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TANK 241C106 STRUCTURAL EVALUATION IN SUPPORT
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October 1994

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INDEPENDENT REVIEW

Document Reviewed Tank 241C106 Structural Evaluation in Support of Project
W320 Retrieval

Author D. A. Wallace Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
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The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

L. J. Julyk

Reviewer

12/31/94
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Document Reviewed Tank 241C106 Structural Evaluation in Support of Project W320 Retrieval

Author D. A. Wallace

Yes No N/A

☒	☐	☐	Problem completely defined.
☒	☐	☐	Necessary assumptions explicitly stated and supported.
☒	☐	☐	Computer codes and data files documented.
☒	☐	☐	Data used in calculations explicitly stated in document.
☒	☐	☐	Data checked for consistency with original source information as applicable.
☒	☐	☐	Mathematical derivations checked including dimensional consistency of results.
☒	☐	☐	Models appropriate and used within range of validity or use outside range of established validity justified.
☒	☐	☐	Hand calculations checked for errors.
☒	☐	☐	Code run streams correct and consistent with analysis documentation.
☒	☐	☐	Code output consistent with input and with results reported in analysis documentation.
☒	☐	☐	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒	☐	☐	Safety margins consistent with good engineering practices.
☒	☐	☐	Conclusions consistent with analytical results and applicable limits.
☒	☐	☐	Results and conclusions address all points required in the problem statement.

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TANK 241C106 STRUCTURAL EVALUATION IN SUPPORT OF PROJECT W320 RETRIEVAL

1.0 INTRODUCTION

Tank 241C106 (C106) is a 530,000-gal-capacity single-shell underground high-level waste-storage tank located in the C Tank Farm in the 200 East Area of the Hanford Site. The tank has been used for radioactive waste storage since 1947. A program to recover strontium and cesium from high-level waste began during the 1960's. While these operations were being conducted, problems with the sludge washing and decant process caused the transfer of 197,000 gal of strontium-loaded sludge to tank C106. In 1971, temperatures in the sludge exceeded 212 °F. The current radioactive decay-heat-generation rate has been calculated at between 90,000 and 130,000 Btu/h. To prevent the sludge from drying out and the tank from overheating, approximately 6,000 gal of cooling water are added to the tank each month. Because of the half-life of the strontium, these additions will have to continue until the year 2045 unless other heat-reducing mechanisms are developed.

Interim stabilization and isolation criteria require terminating the current practice of adding water to the tank as an evaporative cooling mechanism. Retrieval of the high-heat waste by sluicing is the most expedient technique available for achieving interim stabilization and isolation of tank C106. Once the heat-generating sludge is removed, cooling water additions can cease. The U.S. Department of Energy (DOE) and the Washington State Department of Ecology designated tank C106 to be a retrieval demonstration tank. A first step toward interim stabilization is demonstrating that the associated retrieval activities can be performed safely.

Julyk (1994) performed an extensive structural evaluation of the C106 tank that included a determination of in situ conditions. A significant effort was made to address the thermal degradation and creep of concrete as well as to address soil back-fill loads properly. Although this work provided a basis for judging the structural integrity of the tank after many years of high-temperature exposure, the evaluation was limited to axisymmetric loads and did not address operational or accident loads associated with retrieval activities.

This work uses the in situ conditions established by Julyk (1994) to develop a three-dimensional (3D) model of the tank. Non-axisymmetric loads associated with retrieval activities are applied to assess their influence on structural integrity of the tank. This study addresses loads associated with normal operation and credible accident scenarios. The concrete structure of tank C106 is classified as a Safety Class 1 non-reactor structure (Kidder 1993) in accordance with the definition given in SDC 4.1 (DOE-RL 1993). The operating specifications document (OSD) limits applicable to tank C106 include a live load limit for the C Tank Farm of 100 tons (Boyles 1992). For the technical basis of this limit, the OSD references SD-RE-TI-012 (Ramble 1983), which qualifies the 100 tons as that distributed over a 10-ft radius. However, there is no specification for a uniform live load that would accompany natural hazard phenomena such as snow or ash fall.

There is no specific guidance on crane loads applied at the surface outside the tank radius. Further, there is no record of any seismic analysis for tanks in the C Tank Farm. The analysis documented in this report evaluates nonseismic conditions that include a concentrated live load, a uniform live load, and a crane load, in addition to the in situ loads. The model documented in this study also is used to provide the nonseismic stress contribution to the seismic load combination documented in Wallace 1994.

In addition, allowable load envelopes are provided for risers on C106 and on double-shell tank 241AY102 (the tank designated to receive waste from the C106 sluicing operation), as design constraints for the design or procurement of sluicing equipment. This load envelope includes seismic and nonseismic loads.

2.0 CONCLUSIONS AND RECOMMENDATIONS

After exposure to 45 years of service, the C106 tank satisfies the ACI 349 code (ACI 1990) for the following load conditions:

- 6.2 ft of soil at a density of 110 lbf/ft³
- Temperature distribution defined by Julyk (1994)
- 40 lbf/ft² uniform live load
- 100-ton concentrated live load at any location on the soil surface
- 85-ton crane live load as close as 20 ft from the edge of the tank.

Qualification considered 55-year lower-bound (95/95 tolerance band) properties for concrete strength as determined by Julyk (1994). Four load configurations were evaluated to envelop the critical configuration. Satisfying the worst-case configurations provides the optimum operational flexibility.

Impact characteristics and acceptance criteria associated with tank C106 are developed to identify limiting impact velocities for the tank wall and slab. The velocities were limited to prevent both liner perforation and concrete scabbing. The velocity limits are determined for a range of missile weights and diameters. Limits for impulsive loads on the tank slab and wall also have been determined from computer analyses combining in situ, operational and impulsive loads and were evaluated with respect to ACI 349-90 requirements. Section 6.1 summarizes the impact characteristics and provides impulsive limits imposed by ACI strength considerations.

In support of retrieval activities, potential riser-penetration load levels were examined. Tank C106 penetrations are qualified for load envelopes defined in Sections 5.1.6, 5.2.7, and 5.3.7. Similarly, the tank 241AY102 penetrations are qualified for load envelopes defined in Sections 5.4.3.8 and 5.4.3.9.

Analysis of an accident scenario involving the drop of a heel jet pump from 37 ft onto the pit floor predicts significant permanent damage to the tank dome. The extent of the damage could be assessed further with a more detailed model designed to capture the effects of a high-velocity impact. However, operational constraints should be established that would make a drop of the jet pump not credible.

3.0 EVALUATION METHODOLOGY

3.1 ACI CODE EVALUATION

The Hanford single-shell tanks originally were designed to a very early version of the ACI building code published by the Joint Committee on Standards for Concrete and Reinforced Concrete (JC 1940). The structural and functional similarities between the high-level waste storage tanks and nuclear reactor confinement structures naturally place the tanks under the jurisdiction of the ACI 349-90 design code. Acceptance criteria established by Julyk (1994) for the tanks include separate provisions for steel liners and the reinforced concrete. The reinforced concrete structure is responsible for confinement of the waste while sustaining the operating loads; the steel liner acts essentially as a leak barrier. The ACI code evaluation, outlined in Section 4.0, is performed to provide verification that the demands on the reinforced concrete structure, imposed by the design loads (factored loads caused by in situ conditions and sluicing operations), do not exceed the limits specified in the code.

The structural integrity of the tank must be evaluated on the basis of its past service. After more than four decades of service, which included exposure to high waste temperatures, the structural material properties and states of stress have changed from those of the as-constructed condition. Characterizing the current condition of the tank was a primary objective of Julyk 1994. This work predicted the in situ conditions and characterized the axisymmetric loading. With Julyk's work as a benchmark, an ABAQUS¹ (HKS 1989) 3D finite-element model is developed to address the non-axisymmetric loading associated with retrieval activities while maintaining an objective of computational efficiency. The soil stress state predicted by Julyk (1994) is used as the initial geostatic stress state for the 3D model. Because the evaluation of tank C106 involves the use of nonlinear analysis to predict best-estimate behavior as opposed to the linear elastic analysis usually employed in ACI code evaluations, load factors are applied directly to the service loads rather than to the moments, shears, and axial loads resulting from the service loads.

3.2 EVALUATION OF PENETRATIONS

An economical method of qualifying the existing penetrations for loads that may be experienced by tanks C106 and 241AY102 (AY102) during retrieval is to develop an allowable load envelope. Section 5.0 discusses in detail the procedures used to develop the envelope of allowable loads that could be applied to adaptor or mounting rings for each of the C106 and AY102 riser penetrations affected.

Nonseismic and seismic loads are evaluated to act simultaneously as long as the simultaneity is conservative. Interaction equations are developed that mathematically describe the allowable load envelope. From a detailed understanding of the load path associated with each penetration, combinations

¹ABAQUS is a trademark of Hibbitt, Karlsson and Sorensen, Inc.

of individual directional loads and the effect of their interaction are used to determine conservative limits on the resulting stress state. Interaction equations provide the format for addressing the combined effect of the individual load components and hence the envelope of allowable loads. The defined envelope of allowable loads allow future assessments of retrieval design loads as they become available. Conservative structural acceptance criteria, developed on the basis of industry codes and standards, are employed as the bases for the interaction equations.

Where necessary to include the effect of multiple penetration interaction, a local finite-element model of the affected penetrations is developed. On the basis of parametrically applied loads, stresses are calculated from this local model and compared to limits set forth in the structural acceptance criteria. Loads that cause the stresses to reach the acceptable limits define the interaction load envelope.

3.3 EVALUATION OF OPERATING IMPACT AND IMPULSIVE LOADS

The operation of past-practice sluicing (PPS) equipment can lead to credible impact/impulsive loads. Potential loading conditions are treated parametrically to allow evaluation of future operation scenarios. These parameters include equipment weight, magnitude of fluid-jet force, impact velocity, and impact area. In addition, this evaluation develops and documents structural acceptance criteria for impact/impulsive type loads; the criteria consider limits derived from both penetration mechanics and the ACI code. The types of load scenarios addressed are as follows:

- Wall subjected to jet forces
- Wall subjected to impact by a blunt object
- Tank slab subjected to impact by a blunt object.

3.4 EVALUATION OF HYPOTHETICAL ACCIDENTAL DROPS

A typical accident scenario includes falling objects. Drop heights are defined for impacts at the soil surface and at the tank slab on the basis of safety engineering recommendations associated with jet pump removal (see Appendix G). Two hypothetical scenarios are evaluated, one resulting in significant potential permanent damage to the tank. The prediction method is developed on the basis of simplifying approximations and on limited empirical data; therefore the results should be considered approximate. Details of this evaluation are discussed in Section 6.2.

4.0 TANK STRUCTURAL EVALUATION FOR OPERATING SURFACE LOADS

Finite-element analyses were performed to evaluate tank C106 for four load cases that conservatively represent PPS loads at the soil surface. Appendix A to this report documents the four analyses and an evaluation of tank response with respect to the requirements of the American Concrete Institute (ACI) 349-90 code. A convergence study performed for each of the analyses ensures reliability of the results. Appendix A documents the study. This section summarizes the principal features of the analysis and evaluation.

4.1 FINITE-ELEMENT MODEL DESCRIPTION

The geometry of and material properties for a finite-element model representing tank C106 were developed in WHC-SD-W340-ANAL-001 (Marlow 1994) to determine allowable bridge foundation loads on the soil surface. Analyses performed for this evaluation of soil-surface loads associated with sluicing operations use the existing model; only the load definitions are revised. Input files for the previous analysis (Marlow 1994) and for the analyses documented in this report are provided in Appendix A, Attachments 1 and 2, respectively.

4.1.1 General Configuration

Tank C106, shown in Figure 4.1.1-1, is a cylindrical reinforced concrete structure capped by a dome with a rise of 12 ft from the inside of the haunch. The tank stands 33-ft tall with an outside diameter of 77 ft. It is buried in sandy soil with a minimum soil cover of approximately 6 ft at the dome apex. The tank has a reinforced concrete wall thickness of 1 ft and a minimum dome thickness of $1\frac{1}{2}$ ft. The floor of the tank is a 6-in.-thick reinforced concrete slab covered with a 2-in. layer of grout. The waste is retained within a $\frac{1}{2}$ -in.-thick welded steel-plate liner with an open top. The liner is contained within and separated from the concrete by a $\frac{1}{2}$ -in.-thick three-ply asphaltic membrane.

The analytical model used for this evaluation of loads representing those associated with PPS operations is a 3D finite-element model of the tank and surrounding soil with half-symmetry boundary conditions. The analysis is performed with ABAQUS, version 4.9 (HKS 1989), a general-purpose finite-element computer program. The user-defined material subroutine of the ANACAP-U² concrete analysis package (James 1993) was used to model the constitutive behavior of the concrete. The ANACAP-U Model 2 (elastic, perfectly plastic compressive behavior) concrete constitutive model is selected for all analyses. Plots of the finite-element mesh are included in Figures 4.1.1-2 and 4.1.1-3.

²ANACAP-U is a trademark of ANATECH Research Corporation.

4.1.2 In Situ Material Properties

The ANACAP-U concrete material properties vary by position because of degradation that has occurred from long-term exposure to high temperatures. The values used for the modulus, the compressive strength, and the tensile strength are the lower-bound degraded properties obtained from an analysis that assessed the in situ condition of the C106 tank (Julyk 1994). The properties are assigned directly, from the results produced during an application of a thermal history performed in the in situ analysis. The density and the coefficient of thermal expansion of the concrete also are taken directly from the C106 in situ analysis.

Specification of the transverse shear stiffness of the shell elements is required because the concrete material is not linearly elastic. The value of 10^6 lbf/in was chosen on the basis of previous work (Dyrness 1991). The element type S4R5 is intended for thin-shell applications. The transverse shear stiffness acts as a penalty function for this element. Thus, the results are insensitive to the actual value of the transverse shear stiffness (HKS 1989).

The soil is modeled with the Drucker-Prager plasticity model. The parameters that define the constitutive behavior are taken directly from the C106 in situ analysis (Julyk 1994). The soil has a field-variable dependence, which is documented in Appendix A of Marlow 1994. The geostatic stress state in the soil is created by specifying an initial stress state with the ABAQUS command *INITIAL CONDITIONS. The determination of the appropriate stress state is documented in Appendix A of Marlow 1994. The first step of the ABAQUS analysis brings the soil into a state of equilibrium under the applied gravitational acceleration.

The steel rebar material is modeled as an elastic-plastic material with strain hardening. The modulus is temperature dependent as is the post-yield behavior. The yield stress varies from 38,000 lbf/in² at 70 °F to 32,585 lbf/in² at 400 °F. The constitutive model for the rebar is taken directly from the C106 in situ analysis (Julyk 1994).

4.1.3 Element Selection and Discretization

The tank is modeled with four-noded thin-shell elements. The ABAQUS element type is S4R5. The shell elements are reinforced with the ABAQUS rebar subelements. In ABAQUS, version 4.9, transverse shear forces for the S4R5 element are available. The initial temperature distribution in the tank shell is a uniform 70 °F.

In the center of the dome and in the center of the floor, the four-noded elements are collapsed to form triangular elements. The elements were collapsed in these regions to maintain compatibility between the model described here and another model being used in a seismic analysis of C106. The collapsed elements are not as accurate as quadrilateral elements. Marlow (1994, Section 4.1.2) provides a study of the stiffness of the dome center. For the study, the mesh at the center of the dome was isolated, and a linear elastic analysis was performed for the application of a concentrated load at the dome apex. The resulting center deflection and edge moment were

compared to the analytical solution for a point-loaded spherical shell determined from Young 1989. The computer solution predicted the center deflection to within 1% and the edge moment to within 11% of the analytical solution. The conclusion was that the collapsed elements provide acceptable results.

The half-cylinder region of soil surrounding the tank is modeled with eight-noded brick elements, many of which are degenerate. Because detailed soil stresses are of minor importance to the goals of this effort, there is a clear benefit in using these degenerate elements as a means to allow transition from the detailed mesh of the tank to the coarse mesh of the surrounding soil. The soil region extends to a depth of 1,405 in. (117 ft). The radius of the half-cylinder is 967 in. (80.6 ft), a radius chosen to correspond to the radius of the soil region used in the C106 in situ analysis (Julyk 1994).

4.2 LOAD DESCRIPTION

This analysis considers in situ loading and operational loading at the soil surface. In situ loading includes the deadweight of the tank and soil and the hydrostatic loading of the contained waste. Live loads are in the form of a distributed live load, such as snow or ash fall, a concentrated equipment load over the tank, and a concentrated crane load at a minimum distance of 20 ft from the edge of the tank.

The crane load is represented as an 85-ton concentrated load applied at a radius of 20 ft. The crane anticipated to be used at the C Tank Farm will have a rated lift capacity of 5 tons for a lift from the center of the tank. Dynamic amplification of the lifted load is not significant in comparison to the 85-ton total load. In general, it is the responsibility of the party applying the load to ensure that dynamic amplification effects are considered in determining the equivalent static load being applied.

Because the location of the concentrated loads may not be fixed, four factored load cases (combinations) are analyzed to envelop the critical configuration.

- Case 1a is intended to maximize vertical compression of the dome and maximize bending in the wall.
- Case 1b is intended to maximize axial loads on the tank wall.
- Case 2 is intended to maximize lateral pressure on the tank walls and minimize dome overburden.
- Case 3 maximizes ACI load factors for all loads.

Satisfying these worst-case configurations provides the optimum operational flexibility. Table 4.2-1 defines the four load cases analyzed. Load factors applied are consistent with the requirements of ACI 349-90, Section 9.2, except that more conservative load factors are applied in load cases that include thermal loads.

Each load case is analyzed in two steps. Step 1 applies unfactored loading to restart analysis from the previous gravity load step. Step 2 applies factored loading. The input files for this analysis are listed in Attachment 2 of Appendix A. Resulting displacement plots for the four load cases are shown in Figures 4.2-1 through 4.2-4. Note that the axisymmetric loading dominates the resulting displacement response. Demand contours for meridional and circumferential moments are shown in Figures 4.2-5 through 4.2-8.

The loads are applied to the tank in a way that is consistent with the application of loads in the previous analysis (Marlow 1994). The dead load of the tank is applied through a gravitational acceleration of the tank mass. Load factoring is applied to the dead load by increasing the acceleration value. Because soil elements are modeled discretely, lateral earth pressure and soil overburden are applied through gravitational accelerations in the same manner as for the tank dead load. The distributed live load is applied as a uniformly distributed pressure load of 40 lbf/ft² on the top of the surface soil elements. The load then is factored appropriately. The hydrostatic waste load is applied as a uniform pressure load of 3.2 lbf/in² on the lower wall elements and then factored appropriately. This pressure corresponds to the average pressure exerted by a fluid waste having a specific gravity of 2.0 and a depth of 7.3 ft. The concentrated live loads are applied as concentrated loads to appropriate nodes on the soil surface elements, and then factored.

Thermal stresses are considered through temperature definitions representative of the present conditions predicted by Julyk (1994). All factored load cases overestimate thermal stress effects because the factor is applied to the total temperature rather than just to the portion above the initial temperature of 70 °F. In addition, factored load cases 2 and 3 conservatively include a factor of 1.4 on the thermal load. ACI 349-90 specifies a thermal factor of 1.05 and allows for a 25% reduction of factors applied to other loads included in combination with the thermal loading. The load factor applied to tank temperatures increases the thermal stresses but does not affect the time- and temperature-dependent material properties used in the analysis. The material properties are set to the degraded properties as determined by Julyk (1994), with the predicted thermal history benchmarked to measure thermal data.

4.3 ACI CODE EVALUATION

Appendix A includes an evaluation of tank response with respect to the requirements of the ACI 349-90 code. The following ACI evaluations are documented in the appendix:

- Moment/axial load interaction
- Transverse shear
- In-plane shear
- Twisting moment
- Construction joint shear.

ABAQUS restart files were used to extract shell-element demands from the four analyses. The input files are listed as Attachments 5 through 8 of

Appendix A. Shell forces and moments were extracted for a representative set of elements along the positive 1-axis, negative 1-axis, and positive 2-axis (0° , 180° , and 90° meridians from the positive 1 global axis, respectively).

For shell elements, ABAQUS provides demands referenced to the local (element) coordinate systems. For most elements along each of the three meridians studied (0° , 90° , 180°), local axes align very closely to the tank circumferential and meridional directions. However, for the lower-two haunch elements along the positive and negative 1-axes of the tank, local axes do not line up with the meridional and circumferential directions of the tank. Section 4.0 of Appendix A calculates the transformed meridional and circumferential demands at these locations.

To simplify the evaluations of moment/axial load evaluation and transverse shear, ACI capacities are calculated for a limited number of locations along the tank cross section. Demands for the representative elements along the three meridians are assigned to the corresponding capacity location or conservatively assigned to the most appropriate capacity location. Figure 4.3-1 defines the locations where capacities are developed. For evaluations of in-plane shear and twisting moment, capacities are determined for each element location.

4.3.1 Moment/Axial Load Evaluation

Shell bending moment and membrane force capacities can be shown to conform to an interaction relationship referred to as the M-P (moment-axial force) interaction relationship. The interaction relationship lends itself to a graphical method of determining compliance. Typically, M-P demands are superimposed on a capacity interaction diagram that is developed for a specific reinforced concrete section. Demand points that fall within the bounds of the capacity envelope are considered acceptable. The M-P interaction relationship is developed on the basis of the provisions of ACI 349-90, Chapter 10; a thorough description of the technical basis is provided in Section 5.1.3 of Julyk 1994.

Meridional M-P capacity diagrams applicable to tank C106 were developed originally for structural analysis of the in situ condition predicted by Julyk (1994). The section capacities were computed through the use of computerized spreadsheets and outlined in Section 5.1.3 of Julyk 1994. The methodology was extended to a 3D state of stress in Marlow 1994, for the tank evaluation under non-axisymmetric bridge foundation loads, to include explicit consideration of capacities in the circumferential direction and to add refinements to the simplified three-point capacity curves where necessary. Appendix B of Marlow 1994 also provides the reinforced concrete cross-section data that was used.

In this evaluation of tank C106 under sluicing operation loading, the same capacity curves are used, when possible, as reported in Marlow 1994. For two of the M-P interaction diagrams, calculation of additional capacity data points was necessary to refine the simplified three-point curves obtained from Marlow 1994. This refinement was made via spreadsheets that follow the same methodology used in both of these earlier reports.

In accordance with ACI philosophy, capacity diagrams for M-P interaction are calculated for loading at the plastic centroid of the section. The plastic centroid is defined as the location where a concentrated axial load would cause a uniform strain across the section (no bending). However, ABAQUS provides shell-element demands at the geometric centroid (shell mid-surface) only. Moments at the plastic centroid would be increased or decreased by the product of the axial load and the centroid location difference. Tables 5-5 and 5-6 in Appendix A compare the plastic centroids to the geometric centroids for meridional and circumferential response, respectively. The centroid location differences are shown to be very small. Wall sections are unaffected because they are symmetric (and therefore the plastic centroid and the geometric centroid coincide). Examination of the M-P interaction diagrams provided in Figures 5-1 through 5-92 of Appendix A reveals that the plotted M-P demands do not shift significantly if they are transferred to the plastic centroid location. Therefore, adjustment is deemed unnecessary.

Appendix A provides a complete evaluation of demands, corresponding to 13 meridional and 14 circumferential capacity sections around the tank meridian, for each of the four load cases. All demands are within the capacity envelopes for the factored in situ and PPS loading, except for circumferential demands at sections 6a and 6b (haunch) and section 7c (dome near haunch).

Circumferential M-P capacities were not determined specifically for haunch elements because of complications caused by changing tank geometry along the meridional direction of each element. The changing tank geometry causes variations in concrete thickness and rebar quantities to occur over the width of the elements. At a given level of applied moment, the circumferential capacity to resist tensile membrane resultants is significantly larger than the meridional capacity because of the additional reinforcing steel. Appendix A contains results of a simplified evaluation made by comparing the circumferential demands to the meridional capacity. The circumferential demands fall outside the meridional capacity envelope because of the high hoop tension developed in the haunch. However, because the circumferential reinforcing area is large, the difference between meridional and circumferential rebar area is shown to more than compensate for the axial tension beyond the meridional capacity envelope.

Included as Figures 4.3.1-1 through 4.3.1-9 is a selected group of M-P demand plots found to have the lowest capacity margin for each location on the tank (e.g., floor, footing, wall). Of the nine plots, Figure 4.3.1-9 is the most significant; the circumferential demand at section 7c for load case 3 is shown to intersect the capacity curve. Consequently, there effectively is zero margin remaining at this dome location. All other sections of the tank display a significant margin.

4.3.2 Transverse Shear Evaluation

Because shear reinforcing is not provided except in the haunch, the transverse shear capacity at each of the tank sections is computed solely on the basis of concrete strength, per ACI 349-90, Chapter 11. Section 6 of Appendix A provides a complete evaluation of transverse shear for the 14 tank capacity sections. The ACI equations below are used in the automated

spreadsheet determination of shear capacities. For capacity sections used to qualify more than one element along a meridian, the minimum membrane loads (N_u) were used to minimize capacities, and the check was made against the maximum shear demand. Figure 4.3-1 identifies the tank capacity locations. For elements subject to axial compression and shear (ACI Section 11.3.1.2),

$$\phi V_c = \phi 2bd(f'_c)^{3/4} [1 + (N_u/2000hb)]$$

where

- V_c = nominal shear strength provided by concrete (lbf)
- ϕ = strength reduction factor = 0.85
- b = width of section (in.)
- d = distance from compression face to centroid of tension rebar (in.)
- f'_c = concrete compressive strength (lbf/in²)
- N_u = compression force in the element (positive value, lbf)
- h = depth of the element (in.).

For elements subject to axial tension and shear (ACI Section 11.3.2.3),

$$\phi V_c = \phi 2bd(f'_c)^{3/4} [1 + (N_u/500hb)]$$

where

- N_u = axial force in the element (negative for tension, lbf).

Appendix A demonstrates that all demands are within capacities for the four load cases. Load case 3 transverse shear at capacity section 2a (slab section adjacent to wall) is shown to have the lowest margin on a percent basis (ratio of demand to capacity is approximately 0.84). Table 4.3.2-1 summarizes transverse shear demands and capacities, enveloped from the four load cases, for the capacity sections identified on Figure 4.3-1.

4.3.3 In-Plane Shear Evaluation

Although ACI 349-90 does not provide specific direction for the evaluation of in-plane shear of elements in a continuous structure such as a tank, the code requirements for in-plane shear in walls are adopted to provide a measure of adequacy. Appendix A provides an evaluation of in-plane shear for each element along the three representative meridians (0°, 90°, and 180° from the positive l-axis), using ACI Section 11.10 equations as follows:

Per ACI Section 11.10.6 (eq. 11-32),

$$\phi V_c = \phi \{ 3.3(f'_c)^{3/4}hd + N_u d/4(l_w) \} ,$$

where

- V_c = nominal shear strength provided by concrete (lbf)
- ϕ = strength reduction factor = 0.85
- h = thickness of element (in.)
- d = width of element = 12 in.

N_u = minimum factored axial load (compression positive, lbf)
 l_w = width of element = 12 in.

The above ACI equation is expressed in terms of a global wall-check and limits "d" to $0.8l_w$ ($0.8 \times \text{length-of-wall}$). The reduction factor on the wall length compensates for inaccuracies associated with the use of a strength-of-materials approach in predicting demand that ignores edge/boundary effects. For this evaluation, in-plane shear demands are examined on an element basis using a finite-element analysis; therefore, peak values and edge effects are considered instead of an average "wall-shear." Furthermore, the tank shell is continuous, rather than comprising individual walls, so that there is no finite length-of-wall. For these reasons, it is appropriate to use an unreduced "d" value equal to a unit width consistent with the demand units.

ACI Section 11.10.8 identifies $\phi V_c/2$ as the maximum shear allowed without shear reinforcing requirements. Torsional moment (normal to shell mid-surface) is assumed to be low, as no such load is applied to the tank, so that ACI equation 11-33 does not apply. Table 4.3.3-1 summarizes results from the evaluation recorded in Appendix A. For each tank location (e.g., floor, wall, haunch), it summarizes demand and capacity for the element with the lowest margin, on a percentage basis. As the table shows, in-plane shear is acceptable at all tank locations for the four load cases.

4.3.4 Twisting Evaluation

ACI 349-90, Section 11.6.1, provides an equation to calculate a threshold value of factored torsion (twisting), above which torsional effects are to be included with shear and moment:

$$T_{\text{threshold}} = \phi 0.5(f'_c)^{1/2} x^2 y,$$

where

ϕ = strength reduction factor = 0.85
 x = thickness of element (in.)
 y = width of element = 12 in.

Appendix A provides an evaluation of the twisting moment for each element along the three representative meridians (0° , 90° , and 180° from the positive l-axis), using the above ACI equation. All demands are shown to be below the threshold value and therefore can be neglected. Table 4.3.4-1 summarizes results from the evaluation recorded in Appendix A. For each tank location (e.g., floor, wall, haunch), the table summarizes demand and threshold values for the element with the lowest margin, on a percentage basis.

4.3.5 Construction Joint Evaluation

ACI 349-90, Section 11.7, provides the requirements for shear friction design, which is appropriate for evaluation of shear transfer across an interface between two concretes cast at different times. Appendix A evaluates

the construction joints at the top and bottom of the tank wall with the following ACI equations:

Per ACI Section 11.7.4.1,

$$\phi V_n = \phi A_v f_y \mu ,$$

where

- ϕ = strength reduction factor = 0.85
- A_v = area of shear-friction reinforcement (for a one-foot width of wall section, in²)
- f_y = yield stress of the reinforcement (lbf/in²)
- μ = coefficient of friction = 0.6 (minimum value from ACI Section 11.7.4.3).

Per ACI Section 11.7.5,

$$\phi V_n \leq \text{lesser} \{ \phi(0.2) f'_c A_c, \phi(800) A_c \}$$

where

- f'_c = concrete compressive strength (lbf/in²)
- A_c = area of concrete resisting shear transfer (for a 1-ft width of wall section, in²).

Load case 3 causes the greatest shear demand at both the upper and lower construction joints. These demands are compared to capacities calculated per the above ACI equations:

Upper construction-joint shear = 11,670 lbf < 17,054 lbf capacity

Lower construction-joint shear = 13,332 lbf < 16,889 lbf capacity.

Therefore, construction-joint shear demands are acceptable for the four load cases analyzed.

Figure 4.1.1-1. Schematic of Tank 241C106.

Figure 4.1.1-2. Complete 3D Finite-Element Model of Tank 241C106
Including Tank Structure and Surrounding Soil.

Figure 4.1.1-3. Three-Dimension Finite-Element, Shell-Element Model of Tank 241C106 Structure.

Figure 4.2-1. Displaced Shape of Tank 241C106 for Factored Load Case 1a.

DISPLACED SHAPE - CASE 1A

TIME COMPLETED IN THIS STEP -1.000E-00 TOTAL ACCUMULATED TIME -4.000E-00 STEP 4 INCREMENT 20
ABAQUS VERSION 4-9-1 DATE: 5-JUL-94 TIME: 12:12:15

Figure 4.2-2. Displaced Shape of Tank 241C106 for Factored Load Case 1b.

Figure 4.2-3. Displaced Shape of Tank 241C106 for Factored Load Case 2.

Figure 4.2-4. Displaced Shape of Tank 241C106 for Factored Load Case 3.

Figure 4.2-5. Moment Demand Contours on Tank 241C106
for Factored Load Case 1a.

(Absolute Values per Foot of Width, for Elements Along the Positive 1-Axis)

Figure 4.2-6. Moment Demand Contours on Tank 241C106
for Factored Load Case 1b.

(Absolute Values per Foot of Width, for Elements Along the Positive 1-Axis)

Figure 4.2-7. Moment Demand Contours on Tank 241C106
for Factored Load Case 2.

(Absolute Values per Foot of Width, for Elements Along the Positive 1-Axis)

Figure 4.2-8. Moment Demand Contours on Tank 241C106
for Factored Load Case 3.

(Absolute Values per Foot of Width, for Elements Along the Positive 1-Axis)

Figure 4.3-1. Capacity Locations for American Concrete Institute
Code Evaluation of Tank 241C106.

Figure 4.3.1-1. Meridional Moment/Axial Load (M-P) Interaction Diagram of Basemat/Wall Interface with Factored Load Case 1a Demands for Tank 241C106.

Figure 4.3.1-2. Meridional Moment/Axial Load (M-P) Interaction Diagram of Footing with Factored Load Case 3 Demands for Tank 241C106.

Figure 4.3.1-3. Meridional Moment/Axial Load (M-P) Interaction Diagram of Wall Base with Factored Load Case 3 Demands for Tank 241C106.

Figure 4.3.1-4. Meridional Moment/Axial Load (M-P) Interaction Diagram of Haunch with Factored Load Case 3 Demands for Tank 241C106.

Figure 4.3.1-5. Meridional Moment/Axial Load (M-P) Interaction Diagram of Dome with Factored Load Case 3 Demands for Tank 241C106.

Figure 4.3.1-6. Circumferential Moment/Axial Load (M-P) Interaction Diagram of Basemat with Factored Load Case 3 Demands for Tank 241C106.

Figure 4.3.1-7. Circumferential Moment/Axial Load (M-P) Interaction Diagram of Footing with Factored Load Case 2 Demands for Tank 241C106.

Figure 4.3.1-8. Circumferential Moment/Axial Load (M-P) Interaction Diagram of Wall with Factored Load Case 1b Demands for Tank 241C106.

Figure 4.3.1-9. Circumferential Moment/Axial Load (M-P) Interaction Diagram of Dome with Factored Load Case 3 Demands for Tank 241C106.

Table 4.2-1. Load Combinations for Analysis of Tank 241C106
Past-Practice Sluicing Loading.

Load Case	D	F	H	T	L ₁	L ₂	L ₃	L ₄
Unfactored								
1a ¹	1	1	1	1	1	1	1 @A	0
1b ²	1	1	1	1	1	1	1 @B	1 @C
2 ³	1	1	1	1	1	0	1 @C	1 @C
3 ⁴	1	1	1	1	1	1	1 @A	1 @C
Factored								
1a ¹	1.4	1.7	0.9	0.9	1.4	1.7	1.7 @A	0
1b ²	1.4	1.7	0.9	0.9	1.4	1.7	1.7 @B	1.7 @C
2 ³	0.9	0.9	1.7	1.4 ⁵	0.9	0	1.7 @C	1.7 @C
3 ⁴	1.4	1.7	1.7	1.4 ⁵	1.4	1.7	1.7 @A	1.7 @C

Definitions for Table 4.2-1

D	Dead Load of the Tank	
F	Hydrostatic Waste Loads	
H	Lateral Earth Pressure	
T	Temperature	
L ₁	Soil Overburden ($\gamma=110$ lbf/ft ³ , depth of 6.2 ft at dome apex)	
L ₂	40 lbf/ft ² Live Load (snow or ash fall)	
L ₃	100-Ton Concentrated Live Load (location not fixed)	
L ₄	85-Ton Crane Load (located no closer than 20 ft from outer edge of tank wall)	
Point A:	Soil surface directly over the dome apex.	(node 377)
Point B:	Soil surface over the tank wall.	(node 1902)
Point C:	Soil surface, 19.5 ft beyond the tank wall.	(node 6033)

Notes for Table 4.2-1

- Case 1a is intended to maximize vertical compression of the dome and bending in the wall.
- Case 1b is intended to maximize axial loads on the tank wall.
- Case 2 is intended to maximize lateral pressure on the tank walls and minimize dome overburden.
- Case 3 maximizes ACI load factors for all loads.
- The factor on temperature loading of 1.4 is conservative: ACI specifies a factor of 1.05.

Table 4.3.2-1. Summary of Transverse Shear Evaluation for Tank 241C106.

Section	Meridional ¹			Circumferential ¹		
	Demand (lbf/ft)	Capacity (lbf/ft)	Load ² Case	Demand (lbf/ft)	Capacity (lbf/ft)	Load ² Case
1	1,110	5,917	3	986	5,221	3
2	2,321	6,289	3	865	5,372	3
2a (bot)	15,348	18,233	3	1,172	16,302	3
3 (bot)	3,812	27,762	1b	2,118	27,543	3
3 (top)	3,812	23,611	1b	2,118	23,412	3
4a	13,332	23,285	3	2,093	18,297	3
4	9,253	14,775	3	696	11,278	2
5	5,544	15,476	3	185	5,024	1a
6	11,670	15,244	3	267	8,082	3
6a	14,052	20,254	3	856	4,673	1a
6b	18,732	37,041	1b	921	6,756	1a
7 (in)	11,287	20,373	3	409	4,663	1a
7 (out)	11,287	16,185	3	409	4,201	1a
8 (in)	5,051	21,824	1b	254	18,229	1a
8 (out)	5,051	17,337	1b	243	16,469	1a
9 (in)	1,436	23,031	1a	773	19,838	1a
9 (out)	1,436	18,296	1a	773	17,874	1a

Notes for Table 4.3.2-1

1. Values tabulated are for the controlling element at the corresponding section.
2. The load case identified controls for element shears at the corresponding section.

Table 4.3.3-1. Summary of In-Plane Shear Evaluation for Tank 241C106.

Load Case	Location	In-Plane Shear ¹ (lbf/ft)	$\phi V_c/2$ ¹ (lbf/ft)
1a	Floor	1,327	7,479
	Wall	2,138	12,148
	Haunch	9,282	17,128
	Dome ²	9,984	19,890
	Footing	3,228	26,984
1b	Floor	1,390	7,381
	Wall ²	3,320	9,512
	Haunch ²	7,369	8,688
	Dome	6,962	17,190
	Footing	3,788	27,276
2	Floor	1,182	8,391
	Wall	4,775	14,617
	Haunch	4,592	27,201
	Dome	3,001	21,553
	Footing ²	6,922	29,045
3	Floor ²	1,867	8,525
	Wall	4,450	15,791
	Haunch	10,940	25,377
	Dome	8,040	17,658
	Footing	6,046	29,157

Notes for Table 4.3.3-1

1. Values tabulated are for the controlling element at the corresponding location.
2. Corresponding load case controls at this location.

Table 4.3.4-1. Summary of Twisting Moment Evaluation for Tank 241C106.

Load Case	Location	Twisting Moment ¹ (lbf-in/ft)	Twisting Threshold ¹ (lbf-in/ft)
1a	Floor	9,481	84,899
	Wall	5,239	48,786
	Haunch	26,988	343,291
	Dome	10,932	77,034
	Footing	16,176	188,928
1b	Floor	10,056	84,889
	Wall	2,203	48,256
	Haunch	11,400	49,155
	Dome	17,892	103,247
	Footing	16,596	188,928
2	Floor	11,438	84,889
	Wall	12,156	105,212
	Haunch	34,370	255,519
	Dome	5,849	155,456
	Footing	13,944	188,928
3	Floor ²	14,544	84,889
	Wall ²	7,063	48,256
	Haunch ²	15,740	49,155
	Dome ²	19,236	103,247
	Footing ²	27,048	188,928

Notes for Table 4.3.4-1

1. Values tabulated are for the controlling element at the corresponding location.
2. Corresponding load case controls at this location.

5.0 PENETRATIONS EVALUATIONS

Penetrations of C106 for the heel pit, the sluice pit, and the pump pit, as well as other components affected by loads applied through these penetrations, have been evaluated to determine the envelope of allowable loads for these penetrations. Load limits for the tank AY102 pump and sluicing pit penetrations also have been included in this evaluation because this tank will receive the waste transferred from C106.

5.1 LOAD LIMITS FOR HEEL JET ADAPTOR RING IN THE C106 HEEL PIT

This section discusses the development of the envelope of allowable loads that could be sustained at the heel jet adaptor ring in the C106 heel pit.

5.1.1 Scope of Determination of Load Envelope for Heel Jet Adaptor Ring

This analysis determines restrictions on equipment-imposed loads (nonseismic and seismic load combinations) at the heel jet adaptor ring in the heel pit. These load limits help ensure that future sluicing equipment and operations impose structural demands that are within the applicable code-derived load capacities and limits. Specific physical dimensions cited in this section have been taken from Appendix C.

The load envelopes for equipment loads contain the following variables:

- F_H = Unfactored value of the resultant horizontal force applied at the top flange of the adaptor ring (lbf)
- M_H = Unfactored value of the resultant moment about a horizontal axis applied at the top flange of the adaptor ring (lbf-in)
- F_V = Unfactored value of the vertical force (positive downward) applied at the top flange of the adaptor ring (lbf)
- M_V = Unfactored value of the moment about the vertical axis applied at the top flange of the adaptor ring (lbf-in)
- F_{DL} = Lower-bound unfactored dead load applied at the top flange of the heel jet adaptor ring (lbf).

F_{DL} counteracts (reduces) the horizontal moment demand. For conservatism, F_{DL} must not be overestimated; consequently, the value used must be a lower bound to the vertical force resultant at the adaptor ring.

The following specific assumptions have been used as evaluation guidelines:

- Only F_v is considered in the finite-element analysis of the pit-floor demands because F_H , M_H , and M_v are insignificant contributors to the stress in the floor.
- There is no direct load path to the 26-in.-diameter casing per a review of applicable drawings.
- Rock ballast as shown in construction drawings is not considered because evaluation of the pit walls for in situ loads is not in project scope and the assumption creates additional conservatism in load limits.
- The fill (plain) concrete in the pit floor has a compressive strength $f'_c = 3,000 \text{ lbf/in}^2$ per Attachment 5 of Appendix C.
- The load-bearing capacity of two positioning dowels located on the adaptor ring is neglected for conservatism.

The loads considered herein are the following:

- F_H , resultant horizontal force applied at the top flange of the adaptor ring
- F_v , resultant vertical downward force applied at the top flange of the adaptor ring
- M_H , resultant moment about a horizontal axis applied at the top flange of the adaptor ring
- M_v , resultant moment about the vertical axis applied at the top flange of the adaptor ring
- Self-weight of the fill concrete located on top of the pit floor
- Self-weight of the pit
- Lateral earth pressure exerted on the pit wall.

Figure 5.1.1-1 identifies the orientations and the locations of the applied forces (F_H and F_v) and moments (M_H and M_v). The loads M_H and F_H have arbitrary orientations within the horizontal plane. Further, Figure 5.1.1-1 illustrates the equipment loads and the structural components that act together to react loads caused by the equipment mounted on the adaptor ring. The adaptor ring uses studs to restrain equipment. The studs can develop shear loads to resist resultant horizontal forces and vertical moments.

The load paths for the heel pit are as follows.

- The moment about the vertical axis is resisted by bearing of the two 2-in.-diameter horizontal pipes on fill concrete.

- The horizontal force and moment are resisted by the 12-in. Sch. 40 pipe that structurally is connected to the dome. The 12-in. pipe will be reacted by bearing on the tank dome concrete.
- The resultant vertical force is resisted by the concrete floor of the pit and the soil beneath.

5.1.2 Heel Pit-Floor Evaluation (F_v)

As previously indicated, vertical loads applied through the adaptor ring are reacted by the floor of the pit, transferred into the underlying soil, and finally distributed over a broad area of the tank dome. Restrictions on vertical loads stem from the need to ensure the structural integrity of the pit floor against loads transferred through the adaptor ring.

The determination of pit-floor demands is accomplished with the finite-element approach. The general-purpose finite-element program, ANSYS³, version 4.4a (SASI 1989), is used to perform the analysis. The associated mesh is illustrated in Figure 5.1.2-1. The pit floor and walls are modeled with shell elements. Because ANSYS includes the elastic foundation stiffness (EFS) feature, effects caused by soil under and around the pit floor are determined as part of the finite-element solution. The EFS coefficients for the finite-element model (acting under the pit-floor shell elements) are calculated with the elastic half-space theory. Because of symmetry, only half the pit is modeled. Appropriate boundary conditions are imposed along the line of symmetry.

The present work scope examines both the nonseismic and the seismic demands on the pit floor. Soil/structure interaction and pit/dome interaction are considered in the C106 seismic demands (Wallace 1994). The computed seismic zero-period accelerations (ZPA) for the pit floor are taken from this report and are used in determining the seismic demands. The pit-floor seismic spectra from the soil/structure interaction analysis are provided in Attachment 3 of Appendix C.

5.1.2.1 Loads. As stated earlier, only vertical loads exert significant demands on the structural pit floor (overlying fill concrete is not considered part of the structural pit floor). The finite-element model considers three specific vertical loads:

- Dead load (D), which includes self-weight of the pit floor, pit wall, and the pit cover
- Lateral earth pressure load (H) on the pit wall caused by soil pressure
- Live load (L), which includes the vertical load applied to the heel jet adaptor ring.

³ANSYS is a registered trademark of Swanson Analysis System, Inc.

As stated in Section 5.1.1, other loads are judged to cause insignificant stress in the pit floor.

In accordance with ACI 349-90, Section 9.2.1, the associated demand on the pit floor is

$$1.4D + 1.7L + 1.7H$$

where

D = gravity loads
L = live load (heel jet load)
H = lateral earth pressure.

However, ACI 349-90 Section 9.2.3 states that where any load reduces the effects of the other loads, the corresponding load factor for that load shall be taken as 0.9 if it can be demonstrated that the load is always present or occurs simultaneously with the other loads. Otherwise, the load factor for that load shall be taken as zero. Strictly interpreted, this guidance applies only to the determination of demands for components/structures covered by ACI 349-90. Guidance specific to the determination of section capacity (e.g., as expressed in M-P interaction curves for reinforced concrete shells) is not provided explicitly.

A comparable issue exists when the capacity of ACI-governed reinforced concrete shell sections is established, because the axial force demand determines the allowable bending moment (i.e., capacity) through the M-P interaction curve. Certain load cases preferentially increase the compressive axial load demand (while other load cases increase the bending moment demand) and increasing these loads through load factors, in effect, increases the moment capacity of the structure. This increased moment-carrying capacity defeats the objective of introducing load factors greater than 1.0 to counteract uncertainties. For this situation, ACI 349-90 Section 9.2.3 is interpreted to mean that (provided loads are always present) a load combination shall be evaluated where the load factor for the load case in question is no greater than 1.0.

Details relative to the mass and material properties of the model are provided in Appendix C.

Three individual load cases have been analyzed:

- Load case 1 - Gravity load
- Load case 2 - Lateral earth-pressure load
- Load case 3 - Heel jet load of 10,000 lbf.

These were post-processed according to the prescribed load combinations to determine the pit-floor stresses.

5.1.2.2 Soil Stiffness. In accordance with Prakash 1981, Section 9.13, elastic half-space theory is used to compute soil stiffness and the elastic foundation stiffness (EFS) applied to the pit-floor elements. Use of the elastic half-space theory leads to a reduced soil stiffness compared to that of the in situ conditions. This approach ensures that

pit-floor stresses are predicted conservatively because additional floor bending deflections arise from the reduced EFS. The soil stiffness is determined (complete details provided in Appendix C) as follows:

Pit-floor dimensions

width	= 108 in.
length	= 144 in.
r_o (equivalent radius)	= 70.4 in.

Soil properties per Julyk 1994

E (soil Young's modulus)	= 3,000 lbf/in ²
ν (Poisson's ratio)	= 0.35
G (shear modulus)	= 1,111 lbf/in ²
K_{be} (best estimate soil stiffness)	= $4Gr_o / (1-\nu)$ = 481,085 lbf/in.

To account conservatively for uncertainties in soil properties, the best-estimate soil stiffness is divided by a factor of 2. Because lower soil stiffness gives rise to larger pit-floor deflection and stresses, it is conservative to use this bounding soil stiffness value:

$$K \text{ (factored soil stiffness)} = 240,543 \text{ lbf/in.}$$

Because symmetry has been invoked in the computer model, the lower-bound K has a value of 120,271 lbf/in. The EFS for the pit-floor shell elements is thus

$$\begin{aligned} \text{EFS} &= K/\text{AREA} \\ &= 22.25 \text{ lbf/in}^3. \end{aligned}$$

Complete details are provided in Appendix C.

5.1.2.3 Soil Pressure and Other Loads Applied to Pit Structure. Lateral soil pressure acting on the pit walls is computed on the basis of Liu 1981, Section 10.2, which provides an empirically correlated method for predicting pressures. Associated soil properties (Julyk 1994) are

K_o (coefficient of earth pressure at rest)	= 0.538
ρ (soil density)	= 110 lbf/ft ³
P (pressure)	= $K_o \rho H$
P_o (resultant lateral earth force)	= $0.5 K_o \rho H^2 D$

where

H is the height of the wall covered by soil (46.625 in.)
D is the width of the modeled wall section.

The total lateral force on each wall section is applied as a line load through the centroid of the pressure distribution. This simplification maintains accurate stresses in the pit floor. Stresses in

the pit walls are not representative. However, the scope of the current evaluation does not include the pit walls because equipment loads applied through the adaptor ring have no significant effects on stress levels in the pit walls. Thus, the existing design basis for the pit walls is unaffected by the new equipment loads.

For pit walls on the east and the west sides,

$$\begin{aligned} H &= 46.625 \text{ in.} \\ D &= 54 \text{ in.} \\ P_o &= 2,010 \text{ lbf.} \end{aligned}$$

For the pit wall on the south side,

$$\begin{aligned} H &= 46.625 \text{ in.} \\ D &= 144 \text{ in.} \\ P_o &= 5,360 \text{ lbf.} \end{aligned}$$

5.1.2.4 Finite-Element Analyses. The pit cover is not modeled explicitly (geometric sense). Incorporating the mass of the pit cover into the finite-element model nodes at the top of the wall addresses associated gravity effects. Except for in situ loads, the pit structure receives significant demands only from the vertical load applied at the heel jet adaptor ring. The limiting value associated with this load, in which the demand at any location first reaches the corresponding capacity, is sought. Because the model of the pit structure is linear, the limiting load is determined by applying an arbitrary vertical load, identifying the critical location, and scaling the load to a value at which demand and capacity are equal. The provisions of ACI 349-90 are followed in determining the various reinforced concrete capacities and in establishing the load combinations from which the demands are predicted.

Load combinations, defined in ACI 349-90, Sections 9.2.1 and 9.2.3, lead to three nonseismic load combinations as follows:

- (A) $1.4D + 1.7L + 1.7H$
- (B) $1.4D + 1.7L + 0.9H$
- (C) $0.9D + 1.7L + 0.9H$

where

$$\begin{aligned} D &= \text{gravity loads} \\ L &= \text{live load (loads applied to adaptor ring)} \\ H &= \text{lateral earth pressure.} \end{aligned}$$

Load combinations (B) and (C) are included to ensure consideration of worst-case demands and capacities. These load cases reduce load factors on D and H to ensure consideration of demands occurring in less capable regions of the moment-membrane force (M-P) interaction space.

For each of these load combinations, the post-processed analyses comprise two different heel jet (i.e., live) loads, i.e., 0 lbf and 200,000 lbf. Because the analyses are linear, results corresponding to

other riser load values are computed by interpolating or extrapolating from those results.

In evaluating vertical load limits for the pit floor, the responses of interest include element forces and moments for the pit-floor elements to be used in the pit-floor evaluations and nodal forces for the pit-floor boundary elements to be used for pit-floor shear evaluations.

Tables 5.1.2.4-1 and 5.1.2.4-2 compare the axial (membrane stress resultant) force and moment demand for the elements with the highest moment demand about the north-south and east-west directions for the different load combinations. The element with the highest moment demand about north-south with 200,000-lbf heel jet load is element 1398 (located near the heel jet penetration as shown in Figure 5.1.2-1) while the element with the highest moment demand about east-west with 200,000-lbf heel jet load is element 1347 (located near the heel jet penetration as shown in Figure 5.1.2-1). The comparisons show that load combination C results in the highest moment demands while at the same time yielding the smallest compressive axial loads or the largest tensile axial loads. This combination of high moment demand and low compressive axial load (or high tensile axial load) controls the acceptability of applied loads.

Tables 5.1.2.4-1 and 5.1.2.4-2 shows that the normal membrane stress resultant is reported as positive when it is tensile. The results show that the effect of vertical loads on the adaptor ring manifest tensile membrane stresses. See Appendix C for additional details.

5.1.2.5 Heel Pit Floor Capacity. Pit-floor capacity is determined in accordance with the provisions of ACI 349-90, which gives specific guidance for determining shear and twisting moment capacities. For shell bending moments and shell membrane forces, the requirements are not in the form of explicit rules. For reinforced concrete, the membrane force and bending moment capacities can be shown to conform to the M-P interaction relationship. The associated ACI provisions have been incorporated into a computerized spreadsheet process to determine that relationship. A thorough description of the technical basis for M-P interaction determination is provided in Julyk 1994, which supported the first phase of this program (Sluicing Retrieval Demonstration Project). Complete details associated with the determination of heel pit-floor capacity are provided in Appendix C, Attachment 1. Figures 5.1.2.5-1 and 5.1.2.5-2 show the relationship.

These capacities are compared with the forces and moments computed in the finite-element analyses described earlier. The comparison enables the maximum allowable heel jet load to be established by interpolation. Tables 5.1.2.5-1 and 5.1.2.5-2 compare the moment demand and capacity for different heel jet loads, about the north-south and about east-west directions, respectively. Moment demand about the east-west direction controls, and the maximum allowable heel jet load is 47,000 lbf.

The provisions for shear forces in AC 349-90 also have been evaluated. Inspection of the pit-floor nodal forces (Files PIT5A2.PO and PIT5B2.PO in Attachment 2 of Appendix C), shows that the out-of-plane shear forces (i.e., nodal F_z) are more critical than the smaller in-plane

shear forces. The evaluation of shear demand/capacity therefore is limited to the out-of-plane shear forces.

Predicted out-of-plane shear forces are extracted for the entire region along the pit-floor boundary. These nodal out-of-plane shear forces are divided by the tributary shear area to obtain the shear stresses. Appendix C tabulates the out-of-plane shear forces and stresses for the pit-floor boundary nodes for two load cases: heel jet loads of 0 lbf and 200,000 lbf. The controlling area is that around the adaptor ring (i.e., node 72, as shown in Figure 5.1.2-1) of the finite-element model. The vertical load limit on the adaptor ring is determined by interpolating between the shear stresses for these two load cases.

In accordance with ACI 349-90, Section 11.3,

$$\begin{aligned} V_u &\leq \phi V_c \\ \phi V_c &= \phi 2 (f'_c)^{1/2} b_w d \quad (\text{allowable concrete shear}) \\ &= 1,094 \text{ lbf.} \end{aligned}$$

From Appendix C,

$$\begin{aligned} \tau_1 &= \text{node 72 shear stress} = 7.93 \text{ lbf/in}^2 \text{ (for adaptor ring load of 0 lbf)} \\ \tau_2 &= \text{node 72 shear stress} = 269.53 \text{ lbf/in}^2 \text{ (for adaptor ring load of 200,000 lbf).} \end{aligned}$$

Therefore,

$$\begin{aligned} V_u, \text{ node 72 shear force per in. width for riser load of 0 lbf} \\ &= \tau_1 h b_w \quad (h = \text{section thickness}) \\ &= 122.8 \text{ lbf} < 1,094 \text{ lbf (OK)} \end{aligned}$$

and

$$\begin{aligned} V_u, \text{ node 72 shear force per in. width for riser load of 200,000 lbf} \\ &= \tau_2 h b_w \\ &= 4,177 \text{ lbf} > 1,094 \text{ lbf (Not OK).} \end{aligned}$$

By linear interpolation, the controlling riser load is 47,900 lbf.

