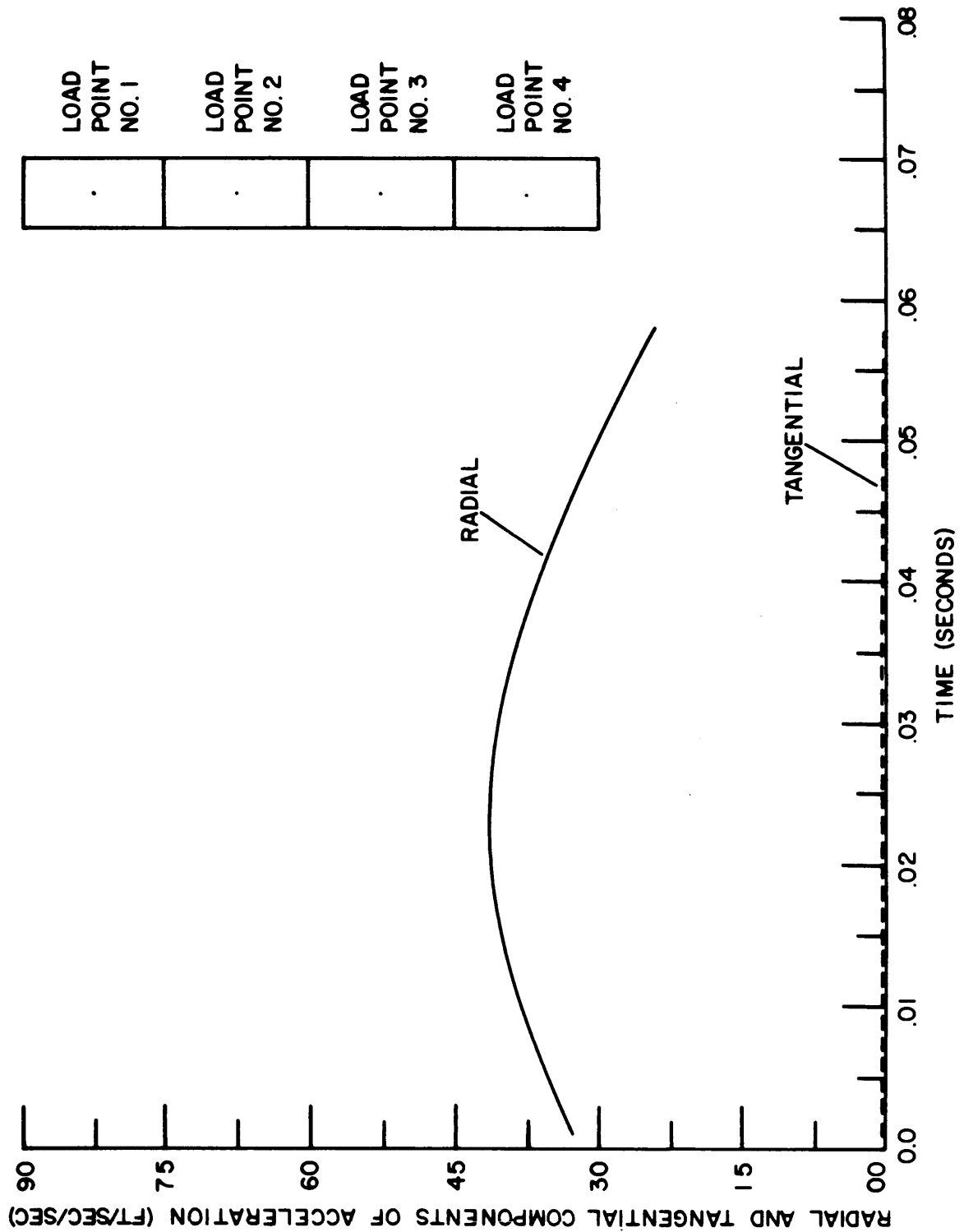
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LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING VELOCITY  
(SHEET 4 OF 4)

FIGURE 3A-353

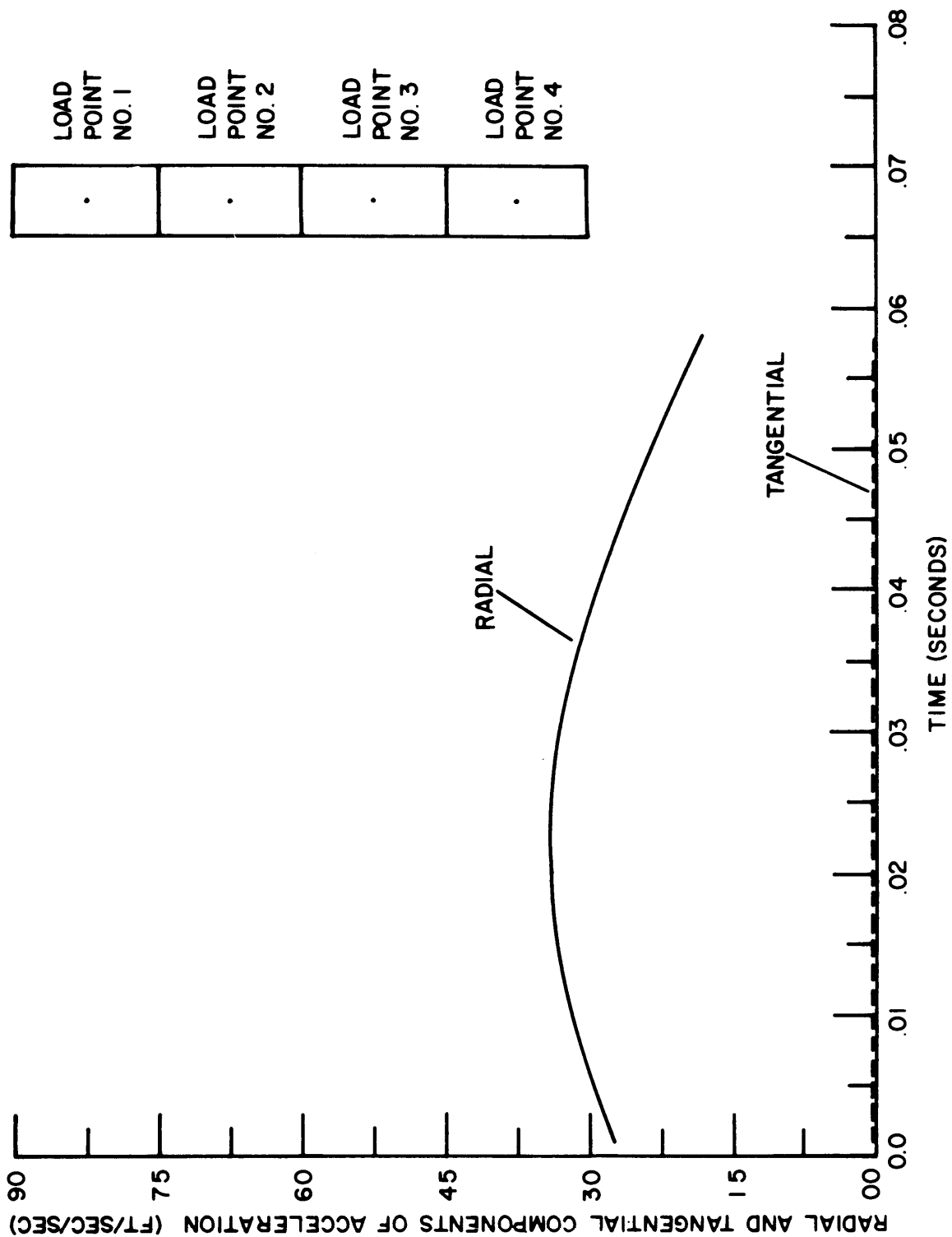


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UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING  
ACCELERATION  
(SHEET 1 OF 4)

FIGURE 3A-354

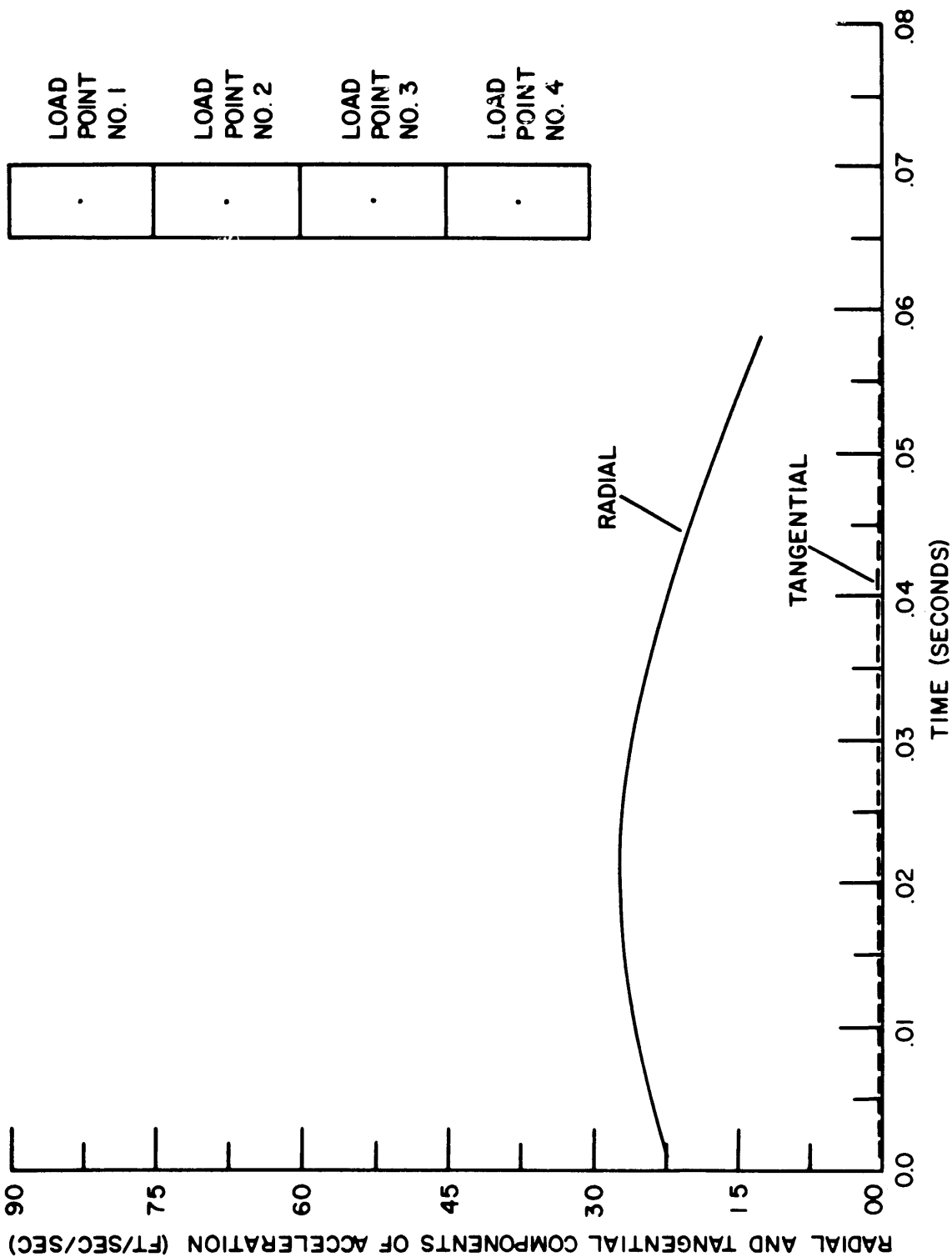


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UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING  
ACCELERATION  
(SHEET 2 OF 4)

FIGURE 3A-354



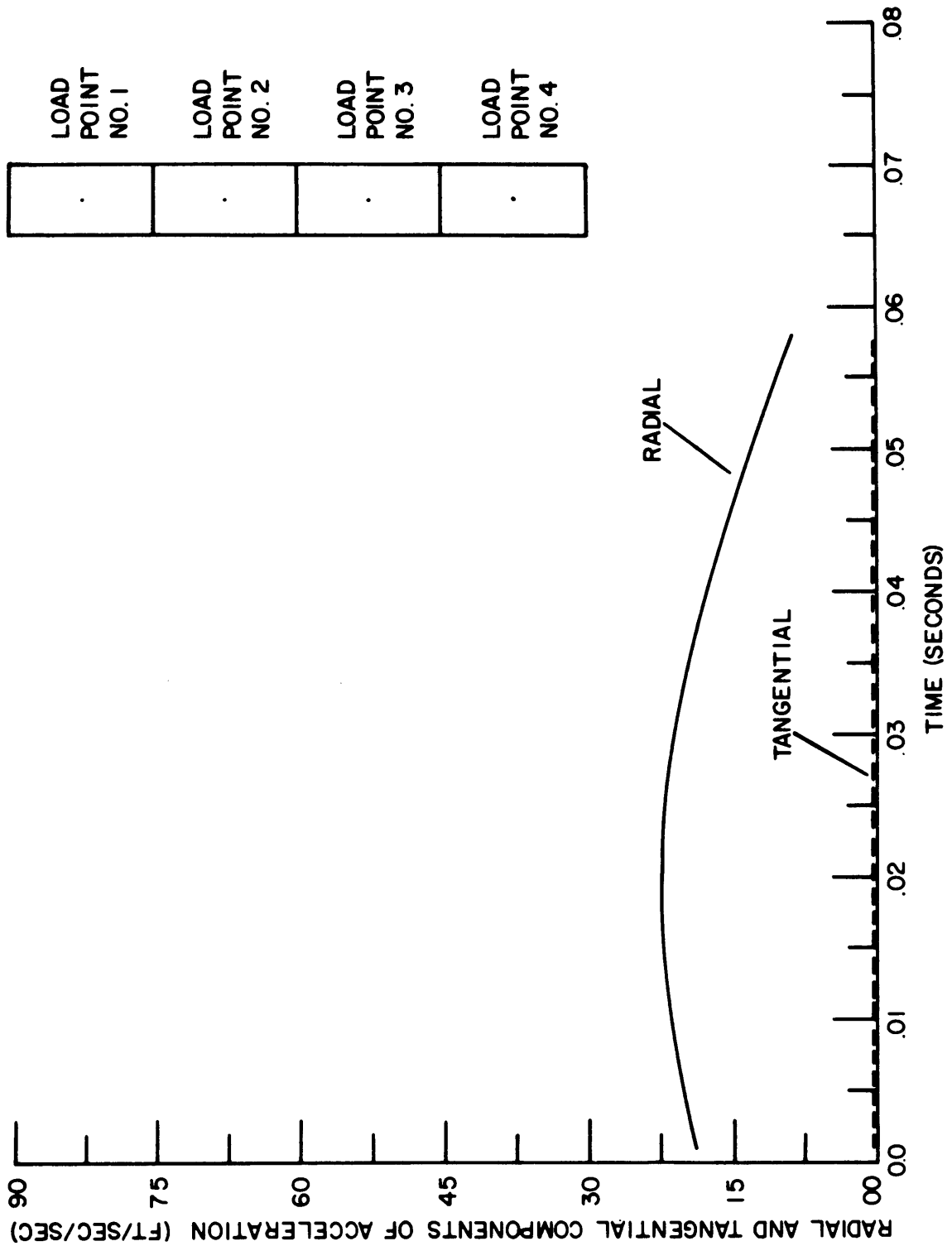
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LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING  
ACCELERATION  
(SHEET 3 OF 4)

FIGURE 3A-354





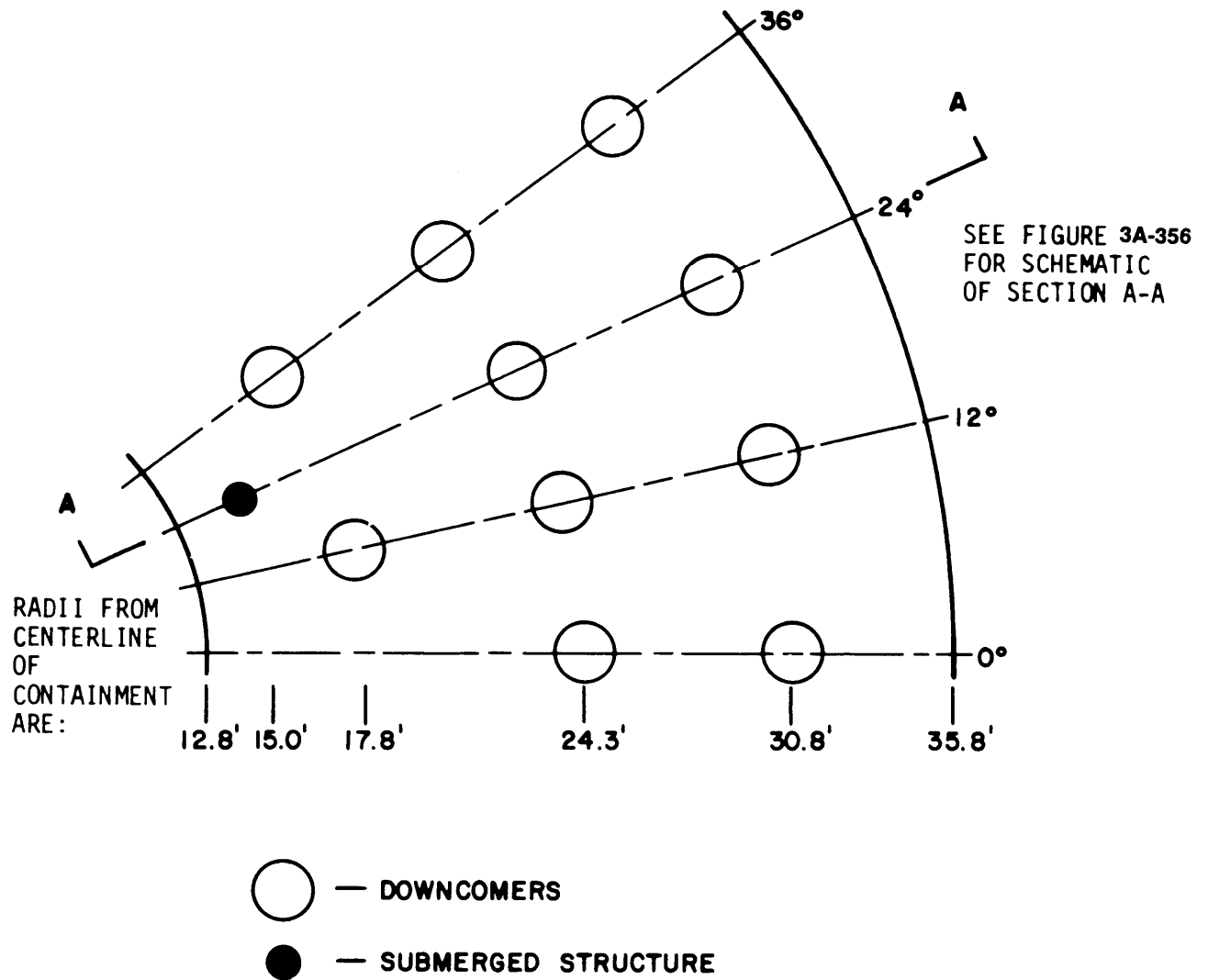
LOAD POINT NO. 1	LOAD POINT NO. 2	LOAD POINT NO. 3	LOAD POINT NO. 4
.	.	.	.

LOAD POINT NO. 4

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCA AIR CLEARING  
ACCELERATION  
(SHEET 4 OF 4)

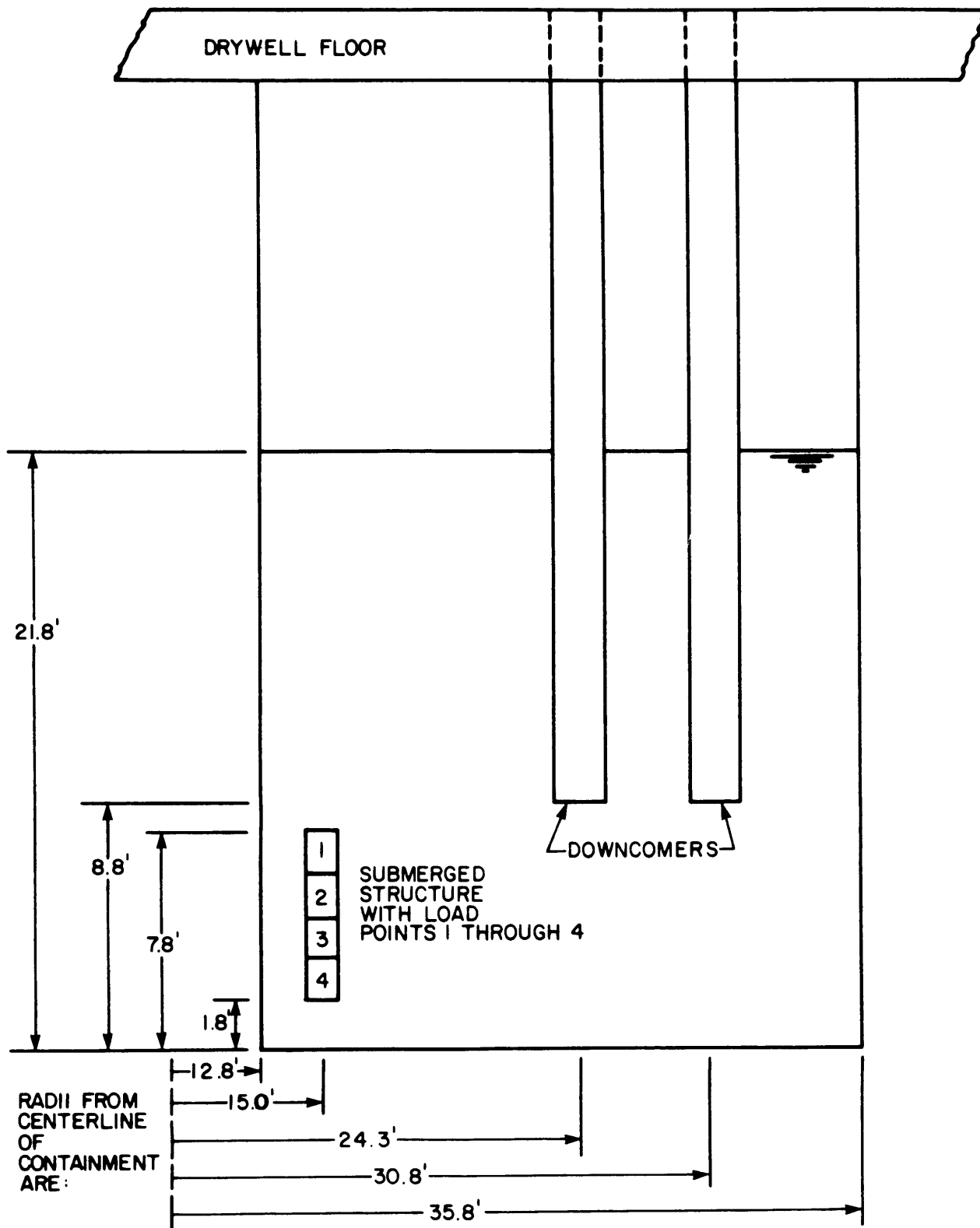
FIGURE 3A-354



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
TOP VIEW OF 36° SECTOR OF  
A TYPICAL MARK II  
SUPPRESSION POOL

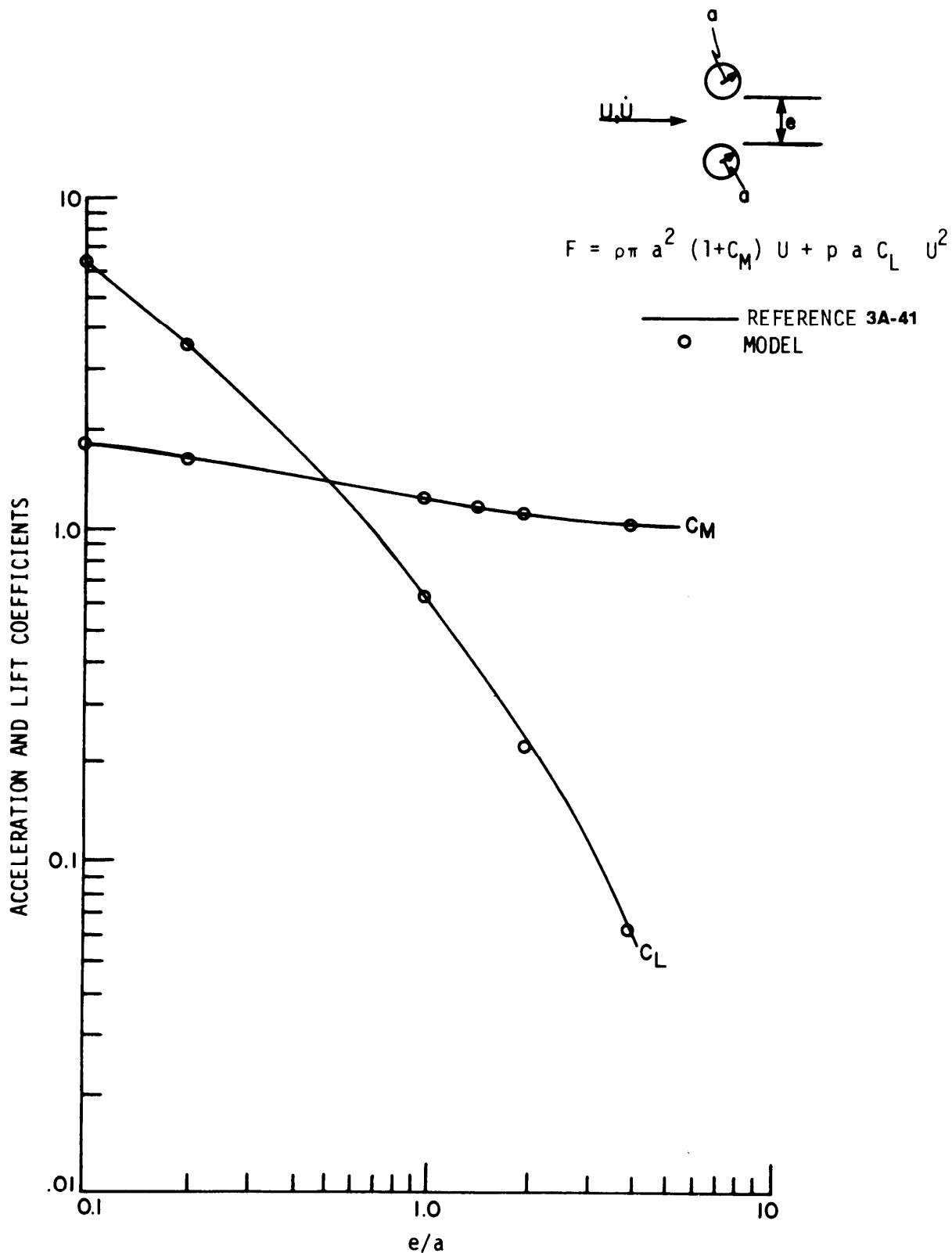
FIGURE 3A-355



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
SCHEMATIC VIEW OF  
SECTION A-A OF TYPICAL  
MARK II SUPPRESSION POOL

FIGURE 3A-356



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

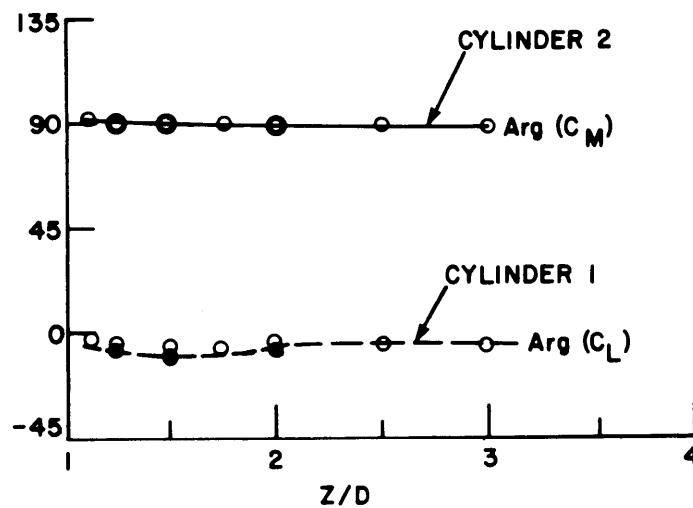
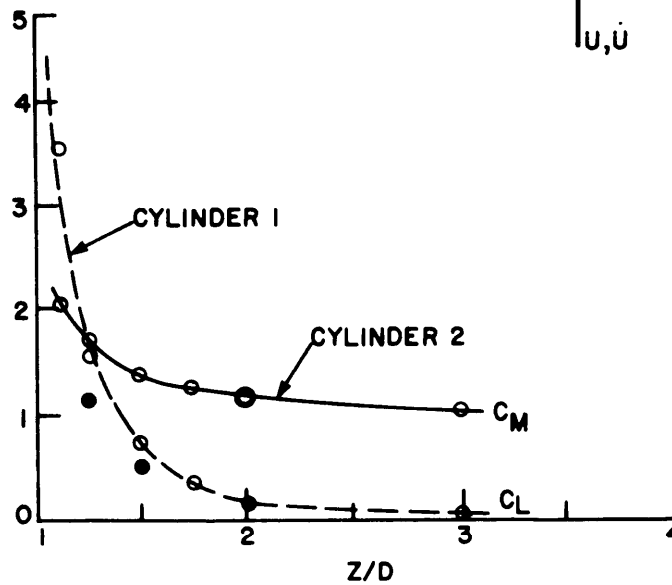
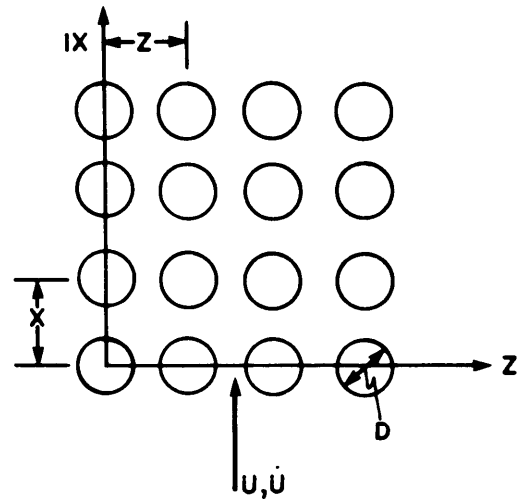
DESIGN ASSESSMENT REPORT  
MODEL/DATA COMPARISONS  
(SHEET 1 OF 4)

