A Summary Report on the NPH Evaluation of 105-L Disassembly Basin

by

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A SUMMARY REPORT ON THE NPH EVALUATIN OF 105-L DISASSEMLBY BASIN (U)

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SUMMARY

The L Area Disassembly Basin (LDB) is evaluated for the natural phenomena hazards (NPH) effects due to earthquake, wind and tornado in accordance with DOE Order 420.1 and DOE-STD-1020. The deterministic analysis is performed for a Performance Category 3 (PC3) level of loads. Savannah River Site (SRS) specific NPH loads and design criteria are obtained from Engineering Standard 01060. It is demonstrated that the demand to capacity (D/C) ratios for primary and significant structural elements are acceptable (equal to or less than 1.0). Thus, 105-L Disassembly Basin building structure is qualified for the PC3 NPH effects in accordance with DOE Order 420.1.

Credible II/I sources that are likely to cause seismic interaction with fuel stored in the horizontal bundle and bucket storage (HBBS) area in June 1997 were reviewed. The 5 ton Bridge Crane support system in the HBBS area requires modifications for handling the expected fuel weights. The proposed modifications to alleviate potential II over I interaction are incorporated in the determination of the D/C and fragility values for the crane support.

Based on a 2002 II/I evaluation update for the vertical tube storage (VTS) area it is concluded that the overall spacing between the stored fuel and the geometry of the fuel in bundles are not altered due to the potential impact from the VTS monorail support frame or from other falling objects.

A fragility analysis is performed to obtain the median capacities in terms of the peak ground acceleration (PGA) for seismic events, the fastest miles per hour (FMPH) for wind and tornado events, and the logarithmic standard deviations due to randomness and uncertainty. The minimum median PGA is 0.29g; it corresponds to a return period of about 20,000 years.

RECORD OF REVISION

Revision #	Description	Pages Affected
0	Initial Issue	All
1	This revision resolves issues raised in Problem Identification Report (PIR) No. 2001-PIR-09-010 and incorporates clarifications given in "105-L Disassembly Basin – Vertical Tube Storage (VTS) Monorail Support Frame", IOM PEC-SEG-01-0042 of December 3, 2001, from G. E. Mertz to C. Nickell. A 2002 II/I evaluation update on VTS and its conclusions are included in this revision.	pages 1 to 10, Tables 3 and 4 on pages B3 and B4, added page 2A

TABLE OF CONTENTS

1.0 INTRODUCTION

The 105-L Disassembly Basin (LDB) is a sectionalized concrete basin containing about 3.4 million gallons of water in which irradiated fuel and target elements are stored. The basin serves to cool the irradiated fuel and to shield personnel from potential radiation. Fuel and target elements are handled under water from hangers attached to an overhead monorail system.

An assessment of typical 105-K Disassembly Basin, which is structurally similar to LDB, was made in February 1994 [1]. That assessment was related to the survivability of the basin walls and foundation mat based on an approximate estimate of its strength. A report on the status of the structural analysis of K, L and P Disassembly Basins, pertaining to the resistance to the natural phenomena hazards (NPH) effects, was prepared in December 1994 [2] subsequent to ceasing of NPH work on reactors.

A preliminary assessment of the roof, piers and walkways was provided in May 1996, [3], for the seismic survivability of these structural elements. It was concluded that modifications to these elements were not required for the no collapse criteria or to prevent II over I interaction.

A comprehensive structural analysis of safety related and structurally significant non-safety related structures, systems and components (SSC) in LDB was performed in FY97. This report presents a summary of the NPH analysis of LDB.

1.1 SCOPE

A brief description of the LDB is given in Section 1.2. It consists primarily of the Lower Disassembly Basin including Transfer Area, and the Upper Disassembly Basin Area.

The Fan Room located West of the Transfer Area is a light steel industrial type building and is included in the scope of this analysis to the extent its failure may cause a II over I interaction with the LDB.

Since a part of LDB is structurally integrated with the 105-L Process Building, the analysis of the LDB is required to verify that the results of the structural analysis of the Process Building, as presented in the summary report on 105-K, [4] are not altered. Qualification of the 105-L Process building is based on its similarity to 105-K for which the Process Building analysis in Reference 4 was performed.

The LDB is analyzed for NPH effects from the design earthquake event at the Savannah River Site (SRS) considering the soil structure interaction (SSI) effects based on the dynamic soil properties given by Site Geotechnical Service (SGS). The LDB is analyzed for NPH effects due to design basis wind and tornado events at SRS. There are no safety related systems and components; however, systems and components that are likely to cause II over I interaction with the fuel stored in June 1997 are investigated through the original walkdowns of Reference 18. Additional 2002 walkdown effort is identified in the last paragraph of this section.

Credible II/I sources that could cause seismic interaction with the fuel stored in the horizontal bundle and bucket storage (HBBS) area were evaluated in June 1997. Not included in the scope of that walkdown [18] were issues related to the structural integrity of the monorail systems in the LDB. It is noted in interaction evaluation worksheets of Reference 18 that additional walkdowns would be required in Machine area, Emergency Disassembly area and Vertical Tube Storage area if fuel were to be stored in these areas in future.

Monorail systems in the Disassembly Basin Area are not evaluated in the walkdowns [18]. The Vertical Tube Storage (VTS) monorail support frame in 105-L Disassembly Area referenced in the Problem Identification Report, PIR No. 2001-PIR-09-010 is not included in the scope of this II/I walkdown evaluation. This was clarified in "105-L Disassembly Basin – Vertical Tube Storage (VTS) Monorail Support Frame", IOM PEC-SEG-01-0042 of December 3, 2001 from G. E. Mertz to C. Nickell.

The II/I walkdown issues for the VTS in L area raised in the IOM of December 3, 2001, and in "L and K Disassembly Basin Suspended Monorail Loads", IOM PEC-SEG-01-0040, Revision 1 of January 21, 2002 from G. E. Mertz to C. Nickell are resolved in References 23 and 24. A 2002 II/I evaluation update of the VTS monorail frame and identification of all falling objects on fuel racks and stored fuel bundles in the VTS basin are provided in Reference 23. The effects of the falling objects on the fuel racks and the stored fuel bundles in VTS are determined in Reference 24. Conclusions of the 2002 II/I VTS evaluation update are given in Section 9.3.

1.2 DESCRIPTION OF LDB

A plan layout of the LDB is shown in Figure 1. It is divided into smaller interconnected water filled basins that include:

- Vertical Tube Storage (VTS)
- Machine Basin
- Horizontal Bundle and Bucket Storage (HBBS)
- Emergency Basin
- Transfer Bay

The VTS Area is in the Upper Disassembly Area, whereas, the rest of the basins are in the lower Disassembly Area. The later area is also sometimes referred to as the Lower Basin.

2.0 STRUCTURAL ANALYSIS AND ACCEPTANCE CRITERIA

2.1 GENERAL METHODOLOGY

The functional classification for LDB is found in Reference 6. The corresponding performance category is conservatively taken to be PC3. There are no safety related equipment or systems and components; however, selected equipment is evaluated for PC3 loads for determining the potential II over I interaction due to design basis NPH events. For the interaction purposes a "no collapse" criteria is used. Its objective is to assure that SSCs will not collapse and lead to a functional failure of structural elements or to criticality from a potential impact on fuel racks. The no collapse criteria does not require an adherence to code requirements.

The LDB is analyzed for vertical, lateral and hydrodynamic PC3 loads using fixed base and soil structure interact (SSI) models.

The seismic time history SSI analysis is performed for the lower bound, best estimate and upper bound (LB, BE and UB) soil properties using the impedance method as outlined in Section 3.3.4 of ASCE 4-86 [20]. Foundation impedance functions consisting of soil spring and damping coefficients are computed considering geometry and embedment effects. The coupled soil structure system is analyzed using the free-field surface motion as the control input motion. Fixed base response analysis is also performed for the free-field surface spectra input.

The combined response for the three earthquake components is obtained using the square root of the sum of the squares (SRSS) rule. Forces and displacements in structural elements are obtained by enveloping results from time history and response spectra analyses.

Parametric studies were performed for assessing the structure-soil-structure-interaction (SSSI) between the Process Building and Lower and Upper Disassembly Basins, and the potential pounding at the expansion joint between the Lower and Upper Disassembly Basins.

2.2 ACCEPTANCE CRITERIA

SRS Engineering Standard 1060 [5] is used as the structural acceptance criteria for the structural evaluation of the LDB. Accordingly the 5 percent damping free field design response spectrum for performance category 3 (PC3) structures is used as the input in the seismic analysis. The input spectral coordinates are given in Table 1 and a plot of the spectrum in Figure 2.

Results are presented in terms of the demand to capacity (D/C) ratios for primary and other significant structural elements. Fragility values for the elements for the NPH effects are provided in terms of the median capacities and associated logarithmic variabilities.

2.3 SOIL CHARACTERISTICS

Preliminary dynamic soil properties for the LDB were given in July 1996 by Site Geotechnical Services (SGS) [7]. Confirmed soil properties became available in April 1997 [8]. These contained static and dynamic soil properties. The long term static displacement estimates in Reference 8 were slightly revised in Reference 9 when construction records of the building benchmarks became available. The dynamic displacements were provided in July 1997 by SGS [10].

Structural analysis of LDB is based on the soil properties given by SGS in References 8 through 10.

3.0 SOIL CHARACTERISTICS

Lower Disassembly and Upper Disassembly Areas are evaluated separately. The soil structure system is analyzed using the ABAQUS computer program using beam element (stick) modeling.

3.1 LOWER DISASSEMBLY BASIN AND TRANSFER AREA

The model for the seismic analysis of the Lower Disassembly Basin and Transfer Area is shown in Figure 3. Details of the calculations, analysis and results are given in Volumes 1 and 2 of Reference 11.

3.2 UPPER DISASSEMBLY BASIN

The model for the seismic analysis of the Upper Disassembly Area (includes Process Building) is shown in Figure 4. Details of the calculations, analyses and results are given in Volumes 3 and 4 of Reference 11. The structural analysis for the 105-K Process Building (structurally identical to 105-L) was performed without including the Upper and Lower Disassembly Basins or the Transfer Area [4]. Analysis was performed to assess the impact of these Disassembly buildings on the Process Building [11, Vol. 3]. It is found that loads in structural elements of 105-L Process Building from the analysis of these models [11, Vol. 3] are less than or equal to those in Reference 4 for the corresponding members in K.

3.3 MULTISTICK MODEL PARAMETRIC

The multi-stick model for the seismic analysis of the combined Lower and Upper Disassembly Areas is shown in Figure 5. Details of the calculations, analysis and results are given in Reference12. This multi-stick model is used for parametric studies only; BE soil properties are used in the analysis.

3.4 FLUID STRUCTURE INTERACTION

The Lower and Upper Basin walls are evaluated for the fluid structure interaction loads (sloshing of water in the basin) in Volume 1 of Reference 11 using the principles and procedures outlined in Reference 13.

3.5 MONORAILS

Revised D/C ratios for monorails in the Lower Basin Areas were computed in Reference 14 for various fuel weights. This evaluation is based on prior calculations and reports on factors of safety, and on the test data for anchorage inserts at SRS reactors ("Factor of Safety Report for Monorail Modification for Assembly/Disassembly Areas in P, K & L Reactor Buildings", UE&C, July 25, 1990, "Design Engineering Report on the Evaluation of Monorail Upgrades in the VTS and Non-VTS Areas P, K and L Reactors", July 1990, and "Upgrade of Assembly/Disassembly Monorails", RTR 2366, from W. E. Mayo and H. D. Kane to G. G. Merz, June 29, 1987).

The monorail support frame in the Emergency Basin was evaluated in Reference 15. An occasional fuel load of 200 pounds was considered in the analysis [15].

The weight of the monorail support frame in the VTS and a maximum monorail fuel load of 200 pounds were considered in the structural evaluation of the walkways and piers in the VTS [15]. The VTS monorails and the monorail support frame were not evaluated in the calculation.

3.6 PIERS, WALKWAYS, AND ROOF

A preliminary assessment of the roof, piers and walkways was provided in May 1997 [3], for the seismic survivability of the structural elements. The conclusions of this assessment were confirmed by a more detailed analysis [15]. Piers and walkways do not satisfy code requirements, however, it was determined that they would not fail or collapse causing a II over I interaction for the design basis seismic event.

4.0 FLOOR RESPONSE SPECTRA

The in-structure amplified floor response spectra (FRS) for the Lower Disassembly Area and Transfer Area are obtained from the model given in Section 3.1. SSI analyses using the LB, BE and UB soil properties are performed, and spectra are developed by enveloping and broadening in accordance with procedures given in ASCE 4-86 [20] as invoked by Site Standards [5].

Similarly FRS for the Upper Disassembly Area are obtained form the model given in Section 3.2.

The spectra are generated for damping ratios of 4, 5, 7 and 10 percent for elevations –30.0, -17.0, +15.0 and +40.0 feet, as applicable, since these elevations do not exist in all structures. These spectra and digitized values are provided in Attachment C of Section 11.

5.0 DIFFERENTIAL SETTLEMENT

The LDB is evaluated for differential displacements provided by SGS as detailed in Section 2.3. The evaluation is done for static and dynamic settlements [16]. The settlements provided by SGS do not explicitly account for the stiffness of the structure. The structural evaluation of LDB for differential settlements is based on a method that neglects the stiffness of the foundation mat, which is conservative, compared to methods that consider the stiffness. It was determined that the differential settlements may lead to non-through wall and foundation mat cracking due to bending; that is, the compression side of the structural element loaded in bending would maintain a leak tight configuration, at the junction of the mat with the external structural walls.

5.1 HYPOTHETICAL LEAKAGE ESTIMATES

Even though neither the foundation mat nor the basin walls are expected to develop through thickness cracks, which allow leakage of water out of the disassembly basin, estimates are made [17] of the hypothetical leakage through various uniform widths of cracks in the LDB at the maximum height of water of 30 feet. The results of the parametric basin drawdown analysis are summarized in Table 2.

6.0 WIND AND TORNADO ANALYSIS

The LDB is analyzed for wind and tornado effects in [14]. By comparison of the total lateral shear resulting from the wind and tornado loads with those from an earthquake, D/C ratios for the primary shear walls for the wind and tornado events are found. They are significantly smaller than 1.0. Thickness of concrete walls and the roof is large enough to resist the penetration and potential interaction effects of missiles stipulated in DOE-STD-1020 as invoked by Reference 5.

7.0 SYSTEMS AND COMPONENTS

Seismic Qualification Utility Group (SQUG) walkdown methodology is used to review credible II/I sources that are likely to cause seismic interaction with the fuel stored in HBBS area in June 1997 [18]. See Section 1.1 for clarification of the scope of the walkdowns. It is determined that except for the 5 ton crane in HBBS area, the systems and components in LDB do not present a seismic interaction hazard to the storage racks. The 5 ton crane support system requires modifications which are incorporated in the results presented in this report.

Conclusions of the 2002 II/I VTS evaluation update are given in Section 9.3.

8.0 FRAGILITIES

Fragility estimates for the primary and other significant structural elements of the LDB are provided in Reference 19. The fragilities are based on the deterministic analysis done for the design basis events and on the expected variabilities. The median capacities are given in terms of the peak ground acceleration (PGA) for seismic events, and the fastest miles per hour (FMPH) for wind and tornado events. High confidence of a low probability of failure (HCLPF) values for the structural elements are also provided.

9.0 CONCLUSIONS

Based on the analysis of L Area Disassembly Basin (LDB) for the NPH effects due to PC3 earthquake, wind and tornado in accordance with DOE Order 420.1 and DO-STD-1020, it is determined that the D/C ratios for primary and other significant structural elements are equal to or less than 1.0. Thus 105-L Disassembly Basin is qualified for the PC3 NPH effects in accordance with DOE Order 420.1.

9.1 DEMAND TO CAPACITY RATIOS

A summary of the D/C ratios for the safety related and structurally significant elements of the LDB is given in Table. 3.

9.2 FRAGILITY VALUES

Fragility values for the safety related and structurally significant elements of the LDB are given in Table 4. These may be used for safety analysis or for beyond design basis evaluations. The minimum PGA for the structural elements is 0.29g [19]; this corresponds to a return period of about 20,000 years or an annual exceedance probability at 5E-5 [21]. The median FMPH for the structure is 413 miles per hour [19]; this corresponds to a return period of over 1E7 years or an annual exceedance probability less than 1E-7 [22].

9.3 II/I VTS EVALUATION

Conclusions of the 2002 II/I VTS evaluation update are given here. Reference 23 demonstrates that both the walkway and pier are capable of resisting the impact forces from the collapse of the VTS monorail frame and the failed monorail support frame will come to rest on the platform. The effect of the falling objects identified in Reference 23 on the stored fuel and fuel racks in the VTS is determined in Reference 24. It is concluded that the overall spacing between stored fuel and the geometry of fuel in bundles are not altered by the impact from the potential missiles.

10.0 REFERENCES

1. "Assessment of 105-K Disassembly Basin", IOM 730:EPD-SE-94-0054 of February 15, 1994 from M.E. Maryak to T.C. Esterling.
2. "Status Report on Structural Analysis of K, L and P Disassembly Areas (U)", IOM ECS-CES-94-0274 of December 19, 1994 from J.R. Joshi to J.C. Guy.
3. "Assessment of Seismic Qualification of Concrete Piers, Walkways and Roof for L Disassembly Area (U)", IOM ECS-CES-96-0021 of May 14, 1996 from R.L. Bandyopadhyay and J.R. Joshi to S. Pogula.
4. "Summary Report on the Seismic Qualification of the 105-K Reactor Building (U)", WSRC-TR-91-604, Revision 2, May 1992.
5. "Structural Design Criteria", Engineering Standard 01060, Revision 1, October 1996, WSRC Manual WSRC-TM-95-1.
6. "Functional Classification Report for L Reactor Facility", WSRC-TR-95-0399, Revision 1, June 1997.
7. "Selected Soil Properties for L-Area Dynamic Profile", IOM ECSD-SGS-96-228 of July 3, 1996 from Walt Rabe to J.R. Joshi.
8. "Confirmed Soil Properties for the 105-L Disassembly Area:, IOM PECD-SGS-97-134 of April 25, 1997 from Todd E. Ross to J.R. Joshi.
9. "Long Term Settlement Estimation for the L Disassembly Basin", cc:Mail of May 15, 1997 from Todd Ross to J.R. Joshi.
10. "Liquefaction Potential and Settlement Estimates, 105-L Disassembly Basin", IOM PECD-SGS-97-0187 of July 9, 1997 from Michael D. McHood to J.R. Joshi.
11. "NPH Evaluation of 105-L Disassembly Basin", T-CLC-L-00006, Revision 1, Volumes 1 to 4, Structural Engineering, 2002.
    Volume 1: Lower Disassembly Basin & Transfer Area
    Volume 2: Lower Disassembly Basin & Transfer Area, Computer Runs – ABAQUS Input/Output
    Volume 3: Upper Disassembly Basin
    Volume 4: Upper Disassembly Basin, Computer Runs – ABAQUS Input/Output
12. "105-L Multistick Model Parametric Study-Disassembly Basin", T-CLC-L-00013, Structural Engineering, 1997.
13. "Seismic Design and Evaluation Guidelines for the DOE High-Level Waste Storage Tanks and Appurtenances", K. Bandyopadhyay, A. Cornell, C. Costantino, R. Kennedy, C. Miller and A. Veletsos, BNL 52361, Rev. 10/95, UC-406, UC-510, October 1995.
14. "Miscellaneous Technical Issues in 105-L Structural Analysis", T-CLC-L-00017, Revision 1, Structural Engineering, 2002.

15. "Disassembly Area Building, Analysis of Piers, Walkway and Roof of 105-L Disassembly Basin", T-CLC-L-00003, Revision 1, Structural Engineering, 2002.
16. "105-L Disassembly Basin Differential Settlement Analysis", T-CLC-L-00012, Structural Engineering, 1997.
17. "Postulated Seepage Rates form 105-L Basin", T-CLC-L-00014, Structural Engineering & SGS, 1997.
18. "Seismic II/I Interaction for 105-L Disassembly Area", T-CLC-L-00016, Revision 3, Structural Engineering, 2002.
19. "Fragility Analysis of 105-L Disassembly Basin Structure", T-CLC-L-00018, Revision 1, Structural Engineering, 2002.
20. "Seismic Analysis of Safety-Related nuclear Structures and Commentary on Standard for Seismic Analysis of Safety-Related Nuclear Structures", ASCE Standard 4-86, 1987.
21. "Development of probabilistic Seismic Hazard Curve for DWPF at SRS (U)", WSRC-TR-93-317, Revision 1, January 1995, H.E .Wingo.
22. "Natural Phenomena Hazards Modeling Project: Extreme Wind/Tornado Models for the Department of Energy Sites", By D.W. Coats and R.C. Murray, UCRL-53526, Revision 1, August 1985.
23. "L-Area Disassembly Basin Vertical Tube Storage II/I Evaluation", Engineering Calculation, T-CLC-L-00046, Structural Engineering, 2002.
24. "VTS Fuel Racks II/I Analysis (U)", Engineering Calculation, T-CLC-L-00045, Structural Mechanics, 2002.