Combined shear and torsion is evaluated per ACI 349-90, Sections 11.6.1, 11.1.1 and 11.5.5.1. No shear or torsion reinforcement is required if the following two conditions are satisfied:

$$1. \quad T_u \leq \phi 0.5 (f'_c)^{1/2} \Sigma x^2 y$$

where

$$\begin{aligned} \phi &= 0.85 \\ x &= 15.5 \text{ in.} \\ y &= 1.0 \text{ in.} \\ T_u &= \text{allowable torsional moment} \\ &= 5,592 \text{ lbf-in.} \end{aligned}$$

The torsional moment is controlled by element 1359 (see Figure 5.1.2-1) for load combination C (Attachment 2 of Appendix C, File PIT5F1.P0). The controlling riser load is computed by interpolating between moments for the two riser loads of 0 lbf and 200,000 lbf.

$$\begin{aligned}\text{For 0 lbf, torsion for element 1359} &= 65.6 \text{ lbf-in.} \\ \text{For 200,000 lbf, torsion for element 1359} &= -20,664. \text{ lbf-in.}\end{aligned}$$

By linear interpolation, the vertical adaptor ring load yielding a torsion demand of 5,592 lbf-in is

$$F_v = 54,588 \text{ lbf.}$$

$$2: V_u \leq \phi V_c$$

$$\phi V_c = 1,094 \text{ lbf (from above).}$$

Thus, the riser load limit determined on the basis of shear and torsion is 47,900 lbf.

In summary, the allowable heel jet load is controlled by the moment capacity of the pit floor under load combination C and was determined to be 47,000 lbf. To be conservative this demand is considered to include the deadweight of the adaptor ring subassembly. Allowable applied loads are determined by reducing the total load by 1.4 times this deadweight.

For nonseismic load combinations,

$$\begin{aligned}F_v &= (47,000 \times 1.7 - 2,000 \times 1.4) / 1.7 \\ &= 45,352 \text{ lbf}\end{aligned}$$

where the 2,000 lbf represents the weight of the adaptor ring subassembly.

Seismic load combinations take into account the large pit structure stiffness that causes a quasistatic response to lateral and vertical seismic excitations. The seismic response of the pit floor is computed by means of a seismic "equivalent static" analysis. The vertical seismic spectra and zero period acceleration (ZPA) for the pit floor were computed from a soil/structure interaction approach in Wallace 1994. These seismic spectra and ZPA are presented in Attachment 3 of Appendix C.

For quasistatic response during seismic load combinations,

$$\begin{aligned}F_v &= 47,000 \times 1.7 - 2,000 \times (1 + 0.23) \\ &= 77,440 \text{ lbf,}\end{aligned}$$

where 0.23 g is the ZPA computed for the pit floor vertical response spectra.

The lateral soil pressure caused by horizontal seismic acceleration will have negligible effect on the pit-floor demands. The pit essentially is a box structure in which the pit walls act as shear walls and effectively limit lateral drift of the top of the pit from seismically

induced lateral loads. Thus, significant flexing of the pit floor is averted. In addition, the pit floor is supported by soil. Therefore the moment caused by horizontal seismic loads for critical elements located around the penetration in the pit floor will be negligible.

5.1.3 Stud Evaluation (M_H , M_V , F_H) for Heel Jet Adaptor Ring

Allowable loads for the studs at the top of the adaptor ring were evaluated and compared against allowable loads associated with other components. The applied horizontal moment M_H has two resisting components: the moment to overcome compression caused by dead load at the outer edge of the plate, M_{DL} and the moment resistance offered by the studs, M_{stud} .

M_{DL} can be expressed in terms of the lower-bound, unfactored dead load F_{DL} defined in Section 5.1.1. The footprint of the plate is shown in Figure 5.1.3-1 and

$$A = 762 \text{ in}^2$$

$$I = 77,226 \text{ in}^4$$

$$S = 4,290 \text{ in}^3.$$

Let

$$\begin{aligned}\sigma_1 &= \text{uniform stress under the plate caused by } F_{DL}; \\ \sigma_2 &= \text{normal stress at extreme fiber of plate caused by } M_{DL}.\end{aligned}$$

Hence,

$$\sigma_1 = F_{DL} / A = F_{DL} / 762 \text{ (nonseismic)}$$

$$\sigma_1 = F_{DL} (1 - 0.23) / A = F_{DL} / 990 \text{ (seismic)}$$

where the vertical ZPA is 0.23 g per Attachment 3 of Appendix C and

$$\sigma_2 = M_{DL} / S = M_{DL} / 4,290.$$

To relieve compression at the plate edge,

$$\begin{aligned}\sigma_1 &= \sigma_2 \\ M_{DL} &= 5.63 F_{DL} \text{ (nonseismic)} \\ M_{DL} &= 4.33 F_{DL} \text{ (seismic)}.\end{aligned}$$

The maximum allowable bolt tension, T , is determined on the basis of tension in the stud body. Taking moments with $R = 16.5 \text{ in.}$,

$$\begin{aligned}M_{stud} &= 2(2 (0.5 T \times 0.5R) + RT) \\ &= 3.0 RT \\ &= 49.5 T\end{aligned}$$

$$T = M_{stud} / 49.5$$

where

$$M_{stud} = M_H - M_{DL}.$$

Studs are AISC Type 416 (cold drawn), 1½-in. diameter:

$$A_{nom} = 1.227 \text{ in}^2.$$

In accordance with ASM 1982, $F_y = 85 \text{ kip/in}^2$, $F_u = 100 \text{ kip/in}^2$

$$\begin{aligned} T_{cap} &= 0.33 F_u A_{nom} \text{ (AISC 1989, Table I-B)} \\ &= 40,491 \text{ lbf (nonseismic)} \end{aligned}$$

$$\begin{aligned} V_{cap} &= 0.17 F_u A_{nom} \text{ (AISC 1989, Table I-D)} \\ &= 20,859 \text{ lbf (nonseismic).} \end{aligned}$$

Stud tensile capacity determined on the basis of shear stress across threads (Shigley 1986, Section 20-4) also must be evaluated:

$$\tau = 4 F / (3 \pi d_s w N_e).$$

For 1½-in. 12NF threads, 1-in. long,

$$\begin{aligned} d_s, \text{ minor diameter} &= 1.1478 \text{ in. exterior,} \\ &= 1.1598 \text{ in. interior (Marks 1987)} \\ p, \text{ pitch} &= 1/12 = 0.083 \text{ in.} \\ w, \text{ width of thread at root} &= 3 p/4 = 0.0625 \text{ in.} \\ N_e, \text{ number of threads engaged} &= 12. \end{aligned}$$

Let τ equal minimum allowable shear stress in stud or plate:

$$\tau_{stud} = 0.4 F_y = 0.4 \times 85 = 34 \text{ kip/in}^2$$

$$\tau_{plate} = 0.4 \times 30 = 12 \text{ kip/in}^2$$

where the plate material is ASTM A-285, Grade C, $F_y = 30 \text{ kip/in}^2$; hence,

$$\begin{aligned} T_{cap} &= 12 \times 3 p \times 1.1598 \times 0.0625 \times 12 / 4 \\ &= 24,600 \text{ lbf. (nonseismic)} \end{aligned}$$

$$T_{cap} = 24,600 \times 1.33 = 32,700 \text{ lbf (seismic).}$$

Thus, the allowable tensile load for the stud is controlled by the stud pull-out requirement. The interaction equation is

$$T/T_{cap} + V/V_{cap} \leq 1.0.$$

For nonseismic conditions,

$$((M_H - 5.63 F_{DL})/49.5)/24,600 + (F_H/6 + M_V/(6 \times 16.5))/20,859 \leq 1.0$$

or

$$M_H \leq 1,217,700 + 5.63 F_{DL} - 9.73 F_H - 0.59 M_V.$$

For seismic condition,

$$((M_H - 4.33 F_{DL})/49.5)/32,700 + (F_H/6 + M_V/(6 \times 16.5))/(20,859 \times 1.33) \leq 1.0$$

or

$$M_H \leq 1,619,540 + 4.33 F_{DL} - 9.73 F_H - 0.59 M_V.$$

5.1.4 Bearing Evaluation of Fill Concrete (M_V) for Heel Jet Adaptor Ring

Rotation of the adaptor ring about its vertical axis is resisted primarily through bearing of the two attached 2-in. horizontal pipes against the fill concrete. Because the fill concrete is unreinforced and thus has a reduced capacity, concrete bearing stress controls the allowable M_V (moment about the vertical axis) that can be applied at the adaptor ring. An ANSYS model was used to calculate F_z (horizontal resistance force) and M_V (resistance moment about the vertical axis) reactions at the location on the pipe at which it joins the adaptor ring, when the bearing capacity of the fill concrete is reached. The computer analysis for the calculation of F_z and M_V is documented in Appendix C, Attachment 4. Basically this model represents the 2-in. pipes as beams and simulates the fill concrete as an elastic foundation. A horizontal translation is prescribed to the beam end, the stress distribution is calculated, and reactions at the beam end are extracted from the solution.

For the resistance provided by the 2-in. horizontal pipe bearing on fill concrete, per Appendix C, Section 6.3,

$$M_V = 1,687 \text{ lbf-in.}$$

For nonseismic load combinations,

M_V is subjected to a load factor of 1.7, and hence the allowable $M_V = 1,687 / 1.7 = 992 \text{ lbf-in.}$

For seismic load combinations,

$$M_V = 1,687 \text{ lbf-in.}$$

5.1.5 Horizontal Force and Moment Evaluations (M_H , F_H) for Heel Jet Adaptor Ring

The resultant horizontal force and resultant horizontal moment applied on the adaptor ring are transferred through the riser to the pit structure (to surrounding soil) and to the tank dome. The portion of the loads transferred through the pit into the soil is ignored for conservatism. This conservative simplification forces the transfer of the entire set of loads through the 12-in. riser pipe (thus overestimating the riser pipe stress) into the tank dome.

Pipe moment at dome = $M_H + F_H \times 51.5$
(maximum moment resulting from 51.5 in. elevation above dome)

Pipe shear at dome = F_H

Properties for 12-in. Sch. 40 pipe,

OD	= 12.75 in.
Thickness	= 0.406 in.
A, cross-section	= 15.74 in ²
A _s , shear area	= 7.87 in ²
I	= 300.3 in ⁴
S	= 47.1 in ³

Therefore,

pipe bending stress = $(M_H + F_H \times 51.5)/47.1$

and

pipe shear stress = $F_H / 7.87$.

Horizontal seismic forces associated with the adaptor ring and attached riser also are reacted into the tank dome. The weight of this subassembly has been estimated as 2,000 lbf with its center of gravity 8-in. below the top of the adaptor flange. As documented in Appendix C, Attachment 4, the ZPA for horizontal seismic components is 0.21 g.

Pipe stress allowable shear and bending loads are determined in accordance with AISC 1989:

Nonseismic load combinations,

allowable shear stress = 12,000 lbf/in²
allowable bending stress = 18,000 lbf/in²,

and for seismic load combinations,

allowable shear stress = 15,960 lbf/in²
allowable bending stress = 23,940 lbf/in².

Load limits determined on the basis of allowable pipe stress for nonseismic load combinations are

$$\begin{aligned} M_H + 51.5 F_H &\leq 847,800 \text{ lbf-in (bending)} \\ F_H &\leq 94,440 \text{ lbf (shear).} \end{aligned}$$

Concrete bearing on the tank dome is also a potential failure mode, and corresponding load limits are determined as follows:

Concrete bearing dimensions on tank dome = 12.75 in. x 15.0 in.

$$A_c \text{ (area)} = 191.25 \text{ in}^2$$

$$\begin{aligned} S_c \text{ (section modulus)} &= 12.75 \times (15.0)^2 / 6 \\ &= 478.13 \text{ in}^3 \end{aligned}$$

σ_c , allowable bearing on reinforced concrete (per ACI 349-90)

$$\begin{aligned} &= \phi (0.85 f'_c) \\ &= 1,785 \text{ lbf/in}^2 \end{aligned}$$

$$\begin{aligned} \sigma_1 &= 1.7 (M_H + 51.5 F_H) / S_c \\ &= (M_H + 51.5 F_H) / 281.25 \end{aligned}$$

$$\begin{aligned} \sigma_2 &= 1.7 F_H / A_c \\ &= F_H / 112.5 \end{aligned}$$

$$\sigma_1 + \sigma_2 \leq \sigma_c$$

$$(M_H + 51.5 F_H) / 281.25 + F_H / 112.5 \leq 1,785 \text{ lbf/in}^2$$

$$M_H + 51.5 F_H + 2.50 F_H \leq 502,030 \text{ lbf-in}$$

$$M_H \leq 502,030 - 54.0 F_H \text{ (concrete bearing controls).}$$

$$\text{When } M_H = 0, F_H \leq 9,297 \text{ lbf (concrete bearing controls).}$$

The load limits for the concrete bearing failure mode are less than for pipe stresses so that the concrete bearing load limit controls.

Similarly, for the seismic load combinations,

$$M_H \leq 1,109,300 - 51.5 F_H \text{ (on the basis of pipe bending)}$$

$$F_H \leq 125,185 \text{ lbf (on the basis of pipe shear)}$$

$$M_H \leq 853,462 - 54.0 F_H \text{ (on the basis of concrete bearing capacity).}$$

$$\text{When } M_H = 0, F_H \leq 15,805 \text{ lbf is the upper limit on } F_H.$$

Thus, again the concrete bearing load limit controls M_H and F_H .

5.1.6 Allowable Loads Summary for Heel Jet Adaptor Ring in C106 Heel Pit

On the basis of the capacities developed in Sections 5.1.2 through 5.1.5, the expressions for allowable loads at the heel jet adaptor ring in the heel pit are summarized below. Forces and moments arising from load combinations are acceptable if the following set of inequalities are satisfied.

For nonseismic load combinations,

$$F_H \leq 9,290 \text{ lbf} \quad (5.1.6-1)$$

$$M_V \leq 990 \text{ lbf-in} \quad (5.1.6-2)$$

$$F_V \leq 45,350 \text{ lbf} \quad (5.1.6-3)$$

$$M_H \leq 502,030 - 54.0 F_H \text{ lbf-in.} \quad (5.1.6-4)$$

For seismic load combinations,

$$F_H \leq 15,800 \text{ lbf} \quad (5.1.6-5)$$

$$M_V \leq 1,680 \text{ lbf-in} \quad (5.1.6-6)$$

$$F_V \leq 77,440 \text{ lbf} \quad (5.1.6-7)$$

$$M_H \leq 853,460 - 54.0 F_H \text{ lbf-in.} \quad (5.1.6-8)$$

5.2 LOAD LIMITS FOR SLUICING ADAPTOR RINGS IN THE C106 PUMP PIT AND SLUICING PIT

This section discusses the development of the envelope of allowable loads that could be sustained at the C106 sluicing adaptor rings in the C106 pump pit and sluicing pit.

5.2.1 Scope of Determination of Load Envelope for Sluicing Adaptor Ring

This analysis determines restrictions on equipment-imposed loads (self-weight, operating, and seismic) at the C106 adaptor rings in both the pump pit and the sluicing pit. These load limits help ensure that future sluicing equipment and operation imposed structural demands are within the applicable code-derived load capacities and limits. Specific physical dimensions cited in this section have been taken from Appendix C.

The load envelopes for equipment loads contain the following variables:

F_H = Unfactored value of the resultant horizontal force applied at the top flange of the sluicing adaptor ring (lbf)

M_H = Unfactored value of the resultant moment about a horizontal axis applied at the top flange of the sluicing adaptor ring (lbf-in)

- F_v = Unfactored value of the vertical force (positive downward) applied at the top flange of the sluicing adaptor ring (lbf)
- M_v = Unfactored value of the moment about the vertical axis applied at the top flange of the sluicing adaptor ring (lbf-in)
- F_{DL} = Lower-bound unfactored dead load applied at the top flange of the sluicing adaptor ring (lbf).

F_{DL} counteracts (reduces) the horizontal moment demand. For conservatism, F_{DL} must not be overestimated; consequently the value used must be a lower bound to the vertical force resultant at the adaptor ring.

The following specific assumptions have been used as evaluation guidelines.

- Only F_v is considered in the finite-element analysis for the computation of the pit-floor capacity; F_H , M_H , and M_v are insignificant contributors to stress in the floor because of pit design features and alternate load paths.
- The pump pit is the worst case of the two pits because it is subjected to two separate sets of riser loads. Therefore, allowable loads developed for the adaptor ring over the 12-in. riser in the pump pit are conservative for the 12-in.-riser adaptor ring in the sluicing pit.
- Horizontal translation of the pump is limited through bearing of the pump against waste sludge in the tank.
- The adaptor ring over the 12-in. riser is anchored to the pit floor by three $\frac{3}{4}$ -in.-diameter cinch bolts. These anchors are neglected because the bolt material and depth of embedment are unknown.
- The fill (plain) concrete in the pit floor has a compressive strength $f'_c = 3,000$ lbf/in² per Attachment 8 of Appendix D.
- The strength of the two positioning dowels located on the top flange of the 12-in. adaptor ring is neglected for conservatism.
- There is no load path to the riser or the tank dome for loads applied at the adaptor ring because there is no structural connection between the adaptor ring and the 12-in. riser.

The loads considered herein are the following:

- F_H , resultant horizontal force applied at the top flange of the adaptor ring
- F_v , resultant vertical downward force applied at the top flange of the adaptor ring

- M_H , resultant moment about a horizontal axis applied at the top flange of the adaptor ring
- M_V , resultant moment about the vertical axis applied at the top flange of the adaptor ring
- Self-weight of the fill concrete
- Self-weight of the pit
- Lateral earth pressure exerted on the pit wall
- Pump-column load
- 4-in.-riser load.

Figure 5.2.1-1 identifies the orientations and the locations of the applied forces (F_H and F_V) and moments (M_H and M_V). The loads M_H and F_H have arbitrary orientations within the horizontal plane. Further, Figure 5.2.1-1 illustrates the structural components that act together to react loads caused by the equipment mounted on the adaptor ring. The adaptor ring uses studs to restrain equipment. The studs can develop axial and shear loads and, in their combined action with the top flange of the adaptor ring, also resist resultant horizontal forces and moments.

The load paths for the sluicing adaptor ring are as follows.

- The resultant vertical force will be resisted by the pit-floor concrete and the soil beneath.
- The moment about the vertical axis is resisted by bearing of the 2-in.-diameter horizontal pipe and the stiffeners on fill concrete.
- The moment about the horizontal axis is resisted by the self-weight of the equipment and the fill concrete.
- The horizontal force is resisted by the bearing of the adaptor ring subassembly on the fill concrete.

The riser design concept and the soil separating the pit from the tank dome effectively isolate the tank dome from direct effects of loads applied at the adaptor ring flange. Consequently, load limitations are determined primarily from pit structural integrity requirements.

5.2.2 Pump/Sluicing Pit Floor Evaluation (F_V)

As previously indicated, vertical loads are reacted by the floor of the pit, transferred into the nearby soil, and finally distributed over a large area of the tank dome. Restrictions on vertical loading (F_V) stem from the need to ensure the structural integrity of the pit floor for loads transferred through the adaptor ring.

Pit-floor demands are determined by the finite-element approach. The general-purpose finite-element program, ANSYS version 4.4a (SASI 1989), is used to perform the analysis. The associated mesh is shown in Figure 5.2.2-1. The pit floor and the pit walls are modeled with shell elements. The effect of soil support under and around the pit floor is determined as part of the finite-element solution because ANSYS includes the elastic foundation stiffness (EFS) feature for modeling soil support effects. The EFS coefficients used in the model are determined from standard relationships of elastic half-space theory (Prakash 1981) and act under the pit-floor shell element. Symmetry requires that only half the pit be modeled. Appropriate boundary conditions are imposed along the line of symmetry.

The present work scope examines both the nonseismic and the seismic demands on the pit floor. Soil/structure interaction and pit/dome interaction are considered in the C106 seismic demands (Wallace 1994). The computed seismic ZPAs for the pit floor are taken from this report and used in determining the seismic demands. The pit-floor seismic spectra from the soil/structure interaction analysis are provided in Appendix D, Attachment 6.

5.2.2.1 Loads. As stated earlier, only vertical loads exert significant demands on the structural pit floor (overlying fill concrete is not considered as part of the structural pit floor). The finite-element model considers three specific vertical loads:

- Dead load (D), which includes self-weight of the pit floor, pit wall, and the pit cover
- Lateral earth pressure load (H), which is exerted by the soil pressure on the pit wall
- Live load (L), which includes the loads from the pump column, the 4 in.-rise, and the 12-in.-riser.

In accordance with ACI 349-90, Section 9.2.1, the associated demand on the pit floor is

$$1.4D + 1.7L + 1.7H$$

where

D	=	dead load (weight of pit)
L	=	live load (riser and pump column)
H	=	lateral earth pressure.

However, ACI 349-90 Section 9.2.3 states that where any load reduces the effects of the other loads, the corresponding load factor for that load shall be taken as 0.9 if it can be demonstrated that the load is always present or occurs simultaneously with the other loads. Otherwise, the load factor for that load shall be taken as zero. Strictly interpreted, this guidance applies only to the determination of demands for components/structures covered by ACI 349-90. Guidance specific to the

determination of section capacity (e.g., as expressed in M-P interaction curves for reinforced concrete shells) is not provided explicitly.

A comparable issue exists when the capacity of ACI-governed reinforced concrete shell sections is established, because the axial force demand determines the allowable bending moment (i.e., capacity) through the M-P interaction curve. Certain load cases preferentially increase the compressive axial load demand (while other load cases increase the bending moment demand) and increasing these loads through load factors, in effect, increases the moment capacity of the structure. This increased moment-carrying capacity defeats the objective of introducing load factors greater than 1.0 to counteract uncertainties. For this situation, ACI 349-90 Section 9.2.3 is interpreted to mean that (provided loads are always present) a load combination shall be evaluated where the load factor for the load case in question is no greater than 1.0.

All other details relative to the mass and material properties of the model are provided in Appendix D.

Five individual load cases were analyzed:

- Load case 1 - Gravity load
- Load case 2 - Lateral earth-pressure load
- Load case 3 - Pump-column load
- Load case 4 - 4-in.-riser load
- Load case 5 - 12-in.-riser load of 10,000 lbf.

These were post-processed according to the prescribed load combinations to determine the pit-floor stresses.

5.2.2.2 Soil Stiffness. In accordance with Prakash 1981, Section 9.13, elastic half-space theory is used to compute soil stiffness; the corresponding EFS is applied to pit-floor elements. Use of the elastic half-space approximation leads to a reduced soil stiffness compared to that of C106 in situ conditions. This approach ensures that pit-floor stresses are conservatively predicted because additional floor bending deflections arise from the reduced EFS.

Pit-floor dimensions

width	= 168 in.
length	= 216 in.
r_o (equivalent radius)	= 107.475 in.

Soil properties from Julyk 1994

E (soil Young's modulus)	= 3,000 lbf/in ²
ν (Poisson's ratio)	= 0.35
G (shear modulus)	= 1,111 lbf/in ²

K_{be} (best-estimate soil stiffness)	= $4G_o / (1-\nu)$
	= 734,870 lbf/in.

To account conservatively for uncertainties in soil properties, the best-estimate soil stiffness is divided by a factor of 2. Because lower soil stiffness gives rise to larger pit-floor deflection and stresses, it is conservative to use this bounding soil stiffness value:

$$K \text{ (factored soil stiffness)} = 367,435 \text{ lbf/in.}$$

Because symmetry has been invoked in the computer model, the lower-bound K has a value of 183,718 lbf/in. The EFS for the pit-floor shell elements is thus

$$\begin{aligned} \text{EFS} &= K/\text{AREA} \\ &= 13.98 \text{ lbf/in}^3. \end{aligned}$$

Complete details are provided in Appendix D.

5.2.2.3 Soil Pressure and Other Loads Applied to Pit Structure. Lateral soil pressure acting on the pit wall is computed on the basis of Liu 1981 (Section 10.2), which provides an empirically correlated method for predicting pressures. Associated soil properties (Juryk 1994) are

$$\begin{aligned} K_o \text{ (coefficient of earth pressure at rest)} &= 0.538 \\ \rho \text{ (unit weight of soil)} &= 110 \text{ lbf/ft}^3 \\ p \text{ (pressure)} &= K_o \rho H \\ P_o \text{ (resultant lateral earth force)} &= 0.5 K_o \rho H^2 D \end{aligned}$$

where

H is the height of the wall covered by soil (i.e., 104.5 in.)
D is the width of the modeled wall section.

For pit walls on the east and the west sides,

$$\begin{aligned} H &= 104.5 \text{ in.} \\ D &= 84 \text{ in.} \\ P_o &= 15,708 \text{ lbf.} \end{aligned}$$

The total lateral force on each wall section is applied as a line load through the centroid of the pressure distribution. This simplification maintains accurate stresses in the pit floor. Stresses in the pit walls are not representative. However, the scope of the current evaluation does not include the pit walls because equipment loads applied through the adaptor ring have no significant effects on stress levels in the pit walls. Thus, the existing design basis for the pit walls is unaffected by the new equipment loads.

For the pit wall on the north side,

$$\begin{aligned} H &= 104.5 \text{ in.} \\ D &= 108 \text{ in.} \\ P_o &= 40,391 \text{ lbf.} \end{aligned}$$

5.2.2.4 Finite-Element Analyses. The pit cover is not modeled explicitly (geometric sense). Incorporating the mass of the pit cover into the finite-element model nodes at the top of the wall accounts for associated gravity effects. Except for in situ loads, the pit structure receives significant demands only from the vertical load applied at the adaptor ring on the sluicing pit. The limiting value associated with this load, in which the demand at any location first reaches the corresponding capacity, is sought. Because the model for the pit structure is linear, the limiting load is determined by applying an arbitrary non-zero vertical load, identifying the critical location, and scaling the load to a value at which critical demand and capacity are equal. The provisions of ACI 349-90 are followed in determining the various reinforced concrete capacities and in establishing the load combinations from which demands are predicted. See Appendix D for additional details.

Load combinations, defined in ACI 349-90, Sections 9.2.1 and 9.2.3, lead to three load combinations:

- (A) $1.4D + 1.7L + 1.7H$
- (B) $1.4D + 1.7L + 0.9H$
- (C) $0.9D + 1.7L + 0.9H$

where

- D = gravity loads
- L = live load (loads applied to adaptor ring)
- H = lateral earth pressure.

Load combinations (B) and (C) are included to ensure consideration of worst-case demands and capacities. These load cases reduce load factors on D and H to ensure consideration of demands occurring in less capable regions of the moment-membrane force (M-P) interaction space.

For each of these load combinations, the post-processed analyses consist of two different 12-in.-riser loads, i.e., 0 lbf and 50,000 lbf. Because the analyses are linear, results corresponding to a different riser load can be computed by interpolating or extrapolating from these results.

In evaluating vertical load limits for the pit floor, the responses of interest include the following:

- Element forces and moments for the pit-floor elements to be used in the pit-floor evaluations
- Nodal forces for the pit-floor boundary elements to be used for pit-floor shear evaluations.

Tables 5.2.2.4-1 and 5.2.2.4-2 show axial load and bending moment demand for the elements with the highest moment demand. The element with the highest moment demand about the element Y-axis is element 1160 (located near the sluicing penetration), while the element with the highest moment demand about the element X-axis is element 1195 (located near the sluicing penetration). The comparisons show that load

combination C results in the highest moment demands while at the same time yielding the smallest compressive axial loads or the largest tensile axial loads. This combination of high moment demand and low compressive axial load (or high tensile axial load) controls the acceptability of applied loads.

The element X- and Y-axes above do not align precisely with the pit-floor reinforcement directions. Thus the model was modified, and a calculation was performed to determine critical demands oriented with the reinforcement. These results are presented in Tables 5.2.2.4-3 and 5.2.2.4-4. See Appendix D for additional details.

5.2.2.5 Pump/Sluicing Pit-Floor Capacity. Pit-floor capacity is determined in accordance with the provisions of ACI 349-90, which provides specific guidance for determining shear and twisting moment capacities. For shell bending moments and shell membrane forces, the requirements are not in the form of explicit rules or simple equations. For reinforced concrete, the membrane force and bending moment capacities can be shown to conform to the M-P interaction relationship. The associated ACI provisions have been incorporated into a spreadsheet to determine that relationship. A thorough description of the technical basis for determining M-P interaction is provided in Julyk 1994. Complete details associated with determining pit-floor capacity are provided in Appendix D, Attachment 1. Figures 5.2.2.5-1 and 5.2.2.5-2 show the relationship.

These capacities are compared with the demands predicted from the finite-element model. The comparison enables the maximum 12-in.-riser load to be established by interpolation. Tables 5.2.2.4-1 and 5.2.2.4-2 compare demand and capacity for different adaptor ring loads about north-south and east-west directions, respectively. Moment demand about the east-west direction controls, and F_v , the maximum allowable 12-in.-riser load, is 33,300 lbf.

The provisions for shear forces in ACI 349-90 also have been evaluated. Inspection of the pit-floor nodal forces (Appendix D, Attachment 2, Files PIT1A2.PO and PIT1B2.PO), reveals that the out-of-plane shear forces (i.e., nodal F_z) are more critical than in-plane shear forces. The evaluation of shear demand/capacity therefore is restricted to the out-of-plane shear forces.

Predicted out-of-plane shear forces are largest along the pit-floor boundary where the controlling vertical loads are applied. These nodal out-of-plane shear forces are divided by the tributary shear area to obtain the shear stresses. Appendix C tabulates the out-of-plane shear forces and stresses for the pit-floor boundary nodes for two load cases: 12-in.-riser loads of 0 lbf and of 50,000 lbf. The controlling area is that around the 12-in. riser (i.e., node 93 or 94, as shown in Figure 5.2.2-1) of the finite-element model. The load limit associated with shear is determined by interpolating between the shear stresses of these two load cases.

In accordance with ACI 349-90, Section 11.3,

$$\begin{aligned} V_u &\leq \phi V_c \\ \phi V_c &= \phi \frac{1}{2} (f'_c)^{3/4} b_w d \text{ (allowable concrete shear)} \\ &= 1,082 \text{ lbf.} \end{aligned}$$

From Appendix D,

$$\begin{aligned} \tau_1 &= \text{node 93 shear stress} = 0.0 \text{ lbf/in}^2 \text{ (for load of 0 lbf)} \\ \tau_2 &= \text{node 93 shear stress} = 120.9 \text{ lbf/in}^2 \text{ (for load of 50,000 lbf).} \end{aligned}$$

Therefore,

$$\begin{aligned} V_u, \text{ node 93 shear force per in. width for riser load of 0 lbf} \\ &= \tau_1 h b_w \text{ (h = section thickness)} \\ &= 0 \text{ lbf} < 1,082 \text{ lbf (OK)} \end{aligned}$$

and

$$\begin{aligned} V_u, \text{ node 93 shear force per in. width for riser load of 50,000 lbf} \\ &= \tau_2 h b_w \text{ (h = section thickness)} \\ &= 1,874 \text{ lbf} > 1,082 \text{ lbf (Not OK).} \end{aligned}$$

By interpolation, the controlling riser load is = 28,870 lbf.

Combined shear and torsion is evaluated per ACI 349-90, Sections 11.6.1, 11.1.1, and 11.5.5.1. No shear reinforcement is required if the following two conditions are satisfied:

$$1. T_u \leq \phi 0.5 (f'_c)^{3/4} \Sigma x^2 y$$

where

$$\begin{aligned} \phi &= 0.85 \\ x &= 15.5 \text{ in.} \\ y &= 1.0 \text{ in.} \\ T_u &= \text{allowable torsional (twisting) moment} \\ &= 5,592 \text{ lbf-in.} \end{aligned}$$

The torsional moment is controlled by element 1122 for load combination C. The controlling riser load is computed by interpolating between moments for the two riser loads of 0 lbf and 50,000 lbf.

$$\begin{aligned} \text{For 0 lbf, torsion for element 1122} &= -1,999 \text{ lbf-in.} \\ \text{For 50,000 lbf, torsion for element 1122} &= 8,503 \text{ lbf-in.} \end{aligned}$$

By linear interpolation, the vertical adaptor ring load yielding a torsion demand of 5,592.6 in.-lbf is

$$F_v = 36,143 \text{ lbf.}$$

$$2. \quad V_u \leq \phi V_c$$

$$\phi V_c = 1,082 \text{ lbf.}$$

Thus, the vertical load limit for the adaptor ring is 28,870 lbf.

In summary, the load limit is controlled by the shear requirement where for nonseismic load combinations, $F_v = 28,870 \text{ lbf.}$ To accommodate the interaction for the pump pit between the pump and the sluicing adaptor rings, the allowable loads are adjusted as follows:

$$F_{V(S)} \leq 28,870 \text{ lbf} \quad \text{for } F_{V(PC)} \leq 3,000 \text{ lbf}$$

$$F_{V(S)} \leq 29,840 - 0.324 F_{V(PC)} \quad \text{for } F_{V(PC)} > 3,000 \text{ lbf}$$

where

$F_{V(PC)}$ denotes F_v for the pump column adaptor ring (PCAR), and $F_{V(S)}$ denotes F_v for the sluicing adaptor ring.

Seismic load combinations take into account the substantial structural stiffness of the pits that results in quasistatic response to vertical and lateral seismic excitations. The seismic response of the pit floor is computed with a seismic "equivalent static" analysis. The vertical seismic spectra and ZPA for the pit floor were computed from a soil/structure interaction approach in Wallace 1994. These seismic spectra and ZPA are presented in Attachment 6 of Appendix D.

$$F_{V(S)} \leq 49,070 \text{ lbf} \quad \text{for } F_{V(PC)} \leq 3,000 \text{ lbf}$$

$$F_{V(S)} \leq 50,030 - 0.320 F_{V(PC)} \quad \text{for } F_{V(PC)} > 3,000 \text{ lbf.}$$

Note that load factors of 1.0 have been used (as opposed to 1.7 for the nonseismic case); these account for the substantially larger allowable load provided for seismic loading. Also, the seismic data introduces a negligible change in the form of the load limits. However, the equipment supplier must exercise caution to determine F_v correctly because this quantity is directly affected by the seismic environment.

5.2.3 Stud Evaluation (M_H , M_V , F_H) for Sluicing Adaptor Rings

Allowable loads for the studs at the top of the adaptor ring were evaluated and compared with allowable loads associated with other components. The applied horizontal moment M_H has two resisting components: the moment to overcome compression caused by dead load at the outer edge of the plate, M_{DL} and the moment resistance offered by the studs, M_{stud} .

M_{DL} can be expressed in terms of the lower-bound, unfactored dead load F_{DL} defined in Section 5.2.1. Calculation details provided in Appendix D show that

$$\begin{aligned} M_{DL} &= 3.80 F_{DL} \text{ (nonseismic)} \\ M_{DL} &= 3.19 F_{DL} \text{ (seismic).} \end{aligned}$$

The maximum allowable bolt tension, T , is determined on the basis of tension in the stud body. Then the worst-case configuration yields a moment caused by the stud tension:

$$M_{stud} = 2 \times 8.22 \times T,$$

where

$$M_{stud} = M_H - M_{DL}.$$

For the seismic condition, stud capacity may be increased by 1.33 per AISC (1989). Through interaction equation,

$$T / T_{cap} + V / V_{cap} \leq 1.0$$

$$((M_H - M_{DL}) / (2 \times 8.22)) / T_{cap} + (F_H / 4 + M_V / (4 \times 8.22)) / V_{cap} \leq 1.0.$$

Stud tensile capacity determined on the basis of shear stress across threads (Shigley 1986, Section 20-4) also must be evaluated to identify the failure mode that controls stud tensile capacity. So,

$$\tau = 4 F / (3 \pi d_s w N_e).$$

For 1½-in. 12NF threads, 1-in. long,

d_s , minor diameter	= 1.1478 in. exterior, = 1.1598 in. interior (Marks 1987)
p , pitch	= 1/12 = 0.083 in.
w , width of thread at root	= 3 p /4 = 0.0625 in.
N_e , number of threads engaged	= 12.

Let τ equal minimum allowable shear stress in stud or plate:

$$\begin{aligned} \tau_{stud} &= 0.4 F_y = 34 \text{ kip/in}^2 \\ \tau_{plate} &= 12 \text{ kip/in}^2 \end{aligned}$$

where plate material is ASTM A-285, Grade C, $F_y = 30 \text{ kip/in}^2$; hence,

$$T_{cap} = (12 \times 3p \times 1.1598 \times 0.0625 \times 12) / 4 = 24,600 \text{ lbf (nonseismic)}$$

$$T_{cap} = 24,600 \times 1.33 = 32,700 \text{ lbf (seismic).}$$

Thus, the allowable stud tensile loads are controlled by failure at the plate connection; these loads will be used in the following interaction relationship:

$$T/T_{cap} + V/V_{cap} \leq 1.0,$$

where

$$T = (M_H - M_{DL})/16.44$$

$$V = F_H/4 + M_V/32.88.$$

For nonseismic conditions,

$$(M_H - 3.80 F_{DL}) / 404,400 + F_H / 83,400 + M_V / 685,800 \leq 1.0$$

or

$$M_H \leq 404,400 + 3.80 F_{DL} - 4.85 F_H - 0.59 M_V.$$

For seismic conditions,

$$(M_H - 3.19 F_{DL}) / 537,800 + F_H / 110,900 + M_V / 912,100 \leq 1.0$$

or

$$M_H \leq 537,800 + 3.19 F_{DL} - 4.85 F_H - 0.59 M_V.$$

5.2.4 Bearing Evaluation of Fill Concrete (M_V) for Sluicing Adaptor Rings

Rotation of the adaptor ring about its vertical axis is resisted primarily through bearing of the attached 2-in. horizontal pipe and three stiffeners against the fill concrete. Because the fill concrete is unreinforced and thus has a reduced capacity, concrete bearing stress controls the allowable M_V (moment about the vertical axis) that can be applied through the adaptor ring. An ANSYS model was used to calculate F_z (horizontal resistance force) and M_V (resistance moment about the vertical axis) reactions at the location on the pipe at which it joins the adaptor ring, when the bearing capacity of the 2-in. pipe on fill concrete is reached. The computer analysis for the calculation of F_z and M_V is documented in Appendix D, Attachment 7. Basically, this analysis models the 2-in. pipe as a beam and simulates the fill concrete as an elastic foundation. A horizontal translation is prescribed to the beam end, the stress distribution is calculated, and reactions at the beam end are extracted from the solution.

For the resistance provided by the 2-in. horizontal pipe bearing on fill concrete, per Appendix D, Attachment 7, the resultant moment

$$M_{V(\text{pipe})} = 699 \text{ lbf-in.}$$

For the resistance provided by the three stiffeners bearing on fill concrete (Appendix D),

$$M_v = 10,252 \text{ lbf-in.}$$

For nonseismic conditions,

$$M_v \text{ is subjected to a load factor of 1.7, hence the allowable moment } M_v = (699 + 10,252) / 1.7 = 6,441 \text{ lbf-in.}$$

For seismic conditions,

$$M_v = 10,951 \text{ lbf-in.}$$

5.2.5 Horizontal Force Evaluation (F_H) for Sluicing Adaptor Rings

The allowable horizontal force applied through the sluicing adaptor ring is

$$F_H = 1,600 \text{ lbf (nonseismic load combinations)}$$

$$F_H = 2,720 \text{ lbf (seismic load combinations).}$$

Requirements on concrete bearing stresses (per ACI 340-90) lead to this load limit. Details are provided in Appendix C.

5.2.6 Overturning Demand (M_H , F_H) for Sluicing Adaptor Rings

The sluicing adaptor ring associated with the 12-in. riser is anchored to the pit floor by three $\frac{5}{8}$ -in.-diameter cinch bolts. No credit is taken for the moment carrying capacity of these three anchors because the bolt material and depth of embedment are unknown. Because the cinch anchors cannot be relied on to provide resistance to uplift, loads that result in overturning at the base of the adaptor ring are determined on the basis of overcoming dead load. In other words, the allowable overturning moment at the base of the adaptor ring is that moment required to overcome compression caused by dead load at the outer edge of the adaptor ring bottom plate (M_{DL}). In addition to the lower-bound, unfactored dead load applied at the top of the adaptor ring (F_{DL}), deadweight of fill concrete helps to resist the overturning moment:

$$M_H + 7.0 F_H = 3.83 F_{DL} + 241 \text{ (nonseismic)}$$

$$M_H + 7.0 F_H = 3.22 F_{DL} + 203 \text{ (seismic).}$$

Complete calculation details are provided in Appendix D.

5.2.7 Allowable Loads Summary for Sluicing Adaptor Rings in C106 Pump Pit and Sluicing Pit

On the basis of details in Sections 5.2.2 through 5.2.5, the expressions for allowable loads at the sluicing adaptor rings are summarized below. Forces and moments arising from load combinations are acceptable if the following sets of inequalities are satisfied.

For nonseismic load combinations,

$$\begin{aligned} F_H &\leq 1,600 \text{ lbf} & (5.2.7-1) \\ M_V &\leq 6,440 \text{ lbf-in} & (5.2.7-2) \\ * \quad F_{V(s)} &\leq 28,870 \text{ lbf} & \text{for } F_{V(PC)} \leq 3,000 \text{ lbf} & (5.2.7-3) \\ &\leq 29,840 - 0.324 F_{V(PC)} \text{ (lbf)} & \text{for } F_{V(PC)} > 3,000 \text{ lbf} & (5.2.7-4) \\ M_H &\leq 240 + 3.83 F_{DL} - 7.0 F_H \text{ (lbf-in)}. & (5.2.7-5) \end{aligned}$$

For seismic load combinations,

$$\begin{aligned} F_H &\leq 2,720 \text{ lbf} & (5.2.7-6) \\ M_V &\leq 10,950 \text{ lbf-in} & (5.2.7-7) \\ ** \quad F_{V(s)} &\leq 49,070 \text{ lbf} & \text{for } F_{V(PC)} \leq 3,000 \text{ lbf} & (5.2.7-8) \\ &\leq 50,030 - 0.320 F_{V(PC)} \text{ (lbf)} & \text{for } F_{V(PC)} > 3,000 \text{ lbf} & (5.2.7-9) \\ M_H &\leq 200 + 3.22 F_{DL} - 7.0 F_H \text{ (lbf-in)} & (5.2.7-10) \end{aligned}$$

Notes:

- $F_{V(PC)}$ denotes F_V for PCAR in the pump pit.
- $F_{V(s)}$ denotes F_V for sluicing adaptor ring in the pump pit.
- * $F_V = 28,870 \text{ lbf}$ for sluicing adaptor ring in the sluicing pit.
- ** $F_V = 49,070 \text{ lbf}$ for sluicing adaptor ring in the sluicing pit.

5.3 LOAD LIMITS FOR PUMP-COLUMN ADAPTOR RING IN C106 PUMP PIT

This section discusses the development of the envelope of allowable loads that could be sustained at the PCAR in the C106 pump pit.

5.3.1 Scope of Determination of Load Envelope for Pump-Column Adaptor Ring

This analysis determines restrictions on equipment-imposed loads (self-weight, operating, and seismic) at the PCAR in the C106 pump pit. These load limits help ensure that future sluicing equipment and operation imposed structural demands are within the applicable code-derived capacities and limits. Specific physical dimensions cited in this section have been taken from Appendix E.

The envelopes for equipment loads contain the following variables:

- F_H = Unfactored value of the resultant horizontal force applied at the top flange of the adaptor ring (lbf)
- M_H = Unfactored value of the resultant moment about a horizontal axis applied at the top flange of the adaptor ring (lbf-in)
- F_V = Unfactored value of the vertical force (positive downward) applied at the top flange of the adaptor ring (lbf)
- M_V = Unfactored value of the moment about the vertical axis applied at the top flange of the adaptor ring (lbf-in)
- F_{DL} = Lower bound unfactored dead load applied at the top flange of the adaptor ring (lbf).

F_{DL} counteracts (reduces) the horizontal moment demand. For conservatism, F_{DL} must not be overestimated; consequently, the value used must be a lower bound to the vertical force resultant at the adaptor ring.

The following specific assumptions have been used as evaluation guidelines.

- Only F_V is considered in the finite-element analysis for the computation of the pit-floor capacity; F_H , M_H , M_V are insignificant contributors to the stress in the floor because of pit design features and alternate load paths.
- The fill (plain) concrete in the pit floor has a compressive strength $f'_c = 3,000 \text{ lbf/in}^2$, per Attachment 7 of Appendix E.
- The upper and lower retainer rings are free to move relative to each other in the vertical direction per Attachment 7 of Appendix E.
- For conservatism, the strength of the three positioning dowels located on the top flange of the adaptor ring is neglected.

The loads considered herein are as follows:

- F_H , resultant horizontal force applied at the top flange of the adaptor ring
- F_V , resultant vertical downward force applied at the top flange of the adaptor ring
- M_H , resultant moment about a horizontal axis applied at the top flange of the adaptor ring
- M_V , resultant moment about the vertical axis applied at the top flange of the adaptor ring
- Self-weight of the fill concrete

- Self-weight of the pit
- Lateral earth pressure exerted on the pit wall
- 12-in.-riser load
- 4-in.-riser load.

Figure 5.3.1-1 identifies the orientations and locations of the applied forces (F_H and F_V) and moments (M_H and M_V). The loads M_H and F_H have arbitrary orientations within the horizontal plane.

Figure 5.3.1-1 illustrates the structural components that act together to react loads caused by the equipment mounted on the adaptor ring. The adaptor ring uses studs to restrain equipment. The studs can develop shear loads to resist resultant horizontal forces and vertical moments. The imposed condition that dead load compressive preload be maintained everywhere across the flange ensures that there is no tension in the studs in excess of preload tension.

Resistance to overturning moments (M_H) is provided solely by the self-weight of the equipment because the bottom of the adaptor ring rests on concrete, as illustrated above.

The load paths for the PCAR are as follows.

- The moment about the vertical axis is resisted by bearing of the 2-in.-diameter horizontal pipe and the stiffeners on the fill concrete.
- The horizontal force is resisted by the bearing of the PCAR subassembly on the fill concrete.
- The resultant vertical force will be resisted by the pit-floor concrete and the soil beneath.
- The horizontal moment component is resisted by self-weight and downward vertical loads imposed by equipment attached to the PCAR.

5.3.2 Pump Pit Floor Evaluation (F_V)

As previously indicated, vertical loads are reacted by the floor of the pit, transferred into the nearby soil, and finally distributed over a broad area of the tank dome. Restrictions on vertical loading (F_V) stem from the need to ensure the structural integrity of the pit floor for loads transferred through the adaptor ring.

Pit-floor demands are determined by a finite-element approach. The general-purpose finite-element program, ANSYS version 4.4a (SASI 1989), is used to perform the analysis. The associated mesh is shown in Figure 5.2.2-1. The pit floor and the pit walls are modeled with shell elements. The effects of soil support under and around the pit floor are determined as part of the finite-element solution because ANSYS provides

the elastic foundation stiffness (EFS) feature for modeling soil support effects. The EFS coefficients used in the model are determined by the use of standard relationships from elastic half-space theory (Prakash 1981) and act under the pit-floor shell elements. Symmetry requires that only half the pit be modeled. Appropriate boundary conditions are imposed along the line of symmetry.

The present work scope examines both the nonseismic and the seismic demands on the pit floor. Soil/structure interaction and pit/dome interaction are considered in the evaluation of C106 seismic demands (Wallace 1994). The seismic ZPAs computed for the pit floor are taken from this report and are used in determining these demands. The pit-floor seismic spectra from the soil/structure interaction analysis are provided in Attachment 3 of Appendix E.

5.3.2.1 Loads. As stated earlier, only vertical loads exert significant demands on the structural pit floor (overlying fill concrete is not considered as part of the structural pit floor). The finite-element model considers the following specific vertical loads:

- Dead load (D), which includes self-weight of the pit floor, wall, and cover
- Lateral earth pressure load (H) on the pit wall caused by soil pressure
- Live load (L), which includes the vertical loads from the pump column, the 4-in. riser, and the 12-in. riser.

In accordance with ACI 349-90, Section 9.2.1, the associated demand on the pit floor is

$$1.4D + 1.7L + 1.7H$$

where

D = dead load (weight of pit)
L = live load (risers and pump column)
H = lateral earth pressure.

However, ACI 349-90 Section 9.2.3 states that where any load reduces the effects of the other loads, the corresponding load factor for that load shall be taken as 0.9 if it can be demonstrated that the load is always present or occurs simultaneously with the other loads. Otherwise, the load factor for that load shall be taken as zero. Strictly interpreted, this guidance applies only to the determination of demands for components/structures covered by ACI 349-90. Guidance specific to the determination of section capacity (e.g., as expressed in M-P interaction curves for reinforced concrete shells) is not provided explicitly.

A comparable issue exists when the capacity of ACI-governed reinforced concrete shell sections is established, because the axial force demand determines the allowable bending moment (i.e., capacity) through the M-P interaction curve. Certain load cases preferentially increase the

compressive axial load demand (while other load cases increase the bending moment demand) and increasing these loads through load factors, in effect, increases the moment capacity of the structure. This increased moment-carrying capacity defeats the objective of introducing load factors greater than 1.0 to counteract uncertainties. For this situation, ACI 349-90 Section 9.2.3 is interpreted to mean that (provided loads are always present) a load combination shall be evaluated where the load factor for the load case in question is no greater than 1.0.

With regard to boundary conditions along the plane of half-symmetry at $Y = 0.0$, the nodes are restrained in the vertical and rotational degrees of freedom. In addition, node 1 is restrained in the horizontal direction to provide translational restraint in the global X direction. This restraint is necessary to remove the rigid-body degree of freedom. All other details relative to model mass and material properties are provided in Appendix E.

Five individual load cases were analyzed:

- Load case 1 - Gravity load
- Load case 2 - Lateral earth-pressure load
- Load case 3 - Pump-column load of 10,000 lbf
- Load case 4 - 4-in.-riser load of 200 lbf
- Load case 5 - 12-in.-riser load of 3,000 lbf.

These were post-processed according to the prescribed load combinations to determine the pit-floor stresses.

5.3.2.2 Soil Stiffness Calculation. In accordance with Prakash 1981, Section 9.13, elastic half-space theory is used for the computation of soil stiffness and the corresponding EFS is applied to the pit floor elements. Use of elastic half-space approximations leads to a reduced soil stiffness compared to that of C106 in situ conditions. This approach ensures that pit floor stresses are conservatively predicted because additional floor bending deflections arise from the reduced EFS. The soil stiffness is determined from the following (complete details in Appendix E):

Pit-floor dimensions

width	= 168 in.
length	= 216 in.
r_o (equivalent radius)	= 107.475 in.

Soil properties from Julyk 1994

E (soil Young's modulus)	= 3,000 lbf/in ²
ν (Poisson's ratio)	= 0.35
G (shear modulus)	= 1,111 lbf/in ²
K_{be} (best-estimate soil stiffness)	= $4Gr_o / (1-\nu)$ = 734,870 lbf/in.

To account conservatively for uncertainties in soil properties, the best-estimate soil stiffness is divided by a factor of 2. Because lower soil stiffness gives rise to larger pit-floor deflections and stresses, it is conservative to use this bounding soil stiffness value.

$$K \text{ (factored soil stiffness)} = 367,435 \text{ lbf/in.}$$

Because symmetry has been invoked in the computer model, the lower-bound K has a value of 183,718 lbf/in. For the pit-floor shell elements,

$$\begin{aligned} \text{EFS} &= K/\text{AREA} \\ &= 13.98 \text{ lbf/in}^3. \end{aligned}$$

Complete details are provided in Appendix E.

5.3.2.3 Soil Pressure and Other Loads Applied to the Pit Structure. Lateral soil pressure acting on the pit wall is computed on the basis of Liu 1981, Section 10.2, which provides an empirically correlated method for predicting pressure. Associated soil properties are

$$\begin{aligned} K_o \text{ (coefficient of earth pressure at rest)} &= 0.538 \\ \rho \text{ (unit weight of soil)} &= 110 \text{ lbf/ft}^3 \\ p \text{ (pressure)} &= K_o \rho H \\ P_o \text{ (resultant lateral earth force)} &= 0.5 K_o \rho H^2 D \end{aligned}$$

where

H is the height of the wall covered by soil (104.5 in.)
D is the width of the modeled wall section.

For pit walls on the east and the west sides,

$$\begin{aligned} H &= 104.5 \text{ in.} \\ D &= 84 \text{ in.} \\ P_o &= 15,708 \text{ lbf.} \end{aligned}$$

The total lateral force on each wall section is applied as a line load through the centroid of the pressure distribution. This simplification maintains accurate stresses in the pit floor. Stresses in the pit walls are not representative. However the scope of the current evaluation does not include the pit walls because equipment loads applied through the adaptor ring have no significant effects on the pit walls. Thus, the existing design basis for the pit walls is unaffected by the new equipment loads.

For the pit wall on the north side,

$$\begin{aligned} H &= 104.5 \text{ in.} \\ D &= 216 \text{ in.} \\ P_o &= 40,391 \text{ lbf.} \end{aligned}$$

5.3.2.4 Finite-Element Analysis. The pit cover is not modeled explicitly (geometric sense). Incorporating the mass of the pit cover into the finite-element model nodes at the top of the wall accounts for associated

gravity effects. Except for in situ loads, the pit structure receives significant demands only from the vertical load applied at the adaptor rings. The limiting value associated with this load, in which the demand at any location first reaches the corresponding capacity, is sought. Because the model for the pit structure is linear, the limiting load is determined by applying an arbitrary non-zero vertical load, identifying the critical location, and scaling the load to a value at which critical demand and capacity are equal. The provisions of ACI 349-90 are followed in determining the various reinforced concrete capacities (see Section 5.3.2.6) and in establishing the load combinations from which demands are predicted. Appendix E contains complete details.

Load combinations, defined in ACI 349-90, Sections 9.2.1 and 9.2.3, lead to three nonseismic load combinations

- (A) $1.4D + 1.7L + 1.7H$
- (B) $1.4D + 1.7L + 0.9H$
- (C) $0.9D + 1.7L + 0.9H$

where

D = dead load (weight of pit)
L = live load (riser and pump-column loads)
H = lateral earth pressure.

Load combinations (B) and (C) are included to ensure consideration of worst-case demands and capacities. The load cases reduce load factors on D and H to ensure consideration of demands occurring in less capable regions of the M-P interaction space.

For each of these load combinations, the post-processed analyses consist of two different pump-column loads, i.e., 0 lbf and 200,000 lbf. Because the analyses are linear, results corresponding to a different pump-column load can be computed by interpolating or extrapolating from these results.

In evaluating vertical loads for the pit floor, the responses of interest include element forces and moments for the pit-floor elements to be used in the pit floor evaluations and nodal forces for the pit-floor boundary elements to be used for pit-floor shear evaluations.

Tables 5.3.2.4-1 and 5.3.2.4-2 compare the axial load and bending moment demand for the elements with the highest moment demand. The element with the highest moment demand about north-south with a 200,000-lbf pump-column load is element 1326 as shown in Figure 5.2.2-1; the element with the highest moment demand about east-west with a 200,000-lbf pump-column load is element 1224 as shown in Figure 5.2.2-1. The comparisons show that load combination (C) results in the highest moment demands while yielding the smallest compressive axial loads or the largest tensile axial loads. This combination of high moment demand and low compressive axial load (or high tensile axial load) controls the acceptability of applied loads. See Appendix E for additional details.

5.3.2.5 Pump Pit-Floor Capacity. Pit-floor capacity is determined in accordance with the provisions of ACI 349-90, which gives specific guidance for determining shear and twisting moment capacities. For shell bending moments and shell membrane forces, the requirements are not in the form of explicit rules or simple equations. For reinforced concrete, the membrane force and bending moment capacities can be shown to conform to the M-P interaction relationship. The associated ACI provisions have been incorporated into a spreadsheet to determine that relationship. A thorough description of the technical basis for M-P interaction determination is provided in Julyk 1994. Details associated with the determination of pump-pit floor capacity are provided in Appendix E, Attachment 1. Figures 5.2.2.5-1 and 5.2.2.5-2 show the relationship.