FIGURE 3A-357

$$F = (1 + C_M) \rho \pi a^2 U + \rho a C_L U U$$

where  $a = D/2$

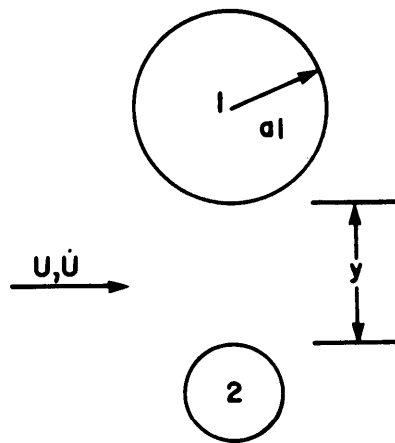
○, ●, —, --- REFERENCE 3A-42  
○ MODEL



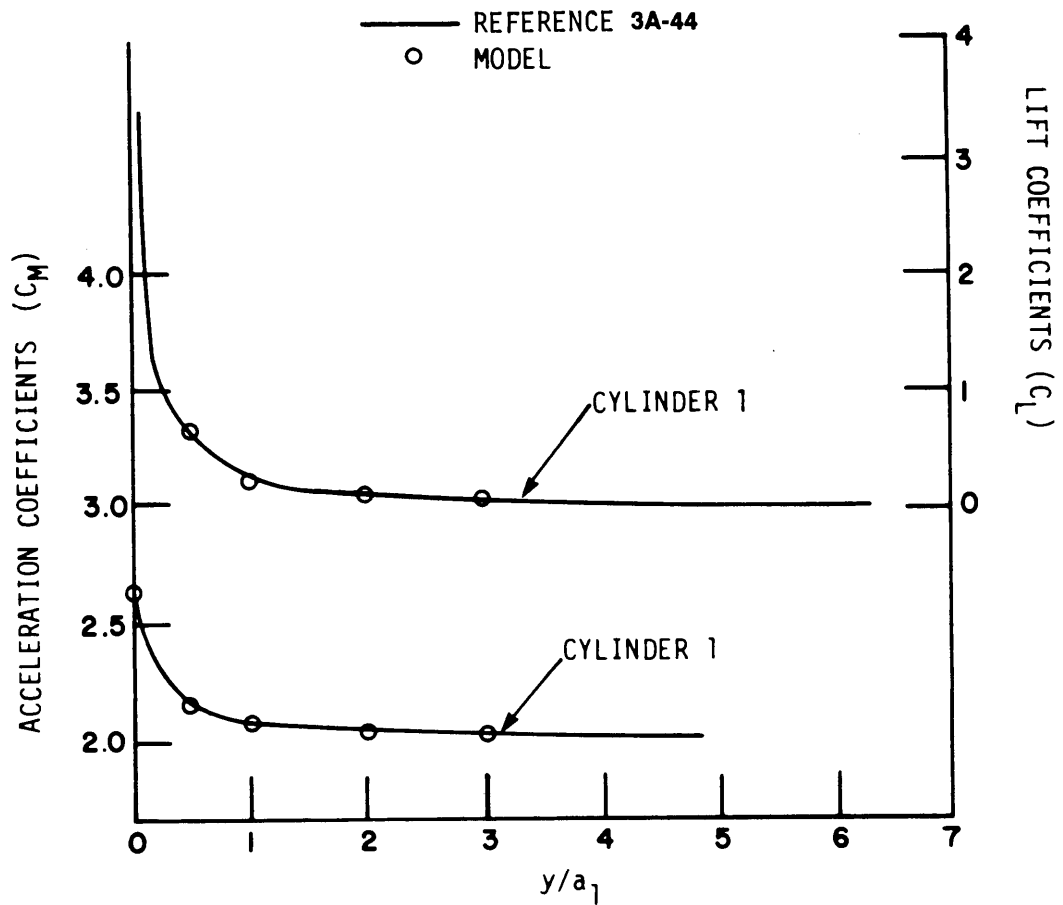
LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
MODEL/DATA COMPARISONS  
(SHEET 2 OF 4)

FIGURE 3A-357



$$F = C_M \rho \pi a^2 \dot{U} + C_L \rho a U^2$$

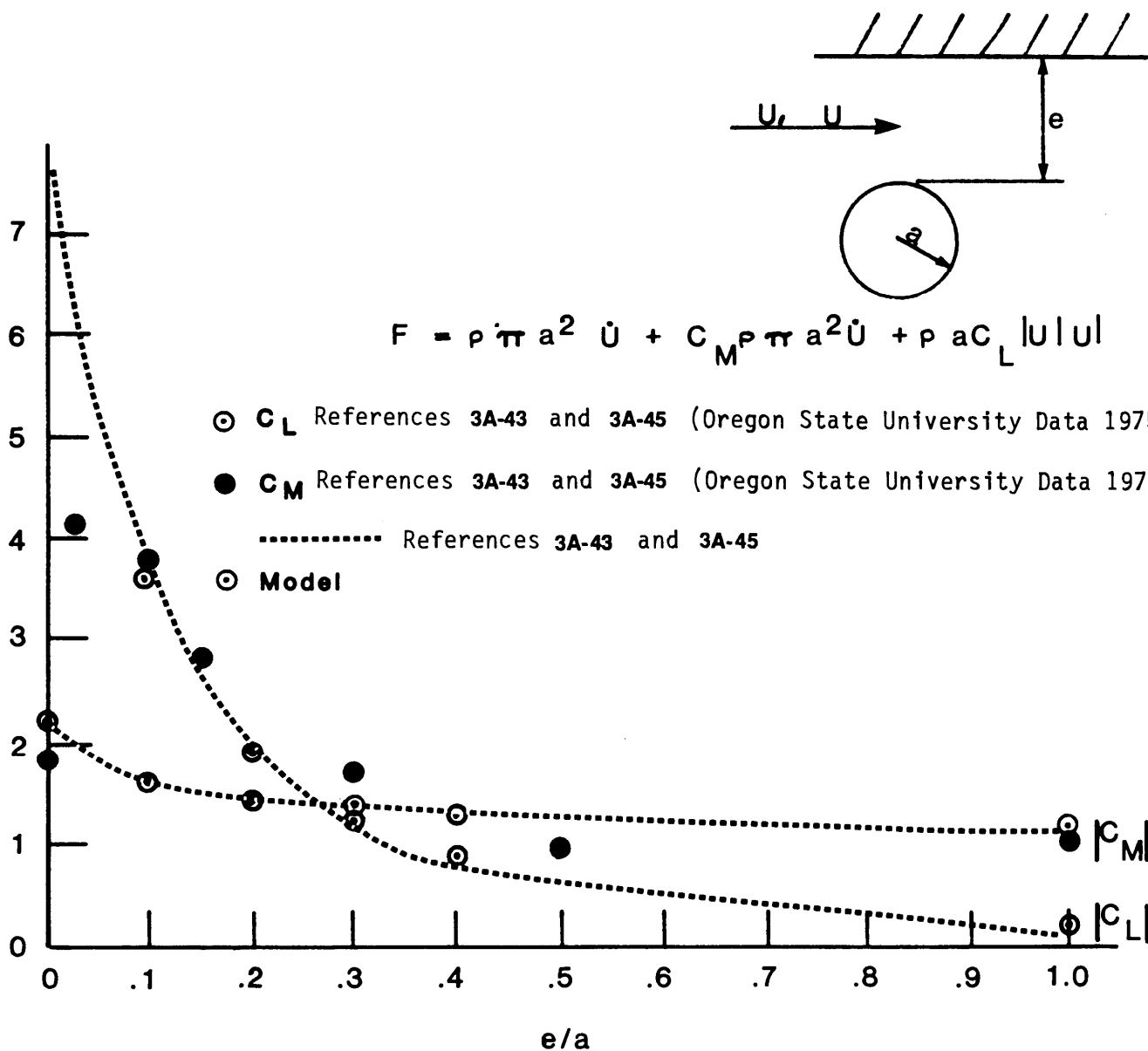


LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
MODEL/DATA COMPARISONS  
(SHEET 3 OF 4)

FIGURE 3A-357

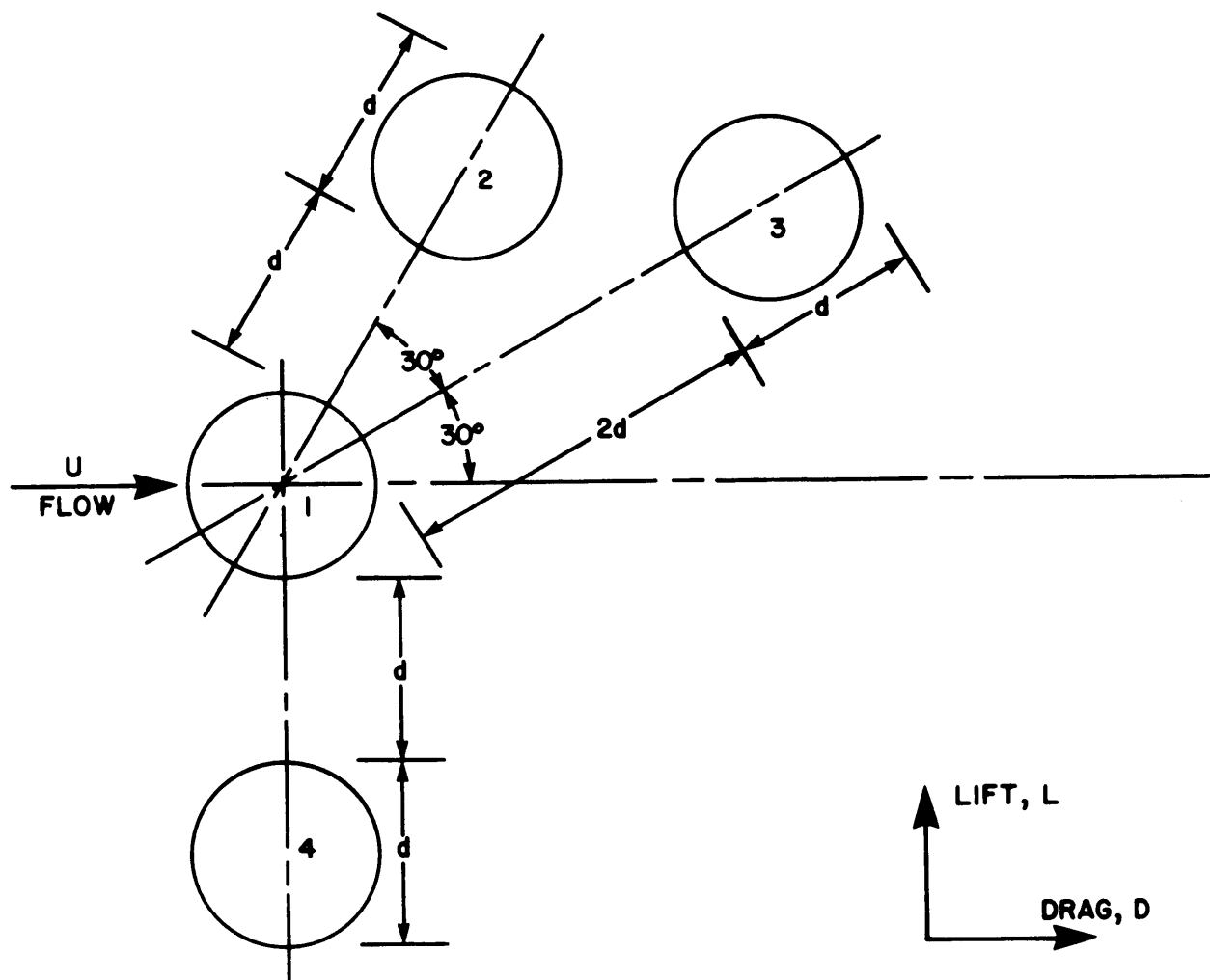
LIFT AND ACCELERATION COEFFICIENTS



LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 MODEL/DATA COMPARISONS  
 (SHEET 4 OF 4)

FIGURE 3A-357

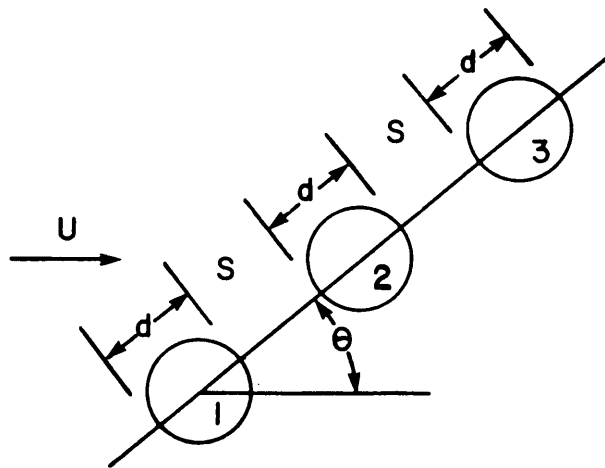


LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CYLINDER LOCATIONS

FIGURE 3A-358

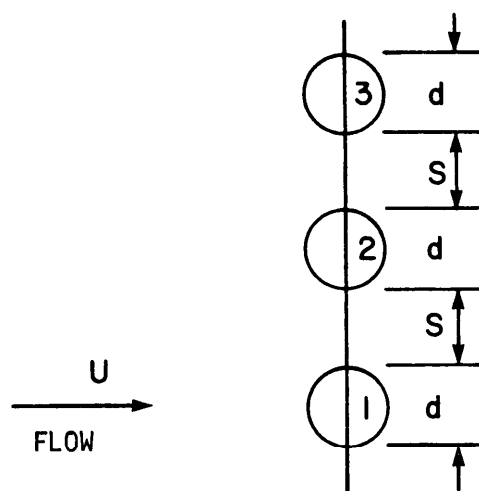




LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
INTERFERENCE ON STANDARD DRAG:  
THREE CYLINDER ARRANGEMENT

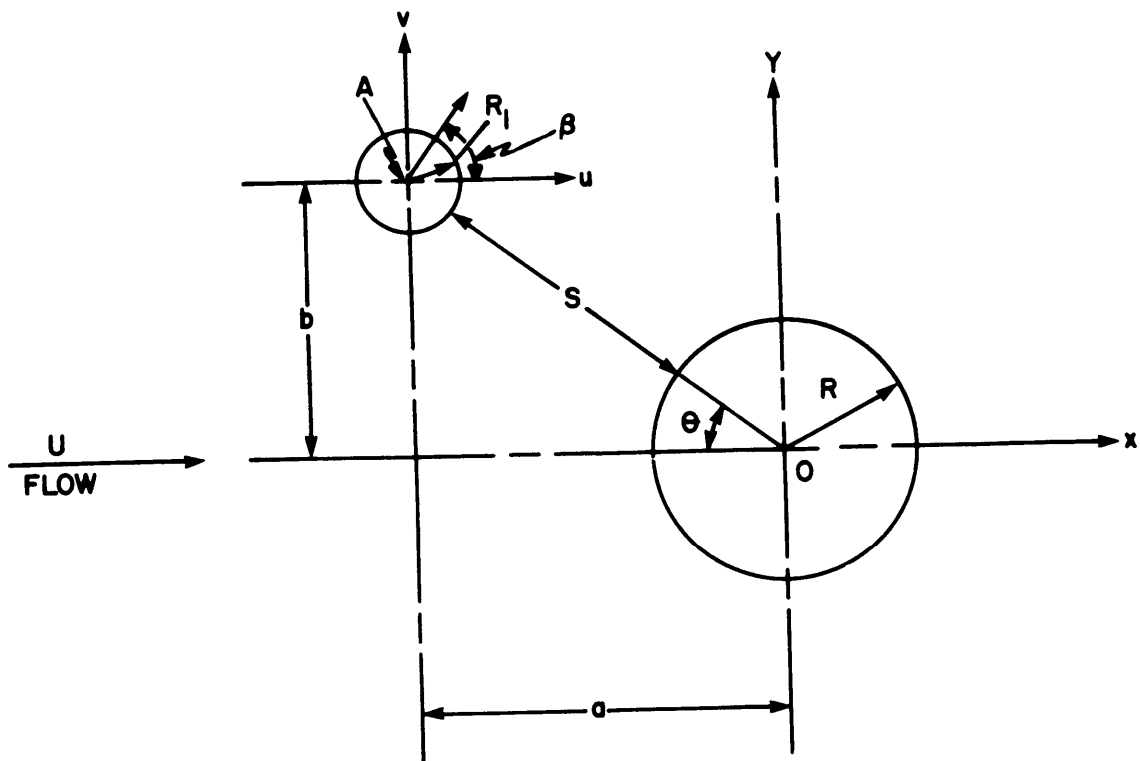
FIGURE 3A-359



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
INTERFERENCE ON STANDARD DRAG:  
THREE CYLINDER SIDE-BY-SIDE  
ARRANGEMENT

FIGURE 3A-360



LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
FLOW AROUND UNEQUAL  
CYLINDERS

FIGURE 3A-361

1-5  
6-11  
12-13  
14-20  
21-25  
26-30

**DRYWELL WALL  
WETWELL WALL  
SHIELD WALL  
PEDESTAL  
DIAPHRAGM SLAB  
BASE SLAB**



**FIGURE 3A-362**

DRYWELL WALL  
SECTIONS: 1, 2

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-	-	-	-	-	-	-
3, 6	-	-	-	-	-	-	-
4, 4a	18.57	31.36	5.82	13.90	11.17	6.50	-0.233
4T, 4aT	7.14	6.83	13.4	19.75	16.83	10.99	-0.967
5, 5a, 7, 7a	25.66	30.66	9.95	13.45	20.82	4.60	-0.257
5T, 5aT, 7T, 7aT	11.36	-4.66	16.34	24.41	32.46	11.67	-1.542

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
DRYWELL WALL**

**FIGURE 3A-363**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 3

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-0.46	-0.07	-0.55	-0.04	-0.28	0.12	-0.432
3, 6	11.4	6.26	11.3	4.2	15.7	15.1	-0.200
4, 4a	9.97	43.0	14.8	19.5	17.4	11.4	-0.218
4T, 4aT	3.45	18.7	23.8	28.0	24.5	12.2	-0.926
5, 5a, 7, 7a	21.1	40.2	21.3	17.4	36.9	20.1	-0.460
5T, 5aT, 7T, 7aT	14.9	15.9	34.5	27.4	52.0	17.6	-1.38

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
DRYWELL WALL**

**FIGURE 3A-364**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 4

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-0.55	-0.02	-0.69	0.06	-0.35	0.15	-0.097
3, 6	13.0	6.44	13.0	4.2	17.1	20.31	-0.230
4, 4a	8.49	41.7	21.8	20.9	23.2	10.8	-0.202
4T, 4aT	4.43	20.3	29.2	30.2	32.4	11.4	-0.822
5, 5a, 7, 7a	26.3	39.3	28.7	17.5	39.7	24.9	-0.522
5T, 5aT, 7T, 7aT	16.8	16.3	40.6	28.6	48.0	21.8	-1.431

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
DRYWELL WALL**

**FIGURE 3A-365**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 5

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-0.73	1.04	-0.80	1.0	-0.35	0.16	-0.106
3, 6	15.5	10.3	14.6	5.5	20.0	18.6	-0.294
4, 4a	31.2	33.7	21.6	6.9	14.6	39.8	-0.671
4T, 4aT	22.6	13.2	24.1	24.4	22.7	36.5	-0.671
5, 5a, 7, 7a	43.6	33.2	32.8	9.5	37.6	54.0	-0.931
5T, 5aT, 7T, 7aT	30.4	9.9	45.5	22.1	47.7	46.2	-1.71

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
DRYWELL WALL**

FIGURE 3A-366

Rev. 12 9/04



DRYWELL WALL  
SECTIONS: 6

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-1.2	1.08	-0.76	1.7	0.63	0.161	-0.99
3, 6	16.9	17.7	16.5	4.8	20.6	0.52	-0.361
4, 4a	31.1	39.6	26.8	9.2	18.6	43.7	-0.582
4T, 4aT	26.0	48.7	26.7	8.1	28.2	35.0	-0.718
5, 5a, 7, 7a	50.1	43.1	36.0	12.9	45.7	44.8	-1.009
5T, 5aT, 7T, 7aT	24.9	48.8	53.9	26.7	47.6	27.5	-1.592

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
WETWELL WALL**

**FIGURE 3A-367**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 7, 8, 9

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-1.36	9.7	-1.4	4.8	2.09	0.89	-0.210
3, 6	25.5	20.3	23.3	6.8	28.4	5.3	-0.427
4, 4a	14.8	38.4	26.8	25.5	26.2	13.6	-0.616
4T, 4aT	12.8	46.2	34.6	33.0	33.8	14.0	-1.31
5, 5a, 7, 7a	37.7	37.0	47.9	21.8	48.6	15.2	-0.819
5T, 5aT, 7T, 7aT	33.2	41.0	50.0	46.3	53.9	17.3	-2.12

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
WETWELL WALL**

**FIGURE 3A-368**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 10

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-1.68	15.8	-1.5	7.4	3.35	1.1	-0.254
3, 6	27.5	30.7	25.5	7.58	31.1	0.70	-0.503
4, 4a	16.6	42.4	29.1	35.3	31.4	5.3	-0.744
4T, 4aT	12.2	35.6	38.0	39.7	37.9	8.13	-1.50
5, 5a, 7, 7a	37.5	40.1	43.6	27.5	50.1	6.7	-1.13
5T, 5aT, 7T, 7aT	29.4	46.7	53.8	35.6	52.4	7.4	-2.25

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
WETWELL WALL**

**FIGURE 3A-369**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 11

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)						Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER			Transverse Ties	
	Vert	Hoop	Vert	Hoop	Diag.		
1	-1.57	4.95	-1.5	2.96	1.16	2.81	-0.233
3, 6	29.8	21.2	27.1	8.48	34.3	15.3	-0.527
4, 4a	38.1	35.5	33.2	6.48	20.3	42.9	-0.703
4T, 4aT	36.1	18.5	38.2	11.2	25.1	44.5	-0.990
5, 5a, 7, 7a	53.9	32.9	46.0	9.0	45.0	45.0	-1.04
5T, 5aT, 7T, 7aT	47.2	40.6	51.2	17.0	47.4	45.4	-1.69

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
WETWELL WALL**

**FIGURE 3A-370**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 12

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER PLATE		OUTER PLATE		Transverse Ties	
	Vert	Hoop	Vert	Hoop		
1	0.39	3.6	-0.11	1.2	1.0	-0.071
3, 6	7.1	8.7	2.1	2.9	1.4	-0.293
4, 4a	2.2	9.2	-0.64	3.7	7.5	-0.265
4T, 4aT	2.0	8.8	0.81	3.3	7.5	-0.265
5, 5a, 7, 7a	8.5	12.8	2.7	5.1	9.5	-0.407
5T, 5aT, 7T, 7aT	8.3	12.4	2.5	4.7	9.5	-0.407

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
SHIELD WALL**

**FIGURE 3A-371**

**Rev. 12 9/04**

DRYWELL WALL  
SECTIONS: 13

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER PLATE		OUTER PLATE		Transverse Ties	
	Vert	Hoop	Vert	Hoop		
1	-0.28	0.08	-0.57	-0.10	0.128	-0.077
3, 6	9.7	3.5	2.9	1.1	0.63	-0.404
4, 4a	-0.65	0.29	-0.94	-0.15	0.26	-0.128
4T, 4aT	-1.45	-1.73	-0.53	1.03	0.26	-0.128
5, 5a, 7, 7a	10.7	3.6	2.9	1.1	2.4	-0.444
5T, 5aT, 7T, 7aT	9.9	1.9	3.3	2.1	2.4	-0.444

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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SHIELD WALL**

**FIGURE 3A-372**

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DRYWELL WALL  
SECTIONS: 14

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-1.0	1.0	-1.2	1.2	0.34	-0.157
3, 6	17.2	13.4	29.2	17.4	3.9	-0.352
4, 4a	-1.3	2.4	-1.7	2.0	0.31	-0.230
4T, 4aT	7.98	7.0	-2.31	4.97	0.31	-0.230
5, 5a, 7, 7a	17.2	14.7	25.6	17.2	3.3	-0.432
5T, 5aT, 7T, 7aT	25.7	19.3	25.0	20.2	3.3	-0.432

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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**FIGURE 3A-373**

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DRYWELL WALL  
SECTIONS: 15

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-1.5	0.94	-2.2	0.32	0.35	-0.290
3, 6	43.9	27.2	52.5	33.6	4.7	-0.649
4, 4a	4.5	32.2	6.1	47.0	21.1	-0.474
4T, 4aT	14.5	-4.8	4.9	-5.9	48.3	-0.910
5, 5a, 7, 7a	52.9	50.1	52.9	51.8	39.4	-0.856
5T, 5aT, 7T, 7aT	49.9	8.2	51.9	-4.0	27.4	-1.017

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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**FIGURE 3A-374**

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DRYWELL WALL  
SECTIONS: 16

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-1.5	1.1	-2.0	3.1	0.34	-0.266
3, 6	30.3	13.02	39.4	29.1	0.86	-0.526
4, 4a	6.9	12.6	4.8	30.4	7.9	-0.678
4T, 4aT	13.3	13.3	5.7	28.0	15.0	-1.051
5, 5a, 7, 7a	45.0	26.1	42.7	36.8	19.6	-0.931
5T, 5aT, 7T, 7aT	37.3	16.0	22.7	15.5	27.9	-1.249

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
RPV PEDESTAL**

**FIGURE 3A-375**

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DRYWELL WALL  
SECTIONS: 17, 18

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-2.1	5.0	-2.7	12.9	9.0	-0.382
3, 6	9.9	8.5	10.5	17.0	12.9	-0.690
4, 4a	-4.1	11.9	-4.8	28.3	17.0	-0.681
4T, 4aT	4.13	13.8	-4.3	28.9	26.8	-0.635
5, 5a, 7, 7a	18.6	15.7	20.5	29.8	22.5	-1.017
5T, 5aT, 7T, 7aT	23.0	22.1	22.0	32.6	38.9	-0.968

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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**FIGURE 3A-376**

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DRYWELL WALL  
SECTIONS: 19, 20

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-2.01	-0.176	-2.95	0.27	0.59	-0.424
3, 6	17.9	5.26	11.8	5.4	4.7	-0.483
4, 4a	4.86	3.69	-5.2	7.1	5.68	-0.744
4T, 4aT	5.2	-6.1	-5.39	-4.8	5.68	-0.744
5, 5a, 7, 7a	25.9	7.2	32.5	12.8	15.9	-0.851
5T, 5aT, 7T, 7aT	26.2	-5.8	32.3	8.2	15.9	-0.851

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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FIGURE 3A-377

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DRYWELL WALL  
SECTIONS: 21

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	8.5	8.6	6.9	7.7	1.01	-0.073
4, 4a	38.8	30.2	28.9	22.7	8.8	-0.374
4T, 4aT	32.8	21.6	35.9	27.6	9.5	-1.82
5, 5a, 7, 7a	35.6	30.1	29.3	23.3	8.8	-0.365
5T, 5aT, 7T, 7aT	31.7	21.5	34.6	28.0	8.9	-1.83

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
DIAPHRAGM SLAB**

**FIGURE 3A-378**

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DRYWELL WALL  
SECTIONS: 22, 23

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	7.9	9.5	10.2	13.0	4.46	-0.370
4, 4a	14.1	21.5	18.4	24.2	16.1	-0.383
4T, 4aT	-11.1	12.3	26.2	29.8	7.0	-1.367
5, 5a, 7, 7a	16.4	23.1	23.7	27.9	18.0	-0.623
5T, 5aT, 7T, 7aT	-13.1	16.0	25.5	35.9	7.2	-1.727

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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CONTAINMENT STRESSES  
DIAPHRAGM SLAB**

FIGURE 3A-379

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DRYWELL WALL  
SECTIONS: 24

Load Combination Equation (4)	MAXIMUM REBAR STRESSES, KSI (1) (3)					Max. Concrete Stress, KSI (2) (3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	10.2	9.6	9.1	8.0	3.0	-0.272
4, 4a	22.8	22.6	30.5	21.1	5.9	-0.842
4T, 4aT	-8.61	-8.29	33.2	29.4	4.2	-1.59
5, 5a, 7, 7a	27.9	25.4	33.4	24.4	6.2	-0.931
5T, 5aT, 7T, 7aT	-10.3	12.3	35.5	30.8	4.9	-1.738

- NOTES:
- (1) Allowable Reinforcing Steel Stress = 54 KSI
  - (2) Allowable Concrete Compressive Stress = 3.4 KSI
  - (3) "+" for Tensile Stress; "-" for Compressive Stress
  - (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.
  - (5) Values reflect analysis with an initial Drywell air temperature of 135°F. Increasing this temperature to 150°F does not adversely impact the results of this Design Assessment Report.