11.0 ATTACHMENTS

A List of Figures

B List of Tables

C Floor Response Spectra

Upper Disassembly Area Covers Column Line 101 to 106

Figure C6	N-S Direction Response Spectra	Elev. -30”
Table C6	N-S Direction Digitized Values	Elev. -30’
Figure C7	N-S Direction Response Spectra	Elev. +15’
Table C7	N-S Direction Digitized Values	Elev. +15’
Figure C8	E-W Direction Response Spectra	Elev. -30’
Table C8	E-W Direction Digitized Values	Elev. -30’
Figure C9	E-W Direction Response Spectra	Elev. +15’
Table C9	E-W Direction Digitized Values	Elev. +15’
Figure C10	Vertical Direction Response Spectra	Elev. +15’
Table C10	Vertical Direction Digitized Values	Elev. +15’

Transfer Area Covers Column Line 111 to 112

Figure C11	N-S Direction Response Spectra	Elev. -17’
Table C11	N-S Direction Digitized Values	Elev. -17’
Figure C12	N-S Direction Response Spectra	Elev. +40’
Table C12	N-S Direction Digitized Values	Elev. +40’
Figure C13	E-W Direction Response Spectra	Elev. -17’
Table C13	E-W Direction Digitized Values	Elev. -17’
Figure C14	E-W Direction Response Spectra	Elev. +40’
Table C14	E-W Direction Digitized Values	Elev. +40’
Figure C15	Vertical Direction Response Spectra	Elev. +40’
Table C15	Vertical Direction Digitized Values	Elev. +40’

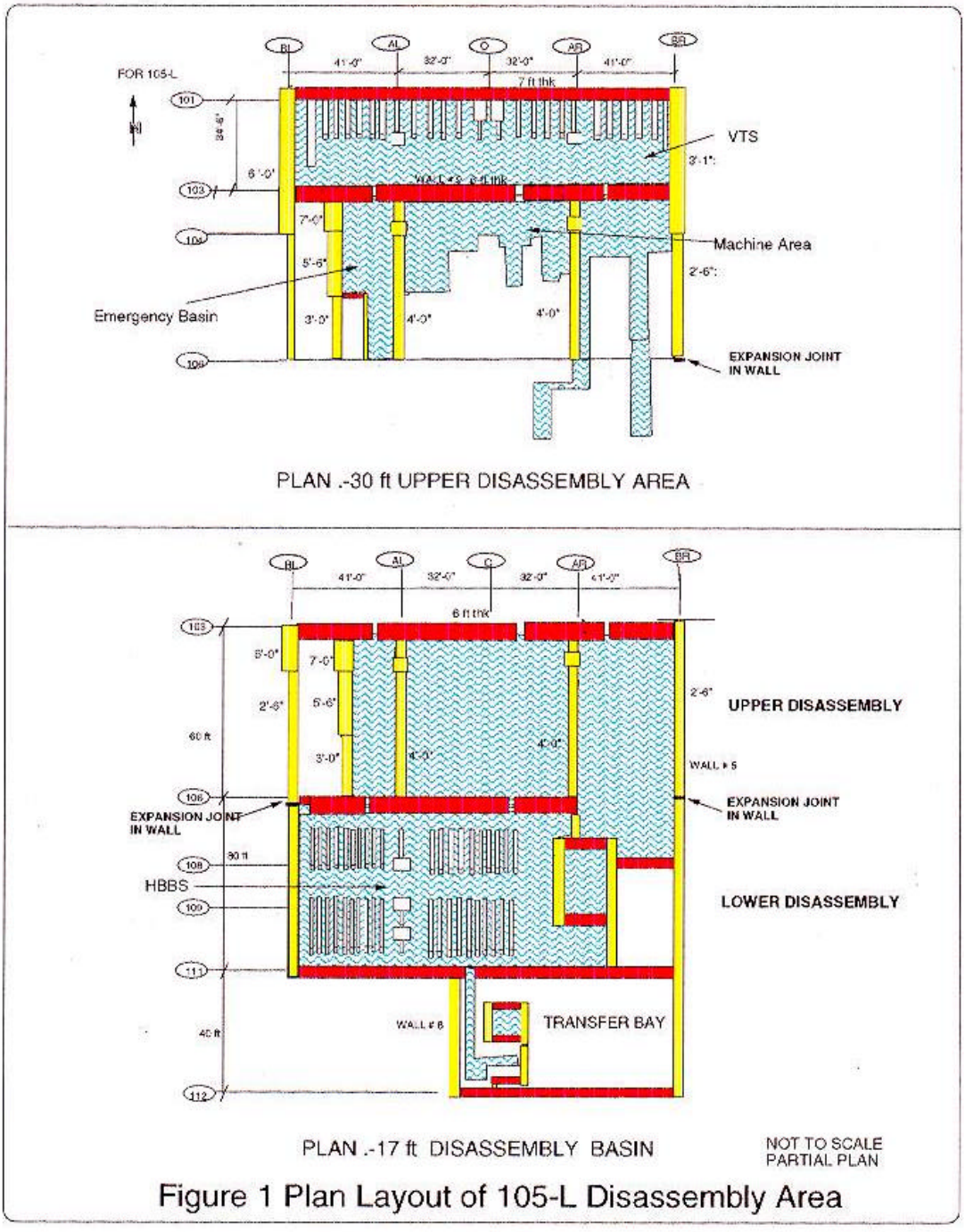


Figure 1 Plan Layout of 105-L Disassembly Area

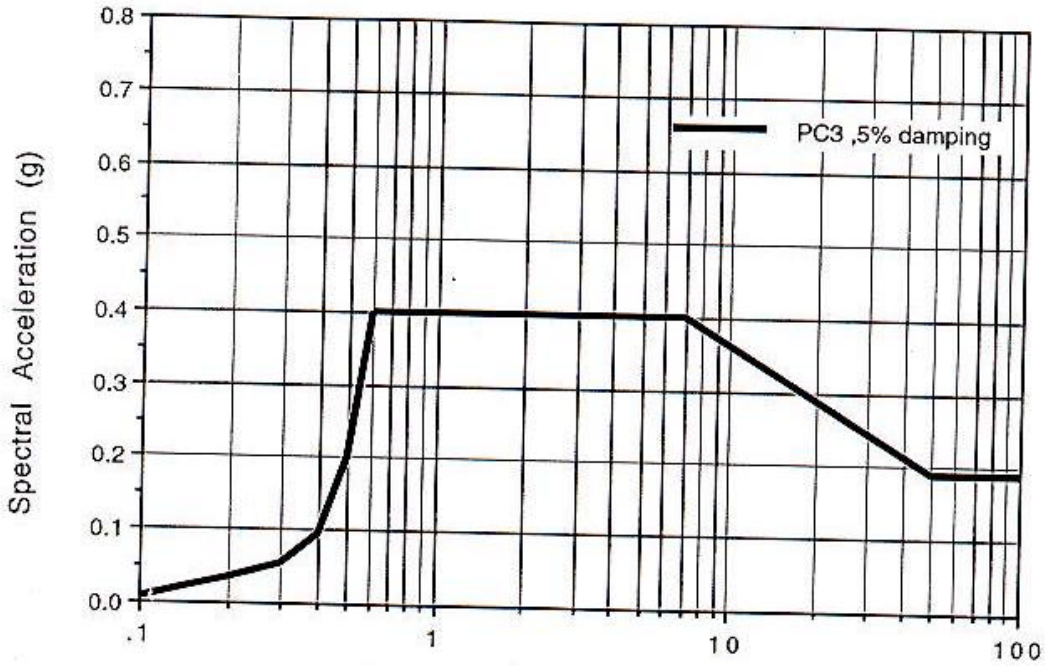


Figure 2 PC3 Design Response Spectra, 5% Damping
Horizontal and vertical

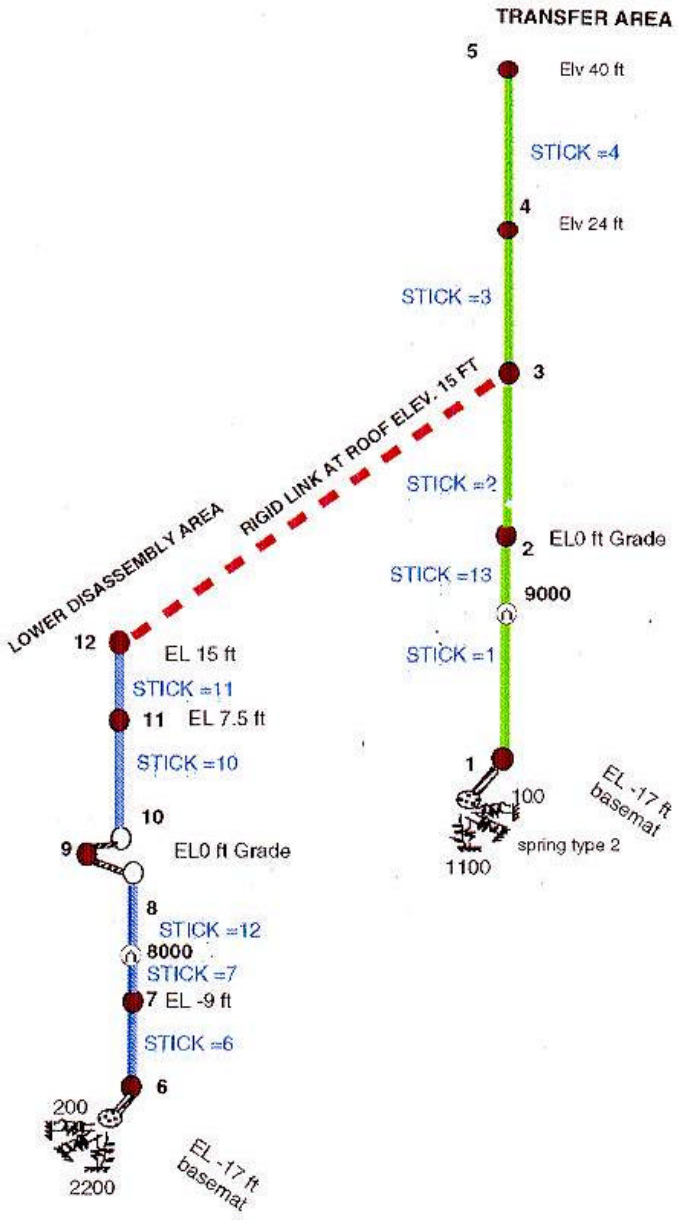


Figure 3 SSI Model for 105-L Lower Disassembly area and Transfer Area

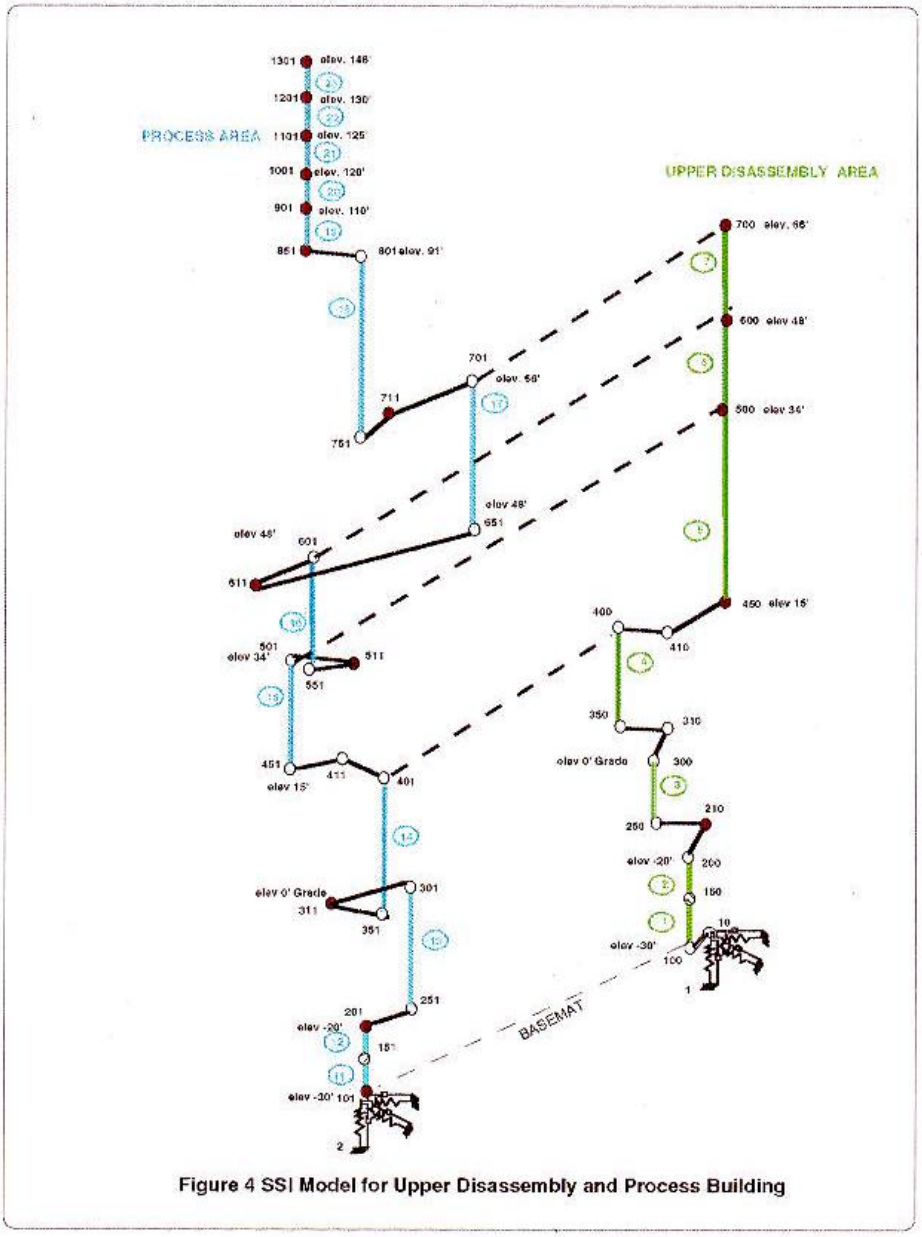


Figure 4 SSI Model for Upper Disassembly and Process Building

NOT TO SCALE

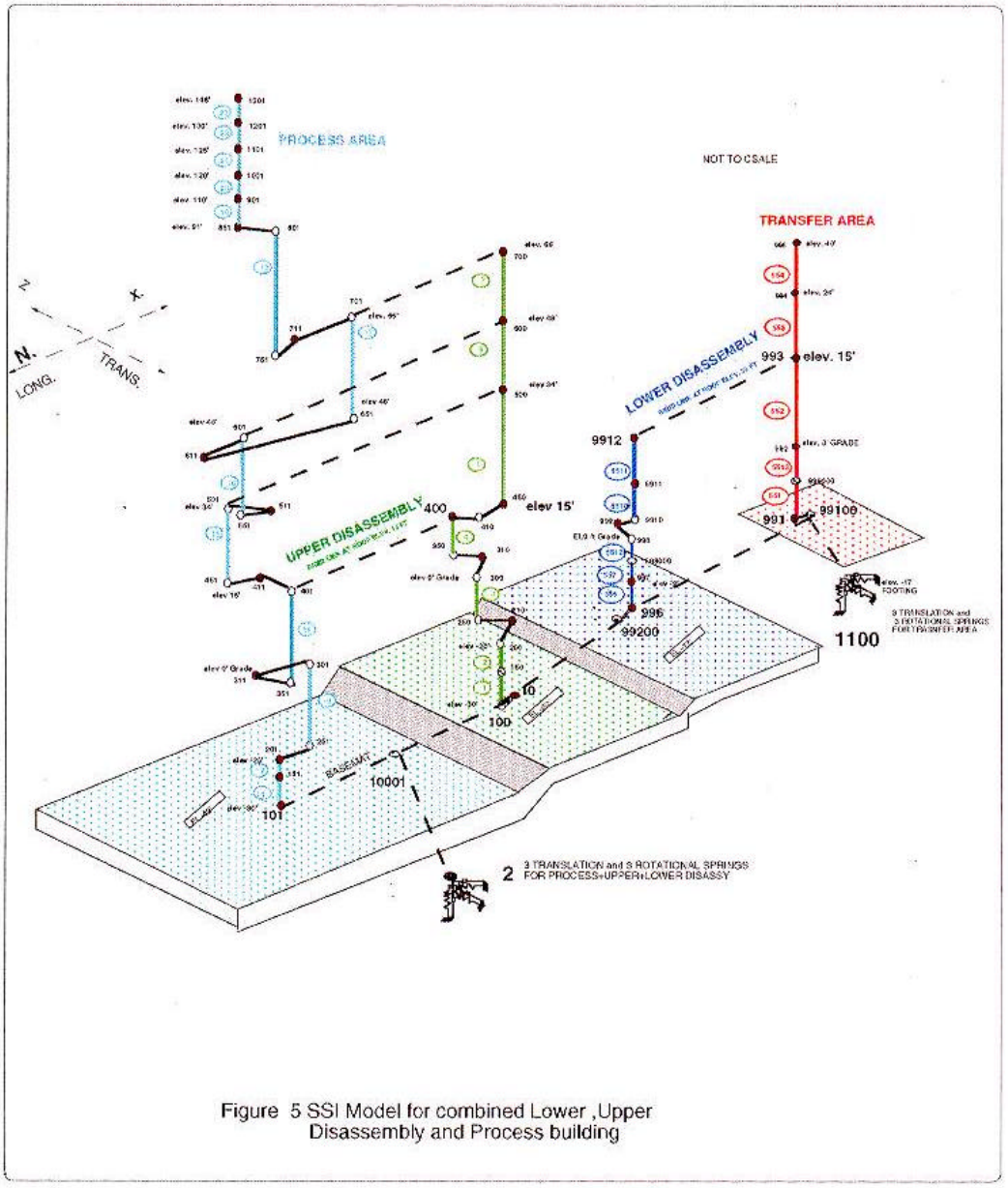


Figure 5 SSI Model for combined Lower ,Upper Disassembly and Process building

Frequency (Hz)	Spectral Acceleration (g)
0.100	0.006
0.200	0.033
0.300	0.054
0.400	0.096
0.500	0.202
0.600	0.400
7.000	0.400
50.000	0.190
100.000	0.190

Digitize values for Figure 2

TABLE 1: Coordinates for PC3 Design Response Spectra, 5 Percent Damping Horizontal and Vertical

105-L Disassembly BASIN (30 ft Depth)

TABLE #	Crack Inch	Kh cm/s	Kv cm/s	Kh/Kv	WATER LEVEL DROP (IN)	TIME TAKES IN DAYS
1	1/16 in	5.00 E-04	1.00 E-04	5	12 in	126
1A	1/2 in	5.00 E-04	1.00E-04	5	12 in	100
1B	1 in	5.00 E-04	1.00 E-04	5	12 in	91.5
1C	3 in	5.00 E-04	1.00 E-04	5	12 in	77.9
2	**1/16**	**1.00 E-03**	**1.00 E-04**	**10**	**12 in**	**65**
2A	**1/2 in**	**1.00 E-03**	**1.00 E-04**	**10**	**12 in**	**52.1**
2B	**1 in**	**1.00 E-03**	**1.00 E-04**	**10**	**12 in**	**47.8**
2C	**3 in**	**1.00 E-04**	**1.00 E-04**	**10**	**12 in**	**41**
3	1/16 in	5.00 E-03	1.00 E-04	50	12 in	14
3A	1/2 in	5.00 E-03	1.00 E-04	50	12 in	11.4
3B	1 in	5.00 E-03	1.00 E-04	50	12 in	10.6
3C	3 in	5.00 E-03	1.00 E-04	50	12 in	9.2

TABLE 2: Summary of Parametric L Basin Drawdown

ITEM#	DESCRIPTION	SEISMIC			
		Reference Calc.# T-CLC-L-000	Page #	Comment	D/C
1	Primary Shear Walls				
	Upper Disassembly Area	06, v. 3	75		0.29
	Lower Disassembly Area	06, v. 1	11		0.22
	Transfer Area	06, v. 1	11		0.35
	Pressure on External Walls				
	with water (Lower Disassembly)	06, v. 1	11		0.74
	without water (Lower Disassembly)	06, v. 1	11		0.97
2	Structural Columns (4 X 4 and 6 X 6)		75	Upper Dissassy,	0.83
	4 X 4 at Col. AAL & 102	06, v. 3		axial + bend.	
3	Roof (Span: 63 and 45)	03	26		0.85
4	Foundation Mat			differential	
	Lower Disassembly	12	8	settlement.	0.76
5	VTS (maximum fuel load of 200 pounds)				
	Piers	03	29		0.93
	Concrete Beam/Walkway	03	25		0.88
6	Emergency Basin (occasional fuel load of 200 pounds)				
	Piers	03	29		0.93
	Concrete Beam/Walkway	03	25		1.0
7	Machine Basin and HBBS (Lower Basin)				
	Piers	03	25		1.0
	Concrete Beams/Walkway	03	25		0.21
8	Monorail				
	HBBS (non-Piers : fuel: 495 lb.)	17	11		0.26
	Machine Basin (non-Piers : fuel: 495 lb.)	17	11		0.23
ITEM#	**DESCRIPTION**	**WIND/TORNADO**			
1	Primary Structural Walls				
	Lower Disassembly	06, v. 1	305C		0.11

TABLE 3: Significant Demand to Capacity Ratios for L Disassembly Basin

	DESCRIPTION	**FRAGILITIES**			
ITEM #	**SEISMIC**	**Median PGA,g**	**b_R**	**b_U**	**HCLPF PGA,g**
1	Primary Shear Walls				
	Upper Disassembly Area	1.28	0.31	0.4	0.40
	Lower Disassembly Area				
	Transfer Area	1.07	0.31	0.4	0.33
	Pressure on External Walls				
	with water (Lower Disassembly)	0.72	0.31	0.41	0.22
	without water (Lower Disassembly)	0.52	0.31	0.41	0.16
2	Structural Columns (4 X 4 and 6 X 6)	0.52	0.31	0.41	0.16
3	Roof (Span: 63 and 45)	0.51	0.31	0.41	0.15
4	Foundation Mat	0.57	0.31	0.41	0.17
	Lower Disassembly				
5	VTS (maximum fuel load of 200 pounds)				
	Piers	0.31	0.31	0.41	0.09
6	Emergency Basin (occasional fuel load of 200 pounds)				
	Piers	0.51	0.31	0.41	0.15
7	Machine Basin and HBBS (Lower Basin)				
	Piers	0.29	0.31	0.41	0.09
8	Monorail				
	HBBS (non-Piers, fuel: 495 pounds)	0.70	0.34	0.31	0.24
	Machine Basin (non-Piers, fuel: 495 pounds)	0.73	0.34	0.31	0.25
ITEM#	**WIND/TORNADO**	**Median MPH**	**b_R**	**b_U**	**HCLPF MPH**
1	Primary Structural Walls				
	Lower Disassembly	413	0.2	0.2	213

NOTES:

PGA:	Peak Ground Acceleration
MPH:	Fastest Miles Per Hour wind/tornado speed
b_R:	Logarithmic Standard Deviation for Randomness
b_U:	Logarithmic Standard Deviation for Uncertainty
HCLPF:	High Confidence Low Probability of Failure