Tables 5.3.2.5-1 and 5.3.2.5-2 compare demand and capacity for different vertical loads on the PCAR. Moment demand about the north-south direction controls; the maximum allowable pump-column load is 95,000 lbf.

The provisions for shear forces in ACI 349-90 also have been evaluated. Inspection of the pit-floor nodal forces (Appendix E, Attachment 2, Files PIT3A2.PO and PIT3B2.PO) reveals that the out-of-plane shear forces (i.e., nodal F_z) are more critical than the smaller in-plane shear forces. The evaluation of shear demands therefore is limited to the out-of-plane shear forces.

Predicted out-of-plane shear forces are computed along the pit-floor boundary where the controlling vertical loads are applied. These nodal out-of-plane shear forces are divided by the tributary shear area to obtain the shear stresses. Appendix E tabulates the out-of-plane shear forces and stresses for the pit-floor boundary nodes for two load cases: pump-column loads of 0 lbf and 200,000 lbf. The controlling area is around the pump-column adaptor ring (i.e., node 86, as shown in Figure 5.2.2-1) of the finite-element model. The load limit for shear is determined by interpolating between the shear stresses of these two load cases.

In accordance with ACI 349-90, Section 11.3,

$$\begin{aligned} V_u &\leq \phi V_c \\ \phi V_c &= \phi \left[\frac{1}{2} (f'_c)' \right] b_w d \text{ (allowable concrete shear)} \\ &= 1,082 \text{ lbf.} \end{aligned}$$

From Appendix E,

$$\begin{aligned} \tau_1 &= \text{node 86 shear stress} = 3.4 \text{ lbf/in}^2 \text{ (for load of 0 lbf),} \\ \tau_2 &= \text{node 86 shear stress} = 115.7 \text{ lbf/in}^2 \text{ (for load of 200,000 lbf).} \end{aligned}$$

Therefore,

$$\begin{aligned} V_u, \text{ node 86 shear force per in. width for riser load of 0 lbf} \\ &= \tau_1 h b_w \text{ (h = section thickness)} \\ &= 52.7 \text{ lbf} < 1,082 \text{ lbf (OK)} \end{aligned}$$

and

$$\begin{aligned} V_u, \text{ node 86 shear force per in. width for riser load of 200,000 lbf} \\ &= \tau_2 h b_w \\ &= 1,793 \text{ lbf} > 1,082 \text{ lbf (Not OK).} \end{aligned}$$

By linear interpolation, the controlling riser load is 118,309 lbf.

Combined shear and torsion is also evaluated. In accordance with ACI 349-90, Sections 11.6.1, 11.1.1 and 11.5.5.1, no shear reinforcement is required if the following two conditions are satisfied:

$$1. \quad T_u \leq \phi 0.5 (f'_c)^{1/2} \Sigma x^2 y$$

where

$$\begin{aligned} \phi &= 0.85 \\ x &= 15.5 \text{ in.} \\ y &= 1.0 \text{ in.} \\ T_u &= \text{allowable torsional (twisting) moment} \\ &= 5,592 \text{ lbf-in.} \end{aligned}$$

The torsional moment is controlled by element 1234 (see Figure 5.2.2-1) for load combination C. The controlling riser load is computed by interpolating between moments for the two riser loads of 0 lbf and 200,000 lbf.

$$\begin{aligned} \text{For 0 lbf, torsion for element 1234} &= 1,035 \text{ lbf-in.} \\ \text{For 200,000 lbf, torsion for element 1234} &= -11,147 \text{ lbf-in.} \end{aligned}$$

By linear interpolation, the adaptor ring load yielding torsion demand of 5,592 lbf-in is

$$F_v = 108,810 \text{ lbf.}$$

$$2. \quad V_u \leq \phi V_c$$

$$\phi V_c = 1,082 \text{ lbf.}$$

In summary, the capacity, controlled by the moment requirement about the north-south direction, was determined to be 95,000 lbf. For nonseismic load combinations,

$$F_v = (95,000 \times 1.7 - 7,000 \times 1.4) / 1.7 = 89,235 \text{ lbf.}$$

The term containing 7,000 lbf represents the weight of the adaptor ring subassembly.

The pump pit contains both the pump-column penetration and a sluicing penetration. Vertical loads through each adaptor ring cause forces and moments across the entire pit floor. Thus, an interaction relationship exists between the two vertical loads ($F_{V(PC)}$ and $F_{V(S)}$ as defined below). Separate analyses determined the worst-case effects of each load, and the results have been combined by linear superposition to establish the interaction relationship. To accommodate the interaction relationship between the pump and the sluicing adaptor ring, the allowable loads can be presented as follows:

$$\begin{aligned} F_{V(PC)} &\leq 89,230 \text{ lbf} && \text{for } F_{V(S)} \leq 3,000 \text{ lbf} \\ F_{V(PC)} &\leq 98,500 - 3.09 F_{V(S)} && \text{for } F_{V(S)} > 3,000 \text{ lbf} \end{aligned}$$

where

(S) refers to the sluicing pit, and
(PC) refers to the pump column.

To unify the relationship of the allowable loads between the above expressions and those documented for the sluicing adaptor ring for the pump and sluicing pits (see Attachment 6), both sets of allowable loads are compared and a single conservative expression is derived. Thus,

$$F_{V(S)} \leq 29,840 - 0.324 F_{V(PC)} \quad \text{for } F_{V(PC)} > 3,000 \text{ lbf}$$

and

$$F_{V(PC)} \leq 92,100 - 3.09 F_{V(S)} \quad \text{for } F_{V(S)} > 3,000 \text{ lbf}$$

therefore

$$F_{V(PC)} \leq 82,830 \text{ lbf} \quad \text{for } F_{V(S)} \leq 3,000 \text{ lbf.}$$

Seismic load combinations take into account the substantial structural stiffness of the pits, which results in quasistatic response to vertical and lateral seismic excitations. The seismic response of the pit floor is computed by means of seismic "equivalent static" analysis. The vertical seismic spectra and ZPA for the pit floor are computed with a soil/structure interaction approach (Wallace 1994). These seismic spectra and ZPA are presented in Attachment 3 of Appendix E. For seismic load combinations,

$$F_v = 95,000 \times 1.7 - 7,000 \times (1 + 0.16) = 153,380 \text{ lbf}$$

where 0.16 g is the pit floor ZPA.

To accommodate the interaction relationship between the pump and the sluicing adaptor ring, the allowable loads can be presented as follows:

$$\begin{aligned} F_{V(PC)} &\leq 153,380 \text{ lbf} & \text{for } F_{V(S)} &\leq 3,000 \text{ lbf} \\ F_{V(PC)} &\leq 162,750 - 3.126 F_{V(S)} & \text{for } F_{V(S)} &> 3,000 \text{ lbf.} \end{aligned}$$

To unify the relationship of the allowable loads between the above expressions and those documented for the sluicing adaptor ring for the pump and sluicing pits (see Appendix C), a single conservative expression is presented:

$$F_{V(S)} \leq 50,030 - 0.32 F_{V(PC)} \quad \text{for } F_{V(PC)} > 3,000 \text{ lbf}$$

and

$$\begin{aligned} F_{V(PC)} &\leq 156,340 - 3.126 F_{V(S)} & \text{for } F_{V(S)} &> 3,000 \text{ lbf} \\ F_{V(PC)} &\leq 146,960 \text{ lbf} & \text{for } F_{V(S)} &\leq 3,000 \text{ lbf.} \end{aligned}$$

Note that load factors of 1.0 are used (seismic load combination, as opposed to 1.7 for the nonseismic case); these account for the substantially larger allowable load for seismic conditions. Also, the seismic data introduce a negligible change in the form of the load limits. However, the equipment supplier must exercise caution to determine F_v correctly because this quantity is affected directly by the seismic environment.

5.3.3 Liftoff Evaluation of Pump-Flange Edge from Pump-Column Adaptor Ring (M_H)

Non-symmetric placement of the studs permits their tensile capacity to be neglected in determining allowable moment load, M_H .

The conservative design criteria of initial loss of compressive preload on the adaptor ring have been chosen because they provide large safety margins (greater than 1.0) against all failure modes. Calculation details are provided in Appendix E and result in

$$\begin{aligned} M_H &\leq 10.07 F_{DL} \text{ (nonseismic)} \\ M_H &\leq 8.46 F_{DL} \text{ (seismic).} \end{aligned}$$

5.3.4 Stud Evaluation (M_v , F_H) for Pump-Column Adaptor Ring

The restrictive liftoff condition described in Section 5.3.3 ensures that there is no tension in the stud; therefore the stud capacity is governed by shear only.

Studs are AISC Type 416 (cold drawn), $1\frac{1}{4}$ -in. diameter:

$$A_{nom} = 1.227 \text{ in}^2.$$

In accordance with ASM 1992,

$$\begin{aligned} F_y &= 85 \text{ kip/in}^2 \\ F_u &= 100 \text{ kip/in}^2 \end{aligned}$$

$$\begin{aligned} V_{cap} &= 0.17 F_u A_{nom} \text{ (Per AISC 1989, Table I-D)} \\ &= 20,859 \text{ lbf.} \end{aligned}$$

The applicable interaction equation is

$$(F_H / 4 + M_V / (4 \times 22.875)) / V_{cap} \leq 1.0$$

For the nonseismic condition,

$$F_H / 83,400 + M_V / 1,908,600 \leq 1.0$$

or

$$M_V \leq 1,908,600 - 22.88 F_H.$$

For the seismic condition,

$$F_H / 110,900 + M_V / 2,538,400 \leq 1.0$$

or

$$M_V \leq 2,538,400 - 22.88 F_H.$$

5.3.5 Bearing Evaluation of Fill Concrete (M_V) for Pump-Column Adaptor Ring

Rotation of the PCAR about its vertical axis is resisted primarily through the bearing of the horizontal 2-in. pipes attached to the fill concrete. Because the fill concrete is unreinforced and thus has a reduced capacity, concrete bearing stress controls the allowable M_V (moment about the vertical axis) that can be applied through the adaptor ring. An ANSYS model was used to calculate F_z (horizontal resistance force) and M_y (resistance moment about the vertical axis) reactions at the location at which the pipe joins the adaptor ring, when the bearing capacity of the fill concrete is reached. The computer analysis for the calculation of F_z and M_y is documented in Appendix E, Attachment 5. Basically, this analysis models the 2-in. pipe as a beam and simulates the fill concrete as an elastic foundation. A horizontal translation is prescribed to the beam end, the stress distribution is calculated, and reactions at the beam end are extracted from the solution.

For the resistance provided by the 2-in. horizontal pipe bearing on the fill concrete (see Attachment 5 of Appendix E) the resultant moment is

$$M_V = 2,465 \text{ lbf-in.}$$

For nonseismic conditions M_v is subjected to a load factor of 1.7; hence

$$\begin{aligned} M_v &= 2,465 / 1.7 \\ &= 1,450 \text{ lbf-in.} \end{aligned}$$

For the seismic condition,

$$M_v \leq 2,465 \text{ lbf-in.}$$

5.3.6 Horizontal Force Demand (F_H) for Pump-Column Adaptor Ring

The allowable resultant horizontal force applied through the PCAR is

$$F_H = 10,130 \text{ lbf (nonseismic load combinations)}$$

and

$$F_H = 17,230 \text{ lbf (seismic load combinations).}$$

Requirements on concrete bearing stress (ACI 349-90) determine these load limits. See details in Appendix E.

5.3.7 Liftoff Evaluation of Pump-Column Adaptor Ring Edge from Concrete (M_H)

As in the evaluation at the interface between the pump flange and adaptor ring, liftoff at the adaptor ring edge is checked. This condition may govern the allowable M_H . As demonstrated in Appendix E, for nonseismic load conditions

$$- (F_{DL} + 7,000) / 651 + (M_H + 8.50 F_H) / 9,896 \leq 0.0$$

or

$$M_H \leq 106,410 + 15.20 F_{DL} - 8.50 F_H.$$

For seismic load combinations,

$$- (F_{DL} + 7,000) (1 - 0.16) / 651 + (M_H + 8.50 F_H) / 9,896 \leq 0.0$$

or

$$M_H \leq 89,380 + 12.77 F_{DL} - 8.50 F_H.$$

5.3.8 Allowable Loads Summary for Pump-Column Adaptor Ring in C106 Pump Pit

On the basis of discussions in Sections 5.3.2 through 5.3.7, the expressions for allowable loads at the PCAR are summarized below. Forces and moments arising from load combinations are acceptable if the following sets of inequalities are satisfied.

For nonseismic load combinations,

$$\begin{aligned} F_H &\leq 10,130 \text{ lbf} & (5.3.8-1) \\ M_V &\leq 1,440 \text{ lbf-in} & (5.3.8-2) \\ F_{V(PC)} &\leq 82,830 \text{ lbf} & (5.3.8-3) \\ &\leq 92,100 - 3.09 F_{V(S)} \text{ (lbf)} & \text{for } F_{V(S)} \leq 3,000 \text{ lbf} \\ & & \text{for } F_{V(S)} > 3,000 \text{ lbf} \\ M_H &\leq 10.07 F_{DL} \text{ (lbf-in)} & (5.3.8-5) \\ M_H &\leq 106,410 + 15.20 F_{DL} - 8.50 F_H \text{ (lbf-in).} & (5.3.8-6) \end{aligned}$$

For seismic load combinations, ~

$$\begin{aligned} F_H &\leq 17,230 \text{ lbf} & (5.3.8-7) \\ M_V &\leq 2,460 \text{ lbf-in} & (5.3.8-8) \\ F_{V(PC)} &\leq 146,960 \text{ lbf} & (5.3.8-9) \\ &\leq 156,340 - 3.126 F_{V(S)} \text{ (lbf)} & \text{for } F_{V(S)} \leq 3,000 \text{ lbf} \\ & & \text{for } F_{V(S)} > 3,000 \text{ lbf} \\ M_H &\leq 8.46 F_{DL} \text{ (lbf-in)} & (5.3.8-11) \\ M_H &\leq 89,380 + 12.77 F_{DL} - 8.50 F_H \text{ (lbf-in).} & (5.3.8-12) \end{aligned}$$

Notes:

- $F_{V(PC)}$ denotes F_V for PCAR in the pump pit.
- $F_{V(S)}$ denotes F_V for sluicing adaptor ring in the pump pit.

5.4 TANK AY102 PENETRATIONS LOAD LIMITS

This section discusses the development of the envelope of allowable loads that could be sustained at mounting rings in the pump pit and sluicing pits of tank AY102.

5.4.1 General

The scope of the evaluation and a description of the physical configuration and load path for each pit is presented below. Also included is a discussion and summary of the relevant structural issues that are considered in establishing the envelope of allowable loads.

5.4.1.1 Scope of Evaluations of Tank AY102 Penetrations and Load Envelope Determination. The objective of AY102 evaluations is to identify restrictions on all equipment-imposed loads at the pump pit or sluicing pits mounting rings (MR).

The general physical configurations of the various AY102 pits are similar except for mechanical details at the top surface of the mounting flange. Here the pump-pit MR has trunnion hardware to locate and restrain the equipment that will be installed. The sluicing pits employ four mounting studs at the top of the flange to restrain any installed equipment.

The scope of the effort excludes the development or updating of computer models. The use of existing computer models was encouraged. The absence of specific models and/or analyses of record necessitates assumptions and conservative interpretations of results. The scope is

restricted to identifying permissible loads on the MRs. The pit structures are presumed to be fully qualified before the additional equipment loads are applied. These additional equipment loads introduce no significant loads onto pit covers, walls, or floors, with the possible exception of the concrete directly under the flange. Consequently, assessment of the pits need address only limitations on equipment loads as affected by the bearing capacity of the concrete under the MR flanges.

It is prudent to note that the tank AY102 design concept for penetrations is substantially different from that of tank C106 and that the MRs are not isolated structurally from the dome, as in tank C106.

The following specific assumptions have been used as evaluation guidelines.

- All tank dome structural concrete is assumed to have a compressive strength $f_c' = 3,000 \text{ lbf/in}^2$ (as indicated by the design drawings).
- The sluicing pit and pump-pit floors are assumed to be concrete with a compressive strength of $f_c' = 3,000 \text{ lbf/in}^2$.
- Weld electrode is E60 minimum.
- Structural steel is A36 minimum.
- No explicit seismic analysis of record exists for AY tanks. The similarity of the AY and AZ double-shell tanks and the proximity of the periods during which the designs originated indicate that the AZ analyses can be considered the analysis of record.
- Because the penetration loads will not affect the design basis of the pit walls, the walls continue to be adequate to sustain soil pressure or seismic soil/structure interaction pressures and are not considered in this effort.
- All analyses are conducted for ambient temperature conditions.
- Because the equipment mass properties cannot be specified (or assumed) at the current time, the specification of MR loads must include effects attributable to equipment seismic loads.

The loads considered herein are as follows:

- Horizontal force applied to the pump pit and the sluicing pit MRs at the top surface of the flange (resolved to penetration centerline). Any and all orientations of loads in the horizontal plane are addressed implicitly.
- Vertical forces resolved to the same locations as those for horizontal forces
- Moment about a horizontal axis (arbitrary axis orientation) that is resolved to the same location as that for horizontal forces

- Moment about a vertical axis applied at same location as horizontal forces
- Gravity loads (deadweight and live loads) associated with soil-to-tank interaction (loads resulting from 8 ft of 120 lbf/ft³ soil overburden above tank; tank filled to an approximate height of 400 in. with waste having a specific gravity of 1.7; 40 lbf/ft² distributed and 50-ton concentrated vertical live load; and soil lateral pressure exerted on sides of tank). The effects of gravity loads are determined from an axisymmetric finite-element model of the tank-soil system (smaller features such as nonaxisymmetric pit structures are not included in this model)
- Seismic loads imposed on the risers by the tank pit structures and seismic stresses in the tank dome caused by its self-inertia. Horizontal components are defined by a seismic input with a ZPA of 0.27 g from Blume (1971, 1974, 1981). The vertical component of the seismic input is taken as two-thirds the horizontal (0.18 g ZPA).

The load envelopes for equipment loads contain the following variables:

F_H = Unfactored value of the resultant horizontal force applied at the centerline of the top flange of the MR (kip)

M_H = Unfactored value of the resultant moment about a horizontal axis applied at the centerline of the top flange of the MR (kip-in)

F_V = Unfactored value of the vertical force (assumed downward) applied at the centerline of the top flange of the MR (kip)

M_V = Unfactored value of the moment about the vertical axis applied at the centerline of the top flange of the MR (kip-in)

F_{DL} = Minimum possible value for unfactored vertical load applied at the top flange of the pump MR (kip).

5.4.1.2 Physical Configuration and Load Paths. Figure 5.4.1.2-1 illustrates the structural components that act together to react loads caused by equipment mounted on a pit MR. The MR flanges use either studs (sluicing pit MRs) or trunnion guides (pump-pit MR) to restrain equipment. An individual stud can develop axial and shear loads and, in their combined action with the flange, also can resist resultant horizontal (bending) and vertical (torsion) moments. The trunnion guides, on the other hand, can react only resultant horizontal forces and vertical (torsion) moments. Other structural components are common to both penetration/riser systems.

On the load path, the first component is the fillet weld connecting the MR body to the MR flange (for conservatism, loads taken by the second fillet weld between the flange and the drain annulus ring have been ignored). In evaluating the riser system, an assumption is made that the

riser components must support all loads generated from equipment mounted on the MR. This assumption provides a conservative estimate of structural demands on the riser system. The pit floor may react a limited portion of downward flange loads through compression between the flange and the concrete. Limits on flange loads also are determined for this load path on the basis of allowable compression loads on the concrete. Pit gravity loads are transmitted directly into the dome because the method of construction excludes the transfer of such loads into the riser. The riser pipe, as well as the butt weld connecting the MR assembly to the riser pipe, is assumed to react the full effects of loads applied at the MR. In addition, as discussed in Section 5.4.2.7, it conservatively is assumed that the seismic load path for the pit structure is through the riser, which transfers these loads into the dome. These seismic loads are considered in evaluating the demands and the reserve capacity of the riser and the tank dome.

Finally, all pit structure gravity (dead + live), pit structure seismic, and equipment loads are reacted into the tank dome. The vertical load and vertical moment components of the riser are reacted through Nelson anchor studs (eight around the pipe circumference). Horizontal forces and moments at the penetration are manifested through normal stresses generated at the riser/dome interface. In addition to these loads, the tank dome is subjected to loads resulting from its own gravity (as well as to other dead and live) loads and three components of seismic excitation. This complete set of loads is considered in determining dome limitation on equipment loads applied at the surface of the MR flange.

5.4.1.3 Summary of Structural Considerations for Establishing Equipment Allowable Loads. The information discussed in Section 5.4.1.2 is tabulated for clarity in Tables 5.4.1.3-1 and 5.4.1.3-2. Table 5.4.1.3-1 addresses the pump pit; Table 5.4.1.3-2 is specific to the sluicing pits. The tables identify components that must be considered in determining potential limitations on equipment loads, the relevant structural issues, and the basis for establishing component capacities.

The majority of the load path experiences demands only from the equipment loads (dead, live and seismic). The first exception is the riser pipe (and the riser anchor studs) at the dome penetration; these components must provide resistance to horizontal forces and moments associated with seismic motion of the pit. The second exception is the tank dome, which sustains demands from self-weight gravity loads, seismic effects (both pit and tank itself), and equipment loads.

5.4.2 Allowable Loads for AY102 Pump Pit Components

This section discusses the development of the envelope of allowable loads that could be sustained at the AY102 pump-pit MR.

5.4.2.1 Trunnion Weldment Groups. The trunnion guides are attached to the pump-pit MR via a system of welds. The design of the trunnion guides is such that each of the two trunnion guides can react a horizontal

resultant force. Because this force can act above the guide base and eccentric to the weld centroids, it induces horizontal and vertical moments on the welds that are accounted for conservatively in evaluating allowable loads for the trunnion guides. Because each guide can provide a horizontal force reaction, the net loads resolved to the MR flange comprise a horizontal force (F_H) and a vertical moment (M_V). In the analysis provided in Appendix F, consideration was given to the following.

- The trunnion guide is subjected to shear loads that must be resisted by welds.
- F_H and M_V (resolved to penetration centerline) are resisted by the trunnion guide. F_V and M_H are not resisted by the trunnion guide. It is assumed conservatively that the trunnion force (caused by F_H and M_V) acts against the trunnion guide at a point 2.5-in. above the top of the trunnion base.
- Drawing H-2-64315 indicates that the loads between the two trunnions and the corresponding trunnion guides occur at a distance d , 52 in. $< d < 55.5$ in. A distance of 52 in. was chosen to limit the equipment loads conservatively.
- Two systems of welds are of interest for this analysis: those securing the vertical guide plates to the guide base and those securing the guide base to the MR flange (thus there are two weld planes of interest). Welds connecting guide plates to one another are not controlling because of the very long weld lengths.

Additional details are provided in Appendix F, Section 7.1.

Enveloped Approach

The approach for treatment of these two welds is to develop separate interaction equations for the top of the trunnion base and at the bottom of the trunnion base.

Allowables loads at the top of the trunnion base are

$$\begin{array}{ll} F_{ha} = & 146 \text{ kip} \\ M_{ha} = & 122 \text{ kip-in} \end{array} \quad \begin{array}{ll} M_{va}^x = & 351 \text{ kip-in} \\ M_{va}^y = & 279 \text{ kip-in.} \end{array}$$

Allowable loads at the bottom of the trunnion base are

$$\begin{array}{ll} F_{ha} = & 89 \text{ kip} \\ M_{ha} = & 191 \text{ kip-in} \end{array} \quad \begin{array}{ll} M_{va}^x = & 485 \text{ kip-in} \\ M_{va}^y = & 364 \text{ kip-in.} \end{array}$$

Development of Interaction Equations

The interaction of the trunnion with the trunnion guide may impose a local torsion on the trunnion caused by non-centroidal action of forces. This effect is estimated conservatively by assuming that the force acts at an appropriate distance from the centroid of each weld pattern.

In addition, the trunnion rests in the trunnion guide and has a height of 3 in. when seated. Because of the trunnion corner radius, the force between the trunnion and trunnion guide can at most act 2.5-in. above the top of the base. This situation causes an overturning moment that the welds must counteract. For the weld pattern at the top of the trunnion guide base, this moment arm is 2.5 in.; for the bottom of the trunnion guide base, the moment arm is 3 in. The force F_H can act in any horizontal direction. Analysis of the worst-case direction reveals that minimum allowable loads occur when this force is diverted to a line between the two trunnion guides. In this orientation only one trunnion is loaded and I_{xx} for the weld counteracts the corresponding overturning moment.

On the basis of the above, the conservative general interaction equation at the top of the trunnion base is

$$\left[\frac{F_H}{F_{ha}} + \frac{2.83 M_v / 52}{M_{va}^y} \right]^2 + \left[\frac{M_v / 52}{F_{ha}} + \frac{2.83 M_v / 52}{M_{va}^x} \right]^2 + \left[\frac{2.5 F_H}{M_{ha}} \right]^2 \leq 1.0.$$

Substituting individual allowable loads at the top of the trunnion base gives

$$\left[\frac{F_H}{146} + \frac{M_v}{5,127} \right]^2 + \left[\frac{M_v}{3,487} \right]^2 + \left[\frac{F_H}{49} \right]^2 \leq 1.0.$$

Expanding and solving for F_H gives

$$F_H \leq 46 \left[\left[1 - \left[\frac{M_v}{2,929} \right]^2 \right]^{1/2} - \frac{M_v}{16,273} \right] \quad (\text{Top of trunnion base}).$$

Similarly, the conservative general interaction equation at the bottom of the trunnion base is

$$\left[\frac{F_H}{F_{ha}} + \frac{3 M_v / 52}{M_{va}^y} \right]^2 + \left[\frac{M_v / 52}{F_{ha}} + \frac{3 M_v / 52}{M_{va}^x} \right]^2 + \left[\frac{3 F_H}{M_{ha}} \right]^2 \leq 1.0.$$

Substituting individual allowable loads at the bottom of the trunnion base gives

$$\left[\frac{F_H}{89} + \frac{M_v}{6,309} \right]^2 + \left[\frac{M_v}{2,985} \right]^2 + \left[\frac{F_H}{64} \right]^2 \leq 1.0.$$

Expanding and solving for F_H gives

$$F_H \leq 52 \left[\left[1 - \left(\frac{M_V}{2,885} \right)^2 \right]^{1/2} - \frac{M_V}{7,625} \right] \quad (\text{Bottom of trunnion base}).$$

The interaction line of equality for each of the two equations for F_H is plotted in Figure 5.4.2.1-1. A third equation is shown in Figure 5.4.2.1-1, which represents an envelope for both locations (top and bottom of trunnion guide base). This third equation, as an inequality, is given by

$$F_H \leq 46 \left[\left[1 - \left(\frac{M_V}{2,750} \right)^2 \right]^{1/2} - \frac{M_V}{11,000} \right].$$

Rearrangement provides the following interaction equation for use in establishing allowable loads:

$$\left[\frac{F_H}{46} + \frac{M_V}{11,000} \right]^2 + \left[\frac{M_V}{2,750} \right]^2 \leq 1.0.$$

for load cases that include seismic loads, the allowable loads are increased by a factor of 1.33, i.e.,

$$\left[\frac{F_H}{61} + \frac{M_V}{14,630} \right]^2 + \left[\frac{M_V}{3,658} \right]^2 \leq 1.0.$$

5.4.2.2 Mounting Ring Fillet Weld. The MR flange is attached to the mounting body via a welded connection. Credit is taken only for the $\frac{1}{4}$ -in. fillet weld on the 42-in.-diameter pipe.

Weld geometry parameters (see Appendix F for details) are

$$D = 42.75 \text{ in.} \quad J/t = \frac{2 \pi D^3}{8} = 61,361 \text{ in}^3$$

$$A_w/t = \pi D = 134.3 \text{ in.} \quad S/t = \pi r^2 = 1,435 \text{ in}^2.$$

Independent allowable loads calculated at the weld elevation for a 60 kip/in² yield-strength weld rod are

$$F_{va} = 427 \text{ kip.}$$

A check of the base metal in shear gives

$$f_v = 0.4 f_y = 0.4 \times 36 \text{ kip/in}^2 = 14.4 \text{ kip/in}^2 \text{ and} \\ F_u = 14.4 \times 0.25 = 3.6 \text{ kip/in.} > 3.18 \text{ kip/in. for the weld.}$$

Therefore, the weld controls, and

$$\begin{aligned} M_{ha} &= 4,564 \text{ kip-in} \\ F_{ha} &= 427 \text{ kip} \\ M_{va} &= 9,128 \text{ kip-in.} \end{aligned}$$

Axial (vertical) forces and bending moments require that

$$\frac{F_v}{F_{ha}} + \frac{(M_H + 2 F_H)}{M_{ha}} \leq 1.0$$

where a 2-in. moment arm is considered because the weld is located 2-in. below the top of the flange.

Limits for shear stress require that

$$\frac{F_H}{F_{ha}} + \frac{M_v}{M_{va}} \leq 1.0.$$

Hence, for combined bending and shear,

$$\left[\frac{F_v}{F_{va}} + \frac{(M_H + 2 F_H)}{M_{ha}} \right]^2 + \left[\frac{F_H}{F_{ha}} + \frac{M_v}{M_{va}} \right]^2 \leq 1.0$$

or

$$\left[\frac{F_v}{427} + \frac{M_H}{45,564} + \frac{F_H}{2,282} \right]^2 + \left[\frac{F_H}{427} + \frac{M_v}{9,128} \right]^2 \leq 1.0.$$

For load combinations involving seismic loads, the allowable loads are increased by a factor of 1.33, i.e.,

$$\left[\frac{F_v}{568} + \frac{M_H}{6,070} + \frac{F_H}{3,035} \right]^2 + \left[\frac{F_H}{568} + \frac{M_v}{12,140} \right]^2 \leq 1.0.$$

5.4.2.3 Allowable Horizontal Moments Resulting from Equipment. The pump pit riser system has no mechanical attachment designed to resist M_H (i.e., overturning moments); the only assured mechanism is associated with vertical preloads between the equipment and the MR flange. An allowable overturning moment is estimated conservatively on the basis of loss of compressive preload at the extreme fiber.

If we assume that the equipment is reacted on the flange with $r_i = 21$ in. and $r_o = 25$ in. (circular annulus),

$$\text{Compressive preload} = \sigma_a = \frac{F_{DL}}{\pi(r_o^2 - r_i^2)},$$

where F_{DL} is a minimum value for the compressive load. The F_{DL} must not be overestimated because doing so leads to non-conservative limits for overturning moment. The moment, which causes loss of preloads at the extreme fiber, is

$$M = \left[\frac{F_{DL}}{\pi(r_o^2 - r_i^2)} \right] \frac{I}{C} = \left[\frac{F_{DL}}{\pi(r_o^2 - r_i^2)} \right] \frac{[\pi(r_o^4 - r_i^4)]}{4} \frac{1}{r_o}$$

$$= 10.66 F_{DL}.$$

Note that

$$M \approx \left[\frac{F_{DL} \pi 4 r_{avg}^3}{4 \pi 2 r_{avg} \delta r} \right] \delta r \frac{1}{r_o} = \frac{F_{DL} r_{avg}^2}{2 r_o} \sim \frac{F_{DL} r_{avg}}{2}$$

and is relatively insensitive to the exact value of r_o or r_i . Therefore,

$$M_H \leq 10.66 F_{DL}$$

and

$$F_{DL} \leq F_v.$$

5.4.2.4 Bearing Stress on Pump-Pit Concrete. The concrete under the flange is not active in resisting the vertical resultant force applied at the flange. The riser structure resists these vertical loads and transfers them into the tank dome. The same may be true for M_H , but a conservative assumption is that the tensile side (of bending) loading is resisted by the riser structure and that, on the compressive side, loads are transmitted into the concrete. As shown later, the riser acting alone has greater capacity against moments than in combination with concrete where concrete crushing is to be prevented, so that the allowable moment can be calculated conservatively from the allowable for concrete crushing.

Conservatively assume that the flange bears against an annulus of pit floor concrete with

$$D_o = 44.25 \text{ in.}, D_i = 39.75 \text{ in.}$$

$$I = \frac{\pi}{64} (D_o^4 - D_i^4) = 6.565 \times 10^4 \text{ in}^4$$

$$S = I/c = 3,126 \text{ in}^3, c = 21 \text{ in.}$$

$$f'_c = 3,000 \text{ lbf/in}^2$$

then

$$\begin{aligned} M_{\text{concrete allowable}} &= \phi(0.85)f'_c S = 0.7 \times 0.85 \times 3,000 \times 3,126 \\ &= 5.580 \times 10^3 \text{ kip-in.} \end{aligned}$$

Because factored loads are used in evaluating concrete per ACI 349-90, the allowable load will be reduced to (1/1.7) so that the moment can be compared with other moments, i.e.,

$$M_{\text{concrete allowable}} / 1.7 = 3.282 \times 10^3 \text{ kip-in.}$$

For the MR fillet weld, equilibrium of axial forces and bending moments required that

$$\frac{F_v}{F_{va}} + \frac{M_H + 2 F_H}{M_{ha}} \leq 1.0.$$

To estimate an upper bound for M_H associated with the fillet weld (set $F_H = 0$ and $F_v = M_H/10.66$),

$$\frac{M_H (\text{fillet weld})}{2,281} \leq 1.0.$$

Thus, the concrete crushing allowable moment ($3.282 \times 10^3 \text{ kip-in}$) does not control; satisfying the fillet weld constraints means that the concrete under the flange is not damaged.

5.4.2.5 Riser Pipe Butt Weld and Pipe Structural Integrity. The parameters of interests for the riser pipe butt weld are

$$\begin{aligned} R_i &= 21 \text{ in.} \\ R_o &= 21.375 \text{ in.} \\ t &= 0.375 \text{ in.} \\ F_y &= 36 \text{ kip/in}^2 \\ \text{Pipe thickness} &= \frac{3}{8}\text{-in. above butt weld and } \frac{1}{2}\text{-in. below butt weld.} \end{aligned}$$

The weld is a full-penetration butt weld, so the base metal controls; and 3/8-in. thickness is used to estimate capacity in bending, i.e.

$$M_{\text{pipe allowable}} = \sigma_{\text{allowable}} \frac{I}{C} = (0.6 F_y) \frac{I_{\text{pipe}}}{C}$$

$$\frac{I_{\text{pipe}}}{C} = 524 \text{ in}^3$$

$$M_{\text{pipe allowable}} = (0.6 \times 36 \text{ kip/in}^2) \times 524 \text{ in}^3 = 11,318 \text{ kip-in.}$$

Thus, loads applied at the flange produce a modest demand on the riser pipe. However, the riser pipe also resists seismic moments and forces associated with the pit structure. This seismic moment can be shown to be less than 3,000 kip-in. (see below). Consequently, the reserve moment capacity is greater than 8,000 kip-in., and the fillet weld controls.

5.4.2.6 Riser Anchor Studs and Associated Dome Concrete. There are eight Nelson anchor studs located midway through the dome thickness (15-in.-thick dome) that connect the riser to the tank dome. These studs transfer vertical and torsional flange loads into the dome. The studs are 3/4-in. diameter by 7 5/16-in. long.

Allowable shear forces for the studs is determined on the basis of

$$V_u = \phi \mu A_s F_y \quad (\text{ACI 349-90})$$

where

$$\phi = 0.85, \mu = 0.7 \quad (\text{ACI 349-90})$$

$$A_s = 0.44 \text{ in}^2, F_y = 50 \text{ kip/in}^2 \quad (\text{Nelson 1997})$$

$$V_u^{\text{stud}} = 13.09 \text{ kip}$$

$$V_u^{\text{total}}/1.7 \text{ (load factor)} = 13.09 \times 8 \text{ studs} / 1.7 = 61.6 \text{ kip.}$$

Vertical moment capacity is

$$M_{\text{stud}} = V_u/\text{stud} \times 21\text{-in. radius} = 274.89 \text{ kip-in}$$

$$M_{\text{Total}} = M_{\text{stud}} \times 8 = 2,199 \text{ kip-in}$$

$$M_{\text{Total}}/1.7 \text{ (load factor)} = 1,294 \text{ kip-in.}$$

The concrete allowable load is determined on the basis of a concrete failure mode of rupture to the free edge. The allowable shear loads for the rupture failure mode (ACI 349-90) is

$$V_u^{\text{concrete}} = 4 \phi \sqrt{f'_c} \frac{\pi r^2}{2}$$

$$f'_c = 3 \text{ kip/in}^2, \quad \phi = 0.85$$

$$r = \text{radius of rupture cone} = 7.5 \text{ in.}$$

$$V_u^{\text{concrete}} = 186.2 \times 88.35 = 16.4 \text{ kip.}$$

Because 16.4 kip > 13.09 kip, the anchor studs control.

For a torsional load the potential failure modes are (1) shear failure of anchors (> 21 in. x 61.6 = 1293.6 kip-in) or (2) shearing failure in the concrete at a diameter coincident with the end of the anchor studs (radius = 21.37 + 7.62 ≈ 29 in.):

$$M_v = V_u 2\pi R^2$$

$$V_u = \phi V_c, \quad \phi = 0.85 \text{ per ACI 349-90}$$

$$V_u = 1,160 \text{ lbf/in}$$

$$M_v = 6.1 \times 10^3 \text{ kip-in.}$$

Several other components, including the anchor studs, have lower allowable loads; hence, the dome concrete is not controlling.

The interaction equation determined on the basis of anchor studs for load combinations without seismic effects is

$$\left(\frac{F_v}{61.6} \right)^2 + \left(\frac{M_v}{1,294} \right)^2 \leq 1.0.$$

Load combinations including seismic effects are governed by

$$\left(\frac{F_v}{104} \right)^2 + \left(\frac{M_v}{2,199} \right)^2 \leq 1.0.$$

5.4.2.7 Pump Pit Structure

This section discusses interaction of the pump pit structure with the pump pit penetration under seismic loading.

Rationale for Seismic Loads Attributable to Pump Pit

The pump pit self-weight (gravity) and vertical seismic loads are transferred directly into the tank dome and do not cause loads in the riser. However, for horizontal seismic excitation, the pit structure interacts (assumed to respond rigidly) with the surrounding soil, the riser structure, and the dome interface. The objective is to evaluate conservatively the loads applied to the riser structure by the horizontal seismic motion and to identify the total moments and forces applied to the dome from seismic motion.

According to Blume (1971, 1974, 1981), the largest ZPA for a double-shell tank dome response was 0.27-g ZPA. The weight of the pit structure has been estimated conservatively (see Appendix F) as 140 kip. The riser structure is attached firmly to the dome at the bottom of the pit. The seismic motion of the pit results from the coupled effect of soil loads on the pit and loads transferred through the tank dome into the pit. Because the riser structure is very stiff, it transmits dome motion and resulting forces into the pit structure. Short of a credible soil/structure interaction simulation, which requires comprehensive knowledge of in situ backfill conditions, there is insufficient information on how the loads are partitioned between the soil and the dome. The approach taken evaluated the deflections (angular and transverse) of the riser; these were found to be very small. Therefore, the soil resistance to pit structure overturning moments is considered unreliable, and the full overturning moment is applied to the dome. This assumption is conservative because it overstates the seismic demand on the dome and reduces the reserve capacity of the dome for loads applied at the MR.

Pump-Pit Mass Properties and Seismic Overturning Moment

The reinforced concrete forming the pump pit has a conservatively estimated volume and weight of 884 ft³ and 132.6 kip, respectively, as documented in Appendix F, Section 7.7.2. The cover contains a lead shield with a weight of approximately 6,200 lb. The weight of the pit structure was taken conservatively as 140 kip in determining the associated loads on the riser and tank dome. The centroid for the pit structure was determined to be less than 66-in. above the dome (66 in. is used for calculation purposes). The horizontal overturning moment and shear force associated with a single horizontal seismic component are

$$M_H = 2,495 \text{ kip-in}$$

$$F_H = 37.8 \text{ kip } (0.27 \text{ g} \times 140 \times 10^3 \text{ lbm}).$$

Effects of Mounting-Ring Flange Loads on Pump Pit Structure

The design of the pump-pit penetration precludes significant effects on the pit structure from MR loads, because these loads are applied directly to the riser system, which is very stiff. A worst-case examination of overturning moments (see Section 5.4.2.4) found that allowable moments determined on the basis of the flange-to-MR fillet weld are less than very conservatively estimated moments from concrete

allowable loads (ACI 349-90). Thus, the pump-pit structure does not influence the final allowable loads for the MR.

5.4.2.8 Rationale for Evaluation of the AY102 Tank Dome

This section discusses the interaction of the pump pit structure and pump pit penetration with the tank dome.

Demands on Tank Dome

The demands on the double-shell tank (DST) dome are drawn from several analyses:

- Gravity and seismic loads for basic tank (no pit structures) and soil interaction from WHC 1994 and Blume 1971, 1974, 1981
- Gravity, operational, and seismic loads associated with the MR
- Seismic loads transmitted from the pump-pit structure to the dome.

The first set of demands involved modeling the AY102 tank for gravity loads. Figures 5.4.2.8-1 and 5.4.2.8-2 provide a general depiction of the computer model. Loads on the dome are extracted for the area around the pump-pit penetration.

The second set of demands also is derived from an existing computer model of DST domes. This 3D model was slightly modified to reflect the curvatures of the AY102 dome. Unit F_H , F_V and M_H loads were applied separately to determine forces and moments in the dome. Figure 5.4.2.8-3 shows the ANSYS (SASI 1989) finite-element mesh, which features a stiff 21-in.-diameter penetration. Review of results from this model found the following.

- Forces and moments drop rapidly as the distance from the penetration increases. Thus, demand occurring from MR-applied loads is significant only local to the penetration.
- The forces and moments in the circumferential direction are a small (~0.3) fraction of meridional forces and moments. Consequently, the reserve capacity in the circumferential direction is always large, and meridional capacity controls.

Worst-case seismic demands occur on the tank dome when the vertical tank seismic acceleration is downward and thus reduces the effects of gravity loads. The vertical response spectra are derived from the horizontal by multiplying by 2/3. The result is 0.18 g, which is assumed to be applied at the basemat. While it has been felt in the past (Blume 1974) that the tank has only quasistatic vertical modes, it is assumed conservatively that dome accelerations are amplified to 0.36 g. The effect on the tank dome is the reduction of the membrane compressive stresses that result; thus the allowable moment is reduced.

As discussed earlier, the lateral seismic forces and moments for pit structure motions are assumed conservatively to be transmitted via the riser structure. In Section 5.4.2.7, these were estimated as a 2,495 kip-in. overturning moment and a 37.8-kip horizontal shear at the bottom surface of the pit.

Of the three demand categories defined above, the first and third are determinable. The second includes the loads applied through the MR (i.e., F_H , F_V , M_H , and M_V). The demands imposed by these loads must not exceed the capacity of any element, including the tank dome, along the load path. However, the dome imposes no restrictions on these loads if limits determined from the other elements are enveloped within the dome capacity. If envelopment is not assured, then an interaction equation associated with the limiting capacity of the dome is introduced.

Capacity of Tank Dome

The capacity of the tank dome is determined by means of the methodology documented in Julyk 1994, Section 6.0. This approach was implemented with reinforced concrete section properties that ensure a conservative (minimum) capacity.

Figures 5.4.2.8-4 and 5.4.2.8-5 show plots of the axial load (i.e., compressive membrane stress) and the bending moment interaction relationship for the meridional and circumferential directions. These figures show that the axial load on the plot is positive when the force in the concrete is compressive. The tank evaluations yield axial forces, P , in the range $10 \text{ kip/ft} < P < 70 \text{ kip/ft}$. In this range, the moment capacity is sensitive to the axial force. The moment is the controlling capacity; therefore the axial force must be determined so that the corresponding allowable moment is conservative. Section 5.4.2.9 shows that, for all cases of relevance, the demand moments are less than capacity at the lower bound for the axial force.

5.4.2.9 Pump Pit Demand on Tank Dome for Gravity Load Case.

Table 5.4.2.9-1 facilitates determination of bounding dome demands arising from MR-applied loads. The first four columns list allowable loads (for loads acting one at a time) associated with other elements on the load path. The fifth column identifies the bounding limit for each MR load. In accordance with ACI 349-90, the concrete is evaluated by applying a load factor of 1.7 (conservatively; for dead load the factor should be 1.4) to all gravity load-case effects; thus a load factor of 1.7 must be applied to the loads of column 5. The factored loads are tabulated in column 6. For the gravity load case (no seismic effects), the forces and moments in the dome result from combining the results of the soil-tank model of WHC 1994 (load factor of 1.7 is applied) with the bounding loads of column 6.

For the soil-tank interaction model, the results at a distance of 30.49 in. from the dome centerline are (for 1.0 g)

$$P = 36.8 \text{ kip/ft}$$

$$M = 37.77 \text{ kip-in/ft,}$$

and with a 1.7 load factor,

$$P = 62.56 \text{ kip/ft}$$

$$M = 64.21 \text{ kip-in/ft.}$$

Because the philosophy of ACI 349-90 is to address the fact that in certain situations a lesser load may place greater demands on the structure (or equivalently, where capacities are increased by applying load factors greater than 1.0), a load factor of 0.9 is used on P. Thus, the soil-tank interaction demands are

$$P = 33.1 \text{ kip/ft}$$

$$M = 34.0 \text{ kip-in/ft.}$$

WHC 1994 documents the computer calculation from which these forces and moments were extracted. The forces and moments were evaluated at $R = 30.49$ in. because the anchor studs and edge effects preclude validity of the interaction equation at a smaller radius. The anchor studs and adjacent concrete (i.e., region where interaction equation does not apply) are evaluated in Section 5.4.2.6. Table 5.4.2.9-1 shows that flange loads (as developed in Section 5.4.2.10) can reduce P by up to 8.54 kip/ft (to a value of 24.56 kip/ft). The data in Appendix F show that

$$M_{\text{capacity}}^{\text{dome}} (P = 24.56 \text{ kip/ft}) \text{ leads to } 435 \text{ kip-in/ft} \text{ (see Figure 5.4.2.8-4).}$$

Thus, the reserve moment capacity in the dome is

$$M_{\text{reserve}}^{\text{dome}} = 435 - 34.0 = 401 \text{ kip-in/ft.}$$

Table 5.4.2.9-1 shows that several other elements must fail before the capacity of the dome will be exceeded under worst-case assumptions (bounding moment in the dome is 368 kip-in/ft, sum of moments from column 8 of Table 5.4.2.9-1). Therefore the requirements on MR loads contain no limitations arising from the dome structure.

5.4.2.10 Pump-Pit Tank Dome Demand for Seismic Load Case. For the seismic load case (D + L + DBE), applied at the pump pit MR. Tables 5.4.2.10-1 and 5.4.2.10-2 facilitate determination of bounding dome demands arising from loads. In Table 5.4.2.10-1 the first four columns are limits for single-acting MR loads associated with elements on the riser structure. These allowable loads are governed by AISC (1989) and have been increased by 1.33 for the seismic case. The fifth column identifies the component and bounding limit for each MR load. Of course, when more than one such load is acting, an interaction equation must be satisfied. The ACI load factors are 1.0 for this load case, the effects of the loads in column five on P and M are determined and presented in

columns 6 and 7. The total forces and moments (demands) in the dome result from combining the results of the soil-tank model (WHC 1994), the worst-case seismic effects related to the pit structure, and the bounding loads of column 5, Table 5.4.2.10-1.

First it is necessary to determine the minimum possible value for P (compressive force in dome):

$$\begin{aligned} P_1 &= 36.8 \text{ kip/ft (from soil-tank interaction with 1 g)} \\ P_2 &= \text{gravity + vertical seismic} = (1-0.36) 36.8 \text{ kip/ft} \\ &= 23.55 \text{ kip/ft.} \end{aligned}$$

Effects that can reduce P are caused by F_H and M_H applied at the flange. These forces act in arbitrary directions and cause tensile dome forces over some portion of the dome. Therefore their bounding values are used to reduce P . From Table 5.4.2.10-1,

$$\begin{aligned} P_3 &= \text{Contribution from } F_H = 6.00 \text{ kip/ft} \\ P_4 &= \text{Contribution from } M_H = 0.88 \text{ kip/ft.} \end{aligned}$$

Pit structure seismic demands are transformed to the MR location as follows:

- Center of gravity (CG) of pit structure is conservatively taken as 66-in. above the top surface of the dome and therefore 73.5 in. from the dome midsurface.
- CG location relative to the flange is 49.5 in. (conservatively)
- Flange horizontal force caused by pit structure seismic demands

$$F_{\text{horizontal}}^{\text{seismic}} = 0.27 g \times 140 \text{ kip} = 37.8 \text{ kip} .$$

- Flange horizontal moment caused by pit structure seismic demands

$$M_{\text{horizontal}}^{\text{seismic}} = 0.27 g \times 140 \text{ kip} \times 49.5 \text{ in} = 1,870 \text{ kip-in.}$$

The seismic demands of the pit structure on the dome are bounded by

$$M_{\text{horizontal}}^{\text{Seismic}} (\text{MR location}) = 1,870 \text{ kip-in (causes } P_5)$$

$$F_{\text{horizontal}}^{\text{Seismic}} (\text{MR location}) = 37.8 \text{ kip (causes } P_6),$$

$$P_5 = \text{contribution from } M_h^S = 1.47 \text{ kip/ft,}$$

$$P_6 = \text{contribution from } F_h^S = 3.7 \text{ kip/ft,}$$

$$P_7 = P_3 + P_4 + P_5 + P_6 = 12.05 \text{ kip/ft.}$$

Minimum net compressive dome force = $P_2 - P_7 = 11.50$ kip/ft, hence,

$$M_{\text{capacity}}^{\text{dome}} (P = 11.5 \text{ kip/ft}) > 370 \text{ kip-in/ft (conservative, but ok)}.$$

The moment demands on the dome are (see Table 5.4.2.10-1)

$$\begin{aligned} M_1 &= \text{contribution from gravity and seismic} = (1 - 0.36) \times 37.77 \\ &= 24.2 \text{ kip-in/ft.} \\ M_2 &= 345 \text{ kip-in/ft (MR loads)} \\ M_3 &= \text{contribution from } M_h^s = 106.2 \text{ kip-in/ft} \\ M_4 &= \text{contribution from } F_h^{hs} = 49.28 \text{ kip-in/ft} \end{aligned}$$

Maximum total moment demand (sum of M_1 through M_4) = 524.7 kip-in/ft
> 370 kip-in/ft.

Because the maximum dome demand can exceed capability, restrictions must be placed on the MR loads. The effects from seismic and gravity are

$$\Sigma M = 106.2 + 49.28 + 37.77 (1 - 0.36) = 179.7 \text{ kip-in/ft.}$$

The minimum moment reserve is

$$370 - 179.7 = 190.3 \text{ kip-in/ft.}$$

From Table 5.4.2.10-2, the requirements on the MR loads are

$$1.33 F_h + 1.905 F_v + 0.057 M_h < 190.3 \text{ kip-in/ft.}$$

5.4.3 Allowable Loads for AY102 Sluicing Pit Components

This section discusses the development of the envelope of allowable loads that could be sustained at the AY102 sluicing pit.

5.4.3.1 Flange Studs on Sluicing Pit Mounting Ring. As described in Section 5.4.1, this MR has studs that carry equipment loads into the riser system. The capacity for a single stud is

$$\begin{aligned} A_{\text{nominal}} &= 1.23 \text{ in}^2 \\ F_y &= 100 \text{ kip/in}^2 \text{ minimum.} \end{aligned}$$

Because F_u is not readily available, it is conservative to assume that

$$F_u = F_y = 100 \text{ kip/in}^2.$$

From AISC 1989, Table I-B and I-D,

$$\begin{aligned} F_{ta} &= \text{allowable tension for stud} = 0.33 F_u A_{\text{nominal}} = 40.6 \text{ kip} \\ F_{sa} &= \text{allowable shear for stud} = 0.17 F_u A_{\text{nominal}} = 20.9 \text{ kip.} \end{aligned}$$

For each stud the interaction equation is

$$\left[\frac{F_t}{F_{ta}} \right]^2 + \left[\frac{F_s}{F_{sa}} \right]^2 \leq 1.0.$$

The assumption is that some form of adaptor plate will be mated with the flange studs so that the horizontal force and the vertical moment will be uniformly distributed among the four studs.

As with the pump pit, the resultant vertical load on the MR will be directed downward. Thus, some resistance to overturning is provided by the compressive preload between the flange and the adaptor to which equipment is mounted. This contribution is neglected in view of the potential overturning-moment-carrying capacity of the studs. Overturning moments resolved to the flange centerline are resisted (conservatively) by stud tensile loads. A worst-case orientation and moment arm are assumed:

- Moment arm = $D/2 = 19.25$ in.
- A "prying factor" of 1.5 for conservatism.

Then

$$\frac{\frac{F_H}{4} + \frac{M_V}{4 (19.25)}}{F_{sa}} \leq 1.0 \text{ for shear in studs}$$

and

$$\frac{1.5 M_H}{19.25 F_{ta}} \leq 1.0 \text{ for tensile load on studs.}$$

The shear-tensile interaction equation is

$$\left[\frac{F_H}{83.6} + \frac{M_V}{1,609} \right]^2 + \left[\frac{M_H}{521} \right]^2 \leq 1.0 \text{ (for non-seismic load combinations).}$$

Increasing the allowables by a factor of 1.33 for seismic load combinations yields

$$\left[\frac{F_H}{111} + \frac{M_V}{2,140} \right]^2 + \left[\frac{M_H}{693} \right]^2 \leq 1.0.$$

The allowable tensile force computed on the basis of failure in the threads (pullout) is 56.9 kip and therefore is not controlling. Additional detail appears in Appendix F.

5.4.3.2 Mounting-Ring-Flange-to-Pipe Weld. The MR flange is welded to the MR body with a $\frac{1}{4}$ -in. fillet weld. Independent allowable loads calculated at the weld elevation for a 60 kip/in² yield-strength weld rod are

$$\begin{aligned} F_{va} &= 347 \text{ kip} \\ M_{ha} &= 3,018 \text{ kip-in} \\ F_{ha} &= F_{va} = 347 \text{ kip} \\ M_{va} &= 6,037 \text{ kip-in.} \end{aligned}$$

Bending and axial (vertical) forces require that

$$\frac{F_v}{F_{va}} + \frac{M_h + 2 F_h}{M_{ha}} \leq 1.0$$

where a 2-in. moment arm is required because the weld is located 2-in. below top of flange.

Shear and torsion require that

$$\frac{F_h}{F_{ha}} + \frac{M_v}{M_{va}} \leq 1.0.$$

The combined interaction equation is

$$\begin{aligned} \left(\frac{F_v}{F_{va}} + \frac{M_h + 2 F_h}{M_{ha}} \right)^2 + \left(\frac{F_h}{F_{ha}} + \frac{M_v}{M_{va}} \right)^2 &\leq 1.0 \\ \left(\frac{F_v}{347} + \frac{M_h}{3,018} + \frac{F_h}{1,509} \right)^2 + \left(\frac{F_h}{347} + \frac{M_v}{6,037} \right)^2 &\leq 1.0. \end{aligned}$$

For load combinations involving seismic loads, the allowable loads are increased by a factor of 1.33, i.e.,

$$\left(\frac{F_v}{462} + \frac{M_h}{4,013} + \frac{F_h}{2,006} \right)^2 + \left(\frac{F_h}{462} + \frac{M_v}{8,029} \right)^2 \leq 1.0.$$

5.4.3.3 Bearing Stress on Sluicing Pit Concrete. Evaluating concrete bearing stresses requires that consideration be given to the following.

