
Piping Benchmark Problems for the Westinghouse AP600 Standardized Plant

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Prepared for
U.S. Nuclear Regulatory Commission

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Manuscript Completed: August 1996
Date Published: January 1997

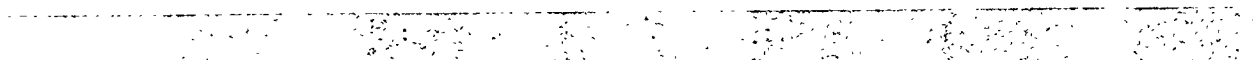
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NRC Job Code E2024



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ABSTRACT

To satisfy the need for verification of the computer programs and modeling techniques that will be used to perform the final piping analyses for the Westinghouse AP600 Standardized Plant, three benchmark problems were developed. The problems are representative piping systems subjected to representative dynamic loads with solutions developed using the methods being proposed for analysis for the AP600 standard design. It will be required that the combined license licensees demonstrate that their solutions to these problems are in agreement with the benchmark problem set.

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EXECUTIVE SUMMARY

The NRC staff has identified piping and pipe support design as one technical area where engineering information in sufficient detail can not be provided for the Westinghouse AP600 standard design to allow the staff to make a final safety decision under the rules of 10 CFR, Part 52. For this and similar areas the staff will use design acceptance criteria (DAC) verified by inspections, tests, analyses, and acceptance criteria (ITAAC) to enable the final safety determination. One element of the piping DAC requires the combined license (COL) licensee to verify the sufficiency of the computer codes and modeling techniques to be used to complete its piping stress analyses. To provide the basis for this verification, the staff developed an AP600 specific piping benchmark program. The COL licensee will be required to develop solutions to the benchmark problems and to demonstrate that those solutions meet the acceptance criteria specified in this benchmark program report.

The benchmark program consists of three piping problems involving two piping systems representative of the AP600. One system represents the Pressurizer Surge Line while the other represents the Main Steam Line Loop 2. The problems provide analytical benchmarks for three analysis methods, the uniform support motion response spectrum method, the independent support motion response spectrum method, and the modal superposition time history analysis method. Response of the pressurizer piping is developed using the response spectrum methods while the time history method is applied to the main steam line. In all analyses the excitation functions are representative for the AP600. This report presents the benchmark problems and includes all the information needed by the COL licensee to perform the analyses and evaluate the results. Acceptable analysis methods will estimate natural frequencies to within 2%, maximum pipe moments to within 5%, and support reactions and maximum displacements to within 10% of the benchmark results. A COL licensee having demonstrated this level of accuracy may use the benchmarked analysis method without further review. In instances where some deviations from the acceptance criteria occur, the results and justification for such deviations shall be documented and submitted to the staff for review and approval before initiating piping qualification analyses.

1.0 INTRODUCTION

1.1 Purpose

This report describes the NRC benchmark program for the verification of computer programs that will be used by combined license (COL) licensees to complete the design and analysis of piping systems in the Westinghouse AP600 Standardized Plant. It provides detailed descriptions of the benchmark problems including geometries, material properties, analytical methods, input loads and solutions. The report also provides the acceptance criteria which must be met to demonstrate that the COL licensee's solutions to the benchmark problems are acceptable to NRC.

1.2 Background

In reviewing the design certification application for the Westinghouse AP600 under the rules of 10 CFR Part 52, Reference 1, the NRC staff identified a number of technical areas in which the applicant did not provide design and engineering information in sufficient detail to make a final safety decision. One of these areas was piping and pipe support design where Westinghouse did not have the as-built or as-procured information to complete the final design. To resolve this issue, the staff developed an alternate approach using design acceptance criteria (DAC). The DAC are a set of prescribed limits, parameters, procedures, and attributes upon which the NRC relies in making a final safety determination to support a design certification. The DAC are objective (measurable, testable, or subject to analysis using pre-approved methods), and must be verified as a part of the inspections, tests, analyses, and acceptance criteria (ITAAC) used to demonstrate that the as-built facility conforms to the certified design. The combined license (COL) licensee will use the DAC to demonstrate conformance with the AP600 standard design during construction. This will enable the NRC staff to make a final safety determination through the review of the COL licensee's satisfactory implementation and verification of the ITAAC.

The NRC staff's evaluation of Westinghouse's proposed DAC approach for the AP600 piping design was documented in their final safety evaluation report. In that document the staff provided their evaluation of the Westinghouse certified design commitments and corresponding ITAAC for the AP600 piping design. One of these commitments was to verify the piping analysis modeling and the computer code to be used by the COL

licensee to complete its piping stress analysis. The COL licensee will verify the sufficiency of the computer code and modeling techniques in conjunction with the DAC. The NRC found this commitment acceptable provided that the computer program and the modeling techniques will be evaluated using the NRC benchmark program. The staff concluded that once the COL licensee successfully completes the DAC verifying that the piping benchmark results are within the acceptable range of values specified in the benchmark program, there is reasonable assurance that the computer code and analytical modeling techniques to be used to complete the AP600 piping design and analyses are adequate.

1.3 Benchmark Program Overview

The benchmark program requires the COL licensee to construct mathematical models and perform dynamic analyses of specified representative AP600 piping systems using his own computer program. When the analyses are completed, the COL licensee will compare his results to those of the benchmark problems given in this report to ensure that the results meet the range of acceptable values. Any deviations from these values, as well as, the justification for such deviations, shall be documented and submitted to the NRC staff for review and approval before initiating final certified piping analyses. This benchmarking will provide assurance that the computer program used to complete the AP600 piping design and analyses will produce results that are consistent with results considered acceptable to the NRC staff.

This report presents the benchmark problems and gives all information needed by the COL licensee to perform the analyses and evaluate the results. The Brookhaven National Laboratory (BNL), under contract with the NRC staff, developed these problems based on representative piping system design information provided by Westinghouse during the NRC technical review and evaluation of the AP600. The benchmark problems represent loop 2 of the main steam line and the pressurizer surge line. Although the piping benchmark problems are considered representative AP600 piping configurations they are not intended to be final designs. BNL constructed mathematical models of these two piping systems using the PSAFE2 piping analysis program.

This report provides a complete description of the input parameters for each problem including piping dimensions, material properties, weights, support stiffnesses and locations, load definitions and damping

Introduction

analysis method. The BNL solutions to each problem are presented in this report. Specific guidelines for comparing COL licensee results to these published results and acceptance criteria to be satisfied in order to demonstrate acceptability are also given.

2.0 PROJECT BACKGROUND

The PSAFE2 program is a full feature, elastic piping analysis code based on the finite element method. The program, a modified version of the general purpose computer program SAP IV, Reference 2, was developed by BNL to analyze piping systems subjected to both static and dynamic loading. Dynamic analysis capabilities include both response spectrum and time history analysis for systems subjected to either uniform or independent support motions.

The PSAFE2 program and its precursor EPIPE, Reference 3, have been extensively tested and verified against other piping programs and against physical test results. The programs have been applied to develop earlier NRC benchmark problem solutions to confirm the adequacy of programs used by nuclear power plant license applicants (References 4 and 5).

This report presents the solutions to piping benchmark problems with configurations that are representative of Westinghouse AP600 piping systems. The solution methods that were applied were not in their entirety included in earlier NRC benchmark studies. They include the uniform response spectrum method with high frequency mode responses, the independent support motion response spectrum method with high frequency mode responses, and the modal superposition time history analysis method. The following section provides a brief description of the analytical methods.

2.1 Mathematical Background

Since elastic piping analysis is a well established procedure, only a brief outline of the theoretical considerations used in obtaining the dynamic solutions will be presented. A more detailed description of the analysis methods and solution schemes is given in Reference 2.

The analysis of a piping system is carried out by use of the stiffness matrix method, in which the piping is represented by a network of basic elements, straight and curved beams, and one-dimensional elements interconnected at the nodes. The dynamic response of the network is described mathematically by the equation of motion:

$$M\ddot{u} + C\dot{u} + Ku = R(t)$$

where M is the mass matrix, C is the damping matrix, and K is the stiffness matrix of the element assemblage. The vectors u , $\dot{u}$, and $\ddot{u}$ are the nodal displacements, velocities, and accelerations, respectively. $R(t)$ can be a vector of time varying loads or of effective loads which result from ground motion. The PSAFE2 program can carry out time history or response spectrum analysis for the solution of this equation. A brief description of the methods used in these benchmark problem solutions is provided below.

2.1.1 Uniform Support Motion Response Spectrum Analysis

In the case of ground motion, if it is assumed that the piping system is uniformly subjected to the ground acceleration, $\ddot{u}_g$, the equations of motion can be expressed as follows:

$$M\ddot{u}_r + C\dot{u}_r + Ku_r = -M\ddot{u}_g$$

where u_r is the relative displacement of the system with respect to the ground, $u_r = u - u_g$.

The equations are then expanded in terms of the system modal matrix and generalized coordinates:

$$[M][\phi]\{\ddot{q}\} + [C][\phi]\{\dot{q}\} + [K][\phi]\{q\} = -[M]\{\ddot{u}_g\}$$

where:

$$[\phi] = \text{normalized modal matrix } [\phi]^T[M][\phi] = I$$

$$q = \text{generalized coordinates vector.}$$

Multiplication by the transpose of the modal matrix yields:

$$\{\ddot{q}\} + [\Delta]\{\dot{q}\} + [\omega^2]\{q\} = -[\phi]^T[M]\{\ddot{u}_g\}$$

where:

$$\begin{aligned} [\omega^2] &= \text{diagonal matrix of eigen-values} \\ [\Delta] &= \text{diagonal matrix of modal damping} \\ &\quad \text{coefficients, where the damping is} \\ &\quad \text{assumed to satisfy the modal} \\ &\quad \text{orthogonality condition. This results in} \\ &\quad \text{n uncoupled equations for the} \\ &\quad \text{generalized coordinates.} \end{aligned}$$

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The equation set can be solved for the maximum modal response for each system degree of freedom corresponding to excitation in each spatial direction as follows:

$$u_{m,n,i} = \frac{S_{n,i}}{\omega_n^2} \phi_{m,n} L_{n,i}$$

where:

$u_{m,n,i}$ = maximum displacement of mth degree of freedom in the nth mode due to excitation in the ith spatial direction

$S_{n,i}$ = value of spectral acceleration corresponding to frequency ω_n , and the ith spatial direction input response spectrum

$L_{n,i}$ = modal participation factor for nth mode and ith spatial direction

ω_n = nth system natural frequency

$\phi_{m,n}$ = modal deflection of degree of freedom m in nth mode

m = degree of freedom index

n = modal index

i = spatial index

For the final solution, the maximum modal responses are combined over the first n modes up to the cutoff frequency (the lower frequency nodes) at which the spectral acceleration roughly returns to the zero period acceleration (ZPA). For the benchmark problems given in this report, the modal combinations were performed in accordance with the grouping method as described in Section 1.2.1 of Regulatory Guide 1.92, Reference 6.

In some piping systems the responses of modes above the cutoff frequency (the high frequency modes) may have a significant effect on the total response, especially on support reactions. In order to ensure that these high frequency mode effects are accounted for, an additional calculational procedure based on the methodology described in Appendix A to Section 3.7.2 of the Standard Review Plan, Reference 7, was implemented. This procedure is as follows:

For each degree of freedom (DOF) included in the dynamic analysis, the fraction of DOF mass, d_i , included in the summation of all of the modes up to the cutoff frequency was calculated for each DOF as follows:

$$d_i = \sum_{n=1}^N L_n \times \phi_{n,i}$$

where:

n is order of the mode under consideration,
N is the number of modes included in Step 1,
 $\phi_{n,i}$ is the nth natural mode of the system, and
 L_n is the participation factor given by:

$$L_n = \frac{\{\phi_n\}^T \{1\}}{\{\phi_n\}^T [M] \{\phi_n\}}$$

The fraction of DOF mass not included in the summation of these modes, e_i , was then calculated as:

$$e_i = d_i - \delta_{ij}$$

where δ_{ij} is the Kronecker delta, which is one if DOF i is in the direction of the earthquake motion and zero if DOF i is a rotation or not in the direction of the earthquake input motion.

Since higher modes can be assumed to respond in phase with the ZPA and thus, with each other, these modes should be combined algebraically. This is equivalent to pseudostatic response to the inertial forces from these higher modes excited at the ZPA. These pseudostatic inertial forces for all higher modes for each DOF i are given by:

$$P_i = ZPA \times M_i \times e_i$$

where:

P_i is the force or moment to be applied to DOF i.

M_i is the mass or mass moment of inertia associated with DOF i.

In order to determine the maximum responses associated with the high frequency modes, a static analysis is performed by applying this set of pseudostatic inertial forces to all of the degrees of freedom in the

model. The total high frequency mode responses are then combined by the square-root-of-sum-of-squares method

with the total combined response from the lower-frequency modes to determine the overall piping system peak responses.

2.1.2 Independent Support Motion Response Spectrum Analysis

For a piping system that is supported at multiple locations that are subjected to different seismic motions, the independent support motion (ISM) response spectrum method of analysis may provide more realistic results. The governing equations of motion for this type of analysis may be expressed as follows:

$$\begin{bmatrix} M_P & 0 \\ 0 & 0 \end{bmatrix} \begin{bmatrix} \ddot{X} \\ \ddot{Z} \end{bmatrix} + \begin{bmatrix} C_P & C_{PB} \\ C_{BP} & C_B \end{bmatrix} \begin{bmatrix} \dot{X} \\ \dot{Z} \end{bmatrix} + \begin{bmatrix} K_P & K_{PB} \\ K_{BP} & K_B \end{bmatrix} \begin{bmatrix} X \\ Z \end{bmatrix} = \begin{bmatrix} 0 \\ F_B \end{bmatrix}$$

where:

- M_P = Pipe mass matrix
- C_P = Pipe damping matrix
- K_P = Pipe stiffness matrix
- C_B = Support damping matrix
- K_B = Support stiffness matrix
- C_{PB} or C_{BP} = Pipe support coupling damping matrix
- K_{PB} or K_{BP} = Pipe support coupling stiffness matrix
- F_B = Support force vector
- X = Pipe response vector
- Z = Support response vector

The above equation assumes that no masses are being placed at the ends of the supports where they connect to the ground and that all the external forces on the piping system are being transmitted through the supports.

The piping system response can be separated into two components, one due to the inertia or dynamic effects of pipe masses (X_D) and the other, termed the pseudo-static response, due to the differential motions of the support points (X_S). Hence,

$$X = X_D + X_S$$

After substituting these response components into the above equation of motion and neglecting the

support damping effects, the governing equations for the two response components can be written as follows:

For inertia or dynamic response:

$$M_P \ddot{X}_D + C_P \dot{X}_D + K_P X_D = M_P K_P^{-1} K_{PB} \ddot{Z}$$

$$K_{BP} X_D = F_{BD}$$

For pseudostatic response:

$$K_P X_S + K_{PB} Z = 0$$

$$K_{PB} X_S + K_B Z = F_{BS}$$

In each case, the upper equation governs the motion and the lower equation defines the support reaction forces. The equation for inertia response is identical to the conventional structural dynamic equation except that the modal participation factors derived from it differ from those derived for uniform support motion.

The inertia component of response is obtained by using the modal solution approach:

$$\text{Let } X_D = \phi q$$

where ϕ = modal matrix
 q = modal response vector

The modal equation for dynamic response reduces to:

$$\ddot{q} + 2\xi\omega \dot{q} + \omega^2 q = \phi^T M_P K_P^{-1} K_{PB} \ddot{Z}$$

In component form it can be rewritten as:

$$\ddot{q}_{ij}^k + 2\xi_i \omega_i \dot{q}_{ij}^k + \omega_i^2 q_{ij}^k = L_{ij}^k \ddot{Z}_j^k$$

where:

- ξ_i = modal damping coefficient
- ω_i = modal frequency
- i = 1, 2, ...NF
- j = 1, 2, 3, (corresponding to the three spatial directions)
- k = 1, 2, ...NG

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Here NF and NG correspond to the number of frequencies and number of support points, or support groups, in the piping system. Thus, there exists one individual set of modal equations for each support group.

The modified modal participation factors are given as:

$$L = \Phi^T M_p K_p^{-1} K_{PB}$$

To determine the modified modal participation factors it is necessary to invert the stiffness matrix K_p . One approach to obtain this from the available modal solutions is to use the properties of the stiffness matrix with the modal frequencies and their mode shapes. That is using the relations,

$$\Phi^T K_p \Phi = \omega^2$$

and taking the inverse on both sides one derives

$$K_p^{-1} = \Phi (\omega^2)^{-1} \Phi^T$$

Using this relation the equation for the modal participation factors can be expressed as:

$$L_{ij}^k = \sum_{s=1}^n \frac{\Phi_{is} (K_{PB})_{sj}^k}{\omega_i^2}$$

where n = number of equations representing the piping model. This equation can be used to evaluate the participation factors, without any loss of generality, from the modal solutions, even if the actual modal solution has been truncated to a finite number of modes.

The response spectra values $S_j^k(\omega_i)$ at frequency ω_i , for the k th group, in the j th direction of excitation, are obtained by solving the equation for a single degree of freedom system subjected to an acceleration of $Z_j(k)$, using the Duhamel integral, and is given by:

$$S_j^k(\omega_i) = \left| \frac{1}{\omega_i \sqrt{1 - \xi_i^2}} \int_0^t \ddot{Z}_j^k(\tau) e^{-\xi_i \omega_i (t-\tau)} d\tau \right|_{\max}$$

where:

$$A = \sin \sqrt{1 - \xi_i^2} \omega_i (t - \tau) d\tau$$

This represents the peak possible modal response obtained by multiplying response spectra value by the corresponding modal participation factor L_{ij}^k providing:

$$(q_{ij}^k)_{\max} = L_{ij}^k S_j^k(\omega_i)$$

It should be noted that during the solution process the phasing between the individual support excitations is lost and only the peak responses due to each support excitation is obtained from the above equation. Thus, a set of modal solution vectors is obtained for each support excitation in each spatial direction. Other parameters, such as pipe displacements, accelerations, pipe forces or moments and the support forces, are obtained from these modal responses. Again, as with the uniform response spectrum method, the maximum modal responses are only obtained for the first m modes up to the cutoff frequency.

To obtain the final inertial response it is necessary to combine the group modal responses, make corrections to account for modes above the cutoff frequency, combine between group responses and combine overall directional inputs. Although various methods and sequences for performing these combinations are possible, the following specific and acceptable methodology was followed in the benchmark solutions. The combination over directions is performed first using the SRSS method. This is followed by the combination of group modal responses performed in accordance with the grouping method as described in Regulatory Guide 1.92. The resulting group responses are next combined using the SRSS method to provide the combined modal response for all flexible modes. In separate calculations, the contribution of high frequency modes for each group are computed in accordance with the method described in the section above. These group rigid mode contributions are then combined by the SRSS method to provide the combined rigid mode response. Next, the flexible mode response is combined with the rigid mode response by the SRSS method to provide the total inertial response. Finally, in the general case a further combination would be made between the inertial response and the seismic anchor movement response to provide an estimate of total response.

2.1.3 Modal Superposition Time History Analysis

The time history response of a piping system subjected to a known forcing function can be obtained by the modal superposition method. This procedure requires the solution of the generalized eigenvalue problem to determine the frequencies and mode shapes of the system. It uses the same modal transformation procedures described above for the response spectrum method. The general equations of motion in matrix form are expressed as follows:

$$[M]\{\ddot{u}\} + [C]\{\dot{u}\} + [K]\{u\} = \{R(t)\}$$

Applying the transformation:

$$\{u\} = [\phi]\{q\}$$

The equations can be expressed in terms of the generalized modal coordinates:

$$[M][\phi]\{\ddot{q}\} + [c][\phi]\{\dot{q}\} + [K][\phi]\{q\} = \{R(t)\}$$

Multiplication by the transpose of the modal matrix and application of the modal orthogonality assumptions yields the following set of equations:

$$\{\ddot{q}\} + [\Delta]\{\dot{q}\} + [\omega^2]\{q\} = [\phi]^T\{R(t)\}$$

This set of decoupled differential equations is solved numerically for a sufficient number of modes needed to adequately characterize the dynamic response of the piping system. In selecting the integration time step and the number of modes, the dynamic characteristics of the system as well as the forcing function must be considered. The PSAFE2 program uses the Wilson Θ numerical integration method which is an unconditionally stable step-by-step integration scheme. Finally, the modal responses are converted back to geometric coordinates u and combined algebraically at each time step to provide the total response of the piping system as a function of time.

2.2 Input-Output Format

To facilitate proper use of the enclosed data a brief summary of the PSAFE2 input-output data lists will be presented. For a basic description of element properties, coordinates, etc., reference can be made to the earlier benchmark reports, References 4, 5, and 8.

The first page of each problem shows a table listing the significant parameters for the problem and the analysis options activated for the analysis. The number of element types is the number of boundary-spring element and pipe element groups used to define the model. The number of frequencies is the number of frequencies solved for in the eigen value routine and used in the subsequent response spectrum analyses. The interpretation of the various option flags is obvious, although not all of the options are used in the benchmark problems.

The next pages show the nodal point list. The column labeled old node is the label assigned the nodal point in the finite element model. The column labeled new mode is the sequential label assigned to the node within the program and used in all program algorithms. The boundary condition codes define the constraints imposed at the node, a "1" signifying that the degree of freedom is completely restrained while "0" or ("-0") signifies complete freedom. As indicated, each mode potentially has six degrees of freedom, "X" signifying displacement in the X global direction and "XX" signifying rotation about the X global axis. The following nodal coordinates define the location of the node in the global coordinate system and are in inches. The last column designated "T" is the nodal temperature.

The next blocks of input information are the input element data lists. Since the system may be subdivided into groups of elements this data is entered group by group. The possible element types are spring elements, anchor movement elements, snubber elements, and pipe (either tangent or bend) elements. A single group is comprised of all pipe elements or all spring elements as intermixing element types within a group is not allowed.

For a typical pipe element group, the first page lists control information for the group, i.e., type of element, number of elements, etc. This is followed by a material properties table where on each line of this table are specified, the material identification number, the temperature for which the data applies and the corresponding modulus of elasticity, Poisson's ratio and coefficient of thermal expansion. For cases where the variation of material properties with temperature are considered, the element temperature is the average of its bounding nodal temperatures and a linear variation of the input material properties data with temperature is assumed. Following this is the section properties table where all data entries are clearly labeled. Next, if appropriate, is a branch point list specifying the nodes where pipe runs intersect, followed on the same page by entries entitled, "Load Case Multipliers." These only

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apply to static analysis runs and may be ignored herein. The last and largest list in the group data is the element definition and connectivity table. Again, the columns in this table are clearly labeled. For the bend elements, two lines are shown. The pressure indicated on the first line is the value of pressure used in computation of the bend flexibility. The entries on the second lines are the bend radius, third point declarer and the X, Y, Z coordinates of the third point. If the third point declarer is "TI" the coordinates of the bend tangent intercept are listed, if "CC," the coordinates of the bend center of curvature are listed. The columns entitled direction cosines, wall fraction and input tag may be ignored.

The group data list for boundary or spring elements is somewhat simpler. There is the element control information followed by element load case multipliers which again may be ignored. The element definition and connectivity list follows and is clearly labeled. The interpretation of the pertinent information in this table is as follows: support group number NG designates the excitation group to which the spring belongs; code KD and KR are spring type declarers where KD=1 signifies a linear spring while KR=1 signifies a rotational spring. The direction cosines listed define the line direction along or about which the spring acts in relation to the global axis. The specified displacement - rotation columns relate to imposed displacements and can be ignored. The last column lists the element spring rate in lb. per inch or inch lb. per radian.

The next table of input is labeled nodal loads. For the dynamic cases the table is a listing of all the concentrated masses, and the nodes at which they are located, acting on the system. A complete absence of this table indicates that there are no concentrated loads. The total mass used in each analysis is the sum of these quantities plus any distributed mass developed in the pipe elements. Distributed mass is developed in the pipe elements only if quantities appear in the columns entitled weight/unit length - mass/unit length in the pipe element section property tables.

The remaining input data describes the input response spectra or the time history forcing function, if appropriate. For the response spectrum cases the input spectra appear immediately after the output list of frequencies and modal participation factors. If the case is independent support motion, the output participation factors and the listed spectra are for the specific support group. This data includes the direction weighting factors, a descriptive title and a

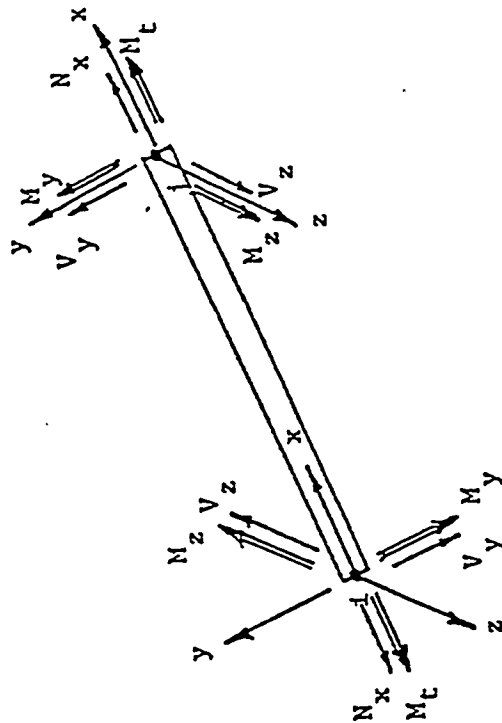
table of the spectrum values given in "g's". If only one spectrum is provided it applies to all three directions as modified by the weighting factors. If two spectra are provided, the first applied only to the X direction while the second applies to the Y and Z directions. Intermediate values between data points are obtained by linear interpolation.

For a modal superposition time history case, the definition of the time history forcing functions follows after the output list of frequencies. This data is input by support groups and includes first a summary of control information specifying forcing function number, type and size, analysis time step, phasing (controlled by arrival times), duration and modal damping information (applies to all modes), and output print interval. This is followed by forcing function type, direction and arrival time declarers followed by the detailed definition of the forcing functions. The forcing function record is digitized and includes a listing of the time and corresponding function value for each point of the function definition and is preceded by scale factor, function number and heading information. The function value for intermediate times is derived by linear interpolation. Regarding arrival times, an arrival time of 0.0 connotes forcing function application at time equal to 0.0. This information is provided sequentially for each support group in the system and acts simultaneously on all supports within a group.

The output provides listings of all the pertinent results. For the response spectrum solutions these include the system natural frequencies, modal participation factors, global displacements/rotations of all nodal points and element forces/moments for all elements based on the sign convention shown in Figure 1. The displacement and force results are provided first for the lower frequency modes (amplified response), then for the higher frequency modes (rigid response), and lastly for the final results corresponding to SRSS combination of the response due to the lower frequency modes with the response due to the higher frequency modes. For the rigid response, the contribution to response for excitation in each of the coordinate directions is, in fact, provided. These are labeled load cases 1, 2 and 3 corresponding to excitation in the X, Y, and Z directions respectively. These results are developed by static analyses and are combined by SRSS before combination with the amplified response. In effect, the rigid response is treated as an additional mode and summed with the other, lower frequency modes.

The time history output is simpler. It consists of three tables of maxima listed with their corresponding

Straight Pipe Element



Where V_y, V_z = Shear Forces
 N_x = Normal Force
 M_y, M_z = Bending Moment
 M_t = Torsion Moment

Bend Pipe Element

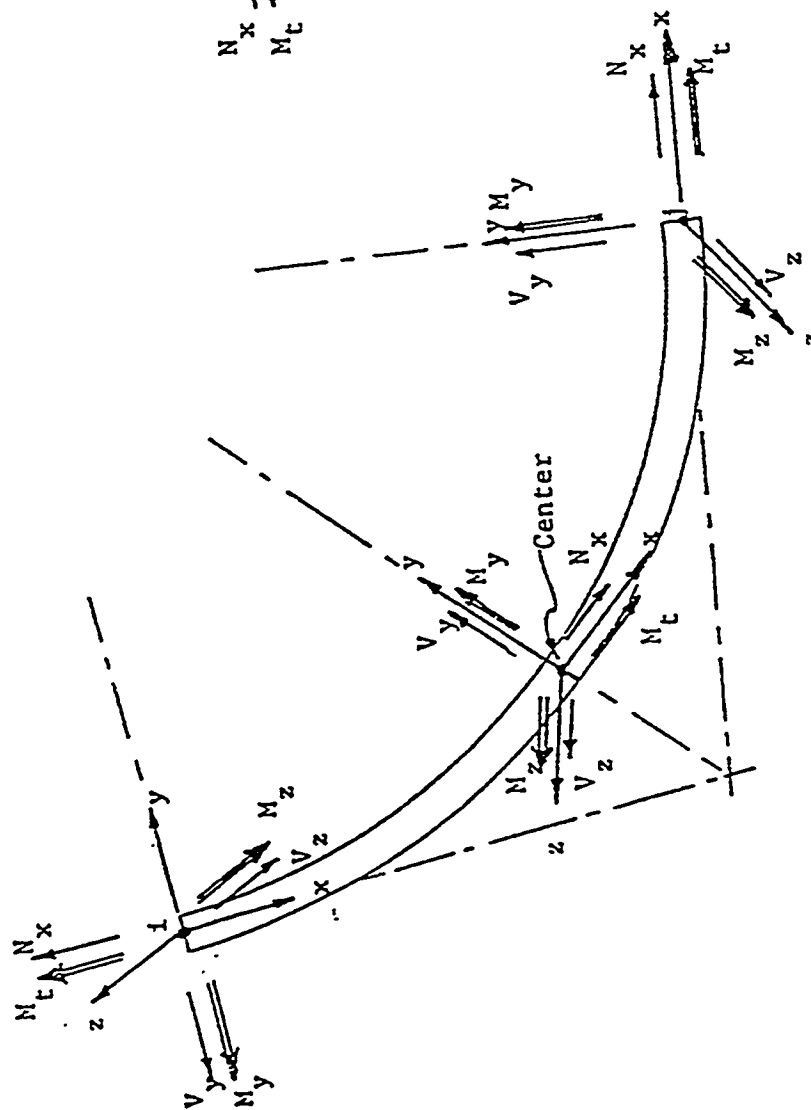


FIGURE 1 - SIGN CONVENTION FOR FORCES AND MOMENTS

Project Background

time at maxima. The first table is for nodal displacements with six displacement components for each node. The displacement component declarers have the following interpretation: 1, 2, and 3 are the translations of the node in the X, Y, and Z directions respectively while 4, 5, and 6 are the rotations of the node about the X, Y, and Z axis respectively. The next table provides the spring/boundary element force (labeled stress) maxima. A component declarer equal to one in this table indicates a force while the declarer equal to two indicates a moment. The last table provides the maxima for pipe element force components (labeled stress). For each element twelve components of force are listed; the first six corresponding to the i and the remaining six to the j end. The component declarers in this table have the following interpretations: 1, 2, and 3 / 7, 8, and 9 are the i end / j end forces in the element X, Y, and Z axes respectively while 4, 5, and 6 / 10, 11, and 12 are the i end / j end moments about the element X, Y, and Z axis respectively.

3.0 DESCRIPTION OF PIPING BENCHMARK PROBLEMS

For the AP600 Standardized Plant three piping benchmark problems involving two representative piping systems were developed. The first piping system represents the pressurizer surge line while the second represents loop 2 of the main steam line. Both these systems are segments of piping extracted from the very extensive piping model used by Westinghouse to analyze the AP600 piping. The systems were selected as sample analyses to demonstrate the analysis methodology proposed for design analysis of piping in the AP600. The solutions represent analytical benchmarks for three analysis methods, the uniform support motion response spectrum method, the independent support motion response spectrum method and the modal superposition time history analysis method. Each of these methods is proposed for use in the design of piping in the AP600 and were demonstrated in the sample analyses. The COL licensee having demonstrated that the results he develops for these problems are in agreement with the benchmark results will be entitled to use these methods in design analysis.

The computational options used in the benchmarks are considered acceptable. For the response spectrum method clustering between closely spaced modes in accordance with the grouping method as described in Section 1.2.1 of Regulatory Guide 1.92 and additions to account for high frequency modes per SRP 3.7.2 Appendix A, must be made. Interspatial and, for the independent support motion response spectrum method, intergroup combinations may be made using the SRSS method. Any sequence in performing the combinations is acceptable.

For the response spectrum benchmarks the interspatial combination was performed first using the SRSS combination method. Next the combination over modes was performed using the grouping method with the contribution for high frequency modes being considered an additional mode. Lastly, the combination between groups was performed, if appropriate, again using the SRSS combination method.

No definition of acceptable combination procedures are required for the time history method. Instead, good practice would require that the time step used be sufficiently small to provide good estimates of system response. One tenth the smallest period of interest is a recognized rule for time step size. In any

case, having selected a time step, its adequacy should be demonstrated by showing that a reduction of time step size by a factor of two does not change the predicted response by more than 10%. This sensitivity to time step check was made in the time history benchmark. For the modal superposition method a check to assure that a sufficient number of modes has been used to ensure participation of all significant modes must be made. The criterion for this check is specified in SRP 3.7.2 and requires that the inclusion of additional modes do not result in more than a 10% increase in response.

The listing of the output results for each problem is relatively complete. The greatest omission is the deletion of the predicted mode shape information. The inclusion of this data would have resulted in a five fold increase in the size of this report. Further omissions are the calculations for high frequency effects. These are simple static analyses which can be performed various ways. A full description of the format of the output is provided in the preceding section.

3.1 Benchmark Problem 1

The first AP600 piping benchmark is a uniform support motion response spectrum solution for the pressurizer surge line subjected to safe shutdown seismic loads. The piping system, shown in Figure 2, extends in a spiral fashion from a nozzle on the hot leg, at steam generator 1, to the pressurizer nozzle. It consists of 18 inch (46 cm) diameter schedule 160, ASME SA 376, 316 LN stainless steel piping. It is restrained by the two nozzle connections, a rigid and snubber support in the horizontal directions and one snubber in the vertical direction. It is supported against dead weight in the vertical direction by several spring hangers. There are no valves or pipe mounted equipment on the line. The nominal temperature and pressure for the line are 653°F (345°C) and 2485 psig (17134 k Pa).

The finite element model for the system is shown in Figure 3 (numbering corresponds to new node numbers). It consists of 69 pipe elements and 70 nodes. Anchors exist at node 7090 (new node number 1), the hot leg connection, and node 3250(70), the pressurizer nozzle. Snubbers exist at node 3035(15) and node 3083(32), with that at 3035 acting in the vertical direction and that at 3083 acting in a horizontal direction. Spring restraints exist at nodes 3047, 3116 and 3210 (20, 45 and 57), with the restraints at node 3210 acting in both the vertical and a horizontal

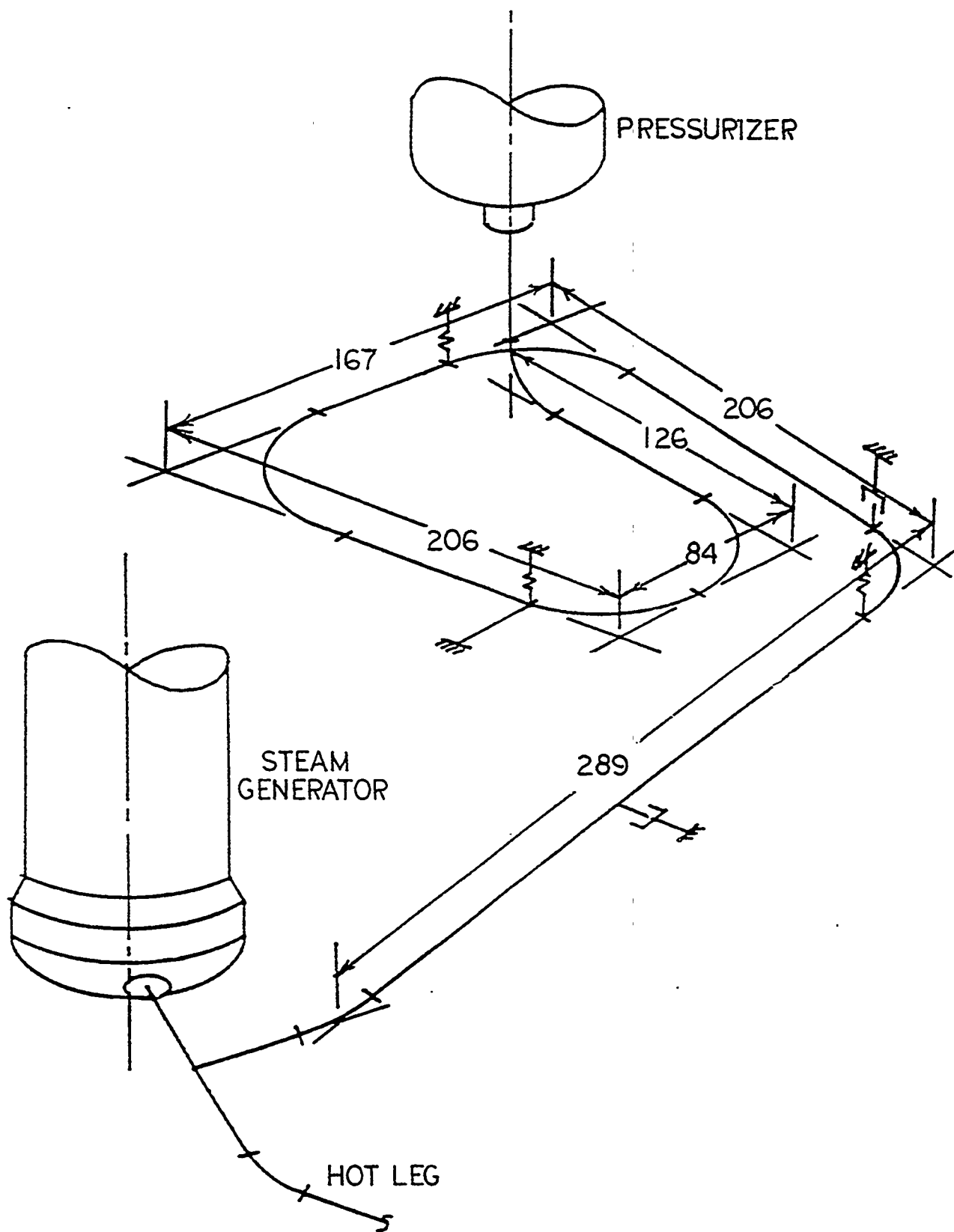


FIGURE 2 - PRESSURIZER SURGE LINE

AP600 PRESSURIZER SURGE LINE BENCHMARK ANALYSIS - SAP PLOT

UNDEFORMED SHAPE

IAxis= 3 ALPHA= 30.00 BETA= 240.00

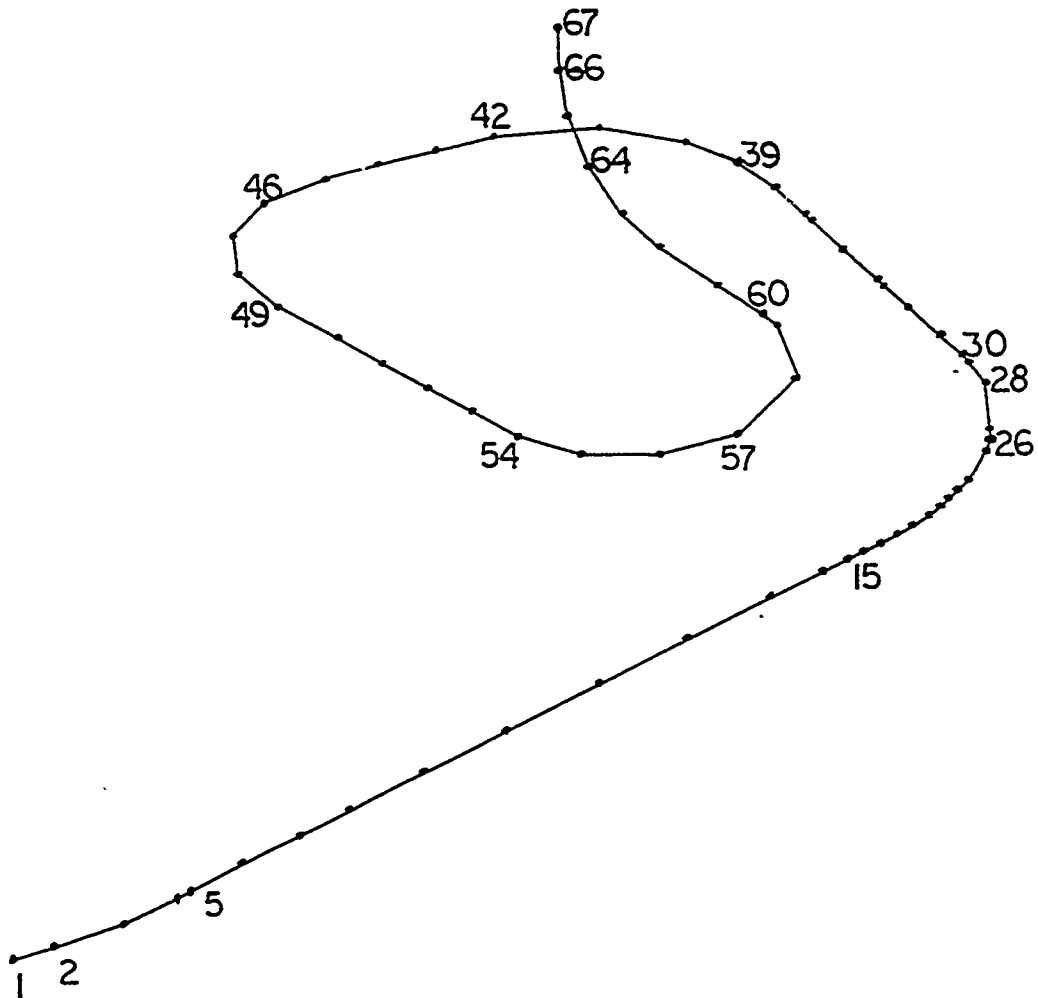
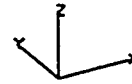


FIGURE 3 - PRESSURIZER SURGE LINE ISOMETRIC

Description of Piping Benchmark Problems

directions while those at 3047 and 3116 act only in the vertical direction. In the analyses the anchors are modeled as stiff springs ($K = 1E + 11$ lb/in. in translation and $K = 1E + 13$ in.-lb./rad in rotation) in the six degree of freedom directions. The snubbers and restraints are modeled as linear springs with stiffnesses consistent with their properties. All parameters relating to the model were taken consistent with the Westinghouse data and are specified in the included computer input listing.

In the analysis a cutoff frequency of 60 Hz was used. A listing of the first 10 natural frequencies for this problem are presented in Table 1. Computer generated isometrics of the first four modes are shown in Figure 4. The loading was the envelope SSE spectra in the three coordinate directions based on ASME Code Case N411 damping. A digitization of the spectra is included in the input listing. Clustering between closely spaced modes by the grouping method and additions to account for the contribution of high frequency modes, were made. In the calculation, SRSS interspatial combination was performed first, followed by combination with clustering between the low frequency or amplified modes, followed by SRSS combination with the contribution from high frequency modes to provide the total response. Listings of the low frequency, high frequency and total responses are presented in the output listings.

3.2 Benchmark Problem 2

The second AP600 piping benchmark is an independent support motion response spectrum solution for the pressurizer surge line subjected to safe shutdown seismic loads. The piping and finite element model are identical to those used in the preceding benchmark, and Figures 2, 3, and 4 should be referred to. This apparent second seismic evaluation of the surge line is provided to benchmark the independent support motion methodology. The seismic design analysis for the pressurizer surge line will be based on the envelope response spectrum method as per the preceding benchmark. However, since the independent support motion response spectrum method is an analysis option for the design of piping in the AP600 plant, a sample analysis of the surge line, based on the method, was developed and adopted as a benchmark.

In the analysis, the supports were segregated into three support groups. The first group includes all the interim supports on the line, the second group is the nozzle on the hot leg, and the last group is the nozzle on the pressurizer. The cut-off frequency was again 60

Hz. For this evaluation, however, the input spectra corresponds to 5% uniform damping. In the analysis, the modal and interspatial combinations were identical to those used in the preceding benchmark. Further, the summation between group responses is made last using SRSS combination to provide total response.

Results for this problem are provided at both the group level and the combined level. The group level results include the support group modal participation factors and group response components. These data are provided for information. The actual benchmark comparisons should be made to the combined results provided in the benchmark solutions.

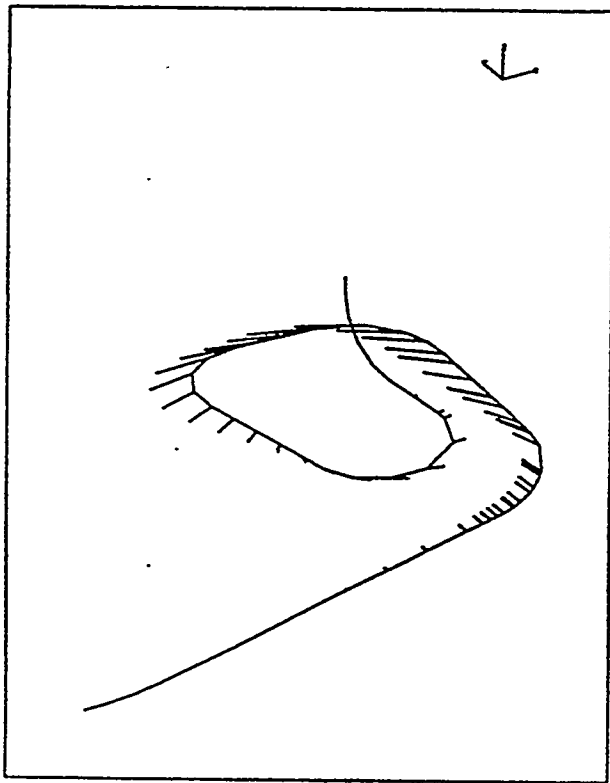
3.3 Benchmark Problem 3

The third AP600 benchmark is a time history solution for the main steam loop 2 piping subjected to the transient loading induced by a pipe line break. The line, shown in Figure 5, extends from the steam generator nozzle, through a containment penetration, to an anchor at the auxiliary building. It consists of a 32 inch (81.5 cm) diameter by 1.44 inch (3.7 cm) wall, main line of ASME SA-333 Grade 6 carbon steel and three 8 inch sch 160 relief valve branch lines of ASME SA-508 Class 3 carbon steel. The line is restrained and supported in the horizontal and vertical directions with seven restraints and two snubbers. It is anchored at the auxiliary building and the steam generator nozzle is also considered an anchor. As noted, the line passes through a containment penetration and includes one inline valve. The design temperature and pressure for the line are 520°F (271°C) and 798 psig (5498 k Pa), respectively.

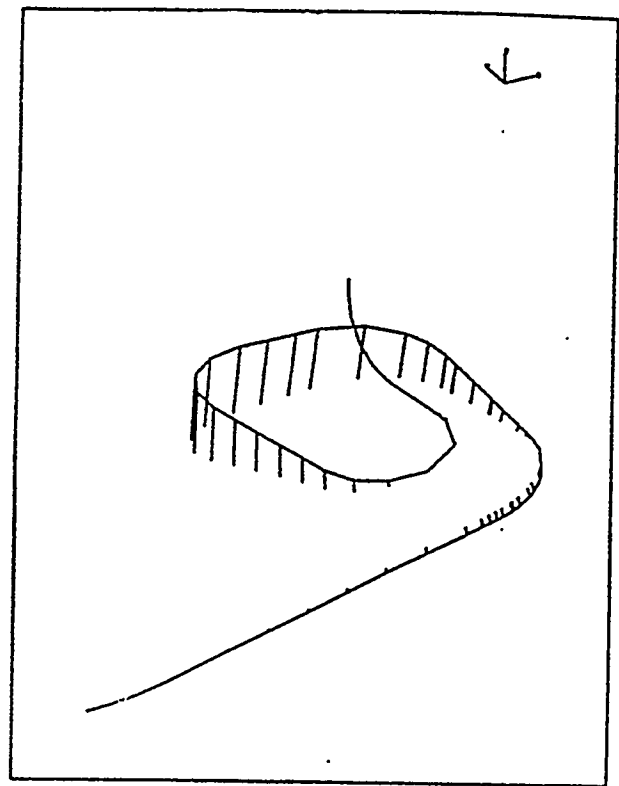
The finite element model for the system is shown in Figure 6. It consists of 95 pipe elements and 96 nodes. Anchors exist at node 101 (1), the steam generator nozzle, and node 340 (50), a true anchor at the auxiliary building. A snubber acting in the horizontal directions exists at node 6020 (11) while the second snubber, acting in the vertical direction, exists at node 6050 (18). Restraints exist at nodes 6020 (11), 6040 (14), 6070 (23), 6090 (29), 239 (36) and 261 (40) with the first four acting in the horizontal directions and the last three acting in the vertical direction. In the analyses the anchors are again modeled as stiff springs in the six degree of freedom directions. The restraints and snubbers are likewise modeled as linear springs with stiffnesses consistent with their properties. The in line valve body is modeled with triple wall thickness

TABLE 1**PRESSURIZER SURGE LINE MODAL ANALYSIS RESULTS**

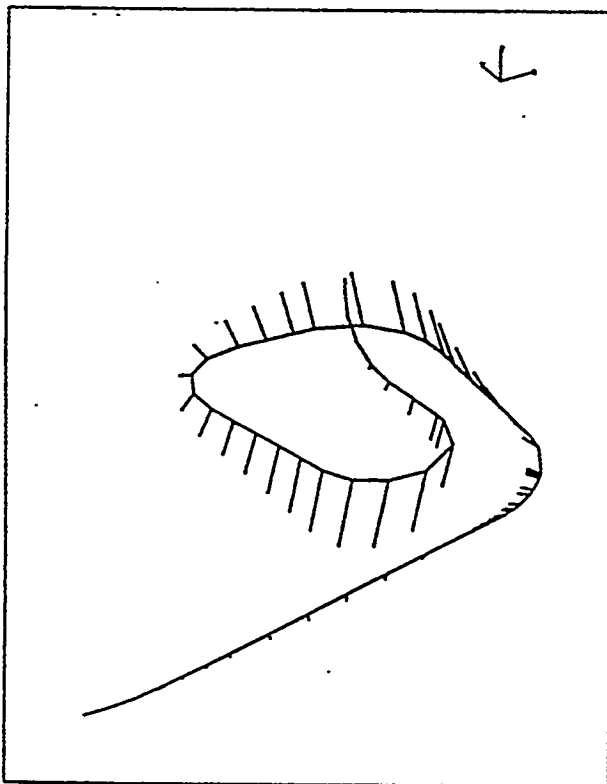
MODE NO.	FREQUENCY (CPS)	MODE DOMINANT DIRECTION
1	3.899	X
2	4.566	Z
3	8.332	Y, Z
4	10.391	Y, Z
5	14.962	X, Y
6	18.561	Z
7	23.825	X
8	34.503	X, Y
9	37.913	Y
10	41.934	Y



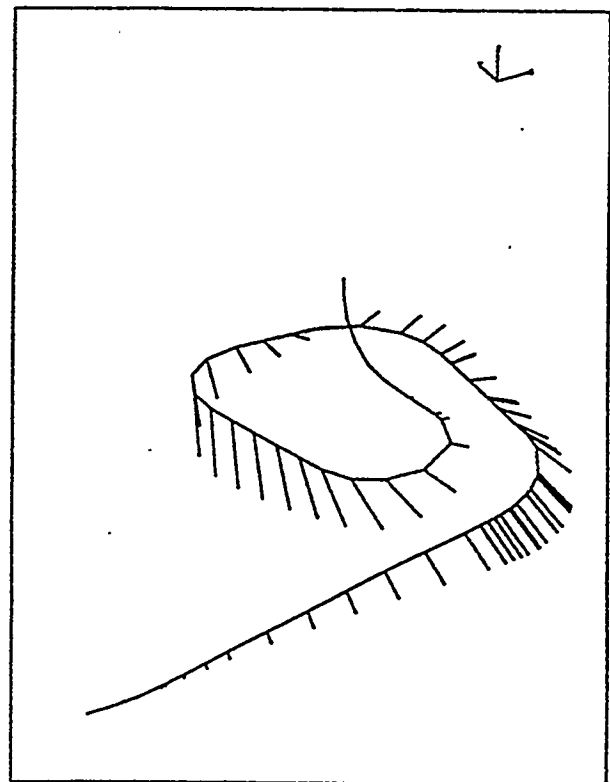
MODE 1



MODE 2



MODE 3



MODE 4

FIGURE 4 - PRESSURIZER SURGE LINE MODE SHAPES

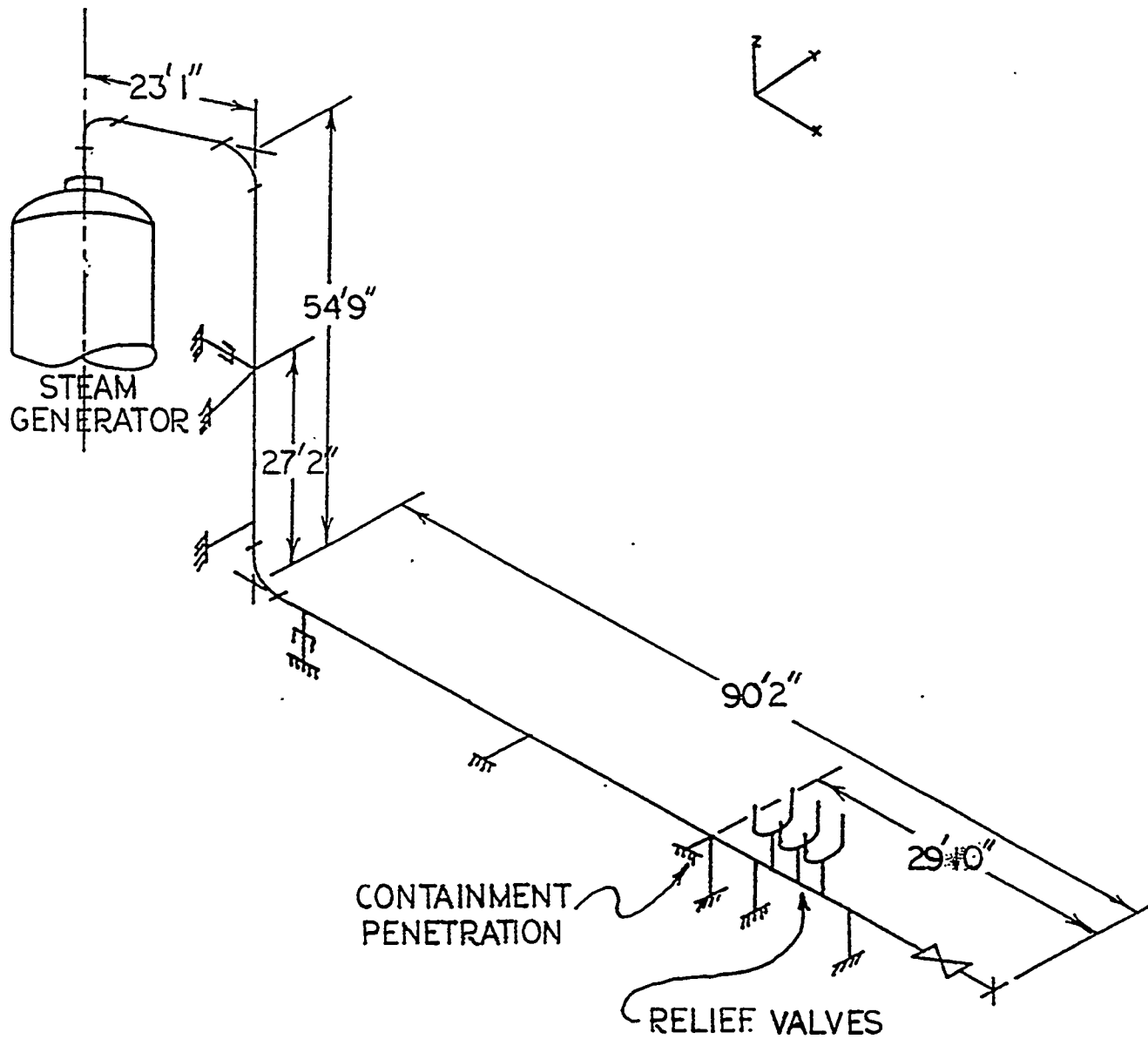


FIGURE 5 - MAIN STEAM LINE

AP600 MAIN STEAM LINE BENCHMARK ANALYSIS - SAP PLOT

UNDEFORMED SHAPE

IAxis= 3 ALPHA= 45.00 BETA= -45.00

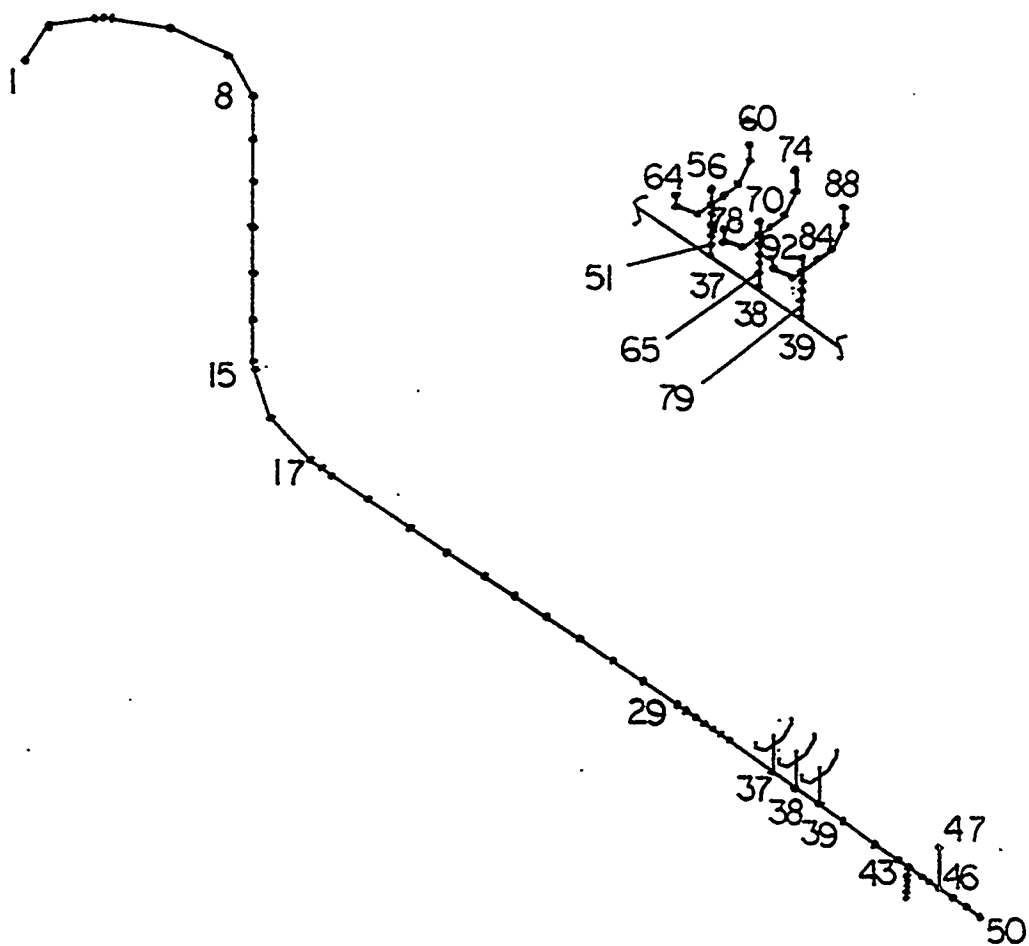
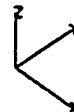


FIGURE 6 - MAIN STEAM LINE ISOMETRIC

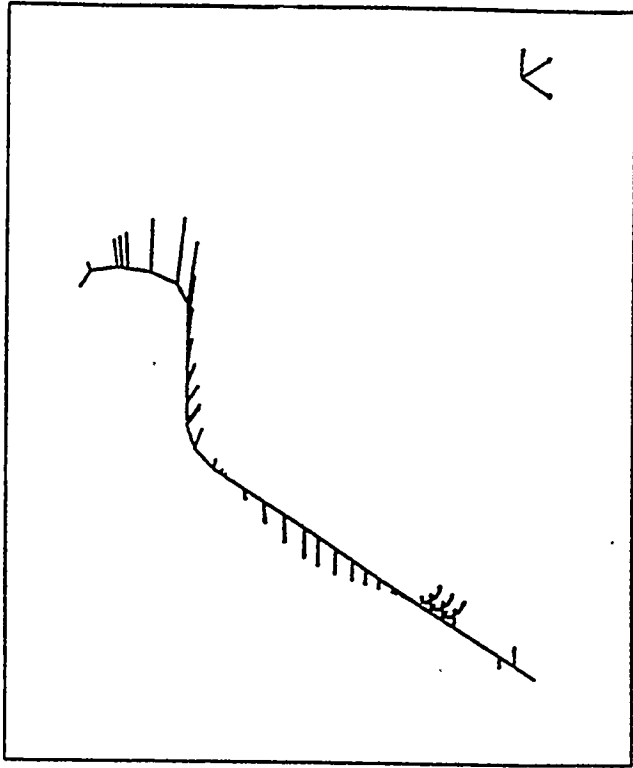
pipe while the relief valves are modeled with pipe segments of various sizes to simulate relief line properties. All parameters relating to the model were taken consistent with the Westinghouse data and are specified in the included computer input listing.

The solution was developed using the modal superposition time history method. The loading function was a set of time varying faces acting on nodes 101, 130, 6040, 6070 and 310 (1, 5, 14, 23 and 46). The forcing functions are of 3 second duration and act in each of the three coordinate directions. A full digitized record of the forcing functions is provided in the input list. In the analysis a cut off frequency of 110 Hz was used resulting in a 41 mode, modal approximation. A listing of the first ten natural frequencies is presented in Table 2. Computer generated isometrics of the first four modes are shown in Figure 7. A listing of modal participation factors corresponding to uniform support excitations, developed in a separate analysis of the system, is provided in the computer list to facilitate to model verification. Damping was taken as a uniform 3% of critical for all modes. The solution time step was 0.0001 seconds for a total duration of three seconds.

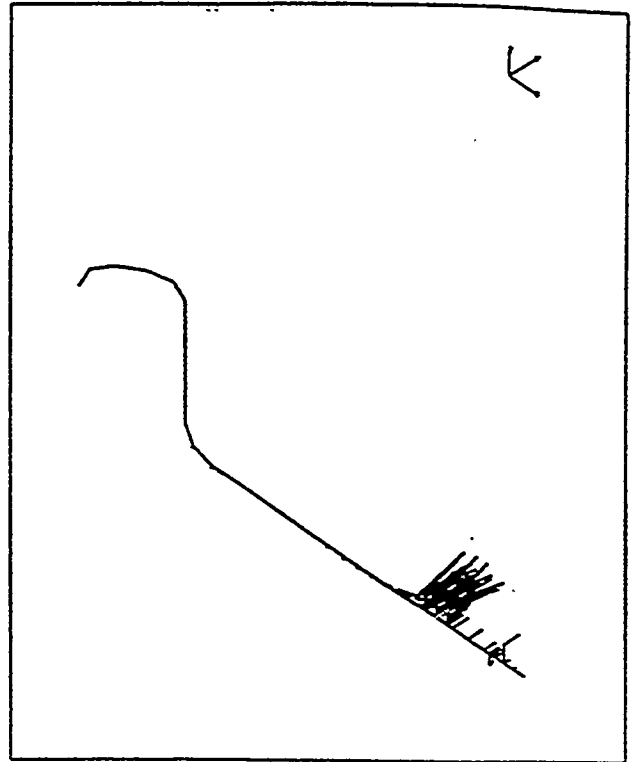
The output consists of the maxima and their time of occurrence for each response component. The maxima are based on a sampling at every tenth time step or providing results for a time step of 0.001 sec. If a finer sampling rate is used the times of maxima occurrence and, in fact, the magnitude of the maxima will change. For the benchmarking purpose the predication of comparable results for the same sampling frequency will be adequate. Although a more comprehensive tabulation of results would be desirable, the results provided are adequate for the benchmarking purpose. The tabulated outputs are well labeled and should be readily understood.

TABLE 2
MAIN STEAM LINE MODAL ANALYSIS RESULTS

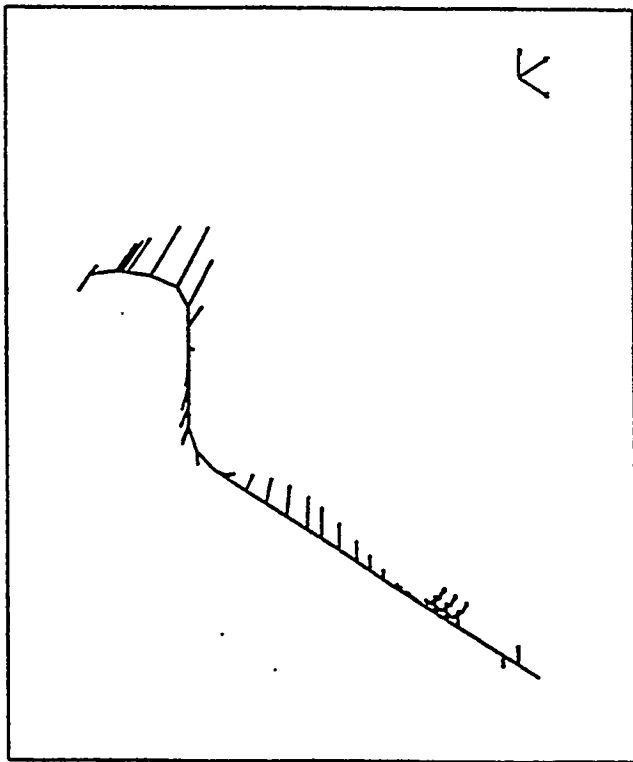
MODE NO.	FREQUENCY (CPS)	MODE DOMINANT DIRECTION
1	8.425	X, Y, Z
2	9.005	Y
3	9.130	X, Y
4	11.944	Z
5	16.051	Y
6	16.403	X
7	16.492	Y
8	17.062	Y
9	17.265	X, Z
10	17.462	X



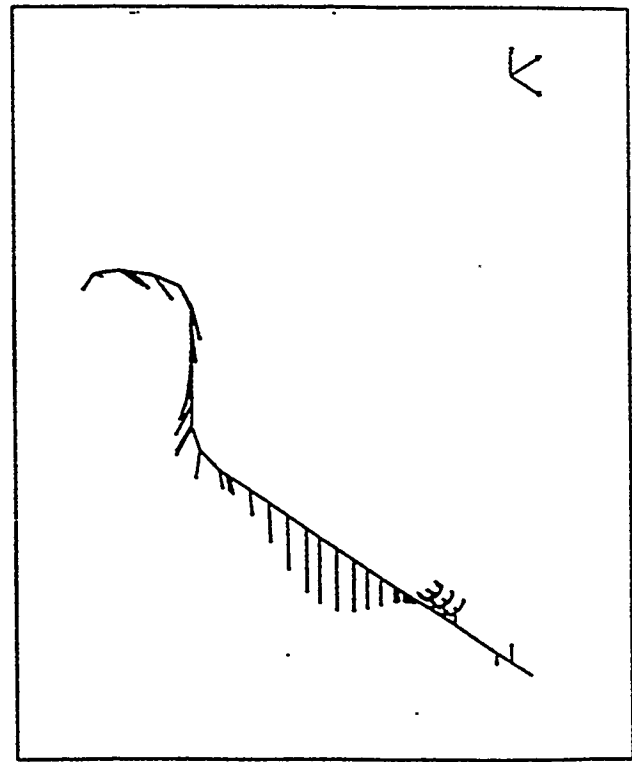
MODE 1



MODE 2

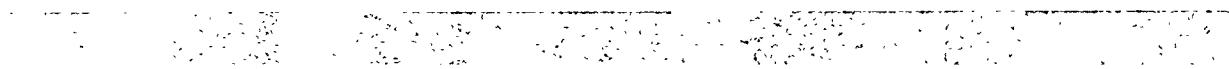


MODE 3



MODE 4

FIGURE 7 - MAIN STEAM LINE MODE SHAPES



4.0 BENCHMARK ACCEPTANCE CRITERIA

Earlier NRC benchmark reports provided comprehensive descriptions of the benchmark problem inputs and results but did not provide any definition of the acceptance criteria used to judge adequacy. Instead, the results of a benchmarking effort were submitted to the staff for evaluation on a case-by-case basis. This procedure was followed for most of the "work horse" computer codes then used by industry to qualify piping, including PISYS, ADLPIPE, WECAN, PISTAR, NUPIPE, SUPERPIPE, and PIPSYS.

For the AP600 standard design benchmarks it was considered to be more appropriate to specify the acceptance criteria to be met. This will allow the COL licensee to assess the adequacy of his methods as the benchmark solutions are developed; precluding the striving for "perfect" results and flagging early on, analysis methods that are deficient. When successful, the COL licensee will simply have to retain an auditable record of the benchmarking effort to verify the adequacy of the methods to be used to qualify piping.

For the acceptance criteria, maximum allowed differences, expressed as a percent, rather than specific values, are specified and a summary of the criteria as presented in Table 3. As can be seen, the criteria is different for each response parameter, ranging from 2% for every natural frequency, to 10% for maximum displacements. Comparisons are required to be made for all natural frequencies and support reaction forces, but for only the maximum displacements and pipe moments in the designated pipe segments given in Table 4. The percentage differences are given by $100 (PE - BE)/BE$ where, PE is the predicted value, and BE is the benchmark value, for a specific response.

Comparisons are required to be made for every natural frequency and every component of support reaction. Regarding natural frequencies, these are fundamental characteristics of a system, and if they are not predicted accurately there is little possibility that correct estimates of system response can be developed. Consequently, the requirement to compare all frequencies to a tight tolerance was specified. Support reactions on the other hand are not fundamental characteristics of a system, but unlike pipe moments and forces, every component of reaction is used explicitly in the design process. That is, supports and anchors are typically designed individually for the specific loads they will carry with only a small level of

conservatism. Consequently, it is important to provide reasonably accurate estimates of all reactions and the benchmarking requirement was set accordingly.

For pipe displacements and moments, only comparisons of maximum values are required. This is again consistent with the design/qualification process where only the maximum values impact on design. These comparisons are required to be made in each unique section of pipe for each problem. This was specified to assure that reasonably accurate estimates of all system responses was being made rather than good estimates for only a local region. The accuracy tolerances specified denote the relative importance assigned these parameters.

Again, reflecting design practice, some relaxation of criteria is allowed for pipe moments. Specifically, for these, if the estimates of the maximum components of moment do not meet criteria, comparisons can be made to the resultant moment at each location of maxima, and if these meet criteria, the benchmarking is acceptable. This reflects design practice in that it is only the resultant moments that enter into the qualification evaluations.

Finally, it is recognized that the benchmarking effort may not be clean cut in every application. Candidate analysis methodologies may not meet criteria for every parameter for all comparisons. In these instances, the COL licensee must interact with the staff providing additional justifications for acceptance. These applications will be assessed on a case-by-case basis.

TABLE 3
ACCEPTANCE CRITERIA

PARAMETER	CRITERIA	COMMENTS
Natural Frequencies	2%	All natural frequencies up to cutoff frequency.
Maximum Displacements	10%	Comparison to be made for maximum nodal translation* in each global coordinate direction for each segment** of piping.
Maximum Pipe Moments	5%	Comparison to be made for maximum element moment* about each local coordinate axis for each pipe segment**. Failure to meet criteria is acceptable if SRSS of three components at each point of maxima meet the criteria.
Support Reaction	10%	Comparison to be made for each component of force and moment for each support and anchor.

* Maxima for each direction not necessarily at same point.

** Pipe segments defined in Table 4.

TABLE 4
PIPING SEGMENTS

A. PRESSURIZER SURGE LINE	
SEGMENT	NODE NUMBERS
1	7090 - 3035
2	3035 - 3083
3	3083 - 3210
4	3210 - 3250
B. MAIN STEAM LINE PIPING	
SEGMENT	NODE NUMBERS
1	101 - 6020
2	6020 - 6050
3	6050 - 6070
4	6070 - 6090
5	6090 - 239
6	239 - 261
7	261 - 340

5.0 CONCLUSION

Three benchmark problems have been developed for the purpose of assessing the adequacy of the analysis techniques that will be used by COL licensees to qualify piping for the AP600 Standardized Plant. If a COL licensee can demonstrate that a candidate analysis methodology provides solutions to the benchmark problems that meet all acceptance criteria, the COL licensee may use that methodology for piping design without further approval. In that instance the COL licensee must submit documentation to the staff of the benchmarking effort in sufficient detail to support the conclusion.

In the event that the benchmarking is essentially, but not wholly successful, the COL licensee may petition for staff approval on a case-by-case basis. In these instances, the documentation of the benchmarking must be augmented with additional justifications of adequacy and the use of the methodology must await staff approval.

6.0 REFERENCES

1. 10CFR, Office of Federal Register National Archives and Research Administration, "Code of Federal Regulations," Title 10, Part 52, (54 FR 15386), May 1989.
2. Bathe, J.K., Wilson, E.L., Peterson, F.E., "SAP IV-A Structural Analysis Program for Static and Dynamic Responses of Linear Systems," Report No. EERC 73-11, University of California, Berkeley, CA, 1973.
3. Subudhi, M., Bezler, P., "EPIPE, Piping Analysis Program User's Manual -Version 1981," BNL NUREG/30784, December 1981.
4. Bezler, P., Hartzman, M., Reich, M., "Piping Benchmark Problems," NUREG/CR-1677, August 1980.
5. Bezler, P., Subudhi, M., Hartzman, M., "Piping Benchmark Problems," NUREG/CR-1677, Vol. II, August 1985.
6. Regulatory Guide 1.92, "Combining Modal Responses and Spatial Components in Seismic Response Analysis," Revision 1, February 1976.
7. U.S. Nuclear Regulatory Commission, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 3.7.2, 1989.
8. Bezler, P., Gardner, D., Hartzman, M., "A Dynamic Benchmark Solution for a Hypothetical Reactor System," BNL-NUREG-23645, December 1977.

APPENDIX A

UNITS OF MEASURE

The attached computer input and output data is presented in the following units of measure:

Length	-	inches (in)
Angular rotation	-	radians (rad)
Force	-	pounds (lb)
Moment	-	in-lbs.
Time	-	seconds (sec)
Pressure	-	lbs./in ² (psi)
Acceleration	-	g's (in/sec ² /gravitational constant)
Frequency	-	Hertz (Hz) or cycles per second, cps
Temperature	-	degrees Fahrenheit (°F)

BENCHMARK PROBLEM 1

**UNIFORM SUPPORT MOTION
RESPONSE SPECTRUM ANALYSIS**

THE UNIVERSITY OF CHICAGO PRESS

AP600 PRESSURIZER SURGE LINE BENCHMARK ANALYSIS - ENVELOPE SPECTRUM

C O N T R O L I N F O R M A T I O N

NUMBER OF NODAL POINTS	=	70
NUMBER OF ELEMENT TYPES	=	3
NUMBER OF STATIC LOAD CASES	=	0
NUMBER OF DYNAMIC LOAD CASES	=	1
NUMBER OF ANCHOR MGMT CASES	=	0
NUMBER OF FREQUENCIES	=	20
SOLUTION MODE (MODEX)	=	0
EQ.0, EXECUTION		
EQ.1, DATA CHECK		
STRESS CALCULATION FLAG	=	0
EQ.0 NO		
EQ.1 YES		
ASME CODE EVALUATION FLAG	=	0
EQ.1 CLASS 1 PIPING		
EQ.2 CLASS2 OR CLASS 3 PIPING		
ACCELERATION DUE TO GRAVITY	=	386.4
BANDWIDTH MINIMIZATION FLAG	=	0
EQ.0 NO		
EQ.1 YES		
ARBITRARY NODE NUMBERING FLAG	=	1
EQ.0 NO		
EQ.1 YES		
NUMBER OF SUPPORT GROUPS	=	0
FLAG FOR NODAL COORD. INPUT UNITS	=	0
EQ.0 CONSISTENT UNIT		
EQ.1 FEET TO INCHES		

LIST OF ANALYSIS TO BE PERFORMED
LOAD CASE DISK FILE ANALYSIS TYPE

1	0	UNIFORM RESPONSE SPECTRUM ANAL.

NODAL POINT INPUT DATA

NEW NODE	OLD NODE	BOUNDARY CONDITION CODES			NODAL POINT COORDINATES			T			
		X	Y	Z	XX	YY	ZZ	X	Y	Z	T
1	7090	0	0	0	0	0	0	11910.000	12283.416	1251.372	653.000
2	3001	0	0	0	0	0	0	11923.164	12272.496	1259.028	653.000
3	3005	0	0	0	0	0	0	11926.320	12269.880	1260.864	653.000
4	3010	0	0	0	0	0	0	11929.476	12267.264	1262.700	653.000
5	3011	0	0	0	0	0	0	11933.088	12264.288	1264.764	653.000
6	3012	0	0	0	0	0	0	11939.124	12259.296	1268.232	653.000
7	3019	0	0	0	0	0	0	11953.932	12251.028	1275.132	653.000
8	3021	0	0	0	0	0	0	11968.632	12248.256	1279.728	653.000
9	3023	0	0	0	0	0	0	11971.320	12248.195	1280.388	653.000
10	3024	0	0	0	0	0	0	11983.812	12248.195	1283.268	653.000
11	3026	0	0	0	0	0	0	11999.028	12248.195	1286.760	653.000
12	3028	0	0	0	0	0	0	12014.244	12248.195	1290.252	653.000
13	3030	0	0	0	0	0	0	12040.236	12248.195	1296.240	653.000
14	3032	0	0	0	0	0	0	12066.204	12248.195	1302.240	653.000
15	3035	0	0	0	0	0	0	12092.172	12248.195	1308.228	653.000
16	3037	0	0	0	0	0	0	12118.152	12248.195	1314.216	653.000
17	3038	0	0	0	0	0	0	12144.120	12248.195	1320.216	653.000
18	3040	0	0	0	0	0	0	12170.088	12248.195	1326.204	653.000
19	3044	0	0	0	0	0	0	12180.360	12248.195	1328.580	653.000
20	3047	0	0	0	0	0	0	12185.376	12248.195	1329.708	653.000
21	3050	0	0	0	0	0	0	12189.996	12248.195	1330.776	653.000
22	3053	0	0	0	0	0	0	12194.028	12248.352	1331.712	653.000
23	3056	0	0	0	0	0	0	12200.557	12249.288	1333.248	653.000
24	3059	0	0	0	0	0	0	12201.744	12249.553	1333.524	653.000
25	3062	0	0	0	0	0	0	12206.364	12250.884	1334.664	653.000
26	3065	0	0	0	0	0	0	12214.801	12254.628	1336.728	653.000
27	3068	0	0	0	0	0	0	12218.928	12257.195	1337.796	653.000
28	3071	0	0	0	0	0	0	12226.979	12263.939	1339.944	653.000
29	3074	0	0	0	0	0	0	12228.288	12265.332	1340.292	653.000
30	3077	0	0	0	0	0	0	12229.668	12266.893	1340.676	653.000
31	3080	0	0	0	0	0	0	12240.660	12288.636	1344.168	653.000
32	3083	0	0	0	0	0	0	12242.292	12301.824	1345.116	653.000
33	3086	0	0	0	0	0	0	12242.292	12305.520	1345.296	653.000
34	3089	0	0	0	0	0	0	12242.292	12315.324	1345.668	653.000
35	3092	0	0	0	0	0	0	12242.292	12333.756	1346.484	653.000
36	3095	0	0	0	0	0	0	12242.292	12345.695	1346.988	653.000
37	3098	0	0	0	0	0	0	12242.292	12347.508	1347.072	653.000
38	3100	0	0	0	0	0	0	12242.292	12368.076	1347.972	653.000
39	3101	0	0	0	0	0	0	12242.292	12388.632	1348.884	653.000
40	3104	0	0	0	0	0	0	12242.292	12389.388	1348.944	653.000
41	3107	0	0	0	0	0	0	12242.292	12400.309	1349.448	653.000
42	3110	0	0	0	0	0	0	12239.855	12416.316	1350.264	653.000
43	3113	0	0	0	0	0	0	12233.340	12430.033	1351.152	653.000
44	3115	0	0	0	0	0	0	12215.976	12446.592	1352.640	653.000
45	3116	0	0	0	0	0	0	12188.364	12454.176	1354.188	653.000
46	3119	0	0	0	0	0	0	12174.120	12454.176	1354.812	653.000
47	3120	0	0	0	0	0	0	12156.061	12454.176	1355.592	653.000
48	3122	0	0	0	0	0	0	12137.988	12454.176	1356.372	653.000
49	3123	0	0	0	0	0	0	12114.792	12448.920	1357.656	653.000
50	3125	0	0	0	0	0	0	12097.092	12435.324	1359.120	653.000
51	3128	0	0	0	0	0	0	12085.932	12413.688	1360.752	653.000
52	3138	0	0	0	0	0	0	12084.947	12392.041	1361.904	653.000
53	3199	0	0	0	0	0	0	12088.080	12372.215	1362.768	653.000
54	3200	0	0	0	0	0	0	12091.212	12352.380	1362.768	653.000
55	3205	0	0	0	0	0	0	12091.476	12331.920	1363.644	653.000
56	3208	0	0	0	0	0	0	12097.632	12312.037	1365.432	653.000

57 3210
58 3212
59 3215
60 3220
61 3222
62 3225
63 3230
64 3235
65 3237
66 3238
67 3240
68 3243
69 3245
70 3250

S P R I N G E L E M E N T S

ELEMENT TYPE = 1
NUMBER OF ELEMENTS = 16

ELEMENT LOAD CASE MULTIPLIERS

CASE (A) CASE (B) CASE (C) CASE (D)
1.0000 1.0000 1.0000 1.0000

ELEMENT NUMBER	NODE (N)	SUPPORT GROUP	CODE KD	CODE KR	DIRECTION COSINES WRT GLOBAL AXES X- Y- Z-	SPECIFIED DISPLACEMENT	SPECIFIED ROTATION	SPRING RATE
1	7090	1	1	0	1.000 .000 .000	.000	.000	1.0000E+11
2	7090	1	1	0	.000 1.000 .000	.000	.000	1.0000E+11
3	7090	1	1	0	.000 .000 1.000	.000	.000	1.0000E+11
4	7090	1	0	1	.000 .000 .000	.000	.000	1.0000E+13
5	7090	1	0	1	.000 1.000 .000	.000	.000	1.0000E+13
6	7090	1	0	1	.000 .000 .000	.000	.000	1.0000E+13
7	3047	1	1	0	.000 .000 1.000	.000	.000	1.0000E+13
8	3116	1	1	0	.000 .000 1.000	.000	.000	6.0000E+02
9	3210	1	1	0	.000 .000 1.000	.000	.000	6.0000E+02
10	3250	1	1	0	.000 .000 1.000	.000	.000	5.0000E+06
11	3250	1	1	0	.000 .000 1.000	.000	.000	6.0000E+02
12	3250	1	1	0	.000 1.000 .000	.000	.000	1.0000E+11
13	3250	1	1	0	.000 .000 1.000	.000	.000	1.0000E+11
14	3250	1	0	1	.000 .000 .000	.000	.000	1.0000E+11
15	3250	1	1	1	.000 1.000 .000	.000	.000	1.0000E+13
16	3250	1	0	1	.000 .000 1.000	.000	.000	1.0000E+13

S N U B B E R E L E M E N T S

ELEMENT TYPE = 4
 NUMBER OF ELEMENTS = 2

ELEMENT LOAD CASE MULTIPLIERS

CASE (A)	CASE (B)	CASE (C)	CASE (D)
1.0000	1.0000	1.0000	1.0000

ELEMENT NUMBER	NODE (N)	SUPPORT GROUP	CODE KD	CODE KR	DIRECTION COSINES WRT GLOBAL AXES			SPECIFIED DISPLACEMENT	SPECIFIED ROTATION	SPRING RATE
					X-	Y-	Z-			
1	3035	1	1	0	.000	1.000	.000	.000	.000	5.5150E+05
2	3083	1	1	0	.000	.000	1.000	.000	.000	5.5150E+05

PIPE ELEMENT INPUT DATA

CONTROL INFORMATION

NUMBER OF PIPE ELEMENTS	=	69
NUMBER OF MATERIAL SETS	=	2
MAXIMUM NUMBER OF MATERIAL TEMPERATURE INPUT POINTS	=	3
NUMBER OF SECTION PROPERTY SETS	=	4
NUMBER OF BRANCH POINT NODES	=	0
MAXIMUM NUMBER OF TANGENTS COMMON TO A BRANCH POINT	=	3
FLAG FOR NEGLECTING AXIAL DEFORMATIONS IN BEND ELEMENTS (EQ.1, NEGLECT)	=	0

MATERIAL PROPERTY TABLES

MATERIAL NUMBER = (1)
 NUMBER OF TEMPERATURE POINTS = (3)
 IDENTIFICATION = (SA376 316LN)

POINT NUMBER	TEMPERATURE	YOUNG'S MODULUS	POISSON'S RATIO	THERMAL EXPANSION
1	70.00	2.813E+07	.300	8.540E-06
2	650.00	2.505E+07	.300	9.690E-06
3	700.00	2.480E+07	.300	9.760E-06

MATERIAL NUMBER = (2)
 NUMBER OF TEMPERATURE POINTS = (2)
 IDENTIFICATION = (FICTICIOUS MAT)

POINT NUMBER	TEMPERATURE	YOUNG'S MODULUS	POISSON'S RATIO	THERMAL EXPANSION
1	70.00	2.530E+07	.300	0.000E+00
2	700.00	2.530E+07	.300	0.000E+00

SECTION PROPERTY TABLE					DESCRIPTION	
SECTION NUMBER	OUTSIDE DIAMETER	WALL THICKNESS	SHAPE FACTOR FOR SHEAR	WEIGHT/UNIT LENGTH	MASS/UNIT LENGTH	
1	18.000	1.7810	.0000	3.4033E+01	8.8077E-02	18 IN SCH 160
2	21.100	3.3400	.0000	5.8824E+01	1.5224E-01	
3	24.300	4.9000	.0000	9.0696E+01	2.3472E-01	
4	37.500	3.2500	.0000	0.0000E+00	0.0000E+00	

ELEMENT LOAD CASE MULTIPLIERS

	CASE A	CASE B	CASE C	CASE D
X-DIRECTION GRAVITY	.000	.000	.000	.000
Y-DIRECTION GRAVITY	.000	.000	.000	.000
Z-DIRECTION GRAVITY	-1.000	.000	.000	.000
THERMAL DISTORTION	.000	.000	.000	.000
PRESSURE DISTORTION	.000	.000	.000	.000

PIPE ELEMENT INPUT DATA													
ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORIGINATE)	TEST PRESSURE (Y3- ORIGINATE)	END CODES END-I END-J (Z3- ORIGINATE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG	
1	TANGENT	7090	3001	2	4	70.00	2485.00	.00	.00	0 0	1	II	
2	TANGENT	3001	3005	1	3	70.00	2485.00	.00	.00	0 0	1	II	
3	TANGENT	3005	3010	1	2	70.00	2485.00	.00	.00	0 0	1	II	
4	TANGENT	3010	3011	1	1	70.00	2485.00	.00	.00	0 0	1	II	
5	TANGENT	3011	3012	1	1	70.00	2485.00	.00	.00	0 0	1	II	
6	BEND	3012	3019	1	1	(54.012)	2485.00 ()	(11945.652) ()	(12253.896) ()	(1272.012) ()	(19.4919)		
7	BEND	3019	3021	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(16.8378)		
8	BEND	3021	3023	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(2.8767)		
9	TANGENT	3023	3024	1	1	70.00	2485.00	.00	.00	0 0	1	II	
10	TANGENT	3024	3026	1	1	70.00	2485.00	.00	.00	0 0	1	II	
11	TANGENT	3026	3028	1	1	70.00	2485.00	.00	.00	0 0	1	II	
12	TANGENT	3028	3030	1	1	70.00	2485.00	.00	.00	0 0	1	II	
13	TANGENT	3030	3032	1	1	70.00	2485.00	.00	.00	0 0	1	II	
14	TANGENT	3032	3035	1	1	70.00	2485.00	.00	.00	0 0	1	II	
15	TANGENT	3035	3037	1	1	70.00	2485.00	.00	.00	0 0	1	II	
16	TANGENT	3037	3038	1	1	70.00	2485.00	.00	.00	0 0	1	II	
17	TANGENT	3038	3040	1	1	70.00	2485.00	.00	.00	0 0	1	II	
18	TANGENT	3040	3044	1	1	70.00	2485.00	.00	.00	0 0	1	II	
19	TANGENT	3044	3047	1	1	70.00	2485.00	.00	.00	0 0	1	II	
20	TANGENT	3047	3050	1	1	70.00	2485.00	.00	.00	0 0	1	II	
21	BEND	3050	3053	1	1	(54.972)	2485.00 ()	(12192.012) ()	(12248.195) ()	(1331.244) ()	(4.3122)		
22	BEND	3053	3056	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(7.0187)		
23	BEND	3056	3059	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(1.3843)		
24	BEND	3059	3062	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(4.7682)		
25	BEND	3062	3065	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(9.8520)		
26	BEND	3065	3068	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(5.4073)		
27	BEND	3068	3071	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(11.3902)		
28	BEND	3071	3074	1	1	(70.00	2485.00 ()	.00 ()	.00 ()	0 0	(2.2713)		

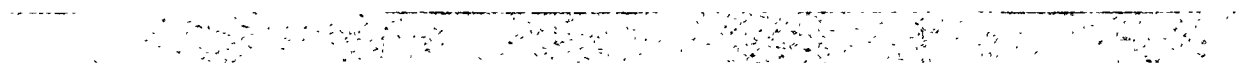
P I P E E L E M E N T I N P U T D A T A

ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (Z3- ORDINATE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
29	BEND	3074	3077	1	1	(70.00 53.088)	2485.00 ()	12228.972 (12266.076)	0 (1340.484)	0 (2.2202)		I
30	BEND	3077	3080	1	1	(70.00 53.760)	2485.00 ()	12237.660 (12276.396)	0 (1342.920)	0 (26.4177)		I
31	BEND	3080	3083	1	1	(70.00 53.700)	2485.00 ()	12242.292 (12295.140)	0 (1344.792)	0 (14.2965)		I
32	TANGENT	3083	3086	1	1	70.00	2485.00	.00	.00	0	1	II
33	TANGENT	3086	3089	1	1	70.00	2485.00	.00	.00	0	1	II
34	TANGENT	3089	3092	1	1	70.00	2485.00	.00	.00	0	1	II
35	TANGENT	3092	3095	1	1	70.00	2485.00	.00	.00	0	1	II
36	TANGENT	3095	3098	1	1	70.00	2485.00	.00	.00	0	1	II
37	TANGENT	3098	3100	1	1	70.00	2485.00	.00	.00	0	1	II
38	TANGENT	3100	3101	1	1	70.00	2485.00	.00	.00	0	1	II
39	TANGENT	3101	3104	1	1	70.00	2485.00	.00	.00	0	1	II
40	TANGENT	3104	3107	1	1	70.00	2485.00	.00	.00	0	1	II
41	BEND	3107	3110	1	1	(70.00 53.832)	2485.00 ()	12242.292 (12408.504)	0 (1349.820)	0 (17.3293)		I
42	BEND	3110	3113	1	1	(70.00 53.940)	2485.00 ()	12237.576 (12423.636)	0 (1350.684)	0 (16.2026)		I
43	BEND	3113	3115	1	1	(70.00 53.916)	2485.00 ()	12226.536 (12440.305)	0 (1351.908)	0 (25.7916)		I
44	BEND	3115	3116	1	1	(70.00 54.084)	2485.00 ()	12203.231 (12454.176)	0 (1353.528)	0 (30.7215)		I
45	TANGENT	3116	3119	1	1	70.00	2485.00	.00	.00	0	1	II
46	TANGENT	3119	3120	1	1	70.00	2485.00	.00	.00	0	1	II
47	TANGENT	3120	3122	1	1	70.00	2485.00	.00	.00	0	1	II
48	BEND	3122	3123	1	1	(70.00 53.844)	2485.00 ()	12125.796 (12454.176)	0 (1356.900)	0 (25.5401)		I
49	BEND	3123	3125	1	1	(70.00 54.000)	2485.00 ()	12104.496 (12443.988)	0 (1358.352)	0 (23.9177)		I
50	BEND	3125	3128	1	1	(70.00 53.712)	2485.00 ()	12088.992 (12425.868)	0 (1360.008)	0 (26.1664)		I
51	BEND	3128	3198	1	1	(70.00 54.192)	2485.00 ()	12083.231 (12402.959)	0 (1361.424)	0 (23.1191)		I
52	TANGENT	3198	3199	1	1	70.00	2485.00	.00	.00	0	1	II
53	TANGENT	3199	3200	1	1	70.00	2485.00	.00	.00	0	1	II
54	TANGENT	3200	3205	1	1	70.00	2485.00	.00	.00	0	1	II
55	TANGENT	3205	3208	1	1	70.00	2485.00	.00	.00	0	1	II
56	TANGENT	3208	3210	1	1	70.00	2485.00	.00	.00	0	1	II

P I P E E L E M E N T I N P U T D A T A

ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (Z3- ORDINATE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
57	BEND	3210	3212	1	1	(70.00 42.012)	2485.00 ()	.00 (12102.540)	.00 (12281.148)	0 0 (1366.788)	(29.7046)	I
58	BEND	3212	3215	1	1	(70.00 41.904)	2485.00 ()	.00 (12116.088)	.00 (12264.276)	0 0 (1368.072)	(28.2025)	I
59	BEND	3215	3220	1	1	(70.00 42.192)	2485.00 ()	.00 (12136.860)	.00 (12255.443)	0 0 (1369.428)	(31.9317)	I
60	BEND	3220	3222	1	1	(70.00 42.120)	2485.00 ()	.00 (12165.996)	.00 (12260.100)	0 0 (1370.712)	(44.8251)	I
61	BEND	3222	3225	1	1	(70.00 41.892)	2485.00 ()	.00 (12184.176)	.00 (12285.107)	0 0 (1372.584)	(36.0300)	I
62	BEND	3225	3230	1	1	(70.00 41.496)	2485.00 ()	.00 (12184.176)	.00 (12301.980)	0 0 (1373.424)	(9.1369)	I
63	TANGENT	3230	3235	1	1	70.00	2485.00	.00	.00	0 0	1	II
64	TANGENT	3235	3237	1	1	70.00	2485.00	.00	.00	0 0	1	II
65	BEND	3237	3238	1	1	(70.00 42.120)	2485.00 ()	.00 (12175.512)	.00 (12356.771)	0 0 (1375.872)	(21.8273)	I
66	BEND	3238	3240	1	1	(70.00 42.000)	2485.00 ()	.00 (12173.195)	.00 (12371.364)	0 0 (1382.556)	(21.8448)	I
67	BEND	3240	3243	1	1	(70.00 41.892)	2485.00 ()	.00 (12171.443)	.00 (12382.463)	0 0 (1394.292)	(21.9599)	I
68	BEND	3243	3245	1	1	(70.00 42.012)	2485.00 ()	.00 (12170.508)	.00 (12388.439)	0 0 (1409.352)	(21.8497)	I
69	TANGENT	3245	3250	1	1	70.00	2485.00	.00	.00	0 0	1	II

BENCHMARK PROBLEM 1
LOWER FREQUENCY AMPLIFIED RESPONSE



PRINT OF FREQUENCIES

MODE NUMBER	CIRCULAR FREQUENCY (RAD/SEC)	FREQUENCY (CYCLES/SEC)	PERIOD (SEC)
1	2.4496E+01	3.8987E+00	2.5650E-01
2	2.8689E+01	4.5660E+00	2.1901E-01
3	5.2353E+01	8.3322E+00	1.2002E-01
4	6.5286E+01	1.0391E+01	9.6241E-02
5	9.4011E+01	1.4962E+01	6.6834E-02
6	1.1662E+02	1.8561E+01	5.3876E-02
7	1.4970E+02	2.3825E+01	4.1972E-02
8	2.1679E+02	3.4503E+01	2.8983E-02
9	2.3822E+02	3.7913E+01	2.6376E-02
10	2.6348E+02	4.1934E+01	2.3847E-02
11	3.3147E+02	5.2755E+01	1.8956E-02
12	3.5374E+02	5.6300E+01	1.7762E-02
13	3.6850E+02	5.8649E+01	1.7051E-02

CASE 1

DIRECTION FACTORS

X = 1.0000 Y = 1.0000 Z = 1.0000

INDICATOR FOR DISPLACEMENT OR ACCELERATION SPECTRUM = 2

EQ.0 DISPLACEMENT
EQ.1 ACCELERATION IN IN./SEC.**2
EQ.2 ACCELERATION IN G**S

3 SPECTRA ARE ENTERED FOR CASE 1. KIND= 2

CLUSTER FACTOR, CF = .10000

MODAL PARTICIPATION FACTORS

MODE	FREQ (CPS)	X-DIRECTION	Y-DIRECTION	Z-DIRECTION
1	3.899	4.5819E+00	-9.2024E-01	-2.3807E-01
2	4.566	2.4678E-01	1.9716E-01	5.0100E+00
3	8.332	1.6138E-01	3.8985E+00	-3.4331E+00
4	10.391	4.3202E-01	6.2393E+00	1.3444E+00
5	14.962	-1.5642E+00	-1.7522E+00	5.5736E-01
6	18.561	-6.2692E-01	1.1475E-01	5.8506E+00
7	23.825	-3.1703E+00	9.0336E-01	9.9369E-01
8	34.503	1.0498E+00	1.2522E+00	3.9810E-01
9	37.913	-1.0854E-01	-2.2140E+00	4.6331E-02
10	41.934	6.0115E-01	2.5824E+00	6.7930E-01
11	52.755	1.9449E+00	5.9261E-01	-5.0099E-01
12	56.300	2.2255E+00	2.1295E+00	-5.1571E-01
13	58.649	2.8798E+00	2.8922E-01	1.2367E+00

SPECTRUM TABLE (SSE ENVELOPED RESPONSE SPECTRUM X-DIRECTION

NUMBER OF POINTS = 44
SCALE FACTOR = 1.00000E+00

INPUT POINT	PERIOD	SPECTRUM VALUE
1	1.6670E-02	9.9279E-01
2	2.8760E-02	9.9279E-01
3	3.1370E-02	1.2087E+00
4	3.1980E-02	1.2251E+00
5	3.2130E-02	1.2291E+00
6	3.2380E-02	1.2358E+00
7	3.3420E-02	1.2619E+00
8	3.3540E-02	1.2648E+00
9	3.4510E-02	1.2887E+00
10	3.5340E-02	1.3644E+00
11	3.9220E-02	1.6776E+00
12	3.9510E-02	1.6798E+00
13	4.2290E-02	1.6995E+00
14	4.3690E-02	1.7086E+00
15	4.6970E-02	2.2424E+00
16	4.9970E-02	2.5978E+00
17	5.0710E-02	2.6784E+00
18	5.4710E-02	3.0793E+00
19	5.5810E-02	3.1460E+00
20	5.8130E-02	3.2780E+00
21	5.8200E-02	3.2747E+00

22	6.3580E-02	3.0970E+00
23	7.0680E-02	2.9384E+00
24	7.4100E-02	2.8729E+00
25	7.4420E-02	2.8670E+00
26	7.8020E-02	2.8229E+00
27	7.9570E-02	2.7729E+00
28	8.1020E-02	2.7279E+00
29	8.2410E-02	2.6186E+00
30	8.3230E-02	2.5556E+00
31	8.4290E-02	2.4710E+00
32	9.1460E-02	2.3104E+00
33	1.0527E-01	1.6280E+00
34	1.2040E-01	1.4959E+00
35	1.2484E-01	1.4632E+00
36	1.3687E-01	1.3854E+00
37	1.4531E-01	1.3854E+00
38	1.5184E-01	1.3570E+00
39	1.6649E-01	1.2810E+00
40	1.7496E-01	1.3040E+00
41	1.8293E-01	1.3237E+00
42	1.9379E-01	1.3480E+00
43	2.5134E-01	1.6512E+00
44	2.6759E+00	1.6484E+00

SPECTRUM TABLE (SSE ENVELOPED RESPONSE SPECTRUM Y-DIRECTION

NUMBER OF POINTS = 41
SCALE FACTOR = 1.00000E+00

INPUT POINT	PERIOD	SPECTRUM VALUE
1	1.6670E-02	7.6940E-01
2	2.8760E-02	7.6940E-01
3	3.1370E-02	8.4714E-01
4	3.1470E-02	8.5387E-01
5	3.1980E-02	8.8939E-01
6	3.2380E-02	9.1673E-01
7	3.3540E-02	9.9137E-01
8	3.3720E-02	1.0030E+00
9	3.4510E-02	1.0525E+00
10	3.7810E-02	1.0805E+00
11	3.9220E-02	1.0911E+00
12	4.3690E-02	1.3065E+00
13	4.5840E-02	1.5280E+00
14	4.6970E-02	1.6884E+00
15	5.2150E-02	2.4052E+00
16	5.4710E-02	2.7084E+00
17	5.810E-02	2.8766E+00
18	5.8130E-02	3.2089E+00
19	5.8200E-02	3.2352E+00
20	6.0620E-02	3.5522E+00
21	6.3580E-02	3.9131E+00
22	7.4100E-02	3.5417E+00
23	7.4420E-02	3.5307E+00
24	7.8020E-02	3.4536E+00
25	8.1020E-02	3.4005E+00
26	8.2630E-02	3.3702E+00
27	8.3230E-02	3.3593E+00
28	8.3420E-02	3.3539E+00

SPECTRUM TABLE (SSE ENVELOPED RESPONSE SPECTRUM Z-DIRECTION

INPUT POINT	PERIOD	SPECTRUM VALUE
1	1.6670E-02	4.9573E-01
2	2.8760E-02	4.9573E-01
3	3.1370E-02	6.1060E-01
4	3.1980E-02	6.4481E-01
5	3.2170E-02	6.5540E-01
6	3.2380E-02	6.6655E-01
7	3.3540E-02	7.2740E-01
8	3.4510E-02	7.1690E-01
9	3.5220E-02	1.1935E+00
10	4.2100E-02	1.3731E+00
11	4.3690E-02	1.4625E+00
12	4.6970E-02	1.8340E+00
13	4.8080E-02	1.8831E+00
14	5.4710E-02	2.1468E+00
15	5.7010E-02	2.0653E+00
16	5.8130E-02	2.0280E+00
17	5.8200E-02	2.0288E+00
18	5.9690E-02	1.9862E+00
19	6.3580E-02	1.8919E+00
20	7.4100E-02	1.4623E+00
21	7.4420E-02	1.4585E+00
22	7.8020E-02	1.4035E+00
23	8.1020E-02	1.3160E+00
24	8.3230E-02	1.2231E+00
25	8.4390E-02	1.1896E+00
26	9.1460E-02	9.9374E-01
27	1.0527E-01	9.5498E-01
28	1.3687E-01	1.0833E+00
29	1.4531E-01	1.2296E+00
30	1.5184E-01	1.2295E+00
31	1.6595E-01	1.2478E+00
32	1.9379E-01	1.2755E+00
33	2.5134E-01	1.5055E+00
34	2.5450E-01	1.5018E+00
35	2.6759E+00	1.4604E+00

CLUSTERING. +1 MEANS MODE I CLOSE TO I+1. -1, NOT:
-1. -1. -1. -1. -1. -1. 1. -1. -1. 1. -1. 0.

