VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

November 24, 1997

Mr. Carl J. Paperiello, Director
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No. 97-667
NL&OS/MAE R2
Docket No. 72-16

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (TAC NO. L22113)

Virginia Electric and Power Company (Virginia Power) submitted an application for the review and approval of a site-specific license for an independent spent fuel storage installation (ISFSI) at North Anna Power Station on May 9, 1995 (Serial No. 95-195). The NRC provided a Request for Additional Information to Virginia Power on November 4, 1997. Attached is our response to the Request for Additional Information, with the exception of item 5. The response to item 5 will be forwarded to you in separate correspondence within thirty (30) days.

Please contact us if you have any questions or require additional information.

Very truly yours,

James P. O'Hanlon

James P. O'Hanlon
Senior Vice President - Nuclear

Attachments: 1) Response to RAI
2) Soil-Structure Interaction Calculation & Analyses
3) Comparison Cases Performed with CLASSI Program
Note: Addressee not to receive Attachments 2 & 3.

Commitments made by this letter:

1. Section 7.5 of the SAR will be revised.

NF07/1

cc: Mr. J. W. Shea (Att. 1, 2, 3)
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission, Mail Stop 0-6-G-22
Washington, D. C. 20555

United States Nuclear Regulatory Commission (Att. 1, 2, 3)
Attention: Document Control Desk
Washington, D. C. 20555

Mr. M. J. Morgan (w/o Att.)
NRC Senior Resident Inspector
North Anna Power Station

ATTACHMENT 1

Response To A Request For Additional Information

NRC Question 1: Background: In your September 11, 1997, response to RAI Item 4-3, you stated:

> A generic cask with a weight and dimensions which enveloped the TN-32 cask was modeled, therefore, comparison to the TN-32 TSAR analysis was not necessary.

Request: Please further explain this statement.

Virginia Power Response:

In response to RAI Item 4-3, the above statement was made concerning re-analysis to demonstrate that the casks will not slide or tip-over as a result of the ISFSI design earthquake. The re-analysis utilized a dynamic, soil-structure interaction analysis to determine the effect of the design earthquake on the casks and concrete storage pad. A "generic" cask, 16 ft. high x 8 ft. diameter, was used for the analysis. Since cask sliding was the major concern of the re-analysis effort, the generic cask approach is considered acceptably bounding and produces more conservative factors of safety for sliding. A comparison with the generic cask modeled and the TN-32 is shown below:

PROPERTY	GENERIC CASK	TN-32	TN-32 - STABILITY ANALYSIS TSAR SECTION 2.2.3.2
Weight	230 kips	230.99 kips	228 kips
Vertical Distance to Center of Gravity, l_v	96"	92.09"	92"
Base Radial Distance to Center of Gravity, l_r	48"	43.875"	43.875"

A finite element model was used to perform the dynamic analysis. The casks were modeled as a rigid beam from the top of the concrete pad to the center of gravity of the generic casks and the translational and rotary weights of the casks were lumped at the top of the 96 inch rigid beams. This is more conservative than using the 92 inch vertical distance of the TN-32 cask and will result in slightly higher accelerations for the casks and a higher moment arm for those accelerations.

The differences in weight between the generic cask and the TN-32 cask is negligible.

The factor of safety against sliding is determined as:

$$FS = R / H$$

where:

R	=	Resistance to sliding = $(u) \times W \times (1 - Az)$
u	=	Coefficient of friction = 0.3
W	=	Weight of cask on pad
Az	=	Vertical acceleration of cask at cask center of gravity
H	=	Horizontal sliding force = $(Sx^2 + Sy^2)^{0.5}$
Sx,Sy	=	Horizontal cask forces at cask center of gravity in x,y directions
	=	$W \times Ai$, $i = x,y$; Ai = horizontal accelerations

Thus,

$$FS = 0.3(1 - Az) / (Ax^2 + Ay^2)^{0.5}$$

As can be seen, higher accelerations will result in a lower factor of safety against sliding and therefore, using the higher center of gravity of the generic casks is conservative and envelops the TN-32 cask. It should also be noted that the weight of the cask is not involved in the final calculation for the factor of safety against sliding.

Using the methodology of TSAR Section 2.2.3.2, the g value necessary to tip the cask is calculated below:

$$M_{tip} = gWl_v + (2/3)gWl_r \qquad \text{and} \qquad M_{stab} = Wl_r$$

where:

M_{tip}	=	Moment necessary to tip the cask
M_{stab}	=	Stabilizing moment on cask
g	=	Acceleration value necessary to tip the cask
W	=	Weight of cask on pad
l_v	=	Vertical distance to cask CG
l_r	=	Radial distance to cask CG

Therefore, the g value necessary to tip the cask is found by equating M_{tip} to M_{stab}:

$$(gWl_v) + (2/3)gWl_r = Wl_r$$

$g = (l_r) / (l_v + 0$ [illegible] $l_r)$

Solving for the TN-32 cask, g = 0.36.

Solving for the generic cask, g = 0.37 which is virtually the same as for the TN-32 cask.

Using the higher center of gravity of the generic casks will result in higher cask accelerations and higher overturning moments which will result in a lower factor of safety against overturning and is therefore conservative.

We therefore conclude that the generic cask used in the analysis is more conservative than using the TN-32 cask for the critical sliding analysis and is essentially equivalent to the TN-32 cask for overturning which shows significant margin to the minimum 1.1 safety factor. The lowest factor of safety for overturning is about 1.6.

NRC Question 2: Background: In your September 11, 1997, submittal you stated:

> For calculating the factor of safety for sliding, a friction coefficient of 0.3 was assumed between the SSCs and the supporting concrete slab.

However, in the TN-32 TSAR sliding analysis, a coefficient of sliding of 0.225 (sic) was used.

Request: Please justify using the less conservative value in your September 11, 1997, submittal.

Virginia Power Response:

The use of 0.3 as the coefficient of static friction is adequately conservative and consistent with existing industry standards. The TN-32 TSAR value appears to be an overly conservative application of equating static and kinetic values.

The first paragraph of the TN-32 TSAR, Section 2.2.1.2.1, states

> The cask rests in an upright position on a concrete pad. The coefficient of friction between the steel cask and the concrete may be taken as 0.25 for dry concrete. This is based on data in Mark's Handbook which gives a value of 0.29 for steel on sandstone. Steel on concrete would be similar.

The value of 0.25 was used throughout the TSAR for both the coefficient of static friction and for the coefficient of kinetic friction as indicated in TSAR Section 2.2.1.2.2 in which a cask sliding distance of 7.6 inches was determined as a result of tornado missile impact.

The coefficient of static friction is used to calculate the maximum amount of frictional force available to prevent sliding. Once sliding begins, there is lower frictional force available, and the coefficient of kinetic friction should be used. According to the textbook, "Vector Mechanics for Engineers: Statics and Dynamics," by F. P. Beer and E. R. Johnston, Jr., McGraw-Hill Book Company, 1962, the coefficient of kinetic friction is approximately 25 per cent smaller than the coefficient of static friction. Thus, using the lower value as done in the TSAR for both the static and kinetic friction values is overly conservative for the condition prior to the initiation of sliding.

In determining the value for the coefficient of static friction for Virginia Power's analysis, several references in addition to Mark's Handbook were evaluated to arrive at an appropriate, conservative value. The following table lists the additional values and references:

Coefficient of Static Friction	Reference
Metal on Stone: 0.30 - 0.70	Beer and Johnston, Vector Mechanics for Engineers: Statics and Dynamics, McGraw-Hill Book Co., 1962
Metal on Concrete: 0.30 - 0.40	Walmer, M. E., Manual of Structural Design and Engineering Solutions, Prentic-Hall, Inc., 1972
Concrete to Steel: 0.40	PCI Design Handbook, 2nd Edition, Precast Concrete Institute, 1978

In addition, Virginia Power's concrete construction specifications require a broom finish for the top surface of the concrete storage pad. This will result in a more coarse texture than a smooth, troweled finish. It is therefore concluded that a coefficient of static friction value of 0.3 is appropriate and conservative for the determination of the factor of safety against cask sliding.

NRC Question 3: Request: Please submit the latest soil-structure interaction calculations and analyses which were used for cask sliding and overturning.

Virginia Power Response:

Attachment 2 contains the soil-structure interaction calculations and analyses transmittal of final results, as well as five (5) separate calculations that were performed. Copies of the diskettes which are referenced in the calculations are available upon request.

NRC Question 4: Request: Please submit all comparison cases performed with the CLASSI program for SSI (including acceleration, displacement, etc.) by which you verified the personal computer version of the SASSI code.

Virginia Power Response:

Attachment 3 contains the requested information. The compact disk which is referenced in the calculation is available upon request.

NRC Question 6: Background: Table 2.1-2 of the TN-32 TSAR lists design limits for fuel that may be stored in the TN-32 cask. Section 2.1 of the TN-32 TSAR states:

> Fuel with various combinations of burnup, specific power, enrichment and cooling time can be stored in the TN-32 cask as long as values for decay heat and gamma and neutron sources fall within the design limits specified in Table 2.1-2.

Section 12.3.1, "Functional/Operating Limits..." of the staff SER for the TN-32 states:

> "The TN-32 shall be limited to the storage of 32 PWR fuel elements that satisfy the thermal, shielding and radiological design limits on Section 2.1 of the TSAR..."

The proposed TS for the North Anna ISFSI do not list all of the fuel characteristics listed in the above cited sections of the TSAR and the SER. Specifically, specific power, gamma source, and neutron source are not listed in the proposed TS Table 3/4-1.

Request: Please revise the proposed TS to consider the parameters or justify why they are not necessary to bound the types of fuel that you may choose to load in the TN-32 casks.

Virginia Power Response:

With the exception of maximum decay heat which cannot be measured, the proposed Technical Specifications for the North Anna ISFSI limit fuel assembly parameters that can be confirmed before cask loading by measurements recorded in fuel records. The proposed Technical Specifications limit the maximum initial fuel enrichment, maximum fuel burnup, minimum decay time after irradiation, and maximum decay heat per fuel assembly.

> The initial U235 enrichment is measured when the fuel assembly is manufactured.

The fuel assembly burnup is determined during irradiation from measured reactor power levels and measured fuel assembly relative power levels based on core flux maps.

The minimum decay time is determined based on the time between the final irradiation date for the fuel assembly and an evaluation date chosen prior to cask loading.

No practical method has been identified to measure either fuel assembly decay heat or fuel temperature during dry storage, which is the cask performance parameter that depends on decay heat. Therefore, under the proposed North Anna ISFSI Technical Specifications, the decay heat for each fuel assembly will be calculated based on its actual irradiation history or with the methodology provided in NRC Regulatory Guide DG-3010.

No practical method has been identified to measure fuel assembly gamma and neutron source terms. However, average cask external dose rate, which is the cask performance parameter that depends on source term and cask shielding, can and will be measured during cask loading and before transfer to the ISFSI. Proposed North Anna ISFSI Technical Specification 3/4.4 limits the maximum average dose rates (neutron plus gamma) for the TN-32 cask to 129 mrem/hour on the side and 54 mrem/hour on the top of the cask. The external dose rates shown in the TN-32 TSAR were increased by factors of 1.5 on the side and 2.5 on the top in order to provide for uncertainties in source term and shielding analysis and to bound variations in these parameters. These Technical Specification maximum average external dose rates were assumed in the analysis of doses to the public from the North Anna ISFSI. It is Virginia Power's position that it is more appropriate to limit measured external dose rates in the ISFSI Technical Specifications than to limit calculated source terms which can not be confirmed by measurement.

The gamma and neutron source terms are insensitive to large changes in specific power. For example, Table 2.1.2 of the TN-32 TSAR lists a core average power of 37.5 MW/MTU for the "design" case, versus the current North Anna core average power level of approximately 40 MW/MTU. A sensitivity study increasing the core average specific power from 37.5 to 45 MW/MTU increases the calculated gamma and neutron source terms by 2% and 0.5% respectively. This small increase is well within the uncertainty factors applied to the use of the TN-32 cask at the North Anna ISFSI. Because of this insensitivity and the fact that cask surface dose rates are already limited by the Technical Specifications, the specific power should not be included in the Technical Specifications.

NRC Question 7: Background: Section 7.5 of the SAR does not clearly demonstrate your basis for compliance with 72.104 (a). Section 7.5 of the SAR references Section 5.2.2 of the environmental report (ER). Section

5.2.2 of the ER references Section 5.2.1 of the ER which refers back to Section 7.5 of the SAR. None of these sections clearly articulate the assumptions and calculations used to demonstrate compliance with 72.104.

Request: Provide in a clear and concise fashion the analysis which demonstrates compliance with 72.104 (a). Clearly list all assumptions.

Virginia Power Response:

Section 7.5 of the SAR will be revised as follows:

The site plan for the North Anna ISFSI and its relative location to the North Anna Power Station are provided in Figure 2.1-3. The North Anna site within the boundary is the controlled area as defined in 10 CFR 72.

There are 299 permanent residents located within a 2-mile radius of the North Anna site boundary. The nearest permanent resident is located at 2860 feet from the ISFSI. Based on the design basis dose rate versus distance curve for a fully-loaded ISFSI (Figure 7.3-5), the maximum annual dose to the nearest resident is 2.57 mrem. Using the conservative assumption that all of the residents within two miles are located at the same distance from the ISFSI as the nearest resident, their maximum annual collective dose from the ISFSI would be:

0.00257 rem/year x 299 persons = 0.77 person-rem/year

The maximum annual dose to the nearest permanent resident from the North Anna Power Station has been estimated in Appendix 11C of the North Anna Power Station UFSAR as 2.93 mrem due to liquid effluents and 1.93 mrem due to gaseous effluents from both units. Therefore, the maximum combined radiation contribution to the nearest permanent resident from the operation of the ISFSI (2.57 mrem/yr.) and North Anna Power Station Units 1 and 2 (4.86 mrem/yr.) is 7.43 mrem/yr. This is well below the 25 mrem/yr. limit imposed by 10 CFR 72.104(a).

The North Anna ISFSI has no gaseous or liquid effluents, therefore, these do not contribute to the dose of nearby residents.

Considering the conservatisms in the above calculation and the rapid attenuation of neutron and gamma dose rates with distance, the dose for the more distant population is negligible.

Attachment 2

NRC Question 3 Requested Information

EQE INTERNATIONAL

Engineering

Risk • Safety • Design

June 13, 1997

EQE Project 100031
Correspondence 100031-O-003

Mr. John MacCrimmon
VIRGINIA POWER
Nuclear Engineering
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060

Subject: ***Transmittal of Final Results for North Anna Spent Fuel Storage Facility***

Dear John:

Attached please find the six Calculation Files documenting the soil-structure interaction analysis of the Spent Fuel Storage Facility at North Anna and the verification of the PC version of computer code SASSI. These calculations are:

- Calculation 100031-C-01, Development of Soil Profile
- Calculation 100031-C-02, SASSI:Modules POINT and SITE
- Calculation 100031-C-03, Pad Model and Input to Module HOUSE
- Calculation 100031-C-04, Sliding and Overturning Factor of Safety
- Calculation 100031-C-05, Stress Calculation
- Calculation 100031-C-06, Project Specific Verification of Computer Code Super SASSI/PC

The analysis was performed for the best estimate soil profile under the pads and for the DBE level defined for soil conditions.

The low strain soil profile is given in Table 2-3 of Calculation C-01 (denominated C-01) and shown in Figures 2-7 and 2-8 of the same Calculation. The strain compatible soil properties are given in Table 4-1 and shown in Figures 4-1, 4-2, and 4-3 of C-01.

The North Anna DBE input motion acceleration time histories for soil conditions are shown in Figures 3-1, 3-2, and 3-3 of C-01. It is important to note that in those time histories an extreme peak coincides in both horizontal directions at about 3.7 seconds even though the motions are uncorrelated. This will have an impact on the instantaneous factors of safety calculated at that time. As it will be discussed later, this situation is unrealistic and it is caused by the use of artificial time histories to define the DBE motion.

For the analysis, a quarter model was used. This model and its node and elements numbers are shown in Figures 2-1 to 2-6 of C-03. The reinforced concrete slab was modeled by plate elements and the casks by rigid beams with their masses (translational and rotational) lumped at the center of gravity of them.

First, the global responses at the casks (absolute accelerations) were calculated in order to determine the factor of safety for sliding and overturning and the global forces and moments at the base of the casks. The base shear forces and axial forces and the inverse of the sliding and overturning factors of safety for the seven casks in the quarter model are shown in Figures 3-1 to 3-35 of C-04. These results consider the three components of the input applied simultaneously. For calculating the factor of safety for sliding, a friction coefficient of 0.3 was assumed between the casks and the supporting concrete slab.

Figures 3-1 to 3-35 of C-04 show, for each of the seven casks (denominated nodes 231 to 237) included in the quarter model, the casks base shear forces in the longitudinal direction (X), the casks base shear forces in the transverse direction (Y), the casks vertical forces (downward), the factor of safety for sliding (the inverse was plotted), and the factor of safety for overturning (the inverse was plotted). From these figures, it can be seen that at about 3.7 seconds the factor of safety for sliding is slightly greater than 1 and for overturning about 1.6. However, as mentioned earlier, the instantaneous value at 3.7 seconds is unrealistic due to the coincidence of two extreme peaks in the horizontal input motions. If the values at 3.7 seconds are disregarded, the minimum factor of safety for sliding during the total duration of the earthquake is about 1.25 and about 2.0 for overturning.

Furthermore, and since the analysis confirmed that the responses due to the 3 components of the input are uncoupled (see Tables 3-1, 3-2, and 3-3 of C-04 for maximum accelerations due to each input direction), a good estimate of the factors of safety could be obtained by calculating them using the maximum responses for each direction and then combining them using the 100%, 40%, 40% combination rule recommended in the ASCE Standard 4-86, Seismic Analysis of Safety-Related Nuclear Structures and Commentary on Standard for Seismic Analysis of Safety-Related Nuclear Structures. This combination of the maximum values will reduce the impact of the unrealistic and overly conservative situation of extreme peaks occurring at the same instant in the two horizontal directions. Using 100% of the maximum response due to the X input, 40% of the maximum response due to the Y input, and 40% of the maximum response due to the Z input, the factor of safety for sliding results to be 1.17. The same value results if 40%

of X and 100% of Y are used. For the case when 40% of the horizontal cases and 100% of the vertical case are used, then the sliding factor of safety is 2.04.

In a second analysis, the plate moments (per unit length) and stresses and the beam moments and forces were calculated in the plates and beams used to model the slab and the casks, respectively. Figures 2-5 and 2-6 of C-03 indicate the numbers of the beam and plate elements used to model the casks and the concrete slab. It should be noted that the numbers of those two type of elements increase along axis X. Figure 2-1 and 2-2 of C-05 shows the moment and force definition for the plate and beam elements.

Table 3-1 of C-05 gives a list of the seismic maximum moments and forces at the beams representing the casks and the plate elements used to model the concrete slab. The seismic maximum moments and forces at each element and for each input direction are given in this table. Also this table shows the total maximum values calculated as the SRSS of the values of the three input directions. It should be noted that the moments and forces at the slab are small and it is expected that they will not control the design of the slab.

I thank you again for the opportunity to participate in this project. Please call me at (415) 989-2000 if you have any questions or comments regarding these results or require more assistance.

Sincerely,

Alejandro P. Asfura, Ph.D., P.E.
Vice President
EQE International

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Attachment A:

Tables

Table 2-3

BEST ESTIMATE SOIL PROFILE FOR ISFSI PAD ANALYSIS

LOW STRAIN SOIL PROPERTIES

Layer Number	Elevations (ft)	Thickness (ft)	S Wave Velocity (fps)	P Wave Velocity (fps)	Unit Weight (kcf)	Poisson's Ratio
1	310-305	5.0	887	1761	0.110	0.33
2	305-300	5.0	887	1761	0.110	0.33
3	300-295	5.0	887	1761	0.110	0.33
4	295-290	5.0	887	1761	0.110	0.33
5	290(1) -285	5.0	887	5000(2)	0.110	0.484(4)
6	285-280	5.0	964	5000(2)	0.110	0.481(4)
7	280-275	5.0	964	5000(2)	0.110	0.481(4)
8	275-270	5.0	964	5000(2)	0.110	0.481(4)
9	270-265	5.0	1280	5000(2)	0.130(3)	0.465(4)
10	265-260	5.0	1595	5000(2)	0.130(3)	0.443(4)
11	260-255	5.0	1595	5000(2)	0.130(3)	0.443(4)
12	255	Rock Halfspace	Rock	Rock		

Notes:
(1) Water Table elevation
(2) P Wave Velocity in water
(3) Assumed value for harder soil
(4) Adjusted value for consistency with Vp/Vs ratio

TABLE 4-1

STRAIN COMPATIBLE SOIL PROPERTIES

Layer Number	Elevations (ft)	Thickness (ft)	S Wave Velocity (fps)	P Wave Velocity (fps)	Unit Weight (kcf)	Poisson's Ratio	Damping Ratio
1	310-305	5.0	859.73	1706.77	0.110	0.33	0.020
2	305-300	5.0	824.45	1636.73	0.110	0.33	0.036
3	300-295	5.0	787.21	1562.80	0.110	0.33	0.048
4	295-290	5.0	753.59	1496.06	0.110	0.33	0.058
5	290(1) -285	5.0	724.67	5000(2)	0.110	0.489(4)	0.069
6	285-280	5.0	787.21	5000(2)	0.110	0.487(4)	0.069
7	280-275	5.0	767.82	5000(2)	0.110	0.488(4)	0.075
8	275-270	5.0	752.03	5000(2)	0.110	0.488(4)	0.080
9	270-265	5.0	1116.31	5000(2)	0.130(3)	0.474(4)	0.052
10	265-260	5.0	1450.31	5000(2)	0.130(3)	0.454(4)	0.043
11	260-255	5.0	1440.72	5000(2)	0.130(3)	0.455(4)	0.045
12	255	Rock Halfspace	Rock	Rock			

Notes:
(1) Water Table elevation
(2) P Wave Velocity in water
(3) Assumed value for harder soil
(4) Adjusted value for consistency with Vp/Vs ratio

Table 3-1 Input X Direction: Maximum Absolute Acceleration (g's)

N.P.	X	AT TIME	Y	AT TIME	Z	AT TIME
198	0.2155	6.6400	0.0001	10.0300	0.0022	9.3800
203	0.2152	6.6400	0.0003	9.7400	0.0044	9.5500
208	0.2145	6.6400	0.0005	5.9100	0.0047	5.8300
213	0.2137	6.6400	0.0006	10.3400	0.0057	5.8200
218	0.2121	6.6400	0.0005	6.6600	0.0067	5.9500
223	0.2095	3.7100	0.0010	6.6600	0.0070	6.2700
228	0.2093	3.7100	0.0018	5.7900	0.0243	5.7300
231	0.2276	6.6400	0.0009	10.0300	0.0022	9.3800
232	0.2285	9.1000	0.0021	9.7400	0.0044	9.5500
233	0.2302	9.1000	0.0039	5.9100	0.0047	5.8300
234	0.2283	9.1000	0.0035	5.9000	0.0057	5.8200
235	0.2259	6.6400	0.0034	6.1500	0.0067	5.9500
236	0.2178	9.1000	0.0091	5.8700	0.0070	6.2700
237	0.2411	9.1000	0.0142	5.7900	0.0244	5.7300

EQE INTERNATIONAL

SHEET NO. 8

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C04R0 SUBJECT Sliding and Overturning Factor of Safety CHK'D DJD DATE 6/12/97

Table 3-1 (cont.) Maximum Absolute Angular Accelerations (Rads/Sec/Sec/g)

N.P.	XX	AT TIME	YY	AT TIME	ZZ	AT TIME
198	0.0001	10.0300	0.0031	5.7100	0.0000	5.7200
203	0.0002	9.2600	0.0029	5.7100	0.0000	5.7200
208	0.0004	5.9100	0.0030	5.7100	0.0000	5.7200
213	0.0004	5.9000	0.0031	5.7100	0.0000	5.7200
218	0.0004	6.1500	0.0028	5.7100	0.0000	5.7200
223	0.0010	5.8700	0.0026	5.7100	0.0000	5.7200
228	0.0015	5.7900	0.0056	5.7200	0.0000	5.7200
231	0.0001	10.0300	0.0035	5.7100	0.0000	5.7200
232	0.0002	9.2600	0.0033	5.7100	0.0000	5.7200
233	0.0004	5.9100	0.0034	5.7100	0.0000	5.7200
234	0.0004	5.9000	0.0035	5.7100	0.0000	5.7200
235	0.0004	6.1500	0.0032	5.7100	0.0000	5.7200
236	0.0010	5.8700	0.0030	5.7100	0.0000	5.7200
237	0.0016	5.7900	0.0060	5.7200	0.0000	5.7200

Table 3-2. Input Y Direction. Maximum Absolute Acceleration (g's)

N.P.	X	AT TIME	Y	AT TIME	Z	AT TIME
198	0.0005	8.0900	0.1960	3.7100	0.0366	14.2600
203	0.0014	8.0800	0.1961	3.7100	0.0372	14.2600
208	0.0018	9.2400	0.1960	3.7100	0.0381	14.2600
213	0.0024	9.2400	0.1961	3.7100	0.0388	7.5100
218	0.0029	9.2300	0.1954	3.7100	0.0390	7.5100
223	0.0040	7.9400	0.1879	[illegible]	0.0373	7.5000
228	0.0047	9.0900	0.1884	3.7100	0.0283	7.5000
231	0.0015	8.2500	0.2238	10.2200	0.0367	14.2600
232	0.0032	8.2500	0.2246	4.3500	0.0373	14.2600
233	0.0031	5.2000	0.2278	4.3500	0.0381	14.2600
234	0.0038	9.2400	0.2309	4.3500	0.0389	7.5100
235	0.0065	8.0800	0.2328	4.3500	0.0390	7.5100
236	0.0106	8.0700	0.2282	4.3400	0.0374	7.5000
237	0.0153	8.0400	0.2240	4.3400	0.0284	7.5000

Table 3-2 (cont.) Maximum Absolute Angular Acceleratios (Rads/Sec/Sec/g)

N.P.	XX	AT TIME	YY	AT TIME	ZZ	AT TIME
198	0.0069	14.2000	0.0001	8.2500	0.0001	4.4400
203	0.0070	14.2000	0.0003	8.2900	0.0002	4.4400
208	0.0072	14.2000	0.0003	4.9800	0.0003	8.0800
213	0.0073	14.2000	0.0003	7.6500	0.0003	9.2400
218	0.0070	14.2000	0.0006	7.6400	0.0004	4.6100
223	0.0067	7.4500	0.0010	7.5800	0.0006	5.2700
228	0.0061	7.4400	0.0016	7.5600	0.0007	14.2100
231	0.0074	14.2000	0.0001	8.2500	0.0001	4.4400
232	0.0075	14.2000	0.0003	8.2900	0.0002	4.4400
233	0.0076	14.2000	0.0003	4.9800	0.0003	8.0800
234	0.0077	14.2000	0.0004	7.6500	0.0003	9.2400
235	0.0075	14.2000	0.0007	7.6400	0.0004	4.6100
236	0.0071	7.4500	0.0011	8.0700	0.0006	5.2700
237	0.0065	7.4400	0.0017	7.5600	0.0007	14.2100

Table 3-3. Input Z Direction. Maximum Absolute Acceleration (g's)

N.P.	X	AT TIME	Y	AT TIME	Z	AT TIME
198	0.0006	3.7300	0.0033	7.9900	0.1335	7.2500
203	0.0019	5.7200	0.0032	7.9900	0.1333	7.2500
208	0.0030	5.7200	0.0031	7.9900	0.1315	7.2500
213	0.0036	5.7200	0.0031	5.6800	0.1295	7.2500
218	0.0037	5.7200	0.0032	5.7400	0.1294	7.2500
223	0.0039	5.9400	0.0034	5.7400	0.1304	7.2500
228	0.0058	5.7300	0.0027	1.9800	0.1287	7.2500
231	0.0024	8.4500	0.0263	7.9900	0.1336	7.2500
232	0.0058	3.7900	0.0255	7.9900	0.1334	7.2500
233	0.0062	3.7800	0.0244	5.6800	0.1316	7.2500
234	0.0066	5.7600	0.0243	5.6800	0.1295	7.2500
235	0.0064	8.2100	0.0253	5.7400	0.1294	7.2500
236	0.0087	5.8900	0.0268	5.7400	0.1304	7.2500
237	0.0221	5.6800	0.0205	1.9800	0.1288	7.2500

Table 3-3 (cont.) Maximum Absolute Angular Accelerations (Rads/Sec/Sec/g)

N.P.	XX	AT TIME	YY	AT TIME	ZZ	AT TIME
198	0.0028	7.9900	0.0002	6.1000	0.0000	8.5100
203	0.0027	7.9900	0.0005	3.7900	0.0000	8.4500
208	0.0026	5.6800	0.0006	3.7800	0.0000	2.1000
213	0.0026	5.6800	0.0005	8.1200	0.0000	8.3400
218	0.0027	5.7400	0.0006	8.1600	0.0000	2.3500
223	0.0029	5.7400	0.0009	8.1300	0.0000	2.0600
228	0.0022	5.6800	0.0021	5.6800	0.0000	5.7400
231	0.0029	7.9900	0.0002	6.0400	0.0000	8.5100
232	0.0028	7.9900	0.0005	3.7900	0.0000	8.4500
233	0.0027	5.6800	0.0006	3.7800	0.0000	2.1000
234	0.0027	5.6800	0.0006	8.1200	0.0000	8.3400
235	0.0028	5.7400	0.0007	8.1600	0.0000	2.3500
236	0.0030	5.7400	0.0009	8.1300	0.0000	2.0600
237	0.0023	1.9800	0.0022	5.6800	0.0000	5.7400

EQE INTERNATIONAL

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad

CALC. NO. 100031C05R0 SUBJECT Stress Calculation

SHEET NO. 7

BY APA DATE 6/12/97

CHK'D DJD DATE 6/12/97

Table 3-1. Maximum Forces and Moments in Plates and Beams

	Input X Dir.	Input Y Dir.	Input Z Dir.	SRSS
Plate NO= 1	0	0	0	0
S XX= (ksf)	2.29E-02	1.48E-01	4.65E-01	0.48849278
S YY= (ksf)	8.67E-03	1.05E-01	-3.55E-01	0.37060943
S XY= (ksf)	6.12E-02	-1.81E-01	-6.16E-03	0.19155745
M XX= (kip-ft/ft)	-2.30E+00	3.91E-01	5.73E-01	2.39843448
M YY= (kip-ft/ft)	3.75E-01	-2.57E+00	1.32E+00	2.91736046
M XY= (kip-ft/ft)	5.65E-01	5.99E-01	-3.06E-02	0.82370582
Plate NO= 2	0	0	0	0
S XX=	8.10E-02	-1.49E-01	4.53E-01	0.48335907
S YY=	4.67E-02	-2.32E-01	-4.96E-01	0.54929523
S XY=	1.62E-01	-4.29E-01	5.54E-02	0.46173191
M XX=	2.31E+00	-1.62E+00	1.10E+00	3.02782893
M YY=	-3.92E-01	-4.68E+00	1.80E+00	5.0250971
M XY=	-5.63E-01	2.56E+00	-4.44E-01	2.6565486
Plate NO= 3	0	0	0	0
S XX=	4.97E-01	1.52E-01	4.45E-01	0.68410221
S YY=	-3.52E-02	-2.29E-01	-4.93E-01	0.54462269
S XY=	-1.55E-01	3.37E-01	-5.32E-02	0.37475116
M XX=	2.27E+00	-1.63E+00	1.08E+00	2.99357395
M YY=	4.07E-01	-4.68E+00	1.80E+00	5.02792794
M XY=	5.73E-01	-2.56E+00	4.48E-01	2.66512193
Plate NO= 4	0	0	0	0
S XX=	4.61E-01	-1.47E-01	4.45E-01	0.65762024
S YY=	-2.94E-02	1.05E-01	-3.47E-01	0.36392982
S XY=	5.94E-02	-2.04E-01	7.28E-03	0.2121084
M XX=	2.29E+00	3.88E-01	-5.61E-01	2.38953069
M YY=	4.05E-01	-2.58E+00	1.32E+00	2.92223904
M XY=	5.60E-01	-6.03E-01	-4.15E-02	0.82418516
Plate NO= 5	0	0	0	0
S XX=	4.81E-01	-1.50E-01	4.36E-01	0.66610471
S YY=	2.62E-02	1.00E-01	-3.44E-01	0.35886821
S XY=	6.39E-02	-4.25E-01	-5.04E-03	0.42990533
M XX=	2.33E+00	3.95E-01	5.65E-01	2.42597775
M YY=	-3.96E-01	-2.59E+00	1.30E+00	2.92531482
M XY=	5.59E-01	5.96E-01	3.63E-02	0.81807121
Plate NO= 6	0	0	0	0
S XX=	4.71E-01	-1.64E-01	4.23E-01	0.65360175
S YY=	8.47E-02	-2.34E-01	-4.78E-01	0.53911535
S XY=	1.70E-01	-6.27E-01	5.62E-02	0.65209351
M XX=	2.36E+00	-1.63E+00	1.09E+00	3.06289063
M YY=	-4.27E-01	-4.69E+00	1.77E+00	5.02657865
M XY=	-5.56E-01	2.56E+00	-4.35E-01	2.65748551

EQE INTERNATIONAL

SHEET NO. 8

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 7				
S XX=	9.60E-01	-1.55E-01	3.98E-01	1.05100286
S YY=	5.43E-02	-2.25E-01	-4.72E-01	0.52538499
S XY=	1.52E-01	3.52E-01	-5.07E-02	0.38663467
M XX=	-2.24E+00	-1.63E+00	1.02E+00	2.95355328
M YY=	4.53E-01	-4.69E+00	1.78E+00	5.03167063
M XY=	5.84E-01	-2.56E+00	4.50E-01	2.65792654
Plate NO= 8	0	0	0	0
S XX=	9.27E-01	-1.61E-01	-3.89E-01	1.01782048
S YY=	-4.11E-02	9.77E-02	3.26E-01	0.34318866
S XY=	5.82E-02	3.46E-01	8.23E-03	0.35047103
M XX=	2.28E+00	3.88E-01	-6.10E-01	2.38803225
M YY=	4.34E-01	-2.58E+00	1.31E+00	2.92715962
M XY=	-5.75E-01	-6.09E-01	-4.37E-02	0.83912388
Plate NO= 9	0	0	0	0
S XX=	9.50E-01	-1.66E-01	-3.70E-01	1.03470282
S YY=	-3.42E-02	8.96E-02	3.23E-01	0.3372217
S XY=	6.76E-02	-5.89E-01	5.46E-03	0.59329249
M XX=	2.33E+00	4.01E-01	5.77E-01	2.42967884
M YY=	-4.00E-01	-2.60E+00	1.29E+00	2.92548203
M XY=	-5.75E-01	5.94E-01	4.11E-02	0.82773771
Plate NO= 10	0	0	0	0
S XX=	9.40E-01	-1.81E-01	-3.56E-01	1.02122353
S YY=	-1.12E-01	-2.38E-01	4.59E-01	0.52876563
S XY=	1.78E-01	-7.59E-01	5.52E-02	0.7816273
M XX=	2.37E+00	-1.63E+00	1.06E+00	3.06463848
M YY=	-4.22E-01	-4.73E+00	1.74E+00	5.05600963
M XY=	5.63E-01	2.58E+00	-4.31E-01	2.67954316
Plate NO= 11	0	0	0	0
S XX=	1.44E+00	-1.75E-01	3.47E-01	1.48667113
S YY=	-6.41E-02	-2.22E-01	4.56E-01	0.51155799
S XY=	1.48E-01	-3.56E-01	-5.03E-02	0.38884794
M XX=	-2.28E+00	-1.65E+00	9.96E-01	2.98556201
M YY=	-4.66E-01	-4.73E+00	1.75E+00	5.06673067
M XY=	5.90E-01	-2.58E+00	4.46E-01	2.6868347
Plate NO= 12	0	0	0	0
S XX=	1.39E+00	-1.79E-01	3.39E-01	1.44283452
S YY=	-4.36E-02	8.67E-02	3.11E-01	0.32608527
S XY=	5.65E-02	-3.78E-01	8.32E-03	0.3825908
M XX=	-2.38E+00	3.92E-01	-6.49E-01	2.49974211
M YY=	-4.49E-01	-2.62E+00	1.30E+00	2.95545128
M XY=	-5.77E-01	-6.20E-01	-3.81E-02	0.84789959
	0	0	0	0

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SHEET NO. 9

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 13				
S XX=	1.40E+00	-1.81E-01	3.32E-01	1.45410817
S YY=	2.89E-02	7.85E-02	3.10E-01	0.32098161
S XY=	7.11E-02	-5.96E-01	5.78E-03	0.60064977
M XX=	2.27E+00	4.04E-01	5.98E-01	2.37707509
M YY=	-3.73E-01	-2.66E+00	1.29E+00	2.97663735
M XY=	-5.77E-01	6.01E-01	-3.75E-02	0.83356865
Plate NO= 14	0	0	0	0
S XX=	1.41E+00	-2.25E-01	3.26E-01	1.46069395
S YY=	-1.38E-01	-2.43E-01	4.59E-01	0.53730794
S XY=	-1.82E-01	-7.52E-01	5.31E-02	0.77521249
M XX=	-2.3[illegible]E+00	-1.67E+00	1.04E+00	3.05038063
M YY=	-3.83E-01	-4.84E+00	1.75E+00	5.15963573
M XY=	5.63E-01	2.64E+00	-4.38E-01	2.73090592
Plate NO= 15	0	0	0	0
S XX=	1.93E+00	-1.94E-01	3.10E-01	1.96034208
S YY=	-7.89E-02	-2.28E-01	4.62E-01	0.52133392
S XY=	1.43E-01	2.85E-01	5.31E-02	0.32334539
M XX=	-2.31E+00	-1.68E+00	-1.06E+00	3.04823441
M YY=	-4.83E-01	-4.85E+00	1.75E+00	5.17774234
M XY=	5.83E-01	-2.65E+00	4.40E-01	2.74870952
Plate NO= 16	0	0	0	0
S XX=	1.89E+00	-2.08E-01	3.01E-01	1.92019051
S YY=	-4.30E-02	7.17E-02	3.19E-01	0.32976052
S XY=	5.48E-02	-[illegible].57E-01	-7.20E-03	0.26326732
M XX=	-2.40E+00	-4.04E-01	-6.21E-01	2.51168462
M YY=	-4.62E-01	-2.68E+00	1.30E+00	3.0156342
M XY=	5.62E-01	-6.23E-01	-3.22E-02	0.83938714
Plate NO= 17	0	0	0	0
S XX=	1.90E+00	-2.26E-01	2.89E-01	1.93612607
S YY=	2.[illegible]E-02	6.25E-02	-3.26E-01	0.33315691
S XY=	7.35E-02	-4.55E-01	5.75E-03	0.46094058
M XX=	-2.21E+00	4.03E-01	5.72E-01	2.32194832
M YY=	3.79E-01	-2.71E+00	1.31E+00	3.03605709
M XY=	5.64E-01	6.25E-01	-4.39E-02	0.84294041
Plate NO= 18	0	0	0	0
S XX=	1.89E+00	-2.76E-01	2.77E-01	1.93201429
S YY=	-1.61E-01	-2.50E-01	4.82E-01	0.56658947
S XY=	1.86E-01	-5.90E-01	5.38E-02	0.62089338
M XX=	2.25E+00	-1.72E+00	1.11E+00	3.04256619
M YY=	4.05E-01	-4.94E+00	1.79E+00	5.26886259
M XY=	-5.48E-01	2.68E+00	-4.46E-01	2.77531444
	0	0	0	0