TABLE 4: Significant Fragility Values for L Disassembly Basin

FIGURE C-1

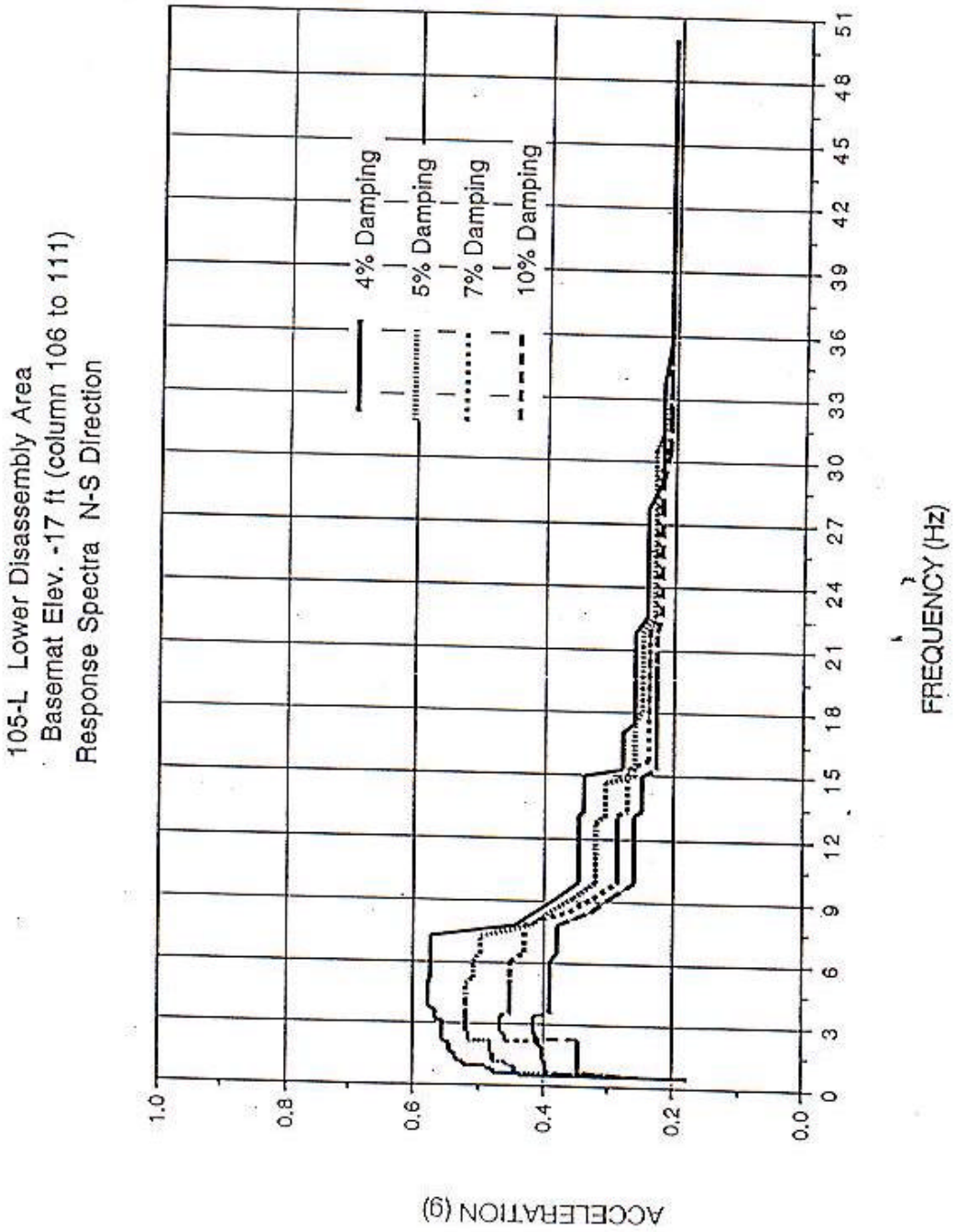

105-L Lower Disassembly Area
Basemat Elev. -17 ft (column 106 to 111)
Response Spectra N-S Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-I

105-L LOWER DISASSEMBLY AREA (Column 106 to 111)
Elev. -17 ft BAsemat RESPONSE SPECTRA
N-S DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.230	0.219	0.199	0.176
0.510	0.335	0.228	0.208	0.183
0.521	0.335	0.236	0.215	0.190
0.532	0.335	0.252	0.225	0.196
0.543	0.335	0.269	0.241	0.208
0.556	0.335	0.283	0.255	0.220
0.568	0.437	0.295	0.268	0.231
0.581	0.437	0.306	0.276	0.241
0.595	0.437	0.314	0.286	0.250
0.610	0.437	0.322	0.294	0.321
0.625	0.477	0.437	0.303	0.321
0.641	0.477	0.437	0.319	0.321
0.658	0.477	0.437	0.340	0.321
0.676	0.477	0.437	0.359	0.321
0.694	0.477	0.437	0.370	0.321
0.714	0.477	0.437	0.372	0.321
0.735	0.477	0.444	0.397	0.343
0.962	0.488	0.444	0.397	0.343
1.000	0.520	0.449	0.397	0.343
1.067	0.520	0.455	0.397	0.343
1.233	0.520	0.458	0.397	0.343
2.358	0.554	0.514	0.458	0.411
2.410	0.554	0.514	0.458	0.411
2.463	0.554	0.514	0.458	0.411
2.519	0.554	0.514	0.458	0.411
2.577	0.554	0.514	0.458	0.411
3.460	0.565	0.517	0.465	0.414
3.571	0.565	0.517	0.451	0.390
5.025	0.576	0.518	0.451	0.390
5.263	0.573	0.507	0.451	0.390
5.525	0.573	0.507	0.451	0.390
5.814	0.573	0.507	0.451	0.390
6.135	0.573	0.507	0.451	0.390
6.494	0.573	0.496	0.428	0.376
6.897	0.573	0.496	0.428	0.376
7.353	0.573	0.496	0.428	0.376
7.874	0.443	0.417	0.428	0.376
8.475	0.409	0.388	0.358	0.325
9.174	0.376	0.353	0.322	0.295
10.000	0.344	0.317	0.286	0.260
10.163	0.344	0.317	0.286	0.260
10.331	0.344	0.317	0.286	0.260
10.504	0.344	0.317	0.286	0.260
10.684	0.344	0.317	0.286	0.260
10.870	0.344	0.317	0.286	0.260
11.062	0.344	0.317	0.286	0.260
11.261	0.344	0.317	0.286	0.260
11.468	0.344	0.317	0.286	0.260
11.682	0.344	0.317	0.286	0.260
14.368	0.336	0.306	0.272	0.249
14.706	0.336	0.306	0.272	0.249
17.606	0.260	0.259	0.239	0.227
18.116	0.260	0.251	0.239	0.227
19.841	0.260	0.251	0.238	0.227
20.492	0.260	0.251	0.238	0.227
21.186	0.260	0.251	0.238	0.227
21.930	0.260	0.251	0.238	0.227
22.727	0.242	0.232	0.225	0.219
23.585	0.242	0.232	0.225	0.219
32.051	0.220	0.213	0.208	0.208
33.784	0.220	0.209	0.208	0.208
35.714	0.209	0.209	0.208	0.208
37.879	0.209	0.209	0.208	0.208
46.296	0.209	0.209	0.208	0.208
50.000	0.209	0.209	0.208	0.208

FIGURE C-2

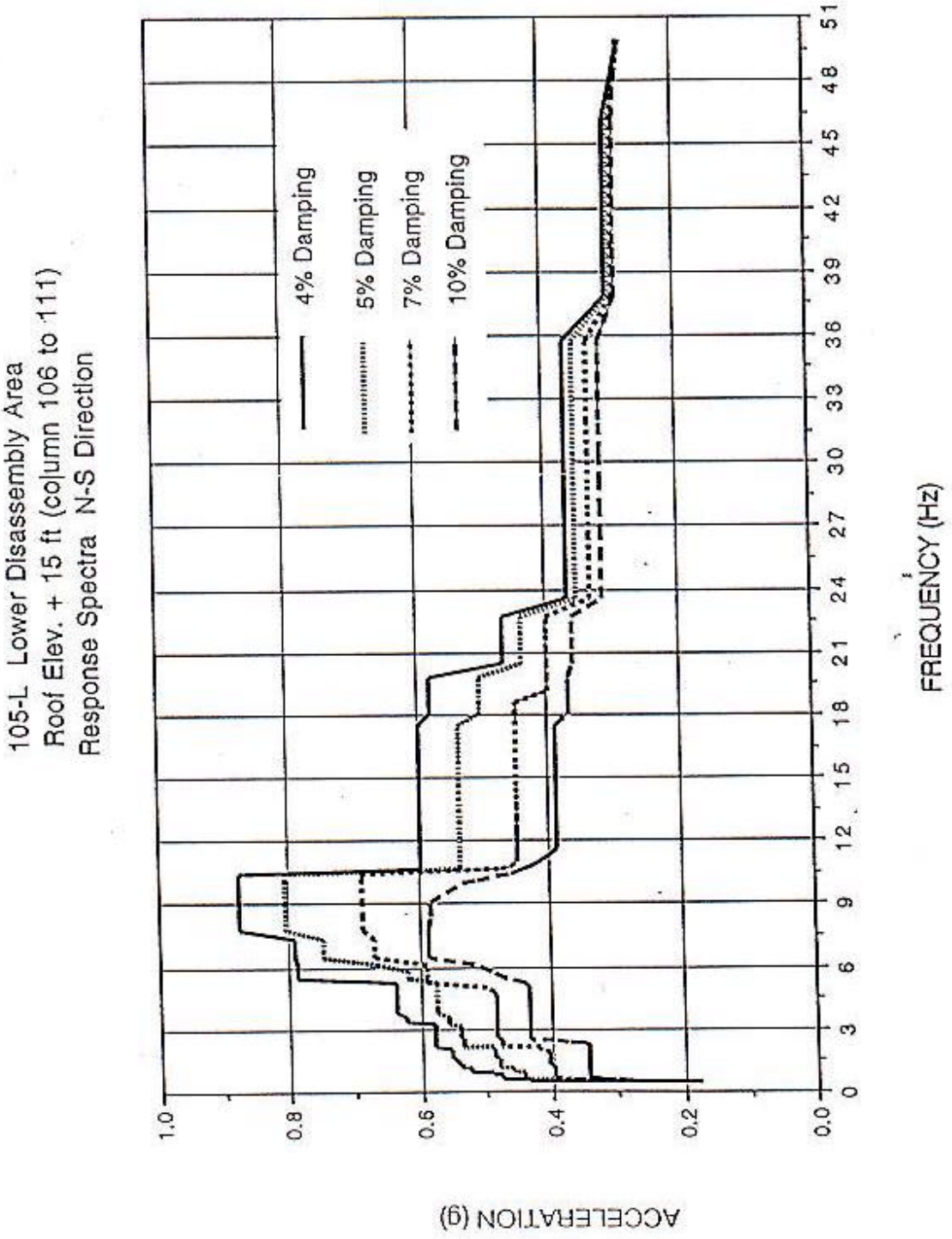

105-L Lower Disassembly Area
Roof Elev. + 15 ft (column 106 to 111)
Response Spectra N-S Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-2

105-L LOWER DISASSEMBLY AREA (Column 106 to 111)
Elev. +15 ft Roof RESPONSE SPECTRA
N-S DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.231	0.219	0.200	0.176
0.510	0.338	0.229	0.208	0.184
0.521	0.338	0.236	0.216	0.191
0.532	0.338	0.252	0.226	0.196
0.543	0.338	0.270	0.242	0.209
0.556	0.338	0.284	0.255	0.221
0.568	0.438	0.295	0.267	0.232
0.581	0.438	0.306	0.277	0.242
0.595	0.438	0.315	0.286	0.251
0.610	0.438	0.323	0.295	0.322
0.625	0.478	0.438	0.304	0.322
0.641	0.478	0.438	0.320	0.322
0.658	0.478	0.438	0.341	0.322
0.676	0.478	0.438	0.360	0.322
0.694	0.478	0.438	0.372	0.322
0.714	0.478	0.438	0.374	0.322
0.735	0.478	0.446	0.399	0.345
0.962	0.491	0.446	0.399	0.345
1.000	0.524	0.452	0.399	0.345
1.067	0.524	0.458	0.399	0.345
1.233	0.524	0.463	0.399	0.345
2.358	0.576	0.535	0.476	0.345
2.410	0.576	0.535	0.476	0.355
2.463	0.576	0.535	0.476	0.375
2.519	0.576	0.535	0.476	0.398
2.577	0.576	0.535	0.476	0.433
3.460	0.619	0.554	0.485	0.433
3.571	0.619	0.554	0.485	0.433
5.025	0.636	0.572	0.498	0.433
5.263	0.636	0.572	0.587	0.442
5.525	0.785	0.615	0.587	0.469
5.814	0.785	0.615	0.587	0.489
6.135	0.785	0.664	0.587	0.515
6.494	0.790	0.744	0.668	0.584
6.897	0.790	0.744	0.668	0.584
7.353	0.790	0.744	0.668	0.584
7.874	0.873	0.803	0.686	0.584
8.475	0.873	0.803	0.686	0.581
9.174	0.873	0.803	0.686	0.581
10.000	0.873	0.803	0.686	0.532
10.163	0.873	0.803	0.686	0.509
10.331	0.873	0.803	0.686	0.481
10.504	0.873	0.803	0.686	0.458
10.684	0.595	0.535	0.474	0.440
10.870	0.595	0.535	0.458	0.429
11.062	0.595	0.535	0.448	0.416
11.261	0.595	0.535	0.448	0.405
11.468	0.595	0.535	0.448	0.395
11.682	0.595	0.535	0.448	0.388
14.368	0.595	0.535	0.448	0.388
14.706	0.595	0.535	0.448	0.388
17.606	0.595	0.535	0.448	0.388
18.116	0.575	0.503	0.448	0.366
19.841	0.575	0.503	0.398	0.366
20.492	0.466	0.438	0.398	0.360
21.186	0.466	0.438	0.398	0.360
21.930	0.466	0.438	0.398	0.360
22.727	0.466	0.438	0.398	0.360
23.585	0.366	0.352	0.331	0.311
32.051	0.366	0.352	0.331	0.311
33.784	0.366	0.352	0.331	0.311
35.714	0.366	0.352	0.331	0.311
37.879	0.300	0.296	0.291	0.286
46.296	0.300	0.296	0.291	0.286
50.000	0.275	0.276	0.277	0.278

FIGURE C-3

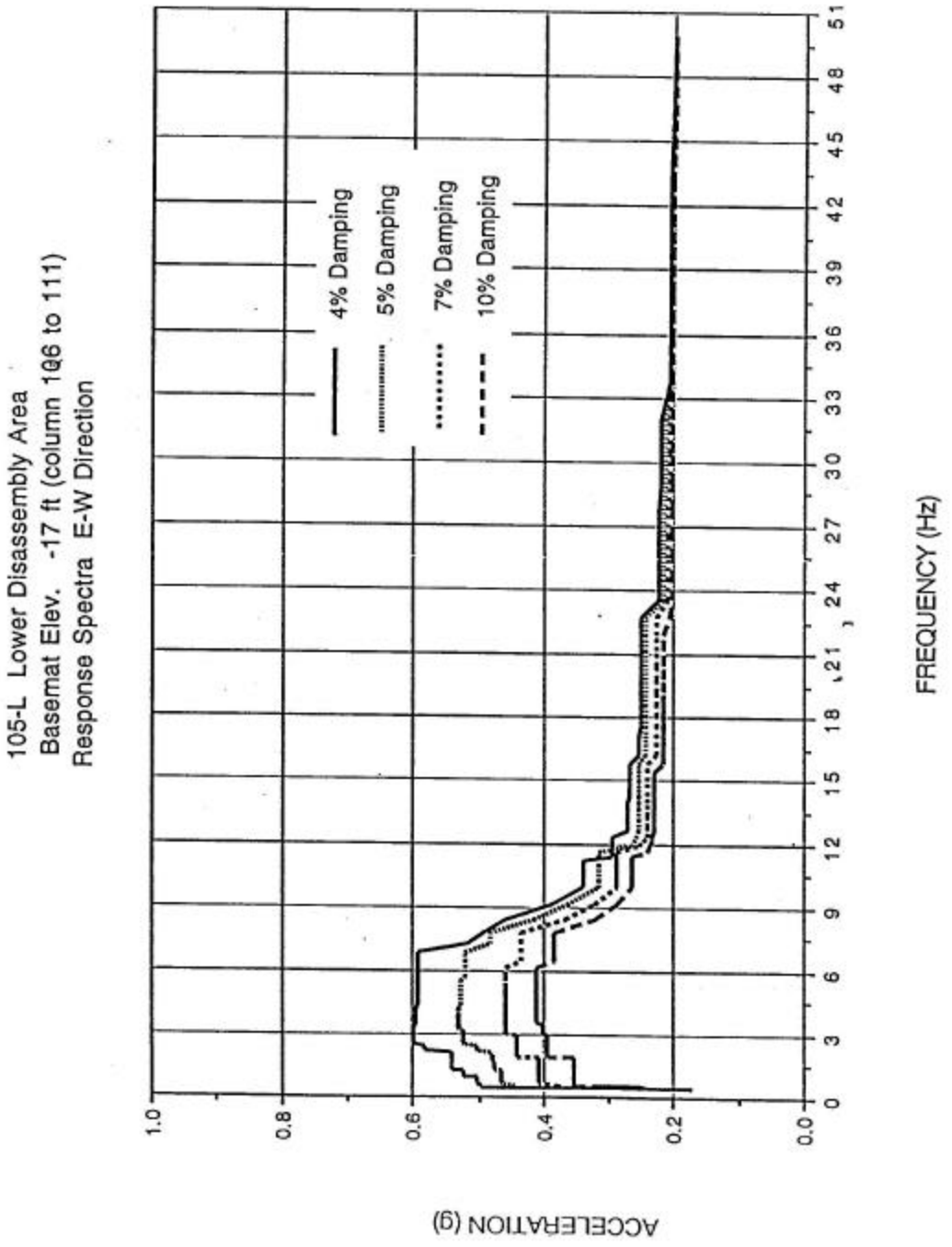

105-L Lower Disassembly Area
Basemat Elev. -17 ft (column 106 to 111)
Response Spectra E-W Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-3

105-L LOWER DISASSEMBLY AREA (Column 106 to 111)
Elev. -17 ft BAsemat RESPONSE SPECTRA
E-W DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.242	0.221	0.192	0.172
0.510	0.273	0.250	0.214	0.180
0.521	0.296	0.273	0.234	0.190
0.532	0.322	0.296	0.371	0.204
0.543	0.354	0.321	0.371	0.220
0.556	0.495	0.445	0.371	0.239
0.568	0.495	0.445	0.371	0.257
0.581	0.495	0.445	0.371	0.273
0.595	0.495	0.445	0.371	0.286
0.610	0.495	0.445	0.371	0.297
0.625	0.495	0.445	0.371	0.304
0.641	0.495	0.445	0.371	0.308
0.658	0.495	0.445	0.375	0.353
0.676	0.502	0.464	0.407	0.353
0.694	0.502	0.464	0.407	0.353
0.714	0.502	0.464	0.407	0.353
0.735	0.502	0.464	0.407	0.353
0.962	0.502	0.464	0.407	0.353
1.000	0.502	0.464	0.407	0.353
1.067	0.523	0.464	0.407	0.353
1.233	0.523	0.464	0.407	0.353
2.358	0.580	0.503	0.440	0.393
2.410	0.580	0.503	0.440	0.393
2.463	0.580	0.503	0.440	0.393
2.519	0.580	0.503	0.440	0.393
2.577	0.598	0.522	0.440	0.393
3.460	0.595	0.530	0.457	0.398
3.571	0.595	0.530	0.458	0.409
5.025	0.590	0.527	0.459	0.411
5.263	0.590	0.527	0.459	0.411
5.525	0.590	0.527	0.459	0.411
5.814	0.590	0.520	0.459	0.411
6.135	0.590	0.520	0.459	0.411
6.494	0.590	0.520	0.432	0.383
6.897	0.590	0.520	0.432	0.383
7.353	0.514	0.482	0.432	0.383
7.874	0.492	0.462	0.432	0.383
8.475	0.457	0.415	0.364	0.322
9.174	0.367	0.361	0.320	0.285
10.000	0.337	0.314	0.286	0.262
10.163	0.337	0.314	0.286	0.262
10.331	0.337	0.314	0.286	0.262
10.504	0.337	0.314	0.286	0.262
10.684	0.337	0.314	0.286	0.262
10.870	0.337	0.314	0.286	0.262
11.062	0.337	0.314	0.286	0.262
11.261	0.337	0.314	0.286	0.262
11.468	0.293	0.314	0.286	0.262
11.682	0.293	0.314	0.286	0.239
14.368	0.267	0.254	0.239	0.229
14.706	0.267	0.254	0.239	0.229
17.606	0.250	0.241	0.227	0.215
18.116	0.250	0.241	0.227	0.215
19.841	0.250	0.241	0.227	0.215
20.492	0.250	0.241	0.227	0.215
21.186	0.250	0.241	0.227	0.215
21.930	0.250	0.241	0.227	0.215
22.727	0.250	0.241	0.227	0.206
23.585	0.223	0.216	0.207	0.202
32.051	0.219	0.213	0.206	0.202
33.784	0.206	0.205	0.206	0.202
35.714	0.206	0.205	0.203	0.201
37.879	0.206	0.205	0.203	0.201
46.296	0.202	0.201	0.201	0.199
50.000	0.198	0.198	0.198	0.198

FIGURE C-4

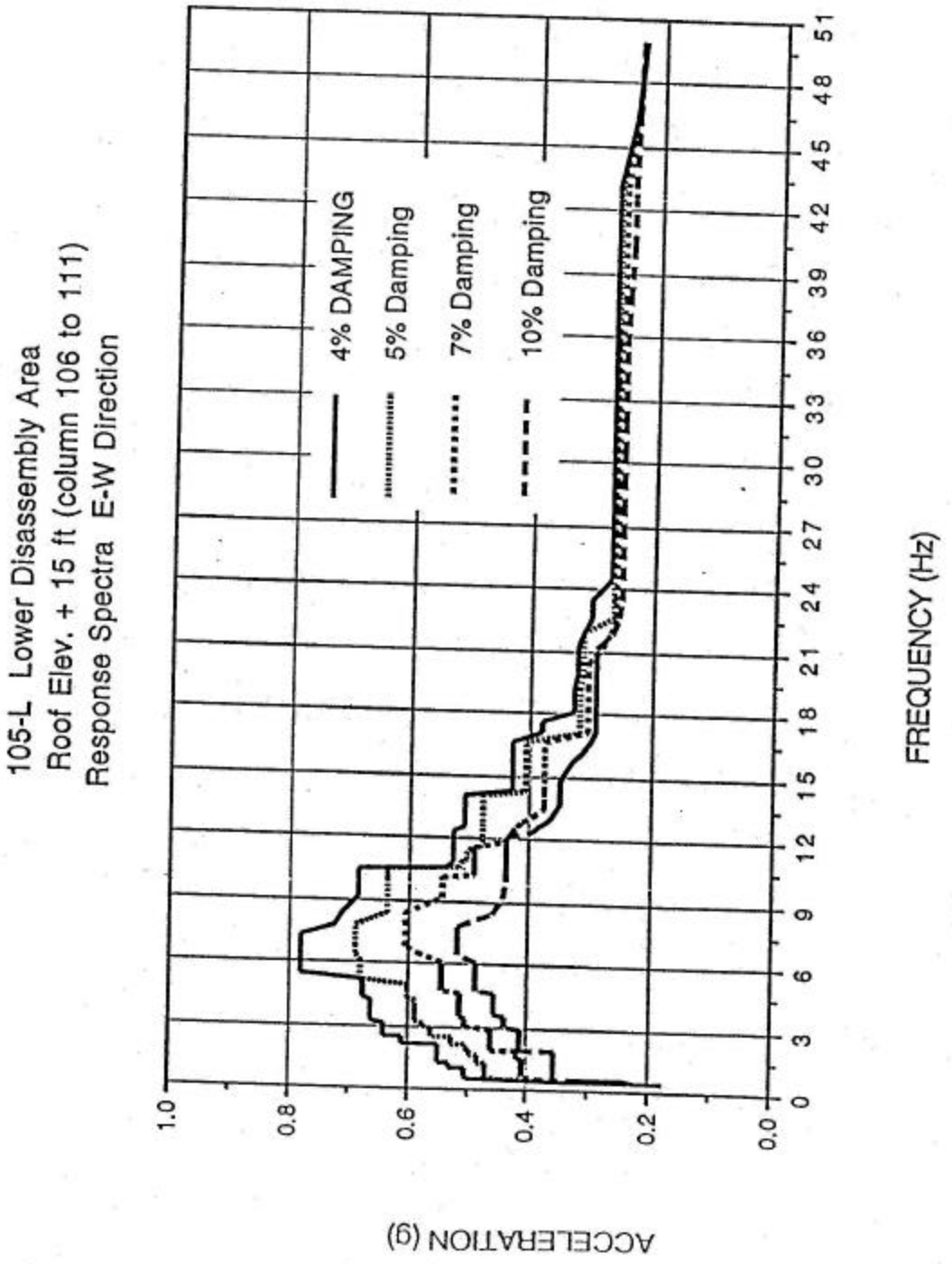

105-L Lower Disassembly Area
Roof Elev. + 15 ft (column 106 to 111)
Response Spectra E-W Direction
4% DAMPING
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-4