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 1 *****
MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S				A C C E L E R A T I O N S I N G ' S			
	TRANSLATION	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	ROTATION	X- DIRECTION	Y- DIRECTION	Z- DIRECTION
7090	1.0511E-06	1.4336E-06	1.1175E-06	9.5664E-07	1.2733E-06	.000	.000	.000
3001	1.9681E-03	2.1892E-03	2.7757E-03	1.3306E-04	1.7641E-04	.007	.007	.009
3002	2.8592E-03	3.1184E-03	4.1654E-03	2.3555E-04	3.1102E-04	.010	.010	.013
3010	4.4316E-03	4.6833E-03	6.6171E-03	4.3128E-04	5.6627E-04	.015	.016	.020
3011	8.0160E-03	8.2551E-03	1.2475E-02	9.7633E-04	1.2701E-03	.026	.028	.037
3012	1.8226E-02	1.7553E-02	3.0189E-02	1.8495E-03	2.3821E-03	.057	.060	.083
3019	5.0986E-02	4.9948E-02	1.0156E-01	3.7621E-03	4.5817E-03	.151	.183	.263
3021	7.8468E-02	8.3632E-02	1.9117E-01	5.4074E-03	6.0744E-03	.227	.334	.497
3023	8.2567E-02	8.9270E-02	2.0851E-01	5.6997E-03	6.2943E-03	.288	.491	.770
3024	1.0170E-01	1.1251E-01	2.9484E-01	7.0490E-03	7.1214E-03	.353	.634	.943
3026	1.2789E-01	1.3373E-01	4.1221E-01	8.6832E-03	8.2730E-03	.419	.746	1.367
3028	1.5622E-01	1.4194E-01	5.3818E-01	1.0312E-02	8.7330E-03	.527	.843	1.852
3030	2.0688E-01	1.3789E-01	7.6046E-01	1.3093E-03	8.4244E-03	.615	.830	2.257
3032	2.5588E-01	2.3332E-01	9.7519E-01	1.5891E-02	8.0228E-03	.677	.807	2.547
3035	2.9955E-01	5.3220E-01	1.1681E+00	1.8732E-02	7.3708E-03	.711	.950	2.706
3037	3.6534E-01	1.0386E+00	1.3309E+00	2.1623E-02	6.8600E-03	.713	1.229	2.729
3038	3.6559E-01	1.6981E+00	1.4615E+00	2.4530E-02	6.8626E-03	.686	1.538	2.625
3040	3.8826E-01	2.4778E+00	1.5653E+00	2.7443E-02	7.4848E-03	.668	1.553	2.554
3044	3.9593E-01	2.8133E+00	1.6014E+00	2.8599E-02	7.8623E-03	.658	1.705	2.514
3047	3.9947E-01	2.9820E+00	1.6184E+00	2.9163E-02	8.0642E-03	.649	1.751	2.474
3050	4.0273E-01	3.1400E+00	1.6337E+00	2.9686E-02	8.4580E-03	.640	1.789	2.434
3053	4.0575E-01	3.2793E+00	1.6427E+00	3.0142E-02	8.4566E-03	.623	1.846	2.354
3056	4.1315E-01	3.5110E+00	1.6371E+00	3.0886E-02	8.7692E-03	.620	1.856	2.338
3059	4.1539E-01	3.5531E+00	1.6335E+00	3.1023E-02	8.8335E-03	.606	1.893	2.265
3062	4.2839E-01	3.7225E+00	1.6087E+00	3.1561E-02	9.0794E-03	.580	1.951	2.105
3065	4.4867E-01	4.0334E+00	1.5214E+00	3.2574E-02	9.5821E-03	.567	1.976	2.011
3068	5.4797E-01	4.1895E+00	1.4541E+00	3.3105E-02	9.8605E-03	.548	2.018	1.800
3071	7.4821E-01	4.4981E+00	1.2630E+00	3.4215E-02	1.0475E-02	.546	2.034	1.759
3074	7.9733E-01	4.5510E+00	1.2195E+00	3.4427E-02	1.0594E-02	.545	2.030	1.719
3077	8.4966E-01	5.0427E+00	1.1742E+00	3.4636E-02	1.0715E-02	.633	2.068	1.322
3080	1.6907E+00	5.0427E+00	5.0995E-01	3.7038E-02	1.2238E-02	.748	2.075	1.252
3083	2.2489E+00	5.1117E+00	3.4417E-01	3.8295E-02	1.3112E-02	.784	2.076	1.246
3086	2.4087E+00	5.1124E+00	4.1264E-01	3.9607E-02	1.3359E-02	.878	2.079	1.303
3089	2.8391E+00	5.1140E+00	7.1704E-01	3.9382E-02	1.4038E-02	1.047	2.085	1.504
3092	3.6709E+00	5.1175E+00	1.4205E+00	4.0627E-02	1.5388E-02	1.141	2.090	1.677
3095	4.2235E+00	5.1197E+00	1.9031E+00	4.1284E-02	1.6303E-02	1.154	2.097	1.705
3098	4.3083E+00	5.1201E+00	1.9775E+00	4.1374E-02	1.6445E-02	1.277	2.103	2.392
3100	5.1240E+00	5.1240E+00	2.8341E+00	4.2217E-02	1.8086E-02	1.364	2.103	2.405
3101	5.2850E+00	5.1280E+00	3.7067E+00	4.2758E-02	1.9781E-02	1.406	2.106	2.593
3104	6.3227E+00	5.1283E+00	3.7390E+00	4.2948E-02	2.0762E-02	1.462	2.112	2.815
3107	6.8637E+00	5.1305E+00	4.2066E+00	4.3116E-02	2.2118E-02	1.518	2.111	2.905
3110	7.6674E+00	5.0221E+00	4.9068E+00	4.3180E-02	2.3228E-02	1.567	2.087	2.783
3113	8.3657E+00	4.7239E+00	5.5317E+00	4.3194E-02	2.5052E-02	1.598	2.020	2.289
3115	9.2234E+00	3.9197E+00	6.8978E+00	4.3193E-02	2.5724E-02	1.636	1.978	2.010
3116	9.6220E+00	2.1730E+00	7.0356E+00	4.3213E-02	2.7339E-02	1.637	1.927	1.770
3119	1.7778E+00	1.7778E+00	7.2356E+00	4.3267E-02	2.7960E-02	1.640	1.937	1.733
3122	1.9052E+00	1.9052E+00	7.4643E+00	4.3325E-02	2.8403E-02	1.640	1.885	1.982
3123	2.7234E+00	1.9052E+00	7.5866E+00	4.3495E-02	2.8791E-02	1.640	1.885	1.982
3125	3.5903E+00	2.7234E+00	7.5866E+00	4.3568E-02	2.8987E-02	1.575	1.877	2.336
3128	4.1920E+00	3.5903E+00	7.3408E+00	4.3568E-02	2.8987E-02	1.575	1.877	2.336
3138	5.8729E+00	4.2400E+00	5.9609E+00	4.3415E-02	2.9113E-02	1.483	1.900	2.580
				4.49335E-02	2.9199E-02	1.347	1.903	2.526

3199	.46676E+00	.40559E+00	.52150E+00	.4202E-02	.29267E-02	.60406E-02	1	1.172	1.890	2.352
3200	.38715E+00	.38723E+00	.45286E+00	.41151E-02	.29322E-02	.59598E-02		.947	1.873	2.207
3205	.22577E+00	.36831E+00	.39128E+00	.39714E-02	.29352E-02	.58299E-02		.670	1.849	2.119
3208	.11081E+00	.35035E+00	.34433E+00	.37962E-02	.29339E-02	.56523E-02		.380	1.816	2.129
3210	.28965E-02	.32285E+00	.34418E+00	.35865E-02	.29275E-02	.54305E-02		.271	1.774	2.251
3212	.10451E+00	.28775E+00	.29111E+00	.3221E-02	.28866E-02	.50162E-02		.661	1.617	2.406
3215	.16439E+00	.21094E+00	.26846E+00	.2806E-02	.27995E-02	.45200E-02		.945	1.301	2.503
3220	.11725E+00	.11725E+00	.23776E+00	.25395E-02	.26119E-02	.3826E-02		1	.915	2.535
3222	.42471E-01	.17929E+00	.17929E+00	.21571E-02	.21890E-02	.27089E-02		.863	.672	2.308
3225	.35721E-01	.12662E+00	.12662E+00	.19146E-02	.17633E-02	.18398E-02		.839	.652	1.829
3230	.35131E-01	.11442E+00	.11442E+00	.1848E-02	.16526E-02	.16432E-02		.769	.645	1.677
3235	.33539E-01	.76795E-01	.76795E-01	.16914E-02	.13034E-02	.12400E-02		.611	.573	1.165
3237	.32399E-01	.42864E-01	.42864E-01	.14835E-02	.97180E-03	.91952E-03		.646	.495	.373
3238	.27786E-01	.2270E-01	.2270E-01	.12320E-02	.74583E-03	.66106E-03		.500	.339	.149
3240	.18019E-01	.82729E-02	.82729E-02	.93583E-03	.53297E-03	.45000E-03		.307	.158	.029
3243	.76374E-02	.15031E-02	.15031E-02	.5828E-03	.3211E-03	.26792E-03		.128	.030	.001
3245	.11757E-02	.68878E-04	.68878E-04	.18117E-03	.96841E-04	.96411E-04		.022	.000	.000
3250	.24132E-06	.15874E-06	.15874E-06	.15869E-06	.83893E-07	.62426E-07		.000		

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 1 *****
 MODAL COMBINATION METHOD 2-GROUPING

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	11938.231 11938.231	13120.166 13120.166	11232.978 11232.978	403003.86 403003.86	1462293.55 1274269.64	969424.09 727694.84
2	TANGENT	END-I END-J	11936.773 11936.773	13121.066 13121.066	11231.199 11231.199	402870.73 402870.73	1274294.85 1230313.17	727724.60 670228.34
3	TANGENT	END-I END-J	11936.626 11936.626	13120.216 13120.216	11227.079 11227.079	402870.73 402870.73	1230313.17 1186860.74	670228.34 613009.44
4	TANGENT	END-I END-J	11925.193 11925.193	13127.893 13127.893	11225.322 11225.322	404049.77 404049.77	1187541.06 1138679.07	610909.05 546037.56
5	TANGENT	END-I END-J	11931.938 11931.938	13120.522 13120.522	11216.295 11216.295	403875.56 403875.56	1138413.89 1058630.21	546719.64 439748.19
6	BEND	END-I CENTER END-J	11931.612 11283.085 10764.932	13252.938 13809.350 14216.932	11006.451 11006.451 11006.451	403318.00 429993.54 497327.84	1023791.42 930793.82 814731.79	515664.65 410720.71 315353.16
7	BEND	END-I CENTER END-J	10745.779 10471.533 10391.678	14169.868 14373.887 14433.580	10902.695 10902.695 10902.695	500281.80 567603.23 629643.26	807455.47 693908.00 572688.48	329094.49 270692.04 253022.64
8	BEND	END-I CENTER END-J	10382.970 10386.888 10396.379	14238.624 14235.624 14228.886	10988.378 10988.378 10988.378	627490.85 636502.02 645117.52	551210.69 531808.92 512656.44	301437.86 299801.90 299477.56
9	TANGENT	END-I END-J	10388.408 10388.408	14288.533 14288.533	10765.676 10765.676	645205.98 645205.98	564865.18 446674.62	182545.09 359567.97
10	TANGENT	END-I END-J	10373.072 10373.072	14262.163 14262.163	10409.549 10409.549	645139.00 645139.00	446674.62 326942.69	359687.95 580156.42
11	TANGENT	END-I END-J	10355.929 10355.929	14234.091 14234.091	9871.689 9871.689	645139.00 645139.00	326942.69 258531.49	580156.42 801476.43
12	TANGENT	END-I END-J	10332.992 10332.992	14212.431 14212.431	8947.143 8947.143	645248.95 645248.95	258531.49 309179.24	801388.13 1179622.13
13	TANGENT	END-I END-J	10303.508 10303.508	14246.632 14246.632	7395.103 7395.103	645368.14 645368.14	309179.24 446845.76	1179556.98 1558152.85
14	TANGENT	END-I END-J	10273.021 10273.021	14380.724 14380.724	5602.954 5602.954	645262.85 645262.85	446845.76 566102.26	1558196.39 1939590.16
15	TANGENT	END-I END-J	10242.221 10242.221	16730.440 16730.440	3898.011 3898.011	645233.27 645233.27	566102.26 639334.42	1939600.02 1634105.69
16	TANGENT	END-I END-J	10211.676 10211.676	16088.730 16088.730	3123.569 3123.569	645358.56 645358.56	639334.42 660681.68	1634056.29 1408313.58
17	TANGENT	END-I	10179.626	15172.408	4067.774	645284.35	660681.68	1408347.51

18	TANGENT	END-J	10179.626	15172.408	4067.774	645284.35	635915.21	1287508.64
		END-I	10158.077	14342.266	5272.567	645354.47	635915.21	1287473.50
		END-J	10158.077	14342.266	5272.567	645354.47	617172.92	1270855.10
19	TANGENT	END-I	10140.112	13965.155	5846.670	644922.16	617172.92	1271075.14
		END-J	10140.112	13965.155	5846.670	644922.16	607069.45	1268987.14
20	TANGENT	END-I	10144.840	13719.835	6158.752	645263.53	607069.45	1268812.99
		END-J	10144.840	13719.835	6158.752	645263.53	597638.39	1270225.22
21	BEND	END-I	10140.796	13493.203	6477.133	645310.53	597638.39	1270201.31
		CENTER	10415.669	13282.127	6477.133	641473.10	597507.64	1271446.61
		END-J	10692.470	13060.344	6477.133	637520.93	597745.64	1272705.24
22	BEND	END-I	10684.805	12768.458	6868.863	637271.06	593690.23	1274741.52
		CENTER	11120.657	12391.035	6868.863	630648.98	593115.92	1276659.93
		END-J	11549.763	11992.458	6868.863	623720.44	593664.68	1278330.69
23	BEND	END-I	11482.027	10740.953	8681.324	624252.79	900490.48	1083942.56
		CENTER	11542.602	10675.894	8681.324	623060.33	90460.88	1083419.22
		END-J	11602.710	10610.663	8681.324	621983.78	902368.00	1082884.38
24	BEND	END-I	11671.610	11408.042	7416.775	620092.78	592552.32	1279943.51
		CENTER	11936.184	11130.518	7416.775	615112.93	592274.13	1280491.83
		END-J	12192.329	10849.245	7416.775	609995.77	592698.31	1280778.46
25	BEND	END-I	12097.264	10516.657	7864.706	609346.27	601350.43	1277027.69
		CENTER	12551.391	9970.324	7864.706	598810.81	603824.08	1275116.52
		END-J	12956.494	9437.823	7864.706	588202.93	608426.28	1271473.53
26	BEND	END-I	12770.013	9230.171	8245.324	586432.64	637366.28	1258012.35
		CENTER	12944.273	8984.276	8245.324	581104.08	63246.48	1255032.87
		END-J	13101.385	8753.553	8245.324	576061.32	641430.01	1251444.16
27	BEND	END-I	12826.355	8421.852	8870.788	576204.41	608588.01	1267712.66
		CENTER	13074.561	8031.161	8870.788	563519.16	617595.09	1256652.16
		END-J	13239.146	7756.827	8870.788	551496.01	629436.95	1242287.47
28	BEND	END-I	12961.950	7506.519	9374.540	553727.83	702687.34	1201336.88
		CENTER	12980.842	7473.757	9374.540	550218.28	706232.01	1197756.13
		END-J	12996.351	7446.910	9374.540	546795.74	709827.06	1194034.84
29	BEND	END-I	12898.101	7808.791	9174.459	548097.98	652417.90	1225759.93
		CENTER	12905.894	7795.957	9174.459	546647.36	653712.50	1222634.83
		END-J	12910.556	7788.181	9174.459	545287.40	655056.81	1219391.11
30	BEND	END-I	12298.467	7497.217	10094.084	544044.95	639324.53	1228274.64
		CENTER	12007.066	7955.159	10094.084	526294.34	676289.03	1171759.09
		END-J	11342.308	8877.338	10094.084	527148.20	718711.21	1099702.98
31	BEND	END-I	10240.034	8904.675	10939.973	528469.27	726532.66	1093847.64
		CENTER	9745.561	9443.753	10939.973	538607.54	752757.02	1048509.60
		END-J	9213.844	9962.551	10939.973	558152.54	776785.27	1001171.42
32	TANGENT	END-I	8725.955	10049.315	9723.951	558057.65	949242.46	839606.15
		END-J	8725.955	10049.315	9723.951	558057.65	921303.80	808257.52
33	TANGENT	END-I	8352.027	9851.402	9692.599	559449.89	920459.12	808257.52
		END-J	8352.027	9851.402	9692.599	559449.89	849690.47	728713.75

34	TANGENT	END-I END-J	7647.503 7647.503	9350.753 9350.753	9602.230 9602.230	558766.54 558766.54	850139.88 733401.18	728713.75 598351.07
35	TANGENT	END-I END-J	6954.301 6954.301	8689.224 8689.224	9448.183 9448.183	558891.40 558891.40	733306.11 673396.06	598351.07 529484.96
36	TANGENT	END-I END-J	6685.013 6685.013	8340.904 8340.904	9364.530 9364.530	558767.56 558767.56	673498.77 665711.20	529484.96 520265.78
37	TANGENT	END-I END-J	6279.478 6279.478	7789.660 7789.660	9237.516 9237.516	558832.45 558832.45	665656.78 606211.72	520265.78 438964.59
38	TANGENT	END-I END-J	5761.160 5761.160	6561.749 6561.749	8939.865 8939.865	558850.01 558850.01	606195.47 606075.25	438964.59 398396.42
39	TANGENT	END-I END-J	5722.846 5722.846	5737.465 5737.465	8761.078 8761.078	561883.53 561883.53	603262.63 604331.34	398396.42 397581.80
40	TANGENT	END-I END-J	5591.911 5591.911	5451.238 5451.238	8672.487 8672.487	558931.91 558931.91	607063.53 631377.51	397581.80 387965.35
41	BEND	END-I CENTER END-J	5625.870 5942.360 6361.751	8469.680 8251.339 7933.876	4545.818 4545.818 4545.818	558842.15 523384.12 480124.08	391119.04 430408.57 475863.81	629522.65 656123.91 684000.52
42	BEND	END-I CENTER END-J	6773.598 7222.248 7637.656	7477.456 7045.833 6593.492	3681.883 3681.883 3681.883	480493.04 435523.11 388924.32	474881.49 503387.11 540533.46	684423.26 708643.04 730269.50
43	BEND	END-I CENTER END-J	8269.535 8650.467 8760.519	5993.223 5426.763 5243.927	3231.610 3231.610 3231.610	388995.02 321258.87 278077.22	541269.22 560720.96 561846.39	729687.13 747935.58 751864.25
44	BEND	END-I CENTER END-J	9313.525 8698.996 7719.737	5375.430 6322.899 7490.103	4001.150 4001.150 4001.150	278313.52 276409.56 313079.10	560625.30 508513.62 435599.27	752687.88 718210.43 662450.90
45	TANGENT	END-I END-J	7751.513 7751.513	8531.523 8531.523	4750.831 4750.831	313215.86 313215.86	426000.91 366349.89	668585.05 594130.72
46	TANGENT	END-I END-J	7894.889 7894.889	9310.113 9310.113	5295.843 5295.843	313332.98 313332.98	366349.89 284433.35	594068.91 513553.22
47	TANGENT	END-I END-J	8169.305 8169.305	10166.036 10166.036	5716.807 5716.807	313337.83 313337.83	284433.35 208099.04	513550.29 473879.21
48	BEND	END-I CENTER END-J	8626.193 7346.827 6538.689	11308.661 12177.320 12629.501	5674.394 5674.394 5674.394	313325.00 300664.31 269397.72	203895.88 196799.19 245881.63	475707.38 478595.26 508112.70
49	BEND	END-I CENTER END-J	7464.958 7619.802 8419.035	13505.888 13420.953 12936.343	5625.604 5625.604 5625.604	269256.21 225242.76 174661.95	246064.92 310242.80 375561.29	508099.16 558472.45 625623.04
50	BEND	END-I CENTER END-J	9729.213 10976.512 12250.485	13522.324 12529.369 11285.876	5642.808 5642.808 5642.808	175552.17 136065.18 157190.50	378423.32 430773.11 466602.97	623645.79 700351.97 772250.56
51	BEND	END-I	13524.902	11723.734	5884.247	157784.85	462261.63	774736.78

52	TANGENT	CENTER END-J	14363.097 14908.699	10680.310 9908.457	5884.247 5884.247	222293.83 302652.69	465701.90 454164.78	821207.80 851342.18
53	TANGENT	END-I END-J	15845.174 15845.174	10194.145 10194.145	7008.832 7008.832	302669.35 302669.35	336713.39 390047.83	904095.63 963989.25
54	TANGENT	END-I END-J	16780.292 16780.292	10700.257 10700.257	7773.075 7773.075	302359.85 302359.85	389435.22 479940.51	964331.59 1052636.27
55	TANGENT	END-I END-J	17759.802 17759.802	11162.269 11162.269	8564.502 8564.502	303054.35 303054.35	479551.60 607633.81	1052613.94 1172177.90
56	TANGENT	END-I END-J	18765.690 18765.690	11534.696 11534.696	9327.254 9327.254	302768.47 302768.47	607961.13 760023.60	1172081.96 1313264.24
57	BEND	END-I CENTER END-J	18841.320 14911.000 10909.875	17691.979 21110.495 23429.743	10360.910 10360.910 10360.910	303385.31 515433.93 736693.29	951579.63 955444.35 907527.43	1463945.12 1467588.66 1483297.58
58	BEND	END-I CENTER END-J	11599.146 8704.193 9074.892	23822.285 25025.596 24893.861	11203.787 11203.787 11203.787	736022.45 931994.30 1100887.89	908014.06 823386.59 708264.20	1483332.68 1518897.38 1578412.37
59	BEND	END-I CENTER END-J	8721.143 12342.769 17089.586	25452.741 23910.951 20780.794	12077.793 12077.793 12077.793	1100534.55 1247601.11 1338991.74	709063.91 571124.20 468030.05	1578299.64 1669334.85 1766868.30
60	BEND	END-I CENTER END-J	16562.057 22517.077 25701.837	21609.581 15305.378 8991.142	12864.685 12864.685 12864.685	1339713.92 1361295.59 1272168.33	443464.60 464014.42 648973.54	1772648.69 1889150.19 1920923.80
61	BEND	END-I CENTER END-J	25603.405 25800.438 23715.154	9114.724 8541.126 13274.015	13869.784 13869.784 13869.784	1272182.02 1139664.52 982861.26	648662.95 805503.77 917151.05	1921019.30 1867304.30 1735888.10
62	BEND	END-I CENTER END-J	23785.202 22932.956 21956.155	12980.789 14433.230 15879.598	14496.826 14496.826 14496.826	984076.71 944613.83 906793.29	913856.86 93263.45 947342.92	1736933.79 1693360.73 1645819.64
63	TANGENT	END-I END-J	22053.197 22053.197	14582.756 14582.756	16078.055 16078.055	908553.44 908553.44	1006593.00 870108.83	1609260.93 1310181.33
64	TANGENT	END-I END-J	22145.685 22145.685	14651.483 14651.483	16452.785 16452.785	908474.93 908474.93	869200.06 877200.08	1310839.01 1025592.78
65	BEND	END-I CENTER END-J	22249.871 22308.385 21951.289	15605.997 15520.144 16021.172	15794.888 15794.888 15794.888	908448.47 935899.88 963103.86	1019739.98 885255.87 742280.50	884024.14 926193.89 974938.57
66	BEND	END-I CENTER END-J	22004.058 21266.955 20224.291	16159.404 17118.838 18341.632	15820.203 15820.203 15820.203	962640.06 975799.54 965438.97	743122.50 614159.54 533360.74	974755.12 1030499.09 1092071.51
67	BEND	END-I CENTER END-J	20225.610 18978.623 17700.047	18435.183 19717.183 20870.915	15857.352 15857.352 15857.352	955299.74 925145.75 853112.29	534033.21 537842.11 624049.10	1091865.88 1160781.98 1236610.88

68	BEND	END-I	17708.448	20932.007	15833.681	853761.95	621592.80	1237399.37
		CENTER	16601.193	21819.952	15833.681	751892.32	752656.83	1320155.48
		END-J	15876.503	22353.184	15833.681	624872.17	895484.86	1408225.42
69	TANGENT	END-I	15874.630	24131.519	12978.275	624260.38	794589.90	1467781.63
		END-J	15874.630	24131.519	12978.275	624260.38	838933.24	1586921.03

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 1 *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S

NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	10511.
7090	FY	14336.
7090	FZ	11175.
7090	MX	956639.
7090	MY	1273324.
7090	MZ	838834.
3047	FZ	97.
3116	FZ	414.
3210	FX	14482.
3210	FZ	189.
3250	FX	12978.
3250	FY	24132.
3250	FZ	15875.
3250	MX	1586921.
3250	MY	838933.
3250	MZ	624260.
3035	FY	29351.
3083	FZ	18981.

BENCHMARK PROBLEM 1
HIGHER FREQUENCY RESPONSE
(RIGID RESPONSE)

STATIC ANALYSIS

STRUCTURE LOAD CASE	ELEMENT A	LOAD B	MULTIPLIERS C	D
1	.000	.000	.000	.000
2	.000	.000	.000	.000
3	.000	.000	.000	.000

S T A T I C A N A L Y S I S

LOAD CASE 1

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-1.15313E-07	1.68475E-08	-2.37923E-08	2.04735E-09	-1.42435E-08	-1.98358E-08
3001	-3.8856E-05	-4.58673E-05	2.07385E-05	2.50804E-07	-1.50804E-06	-2.08820E-06
3005	-1.11968E-04	-6.74239E-05	2.94241E-05	3.61970E-07	-2.56690E-06	-3.05399E-06
3010	-1.55328E-04	-9.40418E-05	4.32327E-05	5.05489E-07	-4.28682E-06	-4.38803E-06
3011	-2.46975E-04	-1.48095E-04	7.23870E-05	6.97197E-07	-8.04500E-06	-6.54148E-06
3012	-4.18602E-04	-2.44407E-04	1.45137E-04	4.68942E-07	-1.23063E-05	-6.26350E-06
3019	-6.77214E-04	-3.12569E-04	3.79908E-04	-2.55656E-06	-1.3085E-05	8.72766E-06
3021	-7.63762E-04	-9.35939E-06	5.67409E-04	-6.12414E-06	-1.00197E-05	2.81811E-05
3023	-7.79460E-04	8.41121E-05	5.90590E-04	-6.68039E-06	-9.25243E-06	3.13286E-05
3024	-8.51209E-04	6.19473E-04	6.67686E-04	-8.63041E-06	-6.20601E-06	4.30612E-05
3026	-9.24552E-04	1.44104E-03	7.14404E-04	-1.00238E-05	-3.36555E-06	5.30656E-05
3028	-9.86196E-04	2.37941E-03	7.24925E-04	-1.04175E-05	-1.55083E-06	5.87139E-05
3030	-1.07640E-03	4.06740E-03	7.11167E-04	-9.12048E-06	-1.21305E-06	5.98073E-05
3032	-1.16573E-03	5.63106E-03	7.36684E-04	-5.87387E-06	-4.09304E-06	5.24394E-05
3035	-1.27225E-03	6.88275E-03	8.79668E-04	-1.42198E-06	-9.45277E-06	3.98576E-05
3037	-1.40810E-03	7.72616E-03	1.19264E-03	-3.46691E-06	-1.61306E-05	2.53855E-05
3038	-1.57733E-03	8.15432E-03	1.69207E-03	8.02911E-06	-2.27365E-05	1.23138E-05
3040	-1.77469E-03	8.25099E-03	2.35722E-03	-2.80110E-05	-2.80110E-05	3.74809E-06
3044	-1.85839E-03	8.23148E-03	2.65559E-03	1.15531E-05	-2.95471E-05	2.14486E-06
3047	-1.89895E-03	8.21632E-03	2.80664E-03	1.29117E-05	-3.01682E-05	1.81055E-06
3050	-1.93753E-03	8.20037E-03	2.94860E-03	1.31953E-05	-3.06655E-05	1.78234E-06
3053	-1.97152E-03	8.18070E-03	3.07630E-03	1.33853E-05	-3.10609E-05	1.98699E-06
3056	-2.02871E-03	8.16999E-03	3.29641E-03	1.35804E-05	-3.15667E-05	2.70601E-06
3059	-2.09372E-03	8.16768E-03	3.33747E-03	1.35999E-05	-3.16475E-05	2.89112E-06
3062	-2.08492E-03	8.16098E-03	3.50707E-03	1.36494E-05	-3.18738E-05	3.64507E-06
3065	-2.17592E-03	8.16266E-03	3.83205E-03	1.355578E-05	-3.20983E-05	5.44405E-06
3068	-2.23002E-03	8.16992E-03	4.00217E-03	1.34253E-05	-3.21040E-05	6.49057E-06
3071	-2.35965E-03	8.19793E-03	4.35302E-03	1.28922E-05	-3.18846E-05	8.66926E-06
3074	-2.38514E-03	8.20465E-03	4.41588E-03	1.28828E-05	-3.18093E-05	9.45420E-06
3077	-2.41375E-03	8.21167E-03	4.47833E-03	1.27717E-05	-3.17258E-05	1.31849E-05
3080	-2.79590E-03	8.28481E-03	5.08162E-03	1.11679E-05	-2.93318E-05	1.39351E-05
3083	-3.01487E-03	8.29098E-03	5.26988E-03	1.03149E-05	-2.50469E-05	1.39824E-05
3086	-3.07407E-03	8.28741E-03	5.30677E-03	1.01301E-05	-2.50469E-05	1.39449E-05
3089	-3.22508E-03	8.27921E-03	5.40113E-03	9.74170E-06	-2.82846E-05	1.39065E-05
3092	-3.49972E-03	8.26327E-03	5.57139E-03	9.43958E-06	-2.68543E-05	1.42808E-05
3095	-3.67317E-03	8.25342E-03	5.68058E-03	9.55760E-06	-2.59452E-05	1.43857E-05
3098	-3.69990E-03	8.25187E-03	5.69735E-03	9.59819E-06	-2.58090E-05	1.69169E-05
3100	-4.01907E-03	8.23460E-03	5.89566E-03	1.04860E-05	-2.43245E-05	2.22029E-05
3101	-4.4121E-03	8.21652E-03	6.12044E-03	1.21259E-05	-2.29617E-05	2.24557E-05
3104	-4.42935E-03	8.21551E-03	6.12948E-03	1.21999E-05	-2.29115E-05	2.65413E-05
3107	-4.69476E-03	8.20511E-03	6.26614E-03	1.33513E-05	-2.22456E-05	3.46473E-05
3110	-5.18548E-03	8.11141E-03	6.44072E-03	1.54675E-05	-2.13939E-05	4.29755E-05
3113	-5.73032E-03	7.83678E-03	6.52923E-03	1.76058E-05	-2.07103E-05	5.15255E-05
3115	-6.57428E-03	6.92391E-03	6.49651E-03	2.10400E-05	-1.91448E-05	6.40961E-05
3116	-7.05665E-03	5.18112E-03	6.1347E-03	2.48923E-05	-1.90536E-05	6.54392E-05
3119	-7.06841E-03	4.21912E-03	5.85537E-03	2.66535E-05	-1.92161E-05	6.47270E-05
3120	-7.08394E-03	2.99360E-03	5.52311E-03	2.87813E-05	-1.96109E-05	6.16023E-05
3122	-7.10655E-03	1.80426E-03	5.17416E-03	3.08067E-05		

3123	-6.82867E-03	4.54117E-03	3.32831E-05	-2.01129E-05	5.40655E-05
3125	-6.18924E-04	3.71143E-03	3.51470E-05	-2.00015E-05	4.60555E-05
3128	-1.07436E-03	2.71189E-03	3.61206E-05	-1.89442E-05	3.94522E-05
3138	-1.15547E-03	1.90375E-03	3.56406E-05	-1.74150E-05	3.72739E-05
3199	-1.07214E-03	1.25462E-03	3.41385E-05	-1.59237E-05	3.83007E-05
3200	-9.79393E-04	6.40721E-04	3.1774E-05	-1.44941E-05	4.10138E-05
3205	-8.67806E-04	6.20447E-04	2.86552E-05	-1.31246E-05	4.37272E-05
3208	-7.48123E-04	-4.37625E-04	2.53958E-05	-1.19483E-05	4.39757E-05
3210	-6.28303E-04	-8.72585E-04	2.21398E-05	-1.09834E-05	3.92698E-05
3212	-3.67162E-04	-1.16958E-03	1.79318E-05	-1.0239E-05	2.96144E-05
3225	5.08340E-04	3.18212E-05	1.47058E-05	-8.84480E-06	2.27090E-05
3228	5.57838E-04	4.50430E-04	1.13955E-05	-6.27221E-06	1.56419E-05
3232	3.65674E-04	8.12764E-04	6.48713E-06	-2.38926E-06	9.67097E-06
3235	1.49656E-04	-6.95087E-04	3.5318E-06	-2.78200E-07	9.03015E-06
3237	8.88621E-05	-6.77321E-04	3.21987E-06	1.62023E-07	9.08241E-06
3238	-1.11518E-04	-6.19541E-04	3.75935E-06	1.88904E-06	8.51010E-06
3238	-2.83977E-04	-5.20489E-04	6.54307E-06	4.02451E-06	6.74623E-06
3240	-3.49414E-04	-3.79669E-04	1.09239E-05	6.0715E-06	4.18604E-06
3240	-3.14067E-04	-1.50794E-04	1.41564E-05	7.86097E-06	1.78886E-06
3243	-1.50378E-04	-4.21811E-05	1.31224E-05	7.87748E-06	3.69120E-07
3245	-5.07187E-05	1.41706E-05	5.49212E-06	3.67404E-06	4.91888E-08
3250	-1.76623E-08	3.57761E-09	5.37339E-09	3.81605E-09	3.18499E-11

STAT I C A N A L Y S I S

LOAD CASE 2

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	1.39477E-08	-1.91132E-08	2.75068E-09	2.48637E-09	2.74745E-09	-1.46703E-09
3001	2.09387E-06	-1.18521E-05	-9.01512E-06	2.61495E-07	3.56903E-07	-1.48369E-07
3005	3.13225E-06	-1.53278E-05	-1.26447E-05	3.93868E-07	6.01346E-07	-2.00568E-07
3010	5.41304E-06	-1.98412E-05	-1.83706E-07	6.00376E-07	1.04174E-06	-2.67837E-07
3011	1.15392E-05	-2.81252E-05	-3.06112E-05	1.05860E-06	2.18381E-06	-3.99518E-07
3012	2.70494E-05	-4.21980E-05	-6.14396E-05	1.56469E-06	3.81217E-06	-5.75833E-07
3019	7.03809E-05	-7.80271E-05	-1.62618E-04	2.06815E-06	6.27541E-06	-9.61994E-07
3021	1.08914E-04	-1.10819E-04	-2.73078E-04	2.00278E-06	7.49146E-06	-6.61254E-07
3023	1.15466E-04	-1.15647E-04	-2.93605E-04	1.96130E-06	7.66050E-06	-5.04018E-07
3024	1.45727E-04	-1.27717E-04	-3.92997E-04	1.71212E-06	8.34919E-06	-4.73793E-07
3026	1.84480E-04	-1.15923E-04	-5.24814E-04	1.33000E-06	9.10939E-06	2.00411E-06
3028	2.25244E-04	-7.53166E-05	-6.67423E-04	9.57199E-07	9.81985E-06	3.49380E-06
3030	2.99576E-04	4.49057E-05	-9.35183E-04	5.17678E-07	1.10513E-05	5.18407E-06
3032	3.80256E-04	1.92934E-04	-1.23559E-03	3.66748E-07	1.24602E-05	5.62444E-06
3035	4.68667E-04	3.36321E-04	-1.57615E-03	4.24033E-07	1.41889E-05	5.16312E-06
3037	5.67311E-04	4.57835E-04	-1.96718E-03	5.81122E-07	1.62585E-05	5.26894E-06
3038	6.78020E-04	5.51164E-04	-2.41685E-03	7.40053E-07	1.85321E-05	3.36585E-06
3040	8.10303E-04	6.22265E-04	-2.92747E-03	8.14242E-07	2.07397E-05	2.83055E-06
3044	8.53515E-04	6.47478E-04	-3.14546E-03	8.08821E-07	2.15295E-05	2.76933E-06
3047	8.78913E-04	6.59720E-04	-3.25488E-03	7.98564E-07	2.18851E-05	2.77273E-06
3050	9.03275E-04	6.71061E-04	-3.35732E-03	7.84813E-07	2.21925E-05	2.79483E-06
3053	9.24421E-04	6.81011E-04	-3.44769E-03	7.71120E-07	2.24592E-05	2.83233E-06
3056	9.57833E-04	6.97359E-04	-3.59634E-03	7.52225E-07	2.28517E-05	2.93844E-06
3059	9.63731E-04	7.0361E-04	-3.62316E-03	7.47551E-07	2.29227E-05	2.96685E-06
3062	9.87369E-04	7.12598E-04	-3.73117E-03	7.43063E-07	2.31591E-05	3.09364E-06
3065	1.02551E-03	7.36538E-04	-3.92743E-03	7.38426E-07	2.35473E-05	3.46423E-06
3068	1.04289E-03	7.49700E-04	-4.02477E-03	7.42795E-07	2.37125E-05	3.73622E-06
3071	1.05908E-03	7.73216E-04	-4.21414E-03	7.99944E-07	2.39615E-05	4.45427E-06
3074	1.07166E-03	7.84873E-04	-4.24607E-03	8.17242E-07	2.39930E-05	4.61981E-06
3077	1.07392E-03	7.90662E-04	-4.27743E-03	8.38951E-07	2.40207E-05	4.78809E-06
3080	1.03242E-03	8.49225E-04	-4.52354E-03	1.43959E-06	2.40678E-05	7.02422E-06
3083	9.52921E-04	8.50095E-04	-4.52334E-03	2.05641E-06	2.39367E-05	8.31740E-06
3086	9.55464E-04	8.59771E-04	-4.53501E-03	2.24590E-06	2.38946E-05	8.63143E-06
3089	6.44187E-04	8.56586E-04	-4.51174E-03	2.80781E-06	2.37827E-05	9.40432E-06
3092	7.74442E-04	8.58999E-04	-4.52334E-03	2.05641E-06	2.35894E-05	1.05159E-05
3095	5.54283E-04	8.54591E-04	-4.49065E-03	4.03256E-06	2.34603E-05	1.09451E-05
3098	5.55797E-04	8.54215E-04	-4.38850E-03	5.01995E-06	2.34603E-05	1.09879E-05
3100	3.22179E-04	8.49531E-04	-4.26892E-03	6.38703E-06	2.32933E-05	1.02560E-05
3101	1.16679E-04	8.43712E-04	-4.12227E-03	7.39563E-06	2.31666E-05	1.02973E-05
3104	1.10098E-04	8.43283E-04	-4.11649E-03	7.42011E-06	2.31066E-05	1.10388E-05
3107	1.06550E-05	8.39749E-04	-4.03071E-03	7.72011E-06	2.30109E-05	9.57057E-06
3110	-1.15667E-04	8.12394E-04	-3.84452E-03	7.80642E-06	2.28044E-05	6.74175E-06
3113	-1.98274E-04	7.57931E-04	-3.58553E-03	7.45016E-06	2.20085E-05	4.71833E-06
3115	-2.58174E-04	6.53336E-04	-3.07386E-03	6.15560E-06	2.02334E-05	3.39511E-06
3116	-2.54977E-04	5.44724E-04	-2.44428E-03	3.94314E-06	1.92159E-05	3.26678E-06
3119	-2.42525E-04	4.98820E-04	-2.16309E-03	2.78141E-06	1.79833E-05	3.44854E-06
3120	-2.27804E-04	4.40339E-04	-1.82873E-03	1.32354E-06	1.69558E-05	3.89525E-06
3122	-2.13907E-04	3.75583E-04	-1.51603E-03	-1.24021E-07	1.69558E-05	3.89525E-06

3123	-1.69130E-04	2.77438E-04	-1.13264E-03	-2.11249E-06	1.59177E-05	4.62333E-06
3125	-7.75351E-05	1.93338E-04	-8.10091E-04	-4.15634E-06	1.53016E-05	4.90297E-06
3128	5.34481E-05	1.45455E-04	-5.3521E-04	-6.4921E-06	1.4849E-05	4.27871E-06
3198	1.53890E-04	1.48247E-04	-3.5371E-04	-8.38122E-06	1.44811E-05	2.90053E-06
3199	2.11106E-04	1.61999E-04	-2.15044E-04	-9.54786E-06	1.42832E-05	1.35088E-06
3200	2.34173E-04	1.71105E-04	-5.71924E-05	-1.0091E-05	1.41875E-05	-3.43704E-07
3205	2.21072E-04	1.74612E-04	1.07313E-04	-9.6480E-06	1.42333E-05	-1.99710E-06
3238	1.76673E-04	1.71996E-04	2.49978E-04	-8.40841E-06	1.44213E-05	-3.23198E-06
3210	1.11571E-04	1.64406E-04	3.57917E-04	-6.49938E-06	1.47853E-05	-3.80510E-06
3212	5.62858E-05	1.31464E-04	3.23044E-04	-3.17869E-06	1.53424E-05	-5.31432E-06
3215	9.1478E-07	2.36849E-05	8.92574E-05	-3.47478E-07	1.55378E-05	-7.72709E-06
3220	-4.95266E-07	-1.50674E-04	-2.70052E-04	2.33214E-06	1.46215E-05	-9.23536E-06
3222	1.78951E-04	-4.51609E-04	-5.61121E-04	6.43893E-06	1.13007E-05	-7.31981E-06
3225	3.30274E-04	-5.08976E-04	-4.3161E-04	9.55781E-06	8.32909E-06	-3.39766E-06
3220	3.51985E-04	-5.09068E-04	-3.61240E-04	1.00321E-05	7.63133E-06	-2.22750E-06
3235	3.74977E-04	-5.08988E-04	-9.5651E-05	9.9222E-06	5.08557E-06	5.20565E-07
3237	3.1523E-04	-5.13727E-04	1.2527E-04	6.22462E-06	2.06724E-06	2.69158E-06
3238	2.70850E-04	-5.22694E-04	1.88150E-04	-4.84576E-07	-7.10616E-07	3.77093E-06
3240	1.89033E-04	-4.72849E-04	1.1552E-04	-7.43622E-06	-2.9890E-06	3.64835E-06
3243	9.59394E-05	-3.03072E-04	3.33094E-05	-1.06808E-05	-3.63826E-06	2.53304E-06
3245	2.17377E-05	-8.33669E-05	-3.53093E-06	-5.64563E-06	-1.71743E-06	9.31590E-07
3250	6.61772E-09	-2.85489E-08	-8.91443E-09	-5.97881E-09	-1.74213E-09	6.03207E-10

STAT I C A N A L Y S I S

LOAD CASE 3

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-1.33043E-08	1.93146E-09	-1.71338E-08	3.97229E-09	3.84140E-09	-2.25196E-09
3001	-3.30512E-06	-1.05416E-05	-1.84533E-05	4.38184E-07	4.74437E-07	-2.45300E-07
3005	-4.06262E-06	-1.43396E-05	-2.50708E-05	6.75692E-07	7.78895E-07	-3.39928E-07
3010	-5.27091E-06	-2.01491E-05	-3.51302E-05	1.05627E-06	1.32074E-06	-5.17459E-07
3011	-7.93477E-06	-3.20562E-05	-5.65163E-05	2.81155E-06	2.73109E-06	-7.60979E-07
3012	-7.35913E-06	-5.54657E-05	-1.05601E-04	1.83090E-06	4.81656E-06	-6.75415E-07
3019	2.65947E-05	-8.83115E-05	-2.56716E-04	3.36344E-06	8.32934E-06	1.35855E-06
3021	7.05382E-05	-5.86979E-05	-4.21866E-04	3.00589E-06	1.04025E-05	4.49480E-06
3023	7.65967E-05	-4.68473E-05	-4.52697E-04	2.93646E-06	1.05952E-05	4.98461E-06
3024	1.02018E-04	2.50157E-05	-5.97297E-04	2.69575E-06	1.10987E-05	6.88250E-06
3026	1.33175E-04	1.41376E-04	-7.73119E-04	2.52236E-06	1.12287E-05	6.67026E-06
3028	1.63972E-04	2.80742E-04	-9.45251E-04	2.47540E-06	1.12157E-05	9.90713E-06
3030	2.17614E-04	5.47719E-04	-1.23776E-03	2.66105E-06	1.18002E-05	1.08663E-05
3032	2.79519E-04	8.18494E-04	-1.55895E-03	3.13083E-06	1.37001E-05	1.05925E-05
3035	3.58635E-04	1.06386E-03	-1.94921E-03	3.79983E-06	1.69240E-05	9.45622E-06
3037	4.62209E-04	1.26586E-03	-2.43955E-03	4.56238E-06	2.09358E-05	7.91518E-06
3038	5.93080E-04	1.41984E-03	-3.04058E-03	5.29502E-06	2.49405E-05	6.50153E-06
3040	7.48058E-04	1.53723E-03	-3.74111E-03	5.86902E-06	2.81592E-05	5.77606E-06
3044	8.14841E-04	1.57890E-03	-4.03932E-03	6.02860E-06	2.90971E-05	5.78135E-06
3047	8.47346E-04	1.59944E-03	-4.18825E-03	6.08913E-06	2.94733E-05	5.85923E-06
3050	8.78554E-04	1.61850E-03	-4.32700E-03	6.13420E-06	2.97710E-05	5.97870E-06
3053	9.05247E-04	1.63566E-03	-4.44801E-03	6.16523E-06	3.00071E-05	6.12979E-06
3056	9.45451E-04	1.66520E-03	-4.64207E-03	6.21531E-06	3.03611E-05	6.44842E-06
3059	9.52267E-04	1.67076E-03	-4.67661E-03	6.22312E-06	3.03611E-05	6.51958E-06
3062	9.78416E-04	1.69360E-03	-4.81279E-03	6.27301E-06	3.05091E-05	6.79679E-06
3065	1.01479E-03	1.73887E-03	-5.05070E-03	6.38734E-06	3.06780E-05	7.42553E-06
3068	1.02810E-03	1.76298E-03	-5.16327E-03	6.46995E-06	3.07067E-05	7.79698E-06
3071	1.03819E-03	1.81398E-03	-5.36920E-03	6.71421E-06	3.06598E-05	8.61464E-06
3074	1.03654E-03	1.82324E-03	-5.40157E-03	6.77293E-06	3.05327E-05	8.77823E-06
3077	1.03442E-03	1.83246E-03	-5.43276E-03	6.83522E-06	3.06037E-05	8.93818E-06
3080	9.22649E-04	1.91297E-03	-5.61210E-03	7.75682E-06	3.00962E-05	1.07599E-05
3083	8.01058E-04	1.92247E-03	-5.55432E-03	8.37250E-06	2.97414E-05	1.15382E-05
3086	7.62784E-04	1.92066E-03	-5.52290E-03	8.52741E-06	2.96413E-05	1.17016E-05
3089	6.55618E-04	1.91667E-03	-5.43646E-03	8.90468E-06	2.93769E-05	1.20725E-05
3092	4.49803E-04	1.90780E-03	-5.26413E-03	9.38587E-06	2.88890E-05	1.25750E-05
3095	3.11817E-04	1.90220E-03	-5.14875E-03	9.49562E-06	2.85774E-05	1.29455E-05
3098	2.90869E-04	1.90127E-03	-5.13115E-03	9.49691E-06	2.85304E-05	1.28221E-05
3100	4.88375E-05	1.89149E-03	-4.93337E-03	9.22397E-06	2.79996E-05	1.30669E-05
3101	-1.96675E-04	1.88228E-03	-4.74734E-03	8.48544E-06	2.74733E-05	1.32183E-05
3104	-2.05035E-04	1.88173E-03	-4.74084E-03	8.45057E-06	2.74540E-05	1.32225E-05
3107	-3.36142E-04	1.87711E-03	-4.65035E-03	7.90925E-06	2.71754E-05	1.32802E-05
3110	-5.27835E-04	1.83781E-03	-4.46484E-03	6.93665E-06	2.67866E-05	1.33495E-05
3113	-6.87961E-04	1.74433E-03	-4.20299E-03	5.57875E-06	2.64737E-05	1.33435E-05
3115	-8.69427E-04	1.50434E-03	-3.65989E-03	4.44255E-06	2.61184E-05	1.31330E-05
3116	-9.27885E-04	1.14222E-03	-2.91549E-03	2.57788E-06	2.58946E-05	1.25467E-05
3119	-9.11698E-04	9.64024E-04	-2.54720E-03	1.64901E-06	2.58301E-05	1.21718E-05
3120	-8.91468E-04	7.47474E-04	-2.08091E-03	4.67655E-07	2.57122E-05	1.16131E-05
3122	-8.71366E-04	5.42567E-04	-1.161643E-03	-7.18398E-07	2.54593E-05	1.09664E-05

3123	-7	84803E-04	3	01224E-04	-1	02158E-03	-2	27112E-06	2	46166E-05	9	85969E-06
3125	-6	23387E-04	1	39912E-04	-5	52389E-04	-3	48221E-05	2	37081E-05	8	50190E-06
3128	-4	18499E-04	5	67312E-05	-2	13350E-04	-4	25488E-06	2	1544E-05	6	35614E-06
3198	-2	61334E-04	5	42285E-05	-9	52729E-05	-4	42025E-06	1	31462E-05	5	34338E-06
3199	-1	53586E-04	7	21124E-05	-6	47880E-05	-4	29370E-06	1	73242E-05	3	97086E-06
3200	-7	432251E-05	8	55426E-05	-3	27199E-05	-4	09576E-06	1	53161E-05	2	67165E-06
3205	-2	03867E-05	9	51122E-05	-1	19845E-06	-3	88523E-06	1	35586E-05	1	48709E-06
3208	8	55854E-06	1	00695E-04	3	63316E-05	-3	68145E-06	1	18639E-05	5	72482E-07
3210	2	01176E-05	1	03576E-04	7	34268E-05	-3	42059E-06	1	00909E-05	-2	72218E-08
3212	2	36445E-05	1	02554E-04	6	04138E-05	-2	92760E-06	8	23818E-06	-7	41081E-07
3215	2	00437E-05	8	70044E-05	-2	42488E-05	-1	19121E-06	6	5996E-06	-1	26655E-06
3220	2	38899E-05	5	44997E-05	-1	52716E-04	-1	14477E-06	5	4809E-06	-1	40898E-06
3222	5	46925E-05	1	93140E-05	-2	87365E-04	3	0946E-07	4	20214E-06	-1	0023E-06
3225	7	90621E-05	1	33334E-05	-2	97206E-04	1	64420E-06	3	2983E-06	-4	6730E-07
3230	8	29909E-05	1	36445E-05	-2	83766E-04	2	05342E-06	3	05787E-06	-2	91043E-07
3235	7	63228E-05	1	43019E-05	-2	18737E-04	3	07693E-06	2	24161E-06	2	32197E-07
3237	7	63228E-05	1	26767E-05	-1	30702E-04	3	68080E-06	1	35729E-06	7	73168E-07
3238	6	20734E-05	-7	99884E-07	-6	52053E-05	3	21321E-06	5	8107E-07	1	12326E-06
3240	4	48026E-05	-2	50285E-05	-2	37743E-05	1	83712E-06	-1	82728E-07	1	14395E-06
3243	2	47070E-05	-3	39952E-05	-1	01035E-05	1	85940E-07	-6	34441E-07	8	26587E-07
3245	6	51447E-06	-1	46955E-05	-5	11687E-05	-4	77345E-07	-3	98712E-07	3	08005E-07
3250	2	22907E-09	-5	52306E-09	-1	36737E-08	-6	67332E-10	-4	35508E-10	1	99434E-10

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	1	END-I END-J	-10054.460 -10054.460	-5136.716 -5136.716	3740.598 3740.598	16344.35 16344.35	-163550.87 -93455.67	-181760.95 -85503.82
1	TANGENT	2	END-I END-J	2205.998 2205.998	-770.057 -770.057	-463.434 -463.434	-4537.69 -4537.69	30554.36 21870.04	-25181.66 -10751.52
1	TANGENT	3	END-I END-J	-1747.189 -1747.189	-1015.201 -1015.201	-812.239 -812.239	-3681.03 -3681.03	44630.02 29409.43	-39437.14 -20413.24
2	TANGENT	1	END-I END-J	-9914.033 -9914.033	-5031.318 -5031.318	3640.550 3640.550	16298.72 16298.72	-93468.22 -77116.24	-85498.80 -62900.01
2	TANGENT	2	END-I END-J	2114.371 2114.371	-645.219 -645.219	-463.237 -463.237	-4530.06 -4530.06	21871.08 19790.40	-10752.62 -7854.54
2	TANGENT	3	END-I END-J	-1706.395 -1706.395	-985.002 -985.002	-725.238 -725.238	-3671.35 -3671.35	29409.44 26151.94	-20414.97 -15990.71
3	TANGENT	1	END-I END-J	-9679.761 -9679.761	-4865.079 -4865.079	3473.577 3473.577	16298.72 16298.72	-77116.24 -61514.24	-62900.01 -41047.91
3	TANGENT	2	END-I END-J	1963.901 1963.901	-439.086 -439.086	-462.408 -462.408	-4530.06 -4530.06	19790.40 17713.43	-7854.54 -5882.33
3	TANGENT	3	END-I END-J	-1638.344 -1638.344	-936.282 -936.282	-582.586 -582.586	-3671.35 -3671.35	26151.94 23535.19	-15990.71 -11785.28
4	TANGENT	1	END-I END-J	-9551.309 -9551.309	-4765.079 -4765.079	3283.313 3283.313	16512.52 16512.52	-61340.86 -44546.71	-41221.55 -16848.17
4	TANGENT	2	END-I END-J	1868.352 1868.352	-305.166 -305.166	-451.219 -451.219	-4480.11 -4480.11	17743.16 15435.17	-5830.77 -4269.85
4	TANGENT	3	END-I END-J	-1591.468 -1591.468	-901.097 -901.097	-504.017 -504.017	-3580.03 -3580.03	23590.81 21012.76	-11701.87 -7092.76
5	TANGENT	1	END-I END-J	-9376.624 -9376.624	-4657.752 -4657.752	3194.282 3194.282	16531.56 16531.56	-44550.77 -17187.79	-16818.76 23080.65
5	TANGENT	2	END-I END-J	1763.456 1763.456	-165.273 -165.273	-452.877 -452.877	-4506.03 -4506.03	15424.15 11544.70	-4282.39 -2866.62
5	TANGENT	3	END-I END-J	-1544.655 -1544.655	-870.199 -870.199	-402.032 -402.032	-3617.77 -3617.77	20998.89 17554.99	-7114.65 339.68
6	BEND	1	END-I CENTER END-J	-9051.246 -9820.984 -10307.250	-5318.800 -3709.846 -1993.812	595.594 595.594 595.594	16580.62 12415.45 8820.45	-25934.26 -22921.14 -19246.44	12406.70 53981.78 80245.98
6	BEND	2	END-I CENTER END-J	1556.764 1583.195 1563.928	288.857 21.160 -247.148	-357.683 -357.683 -357.683	-4504.38 -2762.59 -1498.69	11552.47 8877.90 5947.07	2837.76 1410.19 2450.82

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
6	BEND	3	END-I CENTER END-J	-1453.845 -1536.694 -1575.187	-613.364 -358.406 -93.102	-560.458 -560.458 -560.458	-3602.40 -1382.82 2.92	15385.60 10649.02 5605.07	8466.83 12941.64 15020.74
7	BEND	1	END-I CENTER END-J	-9812.462 -9965.545 -9903.851	-1767.789 -312.101 1150.314	487.016 487.016 487.016	9098.90 6219.23 3768.91	-20922.92 -18202.31 -15089.41	79794.01 88010.88 84699.41
7	BEND	2	END-I CENTER END-J	1401.515 1391.926 1352.339	37.659 -167.942 -369.924	-226.537 -226.537 -226.537	-1454.30 -705.27 -203.10	5903.94 4272.97 2549.90	2578.51 3093.21 5218.12
7	BEND	3	END-I CENTER END-J	-1477.430 -1482.261 -1455.146	-141.736 76.101 292.298	-334.030 -334.030 -334.030	105.58 686.93 867.06	5298.10 2600.51 -153.12	15131.37 15390.67 13935.26
8	BEND	1	END-I CENTER END-J	-9623.826 -9596.044 -9562.216	985.950 1227.213 1467.702	622.181 622.181 622.181	4655.21 4052.18 3468.30	-24397.22 -23642.03 -22871.95	82455.99 80918.46 79046.24
8	BEND	2	END-I CENTER END-J	1309.300 1303.841 1297.560	-201.053 -233.855 -266.510	-197.808 -197.808 -197.808	-182.93 -137.37 -98.63	1949.86 1679.04 1407.15	5471.43 5773.57 6121.19
8	BEND	3	END-I CENTER END-J	-1416.811 -1409.933 -1402.167	256.196 291.679 326.979	-192.099 -192.099 -192.099	989.78 943.53 889.99	-1696.49 -1987.66 -2277.59	13824.22 13443.60 13013.81
9	TANGENT	1	END-I END-J	-9320.709 -9320.709	1548.588 1548.588	-249.512 -249.512	3337.08 3337.08	19565.71 16367.04	79934.41 60082.00
9	TANGENT	2	END-I END-J	1265.212 1265.212	-209.698 -209.698	-32.632 -32.632	-104.98 -104.98	4270.72 3852.39	4605.29 7293.56
9	TANGENT	3	END-I END-J	-1367.034 -1367.034	186.166 186.166	-240.529 -240.529	870.17 870.17	4511.06 1427.55	12419.01 10032.42
10	TANGENT	1	END-I END-J	-8882.132 -8882.132	1454.518 1454.518	-316.513 -316.513	3277.03 3277.03	16367.04 11425.79	60085.31 37378.02
10	TANGENT	2	END-I END-J	1205.809 1205.809	-44.048 -44.048	-21.883 -21.883	-112.27 -112.27	3852.39 3510.77	7293.45 7981.11
10	TANGENT	3	END-I END-J	-1303.972 -1303.972	180.246 180.246	-102.238 -102.238	860.15 860.15	1427.55 -168.54	10033.28 7219.36
11	TANGENT	1	END-I END-J	-8401.012 -8401.012	1318.328 1318.328	-355.857 -355.857	3277.03 3277.03	11425.79 5870.31	37378.02 16796.88
11	TANGENT	2	END-I END-J	1139.822 1139.822	69.912 69.912	-8.986 -8.986	-112.27 -112.27	3510.77 3370.49	7981.11 6889.68

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
11	TANGENT	3	END-I END-J	-1234.847 -1234.847	170.416 170.416	13.523 13.523	860.15 860.15	-168.54 42.58	7219.36 4558.90
12	TANGENT	1	END-I END-J	-7750.068 -7750.068	1094.698 1094.698	-368.380 -368.380	3291.13 3291.13	5870.31 -3955.43	16794.12 -12404.57
12	TANGENT	2	END-I END-J	1049.573 1049.573	145.562 145.562	9.000 9.000	-106.49 -106.49	3370.49 3610.55	6889.78 3007.24
12	TANGENT	3	END-I END-J	-1140.976 -1140.976	151.986 151.986	121.036 121.036	863.97 863.97	42.58 3270.95	4558.18 504.28
13	TANGENT	1	END-I END-J	-6929.628 -6929.628	752.718 752.718	-316.245 -316.245	3283.17 3283.17	-3955.43 -12384.03	-12406.68 -32468.21
13	TANGENT	2	END-I END-J	934.061 934.061	127.102 127.102	28.973 28.973	-104.56 -104.56	3610.55 4382.75	3007.30 -380.23
13	TANGENT	3	END-I END-J	-1022.172 -1022.172	117.096 117.096	158.985 158.985	864.29 864.29	3270.95 7508.23	503.72 -2817.14
14	TANGENT	1	END-I END-J	-6109.797 -6109.797	386.738 386.738	-211.756 -211.756	3297.42 3297.42	-12384.03 -18027.20	-32466.77 -42773.11
14	TANGENT	2	END-I END-J	817.103 817.103	69.912 69.912	39.150 39.150	-104.39 -104.39	4382.75 5426.07	-380.27 -2243.38
14	TANGENT	3	END-I END-J	-903.252 -903.252	71.366 71.366	122.919 122.919	865.44 865.44	7508.23 10783.96	-2616.76 -4518.63
15	TANGENT	1	END-I END-J	-5290.492 -5290.492	24.888 24.888	-68.240 -68.240	3301.74 3301.74	-18027.20 -19846.55	-42772.78 -43436.31
15	TANGENT	2	END-I END-J	698.917 698.917	24.572 24.572	33.212 33.212	-104.17 -104.17	5426.07 6311.54	-2243.39 -2898.50
15	TANGENT	3	END-I END-J	-783.979 -783.979	16.916 16.916	44.454 44.454	865.90 865.90	10783.96 11969.16	-4518.54 -4969.54
16	TANGENT	1	END-I END-J	-4471.605 -4471.605	-329.852 -329.852	83.121 83.121	3278.29 3278.29	-19846.55 -17631.20	-43438.09 -34646.81
16	TANGENT	2	END-I END-J	579.777 579.777	-22.578 -22.578	10.363 10.363	-105.73 -105.73	6311.54 6587.73	-2898.44 -2296.68
16	TANGENT	3	END-I END-J	-664.476 -664.476	-44.644 -44.644	-45.685 -45.685	863.22 863.22	11969.16 10751.56	-4970.01 -3780.16
17	TANGENT	1	END-I END-J	-3653.393 -3653.393	-654.372 -654.372	200.186 200.186	3293.49 3293.49	-17631.20 -12296.35	-34645.37 -17206.70

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
17	TANGENT	2	END-I END-J	459.959 459.959	-57.758 -57.758	-24.366 -24.366	-104.72 -104.72	6587.73 5938.40	-2296.72 -757.49
17	TANGENT	3	END-I END-J	-544.764 -544.764	-105.694 -105.694	-121.584 -121.584	864.87 864.87	10751.56 7511.42	-3779.78 -963.09
18	TANGENT	1	END-I END-J	-3082.555 -3082.555	-838.812 -838.812	243.008 243.008	3281.78 3281.78	-12296.35 -9734.27	-17208.94 -8365.16
18	TANGENT	2	END-I END-J	376.003 376.003	-64.198 -64.198	-52.190 -52.190	-105.24 -105.24	5938.40 5388.15	-757.42 -80.56
18	TANGENT	3	END-I END-J	-461.226 -461.226	-140.894 -140.894	-149.126 -149.126	864.22 864.22	7511.42 5939.16	-963.68 521.79
19	TANGENT	1	END-I END-J	-2843.412 -2843.412	-907.052 -907.052	233.689 233.689	3332.83 3332.83	-9734.27 -8532.81	-8344.95 -3681.55
19	TANGENT	2	END-I END-J	340.958 340.958	-63.468 -63.468	-61.446 -61.446	-104.75 -104.75	5388.15 5072.24	-81.21 245.10
19	TANGENT	3	END-I END-J	-424.989 -424.989	-153.704 -153.704	-158.110 -158.110	861.01 861.01	5939.16 5126.27	527.06 1317.30
20	TANGENT	1	END-I END-J	-2689.993 -2689.993	-946.792 -946.792	254.485 254.485	3310.77 3310.77	-8532.81 -7326.08	-3701.41 788.13
20	TANGENT	2	END-I END-J	317.814 317.814	-61.968 -61.968	-72.345 -72.345	-103.28 -103.28	5072.24 4729.19	245.72 539.57
20	TANGENT	3	END-I END-J	-404.247 -404.247	-161.054 -161.054	-160.263 -160.263	868.87 868.87	5126.27 4366.33	1312.13 2075.82
21	BEND	1	END-I CENTER END-J	-2553.576 -2588.624 -2620.006	-979.632 -882.869 -784.855	256.279 256.279 256.279	3311.49 3043.50 2791.15	-7326.08 -6915.45 -6495.04	785.07 2711.71 4436.87
21	BEND	2	END-I CENTER END-J	297.674 295.214 292.336	-59.788 -70.945 -82.001	-78.666 -78.666 -78.666	-102.78 72.15 240.86	4729.19 4567.02 4398.38	539.66 674.90 833.11
21	BEND	3	END-I CENTER END-J	-384.406 -390.417 -395.876	-167.024 -152.444 -137.648	-160.413 -160.413 -160.413	870.79 1028.20 1171.67	4366.33 3998.72 3625.45	2075.01 2405.48 2705.56
22	BEND	1	END-I CENTER END-J	-2457.777 -2503.229 -2539.293	-817.838 -665.860 -511.386	286.146 286.146 286.146	2777.36 2414.78 2102.61	-6324.18 -5511.69 -4678.54	4685.38 7204.16 9202.69
22	BEND	2	END-I CENTER END-J	267.702 262.267 255.848	-80.592 -96.827 -112.699	-82.848 -82.848 -82.848	252.31 514.20 756.95	4426.89 4122.12 3801.88	660.93 962.13 1317.82

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
22	BEND	3	END-I CENTER END-J	-372.316 -380.877 -388.009	-151.261 -128.187 -104.633	-153.400 -153.400 -153.400	1182.22 1392.09 1564.85	3725.19 3125.49 2514.07	2561.66 3036.07 3431.31
23	BEND	1	END-I CENTER END-J	-2419.698 -2427.227 -2434.401	-637.819 -608.542 -579.176	-73.241 -73.241 -73.241	2183.85 2074.40 1964.11	-9024.08 -9095.00 -9164.59	4979.57 5364.15 5730.64
23	BEND	2	END-I CENTER END-J	238.447 237.988 237.494	-36.582 -39.460 -42.332	-132.738 -132.738 -132.738	749.74 778.31 805.79	2410.88 2319.73 2228.25	3223.27 3246.74 3271.98
23	BEND	3	END-I CENTER END-J	-371.739 -371.843 -371.893	-10.836 -6.345 -1.852	-186.160 -186.160 -186.160	1577.19 1578.36 1577.92	164.26 30.32 -103.63	4246.02 4251.32 4253.85
24	BEND	1	END-I CENTER END-J	-2350.618 -2369.650 -2384.581	-506.449 -408.230 -309.304	311.662 311.662 311.662	1994.86 1848.74 1731.97	-3862.37 -3159.94 -2452.03	10089.12 11237.24 12137.91
24	BEND	2	END-I CENTER END-J	221.659 216.807 211.580	-112.024 -121.148 -130.061	-86.169 -86.169 -86.169	875.92 1026.25 1165.81	3740.38 3484.48 3222.54	1250.02 1542.70 1858.02
24	BEND	3	END-I CENTER END-J	-362.037 -366.468 -370.264	-114.045 -98.887 -83.557	-140.873 -140.873 -140.873	1647.89 1741.56 1817.70	2465.32 2041.14 1613.42	3435.48 3702.75 3931.76
25	BEND	1	END-I CENTER END-J	-2191.859 -2219.811 -2231.364	-419.795 -230.032 -38.570	250.504 250.504 250.504	1628.11 1372.81 1209.39	-3497.12 -2438.18 -1361.23	11893.71 13434.62 14071.55
25	BEND	2	END-I CENTER END-J	181.956 172.174 161.120	-106.089 -121.322 -135.658	-102.534 -102.534 -102.534	1174.00 1410.05 1593.93	3042.62 2445.21 1829.72	2135.49 2674.74 3284.11
25	BEND	3	END-I CENTER END-J	-341.158 -347.092 -350.463	-83.788 -54.184 -24.179	-141.861 -141.861 -141.861	1800.14 1872.53 1873.31	1256.77 426.02 -407.89	4057.67 4354.83 4580.65
26	BEND	1	END-I CENTER END-J	-2050.353 -2056.846 -2058.761	-186.047 -89.125 7.996	238.404 238.404 238.404	1425.49 1304.01 1207.80	-2840.54 -2307.48 -1769.29	13828.35 14173.16 14274.82
26	BEND	2	END-I CENTER END-J	133.637 128.778 123.631	-99.874 -106.067 -112.023	-120.258 -120.258 -120.258	1645.56 1706.14 1748.70	1473.75 1093.27 710.36	3434.25 3692.31 3965.59
26	BEND	3	END-I CENTER END-J	-326.633 -327.592 -327.822	-28.041 -12.603 2.864	-127.679 -127.679 -127.679	1943.50 1891.90 1820.99	-888.15 -1298.64 -1706.23	4482.41 4533.34 4545.55

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
27	BEND	1	END-I CENTER END-J	-1877.416 -1879.217 -1862.457	-111.535 75.321 261.433	216.305 216.305 216.305	1264.50 1361.30 1560.25	455.95 1490.16 2509.66	14371.94 14469.45 13562.73
27	BEND	2	END-I CENTER END-J	98.336 87.920 76.636	-100.073 -109.337 -117.522	-106.332 -106.332 -106.332	1756.69 1850.84 1869.91	1322.48 570.44 -187.24	3801.78 4365.62 4976.45
27	BEND	3	END-I CENTER END-J	-301.725 -303.983 -303.240	-37.762 -7.633 22.570	-108.104 -108.104 -108.104	1846.35 1711.54 1502.06	-975.59 -1734.71 -2476.70	4746.41 4868.64 4828.42
28	BEND	1	END-I CENTER END-J	-1742.145 -1738.177 -1733.527	182.911 217.403 251.811	117.688 117.688 117.688	1400.79 1527.77 1656.53	6360.79 6451.66 6539.99	12258.00 12054.09 11815.08
28	BEND	2	END-I CENTER END-J	61.716 59.364 56.989	-118.061 -119.261 -120.414	-74.496 -74.496 -74.496	1805.13 1829.23 1851.12	1272.14 1160.23 1047.86	4839.40 4960.29 5082.37
28	BEND	3	END-I CENTER END-J	-283.663 -284.007 -284.240	-20.203 -14.577 -8.945	-92.349 -92.349 -92.349	1426.51 1406.27 1383.61	-960.07 -1082.22 -1203.95	5361.65 5379.36 5391.34
29	BEND	1	END-I CENTER END-J	-1698.333 -1695.885 -1692.803	109.846 142.729 175.558	198.523 198.523 198.523	1634.61 1651.23 1671.18	771.46 943.83 1115.85	13484.98 13355.08 13191.38
29	BEND	2	END-I CENTER END-J	53.404 52.103 50.783	-66.630 -67.652 -68.649	-117.957 -117.957 -117.957	1865.57 1840.01 1811.41	-1240.70 -1397.93 -1554.64	5033.43 5102.50 5172.60
29	BEND	3	END-I CENTER END-J	-278.889 -278.413 -277.833	21.858 27.257 32.646	-82.361 -82.361 -82.361	1430.50 1363.36 1294.07	-3409.24 -3521.03 -3631.49	4331.42 4306.16 4275.35
30	BEND	1	END-I CENTER END-J	-1455.674 -1432.648 -1333.816	-67.769 266.646 586.953	110.918 110.918 110.918	1722.81 2524.01 3507.18	3015.41 3904.51 4587.02	12883.70 11645.80 6332.63
30	BEND	2	END-I CENTER END-J	21.120 14.230 6.588	-27.704 -31.797 -34.208	-104.159 -104.159 -104.159	1820.77 1442.72 692.05	-795.32 -2469.84 -4013.68	5339.11 5709.48 6120.32
30	BEND	3	END-I CENTER END-J	-242.059 -238.701 -222.712	-13.328 42.335 95.758	-46.619 -46.619 -46.619	1289.03 508.23 -432.07	-2977.62 -3766.07 -4355.25	4755.33 4574.78 3715.23
31	BEND	1	END-I CENTER END-J	-1189.343 -1158.472 -1109.593	173.800 320.447 462.113	-10.524 -10.524 -10.524	3445.23 4013.00 4509.61	4813.25 4276.80 3673.87	6197.28 4539.49 1914.66

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
31	BEND	2	END-I CENTER END-J	4.035 8.932 13.689	39.601 38.791 37.378	-78.500 -78.500 -78.500	665.67 154.70 -424.21	-3801.42 -4379.27 -4889.04	6257.24 5994.30 5738.81
31	BEND	3	END-I CENTER END-J	-195.044 -187.788 -177.613	46.129 70.041 92.864	12.887 12.887 12.887	-440.47 -957.89 -1449.66	-4228.85 -4055.06 -3818.23	3857.53 3467.88 2921.47
32	TANGENT	1	END-I END-J	-1087.850 -1087.850	103.193 103.193	278.764 278.764	4508.67 4508.67	-1197.97 -166.44	3966.94 3585.08
32	TANGENT	2	END-I END-J	20.004 20.004	74.036 74.036	52.108 52.108	-421.11 -421.11	-6546.87 -6354.05	-3738.69 -4012.65
32	TANGENT	3	END-I END-J	-170.238 -170.238	-24.206 -24.206	79.334 79.334	-1447.59 -1447.59	-3580.00 -3286.43	-3209.91 -3120.34
33	TANGENT	1	END-I END-J	-1069.286 -1069.286	120.642 120.642	147.994 147.994	4506.62 4506.62	-214.84 1237.13	3585.08 2401.46
33	TANGENT	2	END-I END-J	25.726 25.726	64.717 64.717	74.358 74.358	-489.31 -489.31	-6349.16 -5619.63	-4012.65 -4647.59
33	TANGENT	3	END-I END-J	-164.855 -164.855	-43.438 -43.438	68.734 68.734	-1482.79 -1482.79	-3270.70 -2596.34	-3120.34 -2694.16
34	TANGENT	1	END-I END-J	-1033.652 -1033.652	126.116 126.116	-92.046 -92.046	4498.71 4498.71	1265.57 -432.69	2401.46 74.62
34	TANGENT	2	END-I END-J	35.797 35.797	40.238 40.238	112.398 112.398	-453.80 -453.80	-5622.61 -3548.86	-4647.59 -5389.98
34	TANGENT	3	END-I END-J	-152.550 -152.550	-78.300 -78.300	49.894 49.894	-1466.36 -1466.36	-2605.66 -1685.10	-2694.16 -1249.52
35	TANGENT	1	END-I END-J	-994.055 -994.055	137.464 137.464	-281.446 -281.446	4497.82 4497.82	-441.92 -3805.10	74.62 -1568.03
35	TANGENT	2	END-I END-J	47.116 47.116	5.157 5.157	134.698 134.698	-461.09 -461.09	-3547.92 -1938.33	-5389.98 -5451.60
35	TANGENT	3	END-I END-J	-139.739 -139.739	-92.913 -92.913	35.334 35.334	-1469.82 -1469.82	-1682.09 -1259.85	-1249.52 -139.24
36	TANGENT	1	END-I END-J	-976.747 -976.747	135.417 135.417	-347.036 -347.036	4513.42 4513.42	-3786.59 -4416.44	-1568.03 -1813.81
36	TANGENT	2	END-I END-J	52.250 52.250	-11.729 -11.729	139.348 139.348	-453.12 -453.12	-1940.21 -1687.30	-5451.60 -5430.31
36	TANGENT	3	END-I END-J	-133.468 -133.468	-94.405 -94.405	30.064 30.064	-1464.63 -1464.63	-1265.88 -1211.32	-139.24 32.10

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
37	TANGENT	1	END-I END-J	-947.301 -947.301	140.511 140.511	-448.846 -448.846	4502.05 4502.05	-4428.02 -13668.73	-1813.81 -4706.60
37	TANGENT	2	END-I END-J	60.540 60.540	-39.826 -39.826	145.608 145.608	-457.45 -457.45	-1686.13 1311.60	-5430.31 -4610.38
37	TANGENT	3	END-I END-J	-124.122 -124.122	-94.253 -94.253	21.784 21.784	-1467.74 -1467.74	-1207.55 -759.06	32.10 1972.54
38	TANGENT	1	END-I END-J	-893.544 -893.544	128.220 128.220	-536.116 -536.116	4510.36 4510.36	-13665.99 -24697.24	-4706.60 -7344.88
38	TANGENT	2	END-I END-J	75.834 75.834	-88.621 -88.621	132.558 132.558	-458.25 -458.25	1311.33 4038.87	-4610.38 -2786.90
38	TANGENT	3	END-I END-J	-106.396 -106.396	-72.033 -72.033	11.524 11.524	-1467.27 -1467.27	-759.95 -522.82	1972.54 3454.71
39	TANGENT	1	END-I END-J	-868.799 -868.799	81.949 81.949	-535.026 -535.026	5368.43 5368.43	-24525.02 -24530.78	-7344.88 -7407.03
39	TANGENT	2	END-I END-J	87.379 87.379	-104.319 -104.319	116.858 116.858	-598.74 -598.74	4020.44 4109.07	-2786.90 -2707.79
39	TANGENT	3	END-I END-J	-95.264 -95.264	-57.744 -57.744	7.874 7.874	-1448.16 -1448.16	-573.64 -567.67	3454.71 3498.50
40	TANGENT	1	END-I END-J	-850.184 -850.184	101.682 101.682	-533.576 -533.576	4540.88 4540.88	-25094.70 -30928.09	-7407.03 -8518.68
40	TANGENT	2	END-I END-J	88.208 88.208	-117.193 -117.193	108.128 108.128	-462.50 -462.50	4126.62 5308.75	-2707.79 -1426.56
40	TANGENT	3	END-I END-J	-92.106 -92.106	-44.820 -44.820	5.904 5.904	-1466.14 -1466.14	-519.46 -454.91	3498.50 3988.50
41	BEND	1	END-I CENTER END-J	-814.046 -880.954 -927.754	-505.801 -377.392 -240.369	-56.408 -56.408 -56.408	4517.54 3319.47 1976.32	-7380.37 -8434.17 -9295.45	31222.69 34824.51 37343.85
41	BEND	2	END-I CENTER END-J	98.121 110.446 120.250	89.244 73.443 55.966	130.433 130.433 130.433	-458.50 -617.18 -601.51	-1620.00 -474.66 681.52	-5253.30 -5916.76 -6444.52
41	BEND	3	END-I CENTER END-J	-80.429 -79.076 -75.919	2.886 14.970 26.712	21.024 21.024 21.024	-1466.49 -833.86 -156.37	4002.45 4348.19 4594.69	307.46 234.64 64.65
42	BEND	1	END-I CENTER END-J	-870.702 -887.744 -887.067	-182.588 -58.063 67.621	-15.851 -15.851 -15.851	2004.39 710.98 -613.69	-8975.58 -9288.97 -9416.96	37420.52 38339.76 38303.25

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
42	BEND	2	END-I CENTER END-J	122.835 125.313 125.290	26.282 8.709 -9.038	134.560 134.560 134.560	-605.56 -438.85 -118.51	626.13 1728.07 2795.52	-6449.76 -6583.41 -6582.16
42	BEND	3	END-I CENTER END-J	-64.403 -61.138 -56.652	18.609 27.499 35.841	-3.334 -3.334 -3.334	-160.30 487.04 1121.07	4594.94 4546.33 4406.97	25.63 -150.50 -392.44
43	BEND	1	END-I CENTER END-J	-793.128 -740.398 -650.318	146.637 319.948 477.119	36.385 36.385 36.385	-600.12 -2668.63 -4503.56	-9557.94 -8745.11 -7491.15	38268.53 35425.49 30568.74
43	BEND	2	END-I CENTER END-J	117.837 105.017 86.900	-44.124 -69.310 -90.999	119.281 119.281 119.281	-120.82 673.74 1758.73	2819.74 4210.89 5389.61	-6571.78 -5880.59 -4903.78
43	BEND	3	END-I CENTER END-J	-45.455 -39.045 -30.666	23.581 33.131 41.010	-23.978 -23.978 -23.978	1120.98 2043.95 2798.61	4408.38 3758.49 2919.01	-376.61 -722.18 -1173.94
44	BEND	1	END-I CENTER END-J	-484.322 -325.450 -143.325	534.441 643.644 706.862	90.993 90.993 90.993	-4478.93 -6098.01 -6929.81	-7379.83 -4626.14 -1541.93	30599.42 22006.97 12156.96
44	BEND	2	END-I CENTER END-J	61.595 30.597 -2.587	-108.713 -121.146 -124.923	61.053 61.053 61.053	1746.43 3225.49 4710.01	5373.78 5593.87 5414.30	-4925.51 -3249.01 -1454.29
44	BEND	3	END-I CENTER END-J	-23.435 -16.309 -8.018	23.740 29.100 32.381	-23.070 -23.070 -23.070	2792.41 3421.56 3717.12	2919.94 1745.43 446.21	-1186.32 -1571.71 -2020.13
45	TANGENT	1	END-I END-J	-7.482 -7.482	-656.912 -656.912	-75.883 -75.883	-6937.04 -6937.04	1024.63 -57.28	-12207.34 -2841.30
45	TANGENT	2	END-I END-J	-21.277 -21.277	102.372 102.372	-6.746 -6.746	4711.30 4711.30	-5347.49 -5443.68	1679.81 220.23
45	TANGENT	3	END-I END-J	-8.544 -8.544	-23.374 -23.374	2.511 2.511	3718.34 3718.34	-359.93 -324.13	2035.05 2368.30
46	TANGENT	1	END-I END-J	93.782 93.782	-600.732 -600.732	-68.840 -68.840	-6938.78 -6938.78	-57.28 -1301.61	-2837.04 8021.71
46	TANGENT	2	END-I END-J	-35.061 -35.061	78.972 78.972	31.898 31.898	4711.44 4711.44	-5443.68 -4867.08	217.33 -1210.14
46	TANGENT	3	END-I END-J	-8.906 -8.906	-20.164 -20.164	-18.719 -18.719	3719.79 3719.79	-324.13 -662.49	2366.02 2730.50
47	TANGENT	1	END-I END-J	206.828 206.828	-515.212 -515.212	-38.540 -38.540	-6938.52 -6938.52	-1301.61 -1998.80	8021.94 17342.04

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
47	TANGENT	2	END-I END-J	-50.339 -50.339	43.572 43.572	63.320 63.320	4711.40 4711.40	-4867.08 -3721.64	-1210.30 -1998.50
47	TANGENT	3	END-I END-J	-9.315 -9.315	-20.304 -20.304	-43.579 -43.579	3719.88 3719.88	-662.49 -1450.83	2730.37 3097.67
48	BEND	1	END-I CENTER END-J	337.930 417.197 475.826	396.429 311.928 211.996	-41.885 -41.885 -41.885	-6941.09 -6587.31 -6019.23	1076.17 2085.30 2991.27	-17422.62 -21690.69 -24847.49
48	BEND	2	END-I CENTER END-J	-67.963 -66.559 -61.863	-1.254 13.800 28.171	-80.884 -80.884 -80.884	4711.69 5332.31 5473.70	3822.37 1723.71 -460.22	1797.58 1721.99 1469.11
48	BEND	3	END-I CENTER END-J	-9.759 -3.395 3.136	27.698 29.170 29.199	67.400 67.400 67.400	3719.42 4001.10 4264.37	1284.45 1232.71 1119.98	-3170.81 -3513.46 -3865.15
49	BEND	1	END-I CENTER END-J	548.103 543.844 515.978	36.854 -77.518 -188.525	-118.835 -118.835 -118.835	-5990.91 -5377.00 -4808.24	3007.38 2853.80 2576.34	-24852.39 -24622.39 -23117.64
49	BEND	2	END-I CENTER END-J	-57.263 -39.390 -19.807	80.258 90.381 96.582	-65.945 -65.945 -65.945	5471.83 5179.49 4507.76	-464.71 -2326.32 -4086.94	1474.66 509.53 -547.94
49	BEND	3	END-I CENTER END-J	5.744 13.239 20.160	36.774 34.786 31.287	79.314 79.314 79.314	4269.23 4501.37 4724.03	1118.89 1097.46 1028.38	-3860.11 -4264.85 -4638.55
50	BEND	1	END-I CENTER END-J	520.185 435.107 327.440	-316.195 -425.739 -513.181	-192.643 -192.643 -192.643	-4905.12 -4403.42 -4210.29	2840.37 1534.73 149.42	-23066.30 -18496.58 -12713.57
50	BEND	2	END-I CENTER END-J	2.996 32.376 60.076	130.134 126.078 115.477	-14.398 -14.398 -14.398	4515.76 3457.47 2179.53	-4068.63 -5160.29 -5984.05	-614.32 -2192.38 -3680.17
50	BEND	3	END-I CENTER END-J	25.859 33.216 38.849	35.468 28.694 20.430	71.135 71.135 71.135	4703.26 4928.40 5096.04	1095.77 867.57 594.33	-4644.23 -5039.42 -5341.98
51	BEND	1	END-I CENTER END-J	296.836 188.371 72.264	-511.237 -560.349 -586.730	-216.505 -216.505 -216.505	-4228.33 -4370.52 -4811.38	50.00 -1454.81 -2900.62	-12708.36 -6830.40 -538.33
51	BEND	2	END-I CENTER END-J	90.677 111.617 128.029	113.675 93.198 68.942	53.174 53.174 53.174	2149.60 956.82 -157.88	-6026.49 -5757.93 -5255.09	-3628.17 -4762.93 -5652.31
51	BEND	3	END-I CENTER END-J	45.255 48.144 49.080	18.998 9.544 -.297	46.293 46.293 46.293	5090.57 5143.27 5089.10	524.33 -3.67 -531.52	-5354.51 -5511.07 -5561.79

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
52	TANGENT	1	END-I END-J	76.585 76.585	-480.922 -480.922	-52.823 -52.823	-4810.26 -4810.26	-2925.21 -3986.45	396.53 10058.54
52	TANGENT	2	END-I END-J	148.698 148.698	73.012 73.012	93.037 93.037	-154.26 -154.26	-6761.53 -4892.36	-3721.21 -5188.07
52	TANGENT	3	END-I END-J	52.625 52.625	-1.186 -1.186	23.408 23.408	5091.16 5091.16	-2245.28 -1775.01	-5114.07 -5090.24
53	TANGENT	1	END-I END-J	80.310 80.310	-213.413 -213.413	-90.288 -90.288	-4804.48 -4804.48	-3950.12 -5764.89	10075.62 14365.19
53	TANGENT	2	END-I END-J	168.233 168.233	47.821 47.821	143.115 143.115	-157.50 -157.50	-4910.95 -2034.37	-5170.37 -6131.56
53	TANGENT	3	END-I END-J	55.944 55.944	-17.907 -17.907	10.113 10.113	5088.10 5088.10	-1793.48 -1590.21	-5086.83 -4726.91
54	TANGENT	1	END-I END-J	84.473 84.473	174.800 174.800	-142.112 -142.112	-4814.51 -4814.51	-5760.74 -8707.96	14363.50 10738.36
54	TANGENT	2	END-I END-J	187.555 187.555	4.928 4.928	173.014 173.014	-160.56 -160.56	-2032.53 1555.58	-6132.09 -6234.29
54	TANGENT	3	END-I END-J	59.132 59.132	-34.859 -34.859	7.093 7.093	5085.70 5085.70	-1597.31 -1450.20	-4727.10 -4004.16
55	TANGENT	1	END-I END-J	88.666 88.666	646.516 646.516	-205.793 -205.793	-4809.77 -4809.77	-8730.36 -12877.29	10722.29 -2305.63
55	TANGENT	2	END-I END-J	206.259 206.259	-52.371 -52.371	172.590 172.590	-160.21 -160.21	1565.97 5043.82	-6231.70 -5176.38
55	TANGENT	3	END-I END-J	62.240 62.240	-49.047 -49.047	16.454 16.454	5088.10 5088.10	-1438.92 -1107.35	-4005.18 -3016.84
56	TANGENT	1	END-I END-J	93.132 93.132	1133.628 1133.628	-277.677 -277.677	-4808.32 -4808.32	-12877.84 -18477.13	-2305.63 -25164.98
56	TANGENT	2	END-I END-J	224.140 224.140	-118.176 -118.176	138.639 138.639	-160.78 -160.78	5043.81 7839.43	-5176.38 -2793.38
56	TANGENT	3	END-I END-J	65.115 65.115	-58.385 -58.385	36.060 36.060	5088.22 5088.22	-1106.78 -379.63	-3016.84 -1839.51
57	BEND	1	END-I CENTER END-J	-245.941 -377.260 -483.370	-544.363 -463.134 -350.958	117.395 117.395 117.395	-4806.26 -7670.16 -9691.98	-12442.08 -9530.19 -5981.49	-28633.81 -23116.84 -18658.95
57	BEND	2	END-I CENTER END-J	329.598 408.119 459.369	349.289 253.134 140.064	-3.371 -3.371 -3.371	-154.31 1964.28 3942.16	8263.50 7990.67 7183.90	-988.06 -4286.87 -6439.99

P I P E F O R C E S A N D M O M E N T S							Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE							
57	BEND	3	END-I	83.648			25.431	42.090	5088.98	33.41	-1875.92
			CENTER	87.372			3.140	42.090	4986.60	-818.90	-2032.38
			END-J	85.258			-19.360	42.090	4669.17	-1616.49	-1943.56
58	BEND	1	END-I	-308.372			-171.626	119.223	-9689.13	-5993.71	-18656.51
			CENTER	-340.894			-91.324	119.223	-10706.90	-2235.30	-17293.70
			END-J	-352.872			-5.518	119.223	-10778.33	1657.82	-16791.80
58	BEND	2	END-I	446.974			93.024	-100.346	3935.92	7185.37	-6442.17
			CENTER	456.169			-18.678	-100.346	5441.22	4985.46	-6827.48
			END-J	437.872			-129.255	-100.346	6365.19	2485.09	-6060.78
58	BEND	3	END-I	84.815			-19.526	62.146	4670.24	-1613.32	-1943.61
			CENTER	77.502			-39.601	62.146	4214.92	-2068.08	-1637.17
			END-J	65.518			-57.290	62.146	3662.52	-2398.19	-1135.00
59	BEND	1	END-I	-164.771			-129.221	74.317	-10757.89	1659.62	-16798.31
			CENTER	-193.959			-78.913	74.317	-9775.07	5419.96	-15566.81
			END-J	-208.184			-22.518	74.317	-7786.22	8762.15	-14966.65
59	BEND	2	END-I	412.234			-114.842	-159.168	6367.61	2493.01	-6054.98
			CENTER	364.744			-223.802	-159.168	6548.68	-1201.88	-4051.27
			END-J	289.114			-315.497	-159.168	5706.42	-4804.05	-860.30
59	BEND	3	END-I	68.926			-37.443	60.980	3665.01	-2394.96	-1133.82
			CENTER	55.968			-54.958	60.980	2964.11	-2602.98	-587.09
			END-J	38.692			-68.233	60.980	2233.03	-2610.19	141.81
60	BEND	1	END-I	-145.045			-412.654	-25.126	-7758.98	7474.04	-15663.27
			CENTER	-291.422			-326.182	-25.126	-4403.18	9464.26	-9497.86
			END-J	-393.773			-190.431	-25.126	-542.05	10024.67	-5186.84
60	BEND	2	END-I	305.734			-149.489	-96.290	5690.02	-4879.35	-444.85
			CENTER	225.644			-254.765	-96.290	3033.49	-8226.57	2928.56
			END-J	111.464			-321.552	-96.290	-583.11	-10330.96	7737.80
60	BEND	3	END-I	67.461			-2.199	19.766	2224.23	-2595.97	365.19
			CENTER	61.527			-27.754	19.766	1129.33	-2930.50	615.13
			END-J	46.298			-49.116	19.766	-10.41	-2822.30	1256.59
61	BEND	1	END-I	-625.811			-438.741	-199.180	-533.94	10005.42	-5224.70
			CENTER	-730.819			-223.690	-199.180	2177.51	7099.52	-825.72
			END-J	-764.171			13.293	-199.180	3857.33	3497.51	571.46
61	BEND	2	END-I	364.504			52.212	118.417	-593.79	-10301.86	7775.69
			CENTER	362.782			-63.077	118.417	-3507.49	-8079.00	7847.84
			END-J	325.489			-172.181	118.417	-5590.90	-5064.01	9410.10
61	BEND	3	END-I	141.552			43.847	-40.370	-12.50	-2817.59	1267.09
			CENTER	148.172			-2.080	-40.370	-966.18	-3198.73	989.73
			END-J	140.265			-47.803	-40.370	-1990.95	-3266.03	1320.98

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
62	BEND	1	END-I CENTER END-J	-928.812 -924.659 -914.631	15.091 89.023 162.389	-281.483 -281.483 -281.483	3850.30 4081.47 4212.48	3521.82 2273.61 1010.96	458.46 286.13 -130.01
62	BEND	2	END-I CENTER END-J	589.078 586.663 580.521	-6.821 -53.719 -100.276	273.443 273.443 273.443	-5614.78 -5937.85 -6151.08	-4732.62 -3366.61 -1979.19	9567.07 9667.28 9922.17
62	BEND	3	END-I CENTER END-J	222.074 220.213 216.952	-14.508 -32.150 -49.588	-26.480 -26.480 -26.480	-1990.56 -2244.18 -2490.52	-3219.78 -3138.52 -3037.32	1430.58 1507.81 1643.10
63	TANGENT	1	END-I END-J	-1054.093 -1054.093	-90.022 -90.022	380.998 380.998	4209.70 4209.70	-952.78 7442.37	393.18 2376.78
63	TANGENT	2	END-I END-J	828.875 828.875	-119.228 -119.228	-386.100 -386.100	-6173.35 -6173.35	-783.54 -9291.11	-10073.64 -7446.50
63	TANGENT	3	END-I END-J	292.194 292.194	25.305 25.305	-7.625 -7.625	-2485.84 -2485.84	2482.25 2314.24	-2405.58 -2963.16
64	TANGENT	1	END-I END-J	-1265.838 -1265.838	-77.998 -77.998	401.536 401.536	4209.19 4209.19	7433.79 16286.78	2404.37 4124.06
64	TANGENT	2	END-I END-J	1214.235 1214.235	-318.157 -318.157	-518.029 -518.029	-6175.73 -6175.73	-9262.34 -20683.75	-7480.29 -465.62
64	TANGENT	3	END-I END-J	407.691 407.691	-55.249 -55.249	-121.607 -121.607	-2488.48 -2488.48	2325.63 -355.54	-2952.00 -1733.89
65	BEND	1	END-I CENTER END-J	-1446.615 -1484.807 -1469.289	-339.912 -59.878 222.322	-64.162 -64.162 -64.162	4218.28 2506.47 606.24	-8380.31 -9539.05 -10352.73	14558.88 16167.49 15513.88
65	BEND	2	END-I CENTER END-J	1550.311 1655.455 1700.717	703.450 397.208 76.599	-263.705 -263.705 -263.705	-6192.23 -5135.76 -4295.30	6049.58 5009.61 3788.43	-19779.61 -24208.27 -26114.71
65	BEND	3	END-I CENTER END-J	507.736 560.630 593.245	327.880 225.821 115.594	-63.126 -63.126 -63.126	-2486.97 -2155.46 -1842.17	1767.36 1702.85 1576.74	129.54 -2098.37 -3472.10
66	BEND	1	END-I CENTER END-J	-1598.277 -1511.335 -1369.636	306.046 603.341 878.777	141.328 141.328 141.328	637.90 -1210.45 -2799.90	-10261.45 -9071.73 -7553.33	15573.14 11921.56 5970.23
66	BEND	2	END-I CENTER END-J	1995.113 1964.325 1862.368	28.253 -350.291 -716.143	-309.901 -309.901 -309.901	-4333.72 -3802.92 -3605.89	3631.47 1920.61 140.17	-26130.65 -24837.53 -20555.34
66	BEND	3	END-I CENTER END-J	741.599 782.172 794.406	285.030 139.349 -11.380	-96.205 -96.205 -96.205	-1848.45 -1593.62 -1427.44	1554.48 1110.95 627.17	-3478.80 -5182.86 -5696.71

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
67	BEND	1	END-I	-1455.758	996.899	474.225	-2808.93	-7543.52	5978.38
			CENTER	-1239.234	1255.921	474.225	-3830.62	-3086.59	-3092.25
			END-J	-977.339	1468.961	474.225	-3984.71	1483.34	-14063.56
67	BEND	2	END-I	2109.035	-924.157	-309.377	-3605.08	121.94	-20555.60
			CENTER	1894.407	-1308.937	-309.377	-3753.11	-1662.16	-11564.40
			END-J	1610.420	-1645.795	-309.377	-4238.24	-3385.40	332.36
67	BEND	3	END-I	1003.749	129.581	-117.343	-1426.53	622.62	-5697.44
			CENTER	1010.055	-63.971	-117.343	-1371.82	-53.35	-5961.61
			END-J	979.380	-255.180	-117.343	-1446.85	-727.37	-4676.60
68	BEND	1	END-I	-1020.143	1579.319	928.372	-3984.98	1514.10	-14060.20
			CENTER	-702.340	1744.034	928.372	-2918.95	9633.74	-27411.71
			END-J	-359.081	1845.535	928.372	-333.40	17404.18	-41832.73
68	BEND	2	END-I	1756.364	-1979.187	-276.679	-4233.80	-3391.85	323.16
			CENTER	1349.436	-2276.186	-276.679	-5010.55	-4730.94	17419.04
			END-J	893.595	-2490.680	-276.679	-6027.02	-5898.56	36569.83
68	BEND	3	END-I	1233.441	-170.178	-127.261	-1445.33	-717.30	-4678.63
			CENTER	1178.835	-400.857	-127.261	-1651.97	-1443.65	-2384.50
			END-J	1081.500	-617.006	-127.261	-1992.53	-2117.67	1704.74
69	TANGENT	1	END-I	-357.761	-1688.742	-1614.586	-318.50	-23668.03	38635.70
			END-J	-357.761	-1688.742	-1614.586	-318.50	-38160.55	53793.85
69	TANGENT	2	END-I	891.443	2737.372	661.772	-6032.07	11481.23	-35217.41
			END-J	891.443	2737.372	661.772	-6032.07	17421.29	-59788.05
69	TANGENT	3	END-I	1291.651	592.306	222.907	-1994.34	2354.27	-1356.78
			END-J	1291.651	592.306	222.907	-1994.34	4355.08	-6673.32

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL / LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
 THAM= THERMAL ANCHOR MOTION
 SEAM= SEISMIC ANCHOR MOTION
 SNBR= SNUBBER ELEMENT

LOAD CASE		1										
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			MX	MY	MZ	LOCAL COMPONENTS	
											FL	ML
BDRY	7090	-11531.	0.	0.	0.	0.	0.	0.	0.	0.	-11531.	0.
BDRY	7090	0.	1685.	0.	0.	0.	0.	0.	0.	0.	1685.	0.
BDRY	7090	0.	0.	-2379.	-2379.	0.	0.	0.	0.	0.	-2379.	0.
BDRY	7090	0.	0.	0.	0.	20474.	0.	0.	0.	0.	0.	20474.
BDRY	7090	0.	0.	0.	0.	0.	0.	0.	-142435.	0.	0.	-142435.
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	-198358.
BDRY	3116	0.	0.	2.	2.	0.	0.	0.	0.	0.	2.	0.
BDRY	3210	-2197.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.
BDRY	3210	0.	0.	-1.	-1.	0.	0.	0.	0.	0.	-1.	0.
BDRY	3250	-1766.	0.	0.	0.	0.	0.	0.	0.	0.	-1766.	0.
BDRY	3250	0.	1689.	0.	0.	0.	0.	0.	0.	0.	1689.	0.
BDRY	3250	0.	0.	358.	358.	0.	0.	0.	0.	0.	358.	0.
BDRY	3250	0.	0.	0.	0.	53794.	0.	0.	0.	0.	0.	53794.
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	38161.	0.	0.	38161.
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	0.	318.	0.	318.
SNBR	3035	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
 THAM= THERMAL ANCHOR MOTION
 SEAM= SEISMIC ANCHOR MOTION
 SNBR= SNUBBER ELEMENT

LOAD CASE 2

KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS MX	MY	MZ	LOCAL COMPONENTS FL	ML
BDRY	7090	1395.	0.	0.	0.	0.	0.	1395.	0.
BDRY	7090	0.	-1911.	0.	0.	0.	0.	-1911.	0.
BDRY	7090	0.	0.	275.	0.	0.	0.	275.	0.
BDRY	7090	0.	0.	0.	24864.	0.	0.	0.	24864.
BDRY	7090	0.	0.	0.	0.	27475.	0.	0.	27475.
BDRY	3047	0.	0.	0.	0.	0.	-14670.	0.	-14670.
BDRY	3116	0.	0.	-2.	0.	0.	0.	-2.	0.
BDRY	3210	0.	0.	-1.	0.	0.	0.	-1.	0.
BDRY	3210	558.	0.	0.	0.	0.	0.	558.	0.
BDRY	3250	662.	0.	0.	0.	0.	0.	662.	0.
BDRY	3250	0.	-2855.	0.	0.	0.	0.	-2855.	0.
BDRY	3250	0.	0.	-891.	0.	0.	0.	-891.	0.
BDRY	3250	0.	0.	0.	-59788.	0.	0.	0.	-59788.
BDRY	3250	0.	0.	0.	0.	-17421.	0.	0.	-17421.
BDRY	3035	0.	0.	0.	0.	0.	6032.	0.	-17421.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	6032.
SNBR		0.	0.	0.	0.	0.	0.	0.	0.

