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SEISMIC AND STRESS ANALYSIS OF THE LACBWR HIGH PRESSURE CORE SPRAY SUCTION LINE PIPING SYSTEM

Prepared Under NES Project 5101 for

DAIRYLAND POWER COOPERATIVE

NUCLEAR ENERGY SERVICES, INC.

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I, the undersigned, being a resigtered Professional Engineer in the State of California, competent in the design and analysis of structures, have examined this seismic and stress report and referenced drawings and specification and certify that to the best of my knowledge the stress report presented herein is in compliance with the criteria set forth in this report.

Certified by I. Husain

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1. SUMMARY

This report, prepared for Dairyland Power Cooperative, presents the results of seismic and stress analyses of the High Pressure Core Spray (HPCS) piping system suction line for the LACBWR Nuclear Power Station. The seismic and stress analyses are performed in accordance with the design requirements for Class 1 piping components of the ASME Boiler and Pressure Vessel Code, Section III, Division 1, "Nuclear Power Plant Components", 1974. By providing seismic restraints (snubbers) at critical locations of the HPCS suction line, the stresses in the piping due to a seismic event can be reduced to acceptable values. That is, the stresses due to seismic, deadweight, pressure and thermal expansion loadings, combined according to the ASME Code rules for Class 1 components would satisfy the design requirements given in the Code with the addition of seismic restraints.

2. INTRODUCTION

In response to AEC/DL's request to review the effects of an earthquake event on the LaCrosse Boiling Water Reactor, Dairyland Power Cooperative requested Gulf United Nuclear Fuels Corporation to evaluate the adequacy of the major structures and equipment to withstand seismic loadings. The seismic study performed by Gulf United (GU) Nuclear Fuels Corporation (Ref. 1) included an analysis of the main steam line which indicated that high stresses would be generated in the main steam line during a seismic event. It was also evident from these analyses that the LACBWR piping systems, in general, were not designed to accomodate horizontal accelerations, the primary earthquake induced loading condition. Anticipating the possibility of a seismically induced loss of coolant accident, it was, therefore, concluded that analyses of the major Class 1 piping systems should be performed to evaluate their structural integrity.

This report presents the seismic and stress analysis for the suction line of the High Pressure Core Spray (HPCS) System. (The HPCS discharge line analyses is presented in a separate report). The High Pressure Core Spray System is the principal emergency core cooling system. In order to verify that the seismic stresses in the HPCS suction line are acceptable, it is necessary to show that the combined stresses in the piping system are within ASME Boiler and Pressure Vessel Code allowable values for Class 1 Component. This requires that the seismic stresses be combined with the stresses due to deadweight, pressure and thermal loadings in accordance with the ASME Code Section III,. Subsection NB rules (Ref. 2).

For the static and dynamic analysis, the High Pressure Core Spray suction line has been mathematically modeled as a finite element model. The static response of the HPCS Suction Line to the dead weight, thermal expansion and anchor movement loadings have been calculated using direct stiffness displacement methods of structural analysis. The seismic response of the HPCS Suction Line to the operating basis earthquake (OBE) and safe shutdown earthquake (SSE) have been determined using response spectrum, model superposition methods. Stresses due to various loadings habe been calculated and combined in accordance with the ASME Code Section III, Subsection NB rules.

Section 3.0 of this report describes the High Pressure Core Spray (HPCS) Suction Line considered in the analysis. The loading criteria, design criteria and analytical methods used in the analyses are given in Section 4.0, 5.0 and 6.0 respectively. The results of the analyses are discussed in Section 7.0. The conclusions are summarized in Section 8.0.

3. DESCRIPTION OF PIPING SYSTEM

The High Pressure Core Spray (HPCS) System of the LACBWR power plant is designed to provide an emergency coolant spray to the reactor core in the event that reactor water level drops accidentally. This is done by either direct gravity feed of water from an overhead storage tank to the core spray header under low reactor pressure conditions, or by means of high pressure water injection under high reactor pressure conditions.

In order to simplify the piping system analysis, the long and complex HPCS piping system was divided into two sections: the first consisting generally of the suction piping which runs from the overhead storage tank to the high pressure core spray pumps and the second consisting of the discharge piping which runs from the high pressure core spray pumps to the core spray header inlet. The HPCS discharge piping analysis is presented in a separate report. The subject analysis of this report is, therefore, the HPCS suction line.

To further simplify the analysis the suction line was divided into two subsections: Line 1 as shown in Figure 3.1-1 and Line 2 as shown in Figure 3.1-2. Line 1 consists of the 4" Schedule 40S stainless steel pipe line leading from the 42,000 gallon overhead water storage tank to a 4" X 4" reducer at node point 19. A section of the 4" fuel storage well flooding line connecting at node point 18 is included in the analysis of Line 1. Line 2 begins at node 19, Figure 3.1-2 and consists mostly of 3" schedule 40S stainless steel piping up to the two ECCS high pressure pumps. Rigid anchors located at points of expected large seismic deflections, serve to isolate the suction lines for analytical purposes.
The governing design specification used in the analysis of the HPCS piping system is given in Reference 3. The piping arrangement has been taken from the drawings listed in Reference 4. Piping properties have been taken from the information given in the piping specification (Reference 3). The location of piping suspension (hangers, etc.) and their dimensional characteristics were determined from actual visual inspection and measurements at the LACBWR site. This information is summarized in Table A-1 of Appendix A.

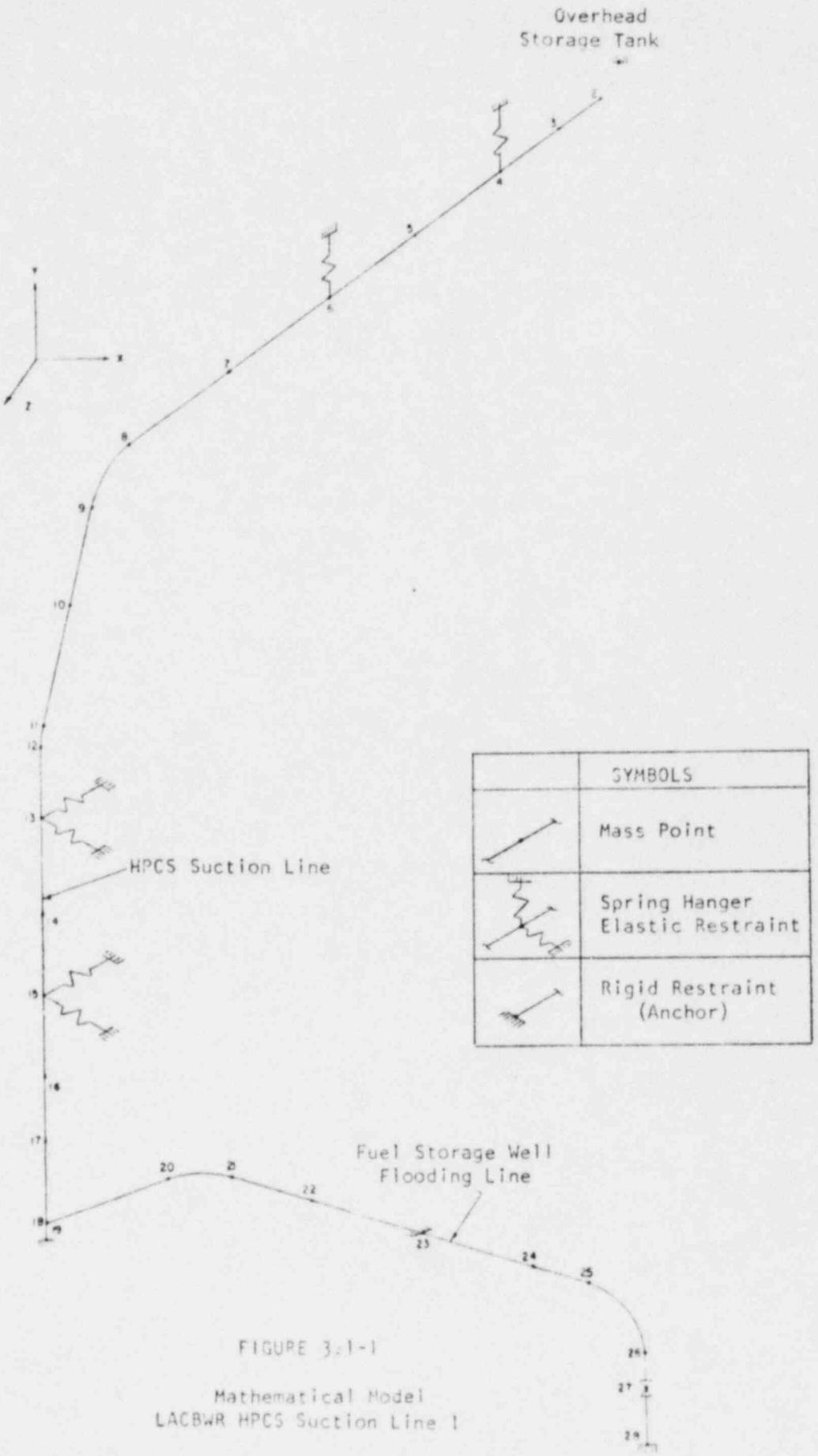
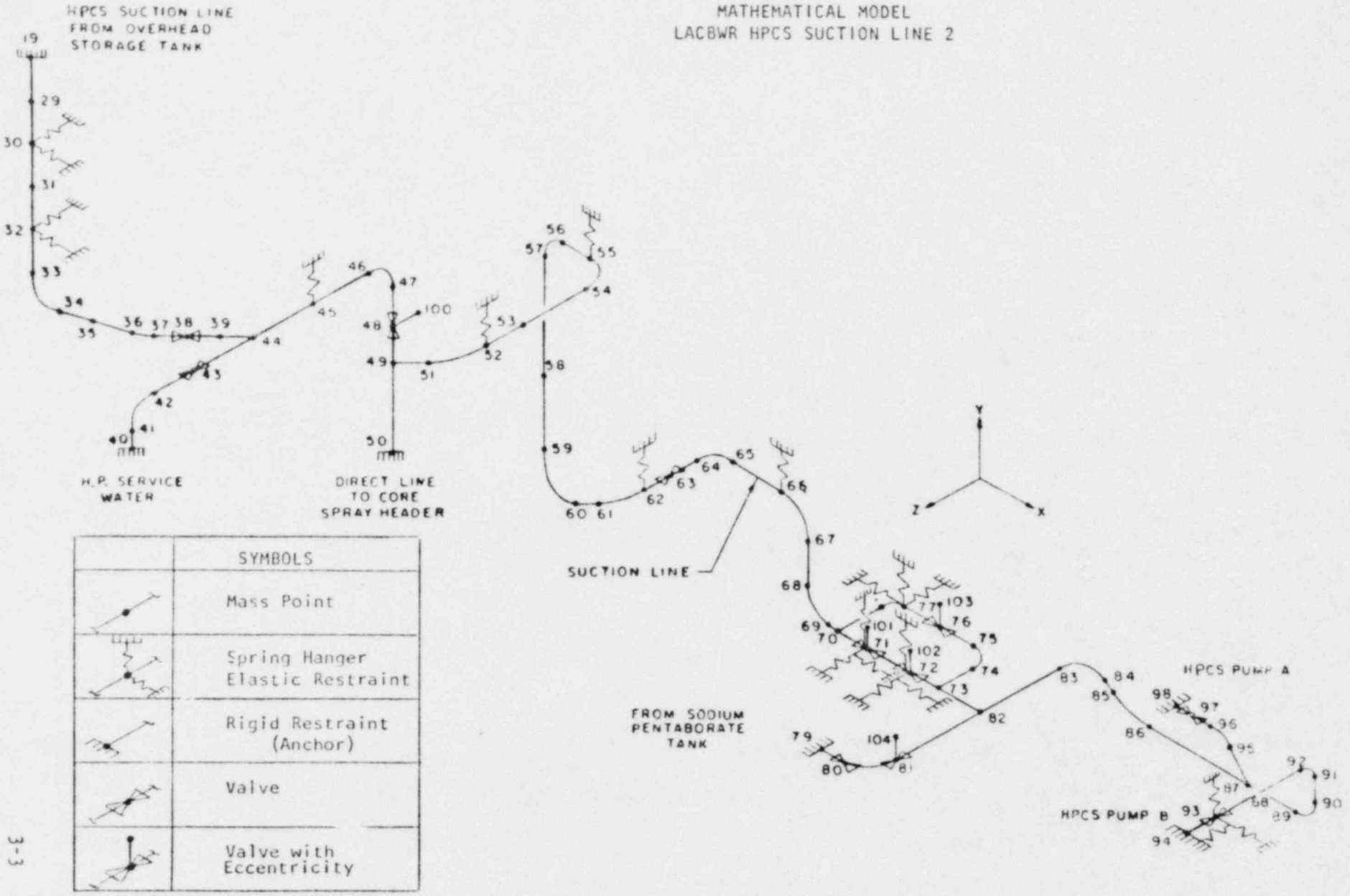


FIGURE 3.1-1

Mathematical Model
LACBWR HPCS Suction Line 1

FIGURE 3.1-2
MATHEMATICAL MODEL
LACBWR HPCS SUCTION LINE 2



4. LOADING CRITERIA

The loading conditions which must be taken into account in performing a Class 1 analysis of a piping system are specified in Subsection NB-3110 of Reference 2. These include dead weight, internal pressure, thermal effects; and earthquake loads. Design, operating, upset, emergency and faulted condition loadings must be considered in the analysis as specified in the stress acceptance criteria (Section 5 of this report). The static and dynamic load cases considered in the analysis are described below and the detail input data are summarized in Table A-III and A-IV of Appendix A.

4.1 Dead Weight Loading (Static Load Case 1)

The dead weight of the piping system is calculated assuming the system to be insulated and filled with water. The weights of valves and valve operators, with appropriate eccentricities are included in the analysis. Valve weight and dimensions are taken from vendor drawings and information supplied by DPC and are summarized in Table A-II of Appendix A.

4.2 Thermal Loading (Static Load Case 2)

The HPCS suction line is basically a cold line containing room temperature water from the overhead storage tank. Thermal expansion stresses are calculated assuming the design temperature of 120°F to be the normal operating condition. Thermal discontinuity and thermal gradient secondary bending stresses are negligible at this temperature and are, therefore, not considered in the analysis.

4.3 Internal Pressure (Static Load Cases 3 and 4)

The normal operating pressure for the HPCS system is the static head resulting from the overhead water storage tank. Constant internal operating pressures of 20 psi and 50 psi, Load Case 3, are conservatively assumed for suction lines 1 and 2 respectively. A pressure of 100 psig taken from reference 3 is used as the design condition (Load Case 4) for the complete HPCS Suction Line.

4.4 Seismic Loading

A dynamic analysis of the piping system is performed using the response spectrum modal superposition method of analysis (Section 6.4). Two seismic loading events are considered: the safe shutdown earthquake (SSE), and the operating basis earthquake (OBE). The established design criteria (Ref. 5, Regulatory Guide 1.48, May, 1973) for Class 1 analysis specifies that the OBE (or 1/2 SSE) must be considered in conjuction with the normal and upset plant condition while the SSE must be considered in conjunction with the faulted plant condition.

Seismic inertia loading is imposed on the piping system in the form of seismic acceleration spectra which were derived for the LACBWR plant (Ref. 1). The horizontal acceleration spectra used for the HPCS lines 1 and 2 are those corresponding respectively to the subsystem support points on the reactor containment shell at elevations of 745 feet (Water Storage Tank) and 700 feet (upper floor). The vertical response spectrum for the SSE loading is taken as 2/3 of the horizontal SSE ground response spectrum assuming no amplification of vertical response in the structure. For the Operating Basis Earthquake the vertical piping response spectrum is taken as 1/2 of the SSE vertical response spectrum. Damping values used are 1 percent for the OBE and 2 percent for the SSE.

The horizontal spectra in either the global X- direction (Dynamic Load Cases 7 and 9) or the global Z- direction (Dynamic Load Cases 8 and 10) are applied simultaneously with the vertical spectra in the global Y- direction. Load cases 7 and 8 represent the Operating Basis Earthquake while 9 and 10 represent the SSE earthquake. The applicable response spectra used in the analysis for dynamic load cases are shown in Table A-V of Appendix A.

Seismically induced anchor movements (Static Load Cases 5 and 6) for the OBE were estimated by calculating low frequency displacements from the containment vessel response spectra at the different anchor point elevations.

5. STRESS ACCEPTANCE CRITERIA

The requirements for acceptability of a Class 1 piping system are given in AEC Regulatory Position 1 of Reference 7 and Subsections NB 3600 of Section III of the ASME Boiler and Pressure Vessel Code, Reference 2. Calculated stresses resulting from the design and operating loading conditions given in Subsection NB-3110 and NB-3620 must meet the stress limits of equations 9 through 14 of Subsection NB-3650 of the ASME Code.

5.1 Design Conditions

The primary stress intensity, resulting from the combined effects of the design pressure (Load Case 4) and the resultant moment loading due to loads caused by dead weight (Load Case 1) and the Operating Basis Earthquake (Load Cases 7 and 8), and calculated in accordance with equation 9 of Subsection NB-352 of the Code must be less than 1.5 times the allowable design stress intensity, S_m, at maximum temperature.

5.2 Normal Conditions

The primary plus secondary stress intensity range resulting from the combined effects of thermal expansion, linear thermal gradient and discontinuity, (Load Case 2), operating pressure (Load Case 3), anchor movements (Load Cases 5 or 6) and earthquake effects (Load Cases 7 or 8), calculated in accordance with equation 10 of the Code must be less than 3 times S_m. In the event that the above requirement is not met the piping product may still be acceptable provided the requirements of a simplified Elastic-plastic discontinuity analysis are met. This requirement is met if 1) the nominal expansion stress resulting from thermal expansion and thermal anchor movements, (Load Case 2), calculated in accordance with equation 12 of the Code is less than 3 S_m and 2) if the range of primary plus secondary membrane plus bending stress intensity, resulting from the combined loading of operating pressure (Load Case 3), dead weight (Load Case 1), one-half the range of the earthquake (Load Cases 7 or 8) and thermal discontinuity stresses, calculated according to equation 13 of the code is less than 3 S_m.

The requirements for acceptability under cyclic loading conditions are met by first calculating the peak stress intensity by means of equation 11 of the Code, resulting from the loadings specified for equation 10 plus the loadings resulting from the non-linear portion of the thermal gradient through the wall thickness (considered negligible in this analysis), and then calculating the alternating stress intensity in accordance with equation 14 of the Code. The total number of operating stress cycles must then be less than those determined from the fatigue curves from Appendix I-9 of the Code for the calculated alternating stress intensity in accordance with the requirements of paragraphs NB 3653.4 and NB 3653.5 of the Code.

5.3 Upset Conditions

The requirements for acceptability under upset conditions (not specified in this analysis) are the same as for Normal Conditions.

5.4 Emergency Conditions

The requirement for acceptability under emergency conditions (not specified in this analysis) is that the primary stress intensity, as calculated by equation 9 of the Code, must be less than 2.25 S_m.

5.5 Faulted Conditions

Under faulted conditions the primary stress intensity resulting from the combined effects of design pressure (Load Case 4), dead weight (Load Case 1) and the vibratary motion of the full Safe Shutdown Earthquake (Load Cases 9 or 10) as calculated by equation 9 of the Code must be less than 3 S_m.

6. ANALYTICAL METHODS

6.1 Mathematical Model

In order to perform static, dynamic and stress analyses, the continuous piping system is mathematically modeled as an assembly of elastic structural elements interconnected at discrete nodal points (Figure 3.1). Nodal points are located at all points of interest in the piping system such as elbows, valves, anchorages, hangers, tee intersections, load points, all structural and material discontinuities, etc. This three dimensional multidegree-of-freedom model of the piping system is attached to the "ground" (structure) by means of rigid hangers, support springs, hydraulic snubbers and anchors. Stiffness characteristics of structural elements are related to the moment of inertia and the axial and effective shear area of the pipe cross section. The stiffness characteristics of the elbows and tee connections are modified to account for local deformation by using the flexibility factors given in the ASME Code (Ref. 2).

For the seismic analysis the distributed mass of the piping system is lumped at the system nodal points. Masses are lumped so that the lumped mass, multidegree-of-freedom model represents the dynamic characteristics of the piping system. In order to reduce the number of dynamic degrees-of-freedom, only translational degrees-of-freedom are considered at each mass point (the masses associated with the rotational degrees-of-freedom are set to zero). This assumption has been shown to be completely satisfactory for accurate analysis of seismic response. Special items such as valves and actuators are modeled by lumping their masses at an appropriate offset from the center-line of the piping system.

6.2 Static Load Analysis

The static load analysis involves the application of the following loading conditions and their combinations:

- Design Pressure
- Gravity Loading (dead weight) and Sustained Mechanical Loads
- Support Displacement
- Thermal Expansion

For the pressure loadings, the hoop and longitudinal stresses in the affected piping are calculated using the formulae given in the Code (see Section 6.5).

For the deadweight, support displacement, or thermal expansion loading conditions the following equations of equilibrium written in matrix form are solved:

$$KU = P \qquad (1)$$

where:

K = System stiffness matrix

U = Nodal point displacement vector

P = External forces, deadweight or equivalent thermal load vector.

The system stiffness matrix is obtained from element stiffness matrices using direct stiffness methods. The unknown nodal displacements U are obtained as follows:

$$U = K^{-1}P \qquad (2)$$

The inversion of the stiffness matrix is performed using the Gauss-Seidel technique.

From the nodal displacements U, the member internal forces are determined using the member stiffness matrix. Finally the member internal forces are used in calculating the stresses.

6.3 Eigenvalue Analysis

The eigenvalues (natural frequencies) and the eigenvectors (mode shapes) for each of the natural modes of vibration are calculated by solving the following frequency equation:

$$(K - \omega_n^2 M) \{\phi_n\} = \{0\} \qquad (3)$$

where:

ω_n = Natural angular frequency for the n^{th} mode

M = System mass matrix

ϕ_n = Mode shape vector for the n^{th} mode

0 = Null vector

The eigenvalue/eigenvector extraction is performed using the Householder-QR technique.

6.4 Dynamic (Seismic) Load Analysis

Considering only translational degrees of freedom and assuming viscous (velocity proportional) form of damping, the equation of motion in matrix form can be expressed as follows:

$$M(\ddot{U}_t + \ddot{U}_{gt}) + C\dot{U}_t + KU_t = 0 \qquad (4)$$

where:

$\ddot{U}_t$ = Relative acceleration time history vector

$\ddot{U}_{gt}$ = Ground acceleration time history vector

C = Damping matrix

$\dot{U}_t$ = Velocity time history vector

U_t = Relative displacement time history vector

Rearranging equation (4)

$$M\ddot{U}_t + C\dot{U}_t + KU_t = -M\ddot{U}_{gt} = P_{eff} \qquad (5)$$

To uncouple equation (5), assume

$$U = \phi Y_t$$

where:

ϕ = Characteristic free vibration mode shapes matrix

Y_t = Generalized coordinate displacement time history vector

Pre-and post-multiplying equation (5) by the transpose of ϕ and by ϕ respectively and using orthogonality conditions, the following uncoupled equations of motion are obtained:

$$\ddot{Y}_{nt} + 2\omega_n \lambda_n \dot{Y}_{nt} + \omega_n^2 Y_{nt} = M_n^{*-1} R_n \ddot{U}_{gt} \qquad (6)$$

where:

Y_{nt} = Generalized displacement coordinate time history for n^{th} mode.

λ_n = Damping ratio for the n^{th} mode expressed as percent of critical damping

M_n^* = Generalized mass for the n^{th} mode

$= \phi_n^T M \phi_n = M_i \phi_{in}^2$

The mode shape ϕ_n is normalized such that $M_n^* = 1$

R_n = Participation factor for the n^{th} mode

$= \phi_n^T MI = \sum M_i \phi_{in}$

I = Column vector whose elements are generally unity

The solution for the differential equation (6) is given by the Duhamel Integral

$$Y_{nt} = \frac{R_n}{M_n^* \omega_n} \int_o^t \ddot{U}_{gt}\, e^{-\lambda_n \omega_n (t-\tau)} \sin \omega_n (t-\tau)\, d\tau$$

Using the response spectrum method of analysis, the maximum values of the generalized response for each mode is given by:

$$\ddot{Y}_{n\ max} = \frac{R_n\ S_{an}}{M_n^*}$$

where:

$\ddot{Y}_{n\ max}$ = Maximum generalized coordinate acceleration response for the n^{th} mode.

S_{an} = Spectral acceleration value for the n^{th} mode (from the applicable response spectrum curve)

From the maximum generalized coordinate response, the maximum acceleration ($U_{n\ max}$) and maximum inertia forces ($F_{n\ max}$) at each mass point are given by:

$$\ddot{U}_{n\ max} = \ddot{Y}_{n\ max}\ \phi_{In}$$

$$F_{n\ max} = M_n\ \ddot{U}_{n\ max}$$

The inertia forces ($F_{n\ max}$) for each of the system natural modes are applied as external static forces, and the piping system response (displacements, member internal forces and stresses) are calculated using the procedure described in Section 4.2. Total system response is then obtained by combining the individual modal response values by the square-root of the sum of the squares method; lower modes having large contribution to the response (all modes having natural frequency under 30 cycles per second) are considered and higher modes with negligible participation are neglected.

6.5 Stress Analysis

The design requirements of Section III of the ASME Boiler and Pressure Vessel Code, Reference 2 (henceforth referred to as the "Code") for Class 1 piping systems are satisfied when the calculated stresses in the piping system due to thermal expansion, weight, and other systained and occasional loads are combined in accordance with, and meet the limitations of Subsection NB-3600 of the Code. These requirements are described below.

6.6 Pressure Design Check

The minimum pipe wall thickness requirements for the design pressure are met by satisfying equation (1).

$$t_m = \frac{PD_o}{2(S_m + YP)} \qquad (1)$$

where

t_m = the minimum required wall thickness, in.

P = internal design pressure, psi.

D_o = outside diameter of pipe, in.

S_m = maximum allowable stress in the material at the design temperature from Tables I-1.0 of the Code, psi.

Y = 0.4

6.6.2 Consideration of Design Conditions

The primary stress intensity limit is satisfied by meeting the requirements of equation (9)

$$B_1 \frac{PD_o}{2t} + B_2 \frac{D_o}{2I} M_i \leq 1.5S_m \qquad (9)$$

where:

B_1, B_2 = primary stress indices for the specific product under investigation (From Subsection NB-3680 of the Code)

P = design pressure, psi

D_o = outside diameter of pipe, in.

t = nominal wall thickness of component

I = moment of inertia, $in.^4$

M_i = resultant moment loading due to loads caused by (1) weight, (2) earthquake, considering only one-half the range of the earthquake and excluding the effects of anchor displacement due to earthquake, and (3) other sustained design mechanical loads.

S_m = allowable design stress intensity value, psi

6.6.3 Consideration of Normal Conditions

Protection against fatigue failure is provided for by means of one of the two analyses dependent on whether the structure is subjected to elastic cycling or plastic cycling. The criterion for establishing whether the structure cycles

in the elastic range or the plastic range is set forth in equation (10) (Paragraph 6.6.3.1 below) of the ASME Code. Compliance with equation (10) assures that, after a few cycles of load application, the maximum stress will remain within the range of tensile and compressive yield strengths, i.e. within the elastic range. If this criterion is met, the fatigue evaluation (Section 6.6.3.4) is based on purely elastic behaviour. If the criterion is not met, an elastic-plastic discontinuity analysis must be made. (Section 6.6.3.3 below).

6.6.3.1 Determination of Primary Plus Secondary Stress Intensity Range Limitations

This calculation is based upon the effect of changes which occur in mechanical or thermal loadings which take place as the system goes from one load set, such as pressure, temperature, moment, and force loading, to any other load set which follows it in time. It is the range of pressure, temperature, moment, between two load sets which is to be used in the calculations.

The primary plus secondary stress intensity range limitations are satisfied by meeting the requirements of equation (10).

$$S_n = C_1 \frac{P_o D_o}{2t} + C_2 \frac{D_o}{2I} M_i + \frac{1}{2(1-\nu)} E\alpha|\Delta T_1| + C_3 E_{ab}|\alpha_a T_a - \alpha_b T_b| \leq 3S_m$$

where:

C_1, C_2, C_3 = secondary stress indices for the specific component under investigation (NB-3680)

D_o, t, I, S_m = are as defined for Equation (9)

M_i = range of moment loading due to (1) thermal expansion (2) anchor movements from any cause, (3) earthquake effects, and (4) other mechanical loads.

$|\Delta T_1|$ = range of absolute value (without regard to sign) of the temperature difference between the temperature of the outside surface (T_o) and the temperature of the inside surface (T_i) of the piping product assuming moment generating equivalent linear temperature distribution.

$T_a(T_b)$ = range of average temperature on side a(b) of gross structural discontinuity or material discontinuity.

$\alpha_a(\alpha_b)$ = coefficient of thermal expansion on side a(b) of a gross structural discontinuity or material discontinuity at room temperature.

E_{ab} = average modulus of elasticity of the two sides of a gross structural discontinuity or material discontinuity at room temperature, psi.

$E\alpha$ = modulus of elasticity (E) times the mean coefficient of thermal expansion (α) both at room temperature, psi.

ν = poisson's ratio = 0.3

P_o = ınge of operating pressure, psi

6.6.3.2 Determination of Peak Stress Intensity

The peak stress intensity is calculated by means of equation (11) of the Code for every pair of load sets. This is the maximum stress intensity at a point including any local structural discontinuity (or notch) effects and any local thermal stresses.

$$S_p = K_1 C_1 \frac{P_o D_o}{2t} + K_2 C_2 \frac{D_o}{2I} M_i + \frac{1}{2(1-\nu)} K_3 E\alpha |\Delta T_1| + K_3 C_3 E_{ab} |\alpha_a T_a - \alpha_b T_b| + \frac{1}{1-\nu} E\alpha |\Delta T_2|$$

where:

K_b, K_2, K_3 = local stress indices for the specific component under investigation (NB-3680)

$E\alpha$ = same as in Equation (10)

ΔT_2 = range of absolute value (without regard to sign) for that portion of the nonlinear thermal gradient through the wall thickness not included in ΔT_2 of Equation 10 °F below.

For a quantitative definition of $|\Delta T.1$ and $|\Delta T_2|$, see NB-3653.2(b) of the Code. All other terms are as defined in Equation (10).

The peak stress, S_p, is used to calculate the alternating stress intensity, Salt, for the fatique evaluation (see Section 6.6.3.4)

6.6.3.3 Simplified Elastic-Plastic Discontinuity Analysis

If the primary plus secondary stress intensity requirements of equation (10) are not met, the fatique evaluation must include the effects of plastic cycling by means of the simplified elastic-plastic discontinuity analysis as described below. Only those pairs of load sets not satisfying equation (10) need be considered. Equation (12) imposes a limitation of 3 S_m on the magnitude of the thermal expansion stress to prevent possible collapse due to the development of a hinge moment.

$$S_e = C_2 \frac{D_o}{2I} M_i^* \leq 3S_m \qquad (12)$$

where:

S_e = nominal value of expansion stress

M_i^* = same as M_i in Equation (10) except it includes only moments due to thermal expansion and thermal anchor movements

The range of primary plus secondary membrane plus bending stress intensity, excluding thermal bending and thermal expansion stresses shall be $\leq 3S_m$. This requirement is satisfied by meeting Equation (13) below.

$$C_1 \frac{P_o D_o}{2t} + C_2 \frac{D_o M_i}{2I} + C' 3E_{ab}|\alpha_b T_a - \alpha_b T_b| \leq 3S_m \qquad (13)$$

6.6.3.4 Fatigue Evaluation

If the conditions of equation (10) are met, or alternatively the conditions of equations (12) and (13) are met, the value of the alternating stress intensity, Salt, is calculated by equation (14) of the Code.

$$S_{alt} = K_e \frac{S_p}{2} \qquad (14)$$

where:

S_{alt} = alternating stress intensity

S_p = peak stress intensity value calculated by Equation (11)

K_e = 1.0 for $S_n \leq 3S_m$ (i.e. when equation 10 is satisfied)

= $1.0 + \frac{(1-n)}{n(m-1)} \left[\frac{S_n}{3S_m} - 1\right]$ for $3 S_m < S_n$

$< 3_m S_m$

= $\frac{1}{n}$ for $S_n \geq 3_m S_m$

S_n = primary plus secondary stress intensity value calculated in Equation (10)

m and n = material parameters given in NB-3228.3 (b) of the Code

The number of allowable cycles, N, for a given stress cycle is then determined from applicable design fatigue curves given in Appendix I-9.0 of the Code for the calculated values of Salt. If more than one operational cycle is being considered which produces significant fluctuating stresses, a cummulative usage factor must be determined in accordance with Subsection NB-3222.4 of the Code.

The cumulative usage factor, U, is defined as:

$$U = \sum U_i = \sum \frac{n_i}{N_i}$$

where:

U_i = usage factor for each type of stress cycle, i

n_i = specified number of times a given stress cycle, i, will be repeated during the life of the component

N_i = allowable number of repetitions for a given stress cycle, i, from table I-90 of the Code.

The cumulative usage factor, U, must not exceed 1.0.

6.6.3.5 Stress Range Calculations

The stress range evaluation is carried out by means of one or both of two analyses. The first analyses is a maximum stress range calculation in which the maximum range of stresses from each load set pair is used to form a "worst load case" which is assumed to occur over the total number of system cycles. If this conservative check results in an allowable number of cycles not exceeding the total number of system cycles, then no further analysis is required for the component. If the maximum stress range check fails, an individual stress range calculation can be made to establish component acceptability. In this evaluation the stress ranges for individual load sets are calculated, pair by pair, in such a manner as to maximize stress ranges and the cumulative usage factor, which must be less than 1.0.

6.6.4 Consideration of Upset Conditions

The procedure and stress limits for evaluating upset conditions are the same as for operating conditions.

6.6 5 Consideration of Emergency Conditions

The primary stress intensity requirements of equation (9) above (Section 5.2) must be met using a stress limit of 2.25 S_m.

6.6.6 Consideration of Faulted Conditions

The primary stress intensity requirements of equation (9) above (Section 6.6.2) for the combined loading effects of system design pressure, deadweight and the vibratary motion of the Safe Shutdown Earthquake must be met using a stress limit of $3S_m$.

7. DISCUSSION OF RESULTS

The results of the HPCS suction line piping analysis are based on the assumption that restraints are located at node points 19, 28, 40, 50 and 79 of Figure 3.1. These additional restraints, located at positions of expected large seismic deflections, can be made rigid anchors due to low thermal expansion effects.

The natural frequencies, of the lower modes of vibration of the piping systems up to 35 cycles per second, are given in Table 7-1 and indicate generally flexible (low frequency) systems.

The deflections at each node point due to the various load cases are summarized in Table B-1, pages B-1 through B-13 of Appendix B. The maximum deflection due to the SSE seismic inertia loading (Load Case 9) is 1.20 inches at node point 8 in HPCS line. For a flexible piping system this deflection should be acceptable. The maximum deflection due to thermal expansion (Load Case 2) is 0.18 inch at node 65. Table B-II, pages B-14 through B-22 of Appendix B, summarize the elastic support reacttion forces.

The results of the detailed stress analyses in accordance with the requirements of Subsection NB-3650 of the ASME Code for Class 1 piping systems are given in Table BIII, pages B-23 through B-59 of Appendix B. Class 1 stresses are summarized in Figures 7.1 through 7.16 indicating node points with stresses exceeding 5 ksi for specified Class 1 loading conditions. The maximum allowable number of stress cycles based on the maximum peak stress determined from Figure I-9.2 of Section III of the ASME Code, is in excess of 10^6 cycles. Consequently, in accordance with paragraph NB-3653.5 of the ASME Code, the maximum usage factor for stress cycling between the X and Z direction earthquakes, occuring at node point 18 of Line 1, may be taken as 0.0. From these results it can be concluded that maximum and cyclic Code stress requirements are met for the specified loading conditions.

TABLE 7.1

NATURAL FREQUENCIES OF VIBRATION

HPCS Suction Line 1

Mode No.	Frequency (CPS)
1	3.62
2	10.27
3	20.20
4	20.33
5	32.83
6	33.11

HPCS Suction Line 2

Mode	Frequency (CPS)	Mode	Frequency (CPS)
1	3.13	15	20.36
2	3.44	16	20.84
3	6.15	17	21.01
4	6.53	18	21.49
5	7.10	19	22.19
6	8.02	20	22.64
7	8.82	21	24.92
8	10.68	22	27.49
9	12.05	23	28.13
10	12.23	24	28.16
11	14.59	25	28.79
12	15.93	26	30.40
13	19.18	27	33.60
14	19.75	28	34.24

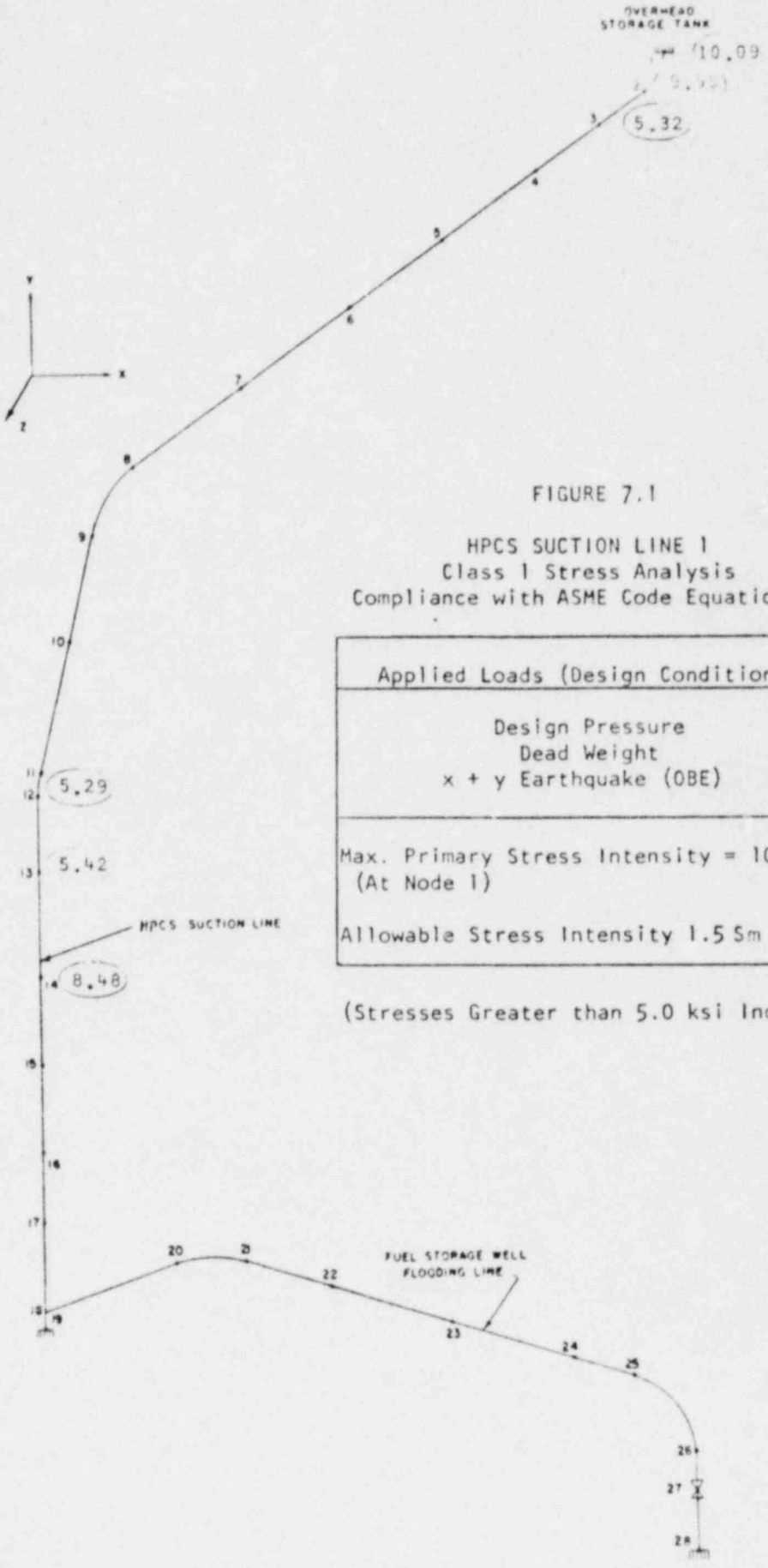


FIGURE 7.1

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Design Conditions)
Design Pressure Dead Weight x + y Earthquake (OBE)
Max. Primary Stress Intensity = 10.99 Ksi (At Node 1) Allowable Stress Intensity 1.5 Sm = 3.0 Ksi

(Stresses Greater than 5.0 ksi Indicated)

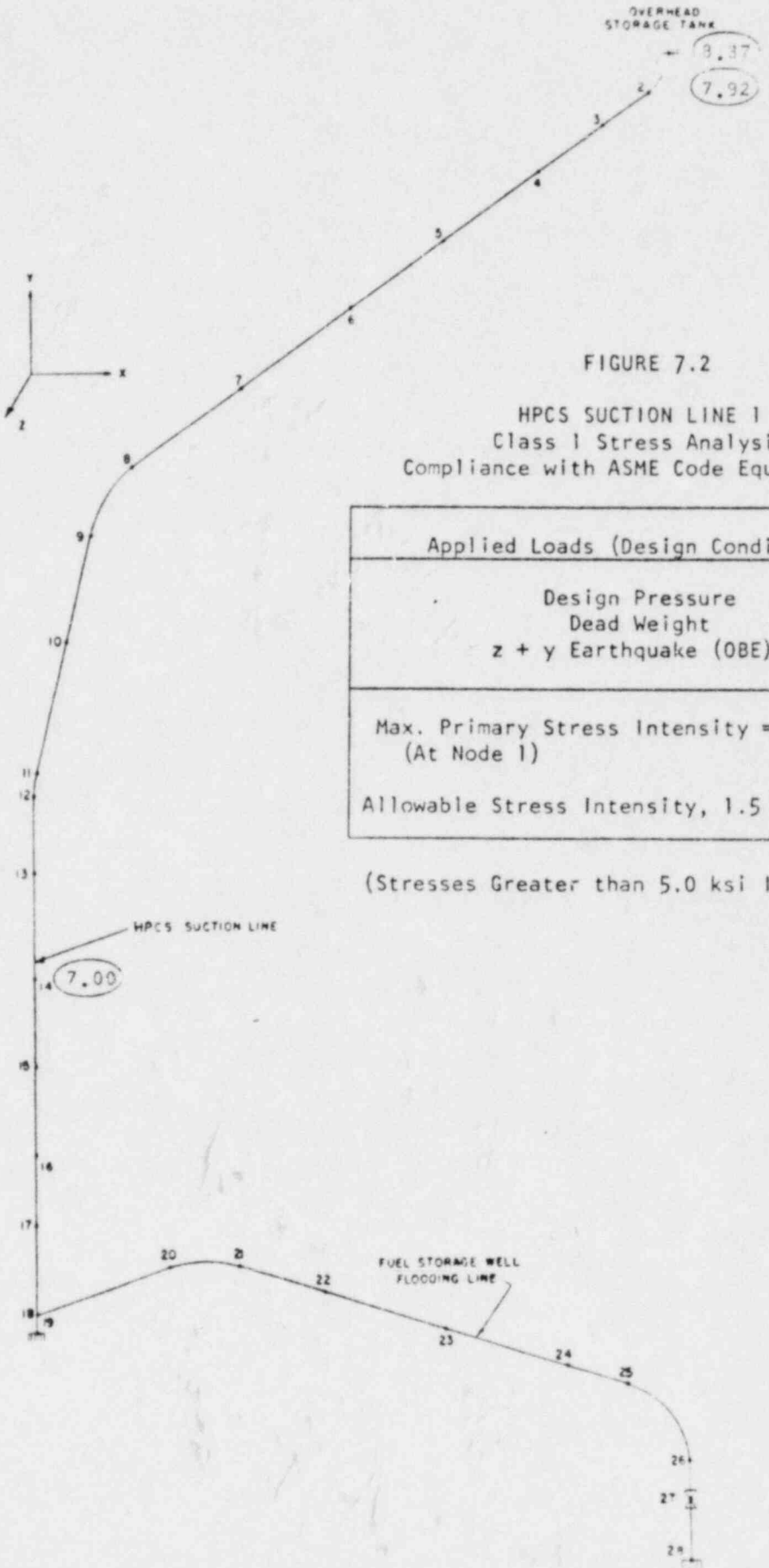


FIGURE 7.2

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Design Conditions)
Design Pressure Dead Weight z + y Earthquake (OBE)
Max. Primary Stress Intensity = 8.37 ksi (At Node 1) Allowable Stress Intensity, 1.5 Sm = 30.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