Plate NO= 19				
S XX=	2.41E+00	-2.46E-01	2.61E-01	2.43754062
S YY=	-1.16E-01	-2.46E-01	4.90E-01	0.5600295
S XY=	1.34E-01	3.84E-01	5.45E-02	0.41047884
M XX=	2.24E+00	-1.69E+00	-1.19E+00	3.05135281
M YY=	-1.69E-01	-4.94E+00	1.79E+00	5.27540683
M XY=	5.73E-01	-2.71E+00	4.41E-01	2.80003356
Plate NO= 20	0	0	0	0
S XX=	2.37E+00	-2.58E-01	2.73E-01	2.39767299
S YY=	5.48E-02	4.82E-02	-3.50E-01	0.35772019
S XY=	5.36E-02	3.31E-01	-7.73E-03	0.3352957
M XX=	2.31E+00	4.28E-01	5.34E-01	2.41010622
M YY=	-4.92E-01	-2.72E+00	1.31E+00	3.05745378
M XY=	-5.59E-01	-6.03E-01	-4.06E-02	0.82310317
Plate NO= 21	0	0	0	0
S XX=	2.38E+00	-2.61E-01	2.71E-01	2.40661535
S YY=	-4.74E-02	4.42E-02	-3.53E-01	0.35900003
S XY=	7.64E-02	2.94E-01	-5.49E-03	0.30380664
M XX=	2.30E+00	4.02E-01	5.57E-01	2.40234622
M YY=	-5.20E-01	-2.71E+00	1.29E+00	3.04425361
M XY=	-5.63E-01	6.68E-01	4.27E-02	0.87414249
Plate NO= 22	0	0	0	0
S XX=	2.37E+00	-2.56E-01	2.53E-01	2.39424004
S YY=	-2.29E-01	-2.60E-01	5.05E-01	0.6121365
S XY=	1.92E-01	3.20E-01	5.84E-02	0.37765367
M XX=	2.50E+00	-1.72E+00	1.29E+00	3.29494492
M YY=	-6.20E-01	-4.91E+00	1.76E+00	5.25091926
M XY=	5.64E-01	2.70E+00	-4.50E-01	2.79371387
Plate NO= 23	0	0	0	0
S XX=	2.84E+00	-2.95E-01	-2.49E-01	2.87004099
S YY=	-1.75E-01	-2.76E-01	5.03E-01	0.59951455
S XY=	1.28E-01	6.17E-01	-5.22E-02	0.63253218
M XX=	-2.12E+00	-1.67E+00	1.29E+00	2.99191928
M YY=	-5.55E-01	-4.89E+00	1.76E+00	5.22594174
M XY=	5.35E-01	-2.67E+00	4.21E-01	2.75722011
Plate NO= 24	0	0	0	0
S XX=	2.80E+00	-2.39E-01	-2.62E-01	2.8243605
S YY=	-1.01E-01	-2.34E-02	3.43E-01	0.35816087
S XY=	5.55E-02	-6.17E-01	1.07E-02	0.61958656
M XX=	1.86E+00	4.70E-01	3.87E-01	1.9580422
M YY=	3.82E-01	-2.64E+00	1.17E+00	2.91166634
M XY=	-6.64E-01	-5.51E-01	1.31E-01	0.87237568
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 11

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJJD DATE 6/12/97

Plate NO= 25				
S XX=	2.85E+00	-2.14E-01	-2.42E-01	2.86327376
S YY=	-9.56E-02	2.86E-02	3.29E-01	0.34331331
S XY=	3.52E-02	5.48E-01	7.39E-03	0.55423928
M XX=	3.15E+00	5.18E-01	2.94E-01	3.204841
M YY=	-7.00E-01	-2.56E+00	9.94E-01	2.83589494
M XY=	-6.40E-01	8.25E-01	7.76E-02	1.04701226
Plate NO= 26	0	0	0	0
S XX=	2.89E+00	-1.29E-01	-1.96E-01	2.90247083
S YY=	-2.15E-01	-2.73E-01	4.27E-01	0.55003071
S XY=	2.08E-01	-5.03E-01	6.02E-02	0.54783263
M XX=	2.74E+00	-1.59E+00	1.45E+00	3.4789303
M YY=	-8.97E-01	-4.64E+00	1.34E+00	4.91549858
M XY=	7.97E-01	2.95E+00	-3.18E-01	3.07594888
Plate NO= 27	0	0	0	0
S XX=	3.49E+00	-2.72E-01	-1.38E-01	3.50730303
S YY=	1.79E-01	-3.04E-01	3.81E-01	0.51904718
S XY=	1.53E-01	1.26E+00	-3.31E-02	1.26470041
M XX=	-2.74E+00	-1.65E+00	1.13E+00	3.39381261
M YY=	-5.50E-01	-4.54E+00	1.35E+00	4.7722809
M XY=	6.60E-01	-2.28E+00	3.71E-01	2.40508789
Plate NO= 28	0	0	0	0
S XX=	3.51E+00	-1.34E-01	-1.35E-01	3.51712819
S YY=	1.75E-01	2.97E-02	2.16E-01	0.27937632
S XY=	5.23E-02	1.29E+00	-4.01E-03	1.29306393
M XX=	-3.47E+00	-3.12E-01	-4.67E-01	3.51512658
M YY=	-8.59E-01	-2.02E+00	8.65E-01	2.35595684
M XY=	-2.19E-01	5.75E-01	1.25E-01	0.62821888
Plate NO= 29	0	0	0	0
S XX=	3.56E+00	-1.29E-01	-1.33E-01	3.56084237
S YY=	-1.88E-01	7.03E-02	1.61E-01	0.25687636
S XY=	4.18E-02	1.15E+00	-5.63E-03	1.15476904
M XX=	-8.86E-01	1.13E-01	-5.50E-01	1.04880769
M YY=	-4.96E-01	-5.62E-01	5.18E-01	0.91133924
M XY=	-3.55E-01	-2.15E-01	1.17E-01	0.43112213
Plate NO= 30	0	0	0	0
S XX=	3.37E+00	-7.09E-02	-1.34E-01	3.37738393
S YY=	1.24E-01	9.72E-02	1.27E-01	0.20244526
S XY=	4.79E-02	9.25E-01	-3.99E-03	0.92594993
M XX=	3.41E-01	2.77E-02	-4.50E-01	0.56534207
M YY=	-1.66E-01	1.49E-01	3.45E-01	0.41068794
M XY=	-1.44E-01	2.85E-01	-6.48E-02	0.32613188
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 12

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 31				
S XX=	3.10E+00	-3.99E-02	-1.27E-01	3.10486377
S YY=	1.03E-01	8.63E-02	9.90E-02	0.16657148
S XY=	8.06E-02	7.14E-01	-3.51E-03	0.71864731
M XX=	5.76E-01	-4.57E-02	-3.26E-01	0.66328417
M YY=	-1.49E-01	5.10E-02	2.68E-01	0.31042283
M XY=	2.52E-02	2.34E-01	-3.64E-02	0.23854073
Plate NO= 32	0	0	0	0
S XX=	2.80E+00	3.89E-02	-1.17E-01	2.80671729
S YY=	8.93E-02	7.44E-02	8.36E-02	0.14314689
S XY=	9.46E-02	5.31E-01	-3.13E-03	0.53965829
M XX=	4.95E-01	-3.45E-02	-1.99E-01	0.53485944
M YY=	-1.28E-01	-2.71E-02	2.24E-01	0.2592348
M XY=	1.20E-02	1.71E-01	-2.18E-02	0.17320273
Plate NO= 33	0	0	0	0
S XX=	2.49E+00	4.75E-02	-1.05E-01	2.49466699
S YY=	8.14E-02	6.34E-02	7.36E-02	0.12670961
S XY=	1.05E-01	3.80E-01	-2.96E-03	0.39413815
M XX=	-3.74E-01	-2.27E-02	-1.10E-01	0.3[illegible]081624
M YY=	1.10E-01	2.01E-02	1.99E-01	0.22801142
M XY=	1.44E-02	1.25E-01	-1.50E-02	0.1270091
Plate NO= 34	0	0	0	0
S XX=	2.16E+00	5.05E-02	-9.16E-02	2.16452943
S YY=	7.20E-02	5.36E-02	-6.70E-02	0.11204957
S XY=	1.15E-01	-2.70E-01	-3.13E-03	0.29385537
M XX=	-3.06E-01	-1.59E-02	6.45E-02	0.31351213
M YY=	9.47E-02	1.70E-02	1.84E-01	0.20721014
M XY=	1.09E-02	9.36E-02	-1.14E-02	0.09496024
Plate NO= 35	0	0	0	0
S XX=	1.81E+00	4.80E-02	-7.69E-02	1.81426492
S YY=	9.79E-02	4.51E-02	-6.24E-02	0.124598
S XY=	1.18E-01	-1.81E-01	-3.20E-03	0.21612429
M XX=	-2.85E-01	-1.26E-02	7.34E-02	0.29417147
M YY=	8.08E-02	1.46E-02	1.71E-01	0.18997883
M XY=	7.08E-03	7.36E-02	-9.58E-03	0.07458715
Plate NO= 36	0	0	0	0
S XX=	1.46E+00	4.00E-02	-6.10E-02	1.46082293
S YY=	-2.51E-01	3.69E-02	-5.91E-0[illegible]	0.26049583
S XY=	1.01E-01	-1.46E-01	-3.15E-03	0.17727432
M XX=	-2.78E-01	-1.06E-02	1.03E-01	0.296701
M YY=	7.21E-02	1.26E-02	1.59E-01	0.17505339
M XY=	4.99E-03	6.03E-02	-8.83E-03	0.06117657
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 13

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 37				
S XX=	1.13E+00	-3.03E-02	-4.43E-02	1.1322716
S YY=	-6.29E-01	-2.75E-02	5.65E-02	0.63223038
S XY=	5.83E-02	-1.18E-01	-2.61E-03	0.1317409
M XX=	-2.28E-01	-7.75E-03	1.16E-01	0.25570483
M YY=	6.45E-02	1.04E-02	1.43E-01	0.15692701
M XY=	3.96E-03	4.88E-02	-8.66E-03	0.04969036
Plate NO= 38	0	0	0	0
S XX=	8.34E-01	-2.06E-02	-2.74E-02	0.83470479
S YY=	-1.24E+00	-2.74E-02	5.96E-02	1.24373061
S XY=	-1.19E-02	-8.15E-02	-1.71E-03	0.08240171
M XX=	-9.23E-02	-2.97E-03	5.57E-02	0.10788113
M YY=	6.07E-02	9.25E-03	1.15E-01	0.12991948
M XY=	3.70E-03	3.93E-02	-9.26E-03	0.04055375
Plate NO= 39	0	0	0	0
S XX=	3.15E-01	5.42E-01	5.23E-01	0.81615581
S YY=	9.60E-03	2.36E-01	-3.09E-01	0.38925556
S XY=	1.13E-01	-2.50E-01	-3.82E-02	0.27660236
M XX=	-4.16E+00	3.72E-01	4.09E-01	4.19360394
M YY=	1.45E+00	-2.35E+00	1.20E+00	3.01259257
M XY=	2.28E+00	-8.55E-01	-1.79E-01	2.43690221
Plate NO= 40	0	0	0	0
S XX=	8.93E-02	3.32E-01	3.88E-01	0.5181957
S YY=	-5.35E-02	2.78E-01	2.15E-01	0.35542141
S XY=	1.55E-01	-3.54E-01	-8.04E-02	0.39486289
M XX=	4.04E+00	-1.49E+00	7.76E-01	4.37065682
M YY=	1.47E+00	-4.35E+00	1.45E+00	4.8172927
M XY=	2.33E+00	-2.59E+00	1.03E+00	3.62918241
Plate NO= 41	0	0	0	0
S XX=	3.11E-01	3.41E-01	3.84E-01	0.59978281
S YY=	4.94E-02	3.04E-01	2.14E-01	0.3748173
S XY=	1.76E-01	3.21E-01	7.54E-02	0.37384534
M XX=	4.06E+00	1.50E+00	7.32E-01	4.3914798
M YY=	1.46E+00	-4.36E+00	1.43E+00	4.81127561
M XY=	-2.31E+00	2.59E+00	-1.01E+00	3.61067002
Plate NO= 42	0	0	0	0
S XX=	8.46E-01	5.13E-01	5.02E-01	1.10887392
S YY=	-2.36E-02	2.55E-01	-3.03E-01	0.39658345
S XY=	1.34E-01	2.69E-01	3.34E-02	0.30242115
M XX=	4.14E+00	3.45E-01	-3.34E-01	4.16378267
M YY=	-1.48E+00	-2.36E+00	1.18E+00	3.02285378
M XY=	2.27E+00	8.60E-01	-2.20E-01	2.43260789
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 19

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 43				
S XX=	-2.95E-01	-5.15E-01	5.00E-01	0.77596086
S YY=	2.63E-02	2.10E-01	-2.99E-01	0.36634126
S XY=	9.49E-02	-4.40E-01	-4.07E-02	0.45176329
M XX=	4.20E+00	3.76E-01	4.31E-01	4.23581119
M YY=	1.51E+00	-2.36E+00	1.20E+00	3.04982049
M XY=	2.29E+00	-8.69E-01	-1.77E-01	2.45936486
	0	0	0	0
Plate NO= 44				
S XX=	4.85E-01	-3.19E-01	3.63E-01	0.68409064
S YY=	-6.73E-02	2.52E-01	2.06E-01	0.33202388
S XY=	1.41E-01	-4.97E-01	7.98E-02	0.52309426
M XX=	4.15E+00	1.49E+00	8.00E-01	4.48347869
M YY=	1.51E+00	-4.36E+00	1.44E+00	4.83685611
M XY=	2.35E+00	-2.60E+00	1.03E+00	3.65264685
	0	0	0	0
Plate NO= 45				
S XX=	6.98E-01	-3.19E-01	3.47E-01	0.84162641
S YY=	5.29E-02	3.14E-01	2.02E-01	0.37713212
S XY=	1.98E-01	3.19E-01	6.86E-02	0.38212337
M XX=	-4.01E+00	-1.51E+00	-7.31E-01	4.35193497
M YY=	-1.45E+00	-4.38E+00	1.39E+00	4.82131318
M XY=	-2.29E+00	2.59E+00	-9.74E-01	3.59596591
	0	0	0	0
Plate NO= 46				
S XX=	1.39E+00	-5.53E-01	-4.35E-01	1.55507243
S YY=	-3.57E-02	2.61E-01	2.88E-01	0.39003498
S XY=	1.60E-01	3.23E-01	2.68E-02	0.36132217
M XX=	4.11E+00	3.71E-01	-4.31E-01	4.14716096
M YY=	-1.47E+00	-2.39E+00	1.13E+00	3.02901304
M XY=	-2.33E+00	8.44E-01	-2.49E-01	2.4897005
	0	0	0	0
Plate NO= 47				
S XX=	8.39E-01	-5.75E-01	-4.33E-01	1.10538785
S YY=	3.36E-02	1.86E-01	2.86E-01	0.34226161
S XY=	7.87E-02	-6.10E-01	-3.86E-02	0.61626139
M XX=	4.21E+00	3.77E-01	3.85E-01	4.24042991
M YY=	1.52E+00	-2.41E+00	1.16E+00	3.07228856
M XY=	-2.31E+00	-9.01E-01	-1.67E-01	2.48141884
	0	0	0	0
Plate NO= 48				
S XX=	8.75E-01	-3.58E-01	3.06E-01	0.99351544
S YY=	-7.07E-02	2.37E-01	1.88E-01	0.31062701
S XY=	1.25E-01	-5.97E-01	[illegible].72E-02	0.61461346
M XX=	4.18E+00	-1.50E+00	8.06E-01	4.51135505
M YY=	1.52E+00	-4.40E+00	1.41E+00	4.8585185
M XY=	2.35E+00	-2.64E+00	1.01E+00	3.67066138
	0	0	0	0

Plate NO= 49				
S XX=	1.09E+00	-3.63E-01	2.92E-01	1.18889108
S YY=	4.45E-02	3.08E-01	1.84E-01	0.36142807
S XY=	2.19E-01	2.95E-01	-6.60E-02	0.37344833
M XX=	-4.16E+00	-1.54E+00	-7.75E-01	4.49920751
M YY=	-1.47E+00	-4.42E+00	1.37E+00	4.85747146
M XY=	2.33E+00	2.62E+00	-9.53E-01	3.63253532
Plate NO= 50	0	0	0	0
S XX=	1.94E+00	-6.19E-01	3.93E-01	2.07103218
S YY=	-3.66E-02	2.44E-01	2.76E-01	0.36985595
S XY=	1.84E-01	2.84E-01	2.54E-02	0.33898185
M XX=	-4.27E+00	3.76E-01	-4.66E-01	4.3097262
M YY=	-1.52E+00	-2.43E+00	1.11E+00	3.07672634
M XY=	-2.35E+00	8.43E-01	-2.49E-01	2.50428158
Plate NO= 51	0	0	0	0
S XX=	1.38E+00	-6.36E-01	3.87E-01	1.57142905
S YY=	-2.95E-02	1.65E-01	2.75E-01	0.32212108
S XY=	7.92E-02	-6.67E-01	[illegible]	0.6725717
M XX=	4.13E+00	4.02E-01	4.35E-01	4.1702974
M YY=	-1.47E+00	-2.46E+00	1.14E+00	3.0862542
M XY=	-2.29E+00	-9.16E-01	1.99E-01	2.47803611
Plate NO= 52	0	0	0	0
S XX=	1.27E+00	4.03E-01	2.75E-01	1.35942902
S YY=	-7.24E-02	2.19E-01	1.74E-01	0.28911519
S XY=	1.11E-01	-6.09E-01	7.21E-02	0.62316095
M XX=	4.12E+00	-1.55E+00	7.61E-01	4.46548385
M YY=	-1.49E+00	-4.50E+00	1.40E+00	4.94330881
M XY=	2.29E+00	-2.71E+00	1.00E+00	3.68564051
Plate NO= 53	0	0	0	0
S XX=	1.51E+00	4.00E-01	2.61E-01	1.57997375
S YY=	3.61E-02	2.83E-01	-1.76E-01	0.33486802
S XY=	-2.43E-01	2.79E-01	-7.09E-02	0.3769083
M XX=	-4.13E+00	-1.54E+00	-7.97E-01	4.48287046
M YY=	-1.49E+00	-4.52E+00	1.40E+00	4.96323
M XY=	2.38E+00	2.68E+00	-9.89E-01	3.71482768
Plate NO= 54	0	0	0	0
S XX=	2.51E+00	-7.33E-01	3.50E-01	2.64196866
S YY=	-3.51E-02	2.03E-01	-2.78E-01	0.34619317
S XY=	-2.12E-01	2.91E-01	2.91E-02	0.36139271
M XX=	-4.27E+00	4.03E-01	-4.35E-01	4.31197742
M YY=	-1.54E+00	-2.45E+00	1.17E+00	3.1186348
M XY=	-2.31E+00	8.76E-01	2.01E-01	2.48060006
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 16

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 55				
S XX=	1.94E+00	-8.05E-01	3.42E-01	2.12613326
S YY=	2.85E-02	1.38E-01	-2.85E-01	0.31833655
S XY=	7.54E-02	-5.71E-01	-3.04E-02	0.57695332
M XX=	-4.01E+00	4.13E-01	4.01E-01	4.05503675
M YY=	-1.41E+00	-2.48E+00	1.19E+00	3.09328078
M XY=	2.25E+00	-9.04E-01	2.47E-01	2.43289403
Plate NO= 56	0	0	0	0
S XX=	1.68E+00	-5.42E-01	2.31E-01	1.78314722
S YY=	6.96E-02	1.99E-01	-1.88E-01	0.2823868
S XY=	9.58E-02	-5.17E-01	7.32E-02	0.53067556
M XX=	4.02E+00	-1.57E+00	-7.90E-01	4.38290511
M YY=	1.43E+00	-4.60E+00	1.45E+00	5.03082001
M XY=	2.24E+00	-2.77E+00	1.05E+00	3.71435391
Plate NO= 57	0	0	0	0
S XX=	1.92E+00	-5.34E-01	-2.18E-01	2.00380175
S YY=	3.81E-02	2.30E-01	-1.93E-01	0.30240891
S XY=	-2.73E-01	3.55E-01	7.81E-02	0.45447594
M XX=	-3.98E+00	-1.51E+00	-8.75E-01	4.34730146
M YY=	1.46E+00	-4.57E+00	1.46E+00	5.01752299
M XY=	2.31E+00	2.73E+00	1.08E+00	3.7302965
Plate NO= 58	0	0	0	0
S XX=	3.07E+00	-9.26E-01	3.04E-01	3.2237846
S YY=	-4.29E-02	1.34E-01	-3.02E-01	0.33308556
S XY=	-2.47E-01	4.13E-01	3.40E-02	0.48256193
M XX=	4.13E+00	4.47E-01	4.55E-01	4.18188521
M YY=	1.02E+00	-2.45E+00	1.26E+00	3.13956207
M XY=	2.22E+00	9.62E-01	1.76E-01	2.42122504
Plate NO= 59	0	0	0	0
S XX=	2.61E+00	-9.40E-01	3.00E-01	2.69688937
S YY=	-5.37E-02	1.21E-01	-3.08E-01	0.33491933
S XY=	9.08E-02	-3.48E-01	-3.90E-02	0.36157353
M XX=	4.07E+00	4.18E-01	4.68E-01	4.12000251
M YY=	1.48E+00	-2.48E+00	1.30E+00	3.1645728
M XY=	-2.27E+00	-8.36E-01	2.94E-01	2.43696192
Plate NO= 60	0	0	0	0
S XX=	2.07E+00	-5.63E-01	2.08E-01	2.15617496
S YY=	-8.88E-02	1.86E-01	-2.03E-01	0.28935424
S XY=	9.16E-02	-3.24E-01	8.43E-02	0.34397887
M XX=	4.09E+00	-1.60E+00	9.45E-01	4.49418269
M YY=	1.55E+00	-4.59E+00	1.53E+00	5.0768768
M XY=	2.31E+00	-2.71E+00	1.13E+00	3.73913867
	0	0	0	0

Plate NO= 61				
S XX=	2.30E+00	-5.90E-01	2.02E-01	2.37816944
S YY=	-3.30E-02	1.27E-01	-1.96E-01	0.23589231
S XY=	2.92E-01	5.31E-01	8.03E-02	0.6109797
M XX=	-3.81E+00	-1.50E+00	8.83E-01	4.[illegible]8498789
M YY=	-1.51E+00	-4.48E+00	1 49E+00	4.95837685
M XY=	2.23E+00	2.75E+00	-1.15E+00	3.71987164
Plate NO= 62	0	0	0	0
S XX=	3.54E+00	-8.80E-01	-2.96E-01	3.66155108
S YY=	5.05E-02	3.38E-02	2.95E-01	0.30100181
S XY=	2.70E-01	6.83E-01	3.54E-02	0.73476436
M XX=	-3.65E+00	-5.95E-01	3.[illegible]8E-01	3.71739449
M YY=	-1.47E+00	-2.33E+00	1.32E+00	3.05436884
M XY=	-2.44E+00	1.09E+00	-3.20E-01	2.69350998
Plate NO= 63	0	0	0	0
S XX=	3.00E+00	-7.83E-01	-3.01E-01	3.11697955
S YY=	8.17E-02	1.24E-01	2.89E-01	0.32525142
S XY=	-1.06E-01	-3.57E-01	4.89E-02	0.37552418
M XX=	5.24E+00	7.21E-01	6.97E-01	5.33119538
M YY=	1.90E+00	-2.19E+00	1.47E+00	3.25025876
M XY=	-2.76E+00	-7.32E-01	4.01E-01	2.88343737
Plate NO= 64	0	0	0	0
S XX=	2.55E+00	-3.65E-01	1.59E-01	2.57791247
S YY=	-1.27E-01	2.01E-01	1.69E-01	0.29172907
S XY=	-8.45E-02	-2.47E-01	8.96E-02	0.27619741
M XX=	4.75E+00	-1.35E+00	1.34E+00	5.11761136
M YY=	1.71E+00	-4.20E+00	1.47E+00	4.770285
M XY=	2.50E+00	-2.17E+00	1.18E+00	3.51809309
Plate NO= 65	0	0	0	0
S XX=	2.8[illegible]E+00	-4.54E-01	-1.27E-01	2.86806531
S YY=	8.26E-02	3.93E-02	1.48E-01	0.17388954
S XY=	3.65E-01	9.48E-01	-5.34E-02	1.01748536
M XX=	-4.44E+00	-1.50E+00	9.71E-01	4.78383774
M YY=	-2.07E+00	-4.20E+00	1.09E+00	4.80647594
M XY=	2.74E+00	3.10E+00	-1.02E+00	4.25960937
Plate NO= 66	0	0	0	0
S XX=	4.38E+00	-4.91E-01	-1.65E-01	4.40558647
S YY=	1.36E-01	1.04E-01	2.04E-01	0.26620779
S XY=	3.44E-01	1.30E+00	-2.99E-02	1.34121154
M XX=	-5.26E+00	-6.32E-01	6.86E-01	5.34104808
M YY=	-2.95E+00	-1.85E+00	7.88E-01	3.57042321
M XY=	-1.86E+00	1.75E+00	5.58E-01	2.61743591
	0	0	0	0

Plate NO= 67				
S XX=	3.84E+00	-3.17E-01	-1.50E-01	3.85497254
S YY=	-1.08E-01	2.79E-01	1.43E-01	0.33205911
S XY=	-6.98E-02	1.01E+00	-1.46E-02	1.01451152
M XX=	-7.21E-01	8.86E-02	-4.59E-01	0.8594348
M YY=	-1.39E+00	-5.63E-01	4.86E-01	1.57726819
M XY=	-4.53E-01	9.22E-01	-2.85E-01	1.06593315
Plate NO= 68	0	0	0	0
S XX=	3.45E+00	-1.82E-01	-1.40E-01	3.45864753
S YY=	9.66E-02	2.63E-01	1.16E-01	0.30300703
S XY=	2.01E-01	8.16E-01	-1.27E-02	0.84048663
M XX=	4.84E-01	-2.05E-01	-4.33E-01	0.68157196
M YY=	-5.09E-01	2.06E-01	3.21E-01	0.63608988
M XY=	1.10E-01	4.81E-01	-1.65E-01	0.52041784
Plate NO= 69	0	0	0	0
S XX=	3.13E+00	-1.22E-01	-1.30E-01	3.13607573
S YY=	8.94E-02	2.44E-01	9.16E-02	0.27564214
S XY=	2.47E-01	6.34E-01	-1.01E-02	0.6798433
M XX=	6.25E-01	-1.71E-01	-3.13E-01	0.71938261
M YY=	-2.20E-01	-9.62E-02	2.52E-01	0.34812676
M XY=	4.83E-02	2.72E-01	-9.66E-02	0.29228749
Plate NO= 70	0	0	0	0
S XX=	2.84E+00	1.28E-01	-1.19E-01	2.84239594
S YY=	8.29E-02	2.11E-01	7.62E-02	0.23907406
S XY=	2.72E-01	4.76E-01	-8.75E-03	0.54789413
M XX=	4.96E-01	-1.10E-01	-1.88E-01	0.54111113
M YY=	-1.29E-01	-6.58E-02	2.18E-01	0.261834
M XY=	6.24E-02	1.73E-01	-6.23E-02	0.19408299
Plate NO= 71	0	0	0	0
S XX=	2.55E+00	1.56E-01	-1.07E-01	2.55199792
S YY=	7.34E-02	1.80E-01	-6.80E-02	0.2058505
S XY=	2.98E-01	3.41E-01	-8.30E-03	0.45279809
M XX=	-3.63E-01	-6.79E-02	-1.03E-01	0.38304938
M YY=	1.03E-01	5.19E-02	1.97E-01	0.22871286
M XY=	5.09E-02	1.22E-01	-4.32E-02	0.13871546
Plate NO= 72	0	0	0	0
S XX=	2.24E+00	1.63E-01	-9.29E-02	2.24881683
S YY=	-7.19E-02	1.52E-01	-6.32E-02	0.17978933
S XY=	3.27E-01	-2.51E-01	-8.80E-03	0.41177726
M XX=	-2.94E-01	-4.69E-02	6.03E-02	0.30364814
M YY=	8.65E-02	4.40E-02	1.83E-01	0.20714901
M XY=	3.40E-02	9.08E-02	-3.31E-02	0.10243424
	0	0	0	0

Plate NO= 73				
S XX=	1.91E+00	1.55E-01	-7.81E-02	1.91982895
S YY=	8.76E-02	1.28E-01	-5.87E-02	0.16596081
S XY=	3.43E-01	-1.76E-01	-9.51E-03	0.38532394
M XX=	-2.74E-01	-3.70E-02	7.24E-02	0.28609022
M YY=	7.43E-02	3.85E-02	1.72E-01	0.19163236
M XY=	2.05E-02	7.04E-02	-2.78E-02	0.07844555
Plate NO= 74	0	0	0	0
S XX=	1.56E+00	1.31E-01	-6.23E-02	1.5617087
S YY=	1.93E-01	1.06E-01	-[illegible].56E-02	0.22693068
S XY=	3.11E-01	-1.37E-01	-9.65E-03	0.33992405
M XX=	-2.70E-01	-3.12E-02	1.03E-01	0.29090194
M YY=	6.67E-02	3.32E-02	1.61E-01	0.17748714
M XY=	1.41E-02	5.72E-02	-2.56E-02	0.06421027
Plate NO= 75	0	0	0	0
S XX=	1.18E+00	-9.83E-02	-4.52E-02	1.18893215
S YY=	-5.21E-01	-8.07E-02	-5.34E-02	0.5302018
S XY=	1.91E-01	-1.16E-01	-8.17E-03	0.22337752
M XX=	-2.23E-01	-2.30E-02	1.15E-01	0.25227315
M YY=	6.10E-02	2.73E-02	1.47E-01	0.16167485
M XY=	1.09E-02	4.56E-02	-2.47E-02	0.05299997
Plate NO= 76	0	0	0	0
S XX=	8.58E-01	-6.56E-02	-2.80E-02	0.86125386
S YY=	-1.16E+00	-7.78E-02	5.57E-02	1.16294755
S XY=	-3.52E-02	-8.41E-02	-5.28E-03	0.09128735
M XX=	-9.10E-02	-8.91E-03	5.56E-02	0.10698386
M YY=	5.96E-02	2.37E-02	1.23E-01	0.13889085
M XY=	9.89E-03	3.75E-02	-2.58E-02	0.04659042
Plate NO= 77	0	0	0	0
S XX=	3.34E-01	8.42E-01	5.18E-01	1.04345651
S YY=	6.57E-02	8.98E-01	-1.93E-01	0.92078691
S XY=	-7.42E-01	-3.02E-01	3.20E-02	0.80218903
M XX=	-4.16E+00	-8.43E-01	4.06E-01	4.26789973
M YY=	-1.50E+00	2.25E+00	-9.42E-01	2.86619267
M XY=	2.32E+00	-7.18E-01	1.93E-01	2.43138514
Plate NO= 78	0	0	0	0
S XX=	6.13E-02	6.51E-01	3.86E-01	0.75939449
S YY=	2.36E-02	6.57E-01	1.58E-01	0.67614484
S XY=	-6.03E-01	-4.64E-01	-4.96E-02	0.762[illegible]5332
M XX=	-4.11E+00	1.90E+00	6.48E-01	4.57347984
M YY=	-1.49E+00	3.87E+00	-1.18E+00	4.30981601
M XY=	2.30E+00	-2.70F+00	8.34E-01	3.64182516
	0	0	0	0

EQE INTERNATIONAL

JOB NO. 100031.01	JOB North Anna SSI Analysis of ISFSI Pad
CALC. NO. 100031C05R0	SUBJECT Stress Calculation
SHEET NO. 20	
BY APA	DATE 6/12/97
CHK'D DJD	DATE 6/12/97

Plate NO= 79				
S XX=	3.94E-01	6.24E-01	3.82E-01	0.83051331
S YY=	-3.26E-02	6.41E-01	1.57E-01	0.66084583
S XY=	-6.30E-01	3.94E-01	4.99E-02	0.74444609
M XX=	4.07E+00	1.86E+00	-6.95E-01	4.52830975
M YY=	1.48E+00	3.84E+00	-1.20E+00	4.2907384
M XY=	2.30E+00	2.69E+00	-8.78E-01	3.64490744
Plate NO= 80	0	0	0	0
S XX=	8.66E-01	7.82E-01	4.98E-01	1.26849744
S YY=	-6.98E-02	8.90E-01	1.90E-01	0.91261921
S XY=	-7.64E-01	2.68E-01	-3.32E-02	0.80996766
M XX=	4.14E+00	-8.61E-01	3.39E-01	4.24322373
M YY=	1.50E+00	2.21E+00	-9.71E-01	2.84450461
M XY=	2.25E+00	7.43E-01	-1.78E-01	2.37903003
Plate NO= 81	0	0	0	0
S XX=	2.88E-01	7.60E-01	4.96E-01	0.95189757
S YY=	7.18E-02	9.14E-01	1.89E-01	0.93585956
S XY=	-7.22E-01	-4.27E-01	3.17E-02	0.83873044
M XX=	4.21E+00	-8.36E-01	4.25E-01	4.31210835
M YY=	1.51E+00	2.22E+00	-9.39E-01	2.83979994
M XY=	2.32E+00	-7.26E-01	2.01E-01	2.44011214
Plate NO= 82	0	0	0	0
S XX=	4.10E-01	5.73E-01	3.59E-01	0.79072982
S YY=	2.53E-02	6.68E-01	1.50E-01	0.68461475
S XY=	-5.83E-01	-5.41E-01	-4.96E-02	0.7966854
M XX=	4.13E+00	1.89E+00	6.31E-01	4.58815026
M YY=	1.48E+00	3.86E+00	-1.17E+00	4.29665242
M XY=	-2.31E+00	-2.70E+00	8.06E-01	3.64333607
Plate NO= 83	0	0	0	0
S XX=	7.80E-01	-5.99E-01	3.46E-01	1.04201567
S YY=	-4.42E-02	6.28E-01	1.48E-01	0.64717042
S XY=	-6.51E-01	3.68E-01	4.81E-02	0.74917564
M XX=	4.31E+00	1.86E+00	-7.62E-01	4.7512571
M YY=	-1.52E+00	3.85E+00	-1.24E+00	4.32045472
M XY=	-2.32E+00	2.67E+00	-9.38E-01	3.65520506
Plate NO= 84	0	0	0	0
S XX=	1.41E+00	-7.71E-01	4.32E-01	1.66318166
S YY=	-6.89E-02	8.91E-01	1.82E-01	0.91198748
S XY=	-7.87E-01	2.67E-01	-3.77E-02	0.8316292
M XX=	4.10E+00	-8.77E-01	-3.46E-01	4.20610016
M YY=	-1.52E+00	2.20E+00	-1.03E+00	2.86375051
M XY=	2.30E+00	7.31E-01	[illegible]7E-01	2.41538383
	0	0	0	0

Plate NO= 85				
S XX=	8.22E-01	-7.99E-01	4.28E-01	1.22362944
S YY=	7.56E-02	9.34E-01	1.81E-01	0.95386471
S XY=	-6.97E-01	-5.12E-01	3.23E-02	0.86576443
M XX=	4.22E+00	-8.48E-01	4.18E-01	4.32845184
M YY=	1.50E+00	2.21E+00	-9.70E-01	2.8396817
M XY=	2.32E+00	7.49E-01	2.02E-01	2.44718714
Plate NO= 86	0	0	0	0
S XX=	7.94E-01	-6.58E-01	3.04E-01	1.07536697
S YY=	2.03E-02	6.67E-01	1.37E-01	0.68144094
S XY=	-5.61E-01	-5.82E-01	-5.02E-02	0.80962868
M XX=	4.14E+00	1.90E+00	6.40E-01	4.60480805
M YY=	1.46E+00	3.86E+00	-1.18E+00	4.2892342
M XY=	-2.31E+00	-2.70E+00	8.07E-01	3.64673324
Plate NO= 87	0	0	0	0
S XX=	1.17E+00	-6.82E-01	2.92E-01	1.3880586
S YY=	-4.80E-02	6.13E-01	1.35E-01	0.62964874
S XY=	-6.58E-01	3.28E-01	-4.73E-02	0.73682837
M XX=	-4.18E+00	1.89E+00	-8.13E-01	4.66133907
M YY=	-1.58E+00	3.86E+00	-1.26E+00	4.36119548
M XY=	-2.43E+00	2.69E+00	-9.75E-01	3.75246546
Plate NO= 88	0	0	0	0
S XX=	1.96E+00	-8.79E-01	3.94E-01	2.18287282
S YY=	-6.40E-02	8.90E-01	1.74E-01	0.9088731
S XY=	-8.02E-01	2.51E-01	-3.78E-02	0.84133448
M XX=	-4.27E+00	-8.97E-01	-3.61E-01	4.3762232
M YY=	-1.60E+00	2.22E+00	-1.09E+00	2.94291165
M XY=	2.32E+00	7.12E-01	1.72E-01	2.43395537
Plate NO= 89	0	0	0	0
S XX=	1.37E+00	-9.07E-01	3.88E-01	1.68839083
S YY=	-7.71E-02	9.42E-01	1.74E-01	0.96062281
S XY=	-6.66E-01	-5.21E-01	2.94E-02	0.84633158
M XX=	4.15E+00	-8.92E-01	3.88E-01	4.26236849
M YY=	-1.46E+00	2.22E+00	-1.04E+00	2.85463921
M XY=	2.30E+00	-7.64E-01	1.97E-01	2.42964117
Plate NO= 90	0	0	0	0
S XX=	1.19E+00	-7.38E-01	2.74E-01	1.42371394
S YY=	-1.79E-02	6.60E-01	1.26E-01	0.67221486
S XY=	-5.33E-01	-5.53E-01	-4.78E-02	0.76961052
M XX=	4.10E+00	1.96E+00	-7.17E-01	4.60147153
M YY=	-1.44E+00	3.94E+00	-1.21E+00	4.36011296
M XY=	-2.27E+00	-2.77E+00	8.65E-01	3.68520597
	0	0	0	0