105-L LOWER DISASSEMBLY AREA (Column 106 to 111)
Elev. +15 ft Roof RESPONSE SPECTRA
E-W DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.242	0.222	0.192	0.173
0.510	0.274	0.251	0.214	0.181
0.521	0.297	0.274	0.234	0.191
0.532	0.322	0.297	0.372	0.205
0.543	0.355	0.322	0.372	0.221
0.556	0.496	0.446	0.372	0.240
0.568	0.496	0.446	0.372	0.257
0.581	0.496	0.446	0.372	0.273
0.595	0.496	0.446	0.372	0.287
0.610	0.496	0.446	0.372	0.298
0.625	0.496	0.446	0.372	0.306
0.641	0.496	0.446	0.372	0.309
0.658	0.496	0.446	0.376	0.355
0.676	0.504	0.466	0.408	0.355
0.694	0.504	0.466	0.408	0.355
0.714	0.504	0.466	0.408	0.355
0.735	0.504	0.466	0.408	0.355
0.962	0.504	0.466	0.408	0.355
1.000	0.504	0.466	0.408	0.355
1.067	0.527	0.466	0.408	0.355
1.233	0.527	0.466	0.408	0.355
2.358	0.608	0.526	0.460	0.412
2.410	0.608	0.526	0.460	0.412
2.463	0.608	0.526	0.460	0.412
2.519	0.608	0.526	0.460	0.412
2.577	0.639	0.558	0.460	0.412
3.460	0.658	0.586	0.503	0.438
3.571	0.658	0.586	0.509	0.438
5.025	0.674	0.600	0.543	0.484
5.263	0.677	0.677	0.543	0.484
5.525	0.777	0.677	0.543	0.484
5.814	0.777	0.677	0.543	0.484
6.135	0.777	0.677	0.543	0.484
6.494	0.777	0.687	0.576	0.516
6.897	0.777	0.687	0.603	0.516
7.353	0.777	0.687	0.603	0.516
7.874	0.720	0.687	0.603	0.516
8.475	0.705	0.633	0.603	0.459
9.174	0.682	0.633	0.543	0.442
10.000	0.683	0.633	0.543	0.436
10.163	0.683	0.633	0.543	0.436
10.331	0.683	0.633	0.489	0.436
10.504	0.683	0.633	0.489	0.436
10.684	0.536	0.517	0.489	0.436
10.870	0.526	0.510	0.489	0.436
11.062	0.526	0.503	0.489	0.436
11.261	0.526	0.502	0.489	0.436
11.468	0.526	0.500	0.489	0.436
11.682	0.526	0.480	0.489	0.436
14.368	0.429	0.406	0.375	0.350
14.706	0.429	0.406	0.375	0.349
17.606	0.380	0.317	0.305	0.291
18.116	0.326	0.317	0.305	0.291
19.841	0.323	0.316	0.305	0.291
20.492	0.323	0.316	0.305	0.291
21.186	0.323	0.316	0.284	0.291
21.930	0.316	0.316	0.272	0.267
22.727	0.302	0.268	0.260	0.258
23.585	0.302	0.268	0.260	0.253
32.051	0.272	0.268	0.260	0.253
33.784	0.272	0.268	0.260	0.253
35.714	0.272	0.268	0.260	0.253
37.879	0.271	0.266	0.258	0.249
46.296	0.245	0.243	0.242	0.240
50.000	0.232	0.232	0.234	0.235

FIGURE C-5

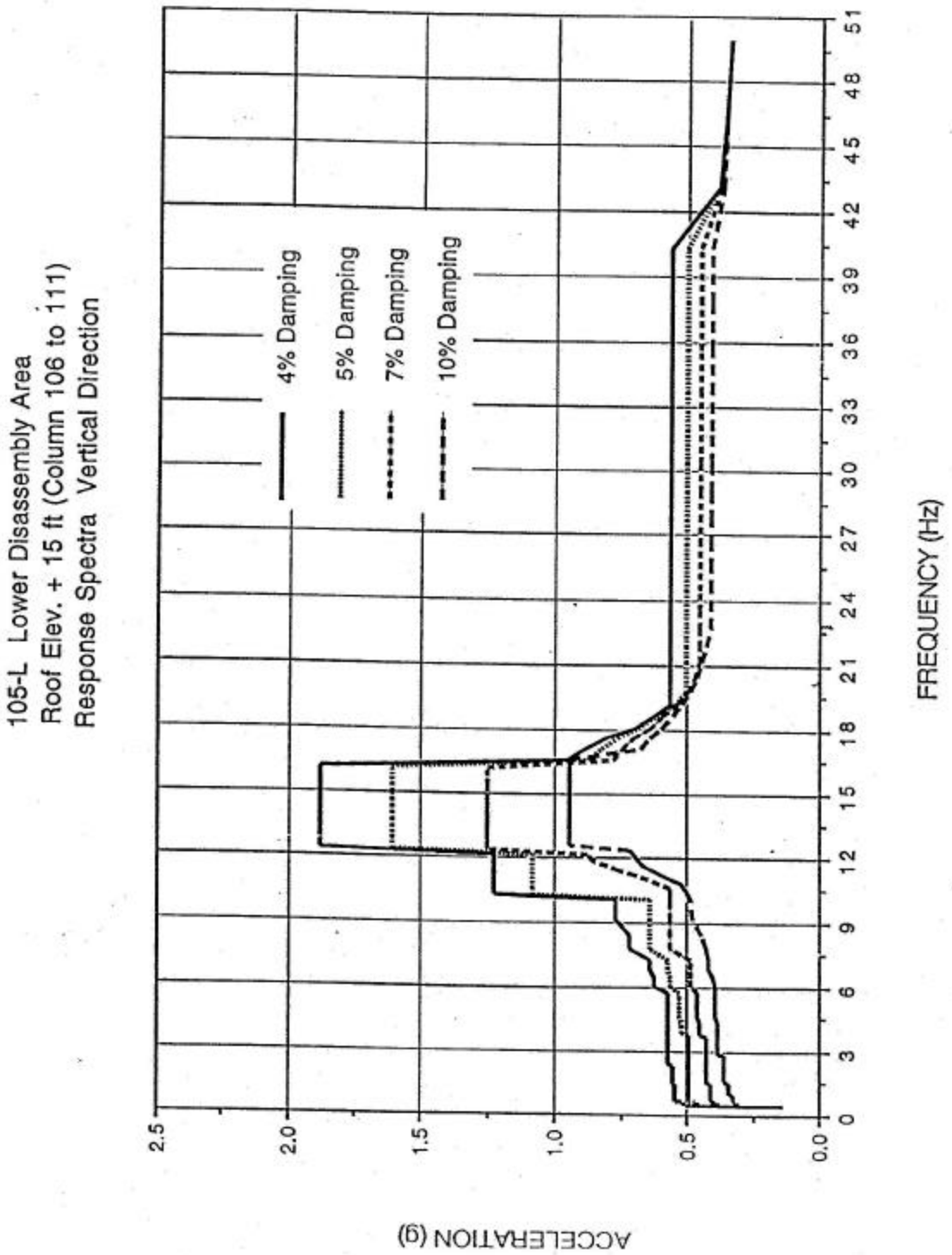

105-L Lower Disassembly Area
Roof Elev. + 15 ft (Column 106 to 111)
Response Spectra Vertical Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
2.5
2.0
1.5
1.0
0.5
0.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51
FREQUENCY (Hz)

TABLE C-5

105-L LOWER DISASSEMBLY AREA (Column 106 to 111)
Elev. +15 ft Roof RESPONSE SPECTRA
VERTICAL DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.190	0.179	0.159	0.137
0.510	0.218	0.200	0.171	0.147
0.521	0.499	0.450	0.374	0.161
0.568	0.499	0.450	0.374	0.300
0.581	0.499	0.450	0.374	0.300
0.595	0.520	0.472	0.396	0.316
0.610	0.520	0.472	0.396	0.316
0.694	0.520	0.472	0.396	0.316
0.758	0.549	0.492	0.407	0.325
0.926	0.549	0.492	0.407	0.325
0.962	0.549	0.492	0.407	0.325
1.000	0.549	0.492	0.407	0.325
1.078	0.549	0.492	0.407	0.344
1.088	0.549	0.492	0.407	0.344
1.133	0.549	0.492	0.407	0.344
1.144	0.549	0.492	0.407	0.344
1.156	0.549	0.492	0.407	0.344
1.168	0.549	0.492	0.407	0.344
1.520	0.549	0.492	0.407	0.344
1.541	0.557	0.495	0.407	0.344
1.946	0.557	0.495	0.423	0.359
1.980	0.557	0.495	0.423	0.359
2.262	0.557	0.495	0.423	0.359
2.309	0.557	0.495	0.423	0.359
2.358	0.557	0.495	0.423	0.359
2.410	0.557	0.495	0.423	0.359
2.463	0.572	0.498	0.423	0.359
2.519	0.572	0.498	0.423	0.359
3.077	0.572	0.498	0.431	0.381
3.165	0.572	0.498	0.431	0.381
3.571	0.572	0.498	0.431	0.381
3.690	0.572	0.498	0.431	0.381
3.817	0.572	0.498	0.452	0.381
3.953	0.572	0.517	0.452	0.385
4.425	0.576	0.517	0.452	0.385
4.608	0.576	0.532	0.463	0.390
4.808	0.576	0.532	0.463	0.390
5.814	0.576	0.532	0.463	0.390
6.135	0.623	0.564	0.489	0.390
6.494	0.623	0.564	0.489	0.402
6.897	0.641	0.575	0.489	0.421
7.353	0.641	0.575	0.489	0.422
7.874	0.715	0.644	0.559	0.428
8.475	0.715	0.644	0.559	0.444
9.174	0.764	0.644	0.559	0.476
10.000	0.764	0.644	0.559	0.486
10.331	1.221	1.073	0.559	0.492
10.504	1.221	1.073	0.559	0.500
10.684	1.221	1.073	0.564	0.509
10.870	1.221	1.073	0.609	0.524
11.062	1.221	1.073	0.651	0.562
11.261	1.221	1.073	0.702	0.596
11.468	1.221	1.073	0.756	0.628
11.682	1.221	1.073	0.804	0.664
11.905	1.221	1.073	0.853	0.685
12.136	1.221	1.073	0.866	0.702
12.376	1.675	1.605	1.245	0.714
12.626	1.675	1.605	1.245	0.939
13.736	1.675	1.605	1.245	0.939
14.045	1.675	1.605	1.245	0.939
14.368	1.675	1.605	1.245	0.939
14.706	1.675	1.605	1.245	0.939
33.784	0.567	0.504	0.456	0.412
35.714	0.567	0.504	0.456	0.412
37.879	0.567	0.504	0.456	0.412
40.323	0.567	0.504	0.456	0.412
43.103	0.362	0.360	0.376	0.371
46.296	0.356	0.356	0.356	0.355
50.000	0.338	0.339	0.341	0.343

FIGURE C-6

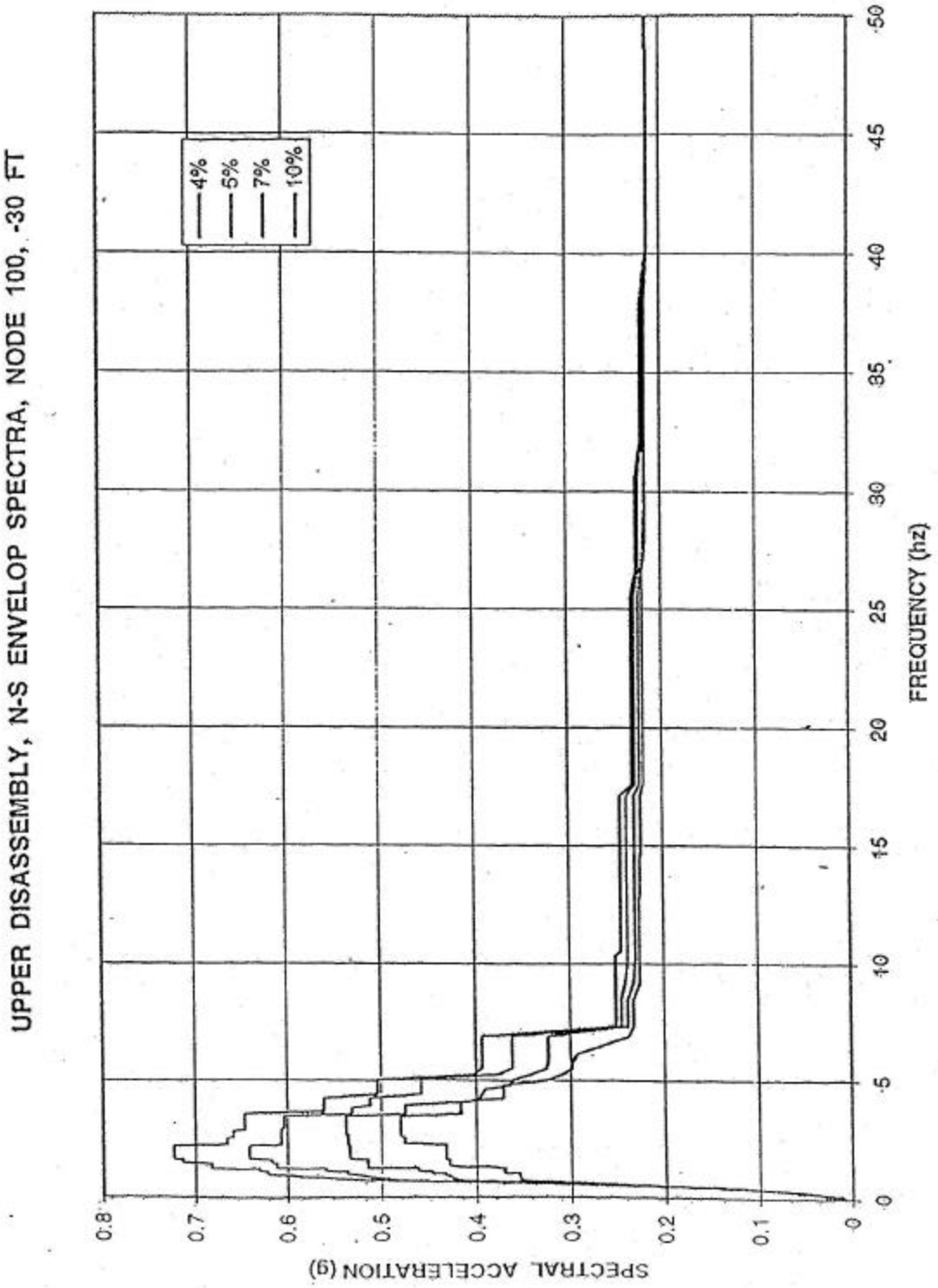

UPPER DISASSEMBLY, N-S ENVELOP SPECTRA, NODE 100, -30 FT
4%
5%
7%
10%
SPECTRAL ACCELERATION (g)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
FREQUENCY (hz)
0
5
10
15
20
25
30
35
40
45
50

TABLE C-6

Upper Disassembly, envelop spectra, N-S , node 250, EL -30 , broadened 15%

Frequency	4%	5%	7%	10%
.100	.0104	.0103	.0102	.0099
.104	.0104	.0103	.0102	.0100
.108	.0112	.0111	.0110	.0109
.112	.0123	.0122	.0119	.0117
.117	.0134	.0132	.0129	.0124
.122	.0157	.0153	.0148	.0141
.128	.0296	.0277	.0247	.0164
.134	.0296	.0277	.0247	.0189
.140	.0296	.0277	.0247	.0208
.148	.0296	.0277	.0247	.0215
.156	.0296	.0277	.0247	.0216
.166	.0297	.0285	.0265	.0241
.176	.0346	.0331	.0305	.0273
.188	.0358	.0343	.0316	.0296
.202	.0595	.0552	.0485	.0326
.217	.0595	.0552	.0485	.0383
.236	.0595	.0552	.0485	.0417
.258	.0595	.0552	.0485	.0459
.284	.0595	.0552	.0512	.0504
.316	.0846	.0783	.0685	.0588
.357	.0881	.0830	.0750	.0720
.410	.1189	.1122	.1044	.0978
.481	.2175	.2068	.1884	.1673
.581	.3546	.3243	.2945	.2578
.735	.5242	.4794	.4184	.3532
1.000	.6215	.5370	.4343	.3553
1.000	.6215	.5370	.4343	.3553
1.009	.6215	.5370	.4343	.3553
1.018	.6215	.5370	.4343	.3553
1.028	.6215	.5370	.4470	.3709
1.037	.6215	.5370	.4470	.3709
1.047	.6215	.5370	.4470	.3709
1.057	.6215	.5370	.4470	.3709
1.067	.6215	.5370	.4470	.3709
1.078	.6215	.5370	.4470	.3709
1.088	.6215	.5370	.4470	.3709
1.099	.6215	.5370	.4470	.3709
1.110	.6215	.5370	.4470	.3709
1.121	.6307	.5602	.4618	.3709
1.133	.6307	.5602	.4618	.3709
1.144	.6307	.5602	.4618	.3709
1.156	.6307	.5602	.4618	.3709
1.168	.6307	.5602	.4618	.3709
1.181	.6307	.5602	.4618	.3709
1.193	.6307	.5602	.4618	.3709
1.206	.6307	.5602	.4618	.3709
1.220	.6307	.5602	.4618	.3709
1.233	.6831	.5602	.4618	.3709
1.247	.6831	.6121	.4618	.3709
1.261	.6831	.6121	.5145	.3726
1.276	.6831	.6121	.5145	.3804
1.290	.6831	.6121	.5145	.3868
1.305	.6831	.6121	.5145	.3926
1.321	.6831	.6121	.5145	.4282
1.337	.6831	.6121	.5145	.4282
1.353	.6831	.6121	.5145	.4282
1.370	.6831	.6121	.5145	.4282
1.387	.6831	.6121	.5145	.4282
1.404	.6831	.6121	.5145	.4282
1.422	.6831	.6121	.5145	.4282
1.441	.6831	.6121	.5145	.4282
1.460	.6831	.6121	.5145	.4282
1.479	.7142	.6121	.5145	.4282
1.499	.7142	.6176	.5145	.4282
1.520	.7142	.6176	.5145	.4282
1.541	.7142	.6176	.5145	.4282
1.562	.7142	.6176	.5145	.4282
1.585	.7142	.6176	.5145	.4282
1.608	.7142	.6176	.5145	.4282
1.631	.7142	.6176	.5145	.4318
1.656	.7235	.6421	.5340	.4318
1.681	.7235	.6421	.5340	.4318
1.706	.7235	.6421	.5340	.4318
1.733	.7235	.6421	.5340	.4318
1.761	.7235	.6421	.5340	.4318
1.789	.7235	.6421	.5340	.4318
1.818	.7235	.6421	.5340	.4318
1.848	.7235	.6421	.5340	.4318
1.880	.7235	.6421	.5340	.4318
1.912	.7235	.6421	.5340	.4318
1.946	.7235	.6421	.5340	.4318
1.980	.7235	.6421	.5340	.4318
2.016	.7235	.6421	.5340	.4318
2.053	.7235	.6421	.5340	.4318
2.092	.7235	.6421	.5340	.4318
2.132	.7235	.6421	.5340	.4318
2.174	.7235	.6421	.5340	.4318
2.217	.7235	.6421	.5340	.4318
2.262	.6658	.6071	.5357	.4318
2.309	.6658	.6071	.5357	.4760
2.358	.6658	.6071	.5357	.4760
2.410	.6658	.6071	.5357	.4760
2.463	.6658	.6071	.5357	.4760
2.519	.6658	.6071	.5357	.4760
2.577	.6590	.6071	.5357	.4760
2.639	.6590	.6071	.5357	.4799
2.703	.6590	.6071	.5376	.4799
2.770	.6590	.6071	.5376	.4799
2.841	.6590	.6071	.5376	.4799
2.915	.6463	.6071	.5376	.4799
2.994	.6463	.6037	.5376	.4799
3.077	.6463	.6037	.5376	.4799
3.165	.6463	.6037	.5376	.4799
3.257	.6463	.6037	.5376	.4799
3.356	.6463	.6037	.5376	.4799
3.460	.6463	.6037	.5376	.4799
3.571	.6463	.5317	.4749	.4165
3.690	.5610	.5317	.4749	.4165
3.817	.5610	.5317	.4749	.4165
3.953	.5610	.5120	.4749	.4165
4.098	.5610	.5120	.4077	.4165
4.255	.5610	.5120	.3960	.3717
4.425	.5037	.4581	.3939	.3717
4.608	.5037	.4581	.3904	.3717
4.808	.5037	.4581	.3639	.3717
5.025	.5037	.4581	.3610	.3249
5.263	.4019	.3777	.3425	.3098
5.525	.3929	.3616	.3255	.2986
5.814	.3929	.3616	.3232	.2982
6.135	.3929	.3616	.3232	.2934
6.494	.3929	.3616	.3232	.2672
6.897	.3929	.3616	.3232	.2385
7.353	.2519	.2461	.2390	.2334
7.874	.2519	.2461	.2390	.2334
8.475	.2519	.2461	.2390	.2334
9.174	.2519	.2418	.2326	.2263
10.000	.2519	.2392	.2310	.2261
10.000	.2519	.2392	.2310	.2261
10.163	.2519	.2392	.2309	.2261
10.331	.2519	.2392	.2309	.2261
10.504	.2455	.2392	.2309	.2261
10.684	.2455	.2392	.2309	.2261
10.870	.2455	.2392	.2309	.2261
11.062	.2455	.2392	.2309	.2261
11.261	.2455	.2392	.2309	.2261
11.468	.2455	.2392	.2309	.2261
11.682	.2455	.2392	.2309	.2261
11.905	.2455	.2392	.2309	.2261
12.136	.2455	.2392	.2309	.2261
12.376	.2455	.2392	.2309	.2261
12.626	.2455	.2392	.2309	.2261
12.887	.2455	.2392	.2309	.2249
13.158	.2455	.2392	.2309	.2249
13.441	.2455	.2392	.2309	.2249
13.736	.2455	.2392	.2309	.2249
14.045	.2455	.2392	.2309	.2249
14.368	.2455	.2392	.2309	.2249
14.706	.2455	.2392	.2309	.2239
15.060	.2455	.2392	.2309	.2239
15.432	.2455	.2392	.2309	.2239
15.823	.2455	.2392	.2309	.2239
16.234	.2455	.2392	.2309	.2239
16.667	.2455	.2392	.2309	.2239
17.123	.2455	.2392	.2309	.2239
17.606	.2328	.2294	.2246	.2206
18.116	.2328	.2294	.2246	.2206
18.657	.2328	.2294	.2246	.2206
19.231	.2328	.2294	.2246	.2206
19.841	.2328	.2294	.2246	.2206
20.492	.2328	.2294	.2246	.2206
21.186	.2328	.2294	.2246	.2206
21.930	.2328	.2294	.2246	.2206
22.727	.2328	.2294	.2246	.2206
23.585	.2328	.2294	.2246	.2206
24.510	.2328	.2294	.2246	.2206
25.510	.2328	.2294	.2246	.2206
26.596	.2273	.2247	.2213	.2206
27.778	.2273	.2247	.2190	.2166
29.070	.2273	.2247	.2180	.2166
30.488	.2273	.2247	.2180	.2166
32.051	.2216	.2200	.2180	.2166
33.784	.2216	.2200	.2180	.2166
35.714	.2216	.2200	.2180	.2166
37.879	.2216	.2200	.2180	.2166
40.323	.2148	.2144	.2141	.2140
43.103	.2148	.2144	.2141	.2140
46.296	.2148	.2144	.2141	.2140
50.000	.2154	.2153	.2152	.2149