- Resultant compressive force is reacted through the riser pipe. Concrete under the flange experiences compression only when a moment acts on the flange.
- Concrete acts only in compression.

- For bending, required tensile stresses are reacted directly into the riser pipe.
- Allowable loads associated with concrete crushing and the MR pipe wall have been checked.

These assumptions provide a conservative estimate of the bearing stresses exerted on the sluicing pit floor. The actual stresses will be considerably lower. As in the approach to the pump pit, with a 1.7 load factor,

$$M_h = 2.53 \times 10^3 \text{ kip-in.}$$

The allowable moment for the riser pipe is

$$M_{\text{pipe}} = \sigma \frac{I}{C} = 7.6 \times 10^3 \text{ kip-in.}$$

Thus, both the concrete crushing under the flange and the moment capability of the riser pipe significantly exceed the M_h capacity of the studs as discussed in Section 5.4.3.1; therefore they are not controlling.

5.4.3.4 Riser Pipe Structural Integrity. Section 5.4.3.3 shows that for the riser pipe

$$M_{ha} \text{ (allowable moment)} = 7.6 \times 10^3 \text{ kip-in,}$$

and

$$F_{va} = 864 \text{ kip,}$$

for a short pipe length, i.e., 40 in., with lateral support on the outside diameter; allowable loads are determined on the basis of compressive yielding of the base metal.

The butt weld connecting the MR body to the riser pipe is full penetration, and allowable loads for the base metal govern (AISC 1989). Thus, the flange fillet weld is controlling, and the riser pipe introduces no limitations on loads applied through the MR.

5.4.3.5 Riser Anchor Studs and Associated Dome Concrete. The configuration of the riser and its interface with the tank dome dictate that vertical force F_v and vertical moment M_v act on the studs. The capacities for the Nelson anchor studs are determined, from the requirements of ACI 349-90, as

$$V_u^{\text{stud}} = \phi \mu A_s F_y = 13.09 \text{ kip/stud}$$

$$V_u^{\text{total}} = 13.09 \text{ kip/stud} \times 8 \text{ studs} = 104.7 \text{ kip.}$$

Concrete Capacity for Vertical Force and Vertical Moment

The failure mode in concrete for shear loads is tensile rupture at the free edge. The distance from the dome mid-plane to the free edge is 7.5 in., but the one-half-cone-shaped rupture surfaces for each stud overlap. Credit is taken for the non-overlapping portions of the failure surfaces. This credit conservatively is estimated as (complete details are provided in Appendix F), per ACI 349-90, for $f'_c = 3,000 \text{ lbf/in}^2$, $\phi = 0.85$, and $A_t = 84.2 \text{ in}^2$,

$$V_u^{\text{concrete}} = 4\phi \sqrt{f'_c} A_t = 186.2 \times 84.2 = 15.68 \text{ kip.}$$

$$V_u = 8 \text{ studs} \times 15.68 \text{ kip/stud} = 125.4 \text{ kip.}$$

Thus, the concrete has 119.8% (125.4/104.7) of the steel stud capacity in shear. However, the ACI 349-90 ductility requirement for these anchor studs (because $F_u = 50 \text{ kip/in}^2$) requires that the concrete have greater than 20% margin. Although close, this requirement is not satisfied.

Torsion (i.e., M_v) does not contribute to the tensile rupture failure mode. Torsional failure could occur at the radius corresponding with the ends of the studs ($R > 24 \text{ in.}$). The associated allowable M_v is

$$M_{va} = 4,176 \text{ kip-in.}$$

The allowable torsional moment for the steel studs is 1,780 kip-in. Therefore, the studs control all limits. The interaction equation without seismic loads is

$$\left[\frac{F_v}{61.6} \right]^2 + \left[\frac{M_v}{1,047} \right]^2 \leq 1.0$$

and with seismic loads is

$$\left[\frac{F_v}{104} \right]^2 + \left[\frac{M_v}{1,780} \right]^2 \leq 1.0.$$

5.4.3.6 Sluicing Pit Structure. The objective of this subsection is to evaluate conservatively the loads on the riser structure caused by horizontal seismic contributions and to identify the total moments and forces applied to the dome from pit seismically induced motion. The rationale for accounting for seismic loads is as follows.

The sluicing pit self-weight (gravity) and vertical seismic loads are transmitted directly into the tank dome, causing negligible loads in the riser structure. However, for horizontal seismic motion, the pit

structure (assumed to respond quasistatically or rigidly) is acted on by the surrounding soil, the riser structure, and the interface with the dome.

The Blume analyses (1971, 1974, 1981) show that the maximum lateral acceleration at the dome of a double-shell tank is 0.27 g. The weight of the sluicing pit structure has been estimated conservatively at 120 kip. The riser structure is attached firmly to the dome at the bottom of the pit. The seismic motion of the pit results from combined effects of soil pressures on the pit side walls and loads applied through the tank dome into the pit. The riser structure is the main element of the load path from the dome into the pit structure. Short of performing a soil/structure interaction simulation, there is insufficient data to determine how the loads are partitioned between the soil and the dome. The approach herein was to evaluate the deflections (angular tilt and transverse deflection) of the riser. These were found to be very small. Given the potentially small relative displacement between pit and soil, the soil resistance to pit structure overturning moments is not considered reliable, and the full overturning moment is applied to the dome. Of course, this assumption is conservative because it overstates the seismic demand on the dome and reduces the reserve dome capacity available for loads applied at the MR.

Sluicing Pit Mass Properties

The volume and weight of the sluicing pits have been conservatively estimated at

$$V_s = 780.3 \text{ ft}^3$$

$$\text{pit wt.} = 120 \text{ kip.}$$

The mass centroid of the sluicing pit is 54.9-in. above the mid-surface of the dome. The resulting seismic overturning moment and horizontal force (single horizontal seismic component) are

$$M_h^s = 3,075 \text{ kip-in}$$

$$F_h^s = 32.4 \text{ kip.}$$

5.4.3.7 Rationale for Evaluation of the AY102 Tank Dome. The rationale for evaluation of the dome of tank AY102 comprises the following considerations.

Demands on Tank Dome

The demands on the tank dome come from several analyses:

- Gravity and seismic loads for basic tank (no pit structures) and soil interaction (see WHC 1994)

- Gravity, operational, and seismic loads associated with the MR
- The seismic loads transmitted from the pump-pit structure to the dome.

The first set of loads involved modeling the AY102 tank for gravity loads. Figure 5.4.2.8-1 is a general depiction of the computer model. Dome forces and moments are extracted for the area around the sluicing pit penetration.

The second set of loads also is derived from an existing computer model for a DST dome. This 3D model was modified slightly to reflect the curvatures of the AY102 dome. Unit loads F_H , F_V and M_H were applied separately to determine forces and moments in the dome. Figure 5.4.2.8-3 shows the ANSYS finite-element mesh, which features a stiff 21-in.-diameter penetration. The results of this model showed the following.

- Forces and moments drop rapidly as the distance from the penetration increases. Thus, the demand from MR-applied loads is significant only locally to the penetration.
- The forces and moments in the circumferential direction are a small (~0.3) fraction of meridional forces and moments. Consequently, the reserve capacity in the circumferential direction is always large, and meridional capacity always controls.

Worst-case seismic demands occur on the tank dome when the vertical tank acceleration is downward and reduces the effects of gravity loads. The vertical response spectra are derived from the horizontal by multiplying by 2/3. This calculation yields 0.18 g assumed to be applied at the basemat. While Blume (1974) implied that the tank has only quasistatic vertical modes, it is assumed conservatively here that dome acceleration is amplified to 0.36 g. The effect on the tank dome is that membrane compressive stresses are reduced; thus; the allowable moment is reduced, as is the capacity.

As discussed earlier, the lateral seismic forces and moments for pit structure motions are assumed conservatively to be transmitted via the riser structure. In Section 5.4.3.6, these were estimated as 3,075 kip-in. overturning moment and 32.4-kip horizontal shear.

Of the three demand categories defined above, the first and third are determinable. The second includes the loads applied through the MR (i.e., F_H , F_V , M_V , and M_H). The demands imposed by these combined loads must not exceed the capacity of any element, including the tank dome, along the load path. However the dome need not impose restrictions on these loads if limits determined from the other elements are enveloped within the dome capacity. The approach herein is to make this check.

Capacity of Tank Dome

The capacity of the tank dome is determined by applying the methodology documented in Julyk 1994, Section 6.0. Figures 5.4.2.8-4 and

5.4.2.8-5 show plots of the axial load (i.e., compressive membrane stresses) and the bending moment interaction relationship for the meridional and circumferential directions. Appendix F provides details that support the determination of these capacities. Attachment 1 of Appendix F tabulates data and digital values from which the curves were generated. Note that the axial load on the plot is positive when the physical force in the concrete is compressive. The tank evaluations yield meridional axial forces, P , in the range of $10 \text{ kip/ft} < P < 90 \text{ kip/ft}$. In this range the moment capacity is sensitive to the axial load. Moment capacity controls; therefore the meridional axial force must be determined so that the corresponding moment is conservative for all situations. For all cases of relevance herein, the demand moments are less than capacity at the lower bound for the meridional axial force.

5.4.3.8 Sluicing Pit Demand on Tank Dome for Gravity Load Case.

Tables 5.4.3.8-1 and 5.4.3.8-3 facilitate determination of bounding dome demands arising from loads applied to the sluicing pit MR. In Table 5.4.3.8-1 the first three columns are independent limits (loads acting one at a time) associated with elements of the riser structure. The fourth column identifies the limit for each MR load. In accordance with ACI 349-90, the concrete is evaluated by applying a load factor of 1.7 (for dead load the factor need only be 1.4) to all gravity effects. This requirement leads to a 1.7 load factor applied to the loads of column 4. Factored bounding loads are tabulated in column 5. For this load case, the forces and moments in the dome result from combining the results of the soil-tank interaction model of WHC 1994 (load factor of 1.7 applied to these results) with the bounding loads of column 5.

The centerline of the sluicing pit is about 25 ft from the dome centerline. Dome forces and moments from WHC 1994 show that the node at a radius of 307 in. has the most severe conditions for the sluicing pit penetration. Here (for 1.0 g),

$$\begin{aligned} P &= 48.6 \text{ kip/ft} \\ M &= 10.71 \text{ kip-in/ft;} \end{aligned}$$

with a 1.7 load factor,

$$\begin{aligned} P &= 82.6 \text{ kip/ft} \\ M &= 18.2 \text{ kip-in/ft.} \end{aligned}$$

Again the philosophy of ACI 349-90 indicates that the load factor for P should be reduced to 0.9:

$$\begin{aligned} P &= 43.7 \text{ kip/ft} \\ M &= 0.9 \times 10.7 < 9.7 \text{ kip-in/ft,} \end{aligned}$$

because of soil-tank interaction. WHC 1994 documents the computer model and calculations from which these forces and moments are extracted.

Table 5.4.3.8-1 shows that flange loads can reduce P by up to 16.4 to 27.3 kip/ft. The data in Appendix F, Attachment 1, shows that

$$M_{\text{capacity}}^{\text{dome}} (P = 27.3 \text{ kip/ft}) > 445 \text{ kip-in/ft.}$$

Thus, the reserve moment capacity in the dome is

$$M_{\text{reserve}}^{\text{dome}} = (445 - 9.7) \text{ kip-in/ft} = 435.3 \text{ kip-in/ft.}$$

The bounding dome bending moments are > 560 kip-in/ft (sum of moments from column 7 of Table 5.4.3.8-1) and restrictions are applied on F_H , F_V , and M_H to ensure that the dome allowable load is not exceeded. From Table 5.4.3.8-3,

$$1.7 (2.244 F_H + 1.905 F_V + 0.057 M_H) < 435.3,$$

or

$$(2.244 F_H + 1.905 F_V + 0.057 M_H) < 256.$$

5.4.3.9 Sluicing Pit Demand on Tank Dome for Seismic Load Case.

Tables 5.4.3.8-2 and 5.4.3.8-3 facilitate determination of bounding dome demands arising from sluicing pit MR loads for the seismic load case (D + L + DBE). In Table 5.4.3.8-2 the first three columns are limits for singly-acting MR loads associated with components of the riser structure. The allowable loads are governed by AISC (1989) and have been increased by 1.33 for the seismic case. The fourth column identifies the component and bounding limits for each MR load. Of course, when more than one such load is acting, interaction equations must be satisfied. The effects on P and M for the dome (position of sluicing pit penetration) caused by these bounding loads are presented in columns 6 and 7. The total forces and moments in the dome result from combining the results of the soil-tank (WHC 1994) model, worst-case seismic effects related to the pit structure, and the bounding loads of column 4 in Table 5.4.3.8-2.

First it is necessary to determine the minimum possible value for P (the compressive force in the dome):

$$P_1 = 48.6 \text{ kip/ft (soil-tank interaction with 1 g);}$$

reduced for vertical seismic effects (0.36 g) and 0.9 load factor,

$$P_1 = 28.0 \text{ kip/ft.}$$

Table 5.4.3.8-2 shows that the flange loads can reduce P by up to 12.82 kip/ft and that pit seismic loads can reduce P up to 4.9 kip/ft. The compressive force is then

$$P > 28.0 - 12.82 - 4.9 = 10.28 \text{ kip/ft.}$$

The corresponding moment capacity is (see Appendix F, Attachment 1)

$$M_{\text{dome}}^{\text{dome}} \approx 370 \text{ kip-in/ft.}$$

The bounding values associated with gravity and pit seismic dome moments reduce the reserve moment capacity to

$$M_{\text{reserve}}^{\text{dome}} = 370 - (1 - 0.36) (0.9) (10.71) - 173.2 = 190 \text{ kip-in/ft.}$$

From Table 5.3.4.7-2,

$$2.244 F_H + 1.905 F_V + 0.057 M_H < 190 \text{ kip-in/ft.}$$

5.4.4 Summary of Interaction Equations for Tank AY102 Pit Mounting Rings

The expressions for the allowable moment M_H include a variable, F_{DL} , defined as the lower-bound value of downward vertical force at the flange when all relevant load combinations (including load combinations involving seismic) are considered. An underestimated value for F_{DL} is conservative; conversely, an overestimate for F_{DL} is not conservative.

Allowable Loads on the Pump Mounting Ring in the AY102 Pump Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities is satisfied:

$$(F_V/427 + M_H/4,564 + F_H/2,282)^2 + (F_H/427 + M_V/9,128)^2 \leq 1.0 \quad (5.4.4-1)$$

$$(F_H/46 + M_V/11,000)^2 + (M_V/2,750)^2 \leq 1.0 \quad (5.4.4-2)$$

$$M_H \leq 10.66 F_{DL} \quad (5.4.4-3)$$

$$(F_V/61.6)^2 + (M_V/1,294)^2 \leq 1.0 \quad (5.4.4-4)$$

$$F_V \geq 0 \text{ (i.e., acts only downward).} \quad (5.4.4-5)$$

Forces and moments arising from load combinations that include seismic contributions are acceptable if the following set of inequalities is satisfied:

$$(F_V/568 + M_H/6,070 + F_H/3,035)^2 + (F_H/568 + M_V/12,140)^2 \leq 1.0 \quad (5.4.4-6)$$

$$(F_H/61 + M_V/14,630)^2 + (M_V/3,658)^2 \leq 1.0 \quad (5.4.4-7)$$

$$M_H \leq 10.66 F_{DL} \quad (5.4.4-8)$$

$$(F_V/104)^2 + (M_V/2,199)^2 \quad (5.4.4-9)$$

$$1.332 F_H + 1.905 F_V + 0.057 M_H \leq 190 \quad (5.4.4-10)$$

$$F_V \geq 0 \text{ (i.e., acts only downward).} \quad (5.4.4-11)$$

Forces and moments are in units of kip and kip-in., respectively. Forces and moments are unsigned unless noted otherwise.

Allowable Loads on the Sluicing Mounting Ring in the AY102 Sluicing Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities is satisfied:

$$(F_V/347 + M_H/3,018 + F_H/1,509)^2 + (F_H/347 + M_V/6,037)^2 \leq 1.0 \quad (5.4.4-12)$$

$$(F_V/61.6)^2 + (M_V/1,047)^2 \leq 1.0 \quad (5.4.4-13)$$

$$(F_H/83.6 + M_V/1,609)^2 + (M_H/521)^2 \leq 1.0 \quad (5.4.4-14)$$

$$2.244 F_H + 1.905 F_V + 0.057 M_H \leq 256 \quad (5.4.4-15)$$

$$F_V \geq 0 \text{ (i.e., acts only downward).} \quad (5.4.4-16)$$

Forces and moments arising from load combinations that include seismic contributions are acceptable if the following set of inequalities is satisfied:

$$(F_V/462 + M_H/4,011 + F_H/2,006)^2 + (F_H/462 + M_V/8,022)^2 \leq 1.0 \quad (5.4.4-17)$$

$$(F_V/104)^2 + (M_V/1,780)^2 \leq 1.0 \quad (5.4.4-18)$$

$$(F_H/111 + M_V/2,140)^2 + (F_V/144 + M_H/693)^2 \leq 1.0 \quad (5.4.4-19)$$

$$2.244 F_H + 1.905 F_V + 0.057 M_H \leq 190 \quad (5.4.4-20)$$

$$F_V \geq 0 \text{ (i.e., acts only downward)} \quad (5.4.4-21)$$

Forces and moments are in units of kip and kip-in., respectively. Forces and moments are unsigned unless noted otherwise.

Figure 5.1.1-1. Structural Components of C106 Heel Pit Riser.

Figure 5.1.2-1. Complete Finite-Element Model of Tank 241C106 Heel Pit.

Node 1 is located at the origin.

Note: Element and nodes are designated as follows:

Element 1398	-	A•
Element 1347	-	B•
Element 1359	-	C•
Node 72	-	D•

Figure 5.1.2.5-1. Moment/Axial Load Interaction Diagram of Heel Pit Floor
(Spanning North-South) for Tank 241C106.

Figure 5.1.2.5-2. Moment/Axial Load Interaction Diagram of Heel Pit Floor
(Spanning East-West) for Tank 241C106.

Figure 5.1.3-1. Plate Footprint, Dead Load Stress Distributions, and Stud Orientation of Heel Jet Adaptor Ring for Tank 241C106.

Figure 5.2.1-1. Structural Components of Sluicing Adaptor Ring for Tank 241C106.

Figure 5.2.2-1. Complete Finite-Element Model for Pump Pit of Tank 241C106.

Element 1122	-	A•
Element 1224	-	B•
Element 1234	-	C•
Element 1195	-	D•
Element 1326	-	E•
Element 1160	-	As shown
Node 86	-	F•
Node 93	-	As shown
Node 94	-	As shown

Figure 5.2.2.5-1. Sluicing/Pump Moment/Axial Load Interaction Diagram of Pit Floor (Spanning North-South) for Tank 241C106.

Figure 5.2.2.5-2. Sluicing/Pump Moment/Axial Load Interaction Diagram of Pit Floor (Spanning East-West) for Tank 241C106.

Figure 5.3.1-1. Structural Components of Pump Column Adaptor Ring for Tank 241C106.

Figure 5.4.1.2-1. Physical Configuration of Reacting Equipment Loads for Tank 241AY102.

Figure 5.4.2.1-1. Envelope of Trunnion Guide Weld Interaction
for Tank 241AY102.

Figure 5.4.2.8-1. Model of Overall Soil-to-Tank Interaction
for Tank 241AY102.

Figure 5.4.2.8-2. Tank Portion of the 241AY102 Model.

Figure 5.4.2.8-3. Tank Dome Geometry for Tank 241AY102.

Figure 5.4.2.8-4. Moment/Axial Load Interaction Diagram for Tank 241AY102
Dome (Meridional).

Figure 5.4.2.8-5. Moment/Axial Load Interaction Diagram for Tank 241AY102 Dome (Circumferential).

Table 5.1.2.4-1. Comparison of Force and Greatest Moment Demand about North-South Direction in Concrete Heel Pit Floor for Different Load Combinations as a Function of Vertical Load Applied to Heel Jet Adaptor Ring of Tank 241C106.

Unfactored Heel Jet Load (lbf)	Load Combination A		Load Combination B		Load Combination C	
	Axial Force (lbf/in)	Moment Demand (lbf-in/in)	Axial Force (lbf/in)	Moment Demand (lbf-in/in)	Axial Force (lbf/in)	Moment Demand (lbf-in/in)
0	-222	609	-190	635	-128	-19
40,000	-95	-7,089	-64	-7,063	-2	-7,717
80,000	31	-14,787	63	-14,762	125	-15,415
120,000	158	-22,485	189	-22,460	251	-23,113
160,000	284	-30,183	316	-30,158	378	-30,811
200,000	411	-37,881	442	-37,856	504	-38,509

Notes

1. The reported moment demand is for element 1398 near heel jet penetration (see Figure 5.1.2.-1).
2. Negative axial load represents compression.
3. Negative moment demand represents tension on the bottom face.

Table 5.1.2.4-2. Comparison of Force and Greatest Moment Demand about East-West Direction in Concrete Heel Pit Floor for Different Load Combinations as a Function of Vertical Load Applied to Heel Jet Adaptor Ring of Tank 241C106.

Unfactored Heel Jet Load (lbf)	Load Combination A		Load Combination B		Load Combination C	
	Axial Force (lbf/in)	Moment Demand (lbf-in/in)	Axial Force (lbf/in)	Moment Demand (lbf-in/in)	Axial Force (lbf/in)	Moment Demand (lbf-in/in)
0	-171	-2,407	-110	-2,463	-888	-1,067
40,000	-44	6,723	17	6,667	39	8,063
80,000	83	15,853	144	15,797	166	17,193
120,000	211	24,983	271	24,927	293	26,323
160,000	338	34,113	399	34,057	420	35,453
200,000	465	43,242	526	43,187	548	44,583

Notes

1. The reported moment demand is for element 1347 near the heel jet penetration (see Figure 5.1.2-1).
2. Negative axial load represents compression.
3. Negative moment demand represents tension on the top face.

Table 5.1.2.5-1. Comparison of Moment Demand and Capacity about North-South Direction for Heel Pit Floor as a Function of Vertical Load Applied to Heel Jet Adaptor Ring of Tank 241C106.

Output File Reference	Factored FEM* Vertical Load	Unfactored Heel Jet Load (lbf)	Axial Demand Force (lbf)	Moment Capacity at Indicated Axial Force (lbf-in/in)	Moment Demand (lbf-in/in)	Status
PIT5E1.po	0	0	-128	11,031	-19	OK
Interpolation	76,500	45,000	14	10,093	-8,679	OK
Interpolation	85,000	50,000	30	9,975	-9,641	OK
Interpolation	86,700	51,000	33	9,952	-9,834	OK
Interpolation	88,400	52,000	36	9,928	-10,026	Not OK
PIT5F1.po	340,000	200,000	504	6,438	-38,509	Not OK

Note: The reported moment demand is for element 1398 near the heel jet penetration (see Figure 5.1.2-1).

* Finite-element model.

Table 5.1.2.5-2. Comparison of Moment Demand and Capacity about East-West Direction for Heel Pit Floor as a Function of Vertical Load Applied to Heel Jet Adaptor Ring of Tank 241C106.

Output File Reference	Unfactored Heel Jet Load (lbf)	Axial Demand Force (lbf)	Moment Capacity at Indicated Axial Force (lbf-in/in)	Moment Demand (lbf-in/in)	Status
PIT5E1.po	0	-88	10,772	-1,067	OK
Interpolation	45,000	55	9,791	9,204	OK
Interpolation	46,000	58	9,767	9,433	OK
Interpolation	47,000	61	9,743	9,661	OK
Interpolation	48,000	64	9,719	9,889	Not OK
PIT5F1.po	200,000	548	6,116	44,583	Not OK

Note: The reported moment demand is for element 1347 near heel jet penetration (see Figure 5.1.2-1)

Table 5.2.2.4-1. Comparison of Axial Force and Greatest Moment Demand about the Element Y-Axis of Sluicing/Pump Pit Floor for Different Load Combinations as a Function of Vertical Load Applied to Sluicing Adaptor Ring of Tank 241C106.

12" Riser Unfactored Load (lbf)	Load Combination A		Load Combination B		Load Combination C	
	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)
0	-347	-6,605	-263	-7,002	-202	-4,345
5,000	-341	-4,250	-257	-4,647	-196	-1,990
10,000	-335	-1,896	-250	-2,293	-189	365
15,000	-328	459	-244	62	-183	2,719
20,000	-322	2,814	-238	2,417	-177	5,074
25,000	-316	5,168	-231	4,771	-170	7,429
30,000	-309	7,523	-225	7,126	-164	9,783
35,000	-303	9,878	-219	9,481	-158	12,138
40,000	-297	12,232	-213	11,835	-152	14,493
45,000	-291	14,587	-206	14,190	-145	16,847
50,000	-284	16,942	-200	16,545	-139	19,202

Notes

1. The reported moment demand is for element 1159 near sluicing penetration (see Figure 5.2.2-1).
2. Negative axial load represents compression.
3. Negative moment demand represents tension on the top face.

Table 5.2.2.4-2. Comparison of Axial Force and Greatest Moment Demand about the Element X-Axis of Sluicing/Pump-Pit Floor for Different Load Combinations as a Function of Vertical Load Applied to Sluicing Adaptor Ring of Tank 241C106.

12" Riser Load (lbf)	Load Combination A		Load Combination B		Load Combination C	
	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)
0	-1,049	-11,956	-695	-12,700	-588	-7,661
5,000	-1,030	-8,472	-675	-9,217	-568	-4,177
10,000	-1,010	-4,989	-656	-5,733	-549	-694
15,000	-991	-1,506	-636	-2,250	-418	2,789
20,000	-971	1,978	-617	1,233	-510	6,273
25,000	-952	5,461	-598	4,717	-491	9,756
30,000	-933	8,944	-578	8,200	-471	13,239
35,000	-913	12,428	-559	11,683	-452	16,723
40,000	-894	15,911	-540	15,167	-433	20,206
45,000	-875	19,395	-520	18,650	-413	23,689
50,000	-855	22,878	-501	22,133	-394	27,173

Notes

1. The reported moment demand is for element 1195 near sluicing penetration (see Figure 5.2.2-1).
2. Negative axial load represents compression.
3. Negative moment demand represents tension on the top face.

Table 5.2.2.4-3. Comparison of Moment Demand and Capacity about North-South Direction of Sluicing/Pump-Pit Floor as a Function of Vertical Load Applied to Sluicing Adaptor Ring of Tank 241C106.

Output File Reference	Factored FEM* Vertical Load	Unfactored 12" Riser Load (lbf)	Axial Force (lbf)	Moment Capacity at Indicated Axial Force (lbf-in/in)	Moment Demand (lbf-in/in)	Status
PIT2A1.PO	0	0	-115	10,943	-3,675	OK
Interpolation	8,500	5,000	-111	10,922	-1,517	OK
Interpolation	17,000	10,000	-108	10,901	641	OK
Interpolation	25,500	15,000	-105	10,880	2,798	OK
Interpolation	34,000	20,000	-102	10,859	4,956	OK
Interpolation	42,500	25,000	-99	10,838	7,114	OK
Interpolation	51,000	30,000	-95	10,817	9,271	OK
Interpolation	56,100	33,000	-93	10,804	10,566	OK
Interpolation	56,610	33,300	-93	10,803	10,695	OK
Interpolation	56,950	33,500	-93	10,802	10,782	OK
Interpolation	59,500	35,000	-92	10,7996	11,429	Not OK
PIT2B1.PO	85,000	50,000	-82	10,733	17,902	Not OK

Note: The reported moment demand is for element 1160 (see Figure 5.2.2-1).

* Finite-element model.

Table 5.2.2.4-4. Comparison of Moment Demand and Capacity about East-West Direction of Sluicing/Pump-Pit Floor as a Function of Vertical Load Applied to Sluicing Adaptor Ring of Tank 241C106.

Output File Reference	Factored FEM* Vertical Load	12" Riser Unfactored Load (lbf)	Axial Force (lbf)	Moment Capacity at Indicated Axial Force (lbf-in/in)	Moment Demand (lbf-in/in)	Status
PIT2A1.PO	0	0	-593	16,567	-7,730	OK
Interpolation	8,500	5,000	-573	16,454	-4,205	OK
Interpolation	17,000	10,000	-554	16,341	-680	OK
Interpolation	25,500	15,000	-534	16,228	2,845	OK
Interpolation	34,000	20,000	-515	16,115	6,370	OK
Interpolation	42,500	25,000	-495	16,002	9,895	OK
Interpolation	51,000	30,000	-476	15,889	13,420	OK
Interpolation	56,100	33,000	-464	15,822	15,535	OK
Interpolation	56,610	33,300	-463	15,815	15,747	OK
Interpolation	56,950	33,500	-462	15,810	15,888	Not OK
Interpolation	59,500	35,000	-456	15,777	16,945	Not OK
PIT2B1.PO	85,000	50,000	-398	15,438	27,520	Not OK

Note: The reported moment demand is for element 1195 near sluicing penetration (see Figure 5.2.2-1).

* Finite-element model.

Table 5.3.2.4-1. Comparison of Axial Force and Greatest Moment Demand about North-South Direction of Pump Pit for Different Load Combinations as a Function of Vertical Load Applied to Pump-Column Adaptor Ring of Tank 241C106.

Pump Column Load (lbf)	Load Combination A		Load Combination B		Load Combination C	
	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Demand (lbf)	Moment Demand (lbf-in/in)
0	-196	5,427	-135	5,648	-108	3,176
40,000	-142	-107	-80	113	-53	-2,358
80,000	-87	-107	-26	-5,421	1	-7,893
120,000	-32	-11,176	29	-10,955	56	-13,427
160,000	22	-16,710	84	-16,489	111	-18,961
200,000	77	-22,244	138	-22,024	165	-24,495

Notes

1. The reported moment demand is for element 1326 (see Figure 5.2.2-1).
2. Negative axial load represents compression.
3. Negative moment demand represents tension on the top face.

Table 5.3.2.4-2. Comparison of Axial Force and Greatest Moment Demand about East-West Direction of Pump Pit for Different Floor Load Combinations as a Function of Vertical Load Applied to Pump-Column Adaptor Ring of Tank 241C106.

Pump Column Load (lbf)	Load Combination A		Load Combination B		Load Combination C	
	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)	Axial Force (lbf)	Moment Demand (lbf-in/in)
0	-797	-8,634	-501	-9,320	-435	-4,8806
40,000	-742	-2,464	-446	-3,151	-380	1,364
80,000	-687	3,705	-391	3,019	-325	7,533
120,000	-632	9,875	-336	9,188	-270	13,703
160,000	-576	16,044	-281	15,358	-215	19,872
200,000	-521	22,214	-226	21,527	-160	26,042

Notes

1. The reported moment demand is for element 1224 (see Figure 5.2.2-1).
2. Negative axial load represents compression.
3. Negative moment demand represents tension on the top face.

Table 5.3.2.5-1. Comparison of Moment Demand and Capacity about North-South Direction of Pump-Pit Floor as a Function of Vertical Load Applied to Pump-Column Adaptor Ring of Tank 241C106.

Output File Reference	Factored FEM Vertical Load	Unfactored Pump Column Load (lbf)	Axial Force (lbf)	Moment Capacity at Indicated Axial Force (lbf-in/in)	Moment Demand (lbf-in/in)	Status
PIT3E1.po	0	0	-108	10,897	3,176	OK
Interpolation	153,000	90,000	15	10,086	-9,276	OK
Interpolation	161,500	95,000	22	10,035	-9,968	OK
Interpolation	163,200	96,000	23	10,025	-10,106	Not OK
Interpolation	170,000	100,000	29	9,984	-10,660	Not OK
PIT3F1.po	340,000	200,000	165	8,968	-24,495	Not OK

Note: The reported moment demand is for element 1326 (see Figure 5.2.2-1).

- Finite-element model.

Table 5.3.2.5-2. Comparison of Moment Demand and Capacity about East-West Direction of Pump-Pit Floor as a Function of Vertical Load Applied to Pump-Column Adaptor Ring of Tank 241C106.

Output File Reference	Factored FEM Vertical Load	Unfactored Pump Column Load (lbf)	Axial Force (lbf)	Moment Capacity at Indicated Axial Force (lbf-in/in)	Moment Demand (lbf-in/in)	Status
PIT3E1.po	0	0	-435	15,655	-4,806	OK
Interpolation	187,000	110,000	-284	14,779	12,160	OK
Interpolation	204,000	120,000	-270	14,692	13,703	OK
Interpolation	212,500	125,000	-263	14,646	14,474	OK
Interpolation	221,000	130,000	-256	14,600	15,245	Not OK
PIT3F1.po	340,000	200,000	-160	13,955	26,042	Not OK

Notes

1. The reported moment demand is for element 1224 (see Figure 5.2.2-1).
2. FEM represents "finite-element model"

Table 5.4.1.3-1. Tank AY102 Pump Pit Riser Structural Considerations.

Components	Issues	Governing Compliance Basis	Components	Issues	Governing Compliance Basis
Trunnion guide	Weld structural integrity	Evaluate weld to AISC	Riser anchor studs and associated dome concrete	Capability of studs to sustain vertical and torsional input applied at flange. Capacity of dome to sustain anchor stud loads.	ACI 349-90
Flange-to-pipe fillet weld (MR)	Weld structural integrity	Evaluate weld to AISC	Reinforced concrete dome for (D+L) load case: (1.4D+1.7L)	Assess dome for structural integrity to total factored loads including loads applied at riser flange. Identify areas where dome controls allowable flange loads	ACI 349-90
Equipment stability	Potential for tipover	Ensure compressive bearing everywhere on flange surface	Reinforced concrete dome with seismic (D+L+S)	Assess dome for structural integrity to total loads which include seismic effects and loads applied at flange. Identify areas where dome controls allowable flange loads.	ACI 349-90
Concrete directly under flange	Damage to pit concrete from bearing stresses	Bearing stress check per ACI 349-90			
Riser pipe butt weld and pipe structural integrity	Riser structure stresses	Combined stresses per ACI			

AISC = American Institute of Steel Construction
ACI = American Concrete Institute

Table 5.4.1.3-2. Tank AY102 Sluicing Pit Riser Structural Considerations.

Components	Issues	Governing Compliance Basis
Flange studs	Evaluate Stud Structural Integrity. Evaluate Flange for stud pullout.	AISC
Mounting ring flange fillet weld	Weld Structural integrity	Evaluate weld to AISC
Concrete directly under flange	Damage to pit concrete due to bearing stresses	Bearing stress check per ACI 349-90
Riser pipe butt weld and pipe structural Integrity	Riser structure stress	Combined stresses per AISC
Riser Anchor Studs and Associated Dome Concrete	Capability of studs to sustain vertical and torsional inputs at flange. Capacity of dome to sustain anchor stud loads.	ACI 349-90
Reinforced Concrete Dome for D+L Load Case: (1.4D + 1.7L)	Assess dome for structural integrity to total factored loads including loads applied at riser flange. Identify areas where dome controls allowable flange loads.	ACI 349-90
Reinforced Dome for Seismic Load Case: (D+L+S)	Assess dome for structural integrity to total loads which include seismic effects and loads applied at riser flange. Identify areas where dome potentially controls allowable flange loads.	ACI 349-90

AISC = American Institute of Steel
ACI = American Concrete Institute

Table 5.4.2.9-1. Pump Pit Flange Loads and Associated Dome Forces/Moments for Tank AY 102: Case 1 - Gravity Loads 1.7 (D + L).

Pump Pit Flange Loads and Associated Dome Forces/Moments: Case 1 - Gravity Loads 1.7 (D+L)								
Singly-Acting Load	Limits for Singly-Acting Flange Loads for Critical Structural Components				Column 5 Min. Load Value for all Components	Column 6 Factored (i.e., 1.7) Load	Column 7 Dome Membrane Stress Resultant P(lbf/ft)	Column 8 Dome Bending Stress Resultant M (lbf-in/ft)
	Column 1 Fillet Weld	Column 2 Transition Guides Weld	Column 3 Overturning Moment	Column 4 Riser Studs				
F_x (kip)	≤ 419	≤ 46	N/A	N/A	46	78.2	7,664	104,267
F_y (kip)	≤ 427	N/A	Acts Downward	≤ 61.6	61.6	104	20,370	200,050
M_x (kip-in)	$\leq 4,564$	N/A	$M_h \leq 10.66 P_y$	N/A	$*10.66 P_y = 657$	1,116	880	63,590
M_y (kip-in)	$\leq 9,128$	$\leq 2,668$	N/A	$\leq 1,294$	1,294	2,199	N/A	N/A

Note: *Lesser of 4,565 kip-in or $10.66 P_y$, but P_y is bounded by 61.6 kip. Therefore $10.66 P_y = 10.66 \times 61.6 = 657$ kip-in controls.

Table 5.4.2.10-1. Pump Pit Flange Loads and Associated Dome Forces/Moments for Tank AT102: Case 2 - with Seismic Effects.

Pump Pit Flange Loads and Associated Dome Forces/Moments: Case 2 - with Seismic							
Singly-Acting Load	Limits for Singly-Acting Flange Loads for Critical Structural Components				Column 5 Min. Load Value for all Components	Column 6 Dome Membrane Stress Resultant P(lbf/ft)	Column 7 Dome Bending Stress Resultant M (lbf-in/ft)
	Column 1 Fillet Weld	Column 2 Trunnion Guides Weld	Column 3 Overturning Moment	Column 4 Riser Studs			
F_h (kip)	≤ 557	≤ 61.2	N/A	N/A	61.2	5,997	81,409
F_v (kip)	≤ 568	N/A	Acts downward	≤ 104	104	20,370	200,050
M_h (kip-in)	$\leq 6,070$	N/A	$M_h \leq 10.66 F_v$	N/A	$10.66 F_v = 1,116$	880	63,590
M_v (kip-in)	$\leq 12,140$	$\leq 2,220$	N/A	$\leq 2,199$	2,199	N/A	N/A
$M_h^s/\text{Flange} = 1,870 \text{ kip-in}$						1,470	106,230
$F_h^s/\text{Flange} = 37.8 \text{ kip}$						3,710	49,280

Table 5.4.2.10-2. Relationships Between Flange Resolved Loads and Dome Forces/Moments for Pump Pit of Tank AV102.

Relationships Between Flange Resolved Loads and Dome Forces and Moments for Pump Pit				
Load	Meridional Maximum Dome Force (lbf/ft)	Meridional Maximum Dome Moment (lbf-in/ft)	Circumferential Maximum Dome Force (lbf/ft)	Circumferential Maximum Dome Moment (lbf-in/ft)
$F_h = 1 \text{ kip}$	98	1,332	14	390
$F_v = 1 \text{ kip}$	194	1,905	61	605
$M_h = 1 \text{ kip-in}$	0.785	57	0.55	16.7

Note:

Scaling the tabulated meridional and circumferential forces and moments to the appropriate values for F_h , F_v , and M_h and summing the results for each respective column yields the bounding values for the dome forces and moments attributable to loads applied at pump pit riser flange. From the values for circumferential forces and moments above and the dome circumferential capacity curve, it is clear that the dome will not be challenged by demands from circumferential parameters.

Attachment 3 of Appendix F contains the ANSYS model and data from which the results tabulated above are drawn.

Table 5.4.3.8-1. Sluicing Pit Flange Loads and Associated Dome Forces/Moments for Tank AY102: Case 3 - 1.7 (D + L).

Sluicing Pit Flange Loads and Associated Dome Forces/Moments: Case 3 - 1.7 (D + L)							
Singly- Acting Load	Limits for Singly-Acting Flange Loads for Critical Structural Components				Column 5 Factored (i.e., 1.7) Load	Column 6 Dome Membrane Stress Resultant P (lbf/ft)	Column 7 Dome Bending Stress Resultant M (lbf-in/ft)
	Column 1 Fillet Weld	Column 2 Riser Studs & Dome	Column 3 Mounting Ring Studs	Column 4 Min. Load Value for all Components			
F_h (kip)	338	--	83.6	83.4	141.8	15,680	318,200
F_v (kip)	347	61.6	--	61.6	104	20,370	200,050
M_h (kip-in)	3,018	--	521	521	886	700	50,500
M_v (kip-in)	6,037	1,047	1,609	1,047	1,780	N/A	N/A

Table 5.4.3.8-2. Sluicing Pit Flange Loads and Associated Dome Forces/Moments for Tank AY102: Case 4 - with (Seismic + D + L).

Sluicing Pit Flange Loads and Associated Dome Forces/Moments: Case 4 - with (Seismic + D + L)						
Singly- Acting Load	Limits for Singly-Acting Flange Loads for Critical Structural Components				Column 5 Dome Membrane Stress Resultant P (lbf/ft)	Column 6 Dome Bending Stress Resultant M (lbf-in/ft)
	Column 1 Fillet Weld	Column 2 Riser Studs & Dome	Column 3 Mounting Ring Studs	Column 4 Min. Load Value for all Components		
F_h (kip)	452	--	111	111	12,280	249,100
F_v (kip)	462	104	--	104	20,370	200,050
M_h (kip-in)	4,011	--	693	693	544	39,500
M_v (kip-in)	8,022	1,780	2,140	1,780	N/A	N/A
$M_h^{seismic}_{FEA} = 2,287$ kip-in					1,800	130,400
$F_h^{seismic} = 32.4$ kip					3,100	42,800

Table 5.4.3.8-3. Sluicing Pit: Relationships Between Flange Resolved Loads and Dome Forces/Moments for Sluicing Pit of Tank AY102.

Sluicing Pit: Relationships Between Flange Resolved Loads and Dome Forces/Moments for Sluicing Pit				
Load	Meridional Maximum Dome Force (lb/ft)	Meridional Maximum Dome Moment (lb-ft/in)	Circumferential Maximum Dome Force (lb/ft)	Circumferential Maximum Dome Moment (lb-ft/in)
$F_A = 1 \text{ kip}$	110.6	2,244	22.8	657
$F_v = 1 \text{ kip}$	194	1,905	61	605
$M_A = 1 \text{ kip-in}$	0.785	57	0.55	16.7

Notes from pump pit apply unchanged.

Note: Use this data for Tables 5.4.3.8-1 and 5.4.3.8-2

Note: For the sluicing pit, the flange surface is 40.0 in. above the dome midplane. Attachment 5 of Appendix F contains the ANSYS model and data from which the results tabulated above are drawn.

6.0 OPERATING IMPACT AND IMPULSIVE LOAD AND ACCIDENTAL DROP LOADS

This section discusses limits developed for operational impulsive loads, e.g., fluid jet forces associated with sluicing operations, applicable to the lower tank wall and the tank slab/floor; it also discusses limits for inadvertent impacts that can be sustained by the C106 tank without degradation to its functionality. In addition, tank response to two accidental drop scenarios has been evaluated to bound the potential extent of damage to the tank.

6.1 OPERATING IMPACT AND IMPULSIVE LOADS

This section discusses the development of limits on impact and impulsive loads associated with past-practice sluicing (PPS) operations.

6.1.1 Scope and Acceptance Criteria

The objectives of this study are to develop limits parametrically for inadvertent impact conditions and maximum impulsive loads from PPS operations. These limits are necessary to prevent penetration of the tank liner and maintain structural integrity of the tank per the ACI 349-90 code. These assessments use the provisions of the ACI 349-90 code for determining tank structural capacities; ASCE 1980 for characterizing extent of impact penetration and structural damage; and static finite-element analyses of the tank for predicting reserve capacity of the tank wall and slab against forces normal to the tank wall or slab/floor resulting from impact and impulsive loads.

The loads considered herein associated with PPS operations are as follows.

- Operational Impact Load

The operational impact load is the time-dependent load resulting from the collision of PPS equipment with the tank structure. The impact load transient is affected by the inertial and stiffness properties of the missile and the target structure; the target is either the tank wall or tank slab. Impact loads are generally energy limited.

- Operational Impulsive Load

The operational impulsive load is the transient load resulting from an external source and is not dependent on target inertial and stiffness properties. In this case, the impulsive load results from fluid jet forces impinging on the tank wall or tank slab. Impulse loads are generally force limited, not energy limited.

Factored in situ tank loads are considered in determining residual capacities of the tank wall and slab.

Consistent with other evaluations of the C106 tank structural capability, this evaluation treats the tank liner as a non-structural component. That is, liner participation in reacting in situ or operational loads is ignored because the liner design basis does not include these loads. Characterization of liner behavior has been limited to its penetration resistance. In situ and operational (including impact and impulsive) loads are treated as being resisted by the tank structural components. Structural evaluations of C106 are in accordance with the provisions of ACI 349-90 for impact and impulsive loads. The criteria address both structural damage and functionality as described below.

Structural Damage of the C106 Tank Wall and Slab

Acceptance criteria for structural damage from impacts are drawn from the provisions of ACI 349-90 (Appendix C - *Special Provisions for Impulsive and Impactive Loads*). Appendix C of ACI 349-90 appeals to concrete penetration, perforation, and scabbing correlations presented in ASCE 1980. The acceptance criterion applied is for the prevention of "scabbing" damage to the concrete wall. The associated limits are more restrictive than limits preventing complete penetration of the concrete structure and represent a substantial measure of conservatism. Concrete penetration from missile impact occurs before the scabbing threshold, but effects on the structure occur on the side impacted, with damage limited to less than one-half the concrete thickness. Acceptance criteria for impulsive loads also are taken from ACI 349, Appendix C and Section 11.11. Impulsive loads are treated as live loads with a load factor of 1.7.

Functionality of Tank Steel Liner as a Containment Boundary

Liner perforation caused by missile impacts is unacceptable if the steel liner is to function as the leak-proof boundary. Equations from ASCE 1980 describing the impact mechanics and resulting penetration are used to identify impact conditions associated with loss of liner functionality as a result of perforation. As recommended in ASCE 1980, a safety factor of 1.25 was applied in the penetration-depth predictions to address uncertainties of the penetration model. The limits of administrative controls and inaccessibility of the C106 tank liner are such that a level of penetration approaching the liner thickness is not acceptable. Hence, impact limits associated with penetration are set to one-half the liner thickness.

6.1.2 Missile Impact Interaction Equations

Empirical interaction equations for missile impact on steel and concrete structures are presented in the section.

6.1.2.1 Basis for Impact Interaction. The model for missile impact predictions is taken from *ASCE - Manuals and Reports on Engineering Practice - No. 58: Structural Analysis and Design of Nuclear Plant Facilities* (ASCE 1980). Chapter Six of this manual addresses "Design Against Impulse and Impact Loads." The equations and guidance of this chapter are used in predicting impact interactions including liner penetration and concrete damage.

6.1.2.2 Assumptions in Treatment of Impact Interaction. To use established impact correlations, the following simplifying, but conservative assumptions are made.

- The striking object is nondeformable. This assumption is conservative and will over-predict local effects compared to those occurring from deformable missiles.
- The interaction of interest occurs in a direction that is normal to the target surface; frictional effects are insignificant to penetration and only the normal component of relative velocity is considered.
- A steel penetrability constant of 1.0 is used, in accordance with Section 6.4.1.3 of ASCE 1980.
- The projectile shape factor is taken as 1.0 (average bullet nose), in accordance with Section 6.4.1.2 of ASCE 1980.
- Four different values of missile weights (500, 1,000, 2,000, and 3,000 lbf) are considered.

6.1.2.3 Interaction Relationships for Impact Conditions. Because the steel liner is not a structural component of the tank, it imposes limits on impact conditions only through its penetration resistance. Steel liner penetration is discussed in Section 6.1.2.3.1. The structural response associated with the impact loads will be dynamic in nature. The rise time of the impact force history will be short relative to the periods of the fundamental structural-vibration modes. In some (perhaps all) cases, the duration of loading will be short compared to the periods of important structural-vibration modes so that response in the lower-frequency modes is limited. Structural response for loads of very short duration will be dominated by high-frequency mode response. A best-estimate dynamic response is not predicted. Instead, a conservative approach has been adopted that depends on identifying impact conditions on which the structural response of the tank imposes limits. Section 6.1.3 identifies punching shear as the controlling structural-failure mode. The punching shear limits are from empirical relations in ASCE 1980 as discussed in Section 6.1.2.3.2, below.

6.1.2.3.1 Steel Interaction. Section 6.4.1.3 of ASCE 1980 discusses the model for missile impacts on steel targets such as vessels. Equation 6.46 of ASCE 1980 provides a relationship between steel target penetration (e), missile diameter (D), and impact velocity (V_i) normal to the target.

$$\left(\frac{e}{D}\right)^{3/2} = \frac{(W/D^3) V_i^2}{1.12 \times 10^6 K_s^2}, \quad (6.1.2.3.1-1)$$

where

W = missile weight (lbf)
 D = missile diameter (in.)
 e = penetration thickness (in.)
 K_s = steel penetrability constant taken as 1.0 from Section 6.1.2.2
 V_i = missile impact velocity (ft/s)
 t_s = steel liner thickness (in.) taken as 0.25 in. per drawing H-2-37006.

Rearranging equation 6.1.2.3-1 results in the following expression:

$$V_i = \frac{1.058 \times 10^3 e^{0.75} D^{0.75}}{W^{0.5}} \quad (6.1.2.3.1-1)$$

where $e \leq 0.4 t_s$ ($= 0.100$ in.) for the steel penetration acceptance criterion of one-half the liner thickness.

The equation above is used to predict limiting conditions on missile impact parameters so as to satisfy the first acceptance criterion of Section 6.1.1. The results must apply over the range of possible missile characteristics, indicating that a parametric treatment is required. The weight of the missile is treated parametrically where separate solutions are sought for missiles of 500, 1,000, 2,000, and 3,000 lbf. For missiles of each weight there are three unknowns in the equation, i.e., e , D , and V_i . With the missile weight specified and the penetration limit (maximum) specified, the impact interaction equation contains two remaining variables (missile velocity and cross-section diameter) and therefore provides the limiting impact velocity as a function of missile diameter.

6.1.2.3.2 Concrete Impact Interaction. For consideration of local structural response, special provisions for impact effects are provided in Appendix C of ACI 349-90. Local impact effects to be considered include penetration, perforation, scabbing, and punching shear. Section 11.11 of ACI 349 also addresses punching shear for static loads.

Response behavior generated by impacts produces dynamic structural response to which higher (frequency) modes are the dominant contributors. Thus, it is difficult to predict the internal stress state and related concrete damage for impact conditions. Section C.7.2.3 of ACI 349-90

addresses this situation by endorsing the use of concrete impact relations developed from experimental data to define conditions that preclude punching shear or perforation.

For structures where static finite-element analysis of concentrated loads shows the transverse load capacity to be controlled by transverse shear (i.e., punching shear), it is reasonable to conclude that under impact loading, penetration/punching shear similarly is the controlling response. Section 6.1.3 summarizes the results of static finite-element analyses that demonstrate that punching shear limits (for transverse loads) are the most restrictive. Thus, a positive margin for dynamically induced punching shear also demonstrates adequacy for the overall structural response.

The ACI 349-90 commentary for Appendix C explicitly endorses the data and relationships for impacts to concrete including the modified National Defense Research Committee (NDRC) formula, which appears in ASCE 1980, Section 6.4.1.2. These relations are shown below.

$$\frac{S}{D} = 7.91 \left[\frac{X}{D} \right] - 5.06 \left[\frac{X}{D} \right]^2 \quad \text{for } \frac{X}{D} < 0.65 \quad (6.1.2.3.2-1)$$

$$\frac{S}{D} = 2.12 + 1.36 \frac{X}{D} \quad \text{for } 0.65 \leq \frac{X}{D} \leq 11.75 \quad (6.1.2.3.2-2)$$

where

- D = missile diameter (in.)
- S = scabbing thickness (in.) - the thickness of target required to prevent scabbing of material from the rear surface of the target for a missile with a given impact velocity.
- X = depth of penetration/damage at front surface.

Equations for perforation (i.e., front-face and rear-face damage encompassing the entire section thickness) are as follows.

$$\frac{e}{D} = 3.19 \left[\frac{X}{D} \right] - 0.718 \left[\frac{X}{D} \right]^2 \quad \text{for } \frac{X}{D} < 1.35 \quad (6.1.2.3.2-3)$$

$$\frac{e}{D} = 1.32 + 1.24 \frac{X}{D} \quad \text{for } 1.35 \leq \frac{X}{D} \leq 13.5 \quad (6.1.2.3.2-4)$$

where

- e = penetration thickness (the combined extent of rear-surface and front-surface damage).

Clearly, for a given depth of penetration, X, a much greater thickness, S, is required to prevent rear-surface scabbing than to prevent perforation. Thus, impact limits based on scabbing are considerably more

restrictive than those derived from perforation and provide conservative restrictions.

The empirical relationship between front-face penetration depth, X , and missile parameters is as follows (ASCE 1980):

$$X = \sqrt[4]{4 KNWD \left[\frac{V_i}{1,000 D} \right]^{1.8}} \quad \text{for } X/D \leq 2.0.$$

Rearranging yields,

$$V_i = \left[\frac{(1,000)^{1.8}}{4 KN} \right]^{0.555} \left[\frac{XD^{0.4}}{W^{0.5}} \right]^{1.11} \quad (6.1.2.3.2-5)$$

where

- K = concrete penetrability factor, $180/\sqrt{f'_c}$
- N = projectile shape factor taken as 1.0 for spherical-ended missile (most conservative shape)
- f'_c = ultimate compressive concrete strength (lb/in²).

A different equation applies for $X/D > 2.0$. This equation has no effect on the results presented here because values of $X/D > 2.0$ do not occur under conditions where the concrete damage controls.

For the tank slab, as shown in Section 5.4.2 of Appendix B, when $X/D < 0.65$, the following expression for X results (using equation 6.1.2.3.2-1).

$$X = \frac{1.56 D}{2} \left[1 - \sqrt{1 - \frac{1.624}{D}} \right] \quad (6.1.2.3.2-6)$$

where

- S = 5 in. (actual slab thickness is 6 in. but scabbing thickness is reduced to 5 in. to provide a 20% margin as required in ACI 349, Section C.7.2.1).

If equation 6.1.2.3.2-6 along with the known constants is substituted into equation 6.1.2.3.2-5, the expression for velocity (for $X/D < 0.65$) becomes a function of D and W as

$$V_i = 188.5 \left[\frac{D^{1.4}}{W^{0.5}} \left[1 - \sqrt{1 - \frac{1.624}{D}} \right] \right]^{1.11} \quad (6.1.2.3.2-7)$$

For $0.65 < X/D < 2.0$, equation 6.1.2.3.2-2 shows that X (for tank slab) is a linear function of D, i.e.,

$$X = \frac{(5 - 2.12 D)}{1.36} = 3.676 - 1.56 D. \quad (6.1.2.3.2-8)$$

If equation 6.1.2.3.2-8 along with the known constants is substituted into equation 6.1.2.3.2-5, the expression for velocity becomes a function of D and W as

$$V_i = 248.4 \left[\frac{D^{0.4} (3.676 - 1.56 D)}{W^{0.5}} \right]^{1.11} \quad (6.1.2.3.2-9)$$

Equations 6.1.2.3.2-7 and 6.1.2.3.2-9 provide limiting velocities for impacts on the slab as a function of the missile parameters D and W. As shown in Section 5.4.2 of Appendix B, equation 6.1.2.3.2-7 applies for $0.0 < D < 1.67$ and equation 6.1.2.3.2-9 applies when $D \geq 1.67$.