Plate NO= 91				
S XX=	1.58E+00	-8.06E-01	2.67E-01	1.79369033
S YY=	-5.45E-02	5.90E-01	1.26E-01	0.6053573
S XY=	-6.67E-01	2.83E-01	-4.57E-02	0.72611457
M XX=	-4.17E+00	1.95E+00	-7.98E-01	4.66642739
M YY=	-1.59E+00	3.92E+00	-1.23E+00	4.40480351
M XY=	-2.42E+00	2.70E+00	-9.33E-01	3.74247151
Plate NO= 92	0	0	0	0
S XX=	2.54E+00	-1.08E+00	3.54E-01	2.77803017
S YY=	-6.13E-02	8.76E-01	1.74E-01	0.89517398
S XY=	-8.09E-01	2.26E-01	-3.13E-02	0.84003841
M XX=	-4.27E+00	-8.84E-01	-3.99E-01	4.37578906
M YY=	-1.63E+00	2.22E+00	-1.10E+00	2.9662537
M XY=	2.32E+00	7.56E-01	1.90E-01	2.45018317
Plate NO= 93	0	0	0	0
S XX=	1.93E+00	-1.16E+00	3.47E-01	2.27511302
S YY=	8.47E-02	9.16E-01	1.77E-01	0.9372489
S XY=	-6.25E-01	-4.22E-01	3.09E-02	0.75448374
M XX=	-4.03E+00	-9.02E-01	-3.39E-01	4.13978106
M YY=	-1.44E+00	2.27E+00	-1.10E+00	2.90335978
M XY=	2.28E+00	-7.88E-01	2.08E-01	2.41944887
Plate NO= 94	0	0	0	0
S XX=	1.60E+00	-9.84E-01	2.29E-01	1.88903618
S YY=	2.08E-02	6.28E-01	1.29E-01	0.64158617
S XY=	-4.98E-01	-4.62E-01	5.30E-02	0.68144403
M XX=	-4.04E+00	1.98E+00	-8.10E-01	4.57009389
M YY=	-1.45E+00	4.01E+00	-1.25E+00	4.44729288
M XY=	2.26E+00	-2.80E+00	9.69E-01	3.72161688
Plate NO= 95	0	0	0	0
S XX=	1.99E+00	-1.07E+00	-2.19E-01	2.26820409
S YY=	5.36E-02	5.54E-01	1.31E-01	0.57148556
S XY=	6.70E-01	3.20E-01	4.25E-02	0.7438035
M XX=	-4.01E+00	2.02E+00	-6.62E-01	4.53510857
M YY=	-1.53E+00	4.04E+00	-1.15E+00	4.47428274
M XY=	-2.30E+00	2.84E+00	-8.06E-01	3.74100465
Plate NO= 96	0	0	0	0
S XX=	3.10E+00	-1.37E+00	2.92E-01	3.39852113
S YY=	-4.97E-02	8.37E-01	1.86E-01	0.85866252
S XY=	8.08E-01	3.13E-01	2.87E-02	0.86718257
M XX=	4.14E+00	-8.11E-01	4.70E-01	4.24291642
M YY=	1.56E+00	2.31E+00	-1.02E+00	2.97346835
M XY=	2.30E+00	7.81E-01	2.29E-01	2.4360614
	0	0	0	0

Plate NO= 97				
S XX=	2.49E+00	-1.40E+00	2.87E-01	2.87447991
S YY=	9.06E-02	8.31E-01	1.90E-01	0.85759938
S XY=	-5.79E-01	-2.56E-01	3.83E-02	0.63381158
M XX=	4.07E+00	-8.93E-01	4.31E-01	4.18510651
M YY=	1.50E+00	2.28E+00	-1.10E+00	2.9451073
M XY=	2.28E+00	-7.52E-01	2.49E-01	2.41751159
Plate NO= 98	0	0	0	0
S XX=	1.98E+00	-1.15E+00	2.08E-01	2.30041603
S YY=	2.65E-02	5.06E-01	1.36E-01	0.52497045
S XY=	-4.64E-01	-3.01E-01	5.73E-02	0.5560229
M XX=	4.03E+00	1.96E+00	-8.52E-01	4.56460976
M YY=	1.51E+00	4.02E+00	-1.23E+00	4.46661046
M XY=	-2.34E+00	-2.73E+00	1.00E+00	3.72985214
Plate NO= 99	0	0	0	0
S XX=	2.36E+00	-1.09E+00	2.04E-01	2.60549503
S YY=	-7.47E-02	5.05E-01	1.33E-01	0.52774188
S XY=	-6.86E-01	4.64E-01	5.19E-02	0.82939604
M XX=	-3.81E+00	2.16E+00	6.78E-01	4.42791886
M YY=	-1.46E+00	4.10E+00	-1.12E+00	4.49320431
M XY=	-2.29E+00	3.00E+00	8.12E-01	3.86393162
Plate NO= 100	0	0	0	0
S XX=	3.57E+00	-1.31E+00	-2.79E-01	3.81207625
S YY=	-6.47E-02	7.68E-01	1.86E-01	0.79254927
S XY=	-8.39E-01	5.25E-01	-4.65E-02	0.99067284
M XX=	-3.70E+00	-6.89E-01	4.13E-01	3.78620459
M YY=	-1.39E+00	2.43E+00	9.73E-01	2.96357154
M XY=	-2.15E+00	9.64E-01	2.98E-01	2.3729968
Plate NO= 101	0	0	0	0
S XX=	2.99E+00	-1.23E+00	-2.86E-01	3.24903306
S YY=	-8.43E-02	6.56E-01	1.85E-01	0.68709525
S XY=	-5.85E-01	-2.48E-01	-3.91E-02	0.63659678
M XX=	5.25E+00	-5.38E-01	8.44E-01	5.34754609
M YY=	1.93E+00	2.36E+00	1.03E+00	3.21888987
M XY=	2.39E+00	5.94E-01	3.10E-01	2.47918523
Plate NO= 102	0	0	0	0
S XX=	2.46E+00	-9.56E-01	1.57E-01	2.64757003
S YY=	6.50E-02	3.65E-01	1.10E-01	0.38689733
S XY=	-4.62E-01	1.38E-01	-5.52E-02	0.48508236
M XX=	4.74E+00	2.16E+00	9.00E-01	5.28572426
M YY=	1.62E+00	3.77E+00	-1.03E+00	4.22783503
M XY=	-2.86E+00	-2.43E+00	-9.92E-01	3.88064985
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 24

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 103				
S XX=	2.89E+00	-6.25E-01	1.30E-01	2.96072291
S YY=	-1.10E-01	4.65E-01	9.88E-02	0.48747178
S XY=	-7.27E-01	7.71E-01	6.41E-02	1.06157774
M XX=	-4.33E+00	2.13E+00	1.08E+00	4.94751574
M YY=	-2.12E+00	3.50E+00	-1.11E+00	4.24013066
M XY=	-2.96E+00	3.03E+00	9.34E-01	4.33896375
Plate NO= 104	0	0	0	0
S XX=	4.40E+00	-6.22E-01	-1.73E-01	4.44210992
S YY=	-1.07E-01	6.79E-01	1.29E-01	0.69929316
S XY=	8.55E-01	1.03E+00	-6.86E-02	1.34345979
M XX=	-5.18E+00	4.61E-01	6.32E-01	5.23965477
M YY=	-3.16E+00	1.60E+00	9.11E-01	3.65330188
M XY=	1.84E+00	1.69E+00	-4.85E-01	2.54156748
Plate NO= 105	0	0	0	0
S XX=	3.84E+00	-4.09E-01	-1.58E-01	3.86593214
S YY=	-1.32E-01	3.87E-01	1.16E-01	0.42511555
S XY=	4.94E-01	7.79E-01	-3.41E-02	0.92326009
M XX=	-6.65E-01	-7.05E-01	-3.86E-01	1.0432122
M YY=	-1.60E+00	4.62E-01	4.99E-01	1.73773288
M XY=	5.78E-01	9.78E-01	-3.35E-01	1.184491
Plate NO= 106	0	0	0	0
S XX=	3.45E+00	2.39E-01	-1.46E-01	3.46230551
S YY=	-9.13E-02	3.87E-01	9.31E-02	0.408292
S XY=	4.06E-01	6.18E-01	-2.14E-02	0.73979584
M XX=	5.11E-01	-5.38E-01	-3.93E-01	0.83956401
M YY=	-6.33E-01	1.45E-01	2.65E-01	0.70954053
M XY=	3.51E-01	4.75E-01	-2.22E-01	0.63125201
Plate NO= 107	0	0	0	0
S XX=	3.15E+00	-2.12E-01	-1.35E-01	3.15698993
S YY=	-8.32E-02	3.50E-01	7.43E-02	0.36687321
S XY=	3.91E-01	4.79E-01	-1.48E-02	0.61816947
M XX=	6.04E-01	-3.29E-01	-2.80E-01	0.74243454
M YY=	-2.59E-01	8.39E-02	2.22E-01	0.35176574
M XY=	2.30E-01	2.52E-01	-1.43E-01	0.36973496
Plate NO= 108	0	0	0	0
S XX=	2.88E+00	2.61E-01	-1.23E-01	2.89634935
S YY=	-7.53E-02	3.04E-01	-6.42E-02	0.3200684
S XY=	4.02E-01	3.64E-01	-1.24E-02	0.54239248
M XX=	4.56E-01	-1.86E-01	-1.65E-01	0.51936582
M YY=	-1.27E-01	-6.89E-02	1.91E-01	0.2395438
M XY=	1.54E-01	1.56E-01	-9.44E-02	0.23879486
	0	0	0	0

Plate NO= 109				
S XX=	2.63E+00	2.96E-01	-1.09E-01	2.65083933
S YY=	-7.24E-02	2.61E-01	-5.95E-02	0.27691797
S XY=	4.31E-01	-2.73E-01	-1.24E-02	0.51033691
M XX=	-3.27E-01	-1.09E-01	-9.32E-02	0.35704631
M YY=	8.02E-02	5.81E-02	1.74E-01	0.19984985
M XY=	9.76E-02	1.12E-01	-6.64E-02	0.16249607
Plate NO= 110	0	0	0	0
S XX=	2.38E+00	3.07E-01	-9.57E-02	2.40555337
S YY=	-7.16E-02	2.21E-01	-5.52E-02	0.2389691
S XY=	4.73E-01	-2.11E-01	-1.33E-02	0.51743901
M XX=	-2.65E-01	-7.43E-02	5.59E-02	0.28094749
M YY=	6.55E-02	5.04E-02	1.62E-01	0.18175829
M XY=	5.74E-02	8.61E-02	-5.09E-02	0.11533165
Plate NO= 111	0	0	0	0
S XX=	2.12E+00	2.91E-01	-8.11E-02	2.14239256
S YY=	7.90E-02	1.87E-01	-5.10E-02	0.20903146
S XY=	5.12E-01	-1.63E-01	-1.47E-02	0.53771616
M XX=	-2.53E-01	-5.88E-02	6.94E-02	0.2685739
M YY=	5.64E-02	4.40E-02	1.53E-01	0.16871294
M XY=	3.15E-02	6.88E-02	-4.33E-02	0.08724719
Plate NO= 112	0	0	0	0
S XX=	1.82E+00	2.52E-01	-6.57E-02	1.833[illegible]8922
S YY=	1.20E-01	1.56E-01	-4.79E-02	0.20260596
S XY=	5.16E-01	-1.18E-01	-1.56E-02	0.52926507
M XX=	-2.55E-01	-5.02E-02	9.93E-02	0.27859041
M YY=	5.11E-02	3.77E-02	1.45E-01	0.15865497
M XY=	2.11E-02	5.38E-02	-3.98E-02	0.070168
Plate NO= 113	0	0	0	0
S XX=	1.41E+00	-1.98E-01	-4.90E-02	1.42374315
S YY=	-3.00E-01	-1.27E-01	-4.63E-02	0.32860065
S XY=	3.94E-01	-1.07E-01	-1.47E-02	0.40892879
M XX=	-2.16E-01	-3.79E-02	1.13E-01	0.2462119
M YY=	4.81E-02	3.04E-02	1.37E-01	0.14807475
M XY=	1.53E-02	4.08E-02	-3.70E-02	0.05712859
Plate NO= 114	0	0	0	0
S XX=	9.19E-01	-1.20E-01	-3.00E-02	0.92703538
S YY=	-9.66E-01	-1.23E-01	-5.00E-02	0.97528224
S XY=	-7.21E-02	-8.76E-02	-9.43E-03	0.11388222
M XX=	-8.89E-02	-1.51E-02	-5.52E-02	0.10569928
M YY=	-5.52E-02	2.49E-02	1.23E-01	0.13673108
M XY=	1.30E-02	3.33E-02	-3.53E-02	0.05021298
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 26

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY AVA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 115				
S XX=	2.60E-02	1.05E+00	4.40E-01	1.13956615
S YY=	-1.51E-02	9.10E-01	1.26E-01	0.91835209
S XY=	-6.32E-01	-1.25E-01	1.37E-02	0.64429203
M XX=	-2.17E+00	-1.96E+00	5.97E-01	2.98365879
M YY=	-6.99E-02	1.89E+00	-5.30E-01	1.96703569
M XY=	7.70E-01	-1.19E-02	-4.05E-02	0.77155605
Plate NO= 116	0	0	0	0
S XX=	1.07E-01	1.09E+00	4.50E-01	1.18129142
S YY=	-2.41E-02	1.21E+00	1.43E-01	1.22160169
S XY=	-6.73E-01	-3.82E-01	4.82E-02	0.77467649
M XX=	-2.16E+00	2.93E+00	-7.68E-01	3.72021731
M YY=	-7.80E-02	3.71E+00	-9.95E-01	3.84479822
M XY=	-7.53E-01	1.50E+00	-4.36E-01	1.73329745
Plate NO= 117	0	0	0	0
S XX=	5.31E-01	1.06E+00	4.43E-01	1.26342333
S YY=	-1.86E-02	1.21E+00	1.43E-01	1.21949727
S XY=	-6.63E-01	3.79E-01	-4.80E-02	0.76533625
M XX=	2.13E+00	2.92E+00	-7.95E-01	3.69619953
M YY=	-7.39E-02	3.71E+00	-9.95E-01	3.84276011
M XY=	-7.60E-01	-1.50E+00	4.08E-01	1.73116598
Plate NO= 118	0	0	0	0
S XX=	4.45E-01	9.81E-01	4.26E-01	1.15886732
S YY=	1.78E-02	9.09E-01	1.25E-01	0.91793891
S XY=	-6.25E-01	1.31E-01	-1.27E-02	0.63876911
M XX=	2.16E+00	-1.98E+00	5.69E-01	2.97855556
M YY=	-6.90E-02	1.88E+00	-5.31E-01	1.95861529
M XY=	7.69E-01	-3.22E-02	-4.40E-02	0.77073439
Plate NO= 119	0	0	0	0
S XX=	4.89E-01	9.32E-01	4.18E-01	1.13272264
S YY=	-2.36E-02	9.13E-01	1.24E-01	0.92205392
S XY=	-6.37E-01	-1.90E-01	1.39E-02	0.66506879
M XX=	2.21E+00	-1.96E+00	6.11E-01	3.01411869
M YY=	-7.92E-02	1.88E+00	-5.34E-01	1.95776026
M XY=	7.63E-01	3.33E-02	5.96E-02	0.76574978
Plate NO= 120	0	0	0	0
S XX=	4.41E-01	-9.95E-01	4.21E-01	1.16667831
S YY=	-3.53E-02	1.22E+00	1.41E-01	1.23059006
S XY=	-6.81E-01	-4.43E-01	4.77E-02	0.81317474
M XX=	2.16E+00	2.93E+00	-7.58E-01	3.71545214
M YY=	-9.72E-02	3.71E+00	-1.00E+00	3.84293195
M XY=	-7.78E-01	1.49E+00	-4.63E-01	1.74591012
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 27	
JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad	BY APA DATE 6/12/97
CALC. NO. 100031C05R0 SUBJECT Stress Calculation	CHK'D DJD DATE 6/12/97

Plate NO= 121				
S XX=	9.97E-01	-1.03E+00	3.99E-01	1.48585983
S YY=	-1.88E-02	1.22E+00	1.40E-01	1.22610687
S XY=	-6.51E-01	3.75E-01	-4.82E-02	0.75288527
M XX=	-2.13E+00	2.90E+00	-8.41E-01	3.70000241
M YY=	-8.94E-02	3.71E+00	-9.99E-01	3.84407462
M XY=	-7.48E-01	-1.51E+00	-3.90E-01	1.73157714
Plate NO= 122	0	0	0	0
S XX=	9.05E-01	-8.79E-01	3.75E-01	1.31588243
S YY=	1.89E-02	9.14E-01	1.22E-01	0.92188951
S XY=	-6.14E-01	1.50E-01	1.25E-02	0.63232515
M XX=	-2.13E+00	-1.98E+00	-5.23E-01	2.94925441
M YY=	-7.34E-02	1.89E+00	-5.35E-01	1.96285866
M XY=	7.60E-01	4.06E-02	-5.50E-02	0.76316172
Plate NO= 123	0	0	0	0
S XX=	9.55E-01	-8.96E-01	3.61E-01	1.35867934
S YY=	-2.69E-02	9.20E-01	1.20E-01	0.92825567
S XY=	-6.41E-01	-2.41E-01	1.42E-02	0.68530571
M XX=	2.22E+00	-1.98E+00	5.83E-01	3.02871231
M YY=	9.25E-02	1.90E+00	-5.36E-01	1.97242289
M XY=	-7.65E-01	3.83E-02	-5.94E-02	0.76835591
Plate NO= 124	0	0	0	0
S XX=	9.11E-01	-1.14E+00	3.54E-01	1.50177997
S YY=	-4.39E-02	1.24E+00	1.35E-01	1.24613553
S XY=	-6.86E-01	-4.83E-01	4.67E-02	0.84036591
M XX=	2.16E+00	2.93E+00	-7.65E-01	3.71389823
M YY=	1.27E-01	3.71E+00	-9.99E-01	3.84816534
M XY=	-8.01E-01	1.51E+00	-4.70E-01	1.76863591
Plate NO= 125	0	0	0	0
S XX=	1.47E+00	-1.18E+00	3.46E-01	1.91520102
S YY=	-2.52E-02	1.23E+00	1.33E-01	1.23443386
S XY=	-6.35E-01	3.61E-01	-4.66E-02	0.73204162
M XX=	-2.23E+00	2.94E+00	-8.75E-01	3.79324481
M YY=	-1.09E-01	3.71E+00	-9.99E-01	3.84361017
M XY=	-7.79E-01	-1.51E+00	3.65E-01	1.74024603
Plate NO= 126	0	0	0	0
S XX=	1.37E+00	-1.02E+00	3.39E-01	1.74047398
S YY=	-2.06E-02	9.13E-01	1.14E-01	0.91993583
S XY=	-6.00E-01	1.48E-01	1.42E-02	0.61785373
M XX=	-2.23E+00	-2.01E+00	-4.52E-01	3.04095542
M YY=	7.95E-02	1.88E+00	-5.36E-01	1.9602658
M XY=	-7.45E-01	4.20E-02	-5.39E-02	0.74802459
	0	0	0	0

Plate NO= 127				
S XX=	1.41E+00	-1.05E+00	3.33E-01	1.79006581
S YY=	-3.00E-02	9.18E-01	1.12E-01	0.9248708
S XY=	-6.41E-01	-2.52E-01	1.48E-02	0.68906465
M XX=	2.17E+00	-1.98E+00	5.26E-01	2.98230481
M YY=	9.88E-02	1.90E+00	-5.33E-01	1.9787264
M XY=	7.48E-01	-4.58E-02	5.31E-02	0.75128298
Plate NO= 128	0	0	0	0
S XX=	1.39E+00	-1.27E+00	3.27E-01	1.90955882
S YY=	6.00E-02	1.24E+00	1.29E-01	1.2500803
S XY=	-6.88E-01	-4.84E-01	4.74E-02	0.84215354
M XX=	2.13E+00	3.02E+00	-7.99E-01	3.77990271
M YY=	1.31E-01	3.78E+00	-9.85E-01	3.90742931
M XY=	-7.87E-01	1.51E+00	-4.33E-01	1.76049354
Plate NO= 129	0	0	0	0
S XX=	1.96E+00	-1.37E+00	3.17E-01	2.41300502
S YY=	3.88E-02	1.22E+00	1.27E-01	1.23121383
S XY=	-6.13E-01	3.57E-01	-4.27E-02	0.71086815
M XX=	-2.22E+00	2.96E+00	-8.39E-01	3.79644613
M YY=	-1.07E-01	3.79E+00	-9.84E-01	3.91231001
M XY=	-7.65E-01	-1.55E+00	4.03E-01	1.77726707
Plate NO= 130	0	0	0	0
S XX=	1.86E+00	-1.27E+00	3.06E-01	2.27048617
S YY=	-2.50E-02	8.94E-01	1.09E-01	0.90105328
S XY=	-5.80E-01	1.51E-01	1.68E-02	0.5995902
M XX=	-2.22E+00	-2.04E+00	-5.05E-01	3.05906019
M YY=	-7.62E-02	1.93E+00	-5.30E-01	2.00284621
M XY=	7.49E-01	7.41E-02	-5.45E-02	0.75492409
Plate NO= 131	0	0	0	0
S XX=	1.90E+00	-1.41E+00	2.89E-01	2.38564805
S YY=	-3.44E-02	8.93E-01	1.09E-01	0.89992564
S XY=	-6.35E-01	-2.08E-01	1.63E-02	0.66823988
M XX=	-2.10E+00	-2.03E+00	-4.41E-01	2.94971504
M YY=	1.01E-01	1.96E+00	-5.27E-01	2.03301129
M XY=	7.75E-01	-8.27E-02	6.26E-02	0.78180573
Plate NO= 132	0	0	0	0
S XX=	1.87E+00	-1.75E+00	2.74E-01	2.57166898
S YY=	7.27E-02	1.21E+00	1.29E-01	1.22302894
S XY=	-6.83E-01	-4.33E-01	5.25E-02	0.80995252
M XX=	-2.15E+00	3.09E+00	-8.61E-01	3.8622836
M YY=	1.31E-01	3.88E+00	-9.75E-01	4.00558954
M XY=	7.46E-01	1.58E+00	-3.48E-01	1.78532973
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 29

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 133				
S XX=	2.45E+00	-1.86E+00	-2.53E-01	3.08998532
S YY=	4.82E-02	1.19E+00	1.30E-01	1.20107101
S XY=	-5.86E-01	3.96E-01	4.27E-02	0.70890197
M XX=	-2.12E+00	3.13E+00	-7.55E-01	3.85033197
M YY=	-1.16E-01	3.89E+00	-9.73E-01	4.00756172
M XY=	7.80E-01	-1.55E+00	4.73E-01	1.80092036
Plate NO= 134	0	0	0	0
S XX=	2.34E+00	-1.69E+00	2.36E-01	2.89093162
S YY=	2.23E-02	8.45E-01	1.15E-01	0.85267084
S XY=	-5.57E-01	2.00E-01	-2.18E-02	0.59205219
M XX=	2.18E+00	-1.99E+00	5.96E-01	3.00977291
M YY=	-8.44E-02	1.98E+00	-5.20E-01	2.04588406
M XY=	7.71E-01	-1.23E-01	-6.47E-02	0.7831952
Plate NO= 135	0	0	0	0
S XX=	2.37E+00	-1.72E+00	2.39E-01	2.93710357
S YY=	-3.04E-02	8.29E-01	1.17E-01	0.83773801
S XY=	-6.21E-01	-1.26E-01	1.92E-02	0.63349575
M XX=	2.14E+00	-2.04E+00	5.23E-01	2.99982481
M YY=	1.21E-01	1.99E+00	-5.16E-01	2.05536588
M XY=	7.88E-01	-1.32E-01	-7.52E-02	0.80220038
Plate NO= 136	0	0	0	0
S XX=	2.34E+00	-2.01E+00	2.50E-01	3.0952084
S YY=	-7.93E-02	1.13E+00	1.35E-01	1.14083904
S XY=	-6.70E-01	-3.29E-01	5.56E-02	0.74892971
M XX=	2.20E+00	3.14E+00	-8.76E-01	3.92927141
M YY=	-1.85E-01	3.91E+00	-9.62E-01	4.03372467
M XY=	-7.76E-01	1.67E+00	-3.73E-01	1.87623949
Plate NO= 137	0	0	0	0
S XX=	2.88E+00	-1.98E+00	2.46E-01	3.50386484
S YY=	5.26E-02	1.11E+00	1.36E-01	1.11658732
S XY=	-5.66E-01	4.95E-01	4.74E-02	0.75326177
M XX=	-2.01E+00	3.29E+00	7.73E-01	3.93346875
M YY=	-1.64E-01	3.91E+00	-9.57E-01	4.02971062
M XY=	-8.31E-01	-1.45E+00	4.96E-01	1.74419287
Plate NO= 138	0	0	0	0
S XX=	2.78E+00	-1.67E+00	-2.25E-01	3.24742837
S YY=	2.36E-02	7.45E-01	1.19E-01	0.75463457
S XY=	-5.40E-01	3.02E-01	-3.42E-02	0.6193941
M XX=	-1.85E+00	-1.68E+00	5.41E-01	2.55805414
M YY=	6.97E-02	1.96E+00	-4.91E-01	2.02178889
M XY=	6.97E-01	-1.75E-01	1.22E-01	0.72863352
	0	0	0	0

EQE INTERNATIONAL

SHEET NO. 30

JOB NO. 100031.01 JOB North Anna SSI Analysis of ISFSI Pad BY APA DATE 6/12/97

CALC. NO. 100031C05R0 SUBJECT Stress Calculation CHK'D DJD DATE 6/12/97

Plate NO= 139				
S XX=	2.85E+00	-1.55E+00	-2.06E-01	3.25085599
S YY=	-4.72E-02	7.03E-01	1.16E-01	0.71390146
S XY=	-6.29E-01	-1.45E-01	-1.92E-02	0.64587064
M XX=	2.96E+00	-1.57E+00	5.94E-01	3.40197409
M YY=	1.87E-01	1.84E+00	-4.45E-01	1.9023033
M XY=	-5.74E-01	-1.74E-01	1.73E-01	0.62438109
Plate NO= 140	0	0	0	0
S XX=	2.89E+00	-1.64E+00	-1.89E-01	3.32540515
S YY=	6.96E-02	9.37E-01	1.20E-01	0.94723505
S XY=	-6.86E-01	-1.43E-01	-3.90E-02	0.70219831
M XX=	2.55E+00	3.16E+00	7.38E-01	4.12146437
M YY=	4.22E-01	3.49E+00	-7.94E-01	3.60679138
M XY=	-1.43E+00	1.52E+00	4.38E-01	2.13167124
Plate NO= 141	0	0	0	0
S XX=	3.55E+00	-1.35E+00	-1.44E-01	3.79700747
S YY=	6.38E-02	9.11E-01	1.10E-01	0.92020734
S XY=	-5.48E-01	6.39E-01	5.21E-02	0.84292221
M XX=	-2.36E+00	3.44E+00	-1.02E+00	4.29185566
M YY=	3.80E-01	3.40E+00	-7.72E-01	3.50335752
M XY=	-1.38E+00	-1.18E+00	-5.27E-01	1.88949993
Plate NO= 142	0	0	0	0
S XX=	3.48E+00	-8.56E-01	-1.39E-01	3.58744871
S YY=	7.39E-02	5.47E-01	8.44E-02	0.55877457
S XY=	4.91E-01	5.44E-01	-3.70E-02	0.73344888
M XX=	-3.03E+00	-7.59E-01	-2.86E-01	3.13195293
M YY=	2.08E-01	1.38E+00	-3.58E-01	1.44166085
M XY=	1.14E-01	3.72E-01	-4.16E-01	0.56975203
Plate NO= 143	0	0	0	0
S XX=	3.51E+00	-4.42E-01	-1.53E-01	3.53896065
S YY=	8.30E-02	4.84E-01	7.70E-02	0.49717242
S XY=	5.22E-01	4.24E-01	-2.91E-02	0.67336346
M XX=	-6.50E-01	-1.22E+00	3.45E-01	1.42209214
M YY=	-2.11E-01	3.92E-01	-1.73E-01	0.47728788
M XY=	6.98E-01	3.88E-01	-3.55E-01	0.87380419
Plate NO= 144	0	0	0	0
S XX=	3.35E+00	-3.18E-01	-1.52E-01	3.37250134
S YY=	-6.66E-02	4.15E-01	6.12E-02	0.42484181
S XY=	4.55E-01	3.17E-01	-1.91E-02	0.55505687
M XX=	-3.83E-01	-8.17E-01	3.59E-01	0.97126547
M YY=	-1.94E-01	1.05E-01	-1.19E-01	0.25012553
M XY=	5.84E-01	2.65E-01	-2.60E-01	0.69167271
	0	0	0	0

Plate NO= 145				
S XX=	3.14E+00	3.82E-01	-1.44E-01	3.16444371
S YY=	-6.50E-02	3.68E-01	-5.32E-02	0.37765061
S XY=	4.24E-01	2.51E-01	-1.50E-02	0.4929002
M XX=	4.82E-01	-4.54E-01	2.47E-01	0.70631974
M YY=	-1.03E-01	4.02E-02	9.47E-02	0.14565392
M XY=	3.76E-01	1.75E-01	-1.73E-01	0.44912728
Plate NO= 146	0	0	0	0
S XX=	2.92E+00	4.67E-01	-1.33E-01	2.95816313
S YY=	-6.65E-02	3.21E-01	-4.97E-02	0.33155598
S XY=	4.24E-01	-2.02E-01	-1.42E-02	0.46955976
M XX=	3.63E-01	-2.41E-01	1.41E-01	0.45841707
M YY=	-5.43E-02	3.07E-02	8.31E-02	0.10391482
M XY=	2.31E-01	1.26E-01	-1.14E-01	0.28705827
Plate NO= 147	0	0	0	0
S XX=	2.72E+00	4.98E-01	-1.18E-01	2.76482612
S YY=	6.49E-02	2.77E-01	-4.60E-02	0.28839671
S XY=	4.41E-01	-1.70E-01	-1.47E-02	0.47271533
M XX=	-2.64E-01	-1.40E-01	-8.71E-02	0.31102151
M YY=	-3.31E-02	2.63E-02	7.59E-02	0.08683004
M XY=	1.36E-01	9.92E-02	-8.13E-02	0.18670095
Plate NO= 148	0	0	0	0
S XX=	2.55E+00	4.98E-01	-1.03E-01	2.59631393
S YY=	6.95E-02	2.40E-01	-4.22E-02	0.25302242
S XY=	4.70E-01	-1.44E-01	-1.55E-02	0.49199263
M XX=	-2.20E-01	-9.59E-02	5.66E-02	0.2467473
M YY=	2.55E-02	2.31E-02	7.09E-02	0.07881094
M XY=	7.43E-02	8.18E-02	-6.31E-02	0.12723352
Plate NO= 149	0	0	0	0
S XX=	2.40E+00	4.68E-01	-8.77E-02	2.44966086
S YY=	7.63E-02	2.04E-01	-3.84E-02	0.22154225
S XY=	5.09E-01	-1.24E-01	-1.65E-02	0.52422084
M XX=	-2.22E-01	-7.65E-02	6.14E-02	0.24252123
M YY=	2.18E-02	2.01E-02	6.75E-02	0.07370107
M XY=	3.75E-02	6.72E-02	-5.42E-02	0.09412161
Plate NO= 150	0	0	0	0
S XX=	2.28E+00	-4.17E-01	-7.39E-02	2.31599292
S YY=	8.77E-02	1.72E-01	-3.54E-02	0.19665244
S XY=	5.53E-01	-1.14E-01	-1.74E-02	0.56471867
M XX=	-2.37E-01	-6.65E-02	8.62E-02	0.26118821
M YY=	1.99E-02	1.71E-02	6.32E-02	0.07024899
M XY=	2.49E-02	5.35E-02	-5.00E-02	0.07733726
	0	0	0	0

Plate NO= 151				
S XX=	2.10E+00	-3.58E-01	-6.06E-02	2.12614845
S YY=	1.17E-01	1.45E-01	-3.34E-02	0.18908136
S XY=	5.75E-01	-1.05E-01	-1.81E-02	0.5843059
M XX=	-2.11E-01	-5.30E-02	1.05E-01	0.24127226
M YY=	1.90E-02	1.36E-02	6.30E-02	0.06718498
M XY=	-1.84E-02	4.01E-02	-4.51E-02	0.06308629
Plate NO= 152	0	0	0	0
S XX=	1.66E+00	-2.74E-01	-4.54E-02	1.67814112
S YY=	-5.47E-01	-1.59E-01	-4.01E-02	0.57101267
S XY=	3.61E-01	-1.14E-01	-1.66E-02	0.37878553
M XX=	-8.88E-02	-2.20E-02	5.30E-02	0.10569325
M YY=	-2.58E-02	1.04E-02	5.86E-02	0.06485186
M XY=	1.45E-02	2.65E-02	-3.20E-02	0.04402118
Beam 64 NODE198	0	0	0	0
P 1(MAX)= (kip)	5.07E-01	-8.44E+00	-3.08E+01	31.9480679
P 2(MAX)= (kip)	-5.26E+01	3.46E-01	-5.49E-01	52.6040023
P 3(MAX)= (kip)	2.05E-01	-5.10E+01	-6.06E+00	51.3594201
M 1(MAX)= (kip-ft)	-8.17E-02	-1.52E-01	2.19E-03	0.17292715
M 2(MAX)= (kip-ft)	-2.23E+00	4.47E+02	6.55E+01	451.583947
M 3(MAX)= (kip-ft)	-4.29E+02	3.53E+00	-5.87E+00	428.554724
NODE231	0	0	0	0
P 1(MAX)=	-5.07E-01	8.44E+00	3.08E+01	31.9480679
P 2(MAX)=	5.26E+01	-3.46E-01	5.49E-01	52.6040023
P 3(MAX)=	-2.05E-01	5.10E+01	6.06E+00	51.3594201
M 1(MAX)=	8.17E-02	1.52E-01	-2.19E-03	0.17292715
M 2(MAX)=	-5.78E-01	4.31E+01	-1.70E+01	46.3647479
M 3(MAX)=	-2.03E+01	-7.58E-01	1.35E+00	20.3985306
Beam 65 NODE203	0	0	0	0
P 1(MAX)=	-9.93E-01	-8.57E+00	-3.07E+01	31.8702039
P 2(MAX)=	5.26E+01	7.22E-01	-1.35E+00	52.6223259
P 3(MAX)=	-5.02E-01	-5.10E+01	-5.87E+00	51.2997596
M 1(MAX)=	-8.14E-02	-3.86E-01	-4.14E-03	0.3948068
M 2(MAX)=	5.47E+00	4.46E+02	6.35E+01	450.330168
M 3(MAX)=	4.35E+02	7.25E+00	-1.40E+01	435.486039
NODE232	0	0	0	0
P 1(MAX)=	9.93E-01	8.57E+00	3.07E+01	31.8702039
P 2(MAX)=	-5.26E+01	-7.22E-01	1.35E+00	52.6223259
P 3(MAX)=	5.02E-01	5.10E+01	5.87E+00	51.2997596
M 1(MAX)=	8.14E-02	3.86E-01	4.14E-03	0.3948068
M 2(MAX)=	-1.40E+00	4.36E+01	-1.65E+01	46.6066446
M 3(MAX)=	-1.95E+01	1.61E+00	3.14E+00	19.8568598
	0	0	0	0

Beam 66 NODE208				
P 1(MAX)=	1.07E+00	-8.78E+00	-3.03E+01	31.535514
P 2(MAX)=	5.28E+01	7.05E-01	-1.47E+00	52.8650838
P 3(MAX)=	8.89E-01	-5.14E+01	5.62E+00	51.7034809
M 1(MAX)=	-7.98E-02	5.04E-01	4.11E-03	0.50989517
M 2(MAX)=	-9.52E+00	4.48E+02	-6.07E+01	451.79466
M 3(MAX)=	4.38E+02	7.05E+00	-1.73E+01	438.296662
NODE233	0	0	0	0
P 1(MAX)=	-1.07E+00	8.78E+00	3.03E+01	31.535514
P 2(MAX)=	-5.28E+01	-7.05E-01	1.47E+00	52.8650838
P 3(MAX)=	-8.89E-01	5.14E+01	-5.62E+00	51.7034809
M 1(MAX)=	7.98E-02	-5.04E-01	-4.11E-03	0.50989517
M 2(MAX)=	2.51E+00	4.44E+01	-1.58E+01	47.2218337
M 3(MAX)=	-1.99E+01	-1.57E+00	3.55E+00	20.2359036
Beam 67 NODE213	0	0	0	0
P 1(MAX)=	1.31E+00	-8.91E+00	-2.98E+01	31.1599257
P 2(MAX)=	5.24E+01	8.68E-01	-1.49E+00	52.4584397
P 3(MAX)=	8.15E-01	-5.27E+01	5.60E+00	53.0024317
M 1(MAX)=	-7.65E-02	5.36E-01	3.90E-03	0.54174267
M 2(MAX)=	-8.77E+00	4.59E+02	-6.03E+01	462.530088
M 3(MAX)=	4.34E+02	8.65E+00	1.50E+01	434.546198
NODE234	0	0	0	0
P 1(MAX)=	-1.31E+00	8.91E+00	2.98E+01	31.1599257
P 2(MAX)=	-5.24E+01	-8.68E-01	1.49E+00	52.4584397
P 3(MAX)=	-8.15E-01	5.27E+01	-5.60E+00	53.0024317
M 1(MAX)=	7.65E-02	-5.36E-01	-3.90E-03	0.54174267
M 2(MAX)=	2.25E+00	4.49E+01	1.57E+01	47.6252056
M 3(MAX)=	-2.04E+01	-2.14E+00	-3.26E+00	20.7204897
Beam 68 NODE218	0	0	0	0
P 1(MAX)=	-1.54E+00	-8.97E+00	-2.97E+01	31.090197
P 2(MAX)=	-5.20E+01	1.42E+00	1.49E+00	52.0004989
P 3(MAX)=	-7.85E-01	-5.36E+01	-5.82E+00	53.9606267
M 1(MAX)=	-7.37E-02	-6.94E-01	-5.21E-03	0.69811751
M 2(MAX)=	8.52E+00	4.68E+02	6.29E+01	472.185798
M 3(MAX)=	-4.26E+02	1.50E+01	1.56E+01	426.647802
NODE235	0	0	0	0
P 1(MAX)=	1.54E+00	8.97E+00	2.97E+01	31.090197
P 2(MAX)=	5.20E+01	-1.42E+00	-1.49E+00	52.0004989
P 3(MAX)=	7.85E-01	5.36E+01	5.82E+00	53.9606267
M 1(MAX)=	7.37E-02	6.94E-01	5.21E-03	0.69811751
M 2(MAX)=	-2.25E+00	4.38E+01	-1.63E+01	46.8403374
M 3(MAX)=	-1.87E+01	-3.89E+00	3.87E+00	19.4488556
	0	0	0	0