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CONTAINMENT STRESSES  
DIAPHRAGM SLAB**

**FIGURE 3A-380**

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DIAPHRAGM SLAB  
SECTION: 25

Load Combination Equations (4)	MAXIMUM REBAR STRESSES, KSI (1)(3)					Max. Concrete Stress, KSI (2)(3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	13.0	15.5	12.1	14.5	0.66	-.157
4, 4a	26.7	28.0	23.5	30.6	9.9	-.336
4T, 4aT	12.9	24.0	26.1	35.4	6.5	-2.04
5, 5a, 7, 7a	33.6	38.5	28.6	35.9	10.4	-.423
5T, 5aT, 7T, 7aT	19.3	31.8	41.1	42.4	9.5	-2.40

- NOTES: (1) Allowable Reinforcing Steel Stress = 54 KSI
- (2) Allowable Concrete Compressive Stress = 3.4 KSI
- (3) "+" for Tensile Stress; "-" for Compressive Stress
- (4) Load Combination Equations are taken from Table 3A-14, 4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.

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CONTAINMENT STRESSES  
DIAPHRAGM SLAB**

**FIGURE 3A-381**

BASE SLAB  
SECTION: 26

Load Combination Equations (4)	MAXIMUM REBAR STRESSES, KSI (1)(3)					Max. Concrete Stabs, KSI (2)(3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	1.7	16.6	5.93	6.22	5.29	-0.318
4, 4a	2.72	1.61	7.10	3.29	0.43	-0.213
4T, 4aT	-5.21	-5.63	15.2	14.9	3.4	-1.21
5, 5a, 7, 7a	10.9	20.7	10.4	9.51	4.03	-0.443
5T, 5aT, 7T, 7aT	-6.36	-4.95	18.4	17.3	3.12	-1.34

- NOTES: (1) Allowable Reinforcing Steel Stress = 54 KSI
- (2) Allowable Concrete Compressive Stress = 3.4 KSI
- (3) "+" for Tensile Stress; "-" for Compressive Stress
- (4) Load Combination Equations are taken from Table 3A-14 ,  
4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.

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CONTAINMENT STRESSES  
BASE SLAB

FIGURE 3A-382



**BASE SLAB  
SECTION: 27**

Load Combination Equations (4)	MAXIMUM REBAR STRESSES, KSI (1)(3)					Max. Concrete Stress, KSI (2)(3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	25.4	26.8	15.5	6.43	24.7	-0.479
4, 4a	10.3	-0.43	11.1	0.65	23.9	-0.309
4T, 4aT	22.4	-7.3	29.8	13.3	33.1	-1.70
5, 5a, 7, 7a	39.8	34.4	29.3	13.9	41.0	-0.540
5T, 5aT, 7T, 7aT	30.0	20.2	29.0	17.1	39.8	-1.79

- NOTES: (1) Allowable Reinforcing Steel Stress = 54 KSI
- (2) Allowable Concrete Compressive Stress = 3.4 KSI
- (3) "+" for Tensile Stress; "-" for Compressive Stress
- (4) Load Combination Equations are taken from Table 3A-14 ,  
4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.

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CONTAINMENT STRESSES  
BASE SLAB**

**FIGURE 3A-383**

BASE SLAB  
SECTION: 28

Load Combination Equations (4)	MAXIMUM REBAR STRESSES, KSI (1)(3)					Max. Concrete Stress, KSI (2)(3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	34.0	17.8	11.1	10.6	17.5	-0.910
4, 4a	21.7	9.15	16.9	8.7	12.5	-0.304
4T, 4aT	-8.25	-8.07	17.7	13.4	6.7	-1.59
5, 5a, 7, 7a	42.1	21.2	18.2	16.1	25.2	-0.985
5T, 5aT, 7T, 7aT	25.4	-8.4	23.7	19.8	18.7	-1.72

- NOTES: (1) Allowable Reinforcing Steel Stress = 54 KSI
- (2) Allowable Concrete Compressive Stress = 3.4 KSI
- (3) "+" for Tensile Stress; "-" for Compressive Stress
- (4) Load Combination Equations are taken from Table 3A-14 ,  
4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.

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CONTAINMENT STRESSES  
BASE SLAB**

**FIGURE 3A-384**

**BASE SLAB  
SECTION: 29**

Load Combination Equations (4)	MAXIMUM REBAR STRESSES, KSI (1)(3)					Max. Concrete Stress, KSI (2)(3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	12.7	15.6	9.01	8.52	11.1	-0.524
4, 4a	11.8	9.51	17.3	7.95	11.0	-0.243
4T, 4aT	9.32	-6.40	20.6	12.6	12.0	-1.23
5, 5a, 7, 7a	17.7	18.9	19.0	13.3	18.5	-0.508
5T, 5aT, 7T, 7aT	14.4	-6.22	21.5	16.1	18.9	-1.18

- NOTES: (1) Allowable Reinforcing Steel Stress = 54 KSI
- (2) Allowable Concrete Compressive Stress = 3.4 KSI
- (3) "+" for Tensile Stress; "-" for Compressive Stress
- (4) Load Combination Equations are taken from Table 3A-14 ,  
4T, 4aT, 5T, 5aT, 7T, 7aT include thermal components.

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**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
BASE SLAB**

**FIGURE 3A-385**

**BASE SLAB  
SECTION: 30**

Load Combination Equations (4)	MAXIMUM REBAR STRESSES, KSI (1)(3)					Max. Concrete Stress, KSI (2)(3)
	INNER		OUTER		Transverse Ties	
	Radial	Hoop	Radial	Hoop		
1	-	-	-	-	-	-
3, 6	9.32	16.9	9.14	8.54	7.0	-0.414
4, 4a	29.9	33.5	34.1	10.2	25.6	-0.430
4T, 4aT	29.2	5.5	38.5	12.9	27.4	-0.902
5, 5a, 7, 7a	23.9	36.5	32.9	16.6	28.4	-0.688
5T, 5aT, 7T, 7aT	22.5	-6.36	36.5	19.6	28.9	-0.915

- NOTES: (1) Allowable Reinforcing Steel Stress = 54 KSI
- (2) Allowable Concrete Compressive Stress = 3.4 KSI
- (3) "+" for Tensile Stress; "-" for Compressive Stress
- (4) Load Combination Equations are taken from Table 3A-14 ,  
4T, 4aT, 5T, 5aT, 7T, 7aT include Thermal Components.

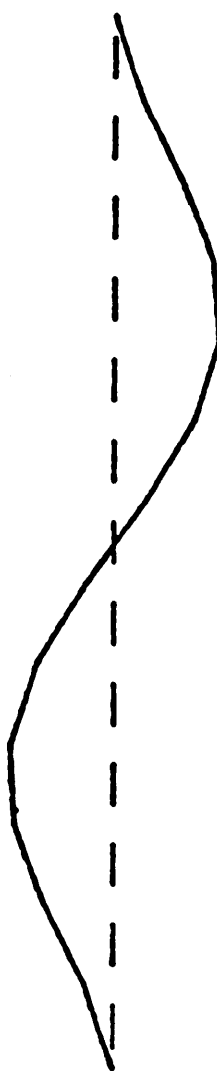
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**DESIGN ASSESSMENT REPORT  
CONTAINMENT STRESSES  
BASE SLAB**

**FIGURE 3A-386**



**MODE 1**  
**f=20 HZ**



**MODE 2**  
**f=53 HZ**



**MODE 3**  
**f=93 HZ**

**(WITH WATER MASS)**

**LIMERICK GENERATING STATION  
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**DESIGN ASSESSMENT REPORT  
SUPPRESSION CHAMBER  
COLUMNS MODE SHAPES**

**FIGURE 3A-387**

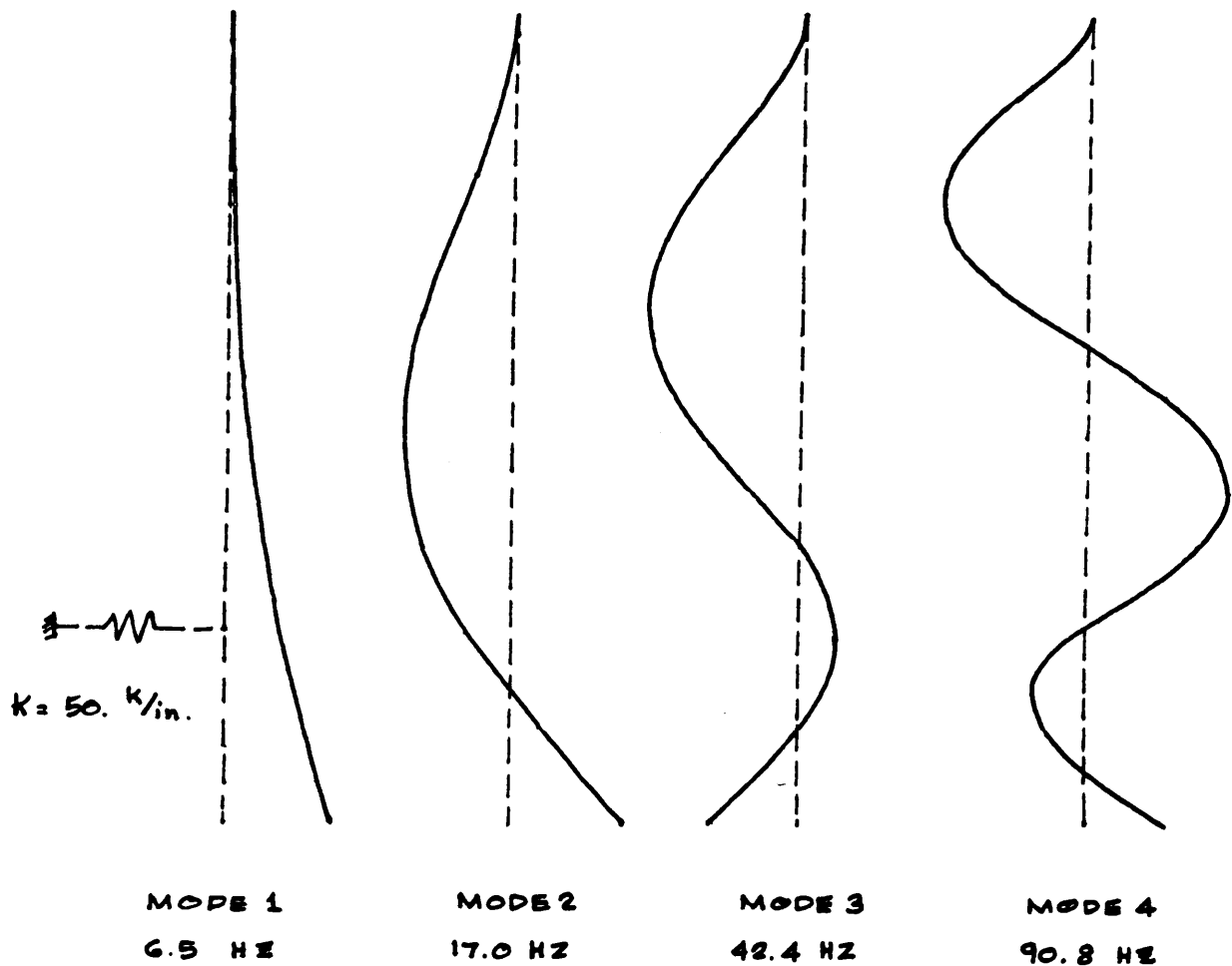
# SUPPRESSION CHAMBER COLUMNS

COLUMN	MAXIMUM AXIAL STRESS (KSI)	ALLOWABLE AXIAL STRESS (KSI)	MAXIMUM FLEXURAL STRESS (KSI)	ALLOWABLE FLEXURAL STRESS (KSI)	COMBINED STRESS RATIO	STRESS MARGIN %
42" dia pipe (shell element)	11.7	27.3	8.7	28.0	0.74	26
Top Anchorage	22.6	29.9	-	-	0.76	24
Bottom Anchorage	-	-	-	-	-	10

NOTE: These stress margins are based on load combination 7 of Table 3A-15 which is the critical load combination.

FIGURE 3A-388

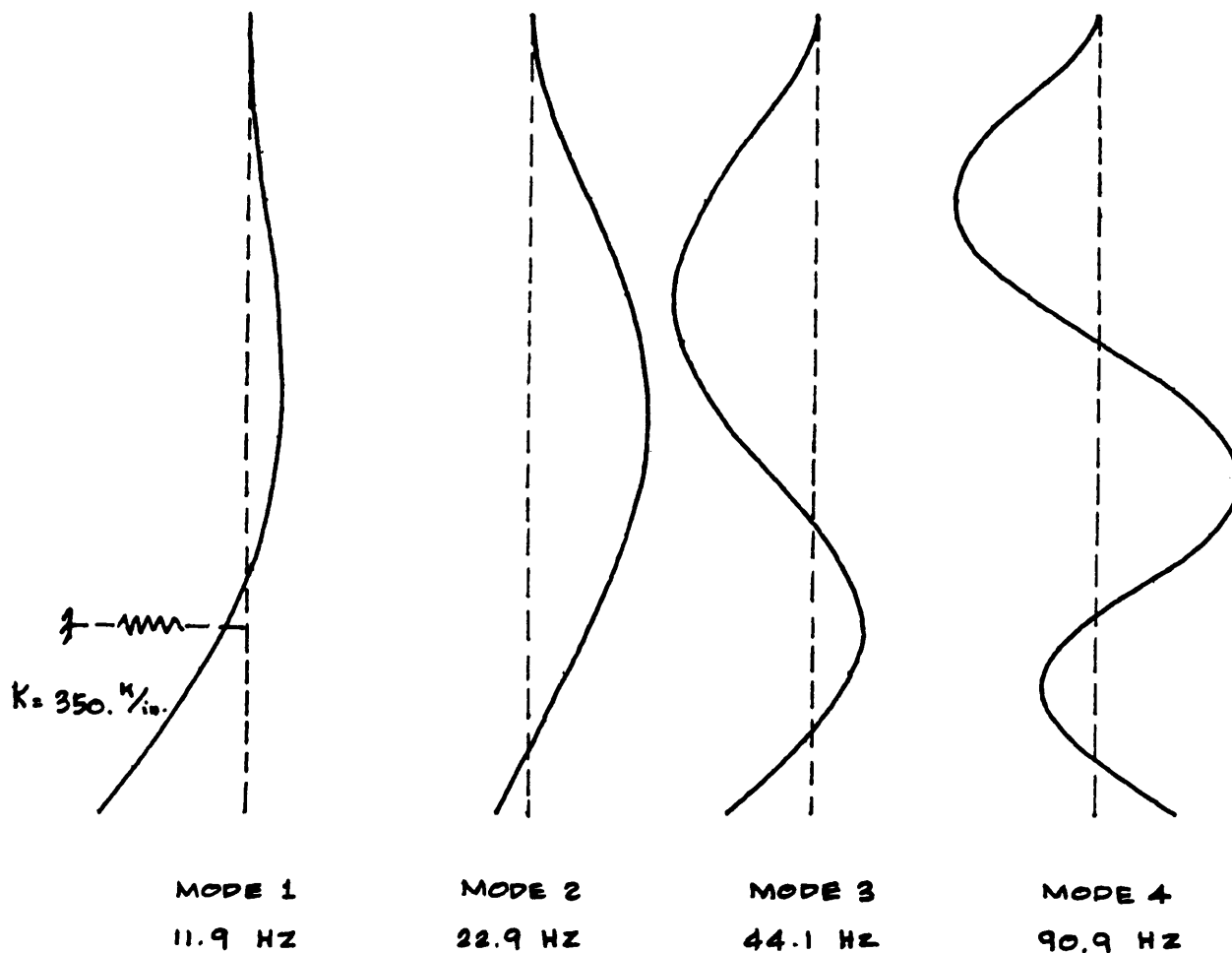
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COLUMNS DESIGN MARGIN



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DESIGN ASSESSMENT REPORT  
DOWNCOMER MODE SHAPES,  
 $K = 50 \text{ k/in}$

FIGURE 3A-389

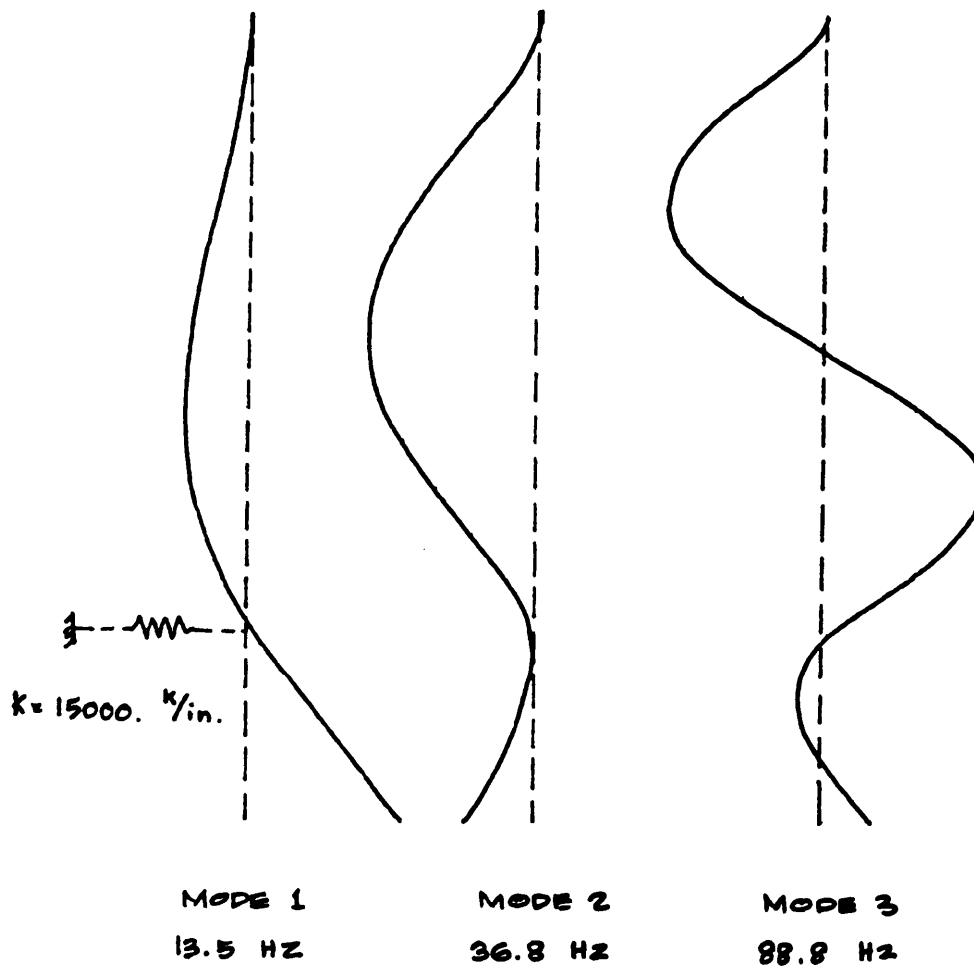


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DESIGN ASSESSMENT REPORT  
 DOWNCOMER MODE SHAPES,  
 $\text{K} = 350 \text{ k/in}$

FIGURE 3A-390





LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DOWNCOMER MODE SHAPES,  
 $K = 15000 \text{ k/in}$

FIGURE 3A-391

DOWNCOMER - STRESS SUMMARY AND DESIGN MARGINS

LOAD COMBINATION	CONDITION	ALLOWABLE STRESS (KSI)	STRESS (KSI)	DESIGN MARGIN (%)
Equation 1	Upset	28.4	17.5	38.4
Equation 2	Emergency	42.5	19.9	53.2
Equation 3	Emergency	42.5	37.4	12.0
Equation 4	Faulted	56.7	20.0	64.7
Equation 5	Faulted	56.7	37.4	34.0
Equation 6	Faulted	56.7	37.5	33.9
Equation 7	Faulted	56.7	24.5	56.8

NOTE: Equation numbers are based on Table 3A-17.

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DOWNCOMER DESIGN MARGIN

FIGURE 3A-392

# USAGE FACTOR SUMMARY OF DOWNCOMERS

LOADS	NORMAL/UPSET CONDITION				EMERGENCY/FAULTED CONDITIONS			CUMULATIVE USAGE
	± OBE ± SRV <sub>1</sub> ± SRV <sub>2</sub>	± SRV <sub>1</sub> ± SRV <sub>2</sub> ± CHUG	± SRV <sub>1</sub> ± SRV <sub>2</sub>	± SRV <sub>1</sub>	SBA o PRESSURE o THERMAL TRANSIENT o STEAM FLOW ± CHUG ± SRV <sub>1</sub> ± SRV <sub>2</sub>	IBA OR SBA o PRESSURE o THERMAL TRANSIENT o STEAM FLOW ± CHUG ± SRV <sub>1</sub> ± SRV <sub>2</sub> ± SSE	DBA o PRESSURE o THERMAL TRANSIENT o STEAM FLOW ± CHUG ± SSE	
AT PLATFORM RING	0.001	0.600	0.116	0.080	0.003			0.80
AT 24" x 24" VACUUM BREAKER TEE	0.002	0.194	0.160	0.151	0.001			0.51
AT PIPE ATTACHMENT <sup>(1)</sup> ELEV. 221'-0"	0.001	0.545	0.078	0.071	0.003			0.70

(1) ORIGINAL LOCATION OF VACUUM BREAKER (ABANDONED)

FIGURE 3A-393

DESIGN ASSESSMENT REPORT  
DOWNCOMER FATIGUE  
USAGE FACTOR

UPDATED FINAL SAFETY ANALYSIS REPORT

LIMERICK GENERATING STATION  
UNITS 1 AND 2

STRESS CYCLES FOR FATIGUE EVALUATION OF DOWNCOMERS

LOAD TYPE	No. OF CYCLES
NSRV1	14100
NSRV2	7700
NOBE	50
NCHUG	3000
NSSE	10

NOBE = Cycles associated with OBE  
NSRV1 = Cycles associated with SRV<sub>1</sub> (Submerged Structure Load)  
NSRV2 = Cycles associated with SRV<sub>2</sub> (Inertia)  
NCHUG = Cycles associated with Chugging  
NSSE = Cycles associated with SSE

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DOWNCOMER FATIGUE CYCLES

FIGURE 3A-394

# FATIGUE LOAD HISTOGRAM FOR DOWNCOMERS


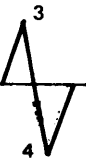
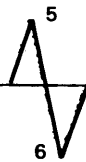


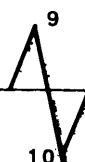
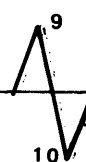
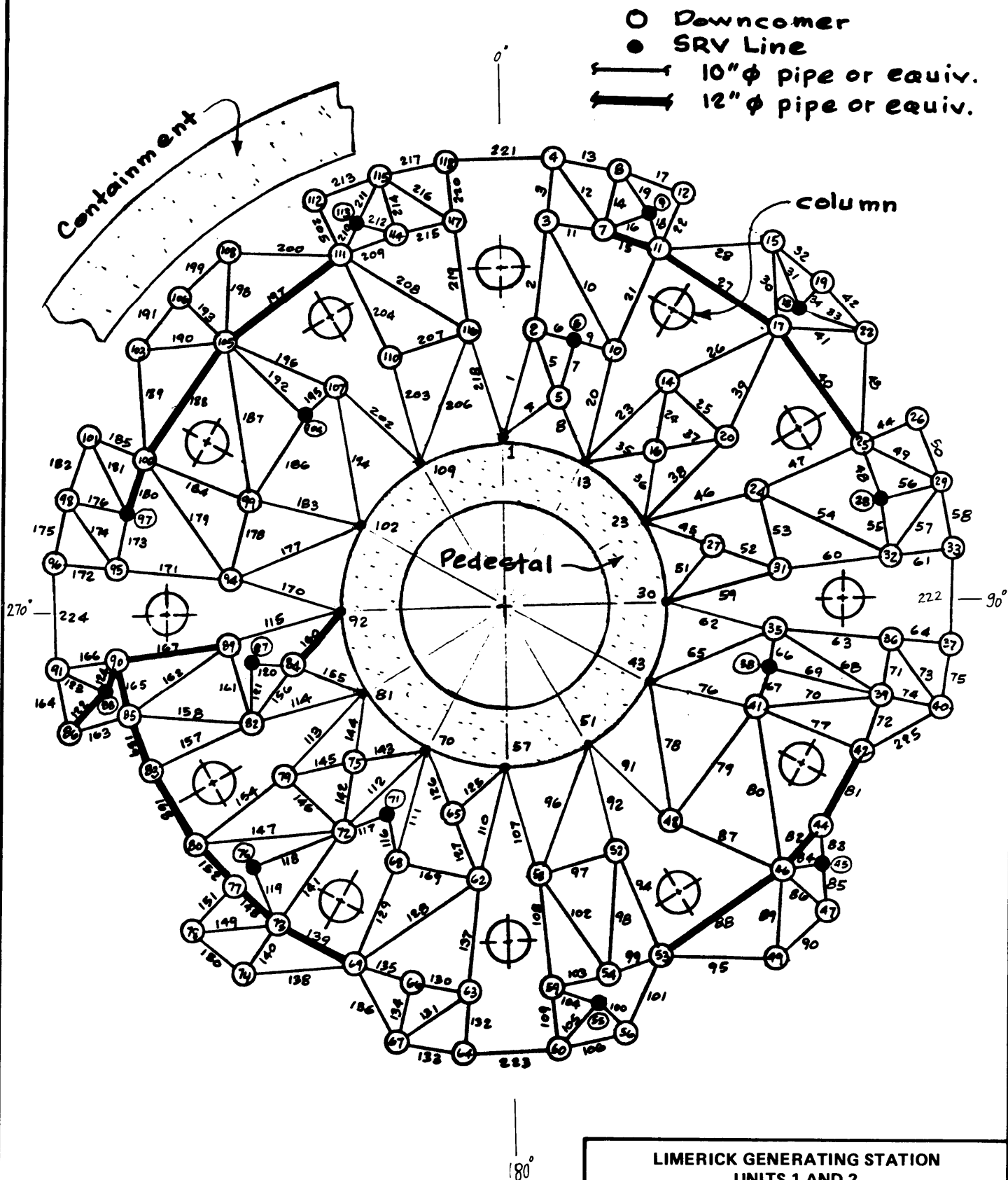
NORMAL/UPSET CONDITION				EMERGENCY	FAULTED	
				SBA	IBA or SBA	DBA
$\pm$ OBE $\pm$ SRV <sub>1</sub> $\pm$ SRV <sub>2</sub>	$\pm$ SRV <sub>1</sub> $\pm$ SRV <sub>2</sub> $\pm$ CHUG	$\pm$ SRV <sub>1</sub> $\pm$ SRV <sub>2</sub>	$\pm$ SRV <sub>1</sub>	° Pressure ° Thermal ° Transient ° Steam Flow $\pm$ CHUG  $\pm$ SRV <sub>1</sub>  $\pm$ SRV <sub>2</sub>	° Pressure ° Thermal ° Transient ° Steam Flow $\pm$ CHUG  $\pm$ SRV <sub>1</sub>  $\pm$ SRV <sub>2</sub>  $\pm$ SSE	° Pressure ° Thermal ° Transient ° Steam Flow $\pm$ CHUG  $\pm$ SSE
						
50 cycles	3000 cycles	4650 cycles	6400 cycles	Load set pair 9-10 is for one of the three above events which produce the largest combined stress.  The cycles associated with oscillatory loads combined with SSE are assumed conservatively to be 10.		

