TEXAS UTILITIES SERVICES INC.
2001 BRYAN TOWER · DALLAS, TEXAS 75201

Log # TXX-3412
File # 903.8

October 1, 1981

Mr. Robert L. Tedesco
Assistant Director for Licensing
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION
CONFIRMATORY ANALYSIS OF SEISMIC CATEGORY I
BUILDINGS

Dear Mr. Tedesco:

In your letter of May 6, 1981 you requested data for an independent
confirmatory seismic/structural analysis of the CPSES Unit 1
Containment and Auxiliary Buildings. This data was submitted to
members of your staff during the Structural Engineering Branch Audit
conducted during the week of May 11, 1981 at the office of Gibbs and
Hill in New York City.

Attached please find a confirmatory copy of that data for record
purposes.

Should you have questions, please contact John Marshall (214-653-4871)
of my office.

Sincerely,

H. C. Schmidt

JSM:tls
Attachment
cc: J. T. Merritt - 1L, OA
    J. B. George - 1L, OA
    R. D. Calder - 1L, OA
    R. E. Ballard - 1L, OA

Gibbs & Hill, Inc.

ENGINEERS DESIGNERS CONSTRUCTORS

May 22, 1981

GTN-53393

Texas Utilities Generating Company
Post Office Box 1002
Glen Rose, Texas 76043

Attention: Mr. J. T. Merritt
            Manager of Construction & Engineering

Gentlemen:

           TEXAS UTILITIES GENERATING COMPANY
        COMANCHE PEAK STEAM ELECTRIC STATION
               G&H PROJECT NO. 2323
        SEISMIC INPUT DATA FOR DYNAMIC ANALYSIS
          OF REACTOR AND AUXILIARY BUILDINGS

During the SEB Audit, the week of May 11, 1981, the NRC requested
the input data for the dynamic models used for seismic analysis
of the Reactor and Auxiliary Buildings, and results thereof in
terms of force components to be used for verification by inde-
pendent analysis (reference attachment 4). The requested
information is supplied in attachments 1 to 3, and explanation
of the attached data is furnished as follows:

Attachment 1

Reactor Building (Containment and Internal Structures) -

1. Figure 3.7B-23 - Plan View
2. Figure 3.7B-24 - Elevation View
3. Figure 3.7B-34 - Dyanmic Model
4. Lower Bound, Best Estimate and Upper Bound Models
5. Table 3.7B-9 - Mass Point Nodal Coordinates
6. Mass Point Mass Data

Texas Utilities Generating Company

7.   Table 3.7B-19 - Degrees of Freedom
8.   Foundation Spring Constants
9a. Stiffness and Flexibility Matrices of Uncracked
       Containment Model
 b. Stiffness and Flexibility Matrices of Cracked
       Containment Model
 c. Stiffness and Flexibility Matrices of Internal
       Structure Model
10. Results - Three Components of Forces and Three
       Components of Moments for the Best Estimate
       Uncracked Model due to SSE in Z-direction.

Above stiffness and flexibility matrices are calculated based
upon fixed base assumption. In order to obtain a complete
stiffness or flexibility matrix for the Reactor Building
supported on rock foundation, the corresponding matrices
from either 9a or 9b should be combined with 9c and 8 (based
upon appropriate model).

Attachment 2

Auxiliary and Electrical Building -

1.   Figure 3.7B-28 - Plan View
2.   Figure 3.7B-29 - Elevation View
3.   Figure 3.7B-36 - Dynamic Model
4.   Lower Bound, Best Estimate and Upper Bound Models
5.   Table 3.7B-11 - Mass Point Nodal Coordinates
6.   Table 3.7B-16 - Mass Point Mass Data
7.   Table 3.7B-21 - Degrees of Freedom
8.   Tables 3.7B-26 and 3.7B-27 - Foundation Sprint Constants
9a. Stiffness Matrix of Structure combined with Lower Bound
       Soil Spring (K/4)
 b. Stiffness Matrix of Structure combined with Best
       Estimate Soil Spring (K)
 c. Stiffness Matrix of Structure combined with Upper
       Bound Soil Spring (2K)
10. Results - Three Components of Forces and Three Components
       of Moments for the Best Estimate Model due to SSE in
       Z-direction.

Above stiffness matrices are for the combined Auxiliary and
Electrical Building models along with the appropriate soil
spring s.

Texas Utilities Generating Company

In the free vibration analysis of both the Reactor and Auxiliary Buildings, an equivalent soil mass is added to the structural mat for both the lower bound and the best estimate analyses, but not for the upper bound analysis. However, the inertia load due to this soil mass is not considered to obtain the resulting loads provided in item 10 for both buildings.

Ground response spectra for both horizontal and vertical components of SSE and material properties are provided in Attachment 3.

Please note that all data are supplied in terms of KIP-FOOT-SECOND units, unless otherwise noted.

In accordance with the information requested in attachment 4, and per discussion with the NRC Audit Team, G&H believes that the information supplied herewith is adequate for independent analysis and verification. However, if any additional information is required, please feel free to contact our office.

Very truly yours,

GIBBS & HILL, Inc.
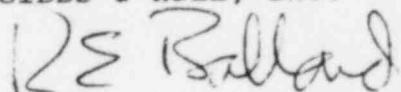
Robert E. Ballard, Jr.
Project Manager

Efm KKB
REBa-EJBo-KKB:lc
1 Letter + 1 Attachment
CC: ARMS (B&R Site) OL 1A
     H. C. Schmidt (TUSI Dallas) 1L 1A
     R. D. Calder (TUSI Site) 1L 1A
     F. Rinaldi (USNRC - Washington) 1L 1A

ATTACHMENT 1

N

A

X

Z

A
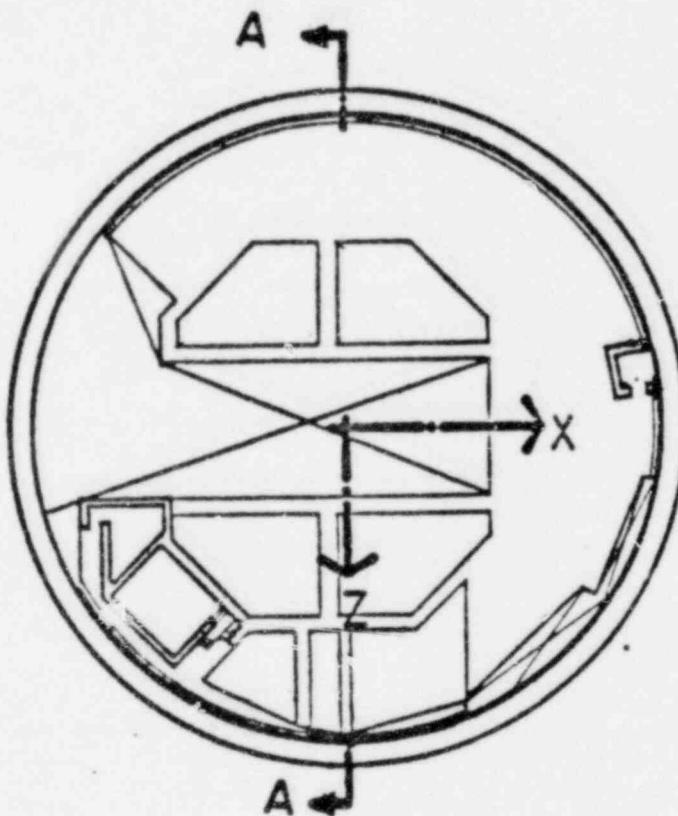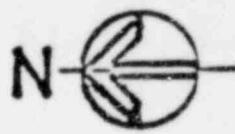
PLAN EL. 905'-9"

NOTE: ORIGIN OF COORDINATES IS AT EL. 808'-6'

EL. 905'-9"

EL. 884'-6"

EL. 860'-0"

EL. 832'-6"

EL. 805'-6"

EL. 793'-6"

EL. 769'-2"

SECTION A-A

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

ELEVATION VIEW
CONTAINMENT & INTERNAL
STRUCTURES

FIGURE 3.7B-24

Y

↑Y

→X

Z

COORDINATE SYSTEM

N

CONTAINMENT
BUILDING

1
2
3
4
5

INTERNAL
STRUCTURE

6
7
8

9
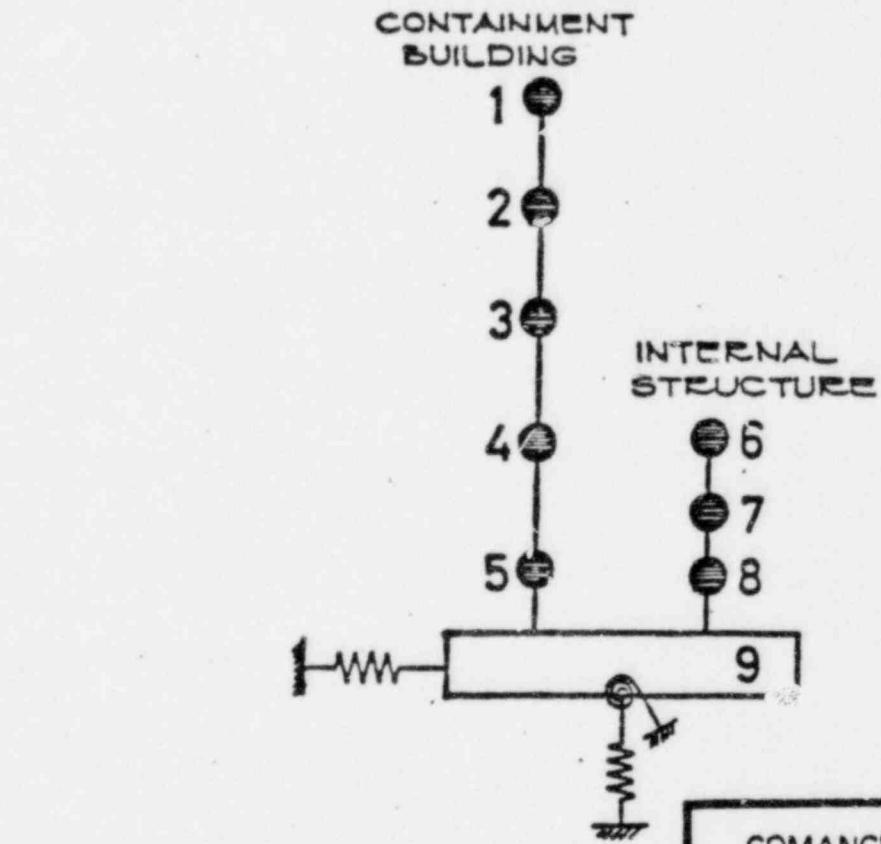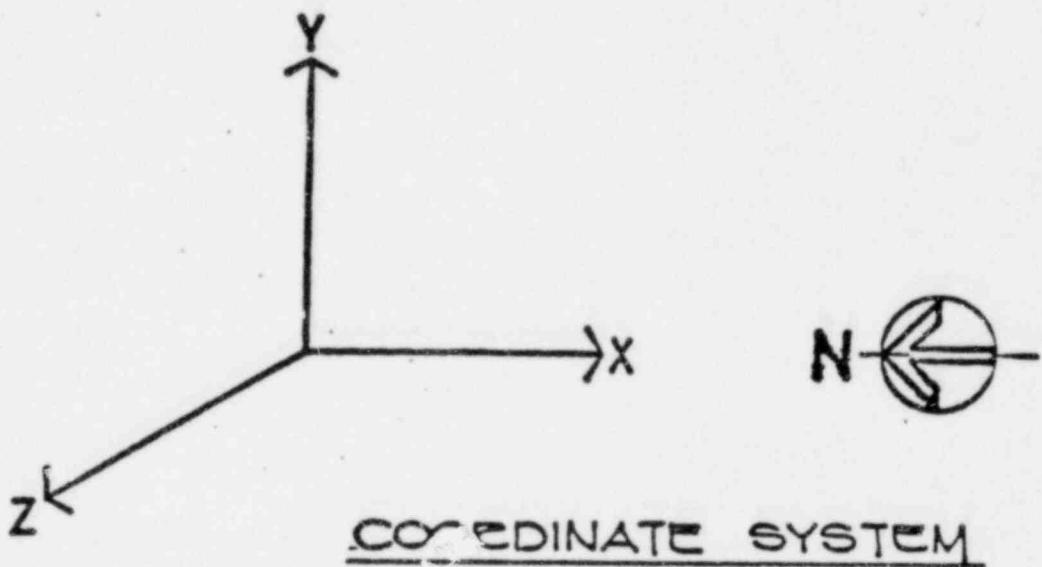
DYNAMIC MODEL

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

DYNAMIC MODEL
CONTAINMENT & INTERNAL
STRUCTURES

FIGURE 3.7B-34
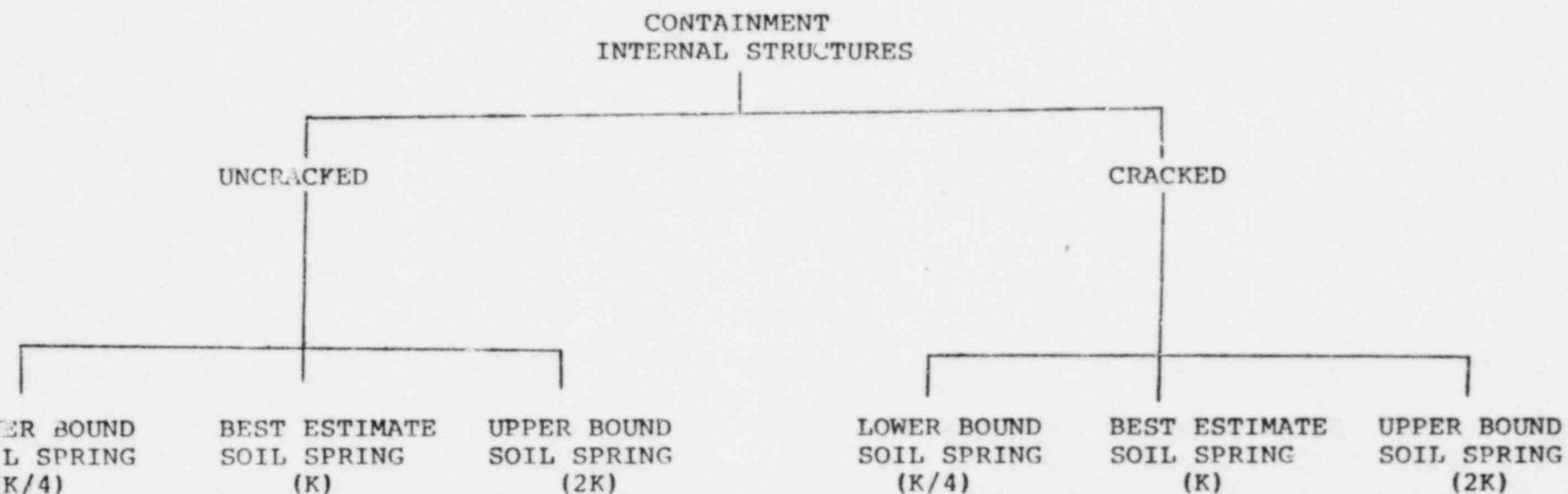
LOWER BOUND, BEST ESTIMATE AND UPPER BOUND MODELS

CONTAINMENT AND INTERNAL STRUCTURES
MASS POINT NODAL COORDINATES

Mass Point	X (ft)	Y (ft)	Z (ft)
1	0.00	246.60	0.00
2	0.00	197.00	0.00
3	0.00	145.00	0.00
4	0.00	87.75	0.00
5	0.00	29.25	0.00
6	9.45	89.83	4.44
7	-0.28	55.94	8.27
8	-5.87	26.98	2.42
9	2.40	-7.75	0.38
Foundation spring	0.00	-18.85	0.00

NOTES: a. The origin of coordinates is at elevation 605 ft 6 in.

b. For orientation of coordinate axes, see Figure 3.7B-23.

c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-34.

CONTAINMENT AND INTERNAL STRUCTURES
MASS POINT MASS DATA

Mass Point	Mass (kip-sec²/ft)			Mass Moment of Inertia (kip-sec²-ft)		
	Mx	My	Mz	Ix	Iy	Iz
1	173	173	173	186,400	340,500	186,400
2	375	375	375	966,000	1,734,000	966,000
3	542	555	542	1,395,000	2,510,000	1,395,000
	538	538	538	1,463,000	2,618,000	1,463,000
5	538	538	538	1,463,000	2,618,000	1,463,000
6	440	440	440	599,800	982,500	429,600
7	708	531	710	816,400	1,112,000	623,600
8	602	640	602	440,900	984,800	588,200
9	1821	1959	1821	2,105,000	3,889,000	2,169,000
9A	322	2146	322	3,864,000	2,898,000	3,864,000

NOTES:

a. Mass points 1 through 9 are for the structures. Mass point 9A is for the foundation material.

b. The origin of coordinates is at elevation 805 ft 6 in. For orientation of coordinate axes, see Figure 3.7B-23.

c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-34.

CONTAINMENT AND INTERNAL STRUCTURES
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
1	1	Translation	X
1	2	Translation	Y
1	3	Translation	Z
1	4	Rotation	θ_x
1	5	Rotation	θ_Y
1	6	Rotation	θ_z
2	7	Translation	X
2	8	Translation	Y
2	9	Translation	Z
2	10	Rotation	θ_x
2	11	Rotation	θ_Y
2	12	Rotation	θ_z
3	13	Translation	X
3	14	Translation	Y
3	15	Translation	Z
3	16	Rotation	θ_x
3	17	Rotation	θ_Y
3	18	Rotation	θ_z
4	19	Translation	X
4	20	Translation	Y

CONTAINMENT AND INTERNAL STRUCTURES
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
4	21	Translation	Z
4	22	Rotation	θ_x
4	23	Rotation	θ_y
4	24	Rotation	θ_z
5	25	Translation	X
5	26	Translation	Y
5	27	Translation	Z
5	28	Rotation	θ_x
5	29	Rotation	θ_y
5	30	Rotation	θ_z
6	31	Translation	X
6	32	Translation	Y
6	33	Translation	Z
6	34	Rotation	θ_x
6	35	Rotation	θ_y
6	36	Rotation	θ_z
7	37	Translation	X
7	38	Translation	Y
7	39	Translation	Z

CONTAINMENT AND INTERNAL STRUCTURES
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
7	40	Rotation	θ_x
7	41	Rotation	θ_y
7	42	Rotation	θ_z
8	43	Translation	X
8	44	Translation	Y
8	45	Translation	Z
8	46	Rotation	θ_x
8	47	Rotation	θ_y
8	48	Rotation	θ_z

CONTAINMENT AND INTERNAL STRUCTURES
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
9	49	Translation	X
9	50	Translation	Y
9	51	Translation	Z
9	52	Rotation	θ_x
9	53	Rotation	θ_y
9	54	Rotation	θ_z

NOTES: a.   The origin of coordinates is at
             elevation 805 ft 6 in.

         b.   For orientation of coordinate axes,
             see Figure 3.7B-23.

         c.   For structure dynamic model showing
             the mass point numbers, see Figure 3.7B-34.

CONTAINMENT AND INTERNAL STRUCTURES
FOUNDATION SPRING CONSTANTS

Direction	Lower Bound	Best Estimate	Upper Bound
Translation along X axis (kip/ft)	0.116×10^9	0.465×10^6	0.930×10^9
Translation along Y axis (kip/ft)	0.125×10^9	0.499×10^9	0.998×10^9
Translation along Z axis (kip/ft)	0.116×10^9	0.465×10^9	0.930×10^9
Rotation about X axis (kip-ft/rad)	0.390×10^{11}	0.156×10^{12}	0.312×10^{12}
Rotation about Y axis (kip-ft/rad)	0.600×10^{11}	0.240×10^{12}	0.480×10^{12}
Rotation about Z axis (kip-ft/rad)	0.390×10^{11}	0.156×10^{12}	0.312×10^{12}

NOTES: a. The origin of coordinates is at elevation 805 ft 6 in.

b. For orientation of coordinate axes, see Figure 3.7B-23.