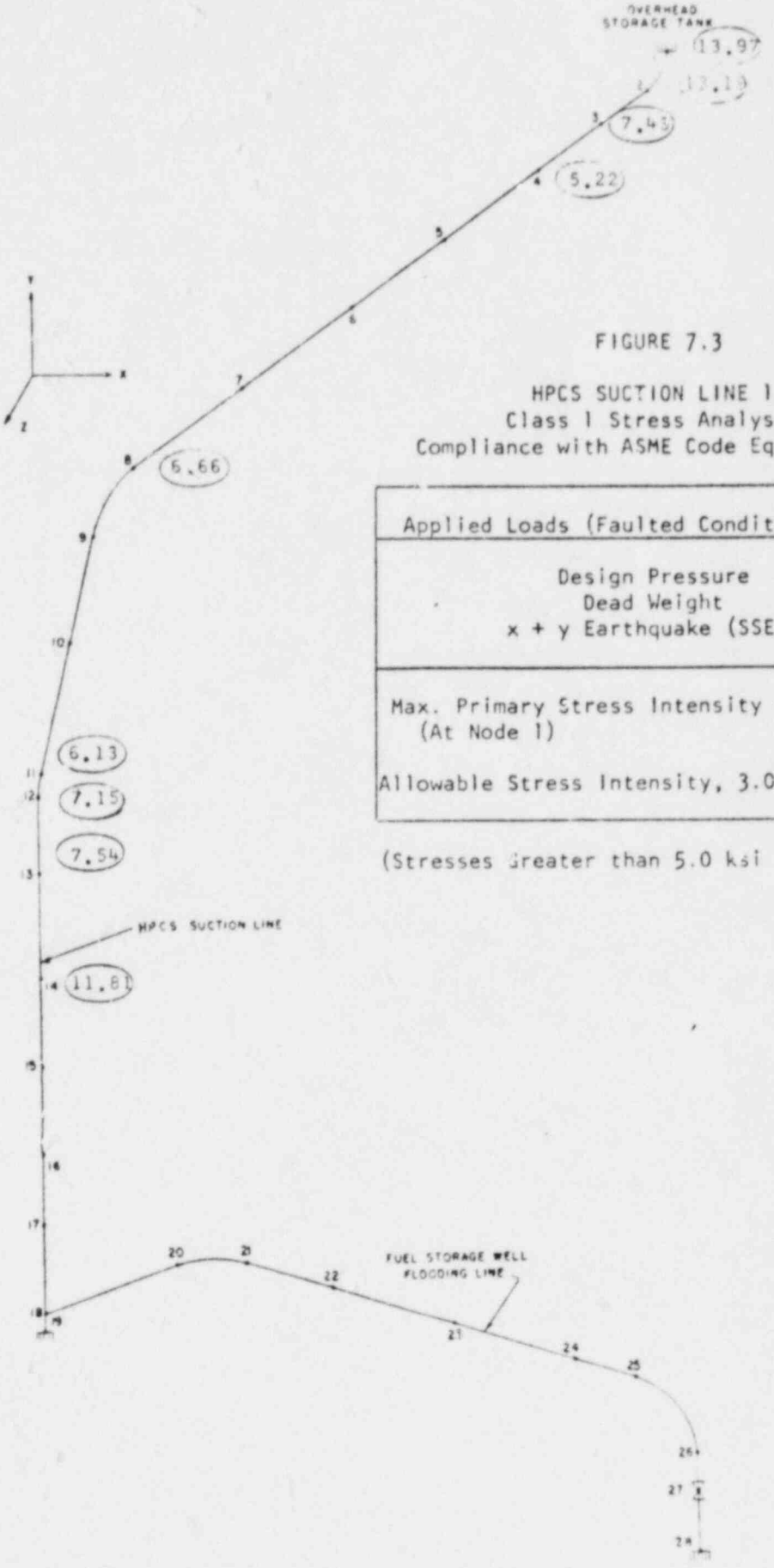


FIGURE 7.3

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Faulted Conditions)
Design Pressure Dead Weight x + y Earthquake (SSE)
Max. Primary Stress Intensity = 13.97 ksi (At Node 1) Allowable Stress Intensity, 3.0 Sm = 60.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

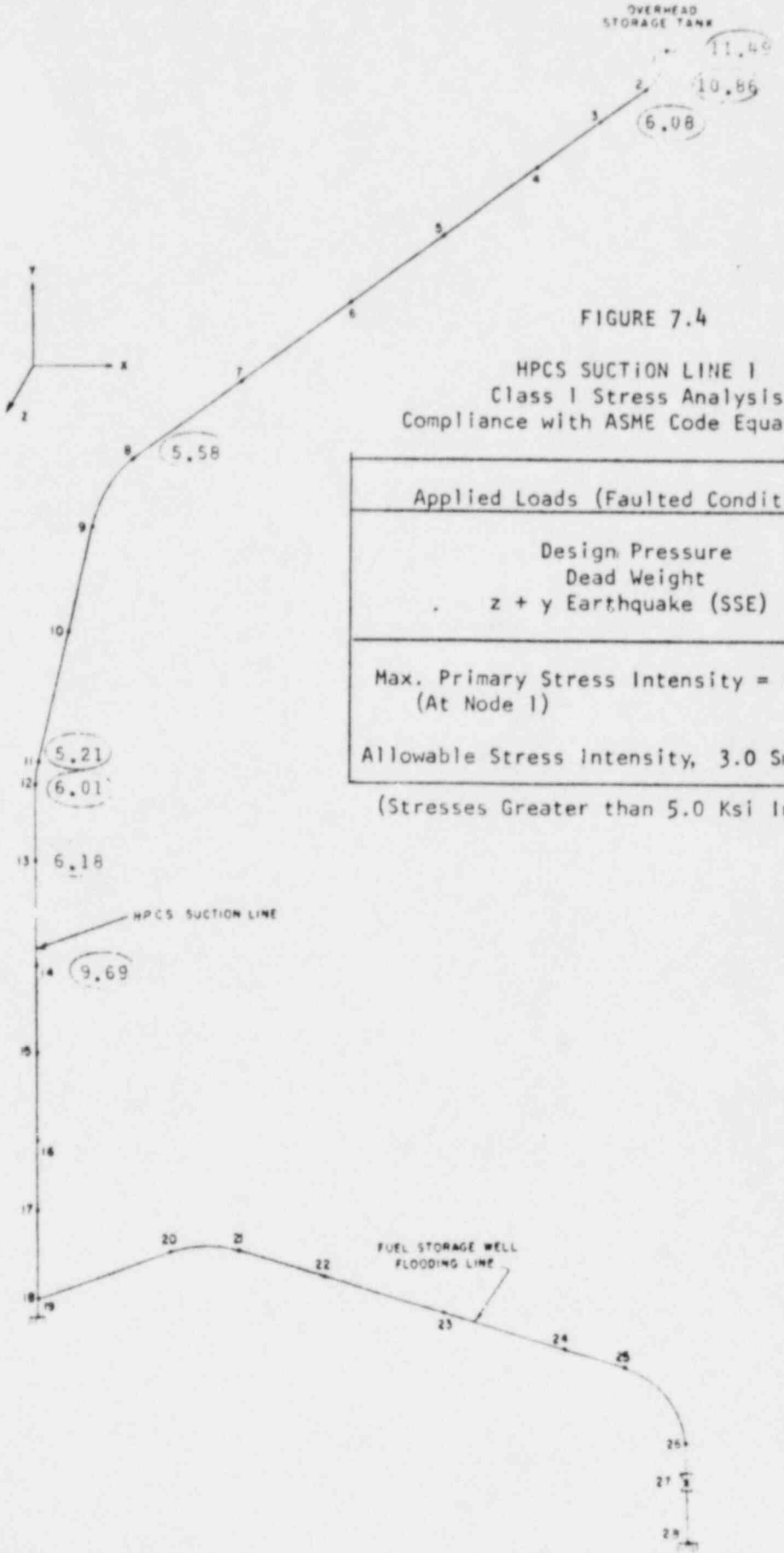


FIGURE 7.4

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Faulted Conditions)
Design Pressure Dead Weight z + y Earthquake (SSE)
Max. Primary Stress Intensity = 11.49 ksi (At Node 1) Allowable Stress Intensity, 3.0 Sm = 60.0 ksi

(Stresses Greater than 5.0 Ksi Indicated)

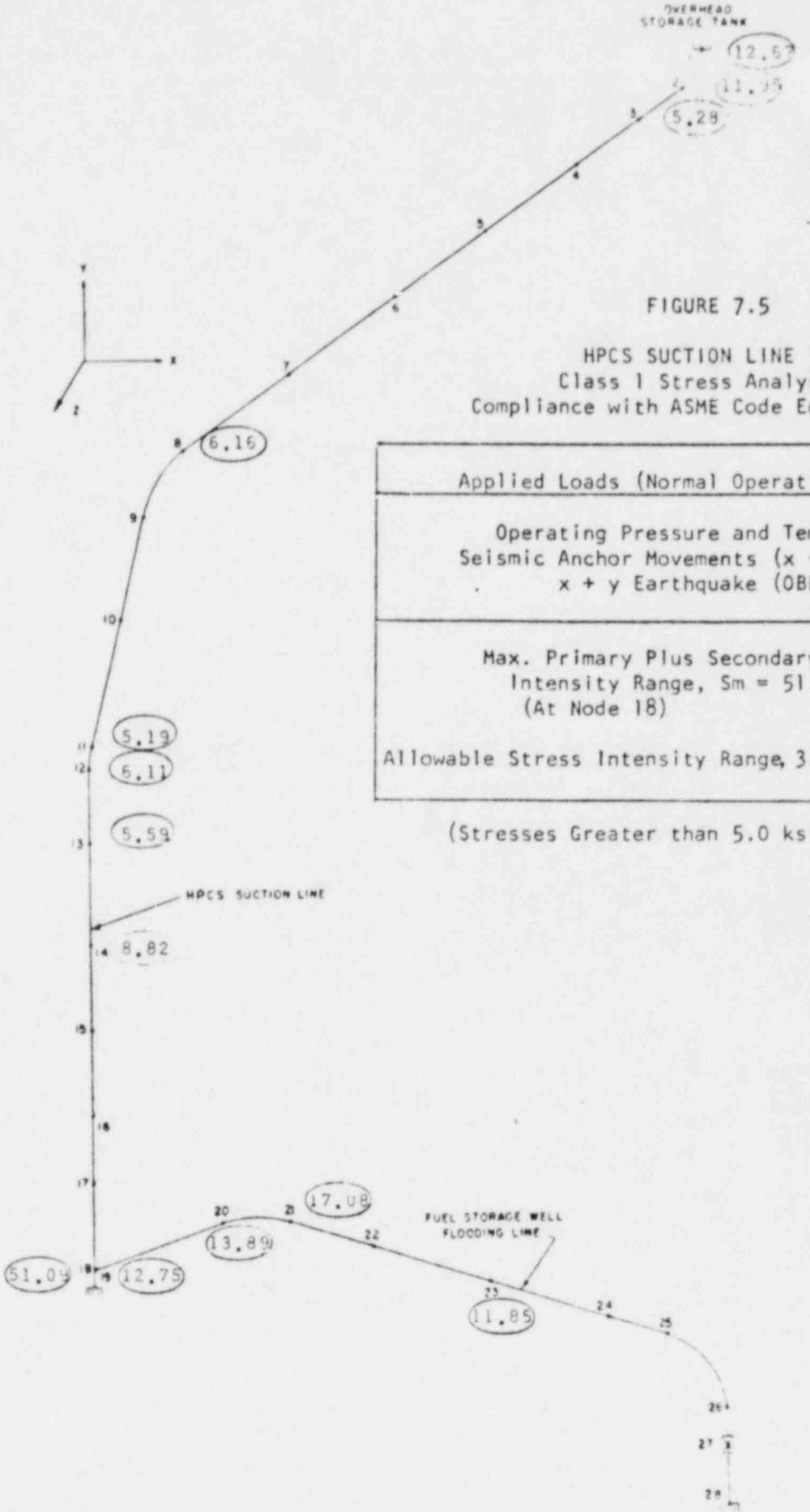


FIGURE 7.5

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Compliance with ASME Code Equation 10

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (x - direction) x + y Earthquake (OBE)
Max. Primary Plus Secondary Stress Intensity Range, Sm = 51.09 ksi (At Node 18) Allowable Stress Intensity Range, 3.0 Sm = 60.0 ks

(Stresses Greater than 5.0 ksi Indicated)

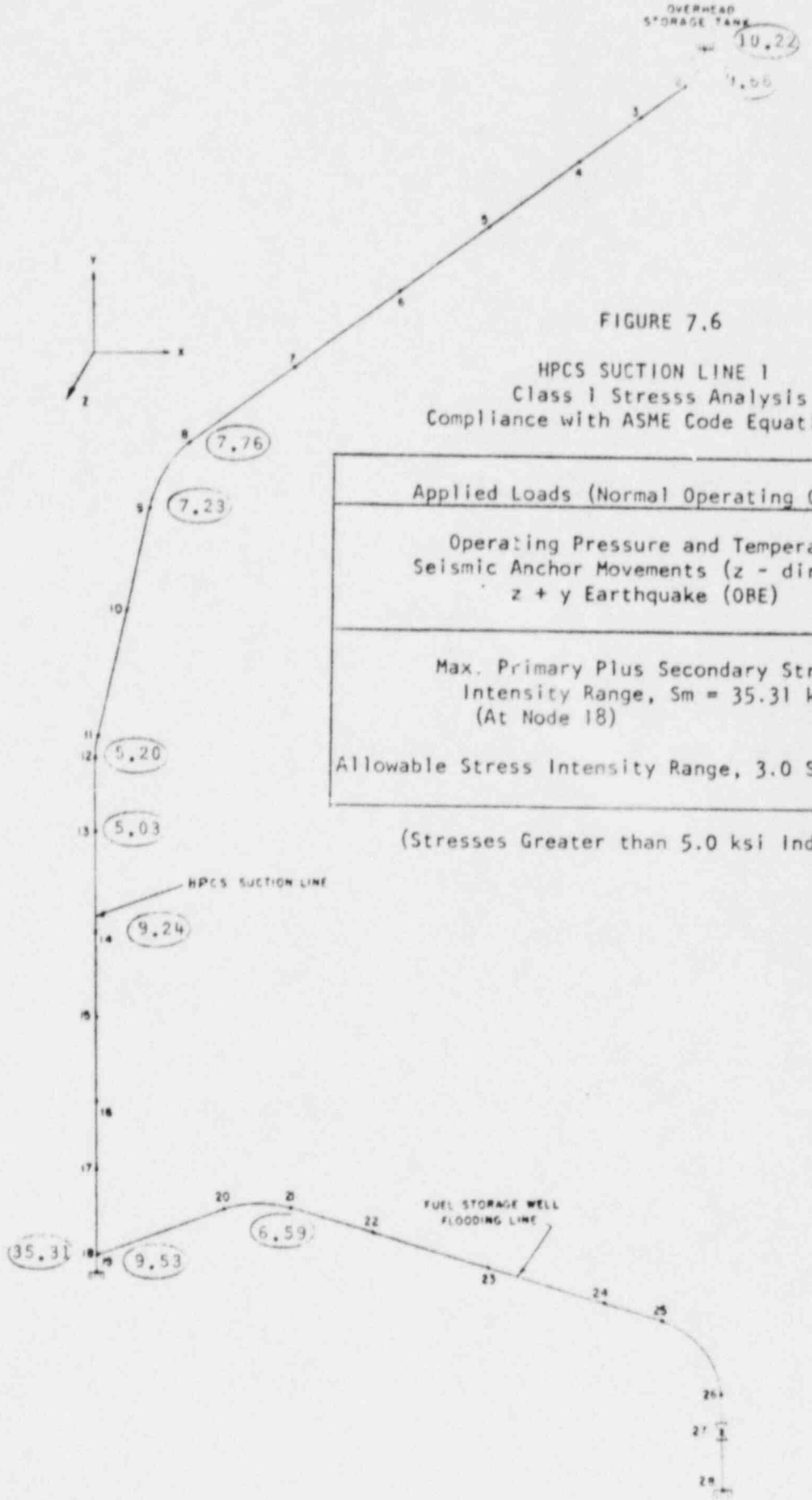


FIGURE 7.6

HPCS SUCTION LINE 1
Class 1 Stresss Analysis
Compliance with ASME Code Equation 10

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (z - direction) z + y Earthquake (OBE)
Max. Primary Plus Secondary Stress Intensity Range, Sm = 35.31 ksi (At Node 18) Allowable Stress Intensity Range, 3.0 Sm = 60.0 Ksi

(Stresses Greater than 5.0 ksi Indicated)

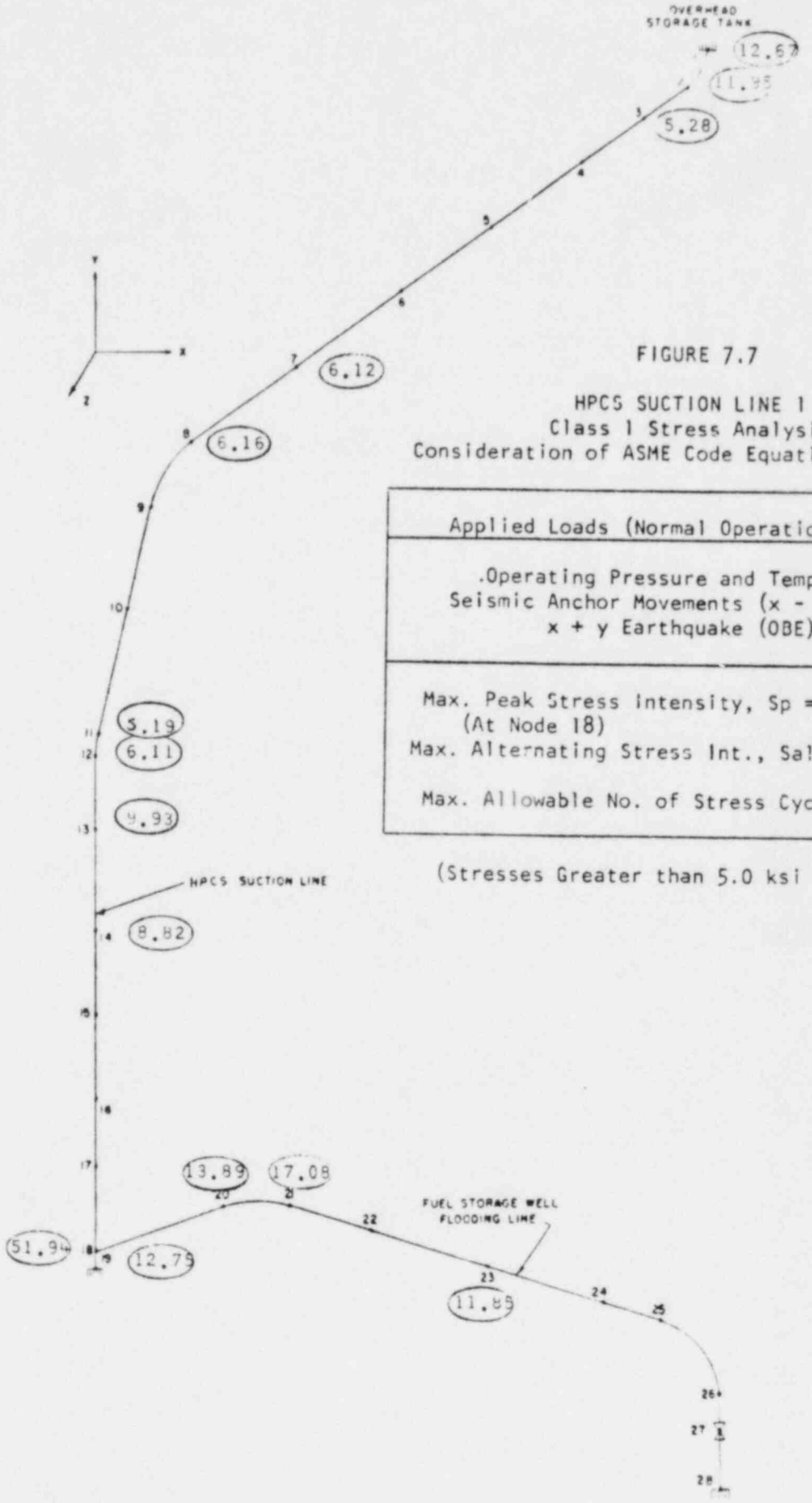


FIGURE 7.7

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Consideration of ASME Code Equations 11 & 14

Applied Loads (Normal Operation Cond.)
.Operating Pressure and Temperature Seismic Anchor Movements (x - direction) x + y Earthquake (OBE)
Max. Peak Stress Intensity, Sp = 51.94 ksi (At Node 18) Max. Alternating Stress Int., Salt = 25.97 ksi Max. Allowable No. of Stress Cycles, $N > 10^6$

(Stresses Greater than 5.0 ksi Indicated)

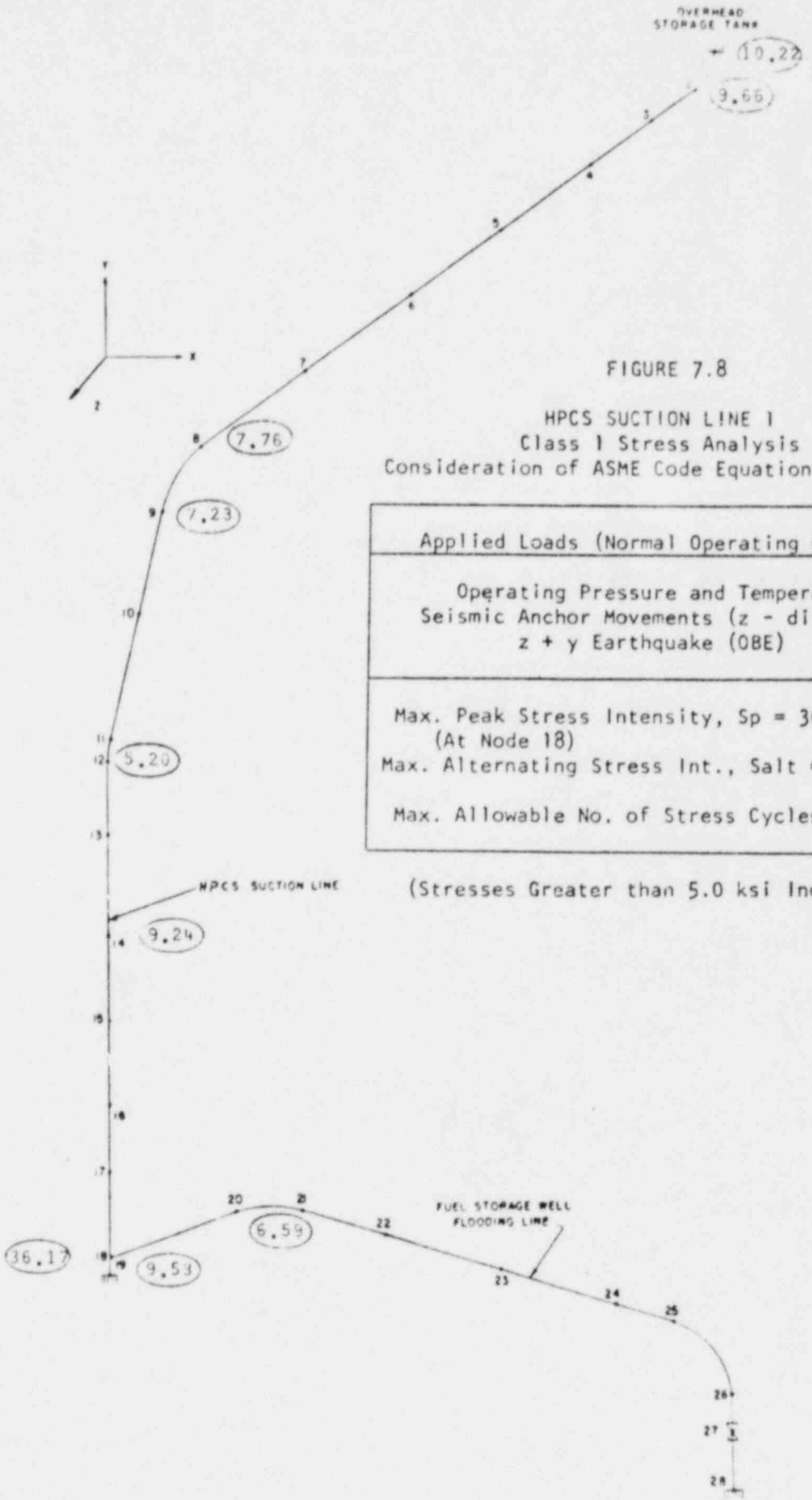


FIGURE 7.8

HPCS SUCTION LINE 1
Class 1 Stress Analysis
Consideration of ASME Code Equations 11 & 14

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (z - direction) z + y Earthquake (OBE)
Max. Peak Stress Intensity, Sp = 36.17 ksi (At Node 18) Max. Alternating Stress Int., Salt = 18.09 ksi Max. Allowable No. of Stress Cycles, N >10^6

(Stresses Greater than 5.0 ksi Indicated)

FIGURE 7.2

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Design Conditions)
Design Pressure Dead Weight x + y Earthquake (OBE)
Max. Primary Stress Intensity = 8.89 ksi (At Node 68) Allowable Stress Intensity, 1.5 Sm = 30.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

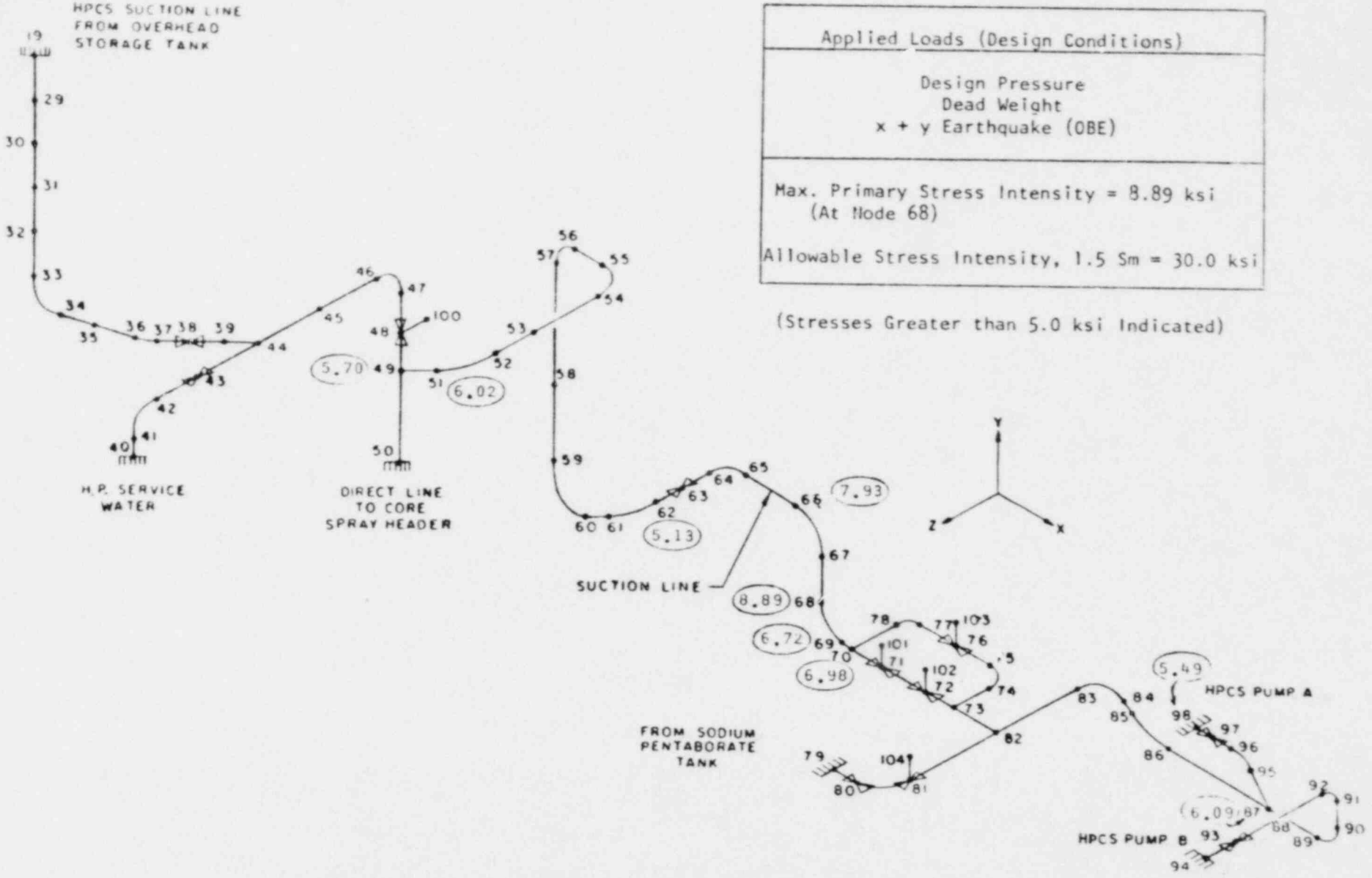


FIGURE 7.1-7

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Design Conditions)
Design Pressure Dead Weight z + y Earthquake (OBE)
Max. Primary Stress Intensity = 8.94 ksi (At Node 69) Allowable Stress Intensity, 1.5 Sm = 30.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

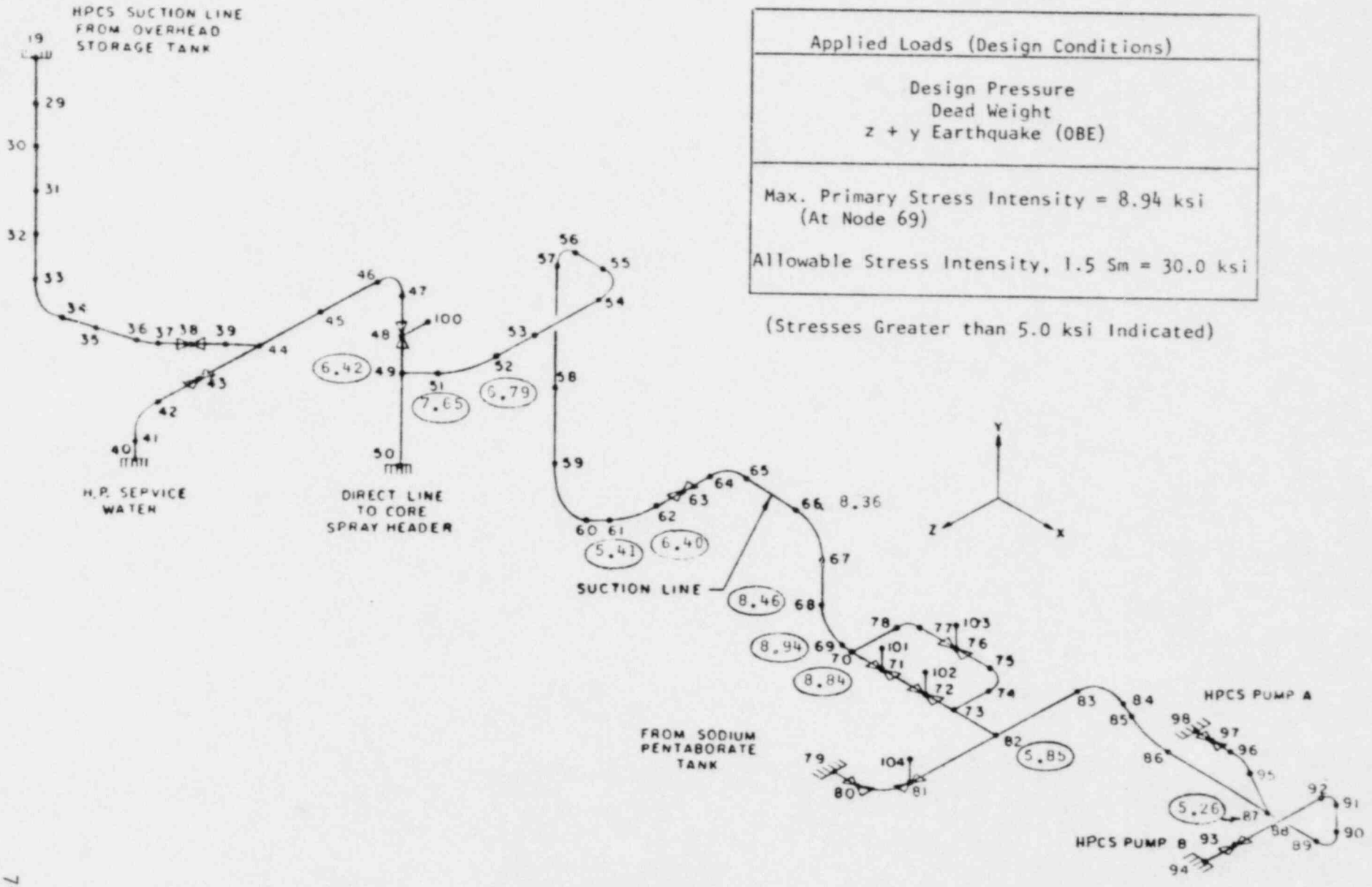


FIGURE 7.11

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Faulted Conditions)
Design Pressure Dead Weight x + y Earthquake (SSE)
Max. Primary Stress Intensity = 12.18 ksi (At Node 68) Allowable Stress Intensity, 3.0 Sm = 60.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

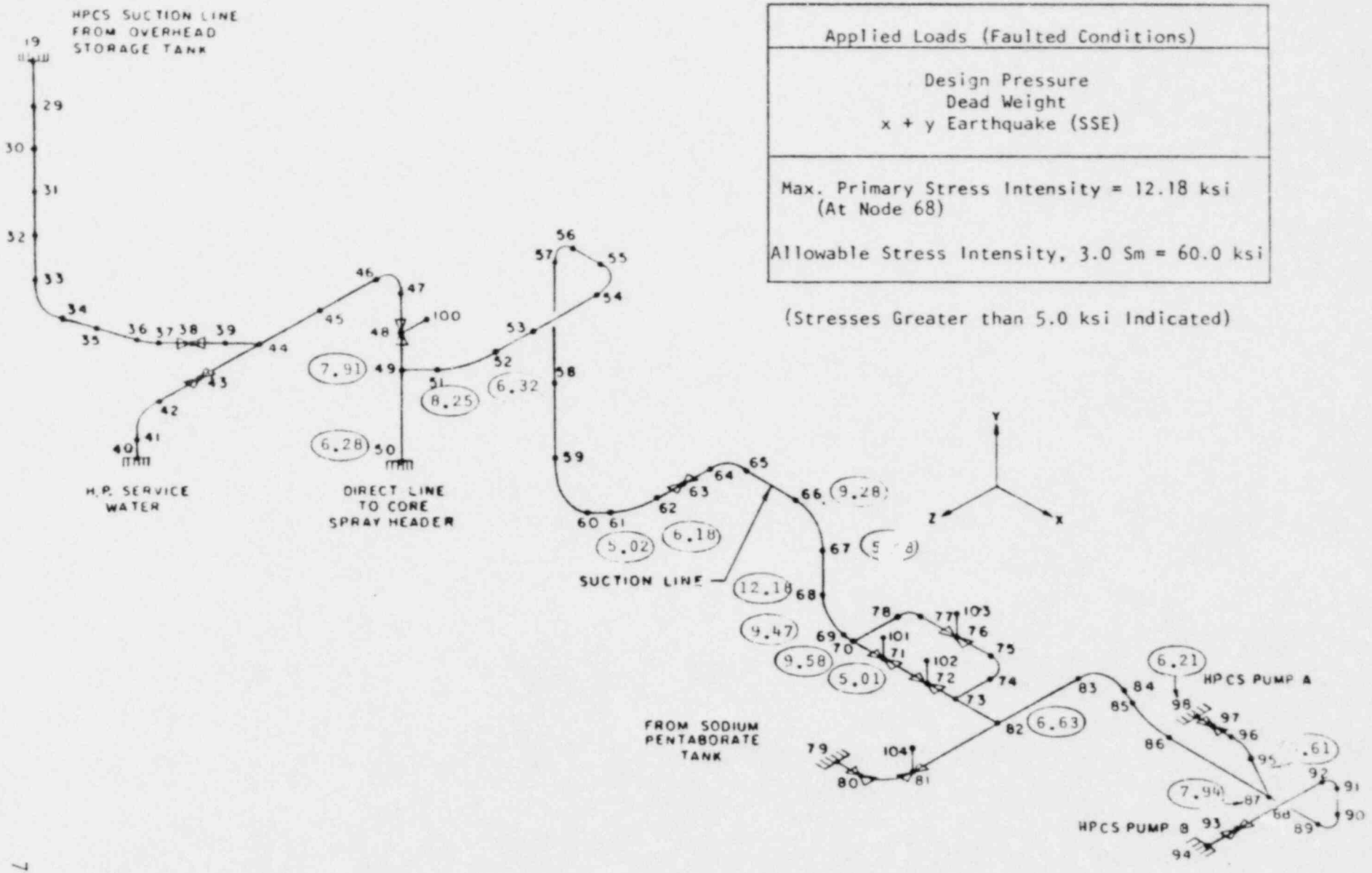


FIGURE 7.1

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Compliance with ASME Code Equation 9

Applied Loads (Faulted Conditions)
Design Pressure Dead Weight z + y Earthquake (SSE)
Max. Primary Stress Intensity = 14.14 ksi (At Node 69) Allowable Stress Intensity, 3.0 Sm = 60.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

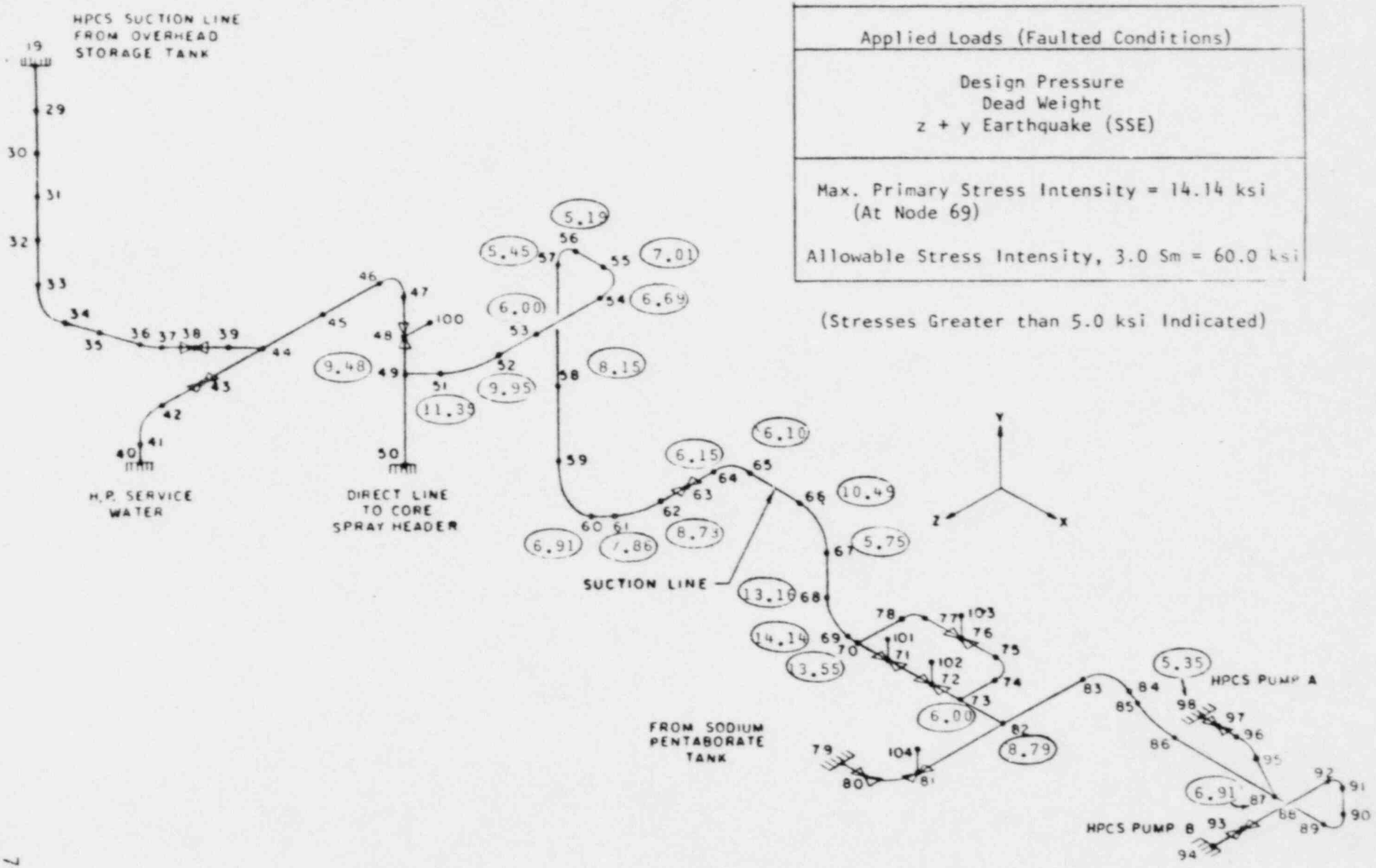


FIGURE 7.1?