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
 THAM= THERMAL ANCHOR MOTION
 SEAM= SEISMIC ANCHOR MOTION
 SNBR= SNUBBER ELEMENT

LOAD CASE 3

KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS MX	MY	MZ	LOCAL COMPONENTS FL	ML
BDRY	7090	-1330.	0.	0.	0.	0.	0.	-1330.	0.
BDRY	7090	0.	193.	0.	0.	0.	0.	193.	0.
BDRY	7090	0.	0.	-1713.	0.	0.	0.	-1713.	0.
BDRY	7090	0.	0.	0.	39723.	0.	0.	0.	39723.
BDRY	7090	0.	0.	0.	0.	38414.	0.	0.	38414.
BDRY	3047	0.	0.	0.	0.	0.	-22520.	0.	-22520.
BDRY	3116	0.	0.	-3.	0.	0.	0.	-3.	0.
BDRY	3210	101.	0.	-2.	0.	0.	0.	101.	0.
BDRY	3210	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3250	223.	0.	0.	0.	0.	0.	223.	0.
BDRY	3250	0.	-592.	0.	0.	0.	0.	-592.	0.
BDRY	3250	0.	0.	-1367.	0.	0.	0.	-1367.	0.
BDRY	3250	0.	0.	0.	-6673.	0.	0.	0.	-6673.
BDRY	3250	0.	0.	0.	0.	-4355.	0.	0.	-4355.
SNBR	3035	0.	0.	0.	0.	0.	1994.	0.	1994.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.

STATIC SOLUTION TIME LOG

EQUATION SOLUTION = .00
 DISPLACEMENT OUTPUT = .00
 STRESS RECOVERY = .00

BENCHMARK PROBLEM 1

TOTAL RESPONSE

***** FINAL RESULTS - SRSS COMBINATION OF DYNAMIC RESPONSES WITH HIGH FREQUENCY MODE RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S			A C C E L E R A T I O N S I N G ' S		
	X- T R A N S L A T I O N	Y- T R A N S L A T I O N	Z- T R A N S L A T I O N	X- D I R E C T I O N	Y- D I R E C T I O N	Z- D I R E C T I O N
7090	15721E-06	14562E-06	11556E-06	95801E-07	12821E-06	86239E-07
3001	21398E-03	22509E-03	27910E-03	13318E-04	17731E-04	10573E-04
3005	30804E-03	31974E-03	41852E-03	23575E-04	31232E-04	17631E-04
3010	46871E-03	47851E-03	66430E-03	43148E-04	56814E-04	30236E-04
3011	83980E-03	83987E-03	12513E-02	97660E-04	12731E-03	62615E-04
3012	18703E-02	17736E-02	30249E-02	18499E-03	23861E-03	10815E-03
3019	51439E-02	50060E-02	10168E-01	37624E-03	45850E-03	17771E-03
3021	78850E-02	83641E-02	19132E-01	54079E-03	62963E-03	20416E-03
3023	82946E-02	89283E-02	20866E-01	57002E-03	62963E-03	20416E-03
3024	10207E-01	11309E-01	29500E-01	70496E-03	71230E-03	21825E-03
3026	12824E-01	13452E-01	41238E-01	66838E-03	78447E-03	25338E-03
3028	15656E-01	14395E-01	53835E-01	10313E-02	82744E-03	34328E-03
3030	20699E-01	14387E-01	76065E-01	13093E-02	84260E-03	64179E-03
3032	25599E-01	24037E-01	97542E-01	15891E-02	80250E-03	10979E-02
3035	29988E-01	53675E-01	11684E+00	18732E-02	73747E-03	16956E-02
3037	33671E-01	10416E+00	13313E+00	21623E-02	68670E-03	23075E-02
3038	36604E-01	17001E+00	14621E+00	24530E-02	68734E-03	28139E-02
3040	38882E-01	24792E+00	15662E+00	27443E-02	74982E-03	32286E-02
3044	39659E-01	28146E+00	16024E+00	28599E-02	78762E-03	33710E-02
3047	40011E-01	29832E+00	16195E+00	29163E-02	80782E-03	34367E-02
3053	40643E-01	32810E+00	16440E+00	29686E-02	82720E-03	34953E-02
3056	41387E-01	35120E+00	16385E+00	30142E-02	84596E-03	35481E-02
3059	41591E-01	35541E+00	16349E+00	30886E-02	87831E-03	36312E-02
3062	42912E-01	37235E+00	16102E+00	31023E-02	88473E-03	36472E-02
3065	48937E-01	40343E+00	15232E+00	31561E-02	90931E-03	37031E-02
3068	54862E-01	41903E+00	14561E+00	32574E-02	95953E-03	38102E-02
3071	79789E-01	44989E+00	12222E+00	33105E-02	98734E-03	38666E-02
3077	85013E-01	46040E+00	11771E+00	34215E-02	10487E-02	39807E-02
3080	16910E+00	50434E+00	51752E-01	34636E-02	10727E-02	40241E-02
3083	22491E+00	51124E+00	35550E-01	37038E-02	12248E-02	42631E-02
3086	24089E+00	51131E+00	42213E-01	38295E-02	13121E-02	43821E-02
3089	28393E+00	51147E+00	72253E-01	39382E-02	13368E-02	44113E-02
3092	36711E+00	51182E+00	14233E+00	40627E-02	14046E-02	44864E-02
3095	42237E+00	51204E+00	19052E+00	40627E-02	15395E-02	46185E-02
3098	43085E+00	51208E+00	19795E+00	41284E-02	16309E-02	46971E-02
3100	52852E+00	51247E+00	28355E+00	41374E-02	16451E-02	47086E-02
3101	62858E+00	51287E+00	37077E+00	42217E-02	18091E-02	48305E-02
3104	63223E+00	51290E+00	37400E+00	42758E-02	19786E-02	49391E-02
3107	68639E+00	51312E+00	42075E+00	42773E-02	19849E-02	49429E-02
3110	76676E+00	50228E+00	49076E+00	42948E-02	20766E-02	49963E-02
3113	83652E+00	47246E+00	55324E+00	43116E-02	22122E-02	50807E-02
3115	92236E+00	39203E+00	63835E+00	43180E-02	23332E-02	51609E-02
3116	96232E+00	27020E+00	68982E+00	43195E-02	25055E-02	52991E-02
3119	96209E+00	21734E+00	70359E+00	43194E-02	26727E-02	54804E-02
3120	96180E+00	17781E+00	72359E+00	43214E-02	27342E-02	55645E-02
3122	96148E+00	19053E+00	74645E+00	43268E-02	27962E-02	56688E-02
3123	93044E+00	27234E+00	75868E+00	43353E-02	28405E-02	57694E-02
3125	84923E+00	35903E+00	73409E+00	43496E-02	28793E-02	59040E-02
3128	71915E+00	41920E+00	67290E+00	43569E-02	28989E-02	60042E-02
3138	58731E+00	42400E+00	59609E+00	43417E-02	29115E-02	60689E-02
3139				42937E-02	29201E-02	60770E-02

3199	46678E+00	40559E+00	52150E+00	42204E-02	29328E-02	60407E-02	1	1.172	1.891	2.352
3200	34716E+00	38723E+00	45286E+00	41152E-02	29323E-02	59599E-02		.947	1.873	2.207
3205	22578E+00	36831E+00	39128E+00	39115E-02	29325E-02	58281E-02		.670	1.849	2.119
3208	11082E+00	35035E+00	34433E+00	37633E-02	29330E-02	56535E-02		.380	1.816	2.129
3210	29318E-02	33285E+00	34418E+00	35866E-02	29276E-02	54306E-02		.271	1.774	2.251
3212	10451E+00	28775E+00	29111E+00	32322E-02	28817E-02	50163E-02		.661	1.617	2.406
3215	16439E+00	21094E+00	26846E+00	28906E-02	27966E-02	45201E-02		.945	1.301	2.503
3220	17765E+00	11725E+00	23776E+00	25395E-02	26120E-02	38286E-02	1	1.007	.919	2.535
3222	12611E+00	42480E-01	17929E+00	21571E-02	21190E-02	27099E-02		.863	.672	2.308
3225	72775E-01	35734E-01	12662E+00	15146E-02	17323E-02	18398E-02		.839	.622	1.677
3230	61853E-01	35144E-01	11442E+00	1548E-02	16226E-02	16432E-02		.832	.635	1.1
3235	32647E-01	33551E-01	76798E-01	16914E-02	13034E-02	12400E-02		.769	.611	1.165
3237	13513E-01	32411E-01	42868E-01	14835E-02	97181E-03	91955E-03		.646	.573	.373
3238	88947E-02	27798E-01	22274E-01	13221E-02	7486E-03	66108E-03		.500	.435	.149
3240	68177E-02	18032E-01	82762E-02	95597E-03	53304E-03	45002E-03		.307	.339	.029
3243	34769E-02	76483E-02	15041E-02	58652E-03	32123E-03	26793E-03		.128	.158	.001
3245	59935E-03	11803E-02	63200E-04	18134E-04	96227E-04	96416E-04		.022	.030	.000
3250	13116E-06	24366E-06	15962E-06	15890E-06	83999E-07	62429E-07		.000	.000	

***** FINAL RESULTS - SRSS COMBINATION OF DYNAMIC RESPONSES WITH HIGH FREQUENCY MODE RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	15859.757 15859.757	14147.408 14147.408	11876.316 11876.316	403377.52 403377.52	1472405.13 1278217.58	987425.71 733064.06
2	TANGENT	END-I END-J	15753.017 15753.017	14101.914 14101.914	11837.822 11837.822	403242.42 403242.42	1278243.64 1233163.84	733093.12 673409.07
3	TANGENT	END-I END-J	15579.513 15579.513	14031.325 14031.325	11775.685 11775.685	403242.42 403242.42	1233163.84 1188818.74	673409.07 614523.35
4	TANGENT	END-I END-J	15474.541 15474.541	13998.316 13998.316	11715.166 11715.166	404427.73 404427.73	1189490.61 1139848.36	612437.81 546360.19
5	TANGENT	END-I END-J	15355.358 15355.358	13950.868 13950.868	11677.994 11677.994	404255.10 404255.10	1139583.19 1058978.18	547041.27 440362.95
6	BEND	END-I CENTER END-J	15126.975 15120.446 15068.164	14296.456 14303.546 14358.457	11042.636 11042.636 11042.636	403699.88 430183.80 497408.27	1024300.54 931179.20 815000.07	515891.12 414457.48 325758.63
7	BEND	END-I CENTER END-J	14693.660 14597.906 14492.065	14280.499 14378.470 14487.039	10921.033 10921.033 10921.033	500366.66 567638.12 629655.21	807765.49 694164.72 572892.95	338977.70 285072.82 267237.43
8	BEND	END-I CENTER END-J	14287.981 14270.935 14253.804	14276.011 14293.289 14310.614	11009.454 11009.454 11009.454	627508.87 636515.61 645127.44	551756.41 532340.51 513173.34	312865.54 310874.64 310067.68
9	TANGENT	END-I END-J	14080.626 14080.626	14374.909 14374.909	10771.326 10771.326	645215.23 645215.23	565238.09 446993.24	199718.96 364764.09
10	TANGENT	END-I END-J	13771.265 13771.265	14337.378 14337.378	10414.836 10414.836	645147.91 645147.91	446993.24 327161.17	364882.94 581458.84
11	TANGENT	END-I END-J	13440.449 13440.449	14296.207 14296.207	9878.125 9878.125	645147.91 645147.91	327161.17 258620.11	581458.84 801694.96
12	TANGENT	END-I END-J	13009.147 13009.147	14256.050 14256.050	8955.503 8955.503	645257.98 645257.98	258620.11 309242.88	801606.62 1179591.26
13	TANGENT	END-I END-J	12493.966 12493.966	14267.518 14267.518	7403.622 7403.622	645377.04 645377.04	309242.88 447101.91	1179626.19 1558493.39
14	TANGENT	END-I END-J	12014.479 12014.479	14386.246 14386.246	5608.484 5608.484	645271.91 645271.91	447101.91 566517.90	1558536.85 1940068.33
15	TANGENT	END-I END-J	11575.623 11575.623	16730.445 16730.445	3898.992 3898.992	645242.34 645242.34	566517.90 639785.48	1940078.12 1634693.01
16	TANGENT	END-I END-J	11182.656 11182.656	16092.159 16092.159	3125.057 3125.057	645367.51 645367.51	639785.48 661037.19	1634643.68 1408746.66
17	TANGENT	END-I	10838.812	15186.982	4074.610	645293.29	661037.19	1408780.52

18	TANGENT	END-J	10838.812	15186.982	4074.610	645293.29	636106.15	1287624.16
		END-I	10632.181	14367.642	5280.561	645363.43	636106.15	1287589.09
		END-J	10632.181	14367.642	5280.561	645363.43	617301.75	1270882.74
19	TANGENT	END-I	10545.306	13995.614	5853.827	644931.39	617301.75	1271102.60
		END-J	10545.306	13995.614	5853.827	644931.39	607172.29	1268993.15
20	TANGENT	END-I	10507.970	13753.512	6166.563	645272.59	607172.29	1268819.10
		END-J	10507.970	13753.512	6166.563	645272.59	597717.96	1270227.26
21	BEND	END-I	10468.666	13529.878	6484.630	645319.59	597717.96	1270203.35
		CENTER	10743.711	13312.472	6484.630	641481.15	597578.45	1271451.95
		END-J	11019.809	13084.843	6484.630	637528.13	597808.06	1272716.08
22	BEND	END-I	10973.419	12795.813	6877.068	637278.30	593752.07	1274752.86
		CENTER	11408.330	12409.918	6877.068	630655.37	593164.07	1276684.20
		END-J	11834.774	12004.384	6877.068	623726.37	593700.63	1278369.11
23	BEND	END-I	11742.501	10759.988	8684.619	624259.06	900538.96	1083967.15
		CENTER	11803.303	10693.304	8684.619	623066.24	901509.76	1083445.68
		END-J	11863.543	10626.580	8684.619	621989.42	902417.29	1082912.86
24	BEND	END-I	11913.516	11420.355	7425.182	620098.82	592581.82	1279988.48
		CENTER	12176.593	11139.082	7425.182	615119.00	592296.30	1280547.39
		END-J	12430.618	10854.709	7425.182	610002.08	592714.33	1280843.40
25	BEND	END-I	12300.342	10525.943	7870.635	609352.26	601369.58	1277091.35
		CENTER	12752.071	9973.838	7870.635	598816.96	603834.12	1275197.65
		END-J	13152.895	9438.885	7870.635	588209.29	608430.71	1271563.86
26	BEND	END-I	12938.369	9232.658	8250.610	586439.86	637374.95	1258100.97
		CENTER	13111.424	8985.377	8250.610	581111.15	639252.92	1255126.54
		END-J	13266.798	8754.321	8250.610	576068.10	641435.10	1251540.15
27	BEND	END-I	12966.956	8423.318	8874.732	576211.42	608590.39	1267808.75
		CENTER	13212.750	8032.301	8874.732	563526.48	617599.60	1256752.51
		END-J	13373.122	7762.127	8874.732	551503.42	629446.90	1242380.88
28	BEND	END-I	13081.673	7509.683	9375.990	553734.35	702717.90	1201421.15
		CENTER	13099.871	7477.926	9375.990	550225.26	706263.25	1197839.10
		END-J	13114.709	7452.134	9375.990	546803.09	709859.02	1194116.24
29	BEND	END-I	13012.530	7809.887	9177.775	548105.48	652428.44	1225852.06
		CENTER	13019.928	7797.648	9177.775	546654.69	653724.16	1222725.97
		END-J	13024.167	7790.549	9177.775	545294.51	655069.66	1219480.91
30	BEND	END-I	12386.731	7497.569	10095.354	544052.20	639339.04	1228362.98
		CENTER	12094.632	7959.844	10095.354	526302.58	676315.27	1171879.81
		END-J	11422.631	8897.264	10095.354	527160.50	718750.24	1099744.54
31	BEND	END-I	10310.683	8906.603	10940.294	528481.13	726670.89	1093889.85
		CENTER	9816.013	9449.574	10940.294	538623.32	752792.81	1048542.30
		END-J	9282.081	9973.814	10940.294	558172.76	776818.76	1001193.94
32	TANGENT	END-I	8795.219	10050.132	9728.458	558077.85	949272.58	839629.93
		END-J	8795.219	10050.132	9728.458	558077.85	921331.59	808281.43
33	TANGENT	END-I	8421.824	9852.447	9694.259	559470.23	920486.83	808281.43
		END-J	8421.824	9852.447	9694.259	559470.23	849713.95	728737.46

34	TANGENT	END-I END-J	7718.630 7718.630	9352.065 9352.065	9603.429 9603.429	558786.72 558786.72	850163.43 733411.85	728737.46 598376.69
35	TANGENT	END-I END-J	7026.533 7026.533	8690.785 8690.785	9453.417 9453.417	558911.62 558911.62	733316.75 673410.82	598376.69 529515.40
36	TANGENT	END-I END-J	6757.500 6757.500	8342.542 8342.542	9372.013 9372.013	558787.93 558787.93	673513.43 665729.09	529515.40 520297.30
37	TANGENT	END-I END-J	6352.052 6352.052	7791.639 7791.639	9249.570 9249.570	558852.75 558852.75	665674.76 606367.67	520297.30 439018.47
38	TANGENT	END-I END-J	5831.544 5831.544	6563.946 6563.946	8956.949 8956.949	558870.31 558870.31	606351.42 606591.96	439018.47 398488.82
39	TANGENT	END-I END-J	5789.815 5789.815	5739.324 5739.324	8778.203 8778.203	561911.33 561911.33	603774.57 604859.55	398488.82 397675.40
40	TANGENT	END-I END-J	5657.598 5657.598	5453.592 5453.592	8689.574 8689.574	558952.46 558952.46	607596.19 632157.01	397675.40 388082.03
41	BEND	END-I CENTER END-J	5685.906 6008.880 6430.664	8485.259 8260.266 7937.783	4548.069 4548.069 4548.069	558862.57 523395.65 480128.57	391212.46 430513.45 475977.24	630318.47 657074.11 685049.47
42	BEND	END-I CENTER END-J	6830.740 7277.891 7690.271	7479.798 7046.098 6593.950	3684.394 3684.394 3684.394	480497.59 435524.17 388326.42	474988.95 509495.00 540640.71	685475.86 709709.94 731303.06
43	BEND	END-I CENTER END-J	8308.408 8682.851 8785.088	5995.202 5436.766 5266.507	3234.094 3234.094 3234.094	388997.10 321277.19 278133.31	541378.87 560817.59 561929.77	730719.56 748817.50 752502.26
44	BEND	END-I CENTER END-J	9326.317 8705.155 7721.035	5403.048 6356.796 7524.487	4002.667 4002.667 4002.667	278369.02 276516.84 313213.26	560707.23 508568.40 435635.90	753326.67 718556.55 662567.12
45	TANGENT	END-I END-J	7751.538 7751.538	8557.397 8557.397	4751.411 4751.411	313350.20 313350.20	426035.85 366390.49	668701.74 594142.25
46	TANGENT	END-I END-J	7895.540 7895.540	9329.817 9329.817	5296.377 5296.377	313467.30 313467.30	366390.49 284478.69	594080.43 513624.53
47	TANGENT	END-I END-J	8172.078 8172.078	10179.160 10179.160	5717.447 5717.447	313472.10 313472.10	284478.69 208146.93	513621.63 474210.75
48	BEND	END-I CENTER END-J	8633.090 7358.938 6556.283	11315.680 12181.337 12631.344	5675.531 5675.531 5675.531	313459.36 300810.33 269554.26	203938.61 196821.66 245902.78	476040.30 479102.55 508736.68
49	BEND	END-I CENTER END-J	7485.316 7639.296 8434.844	13506.239 13421.573 12938.072	5627.800 5627.800 5627.800	269412.25 225411.45 174850.14	246086.26 310266.59 375553.78	508723.42 559031.52 626067.39
50	BEND	END-I CENTER END-J	9743.131 10985.218 12255.084	13526.669 12537.298 11298.170	5646.554 5646.554 5646.554	175741.71 136269.48 157344.53	378457.42 430807.61 466641.77	624089.80 700617.76 772382.49
51	BEND	END-I	13528.537	11735.408	5888.604	157938.24	462301.18	774868.02

52	TANGENT	CENTER END-J	14364.850 14909.506	10695.400 9926.096	5888.604 5888.604	222328.30 302733.76	465739.76 454204.78	821268.51 851379.30
		END-I END-J	15846.170 15846.170	10205.699 10205.699	7009.656 7009.656	302750.37 302750.37	336801.47 390102.89	904117.81 964069.07
53	TANGENT	END-I END-J	16781.429 16781.429	10702.550 10702.550	7774.948 7774.948	302440.91 302440.91	389490.32 479982.07	964411.51 1052762.78
54	TANGENT	END-I END-J	17761.090 17761.090	11163.724 11163.724	8567.429 8567.429	303135.25 303135.25	479593.17 607699.91	1052740.37 1172250.50
55	TANGENT	END-I END-J	18767.146 18767.146	11553.027 11553.027	9331.181 9331.181	302849.49 302849.49	608027.50 760150.22	1172154.45 1313279.89
56	TANGENT	END-I END-J	19780.596 19780.596	11849.587 11849.587	10060.753 10060.753	302785.69 302785.69	760175.73 934822.98	1313279.89 1475174.85
57	BEND	END-I CENTER END-J	18845.973 14921.610 10930.593	17703.837 21117.097 23432.755	10361.651 10361.651 10361.651	303466.08 515518.83 736782.39	951696.81 955525.59 907576.98	1464226.64 1467778.42 1483430.21
58	BEND	END-I CENTER END-J	11612.114 8723.153 9092.544	23823.108 25025.805 24894.302	11205.056 11205.056 11205.056	736111.51 932081.21 1100965.15	908063.74 823407.32 708274.56	1483465.28 1519012.07 1578513.76
59	BEND	END-I CENTER END-J	8732.664 12349.838 17093.357	25453.315 23912.241 20783.319	12079.231 12079.231 12079.231	1100611.80 1247660.10 1339028.36	709074.27 571157.11 468143.94	1578401.01 1669412.50 1766931.90
60	BEND	END-I CENTER END-J	16565.694 22520.200 25705.100	21614.057 15311.020 8998.997	12865.100 12865.100 12865.100	1339750.30 1361306.70 1272168.55	443562.01 464193.06 649139.27	1772717.99 1889176.45 1920946.80
61	BEND	END-I CENTER END-J	25614.032 25813.723 23730.156	9125.508 8544.262 13275.209	13871.794 13871.794 13871.794	1272182.25 1139672.39 982886.79	648828.07 805581.95 917177.46	1921042.56 1867321.24 1735914.20
62	BEND	END-I CENTER END-J	23811.652 22960.186 21983.979	12980.819 14433.610 15880.824	14502.135 14502.135 14502.135	984102.26 944643.95 906827.37	913881.61 932877.53 947350.38	1736960.80 1693388.99 1645850.33
63	TANGENT	END-I END-J	22095.862 22095.862	14583.587 14583.587	16087.249 16087.249	908587.53 908587.53	1006596.82 870193.31	1609294.28 1310207.97
64	TANGENT	END-I END-J	22218.798 22218.798	14655.266 14655.266	16466.299 16466.299	908509.05 908509.05	869284.35 877595.13	1310865.87 1025602.66
65	BEND	END-I CENTER END-J	22356.476 22425.972 22074.029	15628.983 15526.940 16023.342	15797.358 15797.358 15797.358	908482.80 935919.83 963115.43	1019793.91 885323.10 742364.03	884365.21 926553.64 975417.85
66	BEND	END-I CENTER END-J	22164.507 22425.213 20371.493	16164.836 17133.577 18376.603	15824.159 15824.159 15824.159	962651.84 975808.96 965450.85	743203.84 614230.50 533414.57	975235.84 1030880.34 1092296.10
67	BEND	END-I CENTER END-J	20411.998 19139.800 17826.885	18485.705 19800.574 20988.712	15867.940 15867.940 15867.940	965311.57 925162.36 853133.36	534086.85 537853.03 624060.47	1092090.60 1160859.03 1236699.75

68	BEND	END-I	17867.129	21085.280	15863.816	853783.02	621604.31	1237488.16
		CENTER	16712.383	22011.265	15863.816	751916.48	752734.70	1320557.10
		END-J	15942.407	22575.556	15863.816	624904.53	895675.94	1409322.18
69	TANGENT	END-I	15956.000	24352.108	13096.977	624292.81	795028.71	1468712.92
		END-J	15956.000	24352.108	13096.977	624292.81	839992.62	1588971.74

***** FINAL RESULTS - SRSS COMBINATION OF DYNAMIC RESPONSES WITH HIGH FREQUENCY MODE RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S

NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	15722.
7090	FY	14562.
7090	FZ	11557.
7090	MX	958005.
7090	MY	1282136.
7090	MZ	862387.
3047	FZ	97.
3116	FZ	414.
3210	FX	14659.
3210	FZ	189.
3250	FX	13117.
3250	FY	24366.
3250	FZ	15962.
3250	MX	1588972.
3250	MY	839993.
3250	MZ	624293.
3035	FY	29351.
3083	FZ	18981.

BENCHMARK PROBLEM 2

INDEPENDENT SUPPORT MOTION RESPONSE
SPECTRUM METHOD

AP600 PRESSURIZER SURGE LINE BENCHMARK ANALYSIS - MULTIPLE SUPPORT EXCIT

CONTROL INFORMATION

NUMBER OF NODAL POINTS	=	70
NUMBER OF ELEMENT TYPES	=	3
NUMBER OF STATIC LOAD CASES	=	0
NUMBER OF DYNAMIC LOAD CASES	=	1
NUMBER OF ANCHOR WMT CASES	=	0
NUMBER OF FREQUENCIES	=	20
SOLUTION MODE (MODEX)	=	0
EQ.0, EXECUTION		
EQ.1, DATA CHECK		
STRESS CALCULATION FLAG	=	0
EQ.0 NO		
EQ.1 YES		
ASME CODE EVALUATION FLAG	=	0
EQ.1 CLASS 1 PIPING		
EQ.2 CLASS2 OR CLASS 3 PIPING		
ACCELERATION DUE TO GRAVITY	=	386.4
BANDWIDTH MINIMIZATION FLAG	=	0
EQ.0 NO		
EQ.1 YES		
ARBITRARY NODE NUMBERING FLAG	=	1
EQ.0 NO		
EQ.1 YES		
NUMBER OF SUPPORT GROUPS	=	3
FLAG FOR NODAL COORD. INPUT UNITS	=	0
EQ.0 CONSISTENT UNIT		
EQ.1 FEET TO INCHES		

LIST OF ANALYSIS TO BE PERFORMED

LOAD CASE	DISK FILE	ANALYSIS TYPE
1	0	INDEPENDENT RESPONSE SPECT.ANAL

NODAL POINT INPUT DATA

NEW NODE	OLD NODE	BOUNDARY X	BOUNDARY Y	CONDITION Z	CODES XX	CODES YY	ZZ	NODAL X	POINT COORDINATES Y	N Z	T
1	7090	0	0	0	0	0	0	11910.000	12283.416	1251.372	653.000
2	3001	0	0	0	0	0	0	11923.164	12272.496	1259.028	653.000
3	3005	0	0	0	0	0	0	11926.320	12269.880	1260.864	653.000
4	3010	0	0	0	0	0	0	11929.476	12267.264	1262.700	653.000
5	3011	0	0	0	0	0	0	11933.088	12264.288	1264.764	653.000
6	3012	0	0	0	0	0	0	11939.124	12259.296	1268.232	653.000
7	3019	0	0	0	0	0	0	11953.932	12251.028	1275.132	653.000
8	3021	0	0	0	0	0	0	11968.632	12248.256	1279.728	653.000
9	3023	0	0	0	0	0	0	11971.320	12248.195	1280.388	653.000
10	3024	0	0	0	0	0	0	11983.812	12248.195	1283.368	653.000
11	3026	0	0	0	0	0	0	11999.028	12248.195	1286.760	653.000
12	3028	0	0	0	0	0	0	12014.244	12248.195	1290.252	653.000
13	3030	0	0	0	0	0	0	12040.236	12248.195	1296.240	653.000
14	3032	0	0	0	0	0	0	12066.204	12248.195	1302.240	653.000
15	3035	0	0	0	0	0	0	12092.172	12248.195	1308.228	653.000
16	3037	0	0	0	0	0	0	12118.152	12248.195	1314.216	653.000
17	3038	0	0	0	0	0	0	12144.120	12248.195	1320.216	653.000
18	3040	0	0	0	0	0	0	12170.088	12248.195	1326.204	653.000
19	3044	0	0	0	0	0	0	12180.360	12248.195	1328.580	653.000
20	3047	0	0	0	0	0	0	12185.376	12248.195	1329.708	653.000
21	3050	0	0	0	0	0	0	12189.996	12248.195	1330.776	653.000
22	3053	0	0	0	0	0	0	12194.028	12248.552	1331.712	653.000
23	3056	0	0	0	0	0	0	12200.557	12249.288	1333.248	653.000
24	3059	0	0	0	0	0	0	12201.744	12249.553	1333.524	653.000
25	3062	0	0	0	0	0	0	12206.364	12250.884	1334.664	653.000
26	3065	0	0	0	0	0	0	12214.801	12254.628	1336.728	653.000
27	3068	0	0	0	0	0	0	12218.928	12257.195	1337.796	653.000
28	3071	0	0	0	0	0	0	12226.979	12263.939	1339.944	653.000
29	3074	0	0	0	0	0	0	12228.288	12265.332	1340.292	653.000
30	3077	0	0	0	0	0	0	12229.668	12266.893	1340.676	653.000
31	3080	0	0	0	0	0	0	12240.660	12288.636	1344.168	653.000
32	3083	0	0	0	0	0	0	12242.292	12301.824	1345.116	653.000
33	3086	0	0	0	0	0	0	12242.292	12305.520	1345.296	653.000
34	3089	0	0	0	0	0	0	12242.292	12315.224	1345.668	653.000
35	3092	0	0	0	0	0	0	12242.292	12333.756	1346.484	653.000
36	3095	0	0	0	0	0	0	12242.292	12345.695	1346.988	653.000
37	3098	0	0	0	0	0	0	12242.292	12347.072	1347.072	653.000
38	3100	0	0	0	0	0	0	12242.292	12368.076	1347.972	653.000
39	3101	0	0	0	0	0	0	12242.292	12388.632	1348.884	653.000
40	3104	0	0	0	0	0	0	12242.292	12389.388	1348.944	653.000
41	3107	0	0	0	0	0	0	12242.292	12400.309	1349.448	653.000
42	3110	0	0	0	0	0	0	12239.855	12416.316	1350.264	653.000
43	3113	0	0	0	0	0	0	12233.340	12430.033	1351.152	653.000
44	3115	0	0	0	0	0	0	12215.976	12446.592	1352.640	653.000
45	3116	0	0	0	0	0	0	12188.364	12454.176	1354.188	653.000
46	3119	0	0	0	0	0	0	12174.120	12454.176	1354.812	653.000
47	3120	0	0	0	0	0	0	12156.061	12454.176	1355.552	653.000
48	3122	0	0	0	0	0	0	12137.988	12454.176	1356.372	653.000
49	3123	0	0	0	0	0	0	12114.792	12448.920	1357.656	653.000
50	3125	0	0	0	0	0	0	12097.092	12435.324	1359.120	653.000
51	3128	0	0	0	0	0	0	12085.932	12413.688	1360.752	653.000
52	3129	0	0	0	0	0	0	12084.947	12392.041	1361.904	653.000
53	3199	0	0	0	0	0	0	12088.080	12372.215	1362.768	653.000
54	3200	0	0	0	0	0	0	12091.212	12352.380	1363.644	653.000
55	3205	0	0	0	0	0	0	12094.476	12331.920	1364.556	653.000
56	3208	0	0	0	0	0	0	12097.632	12312.037	1365.432	653.000

57 3210
58 3212
59 3215
60 3220
61 3222
62 3225
63 3230
64 3235
65 3237
66 3238
67 3240
68 3243
69 3245
70 3250

SPRING ELEMENTS

ELEMENT TYPE = 1
NUMBER OF ELEMENTS = 16

ELEMENT LOAD CASE MULTIPLIERS

CASE (A) 1.0000 CASE (B) 1.0000 CASE (C) 1.0000 CASE (D) 1.0000

ELEMENT NUMBER	NODE (N)	SUPPORT GROUP	CODE KD	CODE KR	DIRECTION COSINES WRT GLOBAL AXES			SPECIFIED DISPLACEMENT	SPECIFIED ROTATION	SPRING RATE
					X-	Y-	Z-			
1	7090	2	1	0	1.000	.000	.000	.000	.000	1.0000E+11
2	7090	2	1	0	.000	1.000	.000	.000	.000	1.0000E+11
3	7090	2	1	0	.000	.000	1.000	.000	.000	1.0000E+11
4	7090	2	0	1	1.000	.000	.000	.000	.000	1.0000E+13
5	7090	2	0	1	.000	1.000	.000	.000	.000	1.0000E+13
6	7090	2	0	1	.000	.000	1.000	.000	.000	1.0000E+13
7	3047	1	1	0	.000	.000	1.000	.000	.000	1.0000E+13
8	3116	1	1	0	.000	.000	1.000	.000	.000	6.0000E+02
9	3210	1	1	0	1.000	.000	1.000	.000	.000	6.0000E+02
10	3210	1	1	0	.000	.000	1.000	.000	.000	5.0000E+06
11	3250	3	1	0	1.000	.000	.000	.000	.000	6.0000E+02
12	3250	3	1	0	.000	1.000	.000	.000	.000	1.0000E+11
13	3250	3	1	0	.000	.000	1.000	.000	.000	1.0000E+11
14	3250	3	0	1	1.000	.000	.000	.000	.000	1.0000E+11
15	3250	3	0	1	.000	1.000	.000	.000	.000	1.0000E+13
16	3250	3	0	1	.000	.000	1.000	.000	.000	1.0000E+13

S N U B B E R E L E M E N T S

ELEMENT TYPE = 4
 NUMBER OF ELEMENTS = 2

ELEMENT LOAD CASE MULTIPLIERS

CASE (A)	CASE (B)	CASE (C)	CASE (D)
1.0000	1.0000	1.0000	1.0000

ELEMENT NUMBER	NODE (N)	SUPPORT GROUP	CODE KD	CODE KR	DIRECTION COSINES WRT GLOBAL AXES			SPECIFIED DISPLACEMENT	SPECIFIED ROTATION	SPRING RATE
					X-	Y-	Z-			
1	3035	1	1	0	.000	1.000	.000	.000	.000	5.5150E+05
2	3083	1	1	0	.000	.000	1.000	.000	.000	5.5150E+05

PIPE ELEMENT INPUT DATA

CONTROL INFORMATION

NUMBER OF PIPE ELEMENTS	=	69
NUMBER OF MATERIAL SETS	=	2
MAXIMUM NUMBER OF MATERIAL TEMPERATURE INPUT POINTS	=	3
NUMBER OF SECTION PROPERTY SETS	=	4
NUMBER OF BRANCH POINT NODES	=	0
MAXIMUM NUMBER OF TANGENTS COMMON TO A BRANCH POINT	=	3
FLAG FOR NEGLECTING AXIAL DEFORMATIONS IN BEND ELEMENTS (EQ.1, NEGLECT)	=	0

M A T E R I A L P R O P E R T Y T A B L E S

MATERIAL NUMBER = (1)
 NUMBER OF TEMPERATURE POINTS = (3)
 IDENTIFICATION = { SA376 316LN }

POINT NUMBER	TEMPERATURE	YOUNG'S MODULUS	POISSON'S RATIO	THERMAL EXPANSION
1	70.00	2.813E+07	.300	8.540E-06
2	650.00	2.505E+07	.300	9.690E-06
3	700.00	2.480E+07	.300	9.760E-06

MATERIAL NUMBER = (2)
 NUMBER OF TEMPERATURE POINTS = (2)
 IDENTIFICATION = { FICTICIOUS MAT }

POINT NUMBER	TEMPERATURE	YOUNG'S MODULUS	POISSON'S RATIO	THERMAL EXPANSION
1	70.00	2.530E+07	.300	0.000E+00
2	700.00	2.530E+07	.300	0.000E+00

SECTION PROPERTY TABLE

SECTION NUMBER	OUTSIDE DIAMETER	WALL THICKNESS	SHAPE FACTOR FOR SHEAR	WEIGHT/ UNIT LENGTH	MASS/ UNIT LENGTH	D E S C R I P T I O N
1	18.000	1.7810	.0000	3.4033E+01	8.8077E-02	18 IN SCH 160
2	21.100	3.3400	.0000	5.8824E+01	1.5224E-01	
3	24.300	4.9000	.0000	9.0696E+01	2.3472E-01	
4	37.500	3.2500	.0000	0.0000E+00	0.0000E+00	

ELEMENT LOAD CASE MULTIPLIERS

	CASE A	CASE B	CASE C	CASE D
X-DIRECTION GRAVITY	.000	.000	.000	.000
Y-DIRECTION GRAVITY	.000	.000	.000	.000
Z-DIRECTION GRAVITY	-1.000	.000	.000	.000
THERMAL DISTORTION	.000	.000	.000	.000
PRESSURE DISTORTION	.000	.000	.000	.000

P I P E E L E M E N T I N P U T D A T A

ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MAIL NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (Z3- ORDINATE)	INCREMENT (BEND DEGREE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
1	TANGENT	7090	3001	2	4	70.00	2485.00	.00	.00	0 0	1		II
2	TANGENT	3001	3005	1	3	70.00	2485.00	.00	.00	0 0	1		II
3	TANGENT	3005	3010	1	2	70.00	2485.00	.00	.00	0 0	1		II
4	TANGENT	3010	3011	1	1	70.00	2485.00	.00	.00	0 0	1		II
5	TANGENT	3011	3012	1	1	70.00	2485.00	.00	.00	0 0	1		II
6	BEND	3012	3019	1	1	(54.012)	2485.00	.00	.00	0 0		(19.4919)	II
7	BEND	3019	3021	1	1	(70.00	2485.00	.00	.00	0 0			I
						(53.676)	(11961.012)	(12248.628)	(1277.820)	(16.8378)			I
8	BEND	3021	3023	1	1	(70.00	2485.00	.00	.00	0 0			I
						(55.344)	(11969.976)	(12248.195)	(1280.076)	(2.8767)			
9	TANGENT	3023	3024	1	1	70.00	2485.00	.00	.00	0 0	1		II
10	TANGENT	3024	3026	1	1	70.00	2485.00	.00	.00	0 0	1		II
11	TANGENT	3026	3028	1	1	70.00	2485.00	.00	.00	0 0	1		II
12	TANGENT	3028	3030	1	1	70.00	2485.00	.00	.00	0 0	1		II
13	TANGENT	3030	3032	1	1	70.00	2485.00	.00	.00	0 0	1		II
14	TANGENT	3032	3035	1	1	70.00	2485.00	.00	.00	0 0	1		II
15	TANGENT	3035	3037	1	1	70.00	2485.00	.00	.00	0 0	1		II
16	TANGENT	3037	3038	1	1	70.00	2485.00	.00	.00	0 0	1		II
17	TANGENT	3038	3040	1	1	70.00	2485.00	.00	.00	0 0	1		II
18	TANGENT	3040	3044	1	1	70.00	2485.00	.00	.00	0 0	1		II
19	TANGENT	3044	3047	1	1	70.00	2485.00	.00	.00	0 0	1		II
20	TANGENT	3047	3050	1	1	70.00	2485.00	.00	.00	0 0	1		II
21	BEND	3050	3053	1	1	(54.972)	(12192.012)	(12248.195)	(1331.244)	(4.3122)			I
22	BEND	3053	3056	1	1	(70.00	2485.00	.00	.00	0 0			I
						(55.416)	(12197.328)	(12248.616)	(1332.480)	(7.0187)			
23	BEND	3056	3059	1	1	(70.00	2485.00	.00	.00	0 0			I
						(51.084)	(12201.145)	(12249.408)	(1333.392)	(1.3843)			
24	BEND	3059	3062	1	1	(70.00	2485.00	.00	.00	0 0			I
						(60.324)	(12204.120)	(12250.128)	(1334.100)	(4.7682)			
25	BEND	3062	3065	1	1	(70.00	2485.00	.00	.00	0 0			I
						(55.128)	(12210.744)	(12252.384)	(1335.732)	(9.8520)			
26	BEND	3065	3068	1	1	(70.00	2485.00	.00	.00	0 0			I
						(53.100)	(12216.936)	(12255.816)	(1337.292)	(5.4073)			
27	BEND	3068	3071	1	1	(70.00	2485.00	.00	.00	0 0			I
						(54.132)	(12223.296)	(12260.160)	(1338.924)	(11.3902)			
28	BEND	3071	3074	1	1	(70.00	2485.00	.00	.00	0 0			I
						(51.396)	(12227.676)	(12264.660)	(1340.124)	(2.2713)			

P I P E E L E M E N T I N P U T D A T A												
ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (Z3- ORDINATE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
29	BEND	3074	3077	1	1	(70.00 (53.088)	2485.00 ()	.00 (12228.972)	.00 (12266.076)	0 0 (1340.484)	(2.2202)	I
30	BEND	3077	3080	1	1	(70.00 (53.760)	2485.00 ()	.00 (12237.660)	.00 (12276.396)	0 0 (1342.920)	(26.4177)	I
31	BEND	3080	3083	1	1	(70.00 (53.700)	2485.00 ()	.00 (12242.292)	.00 (12295.140)	0 0 (1344.792)	(14.2965)	I
32	TANGENT	3083	3086	1	1	70.00	2485.00	.00	.00	0 0	1	II
33	TANGENT	3086	3089	1	1	70.00	2485.00	.00	.00	0 0	1	II
34	TANGENT	3089	3092	1	1	70.00	2485.00	.00	.00	0 0	1	II
35	TANGENT	3092	3095	1	1	70.00	2485.00	.00	.00	0 0	1	II
36	TANGENT	3095	3098	1	1	70.00	2485.00	.00	.00	0 0	1	II
37	TANGENT	3098	3100	1	1	70.00	2485.00	.00	.00	0 0	1	II
38	TANGENT	3100	3101	1	1	70.00	2485.00	.00	.00	0 0	1	II
39	TANGENT	3101	3104	1	1	70.00	2485.00	.00	.00	0 0	1	II
40	TANGENT	3104	3107	1	1	70.00	2485.00	.00	.00	0 0	1	II
41	BEND	3107	3110	1	1	(70.00 (53.832)	2485.00 ()	.00 (12242.292)	.00 (12408.504)	0 0 (1349.820)	(17.3293)	I
42	BEND	3110	3113	1	1	(70.00 (53.940)	2485.00 ()	.00 (12237.576)	.00 (12423.636)	0 0 (1350.684)	(16.2026)	I
43	BEND	3113	3115	1	1	(70.00 (53.916)	2485.00 ()	.00 (12226.536)	.00 (12440.305)	0 0 (1351.908)	(25.7916)	I
44	BEND	3115	3116	1	1	(70.00 (54.084)	2485.00 ()	.00 (12203.231)	.00 (12454.176)	0 0 (1353.528)	(30.7215)	I
45	TANGENT	3116	3119	1	1	70.00	2485.00	.00	.00	0 0	1	II
46	TANGENT	3119	3120	1	1	70.00	2485.00	.00	.00	0 0	1	II
47	TANGENT	3120	3122	1	1	70.00	2485.00	.00	.00	0 0	1	II
48	BEND	3122	3123	1	1	(70.00 (53.844)	2485.00 ()	.00 (12125.796)	.00 (12454.176)	0 0 (1356.900)	(25.5401)	I
49	BEND	3123	3125	1	1	(70.00 (54.000)	2485.00 ()	.00 (12104.496)	.00 (12443.988)	0 0 (1358.352)	(23.9177)	I
50	BEND	3125	3128	1	1	(70.00 (53.712)	2485.00 ()	.00 (12088.992)	.00 (12425.868)	0 0 (1360.008)	(26.1664)	I
51	BEND	3128	3198	1	1	(70.00 (54.192)	2485.00 ()	.00 (12083.231)	.00 (12402.959)	0 0 (1361.424)	(23.1191)	I
52	TANGENT	3198	3199	1	1	70.00	2485.00	.00	.00	0 0	1	II
53	TANGENT	3199	3200	1	1	70.00	2485.00	.00	.00	0 0	1	II
54	TANGENT	3200	3205	1	1	70.00	2485.00	.00	.00	0 0	1	II
55	TANGENT	3205	3208	1	1	70.00	2485.00	.00	.00	0 0	1	II
56	TANGENT	3208	3210	1	1	70.00	2485.00	.00	.00	0 0	1	II

P I P E E L E M E N T I N P U T D A T A												
ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (Z3- ORDINATE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
57	BEND	3210	3212	1	1	(70.00 (42.012)	2485.00 ()	(12102.540) ()	(12281.148) ()	(0 (1366.788)	(29.7046)	I
58	BEND	3212	3215	1	1	(70.00 (41.904)	2485.00 ()	(12116.088) ()	(12264.276) ()	(0 (1368.072)	(28.2025)	I
59	BEND	3215	3220	1	1	(70.00 (42.192)	2485.00 ()	(12136.860) ()	(12255.443) ()	(0 (1369.428)	(31.9317)	I
60	BEND	3220	3222	1	1	(70.00 (42.120)	2485.00 ()	(12165.996) ()	(12260.100) ()	(0 (1370.712)	(44.8251)	I
61	BEND	3222	3225	1	1	(70.00 (41.892)	2485.00 ()	(12184.176) ()	(12285.107) ()	(0 (1372.584)	(36.0300)	I
62	BEND	3225	3230	1	1	(70.00 (41.496)	2485.00 ()	(12184.176) ()	(12301.980) ()	(0 (1373.424)	(9.1369)	I
63	TANGENT	3230	3235	1	1	(70.00	2485.00	.00	.00	0 0	1	II
64	TANGENT	3235	3237	1	1	(70.00	2485.00	.00	.00	0 0	1	II
65	BEND	3237	3238	1	1	(70.00 (42.120)	2485.00 ()	(12175.512) ()	(12356.771) ()	(0 (1375.872)	(21.8273)	I
66	BEND	3238	3240	1	1	(70.00 (42.000)	2485.00 ()	(12173.195) ()	(12371.364) ()	(0 (1382.556)	(21.8448)	I
67	BEND	3240	3243	1	1	(70.00 (41.892)	2485.00 ()	(12171.443) ()	(12382.463) ()	(0 (1394.292)	(21.9599)	I
68	BEND	3243	3245	1	1	(70.00 (42.012)	2485.00 ()	(12170.508) ()	(12388.439) ()	(0 (1409.352)	(21.8497)	I
69	TANGENT	3245	3250	1	1	(70.00	2485.00	.00	.00	0 0	1	II

BENCHMARK PROBLEM 2
LOWER FREQUENCY AMPLIFIED GROUP RESPONSE

SUPPORT GROUP 1

DIRECTION FACTORS

X = 1.0000 Y = 1.0000 Z = 1.0000

INDICATOR FOR DISPLACEMENT OR ACCELERATION SPECTRUM = 2

EQ.0 DISPLACEMENT
EQ.1 ACCELERATION IN IN./SEC.**2
EQ.2 ACCELERATION IN G**S

3 SPECTRA ARE ENTERED FOR CASE 1. KIND= 2

CLUSTER FACTOR, CF = .10000

MODAL PARTICIPATION FACTORS

MODE	FREQ (CPS)	X-DIRECTION	Y-DIRECTION	Z-DIRECTION
1	3.899	3.2850E-01	-6.6142E+00	-1.3908E-01
2	4.566	-3.5258E-01	1.8322E+00	2.0788E+00
3	8.332	-6.4851E-01	2.9242E+00	3.6542E-01
4	10.391	-2.2408E+00	3.1681E+00	-8.5966E-01
5	14.962	2.5526E-01	-1.5331E+00	9.1139E-01
6	18.561	1.2623E-01	3.8302E-01	3.5474E+00
7	23.825	-2.3597E+00	-1.3986E+00	9.2713E-01
8	34.503	4.6808E-01	5.0947E-01	1.7236E+00
9	37.913	3.4092E-01	-8.5699E-01	1.2175E+00
10	41.934	-8.0787E-01	1.4506E+00	4.7909E-01
11	52.755	8.6498E-01	-3.9998E-01	-2.1638E-01
12	56.300	2.0927E+00	3.7401E-01	-1.8559E-01
13	58.649	2.3508E+00	1.3651E-02	3.1277E-01

SPECTRUM TABLE (GROUP 1 SSE X DIRECTION

NUMBER OF POINTS = 16
SCALE FACTOR = 1.00000E+00

INPUT POINT	PERIOD	SPECTRUM VALUE
1	2.5000E-02	3.6940E-01
2	2.5600E-02	3.9130E-01
3	4.8300E-02	6.3570E-01
4	6.4400E-02	8.4180E-01
5	8.2800E-02	9.3650E-01
6	1.1220E-01	9.8920E-01
7	1.5330E-01	9.5440E-01
8	1.9320E-01	9.7130E-01
9	2.1740E-01	1.0488E+00
10	2.4150E-01	1.1005E+00
11	3.3330E-01	1.1338E+00
12	4.4230E-01	1.1338E+00
13	4.5770E-01	1.1205E+00
14	5.0000E-01	1.0764E+00
15	5.4755E-01	1.0585E+00
16	5.7470E+00	1.0730E-01

SPECTRUM TABLE (GROUP 1 SSE Y DIRECTION

NUMBER OF POINTS = 19

INPUT POINT	PERIOD	SPECTRUM VALUE
1	2.500E-02	3.2270E-01
2	2.558E-02	4.4640E-01
3	4.348E-02	3.9610E-01
4	1.150E-02	5.9680E-01
5	5.000E-02	8.5280E-01
6	7.250E-02	9.4660E-01
7	8.330E-02	9.7700E-01
8	1.151E-01	9.7700E-01
9	1.523E-01	9.9780E-01
10	1.812E-01	9.910E-01
11	1.976E-01	9.910E-01
12	2.174E-01	9.1246E+00
13	2.635E-01	1.1246E+00
14	3.484E-01	1.0574E+00
15	3.593E-01	1.0574E+00
16	4.259E-01	1.0227E+00
17	4.792E-01	1.0227E+00
18	4.765E-01	1.0310E-01
19	5.747E-01	1.0310E-01

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NUMBER OF POINTS = 21
SCALE FACTOR = 1.00000E+00

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INPUT POINT	PERIOD	SPECTRUM VALUE
1	2.5000E-02	4.0390E-01
2	2.5580E-02	4.0820E-01
3	2.6100E-02	4.0870E-01
4	2.6600E-02	4.0870E-01
5	2.7100E-02	4.0870E-01
6	2.7600E-02	4.0870E-01
7	2.8100E-02	4.0870E-01
8	2.8600E-02	4.0870E-01
9	2.9100E-02	4.0870E-01
10	2.9600E-02	4.0870E-01
11	3.0100E-02	4.0870E-01
12	3.0600E-02	4.0870E-01
13	3.1100E-02	4.0870E-01
14	3.1600E-02	4.0870E-01
15	3.2100E-02	4.0870E-01
16	3.2600E-02	4.0870E-01
17	3.3100E-02	4.0870E-01
18	3.3600E-02	4.0870E-01
19	3.4100E-02	4.0870E-01
20	3.4600E-02	4.0870E-01
21	3.5100E-02	4.0870E-01

CLUSTERING. +1 MEANS MODE I CLOSE TO I+1. -1, NOT.
-1. -1. -1. -1. -1. -1. 1. -1. 1. -1. 0.

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 1 *****
MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S			A C C E L E R A T I O N S I N G ' S		
	X- T R A N S L A T I O N	Y- T R A N S L A T I O N	Z- T R A N S L A T I O N	X- D I R E C T I O N	Y- D I R E C T I O N	Z- D I R E C T I O N
7090	42869E-07	12268E-06	25192E-07	54246E-07	32696E-07	72785E-07
3001	12879E-03	19711E-03	82028E-04	75866E-05	44686E-05	89446E-05
3005	18467E-03	28019E-03	12428E-03	13270E-04	78941E-05	14915E-04
3010	27905E-03	41977E-03	15941E-04	32981E-04	25536E-04	52590E-04
3011	49408E-03	73796E-03	37971E-03	53399E-04	32415E-04	89842E-04
3012	10653E-02	15570E-02	93930E-03	99478E-04	60955E-04	13961E-03
3019	26243E-02	44305E-02	30251E-02	19375E-03	11223E-03	14128E-03
3021	35492E-02	74831E-02	53551E-02	26819E-03	16120E-03	13815E-03
3023	36473E-02	79973E-02	57858E-02	28090E-03	16771E-03	11680E-03
3024	40852E-02	10126E-01	79876E-02	33834E-03	19359E-03	10617E-03
3026	47187E-02	11865E-01	11135E-01	40547E-03	21554E-03	17945E-03
3028	54478E-02	12118E-01	14662E-01	47010E-03	23988E-03	17945E-03
3030	68594E-02	77847E-02	21268E-01	57689E-03	26375E-03	45516E-03
3032	83937E-02	94442E-02	28266E-01	68246E-03	27761E-03	85826E-03
3035	99681E-02	55325E-01	35385E-01	79123E-03	28660E-03	13767E-02
3037	11539E-01	77852E-01	43469E-01	90891E-03	29550E-03	19211E-02
3038	13091E-01	13418E+00	49475E-01	10342E-02	30964E-03	24036E-02
3040	14628E-01	20258E+00	56479E-01	11637E-02	32933E-03	28268E-02
3044	15242E-01	23261E+00	52828E-01	12156E-02	33984E-03	29784E-02
3047	15535E-01	24783E+00	60662E-01	12411E-02	34504E-03	30794E-02
3050	15813E-01	26218E+00	61944E-01	12647E-02	35005E-03	31130E-02
3053	16212E-01	27492E+00	62874E-01	12856E-02	35499E-03	31706E-02
3056	17818E-01	29612E+00	65517E-01	13196E-02	36392E-03	32615E-02
3059	18287E-01	30000E+00	63523E-01	13260E-02	36571E-03	32791E-02
3062	21145E-01	31568E+00	63090E-01	13508E-02	37307E-03	33401E-02
3065	31293E-01	34622E+00	60467E-01	13980E-02	38867E-03	34555E-02
3068	39338E-01	35925E+00	58112E-01	14229E-02	39556E-03	35172E-02
3071	62269E-01	38840E+00	50873E-01	14752E-02	41825E-03	36381E-02
3074	67462E-01	39342E+00	49148E-01	14853E-02	42227E-03	36610E-02
3077	72879E-01	39840E+00	47334E-01	14952E-02	42644E-03	36811E-02
3080	15462E+00	44051E+00	17992E-01	16098E-02	48029E-03	39221E-02
3083	20709E+00	44713E+00	80083E-02	16596E-02	51047E-03	40356E-02
3086	22203E+00	44716E+00	12604E-01	16843E-02	51884E-03	40628E-02
3089	26215E+00	44725E+00	28282E-01	17122E-02	54163E-03	41368E-02
3092	33938E+00	44744E+00	60296E-01	17813E-02	58650E-03	42543E-02
3095	39056E+00	44755E+00	81751E-01	18141E-02	61678E-03	43267E-02
3098	39841E+00	44757E+00	85046E-01	18186E-02	62145E-03	43373E-02
3100	48872E+00	44779E+00	12298E+00	18629E-02	67563E-03	44508E-02
3101	58114E+00	44799E+00	16168E+00	18944E-02	73163E-03	45536E-02
3104	58457E+00	44800E+00	16311E+00	18953E-02	73373E-03	45573E-02
3107	63452E+00	44813E+00	13290E+00	19070E-02	76415E-03	46084E-02
3110	70874E+00	43703E+00	21560E+00	19204E-02	80918E-03	46890E-02
3113	77324E+00	40673E+00	24477E+00	19279E-02	84922E-03	47645E-02
3115	85252E+00	32397E+00	28462E+00	19345E-02	90565E-03	48901E-02
3116	88941E+00	19018E+00	31298E+00	19399E-02	96004E-03	50498E-02
3119	88914E+00	12184E+00	32066E+00	19430E-02	98064E-03	51235E-02
3120	88881E+00	52301E-01	33098E+00	19473E-02	10034E-02	52165E-02
3122	88845E+00	90599E-01	34195E+00	19523E-02	10228E-02	53088E-02
3123	85949E+00	20629E+00	34726E+00	19592E-02	10475E-02	54377E-02
3125	78388E+00	30121E+00	35491E+00	19623E-02	10701E-02	55390E-02
3128	66275E+00	36258E+00	30533E+00	19543E-02	10970E-02	56071E-02
3198	54016E+00	36765E+00	26913E+00	19309E-02	11225E-02	56144E-02

3199	.42837E+00	.34992E+00	.18953E-02	.11452E-02	.55730E-02	.703	.721	.741
3200	.31777E+00	.33232E+00	.18443E-02	.11659E-02	.54825E-02	.529	.700	.712
3205	.20607E+00	.17212E+00	.17745E-02	.11846E-02	.53354E-02	.349	.677	.702
3208	.10093E+00	.29773E+00	.16897E-02	.11997E-02	.51382E-02	.179	.654	.714
3210	.77281E-03	.28164E+00	.15880E-02	.12113E-02	.48867E-02	.076	.630	.748
3212	.92282E-01	.24106E+00	.14149E-02	.12058E-02	.44236E-02	.223	.560	.770
3215	.14543E+00	.17318E+00	.12447E-02	.11780E-02	.39096E-02	.328	.434	.750
3220	.15716E+00	.10726E+00	.10626E-02	.11117E-02	.32622E-02	.352	.282	.596
3222	.11326E+00	.92359E-01	.85295E-03	.95605E-03	.23179E-02	.285	.178	.592
3225	.13248E-01	.66674E-01	.72517E-03	.79587E-03	.16157E-02	.248	.170	.470
3230	.12850E-01	.41194E-01	.69586E-03	.75383E-03	.14537E-02	.242	.169	.432
3235	.11516E-01	.27520E-01	.62736E-03	.61814E-03	.11105E-02	.217	.160	.305
3237	.10489E-01	.15340E-01	.54816E-03	.48910E-03	.82503E-03	.183	.151	.181
3238	.99745E-02	.79734E-02	.45757E-03	.40278E-03	.58723E-03	.143	.131	.100
3240	.66044E-02	.29624E-02	.35037E-03	.31398E-03	.39203E-03	.089	.089	.040
3243	.28322E-02	.53870E-03	.22088E-03	.20622E-03	.22902E-03	.037	.041	.008
3245	.46448E-03	.23129E-04	.68301E-04	.66947E-04	.81859E-04	.006	.008	.000
3250	.86721E-07	.58394E-07	.59686E-07	.59602E-07	.53004E-07	.000	.000	.000

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 1 *****
 MODAL COMBINATION METHOD 2-GROUPING

P I P E F O R C E S A N D M O M E N T S

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	5262.540 5262.540	11820.371 11820.371	2795.342 2795.342	165156.72 165156.72	413228.79 374310.49	856110.34 635475.32
2	TANGENT	END-I END-J	5258.763 5258.763	11821.918 11821.918	2795.139 2795.139	165165.80 165165.80	374290.55 365461.08	635484.73 582691.30
3	TANGENT	END-I END-J	5258.758 5258.758	11821.660 11821.660	2794.383 2794.383	165165.80 165165.80	365461.08 356857.18	582691.30 529960.12
4	TANGENT	END-I END-J	5243.548 5243.548	11831.041 11831.041	2781.698 2781.698	167330.51 167330.51	356895.30 347423.44	529255.43 469229.95
5	TANGENT	END-I END-J	5257.146 5257.146	11823.677 11823.677	2783.826 2783.826	166607.04 166607.04	347453.15 332354.70	469465.23 369380.24
6	BEND	END-I CENTER END-J	5252.407 3763.276 2802.103	11174.593 11759.979 12025.305	4756.573 4756.573 4756.573	166062.89 207400.78 244899.91	360584.40 309728.51 256161.57	341942.04 240557.62 141877.34
7	BEND	END-I CENTER END-J	2784.825 2975.982 3954.743	11937.560 11891.317 11602.999	4951.737 4951.737 4951.737	245992.02 271957.20 290696.20	253769.57 210104.71 177481.37	144266.33 86608.21 108354.49
8	BEND	END-I CENTER END-J	3900.656 4096.310 4298.396	11084.381 11013.612 10936.411	6036.055 6036.055 6036.055	290492.67 292704.08 294675.47	173642.80 171546.82 170405.57	114920.71 123340.81 132934.05
9	TANGENT	END-I END-J	4300.253 4300.253	12252.141 12252.141	2382.593 2382.593	294613.62 294613.62	170968.39 148501.37	132351.86 288392.34
10	TANGENT	END-I END-J	4296.536 4296.536	12243.105 12243.105	2310.222 2310.222	294489.07 294489.07	148501.37 126133.36	288519.52 479314.20
11	TANGENT	END-I END-J	4292.212 4292.212	12231.805 12231.805	2202.996 2202.996	294489.07 294489.07	126133.36 111225.78	479314.20 670132.36
12	TANGENT	END-I END-J	4286.178 4286.178	12217.738 12217.738	2022.759 2022.759	294719.95 294719.95	111225.78 106251.27	670030.88 995789.77
13	TANGENT	END-I END-J	4278.481 4278.481	12211.337 12211.337	1729.981 1729.981	294979.42 294979.42	106251.27 120281.64	995712.91 1321053.99
14	TANGENT	END-I END-J	4270.968 4270.968	12231.399 12231.399	1406.780 1406.780	294745.35 294745.35	120281.64 139417.87	1321106.23 1646897.97
15	TANGENT	END-I END-J	4263.207 4263.207	7722.167 7722.167	1112.157 1112.157	294678.51 294678.51	139417.87 155256.04	1646909.87 1466988.68
16	TANGENT	END-I END-J	4255.381 4255.381	7544.261 7544.261	943.247 943.247	294980.14 294980.14	155256.04 164827.41	1466928.13 1297614.08
17	TANGENT	END-I	4247.597	7267.042	990.505	294779.67	164827.41	1297659.62

18	TANGENT	END-J	4247.597	7267.042	990.505	294779.67	168419.94	1143026.47
		END-I	4241.847	6995.539	1133.980	295022.56	168419.94	1142963.82
		END-J	4241.847	6995.539	1133.980	295022.56	168724.69	1087002.35
19	TANGENT	END-I	4240.655	6867.837	1209.820	293136.08	168724.69	1087512.58
		END-J	4240.655	6867.837	1209.820	293136.08	168727.06	1061401.40
20	TANGENT	END-I	4237.252	6783.352	1266.384	294867.53	168727.06	1060921.72
		END-J	4237.252	6783.352	1266.384	294867.53	168734.44	1037586.89
21	BEND	END-I	4235.753	6703.918	1316.630	295129.59	168734.44	1037512.37
		CENTER	4124.590	6772.885	1316.630	296076.25	166076.25	1027440.19
		END-J	4020.531	6835.176	1316.630	297829.30	163908.34	1017177.83
22	BEND	END-I	4012.731	6745.133	1351.115	298053.52	177416.54	1014843.08
		CENTER	3861.370	6832.967	1351.115	300050.96	173726.03	997813.20
		END-J	3735.912	6902.429	1351.115	301292.85	171388.69	980371.94
23	BEND	END-I	3740.028	5677.829	4034.004	303146.55	510962.59	853412.02
		CENTER	3722.284	5689.499	4034.004	301354.08	510273.57	850810.94
		END-J	3705.124	5700.683	4034.004	299650.93	509526.68	848195.95
24	BEND	END-I	3675.929	6791.066	1471.749	302471.63	196173.99	968946.72
		CENTER	3615.358	6823.482	1471.749	303290.23	194385.83	955913.96
		END-J	3569.916	6847.394	1471.749	303778.47	193199.59	942744.43
25	BEND	END-I	3548.261	6717.541	1549.014	301767.72	162637.56	949137.31
		CENTER	3500.625	6742.487	1549.014	299328.48	166651.70	924274.41
		END-J	3522.506	6731.022	1549.014	295414.53	173245.01	899060.65
26	BEND	END-I	3479.822	6536.516	1869.124	299540.41	188632.57	894587.96
		CENTER	3512.572	6518.878	1869.124	295464.80	193499.04	881637.68
		END-J	3563.965	6490.990	1869.124	291035.50	198667.74	868645.01
27	BEND	END-I	3493.174	6423.672	1707.362	292443.68	189079.84	870311.39
		CENTER	3632.020	6346.205	1707.362	285909.65	198764.52	842263.96
		END-J	3835.909	6225.184	1707.362	277751.69	210332.58	814278.09
28	BEND	END-I	3763.120	5871.381	2461.008	274131.20	339332.40	770804.16
		CENTER	3805.174	5844.277	2461.008	273730.18	338882.40	765655.54
		END-J	3848.706	5815.629	2461.008	273362.73	338441.48	760515.19
29	BEND	END-I	3786.038	5983.907	2000.846	275122.67	224572.63	800953.93
		CENTER	3829.770	5956.031	2000.846	272560.43	227099.20	795920.76
		END-J	3875.024	5926.658	2000.846	269956.35	229620.43	790899.91
30	BEND	END-I	3689.346	5773.313	1950.575	269995.49	218617.49	793999.21
		CENTER	4247.843	5375.632	1950.575	243834.79	248758.00	734694.02
		END-J	4859.186	4829.996	1950.575	215631.47	276437.88	679266.92
31	BEND	END-I	4400.733	4630.652	2121.401	214434.06	278185.18	678932.52
		CENTER	4681.404	4346.700	2121.401	201549.70	290237.18	652371.98
		END-J	4936.656	4054.360	2121.401	191584.39	299938.78	627758.78
32	TANGENT	END-I	4764.679	3120.408	3912.430	191667.70	614579.95	326071.04
		END-J	4764.679	3120.408	3912.430	191667.70	601778.69	315555.94
33	TANGENT	END-I	4587.508	3095.186	3849.025	188866.25	602663.78	315555.94
		END-J	4587.508	3095.186	3849.025	188866.25	569799.58	288035.13

34	TANGENT	END-I END-J	4244.351 4244.351	2993.234 2993.234	3693.505 3693.505	190410.24 190410.24	569285.52 512492.84	288035.13 239310.22
35	TANGENT	END-I END-J	3881.474 3881.474	2851.998 2851.998	3478.088 3478.088	189950.43 189950.43	512663.43 480328.51	239310.22 210228.94
36	TANGENT	END-I END-J	3727.628 3727.628	2769.660 2769.660	3368.205 3368.205	190820.15 190820.15	479983.69 475425.09	210228.94 206032.93
37	TANGENT	END-I END-J	3477.025 3477.025	2647.393 2647.393	3192.720 3192.720	190279.46 190279.46	475641.74 430848.27	206032.93 162548.77
38	TANGENT	END-I END-J	3058.969 3058.969	2351.576 2351.576	2823.373 2823.373	190395.88 190395.88	430796.89 401120.66	162548.77 128588.82
39	TANGENT	END-I END-J	2907.974 2907.974	2113.186 2113.186	2621.947 2621.947	196920.04 196920.04	397958.23 397193.42	128588.82 127587.17
40	TANGENT	END-I END-J	2772.074 2772.074	2069.573 2069.573	2523.540 2523.540	190725.96 190725.96	400204.80 391787.00	127587.17 114167.25
41	BEND	END-I CENTER END-J	2575.452 2637.711 2683.050	2321.055 2250.585 2197.328	1830.402 1830.402 1830.402	190593.17 184407.52 175671.36	118436.06 119284.40 125101.54	390585.90 389067.24 388776.23
42	BEND	END-I CENTER END-J	2479.586 2489.616 2484.435	2090.132 2078.713 2085.050	1561.089 1561.089 1561.089	175837.18 165775.40 153955.81	124876.10 132131.25 140395.75	388773.61 391934.21 395420.51
43	BEND	END-I CENTER END-J	2424.349 2409.445 2366.451	2101.279 2117.242 2163.555	1281.293 1281.293 1281.293	154031.82 132847.41 110625.60	141470.19 153396.50 163124.79	395221.52 403630.40 410278.12
44	BEND	END-I CENTER END-J	2878.515 2849.842 2746.405	2236.411 2273.466 2399.157	1148.351 1148.351 1148.351	110873.13 89049.02 78599.04	162101.57 162976.12 157309.76	410616.50 414618.35 411713.73
45	TANGENT	END-I END-J	3477.893 3477.893	2567.322 2567.322	1234.284 1234.284	78606.72 78606.72	146579.52 133491.07	415646.02 406527.42
46	TANGENT	END-I END-J	4106.384 4106.384	2717.807 2717.807	1325.368 1325.368	78612.31 78612.31	133491.07 116254.76	406526.33 396800.60
47	TANGENT	END-I END-J	4855.579 4855.579	2889.300 2889.300	1482.462 1482.462	78612.16 78612.16	116254.76 100656.14	396800.58 391958.43
48	BEND	END-I CENTER END-J	5764.626 5530.007 5115.814	3150.968 3545.635 4120.650	1614.024 1614.024 1614.024	78614.83 71889.80 65276.42	86910.72 8531.31 88286.25	395232.79 389063.37 372735.54
49	BEND	END-I CENTER END-J	6137.103 5562.024 4879.911	4427.808 5132.202 5785.184	1904.358 1904.358 1904.358	65334.34 60493.98 59468.38	88384.79 95193.24 103691.68	372697.20 346419.11 314330.77
50	BEND	END-I CENTER END-J	5799.679 4889.489 4090.516	6253.451 6987.971 7483.479	2266.991 2266.991 2266.991	58863.65 65145.91 79718.73	105906.83 115084.76 124796.16	313705.70 271709.99 237569.55
51	BEND	END-I	4676.811	8144.489	2605.217	79814.69	123025.85	238459.25

	CENTER END-J	4096.634 4010.007	8451.151 8492.929	2605.217 2605.217	97643.34 118669.90	129330.40 133073.07	223055.54 235958.65
52	TANGENT END-I END-J	4236.358 4236.358	8807.869 8807.869	3816.058 3816.058	118675.82 118675.82	82442.16 139895.68	258029.67 354332.70
53	TANGENT END-I END-J	4485.439 4485.439	9282.772 9282.772	4162.885 4162.885	118622.19 118622.19	139793.40 215785.29	354391.27 503886.61
54	TANGENT END-I END-J	4762.418 4762.418	9662.408 9662.408	4464.316 4464.316	118946.98 118946.98	215584.17 303586.16	503896.04 683813.03
55	TANGENT END-I END-J	5062.867 5062.867	9929.482 9929.482	4726.838 4726.838	118702.00 118702.00	303320.95 395114.71	683973.22 871804.44
56	TANGENT END-I END-J	5377.152 5377.152	10080.321 10080.321	4970.076 4970.076	118662.40 118662.40	395126.52 492018.79	871804.44 1066654.18
57	BEND END-I CENTER END-J	5298.539 4249.184 4539.472	10183.425 10663.931 10543.476	4321.270 4321.270 4321.270	118867.74 226443.05 334257.84	437430.86 439028.00 412849.29	1090162.74 1185489.53 1275909.09
58	BEND END-I CENTER END-J	4488.161 5651.017 7214.863	10671.192 10103.715 9053.525	4594.096 4594.096 4594.096	333955.76 427796.97 507270.01	413106.82 365806.23 299559.26	1279904.88 1364343.02 1438490.38
59	BEND END-I CENTER END-J	6977.403 8653.480 9935.691	9245.303 7699.782 5953.288	4863.431 4863.431 4863.431	506975.78 573955.89 612011.21	299910.72 213325.36 136528.15	1438520.86 1506409.52 1549953.61
60	BEND END-I CENTER END-J	9700.147 10562.322 10112.368	6076.314 4410.495 5363.073	5281.892 5281.892 5281.892	612304.84 618672.35 569486.20	173925.21 180552.04 279938.94	1546087.75 1560672.42 1515611.82
61	BEND END-I CENTER END-J	10032.622 8852.588 7116.611	5259.997 7067.770 8813.327	5524.952 5524.952 5524.952	569072.90 498157.50 412659.20	281113.45 361233.69 415598.30	1515549.53 1441357.14 1338105.96
62	BEND END-I CENTER END-J	7145.873 6666.184 6189.033	8747.834 9118.644 9448.996	5620.300 5620.300 5620.300	411380.76 390975.78 371340.96	415961.38 423928.23 423683.26	1338696.89 1309433.18 1279115.47
63	TANGENT END-I END-J	6231.700 6231.700	9202.052 9202.052	6012.267 6012.267	370516.33 370516.33	539493.44 464091.30	1237059.35 1037294.22
64	TANGENT END-I END-J	6263.195 6263.195	9189.184 9189.184	6086.081 6086.081	370185.50 370185.50	461636.30 418286.19	1038507.16 840568.45
65	BEND END-I CENTER END-J	6298.168 6037.384 5772.124	5866.890 6134.646 6384.816	9356.595 9356.595 9356.595	370525.32 462528.35 555877.86	875577.55 755625.28 612797.94	338571.92 341085.67 349829.82
66	BEND END-I CENTER END-J	5791.601 5562.642 5410.175	6406.697 6606.968 6733.827	9364.798 9364.798 9364.798	555284.94 630402.03 677786.90	612984.72 456849.05 306332.48	350443.67 365898.24 387102.34
67	BEND END-I CENTER END-J	5411.338 5362.327 5428.839	6753.505 6792.846 6738.786	9373.345 9373.345 9373.345	677985.22 692654.75 672347.35	305212.27 218489.32 279110.01	387087.16 413084.97 442120.41

68	BEND	END-I CENTER END-J	5427.673 5595.841 5838.210	6762.927 6623.330 6410.815	9367.379 9367.379 9367.379	672630.21 617942.04 530500.09	277815.31 421860.69 579139.89	442505.63 473057.58 503393.86
69	TANGENT	END-I END-J	5839.423 5839.423	7324.902 7324.902	8672.147 8672.147	530038.94 530038.94	531602.79 596025.89	553801.36 596862.89

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 1 *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S

NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	4287.
7090	FY	12268.
7090	FZ	2519.
7090	MX	542461.
7090	MY	326963.
7090	MZ	727848.
3047	FZ	36.
3116	FZ	188.
3210	FX	3864.
3210	FZ	79.
3250	FX	8672.
3250	FY	7325.
3250	FZ	5839.
3250	MX	596883.
3250	MY	596026.
3250	MZ	530039.
3035	FX	19482.
3083	FZ	4417.

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 2 *****
MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S				A C C E L E R A T I O N S I N G ' S			
	TRANSLATION	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	ROTATION	X- DIRECTION	Y- DIRECTION	Z- DIRECTION
7090	45053E-07	10320E-06	28643E-07	41165E-07	38198E-07	.61886E-07	.000	.000
3001	11618E-03	16576E-03	85224E-04	54532E-05	53068E-05	.75676E-05	.003	.003
3005	16671E-03	23554E-03	12637E-03	93490E-05	12598E-04	.12598E-04	.004	.004
3010	35207E-03	35269E-03	19802E-03	16520E-04	16858E-04	.21521E-04	.006	.006
3011	44656E-03	61966E-03	36687E-03	35661E-04	37559E-04	.44156E-04	.011	.011
3012	96299E-03	13052E-02	86029E-02	64205E-04	69950E-04	.75034E-04	.024	.024
3019	32907E-02	37162E-02	27575E-02	11609E-03	13219E-03	.11466E-03	.072	.074
3021	32974E-02	62983E-02	51486E-02	14943E-03	17271E-03	.11127E-03	.130	.139
3023	34051E-02	67354E-02	56230E-02	15452E-03	17850E-03	.10730E-03	.140	.151
3024	38936E-02	85489E-02	80055E-02	17584E-03	19983E-03	.79200E-04	.190	.213
3026	45737E-02	10045E-01	11241E-01	19700E-03	21723E-03	.48037E-04	.246	.292
3028	51183E-02	10304E-01	14684E-01	21353E-03	22563E-03	.11865E-03	.292	.372
3030	6468E-02	68730E-02	20638E-01	23367E-03	22102E-03	.36140E-03	.337	.497
3032	79101E-02	83242E-02	26150E-01	24935E-03	19590E-03	.70335E-03	.342	.597
3035	9767E-02	29803E-01	30715E-01	27014E-03	15592E-03	.11402E-02	.332	.668
3037	97568E-02	65462E-01	33960E-01	35114E-03	11004E-03	.15980E-02	.360	.708
3038	10195E-01	11274E+00	35653E-01	35114E-03	77974E-04	.20038E-02	.430	.720
3040	10271E-01	17017E+00	35725E-01	39844E-03	90450E-04	.23603E-02	.519	.708
3044	10203E-01	19538E+00	35330E-01	41695E-03	10585E-03	.24883E-02	.557	.697
3047	10153E-01	20816E+00	35037E-01	42593E-03	11432E-03	.25482E-02	.575	.691
3050	10094E-01	22020E+00	34730E-01	43412E-03	12245E-03	.26020E-02	.592	.684
3053	10245E-01	23091E+00	34361E-01	44135E-03	13015E-03	.26508E-02	.607	.677
3056	11693E-01	24872E+00	33395E-01	45269E-03	14282E-03	.27278E-02	.630	.660
3059	12158E-01	25197E+00	33174E-01	46229E-03	14533E-03	.27426E-02	.634	.657
3062	15006E-01	26513E+00	32111E-01	46229E-03	15419E-03	.27943E-02	.651	.639
3065	24557E-01	28945E+00	29461E-01	47616E-03	17193E-03	.28932E-02	.679	.598
3068	31745E-01	30175E+00	27744E-01	48324E-03	18159E-03	.29447E-02	.693	.571
3074	56062E-01	31630E+00	23424E-01	49674E-03	20199E-03	.30476E-02	.720	.508
3077	60884E-01	33433E+00	22517E-01	49930E-03	20598E-03	.30671E-02	.724	.495
3080	12978E+00	37002E+00	96404E-02	52457E-03	25827E-03	.30859E-02	.729	.482
3083	17393E+00	37559E+00	60273E-02	53360E-03	28560E-03	.32898E-02	.763	.334
3086	18549E+00	37562E+00	63721E-02	53555E-03	29337E-03	.33864E-02	.768	.286
3089	22021E+00	37571E+00	95642E-02	53976E-03	31435E-03	.34097E-02	.768	.280
3092	28510E+00	37588E+00	18571E-01	54388E-03	35528E-03	.34691E-02	.767	.328
3095	32808E+00	37599E+00	24885E-01	54404E-03	38258E-03	.36336E-02	.767	.378
3098	33467E+00	37601E+00	25854E-01	54391E-03	38677E-03	.36427E-02	.767	.386
3100	37619E+00	37619E+00	36899E-01	53986E-03	43499E-03	.37383E-02	.767	.485
3101	41052E+00	37619E+00	47871E-01	53210E-03	48422E-03	.38247E-02	.767	.588
3104	48815E+00	37639E+00	48271E-01	53176E-03	48606E-03	.38278E-02	.767	.592
3107	53298E+00	37649E+00	54018E-01	52665E-03	51258E-03	.38706E-02	.767	.643
3110	59532E+00	36717E+00	61404E-01	51877E-03	55156E-03	.39379E-02	.757	.694
3113	64949E+00	34717E+00	65887E-01	51287E-03	58656E-03	.40007E-02	.729	.696
3115	71604E+00	27220E+00	67596E-01	50692E-03	63729E-03	.41054E-02	.652	.609
3116	74700E+00	15978E+00	62570E-01	50449E-03	68799E-03	.42387E-02	.542	.410
3119	74678E+00	10228E+00	59594E-01	50514E-03	70723E-03	.43005E-02	.498	.313
3120	74649E+00	43388E-01	58037E-01	50833E-03	72717E-03	.43784E-02	.465	.260
3122	74619E+00	75526E-01	59365E-01	51417E-03	74192E-03	.44560E-02	.466	.321
3123	72186E+00	17290E+00	63924E-01	52468E-03	75567E-03	.45644E-02	.522	.481
3125	65839E+00	25273E+00	69157E-01	53541E-03	76256E-03	.46500E-02	.596	.605
3128	55667E+00	30435E+00	73501E-01	54663E-03	76497E-03	.47076E-02	.651	.655
3198	45373E+00	30866E+00	73872E-01	55555E-03	76378E-03	.47144E-02	.762	.612

3199	.35985E+00	.72949E-01	.56211E-03	.76105E-03	.46802E-02	.620	.640	.542
3200	.26695E+00	.73448E-01	.56692E-03	.75760E-03	.46048E-02	.472	.625	.497
3205	.17312E+00	.75514E-01	.56983E-03	.75292E-03	.44817E-02	.315	.608	.495
3208	.84792E-01	.79043E-01	.57076E-03	.74699E-03	.43168E-02	.162	.591	.545
3210	.71517E-03	.83949E-01	.57046E-03	.73950E-03	.41063E-02	.064	.573	.637
3212	.77976E-01	.86790E-01	.56916E-03	.72429E-03	.37181E-02	.204	.514	.754
3215	.12223E+00	.83758E-01	.57097E-03	.70061E-03	.32868E-02	.308	.403	.846
3220	.13206E+00	.74509E-01	.57852E-03	.65844E-03	.27422E-02	.334	.279	.899
3222	.95137E-01	.55128E-01	.58640E-03	.57250E-03	.19467E-02	.262	.222	.827
3225	.47688E-01	.38839E-01	.57013E-03	.49073E-03	.13548E-02	.214	.221	.647
3230	.25187E-01	.35189E-01	.56096E-03	.46983E-03	.12183E-02	.205	.218	.592
3235	.98693E-02	.23807E-01	.52407E-03	.39761E-03	.92948E-03	.173	.205	.406
3237	.95917E-02	.13322E-01	.46572E-03	.32798E-03	.68973E-03	.136	.192	.234
3238	.18739E-02	.69013E-01	.38944E-03	.28254E-03	.49029E-03	.103	.165	.126
3240	.25718E-02	.25442E-02	.29614E-03	.23055E-03	.32683E-03	.063	.111	.049
3243	.18638E-02	.45771E-03	.18472E-03	.15727E-03	.19068E-03	.026	.051	.010
3245	.38326E-03	.16176E-04	.56513E-04	.52526E-04	.68110E-04	.004	.009	.000
3250	.72966E-07	.40839E-07	.49179E-07	.47241E-07	.44102E-07	.000	.000	.000

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 2 *****
MODAL COMBINATION METHOD 2-GROUPING

P I P E F O R C E S A N D M O M E N T S

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	4653.318 4653.318	9968.147 9968.147	3739.190 3739.190	100826.57 100826.57	415521.95 348483.19	718026.27 531368.39
2	TANGENT	END-I END-J	4650.383 4650.383	9969.400 9969.400	3738.936 3738.936	100694.66 100694.66	348514.98 332632.62	531372.51 486642.19
3	TANGENT	END-I END-J	4650.299 4650.299	9969.044 9969.044	3737.789 3737.789	100694.66 100694.66	332632.62 316849.09	486642.19 441923.01
4	TANGENT	END-I END-J	4643.028 4643.028	9977.534 9977.534	3722.578 3722.578	102506.69 102506.69	316734.98 298956.79	441588.25 390632.75
5	TANGENT	END-I END-J	4652.184 4652.184	9970.983 9970.983	3724.586 3724.586	102196.50 102196.50	298913.01 269519.43	390747.49 305528.33
6	BEND	END-I CENTER END-J	4646.409 3603.483 3065.476	9586.573 10025.317 10202.661	4614.942 4614.942 4614.942	101476.14 100906.95 109834.33	276102.21 239541.20 202149.33	299715.29 212360.11 127451.90
7	BEND	END-I CENTER END-J	3049.738 3278.349 4008.863	10130.065 10058.372 9790.773	4734.305 4734.305 4734.305	109827.88 119299.94 126401.01	200604.86 171679.70 151721.55	129874.10 77760.71 89625.17
8	BEND	END-I CENTER END-J	3953.816 4102.959 4257.219	9380.146 9315.976 9246.492	5504.947 5504.947 5504.947	126729.74 127340.74 127808.18	147424.38 146759.58 146759.50	96098.42 102226.42 109533.39
9	TANGENT	END-I END-J	4256.594 4256.594	10301.088 10301.088	3057.401 3057.401	127695.82 127695.82	146124.41 108820.87	110515.21 241832.27
10	TANGENT	END-I END-J	4248.272 4248.272	10290.495 10290.495	2959.164 2959.164	127522.59 127522.59	108820.87 67298.41	241923.66 402355.17
11	TANGENT	END-I END-J	4237.647 4237.647	10277.761 10277.761	2814.413 2814.413	127522.59 127522.59	67298.41 38266.38	402355.17 562728.91
12	TANGENT	END-I END-J	4222.416 4222.416	10263.028 10263.028	2568.534 2568.534	127861.10 127861.10	38266.38 64737.18	562652.06 836308.68
13	TANGENT	END-I END-J	4203.785 4203.785	10259.152 10259.152	2156.682 2156.682	128246.59 128246.59	64737.18 115603.11	836249.70 1109479.61
14	TANGENT	END-I END-J	4185.996 4185.996	10284.819 10284.819	1674.309 1674.309	127896.44 127896.44	115603.11 156329.25	1109520.05 1383198.26
15	TANGENT	END-I END-J	4167.876 4167.876	6542.091 6542.091	1183.363 1183.363	127796.03 127796.03	156329.25 182795.11	1383207.50 1232078.28
16	TANGENT	END-I END-J	4149.608 4149.608	6351.203 6351.203	829.503 829.503	128274.52 128274.52	182795.11 194003.29	1232028.58 1090087.25
17	TANGENT	END-I	4131.592	6070.610	883.684	127932.03	194003.29	1090127.52

18	TANGENT	END-J	4131.592	6070.610	883.684	127932.03	190577.60	960280.80
		END-I	4119.063	5804.780	1142.212	128393.71	190577.60	960219.22
		END-J	4119.063	5804.780	1142.212	128393.71	185711.74	912968.39
19	TANGENT	END-I	4112.177	5681.385	1284.311	124542.84	185711.74	913501.78
		END-J	4112.177	5681.385	1284.311	124542.84	182669.94	891375.78
20	TANGENT	END-I	4108.615	5600.148	1359.392	128196.45	182669.94	890857.61
		END-J	4108.615	5600.148	1359.392	128196.45	179684.86	871005.56
21	BEND	END-I	4105.939	5524.256	1440.749	128755.66	179684.86	870923.04
		CENTER	4045.530	5568.617	1440.749	126610.72	179777.09	862319.59
		END-J	3989.372	5608.947	1440.749	124656.77	179732.02	853527.80
22	BEND	END-I	3980.349	5531.867	1492.169	124887.55	191439.65	850945.71
		CENTER	3898.373	5590.021	1492.169	123786.90	185557.62	836256.34
		END-J	3830.359	5636.892	1492.169	123374.57	187289.12	821132.44
23	BEND	END-I	3829.746	4565.332	3544.130	127974.23	428315.89	724381.60
		CENTER	3815.606	4577.176	3544.130	123318.15	428069.97	722077.41
		END-J	3801.730	4588.710	3544.130	118707.53	427765.89	719757.14
24	BEND	END-I	3785.328	5540.136	1613.864	125480.22	205383.68	810675.47
		CENTER	3750.953	5563.446	1613.864	127401.08	203941.57	799269.52
		END-J	3724.013	5581.501	1613.864	129617.30	198313.33	787696.21
25	BEND	END-I	3687.209	5455.790	1791.727	124969.31	174955.04	793955.75
		CENTER	3642.796	5485.521	1791.727	125069.90	170486.57	771859.75
		END-J	3632.099	5492.624	1791.727	126046.28	165603.01	749247.73
26	BEND	END-I	3591.045	5333.286	2027.717	136455.58	177150.18	744767.11
		CENTER	3588.126	5335.306	2027.717	133922.44	176350.28	732897.68
		END-J	3594.822	5330.716	2027.717	131632.21	175422.77	720925.71
27	BEND	END-I	3523.086	5262.340	2036.977	133972.57	163794.96	723231.21
		CENTER	3559.863	5237.484	2036.977	139303.37	154112.36	697522.35
		END-J	3636.426	5184.609	2036.977	144551.23	14685.33	671614.22
28	BEND	END-I	3540.759	4852.339	2665.178	137642.46	247651.46	642351.76
		CENTER	3562.154	4836.682	2665.178	141858.34	243516.97	637751.78
		END-J	3584.559	4820.145	2665.178	146023.15	23320.23	633152.77
29	BEND	END-I	3542.376	5048.879	2188.414	146105.17	169011.33	655413.46
		CENTER	3556.927	5038.612	2188.414	145421.62	168636.67	650572.47
		END-J	3572.810	5027.402	2188.414	144757.29	168268.79	645734.38
30	BEND	END-I	3373.644	4873.136	2366.627	146425.95	137880.03	652528.24
		CENTER	3614.885	4696.788	2366.627	154589.15	122136.44	596044.00
		END-J	3961.550	4408.317	2366.627	157828.92	120486.81	542779.43
31	BEND	END-I	3516.493	4226.443	2592.326	155367.60	112848.97	545126.12
		CENTER	3702.693	4064.413	2592.326	156539.42	117703.46	519760.65
		END-J	3890.835	3884.483	2592.326	156152.58	127382.82	496521.73
32	TANGENT	END-I	3680.530	1830.193	3592.820	156217.99	50099.89	112525.40
		END-J	3680.530	1830.193	3592.820	156217.99	488485.51	109435.54
33	TANGENT	END-I	3524.112	1793.208	3532.766	153365.94	489388.42	109435.54
		END-J	3524.112	1793.208	3532.766	153365.94	459638.72	103233.65

34	TANGENT	END-I END-J	3197.965 3197.965	1705.160 1705.160	3388.491 3388.491	154947.39 154947.39	459108.00 407980.33	103233.65 99971.67
35	TANGENT	END-I END-J	2860.088 2860.088	1560.593 1560.593	3194.145 3194.145	154476.08 154476.08	408158.98 379336.96	99971.67 102591.53
36	TANGENT	END-I END-J	2711.673 2711.673	1483.522 1483.522	3096.205 3096.205	155368.92 155368.92	374935.65 374935.65	102591.53 103228.45
37	TANGENT	END-I END-J	2480.104 2480.104	1354.095 1354.095	2940.859 2940.859	154814.36 154814.36	375165.00 336168.23	103228.45 113094.44
38	TANGENT	END-I END-J	2093.284 2093.284	1047.094 1047.094	2618.223 2618.223	154934.37 154934.37	336112.98 311943.80	113094.44 123306.63
39	TANGENT	END-I END-J	1918.601 1918.601	865.870 865.870	2443.607 2443.607	161536.36 161536.36	308576.45 308006.50	123306.63 123627.03
40	TANGENT	END-I END-J	1837.924 1837.924	763.398 763.398	2357.965 2357.965	155275.22 155275.22	311210.15 305518.45	123627.03 127412.87
41	BEND	END-I CENTER END-J	1681.992 1800.534 1925.080	2175.291 2078.769 1965.082	552.906 552.906 552.906	155138.13 146854.63 137385.34	128989.50 139517.14 150462.42	304930.61 305120.20 307170.28
42	BEND	END-I CENTER END-J	1794.526 1891.251 1978.064	1852.363 1754.054 1655.803	431.822 431.822 431.822	137555.12 128561.95 120355.72	150716.07 152167.95 162957.05	307185.71 312334.54 318036.41
43	BEND	END-I CENTER END-J	1993.283 2092.302 2140.010	1662.742 1534.719 1465.120	641.256 641.256 641.256	120437.57 110336.76 106294.94	163212.13 164191.57 161242.07	317874.74 328940.54 338148.90
44	BEND	END-I CENTER END-J	2558.761 2542.725 2422.460	1646.814 1672.406 1844.513	1088.835 1088.835 1088.835	106362.12 109088.87 115325.64	160650.87 145610.92 129410.37	338408.88 344342.99 343619.76
45	TANGENT	END-I END-J	2998.001 2998.001	2085.662 2085.662	1303.120 1303.120	115307.80 115307.80	119822.61 107631.68	347077.33 340256.27
46	TANGENT	END-I END-J	3506.380 3506.380	2267.804 2267.804	1414.316 1414.316	115291.87 115291.87	107631.68 93213.26	340261.66 332821.05
47	TANGENT	END-I END-J	4120.885 4120.885	2455.295 2455.295	1443.148 1443.148	115291.24 115291.24	93213.26 82507.77	332821.29 329414.64
48	BEND	END-I CENTER END-J	4873.404 4657.327 4290.720	2672.238 3032.075 3531.783	1346.913 1346.913 1346.913	115292.92 106761.34 92301.83	70028.37 80365.98 100230.23	332290.29 327484.79 314350.76
49	BEND	END-I CENTER END-J	5154.090 4663.036 4086.508	3785.081 4376.736 4919.946	1130.314 1130.314 1130.314	92304.20 74563.18 55387.24	100331.96 117377.62 132704.16	314317.61 292970.96 267136.33
50	BEND	END-I CENTER END-J	4871.774 4113.251 3457.357	5305.131 5912.245 6317.893	928.516 928.516 928.516	55160.08 39575.58 43119.37	133086.32 140278.31 142352.58	266993.47 233351.91 206726.79
51	BEND	END-I	3961.666	6868.117	818.696	43269.38	142186.34	206810.11

	CENTER END-J	3488.798 3426.691	7120.067 7150.819	818.696 818.696	60209.02 80332.27	134402.57 122673.10	194697.65 205363.28
52	TANGENT END-I END-J	3626.185 3626.185	7399.193 7399.193	2308.663 2308.663	80293.76 80293.76	125122.16 123829.45	203843.86 283349.46
53	TANGENT END-I END-J	3847.882 3847.882	7792.898 7792.898	2530.976 2530.976	80329.11 80329.11	124233.03 138192.57	283162.35 408878.52
54	TANGENT END-I END-J	4096.673 4096.673	8107.975 8107.975	2707.645 2707.645	80515.69 80515.69	138010.22 168621.47	408903.40 560092.73
55	TANGENT END-I END-J	4368.475 4368.475	8328.390 8328.390	2841.420 2841.420	80350.98 80350.98	167874.59 209421.56	560340.67 717874.13
56	TANGENT END-I END-J	4653.384 4653.384	8450.614 8450.614	2960.461 2960.461	80336.51 80336.51	209427.01 259141.35	717874.13 881065.08
57	BEND END-I CENTER END-J	4524.403 3454.536 3572.209	8640.405 9120.963 9075.375	1731.583 1731.583 1731.583	80231.00 93280.17 104364.74	92919.51 90801.80 93083.65	913689.08 992322.50 1070807.66
58	BEND END-I CENTER END-J	3537.713 4529.214 5928.315	9185.399 8739.164 7857.711	1955.845 1955.845 1955.845	104391.02 113718.28 122654.22	93222.65 98805.49 105386.76	1070793.07 1141719.66 1204656.31
59	BEND END-I CENTER END-J	5719.395 7238.254 8419.685	8017.724 6679.950 5109.208	2265.273 2265.273 2265.273	122147.59 132772.58 144542.21	105316.43 111224.90 114565.68	1204714.01 1263047.81 1301240.76
60	BEND END-I CENTER END-J	8211.122 9056.488 8763.147	5327.290 3712.514 4361.659	2680.245 2680.245 2680.245	144791.20 182772.99 213302.34	148978.53 128257.23 100539.76	1297723.64 1312159.51 1275968.91
61	BEND END-I CENTER END-J	8682.819 7715.593 6229.991	4276.542 5843.853 7407.221	3198.949 3198.949 3198.949	212617.30 227830.10 232500.84	102402.01 86866.91 92898.17	1275934.95 1214195.00 1127281.45
62	BEND END-I CENTER END-J	6241.084 5823.695 5403.778	7358.665 7693.165 7993.787	3426.166 3426.166 3426.166	230453.58 231789.12 232480.49	92917.04 94755.15 98003.71	1127699.44 1102957.89 1077295.84
63	TANGENT END-I END-J	5427.552 5427.552	7735.180 7735.180	4069.336 4069.336	230787.37 230787.37	311819.14 297425.37	1036203.30 868712.70
64	TANGENT END-I END-J	5441.355 5441.355	7728.137 7728.137	4246.229 4246.229	230524.26 230524.26	294375.26 311113.94	869820.89 704170.46
65	BEND END-I CENTER END-J	5463.515 5510.628 5459.589	3982.659 3916.446 3987.398	7917.208 7917.208 7917.208	230749.12 324531.04 416651.60	735392.52 635658.71 514341.16	227468.56 256790.93 284863.19
66	BEND END-I CENTER END-J	5468.760 5328.012 5110.907	4037.212 4222.172 4484.639	7924.997 7924.997 7924.997	416037.49 489995.27 538891.51	514576.92 377633.39 234742.65	285334.61 312357.62 337797.64
67	BEND END-I CENTER END-J	5108.165 4835.664 4542.850	4515.419 4806.589 5082.927	7932.842 7932.842 7932.842	539109.98 559398.56 549383.72	234259.34 121681.24 168136.46	337784.39 362064.10 385000.92

68	BEND	END-I CENTER END-J	4544.065 4277.305 4084.295	5106.274 5330.629 5479.957	7927.397 7927.397 7927.397	549573.63 509751.85 441384.75	166975.82 303752.61 445658.14	385234.87 407087.78 427705.27
69	TANGENT	END-I END-J	4083.845 4083.845	6297.971 6297.971	7296.605 7296.605	441017.48 441017.48	412007.19 472406.99	460561.79 491794.93

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 2 *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S

NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	4505.
7090	FY	10320.
7090	FZ	2864.
7090	MX	411654.
7090	MY	381979.
7090	MZ	618854.
3047	FZ	21.
3116	FZ	38.
3210	FX	3576.
3210	FZ	50.
3250	FX	7297.
3250	FY	6298.
3250	FZ	4084.
3250	MX	491795.
3250	MY	472407.
3250	MZ	441017.
3035	FY	16437.
3083	FZ	3324.