STIFFNESS MATRIX (ZEROS HAVE BEEN INSERTED IN THE ORIGINAL REDUCED STIFFNESS MATRIX
AT WHICH ZERO STIFFNESSES ARE NOT PUNCHED OUT)

19	.573665E+07	-.105426E+00	.457969E-01	.518543E+02	.850000E+00	-.517037E+07
20	-.505426E+00	.253733E+00	-.151160E+02	-.170995E+05	-.162105E+02	.412839E+03
21	.457063E-01	-.151160E+02	.673666E+07	.517139E+07	.111075E+01	-.325770E+02
22	.518543E+02	-.170995E+05	.517139E+07	.650771E+11	.101531E+04	-.391096E+05
23	.850500E+00	-.162105E+02	.111075E+01	.101531E+04	.567665E+11	-.104085E+03
24	-.517037E+07	.412837E+03	-.325770E+02	-.391096E+05	-.104085E+01	.660759E+11
25	-.233095E+07	.496566E+00	-.370532E-01	-.408141E+02	-.945292E+00	.122891E+00
26	.515773E+00	-.422381E+07	.153991E+02	-.174198E+05	.165140E+02	-.420594E+03
27	-.310135E-01	.100215E+02	-.233095E+07	-.122891E+00	-.746921E+00	.212058E+02
28	-.517882E+02	.170894E+05	-.102902E+08	-.628143E+10	-.100703E+04	.381459E+05
29	-.953957E+00	.161751E+02	-.104541E+01	-.101370E+07	-.142647E+11	.104081E+03
30	.102492E+09	-.400058E+03	.316365E+02	.371411E+05	.583589E+02	-.629027E+10

	25	26	27	28	29	30
1	-.584274E+00	.635094E-05	-.218927E-06	-.397665E-03	-.259956E-06	.221643E+02
2	-.139250E-05	.403850E+01	-.205816E-04	-.499069E-01	-.462864E-04	.114499E-02
3	-.439111E-06	.197717E+01	-.584281E+00	-.221809E+02	-.105973E-04	.401658E+03
4	.753220E-05	-.152390E-02	.464053E+01	.173139E+03	.839006E-04	-.327527E-02
5	-.502407E-07	.735950E-06	-.319552E-07	-.353097E-04	.299144E+01	-.991874E-05
6	-.969097E+01	.309569E-00	-.170685E-04	-.320058E+02	.932291E-05	.173039E+03
7	-.405010E+01	.300046E-02	-.151602E-03	-.274965E+00	-.273613E-03	.153970E+05
8	-.179419E-01	.526474E+01	-.369550E-02	-.630144E+00	-.595380E-02	.147528E+00
9	-.302411E+03	.129933E+00	-.406015E+03	.154056E+05	-.742796E-02	.277076E+00
10	.116795E-01	-.409858E+01	.156559E+05	.593634E+06	.286461E+00	-.106874E+02
11	-.641147E-05	.942430E-04	-.409999E-05	-.454744E-02	-.257395E+01	-.123607E-02
12	-.158897E+09	.116077E+00	-.544719E-02	-.106036E+02	-.109635E+01	.593301E+06
13	.155192E+05	-.124075E+00	.625005E-02	.113273E+02	.171839E-01	-.636314E+06
14	.929053E-02	-.284101E+05	.191351E+00	.326302E+03	.309819E+00	-.763925E+01
15	.124911E-01	-.571967E+01	.166194E+05	.636669E+06	.307495E+00	-.113605E+02
16	-.585583E+00	.237546E+01	-.795385E+06	-.298159E+00	-.135803E+02	.507543E+03
17	.246912E-02	-.361539E-01	.157099E-02	.173585E+01	-.151147E+07	.486604E+00
18	-.749974E+00	-.883392E+01	.279005E+00	.505319E+03	.665932E+00	-.293001E+05
19	-.233035E+07	.615730E+00	-.310135E-01	-.517889E+02	-.959957E+00	.102492E+08
20	.496561E+00	-.422791E+07	.100216E+02	.170894E+05	.161751E+02	-.400058E+03
21	-.370553E-01	.152991E+02	-.233096E+07	-.102902E+08	-.104541E+01	.315355E+02
22	-.408141E+02	.174198E+05	-.122891E+00	-.628143E+10	-.101370E+04	.371411E+05
23	-.945292E+00	.165140E+02	-.746921E+00	-.100703E+04	-.142647E+11	.583589E+02
24	.122891E+00	-.420594E+03	.212058E+02	.381459E+05	.104081E+03	-.628027E+10
25	.231147E+07	-.695809E+00	.245859E-01	.407353E+02	.997500E+00	-.966933E+07
26	-.495603E+00	.625169E+07	-.102091E+02	-.174083E+05	-.164776E+02	.407519E+03
27	.245873E+01	-.102095E+02	.231475E+07	.966900E+07	.919000E+00	-.205523E+02
28	.407351E+02	-.174093E+05	.365900E+07	.586249E+10	.100510E+04	-.371777E+05
29	.997500E+00	-.164726E+02	.819000E+00	.100510E+04	.142663E+11	-.587245E+02
30	-.965933E+07	.407519E+07	-.205523E+02	-.371777E+05	-.587245E+02	.586132E+10

FLEXIBILITY MATRIX

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1	.124370E-05	-.204005E-13	.201764E-14	.172291E-14	-.135249E-16	-.107032E-07
2	-.204005E-13	.418022E-05	-.199980E-11	.704176E-12	.272004E-15	-.164378E-13
3	.201764E-14	-.199980E-11	.124370E-05	.107033E-07	-.211065E-16	-.322521E-14
4	.172291E-14	.704176E-12	.107033E-07	.248165E-09	-.122380E-15	.109245E-14
5	-.135240E-15	.272004E-15	-.211056E-16	-.122390E-16	.161831E-09	.628642E-18
6	-.107032E-07	-.164373E-13	-.322E-15-14	-.109245E-14	.109245E-14	.248199E-09
7	.224202E-05	-.35163CE-14	.449275E-14	.254554E-15	.148642E-16	-.763163E-08
8	.319075E-17	.183122E-05	-.527500E-14	.161940E-14	.617611E-19	-.372403E-15
9	.520490E-14	-.152075E-12	.224200E-05	.763364E-08	-.140690E-15	-.258923E-15
10	.308396E-15	.105475E-14	.114094E-07	.765323E-10	-.194679E-19	.151815E-17
11	.245412E-15	-.222784E-18	-.340836E-15	-.103577E-18	.917378E-10	-.716679E-19
12	-.114074E-07	-.235021E-16	-.329319E-16	-.146094E-17	.266457E-19	.765323E-10
13	.145952E-05	.722325E-16	.363727E-14	.826852E-17	.129722E-15	-.413099E-09
14	.943151E-16	.135106E-06	-.440596E-15	-.466166E-15	-.277067E-19	.122182E-17
15	-.152727E-14	.357060E-14	.145992E-05	.413098E-08	-.240502E-15	-.795791E-17
16	.247691E-16	-.331028E-16	.990867E-08	.569584E-10	-.155057E-18	-.15390AE-18
17	.223470E-15	-.910032E-20	-.252031E-16	-.825487E-19	.682134E-19	-.672784E-19
18	-.330997E-09	-.779430E-18	-.246707E-15	-.151730E-19	-.329959E-19	-.151574E-09
19	.716310E-05	-.920736E-17	.168331E-14	.661457E-17	-.565270E-20	.234725E-19
20	.523011E-16	.823471E-07	-.349946E-15	-.181574E-09	-.123847E-15	-.854394E-17
21	-.189194E-14	-.131000E-19	.718310E-06	.181574E-09	-.111142E-18	-.742467E-19
22	.173527E-16	-.284635E-17	.697246E-08	.344093E-10	-.111142E-18	-.742467E-19
23	.150152E-15	-.587810E-20	-.142767E-16	-.477363E-19	.412775E-10	-.431966E-19
24	-.597243E-09	-.207177E-19	-.173399E-15	-.767928E-13	-.339234E-19	.344093E-10
25	.168099E-05	-.331956E-17	.404354E-15	.148205E-17	.233028E-15	-.173525E-09
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29	.305433E-17	-.136077E-20	-.40706AE-17	-.161361E-19	.137530E-10	-.144455E-19
30	-.262959E-13	.111980E-19	-.547335E-17	-.273895E-19	-.164518E-19	.113392E-10

	7	8	9	10	11	12
1	.224202E-05	.319075E-17	.520430E-16	.308396E-16	.245412E-15	-.114074E-07
2	-.351630E-14	.183122E-05	-.152075E-12	.105475E-14	-.222784E-18	-.235021E-16
3	.449235E-14	-.527500E-14	.224200E-05	.114094E-07	-.340836E-15	-.329319E-16
4	.254555E-15	.161990E-14	.753364E-08	.765323E-10	-.103577E-18	-.246457E-19
5	.148542E-15	.617611E-19	-.340630E-16	-.194679E-19	.917378E-10	.765323E-10
6	-.763163E-08	-.372403E-15	-.258923E-15	.215531E-15	.233137E-15	-.761509E-08
7	.155303E-05	.273237E-15	.515905E-14	.215531E-15	.233137E-15	-.761509E-08
8	.195230E-16	.183424E-05	-.820188E-15	-.144548E-17	-.620051E-20	-.265226E-14
9	.415905E-14	-.820199E-15	.196303E-15	.761530E-09	-.252130E-15	-.214030E-16
10	.215531E-15	-.154591E-17	.751503E-08	.765531E-10	-.119785E-19	.111191E-18
11	.233137E-15	-.620051E-20	-.252130E-15	-.119795E-19	-.590327E-19	.766619E-10
12	-.761503E-08	-.265226E-14	-.214030E-16	.135053E-15	.195203E-15	-.413144E-08
13	.125555E-05	.335195E-15	-.399004E-15	-.337044E-17	-.426290E-20	-.435761E-18
14	.723440E-16	.135203E-05	-.399004E-15	-.337044E-17	-.426290E-20	-.435761E-18
15	.273440E-14	-.263051E-15	.125464E-05	.413144E-08	-.165066E-15	-.135574E-16
16	.183166E-15	-.331025E-17	.703435E-08	.569551E-10	-.105194E-19	-.982139E-19
17	.213731E-15	-.625051E-20	-.195172E-15	-.993202E-19	-.704792E-19	.569551E-10
18	-.208346E-01	-.421767E-19	-.195061E-15	-.943009E-19	.107505E-15	-.151575E-08
19	.551120E-05	.126565E-15	-.240736E-15	-.231411E-17	-.250537E-20	-.393591E-18
20	.515014E-15	.823471E-07	.641130E-16	.151575E-09	-.769050E-17	-.635105E-17
21	.126271E-14	-.102640E-15	.641130E-16	.151575E-09	-.167675E-17	-.675240E-17

	2					
2?	.139900E-15	-.257435E-20	-.104003E-16	-.512469E-19	.412775E-10	-.405742E-14
24	-.526575E-09	-.377032E-19	-.130352E-16	-.577051E-19	-.503445E-19	.344093E-10
25	.159494E-06	.621397E-19	.308565E-15	.146157E-17	.297274E-17	-.171525E-09
26	.183115E-15	.271442E-07	-.924678E-16	-.674066E-18	-.870492E-21	-.118041E-18
27	.109003E-15	-.154415E-15	.159684E-06	.173525E-09	-.195456E-17	-.145509E-17
28	.487347E-17	-.707651E-19	.705615E-08	.113392E-10	-.246642E-19	-.250850E-19
29	.470561E-17	-.856355E-21	-.367642E-17	-.251255E-19	-.264262E-19	.113392E-10
30	-.205613E-09	-.110065E-19	-.487058E-17	-.251255E-19	-.264262E-19	.113392E-10

	13	14	15	16	17	18
1	.145952E-05	.943357E-16	.362722E-14	.247691E-16	.229470E-15	-.390867E-09
2	.723725E-15	.135306E-05	.367054E-14	-.331028E-16	-.010932E-20	.779430E-18
3	.363727E-14	-.440586E-15	.145952E-05	.990457E-09	-.252031E-16	-.246709E-16
4	.825962E-17	-.456166E-16	.413098E-08	.569684E-10	-.825497E-19	-.153330E-18
5	.129477E-15	-.217067E-19	-.250702E-16	-.155057E-18	.592135E-10	-.329949E-19
6	-.413039E-09	.122192E-17	-.795791E-17	-.153908E-19	-.672784E-19	.569594E-10
7	.125454E-05	.729440E-16	.274488E-14	.186166E-16	.213391E-16	-.708346E-09
8	.735565E-15	.135290E-06	-.263051E-15	-.33925E-17	-.425053E-20	-.423757E-18
9	.274503E-14	-.388004E-15	.125454E-05	.708346E-08	-.196175E-16	-.185861E-15
10	.135953E-16	-.333844E-17	.413144E-08	.569551E-10	-.883292E-19	-.983009E-19
11	.185283E-15	-.676290E-20	-.150665E-16	-.106194E-18	.687134E-10	-.704742E-19
12	-.413144E-09	-.675761E-18	-.135574E-16	-.952398E-19	-.631041E-13	.569551E-10
13	.103912E-05	.474299E-16	.178319E-14	.120537E-16	.171246E-16	-.412668E-09
14	.374277E-15	.136300E-06	-.231596E-15	-.295327E-17	-.119170E-20	-.597778E-19
15	.178319E-14	-.231596E-15	.103912E-05	.412668E-09	-.121450E-15	-.120286E-16
16	.129537E-16	-.295327E-17	.412668E-08	.569953E-10	-.789569E-19	-.855415E-19
17	.171286E-15	-.318170E-20	-.121450E-15	-.789569E-19	.582139E-10	-.649077E-19
18	-.412669E-08	-.537774E-18	-.120286E-16	-.855415E-19	-.649077E-19	.569953E-10
19	.552307E-05	.192264E-15	.807794E-15	.565035E-17	.999402E-17	-.151572E-08
20	.315533E-15	.821675E-07	-.145081E-15	-.178692E-17	-.193505E-20	-.490503E-18
21	.307324E-15	-.909019E-16	.552307E-05	.151572E-08	-.550684E-17	-.563495E-17
22	.944877E-17	-.181319E-17	.347650E-08	.344094E-10	-.560442E-19	-.591649E-19
23	.113077E-15	-.192729E-20	-.659880E-17	-.855756E-19	.412775E-10	-.417656E-19
24	-.147651E-09	-.484292E-18	-.843581E-17	-.591979E-19	-.556535E-19	.344094E-10
25	.159460E-06	.145074E-17	.200527E-15	.130556E-17	.277048E-17	-.173524E-09
26	.121917E-15	.271552E-07	-.493319E-16	-.590355E-19	-.652803E-21	-.130030E-17
27	.200244E-15	-.127359E-16	.159460E-06	.173525E-09	-.143752E-17	-.130030E-17
28	.114530E-17	-.607774E-18	.147651E-08	.113392E-10	-.203291E-19	-.220196E-19
29	.791191E-17	-.150723E-21	-.239795E-17	-.156152E-17	.137539E-10	-.139587E-19
30	-.147651E-09	-.145840E-18	-.314242E-17	-.220417E-19	-.244356E-19	.113392E-10

	19	20	21	22	23	24
1	.716313E-05	.827011E-16	.168135E-14	.173523E-16	.150169E-15	-.697246E-08
2	-.320735E-17	.823471E-07	-.131649E-15	-.294463E-17	-.507810E-20	-.247177E-17
3	.159331E-14	-.369756E-15	.716310E-15	.697246E-09	-.142767E-15	-.173344E-16
4	.561457E-17	-.315640E-17	.151574E-19	.344093E-10	-.477363E-19	-.747928E-19
5	.101317E-17	-.455270E-20	-.113657E-16	-.111192E-18	.412775E-10	-.344093E-10
6	-.151575E-08	.216775E-19	-.556196E-17	-.742657E-19	-.631956E-19	.344093E-10
7	.641129E-05	.675034E-16	.126731E-14	.130404E-16	.139809E-16	-.526576E-08
8	.125456E-15	.823471E-07	-.107580E-15	-.210720E-17	-.257435E-20	-.377932E-18
9	.125353E-15	-.240365E-15	.641130E-06	.526575E-08	-.104000E-15	-.130352E-18
10	.637320E-17	-.204118E-17	.151575E-09	.344093E-19	-.512469E-19	-.677051E-19
11	.107503E-16	-.259537E-20	-.769050E-17	-.756759E-19	.412775E-10	.344093E-19
12	-.151573E-09	-.723701E-17	-.631196E-17	.679240E-19	-.405742E-10	-.347650E-09
13	.362307E-05	.414400E-16	.907324E-15	.944077E-17	.113037E-15	-.347650E-09
14	.192264E-15	.827675E-07	-.909019E-16	-.181319E-17	-.192720E-20	-.484292E-18
15	.307799E-15	-.155071E-15	.552307E-05	.347650E-08	-.553910E-17	-.363591E-17
16	.565035E-17	-.179630E-17	.151572E-09	.344094E-10	-.455766E-19	-.591979E-19
17	.139940E-17	-.193505E-20	-.656346E-17	-.566443E-19	.412775E-10	-.556535E-19

13	.562307E-03	.82747EE-07	-.909019E-16	-.181314E-17	-.1		
14	.142254E-15	.139071E-17	.562707E-06	.347559E-08	-.557990E-17	-.591979E-19
15	-.307770E-17	-.179692E-17	.151572E-09	.344094E-10	-.455756E-19	-.591979E-19
15	.565015E-17	-.179692E-17	-.650695E-17	-.560442E-19	.412775E-10	-.555515E-19
17	.999402E-17	-.191505E-20	-.650695E-17	-.591649E-19	-.417655E-19	.344094E-10
18	-.151572E-09	-.490503E-19	-.562495E-15	.39154E-17	.684203E-17	-.151113E-09
19	.474497E-05	.165085E-16	.336215E-15	-.115769E-17	-.116999E-20	-.422168E-19
20	.165035E-16	.824265E-07	.474887E-06	.151113E-09	-.270008E-17	-.390592E-17
21	.336215E-15	-.576767E-16	.151113E-09	.344479E-10	-.317172E-19	-.410104E-19
22	.701541E-17	-.115759E-17	-.270008E-17	-.317172E-19	.412779E-10	-.361584E-19
23	.594291E-17	-.116999E-20	-.390582E-17	.410104E-19	-.361584E-19	.344479E-10
24	-.151113E-09	-.472159E-19	-.390582E-17	.910449E-19	.192742E-17	-.173446E-09
25	.140513E-06	.146836E-17	.88237E-15	-.392971E-19	-.400993E-21	-.127490E-18
26	.459594E-17	.271442E-07	-.191134E-16	-.173446E-09	-.754061E-18	-.907654E-19
27	.381655E-15	-.801705E-17	.150513E-06	.113392E-10	-.115155E-19	-.152863E-19
28	.142931E-17	-.389242E-18	-.109460E-17	-.107994E-19	.137539E-10	.113392E-10
29	.232245E-17	-.398794E-21	-.192574E-17	-.152931E-19	-.161575E-19	.113392E-10
30	-.927393E-09	-.120192E-18				

	26	27	28	29	30

	29	26	27	28	29	30
				.564770E-17	.505419E-17	-.262858E-08

1	.145030E-09	.294780E-18	-.601305E-15	-.934072E-19	-.196877E-20	.111556E-19
2	-.331955E-17	.271442E-07	-.215394E-16	-.262858E-08	-.497055E-17	-.647335E-17
3	.404354E-15	-.115914E-15	.168090E-06	-.113392E-10	-.161361E-19	-.273825E-19
4	.149207E-17	-.084081E-17	-.173525E-09	-.418729E-19	.137538E-10	-.164518E-19
5	.233024E-17	-.151505E-20	-.146437E-17	-.271715E-19	-.146465E-19	-.113392E-10
6	-.171525E-09	.173771E-17	.108005E-17	.497399E-17	.470661E-17	-.206615E-09
7	.159099E-09	.194119E-19	.108005E-17	-.707651E-18	-.865355E-21	-.110068E-18
8	.523797E-19	.271442E-07	-.154415E-16	-.206615E-08	-.367682E-17	-.487058E-17
9	.701565E-15	-.824674E-16	.159484E-06	-.113392E-10	-.173059E-19	-.251266E-19
10	.148157E-17	-.674066E-19	-.173525E-09	-.284642E-19	.137534E-10	-.264252E-19
11	.297779E-17	-.870492E-21	-.145509E-17	-.250850E-19	-.136050E-19	.113392E-10
12	-.173525E-09	-.119043E-18	.200244E-15	.314590E-17	.381183E-17	-.147651E-09
13	.159099E-09	.121819E-18	-.127359E-16	-.507774E-19	-.650723E-21	-.145940E-18
14	.145074E-17	.271442E-07	-.127359E-16	-.147651E-09	-.234796E-17	-.314242E-17
15	.200527E-15	-.487319E-16	.150450E-05	-.113392E-10	-.154162E-19	-.220417E-19
16	.130556E-17	-.190379E-19	-.173525E-09	-.209291E-19	.137534E-10	-.244356E-19
17	.277049E-17	-.652809E-21	-.143752E-17	-.220196E-19	-.139687E-19	.113392E-10
18	-.173524E-09	-.150015E-18	.131055E-15	.142931E-17	.232294E-21	-.126192E-18
19	.140513E-09	.199990E-17	-.801705E-17	-.388242E-18	-.399794E-21	-.142574E-17
20	.146936E-17	.271442E-07	-.801705E-17	.827340E-09	-.109960E-17	-.152931E-17
21	.882373E-16	-.191134E-16	.140513E-06	-.113392E-10	-.107994E-19	-.152931E-17
22	.710909E-17	-.392871E-19	.173446E-09	-.115155E-19	.137539E-10	-.161575E-19
23	.192742E-17	-.400993E-21	-.754061E-18	-.152863E-19	-.121003E-19	.113392E-10
24	-.173446E-09	-.127490E-18	-.907654E-18	-.152863E-19	.651261E-19	-.164604E-09
25	-.129163E-09	.31677E-18	-.392663E-16	.140108E-18	-.139525E-21	-.293956E-19
26	.316777E-18	.271622E-07	-.266302E-17	-.129376E-18	-.422101E-18	-.339193E-18
27	.142663E-16	-.255302E-17	.129103E-06	.164604E-09	-.405548E-20	-.572060E-20
28	.140109E-19	-.120730E-19	.155604E-09	-.113507E-10	.137546E-10	-.543334E-20
29	.591261E-19	-.139532E-21	-.422101E-18	-.405548E-20	-.543334E-20	.113507E-10
10	-.164604E-09	-.299866E-19	-.339137E-18	-.572060E-20		

(Cracked)