For the wall, equations 6.1.2.3.2-1, and 6.1.2.3.2-5 are combined for $X/D \leq 0.65$ with

$$\begin{aligned} K &= 180/\sqrt{3,899} = 2.88 \\ N &= 1.0 \\ S &= 10 \text{ in. (actual wall thickness is 12 in. but scabbing} \\ &\quad \text{thickness is reduced to 10.0 in. to provide the 20-percent} \\ &\quad \text{margin required in ACI 349, Section C.7.2.1)} \end{aligned}$$

to obtain the following (see Appendix B, Section 5.4.2):

$$X = \frac{1.56 D}{2} \left[1 - \sqrt{1 - \frac{3.25}{D}} \right] \quad (6.1.2.3.2-10)$$

If equation 6.1.2.3.2-10 along with the known constants is substituted into equation 6.1.2.3.2-5, the expression for velocity becomes a function of D and W as

$$V_i = 195.0 \left[\frac{D^{1.4}}{W^{0.5}} \left[1 - \sqrt{1 - \frac{3.25}{D}} \right] \right]^{1.11} \quad (6.1.2.3.2-11)$$

For $0.65 < X/D < 2.0$, equation 6.1.2.3.2-2 shows that X is a linear function of D, i.e.,

$$X = \frac{(10 - 2.12 D)}{1.36} = 7.35 - 1.56 D. \quad (6.1.2.3.2-12)$$

If equation 6.1.2.3.2-12 along with the known constants is substituted into equation 6.1.2.3.2-5, the expression for velocity (for $0.65 \leq X/D < 2.0$) becomes a function of D and W as

$$V_i = 257.0 \left[\frac{D^{0.4} (7.35 - 1.56 D)}{W^{0.5}} \right]^{1.11} \quad (6.1.2.3.2-13)$$

Equations 6.1.2.3.2-11 and 6.1.2.3.2-13 provide limiting velocities for impacts on the wall as a function of the missile parameters D and W. As shown in Section 5.4.2 of Appendix B, equation 6.1.2.3.2-11 applies for $0.0 < D < 3.33$ in. and equation 6.1.2.3.2-13 applies for $D \geq 3.33$ in.

6.1.3 Tank Wall and Tank Slab Residual Capacities

Residual capacities of the C106 tank wall and slab are developed in this section.

6.1.3.1 Procedure. Appendix B includes a determination of the minimum bounding tank wall and slab allowables for internal concentrated static loads normal to the shell surface; the determination uses the residual capacity of the tank. The results are used to define maximum allowable operational impact/impulsive loads. Baseline demands, before addition of concentrated loads, result from the application of factored loads associated with the in situ condition and soil-surface live loads specific to the PPS operations. Section 4.0 describes the analysis of this in situ/PPS loading condition. Capacities are developed on the basis of ACI 349, in the same manner as for the ACI code evaluation of the in situ/PPS loading analysis (Section 4.0).

As discussed in Section 4.0, the in situ/PPS load analysis considered four load cases. Each includes the same baseline loads, but with

different load factors. In addition to the baseline loads, concentrated transverse loads were applied to determine reserve capacity.

This evaluation of internal loads considers the possibility of a concentrated load applied at any single location on the tank wall or tank slab. The application of the transverse load causes an increase in tension in the outer surface of the tank shell. Displacement plots (see Figures 4.2-1 through 4.2-4) and moment demands for the factored load cases were examined to identify tank locations that exhibit tension on the outer surface. Locations were selected for concentrated load applications to increase these tension fields. Demand magnitudes were studied to identify the controlling load case and controlling circumferential location (meridian) for each load configuration. Ultimately, two wall-loaded configurations and four slab-loaded configurations were analyzed and are discussed below.

6.1.3.2 Tank Wall Loading. A study of wall moment demands from the factored in situ/PPS analysis revealed that only the base and upper elements experience tension on the outer surface. Therefore, two load configurations are analyzed for concentrated forces on the wall. The first configuration, configuration A, applies a concentrated, radially outward load of effectively 500,000 lbf. Load case 1a of the in situ/PPS model is used as a baseline for analysis of this concentrated load. The load location and baseline load case are selected on the basis of a study of demands from the in situ/PPS analysis, described in Appendix A, to produce the lowest residual capacity.

The second configuration, configuration B, applies a concentrated, radially outward load of 400,000 lbf to the lower wall. The load is applied to a node along the 90° meridian of the model. Load case 2 of the in situ/PPS model is used as a baseline for analysis. The load location and baseline load case are selected on the basis of a study of demands from the in situ/PPS analysis, described in Appendix A, to produce the lowest residual capacity.

A convergence study performed for each of the analyses ensured the reliability of the results. Appendix B documents the analyses and the convergence study.

6.1.3.3 Tank Slab Loading. Four load configurations are analyzed for concentrated transverse forces on the slab. All four load configurations involved the application to the slab of a concentrated load of 350,000 lbf in the downward direction. The four configurations are as follows:

Configuration	Distance from Slab Center (ft)	Load-Point Location (Meridian)	In Situ/PPS Baseline Load Case
C	0.0	N/A	1a
D	11.9	0°	1a
E	19.25	90°	2
F	33.9 (4.2, from wall)	0°	1a

The load locations and baseline load cases were selected on the basis of a study of demands from the in situ/PPS analysis, described in Appendix A, to produce the lowest residual capacities. A convergence study performed for the analyses of slab-loaded configurations ensured the reliability of the results. Appendix B documents the analyses and the convergence study.

6.1.3.4 Capacity Determination. Each of the analysis cases identified in Sections 6.1.3.2 and 6.1.3.3 evaluated the following items to determine the residual capacities and rank the responses that limit the permissible transverse load:

- Moment-Axial Load (M-P) Interaction
- Transverse Shear
- Construction Joints (wall-loaded cases only)
- In-Plane Shear
- Twisting Moment

6.1.3.4.1 M-P Interaction. Demands are plotted along with M-P interaction capacity curves in Appendix B, Section 6.0. Included as Figures 6.1.3.4.1-1 through 6.1.3.4.1-6 is a reduced set of M-P interaction diagrams, showing the meridional response only (circumferential response does not control). Selected elements adjacent to the concentrated load application were investigated for M-P interaction; however, history plots are developed for controlling elements only. Within each plot, the lowest demand plotted is from the baseline in situ/PPS analysis with no concentrated load as taken from the analysis presented in Appendix A. Beyond this point, the demands are plotted for an incremental application of the concentrated load. The residual concentrated load capacity determined on the basis of M-P interaction is defined as the concentrated load magnitude that corresponds to the demand intersecting the capacity curve.

Some of the demand histories are shown to be discontinuous (e.g., Figure 6.1.3.4.1-3). The demand momentarily decreases before continuing to increase. This momentary decrease can be attributed to local cracking and the subsequent redistribution of load. For instances in which the demand history exceeds the capacity curve and then is brought within the curve by this discontinuous behavior, the first intersection of the capacity curve is taken as the residual capacity. The simplified three-point M-P load capacity curves have not been refined for slab sections; thus residual capacity predictions are conservative. In most cases, however, the demand histories exceed the capacity curve near the balance point such that additional capacity obtained by refining the M-P curves would be small. In addition, the summary of results provided in Section 6.1.3.6 shows that M-P interaction is not the controlling failure mode for residual capacity determination.

As Section 4.3.1 indicates, calculated M-P capacities are applicable to loading at the plastic centroid of the section, while shell element demands are provided by ABAQUS at the geometric centroid (shell mid-surface). The differences in centroid locations are tabulated in Appendix A. Wall sections are unaffected because they are symmetric (and therefore the plastic centroid and the geometric centroid coincide). Slab centroid differences range from 0.024 to 0.042 in. for capacity sections 1 and 2, and from 0.109 to 0.196 in. for capacity section 2a. Moment values provided by ABAQUS could be adjusted by adding or subtracting the product of the element axial load and the location difference between the plastic centroid and the geometric centroid. Inspection of the demands plotted in Figures 6.1.3.4.1-1 through 6.1.3.4.1-6 shows the shift in moment caused by such an adjustment to be insignificant. Therefore, adjustment is unnecessary.

The residual capacity is the magnitude of the internal, concentrated load that corresponds to the total demand intersecting the capacity curve. Table 6.1.3.4.1-1 summarizes the residual capacities computed on the basis of M-P interaction in Appendix B. The wall M-P residual capacity is 280,000 lbf, while the slab M-P residual capacity is 126,000 lbf.

6.1.3.4.2 Transverse Shear. Transverse shear is governed by Section 11.11 of ACI 349, which specifies the shear strength of slabs in the vicinity of concentrated loads. The specification is essentially for a punching-shear failure, and the capacity is a function of the diameter of the concentrated load.

Wall

A study of wall demands, listed in Attachment 9 of Appendix A, reveals that, typically, the wall elements are in compression along the meridional direction. In the circumferential direction, tension occurs in the upper and lower wall elements while the mid-wall elements remain in compression. Section 11.11.2.3 of ACI-349 specifies the shear strength requirements for a concentrated load applied to a region experiencing tensile membrane stress.

In accordance with ACI Section 11.11.2.3 (eq. 11-38a),

$$V_c = V_{c1} + V_{c2}.$$

For tensile membrane stress not exceeding $0.9\rho_1'f_y$, ACI 349, Section 11.11.2.3.1 (eq. 11-38b) specifies

$$V_{c1} = 4(f'_c)^{1/2}b_1h(1 + 0.25f_{m1}/\rho_1'f_y)$$

where

- 4 = limit applicable when the ratio of long side to short side of load application area = 1.0
- f'_c = concrete compressive strength
= 3,899 lbf/in² for wall sect. 4 (minimum for wall) per Appendix A, Attachment 11
- b_1 = $b_o/2$ (in.)
- b_o = perimeter of critical wall section (see calculation below)
- h = thickness of the wall = 12 in.
- f_{m1} = tensile stress in the direction with tension (negative, lbf/in²)
- ρ_1' = reinforcement ratio in tension direction based on section thickness
- f_y = yield strength of reinforcement.

In the ACI equation, the perimeter of the critical wall section is determined from the requirements of ACI Section 11.11.1.2 given by

$$\begin{aligned} b_o &= 2\pi\{(D/2) + (d/2)\} \\ &= \pi(D + 8.8) \end{aligned}$$

where

- D = diameter of the missile
- d = distance from the compression face to centroid of tension rebar (in.)
= 8.8 in. per Attachment 11 of Appendix A for wall sections 4, 5, and 6.

For ACI equation 11-38b, $f_{m1}/\rho_1'f_y = -1$ is adopted for simplicity and conservatism and represents the tension limit on the reinforcement. Equation 11-38b then simplifies to

$$\begin{aligned} V_{c1} &= 3(f'_c)^{1/2}b_1h \\ &= 1,124 b_o. \end{aligned}$$

For compressive membrane stress, ACI Section 11.11.2.3.1 specifies

$$V_{c2} = 4(f'_c)^{1/4} b_2 d \\ = 1,099 b_o,$$

where

$$4 = \text{limit applicable when the ratio of long side to short side} \\ \text{of load application area} = 1.0 \\ b_2 = b_o/2 \text{ (in.)}.$$

From ACI equations 11-1 and 11-38a,

$$\phi V_c = \phi(V_{c1} + V_{c2}),$$

where

$$\phi = \text{strength reduction factor} = 0.85.$$

Therefore, substituting for b_o , V_{c1} and V_{c2} gives

$$\phi V_c = 0.85(1,124 + 1,099)\pi(D + 8.8) \\ = 5,936 D + 52,240.$$

ACI Sections 11.11.2.3.3 and 11.11.2.3.4 specify additional limitations for regions high in tension. High tensile stress is specified as

$$f_{m1} > 0.6\rho_1'f_y = 377 \text{ lbf/in}^2 \text{ for lower wall (wall section 4),}$$

where

$$\rho_1' = (A_s + A_s')/bh = 0.0167 \\ A_s = \text{tension reinforcement area} \\ = 1.2 \text{ in}^2 \text{ per Marlow (1994, p. B Att6-5)} \\ A_s' = \text{compression reinforcement area} \\ = 1.2 \text{ in}^2 \text{ per Marlow (1994, p. B Att6-5)} \\ b = \text{appropriate section width} = 12 \text{ in.} \\ h = \text{wall section thickness} = 12 \text{ in.} \\ f_y = \text{yield strength of reinforcement} \\ = 37,631 \text{ lbf/in}^2 \text{ per Marlow (1994, p. B Att6-6)}.$$

Converting f_{m1} stress to tension demand per foot, high tension force is defined as

$$P > (377 \text{ lbf/in}^2)(12 \text{ in/ft})(h) = 54,288 \text{ lbf/ft.}$$

Inspection of the wall circumferential demands summarized in Attachment 9 of Appendix A shows that lower wall tension demands do not exceed 54,288 lbf/ft; therefore, the limitation specified by ACI equation 11-38f does not apply for the lower wall.

Also noted from the demand inspection is that all mid-wall circumferential demands are compressive; therefore, the limitation specified by ACI equation 11-38f does not apply for the mid-wall.

For consideration of the upper wall

$$f_{m1} > 0.6\rho_1'f_y = 228 \text{ lbf/in}^2 \text{ (wall section 6),}$$

where

$$\begin{aligned}\rho_1' &= (A_s + A_s')/bh = 0.010 \\ A_s &= \text{tension reinforcement area} \\ &= 0.72 \text{ in}^2 \text{ (Marlow 1994, p. B Att6-5)} \\ A_s' &= \text{compression reinforcement area} \\ &= 0.72 \text{ in}^2 \text{ (Marlow 1994, p. B Att6-5)} \\ b &= \text{appropriate section width} = 12 \text{ in.} \\ h &= \text{wall section thickness} = 12 \text{ in.} \\ f_y &= \text{yield strength of reinforcement} \\ &= 38,000 \text{ lbf/in}^2 \text{ (Marlow 1994, p. B Att6-6).}\end{aligned}$$

Converting f_{m1} stress to tension demand per foot, high tension force is defined as

$$P > (228 \text{ lbf/in}^2)(12 \text{ in/ft})(h) = 32,832 \text{ lbf/ft.}$$

Inspection of the wall circumferential demands summarized in Attachment 9 of Appendix A shows the maximum upper-wall tension demand to be 45,804 lbf/ft (PPS-F1BP.xls, element 380). Therefore, ACI equation 11-38f applies and

$$\rho_1' \geq f_{m1}/(0.9f_y) + V_u/(0.85f_yb_1h),$$

where

$$f_{m1} = 45,804/(12h) = 318 \text{ lbf/in}^2.$$

Rearranging the equation gives the shear load limit as

$$V_u = (f_y \rho_1 - f_{m1}/0.9)[0.85h\pi(D + 8.8)/2].$$

Substituting the known terms of the equation gives

$$V_u = 427.7 D + 3,759.$$

This expression, applicable to upper-wall sections, will yield residual capacities that are very low compared to the those for the mid- and lower-wall sections. The more restrictive ACI requirement is applied to the upper-wall region because high tensile demands exist there.

Therefore, concentrated wall loads should be limited to elevations within 14.5 ft of the bottom of the tank. Within this 14.5-ft limit, wall residual capacity, for consideration of transverse shear, is

$$\phi V_c = 5,936D + 52,240,$$

which is a function of the diameter, D, of the applied concentrated load.

Slab

A study of slab demands, listed in Attachment 9 of Appendix A, reveals that all slab elements are in compression along both the meridional and the circumferential directions. Therefore, the residual capacity is determined by the provisions of ACI Section 11.11.2.1 (equation 11-37):

$$\begin{aligned}\phi V_c &= \phi 4(f'_c)^{1/2} b_o d \\ &= 399.5 b_o,\end{aligned}$$

where

$$\begin{aligned}\phi &= \text{strength reduction factor} = 0.85 \\ 4 &= \text{limit applicable when the ratio of long side to short side} \\ &\quad \text{of load application area} = 1.0 \\ f'_c &= \text{concrete compressive strength} \\ &= 3,451 \text{ lbf/in}^2 \text{ for wall section 1 (minimum for slab) per} \\ &\quad \text{Appendix A, Attachment 11} \\ b_o &= \text{perimeter of critical wall section} \\ &= 14.1 \text{ in. (see calculation below)} \\ d &= \text{distance from the compression face to centroid of tension} \\ &\quad \text{rebar (in.)} \\ &= (1.75 + 2.25)/2 = 2.0 \text{ in.}\end{aligned}$$

The value of d is computed from geometry information in Attachment 11 of Appendix A; the computation uses the data for floor section 1. Because the slab is reinforced with only one rectangular-mesh layer, the average distance used is from the rebar centroid to the top surface of the slab, which will be in compression under the concentrated load.

In the above ACI equation, the perimeter of the critical slab section is determined from the requirements of ACI Section 11.11.1.2 as given by

$$\begin{aligned}b_o &= 2\pi\{(D/2) + (d/2)\} \\ &= \pi(D + 2.0)\end{aligned}$$

where

$$\begin{aligned}D &= \text{diameter of the impacting missile} \\ d &= 2.0 \text{ as determined above.}\end{aligned}$$

Substituting the expression for b_o into the capacity equation gives

$$\begin{aligned}\phi V_c &= 399.5\pi(D + 2.0) \\ &= 1,255 D + 2,510\end{aligned}$$

which provides the residual capacity, for consideration of transverse shear, as a function of the diameter D of the applied concentrated load.

6.1.3.4.3 Construction Joints. Load configuration A applies a concentrated load at the elevation of the upper construction joint. Configuration B applies the concentrated load approximately 1.5-ft above the lower construction joint. The applicable shear demand histories are examined (Appendix B) to determine the load at which the construction joint capacity, determined per Section 4.3.5, is reached.

Upper

Appendix A includes an evaluation of the construction joints for in situ and PPS loading. The upper construction joint capacity was calculated as 17,054 lbf/ft of width. The demands are determined on the basis of the load distribution allowed per ACI section 11.11.1.2:

$$\text{Engagement length} = D + d,$$

where

- D = minimum missile diameter
- d = wall depth to tension steel = 8.8 in. (Attachment 11 of Appendix A).

Appendix B shows the total shear load allowed as

$$V_u = 204.1 D + 11,524.$$

This allowable shear load, as a function of the concentrated load diameter D, can be used directly with the results of the analysis provided in Appendix B.

Lower

Appendix A calculates the lower construction joint capacity as 16,889 lbf/ft of width. The demands are determined on the basis of the load distribution allowed per ACI Section 11.11.1.2:

$$\text{Engagement length} = D + d,$$

where

- D = minimum missile diameter
- d = wall depth to tension steel = 15.1 in. (Attachment 11 of Appendix A).

Appendix B shows the total shear load allowed as

$$V_u = 157.8 D + 13,607.$$

This allowable shear load, as a function of the concentrated load diameter D, can now be used directly with the results of the analysis provided in Appendix B.

Comparison

Table 6.5-1 of Appendix B tabulates residual capacities of the upper and lower construction joints, calculated on the basis of the expressions provided above, as a function of concentrated load diameter. For the range of diameters tabulated, the upper construction joint residual capacities control over those of the lower joint. Furthermore, as the residual capacity determined on the basis of transverse shear also is a function of the concentrated load diameter, residual capacities are plotted in Figure 6.1.3.4.3-1 for comparison of the transverse shear limit with the upper construction joint limit. The plot, demonstrates that residual capacities determined on the basis of transverse shear limits control over capacities determined from construction joint limits.

6.1.3.4.4 In-Plane Shear. In-plane shear is evaluated by means of a spreadsheet included in Appendix B. Selected elements adjacent to the area of concentrated load application are investigated for this evaluation. The ACI 349 equation used in the spreadsheet is provided below. For Conservatism, minimum element axial loads (membrane forces) and maximum shear forces are selected. For wall-loaded cases, the demand selection is limited to the initial load application through the M-P failure point for the lower wall. Slab-loaded cases consider the entire history for the total applied load (350,000 lbf).

In accordance with ACI Section 11.10.6 (eq. 11-32),

$$\phi V_c = \phi \{ 3.3 (f'_c)^{1/2} h d + N_u d / 4 (l_w) \},$$

where

V_c	=	nominal shear strength provided by concrete (lbf)
ϕ	=	strength reduction factor = 0.85
h	=	thickness of element (in.)
d	=	width of element = 12 in.
N_u	=	Minimum factored axial load (positive for compression, lbf)
l_w	=	width of element = 12 in.

ACI Section 11.10.8 identifies $\phi V_c / 2$ as the maximum shear allowed without requiring shear reinforcing. In-plane moment demand is assumed to be low, so that ACI equation 11-33 does not apply.

Appendix B demonstrates that for wall-loaded cases, all in-plane shear demands are within capacities. Therefore, the minimum residual capacity for a concentrated load applied to the wall is 280,000 lbf, determined on the basis of in-plane shear. For slab-loaded cases, all in-plane shear demands are within capacities except for one element in the analysis of configuration F. The residual capacity then is computed as the applied load magnitude corresponding to the last increment for which the demand is within the capacity. Consequently, the minimum residual capacity for a concentrated load applied to the slab is 322,000 lbf, computed on the basis of in-plane shear.

6.1.3.4.5 Twisting Moment. Appendix A calculates, for each element, the twisting threshold for which the moment can be considered negligible.

Table 6.5-4 of Appendix B summarizes a comparison of the demands from the six transverse-force analyses with the twisting threshold. Selected elements adjacent to the area of concentrated load application are investigated for twisting moment evaluation. For wall-loaded cases, the demand selection is limited to the initial load application through the M-P failure point for the lower wall (280,000 lbf). Slab-loaded cases consider the entire history for the total applied load (350,000 lbf).

Where element twisting-moment demand exceeds the threshold, the demand history for the element is examined to determine the last increment at which the demand is within the threshold. The residual capacity then is computed as the applied load magnitude that corresponds to that increment. Table 6.1.3.4.5-1 summarizes the minimum residual capacities for each load configuration, computed on the basis of twisting moment. The controlling wall capacity is 144,000 lbf, while the controlling slab capacity is 126,000 lbf.

6.1.3.5 Capacity Summary. Analyses were performed to determine the residual capacity of tank C106 for an internal concentrated transverse load on the tank wall or tank slab. The internal load represents a potential impulsive load from equipment used during PPS operations. The analyses considered soil-surface live loads specific to PPS operations as the baseline condition for the capacity determination. The determination was made on the basis of ACI requirements for M-P interaction, construction joints, transverse shear, in-plane shear, and twisting moment.

The analysis of wall loading considered two load locations selected to envelop the critical load configuration. The load limit for the wall was found to be a function of the concentrated load diameter, with a maximum value of 144,000 lbf. Because of high tensile (circumferential) demands in the upper wall, ACI imposes more restrictive limits on transverse shear that results in very low residual capacities. Therefore, concentrated wall loads must be limited to elevations within 14.5 ft of the bottom of the tank.

For the analysis of slab loading, four separate concentrated load locations were selected to envelop the critical load configuration. The load limit for the slab also was found to be a function of the concentrated load diameter, with a maximum value of 126,000 lbf. Tables 6.1.3.5-1 and 6.1.3.5-2 summarize the load limits for the tank wall and slab.

6.1.4 Impulsive and Impact Load Limits

Impulse Loads

For impulsive loads, the load rise time and duration are unspecified. To address all possible impulsive loads conservatively requires that they be treated as having long durations and short rise times compared to the fundamental structural-vibration modes of the tank slab and wall. Thus, a dynamic amplification factor of 2.0 is combined with the ACI live load factor of 1.7 to yield a combined factor of 3.4. As Section 6.1.3.4.2

indicates, the peak transverse force (F_T) associated with the impulsive environment is limited by the following expressions:

$$F_{T(\text{slab})} \leq \frac{\phi V_c}{3.4} = 738 + 369 D \text{ (lbf)} \quad (6.1.4-1)$$

$$F_{T(\text{wall})} \leq \frac{\phi V_c}{3.4} = 15,365 + 1,745 D \text{ (lbf)} \quad \text{for } D \leq 15.5 \text{ in.} \quad (6.1.4-2)$$

$$F_{T(\text{wall})} < 42,350 \text{ lbf} \quad \text{for } D > 15.5 \text{ in.} \quad (6.1.4-3)$$

where D is the diameter (in.) of the impulsive load area.

Impact Loads

The limits for impact loads are generated by identifying impact conditions that prevent excessive damage to both the steel liner and the tank structure. These limits, presented for several different missile weights (W), take the form of allowable impact velocities as a function of missile diameter (D).

The steel-liner damage limit is specified as a penetration of one-half the liner thickness (0.125 in.). This limit on steel liner penetration restricts the allowable impact velocities at small missile diameters. Concrete damage is restricted by prevention of rear-surface scabbing. Preventing concrete damage restricts allowable impact velocities at large missile diameters. These restrictions are shown in Figures 6.1.4-1 and 6.1.4-2; the steel-liner penetration-velocity limit curve crosses the concrete-limit curve. Because the empirical relations used here are not developed from data derived from the use of extremely large-diameter missiles relative to the target thickness, a missile diameter equal to the thickness of the tank wall (12 in.) is a reasonable upper limit.

In using Figures 6.1.4-1 and 6.1.4-2, it is suggested that the cognizant engineer should proceed as follows:

- Verify acceptability of the damage criteria used for these limits
- Identify weight and diameter ranges for potential missiles
- Identify the controlling impact velocity from the appropriate figure.

6.2 ACCIDENTAL DROP EVALUATION

This section describes the calculation of the effects of the impact of the C106 heel jet pump on the soil surface above the C106 tank and on the floor of the C106 heel pit. Details of the calculations are in Appendix G. The impacts analyzed are a drop of the heel jet pump from a height of 4 ft onto the soil surface and a drop from a height of 37 ft into the riser onto the floor of the heel pit.

The C106 heel jet pump consists mainly of steel pipe and a large steel flange welded to one end. The flange supports the jet pump in the riser in the floor of the central heel pit above the dome of C106. If the heel jet pump were dropped on the soil surface, it would strike the sandy soil mass above the tank. If the pump were dropped in the riser, the flange on the end of the jet pump would strike the floor of the heel pit. A drop into the riser is a more severe impact than a drop onto the soil.

6.2.1 Conclusions

No significant effects on the tank would result if the pump were dropped from a height of 4 ft onto the soil above the tank. Large impulsive forces would be transmitted to the tank if the pump were dropped from a height of 37 ft onto the heel pit floor. The heel pit floor will be damaged by such an impact. Calculations show also that the tank dome would be damaged by such an impact. The transverse shear in the dome during the application of the impulsive load greatly exceeds that allowed by the applicable code.

6.2.2 Analytical Methodology and Results

In the first calculation, the pump strikes the soil after free-falling from a height of 4 ft. In the second calculation, the pump strikes the heel pit floor after falling 37 ft back into the riser. The first calculation uses techniques described by Baker (1984). The second calculation uses the finite-element method as well as the techniques described by Baker.

In the 4-ft drop, the average force exerted on the soil during the impact is calculated to be approximately 18 tons. This force is not structurally significant because it is well within the 100-ton concentrated load limit for the tank.

In the 37-ft drop, the impact of the relatively rigid pump onto the concrete floor of the pit produces large impulsive forces that are transmitted to the tank dome by stress waves, which travel through the floor of the heel pit and the layer of soil between the heel pit and the tank dome. A finite-element model was constructed to estimate the magnitude and duration of the impulsive loading on the dome. In this model, the heel pit floor is idealized as a circular disk of elastic material. The soil is modeled as a plastic material. The heel jet pump is modeled as a rigid body. At the beginning of the calculation, the pump is brought into contact with the heel pit floor. During the simulated impact, stress waves travel through the model and are reflected from the bottom of the soil layer, which is held fixed. The vertical force on the bottom soil layer is taken to be equal to the vertical force on the dome. The peak dynamic force on the dome was calculated as 945 tons. The average force during the impact was calculated as 650 tons. Although these forces are below the collapse load given in Julyk 1994, they are nevertheless unacceptable because they are more localized and applied very rapidly. The impulsive loading causes the transverse shear in the dome to exceed code allowables.

The methods in Baker 1984 were also used to analyze the 37-ft drop. In this rough hand calculation, the heel jet pump is assumed to fracture the heel pit floor in a plastic impact. The heel jet pump and the fractured portion of the heel pit then strike the soil above the dome. The average force was found to be 300 tons.

Figure 6.1.3.4.1-1. Meridional Moment/Axial Load Interaction Diagram for Upper-Wall Section of Tank 241C106 with Load Demand History of Configuration A

Figure 6.1.3.4.1-2. Meridional Moment/Axial Load Interaction Diagram for Lower-Wall Section of Tank 241C106 with Demand History of Load Configuration B.

Figure 6.1.3.4.1-3. Meridional Moment/Axial Load Interaction Diagram for Center-Slab Section of Tank 241C106 with Demand History of Load Configuration C.

Figure 6.1.3.4.1-4. Meridional Moment/Axial Load Interaction Diagram for Slab Section of Tank 241C106 with Demand History of Load Configuration D.

Figure 6.1.3.4.1-5. Meridional Moment/Axial Load Interaction Diagram for Slab Section of Tank 241C106 with Demand History of Load Configuration E.

Figure 6.1.3.4.1-6. Meridional Moment/Axial Load Interaction Diagram for Outer-Perimeter Slab Section of Tank 241C106 with Demand History of Load Configuration F.

Figure 6.1.3.4.3-1. Comparison of Tank 241C106 Residual Capacities as Limited by Construction Joint and Transverse Shear.

Figure 6.1.4-1. Impact Damage Map for Slab of Tank 241C106.

Figure 6.1.4-2. Impact Damage Map for Slab of Tank 241C106.

Table 6.1.3.4.1-1. Summary of Residual Capacities of Tank 241C106
Determined on the Basis of Moment/Axial Load Interaction.

Configuration	Response Direction	Residual Capacity (lbf)
Wall		
A	Meridional	360,000
	Circumferential	465,000
B	Meridional	280,000
	Circumferential	>400,000
Slab		
C	Meridional	266,000
	Circumferential	>350,000
D	Meridional	126,000
	Circumferential	196,000
E	Meridional	>350,000
	Circumferential	>350,000
F	Meridional	294,000
	Circumferential	>350,000

Table 6.1.3.4.5-1. Summary of Concentrated Load Residual Capacities of Tank 241C106 Determined on the Basis of Twisting Moment.

Configuration	Residual Capacity (lbf)
Wall	
A	210,000
B	144,000
Slab	
C	>350,000
D	>350,000
E	126,000
F	252,000

Table 6.1.3.5-1. Summary of Concentrated Transverse Load Limits
for Tank 241C106.

Failure Mode	Location	Limit ¹ (lbf)	Controlling Configuration
Moment/Axial Load Interaction	Wall	280,000	B
	Slab	126,000	D
Construction Joints	Wall	see note 2	A
Transverse Shear	Wall	see notes 3 & 4	A
	Slab	see note 5	D
In-Plane Shear	Wall	> 280,000	A
	Slab	322,000	F
Twisting	Wall	144,000	G
	Slab	126,000	E

Notes

- The tabulated limits have not been reduced by ACI or dynamic load factors.
- The internal load limits imposed by construction joints are a function of the concentrated load diameter. The transverse shear limits are more restricting than the construction joint limits. Therefore, the construction joint limits are not provided here.
- The wall limit imposed by transverse shear allowables is to be determined by

$$\phi V_c = 5,936 D + 52,240$$
 where "D" is the diameter of the impulsive load and is limited to 15.5 in., beyond which the limit imposed by twisting of 144,000 lb is controlling.
- Concentrated loads are to be applied no higher than 14.5 ft from the bottom of the tank.
- The slab limit imposed by transverse shear allowables is to be determined by

$$\phi V_c = 1,255 D + 2,510$$
 where "D" is the diameter of the impulsive load. The limit on "D" imposed by M-P interaction is 98 in., which is beyond the practical range.

Table 6.1.3.5-2. Failure Mode Order of Control for Transverse Loads on Tank 241C106.

WALL	
Failure Mode	Limit (lbf) ¹
Transverse Shear	see notes 3 & 4
Twisting	144,000
Construction Joints	see note 2
Moment/Axial Load Interaction	280,000
In-Plane Shear	> 280,000

SLAB	
Failure Mode	Limit (lbf) ¹
Transverse Shear	see note 5
Moment/Axial Load Interaction	126,000
Twisting	126,000
In-Plane Shear	322,000

Notes

- The tabulated limits have not been reduced by ACI or dynamic load factors.
- The internal load limits imposed by construction joints are a function of the concentrated load diameter. The transverse shear limits are more restricting than the construction joint limits. Therefore, the construction joint limits are not provided here.
- The wall limit imposed by transverse shear allowables is to be determined by

$$\phi V_c = 5,936 D + 52,240 ,$$
 where "D" is the diameter of the impulsive load and is limited to 15.5 in., beyond which the limit imposed by twisting of 144,000 lb is controlling.
- Concentrated loads are to be applied no higher than 14.5 ft above the bottom of the tank.
- The slab limit imposed by transverse shear allowables is to be determined by

$$\phi V_c = 1,255 D + 2,510 ,$$
 where "D" is the diameter of the impulsive load. The limit on "D" imposed by M-P interaction is 98 in., which is beyond the practical range.

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H-2-41190, Piping, Cascade Pump Pit Plan & Sections
H-2-41264, Mechanical Equipment - Sub Assembly - Cover Plate For Slurry Pump
H-2-41267, Mechanical Equipment - Sub Assembly - Slurry Pump Adaptor Ring
H-2-41294, Mechanical Equipment - Plan, Section and Details Heel Jet
H-2-41295, Heel Pit Adaptor Ring
H-2-41297, Mechanical Equipment - Sub Assembly - Adaptor Plate - Heel Jet
H-2-41311, Mechanical Equipment - Sub Assembly Sluicing Adapter Ring
H-2-41318, Mechanical Equipment - Assembly Recirculation Diplegs, Waste Metal Removal
H-2-41321, Mechanical Equipment - Detail 4" Pipe Probe Tube For Recirculation Line
H-2-41323, Mechanical Equipment - Detail - Type I & II Diplegs Recirculation Lines
H-2-41343, Structural Concrete - Plan and Sections - Pump Pit
H-2-41344, Structural Concrete - Plan and Sections - Sluicing Pit
H-2-41345, Structural Concrete - Plan and Sections - Heel Pit
H-2-41365, Mechanical Equipment - Standard 1-1/4" Diameter Stud and Free Nut
H-2-41368, Structural Construction Sequence - Heel Pit
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H-2-64313, Structural Concrete - Pump Pit Plans and Section.
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Appendix A

**PAST-PRACTICE-SLUICING ANALYSIS
AND ACI CODE EVALUATION**

INDEPENDENT REVIEW

Document Reviewed Tank 241-C-106 Structural Evaluation in Support of Project W320 Retrieval (Appendix A)

Author ADVENT Engineering Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
Rev. 0

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

L. J. Julyk

Reviewer

10/4/94

Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Tank 241-C-106 Structural Evaluation in Support of Project W320 Retrieval (Appendix A)

Author ADVENT Engineering

Yes No N/A

☒	☐	☐	Problem completely defined.
☒	☐	☐	Necessary assumptions explicitly stated and supported.
☒	☐	☐	Computer codes and data files documented.
☒	☐	☐	Data used in calculations explicitly stated in document.
☒	☐	☐	Data checked for consistency with original source information as applicable.
☒	☐	☐	Mathematical derivations checked including dimensional consistency of results.
☒	☐	☐	Models appropriate and used within range of validity or use outside range of established validity justified.
☒	☐	☐	Hand calculations checked for errors.
☒	☐	☐	Code run streams correct and consistent with analysis documentation.
☒	☐	☐	Code output consistent with input and with results reported in analysis documentation.
☒	☐	☐	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒	☐	☐	Safety margins consistent with good engineering practices.
☒	☐	☐	Conclusions consistent with analytical results and applicable limits.
☒	☐	☐	Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number 94-058

L. J. Julyk
Reviewer

10/4/94
Date

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

ABAQUS Ver. 4.9*, SECC

SOFTWARE APPLICATION

94-058
KEY NUMBER (IF APPLICABLE)

* with ANACAP-U ver 92.2-2, SECC

Phillip R. Kich

Appendix A of
WHC-SD-W320-ANAL-003

ANALYST (PRINTED NAME)

EDT/DOCUMENT NUMBER

J. B. Truitt
J. B. Truitt 10/24/94
ANALYST'S MANAGER

August, 1994

DATE PERFORMED

DESCRIPTION OF ANALYSIS:

Structural static, nonlinear analysis of tank 241C106 for the effects of dead loads, live loads, and soil-surface loads associated with Past-Practice Sluicing operations. The user-defined subroutine, ANACAP-U, was used to define the constitutive behavior of the concrete: Model 2 (elastic, perfectly plastic compressive behavior) was defined. The model is a 3-D model of one-half of the tank.

Elements: Four-node quadrilateral shell elements with *REBAR subelements, and eight-node 3-D solid elements.

Loads: Distributed pressure loads (*DLOADs) including gravity loads, concentrated loads (*CLOAD), and thermal loads (*TEMPERATURE).

Materials: *USER MATERIAL for concrete, *ELASTIC and *PLASTIC for reinforcing steel, *DRUCKER-PRAGER and *YIELD for soil plasticity, *INITIAL CONDITIONS to define the initial state of stress of the soil.

Boundary Conditions: *BOUNDARY conditions to impose roller-type restraints at the soil boundaries and to impose symmetry boundaries at the plane of symmetry.

Solution: *STATIC analysis with the NOSTOP option.

Phillip R. Kich
SIGNATURE OF ANALYST

9/28/94
DATE

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 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Keck Date 8/29/94
 (9) Checker A. L. Llc Date 8/29/94

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Attachment 1	Input File: load1.abdat, From Marlow (1994)
Attachment 2	Input Files for the Analysis Load Cases
Attachment 3	Convergence Summaries (Force Residuals and Displacement Increments)
Attachment 4	Spreadsheets for Determination of Convergence Indicators
Attachment 5	Postprocessing Input and Output Files for PPS Load Case 1a
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(9) Checker A. L. S. L. Date 3/2/94

Attachment 7	Postprocessing Input and Output Files for PPS Load Case 2
Attachment 8	Postprocessing Input and Output Files for PPS Load Case 3
Attachment 9	Spreadsheets for Converting Predicted Forces and Moments
Attachment 10	Spreadsheets for Development of Moment/Axial Load Capacities
Attachment 11	Spreadsheets for Evaluation of Transverse Shear Loads
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Attachment 13	Selected Expanded Spreadsheets Showing Formulas

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1.0 PURPOSE

Finite-element analyses were performed to evaluate tank 241-C-106 for four load cases which conservatively represent Past-Practice-Sluicing loads at the soil surface. The purpose of this calculation is to document the four analyses and evaluate the tank's response with respect to the requirements of the American Concrete Institute (ACI) 349-90 code.

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2.0 ANALYSES

2.1 Model Description

The model used in this evaluation of loads conservatively representing those associated with Past-Practice-Sluicing (PPS) operations is a 3D finite-element model of the tank and the surrounding soil, with half-symmetry boundary conditions. The geometry and material properties were previously developed in WHC-SD-W340-ANAL-001 (Marlow 1994) for the purpose of determining allowable bridge foundation loads on the soil surface. Plots of the finite-element mesh are included in Figures 2-1 and 2-2. Attachment 1 to this appendix provides the input listing for the previous analysis. The following is a description of the model as given by Marlow (1994).

The analytical model [...] is a 3D finite-element model of one-half of the tank and surrounding soil with symmetry boundary conditions. The analysis is performed with ABAQUS version 4.9 [(HKS 1989)], a general-purpose finite-element computer program. The user-defined material subroutine of the ANACAP-U [(James 1993)] concrete analysis package was used to model the constitutive behavior of the concrete. [...]

The tank is modelled with four-noded thin-shell elements. The ABAQUS element type is S4R5. The shell elements are reinforced with the ABAQUS rebar subelements. In ABAQUS version 4.9, the transverse shear forces in an S4R5 element are available. The initial temperature distribution in the tank shell is a uniform 70 °F.

In the center of the dome and in the center of the floor, the four-noded elements are collapsed to form triangular elements. The elements were collapsed in these regions to maintain compatibility between the model described here and another model being used in a seismic analysis of C-106. The collapsed elements are not as accurate as quadrilateral elements. However, the stiffness of the center of the dome is not affected greatly by the collapsed elements [...]. The center of the tank floor is not significant in this analysis. Any inaccuracy introduced by the triangular elements in this area may be safely ignored.

The half-cylinder region of soil surrounding the tank is modelled with eight-noded brick elements, many of which are degenerate. Because detailed soil stresses are of minor importance to the goals of this effort, there is a clear benefit in using these degenerate elements as means to allow transition from the detailed mesh of the tank to the coarse mesh of the surrounding soil. The soil region extends to a depth of 1,405 in. The

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radius of the half-cylinder is 967 in., a radius chosen to correspond to the radius of the soil region used in the C-106 in situ analysis (Julyk 1994).

The ANACAP-U concrete material properties vary by position. The values used for the modulus, the compressive strength, and the tensile strength are the lower-bound degraded properties obtained from the C-106 in situ analysis (Julyk 1994). The properties are assigned directly rather than produced during an application of a thermal history. The density and coefficient of thermal expansion of the concrete also is taken directly from the C-106 in situ analysis.

Specification of the transverse shear stiffness of the shell elements is required because the concrete material is not linearly elastic. The value of $1.E+06$ lbf/in was chosen on the basis of previous work (Dyrness [and Julyk] 1991). The element type S4R5 is intended for thin-shell applications. The transverse shear stiffness acts as a penalty function for this element. Thus, the results are insensitive to the actual value of the transverse shear stiffness [(HKS 1989)].

The soil is modelled with the Drucker-Prager plasticity model. The parameters that define the constitutive behavior are taken directly from the C-106 in situ analysis. The soil has a field-variable dependence, which is documented in Appendix A. The geostatic stress state in the soil is created by specifying an initial stress state with the ABAQUS command *INITIAL CONDITIONS. The determination of the appropriate stress state is documented in Appendix A. The first step of each ABAQUS analysis brings the soil into a state of equilibrium under the applied gravitational acceleration.

The steel rebar material is modelled as an elastic-plastic material with isotropic hardening. The modulus is temperature dependent as is the post-yield behavior. The yield stress varies from 38,000 lbf/in² at 70 °F to 32,585 lbf/in² at 400 °F. The constitutive model for the rebar is taken directly from the C-106 in situ analysis (Julyk 1994).

2.2 Loading

This analysis considers in situ loading and live loading at the soil surface. In situ loading includes the deadweight of the tank and soil and the hydrostatic loading of the contained waste. Live loads are in the form of a distributed live load, such as snow or ash fall, a concentrated equipment load over the tank, and a concentrated crane load

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at a minimum distance of 20 ft. from the the outer edge of the tank wall. Since the concentrated loads are not fixed in location, four load cases (combinations) are analyzed to envelop the critical configuration. Table 2-1 defines the four load cases, and the associated notes describe the intended tank responses. Load factors are applied consistent with the requirements of ACI 349-90, Section 9.2. For convenience, the crane load is defined at a node located 19.5 ft. from the centerline of the tank wall. This conservative location results in a somewhat higher lateral pressure on the wall.

Each load case is analyzed via two stages using successive ABAQUS restarts: Stage 1, which applies unfactored loading, restarts the previous analysis (Marlow 1994) from the completion of the gravity load step (step number 2); Stage 2, which applies factored loading, restarts the Stage 1 analysis. The ABAQUS input file for the previous analysis is listed in Attachment 1 of this appendix, and the restart input files for this analysis are listed in Attachment 2. Resulting displacement plots for the four load cases are shown in Figures 2-3 through 2-6. All displacement plots indicate axisymmetric or near-axisymmetric response of the tank. Although only Load Case 1a comprises entirely axisymmetric loading, all other load cases include a majority of axisymmetric loading (i.e. soil overburden, lateral soil pressure, tank deadweight, etc.) that dominates the displacement response.

The loads are applied to the tank consistent with the application of loads in the previous analysis (Marlow 1994). The dead load of the tank is applied through a gravitational acceleration of the tank mass. Load factoring is applied to the dead load by increasing the acceleration value. Since soil elements are modelled discretely, lateral earth pressure and soil overburden are applied through gravitational accelerations in the same manner as for the tank dead load. The distributed live load is applied as a uniformly distributed pressure load of 40 lbf/ft² on the top of the soil surface elements. The load is then factored appropriately. The hydrostatic waste load is applied as a uniform pressure load of 3.2 lbf/in² on the lower wall elements and then factored appropriately. This pressure corresponds to the average pressure exerted by a fluid waste having a specific gravity of 2 and a depth of 7.3 ft. The concentrated live loads are applied as concentrated loads to appropriate nodes on the soil surface elements, and then factored.

Thermal stresses are considered through temperature definitions representative of the present day conditions predicted by Julyk (1994). All factored load cases overestimate thermal stress effects because the factor is applied to the total temperature rather than just the portion above the initial condition of 70°. In addition, factored Load Cases 2 and 3 conservatively include a factor of 1.4 on the thermal load. ACI 349-90 specifies a thermal factor of 1.05 and allows for a 25 percent reduction of factors applied to other loads included in combination with the thermal loading. However, the thermal environment is moderate and the effect of the

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(9) Checker	H. L. L. L.			Date	9/27/94		

conservative factor on thermal stress is minor compared to the degradation of material properties due to temperature increases which is incorporated directly in the material definitions. Also, the effect of the thermal loading is very small in comparison to the effects of other tank loading.

2.3 Convergence

Extensive discussions of a solution convergence strategy for reinforced concrete nonlinear analysis that uses ABAQUS (version 4.9) can be found in previous work (Dyrness and Julyk 1991, Julyk et al. 1994, Kich et al. 1994). The concrete behavior is modeled with the ANACAP-U material subroutine with implementation through the ABAQUS UMAT option. When significant cracking occurs in these analyses, there is typically a lack of force residual convergence in the load increments because of crack-induced discontinuities in the stresses. Upon crack formation, the release of locked-in stresses causes unbalanced forces. When these internal forces are released to the remainder of the uncracked structure, whose residual stiffness now is reduced greatly, the load/stiffness ratio becomes larger and causes local instabilities. These unbalanced forces decrease from one iteration to the next, but at a very slow rate because of the greatly reduced structural stiffness. Consequently, it is usually necessary to carry the unconverged force residual over to the next load increment and continue the solution, with care taken to use sufficiently small load increments to preserve solution accuracy.

The convergence criteria used in ABAQUS (version 4.9) are based exclusively on forces; increments in displacement are not considered in convergence tests. For cracking structures, displacements converge nonuniformly, whereas after extensive cracking, the residual forces may not converge. It is almost always necessary to disengage the automatic time-stepping algorithm, use fixed time steps, and accept the unconverged solution when the ANACAP-U concrete model is involved. Automatic time stepping is disengaged by selecting the ABAQUS NOSTOP option. Continuation of the analysis is then allowed even if equilibrium tolerances are not satisfied for each increment. Previous work has demonstrated that solution quality need not be compromised when the NOSTOP option is invoked (Julyk et al. 1994, Dyrness and Julyk 1991). Kich et. al. (1994) derived a "convergence indicator" based on the change in displacement increments.

The convergence indicator provides a measure of the asymptotic behavior of the solution in terms of the maximum displacement increments, which are provided in the ABAQUS ".about" files. The convergence indicator is calculated by taking the difference of succeeding maximum displacement increments from one iteration to the next. If the absolute-value of the difference is decreasing with each successive

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iteration, the solution is classified as convergent. This is represented as a positive value on the plot of the convergence indicator. Because three degrees of freedom (DOF) are involved, they are combined to a single DOF by performing a square-root-sum-of-squares on the displacement increment components. The specific equation for the convergence indicator is as follows:

$$CI = \sqrt{(ux_1 - ux_2)^2 + (uy_1 - uy_2)^2 + (uz_1 - uz_2)^2} \\ - \sqrt{(ux_2 - ux_3)^2 + (uy_2 - uy_3)^2 + (uz_2 - uz_3)^2}$$

where

CI = Convergence Indicator
 ux_j = Maximum X-Direction Displacement Increment in Iteration j
 uy_j = Maximum Y-Direction Displacement Increment in Iteration j
 uz_j = Maximum Vertical Displacement Increment in Iteration j

Convergence indicators are plotted in Figures 2-7 through 2-10 for the last load step of the factored load case analyses, which were found to have as few as 45% of their increments converge based on force equilibrium. (Attachment 3 summarizes the force equilibrium convergence for each analysis, and spreadsheets used to develop the convergence indicator are included as Attachment 4.) For increments that converged by force equilibrium, the convergence indicator is assigned an arbitrary value, as indicated on the figures, since displacement increments are required for at least three iterations to compute the indicator.

It is clear from Figures 2-7 through 2-10 that the convergence indicators suggest reliable solutions for these analyses. All figures show that no more than three iterations are divergent on the basis of the convergence indicator. The convergence indicator was not plotted for the unfactored load analyses because convergence based on force equilibrium was much more favorable than that associated with the factored load case analyses.

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Table 2-1
Load Combinations for Analysis of C-106 PPS Loading

Load Case (Input File)	D	F	H	T	L ₁	L ₂	L ₃	L ₄
unfactored								
1a (pps-u1a.abdat)	1	1	1	1	1	1	1 @A	0
1b (pps-u1b.abdat)	1	1	1	1	1	1	1 @B	1 @C
2 (pps-u2.abdat)	1	1	1	1	1	0	1 @C	1 @C
3 (pps-u3.abdat)	1	1	1	1	1	1	1 @A	1 @C
factored								
1a (pps-f1a.abdat)	1.4	1.7	0.9	0.9	1.4	1.7	1.7 @A	0
1b (pps-f1b.abdat)	1.4	1.7	0.9	0.9	1.4	1.7	1.7 @B	1.7 @C
2 (pps-f2.abdat)	0.9	0.9	1.7	1.4	0.9	0	1.7 @C	1.7 @C
3 (pps-f3.abdat)	1.4	1.7	1.7	1.4	1.4	1.7	1.7 @A	1.7 @C

Definitions

D Dead Load of the Tank
 F Hydrostatic Waste Loads
 H Lateral Earth Pressure
 T Temperature
 L₁ Soil Overburden ($\gamma = 110 \text{ lbf/ft}^3$, depth of 6.2 ft. at dome apex)
 L₂ 40 psf Live Load (snow or ash fall)
 L₃ 100 Ton Concentrated Live Load (location not fixed)
 L₄ 85 Ton Crane Load (located no closer than 20 ft. from outer edge of tank wall)

Point A: Soil surface directly over the dome apex. (node 377)
 Point B: Soil surface over the tank wall. (node 1902)
 Point C: Soil surface, 19.5 ft. beyond the tank wall. (node 6033)

Notes for Table 2-1

- Case 1a is intended to maximize vertical compression of the dome and maximize bending in the wall.
- Case 1b is intended to maximize axial loads on the tank wall.
- Case 2 is intended to maximize lateral pressure on the tank walls and minimize dome overburden.
- Case 3 maximizes ACI load factors for all loads.

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(8) Originator Phillip R. Keck Date 9/22/94
(9) Checker L. Lohr Date 9/27/94

Figure 2-1
Complete Finite-Element Model of Tank 241-C-106

(Concentrated Live Load Points Identified, as Defined in Table 2-1)

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(8) Originator Phillip R. Keib Date 9/22/94
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Figure 2-2
Finite-Element Model Tank Shell Elements

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(8) Originator Philip R. Kyel Date 8/29/94
(9) Checker S. Sadik Date 9/29/94

Figure 2-3
Displaced Shape of Tank 241-C-106 for Factored Load Case 1a

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(9) Checker S. Smith Date 8/29/94

Figure 2-4
Displaced Shape of Tank 241-C-106 for Factored Load Case 1b

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Post-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kych Date 8/29/94
 (9) Checker L. L. L. L. Date 8/29/94

Figure 2-5
Displaced Shape of Tank 241-C-106 for Factored Load Case 2

DESIGN CALCULATION

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 (8) Originator Phillip R. Kish Date 8/29/94
 (9) Checker L. Sedik Date 8/29/94

Figure 2-6
Displaced Shape of Tank 241-C-106 for Factored Load Case 3

DESIGN CALCULATION

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 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. 7 Sub Date 8/29/94
 (9) Checker A. Adik Date 8/29/94

Figure 2-7
Convergence Indicator for Analysis PPS-F1A, Step 4

DESIGN CALCULATION

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 (8) Originator Dylin R. Kuhn Date 8/29/94
 (9) Checker S. White Date 8/29/94

Figure 2-8
Convergence Indicator for Analysis PPS-F1B, Step 6

DESIGN CALCULATION

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(9) Checker P. Andik Date 8/29/04

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(7) Subject	ACI Code Evaluation for Past-Practice-Stuicing Analysis				
(8) Originator	_____	Date	8/29/94		
(9) Checker	_____	Date	8/29/94		

Figure 2-10
Convergence Indicator for Analysis PPS-F3, Step 6

A2-16

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 (8) Originator Phillip R. Zell Date 3/29/94
 (9) Checker S. Schell Date 3/29/94

3.0 EVALUATION METHODOLOGY

ABAQUS restart (*.res) files (Marlow 1994, Appendix A) were used to perform the four analyses and extract shell element loads. The input (*.abdat) files and resulting output (*.about) files are included as Attachments 5 through 8 to this calculation. Demands (shell forces and moments) were extracted for a representative set of elements along the positive 1-axis, negative 1-axis, and positive 2-axis (0°, 180°, and 90° meridians from the positive 1 global axis, respectively). The ABAQUS output demands are centroidal and given in units of load per inch of width. Table 3-1 provides descriptions of all files used to extract and postprocess the tank demands. Spreadsheets used to convert and summarize the demands (units of load per foot of width) are included as Attachment 9.

For shell elements, ABAQUS provides demands referenced to the local (element) coordinate systems. Chapter 1 of the ABAQUS user's manual defines the local 1-direction as the projection of the global X-axis onto the shell surface. The local 2-direction is normal to the 1-direction and also in the plane of the shell surface. The local 3-direction follows the positive normal to the shell surface. Together, the local 1-, 2-, and 3-directions form a right-handed set. The above rule applies to elements oriented such that the global X-axis is greater than 0.1° from the shell normal.

For most elements along each of the three meridians studied (0°, 90°, 180°), local axes align very closely to the tank circumferential and meridional directions. Figure 3-1 contains sketches of floor, wall, and dome elements along the major global axes, with local axes indicated, as interpreted from chapter 1 of the ABAQUS user's manual. However, for the lower-two haunch elements along the positive and negative 1-axes of the tank (element numbers 1317 & 1321 and 384 & 388, respectively), local axes do not line up with the meridional and circumferential directions of the tank. Section 4.0 calculates the transformed meridional and circumferential demands at these locations.

Capacities were calculated for a limited number of locations along the tank cross section. Demands for all postprocessed elements were assigned to the corresponding capacity location or conservatively assigned to the most appropriate capacity location. Figure 3-2 defines the locations where capacities were developed, for a strip of elements along the negative 1 global axis. Figure 3-3 provides element numbers for the same strip, along the negative 1-axis. Tables 5-3, 5-4, and 6-2 correlate the elements for each of the three sets (positive 1-axis, negative 1-axis, and positive 2-axis) to the corresponding capacity locations.