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 3 *****
MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S			X- T R A N S L A T I O N			Y- T R A N S L A T I O N			Z- R O T A T I O N			X- D I R E C T I O N			Y- D I R E C T I O N			Z- D I R E C T I O N		
	T R A N S L A T I O N	T R A N S L A T I O N	T R A N S L A T I O N	T R A N S L A T I O N	R O T A T I O N	R O T A T I O N	T R A N S L A T I O N	R O T A T I O N	R O T A T I O N	T R A N S L A T I O N	R O T A T I O N	R O T A T I O N	T R A N S L A T I O N	R O T A T I O N	R O T A T I O N	T R A N S L A T I O N	R O T A T I O N	R O T A T I O N	T R A N S L A T I O N	R O T A T I O N	R O T A T I O N
7090	53481E-07	77934E-07	48356E-07	51717E-07	48588E-07	42557E-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3001	81652E-04	11449E-03	11041E-03	74775E-05	66725E-05	53216E-05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
3005	11922E-03	16322E-03	16992E-03	13354E-04	11906E-04	89432E-05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
3010	18446E-03	24539E-03	27688E-03	24651E-04	21945E-04	15465E-04	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
3011	33634E-03	43309E-03	53656E-03	56351E-04	49998E-04	32381E-04	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
3012	77735E-03	92376E-03	13595E-02	10768E-03	95231E-04	56556E-04	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
3019	22104E-02	26264E-02	46622E-02	22166E-03	19050E-03	94581E-04	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
3021	33850E-02	43716E-02	86289E-02	32113E-03	26107E-03	11024E-03	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
3023	35537E-02	46611E-02	93741E-02	33887E-03	27209E-03	11196E-03	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
3024	43502E-02	58733E-02	13120E-01	42093E-03	31555E-03	12015E-03	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
3026	54851E-02	69520E-02	18368E-01	52076E-03	35826E-03	14217E-03	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
3028	67634E-02	74355E-02	24191E-01	62067E-03	39030E-03	19325E-03	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
3030	91706E-02	79182E-02	34980E-01	79220E-03	42271E-03	35701E-03	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
3032	11698E-01	14403E-01	46185E-01	96564E-03	43169E-03	60567E-03	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
3035	14185E-01	31331E-01	57196E-01	11424E-02	42511E-03	93148E-03	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
3037	16529E-01	59511E-01	67562E-01	13208E-02	41375E-03	12610E-02	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66
3038	18672E-01	95801E-01	77013E-01	14974E-02	41087E-03	15253E-02	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
3040	20595E-01	13816E+00	85527E-01	16721E-02	42880E-03	17337E-02	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
3044	21308E-01	15621E+00	88675E-01	17407E-02	44321E-03	18035E-02	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
3047	21639E-01	16524E+00	90179E-01	17742E-02	45179E-03	18354E-02	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69
3050	21948E-01	17369E+00	91547E-01	18050E-02	46057E-03	18637E-02	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
3053	22230E-01	18114E+00	92451E-01	18319E-02	46962E-03	18990E-02	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
3056	22819E-01	19342E+00	92630E-01	18757E-02	48641E-03	19290E-02	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
3059	22960E-01	19565E+00	91317E-01	18838E-02	48990E-03	19367E-02	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
3062	27073E-01	20463E+00	92500E-01	19156E-02	50380E-03	19635E-02	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
3065	27004E-01	22101E+00	86516E-01	19751E-02	53413E-03	20152E-02	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81	1.81
3068	30062E-01	22920E+00	82623E-01	20065E-02	55188E-03	20425E-02	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94
3071	40316E-01	24534E+00	71265E-01	20721E-02	59300E-03	20984E-02	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97
3074	42839E-01	24810E+00	68634E-01	20847E-02	60123E-03	21093E-02	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
3077	45525E-01	25082E+00	65882E-01	20971E-02	60965E-03	21199E-02	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22
3080	89105E-01	27363E+00	22562E-01	22417E-02	71847E-03	22413E-02	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
3083	11821E+00	27724E+00	89530E-02	23184E-02	78067E-03	23036E-02	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
3086	12655E+00	27729E+00	16862E-01	23374E-02	79795E-03	23189E-02	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
3089	14906E+00	27742E+00	39675E-01	23842E-02	84460E-03	23588E-02	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46	2.46
3092	19263E+00	27770E+00	84324E-01	24585E-02	93427E-03	24290E-02	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
3095	22163E+00	27788E+00	11397E+00	24972E-02	99344E-03	24707E-02	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
3098	22608E+00	27791E+00	11851E+00	25025E-02	10025E-02	24768E-02	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53
3100	27737E+00	27823E+00	17062E+00	25517E-02	11059E-02	25410E-02	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
3101	27937E+00	27854E+00	22349E+00	25829E-02	12103E-02	25974E-02	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72	2.72
3104	33192E+00	27856E+00	22543E+00	25838E-02	12141E-02	25994E-02	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74
3107	36035E+00	27873E+00	25336E-02	25936E-02	12699E-02	26269E-02	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
3110	40262E+00	27343E+00	29600E+00	26026E-02	13514E-02	26699E-02	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79	2.79
3113	43933E+00	25869E+00	33361E+00	26055E-02	14231E-02	27111E-02	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81
3115	48442E+00	21907E+00	38285E+00	26044E-02	15240E-02																

3199	24637E+00	22175E+00	31427E+00	25109E+02	17640E+02	31768E+02	642	1188
3200	18356E+00	21229E+00	27292E+00	24421E+02	17672E+02	31411E+02	521	1176
3205	11961E+00	20245E+00	23542E+00	23497E+02	17678E+02	30823E+02	367	1157
3208	58777E+01	19303E+00	20615E+00	22384E+02	17678E+02	30040E+02	193	1134
3210	18496E+01	18737E+00	18622E+00	21062E+02	17636E+02	29054E+02	090	1105
3211	15947E+00	15947E+00	16942E+00	18832E+02	17398E+02	27171E+02	311	1101
3215	88735E+01	11755E+00	15242E+00	16667E+02	16862E+02	24745E+02	472	1089
3220	95852E+01	65783E+01	13110E+00	14399E+02	15724E+02	21107E+02	503	1077
3222	67357E+01	23252E+01	95625E+01	11865E+02	13131E+02	14854E+02	369	1057
3225	38418E+01	18780E+01	66069E+01	10291E+02	10502E+02	98997E+03	314	1031
3230	32585E+01	18504E+01	59599E+01	99231E+03	98179E+03	87902E+03	339	1029
3235	17141E+01	17852E+01	39940E+01	89663E+03	76688E+03	65608E+03	308	1029
3237	72588E+02	17368E+01	22355E+01	78204E+03	56341E+03	48449E+03	230	1023
3238	49642E+02	15008E+01	11697E+01	64992E+03	42571E+03	34953E+03	175	1021
3240	37473E+02	98003E+02	43972E+02	49755E+03	29863E+03	24017E+03	106	1021
3243	43036E+02	43036E+02	80757E+03	31664E+03	17681E+03	14428E+03	044	1011
3245	32577E+03	70908E+03	35178E+04	10017E+03	52637E+04	52068E+04	008	1010
3250	78649E+07	16002E+06	88712E+07	88847E+07	45429E+07	33714E+07	000	1000

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 3 *****
 MODAL COMBINATION METHOD 2-GROUPING

P I P E F O R C E S A N D M O M E N T S

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	7502.829 7502.829	6847.489 6847.489	3088.200 3088.200	187919.75 187919.75	622999.48 575264.49	511146.66 385554.43
2	TANGENT	END-I END-J	7502.348 7502.348	6847.993 6847.993	3087.559 3087.559	187978.97 187978.97	575231.91 564073.93	385574.28 355759.30
3	TANGENT	END-I END-J	7502.256 7502.256	6847.728 6847.728	3086.765 3086.765	187978.97 187978.97	564073.93 553041.00	355759.30 326120.87
4	TANGENT	END-I END-J	7492.249 7492.249	6851.075 6851.075	3102.214 3102.214	189085.13 189085.13	553481.72 540949.88	324730.16 291167.64
5	TANGENT	END-I END-J	7496.544 7496.544	6847.973 6847.973	3095.597 3095.597	188582.08 188582.08	540883.60 520384.19	291616.82 236444.17
6	BEND	END-I CENTER END-J	7498.717 7132.339 6730.035	6458.477 6860.920 7256.076	3825.040 3825.940 3825.040	188406.33 238199.58 294168.00	519117.93 472141.01 413842.63	239196.94 190450.78 145031.84
7	BEND	END-I CENTER END-J	6722.247 6377.006 6069.142	7227.971 7534.294 7785.071	3851.734 3851.734 3851.734	296331.14 341078.39 379050.65	409994.20 353029.03 292817.19	151417.38 124358.87 120153.83
8	BEND	END-I CENTER END-J	6102.934 6051.546 6001.894	7586.099 7627.261 7666.492	4145.245 4145.245 4145.245	377679.86 383082.91 388226.52	284616.59 275217.03 265979.95	142160.04 142367.33 143300.63
9	TANGENT	END-I END-J	5997.255 5997.255	7782.430 7782.430	3899.568 3899.568	388295.62 388295.62	283193.47 240203.34	105020.43 201457.36
10	TANGENT	END-I END-J	5994.433 5994.433	7776.382 7776.382	3829.472 3829.472	388275.48 388275.48	240203.34 193097.45	201496.07 321626.58
11	TANGENT	END-I END-J	5993.575 5993.575	7770.728 7770.728	3718.163 3718.163	388275.48 388275.48	193097.45 155615.85	321626.58 442388.64
12	TANGENT	END-I END-J	5994.088 5994.088	7769.336 7769.336	3522.764 3522.764	388305.86 388305.86	155615.85 130753.69	442362.04 649130.26
13	TANGENT	END-I END-J	5992.690 5992.690	7794.779 7794.779	3188.913 3188.913	388337.93 388337.93	130753.69 159681.41	649111.09 856526.34
14	TANGENT	END-I END-J	5988.498 5988.498	7870.175 7870.175	2780.934 2780.934	388310.25 388310.25	159681.41 210155.14	856538.89 1065873.52
15	TANGENT	END-I END-J	5984.161 5984.161	10337.818 10337.818	2308.369 2308.369	388302.67 388302.67	210155.14 259650.43	1065876.24 873988.59
16	TANGENT	END-I END-J	5979.900 5979.900	9948.849 9948.849	1793.592 1793.592	388341.00 388341.00	259650.43 299693.83	873971.55 739002.64
17	TANGENT	END-I	5973.793	9384.906	1287.932	388312.85	299693.83	739017.40

18	TANGENT	END-J	5973.793	9384.906	1287.932	388312.85	327250.56	682647.60
		END-I	5969.651	8868.630	987.158	388349.15	327250.56	682626.87
		END-J	5969.651	8868.630	987.158	388349.15	334434.64	683364.44
19	TANGENT	END-I	5965.524	8632.506	911.006	388070.86	334434.64	683522.67
		END-J	5965.524	8632.506	911.006	388070.86	337292.42	688136.84
20	TANGENT	END-I	5971.008	8478.396	874.930	388324.68	337292.42	687993.50
		END-J	5971.008	8478.396	874.930	388324.68	339495.85	694499.82
21	BEND	END-I	5970.087	8335.617	844.889	388363.79	339495.85	694477.92
		CENTER	6178.564	8182.299	844.889	386012.27	342952.33	697741.39
		END-J	6386.599	8020.934	844.889	383520.13	346535.05	701044.51
22	BEND	END-I	6385.575	7835.052	812.151	383364.02	339030.73	704792.70
		CENTER	6709.412	7559.722	812.151	379066.10	344182.06	710199.21
		END-J	7024.679	7267.741	812.151	374447.07	349591.68	715456.88
23	BEND	END-I	6975.058	6041.530	3929.345	374777.90	557181.50	588669.20
		CENTER	7025.213	5983.221	3929.345	374001.03	558707.42	588840.13
		END-J	7074.637	5924.627	3929.345	373297.92	560184.03	589005.90
24	BEND	END-I	7121.709	6868.766	995.664	371978.32	342812.68	721834.37
		CENTER	7313.407	6664.160	995.664	368559.32	346026.46	725257.94
		END-J	7498.076	6455.728	995.664	365017.89	349330.43	728478.03
25	BEND	END-I	7447.984	6224.519	876.832	364676.99	367207.57	719800.44
		CENTER	7781.046	5802.727	876.832	357627.72	373744.45	723905.84
		END-J	8075.967	5384.796	876.832	350735.60	379891.40	726713.18
26	BEND	END-I	7947.034	5180.888	1070.105	349014.99	409142.62	711495.69
		CENTER	8079.762	4971.319	1070.105	345791.19	411338.32	712051.97
		END-J	8199.402	4771.510	1070.105	342912.01	413184.80	712145.93
27	BEND	END-I	8020.879	4651.371	1083.355	342791.14	375157.74	732956.79
		CENTER	8202.689	4322.793	1083.355	334917.08	380287.02	730841.66
		END-J	8323.234	4085.933	1083.355	327816.11	384629.87	726202.62
28	BEND	END-I	8158.657	3846.642	1619.691	330235.02	390235.48	722079.55
		CENTER	8167.850	3827.292	1619.691	327783.84	392328.06	720561.41
		END-J	8174.439	3813.239	1619.691	325265.15	394393.36	718934.00
29	BEND	END-I	8109.376	3943.070	1289.894	325851.17	414081.58	707506.60
		CENTER	8118.549	3924.332	1289.894	325337.60	413731.83	706217.96
		END-J	8125.519	3910.244	1289.894	324903.49	413319.31	704835.12
30	BEND	END-I	7733.514	3926.464	1306.789	323941.19	387663.02	719701.94
		CENTER	7538.284	4289.305	1306.789	314694.74	388762.19	690570.41
		END-J	7059.206	5038.953	1306.789	313305.47	384574.57	648742.56
31	BEND	END-I	6351.945	5176.638	1341.988	315139.03	387189.97	646294.25
		CENTER	5979.759	5602.522	1341.988	316275.76	384366.29	618246.49
		END-J	5570.549	6009.427	1341.988	319452.93	380261.70	588120.57
32	TANGENT	END-I	5241.980	4512.607	5971.598	319396.76	561420.39	418749.64
		END-J	5241.980	4512.607	5971.598	319396.76	543442.73	405450.93
33	TANGENT	END-I	5005.245	4478.647	5970.983	321440.16	542236.62	405450.93
		END-J	5005.245	4478.647	5970.983	321440.16	496373.76	371290.30

34	TANGENT	END-I END-J	4539.591 4539.591	4354.300 4354.300	5956.159 5956.159	320439.39 320439.39	497020.33 419868.27	371290.30 314491.58
35	TANGENT	END-I END-J	4081.182 4081.182	4129.651 4129.651	5908.271 5908.271	320633.50 320633.50	419720.12 379285.45	314491.58 283965.18
36	TANGENT	END-I END-J	3899.940 3899.940	3995.847 3995.847	5877.663 5877.663	320414.81 320414.81	379470.22 374161.05	283965.18 279845.96
37	TANGENT	END-I END-J	3627.288 3627.288	3786.871 3786.871	5830.100 5830.100	320535.11 320535.11	374057.99 373633.87	279845.96 242505.88
38	TANGENT	END-I END-J	3273.121 3273.121	3273.255 3273.255	5698.159 5698.159	320550.18 320550.18	333619.40 335645.37	242505.88 221683.18
39	TANGENT	END-I END-J	3251.087 3251.087	2875.069 2875.069	5610.163 5610.163	323909.34 323909.34	332404.44 333223.11	221683.18 221203.66
40	TANGENT	END-I END-J	3155.814 3155.814	2788.792 2788.792	5565.274 5565.274	320634.67 320634.67	336375.59 354982.65	221203.66 214966.78
41	BEND	END-I CENTER END-J	3178.464 3410.809 3731.878	5470.166 5328.493 5109.113	2365.211 2365.211 2365.211	320531.40 297458.24 269903.39	214494.79 239634.95 266351.17	355365.19 375436.06 396579.29
42	BEND	END-I CENTER END-J	4042.658 4394.377 4723.088	4801.042 4481.552 4133.749	2030.911 2030.911 2030.911	270177.90 241845.58 212362.93	264776.16 284547.07 301591.65	397445.84 415908.11 432585.08
43	BEND	END-I CENTER END-J	5171.350 5497.320 5628.586	3668.916 3158.985 2917.805	1904.240 1904.240 1904.240	212432.63 168445.70 138574.31	302558.13 313275.40 312436.82	431875.44 447024.78 452028.31
44	BEND	END-I CENTER END-J	5976.338 5596.508 4934.797	2931.671 3604.607 4468.680	2301.886 2301.886 2301.886	138738.25 2301.886 158881.29	311110.54 281196.88 237765.60	452891.88 431190.97 393978.68
45	TANGENT	END-I END-J	4868.531 4868.531	5245.073 5245.073	2571.169 2571.169	159043.07 159043.07	227807.15 194489.37	399750.51 347555.91
46	TANGENT	END-I END-J	4873.960 4873.960	5809.888 5809.888	2827.823 2827.823	159178.02 159178.02	194489.37 149193.85	347494.10 287090.88
47	TANGENT	END-I END-J	4934.971 4934.971	6438.611 6438.611	3060.291 3060.291	159183.03 159183.03	149193.85 106882.28	287088.12 252446.59
48	BEND	END-I CENTER END-J	5077.433 4086.575 3477.366	7306.822 7903.323 8189.609	2935.689 2935.689 2935.689	159173.25 154721.28 140785.75	104755.01 97572.94 121008.02	253341.79 254168.01 280144.97
49	BEND	END-I CENTER END-J	3949.891 4221.347 4999.302	8816.504 8690.275 8267.699	3059.064 3059.064 3059.064	140647.36 120125.89 96476.33	121124.33 155869.01 191663.83	280164.23 325547.50 382352.57
50	BEND	END-I CENTER END-J	5846.983 6944.835 7971.120	8636.490 7780.704 6725.115	3247.835 3247.835 3247.835	97402.88 227030.38 91230.01	195097.66 249950.02 245523.01	380375.87 443945.73 500472.05
51	BEND	END-I	8846.571	6891.426	3469.747	91465.74	245523.01	502616.03

52	TANGENT	CENTER END-J	9506.017 9902.259	5948.643 5264.006	3469.747 3469.747	125171.27 168532.56	252025.86 250129.61	538572.72 560314.74
		END-I END-J	10556.584 10556.584	5383.215 5383.215	4062.635 4062.635	168598.84 168598.84	101246.05 165651.33	605150.64 636768.67
53	TANGENT	END-I END-J	11197.356 11197.356	5636.965 5636.965	4480.640 4480.640	168330.56 168330.56	164830.08 246124.47	637052.21 676858.66
54	TANGENT	END-I END-J	11858.480 11858.480	5889.623 5889.623	4924.578 4924.578	168675.13 168675.13	245940.67 341089.70	676839.83 727641.80
55	TANGENT	END-I END-J	12529.423 12529.423	6109.019 6109.019	5386.401 5386.401	168575.26 168575.26	341343.71 443006.88	727545.81 787680.48
56	TANGENT	END-I END-J	13198.166 13198.166	6274.425 6274.425	5867.530 5867.530	168539.72 168539.72	443020.45 553517.27	787680.48 858344.42
57	BEND	END-I CENTER END-J	12537.638 9826.459 6861.990	10993.797 13471.987 15197.549	6195.705 6195.705 6195.705	169017.66 300099.92 435774.76	569863.62 574161.85 546212.55	847491.49 821864.68 804194.93
58	BEND	END-I CENTER END-J	7373.182 4933.561 4839.271	15473.866 16415.351 16443.442	6787.662 6787.662 6787.662	435360.18 555329.84 658816.55	546506.62 495986.46 426375.74	804219.74 805939.89 832252.16
59	BEND	END-I CENTER END-J	4654.431 7259.206 10670.060	16816.505 15867.707 13806.052	7366.299 7366.299 7366.299	658612.19 749042.18 805925.43	426866.34 344906.79 283843.63	832162.37 889198.02 960201.43
60	BEND	END-I CENTER END-J	10371.488 14607.702 16930.797	14393.059 10066.861 5300.826	7668.905 7668.905 7668.905	806378.59 820746.35 768344.99	259274.52 276030.52 389998.52	966747.43 1062598.11 1103791.92
61	BEND	END-I CENTER END-J	16880.986 17121.957 15792.072	5449.723 4637.530 8079.418	8083.405 8083.405 8083.405	768443.05 690031.02 597745.29	389475.90 484631.44 549336.76	1103908.10 1082344.04 1005948.21
62	BEND	END-I CENTER END-J	15836.382 15274.701 14625.062	7887.964 8927.154 9955.747	8360.154 8360.154 8360.154	598893.58 575380.67 552831.68	547174.84 557821.20 565560.89	1006442.63 979666.82 949980.43
63	TANGENT	END-I END-J	14687.125 14687.125	8947.036 8947.036	9478.650 9478.650	554256.29 554256.29	598837.10 498832.69	928511.29 742909.03
64	TANGENT	END-I END-J	14743.595 14743.595	8979.067 8979.067	9572.534 9572.534	554269.95 554269.95	498409.34 479190.00	743182.99 565260.22
65	BEND	END-I CENTER END-J	14806.719 14904.020 14639.084	8689.850 8521.300 8968.843	9888.576 9888.576 9888.576	554181.29 556793.39 559537.41	558087.60 488473.41 415783.93	487625.59 501953.86 519100.04
66	BEND	END-I CENTER END-J	14677.635 14072.847 13172.792	9007.969 9926.622 11093.956	9894.517 9894.517 9894.517	559303.37 555629.33 540814.59	416289.37 352718.92 314950.10	518947.13 540023.50 566369.09
67	BEND	END-I CENTER END-J	13176.105 12049.917 10830.537	11134.645 12344.716 13426.920	9912.206 9912.206 9912.206	540689.08 511377.78 466534.27	315422.95 319227.92 362688.71	566225.77 600512.53 644322.35

68	BEND	END-I	10840.237	13459.265	9891.688	466924.62	361252.48	644846.22
		CENTER	9703.608	14300.185	9891.688	407832.02	427275.01	698857.00
		END-J	8873.795	14829.517	9891.688	337468.49	499962.00	762015.11
69	TANGENT	RND-I	8871.217	16002.125	7864.858	337136.97	434247.08	801425.07
		END-J	8871.217	16002.125	7864.858	337136.97	454291.31	888461.02

***** COMBINED MODAL RESPONSES FOR SUPPORT GROUP 3 *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S

NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	5348.
7090	FY	7793.
7090	FZ	4836.
7090	MX	517173.
7090	MY	485883.
7090	MZ	425575.
3047	FZ	54.
3116	FZ	249.
3210	FX	9248.
3210	FZ	112.
3250	FX	7865.
3250	FY	16002.
3250	FZ	8871.
3250	MX	888461.
3250	MY	454291.
3250	MZ	337137.
3035	FY	17279.
3083	FZ	4938.

***** SRSS COMBINATION OF SUPPORT GROUP RESPONSES *****
MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S			A C C E L E R A T I O N S I N G ' S		
	X- T R A N S L A T I O N	Y- T R A N S L A T I O N	Z- T R A N S L A T I O N	X- D I R E C T I O N	Y- D I R E C T I O N	Z- D I R E C T I O N
7090	82023E-07	17825E-06	61590E-07	85509E-07	69921E-07	10459E-06
3001	19171E-03	28185E-03	16181E-03	11266E-04	96256E-05	12868E-04
3005	27590E-03	40078E-03	24554E-03	21020E-04	31157E-04	21474E-04
3010	41885E-03	60068E-03	39451E-03	38153E-04	70436E-04	36802E-04
3011	74609E-03	10565E-02	75277E-03	85432E-04	13297E-03	75921E-04
3012	16329E-02	22318E-02	18630E-02	16004E-03	12000E-03	016
3019	41819E-02	65512E-02	62041E-02	31646E-03	26073E-03	13000E-03
3021	59100E-02	10713E-01	11386E-01	44427E-03	35210E-03	20392E-03
3023	61259E-02	11448E-01	12368E-01	46649E-03	36609E-03	21094E-03
3024	71255E-02	14495E-01	17321E-01	56796E-03	42069E-03	20769E-03
3026	85599E-02	17030E-01	24243E-01	68877E-03	47301E-03	18534E-03
3028	10184E-01	17559E-01	31872E-01	80735E-03	51067E-03	18383E-03
3030	13241E-01	13059E-01	45846E-01	10075E-02	54507E-03	28918E-03
3032	16428E-01	19129E-01	60132E-01	12085E-02	54936E-03	68208E-03
3035	19523E-01	55836E-01	73938E-01	14157E-02	53588E-03	12642E-02
3037	22395E-01	11785E+00	86727E-01	16322E-02	52044E-03	20157E-02
3038	24979E-01	19973E+00	98234E-01	18534E-02	52036E-03	27990E-02
3040	27270E-01	29847E+00	10854E+00	20758E-02	54855E-03	34812E-02
3044	28115E-01	34159E+00	11236E+00	21637E-02	56845E-03	40703E-02
3047	28507E-01	36339E+00	11419E+00	22067E-02	57986E-03	42736E-02
3050	28873E-01	38392E+00	11586E+00	22463E-02	59132E-03	43773E-02
3053	29359E-01	40213E+00	11597E+00	22811E-02	60291E-03	44648E-02
3056	31224E-01	43239E+00	11717E+00	23376E-02	62404E-03	45440E-02
3059	31771E-01	43791E+00	11701E+00	23482E-02	62838E-03	46690E-02
3062	35177E-01	46024E+00	11554E+00	23891E-02	64558E-03	46931E-02
3065	48078E-01	50139E+00	10959E+00	24662E-02	68228E-03	47770E-02
3068	58813E-01	52216E+00	10475E+00	25068E-02	70399E-03	49375E-02
3071	90374E-01	56345E+00	90639E-01	25916E-02	75335E-03	50213E-02
3074	97618E-01	57055E+00	87668E-01	26079E-02	76303E-03	51891E-02
3077	10520E+00	57759E+00	83946E-01	26240E-02	77304E-03	52210E-02
3080	22066E+00	63705E+00	30425E-01	28092E-02	90199E-03	52519E-02
3083	29515E+00	64642E+00	13439E-01	29064E-02	97550E-03	55883E-02
3086	31637E+00	64648E+00	21595E-01	29304E-02	99538E-03	57488E-02
3089	37341E+00	64665E+00	49653E-01	29897E-02	10514E-02	57888E-02
3092	48329E+00	64700E+00	10531E+00	30843E-02	11589E-02	58887E-02
3095	55614E+00	64721E+00	14245E+00	31342E-02	12303E-02	60631E-02
3098	56732E+00	64725E+00	14814E+00	31410E-02	12413E-02	61657E-02
3100	69592E+00	64765E+00	21353E+00	32052E-02	13670E-02	61815E-02
3101	82758E+00	64803E+00	27996E+00	32470E-02	14949E-02	63436E-02
3104	83247E+00	64805E+00	28241E+00	32482E-02	14996E-02	64892E-02
3107	90362E+00	64827E+00	31799E+00	32620E-02	15682E-02	64945E-02
3110	10094E+01	64829E+00	37131E+00	32758E-02	16689E-02	65665E-02
3113	11012E+01	64869E+00	41899E+00	32815E-02	17580E-02	66800E-02
3115	12142E+01	64769E+00	48182E+00	32836E-02	18839E-02	67851E-02
3116	12667E+01	64827E+00	52376E+00	32841E-02	20048E-02	6951E-02
3119	12663E+01	64815E+00	53445E+00	32856E-02	20456E-02	71944E-02
3120	12659E+01	64856E+00	54988E+00	32933E-02	20958E-02	73007E-02
3122	12654E+01	64939E+00	56741E+00	32950E-02	21304E-02	74342E-02
3123	12243E+01	64978E+00	57684E+00	33043E-02	21649E-02	75660E-02
3125	11168E+01	64062E+00	58408E+00	33080E-02	21649E-02	77433E-02
3128	94466E+00	52578E+00	51243E+00	32938E-02	22070E-02	78902E-02
3198	77036E+00	53281E+00	45472E+00	32545E-02	22231E-02	79848E-02

3199	.61130E+00	.31957E-02	.22366E-02	.79407E-02	1.136	1.530	1.586
3200	.45380E+00	.34728E+00	.22486E-02	.78182E-02	.880	1.504	1.542
3205	.29452E+00	.48316E+00	.22579E-02	.76192E-02	.597	1.472	1.532
3208	.14433E+00	.43405E+00	.22633E-02	.73525E-02	.309	1.437	1.565
3210	.21283E-02	.41111E+00	.22637E-02	.70131E-02	.134	1.395	1.641
3212	.13365E+00	.3283E+00	.22372E-02	.63852E-02	.433	1.257	1.692
3215	.20968E+00	.25478E+00	.21730E-02	.56752E-02	.652	1.986	1.852
3220	.22655E+00	.13534E+00	.20352E-02	.47557E-02	.699	.641	1.532
3222	.16253E+00	.1783E+00	.17222E-02	.33718E-02	.534	1.386	1.268
3225	.5042E-01	.8250E-01	.14061E-02	.23294E-02	.454	.362	.974
3230	.80984E-01	.25702E-01	.13240E-02	.20902E-02	.442	.358	.822
3235	.42762E-01	.25110E-01	.10622E-02	.15898E-02	.394	.343	.621
3237	.15333E-01	.22329E-01	.81500E-03	.11795E-02	.324	.323	.366
3238	.66551E-02	.3008E-01	.65061E-03	.84107E-03	.248	.281	.203
3240	.58482E-01	.1549E-01	.49082E-03	.56408E-03	.152	.195	.082
3243	.35559E-02	.10732E-02	.31388E-03	.33110E-03	.063	.093	.016
3245	.6466E-03	.45070E-04	.10006E-03	.11854E-03	.011	.018	.001
3250	.13795E-06	.11379E-06	.88588E-07	.76753E-07	.000	.000	.000

***** SRSS COMBINATION OF SUPPORT GROUP RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

P I P E F O R C E S A N D M O M E N T S

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	10278.089 10278.089	16910.740 16910.740	5597.526 5597.526	269734.23 269734.23	855304.01 769726.01	1228721.92 913692.20
2	TANGENT	END-I END-J	10274.517 10274.517	16912.757 16912.757	5596.895 5596.895	269731.85 269731.85	769706.32 749923.75	913709.52 838399.94
3	TANGENT	END-I END-J	10274.472 10274.472	16912.260 16912.260	5595.369 5595.369	269731.85 269731.85	749923.75 730475.71	838399.94 763222.44
4	TANGENT	END-I END-J	10255.964 10255.964	16925.148 16925.148	5587.419 5587.419	272507.42 272507.42	730778.56 709016.91	761945.67 676423.81
5	TANGENT	END-I END-J	10270.228 10270.228	16914.959 16914.959	5586.137 5586.137	271597.54 271597.54	708962.46 673721.06	676846.76 534504.57
6	BEND	END-I CENTER END-J	10266.803 8832.743 7908.347	16077.525 16907.874 17359.548	7652.004 7652.004 7652.004	270871.22 331566.50 398213.95	689789.14 613374.97 527018.79	513778.89 373143.78 239598.37
7	BEND	END-I CENTER END-J	7889.471 7763.373 8279.185	17244.396 17301.448 17061.512	7859.295 7859.295 7859.295	400482.65 452247.34 494126.43	522241.88 445249.79 374514.36	246185.45 170331.57 184960.29
8	BEND	END-I CENTER END-J	8251.872 8380.629 8521.901	16382.891 16317.566 16244.317	9160.847 9160.847 9160.847	493040.09 498642.01 503873.40	364544.08 355965.00 348312.85	206521.51 214316.68 224062.72
9	TANGENT	END-I END-J	8519.321 8519.321	17798.662 17798.662	5498.305 5498.305	503861.95 503861.95	361636.69 302642.16	201890.86 426893.50
10	TANGENT	END-I END-J	8511.216 8511.216	17783.708 17783.708	5362.738 5362.738	503729.80 503729.80	302642.16 240260.93	427049.48 703616.00
11	TANGENT	END-I END-J	8503.145 8503.145	17766.088 17766.088	5157.428 5157.428	503729.80 503729.80	240260.93 195068.64	703616.00 980535.02
12	TANGENT	END-I END-J	8492.903 8492.903	17747.208 17747.208	4806.145 4806.145	503973.96 503973.96	195068.64 180490.37	980409.57 1453402.81
13	TANGENT	END-I END-J	8478.794 8478.794	17751.787 17751.787	4220.585 4220.585	504248.31 504248.31	180490.37 230932.65	1453307.59 1926075.27
14	TANGENT	END-I END-J	8463.225 8463.225	17813.599 17813.599	3537.764 3537.764	504001.16 504001.16	230932.65 296717.66	1926139.95 2400332.66
15	TANGENT	END-I END-J	8447.302 8447.302	14467.258 14467.258	2822.434 2822.434	503930.77 503930.77	296717.66 353464.01	2400347.32 2105689.64
16	TANGENT	END-I END-J	8431.300 8431.300	14008.313 14008.313	2189.680 2189.680	504258.21 504258.21	353464.01 393219.69	2105611.24 1848842.21
17	TANGENT	END-I	8414.185	13331.835	1849.514	504032.24	393219.69	1848903.76

18	TANGENT	END-J	8414.185	13331.835	1849.514	504032.24	414461.14	1641540.90
		END-I	8402.212	12699.795	1888.158	504319.72	414461.14	1641452.60
		END-J	8402.212	12699.795	1888.158	504319.72	418094.92	1575459.36
19	TANGENT	END-I	8395.291	12408.265	1985.690	502034.57	418094.92	1576189.23
		END-J	8395.291	12408.265	1985.690	502034.57	419050.46	1547467.61
20	TANGENT	END-I	8395.722	12217.156	2053.579	504159.95	419050.46	1546776.38
		END-J	8395.722	12217.156	2053.579	504159.95	419541.93	1522355.84
21	BEND	END-I	8393.004	12039.202	2126.713	504485.83	419541.93	1522247.81
		CENTER	8458.930	11992.978	2126.713	503011.19	421328.13	1511976.03
		END-J	8536.299	11937.946	2126.713	501327.51	423386.46	1501540.47
22	BEND	END-I	8527.628	11725.489	2170.668	501398.78	427863.94	1500249.26
		CENTER	8667.409	11622.696	2170.668	499043.99	429620.91	1483016.75
		END-J	8830.364	11499.445	2170.668	496194.86	432048.20	1465355.27
23	BEND	END-I	8792.396	9464.624	6653.811	498732.12	868900.75	1255557.81
		CENTER	8818.603	9440.331	6653.811	495881.46	869354.38	1252539.03
		END-J	8844.809	9415.680	6653.811	493187.04	869716.76	1249501.61
24	BEND	END-I	8863.371	11135.177	2400.415	495582.69	445187.66	1455024.87
		CENTER	8979.250	11041.881	2400.415	494016.14	445309.54	1441735.87
		END-J	9101.311	10941.485	2400.415	492260.18	445742.05	1428255.06
25	BEND	END-I	9036.514	10659.970	2525.543	489561.42	438065.82	1431551.62
		CENTER	9277.292	10450.997	2525.543	482843.25	443309.54	1405023.25
		END-J	9530.054	10221.110	2525.543	475576.34	449172.19	1377604.56
26	BEND	END-I	9389.308	9900.083	2958.076	479745.82	484109.61	1364255.05
		CENTER	9512.938	9781.376	2958.076	474137.33	487586.39	1349608.14
		END-J	9636.122	9660.055	2958.076	468633.48	490880.53	1334702.13
27	BEND	END-I	9431.305	9517.943	2870.251	470082.67	450913.82	1348232.54
		CENTER	9651.352	9294.744	2870.251	461864.98	455334.38	1315323.38
		END-J	9859.675	9073.465	2870.251	453325.99	461642.50	1281204.38
28	BEND	END-I	9657.255	8533.140	3972.813	450756.65	573377.27	1236185.16
		CENTER	9689.261	8496.925	3972.813	449979.01	572767.97	1229700.95
		END-J	9720.219	8461.387	3972.813	449274.19	572156.41	1223164.72
29	BEND	END-I	9625.215	8766.213	3233.595	450797.33	500461.03	1253658.48
		CENTER	9655.514	8732.786	3233.595	448643.70	501184.98	1247188.18
		END-J	9685.093	8700.011	3233.595	446534.84	501869.27	1240680.49
30	BEND	END-I	9208.645	8514.429	3333.671	446403.42	465926.07	1254670.72
		CENTER	9377.488	8327.971	3333.671	427066.69	477424.23	1171294.67
		END-J	9441.272	8255.515	3333.671	411785.43	488705.03	1084840.98
31	BEND	END-I	8489.910	8130.377	3608.507	411623.21	489936.73	1084346.81
		CENTER	8448.876	8173.197	3608.507	406395.43	495811.66	1038252.93
		END-J	8398.798	8224.378	3608.507	403903.91	500788.00	993227.44
32	TANGENT	END-I	7982.920	5783.605	7992.189	403924.36	971082.50	542526.95
		END-J	7982.920	5783.605	7992.189	403924.36	946618.01	525301.90
33	TANGENT	END-I	7649.605	5731.814	7933.998	403131.92	946955.75	525301.90
		END-J	7649.605	5731.814	7933.998	403131.92	884492.10	481121.50

34	TANGENT	END-I END-J	6989.285 6989.285	5552.196 5552.196	7784.613 7784.613	403665.89 403665.89	884248.45 778065.67	481121.50 407637.93
35	TANGENT	END-I END-J	6316.835 6316.835	5255.835 5255.835	7563.562 7563.562	403422.68 403422.68	728048.22 720048.22	407637.93 367909.56
36	TANGENT	END-I END-J	6038.008 6038.008	5083.151 5083.151	7448.395 7448.395	404001.84 404001.84	719723.45 711759.97	367909.56 362518.20
37	TANGENT	END-I END-J	5603.368 5603.368	4814.865 4814.865	7268.583 7268.583	403629.21 403629.21	640274.08 640274.08	362518.20 313083.96
38	TANGENT	END-I END-J	4944.954 4944.954	4164.245 4164.245	6877.212 6877.212	403742.12 403742.12	640202.95 608986.52	313083.96 284399.43
39	TANGENT	END-I END-J	4765.201 4765.201	3671.729 3671.729	6657.318 6657.318	412054.28 412054.28	603392.80 603049.12	284399.43 283713.25
40	TANGENT	END-I END-J	4584.920 4584.920	3555.760 3555.760	6549.869 6549.869	404095.79 404095.79	608411.17 610615.53	283713.25 274734.32
41	BEND	END-I CENTER END-J	4423.255 4672.560 4983.183	6327.916 9146.505 5898.529	3041.420 3041.420 3041.420	403898.47 379544.17 350118.56	276899.66 301858.70 330503.07	609774.09 620825.17 634646.10
42	BEND	END-I CENTER END-J	5070.707 5393.132 5691.467	5554.233 5242.385 4916.990	2597.699 2597.699 2597.699	350479.99 320194.68 288592.94	329063.95 350895.30 370664.71	635193.77 651264.01 666809.11
43	BEND	END-I CENTER END-J	6049.200 6356.354 6470.012	4543.221 4100.868 3916.789	2383.060 2383.060 2383.060	288718.93 241129.62 206735.26	371743.74 385526.71 387589.30	666153.68 686258.35 697855.56
44	BEND	END-I CENTER END-J	7109.809 6775.507 6145.199	4038.354 4578.085 5397.001	2793.394 2793.394 2793.394	207012.15 195399.21 211473.55	385843.73 356139.64 313090.89	698739.99 690221.85 665433.66
45	TANGENT	END-I END-J	6692.241 6692.241	6200.988 6200.988	3135.703 3135.703	211588.30 211588.30	296207.91 259288.61	673071.10 633903.76
46	TANGENT	END-I END-J	7274.149 7274.149	6803.256 6803.256	3428.321 3428.321	211683.14 211683.14	259288.61 210861.84	633872.07 592150.14
47	TANGENT	END-I END-J	8056.854 8056.854	7472.090 7472.090	3694.019 3694.019	211686.48 211686.48	210861.84 168413.22	592148.89 570854.32
48	BEND	END-I CENTER END-J	9097.287 8304.917 7528.202	8393.973 9177.530 9824.587	3610.744 3610.744 3610.744	211681.00 201258.04 180558.15	153072.06 152542.23 180221.95	575159.00 568522.64 562342.78
49	BEND	END-I CENTER END-J	8934.789 8396.356 8093.572	10567.075 11000.741 11226.256	3776.561 3776.561 3776.561	180472.51 153783.70 126142.42	180414.74 217104.56 255141.89	562308.40 558407.89 562458.15
50	BEND	END-I CENTER END-J	9568.614 9436.985 9603.345	11909.638 12013.557 11880.471	4068.121 4068.121 4068.121	126470.89 110131.66 128597.30	258826.83 291026.60 313549.61	560698.33 570409.69 591309.95
51	BEND	END-I	10762.428	12688.383	4415.445	128874.36	309247.21	593511.63

52	TANGENT	CENTER END-J	10923.273 11219.533	12550.078 12287.107	4415.445 4415.445	169785.72 221221.75	313540.21 308742.54	614678.15 641718.91
		END-I END-J	11938.937 11938.937	12700.634 12700.634	6033.029 6033.029	221261.37 221261.37	180839.86 245689.57	688722.67 781865.06
53	TANGENT	END-I END-J	12661.237 12661.237	13366.953 13366.953	6619.024 6619.024	221041.13 221041.13	249288.98 355299.54	782054.72 937667.87
54	TANGENT	END-I END-J	13419.666 13419.666	13920.813 13920.813	7177.239 7177.239	221545.61 221545.61	354979.14 486764.80	937670.14 1144887.17
55	TANGENT	END-I END-J	14202.205 14202.205	14327.494 14327.494	7709.053 7709.053	221278.29 221278.29	486519.30 629466.56	1145043.20 1376890.23
56	TANGENT	END-I END-J	14992.028 14992.028	14573.716 14573.716	8239.782 8239.782	221224.66 221224.66	629485.26 784613.39	1376890.23 1628122.23
57	BEND	END-I CENTER END-J	14343.490 11249.417 8969.655	17298.028 19452.665 20603.211	7749.759 7749.759 7749.759	221660.84 387346.84 559034.83	724378.59 728458.87 690982.79	1655754.91 1750831.79 1852437.82
58	BEND	END-I CENTER END-J	9328.630 8762.868 10517.526	20920.986 21164.209 20349.317	8426.374 8426.374 8426.374	558536.00 710164.29 840479.68	691387.84 624162.89 531637.46	1852437.24 1953073.17 2052582.56
59	BEND	END-I CENTER END-J	10151.802 13415.366 16836.286	20797.927 18859.796 15879.361	9112.992 9112.992 9112.992	840068.17 952952.34 1022335.74	532215.00 420522.78 335160.32	2052601.39 2157598.76 2239993.42
60	BEND	END-I CENTER END-J	16403.723 20173.430 21580.189	16506.449 11600.760 8711.243	9689.890 9689.890 9689.890	1022804.04 1043928.24 979880.83	345930.39 353895.14 490482.28	2238096.12 2299255.45 2267935.70
61	BEND	END-I CENTER END-J	21471.196 20762.030 18407.860	8698.005 10276.739 14064.764	10300.483 10300.483 10300.483	979568.64 881027.94 762555.68	491123.60 610658.04 695568.84	2267931.55 2173303.55 2018222.74
62	BEND	END-I CENTER END-J	18460.953 17654.183 16774.931	13888.665 14900.641 15883.967	10640.468 10640.468 10640.468	762244.43 733247.03 705382.31	693583.24 707006.48 717001.81	2019094.36 1972530.98 1923321.47
63	TANGENT	END-I END-J	16852.413 16852.413	14985.352 14985.352	11939.464 11939.464	705510.59 705510.59	864228.07 743422.27	1861764.34 1543552.65
64	TANGENT	END-I END-J	16917.750 16917.750	14992.970 14992.970	12112.125 12112.125	705261.57 705261.57	740389.57 708080.69	1545123.48 1233665.44
65	BEND	END-I CENTER END-J	16992.808 16998.415 16656.159	11215.839 11206.439 11709.159	15748.410 15748.410 15748.410	705443.87 793266.47 892009.47	1272359.96 1101652.32 901634.29	635729.20 658967.93 687744.68
66	BEND	END-I CENTER END-J	16699.771 16042.874 15129.912	11768.129 12649.775 13730.715	15760.908 15760.908 15760.908	891206.38 972741.48 1020920.94	902128.87 689730.89 498133.77	688137.13 723238.65 764675.99
67	BEND	END-I CENTER END-J	15132.266 14047.717 12938.649	13783.248 14887.483 15859.664	15780.994 15780.994 15780.994	1021101.48 1025744.65 985661.06	497947.21 405524.77 487560.63	764556.38 813845.74 871118.53

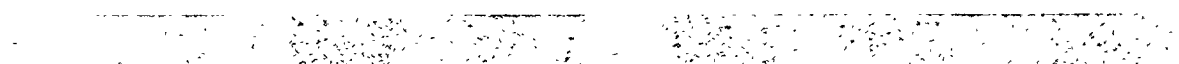
68	BEND	END-I	12946.764	15904.838	15761.903	986144.57	485351.04	871804.88
		CENTER	11990.335	16636.680	15761.903	898902.81	672901.19	936965.89
		END-J	11380.284	17059.977	15761.903	768202.97	885424.29	1008466.29
69	TANGENT	END-I	11378.673	18691.874	13795.011	767527.87	800576.05	1077541.35
		END-J	11378.673	18691.874	13795.011	767527.87	885887.03	1177909.37

***** SRSS COMBINATION OF SUPPORT GROUP RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S

NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	8202.
7090	FY	17825.
7090	FZ	6159.
7090	MX	855097.
7090	MY	699210.
7090	MZ	1045876.
3047	FZ	69.
3116	FX	314.
3210	FZ	10641.
3210	FZ	146.
3250	FX	13795.
3250	FY	18692.
3250	FZ	11379.
3250	MX	1177909.
3250	MY	885887.
3250	MZ	767528.
3035	FY	30794.
3083	FZ	7412.

BENCHMARK PROBLEM 2
HIGH FREQUENCY GROUP RESPONSE
(RIGID RESPONSE)



STATIC ANALYSIS

STRUCTURE LOAD CASE		ELEMENT A	LOAD B	MULTIPLIERS C	D
1	GROUP 1 X EXCITATION	.000	.000	.000	.000
2	GROUP 1 Y EXCITATION	.000	.000	.000	.000
3	GROUP 1 Z EXCITATION	.000	.000	.000	.000
4	GROUP 2 X EXCITATION	.000	.000	.000	.000
5	GROUP 2 Y EXCITATION	.000	.000	.000	.000
6	GROUP 2 Z EXCITATION	.000	.000	.000	.000
7	GROUP 3 X EXCITATION	.000	.000	.000	.000
8	GROUP 3 Y EXCITATION	.000	.000	.000	.000
9	GROUP 3 Z EXCITATION	.000	.000	.000	.000

S T A T I C A N A L Y S I S

LOAD CASE 1 GROUP 1 X EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-1.46058E-09	8.30101E-10	3.85436E-10	-3.74114E-10	-8.50969E-10	6.19720E-11
3001	-1.14264E-06	4.77350E-07	1.94119E-06	-3.85731E-08	-1.17503E-07	1.70623E-08
3005	-1.7988E-06	7.12713E-07	2.82945E-06	-6.27511E-08	-2.03220E-07	3.50507E-08
3010	-2.29961E-06	1.13348E-06	4.34787E-06	-1.04300E-07	-3.6241E-07	7.32173E-08
3011	-3.89789E-06	2.15341E-06	7.85806E-06	-2.05451E-07	-7.91101E-07	1.90857E-07
3012	-7.63973E-06	5.26764E-06	1.75918E-05	-3.31872E-07	-1.44317E-06	4.08521E-07
3019	-1.86168E-05	1.95857E-05	5.50783E-05	-5.13398E-07	-2.59021E-06	9.18324E-07
3021	-3.05170E-05	4.04190E-05	1.02288E-04	-5.63623E-07	-3.25155E-06	1.23863E-06
3023	-3.28543E-05	4.46363E-05	1.11518E-04	-5.66410E-07	-3.34039E-06	1.27118E-06
3024	-4.39980E-05	6.46744E-05	1.56555E-04	-5.58243E-07	-3.66209E-06	1.32080E-06
3026	-5.84507E-05	8.80831E-05	2.15518E-04	-5.05183E-07	-3.93283E-06	1.19384E-06
3028	-7.35502E-05	1.07442E-04	2.77330E-04	-4.13366E-07	-4.11246E-06	8.97992E-07
3030	-1.00387E-04	1.24943E-04	3.87128E-04	-2.03884E-07	-4.36235E-06	1.62952E-07
3032	-1.28649E-04	1.18635E-04	5.02923E-04	-2.01038E-08	-4.71494E-06	-6.36045E-07
3035	-1.59499E-04	9.08702E-05	6.30348E-04	-1.99205E-07	-5.32472E-06	-1.24003E-06
3037	-1.94895E-04	5.03429E-05	7.77765E-04	-2.94559E-07	-6.22872E-06	-1.48232E-06
3038	-2.36635E-04	8.70836E-06	9.52518E-04	-2.99364E-07	-7.33272E-06	-1.32884E-06
3040	-2.85314E-04	-2.34854E-05	1.15799E-03	-2.34862E-07	-8.44213E-06	-8.77122E-07
3044	-3.06480E-04	-3.20339E-05	1.24736E-03	-1.98101E-07	-8.83740E-06	-6.49468E-07
3047	-3.16866E-04	-3.52292E-05	1.23249E-03	-1.79219E-07	-9.01333E-06	-5.35689E-07
3050	-3.28878E-04	-3.76087E-05	1.33486E-03	-1.62261E-07	-9.16371E-06	-4.31044E-07
3053	-3.3722E-04	-3.17241E-05	1.37241E-03	-1.45186E-07	-9.29267E-06	-3.35533E-07
3056	-3.50431E-04	-4.07809E-05	1.43458E-03	-1.13077E-07	-9.47890E-06	-1.90374E-07
3059	-3.53142E-04	-4.09396E-05	1.44589E-03	-1.06895E-07	-9.51207E-06	-1.64566E-07
3062	-3.84509E-04	-4.12219E-05	1.53143E-03	-7.82089E-08	-9.62049E-06	-8.07999E-08
3065	-3.85561E-04	-4.05023E-05	1.57459E-03	-1.46515E-08	-9.79046E-06	-3.70949E-08
3068	-3.96941E-04	-3.97089E-05	1.61595E-03	-2.47008E-08	-9.85748E-06	-6.79488E-08
3071	-4.20339E-04	-3.78030E-05	1.69642E-03	-1.27621E-07	-9.94451E-06	-4.01464E-08
3074	-4.28433E-04	-3.74949E-05	1.70998E-03	-1.50499E-07	-9.95247E-06	-1.88013E-08
3077	-4.28433E-04	-3.72141E-05	1.72326E-03	-1.74575E-07	-9.95842E-06	-7.33440E-09
3080	-4.60720E-04	-3.70033E-05	1.82661E-03	-5.55798E-07	-9.88135E-06	-6.9690E-07
3083	-4.58286E-04	-3.76138E-05	1.83403E-03	-8.37901E-07	-9.73698E-06	-1.33007E-06
3086	-4.55066E-04	-3.74422E-05	1.83089E-03	-9.15182E-07	-9.71893E-06	-1.50922E-06
3089	-4.41872E-04	-3.70329E-05	1.82101E-03	-1.13066E-06	-9.61566E-06	-2.00387E-06
3092	-4.03584E-04	-3.59280E-05	1.79624E-03	-1.53066E-05	-9.43267E-06	-2.9236E-06
3095	-3.68809E-04	-3.51099E-05	1.77606E-03	-1.76641E-06	-9.30157E-06	-3.46629E-06
3098	-3.62993E-04	-3.49639E-05	1.77274E-03	-1.79930E-06	-9.28345E-06	-3.54017E-06
3100	-2.8728E-04	-3.32819E-05	1.73112E-03	-2.08246E-06	-9.03799E-06	-4.13506E-06
3101	-2.04148E-04	-3.14740E-05	1.68516E-03	-2.16895E-06	-8.91632E-06	-4.19416E-06
3104	-2.01317E-04	-3.13491E-05	1.68345E-03	-2.16785E-06	-8.91044E-06	-4.18453E-06
3107	-1.58294E-04	-3.03803E-05	1.65893E-03	-2.1626E-06	-8.87181E-06	-3.94728E-06
3110	-1.03608E-04	-1.59658E-05	1.60363E-03	-1.50213E-06	-8.73109E-06	-3.19836E-06
3113	-7.14897E-05	-5.23598E-07	1.52196E-03	-1.57512E-06	-8.63208E-06	-3.17985E-06
3115	-6.11870E-05	-2.14700E-05	1.35141E-03	-8.80501E-07	-8.41884E-06	-3.1120E-07
3116	-7.72860E-05	-1.38993E-06	1.11944E-03	-6.70128E-08	-8.46265E-06	-1.41164E-06
3119	-8.22753E-05	-2.85633E-05	1.00608E-03	5.30177E-07	-7.88432E-06	1.79404E-06
3120	-8.85764E-05	-6.76769E-05	8.65935E-04	1.09709E-06	-7.768964E-06	1.81080E-06
3122	-9.49886E-05	-1.02601E-04	7.28815E-04	1.64147E-06	-7.53701E-06	1.23536E-06

3123	1.02980E-04	5.45484E-04	2.33991E-06	-7.32557E-06	-1.94079E-07
3124	-1.30531E-04	3.81186E-04	2.91161E-06	-7.03886E-06	-1.80367E-06
3125	-2.01843E-04	2.34783E-04	3.37856E-06	-6.55279E-06	-2.85515E-06
3126	-3.29695E-04	1.51092E-04	3.55556E-06	-6.0002E-06	-2.58337E-06
3127	-3.32530E-04	9.70097E-05	3.52571E-06	-5.46862E-06	-1.36752E-06
3128	-3.50282E-04	4.36862E-05	3.33108E-06	-4.93393E-06	5.12767E-07
3129	-3.20871E-04	-6.96890E-05	2.94335E-06	-4.38552E-06	2.59755E-06
3130	-2.48407E-04	4.96850E-05	2.53229E-06	-3.91590E-06	4.01593E-06
3131	-1.52714E-04	-8.44065E-05	2.07629E-06	-3.51463E-06	3.92646E-06
3132	-9.75773E-05	-8.97392E-05	1.39436E-06	-3.1720E-06	3.05399E-06
3133	-6.55580E-05	-5.60721E-05	8.08349E-07	-2.71769E-06	2.63980E-06
3134	-6.11506E-05	-1.72535E-06	1.90548E-07	-2.24664E-06	1.37041E-06
3135	-6.05197E-05	4.69960E-05	-5.73913E-07	-1.85715E-06	-1.09632E-06
3136	-1.33714E-05	4.19581E-05	-8.00852E-07	-1.82237E-06	-2.07233E-06
3137	1.35286E-06	3.29140E-05	-8.84419E-07	-1.89984E-06	-2.06998E-06
3138	4.56254E-05	5.05897E-05	-6.59194E-07	-1.96992E-06	-1.69380E-06
3139	7.42852E-05	6.17683E-06	-2.25547E-07	-2.01986E-06	-9.75814E-07
3140	7.48151E-05	-1.35068E-05	4.38861E-07	-2.01096E-06	-2.6887E-07
3141	5.43311E-05	-1.75367E-05	9.50166E-07	-1.8923E-06	1.5393E-07
3142	2.58330E-05	-1.12721E-05	1.10054E-06	-1.45467E-06	2.29266E-07
3143	4.87065E-06	-2.80408E-06	5.01264E-07	-5.37286E-07	9.21301E-08
3144	1.15961E-09	3.09599E-10	5.02951E-10	-5.04174E-10	5.96345E-11
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STATIC ANALYSIS

LOAD CASE 2 GROUP 1 Y EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	1.88219E-09	2.16999E-10	5.24924E-10	-1.82497E-10	1.47917E-10	4.69086E-10
3001	1.56704E-06	1.42600E-06	7.40704E-08	-2.17023E-08	1.65242E-08	5.04658E-08
3005	2.09705E-06	1.93897E-06	1.01200E-07	-3.42478E-08	2.46749E-08	7.49796E-08
3010	2.92733E-06	2.74255E-06	1.50741E-07	-5.47383E-08	3.64553E-08	1.09963E-07
3011	4.69539E-06	4.43461E-06	2.85562E-07	-1.01000E-07	5.75986E-08	1.70018E-07
3012	7.90008E-06	7.65734E-06	6.60943E-07	-1.48500E-07	6.29496E-08	1.75139E-07
3019	1.17509E-05	1.20903E-05	1.84504E-06	-1.34680E-07	-4.96658E-08	-2.02934E-07
3021	1.15627E-05	6.41418E-06	4.36819E-06	-4.12040E-08	-2.14912E-07	-7.96933E-07
3023	1.15665E-05	4.16138E-06	5.08166E-06	-2.24396E-08	-2.43366E-07	-9.07962E-07
3024	1.16203E-05	-1.03954E-05	9.32861E-06	5.73769E-08	-3.55791E-07	-1.38623E-06
3026	1.12587E-05	-3.67497E-05	1.61978E-05	1.46162E-07	-4.65977E-07	-1.93124E-06
3028	1.05205E-05	-7.16334E-05	2.44960E-05	2.15609E-07	-5.47586E-07	-2.39199E-06
3030	8.64731E-06	-1.45407E-04	4.07771E-05	2.57356E-07	-6.28783E-07	-2.84581E-06
3032	6.35042E-06	-2.24702E-04	5.81794E-05	1.80012E-07	-6.52305E-07	-2.78346E-06
3035	3.91944E-06	-2.94100E-04	7.55088E-05	-8.27768E-07	-6.41793E-07	-2.24071E-06
3037	1.47138E-06	-3.42022E-04	9.22097E-05	-2.54797E-07	-6.20669E-07	-1.44702E-06
3038	-1.01390E-06	-3.66004E-04	1.08296E-04	-4.87957E-07	-6.07774E-07	-7.07559E-07
3040	-3.62563E-06	-3.71728E-04	1.24208E-04	-6.54344E-07	-6.12473E-07	-2.59219E-07
3044	-4.72567E-06	-3.71238E-04	1.30578E-04	-6.94750E-07	-6.19282E-07	-1.91879E-07
3047	-5.26122E-06	-3.70810E-04	1.33732E-04	-7.08759E-07	-6.23274E-07	-1.84053E-07
3050	-5.78977E-06	-3.70377E-04	1.36636E-04	-7.18281E-07	-6.27183E-07	-1.91729E-07
3053	-6.23726E-06	-3.70063E-04	1.39076E-04	-7.23692E-07	-6.3106E-07	-2.11059E-07
3056	-6.86481E-06	-3.69843E-04	1.42566E-04	-7.27597E-07	-6.37908E-07	-2.64530E-07
3059	-6.95781E-06	-3.69852E-04	1.43137E-04	-7.27452E-07	-6.39278E-07	-2.77838E-07
3062	-7.21355E-06	-3.70052E-04	1.45176E-04	-7.27000E-07	-6.44761E-07	-3.31977E-07
3065	-6.98864E-06	-3.71339E-04	1.47985E-04	-7.18350E-07	-6.5588E-07	-4.64976E-07
3068	-6.34101E-06	-3.72458E-04	1.48900E-04	-7.10864E-07	-6.61956E-07	-5.47330E-07
3071	-2.7807E-05	-3.75773E-04	1.49609E-04	-6.92944E-07	-6.74926E-07	-7.31806E-07
3074	-2.38315E-06	-3.76505E-04	1.49534E-04	-6.88981E-07	-6.77243E-07	-7.69047E-07
3077	-1.40041E-06	-3.77269E-04	1.49420E-04	-6.85345E-07	-6.7962E-07	-8.05388E-07
3080	1.92137E-05	-3.85487E-04	1.42871E-04	-6.57749E-07	-7.04742E-07	-1.20182E-06
3083	3.61434E-05	-3.86740E-04	1.35558E-04	-6.50037E-07	-7.16836E-07	-1.35353E-06
3086	4.12460E-05	-3.86559E-04	1.33163E-04	-6.70246E-07	-7.20446E-07	-1.38281E-06
3099	5.2356E-05	-3.86147E-04	1.26680E-04	-6.91154E-07	-7.30440E-07	-1.44462E-06
3092	8.24167E-05	-3.85276E-04	1.13668E-04	-7.53035E-07	-7.51167E-07	-1.51835E-06
3095	1.00426E-04	-3.84709E-04	1.04478E-04	-8.04966E-07	-7.65314E-07	-1.54921E-06
3098	1.03174E-04	-3.84616E-04	1.03021E-04	-8.13412E-07	-7.67484E-07	-1.55351E-06
3100	1.34799E-04	-3.83559E-04	8.53283E-05	-9.11413E-07	-7.91496E-07	-1.55351E-06
3101	1.67747E-04	-3.82426E-04	6.55127E-05	-1.00401E-06	-7.91496E-07	-1.55351E-06
3104	1.68979E-04	-3.82356E-04	6.47453E-05	-1.00715E-06	-8.14446E-07	-1.71942E-06
3107	1.87506E-04	-3.81710E-04	5.34105E-05	-1.04869E-06	-8.24954E-07	-1.72441E-06
3110	2.16678E-04	-3.76009E-04	3.39493E-05	-1.09979E-06	-8.35661E-07	-1.80709E-06
3113	2.44126E-04	-3.61351E-04	1.29964E-05	-1.12828E-06	-8.35661E-07	-1.98031E-06
3115	2.81003E-04	-3.18806E-04	-2.05177E-05	-1.13915E-06	-8.35661E-07	-2.16658E-06
3116	2.99165E-04	-2.44640E-04	-5.08327E-05	-1.11575E-06	-8.11659E-07	-2.45619E-06
3119	2.98666E-04	-2.04655E-04	-6.11298E-05	-1.08722E-06	-7.4167E-07	-2.69679E-06
3120	2.98096E-04	-1.53490E-04	-7.72343E-05	-1.07139E-06	-6.98877E-07	-2.74668E-06
3122	2.97585E-04	-1.02707E-04	-8.43258E-05	-1.04321E-06	-5.92373E-07	-2.75599E-06
						-2.71154E-06

3123	2	82972E-04	-3	94760E-05	-9	18684E-05	-9	98550E-07	-5	32834E-07	-2	57112E-06
3125	2	84451E-04	6	19142E-05	-8	75693E-05	-9	44184E-07	-4	91055E-07	-2	37956E-06
3128	1	59092E-04	3	22905E-05	-7	32475E-05	-8	71488E-07	-4	57538E-07	-2	13898E-06
3198	1	17856E-04	3	64513E-05	-5	5589E-05	-8	00599E-07	-4	34601E-07	-1	92666E-06
3199	8	42352E-05	3	14219E-05	-3	89872E-05	-7	41616E-07	-4	18123E-07	-1	75833E-06
3200	5	28542E-05	2	68579E-05	-2	3080E-05	-6	8971E-07	-4	03084E-07	-1	59651E-06
3205	2	5834E-05	2	25834E-05	-8	76611E-06	-6	47808E-07	-3	89285E-07	-1	42610E-06
3208	1	59547E-05	4	91373E-06	1	81407E-05	-6	1954E-07	-3	77247E-07	-1	24716E-06
3210	1	58975E-05	1	58975E-05	1	81407E-05	-6	1954E-07	-3	77247E-07	-1	24716E-06
3212	9	21122E-05	3	28335E-05	3	28335E-05	-5	87539E-07	-3	51522E-07	-7	5488E-07
3215	-8	48499E-08	4	5864E-05	5	75040E-07	-5	75040E-07	-3	41950E-07	-5	44508E-07
3220	-9	49483E-06	5	50987E-05	5	50987E-05	-5	5579E-07	-3	28197E-07	-3	89139E-07
3222	-1	72857E-05	5	47125E-05	5	47125E-05	-5	28838E-07	-2	8878E-07	-2	96462E-07
3225	-1	85581E-05	4	41271E-05	5	1363E-07	-5	1363E-07	-2	46779E-07	-2	75953E-07
3230	-1	8237E-05	4	06300E-05	5	10184E-07	-5	10184E-07	-2	3604E-07	-2	7033E-07
3235	-6	54712E-06	2	8438E-05	5	00521E-07	-5	00521E-07	-2	00823E-07	-2	47038E-07
3237	-2	05739E-06	1	54369E-05	1	74151E-05	-4	82343E-07	-1	64790E-07	-2	10889E-07
3238	3	33538E-07	-1	3414E-05	9	75119E-06	-4	47180E-07	-1	36654E-07	-1	67126E-07
3240	1	07300E-06	-8	80917E-06	3	90771E-06	-3	8002E-07	-1	05505E-07	-1	2079E-07
3243	7	20270E-07	-3	95637E-06	7	50793E-07	-2	63243E-07	-6	77681E-08	-7	36968E-08
3245	1	30794E-07	-6	64572E-07	9	69241E-09	-8	86523E-08	-2	13370E-08	-2	65386E-08
3250	1	64945E-11	-1	26699E-10	2	44701E-11	-8	02455E-11	-1	86967E-11	-1	71838E-11

STAT I C A N A L Y S I S

LOAD CASE 3 GROUP 1 Z EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-2.46428E-10	1.55010E-11	-6.33574E-10	2.15711E-10	6.32607E-10	-1.72210E-11
3001	3.36070E-07	-3.26022E-07	-1.27257E-06	1.94663E-08	9.21842E-08	-4.63534E-09
3005	5.57182E-07	-4.47111E-07	-1.89000E-06	3.05550E-08	1.64146E-07	-6.65689E-09
3010	9.65726E-07	-6.38523E-07	-2.96883E-06	4.85093E-08	3.01888E-07	-9.22932E-09
3011	1.95802E-06	-1.04039E-06	-5.52922E-06	8.82288E-08	6.85715E-07	-1.20476E-08
3012	5.36757E-06	-1.85184E-06	-1.30397E-05	1.26891E-07	1.30205E-06	-6.81268E-09
3019	1.90194E-05	-2.95808E-06	-4.53912E-05	1.63979E-07	2.54168E-06	8.61935E-08
3021	3.31854E-05	-1.62947E-06	-9.19090E-05	1.63382E-07	3.41072E-06	2.09508E-07
3023	3.55270E-05	-1.12507E-06	-1.01599E-04	1.64851E-07	3.54096E-06	2.31671E-07
3024	4.65636E-05	-1.97833E-06	-1.50422E-04	1.76440E-07	4.04787E-06	3.24249E-07
3026	6.16467E-05	1.20426E-05	-2.17307E-04	1.93225E-07	4.54520E-06	4.25236E-07
3028	7.81937E-05	1.37975E-05	-2.90568E-04	2.13045E-07	4.93806E-06	5.12994E-07
3030	1.03168E-04	2.76101E-05	-4.26973E-04	2.52852E-07	5.48001E-06	6.37233E-07
3032	1.43056E-04	4.33399E-05	-5.75557E-04	2.96328E-07	6.00512E-06	7.45400E-07
3035	1.80199E-04	6.27111E-05	-7.38511E-04	3.36455E-07	6.66749E-06	8.68100E-07
3037	2.21911E-04	8.48097E-05	-9.21203E-04	3.65385E-07	7.53894E-06	1.03931E-06
3038	2.69554E-04	1.12009E-04	-1.12367E-03	3.76941E-07	8.57557E-06	1.28532E-06
3040	3.23958E-04	1.46725E-04	-1.36682E-03	3.68707E-07	9.62057E-06	1.61807E-06
3044	3.47285E-04	1.63083E-04	-1.46830E-03	3.60376E-07	9.99402E-06	1.77160E-06
3047	3.58681E-04	1.71689E-04	-1.59227E-03	3.553350E-07	1.01595E-05	1.85004E-06
3050	3.69648E-04	1.79971E-04	-1.56699E-03	3.50434E-07	1.03002E-05	1.92420E-06
3053	3.79070E-04	1.87498E-04	-1.60908E-03	3.45013E-07	1.04301E-05	1.99455E-06
3056	3.93392E-04	2.00383E-04	-1.67824E-03	3.45144E-07	1.05217E-05	2.11133E-06
3059	4.05840E-04	2.02786E-04	-1.59076E-03	3.45115E-07	1.06219E-05	2.13434E-06
3062	4.19108E-04	2.12632E-04	-1.74099E-03	3.55329E-07	1.07305E-05	2.21339E-06
3065	4.24632E-04	2.31425E-04	-1.83202E-03	3.92090E-07	1.08702E-05	2.38025E-06
3068	4.30955E-04	2.41173E-04	-1.87696E-03	4.25102E-07	1.09912E-05	2.46660E-06
3071	4.31078E-04	2.61013E-04	-1.96361E-03	5.32338E-07	1.09912E-05	2.63971E-06
3074	4.31096E-04	2.64486E-04	-1.97806E-03	5.68452E-07	1.09972E-05	2.63212E-06
3077	4.06496E-04	2.67925E-04	-1.99217E-03	6.00127E-07	1.09972E-05	2.70336E-06
3080	3.75615E-04	2.96831E-04	-2.09667E-03	1.15854E-06	1.08967E-05	3.01814E-06
3083	3.65783E-04	3.00620E-04	-2.09683E-03	1.58282E-06	1.07759E-05	3.14037E-06
3086	3.38133E-04	3.00326E-04	-2.09080E-03	1.59664E-06	1.07396E-05	3.15545E-06
3089	2.86211E-04	2.99633E-04	-2.07252E-03	1.99405E-06	1.06434E-05	3.22007E-06
3092	2.51957E-04	2.97748E-04	-2.02987E-03	2.47718E-06	1.04647E-05	3.27459E-06
3095	2.46832E-04	2.96390E-04	-1.99766E-03	2.70566E-06	1.03304E-05	3.27695E-06
3098	1.88590E-04	2.96153E-04	-1.99254E-03	2.73304E-06	1.03331E-05	3.27508E-06
3100	1.32305E-04	2.93501E-04	-1.93180E-03	2.88370E-06	1.01390E-05	3.21592E-06
3101	1.02079E-04	2.90649E-04	-1.87114E-03	2.74827E-06	9.94778E-06	3.09103E-06
3104	9.31632E-05	2.89272E-04	-1.86892E-03	2.73803E-06	9.94074E-06	3.08518E-06
3110	3.21632E-05	2.80273E-04	-1.83907E-03	2.55764E-06	9.84031E-06	2.99333E-06
3113	3.41588E-05	2.60763E-04	-1.77628E-03	2.16489E-06	9.69873E-06	2.81500E-06
3115	2.6472E-06	2.16216E-04	-1.68636E-03	1.72313E-06	9.57193E-06	2.62054E-06
3116	5.39820E-06	1.62163E-04	-1.49889E-03	9.57169E-07	9.39395E-06	2.27346E-06
3119	1.1107E-05	1.58900E-04	-1.23798E-03	7.43715E-07	9.25316E-06	1.83429E-06
3120	1.82366E-05	1.34327E-04	-1.10673E-03	-4.62686E-07	9.22180E-06	1.63692E-06
3122	2.53762E-05	1.07590E-04	-9.40459E-04	-1.05883E-06	9.20230E-06	1.38495E-06
		8.58509E-05	-7.74016E-04	-1.65575E-06	9.16689E-06	1.12579E-06

3123	4.15990E-05	6.67452E-05	-5.50636E-04	-2.43209E-06	8.95780E-06	7.29473E-07
3125	6.15860E-05	6.10447E-05	-3.55688E-04	-3.03450E-06	8.50786E-06	3.42522E-07
3128	7.74522E-05	6.45965E-05	-1.91393E-04	-3.38524E-06	7.76777E-06	-8.69633E-08
3198	7.98533E-05	6.8418E-05	-1.0065E-04	-3.36320E-06	7.00370E-06	-4.49108E-07
3199	7.36215E-05	6.9497E-05	-6.3406E-05	-3.1648E-06	6.32794E-06	-7.17358E-07
3200	6.18969E-05	6.92335E-05	-2.27450E-05	-2.75506E-06	5.66747E-06	-9.31865E-07
3205	4.53646E-05	6.81778E-05	1.20518E-05	-2.32004E-06	4.99868E-06	-1.07921E-06
3208	2.65101E-05	6.63154E-05	3.8822E-05	-1.89517E-06	4.35214E-06	-1.13452E-06
3210	6.55126E-06	6.40515E-05	5.95303E-05	-1.50277E-06	3.70642E-06	-1.08906E-06
3212	-9.23495E-06	5.65400E-05	5.55466E-05	-1.03104E-06	3.01394E-06	-9.95969E-07
3215	-1.77880E-05	4.17629E-05	2.30160E-05	-6.21429E-07	2.33016E-06	-9.41697E-07
3220	-1.79507E-05	2.12455E-05	-1.94885E-05	-1.26941E-07	1.60614E-06	-8.41762E-07
3222	-3.7067E-06	3.65769E-07	-4.71946E-05	4.50871E-07	9.42494E-07	-5.75143E-07
3225	7.97621E-06	-4.43700E-06	-3.68697E-05	6.84869E-07	6.77006E-07	-2.89856E-07
3230	9.83091E-06	-4.51149E-06	-3.16775E-05	6.76836E-07	6.20448E-07	-2.14567E-07
3235	1.30239E-05	-4.60506E-06	-1.50175E-05	5.8243E-07	4.26493E-07	-4.90407E-08
3237	1.24462E-05	-5.02058E-06	-2.66256E-06	3.90976E-07	2.19044E-07	8.09985E-08
3238	1.04547E-05	-6.07067E-06	1.87198E-06	1.53061E-07	5.56086E-08	1.57974E-07
3240	7.39140E-06	-6.33009E-06	2.12073E-06	-4.54054E-08	-7.35830E-08	1.71439E-07
3243	3.74173E-06	-4.21790E-06	6.56575E-07	-1.38020E-07	-1.24550E-07	1.26095E-07
3245	8.54198E-07	-1.11581E-06	-1.04592E-09	-7.74428E-08	-6.34692E-08	4.71297E-08
3250	2.68565E-10	-3.62401E-10	-2.64060E-12	-8.14260E-11	-6.54581E-11	3.05166E-11

STATIC ANALYSIS

LOAD CASE 4 GROUP 2 X EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X-TRANSLATION	Y-TRANSLATION	Z-TRANSLATION	X-ROTATION	Y-ROTATION	Z-ROTATION
7090	-8.35180E-08	1.11127E-08	-1.92983E-08	2.48691E-09	-8.13745E-09	-1.48909E-08
3001	-5.98434E-05	3.83765E-05	1.01202E-05	2.80786E-07	-9.07362E-07	-1.59140E-06
3005	-7.96168E-05	5.20175E-05	1.40957E-05	4.20611E-07	-1.37622E-06	-2.34612E-06
3010	-1.09960E-04	-7.28201E-05	2.00789E-05	6.24388E-07	-2.09134E-06	-3.41335E-06
3011	-1.73755E-04	-1.15374E-04	3.17461E-05	9.93747E-07	-3.54916E-06	-5.24032E-06
3012	-2.89648E-04	-1.93704E-04	5.74635E-05	1.08926E-06	-4.63722E-06	-5.43947E-06
3019	-4.42462E-04	-2.72193E-04	1.17514E-04	-8.12142E-07	-1.87553E-06	4.85021E-06
3021	-4.64906E-04	-8.41066E-05	1.04017E-04	-3.39818E-06	3.39496E-06	1.88334E-05
3023	-4.86907E-04	-2.19542E-05	9.04727E-05	-3.80855E-06	4.31404E-06	2.11324E-05
3024	-4.92380E-04	3.41757E-04	-4.61468E-06	-5.27598E-06	7.89256E-06	2.98397E-05
3026	-4.86746E-04	9.13709E-04	-1.73636E-04	-6.41017E-06	1.12355E-05	3.75922E-05
3028	-4.60002E-04	1.58104E-03	-3.83970E-04	-6.87149E-06	1.34604E-05	4.24128E-05
3030	-4.25684E-04	2.81551E-03	-7.91012E-04	-6.29605E-06	1.49601E-05	4.47271E-05
3032	-3.9474E-04	4.00564E-03	-1.19775E-03	-4.30879E-06	1.42192E-05	4.09157E-05
3033	-3.1223E-04	5.00931E-03	-1.55881E-03	-1.35786E-06	1.22567E-05	3.29339E-05
3037	-3.7123E-04	5.74085E-03	-1.85660E-03	-2.05615E-06	1.00806E-05	2.29473E-05
3038	-3.53176E-04	6.17532E-03	-2.09837E-03	5.38279E-06	8.49346E-06	1.33281E-05
3040	-3.35218E-04	6.35690E-03	-2.30882E-03	8.05519E-06	7.95335E-06	5.54958E-06
3044	-3.2516E-04	6.3830E-03	-2.39012E-03	8.82449E-06	7.90265E-06	5.11344E-06
3047	-3.2381E-04	6.38791E-03	-2.43035E-03	9.12532E-06	8.02472E-06	4.74202E-06
3050	-3.17265E-04	6.39189E-03	-2.46774E-03	9.35448E-06	8.11224E-06	4.60902E-06
3053	-3.13382E-04	6.39520E-03	-2.49924E-03	9.51601E-06	8.21194E-06	4.66116E-06
3056	-3.03146E-04	6.40392E-03	-2.54633E-03	9.70979E-06	8.40828E-06	5.05504E-06
3059	-3.08699E-04	6.40473E-03	-2.55211E-03	9.73427E-06	8.45074E-06	5.16879E-06
3062	-3.08435E-04	6.41345E-03	-2.57896E-03	9.82881E-06	8.62033E-06	5.66501E-06
3065	-3.17604E-04	6.43825E-03	-2.61659E-03	9.90610E-06	8.99317E-06	6.96578E-06
3068	-3.2569E-04	6.45501E-03	-2.6380E-03	9.90911E-06	9.20874E-06	7.78590E-06
3071	-3.20960E-04	6.45834E-03	-2.63971E-03	9.90911E-06	9.67817E-06	9.66621E-06
3074	-3.32547E-04	6.50734E-03	-2.62331E-03	9.86534E-06	9.75744E-06	1.00462E-05
3077	-3.35039E-04	6.51654E-03	-2.6380E-03	9.88666E-06	9.85634E-06	1.04190E-05
3080	-3.45363E-04	6.50918E-03	-2.6380E-03	9.87608E-06	1.07965E-05	1.49377E-05
3083	-3.51051E-04	6.60566E-03	-2.54172E-03	9.98933E-06	1.12269E-05	1.69047E-05
3086	-3.3604E-04	6.61737E-03	-2.42336E-03	1.05405E-05	1.13441E-05	1.73284E-05
3092	-1.43097E-03	6.60997E-03	-2.28909E-03	1.0618E-05	1.16553E-05	1.83582E-05
3095	-1.67176E-03	6.59433E-03	-2.07759E-03	1.24003E-05	1.24447E-05	2.02593E-05
3098	-1.70961E-03	6.58406E-03	-1.95000E-03	1.34514E-05	1.26197E-05	2.16319E-05
3100	-2.16989E-03	6.56237E-03	-1.90063E-03	1.36196E-05	1.26762E-05	2.18381E-05
3101	-2.70025E-03	6.56315E-03	-1.60123E-03	1.55228E-05	1.32342E-05	2.48903E-05
3104	-2.72100E-03	6.54246E-03	-1.26050E-03	1.73759E-05	1.38730E-05	2.88175E-05
3107	-3.04000E-03	6.54121E-03	-1.24721E-03	1.74381E-05	1.41862E-05	3.57712E-05
3110	-3.56364E-03	6.52939E-03	-1.05029E-03	1.82677E-05	1.45387E-05	3.96909E-05
3113	-4.06988E-03	6.42635E-03	-7.10064E-04	1.93102E-05	1.47191E-05	4.45727E-05
3115	-4.75189E-03	6.15686E-03	-4.1503E-04	1.95134E-05	1.54632E-05	4.71482E-05
3116	-5.08056E-03	5.37409E-03	-2.53047E-04	2.01786E-05	1.58933E-05	4.70955E-05
3119	-5.07222E-03	4.04824E-03	7.59736E-04	1.97402E-05	1.28332E-05	4.61690E-05
3120	-5.06266E-03	3.35574E-03	9.89005E-04	1.88933E-05	1.18357E-05	4.45178E-05
3122	-5.05409E-03	1.64870E-03	1.21234E-03	1.83929E-05	1.03458E-05	
			1.41654E-03			

3123	-4.81789E-03	6.24317E-04	1.55698E-03	1.76028E-05	9.67465E-06	4.13301E-05
3125	-4.26553E-03	-1.07203E-04	1.48331E-03	1.66621E-05	8.74086E-06	3.82030E-05
3128	-3.46953E-03	-5.44722E-04	1.23020E-03	1.53544E-05	8.08657E-06	3.48889E-05
3198	-2.73524E-03	-5.96697E-04	9.18777E-04	1.39762E-05	7.67853E-06	3.22133E-05
3199	-2.11021E-03	-5.11083E-04	6.30457E-04	1.27313E-05	7.37932E-06	3.01493E-05
3200	-1.52544E-03	-4.31062E-04	3.68350E-04	1.15503E-05	7.08602E-06	2.79356E-05
3205	-9.69606E-04	-3.54274E-04	1.22397E-04	1.05222E-05	6.79837E-06	2.52877E-05
3208	-4.85406E-04	-2.88157E-04	-9.75968E-05	9.78627E-06	6.53472E-06	2.21424E-05
3210	-6.95915E-05	-2.32540E-04	-3.05178E-04	9.32954E-06	6.28298E-06	1.86229E-05
3212	2.31773E-04	-1.18591E-04	-5.36151E-04	8.59287E-06	5.9400E-06	1.26246E-05
3215	3.66725E-04	3.38697E-05	-7.41494E-04	8.81039E-06	5.90627E-06	8.86674E-06
3220	3.95872E-04	1.85915E-04	-9.02699E-04	8.54138E-06	5.85424E-06	6.33509E-06
3222	3.17030E-04	3.15814E-04	-9.21479E-04	8.19687E-06	5.56976E-06	5.03701E-06
3225	2.03922E-04	3.40360E-04	-7.63126E-04	8.18325E-06	4.70473E-06	4.75351E-06
3230	1.73719E-04	3.34705E-04	-7.06907E-04	8.21714E-06	4.53394E-06	4.63829E-06
3235	7.96148E-05	3.09120E-04	-5.12365E-04	8.31075E-06	3.96712E-06	4.14511E-06
3237	-2.12855E-07	2.85646E-04	-3.17364E-04	8.29051E-06	3.59276E-06	3.41105E-06
3238	-3.44977E-05	2.45786E-04	-1.81716E-04	7.96455E-06	2.94842E-06	2.58938E-06
3240	-3.72742E-05	1.67555E-04	-7.43660E-05	6.98201E-06	2.39889E-06	1.79965E-06
3243	-3.08093E-05	1.768299E-05	-1.45937E-05	4.95902E-06	1.62114E-06	1.07197E-06
3245	-3.79391E-06	1.33487E-05	-1.98058E-07	1.70391E-09	5.55908E-07	3.84543E-07
3250	-6.54421E-10	2.68755E-09	-5.00031E-10	1.55451E-09	4.80360E-10	2.48993E-10

STATISTICAL ANALYSIS

LOAD CASE 5 GROUP 2 Y EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X-TRANSLATION	Y-TRANSLATION	Z-TRANSLATION	X-ROTATION	Y-ROTATION	Z-ROTATION
7090	8.87556E-09	-2.04193E-08	2.61661E-09	2.65293E-09	7.82853E-10	-2.94452E-09
3001	-3.9802E-06	-1.60087E-05	-6.47294E-06	2.97158E-07	8.37532E-08	-2.978556E-07
3005	-4.86484E-06	-2.09317E-05	-8.80038E-06	4.50835E-07	1.28394E-07	-4.20322E-07
3010	-6.16325E-06	-2.76602E-05	-1.22289E-05	6.93318E-07	1.97157E-07	-5.85737E-07
3011	-7.90467E-06	-4.05368E-05	-1.90137E-05	1.23890E-06	3.36594E-07	-8.79846E-07
3012	-1.04231E-05	-6.30709E-05	-3.35003E-05	1.85507E-06	4.55652E-07	-1.04840E-06
3019	-1.14926E-05	-1.09964E-04	-6.09814E-05	2.32157E-06	1.75417E-07	-3.99142E-07
3021	-6.66989E-06	-1.26765E-04	-6.54679E-05	2.03827E-06	-2.90608E-07	1.51084E-06
3023	-5.87422E-06	-1.25402E-04	-6.42676E-05	1.94741E-06	3.66460E-07	1.56755E-06
3024	-3.15761E-06	-9.75895E-05	-5.56555E-05	1.48321E-06	-6.42151E-07	4.22791E-06
3026	-9.68314E-07	-1.40174E-05	-4.15912E-05	8.67950E-07	-8.62557E-07	7.19304E-06
3028	3.77565E-07	1.20632E-04	-2.53271E-05	3.24421E-07	-9.73519E-07	9.84560E-06
3030	1.64001E-06	4.35411E-04	3.45836E-06	-1.70621E-07	-9.77527E-07	1.24983E-05
3032	2.56837E-06	7.83495E-04	2.92992E-05	-2.10298E-08	-8.29332E-07	1.23576E-05
3035	3.79730E-06	1.08702E-03	4.95923E-05	6.65591E-07	-6.15681E-07	9.89162E-06
3037	5.47847E-06	1.29433E-03	6.36574E-05	1.63433E-06	-4.00317E-07	6.20278E-06
3038	7.44846E-06	1.38950E-03	7.21733E-05	3.59209E-06	-2.25587E-07	2.55762E-06
3044	9.37452E-06	1.39159E-03	7.66481E-05	3.29611E-06	-1.11666E-07	1.41720E-08
3047	1.00370E-05	1.37590E-03	7.76822E-05	3.47213E-06	-8.46533E-08	-5.48663E-07
3050	1.05743E-05	1.36642E-03	7.80985E-05	3.53504E-06	-7.49991E-08	-7.21314E-07
3053	1.09606E-05	1.34832E-03	7.84290E-05	3.57911E-06	-6.80241E-08	-8.20426E-07
3056	1.23999E-05	1.33388E-03	7.92632E-05	3.62943E-06	-6.31377E-08	-8.62280E-07
3059	1.27449E-05	1.32136E-03	8.31234E-05	3.62322E-06	-5.76468E-08	-8.25301E-07
3062	1.44184E-05	1.32136E-03	8.41235E-05	3.62943E-06	-5.80968E-08	-8.02531E-07
3065	1.77003E-05	1.3056E-03	8.93804E-05	3.62322E-06	-5.65722E-08	-6.78914E-07
3068	1.87475E-05	1.3008E-03	1.03603E-04	3.56328E-06	-6.10630E-08	-6.41897E-07
3071	1.67635E-05	1.29391E-03	1.13137E-04	3.50697E-06	-6.67218E-08	9.55508E-08
3074	1.54231E-05	1.29376E-03	1.37236E-04	3.34601E-06	-8.40879E-08	9.86385E-08
3077	1.36975E-05	1.29376E-03	1.42288E-04	3.30752E-06	-8.88482E-08	1.18939E-06
3080	4.57297E-05	1.29389E-03	1.47438E-04	3.26835E-06	-9.34383E-08	1.39335E-06
3083	1.09976E-04	1.30869E-03	2.14023E-04	2.76562E-06	-1.53120E-07	3.98315E-06
3086	1.31058E-04	1.31306E-03	2.48538E-04	2.50835E-06	-1.84372E-07	5.31168E-06
3089	1.92178E-04	1.31247E-03	2.57492E-04	2.50835E-06	-1.89823E-07	5.61231E-06
3092	2.23067E-04	1.31124E-03	2.80247E-04	2.32450E-06	-2.02896E-07	6.31437E-06
3095	4.14639E-04	1.30889E-03	3.20325E-04	2.18631E-06	-2.08199E-07	7.23101E-06
3098	4.28789E-04	1.30733E-03	3.45455E-04	2.16854E-06	-1.99613E-07	7.54240E-06
3100	5.90274E-04	1.30754E-03	3.49272E-04	2.17068E-06	-1.97481E-07	7.57122E-06
3101	7.46193E-04	1.30508E-03	3.95252E-04	2.27318E-06	-1.61206E-07	7.61796E-06
3104	7.51732E-04	1.30285E-03	4.41574E-04	2.450373E-06	-1.07871E-07	7.2736E-06
3107	9.29846E-04	1.30144E-03	4.43443E-04	2.50373E-06	-1.0562E-07	7.25766E-06
3110	9.37745E-04	1.28302E-03	5.15778E-04	2.63552E-06	-7.39020E-08	6.99378E-06
3113	1.02457E-03	1.23926E-03	5.7386E-04	2.90975E-06	-3.38311E-08	6.59785E-06
3115	1.12699E-03	1.12596E-03	6.12338E-04	3.14878E-06	-2.07738E-08	6.37571E-06
3116	1.17729E-03	9.28269E-04	6.35492E-04	3.50493E-06	-8.8987E-08	6.58291E-06
3119	1.10723E-03	8.10723E-04	6.29720E-04	3.80498E-06	-3.41105E-07	7.76611E-06
3120	1.17658E-03	6.44648E-04	6.18410E-04	4.09835E-06	-5.09906E-07	8.51836E-06
3122	1.17641E-03	4.59192E-04	6.02633E-04	4.34585E-06	-7.39335E-07	9.52155E-06
				4.59121E-06	-9.45985E-07	1.04711E-05

3123	-1.11704E-03	1.93808E-04	5.51975E-04	4.87530E-06	-1.11570E-06	1.14495E-05
3125	-9.56591E-04	-2.34608E-05	4.62830E-04	4.98980E-06	-1.11036E-06	1.15546E-05
3128	-7.12503E-04	-1.60839E-04	3.42624E-04	4.83892E-07	-9.66634E-07	1.05801E-05
3198	-4.97292E-04	-1.77892E-04	2.39207E-04	4.45266E-06	-7.89971E-07	8.98363E-06
3199	-3.34571E-04	-1.56426E-04	1.56357E-04	3.99280E-06	-6.25367E-07	7.39231E-06
3200	-2.05218E-04	-1.39757E-04	8.44468E-05	3.49648E-06	-4.65212E-07	5.81972E-06
3205	-1.04034E-04	-1.26952E-04	1.97676E-05	3.02185E-06	-2.82827E-07	4.43891E-06
3208	-3.00399E-05	-1.17942E-04	-3.48879E-05	2.65099E-06	-7.30370E-08	3.51464E-06
3210	3.01864E-05	-1.10766E-04	-8.39906E-05	2.39222E-06	1.78602E-07	3.13234E-06
3212	9.13529E-05	-8.70597E-05	-1.31136E-04	2.17600E-06	4.77571E-07	2.90529E-06
3215	1.26576E-04	-4.51927E-05	-1.67566E-04	2.03304E-06	7.93394E-07	2.59832E-06
3220	1.35251E-04	-1.65076E-04	-1.65076E-04	1.83224E-06	1.09360E-06	2.25784E-06
3222	1.04099E-04	6.09862E-05	-2.01215E-04	1.67147E-06	1.19420E-06	1.83902E-06
3225	6.44498E-05	7.22534E-05	-1.69810E-04	1.73331E-06	1.08590E-06	1.52604E-06
3230	5.49517E-05	7.08990E-05	-1.57774E-04	1.73322E-06	1.05511E-06	1.44238E-06
3235	2.66478E-05	6.43577E-05	-1.14531E-04	1.85941E-06	9.43077E-07	1.22306E-06
3237	3.42646E-06	5.85072E-05	-6.88089E-05	1.82205E-06	8.20479E-07	9.78511E-07
3238	-6.74360E-06	4.53372E-05	-3.89588E-05	1.75451E-06	7.16754E-07	7.28920E-07
3240	-8.40580E-06	3.23899E-05	-1.54768E-05	1.47204E-06	5.82209E-07	4.99169E-07
3243	-4.83794E-07	1.39789E-05	-3.03524E-06	9.90971E-07	3.91046E-07	2.94530E-07
3245	-8.73696E-07	2.14130E-06	-1.16764E-07	3.20482E-07	1.27860E-07	1.05396E-07
3250	-1.41278E-10	3.31165E-10	-2.54790E-10	2.84565E-10	1.13941E-10	6.82439E-11

STATIC ANALYSIS

LOAD CASE 6 GROUP 2 Z EXCITATION
DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-1.06384E-08	1.73116E-09	-1.37927E-08	3.11832E-09	2.85633E-09	-1.73425E-09
3001	-2.62755E-06	8.21276E-06	-1.45494E-05	3.45697E-07	3.44560E-07	-1.86363E-07
3005	-3.26792E-06	-1.11597E-05	-1.96725E-05	5.32099E-07	5.58346E-07	-2.71702E-07
3010	-4.31924E-06	-1.56506E-05	-2.73759E-05	8.30107E-07	9.32894E-07	-3.86626E-07
3011	-6.69226E-06	-2.48164E-05	-4.35936E-05	1.49854E-06	1.89250E-06	-5.54023E-07
3012	-7.27429E-06	-4.26764E-05	-7.98695E-05	2.21567E-06	3.28112E-06	-4.49395E-07
3019	1.48759E-05	-6.62550E-05	-1.86561E-04	2.61367E-06	5.66124E-06	1.35474E-06
3021	4.38886E-05	-4.03759E-05	-2.97235E-04	2.32295E-06	6.71890E-06	3.65401E-06
3023	4.76306E-05	-3.06240E-05	-3.17353E-04	2.2586E-06	6.80474E-06	4.03191E-06
3024	6.26399E-05	2.75197E-05	-4.09814E-04	2.07300E-06	6.93779E-06	5.47496E-06
3026	8.01673E-05	1.19806E-04	-5.18082E-04	1.93833E-06	6.77547E-06	6.78932E-06
3028	9.66164E-05	2.28431E-04	-6.1939E-04	1.90805E-06	6.56253E-06	7.6487E-06
3030	1.24234E-04	4.32174E-04	-7.87240E-04	2.06681E-06	6.78937E-06	8.20325E-06
3032	1.57370E-04	6.33714E-04	-9.72935E-04	2.44053E-06	8.12043E-06	7.82479E-06
3035	2.03209E-04	8.11811E-04	-1.20911E-03	2.95507E-06	1.04533E-05	6.83679E-06
3037	2.66832E-04	9.5495E-04	-1.51758E-03	3.52770E-06	1.32843E-05	5.59760E-06
3038	3.49494E-04	1.05976E-03	-1.90274E-03	4.06857E-06	1.59736E-05	4.49441E-06
3040	4.47994E-04	1.13697E-03	-2.35237E-03	4.48700E-06	1.79797E-05	3.92230E-06
3044	4.90306E-04	1.16378E-03	-2.54280E-03	4.60302E-06	1.85162E-05	3.91474E-06
3047	5.10846E-04	1.17698E-03	-2.63760E-03	4.64524E-06	1.87711E-05	3.96703E-06
3050	5.30534E-04	1.18922E-03	-2.72572E-03	4.67714E-06	1.88770E-05	4.05066E-06
3053	5.47305E-04	1.20027E-03	-2.80230E-03	4.69935E-06	1.89953E-05	4.15804E-06
3056	5.72290E-04	1.21944E-03	-2.92424E-03	4.72983E-06	1.91383E-05	4.38555E-06
3059	5.76485E-04	1.22307E-03	-2.94583E-03	4.7346E-06	1.91593E-05	4.43641E-06
3062	5.92402E-04	1.23801E-03	-3.03055E-03	4.76320E-06	1.92193E-05	4.63362E-06
3065	6.13606E-04	1.26791E-03	-3.17697E-03	4.82500E-06	1.92666E-05	5.07822E-06
3068	6.20713E-04	1.28391E-03	-3.24539E-03	4.86864E-06	1.92575E-05	5.33828E-06
3071	6.23453E-04	1.31794E-03	-3.36862E-03	4.99358E-06	1.91852E-05	5.9062E-06
3074	6.21598E-04	1.32414E-03	-3.38765E-03	5.02317E-06	1.91623E-05	6.0104E-06
3077	6.19408E-04	1.33031E-03	-3.40590E-03	5.03434E-06	1.91389E-05	6.12241E-06
3080	5.36263E-04	1.38419E-03	-3.50166E-03	5.74164E-06	1.88080E-05	7.32073E-06
3083	4.52087E-04	1.39042E-03	-3.45789E-03	5.74164E-06	1.85046E-05	7.79400E-06
3086	4.25949E-04	1.38917E-03	-3.43644E-03	5.8682E-06	1.85483E-05	7.88922E-06
3089	3.53345E-04	1.38641E-03	-3.37827E-03	5.96277E-06	1.84002E-05	8.09182E-06
3092	2.15256E-04	1.38042E-03	-3.26493E-03	6.14971E-06	1.81274E-05	8.34786E-06
3095	1.23593E-04	1.37669E-03	-3.19015E-03	6.17896E-06	1.79532E-05	8.45477E-06
3098	1.09717E-04	1.37608E-03	-3.17878E-03	6.17648E-06	1.78269E-05	8.46854E-06
3100	-5.00911E-05	1.36958E-03	-3.05099E-03	6.01707E-06	1.76285E-05	8.61767E-06
3101	-2.12551E-04	1.36339E-03	-2.92924E-03	5.63717E-06	1.73294E-05	8.78507E-06
3104	-2.18137E-04	1.36302E-03	-2.92493E-03	5.61936E-06	1.73184E-05	8.79205E-06
3107	-3.05751E-04	1.35985E-03	-2.8641E-03	5.34013E-06	1.71584E-05	8.90428E-06
3110	-3.5885E-04	1.33309E-03	-2.74077E-03	4.82220E-06	1.69303E-05	9.11837E-06
3113	-5.47447E-04	1.26841E-03	-2.56840E-03	4.28540E-06	1.67352E-05	9.30486E-06
3115	-6.78910E-04	1.09750E-03	-2.21584E-03	3.35191E-06	1.64607E-05	9.46838E-06
3116	-7.25691E-04	8.30846E-04	-1.74392E-03	2.15191E-06	1.61569E-05	9.32549E-06
3119	-7.15602E-04	9.97163E-04	-1.51479E-03	1.53808E-06	1.60149E-05	9.12938E-06
3120	-7.03125E-04	5.33558E-04	-1.22699E-03	1.54714E-07	1.58180E-05	8.74672E-06
3122	-6.90825E-04	3.78419E-04	-9.42538E-04	-3.43808E-08	1.55650E-05	8.25269E-06

3123	1.96471E-04	5.82265E-04	1.08147E-06	1.49743E-05	7.35544E-06
3125	7.59470E-05	-3.00622E-04	-1.93780E-06	1.40989E-05	6.35854E-06
3128	1.38068E-05	-9.68318E-05	-2.53415E-06	1.28488E-05	5.16310E-06
3198	1.14256E-05	-2.48023E-05	-2.68395E-06	1.16277E-05	4.10052E-06
3199	2.49541E-05	-5.74088E-06	-2.55662E-06	1.05322E-05	3.26252E-06
3200	3.57525E-05	1.21931E-05	-2.28131E-06	9.46484E-06	2.50978E-06
3205	4.44420E-05	2.65707E-05	-1.89811E-06	8.38353E-06	1.83995E-06
3208	5.04408E-05	3.56118E-05	-1.47641E-06	7.34594E-06	1.30785E-06
3210	5.4560E-05	3.91675E-05	-1.03473E-06	6.31652E-06	9.05379E-07
3212	6.01977E-05	4.67783E-06	-4.38843E-07	5.22197E-06	3.87043E-07
3215	6.22272E-05	-6.84500E-05	1.34916E-07	4.19775E-06	-3.74430E-09
3220	5.71580E-05	-1.5187E-04	8.39795E-07	3.15034E-06	-2.05724E-07
3222	4.85865E-05	1.97541E-04	1.73052E-06	2.14034E-06	-3.18462E-08
3225	4.46752E-05	-1.63228E-04	2.06645E-06	1.66439E-06	3.21829E-07
3230	4.50164E-05	-1.48253E-04	2.07899E-06	1.55858E-06	4.12147E-07
3235	4.10758E-05	-9.74723E-05	1.99921E-06	1.19621E-06	5.77643E-07
3237	3.69139E-05	-5.17618E-05	1.76676E-06	8.13033E-07	6.56392E-07
3238	2.93855E-05	-2.51551E-05	1.41175E-06	5.13330E-07	5.42625E-07
3240	1.70524E-05	-8.49616E-06	1.00169E-06	2.46733E-07	5.38722E-07
3243	6.01455E-06	-1.36074E-06	5.70000E-07	5.88657E-08	3.56602E-07
3245	5.17496E-07	-4.28344E-08	1.55010E-07	-1.27899E-08	1.30722E-07
3250	-8.43642E-11	-1.08143E-10	1.26672E-10	-2.38862E-11	8.46427E-11

S T A T I C A N A L Y S I S

LOAD CASE 7 GROUP 3 X EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-7.16603E-10	-7.67092E-11	6.03154E-10	-2.01861E-10	-1.00172E-09	-2.47284E-10
3001	-1.35864E-06	-3.00597E-07	1.79678E-06	-1.45203E-08	-1.43322E-07	-2.33418E-08
3005	-1.97997E-06	-4.13768E-07	2.67237E-06	-2.20710E-08	-2.52671E-07	-3.61392E-08
3010	-3.04775E-06	-5.94698E-07	4.20007E-06	-3.35231E-08	-4.59929E-07	-5.63104E-08
3011	-5.50877E-06	-9.91293E-07	7.81357E-06	-5.58164E-08	-1.03128E-06	-9.93767E-08
3012	-1.24119E-05	-1.83492E-06	1.84132E-05	-6.85211E-08	-1.93358E-06	-1.35262E-07
3019	-3.50660E-05	-4.12453E-06	6.44686E-05	-8.64573E-08	-3.68490E-06	-1.31537E-07
3021	-5.60435E-05	-5.51241E-06	1.30728E-04	-9.48581E-08	-4.87440E-06	-5.79164E-08
3023	-5.94849E-05	-5.60266E-06	1.44491E-04	-9.95957E-08	-5.05190E-06	-4.31261E-08
3024	-7.57008E-05	-5.42495E-06	2.13630E-04	-1.24732E-07	-5.74815E-06	-2.11219E-08
3026	-9.77014E-05	-3.92010E-06	3.08127E-04	-1.54156E-07	-6.44595E-06	9.40756E-08
3028	-1.21771E-04	-1.16912E-06	4.11750E-04	-1.79365E-07	-7.01613E-06	1.48668E-07
3030	-1.66897E-04	-5.07628E-06	6.05745E-04	-2.02513E-07	-7.83839E-06	1.55460E-07
3032	-2.16507E-04	-9.96756E-06	8.18918E-04	-1.90171E-07	-8.64068E-06	8.49026E-09
3035	-2.70944E-04	-8.55557E-06	1.05380E-03	-1.35178E-07	-9.58844E-06	-3.23115E-07
3037	-3.31599E-04	-4.48109E-06	1.31611E-03	-3.95122E-08	-1.07430E-05	-8.31123E-07
3038	-3.99855E-04	-3.36207E-05	1.61124E-03	-8.52717E-08	-1.20416E-05	-1.46575E-06
3040	-4.76090E-04	-8.14335E-05	1.94157E-03	-2.20905E-07	-1.33174E-05	-2.14692E-06
3044	-5.08437E-04	-1.05606E-04	2.08148E-03	-2.73441E-07	-1.37742E-05	-2.41180E-06
3047	-5.24177E-04	-1.18451E-04	2.15152E-03	-2.98385E-07	-1.39792E-05	-2.53696E-06
3050	-5.32244E-04	-1.30881E-04	2.21698E-03	-3.20492E-07	-1.41557E-05	-2.64938E-06
3053	-5.52256E-04	-1.42180E-04	2.27477E-03	-3.39212E-07	-1.43084E-05	-2.75137E-06
3056	-5.71904E-04	-1.61468E-04	2.37021E-03	-3.60271E-07	-1.45323E-05	-2.91211E-06
3059	-5.75258E-04	-1.65055E-04	2.38755E-03	-3.63890E-07	-1.45728E-05	-2.94279E-06
3062	-5.88242E-04	-1.79736E-04	2.45740E-03	-3.64683E-07	-1.47074E-05	-3.05055E-06
3065	-6.07124E-04	-2.07496E-04	2.58520E-03	-3.45226E-07	-1.49279E-05	-3.25225E-06
3068	-6.14759E-04	-2.21819E-04	2.64905E-03	-3.19361E-07	-1.50216E-05	-3.35486E-06
3071	-6.23860E-04	-2.50757E-04	2.77426E-03	-2.12345E-07	-1.51635E-05	-3.55290E-06
3074	-6.24169E-04	-2.55789E-04	2.79555E-03	-1.83676E-07	-1.51816E-05	-3.58893E-06
3077	-6.24557E-04	-2.60776E-04	2.81647E-03	-1.51810E-07	-1.51977E-05	-3.62345E-06
3080	-5.94419E-04	-3.02800E-04	2.98444E-03	-4.71208E-07	-1.52325E-05	-3.95660E-06
3083	-5.55262E-04	-3.08882E-04	3.00103E-03	-9.95437E-07	-1.52325E-05	-4.08396E-06
3086	-5.42739E-04	-3.08737E-04	2.99735E-03	-1.14582E-06	-1.51411E-05	-4.11078E-06
3089	-5.07443E-04	-3.08307E-04	2.98465E-03	-1.56973E-06	-1.50796E-05	-4.17016E-06
3092	-4.41503E-04	-3.06804E-04	2.94826E-03	-2.41322E-06	-1.49663E-05	-4.22825E-06
3095	-3.98038E-04	-3.05495E-04	2.91574E-03	-2.95340E-06	-1.48947E-05	-4.22487E-06
3098	-3.91555E-04	-3.05247E-04	2.91020E-03	-3.03247E-06	-1.48840E-05	-4.22133E-06
3100	-3.17992E-04	-3.02164E-04	2.83748E-03	-3.80091E-06	-1.47648E-05	-4.12163E-06
3101	-2.47727E-04	-2.98405E-04	2.75084E-03	-4.26707E-06	-1.46504E-05	-3.91201E-06
3104	-2.45620E-04	-2.98143E-04	2.74749E-03	-4.26707E-06	-1.46504E-05	-3.90214E-06
3107	-2.10742E-04	-2.95920E-04	2.69844E-03	-4.33897E-06	-1.45875E-05	-3.74470E-06
3110	-1.64442E-04	-2.83557E-04	2.59116E-03	-4.20295E-06	-1.44908E-05	-3.43353E-06
3113	-1.32036E-04	-2.58626E-04	2.43940E-03	-3.81355E-06	-1.43399E-05	-3.09238E-06
3115	-1.06201E-04	-2.05097E-04	2.13452E-03	-2.78613E-06	-1.38842E-05	-2.48725E-06
3116	-1.10044E-04	-1.43969E-04	1.74470E-03	-1.19315E-06	-1.29993E-05	-1.74007E-06
3119	-1.17956E-04	-1.21161E-04	1.56312E-03	-3.64788E-07	-1.25302E-05	-1.41448E-06
3120	-1.27446E-04	-9.95325E-05	1.34271E-03	-6.84772E-07	-1.19946E-05	-1.01812E-06
3122	-1.36551E-04	-8.57077E-05	1.13116E-03	-1.73429E-06	-1.15684E-05	-6.41454E-07