FIGURE C-7

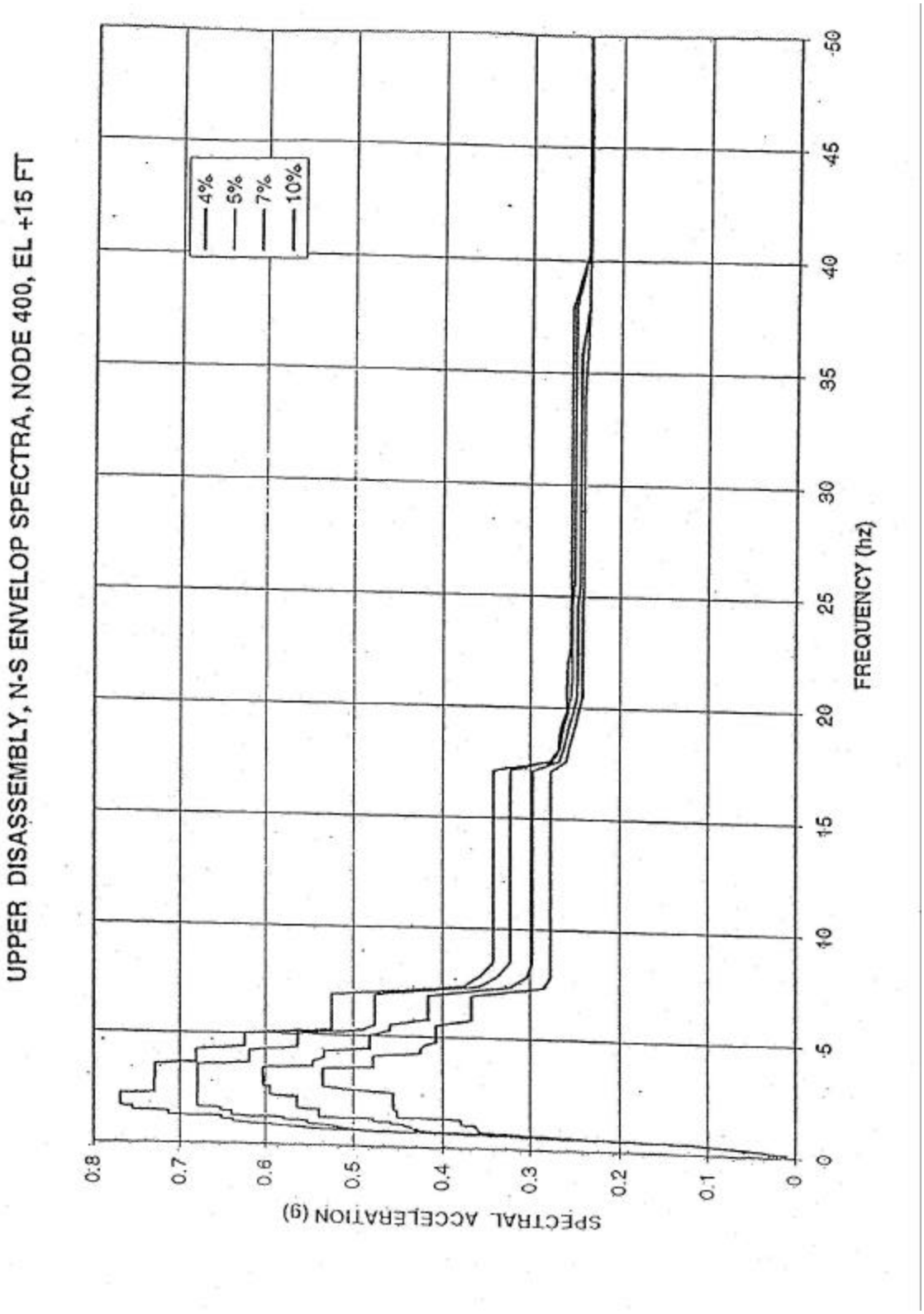

UPPER DISASSEMBLY, N-S ENVELOP SPECTRA, NODE 400, EL +15 FT
4%
5%
7%
10%
SPECTRAL ACCELERATION (g)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
FREQUENCY (hz)
0
5
10
15
20
25
30
35
40
45
50

TABLE C-7

Upper Disassembly, envelop spectra, N-S , node 400, EL + 15 , broadened 15%

Frequency	4%	5%	7%	10%
.100	.0105	.0104	.0102	.0100
.104	.0105	.0104	.0102	.0101
.108	.0112	.0112	.0111	.0110
.112	.0124	.0123	.0120	.0118
.117	.0135	.0133	.0129	.0125
.122	.0157	.0154	.0148	.0141
.128	.0297	.0278	.0247	.0165
.134	.0297	.0278	.0247	.0189
.140	.0297	.0278	.0247	.0209
.148	.0297	.0278	.0247	.0215
.156	.0297	.0278	.0247	.0217
.166	.0298	.0286	.0266	.0243
.176	.0347	.0332	.0306	.0275
.188	.0359	.0344	.0318	.0298
.202	.0596	.0554	.0487	.0328
.217	.0596	.0554	.0487	.0385
.236	.0596	.0554	.0487	.0418
.258	.0596	.0554	.0487	.0461
.284	.0596	.0554	.0515	.0507
.316	.0849	.0785	.0687	.0591
.357	.0886	.0835	.0757	.0726
.410	.1200	.1133	.1051	.0990
.481	.2191	.2084	.1899	.1687
.581	.3571	.3270	.2970	.2600
.735	.5311	.4850	.4233	.3575
1.000	.6384	.5520	.4443	.3637
1.000	.6384	.5520	.4443	.3637
1.009	.6384	.5520	.4443	.3637
1.018	.6384	.5520	.4443	.3637
1.028	.6384	.5520	.4573	.3637
1.037	.6384	.5520	.4573	.3793
1.047	.6384	.5520	.4573	.3793
1.057	.6384	.5520	.4573	.3793
1.067	.6384	.5520	.4573	.3793
1.078	.6384	.5520	.4573	.3793
1.088	.6384	.5520	.4573	.3793
1.099	.6384	.5520	.4573	.3793
1.110	.6384	.5520	.4573	.3793
1.121	.6519	.5790	.4778	.3793
1.133	.6519	.5790	.4778	.3793
1.144	.6519	.5790	.4778	.3793
1.156	.6519	.5790	.4778	.3793
1.168	.6519	.5790	.4778	.3793
1.181	.6519	.5790	.4778	.3793
1.193	.6519	.5790	.4778	.3793
1.206	.6519	.5790	.4778	.3793
1.220	.6519	.5790	.4778	.3793
1.233	.6519	.5790	.4778	.3793
1.247	.7134	.6399	.4778	.3805
1.261	.7134	.6399	.5390	.3829
1.276	.7134	.6399	.5390	.3912
1.290	.7134	.6399	.5390	.3978
1.305	.7134	.6399	.5390	.4041
1.321	.7134	.6399	.5390	.4501
1.337	.7134	.6399	.5390	.4501
1.353	.7134	.6399	.5390	.4501
1.370	.7134	.6399	.5390	.4501
1.387	.7134	.6399	.5390	.4501
1.404	.7134	.6399	.5390	.4501
1.422	.7134	.6399	.5390	.4501
1.441	.7162	.6399	.5390	.4501
1.460	.7162	.6399	.5390	.4501
1.479	.7544	.6399	.5390	.4501
1.499	.7544	.6533	.5390	.4501
1.520	.7544	.6533	.5390	.4501
1.541	.7544	.6533	.5390	.4501
1.562	.7544	.6533	.5390	.4501
1.585	.7544	.6533	.5390	.4501
1.608	.7544	.6533	.5390	.4501
1.631	.7544	.6533	.5390	.4501
1.656	.7689	.6800	.5640	.4543
1.681	.7689	.6800	.5640	.4543
1.706	.7689	.6800	.5640	.4543
1.733	.7689	.6800	.5640	.4543
1.761	.7689	.6800	.5640	.4543
1.789	.7689	.6800	.5640	.4543
1.818	.7689	.6800	.5640	.4543
1.848	.7689	.6800	.5640	.4543
1.880	.7689	.6800	.5640	.4543
1.912	.7689	.6800	.5640	.4543
1.946	.7689	.6800	.5640	.4543
1.980	.7689	.6800	.5640	.4548
2.016	.7689	.6800	.5640	.4548
2.053	.7689	.6800	.5640	.4548
2.092	.7689	.6800	.5640	.4548
2.132	.7689	.6800	.5640	.4548
2.174	.7689	.6800	.5640	.4548
2.217	.7689	.6800	.5949	.4548
2.262	.7302	.6796	.5949	.4548
2.309	.7302	.6796	.5949	.4548
2.358	.7302	.6796	.5949	.4548
2.410	.7302	.6796	.5949	.4548
2.463	.7302	.6796	.5949	.4718
2.519	.7302	.6796	.5949	.4982
2.577	.7302	.6796	.5949	.5147
2.639	.7302	.6796	.6032	.5347
2.703	.7302	.6796	.6032	.5347
2.770	.7302	.6796	.6032	.5347
2.841	.7302	.6796	.6032	.5347
2.915	.7290	.6796	.6032	.5347
2.994	.7290	.6796	.6032	.5347
3.077	.7290	.6796	.6032	.5347
3.165	.7290	.6796	.6032	.5347
3.257	.7290	.6796	.6032	.5347
3.356	.7290	.6796	.6032	.5347
3.460	.7290	.6796	.6032	.5347
3.571	.7290	.6796	.5459	.4779
3.690	.6815	.6185	.5459	.4779
3.817	.6815	.6185	.5459	.4779
3.953	.6815	.6185	.5331	.4779
4.098	.6815	.6185	.5331	.4779
4.255	.6815	.6185	.5331	.4243
4.425	.6245	.5633	.4819	.4243
4.608	.6245	.5633	.4819	.4192
4.808	.6245	.5633	.4819	.4071
5.025	.6245	.5633	.4819	.4071
5.263	.5243	.4898	.4580	.4071
5.525	.5243	.4758	.4580	.4071
5.814	.5243	.4758	.4153	.3669
6.135	.5243	.4758	.4153	.3669
6.494	.5243	.4758	.4153	.3669
6.897	.5243	.4758	.4153	.3669
7.353	.3762	.3565	.3226	.2847
7.874	.3552	.3360	.3031	.2772
8.475	.3415	.3224	.2975	.2772
9.174	.3415	.3224	.2975	.2772
10.000	.3415	.3224	.2975	.2772
10.000	.3415	.3224	.2975	.2772
10.163	.3415	.3224	.2975	.2772
10.331	.3415	.3224	.2975	.2772
10.504	.3415	.3224	.2975	.2772
10.684	.3415	.3224	.2975	.2772
10.870	.3415	.3224	.2975	.2772
11.062	.3415	.3224	.2975	.2772
11.261	.3415	.3224	.2975	.2772
11.468	.3415	.3224	.2975	.2772
11.682	.3415	.3224	.2975	.2772
11.905	.3415	.3224	.2975	.2772
12.136	.3415	.3224	.2975	.2772
12.376	.3415	.3224	.2975	.2772
12.626	.3415	.3224	.2975	.2772
12.887	.3415	.3224	.2975	.2772
13.158	.3415	.3224	.2975	.2772
13.441	.3415	.3224	.2975	.2772
13.736	.3415	.3224	.2975	.2772
14.045	.3415	.3224	.2975	.2772
14.368	.3415	.3224	.2975	.2772
14.706	.3415	.3224	.2975	.2772
15.060	.3415	.3224	.2975	.2772
15.432	.3415	.3224	.2975	.2772
15.823	.3415	.3224	.2975	.2772
16.234	.3415	.3224	.2975	.2772
16.667	.3415	.3224	.2975	.2772
17.123	.3415	.3224	.2975	.2772
17.606	.2782	.2745	.2684	.2772
18.116	.2691	.2676	.2636	.2573
18.657	.2681	.2652	.2602	.2538
19.231	.2654	.2621	.2565	.2501
19.841	.2596	.2572	.2525	.2466
20.492	.2595	.2549	.2484	.2423
21.186	.2591	.2541	.2480	.2421
21.930	.2582	.2541	.2480	.2421
22.727	.2550	.2541	.2480	.2421
23.585	.2550	.2541	.2480	.2421
24.510	.2550	.2541	.2480	.2421
25.510	.2550	.2509	.2453	.2410
26.596	.2550	.2509	.2453	.2410
27.778	.2550	.2509	.2453	.2410
29.070	.2550	.2509	.2453	.2410
30.488	.2550	.2509	.2453	.2410
32.051	.2550	.2509	.2453	.2410
33.784	.2550	.2509	.2453	.2410
35.714	.2550	.2509	.2453	.2385
37.879	.2550	.2509	.2366	.2359
40.323	.2372	.2367	.2362	.2357
43.103	.2372	.2367	.2362	.2357
46.296	.2372	.2367	.2362	.2357
50.000	.2372	.2370	.2369	.2366

FIGURE C-8

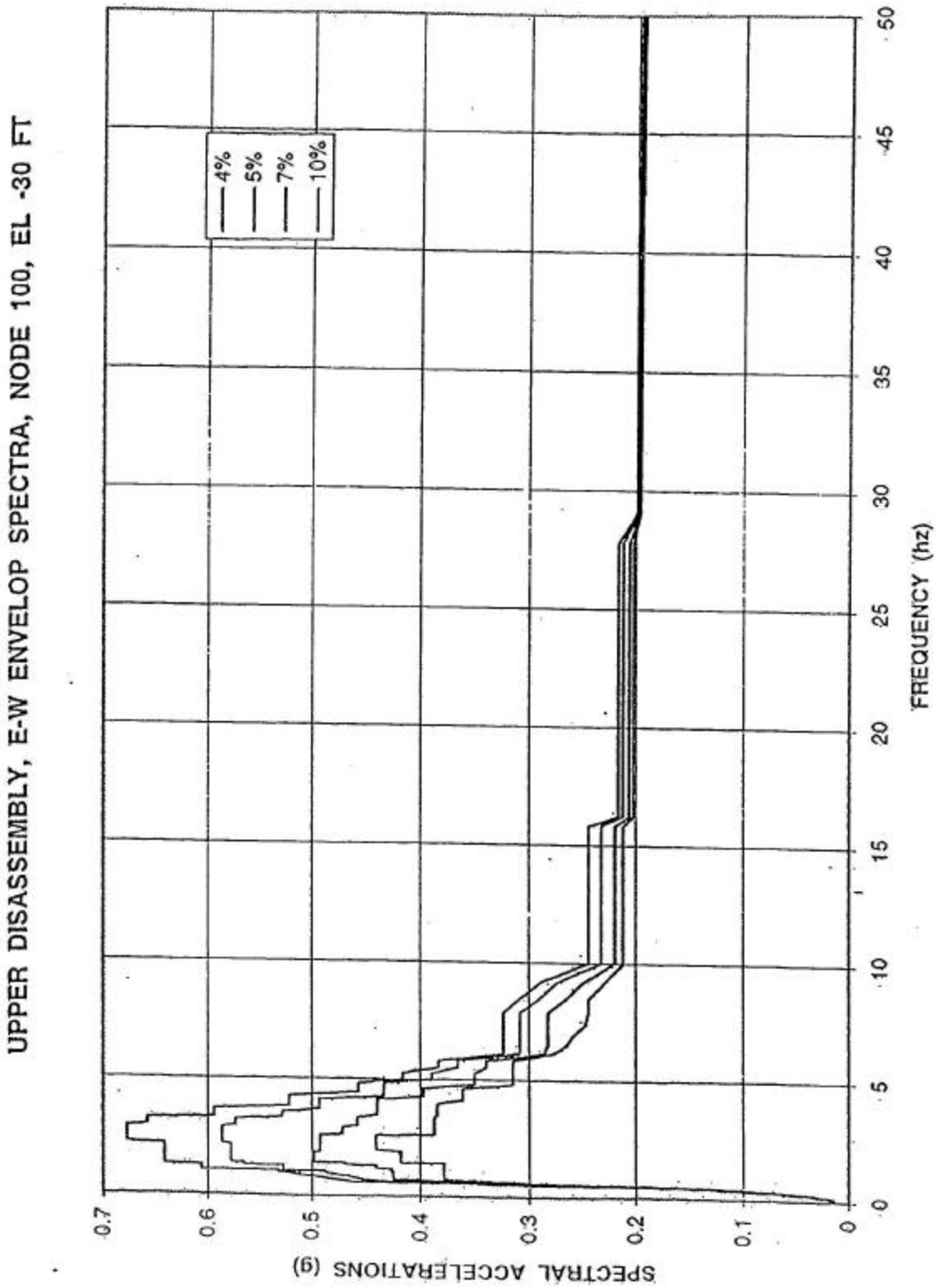

UPPER DISASSEMBLY, E-W ENVELOP SPECTRA, NODE 100, EL -30 FT
4%
5%
7%
10%
SPECTRAL ACCELERATIONS (g)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
FREQUENCY (hz)
0
5
10
15
20
25
30
35
40
45
50