Beam 69 NODE223				
P 1(MAX)=	1.60E+00	-8.55E+00	-3.00E+01	31.2555757
P 2(MAX)=	5.00E+01	2.44E+00	-2.02E+00	50.090001
P 3(MAX)=	-2.09E+00	-5.32E+01	-6.10E+00	53.5892754
M 1(MAX)=	-6.47E-02	-1.02E+00	-7.58E-03	1.02407524
M 2(MAX)=	2.28E+01	4.65E+02	6.59E+01	469.806818
M 3(MAX)=	4.09E+02	2.58E+01	-2.04E+01	410.719969
NODE236	0	0	0	0
P 1(MAX)=	-1.60E+00	8.55E+00	3.00E+01	31.2555757
P 2(MAX)=	-5.00E+01	-2.44E+00	2.02E+00	50.090001
P 3(MAX)=	2.09E+00	5.32E+01	6.10E+00	53.5892754
M 1(MAX)=	6.47E-02	1.02E+00	7.58E-03	1.02407524
M 2(MAX)=	-6.05E+00	4.13E+01	-1.71E+01	45.1551394
M 3(MAX)=	-1.83E+01	-6.24E+00	5.31E+00	20.0117664
Beam 70 NODE228	0	0	0	0
P 1(MAX)=	5.61E+00	-6.54E+00	-2.97E+01	30.9534286
P 2(MAX)=	5.52E+01	3.51E+00	5.05E+00	55.5417291
P 3(MAX)=	3.26E+00	-5.09E+01	4.75E+00	51.2252149
M 1(MAX)=	-5.99E-02	1.37E+00	-1.37E-02	1.36738207
M 2(MAX)=	-3.53E+01	4.38E+02	-5.13E+01	442.407588
M 3(MAX)=	4.67E+02	3.76E+01	5.34E+01	471.143603
NODE237	0	0	0	0
P 1(MAX)=	-5.61E+00	6.54E+00	2.97E+01	30.9534286
P 2(MAX)=	-5.52E+01	-3.51E+00	-5.05E+00	55.5417291
P 3(MAX)=	-3.26E+00	5.09E+01	-4.75E+00	51.2252149
M 1(MAX)=	5.99E-02	-1.37E+00	1.37E-02	1.36738207
M 2(MAX)=	9.19E+00	3.81E+01	1.33E+01	41.4159317
M 3(MAX)=	-3.53E+01	1.01E+01	-1.28E+01	38.844069

Attachment B:

Figures

Figure 2-7. Low Strain Shear Wave Velocity

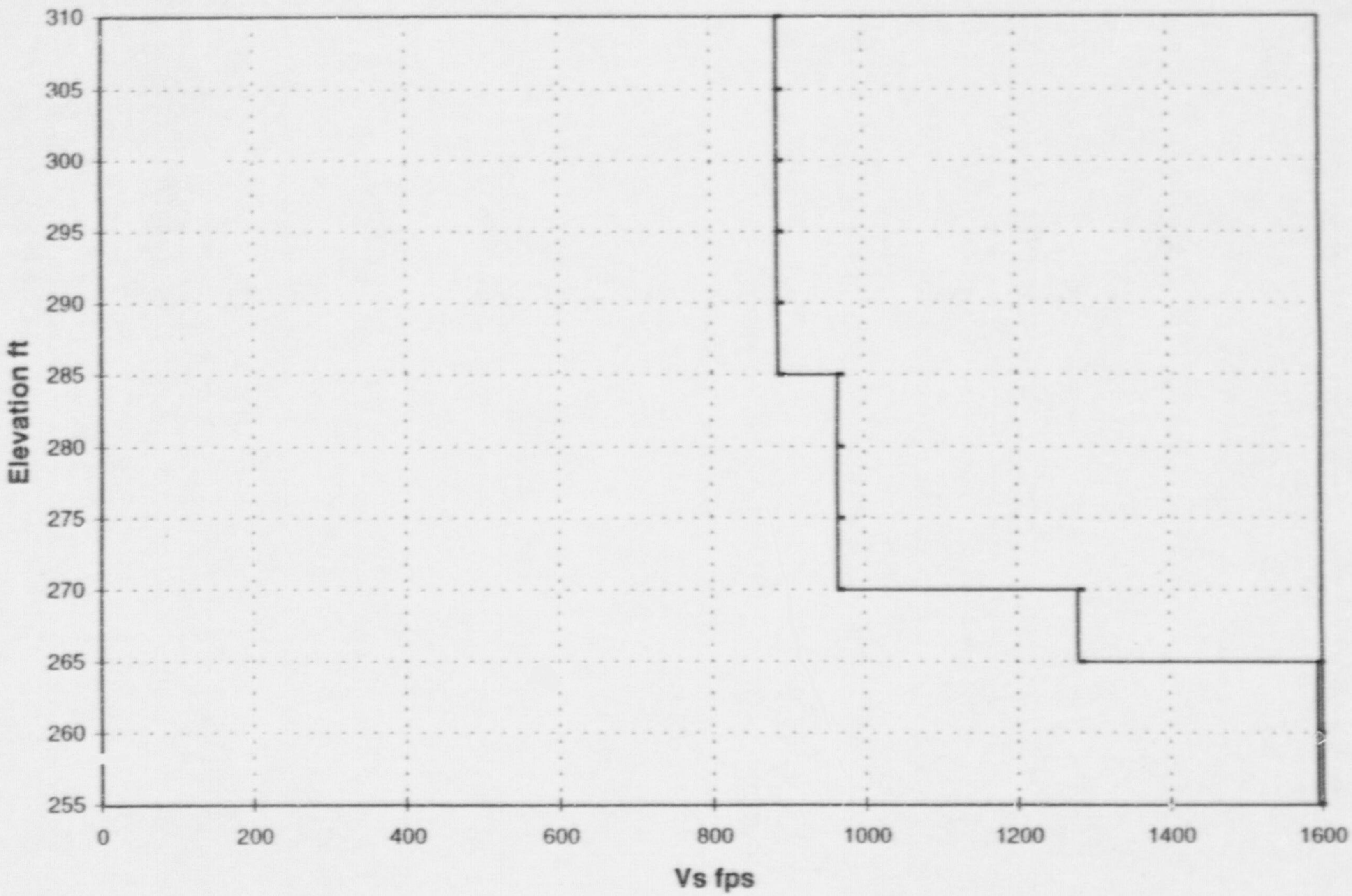


Figure 2-8. Low Strain P-Wave Velocity

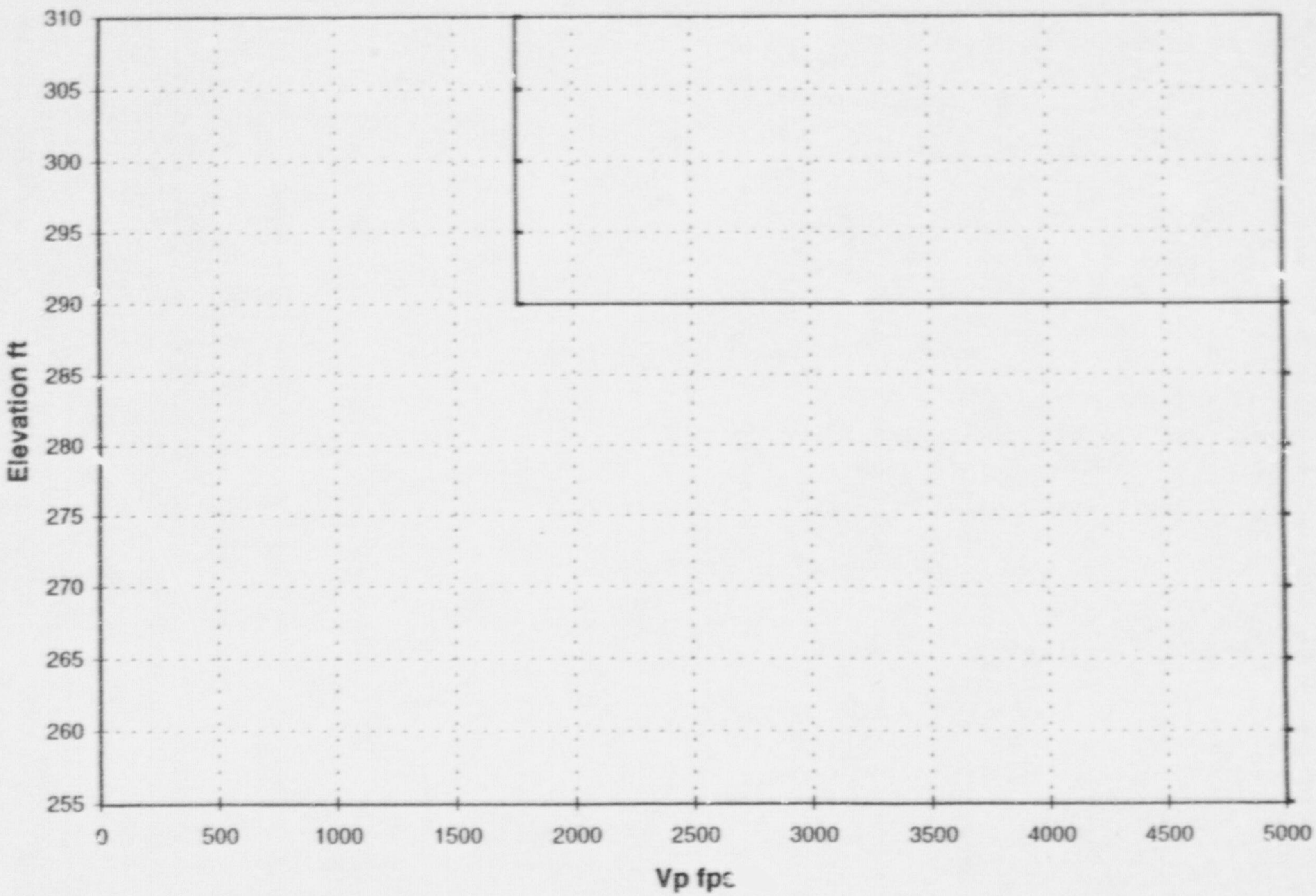
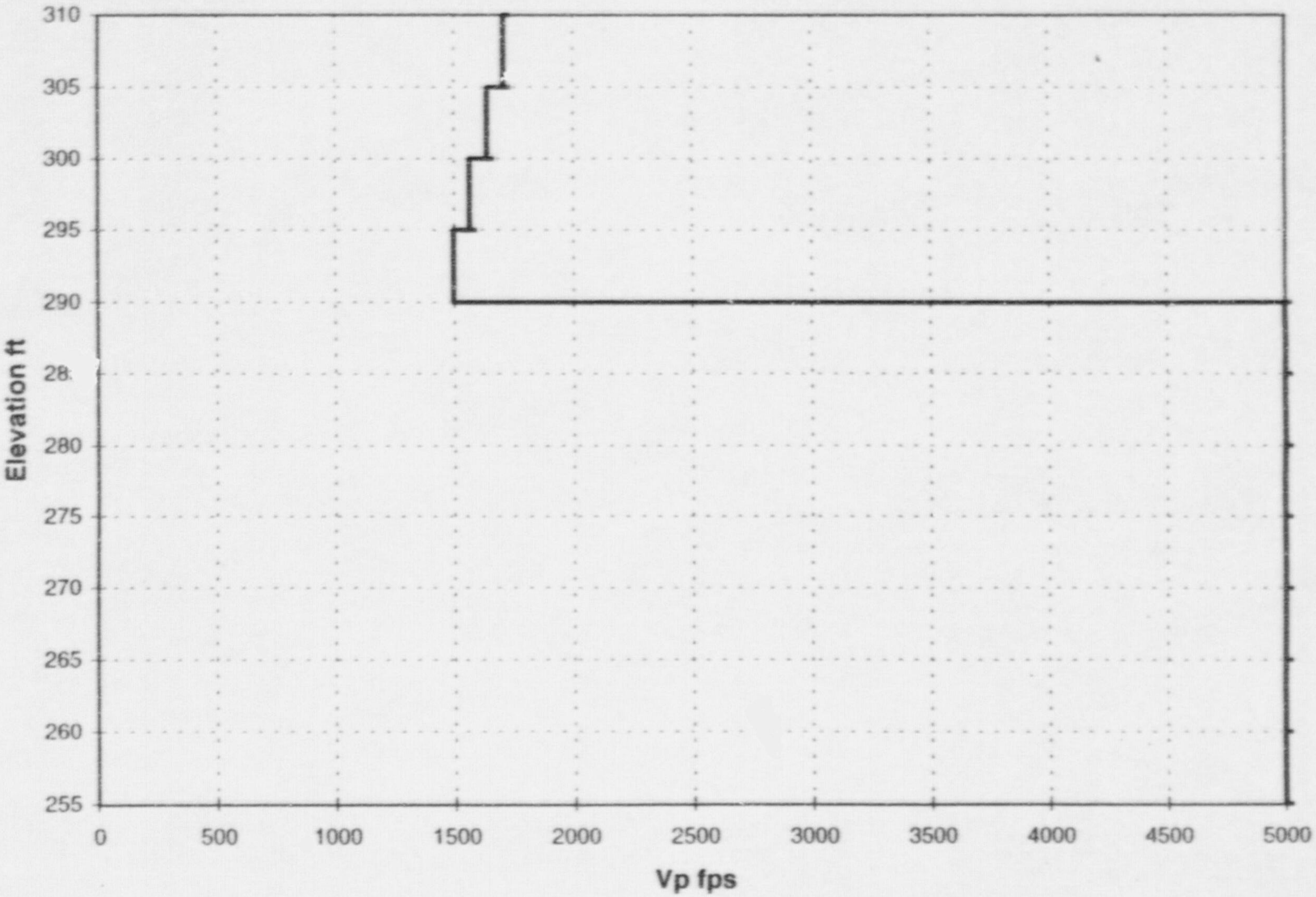
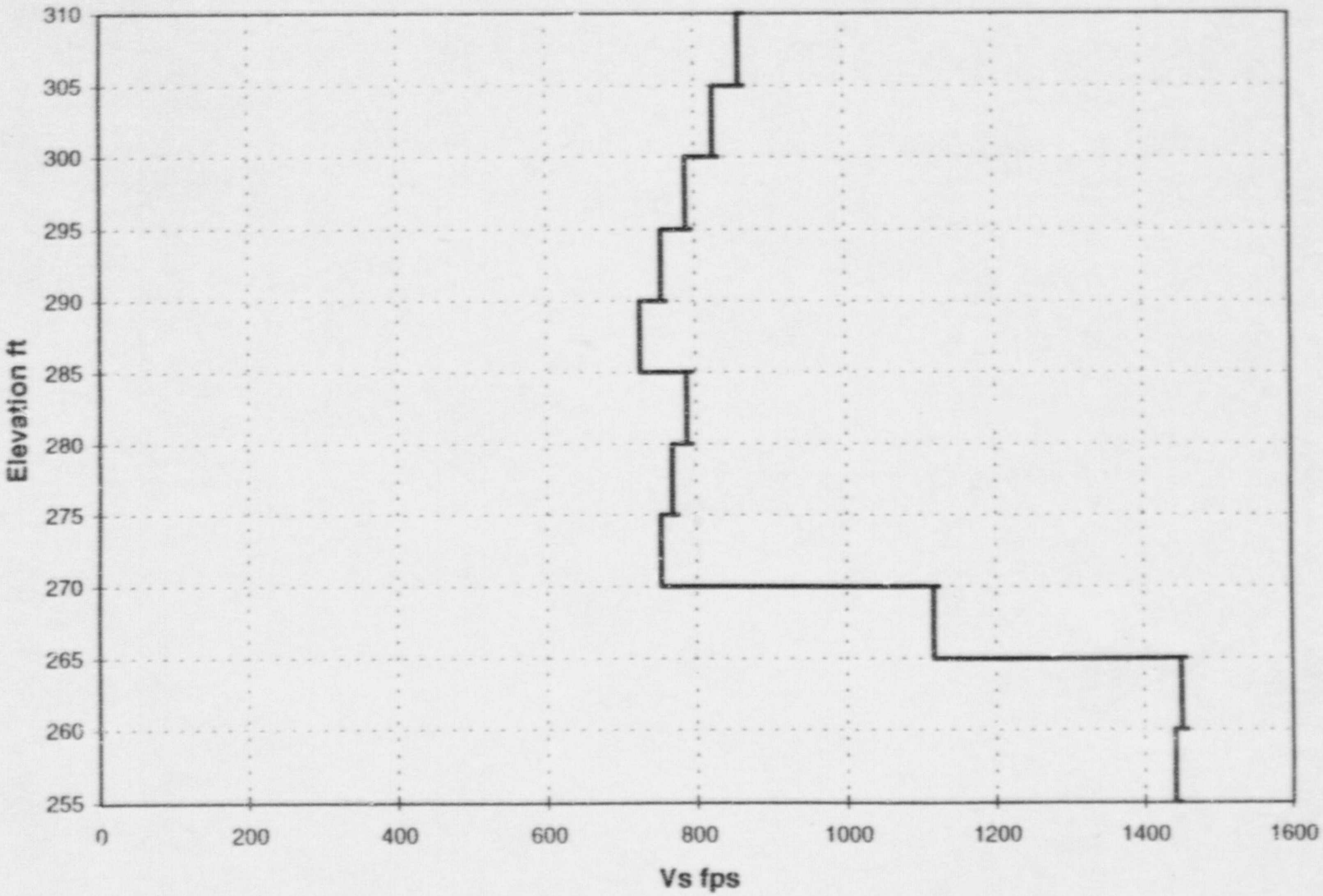


Figure 4-1. High Strain P-Wave Velocity Profile



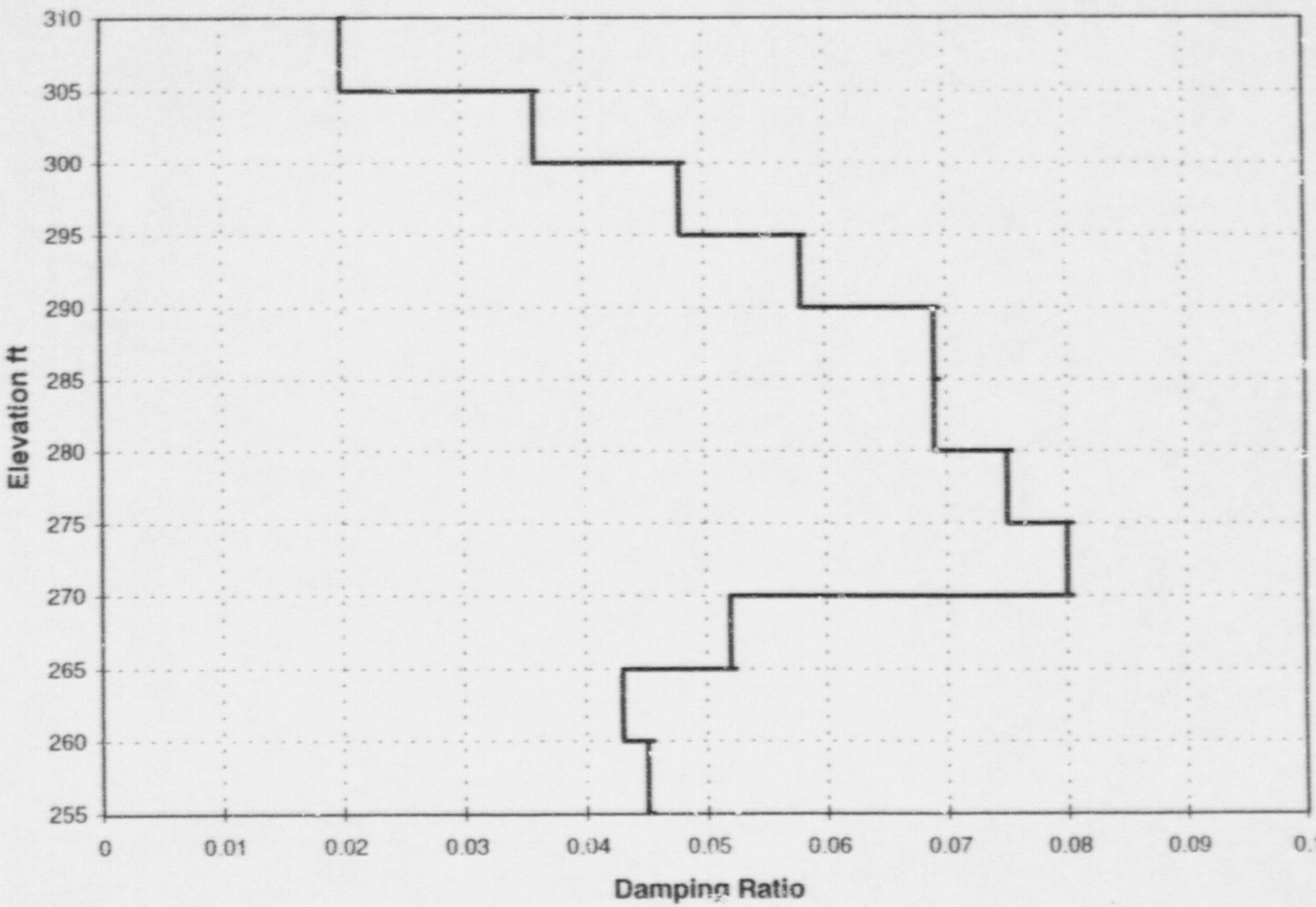
BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 4-2. High Strain Shear Wave Velocity Profile



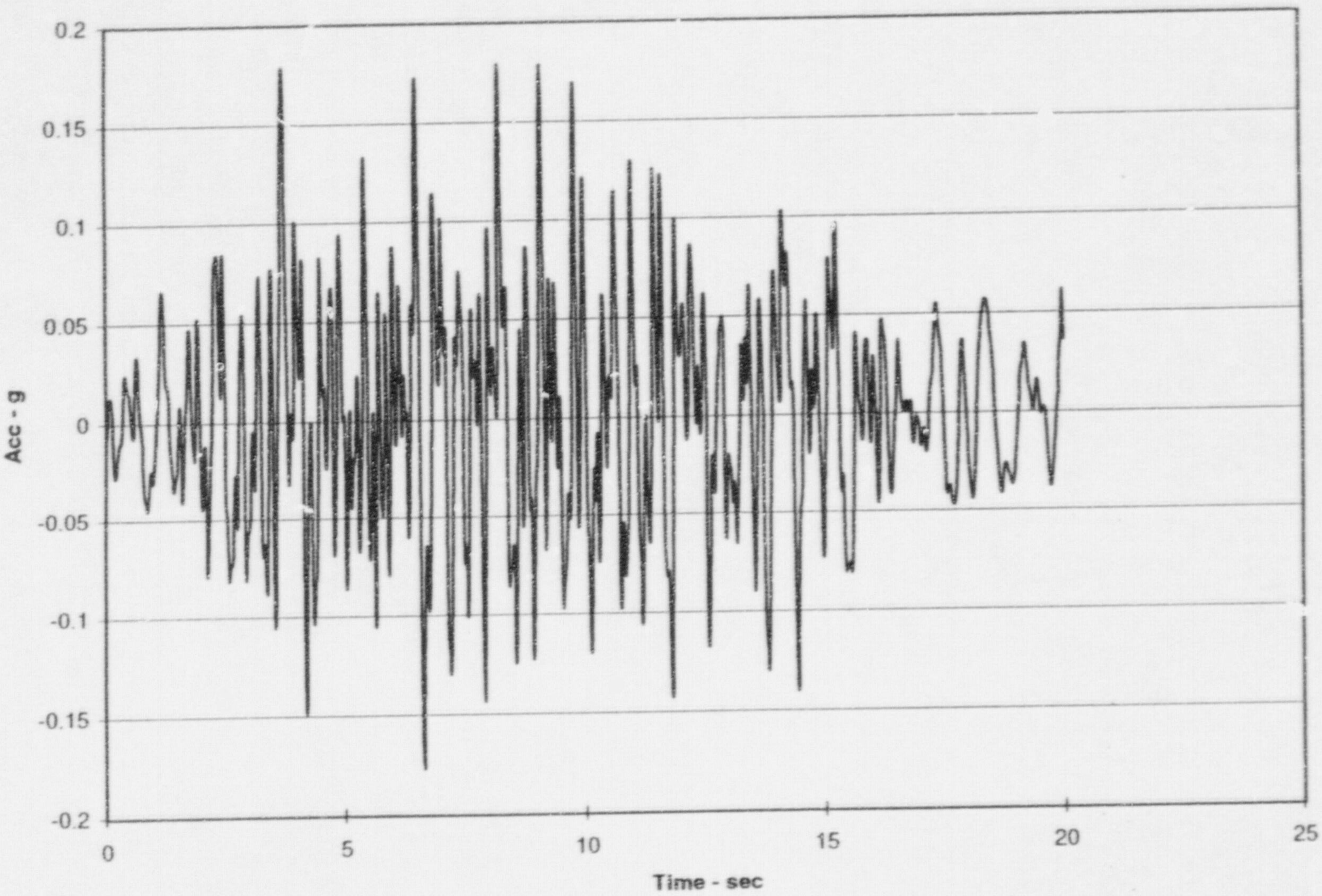
100031-C-01
BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 4-3. High Strain Soil Material Damping



BY: ABA 6/12/97
CHK: DTD 6/12/97

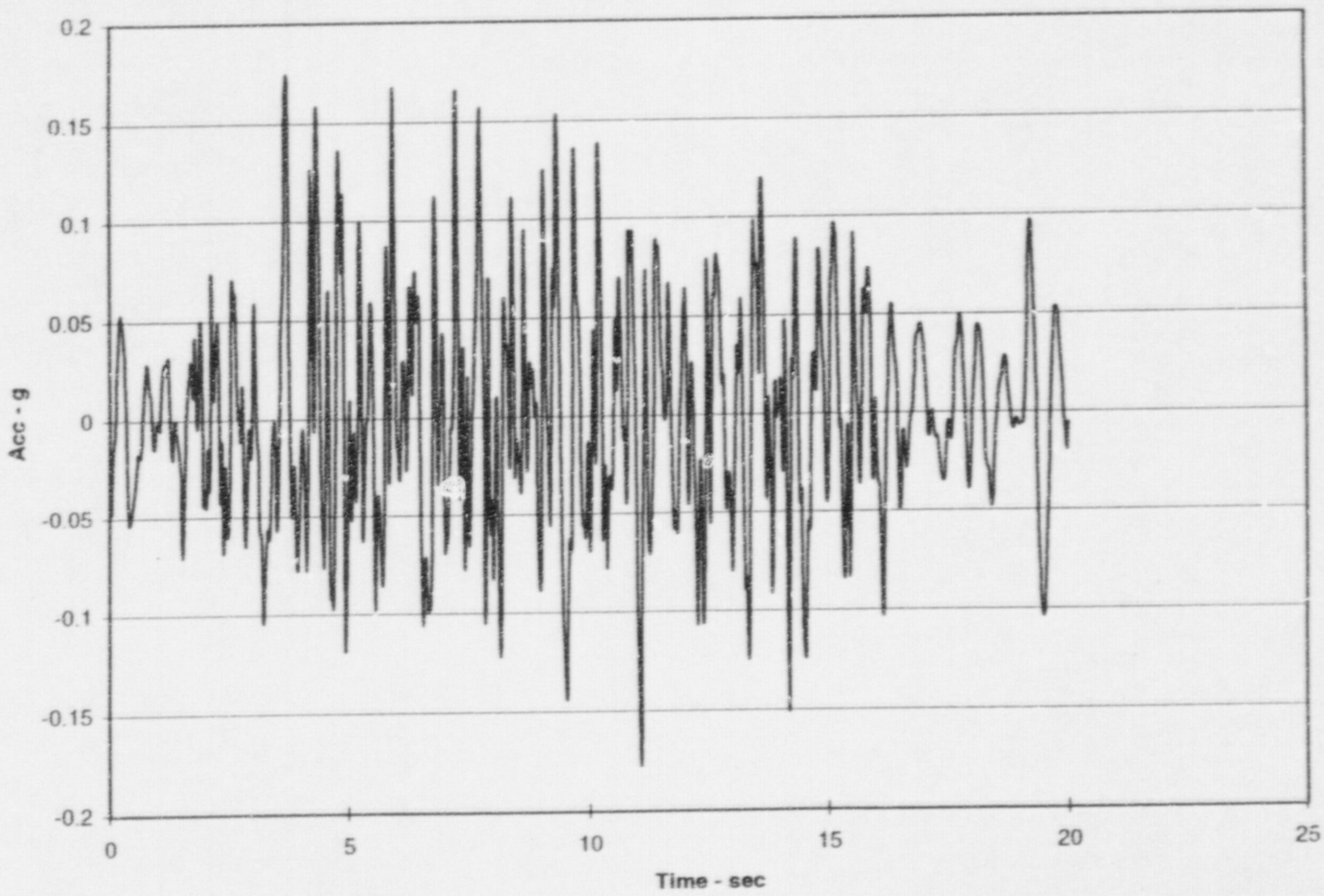
Figure 3-1. North Anna SSE Soil Motion - X Direction



100031-C-01
BY: APA 6/12/97
CHK: DJD 6/12/97

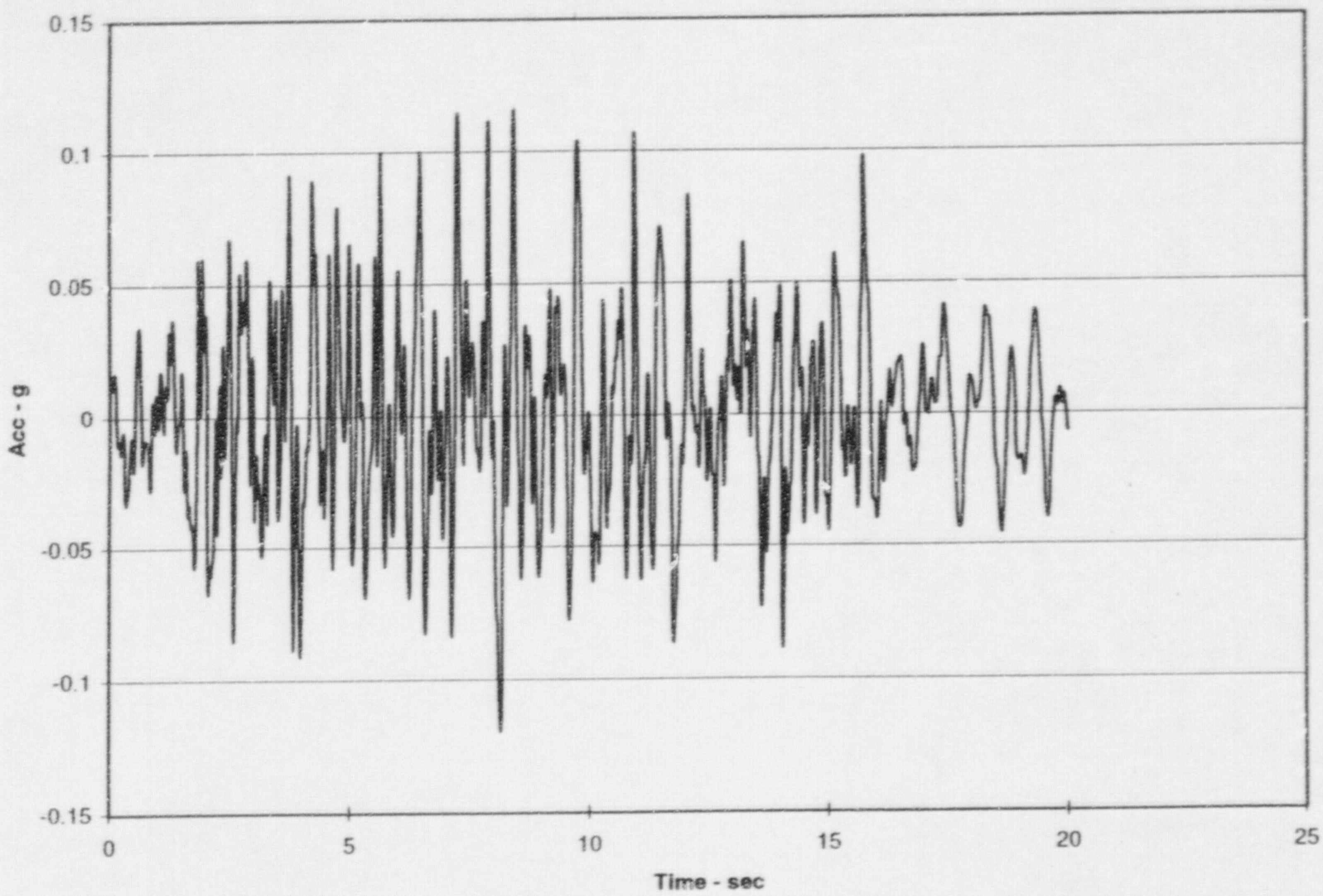
P.2

Figure 3-2. North Anna SSE Soil Motion - Y Direction



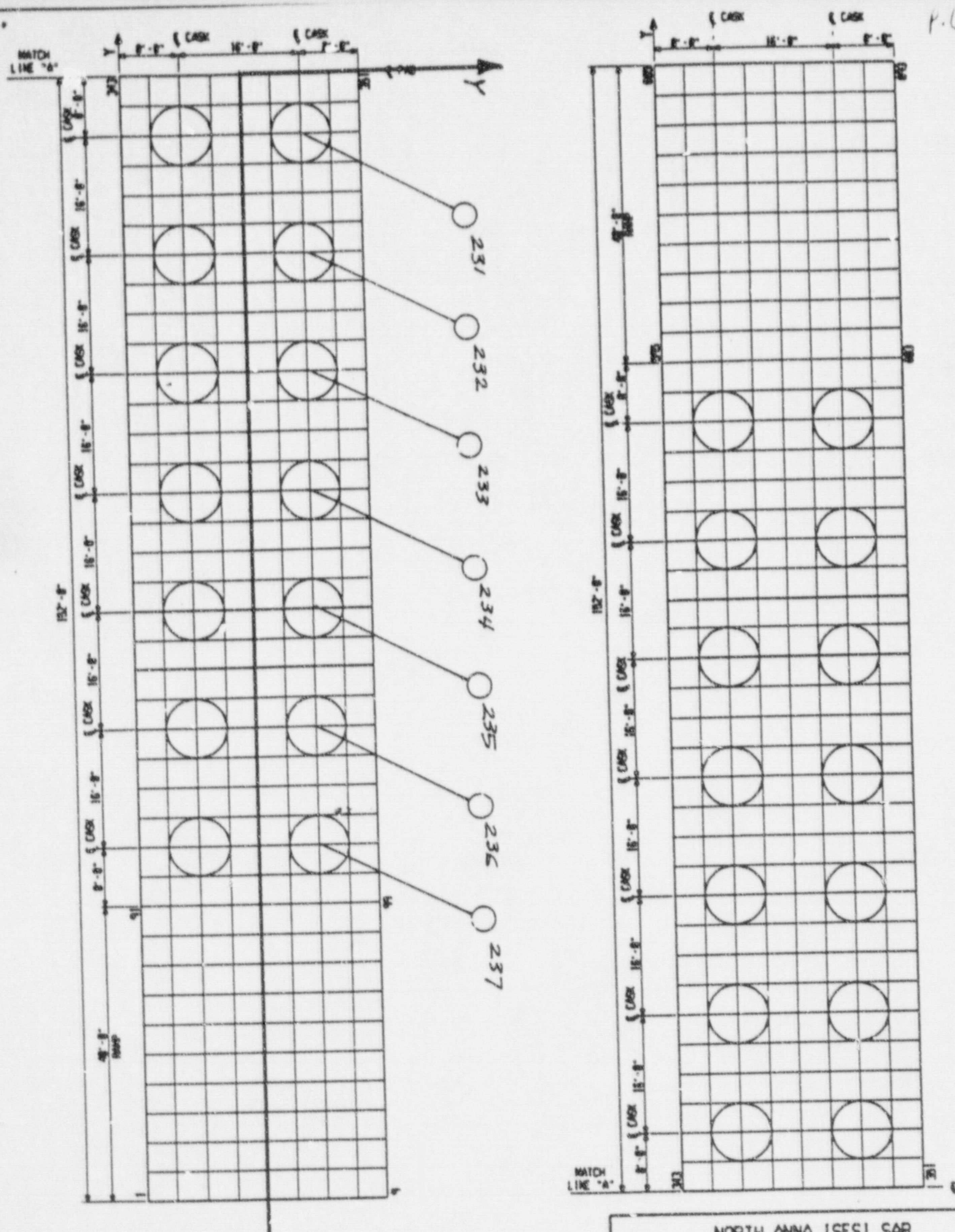
1DD031-C-01
BY: ABA 6/12/97
CHK: DJD 6/12/97

Figure 3-3. North Anna SSE Soil Motion - Z Direction



100031-C-01
BY: APA 6/12/97
CHK: DJD 6/12/97

P.6



Slab thickness = 2'-0"