	1	2	3	4	5	6
1	.114362E+07	.262656E-03	-.921875E-03	.296875E-03	-.119000E+00	-.414990E+07
2	.262555E-03	.202455E+07	.996096E-04	.904756E-01	.312500E-03	-.121711E+00
3	-.921873E-03	.996094E-04	.114360E+07	.414990E+07	.110000E+00	-.147705E-03
4	.296875E-03	.904766E-01	.414990E+07	.277794E+10	-.226000E+00	.145246E+01
5	-.119000E+00	.312500E-03	.119000E+00	-.226000E+00	.712950E+10	-.313049E+00
6	-.414990E+07	-.121711E+00	-.147705E-03	.146246E+01	-.313099E+00	.277794E+10
7	-.114594E+07	-.285209E-07	.134293E-07	-.175391E-05	.127411E-05	.420806E+07
8	-.382055E-07	-.202071E+07	-.518560E-07	-.334811E-05	.689551E-05	-.614941E-05
9	.619899E-09	-.883037E-07	-.114594E+07	-.420806E+07	.274658E-05	-.777678E-05
10	-.762177E-05	-.601492E-05	-.606069E+08	-.297673E+10	.339111E-03	.722750E-04
11	-.515401E-05	.513649E-05	.793457E-05	.130005E-03	-.712902E+10	.155177E-03
12	.505053E+09	-.105417E-04	-.258064E-05	.390930E-04	.199941E-03	-.297673E+10
13	.217423E+04	.354472E-09	.767235E-09	.337603E-07	.149822E-07	-.555346E-05
14	.567525E-07	-.375619E+04	-.250525E-09	-.316767E-07	.175759E-07	-.345008E-07
15	.447035E-10	.810440E-09	.217423E+04	.565346E+05	-.654161E-08	.625381E-09
16	-.176430E-07	-.342177E-07	-.142144E+06	-.373796E+07	.374794E-06	.340493E-06
17	.385150E-07	.395851E-07	-.337705E-07	-.338593E-05	-.683357E+05	-.962551E-06
18	.142144E+06	-.223809E-07	.155403E-08	.518247E-06	.412941E-05	-.373796E+07
19	.622902E+02	-.305739E-11	.427099E-11	.277443E-09	.214786E-10	-.155269E+04
20	-.227155E-10	-.892691E+02	.227010E-11	-.364997E-09	-.271248E-09	-.113250E-04
21	-.711592E-11	.236605E-10	.622902E+02	.155269E+04	-.311052E-09	-.249590E-09
22	.171367E-09	.134001E-11	-.272172E+04	-.679297E+05	.963575E-08	-.266669E-08
23	.265137E-04	-.795866E-09	-.315272E-09	-.788694E-08	-.473916E+02	-.660620E-07
24	.272172E+04	-.110015E-08	-.936211E-09	-.252055E-07	.419154E-08	-.679297E+05
25	.257724E+01	-.159051E-11	.158366E-12	.753721E-11	.775799E-11	-.642940E+02
26	.179715E-11	-.665049E+01	.200099E-13	.209920E-10	-.204151E-10	-.745544E-10
27	.754651E-12	.152290E-11	.257724E+01	.642940E+02	-.452565E-11	-.170409E-10
28	.922191E-11	.690854E-11	-.133472E+03	-.333071E+04	.503845E-09	-.169470E-09
29	.737193E-10	.507800E-11	.280725E-10	.702645E-09	.366150E+00	-.233678E-09
30	-.133472E+03	-.619605E-10	-.141091E-10	.574190E-10	.865246E-09	-.333071E+04

	7	8	9	10	11	12
1	-.114594E+07	-.382066E-07	.619899E-09	-.762177E-05	-.436401E-05	.606069E+08
2	-.285209E-07	-.202071E+07	-.883037E-07	-.601492E-05	.513649E-05	-.105417E-04
3	.134293E-07	-.518560E-07	-.114594E+07	-.606069E+08	.793457E-05	-.258064E-05
4	-.175391E-05	-.334811E-05	-.420806E+07	-.297673E+10	.793457E-05	-.258064E-05
5	.127411E-05	.689451E-05	.274658E-06	.339111E-03	-.712902E+10	.189941E-03
6	.420806E+07	-.614951E-05	-.777678E-06	.722750E-04	-.155177E-03	-.297573E+10
7	.115727E+07	.223672E-04	.804697E-03	.382912E-03	-.750000E-02	-.121820E+07
8	.223672E-04	.125721E+08	.449213E-04	.433013E-01	.140625E-01	-.387312E-01
9	.805597E-03	.449213E-04	.335797E+07	.121829E+07	-.212500E-01	-.825074E-04
10	.382912E-03	.433013E-01	.121829E+07	.329176E+11	-.500000E-01	-.864971E+00
11	-.750000E-02	.140625E-01	-.212500E-01	-.500000E-01	.283577E+11	-.502996E-01
12	-.121820E+07	-.387332E-01	-.825074E-04	-.864931E+00	-.502996E-01	.329176E+11
13	-.221414E+07	-.595903E-07	-.431922E-07	-.428963E-05	.962930E-05	-.592707E+08
14	-.578910E-07	-.105452E+08	-.232765E-06	-.321117E-05	.221150E-05	-.124512E-04
15	-.232995E-07	-.165389E-06	.221814E+07	.592707E+08	-.152559E-05	.573105E-05
16	-.349626E-05	-.233066E-04	-.569795E-04	-.237713E+11	.332031E-04	-.820312E-03
17	.403931E-05	-.127020E-05	-.146684E-04	.494619E-04	-.212270E+11	.889011E-03
18	.349707E+09	-.165127E-05	-.257875E-05	-.737735E-03	.829513E-03	-.237313E+11
19	.190521E+04	.102741E-04	.999692E-10	.319015E-07	-.842214E-07	-.112995E+06
20	.382075E-03	-.526003E-04	.194774E-10	.264051E-07	-.104979E-05	.400543E-07
22	.461343E-07	.711695E-07	.197676E+12	.112995E+06	-.125509E-07	-.401871E-08

5 N

22	.561342E-07	.311695E-07	-.103424E+06	-.799024E+07	-.334167E-05	.164032E-05
23	.335835E-07	-.380594E-07	-.131055E-07	-.490673E-06	-.924768E+04	-.411396E-05
24	.103424E+06	.218106E-07	.357628E-09	-.606537E-06	-.972748E-05	-.799024E+07
25	.343061E+02	-.177111E-10	.205404E-10	.126229E-08	-.976025E-09	-.410205E+04
26	.541622E-10	-.222003E+01	.107124E-09	.152051E-09	-.271179E-09	.439594E-09
27	-.153085E-10	.355703E-10	.662151E+07	.510205E+04	.350922E-08	-.172491E-09
28	.163097E-08	.229792E-09	-.440795E+04	-.213051E+06	-.101605E-05	.184476E-07
29	.107915E-03	.340110E-09	.941799E-09	.449975E-07	.329290E+03	-.149821E-06
30	.410205E+05	-.238972E-09	.105015E-18	.138432E-07	-.159970E-05	-.213051E+06

	13	14	15	16	17	18
1	.217427E+04	.667525E+09	.447035E-10	-.176430E-07	.386350E-07	.142144E+06
2	.354447E-09	-.375439E+04	.910440E-09	-.342177E-07	-.335951E-07	-.223809E-07
3	.767235E-09	-.250126E-09	.217423E+04	-.142144E+06	-.332705E-07	.165403E-04
4	-.337803E-07	-.315787E-07	.565306E-05	-.373796E+07	-.536593E-06	.518297E-06
5	.149022E-07	.175769E-07	-.654161E-18	.374794E-06	-.493357E+06	.412041E-06
6	-.556345E+05	.346608E-07	.525391E-10	.340493E-06	-.962551E-06	-.373796E+07
7	-.221910E+07	-.574930E-07	.119209E-07	-.389426E-05	.404936E-05	.549784E+08
8	-.596003E-07	-.105452E+08	-.165388E-06	-.233006E-04	-.127029E-05	-.165129E-05
9	-.433922E-07	-.292796E-06	-.221414E+07	-.549784E+08	-.146484E-04	.257874E-05
10	-.924940E-03	-.320117E-06	.592707E+04	.237313E+11	.484619E+03	-.733799E+03
11	.962930E-05	.223160E-05	-.152589E-04	.332031E-04	-.212279E+11	.828613E-03
12	-.592707E+03	-.124512E-04	.578308E-05	-.820312E-03	.989011E-03	-.237313E+11
13	.413631E+07	-.719707E-07	.937600E-04	-.297181E-05	-.895000E-01	-.320110E+06
14	-.719707E-07	.195577E-09	-.169203E-06	.152000E+00	.671010E-06	-.217500E-01
15	-.937500E-04	-.169203E-06	.413631E+07	.320110E+06	-.175000E-02	-.235891E-05
16	-.297181E-08	.152020E+00	.320110E+06	.502024E+11	-.715062E-08	.640000E-01
17	-.895000E-01	.671010E-06	-.175000E-02	-.715062E-04	.397689E+11	.124210E-02
18	-.320113E+06	-.217500E-01	-.235891E-05	.640000E-01	.124210E-02	.502024E+11
19	-.192343E+07	-.307323E-07	-.326249E-07	-.549316E-06	.762933E-06	-.547179E+08
20	-.646710E-03	-.920794E+07	-.152260E-05	.155029E-04	.235081E-06	.366211E-05
21	.310523E-08	-.184543E-06	-.192596E+07	.547174E+08	-.971985E-05	.241099E-05
22	-.181370E-09	.196499E-05	-.547249E+08	-.204456E+11	-.419922E-09	-.140625E-07
23	-.393677E-05	-.177265E-05	-.640969E-05	.259313E-03	-.185398E+11	-.104962E-02
24	.547246E+08	.524902E-05	.305175E-05	-.253906E-03	.917480E-03	-.204456E+11
25	.122599E+04	-.220025E-07	.307135E-09	.645220E-08	.116229E-08	-.703146E+05
26	.592321E-09	-.672191E+04	.122599E+04	.488152E-07	-.215067E-07	.441074E-08
27	.317351E-10	.357162E-09	.122599E+04	.703146E+05	.286996E-07	-.118464E-07
28	.191033E-07	.347630E-07	-.818615E+05	-.503630E+07	-.183010E-05	-.297545E-06
29	.479102E-07	.341344E-09	.142455E-07	.595010E-06	-.592775E+06	-.185335E-05
30	.319415E+05	-.174110E-09	.119209E-07	-.343323E-06	-.119637E-05	-.603630E+07

	19	20	21	22	23	24
1	.322003E+02	.227155E-10	-.711689E-11	.171363E-09	.265137E-09	.272172E+04
2	-.305733E-11	-.872601E+02	.236805E-10	.194996E-11	-.704965E-09	-.110014E-08
3	.427093E-11	.227010E-11	.622899E+02	-.272172E+04	-.798494E-09	-.252055E-07
4	.277447E-09	-.346097E-09	.155263E+04	-.679297E+05	-.798494E-08	.410159E-08
5	-.210749E+10	-.271294E-09	-.311062E-09	.968575E-05	-.673915E+02	-.679297E+05
6	-.155253E+04	-.111250E-08	.249590E-09	-.286669E-04	-.660620E-07	-.679297E+05
7	.190520E+04	.892070E-09	-.747652E-10	.461340E-07	.896826E-07	.103424E-07
8	-.102341E-09	-.595803E+04	.167628E-10	-.311605E-07	-.399584E-07	.357629E-09
9	.389482E-09	.194774E-09	.190520E+04	-.103424E+06	-.131056E-07	-.605537E-05
10	.313015E-07	.264461E-07	.112889E+06	-.799024E+07	-.430573E-05	-.972749E-06
11	-.582213E-07	.109072E-09	.375609E-07	-.330137E-05	-.824759E+06	-.972749E-06
12	-.112944E+06	.400543E-07	-.403921E-14	.154032E-06	-.411345E-05	-.799024E+07
13	-.192593E+07	-.645710E-09	.910621E-14	.391470E-06	-.333577E-05	.547248E+08
14	-.341373E-07	-.920305E+02	-.190543E-15	.146494E-05	-.177265E-03	.524902E-05
15	-.324243E-07	-.152250E-06	-.137586E+17	-.547249E+08	-.640969E-05	-.253906E-03
16	.549315E-06	.155029E-04	.547174E+08	-.204456E+11	.259313E-03	.917430E-03
17	-.362932E-06	-.235081E-06	-.271985E-05	-.419922E-05	-.185398E+11	.917430E-03

'FLEXIBILITY MATRIX

	1	2	3	4	5	6
1	.650914E-05	-.434895E-14	.224818E-13	.846671E-16	.295203E-15	-.215900E-07
2	-.434995E-14	.861736E-06	-.394215E-14	-.516369E-15	-.984012E-19	.626050E-16
3	.224818E-13	-.394215E-14	.650815E-05	.215900E-07	.215458E-15	-.851705E-16
4	.846671E-16	-.516369E-16	.215900E-07	.515691E-09	-.678471E-18	-.599458E-18
5	.295203E-15	-.984012E-19	-.216458E-15	-.678471E-18	.323944E-09	-.910991E-18
6	-.215900E-07	.626050E-16	-.851905E-16	-.599458E-18	-.910991E-18	.515691E-09
7	.449276E-03	-.305116E-14	.131865E-13	.507540E-16	.212958E-15	-.152817E-07
8	-.220751E-14	.367986E-06	-.265808E-14	-.275403E-15	-.479597E-19	.288152E-16
9	.131911E-13	-.230238E-14	.449278E-05	.152817E-07	.147740E-19	-.511449E-16
10	.818157E-16	-.235357E-16	.229002E-17	.153805E-03	-.751671E-19	-.354897E-18
11	.183439E-15	-.602747E-19	-.116730E-15	-.361108E-19	.183585E-09	-.576309E-19
12	-.229002E-07	.249459E-16	-.819979E-16	-.353636E-18	-.997757E-19	.153805E-09
13	.292431E-05	-.170257E-14	.821369E-14	.307755E-16	.145940E-15	-.826909E-08
14	-.170433E-14	.273494E-06	-.229065E-14	-.227348E-15	-.356655E-19	.217520E-16
15	.322099E-14	-.165171E-14	.292433E-05	.826909E-08	-.957386E-18	-.310460E-15
16	.572239E-16	-.195435E-16	.198757E-07	.114298E-09	-.650956E-18	-.284024E-18
17	.152052E-15	-.447976E-19	-.977404E-16	-.270639E-18	.136585E-09	-.458890E-18
18	-.199737E-07	.135462E-16	-.673235E-16	-.282751E-18	-.864997E-19	.114298E-09
19	.143441E-05	-.742756E-15	.390560E-14	.139605E-15	.751935E-16	-.302145E-08
20	-.109033E-14	.165104E-06	-.156117E-14	-.142651E-15	-.215295E-19	.133916E-16
21	.379119E-14	-.651735E-15	.143041E-15	.302145E-08	-.435249E-16	-.141033E-16
22	.449939E-15	-.128470E-15	.139766E-07	.690009E-10	-.458629E-18	-.185114E-18
23	.951251E-15	-.270091E-19	-.548264E-16	-.167154E-18	.826560E-10	-.284493E-18
24	-.139769E-07	.125127E-16	-.450393E-16	-.184107E-19	-.643551E-18	.690009E-10
25	.339155E-06	-.125042E-15	.950170E-15	.283044E-17	.132947E-16	-.336801E-09
26	-.165129E-15	.542893E-07	-.541294E-15	-.491145E-17	-.709066E-20	.444696E-17
27	.182405E-15	-.919610E-16	.339155E-06	.336801E-09	-.119225E-15	-.286780E-17
28	.161936E-16	-.441298E-17	.526241E-08	.226991E-10	-.173944E-18	-.659009E-19
29	.313451E-16	-.992059E-20	-.186822E-15	-.561194E-19	.275493E-10	-.944641E-19
30	-.526241E-08	.431777E-17	-.163905E-16	-.653938E-19	-.249716E-18	.226991E-10

	7	8	9	10	11	12
1	.449276E-03	-.220701E-14	.131911E-13	.818157E-16	.183943E-15	-.229002E-07
2	-.305115E-14	.367998E-06	-.240236E-14	-.235357E-16	-.602747E-19	.249459E-16
3	.131865E-13	-.265808E-14	.449276E-05	.229002E-07	-.116730E-15	-.819979E-16
4	.507540E-16	-.275403E-16	.152817E-17	.153805E-03	-.361708E-18	-.353635E-18
5	.212958E-15	-.479597E-19	-.147740E-15	-.751671E-19	.183695E-09	-.997757E-18
6	-.152817E-07	.288152E-15	-.511449E-15	-.354897E-18	-.576309E-18	.153805E-09
7	.173447E-05	-.155025E-14	.716565E-14	.495858E-16	.139272E-15	-.152752E-07
8	-.155023E-14	.359171E-06	-.189009E-14	-.155411E-16	-.314745E-19	.127337E-15
9	.716545E-14	-.189009E-14	.173447E-05	.152752E-07	-.789069E-19	-.497375E-16
10	.495858E-16	-.155911E-16	.152752E-17	.153873E-09	-.403221E-18	-.302395E-19
11	.139272E-15	-.314745E-19	-.789069E-16	-.403221E-18	.183693E-09	-.625498E-18
12	-.152752E-07	.127337E-16	-.497375E-16	-.302395E-19	-.625498E-19	.153971E-09
13	.251417E-05	-.906565E-15	.635925E-14	.302549E-15	.979044E-16	-.826907E-08
14	-.113911E-14	.277490E-06	-.164794E-14	-.131169E-16	-.234133E-19	.979035E-17
15	.635245E-14	-.111891E-14	.251417E-05	.826997E-09	-.519121E-16	-.303693E-16
16	.199202E-15	-.114580E-16	.142055E-07	.114300E-09	-.347020E-18	-.248629E-18
17	.111244E-15	-.233020E-19	-.535215E-16	-.301508E-19	.136585E-09	-.495455E-19
18	-.142055E-07	.100097E-16	-.312095E-16	-.248416E-19	-.551062E-19	.114300E-09
19	.123455E-05	-.325199E-15	.204197E-14	.142537E-15	.515960E-16	-.302144E-09
20	-.762994E-15	.165104E-06	-.112591E-14	-.889251E-17	-.143315E-19	.616617E-17
21	.204555E-14	-.445198E-15	.123455E-05	.302144E-09	-.265891E-15	-.143132E-16
22	.255565E-15	-.907462E-17	.105565E-07	.690019E-10	-.245176E-19	-.166251E-18

	24					
24	-.105542E-07	.655698E-17	-.256065E-16	.166902E-18	-.415251E-1?	.540010E-10
25	.321452E-0?	-.609444E-16	.423049E-15	.309416E-17	.127129E-16	-.336799E-09
26	-.253434E-15	.542683E-07	-.192197E-15	-.104124E-17	-.465861E-20	.207449E-17
27	.424532E-15	-.603050E-16	.321450E-15	.136800E-09	-.314704E-19	-.604429E-17
28	.716052E-17	-.316009E-17	.41370?E-09	.225891E-10	-.314704E-19	-.604429E-17
29	.234244E-16	-.470133E-20	-.129157E-16	-.623456E-19	.275493E-10	-.101941E-18
30	-.41370?E-09	.227109E-17	-.917891E-17	-.503153E-19	-.163615E-18	.226891E-10

	13	14	15	16	17	18
1	.292433E-05	-.170633E-14	.822093E-14	.672238E-15	.152052E-15	-.199757E-07
2	-.178257E-15	.277486E-05	-.153191E-14	-.195495E-15	-.447976E-19	.195446E-15
3	.921363E-14	-.229065E-14	.292433E-05	.199757E-07	-.877404E-16	-.673235E-16
4	.307755E-16	-.222749E-15	.826909E-08	.114299E-09	-.270639E-16	-.282751E-18
5	.165769E-15	-.365565E-18	-.967896E-15	-.650055E-18	.136585E-09	.114298E-09
6	-.925909E-09	.217520E-15	-.310450E-16	-.284024E-19	-.458880E-18	-.142066E-07
7	.251417E-05	-.110911E-15	.436245E-14	.390293E-16	.113244E-15	.100997E-16
8	-.705655E-15	.277609E-05	-.111891E-14	-.134680E-15	-.233829E-19	.100997E-16
9	.435923E-14	-.164794E-14	.251417E-05	.142066E-07	-.595323E-16	-.371208E-16
10	.302542E-16	-.131595E-16	.826907E-08	.114300E-09	-.301503E-19	-.249436E-18
11	.779094E-15	-.234133E-19	-.119321E-15	.367920E-18	.135585E-09	-.561062E-19
12	-.425997E-09	.979903E-17	-.303693E-16	-.24862?E-18	-.495455E-18	.114300E-09
13	.204366E-05	-.703159E-15	.263352E-14	.241445E-16	.809054E-16	-.926597E-09
14	-.703159E-15	.277566E-05	-.975277E-15	-.117757E-15	-.171932E-19	.795192E-17
15	.263352E-14	-.976277E-15	.208366E-05	.826597E-08	-.393872E-16	-.242183E-16
16	.741443E-16	-.117767E-16	.826597E-08	.114332E-09	-.260386E-18	-.203049E-18
17	.809054E-16	-.173032E-19	-.393872E-16	-.263346E-15	.136587E-09	-.447531E-18
18	-.925907E-09	.795192E-17	-.242183E-15	-.203049E-19	-.447531E-19	.114332E-09
19	.112741E-05	-.291052E-15	.124290E-14	.113247E-16	.432122E-15	-.3021295E-08
20	-.450571E-15	.165106E-05	-.576565E-15	-.79527?E-17	-.104992E-19	.498427E-17
21	.124420E-14	-.389029E-15	.112741E-05	.302129E-09	-.204761E-15	-.113599E-16
22	.157273E-16	-.803051E-17	.696625E-09	.690021E-10	-.184064E-19	-.134940E-18
23	.513421E-15	-.105077E-19	-.252221E-15	-.160949E-19	.826560E-10	-.277624E-18
24	-.596625E-09	.513936E-17	-.157649E-15	-.134841E-19	-.335033E-18	.690021E-10
25	.303934E-05	-.457762E-16	.254409E-15	.243291E-17	.107254E-16	-.336784E-09
26	-.154263E-15	.542683E-07	-.238184E-15	-.273552E-17	-.345375E-20	.168580E-17
27	.255195E-15	-.515086E-16	.303934E-06	.336794E-09	-.528950E-17	-.244694E-17
28	.563095E-17	-.273726E-17	.235720E-09	.226891E-10	-.705903E-17	-.469679E-19
29	.158017E-15	-.369324E-20	-.877377E-17	-.540514E-19	.275493E-10	-.921750E-19
30	-.295720E-09	.178842E-17	-.564075E-17	-.498021E-19	-.133295E-18	.226891E-10