3123	-1.52570E-04	3.14544E-06	-1.10948E-05	-1.30223E-07
3125	-1.56551E-04	4.45167E-06	-1.06783E-05	3.20097E-07
3128	-1.71950E-04	5.67569E-06	-1.01588E-05	8.22026E-07
3198	-1.60631E-04	6.38622E-06	-9.66638E-06	1.31250E-06
3200	-1.38556E-04	6.59011E-06	-9.28039E-06	1.77950E-06
3205	-1.06410E-04	6.36728E-06	-8.69838E-06	2.27612E-06
3208	-6.24755E-05	5.70007E-06	-8.95999E-06	2.79311E-06
3209	-9.50509E-06	4.71491E-06	-8.49779E-06	3.29851E-06
3210	-5.3752E-05	3.55532E-06	-8.32178E-06	3.86206E-06
3212	1.31945E-04	1.92797E-06	-8.22113E-06	3.98816E-06
3215	1.68879E-04	7.41666E-07	-7.90636E-06	3.29227E-06
3220	1.88139E-04	3.52573E-07	-6.74474E-06	3.03153E-06
3222	9.23501E-05	-2.37741E-06	-3.8057E-06	5.03641E-06
3225	-7.09349E-05	-4.1570E-06	-1.26693E-06	7.02760E-06
3230	-1.21996E-04	-4.45425E-06	-6.4478E-07	7.19369E-06
3233	-2.86724E-04	-4.523249E-06	-1.63376E-06	6.40636E-06
3237	-4.08347E-04	-3.23523E-06	-4.19405E-06	4.10538E-06
3238	-4.26547E-04	-6.22523E-07	-6.40099E-06	1.25401E-06
3240	-3.47079E-04	1.90934E-06	-8.21059E-06	-8.4850E-07
3243	-1.56266E-04	3.04582E-06	8.14730E-06	-1.40643E-06
3245	-4.96762E-05	1.59770E-06	3.72550E-06	-5.97302E-07
3250	-1.68263E-08	1.66558E-09	3.83242E-09	-3.86755E-10
8	55938E-04	8.55938E-04	8.55938E-04	-1.30223E-07
6	10556E-05	6.10556E-05	6.10556E-05	3.20097E-07
3	81672E-04	3.81672E-04	3.81672E-04	8.22026E-07
2	37201E-04	2.37201E-04	2.37201E-04	1.31250E-06
1	3370E-04	1.3370E-04	1.3370E-04	1.77950E-06
2	94770E-05	6.94770E-05	6.94770E-05	2.27612E-06
6	93760E-05	6.93760E-05	6.93760E-05	2.79311E-06
1	48528E-04	1.48528E-04	1.48528E-04	3.29851E-06
2	05041E-04	2.05041E-04	2.05041E-04	3.86206E-06
1	8576E-04	1.8576E-04	1.8576E-04	3.98816E-06
6	45370E-05	3.45370E-05	3.45370E-05	3.29227E-06
1	05475E-04	1.05475E-04	1.05475E-04	3.03153E-06
2	3371E-04	2.3371E-04	2.3371E-04	5.03641E-06
1	3386E-04	1.3386E-04	1.3386E-04	7.02760E-06
1	43007E-04	1.43007E-04	1.43007E-04	7.19369E-06
3	51254E-05	3.51254E-05	3.51254E-05	6.40636E-06
5	44113E-05	5.44113E-05	5.44113E-05	4.10538E-06
7	78774E-05	7.78774E-05	7.78774E-05	1.25401E-06
5	24939E-05	5.24939E-05	5.24939E-05	-8.4850E-07
1	29614E-05	1.29614E-05	1.29614E-05	-1.40643E-06
1	14011E-06	1.14011E-06	1.14011E-06	-5.97302E-07
2	87840E-09	2.87840E-09	2.87840E-09	-3.86755E-10
8	01755E-05	8.01755E-05	8.01755E-05	-1.30223E-07
8	73801E-05	8.73801E-05	8.73801E-05	3.20097E-07
1	01732E-04	1.01732E-04	1.01732E-04	8.22026E-07
1	09667E-04	1.09667E-04	1.09667E-04	1.31250E-06
1	10844E-04	1.10844E-04	1.10844E-04	1.77950E-06
1	10589E-04	1.10589E-04	1.10589E-04	2.27612E-06
1	0840E-04	1.0840E-04	1.0840E-04	2.79311E-06
9	0605E-04	9.0605E-04	9.0605E-04	3.29851E-06
1	63393E-05	1.63393E-05	1.63393E-05	3.86206E-06
6	17656E-05	6.17656E-05	6.17656E-05	3.98816E-06
4	30102E-06	4.30102E-06	4.30102E-06	3.29227E-06
5	5941E-05	5.5941E-05	5.5941E-05	3.03153E-06
1	54401E-04	1.54401E-04	1.54401E-04	5.03641E-06
2	02848E-04	2.02848E-04	2.02848E-04	7.02760E-06
1	59018E-04	1.59018E-04	1.59018E-04	7.19369E-06
1	73364E-04	1.73364E-04	1.73364E-04	6.40636E-06
1	52498E-04	1.52498E-04	1.52498E-04	4.10538E-06
1	48379E-04	1.48379E-04	1.48379E-04	1.25401E-06
1	34020E-04	1.34020E-04	1.34020E-04	-8.4850E-07
8	51203E-05	8.51203E-05	8.51203E-05	-1.40643E-06
2	23442E-05	2.23442E-05	2.23442E-05	-5.97302E-07
7	15771E-09	7.15771E-09	7.15771E-09	-3.86755E-10

STATIC ANALYSIS

LOAD CASE 8 GROUP 3 Y EXCITATION
DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	8.73887E-10	-9.81159E-11	-8.98066E-10	3.45204E-10	1.47532E-09	2.05940E-10
3001	1.62663E-06	4.73031E-08	-2.69134E-06	2.61228E-08	2.12767E-07	1.44277E-08
3005	2.49447E-06	5.44862E-08	-2.40078E-06	3.98938E-08	3.76156E-07	2.02198E-08
3010	3.87656E-06	5.76799E-08	-6.30751E-06	6.09953E-08	6.86720E-07	2.69559E-08
3011	7.08152E-06	5.11377E-08	-1.17518E-05	1.03074E-07	1.54551E-06	3.27518E-08
3012	1.62930E-05	-1.37896E-07	-2.77687E-05	1.30232E-07	2.90841E-06	8.44705E-09
3019	4.78179E-05	-1.53173E-06	-9.74212E-05	1.52309E-07	5.57932E-06	-8.55603E-08
3021	7.86213E-05	-4.37944E-06	-1.97956E-04	1.36822E-07	7.42139E-06	-1.82868E-07
3023	8.38216E-05	-5.05695E-06	-2.18903E-04	1.37414E-07	7.69867E-06	-1.95958E-07
3024	1.08479E-04	-8.58023E-06	-3.24423E-04	1.41375E-07	8.79226E-06	-2.34099E-07
3026	1.42104E-04	-1.32746E-05	-4.69273E-04	1.36488E-07	9.89783E-06	-2.38285E-07
3028	1.79059E-04	-1.76686E-05	-6.28735E-04	1.19839E-07	1.08040E-05	-1.91173E-07
3030	2.48592E-04	-2.19444E-05	-9.28136E-04	6.11248E-08	1.20846E-05	-2.09143E-08
3032	3.25007E-04	-1.80186E-05	-1.25676E-03	-3.67705E-08	1.32707E-05	4.03165E-07
3035	4.08380E-04	-1.21285E-05	-1.61655E-03	-1.71035E-07	1.46145E-05	9.42907E-07
3037	5.0484E-04	3.2544E-05	-2.01472E-03	-3.33892E-07	1.62397E-05	1.60613E-06
3038	6.0441E-04	8.59297E-05	-2.45910E-03	-5.12784E-07	1.81002E-05	2.33964E-06
3040	7.17827E-04	1.60139E-04	-2.95456E-03	-6.93543E-07	1.99914E-05	3.08075E-06
3044	7.66412E-04	1.95147E-04	-3.16441E-03	-7.62708E-07	2.06907E-05	3.36405E-06
3047	7.9073E-04	2.13339E-04	-3.26356E-03	-7.95787E-07	2.10097E-05	3.49822E-06
3050	8.12811E-04	2.30751E-04	-3.36787E-03	-8.25446E-07	2.12876E-05	3.61926E-06
3053	8.32387E-04	2.46426E-04	-3.45479E-03	-8.82144E-07	2.18930E-05	3.72956E-06
3056	8.62439E-04	2.72901E-04	-3.58698E-03	-8.77440E-07	2.15308E-05	3.94186E-06
3059	8.7627E-04	2.77792E-04	-3.62489E-03	-8.81785E-07	2.19592E-05	4.06517E-06
3062	8.87956E-04	2.97736E-04	-3.73055E-03	-8.81785E-07	2.21819E-05	4.30688E-06
3065	9.18808E-04	3.5144E-04	-4.02196E-03	-8.52842E-07	2.25575E-05	4.43739E-06
3068	9.22096E-04	3.54372E-04	-4.02196E-03	-8.16598E-07	2.27336E-05	4.71168E-06
3071	9.50720E-04	3.93193E-04	-4.21382E-03	-6.65649E-07	2.29895E-05	4.76555E-06
3074	9.52266E-04	3.9954E-04	-4.24661E-03	-6.25396E-07	2.30268E-05	4.76555E-06
3077	9.53667E-04	4.06667E-04	-4.27888E-03	-5.80397E-07	2.3007E-05	4.81883E-06
3080	9.23331E-04	4.64026E-04	-4.54243E-03	-3.30090E-07	2.32082E-05	4.81883E-06
3083	8.70945E-04	4.72699E-04	-4.57317E-03	-1.1878E-06	2.32082E-05	5.45126E-06
3086	8.53494E-04	4.72525E-04	-4.56914E-03	1.34859E-06	2.34336E-05	5.79599E-06
3089	8.03123E-04	4.72009E-04	-4.55389E-03	2.00570E-06	2.31183E-05	5.8844E-06
3092	7.05054E-04	4.69993E-04	-4.50560E-03	3.32394E-06	2.30508E-05	6.10557E-06
3095	6.37338E-04	4.68144E-04	-4.45983E-03	4.24798E-06	2.28268E-05	6.47386E-06
3098	6.27023E-04	4.67789E-04	-4.45189E-03	4.38126E-06	2.28370E-05	6.65764E-06
3100	5.06352E-04	4.63254E-04	-4.34475E-03	5.72811E-06	2.27107E-05	6.68053E-06
3101	3.85359E-04	4.57531E-04	-4.21206E-03	6.69202E-06	2.25965E-05	6.8182E-06
3104	3.81575E-04	4.57124E-04	-4.20683E-03	6.66213E-06	2.25965E-05	6.65984E-06
3107	3.19785E-04	4.53655E-04	-4.12964E-03	6.89056E-06	2.25925E-05	6.65869E-06
3110	2.36666E-04	4.32734E-04	-3.95914E-03	6.85781E-06	2.25381E-05	6.44727E-06
3113	1.78364E-04	3.90079E-04	-3.71782E-03	6.35483E-06	2.24412E-05	5.9830E-06
3115	1.33620E-04	3.02464E-04	-3.23456E-03	4.55311E-06	2.2450E-05	5.21040E-06
3116	1.40763E-04	2.15959E-04	-2.62521E-03	2.57802E-06	2.15393E-05	3.8896E-06
3119	1.52672E-04	1.90052E-04	-2.62521E-03	1.33183E-06	1.91570E-05	2.15381E-06
3120	1.66799E-04	1.70548E-04	-2.01087E-03	-2.41680E-07	1.82310E-05	1.50094E-06
3122	1.80197E-04	1.62844E-04	-1.69331E-03	-1.80912E-06	1.72781E-05	8.24333E-07

3123	2.00714E-04	-1.29010E-03	-3.92966E-06	1.63653E-05	-1.69870E-07
3125	2.19128E-04	-9.39214E-04	-5.97529E-06	1.57193E-05	-4.18974E-07
3128	2.32900E-04	-6.12792E-04	-8.09633E-06	1.50971E-05	-6.58449E-07
3198	2.33513E-04	-4.01892E-04	-9.60818E-06	1.45885E-05	-9.80004E-07
3199	2.24011E-04	-2.42726E-04	-1.03855E-05	1.42348E-05	-1.36548E-06
3200	2.05700E-04	-7.21608E-05	-1.05025E-05	1.39795E-05	-1.88297E-06
3205	1.74319E-04	9.88079E-05	-8.84066E-06	1.38346E-05	-2.54608E-06
3208	1.29041E-04	2.44112E-04	-8.47666E-06	1.38064E-05	-3.24335E-06
3210	6.91089E-05	2.08286E-04	-6.58148E-06	1.38659E-05	-3.85822E-06
3212	5.19003E-06	1.72731E-04	-3.45329E-06	1.40957E-05	-5.63899E-06
3215	5.74100E-05	1.26231E-04	-8.21494E-07	1.40331E-05	-7.98723E-06
3220	-6.1759E-05	-1.91530E-04	1.70111E-06	1.29333E-05	-9.37853E-06
3222	1.15820E-04	-4.47230E-04	5.46810E-06	9.72431E-06	-7.50071E-06
3225	2.71135E-04	-3.37790E-04	8.17637E-06	7.06380E-06	-3.76166E-06
3230	2.94981E-04	-3.75290E-04	8.55957E-06	6.44184E-06	-2.65340E-06
3235	3.27984E-04	-5.2729E-05	8.16562E-06	4.18076E-06	-5.29697E-08
3237	2.98484E-04	1.32405E-04	5.00337E-06	1.50363E-06	2.02448E-06
3238	2.47746E-04	1.81134E-04	-9.82641E-07	-9.57133E-07	3.11180E-06
3240	1.74268E-04	1.23147E-04	-7.11289E-06	-2.95037E-06	3.09971E-06
3243	8.85619E-05	3.08431E-05	-9.85725E-06	-3.44947E-06	2.17494E-06
3245	1.99457E-05	-3.08444E-06	-5.14389E-06	-1.60261E-06	8.01190E-07
3250	6.01547E-09	-7.78719E-09	-5.42959E-09	-1.61848E-09	5.18772E-10

STATIC ANALYSIS

LOAD CASE 9 GROUP 3 Z EXCITATION

DISPLACEMENTS/ROTATIONS OF UNRESTRAINED NODES

NODE NUMBER	X- TRANSLATION	Y- TRANSLATION	Z- TRANSLATION	X- ROTATION	Y- ROTATION	Z- ROTATION
7090	-1.64333E-10	-1.29173E-10	1.70933E-10	-3.12696E-11	-2.81849E-10	-1.11990E-10
3001	-4.28333E-07	-2.06533E-07	4.57369E-07	-9.67417E-10	-4.05346E-08	-1.19488E-08
3005	-6.26744E-07	-2.88649E-07	6.85767E-07	-1.10156E-09	-7.16754E-08	-1.92759E-08
3010	-9.68162E-07	-4.23723E-07	1.08771E-06	-8.70015E-10	-1.30879E-07	-3.17044E-08
3011	-1.75600E-06	-7.27186E-07	2.04391E-06	1.40748E-09	-2.94670E-07	-6.14379E-08
3012	-3.98198E-06	-1.45071E-06	4.90328E-06	8.87444E-09	-5.54712E-07	-9.69225E-08
3019	-1.11910E-05	-3.85532E-06	1.77800E-05	1.52668E-08	-1.06650E-06	-1.34283E-07
3021	-1.75489E-05	-6.24175E-06	3.68730E-05	9.47071E-09	-1.47527E-06	-1.17876E-07
3023	-1.85529E-05	-6.61576E-06	4.08814E-05	6.52180E-09	-1.47527E-06	-1.11424E-07
3024	-2.32658E-05	-8.01236E-06	6.11070E-05	-1.03773E-08	-1.68800E-06	-7.31728E-08
3026	-2.97029E-05	-8.75062E-06	8.89313E-05	-3.51085E-08	-1.90575E-06	-8.62847E-09
3028	-3.67960E-05	-8.19062E-06	1.19659E-04	-6.19829E-08	-2.08825E-06	6.52548E-08
3030	-5.02188E-05	-4.22184E-06	1.77721E-04	-1.03630E-07	-2.35775E-06	1.73119E-07
3032	-6.51265E-05	-2.33297E-06	2.42172E-04	-1.29018E-07	-2.62062E-06	2.10690E-07
3035	-8.16004E-05	8.73133E-06	3.13679E-04	-1.28308E-07	-2.92097E-06	1.35192E-07
3037	-1.00095E-04	1.14006E-05	4.83603E-04	-9.89331E-08	-3.27290E-06	-5.46557E-08
3038	-1.20695E-04	6.96511E-06	8.36031E-04	-4.68731E-08	-3.65525E-06	-3.62999E-07
3040	-1.43666E-04	-6.71590E-06	5.83681E-04	1.49891E-08	-4.01848E-06	-7.03567E-07
3041	-1.53374E-04	-1.48032E-05	6.25868E-04	3.90447E-08	-4.14493E-06	-8.36625E-07
3047	-1.58087E-04	-1.92883E-05	6.46944E-04	5.02607E-08	-4.20087E-06	-8.98732E-07
3050	-1.62608E-04	-2.37136E-05	6.66611E-04	6.00013E-08	-4.24850E-06	-9.53824E-07
3053	-1.66451E-04	-2.78030E-05	6.83948E-04	6.83492E-08	-4.28926E-06	-1.00299E-06
3056	-1.72112E-04	-3.49007E-05	7.12544E-04	7.84685E-08	-4.34814E-06	-1.07800E-06
3059	-1.77053E-04	-3.62338E-05	7.17698E-04	8.02013E-08	-4.35861E-06	-1.09192E-06
3062	-1.76592E-04	-4.17208E-05	7.38545E-04	8.23131E-08	-4.39318E-06	-1.13910E-06
3065	-1.81206E-04	-5.21840E-05	7.76557E-04	7.83356E-08	-4.44785E-06	-1.21969E-06
3068	-1.83746E-04	-5.75810E-05	7.95357E-04	7.03489E-08	-4.46985E-06	-1.25563E-06
3071	-1.85503E-04	-6.4512E-05	8.32619E-04	3.50150E-08	-4.46985E-06	-1.31133E-06
3074	-1.87193E-04	-7.03215E-05	8.38899E-04	2.52641E-08	-4.50351E-06	-1.31901E-06
3077	-1.88809E-04	-7.21665E-05	8.45063E-04	1.44822E-08	-4.50617E-06	-1.32557E-06
3080	-1.68849E-04	-8.71921E-05	8.93298E-04	-1.93672E-07	-4.49526E-06	-1.32864E-06
3086	-1.51572E-04	-8.91966E-05	8.97934E-04	-3.65002E-07	-4.45596E-06	-1.28278E-06
3089	-1.40891E-04	-8.9493E-05	8.96571E-04	-4.13378E-07	-4.46558E-06	-1.26762E-06
3092	-1.22721E-04	-8.90155E-05	8.91999E-04	-5.47649E-07	-4.43203E-06	-1.2241E-06
3095	-1.11910E-04	-8.85237E-05	8.79485E-04	-8.05457E-07	-4.38633E-06	-1.12423E-06
3098	-1.10375E-04	-8.80991E-05	8.68678E-04	-9.63444E-07	-4.35679E-06	-1.05657E-06
3100	-9.40329E-05	-8.70335E-05	8.6683E-04	-9.85609E-07	-4.35231E-06	-1.04634E-06
3101	-7.93751E-05	-8.58664E-05	8.43528E-04	-1.18954E-06	-4.30107E-06	-9.40311E-07
3104	-7.24550E-05	-8.5143E-05	8.15802E-04	-1.2709E-06	-4.24867E-06	-8.60905E-07
3107	-6.30131E-05	-8.20988E-05	7.70431E-04	-1.26674E-06	-4.24669E-06	-8.58607E-07
3110	-5.57914E-05	-7.58787E-05	7.27813E-04	-1.15567E-06	-4.17247E-06	-8.31344E-07
3113	-4.85909E-05	-6.06359E-05	6.43182E-04	-9.8950E-07	-4.1304E-06	-8.07563E-07
3116	-4.85856E-05	-3.88590E-05	5.43182E-04	-5.92750E-07	-3.96475E-06	-8.00943E-07
3119	-5.08321E-05	-2.92926E-05	5.33991E-04	-1.87046E-08	-3.72395E-06	-7.86367E-07
3120	-5.35306E-05	-1.95490E-05	4.81971E-04	2.75599E-07	-3.6311E-06	-6.91098E-07
3122	-5.61420E-05	-1.33744E-05	4.18146E-04	6.22984E-07	-3.50396E-06	-6.05422E-07
			3.55840E-04	1.03176E-06	-3.43169E-06	-2.48662E-07

3123	1.29249E-05	2.70167E-04	1.53575E-06	-3.33745E-06	1.01592E-07
3125	-2.02727E-05	1.87332E-04	1.96239E-06	-3.18821E-06	4.19029E-07
3128	-3.01705E-05	1.05256E-04	2.24055E-06	-2.91573E-06	6.62001E-07
3198	-3.36011E-05	5.12221E-05	2.23688E-06	-2.61775E-06	7.44015E-07
3199	-3.31907E-05	1.49003E-05	1.98555E-06	-2.36561E-06	7.16680E-07
3200	-3.27442E-05	-1.49144E-05	1.54633E-06	-2.14750E-06	6.15731E-07
3205	-3.48237E-06	-3.47791E-05	9.46389E-07	-1.94638E-06	4.63185E-07
3208	-3.12393E-05	-4.14137E-05	3.15277E-07	-1.76042E-06	3.04034E-07
3210	-3.17654E-05	-3.55975E-05	-2.58399E-07	-1.56355E-06	1.71976E-07
3212	-3.00944E-05	-9.932207E-06	-8.77508E-07	-1.33268E-06	1.41528E-08
3215	-2.99523E-05	2.30887E-05	-1.22197E-06	-9.33671E-07	-7.86155E-08
3220	-3.02684E-05	4.13147E-05	-1.53332E-06	-2.63880E-07	-9.74883E-08
3222	-3.08658E-05	6.18660E-05	-1.83079E-06	-3.65122E-07	-1.95140E-07
3225	-2.78832E-05	-4.26932E-05	-1.28765E-06	3.55356E-07	-3.80649E-07
3230	-2.46892E-05	-5.10690E-05	-9.77274E-07	3.26345E-07	-3.99488E-07
3235	-2.25160E-05	-6.36756E-05	-3.12251E-08	2.1648E-07	-3.0670E-07
3237	-1.95427E-05	-4.99475E-05	8.24784E-07	8.66480E-08	-8.72966E-08
3238	-2.19483E-05	-2.85418E-05	1.01724E-06	-7.63058E-08	1.20938E-07
3240	-2.89081E-05	-1.23803E-05	5.27534E-07	-2.97060E-07	2.19563E-07
3243	-2.76019E-05	-7.10174E-06	-2.52470E-07	-4.22496E-07	1.85578E-07
3245	-1.06803E-05	-3.87784E-06	-4.35387E-07	-2.3372E-07	7.13708E-08
3250	-4.11723E-09	-1.03686E-08	-5.51043E-10	-2.49990E-10	4.62128E-11

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	1	END-I END-J	-135.231 -135.231	5.175 5.175	106.748 106.748	2584.02 2584.02	-8618.48 -6618.11	2416.54 2319.56
1	TANGENT	2	END-I END-J	141.023 141.023	127.827 127.827	-49.250 -49.250	-227.51 -227.51	1657.03 734.13	4972.44 2577.08
1	TANGENT	3	END-I END-J	-44.100 -44.100	-29.716 -29.716	-42.379 -42.379	-2241.46 -2241.46	6177.10 5382.96	-1233.34 -676.49
1	TANGENT	4	END-I END-J	-7303.088 -7303.088	-3869.450 -3869.450	2530.606 2530.606	4052.51 4052.51	-97227.77 -49806.65	-141224.99 -68715.20
1	TANGENT	5	END-I END-J	1920.317 1920.317	-1135.631 -1135.631	-220.024 -220.024	2044.46 2044.46	11099.28 6976.25	-38790.92 -17510.29
1	TANGENT	6	END-I END-J	-1411.731 -1411.731	-799.298 -799.298	-657.453 -657.453	-1824.58 -1824.58	33839.67 21519.64	-30668.63 -15690.55
1	TANGENT	7	END-I END-J	-21.228 -21.228	-24.662 -24.662	88.166 88.166	3409.06 3409.06	-9881.87 -8229.73	-1122.77 -660.64
1	TANGENT	8	END-I END-J	30.416 30.416	9.737 9.737	-121.566 -121.566	-5330.89 -5330.89	14331.61 12053.57	44.73 -137.74
1	TANGENT	9	END-I END-J	2.967 2.967	-13.768 -13.768	23.038 23.038	965.23 965.23	-2776.08 -2344.38	-810.88 -552.89
2	TANGENT	1	END-I END-J	-135.190 -135.190	5.219 5.219	106.604 106.604	2581.62 2581.62	-6618.98 -6140.15	2319.78 2296.33
2	TANGENT	2	END-I END-J	141.049 141.049	127.532 127.532	-49.218 -49.218	-226.96 -226.96	734.41 513.34	2577.06 2004.23
2	TANGENT	3	END-I END-J	-44.102 -44.102	-29.654 -29.654	-42.326 -42.326	-2239.39 -2239.39	5383.80 5193.69	-676.65 -543.46
2	TANGENT	4	END-I END-J	-7197.072 -7197.072	-3789.990 -3789.990	2455.409 2455.409	4025.91 4025.91	-49813.13 -38784.35	-68712.07 -51688.86
2	TANGENT	5	END-I END-J	1824.413 1824.413	-1004.240 -1004.240	-220.064 -220.064	2045.50 2045.50	6974.19 5985.74	-17510.98 -13000.32
2	TANGENT	6	END-I END-J	-1377.785 -1377.785	-774.274 -774.274	-585.089 -585.089	-1817.58 -1817.58	21519.25 18891.25	-15691.90 -12214.15
2	TANGENT	7	END-I END-J	-21.221 -21.221	-24.579 -24.579	88.050 88.050	3405.72 3405.72	-8231.13 -7835.64	-660.39 -549.99
2	TANGENT	8	END-I END-J	30.400 30.400	9.674 9.674	-121.424 -121.424	-5326.11 -5326.11	12055.68 11510.29	-138.07 -181.52

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
2	TANGENT	9	END-I END-J	2.959 2.959	-13.734 -13.734	23.006 23.006	964.25 964.25	-2344.80 -2241.47	-552.81 -491.13
3	TANGENT	1	END-I END-J	-135.133 -135.133	5.186 5.186	106.252 106.252	2581.62 2581.62	-6140.15 -5662.91	2296.33 2273.04
3	TANGENT	2	END-I END-J	141.012 141.012	126.989 126.989	-49.098 -49.098	-226.96 -226.96	513.34 292.81	2004.23 1433.85
3	TANGENT	3	END-I END-J	-44.082 -44.082	-29.554 -29.554	-42.219 -42.219	-2239.39 -2239.39	5193.69 5004.06	-543.46 -410.71
3	TANGENT	4	END-I END-J	-7020.195 -7020.195	-3664.442 -3664.442	2330.232 2330.232	4025.91 4025.91	-38784.35 -28317.82	-51688.86 -35229.56
3	TANGENT	5	END-I END-J	1667.116 1667.116	-787.154 -787.154	-219.879 -219.879	2045.50 2045.50	5985.74 4998.13	-13000.32 -9464.72
3	TANGENT	6	END-I END-J	-1321.192 -1321.192	-733.923 -733.923	-466.449 -466.449	-1817.58 -1817.58	18891.25 16796.14	-12214.15 -8917.64
3	TANGENT	7	END-I END-J	-21.212 -21.212	-24.438 -24.438	87.766 87.766	3405.72 3405.72	-7835.64 -7441.43	-549.99 -440.22
3	TANGENT	8	END-I END-J	30.388 30.388	9.580 9.580	-121.098 -121.098	-5326.11 -5326.11	11510.29 10966.36	-181.52 -224.55
3	TANGENT	9	END-I END-J	2.953 2.953	-13.664 -13.664	22.928 22.928	964.25 964.25	-2241.47 -2138.48	-491.13 -429.75
4	TANGENT	1	END-I END-J	-135.745 -135.745	4.759 4.759	105.081 105.081	2563.15 2563.15	-5675.03 -5137.54	2263.68 2239.33
4	TANGENT	2	END-I END-J	141.384 141.384	126.580 126.580	-47.519 -47.519	-235.78 -235.78	286.52 43.46	1433.69 786.24
4	TANGENT	3	END-I END-J	-43.812 -43.812	-29.239 -29.239	-42.520 -42.520	-2233.14 -2233.14	5007.54 4790.05	-402.23 -252.67
4	TANGENT	4	END-I END-J	-6921.401 -6921.401	-3587.821 -3587.821	2189.309 2189.309	4227.29 4227.29	-28161.79 -16963.48	-35330.90 -16979.20
4	TANGENT	5	END-I END-J	1565.360 1565.360	-646.562 -646.562	-212.744 -212.744	2108.70 2108.70	5039.19 3951.01	-9429.01 -6121.84
4	TANGENT	6	END-I END-J	-1282.293 -1282.293	-704.933 -704.933	-400.651 -400.651	-1749.23 -1749.23	16837.51 14788.18	-8853.05 -5247.32
4	TANGENT	7	END-I END-J	-21.769 -21.769	-24.684 -24.684	87.251 87.251	3403.05 3403.05	-7441.93 -6995.64	-452.34 -326.07

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
4	TANGENT	8	END-I END-J	31.147 31.147	10.009 10.009	-120.547 -120.547	-5316.66 -5316.66	10971.26 10354.66	-208.60 -259.80
4	TANGENT	9	END-I END-J	2.797 2.797	-13.697 -13.697	22.814 22.814	965.39 965.39	-2137.25 -2020.55	-433.32 -363.26
5	TANGENT	1	END-I END-J	-135.460 -135.460	4.639 4.639	104.728 104.728	2573.34 2573.34	-5131.52 -4234.39	2241.45 2201.71
5	TANGENT	2	END-I END-J	141.102 141.102	125.746 125.746	-47.768 -47.768	-234.32 -234.32	44.26 -364.92	786.63 -290.54
5	TANGENT	3	END-I END-J	-43.827 -43.827	-29.189 -29.189	-42.188 -42.188	-2239.13 -2239.13	4787.13 4425.73	-254.95 -4.92
5	TANGENT	4	END-I END-J	-6790.185 -6790.185	-3506.797 -3506.797	2123.138 2123.138	4214.35 4214.35	-16981.87 1205.43	-15964.03 13076.02
5	TANGENT	5	END-I END-J	1456.657 1456.657	-497.798 -497.798	-214.458 -214.458	2092.44 2092.44	3945.03 2107.94	-6131.27 -1867.01
5	TANGENT	6	END-I END-J	-1243.391 -1243.391	-679.461 -679.461	-316.019 -316.019	-1776.28 -1776.28	14778.96 12071.87	-5264.19 556.23
5	TANGENT	7	END-I END-J	-21.551 -21.551	-24.340 -24.340	86.828 86.828	3410.47 3410.47	-6992.16 -6248.37	-323.01 -114.51
5	TANGENT	8	END-I END-J	30.882 30.882	9.715 9.715	-120.035 -120.035	-5329.07 -5329.07	10348.18 9319.93	-263.80 -347.02
5	TANGENT	9	END-I END-J	2.851 2.851	-13.531 -13.531	22.694 22.694	967.02 967.02	-2019.94 -1825.54	-362.34 -246.43
6	BEND	1	END-I CENTER END-J	-134.895 -140.414 -141.881	-44.104 -20.633 3.434	92.894 92.894 92.894	2575.89 1803.46 1123.81	-4771.15 -4289.00 -3683.04	-24.82 273.28 352.47
6	BEND	2	END-I CENTER END-J	140.925 160.912 176.255	130.085 104.352 75.606	14.689 14.689 14.689	-235.42 -252.45 -239.29	-188.29 -11.42 165.78	-426.16 -1505.70 -2334.37
6	BEND	3	END-I CENTER END-J	-43.858 -44.272 -43.408	-6.184 1.329 8.804	-49.766 -49.766 -49.766	-2235.50 -1578.43 -953.38	3920.16 3786.99 3544.51	2058.09 2080.44 2033.78
6	BEND	4	END-I CENTER END-J	-6545.740 -7107.277 -7463.670	-3875.269 -2711.280 -1469.033	203.844 203.844 203.844	4251.16 3501.42 2968.40	-5005.26 -3788.88 -2463.14	12127.29 42457.02 61706.51
6	BEND	5	END-I CENTER END-J	1241.355 1207.257 1138.333	-95.536 -304.294 -504.268	-293.907 -293.907 -293.907	2089.05 2292.81 1972.19	2735.17 -345.17 -3415.54	-679.83 1161.31 4884.57

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
6	BEND	6	END-I CENTER END-J	-1167.862 -1232.313 -1261.196	-480.306 -275.679 -63.095	-430.186 -430.186 -430.186	-1764.83 -309.01 485.08	10430.56 6645.53 2668.68	6106.01 9587.17 11147.16
6	BEND	7	END-I CENTER END-J	-21.268 -31.142 -40.117	-60.145 -55.677 -49.601	64.353 64.353 64.353	3405.01 2478.71 1581.20	-5478.03 -5386.98 -5140.44	-3013.91 -2480.58 -1995.79
6	BEND	8	END-I CENTER END-J	30.490 40.677 49.690	62.777 56.710 49.006	-100.109 -100.109 -100.109	-5322.34 -3899.69 -2520.55	8411.35 8275.61 7901.00	4037.62 3487.41 3000.60
6	BEND	9	END-I CENTER END-J	2.896 -835 -4.542	-21.794 -21.969 -21.511	13.567 13.567 13.567	964.84 707.31 450.52	-1501.54 -1519.15 -1492.91	-1069.06 -867.54 -667.33
7	BEND	1	END-I CENTER END-J	-140.661 -138.806 -133.960	2.314 22.883 42.959	85.584 85.584 85.584	1105.27 601.81 184.39	-3695.45 -3144.87 -2526.52	272.03 172.48 -87.63
7	BEND	2	END-I CENTER END-J	173.823 181.406 185.080	64.588 38.442 11.468	11.864 11.864 11.864	-249.55 -208.59 -149.40	214.54 342.00 462.09	-2329.31 -2736.35 -2933.53
7	BEND	3	END-I CENTER END-J	-43.359 -41.495 -38.737	9.538 15.784 21.689	-45.864 -45.864 -45.864	-924.18 -427.22 25.88	3507.47 3244.55 2911.71	2110.05 2010.02 1861.97
7	BEND	4	END-I CENTER END-J	-7093.623 -7207.472 -7165.987	-1299.709 -247.129 810.778	141.175 141.175 141.175	3250.26 2750.13 2354.04	-3734.50 -3060.67 -2320.88	61628.41 67739.39 65512.62
7	BEND	5	END-I CENTER END-J	976.300 940.107 883.653	-175.347 -316.397 -450.629	-157.506 -157.506 -157.506	1976.79 1348.32 508.58	-3524.82 -5014.05 -6395.22	4804.42 6747.12 9777.35
7	BEND	6	END-I CENTER END-J	-1180.455 -1183.336 -1160.713	-106.558 67.420 239.946	-244.557 -244.557 -244.557	553.07 762.69 672.97	2438.60 409.45 -1628.53	11196.59 11351.21 10136.92
7	BEND	7	END-I CENTER END-J	-38.656 -44.892 -50.161	-45.441 -39.292 -32.296	59.284 59.284 59.284	1543.41 813.33 134.30	-5107.19 -4812.23 -4413.56	-2107.59 -1772.84 -1490.03
7	BEND	8	END-I CENTER END-J	48.163 54.376 59.418	45.985 38.438 30.062	-93.404 -93.404 -93.404	-2462.79 -1340.71 -297.78	7851.75 7393.69 6776.28	3172.90 2839.37 2568.75
7	BEND	9	END-I CENTER END-J	-4.047 -6.848 -9.502	-19.430 -18.628 -17.424	12.420 12.420 12.420	439.12 224.58 19.76	-1481.43 -1432.15 -1352.01	-699.73 -542.38 -406.95

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
8	BEND	1	END-I CENTER END-J	-133.284 -132.455 -131.544	31.319 34.655 37.969	83.573 83.573 83.573	208.64 147.31 88.79	-2498.85 -2387.20 -2274.04	-370.38 -416.22 -466.67
8	BEND	2	END-I CENTER END-J	181.569 181.651 181.618	5.519 .960 -3.600	8.048 8.048 8.048	-179.50 -159.61 -139.33	784.64 800.07 815.01	-2862.44 -2866.94 -2865.11
8	BEND	3	END-I CENTER END-J	-39.291 -38.652 -37.988	24.980 25.958 26.920	-39.754 -39.754 -39.754	13.24 79.97 145.26	2686.06 2629.66 2571.59	2174.98 2139.60 2102.86
8	BEND	4	END-I CENTER END-J	-6958.114 -6938.035 -6913.585	712.532 886.967 1060.844	253.629 253.629 253.629	2946.98 2709.88 2479.91	-9585.13 -9303.73 -9016.48	64824.94 63713.73 62360.54
8	BEND	5	END-I CENTER END-J	850.582 843.613 836.113	-266.954 -288.221 -309.306	-127.911 -127.911 -127.911	656.99 467.80 273.86	-7439.59 -9303.73 -7818.47	8998.61 9384.30 9799.41
8	BEND	6	END-I CENTER END-J	-1129.368 -1123.843 -1117.610	205.916 234.200 262.336	-130.114 -130.114 -130.114	777.26 705.94 629.63	-2741.21 -2940.62 -3138.17	9886.55 9580.79 9235.83
8	BEND	7	END-I CENTER END-J	-47.553 -48.413 -49.243	-34.876 -33.672 -32.446	52.307 52.307 52.307	165.04 60.02 -43.22	-4218.20 -4148.35 -4075.88	-1974.15 -1926.53 -1880.60
8	BEND	8	END-I CENTER END-J	56.689 57.533 58.461	36.737 35.303 33.846	-84.857 -84.857 -84.857	-342.53 -182.15 -24.61	6444.00 6332.69 6217.38	3310.98 3260.93 3212.89
8	BEND	9	END-I CENTER END-J	-8.471 -8.851 -9.306	-16.842 -16.624 -16.396	10.019 10.019 10.019	29.61 2.80 -34.87	-1297.92 -1284.33 -1269.94	-555.41 -532.16 -509.22
9	TANGENT	1	END-I END-J	-131.309 -131.309	70.920 70.920	47.877 47.877	86.68 86.68	-2204.11 -1590.34	728.93 -180.24
9	TANGENT	2	END-I END-J	178.371 178.371	-5.630 -5.630	9.093 9.093	-134.59 -134.59	-721.32 -604.75	-2890.34 -2818.17
9	TANGENT	3	END-I END-J	-37.913 -37.913	3.900 3.900	-44.918 -44.918	145.58 145.58	3277.44 2701.60	541.68 491.68
9	TANGENT	4	END-I END-J	-6733.007 -6733.007	1026.275 1026.275	-336.610 -336.610	2387.22 2387.22	23262.12 18946.89	58561.58 45405.05
9	TANGENT	5	END-I END-J	812.013 812.013	-189.107 -189.107	41.890 41.890	251.62 251.62	-1894.41 -1357.39	12392.74 14817.02

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
9	TANGENT	6	END-I END-J	-1089.195 -1089.195	159.496 159.496	-171.225 -171.225	613.74 613.74	1882.17 -312.87	9572.14 7527.45
9	TANGENT	7	END-I END-J	-47.656 -47.656	-.251 -.251	56.896 56.896	-45.64 -45.64	-4470.85 -3741.46	400.92 404.13
9	TANGENT	8	END-I END-J	57.063 57.063	-13.862 -13.862	-84.547 -84.547	-21.37 -21.37	6991.46 5907.59	-313.30 -135.60
9	TANGENT	9	END-I END-J	-8.622 -8.622	-7.927 -7.927	15.630 15.630	-35.72 -35.72	-1354.75 -1154.38	191.40 293.02
10	TANGENT	1	END-I END-J	-130.639 -130.639	61.060 61.060	35.761 35.761	86.86 86.86	-1590.34 -1032.06	-180.15 -1133.39
10	TANGENT	2	END-I END-J	172.303 172.303	-19.160 -19.160	9.112 9.112	-131.78 -131.78	-604.75 -462.49	-2818.30 -2519.18
10	TANGENT	3	END-I END-J	-37.830 -37.830	4.270 4.270	-37.547 -37.547	145.09 145.09	2701.60 2115.44	491.82 425.16
10	TANGENT	4	END-I END-J	-6405.793 -6405.793	971.805 971.805	-353.255 -353.255	2341.84 2341.84	18946.89 13432.02	45407.41 30236.02
10	TANGENT	5	END-I END-J	768.334 768.334	19.843 19.843	37.151 37.151	236.81 236.81	-1357.39 -777.40	14817.27 14507.48
10	TANGENT	6	END-I END-J	-1038.224 -1038.224	150.936 150.936	-60.626 -60.626	606.22 606.22	-312.87 -1259.34	7528.06 5171.71
10	TANGENT	7	END-I END-J	-44.541 -44.541	3.569 3.569	46.394 46.394	-46.04 -46.04	-3741.46 -3017.18	404.09 348.37
10	TANGENT	8	END-I END-J	54.223 54.223	-15.522 -15.522	-70.902 -70.902	-21.23 -21.23	5907.59 4800.70	-135.62 106.70
10	TANGENT	9	END-I END-J	-7.317 -7.317	-4.927 -4.927	12.794 12.794	-36.01 -36.01	-1154.38 -954.65	292.99 369.91
11	TANGENT	1	END-I END-J	-129.626 -129.626	46.440 46.440	20.775 20.775	86.86 86.86	-1032.06 -707.73	-1133.39 -1858.40
11	TANGENT	2	END-I END-J	165.428 165.428	-34.480 -34.480	8.618 8.618	-131.78 -131.78	-462.49 -327.95	-2519.18 -1980.89
11	TANGENT	3	END-I END-J	-37.709 -37.709	4.150 4.150	-27.274 -27.274	145.09 145.09	2115.44 1689.65	425.16 360.37
11	TANGENT	4	END-I END-J	-6047.547 -6047.547	894.525 894.525	-340.382 -340.382	2341.84 2341.84	13432.02 8118.13	30236.02 16271.08

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
11	TANGENT	5	END-I END-J	720.315 720.315	179.123 179.123	30.750 30.750	236.81 236.81	-777.40 -297.35	14507.48 11711.08
11	TANGENT	6	END-I END-J	-982.443 -982.443	138.636 138.636	29.223 29.223	606.22 606.22	-1259.34 -803.12	5171.71 3007.37
11	TANGENT	7	END-I END-J	-40.966 -40.966	8.119 8.119	32.779 32.779	-46.04 -46.04	-3017.18 -2505.45	348.37 221.62
11	TANGENT	8	END-I END-J	50.918 50.918	-17.132 -17.132	-52.804 -52.804	-21.23 -21.23	4800.70 3976.35	106.70 374.15
11	TANGENT	9	END-I END-J	-5.852 -5.852	-1.017 -1.017	9.072 9.072	-36.01 -36.01	-954.65 -813.01	369.91 385.79
12	TANGENT	1	END-I END-J	-127.944 -127.944	22.880 22.880	-.044 -.044	85.30 85.30	-707.73 -708.91	-1858.47 -2468.74
12	TANGENT	2	END-I END-J	155.843 155.843	-52.540 -52.540	7.333 7.333	-133.44 -133.44	-327.95 -132.36	-1980.78 -579.39
12	TANGENT	3	END-I END-J	-37.432 -37.432	3.180 3.180	-11.508 -11.508	145.39 145.39	1689.65 1382.71	360.25 275.43
12	TANGENT	4	END-I END-J	-5563.582 -5563.582	768.035 768.035	-289.974 -289.974	2355.49 2355.49	8118.13 383.70	16269.11 -4216.57
12	TANGENT	5	END-I END-J	655.215 655.215	305.083 305.083	21.444 21.444	246.63 246.63	-297.35 274.63	11710.88 3573.44
12	TANGENT	6	END-I END-J	-906.801 -906.801	118.196 118.196	108.432 108.432	608.74 608.74	-803.12 2089.08	3006.87 -145.77
12	TANGENT	7	END-I END-J	-35.998 -35.998	14.109 14.109	13.101 13.101	-45.86 -45.86	-2505.45 -2156.00	221.65 -154.67
12	TANGENT	8	END-I END-J	46.290 46.290	-18.672 -18.672	-25.972 -25.972	-20.92 -20.92	3976.35 3283.62	374.16 872.19
12	TANGENT	9	END-I END-J	-3.855 -3.855	4.603 4.603	3.683 3.683	-35.69 -35.69	-813.01 -714.78	385.82 263.06
13	TANGENT	1	END-I END-J	-125.213 -125.213	-8.810 -8.810	-21.859 -21.859	83.72 83.72	-708.91 -1291.50	-2468.80 -2233.99
13	TANGENT	2	END-I END-J	143.183 143.183	-60.110 -60.110	4.925 4.925	-133.81 -133.81	-132.36 -1.09	-579.30 1022.76
13	TANGENT	3	END-I END-J	-36.792 -36.792	.310 .310	8.021 8.021	145.57 145.57	1382.71 1596.49	275.33 267.07

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
13	TANGENT	4	END-I END-J	-4955.035 -4955.035	569.205 569.205	-186.523 -186.523	2352.78 2352.78	383.70 -4587.54	-4218.08 -19388.63
13	TANGENT	5	END-I END-J	572.987 572.987	304.493 304.493	10.940 10.940	248.92 248.92	274.63 566.20	3573.28 -4542.13
13	TANGENT	6	END-I END-J	-811.369 -811.369	85.436 85.436	126.576 126.576	608.65 608.65	2089.08 5462.62	-146.16 -2423.22
13	TANGENT	7	END-I END-J	-29.534 -29.534	19.469 19.469	-8.997 -8.997	-45.96 -45.96	-2156.00 -2395.78	-154.64 -673.54
13	TANGENT	8	END-I END-J	40.258 40.258	-18.522 -18.522	6.066 6.066	-20.36 -20.36	3283.62 3445.29	872.20 1365.84
13	TANGENT	9	END-I END-J	-1.319 -1.319	10.733 10.733	-2.319 -2.319	-35.52 -35.52	-714.78 -776.60	263.08 -22.97
14	TANGENT	1	END-I END-J	-121.827 -121.827	-33.780 -33.780	-32.904 -32.904	84.70 84.70	-1291.50 -2168.37	-2233.96 -1333.74
14	TANGENT	2	END-I END-J	130.005 130.005	-44.860 -44.860	2.320 2.320	-134.26 -134.26	-1.09 60.74	1022.70 2218.20
14	TANGENT	3	END-I END-J	-35.905 -35.905	-3.490 -3.490	21.213 21.213	145.45 145.45	1596.49 2161.79	267.13 360.14
14	TANGENT	4	END-I END-J	-4348.458 -4348.458	342.135 342.135	-73.539 -73.539	2361.29 2361.29	-4587.54 -6547.31	-19387.60 -28505.32
14	TANGENT	5	END-I END-J	490.809 490.809	203.583 203.583	2.995 2.995	250.92 250.92	566.20 646.02	-4542.02 -9967.40
14	TANGENT	6	END-I END-J	-716.118 -716.118	47.756 47.756	86.746 86.746	609.71 609.71	5462.62 7774.35	-2422.96 -3695.64
14	TANGENT	7	END-I END-J	-22.866 -22.866	20.879 20.879	-21.989 -21.989	-45.66 -45.66	-2395.78 -2981.78	-673.56 -1229.97
14	TANGENT	8	END-I END-J	33.991 33.991	-15.902 -15.902	27.561 27.561	-20.96 -20.96	3445.29 4179.77	1365.83 1789.60
14	TANGENT	9	END-I END-J	1.225 1.225	13.973 13.973	-5.667 -5.667	-35.51 -35.51	-776.60 -927.61	-22.98 -395.35
15	TANGENT	1	END-I END-J	-117.806 -117.806	-45.250 -45.250	-29.645 -29.645	84.83 84.83	-2168.37 -2958.74	-1333.73 -127.32
15	TANGENT	2	END-I END-J	116.358 116.358	-9.890 -9.890	-.063 -.063	-134.48 -134.48	60.74 59.07	2218.18 2481.86

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
15	TANGENT	3	END-I END-J	-34.757 -34.757	-7.090 -7.090	23.212 23.212	145.42 145.42	2161.79 2780.65	360.15 549.17
15	TANGENT	4	END-I END-J	-3743.715 -3743.715	94.945 94.945	28.231 28.231	2364.17 2364.17	-6547.31 -5794.64	-28505.08 -31036.44
15	TANGENT	5	END-I END-J	408.785 408.785	63.243 63.243	-2.648 -2.648	251.93 251.93	646.02 575.42	-9967.38 -11653.52
15	TANGENT	6	END-I END-J	-620.838 -620.838	7.006 7.006	19.014 19.014	610.09 610.09	7774.35 8281.27	-3695.58 -3882.38
15	TANGENT	7	END-I END-J	-16.026 -16.026	17.609 17.609	-21.936 -21.936	-45.54 -45.54	-2981.78 -3566.60	-1229.98 -1699.46
15	TANGENT	8	END-I END-J	27.506 27.506	-11.012 -11.012	32.167 32.167	-21.14 -21.14	4179.77 5037.39	1789.60 2083.18
15	TANGENT	9	END-I END-J	3.777 3.777	13.173 13.173	-5.280 -5.280	-35.47 -35.47	-927.61 -1068.38	-395.35 -746.55
16	TANGENT	1	END-I END-J	-113.176 -113.176	-41.180 -41.180	-12.981 -12.981	84.76 84.76	-2958.74 -3304.72	-127.36 970.17
16	TANGENT	2	END-I END-J	102.285 102.285	21.690 21.690	-1.688 -1.688	-133.14 -133.14	59.07 14.09	2481.93 1903.85
16	TANGENT	3	END-I END-J	-33.336 -33.336	-9.390 -9.390	12.005 12.005	145.71 145.71	2780.65 3100.62	549.10 799.36
16	TANGENT	4	END-I END-J	-3140.658 -3140.658	-174.615 -174.615	96.977 96.977	2347.42 2347.42	-5794.64 -3210.00	-31037.71 -26383.86
16	TANGENT	5	END-I END-J	327.033 327.033	-72.577 -72.577	-5.985 -5.985	245.63 245.63	575.42 415.91	-11653.66 -9719.34
16	TANGENT	6	END-I END-J	-525.629 -525.629	-36.634 -36.634	-48.946 -48.946	607.99 607.99	8281.27 6976.76	-3882.70 -2906.34
16	TANGENT	7	END-I END-J	-9.038 -9.038	10.079 10.079	-8.775 -8.775	-46.45 -46.45	-3566.60 -3800.48	-1699.43 -1968.06
16	TANGENT	8	END-I END-J	20.834 20.834	-4.382 -4.382	18.036 18.036	-20.01 -20.01	5037.39 5518.09	2083.19 2199.97
16	TANGENT	9	END-I END-J	6.314 6.314	8.353 8.353	-1.219 -1.219	-35.87 -35.87	-1068.38 -1100.88	-746.53 -969.15
17	TANGENT	1	END-I END-J	-107.925 -107.925	-23.990 -23.990	11.806 11.806	84.34 84.34	-3304.72 -2990.10	970.21 1609.53

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
17	TANGENT	2	END-I END-J	87.843 87.843	41.900 41.900	-2.058 -2.058	-133.98 -133.98	14.09 -40.76	1903.79 787.18
17	TANGENT	3	END-I END-J	-31.665 -31.665	-9.310 -9.310	-10.203 -10.203	145.36 145.36	3100.62 2828.71	799.42 1047.52
17	TANGENT	4	END-I END-J	-2539.471 -2539.471	-445.805 -445.805	115.115 115.115	2358.99 2358.99	-3210.00 -142.25	-26382.83 -14502.38
17	TANGENT	5	END-I END-J	245.716 245.716	-168.047 -168.047	-6.958 -6.958	249.90 249.90	415.91 230.48	-9719.23 -5240.88
17	TANGENT	6	END-I END-J	-430.484 -430.484	-79.384 -79.384	-96.480 -96.480	609.27 609.27	6976.76 4405.62	-2906.07 -790.54
17	TANGENT	7	END-I END-J	-1.929 -1.929	.109 .109	13.576 13.576	-45.59 -45.59	-3800.48 -3438.69	-1968.08 -1970.99
17	TANGENT	8	END-I END-J	13.979 13.979	2.698 2.698	-11.471 -11.471	-20.98 -20.98	5518.09 5212.40	2199.96 2128.05
17	TANGENT	9	END-I END-J	8.830 8.830	.883 .883	5.284 5.284	-35.45 -35.45	-1100.88 -960.06	-969.16 -992.69
18	TANGENT	1	END-I END-J	-103.836 -103.836	-7.670 -7.670	29.523 29.523	85.43 85.43	-2990.10 -2678.83	1609.47 1690.33
18	TANGENT	2	END-I END-J	77.539 77.539	47.710 47.710	-1.531 -1.531	-133.44 -133.44	-40.76 -56.90	787.27 284.26
18	TANGENT	3	END-I END-J	-30.326 -30.326	-7.330 -7.330	-28.589 -28.589	146.08 146.08	2828.71 2527.30	1047.43 1124.71
18	TANGENT	4	END-I END-J	-2120.987 -2120.987	-612.185 -612.185	95.955 95.955	2349.12 2349.12	-142.25 869.42	-14503.98 -8049.59
18	TANGENT	5	END-I END-J	189.334 189.334	-194.317 -194.317	-6.976 -6.976	246.33 246.33	230.48 156.93	-5241.05 -3192.33
18	TANGENT	6	END-I END-J	-364.243 -364.243	-104.754 -104.754	-105.858 -105.858	608.73 608.73	4405.62 3289.54	-790.96 313.48
18	TANGENT	7	END-I END-J	3.115 3.115	-6.731 -6.731	30.950 30.950	-46.93 -46.93	-3438.69 -3112.38	-1970.96 -1899.99
18	TANGENT	8	END-I END-J	9.068 9.068	7.018 7.018	-37.515 -37.515	-19.53 -19.53	5212.40 4816.87	2128.07 2054.07
18	TANGENT	9	END-I END-J	10.575 10.575	-4.587 -4.587	10.100 10.100	-36.12 -36.12	-960.06 -853.57	-992.66 -944.30

P I P E F O R C E S A N D M O M E N T S

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
19	TANGENT	1	END-I END-J	-102.265 -102.265	-.850 -.850	35.711 35.711	75.10 75.10	-2678.83 -2495.23	1690.82 1695.19
19	TANGENT	2	END-I END-J	73.169 73.169	49.000 49.000	-.698 -.698	-135.18 -135.18	-56.90 -60.49	283.44 31.51
19	TANGENT	3	END-I END-J	-29.508 -29.508	-6.230 -6.230	-36.216 -36.216	139.20 139.20	2527.30 2341.10	1125.58 1157.61
19	TANGENT	4	END-I END-J	-1945.187 -1945.187	-675.225 -675.225	70.047 70.047	2398.26 2398.26	869.42 1229.55	-8035.09 -4563.58
19	TANGENT	5	END-I END-J	165.676 165.676	-198.677 -198.677	-5.820 -5.820	265.83 265.83	156.93 .127.01	-3190.77 -2169.32
19	TANGENT	6	END-I END-J	-335.643 -335.643	-114.214 -114.214	-107.694 -107.694	606.80 606.80	3289.54 2735.85	317.19 904.40
19	TANGENT	7	END-I END-J	5.017 5.017	-9.381 -9.381	37.990 37.990	-35.32 -35.32	-3112.38 -2917.06	-1900.24 -1852.01
19	TANGENT	8	END-I END-J	7.278 7.278	8.648 8.648	-48.577 -48.577	-32.08 -32.08	4816.87 4567.12	2053.91 2009.45
19	TANGENT	9	END-I END-J	11.229 11.229	-6.717 -6.717	12.074 12.074	-30.35 -30.35	-853.57 -791.49	-944.50 -909.96
20	TANGENT	1	END-I END-J	-100.731 -100.731	3.310 3.310	41.093 41.093	85.23 85.23	-2495.23 -2300.38	1694.72 1679.02
20	TANGENT	2	END-I END-J	70.413 70.413	49.500 49.500	-.776 -.776	-134.99 -134.99	-60.49 -64.17	32.32 -202.40
20	TANGENT	3	END-I END-J	-29.536 -29.536	-5.470 -5.470	-41.400 -41.400	146.12 146.12	2341.10 2144.79	1156.75 1182.69
20	TANGENT	4	END-I END-J	-1834.056 -1834.056	-712.295 -712.295	69.926 69.926	2370.94 2370.94	1229.55 1561.13	-4577.83 -1200.25
20	TANGENT	5	END-I END-J	150.738 150.738	-199.477 -199.477	-6.664 -6.664	252.86 252.86	127.01 95.41	-2170.87 -1224.98
20	TANGENT	6	END-I END-J	-319.026 -319.026	-119.734 -119.734	-105.767 -105.767	612.20 612.20	2735.85 2234.32	900.75 1468.51
20	TANGENT	7	END-I END-J	6.876 6.876	-10.951 -10.951	43.464 43.464	-46.39 -46.39	-2917.06 -2710.96	-1851.77 -1799.84
20	TANGENT	8	END-I END-J	5.231 5.231	9.618 9.618	-57.463 -57.463	-20.07 -20.07	4567.12 4294.64	2009.60 1963.99

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
20	TANGENT	9	END-I END-J	11.846 11.846	-7.987 -7.987	13.521 13.521	-35.79 -35.79	-791.49 -727.38	-909.77 -871.89
21	BEND	1	END-I CENTER END-J	-99.641 -99.312 -98.842	6.880 10.624 14.353	44.524 44.524 44.524	86.79 1.91 -79.50	-2300.38 -2209.93 -2116.36	1678.94 1660.83 1635.00
21	BEND	2	END-I CENTER END-J	67.914 69.736 71.459	49.710 47.120 44.463	-549 -549 -549	-135.17 -137.51 -139.70	-64.17 -60.17 -56.09	-202.27 -302.44 -397.18
21	BEND	3	END-I CENTER END-J	-29.220 -29.377 -29.493	-4.740 -3.637 -2.529	-45.151 -45.151 -45.151	147.21 226.04 301.04	2144.79 2044.35 1941.02	1182.56 1191.22 1197.60
21	BEND	4	END-I CENTER END-J	-1734.312 -1761.044 -1785.282	-743.165 -677.390 -610.657	61.078 61.078 61.078	2369.83 2429.26 2490.01	1561.13 1597.19 1630.98	-1202.44 1267.04 1599.44
21	BEND	5	END-I CENTER END-J	137.352 129.780 122.025	-198.677 -203.703 -208.442	-6.684 -6.684 -6.684	251.73 254.88 257.15	95.41 72.05 48.58	-1225.21 -808.98 -382.64
21	BEND	6	END-I CENTER END-J	-303.295 -307.756 -311.782	-124.294 -112.795 -101.137	-103.089 -103.089 -103.089	613.55 693.17 763.77	2234.32 1996.46 1755.76	1467.94 1713.20 1934.50
21	BEND	7	END-I CENTER END-J	8.128 7.661 7.183	-12.271 -12.568 -12.847	47.088 47.088 47.088	-48.06 -148.18 -244.43	-2710.96 -2609.85 -2505.04	-1799.80 -1774.10 -1747.81
21	BEND	8	END-I CENTER END-J	3.983 4.373 4.756	10.428 10.271 10.099	-63.586 -63.586 -63.586	-18.25 140.86 294.82	4294.64 4160.78 4021.03	1964.01 1942.60 1921.53
21	BEND	9	END-I CENTER END-J	12.265 11.916 11.550	-9.047 -9.502 -9.944	14.463 14.463 14.463	-36.60 -63.38 -88.94	-727.38 -695.58 -662.79	-871.86 -852.67 -832.55
22	BEND	1	END-I CENTER END-J	-97.144 -95.708 -93.912	20.495 26.403 32.212	47.585 47.585 47.585	-83.88 -204.31 -314.09	-2050.81 -1880.42 -1702.98	1716.28 1636.66 1537.16
22	BEND	2	END-I CENTER END-J	68.509 71.105 73.435	44.511 40.234 35.806	-1.938 -1.938 -1.938	-140.06 -144.36 -148.51	-71.18 -69.05 -66.65	-394.62 -538.49 -667.58
22	BEND	3	END-I CENTER END-J	-29.017 -29.176 -29.226	-3.488 -1.706 -.084	-49.337 -49.337 -49.337	306.55 422.38 526.37	1985.46 1795.62 1599.04	1120.90 1129.72 1132.47

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
22	BEND	4	END-I CENTER END-J	-1667.377 -1703.939 -1734.111	-648.383 -545.105 -439.782	73.200 73.200 73.200	2494.96 2601.08 2712.65	1685.80 1778.22 1863.98	1533.52 3559.63 5231.61
22	BEND	5	END-I CENTER END-J	105.249 92.499 79.402	-205.074 -211.132 -216.398	1.395 1.395 1.395	257.06 258.74 259.74	32.98 21.92 10.77	-384.36 322.20 1047.99
22	BEND	6	END-I CENTER END-J	-293.094 -299.325 -304.433	-110.775 -92.626 -74.131	-94.615 -94.615 -94.615	769.23 869.84 947.53	1827.90 1456.44 1079.52	1864.24 2209.55 2492.64
22	BEND	7	END-I CENTER END-J	8.541 7.761 6.952	-12.475 -12.975 -13.425	51.833 51.833 51.833	-251.66 -403.15 -542.36	-2570.64 -2374.59 -2169.64	-1648.73 -1605.53 -1560.71
22	BEND	8	END-I CENTER END-J	3.354 3.860 4.351	8.366 8.145 7.893	-71.297 -71.297 -71.297	305.93 548.43 774.06	4092.11 3823.87 3541.28	1763.20 1735.17 1707.95
22	BEND	9	END-I CENTER END-J	11.939 11.269 10.556	-10.593 -11.304 -11.973	15.976 15.976 15.976	-91.05 -131.73 -168.60	-694.51 -633.44 -570.00	-806.05 -768.87 -729.36
23	BEND	1	END-I CENTER END-J	-92.158 -92.150 -92.129	1.096 1.210 2.323	60.923 60.923 60.923	-296.62 -323.84 -350.57	-2274.56 -2233.21 -2191.54	316.30 315.89 314.80
23	BEND	2	END-I CENTER END-J	71.042 71.414 71.776	31.262 30.402 29.537	18.697 18.697 18.697	-152.70 -148.77 -144.67	318.71 332.07 345.38	-589.30 -608.32 -626.82
23	BEND	3	END-I CENTER END-J	-29.126 -28.768 -28.406	29.461 29.810 30.156	-42.560 -42.560 -42.560	527.20 535.35 543.10	690.77 658.08 625.31	1833.41 1815.12 1796.61
23	BEND	4	END-I CENTER END-J	-1648.485 -1653.729 -1658.731	-444.029 -424.082 -404.074	-212.143 -212.143 -212.143	2739.74 2722.12 2702.53	-1376.38 -1540.29 -1703.98	5366.75 5634.62 5890.16
23	BEND	5	END-I CENTER END-J	68.923 66.810 64.688	-174.486 -175.306 -176.100	-117.375 -117.375 -117.375	266.70 259.27 250.92	-577.79 -653.40 -728.92	872.30 980.23 1088.66
23	BEND	6	END-I CENTER END-J	-291.391 -291.582 -291.730	-17.543 -14.032 -10.498	-118.608 -118.608 -118.608	959.64 953.09 945.51	-499.91 -584.66 -669.33	2665.63 2675.37 2682.94
23	BEND	7	END-I CENTER END-J	8.257 7.743 7.227	-42.552 -42.649 -42.739	36.989 36.989 36.989	-543.65 -554.62 -565.23	-922.46 -893.00 -863.41	-2508.15 -2481.86 -2455.51

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
23	BEND	8	END-I CENTER END-J	2.843 3.446 4.048	49.906 49.868 49.823	-58.335 -58.335 -58.335	770.56 794.16 817.21	1976.29 1930.84 1885.11	3399.63 3368.84 3338.08
23	BEND	9	END-I CENTER END-J	10.918 10.678 10.436	-19.836 -19.967 -20.094	6.599 6.599 6.599	-171.08 -171.80 -172.46	-63.19 -57.04 -50.89	-923.05 -910.77 -898.41
24	BEND	1	END-I CENTER END-J	-89.799 -87.973 -85.994	42.042 45.741 49.361	49.431 49.431 49.431	-360.69 -422.24 -477.89	-1549.12 -1408.73 -1265.91	1579.55 1469.37 1349.99
24	BEND	2	END-I CENTER END-J	70.551 71.901 73.128	33.936 30.972 27.954	-3.383 -3.383 -3.383	-152.67 -156.95 -161.31	-101.81 -103.86 -105.73	-706.71 -788.19 -862.15
24	BEND	3	END-I CENTER END-J	-28.540 -28.557 -28.525	-1.004 1.184 1.372	-53.830 -53.830 -53.830	577.38 639.63 695.14	1575.91 1415.45 1252.54	1047.34 1048.37 1046.42
24	BEND	4	END-I CENTER END-J	-1601.041 -1618.659 -1633.476	-456.856 -389.861 -322.190	83.809 83.809 83.809	2788.34 2880.28 2975.98	2162.99 2255.44 2343.98	5696.30 6759.12 7652.90
24	BEND	5	END-I CENTER END-J	52.767 44.101 35.360	-207.217 -209.232 -210.886	12.201 12.201 12.201	263.90 267.39 271.69	74.06 93.63 113.04	1305.50 1828.24 2355.58
24	BEND	6	END-I CENTER END-J	-283.503 -286.587 -289.175	-80.036 -68.174 -56.193	-81.658 -81.658 -81.658	985.40 1024.99 1054.28	1074.77 827.94 579.68	2532.59 2718.63 2874.74
24	BEND	7	END-I CENTER END-J	8.204 7.677 7.138	-12.477 -12.807 -13.115	57.332 57.332 57.332	-612.17 -698.65 -777.93	-2163.63 -1992.43 -1817.77	-1427.73 -1396.00 -1363.46
24	BEND	8	END-I CENTER END-J	2.681 2.871 3.056	4.628 4.513 4.390	-80.449 -80.449 -80.449	886.02 1026.94 1157.67	3506.95 3265.18 3017.76	1510.12 1498.65 1487.48
24	BEND	9	END-I CENTER END-J	10.542 10.004 9.448	-12.731 -13.159 -13.564	17.870 17.870 17.870	-187.77 -210.85 -231.70	-581.15 -527.99 -473.92	-682.99 -650.49 -616.95
25	BEND	1	END-I CENTER END-J	-82.683 -78.199 -73.138	48.664 55.584 62.093	55.921 55.921 55.921	-496.07 -600.80 -678.31	-1373.56 -1061.18 -740.95	1233.14 985.94 706.90
25	BEND	2	END-I CENTER END-J	69.363 71.532 73.172	28.238 22.178 15.953	.165 .165 .165	-155.81 -157.79 -158.54	-30.17 -15.90 -1.51	-869.09 -988.64 -1079.06

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
25	BEND	3	END-I CENTER END-J	-27.200 -26.489 -25.582	7.112 9.421 11.661	-57.153 -57.153 -57.153	695.98 780.78 836.54	1153.02 818.45 477.83	1154.65 1115.45 1065.46
25	BEND	4	END-I CENTER END-J	-1495.360 -1524.033 -1541.428	-398.120 -268.245 -136.388	22.028 22.028 22.028	2936.50 3072.41 3194.59	1656.85 1502.85 1337.75	7845.34 9425.47 10384.96
25	BEND	5	END-I CENTER END-J	14.931 -1.980 -18.876	-196.297 -196.854 -195.957	-5.373 -5.373 -5.373	255.49 245.60 231.70	-91.49 -138.53 -184.54	2358.33 3290.59 4222.05
25	BEND	6	END-I CENTER END-J	-266.293 -270.397 -272.504	-59.253 -36.168 -12.815	-78.829 -78.829 -78.829	1037.44 1045.30 1013.34	323.15 -140.29 -602.68	2920.78 3147.04 3263.20
25	BEND	7	END-I CENTER END-J	8.007 6.261 4.470	-19.980 -20.593 -21.055	60.014 60.014 60.014	-780.28 -910.15 -1008.86	-1688.34 -1331.02 -963.86	-1519.59 -1423.38 -1324.62
25	BEND	8	END-I CENTER END-J	2.063 3.151 4.215	12.756 12.532 12.215	-87.643 -87.643 -87.643	1167.15 1391.48 1569.83	2870.46 2344.76 1801.73	1748.68 1688.72 1630.04
25	BEND	9	END-I CENTER END-J	9.422 7.985 6.490	-16.321 -17.070 -17.693	17.644 17.644 17.644	-230.43 -261.83 -284.12	-417.53 -312.68 -205.52	-656.88 -577.70 -495.27
26	BEND	1	END-I CENTER END-J	-68.484 -65.742 -62.855	56.498 59.666 62.700	64.534 64.534 64.534	-667.79 -701.55 -726.11	-812.24 -618.19 -422.77	634.94 489.38 336.05
26	BEND	2	END-I CENTER END-J	69.334 70.051 70.612	16.836 13.546 10.227	1.578 1.578 1.578	-175.17 -169.58 -163.42	112.46 124.55 136.36	-1070.59 -1108.66 -1138.45
26	BEND	3	END-I CENTER END-J	-25.383 -24.492 -23.547	18.294 19.471 20.604	-56.259 -56.259 -56.259	853.18 866.04 870.33	363.31 181.75 -22	1097.00 1049.68 999.46
26	BEND	4	END-I CENTER END-J	-1415.905 -1425.140 -1431.202	-229.183 -162.139 -94.735	-4.134 -4.134 -4.134	3355.28 3362.40 3361.54	235.18 66.29 -102.74	10417.73 10908.09 11229.96
26	BEND	5	END-I CENTER END-J	-34.803 -42.973 -51.047	-174.021 -172.186 -169.967	-23.041 -23.041 -23.041	296.70 265.30 230.59	-629.78 -700.79 -770.23	4174.78 4608.60 5037.33
26	BEND	6	END-I CENTER END-J	-253.192 -253.854 -253.951	-20.008 -8.043 3.941	-66.067 -66.067 -66.067	1063.19 1013.60 953.95	-943.39 -1157.97 -1369.98	3165.15 3200.30 3205.44

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
26	BEND	7	END-I CENTER END-J	6.480 5.096 3.700	-29.189 -29.462 -29.670	59.484 59.484 59.484	-1029.79 -1063.78 -1088.36	-819.38 -620.90 -421.04	-1403.43 -1329.94 -1255.84
26	BEND	8	END-I CENTER END-J	1.431 2.543 3.649	23.598 23.504 23.358	-91.403 -91.403 -91.403	1595.93 1665.21 1719.97	1620.81 1314.79 1005.84	1787.06 1728.04 1659.32
26	BEND	9	END-I CENTER END-J	6.775 5.812 4.836	-20.261 -20.558 -20.809	15.916 15.916 15.916	-291.86 -297.78 -301.15	-152.27 -98.47 -44.45	-509.79 -458.64 -406.80
27	BEND	1	END-I CENTER END-J	-58.934 -51.593 -43.742	71.046 76.544 81.286	54.554 54.554 54.554	-722.31 -740.91 -723.05	-370.26 -3.70 362.89	400.10 2.71 -422.25
27	BEND	2	END-I CENTER END-J	66.462 67.339 67.552	12.144 5.489 -1.220	.421 .421 .421	-167.91 -171.09 -172.34	-41.45 -22.31 -2.96	-1145.19 -1192.67 -1204.16
27	BEND	3	END-I CENTER END-J	-22.631 -21.336 -19.830	11.924 14.110 16.158	-58.363 -58.363 -58.363	873.48 869.32 825.40	158.72 -242.26 -640.85	983.99 913.89 832.39
27	BEND	4	END-I CENTER END-J	-1303.403 -1317.722 -1319.032	-209.124 -78.749 52.404	-5.359 -5.359 -5.359	3397.79 3542.99 3650.34	1646.60 1272.50 885.84	11098.03 11873.14 11944.08
27	BEND	5	END-I CENTER END-J	-65.025 -79.322 -92.836	-147.311 -140.131 -131.568	2.912 2.912 2.912	251.53 252.62 252.77	15.61 6.21 -3.25	5094.87 5868.81 6600.37
27	BEND	6	END-I CENTER END-J	-233.335 -234.501 -233.352	-23.357 -0.086 23.185	-51.067 -51.067 -51.067	972.91 869.65 730.51	-854.69 -1221.33 -1575.92	3374.11 3437.24 3375.04
27	BEND	7	END-I CENTER END-J	5.108 2.929 .721	-21.704 -22.103 -22.285	64.839 64.839 64.839	-1089.62 -1128.01 -1120.62	-615.68 -156.21 304.80	-1171.58 -1053.63 -934.12
27	BEND	8	END-I CENTER END-J	1.832 2.871 3.882	10.563 10.329 9.993	-98.688 -98.688 -98.688	1718.76 1809.03 1828.70	1260.85 553.93 -158.45	1487.53 1431.28 1376.56
27	BEND	9	END-I CENTER END-J	4.979 3.105 1.201	-18.633 -19.035 -19.249	19.079 19.079 19.079	-302.15 -306.31 -297.25	-108.30 24.71 157.47	-393.87 -292.45 -189.37
28	BEND	1	END-I CENTER END-J	-40.957 -39.161 -37.350	90.192 90.986 91.744	27.085 27.085 27.085	-715.57 -710.70 -705.00	224.80 266.53 308.15	-519.81 -612.10 -705.18

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
28	BEND	2	END-I CENTER END-J	64.474 64.474 64.448	.615 -.663 -1.941	1.708 1.708 1.708	-156.96 -163.94 -170.82	-354.43 -349.51 -344.45	-1153.02 -1153.00 -1151.67
28	BEND	3	END-I CENTER END-J	-17.993 -18.005 -18.011	-.812 -.455 -.098	-57.739 -57.739 -57.739	811.13 803.04 793.46	-370.95 -445.77 -520.41	994.64 995.29 995.57
28	BEND	4	END-I CENTER END-J	-1233.475 -1234.061 -1234.162	-41.789 -17.334 7.128	-26.937 -26.937 -26.937	3502.35 3587.24 3670.18	4331.58 4233.87 4134.50	11213.46 11243.57 11248.77
28	BEND	5	END-I CENTER END-J	-101.330 -103.368 -105.366	-103.844 -101.816 -99.747	32.798 32.798 32.798	168.42 206.88 245.91	1925.17 1954.86 1983.78	6316.19 6420.94 6523.61
28	BEND	6	END-I CENTER END-J	-218.483 -218.479 -218.389	-1.945 -2.386 6.716	-43.306 -43.306 -43.306	678.60 667.68 655.62	-522.08 -579.54 -636.77	3697.98 3697.75 3693.12
28	BEND	7	END-I CENTER END-J	.389 .318 .248	-3.545 -3.552 -3.558	68.034 68.034 68.034	-1106.89 -1105.59 -1102.47	20.30 111.54 202.73	-997.82 -994.20 -990.58
28	BEND	8	END-I CENTER END-J	4.349 3.988 3.626	-18.173 -18.255 -18.331	-98.501 -98.501 -98.501	1810.06 1813.63 1814.49	247.83 111.57 -24.74	1387.96 1406.52 1425.15
28	BEND	9	END-I CENTER END-J	.785 .528 .272	-12.929 -12.942 -12.950	23.408 23.408 23.408	-293.93 -291.73 -288.96	95.73 125.38 154.99	-231.21 -218.03 -204.84
29	BEND	1	END-I CENTER END-J	-37.507 -36.159 -34.798	69.201 69.914 70.602	63.421 63.421 63.421	-713.13 -701.25 -687.84	573.86 652.80 731.49	-501.39 -572.94 -645.21
29	BEND	2	END-I CENTER END-J	63.515 63.483 63.428	-1.016 -2.246 -3.476	1.011 1.011 1.011	-172.66 -168.97 -165.19	188.47 192.82 197.10	-1186.95 -1185.27 -1182.32
29	BEND	3	END-I CENTER END-J	-18.006 -17.528 -17.043	24.506 24.851 25.186	-50.881 -50.881 -50.881	806.12 788.22 769.01	-889.99 -957.78 -1025.20	670.57 645.18 619.45
29	BEND	4	END-I CENTER END-J	-1207.826 -1208.141 -1208.004	-27.996 -4.591 18.817	-31.815 -31.815 -31.815	3677.54 3654.87 3630.19	-1118.08 -1221.84 -1325.15	11930.00 11946.76 11939.44
29	BEND	5	END-I CENTER END-J	-106.113 -108.003 -109.852	-98.566 -96.492 -94.381	-13.061 -13.061 -13.061	256.01 235.52 214.67	-1048.82 -1067.37 -1084.82	6737.05 6837.37 6935.54

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
29	BEND	6	END-I CENTER END-J	-214.258 -213.892 -213.446	16.795 20.942 25.082	-33.143 -33.143 -33.143	685.22 599.30	-2170.46 -2217.42 -2263.54	3048.61 3029.20 3005.53
29	BEND	7	END-I CENTER END-J	.868 .228 -.412	-33.034 -33.045 -33.043	59.277 59.277 59.277	-1110.74 -1098.37 -1084.41	597.28 679.66 761.77	-804.55 -770.57 -736.58
29	BEND	8	END-I CENTER END-J	3.054 3.575 4.093	26.886 26.821 26.747	-96.674 -96.674 -96.674	1822.73 1809.50 1793.66	-615.63 -750.26 -884.61	1273.84 1246.22 1218.67
29	BEND	9	END-I CENTER END-J	.559 .137 -.285	-21.758 -21.764 -21.763	15.257 15.257 15.257	-292.20 -287.64 -282.68	224.40 245.71 266.93	-117.22 -94.84 -72.45
30	BEND	1	END-I CENTER END-J	-28.396 -11.546 5.916	70.456 75.081 75.733	47.251 47.251 47.251	-686.06 -455.90 -67.19	633.76 1354.20 2002.98	-743.08 -1648.96 -2587.70
30	BEND	2	END-I CENTER END-J	57.254 55.803 51.400	.280 -12.810 -25.222	2.492 2.492 2.492	-168.20 -154.78 -126.07	23.76 92.18 155.72	-1197.99 -1120.00 -883.27
30	BEND	3	END-I CENTER END-J	-14.941 -10.712 -5.916	16.779 19.749 21.674	-44.988 -44.988 -44.988	765.54 469.13 19.92	-928.56 -1631.56 -2248.23	760.16 532.79 274.95
30	BEND	4	END-I CENTER END-J	-1042.901 -1054.425 -1010.158	-171.185 71.648 310.689	-65.847 -65.847 -65.847	3664.15 3566.47 3092.76	406.59 -1250.30 -2841.03	11995.55 12615.12 10235.29
30	BEND	5	END-I CENTER END-J	-123.417 -131.071 -131.789	-47.784 -18.319 12.115	.153 .153 .153	232.72 212.08 180.66	-64.33 -113.92 -157.49	7019.00 7430.45 7469.06
30	BEND	6	END-I CENTER END-J	-185.630 -182.506 -169.725	-7.822 34.801 75.583	-11.038 -11.038 -11.038	597.34 153.36 -330.13	-1805.14 -2029.47 -2146.41	3301.61 3133.68 2446.60
30	BEND	7	END-I CENTER END-J	.769 -5.154 -10.804	-25.831 -25.323 -23.476	60.044 60.044 60.044	-1082.78 -819.58 -342.22	652.75 1620.49 2502.48	-836.84 -518.43 -214.68
30	BEND	8	END-I CENTER END-J	2.326 5.807 8.980	15.501 14.559 12.847	-98.791 -98.791 -98.791	1793.02 1443.24 736.07	-708.24 -2312.77 -3794.93	1329.82 1142.71 972.12
30	BEND	9	END-I CENTER END-J	-.477 -4.756 -8.782	-18.778 -18.173 -16.605	16.751 16.751 16.751	-281.47 -191.88 -44.50	255.19 518.53 754.44	-109.82 120.18 336.65

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
31	BEND	1	END-I CENTER END-J	3.976 9.858 15.586	47.513 46.649 45.060	26.860 26.860 26.860	-57.26 192.57 461.83	1914.00 2085.74 2225.05	-2654.42 -2970.25 -3277.86
31	BEND	2	END-I CENTER END-J	46.101 43.796 40.810	-15.644 -21.259 -26.544	4.255 4.255 4.255	-120.59 -102.29 -78.86	125.23 167.69 207.55	-888.86 -765.08 -604.75
31	BEND	3	END-I CENTER END-J	-4.166 -2.148 -.096	15.956 16.350 16.490	-15.840 -15.840 -15.840	26.91 -258.34 -552.80	-2237.54 -2329.34 -2384.93	351.03 242.67 132.52
31	BEND	4	END-I CENTER END-J	-897.864 -884.088 -856.567	54.633 165.936 274.659	-100.529 -100.529 -100.529	3033.28 2659.12 2159.70	-2480.21 -3510.14 -4485.51	10346.28 9606.46 8128.63
31	BEND	5	END-I CENTER END-J	-121.709 -113.007 -102.548	62.331 76.992 90.456	-3.961 -3.961 -3.961	129.73 139.02 142.84	96.01 52.66 8.48	7471.17 7003.85 6442.21
31	BEND	6	END-I CENTER END-J	-149.485 -143.884 -136.047	35.674 53.998 71.483	14.818 14.818 14.818	-338.52 -586.51 -813.02	-2063.79 -1306.61 -1719.79	2515.58 2214.80 1793.92
31	BEND	7	END-I CENTER END-J	-9.915 -12.591 -15.071	-22.123 -20.717 -18.990	42.522 42.522 42.522	-350.62 20.01 346.41	2492.33 2800.73 3065.59	-301.59 -157.89 -24.71
31	BEND	8	END-I CENTER END-J	9.370 11.226 12.907	15.497 14.210 12.703	-76.026 -76.026 -76.026	744.35 239.36 -332.82	-3756.76 -4328.21 -4832.38	1104.99 1005.35 915.07
31	BEND	9	END-I CENTER END-J	-7.872 -9.365 -10.713	-12.494 -11.417 -10.163	11.111 11.111 11.111	-49.80 50.44 159.18	765.20 839.69 901.13	310.60 390.80 463.19
32	TANGENT	1	END-I END-J	11.358 11.358	-11.610 -11.610	32.328 32.328	460.26 460.26	3634.11 3753.73	1577.94 1620.90
32	TANGENT	2	END-I END-J	39.518 39.518	-8.240 -8.240	-20.709 -20.709	-79.07 -79.07	632.74 556.11	91.64 122.13
32	TANGENT	3	END-I END-J	.062 .062	3.466 3.466	13.633 13.633	-551.88 -551.88	-573.17 -522.72	-2319.04 -2331.87
32	TANGENT	4	END-I END-J	-832.043 -832.043	132.877 132.877	156.210 156.210	2163.18 2163.18	-8819.47 -8241.44	-2897.64 -3389.33
32	TANGENT	5	END-I END-J	-93.345 -93.345	24.220 24.220	101.684 101.684	144.27 144.27	-6328.59 -5952.32	1204.46 1114.84

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
32	TANGENT	6	END-I END-J	-131.040 -131.040	-13.748 -13.748	59.287 59.287	-811.98 -811.98	-2082.26 -1862.88	-1357.09 -1306.22
32	TANGENT	7	END-I END-J	-14.514 -14.514	-35.034 -35.034	-12.540 -12.540	345.26 345.26	593.55 547.14	3007.82 3137.45
32	TANGENT	8	END-I END-J	13.451 13.451	63.177 63.177	3.821 3.821	-330.82 -330.82	-1796.45 -1782.31	-4578.58 -4812.36
32	TANGENT	9	END-I END-J	-9.825 -9.825	-9.130 -9.130	-6.617 -6.617	158.94 158.94	-287.78 -312.26	971.52 1005.30
33	TANGENT	1	END-I END-J	7.952 7.952	-6.502 -6.502	18.478 18.478	500.54 500.54	3748.58 3929.87	1620.90 1684.70
33	TANGENT	2	END-I END-J	38.398 38.398	-7.912 -7.912	-17.119 -17.119	-73.09 -73.09	556.93 388.98	122.13 199.76
33	TANGENT	3	END-I END-J	.109 .109	-8.153 -8.153	13.863 13.863	-557.46 -557.46	-516.77 -380.76	-2331.87 -2251.88
33	TANGENT	4	END-I END-J	-811.228 -811.228	127.907 127.907	86.740 86.740	2074.57 2074.57	-8264.19 -7413.17	-3389.33 -4644.23
33	TANGENT	5	END-I END-J	-85.745 -85.745	27.601 27.601	110.784 110.784	80.35 80.35	-5953.52 -4866.61	1114.84 844.05
33	TANGENT	6	END-I END-J	-127.298 -127.298	-21.289 -21.289	49.037 49.037	-831.93 -831.93	-1854.05 -1372.94	-1306.22 -1097.35
33	TANGENT	7	END-I END-J	-14.373 -14.373	-26.330 -26.330	-13.890 -13.890	351.11 351.11	543.40 407.13	3137.45 3395.78
33	TANGENT	8	END-I END-J	14.456 14.456	51.243 51.243	8.291 8.291	-349.93 -349.93	-1778.66 -1697.31	-4812.36 -5315.11
33	TANGENT	9	END-I END-J	-9.187 -9.187	-5.994 -5.994	-5.507 -5.507	155.58 155.58	-313.95 -367.98	1005.30 1064.11
34	TANGENT	1	END-I END-J	1.043 1.043	4.942 4.942	-12.302 -12.302	475.71 475.71	3932.95 3705.98	1684.70 1593.52
34	TANGENT	2	END-I END-J	36.283 36.283	-5.834 -5.834	-9.809 -9.809	-75.55 -75.55	388.51 207.53	199.76 307.39
34	TANGENT	3	END-I END-J	.315 .315	-29.496 -29.496	13.953 13.953	-555.04 -555.04	-384.27 -126.84	-2251.88 -1707.68
34	TANGENT	4	END-I END-J	-771.290 -771.290	91.141 91.141	-29.910 -29.910	2121.35 2121.35	-7399.92 -7951.75	-4644.23 -6325.78

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
34	TANGENT	5	END-I END-J	-70.557 -70.557	30.111 30.111	120.594 120.594	111.09 111.09	-4866.01 -2641.04	844.05 288.50
34	TANGENT	6	END-I END-J	-118.942 -118.942	-35.913 -35.913	30.417 30.417	-823.24 -823.24	-1378.17 -816.97	-1097.35 -434.76
34	TANGENT	7	END-I END-J	-13.233 -13.233	-6.578 -6.578	-16.370 -16.370	348.53 348.53	409.34 107.32	3395.78 3517.15
34	TANGENT	8	END-I END-J	14.978 14.978	22.733 22.733	18.351 18.351	-339.21 -339.21	-1699.49 -1360.91	-5315.11 -5734.53
34	TANGENT	9	END-I END-J	-7.652 -7.652	.831 .831	-2.887 -2.887	157.90 157.90	-366.99 -420.25	1064.11 1048.78
35	TANGENT	1	END-I END-J	-6.415 -6.415	17.055 17.055	-45.522 -45.522	483.32 483.32	3705.00 3161.03	1593.52 1389.71
35	TANGENT	2	END-I END-J	33.950 33.950	-3.544 -3.544	-2.739 -2.739	-75.12 -75.12	207.68 174.96	307.39 349.74
35	TANGENT	3	END-I END-J	.400 .400	-43.863 -43.863	13.433 13.433	-555.30 -555.30	-125.70 34.82	-1707.68 -1183.53
35	TANGENT	4	END-I END-J	-727.214 -727.214	54.340 54.340	-103.910 -103.910	2105.03 2105.03	-7956.09 -9197.77	-6325.78 -6975.13
35	TANGENT	5	END-I END-J	-53.898 -53.898	29.475 29.475	113.004 113.004	105.67 105.67	-2641.26 -1290.90	288.50 -63.71
35	TANGENT	6	END-I END-J	-110.159 -110.159	-41.790 -41.790	15.557 15.557	-824.92 -824.92	-815.28 -629.38	-434.76 64.63
35	TANGENT	7	END-I END-J	-12.134 -12.134	16.647 16.647	-18.220 -18.220	348.75 348.75	106.60 -111.12	3517.15 3318.23
35	TANGENT	8	END-I END-J	15.843 15.843	-13.045 -13.045	29.731 29.731	-342.00 -342.00	-1360.21 -1004.93	-5734.53 -5578.65
35	TANGENT	9	END-I END-J	-6.003 -6.003	8.553 8.553	.123 .123	157.04 157.04	-420.57 -419.10	1048.78 946.58
36	TANGENT	1	END-I END-J	-9.891 -9.891	22.047 22.047	-59.412 -59.412	470.32 470.32	3162.99 3055.16	1389.71 1349.70
36	TANGENT	2	END-I END-J	32.902 32.902	-2.302 -2.302	.101 .101	-75.84 -75.84	174.65 174.83	349.74 353.92
36	TANGENT	3	END-I END-J	.661 .661	-47.541 -47.541	13.073 13.073	-555.44 -555.44	32.53 56.26	-1183.53 -1097.24

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
36	TANGENT	4	END-I END-J	-707.443 -707.443	33.507 33.507	-124.760 -124.760	2142.81 2142.81	-9189.04 -9415.48	-6975.13 -7035.94
36	TANGENT	5	END-I END-J	-46.486 -46.486	27.870 27.870	104.944 104.944	110.97 110.97	-1290.46 -1099.99	-63.71 -114.30
36	TANGENT	6	END-I END-J	-105.965 -105.965	-42.827 -42.827	10.157 10.157	-822.33 -822.33	-632.76 -614.33	64.63 142.35
36	TANGENT	7	END-I END-J	-11.737 -11.737	26.869 26.869	-18.780 -18.780	349.21 349.21	-109.68 -143.77	3318.23 3269.46
36	TANGENT	8	END-I END-J	16.329 16.329	-29.457 -29.457	34.731 34.731	-337.87 -337.87	-1006.33 -943.29	-5578.65 -5525.19
36	TANGENT	9	END-I END-J	-5.300 -5.300	11.826 11.826	1.403 1.403	158.76 158.76	-418.45 -415.91	946.58 925.11
37	TANGENT	1	END-I END-J	-15.350 -15.350	30.099 30.099	-81.602 -81.602	478.17 478.17	3053.94 1373.95	1349.70 730.04
37	TANGENT	2	END-I END-J	31.175 31.175	-580 -580	4.631 4.631	-75.39 -75.39	175.02 270.37	353.92 365.87
37	TANGENT	3	END-I END-J	.661 .661	-52.843 -52.843	12.453 12.453	-555.29 -555.29	57.69 314.06	-1097.24 -9.33
37	TANGENT	4	END-I END-J	-674.879 -674.879	6.157 6.157	-155.870 -155.870	2118.61 2118.61	-9420.95 -12629.94	-7035.94 -7162.70
37	TANGENT	5	END-I END-J	-34.162 -34.162	25.463 25.463	90.794 90.794	108.15 108.15	-1100.27 768.97	-114.30 -638.52
37	TANGENT	6	END-I END-J	-99.527 -99.527	-43.039 -43.039	1.667 1.667	-823.90 -823.90	-612.21 -577.89	142.35 1028.43
37	TANGENT	7	END-I END-J	-10.872 -10.872	43.470 43.470	-19.620 -19.620	348.84 348.84	-144.66 -548.59	3269.46 2374.51
37	TANGENT	8	END-I END-J	16.894 16.894	-56.257 -56.257	42.791 42.791	-340.29 -340.29	-942.42 -61.45	-5525.19 -4366.99
37	TANGENT	9	END-I END-J	-4.060 -4.060	17.117 17.117	3.453 3.453	157.69 157.69	-416.31 -345.22	925.11 572.70
38	TANGENT	1	END-I END-J	-25.511 -25.511	40.070 40.070	-109.772 -109.772	477.33 477.33	1374.24 -884.45	730.04 -94.44
38	TANGENT	2	END-I END-J	27.997 27.997	2.491 2.491	10.541 10.541	-75.56 -75.56	270.32 487.22	365.87 314.61

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
38	TANGENT	3	END-I END-J	.915 .915	-49.279 -49.279	11.043 11.043	-555.49 -555.49	313.72 540.94	-9.33 1004.64
38	TANGENT	4	END-I END-J	-614.930 -614.930	-45.086 -45.086	-164.560 -164.560	2126.29 2126.29	-12628.65 -16014.67	-7162.70 -6234.99
38	TANGENT	5	END-I END-J	-11.650 -11.650	16.742 16.742	48.334 48.334	107.68 107.68	769.03 1763.57	-638.52 -983.01
38	TANGENT	6	END-I END-J	-87.456 -87.456	-35.719 -35.719	-8.243 -8.243	-823.55 -823.55	-578.39 -748.00	1028.43 1763.38
38	TANGENT	7	END-I END-J	-9.423 -9.423	67.743 67.743	-19.680 -19.680	349.17 349.17	-548.38 -953.31	2374.51 980.63
38	TANGENT	8	END-I END-J	18.098 18.098	-99.077 -99.077	54.841 54.841	-340.25 -340.25	-61.66 1066.77	-4366.99 -2328.36
38	TANGENT	9	END-I END-J	-1.845 -1.845	24.040 24.040	6.043 6.043	157.90 157.90	-345.12 -220.77	572.70 78.04
39	TANGENT	1	END-I END-J	-32.188 -32.188	40.541 40.541	-114.992 -114.992	507.87 507.87	-867.27 -954.48	-94.44 -125.19
39	TANGENT	2	END-I END-J	26.199 26.199	4.595 4.595	12.201 12.201	-92.49 -92.49	484.29 493.54	314.61 311.13
39	TANGENT	3	END-I END-J	2.507 2.507	-42.335 -42.335	10.373 10.373	-574.00 -574.00	521.25 529.12	1004.64 1036.75
39	TANGENT	4	END-I END-J	-581.051 -581.051	-86.769 -86.769	-153.730 -153.730	2683.18 2683.18	-15930.83 -16047.41	-6234.99 -6169.19
39	TANGENT	5	END-I END-J	.391 -.391	11.166 11.166	23.224 23.224	46.15 46.15	1766.25 1783.86	-983.01 -991.47
39	TANGENT	6	END-I END-J	-80.119 -80.119	-32.297 -32.297	-11.033 -11.033	-796.98 -796.98	-776.25 -784.62	1763.38 1787.88
39	TANGENT	7	END-I END-J	-11.245 -11.245	74.177 74.177	-19.010 -19.010	382.18 382.18	-940.56 -954.98	980.63 924.37
39	TANGENT	8	END-I END-J	22.638 22.638	-112.854 -112.854	58.741 58.741	-377.23 -377.23	1054.26 1098.81	-2328.36 -2242.77
39	TANGENT	9	END-I END-J	-1.564 -1.564	25.304 25.304	6.453 6.453	165.50 165.50	-215.14 -210.24	78.04 58.85
40	TANGENT	1	END-I END-J	-33.709 -33.709	42.362 42.362	-117.652 -117.652	476.02 476.02	-970.76 -2257.00	-125.19 -588.31

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
40	TANGENT	2	END-I END-J	25.426 25.426	4.364 4.364	13.081 13.081	-76.12 -76.12	496.33 639.34	311.13 263.42
40	TANGENT	3	END-I END-J	1.168 1.168	-38.548 -38.548	10.003 10.003	-556.19 -556.19	547.82 657.17	1036.75 1458.18
40	TANGENT	4	END-I END-J	-566.473 -566.473	-79.045 -79.045	-147.580 -147.580	2150.92 2150.92	-16127.38 -17740.81	-6169.19 -5305.02
40	TANGENT	5	END-I END-J	6.366 6.366	8.124 8.124	9.464 9.464	105.12 105.12	1781.36 1884.83	-991.47 -1080.29
40	TANGENT	6	END-I END-J	-77.719 -77.719	-26.178 -26.178	-12.523 -12.523	-822.50 -822.50	-757.83 -894.73	1787.88 2074.07
40	TANGENT	7	END-I END-J	-8.370 -8.370	78.091 78.091	-18.630 -18.630	350.39 350.39	-967.10 -1170.77	924.37 70.64
40	TANGENT	8	END-I END-J	19.241 19.241	-121.294 -121.294	60.821 60.821	-340.68 -340.68	1110.69 1775.62	-2242.77 -916.71
40	TANGENT	9	END-I END-J	-.096 -.096	26.002 26.002	6.653 6.653	158.46 158.46	-215.60 -142.86	58.85 -225.41
41	BEND	1	END-I CENTER END-J	-40.359 -57.706 -73.737	-118.209 -110.780 -100.822	-37.090 -37.090 -37.090	474.32 370.00 211.66	-505.26 -871.74 -1218.33	2277.39 3211.25 4074.20
41	BEND	2	END-I CENTER END-J	23.307 25.150 26.420	14.002 10.331 6.424	-5.967 -5.967 -5.967	-75.63 -42.31 -15.34	239.83 200.10 155.80	-648.61 -747.85 -816.18
41	BEND	3	END-I CENTER END-J	1.286 2.819 4.287	10.271 9.960 9.422	27.083 27.083 27.083	-555.69 -316.81 -37.42	1433.12 1720.12 1967.85	-710.55 -793.06 -872.10
41	BEND	4	END-I CENTER END-J	-526.587 -539.247 -539.598	-123.930 -43.185 38.545	104.937 104.937 104.937	2137.54 1476.82 911.33	-4651.80 -4069.71 -3394.73	17924.78 18606.31 18625.23
41	BEND	5	END-I CENTER END-J	21.205 17.704 13.799	-21.534 -24.581 -26.968	-.092 -.092 -.092	106.55 -67.76 -240.63	-1148.58 -1152.27 -1129.66	-1843.93 -1655.45 -1445.22
41	BEND	6	END-I CENTER END-J	-69.754 -71.070 -70.765	-14.024 -3.355 7.390	17.984 17.984 17.984	-823.17 -485.54 -114.74	2105.42 2351.24 2543.40	817.57 888.44 871.99
41	BEND	7	END-I CENTER END-J	-7.342 -10.324 -13.071	-20.351 -19.012 -17.240	-80.764 -80.764 -80.764	349.50 312.99 170.09	113.47 -595.46 -1290.79	1167.66 1328.19 1476.03

P I P E F O R C E S A N D M O M E N T S

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
41	BEND	8	END-I CENTER END-J	19.931 30.034 39.452	68.577 64.791 59.527	129.710 129.710 129.710	-339.34 -403.58 -299.23	-981.13 133.11 1244.32	-1741.12 -2285.02 -2792.02
41	BEND	9	END-I CENTER END-J	1.400 2.208 2.965	5.469 5.195 4.804	-25.896 -25.896 -25.896	158.35 107.48 22.35	-220.03 -451.38 -672.43	151.14 107.65 66.87
42	BEND	1	END-I CENTER END-J	-78.857 -90.195 -99.734	-86.042 -74.071 -60.621	-30.700 -30.700 -30.700	214.90 29.46 -189.63	-1183.43 -1435.26 -1658.45	4084.30 4695.90 5210.39
42	BEND	2	END-I CENTER END-J	24.215 24.954 25.196	6.961 3.479 -.073	-6.543 -6.543 -6.543	-15.92 1.69 12.23	148.84 99.85 48.88	-817.47 -857.34 -870.35
42	BEND	3	END-I CENTER END-J	4.094 5.243 6.287	8.440 7.778 6.962	12.759 12.759 12.759	-39.58 243.94 536.33	1960.33 2043.33 2085.55	-888.80 -950.75 -1007.05
42	BEND	4	END-I CENTER END-J	-487.484 -475.394 -453.816	51.269 119.456 185.258	117.586 117.586 117.586	924.25 522.39 236.70	-3235.30 -2439.45 -1594.90	18652.95 18000.82 16836.88
42	BEND	5	END-I CENTER END-J	20.332 11.631 2.697	-60.305 -62.568 -63.583	8.849 8.849 8.849	-240.43 -394.22 -530.62	-1142.13 -1029.58 -896.48	-1435.43 -966.08 -484.21
42	BEND	6	END-I CENTER END-J	-62.478 -61.318 -58.935	3.804 12.571 21.086	8.387 8.387 8.387	-116.46 248.66 617.85	2550.63 2605.34 2608.06	850.37 787.83 659.27
42	BEND	7	END-I CENTER END-J	-11.504 -13.675 -15.572	-16.217 -14.434 -12.363	-75.145 -75.145 -75.145	172.00 -50.27 -352.44	-1278.04 -1860.73 -2406.28	1486.87 1603.95 1706.30
42	BEND	8	END-I CENTER END-J	40.895 48.990 56.107	60.337 53.572 46.529	126.995 126.995 126.995	-301.80 -58.46 322.76	1220.25 2215.95 3167.41	-2802.34 -3238.98 -3622.87
42	BEND	9	END-I CENTER END-J	4.334 4.688 4.948	2.818 2.179 1.497	-22.243 -22.243 -22.243	22.96 -83.92 -213.07	-671.82 -837.43 -986.33	72.58 53.49 39.45
43	BEND	1	END-I CENTER END-J	-98.825 -102.806 -101.601	-29.008 -6.221 16.880	-19.551 -19.561 -19.561	-187.78 -584.06 -1004.07	-1677.63 -1828.78 -1887.69	5204.32 5418.97 5354.02
43	BEND	2	END-I CENTER END-J	22.547 22.025 20.392	.208 -4.830 -9.623	-6.192 -6.192 -6.192	11.92 14.82 .13	52.09 -26.40 -103.55	-870.17 -842.01 -753.94