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Compliance with ASME Code Equation 10

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (x - direction) x + y Earthquake (OBE)
Max. Primary Plus Secondary Stress Intensity Range, Sm = 13.00 ksi (At Node 44) Allowable Stress Intensity Range, 3.0 Sm = 6.00 ksi

(Stresses Greater than 5.0 ksi Indicated)

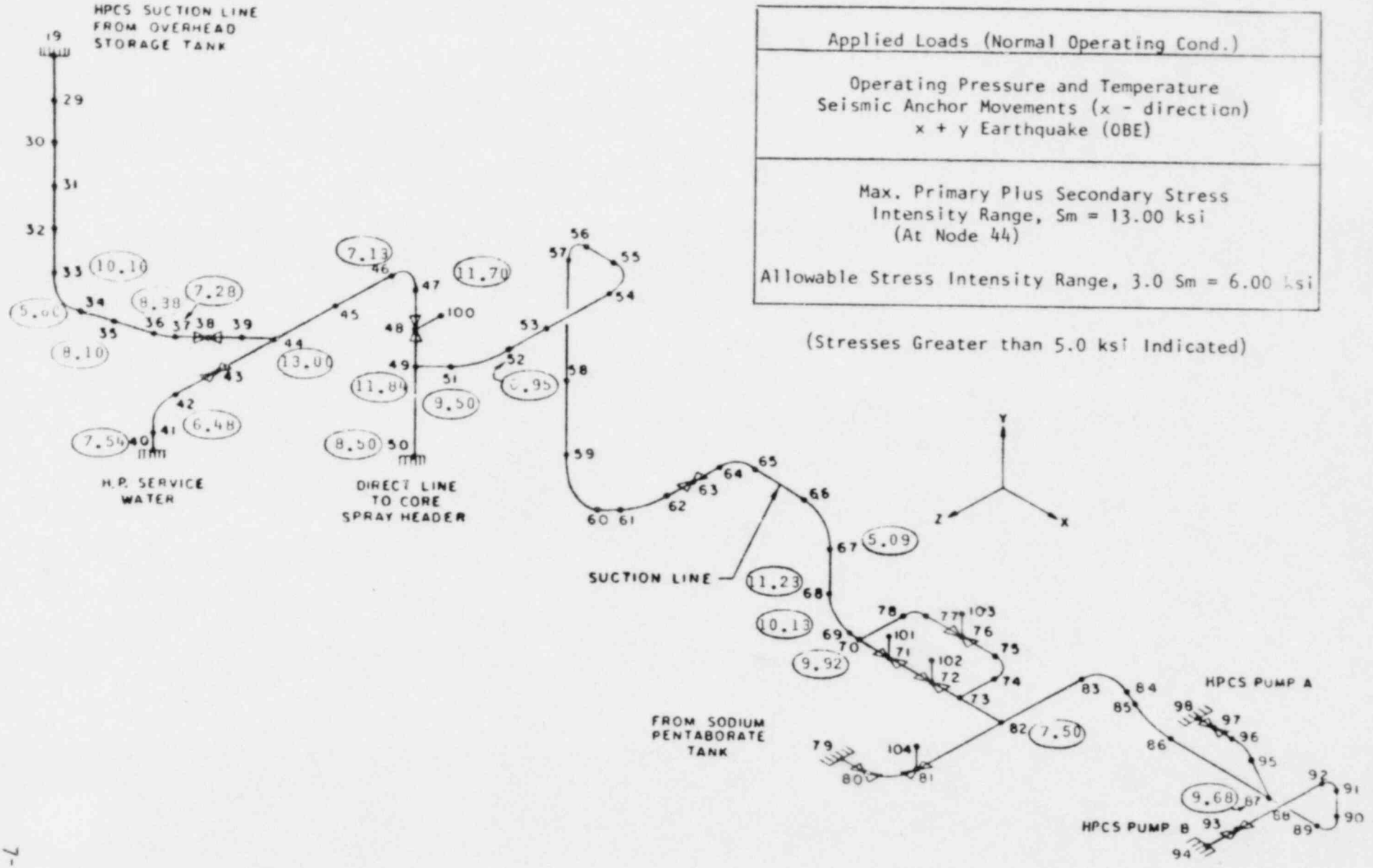


FIGURE 7.1

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Compliance with ASME Code Equation 10

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (z - direction) z + y Earthquake (OBE)
Max. Primary Plus Secondary Stress Intensity Range, Sn = 24.16 ksi (At Node 47) Allowable Stress Intensity Range, 3.0 Sm = 60.0 ksi

(Stresses Greater than 5.0 ksi Indicated)

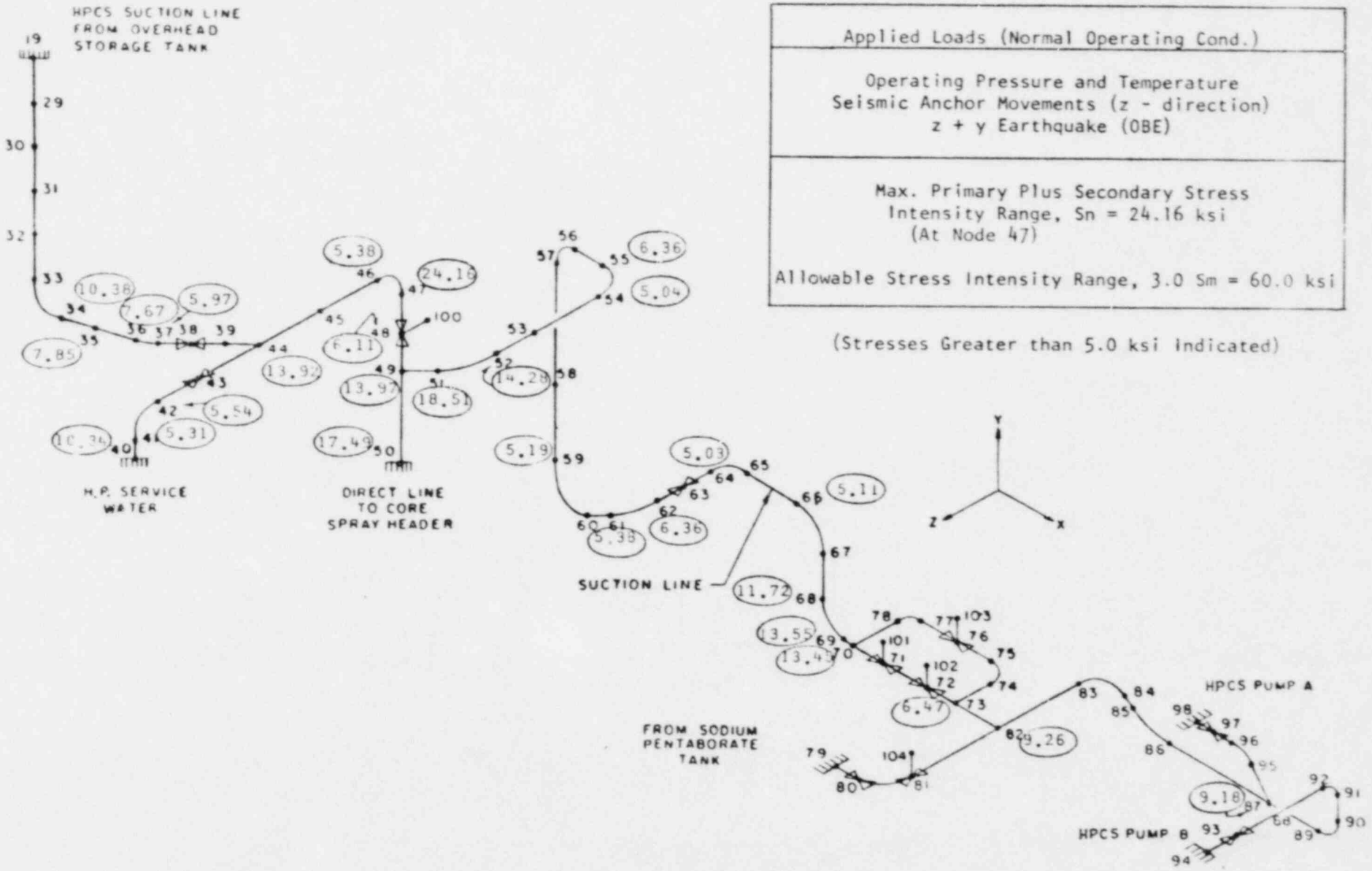


FIGURE 7.1-5

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Consideration of ASME Code Equations 11 & 14

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (x - direction) x + y Earthquake (OBE)
Max. Peak Stress Intensity, Sp = 14.82 ksi (At Node 44) Max. Alternating Stress Int., Salt = 7.41 ksi Max. Allowable No. of Stress Cycles, N > 10^6

(Stresses Greater than 5.0 ksi Indicated)

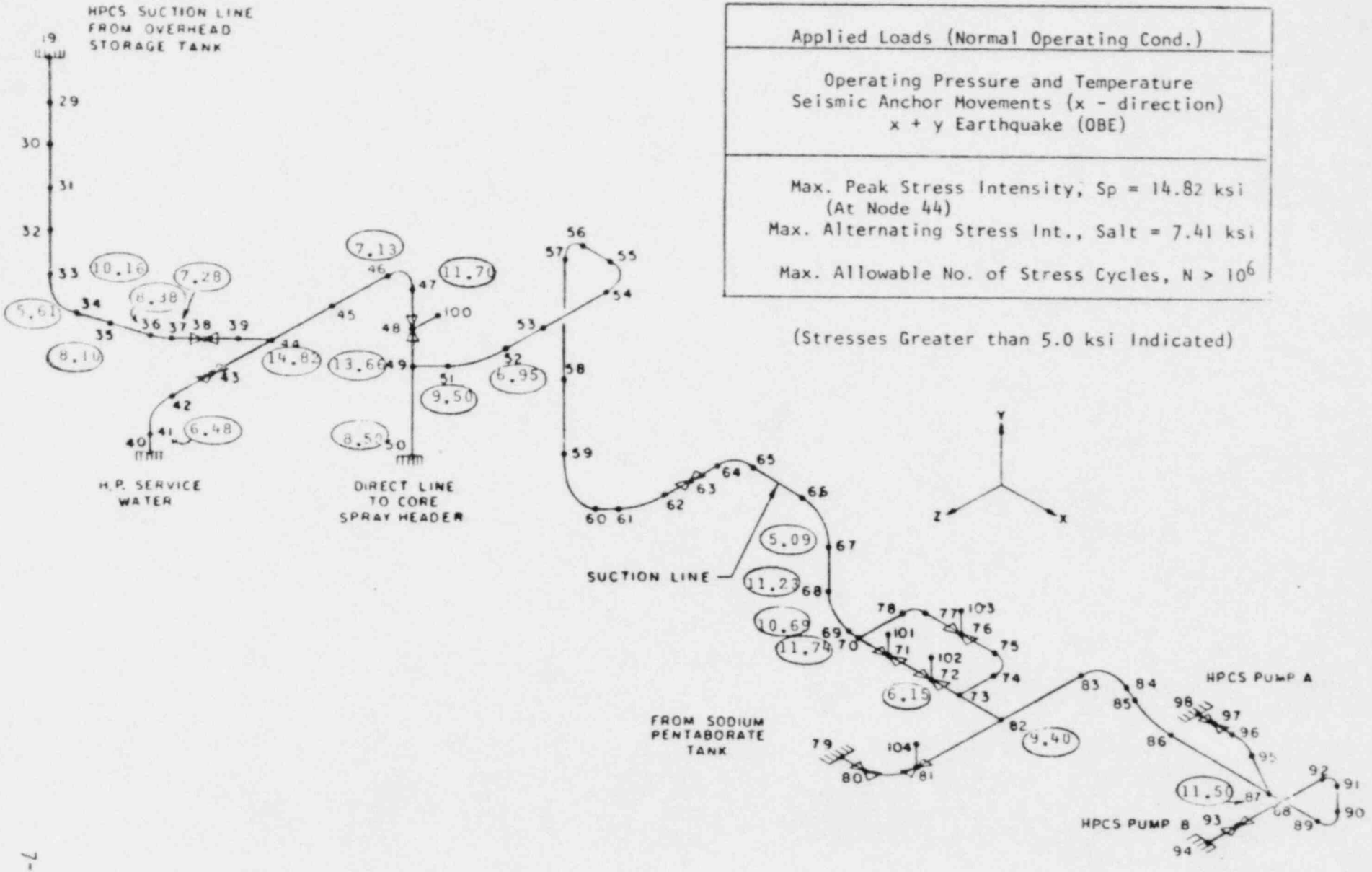
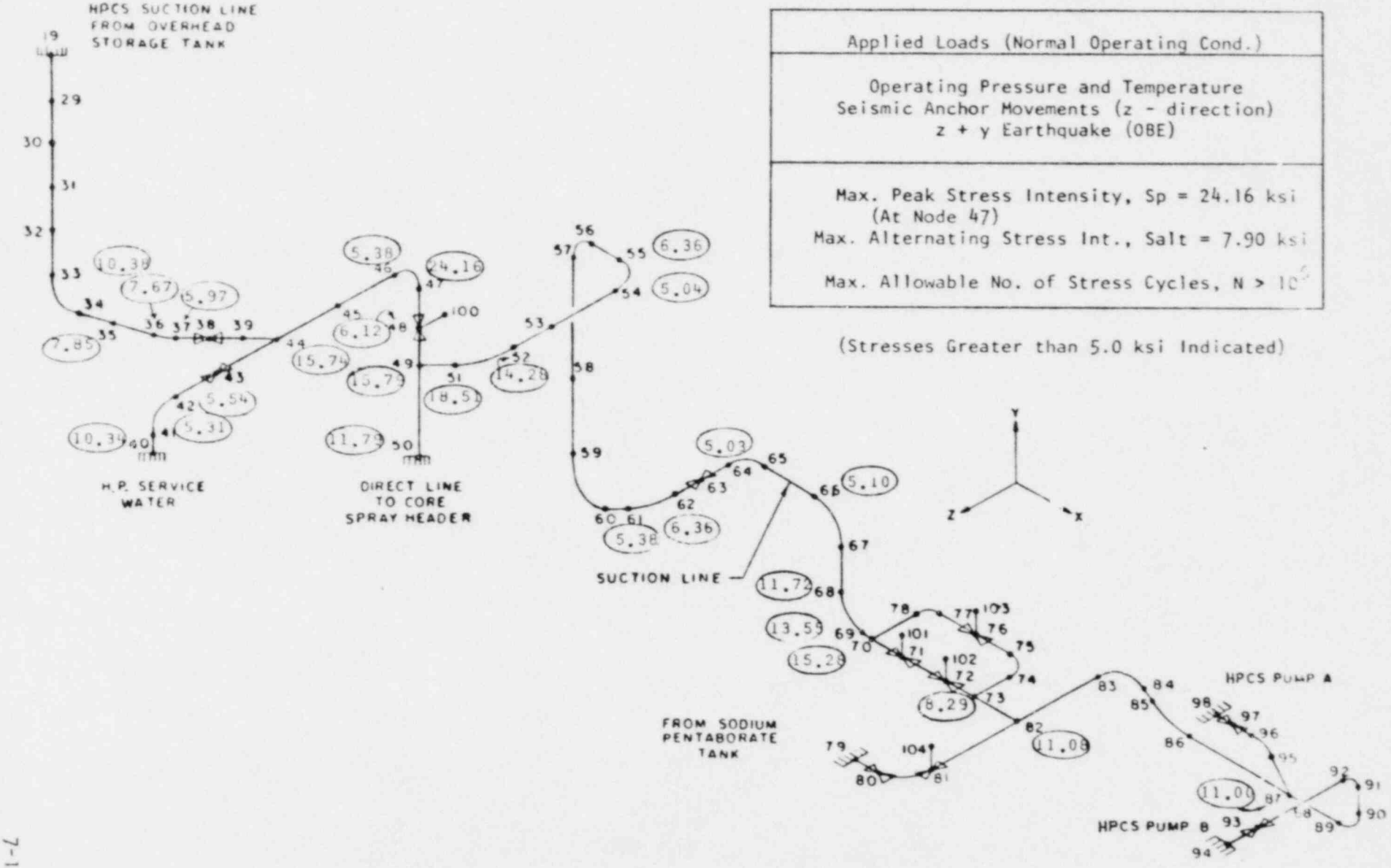


FIGURE 7.1C

HPCS SUCTION LINE 2
Class 1 Stress Analysis
Consideration of ASME Code Equations 11 & 14

Applied Loads (Normal Operating Cond.)
Operating Pressure and Temperature Seismic Anchor Movements (z - direction) z + y Earthquake (OBE)
Max. Peak Stress Intensity, Sp = 24.16 ksi (At Node 47) Max. Alternating Stress Int., Salt = 7.90 ksi Max. Allowable No. of Stress Cycles, N > 10^6

(Stresses Greater than 5.0 ksi Indicated)



8. CONCLUSION

By providing rigid seismic restraints at the locations shown in Figure 3.1 the deflections and stresses is the HPCS suction piping due to a seismic event can be reduced to acceptable values.

The results of the subject analysis, which includes effects of five additional rigid restraints indicate that the deflections of the HPCS suction piping system, due to deadweight, thermal expansion and seismic loading are nominal. In addition, the stresses resulting from these loadings as calculated and combined in accordance with the rules given in Subarticle NB-3650 of Section III of the ASME Code (Reference 2), satisfy the design requirements for Class 1 piping systems.

The rigid restraints and their attachments should be designed using the support reaction forces given in Appendix B of this report.

9. REFERENCES

1. Gulf United Services Report No. SS-1162 "Seismic Evaluation of the LaCrosse Boiling Water Reactor", dated January 11, 1974.

2. ASME Boiler and Pressure Vessel Code, Section III, Division 1, 1974 Edition, Nuclear Power Platn Components

3. Sargent and Lundy Engineers "Specification for Piping System-LaCrosse Boiling Water Reactor" LACBWR #256.

4. Sargent and Lundy Engineers "LACBWR" Project Drawing Nos. 41-503374, 503375, 503376.

APPENDIX A

LACBWR HPCS SUCTION LINE PIPING ANALYSIS

ANALYTICAL INPUT DATA

TABLE A-1 PIPE DATA

HPCS SUCTION LINE

LINE NO.	RUN NO.	FROM POINT	TO POINT	O.D. (IN)	WALL THICK (IN)	MAT'L	FLUID	WT. OF PIPE FLUID (LB/IN)	WT. IN INSUL (LB/IN)	DESIGN TEMP. (^{o}F)	DESIGN PRESS. (PSIG)
1	1	1	2	6.625	0.280			2.62	0.15		
↓		2	28	4.500	0.237			1.36	0.11		
2	1	19	44	3.50	0.216	ASTM, TYPE TP-304	WATER	0.90	0.09	120	100
	2	40	33	3.50	0.216			0.90	0.09		
	3	49	82	3.50	0.216			0.90	0.09		
	4	79	88	3.50	0.216			0.90	0.09		
	4	88	94	1.90	0.145			0.30	0.06		
	5	75	98	1.90	0.145			0.30	0.06		
↓	6	73	70	3.50	0.216	↓	↓	0.90	0.09	↓	↓

TABLE A-11

VALVE WEIGHTS

VALVE	NODE LOCATION	TOTAL WEIGHT (lbs)	ECCENTRIC WEIGHT (lbs)	ECCENTRICITY (in)
4" Gate	27	53.0	0	-
3" Check	38	52.0	0	-
3" Check	43	40.0	0	-
3" Gate	48 - 100	50.0	10.0	10.0
1/2" Relief	63	11.0	0	-
3" Control	71 - 101	234.0	110.0	21.9
3" Control	72 - 102	214.0	90.0	21.9
3" Gate	76 - 103	53.0	13.0	10.0
3" Gate	81 - 104	53.0	13.0	10.0
3" Check	80	52.0	0	-
1 1/2" Globe	93	49.0	0	-
1 1/2" Globe	97	49.0	0	-

TABLE A III - 1

STATIC LOAD CASES
SUCTION LINE 1

STATIC LOAD CASE : 1
LOAD CASE TITLE : DEAD WEIGHT AND OTHER SUSTAINED MECHANICAL LOADS

NUMBER OF SINGLE JOINT LOADS		0
NUMBER OF SUPPORT DISPLACEMENTS		0
NUMBER OF DISCONTINUITY STRESSES		0
GRAVITATIONAL MULTIPLIERS :	X	-.0000
	Y	-1.0000
	Z	-.0000

STATIC LOAD CASE : 2
LOAD CASE TITLE : THERMAL - NORMAL OPERATING CONDITION

THERMAL AND PRESSURE LOADINGS FOR ALL PIPE RUNS

RUN ID	DESIGN PRESSURE PSI	TEMPERATURE CHANGE DEG.	LINEAR TEMPERATURE GRADIENT DEG.	NONLINEAR TEMPERATURE GRADIENT DEG.	LONG. PRESSURE STRESS
1	0.00	50.00	-.000	-.000	NO

STATIC LOAD CASE : 3
LOAD CASE TITLE : OPERATING PRESSURE

THERMAL AND PRESSURE LOADINGS FOR ALL PIPE RUNS

RUN ID	DESIGN PRESSURE PSI	TEMPERATURE CHANGE DEG.	LINEAR TEMPERATURE GRADIENT DEG.	NONLINEAR TEMPERATURE GRADIENT DEG.	LONG. PRESSURE STRESS
1	20.00	0.00	0.000	0.000	NO

TABLE A III - 1 Con'd

STATIC LOAD CASES
SUCTION LINE 1

STATIC LOAD CASE : 4
LOAD CASE TITLE : DESIGN PRESSURE

THERMAL AND PRESSURE LOADINGS FOR ALL PIPE RUNS

RUN ID	DESIGN PRESSURE PSI	TEMPERATURE CHANGE DEG.	LINEAR TEMPERATURE GRADIENT DEG.	NONLINEAR TEMPERATURE GRADIENT DEG.	LONG. PRESSURE STRESS
1	100.00	0.00	0.000	0.000	NO

STATIC LOAD CASE : 5
LOAD CASE TITLE : SEISMIC ANCHOR MOVEMENTS X - DIRECTION

SUPPORT DISPLACEMENTS

JOINT ID	LOAD TYPE	DISPLACEMENT DIRECTION	DISPLACEMENT MAGNITUDE
1	TRANS.	X	.7200
14	TRANS.	X	.3700
16	TRANS.	X	.2400
19	TRANS.	X	.1300

STATIC LOAD CASE : 6
LOAD CASE TITLE : SEISMIC ANCHOR MOVEMENTS Z - DIRECTION

SUPPORT DISPLACEMENTS

JOINT ID	LOAD TYPE	DISPLACEMENT DIRECTION	DISPLACEMENT MAGNITUDE
1	TRANS.	Z	.7200
14	TRANS.	Z	.3700
16	TRANS.	Z	.2400
19	TRANS.	Z	.1300

TABLE A III - 2

STATIC LOAD CASES
SUCTION LINE 2

STATIC LOAD CASE : 1
LOAD CASE TITLE : DEAD WEIGHT AND OTHER SUSTAINED MECHANICAL LOADS

NUMBER OF SINGLE JOINT LOADS		0
NUMBER OF SUPPORT DISPLACEMENTS		0
NUMBER OF DISCONTINUITY STRESSES		0
GRAVITATIONAL MULTIPLIERS :	X	-.0000
	Y	-1.0000
	Z	-.0000

STATIC LOAD CASE : 2
LOAD CASE TITLE : THERMAL - NORMAL OPERATING CONDITION

THERMAL AND PRESSURE LOADINGS FOR ALL PIPE RUNS

RUN ID	DESIGN PRESSURE PSI	TEMPERATURE CHANGE DEG.	LINEAR TEMPERATURE GRADIENT DEG.	NONLINEAR TEMPERATURE GRADIENT DEG.	LONG. PRESSURE STRESS
1	0.00	50.00	-.000	-.000	NO
2	0.00	50.00	-.000	-.000	NO
3	0.00	50.00	-.000	-.000	NO
4	0.00	50.00	-.000	-.000	NO
5	0.00	50.00	-.000	-.000	NO
6	0.00	50.00	-.000	-.000	NO
7	0.00	0.00	0.000	0.000	NO

STATIC LOAD CASE : 3
LOAD CASE TITLE : OPERATING PRESSURE

THERMAL AND PRESSURE LOADINGS FOR ALL PIPE RUNS

RUN ID	DESIGN PRESSURE PSI	TEMPERATURE CHANGE DEG.	LINEAR TEMPERATURE GRADIENT DEG.	NONLINEAR TEMPERATURE GRADIENT DEG.	LONG. PRESSURE STRESS
1	50.00	0.00	0.000	0.000	NO
2	50.00	0.00	0.000	0.000	NO
3	50.00	0.00	0.000	0.000	NO
4	50.00	0.00	0.000	0.000	NO
5	50.00	0.00	0.000	0.000	NO
6	50.00	0.00	0.000	0.000	NO
7	0.00	0.00	0.000	0.000	NO

TABLE A III - 2 Con'd

STATIC LOAD CASES
SUCTION LINE 2

STATIC LOAD CASE : 4
LOAD CASE TITLE : DESIGN PRESSURE

THERMAL AND PRESSURE LOADINGS FOR ALL PIPE RUNS

RUN ID	DESIGN PRESSURE PSI	TEMPERATURE CHANGE DEG.	LINEAR TEMPERATURE GRADIENT DEG.	NONLINEAR TEMPERATURE GRADIENT DEG.	LONG. PRESSURE STRESS
1	100.00	0.00	0.000	0.000	NO
2	100.00	0.00	0.000	0.000	NO
3	100.00	0.00	0.000	0.000	NO
4	100.00	0.00	0.000	0.000	NO
5	100.00	0.00	0.000	0.000	NO
6	100.00	0.00	0.000	0.000	NO
7	0.00	0.00	0.000	0.000	NO

STATIC LOAD CASE : 5
LOAD CASE TITLE : SEISMIC ANCHOR MOVEMENTS X - DIRECTION

SUPPORT DISPLACEMENTS

JOINT ID	LOAD TYPE	DISPLACEMENT DIRECTION	DISPLACEMENT MAGNITUDE
50	TRANS.	X	.4320

STATIC LOAD CASE : 6
LOAD CASE TITLE : SEISMIC ANCHOR MOVEMENTS Z - DIRECTION

SUPPORT DISPLACEMENTS

JOINT ID	LOAD TYPE	DISPLACEMENT DIRECTION	DISPLACEMENT MAGNITUDE
50	TRANS.	Z	.4320

TABLE A-IV

DYNAMIC LOAD CASES

Suction Lines 1 and 2

LOAD CASE NO.	LOAD DESCRIPTION	SPECTRUM NO. IN GLOBAL			SPECTRUM MULTIPLIERS		
		X	Y	X	X	Y	Z
7	x + y Earthquake (OBE)	1	3	0	386.0	128.7	0
8	z + y Earthquake (OBE)	0	3	1	0	128.7	386.0
9	x + y Earthquake (SSE)	2	3	0	386.0	257.3	0
10	z + y Earthquake (SSE)	0	3	2	0	357.3	386.0

TABLE A-V

SPECTRUM RESPONSE SPECTRUM

SUCTION LINE 1

SPECTRUM NO. 1
(Horizontal OBE)

Frequency CPS	Acceleration G's
40.000	.38000
15.000	.38000
12.000	.43000
10.000	.78000
8.000	1.07000
6.000	1.33000
5.000	1.46000
4.000	1.48000
3.500	1.26000
3.000	1.20000
2.500	1.72000
2.000	3.18000
1.750	4.50000
1.500	3.54000
1.250	1.24000
1.000	.60000
.750	.32000
.500	.16000

SPECTRUM NO. 2
(Horizontal SSE)

Frequency CPS	Acceleration G's
40.000	.70000
15.000	.70000
12.000	.75000
10.000	1.15000
9.000	1.60000
6.000	1.90000
5.000	2.20000
4.000	2.15000
3.500	1.80000
3.000	1.90000
2.500	2.65000
2.000	5.75000
1.750	6.10000
1.500	5.00000
1.250	2.05000
1.000	1.00000
.750	.50000
.500	.25000

SPECTRUM NO. 3
(Vertical Ground SSE)

Frequency CPS	Acceleration G's
40.000	.12000
33.000	.12000
20.000	.23000
15.000	.32000
10.000	.52000
9.000	.60000
5.000	.65000
3.000	.70000
2.500	.72000
2.200	.63000
2.000	.59000
1.500	.44000
1.000	.31000
.800	.24300
.600	.19000
.400	.13000
.200	.05400
.100	.01400

SUCTION LINE 2

SPECTRUM NO. 1
(Horizontal OBE)

Frequency CPS	Acceleration G's
40.000	.25000
10.000	.25000
9.000	.25000
8.000	.32000
7.000	.32000
6.000	.48000
5.000	.55000
4.000	.60000
3.000	.62000
2.500	1.00000
2.000	1.25000
1.800	3.00000
1.600	3.00000
1.400	1.80000
1.200	.78000
1.000	.48000
.900	.31000
.800	.20000
.600	.16000
.500	.16000

SPECTRUM NO. 2
(Horizontal SSE)

Frequency CPS	Acceleration G's
40.000	.43000
15.000	.43000
10.000	.43000
9.000	.50000
8.000	.58000
7.000	.60000
6.000	.63000
5.000	.95000
4.000	1.10000
3.000	1.10000
2.500	1.60000
2.000	2.60000
1.800	3.95000
1.700	3.90000
1.500	3.40000
1.300	1.60000
1.100	.90000
1.000	.63000
.900	.45000
.800	.38000
.700	.25000

SPECTRUM NO. 3
(Vertical Ground SSE)

Frequency CPS	Acceleration G's
40.000	.12000
33.000	.12000
20.000	.23000
15.000	.32000
10.000	.52000
9.000	.60000
5.000	.65000
3.000	.70000
2.500	.72000
2.200	.63000
2.000	.59000
1.500	.44000
1.000	.31000
.800	.24300
.600	.19000
.400	.13000
.200	.05400
.100	.01400

APPENDIX B

LABWR HPCS SUCTION LINE
PIPING ANALYSIS TABULATED RESULTS

TABLE B-1

JOINT DISPLACEMENTS

Note: Designation "ECCS" in the following tables is synonomous with designation "HPCS"

TABLE

FCCS SUCTION LINE 1

JOINT DISPLACEMENTS

(LOAD CASE 1)

DEAD WEIGHT AND OTHER SUSTAINED MECHANICAL LOADS

JOINT	DISPLACEMENTS (IN.) X	Y	Z
1	.0000000	-.0000000	-.0000000
2	.0001063	-.0002290	-.0001314
3	.0001149	-.0004933	-.0001366
4	.0001308	-.0003176	-.0001414
5	.0001605	-.0021240	-.0001429
6	.0001973	-.0036147	-.0001386
7	.0002463	-.0124373	-.0001287
8	.0002984	-.0082251	-.0001163
9	-.0014999	-.0038720	.0021250
10	-.0047919	-.0019301	.0061646
11	-.0066999	-.0006693	.0084939
12	-.0064663	-.0007043	.0081907
13	-.0039896	-.0006377	.0050104
14	-.0001105	-.0005277	.0001617
15	.0005008	-.0004197	-.0006541
16	.0001020	-.0002968	-.0000988
17	.0003101	-.0001879	-.0002020
18	.0001063	-.0000383	-.0000817
19	-.0000000	-.0000000	.0000000
20	.0000751	-.0082162	-.0001331
21	.0000699	-.0096950	-.0001241
22	.0000350	-.0055896	-.0000621
23	-.0000000	-.0000000	-.0000000
24	-.0000078	-.0010707	-.0000044
25	-.0000117	-.0007611	-.0000066
26	.0003594	-.0000492	.0001998
27	.0002280	-.0000375	.0001268
28	.0000000	-.0000000	.0000000

(LOAD CASE 2)

THERMAL - NORMAL OPERATING CONDITION

JOINT	DISPLACEMENTS (IN.) X	Y	Z
1	.0000000	.0000000	-.0000000
2	-.0027689	-.0037274	.0033645
3	-.0089942	-.0015269	.0107385
4	-.0180194	-.0004171	.0212034
5	-.0311669	-.0069729	.0364733
6	-.0440908	.0045957	.0519399
7	-.0584223	.0690401	.0703089
8	-.0714925	.1387583	.0897293
9	-.0785391	.1424276	.0998519
10	-.0720146	.1227359	.0914414
11	-.0494054	.0892849	.0643585
12	-.0435942	.0840574	.0570664
13	-.0218216	.0719611	.0288177
14	-.0003279	.0553546	.0005471
15	.0031247	.0415159	-.0039253
16	.0001460	.0276771	-.0004524
17	-.0010499	.0166061	.0004791
18	-.0004521	.0027673	-.0000024
19	-.0000000	-.0000000	-.0000000
20	-.0084383	.0030866	-.0530287
21	-.0021559	.0023684	-.0601338
22	-.0021588	.0010408	-.0335588
23	.0000000	.0000000	-.0000000
24	.0160006	.0190962	.0089079
25	.0239132	.0294812	.0132491
26	.0210829	.0156225	.0117252
27	.0099782	.0096605	.0055496
28	.0000000	-.0000000	.0000000

TABLE B1-1, Cont'd

FCCS SUCTION LINE 1

JOINT DISPLACEMENTS

(LOAD CASE 5)

SEISMIC ANCHOR MOVEMENTS X - DIRECTION

JOINT	DISPLACEMENTS (IN.)		
	X	Y	Z
1	.7200000	-.0000000	.0000000
2	.7194844	-.0000042	-.0003735
3	.7179248	-.0002550	-.0016110
4	.7142854	.0001437	-.0045175
5	.7069250	.0029606	-.0104168
6	.6983644	-.0021592	-.0172689
7	.6887734	-.0267284	-.0249513
8	.6817202	-.0428113	-.0305893
9	.6629976	-.0364406	-.0369816
10	.6102336	-.0246474	-.0377901
11	.5333227	-.0022850	-.0261876
12	.5167146	.0001226	-.0230157
13	.4543271	.0001052	-.0116318
14	.3704982	.0000814	-.0001539
15	.3058842	.0000615	.0009796
16	.2372061	.0000416	-.0009999
17	.1766165	.0000256	-.0010743
18	.1306207	.0000057	-.0001321
19	.1300000	.0000000	-.0000000
20	.0711363	-.0079224	-.0989624
21	.0640642	-.0072521	-.1129815
22	.0347594	-.0034618	-.0613029
23	.0000000	-.0000000	.0000000
24	-.0000003	.0000000	.0000005
25	-.0000002	.0000000	.0000004
26	-.0000001	.0000000	.0000002
27	-.0000000	.0000000	.0000001
28	-.0000000	.0000000	.0000000

(LOAD CASE 6)

SEISMIC ANCHOR MOVEMENTS Z - DIRECTION

JOINT	DISPLACEMENTS (IN.)		
	X	Y	Z
1	.0000000	.0000000	.7200000
2	-.0003351	.0000056	.7194752
3	-.0014005	.0003150	.7187085
4	-.0039040	-.0001777	.7167485
5	-.0090983	-.0036589	.7125154
6	-.0154331	.0026701	.7073451
7	-.0231884	.0330611	.7010621
8	-.0301590	.0529721	.6953912
9	-.0371865	.0451051	.6789926
10	-.0380694	.0305168	.6267107
11	-.0272072	.0028342	.5443457
12	-.0240522	-.0001501	.5263581
13	-.0121041	-.0001286	.4594201
14	-.0001396	-.0000990	.3705724
15	.0011129	-.0000744	.3050114
16	-.0008870	-.0000498	.2376230
17	-.0009509	-.0000301	.1785084
18	-.0001213	-.0000055	.1316608
19	-.0000000	-.0000000	.1300000
20	-.0279152	.0084253	.0849073
21	-.0287457	.0077991	.0521312
22	-.0108930	.0030013	.0198731
23	.0000000	.0000000	.0000000
24	.0000001	-.0000000	-.0000001
25	.0000001	-.0000000	-.0000001
26	.0000000	-.0000000	-.0000000
27	.0000000	-.0000000	-.0000000
28	.0000000	-.0000000	-.0000000

TABLE B1-1, Cont'd

FCCS SUCTION LINE 1

JOINT DISPLACEMENTS

(LOAD CASE 7)

X + Y EARTHQUAKE 1/2 SSE (OBE)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 6 BY SQSS SUMMATION

JOINT ID	DISPLACEMENTS (IN.) X	Y	Z
1	.0000000	.0000000	.0000000
2	.0045782	.0000068	.0036874
3	.0393399	.0000210	.0317310
4	.1305932	.0000195	.1052197
5	.3145716	.0003440	.2534845
6	.5128872	.0003687	.4132468
7	.7073251	.0029846	.5698975
8	.8303786	.0028499	.6690380
9	.7670556	.0014645	.6180546
10	.5608957	.0004669	.4521002
11	.3110202	.0000162	.2509632
12	.2661100	.0000191	.2148043
13	.1259181	.0000164	.1018826
14	.0046516	.0000126	.0040230
15	.0165073	.0000095	.0133248
16	.0038089	.0000063	.0032838
17	.0009041	.0000038	.0005966
18	.0001200	.0000007	.0000954
19	.0000000	.0000000	.0000000
20	.0000513	.0004301	.0000243
21	.0000424	.0005244	.0000723
22	.0000286	.0003019	.0000491
23	.0000000	.0000000	.0000000
24	.0000000	.0000000	.0000000
25	.0000000	.0000000	.0000000
26	.0000000	.0000000	.0000000
27	.0000000	.0000000	.0000000
28	.0000000	.0000000	.0000000

(LOAD CASE 8)

Z + Y EARTHQUAKE 1/2 SSE (OBE)

JOINT ID	DISPLACEMENTS (IN.) X	Y	Z
1	.0000000	.0000000	.0000000
2	.0036882	.0000100	.0029207
3	.0317485	.0000304	.0253689
4	.1052384	.0000283	.0847313
5	.2535083	.0004998	.2042793
6	.4133344	.0005364	.3330346
7	.5700318	.0043412	.4592791
8	.6692000	.0041434	.5391760
9	.6181700	.0021259	.4986004
10	.4520301	.0006686	.3643675
11	.2506589	.0000221	.2023144
12	.2144659	.0000278	.1731783
13	.1014833	.0000238	.0821638
14	.0037471	.0000183	.0032431
15	.0133051	.0000138	.0107491
16	.0030692	.0000092	.0026467
17	.0007309	.0000055	.0004864
18	.0000969	.0000009	.0000772
19	.0000000	.0000000	.0000000
20	.0000416	.0004471	.0000207
21	.0000345	.0005506	.0000588
22	.0000231	.0003139	.0000398
23	.0000000	.0000000	.0000000
24	.0000000	.0000000	.0000000
25	.0000000	.0000000	.0000000
26	.0000000	.0000000	.0000000
27	.0000000	.0000000	.0000000
28	.0000000	.0000000	.0000000

TABLE B1-1, cont'd

FCCS SUCTION LINE 1

JOINT DISPLACEMENTS

(LOAD CASE 9)

X + Y EARTHQUAKE SSE

(LOAD CASE 10)

Z + Y EARTHQUAKE SSE

TOTAL RESPONSE EQUALS MODE 1 THROUGH 6 BY SOSS SUMMATION

JOINT ID	DISPLACEMENTS (IN.) X	Y	Z
1	.0000000	.0000000	.0000000
2	.0065754	.0000128	.0052960
3	.0565631	.0000392	.0455534
4	.1874612	.0000364	.1510386
5	.4515177	.0000434	.3638369
6	.7361427	.0000902	.5931297
7	1.0152112	.0055857	.8179437
8	1.1918286	.0053319	.9602591
9	1.1009412	.0027372	.8870830
10	.8050555	.0008655	.6489062
11	.4464501	.0000293	.3602579
12	.3819956	.0000358	.3083441
13	.1807725	.0000306	.1462805
14	.0066911	.0000236	.0057786
15	.0236998	.0000177	.0191331
16	.0054681	.0000118	.0047143
17	.0012994	.0000071	.0008595
18	.0001725	.0000012	.0001371
19	.0000000	.0000000	.0000000
20	.0000739	.0008174	.0000375
21	.0000411	.0010103	.0001044
22	.0000412	.0005764	.0000708
23	.0000000	.0000000	.0000000
24	.0000000	.0000000	.0000000
25	.0000000	.0000000	.0000000
26	.0000000	.0000000	.0000000
27	.0000000	.0000000	.0000000
28	.0000000	.0000000	.0000000

JOINT ID	DISPLACEMENTS (IN.) X	Y	Z
1	.0000000	.0000000	.0000000
2	.0052959	.0000186	.0042658
3	.0455753	.0000565	.0367046
4	.1510604	.0000527	.1217105
5	.3638685	.0000309	.2932038
6	.5932569	.0000992	.4780036
7	.8181580	.0080860	.6591663
8	.9604931	.0077169	.7738715
9	.8872515	.0039582	.7149034
10	.6498072	.0012416	.5230039
11	.3598150	.0000407	.2904553
12	.3078711	.0000518	.2486746
13	.1456999	.0000443	.1180244
14	.0053805	.0000341	.0046593
15	.0191044	.0000256	.0154451
16	.0044058	.0000171	.0038000
17	.0010528	.0000103	.0007060
18	.0001394	.0000017	.0001112
19	.0000000	.0000000	.0000000
20	.0000603	.0008588	.0000328
21	.0000500	.0010669	.0000955
22	.0000335	.0006051	.0000577
23	.0000000	.0000000	.0000000
24	.0000000	.0000000	.0000000
25	.0000000	.0000000	.0000000
26	.0000000	.0000000	.0000000
27	.0000000	.0000000	.0000000
28	.0000000	.0000000	.0000000

TABLE B1-2

ECCS SYSTEM LINE 2

JOINT DISPLACEMENTS

DEAD WEIGHT AND OTHER SUSTAINED MECHANICAL LOADS

(LOAD CASE 1)

JOINT (GIA)	/----DISPLACEMENTS (IN)-----/ X	Y	Z		X	Y	Z
1	-.0000000	-.0000000	.0000000	70	.0001238	.0044922	-.0013438
29	-.0000009	-.0002295	.0001097	71	.0001225	.0004513	-.0011255
30	.0000001	-.0003866	-.0000031	72	.0001205	-.0007376	-.0005932
31	.0000043	-.0005153	-.0006028	73	.0001186	-.0065907	-.0001400
32	-.0000037	-.0005886	-.0000025	74	.0002968	-.0104673	-.0001401
33	.0000346	-.0005773	.0023118	75	.0005073	-.0105589	-.0003700
34	.0001439	-.0005439	.0028465	76	.0005073	-.0074145	-.0005975
35	.0001439	-.0003470	.0025586	77	.0005071	-.0001780	-.0011020
36	.0001636	-.0046421	-.0001589	78	.0002900	.0035066	-.0013434
37	.0000128	-.0057597	-.0005513	79	.0000000	-.0000000	-.0000000
38	-.0002904	-.0052040	-.0008390	80	.0000008	-.0011463	-.0000376
39	-.0003312	-.0094719	-.0009398	81	.0000336	-.0056785	-.0000404
40	.0000000	.0000000	-.0000000	82	.0001178	-.0092363	-.0000413
41	-.0003148	.0000117	-.0005748	83	-.0002824	-.0263671	-.0000418
42	-.0008531	-.0003707	-.0008952	84	-.0013280	-.0300094	.0024167
43	-.0005150	-.0024443	-.0008983	85	-.0011747	-.0298561	.0041423
44	-.0003318	-.0078192	-.0009015	86	-.0007147	-.0285128	.0062360
45	-.0007405	-.0230964	-.0009168	87	-.0007184	-.0134610	.0043400
46	-.0084739	-.0017624	-.0003329	88	-.0007180	-.0105111	.0046323
47	-.0009571	-.0000363	-.0021553	89	-.0007148	-.0052382	.0042403
48	-.0072075	-.0000581	-.0030706	90	-.0010003	-.0049081	.0030768
49	-.0055988	-.0000732	-.0024816	91	-.0014001	-.0049065	.0010005
50	-.0000000	-.0000000	-.0000000	92	-.0013642	-.0039252	-.0000010
51	-.0105442	-.0005158	-.0074346	93	-.0002909	-.0000526	-.0000006
52	-.0285971	.0003676	-.0128962	94	-.0000000	.0000000	-.0000000
53	-.1149280	.0002231	-.0129065	95	-.0013296	-.0134323	.0010663
54	-.1757054	.0127305	-.0129137	96	.0000052	-.0115185	.0000068
55	-.2075071	-.0011732	.0174634	97	.0000024	-.0036250	.0000407
56	-.2075118	-.0379957	.0524736	98	.0000000	-.0000000	.0000000
57	-.1737276	-.0713007	.0670771	100	-.0119140	-.0001066	-.0030704
58	.0033968	-.0712965	.0117966	101	.0059052	.0004344	-.0061782
59	.2299704	-.0712960	.0034501	102	.0035473	-.0008015	-.0077665
60	.2913468	-.0053705	.0002952	103	.0045950	-.0074158	-.0020307
61	.2850015	.0075606	-.0060428	104	.0031750	-.0056806	-.0036607
62	.2594429	-.0048833	-.0188033				
63	.0303990	-.2480000	-.0187825				
64	.0003904	-.2777071	-.0197739				
65	-.0167765	-.2285204	-.0341758				
66	-.0167949	-.0094534	-.0692167				
67	-.0029099	.0092211	-.0584009				
68	.0030856	.0083361	-.0035760				
69	.0001241	.0058236	-.0013777				

TABLE B1-2, Cont'd

CROSS SECTION LINE 2

JOINT DISPLACEMENTS

THERMAL - NORMAL OPERATING CONDITION

(LOAD CASE 2)

JOINT	/----DISPLACEMENTS (IN)-----/ X	Y	Z
1	-.0000000	.0000000	.0000000
2	-.0000176	-.0267053	.0011643
30	.0000058	-.0507410	-.0000333
31	-.0002303	-.0801174	-.0053383
32	-.0021045	-.1041526	.0000190
33	.0304293	-.1228464	.0223857
34	.1099877	-.0467786	.0282647
35	.1124262	-.0115530	.0234017
36	.1247153	.0575631	.0032286
37	.1305866	.0486366	-.0033293
38	.1313607	.0150049	-.0126149
39	.1342527	-.0004506	-.0140173
40	.0000000	-.0000000	.0000000
41	.0269582	.0110427	-.0079446
42	.0955320	.0145290	.0006523
43	.1210708	.0027073	-.0057759
44	.1372234	-.0115523	-.0123032
45	.1334135	-.0596040	-.0402598
46	.0859795	.0132430	-.0696376
47	.0630238	.0336280	-.0993293
48	.0401719	.0303933	-.0952250
49	.0267584	.0237970	-.0749581
50	.0000000	-.0000000	-.0000000
51	.0292999	.0059820	-.0797709
52	.0409054	-.0062205	-.0809974
53	.0507293	-.0097634	-.0985768
54	.0537898	-.0093151	-.1110583
55	.0452257	.0010791	-.1150300
56	.0369044	.0283876	-.1020991
57	.0121513	.0415664	-.0837706
58	-.0101834	.0097569	.0003879
59	.0274927	-.0192867	.0520960
60	.0429804	-.0079824	.0397511
61	.0399356	-.0023483	.0339930
62	.0218138	-.0020498	.0180404
63	-.1548751	-.0903258	-.0360246
64	-.1769773	-.1160706	-.0457321
65	-.1814659	-.1098509	-.0622326
66	-.1529393	.0033977	-.0751013
67	-.1166250	.0269587	-.0581002
68	-.0272536	-.0054662	.0043635
69	-.0193554	-.0042958	.0051946