TABLE C-8

Upper Disassembly, envelop spectra, E-W , node 100, EL - 30, broadened 15%

Frequency	4%	5%	7%	10%
.100	.0149	.0146	.0142	.0138
.104	.0175	.0169	.0159	.0150
.108	.0175	.0169	.0159	.0150
.112	.0175	.0169	.0159	.0150
.117	.0175	.0169	.0159	.0150
.122	.0175	.0169	.0159	.0150
.128	.0175	.0169	.0159	.0150
.134	.0175	.0169	.0159	.0160
.140	.0175	.0171	.0170	.0171
.148	.0186	.0201	.0197	.0181
.156	.0197	.0201	.0197	.0189
.166	.0204	.0201	.0197	.0193
.176	.0204	.0201	.0197	.0194
.188	.0352	.0339	.0319	.0238
.202	.0352	.0339	.0319	.0267
.217	.0352	.0339	.0319	.0304
.236	.0352	.0339	.0319	.0333
.258	.0630	.0599	.0474	.0442
.284	.0630	.0599	.0550	.0499
.316	.0630	.0599	.0572	.0538
.357	.0915	.0876	.0820	.0765
.410	.1280	.1200	.1093	.1007
.481	.2129	.2017	.1848	.1676
.581	.4609	.4157	.3475	.2876
.735	.4833	.4554	.4249	.3779
1.000	.5321	.4872	.4249	.3779
1.000	.5321	.4872	.4249	.3779
1.009	.5321	.4872	.4249	.3779
1.018	.5321	.4872	.4249	.3779
1.028	.5321	.4872	.4249	.3779
1.037	.5321	.4872	.4265	.3779
1.047	.5321	.4872	.4265	.3779
1.057	.5321	.5271	.4265	.3779
1.067	.6064	.5271	.4265	.3779
1.078	.6064	.5271	.4265	.3779
1.088	.6064	.5271	.4265	.3779
1.099	.6064	.5271	.4265	.3779
1.110	.6064	.5271	.4265	.3779
1.121	.6064	.5271	.4265	.3779
1.133	.6064	.5271	.4265	.3779
1.144	.6064	.5271	.4265	.3779
1.156	.6064	.5271	.4265	.3779
1.168	.6064	.5271	.4407	.3779
1.181	.6064	.5271	.4407	.3779
1.193	.6064	.5271	.4407	.3779
1.206	.6064	.5271	.4407	.3779
1.220	.6064	.5271	.4407	.3779
1.233	.6064	.5271	.4407	.3779
1.247	.6064	.5271	.4407	.3779
1.261	.6064	.5271	.4407	.3779
1.276	.6064	.5271	.4407	.3779
1.290	.6064	.5271	.4407	.3779
1.305	.6416	.5657	.4407	.3779
1.321	.6416	.5657	.4689	.3779
1.337	.6416	.5657	.4689	.3779
1.353	.6416	.5657	.4689	.3779
1.370	.6416	.5657	.4689	.3779
1.387	.6416	.5657	.4689	.3779
1.404	.6416	.5778	.4689	.3779
1.422	.6416	.5778	.4979	.4184
1.441	.6416	.5778	.4979	.4184
1.460	.6416	.5778	.4979	.4184
1.479	.6416	.5778	.4979	.4184
1.499	.6416	.5778	.4979	.4184
1.520	.6416	.5778	.4979	.4184
1.541	.6416	.5778	.4979	.4184
1.562	.6416	.5778	.4979	.4184
1.585	.6416	.5778	.4979	.4184
1.608	.6416	.5778	.4979	.4184
1.631	.6416	.5778	.4979	.4184
1.656	.6416	.5778	.4979	.4184
1.681	.6416	.5778	.4979	.4184
1.706	.6416	.5778	.4979	.4184
1.733	.6416	.5778	.4979	.4184
1.761	.6416	.5778	.4979	.4184
1.789	.6416	.5778	.4979	.4184
1.818	.6416	.5778	.4979	.4184
1.848	.6416	.5778	.4979	.4184
1.880	.6416	.5778	.4919	.4184
1.912	.6416	.5778	.4919	.4184
1.946	.6416	.5778	.4919	.4405
1.980	.6416	.5778	.4919	.4405
2.016	.6416	.5778	.4919	.4405
2.053	.6416	.5778	.4919	.4405
2.092	.6416	.5778	.4919	.4405
2.132	.6416	.5778	.4919	.4405
2.174	.6416	.5778	.4919	.4405
2.217	.6772	.5864	.4919	.4405
2.262	.6772	.5864	.4919	.4405
2.309	.6772	.5864	.4919	.4405
2.358	.6772	.5864	.4919	.4405
2.410	.6772	.5864	.4919	.4405
2.463	.6772	.5864	.4919	.4405
2.519	.6772	.5864	.4919	.4405
2.577	.6772	.5864	.4919	.4405
2.639	.6772	.5864	.4716	.3873
2.703	.6772	.5864	.4716	.3873
2.770	.6772	.5864	.4716	.3873
2.841	.6772	.5864	.4716	.3873
2.915	.6772	.5864	.4716	.3873
2.994	.6579	.5740	.4577	.3873
3.077	.6579	.5740	.4577	.3873
3.165	.6579	.5740	.4577	.3873
3.257	.6579	.5740	.4577	.3873
3.356	.5942	.5283	.4577	.3873
3.460	.5942	.5283	.4391	.3844
3.571	.5942	.5283	.4391	.3844
3.690	.5942	.4930	.4391	.3844
3.817	.5216	.4930	.4391	.3844
3.953	.5216	.4930	.4391	.3844
4.098	.5216	.4930	.4391	.3611
4.255	.5216	.4332	.3977	.3611
4.425	.4570	.4332	.3977	.3611
4.608	.4570	.4332	.3977	.3611
4.808	.4570	.4332	.3504	.3156
5.025	.4165	.3893	.3504	.3156
5.263	.4165	.3893	.3504	.3156
5.525	.3829	.3655	.3402	.3156
5.814	.3829	.3655	.3402	.3156
6.135	.3245	.3085	.2850	.2767
6.494	.3245	.3085	.2816	.2646
6.897	.3245	.3085	.2816	.2588
7.353	.3245	.3085	.2816	.2476
7.874	.3245	.3085	.2816	.2443
8.475	.3084	.2890	.2645	.2441
9.174	.2883	.2732	.2492	.2291
10.000	.2439	.2322	.2195	.2117
10.000	.2439	.2322	.2195	.2117
10.163	.2439	.2322	.2195	.2117
10.331	.2439	.2322	.2195	.2117
10.504	.2439	.2322	.2195	.2117
10.684	.2439	.2322	.2195	.2117
10.870	.2439	.2322	.2195	.2117
11.062	.2439	.2322	.2195	.2117
11.261	.2439	.2322	.2195	.2117
11.468	.2439	.2322	.2195	.2117
11.682	.2439	.2322	.2195	.2117
11.905	.2439	.2322	.2195	.2117
12.136	.2439	.2322	.2195	.2117
12.376	.2439	.2322	.2195	.2117
12.626	.2439	.2322	.2195	.2117
12.887	.2439	.2322	.2195	.2117
13.158	.2439	.2322	.2195	.2117
13.441	.2439	.2322	.2195	.2117
13.736	.2439	.2322	.2195	.2117
14.045	.2439	.2322	.2195	.2117
14.368	.2439	.2322	.2195	.2117
14.706	.2439	.2322	.2195	.2117
15.060	.2439	.2322	.2195	.2117
15.432	.2439	.2322	.2195	.2117
15.823	.2439	.2322	.2195	.2117
16.234	.2169	.2123	.2195	.2117
16.667	.2169	.2123	.2066	.2023
17.123	.2169	.2123	.2066	.2023
17.606	.2169	.2123	.2066	.2023
18.116	.2169	.2123	.2066	.2023
18.657	.2169	.2123	.2066	.2023
19.231	.2169	.2123	.2066	.2023
19.841	.2169	.2123	.2066	.2023
20.492	.2169	.2123	.2066	.2023
21.186	.2169	.2123	.2066	.2023
21.930	.2169	.2123	.2066	.2023
22.727	.2169	.2123	.2066	.2023
23.585	.2169	.2123	.2066	.2023
24.510	.2169	.2123	.2066	.2023
25.510	.2169	.2123	.2066	.2023
26.596	.2169	.2123	.2066	.2023
27.778	.2169	.2123	.2066	.2023
29.070	.1997	.1983	.1967	.1963
30.488	.1997	.1983	.1967	.1957
32.051	.1997	.1983	.1967	.1957
33.784	.1997	.1983	.1967	.1957
35.714	.1997	.1983	.1967	.1957
37.879	.1997	.1983	.1967	.1957
40.323	.1997	.1983	.1967	.1957
43.103	.1969	.1965	.1958	.1952
46.296	.1969	.1965	.1958	.1952
50.000	.1969	.1965	.1958	.1946

FIGURE C-9

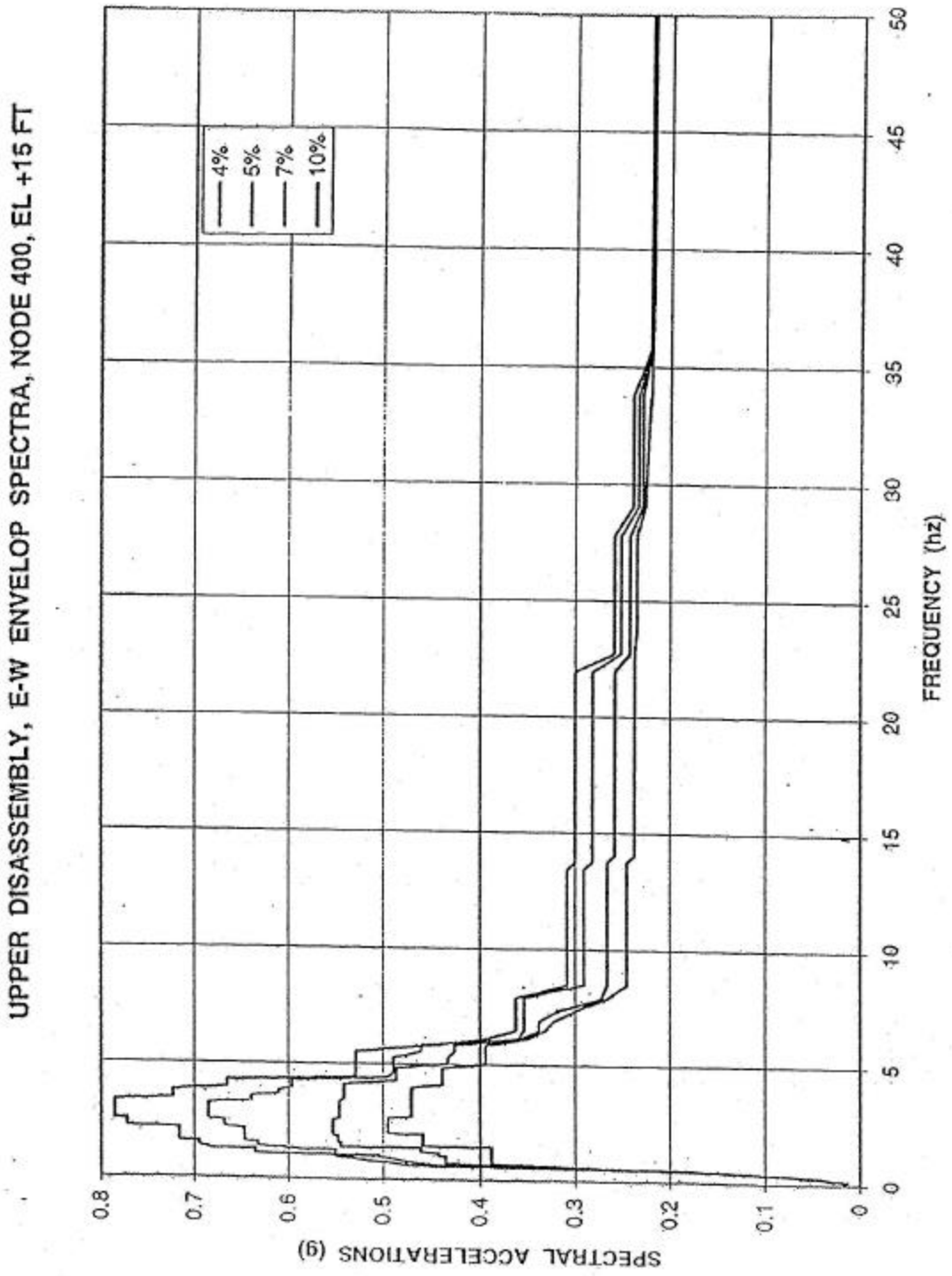

UPPER DISASSEMBLY, E-W ENVELOP SPECTRA, NODE 400, EL +15 FT
4%
5%
7%
10%
SPECTRAL ACCELERATIONS (g)
FREQUENCY (hz)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
5
10
15
20
25
30
35
40
45
50

TABLE C-9

Upper Disassembly, envelop spectra, E-W , node 400, EL + 15 , broadened 15%

Frequency	4%	5%	7%	10%
.100	.0150	.0147	.0142	.0139
.104	.0176	.0170	.0160	.0139
.108	.0176	.0170	.0160	.0142
.112	.0176	.0170	.0160	.0144
.117	.0176	.0170	.0160	.0149
.122	.0176	.0170	.0160	.0151
.128	.0176	.0170	.0160	.0151
.134	.0176	.0170	.0160	.0163
.140	.0176	.0173	.0173	.0174
.148	.0188	.0204	.0200	.0197
.156	.0199	.0204	.0200	.0197
.166	.0206	.0204	.0200	.0197
.176	.0355	.0204	.0200	.0197
.188	.0355	.0341	.0321	.0240
.202	.0355	.0341	.0321	.0271
.217	.0355	.0341	.0321	.0306
.236	.0355	.0341	.0321	.0336
.258	.0630	.0599	.0476	.0443
.284	.0630	.0599	.0551	.0500
.316	.0630	.0599	.0574	.0542
.357	.0923	.0885	.0829	.0775
.410	.1296	.1216	.1109	.1024
.481	.2155	.2042	.1873	.1702
.581	.4675	.4217	.3524	.2921
.735	.4950	.4671	.4356	.3879
1.000	.5518	.5051	.4356	.3879
1.000	.5518	.5051	.4356	.3879
1.009	.5518	.5051	.4356	.3879
1.018	.5518	.5051	.4356	.3879
1.028	.5518	.5051	.4356	.3879
1.037	.5518	.5051	.4433	.3879
1.047	.5518	.5051	.4433	.3879
1.057	.5518	.5503	.4433	.3879
1.067	.6353	.5503	.4433	.3879
1.078	.6353	.5503	.4433	.3879
1.088	.6353	.5503	.4433	.3879
1.099	.6353	.5503	.4433	.3879
1.110	.6353	.5503	.4433	.3879
1.121	.6353	.5503	.4433	.3879
1.133	.6353	.5503	.4433	.3879
1.144	.6353	.5503	.4433	.3879
1.156	.6353	.5503	.4433	.3879
1.168	.6353	.5503	.4618	.3879
1.181	.6353	.5503	.4618	.3879
1.193	.6353	.5503	.4618	.3879
1.206	.6353	.5503	.4618	.3879
1.220	.6353	.5503	.4618	.3879
1.233	.6353	.5503	.4618	.3879
1.247	.6353	.5503	.4618	.3879
1.261	.6353	.5503	.4618	.3879
1.276	.6807	.5503	.4618	.3879
1.290	.6807	.5503	.4618	.3879
1.305	.6857	.6040	.4618	.3879
1.321	.6857	.6040	.4618	.3879
1.337	.6857	.6040	.4618	.3879
1.353	.6857	.6040	.4618	.3879
1.370	.6857	.6040	.4618	.3879
1.387	.6857	.6040	.4618	.3879
1.404	.6952	.6324	.5452	.3879
1.422	.6952	.6324	.5452	.3879
1.441	.6952	.6324	.5452	.4598
1.460	.6952	.6324	.5452	.4598
1.479	.6952	.6324	.5452	.4598
1.499	.6952	.6324	.5452	.4598
1.520	.6952	.6324	.5452	.4598
1.541	.6952	.6324	.5452	.4598
1.562	.6952	.6324	.5452	.4598
1.585	.6952	.6324	.5452	.4598
1.608	.7164	.6465	.5477	.4598
1.631	.7164	.6465	.5477	.4598
1.656	.7164	.6465	.5477	.4598
1.681	.7164	.6465	.5477	.4598
1.706	.7164	.6465	.5477	.4598
1.733	.7164	.6465	.5477	.4598
1.761	.7164	.6465	.5477	.4598
1.789	.7164	.6465	.5477	.4598
1.818	.7164	.6465	.5477	.4598
1.848	.7164	.6465	.5477	.4598
1.880	.7164	.6465	.5477	.4598
1.912	.7164	.6465	.5527	.4598
1.946	.7164	.6465	.5527	.4598
1.980	.7164	.6465	.5527	.4958
2.016	.7164	.6465	.5532	.4958
2.053	.7164	.6465	.5532	.4958
2.092	.7164	.6465	.5532	.4958
2.132	.7164	.6465	.5532	.4958
2.174	.7164	.6465	.5532	.4958
2.217	.7723	.6683	.5532	.4958
2.262	.7723	.6683	.5532	.4958
2.309	.7723	.6683	.5532	.4958
2.358	.7723	.6683	.5532	.4958
2.410	.7723	.6683	.5532	.4958
2.463	.7723	.6683	.5532	.4958
2.519	.7723	.6683	.5532	.4958
2.577	.7856	.6855	.5532	.4958
2.639	.7856	.6855	.5468	.4958
2.703	.7856	.6855	.5468	.4714
2.770	.7856	.6855	.5468	.4714
2.841	.7856	.6855	.5468	.4714
2.915	.7856	.6855	.5468	.4714
2.994	.7856	.6855	.5468	.4714
3.077	.7856	.6855	.5468	.4714
3.165	.7856	.6855	.5468	.4714
3.257	.7856	.6855	.5468	.4714
3.356	.7856	.6391	.5468	.4714
3.460	.7228	.6391	.5418	.4714
3.571	.7228	.6391	.5418	.4714
3.690	.7228	.6106	.5418	.4714
3.817	.7228	.6106	.5418	.4714
3.953	.6653	.5967	.5418	.4714
4.098	.6653	.5967	.5418	.4390
4.255	.6653	.5967	.4870	.4390
4.425	.5287	.4937	.4870	.4390
4.608	.5287	.4897	.4870	.4390
4.808	.5287	.4897	.4870	.4390
5.025	.5287	.4897	.4331	.3936
5.263	.5287	.4897	.4331	.3936
5.525	.5287	.4614	.4261	.3936
5.814	.4494	.4614	.4261	.3936
6.135	.3928	.3599	.3576	.3500
6.494	.3623	.3529	.3378	.3314
6.897	.3623	.3529	.3373	.3208
7.353	.3623	.3529	.3164	.3002
7.874	.3623	.3529	.2733	.2675
8.475	.3079	.2905	.2665	.2460
9.174	.3079	.2905	.2665	.2460
10.000	.3079	.2905	.2665	.2460
10.000	.3079	.2905	.2665	.2460
10.163	.3079	.2905	.2665	.2460
10.331	.3079	.2905	.2665	.2460
10.504	.3079	.2905	.2665	.2460
10.684	.3079	.2905	.2665	.2460
10.870	.3079	.2905	.2665	.2460
11.062	.3079	.2905	.2665	.2460
11.261	.3079	.2905	.2665	.2460
11.468	.3079	.2905	.2665	.2460
11.682	.3079	.2905	.2665	.2460
11.905	.3079	.2905	.2665	.2460
12.136	.3079	.2905	.2665	.2460
12.376	.3079	.2905	.2665	.2460
12.626	.3079	.2905	.2665	.2460
12.887	.3079	.2905	.2665	.2460
13.158	.3079	.2905	.2665	.2460
13.441	.3079	.2905	.2665	.2460
13.736	.3002	.2822	.2665	.2460
14.045	.3002	.2822	.2588	.2381
14.368	.3002	.2822	.2588	.2381
14.706	.3002	.2822	.2588	.2381
15.060	.3002	.2822	.2588	.2381
15.432	.3002	.2822	.2588	.2381
15.823	.3002	.2822	.2588	.2381
16.234	.3002	.2822	.2588	.2381
16.667	.3002	.2822	.2588	.2381
17.123	.3002	.2822	.2588	.2381
17.606	.3002	.2822	.2588	.2381
18.116	.3002	.2822	.2588	.2381
18.657	.3002	.2822	.2588	.2381
19.231	.3002	.2822	.2588	.2381
19.841	.3002	.2822	.2588	.2381
20.492	.3002	.2822	.2588	.2381
21.186	.3002	.2822	.2588	.2381
21.930	.3002	.2822	.2588	.2381
22.727	.2596	.2522	.2588	.2381
23.585	.2596	.2522	.2428	.2355
24.510	.2596	.2522	.2428	.2355
25.510	.2596	.2522	.2428	.2355
26.596	.2596	.2522	.2428	.2355
27.778	.2596	.2522	.2428	.2355
29.070	.2396	.2342	.2297	.2266
30.488	.2396	.2342	.2297	.2250
32.051	.2396	.2342	.2297	.2234
33.784	.2396	.2342	.2297	.2208
35.714	.2210	.2203	.2198	.2196
37.879	.2210	.2203	.2194	.2186
40.323	.2210	.2203	.2194	.2186
43.103	.2210	.2203	.2194	.2186
46.296	.2210	.2203	.2194	.2186
50.000	.2210	.2203	.2194	.2186

FIGURE C-10

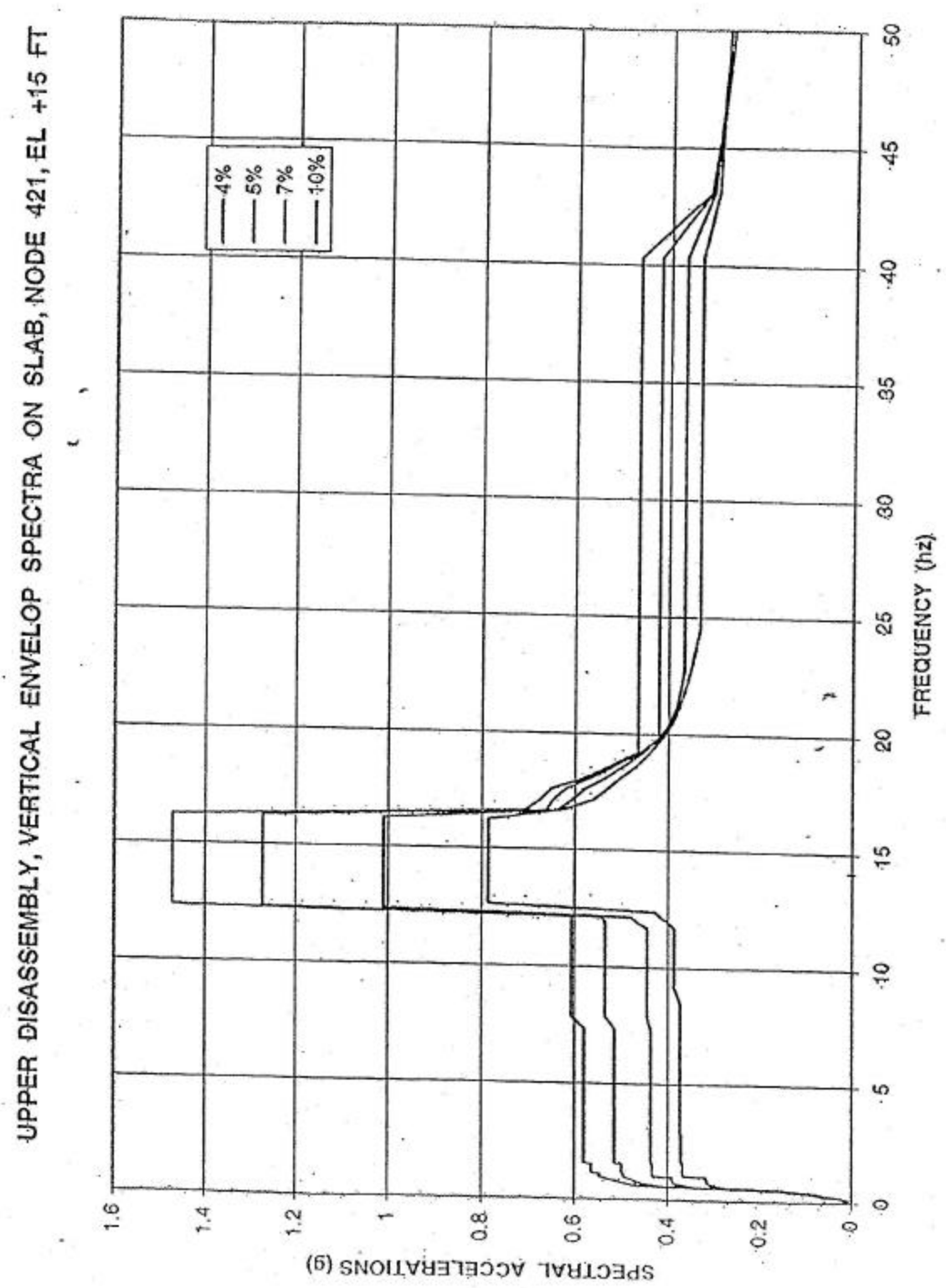

UPPER DISASSEMBLY, VERTICAL ENVELOP SPECTRA ON SLAB, NODE 421, EL +15 FT
4%
5%
7%
10%
SPECTRAL ACCELERATIONS (g)
FREQUENCY (hz)
0
.2
.4
.6
.8
1
1.2
1.4
1.6
0
5
10
15
20
25
30
35
40
45
50