Figure 2-1. Slab Geometry

NORTH ANNA ISFSI SAR
IMAGES-3D COMPUTER MODEL
FIGURE 4.2-2

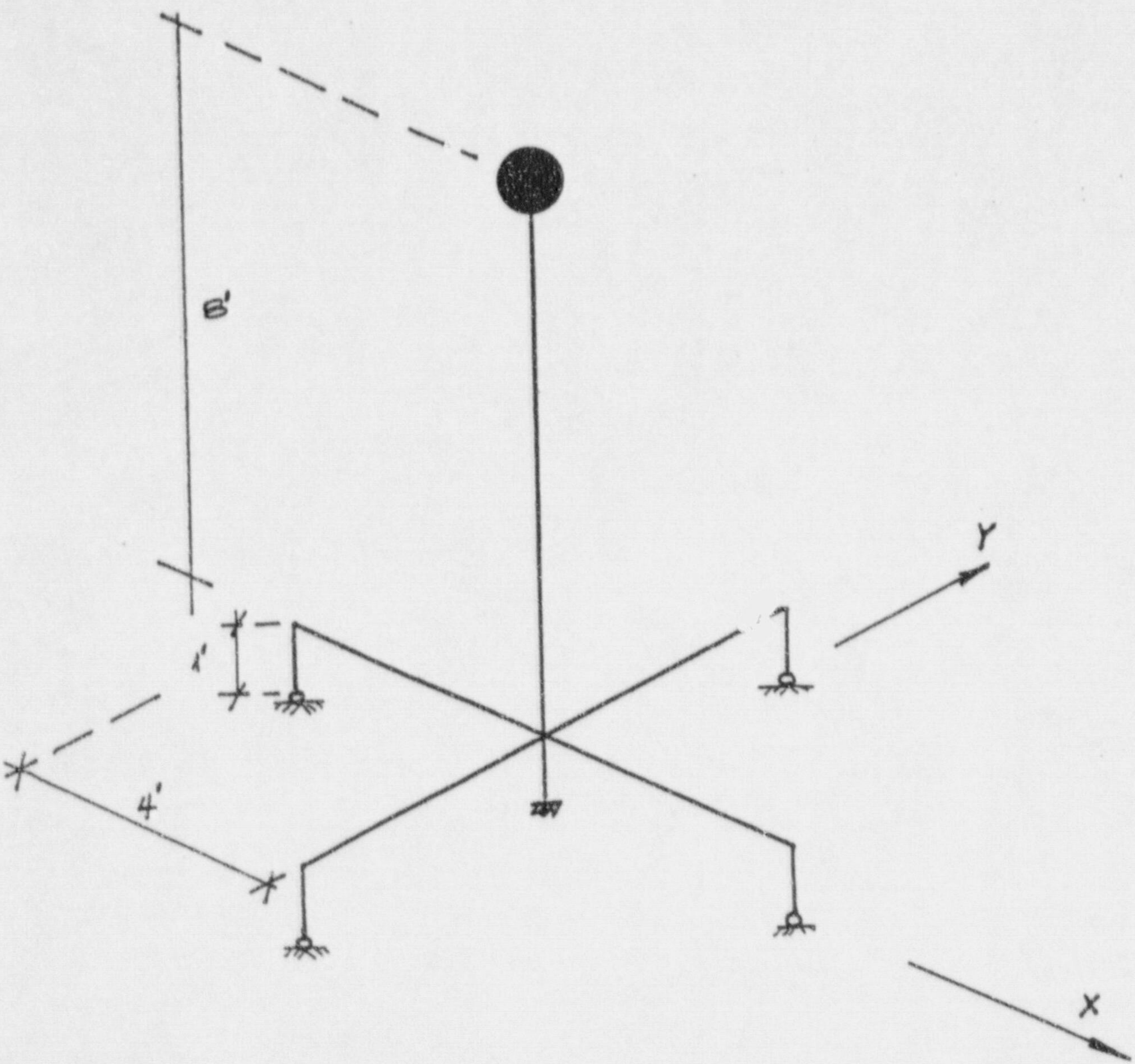


Figure 2-2. Cask Model

100031-C-03 P.0
BY: APA 6/12/97
CHK: DJD 6/12/97

1

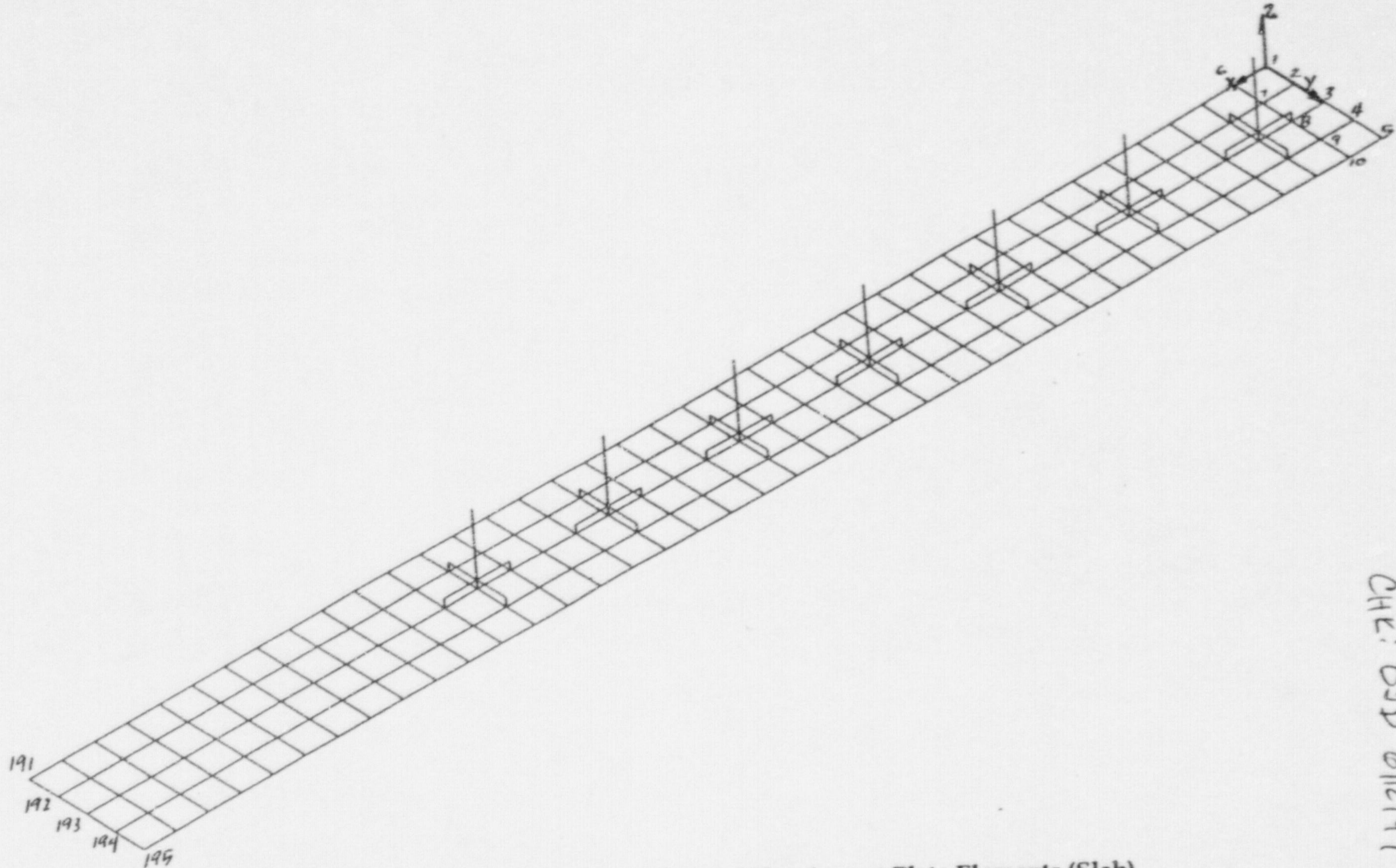
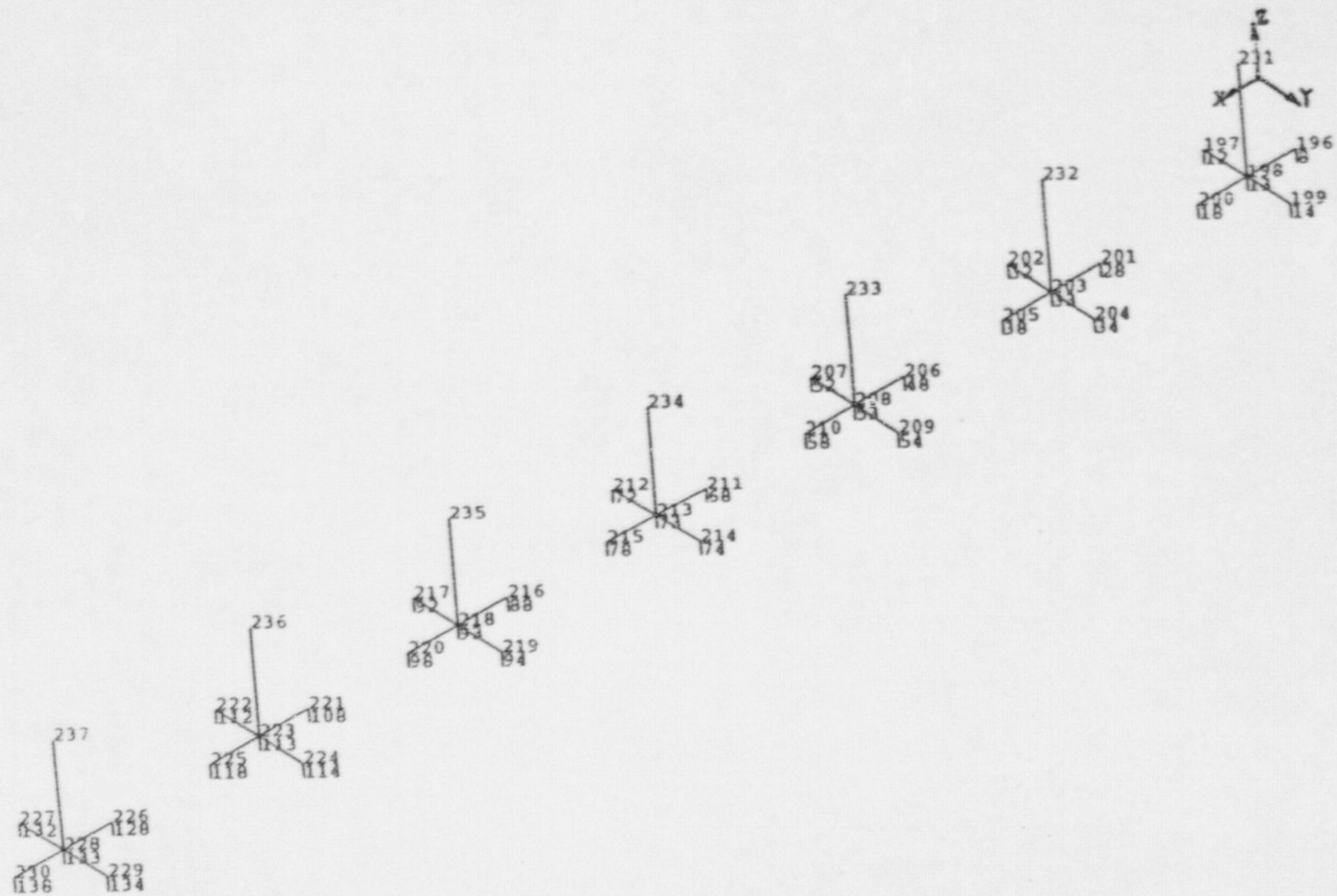


Figure 2-3. Nodal Numbers at Plate Elements (Slab)

1



BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 2-4. Nodal Numbers at Beam Elements (Casks)

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CHK: DJD 6/12/97

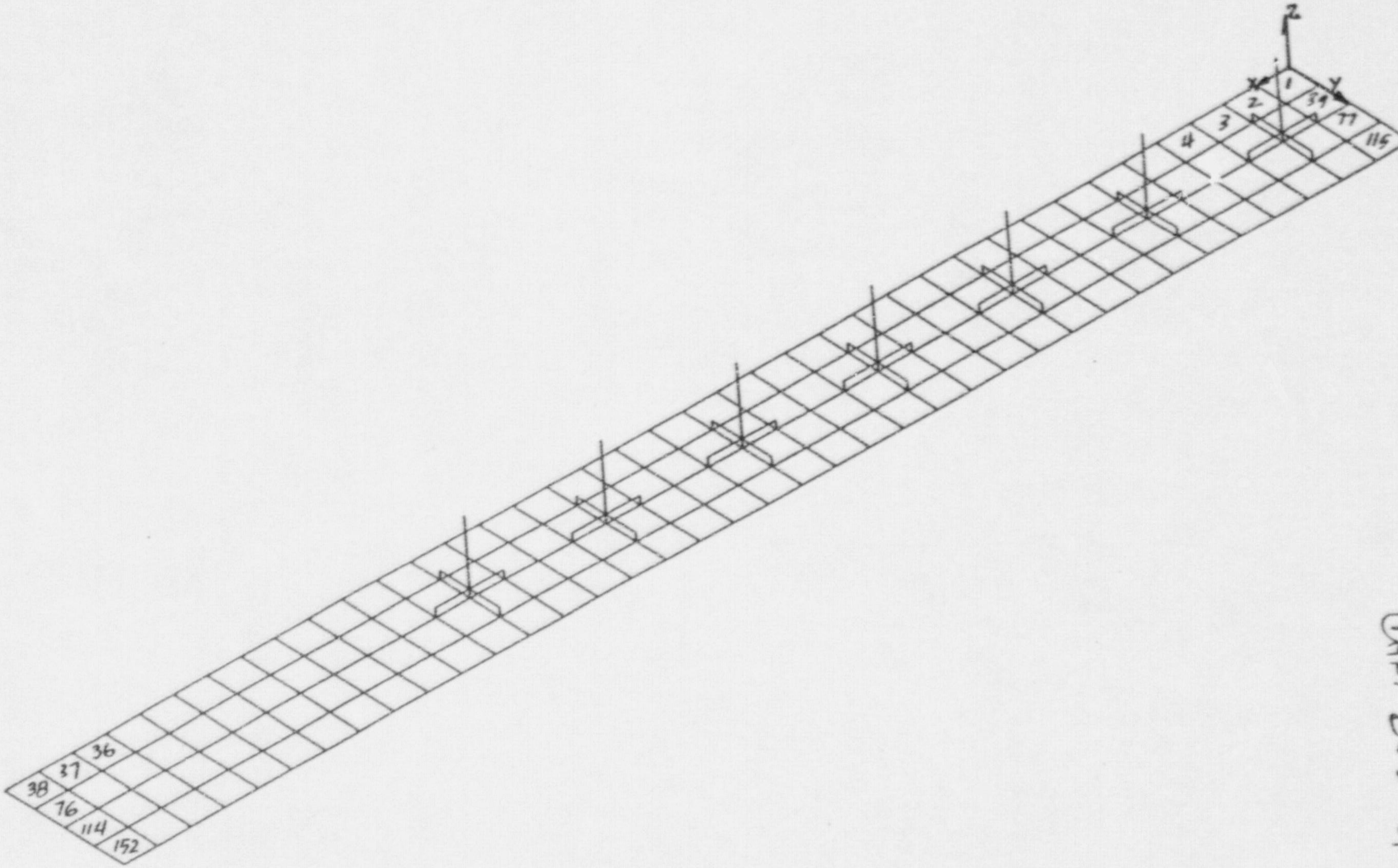

Figure 2-5. Element Numbers at Plate Elements (Slab)

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JOB NO. 100031 JOB ______ BY APA DATE 6/12/97

CALC. NO. C-03 SUBJECT ______ CHK'D DJD DATE 6/12/97

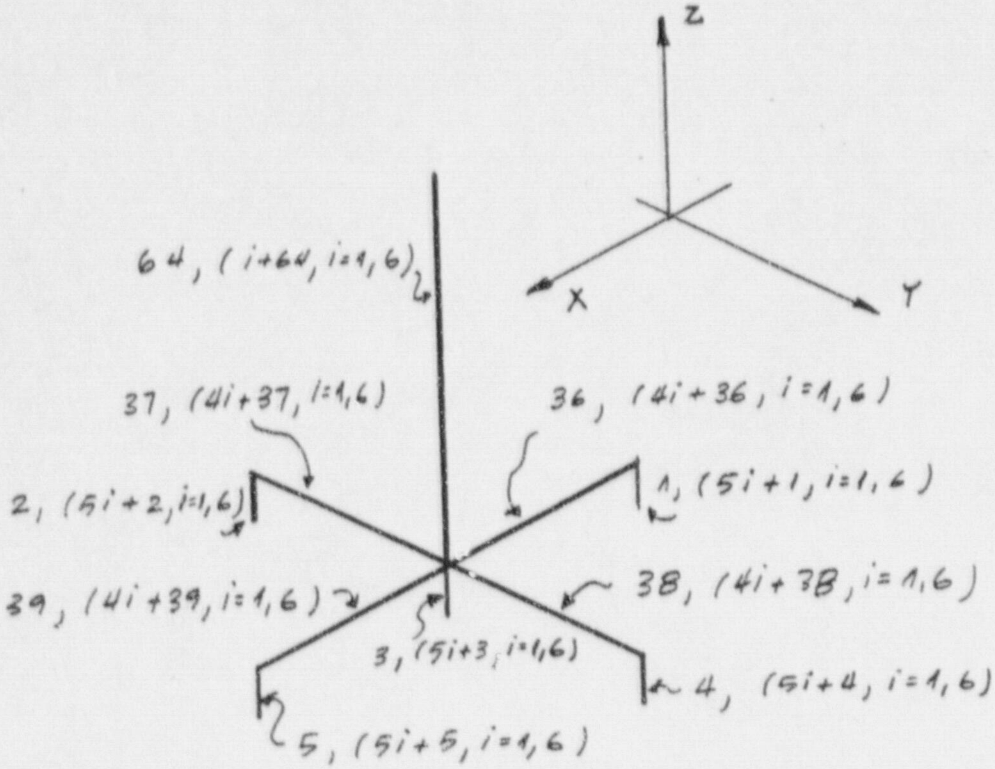

Figure 2-6. Element Numbers at Beam Elements (Casks)

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CHK: DJD 6/12/97

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Figure 3-1. Node 231 - Shear X Direction

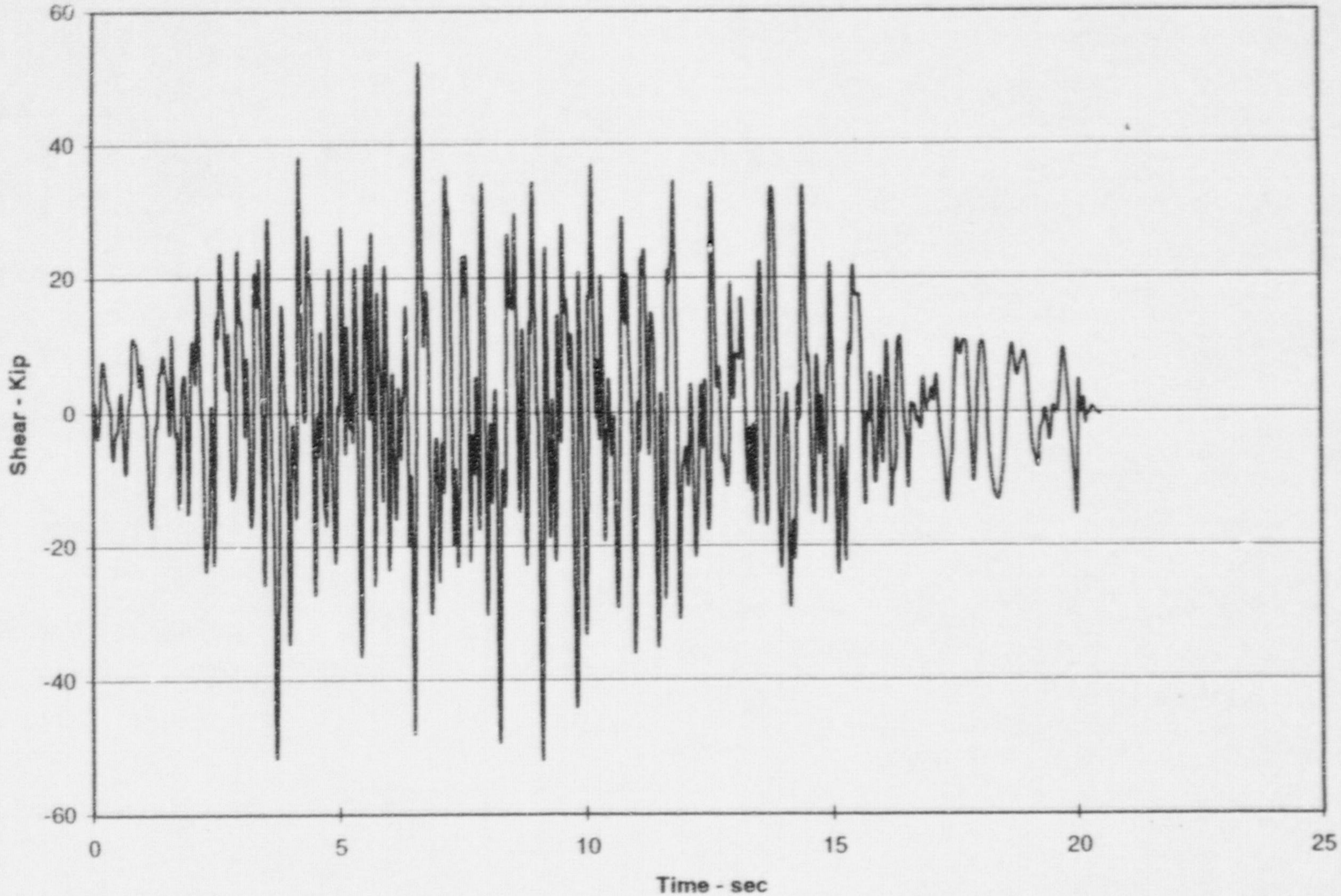
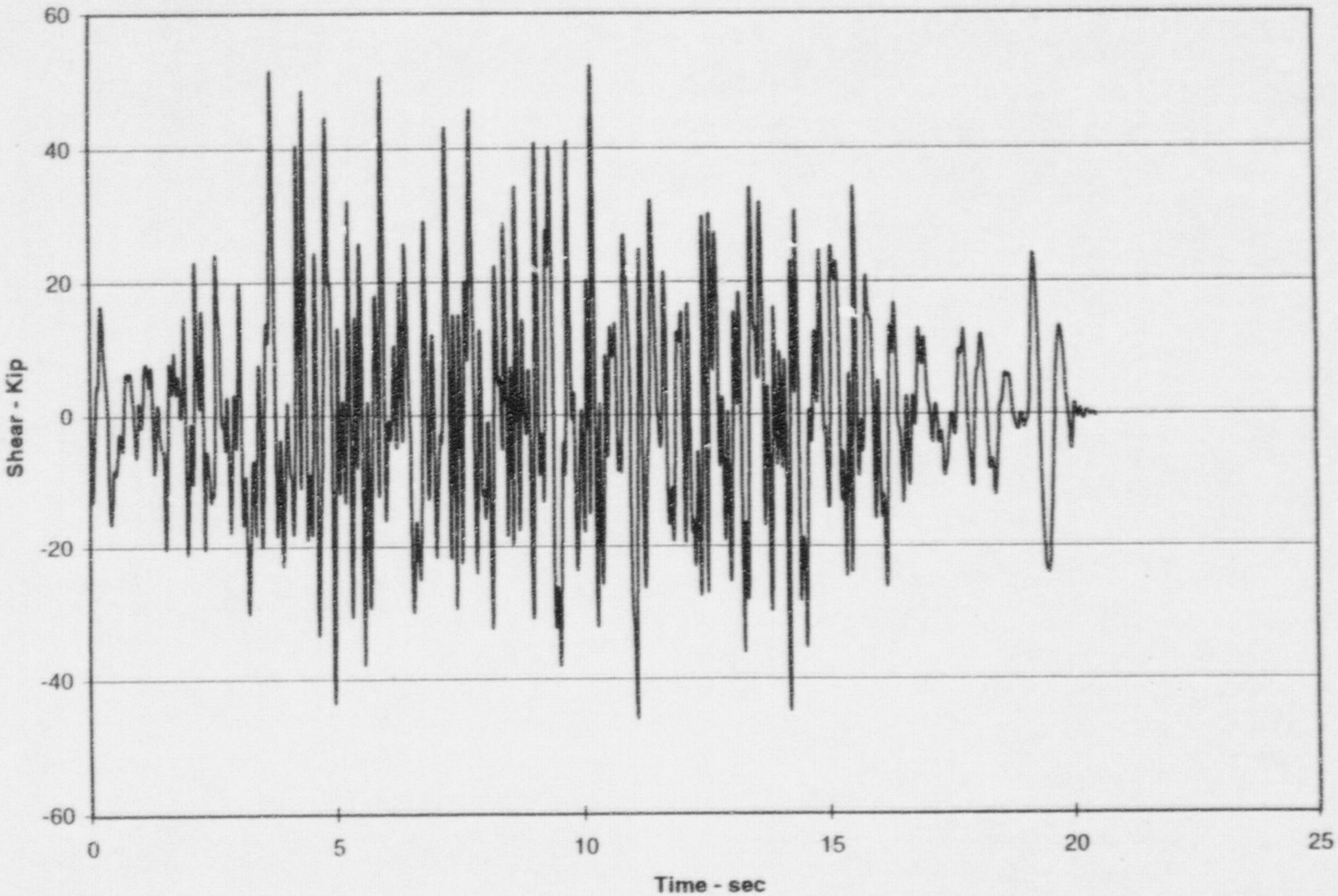


Figure 3-2. Node 231 - Shear Y Direction



BY: ABA 6/12/97
CHK: DJD 6/12/97

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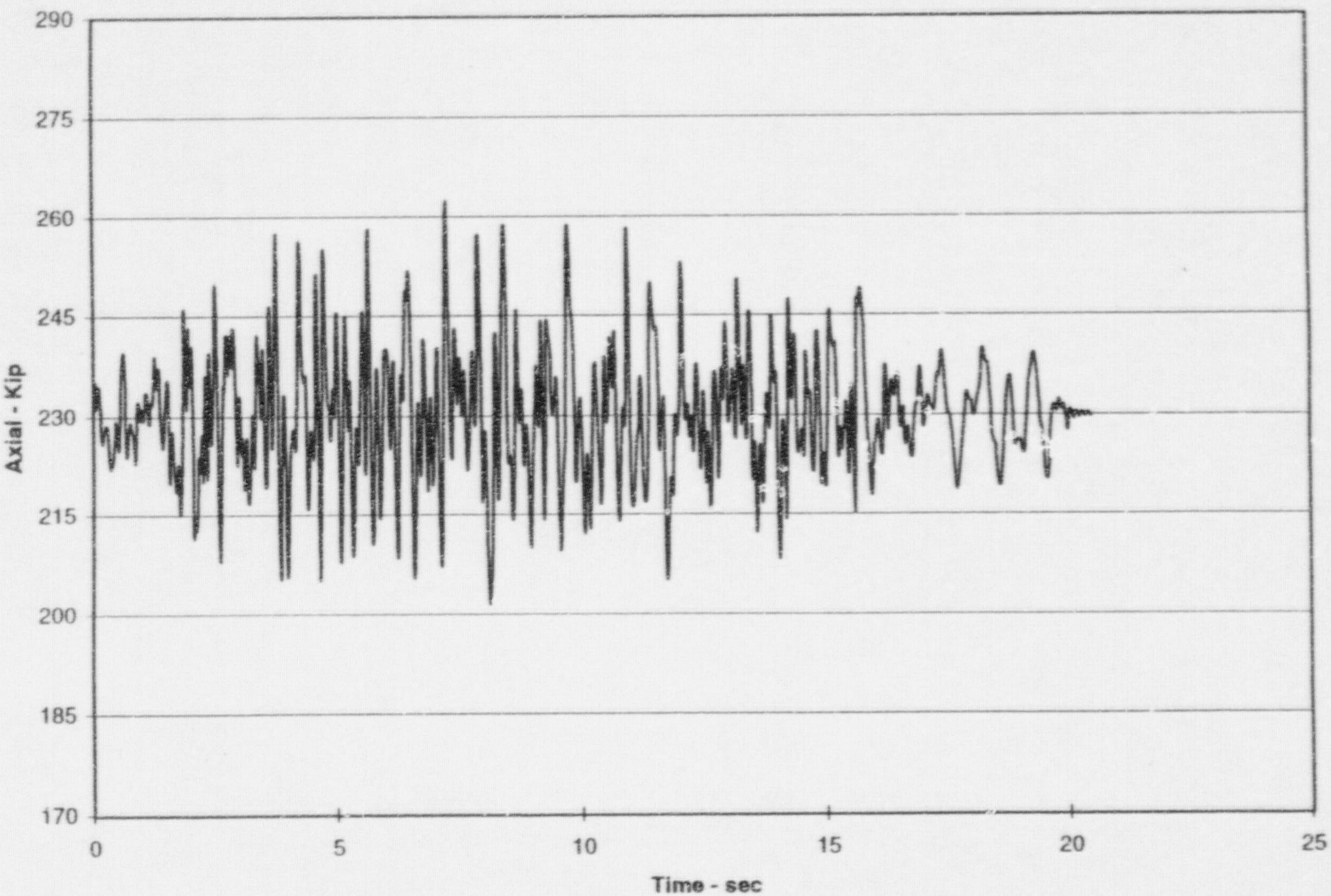
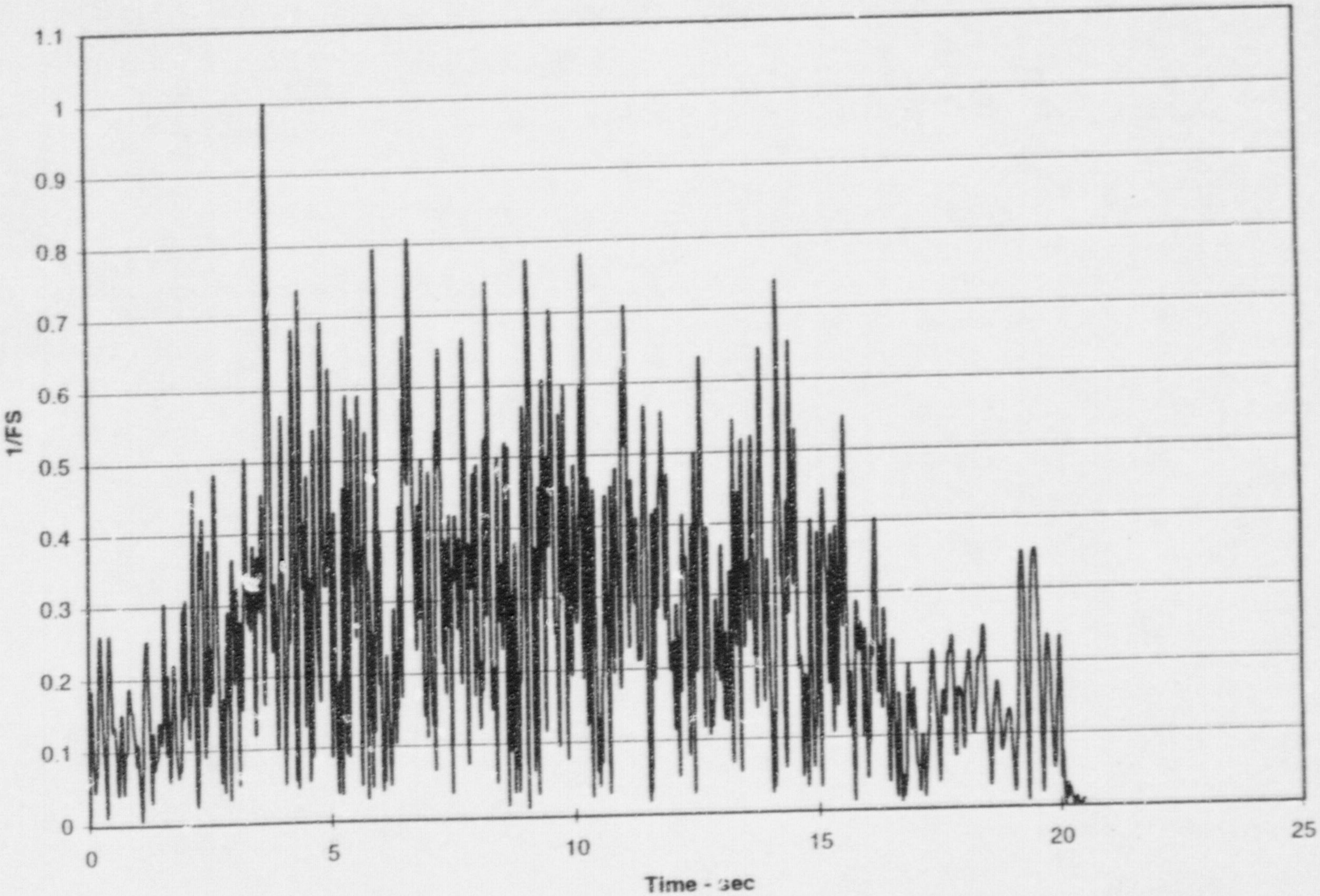
10031-C-07 P.15
By: APA 6/12/97
CHK: DJD 6/12/97

Figure 3-3. Node 231 - Axial Load



C 1

Figure 3-4. Node 231 - Sliding Factor of Safety



1000 SI-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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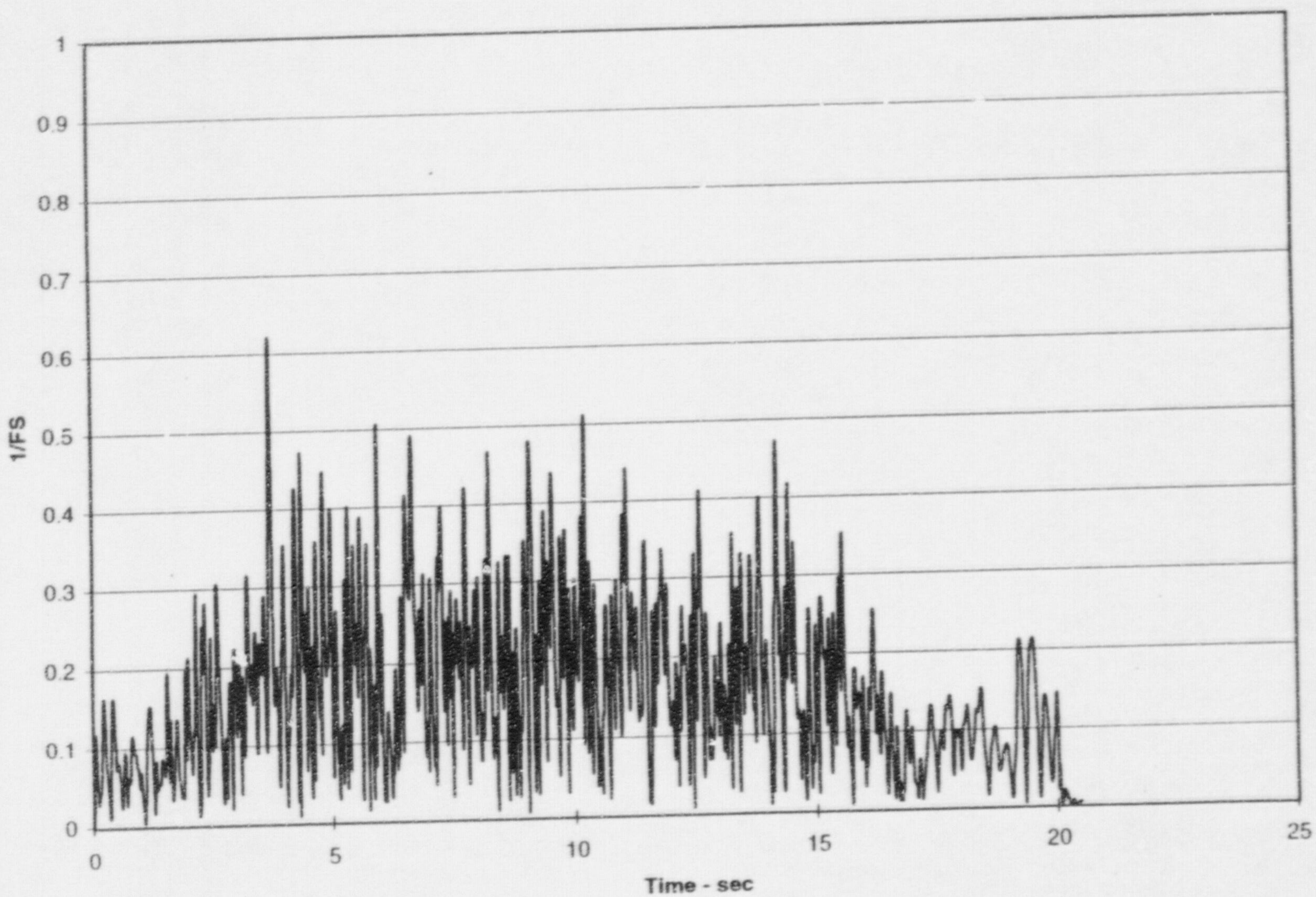
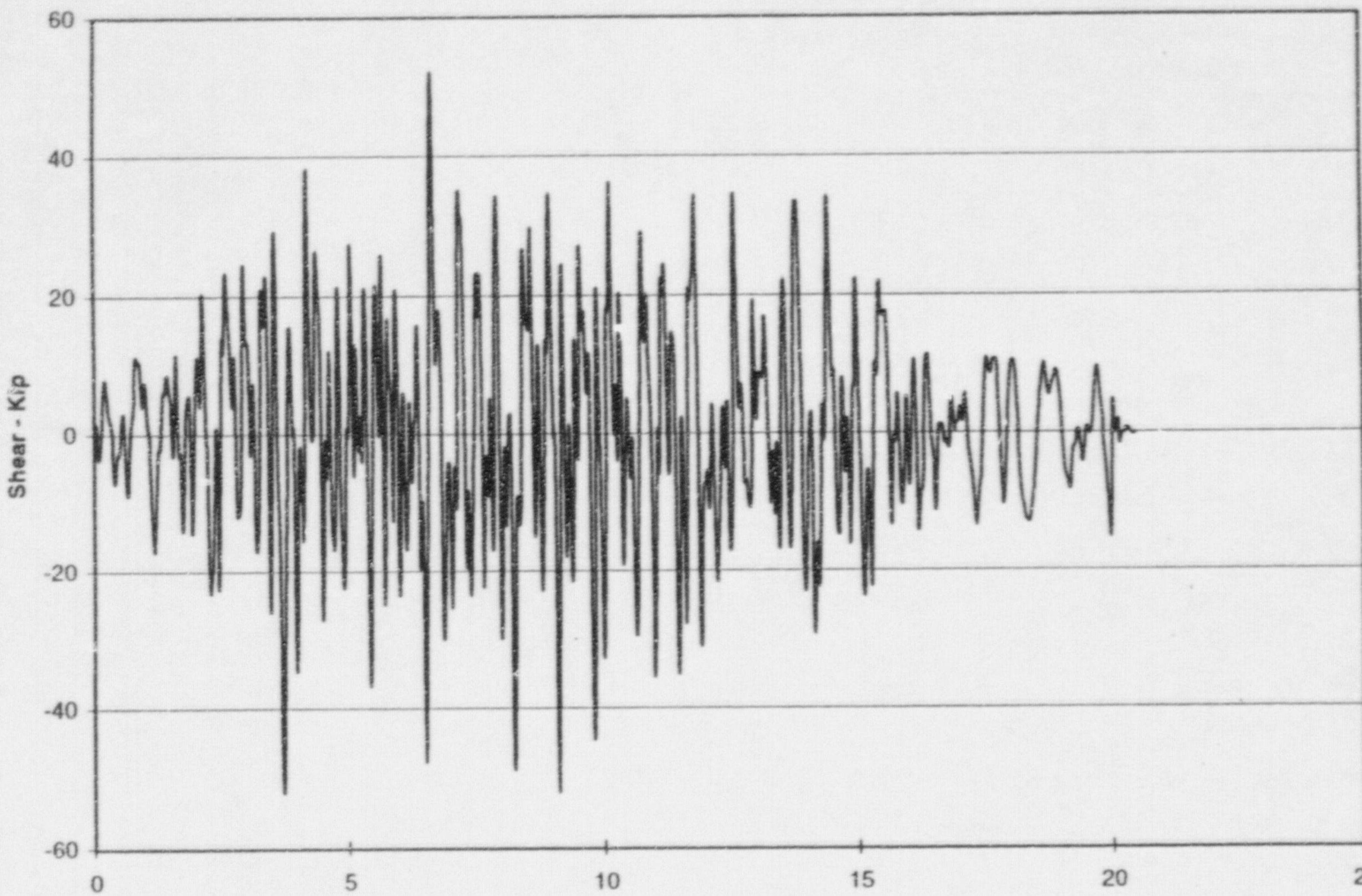
Ch 2)