JOINT	X	Y	Z
70	-.0189679	-.0033119	.0045609
71	-.0146880	-.0002782	.0022390
72	-.0068358	.0002222	-.0021601
73	.0010349	.0005013	-.0073116
74	-.0016229	.0014966	-.0114733
75	-.0080645	.0025297	-.0133454
76	-.0117536	.0021328	-.0111671
77	-.0197135	-.0000857	-.0062991
78	-.0213542	-.0034413	.0003994
79	-.0000000	-.0000000	.0000000
80	.0055484	-.0001536	-.0002258
81	.0076325	-.0000884	-.0057212
82	.0041328	.0004769	-.0098787
83	-.0139733	.0030730	-.0237357
84	-.0155685	.0003860	-.0280909
85	-.0148511	-.0017600	-.0281270
86	-.0108406	-.0057073	-.0272329
87	.0118781	-.0061426	-.0141007
88	.0147275	-.0055161	-.0123366
89	.0305477	-.0048044	-.0135928
90	.0303074	-.0021563	-.0131835
91	.0259620	.0006143	-.0137816
92	.0210792	.0013123	-.0124400
93	.0044611	.0000329	-.0048428
94	.0000000	-.0000000	.0000000
95	.0097047	-.0019710	-.0100401
96	.0076754	-.0009627	-.0071416
97	.0034893	-.0004409	-.0020764
98	.0000000	-.0000000	-.0000000
100	.0368383	.0205451	-.0952250
101	-.0190242	-.0002782	.0014629
102	-.0066382	.0002222	-.0015546
103	-.0124503	.0021324	-.0100635
104	-.0078564	-.0000834	-.0051680

TABLE B1-2, Cont'd

FCFS SUCTION LINE 2

J O I N T D I S P L A C E M E N T S

SEISMIC ANCHOR MOVEMENTS X - DIRECTION

(LOAD CASE 5)

JOINT (GIP)	/----DISPLACEMENTS (IN)		-----/
	X	Y	Z
1	.0000000	-.0000000	-.0000000
2	.0011394	-.0000555	-.0014717
3	-.0000983	-.0001054	.0000422
31	-.0064029	-.0001665	.0080623
32	.0004115	-.0002164	-.0001009
33	.0174149	-.0002553	-.0246461
34	.0206650	.0009895	-.0366472
35	.0206699	.0004360	-.0364065
36	.0206930	-.0027152	-.0276603
37	.0231328	-.0024222	-.0222636
38	.0332284	-.0005889	-.0121438
39	.0382224	.0000581	-.0057168
40	-.0000000	-.0000000	.0000000
41	-.0007953	-.0000055	.0005099
42	.0100723	.0001185	.0009149
43	.0232968	.0002024	.0000175
44	.0396356	.0007080	-.0008200
45	.1611174	.0011340	.0008072
46	.3154092	-.0001330	.0007937
47	.3520695	.0000101	.0004419
48	.3776137	.0000045	-.0005830
49	.3941120	.0000007	-.0010535
50	.4320000	.0000000	-.0000000
51	.3956589	.0072273	.0004980
52	.3777411	.0195323	-.0035900
53	.2822438	.0000519	-.0035019
54	.2165393	-.0085166	-.0036003
55	.1949036	-.0002024	.0260552
56	.1847946	.0159319	.0559418
57	.1624771	.0353789	.0674782
5	.0164416	.0353437	.0069455
59	-.1139340	.0353108	-.0270068
60	-.1478695	.0065796	-.0333192
61	-.1463365	.0007033	-.0317868
62	-.1390979	.0006581	-.0283118
63	-.0370729	.0173154	-.0283178
64	-.0193854	.0218459	-.0283184
65	-.0083250	.0172710	-.0173404
66	-.0083182	-.0000187	.0118044
67	-.0084593	-.0007867	.0132104
68	-.0006368	-.0037866	.0001441
69	-.0001041	-.0003781	-.0000872
70	-.0001088	-.0002971	-.0000538
71	-.0001070	-.0000283	.0000300
72	-.0001037	.0000148	.0000422
73	-.0001005	-.0000013	.0000018
74	-.0000754	.0000528	.0000019
75	-.0000230	.0000684	-.0000426
76	-.0000223	.0000468	-.0000572
77	-.0000208	.0000144	-.0000571
78	-.0000701	-.0000719	-.0000539
79	-.0000000	-.0000000	.0000000
80	-.0000011	-.0000142	.0000097
81	-.0000477	-.0000244	-.0000151
82	-.0000998	.0000904	-.0000146
83	-.0000882	.0001034	-.0000147
84	-.0000599	.0001252	-.0000191
85	-.0000491	.0001259	-.0000233
86	-.0000701	.0001205	-.0000222
87	-.0000693	-.0000154	.0000081
88	-.0000693	-.0000518	.0000134
89	-.0000691	-.0000419	.0000188
90	-.0000707	-.0000391	.0000134
91	-.0000693	-.0000391	.0000056
92	-.0000597	-.0000327	-.0000000
93	-.0000124	-.0000004	-.0000000
94	-.0000000	.0000000	-.0000000
95	-.0000162	-.0000156	.0000173
96	-.0000006	-.0000041	.0000151
97	-.0000003	.0000015	.0000041
98	-.0000000	.0000000	.0000000
100	.3953870	.0004425	-.0006830
101	-.0005023	-.0000283	.0004072
102	-.0000486	.0000148	.0004513
103	-.0000478	.0000468	-.0000391
104	-.0000343	-.0000244	.0000049

TABLE B1-2, Cont'd

ECLS SECTION LINE 2

JOINT DISPLACEMENTS

SEISMIC ANCHOR MOVEMENTS Z - DIRECTION

(LOAD CASE 6)

JOINT	/----DISPLACEMENTS (IN)-----/ X	Y	Z	JOINT	X	Y	Z
1	-.0000000	.0000000	.0000000	70	.0002742	-.0002560	-.0026410
2	-.0001832	.0000030	.0004910	71	.0002959	-.0000263	-.0019458
30	.0000153	.0000170	-.0000141	72	.0002992	.0000193	-.0008862
31	.0010295	.0000269	-.0026900	73	.0003027	.0000308	-.0000721
32	-.0000559	.0000349	.0000315	74	.0007302	.0001735	-.0000720
33	-.0028051	.0000412	.0083253	75	.0013712	.0003183	-.0006677
34	-.0033407	-.0001767	.0173833	76	.0013729	.0002811	-.0011604
35	-.0033414	-.0000992	.0194100	77	.0013767	-.0000292	-.0021582
36	-.0033451	.0005936	.0272471	78	.0008955	-.0004906	-.0026405
37	-.0029755	.0004837	.0282693	79	-.0000000	.0000000	.0000000
38	-.0025474	-.0001435	.0286784				
39	-.0026293	-.0000956	.0285597	80	-.0000007	.0000047	.0000510
40	.0000000	-.0000000	.0000000	81	.0001200	.0000476	.0001498
41	-.0001545	-.0000834	.0163983	82	.0003026	.0000964	.0001502
42	-.0011687	.0054597	.0281239	83	.0004369	.0002493	.0001503
43	-.0018230	.0022482	.0281966	84	.0003659	.0002294	.0001033
44	-.0026951	.0002327	.0282703	85	.0003293	.0001921	.0000762
45	-.0174786	.0076685	.0286934	86	.0002929	.0000924	.0000130
46	-.0452037	.0100905	.0289329	87	.0002792	.0001515	-.0001080
47	-.0439286	-.0015640	.0523623	88	.0002792	.0002370	-.0001272
48	-.0310929	-.0011851	.1465060	89	.0002786	.0001580	-.0001135
49	-.0207219	-.0009145	.2276708	90	.0002820	.0001499	-.0000759
50	-.0000000	-.0000000	.4320000	91	.0002725	.0001497	-.0000370
51	-.0233726	-.0360725	.2250123	92	.0002325	.0001216	.0000001
52	-.0241006	-.0155979	.2241545	93	.0000477	.0000014	.0000000
53	-.0158782	-.0011360	.2241347	94	.0000000	-.0000000	.0000000
54	-.0023576	.0079540	.2241208	95	.0000785	.0001518	-.0000435
55	.0098162	.0065498	.2102678	96	.0000031	.0000897	-.0000400
56	.0098129	-.0123584	.1901490	97	.0000014	.0000126	-.0000109
57	.0141985	-.0185	.1485951	98	.0000000	-.0000000	-.0000000
58	.0028782	-.0195	.0170742	100	-.0746462	-.0531889	.1465060
59	-.0226496	-.018	-.0681452	101	-.0000370	-.0000263	-.0027362
60	-.0291255	-.01	-.0826452	102	.0002814	.0000193	-.0013154
61	-.0280694	-.01	-.0815983	103	.0012936	.0002811	-.0009845
62	-.0244340	-.0	-.0796902	104	.0001061	.0000476	.0001981
63	-.0031783		-.0795766				
64	.0024386		-.0796741				
65	.0078432		-.0736783				
66	.0078384		.0419310				
67	.0065950	-.0	-.0286667				
68	.0003287	-.0004	-.0045067				
69	.0002943	-.0003275	-.0028177				

TABLE B1-2, Cont'd

CROSS SECTION LINE 2

JOINT DISPLACEMENTS

X + Y EARTHQUAKE 1/2 SSE (ORE)

(LOAD CASE 7)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

JOINT	DISPLACEMENTS (IN)			JOINT	DISPLACEMENTS (IN)		
NO.	X	Y	Z	NO.	X	Y	Z
1	.0000000	.0000000	.0000000	70	.0044454	.0038507	.0098316
2	.0045466	.0000922	.0027946	71	.0044354	.0006295	.0078403
30	.0002768	.0001762	.0000599	72	.0044149	.0002161	.0039990
31	.0107421	.0002781	.0113180	73	.0043915	.0015919	.0026233
32	.0005780	.0003815	.0001182	74	.0057359	.0030512	.0026244
33	.0247168	.0004264	.0289737	75	.0074424	.0033222	.0032550
34	.0290697	.0013645	.0380866	76	.0074458	.0023537	.0046233
35	.0298752	.0010146	.0362253	77	.0074469	.0001194	.0080432
36	.0291012	.0007617	.0226844	78	.0058574	.0026933	.0098294
37	.0313605	.0012313	.0173820	79	.0000000	.0000000	.0000000
38	.0403939	.0024846	.0038003	80	.0000222	.0001911	.0010810
39	.0439458	.0020110	.0040411	81	.0024660	.0008556	.0032592
40	.0000000	.0000000	.0000000	82	.0043671	.0022150	.0032653
41	.0039266	.0000111	.0015924	83	.0045517	.0107091	.0032713
42	.0199849	.0004674	.0026675	84	.0039018	.0123892	.0029880
43	.0319290	.0002247	.0026747	85	.0036051	.0120477	.0033755
44	.0449529	.0010674	.0026814	86	.0032495	.0107218	.0045685
45	.1063684	.0043264	.0026989	87	.0032352	.0039090	.0051622
46	.1494746	.0003473	.0027173	88	.0032352	.0039090	.0052603
47	.1317273	.0000564	.0029896	89	.0032345	.0027963	.0032073
48	.0912990	.0000549	.0036217	90	.0033340	.0026702	.0021141
49	.0640723	.0000549	.0033139	91	.0033379	.0026689	.0006532
50	.0000000	.0000000	.0000000	92	.0028930	.0020423	.0000047
51	.0672147	.0111165	.0082810	93	.0006104	.0000207	.0000018
52	.0755949	.0317865	.0132948	94	.0000000	.0000000	.0000000
53	.1338845	.0014324	.0132977	95	.0009987	.0039932	.0022942
54	.1926509	.0108134	.0133068	96	.0000321	.0030605	.0012483
55	.2087412	.0007009	.0212550	97	.0000146	.0008264	.0003571
56	.2087370	.0306762	.0542574	98	.0000000	.0000000	.0000000
57	.1789947	.0597424	.0684738	100	.0050162	.0005316	.0036217
58	.0350111	.0537579	.0372262	101	.0054831	.0006295	.0118433
59	.2215153	.0597721	.1681304	102	.0047572	.0002161	.0039419
60	.2744039	.0227959	.2135418	103	.0070405	.0023537	.0046030
61	.2710026	.0212592	.2151672	104	.0025860	.0009556	.0039318
62	.2573250	.0011573	.2183349				
63	.1640212	.1319718	.2184130				
64	.1562284	.1420335	.2184100				
65	.1538700	.1145474	.2014577				
66	.1538203	.0093350	.1391196				
67	.1379273	.0051255	.1063532				
68	.0073332	.0047580	.0155033				
69	.0044477	.0045457	.0103790				

CROSS SECTION LINE 2

JOINT DISPLACEMENTS

Z + Y EARTHQUAKE 1/2 SSE (OBE)

(LOAD CASE 8)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

JOINT ID	DISPLACEMENTS (IN) X	Y	Z
1	.0000000	.0000000	.0000000
2	.0012953	.0000346	.0045032
3	.0000743	.0000656	.0000829
31	.0047413	.0001036	.0090140
32	.0002144	.0001347	.0000822
33	.0096711	.0001589	.0169952
34	.0112458	.0004975	.0184780
35	.0112475	.0003740	.0165815
36	.0112554	.0008451	.0110410
37	.0116705	.0007817	.0105714
38	.0139081	.0008969	.0101426
39	.0148460	.0008593	.0100447
40	.0000000	.0000000	.0000000
41	.0016325	.0000300	.0058499
42	.0077577	.0019783	.0100484
43	.0114209	.0007230	.0100942
44	.0151515	.0007301	.0101146
45	.0330452	.0027266	.0101754
46	.0561078	.0004969	.0102394
47	.0546363	.0000901	.0110595
48	.0393186	.0000816	.0128200
49	.0285120	.0000776	.0118539
50	.0000000	.0000000	.0000000
51	.0379944	.0041448	.0198135
52	.0720197	.0130029	.0295464
53	.2443283	.0015163	.0295812
54	.3672246	.0246096	.0296157
55	.4311394	.0010622	.0490288
56	.4311388	.0689418	.1231229
57	.3445552	.1335859	.1543648
58	.0362213	.1336322	.0776309
59	.4912774	.1336744	.3656818
60	.6092450	.0438189	.4697327
61	.6021057	.0392803	.4744729
62	.5720248	.0013593	.4831759
63	.1895692	.1472349	.4833453
64	.1144012	.1514986	.4833334
65	.0655606	.1119270	.4462047
66	.0455183	.0018982	.2954705
67	.0652183	.0050570	.2192920
68	.0049314	.0050485	.0368493
69	.0023085	.0024096	.0264744
70	.0022078	.0019058	.0255953
71	.0022108	.0002432	.0202139
72	.0022161	.0001177	.0106777
73	.0022182	.0009991	.0027927
74	.0059149	.0018487	.0027941
75	.0107632	.0021752	.0076533
76	.0107733	.0016934	.0120279
77	.0107902	.0002243	.0211019
78	.0064566	.0022611	.0255899
79	.0000000	.0000000	.0000000
80	.0000149	.0001361	.0006126
81	.0009352	.0006386	.0014044
82	.0022148	.0013744	.0014106
83	.0037372	.0058912	.0014133
84	.0032500	.0069117	.0017603
85	.0030750	.0068387	.0021906
86	.0029219	.0063554	.0021487
87	.0028893	.0017485	.0030716
88	.0028893	.0024324	.0030730
89	.0029856	.0020001	.0018416
90	.0029523	.0019087	.0012300
91	.0029010	.0019074	.0003971
92	.0025092	.0015373	.0000036
93	.0005317	.0000173	.0000014
94	.0000000	.0000000	.0000000
95	.0007318	.0017472	.0015787
96	.0000281	.0013181	.0009761
97	.0000128	.0003682	.0002798
98	.0000000	.0000000	.0000000
100	.0484792	.0008049	.0134300
101	.0041344	.0002432	.0280317
102	.0024608	.0001177	.0159712
103	.0109265	.0016934	.0117960
104	.0011120	.0006386	.0015493

TABLE B1-2. Cont'd

FCCS SUCTION LINE 2

[illegible]

X + Y EARTHQUAKE SSE

(LOAD CASE 9)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

JOINT ID	/----DISPLACEMENTS (IN X	Y	Z)-----/
1	.0000000	.0000000	.0000000
2	.0079228	.0001482	.0046895
3	.0004657	.0002814	.0000473
31	.0173721	.0004442	.0184241
32	.0009298	.0005775	.0001922
33	.0395444	.0006811	.0466341
34	.0465008	.0021799	.0610616
35	.0465095	.0016183	.0580124
36	.0465508	.0012630	.0362072
37	.0501308	.0019789	.0277563
38	.0644596	.0039889	.0141424
39	.0699366	.0032728	.0066473
40	.0000000	.0000000	.0000000
41	.0050140	.0000183	.0027073
42	.0320162	.0008176	.0045564
43	.0510140	.0003972	.0045686
44	.0716930	.0018415	.0045798
45	.1721247	.0075617	.0046099
46	.2374460	.0006067	.0046416
47	.2094418	.0000976	.0051167
48	.1452178	.0000934	.0052811
49	.1019519	.0000927	.0058195
50	.0000000	.0000000	.0000000
51	.1072092	.0176544	.0145751
52	.1227284	.0505339	.0235813
53	.2328621	.0023465	.0236041
54	.3236595	.0197513	.0236202
55	.3720647	.0011877	.0386450
56	.3720589	.0558650	.0988580
57	.3179462	.1086591	.1245758
58	.0576393	.1086897	.0565469
59	.4020580	.1087178	.3037299
60	.4993801	.0400917	.3873268
61	.4923722	.0370293	.3903977
62	.4677678	.0018512	.3968053
63	.2538890	.2104027	.3969457
64	.2314535	.2251670	.3969411
65	.2334939	.1799007	.3661333
66	.2336206	.0135424	.2512276
67	.2008222	.0081221	.1903477
68	.0113902	.0076246	.0274232
69	.0073592	.0064263	.0184915
70	.0073561	.0057373	.0175151
71	.0073427	.0009272	.0135040
72	.0073134	.0003328	.0071177
73	.0072408	.0027787	.0044759
74	.0095804	.0052305	.0044779
75	.0125998	.0055549	.0057705
76	.0125963	.0038958	.0082665
77	.0125993	.0002122	.0143567
78	.0098083	.0040942	.0175113
79	.0000000	.0000000	.0000000
80	.0000365	.0003192	.0018379
81	.0041020	.0015103	.0054865
82	.0072375	.0038731	.0054974
83	.0076342	.0186960	.0055081
84	.0065789	.0216664	.0050981
85	.0060989	.0211564	.0058985
86	.0055670	.0189780	.0080107
87	.0055095	.0067709	.0090035
88	.0055094	.0067151	.0091573
89	.0055087	.0048122	.0055519
90	.0056839	.0045944	.0036583
91	.0056997	.0045922	.0011282
92	.0049451	.0035819	.0000082
93	.0010458	.0000357	.0000032
94	.0000000	.0000000	.0000000
95	.0017001	.0067596	.0039911
96	.0000540	.0053191	.0021474
97	.0000246	.0014426	.0006206
98	.0000000	.0000000	.0000000
100	.1514359	.0009142	.0052411
101	.0092557	.0009272	.0210457
102	.0079059	.0003328	.0139894
103	.0120173	.0038958	.0081192
104	.0043238	.0015103	.0065867

TABLE B1-2, Cont'd

CROSS SECTION LINE 2

JOINT DISPLACEMENTS

Z + Y EARTHQUAKE SSE

(LOAD CASE 10)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

JOINT ID	/----DISPLACEMENTS (IN X	Y	Z)-----/
1	.0000000	.0000000	.0000000
2	.0023158	.0000611	.0077933
30	.0001311	.0001160	.0000403
31	.0083971	.0001832	.0156746
32	.0003812	.0002381	.0001434
33	.0170485	.0002808	.0296523
34	.0199099	.0003817	.0323531
35	.0199128	.0006606	.0290712
36	.0199269	.0014791	.0193333
37	.0206892	.0013750	.0184479
38	.0246973	.0015974	.0176280
39	.0263642	.0015207	.0174736
40	.0000000	.0000000	.0000000
41	.0028905	.0000520	.0101553
42	.0137745	.0034339	.0174782
43	.0202857	.0012557	.0175229
44	.0269061	.0013000	.0175534
45	.0583305	.0049058	.0176446
46	.0993229	.0008973	.0177763
47	.0969730	.0001606	.0192256
48	.0698450	.0001457	.0223742
49	.0508703	.0001390	.0207245
50	.0000000	.0000000	.0000000
51	.0678038	.0073122	.0352447
52	.1294456	.0230613	.0529337
53	.4412050	.0027255	.0529453
54	.6618711	.0443552	.0530388
55	.7770702	.0019151	.0881364
56	.7770691	.1242419	.2218200
57	.6570973	.2407342	.2781456
58	.0456713	.2408175	.1402667
59	.8860767	.2403936	.6605900
60	1.0990495	.0791021	.8485231
61	1.0862062	.0709838	.8570590
62	1.0320693	.0024643	.8727096
63	.3423362	.2665951	.8730159
64	.2065590	.2742604	.8730074
65	.1183030	.2026128	.8057751
66	.1162266	.0033817	.5333132
67	.1177790	.0091542	.3950498
68	.0088979	.0091393	.0556369
69	.0079317	.0043523	.0474439
70	.0039303	.0034401	.0451855
71	.0039354	.0004375	.0356196
72	.0039449	.0002123	.0187562
73	.0039484	.0017862	.0040836
74	.0104615	.0032921	.0048961
75	.0190453	.0038879	.0134790
76	.0190622	.0030376	.0212138
77	.0190932	.0004049	.0372517
78	.0114595	.0040885	.0451760
79	.0000000	.0000000	.0000000
80	.0000267	.0002446	.0010750
81	.0016921	.0011453	.0024958
82	.0039423	.0024544	.0025055
83	.0065882	.0105283	.0025104
84	.0057241	.0123487	.0030374
85	.0054135	.0122127	.0039105
86	.0051410	.0113362	.0052617
87	.0050846	.0031125	.0054252
88	.0050837	.0042923	.0054162
89	.0050771	.0035057	.0032326
90	.0051967	.0033442	.0021569
91	.0051038	.0033419	.0006956
92	.0044146	.0026944	.0000062
93	.0009356	.0000303	.0000024
94	.0000000	.0000000	.0000000
95	.0012888	.0031101	.0027660
96	.0000494	.0023538	.0017034
97	.0000225	.0006586	.0004884
98	.0000000	.0000000	.0000000
100	.0864413	.0014532	.0223742
101	.0074371	.0004375	.0497199
102	.0043657	.0002123	.0291677
103	.0193029	.0030376	.0207336
104	.0019960	.0011453	.0027320

TABLE B II

ELASTIC SUPPORT REACTIONS

Note: Designation "ECCS" in the following tables is synonomous with designation "HPCS"

TABLE B 11-1

ECCS SUCTION LINE 1

PLASTIC SUPPORT REACTIONS

(LOAD CASE 1)

DEAD WEIGHT AND OTHER SUSTAINED MECHANICAL LOADS

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	-25.355	63.988	31.460	-477.459	-1.596	-383.942
4	0.000	109.119	0.000	0.000	0.000	0.000
6	0.000	168.136	0.000	0.000	0.000	0.000
10	17.527	571.248	-14.896	947.707	-16.506	1229.724
23	16.230	161.296	9.710	1122.204	25.677	-1213.693
24	-17.514	173.957	-9.741	-173.644	-.002	312.231

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	-67.958	-.6690	0.0000	.7433
14	FORCE	3.124	-.7433	0.0000	-.6690
16	FORCE	49.574	-.6690	0.0000	.7433
16	FORCE	1.163	-.7433	0.0000	-.6690

(LOAD CASE 2)

THERMAL - NORMAL OPERATING CONDITION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	-65.92	-53.31	83.47	183.30	76.45	192.66
4	0.00	143.32	0.00	0.00	0.00	0.00
6	0.00	-197.38	0.00	0.00	0.00	0.00
10	722.21	113.46	43.77	-58.45	-11901.28	-3678.61
23	-341.78	-226.08	132.89	3558.74	10779.61	-6366.34
24	-370.47	219.90	-206.05	-6306.58	.07	11339.16

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	-224.501	-.6690	0.0000	.7433
14	FORCE	17.855	-.7433	0.0000	-.6690
16	FORCE	151.470	-.6690	0.0000	.7433
16	FORCE	-23.280	-.7433	0.0000	-.6690

PIPE SECTION LINE 1

ELASTIC SUPPORT REACTIONS

(LOAD CASE 5)

SEISMIC ANCHOR MOVEMENTS X - DIRECTION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	41.70	15.59	-44.63	-307.27	627.72	753.63
4	0.00	-49.37	0.00	0.00	0.00	0.00
6	0.00	92.74	0.00	0.00	0.00	0.00
10	1288.09	-84.85	185.45	1124.33	-27759.36	9494.02
22	-1709.60	25.88	-163.35	634.67	26651.22	-1032.11
28	.00	-.00	-.00	-.09	-.01	-.05

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	156.692	-.6690	0.0000	.7433
14	FORCE	32.000	-.7433	0.0000	-.6690
16	FORCE	-394.015	-.6690	0.0000	.7433
16	FORCE	-329.471	-.7433	0.0000	-.6690

(LOAD CASE 6)

SEISMIC ANCHOR MOVEMENTS Z - DIRECTION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	-45.06	-19.27	59.92	-596.43	415.95	284.25
4	0.00	61.04	0.00	0.00	0.00	0.00
6	0.00	-114.68	0.00	0.00	0.00	0.00
10	186.32	81.86	-227.48	-18240.78	-10398.31	-1000.90
22	-143.75	-8.95	-160.87	-851.18	-6561.73	532.33
28	-.00	.00	.00	.02	.00	.01

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	-181.607	-.6690	0.0000	.7433
14	FORCE	33.500	-.7433	0.0000	-.6690
16	FORCE	413.527	-.6690	0.0000	.7433
16	FORCE	-269.932	-.7433	0.0000	-.6690

FCCS SUCTION LINE 1

F L A S T I C S U P P O R T R E A C T I O N S

(LOAD CASE 7) X + Y EARTHQUAKE 1/2 SSE (ORE)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 6 BY SQSS SUMMATION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	145.1	2.2	117.6	2320.	20205.	2884.
4	0.0	6.7	0.0	0.	0.	0.
6	0.0	15.8	0.0	0.	0.	0.
10	85.3	9.8	66.8	943.	90.	1184.
23	2.7	3.5	.7	74.	24.	99.
25	.0	.0	.0	0.	0.	0.

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	53.3	-.6690	0.0000	.7433
16	FORCE	737.8	-.7433	0.0000	-.6690
18	FORCE	40.9	-.6690	0.0000	.7433
19	FORCE	603.3	-.7433	0.0000	-.6690

(LOAD CASE 8) -7 + Y EARTHQUAKE 1/2 SSE (ORE)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 6 BY SQSS SUMMATION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	117.1	3.1	95.6	1870.	14281.	2323.
4	0.0	9.7	0.0	0.	0.	0.
6	0.0	23.0	0.0	0.	0.	0.
10	68.8	13.9	53.9	763.	70.	956.
23	2.2	3.6	.5	80.	19.	101.
25	.0	.0	.0	0.	0.	0.

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	57.7	-.6690	0.0000	.7433
16	FORCE	596.4	-.7433	0.0000	-.6690
18	FORCE	38.3	-.6690	0.0000	.7433
19	FORCE	486.2	-.7433	0.0000	-.6690

TABLE B 11-1, Cont'd

FCCS SUCTION LINE 1

PLASTIC SUPPORT REACTIONS

(LOAD CASE 9) X + Y EARTHQUAKE SSE

TOTAL RESPONSE EQUALS MODE 1 THROUGH 6 BY SQSS SUMMATION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	209.	4.	170.	3333.	29006.	4143.
4	0.	13.	0.	0.	0.	0.
6	0.	30.	0.	0.	0.	0.
10	123.	18.	96.	1356.	141.	1702.
23	4.	7.	1.	147.	34.	184.
28	0.	0.	0.	0.	0.	0.

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	95.7	-.6690	0.0000	.7433
14	FORCE	1059.6	-.7433	0.0000	-.6690
16	FORCE	61.9	-.6690	0.0000	.7433
16	FORCE	866.1	-.7433	0.0000	-.6690

(LOAD CASE 10) Z + Y EARTHQUAKE SSE

TOTAL RESPONSE EQUALS MODE 1 THROUGH 6 BY SQSS SUMMATION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN.-LB.) X	Y	Z
1	168.6	5.9	138.4	2687.	23372.	3336.
4	0.0	18.1	0.0	0.	0.	0.
6	0.0	42.9	0.0	0.	0.	0.
10	98.8	25.8	77.6	1101.	106.	1376.
23	3.2	6.8	.8	156.	28.	190.
28	.0	.0	.0	0.	0.	0.

INCLINED AXIS SUPPORT REACTIONS

SUPPORT JOINT	REACTION TYPE	REACTION MAGNITUDE	DIRECTION COSINES (INCLINED AXIS) X	Y	Z
14	FORCE	99.4	-.6690	0.0000	.7433
14	FORCE	853.4	-.7433	0.0000	-.6690
16	FORCE	61.6	-.6690	0.0000	.7433
16	FORCE	697.9	-.7433	0.0000	-.6690

TABLE B 11-2

CROSS SECTION LINE 2

ELASTIC SUPPORT REACTIONS

(LOAD CASE 1)

DEAD WEIGHT AND OTHER SUSTAINED MECHANICAL LOADS

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN-LB.) X	Y	Z
10	.003	268.620	-.287	10.816	-17.316	.094
30	-.011	0.000	1.098	0.000	0.000	0.000
32	.444	0.000	.861	0.000	0.000	0.000
35	0.000	93.174	0.000	0.000	0.000	0.000
40	-3.397	-14.503	14.013	272.497	41.620	-67.168
43	0.000	268.941	0.000	0.000	0.000	0.000
45	0.000	193.869	0.000	0.000	0.000	0.000
50	19.155	111.596	1.110	163.480	-671.180	-664.204
53	0.000	-24.541	0.000	0.000	0.000	0.000
55	0.000	129.049	0.000	0.000	0.000	0.000
58	-7.857	0.000	-27.348	0.000	0.000	0.000
62	0.000	244.163	0.000	0.000	0.000	0.000
65	0.000	472.672	0.000	0.000	0.000	0.000
71	-.247	-450.746	2.271	0.000	0.000	0.000
73	-.243	786.819	1.197	0.000	0.000	0.000
77	-1.023	177.805	2.224	0.000	0.000	0.000
79	-4.150	93.753	5.950	763.617	-60.988	1605.049
93	.557	92.546	.001	0.000	0.000	0.000
96	1.854	-25.383	.866	-67.123	-49.994	-9.991
99	-7.078	129.937	-1.937	104.744	16.353	1372.394

(LOAD CASE 2)

THERMAL - NORMAL OPERATING CONDITION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN-LB.) X	Y	Z
10	.051	-1085.931	-3.041	114.755	-119.701	1.824
30	-.821	0.000	11.663	0.000	0.000	0.000
32	252.544	0.000	-6.657	0.000	0.000	0.000
35	0.000	1271.925	0.000	0.000	0.000	0.000
40	-270.492	149.068	-216.421	-3937.729	3297.384	9029.704
43	0.000	-297.859	0.000	0.000	0.000	0.000
45	0.000	-1456.729	0.000	0.000	0.000	0.000
50	-34.361	1361.175	201.090	-7910.397	-207.153	2160.547
53	0.000	83.969	0.000	0.000	0.000	0.000
55	0.000	-118.705	0.000	0.000	0.000	0.000
58	23.626	0.000	-.900	0.000	0.000	0.000
62	0.000	102.490	0.000	0.000	0.000	0.000
65	0.000	-169.883	0.000	0.000	0.000	0.000
71	29.440	277.950	-4.518	0.000	0.000	0.000
73	13.795	-221.974	4.359	0.000	0.000	0.000
77	39.782	85.658	12.712	0.000	0.000	0.000
79	8.341	10.726	-35.198	-84.623	-165.514	210.494
93	-9.003	-32.823	9.773	0.000	0.000	0.000
96	-31.966	14.270	-28.742	51.750	801.503	-167.764
99	-61.256	22.672	-55.291	-186.721	-751.070	180.523

TABLE B 11-2, Cont'd

[illegible] SECTION LINE 2

PLASTIC SUPPORT REACTIONS

(LOAD CASE 5)

SEISMIC ANCHOR MOVEMENTS Z - DIRECTION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN -LB.) X	Y	Z
10	.49	-9.31	-1.28	48.39	62.61	18.20
30	-1.90	0.00	4.93	0.00	0.00	0.00
32	7.90	0.00	-11.03	0.00	0.00	0.00
35	0.00	10.91	0.00	0.00	0.00	0.00
40	-1.17	229.92	-323.43	-7209.45	-49.80	-36.64
43	0.00	-247.30	0.00	0.00	0.00	0.00
44	0.00	-1109.96	0.00	0.00	0.00	0.00
50	6.18	1056.67	363.26	18283.19	-388.75	-1310.25
53	0.00	124.96	0.00	0.00	0.00	0.00
55	0.00	-60.49	0.00	0.00	0.00	0.00
58	-6.68	0.00	-39.52	0.00	0.00	0.00
62	0.00	8.46	0.00	0.00	0.00	0.00
66	0.00	-39.85	0.00	0.00	0.00	0.00
71	-.60	20.32	3.93	0.00	0.00	0.00
72	-.60	-19.28	1.79	0.00	0.00	0.00
77	-2.78	29.12	4.36	0.00	0.00	0.00
79	3.82	-.32	-2.98	-10.68	68.23	-6.39
93	-.10	-1.35	-.00	0.00	0.00	0.00
94	-.31	.93	-.05	2.69	8.47	-.63
98	-4.25	.56	.24	-1.50	-3.83	-2.78

(LOAD CASE 6)

SEISMIC ANCHOR MOVEMENTS X - DIRECTION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN -LB.) X	Y	Z
10	-3.023	57.710	3.944	-145.051	-9.778	-113.233
30	11.791	0.000	-14.745	0.000	0.000	0.000
32	-49.379	0.000	35.727	0.000	0.000	0.000
35	0.000	-47.963	0.000	0.000	0.000	0.000
40	5.599	14.290	-11.242	-232.897	1066.673	-274.792
43	0.000	-22.260	0.000	0.000	0.000	0.000
44	0.000	14.631	0.000	0.000	0.000	0.000
50	46.243	-.764	6.178	170.625	363.443	-3370.410
53	0.000	-5.713	0.000	0.000	0.000	0.000
55	0.000	22.264	0.000	0.000	0.000	0.000
58	-38.144	0.000	-16.113	0.000	0.000	0.000
62	0.000	-33.407	0.000	0.000	0.000	0.000
66	0.000	.934	0.000	0.000	0.000	0.000
71	.216	28.302	-.041	0.000	0.000	0.000
72	.209	-14.794	-.045	0.000	0.000	0.000
77	.042	-14.411	.115	0.000	0.000	0.000
79	5.440	1.301	-3.129	-.730	20.260	20.362
93	.025	.401	.000	0.000	0.000	0.000
94	.013	-.262	.125	-.753	-2.204	.135
98	.858	-.254	-.093	-.131	1.449	-1.102

TABLE B 11-2, Cont'd

FCCS SUCTION LINE 2

PLASTIC SUPPORT REACTIONS

(LOAD CASE 7)

X + Y EARTHQUAKE 1/2 SSE (ORE)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN -LB.) X	Y	Z
10	19.2	96.5	8.8	303.	52.	596.
30	33.2	0.0	21.0	0.	0.	0.
32	69.4	0.0	41.4	0.	0.	0.
35	0.0	111.5	0.0	0.	0.	0.
40	27.1	28.8	32.6	708.	1124.	1105.
43	0.0	24.7	0.0	0.	0.	0.
46	0.0	38.2	0.0	0.	0.	0.
50	117.0	43.5	18.0	466.	767.	5786.
53	0.0	157.6	0.0	0.	0.	0.
56	0.0	77.1	0.0	0.	0.	0.
58	81.2	0.0	86.4	0.	0.	0.
62	0.0	57.9	0.0	0.	0.	0.
66	0.0	466.8	0.0	0.	0.	0.
71	9.0	628.9	15.3	0.	0.	0.
72	8.9	215.8	8.1	0.	0.	0.
77	15.0	118.3	16.2	0.	0.	0.
79	115.6	22.5	52.3	224.	1409.	284.
93	1.2	20.7	.0	0.	0.	0.
94	4.9	15.0	3.9	44.	111.	5.
99	43.5	21.3	9.4	90.	129.	293.

(LOAD CASE 8)

Z + Y EARTHQUAKE 1/2 SSE (ORE)

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

SUPPORT JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN -LB.) X	Y	Z
10	4.26	35.94	18.98	585.	81.	145.
30	8.91	0.00	32.53	0.	0.	0.
32	25.72	0.00	28.78	0.	0.	0.
35	0.00	41.14	0.00	0.	0.	0.
40	17.45	77.88	114.74	2567.	384.	607.
43	0.00	79.53	0.00	0.	0.	0.
46	0.00	54.65	0.00	0.	0.	0.
50	64.16	89.72	50.79	1565.	1522.	2788.
53	0.00	166.80	0.00	0.	0.	0.
56	0.00	118.86	0.00	0.	0.	0.
58	84.03	0.00	180.19	0.	0.	0.
62	0.00	67.96	0.00	0.	0.	0.
66	0.00	94.91	0.00	0.	0.	0.
71	4.46	242.94	40.79	0.	0.	0.
72	4.47	117.58	21.55	0.	0.	0.
77	21.77	224.11	42.58	0.	0.	0.
79	77.05	14.75	62.09	134.	891.	199.
93	1.07	17.23	.00	0.	0.	0.
94	4.06	11.73	2.05	34.	96.	6.
99	39.09	13.93	7.57	51.	101.	136.

TABLE B 11-2. Cont'd

[illegible] SECTION TIME 2

[illegible] SOLUTIONS

(LOAD CASE 9)

+ .4 Y EARTHQUAKE CASE

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN-LB.) X	Y	Z
19	33.0	154.1	14.9	513.	88.	1021.
30	55.9	0.0	34.0	0.	0.	0.
32	111.6	0.0	67.3	0.	0.	0.
35	0.0	178.0	0.0	0.	0.	0.
40	44.6	47.6	55.0	1201.	1794.	1799.
42	0.0	43.7	0.0	0.	0.	0.
46	0.0	66.7	0.0	0.	0.	0.
50	186.8	107.1	31.2	821.	1356.	9215.
53	0.0	258.1	0.0	0.	0.	0.
56	0.0	130.7	0.0	0.	0.	0.
58	133.7	0.0	154.4	0.	0.	0.
62	0.0	92.6	0.0	0.	0.	0.
66	0.0	577.1	0.0	0.	0.	0.
71	14.8	926.2	27.3	0.	0.	0.
72	14.8	332.4	14.4	0.	0.	0.
77	25.4	212.0	29.0	0.	0.	0.
74	189.9	38.2	91.9	390.	2404.	476.
93	2.1	35.7	.0	0.	0.	0.
94	8.4	25.9	6.8	75.	191.	8.
90	73.3	37.4	15.7	158.	224.	513.

(LOAD CASE 10)

.7 + .4 Y EARTHQUAKE CASE

TOTAL RESPONSE EQUALS MODE 1 THROUGH 25 BY SQSS SUMMATION

JOINT	FORCE (LB.) X	Y	Z	MOMENT (IN-LB.) X	Y	Z
19	7.6	63.5	32.9	1010.	141.	259.
30	15.7	0.0	56.1	0.	0.	0.
32	45.7	0.0	50.2	0.	0.	0.
35	0.0	72.7	0.0	0.	0.	0.
40	30.9	135.2	199.2	4455.	683.	1075.
42	0.0	138.1	0.0	0.	0.	0.
46	0.0	97.5	0.0	0.	0.	0.
50	114.6	160.6	89.3	2744.	2744.	4965.
53	0.0	299.8	0.0	0.	0.	0.
56	0.0	210.7	0.0	0.	0.	0.
58	152.4	0.0	325.4	0.	0.	0.
62	0.0	123.2	0.0	0.	0.	0.
66	0.0	149.1	0.0	0.	0.	0.
71	7.9	447.0	71.9	0.	0.	0.
72	8.0	212.0	37.9	0.	0.	0.
77	38.5	404.5	75.2	0.	0.	0.
74	132.6	26.4	107.2	240.	1542.	357.
93	1.9	30.3	.0	0.	0.	0.
9.	7.2	20.6	5.2	59.	159.	10.
92	67.1	24.7	13.2	91.	177.	243.

TABLE B III

CLASS 1 COMPONENT
STRESS ANALYSIS PIPESD RESULTS

Note: Designation "ECCS" in the following tables is synonomous with designation "HPCS".