FIGURE 3A-395

DESIGN ASSESSMENT REPORT  
DOWNCOMER FATIGUE  
HISTOGRAM

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT



LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 DOWNCOMER BRACING  
 MATHEMATICAL MODEL

FIGURE 3A-396

DOWNCOMER BRACING SYSTEM - STRESS SUMMARY

BRACING MEMBER DESIGN MARGINS FOR CRITICAL  
MEMBERS AND GOVERNING LOAD COMBINATION

<u>QUADRANT (2)</u>	<u>MEMBER (2)</u>	<u>EQUATION (1)</u>	<u>MARGIN - %</u>
1	58	7	5%
2	75	7	6%
3	126	7	5%
4	217	7	4%
Link between Quadrants	221	7	3%

NOTES: (1) Equation number is based on Table 3A-15  
(2) Figure 3A-396 gives location reference

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
DOWNCOMER BRACING SYSTEM  
DESIGN MARGIN

FIGURE 3A-397

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE FLOOR PLAN AT  
ELEVATION 177 FT.**



Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT REACTOR ENCLOSURE STEEL FRAMING PLAN EL. 201'
FIGURE 3A-399

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

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LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

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DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
STEEL FRAMING PLAN  
EL. 217'

FIGURE 3A-400

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT REACTOR ENCLOSURE STEEL FRAMING PLAN EL. 253'
FIGURE 3A-401

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
STEEL FRAMING PLAN  
EL. 283'

FIGURE 3A-402

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
STEEL FRAMING PLAN  
EL. 313'

FIGURE 3A-403

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT REACTOR ENCLOSURE STEEL FRAMING PLAN EL. 331'
FIGURE 3A-404

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE  
STEEL FRAMING PLAN  
EL. 352'

FIGURE 3A-405

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
STEEL FRAMING PLAN  
EL. 200'

FIGURE 3A-406



Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
STEEL FRAMING PLAN  
EL. 217'

FIGURE 3A-407

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT CONTROL STRUCTURE STEEL FRAMING PLAN EL. 239'
FIGURE 3A-408

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT CONTROL STRUCTURE STEEL FRAMING PLAN EL. 254'
FIGURE 3A-409

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
STEEL FRAMING PLAN  
EL. 269'

FIGURE 3A-410

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
STEEL FRAMING PLAN  
EL. 289'

FIGURE 3A-411

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT CONTROL STRUCTURE STEEL FRAMING PLAN EL. 304'
FIGURE 3A-412

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT CONTROL STRUCTURE STEEL FRAMING PLAN EL. 332'
FIGURE 3A-413

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT CONTROL STRUCTURE STEEL FRAMING PLAN EL. 350'
FIGURE 3A-414



Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION UNITS 1 AND 2 UPDATED FINAL SAFETY ANALYSIS REPORT
DESIGN ASSESSMENT REPORT CONTROL STRUCTURE PLATFORMS EL. 313'
FIGURE 3A-415

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
PLATFORMS  
EL. 340'

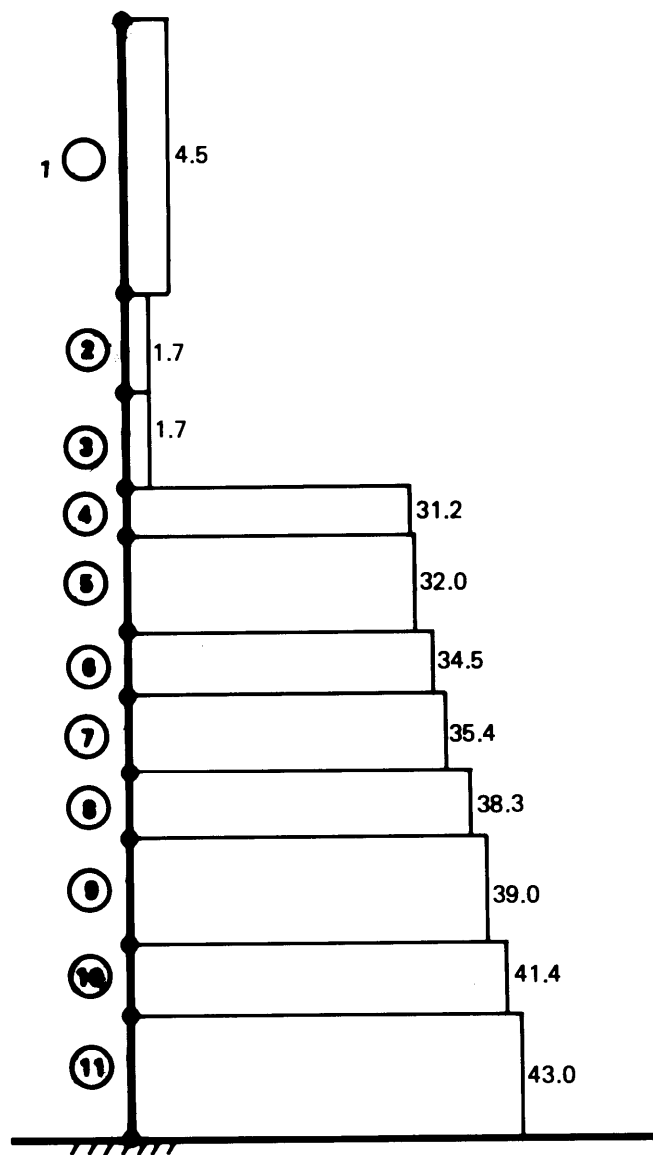
FIGURE 3A-417

Security Related Information  
Figure Wittheld Under 10 CFR 2.390

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

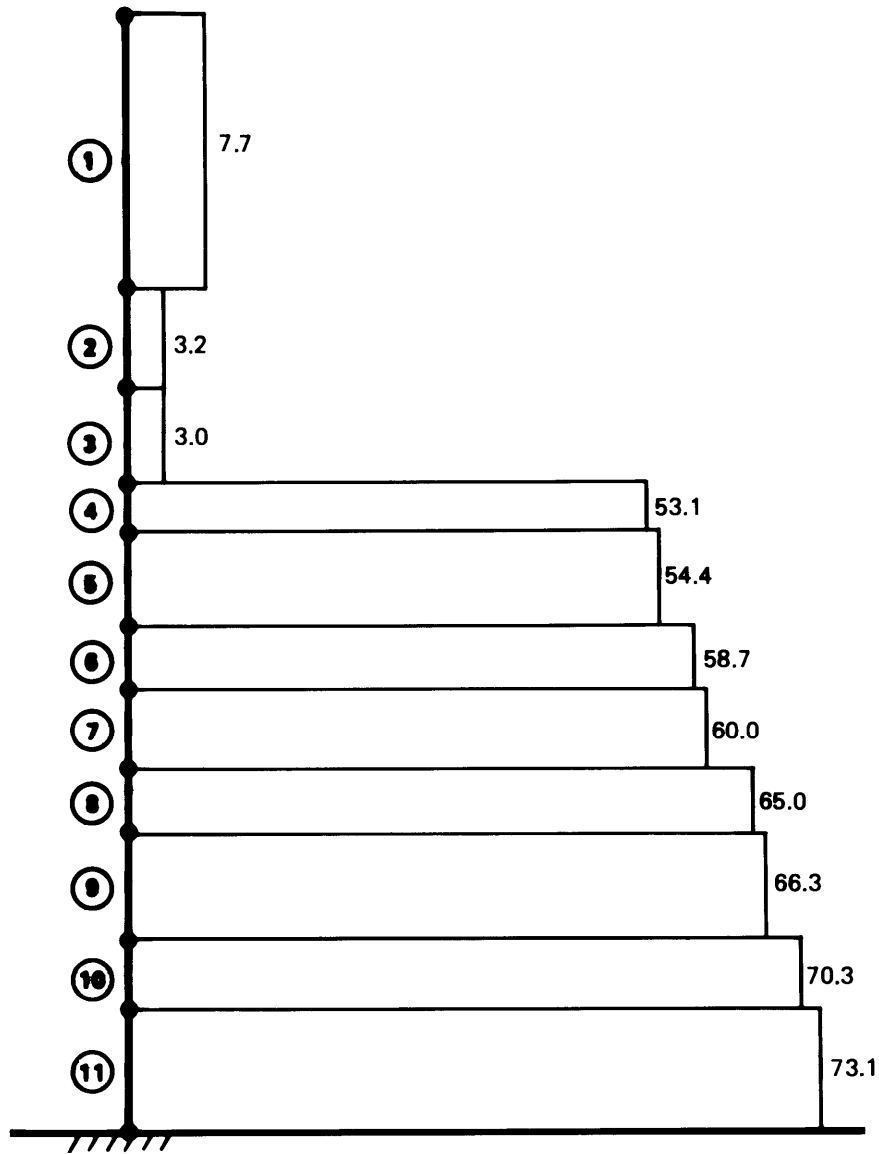
DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE  
PLATFORMS  
EL. 350'

FIGURE 3A-418



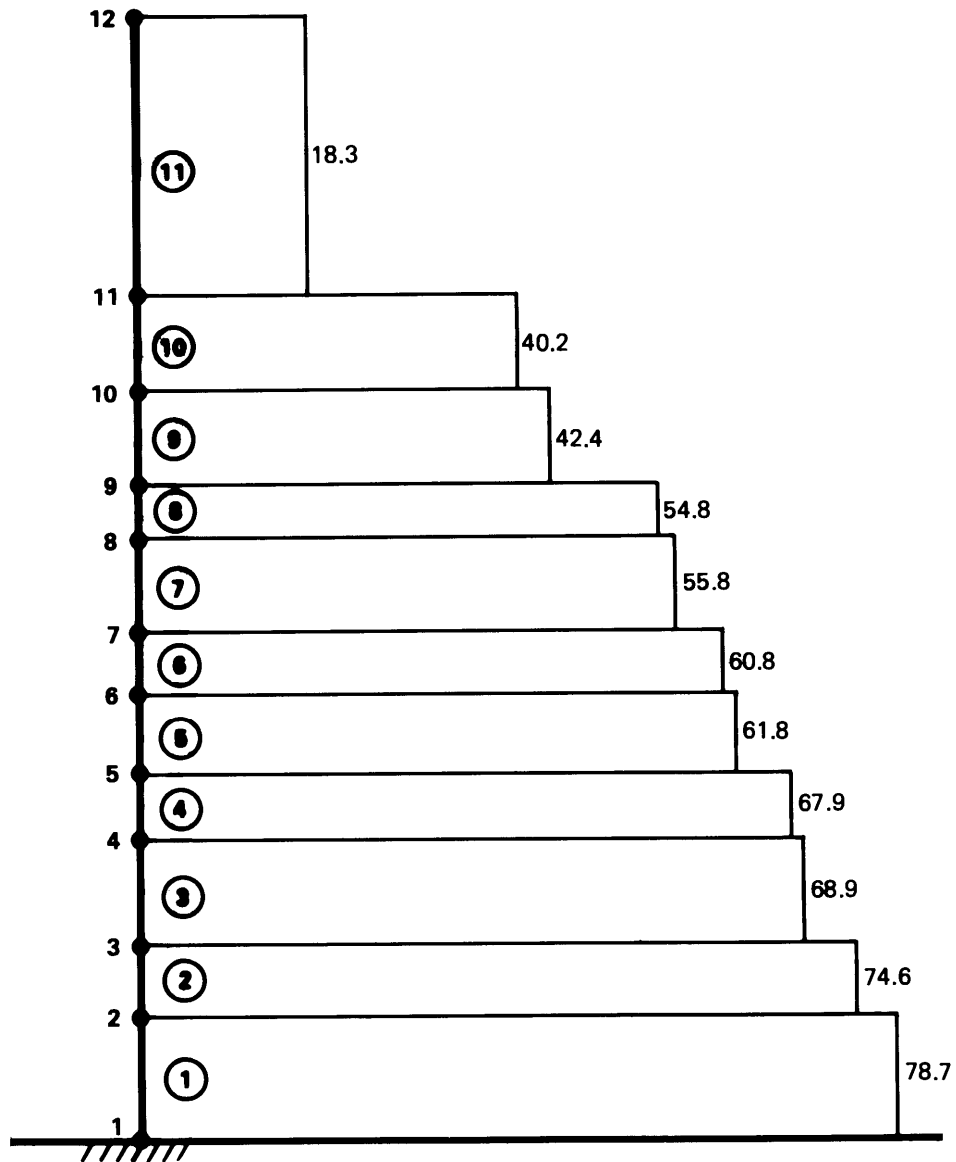
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE VERTICAL AXIAL FORCES  
( $\times 10^3$  KIPS)  
OBE+SRV (2% DAMPING)  
FIGURE 3A-419**



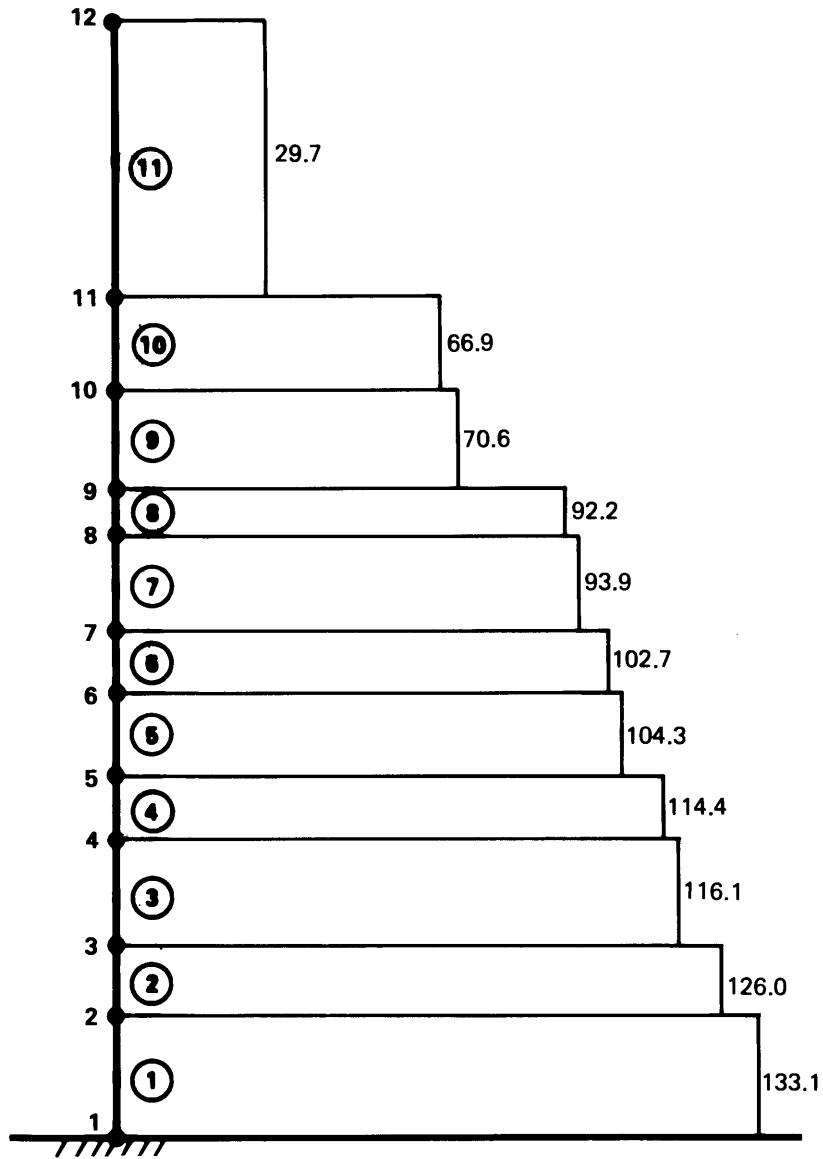
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE VERTICAL AXIAL FORCES  
(X 10<sup>3</sup> KIPS)  
DBE+SRV+LOCA (5% DAMPING)  
FIGURE 3A-420**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE N-S SHEAR FORCES  
(X10<sup>3</sup> KIPS)  
OBE+SRV (2% DAMPING)  
FIGURE 3A-421**

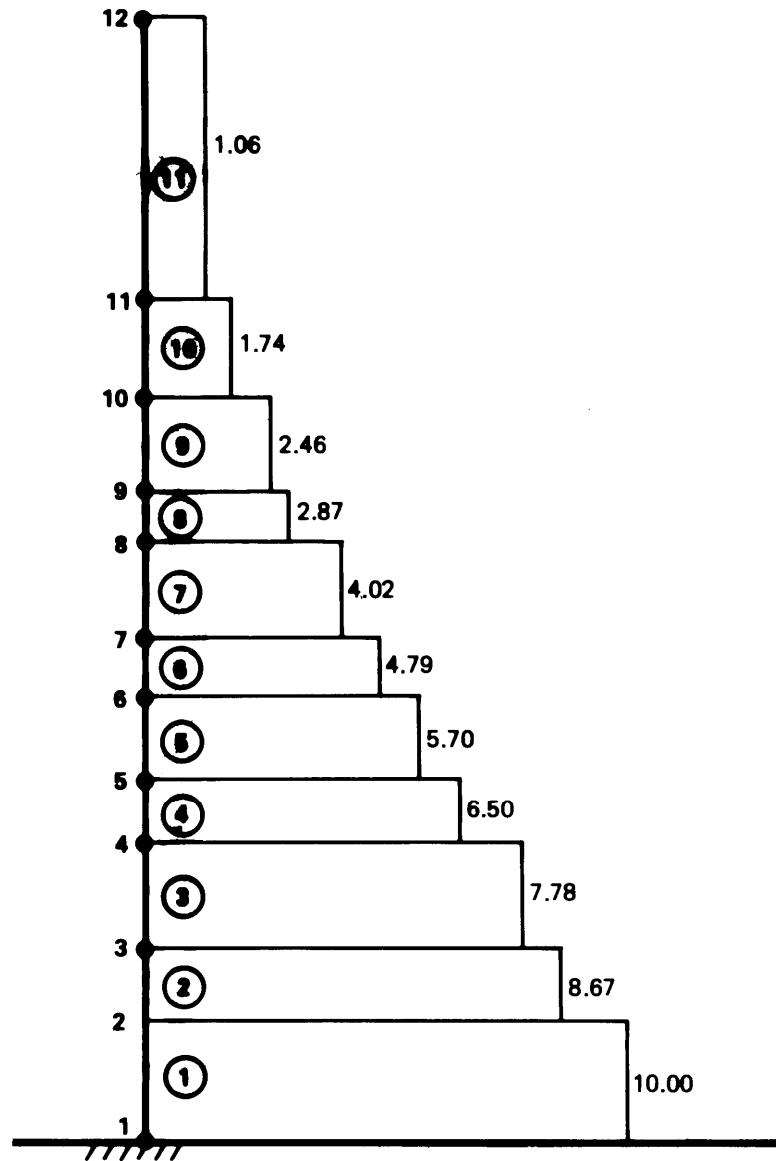


**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT**

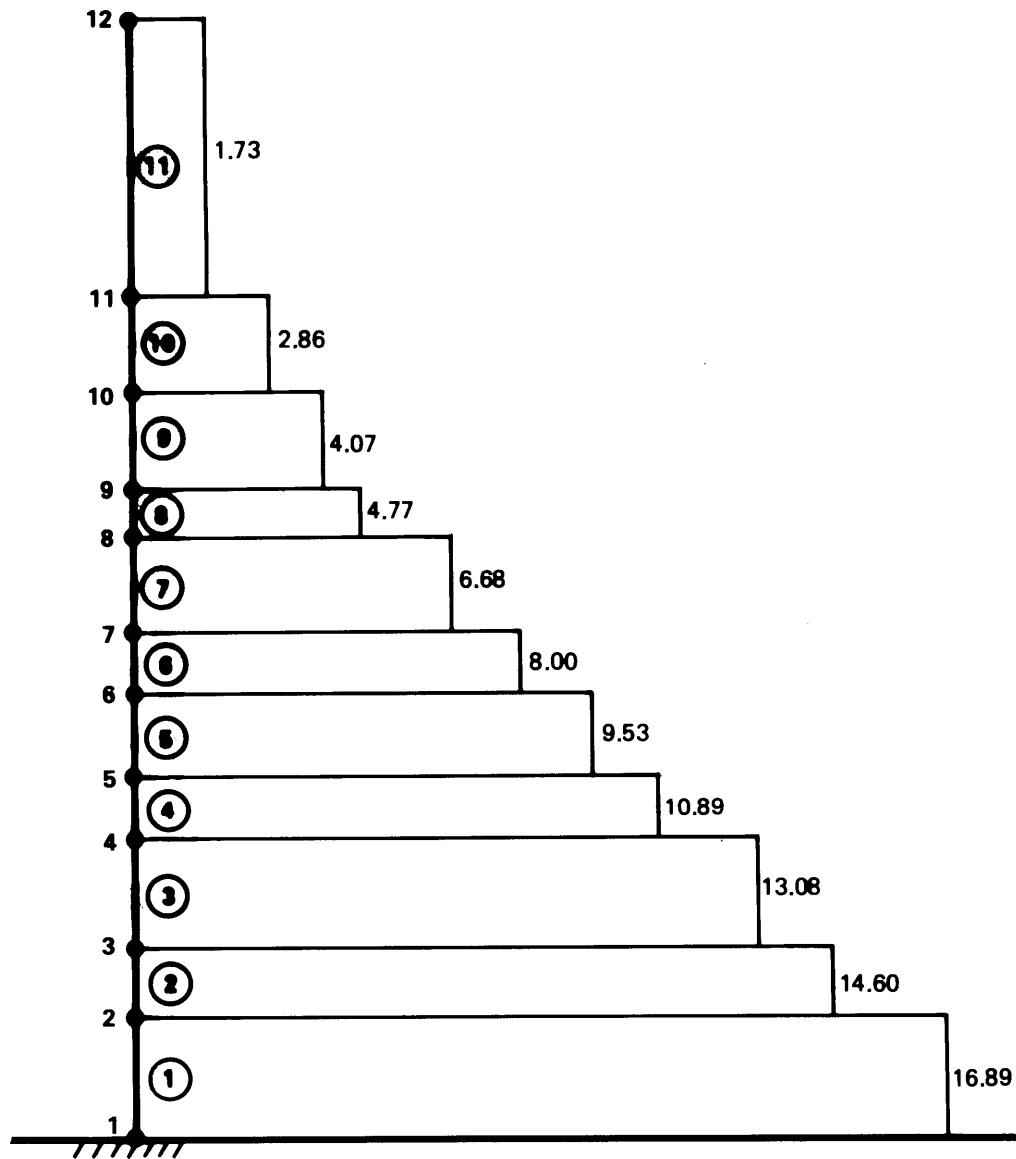
**REACTOR ENCLOSURE & CONTROL  
STRUCTURE N-S SHEAR FORCES  
(X10<sup>3</sup> KIPS)  
DBE+LOCA+SRV (5% DAMPING)  
FIGURE 3A-422**





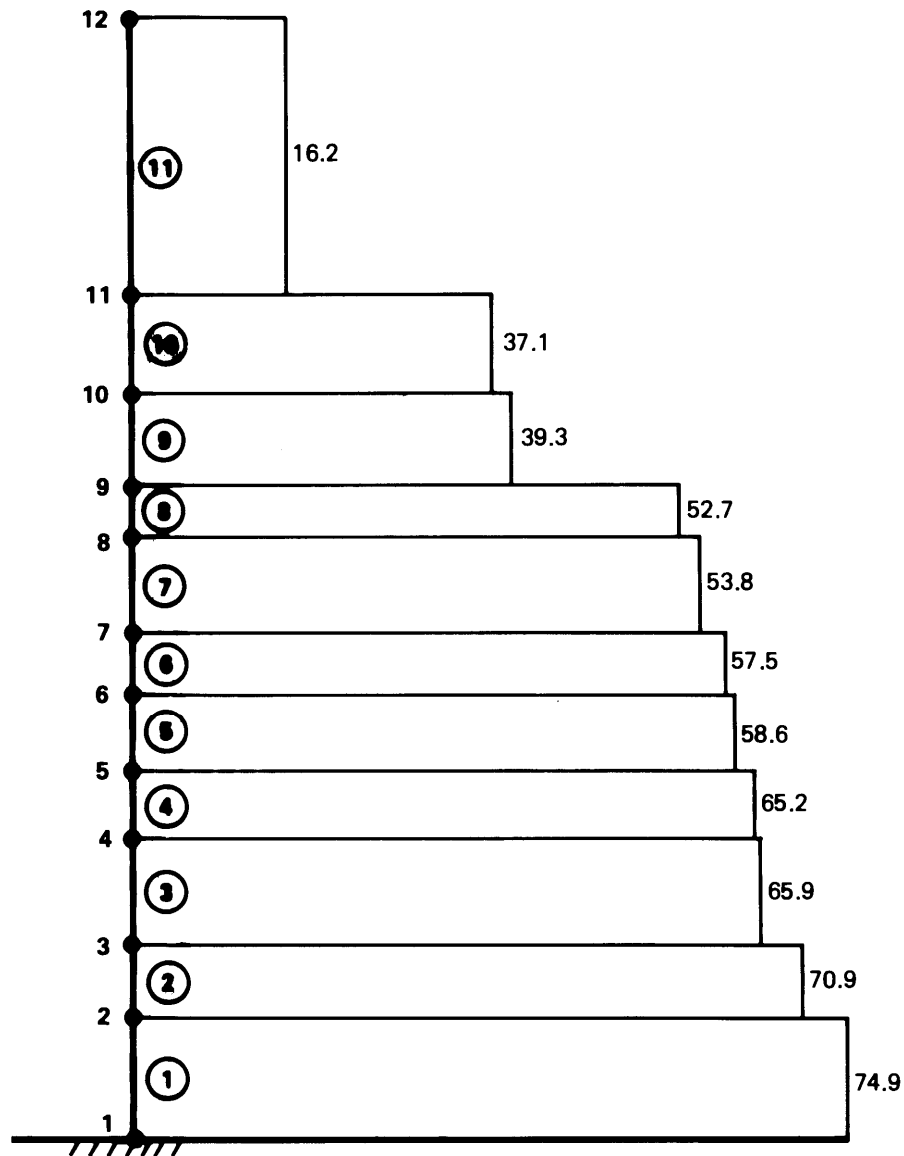
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE N-S OVERTURNING  
MOMENTS ( $\times 10^6$  K-FT)  
OBE+SRV (2% DAMPING)  
FIGURE 3A-423**



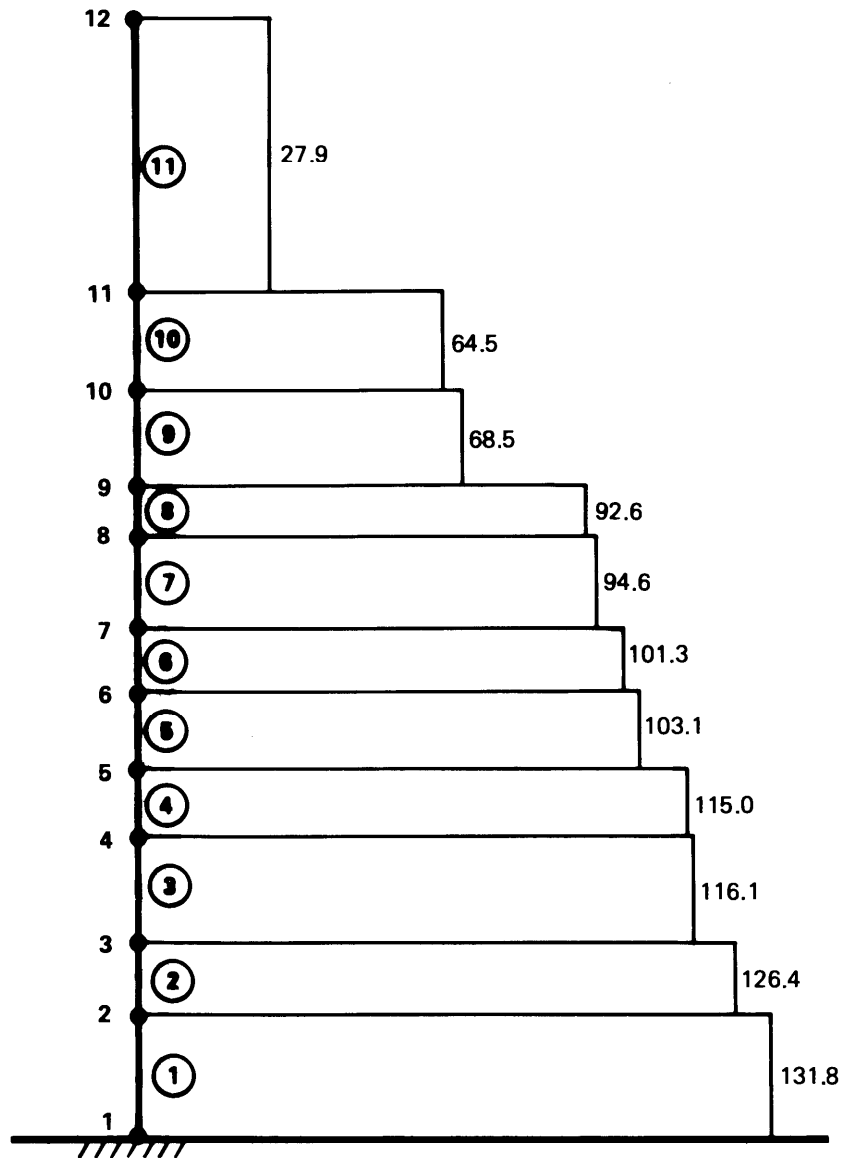
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE N-S OVERTURNING  
MOMENTS ( $\times 10^6$  K-FT)  
DBE+LOCA+SRV (5% DAMPING)  
FIGURE 3A-424**