TABLE C-10

Upper Disassembly, Vert Envelop Spectra, on slab/beam node, broadened 15%

Frequency	4%	5%	7%	10%
.100	.0098	.0096	.0092	.0088
.104	.0098	.0096	.0092	.0094
.108	.0100	.0100	.0100	.0103
.112	.0109	.0109	.0110	.0111
.117	.0119	.0118	.0119	.0121
.122	.0130	.0130	.0131	.0132
.128	.0144	.0143	.0144	.0144
.134	.0159	.0159	.0158	.0158
.140	.0178	.0177	.0175	.0173
.148	.0197	.0195	.0192	.0189
.156	.0215	.0212	.0209	.0206
.166	.0232	.0231	.0228	.0224
.176	.0259	.0257	.0254	.0248
.188	.0306	.0302	.0291	.0278
.202	.0362	.0351	.0331	.0306
.217	.0390	.0377	.0355	.0329
.236	.0630	.0592	.0436	.0398
.258	.0630	.0592	.0528	.0455
.284	.0630	.0592	.0547	.0504
.316	.0800	.0754	.0681	.0621
.357	.0976	.0942	.0882	.0800
.410	.1303	.1238	.1130	.1004
.481	.1558	.1541	.1447	.1272
.581	.4657	.4212	.3534	.2865
.735	.5032	.4611	.3889	.3152
1.000	.5485	.4969	.3919	.3190
1.000	.5485	.4969	.3919	.3190
1.009	.5485	.4969	.4345	.3190
1.018	.5485	.4969	.4345	.3692
1.028	.5485	.4969	.4345	.3692
1.037	.5485	.4969	.4345	.3692
1.047	.5485	.4969	.4345	.3692
1.057	.5485	.4969	.4345	.3692
1.067	.5485	.4969	.4345	.3692
1.078	.5485	.4969	.4345	.3692
1.088	.5485	.4969	.4345	.3692
1.099	.5485	.4969	.4345	.3692
1.110	.5485	.4969	.4345	.3692
1.121	.5485	.4969	.4345	.3692
1.133	.5647	.5008	.4345	.3692
1.144	.5647	.5008	.4345	.3692
1.156	.5647	.5008	.4345	.3692
1.168	.5647	.5008	.4345	.3692
1.181	.5647	.5008	.4345	.3692
1.193	.5647	.5008	.4345	.3692
1.206	.5647	.5008	.4345	.3692
1.220	.5647	.5008	.4345	.3692
1.233	.5647	.5008	.4345	.3692
1.247	.5647	.5008	.4345	.3692
1.261	.5647	.5008	.4345	.3692
1.276	.5647	.5008	.4345	.3692
1.290	.5647	.5008	.4345	.3692
1.305	.5647	.5008	.4345	.3692
1.321	.5647	.5008	.4345	.3692
1.337	.5647	.5008	.4345	.3692
1.353	.5647	.5008	.4345	.3692
1.370	.5647	.5008	.4345	.3692
1.387	.5647	.5008	.4345	.3692
1.404	.5647	.5008	.4345	.3692
1.422	.5647	.5008	.4345	.3692
1.441	.5647	.5008	.4345	.3692
1.460	.5647	.5008	.4345	.3692
1.479	.5647	.5008	.4345	.3692
1.499	.5647	.5008	.4345	.3692
1.520	.5647	.5008	.4345	.3692
1.541	.5800	.5158	.4345	.3692
1.562	.5800	.5158	.4378	.3692
1.585	.5800	.5158	.4378	.3728
1.608	.5800	.5158	.4378	.3728
1.631	.5800	.5158	.4378	.3728
1.656	.5800	.5158	.4378	.3728
1.681	.5800	.5158	.4378	.3728
1.706	.5800	.5158	.4378	.3728
1.733	.5800	.5158	.4378	.3728
1.761	.5800	.5158	.4378	.3728
1.789	.5800	.5158	.4378	.3728
1.818	.5800	.5158	.4378	.3728
1.848	.5800	.5158	.4378	.3728
1.880	.5800	.5158	.4378	.3728
1.912	.5800	.5158	.4378	.3728
1.946	.5800	.5158	.4378	.3728
1.980	.5800	.5158	.4378	.3728
2.016	.5800	.5158	.4378	.3728
2.053	.5800	.5158	.4378	.3728
2.092	.5800	.5158	.4378	.3728
2.132	.5800	.5158	.4378	.3728
2.174	.5800	.5158	.4378	.3728
2.217	.5800	.5158	.4378	.3728
2.262	.5800	.5158	.4378	.3728
2.309	.5800	.5158	.4378	.3728
2.358	.5800	.5158	.4378	.3728
2.410	.5800	.5158	.4378	.3728
2.463	.5800	.5158	.4378	.3728
2.519	.5800	.5158	.4378	.3728
2.577	.5800	.5158	.4378	.3728
2.639	.5800	.5158	.4378	.3728
2.703	.5800	.5158	.4378	.3728
2.770	.5800	.5158	.4378	.3728
2.841	.5800	.5158	.4378	.3728
2.915	.5800	.5158	.4378	.3738
2.994	.5800	.5158	.4378	.3738
3.077	.5800	.5158	.4378	.3738
3.165	.5800	.5158	.4378	.3738
3.257	.5800	.5158	.4378	.3738
3.356	.5800	.5158	.4378	.3738
3.460	.5800	.5158	.4378	.3738
3.571	.5800	.5158	.4378	.3738
3.690	.5800	.5158	.4378	.3738
3.817	.5800	.5158	.4378	.3738
3.953	.5800	.5158	.4378	.3738
4.098	.5800	.5158	.4378	.3738
4.255	.5800	.5158	.4378	.3738
4.425	.5800	.5158	.4378	.3738
4.608	.5800	.5158	.4378	.3738
4.808	.5800	.5158	.4378	.3738
5.025	.5800	.5158	.4378	.3738
5.263	.5800	.5158	.4378	.3738
5.525	.5800	.5158	.4378	.3738
5.814	.5800	.5158	.4378	.3738
6.135	.5800	.5158	.4378	.3738
6.494	.5800	.5158	.4378	.3738
6.897	.5800	.5158	.4378	.3738
7.353	.5800	.5158	.4378	.3738
7.874	.6062	.5356	.4451	.3738
8.475	.6062	.5356	.4451	.3738
9.174	.6062	.5356	.4451	.3876
10.000	.6062	.5356	.4451	.3876
10.000	.6062	.5356	.4451	.3876
10.163	.6062	.5356	.4451	.3876
10.331	.6062	.5356	.4451	.3876
10.504	.6062	.5356	.4451	.3876
10.684	.6062	.5356	.4451	.3876
10.870	.6062	.5356	.4451	.3876
11.062	.6062	.5356	.4451	.3876
11.261	.6062	.5356	.4451	.3876
11.468	.6062	.5356	.4451	.3876
11.682	.6062	.5356	.4451	.3876
11.905	.6062	.5356	.4660	.3984
12.136	.6062	.5453	.4793	.4157
12.376	1.4721	1.2725	1.0101	.4302
12.626	1.4721	1.2725	1.0101	.7866
12.887	1.4721	1.2725	1.0101	.7866
13.158	1.4721	1.2725	1.0101	.7866
13.441	1.4721	1.2725	1.0101	.7866
13.736	1.4721	1.2725	1.0101	.7866
14.045	1.4721	1.2725	1.0101	.7866
14.368	1.4721	1.2725	1.0101	.7866
14.706	1.4721	1.2725	1.0101	.7866
15.060	1.4721	1.2725	1.0101	.7866
15.432	1.4721	1.2725	1.0101	.7866
15.823	1.4721	1.2725	1.0101	.7866
16.234	1.4721	1.2725	1.0101	.7866
16.667	.7047	.6611	.6353	.7866
17.123	.6728	.6458	.6070	.5631
17.606	.6482	.6201	.5787	.5346
18.116	.5776	.5635	.5344	.5026
18.657	.5226	.5125	.4943	.4685
19.231	.4668	.4613	.4541	.4399
19.841	.4666	.4217	.4210	.4140
20.492	.4666	.4217	.3992	.3924
21.186	.4666	.4217	.3836	.3766
21.930	.4666	.4217	.3739	.3648
22.727	.4666	.4217	.3667	.3532
23.585	.4666	.4217	.3667	.3440
24.510	.4666	.4217	.3667	.3336
25.510	.4666	.4217	.3667	.3336
26.596	.4666	.4217	.3667	.3336
27.778	.4666	.4217	.3667	.3336
29.070	.4666	.4217	.3667	.3336
30.488	.4666	.4217	.3667	.3336
32.051	.4666	.4217	.3667	.3336
33.784	.4666	.4217	.3667	.3336
35.714	.4666	.4217	.3667	.3336
37.879	.4666	.4217	.3667	.3336
40.323	.4666	.4217	.3667	.3336
43.103	.3174	.3151	.3110	.3336
46.296	.2926	.2929	.2929	.2930
50.000	.2786	.2794	.2810	.2829

FIGURE C-11

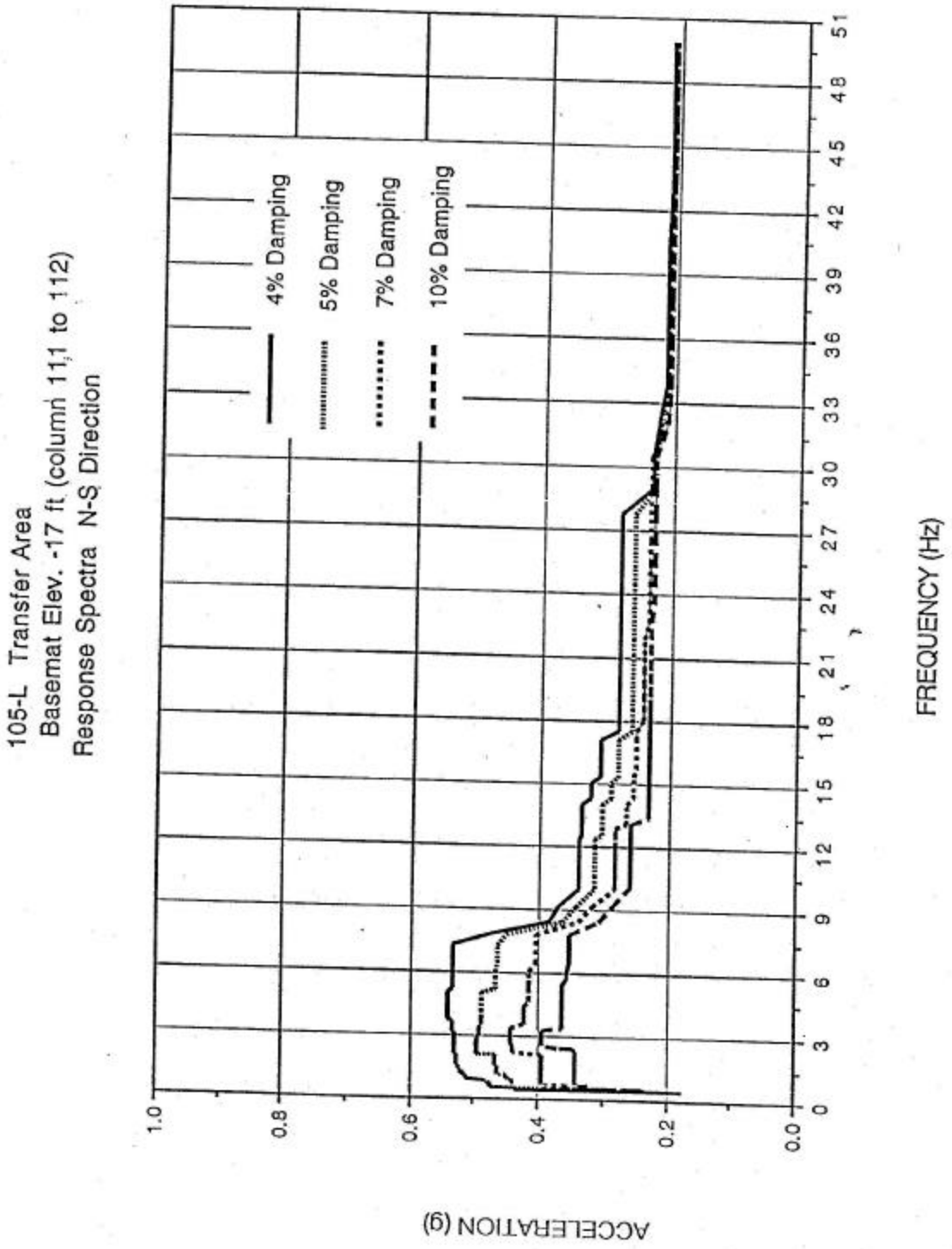

105-L Transfer Area
Basemat Elev. -17 ft. (column 111 to 112)
Response Spectra N-S Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-11

105-L TRANSFER AREA (Column 111 to 112)
Elev. -17 ft BAsemat RESPONSE SPECTRA
N-S DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.229	0.218	0.198	0.175
0.510	0.334	0.227	0.207	0.183
0.521	0.334	0.235	0.214	0.189
0.532	0.334	0.251	0.225	0.195
0.543	0.334	0.268	0.240	0.208
0.556	0.334	0.282	0.254	0.220
0.568	0.435	0.294	0.265	0.231
0.581	0.435	0.304	0.276	0.241
0.595	0.435	0.313	0.285	0.250
0.610	0.435	0.321	0.293	0.319
0.625	0.474	0.435	0.301	0.319
0.641	0.474	0.435	0.317	0.319
0.658	0.474	0.435	0.336	0.319
0.676	0.474	0.435	0.356	0.319
0.694	0.474	0.435	0.368	0.319
0.714	0.474	0.435	0.371	0.319
0.735	0.474	0.441	0.394	0.340
0.962	0.481	0.441	0.394	0.340
1.000	0.514	0.443	0.394	0.340
1.067	0.514	0.451	0.394	0.340
1.233	0.514	0.451	0.394	0.340
2.356	0.530	0.493	0.439	0.340
2.410	0.530	0.493	0.439	0.340
2.463	0.530	0.493	0.439	0.347
2.519	0.530	0.493	0.439	0.368
2.577	0.530	0.493	0.439	0.395
3.460	0.532	0.492	0.443	0.362
3.571	0.532	0.486	0.421	0.362
5.025	0.539	0.486	0.415	0.362
5.263	0.533	0.467	0.415	0.362
5.525	0.533	0.467	0.415	0.362
5.814	0.533	0.467	0.415	0.357
6.135	0.533	0.467	0.415	0.357
6.494	0.533	0.462	0.405	0.353
6.897	0.533	0.462	0.405	0.353
7.353	0.533	0.462	0.405	0.353
7.874	0.479	0.451	0.405	0.353
8.475	0.385	0.363	0.338	0.308
9.174	0.371	0.341	0.318	0.287
10.000	0.338	0.313	0.282	0.261
10.163	0.338	0.313	0.282	0.257
10.331	0.338	0.313	0.282	0.257
10.504	0.338	0.313	0.282	0.257
10.684	0.338	0.313	0.282	0.257
10.870	0.338	0.313	0.282	0.257
11.062	0.338	0.313	0.282	0.257
11.261	0.338	0.313	0.282	0.257
11.468	0.338	0.313	0.282	0.257
11.682	0.338	0.313	0.282	0.257
14.368	0.320	0.291	0.253	0.228
14.706	0.320	0.291	0.253	0.228
17.606	0.278	0.258	0.251	0.228
18.116	0.278	0.258	0.240	0.228
19.841	0.278	0.258	0.240	0.228
20.492	0.278	0.258	0.240	0.228
21.186	0.278	0.258	0.240	0.228
21.930	0.278	0.258	0.240	0.228
22.727	0.278	0.258	0.234	0.228
23.585	0.278	0.258	0.234	0.226
32.051	0.221	0.218	0.213	0.210
33.784	0.213	0.210	0.207	0.206
35.714	0.213	0.210	0.207	0.206
37.879	0.213	0.210	0.207	0.206
46.296	0.206	0.207	0.207	0.206
50.000	0.206	0.207	0.207	0.207

FIGURE C-12

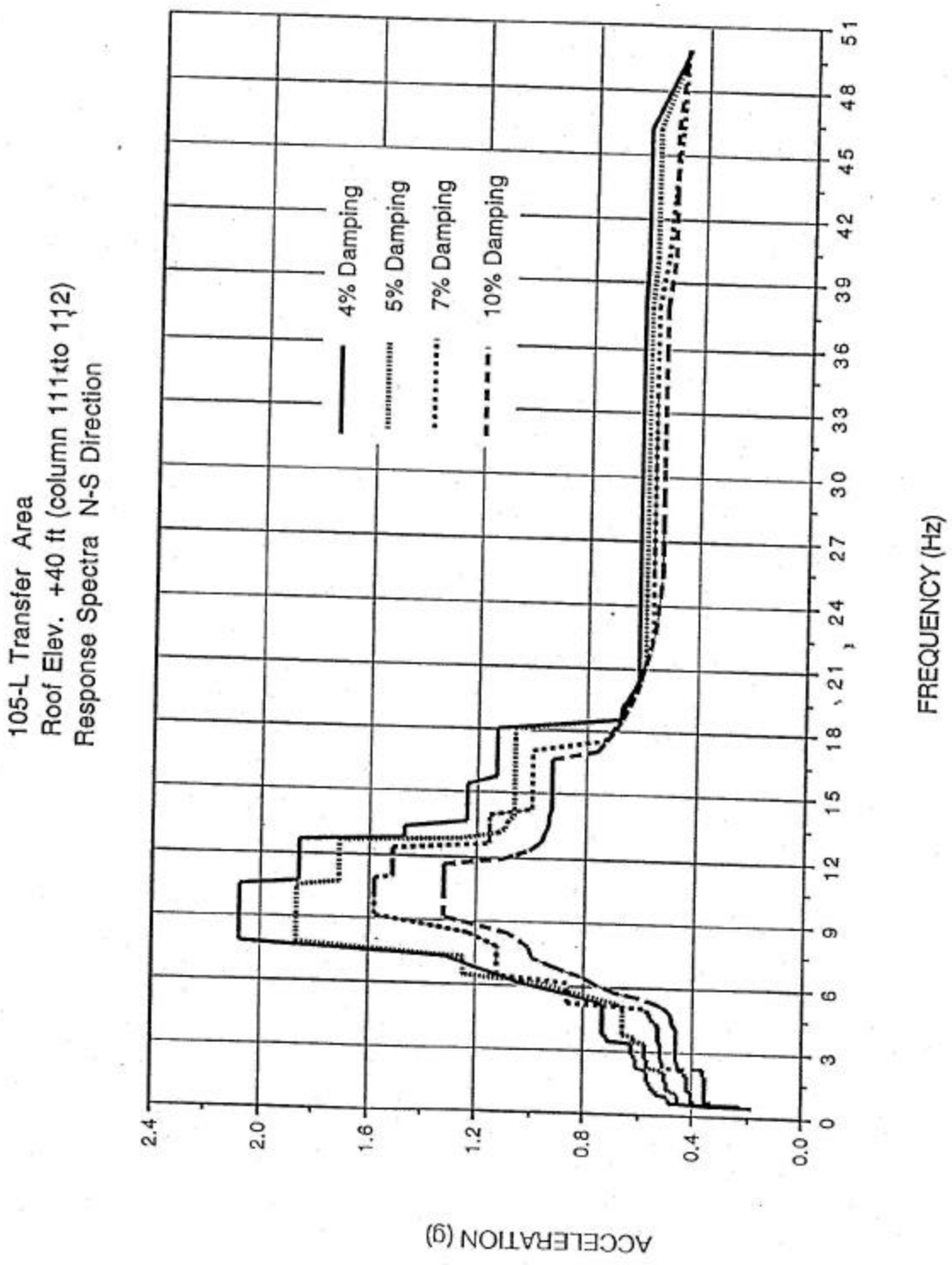

105-L Transfer Area
Roof Elev. +40 ft (column 111 to 112)
Response Spectra N-S Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.4
0.8
1.2
1.6
2.0
2.4
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-12

105-L TRANSFER AREA (Column 111 to 112)
Elev. +40 ft Roof RESPONSE SPECTRA
N-S DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.231	0.220	0.201	0.178
0.510	0.340	0.230	0.210	0.184
0.521	0.340	0.238	0.216	0.191
0.532	0.340	0.254	0.228	0.197
0.543	0.340	0.271	0.243	0.209
0.556	0.340	0.285	0.256	0.221
0.568	0.439	0.296	0.267	0.233
0.581	0.439	0.310	0.278	0.243
0.595	0.439	0.317	0.287	0.251
0.610	0.439	0.324	0.295	0.324
0.625	0.481	0.439	0.305	0.324
0.641	0.481	0.439	0.321	0.324
0.658	0.481	0.439	0.366	0.324
0.676	0.481	0.439	0.388	0.324
0.694	0.481	0.439	0.388	0.324
0.714	0.481	0.439	0.388	0.324
0.735	0.481	0.450	0.403	0.349
0.962	0.495	0.450	0.403	0.349
1.000	0.530	0.457	0.403	0.349
1.067	0.530	0.462	0.403	0.349
1.233	0.531	0.472	0.403	0.349
2.358	0.610	0.568	0.507	0.454
2.410	0.610	0.568	0.507	0.454
2.463	0.610	0.568	0.507	0.454
2.519	0.610	0.568	0.507	0.454
2.577	0.610	0.568	0.507	0.456
3.460	0.710	0.614	0.527	0.456
3.571	0.710	0.614	0.527	0.456
5.025	0.729	0.653	0.580	0.498
5.263	0.736	0.680	0.863	0.536
5.525	0.826	0.776	0.863	0.607
5.814	0.903	0.856	0.863	0.690
6.135	1.045	0.967	0.863	0.763
6.494	1.111	1.242	1.126	0.806
6.897	1.219	1.242	1.126	0.909
7.353	1.312	1.242	1.126	0.995
7.874	2.073	1.858	1.126	1.009
8.475	2.073	1.858	1.227	1.085
9.174	2.073	1.858	1.576	1.316
10.000	2.073	1.858	1.576	1.316
10.163	2.073	1.858	1.576	1.316
10.331	2.073	1.858	1.576	1.316
10.504	2.073	1.858	1.576	1.316
10.684	1.854	1.700	1.576	1.316
10.870	1.854	1.700	1.576	1.316
11.062	1.854	1.700	1.511	1.316
11.261	1.854	1.700	1.511	1.316
11.468	1.854	1.700	1.511	1.316
11.682	1.854	1.700	1.511	1.316
14.368	1.234	1.065	0.996	0.927
14.706	1.234	1.065	0.996	0.927
17.606	1.134	1.065	0.741	0.726
18.116	1.134	1.065	0.707	0.696
19.841	0.642	0.638	0.633	0.625
20.492	0.615	0.612	0.609	0.604
21.186	0.615	0.593	0.586	0.586
21.930	0.615	0.593	0.571	0.571
22.727	0.615	0.593	0.564	0.558
23.585	0.615	0.593	0.564	0.548
32.051	0.615	0.593	0.564	0.536
33.784	0.615	0.593	0.564	0.536
35.714	0.615	0.593	0.564	0.536
37.879	0.615	0.593	0.564	0.536
46.296	0.607	0.574	0.492	0.509
50.000	0.467	0.469	0.471	0.474