	19	20	21	22	23	24
1	.143441E-05	-.109039E-14	.391182E-14	.44999?E-15	.351281E-16	-.133765E-07
2	-.742756E-15	.165104E-05	-.651555E-15	-.129470E-16	-.270916E-17	.125129E-16
3	.330557E-15	-.156117E-14	.143441E-05	.133765E-07	-.544264E-15	-.459303E-15
4	.113695E-16	-.142661E-15	.302145E-08	.690009E-10	-.157154E-16	-.184107E-18
5	.751315E-15	-.215295E-19	-.448244E-15	-.458629E-18	-.286407E-18	.690009E-10
6	-.502165E-09	.117716E-15	-.161977E-15	-.185114E-19	-.286407E-18	.690009E-10
7	.124455E-05	-.762084E-15	.294565E-14	.255643E-16	.711054E-16	-.105542E-07
8	-.375199E-15	.165104E-05	-.446134E-15	-.907952E-17	-.141323E-19	.555408E-17
9	.204107E-14	-.112501E-14	.124455E-05	.105542E-07	-.375406E-16	-.256065E-16
10	.142637E-16	-.899251E-17	.302144E-09	.690010E-10	-.195835E-19	-.165002E-18
11	.515469E-15	-.141331E-19	-.255891E-15	-.245174E-18	.305627E-15	.690010E-10
12	-.302169E-09	.515697E-17	-.191192E-15	-.166251E-19	-.305627E-18	-.596625E-08
13	.112741E-05	-.450571E-15	.124420E-14	.157273E-15	.513421E-15	-.596625E-08
14	-.291052E-15	.165106E-05	-.389029E-15	-.903051E-17	-.105077E-19	.513831E-17
15	.124290E-15	-.576565E-15	.112741E-05	.696625E-09	-.252221E-15	-.157649E-16
16	.113247E-15	-.795276E-17	.302129E-08	.690021E-10	-.160949E-18	-.134?E-18
17	.432122E-15	-.104992E-19	-.204761E-16	-.184064E-19	.825560E-10	-.335033E-18
18	-.302121E-09	.498427E-17	-.113599E-15	.713009E-17	.291013E-15	-.301945E-08

19	.954133E-05	-.187467E-15	.612040E-15	.738099E-17	.291813E-16	-.301040E-09
20	-.187467E-15	.155156E-06	-.277021E-15	-.569182E-17	-.634218E-20	.335239E-17
21	.612040E-15	-.277021E-15	.954133E-06	.301046E-08	-.135945E-15	-.741472E-17
22	.738099E-17	-.569182E-17	.301046E-08	.690307E-10	-.114759E-18	-.690908E-19
23	.291813E-15	-.634218E-20	-.135945E-15	-.114759E-18	.926590E-10	-.209537E-18
24	-.301040E-09	.335239E-17	-.741472E-17	-.690307E-10	-.209537E-18	.690307E-10
25	.284611E-05	-.207270E-16	.126846E-15	.157578E-17	.698350E-17	-.335505E-09
26	-.550713E-15	.542893E-07	-.098475E-16	-.199210E-17	-.209690E-20	.114922E-17
27	.127031E-15	-.358911E-15	.299613E-05	.336505E-09	-.359530E-17	-.159393E-17
28	.265994E-17	-.200787E-17	.165826E-19	.226992E-10	-.446751E-19	-.322102E-10
29	.909071E-17	-.210495E-20	-.497159E-17	-.386558E-19	.275493E-10	-.694918E-19
30	-.165926E-08	.118908E-17	-.257605E-17	-.321873E-19	-.863014E-19	.226992E-10

	25	26	27	28	29	30
1	.284915E-05	-.266512E-15	.852605E-15	.163836E-16	.313452E-15	-.526741E-08
2	-.125042E-15	.542893E-07	-.919614E-15	-.441288E-17	-.902068E-20	-.163905E-16
3	.850170E-15	-.541294E-15	.339155E-06	.226991E-10	-.561194E-19	-.653898E-19
4	.293046E-17	-.591195E-17	.336801E-09	.226991E-10	-.561194E-19	-.653898E-19
5	.182747E-16	-.700066E-20	-.119225E-16	-.173944E-18	.275493E-10	-.249716E-18
6	-.336901E-09	.444695E-17	-.296780E-17	-.658009E-19	-.944641E-19	.226991E-10
7	-.321999E-05	-.252839E-15	.530632E-15	.916052E-17	.234239E-15	-.413703E-08
8	-.509946E-16	.542893E-07	-.603050E-16	-.316036E-17	-.129167E-16	-.917891E-17
9	.523043E-15	-.392197E-15	.721450E-06	.413703E-08	-.129167E-16	-.917891E-17
10	.703913E-17	.300124E-17	-.316800E-09	.226991E-10	-.623455E-19	-.603163E-19
11	.127124E-16	-.455961E-20	-.671593E-17	-.934704E-19	.275493E-10	-.163616E-18
12	-.336790E-09	.207440E-17	-.311770E-17	-.604429E-19	-.101941E-18	.226991E-10
13	-.303913E-08	-.119289E-19	.240913E-15	.863045E-17	.169019E-15	-.295720E-08
14	-.357762E-15	.542893E-07	-.515096E-16	-.278726E-17	-.343324E-20	.178942E-17
15	.254403E-15	-.218134E-15	.303034E-06	.295720E-08	-.877377E-17	-.564075E-17
16	.243771E-17	-.277862E-17	-.336784E-09	.226991E-10	-.540514E-19	-.488023E-19
17	.107269E-15	-.345375E-20	-.524950E-17	-.705903E-19	.275493E-10	-.133295E-18
18	-.336784E-09	.169590E-17	-.244694E-17	-.488678E-19	-.921750E-19	.226991E-10
19	-.289617E-08	-.650719E-16	.127093E-15	.266846E-17	.904971E-17	-.165926E-08
20	-.287273E-15	.542893E-07	-.358911E-15	-.200797E-17	-.210485E-20	.118059E-17
21	.125946E-15	-.091475E-16	.284619E-06	.165826E-09	-.497159E-17	-.267605E-17
22	.157578E-17	-.119210E-17	-.336505E-09	.226992E-10	.385559E-19	-.321893E-17
23	.698350E-17	-.200699E-20	-.368510E-17	-.446751E-19	.275493E-10	-.843014E-19
24	-.336505E-09	.114922E-17	-.159393E-17	-.322102E-19	-.694819E-19	.226992E-10
25	.254717E-05	-.106503E-15	.232656E-15	.566019E-18	.204600E-17	-.331239E-09
26	-.104503E-16	.543065E-07	-.135613E-16	-.780358E-19	-.693306E-21	.43515AE-18
27	.232556E-15	-.135613E-15	.254317E-06	.331239E-09	-.154770E-17	-.568571E-18
28	.366017E-18	-.730958E-18	.331239E-09	.226993E-10	-.152904E-19	-.277453E-19
29	.204693E-17	-.693306E-21	-.154770E-17	-.152904E-19	.275516E-10	-.277453E-19
30	-.331239E-09	.435159E-19	-.568571E-19	-.116915E-19	-.277453E-19	.226993E-10

STIFFNESS MATRIX (ZEROS HAVE BEEN INSERTED TO THE ORIGINAL REDUCED STIFFNESS MATRIX AT WHICH ZERO STIFFNESSES ARE NOT PUNCHED OUT)

	1	2	3	4	5	6
1	.448341E+07	-.987466E+05	.502498E+05	.516302E+07	.118246E+08	.538242E+08
2	-.987466E+05	.200263E+08	.841060E+05	-.728406E+08	-.583594E+06	-.211145E+09
3	.502498E+05	.841060E+05	.279921E+07	-.390901E+08	.220804E+08	-.431746E+07
4	.516302E+07	-.728406E+08	-.390901E+08	.220518E+11	-.296973E+09	.237431E+10
5	.118246E+08	-.583594E+06	.220804E+08	-.296973E+09	-.728194E+10	-.570774E+08
6	.538242E+08	-.211145E+09	-.431746E+07	.237431E+10	-.570774E+08	.159693E+11
7	-.451114E+07	.987815E+05	-.528161E+05	-.515796E+07	-.120116E+08	-.540006E+08
8	.100457E+06	-.200154E+08	-.818639E+05	.728534E+08	.575399E+06	.210869E+09
9	-.505009E+05	-.896908E+05	-.284180E+07	.394509E+08	.575399E+06	.210869E+09
10	-.638337E+07	-.651569E+07	-.557948E+08	-.204423E+11	-.445270E+09	.436153E+07
11	.573276E+07	.103686E+07	.520700E+07	-.603211E+08	-.708120E+10	.221542E+09
12	.984458E+08	.127744E+08	.512216E+07	-.148906E+10	.461077E+09	-.120893E+11
13	.264495E+05	-.393199E+02	.272794E+07	-.148906E+10	.461077E+09	-.120893E+11
14	-.169099E+04	-.103979E+05	-.245713E+04	.773309E+04	.184288E+06	.165963E+06
15	.200522E+03	.493850E+04	.404389E+05	-.355979E+06	-.389780E+04	.274988E+06
16	-.812302E+05	.551000E+05	.101015E+07	-.159540E+08	.504771E+05	-.339269E+05
17	-.251114E+06	-.411534E+05	-.808407E+05	-.100025E+07	.133349E+08	-.185895E+06
18	-.204306E+06	.113346E+06	.303722E+03	-.152312E+07	-.285111E+07	-.509571E+07

	7	8	9	10	11	12
1	-.451114E+07	.100457E+06	-.505009E+05	-.638337E+07	.573276E+07	.984458E+08
2	.987815E+05	-.200154E+08	-.896908E+05	-.651569E+07	.103686E+07	.127744E+08
3	-.528161E+05	-.818639E+05	-.284180E+07	-.557948E+08	.520700E+07	.127744E+08
4	-.515796E+07	.728534E+08	.394509E+08	-.204423E+11	-.603211E+08	.512216E+07
5	-.120116E+08	.575399E+06	-.226261E+08	-.445270E+09	-.603211E+08	-.148906E+10
6	-.540006E+08	.210869E+09	.436153E+07	-.142060E+10	.221542E+09	.461077E+09
7	.163399E+06	.103123E+06	.690787E+05	.100632E+06	-.565864E+06	.106623E+09
8	.103123E+06	.675753E+08	-.138960E+06	.190325E+09	-.207683E+08	-.453388E+09
9	.690787E+05	-.138960E+06	.114622E+08	-.118777E+09	.971434E+08	.109674E+08
10	.100632E+06	.190325E+09	-.118777E+09	.629835E+11	-.214656E+10	.141877E+10
11	-.565864E+06	-.207683E+08	.971434E+08	-.214656E+10	.276010E+11	.114528E+09
12	.106623E+09	-.453388E+09	.109674E+08	.141877E+10	.114528E+09	-.120893E+11
13	-.119621E+08	-.213892E+06	-.210160E+05	-.350730E+07	.514449E+08	-.207211E+09
14	-.192543E+06	-.475503E+08	.215341E+06	-.183114E+09	.197883E+08	.440422E+09
15	-.212190E+05	.221951E+06	-.877759E+07	.177584E+09	.197883E+08	.440422E+09
16	-.257457E+07	.101259E+09	-.710878E+08	.177584E+09	-.106351E+09	-.170642E+08
17	-.187504E+08	.179259E+08	-.569611E+08	.108211E+10	-.974769E+09	-.317064E+10
18	.131073E+09	.180329E+09	-.147080E+08	-.105660E+10	-.197860E+11	-.129449E+10

	13	14	15	16	17	18
1	.264495E+05	-.169099E+04	.200522E+03	-.812302E+05	.251114E+06	-.204306E+06
2	-.393199E+02	-.103979E+05	.493850E+04	.551000E+05	-.411534E+05	.113346E+06
3	.272794E+04	-.245713E+04	.404389E+05	.101015E+07	-.808407E+05	.303722E+03
4	-.998436E+04	.773309E+04	-.355979E+06	-.159540E+09	-.100025E+07	-.152312E+07
5	.184288E+06	-.389780E+04	.504771E+06	.133349E+08	.559469E+08	-.285111E+07
6	.165963E+06	.274988E+05	-.339269E+05	-.185895E+07	.902692E+05	-.509571E+07
7	-.119621E+08	-.192543E+06	-.212190E+05	-.257457E+07	-.187504E+08	.131073E+09
8	-.213892E+06	-.475503E+08	.221951E+06	.101259E+09	.179259E+08	.180329E+09
9	-.210160E+05	.215341E+06	-.877759E+07	-.710878E+08	-.569611E+08	-.147080E+08
10	-.350730E+07	-.183114E+09	.177584E+09	-.345513E+11	.108211E+10	-.105660E+10
11	.514449E+08	.197883E+08	-.106351E+09	-.345513E+11	.109211E+10	-.105660E+10
12	-.207211E+09	.440422E+09	-.106351E+09	-.974769E+09	-.197860E+11	-.149210E+10

FLEXIBILITY MATRIX

	1	2	3	4	5	6
1	.607190E-06	-.565096E-07	.882832E-08	.197759E-09	-.227542E-09	-.369899E-08
2	-.565096E-07	.111282E-06	-.540486E-08	.162898E-10	.218527E-10	.155291E-08
3	.882832E-08	-.540486E-08	.838537E-06	.390816E-08	-.288104E-08	-.178536E-09
4	.197759E-09	.162898E-10	.390816E-08	.986399E-10	-.256688E-12	-.843380E-11
5	-.227542E-09	.218527E-10	-.288104E-08	-.256688E-12	.242237E-09	.982862E-12
6	-.369899E-08	.155291E-08	-.178536E-09	-.843380E-11	.982862E-12	.123144E-09
7	.271049E-06	-.222025E-07	-.236181E-07	.895060E-08	.503043E-11	.327766E-09
8	-.197472E-07	.456129E-07	-.169349E-07	-.263085E-09	.503043E-11	.327766E-09
9	.600032E-08	-.313106E-08	.333501E-06	.151485E-08	-.780771E-09	-.104921E-09
10	.191999E-09	-.96473E-10	.325534E-08	.511921E-10	-.162813E-12	-.302618E-11
11	.152295E-09	-.429078E-11	-.176925E-08	-.182293E-12	.100486E-09	-.855437E-12
12	-.299363E-08	.766095E-09	-.200475E-09	-.303041E-11	-.862493E-12	.462502E-10
13	.110240E-06	-.432985E-08	.190952E-08	.244848E-10	.100735E-11	-.572161E-11
14	.248930E-08	.182618E-07	.258899E-09	.100735E-11	.102747E-09	-.550110E-11
15	.704418E-09	-.537713E-09	.115304E-06	.269171E-09	.102747E-09	-.550110E-11
16	.137151E-09	-.743830E-10	.174832E-09	.236419E-10	-.715002E-14	-.179731E-11
17	.926777E-10	-.651356E-11	-.612219E-09	.386941E-14	.467956E-10	-.552629E-13
18	-.185745E-08	.356566E-09	-.116571E-09	-.179641E-11	-.779737E-13	.247735E-10

	7	8	9	10	11	12
1	.271049E-06	-.197472E-07	.600032E-08	.191999E-09	.152295E-09	-.299363E-08
2	-.222025E-07	.456129E-07	-.313106E-08	-.96473E-10	-.429078E-11	.766096E-09
3	-.236181E-08	-.169349E-07	.333501E-06	.325534E-08	-.182293E-12	-.303041E-11
4	.895060E-18	-.263085E-09	.151485E-08	.511921E-10	.100486E-09	-.862493E-12
5	.508250E-09	.503043E-11	-.780771E-09	-.162813E-12	-.855437E-12	.462602E-10
6	-.143065E-09	.327766E-09	-.104921E-09	-.302618E-11	-.855437E-12	-.142974E-08
7	.223975E-06	-.862509E-08	-.496020E-09	.894790E-10	.505011E-09	-.142974E-08
8	-.862503E-08	.434415E-07	-.793951E-08	-.262993E-09	.469322E-11	.327524E-09
9	-.496020E-09	-.793951E-08	.272543E-06	.151342E-08	-.779861E-09	-.105592E-09
10	.894790E-10	-.262993E-09	.151342E-08	.511998E-10	-.171198E-12	-.302953E-11
11	.505011E-09	.469322E-11	-.779861E-09	-.171198E-12	.100054E-09	-.850624E-12
12	-.142974E-09	.327524E-09	-.105592E-09	-.302953E-11	-.850624E-12	.462655E-10
13	.987931E-07	-.116361E-08	.923563E-09	.244780E-10	-.165468E-10	-.395031E-09
14	.156594E-08	.185173E-07	.166021E-09	.102342E-11	-.574676E-11	-.266000E-10
15	.910554E-09	-.151797E-08	.167090E-06	.269042E-09	.182285E-09	-.549200E-11
16	.762447E-10	-.147432E-09	.947393E-09	.236449E-10	-.492015E-14	-.179735E-11
17	.259955E-09	-.608901E-11	-.157312E-09	.435083E-14	.467815E-10	-.553947E-13
18	-.104924E-08	.122401E-09	-.566468E-10	-.179645E-11	-.777128E-13	.247740E-10

	13	14	15	16	17	18

12	-.207211E+09	-.170642E+08	-.317064E+10	-.129448E+10	-.460718E+11
13	.460422E+06	.191178E+05	.225333E+07	.231124E+08	-.284384E+08
14	-.102157E+05	.191189E+06	-.994147E+08	-.116716E+08	-.125203E+09
15	-.101189E+05	-.261451E+06	-.482752E+08	.942040E+07	.942040E+07
16	-.261451E+05	.194275E+02	.809961E+11	.306299E+08	.565955E+10
17	-.994147E+03	-.222524E+04	.054572E+09	.324545E+09	.134014E+09
17	-.116191E+08	.306290E+08	-.054572E+08	.413429E+11	.916208E+11
18	.284744E+06	-.126203E+09	.565955E+10	-.804104E+09	

13	.110240E-06	-.432985E-08	.190952E-08	.244848E-10	-.165290E-10	-.335031E-09
14	.248930E-08	.182618E-07	.258899E-09	.100735E-11	-.572161E-11	-.266028E-10
15	.704418E-09	-.537713E-09	.115304E-06	.269171E-09	.102747E-09	-.550110E-11
15	.137151E-09	-.743830E-10	.174832E-08	.236439E-10	-.715002E-14	-.179731E-11
17	.926777E-10	-.651356E-11	-.612219E-09	.396941E-14	.667956E-10	-.552629E-13
18	-.188745E-08	.356566E-09	-.116571E-09	-.179641E-11	-.779737E-13	.247735E-10

	7	8	9	10	11	12
1	.271049E-06	-.197472E-07	.600032E-08	.191999E-09	.152295E-09	-.299363E-09
2	-.222025E-07	.456129E-07	-.313106E-08	-.964738E-10	-.429078E-11	.766096E-09
3	-.236191E-08	-.169349E-07	.333501E-06	.325534E-08	-.176925E-08	-.200475E-09
4	.995060E-10	-.263085E-09	.151485E-08	.511921E-10	-.182293E-12	-.303041E-11
5	.508250E-09	.503043E-11	-.780771E-09	-.162813E-12	.100486E-09	-.862493E-12
6	-.143065E-08	.327766E-09	-.104921E-09	-.302618E-11	-.855437E-12	.452602E-10
7	.221975E-08	-.862509E-08	-.496020E-09	.894790E-10	.505011E-09	-.142974E-08
8	-.862503E-08	.434418E-07	-.793951E-08	-.262993E-09	.489322E-11	.327524E-09
9	-.496020E-09	-.793951E-08	.272543E-06	.151342E-08	-.779861E-09	-.105592E-09
10	.994790E-10	-.262993E-09	.151342E-08	.511998E-10	-.171198E-12	-.302953E-11
11	.505011E-09	.489322E-11	-.779861E-09	-.171198E-12	.100054E-09	-.850624E-12
12	-.142974E-08	.327524E-09	-.105592E-09	-.302953E-11	-.850624E-12	.462655E-10
13	.987931E-07	-.116361E-08	.923563E-09	.244780E-10	-.165468E-10	-.335031E-09
14	.156594E-08	.185173E-07	.166821E-09	.102342E-11	-.574676E-11	-.266000E-10
15	.910554E-09	-.151797E-08	.107090E-06	.269042E-09	.102285E-09	-.549200E-11
15	.762447E-10	-.147432E-09	.947393E-09	.236449E-10	-.492015E-14	-.179735E-11
17	.259955E-09	-.608901E-11	-.157312E-09	.435093E-14	.467815E-10	-.553947E-13
18	-.104824E-09	.122403E-09	-.564648E-10	-.179645E-11	-.777128E-13	.247740E-10

	13	14	15	16	17	18
1	.110240E-06	.248930E-08	.704418E-09	.137151E-09	.826777E-10	-.188745E-08
2	-.432985E-09	.182618E-07	-.537713E-09	-.743830E-10	-.661356E-11	.356566E-09
3	.190952E-08	.258899E-09	.115304E-06	.174832E-08	-.612219E-09	-.116571E-09
4	.244848E-10	.100735E-11	.269171E-09	.236439E-10	.386941E-14	-.179641E-11
5	-.165290E-10	-.572161E-11	.102747E-09	-.715002E-14	.467956E-10	-.779737E-13
6	-.335067E-09	-.266028E-10	-.550110E-11	-.179731E-11	-.552629E-13	.247735E-10
7	.987931E-07	.156594E-08	.910554E-09	.762447E-10	.259956E-09	-.104824E-08
8	-.116361E-08	.185173E-07	-.151797E-08	-.147432E-09	-.608901E-11	.122403E-09
9	.923563E-09	.166821E-09	.107090E-06	.947393E-09	-.157312E-09	-.564648E-10
10	.244780E-10	.102342E-11	.269042E-09	.236449E-10	.435093E-14	-.179645E-11
11	-.165468E-10	-.574676E-11	.102285E-09	-.492015E-14	.467815E-10	-.777128E-13
12	-.335031E-09	-.266000E-10	-.549200E-11	-.179735E-11	-.553947E-13	.247740E-10
13	.982957E-07	.841798E-09	.121894E-09	.248769E-10	-.163752E-10	-.334774E-09
14	.841798E-09	.186758E-07	.740563E-10	.122790E-11	-.545219E-11	-.267076E-10
15	.121894E-09	.740563E-10	.952201E-07	.268437E-09	.908170E-10	-.653429E-11
16	.248769E-10	.122790E-11	.268497E-09	.236583E-10	.429292E-14	-.179244E-11
17	-.163752E-10	-.546219E-11	.908170E-10	.429292E-14	.463318E-10	-.681337E-13
18	-.334774E-09	-.267076E-10	-.653429E-11	-.179244E-11	-.681337E-13	.247757E-10

Checking Method #	Original Issue	1	2	3	4	5	6	7	8	9	10
	1										

Revision

Subject

REACTOR BUILDING
SEISMIC FORCES FROM DYNAMIC ANALYSIS

CONTAINMENT BUILDING & INTERNAL STRUCTURE

UNCRACKED CONTAINMENT WITH BEST ESTIMATE SOIL-SPRING CONSTANT

SSE-E-5C - EL. 769.17 FT. OF COMMON MAT

LSS FORCE (KIP) / MOMENT (KIP-FT.)