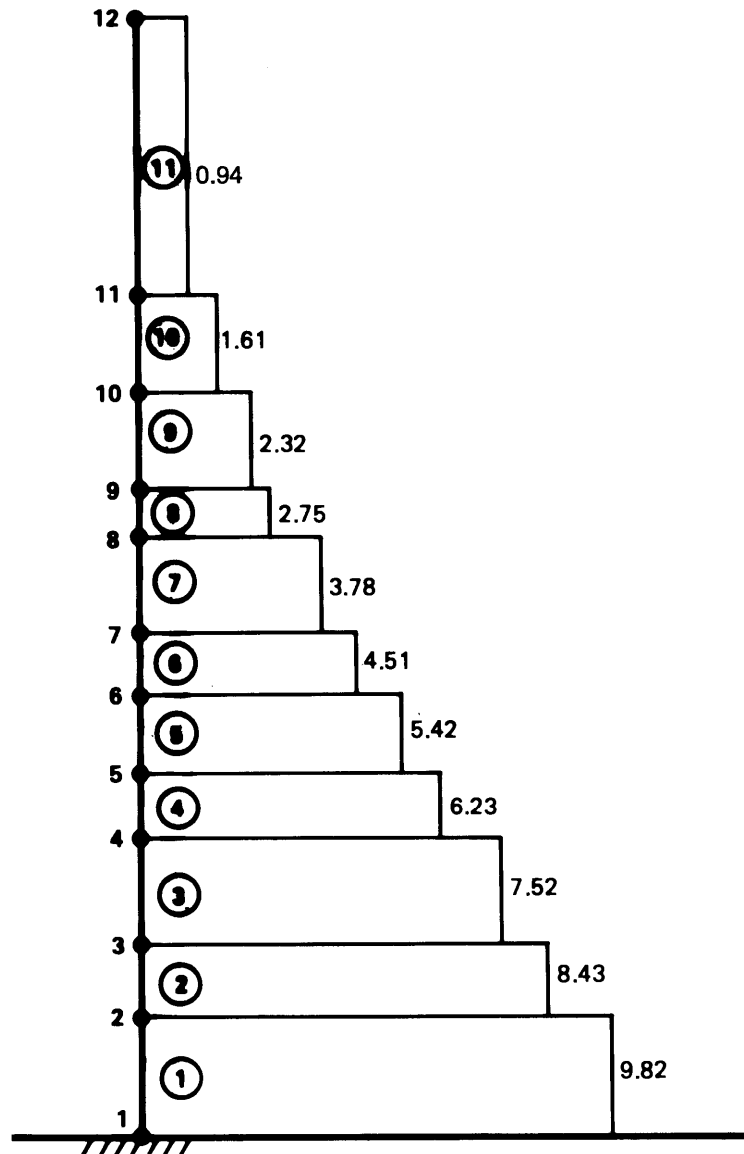
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE E-W SHEAR FORCES  
(X10<sup>3</sup> KIPS)  
OBE+SRV (2% DAMPING)  
FIGURE 3A-425**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

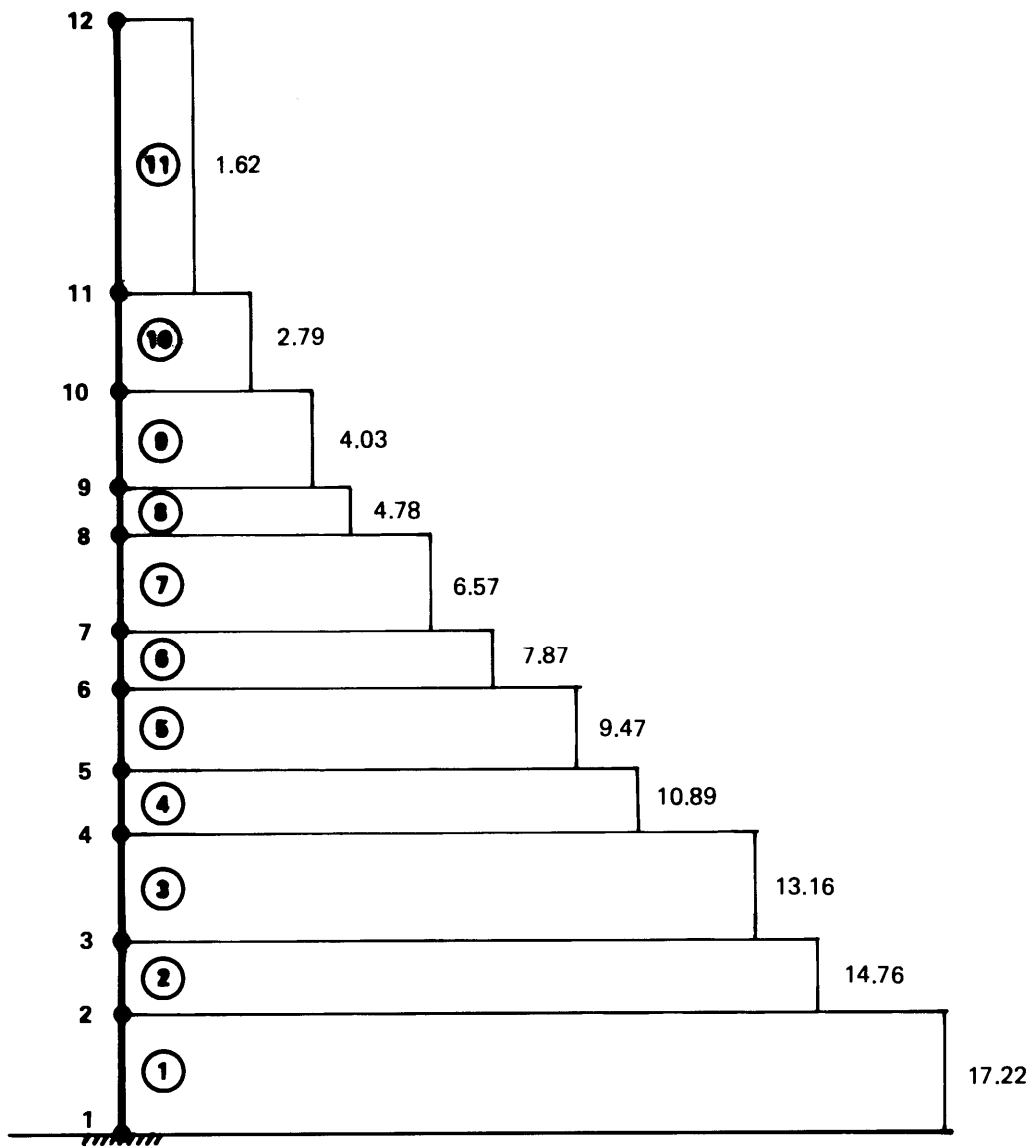
**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE E-W SHEAR FORCES  
(X10<sup>3</sup> KIPS)  
DBE+LOCA+SRV (5% DAMPING)  
FIGURE 3A-426**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE E-W OVERTURNING  
MOMENTS (X10<sup>6</sup> K-FT)  
OBE+SRV (2% DAMPING)**

**FIGURE 3A-427**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE & CONTROL  
STRUCTURE E-W OVERTURNING  
MOMENTS ( $\times 10^6$  K-FT)  
DBE+LOCA+SRV (5% DAMPING)  
FIGURE 3A-428**

# REACTOR ENCLOSURE FLOOR SLABS

ELEMENT NUMBER	ELEVATION (FT)	SLAB THICKNESS (FT)	GOVERNING EQUATION <sup>(1)</sup>	REBAR <sup>(2)</sup> STRESS (KSI)	STRESS MARGIN (%)
1	201	1.5	1	13.13	75.7
2	201	2.5	1	30.55	43.4
3	217	1.5	7a	30.90	42.8
4	217	2.0	7a	27.70	48.7
5	253	1.25	7a	51.26	5.1
6	253	2.0	1	20.40	62.2
7	283	1.25	7a	42.74	20.9
8	283	2.75	1	28.13	47.9
9	313	1.75	1	30.52	43.5
10	313	2.0	7a	23.83	55.9
11	313	3.0	7a	28.16	47.9
12	333	1.25	1	21.22	60.7
13	333	1.67	1	15.47	71.4
14	352	2.0	7a	36.35	32.7
15	352	3.25	7a	11.18	79.3

NOTES: (1) Taken from Table 3A-14 as follows:

Load Combination EQN 1 = 1.4D + 1.7L + 1.5 SRV  
 Load Combination EQN 7a = 1.0D + 1.0L + 1.0 ESS  
 + 1.0 SRV + 1.0 LOCA

(2) Allowable Reinforcing Steel Stress = 54 KSI

LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 REACTOR ENCLOSURE MARGINS  
 FLOOR SLABS

FIGURE 3A-429

REACTOR ENCLOSURE FLOOR STEEL BEAM(1)

ELEMENT NUMBER	ELEVATION (FT)	STEEL SIZE	GOVERNING EQUATION <sup>(2)</sup>	BENDING STRESS (KSI)	STRESS MARGIN <sup>(3)</sup> %
16	201	W27 x 145	1	23.00	4.2
17	201	W24 x 68	1	20.00	16.7
18	217	W33 x 141	1	21.90	8.6
19	217	W33 x 130	7	27.40	15.5
20	253	W24 x 76	1	22.66	5.6
21	253	W27 x 84	1	20.92	12.8
22	283	72" Girder	1	24.00	0.
23	283	W33 x 152	1	19.27	19.7
24	313	56" Girder	7	30.28	6.5
25	313	W36 x 300	7	29.44	9.1
26	331	W36 x 182	7	23.58	27.2
27	331	W21 x 73	7	20.31	37.3
28	352	W36 x 300	7	18.54	42.7
29	352	W24 x 68	7	16.94	47.7

NOTES: (1) All beams are A-36 steel.

(2) Taken from Table 3A-15 as follows:

Load Combination EQN 1 = D + L + SRV

Load Combination EQN 7 = D + L + E<sup>1</sup> + SRV + LOCA

(3) Allowable Bending Stresses for Governing Equations 1 and 7 are 24.0 KSI and 32.4 KSI, respectively.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE MARGINS  
FLOOR STEEL BEAM**

**FIGURE 3A-430**



# REACTOR ENCLOSURE SUPPORTING COLUMNS

ELEVATION RANGE	LOCATION(1)	MATERIALS(2)	INTERACTION EQUATION	STRESS MARGIN%
177'-201'	29 & E	Steel	0.77	23
177'-201'	30.5 & E	Reinforced Concrete	-	8
201'-217'	29 & E	Steel	0.78	22
201'-217'	30.5 & E	Reinforced Concrete	-	1
217'-253'	30.5 & E	Steel	1.02	0
253'-283'	30.5 & F	Steel	0.88	12
283'-313'	30.5 & E	Steel	0.78	22
313'-333'	27.5 & E	Steel	0.97	3
313'-333'	30.5 & E	Steel	0.91	9
333'-352'	29 & E	Steel	0.65	35

NOTES: (1) Figure 3A-398 gives location reference

(2) For Steel Supports, Load Combination EQN (7) of Table 5.3-1 is used:  $D + L + E + LOCA + SRV + P$ .

For Reinforced Concrete Supports, Load Combination EQN (7) of Table 3A-14 is used:

$D + L + E_O + LOCA + SRV + P_B$

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE MARGINS  
SUPPORTING COLUMNS

FIGURE 3A-431

REACTOR ENCLOSURE SHEAR WALLS

WALL ELEVATION (FT)	WALL MARK <sup>(1)</sup>	GOVERNING EQUATION <sup>(2)</sup>	COMBINED AXIAL & BENDING STRESS MARGIN (%) (3)	SHEAR STRESS MARGIN (%) (4)
177	Line 14.1	7a	67	1
177	Line 31.9	7a	67	1
177	D	7a	48	12
177	Line 23	7a	24	8
177	Line 21.5	7a	29	9

NOTES: (1) Figure 3A-398 gives location reference

(2) Taken from Table 3A-14 as follows:

Load Combination EQN 7a = D + L + Ess + SRV + LOCA

(3) Allowable Reinforcing Steel Stress = 54 KSI

(4) Allowable Reinforcing Steel Stress = 51 KSI

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
REACTOR ENCLOSURE MARGINS  
SHEAR WALLS**

**FIGURE 3A-432**

CONTROL STRUCTURE FLOOR SLABS

ELEMENT NUMBER	ELEVATION (FT)	SLAB THICKNESS (FT)	GOVERNING EQUATION(1)	REBAR STRESS(2) KSI	STRESS MARGIN (%)
30	200	1.5	1	14.47	73.2
31	200	6.0	1	37.64	30.3
32	217	1.25	1	14.15	73.8
33	237	1.0	1	31.10	42.4
34	237	1.0	1	30.89	42.8
35	254	1.0	1	27.86	48.4
36	269	1.5	1	12.15	77.5
37	289	1.5	1	10.26	81.0
38	304	1.0	1	22.95	57.5
39	332	1.5	1	16.92	68.7
40	332	2.0	1	41.4	23.3
41	350	1.5	1	16.65	69.2

NOTES: (1) Taken from Table 3A-14 as follows:

Load Combination EQN 1 = 1.4D + 1.7L + 1.5 SRV

(2) Allowable Reinforcing Steel Stress = 54 KSI

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT  
DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE MARGINS  
FLOOR SLABS**

**FIGURE 3A-433**

CONTROL STRUCTURE FLOOR STEEL BEAM<sup>(1)</sup>

ELEMENT NUMBER	ELEVATION (FT)	STEEL SIZE	GOVERNING EQUATION(2)	BENDING STRESS (KSI)	STRESS MARGIN <sup>(3)</sup> %
42	200	W24 x 130	1	23.78	0.9
43	217	W30 x 210	7	29.90	7.7
44	237	W36 x 300	7	27.60	14.8
45	254	W36 x 245	7	28.80	11.1
46	269	42" Girder	7	25.53	21.2
47	289	W36 x 160	7	27.90	13.9
48	304	W36 x 194	7	30.00	7.4
49	332	38" Girder	7	24.80	23.5
50	350	W18 x 105	7	10.30	68.2

NOTES: (1) All beams are A-36 steel.

(2) Taken from Table 3A-15 as follows:

Load Combination EQN 1 = D + L + SRV

Load Combination EQN 7 = D + L + E' + SRV + LOCA

(3) Allowable bending stresses for governing equations 1 and 7 are 24.0 KSI and 32.4 KSI, respectively.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
CONTROL STRUCTURE MARGINS  
FLOOR STEEL BEAM**

**FIGURE 3A-434**

## CONTROL STRUCTURE SHEAR WALLS

WALL ELEVATION (FT)	WALL MARK	GOVERNING EQUATION(2)	COMBINED AXIAL & BENDING STRESS MARGIN (%) (3)	SHEAR STRESS MARGIN (%) (4)
177	Mh	7a	2	12
200	Mh	7a	39	2
269	J	1	44	24
239	J	1	48	19
177	Line 19.4	7a	23	0
239	Line 19.4	1	3.4	24
177	Line 26.6	7a	28	0

NOTES: (1) Figure **3A-398** gives location reference.

(2) Taken from Table 3A-14 as follows:

Load Combination EQN 1 = 1.4D + 1.7L + 1.5 SRV  
Load Combination EQN 7a = 1.0D + 1.0L + 1.0 E<sub>SS</sub>  
+ 1.0 SRV + 1.0 LOCA

(3) Allowable Reinforcing Steel Stress = 54 KSI  
Allowable Concrete Compressive Stress = 2.8 KSI

(4) Allowable Reinforcing Steel Stress = 51 KSI

**LIMERICK GENERATING STATION  
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# DESIGN ASSESSMENT REPORT CONTROL STRUCTURE MARGINS SHEAR WALLS

**FIGURE 3A-435**

CONTROL STRUCTURE STEEL PLATFORM (1)

ELEMENT NUMBER	ELEVATION (FT)	STEEL GRADE	GOVERNING EQUATION(2)	BENDING STRESS (KSI)	STRESS MARGIN <sup>(3)</sup> (%)
51	313	W10x21	2	14.7	38.8
52	313	W12x27	2	18.9	21.3
53	322	W12x27	2	10.7	55.4
54	340	W8x24	2	10.0	58.3
55	350	W8x24	2	17.6	26.7
56	350	W10x54	2	10.6	55.8

- NOTES: (1) All beams are A-36 steel.  
 (2) Allowable bending stress = 24 KSI  
 (3) Taken from Table 3A-15 as follows:

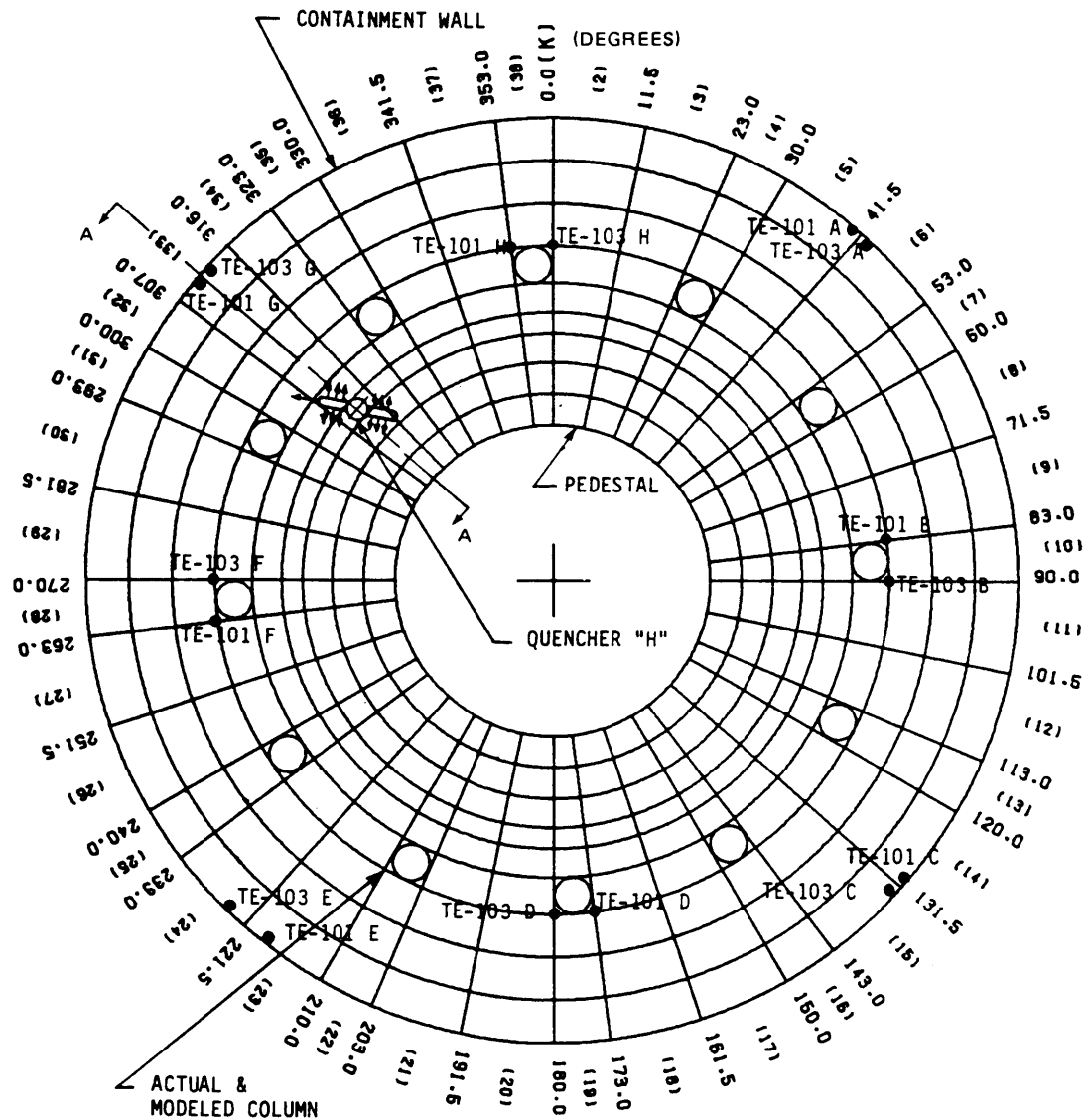
Load Combination EQN 2 = D + L + To + SRV

**LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
 CONTROL STRUCTURE MARGINS  
 STEEL PLATFORM**

**FIGURE 3A-436**

Security Related Information  
Figure Wittheld Under 10 CFR 2.390



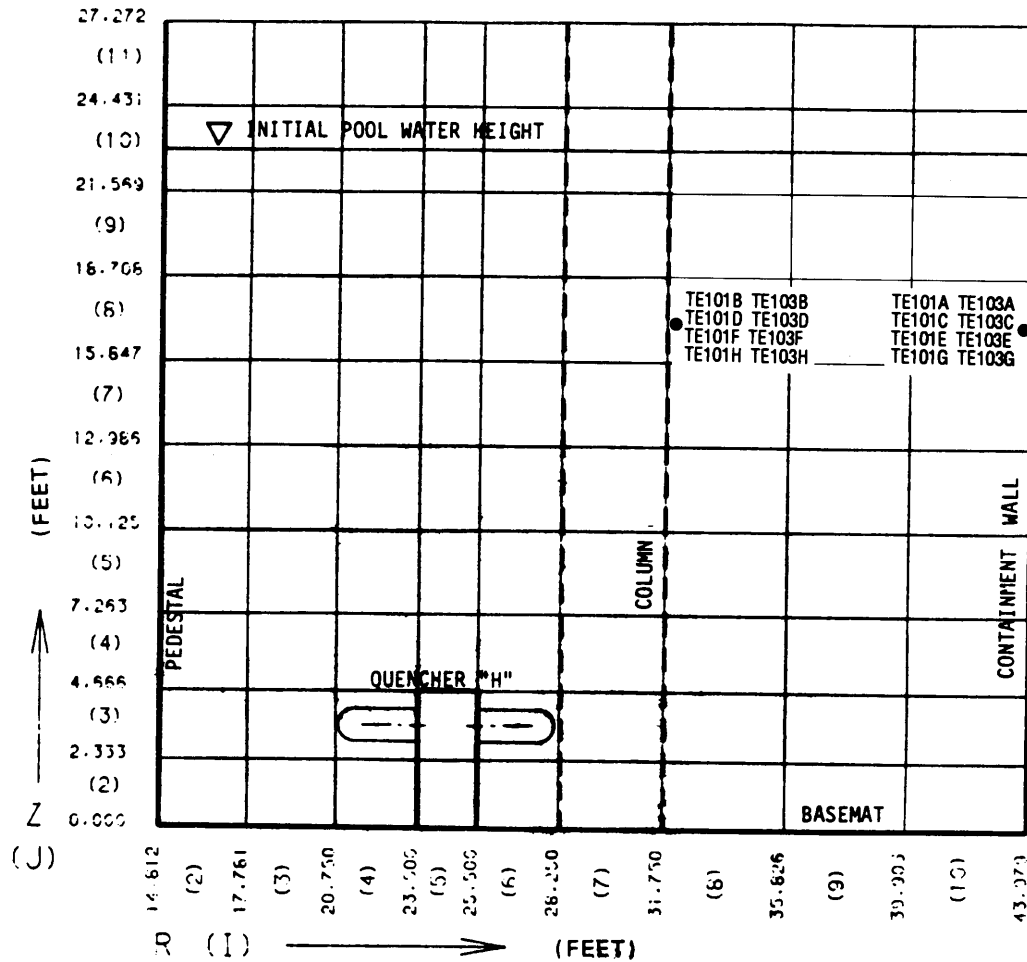
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
PLAN VIEW OF MESH SYSTEM MODELING OF  
SUPPRESSION POOL FOR SRV-H HIGH AND  
LOW REACTOR PRESSURE BLOWDOWN  
(WITH SPTMS SENSOR LOCATIONS)**

**FIGURE 3A-438**



VIEW A-A OF FIGURE 3A-438

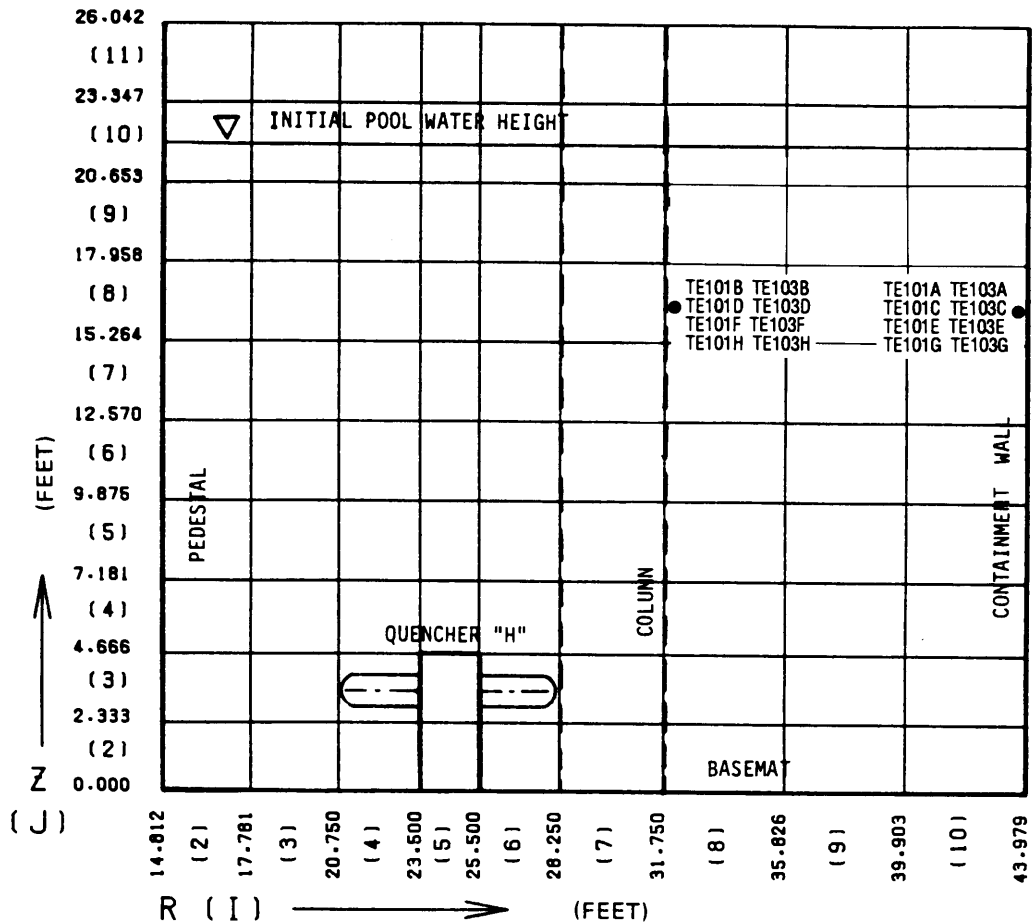


**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SECTION VIEW OF MESH SYSTEM MODELING OF  
SUPPRESSION POOL FOR SRV-H HIGH  
REACTOR PRESSURE BLOWDOWN  
(WITH SPTMS SENSOR LOCATIONS)**