TABLE B-III-1

B. CLASS 1 COMPONENT STRESS ANALYSIS

B.0 STRESS INDICES

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE i	INTERNAL PRESSURE Ci	INTERNAL PRESSURE Ki	MOMENT LOADING i2	MOMENT LOADING Ci2	MOMENT LOADING Ki2	THERMAL LOADING Ci3	THERMAL LOADING Ki3	THERMAL LOADING Ci3P	TEE MOMENTS i2R	TEE MOMENTS i2B	TEE MOMENTS Ci2R	TEE MOMENTS Ci2B	TEE MOMENTS Ki2R	TEE MOMENTS Ki2B	STRESS INDEX DESCRIPTION
1S	2	.50	1.40	1.50	1.00	1.20	1.40	1.00	1.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	TAPERED TRANS. JOINT
	3	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
2S	3	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	4	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
3S	4	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	5	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
4S	5	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	6	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
5S	6	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	7	.50	1.10	1.20	1.00	1.00	1.80	1.00	1.70	.50	0.00	0.00	0.00	0.00	0.00	0.00	BUTT WELD, AS WELDED
6S	7	.50	1.10	1.20	1.00	1.00	1.80	1.00	1.70	.50	0.00	0.00	0.00	0.00	0.00	0.00	BUTT WELD, AS WELDED
	8	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
7S	9	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	10	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
8S	10	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	11	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
9S	12	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	13	.50	1.10	1.20	1.00	1.00	1.80	1.00	1.70	.50	0.00	0.00	0.00	0.00	0.00	0.00	BUTT WELD, AS WELDED
10S	13	.50	1.10	1.20	1.00	1.00	1.80	1.00	1.70	.50	0.00	0.00	0.00	0.00	0.00	0.00	BUTT WELD, AS WELDED
	14	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
11S	14	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	15	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
12S	15	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	16	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
13S	16	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	17	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
14S	17	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	18	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	2.17	2.17	2.90	2.90	1.00	1.00	WELDING TEE
15S	18	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	2.17	2.17	2.90	2.90	1.00	1.00	WELDING TEE
	19	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
16S	18	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	2.17	2.17	2.90	2.90	1.00	1.00	WELDING TEE
	20	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
17S	21	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	22	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
18S	22	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	23	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
19S	23	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	24	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
20S	24	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	25	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE

21S	26	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	27	.50	1.10	1.20	1.00	1.00	1.80	1.00	1.70	.50	0.00	0.00	0.00	0.00	0.00	0.00	BUTT WELD, AS WELDED
22S	27	.50	1.10	1.20	1.00	1.00	1.80	1.00	1.70	.50	0.00	0.00	0.00	0.00	0.00	0.00	BUTT WELD, AS WELDED
	28	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE i	INTERNAL PRESSURE Ci	INTERNAL PRESSURE Ki	MOMENT LOADING i2	MOMENT LOADING Ci2	MOMENT LOADING Ki2	THERMAL LOADING Ci3	THERMAL LOADING Ki3	THERMAL LOADING Ci3P	TEE MOMENTS i2R	TEE MOMENTS i2B	TEE MOMENTS Ci2R	TEE MOMENTS Ci2B	TEE MOMENTS Ki2R	TEE MOMENTS Ki2B	STRESS INDEX DESCRIPTION
1C	1	1.00	1.27	1.00	3.44	4.91	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	2	1.00	1.27	1.00	3.44	4.91	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
2C	8	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	9	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
3C	11	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	12	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
4C	20	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	21	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
5C	25	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	26	1.00	1.06	1.00	1.42	1.89	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF PDES SUCTION LINE 1 LOCA#2

8.1 CONSIDERATION OF EQUATION 9

STRESSES FOR EQUATION 9
LOAD SET 1 = LOAD COMBINATION 1

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PF)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SA)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1A	2	474.68	4802.02	0.00	0.00	0.00	6474.70	.2159	TAPERED TRANS. JOINT
	3	474.68	4849.27	0.00	0.00	0.00	5323.95	.1775	STRAIGHT PIPE
2A	3	474.68	4849.27	0.00	0.00	0.00	5323.95	.1775	STRAIGHT PIPE
	4	474.68	3309.41	0.00	0.00	0.00	3784.50	.1261	STRAIGHT PIPE
3A	4	474.68	3309.81	0.00	0.00	0.00	3784.50	.1261	STRAIGHT PIPE
	5	474.68	1765.59	0.00	0.00	0.00	2240.27	.0747	STRAIGHT PIPE
4A	5	474.68	1765.60	0.00	0.00	0.00	2240.28	.0747	STRAIGHT PIPE
	6	474.68	2201.64	0.00	0.00	0.00	2678.32	.0893	STRAIGHT PIPE
5A	6	474.68	2201.65	0.00	0.00	0.00	2678.33	.0893	STRAIGHT PIPE
	7	474.68	3036.52	0.00	0.00	0.00	3511.20	.1170	BUTT WELD, AS WELDED
6A	7	474.68	3036.51	0.00	0.00	0.00	3511.20	.1170	BUTT WELD, AS WELDED
	8	474.68	2802.54	0.00	0.00	0.00	3277.22	.1092	STRAIGHT PIPE
7A	9	474.68	1817.38	0.00	0.00	0.00	2292.06	.0764	STRAIGHT PIPE
	10	474.68	1019.48	0.00	0.00	0.00	1494.57	.0498	STRAIGHT PIPE
8A	10	474.68	1019.93	0.00	0.00	0.00	1494.61	.0498	STRAIGHT PIPE
	11	474.68	2554.13	0.00	0.00	0.00	3028.81	.1010	STRAIGHT PIPE
9A	12	474.68	3405.22	0.00	0.00	0.00	3879.90	.1293	STRAIGHT PIPE
	13	474.68	4945.05	0.00	0.00	0.00	5419.74	.1807	BUTT WELD, AS WELDED
10A	13	474.68	4945.05	0.00	0.00	0.00	5419.74	.1807	BUTT WELD, AS WELDED
	14	474.68	8009.39	0.00	0.00	0.00	8483.08	.2828	STRAIGHT PIPE
11A	14	474.68	8008.39	0.00	0.00	0.00	8483.08	.2828	STRAIGHT PIPE
	15	474.68	3147.82	0.00	0.00	0.00	3642.50	.1214	STRAIGHT PIPE
12A	15	474.68	3147.82	0.00	0.00	0.00	3642.50	.1214	STRAIGHT PIPE
	16	474.68	1698.88	0.00	0.00	0.00	2172.77	.0724	STRAIGHT PIPE
13A	16	474.68	1698.89	0.00	0.00	0.00	2172.77	.0724	STRAIGHT PIPE
	17	474.68	762.33	0.00	0.00	0.00	1237.01	.0412	STRAIGHT PIPE
14A	17	474.68	758.12	0.00	0.00	0.00	1224.80	.0408	STRAIGHT PIPE
	18	949.37	1729.82	0.00	0.00	0.00	2679.19	.0893	WELDING TEE
15A	18	949.37	1729.82	0.00	0.00	0.00	2679.19	.0893	WELDING TEE
	19	474.68	818.31	0.00	0.00	0.00	1293.00	.0431	STRAIGHT PIPE
16A	18	949.37	1729.82	0.00	0.00	0.00	2679.19	.0893	WELDING TEE
	20	474.68	197.92	0.00	0.00	0.00	672.61	.0224	STRAIGHT PIPE
17A	21	474.68	306.94	0.00	0.00	0.00	781.23	.0260	STRAIGHT PIPE
	22	474.68	158.61	0.00	0.00	0.00	633.30	.0211	STRAIGHT PIPE
18A	22	474.68	158.61	0.00	0.00	0.00	633.30	.0211	STRAIGHT PIPE
	23	474.68	825.41	0.00	0.00	0.00	1300.09	.0433	STRAIGHT PIPE
19A	23	474.68	277.43	0.00	0.00	0.00	752.31	.0251	STRAIGHT PIPE
	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
20A	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
	25	474.68	73.98	0.00	0.00	0.00	548.66	.0182	STRAIGHT PIPE
21A	26	474.68	100.58	0.00	0.00	0.00	575.26	.0192	STRAIGHT PIPE
	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED

22A	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED
	28	474.68	111.14	0.00	0.00	0.00	585.83	.0195	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PF)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SA)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	1183.04	8916.84	0.00	0.00	0.00	10093.88	.3365	CURVED PIPE
	2	1183.04	8344.48	0.00	0.00	0.00	9547.51	.3183	CURVED PIPE
2C	8	949.37	3979.15	0.00	0.00	0.00	4928.51	.1643	CURVED PIPE
	9	949.37	2589.41	0.00	0.00	0.00	3539.77	.1171	CURVED PIPE
3C	11	949.37	3624.45	0.00	0.00	0.00	4575.82	.1525	CURVED PIPE
	12	949.37	4337.95	0.00	0.00	0.00	5287.32	.1762	CURVED PIPE
4C	25	949.37	241.02	0.00	0.00	0.00	1239.39	.0410	CURVED PIPE
	21	949.37	435.24	0.00	0.00	0.00	1384.61	.0462	CURVED PIPE
5C	25	949.37	105.03	0.00	0.00	0.00	1054.40	.0351	CURVED PIPE
	26	949.37	142.80	0.00	0.00	0.00	1092.17	.0364	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FEED SUCTION LINE 1 LACRMR

STRESSES FOR EQUATION 9
LOAD SET 2 = LOAD COMBINATION 2

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PF)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	2	474.68	4894.96	0.00	0.00	0.00	5331.62	.1721	TAPERED TRANS. JOINT
	3	474.68	3908.34	0.00	0.00	0.00	4383.02	.1461	STRAIGHT PIPE
2S	3	474.68	3908.33	0.00	0.00	0.00	4383.01	.1461	STRAIGHT PIPE
	4	474.68	2672.65	0.00	0.00	0.00	3147.34	.1049	STRAIGHT PIPE
3S	4	474.68	2672.66	0.00	0.00	0.00	3147.34	.1049	STRAIGHT PIPE
	5	474.68	1424.18	0.00	0.00	0.00	1898.87	.0633	STRAIGHT PIPE
4S	5	474.68	1424.19	0.00	0.00	0.00	1898.88	.0633	STRAIGHT PIPE
	6	474.68	1821.66	0.00	0.00	0.00	2296.34	.0765	STRAIGHT PIPE
5S	6	474.68	1821.67	0.00	0.00	0.00	2296.36	.0765	STRAIGHT PIPE
	7	474.68	2473.07	0.00	0.00	0.00	2947.75	.0983	BUTT WELD, AS WELDED
6S	7	474.68	2473.07	0.00	0.00	0.00	2947.75	.0983	BUTT WELD, AS WELDED
	8	474.68	2270.28	0.00	0.00	0.00	2744.96	.0915	STRAIGHT PIPE
7S	9	474.68	1468.15	0.00	0.00	0.00	1942.84	.0648	STRAIGHT PIPE
	10	474.68	846.93	0.00	0.00	0.00	1321.62	.0441	STRAIGHT PIPE
8S	10	474.68	846.98	0.00	0.00	0.00	1321.66	.0441	STRAIGHT PIPE
	11	474.68	2106.90	0.00	0.00	0.00	2581.58	.0861	STRAIGHT PIPE
9S	12	474.68	2826.91	0.00	0.00	0.00	3301.59	.1101	STRAIGHT PIPE
	13	474.68	4052.08	0.00	0.00	0.00	4474.74	.1492	BUTT WELD, AS WELDED
10S	13	474.68	4052.06	0.00	0.00	0.00	4474.74	.1492	BUTT WELD, AS WELDED
	14	474.68	6528.59	0.00	0.00	0.00	7003.28	.2334	STRAIGHT PIPE
11S	14	474.68	6528.59	0.00	0.00	0.00	7003.28	.2334	STRAIGHT PIPE
	15	474.68	2576.63	0.00	0.00	0.00	3051.32	.1017	STRAIGHT PIPE
12S	15	474.68	2576.63	0.00	0.00	0.00	3051.32	.1017	STRAIGHT PIPE
	16	474.68	1396.28	0.00	0.00	0.00	1870.95	.0624	STRAIGHT PIPE
13S	16	474.68	1396.26	0.00	0.00	0.00	1870.95	.0624	STRAIGHT PIPE
	17	474.68	619.88	0.00	0.00	0.00	1094.57	.0365	STRAIGHT PIPE
14S	17	474.68	607.79	0.00	0.00	0.00	1082.48	.0361	STRAIGHT PIPE
	18	949.37	1709.92	0.00	0.00	0.00	2659.29	.0886	WELDING TEE
15S	18	949.37	1709.92	0.00	0.00	0.00	2659.29	.0886	WELDING TEE
	19	474.68	743.81	0.00	0.00	0.00	1218.49	.0406	STRAIGHT PIPE
16S	19	949.37	1709.92	0.00	0.00	0.00	2659.29	.0886	WELDING TEE
	20	474.68	193.97	0.00	0.00	0.00	668.66	.0223	STRAIGHT PIPE
17S	21	474.68	305.47	0.00	0.00	0.00	780.35	.0260	STRAIGHT PIPE
	22	474.68	158.44	0.00	0.00	0.00	633.12	.0211	STRAIGHT PIPE
18S	22	474.68	158.44	0.00	0.00	0.00	633.12	.0211	STRAIGHT PIPE
	23	474.68	826.70	0.00	0.00	0.00	1301.38	.0434	STRAIGHT PIPE
19S	23	474.68	277.63	0.00	0.00	0.00	752.31	.0251	STRAIGHT PIPE
	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
20S	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
	25	474.68	33.98	0.00	0.00	0.00	548.66	.0183	STRAIGHT PIPE
21S	26	474.68	100.58	0.00	0.00	0.00	575.26	.0192	STRAIGHT PIPE
	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED

22S	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED
	28	474.68	111.14	0.00	0.00	0.00	585.83	.0195	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PF)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	1143.04	7183.07	0.00	0.00	0.00	8346.11	.2749	CURVED PIPE
	2	1143.04	6765.81	0.00	0.00	0.00	7923.85	.2641	CURVED PIPE
2C	A	949.37	3223.42	0.00	0.00	0.00	4172.79	.1391	CURVED PIPE
	B	949.37	2084.56	0.00	0.00	0.00	3033.93	.1011	CURVED PIPE
3C	11	949.37	2991.46	0.00	0.00	0.00	3940.82	.1314	CURVED PIPE
	12	949.37	3547.09	0.00	0.00	0.00	4496.46	.1499	CURVED PIPE
4C	20	949.37	274.41	0.00	0.00	0.00	1224.78	.0408	CURVED PIPE
	21	949.37	434.00	0.00	0.00	0.00	1383.36	.0461	CURVED PIPE
5C	25	949.37	105.03	0.00	0.00	0.00	1054.40	.0351	CURVED PIPE
	26	949.37	142.80	0.00	0.00	0.00	1092.17	.0364	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF PCCS SUCTION LINE 1 LACAVA

STRESSES FOR EQUATION 9
LOAD SET 3 = LOAD COMBINATION 3

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	3	474.68	8415.43	0.00	0.00	0.00	8890.12	.3038	TAPERED TWALS, JOINT
	3	474.68	4959.59	0.00	0.00	0.00	7434.24	.2478	STRAIGHT PIPE
2S	3	474.68	4959.58	0.00	0.00	0.00	7434.27	.2478	STRAIGHT PIPE
	4	474.68	4744.83	0.00	0.00	0.00	5219.56	.1740	STRAIGHT PIPE
3S	4	474.68	4744.87	0.00	0.00	0.00	5219.56	.1740	STRAIGHT PIPE
	5	474.68	2537.61	0.00	0.00	0.00	3012.29	.1004	STRAIGHT PIPE
4S	5	474.68	2537.62	0.00	0.00	0.00	3012.30	.1004	STRAIGHT PIPE
	6	474.68	3171.55	0.00	0.00	0.00	3568.23	.1189	STRAIGHT PIPE
5S	6	474.68	3171.56	0.00	0.00	0.00	3594.25	.1199	STRAIGHT PIPE
	7	474.68	4339.45	0.00	0.00	0.00	4814.13	.1605	BUTT WELD, AS WELDED
6S	7	474.68	4339.44	0.00	0.00	0.00	4814.13	.1605	BUTT WELD, AS WELDED
	8	474.68	4023.42	0.00	0.00	0.00	4498.10	.1499	STRAIGHT PIPE
7S	8	474.68	2688.02	0.00	0.00	0.00	3088.70	.1029	STRAIGHT PIPE
	10	474.68	1471.27	0.00	0.00	0.00	1945.95	.0649	STRAIGHT PIPE
8S	10	474.68	1471.31	0.00	0.00	0.00	1946.00	.0649	STRAIGHT PIPE
	11	474.68	3648.70	0.00	0.00	0.00	4123.38	.1374	STRAIGHT PIPE
9S	12	474.68	4721.44	0.00	0.00	0.00	5196.12	.1732	STRAIGHT PIPE
	13	474.68	7066.23	0.00	0.00	0.00	7540.92	.2514	BUTT WELD, AS WELDED
10S	13	474.68	7066.23	0.00	0.00	0.00	7540.92	.2514	BUTT WELD, AS WELDED
	14	474.68	11337.88	0.00	0.00	0.00	11812.56	.3938	STRAIGHT PIPE
11S	14	474.68	11337.88	0.00	0.00	0.00	11812.56	.3938	STRAIGHT PIPE
	15	474.68	4498.39	0.00	0.00	0.00	4973.08	.1658	STRAIGHT PIPE
12S	15	474.68	4498.38	0.00	0.00	0.00	4973.08	.1658	STRAIGHT PIPE
	16	474.68	2378.51	0.00	0.00	0.00	2853.20	.0951	STRAIGHT PIPE
13S	16	474.68	2378.51	0.00	0.00	0.00	2853.20	.0951	STRAIGHT PIPE
	17	474.68	1083.31	0.00	0.00	0.00	1558.00	.0519	STRAIGHT PIPE
14S	17	474.68	1071.02	0.00	0.00	0.00	1545.70	.0515	STRAIGHT PIPE
	18	949.37	1828.09	0.00	0.00	0.00	2778.45	.0926	WELDING TEE
15S	18	949.37	1828.09	0.00	0.00	0.00	2778.45	.0926	WELDING TEE
	19	474.68	1001.60	0.00	0.00	0.00	1476.28	.0492	STRAIGHT PIPE
16S	19	949.37	1828.09	0.00	0.00	0.00	2778.45	.0926	WELDING TEE
	20	474.68	208.68	0.00	0.00	0.00	683.36	.0228	STRAIGHT PIPE
17S	21	474.68	376.69	0.00	0.00	0.00	851.37	.0267	STRAIGHT PIPE
	22	474.68	167.06	0.00	0.00	0.00	641.74	.0214	STRAIGHT PIPE
18S	22	474.68	167.06	0.00	0.00	0.00	641.74	.0214	STRAIGHT PIPE
	23	474.68	859.12	0.00	0.00	0.00	1334.80	.0445	STRAIGHT PIPE
19S	23	474.68	277.63	0.00	0.00	0.00	752.31	.0251	STRAIGHT PIPE
	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
20S	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
	25	474.68	73.98	0.00	0.00	0.00	548.66	.0183	STRAIGHT PIPE
21S	26	474.68	100.58	0.00	0.00	0.00	575.26	.0192	STRAIGHT PIPE
	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED

22S	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED
	28	474.68	111.14	0.00	0.00	0.00	585.83	.0195	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	1183.04	12789.15	0.00	0.00	0.00	13972.22	.4657	CURVED PIPE
	2	1183.04	12006.56	0.00	0.00	0.00	13189.60	.4397	CURVED PIPE
2C	8	949.37	5712.65	0.00	0.00	0.00	6661.96	.2221	CURVED PIPE
	9	949.37	3700.15	0.00	0.00	0.00	4649.52	.1550	CURVED PIPE
3C	11	949.37	5180.57	0.00	0.00	0.00	6129.94	.2043	CURVED PIPE
	12	949.37	6204.01	0.00	0.00	0.00	7153.38	.2384	CURVED PIPE
4C	20	949.37	296.20	0.00	0.00	0.00	1245.56	.0415	CURVED PIPE
	21	949.37	463.84	0.00	0.00	0.00	1413.21	.0471	CURVED PIPE
5C	25	949.37	105.03	0.00	0.00	0.00	1054.40	.0351	CURVED PIPE
	24	949.37	142.80	0.00	0.00	0.00	1092.17	.0364	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCGR SUCTION LINE 1 (CRAN)

STRESSES FOR EQUATION 9
LOAD SET 4 = LOAD COMBINATION 4

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	2	474.68	4969.68	0.00	0.00	0.00	7417.33	.2672	TAPERED TRANS, JOINT
	3	474.68	4808.99	0.00	0.00	0.00	6093.67	.2028	STRAIGHT PIPE
2S	3	474.68	4808.99	0.00	0.00	0.00	6083.67	.2028	STRAIGHT PIPE
	4	474.68	3824.52	0.00	0.00	0.00	4303.28	.1434	STRAIGHT PIPE
3S	4	474.68	3824.52	0.00	0.00	0.00	4303.70	.1434	STRAIGHT PIPE
	5	474.68	2044.74	0.00	0.00	0.00	2520.42	.0840	STRAIGHT PIPE
4S	5	474.68	2046.75	0.00	0.00	0.00	2520.43	.0840	STRAIGHT PIPE
	6	474.68	2564.32	0.00	0.00	0.00	3039.06	.1013	STRAIGHT PIPE
5S	6	474.68	2564.33	0.00	0.00	0.00	3039.02	.1013	STRAIGHT PIPE
	7	474.68	3524.03	0.00	0.00	0.00	4000.71	.1334	BUTT WELD, AS WELDED
6S	7	474.68	3524.03	0.00	0.00	0.00	4000.71	.1334	BUTT WELD, AS WELDED
	8	474.68	3241.36	0.00	0.00	0.00	3734.05	.1245	STRAIGHT PIPE
7S	9	474.68	2103.94	0.00	0.00	0.00	2534.63	.0845	STRAIGHT PIPE
	10	474.68	1274.73	0.00	0.00	0.00	1699.41	.0566	STRAIGHT PIPE
8S	10	474.68	1274.77	0.00	0.00	0.00	1699.46	.0566	STRAIGHT PIPE
	11	474.68	2853.91	0.00	0.00	0.00	3478.59	.1160	STRAIGHT PIPE
9S	12	474.68	3895.03	0.00	0.00	0.00	4369.71	.1457	STRAIGHT PIPE
	13	474.68	5710.24	0.00	0.00	0.00	6184.93	.2062	BUTT WELD, AS WELDED
10S	13	474.68	5710.24	0.00	0.00	0.00	6184.93	.2062	BUTT WELD, AS WELDED
	14	474.68	9214.84	0.00	0.00	0.00	9690.73	.3230	STRAIGHT PIPE
11S	14	474.68	9214.84	0.00	0.00	0.00	9690.73	.3230	STRAIGHT PIPE
	15	474.68	3655.71	0.00	0.00	0.00	4125.39	.1375	STRAIGHT PIPE
12S	15	474.68	3655.71	0.00	0.00	0.00	4125.39	.1375	STRAIGHT PIPE
	16	474.68	1944.08	0.00	0.00	0.00	2420.76	.0807	STRAIGHT PIPE
13S	16	474.68	1944.08	0.00	0.00	0.00	2420.76	.0807	STRAIGHT PIPE
	17	474.68	870.84	0.00	0.00	0.00	1353.75	.0451	STRAIGHT PIPE
14S	17	474.68	866.90	0.00	0.00	0.00	1341.58	.0447	STRAIGHT PIPE
	18	949.37	1801.68	0.00	0.00	0.00	2751.05	.0917	WELDING TEE
15S	18	949.37	1801.68	0.00	0.00	0.00	2751.05	.0917	WELDING TEE
	19	474.68	888.93	0.00	0.00	0.00	1363.62	.0455	STRAIGHT PIPE
16S	19	949.37	1801.68	0.00	0.00	0.00	2751.05	.0917	WELDING TEE
	20	474.68	203.27	0.00	0.00	0.00	677.96	.0226	STRAIGHT PIPE
17S	21	474.68	324.62	0.00	0.00	0.00	801.31	.0267	STRAIGHT PIPE
	22	474.68	167.38	0.00	0.00	0.00	641.98	.0214	STRAIGHT PIPE
18S	22	474.68	167.38	0.00	0.00	0.00	641.98	.0214	STRAIGHT PIPE
	23	474.68	863.45	0.00	0.00	0.00	1338.14	.0446	STRAIGHT PIPE
19S	23	474.68	277.63	0.00	0.00	0.00	752.31	.0251	STRAIGHT PIPE
	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
20S	24	474.68	138.19	0.00	0.00	0.00	612.88	.0204	STRAIGHT PIPE
	25	474.68	33.98	0.00	0.00	0.00	544.66	.0181	STRAIGHT PIPE
21S	26	474.68	100.59	0.00	0.00	0.00	575.26	.0192	STRAIGHT PIPE
	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED

22S	27	474.68	19.78	0.00	0.00	0.00	494.46	.0165	BUTT WELD, AS WELDED
	28	474.68	111.14	0.00	0.00	0.00	585.83	.0195	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	1143.04	10387.32	0.00	0.00	0.00	11405.36	.3838	CURVED PIPE
	2	1143.04	9675.40	0.00	0.00	0.00	10858.44	.3619	CURVED PIPE
2C	8	949.37	4830.60	0.00	0.00	0.00	5579.97	.1860	CURVED PIPE
	9	949.37	2983.34	0.00	0.00	0.00	3934.71	.1312	CURVED PIPE
3C	11	949.37	4265.07	0.00	0.00	0.00	5216.44	.1739	CURVED PIPE
	12	949.37	5044.55	0.00	0.00	0.00	6013.92	.2005	CURVED PIPE
4C	20	949.37	288.61	0.00	0.00	0.00	1237.98	.0413	CURVED PIPE
	21	949.37	463.75	0.00	0.00	0.00	1413.12	.0471	CURVED PIPE
5C	25	949.37	104.83	0.00	0.00	0.00	1054.40	.0351	CURVED PIPE
	26	949.37	142.80	0.00	0.00	0.00	1092.17	.0364	CURVED PIPE

[illegible] AND STRESS ANALYSIS OF FEED SUCTION LINE 1 LACONA

8.2 CONSIDERATION OF EQUATION 10

STRESSES FOR EQUATION 10
LOAD SET 1 = LOAD COMBINATION 6

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	2	245.82	7521.85	0.00	0.00	0.00	7787.68	.1298	TAPERED TRANS. JOINT
	3	189.87	5090.83	0.00	0.00	0.00	5280.70	.0880	STRAIGHT PIPE
2S	3	189.87	5090.83	0.00	0.00	0.00	5280.70	.0880	STRAIGHT PIPE
	4	189.87	3551.37	0.00	0.00	0.00	3741.25	.0624	STRAIGHT PIPE
3S	4	189.87	3551.38	0.00	0.00	0.00	3741.25	.0624	STRAIGHT PIPE
	5	189.87	2036.68	0.00	0.00	0.00	2226.27	.0371	STRAIGHT PIPE
4S	5	189.87	2036.45	0.00	0.00	0.00	2226.32	.0371	STRAIGHT PIPE
	6	189.87	2614.33	0.00	0.00	0.00	2804.20	.0468	STRAIGHT PIPE
5S	6	189.87	2619.30	0.00	0.00	0.00	2809.18	.0468	STRAIGHT PIPE
	7	208.86	3258.30	0.00	0.00	0.00	3467.16	.0578	BUTT WELD, AS WELDED
6S	7	208.86	3258.29	0.00	0.00	0.00	3467.16	.0578	BUTT WELD, AS WELDED
	8	189.87	3144.96	0.00	0.00	0.00	3334.84	.0556	STRAIGHT PIPE
7S	9	189.87	2152.60	0.00	0.00	0.00	2342.47	.0390	STRAIGHT PIPE
	10	189.87	1349.24	0.00	0.00	0.00	1539.12	.0257	STRAIGHT PIPE
8S	10	189.87	1349.09	0.00	0.00	0.00	1538.96	.0256	STRAIGHT PIPE
	11	189.87	2635.46	0.00	0.00	0.00	2825.33	.0471	STRAIGHT PIPE
9S	12	189.87	3142.84	0.00	0.00	0.00	3358.71	.0560	STRAIGHT PIPE
	13	208.86	5136.87	0.00	0.00	0.00	5565.73	.0931	BUTT WELD, AS WELDED
10S	13	208.86	5376.87	0.00	0.00	0.00	5585.73	.0931	BUTT WELD, AS WELDED
	14	189.87	8438.30	0.00	0.00	0.00	8818.17	.1470	STRAIGHT PIPE
11S	14	189.87	8438.30	0.00	0.00	0.00	8818.17	.1470	STRAIGHT PIPE
	15	189.87	3857.25	0.00	0.00	0.00	4047.12	.0675	STRAIGHT PIPE
12S	15	189.87	3857.25	0.00	0.00	0.00	4047.12	.0675	STRAIGHT PIPE
	16	189.87	2344.23	0.00	0.00	0.00	2534.11	.0423	STRAIGHT PIPE
13S	16	189.87	2344.23	0.00	0.00	0.00	2556.11	.0426	STRAIGHT PIPE
	17	189.87	2840.70	0.00	0.00	0.00	3050.57	.0508	STRAIGHT PIPE
14S	17	189.87	2842.12	0.00	0.00	0.00	3031.99	.0505	STRAIGHT PIPE
	18	284.81	50805.66	0.00	0.00	0.00	51090.47	.8515	WELDING TEE
15S	18	284.81	50805.66	0.00	0.00	0.00	51090.47	.8515	WELDING TEE
	19	189.87	12556.89	0.00	0.00	0.00	12746.73	.2124	STRAIGHT PIPE
16S	18	284.81	50805.66	0.00	0.00	0.00	51090.47	.8515	WELDING TEE
	20	189.87	7232.59	0.00	0.00	0.00	7422.45	.1237	STRAIGHT PIPE
17S	21	189.87	8915.63	0.00	0.00	0.00	9105.51	.1518	STRAIGHT PIPE
	22	189.87	349.17	0.00	0.00	0.00	539.05	.0090	STRAIGHT PIPE
18S	22	189.87	349.17	0.00	0.00	0.00	539.05	.0090	STRAIGHT PIPE
	23	189.87	11656.82	0.00	0.00	0.00	11846.69	.1974	STRAIGHT PIPE
19S	21	189.87	2375.51	0.00	0.00	0.00	2565.39	.0428	STRAIGHT PIPE
	24	189.87	360.75	0.00	0.00	0.00	550.62	.0092	STRAIGHT PIPE
20S	24	189.87	360.75	0.00	0.00	0.00	550.62	.0092	STRAIGHT PIPE
	25	189.87	1713.95	0.00	0.00	0.00	1903.83	.0317	STRAIGHT PIPE
21S	24	189.87	442.09	0.00	0.00	0.00	631.96	.0105	STRAIGHT PIPE
	27	208.86	1267.03	0.00	0.00	0.00	1475.89	.0246	BUTT WELD, AS WELDED

22S	27	208.86	1267.03	0.00	0.00	0.00	1475.89	.0246	BUTT WELD, AS WELDED
	28	189.87	4036.43	0.00	0.00	0.00	4226.30	.0704	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	281.01	12349.39	0.00	0.00	0.00	12678.41	.2113	CURVED PIPE
	2	281.01	11467.28	0.00	0.00	0.00	11948.28	.1991	CURVED PIPE
2C	8	281.17	5957.55	0.00	0.00	0.00	6158.73	.1026	CURVED PIPE
	9	281.17	4875.24	0.00	0.00	0.00	4276.41	.0713	CURVED PIPE
3C	11	281.17	4949.24	0.00	0.00	0.00	5190.41	.0865	CURVED PIPE
	12	281.17	5910.10	0.00	0.00	0.00	6111.36	.1019	CURVED PIPE
4C	20	281.17	13092.13	0.00	0.00	0.00	13383.38	.2314	CURVED PIPE
	21	281.17	16879.35	0.00	0.00	0.00	17379.53	.2847	CURVED PIPE
5C	25	281.17	3244.72	0.00	0.00	0.00	3445.89	.0574	CURVED PIPE
	26	281.17	836.93	0.00	0.00	0.00	1038.10	.0173	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 1 LACRW

STRESSES FOR EQUATION 10
LOAD SET 2 & LOAD COMBINATION A

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	2	245.82	4544.59	0.00	0.00	0.00	6310.41	.1052	TAPERED TRANS. JOINT
	3	189.87	4090.84	0.00	0.00	0.00	4280.51	.0713	STRAIGHT PIPE
2S	3	189.87	4090.84	0.00	0.00	0.00	4280.51	.0713	STRAIGHT PIPE
	4	189.87	3047.12	0.00	0.00	0.00	3157.10	.0526	STRAIGHT PIPE
3S	4	189.87	3047.12	0.00	0.00	0.00	3157.70	.0526	STRAIGHT PIPE
	5	189.87	1884.55	0.00	0.00	0.00	2074.42	.0346	STRAIGHT PIPE
4S	5	189.87	1884.55	0.00	0.00	0.00	2074.54	.0346	STRAIGHT PIPE
	6	189.87	3396.82	0.00	0.00	0.00	3586.49	.0598	STRAIGHT PIPE
5S	6	189.87	3396.78	0.00	0.00	0.00	3586.65	.0598	STRAIGHT PIPE
	7	208.86	2586.70	0.00	0.00	0.00	2795.56	.0466	BUTT WELD, AS WELDED
6S	7	208.86	2586.70	0.00	0.00	0.00	2795.56	.0466	BUTT WELD, AS WELDED
	8	189.87	3992.80	0.00	0.00	0.00	4182.47	.0697	STRAIGHT PIPE
7S	8	189.87	3712.67	0.00	0.00	0.00	3902.55	.0650	STRAIGHT PIPE
	9	189.87	2558.24	0.00	0.00	0.00	2748.11	.0458	STRAIGHT PIPE
8S	10	189.87	2558.86	0.00	0.00	0.00	2748.73	.0458	STRAIGHT PIPE
	11	189.87	2404.37	0.00	0.00	0.00	2593.85	.0433	STRAIGHT PIPE
9S	12	189.87	2994.67	0.00	0.00	0.00	3184.54	.0531	STRAIGHT PIPE
	13	208.86	4820.65	0.00	0.00	0.00	5029.52	.0838	BUTT WELD, AS WELDED
10S	13	208.86	4820.66	0.00	0.00	0.00	5029.52	.0838	BUTT WELD, AS WELDED
	14	189.87	6045.64	0.00	0.00	0.00	6235.52	.1039	STRAIGHT PIPE
11S	14	189.87	6045.66	0.00	0.00	0.00	6235.52	.1039	STRAIGHT PIPE
	15	189.87	3246.94	0.00	0.00	0.00	3436.81	.0576	STRAIGHT PIPE
12S	15	189.87	3246.94	0.00	0.00	0.00	3436.81	.0576	STRAIGHT PIPE
	16	189.87	2446.32	0.00	0.00	0.00	2636.19	.0473	STRAIGHT PIPE
13S	16	189.87	2446.32	0.00	0.00	0.00	2636.19	.0473	STRAIGHT PIPE
	17	189.87	2214.68	0.00	0.00	0.00	2404.56	.0401	STRAIGHT PIPE
14S	17	189.87	2335.58	0.00	0.00	0.00	2525.45	.0421	STRAIGHT PIPE
	18	286.81	35029.56	0.00	0.00	0.00	35313.37	.5886	WELDING TEE
15S	18	286.81	35029.56	0.00	0.00	0.00	35313.37	.5886	WELDING TEE
	19	189.87	9337.83	0.00	0.00	0.00	9527.70	.1588	STRAIGHT PIPE
16S	19	286.81	35029.56	0.00	0.00	0.00	35313.37	.5886	WELDING TEE
	20	189.87	1845.34	0.00	0.00	0.00	2035.23	.0339	STRAIGHT PIPE
17S	21	189.87	3372.48	0.00	0.00	0.00	3562.35	.0594	STRAIGHT PIPE
	22	189.87	1433.74	0.00	0.00	0.00	1623.59	.0271	STRAIGHT PIPE
18S	22	189.87	1433.71	0.00	0.00	0.00	1623.59	.0271	STRAIGHT PIPE
	23	189.87	1334.85	0.00	0.00	0.00	1524.72	.0254	STRAIGHT PIPE
19S	23	189.87	2074.52	0.00	0.00	0.00	2565.33	.0428	STRAIGHT PIPE
	24	189.87	360.75		0.00	0.00	550.62	.0092	STRAIGHT PIPE
20S	24	189.87	360.75		0.00	0.00	550.62	.0092	STRAIGHT PIPE
	25	189.87	1813.95		0.00	0.00	1903.83	.0317	STRAIGHT PIPE
21S	26	189.87	442.09		0.00	0.00	631.97	.0105	STRAIGHT PIPE
	27	208.86	1267.03		0.00	0.00	1475.89	.0246	BUTT WELD, AS WELDED

22S	27	208.86	1267.03	0.00	0.00	0.00	1475.89	.0246	BUTT WELD, AS WELDED
	28	189.87	4034.43	0.00	0.00	0.00	4226.30	.0704	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	301.11	9914.51	0.00	0.00	0.00	10219.55	.1703	CURVED PIPE
	2	301.11	9329.79	0.00	0.00	0.00	9630.80	.1605	CURVED PIPE
2C	8	281.17	7958.53	0.00	0.00	0.00	7759.52	.1293	CURVED PIPE
	9	281.17	7024.85	0.00	0.00	0.00	7230.02	.1205	CURVED PIPE
3C	11	281.17	4745.47	0.00	0.00	0.00	4761.64	.0794	CURVED PIPE
	12	281.17	5020.12	0.00	0.00	0.00	5201.29	.0867	CURVED PIPE
4C	29	281.17	3494.58	0.00	0.00	0.00	3694.65	.0616	CURVED PIPE
	21	281.17	6384.50	0.00	0.00	0.00	6585.67	.1098	CURVED PIPE
5C	25	281.17	3268.72	0.00	0.00	0.00	3445.89	.0574	CURVED PIPE
	26	281.17	839.93	0.00	0.00	0.00	1038.11	.0173	CURVED PIPE

STRESS AND STRESS ANALYSIS OF RCCS SUCTION LINE 1 LOCA#2

B.3 CONSIDERATION OF EQUATION 11 & EQUATION 14

STRESSES FOR EQUATION 11 & EQUATION 14
LOAD CASE 1 = LOAD COMBINATION 5

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PF)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	2	348.73	13539.33	0.00	0.00	0.00	13938.07	6969.03	TAPERED TRANS. JOINT
	3	189.87	5090.83	0.00	0.00	0.00	5280.70	2640.35	STRAIGHT PIPE
2S	3	189.87	5090.84	0.00	0.00	0.00	5280.71	2640.36	STRAIGHT PIPE
	4	189.87	3551.37	0.00	0.00	0.00	3741.25	1870.62	STRAIGHT PIPE
3S	4	189.87	3551.38	0.00	0.00	0.00	3741.25	1870.62	STRAIGHT PIPE
	5	189.87	2034.66	0.00	0.00	0.00	2224.23	1113.16	STRAIGHT PIPE
4S	5	189.87	2034.65	0.00	0.00	0.00	2224.22	1113.16	STRAIGHT PIPE
	6	189.87	2619.31	0.00	0.00	0.00	2809.20	1404.59	STRAIGHT PIPE
5S	6	189.87	2619.30	0.00	0.00	0.00	2809.18	1404.59	STRAIGHT PIPE
	7	258.63	5844.93	0.00	0.00	0.00	6115.57	3057.78	BUTT WELD, AS WELDED
6S	7	258.63	5844.93	0.00	0.00	0.00	6115.56	3057.78	BUTT WELD, AS WELDED
	8	189.87	3146.96	0.00	0.00	0.00	3336.84	1668.42	STRAIGHT PIPE
7S	9	189.87	2152.60	0.00	0.00	0.00	2342.47	1171.24	STRAIGHT PIPE
	10	189.87	1349.24	0.00	0.00	0.00	1539.12	769.56	STRAIGHT PIPE
8S	10	189.87	1349.09	0.00	0.00	0.00	1538.96	769.48	STRAIGHT PIPE
	11	189.87	2835.44	0.00	0.00	0.00	3025.33	1512.67	STRAIGHT PIPE
9S	12	189.87	3149.86	0.00	0.00	0.00	3358.71	1679.36	STRAIGHT PIPE
	13	258.63	9439.36	0.00	0.00	0.00	9929.00	4964.50	BUTT WELD, AS WELDED
10S	13	258.63	9439.36	0.00	0.00	0.00	9929.00	4964.50	BUTT WELD, AS WELDED
	14	189.87	8429.30	0.00	0.00	0.00	8818.17	4409.09	STRAIGHT PIPE
11S	14	189.87	8429.30	0.00	0.00	0.00	8818.17	4409.09	STRAIGHT PIPE
	15	189.87	3857.25	0.00	0.00	0.00	4047.12	2023.56	STRAIGHT PIPE
12S	15	189.87	3857.25	0.00	0.00	0.00	4047.12	2023.56	STRAIGHT PIPE
	16	189.87	2348.23	0.00	0.00	0.00	2556.11	1278.05	STRAIGHT PIPE
13S	16	189.87	2348.23	0.00	0.00	0.00	2556.11	1278.05	STRAIGHT PIPE
	17	189.87	2840.76	0.00	0.00	0.00	3050.67	1525.29	STRAIGHT PIPE
14S	17	189.87	2840.12	0.00	0.00	0.00	3050.03	1525.00	STRAIGHT PIPE
	18	1139.24	50805.64	0.00	0.00	0.00	51944.90	25972.45	WELDING TEE
15S	18	1139.24	50805.64	0.00	0.00	0.00	51944.90	25972.45	WELDING TEE
	19	189.87	12556.80	0.00	0.00	0.00	12746.67	6373.34	STRAIGHT PIPE
16S	19	1139.24	50805.64	0.00	0.00	0.00	51944.90	25972.45	WELDING TEE
	20	189.87	7232.59	0.00	0.00	0.00	7422.45	3711.23	STRAIGHT PIPE
17S	21	189.87	8915.43	0.00	0.00	0.00	9105.31	4552.75	STRAIGHT PIPE
	22	189.87	349.17	0.00	0.00	0.00	539.05	269.52	STRAIGHT PIPE
18S	22	189.87	349.17	0.00	0.00	0.00	539.05	269.52	STRAIGHT PIPE
	23	189.87	11456.22	0.00	0.00	0.00	11646.09	5823.05	STRAIGHT PIPE
19S	23	189.87	2375.51	0.00	0.00	0.00	2565.39	1282.69	STRAIGHT PIPE
	24	189.87	360.75	0.00	0.00	0.00	550.62	275.31	STRAIGHT PIPE
20S	24	189.87	360.75	0.00	0.00	0.00	550.62	275.31	STRAIGHT PIPE
	25	189.87	1713.95	0.00	0.00	0.00	1903.83	951.91	STRAIGHT PIPE
21S	26	189.87	442.09	0.00	0.00	0.00	631.96	315.98	STRAIGHT PIPE
	27	258.63	2288.65	0.00	0.00	0.00	2531.28	1265.64	BUTT WELD, AS WELDED

22S	27	258.63	2288.65	0.00	0.00	0.00	2531.28	1265.64	BUTT WELD, AS WELDED
	28	189.87	4036.43	0.00	0.00	0.00	4226.30	2113.15	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PF)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	301.01	12369.39	0.00	0.00	0.00	12670.41	6335.20	CURVED PIPE
	2	301.01	11467.26	0.00	0.00	0.00	11968.28	5984.14	CURVED PIPE
2C	8	201.17	5957.55	0.00	0.00	0.00	6158.73	3079.36	CURVED PIPE
	9	201.17	4075.24	0.00	0.00	0.00	4276.41	2138.21	CURVED PIPE
3C	11	201.17	4989.24	0.00	0.00	0.00	5190.41	2595.21	CURVED PIPE
	12	201.17	5910.14	0.00	0.00	0.00	6111.30	3055.64	CURVED PIPE
4C	29	201.17	13492.13	0.00	0.00	0.00	13893.30	6946.65	CURVED PIPE
	21	201.17	16878.35	0.00	0.00	0.00	17079.53	8539.76	CURVED PIPE
5C	25	201.17	3244.72	0.00	0.00	0.00	3445.89	1722.95	CURVED PIPE
	24	201.17	837.99	0.00	0.00	0.00	1038.16	519.08	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 1 LACBWR

STRESSES FOR EQUATION 11 & EQUATION 12
LOAD SET 2 * LOAD COMBINATION 5

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	RESIDUAL STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 12 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
1A	2	398.73	16889.36	0.00	0.00	0.00	17219.88	8439.58	TAPERED TRANS. JOINT
	3	189.87	4090.64	0.00	0.00	0.00	4280.51	2140.26	STRAIGHT PIPE
2A	3	189.87	4090.46	0.00	0.00	0.00	4280.33	2140.27	STRAIGHT PIPE
	4	189.87	3947.33	0.00	0.00	0.00	3157.19	1578.59	STRAIGHT PIPE
3A	4	189.87	3947.32	0.00	0.00	0.00	3157.20	1578.60	STRAIGHT PIPE
	5	189.87	1886.55	0.00	0.00	0.00	2076.42	1037.21	STRAIGHT PIPE
4A	5	189.87	1886.55	0.00	0.00	0.00	2076.42	1037.22	STRAIGHT PIPE
	6	189.87	3396.82	0.00	0.00	0.00	3586.69	1793.35	STRAIGHT PIPE
5A	6	189.87	3396.78	0.00	0.00	0.00	3586.65	1793.33	STRAIGHT PIPE
	7	250.63	4656.03	0.00	0.00	0.00	4906.70	2453.35	BUTT WELD. AS WELDED
6A	7	250.63	4656.07	0.00	0.00	0.00	4906.70	2453.35	BUTT WELD. AS WELDED
	8	189.87	3902.80	0.00	0.00	0.00	4142.67	2091.24	STRAIGHT PIPE
7A	8	189.87	3713.67	0.00	0.00	0.00	3987.55	1961.27	STRAIGHT PIPE
	10	189.87	2578.24	0.00	0.00	0.00	2768.11	1374.06	STRAIGHT PIPE
8A	10	189.87	2578.86	0.00	0.00	0.00	2768.73	1374.36	STRAIGHT PIPE
	11	189.87	2408.81	0.00	0.00	0.00	2598.65	1299.62	STRAIGHT PIPE
9A	12	189.87	2906.67	0.00	0.00	0.00	3186.54	1502.27	STRAIGHT PIPE
	13	250.63	8677.18	0.00	0.00	0.00	8927.82	4463.91	BUTT WELD. AS WELDED
10A	13	250.63	8677.18	0.00	0.00	0.00	8927.82	4463.91	BUTT WELD. AS WELDED
	14	189.87	9045.66	0.00	0.00	0.00	9235.52	4617.76	STRAIGHT PIPE
11A	14	189.87	9045.66	0.00	0.00	0.00	9235.52	4617.76	STRAIGHT PIPE
	15	189.87	3266.96	0.00	0.00	0.00	3456.81	1728.41	STRAIGHT PIPE
12A	15	189.87	3266.96	0.00	0.00	0.00	3456.81	1728.41	STRAIGHT PIPE
	16	189.87	2644.32	0.00	0.00	0.00	2834.19	1418.10	STRAIGHT PIPE
13A	16	189.87	2644.32	0.00	0.00	0.00	2834.19	1418.10	STRAIGHT PIPE
	17	189.87	2216.68	0.00	0.00	0.00	2406.56	1202.24	STRAIGHT PIPE
14A	17	189.87	2335.58	0.00	0.00	0.00	2525.69	1262.73	STRAIGHT PIPE
	18	1119.24	35033.56	0.00	0.00	0.00	36147.93	18063.66	WELDING TEE
15A	18	1119.24	35033.56	0.00	0.00	0.00	36167.48	18063.98	WELDING TEE
	19	189.87	4337.83	0.00	0.00	0.00	9527.70	4763.85	STRAIGHT PIPE
16A	18	1119.24	35033.56	0.00	0.00	0.00	36167.80	18063.98	WELDING TEE
	20	189.87	1845.36	0.00	0.00	0.00	2035.23	1017.61	STRAIGHT PIPE
17A	21	189.87	3372.48	0.00	0.00	0.00	3562.35	1781.17	STRAIGHT PIPE
	22	189.87	1633.71	0.00	0.00	0.00	1823.58	911.79	STRAIGHT PIPE
18A	22	189.87	1633.71	0.00	0.00	0.00	1823.58	911.79	STRAIGHT PIPE
	23	189.87	1394.85	0.00	0.00	0.00	1584.72	792.36	STRAIGHT PIPE
19A	23	189.87	2375.52	0.00	0.00	0.00	2565.39	1282.70	STRAIGHT PIPE
	24	189.87	360.75	0.00	0.00	0.00	550.62	275.31	STRAIGHT PIPE
20A	24	189.87	360.75	0.00	0.00	0.00	550.62	275.31	STRAIGHT PIPE
	25	189.87	4713.96	0.00	0.00	0.00	1903.83	951.91	STRAIGHT PIPE
21A	24	189.87	467.09	0.00	0.00	0.00	631.97	315.98	STRAIGHT PIPE
	27	250.63	2280.65	0.00	0.00	0.00	2531.28	1265.64	BUTT WELD. AS WELDED