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(9) Checker L. La. de Date 8.29.94

The following ACI evaluations are included in this appendix:

- Moment/Axial Load Interaction
- Transverse Shear
- In-Plane Shear
- Twisting Moment
- Construction Joint Shear

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 (9) Checker R. S. A. K. Date 8/29/94

Table 3-1
File Descriptions for Element Load Determination

File Name	Description
PPS-F1AP.abdat	ABAQUS input file to extract PPS load case 1a demands (restarts file PPS-F1A.res).
PPS-F1BP.abdat	ABAQUS input file to extract PPS load case 1b demands (restarts file PPS-F1B.res).
PPS-F2P.abdat	ABAQUS input file to extract PPS load case 2 demands (restarts file PPS-F2.res).
PPS-F3P.abdat	ABAQUS input file to extract PPS load case 3 demands (restarts file PPS-F3.res).
PPS-F1AP.about	ABAQUS output file containing PPS load case 1a demands.
PPS-F1BP.about	ABAQUS output file containing PPS load case 1b demands.
PPS-F2P.about	ABAQUS output file containing in PPS load case 2 demands.
PPS-F3P.about	ABAQUS output file containing in PPS load case 3 demands.
PPS-F1AP.xls	Spreadsheet to postprocess demands from PPS load case 1a analysis.
PPS-F1BP.xls	Spreadsheet to postprocess demands from PPS load case 1b analysis.
PPS-F2P.xls	Spreadsheet to postprocess demands from PPS load case 2 analysis.
PPS-F3P.xls	Spreadsheet to postprocess demands from PPS load case 3 analysis.

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 (8) Originator Philip R. Kurb Date 2/29/94
 (9) Checker A. Suk Date 8/29/94

Figure 3-1
Element Local Axes

FLOOR ELEMENTS : (LOOKING DOWN ONTO FLOOR)

ALONG +1 OR -1 GLOBAL AXIS

ALONG +2 GLOBAL AXIS

WALL ELEMENTS : (VIEWED FROM A RADIAL ORIENTATION OUTSIDE TANK)

ALONG +1 OR -1 GLOBAL AXIS

ALONG +2 GLOBAL AXIS

DOME ELEMENTS : (LOOKING DOWN ONTO DOME)

ALONG +1 OR -1 GLOBAL AXIS

ALONG +2 GLOBAL AXIS

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(8) Originator *Phillip R. Kelly* Date *8/29/94*
(9) Checker *A. J. J. J.* Date *9/1/94*

Figure 3-2
Capacity Locations for ACI Code Check

DESIGN CALCULATION

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 (8) Originator Phillip R. Rich Date 9/26/94
 (9) Checker R. L. L. L. Date 9/27/94

Figure 3-3
Identification Numbers of Elements along the Negative 1-Axis

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 (8) Originator Philip R. Rys Date 8/29/94
 (9) Checker S. Radik SBKOK Date 7/24/94 8/30/94

4.0 TRANSFORMATION OF HAUNCH ELEMENT LOADS

ABAQUS provides shell element forces and moments referenced to the local (element) coordinate systems. The convention for the local coordinate system is such that local axes do not necessarily align with the principal directions of an axisymmetric structure (hoop and meridional). For ACI code evaluations, shear and moment demands need to be computed for the principal directions of the structure. For this evaluation, a representative set of elements along the positive 1-axis, negative 1-axis, and positive 2-axis (0°, 180°, and 90° from the positive 1 global axis, respectively) were investigated. In the case of the lower-two rings of haunch elements along the positive and negative 1-axes, local axes do not line up with the tank meridional and circumferential directions. Therefore, a transformation is required to convert the ABAQUS response from the local element coordinate system to the principal directions of the structure.

The calculation that follows computes the rotated loads for haunch elements along the positive and negative 1-axes, resulting in loads aligned with the meridional and circumferential directions. The methodology used in the transformation is identical to that used in Appendix B of report WHC-SD-W340-ANAL-001, rev. 0. The following provides the development of such transformations for the haunch elements stated above. MathCad files, used to compute the transformation, are summarized in Table 4-1.

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 (8) Originator Philip R. J. J. Date 8/29/94
 (9) Checker J. L. D. K. SBRK Date 8/29/94 8/30/94

Table 4-1
File Descriptions for Haunch Element Load Transformation

File	Element Number	Load Case
R1317-1A.mcd	1317	1a
R1321-1A.mcd	1321	1a
R384-1A.mcd	384	1a
R388-1A.mcd	388	1a
R1317-1B.mcd	1317	1b
R1321-1B.mcd	1321	1b
R384-1B.mcd	384	1b
R388-1B.mcd	388	1b
R1317-2.mcd	1317	2
R1321-2.mcd	1321	2
R384-2.mcd	384	2
R388-2.mcd	388	2
R1317-3.mcd	1317	3
R1321-3.mcd	1321	3
R384-3.mcd	384	3
R388-3.mcd	388	3

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 (8) Originator Phillip R. Fyfe Date 8/29/94
 (9) Checker SB KOK Date 8/30/94

Compute Rotated Moments and Forces for Element 1317 - Load Case 1a
r1317-1a.mcd

$$M := \begin{pmatrix} 355356 & 123180 \\ 123180 & 124272 \end{pmatrix} \quad F := \begin{pmatrix} -26508 & -40776 \\ -40776 & 46128 \end{pmatrix}$$

Define in-plane forces and moments for element 1317.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I := \begin{pmatrix} 355356 & 123180 \\ 123180 & 124272 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c := \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.093 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.397 \\ 0.918 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ (v_c)_0 & (v_c)_1 \end{bmatrix} \quad R = \begin{pmatrix} -0.918 & -0.397 \\ -0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 4.087 \cdot 10^5 & 0 \\ -1.091 \cdot 10^{-11} & 7.093 \cdot 10^4 \end{pmatrix}$$

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -4.478 \cdot 10^4 & 1.407 \cdot 10^3 \\ 1.407 \cdot 10^3 & 6.44 \cdot 10^4 \end{pmatrix}$$

Use these values in the code check (case 1a).

$$V := \begin{pmatrix} -10278 \\ -4877 \end{pmatrix}$$

Define tranverse shears for element 1317 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 1.137 \cdot 10^4 \\ -390.771 \end{pmatrix}$$

Use these values in the code check (case 1a).

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 (9) Checker SB KOK Date _____

Compute Rotated Moments and Forces for Element 1321 - Load Case 1a
r1321-1a.mcd

$$M = \begin{pmatrix} 675732 & 59988 \\ 59988 & 358956 \end{pmatrix} \quad F = \begin{pmatrix} -43848 & -22464 \\ -22464 & 127188 \end{pmatrix}$$

Define in-plane forces and moments for element 1321.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675732 & 59988 \\ 59988 & 358956 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.48 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} 0.984 & 0.18 \\ -0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 6.867 \cdot 10^5 & 1.455 \cdot 10^{-11} \\ 1.455 \cdot 10^{-11} & 3.48 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 1a).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -4.626 \cdot 10^4 & 9.282 \cdot 10^3 \\ 9.282 \cdot 10^3 & 1.296 \cdot 10^5 \end{pmatrix}$$

$$V := \begin{pmatrix} -11329 \\ -2274 \end{pmatrix}$$

Define tranverse shears for element 1321 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -1.155 \cdot 10^4 \\ -197.214 \end{pmatrix}$$

Use these values in the code check (case 1a).

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 (8) Originator Phillip R. J. Sed Date 8/29/94
 (9) Checker SBKOK Date 8/30/94

Compute Rotated Moments and Forces for Element 384 - Load Case 1a
r384-1a.mcd

$$M := \begin{pmatrix} 355344 & -123168 \\ -123168 & 124260 \end{pmatrix} \quad F := \begin{pmatrix} -26508 & 40776 \\ 40776 & 46116 \end{pmatrix}$$

Define in-plane forces and moments for element 384.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I := \begin{pmatrix} 355344 & -123168 \\ -123168 & 124260 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c := \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.092 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.397 \\ 0.918 \end{pmatrix}$$

$$R := \begin{bmatrix} (-u_c)_0 & (-u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} 0.918 & -0.397 \\ 0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 4.087 \cdot 10^5 & 0 \\ -4.366 \cdot 10^{-11} & 7.092 \cdot 10^4 \end{pmatrix}$$

Use these values in the code check (case 1a).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -4.478 \cdot 10^4 & 1.414 \cdot 10^3 \\ 1.414 \cdot 10^3 & 6.439 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} 10227 \\ -4876 \end{pmatrix}$$

Define tranverse shears for element 384 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 1.132 \cdot 10^4 \\ -410.397 \end{pmatrix}$$

Use these values in the code check (case 1a).

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 (9) Checker SB KOK Date 8/30/94

Compute Rotated Moments and Forces for Element 388 - Load Case 1a
 r388-1a.mcd

$$M = \begin{pmatrix} 675708 & -59988 \\ -59988 & 358920 \end{pmatrix} \quad F := \begin{pmatrix} -43836 & 22464 \\ 22464 & 127176 \end{pmatrix}$$

Define in-plane forces and moments for element 388.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675708 & -59988 \\ -59988 & 358920 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.479 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} -0.984 & 0.18 \\ 0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 6.867 \cdot 10^5 & 2.91 \cdot 10^{-11} \\ 3.638 \cdot 10^{-11} & 3.479 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 1a).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -4.625 \cdot 10^4 & 9.276 \cdot 10^3 \\ 9.276 \cdot 10^3 & 1.296 \cdot 10^5 \end{pmatrix}$$

$$V := \begin{pmatrix} 11328 \\ -2274 \end{pmatrix}$$

Define tranverse shears for element 388 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -1.155 \cdot 10^4 \\ -197.467 \end{pmatrix}$$

Use these values in the code check (case 1a).

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 (9) Checker SBKOK Date 8/30/94

Compute Rotated Moments and Forces for Element 1317 - Load Case 1b
r1317-1b.mcd

$$M := \begin{pmatrix} 350112 & 134220 \\ 134220 & 124272 \end{pmatrix} \quad F := \begin{pmatrix} -33996 & -42636 \\ -42636 & 44736 \end{pmatrix} \quad \begin{array}{l} \text{Define in-plane forces and moments} \\ \text{for element 1317.} \\ \text{Units are lbf/ft and in-lbf/ft,} \\ \text{respectively.} \end{array}$$

$$M_I := \begin{pmatrix} 355356 & 123180 \\ 123180 & 124272 \end{pmatrix} \quad \text{Moments from pps-f1a (axisymmetric load).}$$

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.093 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.397 \\ 0.918 \end{pmatrix}$$

$$R := \begin{bmatrix} (-u_c)_0 & (-u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} -0.918 & -0.397 \\ -0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 4.123 \cdot 10^5 & -9.465 \cdot 10^3 \\ -9.465 \cdot 10^3 & 6.205 \cdot 10^4 \end{pmatrix} \quad \begin{array}{l} \text{Use these values in the code} \\ \text{check (case 1b).} \end{array}$$

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -5.266 \cdot 10^4 & 456.78 \\ 456.78 & 6.34 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} -10628 \\ -5334 \end{pmatrix} \quad \text{Define tranverse shears for element 1317 as reported by ABAQUS.}$$

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 1.187 \cdot 10^4 \\ -671.04 \end{pmatrix} \quad \begin{array}{l} \text{Use these values in the code check} \\ \text{(case 1b).} \end{array}$$

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Compute Rotated Moments and Forces for Element 1321 - Load Case 1b
r1321-1b.mcd

$$M = \begin{pmatrix} 689544 & 57288 \\ 57288 & 304452 \end{pmatrix} \quad F = \begin{pmatrix} -50076 & -21204 \\ -21204 & 106908 \end{pmatrix}$$

Define in-plane forces and moments for element 1321.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675732 & 59988 \\ 59988 & 358956 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.48 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} 0.984 & 0.18 \\ -0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 6.974 \cdot 10^5 & -1.462 \cdot 10^4 \\ -1.462 \cdot 10^4 & 2.966 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 1b).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -5.25 \cdot 10^4 & 7.972 \cdot 10^3 \\ 7.972 \cdot 10^3 & 1.093 \cdot 10^5 \end{pmatrix}$$

$$V := \begin{pmatrix} -10852 \\ -1090 \end{pmatrix}$$

Define tranverse shears for element 1321 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -1.087 \cdot 10^4 \\ 881.562 \end{pmatrix}$$

Use these values in the code check (case 1b).

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Compute Rotated Moments and Forces for Element 384 - Load Case 1b
r384-1b.mcd

$$M := \begin{pmatrix} 331032 & -134736 \\ -134736 & 109512 \end{pmatrix} \quad F := \begin{pmatrix} -24336 & 37596 \\ 37596 & 25992 \end{pmatrix}$$

Define in-plane forces and moments for element 384.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I := \begin{pmatrix} 355344 & -123168 \\ -123168 & 124260 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c := \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.092 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.397 \\ 0.918 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ (v_c)_0 & (v_c)_1 \end{bmatrix} \quad R = \begin{pmatrix} 0.918 & -0.397 \\ 0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 3.943 \cdot 10^5 & -1.14 \cdot 10^4 \\ -1.14 \cdot 10^4 & 4.623 \cdot 10^4 \end{pmatrix}$$

Use these values in the code check (case 1b).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -4.381 \cdot 10^4 & 7.369 \cdot 10^3 \\ 7.369 \cdot 10^3 & 4.546 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} 10596 \\ -5168 \end{pmatrix}$$

Define tranverse shears for element 384 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 1.178 \cdot 10^4 \\ -531.715 \end{pmatrix}$$

Use these values in the code check (case 1b).

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Compute Rotated Moments and Forces for Element 388 - Load Case 1b

r388-1b.mcd

$$M = \begin{pmatrix} 661128 & -65196 \\ -65196 & 321828 \end{pmatrix} \quad F = \begin{pmatrix} -44592 & 14724 \\ 14724 & 114192 \end{pmatrix}$$

Define in-plane forces and moments for element 388.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675708 & -59988 \\ -59988 & 358920 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.479 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} -0.984 & 0.18 \\ 0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 6.732 \cdot 10^5 & 883.795 \\ 883.795 & 3.097 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 1b).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -4.466 \cdot 10^4 & 1.435 \cdot 10^4 \\ 1.435 \cdot 10^4 & 1.143 \cdot 10^5 \end{pmatrix}$$

$$V := \begin{pmatrix} 10612 \\ -1288 \end{pmatrix}$$

Define transverse shears for element 388 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -1.067 \cdot 10^4 \\ 643.522 \end{pmatrix}$$

Use these values in the code check (case 1b).

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Compute Rotated Moments and Forces for Element 1317 - Load Case 2 r1317-2.mcd

$$M := \begin{pmatrix} 180960 & 94236 \\ 94236 & 13320 \end{pmatrix} \quad F := \begin{pmatrix} -31116 & -6299 \\ -6299 & -24228 \end{pmatrix}$$

Define in-plane forces and moments for element 1317.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I := \begin{pmatrix} 355356 & 123180 \\ 123180 & 124272 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c := \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.093 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.397 \\ 0.918 \end{pmatrix}$$

$$R = \begin{bmatrix} (-u_c)_0 & (-u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} -0.918 & -0.397 \\ -0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 2.232 \cdot 10^5 & -3.335 \cdot 10^3 \\ -3.335 \cdot 10^3 & -2.894 \cdot 10^4 \end{pmatrix}$$

Use these values in the code check (case 2).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -3.462 \cdot 10^4 & 1.797 \cdot 10^3 \\ 1.797 \cdot 10^3 & -2.072 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} -7655 \\ -3462 \end{pmatrix}$$

Define transverse shears for element 1317 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 8.4 \cdot 10^3 \\ -134.711 \end{pmatrix}$$

Use these values in the code check (case 2).

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Compute Rotated Moments and Forces for Element 1321 - Load Case 2

r1321-2.mcd

$$M = \begin{pmatrix} 393960 & 79872 \\ 79872 & -221904 \end{pmatrix} \quad F = \begin{pmatrix} -33252 & -4717 \\ -4717 & 17496 \end{pmatrix}$$

Define in-plane forces and moments for element 1321.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675732 & 59988 \\ 59988 & 358956 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.48 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c0} & v_{c1} \end{bmatrix} \quad R = \begin{pmatrix} 0.984 & 0.18 \\ -0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 4.023 \cdot 10^5 & -3.437 \cdot 10^4 \\ -3.437 \cdot 10^4 & -2.302 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 2).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -3.328 \cdot 10^4 & 4.576 \cdot 10^3 \\ 4.576 \cdot 10^3 & 1.752 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} -6388 \\ -862 \end{pmatrix}$$

Define tranverse shears for element 1321 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -6.439 \cdot 10^3 \\ 302.156 \end{pmatrix}$$

Use these values in the code check (case 2).

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Compute Rotated Moments and Forces for Element 384 - Load Case 2
r384-2.mcd

$$M = \begin{pmatrix} 194064 & -96288 \\ -96288 & 24480 \end{pmatrix} \quad F := \begin{pmatrix} -26232 & 8892 \\ 8892 & -12528 \end{pmatrix}$$

Define in-plane forces and moments for element 384.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 355344 & -123168 \\ -123168 & 124260 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.092 \cdot 10^4 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.397 \\ 0.918 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c0} & v_{c1} \end{bmatrix} \quad R = \begin{pmatrix} 0.918 & -0.397 \\ 0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 2.375 \cdot 10^5 & -4.036 \cdot 10^3 \\ -4.036 \cdot 10^3 & -1.897 \cdot 10^4 \end{pmatrix}$$

Use these values in the code check (case 2).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -3.055 \cdot 10^4 & 1.086 \cdot 10^3 \\ 1.086 \cdot 10^3 & -8.207 \cdot 10^3 \end{pmatrix}$$

$$V := \begin{pmatrix} 6664 \\ -3301 \end{pmatrix}$$

Define tranverse shears for element 384 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 7.427 \cdot 10^3 \\ -380.984 \end{pmatrix}$$

Use these values in the code check (case 2).

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Compute Rotated Moments and Forces for Element 388 - Load Case 2
r388-2.mcd

$$M = \begin{pmatrix} 390192 & -77568 \\ -77568 & -180684 \end{pmatrix} \quad F = \begin{pmatrix} -29484 & 7174 \\ 7174 & 34332 \end{pmatrix}$$

Define in-plane forces and moments for element 388.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675708 & -59988 \\ -59988 & 358920 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.479 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} -0.984 & 0.18 \\ 0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 3.992 \cdot 10^5 & -2.856 \cdot 10^4 \\ -2.856 \cdot 10^4 & -1.897 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 2).

$$F_{\text{code}} = R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -2.996 \cdot 10^4 & 4.592 \cdot 10^3 \\ 4.592 \cdot 10^3 & 3.48 \cdot 10^4 \end{pmatrix}$$

$$V = \begin{pmatrix} 5777 \\ -950 \end{pmatrix}$$

Define tranverse shears for element 388 as reported by ABAQUS.

$$V_{\text{code}} = R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -5.854 \cdot 10^3 \\ 105.555 \end{pmatrix}$$

Use these values in the code check (case 2).

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Compute Rotated Moments and Forces for Element 1317 - Load Case 3 r1317-3.mcd

$$M := \begin{pmatrix} 362940 & 164064 \\ 164064 & 98316 \end{pmatrix} \quad F := \begin{pmatrix} -39900 & -30048 \\ -30048 & 9702 \end{pmatrix}$$

Define in-plane forces and moments
for element 1317.
Units are lbf/ft and in-lbf/ft,
respectively.

$$M_I := \begin{pmatrix} 355356 & 123180 \\ 123180 & 124272 \end{pmatrix} \quad \text{Moments from pps-f1a (axisymmetric load).}$$

$$c := \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.093 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.397 \\ 0.918 \end{pmatrix}$$

$$R := \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ (v_c)_0 & (v_c)_1 \end{bmatrix} \quad R = \begin{pmatrix} -0.918 & -0.397 \\ -0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 4.408 \cdot 10^5 & -1.574 \cdot 10^4 \\ -1.574 \cdot 10^4 & 2.045 \cdot 10^4 \end{pmatrix}$$

Use these values in the code
check (case 3).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -5.398 \cdot 10^4 & 2.468 \cdot 10^3 \\ 2.468 \cdot 10^3 & 2.378 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} -12540 \\ -6409 \end{pmatrix}$$

Define tranverse shears for element 1317 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 1.405 \cdot 10^4 \\ -897.66 \end{pmatrix}$$

Use these values in the code check
(case 3).

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Compute Rotated Moments and Forces for Element 1321 - Load Case 3
 r1321-1a.mcd

$$M = \begin{pmatrix} 754164 & 89004 \\ 89004 & 134364 \end{pmatrix} \quad F = \begin{pmatrix} -50976 & -7904 \\ -7904 & 52512 \end{pmatrix}$$

Define in-plane forces and moments for element 1321.
 Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675732 & 59988 \\ 59988 & 358956 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.48 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} -0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ (v_c)_0 & (v_c)_1 \end{bmatrix} \quad R = \begin{pmatrix} 0.984 & 0.18 \\ -0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 7.656 \cdot 10^5 & -2.653 \cdot 10^4 \\ -2.653 \cdot 10^4 & 1.229 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 3).

$$F_{\text{code}} = R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -5.042 \cdot 10^4 & 1.094 \cdot 10^4 \\ 1.094 \cdot 10^4 & 5.196 \cdot 10^4 \end{pmatrix}$$

$$V = \begin{pmatrix} -12252 \\ -1210 \end{pmatrix}$$

Define tranverse shears for element 1321 as reported by ABAQUS.

$$V_{\text{code}} = R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -1.227 \cdot 10^4 \\ 1.016 \cdot 10^3 \end{pmatrix}$$

Use these values in the code check (case 3).

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Compute Rotated Moments and Forces for Element 384 - Load Case 3 r384-1a.mcd

$$M := \begin{pmatrix} 375552 & -159168 \\ -159168 & 103956 \end{pmatrix} \quad F := \begin{pmatrix} -37404 & 30432 \\ 30432 & 13572 \end{pmatrix}$$

Define in-plane forces and moments for element 384.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I := \begin{pmatrix} 355344 & -123168 \\ -123168 & 124260 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 4.087 \cdot 10^5 \\ 7.092 \cdot 10^4 \end{pmatrix}$$

$$u_c := \text{eigenvec}(M_I, c_0) \quad v_c := \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} -0.918 \\ 0.397 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.397 \\ 0.918 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ v_{c_0} & v_{c_1} \end{bmatrix} \quad R = \begin{pmatrix} 0.918 & -0.397 \\ 0.397 & 0.918 \end{pmatrix}$$

$$M_{\text{code}} := R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 4.487 \cdot 10^5 & -9.857 \cdot 10^3 \\ -9.857 \cdot 10^3 & 3.076 \cdot 10^4 \end{pmatrix}$$

Use these values in the code check (case 3).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -5.155 \cdot 10^4 & 2.232 \cdot 10^3 \\ 2.232 \cdot 10^3 & 2.772 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} 11940 \\ -6526 \end{pmatrix}$$

Define tranverse shears for element 384 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} 1.355 \cdot 10^4 \\ -1.244 \cdot 10^3 \end{pmatrix}$$

Use these values in the code check (case 3).

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Compute Rotated Moments and Forces for Element 388 - Load Case 3
r388-1a.mcd

$$M = \begin{pmatrix} 760908 & -78804 \\ -78804 & 176628 \end{pmatrix} \quad F := \begin{pmatrix} -49728 & 11887 \\ 11887 & 64872 \end{pmatrix}$$

Define in-plane forces and moments for element 388.
Units are lbf/ft and in-lbf/ft, respectively.

$$M_I = \begin{pmatrix} 675708 & -59988 \\ -59988 & 358920 \end{pmatrix}$$

Moments from pps-f1a (axisymmetric load).

$$c = \text{eigenvals}(M_I) \quad c = \begin{pmatrix} 6.867 \cdot 10^5 \\ 3.479 \cdot 10^5 \end{pmatrix}$$

$$u_c = \text{eigenvec}(M_I, c_0) \quad v_c = \text{eigenvec}(M_I, c_1)$$

$$u_c = \begin{pmatrix} 0.984 \\ -0.18 \end{pmatrix} \quad v_c = \begin{pmatrix} 0.18 \\ 0.984 \end{pmatrix}$$

$$R = \begin{bmatrix} (u_c)_0 & (u_c)_1 \\ (v_c)_0 & (v_c)_1 \end{bmatrix} \quad R = \begin{pmatrix} -0.984 & 0.18 \\ 0.18 & 0.984 \end{pmatrix}$$

$$M_{\text{code}} = R \cdot M \cdot R^T \quad M_{\text{code}} = \begin{pmatrix} 7.699 \cdot 10^5 & -2.977 \cdot 10^4 \\ -2.977 \cdot 10^4 & 1.677 \cdot 10^5 \end{pmatrix}$$

Use these values in the code check (case 3).

$$F_{\text{code}} := R \cdot F \cdot R^T \quad F_{\text{code}} = \begin{pmatrix} -5.022 \cdot 10^4 & 9.178 \cdot 10^3 \\ 9.178 \cdot 10^3 & 6.537 \cdot 10^4 \end{pmatrix}$$

$$V := \begin{pmatrix} 12396 \\ -2086 \end{pmatrix}$$

Define tranverse shears for element 388 as reported by ABAQUS.

$$V_{\text{code}} := R \cdot V \quad V_{\text{code}} = \begin{pmatrix} -1.257 \cdot 10^4 \\ 179.734 \end{pmatrix}$$

Use these values in the code check (case 3).

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 (9) Checker Andie Date 8/29/94

5.0 MOMENT-AXIAL LOAD EVALUATION

5.1 Procedure

Meridional moment/axial load (M-P) capacity curves were originally developed for structural analysis of the in situ condition per report WHC-SD-W320-ANAL-001 (Julyk 1994). This was accomplished through the use of spreadsheets and is outlined in Section 5.1.3 of the above referenced report. The methodology was extended in report WHC-SD-W340-ANAL-001 (Marlow 1994), for the tank evaluation under non-axisymmetric bridge foundation loads. Circumferential M-P capacity curves were developed, and refinements to the simplified three-point capacity curves were made where necessary. Appendix B of report WHC-SD-W340-ANAL-001 describes and provides the spreadsheets used to develop the capacity curves. Geometry data, used as input to the capacity spreadsheets, is also provided in Appendix B of the referenced report.

In this evaluation of tank 241-C-106 under PPS loading, when possible the same capacity curves are used as in report WHC-SD-W340-ANAL-001. For two of the M-P interaction diagrams, calculation of additional capacity data points was necessary to refine the simplified three-point curves obtained from WHC-SD-W340-ANAL-001. This refinement was made via spreadsheets, which are included in Attachment 10 to this appendix and follow the same methodology as used in the above referenced reports.

Tables 5-1 and 5-2 describe the files used to evaluate moment/axial load interaction. Note that evaluation of circumferential M-P interaction for the haunch region is referenced to the same capacity data as in the meridional direction. This approach is further described in Section 5.2. Tank capacity locations are identified in Figure 3-2. Tables 5-3 and 5-4 correlate the elements for each of the three sets (positive 1-axis, negative 1-axis, and positive 2-axis) to the capacity locations used to qualify the demands.

In accordance with ACI philosophy, capacity curves for M-P interaction are calculated for loading at the plastic centroid of the section. The plastic centroid is defined as the location where a concentrated axial load would cause a uniform strain across the section (no bending). However, ABAQUS provides shell element demands at the geometric centroid (shell mid-section) only. Moments at the plastic centroid would be increased or decreased by the product of the axial load and the centroid location difference. Within the first two spreadsheets in Appendix B, Attachment 6 of report WHC-SD-W340-ANAL-001, the plastic centroid location for each section is calculated. The plastic centroid distance to the tension steel is designated as x_p in these spreadsheets. Table 5-5 and 5-6 compare the plastic centroids to the geometric centroids for meridional and circumferential response, respectively. The centroid

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location differences are shown to be very small. Wall sections are symmetric and therefore the the plastic centroid and the geometric centroid coincide.

Examination of the M-P interaction diagrams, provided in Figures 5-1 through 5-92, reveals that the plotted M-P demands do not shift significantly if they are transferred to the plastic centroid location. Therefore, no adjustment is deemed necessary. The negligible shift is graphically represented in Figures 5-93 through 5-95, where demand shifts are shown for selected locations found to have the lowest capacity margin. Demand shifts are assumed to be increases and are calculated using demands from Attachment 9 as follows:

Section 7c (dome), Circumferential, Load Case 3, demand along +1-axis
(ref. Figure 5-90)

centroid difference = 0.029 in.

element 1337 $P = -23,796 \text{ lb.}$ $M = 115,224 \text{ lb-in}$
 $M' = 115224 + (0.029)(23796) = 115,914 \text{ lb-in}$

element 1341 $P = -24,024 \text{ lb.}$ $M = 91,380 \text{ lb-in}$
 $M' = 91380 + (0.029)(24024) = 92,077 \text{ lb-in}$

Section 7 (dome), Meridional, Load Case 3, demand along +2-axis
(ref. Figure 5-78)

centroid difference = 0.065 in.

element 916 $P = 57,492 \text{ lb.}$ $M = 379,872 \text{ lb-in}$
 $M' = 379872 + (0.065)(57492) = 383,609 \text{ lb-in}$

Section 2a (slab-wall interface), Meridional, Load Case 1a, demand along +1-axis
(ref. Figure 5-2)

centroid difference = 0.196 in.

element 1281 $P = 26,112 \text{ lb.}$ $M = 237,888 \text{ lb-in}$
 $M' = 237888 + (0.196)(26112) = 243,006 \text{ lb-in}$

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5.2 Results

Moment/axial load demands are plotted along with capacities in Figures 5-1 through 5-92. All demands are within the capacity envelopes for the factored in situ and PPS loading, except for circumferential demands at sections 6a and 6b (haunch) and section 7c (dome near haunch). In Figure 5-90, the circumferential demand at section 7c for Load Case 3 is shown to nearly intersect the capacity curve. Consequently, there is effectively zero capacity margin remaining at this dome location.

Circumferential M-P capacities were not specifically determined for haunch elements because of complications caused by changing tank geometry along the meridional direction of each element. The changing tank geometry causes variations in concrete thickness and rebar quantities to occur over the width of the elements. Therefore, a simplified evaluation is made by comparing the circumferential demands to the meridional capacity. The circumferential demands fall outside the meridional capacity envelope due to the high hoop-tension developed in the haunch. However, since the circumferential reinforcing area is high, the difference of meridional and circumferential rebar area compensates for the axial tension beyond the meridional capacity envelope:

Section 6a

Comparing load cases 1a, 1b, 2, and 3, Load Case 1a demands are the most critical. From Figure 5-17, the tensile load beyond meridional capacity is conservatively 25,000 lb. Therefore, for an ACI strength reduction factor of 0.9, the required circumferential rebar area required beyond meridional rebar area is

$$= P_{\max}/0.9F_y = (25000 \text{ lb})/(0.9)(38000 \text{ psi}) = 0.73 \text{ in}^2$$

From the rebar definitions for this model, found in Appendix A, Section 2.2 of report WHC-SD-W340-ANAL-001, the total circumferential rebar area for an element in set HAUNCH-W1

$$= (9.4 + 7.8 \text{ in}^2)(12 \text{ in/ft})/(23.9 \text{ in}) = 8.6 \text{ in}^2/\text{ft}$$

The total meridional rebar area

$$= 2(0.44 \text{ in}^2)(12 \text{ in/ft})/(6.3 \text{ in}) = 1.7 \text{ in}^2/\text{ft}$$

The rebar area difference of $8.6 - 1.7 = 6.9 \text{ in}^2$ is much greater than the 0.73 in^2 required, therefore circumferential M-P interaction at section 6a is acceptable.

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Section 6b

Comparing load cases 1a, 1b, 2, and 3, Load Case 1a demands are the most critical. From Figure 5-18, the maximum tensile load beyond meridional capacity is conservatively 130,000 lb. Therefore, for an ACI strength reduction factor of 0.9, the required circumferential rebar area required beyond meridional rebar area is

$$= P_{\max}/0.9F_y = (130000 \text{ lb})/(0.9)(38000 \text{ psi}) = 3.8 \text{ in}^2$$

From the rebar definitions for this model, found in Appendix A, Section 2.2 of report WHC-SD-W340-ANAL-001, the total circumferential rebar area for an element in set HAUNCH-W2

$$= (20.3 + 12.5 \text{ in}^2)(12 \text{ in/ft})/(23.9 \text{ in}) = 16.5 \text{ in}^2/\text{ft}$$

The total meridional rebar area

$$= 2(0.44 \text{ in}^2)(12 \text{ in/ft})/(6.2 \text{ in}) = 1.7 \text{ in}^2/\text{ft}$$

The rebar area difference of $16.5 - 1.7 = 14.8 \text{ in}^2$ is much greater than the 3.8 in^2 required, therefore circumferential M-P interaction at section 6b is acceptable.

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Table 5-1
Description of Plots of Meridional M-P Capacities and Demands

File Name	Capacity Sections	Load Case	Figure
M1A-1.xlc	1	1a	5-1
M1A-2.xlc	2	1a	5-2
M1A-2A.xlc	2a	1a	5-3
M1A-3.xlc	3	1a	5-4
M1A-4A.xls	4a	1a	5-5
M1A-456.xlc	4, 5, and 6	1a	5-6
M1A-6A.xlc	6a	1a	5-7
M1A-6B.xlc	6b	1a	5-8
M1A-7.xlc	7	1a	5-9
M1A-8.xlc	8	1a	5-10
M1A-9.xlc	9	1a	5-11
M1B-___.xlc ⁽¹⁾	see note 1	1b	5-24 through 5-34
M2A-___.xlc ⁽²⁾	see note 2	2	5-47 through 5-57
M3A-___.xlc ⁽³⁾	see note 3	3	5-70 through 5-80

Notes for Table 5-1

- File names for Load Case 1b follow the same format as Load Case 1a, using "M1B" as the prefix in place of the "M1A" prefix.
- File names for Load Case 2 follow the same format as Load Case 1a, using "M2A" as the prefix in place of the "M1A" prefix.
- File names for Load Case 3 follow the same format as Load Case 1a, using "M3A" as the prefix in place of the "M1A" prefix.

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Table 5-2
Description of Plots of Circumferential M-P Capacities and Demands

File Name	Capacity Sections	Load Case	Figure
C1A-1.xlc	1	1a	5-12
C1A-2.xlc	2	1a	5-13
C1A-2A.xlc	2a	1a	5-14
C1A-3.xlc	3	1a	5-15
C1A-456.xlc	4, 5, and 6	1a	5-16
C1A-6A.xlc	6a	1a	5-17
C1A-6B.xlc	6b	1a	5-18
C1A-7A.xlc	7a	1a	5-19
C1A-7B.xlc	7b	1a	5-20
C1A-7C.xlc	7c	1a	5-21
C1A-8.xlc	8	1a	5-22
C1A-9.xlc	9	1a	5-23
C1B-___.xlc ⁽¹⁾	see note 1	1b	5-35 through 5-46
C2A-___.xlc ⁽²⁾	see note 2	2	5-58 through 5-69
C3A-___.xlc ⁽³⁾	see note 3	3	5-81 through 5-92

Notes for Table 5-2

1. File names for Load Case 1b follow the same format as Load Case 1a, using "C1B" as the prefix in place of the "C1A" prefix.
2. File names for Load Case 2 follow the same format as Load Case 1a, using "C2A" as the prefix in place of the "C1A" prefix.
3. File names for Load Case 3 follow the same format as Load Case 1a, using "C3A" as the prefix in place of the "C1A" prefix.

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Table 5-3
Correlation of Capacity Locations to Demand Locations for
Meridional M-P Loads

Capacity Section	Element Numbers		
	Positive 1-Axis	Negative 1-Axis	Positive 2-Axis
Floor			
1	289, 291, 295, 301, 1257, 1261, 1265, 1269, 1273	1, 4, 9, 16, 324, 328, 332, 336, 340	161, 164, 169, 176, 844, 848, 852, 856, 860
2	1277	344	864
2a	1281	348	868
Footing			
3	1357	424	944
Wall			
4a	1285	352	872
4, 5, 6	1289, 1293, 1297, 1301, 1305, 1309, 1313	356, 360, 364, 368, 372, 376, 380	876, 880, 884, 888, 892, 896, 900
Haunch			
6a	1317	384	904
6b	1321, 1325	388, 392	908, 912
Dome			
7	1329, 1333, 1337, 1341	396, 400, 404, 408	916, 920, 924, 928
8	1345, 1349, 1353	412, 416, 420	932, 936, 940
9	308, 305, 314, 312, 318, 317	23, 19, 28, 25, 31, 29	183, 179, 188, 185, 191, 189

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 (9) Checker A. J. J. J. Date 8/29/94

Table 5-4
Correlation of Capacity Locations to Demand Locations for
Circumferential M-P Loads

Capacity Section	Element Numbers		
	Positive 1-Axis	Negative 1-Axis	Positive 2-Axis
Floor			
1	289, 291, 295, 301, 1257, 1261, 1265, 1269, 1273	1, 4, 9, 16, 324, 328, 332, 336, 340	161, 164, 169, 176, 844, 848, 852, 856, 860
2	1277	344	864
2a	1281	348	868
Footing			
3	1357	424	944
Wall			
4, 5, 6	1285, 1289, 1293, 1297, 1301, 1305, 1309, 1313	352, 356, 360, 364, 368, 372, 376, 380	872, 876, 880, 884, 888, 892, 896, 900
Haunch			
6a	1317	384	904
6b	1321, 3125	388, 392	908, 912
Dome			
7a	1329	396	916
7b	1333	400	920
7c	1337, 1341	404, 408	924, 928
8	1345, 1349, 1353	412, 416, 420	932, 936, 940
9	308, 305, 314, 312, 318, 317	23, 19, 28, 25, 31, 29	183, 179, 188, 185, 191, 189

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Table 5-5
Comparison of Centroids for Meridional M-P Capacities
(Distance from Tension Steel to Centroid)

Section	Plastic Centroid (in)	Geometric Centroid (in)	Centroid Difference (in)
1 (top)	1.208	1.250	0.042
2 (top)	1.210	1.250	0.040
3 (bot)	8.655	8.870	0.215
3 (top)	5.943	5.750	-0.193
4	3.625	3.625	0.000
5	3.625	3.625	0.000
6	3.625	3.625	0.000
7 (in)	5.810	5.875	0.065
7 (out)	3.190	3.125	-0.065
8 (in)	5.816	5.875	0.059
8 (out)	3.184	3.125	-0.059
9 (in)	5.816	5.875	0.059
9 (out)	3.184	3.125	-0.059
1 (bot)	-1.208	-1.250	-0.042
2 (bot)	-1.210	-1.250	-0.040
2a (bot)	4.919	5.115	0.196
4a (out)	6.638	6.775	0.137
6a (in)	5.859	5.875	0.016
6a (out)	5.516	5.500	-0.016
6b (in)	12.007	12.020	0.013
6b (out)	11.651	11.645	-0.006

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 (9) Checker L. Subir Date 8/29/94

Table 5-6
Comparison of Centroids for Circumferential M-P Capacities
(Distance from Tension Steel to Centroid)

Section	Plastic Centroid (in)	Geometric Centroid (in)	Centroid Difference (in)
1 (top)	0.725	0.750	0.025
2 (top)	0.726	0.750	0.024
3 (bot)	7.848	8.000	0.152
3 (top)	5.152	5.000	-0.152
4	2.813	2.813	0.000
5	2.813	2.813	0.000
6	2.813	2.813	0.000
8 (in)	5.096	5.125	0.029
8 (out)	3.904	3.875	-0.029
9 (in)	5.096	5.125	0.029
9 (out)	3.904	3.875	-0.029
1 (bot)	-0.725	-0.750	-0.025
2 (bot)	-0.726	-0.750	-0.024
2a (bot)	4.354	4.245	-0.109
2a (top)	8.136	8.245	0.109
7a (in)	7.960	8.030	0.070
7a (out)	7.225	7.155	-0.070
7b (in)	6.491	6.540	0.049
7b (out)	5.589	5.540	-0.049
7c (in)	6.161	6.190	0.029
7c (out)	5.094	5.065	-0.029

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 (9) Checker A. Lohik Date 8/29/94

Figure 5-1
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1a PPS Demands

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Figure 5-2
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1a PPS Demands

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 (9) Checker L. Sadie Date 8/29/94

Figure 5-3
Meridional M-P Interaction Diagram for Basemat / Wall Interface
Sections & Factored Load Case 1a PPS Demands

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 (9) Checker Scott L. Hite Date 8/1/94

Figure 5-4
Meridional M-P Interaction Diagram for Footing Section &
Factored Load Case 1a PPS Demands

DESIGN CALCULATION

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 (9) Checker R. Endicott Date 8/29/94

Figure 5-5
Meridional M-P Interaction Diagram for Wall Base Section &
Factored Load Case 1a PPS Demands

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 (8) Originator Phillip R. Kuhl Date 2/29/94
 (9) Checker A. J. J. J. Date 2/29/94

Figure 5-6
Meridional M-P Interaction Diagram for Wall Sections &
Factored Load Case 1a PPS Demands

DESIGN CALCULATION

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 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip B. Zych Date 3/29/94
 (9) Checker A. J. Smith Date 8/29/94

Figure 5-7
Meridional M-P Interaction Diagram for Haunch Section Near Wall
& Factored Load Case 1a PPS Demands

DESIGN CALCULATION

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 (8) Originator Philip R. Kelly Date 8/29/94
 (9) Checker A. S. L. L. Date 8/29/94

Figure 5-8
Meridional M-P Interaction Diagram for Corner Haunch Section &
Factored Load Case 1a PPS Demands

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 (9) Checker S. L. Lick Date 8/29/94

Figure 5-9
Meridional M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1a PPS Demands

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 (9) Checker S. Adil Date 8/29/94

Figure 5-10
Meridional M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 1a PPS Demands

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 (9) Checker S. J. J. J. Date 2/29/94

Figure 5-11
Meridional M-P Interaction Diagram for Dome Section Nearest
Apex & Factored Load Case 1a PPS Demands

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 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kueh Date 8/29/94
 (9) Checker A. LaSalle Date 8/29/94

Figure 5-12
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1a PPS Demands

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 (8) Originator Phillip R. Huh Date 2/29/94
 (9) Checker J. J. L. K. Date 8/29/94

Figure 5-13
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1a PPS Demands

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 (8) Originator Philip R. Hub Date 8/29/94
 (9) Checker W. L. Ladd Date 8/29/94

Figure 5-14
Circumferential M-P Interaction Diagram for Basemat / Wall
Interface Section & Factored Load Case 1a PPS Demands

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 (8) Originator Philip B. Zyl Date 2/29/94
 (9) Checker A. J. J. J. Date 8/29/94

Figure 5-15
Circumferential M-P Interaction Diagram for Footing Section &
Factored Load Case 1a PPS Demands

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 (8) Originator Phillip R. Kyh Date 8/29/94
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Figure 5-16
Circumferential M-P Interaction Diagram for Wall Sections &
Factored Load Case 1a PPS Demands

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 (8) Originator Phillip B. Kuhn Date 8/29/94
 (9) Checker A. Sedik Date 8/29/94

Figure 5-17
Circumferential M-P Interaction Diagram for Haunch Section Near
Wall & Factored Load Case 1a PPS Demands

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 (8) Originator Philip R. Kish Date 8/29/94
 (9) Checker A. Smith Date 8/29/94

Figure 5-18
Circumferential M-P Interaction Diagram for Corner Haunch
Section & Factored Load Case 1a PPS Demands

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 (8) Originator Philip R. Kuhl Date 8/29/94
 (9) Checker A. S. Adick Date 8/29/94

Figure 5-19
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1a PPS Demands

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 (8) Originator Phillip R. Kuhl Date 2/29/94
 (9) Checker L. Sadik Date 8/29/94

Figure 5-20
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1a PPS Demands

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 (8) Originator Phillip B. Zuck Date 2/29/94
 (9) Checker S. Sadik Date 2/29/94

Figure 5-21
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1a PPS Demands

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 (8) Originator Philip R. Zuh Date 8/29/94
 (9) Checker A. Sabik Date 8/29/94

Figure 5-22
Circumferential M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 1a PPS Demands

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 (8) Originator Philip R. Hill Date 8/29/94
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Figure 5-23
Circumferential M-P Interaction Diagram for Dome Section
Nearest Apex & Factored Load Case 1a PPS Demands

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 (8) Originator Phillip R. Kuh Date 8/29/94
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Figure 5-24
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1b PPS Demands

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 (8) Originator Philip B. Zyl Date 2/29/94
 (9) Checker A. Adik Date 8/29/94

Figure 5-25
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1b PPS Demands

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 (8) Originator Philip R. Yeh Date 8/29/94
 (9) Checker Sadik Date 8/29/94

Figure 10 is an interaction diagram for Section 2a. The y-axis represents Axial Load (lbs/ft) ranging from -50,000 to 450,000. The x-axis represents Moment (lb-in/ft) ranging from 0 to 1,200,000. The diagram includes the following data series:

- Capacity Section 2a (Tension Bottom):** A straight line connecting the points (0, 440,000) and (0, -25,000).
- Capacity Section 2a (Tension Bottom, refined curve):** A curve starting at (0, -25,000) and increasing to a peak moment of approximately 1,000,000 lb-in/ft at an axial load of about 190,000 lbs/ft.
- Demand along +1-Axis:** Represented by 'x' markers. Key points include (250,000, 25,000) and (1,000,000, 190,000).
- Demand along -1-Axis:** Represented by open circle markers. Key points include (250,000, 25,000), (400,000, 10,000), (600,000, 45,000), (800,000, 90,000), (900,000, 125,000), (950,000, 140,000), (980,000, 155,000), and (1,000,000, 175,000).
- Demand along +2-Axis:** Represented by open diamond markers. Key points include (700,000, 325,000) and (750,000, 310,000).

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 (9) Checker A. J. Smith Date 8/29/94

Figure 5-27
Meridional M-P Interaction Diagram for Footing Section &
Factored Load Case 1b PPS Demands

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 (8) Originator Philip R. Ryb Date 2/29/94
 (9) Checker S. Sadill Date 2/29/94

Figure 5-28
Meridional M-P Interaction Diagram for Wall Base Section &
Factored Load Case 1b PPS Demands

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Figure 5-29
Meridional M-P Interaction Diagram for Wall Sections &
Factored Load Case 1b PPS Demands

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 (9) Checker A. S. S. S. Date 8/29/94

Figure 5-30
Meridional M-P Interaction Diagram for Haunch Section Near Wall
& Factored Load Case 1b PPS Demands

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Figure 5-31
Meridional M-P Interaction Diagram for Corner Haunch Section & Factored Load Case 1b PPS Demands

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 (9) Checker A. J. K. Date 8/29/94

Figure 5-32
Meridional M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1b PPS Demands

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 (8) Originator Philip R. J. J. Date 8/29/94
 (9) Checker S. J. J. Date 8/29/94

Figure 5-33
Meridional M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 1b PPS Demands

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Figure 5-34
Meridional M-P Interaction Diagram for Dome Section Nearest
Apex & Factored Load Case 1b PPS Demands

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Figure 5-35
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1b PPS Demands

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Figure 5-36
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 1b PPS Demands

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Figure 5-37
Circumferential M-P Interaction Diagram for Basemat / Wall
Interface Section & Factored Load Case 1b PPS Demands

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Figure 5-38
Circumferential M-P Interaction Diagram for Footing Section &
Factored Load Case 1b PPS Demands

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Figure 5-39
Circumferential M-P Interaction Diagram for Wall Sections &
Factored Load Case 1b PPS Demands

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Figure 5-40
Circumferential M-P Interaction Diagram for Haunch Section Near
Wall & Factored Load Case 1b PPS Demands

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Figure 5-41
Circumferential M-P Interaction Diagram for Corner Haunch
Section & Factored Load Case 1b PPS Demands

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Figure 5-42
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1b PPS Demands

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Figure 5-43
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1b PPS Demands

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Figure 5-44
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 1b PPS Demands

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Figure 5-45
Circumferential M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 1b PPS Demands

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Figure 5-46
Circumferential M-P Interaction Diagram for Dome Section
Nearest Apex & Factored Load Case 1b PPS Demands

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Figure 5-47
Meridional M-P Interaction Diagram for Basemat Sections & Factored Load Case 2 PPS Demands

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 (8) Originator Philip R. Kuhl Date 8/29/94
 (9) Checker A. Sadik Date 8/29/94

Figure 5-48
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 2 PPS Demands

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 (9) Checker S. Lohik Date 8/29/94

Figure 5-49
Meridional M-P Interaction Diagram for Basemat / Wall Interface
Sections & Factored Load Case 2 PPS Demands

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Figure 5-50
Meridional M-P Interaction Diagram for Footing Section &
Factored Load Case 2 PPS Demands

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Figure 5-51
Meridional M-P Interaction Diagram for Wall Base Section &
Factored Load Case 2 PPS Demands

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Figure 5-52
Meridional M-P Interaction Diagram for Wall Sections &
Factored Load Case 2 PPS Demands

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Figure 5-53
Meridional M-P Interaction Diagram for Haunch Section Near Wall
& Factored Load Case 2 PPS Demands

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Figure 5-54
Meridional M-P Interaction Diagram for Corner Haunch Section &
Factored Load Case 2 PPS Demands

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 (9) Checker A. Adik Date 8/29/94

Figure 5-55
Meridional M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 2 PPS Demands

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Figure 5-56
Meridional M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 2 PPS Demands

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Figure 5-57
Meridional M-P Interaction Diagram for Dome Section Nearest
Apex & Factored Load Case 2 PPS Demands

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 (8) Originator Phillip R. Kuh Date 8/29/94
 (9) Checker A. S. dik Date 8/29/94

Figure 5-58
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 2 PPS Demands

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 (8) Originator Phillip R. Kuhl Date 8/29/94
 (9) Checker [Signature] Date 8/29/94

Figure 5-59
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 2 PPS Demands

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 (9) Checker A. Redick Date 8/29/94

Figure 5-60
Circumferential M-P Interaction Diagram for Basemat / Wall
Interface Section & Factored Load Case 2 PPS Demands

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 (9) Checker A. G. Hill Date 2/29/94

Figure 5-61
Circumferential M-P Interaction Diagram for Footing Section &
Factored Load Case 2 PPS Demands

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 (9) Checker A. S. S. K. Date 9/29/94

Figure 5-62
Circumferential M-P Interaction Diagram for Wall Sections &
Factored Load Case 2 PPS Demands

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Schub Date 8/29/94
 (9) Checker A. Sadik Date 8/29/94

Figure 5-63
Circumferential M-P Interaction Diagram for Haunch Section Near
Wall & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Zuh Date 8/29/94
 (9) Checker R. Adick Date 8/29/94

Figure 5-64
Circumferential M-P Interaction Diagram for Corner Haunch
Section & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kuhn Date 8/29/94
 (9) Checker A. S. S. S. S. Date 8/29/94

Figure 5-65
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Keph Date 2/29/94
 (9) Checker Joe Smith Date 8/29/94

Figure 5-66
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Zyl Date 8/29/94
 (9) Checker A. S. Lick Date 8/29/94

Figure 5-67
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Ziel Date 8/29/94
 (9) Checker A. Sadik Date 8/29/94

Figure 5-68
Circumferential M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kelly Date 8/29/94
 (9) Checker A. Sadik Date 8/29/94

Figure 5-69
Circumferential M-P Interaction Diagram for Dome Section
Nearest Apex & Factored Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. J. Suh Date 8/29/94
 (9) Checker A. Sadik Date 8/29/94

Figure 5-70
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kich Date 8/29/94
 (9) Checker A. Radtke Date 8/29/94

Figure 5-71
Meridional M-P Interaction Diagram for Basemat Sections &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kelly Date 8/29/94
 (9) Checker Kevin J. Ladd Date 8/29/94

Figure 5-72
Meridional M-P Interaction Diagram for Basemat / Wall Interface
Sections & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Donald R. 7/94 Date 8/29/94
 (9) Checker Scott L. 8/29/94 Date 8/29/94

Figure 5-73
Meridional M-P Interaction Diagram for Footing Section & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kurb Date 2/29/94
 (9) Checker S. S. D. K. Date 8/29/94

Figure 5-74
Meridional M-P Interaction Diagram for Wall Base Section &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuh Date 8/29/94
 (9) Checker A. LaLick Date 8/29/94

Figure 5-75
Meridional M-P Interaction Diagram for Wall Sections &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kieh Date 8/29/94
 (9) Checker A. Subit Date 8/29/94

Figure 5-76
Meridional M-P Interaction Diagram for Haunch Section Near Wall
& Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kula Date 8/29/94
 (9) Checker A. Sadiq Date 8/29/94

Figure 5-77
Meridional M-P Interaction Diagram for Corner Haunch Section & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuch Date 8/29/94
 (9) Checker A. Lash Date 8/29/94

Figure 5-78
Meridional M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuhl Date 8/29/94
 (9) Checker S. Subik Date 8/29/94

Figure 5-79
Meridional M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuch Date 8/29/94
 (9) Checker A. Schick Date 8/29/94

Figure 5-80
Meridional M-P Interaction Diagram for Dome Section Nearest
Apex & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuh Date 8/29/94
 (9) Checker A. Radt Date 8/29/94

Figure 5-81
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Reil Date 2/29/94
 (9) Checker S. Sadik Date 8/29/94

Figure 5-82
Circumferential M-P Interaction Diagram for Basemat Sections &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Zuck Date 8/29/94
 (9) Checker St. La Lita Date 8/29/94

Figure 5-83
Circumferential M-P Interaction Diagram for Basemat / Wall
Interface Section & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuhn Date 8/29/94
 (9) Checker A. Smith Date 8/29/94

Figure 5-84
Circumferential M-P Interaction Diagram for Footing Section &
Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
(8) Originator Philip R. Zeh Date 8/29/94
(9) Checker A. Sadik Date 8/29/94

Figure 5-85
Circumferential M-P Interaction Diagram for Wall Sections & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kish Date 2/27/94
 (9) Checker A. Sadiq Date 2/29/94

Figure 5-86
Circumferential M-P Interaction Diagram for Haunch Section Near
Wall & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip B. Kurb Date 8/29/94
 (9) Checker S. Sabit Date 8/29/94

Figure 5-87
Circumferential M-P Interaction Diagram for Corner Haunch
Section & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kelly Date 8/29/94
 (9) Checker A. J. Lick Date 8/29/94

Figure 5-88
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator William R. Kuh Date 8/29/94
 (9) Checker M. Sadik Date 8/29/94

Figure 5-89
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. 7/94 Date 8/29/94
 (9) Checker A. Adik Date 8/29/94

Figure 5-90
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Tyeh Date 2/29/94
 (9) Checker A. Andik Date 3/29/94

Figure 5-91
Circumferential M-P Interaction Diagram for Intermediate Dome
Section & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kish Date 8/29/94
 (9) Checker S. Indick Date 8/29/94

Figure 5-92
Circumferential M-P Interaction Diagram for Dome Section
Nearest Apex & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kuch Date 9/23/94
 (9) Checker A. Lohk Date 9/27/94

Figure 5-93
Comparison of Demands at Geometric and Plastic Centroids for
Circumferential M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator P. J. Kelly Date 9/23/94
 (9) Checker S. L. Lick Date 9/27/94

Figure 5-94
Comparison of Demands at Geometric and Plastic Centroid for
Meridional M-P Interaction Diagram for Dome Section Near
Haunch & Factored Load Case 3 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kuh Date 9/23/94
 (9) Checker David K Date 9/27/94

Figure 5-95
Comparison of Demands at Geometric and Plastic Centroids for
Meridional M-P Interaction Diagram for Basemat / Wall Interface
Sections & Factored Load Case 1a PPS Demands

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Kelly Date 8/29/94
 (9) Checker A. Adrik Date 8/29/94

6.0 TRANSVERSE SHEAR EVALUATION

6.1 Procedure

The ACI formulas below are used in the spreadsheet determination of shear capacities at various sections in the tank shell. Spreadsheet descriptions are provided in Table 6-1, and hard copies are included as Attachment 11 to this calculation.