**FIGURE 3A-439**

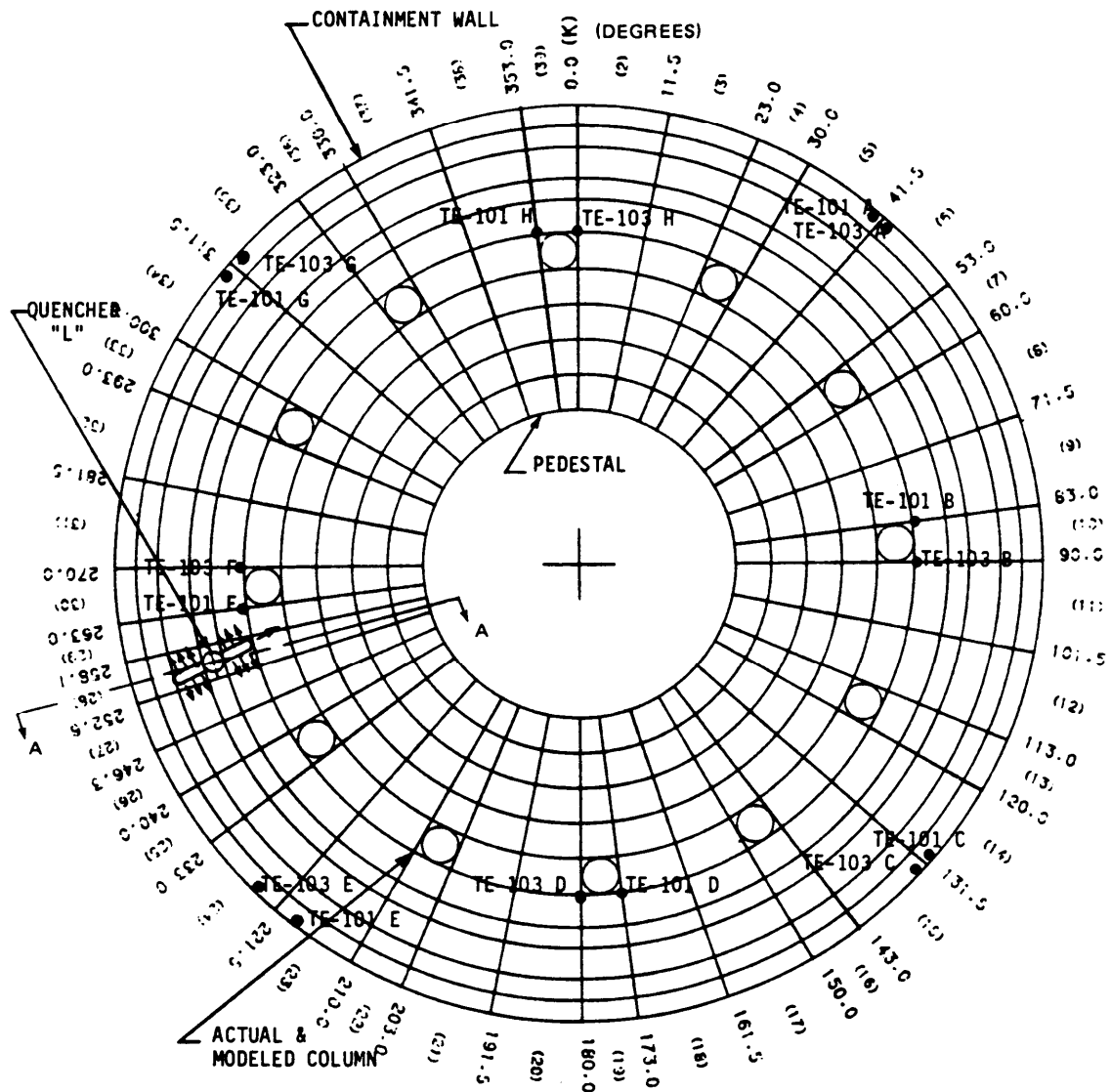
VIEW A-A OF FIGURE 3A-438



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
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**DESIGN ASSESSMENT REPORT  
SECTION VIEW OF MESH SYSTEM MODELING OF  
SUPPRESSION POOL FOR SRV-H  
LOW REACTOR PRESSURE BLOWDOWN  
(WITH SPTMS SENSOR LOCATIONS)**

**FIGURE 3A-440**



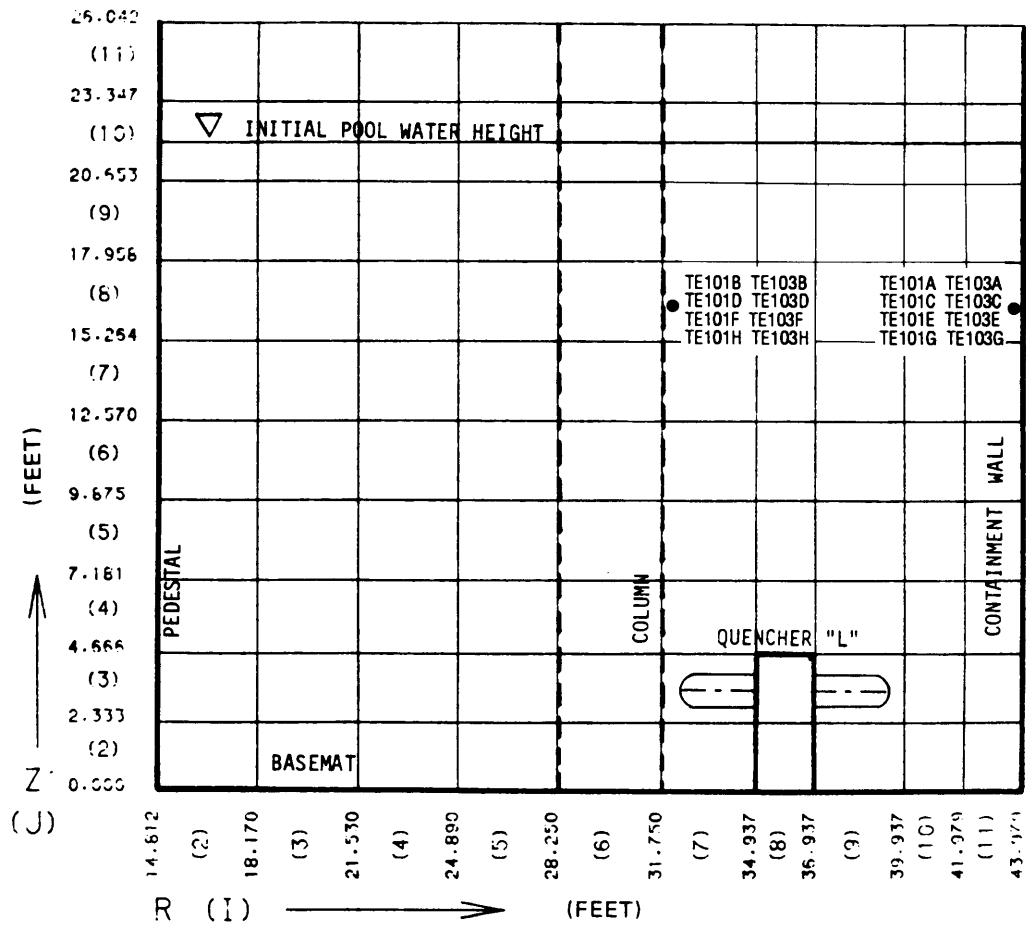
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT**

**PLAN VIEW OF MESH SYSTEM MODELING OF  
SUPPRESSION POOL FOR SRV-L  
HIGH REACTOR PRESSURE BLOWDOWN  
(WITH SPTMS SENSOR LOCATIONS)**

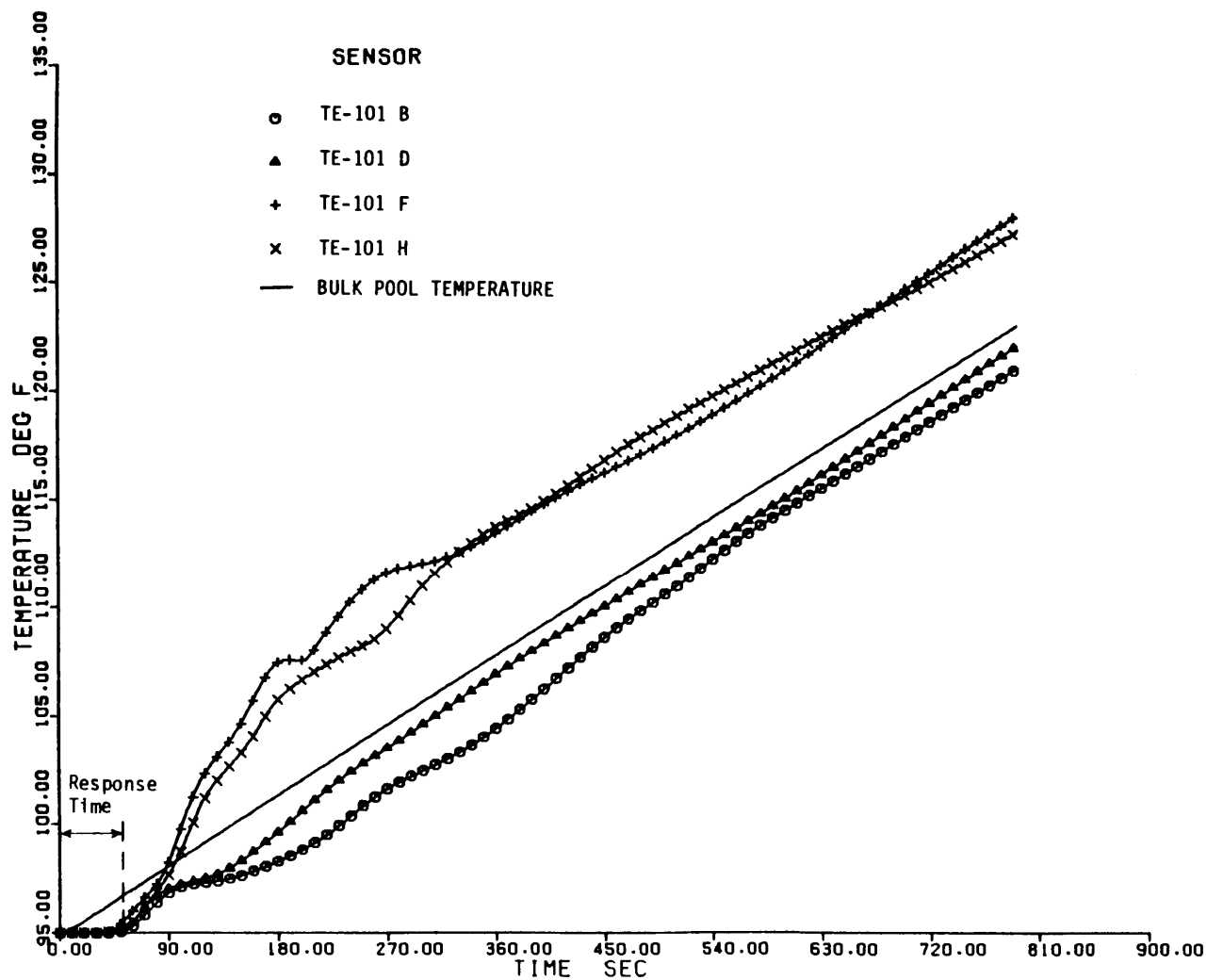
**FIGURE 3A-441**

VIEW A-A OF FIGURE 3A-441



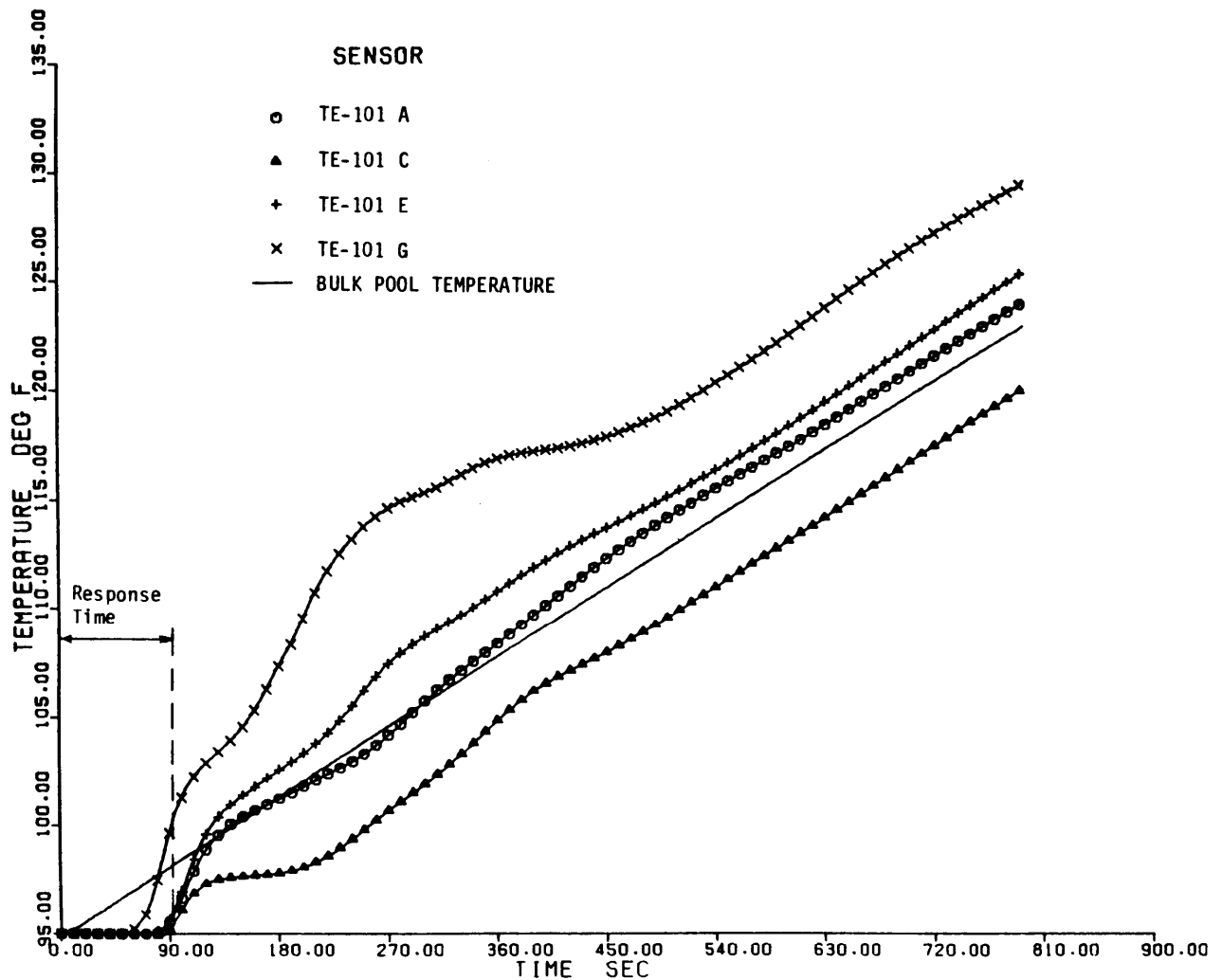
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SECTION VIEW OF MESH  
SYSTEM MODELING OF SUPPRESSION  
POOL FOR SRV-L HIGH REACTOR BLOWDOWN  
(WITH SPTMS SENSOR LOCATIONS)  
FIGURE 3A-442**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

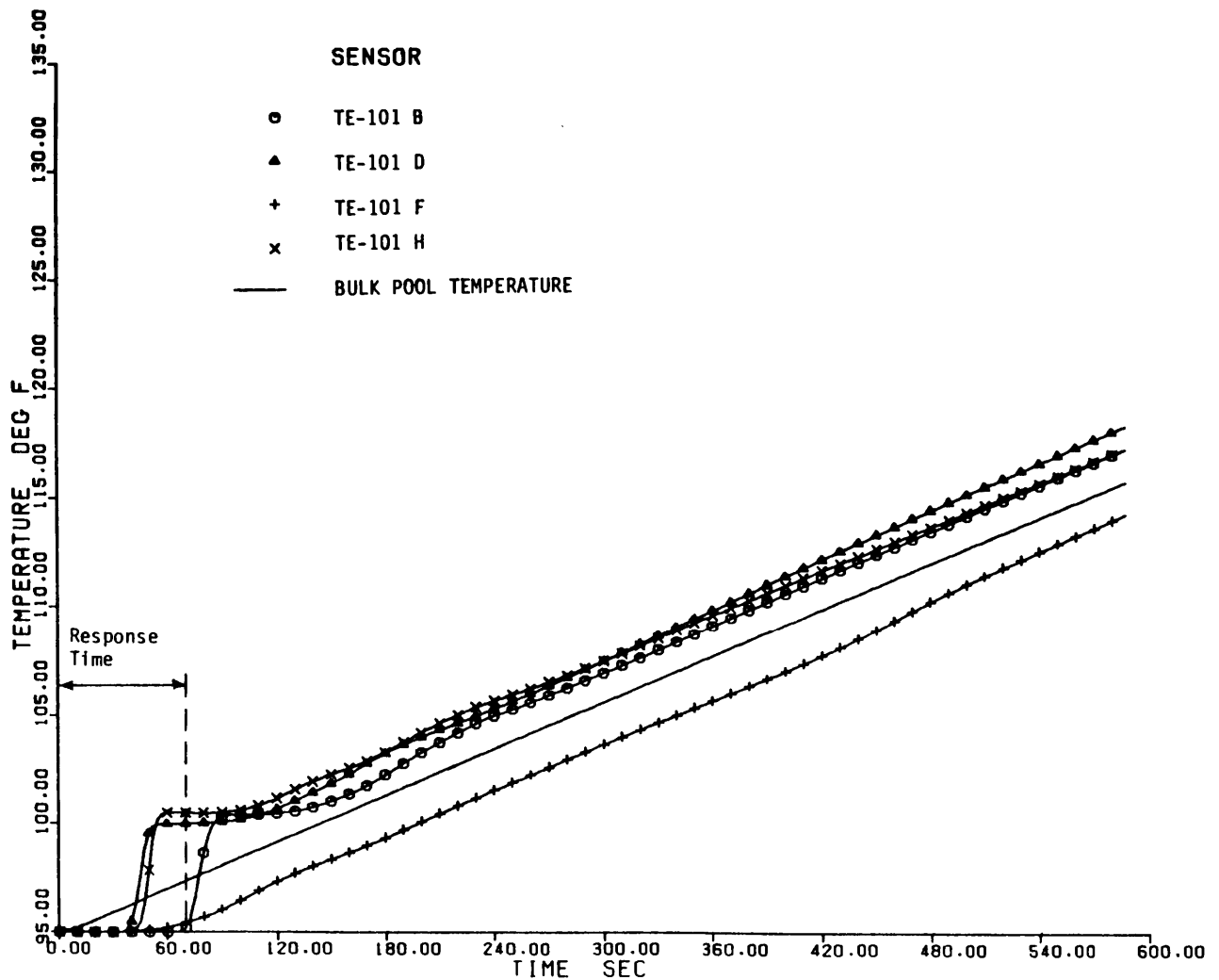
**DESIGN ASSESSMENT REPORT  
TEMPERATURE TIME HISTORIES OF  
COLUMN MOUNTED SPTMS SENSORS  
(TE-101 B, D, F & H) FOR SRV-H  
HIGH REACTOR PRESSURE BLOWDOWN  
FIGURE 3A-443**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
TEMPERATURE TIME HISTORIES OF  
CONTAINMENT WALL MOUNTED SPTMS  
SENSORS (TE-101 A, C, E & G) FOR SRV-H  
HIGH REACTOR PRESSURE BLOWDOWN**

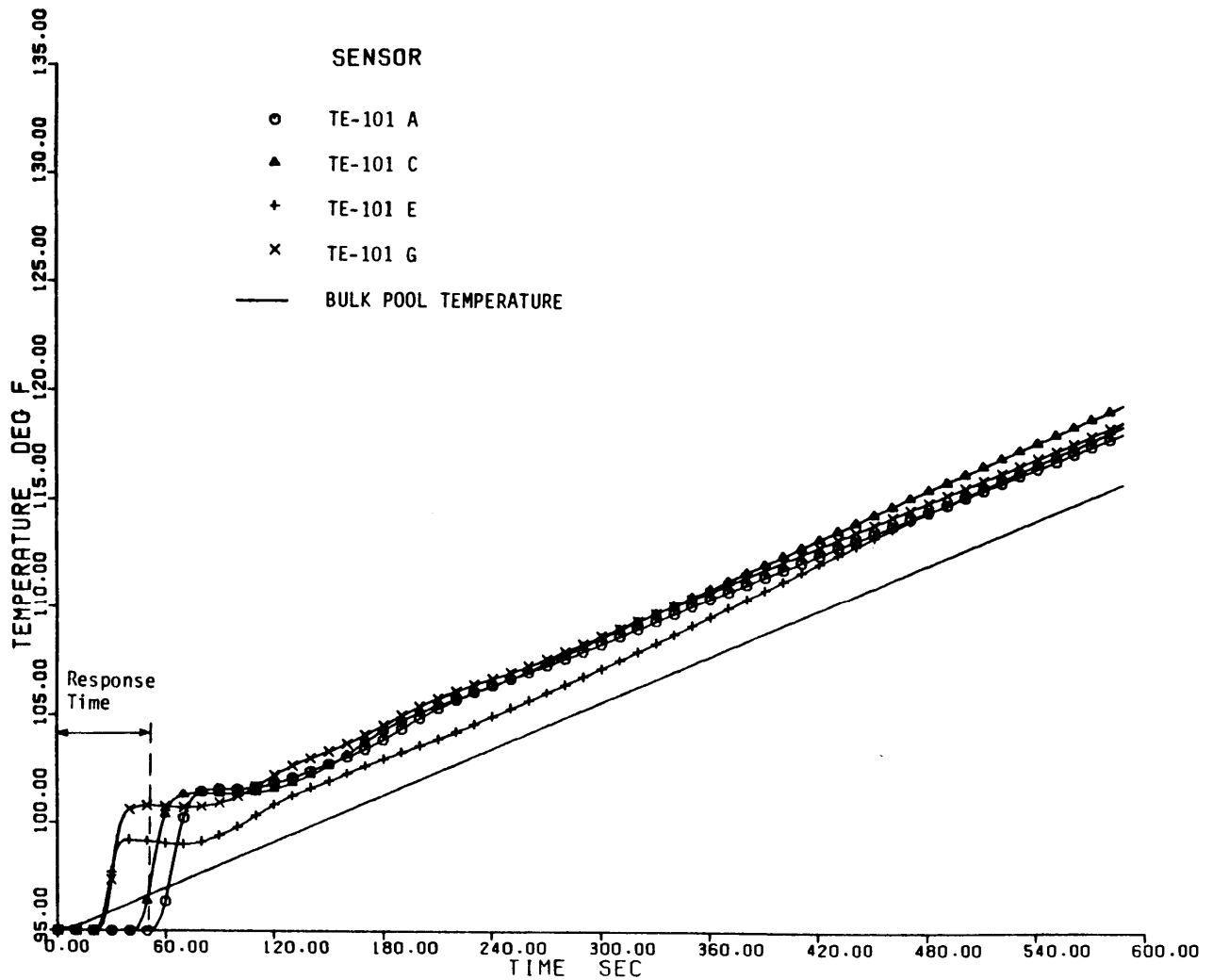
**FIGURE 3A-444**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT**

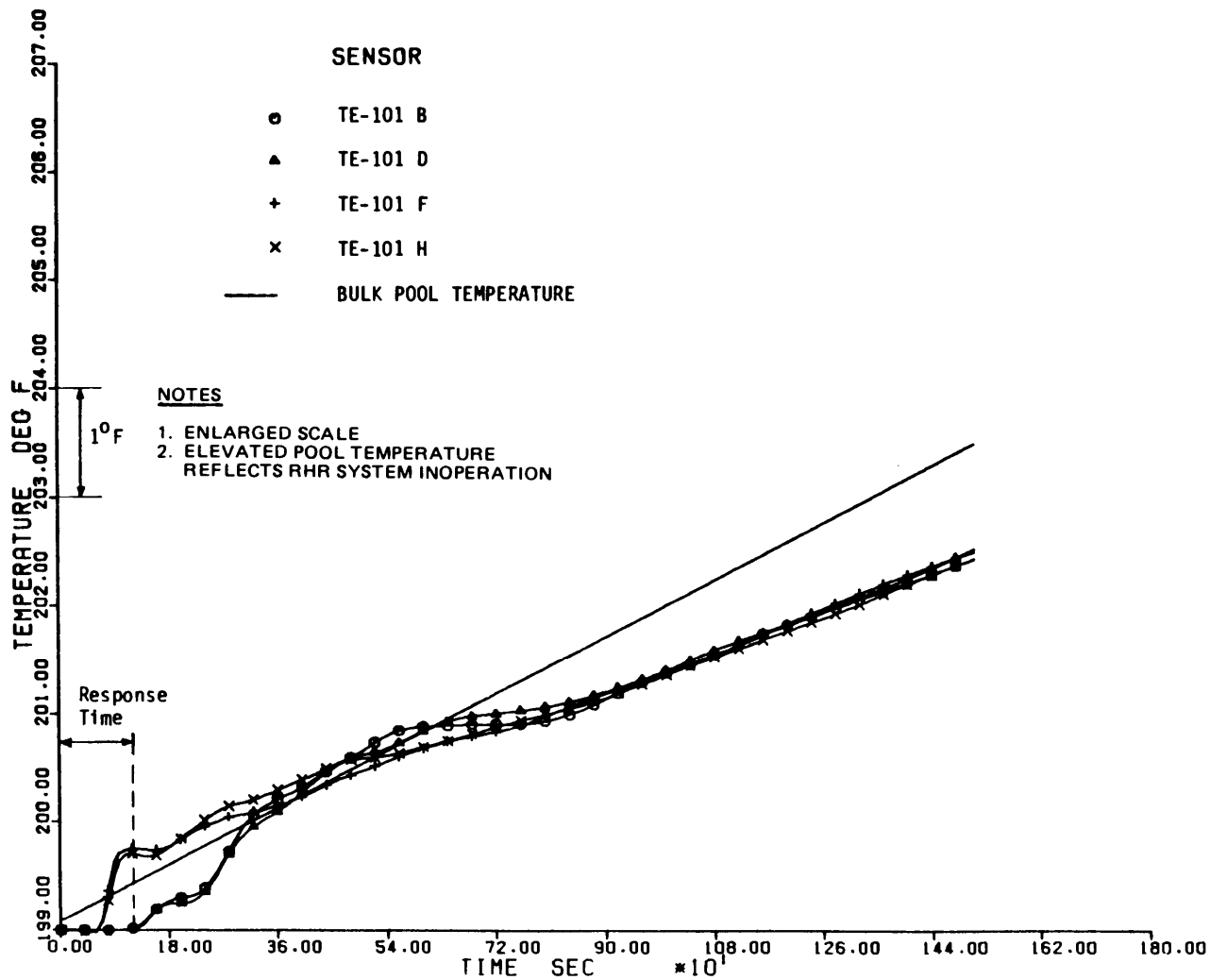
**TEMPERATURE TIME HISTORIES OF  
COLUMN MOUNTED SPTMS SENSORS  
(TE-101 B, D, F & H) FOR SRV-L  
HIGH REACTOR PRESSURE BLOWDOWN  
FIGURE 3A-445**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

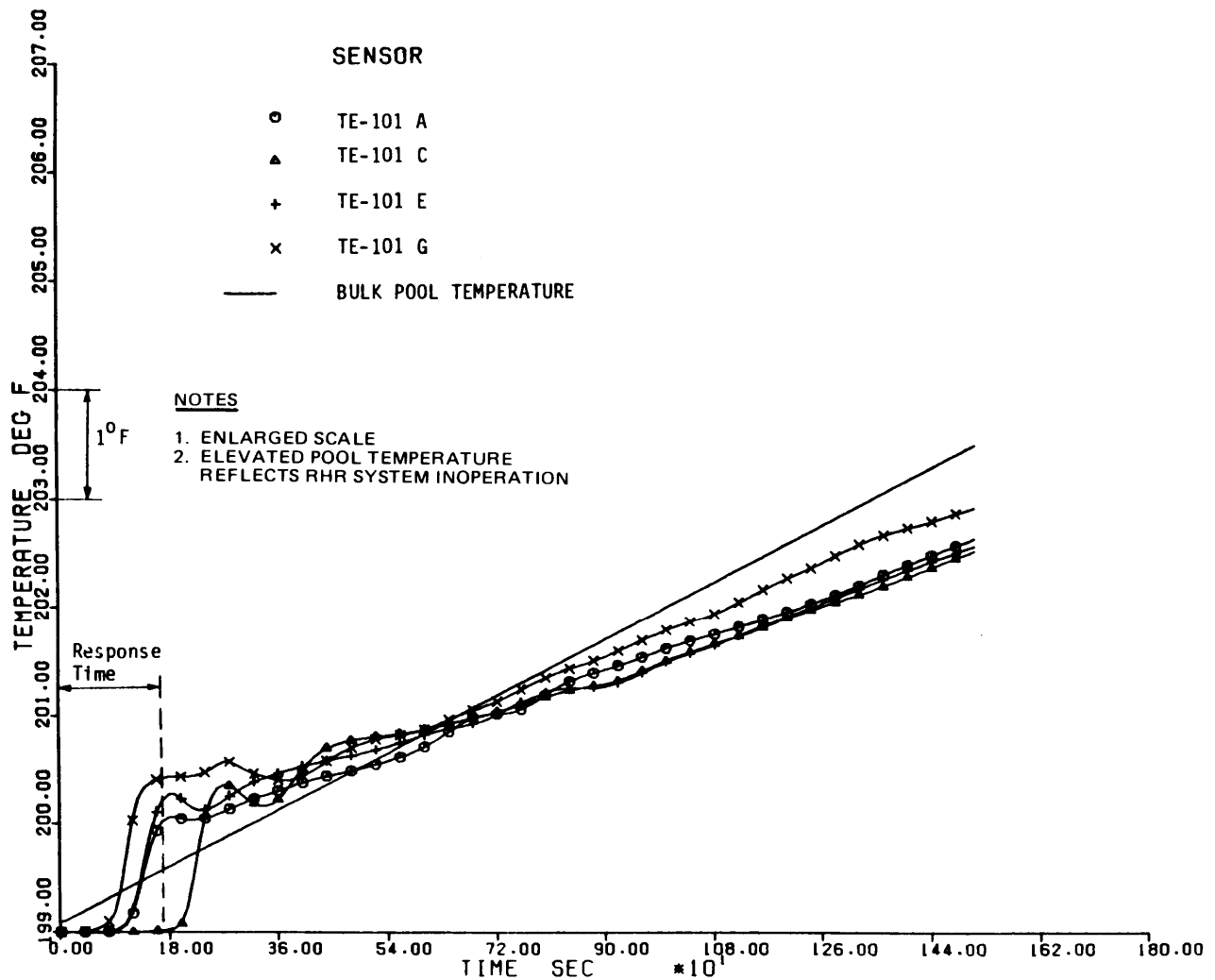
**DESIGN ASSESSMENT REPORT**  
**TEMPERATURE TIME HISTORIES OF  
CONTAINMENT WALL MOUNTED SPTMS  
SENSORS (TE-101 A, C, E & G) FOR SRV-L  
HIGH REACTOR PRESSURE BLOWDOWN**  
**FIGURE 3A-446**