22A	27	250.63	2280.65	0.00	0.00	0.00	2531.28	1265.64	BUTT WELD. AS WELDED
	28	189.87	4036.43	0.00	0.00	0.00	4226.30	2113.15	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	RESIDUAL STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 12 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	1	391.81	9914.53	0.00	0.00	0.00	10219.55	5109.77	CURVED PIPE
	2	391.81	9359.79	0.00	0.00	0.00	9860.80	4930.40	CURVED PIPE
2C	8	201.17	3558.35	0.00	0.00	0.00	3759.52	3879.76	CURVED PIPE
	9	201.17	7034.09	0.00	0.00	0.00	7235.82	3615.01	CURVED PIPE
3C	11	201.17	4540.47	0.00	0.00	0.00	4741.64	2368.82	CURVED PIPE
	12	201.17	4838.12	0.00	0.00	0.00	5201.29	2600.65	CURVED PIPE
4C	20	201.17	3493.48	0.00	0.00	0.00	3694.65	1847.33	CURVED PIPE
	21	201.17	6344.50	0.00	0.00	0.00	6545.67	3292.84	CURVED PIPE
5C	25	201.17	3244.72	0.00	0.00	0.00	3445.89	1722.95	CURVED PIPE
	26	201.17	836.95	0.00	0.00	0.00	1039.11	519.55	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FECS SUCTION LINE 2 LACRVR

8. CLASS 1 COMPONENT STRESS ANALYSIS

TABLE B-111-2

8.2 STRESS INDICES

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J1	J2	J3	THERMAL LOADING K1	K2	K3	TEE MOMENTS B2R	B2B	C2R	C2B	K2R	K2B	STRESS INDEX DESCRIPTION
1A	19	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	29	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
2A	29	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	30	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
3A	30	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	31	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
4A	31	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	32	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
5A	32	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	33	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
6A	34	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	35	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
7A	35	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	36	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
8A	33	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	3A	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
9A	3A	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	3B	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
10A	39	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	44	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J1	J2	J3	THERMAL LOADING K1	K2	K3	TEE MOMENTS B2R	B2B	C2R	C2B	K2R	K2B	STRESS INDEX DESCRIPTION
1C	33	1.00	1.05	1.00	1.15	1.53	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	34	1.00	1.05	1.00	1.15	1.53	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
2C	36	1.00	1.08	1.00	1.50	2.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	37	1.00	1.08	1.00	1.50	2.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FECS SUCTION LINE 1 LACRVR

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J1	J2	J3	THERMAL LOADING K1	K2	K3	TEE MOMENTS B2R	B2B	C2R	C2B	K2R	K2B	STRESS INDEX DESCRIPTION
11A	40	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	41	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
12A	42	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	43	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
13A	43	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	44	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
14A	44	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	45	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
15A	45	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	46	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
16A	47	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	48	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
17A	48	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	49	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
18A	49	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	50	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J1	J2	J3	THERMAL LOADING K1	K2	K3	TEE MOMENTS B2R	B2B	C2R	C2B	K2R	K2B	STRESS INDEX DESCRIPTION
3C	41	1.00	1.05	1.00	1.15	1.53	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	42	1.00	1.05	1.00	1.15	1.53	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
4C	46	1.00	1.08	1.00	1.50	2.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	47	1.00	1.08	1.00	1.50	2.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 3 LACROSSE

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J2	J3	J4	THERMAL LOADING K2	K3	K4	TEE MOMENTS B2R	B2A	C2R	C2A	K2R	K2A	STRESS INDEX DESCRIPTION
19S	49	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	51	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
20S	52	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	53	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
21S	53	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	54	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
22S	54	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	56	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
23S	57	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	58	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
24S	58	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	59	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
25S	60	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	61	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
26S	62	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	63	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
27S	63	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	64	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
28S	65	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	66	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
29S	67	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	68	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
30S	69	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	70	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
31S	70	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	71	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
32S	71	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	72	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
33S	72	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	73	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
34S	73	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	82	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J2	J3	J4	THERMAL LOADING K2	K3	K4	TEE MOMENTS B2R	B2A	C2R	C2A	K2R	K2A	STRESS INDEX DESCRIPTION
5C	51	1.00	1.70	1.00	2.45	3.27	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	53	1.00	1.70	1.00	2.45	3.27	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
6C	54	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	55	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
7C	56	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	57	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
8C	59	1.00	1.05	1.00	1.13	1.51	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	60	1.00	1.05	1.00	1.13	1.51	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
9C	61	1.00	1.26	1.00	1.22	1.62	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	62	1.00	1.26	1.00	1.22	1.62	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
10C	64	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	65	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
11C	66	1.00	1.06	1.00	1.30	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	67	1.00	1.06	1.00	1.33	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
12C	68	1.00	1.19	1.00	2.38	3.18	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	69	1.00	1.19	1.00	2.38	3.18	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE I1	I2	I3	MOMENT LOADING J2	J3	J4	THERMAL LOADING K2	K3	K4	TEE MOMENTS B2R	B2A	C2R	C2A	K2R	K2A	STRESS INDEX DESCRIPTION
35S	79	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	80	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
36S	81	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	82	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
37S	82	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	83	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
38S	84	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	85	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
39S	86	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	87	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
40S	87	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	88	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
41S	89	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	90	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
42S	90	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	91	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
43S	92	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	93	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
44S	93	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	94	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE B1	C1	K1	MOMENT LOADING B2	C2	K2	THERMAL LOADING C3	K3	C3P	TEE MOMENTS B2P	B2B	C2P	C2B	K2P	K2B	STRESS INDEX DESCRIPTION
13C	80	1.00	1.11	1.00	1.82	2.43	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	81	1.00	1.11	1.00	1.82	2.43	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
14C	83	1.00	1.21	1.00	2.42	3.24	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	84	1.00	1.21	1.00	2.42	3.24	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
15C	85	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	86	1.00	1.06	1.00	1.29	1.73	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
16C	89	1.00	1.21	1.00	2.14	2.85	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	90	1.00	1.21	1.00	2.14	2.85	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
17C	91	1.00	1.21	1.00	2.14	2.85	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	92	1.00	1.21	1.00	2.14	2.85	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE B1	C1	K1	MOMENT LOADING B2	C2	K2	THERMAL LOADING C3	K3	C3P	TEE MOMENTS B2P	B2B	C2P	C2B	K2P	K2B	STRESS INDEX DESCRIPTION
45S	87	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	95	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
46S	96	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	97	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
47S	97	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	98	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE B1	C1	K1	MOMENT LOADING B2	C2	K2	THERMAL LOADING C3	K3	C3P	TEE MOMENTS B2P	B2B	C2P	C2B	K2P	K2B	STRESS INDEX DESCRIPTION
18C	95	1.00	1.21	1.00	2.14	2.85	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	96	1.00	1.21	1.00	2.14	2.85	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACBWR

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE B1	C1	K1	MOMENT LOADING B2	C2	K2	THERMAL LOADING C3	K3	C3P	TEE MOMENTS B2P	B2B	C2P	C2B	K2P	K2B	STRESS INDEX DESCRIPTION
48S	73	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE
	74	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
49S	75	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	76	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
50S	76	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	77	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
51S	78	.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	STRAIGHT PIPE
	79	1.00	1.50	4.00	0.00	0.00	1.00	1.00	1.00	.50	1.94	1.94	2.59	2.59	1.00	1.00	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	INTERNAL PRESSURE B1	C1	K1	MOMENT LOADING B2	C2	K2	THERMAL LOADING C3	K3	C3P	TEE MOMENTS B2P	B2B	C2P	C2B	K2P	K2B	STRESS INDEX DESCRIPTION
19C	74	1.00	1.11	1.00	1.81	2.42	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	75	1.00	1.11	1.00	1.81	2.42	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
20C	77	1.00	1.11	1.00	1.82	2.43	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE
	78	1.00	1.11	1.00	1.82	2.43	1.00	1.00	1.00	.50	0.00	0.00	0.00	0.00	0.00	0.00	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 LACRW

B.1 CONSIDERATION OF EQUATION 9

STRESSES FOR EQUATION 9
LOAD SET 1 = LOAD COMBINATION 1

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	19	405.09	393.17	0.00	0.00	0.00	798.26	.0246	STRAIGHT PIPE
	29	405.09	353.54	0.00	0.00	0.00	758.63	.0253	STRAIGHT PIPE
2S	29	405.09	353.54	0.00	0.00	0.00	758.63	.0253	STRAIGHT PIPE
	30	405.09	402.47	0.00	0.00	0.00	807.56	.0269	STRAIGHT PIPE
3S	30	405.09	402.47	0.00	0.00	0.00	807.56	.0269	STRAIGHT PIPE
	31	405.09	583.22	0.00	0.00	0.00	988.31	.0329	STRAIGHT PIPE
4S	31	405.09	583.20	0.00	0.00	0.00	988.31	.0329	STRAIGHT PIPE
	32	405.09	960.41	0.00	0.00	0.00	1365.90	.0455	STRAIGHT PIPE
5S	32	405.09	960.41	0.00	0.00	0.00	1365.90	.0455	STRAIGHT PIPE
	33	405.09	811.56	0.00	0.00	0.00	1216.65	.0406	STRAIGHT PIPE
6S	34	405.09	599.71	0.00	0.00	0.00	1004.80	.0335	STRAIGHT PIPE
	35	405.09	798.66	0.00	0.00	0.00	1203.75	.0368	STRAIGHT PIPE
7S	35	405.09	798.66	0.00	0.00	0.00	1203.75	.0368	STRAIGHT PIPE
	36	405.09	831.31	0.00	0.00	0.00	1236.40	.0412	STRAIGHT PIPE
8S	37	405.09	877.24	0.00	0.00	0.00	1282.33	.0427	STRAIGHT PIPE
	38	405.09	841.75	0.00	0.00	0.00	1246.85	.0416	STRAIGHT PIPE
9S	38	405.09	890.30	0.00	0.00	0.00	1295.39	.0432	STRAIGHT PIPE
	39	405.09	828.59	0.00	0.00	0.00	1233.69	.0411	STRAIGHT PIPE
10S	39	405.09	863.48	0.00	0.00	0.00	1268.58	.0423	STRAIGHT PIPE
	44	810.19	1843.51	0.00	0.00	0.00	2653.70	.0885	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	33	810.19	929.77	0.00	0.00	0.00	1739.96	.0580	CURVED PIPE
	34	810.19	687.07	0.00	0.00	0.00	1497.25	.0499	CURVED PIPE
2C	36	810.19	1247.96	0.00	0.00	0.00	2058.15	.0686	CURVED PIPE
	37	810.19	1322.68	0.00	0.00	0.00	2132.86	.0711	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 LACRW

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
11S	40	405.09	1114.82	0.00	0.00	0.00	1519.91	.0507	STRAIGHT PIPE
	41	405.09	768.55	0.00	0.00	0.00	1173.65	.0391	STRAIGHT PIPE
12S	42	405.09	713.56	0.00	0.00	0.00	1118.64	.0373	STRAIGHT PIPE
	43	405.09	1300.40	0.00	0.00	0.00	1705.50	.0568	STRAIGHT PIPE
13S	43	405.09	1300.40	0.00	0.00	0.00	1705.50	.0568	STRAIGHT PIPE
	44	810.19	1843.51	0.00	0.00	0.00	2653.70	.0885	WELDING TEE
14S	44	810.19	1843.51	0.00	0.00	0.00	2653.70	.0885	WELDING TEE
	45	405.09	1150.57	0.00	0.00	0.00	1555.66	.0519	STRAIGHT PIPE
15S	45	405.09	1150.57	0.00	0.00	0.00	1555.66	.0519	STRAIGHT PIPE
	46	405.09	1139.40	0.00	0.00	0.00	1544.50	.0515	STRAIGHT PIPE
16S	47	405.09	689.11	0.00	0.00	0.00	894.20	.0298	STRAIGHT PIPE
	48	405.09	744.99	0.00	0.00	0.00	1150.09	.0383	STRAIGHT PIPE
17S	48	405.09	725.41	0.00	0.00	0.00	1131.50	.0377	STRAIGHT PIPE
	49	810.19	4493.81	0.00	0.00	0.00	5783.99	.1901	WELDING TEE
18S	49	810.19	4493.81	0.00	0.00	0.00	5783.99	.1901	WELDING TEE
	50	405.09	3844.30	0.00	0.00	0.00	4249.39	.1416	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
3C	41	810.19	880.51	0.00	0.00	0.00	1690.69	.0564	CURVED PIPE
	42	810.19	817.44	0.00	0.00	0.00	1627.63	.0543	CURVED PIPE
4C	46	810.19	1710.75	0.00	0.00	0.00	2520.94	.0843	CURVED PIPE
	47	810.19	734.36	0.00	0.00	0.00	1544.55	.0515	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACHVA

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	49	810.19	4893.80	0.00	0.00	0.00	5703.99	.1901	WELDING TEE
	51	405.09	1448.31	0.00	0.00	0.00	1853.40	.0631	STRAIGHT PIPE
20S	52	405.09	1471.74	0.00	0.00	0.00	1876.83	.0626	STRAIGHT PIPE
	53	405.09	2961.82	0.00	0.00	0.00	3366.91	.1123	STRAIGHT PIPE
21S	53	405.09	2961.82	0.00	0.00	0.00	3366.91	.1123	STRAIGHT PIPE
	54	405.09	1981.86	0.00	0.00	0.00	2386.99	.0796	STRAIGHT PIPE
22S	55	405.09	2058.14	0.00	0.00	0.00	2463.23	.0821	STRAIGHT PIPE
	5A	405.09	1365.41	0.00	0.00	0.00	1770.50	.0590	STRAIGHT PIPE
23S	57	405.09	1812.80	0.00	0.00	0.00	2617.89	.0539	STRAIGHT PIPE
	58	405.09	3004.60	0.00	0.00	0.00	3409.69	.1137	STRAIGHT PIPE
24S	58	405.09	3004.60	0.00	0.00	0.00	3409.69	.1137	STRAIGHT PIPE
	59	405.09	2042.63	0.00	0.00	0.00	2447.72	.0816	STRAIGHT PIPE
25S	60	405.09	2398.28	0.00	0.00	0.00	2803.36	.0934	STRAIGHT PIPE
	61	405.09	2558.39	0.00	0.00	0.00	2963.48	.0988	STRAIGHT PIPE
26S	62	405.09	3474.26	0.00	0.00	0.00	3879.36	.1293	STRAIGHT PIPE
	63	405.09	2417.47	0.00	0.00	0.00	2822.57	.0941	STRAIGHT PIPE
27S	63	405.09	2417.47	0.00	0.00	0.00	2822.57	.0941	STRAIGHT PIPE
	64	405.09	1736.81	0.00	0.00	0.00	2141.10	.0714	STRAIGHT PIPE
28S	65	405.09	1578.25	0.00	0.00	0.00	1983.34	.0661	STRAIGHT PIPE
	6A	405.09	5497.29	0.00	0.00	0.00	5902.38	.1967	STRAIGHT PIPE
29S	67	405.09	2912.79	0.00	0.00	0.00	3317.88	.1106	STRAIGHT PIPE
	68	405.09	3389.03	0.00	0.00	0.00	3794.12	.1265	STRAIGHT PIPE
30S	69	405.09	2479.34	0.00	0.00	0.00	2884.43	.0961	STRAIGHT PIPE
	70	810.19	6147.83	0.00	0.00	0.00	6978.05	.2326	WELDING TEE
31S	70	810.19	6147.83	0.00	0.00	0.00	6978.05	.2326	WELDING TEE
	71	405.09	3759.34	0.00	0.00	0.00	4164.45	.1388	STRAIGHT PIPE
32S	71	405.09	3777.75	0.00	0.00	0.00	4182.84	.1394	STRAIGHT PIPE
	72	405.09	2024.50	0.00	0.00	0.00	2429.59	.0810	STRAIGHT PIPE
33S	72	405.09	1987.64	0.00	0.00	0.00	2392.73	.0798	STRAIGHT PIPE
	73	810.19	1868.30	0.00	0.00	0.00	2678.49	.0893	WELDING TEE
34S	73	810.19	1868.30	0.00	0.00	0.00	2678.49	.0893	WELDING TEE
	87	810.19	4071.34	0.00	0.00	0.00	4881.52	.1628	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
5C	51	810.19	5211.67	0.00	0.00	0.00	6021.86	.2007	CURVED PIPE
	52	810.19	3991.67	0.00	0.00	0.00	4801.86	.1601	CURVED PIPE
6C	54	810.19	2566.65	0.00	0.00	0.00	3376.84	.1126	CURVED PIPE
	55	810.19	2462.83	0.00	0.00	0.00	3273.02	.1158	CURVED PIPE
7C	56	810.19	1766.57	0.00	0.00	0.00	2576.76	.0859	CURVED PIPE
	57	810.19	1568.10	0.00	0.00	0.00	2378.28	.0793	CURVED PIPE

8C	59	810.19	2408.27	0.00	0.00	0.00	3218.46	.1073	CURVED PIPE
	60	810.19	2575.79	0.00	0.00	0.00	3385.98	.1129	CURVED PIPE
9C	61	810.19	2466.63	0.00	0.00	0.00	3276.82	.1092	CURVED PIPE
	62	810.19	4322.50	0.00	0.00	0.00	5132.68	.1711	CURVED PIPE
10C	64	810.19	2246.06	0.00	0.00	0.00	3056.24	.1019	CURVED PIPE
	65	810.19	2041.90	0.00	0.00	0.00	2852.16	.0951	CURVED PIPE
11C	66	810.19	7121.87	0.00	0.00	0.00	7932.06	.2644	CURVED PIPE
	67	810.19	3773.45	0.00	0.00	0.00	4583.63	.1528	CURVED PIPE
12C	68	810.19	4879.25	0.00	0.00	0.00	5689.43	.1896	CURVED PIPE
	69	810.19	5910.60	0.00	0.00	0.00	6720.79	.2240	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	79	405.09	1501.81	0.00	0.00	0.00	1906.90	.0636	STRAIGHT PIPE
	80	405.09	839.17	0.00	0.00	0.00	1244.27	.0415	STRAIGHT PIPE
36S	81	405.09	739.34	0.00	0.00	0.00	1144.43	.0381	STRAIGHT PIPE
	82	810.19	4071.34	0.00	0.00	0.00	4881.52	.1628	WELDING TEE
37S	A2	810.19	4071.34	0.00	0.00	0.00	4881.52	.1628	WELDING TEE
	83	405.09	417.91	0.00	0.00	0.00	823.00	.0274	STRAIGHT PIPE
38S	84	405.09	437.73	0.00	0.00	0.00	842.82	.0281	STRAIGHT PIPE
	85	405.09	484.09	0.00	0.00	0.00	889.18	.0296	STRAIGHT PIPE
39S	86	405.09	593.58	0.00	0.00	0.00	998.90	.0333	STRAIGHT PIPE
	87	810.19	5281.99	0.00	0.00	0.00	6092.17	.2031	WELDING TEE
40S	A2	810.19	4281.98	0.00	0.00	0.00	5092.17	.2031	WELDING TEE
	88	405.09	153.77	0.00	0.00	0.00	558.86	.0186	STRAIGHT PIPE
41S	89	327.59	812.73	0.00	0.00	0.00	1140.31	.0380	STRAIGHT PIPE
	89	327.59	244.54	0.00	0.00	0.00	591.42	.0197	STRAIGHT PIPE
42S	90	327.59	314.73	0.00	0.00	0.00	642.32	.0214	STRAIGHT PIPE
	91	327.59	271.33	0.00	0.00	0.00	598.91	.0200	STRAIGHT PIPE
43S	92	327.59	294.21	0.00	0.00	0.00	625.79	.0209	STRAIGHT PIPE
	93	327.59	1041.75	0.00	0.00	0.00	1389.34	.0463	STRAIGHT PIPE
44S	93	327.59	1041.75	0.00	0.00	0.00	1389.34	.0463	STRAIGHT PIPE
	94	327.59	668.91	0.00	0.00	0.00	926.49	.0309	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SH	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	95	810.19	1528.43	0.00	0.00	0.00	2336.59	.0779	CURVED PIPE
	81	810.19	1335.79	0.00	0.00	0.00	2145.94	.0732	CURVED PIPE
14C	81	810.19	1247.21	0.00	0.00	0.00	2057.39	.0702	CURVED PIPE
	96	810.19	1334.21	0.00	0.00	0.00	2144.39	.0715	CURVED PIPE
15C	85	810.19	1334.21	0.00	0.00	0.00	2144.39	.0715	CURVED PIPE
	86	810.19	968.33	0.00	0.00	0.00	1778.52	.0593	CURVED PIPE
16C	97	655.17	968.33	0.00	0.00	0.00	1623.50	.0541	CURVED PIPE
	98	655.17	673.46	0.00	0.00	0.00	1328.63	.0443	CURVED PIPE

CHECKS AND STRESS ANALYSIS OF FCC6 SUCTION LINE 2 LACAS

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
45A	A7	655.17	5281.99	0.00	0.00	0.00	5937.16	.1979	WELDING TEE
	95	327.59	1963.36	0.00	0.00	0.00	2290.94	.0764	STRAIGHT PIPE
46A	95	327.59	1400.13	0.00	0.00	0.00	1727.72	.0576	STRAIGHT PIPE
	97	327.59	1838.64	0.00	0.00	0.00	2166.25	.0722	STRAIGHT PIPE
47A	97	327.59	1838.66	0.00	0.00	0.00	2166.25	.0722	STRAIGHT PIPE
	98	327.59	5160.84	0.00	0.00	0.00	5488.43	.1829	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
18C	95	655.17	4202.56	0.00	0.00	0.00	4857.74	.1619	CURVED PIPE
	96	655.17	2998.98	0.00	0.00	0.00	3652.16	.1217	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
48A	73	810.19	1849.39	0.00	0.00	0.00	2674.49	.0892	WELDING TEE
	74	405.09	366.29	0.00	0.00	0.00	771.38	.0257	STRAIGHT PIPE
49A	75	405.09	443.72	0.00	0.00	0.00	848.81	.0283	STRAIGHT PIPE
	76	405.09	540.08	0.00	0.00	0.00	945.18	.0315	STRAIGHT PIPE
50A	76	405.09	540.33	0.00	0.00	0.00	945.42	.0315	STRAIGHT PIPE
	77	405.09	775.95	0.00	0.00	0.00	1181.05	.0394	STRAIGHT PIPE
51A	77	405.09	1061.55	0.00	0.00	0.00	1466.64	.0489	STRAIGHT PIPE
	78	810.19	6167.87	0.00	0.00	0.00	6978.05	.2326	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19C	76	810.19	663.56	0.00	0.00	0.00	1473.74	.0491	CURVED PIPE
	75	810.19	804.28	0.00	0.00	0.00	1614.46	.0538	CURVED PIPE
20C	77	810.19	1411.49	0.00	0.00	0.00	2221.68	.0741	CURVED PIPE
	78	810.19	1931.01	0.00	0.00	0.00	2741.19	.0914	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 LACRWR

STRESSES FOR EQUATION 9
LOAD SET 2 = LOAD COMBINATION 2

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	1A	405.09	348.18	0.00	0.00	0.00	365.18	.0255	STRAIGHT PIPE
	2A	405.09	337.60	0.00	0.00	0.00	742.69	.0248	STRAIGHT PIPE
2S	2A	405.09	337.60	0.00	0.00	0.00	742.69	.0248	STRAIGHT PIPE
	3A	405.09	330.51	0.00	0.00	0.00	735.61	.0245	STRAIGHT PIPE
3S	3A	405.09	330.51	0.00	0.00	0.00	735.61	.0245	STRAIGHT PIPE
	31	405.09	454.17	0.00	0.00	0.00	859.26	.0286	STRAIGHT PIPE
4S	31	405.09	454.17	0.00	0.00	0.00	859.26	.0286	STRAIGHT PIPE
	32	405.09	482.17	0.00	0.00	0.00	887.26	.0296	STRAIGHT PIPE
5S	32	405.09	482.17	0.00	0.00	0.00	887.26	.0296	STRAIGHT PIPE
	33	405.09	471.68	0.00	0.00	0.00	876.77	.0276	STRAIGHT PIPE
6S	34	405.09	389.29	0.00	0.00	0.00	794.39	.0265	STRAIGHT PIPE
	35	405.09	529.49	0.00	0.00	0.00	934.58	.0312	STRAIGHT PIPE
7S	35	405.09	529.49	0.00	0.00	0.00	934.58	.0312	STRAIGHT PIPE
	3A	405.09	515.15	0.00	0.00	0.00	920.25	.0307	STRAIGHT PIPE
8S	37	405.09	595.20	0.00	0.00	0.00	1000.37	.0333	STRAIGHT PIPE
	3A	405.09	611.06	0.00	0.00	0.00	1016.15	.0339	STRAIGHT PIPE
9S	3S	405.09	624.87	0.00	0.00	0.00	1029.96	.0343	STRAIGHT PIPE
	39	405.09	550.77	0.00	0.00	0.00	955.86	.0319	STRAIGHT PIPE
10S	39	405.09	556.89	0.00	0.00	0.00	961.98	.0321	STRAIGHT PIPE
	44	810.19	1173.97	0.00	0.00	0.00	1984.16	.0661	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	33	810.19	485.39	0.00	0.00	0.00	1295.57	.0432	CURVED PIPE
	3A	810.19	444.00	0.00	0.00	0.00	1254.18	.0419	CURVED PIPE
2C	3A	810.19	773.24	0.00	0.00	0.00	1583.47	.0528	CURVED PIPE
	37	810.19	895.92	0.00	0.00	0.00	1706.11	.0569	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 LACRWR

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
11S	40	405.09	1710.42	0.00	0.00	0.00	2115.51	.0705	STRAIGHT PIPE
	41	405.09	350.65	0.00	0.00	0.00	755.74	.0252	STRAIGHT PIPE
12S	42	405.09	942.51	0.00	0.00	0.00	1347.42	.0449	STRAIGHT PIPE
	43	405.09	1250.19	0.00	0.00	0.00	1655.28	.0552	STRAIGHT PIPE
13S	43	405.09	1250.19	0.00	0.00	0.00	1655.28	.0552	STRAIGHT PIPE
	44	810.19	1173.97	0.00	0.00	0.00	1984.16	.0661	WELDING TEE
14S	44	810.19	1173.97	0.00	0.00	0.00	1984.16	.0661	WELDING TEE
	45	405.09	878.96	0.00	0.00	0.00	1284.05	.0428	STRAIGHT PIPE
15S	45	405.09	878.96	0.00	0.00	0.00	1284.05	.0428	STRAIGHT PIPE
	4A	405.09	1069.25	0.00	0.00	0.00	1474.34	.0491	STRAIGHT PIPE
16C	47	405.09	681.40	0.00	0.00	0.00	1086.50	.0362	STRAIGHT PIPE
	4A	405.09	1044.04	0.00	0.00	0.00	1449.13	.0483	STRAIGHT PIPE
17S	4A	405.09	942.48	0.00	0.00	0.00	1347.57	.0449	STRAIGHT PIPE
	49	810.19	5611.53	0.00	0.00	0.00	6421.72	.2141	WELDING TEE
18S	49	810.19	5611.53	0.00	0.00	0.00	6421.72	.2141	WELDING TEE
	50	405.09	2583.20	0.00	0.00	0.00	2988.29	.0996	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
3C	41	810.19	401.72	0.00	0.00	0.00	1211.91	.0404	CURVED PIPE
	42	810.19	1070.82	0.00	0.00	0.00	1880.01	.0627	CURVED PIPE
4C	46	810.19	1605.42	0.00	0.00	0.00	2415.60	.0805	CURVED PIPE
	47	810.19	1023.09	0.00	0.00	0.00	1833.28	.0611	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACRAR

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	49	810.19	5611.53	0.00	0.00	0.00	6421.72	.2141	WELDING TEE
	51	405.09	1491.19	0.00	0.00	0.00	1896.28	.0632	STRAIGHT PIPE
20S	52	405.09	2127.96	0.00	0.00	0.00	2533.05	.0844	STRAIGHT PIPE
	53	405.09	3574.62	0.00	0.00	0.00	3979.71	.1327	STRAIGHT PIPE
21S	53	405.09	3574.62	0.00	0.00	0.00	3979.71	.1327	STRAIGHT PIPE
	54	405.09	2908.24	0.00	0.00	0.00	3313.33	.1104	STRAIGHT PIPE
22S	55	405.09	3145.54	0.00	0.00	0.00	3550.67	.1184	STRAIGHT PIPE
	5A	405.09	2074.49	0.00	0.00	0.00	2479.58	.0827	STRAIGHT PIPE
23S	57	405.09	2061.70	0.00	0.00	0.00	2466.80	.0822	STRAIGHT PIPE
	58	405.09	4756.04	0.00	0.00	0.00	5161.13	.1720	STRAIGHT PIPE
24S	54	405.09	4756.04	0.00	0.00	0.00	5161.13	.1720	STRAIGHT PIPE
	59	405.09	2867.74	0.00	0.00	0.00	3272.84	.1091	STRAIGHT PIPE
25S	60	405.09	3557.42	0.00	0.00	0.00	3962.51	.1321	STRAIGHT PIPE
	61	405.09	3729.33	0.00	0.00	0.00	4135.42	.1377	STRAIGHT PIPE
26S	62	405.09	4327.03	0.00	0.00	0.00	4732.12	.1577	STRAIGHT PIPE
	63	405.09	2857.77	0.00	0.00	0.00	3262.86	.1088	STRAIGHT PIPE
27S	63	405.09	2857.77	0.00	0.00	0.00	3262.86	.1088	STRAIGHT PIPE
	64	405.09	2418.40	0.00	0.00	0.00	3023.49	.1008	STRAIGHT PIPE
28S	65	405.09	2591.81	0.00	0.00	0.00	2996.91	.0999	STRAIGHT PIPE
	6A	405.09	5824.03	0.00	0.00	0.00	6229.12	.2076	STRAIGHT PIPE
29S	67	405.09	2497.56	0.00	0.00	0.00	2902.65	.0968	STRAIGHT PIPE
	68	405.09	3210.92	0.00	0.00	0.00	3616.01	.1205	STRAIGHT PIPE
30S	69	405.09	3408.61	0.00	0.00	0.00	3813.71	.1271	STRAIGHT PIPE
	70	810.19	8025.19	0.00	0.00	0.00	8835.38	.2945	WELDING TEE
31S	70	810.19	8025.19	0.00	0.00	0.00	8835.38	.2945	WELDING TEE
	71	405.09	3077.45	0.00	0.00	0.00	3482.74	.1160	STRAIGHT PIPE
32S	71	405.09	3054.83	0.00	0.00	0.00	3459.42	.1153	STRAIGHT PIPE
	72	405.09	1961.06	0.00	0.00	0.00	2366.15	.0789	STRAIGHT PIPE
33S	72	405.09	1922.46	0.00	0.00	0.00	2327.50	.0776	STRAIGHT PIPE
	73	810.19	3054.42	0.00	0.00	0.00	3864.61	.1288	WELDING TEE
34S	73	810.19	3054.42	0.00	0.00	0.00	3864.61	.1288	WELDING TEE
	82	810.19	5043.05	0.00	0.00	0.00	5853.24	.1951	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
5C	51	810.19	6444.36	0.00	0.00	0.00	7464.93	.2552	CURVED PIPE
	52	810.19	5977.68	0.00	0.00	0.00	6787.86	.2263	CURVED PIPE
6C	54	810.19	3742.70	0.00	0.00	0.00	4572.89	.1524	CURVED PIPE
	55	810.19	4049.78	0.00	0.00	0.00	4879.46	.1627	CURVED PIPE
7C	5A	810.19	2883.99	0.00	0.00	0.00	3484.17	.1165	CURVED PIPE
	57	810.19	2867.45	0.00	0.00	0.00	3477.63	.1151	CURVED PIPE

8C	59	810.19	3303.40	0.00	0.00	0.00	4113.78	.1371	CURVED PIPE
	60	810.19	3905.89	0.00	0.00	0.00	4716.08	.1572	CURVED PIPE
9C	61	810.19	4601.49	0.00	0.00	0.00	5411.47	.1804	CURVED PIPE
	62	810.19	5544.87	0.00	0.00	0.00	6399.05	.2133	CURVED PIPE
10C	64	810.19	3147.71	0.00	0.00	0.00	4147.89	.1383	CURVED PIPE
	65	810.19	3343.31	0.00	0.00	0.00	4163.56	.1388	CURVED PIPE
11C	66	810.19	7545.18	0.00	0.00	0.00	8355.37	.2785	CURVED PIPE
	67	810.19	3237.91	0.00	0.00	0.00	4045.09	.1348	CURVED PIPE
12C	68	810.19	7654.65	0.00	0.00	0.00	8446.83	.2822	CURVED PIPE
	69	810.19	8125.94	0.00	0.00	0.00	8936.13	.2979	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	79	405.09	1290.10	0.00	0.00	0.00	1695.19	.0565	STRAIGHT PIPE
	A0	405.09	659.06	0.00	0.00	0.00	1064.16	.0355	STRAIGHT PIPE
36S	A1	405.09	727.67	0.00	0.00	0.00	1127.76	.0376	STRAIGHT PIPE
	A2	810.19	5043.05	0.00	0.00	0.00	5853.24	.1951	WELDING TEE
37S	A2	810.19	5043.05	0.00	0.00	0.00	5853.24	.1951	WELDING TEE
	A3	405.09	348.74	0.00	0.00	0.00	765.84	.0255	STRAIGHT PIPE
38S	A4	405.09	397.72	0.00	0.00	0.00	807.41	.0268	STRAIGHT PIPE
	A5	405.09	448.92	0.00	0.00	0.00	874.31	.0291	STRAIGHT PIPE
39S	A6	405.09	585.79	0.00	0.00	0.00	990.48	.0330	STRAIGHT PIPE
	A7	810.19	4599.45	0.00	0.00	0.00	5410.14	.1803	WELDING TEE
40S	A7	810.19	4599.95	0.00	0.00	0.00	5410.14	.1803	WELDING TEE
	A8	405.09	147.83	0.00	0.00	0.00	552.92	.0184	STRAIGHT PIPE
41S	A8	327.59	781.33	0.00	0.00	0.00	1108.92	.0370	STRAIGHT PIPE
	A9	327.59	253.44	0.00	0.00	0.00	581.23	.0194	STRAIGHT PIPE
42S	90	327.59	292.29	0.00	0.00	0.00	619.88	.0207	STRAIGHT PIPE
	91	327.59	235.92	0.00	0.00	0.00	563.51	.0188	STRAIGHT PIPE
43S	92	327.59	235.24	0.00	0.00	0.00	562.83	.0188	STRAIGHT PIPE
	93	327.59	982.82	0.00	0.00	0.00	1310.40	.0437	STRAIGHT PIPE
44S	93	327.59	982.82	0.00	0.00	0.00	1310.40	.0437	STRAIGHT PIPE
	94	327.59	546.81	0.00	0.00	0.00	874.40	.0291	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	A0	810.19	1198.86	0.00	0.00	0.00	2009.05	.0670	CURVED PIPE
	A1	810.19	1317.85	0.00	0.00	0.00	2128.04	.0709	CURVED PIPE
14C	A1	810.19	1189.38	0.00	0.00	0.00	1999.57	.0633	CURVED PIPE
	A4	810.19	1207.13	0.00	0.00	0.00	2017.36	.0672	CURVED PIPE
15C	A5	810.19	657.04	0.00	0.00	0.00	1467.24	.0472	CURVED PIPE
	A6	810.19	774.23	0.00	0.00	0.00	1584.42	.0523	CURVED PIPE
16C	A9	655.17	542.02	0.00	0.00	0.00	1197.18	.0399	CURVED PIPE
	90	655.17	805.64	0.00	0.00	0.00	1460.82	.0427	CURVED PIPE
17C	91	655.17	504.99	0.00	0.00	0.00	1160.16	.0387	CURVED PIPE

PIPESD

SEISMIC AND STRESS ANALYSIS OF FEED SUCTION LINE 2 LACRW

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
454	87	655.17	4599.95	0.00	0.00	0.00	5255.12	.1752	WELDING TEE
	95	327.59	1775.24	0.00	0.00	0.00	2102.83	.0701	STRAIGHT PIPE
466	96	327.59	1349.29	0.00	0.00	0.00	1676.88	.0562	STRAIGHT PIPE
	97	327.59	1556.58	0.00	0.00	0.00	1884.17	.0628	STRAIGHT PIPE
474	97	327.59	1556.58	0.00	0.00	0.00	1884.17	.0628	STRAIGHT PIPE
	98	327.59	4662.20	0.00	0.00	0.00	4989.79	.1663	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
18r	95	655.17	3799.90	0.00	0.00	0.00	4455.07	.1485	CURVED PIPE
	96	655.17	2909.56	0.00	0.00	0.00	3564.73	.1188	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
484	73	810.19	3036.43	0.00	0.00	0.00	3846.61	.1282	WELDING TEE
	74	405.09	522.37	0.00	0.00	0.00	927.46	.0309	STRAIGHT PIPE
494	75	405.09	430.78	0.00	0.00	0.00	835.88	.0279	STRAIGHT PIPE
	76	405.09	594.96	0.00	0.00	0.00	999.05	.0330	STRAIGHT PIPE
504	76	405.09	589.70	0.00	0.00	0.00	994.79	.0332	STRAIGHT PIPE
	77	405.09	937.72	0.00	0.00	0.00	1342.81	.0448	STRAIGHT PIPE
514	78	405.09	1592.89	0.00	0.00	0.00	1997.98	.0666	STRAIGHT PIPE
	78	810.19	8025.19	0.00	0.00	0.00	8835.38	.2945	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19r	74	810.19	946.54	0.00	0.00	0.00	1756.72	.0586	CURVED PIPE
	76	810.19	780.83	0.00	0.00	0.00	1591.01	.0530	CURVED PIPE
20r	77	810.19	1705.75	0.00	0.00	0.00	2515.94	.0839	CURVED PIPE
	78	810.19	2879.35	0.00	0.00	0.00	3689.53	.1230	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACRW

STRESSES FOR EQUATION 9
LOAD SET 3 = LOAD COMBINATION 3

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1A	10	405.09	648.46	0.00	0.00	0.00	1073.69	.0358	STRAIGHT PIPE
	29	405.09	605.39	0.00	0.00	0.00	1010.48	.0337	STRAIGHT PIPE
2A	29	405.09	605.39	0.00	0.00	0.00	1010.48	.0337	STRAIGHT PIPE
	30	405.09	654.72	0.00	0.00	0.00	1063.86	.0355	STRAIGHT PIPE
3A	30	405.09	654.77	0.00	0.00	0.00	1063.96	.0355	STRAIGHT PIPE
	31	405.09	949.37	0.00	0.00	0.00	1354.46	.0451	STRAIGHT PIPE
4A	31	405.09	949.37	0.00	0.00	0.00	1354.46	.0451	STRAIGHT PIPE
	32	405.09	1525.97	0.00	0.00	0.00	1931.06	.0644	STRAIGHT PIPE
5A	32	405.09	1525.97	0.00	0.00	0.00	1931.06	.0644	STRAIGHT PIPE
	33	405.09	1244.54	0.00	0.00	0.00	1649.65	.0563	STRAIGHT PIPE
6A	34	405.09	829.10	0.00	0.00	0.00	1234.28	.0411	STRAIGHT PIPE
	35	405.09	909.33	0.00	0.00	0.00	1314.42	.0438	STRAIGHT PIPE
7A	35	405.09	909.33	0.00	0.00	0.00	1314.42	.0438	STRAIGHT PIPE
	36	405.09	1196.82	0.00	0.00	0.00	1601.72	.0534	STRAIGHT PIPE
8A	37	405.09	1253.76	0.00	0.00	0.00	1658.86	.0553	STRAIGHT PIPE
	38	405.09	1162.26	0.00	0.00	0.00	1591.36	.0532	STRAIGHT PIPE
9A	38	405.09	1246.02	0.00	0.00	0.00	1651.11	.0550	STRAIGHT PIPE
	39	405.09	1204.99	0.00	0.00	0.00	1610.09	.0537	STRAIGHT PIPE
10A	39	405.09	1243.12	0.00	0.00	0.00	1648.21	.0549	STRAIGHT PIPE
	44	810.19	2594.21	0.00	0.00	0.00	3404.40	.1135	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	33	810.19	1471.67	0.00	0.00	0.00	2281.85	.0761	CURVED PIPE
	34	810.19	949.03	0.00	0.00	0.00	1758.16	.0542	CURVED PIPE
2C	34	810.19	1796.44	0.00	0.00	0.00	2606.63	.0869	CURVED PIPE
	37	810.19	1888.50	0.00	0.00	0.00	2698.68	.0900	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACRW

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
11A	40	405.09	1742.20	0.00	0.00	0.00	2147.29	.0716	STRAIGHT PIPE
	41	405.09	1189.81	0.00	0.00	0.00	1594.90	.0532	STRAIGHT PIPE
12A	41	405.09	957.69	0.00	0.00	0.00	1362.78	.0454	STRAIGHT PIPE
	43	405.09	1491.25	0.00	0.00	0.00	1896.35	.0632	STRAIGHT PIPE
13A	43	405.09	1491.25	0.00	0.00	0.00	1896.35	.0632	STRAIGHT PIPE
	44	810.19	2594.21	0.00	0.00	0.00	3404.40	.1135	WELDING TEE
14A	44	810.19	2594.21	0.00	0.00	0.00	3404.40	.1135	WELDING TEE
	45	405.09	1572.64	0.00	0.00	0.00	1977.73	.0659	STRAIGHT PIPE
15A	45	405.09	1572.64	0.00	0.00	0.00	1977.73	.0659	STRAIGHT PIPE
	46	405.09	1439.70	0.00	0.00	0.00	1844.79	.0615	STRAIGHT PIPE
16A	47	405.09	685.90	0.00	0.00	0.00	1091.09	.0364	STRAIGHT PIPE
	48	405.09	1030.50	0.00	0.00	0.00	1435.59	.0479	STRAIGHT PIPE
17A	48	405.09	1017.31	0.00	0.00	0.00	1422.41	.0474	STRAIGHT PIPE
	49	810.19	7104.65	0.00	0.00	0.00	7914.85	.2638	WELDING TEE
18A	49	810.19	7104.65	0.00	0.00	0.00	7914.85	.2638	WELDING TEE
	50	405.09	5870.76	0.00	0.00	0.00	6275.85	.2092	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
3C	41	810.19	1363.12	0.00	0.00	0.00	2173.30	.0724	CURVED PIPE
	42	810.19	1093.19	0.00	0.00	0.00	1903.38	.0634	CURVED PIPE
4C	46	810.19	2161.62	0.00	0.00	0.00	2971.81	.0991	CURVED PIPE
	47	810.19	1029.98	0.00	0.00	0.00	1840.17	.0613	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF EDGS SUCTION LINE 2 LACRAB