For capacity sections used to qualify more than one element along a meridional axis, the minimum membrane loads (N_u) were used to minimize capacities, and the check was made against the maximum shear demand. Figure 3-2 identifies the tank capacity locations. Table 6-2 correlates the elements for each of the three sets (positive 1-axis, negative 1-axis, and positive 2-axis) to the capacity locations used to qualify the element shear demands.

For elements subject to axial compression and shear (ACI 11.3.1.2):

$$\phi V_n = \phi 2bd(f'_c)^{1/2}[1 + (N_u/2000hb)]$$

where

ϕ	= strength reduction factor = 0.85
b	= width of section (in.)
d	= distance from comp. face to centroid of tens. rebar (in.)
f'_c	= concrete compressive strength (psi)
N_u	= compression force in the element (positive value, lbs)
h	= depth of the element

For elements subject to axial tension and shear (ACI 11.3.2.3):

$$\phi V_n = \phi 2bd(f'_c)^{1/2}[1 + (N_u/500hb)]$$

where N_u = axial force in the element (negative due to tension, lbs)

6.2 Results

Shear demands and capacities are summarized in Tables 6-3 through 6-6. All demands were within the computed capacities.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kuh Date 8/29/94
 (9) Checker J. Sabik Date 8/29/94

Table 6-1
Spreadsheet Descriptions for the Evaluation for Shear

File Name	Description
F1A-SH.xls	Determination of ACI shear capacity and comparison with demands for PPS Factored Load Case 1a.
F1B-SH.xls	Determination of ACI shear capacity and comparison with demands for PPS Factored Load Case 1b.
F2-SH.xls	Determination of ACI shear capacity and comparison with demands for PPS Factored Load Case 2.
F3-SH.xls	Determination of ACI shear capacity and comparison with demands for PPS Factored Load Case 3.

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Gul Date 8/29/94
 (9) Checker A. S. S. S. S. Date 8/29/94

Table 6-2
Correlation of Capacity Locations to Demand Locations for
Shear Loads

Capacity Section	Element Numbers		
	Positive 1-Axis	Negative 1-Axis	Positive 2-Axis
Floor			
1	289, 291, 295, 301, 1257, 1261, 1265, 1269, 1273	1, 4, 9, 16, 324, 328, 332, 336, 340	161, 164, 169, 176, 844, 848, 852, 856, 860
2	1277	344	864
2a	1281	348	868
Footing			
3	1357	424	944
Wall			
4a	1285	352	872
4	1289, 1293, 1297	356, 360, 364	876, 880, 884
5	1301, 1305, 1309	368, 372, 376	888, 892, 896
6	1313	380	900
Haunch			
6a	1317	384	904
6b	1321, 1325	388, 392	908, 912
Dome			
7	1329, 1333, 1337, 1341	396, 400, 404, 408	916, 920, 924, 928
8	1345, 1349, 1353	412, 416, 420	932, 936, 940
9	308, 305, 314, 312, 318, 317	23, 19, 28, 25, 31, 29	183, 179, 188, 185, 191, 189

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Post-Practice-Sluicing Analysis
 (8) Originator Dudley R. Rich Date 8/29/94
 (9) Checker A. L. Lick Date 8/29/94

Table 6-3
Code Check for Shear - C-106 PPS Factored Load Case 1a

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	742	5551	747	4907	739	5551	746	4908
2	1807	5822	669	5034	1788	5823	667	5033
2a (bot)	11662	17492	582	15711	11681	17493	608	15712
3 (bot)	3689	27731	1370	26389	3696	27729	1388	26388
3 (top)	3689	23585	1370	22430	3696	23584	1388	22430
4a	9136	22580	705	15895	9139	22580	733	15897
4	6378	14271	180	10053	6383	14271	173	10048
5	5029	15073	163	4964	4910	15080	185	5024
6	9728	15064	225	10254	9708	15084	14	10273
6a	11370	19820	391	4628	11592	19847	856	4673
6b	15948	36650	424	6867	16044	36677	921	6756
7 (in)	10900	20422	409	4663	10933	20438	361	4677
7 (out)	10900	16223	409	4201	10933	16236	361	4214
8 (in)	2394	21969	243	18278	2431	22014	254	18229
8 (out)	2394	17452	243	16469	2431	17488	254	16424
9 (in)	1436	23031	773	19838	1385	23031	622	19830
9 (out)	1436	18296	773	17874	1385	18296	622	17867

Note: Response and capacities for elements along the negative 1-axis are very similar to those tabulated for the positive 1-axis.

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kuch Date 2/29/94
 (9) Checker A. Adick Date 2/29/94

Table 6-4
Code Check for Shear - C-106 PPS Factored Load Case 1b

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	747	5566	751	4894	738	5540	744	4919
2	1807	5871	661	4993	1790	5810	676	5045
2a (bot)	11977	17563	540	15526	11616	17479	611	15767
3 (bot)	3812	27762	1361	25908	3648	27731	1423	26512
3 (top)	3812	23611	1361	22022	3648	23585	1423	22536
4a	9598	22658	697	14967	8995	22563	734	16122
4	6512	14387	162	9687	6262	14224	199	10081
5	4220	15255	50	5791	4516	14964	125	6705
6	9793	15393	168	9892	9394	15095	95	7867
6a	11870	20206	671	4809	11311	19845	417	6637
6b	18732	37041	882	7729	15420	36782	894	9411
7 (in)	11312	21393	547	11576	10951	20804	708	9287
7 (out)	11312	16994	547	10430	10951	16526	708	8368
8 (in)	5051	21824	231	19699	2015	21407	138	19324
8 (out)	5051	17337	231	17748	2015	17005	138	17411
9 (in)	444	21829	277	20127	429	21658	385	20224
9 (out)	444	17341	277	18134	429	17205	385	18221

Note: Response and capacities for elements along the negative 1-axis are generally similar to those tabulated for the positive 1-axis. See complete table, included as an attachment to this appendix.

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Zuck Date 8/29/94
 (9) Checker A. J. Dik Date 8/29/94

Table 6-5
Code Check for Shear - C-106 PPS Factored Load Case 2

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	1021	5878	740	5155	1020	5850	757	5194
2	1559	6256	660	5243	1585	6186	679	5313
2a (bot)	10360	18068	660	16372	10237	18020	700	16560
3 (bot)	680	28449	1234	28550	559	28436	1297	28884
3 (top)	680	24196	1234	24268	559	24185	1297	24551
4a	11848	22323	1080	14801	11224	22396	550	15308
4	6866	14002	552	11246	6766	13897	696	11278
5	1975	14766	143	13709	2942	14537	24	13421
6	6382	14674	58	12649	6242	14514	48	12231
6a	8400	19322	135	17208	7513	19163	227	16662
6b	10066	35839	302	29412	10144	35690	276	25931
7 (in)	4526	19842	269	12600	6173	19680	153	12636
7 (out)	4526	15763	269	11352	6173	15634	153	11385
8 (in)	684	20012	46	18179	637	20012	47	18282
8 (out)	684	15897	46	16379	637	15898	47	16472
9 (in)	192	20121	168	18667	166	20118	142	18714
9 (out)	192	15984	168	16819	166	15981	142	16861

Note: Response and capacities for elements along the negative 1-axis are generally similar to those tabulated for the positive 1-axis. See complete table, included as an attachment to this appendix.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Zuck Date 8/29/94
 (9) Checker A. J. J. J. Date 8/29/94

Table 6-6
Code Check for Shear - C-106 PPS Factored Load Case 3

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	1105	5917	986	5221	1100	5907	988	5233
2	2321	6289	824	5309	2285	6257	865	5372
2a (bot)	15348	18233	1172	16302	15312	18206	896	16488
3 (bot)	1624	28499	2118	27543	1596	28495	1764	28146
3 (top)	1624	24238	2118	23412	1596	24235	1764	23924
4a	13056	23278	2093	18297	13176	23314	1046	15832
4	9158	14844	620	11605	9200	14802	538	11358
5	5012	15556	88	8505	5208	15547	115	9527
6	11555	15501	333	12030	11670	15244	267	8082
6a	14050	20270	898	11972	14052	20254	833	13371
6b	16536	36728	1067	22484	16572	36954	1538	20138
7 (in)	10339	20998	272	12533	11287	20373	370	12239
7 (out)	10339	16680	272	11292	11287	16185	370	11027
8 (in)	2162	21730	127	17703	2412	22095	174	17350
8 (out)	2162	17262	127	15950	2412	17552	174	15632
9 (in)	1376	23041	727	19370	1313	22993	624	19275
9 (out)	1376	18304	727	17452	1313	18265	624	17366

Note: Response and capacities for elements along the negative 1-axis are very similar to those tabulated for the positive 1-axis.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Phillip R. Xub Date 9/27/94
 (9) Checker A. L. Lick Date 9/27/94

7.0 IN-PLANE SHEAR AND TWISTING EVALUATION

7.1 Procedure

Evaluation of in-plane shear and twisting moment load components was performed via spreadsheets which are included as Attachment 12 to this appendix. The ACI-349 equations used in the spreadsheets are provided below.

In-Plane Shear

Per ACI 11.10.6 (eqn 11-32):

$$\phi V_c = \phi \{ 3.3(f'_c)^{1/2} h d + N_u d / 4(l_w) \}$$

where ϕ = strength reduction factor = 0.85
 h = thickness of element
 d = unit width of element = 12 in.
 N_u = minimum factored axial load (positive for compression)
 l_w = unit width of element = 12 in.

The above ACI equation is expressed in terms of a global wall-check and limits "d" to $0.8l_w$ ($0.8 \times \text{length-of-wall}$). The reduction factor on the wall length compensates for inaccuracies associated with the use of a strength-of-materials approach in predicting demand which ignores edge/boundary effects. For this evaluation, in-plane shear demands are examined on an element basis using a finite-element analysis, therefore, peak values and edge effects are considered instead of using an average "wall-shear." Furthermore, the tank shell is continuous, rather than comprising individual walls, so that there is no finite length-of-wall. For these reasons, it is appropriate to use an unreduced "d" value equal to a unit width consistent with the demand units.

In ACI section 11.10.8, $\phi V_c / 2$ is identified as the maximum shear allowed without shear reinforcing requirements. Torsional moment (normal to shell mid-surface) is assumed to be low, such that equation 11-33 does not apply.

Twisting Moment

Per ACI 11.6.1:

$$T_{\text{threshold}} = \phi 0.5(f'_c)^{1/2} x^2 y$$

where ϕ = strength reduction factor = 0.85
 x = thickness of element
 y = width of element = 12 in.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Bush Date 9/27/94
 (9) Checker V. Jodak Date 9/27/94

7.2 Results

In the spreadsheet tables provided as Attachment 12, element in-plane shear demands (SF3) are compared against " $\phi \cdot V_c / 2$ ". All SF3 demands are within the one-half of the strength reduction factor-reduced concrete capacities, therefore, in-plane shear is acceptable. Additionally, the spreadsheet tables compared the element twisting demands (SM3) with threshold twisting (T threshold). All SM3 demands are within the threshold values and can therefore be neglected per ACI-349 section 11.6.1.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
 (8) Originator Philip R. Kesh Date 2/29/94
 (9) Checker A. S. S. S. Date 8/29/94

8.0 CONSTRUCTION JOINTS EVALUATION

8.1 Upper Wall

Per ACI 11.7.4.1:

$$\phi V_n = \phi A_v f_y \mu = 17054 \text{ lbs}$$

where ϕ = strength reduction factor = 0.85
 A_v = area of shear-friction reinforcement = 2(.44 in²)
 (for a one-foot width of wall section)
 f_y = yield stress of the reinforcement = 38000 psi
 (at temp. = 92°F - see Marlow 1994, App. B, Attach. 6)
 μ = coefficient of friction = 0.6

Per ACI 11.7.5:

$$\begin{aligned} \phi V_n &< \phi(0.2)(f'_c)(A_c) = 108153 \text{ lbs ok} \\ &< \phi(800)(A_c) = 97920 \text{ lbs ok} \end{aligned}$$

where f'_c = concrete compressive strength (psi) = 4418 psi
 A_c = area of concrete resisting shear transfer = 12(12) in²
 (for a one-foot width of wall section)

Maximum demands at capacity section 6 (see Tables 6-3 through 6-6 of shear check and Attachment 11):

Load Case 1a PPS Loading = 9728 lbs	< 17054 lbs	ok
Load Case 1b PPS Loading = 9793 lbs	< 17054 lbs	ok
Load Case 2 PPS Loading = 6382 lbs	< 17054 lbs	ok
Load Case 3 PPS Loading = 11670 lbs	< 17054 lbs	ok

8.2 Lower Wall

Per ACI 11.7.4.1:

$$\phi V_n = \phi A_v f_y \mu = 16889 \text{ lbs}$$

where ϕ = strength reduction factor = 0.85
 A_v = area of shear-friction reinforcement = 2(.44 in²)
 (for a one-foot width of wall section)
 f_y = yield stress of the reinforcement = 37631 psi
 (at temp. = 111°F - see Marlow 1994, App. B, Attach. 6)
 μ = coefficient of friction = 0.6

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
(8) Originator Phillip R. Kuh Date 8/29/94
(9) Checker A. Sadik Date 8/29/94

Per ACI 11.7.5:

$$\begin{aligned}\phi V_n &< \phi(0.2)(f'_c)(A_c) &= 95448 \text{ lbs ok} \\ &< \phi(800)(A_c) &= 97920 \text{ lbs ok}\end{aligned}$$

where f'_c = concrete compressive strength (psi) = 3899 psi
 A_c = area of concrete resisting shear transfer = 12(12) in²
(for a one-foot width of wall section)

Maximum demands at capacity section 4a (see Tables 6-3 through 6-6 of shear check and Attachment 11):

Load Case 1a PPS Loading = 9139 lbs	< 16889 lbs	ok
Load Case 1b PPS Loading = 9598 lbs	< 16889 lbs	ok
Load Case 2 PPS Loading = 11848 lbs	< 16889 lbs	ok
Load Case 3 PPS Loading = 13332 lbs	< 16889 lbs	ok

8.3 Results

Demands are less than capacities, therefore construction joints are acceptable for the relevant load cases.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
(8) Originator Philip B. Fyke Date 8/29/94
(9) Checker A. Adik Date 8/29/94

9.0 SUMMARY OF RESULTS

This calculation evaluated tank 241-C-106 under factored in situ and Past-Practice-Sluicing loads for ACI 349-90 requirements. Moment/axial load interaction, transverse shear, in-plane shear, twisting moments, and construction joints were evaluated for the factored loads. ACI criteria were met for all of the above items.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject ACI Code Evaluation for Past-Practice-Sluicing Analysis
(8) Originator Phillip R. Kich Date 9/27/94
(9) Checker A. B. K. Date 9/27/94

10.0 REFERENCES

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- 10.2 Day, J. P., 1994, *Seismic Evaluation of Tank 241-C-106 in Support of Retrieval Activities*, WHC-SD-W320-ANAL-002, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- 10.3 Drawings, 1944, D1 through D10, Project 9536, Purchase Order 1451½, Morrison-Bechtel-McCone Construction Drawings, Contract No. 869.
- 10.4 Dyrness, A. D., and J. L. Julyk, 1991, *Comparison of Reinforced-Concrete Models for Use in the Analysis of Extreme Loads*, WHC-SA-1010-FP, Westinghouse Hanford Company, Richland, Washington.
- 10.5 HKS, 1989, *ABAQUS User's Manual*, Version 4.8 with 4.9 Supplement, Hibbitt, Karlsson, & Sorensen, Inc., Pawtucket, Rhode Island.
- 10.6 James, R. J., 1993, *ANACAP-U, ANATECH Concrete Analysis Package Version 92-2.2, User's Manual*, ANA-QA-118, Rev. 3, ANATECH Research Corporation, San Diego, California.
- 10.7 Julyk, L. J., et al., 1994, *241-C-106 Structural Integrity Assessment*, WHC-SD-W320-ANAL-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- 10.8 Kich, P. R., et al., 1994, *Static Internal Pressure Capacity of Hanford Single-Shell Waste Tanks*, WHC-SD-WM-TI-623, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- 10.9 Marlow, R. S., 1994, *Structural Analysis and Evaluation in Support of the Long Reach Manipulator Procurement Specification*, WHC-SD-W340-ANAL-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

INPUT FILE: LOAD1.abdat FROM MARLOW (1994)

Prepared by: NOT APPLICABLE * _____ Date _____

Checked by: NOT APPLICABLE * _____ 8/1/94
Date _____

* Note: This input file is included for documentation purposes only.
Verification of the input file is not applicable

LOAD1.abdat

*HEADING

ACI LOAD CASE 1

**DEFINE TANK NODES AND KEY SOIL NODES

*NODE

1,	0.00,	0.00,	-79.00
2,	-136.00,	44.19,	-79.00
3,	-143.00,	0.00,	-79.00
4,	-303.39,	98.58,	-79.00
5,	-319.00,	0.00,	-79.00
6,	-524.98,	170.58,	-79.00
7,	-552.00,	0.00,	-79.00
8,	0.00,	0.00,	68.00
9,	-136.00,	44.19,	68.00
10,	-143.00,	0.00,	68.00
11,	-303.39,	98.58,	68.00
12,	-319.00,	0.00,	68.00
13,	-524.98,	170.58,	68.00
14,	-552.00,	0.00,	68.00
15,	0.00,	0.00,	180.00
16,	-136.00,	44.19,	180.00
17,	-143.00,	0.00,	180.00
18,	-303.39,	98.58,	180.00
19,	-319.00,	0.00,	180.00
20,	-524.98,	170.58,	180.00
21,	-552.00,	0.00,	180.00
22,	0.00,	0.00,	307.00
23,	-136.00,	44.19,	307.00
24,	-143.00,	0.00,	307.00
25,	-303.39,	98.58,	307.00
26,	-319.00,	0.00,	307.00
27,	-524.98,	170.58,	307.00
28,	-552.00,	0.00,	307.00
29,	0.00,	0.00,	462.00
30,	-136.00,	44.19,	462.00
31,	-143.00,	0.00,	462.00
32,	-303.39,	98.58,	462.00
33,	-319.00,	0.00,	462.00
34,	-524.98,	170.58,	462.00
35,	-552.00,	0.00,	462.00
6001,	-967.,	0.00,	462.00
6012,	-829.,	0.00,	462.00
6023,	-691.,	0.00,	462.00
6011,	967.,	0.00,	462.00
6022,	829.,	0.00,	462.00
6033,	691.,	0.00,	462.00
36,	-115.69,	84.05,	-79.00
37,	-258.08,	187.50,	-79.00
38,	-446.58,	324.46,	-79.00
39,	-115.69,	84.05,	68.00
40,	-258.08,	187.50,	68.00
41,	-446.58,	324.46,	68.00
42,	-115.69,	84.05,	180.00
43,	-258.08,	187.50,	180.00
44,	-446.58,	324.46,	180.00
45,	-115.69,	84.05,	307.00
46,	-258.08,	187.50,	307.00
47,	-446.58,	324.46,	307.00
48,	-115.69,	84.05,	462.00
49,	-258.08,	187.50,	462.00
50,	-446.58,	324.46,	462.00
51,	-84.05,	115.69,	-79.00
52,	-187.50,	258.08,	-79.00
53,	-324.46,	446.58,	-79.00
54,	-84.05,	115.69,	68.00
55,	-187.50,	258.08,	68.00
56,	-324.46,	446.58,	68.00
57,	-84.05,	115.69,	180.00
58,	-187.50,	258.08,	180.00
59,	-324.46,	446.58,	180.00
60,	-84.05,	115.69,	307.00
61,	-187.50,	258.08,	307.00

62,	-324.46,	446.58,	307.00	138,	115.69,	84.05,	462.00
63,	-84.05,	115.69,	462.00	139,	258.08,	187.50,	462.00
64,	-187.50,	258.08,	462.00	140,	446.58,	324.46,	462.00
65,	-324.46,	446.58,	462.00	141,	136.00,	44.19,	-79.00
66,	-44.19,	136.00,	-79.00	142,	303.39,	98.58,	-79.00
67,	-98.58,	303.39,	-79.00	143,	524.98,	170.58,	-79.00
68,	-170.58,	524.98,	-79.00	144,	136.00,	44.19,	68.00
69,	-44.19,	136.00,	68.00	145,	303.39,	98.58,	68.00
70,	-98.58,	303.39,	68.00	146,	524.98,	170.58,	68.00
71,	-170.58,	524.98,	68.00	147,	136.00,	44.19,	180.00
72,	-44.19,	136.00,	180.00	148,	303.39,	98.58,	180.00
73,	-98.58,	303.39,	180.00	149,	524.98,	170.58,	180.00
74,	-170.58,	524.98,	180.00	150,	136.00,	44.19,	307.00
75,	-44.19,	136.00,	307.00	151,	303.39,	98.58,	307.00
76,	-98.58,	303.39,	307.00	152,	524.98,	170.58,	307.00
77,	-170.58,	524.98,	307.00	153,	136.00,	44.19,	462.00
78,	-44.19,	136.00,	462.00	154,	303.39,	98.58,	462.00
79,	-98.58,	303.39,	462.00	155,	524.98,	170.58,	462.00
80,	-170.58,	524.98,	462.00	156,	143.00,	0.00,	-79.00
81,	0.00,	143.00,	-79.00	157,	319.00,	0.00,	-79.00
82,	0.00,	319.00,	-79.00	158,	552.00,	0.00,	-79.00
83,	0.00,	552.00,	-79.00	159,	143.00,	0.00,	68.00
84,	0.00,	143.00,	68.00	160,	319.00,	0.00,	68.00
85,	0.00,	319.00,	68.00	161,	552.00,	0.00,	68.00
86,	0.00,	552.00,	68.00	162,	143.00,	0.00,	180.00
87,	0.00,	143.00,	180.00	163,	319.00,	0.00,	180.00
88,	0.00,	319.00,	180.00	164,	552.00,	0.00,	180.00
89,	0.00,	552.00,	180.00	165,	143.00,	0.00,	307.00
90,	0.00,	143.00,	307.00	166,	319.00,	0.00,	307.00
91,	0.00,	319.00,	307.00	167,	552.00,	0.00,	307.00
92,	0.00,	552.00,	307.00	168,	143.00,	0.00,	462.00
93,	0.00,	143.00,	462.00	169,	319.00,	0.00,	462.00
94,	0.00,	319.00,	462.00	170,	552.00,	0.00,	462.00
95,	0.00,	552.00,	462.00	171,	0.00,	0.00,	4.00
96,	44.19,	136.00,	-79.00	172,	-34.00,	11.05,	4.25
97,	98.58,	303.39,	-79.00	173,	-35.75,	0.00,	4.25
98,	170.58,	524.98,	-79.00	174,	-68.00,	22.09,	4.50
99,	44.19,	136.00,	68.00	175,	-70.62,	11.19,	4.50
100,	98.58,	303.39,	68.00	176,	-71.50,	0.00,	4.50
101,	170.58,	524.98,	68.00	177,	-102.00,	33.14,	4.75
102,	44.19,	136.00,	180.00	178,	-104.91,	22.30,	4.75
103,	98.58,	303.39,	180.00	179,	-106.66,	11.21,	4.75
104,	170.58,	524.98,	180.00	180,	-107.25,	0.00,	4.75
105,	44.19,	136.00,	307.00	181,	-136.00,	44.19,	5.00
106,	98.58,	303.39,	307.00	182,	-139.05,	33.38,	5.00
107,	170.58,	524.98,	307.00	183,	-141.24,	22.37,	5.00
108,	44.19,	136.00,	462.00	184,	-142.56,	11.22,	5.00
109,	98.58,	303.39,	462.00	185,	-143.00,	0.00,	5.00
110,	170.58,	524.98,	462.00	186,	-177.85,	57.79,	6.83
111,	84.05,	115.69,	-79.00	187,	-181.83,	43.65,	6.83
112,	187.50,	258.08,	-79.00	188,	-184.70,	29.25,	6.83
113,	324.46,	446.58,	-79.00	189,	-186.42,	14.67,	6.83
114,	84.05,	115.69,	68.00	190,	-187.00,	0.00,	6.83
115,	187.50,	258.08,	68.00	191,	-219.69,	71.38,	8.67
116,	324.46,	446.58,	68.00	192,	-224.62,	53.93,	8.67
117,	84.05,	115.69,	180.00	193,	-228.16,	36.14,	8.67
118,	187.50,	258.08,	180.00	194,	-230.29,	18.12,	8.67
119,	324.46,	446.58,	180.00	195,	-231.00,	0.00,	8.67
120,	84.05,	115.69,	307.00	196,	-261.54,	84.98,	10.50
121,	187.50,	258.08,	307.00	197,	-267.40,	64.20,	10.50
122,	324.46,	446.58,	307.00	198,	-271.61,	43.02,	10.50
123,	84.05,	115.69,	462.00	199,	-274.15,	21.58,	10.50
124,	187.50,	258.08,	462.00	200,	-275.00,	0.00,	10.50
125,	324.46,	446.58,	462.00	201,	-303.39,	98.58,	12.33
126,	115.69,	84.05,	-79.00	202,	-310.19,	74.47,	12.33
127,	258.08,	187.50,	-79.00	203,	-315.07,	49.90,	12.33
128,	446.58,	324.46,	-79.00	204,	-318.02,	25.03,	12.33
129,	115.69,	84.05,	68.00	205,	-319.00,	0.00,	12.33
130,	258.08,	187.50,	68.00	206,	-345.23,	112.17,	14.17
131,	446.58,	324.46,	68.00	207,	-352.97,	84.74,	14.17
132,	115.69,	84.05,	180.00	208,	-358.53,	56.79,	14.17
133,	258.08,	187.50,	180.00	209,	-361.88,	28.48,	14.17
134,	446.58,	324.46,	180.00	210,	-363.00,	0.00,	14.17
135,	115.69,	84.05,	307.00	211,	-387.08,	125.77,	16.00
136,	258.08,	187.50,	307.00	212,	-395.75,	95.01,	16.00
137,	446.58,	324.46,	307.00	213,	-401.99,	63.67,	16.00

214,	-405.75,	31.93,	16.00	290,	-337.50,	0.00,	331.00
215,	-407.00,	0.00,	16.00	291,	-284.65,	92.49,	344.70
216,	-434.63,	141.22,	24.00	292,	-291.03,	69.87,	344.70
217,	-444.37,	106.68,	24.00	293,	-295.62,	46.82,	344.70
218,	-451.37,	71.49,	24.00	294,	-298.38,	23.48,	344.70
219,	-455.59,	35.86,	24.00	295,	-299.30,	0.00,	344.70
220,	-457.00,	0.00,	24.00	296,	-247.66,	80.47,	356.40
221,	-434.63,	141.22,	50.80	297,	-253.21,	60.79,	356.40
222,	-444.37,	106.68,	50.80	298,	-257.19,	40.74,	356.40
223,	-451.37,	71.49,	50.80	299,	-259.60,	20.43,	356.40
224,	-455.59,	35.86,	50.80	300,	-260.40,	0.00,	356.40
225,	-457.00,	0.00,	50.80	301,	-210.09,	68.26,	366.00
226,	-434.63,	141.22,	68.00	302,	-214.80,	51.57,	366.00
227,	-444.37,	106.68,	68.00	303,	-218.18,	34.56,	366.00
228,	-451.37,	71.49,	68.00	304,	-220.22,	17.33,	366.00
229,	-455.59,	35.86,	68.00	305,	-220.90,	0.00,	366.00
230,	-457.00,	0.00,	68.00	306,	-172.14,	55.93,	373.50
231,	-434.63,	141.22,	96.00	307,	-176.00,	42.25,	373.50
232,	-444.37,	106.68,	96.00	308,	-178.77,	28.31,	373.50
233,	-451.37,	71.49,	96.00	309,	-180.44,	14.20,	373.50
234,	-455.59,	35.86,	96.00	310,	-181.00,	0.00,	373.50
235,	-457.00,	0.00,	96.00	311,	-129.34,	42.03,	379.70
236,	-434.63,	141.22,	124.00	312,	-133.03,	28.28,	379.70
237,	-444.37,	106.68,	124.00	313,	-135.26,	14.22,	379.70
238,	-451.37,	71.49,	124.00	314,	-136.00,	0.00,	379.70
239,	-455.59,	35.86,	124.00	315,	-86.36,	28.06,	384.10
240,	-457.00,	0.00,	124.00	316,	-89.68,	14.20,	384.10
241,	-434.63,	141.22,	152.00	317,	-90.80,	0.00,	384.10
242,	-444.37,	106.68,	152.00	320,	0.00,	0.00,	387.50
243,	-451.37,	71.49,	152.00	321,	-463.16,	150.49,	24.00
244,	-455.59,	35.86,	152.00	322,	-473.54,	113.69,	24.00
245,	-457.00,	0.00,	152.00	323,	-481.00,	76.18,	24.00
246,	-434.63,	141.22,	180.00	324,	-485.50,	38.21,	24.00
247,	-444.37,	106.68,	180.00	325,	-487.00,	0.00,	24.00
248,	-451.37,	71.49,	180.00	326,	0.00,	0.00,	-24.00
249,	-455.59,	35.86,	180.00	327,	-68.00,	22.09,	-24.00
250,	-457.00,	0.00,	180.00	328,	-71.50,	0.00,	-24.00
251,	-434.63,	141.22,	208.00	329,	-136.00,	44.19,	-24.00
252,	-444.37,	106.68,	208.00	330,	-141.24,	22.37,	-24.00
253,	-451.37,	71.49,	208.00	331,	-143.00,	0.00,	-24.00
254,	-455.59,	35.86,	208.00	332,	-219.69,	71.38,	-24.00
255,	-457.00,	0.00,	208.00	333,	-228.16,	36.14,	-24.00
256,	-434.63,	141.22,	236.00	334,	-231.00,	0.00,	-24.00
257,	-444.37,	106.68,	236.00	335,	-303.39,	98.58,	-24.00
258,	-451.37,	71.49,	236.00	336,	-315.07,	49.90,	-24.00
259,	-455.59,	35.86,	236.00	337,	-319.00,	0.00,	-24.00
260,	-457.00,	0.00,	236.00	338,	-392.79,	127.62,	-24.00
261,	-432.64,	140.57,	259.80	339,	-407.92,	64.61,	-24.00
262,	-442.33,	106.19,	259.80	340,	-413.00,	0.00,	-24.00
263,	-449.30,	71.16,	259.80	341,	-482.19,	156.67,	-24.00
264,	-453.50,	35.69,	259.80	342,	-500.76,	79.31,	-24.00
265,	-454.90,	0.00,	259.80	343,	-507.00,	0.00,	-24.00
266,	-425.60,	138.29,	282.50	344,	-482.19,	156.67,	68.00
267,	-435.14,	104.47,	282.50	345,	-500.76,	79.31,	68.00
268,	-441.99,	70.00,	282.50	346,	-507.00,	0.00,	68.00
269,	-446.12,	35.11,	282.50	347,	-482.19,	156.67,	124.00
270,	-447.50,	0.00,	282.50	348,	-500.76,	79.31,	124.00
271,	-404.58,	131.46,	294.20	349,	-507.00,	0.00,	124.00
272,	-413.65,	99.31,	294.20	350,	-482.19,	156.67,	180.00
273,	-420.16,	66.55,	294.20	351,	-500.76,	79.31,	180.00
274,	-424.09,	33.38,	294.20	352,	-507.00,	0.00,	180.00
275,	-425.40,	0.00,	294.20	353,	-482.19,	156.67,	236.00
276,	-375.67,	122.06,	307.80	354,	-500.76,	79.31,	236.00
277,	-384.09,	92.21,	307.80	355,	-507.00,	0.00,	236.00
278,	-390.14,	61.79,	307.80	356,	-455.56,	148.02,	310.00
279,	-393.78,	30.99,	307.80	357,	-473.10,	74.93,	310.00
280,	-395.00,	0.00,	307.80	358,	-479.00,	0.00,	310.00
281,	-348.47,	113.22,	319.70	359,	-375.67,	122.06,	347.00
282,	-356.28,	85.53,	319.70	360,	-390.14,	61.79,	347.00
283,	-361.89,	57.32,	319.70	361,	-395.00,	0.00,	347.00
284,	-365.27,	28.75,	319.70	362,	-320.98,	104.29,	371.00
285,	-366.40,	0.00,	319.70	363,	-333.34,	52.80,	371.00
286,	-320.98,	104.29,	331.00	364,	-337.50,	0.00,	371.00
287,	-328.17,	78.79,	331.00	365,	-246.56,	80.11,	396.00
288,	-333.34,	52.80,	331.00	366,	-256.06,	40.56,	396.00
289,	-336.46,	26.48,	331.00	367,	-259.25,	0.00,	396.00

368,	-172.14,	55.93,	407.00	446,	-422.21,	174.89,	68.00
369,	-178.77,	28.31,	407.00	447,	-369.72,	268.62,	96.00
370,	-181.00,	0.00,	407.00	448,	-389.66,	238.78,	96.00
371,	-86.07,	27.97,	407.00	449,	-407.19,	207.47,	96.00
372,	-90.50,	0.00,	407.00	450,	-422.21,	174.89,	96.00
373,	0.00,	0.00,	407.00	451,	-369.72,	268.62,	124.00
374,	-482.19,	156.67,	39.00	452,	-389.66,	238.78,	124.00
375,	-500.76,	79.31,	39.00	453,	-407.19,	207.47,	124.00
376,	-507.00,	0.00,	39.00	454,	-422.21,	174.89,	124.00
377,	0.00,	0.00,	462.00	455,	-369.72,	268.62,	152.00
380,	-172.14,	55.93,	462.00	456,	-389.66,	238.78,	152.00
381,	-178.77,	28.31,	462.00	457,	-407.19,	207.47,	152.00
382,	-181.00,	0.00,	462.00	458,	-422.21,	174.89,	152.00
383,	-247.66,	80.47,	462.00	459,	-369.72,	268.62,	180.00
384,	-257.19,	40.74,	462.00	460,	-389.66,	238.78,	180.00
385,	-260.40,	0.00,	462.00	461,	-407.19,	207.47,	180.00
386,	-320.98,	104.29,	462.00	462,	-422.21,	174.89,	180.00
387,	-333.34,	52.80,	462.00	463,	-369.72,	268.62,	208.00
388,	-337.50,	0.00,	462.00	464,	-389.66,	238.78,	208.00
389,	-375.67,	122.06,	420.00	465,	-407.19,	207.47,	208.00
390,	-390.14,	61.79,	420.00	466,	-422.21,	174.89,	208.00
391,	-395.00,	0.00,	420.00	467,	-369.72,	268.62,	236.00
392,	-375.67,	122.06,	462.00	468,	-389.66,	238.78,	236.00
393,	-390.14,	61.79,	462.00	469,	-407.19,	207.47,	236.00
394,	-395.00,	0.00,	462.00	470,	-422.21,	174.89,	236.00
395,	-455.56,	148.02,	384.50	471,	-368.02,	267.38,	259.80
396,	-473.10,	74.93,	384.50	472,	-387.87,	237.68,	259.80
397,	-479.00,	0.00,	384.50	473,	-405.32,	206.52,	259.80
398,	-455.56,	148.02,	462.00	474,	-420.27,	174.08,	259.80
399,	-473.10,	74.93,	462.00	475,	-362.04,	263.03,	282.50
400,	-479.00,	0.00,	462.00	476,	-381.56,	233.82,	282.50
401,	-28.92,	21.01,	4.25	477,	-398.73,	203.16,	282.50
402,	-57.84,	42.03,	4.50	478,	-413.44,	171.25,	282.50
403,	-63.71,	32.46,	4.50	479,	-344.16,	250.04,	294.20
404,	-86.77,	63.04,	4.75	480,	-362.71,	222.27,	294.20
405,	-92.88,	53.63,	4.75	481,	-379.03,	193.13,	294.20
406,	-97.98,	43.62,	4.75	482,	-393.02,	162.79,	294.20
407,	-115.69,	84.05,	5.00	483,	-319.56,	232.18,	307.80
408,	-121.93,	74.72,	5.00	484,	-336.79,	206.39,	307.80
409,	-127.41,	64.92,	5.00	485,	-351.95,	179.33,	307.80
410,	-132.11,	54.72,	5.00	486,	-364.93,	151.16,	307.80
411,	-151.29,	109.92,	6.83	487,	-296.42,	215.36,	319.70
412,	-159.44,	97.71,	6.83	488,	-312.41,	191.44,	319.70
413,	-166.62,	84.90,	6.83	489,	-326.46,	166.34,	319.70
414,	-172.77,	71.56,	6.83	490,	-338.51,	140.22,	319.70
415,	-186.88,	135.78,	8.67	491,	-273.04,	198.38,	331.00
416,	-196.96,	120.70,	8.67	492,	-287.77,	176.34,	331.00
417,	-205.82,	104.87,	8.67	493,	-300.71,	153.22,	331.00
418,	-213.42,	88.40,	8.67	494,	-311.81,	129.16,	331.00
419,	-222.48,	161.64,	10.50	495,	-242.14,	175.92,	344.70
420,	-234.48,	143.69,	10.50	496,	-255.20,	156.38,	344.70
421,	-245.03,	124.85,	10.50	497,	-266.68,	135.88,	344.70
422,	-254.07,	105.24,	10.50	498,	-276.52,	114.54,	344.70
423,	-258.08,	187.50,	12.33	499,	-210.67,	153.06,	356.40
424,	-271.99,	166.68,	12.33	500,	-222.03,	136.06,	356.40
425,	-284.23,	144.82,	12.33	501,	-232.02,	118.22,	356.40
426,	-294.72,	122.08,	12.33	502,	-240.58,	99.65,	356.40
427,	-293.67,	213.37,	14.17	503,	-178.71,	129.84,	366.00
428,	-309.51,	189.67,	14.17	504,	-188.35,	115.42,	366.00
429,	-323.44,	164.80,	14.17	505,	-196.82,	100.29,	366.00
430,	-335.37,	138.91,	14.17	506,	-204.09,	84.53,	366.00
431,	-329.27,	239.23,	16.00	507,	-146.43,	106.39,	373.50
432,	-347.02,	212.66,	16.00	508,	-154.33,	94.57,	373.50
433,	-362.64,	184.77,	16.00	509,	-161.27,	82.17,	373.50
434,	-376.02,	155.75,	16.00	510,	-167.22,	69.27,	373.50
435,	-369.72,	268.62,	24.00	511,	-110.03,	79.94,	379.70
436,	-389.66,	238.78,	24.00	512,	-117.78,	68.00,	379.70
437,	-407.19,	207.47,	24.00	513,	-124.24,	55.32,	379.70
438,	-422.21,	174.89,	24.00	514,	-73.46,	53.37,	384.10
439,	-369.72,	268.62,	50.80	515,	-80.90,	41.22,	384.10
440,	-389.66,	238.78,	50.80	517,	-393.99,	286.25,	24.00
441,	-407.19,	207.47,	50.80	518,	-415.24,	254.46,	24.00
442,	-422.21,	174.89,	50.80	519,	-433.92,	221.09,	24.00
443,	-369.72,	268.62,	68.00	520,	-449.93,	186.37,	24.00
444,	-389.66,	238.78,	68.00	521,	-57.84,	42.03,	-24.00
445,	-407.19,	207.47,	68.00	522,	-115.69,	84.05,	-24.00

523,	-127.41,	64.92,	-24.00	600,	-287.79,	287.79,	16.00
524,	-186.88,	135.78,	-24.00	601,	-309.49,	264.33,	16.00
525,	-205.82,	104.87,	-24.00	602,	-268.62,	369.72,	24.00
526,	-258.08,	187.50,	-24.00	603,	-296.80,	347.51,	24.00
527,	-284.23,	144.82,	-24.00	604,	-323.15,	323.15,	24.00
528,	-334.12,	242.76,	-24.00	605,	-347.51,	296.80,	24.00
529,	-367.99,	187.50,	-24.00	606,	-268.62,	369.72,	50.80
530,	-410.17,	298.01,	-24.00	607,	-296.80,	347.51,	50.80
531,	-451.74,	230.17,	-24.00	608,	-323.15,	323.15,	50.80
532,	-410.17,	298.01,	68.00	609,	-347.51,	296.80,	50.80
533,	-451.74,	230.17,	68.00	610,	-268.62,	369.72,	68.00
534,	-410.17,	298.01,	124.00	611,	-296.80,	347.51,	68.00
535,	-451.74,	230.17,	124.00	612,	-323.15,	323.15,	68.00
536,	-410.17,	298.01,	180.00	613,	-347.51,	296.80,	68.00
537,	-451.74,	230.17,	180.00	614,	-268.62,	369.72,	96.00
538,	-410.17,	298.01,	236.00	615,	-296.80,	347.51,	96.00
539,	-451.74,	230.17,	236.00	616,	-323.15,	323.15,	96.00
540,	-387.52,	281.55,	310.00	617,	-347.51,	296.80,	96.00
541,	-426.79,	217.46,	310.00	618,	-268.62,	369.72,	124.00
542,	-319.56,	232.18,	347.00	619,	-296.80,	347.51,	124.00
543,	-351.95,	179.33,	347.00	620,	-323.15,	323.15,	124.00
544,	-273.04,	198.38,	371.00	621,	-347.51,	296.80,	124.00
545,	-300.71,	153.22,	371.00	622,	-268.62,	369.72,	152.00
546,	-209.74,	152.38,	396.00	623,	-296.80,	347.51,	152.00
547,	-230.99,	117.70,	396.00	624,	-323.15,	323.15,	152.00
548,	-146.43,	106.39,	407.00	625,	-347.51,	296.80,	152.00
549,	-161.27,	82.17,	407.00	626,	-268.62,	369.72,	180.00
550,	-73.22,	53.19,	407.00	627,	-296.80,	347.51,	180.00
551,	-410.17,	298.01,	39.00	628,	-323.15,	323.15,	180.00
552,	-451.74,	230.17,	39.00	629,	-347.51,	296.80,	180.00
554,	-146.43,	106.39,	462.00	630,	-268.62,	369.72,	208.00
555,	-161.27,	82.17,	462.00	631,	-296.80,	347.51,	208.00
556,	-210.67,	153.06,	462.00	632,	-323.15,	323.15,	208.00
557,	-232.02,	118.22,	462.00	633,	-347.51,	296.80,	208.00
558,	-273.04,	198.38,	462.00	634,	-268.62,	369.72,	236.00
559,	-300.71,	153.22,	462.00	635,	-296.80,	347.51,	236.00
560,	-319.56,	232.18,	420.00	636,	-323.15,	323.15,	236.00
561,	-351.95,	179.33,	420.00	637,	-347.51,	296.80,	236.00
562,	-319.56,	232.18,	462.00	638,	-267.38,	368.02,	259.80
563,	-351.95,	179.33,	462.00	639,	-295.43,	345.91,	259.80
564,	-387.52,	281.55,	384.50	640,	-321.66,	321.66,	259.80
565,	-426.79,	217.46,	384.50	641,	-345.91,	295.43,	259.80
566,	-387.52,	281.55,	462.00	642,	-263.03,	362.04,	282.50
567,	-426.79,	217.46,	462.00	643,	-290.63,	340.28,	282.50
568,	-21.01,	28.92,	4.25	644,	-316.43,	316.43,	282.50
569,	-42.03,	57.84,	4.50	645,	-340.28,	290.63,	282.50
570,	-50.56,	50.56,	4.50	646,	-250.04,	344.16,	294.20
571,	-63.04,	86.77,	4.75	647,	-276.28,	323.48,	294.20
572,	-71.76,	79.70,	4.75	648,	-300.80,	300.80,	294.20
573,	-79.70,	71.76,	4.75	649,	-323.48,	276.28,	294.20
574,	-84.05,	115.69,	5.00	650,	-232.18,	319.56,	307.80
575,	-92.87,	108.74,	5.00	651,	-256.53,	300.36,	307.80
576,	-101.12,	101.12,	5.00	652,	-279.31,	279.31,	307.80
577,	-108.74,	92.87,	5.00	653,	-300.36,	256.53,	307.80
578,	-109.92,	151.29,	6.83	654,	-215.36,	296.42,	319.70
579,	-121.45,	142.20,	6.83	655,	-237.96,	278.61,	319.70
580,	-132.23,	132.23,	6.83	656,	-259.08,	259.08,	319.70
581,	-142.20,	121.45,	6.83	657,	-278.61,	237.96,	319.70
582,	-135.78,	186.88,	8.67	658,	-198.38,	273.04,	331.00
583,	-150.02,	175.65,	8.67	659,	-219.19,	256.64,	331.00
584,	-163.34,	163.34,	8.67	660,	-238.65,	238.65,	331.00
585,	-175.65,	150.02,	8.67	661,	-256.64,	219.19,	331.00
586,	-161.64,	222.48,	10.50	662,	-175.92,	242.14,	344.70
587,	-178.60,	209.11,	10.50	663,	-194.38,	227.59,	344.70
588,	-194.45,	194.45,	10.50	664,	-211.64,	211.64,	344.70
589,	-209.11,	178.60,	10.50	665,	-227.59,	194.38,	344.70
590,	-187.50,	258.08,	12.33	666,	-153.06,	210.67,	356.40
591,	-207.17,	242.57,	12.33	667,	-169.12,	198.01,	356.40
592,	-225.57,	225.57,	12.33	668,	-184.13,	184.13,	356.40
593,	-242.57,	207.17,	12.33	669,	-198.01,	169.12,	356.40
594,	-213.37,	293.67,	14.17	670,	-129.84,	178.71,	366.00
595,	-235.75,	276.03,	14.17	671,	-143.46,	167.97,	366.00
596,	-256.68,	256.68,	14.17	672,	-156.20,	156.20,	366.00
597,	-276.03,	235.75,	14.17	673,	-167.97,	143.46,	366.00
598,	-239.23,	329.27,	16.00	674,	-106.39,	146.43,	373.50
599,	-264.33,	309.49,	16.00	675,	-117.55,	137.63,	373.50

676,	-127.99,	127.99,	373.50	754,	-105.24,	254.07,	10.50
677,	-137.63,	117.55,	373.50	755,	-124.85,	245.03,	10.50
678,	-79.94,	110.03,	379.70	756,	-143.69,	234.48,	10.50
679,	-91.00,	101.07,	379.70	757,	-98.58,	303.39,	12.33
680,	-101.07,	91.00,	379.70	758,	-122.08,	294.72,	12.33
681,	-53.37,	73.46,	384.10	759,	-144.82,	284.23,	12.33
682,	-64.21,	64.21,	384.10	760,	-166.68,	271.99,	12.33
684,	-286.25,	393.99,	24.00	761,	-112.17,	345.23,	14.17
685,	-316.28,	370.32,	24.00	762,	-138.91,	335.37,	14.17
686,	-344.36,	344.36,	24.00	763,	-164.80,	323.44,	14.17
687,	-370.32,	316.28,	24.00	764,	-189.67,	309.51,	14.17
688,	-42.03,	57.84,	-24.00	765,	-125.77,	387.08,	16.00
689,	-84.05,	115.69,	-24.00	766,	-155.75,	376.02,	16.00
690,	-101.12,	101.12,	-24.00	767,	-184.77,	362.64,	16.00
691,	-135.78,	186.88,	-24.00	768,	-212.66,	347.02,	16.00
692,	-163.34,	163.34,	-24.00	769,	-141.22,	434.63,	24.00
693,	-187.50,	258.08,	-24.00	770,	-174.89,	422.21,	24.00
694,	-225.57,	225.57,	-24.00	771,	-207.47,	407.19,	24.00
695,	-242.76,	334.12,	-24.00	772,	-238.78,	389.66,	24.00
696,	-292.04,	292.04,	-24.00	773,	-141.22,	434.63,	50.80
697,	-298.01,	410.17,	-24.00	774,	-174.89,	422.21,	50.80
698,	-358.50,	358.50,	-24.00	775,	-207.47,	407.19,	50.80
699,	-298.01,	410.17,	68.00	776,	-238.78,	389.66,	50.80
700,	-358.50,	358.50,	68.00	777,	-141.22,	434.63,	68.00
701,	-298.01,	410.17,	124.00	778,	-174.89,	422.21,	68.00
702,	-358.50,	358.50,	124.00	779,	-207.47,	407.19,	68.00
703,	-298.01,	410.17,	180.00	780,	-238.78,	389.66,	68.00
704,	-358.50,	358.50,	180.00	781,	-141.22,	434.63,	96.00
705,	-298.01,	410.17,	236.00	782,	-174.89,	422.21,	96.00
706,	-358.50,	358.50,	236.00	783,	-207.47,	407.19,	96.00
707,	-281.55,	387.52,	310.00	784,	-238.78,	389.66,	96.00
708,	-338.70,	338.70,	310.00	785,	-141.22,	434.63,	124.00
709,	-232.18,	319.56,	347.00	786,	-174.89,	422.21,	124.00
710,	-279.31,	279.31,	347.00	787,	-207.47,	407.19,	124.00
711,	-198.38,	273.04,	371.00	788,	-238.78,	389.66,	124.00
712,	-238.65,	238.65,	371.00	789,	-141.22,	434.63,	152.00
713,	-152.38,	209.74,	396.00	790,	-174.89,	422.21,	152.00
714,	-183.32,	183.32,	396.00	791,	-207.47,	407.19,	152.00
715,	-106.39,	146.43,	407.00	792,	-238.78,	389.66,	152.00
716,	-127.99,	127.99,	407.00	793,	-141.22,	434.63,	180.00
717,	-53.19,	73.22,	407.00	794,	-174.89,	422.21,	180.00
718,	-298.01,	410.17,	39.00	795,	-207.47,	407.19,	180.00
719,	-358.50,	358.50,	39.00	796,	-238.78,	389.66,	180.00
721,	-106.39,	146.43,	462.00	797,	-141.22,	434.63,	208.00
722,	-127.99,	127.99,	462.00	798,	-174.89,	422.21,	208.00
723,	-153.06,	210.67,	462.00	799,	-207.47,	407.19,	208.00
724,	-184.13,	184.13,	462.00	800,	-238.78,	389.66,	208.00
725,	-198.38,	273.04,	462.00	801,	-141.22,	434.63,	236.00
726,	-238.65,	238.65,	462.00	802,	-174.89,	422.21,	236.00
727,	-232.18,	319.56,	420.00	803,	-207.47,	407.19,	236.00
728,	-279.31,	279.31,	420.00	804,	-238.78,	389.66,	236.00
729,	-232.18,	319.56,	462.00	805,	-140.57,	432.64,	259.80
730,	-279.31,	279.31,	462.00	806,	-174.08,	420.27,	259.80
731,	-281.55,	387.52,	384.50	807,	-206.52,	405.32,	259.80
732,	-338.70,	338.70,	384.50	808,	-237.68,	387.87,	259.80
733,	-281.55,	387.52,	462.00	809,	-138.29,	425.60,	282.50
734,	-338.70,	338.70,	462.00	810,	-171.25,	413.44,	282.50
735,	-11.05,	34.00,	4.25	811,	-203.16,	398.73,	282.50
736,	-22.09,	68.00,	4.50	812,	-233.82,	381.56,	282.50
737,	-32.46,	63.71,	4.50	813,	-131.46,	404.58,	294.20
738,	-33.14,	102.00,	4.75	814,	-162.79,	393.02,	294.20
739,	-43.62,	97.98,	4.75	815,	-193.13,	379.03,	294.20
740,	-53.62,	92.88,	4.75	816,	-222.27,	362.71,	294.20
741,	-44.19,	136.00,	5.00	817,	-122.06,	375.67,	307.80
742,	-54.72,	132.11,	5.00	818,	-151.16,	364.93,	307.80
743,	-64.92,	127.41,	5.00	819,	-179.33,	351.95,	307.80
744,	-74.72,	121.93,	5.00	820,	-206.39,	336.79,	307.80
745,	-57.79,	177.85,	6.83	821,	-113.22,	348.47,	319.70
746,	-71.56,	172.77,	6.83	822,	-140.22,	338.51,	319.70
747,	-84.90,	166.62,	6.83	823,	-166.34,	326.46,	319.70
748,	-97.71,	159.44,	6.83	824,	-191.44,	312.41,	319.70
749,	-71.38,	219.69,	8.67	825,	-104.29,	320.98,	331.00
750,	-88.40,	213.42,	8.67	826,	-129.16,	311.81,	331.00
751,	-104.87,	205.82,	8.67	827,	-153.22,	300.71,	331.00
752,	-120.70,	196.96,	8.67	828,	-176.34,	287.77,	331.00
753,	-84.98,	261.54,	10.50	829,	-92.49,	284.65,	344.70