Figure 3-5. Node 231 - Overturning Factor of Safety



BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 3-6. Node 232 - Shear X Direction



100031-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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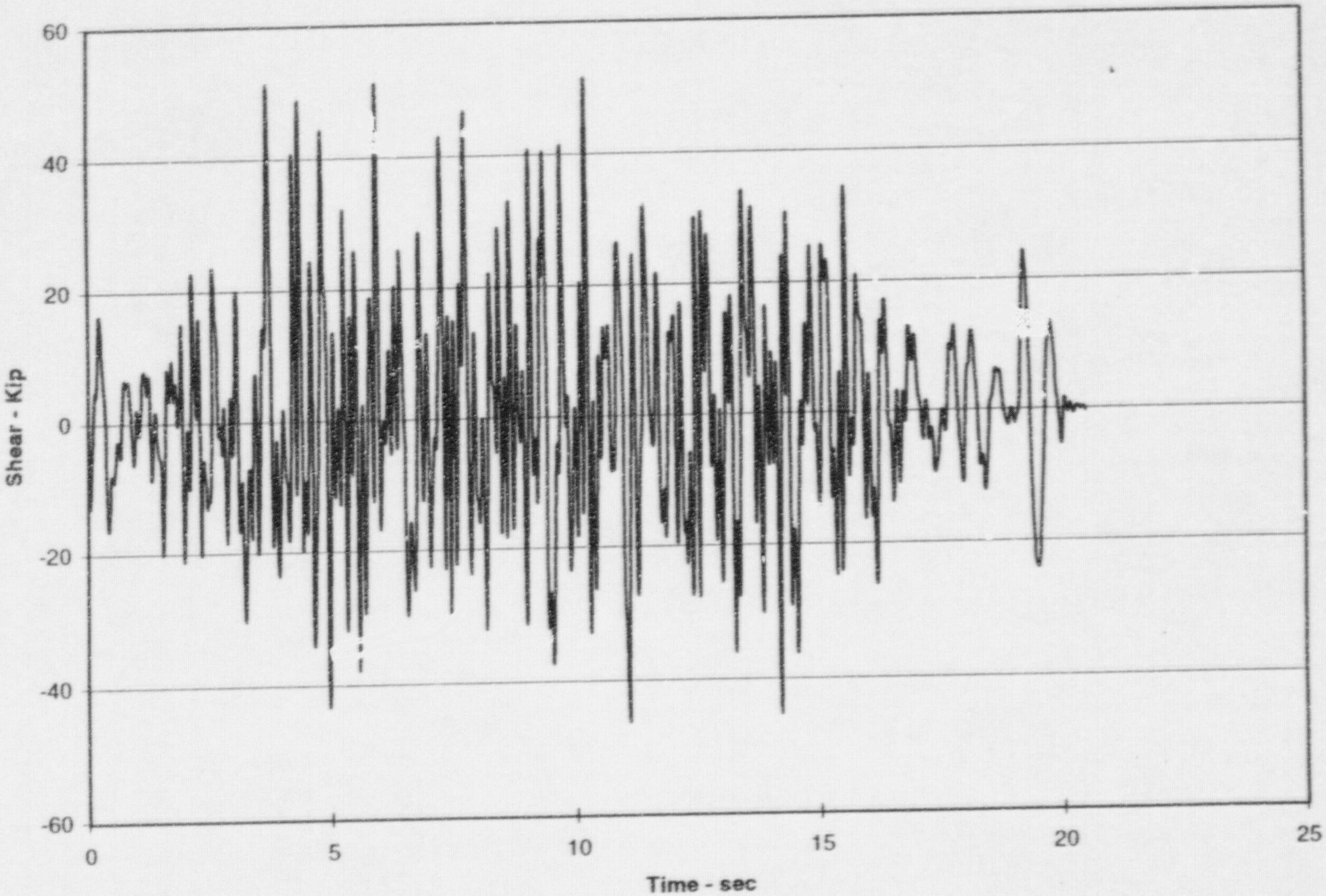
Figure 3-7. Node 232 - Shear Y Direction



100031-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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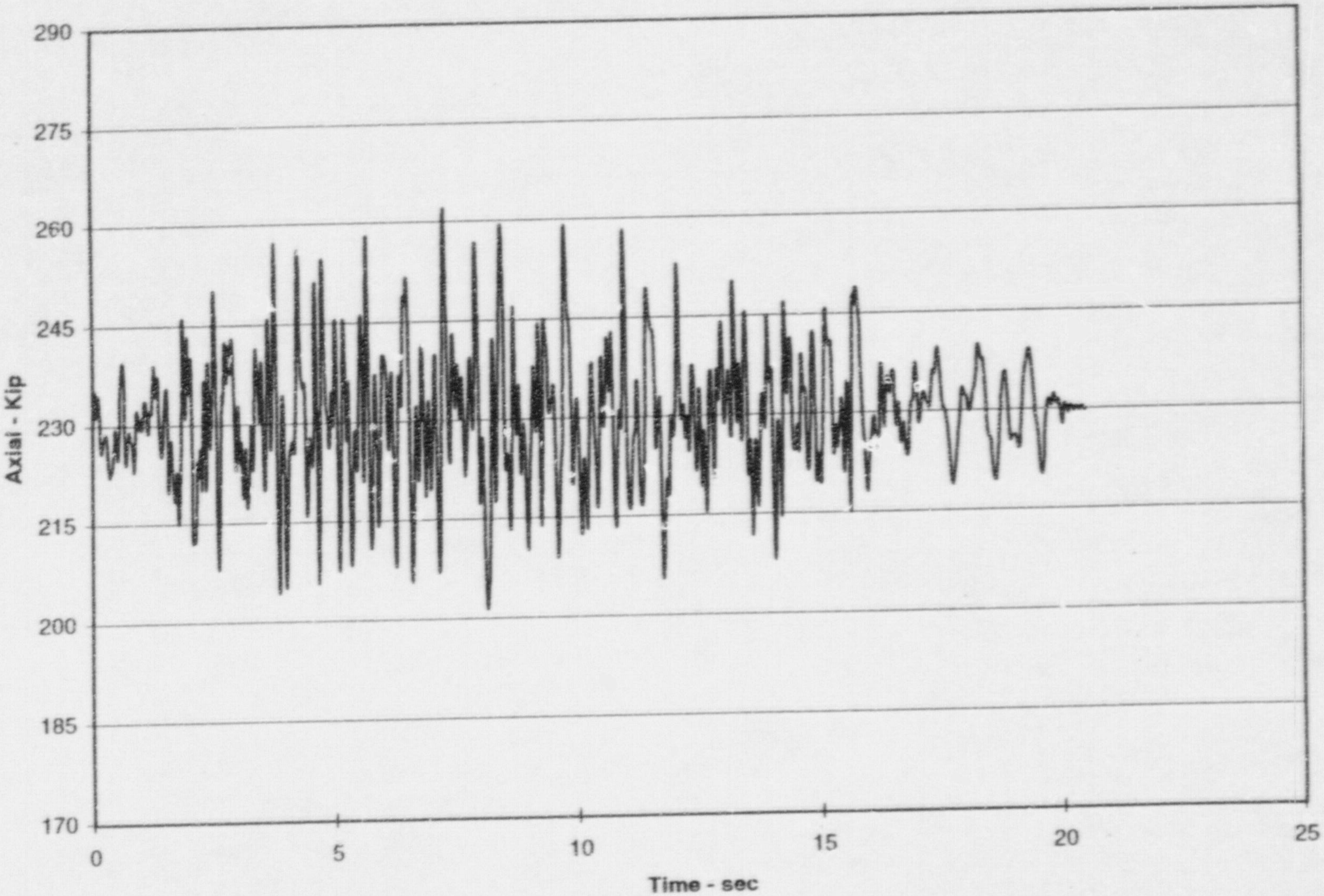
Ch. 5)

Figure 3-8. Node 232 - Axial Load



BY: APA 6/12/97
CHK: DJD 6/12/97

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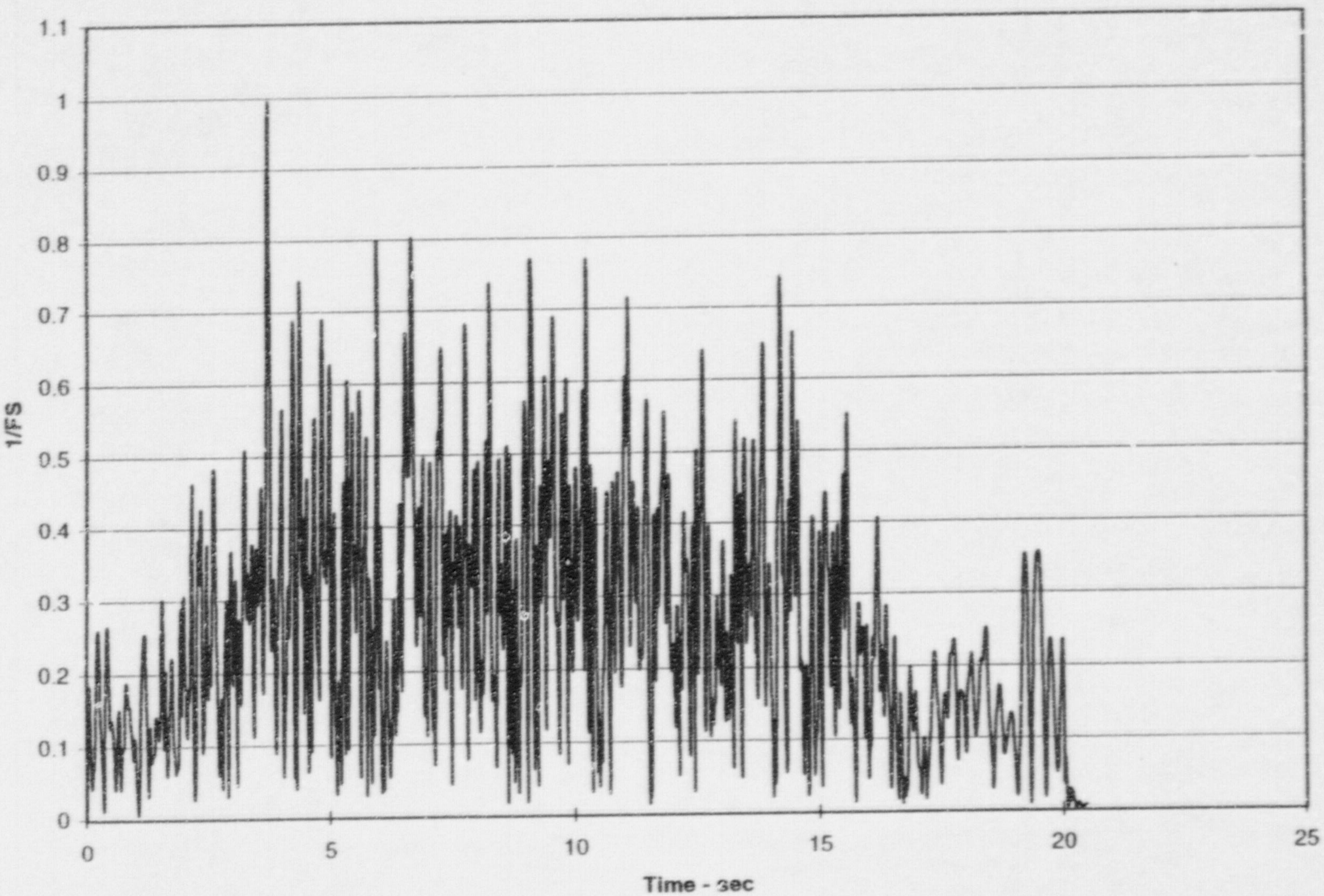
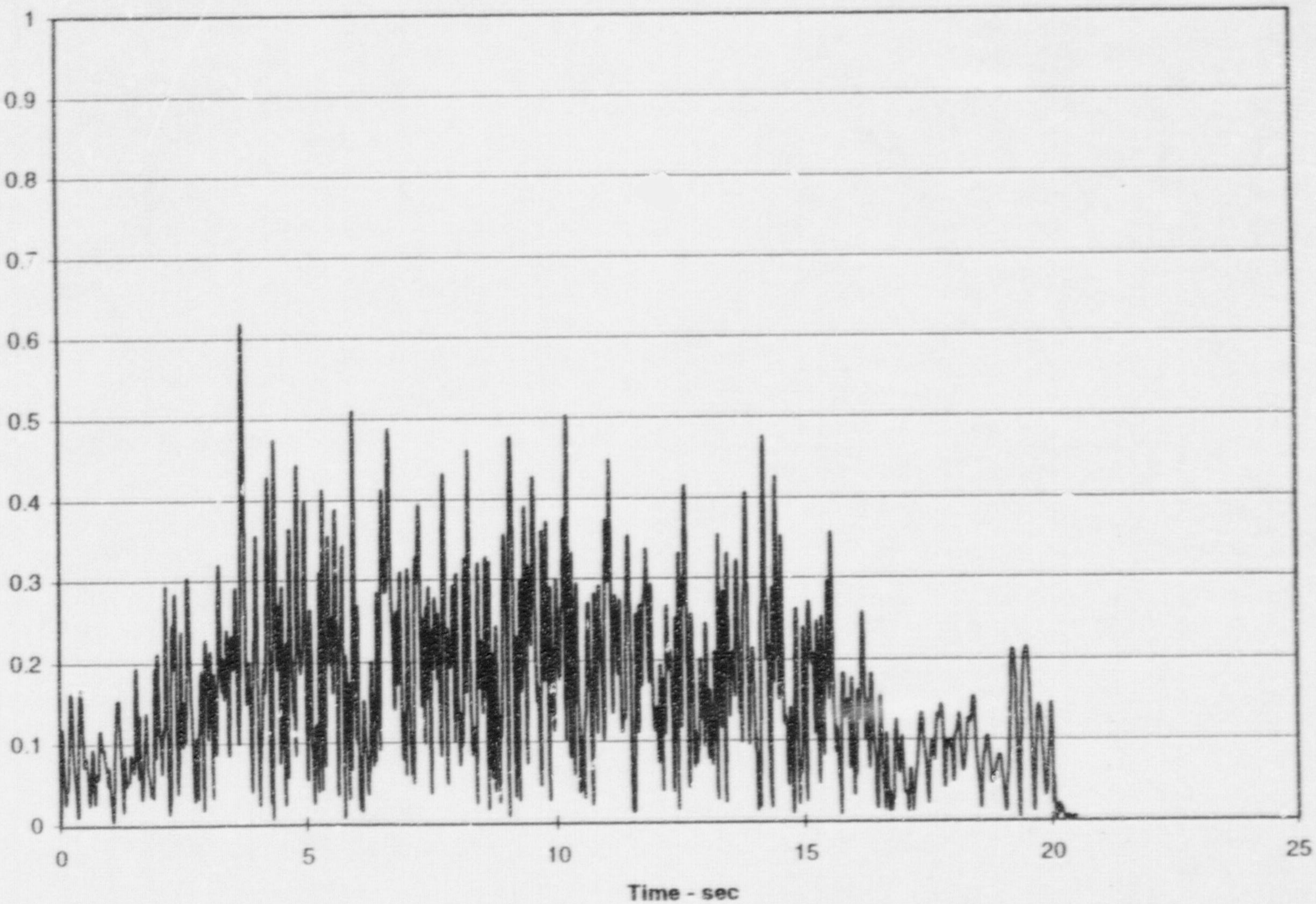
Figure 3-9. Node 232 - Sliding Factor of Safety



BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 3-10. Node 232 - Overturning Factor of Safety



10005I-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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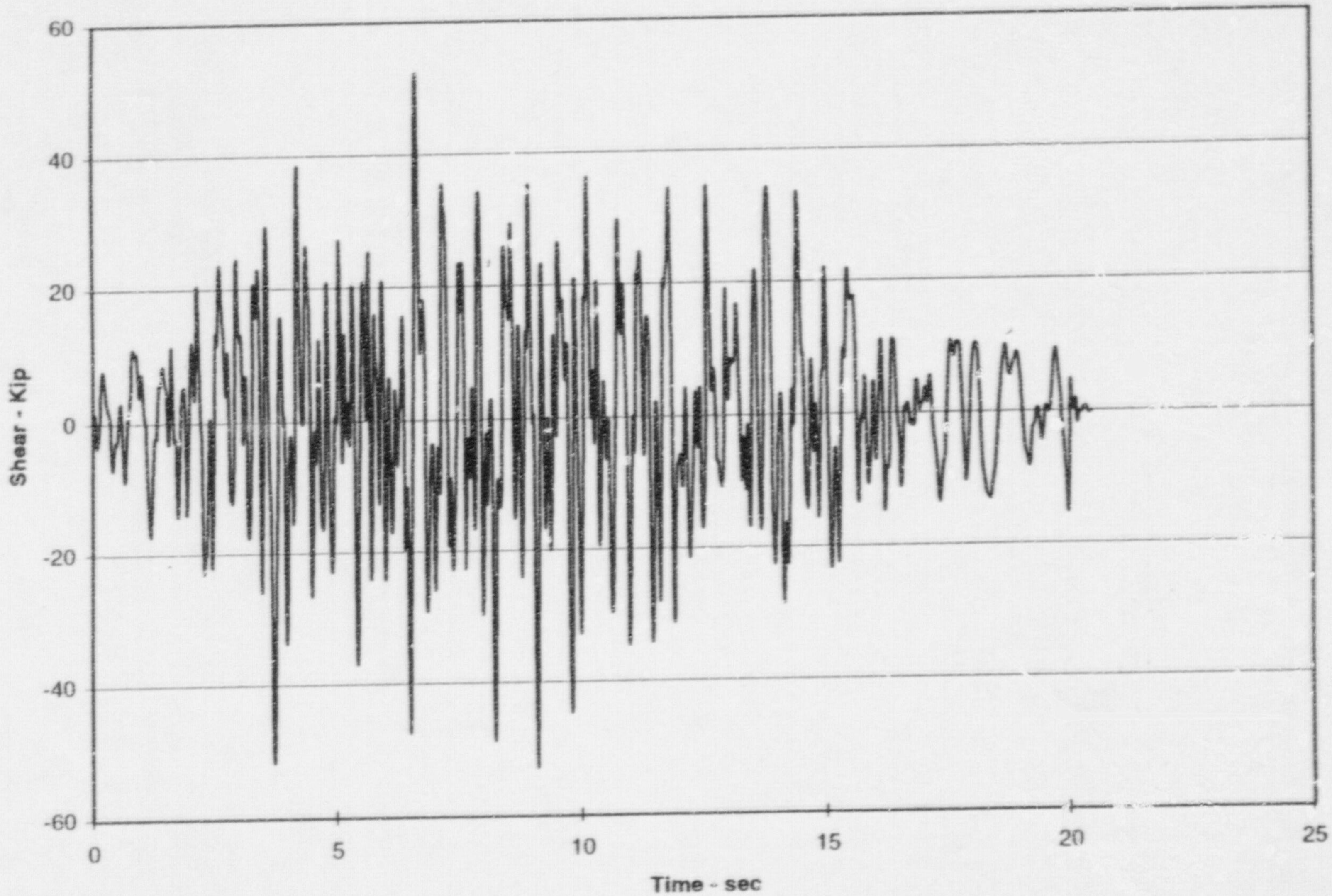
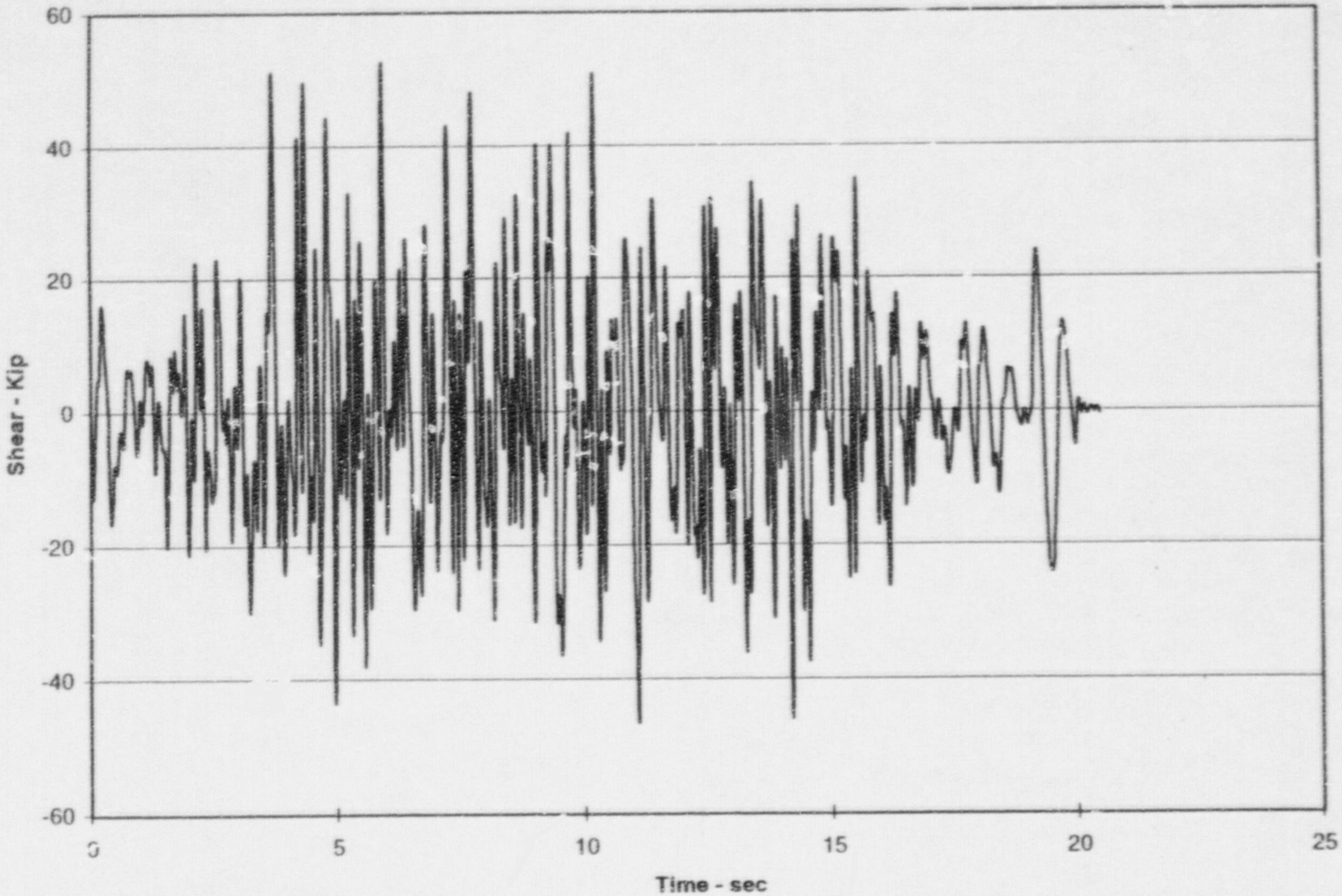
Figure 3-11. Node 233 - Shear X Direction



1000 31-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97
P.25

Figure 3-12. Node 233 - Shear Y Direction



BY: APA 6/12/97
CHK: DJD 6/12/97
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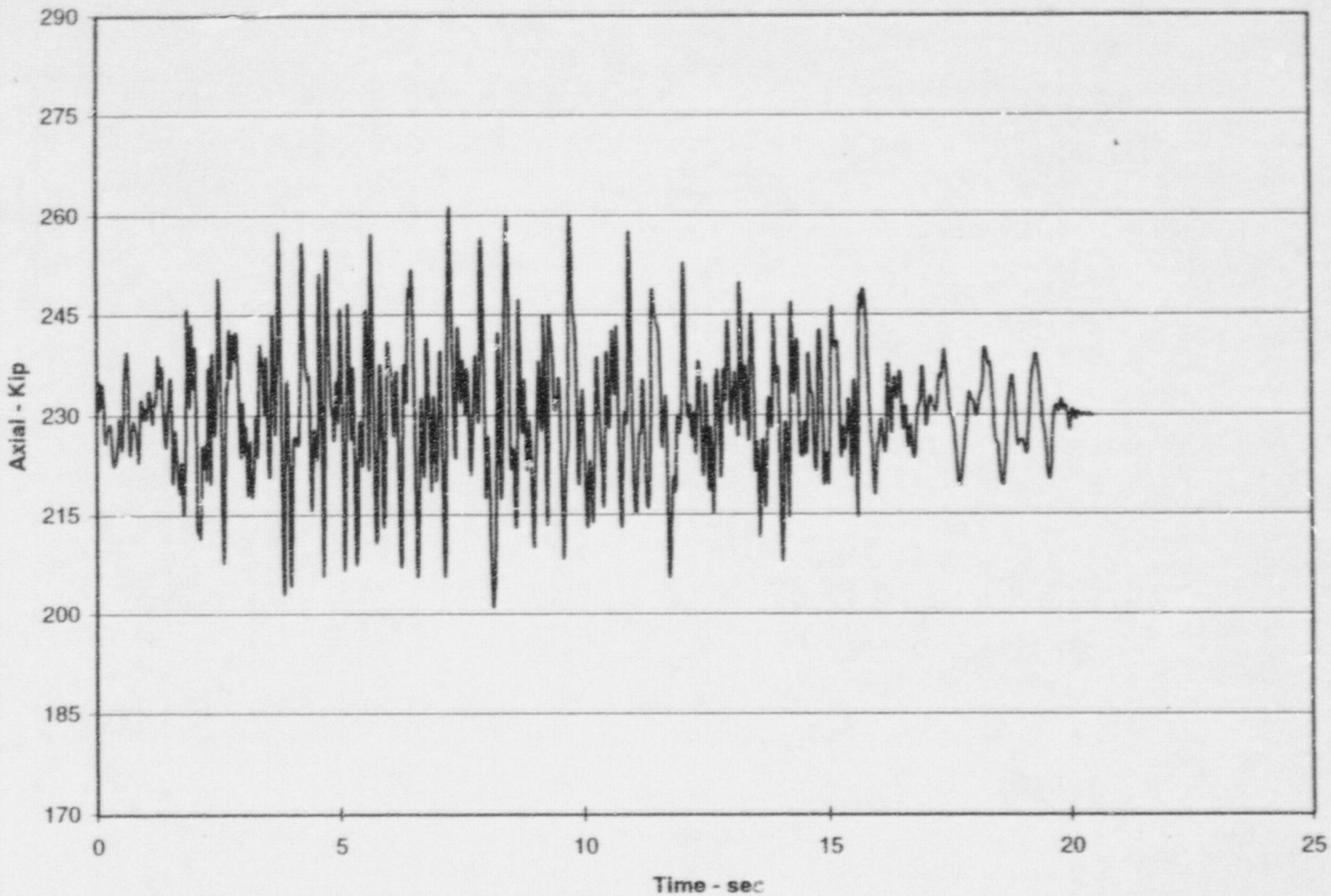
Chart1 (5)

Figure 3-13. Node 233 - Axial Load



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BY: APA 6/12/97
CHK: DJO 6/12/97

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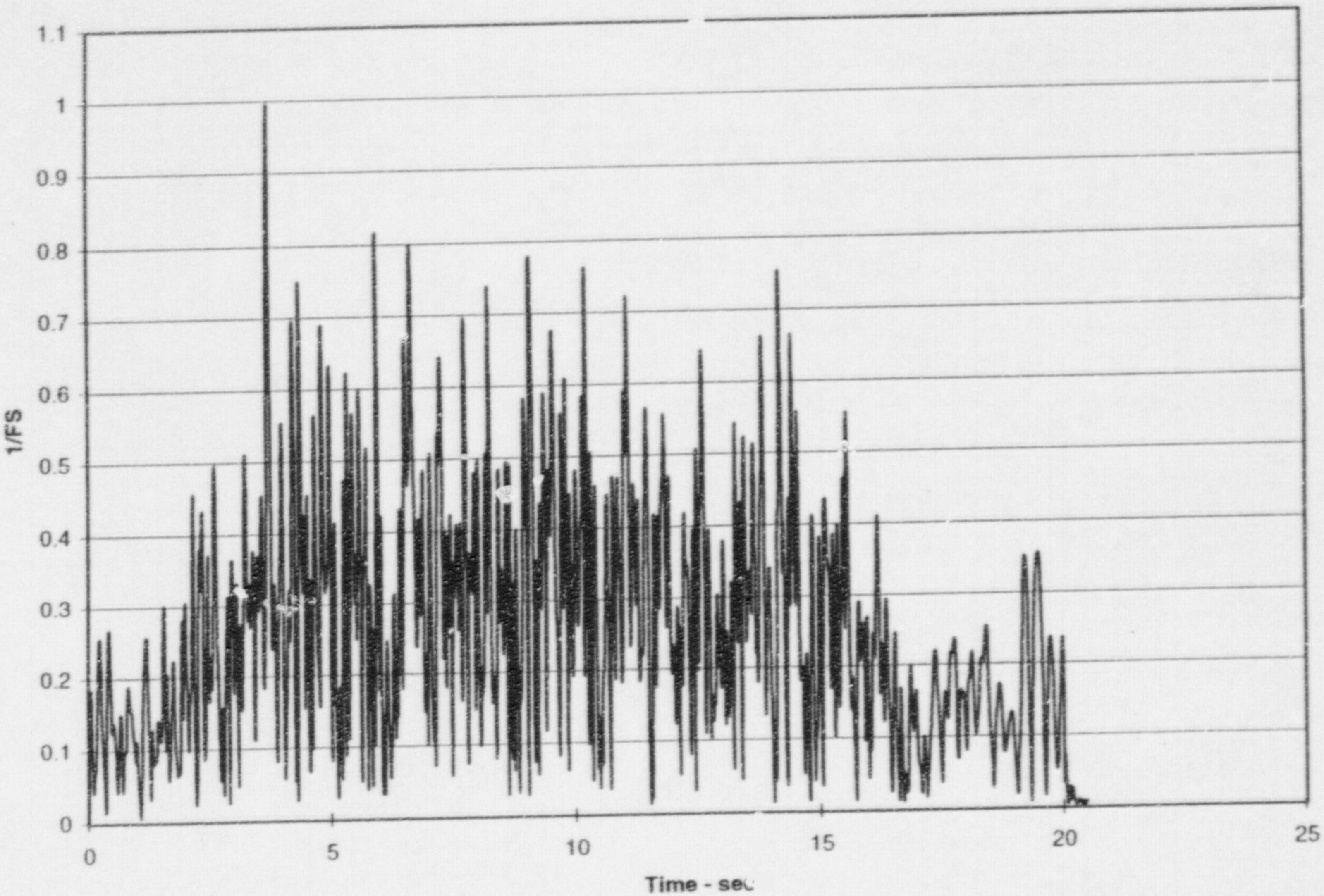
Chart

Figure 3-14. Node 233 - Sliding Factor of Safety



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CHK: DJD 6/12/97

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10003-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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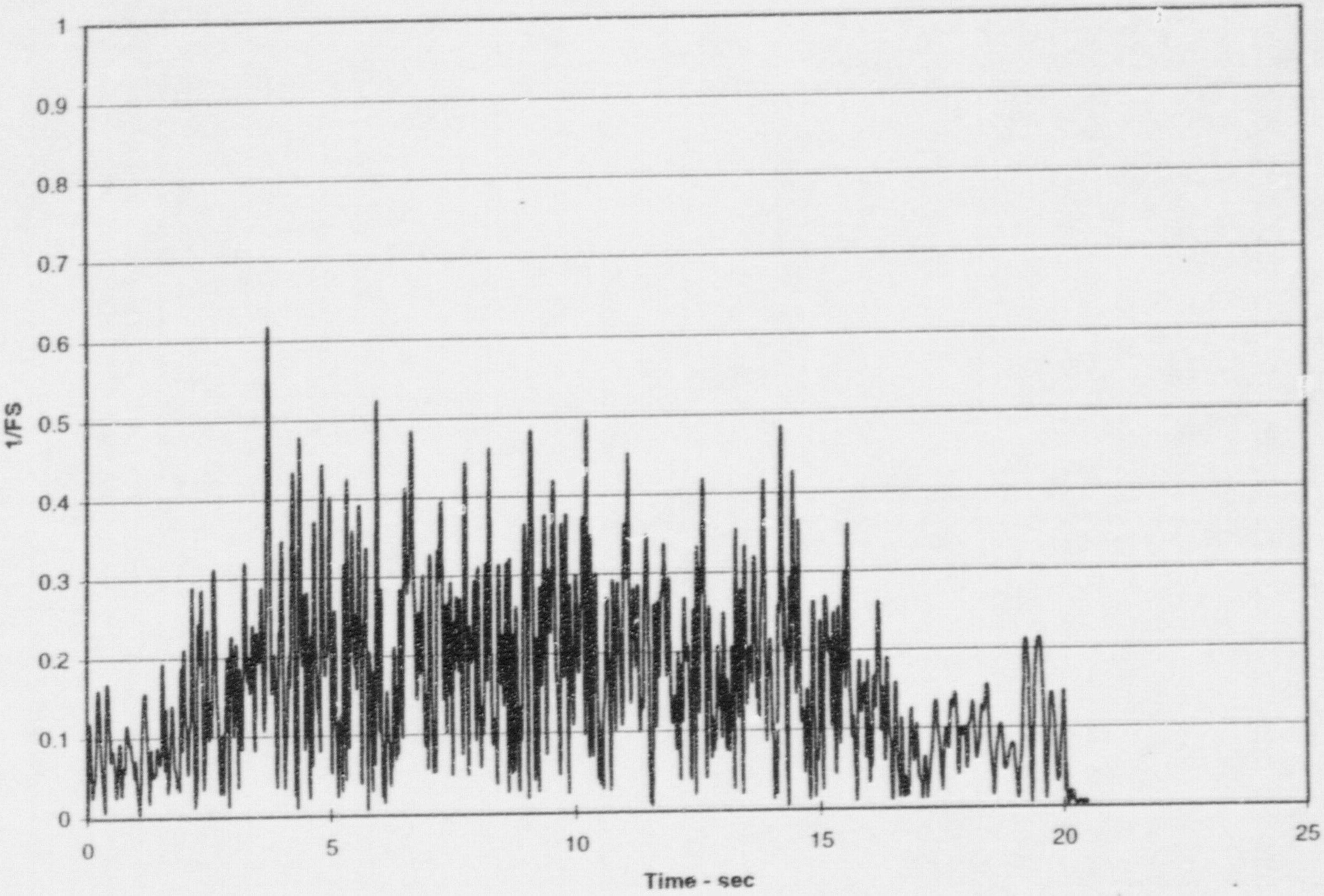
Figure 3-15. Node 233 - Overturning Factor of Safety



1000 51-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

Ch 3)