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	49	810.19	7104.68	0.00	0.00	0.00	7914.85	.2638	WELDING TEE
	51	405.09	2222.14	0.00	0.00	0.00	2627.23	.0876	STRAIGHT PIPE
20S	52	405.09	2018.56	0.00	0.00	0.00	2423.65	.0808	STRAIGHT PIPE
	53	405.09	4245.14	0.00	0.00	0.00	4650.24	.1550	STRAIGHT PIPE
21S	53	405.09	4245.14	0.00	0.00	0.00	4650.24	.1550	STRAIGHT PIPE
	54	405.09	2801.27	0.00	0.00	0.00	3206.36	.1069	STRAIGHT PIPE
22S	55	405.09	2825.76	0.00	0.00	0.00	3230.85	.1077	STRAIGHT PIPE
	5A	405.09	2032.00	0.00	0.00	0.00	2437.09	.0812	STRAIGHT PIPE
23S	57	405.09	1963.40	0.00	0.00	0.00	2368.49	.0789	STRAIGHT PIPE
	58	405.09	4475.41	0.00	0.00	0.00	4880.50	.1627	STRAIGHT PIPE
24S	58	405.09	4475.41	0.00	0.00	0.00	4880.50	.1627	STRAIGHT PIPE
	59	405.09	2831.83	0.00	0.00	0.00	3236.90	.1079	STRAIGHT PIPE
25S	60	405.09	3340.40	0.00	0.00	0.00	3745.57	.1249	STRAIGHT PIPE
	61	405.09	3492.34	0.00	0.00	0.00	3897.47	.1299	STRAIGHT PIPE
26S	62	405.09	4251.54	0.00	0.00	0.00	4656.64	.1552	STRAIGHT PIPE
	63	405.09	3298.41	0.00	0.00	0.00	3703.50	.1235	STRAIGHT PIPE
27S	63	405.09	3298.41	0.00	0.00	0.00	3703.50	.1235	STRAIGHT PIPE
	64	405.09	2460.49	0.00	0.00	0.00	2865.98	.0955	STRAIGHT PIPE
28S	65	405.09	2267.97	0.00	0.00	0.00	2673.06	.0891	STRAIGHT PIPE
	66	405.09	6537.96	0.00	0.00	0.00	6943.05	.2314	STRAIGHT PIPE
29S	67	405.09	3915.34	0.00	0.00	0.00	4320.43	.1440	STRAIGHT PIPE
	6A	405.09	4768.12	0.00	0.00	0.00	5173.22	.1724	STRAIGHT PIPE
30S	A9	405.09	3634.01	0.00	0.00	0.00	4039.10	.1346	STRAIGHT PIPE
	78	810.19	8779.83	0.00	0.00	0.00	9589.10	.3193	WELDING TEE
31S	78	810.19	8779.83	0.00	0.00	0.00	9589.10	.3193	WELDING TEE
	71	405.09	4576.94	0.00	0.00	0.00	4982.05	.1661	STRAIGHT PIPE
32S	71	405.09	4584.24	0.00	0.00	0.00	5011.34	.1670	STRAIGHT PIPE
	72	405.09	2377.42	0.00	0.00	0.00	2782.51	.0920	STRAIGHT PIPE
33S	72	405.09	2304.53	0.00	0.00	0.00	2709.62	.0903	STRAIGHT PIPE
	73	810.19	2958.66	0.00	0.00	0.00	3768.84	.1256	WELDING TEE
34S	73	810.19	2958.66	0.00	0.00	0.00	3768.84	.1256	WELDING TEE
	82	810.19	5824.32	0.00	0.00	0.00	6634.51	.2212	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
5C	51	810.19	7436.37	0.00	0.00	0.00	8246.51	.2748	CURVED PIPE
	52	810.19	5513.35	0.00	0.00	0.00	6323.54	.2108	CURVED PIPE
6C	54	810.19	3624.39	0.00	0.00	0.00	4434.49	.1478	CURVED PIPE
	55	810.19	3456.99	0.00	0.00	0.00	4266.18	.1422	CURVED PIPE
7C	56	810.19	3429.01	0.00	0.00	0.00	3439.20	.1146	CURVED PIPE
	57	810.19	2540.26	0.00	0.00	0.00	3350.45	.1117	CURVED PIPE

8C	59	810.19	3310.63	0.00	0.00	0.00	4120.81	.1374	CURVED PIPE
	60	810.19	3425.74	0.00	0.00	0.00	4435.96	.1479	CURVED PIPE
9C	61	810.19	4211.49	0.00	0.00	0.00	5021.68	.1674	CURVED PIPE
	62	810.19	5366.77	0.00	0.00	0.00	6176.96	.2059	CURVED PIPE
10C	64	810.19	3183.98	0.00	0.00	0.00	3994.10	.1330	CURVED PIPE
	65	810.19	2934.32	0.00	0.00	0.00	3744.50	.1248	CURVED PIPE
11C	66	810.19	8470.05	0.00	0.00	0.00	9280.23	.3093	CURVED PIPE
	67	810.19	5072.08	0.00	0.00	0.00	5882.27	.1961	CURVED PIPE
12C	68	810.19	11366.94	0.00	0.00	0.00	12177.13	.4059	CURVED PIPE
	69	810.19	8663.20	0.00	0.00	0.00	9473.46	.3158	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	70	405.09	1984.91	0.00	0.00	0.00	2392.01	.0797	STRAIGHT PIPE
	A0	405.09	1135.73	0.00	0.00	0.00	1535.82	.0512	STRAIGHT PIPE
36S	A1	405.09	1034.39	0.00	0.00	0.00	1439.48	.0480	STRAIGHT PIPE
	A2	810.19	5824.32	0.00	0.00	0.00	6634.51	.2212	WELDING TEE
37S	A2	810.19	5824.32	0.00	0.00	0.00	6634.51	.2212	WELDING TEE
	A3	405.09	531.57	0.00	0.00	0.00	936.66	.0312	STRAIGHT PIPE
38S	A4	405.09	530.73	0.00	0.00	0.00	935.82	.0312	STRAIGHT PIPE
	A5	405.09	530.39	0.00	0.00	0.00	935.49	.0312	STRAIGHT PIPE
39S	A6	405.09	752.36	0.00	0.00	0.00	1157.46	.0386	STRAIGHT PIPE
	A7	810.19	7128.79	0.00	0.00	0.00	7938.97	.2646	WELDING TEE
40S	A7	810.19	7128.79	0.00	0.00	0.00	7938.97	.2646	WELDING TEE
	A8	405.09	220.14	0.00	0.00	0.00	625.23	.0208	STRAIGHT PIPE
41S	A8	327.59	1163.52	0.00	0.00	0.00	1491.10	.0497	STRAIGHT PIPE
	A9	327.59	374.14	0.00	0.00	0.00	701.73	.0234	STRAIGHT PIPE
42S	90	327.59	457.53	0.00	0.00	0.00	785.12	.0262	STRAIGHT PIPE
	91	327.59	418.52	0.00	0.00	0.00	746.11	.0249	STRAIGHT PIPE
43S	92	327.59	442.11	0.00	0.00	0.00	769.70	.0257	STRAIGHT PIPE
	93	327.59	1341.35	0.00	0.00	0.00	1668.94	.0556	STRAIGHT PIPE
44S	91	327.59	1341.35	0.00	0.00	0.00	1668.94	.0556	STRAIGHT PIPE
	94	327.59	858.32	0.00	0.00	0.00	1185.91	.0395	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SR / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	83	810.19	2047.75	0.00	0.00	0.00	2857.94	.0953	CURVED PIPE
	81	810.19	1899.45	0.00	0.00	0.00	2709.65	.0903	CURVED PIPE
14C	81	810.19	1596.62	0.00	0.00	0.00	2406.82	.0802	CURVED PIPE
	84	810.19	1464.67	0.00	0.00	0.00	2274.87	.0758	CURVED PIPE
15C	85	810.19	764.21	0.00	0.00	0.00	1574.40	.0525	CURVED PIPE
	86	810.19	972.99	0.00	0.00	0.00	1783.18	.0595	CURVED PIPE
16C	87	655.17	803.85	0.00	0.00	0.00	1458.02	.0485	CURVED PIPE
	88	655.17	979.34	0.00	0.00	0.00	1634.52	.0545	CURVED PIPE
17C	86	655.17	835.85	0.00	0.00	0.00	1491.02	.0517	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 (ACAD)

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
459	87	695.17	7128.79	0.00	0.00	0.00	7783.96	.2595	WELDING TEE
	99	327.59	2312.58	0.00	0.00	0.00	2640.08	.0880	STRAIGHT PIPE
469	96	327.59	1749.47	0.00	0.00	0.00	2077.06	.0692	STRAIGHT PIPE
	97	327.59	2249.35	0.00	0.00	0.00	2576.93	.0859	STRAIGHT PIPE
479	97	327.59	2249.35	0.00	0.00	0.00	2576.93	.0859	STRAIGHT PIPE
	98	327.59	5881.85	0.00	0.00	0.00	6209.43	.2070	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
10P	95	655.17	4949.90	0.00	0.00	0.00	5605.07	.1868	CURVED PIPE
	96	655.17	3744.74	0.00	0.00	0.00	4399.91	.1467	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
489	73	810.19	2958.69	0.00	0.00	0.00	3768.84	.1256	WELDING TEE
	74	405.09	534.47	0.00	0.00	0.00	939.56	.0313	STRAIGHT PIPE
499	75	405.09	535.59	0.00	0.00	0.00	940.68	.0314	STRAIGHT PIPE
	76	405.09	669.30	0.00	0.00	0.00	1074.39	.0358	STRAIGHT PIPE
509	76	405.09	669.13	0.00	0.00	0.00	1074.22	.0358	STRAIGHT PIPE
	77	405.09	1045.44	0.00	0.00	0.00	1450.53	.0484	STRAIGHT PIPE
519	78	405.09	1538.94	0.00	0.00	0.00	1944.03	.0648	STRAIGHT PIPE
	79	810.19	8770.00	0.00	0.00	0.00	9580.19	.3193	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19P	74	810.19	968.30	0.00	0.00	0.00	1778.49	.0593	CURVED PIPE
	94	810.19	929.40	0.00	0.00	0.00	1740.98	.0580	CURVED PIPE
20P	77	810.19	1901.70	0.00	0.00	0.00	2711.88	.0904	CURVED PIPE
	78	810.19	2799.40	0.00	0.00	0.00	3609.59	.1203	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACBWR

STRESSES FOR EQUATION 9
LOAD SET 4 = LOAD COMBINATION 4

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1A	19	405.09	617.56	0.00	0.00	0.00	1022.65	.0341	STRAIGHT PIPE
	29	405.09	579.43	0.00	0.00	0.00	984.52	.0328	STRAIGHT PIPE
2A	29	405.09	579.43	0.00	0.00	0.00	984.52	.0328	STRAIGHT PIPE
	30	405.09	562.12	0.00	0.00	0.00	967.21	.0322	STRAIGHT PIPE
3A	30	405.09	562.12	0.00	0.00	0.00	967.21	.0322	STRAIGHT PIPE
	31	405.09	777.91	0.00	0.00	0.00	1183.00	.0394	STRAIGHT PIPE
4A	31	405.09	777.91	0.00	0.00	0.00	1183.00	.0394	STRAIGHT PIPE
	32	405.09	817.50	0.00	0.00	0.00	1222.60	.0408	STRAIGHT PIPE
5A	32	405.09	817.50	0.00	0.00	0.00	1222.60	.0408	STRAIGHT PIPE
	33	405.09	698.46	0.00	0.00	0.00	1103.55	.0368	STRAIGHT PIPE
6A	34	405.09	515.67	0.00	0.00	0.00	920.76	.0307	STRAIGHT PIPE
	35	405.09	645.41	0.00	0.00	0.00	1050.50	.0350	STRAIGHT PIPE
7A	35	405.09	645.41	0.00	0.00	0.00	1050.50	.0350	STRAIGHT PIPE
	36	405.09	714.12	0.00	0.00	0.00	1119.21	.0373	STRAIGHT PIPE
8A	37	405.09	815.38	0.00	0.00	0.00	1220.47	.0407	STRAIGHT PIPE
	38	405.09	848.24	0.00	0.00	0.00	1253.33	.0418	STRAIGHT PIPE
9A	39	405.09	865.95	0.00	0.00	0.00	1271.05	.0424	STRAIGHT PIPE
	39	405.09	782.94	0.00	0.00	0.00	1188.03	.0396	STRAIGHT PIPE
10A	39	405.09	780.78	0.00	0.00	0.00	1185.87	.0395	STRAIGHT PIPE
	44	810.19	1616.96	0.00	0.00	0.00	2427.14	.0809	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	33	810.19	800.20	0.00	0.00	0.00	1610.39	.0537	CURVED PIPE
	34	810.19	590.76	0.00	0.00	0.00	1400.96	.0467	CURVED PIPE
2C	34	810.19	1072.01	0.00	0.00	0.00	1882.19	.0627	CURVED PIPE
	37	810.19	1227.05	0.00	0.00	0.00	2037.24	.0679	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACBWR

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
11A	40	405.09	2852.25	0.00	0.00	0.00	3257.34	.1086	STRAIGHT PIPE
	41	405.09	538.68	0.00	0.00	0.00	943.77	.0321	STRAIGHT PIPE
12A	42	405.09	1328.13	0.00	0.00	0.00	1733.22	.0578	STRAIGHT PIPE
	43	405.09	1420.40	0.00	0.00	0.00	1825.50	.0609	STRAIGHT PIPE
13A	43	405.09	1420.41	0.00	0.00	0.00	1825.50	.0609	STRAIGHT PIPE
	44	810.19	1616.96	0.00	0.00	0.00	2427.14	.0809	WELDING TEE
14A	44	810.19	1616.96	0.00	0.00	0.00	2427.14	.0809	WELDING TEE
	45	405.09	1123.49	0.00	0.00	0.00	1528.59	.0510	STRAIGHT PIPE
15A	45	405.09	1123.49	0.00	0.00	0.00	1528.59	.0510	STRAIGHT PIPE
	46	405.09	1351.20	0.00	0.00	0.00	1756.29	.0585	STRAIGHT PIPE
16A	47	405.09	1038.31	0.00	0.00	0.00	1443.40	.0481	STRAIGHT PIPE
	48	405.09	1574.34	0.00	0.00	0.00	1981.46	.0660	STRAIGHT PIPE
17A	48	405.09	1512.93	0.00	0.00	0.00	1918.02	.0639	STRAIGHT PIPE
	49	810.19	8473.59	0.00	0.00	0.00	9283.78	.3161	WELDING TEE
18A	49	810.19	8473.59	0.00	0.00	0.00	9283.78	.3161	WELDING TEE
	59	405.09	4182.85	0.00	0.00	0.00	4587.94	.1529	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
3C	41	810.19	640.05	0.00	0.00	0.00	1450.24	.0483	CURVED PIPE
	42	810.19	1521.59	0.00	0.00	0.00	2331.78	.0777	CURVED PIPE
4C	44	810.19	2028.75	0.00	0.00	0.00	2838.93	.0946	CURVED PIPE
	47	810.19	1558.97	0.00	0.00	0.00	2369.15	.0790	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF PCCS SUCTION LINE 2 LOCA#8

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	49	810.19	8471.59	0.00	0.00	0.00	9443.78	.3161	WELDING TEE
	51	405.09	2317.69	0.00	0.00	0.00	2722.79	.0900	STRAIGHT PIPE
20S	52	405.09	3232.95	0.00	0.00	0.00	3638.04	.1213	STRAIGHT PIPE
	53	405.09	5593.18	0.00	0.00	0.00	5998.27	.1999	STRAIGHT PIPE
21S	53	405.09	5593.18	0.00	0.00	0.00	5998.27	.1999	STRAIGHT PIPE
	54	405.09	4543.64	0.00	0.00	0.00	4948.73	.1650	STRAIGHT PIPE
22S	55	405.09	4796.63	0.00	0.00	0.00	5199.12	.1733	STRAIGHT PIPE
	5A	405.09	3382.42	0.00	0.00	0.00	3787.51	.1263	STRAIGHT PIPE
23S	57	405.09	3586.59	0.00	0.00	0.00	3991.59	.1331	STRAIGHT PIPE
	5A	405.09	7742.85	0.00	0.00	0.00	8147.75	.2716	STRAIGHT PIPE
24S	5A	405.09	7742.85	0.00	0.00	0.00	8147.75	.2716	STRAIGHT PIPE
	59	405.09	4373.14	0.00	0.00	0.00	4778.23	.1593	STRAIGHT PIPE
25S	A8	405.09	5508.35	0.00	0.00	0.00	5911.45	970	STRAIGHT PIPE
	81	405.09	5470.69	0.00	0.00	0.00	6075.78	125	STRAIGHT PIPE
26S	62	405.09	4044.31	0.00	0.00	0.00	4453.40	151	STRAIGHT PIPE
	63	405.09	4415.31	0.00	0.00	0.00	4820.40	.1607	STRAIGHT PIPE
27S	63	405.09	4415.31	0.00	0.00	0.00	4820.40	.1607	STRAIGHT PIPE
	64	405.09	4128.61	0.00	0.00	0.00	4533.70	.1511	STRAIGHT PIPE
28S	65	405.09	4088.80	0.00	0.00	0.00	4493.98	.1498	STRAIGHT PIPE
	6A	405.09	7468.57	0.00	0.00	0.00	7873.46	.2625	STRAIGHT PIPE
29S	67	405.09	3811.58	0.00	0.00	0.00	4216.67	.1406	STRAIGHT PIPE
	6A	405.09	5187.06	0.00	0.00	0.00	5587.09	.1862	STRAIGHT PIPE
30S	A9	405.09	5590.57	0.00	0.00	0.00	5995.66	.1999	STRAIGHT PIPE
	70	810.19	12737.00	0.00	0.00	0.00	13547.19	.4516	WELDING TEE
31S	79	810.19	12737.00	0.00	0.00	0.00	13547.19	.4516	WELDING TEE
	71	405.09	3843.34	0.00	0.00	0.00	4248.43	.1423	STRAIGHT PIPE
32S	71	405.09	3812.63	0.00	0.00	0.00	4217.72	.1406	STRAIGHT PIPE
	72	405.09	2332.09	0.00	0.00	0.00	2737.19	.0912	STRAIGHT PIPE
33S	72	405.09	2276.02	0.00	0.00	0.00	2681.12	.0894	STRAIGHT PIPE
	74	810.19	5189.17	0.00	0.00	0.00	5999.35	.2000	WELDING TEE
34S	73	810.19	5189.17	0.00	0.00	0.00	5999.35	.2000	WELDING TEE
	82	810.19	7977.91	0.00	0.00	0.00	8788.10	.2929	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
5C	51	810.19	10544.26	0.00	0.00	0.00	11354.45	.3785	CURVED PIPE
	52	810.19	9142.61	0.00	0.00	0.00	9952.80	.3318	CURVED PIPE
6C	54	810.19	5878.48	0.00	0.00	0.00	6654.79	.2220	CURVED PIPE
	55	810.19	6202.55	0.00	0.00	0.00	7012.24	.2338	CURVED PIPE
7C	56	810.19	4378.21	0.00	0.00	0.00	5188.39	.1729	CURVED PIPE
	57	810.19	4648.24	0.00	0.00	0.00	5458.43	.1817	CURVED PIPE

8C	59	810.19	5100.62	0.00	0.00	0.00	5910.81	.1970	CURVED PIPE
	60	810.19	6103.59	0.00	0.00	0.00	6913.69	.2305	CURVED PIPE
9C	61	810.19	7044.84	0.00	0.00	0.00	7853.02	.2619	CURVED PIPE
	62	810.19	7917.33	0.00	0.00	0.00	8727.51	.2909	CURVED PIPE
10C	64	810.19	5341.63	0.00	0.00	0.00	6151.81	.2051	CURVED PIPE
	65	810.19	4700.21	0.00	0.00	0.00	5510.42	.1837	CURVED PIPE
11C	66	810.19	9675.73	0.00	0.00	0.00	10485.92	.3495	CURVED PIPE
	67	810.19	4934.53	0.00	0.00	0.00	5746.71	.1916	CURVED PIPE
12C	68	810.19	12353.48	0.00	0.00	0.00	13163.79	.4388	CURVED PIPE
	69	810.19	13327.61	0.00	0.00	0.00	14137.80	.4713	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	79	405.09	1580.41	0.00	0.00	0.00	1985.51	.0662	STRAIGHT PIPE
	A0	405.09	774.61	0.00	0.00	0.00	1179.70	.0393	STRAIGHT PIPE
36S	A1	405.09	1066.74	0.00	0.00	0.00	1471.87	.0491	STRAIGHT PIPE
	A2	810.19	7977.91	0.00	0.00	0.00	8788.10	.2929	WELDING TEE
37S	A2	810.19	7977.91	0.00	0.00	0.00	8788.10	.2929	WELDING TEE
	A3	405.09	444.33	0.00	0.00	0.00	849.39	.0283	STRAIGHT PIPE
38S	84	405.09	466.17	0.00	0.00	0.00	871.27	.0290	STRAIGHT PIPE
	A5	405.09	567.53	0.00	0.00	0.00	972.62	.0324	STRAIGHT PIPE
39S	A6	405.09	744.53	0.00	0.00	0.00	1151.62	.0384	STRAIGHT PIPE
	87	810.19	6103.22	0.00	0.00	0.00	6913.40	.2303	WELDING TEE
40S	87	810.19	6103.22	0.00	0.00	0.00	6913.40	.2303	WELDING TEE
	A8	405.09	210.95	0.00	0.00	0.00	616.04	.0205	STRAIGHT PIPE
41S	A8	327.59	1114.92	0.00	0.00	0.00	1442.51	.0481	STRAIGHT PIPE
	A9	327.59	341.79	0.00	0.00	0.00	669.37	.0223	STRAIGHT PIPE
42S	90	327.59	423.61	0.00	0.00	0.00	751.20	.0250	STRAIGHT PIPE
	91	327.59	358.07	0.00	0.00	0.00	685.65	.0229	STRAIGHT PIPE
43S	92	327.59	334.85	0.00	0.00	0.00	662.	.0221	STRAIGHT PIPE
	93	327.59	1217.57	0.00	0.00	0.00	1545. 5	.0515	STRAIGHT PIPE
44S	93	327.59	1217.57	0.00	0.00	0.00	1545.15	.0515	STRAIGHT PIPE
	94	327.59	774.54	0.00	0.00	0.00	1106.13	.0369	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SR)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	A0	810.19	1409.04	0.00	0.00	0.00	2219.23	.0740	CURVED PIPE
	A1	810.19	1948.32	0.00	0.00	0.00	2755.50	.0919	CURVED PIPE
14C	A1	810.19	1301.98	0.00	0.00	0.00	2112.17	.0711	CURVED PIPE
	A4	810.19	1436.99	0.00	0.00	0.00	2215.17	.0738	CURVED PIPE
15C	A5	810.19	734.72	0.00	0.00	0.00	1544.91	.0515	CURVED PIPE
	A6	810.19	963.43	0.00	0.00	0.00	1773.62	.0592	CURVED PIPE
16C	A9	405.17	774.49	0.00	0.00	0.00	1428.58	.0477	CURVED PIPE
	90	405.17	884.74	0.00	0.00	0.00	1561.91	.0521	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 LACOVE

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
45S	A7	655.17	6180.22	0.00	0.00	0.00	6755.39	.2252	WELDING TEE
	95	327.59	1986.55	0.00	0.00	0.00	2314.14	.0771	STRAIGHT PIPE
46S	96	327.59	1694.53	0.00	0.00	0.00	2022.12	.0674	STRAIGHT PIPE
	97	327.59	1770.71	0.00	0.00	0.00	2098.29	.0699	STRAIGHT PIPE
47S	97	327.59	1770.71	0.00	0.00	0.00	2098.29	.0699	STRAIGHT PIPE
	9A	327.59	5023.92	0.00	0.00	0.00	5350.61	.1784	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
18C	95	655.17	4252.22	0.00	0.00	0.00	4907.39	.1636	CURVED PIPE
	9A	655.17	3627.14	0.00	0.00	0.00	4282.32	.1427	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
48S	75	810.19	5189.17	0.00	0.00	0.00	5999.35	.2000	WELDING TEE
	74	405.09	847.33	0.00	0.00	0.00	1252.42	.0417	STRAIGHT PIPE
49S	75	405.09	535.94	0.00	0.00	0.00	941.03	.0314	STRAIGHT PIPE
	7A	405.09	788.74	0.00	0.00	0.00	1193.83	.0398	STRAIGHT PIPE
50S	7A	405.09	795.94	0.00	0.00	0.00	1201.03	.0400	STRAIGHT PIPE
	77	405.09	1388.45	0.00	0.00	0.00	1793.55	.0598	STRAIGHT PIPE
51S	7A	405.09	2531.65	0.00	0.00	0.00	2936.74	.0979	STRAIGHT PIPE
	78	810.19	12737.00	0.00	0.00	0.00	13547.19	.4516	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SB)	RATIO SB / 1.5*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19C	74	810.19	1535.52	0.00	0.00	0.00	2345.70	.0782	CURVED PIPE
	75	810.19	911.43	0.00	0.00	0.00	1721.62	.0574	CURVED PIPE
20C	77	810.19	2525.46	0.00	0.00	0.00	3335.64	.1112	CURVED PIPE
	78	810.19	4605.19	0.00	0.00	0.00	5415.37	.1805	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FEED SUCTION LINE 2 LACROIX

8.2 CONSIDERATION OF EQUATION 10

STRESSES FOR EQUATION 10
LOAD SET 1 = LOAD COMBINATION 5

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (E)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1A	19	485.09	446.81	0.00	0.00	0.00	871.10	.0145	STRAIGHT PIPE
	29	485.09	481.76	0.00	0.00	0.00	868.85	.0135	STRAIGHT PIPE
2A	29	485.09	431.76	0.00	0.00	0.00	868.85	.0135	STRAIGHT PIPE
	30	485.09	532.44	0.00	0.00	0.00	937.53	.0156	STRAIGHT PIPE
3A	30	485.09	537.44	0.00	0.00	0.00	937.53	.0156	STRAIGHT PIPE
	31	485.09	741.82	0.00	0.00	0.00	1146.91	.0191	STRAIGHT PIPE
4A	31	485.09	741.82	0.00	0.00	0.00	1146.91	.0191	STRAIGHT PIPE
	32	485.09	1334.76	0.00	0.00	0.00	1741.86	.0290	STRAIGHT PIPE
5A	32	485.09	1334.76	0.00	0.00	0.00	1741.86	.0290	STRAIGHT PIPE
	33	485.09	6375.99	0.00	0.00	0.00	6780.99	.1130	STRAIGHT PIPE
6A	34	485.09	3392.94	0.00	0.00	0.00	3798.03	.0633	STRAIGHT PIPE
	35	485.09	7695.55	0.00	0.00	0.00	8100.44	.1350	STRAIGHT PIPE
7A	35	485.09	7695.55	0.00	0.00	0.00	8100.44	.1350	STRAIGHT PIPE
	36	485.09	3954.04	0.00	0.00	0.00	4371.13	.0729	STRAIGHT PIPE
8A	37	485.09	3433.24	0.00	0.00	0.00	3838.34	.0636	STRAIGHT PIPE
	38	485.09	3754.08	0.00	0.00	0.00	4159.18	.0693	STRAIGHT PIPE
9A	38	485.09	3817.39	0.00	0.00	0.00	4227.49	.0704	STRAIGHT PIPE
	39	485.09	4269.32	0.00	0.00	0.00	4686.41	.0781	STRAIGHT PIPE
10A	39	485.09	4338.91	0.00	0.00	0.00	4742.00	.0790	STRAIGHT PIPE
	44	807.64	12392.97	0.00	0.00	0.00	12998.61	.2166	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (E)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	33	425.42	9339.50	0.00	0.00	0.00	10164.92	.1694	CURVED PIPE
	34	425.42	5142.80	0.00	0.00	0.00	5618.30	.0935	CURVED PIPE
2C	34	437.20	7939.40	0.00	0.00	0.00	8375.60	.1396	CURVED PIPE
	37	437.20	6840.23	0.00	0.00	0.00	7277.42	.1213	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FEED SUCTION LINE 2 LACROIX

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (E)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
11A	40	485.09	7130.65	0.00	0.00	0.00	7535.74	.1256	STRAIGHT PIPE
	41	485.09	3961.20	0.00	0.00	0.00	4366.37	.0728	STRAIGHT PIPE
12A	42	485.09	1760.25	0.00	0.00	0.00	2145.34	.0358	STRAIGHT PIPE
	43	485.09	2000.72	0.00	0.00	0.00	2405.81	.0401	STRAIGHT PIPE
13A	43	485.09	2000.72	0.00	0.00	0.00	2405.81	.0401	STRAIGHT PIPE
	44	807.64	12390.97	0.00	0.00	0.00	12998.61	.2166	WELDING TEE
14A	44	807.64	12390.97	0.00	0.00	0.00	12998.61	.2166	WELDING TEE
	45	485.09	2536.85	0.00	0.00	0.00	2431.94	.0405	STRAIGHT PIPE
15A	45	485.09	2024.85	0.00	0.00	0.00	2431.94	.0405	STRAIGHT PIPE
	46	485.09	3341.86	0.00	0.00	0.00	3746.95	.0624	STRAIGHT PIPE
16A	47	485.09	5474.13	0.00	0.00	0.00	6929.22	.1025	STRAIGHT PIPE
	48	485.09	3394.23	0.00	0.00	0.00	3799.33	.0633	STRAIGHT PIPE
17A	48	485.09	3505.52	0.00	0.00	0.00	3905.62	.0651	STRAIGHT PIPE
	49	807.64	11233.12	0.00	0.00	0.00	11842.76	.1973	WELDING TEE
18A	49	807.64	11233.12	0.00	0.00	0.00	11842.76	.1973	WELDING TEE
	50	485.09	8034.66	0.00	0.00	0.00	8524.78	.1417	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (E)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
3C	41	425.42	6051.05	0.00	0.00	0.00	6476.47	.1079	CURVED PIPE
	42	425.42	2657.31	0.00	0.00	0.00	3083.74	.0514	CURVED PIPE
4C	46	437.20	6590.16	0.00	0.00	0.00	7127.36	.1188	CURVED PIPE
	47	437.20	11259.00	0.00	0.00	0.00	11698.28	.1949	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 CACRWP

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	49	607.64	11239.12	0.00	0.00	0.00	11840.76	.1973	WELDING TEE
	51	405.09	1846.86	0.00	0.00	0.00	2251.95	.0375	STRAIGHT PIPE
20S	5P	405.09	1784.69	0.00	0.00	0.00	2189.78	.0365	STRAIGHT PIPE
	53	405.09	2928.29	0.00	0.00	0.00	3333.39	.0555	STRAIGHT PIPE
21S	53	405.09	2925.29	0.00	0.00	0.00	3330.39	.0555	STRAIGHT PIPE
	54	405.09	1911.59	0.00	0.00	0.00	2316.68	.0386	STRAIGHT PIPE
22S	55	405.09	2224.62	0.00	0.00	0.00	2629.72	.0438	STRAIGHT PIPE
	5A	405.09	1592.23	0.00	0.00	0.00	1997.33	.0333	STRAIGHT PIPE
23S	57	405.09	1253.09	0.00	0.00	0.00	1658.14	.0276	STRAIGHT PIPE
	5A	405.09	2649.69	0.00	0.00	0.00	3054.78	.0509	STRAIGHT PIPE
24S	5A	405.09	2649.69	0.00	0.00	0.00	3054.78	.0509	STRAIGHT PIPE
	59	405.09	2020.19	0.00	0.00	0.00	2425.28	.0404	STRAIGHT PIPE
25S	60	405.09	1717.03	0.00	0.00	0.00	2122.12	.0354	STRAIGHT PIPE
	61	405.09	1627.33	0.00	0.00	0.00	2032.42	.0339	STRAIGHT PIPE
26S	62	405.09	1944.76	0.00	0.00	0.00	2349.85	.0392	STRAIGHT PIPE
	63	405.09	1941.99	0.00	0.00	0.00	2347.08	.0391	STRAIGHT PIPE
27S	A3	405.09	1941.99	0.00	0.00	0.00	2347.08	.0391	STRAIGHT PIPE
	64	405.09	1486.27	0.00	0.00	0.00	1891.36	.0315	STRAIGHT PIPE
28S	65	405.09	1363.73	0.00	0.00	0.00	1768.82	.0295	STRAIGHT PIPE
	6A	405.09	2373.23	0.00	0.00	0.00	2778.32	.0463	STRAIGHT PIPE
29S	67	405.09	2700.72	0.00	0.00	0.00	3105.81	.0518	STRAIGHT PIPE
	AB	405.09	3381.05	0.00	0.00	0.00	3786.14	.0631	STRAIGHT PIPE
30S	69	405.09	3034.98	0.00	0.00	0.00	3440.07	.0573	STRAIGHT PIPE
	70	607.64	9312.09	0.00	0.00	0.00	9919.63	.1653	WELDING TEE
31S	70	607.64	9312.00	0.00	0.00	0.00	9919.63	.1653	WELDING TEE
	71	405.09	3215.07	0.00	0.00	0.00	3620.16	.0603	STRAIGHT PIPE
32S	71	405.09	3233.96	0.00	0.00	0.00	3639.05	.0607	STRAIGHT PIPE
	72	405.09	844.90	0.00	0.00	0.00	1250.00	.0208	STRAIGHT PIPE
33S	72	405.09	808.30	0.00	0.00	0.00	1213.40	.0202	STRAIGHT PIPE
	73	607.64	3716.47	0.00	0.00	0.00	4324.11	.0721	WELDING TEE
34S	73	607.64	3716.47	0.00	0.00	0.00	4324.11	.0721	WELDING TEE
	82	607.64	6968.50	0.00	0.00	0.00	7576.14	.1263	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
5C	51	486.19	9015.91	0.00	0.00	0.00	9502.10	.1584	CURVED PIPE
	52	486.19	6461.66	0.00	0.00	0.00	6947.85	.1158	CURVED PIPE
6C	54	429.99	3297.60	0.00	0.00	0.00	3727.59	.0621	CURVED PIPE
	55	429.99	3837.65	0.00	0.00	0.00	4267.64	.0711	CURVED PIPE
7C	56	429.99	2746.73	0.00	0.00	0.00	3176.72	.0529	CURVED PIPE
	57	429.99	2161.67	0.00	0.00	0.00	2591.66	.0432	CURVED PIPE

8C	59	424.97	3328.10	0.00	0.00	0.00	3753.07	.0626	CURVED PIPE
	60	424.97	2537.32	0.00	0.00	0.00	2962.30	.0494	CURVED PIPE
9C	61	427.58	2621.25	0.00	0.00	0.00	3048.83	.0508	CURVED PIPE
	62	427.58	2990.01	0.00	0.00	0.00	3417.59	.0570	CURVED PIPE
10C	64	429.99	2563.93	0.00	0.00	0.00	2993.92	.0499	CURVED PIPE
	65	429.99	2352.54	0.00	0.00	0.00	2782.53	.0464	CURVED PIPE
11C	66	430.05	4099.39	0.00	0.00	0.00	4529.44	.0755	CURVED PIPE
	67	430.05	4644.87	0.00	0.00	0.00	5074.92	.0849	CURVED PIPE
12C	68	481.41	10745.94	0.00	0.00	0.00	11298.33	.1883	CURVED PIPE
	69	481.41	9644.95	0.00	0.00	0.00	10128.36	.1688	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	79	405.09	966.30	0.00	0.00	0.00	1371.40	.0229	STRAIGHT PIPE
	A0	405.09	839.56	0.00	0.00	0.00	1244.65	.0211	STRAIGHT PIPE
36S	A1	405.09	910.33	0.00	0.00	0.00	1315.42	.0219	STRAIGHT PIPE
	82	607.64	6968.50	0.00	0.00	0.00	7576.14	.1263	WELDING TEE
37S	82	607.64	6968.50	0.00	0.00	0.00	7576.14	.1263	WELDING TEE
	A3	405.09	828.72	0.00	0.00	0.00	1233.81	.0206	STRAIGHT PIPE
38S	B4	405.09	949.29	0.00	0.00	0.00	1354.38	.0226	STRAIGHT PIPE
	A5	405.09	984.82	0.00	0.00	0.00	1389.91	.0232	STRAIGHT PIPE
39S	B6	405.09	869.37	0.00	0.00	0.00	1274.47	.0212	STRAIGHT PIPE
	B7	607.64	9067.87	0.00	0.00	0.00	9675.51	.1613	WELDING TEE
40S	A7	607.64	9067.87	0.00	0.00	0.00	9675.51	.1613	WELDING TEE
	A8	405.09	279.35	0.00	0.00	0.00	684.44	.0114	STRAIGHT PIPE
41S	A9	327.59	1474.45	0.00	0.00	0.00	1804.04	.0301	STRAIGHT PIPE
	A9	327.59	1347.32	0.00	0.00	0.00	1676.91	.0279	STRAIGHT PIPE
42S	90	327.59	1356.47	0.00	0.00	0.00	1684.06	.0281	STRAIGHT PIPE
	91	327.59	1215.74	0.00	0.00	0.00	1543.32	.0257	STRAIGHT PIPE
43S	92	327.59	1011.11	0.00	0.00	0.00	1338.70	.0223	STRAIGHT PIPE
	93	327.59	1866.59	0.00	0.00	0.00	2194.18	.0366	STRAIGHT PIPE
44S	93	327.59	1866.59	0.00	0.00	0.00	2194.18	.0366	STRAIGHT PIPE
	94	327.59	2854.23	0.00	0.00	0.00	3182.61	.0530	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	A0	458.29	2084.76	0.00	0.00	0.00	2535.05	.0423	CURVED PIPE
	A1	458.29	2215.42	0.00	0.00	0.00	2665.72	.0444	CURVED PIPE
14C	A1	491.05	2924.62	0.00	0.00	0.00	3429.47	.0570	CURVED PIPE
	B4	491.05	3079.27	0.00	0.00	0.00	3570.32	.0595	CURVED PIPE
15C	A5	439.81	1547.09	0.00	0.00	0.00	1987.10	.0331	CURVED PIPE
	A6	439.81	1487.39	0.00	0.00	0.00	1927.21	.0321	CURVED PIPE
16C	A8	395.30	3902.34	0.00	0.00	0.00	4297.64	.0716	CURVED PIPE
	90	395.30	3871.78	0.00	0.00	0.00	4266.68	.0711	CURVED PIPE
17C	91	395.30	3644.71	0.00	0.00	0.00	4040.01	.0673	CURVED PIPE
	92	395.30	2884.71	0.00	0.00	0.00	3281.02	.0547	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF 4000 SUCTION LINE 2 (ACAD)

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
454	87	491.38	9067.87	0.00	0.00	0.00	9559.25	.1593	WELDING TEE
	95	327.59	1394.72	0.00	0.00	0.00	1722.31	.0287	STRAIGHT PIPE
464	96	327.59	1442.46	0.00	0.00	0.00	1770.05	.0295	STRAIGHT PIPE
	97	327.59	1546.79	0.00	0.00	0.00	1874.38	.0312	STRAIGHT PIPE
475	97	327.59	1546.79	0.00	0.00	0.00	1874.38	.0312	STRAIGHT PIPE
	98	327.59	3175.99	0.00	0.00	0.00	3503.58	.0584	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
18C	95	395.30	3980.54	0.00	0.00	0.00	4375.84	.0729	CURVED PIPE
	96	395.30	4116.70	0.00	0.00	0.00	4512.09	.0752	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
484	73	607.64	3716.47	0.00	0.00	0.00	4324.11	.0721	WELDING TEE
	74	485.09	434.49	0.00	0.00	0.00	839.58	.0140	STRAIGHT PIPE
494	75	485.09	384.70	0.00	0.00	0.00	709.79	.0118	STRAIGHT PIPE
	76	485.09	459.15	0.00	0.00	0.00	864.24	.0144	STRAIGHT PIPE
504	76	485.09	458.27	0.00	0.00	0.00	863.36	.0144	STRAIGHT PIPE
	77	485.09	983.57	0.00	0.00	0.00	1309.66	.0218	STRAIGHT PIPE
514	78	485.09	1093.03	0.00	0.00	0.00	1458.12	.0243	STRAIGHT PIPE
	78	607.64	9312.00	0.00	0.00	0.00	9919.63	.1653	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19C	74	458.00	1050.25	0.00	0.00	0.00	1508.25	.0250	CURVED PIPE
	75	458.00	734.34	0.00	0.00	0.00	1184.33	.0198	CURVED PIPE
20C	77	458.29	2191.51	0.00	0.00	0.00	2641.80	.0440	CURVED PIPE
	78	458.29	2554.62	0.00	0.00	0.00	3004.31	.0501	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 - LACRVR

STRESSES FOR EQUATION 10
LOAD COMBINATION 6

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1S	19	405.09	451.41	0.00	0.00	0.00	856.50	.0141	STRAIGHT PIPE
	29	405.09	393.51	0.00	0.00	0.00	798.60	.0133	STRAIGHT PIPE
2S	29	405.09	393.51	0.00	0.00	0.00	798.60	.0133	STRAIGHT PIPE
	30	405.09	510.30	0.00	0.00	0.00	915.39	.0153	STRAIGHT PIPE
3S	30	405.09	510.30	0.00	0.00	0.00	915.39	.0153	STRAIGHT PIPE
	31	405.09	718.56	0.00	0.00	0.00	1123.46	.0187	STRAIGHT PIPE
4S	31	405.09	718.56	0.00	0.00	0.00	1123.46	.0187	STRAIGHT PIPE
	32	405.09	1094.97	0.00	0.00	0.00	1504.06	.0251	STRAIGHT PIPE
5S	32	405.09	1094.97	0.00	0.00	0.00	1504.06	.0251	STRAIGHT PIPE
	33	405.09	6515.53	0.00	0.00	0.00	6920.62	.1153	STRAIGHT PIPE
6S	34	405.09	2739.88	0.00	0.00	0.00	3144.97	.0524	STRAIGHT PIPE
	35	405.09	7447.47	0.00	0.00	0.00	7852.57	.1309	STRAIGHT PIPE
7S	35	405.09	7447.47	0.00	0.00	0.00	7852.57	.1309	STRAIGHT PIPE
	36	405.09	3611.69	0.00	0.00	0.00	4016.79	.0669	STRAIGHT PIPE
8S	37	405.09	2743.43	0.00	0.00	0.00	3148.52	.0528	STRAIGHT PIPE
	38	405.09	2937.44	0.00	0.00	0.00	3342.53	.0557	STRAIGHT PIPE
9S	38	405.09	2962.97	0.00	0.00	0.00	3368.06	.0561	STRAIGHT PIPE
	39	405.09	3361.74	0.00	0.00	0.00	3766.83	.0628	STRAIGHT PIPE
10S	39	405.09	3334.09	0.00	0.00	0.00	3738.09	.0631	STRAIGHT PIPE
	44	607.64	13311.33	0.00	0.00	0.00	13918.97	.2320	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
1C	33	425.42	9952.79	0.00	0.00	0.00	10378.21	.1730	CURVED PIPE
	34	425.42	4185.30	0.00	0.00	0.00	4613.72	.0768	CURVED PIPE
2C	36	437.20	7228.68	0.00	0.00	0.00	7665.88	.1278	CURVED PIPE
	37	437.20	5532.61	0.00	0.00	0.00	5969.80	.0995	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 - LACRVR