FORCE	X	2.80 E3
	Y	5.38 E2
	Z	2.39 E4
MOMENT	X	4.06 E6
	Y	2.50 E5
	Z	4.15 E5

Checking Method #   1 Line by line checking
2 Alternative Calculation/Results compared
3 Identical Calculation/Results compared

E-166 3-80

Gibbs & Hill, Inc.

Gibbs & Hill Job No.	11-2323-001		Client	TUSI	
		Date 05/14/81	Checker	IRS	Date 5/18/81
Originator AdB			Sheet No.		of

Calculation Number

	Original Issue		Revision								
		1	2	3	4	5	6	7	8	9	10
Checking Method #	1										

Subject

AUXILIARY & ELECTRICAL BUILDING

SEISMIC FORCES FROM DYNAMIC ANALYSIS

AUXILIARY & ELECTRICAL BUILDING

DYNAMIC MODEL WITH BEST ESTIMATE (K) SOIL-SPRING CONSTANT

SSE-X-EQ AT ELEV. 831.50 FT. DUE TO MASSES 1,2,6,7&8

RSS FORCE(KIP) / MOMENT(KIP-FT.)

FORCE X	3.03 E3
Y	5.82 E2
Z	2.27 E4
MOMENT X	1.11 E6
Y	7.37 E5
Z	1.59 E5

Checking Method #   1 Line by line checking
2 Alternative Calculation/Results compared
3 Identical Calculation/Results compared

F-166. 3-80

ATTACHMENT 2

N

EL. 810'-6"

AUXILIARY BLDG.

D

ELECTRICAL BLDG.

X

EL. 807'-0"

Z

D

PLAN EL. 810'-6" & 807'-0"
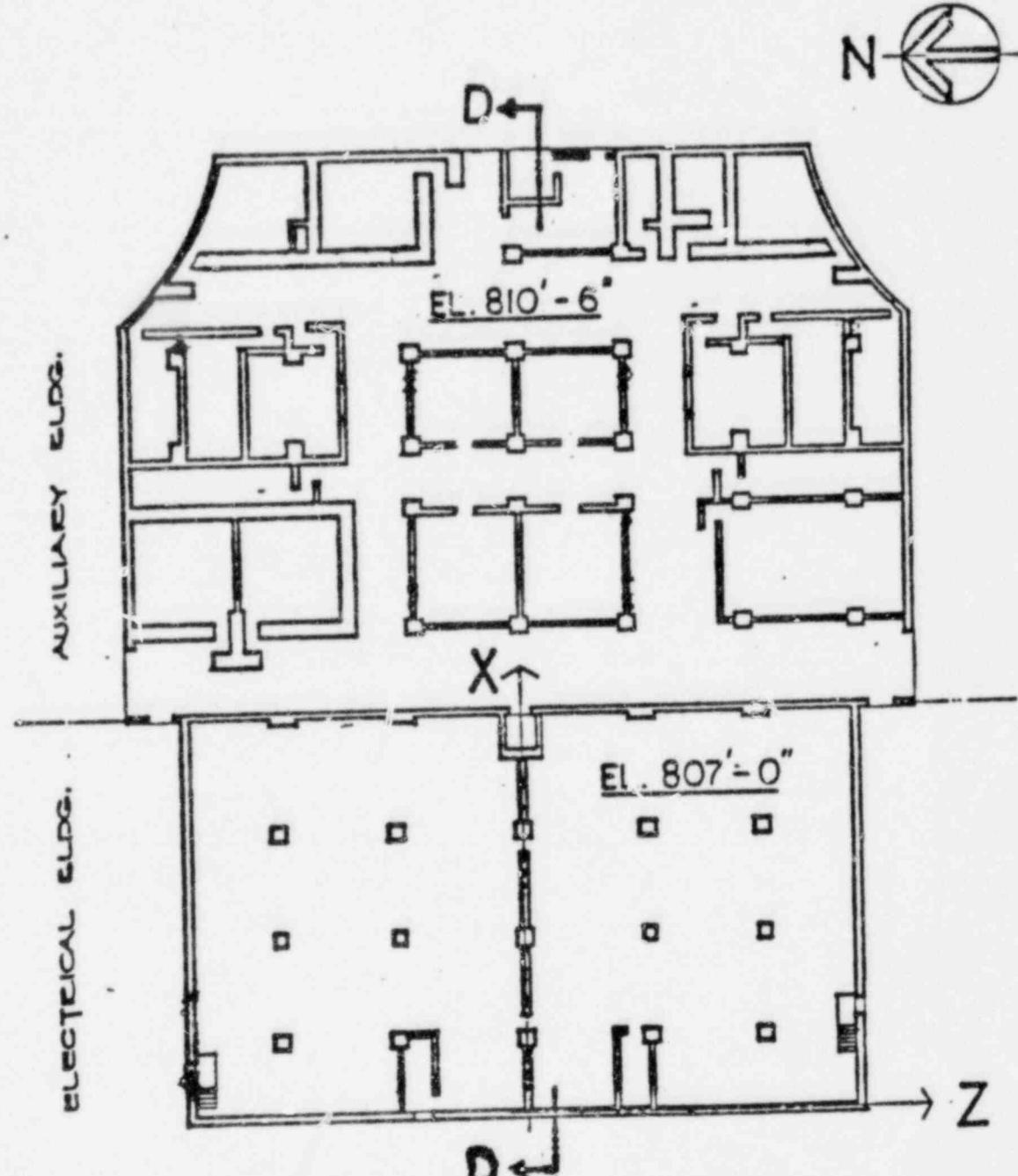
NOTE: ORIGIN OF COORDINATES IS

AT EL. 0.00

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

PLAN VIEW
ELECTRICAL & AUXILIARY
BUILDINGS

FIGURE 3.7B-23

ELECT. BLDG.

AUX. BLDG.
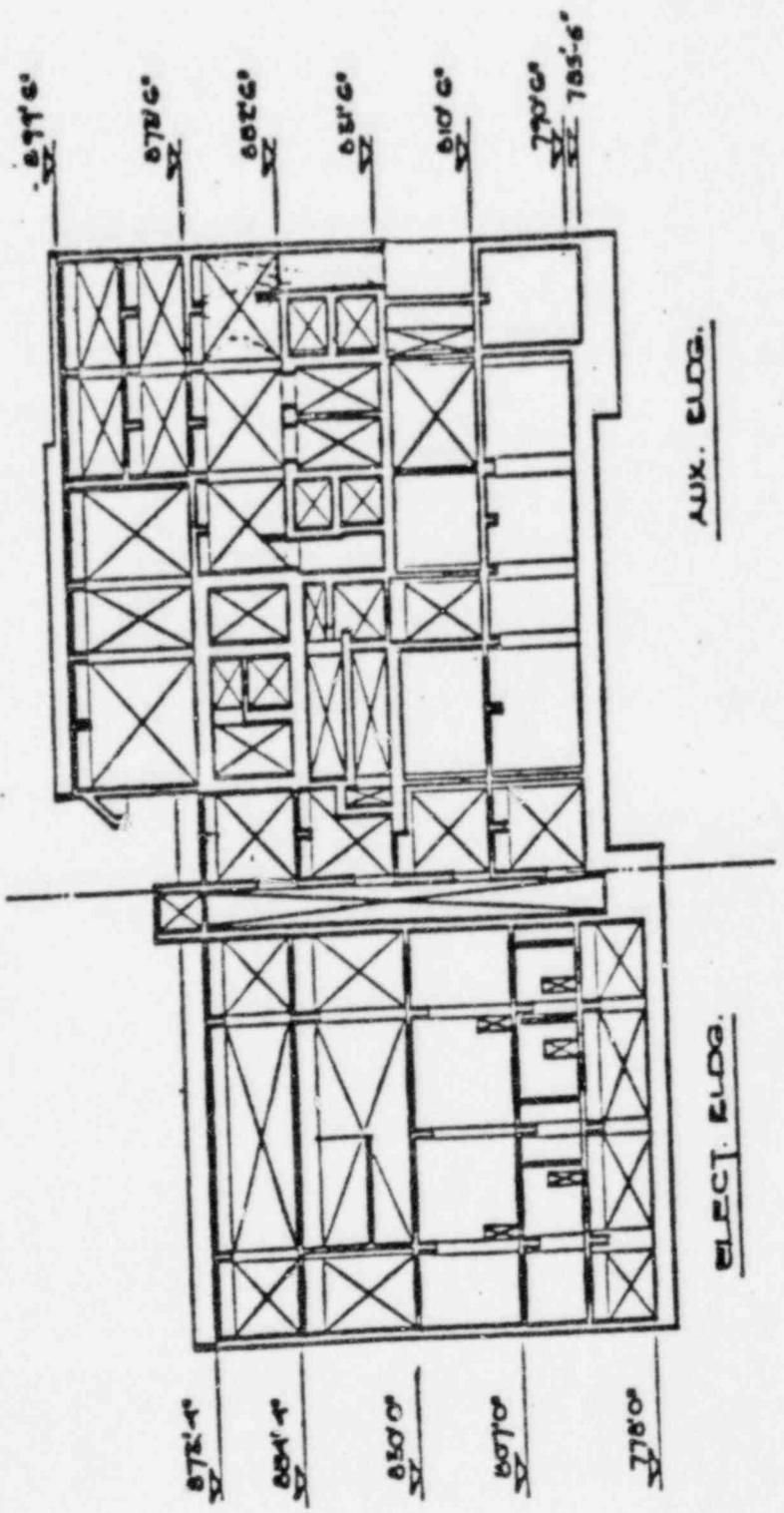
SECTION D-D

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

ELEVATION VIEW
ELECTRICAL & AUXILIARY
BUILDINGS
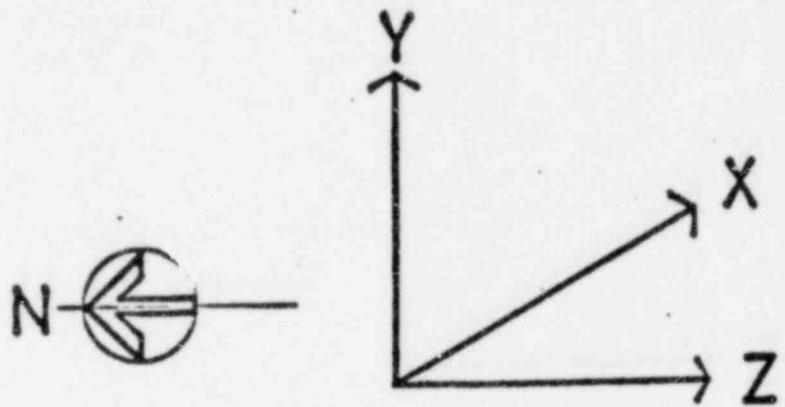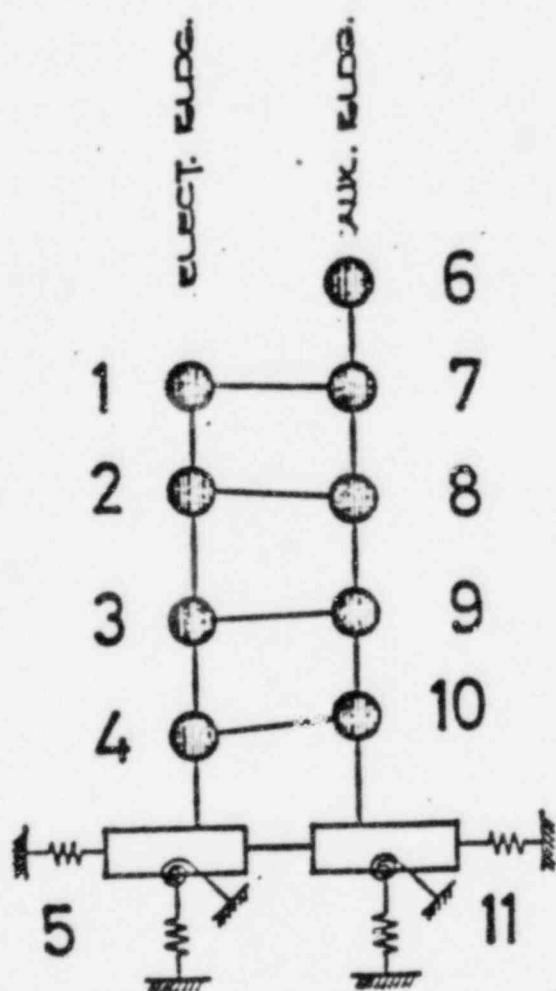
FIGURE 3.7B-29

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

DYNAMIC MODEL
ELECTRICAL & AUXILIARY
BUILDINGS

FIGURE 3.7B-36

AUXILIARY AND ELECTRICAL BUILDING

LOWER BOUND
SOIL SPRING
(K/4)

BEST ESTIMATE
SOIL SPRING
(K)

UPPER BOUND
SOIL SPRING
(2K)

LOWER BOUND, BEST ESTIMATE AND UPPER BOUND MODELS

ELECTRICAL AND AUXILIARY BUILDINGS
MASS POINT NODAL COORDINATES

Mass Point	X (ft)	Y (ft)	Z (ft)
1	59.31	871.29	-1.12
2	55.47	852.50	-0.18
3	46.31	829.55	0.15
4	53.78	805.63	0.75
5	57.20	776.79	-0.14
6	179.37	893.85	-0.22
7	166.49	872.32	3.47
8	172.92	849.55	0.40
9	174.87	831.15	-2.09
10	178.11	811.46	1.58
11	162.22	791.36	-3.30
Foundation spring		(See Tables 3.7B-26 and 3.7B-27.)	

NOTES: a. The origin of coordinates is at elevation 0 ft 0 in.

b. For orientation of coordinate axes, see Figure 3.7B-28.

c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-36.

ELECTRICAL AND AUXILIARY BUILDINGS
MASS POINT MASS DATA

Mass Point	Mass (kip-sec²/ft)			Mass Moment of Inertia (kip-sec²-ft)		
	Mx	My	Mz	Ix	Iy	Iz
1	191	191	191	352,578	621,762	273,288
2	371	371	371	1,029,267	1,540,860	525,576
3	335	335	335	935,606	1,329,372	413,593
4	404	404	404	1,232,237	1,789,889	585,062
5	570	570	570	1,475,049	2,636,970	1,184,607
6	373	373	373	1,170,341	1,756,542	611,452
7	530	530	530	1,543,930	2,372,764	859,910
8	860	860	860	2,390,334	3,484,584	1,151,946
9	710	710	710	2,110,568	3,065,440	989,810
10	663	663	663	2,193,210	2,996,694	859,967
11	1022	1022	1022	2,877,228	5,305,467	2,585,200
5A	310	2065	310	7,211,000	3,355,000	2,046,000
11A	623	4153	623	18,830,000	9,913,000	8,046,000

NOTES:

a. Mass points 1 through 11 are for the structures. Mass points 5A and 11A are for the foundation material.

b. The origin of coordinates is at elevation 0 ft 0 in. For orientation of coordinate axes, see Figure 3.7B-28.

c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-16

ELECTRICAL AND AUXILIARY BUILDINGS
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
1	1	Translation	X
1	2	Translation	Y
1	3	Translation	Z
1	4	Rotation	θ_x
1	5	Rotation	θ_y
1	6	Rotation	θ_z
2	7	Translation	X
2	8	Translation	Y
2	9	Translation	Z
2	10	Rotation	θ_x
2	11	Rotation	θ_y
2	12	Rotation	θ_z
3	13	Translation	X
3	14	Translation	Y
3	15	Translation	Z
3	·16	Rotation	θ_x
3	17	Rotation	θ_y
3	18	Rotation	θ_z
4	19	Translation	X

ELECTRICAL AND AUXILIARY BUILDINGS
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
4	20	Translation	Y
4	21	Translation	Z
4	22	Rotation	θ_x
4	23	Rotation	θ_Y
4	24	Rotation	θ_Z
5	25	Translation	X
5	26	Translation	Y
5	27	Translation	Z
5	28	Rotation	θ_x
5	29	Rotation	θ_Y
5	30	Rotation	θ_Z
6	31	Translation	X
6	32	Translation	Y
6	33	Translation	Z
6	34	Rotation	θ_x
6	35	Rotation	θ_Y
6	36	Rotation	θ_Z
7	37	Translation	X
7	38	Translation	Y

ELECTRICAL AND AUXILIARY BUILDINGS
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
7	39	Translation	Z
7	40	Rotation	θ_x
7	41	Rotation	θ_y
7	42	Rotation	θ_z
8	43	Translation	X
8	44	Translation	Y
8	45	Translation	Z
8	46	Rotation	θ_x
8	47	Rotation	θ_y
8	48	Rotation	θ_z
9	49	Translation	X
9	50	Translation	Y
9	51	Translation	Z
9	52	Rotation	θ_x
9	53	Rotation	θ_y
9	54	Rotation	θ_z
10	55	Translation	X
10	56	Translation	Y
10	57	Translation	Z

ELECTRICAL AND AUXILIARY BUILDINGS
DEGREES OF FREEDOM

Mass Point	Degree of Freedom	Direction of Motion	
10	58	Rotation	θ_X
10	59	Rotation	θ_Y
10	60	Rotation	θ_Z
11	61	Translation	X
11	62	Translation	Y
11	63	Translation	Z
11	64	Rotation	θ_X
11	65	Rotation	θ_Y
11	66	Rotation	θ_Z

NOTES: a.   The origin of coordinates is at elevation 0 ft 0 in.

b.   For orientation of coordinate axes, see Figure 3.7B-28.

c.   For structure dynamic model showing the mass point numbers, see Figure 3.7B-36.

ELECTRICAL BUILDING
FOUNDATION SPRING CONSTANTS

					Lower Bound Foundation Spring Constants			
Mass No.	Spring Location X (ft)	Y (ft)	Z (ft)	Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
5	98.75	778.50	0.0	0.1587×10^7	0.0	0.1195×10^7	0.0	0.3626×10^{10}	0.0
5	48.75	772.25	0.0	0.7970×10^7	0.9632×10^7	0.7970×10^7	2.1985×10^{10}	2.4830×10^{10}	0.8027×10^{10}
5	48.75	787.875	-82.75	0.1225×10^7	0.0	0.1615×10^7	0.0	0.1345×10^{10}	0.0
5	48.75	787.875	82.75	0.1225×10^7	0.0	0.1615×10^7	0.0	0.1345×10^{10}	0.0

ELECTRICAL BUILDING
FOUNDATION SPRING CONSTANTS

	Spring Location			Best Estimate Foundation Spring Constants					
Mass No.	X (ft)	Y (ft)	Z (ft)	Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
5	98.75	778.50	0.0	0.6355×10^7	0.0	0.4782×10^7	0.0	1.4506×10^{10}	0.0
5	48.75	772.25	0.0	3.1880×10^7	3.8530×10^7	3.1880×10^7	8.7940×10^{10}	9.9320×10^{10}	3.2110×10^{10}
5	48.75	787.875	-82.75	0.4900×10^7	0.0	0.6460×10^7	0.0	0.5382×10^{10}	0.0
5	48.75	787.875	82.75	0.4900×10^7	0.0	0.6460×10^7	0.0	0.5382×10^{10}	0.0

ELECTRICAL BUILDING
FOUNDATION SPRING CONSTANTS

Mass No.	Spring Location X (ft)	Y (ft)	Z (ft)	Upper Bound Foundation Spring Constants Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
5	98.75	778.50	0.0	1.2700×10^7	0.0	0.9564×10^7	0.0	2.9012×10^{10}	0.0
5	48.75	772.25	0.0	6.3760×10^7	7.7060×10^7	6.3760×10^7	1.7588×10^{11}	19.8640×10^{10}	6.4220×10^{10}
5	48.75	787.875	-82.75	0.9800×10^7	0.0	1.2920×10^7	0.0	1.0764×10^{10}	0.0
5	48.75	787.875	82.75	0.9800×10^7	0.0	1.2920×10^7	0.0	1.0764×10^{10}	0.0

NOTES:

a. The origin of coordinates is at elevation 0 ft 0 in.

b. For orientation of coordinate axes, see Figure 3.7B-28.