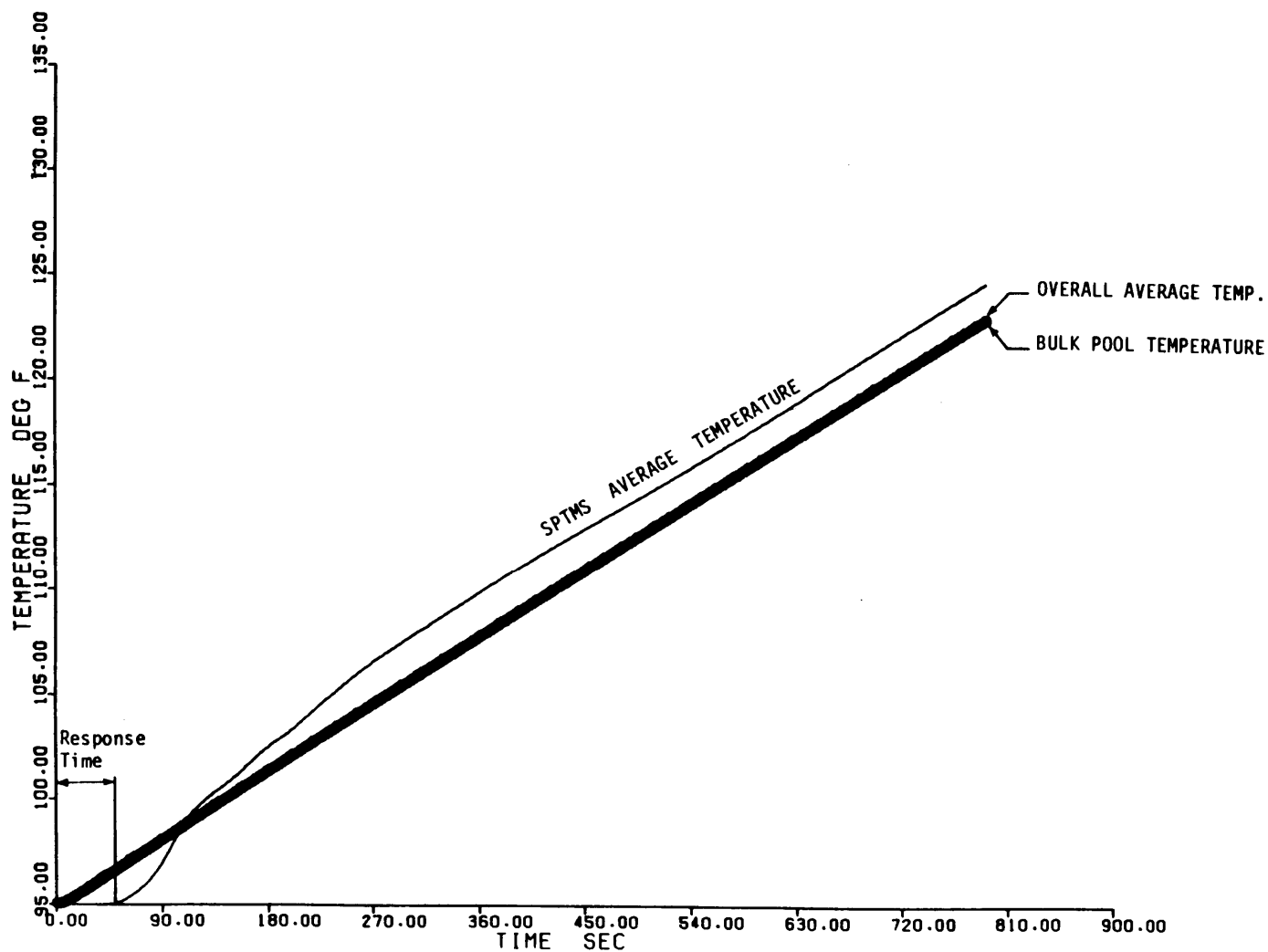
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
TEMPERATURE TIME HISTORIES OF  
COLUMN MOUNTED SPTMS SENSORS  
(TE-101 B, D, F & H) FOR SRV-H  
LOW REACTOR PRESSURE BLOWDOWN  
FIGURE 3A-447**



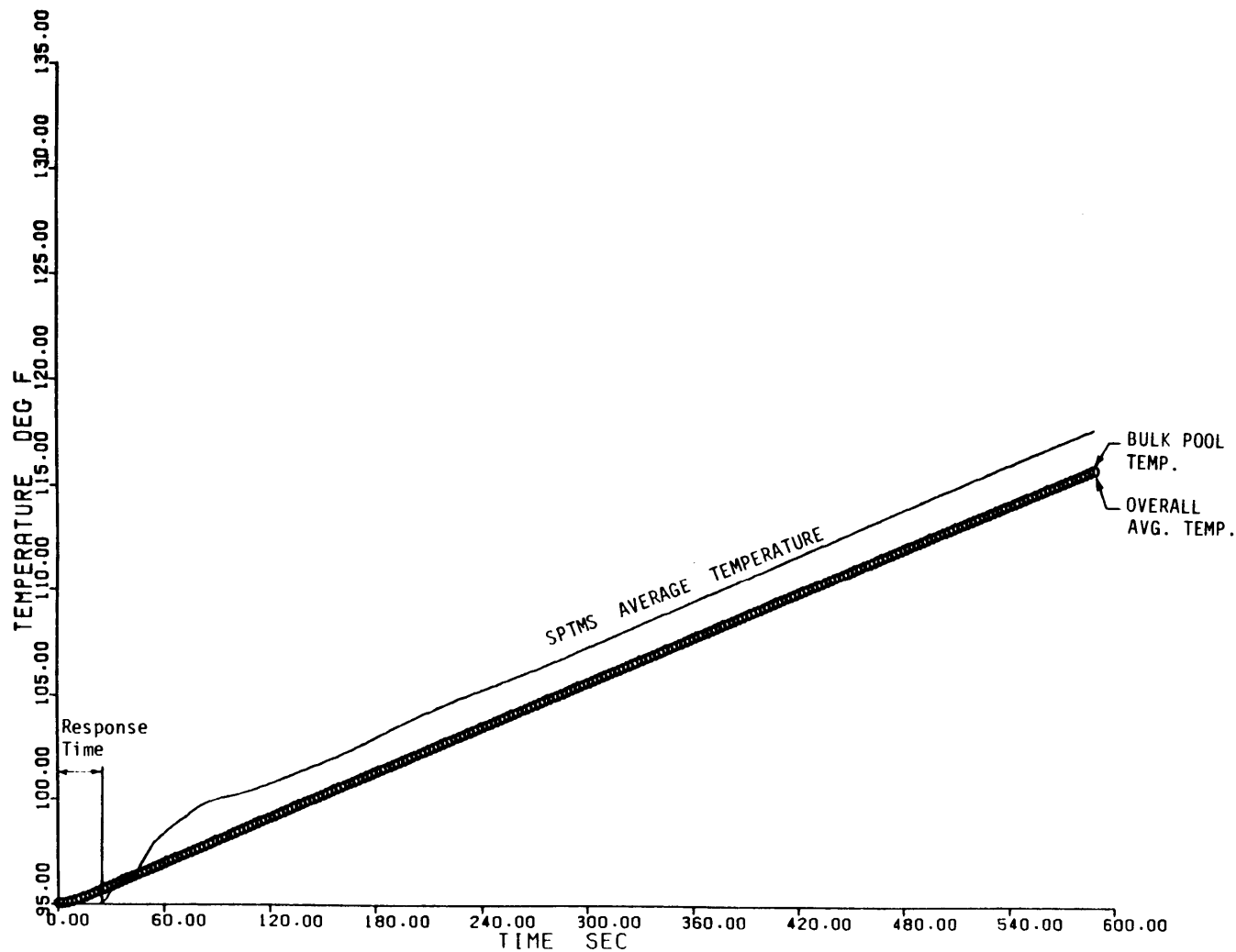
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT**  
**TEMPERATURE TIME HISTORIES OF  
CONTAINMENT WALL MOUNTED SPTMS  
SENSORS (TE-101 A, C, E & G) FOR SRV-H  
LOW REACTOR PRESSURE BLOWDOWN**  
**FIGURE 3A-448**



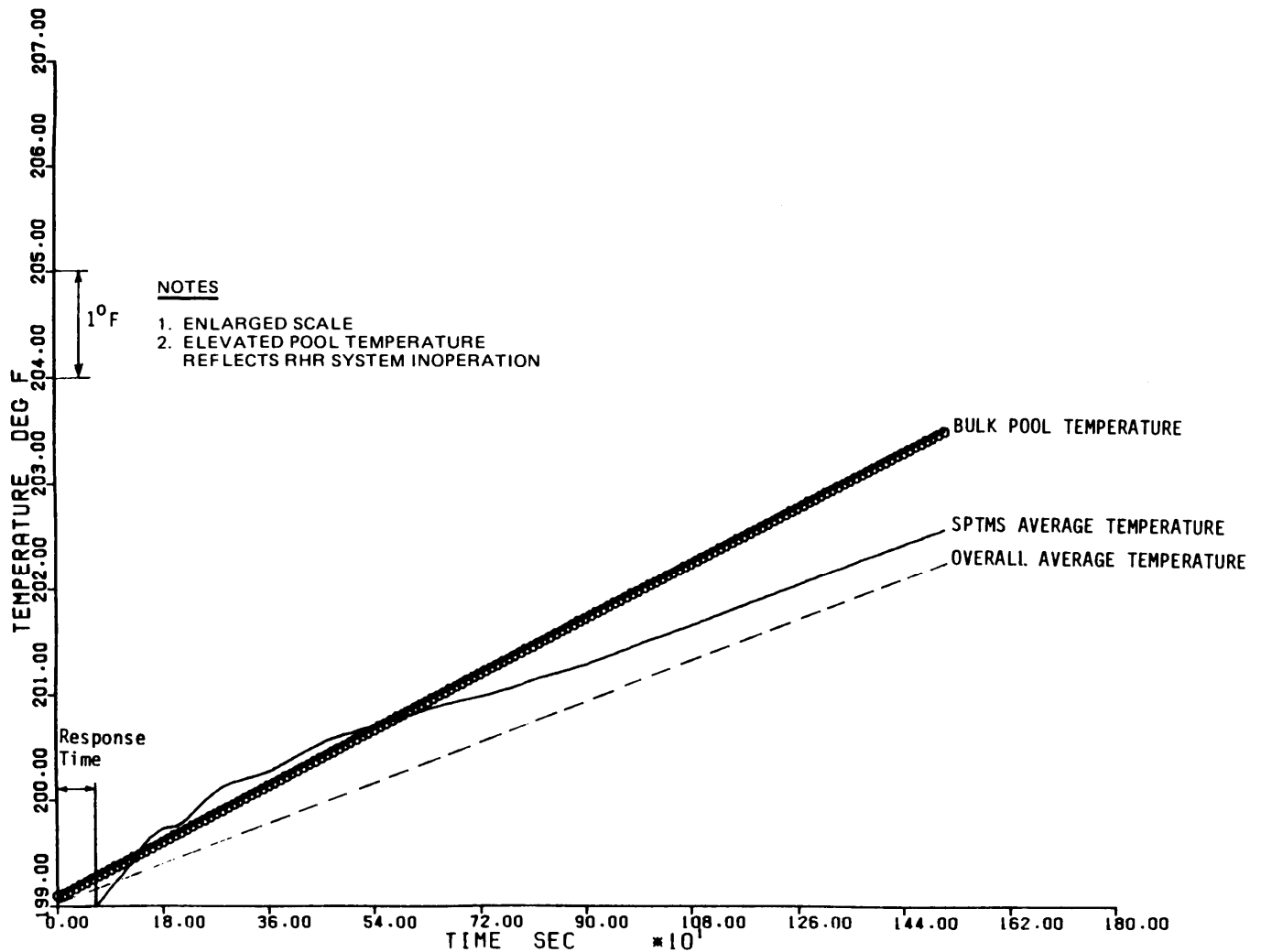
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
BULK TEMPERATURE VERSUS AVERAGE  
TEMPERATURE FROM SPTMS DIVISION 1  
(TE 101A...TE-101H) FOR SRV-H  
HIGH REACTOR PRESSURE BLOWDOWN  
FIGURE 3A-449**



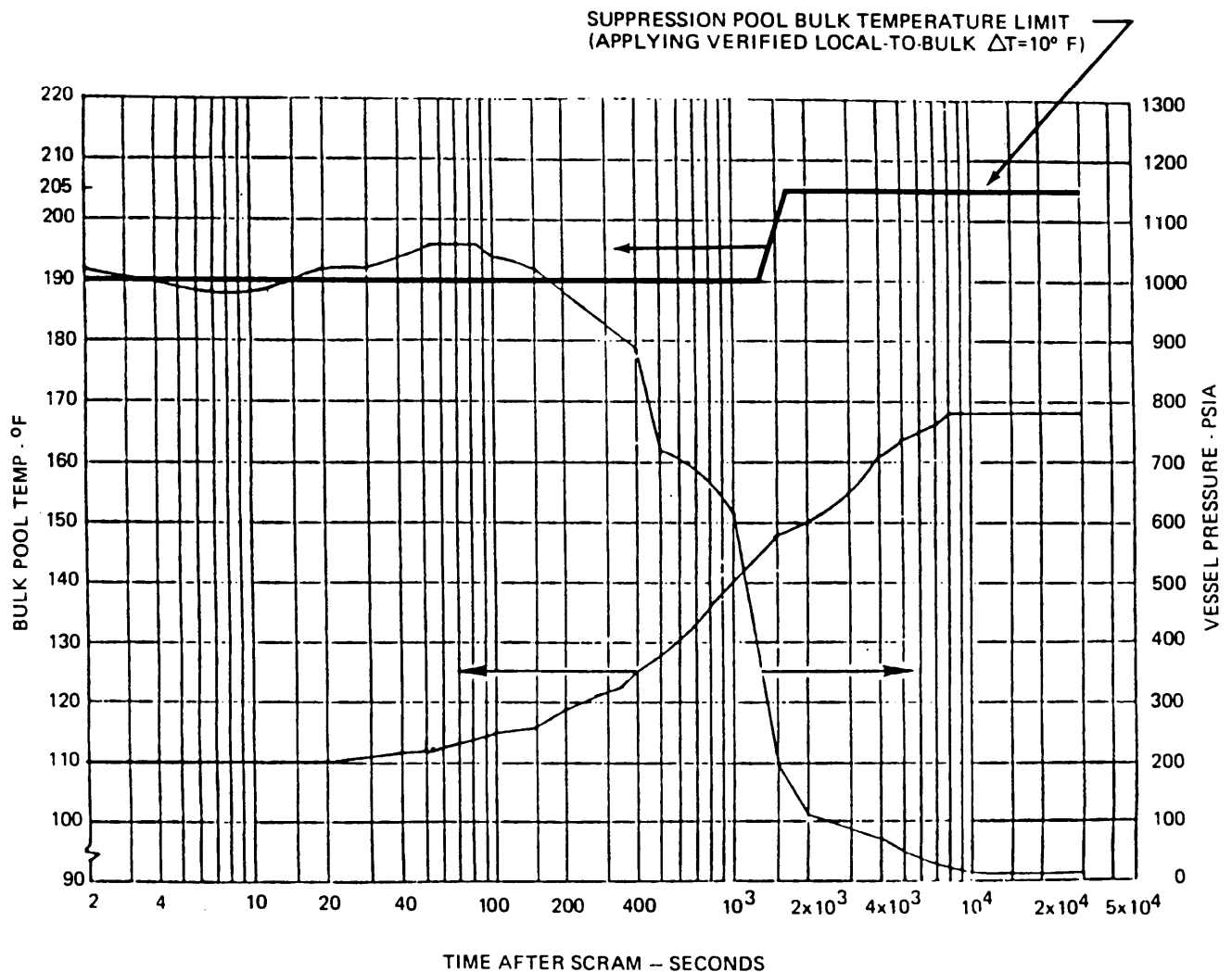
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
BULK TEMPERATURE VERSUS AVERAGE  
TEMPERATURE FROM SPTMS DIVISION 1  
(TE 101A...TE-101H) FOR SRV-L  
HIGH REACTOR PRESSURE BLOWDOWN  
FIGURE 3A-450**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
BULK TEMPERATURE VERSUS AVERAGE  
TEMPERATURE FROM SPTMS DIVISION 1  
(TE 101A...TE-101H) FOR SRV-H  
LOW REACTOR PRESSURE BLOWDOWN  
FIGURE 3A-451**



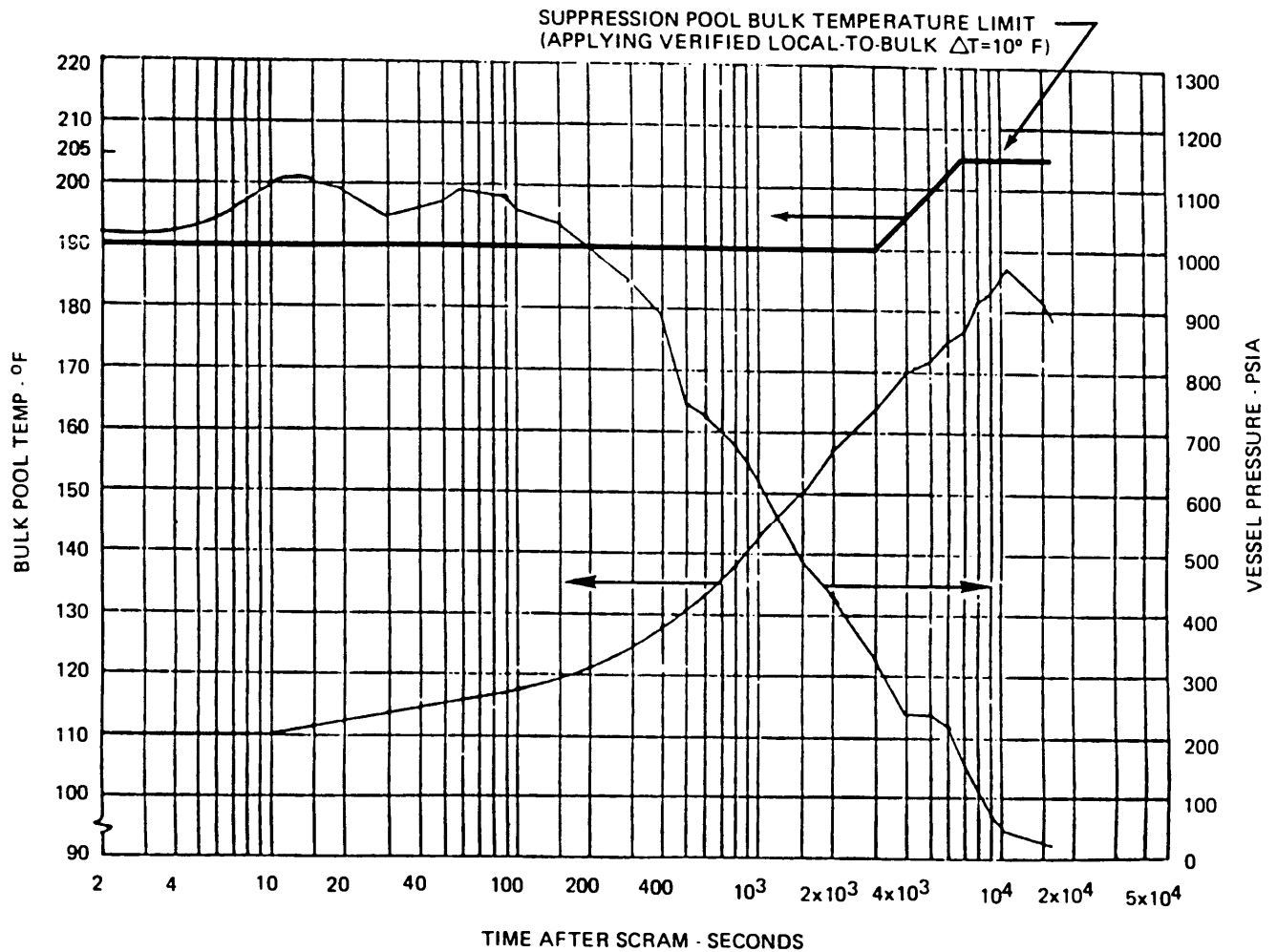
**NOTE:** The information presented in this figure is based on the original design basis conditions. The current suppression pool temperature response results are discussed in Section 3A.15.2. The results reasonably represent the general characteristics of the suppression pool temperature response.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SUPPRESSION POOL  
TEMPERATURE TRANSIENT  
CASE 1.a**

**FIGURE 3A-452**

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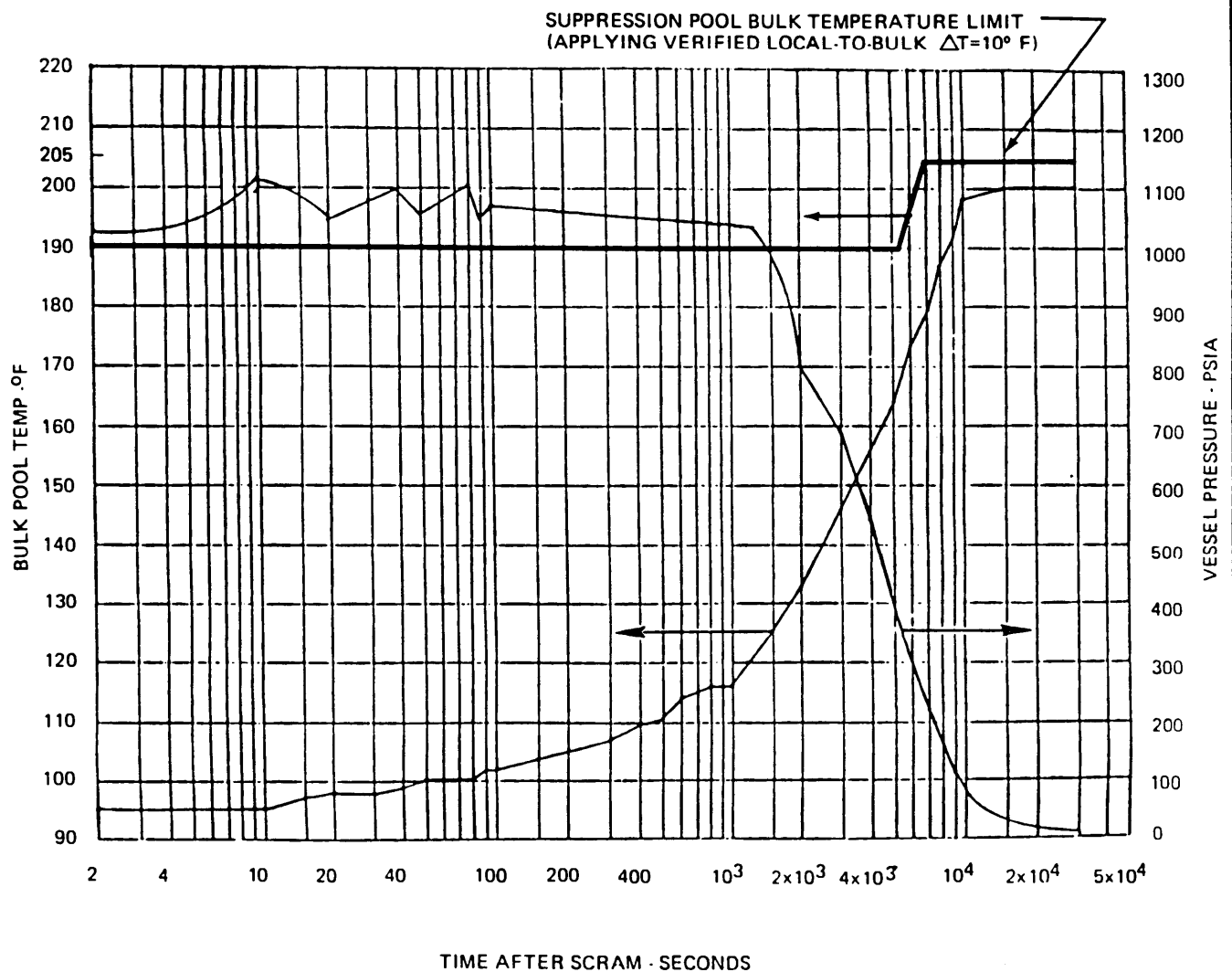
**NOTE:** The information presented in this figure is based on the original design basis conditions. The current suppression pool temperature response results are discussed in Section 3A.15.2. The results reasonably represent the general characteristics of the suppression pool temperature response.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SUPPRESSION POOL  
TEMPERATURE TRANSIENT  
CASE 1.b**

**FIGURE 3A-453**

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**NOTE:** The information presented in this figure is based on the original design basis conditions. The current suppression pool temperature response results are discussed in Section 3A.15.2. The results reasonably represent the general characteristics of the suppression pool temperature response.