FIGURE C-13

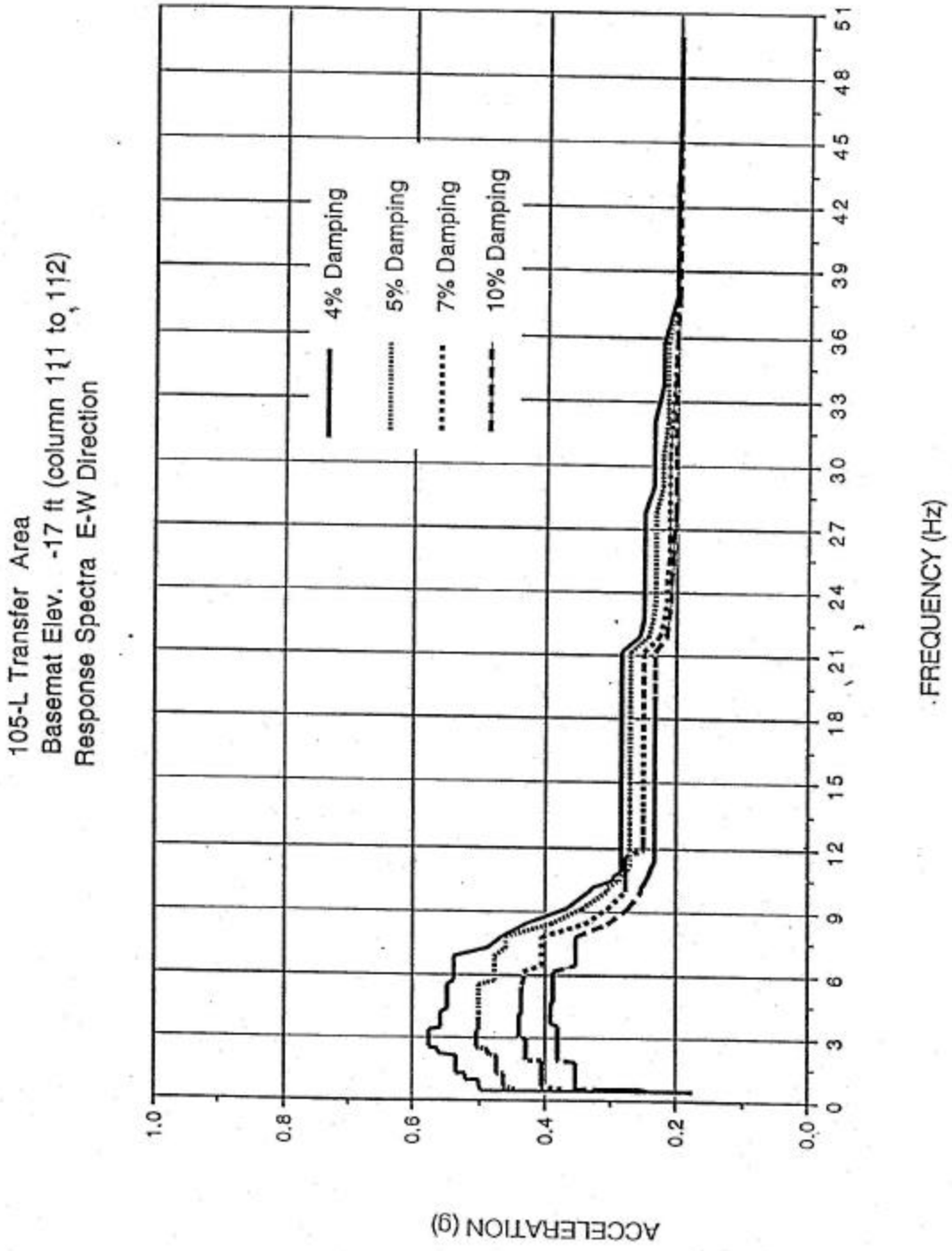

105-L Transfer Area
Basemat Elev. -17 ft (column 111 to 112)
Response Spectra E-W Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-13

105-L TRANSFER AREA (Column 111to 112)
Elev. -17 ft BAsemat RESPONSE SPECTRA
E-W DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.241	0.221	0.191	0.173
0.510	0.274	0.250	0.214	0.160
0.521	0.297	0.274	0.234	0.190
0.532	0.322	0.296	0.371	0.204
0.543	0.354	0.321	0.371	0.220
0.556	0.494	0.444	0.371	0.239
0.568	0.494	0.444	0.371	0.257
0.581	0.494	0.444	0.371	0.273
0.595	0.494	0.444	0.371	0.286
0.610	0.494	0.444	0.371	0.296
0.625	0.494	0.444	0.371	0.304
0.641	0.494	0.444	0.371	0.307
0.658	0.494	0.444	0.374	0.351
0.676	0.498	0.461	0.404	0.351
0.694	0.498	0.461	0.404	0.351
0.714	0.498	0.461	0.404	0.351
0.735	0.498	0.461	0.404	0.351
0.962	0.498	0.461	0.404	0.351
1.000	0.498	0.461	0.404	0.351
1.067	0.518	0.461	0.404	0.351
1.233	0.518	0.461	0.404	0.351
2.358	0.559	0.484	0.427	0.380
2.410	0.559	0.484	0.427	0.380
2.463	0.559	0.484	0.427	0.380
2.519	0.559	0.484	0.427	0.380
2.577	0.574	0.501	0.427	0.380
3.460	0.558	0.499	0.437	0.380
3.571	0.558	0.499	0.437	0.380
5.025	0.545	0.499	0.433	0.385
5.263	0.545	0.499	0.433	0.385
5.525	0.545	0.499	0.433	0.385
5.814	0.535	0.474	0.429	0.385
6.135	0.535	0.474	0.429	0.385
6.494	0.535	0.474	0.404	0.351
6.897	0.535	0.474	0.404	0.351
7.353	0.486	0.457	0.404	0.351
7.874	0.463	0.457	0.404	0.351
8.475	0.427	0.388	0.339	0.304
9.174	0.364	0.340	0.304	0.272
10.000	0.330	0.305	0.276	0.254
10.163	0.326	0.304	0.276	0.253
10.331	0.313	0.297	0.276	0.250
10.504	0.298	0.288	0.276	0.246
10.684	0.294	0.284	0.276	0.244
10.870	0.285	0.277	0.276	0.241
11.062	0.284	0.273	0.276	0.239
11.261	0.284	0.270	0.276	0.236
11.468	0.284	0.269	0.276	0.233
11.682	0.284	0.269	0.276	0.231
14.368	0.284	0.269	0.249	0.231
14.706	0.284	0.269	0.249	0.231
17.606	0.284	0.269	0.249	0.231
18.116	0.284	0.269	0.249	0.231
19.841	0.284	0.269	0.249	0.231
20.492	0.284	0.269	0.249	0.231
21.186	0.284	0.269	0.249	0.231
21.930	0.256	0.243	0.224	0.214
22.727	0.248	0.235	0.219	0.212
23.585	0.248	0.232	0.217	0.209
32.051	0.234	0.216	0.208	0.203
33.784	0.222	0.216	0.203	0.203
35.714	0.222	0.216	0.200	0.203
37.879	0.202	0.201	0.200	0.199
46.296	0.200	0.199	0.198	0.198
50.000	0.200	0.199	0.197	0.197

FIGURE C-14

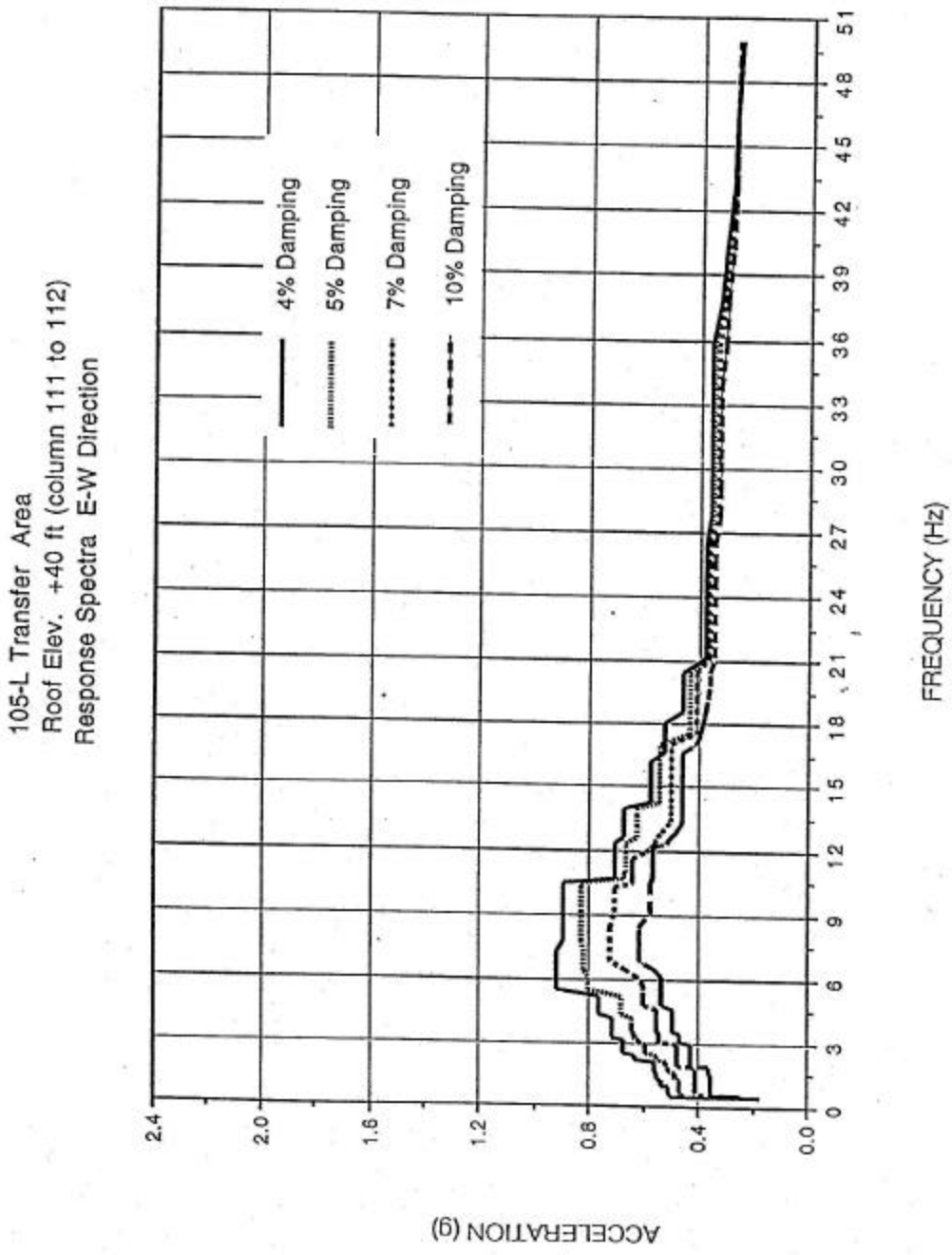
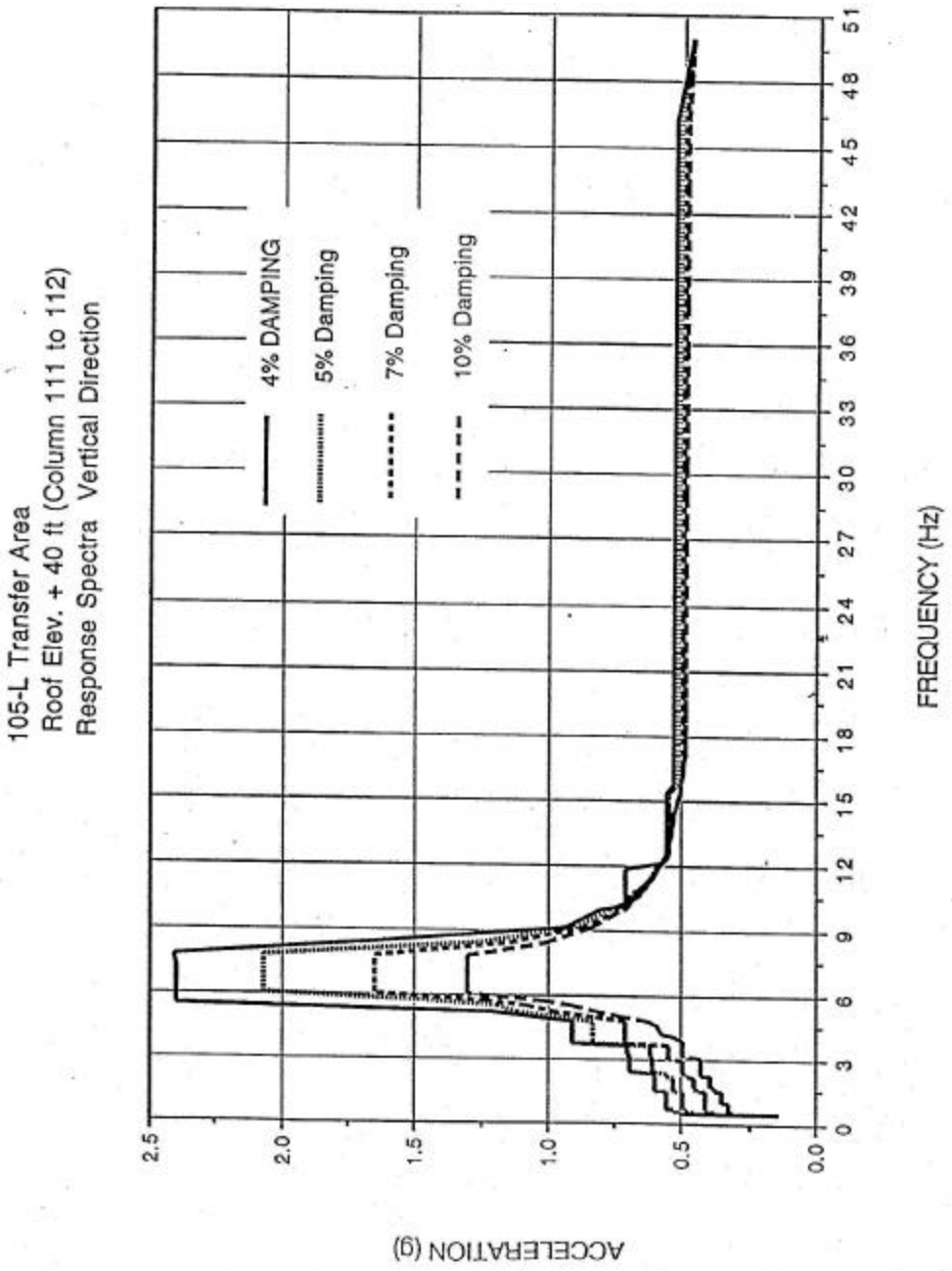

105-L Transfer Area
Roof Elev. +40 ft (column 111 to 112)
Response Spectra E-W Direction
4% Damping
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.4
0.8
1.2
1.6
2.0
2.4
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLE C-14

105-L TRANSFER AREA (Column 111 to 112)
Elev. +40 ft Roof RESPONSE SPECTRA
E-W DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.243	0.223	0.192	0.173
0.510	0.274	0.251	0.215	0.181
0.520	0.297	0.445	0.235	0.192
0.532	0.323	0.445	0.373	0.205
0.543	0.356	0.445	0.373	0.222
0.556	0.497	0.447	0.373	0.240
0.568	0.497	0.447	0.373	0.258
0.581	0.497	0.447	0.373	0.273
0.595	0.497	0.447	0.373	0.287
0.610	0.497	0.447	0.373	0.299
0.625	0.497	0.447	0.373	0.307
0.641	0.497	0.447	0.373	0.310
0.658	0.497	0.447	0.377	0.356
0.676	0.506	0.468	0.410	0.356
0.694	0.506	0.468	0.410	0.356
0.714	0.506	0.468	0.410	0.356
0.735	0.506	0.468	0.410	0.356
0.962	0.506	0.468	0.410	0.356
1.000	0.506	0.468	0.410	0.356
1.067	0.530	0.468	0.410	0.356
1.233	0.530	0.468	0.410	0.356
2.358	0.632	0.548	0.476	0.427
2.410	0.632	0.548	0.476	0.427
2.463	0.632	0.548	0.476	0.427
2.519	0.632	0.548	0.476	0.427
2.577	0.673	0.587	0.476	0.427
3.460	0.712	0.634	0.540	0.467
3.571	0.712	0.636	0.551	0.492
5.025	0.761	0.676	0.600	0.534
5.263	0.761	0.676	0.600	0.534
5.525	0.919	0.800	0.600	0.534
5.814	0.919	0.800	0.600	0.534
6.135	0.919	0.800	0.622	0.534
6.494	0.919	0.820	0.666	0.555
6.897	0.919	0.820	0.721	0.611
7.353	0.919	0.820	0.721	0.611
7.874	0.891	0.825	0.721	0.611
8.475	0.891	0.825	0.721	0.611
9.174	0.891	0.825	0.704	0.570
10.000	0.891	0.825	0.704	0.570
10.163	0.891	0.825	0.704	0.570
10.331	0.891	0.825	0.704	0.570
10.504	0.891	0.825	0.635	0.570
10.684	0.703	0.674	0.635	0.568
10.870	0.703	0.668	0.635	0.568
11.062	0.703	0.666	0.635	0.568
11.261	0.703	0.666	0.635	0.568
11.468	0.703	0.666	0.635	0.568
11.682	0.703	0.666	0.635	0.568
14.366	0.573	0.540	0.498	0.461
14.706	0.573	0.540	0.498	0.461
17.606	0.526	0.438	0.408	0.397
18.116	0.526	0.438	0.408	0.388
19.841	0.457	0.438	0.408	0.364
20.492	0.457	0.438	0.408	0.357
21.186	0.378	0.369	0.358	0.348
21.930	0.378	0.369	0.357	0.345
22.727	0.378	0.369	0.357	0.345
23.585	0.378	0.369	0.357	0.345
32.051	0.364	0.353	0.339	0.327
33.784	0.364	0.353	0.339	0.327
35.714	0.364	0.353	0.339	0.310
37.879	0.329	0.322	0.312	0.301
46.296	0.278	0.277	0.276	0.275
50.000	0.263	0.264	0.266	0.269

FIGURE C-15


105-L Transfer Area
Roof Elev. + 40 ft (Column 111 to 112)
Response Spectra Vertical Direction
4% DAMPING
5% Damping
7% Damping
10% Damping
ACCELERATION (g)
FREQUENCY (Hz)
0.0
0.5
1.0
1.5
2.0
2.5
0
3
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51

TABLC C-15

105-L TRANSFER AREA (Column 111 to 112)
Elev. +40 ft Roof RESPONSE SPECTRA
VERTICAL DIRECTION

FREQUENCY	ACCELERATION (g)			
(Hz)	4% DAMPING	5% DAMPING	7% DAMPING	10% DAMPING
0.500	0.190	0.180	0.160	0.140
0.510	0.219	0.201	0.172	0.150
0.521	0.503	0.453	0.378	0.161
0.568	0.503	0.453	0.378	0.304
0.581	0.503	0.453	0.378	0.304
0.595	0.526	0.477	0.401	0.321
0.610	0.526	0.477	0.401	0.321
0.694	0.526	0.477	0.401	0.327
0.758	0.554	0.496	0.409	0.327
0.926	0.554	0.496	0.409	0.327
0.962	0.554	0.496	0.409	0.327
1.000	0.554	0.496	0.409	0.327
1.078	0.554	0.496	0.412	0.351
1.088	0.554	0.496	0.412	0.351
1.133	0.554	0.496	0.412	0.351
1.144	0.554	0.496	0.412	0.351
1.156	0.554	0.496	0.412	0.351
1.168	0.554	0.496	0.412	0.351
1.520	0.554	0.496	0.412	0.351
1.541	0.594	0.529	0.412	0.351
1.946	0.594	0.529	0.454	0.391
1.980	0.594	0.529	0.454	0.391
2.262	0.600	0.555	0.489	0.391
2.309	0.600	0.555	0.489	0.425
2.358	0.600	0.555	0.489	0.425
2.410	0.600	0.555	0.489	0.425
2.463	0.690	0.604	0.491	0.425
2.519	0.690	0.604	0.491	0.425
3.077	0.690	0.604	0.545	0.427
3.165	0.690	0.617	0.545	0.494
3.571	0.704	0.617	0.545	0.494
3.690	0.704	0.617	0.545	0.494
3.817	0.902	0.829	0.709	0.494
3.953	0.902	0.829	0.709	0.494
4.425	0.902	0.829	0.709	0.581
4.608	0.902	0.829	0.709	0.590
4.808	0.902	0.829	0.710	0.619
5.814	2.402	1.446	1.228	1.008
6.135	2.402	2.067	1.646	1.298
6.494	2.402	2.067	1.646	1.298
6.897	2.402	2.067	1.646	1.298
7.353	2.402	2.067	1.646	1.298
7.874	2.402	2.067	1.646	1.298
8.475	1.652	1.244	1.133	1.005
9.174	0.931	0.900	0.867	0.832
10.000	0.798	0.764	0.721	0.715
10.331	0.708	0.700	0.696	0.687
10.504	0.708	0.698	0.686	0.674
10.684	0.708	0.692	0.675	0.661
10.870	0.708	0.677	0.661	0.648
11.062	0.708	0.652	0.645	0.634
11.261	0.708	0.629	0.628	0.621
11.468	0.708	0.614	0.614	0.609
11.682	0.708	0.606	0.601	0.597
11.905	0.708	0.594	0.588	0.585
12.136	0.571	0.570	0.572	0.573
12.376	0.559	0.551	0.558	0.563
12.626	0.559	0.551	0.548	0.554
13.736	0.559	0.551	0.543	0.537
14.045	0.559	0.551	0.543	0.532
14.368	0.559	0.551	0.543	0.526
14.706	0.559	0.551	0.543	0.519
33.784	0.526	0.514	0.497	0.483
35.714	0.526	0.514	0.497	0.483
37.879	0.526	0.514	0.497	0.483
40.323	0.526	0.514	0.497	0.483
43.103	0.526	0.514	0.497	0.483
46.296	0.526	0.514	0.497	0.483
50.000	0.467	0.467	0.470	0.471