AUXILIARY BUILDING
FOUNDATION SPRING CONSTANTS

Mass No.	Spring Location X (ft)	Y (ft)	Z (ft)	Lower Bound Foundation Spring Constants Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
11	167.25	784.75	0.0	1.0060×10^7	1.2160×10^7	1.0060×10^7	3.7550×10^{10}	4.6800×10^{10}	1.9015×10^{10}
11	235.75	795.00	0.0	0.2117×10^7	0.0	0.1650×10^7	0.0	0.6535×10^{10}	0.0

AUXILIARY BUILDING
FOUNDATION SPRING CONSTANTS

Mass No.	Spring Location X (ft)	Y (ft)	Z (ft)	Best Estimate Foundation Spring Constants Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
11	167.25	784.75	0.0	4.0240×10^7	4.8640×10^7	4.0240×10^7	15.0200×10^{10}	1.8720×10^{11}	7.6060×10^{10}
11	235.75	795.00	0.0	0.8466×10^7	0.0	0.6604×10^7	0.0	2.6139×10^{10}	0.0

AUXILIARY BUILDING
FOUNDATION SPRING CONSTANTS

	Spring Location						Upper Bound Foundation Spring Constants		
Mass No.	X (ft)	Y (ft)	Z (ft)	Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
11	167.25	784.75	0.0	8.0480×10^7	9.7280×10^7	8.0480×10^7	3.0040×10^{11}	3.7440×10^{11}	1.5212×10^{11}
11	235.75	795.00	0.0	1.6940×10^7	0.0	1.3200×10^7	0.0	5.2280×10^{10}	0.0

NOTES: a. The origin of coordinates is at elevation 0 ft 0 in.

b. For orientation of coordinate axes, see Figure 3.7B-28.

Aux.'g Elect. Bldg.

Lower Bound (K/4)

MASS ORDER IN STARDYNE STIFFNESS MATRIX   5

REARRANGED STIFFNESS MATRIX

	1	2	3	4	5	6
1	.101253E+05	.261878E+05	-.104774E-08	.293303E+05	-.579305E+07	.452179E+08
2	-.261878E+05	.390899E+05	.837463E-08	-.249617E+07	.293303E+05	-.247769E+09
3	-.104774E-08	-.477453E-08	.100254E+08	-.615923E+08	-.491376E+08	-.996049E-06
4	-.293303E+05	.249617E+07	-.615923E+08	.102291E+12	-.370366E+09	-.178404E+10
5	-.579305E+07	.293303E+05	-.491376E+08	-.370366E+09	.547303E+11	-.771175E+08
6	.452179E+08	-.247769E+09	.996049E-06	-.178404E+10	-.271175E+08	.680288E+11
7	-.602650E+07	-.093819E-07	-.105879E-21	-.178404E+10	-.048517E+07	.509201E+08
8	.104567E-06	-.390863E+04	.111759E-07	.249205E+07	-.387430E-06	.247897E+09
9	.423515E-21	-.149012E-07	.651465E+07	.64513AE+08	.194646E+08	-.107286E-05
10	-.152233E-06	-.362430E+08	.980469E+03	-.101059E+12	-.220592E+09	.201692E+10
11	-.159043E+05	-.119209E+05	.137570E+08	-.102586E+09	-.412514E+11	-.118596E+09
12	.773874E+08	-.370017E+08	.655651E-06	.179347E+19	-.107495E+09	-.661014E+11
13	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	-.329654E+07	-.261878E+05	.372529E-08	.293303E+05	-.369212E+07	.570227E+07
36	.261878E+05	-.367430E+04	.345608E-10	.411588E+04	-.293303E+05	-.127836E+06
37	-.232871E-09	.491127E-10	-.137393E+07	-.292154E+07	.686021E+08	.325963E-08
38	-.904715F+05	-.127510E+05	.150642E+07	-.144490E+08	-.154424E+09	-.443531E+06
39	.114390E+03	.004715E+05	.786555E+08	.806495E+08	-.604327E+10	-.197869E+08
40	.511954E+07	.239036E+06	.186265E-08	-.267754E+07	.572728E+07	.941885E+06
41	.0	.0	.0	.0	.0	.0
42	.0	.0	.0	.0	.0	.0

56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	7	8	9	10	11	12
1	-.652851E+07	.101497E+06	-.423516E-21	.162233E-06	.159040E+08	.773874E+08
2	.993817E-07	-.390963E+08	-.149012E-07	-.342490E+08	-.119209E-05	.978057E+08
3	-.105873E-21	-.111759E-07	-.865145E+07	-.980469E+08	.137570E+08	.655651E-06
4	-.284923E-06	.249205E+07	.645138E+08	-.101059E+12	.102586E+09	.179347E+10
5	.948517E+07	-.387430E-06	.194646E+08	-.220592E+09	-.412514E+11	-.107495E+09
6	-.509231E+08	.247897E+09	.107285E-05	.201692E+10	.118596E+09	-.661014E+11
7	.162545E+09	-.359040E+06	-.384171E-08	.639071E+05	-.142073E+08	-.449135E+08
8	-.355040E+06	.746642E+08	.654836E-09	.278450E+08	-.639071E+05	-.407830E+09
9	-.384171E-09	.654836E-09	.192152E+08	.813387E+07	-.139238E+08	.225360E-06
10	.639071E+05	.278450E+08	.813387E+07	.233693E+12	-.113972E+09	-.182960E+10
11	-.142073E+08	-.639071E+05	-.139238E+08	-.113972E+09	.110758E+12	.186085E+09
12	-.449135E+08	-.407810E+09	-.225380E-06	-.182960E+10	.186085E+09	.131191E+12
13	-.535172E+07	.717969E-07	.423516E-21	.491958E-07	-.963309E+06	-.553020E+08
14	.585559E-07	-.355412E+08	.931323E-09	.639724E+07	.298023E-06	.312376E+09
15	-.0	.223517E-07	-.885297E+07	.914822E+08	-.918265E+08	.357628E-06
16	.852461E-04	-.533113E+07	-.111694E+09	-.128542E+12	-.115853E+10	.468564E+08
17	.802759E+06	.178814E-06	-.107332E+09	.110912E+09	-.513102E+11	.829530E+07
18	.675233E+09	-.131714E+08	-.357628E-06	.237102E+07	.121536E+08	-.597333E+11
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	-.0	.0	.0	.0	.0	.0
39	-.0	-.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	-.0	.0	.0	.0	.0	.0
42	-.0	-.0	.0	.0	.0	.0
43	-.407425E+07	.355040E+06	.279397E-08	-.639071E+05	-.733365E+05	.228281E+08
44	.355040E+06	-.176919E+05	-.145519E-09	.678275E+04	.639071E+05	-.235193E+07
45	.372529E-09	-.232911E-09	-.171082E+07	-.156923E+07	.919932E+08	-.111759E-07
46	.142016E+06	-.150728E+05	-.661614E+07	-.120439E+09	-.719408E+09	-.940772E+06
47	.162973E+07	-.142016E+06	-.108942E+09	-.117569E+10	-.648034E+10	-.913123E+07
48	-.685229E+07	.102645E+07	-.685360E-08	-.184761E+06	-.123341E+07	.612435E+08
49	.0	-.0	-.0	.0	-.0	-.0
50	.0	.0	.0	.0	.0	.0
51	.0	.0	.0	.0	.0	

Column headers: 13, 14, 15, 16, 17, 18

	13	14	15	16	17	18
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.852460E-08	.802758E+08	.675200E+08
	-.535172E+07	.59555E-07	-.0	-.533103E+07	.178814E-06	-.131724E+08
	.717959E-07	-.305402E+08	.223517E-07	-.111694E+09	-.107332E+08	-.357628E-06
	.423516E-21	.931323E-09	-.885297E+07	-.128542E+12	.110912E+09	.237102E+07
	.491959E-07	.639724E+07	.914822E+08	-.115853E+10	-.513182E+11	.121536E+08
	-.963303E+05	.298023E-06	.357628E-06	.468564E+08	.829530E+07	-.597333E+11
	-.551020E+09	.312376E+09	-.232831E-08	.437440E+05	-.254312E+07	-.289453E+08
	.169541E+08	.291627E+05	-.192085E-07	.113106E+05	-.437440E+05	.255676E+07
	.231627E+05	.754937E+08	.181523E+08	.299187E+08	-.831753E+08	-.444707E-05
	-.232431E-08	-.192085E-07	.299187E+08	.259080E+12	-.103053E+10	.383514E+06
	.437443E+05	.113106E+08	-.831753E+08	-.103053E+10	.121840E+12	-.434180E+07
	-.254312E+07	-.437440E+05	-.444707E-06	.363514E+06	-.434180E+07	.124052E+12
	.249453E+09	.255676E+07	-.0	-.178814E-06	.112694E+07	-.830177E+08
	-.751231E+07	.130395E-07	.838190E-08	-.597539E+07	-.238419E-06	.119995E+08
	.372529E-09	-.398359E+09	-.758637E+07	.838294E+08	-.138902E+08	.178814E-06
	-.0	.74503AE-08	-.976366E+08	-.125886E+12	-.178766E+09	.899964E+07
	.0	-.298769E+08	-.976366E+08	.779692E+09	-.51563E+11	.622633E+08
	.563459E+07	-.417213E-05	-.705603E+08	.464361E+09	-.145037E+08	-.606812E+11
	.966912E+09	.303574E+09	-.208616E-06	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	.0	.0	.0	.0	.0	.0
39	.0	.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	.0	.0	.0	.0	.0	.0
42	.0	.0	.0	.0	.0	.0
43	.0	.0	.0	.0	.0	.0
44	-.0	.0	.0	.0	.0	.0

```
 .          .0           .3            .0            .0            .0           .0
            -.0          .0            .0            .0            .0           .0
            -.0          -.3           .0            .0            .0           .134476E+08
3.    -.408943E+97   -.291627E+06    .419095E-08   -.437440E+05   .513424E+06  -.138392E+07
      -.291627E+06   -.275460E+05   -.174623E-09   -.413220E+04   .437440E+05  -.176951E-07
       .279337E-09    .378350E-09   -.171295E+07   -.205450E+07   .187799E+09   .289239E+07
2      .609500E+05    .575753E+05    .686224E+06   -.828515E+08  -.530888E+10  -.281055E+08
3     -.654704E+07   -.609580E+06   -.112419E+09    .748234E+09   .262511E+07   .851943E+08
4      .175009E+08    .169115E+07   -.149612E-07    .253657E+06   -.0          -.0
5      .0            -.0            -.0             .0            .0            .0
6      .0            .3             .0             .0            .0            .0
7      .0            .3             .0             .0             .0            .0
8      .0            .3             .0             .0             .0            .0
9      .0            .0             .0             .0            .0            .0
0     -.0            .0            -.0             .0            .0            .0
2      .0            .3             .0             .0            .0            .0
3      .0            .3             .0             .0            .0            .0
4      .0            .0             .0             .0            .0            .0
5      .0            .0             .0             .0             .0
6      .0            .3

             19            20            21            22            23            24

1      .0            .0             .0             .0            .0            .0
2      .0            .0             .0             .0            .0            .0
3      .0            .0             .0             .0            .0            .0
4      .0            .0             .0             .0            .0            .0
5      .0            .3             .0             .0            .0            .0
6      .0            .0             .0             .0            .0            .0
7      .0            .0             .0             .0            .0            .0
8      .0            .0             .0             .0
9      .0            .3
10     .0            .0             .0             .0            .0            .0
11     .0            .0             .0             .0             .563468E+07   .966912E+08
12     .0            .0             .0             .0            .417233E-06   .309574E+09
13    -.751291E+07    .372529E-06    .745058E-08   -.298769E+08  -.705603E+08  -.288616E-06
14     .130199E-07   -.398359E+08   -.750637E+07   -.976366E+08  -.779692E+09   .464361E+08
15     .0            -.597539E+07    .838294E+08   -.125885E+12   -.515632E+11  -.145037E+08
16    -.178814E-05    .238419E-06   -.138902E+08   -.178766E+09   .622633E+08  -.606812E+11
17    -.112634E+07    .119995E+08    .178814E-06    .899964E+07   .191801E+08  -.136791E+08
18    -.530177E+08    .369091E+06    .738775E+03    .143592E+07   -.138018E+07  -.323743E+08
19     .175054E+03    .438091E+08    .346833E+04    .746726E+09   -.147542E+09  -.124086E+06
20     .359031E+05    .346833E+04    .195966E+08    .812860E+07   -.149279E+10  -.498066E+09
21     .738775E+03    .746726E+08    .812860E+07    .269756E+12   -.120598E+12  -.386976E+08
22     .143592E+07   -.138018E+07   -.147542E+09   -.149279E+10   -.346976E+08   .139561E+12
23    -.191801E+08   -.323743E+08   -.124086E+06   -.498066E+09    .953683E+07  -.588390E+08
24    -.136791E+08   -.845928E+05   -.738692E+03   -.122223E+07    .120799E+07   .536723E+09
25    -.464879E+07   -.256134E+09   -.346808E+04   -.310247E+09   -.175325E+09   .124089E+06
26    -.139031E+05   -.346842E+04   -.365563E+07    .491461E+08   -.264725E+10   .402162E+09
27    -.738767E+03   -.932845E+07   -.564259E+08   -.902523E+11   -.367263E+11   .411590E+08
28    -.116133E+07    .107925E+07   -.187747E+09    .253782E+10   -.185063E+09  -.378326E+11
29     .539635E+07    .531393E+05    .157263E+06    .102166E+10    .0            .0
30     .743633E+08                                                .0            .0
31     .0            .0             .0             .0            .0            .0
32     .0            .0             .0             .0            .0            .0
33     .0            .0             .0             .0            .0            .0
34     .0            .0             .0             .0            .0            .0
35     .0            .0             .0             .0            .0            .0
36     .0            .0             .0             .0            .0            .0
37     .0            .0             .0             .0            .0            .0
38     .0            .0             .0             .0            .0            .0
39     .0            .3
```

.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
-.0	.0	.0	.0	.0	.0	
-.0	-.0	.0	.0	.0	.0	
-.0	-.0	.186265E-08	-.493623E+06	.296661E+07	-.241673E+08	
-.395545E+07	-.658184E+06	.465661E-09	-.871409E+05	.493623E+06	-.439147E+07	
-.659154E+06	-.118189E+08	-.169399E+07	-.528295E+07	.939516E+08	-.130385E-07	
.419035E-08	.696412E-09	.459299E+07	-.337930E+09	.173917E+10	-.693852E+07	
-.103990E+07	-.183577E+06	-.116662E+09	.163007E+10	-.551307E+10	-.381843E+08	
.624966E+07	.103990E+07	.466281E+07	-.259514E+08	.236667E+09	
.345018E+09	.621707E+07	-.186265E-07	.279936E+06	-.104197E+07	-.681308E+04	
-.139922E+07	-.373665E+06	-.828904E-01	-.136838E+08	-.321432E+06	-.809531E+09	
.428074E+06	-.182437E+08	-.251312E+00	.456449E+08	.299476E+09	-.368844E+01	
-.797661E-02	-.903613E-01	-.666059E+07	-.487440E+11	.197902E+10	.267151E+10	
-.141229E+07	.682027E+08	-.492550E+08	-.422879E+09	.269445E+10	-.173020E+11	-.378711E+05
-.459438E+07	-.123351E+07	.158795E+02	.866751E+09	.189672E+08	.513939E+11	
-.252577E+08	.115825E+10					

25	26	27	28	29	30	

	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	.0	.0	.0	
	.0	.0	-.738767E+03	-.116130E+07	.539688E+07	.743633E+08
-.464979E+07	-.139081E+06	-.346842E+04	-.832846E+07	.107925E+07	.631993E+09	
-.345929E+05	-.255134E+08	-.355563E+07	-.564259E+08	-.187747E+09	.157263E+06	
-.738693E+07	-.345808E+04	.491461E+08	-.902523E+11	.253782E+10	.102166E+10	
-.122223E+07	-.710247E+08	-.175325E+09	-.264725E+10	-.367263E+11	-.185063E+09	
.953693E+07	.120739E+07	.124089E+05	.402162E+09	.411590E+08	-.378325E+11	
-.599393E+08	.536723E+09	.738684E+03	.116640E+07	-.345401E+07	-.825198E+08	
.195251E+09	.100293E+05	.346817E+04	.339459E+07	-.107743E+07	.354589E+09	
.190293E+06	.508477E+08	.258046E+08	.130323E+09	-.172471E+09	-.157267E+06	
.739494E+07	.3463.7E+04	.130323E+09	.178014E+12	-.222408E+09	-.601786E+09	
.115643E+07	-.339459E+07	-.172471E+09	-.222408E+09	-.104393E+12	.117182E+09	
-.345431E+07	-.107743E+07	-.157267E+05	-.601786E+09	.117182E+09	.958599E+11	
-.525133E+08	.354598E+09		.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0	.0	.0	.0	.0	.0	
.0						

.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.0	-.0	.0	-.510514E+04	-.261894E+06	.144683E+08
-.187027E+07	.187179E+05	.828933E-01	-.358539E+07	-.181948E+04	-.106797E+10
-.155904E+05	-.258023E+08	.251325E+08	-.722323E+08	.405186E+09	.376996E+01
.79094E-02	-.903535E-01	-.975350E+07	-.625503E+11	-.289150E+10	.352425E+10
.514215E+05	.844991E+08	-.619046E+09	-.461034E+10	.230462E+11	.477640E+08
-.617194E+07	.127355E+06	-.158803E+02	-.227569E+09	-.174498E+07	.678357E+11
-.122929E+99	.162511E+10				

31	32	33	34	35	38
1	.0	-.0	-.0	.0	-.0	-.0
2	.0	.0	-.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	