Figure 3-16. Node 234 - Shear X Direction

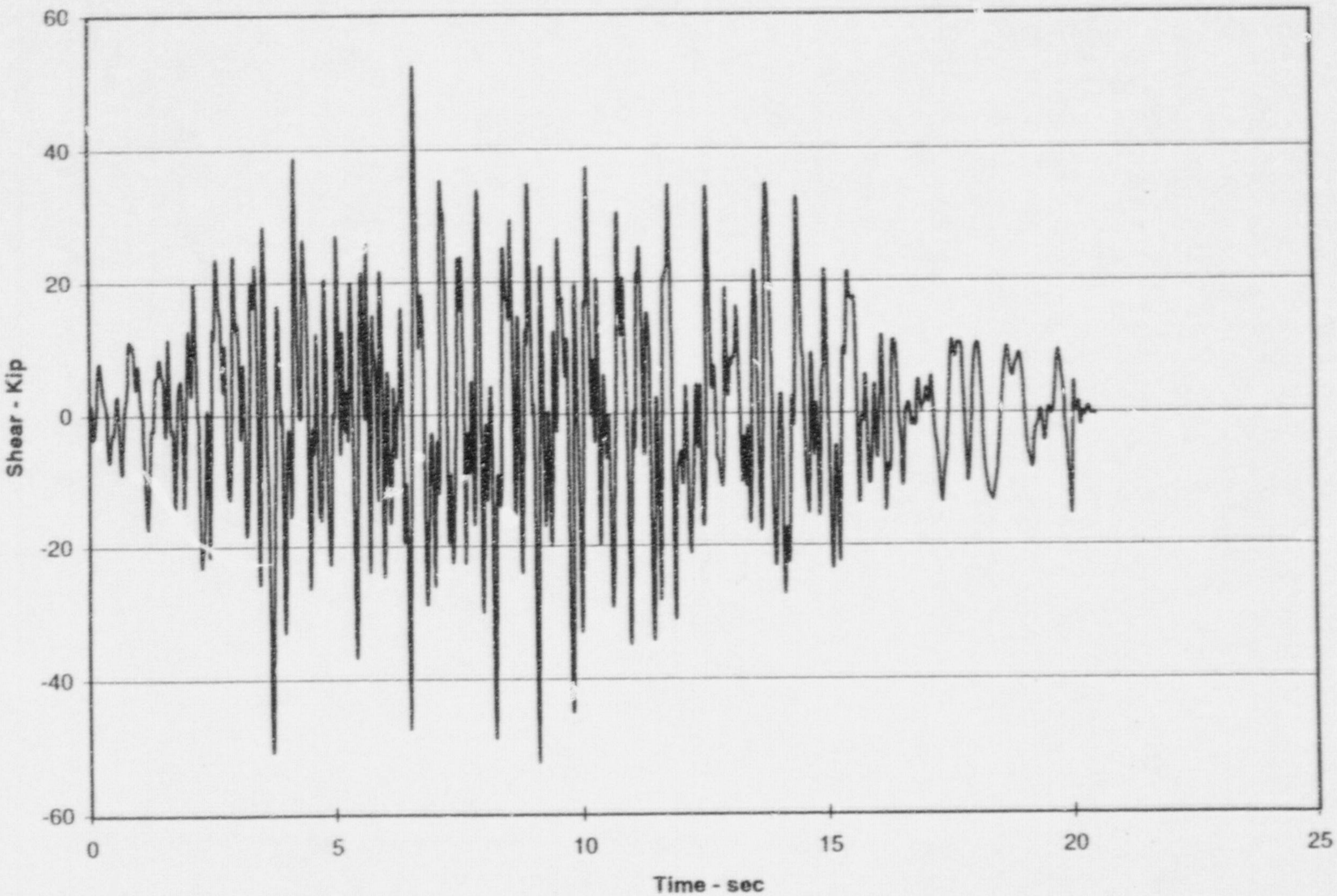


Figure 3-17. Node 234 - Shear Y Direction

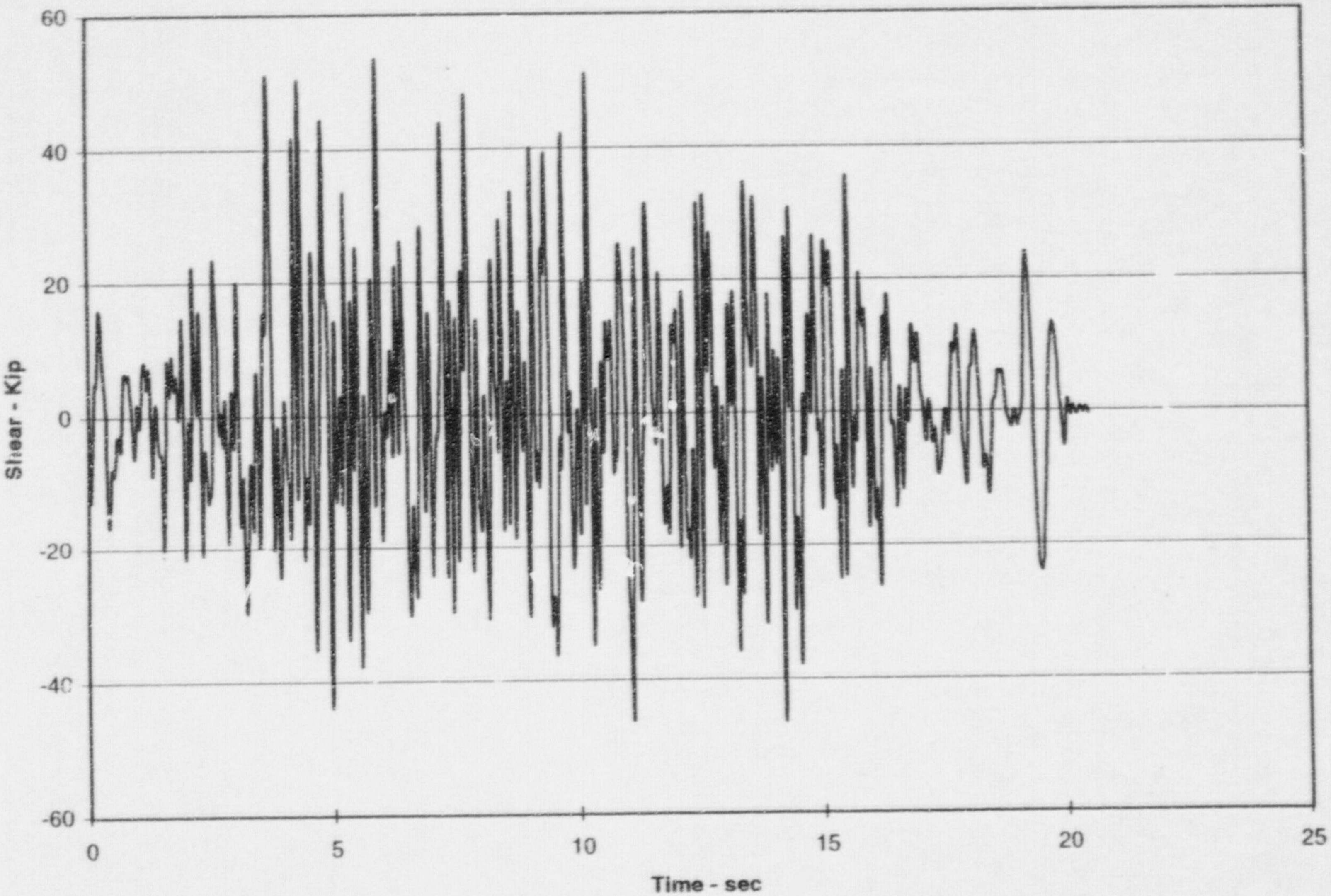
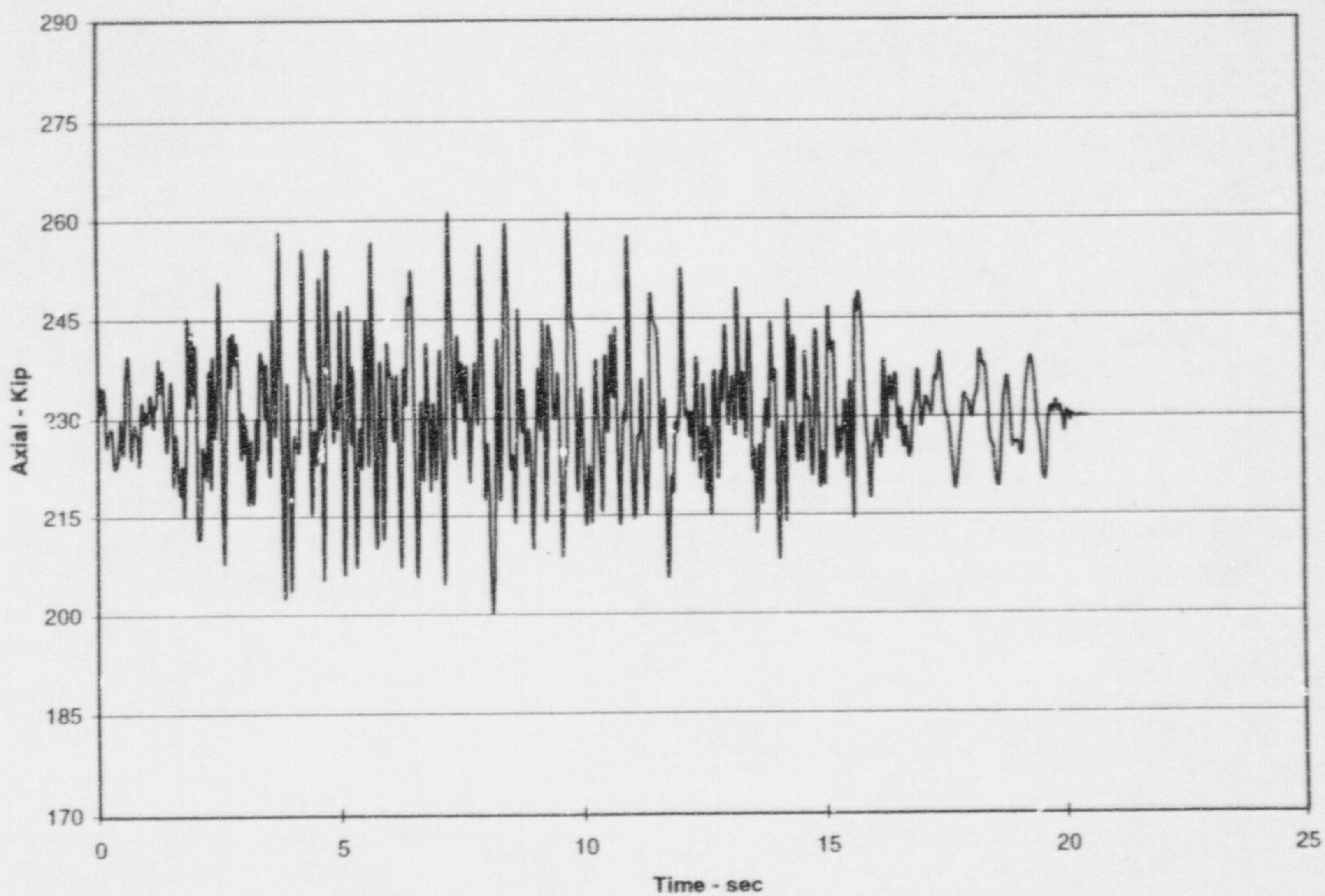


Figure 3-18. Node 234 - Axial Load



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CHK: DJD 6/12/97

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C 1

Figure 3-19. Node 234 - Sliding Factor of Safety

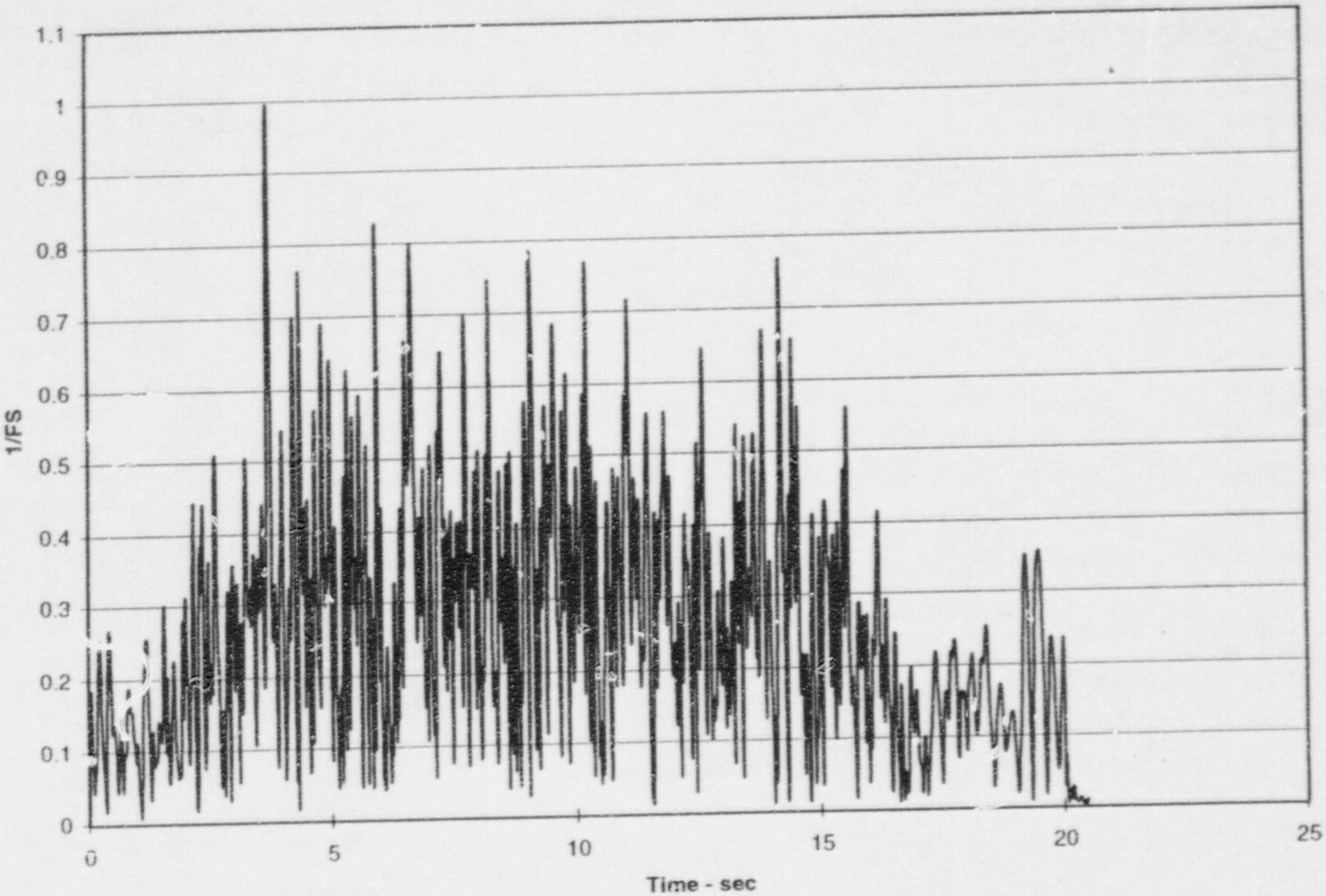
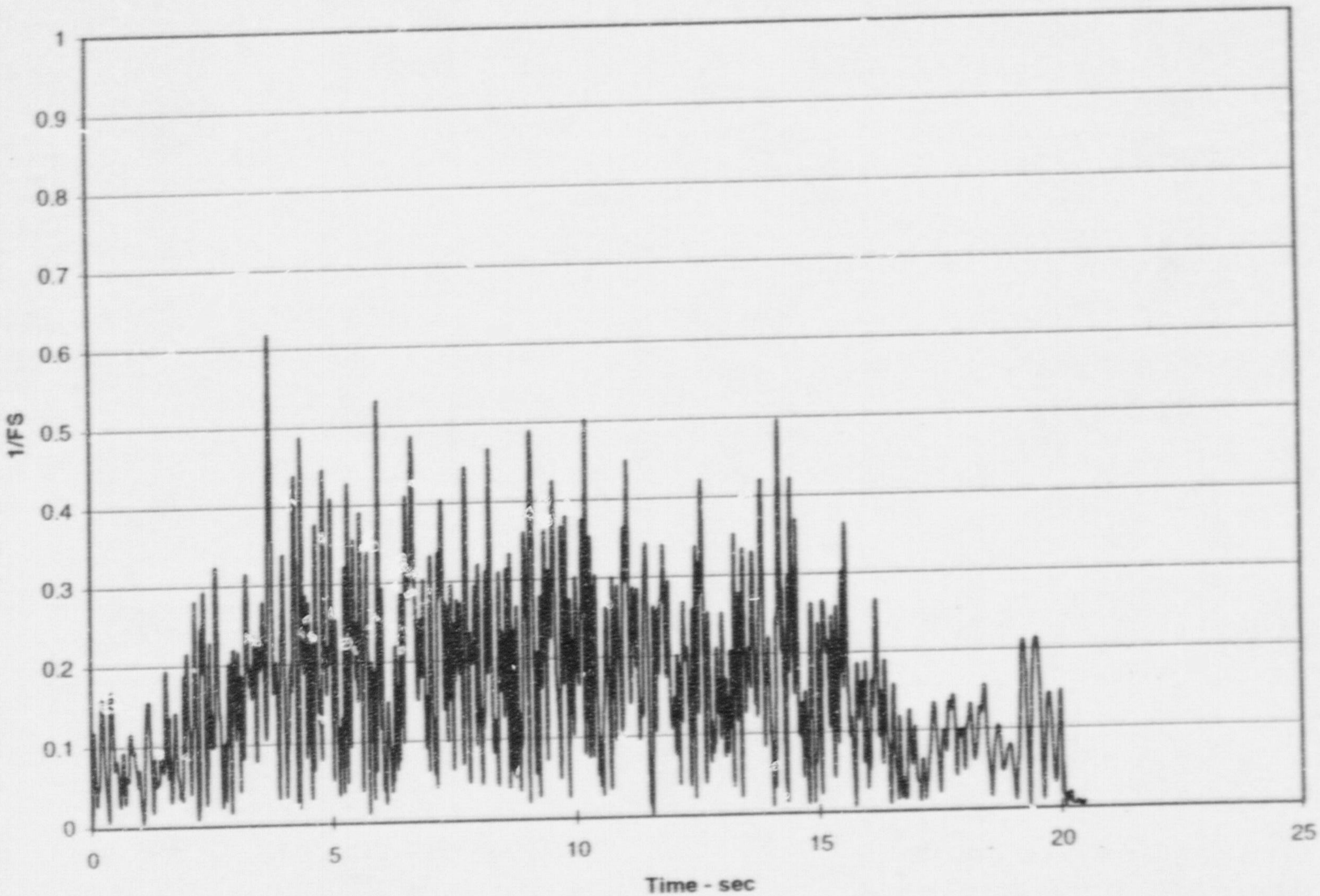
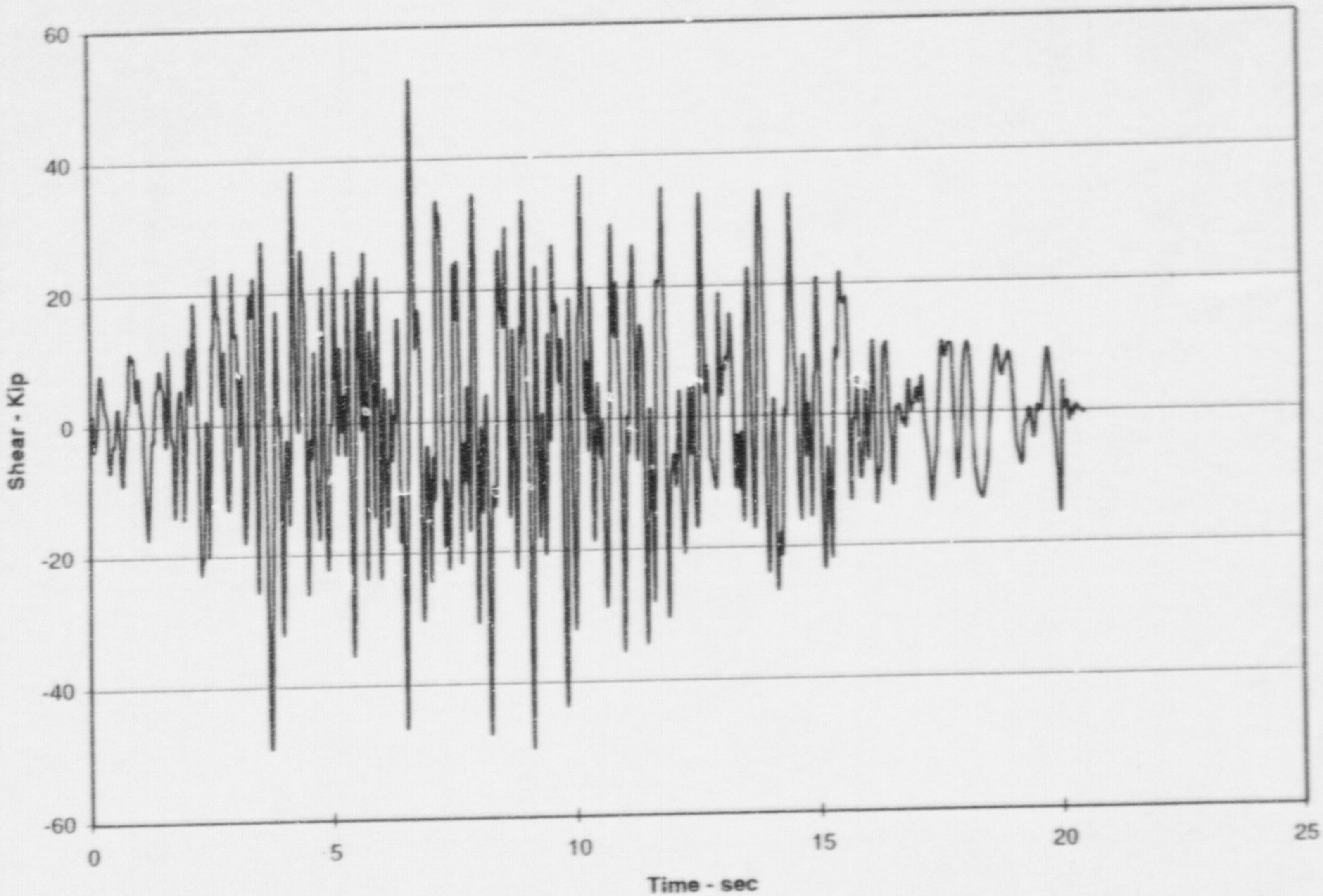


Figure 3-20. Node 234- Overturning Factor of Safety



CI. (3)

Figure 3-21. Node 235 - Shear X Direction



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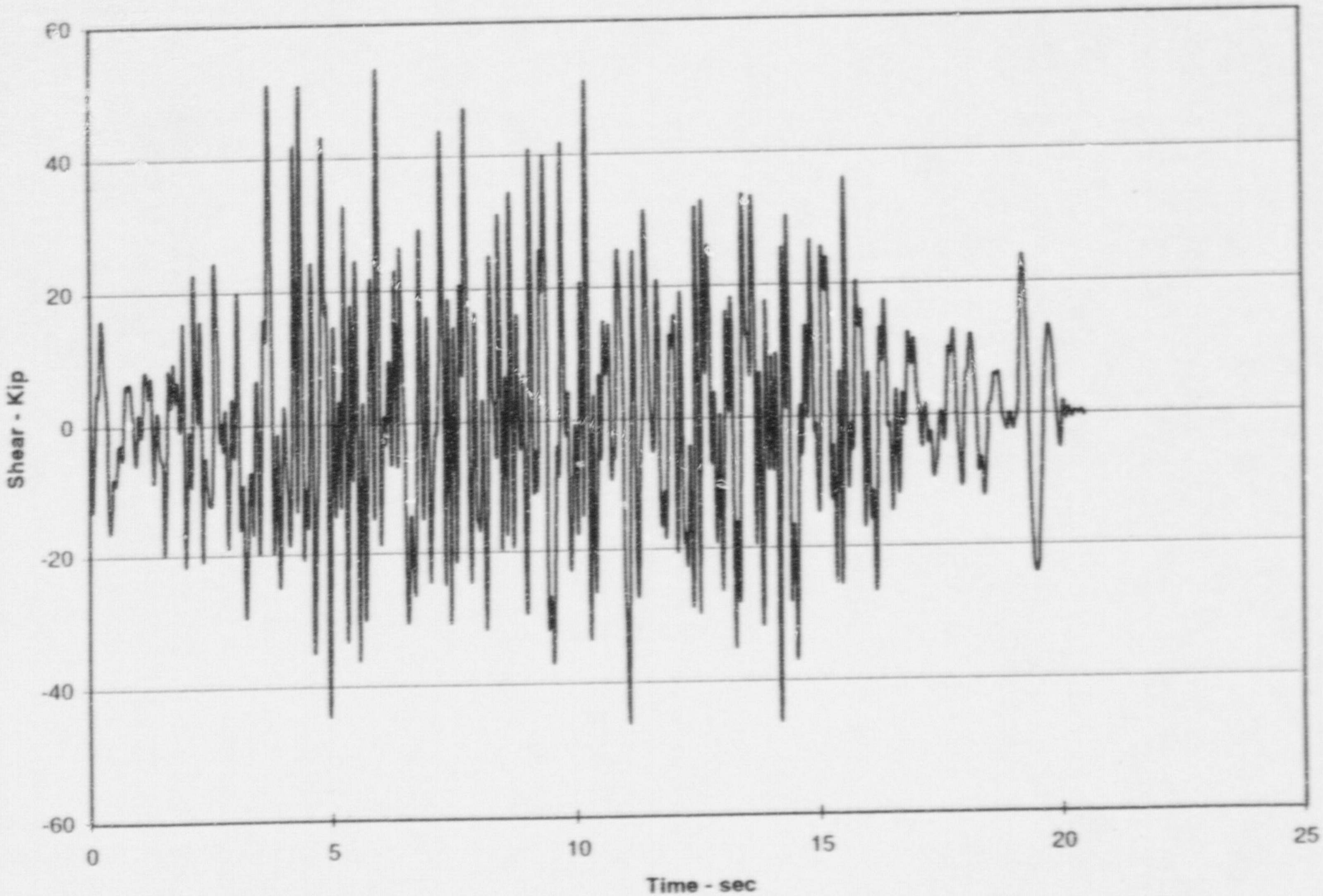
BY: APA 6/12/97
CHK: DJD 6/12/97

P.33

Ci (4)

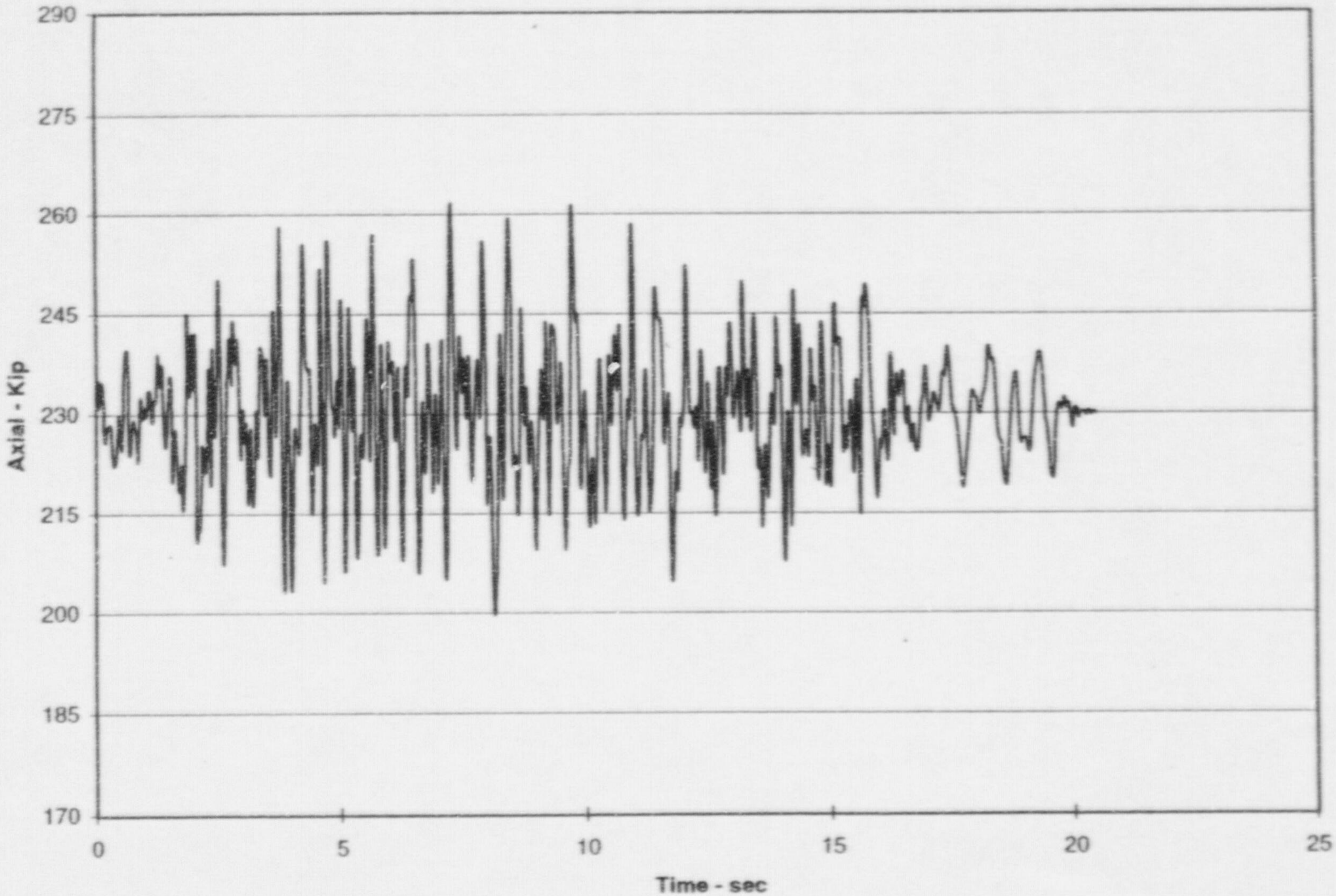
Figure 3-22. Node 235 - Shear Y Direction



100031-C-04
BY: APA 6/12/97
CHK: DFD 6/12/97

Y.24

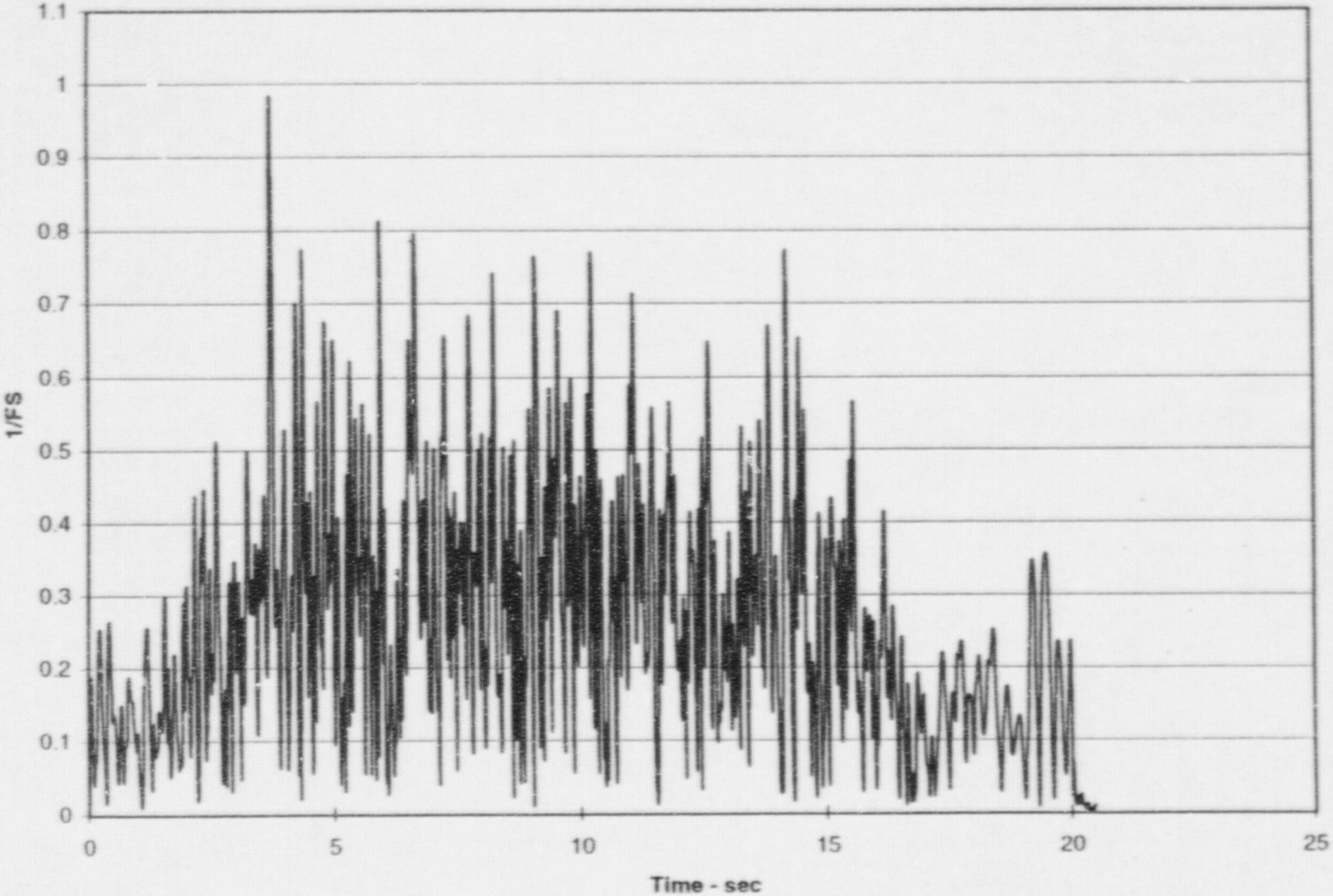
Figure 3-23. Node 235 - Axial Load



100031-C-04
BY: APA 6/12/97
CHK: JJD 6/12/97

P.77

Figure 3-24. Node 235 - Sliding Factor of Safety



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BY: APA 6/12/97
CHK: DJD 6/12/97

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BY: APA 6/12/97
CHK: DJD 6/12/97

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Figure 3-25. Node 235 - Overturning Factor of Safety

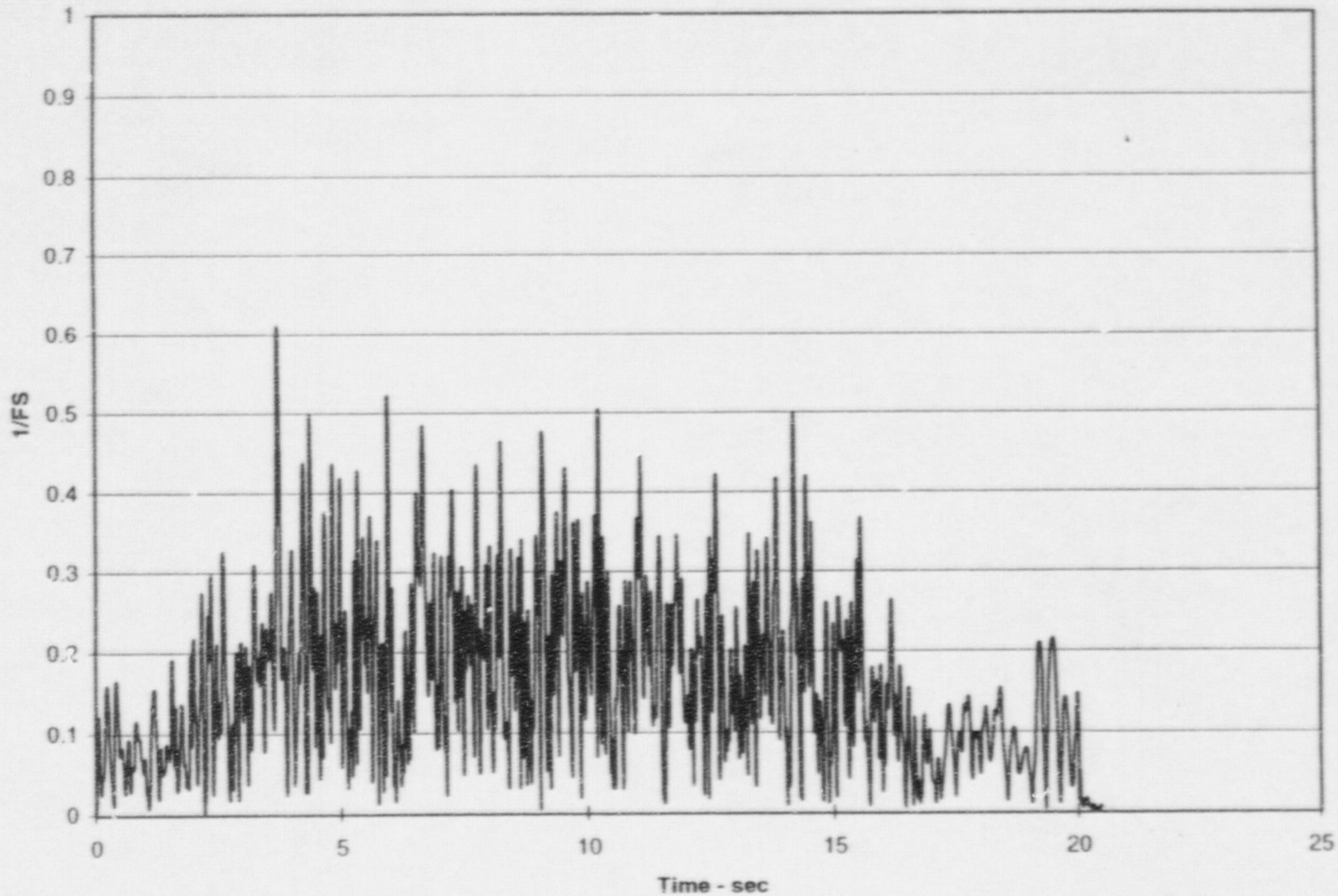
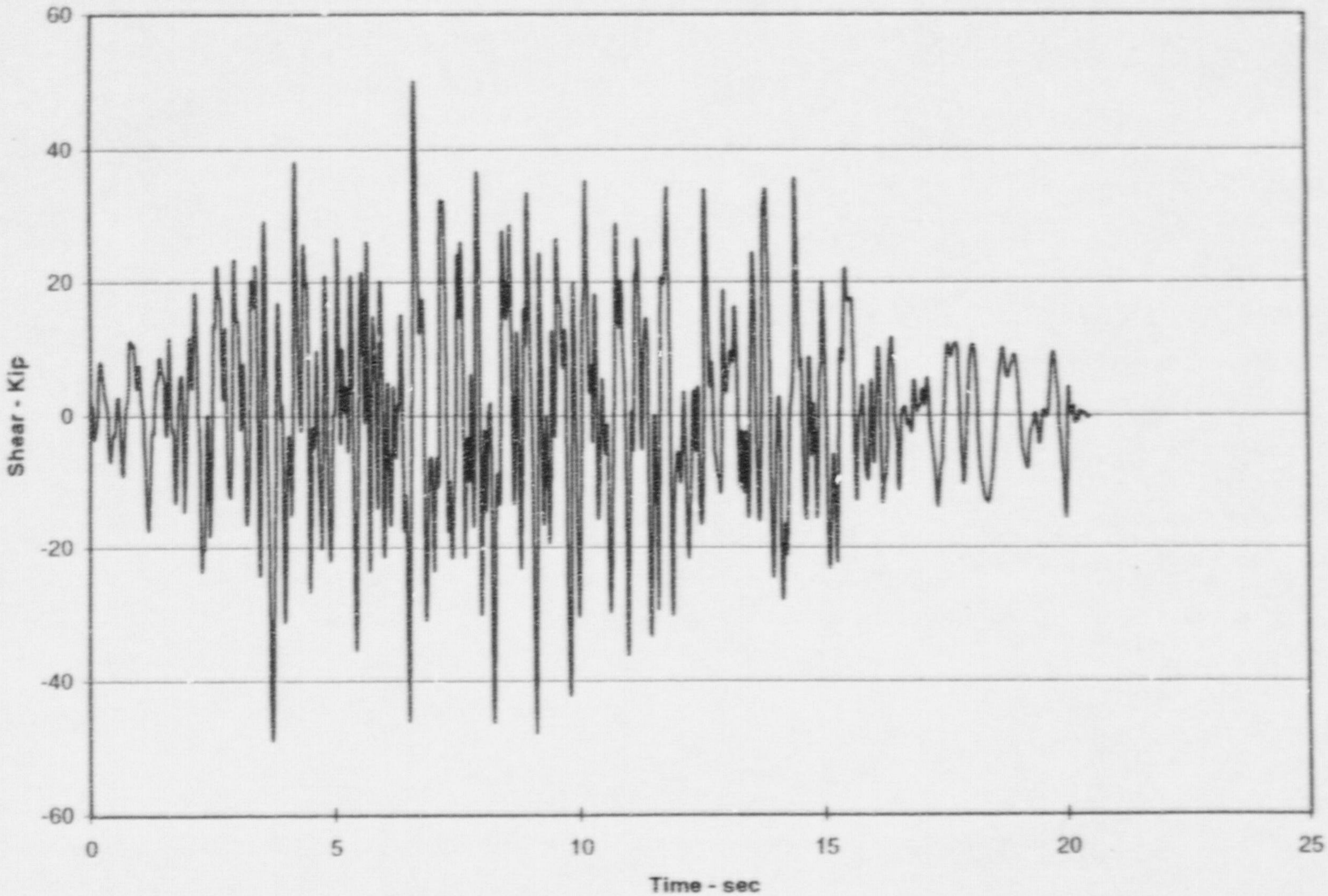
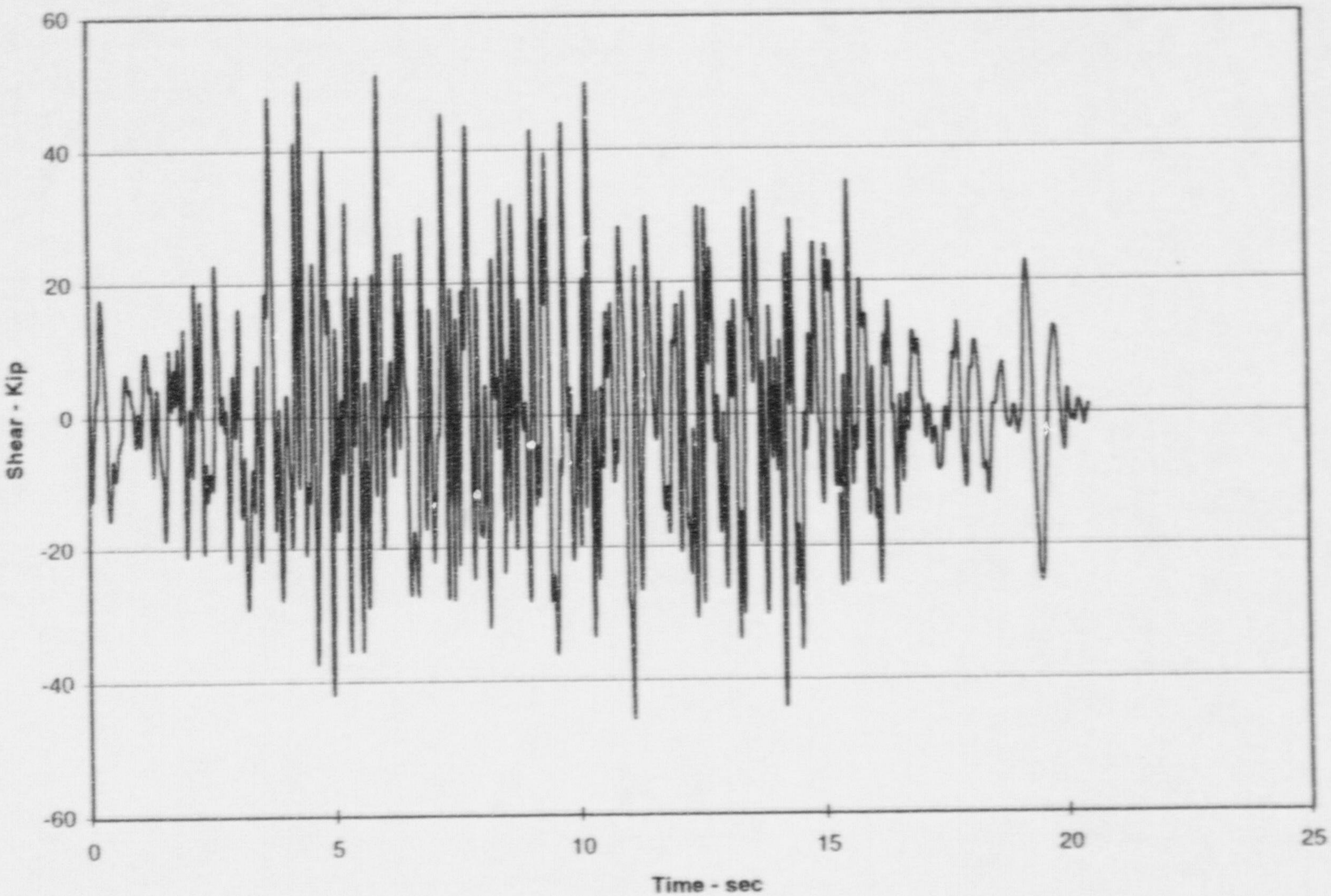