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
43	BEND	3	END-I CENTER END-J	5.680 6.870 7.713	5.974 4.556 2.908	-3.192 -3.192 -3.192	535.99 984.40 1374.48	2089.24 1878.52 1573.04	-999.56 -1063.72 -1109.19
43	BEND	4	END-I CENTER END-J	-387.023 -337.398 -270.753	178.616 260.486 329.216	119.023 119.023 119.023	242.70 28.65 136.88	-1656.89 -237.07 1194.70	16830.81 14155.23 10562.01
43	BEND	5	END-I CENTER END-J	.380 -20.773 -40.879	-94.739 -92.434 -85.466	15.886 15.886 15.886	-530.80 -695.48 -781.88	-894.68 -562.50 -201.94	-487.32 653.18 1737.17
43	BEND	6	END-I CENTER END-J	-49.968 -45.207 -38.167	15.682 26.439 35.861	-.959 -.959 -.959	618.11 1182.73 1685.08	2605.61 2390.40 2054.62	668.64 411.99 32.38
43	BEND	7	END-I CENTER END-J	-12.969 -14.866 -16.013	-9.967 -6.821 -3.331	-57.913 -57.913 -57.913	-351.86 -960.17 -1677.55	-2412.55 -2970.03 -3377.69	1697.56 1799.85 1861.71
43	BEND	8	END-I CENTER END-J	57.086 64.838 69.320	41.188 27.409 12.247	106.526 106.526 106.526	321.50 1168.12 2245.55	3180.73 4310.57 5222.96	-3611.30 -4029.28 -4270.91
43	BEND	9	END-I CENTER END-J	5.838 5.248 4.394	-1.982 -3.235 -4.325	-14.454 -14.454 -14.454	-213.06 -447.50 -698.68	-986.47 -1087.96 -1134.58	35.89 67.68 113.75
44	BEND	1	END-I CENTER END-J	-78.222 -57.738 -33.128	66.781 85.116 97.370	-.568 -.568 -.568	-998.61 -1459.02 -1817.39	-1868.61 -1545.47 -1111.91	5361.73 4253.86 2922.89
44	BEND	2	END-I CENTER END-J	16.948 13.940 9.936	-9.070 -13.235 -16.455	-3.993 -3.993 -3.993	.10 -35.83 -84.63	-106.51 -159.94 -201.93	-753.53 -590.85 -374.30
44	BEND	3	END-I CENTER END-J	6.613 7.151 7.179	2.925 1.069 -.864	-13.369 -13.369 -13.369	1370.99 1712.44 1879.88	1571.40 960.56 281.10	-1115.81 -1144.95 -1146.44
44	BEND	4	END-I CENTER END-J	-196.934 -118.421 -31.447	269.834 312.362 332.573	88.415 88.415 88.415	137.84 631.28 1421.26	1236.50 2422.51 3435.44	10557.18 6310.89 1607.02
44	BEND	5	END-I CENTER END-J	-54.951 -77.482 -94.477	-92.466 -74.607 -51.417	15.850 15.850 15.850	-780.92 -774.50 -651.49	-196.66 244.30 667.82	1738.21 2956.77 3875.93
44	BEND	6	END-I CENTER END-J	-29.681 -21.356 -11.506	27.422 34.305 38.737	-4.220 -4.220 -4.220	1680.99 2157.97 2464.46	2058.08 1478.82 793.90	23.75 -426.46 -959.19

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
44	BEND	7	END-I CENTER END-J	-11.415 -11.485 -10.735	-1.804 -1.284 4.281	-20.675 -20.675 -20.675	-1670.23 -2544.18 -3316.25	-3373.68 -3106.93 -2618.21	1875.52 1879.31 1838.72
44	BEND	8	END-I CENTER END-J	66.067 64.022 57.402	1.187 -16.356 -32.731	49.673 49.673 49.673	2233.78 3630.21 4959.22	5210.58 5144.37 4710.62	-4292.14 -4181.51 -3823.49
44	BEND	9	END-I CENTER END-J	3.154 .447 -2.292	-9.795 -10.280 -10.031	-1.194 -1.194 -1.194	-696.38 -974.60 -1187.81	-1135.51 -927.58 -653.39	118.43 264.85 412.99
45	TANGENT	1	END-I END-J	3.635 3.635	-116.850 -116.850	-5.787 -5.787	-1819.18 -1819.18	986.86 .904.35	-2966.34 -1300.33
45	TANGENT	2	END-I END-J	7.648 7.648	14.790 14.790	1.154 1.154	-84.43 -84.43	217.62 234.07	365.45 154.58
45	TANGENT	3	END-I END-J	6.595 6.595	.210 .210	9.239 9.239	1880.58 1880.58	-232.12 -100.39	1156.23 1153.23
45	TANGENT	4	END-I END-J	-7.046 -7.046	-255.465 -255.465	-39.312 -39.312	1420.61 1420.61	-3500.41 -4060.91	-1460.73 2181.60
45	TANGENT	5	END-I END-J	-99.832 -99.832	26.133 26.133	-8.907 -8.907	-653.70 -653.70	-831.61 -958.60	-3843.75 -4216.35
45	TANGENT	6	END-I END-J	-8.245 -8.245	-32.304 -32.304	-.142 -.142	2465.08 2465.08	-752.38 -754.40	990.55 1451.12
45	TANGENT	7	END-I END-J	-6.728 -6.728	-4.071 -4.071	-7.034 -7.034	-3317.54 -3317.54	2537.69 2437.40	-1946.14 -1888.10
45	TANGENT	8	END-I END-J	50.118 50.118	37.738 37.738	-.894 -.894	4961.84 4961.84	-4543.96 -4556.71	4016.89 3478.83
45	TANGENT	9	END-I END-J	-5.150 -5.150	11.613 11.613	-6.654 -6.654	-1188.10 -1188.10	635.22 540.35	-439.63 -605.20
46	TANGENT	1	END-I END-J	31.167 31.167	-124.680 -124.680	-9.965 -9.965	-1819.98 -1819.98	904.35 724.22	-1299.21 954.48
46	TANGENT	2	END-I END-J	5.941 5.941	13.320 13.320	-.326 -.326	-84.33 -84.33	234.07 228.17	154.63 -86.13
46	TANGENT	3	END-I END-J	6.189 6.189	-.930 -.930	2.081 2.081	1881.29 1881.29	-100.39 -62.78	1152.08 1168.89
46	TANGENT	4	END-I END-J	10.962 10.962	-196.765 -196.765	-12.315 -12.315	1421.95 1421.95	-4060.91 -4283.51	2180.72 5737.41

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
46	TANGENT	5	END-I END-J	-103.648 -103.648	2.303 2.303	-112 -112	-656.29 -656.29	-958.60 -960.63	-4215.95 -4257.58
46	TANGENT	6	END-I END-J	-5.778 -5.778	-28.734 -28.734	-7.657 -7.657	2465.98 2465.98	-754.40 -892.81	1449.61 1968.99
46	TANGENT	7	END-I END-J	-3.823 -3.823	-4.461 -4.461	-21.798 -21.798	-3318.70 -3318.70	2437.40 2043.37	-1886.06 -1805.42
46	TANGENT	8	END-I END-J	44.686 44.686	40.318 40.318	29.349 29.349	4963.98 4963.98	-4556.71 -4026.20	3475.78 2746.99
46	TANGENT	9	END-I END-J	-7.313 -7.313	11.853 11.853	-9.276 -9.276	-1188.47 -1188.47	540.35 372.68	-604.47 -818.72
47	TANGENT	1	END-I END-J	62.027 62.027	-121.570 -121.570	-9.545 -9.545	-1819.95 -1819.95	724.22 551.55	954.54 3153.72
47	TANGENT	2	END-I END-J	4.036 4.036	11.560 11.560	-1.640 -1.640	-84.34 -84.34	228.17 198.51	-86.13 -295.25
47	TANGENT	3	END-I END-J	5.744 5.744	-2.310 -2.310	-9.419 -9.419	1881.32 1881.32	-62.78 -233.18	1168.82 1210.61
47	TANGENT	4	END-I END-J	30.831 30.831	-138.155 -138.155	16.188 16.188	1422.14 1422.14	-4283.51 -3990.67	5737.36 8236.55
47	TANGENT	5	END-I END-J	-107.648 -107.648	-27.467 -27.467	10.719 10.719	-656.44 -656.44	-960.63 -766.72	-4257.56 -3760.70
47	TANGENT	6	END-I END-J	-3.021 -3.021	-26.104 -26.104	-18.188 -18.188	2466.04 2466.04	-892.81 -1221.82	1968.91 2441.12
47	TANGENT	7	END-I END-J	-619 -619	-4.801 -4.801	-29.017 -29.017	-3318.76 -3318.76	2043.37 1518.46	-1805.31 -1718.47
47	TANGENT	8	END-I END-J	38.506 38.506	37.848 37.848	51.041 51.041	4964.07 4964.07	-4026.20 -3102.87	2746.82 2062.15
47	TANGENT	9	END-I END-J	-9.739 -9.739	10.623 10.623	-7.809 -7.809	-1188.50 -1188.50	372.68 231.41	-818.68 -1010.84
48	BEND	1	END-I CENTER END-J	97.977 118.601 133.358	104.269 80.033 51.838	-2.600 -2.600 -2.600	-1820.42 -1937.57 -1965.79	-718.04 -328.84 76.62	-3119.75 -4230.23 -5024.79
48	BEND	2	END-I CENTER END-J	1.817 -309 -2.420	-9.416 -9.585 -9.280	3.150 3.150 3.150	-84.29 -118.37 -138.20	-182.57 -121.94 -55.27	305.38 419.86 533.53
48	BEND	3	END-I CENTER END-J	5.246 6.235 6.916	5.064 3.779 2.307	24.450 24.450 24.450	1881.14 1904.67 1898.67	168.62 39.64 -91.30	-1221.55 -1274.83 -1311.51

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
48	BEND	4	END-I CENTER END-J	53.638 70.352 83.673	81.842 67.963 50.723	-48.605 -48.605 -48.605	1420.92 2105.31 2556.09	3548.15 2567.83 1460.49	-8436.84 -9339.46 -10054.58
48	BEND	5	END-I CENTER END-J	-112.017 -96.402 -76.017	58.113 81.436 100.730	-25.924 -25.924 -25.924	-655.88 -460.85 -312.08	965.13 777.69 551.78	3714.83 2874.00 1776.40
48	BEND	6	END-I CENTER END-J	.203 5.941 11.385	25.982 25.294 23.355	30.005 30.005 30.005	2455.68 2685.72 2852.82	1090.60 875.73 617.53	-2502.85 -2811.81 -3104.93
48	BEND	7	END-I CENTER END-J	3.034 4.440 5.627	6.701 5.864 4.738	24.895 24.895 24.895	-3318.50 -3218.28 -3477.69	-1425.15 -360.09 722.78	1797.08 1721.37 1657.49
48	BEND	8	END-I CENTER END-J	31.177 23.608 14.871	-30.755 -36.886 -41.192	-56.996 -56.996 -56.996	4963.76 5425.77 5467.56	2989.08 1139.62 -766.21	-2224.57 -1817.01 -1346.58
48	BEND	9	END-I CENTER END-J	-12.571 -13.906 -14.553	-7.448 -4.485 -1.300	1.043 1.043 1.043	-1188.35 -1196.79 -1143.25	-177.46 102.01 376.44	1021.87 1093.77 1128.62
49	BEND	1	END-I CENTER END-J	157.358 154.931 145.779	-4.770 -27.940 -59.437	-15.126 -15.126 -15.126	-1960.43 -1918.95 -1829.63	80.40 315.63 537.15	-5026.83 -4895.78 -4401.58
49	BEND	2	END-I CENTER END-J	-3.772 -5.109 -6.225	-6.851 -5.920 -4.733	3.125 3.125 3.125	-138.80 -143.61 -134.86	-55.43 9.50 74.02	533.35 605.59 665.84
49	BEND	3	END-I CENTER END-J	7.338 8.020 8.355	4.063 2.454 7.739	38.422 38.422 38.422	1899.99 1884.72 1877.71	-91.98 -53.76 -13.21	-1309.55 -1346.41 -1364.47
49	BEND	4	END-I CENTER END-J	86.232 87.411 84.795	14.720 -3.468 -21.505	-61.572 -61.572 -61.572	2567.72 2743.10 2655.08	1463.55 210.79 -1051.13	-10051.17 -10114.82 -9973.58
49	BEND	5	END-I CENTER END-J	-67.778 -41.476 -13.373	119.838 131.281 137.026	-35.478 -35.478 -35.478	-313.57 -234.15 -227.72	551.14 207.17 -145.78	1776.33 356.00 -1161.55
49	BEND	6	END-I CENTER END-J	14.390 18.639 22.078	22.013 18.553 14.288	41.589 41.589 41.589	2856.52 2971.13 3054.25	617.05 477.11 316.46	-3101.62 -3321.06 -3516.81
49	BEND	7	END-I CENTER END-J	9.332 9.937 10.112	3.901 1.883 -.217	2.810 2.810 2.810	-3478.94 -3250.04 -2873.48	724.39 1460.98 2134.15	1654.16 1621.45 1612.04

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
49	BEND	8	END-I CENTER END-J	14.827 11.173 7.033	-16.084 -18.807 -20.714	-35.385 -35.385 -35.385	5468.45 5148.88 4522.87	-769.35 -2281.70 -3695.00	-1341.17 -1143.82 -920.28
49	BEND	9	END-I CENTER END-J	-15.721 -14.532 -12.712	4.092 7.261 10.114	-13.629 -13.629 -13.629	-1144.19 -1057.27 -956.42	376.69 453.09 509.83	1127.60 1063.39 965.12
50	BEND	1	END-I CENTER END-J	148.748 120.664 86.315	-107.010 -137.904 -161.638	-31.249 -31.249 -31.249	-1848.18 -1711.33 -1572.77	585.10 608.33 599.99	-4387.69 -2879.22 -1034.27
50	BEND	2	END-I CENTER END-J	-6.679 -7.222 -7.390	-3.163 -1.569 1.107	2.130 2.130 2.130	-132.44 -111.16 -78.16	65.71 119.88 167.83	667.20 696.34 705.35
50	BEND	3	END-I CENTER END-J	9.435 9.316 8.713	1.556 -1.594 -3.661	44.137 44.137 44.137	1872.38 1887.10 1926.92	7.88 120.47 226.81	-1371.82 -1365.43 -1333.06
50	BEND	4	END-I CENTER END-J	79.039 72.031 61.284	-21.893 -39.216 -54.504	-55.214 -55.214 -55.214	2618.62 2264.27 1638.40	-925.05 -2165.12 -3292.79	-9935.68 -9619.29 -9042.05
50	BEND	5	END-I CENTER END-J	-2.571 27.159 55.480	131.042 128.222 118.746	-34.133 -34.133 -34.133	-231.90 -303.45 -454.43	-132.46 -491.53 -825.09	-1162.32 -2759.18 -4280.32
50	BEND	6	END-I CENTER END-J	24.615 26.666 27.332	11.881 6.000 -1.192	46.020 46.020 46.020	3039.66 3107.82 3142.97	366.25 228.21 78.33	-3524.61 -3634.75 -3670.52
50	BEND	7	END-I CENTER END-J	13.376 13.114 12.171	376 -2.662 -5.561	-30.062 -30.062 -30.062	-2872.46 -2362.77 -1814.24	2107.41 2337.42 2446.08	1648.61 1662.69 1713.33
50	BEND	8	END-I CENTER END-J	19.182 21.204 22.125	11.133 6.502 1.533	11.777 11.777 11.777	4528.44 3596.04 2509.79	-3672.24 -4458.81 -5013.90	-982.00 -1090.61 -1140.10
50	BEND	9	END-I CENTER END-J	-11.705 -7.846 -3.580	15.704 17.946 19.257	-29.350 -29.350 -29.350	-953.90 -857.82 -799.05	495.82 342.03 170.47	974.86 767.60 538.45
51	BEND	1	END-I CENTER END-J	72.310 35.259 -3.222	-177.577 -188.465 -191.708	-39.167 -39.167 -39.167	-1571.82 -1463.37 -1381.66	596.93 474.47 332.76	-1037.49 970.36 3055.72
51	BEND	2	END-I CENTER END-J	-7.456 -7.258 -6.766	1.233 1.722 3.142	583 583 583	-76.44 -39.26 80	174.62 192.73 203.01	703.89 693.17 666.49

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
51	BEND	3	END-I CENTER END-J	9.408 8.283 6.822	-4.662 -6.453 -7.982	39.212 38.212 39.212	1925.87 1971.32 2023.00	206.65 242.36 268.23	-1337.85 -1276.88 -1197.70
51	BEND	4	END-I CENTER END-J	63.214 57.286 49.034	-23.185 -35.382 -46.144	-29.529 -28.529 -29.529	1611.62 868.69 25.61	-3382.36 -3957.37 -4371.85	-9013.76 -8692.50 -8245.31
51	BEND	5	END-I CENTER END-J	57.720 73.764 86.815	85.905 72.596 56.342	-25.951 -25.951 -25.951	-464.10 -656.04 -878.41	-862.47 -1033.79 -1163.18	-4271.90 -5141.32 -5848.59
51	BEND	6	END-I CENTER END-J	28.725 27.640 25.435	-2.504 -8.209 -13.581	41.457 41.457 41.457	3137.87 3126.15 3078.75	31.72 -147.52 -320.77	-3675.58 -3616.82 -3497.29
51	BEND	7	END-I CENTER END-J	15.958 15.083 13.597	-2.751 -5.893 -8.795	-60.964 -60.964 -60.964	-1801.69 -1337.37 -952.83	2469.14 2118.06 1681.06	1693.39 1740.80 1821.36
51	BEND	8	END-I CENTER END-J	47.765 52.361 54.833	27.769 17.635 6.785	68.620 68.620 68.620	2487.56 1503.70 609.70	-5034.43 -4685.61 -4146.73	-1097.59 -1346.64 -1480.59
51	BEND	9	END-I CENTER END-J	-610 3.657 7.776	21.232 20.924 19.766	-39.542 -39.542 -39.542	-797.56 -789.04 -835.43	178.69 -94.51 -363.88	538.01 306.77 83.58
52	TANGENT	1	END-I END-J	-12.172 -12.172	-164.197 -164.197	12.211 12.211	-1382.81 -1382.81	1272.85 1518.17	2797.29 6096.11
52	TANGENT	2	END-I END-J	-7.037 -7.037	1.765 1.765	-1.419 -1.419	.51 .51	401.62 373.10	569.32 533.86
52	TANGENT	3	END-I END-J	6.693 6.693	-.588 -.588	30.419 30.419	2023.32 2023.32	-119.71 491.44	-1220.99 -1209.17
52	TANGENT	4	END-I END-J	66.068 66.068	-4.366 -4.366	1.090 1.090	29.82 29.82	-6735.13 -6713.24	-6460.34 -6372.62
52	TANGENT	5	END-I END-J	74.068 74.068	12.215 12.215	-17.998 -17.998	-876.05 -876.05	-2937.45 -3299.05	-5189.85 -5435.26
52	TANGENT	6	END-I END-J	25.593 25.593	-5.239 -5.239	35.938 35.938	3080.04 3080.04	-1399.12 -677.10	-3220.00 -3114.75
52	TANGENT	7	END-I END-J	18.522 18.522	-28.577 -28.577	-73.564 -73.564	-953.99 -953.99	2166.70 688.76	1202.73 1776.86
52	TANGENT	8	END-I END-J	84.848 84.848	51.176 51.176	101.815 101.815	611.53 611.53	-4401.57 -2356.04	-106.65 -1134.81

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
52	TANGENT	9	END-I END-J	10.468 10.468	4.468 4.468	-43.724 -43.724	-835.34 -835.34	-319.71 -1198.15	193.19 103.43
53	TANGENT	1	END-I END-J	-20.874 -20.874	-91.646 -91.646	-4.454 -4.454	-1379.17 -1379.17	1540.11 1450.58	6091.43 7933.49
53	TANGENT	2	END-I END-J	-7.306 -7.306	-.121 -.121	-1.866 -1.866	.84 .84	375.01 337.50	532.52 534.96
53	TANGENT	3	END-I END-J	6.580 6.580	-6.654 -6.654	19.470 19.470	2022.63 2022.63	487.01 878.36	-1212.12 -1078.37
53	TANGENT	4	END-I END-J	82.532 82.532	47.156 47.156	12.196 12.196	25.82 25.82	-6736.08 -6490.94	-6348.49 -7296.31
53	TANGENT	5	END-I END-J	61.752 61.752	-22.796 -22.796	6.913 6.913	-879.37 -879.37	-3318.51 -3179.56	-5422.86 -4964.66
53	TANGENT	6	END-I END-J	25.759 25.759	-10.781 -10.781	26.898 26.898	3078.19 3078.19	-688.41 -147.76	-3114.11 -2897.41
53	TANGENT	7	END-I END-J	23.024 23.024	-24.909 -24.909	-79.799 -79.799	-952.91 -952.91	695.17 -908.77	1774.93 2275.60
53	TANGENT	8	END-I END-J	113.479 113.479	62.623 62.623	126.293 126.293	610.78 610.78	-2360.12 178.35	-1126.71 -2385.42
53	TANGENT	9	END-I END-J	12.968 12.968	2.469 2.469	-35.304 -35.304	-835.33 -835.33	-1197.74 -1907.35	108.22 58.59
54	TANGENT	1	END-I END-J	-29.646 -29.646	26.270 26.270	-30.349 -30.349	-1377.13 -1377.13	1450.79 821.38	7933.81 7389.01
54	TANGENT	2	END-I END-J	-7.590 -7.590	-2.131 -2.131	-1.815 -1.815	1.36 1.36	337.36 299.72	535.04 579.24
54	TANGENT	3	END-I END-J	6.407 6.407	-12.906 -12.906	8.725 8.725	2024.11 2024.11	875.33 1056.27	-1078.06 -810.39
54	TANGENT	4	END-I END-J	99.543 99.543	95.525 95.525	18.698 18.698	15.53 15.53	-6489.10 -6101.33	-7297.98 -9279.06
54	TANGENT	5	END-I END-J	49.068 49.068	-56.224 -56.224	29.413 29.413	-884.35 -884.35	-3176.84 -2566.84	-4965.52 -3799.51
54	TANGENT	6	END-I END-J	25.869 25.869	-16.352 -16.352	18.029 18.029	3078.06 3078.06	-152.04 221.86	-2897.32 -2558.20
54	TANGENT	7	END-I END-J	27.435 27.435	-18.752 -18.752	-72.053 -72.053	-954.50 -954.50	-907.80 -2402.08	2275.32 2664.22

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
54	TANGENT	8	END-I END-J	142.256 142.256	57.108 57.108	133.712 133.712	611.17 611.17	177.96 2950.98	-2385.35 -3569.70
54	TANGENT	9	END-I END-J	15.465 15.465	.489 .489	-19.352 -19.352	-838.45 -838.45	-1906.00 -2307.34	58.07 47.92
55	TANGENT	1	END-I END-J	-38.290 -38.290	181.737 181.737	-64.463 -64.463	-1379.92 -1379.92	807.67 -491.32	7390.00 3727.83
55	TANGENT	2	END-I END-J	-7.871 -7.871	-3.856 -3.856	-1.337 -1.337	.94 .94	298.74 271.80	579.75 657.44
55	TANGENT	3	END-I END-J	6.250 6.250	-18.045 -18.045	.767 .767	2023.40 2023.40	1059.43 1074.88	-808.04 -444.41
55	TANGENT	4	END-I END-J	116.470 116.470	133.302 133.302	18.395 18.395	23.53 23.53	-6085.62 -5714.95	-9289.35 -11975.52
55	TANGENT	5	END-I END-J	36.414 36.414	-82.853 -82.853	44.772 44.772	-881.01 -881.01	-2561.20 -1659.00	-3804.09 -2134.53
55	TANGENT	6	END-I END-J	25.999 25.999	-20.858 -20.858	11.473 11.473	3078.58 3078.58	228.92 460.11	-2556.96 -2136.66
55	TANGENT	7	END-I END-J	31.699 31.699	-15.466 -15.466	-48.044 -48.044	-953.10 -953.10	-2407.43 -3375.55	2659.90 2971.55
55	TANGENT	8	END-I END-J	170.451 170.451	32.257 32.257	119.144 119.144	609.54 609.54	2957.55 5358.43	-3564.54 -4214.55
55	TANGENT	9	END-I END-J	17.868 17.868	-1.394 -1.394	1.332 1.332	-836.41 -836.41	-2308.16 -2281.33	43.78 71.88
56	TANGENT	1	END-I END-J	-46.633 -46.633	354.353 354.353	-104.205 -104.205	-1379.86 -1379.86	-491.48 -2592.74	3727.83 -3417.63
56	TANGENT	2	END-I END-J	-8.149 -8.149	-4.989 -4.989	-.516 -.516	.91 .91	271.80 261.39	657.44 758.05
56	TANGENT	3	END-I END-J	6.084 6.084	-21.343 -21.343	-2.494 -2.494	2023.28 2023.28	1075.11 1024.81	-444.41 -14.04
56	TANGENT	4	END-I END-J	133.266 133.266	156.942 156.942	9.402 9.402	24.17 24.17	-5714.95 -5525.36	-11975.52 -15140.22
56	TANGENT	5	END-I END-J	23.897 23.897	-100.458 -100.458	50.741 50.741	-880.83 -880.83	-1659.10 -635.92	-2134.53 -108.81
56	TANGENT	6	END-I END-J	26.119 26.119	-23.773 -23.773	8.832 8.832	3078.53 3078.53	460.45 638.54	-2136.66 -1657.28

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
56	TANGENT	7	END-I END-J	35.619 35.619	-22.317 -22.317	-8.463 -8.463	-952.72 -952.72	-3375.66 -3546.31	2971.55 3421.57
56	TANGENT	8	END-I END-J	197.794 197.794	-9.199 -9.199	81.853 81.853	608.94 608.94	5358.49 7009.05	-4214.55 -4029.06
56	TANGENT	9	END-I END-J	20.127 20.127	-2.758 -2.758	21.841 21.841	-836.15 -836.15	-2281.42 -1841.00	71.88 127.49
57	BEND	1	END-I CENTER END-J	-174.636 -221.529 -253.621	-205.707 -154.070 -92.138	11.624 11.624 11.624	-1379.64 -1771.06 -2011.51	-1770.52 -1232.55 -612.21	-3907.48 -1937.38 -589.16
57	BEND	2	END-I CENTER END-J	-6.603 -4.839 -2.751	6.021 7.513 8.502	-1.199 -1.199 -1.199	.66 21.26 37.08	87.03 71.04 50.30	797.12 723.01 635.31
57	BEND	3	END-I CENTER END-J	11.274 13.894 15.584	11.688 8.407 4.565	-6.638 -6.638 -6.638	2023.93 2203.57 2217.34	1000.99 377.27 -271.65	214.04 104.01 32.97
57	BEND	4	END-I CENTER END-J	96.150 47.706 -3.926	-176.460 -195.210 -200.916	44.598 44.598 44.598	28.93 -431.17 -737.26	-2035.41 -1494.55 -853.82	-15987.89 -13952.66 -11783.51
57	BEND	5	END-I CENTER END-J	34.523 41.197 45.118	30.538 20.668 9.418	13.345 13.345 13.345	-881.17 -985.61 -986.73	-595.39 -205.92 197.32	-247.28 -527.68 -692.43
57	BEND	6	END-I CENTER END-J	31.043 30.896 28.683	3.469 -4.604 -12.369	3.721 3.721 3.721	3079.83 3235.26 3184.96	987.43 205.06 -591.00	-1473.52 -1467.31 -1374.36
57	BEND	7	END-I CENTER END-J	81.318 131.038 172.002	204.568 176.890 137.391	22.982 22.982 22.982	-956.82 -1973.09 -2793.00	-4215.27 -3581.68 -2708.77	2550.91 462.09 -1258.89
57	BEND	8	END-I CENTER END-J	279.870 340.733 378.829	273.922 193.032 99.243	-11.917 -11.917 -11.917	615.55 2558.86 4297.73	7726.81 7182.54 6158.34	-2376.64 -4933.64 -6534.11
57	BEND	9	END-I CENTER END-J	24.908 25.429 24.251	5.280 -1.282 -7.757	35.062 35.062 35.062	-837.38 -1227.46 -1437.08	-1822.91 -1169.78 -438.49	-283.70 -305.59 -256.09
58	BEND	1	END-I CENTER END-J	-187.711 -180.630 -162.664	5.847 51.404 93.863	5.187 5.187 5.187	-2011.09 -2093.51 -2036.67	-613.93 -52.50 512.10	-588.81 -885.53 -1638.41
58	BEND	2	END-I CENTER END-J	-3.354 -1.268 .895	8.149 8.721 8.767	.083 .083 .083	37.10 48.39 56.97	50.49 40.77 28.60	635.30 547.86 457.23

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
58	BEND	3	END-I CENTER END-J	14.510 14.868 14.331	3.266 -3.368 -3.979	2.292 2.292 2.292	2217.55 2087.87 1838.14	-269.91 -778.65 -1240.46	32.82 17.80 40.33
58	BEND	4	END-I CENTER END-J	19.543 -28.686 -75.185	-195.535 -194.404 -181.557	15.660 15.660 15.660	-737.74 -904.62 -977.42	-857.33 -491.88 -96.78	-11783.22 -9762.27 -7813.75
58	BEND	5	END-I CENTER END-J	30.131 31.861 31.670	10.826 3.159 -4.699	.028 .028 .028	-986.95 -909.33 -776.84	196.37 431.19 640.03	-692.38 -764.86 -756.88
58	BEND	6	END-I CENTER END-J	27.924 23.726 18.097	-13.779 -20.168 -25.340	11.306 11.306 11.306	3185.28 2960.11 2585.09	-588.86 -1231.73 -1800.38	-1374.53 -1198.59 -962.74
58	BEND	7	END-I CENTER END-J	143.947 154.320 155.393	60.379 23.489 -14.816	71.510 71.510 71.510	-2791.00 -3277.17 -3385.23	-2711.26 -1219.50 345.75	-1257.94 -1692.61 -1737.56
58	BEND	8	END-I CENTER END-J	381.851 384.146 363.289	56.646 -38.093 -130.537	-90.127 -90.127 -90.127	4292.28 5549.95 6245.53	6160.06 4008.55 1615.45	-6536.06 -6632.22 -5758.25
58	BEND	9	END-I CENTER END-J	25.626 23.548 20.051	-5.361 -11.443 -16.835	35.040 35.040 35.040	-1436.76 -1456.35 -1299.67	-439.68 281.35 985.42	-255.84 -168.76 -22.20
59	BEND	1	END-I CENTER END-J	-72.691 -45.486 -14.791	88.675 105.249 113.704	-5.541 -5.541 -5.541	-2035.90 -1825.67 -1492.63	511.57 987.53 1387.30	-1639.53 -2786.95 -4082.47
59	BEND	2	END-I CENTER END-J	.185 2.608 4.829	8.835 8.443 7.400	1.283 1.283 1.283	56.63 64.34 71.27	28.38 26.60 22.77	457.29 355.05 261.31
59	BEND	3	END-I CENTER END-J	12.781 11.199 8.753	-3.959 -7.322 -10.120	14.997 14.997 14.997	1838.99 1451.61 1001.05	-1239.18 -1523.18 -1689.67	40.90 107.65 210.86
59	BEND	4	END-I CENTER END-J	-49.997 -99.031 -140.426	-185.277 -164.378 -130.797	-17.470 -17.470 -17.470	-971.95 -988.50 -985.65	-93.08 -24.90 45.21	-7814.48 -5745.62 -3999.10
59	BEND	5	END-I CENTER END-J	18.173 17.951 16.344	1.742 -3.324 -8.134	-14.749 -14.749 -14.749	-776.77 -594.80 -414.95	639.91 657.71 624.78	-757.06 -747.70 -679.91
59	BEND	6	END-I CENTER END-J	16.751 9.041 .634	-25.680 -29.297 -30.654	22.161 22.161 22.161	2587.03 2028.74 1386.07	-1798.00 -2183.06 -2399.69	-961.96 -636.67 -281.95

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
59	BEND	7	END-I	81.824	-103.406	94.976	-3384.28	344.33	-1739.70
			CENTER	50.224	-121.924	94.976	-3004.44	2364.18	-406.46
			END-J	14.750	-131.036	94.976	-2083.67	4201.64	1090.27
59	BEND	8	END-I	353.406	-123.274	-132.747	6248.37	1623.11	-5753.02
			CENTER	305.865	-215.728	-132.747	6237.75	-1698.79	-3747.19
			END-J	234.728	-291.539	-132.747	5313.81	-4889.64	-745.76
59	BEND	9	END-I	25.353	-1.345	12.223	-1300.35	984.52	-22.55
			CENTER	24.005	-8.267	12.223	-959.49	1446.07	34.33
			END-J	20.805	-14.551	12.223	-504.83	1796.07	169.34
60	BEND	1	END-I	61.839	6.440	-25.683	-1488.59	1037.51	-4186.50
			CENTER	59.623	-17.624	-25.683	-1062.29	-1114.25	-4093.17
			END-J	48.399	-39.025	-25.683	-638.93	1022.66	-3620.44
60	BEND	2	END-I	4.149	8.212	1.325	71.38	44.83	258.41
			CENTER	6.966	6.010	1.325	87.30	35.51	139.73
			END-J	8.732	2.900	1.325	98.46	20.83	65.39
60	BEND	3	END-I	7.573	-4.292	29.121	995.37	-1668.77	354.96
			CENTER	5.365	-6.855	29.121	376.58	-1454.56	447.98
			END-J	2.346	-8.383	29.121	-113.80	-1020.60	575.14
60	BEND	4	END-I	-115.073	-153.287	-33.308	-986.13	-294.22	-3988.40
			CENTER	-164.825	-97.834	-33.308	-1129.80	-430.91	-1892.85
			END-J	-189.676	-27.601	-33.308	-1314.72	-502.50	-846.12
60	BEND	5	END-I	3.882	-1.961	-24.993	-412.94	565.64	-730.98
			CENTER	2.841	-3.293	-24.993	-245.61	278.99	-687.14
			END-J	1.371	-4.127	-24.993	-200.20	-49.81	-625.22
60	BEND	6	END-I	.702	-25.003	36.266	1377.91	-2419.69	-75.16
			CENTER	-10.181	-22.847	36.266	466.65	-2179.87	324.14
			END-J	-18.123	-17.239	36.266	-284.34	-1610.73	658.64
60	BEND	7	END-I	-134.287	-191.937	74.390	-2069.29	4286.62	726.05
			CENTER	-197.324	-126.238	74.390	-41.93	5946.42	3381.15
			END-J	-230.550	-41.469	74.390	2465.13	6707.87	4780.63
60	BEND	8	END-I	261.733	-149.828	-67.711	5297.14	-4953.49	-323.45
			CENTER	184.837	-238.302	-67.711	2792.95	-7686.36	2915.41
			END-J	80.017	-290.775	-67.711	-564.06	-9258.01	7330.43
60	BEND	9	END-I	45.170	25.335	-45.598	-498.73	1805.67	14.78
			CENTER	51.418	6.199	-45.598	82.32	1127.16	-248.37
			END-J	49.898	-13.873	-45.598	360.78	278.36	-184.33
61	BEND	1	END-I	37.392	-121.871	-40.973	-635.10	1009.35	-3624.85
			CENTER	-2.132	-127.461	-40.973	-375.95	625.45	-1969.12
			END-J	-41.446	-120.553	-40.973	-248.24	180.22	-322.15

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
61	BEND	2	END-I CENTER END-J	8.809 9.657 9.559	4.140 1.212 -1.834	.523 .523 .523	98.41 101.17 96.15	21.04 -3.65 -27.98	65.40 29.86 33.99
61	BEND	3	END-I CENTER END-J	6.317 6.000 5.095	-.023 -1.975 -3.734	29.158 29.158 29.158	-114.67 -364.13 -458.11	-1018.41 -555.25 -37.65	578.83 592.10 630.01
61	BEND	4	END-I CENTER END-J	-186.814 -198.058 -189.959	-66.101 -5.085 56.429	-24.019 -24.019 -24.019	-1314.05 -1455.22 -1552.35	-505.25 -385.27 -227.52	-845.52 -372.80 -713.75
61	BEND	5	END-I CENTER END-J	-7.377 -7.353 -6.608	-1.092 1.243 3.456	-14.762 -14.762 -14.762	-199.61 -236.25 -310.36	-52.08 -179.05 -288.46	-625.23 -626.22 -657.42
61	BEND	6	END-I CENTER END-J	-14.981 -17.258 -17.843	-9.737 -4.626 .938	36.619 36.619 36.619	-285.47 -63.63 -883.36	-1608.18 -966.63 -230.30	664.37 759.75 784.24
61	BEND	7	END-I CENTER END-J	-404.814 -391.180 -339.192	-20.087 106.093 221.870	-48.346 -48.346 -48.346	2462.55 4322.31 5559.71	6724.90 5007.28 2798.69	4757.98 4186.84 2008.95
61	BEND	8	END-I CENTER END-J	314.078 310.708 276.873	38.889 -60.151 -153.294	117.614 117.614 117.614	-574.01 -3158.98 -4951.13	-9230.45 -7076.63 -4228.95	7364.34 7505.54 8922.96
61	BEND	9	END-I CENTER END-J	116.216 123.678 119.014	42.550 4.522 -33.949	-92.012 -92.012 -92.012	361.05 240.22 -282.10	277.57 -1039.79 -2255.20	-185.02 -497.61 -302.20
62	BEND	1	END-I CENTER END-J	-59.321 -68.129 -76.503	-112.947 -107.863 -102.094	-42.684 -42.684 -42.684	-247.43 -238.87 -240.06	168.18 46.28 -75.92	-329.20 36.28 383.80
62	BEND	2	END-I CENTER END-J	10.012 9.882 9.690	-1.231 -2.025 -2.805	-.184 -.184 -.184	96.08 93.63 90.54	-26.59 -34.77 -42.72	35.28 40.67 48.66
62	BEND	3	END-I CENTER END-J	10.065 10.132 10.136	1.254 .448 -.360	24.083 24.083 24.083	-460.15 -456.77 -444.14	-15.79 100.51 216.17	629.45 626.64 626.49
62	BEND	4	END-I CENTER END-J	-201.952 -198.515 -193.818	35.088 51.062 66.712	-9.328 -9.328 -9.328	-1549.64 -1566.28 -1575.44	-255.38 -161.97 -67.53	-710.22 -852.82 -1047.76
62	BEND	5	END-I CENTER END-J	-11.081 -10.782 -10.414	3.319 4.191 5.037	-4.105 -4.105 -4.105	-307.75 -332.19 -355.60	-312.31 -300.37 -286.53	-647.68 -660.11 -675.39

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
62	BEND	6	END-I CENTER END-J	-13.615 -13.101 -12.504	5.906 6.972 7.993	32.162 32.162 32.162	-885.63 -894.78 -889.77	-203.47 -25.98 151.67	789.09 767.77 743.00
62	BEND	7	END-I CENTER END-J	-424.313 -404.646 -382.409	229.987 263.053 294.447	-130.428 -130.428 -130.428	5548.90 5743.27 5866.76	2877.61 1995.42 1100.54	1925.62 1109.54 186.77
62	BEND	8	END-I CENTER END-J	515.909 513.768 508.362	-6.305 -47.377 -88.148	248.893 248.893 248.893	-4974.61 -5237.78 -5402.05	-3914.54 -2683.25 -1434.91	9052.43 9141.28 9365.60
62	BEND	9	END-I CENTER END-J	173.091 171.130 168.081	-17.716 -31.447 -44.977	-72.497 -72.497 -72.497	-277.80 -466.88 -672.11	-2265.02 -2475.31 -2669.87	-222.16 -140.79 -14.29
63	TANGENT	1	END-I END-J	-89.692 -89.692	93.088 93.088	22.035 22.035	-240.92 -240.92	-30.91 454.63	-389.48 -2440.65
63	TANGENT	2	END-I END-J	10.173 10.173	2.481 2.481	.186 .186	90.53 90.53	27.47 31.56	-58.66 -113.32
63	TANGENT	3	END-I END-J	14.977 14.977	-7.777 -7.777	-17.650 -17.650	-446.60 -446.60	-377.42 -766.34	-542.75 -371.40
63	TANGENT	4	END-I END-J	-207.071 -207.071	-49.756 -49.756	7.995 7.995	-1572.21 -1572.21	357.09 533.25	992.47 2088.82
63	TANGENT	5	END-I END-J	-14.337 -14.337	-6.475 -6.475	-3.679 -3.679	-352.78 -352.78	461.46 380.38	572.10 714.78
63	TANGENT	6	END-I END-J	-8.358 -8.358	-18.012 -18.012	-23.914 -23.914	-892.36 -892.36	-345.53 -872.48	-671.60 -274.72
63	TANGENT	7	END-I END-J	-455.489 -455.489	-231.838 -231.838	262.888 262.888	5862.78 5862.78	-1131.70 4660.95	109.76 5218.22
63	TANGENT	8	END-I END-J	733.226 733.226	-106.602 -106.602	-343.166 -343.166	-5424.41 -5424.41	-1157.88 -8719.41	-9390.99 -7042.05
63	TANGENT	9	END-I END-J	217.339 217.339	43.244 43.244	32.747 32.747	-663.83 -663.83	2574.72 3296.30	-714.34 -1667.21
64	TANGENT	1	END-I END-J	-110.128 -110.128	33.487 33.487	36.212 36.212	-242.69 -242.69	464.54 1262.93	-2438.61 -3176.92
64	TANGENT	2	END-I END-J	10.897 10.897	2.077 2.077	1.309 1.309	90.45 90.45	32.04 60.91	-113.26 -159.05
64	TANGENT	3	END-I END-J	22.481 22.481	-10.874 -10.874	-8.050 -8.050	-446.63 -446.63	-764.94 -942.42	-374.23 -134.48

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
64	TANGENT	4	END-I END-J	-227.032 -227.032	-31.869 -31.869	-22.013 -22.013	-1570.96 -1570.96	524.26 38.92	2092.04 2794.68
64	TANGENT	5	END-I END-J	-20.446 -20.446	-7.220 -7.220	-16.523 -16.523	-352.40 -352.40	377.36 13.06	716.57 875.75
64	TANGENT	6	END-I END-J	-1.843 -1.843	-21.058 -21.058	-15.660 -15.660	-892.30 -892.30	-871.61 -1216.88	-277.68 186.60
64	TANGENT	7	END-I END-J	-565.687 -565.687	-106.318 -106.318	281.589 281.589	5864.97 5864.97	4641.24 10849.67	5233.30 7577.39
64	TANGENT	8	END-I END-J	1082.207 1082.207	-283.331 -283.331	-452.775 -452.775	-5426.68 -5426.68	-8692.09 -18674.79	-7074.01 -827.18
64	TANGENT	9	END-I END-J	292.741 292.741	-12.724 -12.724	-71.156 -71.156	-665.88 -665.88	3302.90 1734.07	-1653.27 -1372.74
65	BEND	1	END-I CENTER END-J	-127.355 -131.853 -131.582	-35.923 -11.161 14.005	-41.258 -41.258 -41.258	-238.34 248.92 664.32	2716.88 2383.86 1964.61	2075.68 2265.12 2253.68
65	BEND	2	END-I CENTER END-J	11.516 10.843 9.778	-2.456 -4.592 -6.562	1.064 1.064 1.064	90.66 115.69 138.15	136.57 125.41 109.72	101.58 129.93 174.81
65	BEND	3	END-I CENTER END-J	28.905 29.233 28.503	4.492 -1.062 -6.578	-13.451 -13.451 -13.451	-447.26 -376.57 -312.74	384.81 355.26 312.86	-870.40 -884.19 -853.45
65	BEND	4	END-I CENTER END-J	-244.090 -230.840 -209.241	46.662 92.031 134.071	-4.063 -4.063 -4.063	-1573.84 -2059.61 -2477.07	-2699.74 -2385.34 -1984.66	-717.01 -1275.07 -2184.82
65	BEND	5	END-I CENTER END-J	-25.733 -20.479 -14.483	25.296 29.710 33.050	1.670 1.670 1.670	-353.30 -505.88 -637.61	-846.34 -750.83 -628.16	-224.01 -445.33 -697.86
65	BEND	6	END-I CENTER END-J	3.733 6.594 9.217	15.469 14.482 12.972	-20.747 -20.747 -20.747	-893.49 -864.67 -836.19	150.32 151.31 146.83	-1221.02 -1341.53 -1452.00
65	BEND	7	END-I CENTER END-J	-660.238 -697.097 -708.740	-257.754 -128.090 6.207	44.034 44.034 44.034	5865.99 3855.66 1772.96	-10234.97 -10809.31 -10992.65	8388.42 9940.92 10431.34
65	BEND	8	END-I CENTER END-J	1386.555 1477.698 1515.388	613.854 340.237 54.313	-239.991 -239.991 -239.991	-5441.15 -4417.33 -3599.37	5853.49 4863.98 3698.52	-17748.56 -21587.49 -23175.03
65	BEND	9	END-I CENTER END-J	358.177 395.742 418.992	232.627 160.607 82.776	-16.610 -16.610 -16.610	-653.02 -502.22 -348.55	852.86 830.51 778.12	2041.53 459.29 -520.00

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
66	BEND	1	END-I	-142.193	25.156	-90.263	665.14	1978.43	2241.32
			CENTER	-134.850	51.643	-90.263	959.29	1098.24	1932.93
			END-J	-122.622	76.259	-90.263	1081.33	178.26	1419.35
66	BEND	2	END-I	10.103	-7.050	.702	138.26	110.89	173.99
			CENTER	8.584	-8.837	.702	157.30	88.27	237.78
			END-J	6.754	-10.303	.702	171.71	62.45	314.63
66	BEND	3	END-I	31.815	-11.891	-17.173	-314.20	307.54	-854.85
			CENTER	28.986	-17.704	-17.173	-263.31	224.84	-736.01
			END-J	25.106	-22.875	-17.173	-229.00	133.99	-573.07
66	BEND	4	END-I	-218.186	147.736	9.403	-2477.77	-2000.04	-2169.95
			CENTER	-186.240	186.402	9.403	-2804.69	-1419.49	-351.66
			END-J	-147.547	218.314	9.403	-3015.70	-787.52	-5136.76
66	BEND	5	END-I	-16.840	37.978	5.000	-637.84	-632.91	-693.34
			CENTER	-9.339	40.481	5.000	-742.41	-460.79	-1008.39
			END-J	-1.500	41.518	5.000	-812.46	-271.99	-1337.65
66	BEND	6	END-I	12.072	8.303	-24.230	-838.26	137.46	-1451.72
			CENTER	13.427	5.865	-24.230	-815.46	100.98	-1508.62
			END-J	14.295	3.215	-24.230	-799.99	60.84	-1545.08
66	BEND	7	END-I	-783.622	36.346	313.895	1798.64	-10929.73	10492.88
			CENTER	-762.539	184.168	313.895	-66.07	-8574.53	9607.42
			END-J	-713.830	325.316	313.895	-1450.74	-5908.66	7561.63
66	BEND	8	END-I	1780.504	7.820	-283.460	-3633.83	3559.46	-23191.42
			CENTER	1749.731	-329.689	-283.460	-3109.23	1927.71	-21898.98
			END-J	1655.565	-655.254	-283.460	-2903.31	226.11	-17944.01
66	BEND	9	END-I	526.845	221.809	-35.232	-350.08	774.69	-524.07
			CENTER	559.330	117.965	-35.232	-223.75	546.62	-1888.40
			END-J	571.549	9.847	-35.232	-142.93	298.73	-2401.62
67	BEND	1	END-I	-128.205	87.607	-124.506	1081.49	178.54	1419.19
			CENTER	-109.172	110.421	-124.506	1000.22	-1024.14	621.86
			END-J	-86.142	129.193	-124.506	691.36	-2189.33	-342.91
67	BEND	2	END-I	6.885	-10.676	.468	171.78	62.59	314.57
			CENTER	4.725	-11.792	.468	180.91	32.46	405.03
			END-J	2.393	-12.476	.468	184.14	1.14	502.75
67	BEND	3	END-I	26.589	-26.843	-19.608	-228.83	133.63	-573.23
			CENTER	20.990	-31.416	-19.608	-214.22	18.32	-338.65
			END-J	14.622	-34.839	-19.608	-221.85	-97.66	-71.88
67	BEND	4	END-I	-151.291	228.768	18.047	-3016.45	-789.59	-5136.00
			CENTER	-104.949	253.395	18.047	-3097.79	-56.61	-7077.35
			END-J	-54.765	268.746	18.047	-3038.02	678.44	-9179.67

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
67	BEND	5	END-I	-2.288	44.497	7.446	-812.74	-272.50	-1337.38
			CENTER	6.229	44.119	7.446	-844.05	-53.30	-1694.18
			END-J	14.518	42.125	7.446	-833.04	167.85	-2041.42
67	BEND	6	END-I	15.621	-234	-26.469	-799.87	60.09	-1545.17
			CENTER	15.291	-3.205	-26.469	-794.08	14	-1531.32
			END-J	14.400	-6.059	-26.469	-799.82	-59.82	-1494.02
67	BEND	7	END-I	-769.735	387.663	663.284	-1457.90	-5898.70	7568.03
			CENTER	-681.808	527.174	663.284	-2046.05	-220.70	3884.58
			END-J	-568.918	647.384	663.284	-1541.98	5465.37	-844.60
67	BEND	8	END-I	1876.984	-843.401	-284.577	-2902.48	209.91	-17944.34
			CENTER	1681.985	-1185.462	-284.577	-3027.60	-1511.74	-9775.44
			END-J	1425.404	-1484.121	-284.577	-3478.35	-3178.05	973.21
67	BEND	9	END-I	729.243	124.680	-47.071	-142.51	296.28	-2401.95
			CENTER	739.641	-16.498	-47.071	-119.57	-57.58	-2837.52
			END-J	722.959	-157.072	-47.071	-164.44	-409.33	-2138.66
68	BEND	1	END-I	-88.129	136.340	-140.160	694.30	-2187.53	-348.43
			CENTER	-60.693	150.571	-140.160	160.42	-3395.44	-1501.09
			END-J	-31.056	159.345	-140.160	-592.71	-4480.28	-2746.17
68	BEND	2	END-I	2.448	-12.651	332	184.08	.09	502.77
			CENTER	.006	-12.885	.332	181.01	-32.15	605.36
			END-J	-2.436	-12.653	.332	171.89	-63.23	707.96
68	BEND	3	END-I	15.047	-36.699	-20.779	-221.71	-97.77	-72.16
			CENTER	7.819	-38.886	-20.779	-252.04	-219.43	231.50
			END-J	.308	-39.663	-20.779	-304.88	-333.13	547.07
68	BEND	4	END-I	-56.143	273.684	22.559	-3037.81	697.94	-9178.28
			CENTER	-3.257	279.365	22.559	-2833.31	1440.64	-11400.14
			END-J	49.748	274.919	22.559	-2491.75	2131.12	-13626.96
68	BEND	5	END-I	14.345	43.272	8.687	-833.02	171.97	-2041.09
			CENTER	22.286	39.770	8.687	-778.72	395.90	-2374.71
			END-J	29.419	34.825	8.687	-682.96	605.48	-2674.39
68	BEND	6	END-I	14.746	-7.663	-27.473	-799.56	-57.05	-1494.27
			CENTER	13.027	-10.318	-27.473	-816.80	-123.23	-1422.03
			END-J	10.835	-12.600	-27.473	-846.27	-184.94	-1329.96
68	BEND	7	END-I	-599.034	718.888	1077.549	-1549.11	5465.47	-830.78
			CENTER	-451.934	819.388	1077.549	335.22	14239.61	-7010.77
			END-J	-288.452	890.189	1077.549	3848.29	22497.62	-13878.97
68	BEND	8	END-I	1556.216	-1783.452	-256.059	-3474.25	-3185.14	964.64
			CENTER	1190.011	-2046.065	-256.059	-4209.90	-4507.74	16349.65
			END-J	780.672	-2234.516	-256.059	-5182.88	-5666.96	33546.80

P I P E F O R C E S A N D M O M E N T S									
ELEMENT NUMBER	ELEMENT TYPE	LOAD CASE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
68	BEND	9	END-I CENTER END-J	916.787 883.350 817.893	-88.763 -260.905 -423.590	-52.646 -52.646 -52.646	-163.64 -277.34 -461.15	-404.07 -784.91 -1137.29	-2139.73 -734.94 2015.00
69	TANGENT	1	END-I END-J	-30.960 -30.960	-180.840 -180.840	115.961 115.961	-596.54 -596.54	4000.87 5041.74	3406.29 5029.51
69	TANGENT	2	END-I END-J	-2.447 -2.447	12.570 12.570	1.649 1.649	171.84 171.84	172.16 186.97	-689.63 -802.45
69	TANGENT	3	END-I END-J	.264 .264	36.240 36.240	26.857 26.857	-305.17 -305.17	413.52 654.58	-488.97 -814.26
69	TANGENT	4	END-I END-J	50.003 50.003	-268.755 -268.755	-65.442 -65.442	-2489.93 -2489.93	-4216.19 -4803.60	13132.73 15545.07
69	TANGENT	5	END-I END-J	29.479 29.479	-33.117 -33.117	-14.128 -14.128	-682.44 -682.44	-1012.60 -1139.41	2548.39 2845.65
69	TANGENT	6	END-I END-J	10.814 10.814	8.436 8.436	29.263 29.263	-846.43 -846.43	-23.80 238.86	1342.44 1266.72
69	TANGENT	7	END-I END-J	-287.840 -287.840	-715.771 -715.771	-1554.496 -1554.496	3867.55 3867.55	-24371.01 -38324.16	10231.03 16655.79
69	TANGENT	8	END-I END-J	778.719 778.719	2454.258 2454.258	601.547 601.547	-5187.72 -5187.72	10785.35 16184.83	-32266.52 -54295.94
69	TANGENT	9	END-I END-J	978.881 978.881	411.723 411.723	118.526 118.526	-462.13 -462.13	1435.00 2498.90	-1814.81 -5510.43

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
 THAM= THERMAL ANCHOR MOTION
 SEAM= SEISMIC ANCHOR MOTION
 SNBR= SNUBBER ELEMENT

LOAD CASE		GROUP 1 X EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			MY	MZ	LOCAL COMPONENTS	
					FX	FY	FZ	MX		FL	ML
BDRY	7090	-146.	0.	0.		0.	0.	0.	0.	-146.	0.
BDRY	7090	0.	83.	0.		83.	0.	0.	0.	83.	0.
BDRY	7090	0.	0.	39.		0.	39.	0.	0.	39.	0.
BDRY	7090	0.	0.	0.		0.	0.	-3741.	0.	0.	-3741.
BDRY	7090	0.	0.	0.		0.	0.	0.	0.	0.	-8510.
BDRY	3047	0.	0.	0.		0.	0.	0.	620.	0.	620.
BDRY	3116	0.	0.	1.		0.	1.	0.	0.	1.	0.
BDRY	3210	0.	0.	1.		0.	1.	0.	0.	1.	0.
BDRY	3210	-764.	0.	0.		0.	0.	0.	0.	-764.	0.
BDRY	3250	116.	0.	0.		0.	0.	0.	0.	0.	0.
BDRY	3250	0.	181.	0.		181.	0.	0.	0.	116.	0.
BDRY	3250	0.	0.	31.		0.	31.	0.	0.	181.	0.
BDRY	3250	0.	0.	0.		0.	0.	5030.	0.	31.	0.
BDRY	3250	0.	0.	0.		0.	0.	0.	-5042.	0.	5030.
BDRY	3250	0.	0.	0.		0.	0.	0.	0.	0.	-5042.
SNBR	3035	0.	0.	0.		0.	0.	0.	597.	0.	597.
SNBR	3083	0.	0.	0.		0.	0.	0.	0.	0.	0.

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDY= BOUNDARY ELEMENTS (SPRING)
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LOAD CASE	KIND OF SUPPORT	NODE NUMBER	GROUP 1 Y EXCITATION						LOCAL COMPONENTS	
			FX	FY	GLOBAL FZ	GLOBAL MX	MY	MZ	FL	ML
2	BDRY	7090	188.						188.	0.
	BDRY	7090	0.	22.	0.	0.	0.	0.	22.	0.
	BDRY	7090	0.	0.	52.	0.	0.	0.	52.	0.
	BDRY	7090	0.	0.	0.	-1825.	0.	0.	0.	-1825.
	BDRY	7090	0.	0.	0.	0.	1479.	0.	0.	1479.
	BDRY	3047	0.	0.	0.	0.	0.	4691.	0.	4691.
	BDRY	3116	0.	0.	0.	0.	0.	0.	0.	0.
	BDRY	3210	12.	0.	0.	0.	0.	0.	12.	0.
	BDRY	3210	0.	0.	0.	0.	0.	0.	0.	0.
	BDRY	3250	2.	0.	0.	0.	0.	0.	0.	0.
	BDRY	3250	0.	-13.	0.	0.	0.	0.	2.	0.
	BDRY	3250	0.	0.	2.	0.	0.	0.	-13.	0.
	BDRY	3250	0.	0.	0.	-802.	0.	0.	2.	0.
	BDRY	3250	0.	0.	0.	0.	-187.	0.	0.	-802.
	BDRY	3250	0.	0.	0.	0.	0.	0.	0.	-187.
	SNBR	3035	0.	0.	0.	0.	0.	0.	0.	-172.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
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LOAD CASE		3		GROUP 1 Z EXCITATION						
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			LOCAL COMPONENTS		
					FX	FY	FZ	FL	ML	
BDRY	7090	-25.	0.	0.	0.	0.	0.	-25.	0.	
BDRY	7090	0.	2.	0.	0.	0.	0.	2.	0.	
BDRY	7090	0.	0.	-63.	0.	0.	0.	-63.	0.	
BDRY	7090	0.	0.	0.	2157.	0.	0.	0.	2157.	
BDRY	7090	0.	0.	0.	0.	6326.	0.	0.	6326.	
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	-172.	
BDRY	3116	0.	0.	-1.	0.	0.	0.	-1.	0.	
BDRY	3210	34.	0.	-1.	0.	0.	0.	34.	0.	
BDRY	3210	0.	0.	0.	0.	0.	0.	0.	0.	
BDRY	3250	27.	0.	0.	0.	0.	0.	27.	0.	
BDRY	3250	0.	-36.	0.	0.	0.	0.	-36.	0.	
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	0.	
BDRY	3250	0.	0.	0.	-814.	0.	0.	0.	-814.	
BDRY	3250	0.	0.	0.	0.	-655.	0.	0.	-655.	
BDRY	3250	0.	0.	0.	0.	0.	305.	0.	305.	
SNBR	3035	0.	0.	0.	0.	0.	0.	0.	0.	
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
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LOAD CASE		GROUP 2 X EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS EX	MY	MZ	LOCAL COMPONENTS FL	ML		
BDRY	7090	-8352.	0.	0.	0.	0.	0.	-8352.	0.		
BDRY	7090	0.	1111.	0.	0.	0.	0.	1111.	0.		
BDRY	7090	0.	0.	-1930.	0.	0.	0.	-1930.	0.		
BDRY	7090	0.	0.	0.	24869.	0.	0.	0.	24869.		
BDRY	7090	0.	0.	0.	0.	-81375.	0.	0.	-81375.		
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	0.		
BDRY	3116	0.	0.	-1.	0.	0.	0.	-1.	0.		
BDRY	3210	-348.	0.	0.	0.	0.	0.	0.	0.		
BDRY	3210	0.	0.	0.	0.	0.	0.	-348.	0.		
BDRY	3250	-65.	0.	0.	0.	0.	0.	0.	0.		
BDRY	3250	0.	269.	0.	0.	0.	0.	-65.	0.		
BDRY	3250	0.	0.	-50.	0.	0.	0.	269.	0.		
BDRY	3250	0.	0.	0.	15545.	0.	0.	-50.	0.		
BDRY	3250	0.	0.	0.	0.	4804.	0.	0.	15545.		
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	4804.		
BDRY	3035	0.	0.	0.	0.	0.	2490.	0.	2490.		
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.		

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
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LOAD CASE		5	GROUP 2 Y EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			MY	MZ	LOCAL COMPONENTS		
					FX	FY	FZ	MX	MY	MZ	FL	ML
BDRY	7090	888.	0.	0.	0.	0.	0.	0.	0.	0.	888.	0.
BDRY	7090	0.	-2042.	0.	0.	0.	0.	0.	0.	0.	-2042.	0.
BDRY	7090	0.	0.	262.	0.	0.	0.	0.	0.	0.	262.	0.
BDRY	7090	0.	0.	0.	0.	0.	0.	26529.	0.	0.	0.	26529.
BDRY	7090	0.	0.	0.	0.	0.	0.	0.	7829.	0.	0.	7829.
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	0.	-29445.	0.	-29445.
BDRY	3116	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3210	151.	0.	0.	0.	0.	0.	0.	0.	0.	151.	0.
BDRY	3210	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3250	-14.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3250	0.	33.	0.	0.	0.	0.	0.	0.	0.	-14.	0.
BDRY	3250	0.	0.	-29.	0.	0.	0.	0.	0.	0.	33.	0.
BDRY	3250	0.	0.	0.	0.	0.	0.	2846.	0.	0.	-29.	0.
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	1139.	0.	0.	2846.
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	0.	682.	0.	1139.
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	682.
SNBR	3035	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
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LOAD CASE		GROUP 2 Z EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS FX FZ MX	MY	MZ	LOCAL COMPONENTS FL ML			
BDRY	7090	-1064.	0.	0.	0.	0.	0.	-1064.	0.		
BDRY	7090	0.	173.	0.	0.	0.	0.	-173.	0.		
BDRY	7090	0.	0.	-1379.	0.	0.	0.	-1379.	0.		
BDRY	7090	0.	0.	0.	31183.	0.	0.	0.	31183.		
BDRY	7090	0.	0.	0.	0.	28563.	0.	0.	28563.		
BDRY	3047	0.	0.	0.	0.	0.	-17343.	0.	-17343.		
BDRY	3116	0.	0.	-2.	0.	0.	0.	-2.	0.		
BDRY	3210	31.	0.	-1.	0.	0.	0.	-1.	0.		
BDRY	3210	0.	0.	0.	0.	0.	0.	31.	0.		
BDRY	3250	29.	0.	0.	0.	0.	0.	0.	0.		
BDRY	3250	0.	-8.	0.	0.	0.	0.	29.	0.		
BDRY	3250	0.	0.	-11.	0.	0.	0.	-8.	0.		
BDRY	3250	0.	0.	0.	1267.	0.	0.	-11.	0.		
BDRY	3250	0.	0.	0.	0.	-239.	0.	0.	1267.		
BDRY	3250	0.	0.	0.	0.	0.	846.	0.	-239.		
BDRY	3035	0.	0.	0.	0.	0.	0.	0.	846.		
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.		

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
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LOAD CASE		GROUP 3 X EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			MY	MZ	LOCAL COMPONENTS	
					FX	FY	FZ			FL	ML
BDRY	7090	-72.	0.	0.	0.	0.	0.	0.	0.	-72.	0.
BDRY	7090	0.	-8.	0.	0.	0.	0.	0.	0.	-8.	0.
BDRY	7090	0.	0.	60.	0.	0.	0.	0.	0.	60.	0.
BDRY	7090	0.	0.	0.	-2019.	0.	0.	0.	0.	0.	-2019.
BDRY	7090	0.	0.	0.	0.	0.	0.	-10017.	0.	0.	-10017.
BDRY	7090	0.	0.	0.	0.	0.	0.	0.	-2473.	0.	-2473.
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
BDRY	3116	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
BDRY	3210	267.	0.	0.	0.	0.	0.	0.	0.	267.	0.
BDRY	3210	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3250	-1683.	0.	0.	0.	0.	0.	0.	0.	-1683.	0.
BDRY	3250	0.	716.	0.	0.	0.	0.	0.	0.	716.	0.
BDRY	3250	0.	0.	288.	0.	0.	0.	0.	0.	288.	0.
BDRY	3250	0.	0.	0.	16656.	0.	0.	0.	0.	0.	16656.
BDRY	3250	0.	0.	0.	0.	0.	0.	38324.	0.	0.	38324.
BDRY	3035	0.	0.	0.	0.	0.	0.	0.	-3868.	0.	-3868.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
 THAM= THERMAL ANCHOR MOTION
 SEAM= SEISMIC ANCHOR MOTION
 SNBR= SNUBBER ELEMENT

LOAD CASE		GROUP 3 Y EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			MY	MZ	LOCAL COMPONENTS	
										FL	ML
BDRY	7090	87.	0.	0.	0.	0.	0.	0.	0.	87.	0.
BDRY	7090	0.	-10.	0.	0.	0.	0.	0.	0.	-10.	0.
BDRY	7090	0.	0.	-90.	0.	0.	0.	0.	0.	-90.	0.
BDRY	7090	0.	0.	0.	3452.	0.	0.	0.	0.	0.	3452.
BDRY	7090	0.	0.	0.	0.	0.	14753.	0.	2059.	0.	14753.
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	0.	0.	2059.
BDRY	3047	0.	0.	-2.	0.	0.	0.	0.	0.	-2.	0.
BDRY	3116	0.	0.	-2.	0.	0.	0.	0.	0.	-2.	0.
BDRY	3210	346.	0.	0.	0.	0.	0.	0.	0.	346.	0.
BDRY	3210	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3250	602.	0.	0.	0.	0.	0.	0.	0.	602.	0.
BDRY	3250	0.	-2560.	0.	0.	0.	0.	0.	0.	-2560.	0.
BDRY	3250	0.	0.	-779.	0.	0.	0.	0.	0.	-779.	0.
BDRY	3250	0.	0.	0.	-54296.	0.	0.	0.	0.	0.	-54296.
BDRY	3250	0.	0.	0.	0.	0.	-16185.	0.	5188.	0.	-16185.
BDRY	3250	0.	0.	0.	0.	0.	0.	0.	0.	0.	5188.
SNBR	3035	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SUMMARY OF SUPPORT FORCES/MOMENTS IN GLOBAL/LOCAL SYSTEMS

BDRY= BOUNDARY ELEMENTS (SPRING)
 THAM= THERMAL ANCHOR MOTION
 SEAM= SEISMIC ANCHOR MOTION
 SNBR= SNUBBER ELEMENT

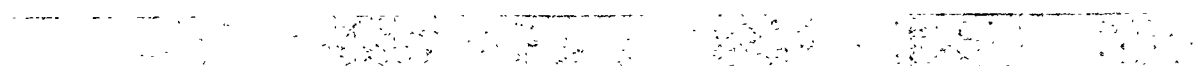
LOAD CASE		GROUP 3 Z EXCITATION									
KIND OF SUPPORT	NODE NUMBER	FX	FY	FZ	GLOBAL COMPONENTS			MY	MZ	LOCAL COMPONENTS	
					MX					FL	ML
BDRY	7090	-16.	0.	0.	0.	0.	0.	0.	0.	-16.	0.
BDRY	7090	0.	-13.	0.	0.	0.	0.	0.	0.	-13.	0.
BDRY	7090	0.	0.	17.	0.	0.	0.	0.	0.	17.	0.
BDRY	7090	0.	0.	0.	-313.	0.	0.	0.	0.	0.	-313.
BDRY	7090	0.	0.	0.	0.	0.	0.	-2818.	0.	0.	-2818.
BDRY	3047	0.	0.	0.	0.	0.	0.	0.	-1120.	0.	-1120.
BDRY	3116	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
BDRY	3210	16.	0.	0.	0.	0.	0.	0.	0.	16.	0.
BDRY	3210	119.	0.	0.	0.	0.	0.	0.	0.	119.	0.
BDRY	3250	0.	-412.	0.	0.	0.	0.	0.	0.	-412.	0.
BDRY	3250	0.	0.	-1037.	0.	0.	0.	0.	0.	-1037.	0.
BDRY	3250	0.	0.	0.	-5510.	0.	0.	0.	0.	0.	-5510.
BDRY	3250	0.	0.	0.	0.	0.	0.	-2499.	0.	0.	-2499.
SNBR	3035	0.	0.	0.	0.	0.	0.	0.	462.	0.	462.
SNBR	3083	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

STATIC SOLUTION TIME LOG

EQUATION SOLUTION = .00
 DISPLACEMENT OUTPUT = .00
 STRESS RECOVERY = .00

BENCHMARK PROBLEM 2

TOTAL RESPONSE.



***** FINAL RESULTS - SRSS COMBINATION OF DYNAMIC RESPONSES WITH HIGH FREQUENCY MODE RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

N O D E N O D E N U M B E R	D I S P L A C E M E N T S / R O T A T I O N S			A C C E L E R A T I O N S I N G ' S		
	TRANSLATION	TRANSLATION	TRANSLATION	X- DIRECTION	Y- DIRECTION	Z- DIRECTION
7090	.11791E-06	.17977E-06	.66067E-07	.85646E-07	.70486E-07	.10570E-06
3001	.20905E-03	.28502E-03	.16295E-03	.11979E-04	.96795E-05	.12971E-04
3005	.28725E-03	.40485E-03	.24695E-03	.21036E-04	.17124E-04	.21608E-04
3010	.43315E-03	.60592E-03	.39627E-03	.38174E-04	.31296E-04	.36967E-04
3011	.76621E-03	.10638E-02	.75514E-03	.85460E-04	.70584E-04	.76109E-04
3012	.12058E-02	.22415E-02	.18663E-02	.16007E-03	.13316E-03	.13012E-03
3019	.42058E-02	.63583E-02	.62099E-02	.31648E-03	.26091E-03	.20399E-03
3021	.59294E-02	.10715E-01	.11394E-01	.44430E-03	.35232E-03	.21182E-03
3023	.61451E-02	.11448E-01	.12376E-01	.46652E-03	.36633E-03	.20881E-03
3024	.71439E-02	.14500E-01	.17332E-01	.56799E-03	.42099E-03	.18786E-03
3026	.85766E-02	.17055E-01	.24258E-01	.68800E-03	.47338E-03	.18791E-03
3028	.10199E-01	.17632E-01	.31892E-01	.80739E-03	.51110E-03	.29255E-03
3030	.13254E-01	.13375E-01	.45877E-01	.10075E-02	.54556E-03	.223
3032	.16440E-01	.19571E-01	.60176E-01	.12085E-02	.54990E-03	.12649E-02
3035	.19536E-01	.56078E-01	.73997E-01	.14157E-02	.53649E-03	.20160E-02
3037	.22410E-01	.11800E+00	.86803E-01	.16323E-02	.52117E-03	.27991E-02
3038	.24937E-01	.19983E+00	.98331E-01	.18534E-02	.52126E-03	.34813E-02
3040	.27233E-01	.29854E+00	.10866E+00	.20758E-02	.54959E-03	.40703E-02
3044	.28140E-01	.34155E+00	.11250E+00	.21637E-02	.56952E-03	.42796E-02
3047	.28534E-01	.36339E+00	.11433E+00	.22067E-02	.58094E-03	.43773E-02
3050	.28901E-01	.38338E+00	.11601E+00	.22463E-02	.59240E-03	.44648E-02
3053	.29388E-01	.40219E+00	.11712E+00	.22811E-02	.60400E-03	.45440E-02
3056	.31252E-01	.43244E+00	.11734E+00	.23377E-02	.62512E-03	.46690E-02
3059	.31800E-01	.43786E+00	.11718E+00	.23482E-02	.62946E-03	.46931E-02
3062	.35204E-01	.46029E+00	.11572E+00	.23891E-02	.64664E-03	.47770E-02
3065	.48099E-01	.50143E+00	.10979E+00	.24662E-02	.68362E-03	.49375E-02
3068	.58831E-01	.52230E+00	.10498E+00	.25069E-02	.70501E-03	.50213E-02
3071	.90386E-01	.56339E+00	.90921E-01	.25917E-02	.75422E-03	.51891E-02
3074	.97639E+00	.57059E+00	.87664E-01	.26080E-02	.76399E-03	.52210E-02
3077	.10521E+00	.57763E+00	.84258E-01	.26240E-02	.77399E-03	.52519E-02
3080	.22066E+00	.63709E+00	.81346E-01	.28093E-02	.90281E-03	.55883E-02
3083	.29515E+00	.64645E+00	.15329E-01	.29064E-02	.97625E-03	.57499E-02
3086	.31638E+00	.64651E+00	.23233E-01	.29304E-02	.99672E-03	.57888E-02
3089	.37341E+00	.64668E+00	.50202E-01	.29897E-02	.10521E-02	.58888E-02
3092	.48339E+00	.64703E+00	.10556E+00	.30844E-02	.11595E-02	.60631E-02
3095	.55614E+00	.64775E+00	.14263E+00	.31342E-02	.12309E-02	.61667E-02
3098	.56732E+00	.64793E+00	.14831E+00	.31410E-02	.12419E-02	.61820E-02
3100	.69593E+00	.64768E+00	.21364E+00	.32052E-02	.13675E-02	.63437E-02
3101	.82758E+00	.64807E+00	.28004E+00	.32471E-02	.14953E-02	.64893E-02
3104	.83247E+00	.64809E+00	.28248E+00	.32483E-02	.15000E-02	.64945E-02
3107	.90363E+00	.64831E+00	.31805E+00	.32621E-02	.15687E-02	.65666E-02
3110	.10094E+01	.63224E+00	.37136E+00	.32758E-02	.16693E-02	.66801E-02
3113	.11013E+01	.59090E+00	.41902E+00	.32816E-02	.17584E-02	.67666E-02
3115	.12142E+01	.48185E+00	.48185E+00	.32837E-02	.18842E-02	.69652E-02
3116	.12667E+01	.29567E+00	.52377E+00	.32842E-02	.20051E-02	.71946E-02
3119	.12664E+01	.20918E+00	.53447E+00	.32856E-02	.20499E-02	.73008E-02
3120	.12659E+01	.13588E+00	.54989E+00	.32893E-02	.20960E-02	.74344E-02
3122	.12654E+01	.16940E+00	.56712E+00	.32951E-02	.21306E-02	.75662E-02
3123	.12433E+01	.16940E+00	.57684E+00	.33044E-02	.21651E-02	.77484E-02
3125	.11168E+01	.44062E+00	.55840E+00	.33081E-02	.21875E-02	.78903E-02
3128	.94467E+00	.52578E+00	.51243E+00	.32938E-02	.22071E-02	.79849E-02
3198	.77036E+00	.53281E+00	.45472E+00	.32545E-02	.22233E-02	.79961E-02

3199	.61131E+00	.50787E+00	.39869E+00	.31958E-02	.22367E-02	.79408E-02	1	.136	530	1.586
3200	.45380E+00	.48316E+00	.34728E+00	.31124E-02	.22487E-02	.78185E-02	1.504	.880	1.504	1.542
3205	.29452E+00	.45785E+00	.30125E+00	.29922E-02	.22580E-02	.76193E-02	1.437	.597	1.437	1.532
3208	.14433E+00	.43405E+00	.26616E+00	.28621E-02	.22634E-02	.73526E-02	1.395	.309	1.395	1.565
3210	.21369E-02	.41111E+00	.24342E+00	.26988E-02	.22638E-02	.70131E-02	1	.134	1	1.641
3212	.13365E+00	.35283E+00	.22469E+00	.24233E-02	.22374E-02	.63856E-02	1.257	.433	1.257	1.692
3215	.20968E+00	.25478E+00	.20444E+00	.21571E-02	.21730E-02	.56755E-02	1	.652	1	1.532
3220	.22655E+00	.13534E+00	.17683E+00	.18807E-02	.20352E-02	.47557E-02	1.386	.699	1.386	1.268
3222	.16253E+00	.32857E-01	.12873E+00	.15746E-02	.17223E-02	.33718E-02	1	.534	1	1.268
3225	.95043E-01	.25709E-01	.89254E-01	.13821E-02	.14061E-02	.23294E-02	1.562	.454	1.562	.974
3230	.80985E-01	.25118E-01	.80548E-01	.13361E-02	.13240E-02	.20905E-02	1.358	.442	1.358	.621
3235	.42764E-01	.23432E-01	.54034E-01	.12134E-02	.10622E-02	.15899E-02	1.343	.394	1.343	.366
3237	.15342E-01	.22846E-01	.30210E-01	.10626E-02	.81502E-03	.11795E-02	1.323	.324	1.323	.203
3238	.58445E-02	.19885E-01	.15751E-01	.8516E-03	.65065E-03	.84108E-03	1.281	.248	1.281	.082
3240	.58615E-02	.13104E-01	.58830E-02	.67685E-03	.49092E-03	.56409E-03	1.195	.152	1.195	.016
3243	.35626E-02	.56627E-02	.10739E-02	.42814E-03	.31402E-03	.33111E-03	1.093	.063	1.093	.001
3245	.68679E-03	.89981E-03	.45357E-04	.13389E-03	.10014E-03	.18548E-03	1.018	.011	1.018	.001
3250	.13911E-06	.18887E-06	.11456E-06	.11794E-06	.88689E-07	.76756E-07	1.000	.000	1.000	.000

***** FINAL RESULTS - SRSS COMBINATION OF DYNAMIC RESPONSES WITH HIGH FREQUENCY MODE RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

PIPE FORCES AND MOMENTS

ELEMENT NUMBER	ELEMENT TYPE	STATION	AXIAL FORCE	Y-AXIS SHEAR	Z-AXIS SHEAR	TORSIONAL MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
1	TANGENT	END-I END-J	12833.408 12833.408	17403.806 17403.806	6185.114 6185.114	269876.28 269876.28	861796.06 771856.48	1237813.14 916581.28
2	TANGENT	END-I END-J	12752.716 12752.716	17379.052 17379.052	6146.839 6146.839	269873.29 269873.29	771837.30 751363.03	916598.35 840187.21
3	TANGENT	END-I END-J	12625.931 12625.931	17338.651 17338.651	6086.249 6086.249	269873.29 269873.29	751363.03 731396.72	840187.21 764150.86
4	TANGENT	END-I END-J	12539.019 12539.019	17328.181 17328.181	6021.286 6021.286	272650.07 272650.07	731694.59 709532.68	762879.11 676689.36
5	TANGENT	END-I END-J	12461.691 12461.691	17295.679 17295.679	5991.328 5991.328	271741.01 271741.01	709478.29 673957.40	677111.98 534672.83
6	BEND	END-I CENTER END-J	12296.348 11469.832 11008.720	16546.035 17129.330 17429.325	7674.102 7674.102 7674.102	271015.33 331634.76 398244.36	689993.89 613530.80 527153.58	513988.83 375709.83 247762.65
7	BEND	END-I CENTER END-J	10722.199 10703.299 11049.174	17294.779 17306.399 17088.531	7867.340 7867.340 7867.340	400514.55 452261.78 494132.92	522383.80 445401.46 374689.53	254123.46 183844.79 196778.13
8	BEND	END-I CENTER END-J	10888.777 10972.867 11064.643	16401.980 16346.012 16284.114	9167.191 9167.191 9167.191	493050.17 498650.18 503880.02	364859.15 356281.83 348630.82	216933.99 224050.29 233026.26
9	TANGENT	END-I END-J	10945.960 10945.960	17830.091 17830.091	5512.781 5512.781	503868.09 503868.09	362513.69 303337.48	210817.59 429632.84
10	TANGENT	END-I END-J	10732.956 10732.956	17811.015 17811.015	5375.772 5375.772	503735.71 503735.71	303337.48 240721.29	429788.08 704439.49
11	TANGENT	END-I END-J	10507.629 10507.629	17790.140 17790.140	5169.325 5169.325	503735.71 503735.71	240721.29 195306.49	704439.49 980748.55
12	TANGENT	END-I END-J	10216.649 10216.649	17766.941 17766.941	4816.262 4816.262	503979.94 503979.94	195306.49 180553.96	980623.09 1453415.85
13	TANGENT	END-I END-J	9872.636 9872.636	17763.853 17763.853	4226.696 4226.696	504254.28 504254.28	180553.96 231092.03	14533320.65 1926181.92
14	TANGENT	END-I END-J	9556.344 9556.344	17818.225 17818.225	3539.990 3539.990	504007.17 504007.17	231092.03 296954.02	1926246.59 2400527.89
15	TANGENT	END-I END-J	9271.164 9271.164	14467.806 14467.806	2823.165 2823.165	503936.80 503936.80	296954.02 353687.74	2400542.55 2105957.56
16	TANGENT	END-I END-J	9019.908 9019.908	14009.724 14009.724	2192.545 2192.545	504264.15 504264.15	353687.74 393379.61	2105879.20 1849062.30
17	TANGENT	END-I	8804.190	13340.672	1855.775	504038.24	393379.61	1849123.83

18	TANGENT	END-J	8804.190	13340.672	1855.775	504038.24	414553.23	1641617.70
		END-I	8676.532	12716.556	1894.666	504325.67	414553.23	1641529.41
		END-J	8676.532	12716.556	1894.666	504325.67	418165.22	1575487.29
19	TANGENT	END-I	8626.800	12428.843	1991.491	502040.78	418165.22	1576217.07
		END-J	8626.800	12428.843	1991.491	502040.78	419110.97	1547480.17
20	TANGENT	END-I	8601.896	12240.227	2059.632	504166.01	419110.97	1546788.98
		END-J	8601.896	12240.227	2059.632	504166.01	419593.95	1522361.49
21	BEND	END-I	8577.693	12064.513	2132.558	504491.88	419593.95	1522253.47
		CENTER	8647.666	12014.462	2132.558	503017.71	421375.85	1511981.18
		END-J	8728.325	11955.906	2132.558	501334.62	423430.01	1501546.51
22	BEND	END-I	8695.560	11745.831	2176.888	501405.92	427908.55	1500254.87
		CENTER	8839.729	11637.870	2176.888	499052.32	429658.98	1483026.22
		END-J	9005.370	11510.242	2176.888	496204.57	432080.23	1465370.50
23	BEND	END-I	8951.424	9477.001	6660.085	498741.95	868908.23	1255581.37
		CENTER	8978.122	9451.833	6660.085	495891.31	869361.97	1252563.77
		END-J	9004.774	9426.342	6660.085	493196.89	869724.52	1249527.53
24	BEND	END-I	9012.207	11146.905	2406.505	495593.28	445219.16	1455041.86
		CENTER	9129.347	11051.107	2406.505	494027.89	445337.26	1441758.39
		END-J	9252.065	10948.567	2406.505	492273.16	445766.35	1428283.23
25	BEND	END-I	9163.971	10669.562	2530.431	489574.23	438085.61	1431581.33
		CENTER	9406.166	10456.572	2530.431	482858.18	443322.46	1405065.23
		END-J	9658.364	10224.158	2530.431	475593.20	449180.19	1377656.75
26	BEND	END-I	9499.444	9904.569	2962.196	479763.93	484115.26	1364307.89
		CENTER	9623.055	9784.543	2962.196	474155.96	487590.89	1349666.67
		END-J	9745.759	9662.342	2962.196	468652.48	490884.47	1334765.33
27	BEND	END-I	9524.468	9521.738	2874.313	470101.92	450920.01	1348294.35
		CENTER	9744.432	9296.512	2874.313	461885.92	455938.22	1315396.64
		END-J	9951.030	9075.032	2874.313	453347.88	461646.78	1281283.50
28	BEND	END-I	9739.004	8534.381	3975.659	450777.21	573397.43	1236259.94
		CENTER	9770.830	8438.070	3975.659	450000.27	572787.63	1229777.00
		END-J	9801.556	8462.508	3975.659	449296.12	572175.63	1223241.81
29	BEND	END-I	9703.945	8767.266	3236.993	450819.39	500470.03	1253738.81
		CENTER	9734.044	8733.792	3236.993	448665.46	501194.97	1247269.54
		END-J	9763.373	8701.034	3236.993	446556.28	501880.34	1240762.67
30	BEND	END-I	9270.425	8516.669	3337.024	446432.14	465932.18	1254754.04
		CENTER	9439.440	8328.815	3337.024	427085.45	477443.54	1171392.85
		END-J	9497.747	8262.188	3337.024	411798.05	488749.05	1084921.73
31	BEND	END-I	8539.572	8131.101	3611.145	411635.39	489977.57	1084429.14
		CENTER	8497.116	8175.646	3611.145	406404.79	495865.15	1038328.49
		END-J	8444.226	8229.991	3611.145	403911.50	500855.21	993289.35
32	TANGENT	END-I	8027.912	5785.675	7994.700	403931.95	971154.47	542573.51
		END-J	8027.912	5785.675	7994.700	403931.95	946684.07	525355.70
33	TANGENT	END-I	7694.164	5733.654	7935.467	403139.16	947021.94	525355.70
		END-J	7694.164	5733.654	7935.467	403139.16	884548.31	481196.69

34	TANGENT	END-I END-J	7033.199 7033.199	5553.276 5553.276	7785.731 7785.731	403673.31 403673.31	884304.59 778121.39	481196.69 407750.99
35	TANGENT	END-I END-J	6359.867 6359.867	5256.626 5256.626	7565.365 7565.365	403430.04 403430.04	778247.56 720116.19	407750.99 368038.84
36	TANGENT	END-I END-J	6080.544 6080.544	5083.959 5083.959	7450.539 7450.539	404009.36 404009.36	7119791.34 711830.70	368038.84 362648.87
37	TANGENT	END-I END-J	5644.988 5644.988	4816.068 4816.068	7271.444 7271.444	403636.62 403636.62	712042.12 640401.30	362648.87 313209.26
38	TANGENT	END-I END-J	4984.009 4984.009	4166.959 4166.959	6880.497 6880.497	403749.57 403749.57	640330.16 609202.87	313209.26 284488.13
39	TANGENT	END-I END-J	4801.411 4801.411	3675.953 3675.953	6660.444 6660.444	412064.90 412064.90	603608.88 603268.72	284488.13 283800.14
40	TANGENT	END-I END-J	4620.680 4620.680	3560.227 3560.227	6552.939 6552.939	404103.36 404103.36	608631.00 610885.34	283800.14 274801.74
41	BEND	END-I CENTER END-J	4455.382 4704.674 5013.618	6330.716 6148.095 5899.922	3047.578 3047.578 3047.578	403905.97 379548.04 350120.08	276955.23 301904.67 330545.91	610049.46 621121.65 634943.64
42	BEND	END-I CENTER END-J	5095.358 5415.456 5711.065	5555.827 5244.962 4921.549	2604.886 2604.886 2604.886	350481.55 320195.56 288595.22	329105.15 350936.79 370710.63	635491.98 651542.13 667055.84
43	BEND	END-I CENTER END-J	6062.909 6366.718 6477.142	4548.040 4110.366 3931.766	2389.296 2389.296 2389.296	288721.21 241141.40 206770.83	371790.05 385580.59 387656.01	666400.37 686441.68 697975.03
44	BEND	END-I CENTER END-J	7113.580 6777.595 6146.396	4049.082 4590.313 5408.633	2795.394 2795.394 2795.394	207047.40 195479.34 211597.33	385910.59 356207.62 313160.68	698859.47 690286.75 665468.74
45	TANGENT	END-I END-J	6693.196 6693.196	6207.631 6207.631	3135.997 3135.997	211712.12 211712.12	296278.93 259377.03	673106.97 633938.25
46	TANGENT	END-I END-J	7275.111 7275.111	6807.448 6807.448	3428.574 3428.574	211807.01 211807.01	259377.03 210959.45	633906.52 592208.13
47	TANGENT	END-I END-J	8057.972 8057.972	7474.566 7474.566	3694.615 3694.615	211810.36 211810.36	210959.45 168503.43	592206.88 570948.61
48	BEND	END-I CENTER END-J	9098.727 8306.672 7530.275	8395.330 9178.610 9825.491	3611.909 3611.909 3611.909	211804.86 201413.26 180739.58	153157.90 152573.46 180233.29	575256.17 568637.45 562473.45
49	BEND	END-I CENTER END-J	8936.894 8398.394 8095.396	10567.805 11001.596 11227.304	3777.876 3777.876 3777.876	180654.28 153984.68 126352.12	180426.11 217122.90 255181.06	562438.98 585537.49 562581.91
50	BEND	END-I CENTER END-J	9570.171 9438.152 9604.168	11910.882 12015.114 11882.307	4069.493 4069.493 4069.493	126679.29 110315.96 128710.75	258864.54 291079.59 313618.36	560823.07 570522.35 591412.62
51	BEND	END-I	10763.174	12689.987	4417.293	128986.50	309318.48	593613.33

	CENTER END-J	10923.906 11220.154	12551.788 12288.849	4417.293 4417.293	169849.50 221262.95	313609.61 308808.85	614778.25 641821.09
52	TANGENT END-I END-J	11939.708 11939.708	12701.839 12701.839	6034.718 6034.718	221302.59 221302.59	181066.20 249822.81	688788.13 781943.86
53	TANGENT END-I END-J	12662.240 12662.240	13367.546 13367.546	6620.903 6620.903	221082.34 221082.34	249423.52 355383.61	782133.16 937754.00
54	TANGENT END-I END-J	13420.977 13420.977	13921.424 13921.424	7179.049 7179.049	221586.76 221586.76	355063.22 486832.13	937756.29 1144966.88
55	TANGENT END-I END-J	14203.877 14203.877	14329.578 14329.578	7710.553 7710.553	221319.48 221319.48	486586.49 629532.01	1145122.97 1376960.55
56	TANGENT END-I END-J	14994.098 14994.098	14579.270 14579.270	8241.047 8241.047	221265.85 221265.85	629550.72 784679.83	1376960.55 1628205.82
57	BEND END-I CENTER END-J	14347.939 11257.775 8983.087	17303.562 19456.031 20605.103	7750.034 7750.034 7750.034	221702.02 387387.59 559078.62	724441.00 728506.76 691016.81	1655841.28 1750896.34 1852488.11
58	BEND END-I CENTER END-J	9339.596 8774.683 10526.563	20922.075 21165.226 20350.793	8427.256 8427.256 8427.256	558579.78 710208.51 840520.09	691421.87 624179.06 531646.08	1852487.54 1953110.37 2052607.31
59	BEND END-I CENTER END-J	10158.734 13419.430 16838.544	20799.582 18862.461 15883.566	9114.531 9114.531 9114.531	840108.62 952983.68 1022254.88	532223.62 420545.44 335243.43	2052626.13 2157611.76 2240001.25
60	BEND END-I CENTER END-J	16406.945 20176.073 21582.524	16508.999 11604.348 8716.357	9690.755 9690.755 9690.755	1022823.03 1043933.33 979885.32	346011.75 354042.17 490620.62	2238103.90 2239264.39 2267955.89
61	BEND END-I CENTER END-J	21478.477 20769.364 18414.491	8699.330 10278.257 14068.020	10301.905 10301.905 10301.905	979573.13 881045.91 762694.40	491261.43 610721.94 695691.14	2267951.82 2173321.83 2018244.00
62	BEND END-I CENTER END-J	18475.058 17668.381 16789.137	13891.087 14903.551 15887.475	10644.591 10644.591 10644.591	762283.24 733290.86 705430.31	693604.13 707018.81 717009.18	2019116.09 1972553.02 1923344.97
63	TANGENT END-I END-J	16877.431 16877.431	14987.973 14987.973	11947.393 11947.393	705558.71 705558.71	864233.77 743496.65	1861788.76 1543582.02
64	TANGENT END-I END-J	16966.197 16966.197	14996.122 14996.122	12124.163 12124.163	705309.74 705309.74	740463.84 708414.92	1545153.00 1233697.35
65	BEND END-I CENTER END-J	17068.090 17083.454 16747.065	11238.184 11213.908 11710.413	15750.383 15750.383 15750.383	705492.15 793291.74 892022.94	1272420.99 1101721.89 901713.83	636041.11 659403.78 688223.88
66	BEND END-I CENTER END-J	16823.006 16167.366 15248.903	11771.304 12657.520 13752.224	15766.912 15766.912 15766.912	891220.05 972751.67 1020931.81	902207.11 689789.64 498169.71	688617.46 723650.15 764949.22
67	BEND END-I CENTER END-J	15286.371 14184.604 13049.820	13817.304 14946.576 15945.765	15798.098 15798.098 15798.098	1021112.36 1026757.01 985674.06	497983.04 405528.96 487607.22	764829.72 813953.05 871174.36

68	BEND	END-I CENTER END-J	13086.307 12090.212 11440.124	16023.925 16787.170 17236.933	15801.533 15801.533 15801.533	986157.56 898918.01 768235.35	485397.90 673077.67 885743.11	871860.64 937209.89 1009222.12
69	TANGENT	END-I END-J	11451.031 11451.031	18873.234 18873.234	13896.555 13896.555	767560.40 767560.40	801042.67 886895.19	1078163.96 1179408.44

***** FINAL RESULTS - SRSS COMBINATION OF DYNAMIC RESPONSES WITH HIGH FREQUENCY MODE RESPONSES *****
 MODAL COMBINATION METHOD 2-GROUPING

S U P P O R T F O R C E S A N D M O M E N T S		
NODE NUMBER	COMPONENT DIRECTION	FORCE/MOMENT (LOCAL)
7090	FX	11791.
7090	FY	17977.
7090	FZ	6607.
7090	MX	856460.
7090	MY	704864.
7090	MZ	1056992.
3047	FZ	69.
3116	FZ	314.
3210	FX	10684.
3210	FZ	146.
3250	FX	13911.
3250	FY	18887.
3250	FZ	11456.
3250	MX	1179408.
3250	MY	886895.
3250	MZ	767560.
3035	FY	30794.
3083	FZ	7412.