	49	50	51	52	53	54
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.190921E-06	.279397E-08	-.536442E-06	-.269260E+09
7	-.150063E+08	.190921E-06	-.545972E+08	.223517E-07	.804965E+09	.506639E-06
8	.219792E-05	-.545972E+08	-.372519E-08	-.202793E+08	-.272756E+09	.124778E+10
9	.232331E-05	-.372519E-08	.544330E+09	.149003E+09	-.237894E+12	-.101473E+12
0	.179914E-05	.596046E-07	.255173E+09	.343208E+10	-.250950E+10	-.974301E+11
1	-.223191E+09	.596046E-07	.255173E+09	.343208E+10	-.250950E+10	-.974301E+11
2	-.139859E+09	-.311859E+09	.290023E-06	.182246E+07	-.145917E+09	-.803499E+08
3	.336488E+04	-.369222E+06	-.558923E+04	-.257350E+09	-.375930E+06	-.175516E+09
4	-.369222E+06	.192754E+09	.226307E+05	.935048E+08	-.106249E+09	-.136607E+07
5	-.558923E+04	.226317E+05	.473101E+08	.566910E+12	.596835E+09	-.419989E+10
6	.182246E+07	-.257350E+09	.935048E+08	.596835E+09	-.214695E+12	-.456674E+10
7	.145917E+09	-.375930E+06	-.106249E+09	-.419989E+10	-.456674E+10	.220429E+12
8	-.803499E+08	-.175516E+09	-.136607E+07	-.196448E+07	.121713E+09	-.114633E+09
9	-.143982E+08	-.141829E+05	.558923E+04	-.547599E+09	.517946E+06	-.595406E+08
30	.141829E+05	-.978134E+09	-.226307E+05	.185867E+09	.904134E+08	.136607E+07
31	.558923E+04	-.226307E+05	-.253200E+08	-.315411E+12	.883779E+09	.207812E+11
32	-.149695E+07	-.304446E+09	-.279965E+09	-.420988E+09	-.934425E+11	.659680E+09
53	.858972E+05	.509151E+06	.410532E+08	.217117E+11	-.129808E+10	-.114634E+12
54	.150013E+09	.138946E+09	.130736E+07	.0	.0	.0
55	.0	.0	.0	.0	.0	.0
56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	49	50	51	52	53	54
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	-.0	-.0	.0	.0	.0	.0
9	-.0	-.0	.0	.0	.0	.0
10	-.0	.0	.0	.0	.0	.0
11	-.0	.0	.0	.0	.0	.175008E+08
12	-.0	-.0	.279397E-08	.609500E+06	-.854704E+07	.169195E+07
13	-.409363E+07	-.291627E+06	.370350E-09	.575753E+05	-.609500E+05	-.149012E-07
14	-.291627E+06	-.275490E+05			-.112413E+09	

```
                  -.411306E+04   -.205450E+07   -.828515E+08    .748234E+09    .253657E+06
.637440E+05      -.413210E+04    .107799E+09   -.839883E+09   -.530888E+10   -.262511E+07
.613424E+06       .437440E+05    .176951E-07    .289239E+07   -.281055E+08    .851943E+08
.134475E+08      -.138392E+07   -.0             .0            -.0            -.0
.0               -.0            -.0             .0             .0             .0
0                -.0            -.0             .0             .0             .0
0                -.0            -.0             .0             .0             .0
0                -.0            -.0             .0             .0             .0
0                -.0            -.0            -.0             .0             .0
0                -.0            -.0             .0             .0             .0
0                -.0            -.0             .0             .0             .0
0                -.0             .0             .0             .0             .0
0                -.0            -.0             .0             .0             .0
0                -.0            -.0             .0             .0             .0
.0               -.0            -.0             .0             .0             .0
.0               -.0             .0             .0             .0             .0
.0               -.0            -.0             .0             .0             .0
.0               -.0             .0             .0             .0             .0
.0               -.0             .0             .0             .0             .0
.0                .0             .0             .0             .0             .0
.0                .0             .0             .0             .0             .0
-.143992E+04      .141829E+05    .558923E+04   -.189695E+07    .858972E+06    .150063E+09
.141923E+05      -.978194E+08   -.226307E+05   -.304446E+09    .309131E+06    .130946E+09
.558923E+04      -.226307E+05   -.253200E+08   -.279965E+09    .410532E+08    .130736E+07
.558923E+04      -.547599E+09    .185867E+09   -.315411E+12   -.934425E+11   -.129808E+10
.195449E+07       .51791EE+06    .904134E+08    .883779E+09    .659680E+09   -.114634E+12
.121711E+09      -.595406E+08    .136607E+07    .207812E+11   -.139852E+09   -.162112E+08
.114835E+09       .277444E+06   -.558923E+04    .128745E+07    .100359E+06   -.126474E+09
.333912E+04       .173747E+09   -.226307E+05   -.393059E+09    .174222E+07   -.130736E+07
.277444E+06       .226317E+05    .423106E+08    .124211E+09   -.555918E+09   -.360547E+11
-.558923E+04      .393059E+09    .124211E+09    .599745E+12   -.219493E+12    .251361E+09
.128745E+07       .100369E+05    .174222E+07   -.555918E+04    .251361E+09    .233052E+12
-.139802E+09     -.126474E+09   -.130736E+07   -.360547E+11    .624517E+08   -.151372E+09
-.152112E+09      .572763E-06    .232831E-08   -.494719E-05    .624517E+08   -.616300E+07
-.149135E+09     -.759004E+08   -.0           -.886715E+08   -.506639E-05   -.616300E+07
.549443E-06      -.130345E-07   -.152776E+08    .155068E+09    .696231E+08   -.119209E-06
.279397E-09       .130345E-07   -.145749E+09   -.277129E+12    .664205E+09    .146259E+11
.745058E-05      -.347226E+09    .201236E+08   -.204255E+09   -.975679E+11    .118942E+10
.117194E+09      -.739038E-05    .201236E+08    .14935RE+11   -.595789E+09   -.112296E+12
.142275E+07       .239754E+09   -.298023E-06    .0             .0             .0
.C                .0             .0             .0             .0             .0
.0                .0             .0             .0             .0             .0
.0                .0             .0             .0             .0             .0
.0                .0             .0             .0             .0             .0
.C                .C             .0             .0             .0             .0
.0                .0             .0             .0             .0             .0


        55              56              57              58              59              60

        .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .C              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
.0              .0              .0              .0              .0              .0
```

	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	.0	.0	.0	.0	.0	.0
	-.0	-.0	.0	.0	.0	.0
	-.0	.0	.0	.0	.0	.0
	-.0	.0	.0	.0	.0	.346018E+08
	-.0	.0	.419095E-08	-.103990E+07	.624966E+07	.621707E+07
9	-.395545E+07	-.558164E+06	.694442E-09	-.183577E+06	.103990E+07	-.186265E-07
0	-.558164E+06	-.1151AAE+06	.169399E+02	.459299E+07	-.116662E+09	.466281E+07
	-.186265E-05	-.465661E-09	-.528295E+07	-.337930E+09	-.163007E+10	.259514E+08
2	-.493623E+05	-.871409E+05	.939516E+08	.173917E+10	-.551307E+10	.236667E+09
3	.295551E+07	.49353?3E+06	.130385E-07	-.693852E+07	.3A1843E+08	.0
4	-.241673E+08	-.439147E+07	-.0	.0	-.0	-.0
5	.0	-.0	-.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
0	.0	.0	.0	.0	.0	.0
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0
0	.0	.0	.0	.0	.0	.0
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
49	-.149135E+08	.549440E-06	.279397E-08	.745058E-05	-.739098E-05	.239754E+09
50	.572753E-05	-.759084E-08	.130385E-07	-.367226E+09	.291236E+08	-.298023E-06
51	.232831E-08	-.0	-.152776E+06	-.145749E+09	-.204255E+09	.149358E+11
52	.494719E-05	-.446715E+08	.155068E+09	-.277129E+12	-.975679E+11	-.595789E+09
53	.624517E+09	-.506639E-05	.696231E+08	.664205E+09	.118942E+10	-.112296E+12
54	-.151372E+08	-.616310E+07	-.119209E-06	.146259E+11	-.176742E+09	.470458E+08
55	.371570E+08	.111222E+07	-.931323E-08	-.558392E-05	.558392E+05	-.490641E+09
56	.111222E+07	.158013E+09	.131258E-07	.113651E+19	-.343881E+08	-.216439E-05
57	-.931323E-08	.131258E-07	.337341E+08	-.447884E+05	-.215383E+10	-.414264E+11
58	-.558392E+05	.11361E+10	-.447884E+08	.642930E+12	.230792E+12	.644537E+09
59	-.176742E+09	.558392E+05	-.343881E+08	-.215383E+10	.644537E+09	.239886E+12
60	.473434E+08	-.490641E+09	-.216439E-05	-.414264E+11	.533077E+08	-.223923E+09
61	-.182790E+08	-.454052E+06	.698492E-08	.109574E+07	-.109574E+07	.244370E+09
62	-.454052E+06	-.919955E+08	-.138190E-08	-.769096E+09	-.130926E+09	.166893E-05
63	.699432E-08	-.204891E-07	-.157625E+08	.185944E+09	.228773E+10	.244069E+11
64	.331151E+07	-.320153E+09	-.150983E+09	-.353729E+12	-.114657E+12	-.564670E+09
65	-.353379E+08	-.331151E+07	.397282E+09	-.329853E+10	-.563823E+09	-.115288E+12
66	.136452E+13	-.128903E+10	.715256E-06	.133580E+11		

	61	62	63	64	65	66
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0

.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.138922E+07	.428074E+06	-.790661E-02	-.141229E+07	-.458438E+07	-.252577E+08
-.373555E+05	-.182617E+08	.903663E-01	.602027E+08	.123351E+07	.115825E+10
-.828934E-01	-.251312E+00	-.666059E+07	-.492550E+08	-.422879E+09	.158795E+02
.279936E+08	-.136818E+08	.456449E+08	-.487440E+11	.269445E+10	.868751E+09
.104137E+07	-.321432E+06	.299476E+09	.197902E+10	.173020E+11	.189672E+08
-.581338E+04	-.809531E+09	-.358844E+01	.267151E+10	-.376711E+05	.513939E+11
-.187027E+07	-.156904E+05	.790948E-02	.844991E+08	-.617194E+07	-.122928E+08
.397179E+05	-.256023E+08	-.903535E-01	.697294E+08	.127355E+06	.162501E+10
.828933E-01	.251325E+00	-.975350E+07	-.619046E+09	-.158803E+02	
-.510514E+04	.358539E+07	-.722323E+08	-.625503E+11	-.461034E+10	-.227569E+09
-.261994E+06	-.181948E+04	.405186E+09	-.289150E+10	.230462E+11	-.174498E+07
.144693E+09	-.106797E+10	.376996E+01	.352425E+10	.477640E+08	.678357E+11
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
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.0	.0	.0	.0	.0	.0
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.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.142893E+09	-.454052E+06	.698492E-08	.331151E+07	-.359379E+08	.136452E+09
-.454052E+05	-.319965E+09	-.204691E-07	-.320153E+09	-.331151E+07	-.120803E+10
.698492E-08	-.938190E-08	-.167625E+08	-.150983E+09	.397282E+09	.715256E-06
.09574E+07	-.769096E+09	.105944E+09	-.353729E+12	-.329853E+10	.133590E+11
.513077E+09	-.109574E+07	.130026E+09	.228773E+10	-.114657E+12	-.560823E+09
-.223921E+09	-.244670E+09	.156893E-05	.244069E+11	-.544670E+09	-.115298E+12
-.337245E+09	.415685E+05	-.287506E-05	-.195055E+07	.868783E+08	-.401107E+08
.416685E+05	.148012E+09	-.127355E-04	.135333E+09	.195065E+07	-.151407E+10
-.287515E-05	-.127355E-04	.448866E+08	.70017E+09	.472717E+09	.811784E-03
-.135068E+07	.135333E+09	.700176E+08	.506969E+12	.25434E+12	.212864E+09
.859793E+09	.135055E+07	.472717E+09	-.5873RE+10	.212864E+09	.333865E+12
-.401107E+09	-.151417E+,	.811784E-03	-.102702E+11	.212864E+09	.333865E+12

MASS ODOFR IN STARDYNE STIFFNESS MATRIX   5

REARRANGED STIFFNESS MATRIX

	1	2	3	5	6
1	.101250E+05	.26.878E+05	.104774E-08	-.291303E+05	.452170E-08
2	.261375E+05	.19089CE+08	.837463E-08	-.249617E+07	-.247769E+09
3	-.104774F-08	.837463E-08	.100254E+08	-.615923E+08	-.996049E-06
4	-.291303E+05	.249617E+07	.159923E+06	.102291E+12	-.178404E+10
5	-.573305E+07	-.293303E+05	-.613976E+08	-.370366E+11	-.771175E+08
6	.452179E+08	-.247769E+08	-.936049E-06	-.178404E+10	.680888E+11
7	.682450E+07	-.247769E+08	.105879E-21	-.173404E+10	-.509201E+08
8	-.100497E-06	.983816E-07	-.111759E-07	.284829E-06	.47897E+09
9	-.473516E-06	-.390463E+08	.855145E+07	.242205E+07	-.407288E-05
10	-.122233E-06	-.149012E-07	.198046E+08	.645138E+08	.201692E+10
11	.153040E+08	-.342604E+08	-.160294E-05	-.101059E+12	-.118596E+09
12	.773474E+05	.378057E+08	-.855651E-06	.173347E+10	.661014E+11
13	-.0	-.0	.0	.0	.0
14	-.0	-.0	.0	.0	.0
15	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0
35	-.327654E+07	-.261878E+05	.372529E-08	.291303E+05	.570227E+07
36	.261978E+05	-.3674G0E+04	.365808E-10	-.411588E+04	-.127836E+06
37	-.261978E+05	-.367400E-04	-.173933E+07	.292156E+07	-.325963E-08
38	-.233311E-03	-.372116E-10	.150642E+07	-.144490E+08	-.443591E+06
39	-.90171SE+05	-.302715E+05	.786555E+08	.680495E+08	-.197069E+08
40	-.114190E+00	.304715E+05	-.1.3929E-08	-.604327E+10	-.941885E+06
41	.511364E+07	.23906G+06		-.680722E+05	
42	-.0	-.0	-.0	-.0	-.0
43	.0	.0	.0	.0	.0
44	.0	.0	.0	.0	.0
45	.0	.0	.0	.0	.0
46	.0	.0	.0	.0	.0
47	.0	.0	.0	.0	.0
48	.0	.0	.0	.0	.0
49	.0	.0	.0	.0	.0
50	.0	.0	.0	.0	.0
51	.0	.0	.0	.0	.0
52	.0	.0	.0	.0	.0
53	.0	.0	.0	.0	.0
54	.0	.0	.0	.0	.0

56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	7	8	9	10	11	12
1	-.682350E+07	.180437E-06	-.423516E-21	.162233E-06	.159040E+08	.773874E+08
2	.383813E-07	-.390863E+09	-.143012E-07	-.342490E+08	-.119209E-05	.978057E+08
3	-.105873E-21	-.111753E-07	-.855145E+07	-.980469E+08	.137570E+08	.655651E-06
4	-.294823E-06	.249205E+07	.645138E+08	-.101059E+12	-.102586E+09	.179347E+10
5	.945517E+07	-.387430E-06	-.194646E+08	-.220592E+09	-.412514E+11	-.107495E+09
6	-.503201E+04	.247837E+03	.107288E-05	.201692E+10	.118596E+09	-.661014E+11
7	.162545E+04	-.355049E+06	-.394171E-08	.633071E+05	-.142073E+08	-.449135E+08
8	-.355040E+06	.746642E+03	.654836E-09	.278450E+08	-.639071E+05	-.407830E+09
9	-.394171E-08	.654836E-03	.132152E+08	.813387E+07	-.139238E+06	-.225380E-06
10	.633071E+05	.278450E+03	.813387E+07	-.113972E+09	.113972E+09	-.182960E+10
11	-.142073E+03	-.633071E+05	-.133238E+08	-.182960E+10	.110756E+12	.186085E+09
12	-.449135E+08	-.407930E+03	-.225380E-06	.185085E+09	.185085E+09	.131191E+12
13	-.535172E+07	.717963E-07	.423516E-21	.491958E-07	-.363309E+06	-.553020E+08
14	.605553E-07	-.355402E+08	.931323E-09	.633724E+07	.298023E-06	.312376E+09
15	-.0	.223517E-07	-.835297E+07	.914822E+08	-.318265E+08	.357628E-06
16	.952460E-08	-.533103E+07	-.111634E+09	-.123542E+12	-.115853E+10	.468564E+08
17	.802759E+06	.179814E-06	-.107332E+09	.110912E+09	-.513102E+11	.829530E+07
18	.675200E+08	-.131724E+04	-.357628.-06	.237102E+07	.121536E+08	-.597333E+11
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.G	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	-.0	.0	.0	.0	.0	.0
39	-.0	-.0	.0	.0	.0	.0
40	-.0	.0	.0	.0	.0	.0
41	-.0	.0	.0	.0	.0	.0
42	-.0	-.0	.0	.0	.0	.0
43	-.407425E+07	.355040E+06	.273337E-08	-.633071E+05	-.733365E+06	.228281E+08
44	.355040E+06	-.175113E+05	-.145513E-09	.673275E+04	.633071E+05	-.235193E+07
45	.372529E-09	-.232331E-04	-.171032E+07	-.156923E+07	.919932E+09	-.111759E-07
46	.142016E+06	-.150726E+03	-.661614E+07	-.120439E+09	-.713408E+09	-.940772E+06
47	.162470E+07	-.142016E+06	-.103342E+09	-.117509E+10	-.649034E+10	-.913123E+07
48	-.685229E+07	.102645E+07	-.605360E-08	-.147611E+06	-.123341E+07	-.0
49	.0	-.0	-.0	.0	-.0	-.0
50	.0	.0	-.0	.0	.0	.0

51	.0	.0	.0	.0	.0	.0
52	.0	.0	.0	.0	.0	.0
53	.0	.0	.0	.0	.0	.0
54	.0	.0	.0	.0	.0	.0
55	.0	.0	.0	.0	.0	.0
56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0			
66	.0	.0				

	13	14	15	16	17	18
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.852460E-06	.602758E+06	.675200E+08
6	.0	.605559E-07	-.0	-.533103E+07	.178814E-06	-.131724E+08
7	-.535172E+07	-.355402E+08	.223517E-07	-.111694E+09	-.107332E+08	-.357628E-06
8	.717363E-07	.931323E-03	-.885297E+08	-.124542E+12	.110912E+09	.237102E+07
9	.423516E-21	.639724E+07	.916822E+08	-.115853E+10	-.513102E+11	.121536E+08
10	.491353E-07	.299023E-36	-.918265E+08	.468564E+08	.829530E+07	-.597333E+11
11	-.363503E+06	.312376E+03	.357628E-06	.437440E+05	-.254312E+07	.289453E+08
12	-.553020E+05	.291627E+06	-.232831E-08	.437440E+05	-.437440E+05	.255676E+07
13	.163541E+08	.754037E+08	-.192085E-07	.113106E+08	-.831753E+08	-.444707E-06
14	.231627E+05	-.192085E-07	.181523E+08	.299187E+08	-.103053E+10	.383514E+06
15	-.232831E-08	-.113106E+03	.293187E+08	.259080E+12	.121840E+12	-.434180E+07
16	.437440E+05	-.437440E+05	-.831753E+08	-.103053E+10	-.434180E+07	-.124052E+12
17	-.254312E+07	.255676E+07	-.444707E-06	.383514E+06	.112694E+07	-.830177E+08
18	.283453E+08	.130385E-07	.0	-.178814E-06	.238419E-06	.119995E+08
19	-.751291E+07	-.398359E+03	.838190E-08	-.597539E+07	-.138902E+08	.178814E-06
20	.372529E-08	.745058E-04	-.759637E+07	.838294E+08	-.178766E+09	.899964E+07
21	-.0	-.238753E+03	-.976366E+08	-.125886E+12	-.515632E+11	.822633E+08
22	.0	-.417233E-06	-.765603E+08	-.773692E+09	-.145037E+08	-.606812E+11
23	.563468E+07	.303574E+09	-.208616E-06	.464361E+08	.0	.0
24	.356912E+08	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	.0	.0	.0	.0	.0	.0
39	.0	.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	.0	.0	.0	.0	.0	.0
42	.0	.0	.0	.0	.0	.0
43	.0	.0	.0	.0	.0	.0
44	-.0	-.0	.0	.0	.0	.0

36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	.0	.0	.0	.0	.0	.0
39	.0	.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	.0	.0	.0	.0	.0	.0
42	.0	.0	.0	.0	.0	.0
43	.0	.0	.0	.0	.0	.0
44	.0	.0	.0	.0	.0	.0
45	.0	.0	.0	.0	.0	.0
46	.0	.0	.0	.0	.0	.0
47	.0	.0	.0	.0	.0	.0
48	.0	.0	.0	.0	.0	.0
49	.0	.0	.0	.0	.0	.0
50	.0	.0	.0	.0	.0	.0
51	.0	.0	.0	.0	.0	.0
52	.0	.0	.0	.0	.0	.0
53	.0	.0	.0	.0	.0	.0
54	.0	.0	.0	.0	.0	.0
55	.0	.0	.0	.0	.0	.0
56	-.0	-.0	.0	.0	.0	.0
57	-.0	-.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	-.0	-.0	.0	.0	.0	.0
60	-.0			-.510494E+04	-.261894E+06	.144683E+08
61	-.187027E+07	.387179E+05	.823055E-01	.358539E+07	-.181561E+04	-.106797E+10
62	-.156902E+05	-.256023E+03	.291021E+00	-.722323E+08	.405186E+09	.376877E+01
63	.894353E-02	-.903687E-01	.975350E+07	-.625503E+11	-.289150E+10	.352425E+10
64	.514171E+05	.844891E+03	.637294E+08	-.461034E+10	.230462E+11	.477640E+08
65	-.61713E+07	.127355E+06	-.613046E+09	-.227569E+09	-.174523E+07	.678357E+11
66	-.122328E+08	.162501E+10	-.158610E+02			

	31	32	33	34	35	36
1	.0	-.0	-.0	.0	-.0	-.0
2	.0	.0	-.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0		.822741E-06	.300141E+08

21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	-.150063E+09	.190921E-05	.279397E-08	-.536442E-06	-.269260E+09	.201835E+09
38	.219792E-06	-.848972E+01	.223517E-07	.804965E+09	.506639E-06	.234030E+09
39	.232631E-08	-.372529E-01	-.202793E+08	-.272756E+09	.124778E+09	-.149012E-06
40	.178314E-06	.544330E+01	.189003E+09	-.237894E+12	-.116293E+10	-.156898E+11
41	-.223191E+09	.596046E-07	.255173E+09	.343208E+10	-.101473E+12	.300191E+10
42	-.133853E+09	-.311859E+01	.298023E-06	-.112324E+11	.145917E+09	-.803499E+08
43	.334685E+08	-.369222E+06	-.553923E+04	-.257350E+09	-.375930E+06	-.175516E+09
44	-.369222E+06	.182754E+01	.225307E+05	.935048E+08	-.106249E+09	-.136607E+07
45	-.558323E+04	.226307E+05	.473101E+08	.935048E+08	-.106249E+09	-.136607E+07
46	.182246E+07	-.257350E+01	.935048E+08	.566910E+12	.596835E+09	-.419989E+10
47	.145917E+09	-.375930E+06	-.106249E+09	.596835E+09	.214695E+12	-.456674E+10
48	-.803493E+08	-.175516E+01	-.136607E+07	-.419989E+10	-.456674E+10	-.220429E+12
49	-.143882E+09	.141829E+05	.558923E+04	-.196448E+07	.121713E+09	-.114633E+09
50	.141829E+05	-.378134E+01	-.226307E+05	-.547599E+09	.517946E+06	-.595406E+08
51	.558323E+04	-.226307E+05	.253200E+08	.185867E+09	.304134E+08	.136607E+07
52	-.159695E+07	-.304446E+01	-.273965E+09	-.315411E+12	.883779E+09	.207812E+11
53	.858372E+09	.509131E+06	.410532E+08	.420988E+09	-.934425E+11	.659680E+09
54	.150083E+09	.130946E+01	.130736E+07	.217117E+11	-.129808E+10	-.114634E+12
55	.0	.0	.0	.0	.0	.0
56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	49	50	51	52	53	54
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	-.0	.0	.0	.0	.0	.0
9	-.0	-.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	-.0	.0	.0	.0	.0	.0
12	-.0	-.0	.0	.0	.0	.0
13	-.408343E+07	-.291627E+06	.273337E-08	.603500E+06	-.854704E+07	.175008E+08
14	-.231627E+06	-.275480E+05	.373350E-09	.575753E+05	-.609500E+06	.169105E+07
15	.419095E-04	.174623E-01	-.171235E+07	.685224E+06	-.112410E+09	-.149012E-07