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
11S	40	405.09	9935.41	0.00	0.00	0.00	10340.50	.1723	STRAIGHT PIPE
	41	405.09	3199.43	0.00	0.00	0.00	3604.51	.0601	STRAIGHT PIPE
12S	42	405.09	3351.33	0.00	0.00	0.00	3756.42	.0626	STRAIGHT PIPE
	43	483.09	2714.79	0.00	0.00	0.00	3121.88	.0520	STRAIGHT PIPE
13S	43	405.09	2714.79	0.00	0.00	0.00	3121.88	.0520	STRAIGHT PIPE
	44	607.64	13311.33	0.00	0.00	0.00	13918.97	.2320	WELDING TEE
14S	44	607.64	13311.33	0.00	0.00	0.00	13918.97	.2320	WELDING TEE
	45	405.09	1901.22	0.00	0.00	0.00	2306.31	.0384	STRAIGHT PIPE
15S	45	405.09	1901.22	0.00	0.00	0.00	2306.31	.0384	STRAIGHT PIPE
	46	405.09	2469.41	0.00	0.00	0.00	2874.50	.0479	STRAIGHT PIPE
16S	47	405.09	11849.51	0.00	0.00	0.00	12254.61	.2042	STRAIGHT PIPE
	48	405.09	5711.99	0.00	0.00	0.00	6117.09	.1020	STRAIGHT PIPE
17S	48	405.09	5707.49	0.00	0.00	0.00	6112.58	.1019	STRAIGHT PIPE
	49	607.64	13363.93	0.00	0.00	0.00	13971.57	.2329	WELDING TEE
18S	49	607.64	13363.93	0.00	0.00	0.00	13971.57	.2329	WELDING TEE
	50	405.09	17042.39	0.00	0.00	0.00	17487.48	.2915	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
3C	41	425.42	4887.27	0.00	0.00	0.00	5312.69	.0885	CURVED PIPE
	42	425.42	5119.32	0.00	0.00	0.00	5544.74	.0924	CURVED PIPE
4C	44	437.20	4943.58	0.00	0.00	0.00	5380.78	.0897	CURVED PIPE
	47	437.20	23791.84	0.00	0.00	0.00	24154.04	.4027	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LOOP2B

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	44	607.64	13343.93	0.00	0.00	0.00	13971.57	.2329	WELDING TEE
	51	485.09	2501.91	0.00	0.00	0.00	2986.99	.0484	STRAIGHT PIPE
20S	52	485.09	2525.48	0.00	0.00	0.00	2938.58	.0489	STRAIGHT PIPE
	53	485.09	4128.14	0.00	0.00	0.00	4533.23	.0756	STRAIGHT PIPE
21S	53	485.09	4128.14	0.00	0.00	0.00	4533.23	.0756	STRAIGHT PIPE
	54	485.09	3477.65	0.00	0.00	0.00	3877.74	.0513	STRAIGHT PIPE
22S	55	485.09	3435.28	0.00	0.00	0.00	3848.37	.0640	STRAIGHT PIPE
	56	485.09	2213.99	0.00	0.00	0.00	2619.07	.0437	STRAIGHT PIPE
23S	57	485.09	2526.93	0.00	0.00	0.00	2932.02	.0489	STRAIGHT PIPE
	58	485.09	4273.97	0.00	0.00	0.00	4679.07	.0780	STRAIGHT PIPE
24S	58	485.09	4273.97	0.00	0.00	0.00	4679.07	.0780	STRAIGHT PIPE
	59	485.09	2891.14	0.00	0.00	0.00	3296.23	.0549	STRAIGHT PIPE
25S	60	485.09	2813.58	0.00	0.00	0.00	3218.67	.0536	STRAIGHT PIPE
	61	485.09	2958.17	0.00	0.00	0.00	3363.26	.0561	STRAIGHT PIPE
26S	62	485.09	3427.24	0.00	0.00	0.00	3827.33	.0638	STRAIGHT PIPE
	63	485.09	2832.85	0.00	0.00	0.00	3837.94	.0506	STRAIGHT PIPE
27S	63	485.09	2832.85	0.00	0.00	0.00	3837.94	.0506	STRAIGHT PIPE
	64	485.09	2565.23	0.00	0.00	0.00	3070.32	.0512	STRAIGHT PIPE
28S	65	485.09	2802.43	0.00	0.00	0.00	3087.52	.0501	STRAIGHT PIPE
	66	485.09	2708.49	0.00	0.00	0.00	3113.59	.0519	STRAIGHT PIPE
29S	67	485.09	2537.40	0.00	0.00	0.00	2942.49	.0490	STRAIGHT PIPE
	68	485.09	3534.66	0.00	0.00	0.00	3939.76	.0657	STRAIGHT PIPE
30S	69	485.09	4111.54	0.00	0.00	0.00	4515.66	.0753	STRAIGHT PIPE
	70	607.64	12844.59	0.00	0.00	0.00	13452.22	.2242	WELDING TEE
31S	70	607.64	12844.58	0.00	0.00	0.00	13452.22	.2242	WELDING TEE
	71	485.09	2544.67	0.00	0.00	0.00	2951.76	.0492	STRAIGHT PIPE
32S	71	485.09	2514.91	0.00	0.00	0.00	2922.09	.0487	STRAIGHT PIPE
	72	485.09	960.74	0.00	0.00	0.00	1365.83	.0228	STRAIGHT PIPE
33S	72	485.09	956.87	0.00	0.00	0.00	1361.97	.0227	STRAIGHT PIPE
	73	607.64	5857.55	0.00	0.00	0.00	[illegible]	.1079	WELDING TEE
34S	73	607.64	5857.55	0.00	0.00	0.00	[illegible] .19	.1079	WELDING TEE
	87	607.64	8859.68	0.00	0.00	0.00	9[illegible] .12	.1543	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
8C	51	486.19	14025.66	0.00	0.00	0.00	18511.86	.3085	CURVED PIPE
	52	486.19	13794.65	0.00	0.00	0.00	14282.85	.2380	CURVED PIPE
8C	54	429.99	4810.51	0.00	0.00	0.00	5040.52	.0840	CURVED PIPE
	55	429.99	6024.12	0.00	0.00	0.00	6356.11	.1059	CURVED PIPE
7C	56	429.99	3819.29	0.00	0.00	0.00	4249.28	.0708	CURVED PIPE
	57	429.99	4359.15	0.00	0.00	0.00	4789.14	.0798	CURVED PIPE

8C	59	434.97	4742.25	0.00	0.00	0.00	5187.22	.0865	CURVED PIPE
	60	434.97	4273.23	0.00	0.00	0.00	4698.20	.0783	CURVED PIPE
9C	61	427.58	4956.69	0.00	0.00	0.00	5374.27	.0896	CURVED PIPE
	62	427.58	5923.83	0.00	0.00	0.00	6357.41	.1060	CURVED PIPE
10C	64	429.99	4597.73	0.00	0.00	0.00	5027.72	.0838	CURVED PIPE
	65	429.99	4440.40	0.00	0.00	0.00	4919.39	.0820	CURVED PIPE
11C	66	430.05	4678.75	0.00	0.00	0.00	5108.79	.0851	CURVED PIPE
	67	430.05	4382.29	0.00	0.00	0.00	4812.33	.0802	CURVED PIPE
12C	68	481.41	11334.25	0.00	0.00	0.00	11746.66	.1953	CURVED PIPE
	69	481.41	13044.98	0.00	0.00	0.00	13550.39	.2256	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	79	485.09	627.94	0.00	0.00	0.00	1833.03	.0172	STRAIGHT PIPE
	80	485.09	528.29	0.00	0.00	0.00	933.39	.0156	STRAIGHT PIPE
36S	81	485.09	944.12	0.00	0.00	0.00	1371.21	.0229	STRAIGHT PIPE
	82	607.64	8450.40	0.00	0.00	0.00	9258.12	.1543	WELDING TEE
37S	82	607.64	8450.40	0.00	0.00	0.00	9258.12	.1543	WELDING TEE
	83	485.09	795.02	0.00	0.00	0.00	1200.11	.0200	STRAIGHT PIPE
38S	84	485.09	954.54	0.00	0.00	0.00	1359.73	.0227	STRAIGHT PIPE
	85	485.09	911.83	0.00	0.00	0.00	1319.02	.0220	STRAIGHT PIPE
39S	86	485.09	872.41	0.00	0.00	0.00	1277.59	.0213	STRAIGHT PIPE
	87	607.64	8472.37	0.00	0.00	0.00	9180.01	.1530	WELDING TEE
40S	87	607.64	8472.37	0.00	0.00	0.00	9180.01	.1530	WELDING TEE
	88	485.09	278.64	0.00	0.00	0.00	675.73	.0113	STRAIGHT PIPE
41S	88	327.59	1430.39	0.00	0.00	0.00	1757.98	.0293	STRAIGHT PIPE
	89	327.59	1375.78	0.00	0.00	0.00	1703.37	.0284	STRAIGHT PIPE
42S	90	327.59	1354.34	0.00	0.00	0.00	1681.93	.0281	STRAIGHT PIPE
	91	327.59	1297.03	0.00	0.00	0.00	1534.62	.0256	STRAIGHT PIPE
43S	92	327.59	983.16	0.00	0.00	0.00	1310.75	.0218	STRAIGHT PIPE
	93	327.59	1847.80	0.00	0.00	0.00	2175.46	.0363	STRAIGHT PIPE
44S	93	327.59	1847.88	0.00	0.00	0.00	2175.46	.0363	STRAIGHT PIPE
	94	327.59	2841.67	0.00	0.00	0.00	3169.25	.0528	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	80	458.29	1791.31	0.00	0.00	0.00	1731.60	.0289	CURVED PIPE
	81	458.29	2344.88	0.00	0.00	0.00	2734.98	.0456	CURVED PIPE
14C	83	431.05	2779.43	0.00	0.00	0.00	3270.67	.0545	CURVED PIPE
	84	431.05	3273.30	0.00	0.00	0.00	3575.35	.0595	CURVED PIPE
15C	85	438.01	1572.58	0.00	0.00	0.00	2007.59	.0334	CURVED PIPE
	86	438.01	1582.58	0.00	0.00	0.00	1912.52	.0322	CURVED PIPE
16C	89	395.30	3824.49	0.00	0.00	0.00	4321.79	.0720	CURVED PIPE
	90	395.30	3874.71	0.00	0.00	0.00	4277.01	.0712	CURVED PIPE
17C	91	395.30	3444.89	0.00	0.00	0.00	3848.14	.0640	CURVED PIPE
	92	395.30	2885.94	0.00	0.00	0.00	3281.24	.0539	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 -14CR40

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
45S	87	491.38	8572.37	0.00	0.00	0.00	9063.75	.1511	WELDING TEE
	95	327.59	1283.98	0.00	0.00	0.00	1611.57	.0269	STRAIGHT PIPE
46S	96	327.59	1408.14	0.00	0.00	0.00	1735.73	.0289	STRAIGHT PIPE
	97	327.59	1388.86	0.00	0.00	0.00	1716.45	.0286	STRAIGHT PIPE
47S	97	327.59	1388.86	0.00	0.00	0.00	1716.45	.0286	STRAIGHT PIPE
	98	327.59	2891.21	0.00	0.00	0.00	3218.79	.0536	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
18C	95	395.30	3664.49	0.00	0.00	0.00	4059.79	.0677	CURVED PIPE
	96	395.30	4019.95	0.00	0.00	0.00	4414.25	.0736	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
48S	73	607.64	5857.46	0.00	0.00	0.00	6465.10	.1078	WELDING TEE
	74	485.09	601.10	0.00	0.00	0.00	1086.19	.0181	STRAIGHT PIPE
49S	75	485.09	344.75	0.00	0.00	0.00	749.84	.0125	STRAIGHT PIPE
	74	485.09	507.87	0.00	0.00	0.00	992.96	.0165	STRAIGHT PIPE
50S	76	485.09	590.51	0.00	0.00	0.00	995.60	.0166	STRAIGHT PIPE
	77	485.09	1194.72	0.00	0.00	0.00	1599.81	.0267	STRAIGHT PIPE
51S	76	485.09	1731.24	0.00	0.00	0.00	2116.33	.0353	STRAIGHT PIPE
	78	607.64	1284.58	0.00	0.00	0.00	13452.22	.2242	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	SUM (SN)	RATIO SN / 3.0*SM	CLASS 1 COMPONENT /----DESCRIPTION----/
19C	74	450.00	1646.06	0.00	0.00	0.00	2096.06	.0349	CURVED PIPE
	75	450.00	833.17	0.00	0.00	0.00	1283.17	.0214	CURVED PIPE
20C	77	450.29	2897.66	0.00	0.00	0.00	3347.96	.0558	CURVED PIPE
	78	450.29	4150.42	0.00	0.00	0.00	4600.71	.0767	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACBWR

9.3 CONSIDERATION OF EQUATION 11 & EQUATION 14

STRESSES FOR EQUATION 11 & EQUATION 14
LOAD SET 1 + LOAD COMBINATION 5

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
1A	19	405.09	466.01	0.00	0.00	0.00	871.10	435.55	STRAIGHT PIPE
	29	405.09	403.76	0.00	0.00	0.00	808.85	404.42	STRAIGHT PIPE
2A	29	405.09	403.76	0.00	0.00	0.00	808.85	404.42	STRAIGHT PIPE
	30	405.09	532.44	0.00	0.00	0.00	937.53	468.77	STRAIGHT PIPE
3A	30	405.09	532.44	0.00	0.00	0.00	937.53	468.77	STRAIGHT PIPE
	31	405.09	741.82	0.00	0.00	0.00	1146.91	573.46	STRAIGHT PIPE
4A	31	405.09	741.82	0.00	0.00	0.00	1146.91	573.46	STRAIGHT PIPE
	32	405.09	1337.74	0.00	0.00	0.00	1741.83	870.93	STRAIGHT PIPE
5A	32	405.09	1336.74	0.00	0.00	0.00	1741.83	870.93	STRAIGHT PIPE
	33	405.09	6375.90	0.00	0.00	0.00	6780.99	3390.50	STRAIGHT PIPE
6A	34	405.09	3392.96	0.00	0.00	0.00	3798.03	1899.02	STRAIGHT PIPE
	35	405.09	7895.55	0.00	0.00	0.00	8100.46	4050.32	STRAIGHT PIPE
7A	35	405.09	7895.55	0.00	0.00	0.00	8100.64	4050.32	STRAIGHT PIPE
	36	405.09	3966.04	0.00	0.00	0.00	4371.13	2185.56	STRAIGHT PIPE
8A	37	405.09	3813.74	0.00	0.00	0.00	3818.34	1909.17	STRAIGHT PIPE
	38	405.09	3754.08	0.00	0.00	0.00	4159.18	2079.59	STRAIGHT PIPE
9A	38	405.09	3817.39	0.00	0.00	0.00	4222.49	2111.24	STRAIGHT PIPE
	39	405.09	4289.32	0.00	0.00	0.00	4694.41	2347.21	STRAIGHT PIPE
10A	39	405.09	4336.91	0.00	0.00	0.00	4742.00	2371.00	STRAIGHT PIPE
	44	2430.56	12390.97	0.00	0.00	0.00	14821.52	7410.76	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
1C	33	425.42	4739.56	0.00	0.00	0.00	10164.82	5082.40	CURVED PIPE
	34	425.42	5187.88	0.00	0.00	0.00	5608.30	2804.15	CURVED PIPE
2C	3A	437.20	7938.40	0.00	0.00	0.00	8375.60	4187.80	CURVED PIPE
	37	437.20	6849.62	0.00	0.00	0.00	7287.42	3643.71	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACBWR

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
11A	40	405.09	7130.65	0.00	0.00	0.00	7535.74	3767.87	STRAIGHT PIPE
	41	405.09	3941.28	0.00	0.00	0.00	4346.37	2173.19	STRAIGHT PIPE
12A	42	405.09	1740.25	0.00	0.00	0.00	2145.34	1072.67	STRAIGHT PIPE
	43	405.09	2000.77	0.00	0.00	0.00	2405.81	1202.91	STRAIGHT PIPE
13A	43	405.09	2000.77	0.00	0.00	0.00	2405.81	1202.91	STRAIGHT PIPE
	44	2430.56	12390.97	0.00	0.00	0.00	14821.52	7410.76	WELDING TEE
14A	44	2430.56	12390.97	0.00	0.00	0.00	14821.52	7410.76	WELDING TEE
	45	405.09	2026.85	0.00	0.00	0.00	2431.94	1215.97	STRAIGHT PIPE
15A	45	405.09	3626.85	0.00	0.00	0.00	2431.94	1215.97	STRAIGHT PIPE
	46	405.09	3341.85	0.00	0.00	0.00	3746.95	1873.48	STRAIGHT PIPE
16A	47	405.09	5424.13	0.00	0.00	0.00	6029.22	3014.61	STRAIGHT PIPE
	48	405.09	3394.23	0.00	0.00	0.00	3799.33	1899.66	STRAIGHT PIPE
17A	48	405.09	3500.52	0.00	0.00	0.00	3905.62	1952.81	STRAIGHT PIPE
	49	2430.56	11733.13	0.00	0.00	0.00	13663.67	6831.84	WELDING TEE
18A	49	2430.56	11733.13	0.00	0.00	0.00	13663.67	6831.84	WELDING TEE
	50	405.09	8099.66	0.00	0.00	0.00	8504.76	4252.38	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
3C	41	425.42	6051.05	0.00	0.00	0.00	6476.47	3238.24	CURVED PIPE
	42	425.42	2454.31	0.00	0.00	0.00	3063.14	1531.57	CURVED PIPE
4C	46	437.20	6690.16	0.00	0.00	0.00	7127.36	3563.68	CURVED PIPE
	47	437.20	11259.00	0.00	0.00	0.00	11696.28	5848.14	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACBWR

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
19S	49	2430.56	11233.12	0.00	0.00	0.00	13663.67	6831.84	WELDING TEE
	51	405.09	1846.86	0.00	0.00	0.00	2251.95	1125.98	STRAIGHT PIPE
20S	51	405.09	1784.80	0.00	0.00	0.00	2189.89	1094.95	STRAIGHT PIPE
	53	405.09	2925.29	0.00	0.00	0.00	3330.39	1665.19	STRAIGHT PIPE
21S	53	405.09	2925.29	0.00	0.00	0.00	3330.39	1665.19	STRAIGHT PIPE
	54	405.09	1911.50	0.00	0.00	0.00	2316.46	1158.33	STRAIGHT PIPE
22S	55	405.09	2224.62	0.00	0.00	0.00	2629.72	1314.86	STRAIGHT PIPE
	54	405.09	1592.23	0.00	0.00	0.00	1997.33	998.66	STRAIGHT PIPE
23S	57	405.09	1253.09	0.00	0.00	0.00	1658.18	829.09	STRAIGHT PIPE
	58	405.09	2649.69	0.00	0.00	0.00	3054.78	1527.39	STRAIGHT PIPE
24S	58	405.09	2649.69	0.00	0.00	0.00	3054.78	1527.39	STRAIGHT PIPE
	59	405.09	2028.19	0.00	0.00	0.00	2429.28	1212.64	STRAIGHT PIPE
25S	60	405.09	1717.03	0.00	0.00	0.00	2122.12	1061.06	STRAIGHT PIPE
	61	405.09	1627.32	0.00	0.00	0.00	2032.42	1016.71	STRAIGHT PIPE
26S	62	405.09	1944.76	0.00	0.00	0.00	2349.85	1174.93	STRAIGHT PIPE
	63	405.09	1941.99	0.00	0.00	0.00	2347.08	1173.54	STRAIGHT PIPE
27S	63	405.09	1941.99	0.00	0.00	0.00	2347.08	1173.54	STRAIGHT PIPE
	64	405.09	1486.27	0.00	0.00	0.00	1891.36	945.68	STRAIGHT PIPE
28S	65	405.09	1363.73	0.00	0.00	0.00	1768.82	884.41	STRAIGHT PIPE
	66	405.09	2373.23	0.00	0.00	0.00	2778.32	1389.16	STRAIGHT PIPE
29S	67	405.09	3109.92	0.00	0.00	0.00	3515.01	1562.06	STRAIGHT PIPE
	68	405.09	3591.04	0.00	0.00	0.00	3786.14	1893.07	STRAIGHT PIPE
30S	69	405.09	3034.94	0.00	0.00	0.00	3440.07	1720.03	STRAIGHT PIPE
	70	2430.56	9312.60	0.00	0.00	0.00	11742.55	5871.28	WELDING TEE
31S	70	2430.56	9312.00	0.00	0.00	0.00	11742.55	5871.28	WELDING TEE
	71	405.09	3215.07	0.00	0.00	0.00	3620.16	1810.08	STRAIGHT PIPE
32S	71	405.09	3233.96	0.00	0.00	0.00	3639.05	1819.53	STRAIGHT PIPE
	72	405.09	844.90	0.00	0.00	0.00	1250.00	625.00	STRAIGHT PIPE
33S	72	405.09	808.31	0.00	0.00	0.00	1213.40	606.70	STRAIGHT PIPE
	73	2430.56	3716.47	0.00	0.00	0.00	6147.02	3073.51	WELDING TEE
34S	73	2430.56	3716.47	0.00	0.00	0.00	6147.02	3073.51	WELDING TEE
	87	2430.56	6968.50	0.00	0.00	0.00	9399.05	4699.53	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
5C	51	446.19	9015.91	0.00	0.00	0.00	9582.10	4751.05	CURVED PIPE
	52	446.19	6681.66	0.00	0.00	0.00	6947.85	3473.93	CURVED PIPE
6C	54	429.99	3297.60	0.00	0.00	0.00	3727.59	1863.79	CURVED PIPE
	55	429.99	3837.45	0.00	0.00	0.00	4267.44	2133.72	CURVED PIPE
7C	56	429.99	2746.73	0.00	0.00	0.00	3176.72	1588.36	CURVED PIPE
	57	429.99	2161.67	0.00	0.00	0.00	2591.66	1295.83	CURVED PIPE

8C	59	424.97	3328.10	0.00	0.00	0.00	3753.07	1876.54	CURVED PIPE
	60	424.97	2537.32	0.00	0.00	0.00	2962.30	1481.15	CURVED PIPE
9C	61	427.58	2431.25	0.00	0.00	0.00	3044.83	1524.42	CURVED PIPE
	62	427.58	2990.00	0.00	0.00	0.00	3417.59	1709.79	CURVED PIPE
10C	64	429.99	2563.93	0.00	0.00	0.00	2993.92	1496.96	CURVED PIPE
	65	429.99	2362.54	0.00	0.00	0.00	2792.53	1396.26	CURVED PIPE
11C	66	430.05	4099.39	0.00	0.00	0.00	4529.44	2264.72	CURVED PIPE
	67	430.05	4666.87	0.00	0.00	0.00	5096.92	2547.46	CURVED PIPE
12C	68	481.41	10744.96	0.00	0.00	0.00	11228.37	5614.18	CURVED PIPE
	69	481.41	9646.95	0.00	0.00	0.00	10128.36	5064.18	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
35S	79	405.09	966.30	0.00	0.00	0.00	1371.40	685.70	STRAIGHT PIPE
	80	405.09	859.54	0.00	0.00	0.00	1264.65	632.33	STRAIGHT PIPE
36S	A1	405.09	910.32	0.00	0.00	0.00	1315.42	657.71	STRAIGHT PIPE
	A2	2430.56	6968.50	0.00	0.00	0.00	9399.05	4699.53	WELDING TEE
37S	83	2430.56	6968.50	0.00	0.00	0.00	9399.05	4699.53	WELDING TEE
	A3	405.09	828.72	0.00	0.00	0.00	1233.81	616.91	STRAIGHT PIPE
38S	A4	405.09	949.20	0.00	0.00	0.00	1354.28	677.19	STRAIGHT PIPE
	A5	405.09	904.82	0.00	0.00	0.00	1309.91	654.96	STRAIGHT PIPE
39S	A6	405.09	849.37	0.00	0.00	0.00	1274.47	637.23	STRAIGHT PIPE
	A7	2430.56	9067.87	0.00	0.00	0.00	11498.42	5749.21	WELDING TEE
40S	87	2430.56	9067.87	0.00	0.00	0.00	11498.42	5749.21	WELDING TEE
	88	405.09	279.35	0.00	0.00	0.00	684.44	342.22	STRAIGHT PIPE
41S	88	327.59	1476.45	0.00	0.00	0.00	1804.04	902.02	STRAIGHT PIPE
	89	327.59	1343.32	0.00	0.00	0.00	1670.91	835.45	STRAIGHT PIPE
42S	90	327.59	1356.47	0.00	0.00	0.00	1684.06	842.03	STRAIGHT PIPE
	91	327.59	1215.74	0.00	0.00	0.00	1543.32	771.66	STRAIGHT PIPE
43S	92	327.59	1011.11	0.00	0.00	0.00	1338.70	669.35	STRAIGHT PIPE
	93	327.59	1866.59	0.00	0.00	0.00	2194.18	1097.09	STRAIGHT PIPE
44S	93	327.59	1866.59	0.00	0.00	0.00	2194.18	1097.09	STRAIGHT PIPE
	94	327.59	2855.23	0.00	0.00	0.00	3182.81	1591.41	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
13C	A8	490.29	2094.76	0.00	0.00	0.00	2535.05	1267.53	CURVED PIPE
	A9	490.29	2215.48	0.00	0.00	0.00	2655.72	1327.86	CURVED PIPE
14C	A9	491.05	2929.62	0.00	0.00	0.00	3420.67	1710.33	CURVED PIPE
	B4	491.05	3079.27	0.00	0.00	0.00	3570.32	1785.16	CURVED PIPE
15C	B5	435.01	1557.04	0.00	0.00	0.00	1987.10	993.55	CURVED PIPE
	B6	435.01	1497.30	0.00	0.00	0.00	1927.31	963.66	CURVED PIPE
16C	B8	395.30	3901.34	0.00	0.00	0.00	4297.64	2148.82	CURVED PIPE
	B9	395.30	3871.29	0.00	0.00	0.00	4266.58	2133.29	CURVED PIPE
17C	B9	395.30	3469.71	0.00	0.00	0.00	3865.01	1932.51	CURVED PIPE
	B2	395.30	2885.71	0.00	0.00	0.00	3281.02	1640.51	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FEED SUCTION LINE 2 - LOCA#8

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
45S	87	1965.52	9047.87	0.00	0.00	0.00	11013.38	5516.69	WELDING TEE
	95	327.59	1394.72	0.00	0.00	0.00	1722.31	861.15	STRAIGHT PIPE
46S	88	327.59	1442.48	0.00	0.00	0.00	1770.07	885.03	STRAIGHT PIPE
	97	327.59	1546.79	0.00	0.00	0.00	1874.38	937.19	STRAIGHT PIPE
47S	97	327.59	1546.79	0.00	0.00	0.00	1874.38	937.19	STRAIGHT PIPE
	98	327.59	3175.99	0.00	0.00	0.00	3503.58	1751.79	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
18C	95	395.30	3980.54	0.00	0.00	0.00	4375.84	2187.92	CURVED PIPE
	96	395.30	4116.78	0.00	0.00	0.00	4512.09	2256.04	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
48S	73	2430.56	3716.47	0.00	0.00	0.00	6147.02	3073.51	WELDING TEE
	74	405.09	434.61	0.00	0.00	0.00	839.58	419.79	STRAIGHT PIPE
49S	75	405.09	304.70	0.00	0.00	0.00	709.79	354.89	STRAIGHT PIPE
	76	405.09	459.15	0.00	0.00	0.00	864.24	432.12	STRAIGHT PIPE
50S	76	405.09	458.27	0.00	0.00	0.00	863.36	431.68	STRAIGHT PIPE
	77	405.09	903.57	0.00	0.00	0.00	1308.66	654.33	STRAIGHT PIPE
51S	78	405.09	1053.03	0.00	0.00	0.00	1458.12	729.06	STRAIGHT PIPE
	79	2430.56	9312.00	0.00	0.00	0.00	11742.55	5871.28	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
19C	74	450.00	1050.25	0.00	0.00	0.00	1500.25	750.12	CURVED PIPE
	75	450.00	736.38	0.00	0.00	0.00	1186.37	593.19	CURVED PIPE
20C	77	450.29	2191.51	0.00	0.00	0.00	2641.80	1320.90	CURVED PIPE
	78	450.29	2554.02	0.00	0.00	0.00	3004.31	1502.15	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACRAD

STRESSES FOR EQUATION 11 EVALUATION IN
LOAD SET 2 = LOAD COMBINATION 6

STRAIGHT MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
14	19	405.09	491.41	0.00	0.00	0.00	896.50	448.25	STRAIGHT PIPE
	29	405.09	393.51	0.00	0.00	0.00	798.60	399.30	STRAIGHT PIPE
24	29	405.09	393.51	0.00	0.00	0.00	798.60	399.30	STRAIGHT PIPE
	38	405.09	510.30	0.00	0.00	0.00	915.39	457.70	STRAIGHT PIPE
34	33	405.09	510.30	0.00	0.00	0.00	915.39	457.70	STRAIGHT PIPE
	31	405.09	718.55	0.00	0.00	0.00	1123.66	561.83	STRAIGHT PIPE
44	31	405.09	718.55	0.00	0.00	0.00	1123.66	561.83	STRAIGHT PIPE
	32	405.09	1098.97	0.00	0.00	0.00	1504.06	752.03	STRAIGHT PIPE
54	32	405.09	1098.97	0.00	0.00	0.00	1504.06	752.03	STRAIGHT PIPE
	33	405.09	6518.53	0.00	0.00	0.00	6928.62	3460.31	STRAIGHT PIPE
64	34	405.09	2739.88	0.00	0.00	0.00	3144.97	1572.49	STRAIGHT PIPE
	35	405.09	7447.47	0.00	0.00	0.00	7852.57	3926.28	STRAIGHT PIPE
74	35	405.09	7447.47	0.00	0.00	0.00	7852.57	3926.28	STRAIGHT PIPE
	36	405.09	3611.69	0.00	0.00	0.00	4016.79	2008.39	STRAIGHT PIPE
84	37	405.09	2743.43	0.00	0.00	0.00	3148.52	1574.26	STRAIGHT PIPE
	38	405.09	2937.44	0.00	0.00	0.00	3342.53	1671.27	STRAIGHT PIPE
94	38	405.09	2937.44	0.00	0.00	0.00	3342.53	1671.27	STRAIGHT PIPE
	39	405.09	3341.74	0.00	0.00	0.00	3746.83	1873.42	STRAIGHT PIPE
104	39	405.09	3341.74	0.00	0.00	0.00	3746.83	1873.42	STRAIGHT PIPE
	44	2430.56	13311.33	0.00	0.00	0.00	15741.89	7870.95	WELDING TEE

CURVED MEMBERS FOR RUN 1

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
1C	33	425.42	4952.79	0.00	0.00	0.00	10378.21	5189.11	CURVED PIPE
	36	425.42	4147.38	0.00	0.00	0.00	4610.72	2305.36	CURVED PIPE
2C	36	437.20	7229.68	0.00	0.00	0.00	7665.88	2832.94	CURVED PIPE
	37	437.20	5532.61	0.00	0.00	0.00	5969.80	2984.90	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF ECCS SUCTION LINE 2 LACRAD

STRAIGHT MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
114	40	405.09	9935.41	0.00	0.00	0.00	10340.50	5170.25	STRAIGHT PIPE
	41	405.09	3199.49	0.00	0.00	0.00	3604.58	1802.29	STRAIGHT PIPE
124	42	405.09	3371.33	0.00	0.00	0.00	3776.42	1888.21	STRAIGHT PIPE
	43	405.09	2716.79	0.00	0.00	0.00	3121.88	1560.94	STRAIGHT PIPE
134	43	405.09	2716.79	0.00	0.00	0.00	3121.88	1560.94	STRAIGHT PIPE
	44	2430.56	13311.33	0.00	0.00	0.00	15741.89	7870.95	WELDING TEE
144	44	2430.56	13311.33	0.00	0.00	0.00	15741.89	7870.95	WELDING TEE
	45	405.09	1901.22	0.00	0.00	0.00	2306.31	1153.15	STRAIGHT PIPE
154	45	405.09	1901.22	0.00	0.00	0.00	2306.31	1153.15	STRAIGHT PIPE
	46	405.09	2469.41	0.00	0.00	0.00	2874.50	1437.25	STRAIGHT PIPE
164	47	405.09	11849.51	0.00	0.00	0.00	12254.61	6127.30	STRAIGHT PIPE
	48	405.09	5711.99	0.00	0.00	0.00	6117.09	3058.54	STRAIGHT PIPE
174	48	405.09	5707.49	0.00	0.00	0.00	6112.58	3056.29	STRAIGHT PIPE
	49	2430.56	13357.93	0.00	0.00	0.00	15794.49	7897.24	WELDING TEE
184	49	2430.56	13357.93	0.00	0.00	0.00	15794.49	7897.24	WELDING TEE
	50	405.09	17082.39	0.00	0.00	0.00	17487.48	8743.74	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 2

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
3C	41	425.42	4887.27	0.00	0.00	0.00	5312.69	2656.35	CURVED PIPE
	42	425.42	5119.32	0.00	0.00	0.00	5544.74	2772.37	CURVED PIPE
4C	44	437.20	4961.58	0.00	0.00	0.00	5390.78	2695.39	CURVED PIPE
	47	437.20	23721.84	0.00	0.00	0.00	24159.04	12079.52	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCES SUCTION LINE 2 LACRAR

STRAIGHT MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
19S	49	2430.56	13363.93	0.00	0.00	0.00	15794.49	7897.24	WELDING TEE
	51	405.09	2551.81	0.00	0.00	0.00	2956.90	1093.45	STRAIGHT PIPE
20S	52	405.09	2525.44	0.00	0.00	0.00	2930.54	1465.27	STRAIGHT PIPE
	53	405.09	4128.14	0.00	0.00	0.00	4533.23	2266.61	STRAIGHT PIPE
21S	53	405.09	4128.14	0.00	0.00	0.00	4533.23	2266.61	STRAIGHT PIPE
	54	405.09	2672.65	0.00	0.00	0.00	3077.74	1538.87	STRAIGHT PIPE
22S	55	405.09	3435.28	0.00	0.00	0.00	3840.37	1920.19	STRAIGHT PIPE
	56	405.09	2213.98	0.00	0.00	0.00	2619.07	1309.54	STRAIGHT PIPE
23S	57	405.09	2526.93	0.00	0.00	0.00	2932.02	1466.01	STRAIGHT PIPE
	58	405.09	4273.97	0.00	0.00	0.00	4679.07	2339.53	STRAIGHT PIPE
24S	58	405.09	4273.97	0.00	0.00	0.00	4679.07	2339.53	STRAIGHT PIPE
	59	405.09	2891.14	0.00	0.00	0.00	3296.23	1648.12	STRAIGHT PIPE
25S	60	405.09	2813.58	0.00	0.00	0.00	3218.67	1609.33	STRAIGHT PIPE
	61	405.09	2958.17	0.00	0.00	0.00	3363.26	1681.63	STRAIGHT PIPE
26S	62	405.09	3422.24	0.00	0.00	0.00	3827.33	1913.67	STRAIGHT PIPE
	63	405.09	2632.85	0.00	0.00	0.00	3037.94	1518.97	STRAIGHT PIPE
27S	63	405.09	2632.85	0.00	0.00	0.00	3037.94	1518.97	STRAIGHT PIPE
	64	405.09	2665.23	0.00	0.00	0.00	3070.32	1535.16	STRAIGHT PIPE
28S	65	405.09	2402.43	0.00	0.00	0.00	3007.52	1503.76	STRAIGHT PIPE
	66	405.09	2738.49	0.00	0.00	0.00	3113.59	1556.79	STRAIGHT PIPE
29S	67	405.09	2537.44	0.00	0.00	0.00	2942.49	1471.25	STRAIGHT PIPE
	69	405.09	3534.66	0.00	0.00	0.00	3939.76	1969.88	STRAIGHT PIPE
30S	69	405.09	4111.56	0.00	0.00	0.00	4516.66	2258.33	STRAIGHT PIPE
	70	2430.56	12844.58	0.00	0.00	0.00	15275.14	7637.57	WELDING TEE
31S	70	2430.56	12844.58	0.00	0.00	0.00	15275.14	7637.57	WELDING TEE
	71	405.09	2546.67	0.00	0.00	0.00	2951.76	1475.88	STRAIGHT PIPE
32S	72	405.09	2518.91	0.00	0.00	0.00	2922.00	1461.00	STRAIGHT PIPE
	72	405.09	960.74	0.00	0.00	0.00	1365.83	682.92	STRAIGHT PIPE
33S	72	405.09	956.87	0.00	0.00	0.00	1361.97	680.98	STRAIGHT PIPE
	73	2430.56	5857.55	0.00	0.00	0.00	8288.11	4144.05	WELDING TEE
34S	73	2430.56	5857.55	0.00	0.00	0.00	8288.11	4144.05	WELDING TEE
	82	2430.56	8650.48	0.00	0.00	0.00	11081.04	5540.52	WELDING TEE

CURVED MEMBERS FOR RUN 3

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
5C	51	446.19	18025.66	0.00	0.00	0.00	18511.85	9255.93	CURVED PIPE
	52	446.19	13794.66	0.00	0.00	0.00	14282.85	7141.42	CURVED PIPE
6C	54	429.99	4510.51	0.00	0.00	0.00	5040.52	2520.26	CURVED PIPE
	59	429.99	6126.12	0.00	0.00	0.00	6356.11	3178.06	CURVED PIPE
7C	54	429.99	3819.29	0.00	0.00	0.00	4249.28	2124.64	CURVED PIPE
	57	429.99	4359.15	0.00	0.00	0.00	4789.14	2394.57	CURVED PIPE

8C	59	474.97	4742.25	0.00	0.00	0.00	5187.22	2593.61	CURVED PIPE
	60	474.97	4271.23	0.00	0.00	0.00	4698.20	2349.10	CURVED PIPE
9C	61	427.58	4995.89	0.00	0.00	0.00	5378.27	2689.13	CURVED PIPE
	62	427.58	5929.83	0.00	0.00	0.00	6357.41	3178.70	CURVED PIPE
10C	64	429.99	4597.73	0.00	0.00	0.00	5027.72	2513.86	CURVED PIPE
	65	429.99	4489.40	0.00	0.00	0.00	4919.39	2459.69	CURVED PIPE
11C	66	430.05	4674.75	0.00	0.00	0.00	5108.79	2554.40	CURVED PIPE
	67	430.05	4342.29	0.00	0.00	0.00	4812.33	2406.17	CURVED PIPE
12C	65	431.41	11235.28	0.00	0.00	0.00	11716.46	5858.23	CURVED PIPE
	69	481.41	13548.90	0.00	0.00	0.00	13550.39	6775.20	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
35S	79	405.09	827.94	0.00	0.00	0.00	1033.63	516.51	STRAIGHT PIPE
	80	405.09	524.29	0.00	0.00	0.00	837.34	464.46	STRAIGHT PIPE
36S	81	405.09	966.12	0.00	0.00	0.00	1371.21	685.61	STRAIGHT PIPE
	82	2430.56	8650.48	0.00	0.00	0.00	11081.04	5540.52	WELDING TEE
37S	82	2430.56	8650.48	0.00	0.00	0.00	11081.04	5540.52	WELDING TEE
	83	405.09	795.02	0.00	0.00	0.00	1200.11	600.06	STRAIGHT PIPE
38S	84	405.09	953.44	0.00	0.00	0.00	1359.73	679.87	STRAIGHT PIPE
	85	405.09	913.87	0.00	0.00	0.00	1318.92	659.46	STRAIGHT PIPE
39S	86	405.59	872.41	0.00	0.00	0.00	1277.50	638.75	STRAIGHT PIPE
	87	2430.56	8572.37	0.00	0.00	0.00	11002.93	5501.46	WELDING TEE
40S	87	2430.56	8572.37	0.00	0.00	0.00	11002.93	5501.46	WELDING TEE
	88	405.09	270.64	0.00	0.00	0.00	675.73	337.86	STRAIGHT PIPE
41S	88	327.59	1438.39	0.00	0.00	0.00	1757.98	878.99	STRAIGHT PIPE
	89	327.59	1375.79	0.00	0.00	0.00	1703.37	851.68	STRAIGHT PIPE
42S	90	327.59	1358.34	0.00	0.00	0.00	1685.93	842.96	STRAIGHT PIPE
	91	327.59	1207.03	0.00	0.00	0.00	1534.62	767.31	STRAIGHT PIPE
43S	92	327.59	983.16	0.00	0.00	0.00	1310.75	655.37	STRAIGHT PIPE
	93	327.59	1847.84	0.00	0.00	0.00	2175.46	1087.73	STRAIGHT PIPE
44S	93	327.59	1847.84	0.00	0.00	0.00	2175.46	1087.73	STRAIGHT PIPE
	94	327.59	2841.67	0.00	0.00	0.00	3169.25	1584.63	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 4

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT DESCRIPTION
13C	80	450.29	1281.31	0.00	0.00	0.00	1731.60	865.80	CURVED PIPE
	81	450.29	2344.68	0.00	0.00	0.00	2794.98	1397.49	CURVED PIPE
14C	83	491.05	2778.43	0.00	0.00	0.00	3270.47	1635.24	CURVED PIPE
	84	491.05	3079.30	0.00	0.00	0.00	3570.35	1785.17	CURVED PIPE
15C	85	450.81	1572.58	0.00	0.00	0.00	2023.39	1011.70	CURVED PIPE
	86	450.81	1482.59	0.00	0.00	0.00	1933.40	966.70	CURVED PIPE
16C	89	395.30	3329.49	0.00	0.00	0.00	4371.79	2160.90	CURVED PIPE
	91	395.30	3874.71	0.00	0.00	0.00	4272.01	2136.00	CURVED PIPE
17C	91	395.30	3444.84	0.00	0.00	0.00	3840.14	1920.07	CURVED PIPE
	92	395.30	2805.94	0.00	0.00	0.00	3201.24	1600.62	CURVED PIPE

SEISMIC AND STRESS ANALYSIS OF FCCS SUCTION LINE 2 LACBWR

STRAIGHT MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
45A	87	1945.52	8572.37	0.00	0.00	0.00	10537.89	5264.94	WELDING TEE
	95	327.59	1283.98	0.00	0.00	0.00	1611.57	805.79	STRAIGHT PIPE
46A	94	327.59	1408.10	0.00	0.00	0.00	1735.72	867.88	STRAIGHT PIPE
	97	327.59	1388.86	0.00	0.00	0.00	1716.45	858.22	STRAIGHT PIPE
47A	97	327.59	1388.86	0.00	0.00	0.00	1716.45	858.22	STRAIGHT PIPE
	94	327.59	2891.21	0.00	0.00	0.00	3218.79	1609.40	STRAIGHT PIPE

CURVED MEMBERS FOR RUN 5

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
18C	95	395.30	3644.41	0.00	0.00	0.00	4039.79	2019.89	CURVED PIPE
	96	395.30	4018.95	0.00	0.00	0.00	4414.25	2207.13	CURVED PIPE

STRAIGHT MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
48A	73	2430.56	5857.55	0.00	0.00	0.00	8288.11	4144.05	WELDING TEE
	74	405.09	681.10	0.00	0.00	0.00	1086.19	543.10	STRAIGHT PIPE
49A	75	405.09	344.75	0.00	0.00	0.00	749.84	374.92	STRAIGHT PIPE
	76	405.09	587.87	0.00	0.00	0.00	992.96	496.48	STRAIGHT PIPE
50A	76	405.09	590.51	0.00	0.00	0.00	995.60	497.80	STRAIGHT PIPE
	77	405.09	1194.72	0.00	0.00	0.00	1599.81	799.91	STRAIGHT PIPE
51A	78	405.09	1711.24	0.00	0.00	0.00	2116.33	1058.17	STRAIGHT PIPE
	70	2430.56	12844.50	0.00	0.00	0.00	15275.14	7637.57	WELDING TEE

CURVED MEMBERS FOR RUN 6

MEMBER NO.	MEMBER ENDS	LOCAL MEMBRANE STRESS (PL)	BENDING STRESS (PB)	THERMAL DISCONT. STRESS (Q)	LINEAR TEMPERATURE GRADIENT (PE)	NONLINEAR TEMPERATURE GRADIENT (F)	PEAK STRESS EQ. 11 (SP)	ALTERNATING STRESS EQ. 14 (SA)	CLASS 1 COMPONENT /----DESCRIPTION----/
19C	74	450.00	1646.06	0.00	0.00	0.00	2096.06	1048.03	CURVED PIPE
	75	450.00	833.17	0.00	0.00	0.00	1283.17	641.58	CURVED PIPE
20C	77	450.29	2897.66	0.00	0.00	0.00	3347.96	1673.98	CURVED PIPE
	78	450.29	4150.42	0.00	0.00	0.00	4600.71	2300.36	CURVED PIPE