BENCHMARK PROBLEM 3
MODAL SUPERPOSITION TIME HISTORY ANALYSIS

AP600 MAIN STEAM LINE BENCHMARK ANALYSIS - MODAL SUP TIME HISTORY METHOD

C O N T R O L I N F O R M A T I O N

NUMBER OF NODAL POINTS	=	96
NUMBER OF ELEMENT TYPES	=	3
NUMBER OF STATIC LOAD CASES	=	0
NUMBER OF DYNAMIC LOAD CASES	=	1
NUMBER OF ANCHOR MWT CASES	=	0
NUMBER OF FREQUENCIES	=	50
SOLUTION MODE (MODEX)	=	0
EQ.0, EXECUTION		
EQ.1, DATA CHECK		
STRESS, CALCULATION FLAG	=	0
EQ.0 NO		
EQ.1 YES		
ASME CODE EVALUATION FLAG	=	0
EQ.1 CLASS 1 PIPING		
EQ.2 CLASS2 OR CLASS 3 PIPING		
ACCELERATION DUE TO GRAVITY	=	386.4
BANDWIDTH MINIMIZATION FLAG	=	0
EQ.0 NO		
EQ.1 YES		
ARBITRARY NODE NUMBERING FLAG	=	1
EQ.0 NO		
EQ.1 YES		
NUMBER OF SUPPORT GROUPS	=	0
FLAG FOR NODAL COORD. INPUT UNITS	=	1
EQ.0 CONSISTENT UNIT		
EQ.1 FEET TO INCHES		

LIST OF ANALYSIS TO BE PERFORMED

LOAD CASE	DISK FILE	ANALYSIS TYPE
1	0	UNIFORM TIME HISTORY ANALYSIS

NODAL POINT INPUT DATA

NEW NODE	OLD NODE	BOUNDARY CONDITION				CODES			NODAL POINT COORDINATES					
		X	Y	Z	XX	YY	ZZ		X	Y	Z			T
1	101	0	0	0	0	0	0		11910.000	11641.200	2095.368	520.000		520.000
2	9001	0	0	0	0	0	0		11933.760	11656.236	2163.252	520.000		520.000
3	110	0	0	0	0	0	0		11991.132	11632.524	2191.368	520.000		520.000
4	120	0	0	0	0	0	0		12001.272	11638.932	2191.368	520.000		520.000
5	130	0	0	0	0	0	0		12013.944	11706.948	2191.368	520.000		520.000
6	140	0	0	0	0	0	0		12062.856	11737.884	2191.368	520.000		520.000
7	9002	0	0	0	0	0	0		12120.228	11774.160	2163.252	520.000		520.000
8	150	0	0	0	0	0	0		12143.988	11789.196	2095.368	520.000		520.000
9	9003	0	0	0	0	0	0		12143.988	11789.196	2011.848	520.000		520.000
10	9004	0	0	0	0	0	0		12143.988	11789.196	1933.728	520.000		520.000
11	6020	0	0	0	0	0	0		12143.988	11789.196	1850.996	520.000		520.000
12	9005	0	0	0	0	0	0		12143.988	11789.196	1788.996	520.000		520.000
13	9006	0	0	0	0	0	0		12143.988	11789.196	1716.996	520.000		520.000
14	6040	0	0	0	0	0	0		12143.988	11789.196	1644.996	520.000		520.000
15	160	0	0	0	0	0	0		12143.988	11789.196	1630.680	520.000		520.000
16	9007	0	0	0	0	0	0		12172.104	11789.196	1562.796	520.000		520.000
17	170	0	0	0	0	0	0		12239.988	11789.196	1534.680	520.000		520.000
18	6050	0	0	0	0	0	0		12263.988	11789.196	1534.680	520.000		520.000
19	6050	0	0	0	0	0	0		12275.988	11789.196	1534.680	520.000		520.000
20	9008	0	0	0	0	0	0		12344.988	11789.196	1534.680	520.000		520.000
21	9009	0	0	0	0	0	0		12413.988	11789.196	1534.680	520.000		520.000
22	9010	0	0	0	0	0	0		12482.988	11789.196	1534.680	520.000		520.000
23	6070	0	0	0	0	0	0		12551.988	11789.196	1534.680	520.000		520.000
24	6080	0	0	0	0	0	0		12599.988	11789.196	1534.680	520.000		520.000
25	9011	0	0	0	0	0	0		12661.992	11789.196	1534.680	520.000		520.000
26	180	0	0	0	0	0	0		12723.984	11789.196	1534.680	520.000		520.000
27	9012	0	0	0	0	0	0		12771.984	11789.196	1534.680	520.000		520.000
28	9013	0	0	0	0	0	0		12819.984	11789.196	1534.680	520.000		520.000
29	6090	0	0	0	0	0	0		12867.984	11789.196	1534.680	520.000		520.000
30	6091	0	0	0	0	0	0		12878.988	11789.196	1534.680	520.000		520.000
31	190	0	0	0	0	0	0		12898.992	11789.196	1534.680	520.000		520.000
32	200	0	0	0	0	0	0		12907.992	11789.196	1534.680	520.000		520.000
33	210	0	0	0	0	0	0		12916.992	11789.196	1534.680	520.000		520.000
34	220	0	0	0	0	0	0		12925.992	11789.196	1534.680	520.000		520.000
35	230	0	0	0	0	0	0		12934.992	11789.196	1534.680	520.000		520.000
36	239	0	0	0	0	0	0		12978.996	11789.196	1534.680	520.000		520.000
37	240	0	0	0	0	0	0		12996.996	11789.196	1534.680	520.000		520.000
38	250	0	0	0	0	0	0		13035.996	11789.196	1534.680	520.000		520.000
39	260	0	0	0	0	0	0		13074.996	11789.196	1534.680	520.000		520.000
40	261	0	0	0	0	0	0		13092.996	11789.196	1534.680	520.000		520.000
41	9014	0	0	0	0	0	0		13149.996	11789.196	1534.680	520.000		520.000
42	280	0	0	0	0	0	0		13206.996	11789.196	1534.680	520.000		520.000
43	290	0	0	0	0	0	0		13225.992	11789.196	1534.680	520.000		520.000
44	291	0	0	0	0	0	0		13234.992	11789.196	1534.680	520.000		520.000
45	300	0	0	0	0	0	0		13246.992	11789.196	1534.680	520.000		520.000
46	310	0	0	0	0	0	0		13278.996	11789.196	1534.680	520.000		520.000
47	315	0	0	0	0	0	0		13278.996	11789.196	1506.680	520.000		520.000
48	320	0	0	0	0	0	0		13311.000	11789.196	1534.680	520.000		520.000
49	330	0	0	0	0	0	0		13329.996	11789.196	1534.680	520.000		520.000
50	340	0	0	0	0	0	0		13350.000	11789.196	1534.680	520.000		520.000
51	1000	0	0	0	0	0	0		12996.996	11789.196	1550.676	520.000		520.000
52	1002	0	0	0	0	0	0		12996.996	11789.196	1553.676	520.000		520.000
53	1003	0	0	0	0	0	0		12996.996	11789.196	1553.676	520.000		520.000
54	1010	0	0	0	0	0	0		12996.996	11789.196	1583.064	520.000		520.000
55	1020	0	0	0	0	0	0		12996.996	11789.196	1600.068	520.000		520.000
56	1025	0	0	0	0	0	0		12996.996	11789.196	1600.068	520.000		520.000

A-205

S P R I N G E L E M E N T S

ELEMENT TYPE = 1
NUMBER OF ELEMENTS = 20

ELEMENT LOAD CASE MULTIPLIERS

CASE (A) 1.0000 CASE (B) 1.0000 CASE (C) 1.0000 CASE (D) 1.0000

ELEMENT NUMBER	NODE (N)	SUPPORT GROUP	CODE KD	CODE KR	DIRECTION COSINES WRT GLOBAL AXES X- Y- Z-	SPECIFIED DISPLACEMENT	SPECIFIED ROTATION	SPRING RATE
1	101	1	1	0	1.000 .000 .000	.000	.000	1.0000E+11
2	101	1	1	0	.000 1.000 .000	.000	.000	1.0000E+11
3	101	1	1	0	.000 .000 1.000	.000	.000	1.0000E+11
4	101	1	0	1	1.000 .000 .000	.000	.000	1.0000E+13
5	101	1	0	1	.000 1.000 .000	.000	.000	1.0000E+13
6	101	1	0	1	.000 .000 1.000	.000	.000	1.0000E+13
7	6020	1	1	0	-.476 .880 .000	.000	.000	5.0000E+06
8	6040	1	1	0	.000 1.000 .000	.000	.000	5.0000E+06
9	6060	1	1	0	.000 .000 1.000	.000	.000	5.0000E+06
10	6070	1	1	0	.000 1.000 .000	.000	.000	5.0000E+06
11	6090	1	1	0	.000 .000 1.000	.000	.000	5.0000E+06
12	6090	1	1	0	.000 .000 1.000	.000	.000	5.0000E+06
13	239	1	1	0	.000 .000 1.000	.000	.000	5.0000E+06
14	261	1	1	0	.000 .000 1.000	.000	.000	5.0000E+06
15	340	1	1	0	.000 1.000 .000	.000	.000	1.2000E+07
16	340	1	1	0	.000 .000 1.000	.000	.000	1.2000E+07
17	340	1	1	0	1.000 .000 .000	.000	.000	1.2000E+07
18	340	1	0	1	.000 .000 1.000	.000	.000	5.6000E+09
19	340	1	0	1	.000 1.000 .000	.000	.000	5.6000E+09
20	340	1	0	1	.000 .000 1.000	.000	.000	5.6000E+09

S N U B B E R E L E M E N T S

ELEMENT TYPE = 4
 NUMBER OF ELEMENTS = 2

ELEMENT LOAD CASE MULTIPLIERS

CASE (A)	CASE (B)	CASE (C)	CASE (D)
1.0000	1.0000	1.0000	1.0000

ELEMENT NUMBER	NODE (N)	SUPPORT GROUP	CODE KD	CODE KR	DIRECTION COSINES WRT GLOBAL AXES			SPECIFIED DISPLACEMENT	SPECIFIED ROTATION	SPRING RATE
					X-	Y-	Z-			
1	6020	1	1	0	.880	.476	.000	.000	.000	9.5000E+05
2	6050	1	1	0	.000	.000	1.000	.000	.000	1.5000E+06

PIPE ELEMENT INPUT DATA

CONTROL INFORMATION

NUMBER OF PIPE ELEMENTS	=	95
NUMBER OF MATERIAL SETS	=	2
MAXIMUM NUMBER OF MATERIAL TEMPERATURE INPUT POINTS	=	3
NUMBER OF SECTION PROPERTY SETS	=	11
NUMBER OF BRANCH POINT NODES	=	8
MAXIMUM NUMBER OF TANGENTS COMMON TO A BRANCH POINT	=	4
FLAG FOR NEGLECTING AXIAL DEFORMATIONS IN BEND ELEMENTS (EQ.1, NEGLECT)	=	0

M A T E R I A L P R O P E R T Y T A B L E S

MATERIAL NUMBER = (1)
 NUMBER OF
 TEMPERATURE POINTS = (3)
 IDENTIFICATION = (SA-333 GR 6)

POINT NUMBER	TEMPERATURE	YOUNG'S MODULUS	POISSON'S RATIO	THERMAL EXPANSION
1	70.00	2.950E+07	.300	0.000E+00
2	500.00	2.730E+07	.300	6.910E-06
3	550.00	2.700E+07	.300	7.060E-06

MATERIAL NUMBER = (2)
 NUMBER OF
 TEMPERATURE POINTS = (3)
 IDENTIFICATION = (SA-508 CL 3)

POINT NUMBER	TEMPERATURE	YOUNG'S MODULUS	POISSON'S RATIO	THERMAL EXPANSION
1	70.00	2.920E+07	.300	0.000E+00
2	500.00	2.700E+07	.300	7.250E-06
3	550.00	2.670E+07	.300	7.340E-06

SECTION PROPERTY TABLE					D E S C R I P T I O N	
SECTION NUMBER	OUTSIDE DIAMETER	WALL THICKNESS	SHAPE FACTOR FOR SHEAR	WEIGHT/UNIT LENGTH	MASS/UNIT LENGTH	
1	32.000	1.4400	.0000	4.3333E+01	1.1215E-01	32 IN MAIN PIPE
2	32.000	1.8000	.0000	1.1025E+02	2.8533E-01	CONT PENETRATION
3	32.000	1.4400	.0000	4.3333E+01	1.1215E-01	PEN TO MSIV
4	8.625	.9060	.0000	7.5830E+00	1.9625E-02	SV INLET
5	10.750	.5930	.0000	5.4170E+00	1.4019E-02	SV OUTLET
6	12.750	.8440	.0000	1.4217E+01	3.6793E-02	DRAIN LEG
7	32.000	1.4400	.0000	0.0000E+00	0.0000E+00	FICT. SECTION
8	34.880	4.3200	.0000	0.0000E+00	0.0000E+00	MSIV BODY
9	100.000	10.0000	.0000	0.0000E+00	0.0000E+00	RIGID SECTION
10	10.437	2.7180	.0000	0.0000E+00	0.0000E+00	SV BODY 1
11	11.936	1.7790	.0000	0.0000E+00	0.0000E+00	SV BODY 2

BRANCH POINT NODE LIST

BRANCH POINT	NODE NUMBER
1	310
2	240
3	1020
4	250
5	1140
6	260
7	1260
8	290

ELEMENT LOAD CASE MULTIPLIERS				
	CASE A	CASE B	CASE C	CASE D
X-DIRECTION GRAVITY	.000	.000	.000	.000
Y-DIRECTION GRAVITY	.000	.000	.000	.000
Z-DIRECTION GRAVITY	-1.000	.000	.000	.000
THERMAL DISTORTION	.000	.000	.000	.000
PRESSURE DISTORTION	.000	.000	.000	.000

P I P E E L E M E N T I N P U T D A T A				SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES		NODE INCREMENT (BEND DEGREE)	INPUT TAG
ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J						END-I	END-J		
1	BEND	101	9001	1	(70.00 96.000)	(.00)	(11910.000)	(11641.200)	0	2135.136	(45.0036)	I
2	BEND	9001	110	1	(70.00 96.000)	(.00)	(11957.520)	(11671.272)	0	2191.368	(44.9989)	I
3	TANGENT	110	120	1	70.00	.00	.00	.00	0	0	1	II
4	TANGENT	120	130	1	70.00	.00	.00	.00	0	0	1	II
5	TANGENT	130	140	1	70.00	.00	.00	.00	0	0	1	II
6	BEND	140	9002	1	(70.00 96.000)	(.00)	(12096.468)	(11759.136)	0	2191.368	(45.0026)	I
7	BEND	9002	150	1	(70.00 96.000)	(.00)	(12143.988)	(11789.184)	0	2135.136	(44.9943)	I
8	TANGENT	150	9003	1	70.00	.00	.00	.00	0	0	1	II
9	TANGENT	9003	9004	1	70.00	.00	.00	.00	0	0	1	II
10	TANGENT	9004	6020	1	70.00	.00	.00	.00	0	0	1	II
11	TANGENT	6020	9005	1	70.00	.00	.00	.00	0	0	1	II
12	TANGENT	9005	9006	1	70.00	.00	.00	.00	0	0	1	II
13	TANGENT	9006	6040	1	70.00	.00	.00	.00	0	0	1	II
14	TANGENT	6040	160	1	70.00	.00	.00	.00	0	0	1	II
15	BEND	160	9007	1	(70.00 96.000)	(.00)	(12143.988)	(11789.196)	0	1590.912	(45.0036)	I
16	BEND	9007	170	1	(70.00 96.000)	(.00)	(12200.220)	(11789.196)	0	1534.680	(44.9975)	I
17	TANGENT	170	6050	1	70.00	.00	.00	.00	0	0	1	II
18	TANGENT	6050	6060	1	70.00	.00	.00	.00	0	0	1	II
19	TANGENT	6060	9008	1	70.00	.00	.00	.00	0	0	1	II
20	TANGENT	9008	9009	1	70.00	.00	.00	.00	0	0	1	II
21	TANGENT	9009	9010	1	70.00	.00	.00	.00	0	0	1	II
22	TANGENT	9010	6070	1	70.00	.00	.00	.00	0	0	1	II
23	TANGENT	6070	6080	1	70.00	.00	.00	.00	0	0	1	II
24	TANGENT	6080	9011	1	70.00	.00	.00	.00	0	0	1	II
25	TANGENT	9011	180	1	70.00	.00	.00	.00	0	0	1	II
26	TANGENT	180	9012	1	70.00	.00	.00	.00	0	0	1	II
27	TANGENT	9012	9013	1	70.00	.00	.00	.00	0	0	1	II
28	TANGENT	9013	6090	1	70.00	.00	.00	.00	0	0	1	II
29	TANGENT	6090	6091	1	70.00	.00	.00	.00	0	0	1	II
30	TANGENT	6091	190	1	70.00	.00	.00	.00	0	0	1	II
31	TANGENT	190	200	1	70.00	.00	.00	.00	0	0	1	II
32	TANGENT	200	210	1	70.00	.00	.00	.00	0	0	1	II
33	TANGENT	210	220	1	70.00	.00	.00	.00	0	0	1	II
34	TANGENT	220	230	1	70.00	.00	.00	.00	0	0	1	II
35	TANGENT	230	239	1	70.00	.00	.00	.00	0	0	1	II
36	TANGENT	239	240	1	70.00	.00	.00	.00	0	0	1	II
37	TANGENT	240	250	1	70.00	.00	.00	.00	0	0	1	II
38	TANGENT	250	260	1	70.00	.00	.00	.00	0	0	1	II

PIPE ELEMENT INPUT DATA

ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (23- ORDINATE)	INCREMENT (BEND DEGREE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
39	TANGENT	260	261	1	3	70.00	.00	.00	.00	0	1	1	II
40	TANGENT	261	9014	1	3	70.00	.00	.00	.00	0	1	1	II
41	TANGENT	9014	280	1	3	70.00	.00	.00	.00	0	1	1	II
42	TANGENT	280	290	1	3	70.00	.00	.00	.00	0	1	1	II
43	TANGENT	290	291	1	3	70.00	.00	.00	.00	0	1	1	II
44	TANGENT	291	300	1	3	70.00	.00	.00	.00	0	1	1	II
45	TANGENT	300	310	1	8	70.00	.00	.00	.00	0	1	1	II
46	TANGENT	310	315	1	9	70.00	.00	.00	.00	0	1	1	II
47	TANGENT	310	320	1	8	70.00	.00	.00	.00	0	1	1	II
48	TANGENT	320	330	1	3	70.00	.00	.00	.00	0	1	1	II
49	TANGENT	330	340	1	3	70.00	.00	.00	.00	0	1	1	II
50	TANGENT	240	1000	1	7	70.00	.00	.00	.00	0	1	1	II
51	TANGENT	1000	1002	2	4	70.00	.00	.00	.00	0	1	1	II
52	TANGENT	1002	1003	2	4	70.00	.00	.00	.00	0	1	1	II
53	TANGENT	1003	1010	2	4	70.00	.00	.00	.00	0	1	1	II
54	TANGENT	1010	1020	2	10	70.00	.00	.00	.00	0	1	1	II
55	TANGENT	1020	1025	2	9	70.00	.00	.00	.00	0	1	1	II
56	TANGENT	1020	1040	1	11	70.00	.00	.00	.00	0	1	1	II
57	TANGENT	1040	1050	1	5	70.00	.00	.00	.00	0	1	1	II
58	BEND	1050	1060	1	5	(15.0000)	(.00) (12996.996) (11819.556) (1583.064)	(.00) (12996.996) (11758.836) (1583.064)	(.00) (12996.996) (11819.556) (1583.064)	(90.0001)	(90.0001)	II	
59	TANGENT	1060	1070	1	5	70.00	.00	.00	.00	0	1	1	II
60	TANGENT	1070	1080	1	11	70.00	.00	.00	.00	0	1	1	II
61	TANGENT	1080	1090	1	5	70.00	.00	.00	.00	0	1	1	II
62	BEND	1090	1100	1	5	(15.0000)	(.00) (12996.996) (11758.836) (1583.064)	(.00) (12996.996) (11758.836) (1583.064)	(.00) (12996.996) (11758.836) (1583.064)	(90.0001)	(90.0001)	II	
63	TANGENT	1100	1110	1	5	70.00	.00	.00	.00	0	1	1	II
64	TANGENT	1110	1120	1	7	70.00	.00	.00	.00	0	1	1	II
65	TANGENT	1120	1122	2	4	70.00	.00	.00	.00	0	1	1	II
66	TANGENT	1122	1123	2	4	70.00	.00	.00	.00	0	1	1	II
67	TANGENT	1123	1130	2	4	70.00	.00	.00	.00	0	1	1	II
68	TANGENT	1130	1140	2	10	70.00	.00	.00	.00	0	1	1	II
69	TANGENT	1140	1145	2	9	70.00	.00	.00	.00	0	1	1	II
70	TANGENT	1145	1160	1	11	70.00	.00	.00	.00	0	1	1	II
71	TANGENT	1160	1170	1	5	70.00	.00	.00	.00	0	1	1	II
72	BEND	1170	1180	1	5	(15.0000)	(.00) (13035.996) (11819.556) (1583.064)	(.00) (13035.996) (11758.836) (1583.064)	(.00) (13035.996) (11819.556) (1583.064)	(90.0001)	(90.0001)	II	
73	TANGENT	1180	1190	1	5	70.00	.00	.00	.00	0	1	1	II
74	TANGENT	1190	1200	1	11	70.00	.00	.00	.00	0	1	1	II
75	TANGENT	1200	1210	1	5	70.00	.00	.00	.00	0	1	1	II
76	BEND	1210	1220	1	5	(15.0000)	(.00) (13035.996) (11758.836) (1583.064)	(.00) (13035.996) (11758.836) (1583.064)	(.00) (13035.996) (11758.836) (1583.064)	(90.0001)	(90.0001)	II	
77	TANGENT	1220	1230	1	5	70.00	.00	.00	.00	0	1	1	II
78	TANGENT	1230	1240	1	7	70.00	.00	.00	.00	0	1	1	II
79	TANGENT	1240	1242	2	4	70.00	.00	.00	.00	0	1	1	II
80	TANGENT	1242	1243	2	4	70.00	.00	.00	.00	0	1	1	II

P I P E E L E M E N T I N P U T D A T A												
ELEMENT NUMBER	ELEMENT TYPE	NODE -I	NODE -J	MATL. NUMBER	SECTION NUMBER	REFERENCE TEMPERATURE (BEND RADIUS)	DESIGN PRESSURE (THIRD POINT)	PEAK PRESSURE (X3- ORDINATE)	TEST PRESSURE (Y3- ORDINATE)	END CODES END-I END-J (Z3 - ORDINATE)	NODE INCREMENT (BEND DEGREE)	INPUT TAG
81	TANGENT	1243	1250	2	4	70.00	.00	.00	.00	0 0	1	II
82	TANGENT	1250	1260	2	10	70.00	.00	.00	.00	0 0	1	II
83	TANGENT	1260	1265	2	9	70.00	.00	.00	.00	0 0	1	II
84	TANGENT	1260	1280	1	11	70.00	.00	.00	.00	0 0	1	II
85	TANGENT	1280	1290	1	5	70.00	.00	.00	.00	0 0	1	II
86	BEND	1290	1300	1	5	(15.000)	(.00) (13074.996) (11819.556) (1583.064) (90.0001)	.00	.00	0 0		I
87	TANGENT	1300	1310	1	5	70.00	.00	.00	.00	0 0	1	II
88	TANGENT	1260	1320	1	11	70.00	.00	.00	.00	0 0	1	II
89	TANGENT	1320	1330	1	5	70.00	.00	.00	.00	0 0	1	II
90	BEND	1330	1340	1	5	(15.000)	(.00) (13074.996) (11758.836) (1583.064) (90.0001)	.00	.00	0 0		I
91	TANGENT	1340	1350	1	5	70.00	.00	.00	.00	0 0	1	II
92	TANGENT	290	4000	1	7	70.00	.00	.00	.00	0 0	1	II
93	TANGENT	4000	4010	1	6	70.00	.00	.00	.00	0 0	1	II
94	TANGENT	4010	4020	1	6	70.00	.00	.00	.00	0 0	1	II
95	TANGENT	4020	4030	1	6	70.00	.00	.00	.00	0 0	1	II

BRANCH POINT DATA

BRANCH POINT	NODE NUMBER	C O N N E C T I O N S	
1	310	-45AT J	46AT I
2	240	-36AT J	37AT I
3	1020	-54AT J	55AT I
4	250	-37AT J	38AT I
5	1140	-68AT J	69AT I
6	260	-38AT J	39AT I
7	1260	-82AT J	83AT I
8	290	-42AT J	43AT I
		47AT I	47AT I
		50AT I	50AT I
		56AT I	56AT I
		64AT I	64AT I
		70AT I	70AT I
		78AT I	78AT I
		84AT I	84AT I
		92AT I	92AT I
		ONONE	ONONE
		ONONE	ONONE
		60AT I	60AT I
		ONONE	ONONE
		74AT I	74AT I
		ONONE	ONONE
		88AT I	88AT I
		ONONE	ONONE

NODAL LOADS (STATIC) OR MASSES (DYNAMIC)

NODE NUMBER	LOAD CASE	X-AXIS FORCE	Y-AXIS FORCE	Z-AXIS FORCE	X-AXIS MOMENT	Y-AXIS MOMENT	Z-AXIS MOMENT
6090	0	9.18737E+00	9.18737E+00	9.18737E+00	0.00000E+00	0.00000E+00	0.00000E+00
315	0	4.78778E+01	4.78778E+01	4.78778E+01	0.00000E+00	0.00000E+00	0.00000E+00
1010	0	5.12422E-01	5.12422E-01	5.12422E-01	0.00000E+00	0.00000E+00	0.00000E+00
1025	0	1.03520E+01	1.03520E+01	1.03520E+01	0.00000E+00	0.00000E+00	0.00000E+00
1040	0	2.19979E-01	2.19979E-01	2.19979E-01	0.00000E+00	0.00000E+00	0.00000E+00
1080	0	2.19979E-01	2.19979E-01	2.19979E-01	0.00000E+00	0.00000E+00	0.00000E+00
1130	0	5.12422E-01	5.12422E-01	5.12422E-01	0.00000E+00	0.00000E+00	0.00000E+00
1145	0	1.03520E+01	1.03520E+01	1.03520E+01	0.00000E+00	0.00000E+00	0.00000E+00
1160	0	2.19979E-01	2.19979E-01	2.19979E-01	0.00000E+00	0.00000E+00	0.00000E+00
1200	0	2.19979E-01	2.19979E-01	2.19979E-01	0.00000E+00	0.00000E+00	0.00000E+00
1250	0	5.12422E-01	5.12422E-01	5.12422E-01	0.00000E+00	0.00000E+00	0.00000E+00
1265	0	1.03520E+01	1.03520E+01	1.03520E+01	0.00000E+00	0.00000E+00	0.00000E+00
1280	0	2.19979E-01	2.19979E-01	2.19979E-01	0.00000E+00	0.00000E+00	0.00000E+00
1320	0	2.19979E-01	2.19979E-01	2.19979E-01	0.00000E+00	0.00000E+00	0.00000E+00
4030	0	6.98758E-02	6.98758E-02	6.98758E-02	0.00000E+00	0.00000E+00	0.00000E+00

E I G E N V A L U E A N A L Y S I S

SUBSPACE ITERATION SOLUTION IS CARRIED OUT

CONTROL INFORMATION

FLAG FOR ADDITIONAL PRINTING = 0
EQ.0, SUPPRESS
EQ.1, PRINT
STURM SEQUENCE CHECK FLAG (*) = 0
EQ.0, PERFORM CHECK
EQ.1, PASS
MAXIMUM ITERATION CYCLES (*) = 16

PRINT OF FREQUENCIES

MODE NUMBER	CIRCULAR FREQUENCY (RAD/SEC)	FREQUENCY (CYCLES/SEC)	PERIOD (SEC)	TOLERANCE
1	5.2933E+01	8.4246E+00	1.1870E-01	1.6230E-16
2	5.6579E+01	9.0048E+00	1.1105E-01	0.0000E+00
3	5.7365E+01	9.1300E+00	1.0953E-01	4.1457E-16
4	7.5046E+01	1.1944E+01	8.3725E-02	6.4597E-16
5	1.0085E+02	1.6051E+01	6.2300E-02	7.1533E-16
6	1.0306E+02	1.6403E+01	6.0965E-02	3.4250E-16
7	1.0362E+02	1.6492E+01	6.0634E-02	0.0000E+00
8	1.0720E+02	1.7062E+01	5.8610E-02	7.9139E-16
9	1.0848E+02	1.7265E+01	5.7920E-02	1.5457E-16
10	1.0972E+02	1.7462E+01	5.7267E-02	1.5111E-16
11	1.1787E+02	1.8759E+01	5.3307E-02	5.2372E-16
12	1.3394E+02	2.1318E+01	4.6909E-02	6.0833E-16
13	1.5102E+02	2.4036E+01	4.1604E-02	4.7851E-16
14	1.5764E+02	2.5089E+01	3.9858E-02	8.7837E-16
15	1.5874E+02	2.5264E+01	3.9582E-02	7.2188E-16
16	1.8214E+02	2.8988E+01	3.4497E-02	4.3865E-16
17	1.9219E+02	3.0587E+01	3.2693E-02	0.0000E+00
18	1.9426E+02	3.0917E+01	3.2345E-02	0.0000E+00
19	2.1184E+02	3.3715E+01	2.9660E-02	9.7281E-16
20	2.6429E+02	4.2064E+01	2.3774E-02	1.2500E-15
21	2.7585E+02	4.3902E+01	2.2778E-02	1.9124E-16
22	2.9141E+02	4.6379E+01	2.1562E-02	1.3709E-15
23	3.3969E+02	5.4064E+01	1.8497E-02	8.8277E-16
24	3.5161E+02	5.5960E+01	1.7870E-02	1.0594E-15
25	3.5263E+02	5.6122E+01	1.7818E-02	1.0533E-15
26	3.5516E+02	5.6525E+01	1.7691E-02	1.1537E-16
27	3.6871E+02	5.8682E+01	1.7041E-02	4.2816E-16

28	4.2158E+02	6.7097E+01	1.4904E-02	4.2575E-14
29	4.3044E+02	6.8507E+01	1.4597E-02	7.0687E-15
30	4.3224E+02	6.8793E+01	1.4536E-02	7.3683E-14
31	4.3382E+02	6.9045E+01	1.4483E-02	2.6289E-15
32	4.3862E+02	6.9809E+01	1.4325E-02	6.6426E-13
33	4.6646E+02	7.4240E+01	1.3470E-02	1.7790E-14
34	5.0344E+02	8.0125E+01	1.2480E-02	5.4648E-11
35	5.3088E+02	8.4493E+01	1.1835E-02	1.4659E-12
36	5.5330E+02	8.8061E+01	1.1356E-02	1.1528E-11
37	5.8645E+02	9.3336E+01	1.0714E-02	3.8135E-10
38	6.1791E+02	9.8343E+01	1.0168E-02	1.0540E-07
39	6.3676E+02	1.0134E+02	9.8674E-03	3.0901E-09
40	6.6264E+02	1.0546E+02	9.4821E-03	4.7727E-07
41	7.2689E+02	1.1569E+02	8.6440E-03	8.2430E-06

MODAL PARTICIPATION FACTORS

MODE	FREQ(CPS)	X-DIRECTION	Y-DIRECTION	Z-DIRECTION
1	8.425	1.7628E+00	-3.5065E+00	-1.9074E+00
2	9.005	1.7526E-02	-9.2385E+00	3.1391E-02
3	9.130	2.6886E+00	-4.8174E+00	2.4988E-01
4	11.944	4.2987E-01	-8.3789E-01	1.3256E+01
5	16.051	4.6637E-01	-4.1426E+00	-2.3465E-01
6	16.403	8.9312E+00	-1.1080E-01	-5.1000E-01
7	16.492	8.6635E-01	1.7592E+00	8.8641E-02
8	17.062	-1.8533E-04	5.3241E-01	8.6607E-03
9	17.265	1.2968E-01	1.0139E-02	-1.6125E-01
10	17.462	2.5490E-01	1.8153E-03	-9.1655E-02
11	18.759	-1.6340E-03	4.4782E+00	8.1443E-04
12	21.318	6.7390E+00	4.1246E+00	-2.1603E-02
13	24.036	1.6239E-02	-6.7579E-01	-1.5464E-02
14	25.089	1.1492E-01	1.4552E-01	-6.8561E-01
15	25.264	1.3080E+01	-1.5892E-01	7.7269E-01
16	28.988	-1.6022E+00	-4.0886E-01	-1.7373E+00
17	30.587	2.5262E-01	6.9992E+00	4.3225E+00
18	30.917	-5.6130E-01	-6.3501E+00	5.4424E+00
19	33.715	-3.1107E+00	1.5715E+00	1.9124E+00
20	42.064	5.2129E-01	1.2189E+00	2.3277E+00
21	43.902	-1.1698E-01	2.8043E+00	-6.5002E-01
22	46.379	-4.8035E-02	-1.5905E-01	-5.2554E+00
23	54.064	2.4604E+00	-2.0406E+00	-4.8919E-01
24	55.960	-1.6748E+00	-3.7643E-01	-9.8179E-01
25	56.122	-8.4190E-03	2.0382E+00	9.2148E-02
26	56.525	1.8567E+00	2.2680E+00	-6.8974E+00
27	58.682	-9.2944E-01	4.8440E+00	3.5055E+00
28	67.097	1.7852E+00	-1.3351E+00	1.8024E+00

29	68.507	-3.4009E-03	-2.2853E-01	-3.7532E-03
30	68.793	-3.0907E-04	-1.1763E-02	-1.0114E-03
31	69.045	-3.1828E-03	8.5398E-02	2.3825E-03
32	69.809	2.0161E+00	3.2559E-01	7.9716E-01
33	74.240	-1.4130E-02	-3.2926E-01	-8.8695E-03
34	80.125	3.4099E-01	-1.3130E+00	2.4671E-01
35	84.493	-2.2972E-01	-3.7597E+00	-1.3384E-01
36	88.061	-2.0955E-01	2.3338E-01	-1.6663E-01
37	93.336	-1.2828E+00	-7.9919E-03	-5.0093E-01
38	98.343	-7.3980E-01	-1.9698E-01	-1.3782E+00
39	101.344	-2.9153E-02	-2.1820E+00	-1.5112E-01
40	105.462	-2.0872E-01	-3.7949E-01	-8.1443E-01
41	115.688	7.6087E-01	-1.9501E-01	1.1185E-01

FORCED RESPONSE ANALYSIS

SUPPORT GROUP NUMBER = 1

CONTROL INFORMATION

NUMBER OF TIME FUNCTIONS	=	5
GROUND MOTION INDICATOR	=	0
EQ. 0, NONE		
EQ. 1, GROUND INPUT		
NUMBER OF ARRIVAL TIMES	=	1
NUMBER OF TIME STEPS	=	30000
OUTPUT PRINT INTERVAL	=	10
TIME STEP	=	.00010
DAMPING FACTOR	=	.03000

DYNAMIC NODAL FORCES/MOMENTS

NODE NUMBER	NODAL DEGREE OF FREEDOM	TIME FUNCTION NUMBER	ARRIVAL TIME NUMBER	TIME FUNCTION MULTIPLIER
101	3	3	1	-1.0000E+00
130	1	4	1	-8.4500E-01
130	2	4	1	-5.4300E-01
6040	3	5	1	1.0000E+00
6070	1	2	1	-1.0000E+00
310	1	1	1	-1.0000E+00
	0	0	1	0.0000E+00

ARRIVAL TIME VALUES

ENTRY NUMBER	ARRIVAL TIME VALUE
1	.000000

[illegible]

A-225

TIME FUNCTION NUMBER = (2)
 FUNCTION DESCRIPTION = (TH-2 NODE 6070 FORCE VS TIME
 NUMBER OF ABSCISSAE = (758)
 FUNCTION SCALE FACTOR = (.1000E+04)

TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION	TIME VALUE	FUNCTION
.00000	-6.0000E-03	.00020	-6.0000E-03	.00040	-6.0000E-03	.00060	-6.0000E-03	.00080	-6.0000E-03	.00100	-6.0000E-03	.00120	-6.0000E-03	.00140	-6.0000E-03	.00160	-6.0000E-03	.00180	-6.0000E-03
.00100	-6.0000E-03	.00131	-7.2300E-01	.00162	-3.2300E-01	.00193	-3.2300E-01	.00224	-3.2300E-01	.00255	-3.2300E-01	.00286	-3.2300E-01	.00317	-3.2300E-01	.00348	-3.2300E-01	.00379	-3.2300E-01
.00256	2.1880E+00	.00288	6.6570E+00	.00319	1.3000E+01	.00350	1.3000E+01	.00381	1.3000E+01	.00412	1.3000E+01	.00443	1.3000E+01	.00474	1.3000E+01	.00505	1.3000E+01	.00536	1.3000E+01
.00411	3.9040E+01	.00442	4.7770E+01	.00473	5.5810E+01	.00504	5.5810E+01	.00535	5.5810E+01	.00566	5.5810E+01	.00597	5.5810E+01	.00628	5.5810E+01	.00659	5.5810E+01	.00690	5.5810E+01
.00566	7.5010E+01	.00597	7.9860E+01	.00628	8.4060E+01	.00659	8.4060E+01	.00690	8.4060E+01	.00721	8.4060E+01	.00752	8.4060E+01	.00783	8.4060E+01	.00814	8.4060E+01	.00845	8.4060E+01
.00719	9.3570E+01	.00750	9.5950E+01	.00781	9.8020E+01	.00812	9.8020E+01	.00843	9.8020E+01	.00874	9.8020E+01	.00905	9.8020E+01	.00936	9.8020E+01	.00967	9.8020E+01	.00998	9.8020E+01
.00873	1.0280E+02	.00904	1.0410E+02	.00935	1.0520E+02	.00966	1.0520E+02	.00997	1.0520E+02	.01028	1.0520E+02	.01059	1.0520E+02	.01090	1.0520E+02	.01121	1.0520E+02	.01152	1.0520E+02
.01027	1.0780E+02	.01058	1.0850E+02	.01089	1.0910E+02	.01120	1.0910E+02	.01151	1.0910E+02	.01182	1.0910E+02	.01213	1.0910E+02	.01244	1.0910E+02	.01275	1.0910E+02	.01306	1.0910E+02
.01180	1.1070E+02	.01211	1.1120E+02	.01241	1.1160E+02	.01272	1.1160E+02	.01303	1.1160E+02	.01334	1.1160E+02	.01365	1.1160E+02	.01396	1.1160E+02	.01427	1.1160E+02	.01458	1.1160E+02
.01333	1.1270E+02	.01364	1.1300E+02	.01394	1.1320E+02	.01425	1.1320E+02	.01456	1.1320E+02	.01487	1.1320E+02	.01518	1.1320E+02	.01549	1.1320E+02	.01580	1.1320E+02	.01611	1.1320E+02
.01485	1.1400E+02	.01516	1.1420E+02	.01546	1.1440E+02	.01577	1.1440E+02	.01608	1.1440E+02	.01639	1.1440E+02	.01670	1.1440E+02	.01701	1.1440E+02	.01732	1.1440E+02	.01763	1.1440E+02
.01637	1.1500E+02	.01667	1.1520E+02	.01698	1.1530E+02	.01729	1.1530E+02	.01760	1.1530E+02	.01791	1.1530E+02	.01822	1.1530E+02	.01853	1.1530E+02	.01884	1.1530E+02	.01915	1.1530E+02
.01789	1.1580E+02	.01819	1.1600E+02	.01849	1.1610E+02	.01879	1.1610E+02	.01910	1.1610E+02	.01941	1.1610E+02	.01972	1.1610E+02	.02003	1.1610E+02	.02034	1.1610E+02	.02065	1.1610E+02
.01940	1.1650E+02	.01970	1.1660E+02	.02000	1.1681E+02	.02031	1.1681E+02	.02062	1.1681E+02	.02093	1.1681E+02	.02124	1.1681E+02	.02155	1.1681E+02	.02186	1.1681E+02	.02217	1.1681E+02
.02091	1.1720E+02	.02121	1.1724E+02	.02151	1.1736E+02	.02181	1.1736E+02	.02212	1.1736E+02	.02243	1.1736E+02	.02274	1.1736E+02	.02305	1.1736E+02	.02336	1.1736E+02	.02367	1.1736E+02
.02242	1.1762E+02	.02272	1.1772E+02	.02302	1.1790E+02	.02332	1.1790E+02	.02363	1.1790E+02	.02394	1.1790E+02	.02425	1.1790E+02	.02456	1.1790E+02	.02487	1.1790E+02	.02518	1.1790E+02
.02393	1.1816E+02	.02423	1.1822E+02	.02453	1.1832E+02	.02483	1.1832E+02	.02514	1.1832E+02	.02545	1.1832E+02	.02576	1.1832E+02	.02607	1.1832E+02	.02638	1.1832E+02	.02669	1.1832E+02
.02543	1.1866E+02	.02573	1.1866E+02	.02603	1.1878E+02	.02633	1.1878E+02	.02664	1.1878E+02	.02695	1.1878E+02	.02726	1.1878E+02	.02757	1.1878E+02	.02788	1.1878E+02	.02819	1.1878E+02
.02694	1.1898E+02	.02724	1.1903E+02	.02754	1.1918E+02	.02784	1.1918E+02	.02815	1.1918E+02	.02846	1.1918E+02	.02877	1.1918E+02	.02908	1.1918E+02	.02939	1.1918E+02	.02970	1.1918E+02
.02844	1.1939E+02	.02874	1.1942E+02	.02904	1.1951E+02	.02934	1.1951E+02	.02965	1.1951E+02	.02996	1.1951E+02	.03027	1.1951E+02	.03058	1.1951E+02	.03089	1.1951E+02	.03120	1.1951E+02
.02994	1.1964E+02	.03024	1.1972E+02	.03054	1.1975E+02	.03084	1.1975E+02	.03115	1.1975E+02	.03146	1.1975E+02	.03177	1.1975E+02	.03208	1.1975E+02	.03239	1.1975E+02	.03270	1.1975E+02
.03144	1.1996E+02	.03174	1.2003E+02	.03204	1.2009E+02	.03234	1.2009E+02	.03265	1.2009E+02	.03296	1.2009E+02	.03327	1.2009E+02	.03358	1.2009E+02	.03389	1.2009E+02	.03420	1.2009E+02
.03294	1.2027E+02	.03324	1.2034E+02	.03354	1.2039E+02	.03384	1.2039E+02	.03415	1.2039E+02	.03446	1.2039E+02	.03477	1.2039E+02	.03508	1.2039E+02	.03539	1.2039E+02	.03570	1.2039E+02
.03444	1.2056E+02	.03474	1.2062E+02	.03504	1.2068E+02	.03534	1.2068E+02	.03565	1.2068E+02	.03596	1.2068E+02	.03627	1.2068E+02	.03658	1.2068E+02	.03689	1.2068E+02	.03720	1.2068E+02
.03594	1.2084E+02	.03624	1.2090E+02	.03654	1.2095E+02	.03684	1.2095E+02	.03715	1.2095E+02	.03746	1.2095E+02	.03777	1.2095E+02	.03808	1.2095E+02	.03839	1.2095E+02	.03870	1.2095E+02
.03744	1.2113E+02	.03774	1.2118E+02	.03804	1.2123E+02	.03834	1.2123E+02	.03865	1.2123E+02	.03896	1.2123E+02	.03927	1.2123E+02	.03958	1.2123E+02	.03989	1.2123E+02	.04020	1.2123E+02
.03893	1.2130E+02	.03923	1.2145E+02	.03953	1.2150E+02	.03984	1.2150E+02	.04015	1.2150E+02	.04046	1.2150E+02	.04077	1.2150E+02	.04108	1.2150E+02	.04139	1.2150E+02	.04170	1.2150E+02
.04043	1.2166E+02	.04073	1.2171E+02	.04103	1.2177E+02	.04133	1.2177E+02	.04164	1.2177E+02	.04195	1.2177E+02	.04226	1.2177E+02	.04257	1.2177E+02	.04288	1.2177E+02	.04319	1.2177E+02
.04193	1.2193E+02	.04223	1.2198E+02	.04253	1.2203E+02	.04283	1.2203E+02	.04314	1.2203E+02	.04345	1.2203E+02	.04376	1.2203E+02	.04407	1.2203E+02	.04438	1.2203E+02	.04469	1.2203E+02
.04342	1.2218E+02	.04372	1.2223E+02	.04402	1.2228E+02	.04432	1.2228E+02	.04463	1.2228E+02	.04494	1.2228E+02	.04525	1.2228E+02	.04556	1.2228E+02	.04587	1.2228E+02	.04618	1.2228E+02
.04492	1.2244E+02	.04522	1.2249E+02	.04552	1.2254E+02	.04582	1.2254E+02	.04613	1.2254E+02	.04644	1.2254E+02	.04675	1.2254E+02	.04706	1.2254E+02	.04737	1.2254E+02	.04768	1.2254E+02
.04641	1.2269E+02	.04671	1.2275E+02	.04701	1.2280E+02	.04731	1.2280E+02	.04762	1.2280E+02	.04793	1.2280E+02	.04824	1.2280E+02	.04855	1.2280E+02	.04886	1.2280E+02	.04917	1.2280E+02
.04791	1.2294E+02	.04821	1.2300E+02	.04851	1.2305E+02	.04881	1.2305E+02	.04912	1.2305E+02	.04943	1.2305E+02	.04974	1.2305E+02	.05005	1.2305E+02	.05036	1.2305E+02	.05067	1.2305E+02
.04941	1.2312E+02	.04971	1.2317E+02	.05001	1.2322E+02	.05032	1.2322E+02	.05063	1.2322E+02	.05094	1.2322E+02	.05125	1.2322E+02	.05156	1.2322E+02	.05187	1.2322E+02	.05218	1.2322E+02
.05099	6.4470E+01	.05129	6.4470E+01	.05159	6.4470E+01	.05189	6.4470E+01	.05219	6.4470E+01	.05250	6.4470E+01	.05281	6.4470E+01	.05312	6.4470E+01	.05343	6.4470E+01	.05374	6.4470E+01
.05148	3.7343E+01	.05178	3.7343E+01	.05208	3.7343E+01	.05238	3.7343E+01	.05269	3.7343E+01	.05299	3.7343E+01	.05330	3.7343E+01	.05361	3.7343E+01	.05392	3.7343E+01	.05423	3.7343E+01
.05390	2.7410E+01	.05420	2.7410E+01	.05450	2.7410E+01	.05481	2.7410E+01	.05512	2.7410E+01	.05543	2.7410E+01	.05574	2.7410E+01	.05605	2.7410E+01	.05636	2.7410E+01	.05667	2.7410E+01
.05490	2.7673E+01	.05520	2.7673E+01	.05550	2.7673E+01	.05581	2.7673E+01	.05612	2.7673E+01	.05643	2.7673E+01	.05674	2.7673E+01	.05705	2.7673E+01	.05736	2.7673E+01	.05767	2.7673E+01
.05690	9.0430E+01	.05720	9.0430E+01	.05750	9.0430E+01	.05781	9.0430E+01	.05812	9.0430E+01	.05843	9.0430E+01	.05874	9.0430E+01	.05905	9.0430E+01	.05936	9.0430E+01	.05967	9.0430E+01
.05890	2.1470E+02	.05920	2.1470E+02	.05950	2.1470E+02	.05981	2.1470E+02	.06012	2.1470E+02	.06043	2.1470E+02	.06074	2.1470E+02	.06105	2.1470E+02	.06136	2.1470E+02	.06167	2.1470E+02
.05990	9.5800E+01	.06020	9.5800E+01	.06050	9.5800E+01	.06081	9.5800E+01	.06112	9.5800E+01	.06143	9.5800E+01	.06174	9.5800E+01	.06205	9.5800E+01	.06236	9.5800E+01	.06267	9.5800E+01
.06090	7.3050E+01	.06120	7.3050E+01	.06150	7.3050E+01	.06181	7.3050E+01	.06212	7.3050E+01	.06243	7.3050E+01	.06274	7.3050E+01	.06305	7.3050E+01	.06336	7.3050E+01	.06367	7.3050E+01
.06190	5.0070E+01	.06220	5.0070E+01	.06250	5.0070E+01	.06281	5.0070E+01	.06312	5.0070E+01	.06343	5.0070E+01	.06374	5.0070E+01	.06405	5.0070E+01	.06436	5.0070E+01	.06467	5.0070E+01
.06290	4.3430E+01	.06320	4.3430E+01	.06350	4.3430E+01	.06381	4.3430E+01	.06412	4.3430E+01	.06443	4.3430E+01	.06474	4.3430E+01	.06505	4.3430E+01	.06536	4.3430E+01	.06567	4.3430E+01
.06390	3.8880E+01	.06420	3.8880E+01	.06450	3.8880E+01	.06481	3.8880E+01	.06512	3.8880E+01	.06543	3.8880E+01	.06574	3.8880E+01	.06605	3.8880E+01	.06636	3.8880E+01	.06667	3.8880E+01
.06490	3.5200E+01	.06520	3.5200E+01	.06550	3.5200E+01	.06581	3.5200E+01	.06612	3.5200E+01	.06643	3.5200E+01	.06674	3.5200E+01	.06705	3.5200E+01	.06736	3.5200E+01	.06767	3.5200E+01
.06590	3.3020E+01	.06620	3.3020E+01	.06650	3.3020E+01	.06681	3.3020E+01	.06712	3.3020E+01	.06743	3.3020E+01	.06774	3.3020E+01	.06805	3.3020E+01	.06836	3.3020E+01	.06867	3.3020E+01
.06690	3.0730E+01	.06720	3.0730E+01	.06750	3.0730E+01	.06781	3.0730E+01	.06812	3.0730E+01	.0684									

48990	3	5460E+01	3	5590E+01	50000	3	5710E+01	50500	3	5810E+01	51000	3	5910E+01
51470	3	6090E+01	3	6090E+01	52500	3	6170E+01	53000	3	6240E+01	53500	3	6300E+01
54000	3	6330E+01	3	6350E+01	55000	3	6350E+01	55500	3	6350E+01	56000	3	6350E+01
56500	3	5860E+01	3	5860E+01	57500	3	5160E+01	58000	3	4060E+01	58500	3	2460E+01
61500	3	0360E+01	2	7520E+01	60000	2	4520E+01	60500	2	2237E+01	61000	2	0773E+01
63390	1	8118E+01	1	7791E+01	62500	1	4520E+01	62980	2	18920E+01	63480	2	0773E+01
66480	3	2470E+01	3	2470E+01	64980	3	6510E+01	65500	2	8330E+01	65980	2	9940E+01
68980	3	5970E+01	3	5970E+01	67500	3	3340E+01	67990	3	4000E+01	68480	3	4750E+01
71430	3	7490E+01	3	7490E+01	69970	3	6440E+01	70500	3	6790E+01	70990	3	4750E+01
74000	3	8160E+01	3	8260E+01	72480	3	7690E+01	72980	3	7870E+01	73470	3	8030E+01
76500	3	8400E+01	3	8350E+01	74990	3	8340E+01	75480	3	8380E+01	75980	3	8030E+01
78970	3	7990E+01	3	7870E+01	77490	3	8290E+01	77980	3	8210E+01	78480	3	8400E+01
81480	3	7530E+01	3	7870E+01	79990	3	7760E+01	80490	3	7670E+01	80980	3	8110E+01
83990	3	7420E+01	3	7480E+01	82500	3	7450E+01	83000	3	7440E+01	83490	3	730E+01
86490	3	7310E+01	3	7410E+01	84480	3	7410E+01	85470	3	7360E+01	86000	3	7340E+01
89000	3	7150E+01	3	7270E+01	87480	3	7230E+01	87980	3	7200E+01	88470	3	7160E+01
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93980	3	8080E+01	3	7460E+01	92500	3	7590E+01	92990	3	7750E+01	93490	3	7910E+01
96490	3	8470E+01	3	8230E+01	94970	3	8360E+01	95500	3	8450E+01	95990	3	8490E+01
98990	3	7550E+01	3	8380E+01	97480	3	824E+01	97970	3	8060E+01	98500	3	7800E+01
101500	3	5880E+01	3	7290E+01	99980	3	7030E+01	100500	3	6640E+01	101000	3	6230E+01
104000	3	4470E+01	3	5570E+01	102000	3	5260E+01	103000	3	4980E+01	103500	3	4720E+01
106500	3	2980E+01	3	4200E+01	104500	3	3930E+01	105000	3	3440E+01	106000	3	3310E+01
109000	3	1020E+01	3	2630E+01	107000	3	2240E+01	108000	3	1870E+01	108500	3	1450E+01
111500	3	8700E+01	3	0590E+01	109500	3	0150E+01	110000	3	9680E+01	111000	2	9200E+01
114000	2	5924E+01	2	8180E+01	112000	2	7630E+01	113000	2	7081E+01	113500	2	6489E+01
116500	2	2906E+01	2	5317E+01	114500	2	4732E+01	115000	2	4108E+01	115500	2	3491E+01
119000	1	9633E+01	2	2282E+01	117000	1	17500	118000	2	0985E+01	118500	2	0344E+01
121500	1	5703E+01	1	8910E+01	119500	1	12000	120000	1	7362E+01	120500	1	5548E+01
124000	1	1080E+01	1	4871E+01	122000	1	3953E+01	123000	1	3011E+01	123500	1	2021E+01
126500	3	6800E+00	9	5170E+00	124000	9	1630E+00	125000	6	7600E+00	125500	5	2090E+00
129000	5	1530E+00	7	1930E+00	127500	1	27500	128000	1	3050E+00	128500	1	1290E+00
131500	1	5673E+01	1	9103E+01	130000	1	30000	130500	1	1526E+01	131000	1	3547E+01
134000	1	4520E+01	1	9210E+01	132500	1	32500	133000	2	6190E+01	133500	1	3547E+01
136500	5	8600E+01	6	3470E+01	135000	1	37500	135500	2	8760E+01	136000	5	3330E+01
139000	1	4100E+01	8	874E+01	137500	1	40000	138000	7	5890E+01	138500	7	8890E+01
141500	1	0426E+02	1	0822E+02	140000	1	42500	140500	9	7040E+01	141000	1	0053E+02
144000	1	2939E+02	1	3509E+02	142500	1	1332E+02	143000	1	1864E+02	143500	1	2398E+02
146500	1	1902E+02	1	0988E+02	144500	1	47500	145000	1	3451E+02	145500	1	2715E+02
149000	5	9866E+01	4	5835E+01	147000	1	50000	148000	2	0563E+01	148500	1	3138E+01
151500	1	9159E+01	2	0939E+01	149500	1	52500	150500	2	7285E+01	151000	1	8691E+01
154000	3	5272E+01	3	8694E+01	152000	1	55000	153000	4	4814E+01	153500	3	1163E+01
156500	2	2787E+01	4	5170E+01	154500	1	57500	155500	3	6680E+01	156000	4	6540E+01
159000	4	6810E+01	1	5713E+01	157000	1	60000	158000	3	6680E+01	158500	3	0136E+01
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164000	4	1035E+01	4	2946E+01	162000	1	65000	163000	3	3201E+01	163500	6	8148E+01
166500	5	3842E+01	5	5650E+01	164500	1	67500	165500	5	9206E+01	166000	5	1579E+01
169000	5	7990E+01	5	5130E+01	167000	1	70000	168000	5	8940E+01	168500	5	9270E+01
171500	4	0506E+01	3	7245E+01	169500	1	72500	170500	4	7897E+01	171000	4	4070E+01
174000	3	0207E+01	3	0152E+01	172000	1	75000	173000	3	2422E+01	173500	3	2798E+01
176500	3	5032E+01	3	7581E+01	174500	1	80000	175000	3	1129E+01	176000	3	0858E+01
179000	4	1870E+01	3	9832E+01	177000	1	82500	178000	4	1910E+01	178500	4	2540E+01
181500	1	81500	2	1455E+01	179500	1	85000	180500	3	4343E+01	181000	3	1888E+01
184000	9	2510E+00	1	6302E+01	182000	1	87500	183000	6	2400E+00	183500	1	7490E+00
186500	3	5296E+01	3	8042E+01	184500	1	88500	185500	2	2494E+01	186000	3	2458E+01
189000	4	6190E+01	3	8042E+01	187000	1	87000	188000	4	3645E+01	188500	4	5187E+01
191500	4	4180E+01	4	6729E+01	189500	1	90000	190500	4	6622E+01	191000	4	5800E+01
194000	3	1575E+01	2	894E+01	192000	1	92500	193000	3	7502E+01	193500	3	4713E+01
196500	2	2449E+01	2	3514E+01	194500	1	95000	195500	2	3980E+01	196000	3	2618E+01
					197000	1	97500	198000	2	7782E+01	198500	3	0670E+01

1.99000	-3.3598E+01	2.00000	-4.0241E+01	2.00500	-4.2997E+01	2.01000	-4.4370E+01
2.01500	-4.4280E+01	2.02500	-3.8340E+01	2.03000	-3.2293E+01	2.03500	-2.6721E+01
2.04000	-1.5657E+01	2.05000	-5.0900E+00	2.05500	-3.2790E+00	2.06000	1.1733E+01
2.05000	2.8928E+01	2.07500	3.0761E+01	2.08000	3.4930E+01	2.08500	3.7630E+01
2.06000	3.8881E+01	2.10000	3.811E+01	2.10500	3.7101E+01	2.11000	3.5532E+01
2.07000	3.8779E+01	2.12500	3.3732E+01	2.13000	3.2568E+01	2.13500	3.1157E+01
2.08000	3.4737E+01	2.15000	2.6144E+01	2.15500	2.4609E+01	2.16000	2.3281E+01
2.09000	2.7794E+01	2.17500	2.0751E+01	2.18000	2.0829E+01	2.18500	2.1382E+01
2.10000	2.1205E+01	2.20000	2.5832E+01	2.20500	2.8188E+01	2.21000	3.0958E+01
2.11000	3.4882E+01	2.22500	3.7114E+01	2.23000	3.8570E+01	2.23500	3.8950E+01
2.12000	3.4771E+01	2.25000	3.3461E+01	2.25500	2.8808E+01	2.26000	2.2187E+01
2.13000	3.6310E+01	2.27500	-5.4700E-01	2.28000	-1.0118E+01	2.28500	1.6340E+01
2.14000	6.8570E+00	2.30000	-3.0158E+01	2.30500	-3.2647E+01	2.31000	-3.3827E+01
2.15000	-2.6688E+01	2.32500	-3.3322E+01	2.33000	-3.2076E+01	2.33500	-3.0301E+01
2.16000	-3.4310E+01	2.35000	-2.5927E+01	2.35500	-2.4817E+01	2.36000	-2.3832E+01
2.17000	-2.7013E+01	2.37500	-2.0867E+01	2.38000	-1.9732E+01	2.38500	-1.8580E+01
2.18000	-2.1830E+01	2.40000	-1.6317E+01	2.40500	-1.6479E+01	2.41000	-1.7279E+01
2.19000	-1.6762E+01	2.42500	-2.347E+01	2.43000	-2.5673E+01	2.43500	-3.0251E+01
2.20000	-2.1008E+01	2.45000	-3.906E+01	2.45500	-3.9851E+01	2.46000	-3.9220E+01
2.21000	-3.6800E+01	2.47500	-2.8668E+01	2.48000	-2.2606E+01	2.48500	-1.5567E+01
2.22000	-3.3250E+01	2.50000	8.1980E+00	2.50500	1.6020E+01	2.51000	2.2078E+01
2.23000	-1.6300E-01	2.52500	3.2743E+01	2.53000	3.3855E+01	2.53500	3.3950E+01
2.24000	3.0719E+01	2.55000	2.8635E+01	2.55500	2.6116E+01	2.56000	2.3830E+01
2.25000	3.0998E+01	2.57500	2.0044E+01	2.58000	1.9098E+01	2.58500	1.8093E+01
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2.27000	1.6117E+01	2.62500	1.5128E+01	2.63000	1.6168E+01	2.63500	1.7793E+01
2.28000	1.4424E+01	2.65000	2.6003E+01	2.65500	2.9377E+01	2.66000	3.2647E+01
2.29000	2.2588E+01	2.67500	3.6207E+01	2.68000	3.5750E+01	2.68500	3.4420E+01
2.30000	3.6002E+01	2.70000	2.0653E+01	2.70500	9.8070E+00	2.71000	3.0000E-01
2.31000	2.7690E+01	2.72500	-1.7536E+01	2.73000	-2.0662E+01	2.73500	-2.3848E+01
2.32000	-1.3333E+01	2.75000	-2.9488E+01	2.75500	-3.0309E+01	2.76000	-2.8714E+01
2.33000	2.8532E+01	2.77500	-2.0043E+01	2.78000	-1.8830E+01	2.78500	-1.8086E+01
2.34000	-2.2175E+01	2.80000	-1.6031E+01	2.80500	-1.5227E+01	2.81000	-1.4446E+01
2.35000	-1.6787E+01	2.82500	-1.2598E+01	2.83000	-1.2146E+01	2.83500	-1.1847E+01
2.36000	-1.3123E+01	2.85000	-1.2222E+01	2.85500	-1.4209E+01	2.86000	-1.6214E+01
2.37000	-1.2187E+01	2.87500	-2.8035E+01	2.88000	-3.1684E+01	2.88500	-3.4111E+01
2.38000	-2.3597E+01	2.90000	-3.4841E+01	2.90500	-3.3140E+01	2.91000	-3.0390E+01
2.39000	-3.5577E+01	2.92500	-1.2652E+01	2.93000	-4.5100E+00	2.93500	4.3610E+00
2.40000	-2.0480E+01	2.95000	-2.230E+01	2.95500	2.5413E+01	2.96000	2.7526E+01
2.41000	1.8022E+01	2.97500	2.8679E+01	2.98000	2.6978E+01	2.98500	2.4551E+01
2.42000	2.9312E+01	3.00000	1.7257E+01				
2.43000	1.9524E+01						
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48990	2	8060E+00	2	7980E+00	50000	2	7860E+00	50500	2	7700E+00	51000	2	7440E+00
51470	2	7050E+00	2	6370E+00	52500	2	5160E+00	53000	2	3270E+00	53500	2	0330E+01
54000	1	6050E+00	1	0340E+00	55000	3	6100E-01	55500	-3	0300E-01	56000	-7	7900E-01
56500	-8	9700E-01	-6	7600E-01	57500	3	2500E-01	58000	-	1000E-02	58500	4	2400E-01
59000	9	1200E+00	1	2710E+00	60000	1	4730E+00	60500	2	1590E+00	61000	1	6770E+00
61500	2	7960E+00	2	1900E+00	62500	2	1900E+00	63000	2	3250E+00	63480	2	3900E+00
63990	2	4210E+00	2	4530E+00	64980	2	4910E+00	65500	2	5340E+00	65990	2	5730E+00
66480	2	6080E+00	2	6410E+00	67500	2	6680E+00	67990	2	6930E+00	68480	2	7150E+00
68980	2	7350E+00	2	7530E+00	69970	2	7690E+00	70500	2	7840E+00	70990	2	7970E+00
71490	2	8070E+00	2	8150E+00	72480	2	8210E+00	73380	2	8250E+00	73470	2	8280E+00
74000	2	8290E+00	2	8290E+00	74990	2	8300E+00	75480	2	8310E+00	75980	2	8330E+00
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78970	2	8550E+00	2	8550E+00	79990	2	8540E+00	80490	2	8510E+00	80980	2	8480E+00
81480	2	8400E+00	2	8400E+00	82500	2	8370E+00	83000	2	8350E+00	83490	2	8350E+00
83990	2	8360E+00	2	8400E+00	84980	2	8460E+00	85470	2	8570E+00	86000	2	8730E+00
86490	2	8930E+00	2	9180E+00	87480	2	9470E+00	87980	2	9790E+00	88470	3	0120E+00
89000	3	0440E+00	3	0700E+00	89990	3	0880E+00	90490	3	0960E+00	90980	3	0940E+00
91480	3	0800E+00	3	0520E+00	92500	3	0160E+00	92990	2	9720E+00	93490	2	9250E+00
93980	2	8770E+00	2	8330E+00	94970	2	7950E+00	95500	2	7640E+00	95990	2	7440E+00
96490	2	7320E+00	2	7260E+00	96980	2	7240E+00	97480	2	7240E+00	98500	2	7250E+00
98990	2	7250E+00	2	7240E+00	99490	2	7240E+00	99980	2	7190E+00	101000	2	7140E+00
101500	2	7100E+00	2	7050E+00	102500	2	6990E+00	103000	2	6940E+00	103500	2	6890E+00
104000	2	6840E+00	2	6790E+00	104500	2	6790E+00	105000	2	6710E+00	106000	2	6680E+00
106500	2	6650E+00	2	6620E+00	107000	2	6600E+00	108000	2	6590E+00	108500	2	6580E+00
109000	2	6570E+00	2	6570E+00	109500	2	6570E+00	110500	2	6580E+00	111000	2	6580E+00
111500	2	6590E+00	2	6590E+00	112000	2	6590E+00	113000	2	6600E+00	113500	2	6610E+00
114000	2	6610E+00	2	6620E+00	114500	2	6620E+00	115000	2	6640E+00	116000	2	6650E+00
115000	2	6650E+00	2	6660E+00	117000	2	6670E+00	118000	2	6670E+00	118500	2	6680E+00
119000	2	6680E+00	2	6670E+00	119500	2	6670E+00	120500	2	6660E+00	121000	2	6640E+00
121500	2	6620E+00	2	6590E+00	122000	2	6590E+00	123000	2	6490E+00	123500	2	6390E+00
124000	2	6240E+00	2	6000E+00	124500	2	5620E+00	125000	2	5070E+00	126000	2	4270E+00
125000	2	3280E+00	2	2090E+00	127000	2	0750E+00	128000	1	9330E+00	128500	1	7910E+00
129000	1	6500E+00	1	5270E+00	129500	1	4170E+00	130500	1	3120E+00	131000	1	2180E+00
131500	1	1260E+00	1	0280E+00	132000	1	0280E+00	133000	8	3100E-01	133500	7	1900E-01
134000	6	0700E-01	4	8200E-01	134500	4	8200E-01	135000	2	0500E-01	136000	5	8000E-02
135000	-7	8000E-02	-2	3300E-01	137000	-7	1200E-01	138000	-1	8660E+00	138500	-3	1370E+00
139000	-3	9040E+00	-4	1090E+00	139500	-4	1090E+00	140000	-5	3790E+00	141000	-5	6790E+00
141500	-5	5070E+00	-5	9010E+00	142000	-5	9660E+00	143000	-6	5110E+00	143500	-6	6570E+00
144000	-7	2390E+00	-7	9900E+00	144500	-8	9620E+00	145000	-1	0320E+01	146000	-1	2570E-01
146500	-1	5600E+01	-1	8620E+01	147000	-2	0870E+01	148000	-2	2160E+01	148500	-2	2860E+01
149000	-2	3320E+01	-2	3730E+01	149500	-2	3640E+01	150000	-2	2950E+01	151000	-2	2330E+01
151500	-2	1830E+01	-2	1360E+01	152000	-2	1360E+01	153000	-2	0590E+01	153500	-2	0220E+01
154000	-1	9120E+01	-1	2400E+01	154500	-1	2400E+01	155000	-4	4700E-01	156000	5	7600E-01
156500	1	1780E+00	1	7820E+00	157000	1	7820E+00	158000	2	4750E+00	158500	2	7310E+00
159000	2	9970E+00	3	2180E+00	159500	3	4050E+00	160000	3	4880E+00	161000	3	5200E+00
161500	3	5750E+00	3	7030E+00	162000	3	8630E+00	163000	4	0530E+00	163500	4	2930E+00
164000	4	6040E+00	4	9890E+00	164500	5	4790E+00	165000	6	1270E+00	166000	6	9260E+00
166500	7	8150E+00	8	6180E+00	167000	8	6180E+00	168000	9	9450E+00	168500	1	0300E+01
169000	9	4560E+00	9	0880E+00	169500	9	4800E+00	170000	9	8730E+00	171000	1	0200E+01
171500	1	0480E+01	1	0650E+01	172000	1	0650E+01	173000	1	0480E+01	173500	1	0150E+01
174000	9	9200E+00	9	6540E+00	174500	9	6540E+00	175000	8	7040E+00	176000	8	3700E+00
176500	8	1100E+00	7	8440E+00	177000	7	8440E+00	178000	7	2440E+00	178500	6	9180E+00
179000	6	6360E+00	6	2830E+00	179500	5	8110E+00	180000	5	1620E+00	181000	4	3870E+00
181500	3	3680E+00	1	2690E+00	182000	2	2690E+00	183000	3	5500E-01	183500	-2	8100E-01
184000	-7	4700E-01	-1	1140E+00	184500	-1	2400E+00	185000	-1	6840E+00	186000	-1	9130E+00
186500	-2	1080E+00	-2	2840E+00	187000	-2	4730E+00	188000	-2	7200E+00	188500	-3	0280E+00
189000	-3	4730E+00	-4	8960E+00	189500	-4	8960E+00	190000	-6	2300E+00	191000	-7	9320E+00
191500	-1	0190E+01	-1	2020E+01	192000	-1	2950E+01	193000	-1	3330E+01	193500	-1	4300E+01
194000	-1	5970E+01	-1	6830E+01	194500	-1	6300E+01	195500	-1	4920E+01	196000	-1	3240E+01
196500	-1	1500E+01	-9	5170E+00	197000	-8	2290E+00	198000	-7	4600E+00	198500	-6	8420E+00

1.99000 2.01500 2.04000 2.06500 2.09000 2.11500 2.14000 2.16500 2.19000 2.21500 2.24000 2.26500 2.29000 2.31500 2.34000 2.36500 2.39000 2.41500 2.44000 2.46500 2.49000 2.51500 2.54000 2.56500 2.59000 2.61500 2.64000 2.66500 2.69000 2.71500 2.74000 2.76500 2.79000 2.81500 2.84000 2.86500 2.89000 2.91500 2.94000 2.96500 2.99000

-6.3320E+00 -2.4010E+00 6.0900E-01 1.4880E+00 2.3780E+00 5.2980E+00 8.1340E+00 7.2770E+00 7.4970E+00 4.7780E+00 3.3330E+00 1.4230E+00 4.0000E-01 2.2200E+00 -1.0000E+00 -4.0000E-01 2.3100E+00 -2.6520E+00 -8.8870E+00 -1.3180E+01 -3.0080E+00 -3.3630E+00 -1.4840E+00 1.5700E-01 8.4800E-01 1.7160E+00 4.6400E+00 7.7320E+00 6.6170E+00 4.7510E+00 2.8400E+00 1.8280E+00 5.9300E-01 9.7300E-01 -3.5500E-01 -9.7300E-01 -3.0850E+00 -1.2410E+01 -5.9010E+00 -3.5320E+00 -1.9490E+00 -8.0300E-01 1.1400E-01 6.3800E-01 1.6810E+00

1.99500 2.02000 2.04500 2.07000 2.09500 2.12000 2.14500 2.17000 2.19500 2.22000 2.24500 2.27000 2.29500 2.32000 2.34500 2.37000 2.39500 2.42000 2.44500 2.47000 2.49500 2.52000 2.54500 2.57000 2.59500 2.62000 2.64500 2.67000 2.69500 2.72000 2.74500 2.77000 2.79500 2.82000 2.84500 2.87000 2.89500 2.92000 2.94500 2.97000 2.99500

-5.7520E+00 -1.4550E+00 8.3400E-01 1.6160E+00 2.6980E+00 6.2030E+00 8.4920E+00 7.7760E+00 7.1700E+00 4.4310E+00 3.0330E+00 9.4200E-01 -6.1500E-01 -1.3910E+00 -3.3990E+00 -1.0130E+01 -1.1440E+00 -3.3950E+00 -5.1150E+00 -3.0160E+00 -1.0680E+00 3.3000E-01 9.6800E-01 2.0470E+00 5.3990E+00 8.1140E+00 5.2440E+00 4.4870E+00 2.6160E+00 1.5950E+00 3.5000E-01 4.7900E-01 -1.1580E+00 -4.1080E+00 -1.3390E+01 -5.4640E+00 -3.0370E+00 -1.7310E+00 -5.7800E-01 -2.3900E-01 7.5300E-01 2.1490E+00

2.00000 2.02500 2.05000 2.07500 2.10000 2.12500 2.15000 2.17500 2.20000 2.22500 2.25000 2.27500 2.30000 2.32500 2.35000 2.37500 2.40000 2.42500 2.45000 2.47500 2.50000 2.52500 2.55000 2.57500 2.60000 2.62500 2.65000 2.67500 2.70000 2.72500 2.75000 2.77500 2.80000 2.82500 2.85000 2.87500 2.90000 2.92500 2.95000 2.97500 3.00000

-5.1330E+00 -6.7400E-01 1.0390E+00 1.7410E+00 3.1630E+00 6.9220E+00 8.8600E+00 8.0980E+00 6.5720E+00 4.1540E+00 2.5980E+00 5.3300E-01 -7.7800E-01 -1.5670E+00 -4.4820E+00 -1.1480E+01 -9.5070E+00 -4.5350E+00 -2.6520E+00 -7.1200E-01 4.8800E-01 1.0880E+00 2.5310E+00 6.0690E+00 8.3780E+00 5.0870E+00 4.0910E+00 2.4220E+00 1.3460E+00 1.3300E-01 -5.9000E-01 -1.4100E+00 -5.2050E+00 -1.1470E+01 -5.1150E+00 -2.6670E+00 -1.5050E+00 -3.6900E-01 3.4700E-01 8.9300E-01 2.7240E+00

2.00500 2.03000 2.05500 2.08000 2.10500 2.13000 2.15500 2.18000 2.20500 2.23000 2.25500 2.28000 2.30500 2.33000 2.35500 2.38000 2.40500 2.43000 2.45500 2.48000 2.50500 2.53000 2.55500 2.58000 2.60500 2.63000 2.65500 2.68000 2.70500 2.73000 2.75500 2.78000 2.80500 2.83000 2.85500 2.88000 2.90500 2.93000 2.95500 2.98000

-4.2970E+00 -1.3600E-01 1.9100E+00 3.7200E+00 7.4900E+00 8.870E+00 8.050E+00 5.840E+00 3.8740E+00 2.270E+00 1.4600E-01 -9.3200E-01 -1.8330E+00 -5.950E+00 -1.2700E+01 -8.1770E+00 -4.0540E+00 -2.270E+00 -3.6400E-01 6.2100E-01 1.2440E+00 3.1400E+00 6.6250E+00 8.4230E+00 5.1830E+00 3.5800E+00 2.2470E+00 1.1110E+00 4.1000E-02 -7.0300E-01 -1.7450E+00 -6.6140E+00 -8.8090E+00 -4.6500E+00 -2.3930E+00 -1.2730E+00 -1.9700E-01 4.4400E-01 1.0770E+00

2.01000 2.03500 2.06000 2.08500 2.11000 2.13500 2.16000 2.18500 2.21000 2.23500 2.26000 2.28500 2.31000 2.33500 2.36000 2.38500 2.41000 2.43500 2.46000 2.48500 2.51000 2.53500 2.56000 2.58500 2.61000 2.63500 2.66000 2.68500 2.71000 2.73500 2.76000 2.78500 2.81000 2.83500 2.86000 2.88500 2.91000 2.93500 2.96000 2.98500

-3.4160E+00 -2.9400E-01 1.3660E+00 2.1050E+00 4.4900E+00 7.8530E+00 7.8180E+00 7.7950E+00 5.1950E+00 3.6250E+00 1.8560E+00 -1.4300E-01 -1.0690E+00 -2.1830E+00 -7.4710E+00 -1.3350E+01 -7.1210E+00 -3.6810E+00 -1.5010E+00 -7.5000E-02 7.3100E-01 1.4450E+00 3.8400E+00 7.2070E+00 8.0630E+00 5.0180E+00 3.1260E+00 2.0440E+00 8.5000E-01 2.1000E-01 -2.2600E-01 -2.2890E+00 -5.1820E+00 -6.8560E+00 -4.1020E+00 -2.1650E+00 -1.0370E+00 -3.0000E-02 5.3800E-01 1.3290E+00

A-232

48990	8.1310E+00	7.9830E+00	50000	7.7530E+00	7.4300E+00	50500	7.4300E+00	51000	6.9840E+00
51470	6.4620E+00	5.8400E+00	52500	5.1690E+00	4.5720E+00	53500	4.5720E+00	53500	4.0290E+00
54000	3.5190E+00	2.8420E+00	55000	2.1950E+00	1.4390E+00	55500	1.4390E+00	56000	3.3800E-01
56500	2.3000E-02	-2.1100E-01	57500	8.6600E-01	7.1400E-01	58000	7.1400E-01	58500	1.4570E+00
59000	2.2970E+00	3.3240E+00	60000	4.2900E+00	4.9800E+00	60500	4.9800E+00	61000	5.4130E+00
59500	5.6700E+00	5.8570E+00	62000	6.1270E+00	6.4990E+00	62500	6.4990E+00	63480	6.8890E+00
63990	7.1440E+00	7.3490E+00	64500	7.4300E+00	7.4360E+00	65500	7.4360E+00	65990	7.5290E+00
66480	7.6400E+00	7.7160E+00	67500	7.7950E+00	7.8650E+00	67990	7.8650E+00	68480	7.9270E+00
68980	7.9810E+00	8.0230E+00	69570	8.0710E+00	8.1090E+00	70500	8.1090E+00	70990	8.1400E+00
71490	8.1660E+00	8.1890E+00	72480	8.2080E+00	8.2230E+00	72980	8.2230E+00	73470	8.2360E+00
74000	8.2470E+00	8.2550E+00	74490	8.2620E+00	8.2670E+00	75480	8.2670E+00	75980	8.2730E+00
76500	8.2780E+00	8.2840E+00	77490	8.2900E+00	8.2960E+00	77980	8.2960E+00	78480	8.3010E+00
78970	8.3050E+00	8.3070E+00	79590	8.3060E+00	8.3040E+00	80490	8.3040E+00	80980	8.3020E+00
81480	8.2990E+00	8.2980E+00	82500	8.3010E+00	8.3080E+00	83490	8.3080E+00	83980	8.3230E+00
83990	8.3450E+00	8.3750E+00	84480	8.3450E+00	8.4570E+00	85470	8.4570E+00	86000	8.5110E+00
86490	8.5660E+00	8.6240E+00	87480	8.6240E+00	8.7370E+00	88470	8.7370E+00	88970	8.7870E+00
89000	8.8300E+00	8.8570E+00	89990	8.8570E+00	8.8630E+00	90490	8.8630E+00	90980	8.8390E+00
91480	8.7970E+00	8.7350E+00	92500	8.6620E+00	8.5780E+00	93490	8.5780E+00	93980	8.4850E+00
93980	8.3890E+00	8.2950E+00	94480	8.2070E+00	8.1260E+00	95500	8.1260E+00	95990	8.0630E+00
96490	8.0160E+00	7.9840E+00	97480	7.9640E+00	7.9530E+00	97970	7.9530E+00	98500	7.9470E+00
98990	7.9440E+00	7.9400E+00	99480	7.9440E+00	7.9260E+00	100500	7.9260E+00	101000	7.9150E+00
101500	7.9020E+00	7.8890E+00	102000	7.8890E+00	7.8620E+00	103000	7.8620E+00	103500	7.8490E+00
104000	7.8350E+00	7.8230E+00	104500	7.8230E+00	7.8030E+00	105500	7.8030E+00	106000	7.7940E+00
106500	7.7860E+00	7.7800E+00	107000	7.7800E+00	7.7750E+00	108000	7.7750E+00	108500	7.7680E+00
109000	7.7660E+00	7.7650E+00	110000	7.7650E+00	7.7650E+00	110500	7.7650E+00	111000	7.7660E+00
111500	7.7670E+00	7.7690E+00	112000	7.7700E+00	7.7700E+00	113000	7.7700E+00	113500	7.7740E+00
114000	7.7760E+00	7.7770E+00	114500	7.7770E+00	7.7790E+00	115500	7.7790E+00	116000	7.7820E+00
116500	7.7840E+00	7.7850E+00	117000	7.7850E+00	7.7850E+00	118000	7.7850E+00	118500	7.7840E+00
119000	7.7820E+00	7.7800E+00	119500	7.7800E+00	7.7720E+00	120500	7.7720E+00	121000	7.7480E+00
121500	7.7240E+00	7.6890E+00	122000	7.6890E+00	7.6360E+00	123000	7.6360E+00	123500	7.4610E+00
124000	7.3350E+00	7.1830E+00	124500	7.1830E+00	7.0030E+00	125500	7.0030E+00	126000	6.5550E+00
126500	6.2960E+00	6.0090E+00	127000	6.0090E+00	5.6930E+00	128000	5.6930E+00	128500	4.9970E+00
129000	4.6160E+00	4.2580E+00	129500	4.2580E+00	3.9150E+00	130500	3.9150E+00	131000	3.2660E+00
131500	2.9680E+00	2.6550E+00	132000	2.6550E+00	2.3490E+00	133000	2.3490E+00	133500	1.6710E+00
134000	1.3580E+00	8.1500E-01	134500	8.1500E-01	4.8000E-02	135500	4.8000E-02	136000	1.7780E+00
136500	-2.9170E+00	-4.0950E+00	137000	-4.0950E+00	-5.1850E+00	138000	-5.1850E+00	138500	-7.6110E+00
139000	-1.0290E+01	-1.2600E+01	139500	-1.2600E+01	-1.3740E+01	140500	-1.3740E+01	141000	-1.5440E+01
141500	-1.6730E+01	-1.7800E+01	142000	-1.7800E+01	-1.8770E+01	143000	-1.8770E+01	143500	-2.1090E+01
144000	-2.3420E+01	-2.6680E+01	144500	-2.6680E+01	-3.0900E+01	145500	-3.0900E+01	146000	-3.9640E+01
146500	-4.3720E+01	-4.7950E+01	147000	-4.7950E+01	-5.2770E+01	148000	-5.2770E+01	148500	-6.1490E+01
149000	-6.3830E+01	-6.5990E+01	149500	-6.5990E+01	-6.6650E+01	150500	-6.6650E+01	151000	-6.6630E+01
151500	-6.5390E+01	-6.3760E+01	152000	-6.3760E+01	-6.2360E+01	153000	-6.2360E+01	153500	-4.8640E+01
154000	-2.9490E+01	-1.7800E+01	154500	-1.7800E+01	-1.3940E+01	155500	-1.3940E+01	156000	-6.1200E+00
156500	-1.2840E+00	2.7320E+00	157000	2.7320E+00	1.57500	158000	1.57500	158500	7.9180E+00
159000	8.6740E+00	9.1440E+00	159500	9.1440E+00	9.4540E+00	160500	9.4540E+00	161000	1.0140E+01
161500	1.0600E+01	1.1110E+01	162000	1.1110E+01	1.1640E+01	163000	1.1640E+01	163500	1.3120E+01
164000	1.4170E+01	1.5540E+01	164500	1.5540E+01	1.7230E+01	165500	1.7230E+01	166000	2.1070E+01
166500	2.2880E+01	2.4390E+01	167000	2.4390E+01	2.5250E+01	168000	2.5250E+01	168500	2.5360E+01
169000	2.6830E+01	2.8440E+01	169500	2.8440E+01	2.8420E+01	170500	2.8420E+01	171000	2.8330E+01
171500	2.8760E+01	2.9150E+01	172000	2.9150E+01	2.9590E+01	173000	2.9590E+01	173500	2.9560E+01
174000	2.8700E+01	2.7680E+01	174500	2.7680E+01	2.6820E+01	175500	2.6820E+01	176000	2.4990E+01
176500	2.3830E+01	2.280E+01	177000	2.280E+01	2.1880E+01	178000	2.1880E+01	178500	1.9840E+01
179000	1.8550E+01	1.6840E+01	179500	1.6840E+01	1.4900E+01	180500	1.4900E+01	181000	1.0810E+01
181500	8.6080E+00	6.3750E+00	182000	6.3750E+00	4.1230E+00	183000	4.1230E+00	183500	-1.2300E-01
184000	-1.8210E+00	-3.1240E+00	184500	-3.1240E+00	-4.1150E+00	185500	-4.1150E+00	186000	-5.6300E-00
186500	-6.3370E+00	-7.0890E+00	187000	-7.0890E+00	-8.910E+00	188000	-8.910E+00	188500	-1.0200E+01
189000	-1.2130E+01	-1.4820E+01	189500	-1.4820E+01	-1.7860E+01	190500	-1.7860E+01	191000	-2.4090E+01
191500	-3.0270E+01	-3.0270E+01	192000	-3.0270E+01	-3.4570E+01	193000	-3.4570E+01	193500	-4.1180E+01
194000	-4.1440E+01	-4.1290E+01	194500	-4.1290E+01	-4.6760E+01	195500	-4.6760E+01	196000	-3.6990E+01
196500	-3.3480E+01	-2.9550E+01	197000	-2.9550E+01	-2.6760E+01	198000	-2.6760E+01	198500	-2.0730E+01

1.99000	-1.8270E+01	1.99500	-1.5760E+01	2.00000	-1.3490E+01	2.00500	-1.0960E+01	2.01000	-8.7300E+00
2.01500	-6.4780E+00	2.02000	-4.4780E+00	2.02500	-2.7130E+00	2.03000	-1.2880E+00	2.03500	8.1000E-02
2.04000	1.2250E+00	2.04500	2.0660E+00	2.05000	2.8010E+00	2.05500	3.3880E+00	2.06000	3.8870E+00
2.06500	4.3190E+00	2.07000	4.8170E+00	2.07500	5.3250E+00	2.08000	5.9750E+00	2.08500	6.5940E+00
2.09000	7.7020E+00	2.09500	8.8870E+00	2.10000	1.0510E+01	2.10500	1.2210E+01	2.11000	1.4160E+01
2.11500	1.5840E+01	2.12000	1.7460E+01	2.12500	1.8800E+01	2.13000	2.0160E+01	2.13500	2.1740E+01
2.14000	2.3070E+01	2.14500	2.2860E+01	2.15000	2.2250E+01	2.15500	2.2330E+01	2.16000	2.3580E+01
2.16500	2.4200E+01	2.17000	2.3410E+01	2.17500	2.2330E+01	2.18000	2.1740E+01	2.18500	2.1800E+01
2.19000	2.0920E+01	2.19500	1.9710E+01	2.20000	1.8430E+01	2.20500	1.9380E+01	2.21000	1.6070E+01
2.21500	1.4700E+01	2.22000	1.2260E+01	2.22500	1.2170E+01	2.23000	1.1150E+01	2.23500	1.0250E+01
2.24000	9.2420E+00	2.24500	8.2520E+00	2.25000	7.2880E+00	2.25500	6.1140E+00	2.26000	4.9140E+00
2.26500	3.8400E+00	2.27000	2.7060E+00	2.27500	1.7040E+00	2.28000	6.6500E-01	2.28500	-1.9300E-01
2.29000	-1.0150E+00	2.29500	-1.7100E+00	2.30000	-2.2610E+00	2.30500	-2.8120E+00	2.31000	-3.2340E+00
2.31500	-3.8520E+00	2.32000	-4.2240E+00	2.32500	-5.3070E+00	2.33000	-6.4580E+00	2.33500	-8.0480E+00
2.34000	-9.9880E+00	2.34500	-1.23580E+01	2.35000	-1.5270E+01	2.35500	-1.8150E+01	2.36000	-2.1170E+01
2.36500	-2.8430E+01	2.37000	-2.8430E+01	2.37500	-3.0680E+01	2.38000	-3.1610E+01	2.38500	-3.1490E+01
2.39000	-3.1050E+01	2.39500	-3.0450E+01	2.40000	-2.8610E+01	2.40500	-2.5320E+01	2.41000	-2.1520E+01
2.41500	-1.8720E+01	2.42000	-1.6260E+01	2.42500	-1.4370E+01	2.43000	-1.2530E+01	2.43500	-1.0970E+01
2.44000	-9.7450E+00	2.44500	-8.5350E+00	2.45000	-7.3810E+00	2.45500	-6.2380E+00	2.46000	-5.2020E+00
2.46500	-4.0920E+00	2.47000	-3.0440E+00	2.47500	-2.1670E+00	2.48000	-1.2880E+00	2.48500	-4.9900E-01
2.49000	1.9600E-01	2.49500	7.4600E-01	2.50000	1.2710E+00	2.50500	1.7320E+00	2.51000	2.1170E+00
2.51500	2.5280E+00	2.52000	2.5620E+00	2.52500	3.4170E+00	2.53000	4.0330E+00	2.53500	4.8380E+00
2.54000	5.8620E+00	2.54500	7.0410E+00	2.55000	8.5760E+00	2.55500	1.0250E+01	2.56000	1.1800E+01
2.56500	1.3500E+01	2.57000	1.5260E+01	2.57500	1.7050E+01	2.58000	1.8600E+01	2.58500	2.0060E+01
2.59000	2.1150E+01	2.59500	2.1740E+01	2.60000	2.1220E+01	2.60500	2.0100E+01	2.61000	1.9550E+01
2.61500	1.9700E+01	2.62000	1.5310E+01	2.62500	1.7360E+01	2.63000	1.5300E+01	2.63500	1.3800E+01
2.64000	1.3080E+01	2.64500	1.2350E+01	2.65000	1.1440E+01	2.65500	1.0600E+01	2.66000	9.7210E+00
2.66500	8.8190E+00	2.67000	7.8360E+00	2.67500	7.0080E+00	2.68000	6.3720E+00	2.68500	5.7200E+00
2.69000	5.0620E+00	2.69500	4.3850E+00	2.70000	3.6930E+00	2.70500	3.0580E+00	2.71000	2.3670E+00
2.71500	1.6970E+00	2.72000	1.0590E+00	2.72500	4.6100E-01	2.73000	-3.8000E-02	2.73500	-5.3500E-01
2.74000	-9.8400E-01	2.74500	-1.4040E+00	2.75000	-1.8160E+00	2.75500	-2.2370E+00	2.76000	-2.7190E+00
2.76500	-3.3340E+00	2.77000	-4.1810E+00	2.77500	-5.3710E+00	2.78000	-6.7600E+00	2.78500	-8.5270E+00
2.79000	-1.0760E+01	2.79500	-1.4270E+01	2.80000	-1.9190E+01	2.80500	-2.3310E+01	2.81000	-2.4710E+01
2.81500	-2.3930E+01	2.82000	-2.4010E+01	2.82500	-2.5760E+01	2.83000	-2.6670E+01	2.83500	-2.4930E+01
2.84000	-1.7530E+01	2.84500	-1.7530E+01	2.85000	-1.4980E+01	2.85500	-1.3060E+01	2.86000	-1.1670E+01
2.86500	-1.0510E+01	2.87000	-9.4130E+00	2.87500	-8.3370E+00	2.88000	-7.3180E+00	2.88500	-6.4080E+00
2.89000	-5.6130E+00	2.89500	-4.8990E+00	2.90000	-4.2230E+00	2.90500	-3.5640E+00	2.91000	-2.9180E+00
2.91500	-2.2920E+00	2.92000	-1.6970E+00	2.92500	-1.1410E+00	2.93000	-6.7200E-01	2.93500	-2.0200E-01
2.94000	2.2200E-01	2.94500	6.0300E-01	2.95000	9.5500E-01	2.95500	1.2930E+00	2.96000	1.6350E+00
2.96500	2.0070E+00	2.97000	2.4490E+00	2.97500	3.0140E+00	2.98000	3.7580E+00	2.98500	4.7160E+00
2.99000	5.8770E+00	2.99500	7.2280E+00	3.00000	8.8440E+00				

48990	1.4050E+01	1.3940E+01	50000	1.3920E+01	50500	1.4020E+01	51000	1.4260E+01
51470	1.4590E+01	1.5030E+01	55000	1.5500E+01	53000	1.5900E+01	53500	1.6190E+01
54000	1.6330E+01	1.6430E+01	55000	1.6150E+01	55500	1.5500E+01	56000	1.4160E+01
56500	1.2340E+01	1.0210E+01	57000	7.0790E+00	58000	6.4610E+00	58500	5.3750E+00
59000	5.1930E+00	5.8670E+00	60000	7.3900E+00	60500	8.3810E+00	61000	1.0120E+01
61500	1.1780E+01	1.3270E+01	62000	1.4400E+01	62980	1.5140E+01	63480	1.5760E+01
63990	1.6380E+01	1.7030E+01	64500	1.7640E+01	65500	1.8190E+01	65990	1.8570E+01
66480	1.8800E+01	1.8960E+01	67000	1.9090E+01	67990	1.9220E+01	68480	1.9350E+01
68980	1.9480E+01	1.9590E+01	69480	1.9690E+01	70500	1.9790E+01	70990	1.9870E+01
71490	1.9940E+01	2.0010E+01	71990	2.0070E+01	72980	2.0120E+01	73470	2.0170E+01
74000	2.0210E+01	2.0240E+01	74490	2.0270E+01	75980	2.0300E+01	75980	2.0330E+01
76500	2.0370E+01	2.0410E+01	77490	2.0470E+01	77980	2.0530E+01	78480	2.0600E+01
78970	2.0680E+01	2.0760E+01	79500	2.0840E+01	80490	2.0900E+01	80980	2.0950E+01
81480	2.0980E+01	2.0990E+01	81980	2.0970E+01	83000	2.0940E+01	83490	2.0890E+01
83990	2.0830E+01	2.0760E+01	84480	2.0690E+01	85470	2.0620E+01	86000	2.0550E+01
86490	2.0490E+01	2.0430E+01	86990	2.0430E+01	87980	2.0370E+01	88470	2.0370E+01
89000	2.0410E+01	2.0460E+01	89490	2.0540E+01	90490	2.0640E+01	90980	2.0740E+01
91480	2.0840E+01	2.0930E+01	92000	2.0980E+01	92990	2.1000E+01	93490	2.0970E+01
93980	2.0900E+01	2.0780E+01	94480	2.0630E+01	95500	2.0430E+01	95990	2.0240E+01
96490	2.0040E+01	1.9850E+01	96980	1.9690E+01	97970	1.9560E+01	98500	1.9460E+01
98990	1.9400E+01	1.9360E+01	99490	1.9340E+01	1.00500	1.9340E+01	1.01000	1.9400E+01
1.01500	1.9340E+01	1.9340E+01	1.02000	1.9330E+01	1.03000	1.9320E+01	1.03500	1.9310E+01
1.04000	1.9290E+01	1.9270E+01	1.04500	1.9250E+01	1.05500	1.9230E+01	1.06000	1.9220E+01
1.06500	1.9200E+01	1.9180E+01	1.07000	1.9160E+01	1.08000	1.9150E+01	1.08500	1.9140E+01
1.09000	1.9120E+01	1.9120E+01	1.09500	1.9110E+01	1.10500	1.9100E+01	1.11000	1.9100E+01
1.11500	1.9090E+01	1.9090E+01	1.12000	1.9080E+01	1.13000	1.9070E+01	1.13500	1.9060E+01
1.14000	1.9030E+01	1.8990E+01	1.14500	1.8930E+01	1.15500	1.8830E+01	1.16000	1.8710E+01
1.16500	1.8560E+01	1.8370E+01	1.17000	1.8160E+01	1.18000	1.7930E+01	1.18500	1.7700E+01
1.19000	1.7450E+01	1.7180E+01	1.19500	1.6890E+01	1.20500	1.6600E+01	1.21000	1.6280E+01
1.21500	1.5550E+01	1.5550E+01	1.22000	1.5320E+01	1.23000	1.4980E+01	1.23500	1.4650E+01
1.24000	1.4000E+01	1.4000E+01	1.24500	1.3670E+01	1.25500	1.3320E+01	1.26000	1.2930E+01
1.26500	1.2520E+01	1.2060E+01	1.27000	1.1520E+01	1.28000	1.0900E+01	1.28500	1.0170E+01
1.29000	9.2970E+00	8.3640E+00	1.29500	7.3570E+00	1.30500	5.9080E+00	1.31000	4.3000E+00
1.31500	2.5940E+00	6.9900E-01	1.32000	-1.1820E+00	1.33000	-3.0820E+00	1.33500	-5.0110E+00
1.34000	-6.7970E+00	-8.4180E+00	1.34500	-9.7460E+00	1.35500	-1.1120E+01	1.36000	-1.2220E+01
1.36500	-1.3980E+01	-1.5380E+01	1.37000	-2.5380E+01	1.38000	-1.8380E+01	1.38500	-1.9930E+01
1.39000	-2.1970E+01	-2.5110E+01	1.39500	-3.0270E+01	1.40500	-3.6770E+01	1.41000	-4.3440E+01
1.41500	-5.0320E+01	-5.7050E+01	1.42000	-6.3560E+01	1.43000	-6.9270E+01	1.43500	-7.4650E+01
1.44000	-7.9260E+01	-8.3090E+01	1.44500	-8.6050E+01	1.45500	-8.8450E+01	1.46000	-9.1120E+01
1.46500	-9.4150E+01	-9.7600E+01	1.47000	-1.0160E+02	1.48000	-1.0680E+02	1.48500	-1.1320E+02
1.49000	-1.2010E+02	-1.2730E+02	1.49500	-1.3420E+02	1.50500	-1.3440E+02	1.51000	-1.2550E+02
1.51500	-1.1360E+02	-9.8190E+01	1.52000	-8.1930E+01	1.53000	-6.3060E+01	1.53500	-5.1450E+01
1.54000	-4.5850E+01	-4.4430E+01	1.54500	-3.6600E+01	1.55500	-3.2040E+01	1.56000	-2.7990E+01
1.56500	-2.4410E+01	-2.0980E+01	1.57000	-1.7310E+01	1.58000	-1.2480E+01	1.58500	-7.3880E+00
1.59000	2.2750E+00	2.4450E+00	1.59500	3.2860E+01	1.60500	3.7020E+01	1.61000	4.1110E+01
1.61500	4.6450E+01	2.8570E+01	1.62000	4.9000E+01	1.63000	5.0040E+01	1.63500	5.0510E+01
1.64000	4.4910E+01	4.8220E+01	1.64500	5.0780E+01	1.65500	5.1990E+01	1.66000	5.2900E+01
1.66500	5.0400E+01	5.0400E+01	1.67000	5.6210E+01	1.68000	5.7350E+01	1.68500	5.8520E+01
1.69000	5.3960E+01	5.5180E+01	1.69500	6.0070E+01	1.70500	6.0280E+01	1.71000	6.0490E+01
1.71500	5.9140E+01	5.9680E+01	1.72000	5.9630E+01	1.73000	5.8290E+01	1.73500	5.6030E+01
1.74000	6.0470E+01	6.0140E+01	1.74500	4.4640E+01	1.75500	4.0490E+01	1.76000	3.6290E+01
1.76500	5.3030E+01	4.5290E+01	1.77000	2.6910E+01	1.78000	2.3370E+01	1.78500	2.1060E+01
1.79000	2.3880E+01	2.9600E+01	1.79500	1.4900E+01	1.80500	1.2230E+01	1.81000	8.9710E+00
1.81500	1.9130E+01	1.7140E+01	1.82000	-2.6000E-01	1.83000	-1.0880E+01	1.83500	-1.7020E+01
1.84000	4.9930E+00	2.8730E+01	1.84500	-3.3580E+00	1.85500	-3.8320E+01	1.86000	-4.2750E+01
1.86500	-2.3150E+01	-2.8700E+01	1.87000	-5.1160E+01	1.88000	-5.5720E+01	1.88500	-5.7380E+01
1.89500	-4.7350E+01	-5.8900E+01	1.90000	-5.8250E+01	1.90500	-5.7660E+01	1.91000	-5.7850E+01
1.91500	-5.8750E+01	-5.9910E+01	1.92000	-6.1070E+01	1.93000	-6.2410E+01	1.93500	-6.3990E+01
1.94000	-5.8810E+01	-5.9910E+01	1.94500	-6.1480E+01	1.95500	-5.7880E+01	1.96000	-5.2940E+01
1.96500	-6.4730E+01	-6.3900E+01	1.97000	-6.1480E+01	1.98000	-5.7880E+01	1.98500	-5.2940E+01

1.99000	-4.7580E+01	1.99500	-4.0930E+01	2.00000	-3.4770E+01	2.00500	-2.8540E+01	2.01000	-2.3660E+01
2.01500	-1.9110E+01	2.02000	-1.5230E+01	2.02500	-1.2060E+01	2.03000	-9.5470E+00	2.03500	-7.0660E+00
2.04000	-4.6450E+00	2.04500	-2.3550E+00	2.05000	3.1600E-01	2.05500	3.2040E+00	2.06000	6.3580E+00
2.06500	9.5070E+00	2.07000	1.3310E+01	2.07500	1.7060E+01	2.08000	2.1350E+01	2.08500	2.5160E+01
2.09000	2.8960E+01	2.09500	3.1890E+01	2.10000	3.4520E+01	2.10500	3.6480E+01	2.11000	3.8240E+01
2.11500	3.7780E+01	2.12000	3.8030E+01	2.12500	3.8340E+01	2.13000	3.8360E+01	2.13500	3.8350E+01
2.14000	3.8440E+01	2.14500	4.0050E+01	2.15000	4.1480E+01	2.15500	4.2340E+01	2.16000	4.2860E+01
2.16500	4.3410E+01	2.17000	4.3950E+01	2.17500	4.4460E+01	2.18000	4.4180E+01	2.18500	4.3340E+01
2.19000	4.2650E+01	2.19500	4.2060E+01	2.20000	4.1060E+01	2.20500	3.9570E+01	2.21000	3.7520E+01
2.21500	3.5990E+01	2.22000	3.3910E+01	2.22500	3.0640E+01	2.23000	2.7220E+01	2.23500	2.4120E+01
2.24000	2.0830E+01	2.24500	1.8020E+01	2.25000	1.5550E+01	2.25500	1.3340E+01	2.26000	1.1490E+01
2.26500	9.9430E+00	2.27000	8.2430E+00	2.27500	6.6300E+00	2.28000	4.6720E+00	2.28500	2.6370E+00
2.29000	3.5000E-02	2.29500	-3.0270E+00	2.30000	-6.2790E+00	2.30500	-1.0420E+01	2.31000	-1.4480E+01
2.31500	-1.8870E+01	2.32000	-2.3520E+01	2.32500	-2.7960E+01	2.33000	-3.2500E+01	2.33500	-3.6690E+01
2.34000	-3.9870E+01	2.34500	-4.1790E+01	2.35000	-4.2660E+01	2.35500	-4.2680E+01	2.36000	-4.1840E+01
2.36500	-4.0380E+01	2.37000	-3.8600E+01	2.37500	-3.7350E+01	2.38000	-3.7300E+01	2.38500	-3.8220E+01
2.39000	-3.9490E+01	2.39500	-4.1800E+01	2.40000	-4.5900E+01	2.40500	-4.6180E+01	2.41000	-4.7640E+01
2.41500	-4.7820E+01	2.42000	-4.6400E+01	2.42500	-4.3980E+01	2.43000	-4.0250E+01	2.43500	-3.5640E+01
2.44000	-3.0970E+01	2.44500	-2.5740E+01	2.45000	-2.1020E+01	2.45500	-1.7100E+01	2.46000	-1.4150E+01
2.46500	-1.1420E+01	2.47000	-9.1360E+00	2.47500	-7.3780E+00	2.48000	-5.6760E+00	2.48500	-4.0900E+00
2.49000	-2.5040E+00	2.49500	-9.8500E-01	2.50000	8.4300E-01	2.50500	2.9080E+00	2.51000	5.0620E+00
2.51500	7.7980E+00	2.52000	1.0920E+01	2.52500	1.4010E+01	2.53000	1.7500E+01	2.53500	2.0950E+01
2.54000	2.4230E+01	2.54500	2.6960E+01	2.55000	2.9550E+01	2.55500	3.1630E+01	2.56000	3.3020E+01
2.56500	3.3850E+01	2.57000	3.2670E+01	2.57500	3.1740E+01	2.58000	3.0830E+01	2.58500	2.9880E+01
2.59000	3.9230E+01	2.59500	3.9080E+01	2.60000	3.0070E+01	2.60500	3.1640E+01	2.61000	3.2860E+01
2.61500	3.4170E+01	2.62000	3.5880E+01	2.62500	3.6590E+01	2.63000	3.7200E+01	2.63500	3.6850E+01
2.64000	3.5170E+01	2.64500	3.3070E+01	2.65000	3.0280E+01	2.65500	2.7390E+01	2.66000	2.4320E+01
2.66500	2.1910E+01	2.67000	2.0080E+01	2.67500	1.8320E+01	2.68000	1.6440E+01	2.68500	1.4330E+01
2.69000	1.2320E+01	2.69500	1.0450E+01	2.70000	8.7840E+00	2.70500	7.4840E+00	2.71000	6.2320E+00
2.71500	5.0350E+00	2.72000	3.7950E+00	2.72500	2.4190E+00	2.73000	9.8000E-01	2.73500	-9.0000E-01
2.74000	-3.2040E+00	2.74500	-5.9280E+00	2.75000	-8.8990E+00	2.75500	-1.2440E+01	2.76000	-1.7300E+01
2.76500	-2.3380E+01	2.77000	-2.8530E+01	2.77500	-3.2080E+01	2.78000	-3.4010E+01	2.78500	-3.4970E+01
2.79000	-3.4920E+01	2.79500	-3.3310E+01	2.80000	-3.0120E+01	2.80500	-2.7260E+01	2.81000	-2.5730E+01
2.81500	-2.5470E+01	2.82000	-2.6100E+01	2.82500	-2.7270E+01	2.83000	-2.9350E+01	2.83500	-3.2820E+01
2.84000	-3.6710E+01	2.84500	-3.9450E+01	2.85000	-4.0490E+01	2.85500	-4.0210E+01	2.86000	-3.8640E+01
2.86500	-3.5670E+01	2.87000	-3.1380E+01	2.87500	-2.6640E+01	2.88000	-2.2390E+01	2.88500	-1.8950E+01
2.89000	-1.6210E+01	2.89500	-1.3900E+01	2.90000	-1.1820E+01	2.90500	-9.8960E+00	2.91000	-8.1500E+00
2.91500	-6.5940E+00	2.92000	-5.3240E+00	2.92500	-4.0040E+00	2.93000	-2.9690E+00	2.93500	-1.8340E+00
2.94000	-6.2100E-01	2.94500	7.5200E-01	2.95000	2.3670E+00	2.95500	4.2870E+00	2.96000	6.5320E+00
2.96500	9.1070E+00	2.97000	1.2080E+01	2.97500	1.5540E+01	2.98000	1.9370E+01	2.98500	2.3160E+01
2.99000	2.6400E+01	2.99500	2.8680E+01	3.00000	2.9770E+01				

CODE FOR OUTPUT TYPE = 3
 EQ.1, HISTORY TABLE
 EQ.2, PRINTER PLOT
 EQ.3, MAXIMA ONLY
 PRINTER PLOT SPACING = 0

DYNAMIC (INERTIA ONLY) RESPONSES

DISPLACEMENT MAXIMA,

NODE NUMBER	DISPLACEMENT COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM	DISPLACEMENT COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM
101	1	6.8605E-07	1.5130E+00	4	3.7121E-07	1.5180E+00
	2	4.1342E-07	1.5160E+00		6.1538E-07	1.5140E+00
	3	1.9816E-07	1.3000E-01		1.0863E-07	5.4200E-01
9001	1	7.6967E-02	1.5140E+00	4	1.0047E-03	1.5190E+00
	2	4.2772E-02	1.5190E+00		1.7333E-03	1.5150E+00
	3	4.6348E-02	1.5160E+00		3.0736E-04	5.4200E-01
110	1	1.3840E-01	1.5140E+00	4	1.0048E-03	1.2300E-01
	2	7.6701E-02	1.9470E+00		1.7331E-03	1.5140E+00
	3	1.8978E-01	1.5170E+00		5.9056E-04	5.4200E-01
120	1	1.4053E-01	1.5140E+00	4	1.0000E-03	1.2200E-01
	2	7.9904E-02	1.9470E+00		1.7115E-03	1.5140E+00
	3	2.1340E-01	1.5170E+00		5.9997E-04	5.4200E-01
130	1	1.4323E-01	1.5140E+00	4	9.9156E-04	1.2200E-01
	2	8.3924E-02	1.9470E+00		1.6830E-03	1.5120E+00
	3	2.4246E-01	1.5170E+00		6.0895E-04	5.4200E-01
140	1	1.5410E-01	1.5140E+00	4	9.3331E-04	1.2200E-01
	2	1.0698E-01	5.4300E-01		1.5594E-03	1.5070E+00
	3	3.4910E-01	1.5170E+00		6.1814E-04	5.4200E-01
9002	1	1.3494E-01	1.5160E+00	4	6.0306E-04	1.2000E-01
	2	1.2571E-01	5.4300E-01		9.7769E-04	1.5070E+00
	3	4.4560E-01	1.5160E+00		5.4524E-04	1.7160E+00
150	1	9.3631E-02	1.5220E+00	4	5.2416E-04	5.4400E-01
	2	1.0145E-01	5.4200E-01		5.3759E-04	1.4900E+00
	3	4.6908E-01	1.5150E+00		4.7322E-04	1.7160E+00
9003	1	5.3841E-02	1.5300E+00	4	4.8217E-04	5.4300E-01
	2	6.1653E-02	1.8910E+00		5.0641E-04	1.5190E+00
	3	4.6880E-01	1.5150E+00		4.1769E-04	1.7160E+00
9004	1	2.8749E-02	4.6000E-02	4	3.7998E-04	5.4300E-01
	2	3.0780E-02	1.7210E+00		6.2047E-04	1.5200E+00
	3	4.6819E-01	1.5150E+00		3.6582E-04	1.7170E+00
6020	1	4.1655E-02	1.5180E+00	4	2.2190E-04	1.8910E+00
	2	2.1310E-02	6.1000E-02		8.4753E-04	1.5190E+00
	3	4.6733E-01	1.5150E+00		3.1759E-04	1.7170E+00
9005	1	1.1127E-01	1.5190E+00	4	8.6179E-05	1.1600E-01
	2	1.8514E-02	6.2000E-02		9.1441E-04	1.5180E+00
	3	4.6618E-01	1.5150E+00		2.6984E-04	1.7170E+00
9006	1	1.7043E-01	1.5180E+00	4	1.2062E-04	6.1000E-02
	2	1.2804E-02	7.4000E-02		5.8826E-04	1.5100E+00
	3	4.6475E-01	1.5150E+00		2.2210E-04	1.7170E+00
6040	1	1.9147E-01	1.5180E+00	4	1.3763E-04	7.4000E-02
	2	2.7471E-03	2.7000E-02		5.2443E-04	1.3000E-02

160	3	4.6301E-01	1.5150E+00	6	1.7446E-04	1.7180E+00
	1	1.8901E-01	1.5170E+00	4	1.3526E-04	1.9500E-01
	2	2.4511E-03	1.1700E-01	5	5.2246E-04	1.3000E-02
	3	4.6263E-01	1.5150E+00	6	1.6649E-04	1.6000E-01
9007	1	1.3434E-01	2.1000E-02	4	1.2117E-04	1.2200E-01
	2	8.0312E-03	1.9600E-01	5	2.8261E-03	1.5180E+00
	3	4.0253E-01	1.5140E+00	6	1.4759E-04	6.1000E-02
170	1	1.3582E-01	2.0000E-02	4	1.2028E-04	1.2200E-01
	2	1.1635E-02	2.0800E-01	5	3.1465E-03	1.4890E+00
	3	1.7183E-01	1.5140E+00	6	9.9673E-05	6.0000E-02
6050	1	1.3552E-01	2.0000E-02	4	1.1748E-04	1.2200E-01
	2	1.1620E-02	2.0800E-01	5	2.9023E-03	1.4880E+00
	3	9.8555E-02	1.5170E+00	6	8.6523E-05	6.0000E-02
6060	1	1.3534E-01	2.0000E-02	4	1.1608E-04	1.2200E-01
	2	1.1542E-02	2.0800E-01	5	2.7540E-03	1.4880E+00
	3	6.9644E-02	2.0500E-01	6	8.1914E-05	4.6000E-02
9008	1	1.3408E-01	2.0000E-02	4	1.0804E-04	1.2200E-01
	2	1.0657E-02	6.0000E-02	5	1.8958E-03	1.4870E+00
	3	1.3678E-01	2.3900E-01	6	5.7718E-05	4.7000E-02
9009	1	1.3237E-01	2.0000E-02	4	9.9988E-05	1.2200E-01
	2	1.0030E-02	6.0000E-02	5	1.2029E-03	1.6950E+00
	3	2.3539E-01	2.3900E-01	6	4.6954E-05	2.0800E-01
9010	1	1.3019E-01	2.0000E-02	4	9.1972E-05	1.2100E-01
	2	6.0248E-03	6.1000E-02	5	6.5231E-04	2.4100E-01
	3	2.9986E-01	2.3900E-01	6	6.5647E-05	6.0000E-02
6070	1	1.2754E-01	2.0000E-02	4	8.4145E-05	1.2100E-01
	2	1.6822E-03	4.7000E-02	5	2.8483E-04	1.9800E-01
	3	3.2476E-01	2.3900E-01	6	5.1778E-05	6.2000E-02
6080	1	1.2571E-01	1.9000E-02	4	7.8699E-05	1.2100E-01
	2	2.5755E-03	8.5000E-02	5	4.6945E-04	1.4870E+00
	3	3.1850E-01	2.3900E-01	6	3.4901E-05	6.5000E-02
9011	1	1.2321E-01	1.9000E-02	4	7.1666E-05	1.2100E-01
	2	4.3477E-03	8.5000E-02	5	7.7603E-04	1.4200E-01
	3	2.8391E-01	2.4000E-01	6	2.0300E-05	1.1700E-01
180	1	1.2027E-01	1.9000E-02	4	6.4633E-05	1.2100E-01
	2	4.9576E-03	8.5000E-02	5	1.0875E-03	2.4000E-01
	3	2.2425E-01	2.4000E-01	6	7.1710E-06	6.0000E-02
9012	1	1.1835E-01	1.8000E-02	4	6.0125E-05	1.2100E-01
	2	4.3625E-03	8.6000E-02	5	1.1803E-03	2.4000E-01
	3	1.6767E-01	2.4000E-01	6	1.9916E-05	8.5000E-02
9013	1	1.1581E-01	1.8000E-02	4	5.5694E-05	1.2000E-01
	2	3.0045E-03	8.6000E-02	5	1.1210E-03	2.4000E-01
	3	1.0962E-01	2.4000E-01	6	2.9502E-05	8.6000E-02
6090	1	1.1258E-01	1.8000E-02	4	5.1383E-05	1.2000E-01
	2	1.4477E-03	8.5000E-02	5	8.8625E-04	2.4000E-01