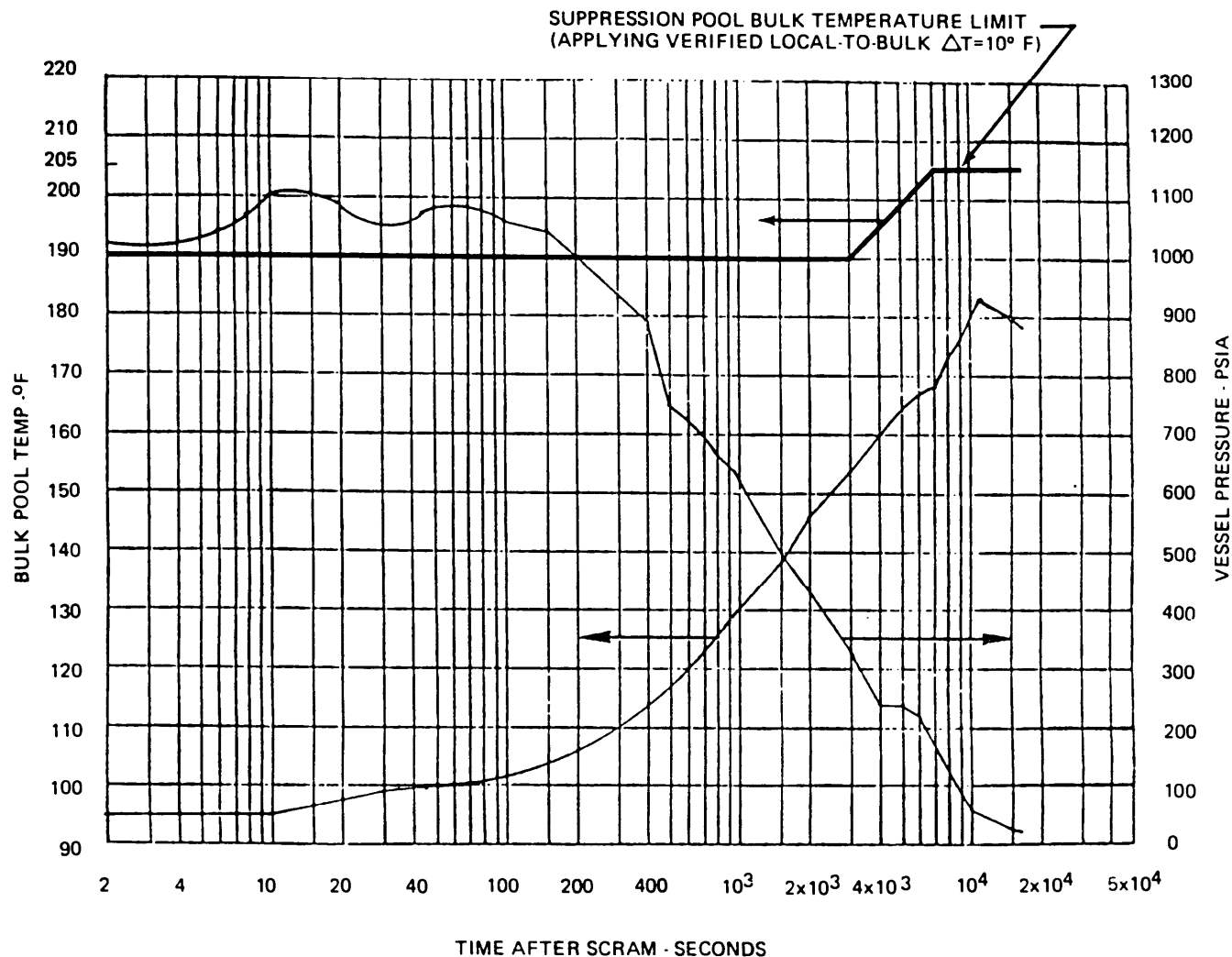
**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SUPPRESSION POOL  
TEMPERATURE TRANSIENT  
CASE 2.a**

FIGURE 3A-454

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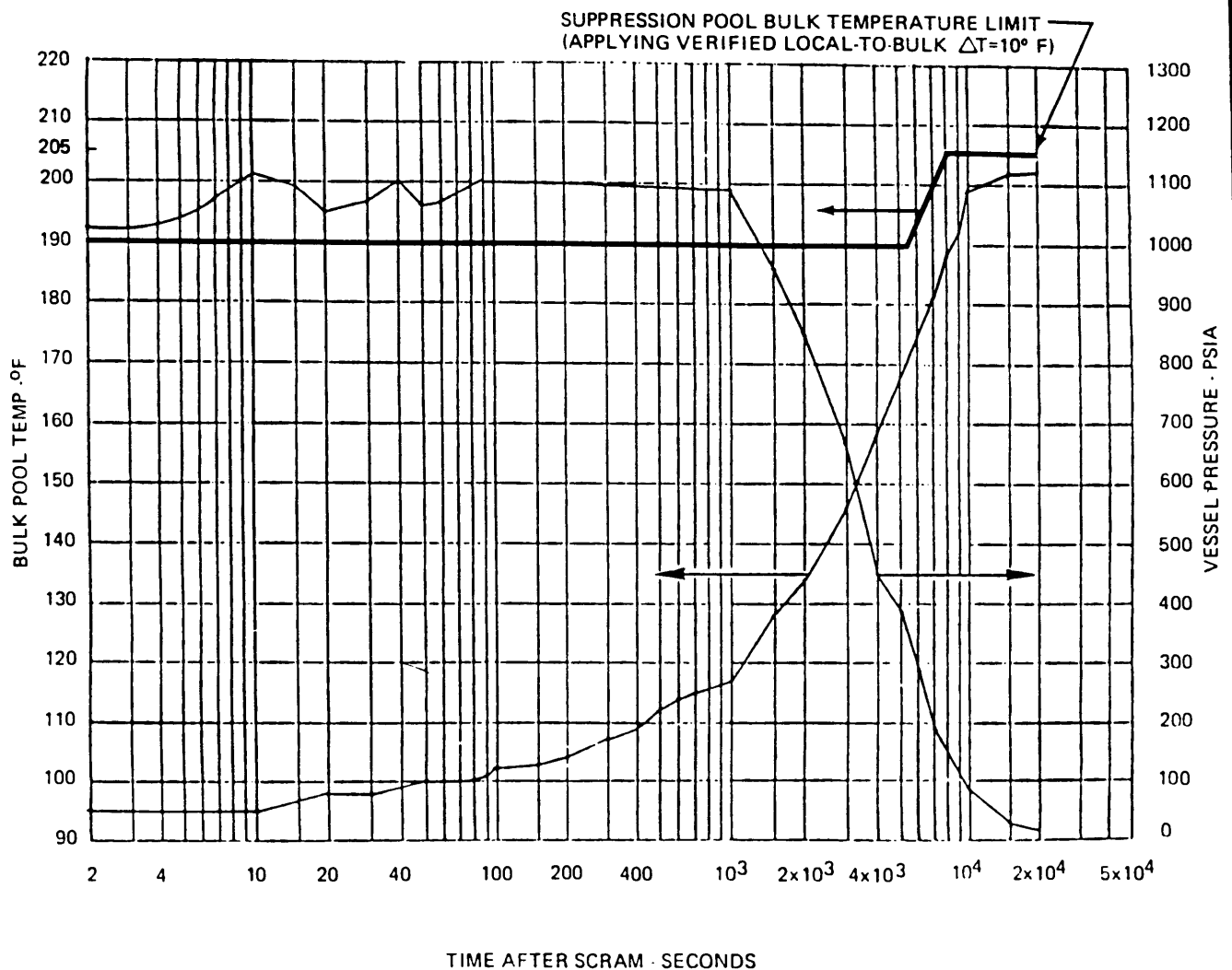
**NOTE:** The information presented in this figure is based on the original design basis conditions. The current suppression pool temperature response results are discussed in Section 3A.15.2. The results reasonably represent the general characteristics of the suppression pool temperature response.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SUPPRESSION POOL  
TEMPERATURE TRANSIENT  
CASE 2.b**

**FIGURE 3A-455**

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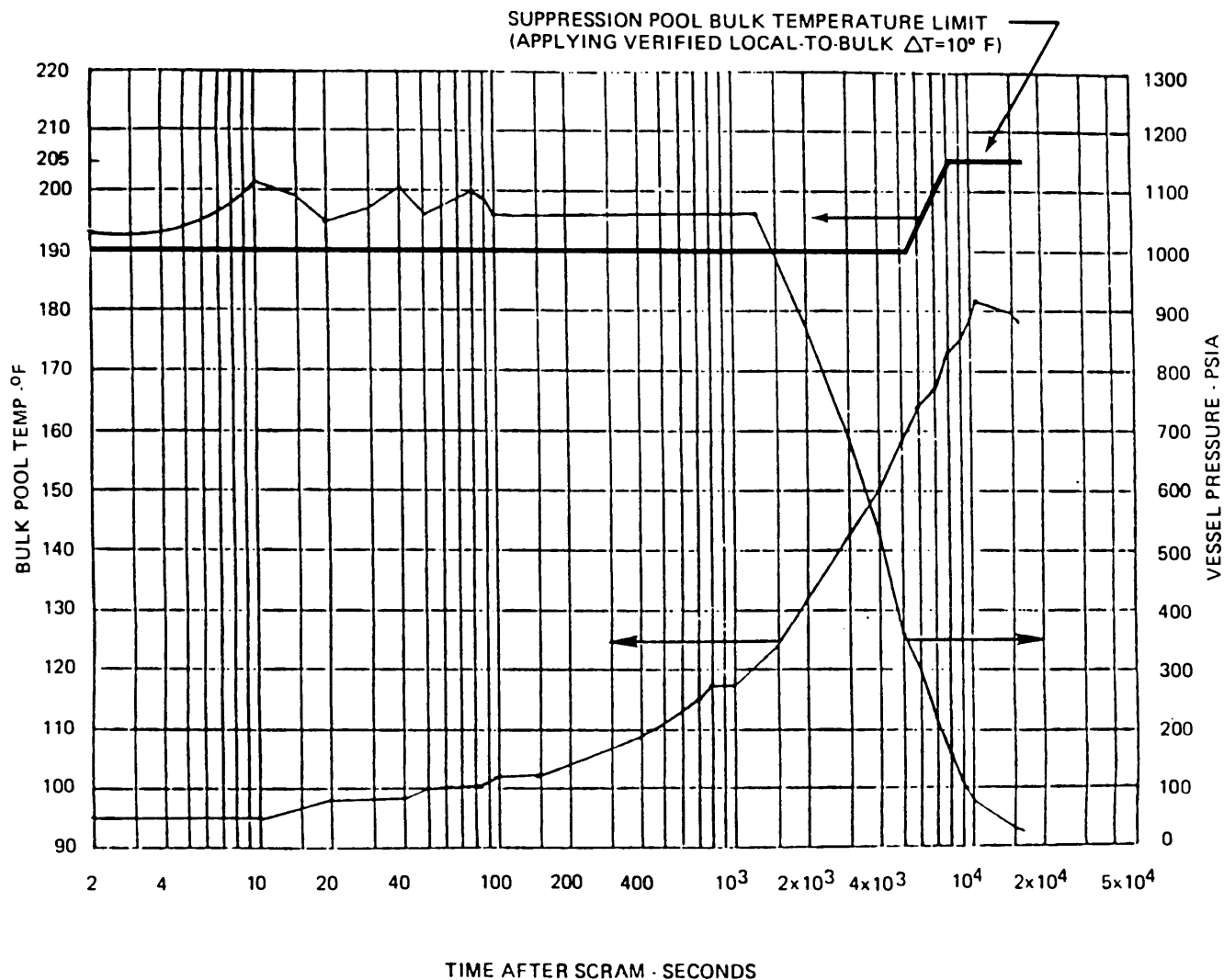
**NOTE:** The information presented in this figure is based on the original design basis conditions. The current suppression pool temperature response results are discussed in Section 3A.15.2 and Table 3A-30. The results reasonably represent the general characteristics of the suppression pool temperature response.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SUPPRESSION POOL  
TEMPERATURE TRANSIENT  
CASE 3.a**

**FIGURE 3A-456**

**Rev. 5, 4/96**



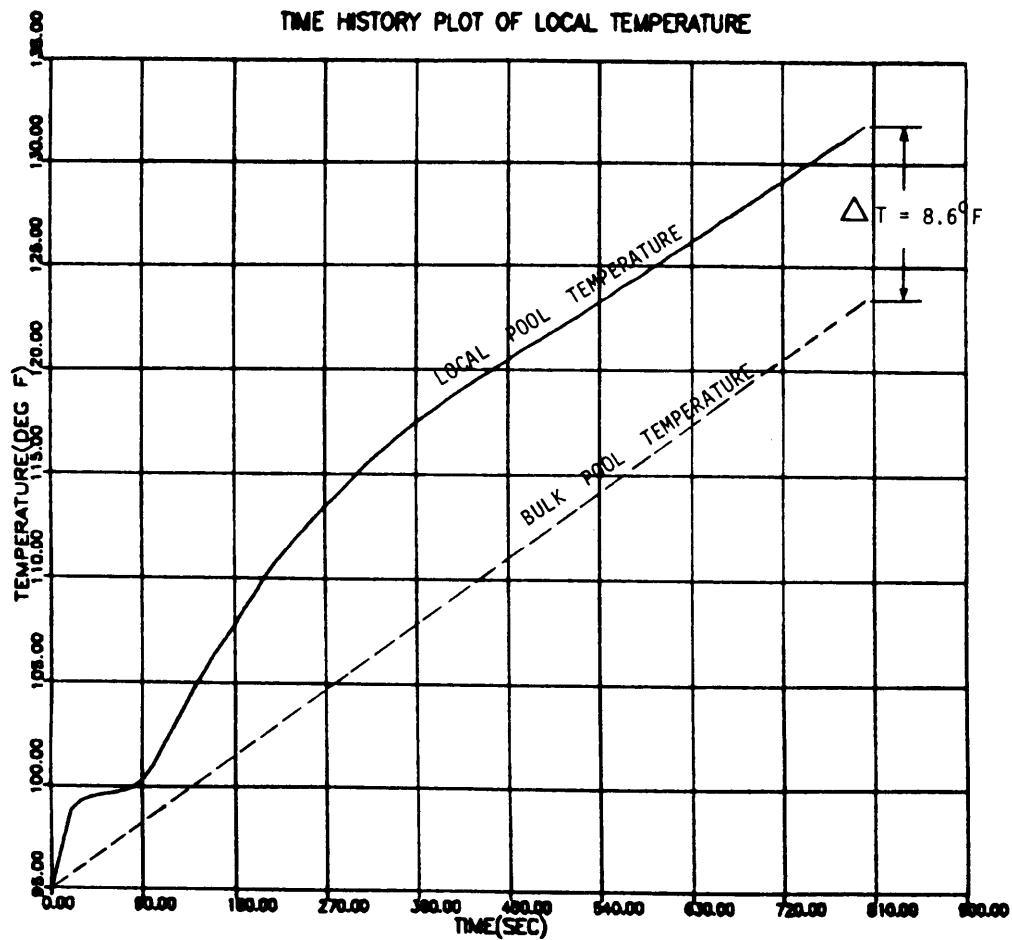
**NOTE:** The information presented in this figure is based on the original design basis conditions. The current suppression pool temperature response results are discussed in Section 3A.15.2. The results reasonably represent the general characteristics of the suppression pool temperature response.

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
SUPPRESSION POOL  
TEMPERATURE TRANSIENT  
CASE 3.b**

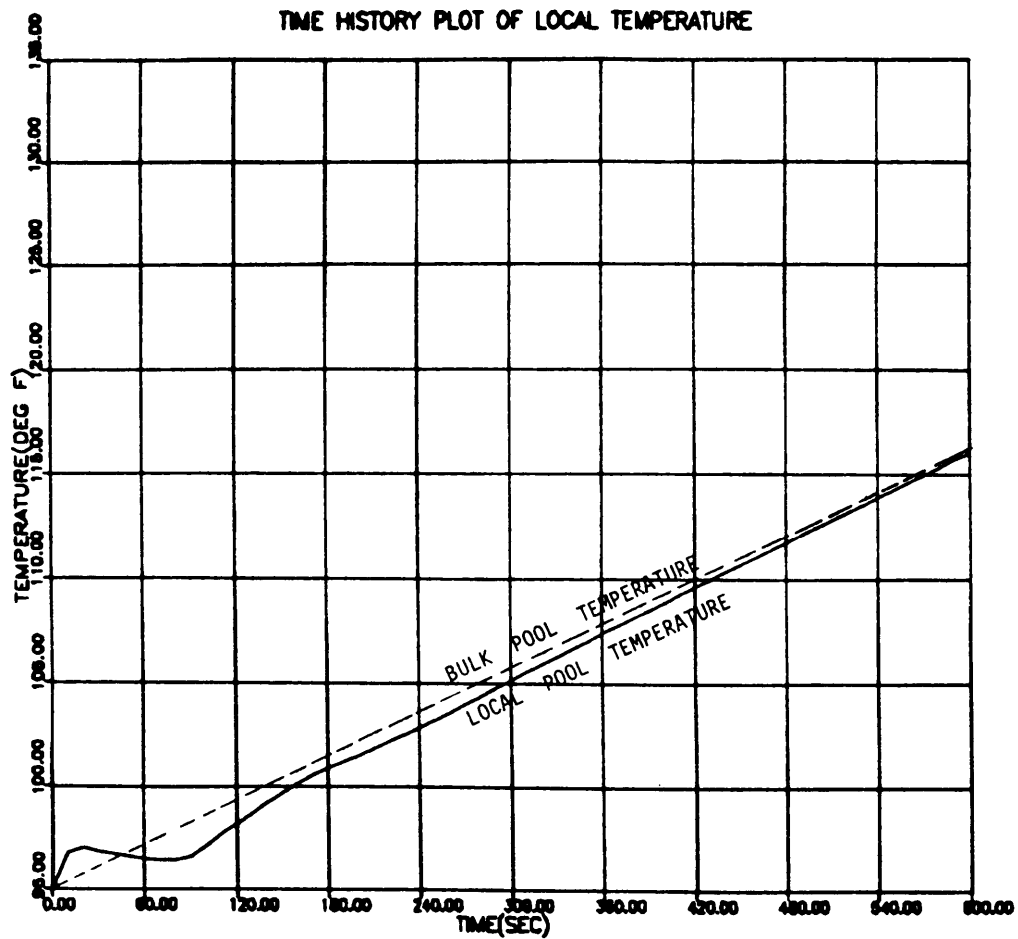
**FIGURE 3A-457**

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**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

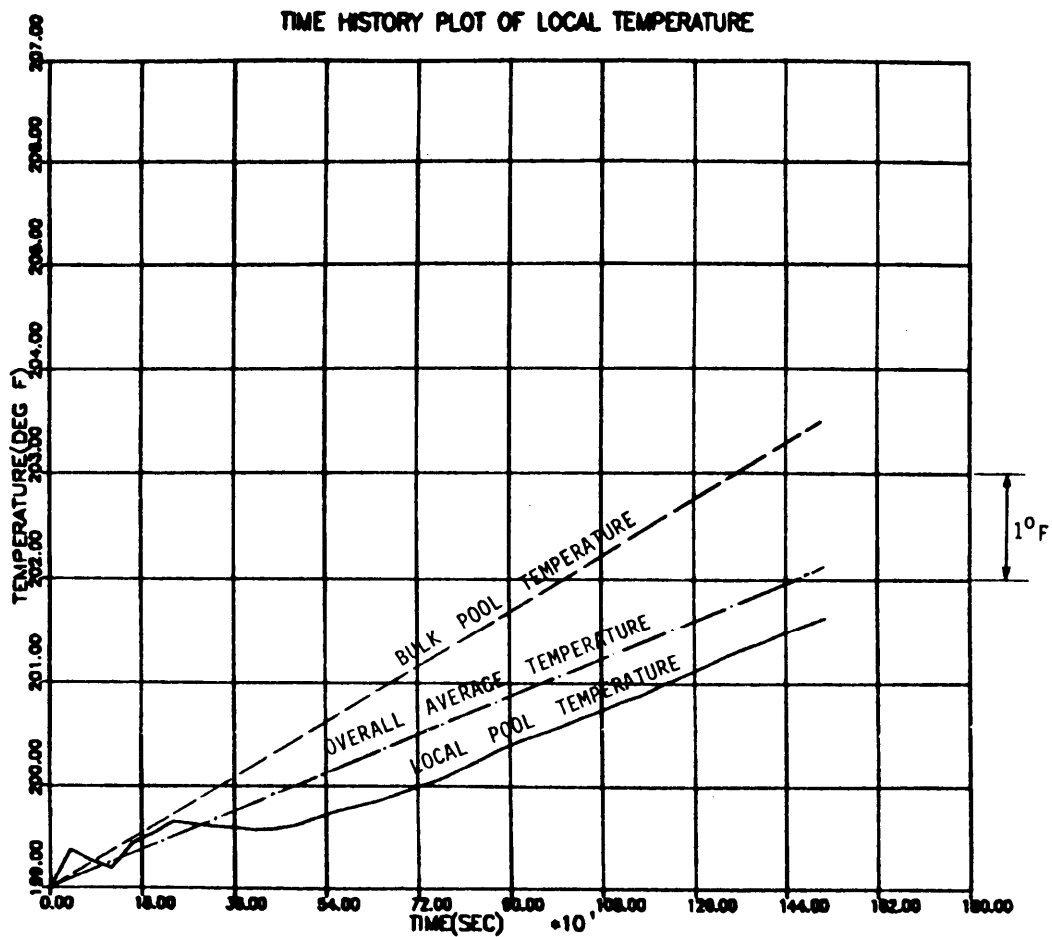
**DESIGN ASSESSMENT REPORT  
LOCAL-TO-BULK  
TEMPERATURE DIFFERENCE ( $\Delta T$ )  
TRACE FOR SRV-H BLOWDOWN  
UNDER HIGH REACTOR PRESSURE  
FIGURE 3A-458**



**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

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**DESIGN ASSESSMENT REPORT  
LOCAL-TO-BULK  
TEMPERATURE DIFFERENCE ( $\Delta T$ )  
TRACE FOR SRV-L BLOWDOWN UNDER  
HIGH REACTOR PRESSURE  
FIGURE 3A-459**

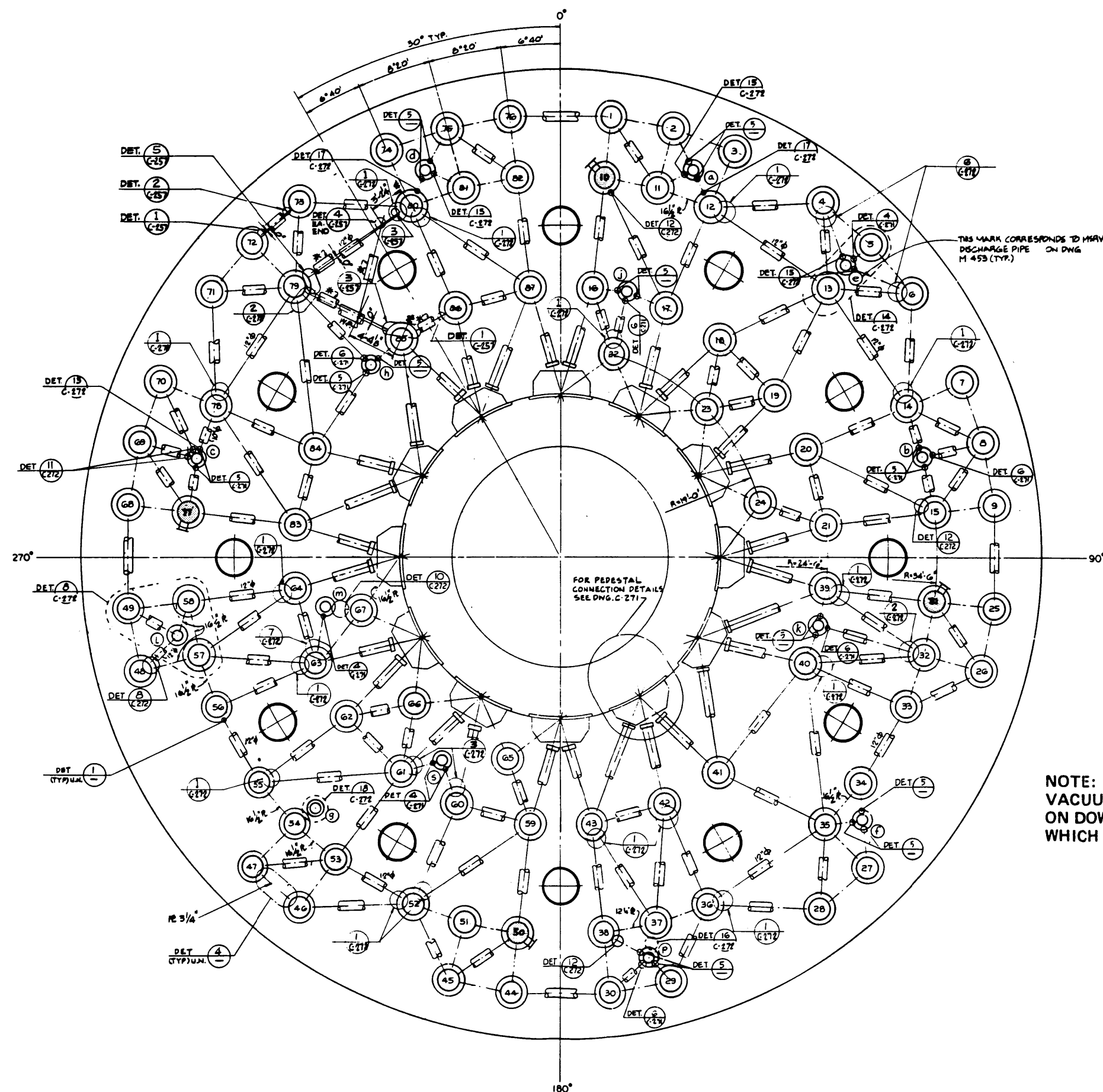


**NOTES**

1. ENLARGED SCALE
2. ELEVATED POOL TEMPERATURE REFLECTS RHR SYSTEM INOPERATION

**LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT**

**DESIGN ASSESSMENT REPORT  
LOCAL-TO-BULK  
TEMPERATURE DIFFERENCE ( $\Delta T$ )  
TRACE FOR SRV-H BLOWDOWN  
UNDER LOW REACTOR PRESSURE  
FIGURE 3A-460**

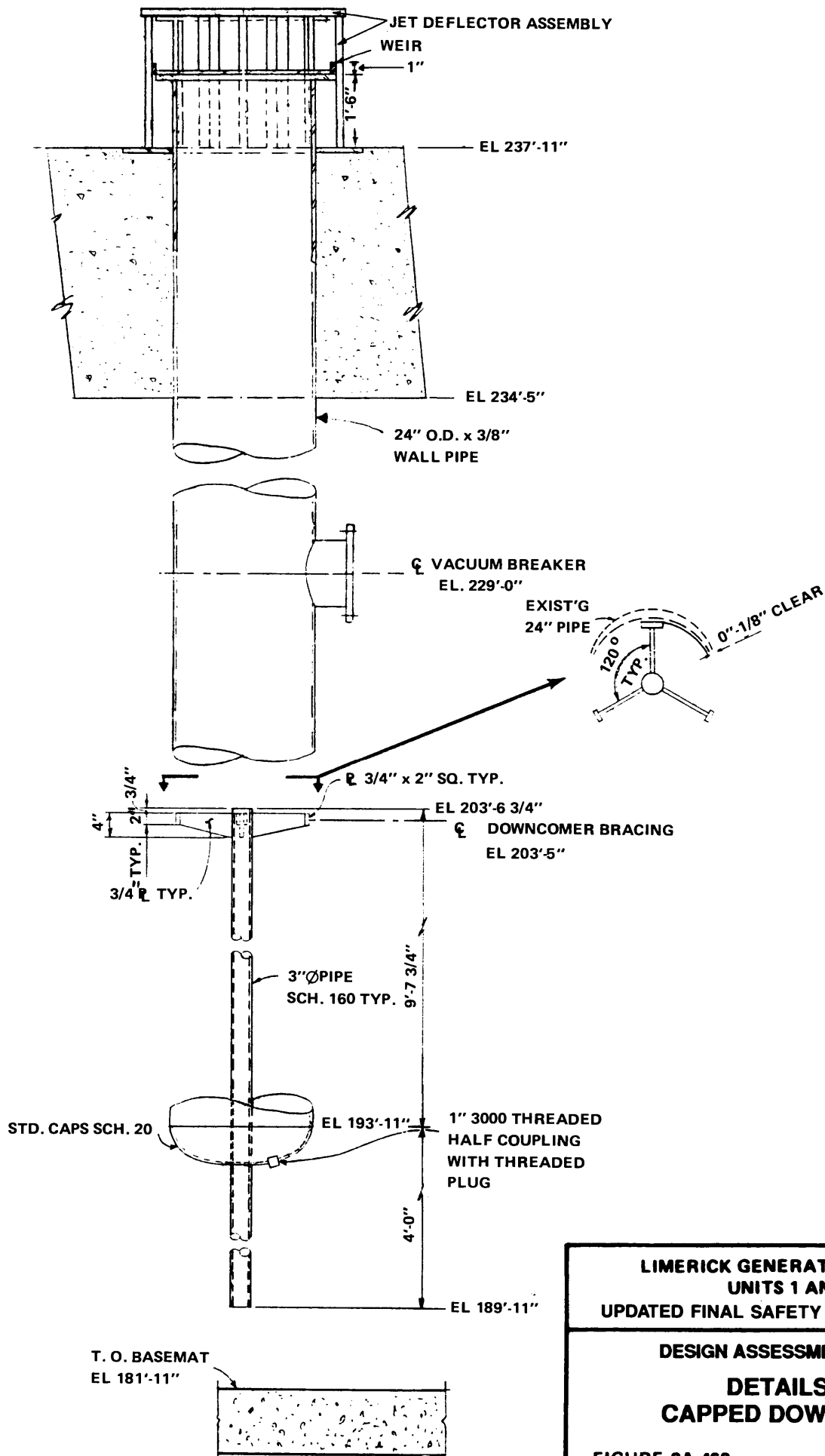


NOTE:  
VACUUM BREAKERS ARE INSTALLED  
ON DOWNCOMERS 10, 31, 50 AND 77  
WHICH ARE CAPPED (E.G., [symbol])

LIMERICK GENERATING STATION  
UNITS 1 AND 2  
UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
LOCATION OF CAPPED  
DOWNCOMERS WITH  
VACUUM BREAKERS

FIGURE 3A-461



LIMERICK GENERATING STATION  
 UNITS 1 AND 2  
 UPDATED FINAL SAFETY ANALYSIS REPORT

DESIGN ASSESSMENT REPORT  
 DETAILS OF  
 CAPPED DOWNCOMER

FIGURE 3A-462