Aux d Elect. Bldg,
Upper Bound (2K)

3/6
SPEC'L
KNFL
=1235
X

(14)

MASS ORDER IN STARDYNE STIFFNESS MATRIX B

REARRANGED STIFFNESS MATRIX

	1	2	3	4	5	6
1	.101293E+09	.261874E+05	-.104774E-04	-.293303E+05	-.579305E+07	.452179E+08
2	.261874E+05	.300899E+08	.837463E-08	-.249617E+07	-.293303E+05	-.247769E+09
3	-.104774E-04	.837463E-08	.102254E+08	-.615923E+08	-.491376E+08	-.996049E-06
4	-.293303E+05	-.249617E+07	-.615923E+08	.102291E+12	-.370366E+09	-.178404E+10
5	-.579305E+07	-.293303E+05	-.491376E+08	-.370366E+09	.547303E+11	-.771175E+08
6	.452179E+08	-.247769E+09	-.996049E-06	-.178404E+08	-.771175E+08	.680280E+11
7	.642853E+07	.043810E-07	-.105879E-21	-.284529E-06	-.948517E+07	.509201E+08
8	-.104407E-06	.306863E+08	.611759E-07	-.249205E+07	-.387430E-06	.247897E+09
9	-.423615E-21	.149012E-07	.865145E+07	.645138E+08	-.194645E+08	.107288E-05
10	.162233E-06	-.742490E+08	-.950469E+08	-.101059E+12	-.205592E+09	.201692E+10
11	.139042E+08	-.110289E-05	.137570E+08	-.102544E+07	-.412514E+11	.118596E+09
12	.773874E+05	.978057E+05	.655651E-06	-.179347E+10	-.107495E+10	.661014E+11

56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	7	8	9	10	11	12
1	-.682850E+07	.100497E-06	-.423516E-21	.162233E-06	.159040E+00	.773874E+08
2	.983819E-07	-.390863E+08	-.149012E-07	-.342490E+08	-.119209E+05	.655651E-06
3	-.105879E-21	-.111759E-07	.865145E+07	-.101059E+12	-.102586E+09	.179347E+10
4	-.284829E-05	.249205E+07	-.194646E+08	-.220592E+09	-.412514E+11	.107495E+09
5	.949517E+07	-.387430E-06	-.194646E+08	.201692E+10	-.118596E+09	-.661014E+11
6	-.509201E+09	.247897E+09	.107288E-05	.639071E+05	-.142073E+08	-.449135E+08
7	.162545E+08	-.355040E+06	-.384171E-08	.278450E+08	.639071E+05	-.407830E+09
8	-.355040E+05	.746642E+08	.654835E-09	.813387E+07	-.139238E+08	-.225380E-06
9	-.384171E-09	.654836E-09	.192152E+08	.233693E+12	-.113972E+09	-.182960E+10
10	.639071E+05	.278450E+08	-.139238E+08	-.113972E+09	.110756E+12	.186085E+09
11	-.142073E+08	-.639071E+05	-.225380E-06	-.182960E+10	.186085E+09	.131191E+12
12	-.449135E+09	-.407830E+09	-.225380E-06	.491958E-07	-.963309E+06	-.553020E+08
13	-.535172E+07	.717959E-07	-.423516E-21	.491958E-07	.298023E-06	.312376E+09
14	.695559E-07	-.355402E+04	.931323E-09	.639724E+07	-.918265E+08	.357628E-06
15	-.0	.223517E-07	-.885297E+09	-.128542E+12	-.115853E+10	.468564E+08
16	.852460E-09	-.533103E+07	-.111694E+09	.110912E+09	-.513102E+11	.829530E+07
17	.802758E+06	.178914E-06	-.107332E+08	.237192E+07	.121535E+08	-.597333E+11
18	.675219E+08	-.131724E+08	-.357628E-06	.0	.0	.0
19	.0	.0	.0	.0	.0	.0
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21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
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26	.0	.0	.0	.0	.0	.0
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28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
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33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
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37	.0	.0	.0	.0	.0	.0
38	-.0	-.0	.0	.0	.0	.0
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40	.0	.0	.0	.0	.0	.0
41	-.0	.0	.0	.0	.0	.0
42	-.0	.355040E+06	.279397E-08	-.639071E+05	-.733365E+06	.228251E+09
43	-.407425E+07	.375819E+05	-.145519E-09	.678275E+04	.639871E+05	-.235193E+07
44	.355043E+05	-.375819E+05	-.171092E+07	-.156923E+07	.919932E+08	-.111759E-07
45	.372529E-09	-.232931E-07	-.651614E+07	-.120439E+09	-.719408E+09	-.940772E+06
46	.142016E+05	-.150723E+05	-.651614E+07	-.117509E+19	-.649034E+10	-.913123E+07
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48	-.695223E+07	.102545E+07	-.505360E-09	-.184761E+06	-.0	-.0
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4	.0	.0	.0	.0	.0	.0
5.	.0	.0	.0	.0	.0	.0
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4	.0	.0	.0	.0	.0	.0
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6	.0	.0	.0	.852460E-04	.802758E+06	.675200E+08
7	-.535172E+07	.605559E-07	-.0	-.533103E+07	.178814E-06	-.131724E+08
8	.717969E-07	-.355412E+08	.223517E-07	-.111694E+09	-.107332E+08	-.357628E-06
9	.423516E-21	.931323E-09	-.885297E+07	-.128542E+12	-.110912E+09	.237102E+07
10	.491959E-07	.639724E+07	.914822E+08	-.115853E+10	-.513102E+11	.121536E+08
11	-.963339E+06	.298023E-06	-.918265E+08	.468564E+08	.829530E+07	-.597333E+11
12	-.553023E+09	.312376E+09	.357628E-06	.437440E+05	-.254312E+07	.289453E+08
13	.159541E+10	.291627E+06	-.232831E-08	.113106E+08	-.437440E+05	.255676E+07
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15	-.232971E-09	-.192085E-07	.181523E+08	.259080E+12	-.103053E+10	.383514E+06
16	.437440E+05	.113116E+08	.299187E+08	-.103053E+10	.121849E+12	-.434180E+07
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18	.289453E+09	.255676E+07	-.444707E-06	-.178814E-06	.112694E+07	-.830177E+08
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23	.543469E+07	-.417233E-06	-.705603E+08	.464361E+08	-.145037E+08	-.606812E+11
24	.956912E+09	.309574E+09	-.208616E-06	.0	.0	.0
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 3   .372529E-08   .345608E-10  -.137393E+07  -.150642E+07  -.786555E+08  -.186265E-08
 4   .233303E+05   .411588E+04  -.292156E+07  -.144490E+09  -.880495E+08  -.267754E+08
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 6   .570227E+07  -.127836E+06   .325963E-08  -.443591E+06  -.197869E+08   .941885E+06
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11   .0            .0            .0            .0            .0            .0
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7	.0	.0	.0	.0	.0	.0
8	-.0	.0	.0	.0	.0	.0
9	-.0	-.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	-.0	.0	.0	.0	.0	.0
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13	-.408949E+07	-.291527E+05	.378350E-09	.575753E+05	-.609580E+05	.169105E+07
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15	.419935E-03	.174523E-09	-.175550E+07	-.829515E+09	.749234E+09	.253657E+06

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44	-.141829E+05	-.975194E+08	-.226307E+05	-.315411E+12	-.420988E+09	-.129808E+10
45	.558923E+04	-.226307E+05	-.253200E+08	.883779E+09	.934425E+11	-.114634E+12
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53	-.139812E+09	.100369E+06	.174222E+07	.494719E-05	.624517E+08	-.616300E+07
54	-.162112E+09	-.126474E+09	-.130736E+07	.886715E+08	-.506639E-05	-.119209E-06
55	-.149135E+09	.572763E-06	.232831E-08	.155068E+09	.696231E+08	.146259E+11
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57	.279397E-09	.130345E-07	-.152775E+09	-.204255E+09	-.975679E+11	-.112296E+12
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64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0		
66	.0					

	55	56	57	58	59	60
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.C	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0

47	-.0	.0	.0	.0	.0	.0
48	-.0	-.0	.0	.0	.0	.0
49	-.405949E+07	-.291627E+06	.419095E-08	-.437440E+05	.613424E+06	+.134476E+08
50	-.291627E+06	-.275490E+05	.174623E-09	-.413220E+04	.437440E+05	-.138392E+07
51	.279397E-09	.778356E-09	-.171295E+07	-.205450E+07	.107799E+09	.176951E-07
52	.609500E+06	.575753E+05	.686224E+06	-.828515E+08	.839883E+09	.289239E+07
53	-.554774E+07	-.589500E+06	-.112419E+09	.748234E+09	-.530688E+10	-.281055E+08
54	.175009E+08	.169105E+07	-.149012E-07	.253657E+06	-.262511E+07	.851943E+08
55	.0	-.0	-.0	.0	-.0	-.0
56	.0	.0	-.0	.0	.0	-.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	-.0	.0	-.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	19	20	21	22	23	24
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0
13	-.751291E+07	.372529E-08	-.0	.0	.563468E+07	.966912E+08
14	.130385E-07	-.398359E+08	.745058E-08	-.298769E+08	-.417233E-06	.309574E+09
15	.0	.838130E-08	-.758637E+07	-.976366E+08	-.705603E+08	-.208616E-06
16	-.179914E-06	-.597539E+07	.838294E+08	-.125886E+12	.779692E+09	.464361E+08
17	.112634E+07	.235419E-06	-.138902E+08	.78766E+09	-.515632E+11	-.145037E+08
18	-.830177E+08	.119995E+08	.178814E-06	.9964E+07	.622633E+06	-.606812E+11
19	.175054E+08	.369031E+06	.738775E+03	.3592E+37	-.191801E+08	-.136791E+08
20	.369031E+06	.838031E+09	.346833E+04	.6726E+08	-.138018E+07	-.323743E+08
21	.738775E+03	.346833E+04	.195966E+08	.12860E+07	-.147542E+09	-.124096E+05
22	.143512E+07	.746726E+08	.912860E+07	.269756E+12	-.149279E+10	-.498066E+09
23	-.191801E+08	-.138018E+07	-.147542E+09	-.149279E+10	.120598E+12	-.386976E+08
24	-.136791E+08	-.323743E+09	-.124086E+06	-.498066E+09	-.386976E+08	.139561E+12
25	-.454974E+07	-.345928E+05	-.738692E+03	-.122223E+07	.953683E+07	-.588380E+08
26	-.139031E+05	-.255134E+08	-.346809E+04	-.310247E+08	.120799E+07	.536723E+09
27	-.738767E+07	-.346842E+04	-.355563E+07	.491461E+08	-.175325E+09	.124089E+06
28	-.116133E+07	-.932846E+07	-.564259E+08	-.902523E+11	-.264725E+10	.402162E+09
29	.539699E+07	.107905E+07	-.197747E+09	.253782E+10	-.367263E+11	.411590E+08
30	.743637E+08	.631993E+09	.157263E+06	.102166E+10	-.195063E+09	-.378326E+11
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	.0	.0	.0	.0	.0	.0
39	.0	.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	.0	.0	.0	.0	.0	.0

.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
-.0	-.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
-.0	.0	.0	.0	.0	.0
-.187027E+07	.387179E+05	.928933E-01	-.510514E+04	-.261894E+06	.144683E+08
-.156904E+05	-.256023E+08	.251325E+00	.358539E+07	-.181946E+04	-.106797E+10
.790949E-02	-.903535E-01	-.975350E+07	-.722323E+08	.405186E+09	.376996E+01
.514219E+05	.544391E+08	.697294E+08	-.625503E+11	-.289150E+10	.352425E+10
-.617194E+07	.127355E+05	-.619046E+09	-.461034E+10	.230462E+11	.477640E+08
-.122928E+03	.162501E+10	-.158003E+02	-.227569E+09	-.174498E+07	.678357E+11

31	32	33	34	35	36
.0	-.0	-.0	.0	-.0	-.0
.0	.0	-.0	.0	.0	-.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	.0
.0	.0	.0	.0	.0	
.419455E+07	-.141367E-05	-.931723E-09	-.471569E-05	.899381E+06	.300141E+09

32	-.141957E-05	.185533E+09	-.215861E-07	-.848174E+07	-.312924E-06	-.242291E+09
33	-.931323E-09	-.215861E-07	.104860E+08	-.770724E+08	.137254E+08	-.193715E-06
34	.471557E-06	-.848174E+07	-.770724E+08	.157933E+12	-.100881E+09	.533018E+08
35	.898381E+06	-.312924E-06	.137254E+08	-.100881E+09	.590082E+11	.660310E+07
36	.330141E+09	-.242281E+09	-.193715E-05	.533018E+08	.660310E+07	.683279E+11
37	-.408355E+07	.142419E-05	.186265E-08	-.531173E-06	-.898381E+06	-.300141E+08
38	.139919E-05	-.385533E+08	.651926E-09	.848174E+07	.417233E-06	-.242281E+09
39	.186265E-08	.260770E-07	-.104860E+08	.770724E+08	-.137254E+08	-.238419E-06
40	.470263E-05	-.133790E+09	.148692E+09	-.156243E+12	-.194626E+09	.840715E+09
41	.141699E+09	-.506619E-05	.121335E+09	-.891811E+09	-.588281E+11	.104149E+09
42	.579047E+09	-.254286E+09	.596046E-07	.559429E+08	.127390E+08	.645611E+11
43	.0	.0	.0	.0	.0	.0
44	.0	.0	.0	.0	.0	.0
45	.0	.0	.0	.0	.0	.0
46	.0	.0	.0	.0	.0	.0
47	.0	.0	.0	.0	.0	.0
48	.0	.0	.0	.0	.0	.0
49	.0	.0	.0	.0	.0	.0
50	.0	.0	.0	.0	.0	.0
51	.0	.0	.0	.0	.0	.0
52	.0	.0	.0	.0	.0	.0
53	.0	.0	.0	.0	.0	.0
54	.0	.0	.0	.0	.0	.0
55	.0	.0	.0	.0	.0	.0
56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.C	.0	.0
63	.C	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

	37	38	39	40	41	42
1	-.329854E+07	-.261978E+05	-.232831E-09	-.908715E+05	.114390E+08	.511364E+07
2	-.261879E+05	-.367490E+04	.491127E-10	-.127519E+05	.908715E+05	.239066E+06
3	.372529E-09	.746608E-10	-.137393E+07	-.150642E+07	-.786555E+08	-.186265E-08
4	.293393E+05	.411588E+04	-.292156E+07	-.144490E+09	-.880495E+08	.267754E+06
5	-.369212E+07	-.293303E+05	.686021E+08	.154424E+09	-.604327E+10	.572728E+07
6	.570227E+07	-.127836E+06	.325963E-08	-.443591E+06	-.197869E+08	.941885E+06
7	.0	-.0	-.0	.0	-.0	-.0
8	.C	.0	-.0	.0	.0	-.0
9	.0	.0	.0	.C	.0	.0
10	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0
14	.C	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0
16	.0	.0	.C	.0	.0	.0
17	.C	.0	.0	.0	.0	.0
18	.C	.0	.C	.C	.0	.C
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.C
22	.0	.0	.C	.0	.0	.C
23	.0	.0	.0	.0	.0	.C
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.C
26	.C	.0	.0	.0	.0	.C
27	.0	.0	.0	.0	.0	.0

ATTACHMENT 3

Spectra are for a maximum horizontal ground acceleration of 12 percent of gravity.

COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

DESIGN RESPONSE SPECTRA
FOR HORIZONTAL SAFE
SHUTDOWN EARTHQUAKE

FIGURE   3.7B-1

Spectra are for a maximum vertical ground acceleration of 8 percent of gravity.

% OF DAMPING
2
5
7
10
15

PERIOD IN SECONDS

VELOCITY IN INCHES/SECOND

DISPLACEMENT IN.

ACCELERATION IN g.

FREQUENCY IN CYCLES/SECOND
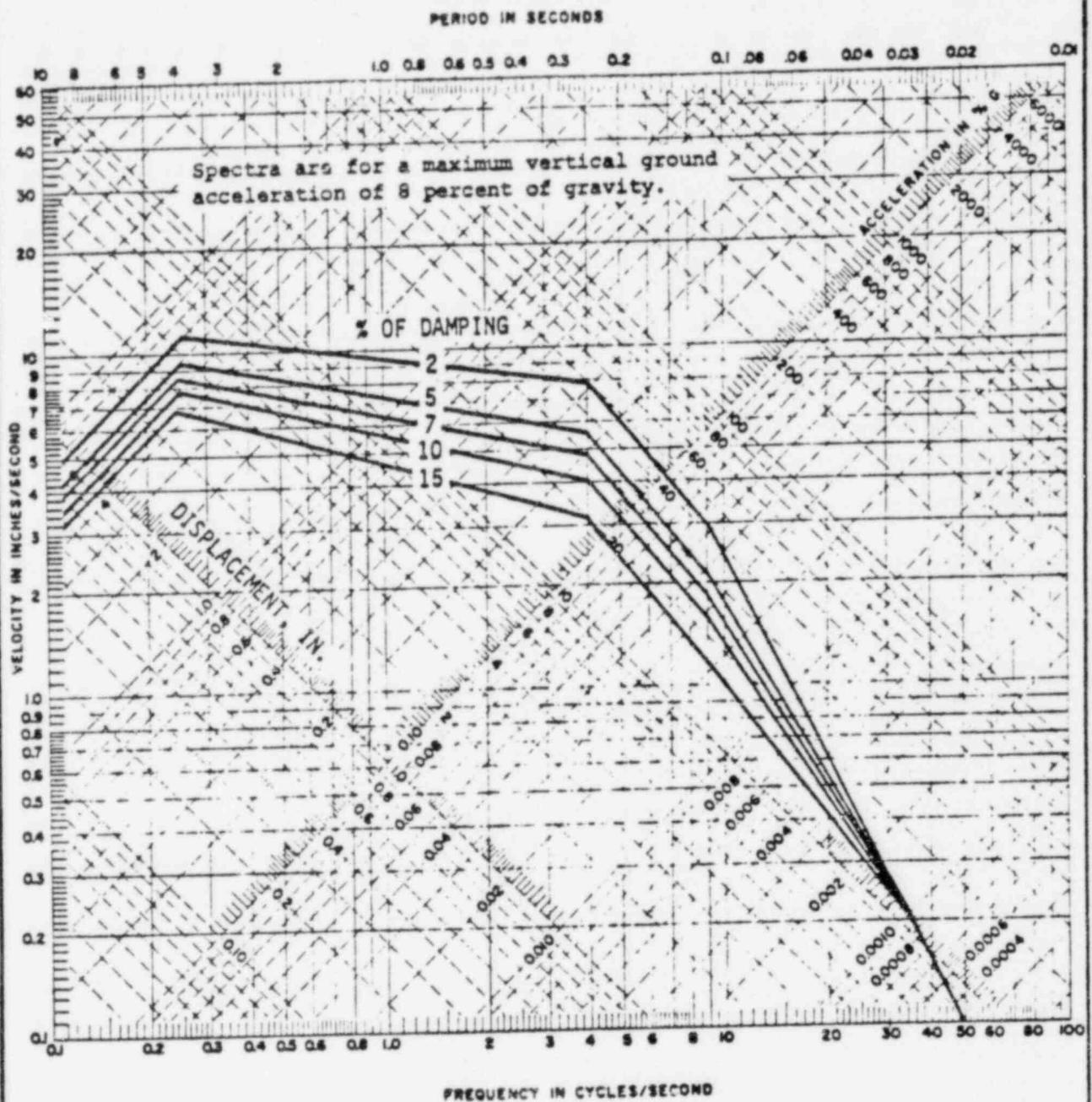
COMANCHE PEAK S.E.S.
FINAL SAFETY ANALYSIS REPORT
UNITS 1 and 2

DESIGN RESPONSE SPECTRA
FOR VERTICAL SAFE
SHUTDOWN EARTHQUAKE

FIGURE 3.7B-7

MATERIAL PROPERTIES

SOIL - Shear Modulus   = 9.53×10^4 KSF

Specific Weight   = 0.145 K/CFT

Damping (SSE & OBE) = 10% in translation
5% in rotation

CONCRETE - Damping   = 7% for SSE
4% for OBE

ATTACHMENT 4

QUESTION — INFORMATION TO BE USED FOR INDEPENDENT ANALYSIS CAT. I STRUCTURES

(General) Confirmatory, independent seismic/~~structural~~ analysis of the containment and the auxiliary building shall be performed by the NRC staff. Additional data to those presented in the FSAR are required. It is requested that the following data be forwarded to NRC for the structures mentioned above.

1. Lump mass models
2. Stiffness value for each member
3. Mass at each mode point
4. Spring constants used in the analysis
5. Seismic inputs
6. ~~Finite element models~~
7. Detail drawings
8. Material properties
9. ~~Actual loading applied to finite element models for all load combinations investigated~~
10. Soil properties in the area of containment and auxiliary building.

11. Some Results