Figure 3-26. Node 236 - Shear X Direction



100031-C-07
BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 3-27. Node 236 - Shear Y Direction



10003I-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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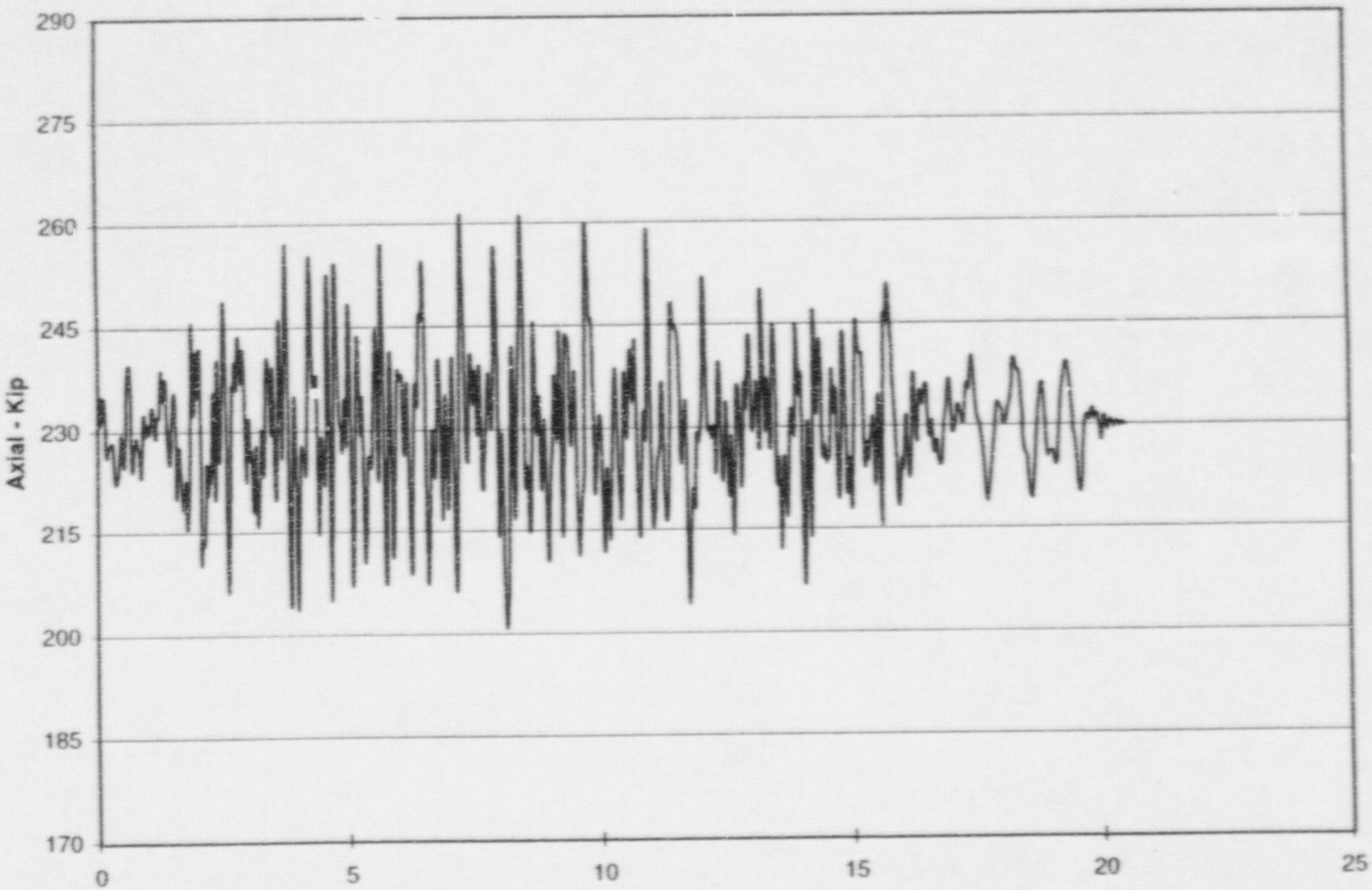
Figure 3-28. Node 236 - Axial Load



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CHK: DJD 6/12/97

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1000 51-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

1.71

Figure 3-29. Node 236 - Sliding Factor of Safety

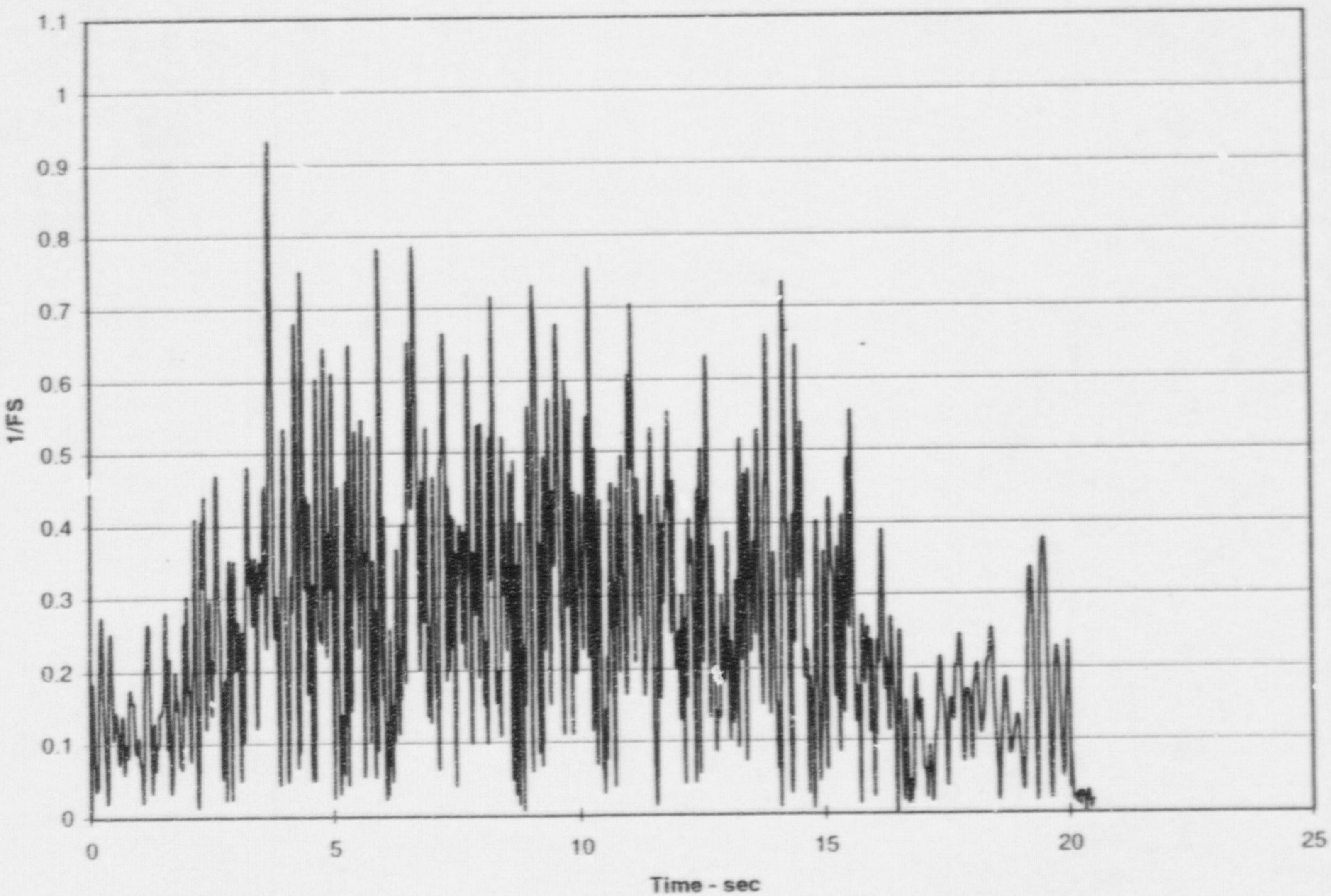
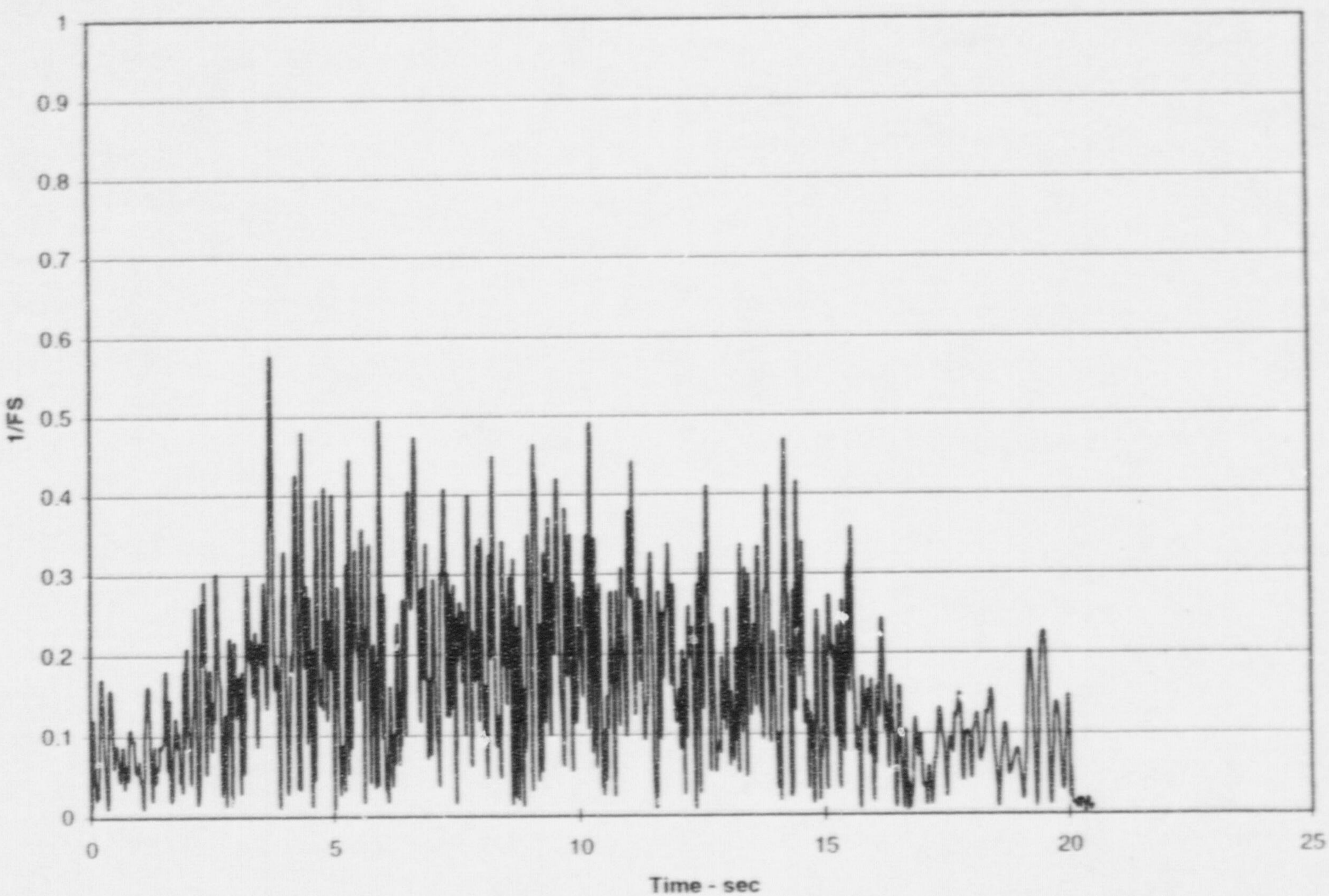
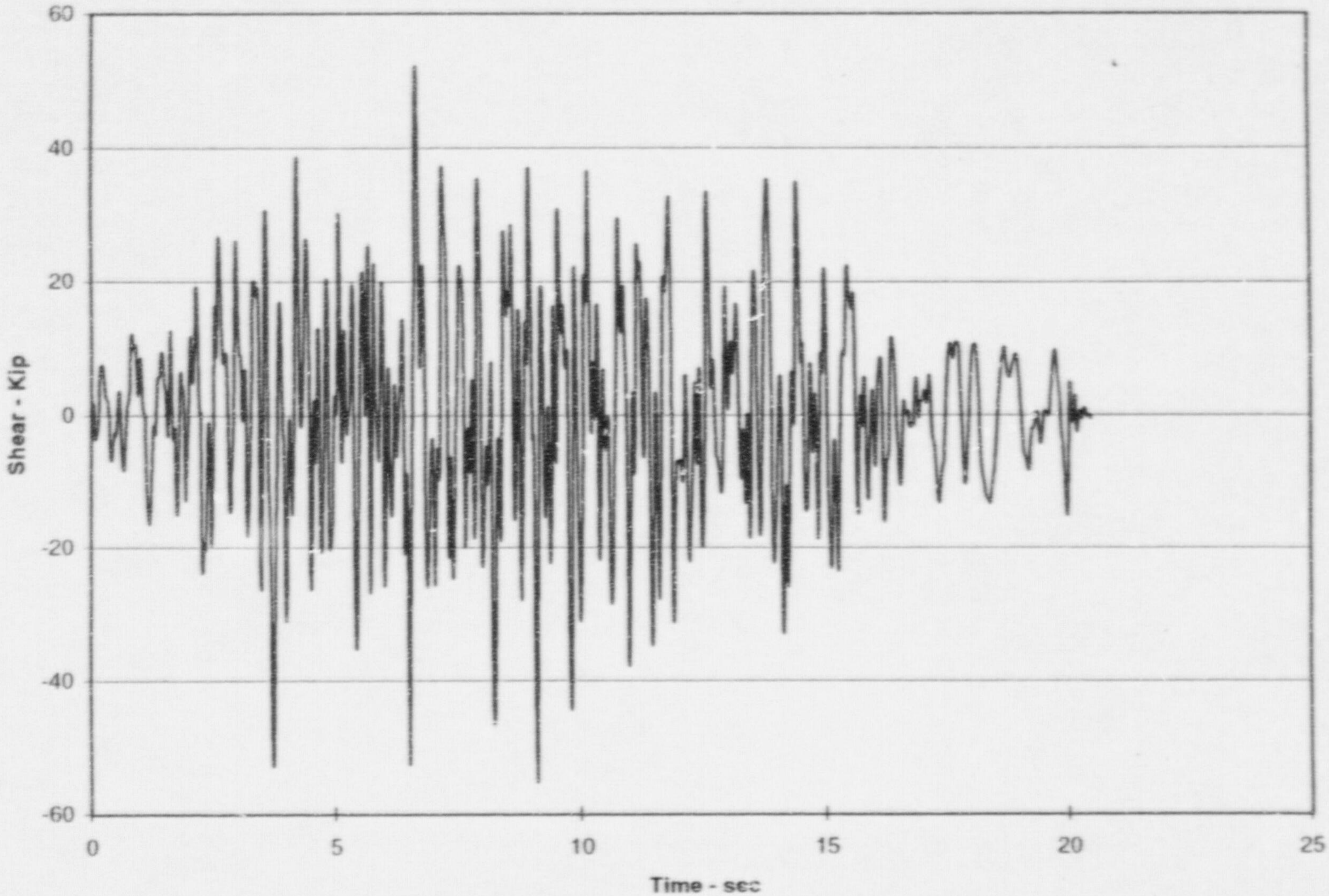


Figure 3-30. Node 236 - Overturning Factor of Safety



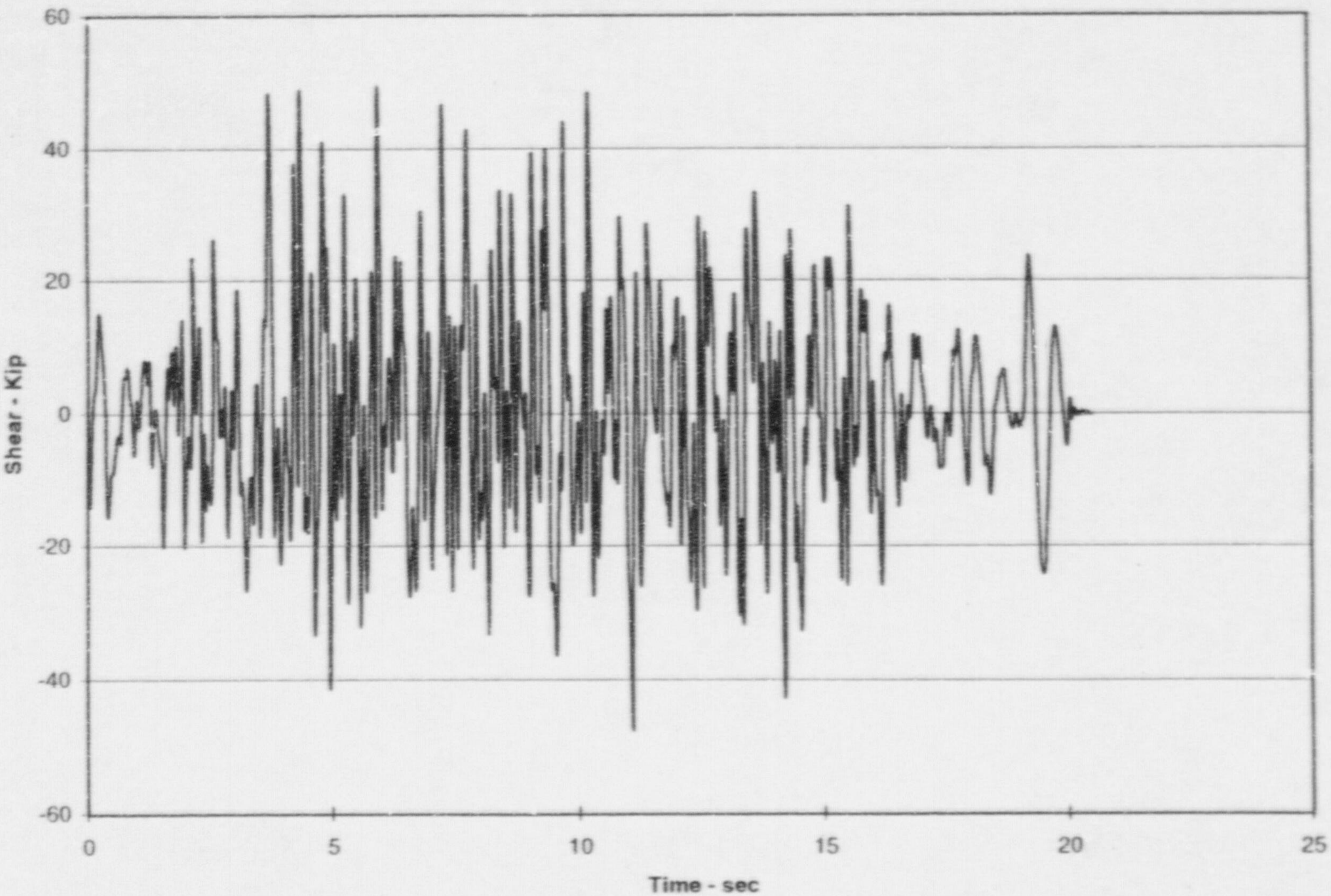
BY: APA 6/12/97
CHK: DJD 6/12/97

Figure 3-31. Node 237 - Shear X Direction



100031-C-07
BY: APA 6/12/97
CHK: DTD 6/12/97

Figure 3-32. Node 237 - Shear Y Direction



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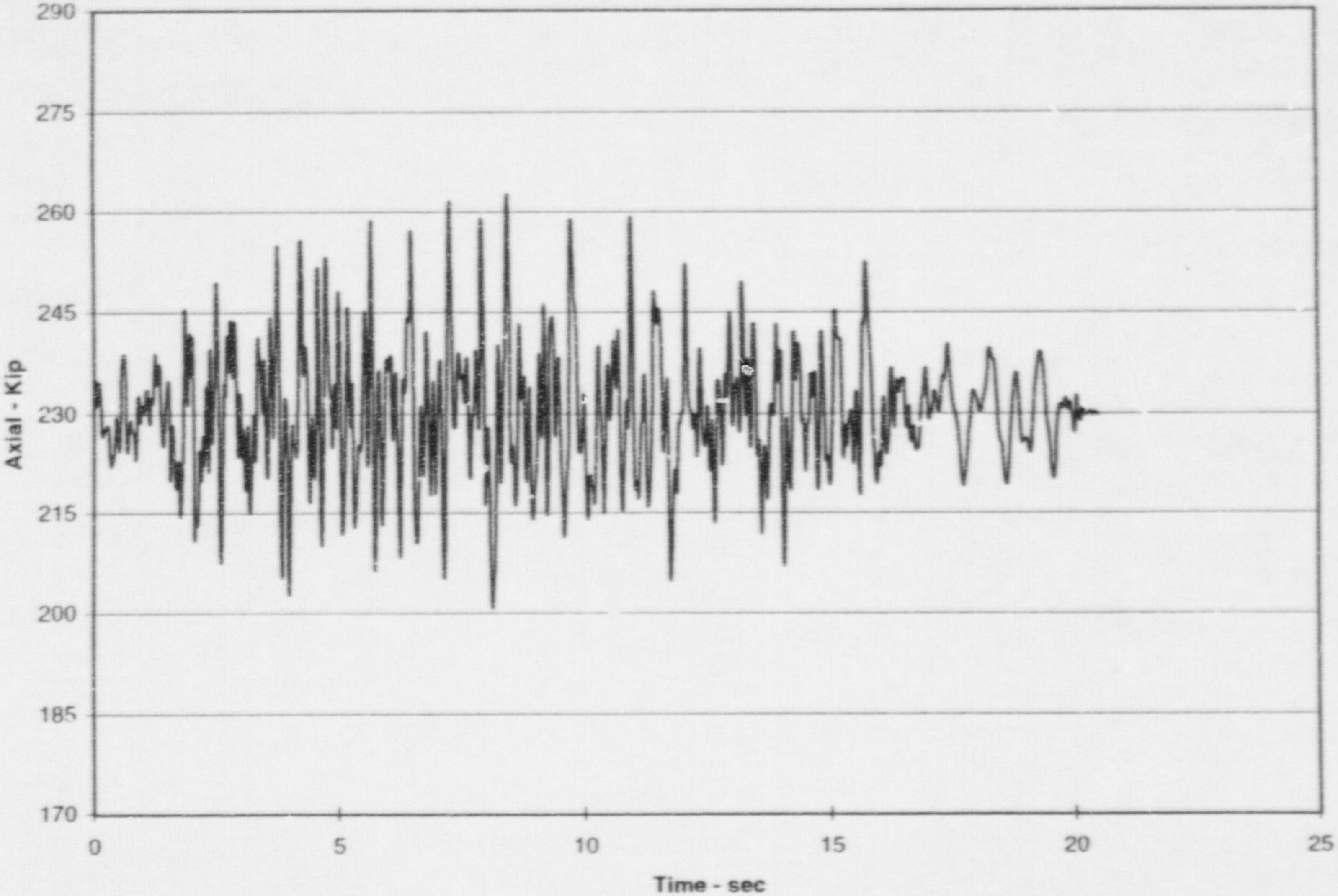
BY: APA 6/12/97
CHK: LTD 6/12/97

Figure 3-33. Node 2?7 - Axial Load



100031-C-04
BY: APA 6/12/97
CHK: DJD 6/12/97

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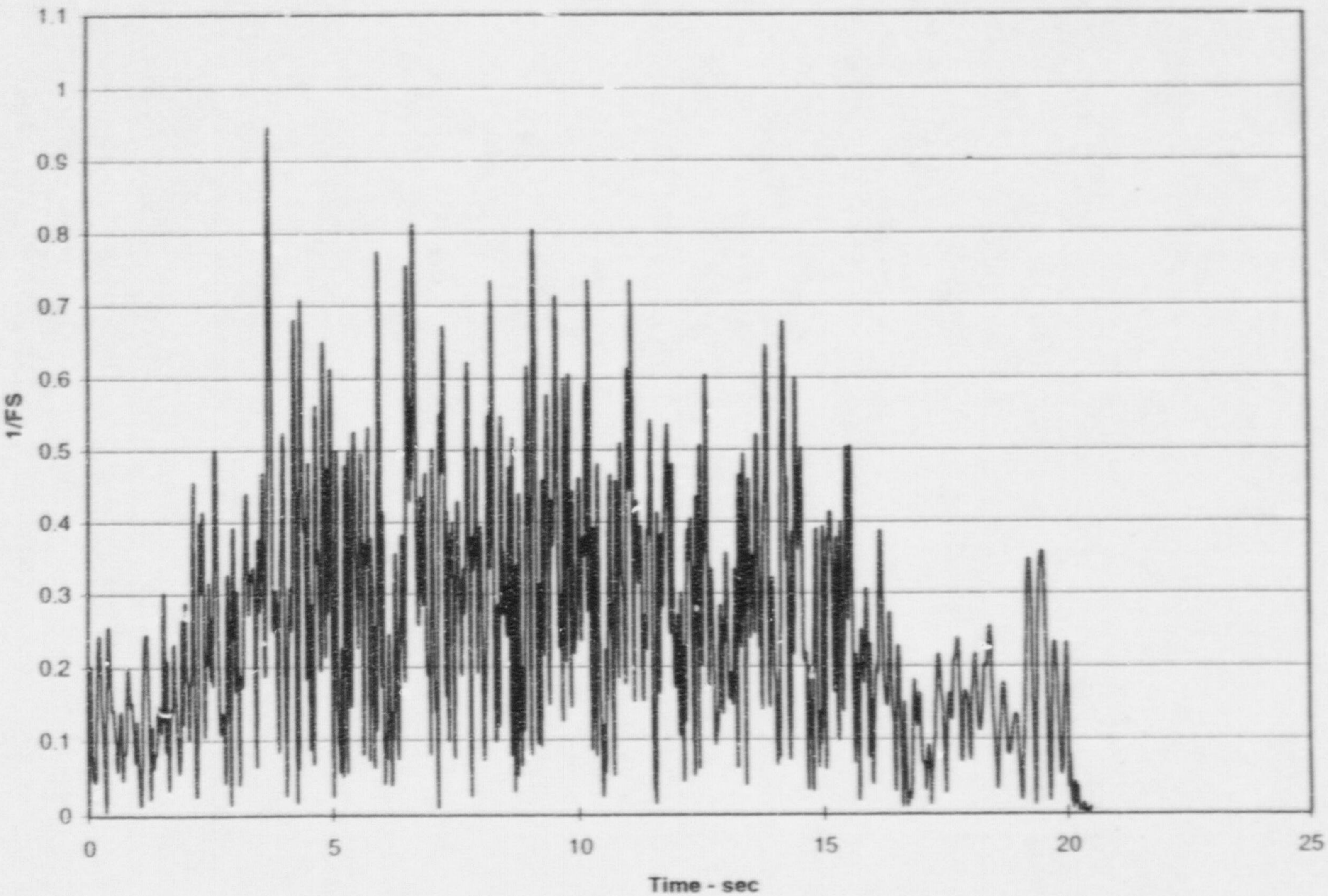
Figure 3-34. Node 237 - Sliding Factor of Safety



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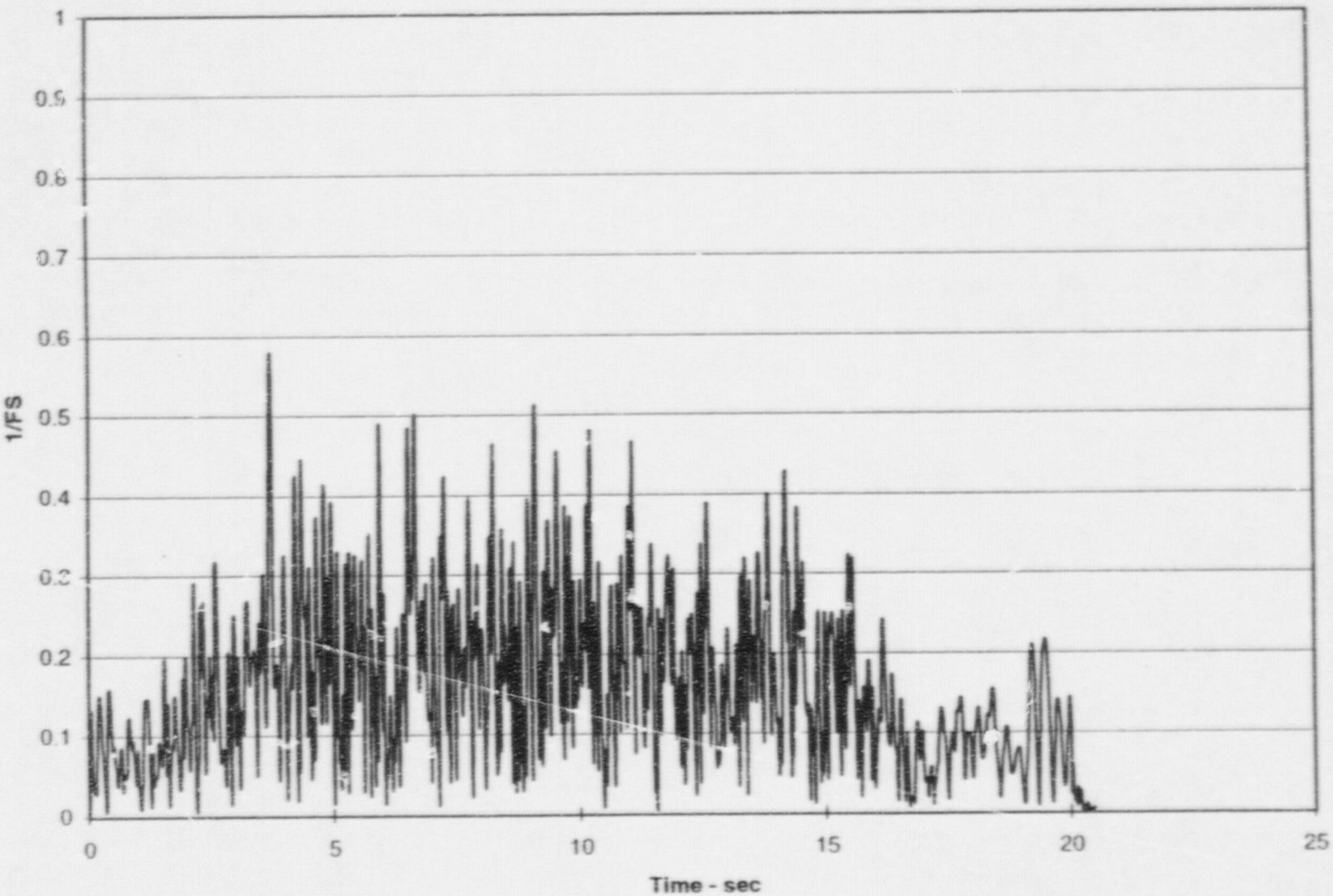
BY: APA 6/12/97
CHK: IJD 6/12/97

Figure 3-35. Node 237 - Overturning Factor of Safety



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CHK: DJD 6/12/97

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Figure 2-1 Membrane Stresses and Bending Moments in Plate Elements

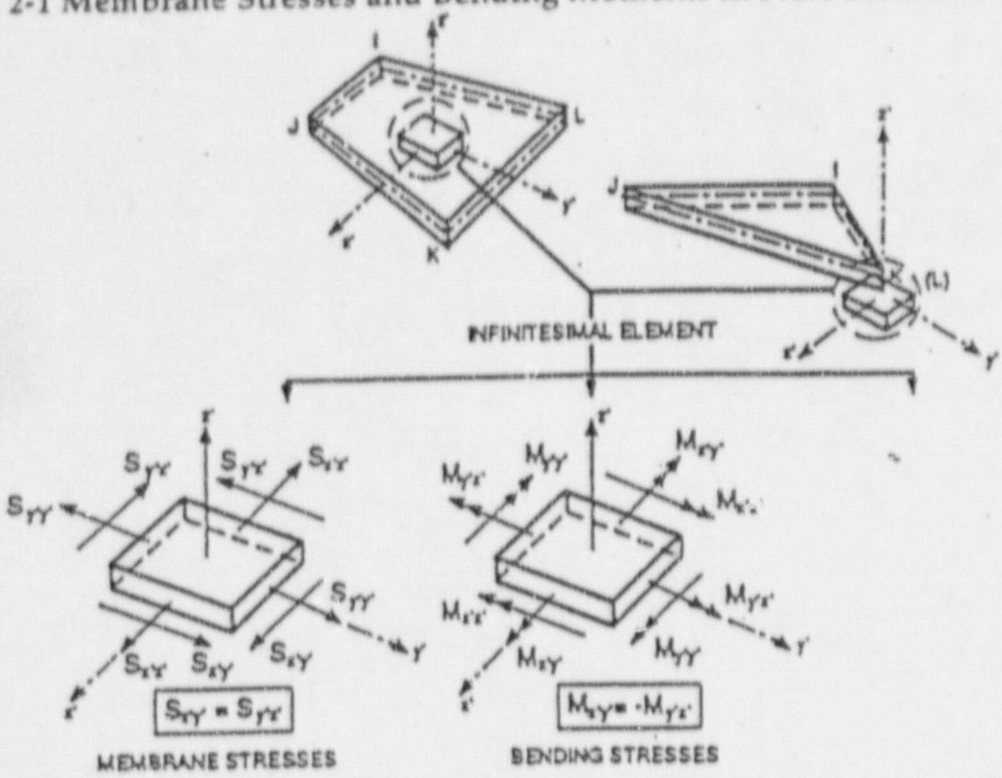

Figure 2-2 Local Coordinate System for Forces and Moments for Beam Elements