300	3	3.1643E-02	6.0000E-02	6	1.5413E-05	1.6500E-01
	1	6.3177E-02	2.4000E-02	4	2.3170E-05	1.4900E-01
	2	1.6383E-03	1.6600E-01	5	3.8285E-04	6.2000E-02
	3	2.8784E-02	5.9000E-02	6	1.5885E-05	1.6600E-01
310	1	6.1907E-02	2.4000E-02	4	2.2242E-05	1.4900E-01
	2	1.1138E-03	1.6600E-01	5	5.1339E-04	6.2000E-02
	3	2.8156E-02	4.3000E-02	6	1.5855E-05	1.6600E-01
315	1	9.6327E-02	2.4000E-02	4	2.2260E-05	1.4900E-01
	2	1.4526E-03	2.1830E+00	5	5.1896E-04	6.2000E-02
	3	2.8245E-02	4.3000E-02	6	1.5855E-05	1.6600E-01
320	1	6.0116E-02	2.4000E-02	4	2.0120E-05	1.4900E-01
	2	6.0677E-04	1.6600E-01	5	3.9905E-04	6.1000E-02
	3	2.4518E-02	4.3000E-02	6	1.5218E-05	1.6600E-01
330	1	5.6914E-02	2.4000E-02	4	1.6275E-05	1.4900E-01
	2	3.1783E-04	1.6600E-01	5	2.6914E-04	6.0000E-02
	3	1.8084E-02	4.3000E-02	6	1.3401E-05	1.6600E-01
340	1	5.3510E-02	2.4000E-02	4	1.2225E-05	1.4900E-01
	2	5.6939E-05	5.4000E-02	5	2.1742E-04	4.3000E-02
	3	1.1494E-02	1.0000E-02	6	1.0918E-05	1.6600E-01
1000	1	9.7232E-02	1.8000E-02	4	4.4470E-05	1.4600E-01
	2	2.0874E-03	1.6500E-01	5	2.2650E-04	1.5700E-01
	3	5.0969E-03	8.3000E-02	6	1.1761E-05	1.6400E-01
1002	1	9.6743E-02	1.8000E-02	4	4.9395E-05	1.4600E-01
	2	2.0642E-03	1.6500E-01	5	6.1552E-04	3.5000E-02
	3	5.1695E-03	8.3000E-02	6	1.1937E-05	1.6400E-01
1003	1	9.4036E-02	1.8000E-02	4	5.8445E-05	1.4600E-01
	2	2.1461E-03	8.3300E-01	5	1.4505E-03	3.5000E-02
	3	5.3141E-03	8.3000E-02	6	1.2342E-05	1.6500E-01
1010	1	9.2817E-02	2.5000E-02	4	6.7306E-05	1.4700E-01
	2	2.4150E-03	8.3300E-01	5	2.2219E-03	3.5000E-02
	3	5.4726E-03	8.3000E-02	6	1.3022E-05	1.6600E-01
1020	1	1.1303E-01	3.2000E-02	4	7.2229E-05	1.4700E-01
	2	3.2002E-03	8.3200E-01	5	2.6309E-03	6.0000E-02
	3	5.6001E-03	8.3000E-02	6	1.3702E-05	1.6600E-01
1025	1	1.5672E-01	3.4000E-02	4	7.2229E-05	1.4700E-01
	2	4.0270E-03	8.3200E-01	5	2.6309E-03	6.0000E-02
	3	5.6026E-03	8.3000E-02	6	1.3702E-05	1.6600E-01
1040	1	1.1310E-01	3.2000E-02	4	8.0191E-05	1.4700E-01
	2	3.2017E-03	8.3200E-01	5	2.6365E-03	6.0000E-02
	3	5.7509E-03	8.3000E-02	6	1.6374E-05	1.6500E-01
1050	1	1.1316E-01	3.2000E-02	4	8.6766E-05	1.4700E-01
	2	3.2036E-03	8.3200E-01	5	2.6436E-03	6.0000E-02
	3	5.8679E-03	8.3000E-02	6	1.7466E-05	1.6400E-01
1060	1	1.5280E-01	3.4000E-02	4	2.0449E-04	5.0000E-03
	2	5.3977E-03	8.3200E-01	5	2.7039E-03	6.0000E-02

6091	3	5.8532E-02	2.3900E-01	6	2.5473E-05	8.7000E-02
	1	1.1163E-01	1.8000E-02	4	5.0394E-05	1.2000E-01
	2	1.2622E-03	1.0000E-01	5	8.1400E-04	2.4000E-01
	3	4.9407E-02	2.3900E-01	6	2.2481E-05	8.7000E-02
190	1	1.0943E-01	1.8000E-02	4	4.8224E-05	1.2000E-01
	2	1.1302E-03	9.9000E-02	5	6.6809E-04	2.3900E-01
	3	3.5107E-02	2.3900E-01	6	1.7358E-05	1.9500E-01
200	1	1.0842E-01	1.8000E-02	4	4.7275E-05	1.4500E-01
	2	1.1521E-03	1.6600E-01	5	6.0787E-04	2.3900E-01
	3	2.9586E-02	2.3900E-01	6	1.5823E-05	1.9500E-01
210	1	1.0740E-01	1.8000E-02	4	4.6952E-05	1.4500E-01
	2	1.2396E-03	1.6600E-01	5	5.5086E-04	2.3900E-01
	3	2.4589E-02	2.3900E-01	6	1.4407E-05	1.9600E-01
220	1	1.0636E-01	1.8000E-02	4	4.6628E-05	1.4500E-01
	2	1.3352E-03	1.6600E-01	5	4.4970E-04	2.3900E-01
	3	2.0139E-02	1.5500E-01	6	1.4248E-05	4.4000E-01
230	1	1.0532E-01	1.8000E-02	4	4.6305E-05	1.4500E-01
	2	1.4370E-03	1.6600E-01	5	4.4621E-04	2.3900E-01
	3	1.6984E-02	1.5500E-01	6	1.4137E-05	4.4100E-01
239	1	1.0046E-01	1.8000E-02	4	4.4724E-05	1.4500E-01
	2	1.9765E-03	1.6600E-01	5	2.3898E-04	2.3800E-01
	3	6.1059E-03	4.3000E-02	6	1.2261E-05	4.4100E-01
240	1	9.7805E-02	1.8000E-02	4	4.4159E-05	1.4600E-01
	2	2.1934E-03	1.6600E-01	5	2.0560E-04	1.5700E-01
	3	5.0359E-03	8.3000E-02	6	1.1752E-05	1.6400E-01
250	1	9.2838E-02	1.8000E-02	4	4.1928E-05	1.4600E-01
	2	2.6255E-03	1.6500E-01	5	1.9048E-04	4.2000E-02
	3	5.6254E-03	2.3600E-01	6	9.1698E-06	1.1700E-01
260	1	8.7692E-02	1.8000E-02	4	3.8925E-05	1.4700E-01
	2	2.9096E-03	1.6500E-01	5	1.8821E-04	4.2000E-02
	3	9.4367E-03	4.2000E-02	6	5.2008E-06	1.1600E-01
261	1	8.5256E-02	1.8000E-02	4	3.7246E-05	1.4700E-01
	2	2.9743E-03	1.6500E-01	5	2.0952E-04	6.0000E-02
	3	1.1878E-02	4.2000E-02	6	4.5763E-06	6.9000E-02
9014	1	7.7282E-02	1.8000E-02	4	3.1929E-05	1.4700E-01
	2	2.8567E-03	1.6500E-01	5	2.1655E-04	6.0000E-02
	3	2.3730E-02	6.1000E-02	6	6.9354E-06	4.4100E-01
280	1	6.8950E-02	1.8000E-02	4	2.6779E-05	1.4800E-01
	2	2.2684E-03	1.6600E-01	5	1.1537E-04	1.0000E-02
	3	3.3488E-02	6.1000E-02	6	1.3287E-05	1.6400E-01
290	1	6.6103E-02	1.8000E-02	4	2.5076E-05	1.4800E-01
	2	1.9879E-03	1.6600E-01	5	1.7679E-04	6.2000E-02
	3	3.2903E-02	6.0000E-02	6	1.4869E-05	1.6500E-01
291	1	6.4731E-02	1.8000E-02	4	2.4257E-05	1.4800E-01
	2	1.8418E-03	1.6600E-01	5	2.5976E-04	6.2000E-02

1070	3	7.3430E-03	2.7800E-01	6	6.5845E-05	6.2000E-02
	1	1.7915E-01	3.4000E-02	4	2.0545E-04	5.0000E-03
	2	7.0025E-03	8.3200E-01	5	2.7051E-03	6.0000E-02
	3	7.3453E-03	2.7800E-01	6	6.5845E-05	6.2000E-02
1080	1	1.1311E-01	3.2000E-02	4	6.4592E-05	1.4600E-01
	2	3.1988E-03	8.3200E-01	5	2.6368E-03	6.0000E-02
	3	5.6256E-03	8.3000E-02	6	1.3035E-05	2.0700E-01
1090	1	1.1318E-01	3.2000E-02	4	7.1526E-05	4.2500E-01
	2	3.1970E-03	8.3200E-01	5	2.6442E-03	6.0000E-02
	3	5.6892E-03	8.3000E-02	6	1.4843E-05	8.4000E-02
1100	1	1.5276E-01	3.4000E-02	4	2.0902E-04	5.0000E-03
	2	5.1703E-03	5.4900E-01	5	2.7075E-03	6.0000E-02
	3	7.3386E-03	4.3000E-02	6	6.9492E-05	5.9000E-02
1110	1	1.7912E-01	3.4000E-02	4	2.0999E-04	5.0000E-03
	2	6.8586E-03	5.4900E-01	5	2.7088E-03	6.0000E-02
	3	7.3411E-03	4.3000E-02	6	6.9492E-05	5.9000E-02
1120	1	9.2157E-02	1.8000E-02	4	4.2171E-05	1.4600E-01
	2	2.5085E-03	1.6400E-01	5	2.0999E-04	4.2000E-02
	3	5.6205E-03	2.3600E-01	6	9.1743E-06	1.1700E-01
1122	1	9.1716E-02	1.8000E-02	4	4.6531E-05	1.4700E-01
	2	2.4898E-03	1.6400E-01	5	6.2175E-04	3.5000E-02
	3	5.6147E-03	2.3600E-01	6	9.2775E-06	1.6400E-01
1123	1	8.9359E-02	1.8000E-02	4	5.5155E-05	1.4800E-01
	2	2.4387E-03	1.6400E-01	5	1.4032E-03	3.5000E-02
	3	5.6031E-03	2.3600E-01	6	9.7223E-06	1.6400E-01
1130	1	9.0955E-02	2.5000E-02	4	6.4342E-05	1.4800E-01
	2	2.6676E-03	1.8980E+00	5	2.1188E-03	3.5000E-02
	3	5.6005E-03	1.6200E-01	6	1.0352E-05	1.6500E-01
1140	1	1.0885E-01	3.2000E-02	4	6.9981E-05	1.4800E-01
	2	3.4263E-03	2.1830E+00	5	2.4769E-03	3.5000E-02
	3	5.6098E-03	1.6200E-01	6	1.0840E-05	1.6500E-01
1145	1	1.5043E-01	3.4000E-02	4	6.9981E-05	1.4800E-01
	2	4.2509E-03	2.1830E+00	5	2.4769E-03	3.5000E-02
	3	5.6100E-03	1.6200E-01	6	1.0840E-05	1.6500E-01
1160	1	1.0891E-01	3.2000E-02	4	7.1485E-05	1.4800E-01
	2	3.4264E-03	2.1830E+00	5	2.4800E-03	3.5000E-02
	3	5.7119E-03	1.6200E-01	6	1.3809E-05	1.6400E-01
1170	1	1.0897E-01	3.2000E-02	4	7.2866E-05	1.4800E-01
	2	3.4264E-03	2.1830E+00	5	2.4840E-03	3.5000E-02
	3	5.7563E-03	1.6200E-01	6	1.5039E-05	1.6300E-01
1180	1	1.4659E-01	3.4000E-02	4	8.8694E-05	1.4800E-01
	2	4.3667E-03	8.3400E-01	5	2.5152E-03	3.5000E-02
	3	5.8711E-03	1.6200E-01	6	6.1671E-05	6.1000E-02
1190	1	1.7163E-01	3.4000E-02	4	8.8813E-05	1.4800E-01
	2	5.0782E-03	8.3400E-01	5	2.5155E-03	3.5000E-02

1200	1 2 3	1.0894E-01 3.4264E-03 5.7817E-03	3.2000E-02 2.1830E+00 2.3600E-01	4 5 6	6.9359E-05 2.4801E-02 1.3135E-05	1.4800E-01 3.5000E-02 8.4000E-02
1210	1 2 3	1.0900E-01 3.4264E-03 5.8604E-03	3.2000E-02 2.1830E+00 2.3600E-01	4 5 6	6.8755E-05 2.4842E-03 1.5985E-05	1.4800E-01 3.5000E-02 8.4000E-02
1220	1 2 3	1.4663E-01 4.1727E-03 6.6509E-03	3.4000E-02 2.1830E+00 1.4600E-01	4 5 6	6.8368E-05 2.5166E-03 6.3388E-05	1.5000E-02 3.5000E-02 6.0000E-02
1230	1 2 3	1.7169E-01 4.6723E-03 6.6508E-03	3.4000E-02 2.1830E+00 1.4600E-01	4 5 6	6.8661E-05 2.5169E-03 6.3388E-05	1.5000E-02 3.5000E-02 6.0000E-02
1240	1 2 3	8.6525E-02 2.7836E-03 9.5291E-03	1.7000E-02 1.6400E-01 4.2000E-02	4 5 6	3.9165E-05 2.0626E-04 5.2128E-06	1.4700E-01 4.2000E-02 1.1600E-01
1242	1 2 3	8.6104E-02 2.7614E-03 9.6391E-03	1.7000E-02 1.6400E-01 4.2000E-02	4 5 6	4.3538E-05 5.8248E-04 5.4510E-06	1.4800E-01 3.6000E-02 1.1700E-01
1243	1 2 3	8.4071E-02 2.7008E-03 9.8579E-03	1.8000E-02 1.6400E-01 4.2000E-02	4 5 6	5.2647E-05 1.3266E-03 6.0147E-06	1.4800E-01 3.5000E-02 1.1700E-01
1250	1 2 3	8.6027E-02 2.7602E-03 1.0107E-02	2.5000E-02 4.9200E-01 4.3000E-02	4 5 6	6.2320E-05 2.0177E-03 6.6382E-06	1.4800E-01 3.4000E-02 1.1700E-01
1260	1 2 3	1.0400E-01 3.5201E-03 1.0319E-02	3.0000E-02 2.1830E+00 4.3000E-02	4 5 6	6.8597E-05 2.3685E-03 7.1114E-06	1.4800E-01 3.4000E-02 1.1700E-01
1265	1 2 3	1.4313E-01 4.3675E-03 1.0323E-02	3.4000E-02 2.1830E+00 4.3000E-02	4 5 6	6.8597E-05 2.3685E-03 7.1114E-06	1.4800E-01 3.4000E-02 1.1700E-01
1280	1 2 3	1.0406E-01 3.5202E-03 1.0770E-02	3.0000E-02 2.1830E+00 4.3000E-02	4 5 6	6.0232E-05 2.3717E-03 9.5140E-06	1.4800E-01 3.4000E-02 3.9000E-02
1290	1 2 3	1.0412E-01 3.5203E-03 1.1054E-02	3.0000E-02 2.1830E+00 4.3000E-02	4 5 6	6.7341E-05 2.3757E-03 1.2675E-05	8.9200E-01 3.4000E-02 3.9000E-02
1300	1 2 3	1.3944E-01 5.6370E-03 1.3063E-02	3.4000E-02 8.9000E-01 4.3000E-02	4 5 6	1.9201E-04 2.4082E-03 5.7137E-05	5.0000E-03 3.4000E-02 5.9000E-02
1310	1 2 3	1.6352E-01 7.2177E-03 1.3067E-02	3.4000E-02 8.9000E-01 4.3000E-02	4 5 6	1.9283E-04 2.4085E-03 5.7137E-05	5.0000E-03 3.4000E-02 5.9000E-02
1320	1 2	1.0408E-01 3.5202E-03	3.0000E-02 2.1830E+00	4 5	7.8212E-05 2.3718E-03	1.4800E-01 3.4000E-02

1330	3	1.0159E-02	4.3000E-02	6	1.1367E-05	8.4000E-02
	1	1.0414E-01	3.0000E-02	4	8.5879E-05	1.4800E-01
	2	3.5202E-03	2.1830E+00	5	2.3759E-03	3.4000E-02
	3	1.0171E-02	4.3000E-02	6	1.4026E-05	8.4000E-02
1340	1	1.3951E-01	3.4000E-02	4	1.9867E-04	5.0000E-03
	2	5.5336E-03	4.9100E-01	5	2.4093E-03	3.4000E-02
	3	1.1169E-02	4.3000E-02	6	5.4328E-05	6.0000E-02
1350	1	1.6360E-01	3.4000E-02	4	1.9952E-04	5.0000E-03
	2	7.1299E-03	4.9100E-01	5	2.4096E-03	3.4000E-02
	3	1.1171E-02	4.3000E-02	6	5.4328E-05	6.0000E-02
4000	1	6.6208E-02	1.7000E-02	4	2.5087E-05	1.4800E-01
	2	2.1563E-03	1.6600E-01	5	1.7379E-04	6.2000E-02
	3	3.2900E-02	6.0000E-02	6	1.4869E-05	1.6500E-01
4010	1	6.6431E-02	1.7000E-02	4	2.5151E-05	1.4900E-01
	2	2.1930E-03	1.6600E-01	5	1.6898E-04	1.0000E-02
	3	3.2897E-02	6.0000E-02	6	1.4869E-05	1.6500E-01
4020	1	6.8336E-02	1.7000E-02	4	2.5420E-05	1.4900E-01
	2	2.4843E-03	1.1500E-01	5	1.6276E-04	1.0000E-02
	3	3.2886E-02	6.0000E-02	6	1.4869E-05	1.6500E-01
4030	1	6.9076E-02	1.7000E-02	4	2.5429E-05	1.4900E-01
	2	2.6515E-03	1.1500E-01	5	1.6258E-04	1.0000E-02
	3	3.2885E-02	6.0000E-02	6	1.4869E-05	1.6500E-01

ABSOLUTE ACCELERATION RESPONSES IN G-UNITS

A C C E L E R A T I O N M A X I M A

NODE NUMBER	ACCELERATION COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM	ACCELERATION COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM
101	1	3.4783E+02	1.5060E+00	4	2.6456E-05	4.6000E-02
	2	3.4783E+02	1.5060E+00	5	2.9146E-05	3.2000E-02
	3	3.4783E+02	1.5060E+00	6	3.0024E-06	4.5000E-02
9001	1	3.4779E+02	1.5060E+00	4	3.9350E-02	4.4000E-02
	2	3.4773E+02	1.5060E+00	5	3.3383E-02	5.7000E-02
	3	3.4787E+02	1.5060E+00	6	6.8653E-03	1.0200E-01
110	1	3.4780E+02	1.5060E+00	4	1.6740E-02	1.0000E-01
	2	3.4765E+02	1.5060E+00	5	2.8134E-02	3.1000E-02
	3	3.4793E+02	1.5060E+00	6	1.9838E-02	2.2000E-02
120	1	3.4780E+02	1.5060E+00	4	1.7145E-02	1.0000E-01
	2	3.4764E+02	1.5060E+00	5	2.4139E-02	4.8000E-02
	3	3.4793E+02	1.5060E+00	6	2.0067E-02	2.2000E-02
130	1	3.4780E+02	1.5060E+00	4	1.7540E-02	1.0000E-01
	2	3.4764E+02	1.5060E+00	5	2.3089E-02	2.3000E-02
	3	3.4793E+02	1.5060E+00	6	1.9812E-02	2.2000E-02
140	1	3.4780E+02	1.5060E+00	4	2.1747E-02	8.6000E-02
	2	3.4765E+02	1.5060E+00	5	3.7444E-02	3.6000E-02
	3	3.4791E+02	1.5060E+00	6	1.4669E-02	4.5000E-02
9002	1	3.4773E+02	1.5060E+00	4	2.6111E-02	5.1000E-02
	2	3.4771E+02	1.5060E+00	5	4.7229E-02	2.3000E-02
	3	3.4785E+02	1.5060E+00	6	2.8885E-02	3.4000E-02
150	1	3.4771E+02	1.5060E+00	4	3.0772E-02	4.4000E-02
	2	3.4783E+02	1.5060E+00	5	5.0022E-02	3.6000E-02
	3	3.4786E+02	1.5060E+00	6	2.5878E-02	3.4000E-02
9003	1	3.4786E+02	1.5060E+00	4	3.0576E-02	4.6000E-02
	2	3.4795E+02	1.5060E+00	5	5.1879E-02	3.2000E-02
	3	3.4785E+02	1.5060E+00	6	2.3823E-02	3.4000E-02
9004	1	3.4803E+02	1.5060E+00	4	2.7741E-02	3.7000E-02
	2	3.4801E+02	1.5060E+00	5	5.1320E-02	3.7000E-02
	3	3.4785E+02	1.5060E+00	6	2.1900E-02	3.4000E-02
6020	1	3.4817E+02	1.5060E+00	4	2.0978E-02	4.6000E-02
	2	3.4802E+02	1.5060E+00	5	5.5594E-02	1.3000E-02
	3	3.4785E+02	1.5060E+00	6	2.0110E-02	3.4000E-02
9005	1	3.4827E+02	1.5060E+00	4	2.4835E-02	4.7000E-02
	2	3.4803E+02	1.5060E+00	5	5.8039E-02	2.6000E-02
	3	3.4786E+02	1.5060E+00	6	1.8338E-02	3.4000E-02
9006	1	3.4821E+02	1.5060E+00	4	1.8572E-02	6.2000E-02
	2	3.4797E+02	1.5060E+00	5	5.9668E-02	1.4000E-02
	3	3.4786E+02	1.5060E+00	6	1.6566E-02	3.4000E-02
6040	1	3.4799E+02	1.5060E+00	4	2.2168E-02	7.3000E-02
	2	3.4785E+02	1.5060E+00	5	7.6599E-02	1.2000E-02

160	3	3.4786E+02	1.5060E+00	6	1.4829E-02	4.1000E-02
	1	3.4793E+02	1.5060E+00	4	2.2231E-02	4.2000E-02
	2	3.4782E+02	1.5060E+00	5	7.9122E-02	2.7000E-02
	3	3.4786E+02	1.5060E+00	6	1.4872E-02	4.1000E-02
9007	1	3.4771E+02	1.5060E+00	4	2.0306E-02	3.6000E-02
	2	3.4776E+02	1.5060E+00	5	8.8634E-02	1.0000E-02
	3	3.4778E+02	1.5060E+00	6	1.8524E-02	4.1000E-02
170	1	3.4770E+02	1.5060E+00	4	1.4722E-02	3.6000E-02
	2	3.4780E+02	1.5060E+00	5	4.6064E-02	9.0000E-03
	3	3.4780E+02	1.5060E+00	6	1.7762E-02	3.6000E-02
6050	1	3.4769E+02	1.5060E+00	4	1.4310E-02	3.6000E-02
	2	3.4782E+02	1.5060E+00	5	5.6136E-02	9.0000E-03
	3	3.4783E+02	1.5060E+00	6	1.5541E-02	3.6000E-02
6060	1	3.4769E+02	1.5060E+00	4	1.4104E-02	3.6000E-02
	2	3.4783E+02	1.5060E+00	5	5.8436E-02	9.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.3957E-02	3.6000E-02
9008	1	3.4769E+02	1.5060E+00	4	1.2919E-02	3.6000E-02
	2	3.4787E+02	1.5060E+00	5	4.9393E-02	2.6000E-02
	3	3.4793E+02	1.5060E+00	6	1.2386E-02	4.7000E-02
9009	1	3.4770E+02	1.5060E+00	4	1.1733E-02	3.6000E-02
	2	3.4788E+02	1.5060E+00	5	3.9369E-02	1.3000E-02
	3	3.4793E+02	1.5060E+00	6	8.5914E-03	4.1000E-02
9010	1	3.4770E+02	1.5060E+00	4	1.0548E-02	3.6000E-02
	2	3.4786E+02	1.5060E+00	5	4.7727E-02	1.5000E-02
	3	3.4786E+02	1.5060E+00	6	7.5232E-03	5.9000E-02
6070	1	3.4770E+02	1.5060E+00	4	9.3802E-03	7.4000E-02
	2	3.4784E+02	1.5060E+00	5	3.4211E-02	3.2000E-02
	3	3.4779E+02	1.5060E+00	6	9.7614E-03	4.6000E-02
6080	1	3.4771E+02	1.5060E+00	4	8.7650E-03	7.4000E-02
	2	3.4783E+02	1.5060E+00	5	3.7136E-02	1.4000E-02
	3	3.4777E+02	1.5060E+00	6	5.9737E-03	4.7000E-02
9011	1	3.4771E+02	1.5060E+00	4	7.9702E-03	7.4000E-02
	2	3.4782E+02	1.5060E+00	5	4.2932E-02	2.0000E-02
	3	3.4779E+02	1.5060E+00	6	4.5017E-03	7.4000E-02
180	1	3.4772E+02	1.5060E+00	4	7.1757E-03	7.4000E-02
	2	3.4782E+02	1.5060E+00	5	3.4549E-02	3.8000E-02
	3	3.4784E+02	1.5060E+00	6	3.0588E-03	4.5000E-02
9012	1	3.4772E+02	1.5060E+00	4	6.6663E-03	7.4000E-02
	2	3.4782E+02	1.5060E+00	5	3.5118E-02	2.0000E-02
	3	3.4787E+02	1.5060E+00	6	2.3858E-03	6.4000E-02
9013	1	3.4773E+02	1.5060E+00	4	6.1570E-03	7.4000E-02
	2	3.4783E+02	1.5060E+00	5	4.0912E-02	2.0000E-02
	3	3.4788E+02	1.5060E+00	6	4.8316E-03	7.4000E-02
6090	1	3.4774E+02	1.5060E+00	4	5.6477E-03	7.4000E-02
	2	3.4783E+02	1.5060E+00	5	2.8403E-02	3.2000E-02

6091	3	3.4787E+02	1.5060E+00	6	4.2155E-03	8.9000E-02
	1	3.4774E+02	1.5060E+00	4	5.5309E-03	7.4000E-02
	2	3.4783E+02	1.5060E+00	5	2.6362E-02	3.8000E-02
	3	3.4787E+02	1.5060E+00	6	3.6870E-03	8.9000E-02
190	1	3.4775E+02	1.5060E+00	4	5.2745E-03	7.4000E-02
	2	3.4783E+02	1.5060E+00	5	2.8929E-02	5.0000E-03
	3	3.4786E+02	1.5060E+00	6	2.3905E-03	8.9000E-02
200	1	3.4775E+02	1.5060E+00	4	5.1887E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	3.0785E-02	1.0000E-02
	3	3.4785E+02	1.5060E+00	6	1.7745E-03	8.8000E-02
210	1	3.4775E+02	1.5060E+00	4	5.1068E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	3.2169E-02	1.0000E-02
	3	3.4785E+02	1.5060E+00	6	1.6531E-03	6.9000E-02
220	1	3.4775E+02	1.5060E+00	4	5.0249E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	3.2296E-02	1.0000E-02
	3	3.4784E+02	1.5060E+00	6	2.1135E-03	6.9000E-02
230	1	3.4775E+02	1.5060E+00	4	4.9430E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	3.2726E-02	1.5000E-02
	3	3.4784E+02	1.5060E+00	6	2.5459E-03	6.9000E-02
239	1	3.4777E+02	1.5060E+00	4	4.5424E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	2.8164E-02	2.7000E-02
	3	3.4782E+02	1.5060E+00	6	4.0089E-03	5.9000E-02
240	1	3.4777E+02	1.5060E+00	4	4.3786E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	3.0364E-02	4.3000E-02
	3	3.4782E+02	1.5060E+00	6	3.9703E-03	5.9000E-02
250	1	3.4778E+02	1.5060E+00	4	4.1795E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	5.8806E-02	5.0000E-03
	3	3.4782E+02	1.5060E+00	6	2.5124E-03	4.9000E-02
260	1	3.4780E+02	1.5060E+00	4	4.0789E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	6.3610E-02	5.0000E-03
	3	3.4785E+02	1.5060E+00	6	9.4436E-04	3.6000E-02
261	1	3.4780E+02	1.5060E+00	4	4.0500E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	5.7309E-02	5.0000E-03
	3	3.4787E+02	1.5060E+00	6	2.0252E-03	5.3000E-02
9014	1	3.4782E+02	1.5060E+00	4	3.9585E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	2.3077E-02	4.7000E-02
	3	3.4795E+02	1.5060E+00	6	4.1212E-03	5.9000E-02
280	1	3.4784E+02	1.5060E+00	4	3.8670E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	7.1381E-02	1.0000E-02
	3	3.4797E+02	1.5060E+00	6	2.0867E-03	5.9000E-02
290	1	3.4784E+02	1.5060E+00	4	3.8365E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	8.3935E-02	1.0000E-02
	3	3.4795E+02	1.5060E+00	6	1.1291E-03	1.1700E-01
291	1	3.4784E+02	1.5060E+00	4	3.6630E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	8.5454E-02	1.0000E-02

300	3	3.4793E+02	1.5060E+00	6	1.0706E-03	1.1400E-01
	1	3.4785E+02	1.5060E+00	4	3.4315E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	8.4391E-02	1.0000E-02
	3	3.4791E+02	1.5060E+00	6	1.5260E-03	6.9000E-02
310	1	3.4785E+02	1.5060E+00	4	3.2293E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	7.9031E-02	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	2.0299E-03	6.9000E-02
315	1	3.4811E+02	1.5060E+00	4	3.2309E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	8.0105E-02	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	2.0299E-03	6.9000E-02
320	1	3.4785E+02	1.5060E+00	4	2.9212E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	3.5726E-02	2.2000E-02
	3	3.4773E+02	1.5060E+00	6	2.2660E-03	6.9000E-02
330	1	3.4785E+02	1.5060E+00	4	2.3629E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	2.3406E-02	4.5000E-02
	3	3.4773E+02	1.5060E+00	6	2.3205E-03	5.4000E-02
340	1	3.4785E+02	1.5060E+00	4	1.7750E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	2.7116E-02	4.3000E-02
	3	3.4774E+02	1.5060E+00	6	2.0207E-03	5.4000E-02
1000	1	3.4777E+02	1.5060E+00	4	4.3227E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	3.0971E-02	4.3000E-02
	3	3.4782E+02	1.5060E+00	6	3.9190E-03	5.9000E-02
1002	1	3.4777E+02	1.5060E+00	4	3.1424E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	4.5667E-02	3.3000E-02
	3	3.4782E+02	1.5060E+00	6	2.9705E-03	5.9000E-02
1003	1	3.4776E+02	1.5060E+00	4	2.5227E-03	9.9000E-02
	2	3.4783E+02	1.5060E+00	5	1.0083E-01	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	1.4396E-03	9.4000E-02
1010	1	3.4773E+02	1.5060E+00	4	3.6321E-03	5.8000E-02
	2	3.4783E+02	1.5060E+00	5	1.6495E-01	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	1.2192E-03	5.3000E-02
1020	1	3.4765E+02	1.5060E+00	4	5.9461E-03	5.8000E-02
	2	3.4783E+02	1.5060E+00	5	2.0310E-01	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	2.6341E-03	5.3000E-02
1025	1	3.4757E+02	1.5060E+00	4	5.9461E-03	5.8000E-02
	2	3.4783E+02	1.5060E+00	5	2.0310E-01	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	2.6341E-03	5.3000E-02
1040	1	3.4765E+02	1.5060E+00	4	1.1007E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.0396E-01	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	3.1634E-03	6.4000E-02
1050	1	3.4765E+02	1.5060E+00	4	2.0359E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.0504E-01	1.6000E-02
	3	3.4781E+02	1.5060E+00	6	3.3741E-03	6.4000E-02
1060	1	3.4758E+02	1.5060E+00	4	1.1347E-01	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.1589E-01	1.0000E-03

1070	3	3.4781E+02	1.5060E+00	6	9.6106E-03	1.0000E-03
	1	3.4753E+02	1.5060E+00	4	1.1399E-01	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.1619E-01	1.0000E-03
	3	3.4781E+02	1.5060E+00	6	9.6106E-03	1.0000E-03
1080	1	3.4765E+02	1.5060E+00	4	1.2531E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.0392E-01	1.0000E-02
	3	3.4781E+02	1.5060E+00	6	2.8879E-03	5.9000E-02
1090	1	3.4765E+02	1.5060E+00	4	2.2116E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.0496E-01	1.0000E-03
	3	3.4781E+02	1.5060E+00	6	3.3445E-03	5.9000E-02
1100	1	3.4758E+02	1.5060E+00	4	1.1788E-01	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.1606E-01	1.0000E-03
	3	3.4781E+02	1.5060E+00	6	9.8025E-03	1.0000E-03
1110	1	3.4753E+02	1.5060E+00	4	1.1842E-01	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.1636E-01	1.0000E-03
	3	3.4781E+02	1.5060E+00	6	9.8025E-03	1.0000E-03
1120	1	3.4777E+02	1.5060E+00	4	4.1370E-03	5.3000E-02
	2	3.4783E+02	1.5060E+00	5	5.7377E-02	5.0000E-03
	3	3.4782E+02	1.5060E+00	6	2.4862E-03	4.9000E-02
1122	1	3.4777E+02	1.5060E+00	4	3.1105E-03	9.9000E-02
	2	3.4783E+02	1.5060E+00	5	4.8204E-02	3.3000E-02
	3	3.4782E+02	1.5060E+00	6	2.0008E-03	4.9000E-02
1123	1	3.4776E+02	1.5060E+00	4	2.4870E-03	1.4800E-01
	2	3.4783E+02	1.5060E+00	5	8.9652E-02	1.6000E-02
	3	3.4782E+02	1.5060E+00	6	1.3269E-03	1.1800E-01
1130	1	3.4773E+02	1.5060E+00	4	6.5331E-03	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	1.6841E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	1.0717E-03	8.4000E-02
1140	1	3.4766E+02	1.5060E+00	4	1.0644E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.2053E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	1.8222E-03	8.4000E-02
1145	1	3.4757E+02	1.5060E+00	4	1.0644E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.2054E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	1.8222E-03	8.4000E-02
1160	1	3.4766E+02	1.5060E+00	4	1.2304E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.2175E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	2.1360E-03	3.9000E-02
1170	1	3.4766E+02	1.5060E+00	4	1.3702E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.2330E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	2.4042E-03	3.9000E-02
1180	1	3.4758E+02	1.5060E+00	4	3.8781E-02	1.0000E-02
	2	3.4783E+02	1.5060E+00	5	2.3700E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	1.2140E-02	1.0000E-03
1190	1	3.4753E+02	1.5060E+00	4	3.8935E-02	1.0000E-02
	2	3.4783E+02	1.5060E+00	5	2.3736E-01	1.0000E-03

1200	3	3.4782E+02	1.5060E+00	6	1.2140E-02	1.0000E-03
	1	3.4766E+02	1.5060E+00	4	1.0485E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.2177E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	2.0372E-03	8.4000E-02
1210	1	3.4766E+02	1.5060E+00	4	1.0694E-02	5.8000E-02
	2	3.4783E+02	1.5060E+00	5	2.2334E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	2.3316E-03	8.4000E-02
1220	1	3.4758E+02	1.5060E+00	4	4.0193E-02	1.5000E-02
	2	3.4783E+02	1.5060E+00	5	2.3723E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	1.2437E-02	5.0000E-03
1230	1	3.4753E+02	1.5060E+00	4	4.0354E-02	1.5000E-02
	2	3.4783E+02	1.5060E+00	5	2.3760E-01	1.0000E-03
	3	3.4782E+02	1.5060E+00	6	1.2437E-02	5.0000E-03
1240	1	3.4778E+02	1.5060E+00	4	4.0581E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	6.2046E-02	5.0000E-03
	3	3.4785E+02	1.5060E+00	6	9.3391E-04	3.6000E-02
1242	1	3.4778E+02	1.5060E+00	4	3.2185E-03	9.9000E-02
	2	3.4783E+02	1.5060E+00	5	3.8144E-02	3.4000E-02
	3	3.4785E+02	1.5060E+00	6	7.4078E-04	3.6000E-02
1243	1	3.4776E+02	1.5060E+00	4	3.0686E-03	1.1700E-01
	2	3.4783E+02	1.5060E+00	5	8.0170E-02	1.6000E-02
	3	3.4785E+02	1.5060E+00	6	7.6131E-04	1.1800E-01
1250	1	3.4774E+02	1.5060E+00	4	7.3205E-03	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	1.6467E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	9.9491E-04	1.1800E-01
1260	1	3.4767E+02	1.5060E+00	4	1.1910E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.1655E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.3973E-03	4.0000E-02
1265	1	3.4760E+02	1.5060E+00	4	1.1910E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.1655E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.3973E-03	4.0000E-02
1280	1	3.4767E+02	1.5060E+00	4	1.6044E-02	4.3000E-02
	2	3.4783E+02	1.5060E+00	5	2.1778E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.6262E-03	4.0000E-02
1290	1	3.4767E+02	1.5060E+00	4	2.1501E-02	4.3000E-02
	2	3.4783E+02	1.5060E+00	5	2.1934E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.8476E-03	4.0000E-02
1300	1	3.4761E+02	1.5060E+00	4	9.4379E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.3315E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.2483E-02	5.0000E-03
1310	1	3.4756E+02	1.5060E+00	4	9.4800E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.3352E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.2483E-02	5.0000E-03
1320	1	3.4767E+02	1.5060E+00	4	1.1589E-02	5.9000E-02
	2	3.4783E+02	1.5060E+00	5	2.1779E-01	1.0000E-03

1330	3	3.4785E+02	1.5060E+00	6	1.5083E-03	4.7000E-02
	1	3.4767E+02	1.5060E+00	4	1.9503E-02	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.1936E-01	1.0000E-03
	3	3.4785E+02	1.5060E+00	6	1.4227E-03	4.7000E-02
1340	1	3.4761E+02	1.5060E+00	4	1.0179E-01	5.0000E-03
	2	3.4783E+02	1.5060E+00	5	2.3328E-01	1.0000E-03
	3	3.4784E+02	1.5060E+00	6	1.2739E-02	5.0000E-03
1350	1	3.4756E+02	1.5060E+00	4	1.0225E-01	5.0000E-03
	2	3.4782E+02	1.5060E+00	5	2.3365E-01	1.0000E-03
	3	3.4784E+02	1.5060E+00	6	1.2739E-02	5.0000E-03
4000	1	3.4781E+02	1.5060E+00	4	4.0016E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	8.6183E-02	1.0000E-02
	3	3.4795E+02	1.5060E+00	6	1.1291E-03	1.1700E-01
4010	1	3.4781E+02	1.5060E+00	4	4.6006E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	9.4438E-02	1.0000E-02
	3	3.4795E+02	1.5060E+00	6	1.1291E-03	1.1700E-01
4020	1	3.4777E+02	1.5060E+00	4	6.3329E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	1.1842E-01	1.0000E-02
	3	3.4795E+02	1.5060E+00	6	1.1291E-03	1.1700E-01
4030	1	3.4776E+02	1.5060E+00	4	6.3930E-03	5.4000E-02
	2	3.4783E+02	1.5060E+00	5	1.1926E-01	1.0000E-02
	3	3.4795E+02	1.5060E+00	6	1.1291E-03	1.1700E-01

S T R E S S C O M P O N E N T M A X I M A
E L E M E N T T Y P E N U M B E R = 1

ELEMENT NUMBER	LOCATION	FORCE COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM
1		FOR. MOM.	6.8605E+04 0.0000E+00	1.5130E+00 0.0000E+00
2		FOR. MOM.	4.1342E+04 0.0000E+00	1.5160E+00 0.0000E+00
3		FOR. MOM.	1.9816E+04 0.0000E+00	1.3000E-01 0.0000E+00
4		FOR. MOM.	0.0000E+00 3.7121E+06	0.0000E+00 1.5180E+00
5		FOR. MOM.	0.0000E+00 6.1538E+06	0.0000E+00 1.5140E+00
6		FOR. MOM.	0.0000E+00 1.0863E+06	0.0000E+00 5.4200E-01
7		FOR. MOM.	2.4904E+04 0.0000E+00	2.0300E-01 0.0000E+00
8		FOR. MOM.	1.3735E+04 0.0000E+00	2.7000E-02 0.0000E+00
9		FOR. MOM.	6.9644E-02 0.0000E+00	2.0500E-01 0.0000E+00
10		FOR. MOM.	8.4112E+03 0.0000E+00	4.7000E-02 0.0000E+00
11		FOR. MOM.	7.2384E+03 0.0000E+00	8.5000E-02 0.0000E+00
12		FOR. MOM.	5.8532E+04 0.0000E+00	2.3900E-01 0.0000E+00
13		FOR. MOM.	3.0529E+04 0.0000E+00	4.3000E-02 0.0000E+00

14	FOR. MOM.	5.9390E+04 0.0000E+00	4.2000E-02 0.0000E+00
15	FOR. MOM.	6.4212E+05 0.0000E+00	2.4000E-02 0.0000E+00
16	FOR. MOM.	6.8326E+02 0.0000E+00	5.4000E-02 0.0000E+00
17	FOR. MOM.	1.3793E+05 0.0000E+00	1.0000E-02 0.0000E+00
18	FOR. MOM.	0.0000E+00 6.8460E+04	0.0000E+00 1.4900E-01
19	FOR. MOM.	0.0000E+00 1.2176E+06	0.0000E+00 4.3000E-02
20	FOR. MOM.	0.0000E+00 6.1142E+04	0.0000E+00 1.6600E-01

S T R E S S C O M P O N E N T M A X I M A
 ELEMENT TYPE NUMBER = 4

ELEMENT NUMBER	LOCATION	FORCE COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM
1		FOR. MOM.	4.3135E+04 0.0000E+00	1.5180E+00 0.0000E+00
2		FOR. MOM.	1.4784E+05 0.0000E+00	1.5170E+00 0.0000E+00

STRESS COMPONENT MAXIMA

ELEMENT TYPE NUMBER = 2

ELEMENT NUMBER	LOCATION	FORCE COMPONENT	MAXIMUM VALUE	TIME AT MAXIMUM
1	END-I	FX FY FZ TX MY MZ	1.9816E+04 7.9978E+04 1.0997E+04 1.0863E+06 9.6164E+05 7.1731E+06	1.3000E-01 1.5140E+00 1.4000E-01 5.4200E-01 1.4000E-01 1.5150E+00
1	END-J	FX FY FZ TX MY MZ	2.3467E+04 7.9331E+04 1.0997E+04 7.4292E+05 8.9098E+05 4.1391E+06	3.2000E-02 1.5140E+00 1.4000E-01 5.4200E-01 5.4200E-01 1.5170E+00
1	END-J	FX FY FZ TX MY MZ	4.6693E+04 6.6703E+04 1.0997E+04 4.2024E+05 8.1121E+05 1.5017E+06	1.5120E+00 1.5160E+00 1.4000E-01 1.7160E+00 5.4200E-01 1.2700E-01
2	END-I	FX FY FZ TX MY MZ	3.9167E+04 4.9607E+04 8.1438E+03 4.2026E+05 8.1142E+05 1.5019E+06	1.5120E+00 1.5180E+00 1.3900E-01 1.7160E+00 5.4200E-01 1.2700E-01
2	END-J	FX FY FZ TX MY MZ	5.4902E+04 3.2472E+04 8.1438E+03 1.8936E+05 6.4604E+05 7.5467E+05	1.5130E+00 1.3100E-01 1.3900E-01 1.2200E-01 5.4200E-01 5.8000E-02
2	END-J	FX FY FZ TX MY MZ	6.2394E+04 1.5333E+04 8.1438E+03 9.0589E+04 5.0932E+05 1.0017E+06	1.5150E+00 1.2900E-01 1.3900E-01 5.4400E-01 1.2000E-01 1.5340E+00

3	END-I	FX	5.1423E+04	1.5150E+00
		FY	6.2216E+03	5.4300E-01
		FZ	1.1140E+04	1.2800E-01
		TX	9.0573E+04	5.4400E-01
		MY	1.0018E+06	1.5340E+00
		MZ	5.0922E+05	1.2000E-01
3	END-J	FX	5.1423E+04	1.5150E+00
		FY	6.2216E+03	5.4300E-01
		FZ	1.1140E+04	1.2800E-01
		TX	9.0573E+04	5.4400E-01
		MY	1.0931E+06	1.3300E-01
		MZ	5.2934E+05	1.2000E-01
4	END-I	FX	4.8019E+04	1.5150E+00
		FY	5.9517E+03	5.4300E-01
		FZ	1.0490E+04	1.2400E-01
		TX	9.0611E+04	5.4400E-01
		MY	1.0932E+06	1.3300E-01
		MZ	5.2934E+05	1.2000E-01
4	END-J	FX	4.8019E+04	1.5150E+00
		FY	5.9517E+03	5.4300E-01
		FZ	1.0490E+04	1.2400E-01
		TX	9.0611E+04	5.4400E-01
		MY	1.2100E+06	1.3200E-01
		MZ	5.4173E+05	1.2000E-01
5	END-I	FX	3.8814E+04	1.5160E+00
		FY	5.1448E+03	5.4300E-01
		FZ	1.0099E+04	1.2300E-01
		TX	9.0603E+04	5.4400E-01
		MY	1.2100E+06	1.3200E-01
		MZ	5.4173E+05	1.2000E-01
5	END-J	FX	3.8814E+04	1.5160E+00
		FY	5.1448E+03	5.4300E-01
		FZ	1.0099E+04	1.2300E-01
		TX	9.0603E+04	5.4400E-01
		MY	1.5276E+06	1.3100E-01
		MZ	4.5551E+05	1.2000E-01
6	END-I	FX	2.2758E+04	1.3500E-01
		FY	1.4841E+04	4.3000E-02
		FZ	5.8373E+03	1.2000E-01
		TX	9.0565E+04	5.4400E-01
		MY	4.5547E+05	1.2000E-01
		MZ	1.5276E+06	1.3100E-01
6	END-J	FX	2.3998E+04	1.5020E+00

FY	1.2461E+04	4.3000E-02
FZ	5.8373E+03	1.2000E-01
TX	1.3368E+05	1.0300E-01
MY	2.4335E+05	5.0000E-02
MZ	1.5633E+06	1.5210E+00

6 END-J

FX	2.3500E+04	1.5020E+00
FY	1.2711E+04	1.3300E-01
FZ	5.8373E+03	1.2000E-01
TX	1.5132E+05	5.0000E-02
MY	3.0480E+05	5.4300E-01
MZ	1.4618E+06	1.5020E+00

7 END-I

FX	2.3770E+04	3.7000E-02
FY	1.2012E+04	2.3000E-02
FZ	7.7235E+03	1.2100E-01
TX	1.5132E+05	5.0000E-02
MY	3.0471E+05	5.4300E-01
MZ	1.4618E+06	1.5020E+00

7 END-J

FX	2.0451E+04	3.7000E-02
FY	1.5286E+04	2.2000E-02
FZ	7.7235E+03	1.2100E-01
TX	1.6897E+05	5.4300E-01
MY	3.8573E+05	1.2000E-01
MZ	1.2883E+06	1.5030E+00

7 END-J

FX	1.4020E+04	3.7000E-02
FY	1.9596E+04	3.7000E-02
FZ	7.7235E+03	1.2100E-01
TX	2.2516E+05	1.7150E+00
MY	6.6002E+05	1.2100E-01
MZ	1.0484E+06	9.8000E-02

8 END-I

FX	1.9573E+04	3.7000E-02
FY	8.8080E+03	4.5000E-02
FZ	1.1819E+04	1.9000E-02
TX	2.2502E+05	1.7150E+00
MY	1.0513E+06	9.9000E-02
MZ	1.0545E+06	1.1900E-01

8 END-J

FX	1.9573E+04	3.7000E-02
FY	8.8080E+03	4.5000E-02
FZ	1.1819E+04	1.9000E-02
TX	2.2502E+05	1.7150E+00
MY	1.3646E+06	2.1000E-02
MZ	8.6876E+05	1.1900E-01

9	END-I	FX FY FZ TX MY MZ	3.0777E+04 7.2790E+03 1.2127E+04 2.2502E+05 1.3646E+05 8.6876E+05	1.5230E+00 1.1900E-01 1.6000E-02 1.7150E+00 2.1000E-02 1.1900E-01
9	END-J	FX FY FZ TX MY MZ	3.0777E+04 7.2790E+03 1.2127E+04 2.2502E+05 1.4322E+06 9.3005E+05	1.5230E+00 1.1900E-01 1.6000E-02 1.7150E+00 1.9000E-02 4.6000E-02
10	END-I	FX FY FZ TX MY MZ	4.5860E+04 8.6635E+03 9.8741E+03 2.2502E+05 1.4322E+06 9.3005E+05	1.5220E+00 3.6000E-02 4.4000E-02 1.7150E+00 1.9000E-02 4.6000E-02
10	END-J	FX FY FZ TX MY MZ	4.5860E+04 8.6635E+03 9.8741E+03 2.2502E+05 1.7305E+06 1.2151E+06	1.5220E+00 3.6000E-02 4.4000E-02 1.7150E+00 1.5160E+00 5.4400E-01
11	END-I	FX FY FZ TX MY MZ	6.0694E+04 8.5359E+03 3.6447E+04 2.2502E+05 1.7305E+06 1.2151E+06	1.5210E+00 2.1000E-02 1.5190E+00 1.7150E+00 1.5160E+00 5.4400E-01
11	END-J	FX FY FZ TX MY MZ	6.0694E+04 8.5359E+03 3.6447E+04 2.2502E+05 1.6141E+06 7.9926E+05	1.5210E+00 2.1000E-02 1.5190E+00 1.7150E+00 1.3000E-02 5.4500E-01
12	END-I	FX FY FZ TX MY MZ	7.5745E+04 5.7971E+03 3.2805E+04 2.2502E+05 1.6141E+06 7.9926E+05	1.5200E+00 5.4400E-01 1.5190E+00 1.7150E+00 1.3000E-02 5.4500E-01
12	END-J	FX	7.5745E+04	1.5200E+00

FY	5.7971E+03	5.4400E-01
FZ	3.2805E+04	1.5190E+00
TX	2.2502E+05	1.7150E+00
MY	3.2701E+06	1.5200E+00
MZ	5.6228E+05	7.3000E-02

13 END-I

FX	9.1010E+04	1.5190E+00
FY	1.0077E+04	7.3000E-02
FZ	2.9674E+04	1.5070E+00
TX	2.2502E+05	1.7150E+00
MY	3.2701E+06	1.5200E+00
MZ	5.6228E+05	7.3000E-02

13 END-J

FX	9.1010E+04	1.5190E+00
FY	1.0077E+04	7.3000E-02
FZ	2.9674E+04	1.5070E+00
TX	2.2502E+05	1.7150E+00
MY	5.2340E+06	1.5190E+00
MZ	3.3140E+05	3.7000E-02

14 END-I

FX	1.0023E+05	1.5180E+00
FY	4.5603E+03	3.6000E-02
FZ	2.8190E+04	1.5050E+00
TX	2.2502E+05	1.7150E+00
MY	5.2340E+06	1.5190E+00
MZ	3.3140E+05	3.7000E-02

14 END-J

FX	1.0023E+05	1.5180E+00
FY	4.5603E+03	3.6000E-02
FZ	2.8190E+04	1.5050E+00
TX	2.2502E+05	1.7150E+00
MY	5.5812E+06	1.5180E+00
MZ	2.6969E+05	3.8000E-02

15 END-I

FX	1.0982E+05	1.5180E+00
FY	2.8251E+04	2.5000E-02
FZ	4.3193E+03	3.7000E-02
TX	2.2502E+05	1.7150E+00
MY	2.6969E+05	3.8000E-02
MZ	5.5812E+06	1.5180E+00

15 END-J

FX	1.0981E+05	1.5150E+00
FY	2.7738E+04	2.5000E-02
FZ	4.3193E+03	3.7000E-02
TX	1.9210E+05	1.8910E+00
MY	1.4603E+05	1.5000E-01
MZ	5.5924E+06	1.5120E+00

15 END-J

FX	9.4561E+04	1.5080E+00

FY	6.2844E+04	1.5200E+00
FZ	4.3193E+03	3.7000E-02
TX	1.6263E+05	1.5900E-01
MY	1.7055E+05	5.4400E-01
MZ	4.1515E+06	1.5060E+00

16 END-I

FX	1.0443E+05	1.5050E+00
FY	7.3697E+04	1.5190E+00
FZ	2.8160E+03	4.2000E-02
TX	1.6264E+05	1.5900E-01
MY	1.7054E+05	5.4400E-01
MZ	4.1515E+06	1.5060E+00

16 END-J

FX	7.1644E+04	1.4650E+00
FY	1.0694E+05	1.5180E+00
FZ	2.8160E+03	4.2000E-02
TX	1.0072E+05	1.6000E-01
MY	2.0185E+05	1.5900E-01
MZ	1.3175E+06	1.4600E-01

16 END-J

FX	5.7867E+04	6.0000E-03
FY	1.2415E+05	1.5160E+00
FZ	2.8160E+03	4.2000E-02
TX	4.0287E+04	1.2400E-01
MY	2.5697E+05	1.6000E-01
MZ	3.9912E+06	2.0100E-01

17 END-I

FX	8.5352E+04	6.0000E-03
FY	2.8135E+03	5.9000E-02
FZ	1.2845E+05	1.5140E+00
TX	4.0283E+04	1.2400E-01
MY	3.9912E+06	2.0100E-01
MZ	2.5697E+05	1.6000E-01

17 END-J

FX	8.5352E+04	6.0000E-03
FY	2.8135E+03	5.9000E-02
FZ	1.2845E+05	1.5140E+00
TX	4.0283E+04	1.2400E-01
MY	6.9964E+06	1.5190E+00
MZ	2.7224E+05	5.9000E-02

18 END-I

FX	9.4989E+04	6.0000E-03
FY	2.5597E+03	5.9000E-02
FZ	3.0228E+04	2.0200E-01
TX	4.0283E+04	1.2400E-01
MY	6.9964E+06	1.5190E+00
MZ	2.7224E+05	5.9000E-02

18 END-J

FX	9.4989E+04	6.0000E-03

19	END-I	FY	2.5597E+03	5.9000E-02
		FZ	3.0228E+04	2.0200E-01
		TX	4.0283E+04	1.2400E-01
		MY	6.7666E+06	1.5190E+00
		NZ	3.0295E+05	5.9000E-02
19	END-I	FY	1.1798E+05	5.0000E-03
		FZ	3.0141E+03	4.6000E-02
		FZ	2.7848E+04	2.0200E-01
		TX	4.0283E+04	1.2400E-01
		MY	6.7666E+06	1.5190E+00
		NZ	3.0295E+05	5.9000E-02
19	END-J	FY	1.1798E+05	5.0000E-03
		FY	3.0141E+03	4.6000E-02
		FZ	2.7848E+04	2.0200E-01
		TX	4.0283E+04	1.2400E-01
		MY	5.5519E+06	1.5140E+00
		NZ	4.1981E+05	5.9000E-02
20	END-I	FY	1.5201E+05	5.0000E-03
		FY	2.0633E+03	4.1000E-02
		FZ	2.6737E+04	2.0000E-01
		TX	4.0283E+04	1.2400E-01
		MY	5.5519E+06	1.5140E+00
		NZ	4.1981E+05	5.9000E-02
20	END-J	FY	1.5201E+05	5.0000E-03
		FY	2.0633E+03	4.1000E-02
		FZ	2.6737E+04	2.0000E-01
		TX	4.0283E+04	1.2400E-01
		MY	4.7634E+06	1.4880E+00
		NZ	3.7896E+05	4.6000E-02
21	END-I	FY	1.7922E+05	5.0000E-03
		FY	4.0521E+03	5.9000E-02
		FZ	2.5294E+04	1.9900E-01
		TX	4.0283E+04	1.2400E-01
		MY	4.7634E+06	1.4880E+00
		NZ	3.7896E+05	4.6000E-02
21	END-J	FY	1.7922E+05	5.0000E-03
		FY	4.0521E+03	5.9000E-02
		FZ	2.5294E+04	1.9900E-01
		TX	4.0283E+04	1.2400E-01
		MY	4.0651E+06	1.4860E+00
		NZ	2.3459E+05	4.7000E-02
22	END-I	FY	1.9823E+05	5.0000E-03

22	END-J	FY	6.0758E+03	4.6000E-02
		FZ	1.8419E+04	1.9900E-01
		TX	4.0283E+04	1.2400E-01
		MY	4.0651E+06	1.4860E+00
		MZ	2.3459E+05	4.7000E-02
		FX	1.9823E+05	5.0000E-03
		FY	6.0758E+03	4.6000E-02
		FZ	1.8419E+04	1.9900E-01
		TX	4.0283E+04	1.2400E-01
		MY	3.7530E+06	1.6950E+00
		MZ	2.9325E+05	5.8000E-02
23	END-I	FX	2.0654E+05	5.0000E-03
		FY	3.5140E+03	8.5000E-02
		FZ	1.4393E+04	1.5260E+00
		TX	4.0283E+04	1.2400E-01
		MY	3.7530E+06	1.6950E+00
		MZ	2.9325E+05	5.8000E-02
23	END-J	FX	2.0654E+05	5.0000E-03
		FY	3.5140E+03	8.5000E-02
		FZ	1.4393E+04	1.5260E+00
		TX	4.0283E+04	1.2400E-01
		MY	3.4692E+06	2.4000E-01
		MZ	2.1469E+05	6.0000E-02
24	END-I	FX	2.0897E+05	5.0000E-03
		FY	2.6720E+03	8.7000E-02
		FZ	1.5629E+04	1.4850E+00
		TX	4.0283E+04	1.2400E-01
		MY	3.4692E+06	2.4000E-01
		MZ	2.1469E+05	6.0000E-02
24	END-J	FX	2.0897E+05	5.0000E-03
		FY	2.6720E+03	8.7000E-02
		FZ	1.5629E+04	1.4850E+00
		TX	4.0283E+04	1.2400E-01
		MY	2.8846E+06	2.4100E-01
		MZ	1.4504E+05	6.7000E-02
25	END-I	FX	2.2604E+05	2.1000E-02
		FY	2.0626E+03	5.9000E-02
		FZ	2.0285E+04	1.4100E-01
		TX	4.0283E+04	1.2400E-01
		MY	2.8846E+06	2.4100E-01
		MZ	1.4504E+05	6.7000E-02
25	END-J	FX	2.2604E+05	2.1000E-02
		FY	2.0626E+03	5.9000E-02

FZ	2.0285E+04	1.4100E-01
TX	4.0283E+04	1.2400E-01
MY	1.7613E+06	2.4100E-01
MZ	1.9903E+05	8.6000E-02

26 END-I

FX	2.5776E+05	2.1000E-02
FY	1.1704E+03	4.6000E-02
FZ	3.0471E+04	2.4100E-01
TX	4.0283E+04	1.2400E-01
MY	1.7613E+06	2.4100E-01
MZ	1.9903E+05	8.6000E-02

26 END-J

FX	2.5776E+05	2.1000E-02
FY	1.1704E+03	4.6000E-02
FZ	3.0471E+04	2.4100E-01
TX	4.0283E+04	1.2400E-01
MY	9.4451E+05	2.0600E-01
MZ	1.9222E+05	8.8000E-02

27 END-I

FX	2.9899E+05	2.1000E-02
FY	2.8800E+03	1.3300E-01
FZ	3.9713E+04	2.4100E-01
TX	4.0283E+04	1.2400E-01
MY	9.4451E+05	2.0600E-01
MZ	1.9222E+05	8.8000E-02

27 END-J

FX	2.9899E+05	2.1000E-02
FY	2.8800E+03	1.3300E-01
FZ	3.9713E+04	2.4100E-01
TX	4.0283E+04	1.2400E-01
MY	1.9050E+06	1.4000E-01
MZ	7.0760E+04	8.9000E-02

28 END-I

FX	3.4527E+05	2.0000E-02
FY	4.4219E+03	8.7000E-02
FZ	4.1180E+04	2.4000E-01
TX	4.0283E+04	1.2400E-01
MY	1.9050E+06	1.4000E-01
MZ	7.0760E+04	8.9000E-02

28 END-J

FX	3.4527E+05	2.0000E-02
FY	4.4219E+03	8.7000E-02
FZ	4.1180E+04	2.4000E-01
TX	4.0283E+04	1.2400E-01
MY	3.5852E+06	2.4000E-01
MZ	1.8217E+05	1.1700E-01

29 END-I

FX	4.0875E+05	1.9000E-02
FY	1.8988E+03	9.9000E-02

FZ
TX
MY
MZ
1.8320E+04
4.0283E+04
3.5852E+06
1.8217E+05

1.4700E-01
1.2400E-01
2.4000E-01
1.1700E-01

29 END-J

FX
FY
FZ
TX
MY
MZ
4.0875E+05
1.8988E+03
1.8320E+04
4.0283E+04
3.3878E+06
1.6775E+05

1.9000E-02
9.9000E-02
1.4700E-01
1.2400E-01
2.4000E-01
1.1700E-01

30 END-I

FX
FY
FZ
TX
MY
MZ
4.2002E+05
1.6633E+03
1.8754E+04
4.0283E+04
3.3878E+06
1.6775E+05

1.9000E-02
9.9000E-02
1.4600E-01
1.2400E-01
2.4000E-01
1.1700E-01

30 END-J

FX
FY
FZ
TX
MY
MZ
4.2002E+05
1.6633E+03
1.8754E+04
4.0283E+04
3.0301E+06
1.4200E+05

1.9000E-02
9.9000E-02
1.4600E-01
1.2400E-01
2.4000E-01
1.1700E-01

31 END-I

FX
FY
FZ
TX
MY
MZ
4.2674E+05
1.5154E+03
1.8799E+04
4.0283E+04
3.0301E+06
1.4200E+05

1.9000E-02
1.0000E-01
1.4600E-01
1.2400E-01
2.4000E-01
1.1700E-01

31 END-J

FX
FY
FZ
TX
MY
MZ
4.2674E+05
1.5154E+03
1.8799E+04
4.0283E+04
2.8720E+06
1.3030E+05

1.9000E-02
1.0000E-01
1.4600E-01
1.2400E-01
2.4000E-01
1.1700E-01

32 END-I

FX
FY
FZ
TX
MY
MZ
4.3088E+05
1.4330E+03
1.8762E+04
4.0283E+04
2.8720E+06
1.3030E+05

1.9000E-02
1.0000E-01
1.4500E-01
1.2400E-01
2.4000E-01
1.1700E-01

32 END-J

FX
FY
FZ
4.3088E+05
1.4330E+03
1.8762E+04

1.9000E-02
1.0000E-01
1.4500E-01

33	END-I	TX MY MZ	4.0283E+04 2.7163E+06 1.1865E+05	1.2400E-01 2.4000E-01 1.1800E-01
33	END-J	FX FY FZ TX MY MZ	4.3500E+05 1.3494E+03 1.8664E+04 4.0283E+04 2.7163E+06 1.1865E+05	1.9000E-02 1.0000E-01 1.4500E-01 1.2400E-01 2.4000E-01 1.1800E-01
34	END-I	FX FY FZ TX MY MZ	4.3500E+05 1.3494E+03 1.8664E+04 4.0283E+04 2.5640E+06 1.0720E+05	1.9000E-02 1.0000E-01 1.4500E-01 1.2400E-01 2.4000E-01 1.1800E-01
34	END-J	FX FY FZ TX MY MZ	4.3909E+05 1.3418E+03 1.8476E+04 4.0283E+04 2.5640E+06 1.0720E+05	1.9000E-02 1.1700E-01 1.4500E-01 1.2400E-01 2.4000E-01 1.1800E-01
35	END-I	FX FY FZ TX MY MZ	4.5105E+05 1.3875E+03 1.7681E+04 4.0283E+04 2.4158E+06 9.5476E+04	1.9000E-02 1.1800E-01 1.4400E-01 1.2400E-01 2.4000E-01 1.1800E-01
35	END-J	FX FY FZ TX MY MZ	4.5105E+05 1.3875E+03 1.7681E+04 4.0283E+04 1.8578E+06 5.5923E+04	1.9000E-02 1.1800E-01 1.4400E-01 1.2400E-01 2.8400E-01 8.8000E-02
36	END-I	FX FY FZ	4.6691E+05 1.3552E+03 3.6231E+04	1.8000E-02 1.1800E-01 1.5500E-01

TX	4.0283E+04	1.2400E-01
MY	1.8578E+06	2.8400E-01
MZ	5.5923E+04	8.8000E-02

36 END-J

FX	4.6691E+05	1.8000E-02
FY	1.3552E+03	1.1800E-01
FZ	3.6231E+04	1.5500E-01
TX	4.0283E+04	1.2400E-01
MY	1.9320E+06	2.8200E-01
MZ	4.7424E+04	7.0000E-02

37 END-I

FX	4.7859E+05	1.8000E-02
FY	1.1273E+03	1.1800E-01
FZ	2.6654E+04	6.2000E-02
TX	3.7709E+04	1.2800E-01
MY	1.6374E+06	2.8600E-01
MZ	4.6394E+04	7.0000E-02

37 END-J

FX	4.7859E+05	1.8000E-02
FY	1.1273E+03	1.1800E-01
FZ	2.6654E+04	6.2000E-02
TX	3.7709E+04	1.2800E-01
MY	1.0559E+06	2.8100E-01
MZ	5.2459E+04	4.4100E-01

38 END-I

FX	4.9582E+05	1.8000E-02
FY	6.8636E+02	1.4800E-01
FZ	3.2093E+04	1.5000E-02
TX	3.2506E+04	1.2800E-01
MY	1.2069E+06	1.4800E-01
MZ	5.2485E+04	4.4100E-01

38 END-J

FX	4.9582E+05	1.8000E-02
FY	6.8636E+02	1.4800E-01
FZ	3.2093E+04	1.5000E-02
TX	3.2506E+04	1.2800E-01
MY	1.2292E+06	6.2000E-02
MZ	6.2363E+04	1.6300E-01

39 END-I

FX	5.0848E+05	1.8000E-02
FY	5.6150E+02	7.0000E-02
FZ	3.4743E+04	4.2000E-02
TX	3.3331E+04	1.4400E-01
MY	1.4288E+06	3.3000E-02
MZ	6.2607E+04	1.6300E-01

39 END-J

FX	5.0848E+05	1.8000E-02
FY	5.6150E+02	7.0000E-02
FZ	3.4743E+04	4.2000E-02
TX	3.3331E+04	1.4400E-01

40	END-I	MY MZ	1.1479E+06 6.6213E+04	2.3000E-02 1.6300E-01
		FX FY FZ TX MY MZ	5.2567E+05 7.3387E+02 2.9102E+04 3.3331E+04 1.1479E+06 6.6213E+04	1.8000E-02 6.9000E-02 6.2000E-02 1.4400E-01 2.3000E-02 1.6300E-01
40	END-J	FX FY FZ TX MY MZ	5.2567E+05 7.3387E+02 2.9102E+04 3.3331E+04 9.9617E+05 6.4856E+04	1.8000E-02 6.9000E-02 6.2000E-02 1.4400E-01 5.0000E-03 1.6500E-01
41	END-I	FX FY FZ TX MY MZ	5.4990E+05 6.6445E+02 3.9828E+04 3.3331E+04 9.9617E+05 6.4856E+04	1.7000E-02 5.9000E-02 2.4000E-02 1.4400E-01 5.0000E-03 1.6500E-01
41	END-J	FX FY FZ TX MY MZ	5.4990E+05 6.6445E+02 3.9828E+04 3.3331E+04 2.9570E+06 4.8025E+04	1.7000E-02 5.9000E-02 2.4000E-02 1.4400E-01 6.2000E-02 9.9000E-02
42	END-I	FX FY FZ TX MY MZ	5.6577E+05 6.8023E+02 4.6342E+04 3.3331E+04 2.9570E+06 4.8025E+04	1.7000E-02 1.6400E-01 2.5000E-02 1.4400E-01 6.2000E-02 9.9000E-02
42	END-J	FX FY FZ TX MY MZ	5.6577E+05 6.8023E+02 4.6342E+04 3.3331E+04 3.7660E+06 4.5545E+04	1.7000E-02 1.6400E-01 2.5000E-02 1.4400E-01 6.1000E-02 5.4000E-02
43	END-I	FX FY FZ TX	5.7701E+05 8.7396E+02 4.9954E+04 3.4917E+04	1.7000E-02 1.6600E-01 2.5000E-02 1.4400E-01

MY 3.8913E+06 6.1000E-02
MZ 4.5945E+04 5.4000E-02

43 END-J

FX 5.7701E+05 1.7000E-02
FY 8.7396E+02 1.6600E-01
FZ 4.9954E+04 2.5000E-02
TX 3.4917E+04 1.4000E-01
MY 4.2910E+06 6.1000E-02
MZ 4.2162E+04 5.4000E-02

44 END-I

FX 5.8106E+05 1.7000E-02
FY 9.5672E+02 1.6600E-01
FZ 5.1265E+04 2.5000E-02
TX 3.4917E+04 1.4000E-01
MY 4.2910E+06 6.1000E-02
MZ 4.2162E+04 5.4000E-02

44 END-J

FX 5.8106E+05 1.7000E-02
FY 9.5672E+02 1.6600E-01
FZ 5.1265E+04 2.5000E-02
TX 3.4917E+04 1.4000E-01
MY 4.8313E+06 6.1000E-02
MZ 3.5400E+04 5.4000E-02

45 END-I

FX 5.8330E+05 1.7000E-02
FY 9.5991E+02 1.6600E-01
FZ 5.1858E+04 2.5000E-02
TX 3.4917E+04 1.4000E-01
MY 4.8313E+06 6.1000E-02
MZ 3.5400E+04 5.4000E-02

45 END-J

FX 5.8330E+05 1.7000E-02
FY 9.5991E+02 1.6600E-01
FZ 5.1858E+04 2.5000E-02
TX 3.4917E+04 1.4000E-01
MY 6.2808E+06 6.1000E-02
MZ 2.7702E+04 5.9000E-02

46 END-I

FX 1.1008E+05 1.0000E-02
FY 5.3509E+02 1.4900E-01
FZ 1.8323E+05 2.4000E-02
TX 5.8908E-09 1.4000E-02
MY 1.2193E+07 2.4000E-02
MZ 3.8527E+04 1.4900E-01

46 END-J

FX 1.1008E+05 1.0000E-02
FY 5.3509E+02 1.4900E-01
FZ 1.8323E+05 2.4000E-02
TX 5.8908E-09 1.4000E-02
MY 9.2960E-08 6.2000E-02

47	END-I	MZ	2.6048E-08	1.4300E-01
		FX	6.3062E+05	2.4000E-02
		FY	5.9990E+02	1.6700E-01
		FZ	1.2982E+05	9.0000E-03
		TX	6.8460E+04	1.4900E-01
		MY	9.0028E+06	1.0000E-02
		MZ	2.7702E+04	5.9000E-02
47	END-J	FX	6.3062E+05	2.4000E-02
		FY	5.9990E+02	1.6700E-01
		FZ	1.2982E+05	9.0000E-03
		TX	6.8460E+04	1.4900E-01
		MY	4.8677E+06	1.0000E-02
		MZ	3.7627E+04	1.6400E-01
48	END-I	FX	6.3358E+05	2.4000E-02
		FY	6.3322E+02	1.6700E-01
		FZ	1.3233E+05	9.0000E-03
		TX	6.8460E+04	1.4900E-01
		MY	4.8677E+06	1.0000E-02
		MZ	3.7627E+04	1.6400E-01
48	END-J	FX	6.3358E+05	2.4000E-02
		FY	6.3322E+02	1.6700E-01
		FZ	1.3233E+05	9.0000E-03
		TX	6.8460E+04	1.4900E-01
		MY	2.4666E+06	2.4000E-02
		MZ	4.8286E+04	1.6500E-01
49	END-I	FX	6.3934E+05	2.4000E-02
		FY	6.7456E+02	1.6700E-01
		FZ	1.3646E+05	9.0000E-03
		TX	6.8460E+04	1.4900E-01
		MY	2.4666E+06	2.4000E-02
		MZ	4.8286E+04	1.6500E-01
49	END-J	FX	6.3934E+05	2.4000E-02
		FY	6.7456E+02	1.6700E-01
		FZ	1.3646E+05	9.0000E-03
		TX	6.8460E+04	1.4900E-01
		MY	1.2176E+06	4.3000E-02
		MZ	6.1142E+04	1.6600E-01
50	END-I	FX	3.0030E+04	5.0000E-03
		FY	2.0079E+02	4.7000E-02
		FZ	1.6848E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	9.8620E+05	3.6000E-02

50	END-J	MZ	1.2838E+04	5.5000E-01
		FX	3.0030E+04	5.0000E-03
		FY	2.0079E+02	4.7000E-02
		FZ	1.6848E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	7.1923E+05	3.5000E-02
		MZ	9.7952E+03	5.5000E-01
51	END-I	FX	2.9975E+04	5.0000E-03
		FY	2.0013E+02	4.7000E-02
		FZ	1.6761E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	7.1923E+05	3.5000E-02
		MZ	9.7952E+03	5.5000E-01
51	END-J	FX	2.9975E+04	5.0000E-03
		FY	2.0013E+02	4.7000E-02
		FZ	1.6761E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	6.6954E+05	3.5000E-02
		MZ	9.2242E+03	5.5000E-01
52	END-I	FX	2.9804E+04	5.0000E-03
		FY	1.9799E+02	4.7000E-02
		FZ	1.6499E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	6.6954E+05	3.5000E-02
		MZ	9.2242E+03	5.5000E-01
52	END-J	FX	2.9804E+04	5.0000E-03
		FY	1.9799E+02	4.7000E-02
		FZ	1.6499E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	5.7746E+05	6.0000E-02
		MZ	8.0810E+03	5.5000E-01
53	END-I	FX	2.9547E+04	5.0000E-03
		FY	1.9461E+02	4.7000E-02
		FZ	1.6137E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	5.7746E+05	6.0000E-02
		MZ	8.0810E+03	5.5000E-01
53	END-J	FX	2.9547E+04	5.0000E-03
		FY	1.9461E+02	4.7000E-02
		FZ	1.6137E+04	3.6000E-02
		TX	1.1677E+03	6.4000E-02
		MY	4.9422E+05	6.0000E-02
		MZ	6.8153E+03	5.5000E-01

54	END-I	FX FY FZ TX MY MZ	2.8272E+04 1.9066E+02 1.4628E+04 1.1677E+03 4.9422E+05 6.8153E+03	5.0000E-03 5.5000E-01 3.5000E-02 6.4000E-02 6.0000E-02 5.5000E-01
54	END-J	FX FY FZ TX MY MZ	2.8272E+04 1.9066E+02 1.4628E+04 1.1677E+03 2.5629E+05 4.2827E+03	5.0000E-03 5.5000E-01 3.5000E-02 6.4000E-02 6.0000E-02 4.3000E-02
55	END-I	FX FY FZ TX MY MZ	2.4033E+04 1.6910E+02 1.4042E+04 4.8270E-08 2.3877E+05 2.8754E+03	5.0000E-03 5.5000E-01 6.0000E-02 1.5190E+00 6.0000E-02 5.5000E-01
55	END-J	FX FY FZ TX MY MZ	2.4033E+04 1.6910E+02 1.4042E+04 4.8270E-08 3.5323E-06 5.7459E-07	5.0000E-03 5.5000E-01 6.0000E-02 1.5190E+00 2.1000E-02 3.3000E-02
56	END-I	FX FY FZ TX MY MZ	4.0549E+02 2.1107E+03 1.2642E+03 8.5401E+03 2.1849E+04 5.2295E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.7000E-02 5.0000E-03
56	END-J	FX FY FZ TX MY MZ	4.0549E+02 2.1107E+03 1.2642E+03 8.5401E+03 8.3129E+03 2.9600E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.6000E-02 5.0000E-03
57	END-I	FX FY FZ TX MY MZ	4.0337E+02 1.5064E+03 7.3735E+02 8.5401E+03 8.3129E+03 2.9600E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.6000E-02 5.0000E-03

57	END-J	FX FY FZ TX MY MZ	4.0337E+02 1.5064E+03 7.3735E+02 8.5401E+03 6.7731E+03 2.2659E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 6.0000E-02 5.0000E-03
58	END-I	FX FY FZ TX MY MZ	4.0145E+02 1.0173E+03 4.5154E+02 8.5401E+03 6.7731E+03 2.2659E+04	5.0000E-03 5.0000E-03 6.0000E-02 6.0000E-02 6.0000E-02 5.0000E-03
58	END-J	FX FY FZ TX MY MZ	4.3549E+02 1.0032E+03 4.5154E+02 3.2333E+03 6.0388E+03 1.0105E+04	5.0000E-03 5.0000E-03 6.0000E-02 6.0000E-02 6.0000E-02 5.0000E-03
58	END-J	FX FY FZ TX MY MZ	1.0173E+03 4.0145E+02 4.5154E+02 3.8917E-10 1.7823E+03 1.3777E+03	5.0000E-03 5.0000E-03 6.0000E-02 3.5000E-02 5.5000E-02 5.0000E-03
59	END-I	FX FY FZ TX MY MZ	2.3358E+02 1.3782E+02 1.7830E+02 1.7428E-10 1.7823E+03 1.3777E+03	5.0000E-03 5.0000E-03 5.9000E-02 3.3000E-02 5.9000E-02 5.0000E-03
59	END-J	FX FY FZ TX MY MZ	2.3358E+02 1.3782E+02 1.7830E+02 1.7428E-10 1.5467E-09 3.2608E-10	5.0000E-03 5.0000E-03 5.9000E-02 3.3000E-02 3.6000E-02 1.5000E+00
60	END-I	FX FY FZ TX MY MZ	4.0685E+02 2.1284E+03 1.2406E+03 9.0497E+03 2.1333E+04 5.2898E+04	5.0000E-03 5.0000E-03 3.7000E-02 5.9000E-02 3.6000E-02 5.0000E-03

60 END-J FX 4.0685E+02 5.0000E-03
 FY 2.1284E+03 5.0000E-03
 FZ 3.7000E-02 5.0000E-03
 TX 9.0497E+03 5.0000E-02
 MY 8.5764E+03 6.0000E-02
 MZ 3.0014E+04 5.0000E-03

61 END-I FX 4.0841E+02 5.0000E-03
 FY 1.5218E+03 5.0000E-03
 FZ 7.1911E+02 3.6000E-02
 TX 9.0497E+03 5.0000E-02
 MY 8.5764E+03 6.0000E-02
 MZ 3.0014E+04 5.0000E-03

61 END-J FX 4.0841E+02 5.0000E-03
 FY 1.5218E+03 5.0000E-03
 FZ 7.1911E+02 3.6000E-02
 TX 9.0497E+03 5.0000E-02
 MY 7.1846E+03 5.0000E-02
 MZ 2.3001E+04 5.0000E-03

62 END-I FX 4.0936E+02 5.0000E-03
 FY 1.0301E+03 5.0000E-03
 FZ 4.7897E+02 5.0000E-02
 TX 9.0497E+03 5.0000E-02
 MY 7.1846E+03 5.0000E-02
 MZ 2.3001E+04 5.0000E-03

62 END-J FX 4.3892E+02 5.0000E-03
 FY 1.0178E+03 5.0000E-03
 FZ 4.7897E+02 5.0000E-02
 TX 3.4232E+03 5.0000E-02
 MY 6.3991E+03 5.0000E-02
 MZ 1.0277E+04 5.0000E-03

62 END-J FX 1.0301E+03 5.0000E-03
 FY 4.0936E+02 5.0000E-03
 FZ 4.7897E+02 5.0000E-02
 TX 4.4097E-10 3.4000E-02
 MY 1.8652E+03 5.0000E-02
 MZ 1.4098E+03 5.0000E-03

63 END-I FX 2.3651E+02 5.0000E-03
 FY 1.4103E+02 5.0000E-03
 FZ 1.8659E+02 5.0000E-02
 TX 2.6777E-11 1.3700E-01
 MY 1.8652E+03 5.0000E-02
 MZ 1.4098E+03 5.0000E-03

63	END-J	FX FY FZ TX MY MZ	2.3651E+02 1.4103E+02 1.8659E+02 2.6777E-11 8.0060E-10 3.6028E-10	5.000E-03 5.000E-03 5.900E-02 1.3700E-01 3.700E-02 2.900E-02
64	END-I	FX FY FZ TX MY MZ	1.0857E+04 2.0142E+02 1.6064E+04 6.9383E+02 9.2788E+05 9.8789E+03	1.500E-02 4.900E-02 3.600E-02 8.400E-02 3.500E-02 8.340E-01
64	END-J	FX FY FZ TX MY MZ	1.0857E+04 2.0142E+02 1.6064E+04 6.9383E+02 6.7354E+05 7.4591E+03	1.500E-02 4.900E-02 3.600E-02 8.400E-02 3.500E-02 8.340E-01
65	END-I	FX FY FZ TX MY MZ	1.0836E+04 1.5918E+02 1.5972E+04 6.9383E+02 6.7354E+05 7.4591E+03	1.500E-02 4.900E-02 3.600E-02 8.400E-02 3.500E-02 8.340E-01
65	END-J	FX FY FZ TX MY MZ	1.0836E+04 1.5918E+02 1.5972E+04 6.9383E+02 6.2608E+05 7.0057E+03	1.500E-02 4.900E-02 3.600E-02 8.400E-02 3.500E-02 8.340E-01
66	END-I	FX FY FZ TX MY MZ	1.0773E+04 1.5217E+02 1.5692E+04 6.9383E+02 6.2608E+05 7.0057E+03	1.500E-02 4.900E-02 3.600E-02 8.400E-02 3.500E-02 8.340E-01
66	END-J	FX FY FZ TX MY MZ	1.0773E+04 1.5217E+02 1.5692E+04 6.9383E+02 5.3264E+05 6.7539E+03	1.500E-02 4.900E-02 3.600E-02 8.400E-02 3.500E-02 4.400E-02

67 END-I FX 1.0678E+04 1.5000E-02
 FY 1.8187E+02 4.9000E-02
 FZ 1.5302E+04 3.6000E-02
 TX 6.9383E+02 8.4000E-02
 MY 5.3264E+05 3.5000E-02
 MZ 6.7539E+03 4.4000E-02

67 END-J FX 1.0678E+04 1.5000E-02
 FY 1.8187E+02 4.9000E-02
 FZ 1.5302E+04 3.6000E-02
 TX 6.9383E+02 8.4000E-02
 MY 4.5129E+05 6.0000E-02
 MZ 6.5667E+03 5.9000E-02

68 END-I FX 1.0213E+04 1.5000E-02
 FY 1.4745E+02 8.3400E-01
 FZ 1.3681E+04 3.5000E-02
 TX 6.9383E+02 8.4000E-02
 MY 4.5129E+05 6.0000E-02
 MZ 6.5667E+03 5.9000E-02

68 END-J FX 1.0213E+04 1.5000E-02
 FY 1.4745E+02 8.3400E-01
 FZ 1.3681E+04 3.5000E-02
 TX 6.9383E+02 8.4000E-02
 MY 2.3615E+05 6.0000E-02
 MZ 5.6068E+03 5.9000E-02

69 END-I FX 8.7179E+03 1.5000E-02
 FY 1.2986E+02 8.3400E-01
 FZ 1.2902E+04 6.0000E-02
 TX 9.7728E-09 2.1000E-02
 MY 2.1938E+05 6.0000E-02
 MZ 2.2081E+03 8.3400E-01

69 END-J FX 8.7179E+03 1.5000E-02
 FY 1.2986E+02 8.3400E-01
 FZ 1.2902E+04 6.0000E-02
 TX 9.7728E-09 2.1000E-02
 MY 3.3408E-06 2.4000E-02
 MZ 1.9691E-07 1.1600E-01

70 END-I FX 1.2179E+02 1.5000E-02
 FY 7.4484E+02 1.5000E-02
 FZ 1.2473E+03 3.7000E-02
 TX 8.2706E+03 6.0000E-02
 MY 2.0931E+04 3.7000E-02
 MZ 1.7920E+04 1.5000E-02

70	END-J	FX FY FZ TX MY MZ	1.2179E+02 7.4484E+02 1.2473E+03 8.2706E+03 7.6257E+03 9.9117E+03	1.5000E-02 1.5000E-02 3.7000E-02 6.0000E-02 6.1000E-02 1.5000E-02
71	END-I	FX FY FZ TX MY MZ	1.2119E+02 5.2658E+02 7.0738E+02 8.2706E+03 7.6257E+03 9.9117E+03	1.5000E-02 1.5000E-02 3.7000E-02 6.0000E-02 6.1000E-02 1.5000E-02
71	END-J	FX FY FZ TX MY MZ	1.2119E+02 5.2658E+02 7.0738E+02 8.2706E+03 6.5084E+03 7.4853E+03	1.5000E-02 1.5000E-02 3.7000E-02 6.0000E-02 6.0000E-02 1.5000E-02
72	END-I	FX FY FZ TX MY MZ	1.2065E+02 3.5079E+02 4.3389E+02 8.2706E+03 6.5084E+03 7.4853E+03	1.5000E-02 1.5000E-02 6.0000E-02 6.0000E-02 6.0000E-02 1.5000E-02
72	END-J	FX FY FZ TX MY MZ	1.6273E+02 3.336E+02 4.3389E+02 3.1522E+03 5.8482E+03 3.2345E+03	1.5000E-02 1.5000E-02 6.0000E-02 6.0000E-02 6.0000E-02 1.5000E-02
72	END-J	FX FY FZ TX MY MZ	3.5079E+02 1.2065E+02 4.3389E+02 2.0211E-10 1.7654E+03 4.1365E+02	1.5000E-02 1.5000E-02 6.0000E-02 3.2000E-02 5.9000E-02 1.5000E-02
73	END-I	FX FY FZ TX MY MZ	8.0539E+01 4.1382E+01 1.7661E+02 3.2063E-11 1.7654E+03 4.1365E+02	1.5000E-02 1.5000E-02 5.9000E-02 6.1000E-02 5.9000E-02 1.5000E-02

73 END-J FX 8.0539E+01 1.5000E-02
 FY 4.1382E+01 1.5000E-02
 FZ 1.7661E+02 5.9000E-02
 TX 3.2063E-11 6.1000E-02
 MY 7.4811E-10 3.6000E-02
 MZ 4.5188E-10 1.4910E+00

74 END-I FX 1.2309E+02 1.6000E-02
 FY 7.5049E+02 1.5000E-02
 FZ 1.2344E+03 3.7000E-02
 TX 8.4933E+03 6.0000E-02
 MY 2.0733E+04 3.6000E-02
 MZ 1.8118E+04 1.5000E-02

74 END-J FX 1.2309E+02 1.6000E-02
 FY 7.5049E+02 1.5000E-02
 FZ 1.2344E+03 3.7000E-02
 TX 8.4933E+03 6.0000E-02
 MY 7.8107E+03 6.0000E-02
 MZ 1.0049E+04 1.5000E-02

75 END-I FX 1.2381E+02 1.6000E-02
 FY 5.3153E+02 1.5000E-02
 FZ 7.0018E+02 3.6000E-02
 TX 8.4933E+03 6.0000E-02
 MY 7.8107E+03 6.0000E-02
 MZ 1.0049E+04 1.5000E-02

75 END-J FX 1.2381E+02 1.6000E-02
 FY 5.3153E+02 1.5000E-02
 FZ 7.0018E+02 3.6000E-02
 TX 8.4933E+03 6.0000E-02
 MY 6.6979E+03 6.0000E-02
 MZ 7.5998E+03 1.5000E-02

76 END-I FX 1.2430E+02 1.6000E-02
 FY 3.5490E+02 1.5000E-02
 FZ 4.4652E+02 6.0000E-02
 TX 8.4933E+03 6.0000E-02
 MY 6.6979E+03 6.0000E-02
 MZ 7.5998E+03 1.5000E-02

76 END-J FX 1.6367E+02 1.5000E-02
 FY 3.3824E+02 1.5000E-02
 FZ 4.4652E+02 6.0000E-02
 TX 3.2313E+03 6.0000E-02
 MY 6.0057E+03 6.0000E-02
 MZ 3.2931E+03 1.5000E-02

76	END-J	FX FY FZ TX MY MZ	3.5490E+02 1.2430E+02 4.4652E+02 9.0260E-11 1.8066E+03 4.2812E+02	1.5000E-02 1.6000E-02 6.0000E-02 1.5700E-01 5.9000E-02 1.6000E-02
77	END-I	FX FY FZ TX MY MZ	8.1483E+01 4.2830E+01 1.8074E+02 1.1314E-10 1.8066E+03 4.2812E+02	1.5000E-02 1.6000E-02 5.9000E-02 3.1000E-02 5.9000E-02 1.6000E-02
77	END-J	FX FY FZ TX MY MZ	8.1483E+01 4.2830E+01 1.8074E+02 1.1314E-10 9.8639E-10 8.7905E-11	1.5000E-02 1.6000E-02 5.9000E-02 3.1000E-02 3.0000E-02 2.1800E-01
78	END-I	FX FY FZ TX MY MZ	3.1690E+04 2.0742E+02 1.5304E+04 5.1299E+02 8.9318E+05 1.2407E+04	5.0000E-03 8.9000E-01 3.6000E-02 4.1000E-02 3.4000E-02 8.9000E-01
78	END-J	FX FY FZ TX MY MZ	3.1690E+04 2.0742E+02 1.5304E+04 5.1299E+02 6.5202E+05 9.0894E+03	5.0000E-03 8.9000E-01 3.6000E-02 4.1000E-02 3.4000E-02 8.9000E-01
79	END-I	FX FY FZ TX MY MZ	3.1630E+04 2.0695E+02 1.5218E+04 5.1299E+02 6.5202E+05 9.0894E+03	5.0000E-03 8.9000E-01 3.5000E-02 4.1000E-02 3.4000E-02 8.9000E-01
79	END-J	FX FY FZ TX MY MZ	3.1630E+04 2.0695E+02 1.5218E+04 5.1299E+02 6.0639E+05 8.5133E+03	5.0000E-03 8.9000E-01 3.5000E-02 4.1000E-02 3.4000E-02 4.8800E-01

80	END-I	FX FY FZ TX MY MZ	3.1443E+04 2.0547E+02 1.4977E+04 5.1299E+02 6.0699E+05 8.5133E+03	5.0000E-03 8.9000E-01 3.5000E-02 4.1000E-02 3.4000E-02 4.8800E-01
80	END-J	FX FY FZ TX MY MZ	3.1443E+04 2.0547E+02 1.4977E+04 5.1299E+02 5.1811E+05 7.4630E+03	5.0000E-03 8.9000E-01 3.5000E-02 4.1000E-02 3.4000E-02 4.8700E-01
81	END-I	FX FY FZ TX MY MZ	3.1166E+04 2.0320E+02 1.4637E+04 5.1299E+02 5.1811E+05 7.4630E+03	5.0000E-03 8.9000E-01 3.5000E-02 4.1000E-02 3.4000E-02 4.8700E-01
81	END-J	FX FY FZ TX MY MZ	3.1166E+04 2.0320E+02 1.4637E+04 5.1299E+02 4.2169E+05 6.7235E+03	5.0000E-03 8.9000E-01 3.5000E-02 4.1000E-02 3.4000E-02 1.7800E-01
82	END-I	FX FY FZ TX MY MZ	2.9805E+04 1.9186E+02 1.3263E+04 5.1299E+02 4.2169E+05 6.7235E+03	5.0000E-03 8.9000E-01 3.4000E-02 4.1000E-02 3.4000E-02 1.7800E-01
82	END-J	FX FY FZ TX MY MZ	2.9805E+04 1.9186E+02 1.3263E+04 5.1299E+02 2.0718E+05 5.8106E+03	5.0000E-03 8.9000E-01 3.4000E-02 4.1000E-02 6.0000E-02 5.9000E-02
83	END-I	FX FY FZ TX MY MZ	2.5452E+04 1.7206E+02 1.1295E+04 9.3618E-09 1.9206E+05 2.9257E+03	5.0000E-03 8.9000E-01 6.0000E-02 1.9100E-01 6.0000E-02 8.9000E-01

83	END-J	FX FY FZ TX MY MZ	2.5452E+04 1.7206E+02 1.1295E+04 9.3618E-09 3.3421E-06 4.9099E-07	5.0000E-03 8.9000E-01 6.0000E-02 1.9100E-01 2.1000E-02 2.1300E-01
84	END-I	FX FY FZ TX MY MZ	3.5194E+02 2.1631E+03 1.2016E+03 7.6132E+03 1.9760E+04 5.1910E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.7000E-02 5.0000E-03
84	END-J	FX FY FZ TX MY MZ	3.5194E+02 2.1631E+03 1.2016E+03 7.6132E+03 7.3460E+03 2.8652E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.3000E-02 5.0000E-03
85	END-I	FX FY FZ TX MY MZ	3.4891E+02 1.5272E+03 6.6837E+02 7.6132E+03 7.3460E+03 2.8652E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.3000E-02 5.0000E-03
85	END-J	FX FY FZ TX MY MZ	3.4891E+02 1.5272E+03 6.6837E+02 7.6132E+03 5.9516E+03 2.1615E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 6.0000E-02 5.0000E-03
86	END-I	FX FY FZ TX MY MZ	3.4631E+02 1.0156E+03 3.9678E+02 7.6132E+03 5.9516E+03 2.1615E+04	5.0000E-03 5.0000E-03 6.0000E-02 6.0000E-02 6.0000E-02 5.0000E-03
86	END-J	FX FY FZ TX MY MZ	4.7327E+02 9.6303E+02 3.9678E+02 2.9181E+03 5.3833E+03 9.3215E+03	5.0000E-03 5.0000E-03 6.0000E-02 6.0000E-02 6.0000E-02 5.0000E-03

86	END-J	FX FY FZ TX MY MZ	1.0156E+03 3.4631E+02 3.9678E+02 1.9042E-10 1.6715E+03 1.1864E+03	5.0000E-03 5.0000E-03 6.0000E-02 3.4000E-02 5.9000E-02 5.0000E-03
87	END-I	FX FY FZ TX MY MZ	2.3317E+02 1.1868E+02 1.6722E+02 9.9267E-11 1.6715E+03 1.1864E+03	5.0000E-03 5.0000E-03 5.9000E-02 3.6000E-02 5.9000E-02 5.0000E-03
87	END-J	FX FY FZ TX MY MZ	2.3317E+02 1.1868E+02 1.6722E+02 9.9267E-11 6.8223E-10 2.7654E-10	5.0000E-03 5.0000E-03 5.9000E-02 3.6000E-02 6.0000E-02 1.4720E+00
88	END-I	FX FY FZ TX MY MZ	3.5425E+02 2.1906E+03 1.2037E+03 7.5010E+03 1.9959E+04 5.2849E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.6000E-02 5.0000E-03
88	END-J	FX FY FZ TX MY MZ	3.5425E+02 2.1906E+03 1.2037E+03 7.5010E+03 7.4675E+03 2.9295E+04	5.0000E-03 5.0000E-03 3.7000E-02 6.0000E-02 3.4000E-02 5.0000E-03
89	END-I	FX FY FZ TX MY MZ	3.5681E+02 1.5512E+03 6.7451E+02 7.5010E+03 7.4675E+03 2.9295E+04	5.0000E-03 5.0000E-03 3.6000E-02 6.0000E-02 3.4000E-02 5.0000E-03
89	END-J	FX FY FZ TX MY MZ	3.5681E+02 1.5512E+03 6.7451E+02 7.5010E+03 5.8555E+03 2.2147E+04	5.0000E-03 5.0000E-03 3.6000E-02 6.0000E-02 6.0000E-02 5.0000E-03

90 END-I FX 3.5859E+02 5.0000E-03
 FY 1.0355E+03 5.0000E-03
 FZ 3.9037E+02 6.0000E-02
 TX 7.5010E+03 6.0000E-02
 MY 5.8555E+03 6.0000E-02
 MZ 2.2147E+04 5.0000E-03

90 END-J FX 4.7865E+02 5.0000E-03
 FY 9.8577E+02 5.0000E-03
 FZ 3.9037E+02 6.0000E-02
 TX 2.8785E+03 6.0000E-02
 MY 5.3040E+03 6.0000E-02
 MZ 9.5886E+03 5.0000E-03

90 END-J FX 1.0355E+03 5.0000E-03
 FY 3.5859E+02 5.0000E-03
 FZ 3.9037E+02 6.0000E-02
 TX 6.4716E-10 3.1000E-02
 MY 1.6494E+03 5.9000E-02
 MZ 1.2359E+03 5.0000E-03

91 END-I FX 2.3774E+02 5.0000E-03
 FY 1.2364E+02 5.0000E-03
 FZ 1.5500E+02 5.9000E-02
 TX 5.7959E-11 2.5000E-02
 MY 1.6494E+03 5.9000E-02
 MZ 1.2359E+03 5.0000E-03

91 END-J FX 2.3774E+02 5.0000E-03
 FY 1.2364E+02 5.0000E-03
 FZ 1.5500E+02 5.9000E-02
 TX 5.7959E-11 2.5000E-02
 MY 2.3791E-09 2.7000E-02
 MZ 3.8044E-10 1.5030E+00

92 END-I FX 2.8996E+03 6.0000E-03
 FY 2.1614E+02 5.4000E-02
 FZ 6.1801E+03 1.6000E-02
 TX 2.5586E-10 2.1800E-01
 MY 2.0314E+05 1.6000E-02
 MZ 7.1509E+03 5.4000E-02

92 END-J FX 2.8996E+03 6.0000E-03
 FY 2.1614E+02 5.4000E-02
 FZ 6.1801E+03 1.6000E-02
 TX 2.5586E-10 2.1800E-01
 MY 1.0428E+05 1.6000E-02
 MZ 3.6936E+03 5.4000E-02

93	END-I	FX	2.7484E+03	6.0000E-03
		FY	2.0715E+02	5.4000E-02
		FZ	5.9145E+03	1.6000E-02
		TX	1.9359E-11	1.5000E-02
		MY	1.0428E+05	1.6000E-02
		MZ	3.6936E+03	5.4000E-02
93	END-J	FX	2.7484E+03	6.0000E-03
		FY	2.0715E+02	5.4000E-02
		FZ	5.9145E+03	1.6000E-02
		TX	1.9359E-11	1.5000E-02
		MY	8.5049E+04	1.6000E-02
		MZ	3.0199E+03	5.4000E-02
94	END-I	FX	1.7158E+03	6.0000E-03
		FY	1.4299E+02	5.4000E-02
		FZ	4.0300E+03	1.6000E-02
		TX	4.1174E-12	1.4560E+00
		MY	8.5049E+04	1.6000E-02
		MZ	3.0199E+03	5.4000E-02
94	END-J	FX	1.7158E+03	6.0000E-03
		FY	1.4299E+02	5.4000E-02
		FZ	4.0300E+03	1.6000E-02
		TX	4.1174E-12	1.4560E+00
		MY	8.7501E+03	5.0000E-03
		MZ	3.1225E+02	5.4000E-02
95	END-I	FX	5.0445E+02	6.0000E-03
		FY	4.4633E+01	5.4000E-02
		FZ	1.2507E+03	5.0000E-03
		TX	4.7051E-12	1.3800E-01
		MY	8.7501E+03	5.0000E-03
		MZ	3.1225E+02	5.4000E-02
95	END-J	FX	5.0445E+02	6.0000E-03
		FY	4.4633E+01	5.4000E-02
		FZ	1.2507E+03	5.0000E-03
		TX	4.7051E-12	1.3800E-01
		MY	7.4503E-10	1.8000E-02
		MZ	1.6862E-10	1.3600E-01

FORCED RESPONSE TIME LOG
TOTAL FOR RESPONSE ANALYSIS... .00

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

1. REPORT NUMBER
(Assigned by NRC, Add Vol., Supp., Rev.,
and Addendum Numbers, if any.)

**NUREG/CR-6414
BNL-NUREG-52487**

2. TITLE AND SUBTITLE

Piping Benchmark Problems for the Westinghouse AP600 Standardized Plant

3. DATE REPORT PUBLISHED

MONTH	YEAR
January	1997

4. FIN OR GRANT NUMBER
E 2024

5. AUTHOR(S)

P. Bezler, G. DeGrassi, J. Braverman, Y.K. Wang

6. TYPE OF REPORT

Technical

7. PERIOD COVERED (Inclusive Dates)

8. PERFORMING ORGANIZATION - NAME AND ADDRESS (if NRC, provide Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)

**Brookhaven National Laboratory
Upton, NY 11973-5000**

9. SPONSORING ORGANIZATION - NAME AND ADDRESS (if NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address.)

**Division of Engineering
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001**

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

To satisfy the need for verification of the computer programs and modeling techniques that will be used to perform the final piping analyses for the Westinghouse AP600 Standardized Plant, three benchmark problems were developed. The problems are representative piping systems subjected to representative dynamic loads with solutions developed using the methods being proposed for analysis for the AP600 standard design. It will be required that the combined licensees demonstrate that their solutions to these problems are in agreement with the benchmark problem set.

12 KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

piping, Westinghouse AP600, dynamic loads

13. AVAILABILITY STATEMENT

unlimited

14. SECURITY CLASSIFICATION
(This Page)

unclassified

(This Report)

unclassified

15. NUMBER OF PAGES

16. PRICE