830,	-114.54,	276.52,	344.70	908,	0.00,	143.00,	5.00
831,	-135.88,	266.68,	344.70	909,	-11.22,	142.56,	5.00
832,	-156.38,	255.20,	344.70	910,	-22.37,	141.24,	5.00
833,	-80.47,	247.66,	356.40	911,	-33.38,	139.05,	5.00
834,	-99.65,	240.58,	356.40	912,	0.00,	187.00,	6.83
835,	-118.22,	232.02,	356.40	913,	-14.67,	186.42,	6.83
836,	-136.06,	222.03,	356.40	914,	-29.25,	184.70,	6.83
837,	-68.26,	210.09,	366.00	915,	-43.65,	181.83,	6.83
838,	-84.53,	204.08,	366.00	916,	0.00,	231.00,	8.67
839,	-100.29,	196.82,	366.00	917,	-18.12,	230.29,	8.67
840,	-115.42,	188.35,	366.00	918,	-36.14,	228.16,	8.67
841,	-55.93,	172.14,	373.50	919,	-53.93,	224.62,	8.67
842,	-69.27,	167.22,	373.50	920,	0.00,	275.00,	10.50
843,	-82.17,	161.27,	373.50	921,	-21.58,	274.15,	10.50
844,	-94.57,	154.33,	373.50	922,	-43.02,	271.61,	10.50
845,	-42.03,	129.34,	379.70	923,	-64.20,	267.40,	10.50
846,	-55.32,	124.24,	379.70	924,	0.00,	319.00,	12.33
847,	-68.00,	117.78,	379.70	925,	-25.03,	318.02,	12.33
848,	-28.06,	86.36,	384.10	926,	-49.90,	315.07,	12.33
849,	-41.22,	80.90,	384.10	927,	-74.47,	310.19,	12.33
851,	-150.49,	463.16,	24.00	928,	0.00,	363.00,	14.17
852,	-186.37,	449.93,	24.00	929,	-28.48,	361.88,	14.17
853,	-221.09,	433.92,	24.00	930,	-56.79,	358.53,	14.17
854,	-254.46,	415.24,	24.00	931,	-84.74,	352.97,	14.17
855,	-22.09,	68.00,	-24.00	932,	0.00,	407.00,	16.00
856,	-44.19,	136.00,	-24.00	933,	-31.93,	405.75,	16.00
857,	-64.92,	127.41,	-24.00	934,	-63.67,	401.99,	16.00
858,	-71.38,	219.69,	-24.00	935,	-95.01,	395.75,	16.00
859,	-104.87,	205.82,	-24.00	936,	0.00,	457.00,	24.00
860,	-98.58,	303.39,	-24.00	937,	-35.86,	455.59,	24.00
861,	-144.82,	284.23,	-24.00	938,	-71.49,	451.37,	24.00
862,	-127.62,	392.79,	-24.00	939,	-106.68,	444.37,	24.00
863,	-187.50,	367.99,	-24.00	940,	0.00,	457.00,	50.80
864,	-156.67,	482.19,	-24.00	941,	-35.86,	455.59,	50.80
865,	-230.17,	451.74,	-24.00	942,	-71.49,	451.37,	50.80
866,	-156.67,	482.19,	68.00	943,	-106.68,	444.37,	50.80
867,	-230.17,	451.74,	68.00	944,	0.00,	457.00,	68.00
868,	-156.67,	482.19,	124.00	945,	-35.86,	455.59,	68.00
869,	-230.17,	451.74,	124.00	946,	-71.49,	451.37,	68.00
870,	-156.67,	482.19,	180.00	947,	-106.68,	444.37,	68.00
871,	-230.17,	451.74,	180.00	948,	0.00,	457.00,	96.00
872,	-156.67,	482.19,	236.00	949,	-35.86,	455.59,	96.00
873,	-230.17,	451.74,	236.00	950,	-71.49,	451.37,	96.00
874,	-148.02,	455.56,	310.00	951,	-106.68,	444.37,	96.00
875,	-217.46,	426.79,	310.00	952,	0.00,	457.00,	124.00
876,	-122.06,	375.67,	347.00	953,	-35.86,	455.59,	124.00
877,	-179.33,	351.95,	347.00	954,	-71.49,	451.37,	124.00
878,	-104.29,	320.98,	371.00	955,	-106.68,	444.37,	124.00
879,	-153.22,	300.71,	371.00	956,	0.00,	457.00,	152.00
880,	-80.11,	246.56,	396.00	957,	-35.86,	455.59,	152.00
881,	-117.70,	230.99,	396.00	958,	-71.49,	451.37,	152.00
882,	-55.93,	172.14,	407.00	959,	-106.68,	444.37,	152.00
883,	-82.17,	161.27,	407.00	960,	0.00,	457.00,	180.00
884,	-27.97,	86.07,	407.00	961,	-35.86,	455.59,	180.00
885,	-156.67,	482.19,	39.00	962,	-71.49,	451.37,	180.00
886,	-230.17,	451.74,	39.00	963,	-106.68,	444.37,	180.00
888,	-55.93,	172.14,	462.00	964,	0.00,	457.00,	208.00
889,	-82.17,	161.27,	462.00	965,	-35.86,	455.59,	208.00
890,	-80.47,	247.66,	462.00	966,	-71.49,	451.37,	208.00
891,	-118.22,	232.02,	462.00	967,	-106.68,	444.37,	208.00
892,	-104.29,	320.98,	462.00	968,	0.00,	457.00,	236.00
893,	-153.22,	300.71,	462.00	969,	-35.86,	455.59,	236.00
894,	-122.06,	375.67,	420.00	970,	-71.49,	451.37,	236.00
895,	-179.33,	351.95,	420.00	971,	-106.68,	444.37,	236.00
896,	-122.06,	375.67,	462.00	972,	0.00,	454.90,	259.80
897,	-179.33,	351.95,	462.00	973,	-35.69,	453.50,	259.80
898,	-148.02,	455.56,	384.50	974,	-71.16,	449.30,	259.80
899,	-217.46,	426.79,	384.50	975,	-106.19,	442.33,	259.80
900,	-148.02,	455.56,	462.00	976,	0.00,	447.50,	282.50
901,	-217.46,	426.79,	462.00	977,	-35.11,	446.12,	282.50
902,	0.00,	35.75,	4.25	978,	-70.00,	441.99,	282.50
903,	0.00,	71.50,	4.50	979,	-104.47,	435.14,	282.50
904,	-11.19,	70.62,	4.50	980,	0.00,	425.40,	294.20
905,	0.00,	107.25,	4.75	981,	-33.38,	424.09,	294.20
906,	-11.21,	106.66,	4.75	982,	-66.55,	420.16,	294.20
907,	-22.30,	104.91,	4.75	983,	-99.31,	413.65,	294.20

984,	0.00,	395.00,	307.80	1062,	-61.79,	390.14,	420.00
985,	-30.99,	393.78,	307.80	1063,	0.00,	395.00,	462.00
986,	-61.79,	390.14,	307.80	1064,	-61.79,	390.14,	462.00
987,	-92.21,	384.09,	307.80	1065,	0.00,	479.00,	384.50
988,	0.00,	366.40,	319.70	1066,	-74.93,	473.10,	384.50
989,	-28.75,	365.27,	319.70	1067,	0.00,	479.00,	462.00
990,	-57.32,	361.89,	319.70	1068,	-74.93,	473.10,	462.00
991,	-85.53,	356.28,	319.70	1069,	11.05,	34.00,	4.25
992,	0.00,	337.50,	331.00	1070,	22.09,	68.00,	4.50
993,	-26.48,	336.46,	331.00	1071,	11.19,	70.62,	4.50
994,	-52.80,	333.34,	331.00	1072,	33.14,	102.00,	4.75
995,	-78.79,	328.17,	331.00	1073,	22.30,	104.91,	4.75
996,	0.00,	299.30,	344.70	1074,	11.21,	106.66,	4.75
997,	-23.48,	298.38,	344.70	1075,	44.19,	136.00,	5.00
998,	-46.82,	295.62,	344.70	1076,	33.38,	139.05,	5.00
999,	-69.87,	291.03,	344.70	1077,	22.37,	141.24,	5.00
1000,	0.00,	260.40,	356.40	1078,	11.22,	142.56,	5.00
1001,	-20.43,	259.60,	356.40	1079,	57.79,	177.85,	6.83
1002,	-40.74,	257.19,	356.40	1080,	43.65,	181.83,	6.83
1003,	-60.79,	253.21,	356.40	1081,	29.25,	184.70,	6.83
1004,	0.00,	220.90,	366.00	1082,	14.67,	186.42,	6.83
1005,	-17.33,	220.22,	366.00	1083,	71.38,	219.69,	8.67
1006,	-34.56,	218.18,	366.00	1084,	53.93,	224.62,	8.67
1007,	-51.57,	214.80,	366.00	1085,	36.14,	228.16,	8.67
1008,	0.00,	181.00,	373.50	1086,	18.12,	230.29,	8.67
1009,	-14.20,	180.44,	373.50	1087,	84.98,	261.54,	10.50
1010,	-28.31,	178.77,	373.50	1088,	64.20,	267.40,	10.50
1011,	-42.25,	176.00,	373.50	1089,	43.02,	271.61,	10.50
1012,	0.00,	136.00,	379.70	1090,	21.58,	274.15,	10.50
1013,	-14.22,	135.26,	379.70	1091,	98.58,	303.39,	12.33
1014,	-28.28,	133.03,	379.70	1092,	74.47,	310.19,	12.33
1015,	0.00,	90.80,	384.10	1093,	49.90,	315.07,	12.33
1016,	-14.20,	89.68,	384.10	1094,	25.03,	318.02,	12.33
1018,	0.00,	487.00,	24.00	1095,	112.17,	345.23,	14.17
1019,	-38.21,	485.50,	24.00	1096,	84.74,	352.97,	14.17
1020,	-76.18,	481.00,	24.00	1097,	56.79,	358.53,	14.17
1021,	-113.69,	473.54,	24.00	1098,	28.48,	361.88,	14.17
1022,	0.00,	71.50,	-24.00	1099,	125.77,	387.08,	16.00
1023,	0.00,	143.00,	-24.00	1100,	95.01,	395.75,	16.00
1024,	-22.37,	141.24,	-24.00	1101,	63.67,	401.99,	16.00
1025,	0.00,	231.00,	-24.00	1102,	31.93,	405.75,	16.00
1026,	-36.14,	228.16,	-24.00	1103,	141.22,	434.63,	24.00
1027,	0.00,	319.00,	-24.00	1104,	106.68,	444.37,	24.00
1028,	-49.90,	315.07,	-24.00	1105,	71.49,	451.37,	24.00
1029,	0.00,	413.00,	-24.00	1106,	35.86,	455.59,	24.00
1030,	-64.61,	407.92,	-24.00	1107,	141.22,	434.63,	50.80
1031,	0.00,	507.00,	-24.00	1108,	106.68,	444.37,	50.80
1032,	-79.31,	500.76,	-24.00	1109,	71.49,	451.37,	50.80
1033,	0.00,	507.00,	68.00	1110,	35.86,	455.59,	50.80
1034,	-79.31,	500.76,	68.00	1111,	141.22,	434.63,	68.00
1035,	0.00,	507.00,	124.00	1112,	106.68,	444.37,	68.00
1036,	-79.31,	500.76,	124.00	1113,	71.49,	451.37,	68.00
1037,	0.00,	507.00,	180.00	1114,	35.86,	455.59,	68.00
1038,	-79.31,	500.76,	180.00	1115,	141.22,	434.63,	96.00
1039,	0.00,	507.00,	236.00	1116,	106.68,	444.37,	96.00
1040,	-79.31,	500.76,	236.00	1117,	71.49,	451.37,	96.00
1041,	0.00,	479.00,	310.00	1118,	35.86,	455.59,	96.00
1042,	-74.93,	473.10,	310.00	1119,	141.22,	434.63,	124.00
1043,	0.00,	395.00,	347.00	1120,	106.68,	444.37,	124.00
1044,	-61.79,	390.14,	347.00	1121,	71.49,	451.37,	124.00
1045,	0.00,	337.50,	371.00	1122,	35.86,	455.59,	124.00
1046,	-52.80,	333.34,	371.00	1123,	141.22,	434.63,	152.00
1047,	0.00,	259.25,	396.00	1124,	106.68,	444.37,	152.00
1048,	-40.56,	256.06,	396.00	1125,	71.49,	451.37,	152.00
1049,	0.00,	181.00,	407.00	1126,	35.86,	455.59,	152.00
1050,	-28.31,	178.77,	407.00	1127,	141.22,	434.63,	180.00
1051,	0.00,	90.50,	407.00	1128,	106.68,	444.37,	180.00
1052,	0.00,	507.00,	39.00	1129,	71.49,	451.37,	180.00
1053,	-79.31,	500.76,	39.00	1130,	35.86,	455.59,	180.00
1055,	0.00,	181.00,	462.00	1131,	141.22,	434.63,	208.00
1056,	-28.31,	178.77,	462.00	1132,	106.68,	444.37,	208.00
1057,	0.00,	260.40,	462.00	1133,	71.49,	451.37,	208.00
1058,	-40.74,	257.19,	462.00	1134,	35.86,	455.59,	208.00
1059,	0.00,	337.50,	462.00	1135,	141.22,	434.63,	236.00
1060,	-52.80,	333.34,	462.00	1136,	106.68,	444.37,	236.00
1061,	0.00,	395.00,	420.00	1137,	71.49,	451.37,	236.00

1138,	35.86,	455.59,	236.00	1214,	80.11,	246.56,	396.00
1139,	140.57,	432.64,	259.80	1215,	40.56,	256.06,	396.00
1140,	106.19,	442.33,	259.80	1216,	55.93,	172.14,	407.00
1141,	71.16,	449.30,	259.80	1217,	28.31,	178.77,	407.00
1142,	35.69,	453.50,	259.80	1218,	27.97,	86.07,	407.00
1143,	138.29,	425.60,	282.50	1219,	156.67,	482.19,	39.00
1144,	104.47,	435.14,	282.50	1220,	79.31,	500.76,	39.00
1145,	70.00,	441.99,	282.50	1222,	55.93,	172.14,	462.00
1146,	35.11,	446.12,	282.50	1223,	28.31,	178.77,	462.00
1147,	131.46,	404.58,	294.20	1224,	80.47,	247.66,	462.00
1148,	99.31,	413.65,	294.20	1225,	40.74,	257.19,	462.00
1149,	66.55,	420.16,	294.20	1226,	104.29,	320.98,	462.00
1150,	33.38,	424.09,	294.20	1227,	52.80,	333.34,	462.00
1151,	122.06,	375.67,	307.80	1228,	122.06,	375.67,	420.00
1152,	92.21,	384.09,	307.80	1229,	61.79,	390.14,	420.00
1153,	61.79,	390.14,	307.80	1230,	122.06,	375.67,	462.00
1154,	30.99,	393.78,	307.80	1231,	61.79,	390.14,	462.00
1155,	113.22,	348.47,	319.70	1232,	148.02,	455.56,	384.50
1156,	85.53,	356.28,	319.70	1233,	74.93,	473.10,	384.50
1157,	57.32,	361.89,	319.70	1234,	148.02,	455.56,	462.00
1158,	28.75,	365.27,	319.70	1235,	74.93,	473.10,	462.00
1159,	104.29,	320.98,	331.00	1236,	21.01,	28.92,	4.25
1160,	78.79,	328.17,	331.00	1237,	42.03,	57.84,	4.50
1161,	52.80,	333.34,	331.00	1238,	32.46,	63.71,	4.50
1162,	26.48,	336.46,	331.00	1239,	63.04,	86.77,	4.75
1163,	92.49,	284.65,	344.70	1240,	53.63,	92.88,	4.75
1164,	69.87,	291.03,	344.70	1241,	43.62,	97.98,	4.75
1165,	46.82,	295.62,	344.70	1242,	84.05,	115.69,	5.00
1166,	23.48,	298.38,	344.70	1243,	74.72,	121.93,	5.00
1167,	80.47,	247.66,	356.40	1244,	64.92,	127.41,	5.00
1168,	60.79,	253.21,	356.40	1245,	54.72,	132.11,	5.00
1169,	40.74,	257.19,	356.40	1246,	109.92,	151.29,	6.83
1170,	20.43,	259.60,	356.40	1247,	97.71,	159.44,	6.83
1171,	68.26,	210.09,	366.00	1248,	84.90,	166.62,	6.83
1172,	51.57,	214.80,	366.00	1249,	71.56,	172.77,	6.83
1173,	34.56,	218.18,	366.00	1250,	135.78,	186.88,	8.67
1174,	17.33,	220.22,	366.00	1251,	120.70,	196.96,	8.67
1175,	55.93,	172.14,	373.50	1252,	104.87,	205.82,	8.67
1176,	42.25,	176.00,	373.50	1253,	88.40,	213.42,	8.67
1177,	28.31,	178.77,	373.50	1254,	161.64,	222.48,	10.50
1178,	14.20,	180.44,	373.50	1255,	143.69,	234.48,	10.50
1179,	42.03,	129.34,	379.70	1256,	124.85,	245.03,	10.50
1180,	28.28,	133.03,	379.70	1257,	105.24,	254.07,	10.50
1181,	14.22,	135.26,	379.70	1258,	187.50,	258.08,	12.33
1182,	28.06,	86.36,	384.10	1259,	166.68,	271.99,	12.33
1183,	14.20,	89.68,	384.10	1260,	144.82,	284.23,	12.33
1184,	14.03,	43.18,	386.70	1261,	122.08,	294.72,	12.33
1185,	150.49,	463.16,	24.00	1262,	213.37,	293.67,	14.17
1186,	113.69,	473.54,	24.00	1263,	189.67,	309.51,	14.17
1187,	76.18,	481.00,	24.00	1264,	164.80,	323.44,	14.17
1188,	38.21,	485.50,	24.00	1265,	138.91,	335.37,	14.17
1189,	22.09,	68.00,	-24.00	1266,	239.23,	329.27,	16.00
1190,	44.19,	136.00,	-24.00	1267,	212.66,	347.02,	16.00
1191,	22.37,	141.24,	-24.00	1268,	184.77,	362.64,	16.00
1192,	71.38,	219.69,	-24.00	1269,	155.75,	376.02,	16.00
1193,	36.14,	228.16,	-24.00	1270,	268.62,	369.72,	24.00
1194,	98.58,	303.39,	-24.00	1271,	238.78,	389.66,	24.00
1195,	49.90,	315.07,	-24.00	1272,	207.47,	407.19,	24.00
1196,	127.62,	392.79,	-24.00	1273,	174.89,	422.21,	24.00
1197,	64.61,	407.92,	-24.00	1274,	268.62,	369.72,	50.80
1198,	156.67,	482.19,	-24.00	1275,	238.78,	389.66,	50.80
1199,	79.31,	500.76,	-24.00	1276,	207.47,	407.19,	50.80
1200,	156.67,	482.19,	68.00	1277,	174.89,	422.21,	50.80
1201,	79.31,	500.76,	68.00	1278,	268.62,	369.72,	68.00
1202,	156.67,	482.19,	124.00	1279,	238.78,	389.66,	68.00
1203,	79.31,	500.76,	124.00	1280,	207.47,	407.19,	68.00
1204,	156.67,	482.19,	180.00	1281,	174.89,	422.21,	68.00
1205,	79.31,	500.76,	180.00	1282,	268.62,	369.72,	96.00
1206,	156.67,	482.19,	236.00	1283,	238.78,	389.66,	96.00
1207,	79.31,	500.76,	236.00	1284,	207.47,	407.19,	96.00
1208,	148.02,	455.56,	310.00	1285,	174.89,	422.21,	96.00
1209,	74.93,	473.10,	310.00	1286,	268.62,	369.72,	124.00
1210,	122.06,	375.67,	347.00	1287,	238.78,	389.66,	124.00
1211,	61.79,	390.14,	347.00	1288,	207.47,	407.19,	124.00
1212,	104.29,	320.98,	371.00	1289,	174.89,	422.21,	124.00
1213,	52.80,	333.34,	371.00	1290,	268.62,	369.72,	152.00

1291,	238.78,	389.66,	152.00	1368,	230.17,	451.74,	68.00
1292,	207.47,	407.19,	152.00	1369,	298.01,	410.17,	124.00
1293,	174.89,	422.21,	152.00	1370,	230.17,	451.74,	124.00
1294,	268.62,	369.72,	180.00	1371,	298.01,	410.17,	180.00
1295,	238.78,	389.66,	180.00	1372,	230.17,	451.74,	180.00
1296,	207.47,	407.19,	180.00	1373,	298.01,	410.17,	236.00
1297,	174.89,	422.21,	180.00	1374,	230.17,	451.74,	236.00
1298,	268.62,	369.72,	208.00	1375,	281.55,	387.52,	310.00
1299,	238.78,	389.66,	208.00	1376,	217.46,	426.79,	310.00
1300,	207.47,	407.19,	208.00	1377,	232.18,	319.56,	347.00
1301,	174.89,	422.21,	208.00	1378,	179.33,	351.95,	347.00
1302,	268.62,	369.72,	236.00	1379,	198.38,	273.04,	371.00
1303,	238.78,	389.66,	236.00	1380,	153.22,	300.71,	371.00
1304,	207.47,	407.19,	236.00	1381,	152.38,	209.74,	396.00
1305,	174.89,	422.21,	236.00	1382,	117.70,	230.99,	396.00
1306,	267.38,	368.02,	259.80	1383,	106.39,	146.43,	407.00
1307,	237.68,	387.87,	259.80	1384,	82.17,	161.27,	407.00
1308,	206.52,	405.32,	259.80	1385,	53.19,	73.22,	407.00
1309,	174.08,	420.27,	259.80	1386,	298.01,	410.17,	39.00
1310,	263.03,	362.04,	282.50	1387,	230.17,	451.74,	39.00
1311,	233.82,	381.56,	282.50	1389,	106.39,	146.43,	462.00
1312,	203.16,	398.73,	282.50	1390,	82.17,	161.27,	462.00
1313,	171.25,	413.44,	282.50	1391,	153.06,	210.67,	462.00
1314,	250.04,	344.16,	294.20	1392,	118.22,	232.02,	462.00
1315,	222.27,	362.71,	294.20	1393,	198.38,	273.04,	462.00
1316,	193.13,	379.03,	294.20	1394,	153.22,	300.71,	462.00
1317,	162.79,	393.02,	294.20	1395,	232.18,	319.56,	420.00
1318,	232.18,	319.56,	307.80	1396,	179.33,	351.95,	420.00
1319,	206.39,	336.79,	307.80	1397,	232.18,	319.56,	462.00
1320,	179.33,	351.95,	307.80	1398,	179.33,	351.95,	462.00
1321,	151.16,	364.93,	307.80	1399,	281.55,	387.52,	384.50
1322,	215.36,	296.42,	319.70	1400,	217.46,	426.79,	384.50
1323,	191.44,	312.41,	319.70	1401,	281.55,	387.52,	462.00
1324,	166.34,	326.46,	319.70	1402,	217.46,	426.79,	462.00
1325,	140.22,	338.51,	319.70	1403,	28.92,	21.01,	4.25
1326,	198.38,	273.04,	331.00	1404,	57.84,	42.03,	4.50
1327,	176.34,	287.77,	331.00	1405,	50.56,	50.56,	4.50
1328,	153.22,	300.71,	331.00	1406,	86.77,	63.04,	4.75
1329,	129.16,	311.81,	331.00	1407,	79.70,	71.76,	4.75
1330,	175.92,	242.14,	344.70	1408,	71.76,	79.70,	4.75
1331,	156.38,	255.20,	344.70	1409,	115.69,	84.05,	5.00
1332,	135.88,	266.68,	344.70	1410,	108.74,	92.87,	5.00
1333,	114.54,	276.52,	344.70	1411,	101.12,	101.12,	5.00
1334,	153.06,	210.67,	356.40	1412,	92.87,	108.74,	5.00
1335,	136.06,	222.03,	356.40	1413,	151.29,	109.92,	6.83
1336,	118.22,	232.02,	356.40	1414,	142.20,	121.45,	6.83
1337,	99.65,	240.58,	356.40	1415,	132.23,	132.23,	6.83
1338,	129.84,	178.71,	366.00	1416,	121.45,	142.20,	6.83
1339,	115.42,	188.35,	366.00	1417,	186.88,	135.78,	8.67
1340,	100.29,	196.82,	366.00	1418,	175.65,	150.02,	8.67
1341,	84.53,	204.09,	366.00	1419,	163.34,	163.34,	8.67
1342,	106.39,	146.43,	373.50	1420,	150.02,	175.65,	8.67
1343,	94.57,	154.33,	373.50	1421,	222.48,	161.64,	10.50
1344,	82.17,	161.27,	373.50	1422,	209.11,	178.60,	10.50
1345,	69.27,	167.22,	373.50	1423,	194.45,	194.45,	10.50
1346,	79.94,	110.03,	379.70	1424,	178.60,	209.11,	10.50
1347,	68.00,	117.78,	379.70	1425,	258.08,	187.50,	12.33
1348,	55.32,	124.24,	379.70	1426,	242.57,	207.17,	12.33
1349,	53.37,	73.46,	384.10	1427,	225.57,	225.57,	12.33
1350,	41.22,	80.90,	384.10	1428,	207.17,	242.57,	12.33
1352,	286.25,	393.99,	24.00	1429,	293.67,	213.37,	14.17
1353,	254.46,	415.24,	24.00	1430,	276.03,	235.75,	14.17
1354,	221.09,	433.92,	24.00	1431,	256.68,	256.68,	14.17
1355,	186.37,	449.93,	24.00	1432,	235.75,	276.03,	14.17
1356,	42.03,	57.84,	-24.00	1433,	329.27,	239.23,	16.00
1357,	84.05,	115.69,	-24.00	1434,	309.49,	264.33,	16.00
1358,	64.92,	127.41,	-24.00	1435,	287.79,	287.79,	16.00
1359,	135.78,	186.88,	-24.00	1436,	264.33,	309.49,	16.00
1360,	104.87,	205.82,	-24.00	1437,	369.72,	268.62,	24.00
1361,	187.50,	258.08,	-24.00	1438,	347.51,	296.80,	24.00
1362,	144.82,	284.23,	-24.00	1439,	323.15,	323.15,	24.00
1363,	242.76,	334.12,	-24.00	1440,	296.80,	347.51,	24.00
1364,	187.50,	367.99,	-24.00	1441,	369.72,	268.62,	50.80
1365,	298.01,	410.17,	-24.00	1442,	347.51,	296.80,	50.80
1366,	230.17,	451.74,	-24.00	1443,	323.15,	323.15,	50.80
1367,	298.01,	410.17,	68.00	1444,	296.80,	347.51,	50.80

1445,	369.72,	268.62,	68.00	1522,	316.28,	370.32,	24.00
1446,	347.51,	296.80,	68.00	1523,	57.84,	42.03,	-24.00
1447,	323.15,	323.15,	68.00	1524,	115.69,	84.05,	-24.00
1448,	296.80,	347.51,	68.00	1525,	101.12,	101.12,	-24.00
1449,	369.72,	268.62,	96.00	1526,	186.88,	135.78,	-24.00
1450,	347.51,	296.80,	96.00	1527,	163.34,	163.34,	-24.00
1451,	323.15,	323.15,	96.00	1528,	258.08,	187.50,	-24.00
1452,	296.80,	347.51,	96.00	1529,	225.57,	225.57,	-24.00
1453,	369.72,	268.62,	124.00	1530,	334.12,	242.76,	-24.00
1454,	347.51,	296.80,	124.00	1531,	292.04,	292.04,	-24.00
1455,	323.15,	323.15,	124.00	1532,	410.17,	298.01,	-24.00
1456,	296.80,	347.51,	124.00	1533,	358.50,	358.50,	-24.00
1457,	369.72,	268.62,	152.00	1534,	410.17,	298.01,	68.00
1458,	347.51,	296.80,	152.00	1535,	358.50,	358.50,	68.00
1459,	323.15,	323.15,	152.00	1536,	410.17,	298.01,	124.00
1460,	296.80,	347.51,	152.00	1537,	358.50,	358.50,	124.00
1461,	369.72,	268.62,	180.00	1538,	410.17,	298.01,	180.00
1462,	347.51,	296.80,	180.00	1539,	358.50,	358.50,	180.00
1463,	323.15,	323.15,	180.00	1540,	410.17,	298.01,	236.00
1464,	296.80,	347.51,	180.00	1541,	358.50,	358.50,	236.00
1465,	369.72,	268.62,	208.00	1542,	387.52,	281.55,	310.00
1466,	347.51,	296.80,	208.00	1543,	338.70,	338.70,	310.00
1467,	323.15,	323.15,	208.00	1544,	319.56,	232.18,	347.00
1468,	296.80,	347.51,	208.00	1545,	279.31,	279.31,	347.00
1469,	369.72,	268.62,	236.00	1546,	273.04,	198.38,	371.00
1470,	347.51,	296.80,	236.00	1547,	238.65,	238.65,	371.00
1471,	323.15,	323.15,	236.00	1548,	209.74,	152.38,	396.00
1472,	296.80,	347.51,	236.00	1549,	183.32,	183.32,	396.00
1473,	368.02,	267.38,	259.80	1550,	146.43,	106.39,	407.00
1474,	345.91,	295.43,	259.80	1551,	127.99,	127.99,	407.00
1475,	321.66,	321.66,	259.80	1552,	73.22,	53.19,	407.00
1476,	295.43,	345.91,	259.80	1553,	410.17,	298.01,	39.00
1477,	362.04,	263.03,	282.50	1554,	358.50,	358.50,	39.00
1478,	340.28,	290.63,	282.50	1556,	146.43,	106.39,	462.00
1479,	316.43,	316.43,	282.50	1557,	127.99,	127.99,	462.00
1480,	290.63,	340.28,	282.50	1558,	210.67,	153.06,	462.00
1481,	344.16,	250.04,	294.20	1559,	184.13,	184.13,	462.00
1482,	323.48,	276.28,	294.20	1560,	273.04,	198.38,	462.00
1483,	300.80,	300.80,	294.20	1561,	238.65,	238.65,	462.00
1484,	276.28,	323.48,	294.20	1562,	319.56,	232.18,	420.00
1485,	319.56,	232.18,	307.80	1563,	279.31,	279.31,	420.00
1486,	300.36,	256.53,	307.80	1564,	319.56,	232.18,	462.00
1487,	279.31,	279.31,	307.80	1565,	279.31,	279.31,	462.00
1488,	256.53,	300.36,	307.80	1566,	387.52,	281.55,	384.50
1489,	296.42,	215.36,	319.70	1567,	338.70,	338.70,	384.50
1490,	278.61,	237.96,	319.70	1568,	387.52,	281.55,	462.00
1491,	259.08,	259.08,	319.70	1569,	338.70,	338.70,	462.00
1492,	237.96,	278.61,	319.70	1570,	34.00,	11.05,	4.25
1493,	273.04,	198.38,	331.00	1571,	68.00,	22.09,	4.50
1494,	256.64,	219.19,	331.00	1572,	63.71,	32.46,	4.50
1495,	238.65,	238.65,	331.00	1573,	102.00,	33.14,	4.75
1496,	219.19,	256.64,	331.00	1574,	97.98,	43.62,	4.75
1497,	242.14,	175.92,	344.70	1575,	92.88,	53.62,	4.75
1498,	227.59,	194.38,	344.70	1576,	136.00,	44.19,	5.00
1499,	211.64,	211.64,	344.70	1577,	132.11,	54.72,	5.00
1500,	194.38,	227.59,	344.70	1578,	127.41,	64.92,	5.00
1501,	210.67,	153.06,	356.40	1579,	121.93,	74.72,	5.00
1502,	198.01,	169.12,	356.40	1580,	177.85,	57.79,	6.83
1503,	184.13,	184.13,	356.40	1581,	172.77,	71.56,	6.83
1504,	169.12,	198.01,	356.40	1582,	166.62,	84.90,	6.83
1505,	178.71,	129.84,	366.00	1583,	159.44,	97.71,	6.83
1506,	167.97,	143.46,	366.00	1584,	219.69,	71.38,	8.67
1507,	156.20,	156.20,	366.00	1585,	213.42,	88.40,	8.67
1508,	143.46,	167.97,	366.00	1586,	205.82,	104.87,	8.67
1509,	146.43,	106.39,	373.50	1587,	196.96,	120.70,	8.67
1510,	137.63,	117.55,	373.50	1588,	261.54,	84.98,	10.50
1511,	127.99,	127.99,	373.50	1589,	254.07,	105.24,	10.50
1512,	117.55,	137.63,	373.50	1590,	245.03,	124.85,	10.50
1513,	110.03,	79.94,	379.70	1591,	234.48,	143.69,	10.50
1514,	101.07,	91.00,	379.70	1592,	303.39,	98.58,	12.33
1515,	91.00,	101.07,	379.70	1593,	294.72,	122.08,	12.33
1516,	73.46,	53.37,	384.10	1594,	284.23,	144.82,	12.33
1517,	64.21,	64.21,	384.10	1595,	271.99,	166.68,	12.33
1519,	393.99,	286.25,	24.00	1596,	345.23,	112.17,	14.17
1520,	370.32,	316.28,	24.00	1597,	335.37,	138.91,	14.17
1521,	344.36,	344.36,	24.00	1598,	323.44,	164.80,	14.17

1599,	309.51,	189.67,	14.17	1675,	188.35,	115.42,	366.00
1600,	387.08,	125.77,	16.00	1676,	172.14,	55.93,	373.50
1601,	376.02,	155.75,	16.00	1677,	167.22,	69.27,	373.50
1602,	362.64,	184.77,	16.00	1678,	161.27,	82.17,	373.50
1603,	347.02,	212.66,	16.00	1679,	154.33,	94.57,	373.50
1604,	434.63,	141.22,	24.00	1680,	129.34,	42.03,	379.70
1605,	422.21,	174.89,	24.00	1681,	124.24,	55.32,	379.70
1606,	407.19,	207.47,	24.00	1682,	117.78,	68.00,	379.70
1607,	389.66,	238.78,	24.00	1683,	86.36,	28.06,	384.10
1608,	434.63,	141.22,	50.80	1684,	80.90,	41.22,	384.10
1609,	422.21,	174.89,	50.80	1686,	463.16,	150.49,	24.00
1610,	407.19,	207.47,	50.80	1687,	449.93,	186.37,	24.00
1611,	389.66,	238.78,	50.80	1688,	433.92,	221.09,	24.00
1612,	434.63,	141.22,	68.00	1689,	415.24,	254.46,	24.00
1613,	422.21,	174.89,	68.00	1690,	68.00,	22.09,	-24.00
1614,	407.19,	207.47,	68.00	1691,	136.00,	44.19,	-24.00
1615,	389.66,	238.78,	68.00	1692,	127.41,	64.92,	-24.00
1616,	434.63,	141.22,	96.00	1693,	219.69,	71.38,	-24.00
1617,	422.21,	174.89,	96.00	1694,	205.82,	104.87,	-24.00
1618,	407.19,	207.47,	96.00	1695,	303.39,	98.58,	-24.00
1619,	389.66,	238.78,	96.00	1696,	284.23,	144.82,	-24.00
1620,	434.63,	141.22,	124.00	1697,	392.79,	127.62,	-24.00
1621,	422.21,	174.89,	124.00	1698,	367.99,	187.50,	-24.00
1622,	407.19,	207.47,	124.00	1699,	482.19,	156.67,	-24.00
1623,	389.66,	238.78,	124.00	1700,	451.74,	230.17,	-24.00
1624,	434.63,	141.22,	152.00	1701,	482.19,	156.67,	68.00
1625,	422.21,	174.89,	152.00	1702,	451.74,	230.17,	68.00
1626,	407.19,	207.47,	152.00	1703,	482.19,	156.67,	124.00
1627,	389.66,	238.78,	152.00	1704,	451.74,	230.17,	124.00
1628,	434.63,	141.22,	180.00	1705,	482.19,	156.67,	180.00
1629,	422.21,	174.89,	180.00	1706,	451.74,	230.17,	180.00
1630,	407.19,	207.47,	180.00	1707,	482.19,	156.67,	236.00
1631,	389.66,	238.78,	180.00	1708,	451.74,	230.17,	236.00
1632,	434.63,	141.22,	208.00	1709,	455.56,	148.02,	310.00
1633,	422.21,	174.89,	208.00	1710,	426.79,	217.46,	310.00
1634,	407.19,	207.47,	208.00	1711,	375.67,	122.06,	347.00
1635,	389.66,	238.78,	208.00	1712,	351.95,	179.33,	347.00
1636,	434.63,	141.22,	236.00	1713,	320.98,	104.29,	371.00
1637,	422.21,	174.89,	236.00	1714,	300.71,	153.22,	371.00
1638,	407.19,	207.47,	236.00	1715,	246.56,	80.11,	396.00
1639,	389.66,	238.78,	236.00	1716,	230.99,	117.70,	396.00
1640,	432.64,	140.57,	259.80	1717,	172.14,	55.93,	407.00
1641,	420.27,	174.08,	259.80	1718,	161.27,	82.17,	407.00
1642,	405.32,	206.52,	259.80	1719,	86.07,	27.97,	407.00
1643,	387.87,	237.68,	259.80	1720,	482.19,	156.67,	39.00
1644,	425.60,	138.29,	282.50	1721,	451.74,	230.17,	39.00
1645,	413.44,	171.25,	282.50	1723,	172.14,	55.93,	462.00
1646,	398.73,	203.16,	282.50	1724,	161.27,	82.17,	462.00
1647,	381.56,	233.82,	282.50	1725,	247.66,	80.47,	462.00
1648,	404.58,	131.46,	294.20	1726,	232.02,	118.22,	462.00
1649,	393.02,	162.79,	294.20	1727,	320.98,	104.29,	462.00
1650,	379.03,	193.13,	294.20	1728,	300.71,	153.22,	462.00
1651,	362.71,	222.27,	294.20	1729,	375.67,	122.06,	420.00
1652,	375.67,	122.06,	307.80	1730,	351.95,	179.33,	420.00
1653,	364.93,	151.16,	307.80	1731,	375.67,	122.06,	462.00
1654,	351.95,	179.33,	307.80	1732,	351.95,	179.33,	462.00
1655,	336.79,	206.39,	307.80	1733,	455.56,	148.02,	384.50
1656,	348.47,	113.22,	319.70	1734,	426.79,	217.46,	384.50
1657,	338.51,	140.22,	319.70	1735,	455.56,	148.02,	462.00
1658,	326.46,	166.34,	319.70	1736,	426.79,	217.46,	462.00
1659,	312.41,	191.44,	319.70	1737,	35.75,	0.00,	4.25
1660,	320.98,	104.29,	331.00	1738,	71.50,	0.00,	4.50
1661,	311.81,	129.16,	331.00	1739,	70.62,	11.19,	4.50
1662,	300.71,	153.22,	331.00	1740,	107.25,	0.00,	4.75
1663,	287.77,	176.34,	331.00	1741,	106.66,	11.21,	4.75
1664,	284.65,	92.49,	344.70	1742,	104.91,	22.30,	4.75
1665,	276.52,	114.54,	344.70	1743,	143.00,	0.00,	5.00
1666,	266.68,	135.88,	344.70	1744,	142.56,	11.22,	5.00
1667,	255.20,	156.38,	344.70	1745,	141.24,	22.37,	5.00
1668,	247.66,	80.47,	356.40	1746,	139.05,	33.38,	5.00
1669,	240.58,	99.65,	356.40	1747,	187.00,	0.00,	6.83
1670,	232.02,	118.22,	356.40	1748,	186.42,	14.67,	6.83
1671,	222.03,	136.06,	356.40	1749,	184.70,	29.25,	6.83
1672,	210.09,	68.26,	366.00	1750,	181.83,	43.65,	6.83
1673,	204.08,	84.53,	366.00	1751,	231.00,	0.00,	8.67
1674,	196.82,	100.29,	366.00	1752,	230.29,	18.12,	8.67

1753,	228.16,	36.14,	8.67	1829,	333.34,	52.80,	331.00
1754,	224.62,	53.93,	8.67	1830,	328.17,	78.79,	331.00
1755,	275.00,	0.00,	10.50	1831,	299.30,	0.00,	344.70
1756,	274.15,	21.58,	10.50	1832,	298.38,	23.48,	344.70
1757,	271.61,	43.02,	10.50	1833,	295.62,	46.82,	344.70
1758,	267.40,	64.20,	10.50	1834,	291.03,	69.87,	344.70
1759,	319.00,	0.00,	12.33	1835,	260.40,	0.00,	356.40
1760,	318.02,	25.03,	12.33	1836,	259.60,	20.43,	356.40
1761,	315.07,	49.90,	12.33	1837,	257.19,	40.74,	356.40
1762,	310.19,	74.47,	12.33	1838,	253.21,	60.79,	356.40
1763,	363.00,	0.00,	14.17	1839,	220.90,	0.00,	366.00
1764,	361.88,	28.48,	14.17	1840,	220.22,	17.33,	366.00
1765,	358.53,	56.79,	14.17	1841,	218.18,	34.56,	366.00
1766,	352.97,	84.74,	14.17	1842,	214.80,	51.57,	366.00
1767,	407.00,	0.00,	16.00	1843,	181.00,	0.00,	373.50
1768,	405.75,	31.93,	16.00	1844,	180.44,	14.20,	373.50
1769,	401.99,	63.67,	16.00	1845,	178.77,	28.31,	373.50
1770,	395.75,	95.01,	16.00	1846,	176.00,	42.25,	373.50
1771,	457.00,	0.00,	24.00	1847,	136.00,	0.00,	379.70
1772,	455.59,	35.86,	24.00	1848,	135.26,	14.22,	379.70
1773,	451.37,	71.49,	24.00	1849,	133.03,	28.28,	379.70
1774,	444.37,	106.68,	24.00	1850,	90.80,	0.00,	384.10
1775,	457.00,	0.00,	50.80	1851,	89.68,	14.20,	384.10
1776,	455.59,	35.86,	50.80	1853,	487.00,	0.00,	24.00
1777,	451.37,	71.49,	50.80	1854,	485.50,	38.21,	24.00
1778,	444.37,	106.68,	50.80	1855,	481.00,	76.18,	24.00
1779,	457.00,	0.00,	68.00	1856,	473.54,	113.69,	24.00
1780,	455.59,	35.86,	68.00	1857,	71.50,	0.00,	-24.00
1781,	451.37,	71.49,	68.00	1858,	143.00,	0.00,	-24.00
1782,	444.37,	106.68,	68.00	1859,	141.24,	22.37,	-24.00
1783,	457.00,	0.00,	96.00	1860,	231.00,	0.00,	-24.00
1784,	455.59,	35.86,	96.00	1861,	228.16,	36.14,	-24.00
1785,	451.37,	71.49,	96.00	1862,	319.00,	0.00,	-24.00
1786,	444.37,	106.68,	96.00	1863,	315.07,	49.90,	-24.00
1787,	457.00,	0.00,	124.00	1864,	413.00,	0.00,	-24.00
1788,	455.59,	35.86,	124.00	1865,	407.92,	64.61,	-24.00
1789,	451.37,	71.49,	124.00	1866,	507.00,	0.00,	-24.00
1790,	444.37,	106.68,	124.00	1867,	500.76,	79.31,	-24.00
1791,	457.00,	0.00,	152.00	1868,	507.00,	0.00,	68.00
1792,	455.59,	35.86,	152.00	1869,	500.76,	79.31,	68.00
1793,	451.37,	71.49,	152.00	1870,	507.00,	0.00,	124.00
1794,	444.37,	106.68,	152.00	1871,	500.76,	79.31,	124.00
1795,	457.00,	0.00,	180.00	1872,	507.00,	0.00,	180.00
1796,	455.59,	35.86,	180.00	1873,	500.76,	79.31,	180.00
1797,	451.37,	71.49,	180.00	1874,	507.00,	0.00,	236.00
1798,	444.37,	106.68,	180.00	1875,	500.76,	79.31,	236.00
1799,	457.00,	0.00,	208.00	1876,	479.00,	0.00,	310.00
1800,	455.59,	35.86,	208.00	1877,	473.10,	74.93,	310.00
1801,	451.37,	71.49,	208.00	1878,	395.00,	0.00,	347.00
1802,	444.37,	106.68,	208.00	1879,	390.14,	61.79,	347.00
1803,	457.00,	0.00,	236.00	1880,	337.50,	0.00,	371.00
1804,	455.59,	35.86,	236.00	1881,	333.34,	52.80,	371.00
1805,	451.37,	71.49,	236.00	1882,	259.25,	0.00,	396.00
1806,	444.37,	106.68,	236.00	1883,	256.06,	40.56,	396.00
1807,	454.90,	0.00,	259.80	1884,	181.00,	0.00,	407.00
1808,	453.50,	35.69,	259.80	1885,	178.77,	28.31,	407.00
1809,	449.30,	71.16,	259.80	1886,	90.50,	0.00,	407.00
1810,	442.33,	106.19,	259.80	1887,	507.00,	0.00,	39.00
1811,	447.50,	0.00,	282.50	1888,	500.76,	79.31,	39.00
1812,	446.12,	35.11,	282.50	1890,	181.00,	0.00,	462.00
1813,	441.99,	70.00,	282.50	1891,	178.77,	28.31,	462.00
1814,	435.14,	104.47,	282.50	1892,	260.40,	0.00,	462.00
1815,	425.40,	0.00,	294.20	1893,	257.19,	40.74,	462.00
1816,	424.09,	33.38,	294.20	1894,	337.50,	0.00,	462.00
1817,	420.16,	66.55,	294.20	1895,	333.34,	52.80,	462.00
1818,	413.65,	99.31,	294.20	1896,	395.00,	0.00,	420.00
1819,	395.00,	0.00,	307.80	1897,	390.14,	61.79,	420.00
1820,	393.78,	30.99,	307.80	1898,	395.00,	0.00,	462.00
1821,	390.14,	61.79,	307.80	1899,	390.14,	61.79,	462.00
1822,	384.09,	92.21,	307.80	1900,	479.00,	0.00,	384.50
1823,	366.40,	0.00,	319.70	1901,	473.10,	74.93,	384.50
1824,	365.27,	28.75,	319.70	1902,	479.00,	0.00,	462.00
1825,	361.89,	57.32,	319.70	1903,	473.10,	74.93,	462.00
1826,	356.28,	85.53,	319.70	379,	-120,	0.462,	
1827,	337.50,	0.00,	331.00	378,	-114.1,	37.08,462,	
1828,	336.46,	26.48,	331.00	553,	-97.08,	70.53,462,	

720 , -70.53 , 97.08,462.
887 , -37.08 , 114.1,462.
1054 , 0 , 120,462.
1221 , 37.08 , 114.1,462.
1388 , 70.53 , 97.08,462.
1555 , 97.08 , 70.53,462.
1722 , 114.1 , 37.08,462.
1889 , 120 , 0,462.
1852 , 30. , 0. , 386.7
1685 , 28.53 , 9.271 , 386.7
1518 , 24.27 , 17.63 , 386.7
1351 , 17.63 , 24.27 , 386.7
1184 , 9.271 , 28.53 , 386.7
1017 , 0. , 30. , 386.7
850 , -9.271 , 28.53 , 386.7
683 , -17.63 , 24.27 , 386.7
516 , -24.27 , 17.63 , 386.7
318 , -28.53 , 9.271 , 386.7
319 , -30. , 0. , 386.7

*NSET,NSET=INLAT,GENERATE

7,35,7

6,34,7

38,50,3

53,65,3

68,80,3

83,95,3

98,110,3

113,125,3

128,140,3

143,155,3

158,170,3

**BOTSUR CONTAINS NODES ON THE BOTTOM OF THE DEGENERATE SOIL ELEMENTS

*NSET,NSET=BOTSUR

1

2

3

4

5

6

7

36

37

38

51

52

53

66

67

68

81

82

83

96

97

98

111

112

113

126

127

128

141

142

143

156

157

158

**CREATE SOIL NODES UNDER TANK BY SHIFTING BOTSUR NODES

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=2000

0.0,0.0,-118.

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=2500

0.0,0.0,-236.

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=3000
0.0,0.0,-354.

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=3500
0.0,0.0,-472.

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=4000
0.0,0.0,-590.

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=4500
0.0,0.0,-707.

*NCOPY,OLD SET=BOTSUR,SHIFT,CHANGE NUMBER=5000
0.0,0.0,-864.

**CREATE ADDITIONAL SOIL NODES SURROUNDING THE TANK

*NGEN,LINE=C

6001,6011,1,,0.,0.,462.,0.0,0.0,-1.0

*NGEN,LINE=C

6012,6022,1,,0.,0.,462.,0.0,0.0,-1.0

*NGEN,LINE=C

6023,6033,1,,0.,0.,462.,0.0,0.0,-1.0

*NSET,NSET=SECTOP,GENERATE

6001,6011

6012,6022

6023,6033

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=33

0.0,0.0,-127.7

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=66

0.0,0.0,-255.4

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=99

0.0,0.0,-383.1

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=132

0.0,0.0,-510.8

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=165

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*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=198

0.0,0.0,-766.2

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=231

0.0,0.0,-893.9

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=264

0.0,0.0,-1021.6

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=297

0.0,0.0,-1149.3

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=330

0.0,0.0,-1277.

*NCOPY,OLD SET=SECTOP,SHIFT,CHANGE NUMBER=363

0.0,0.0,-1405.

**DEFINE COLLAPSED QUAD ELEMENTS IN DOME AND BASEMAT

*ELEMENT,TYPE=S4R5,ELSET=TRI

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**DEFINE QUAD SHELL ELEMENTS
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**DEFINE SOIL BRICK ELEMENTS

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8002,21,20,6090,6089,28,27,6057,6056

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8004,7,6,6156,6155,14,13,6123,6122

8005,2007,2006,6189,6188,7,6,6156,6155

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8007,3007,3006,6255,6254,2507,2506,6222,6221

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8009,4007,4006,6321,6320,3507,3506,6288,6287

8010,4507,4506,6354,6353,4007,4006,6321,6320

8011,5007,5006,6387,6386,4507,4506,6354,6353

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6059,2642,2643,2628,2627,2142,2143,2128,2127
6030,2157,2158,2143,2142,157,158,143,142
6060,2657,2658,2643,2642,2157,2158,2143,2142
*ELSET,ELSET=FROW,GENERATE
6031,6060
*ELCOPY,ELEMENT SHIFT=30,OLD SET=FROW,NEW SET=BRICK,SHIFT NODES=500
*ELCOPY,ELEMENT SHIFT=60,OLD SET=FROW,NEW SET=BRICK,SHIFT NODES=1000
*ELCOPY,ELEMENT SHIFT=90,OLD SET=FROW,NEW SET=BRICK,SHIFT NODES=1500
*ELCOPY,ELEMENT SHIFT=120,OLD SET=FROW,NEW SET=BRICK,SHIFT NODES=2000
*ELCOPY,ELEMENT SHIFT=150,OLD SET=FROW,NEW SET=BRICK,SHIFT NODES=2500
*ELEMENT,TYPE=C3D8R,ELSET=BRICK
7001,6045,6046,6035,6034,6012,6013,6002,6001
*ELGEN,ELSET=BRICK
7001,10,1,1,11,33,10,2,11,110

**DEFINE REBAR

```
***** WALLS *****
**
*** ELEMENT SET DESCRIPTIONS:
**
*** WALL: All wall elements (vertical rebar is the same)
**          = HOOP-1, HOOP-2, HOOP-3, HOOP-4, HOOP-5, HOOP-6, HOOP-7, HOOP-8
**
*** HOOP-1: Wall elements from Z=24 to Z=50.8
*** HOOP-2: Wall elements from Z=50.8 to Z=68
*** HOOP-3: Wall elements from Z=68 to Z=96
*** HOOP-4: Wall elements from Z=96 to Z=124
*** HOOP-5: Wall elements from Z=124 to Z=152
*** HOOP-6: Wall elements from Z=152 to Z=180
*** HOOP-7: Wall elements from Z=180 to Z=208
*** HOOP-8: Wall elements from Z=208 to Z=236
**
**
***** WALL ELEMENT SETS *****
**
*ELSET, ELSET=HOOP-1, GENERATE
349, 352, 1
453, 456, 1
557, 560, 1
661, 664, 1
765, 768, 1
869, 872, 1
973, 976, 1
1077, 1080, 1
1181, 1184, 1
1285, 1288, 1
**
*ELSET, ELSET=HOOP-2, GENERATE
353, 356, 1
457, 460, 1
561, 564, 1
665, 668, 1
769, 772, 1
873, 876, 1
977, 980, 1
1081, 1084, 1
1185, 1188, 1
1289, 1292, 1
**
*ELSET, ELSET=HOOP-3, GENERATE
357, 360, 1
461, 464, 1
565, 568, 1
669, 672, 1
773, 776, 1
877, 880, 1
981, 984, 1
1085, 1088, 1
1189, 1192, 1
1293, 1296, 1
**
*ELSET, ELSET=HOOP-4, GENERATE
361, 364, 1
465, 468, 1
569, 572, 1
673, 676, 1
777, 780, 1
881, 884, 1
985, 988, 1
1089, 1092, 1
1193, 1196, 1
1297, 1300, 1
**
*ELSET, ELSET=HOOP-5, GENERATE
365, 368, 1
469, 472, 1
573, 576, 1
677, 680, 1
781, 784, 1
885, 888, 1
989, 992, 1
1093, 1096, 1
```

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1197, 1200, 1
1301, 1304, 1
**
*ELSET, ELSET=HOOP-6, GENERATE
369, 372, 1
473, 476, 1
577, 580, 1
681, 684, 1
785, 788, 1
889, 892, 1
993, 996, 1
1097, 1100, 1
1201, 1204, 1
1305, 1308, 1
**
*ELSET, ELSET=HOOP-7, GENERATE
373, 376, 1
477, 480, 1
581, 584, 1
685, 688, 1
789, 792, 1
893, 896, 1
997, 1000, 1
1101, 1104, 1
1205, 1208, 1
1309, 1312, 1
**
*ELSET, ELSET=HOOP-8, GENERATE
377, 380, 1
481, 484, 1
585, 588, 1
689, 692, 1
793, 796, 1
897, 900, 1
1001, 1004, 1
1105, 1108, 1
1209, 1212, 1
1313, 1316, 1
**
*ELSET, ELSET=WALL
HOOP-1, HOOP-2, HOOP-3, HOOP-4, HOOP-5, HOOP-6, HOOP-7, HOOP-8
**
*** REBAR NAME DESCRIPTIONS:
**
*** W-VO: Walls, Vertical reinforcement, Outer layer
*** W-VI: Walls, Vertical reinforcement, Inner layer
*** W1-HO: Wall 1, Hoop reinforcement, Outer layer
*** W1-HI: Wall 1, Hoop reinforcement, Inner layer
**
*** ABAQUS REBAR DEFINITIONS:
**
*** all wall sections - vertical rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W-VO
WALL, 0.44, 12.0, 4.00, 2
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W-VI
WALL, 0.44, 12.0, -4.00, 2
**
*** wall hoop 1 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W1-HO
HOOP-1, 1.10, 26.8, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W1-HI
HOOP-1, 1.10, 26.8, -3.19, 1
**
*** wall hoop 2 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W2-HO
HOOP-2, 1.80, 17.2, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W2-HI
HOOP-2, 1.80, 17.2, -3.19, 1
**
*** wall hoop 3 - hoop rebar
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*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W3-HO
HOOP-3, 3.00, 28.0, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W3-HI
HOOP-3, 3.00, 28.0, -3.19, 1
**
*** wall hoop 4 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W4-HO
HOOP-4, 2.10, 28.0, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W4-HI
HOOP-4, 2.10, 28.0, -3.19, 1
**
*** wall hoop 5 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W5-HO
HOOP-5, 2.10, 28.0, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W5-HI
HOOP-5, 2.10, 28.0, -3.19, 1
**
*** wall hoop 6 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W6-HO
HOOP-6, 1.80, 28.0, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W6-HI
HOOP-6, 1.80, 28.0, -3.19, 1
**
*** wall ring 7 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W7-HO
HOOP-7, 1.80, 28.0, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W7-HI
HOOP-7, 1.80, 28.0, -3.19, 1
**
*** wall ring 8 - hoop rebar
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W8-HO
HOOP-8, 2.40, 28.0, 3.19, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=W8-HI
HOOP-8, 2.40, 28.0, -3.19, 1
**
***** BASEMAT *****
**
*** ELEMENT SETS:
**
*** BASEMAT: All Basemat elements except for the outermost ring, which is
** adjacent to the wall elements (considered to be part of the ftg.)
**
***** BASEMAT ELEMENT SETS *****
**
*ELSET, ELSET=BASEMAT, GENERATE
** three node elements **
1, 16, 1
33, 48, 1
65, 80, 1
97, 112, 1
129, 144, 1
161, 176, 1
193, 208, 1
225, 240, 1
257, 272, 1
289, 304, 1
** four node elements **
321, 344, 1
425, 448, 1
529, 552, 1
633, 656, 1
737, 760, 1
841, 864, 1
945, 968, 1
1049, 1072, 1
1153, 1176, 1
1257, 1280, 1
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*** REBAR NAME DESCRIPTIONS
**
*** B-TX: Basemat, Top reinforcement, X-dir.
*** B-TY: Basemat, Top reinforcement, Y-dir.
**
*** ABAQUS REBAR DEFINITIONS
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=B-TX
BASEMAT, 0.20, 12.0, -1.50, 0
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=B-TY
BASEMAT, 0.20, 12.0, -1.00, 90
**
**
***** DOME *****
**
*** ELEMENT SET DESCRIPTIONS:
**
*** RING-1: Dome elements from R= 0.00' to 3.78'
**
*** RG-2-9: Dome elements from R= 3.78' to 7.57' at 9 degrees from 1-axis
*** RG-2-27: Dome elements from R= 3.78' to 7.57' at 27 degrees from 1-axis
*** RG-2-45: Dome elements from R= 3.78' to 7.57' at 45 degrees from 1-axis
*** RG-2-63: Dome elements from R= 3.78' to 7.57' at 63 degrees from 1-axis
*** RG-2-81: Dome elements from R= 3.78' to 7.57' at 81 degrees from 1-axis
*** RG-2-99: Dome elements from R= 3.78' to 7.57' at 99 degrees from 1-axis
*** RG-2-117: Dome elements from R= 3.78' to 7.57' at 117 degrees from 1-axis
*** RG-2-135: Dome elements from R= 3.78' to 7.57' at 135 degrees from 1-axis
*** RG-2-153: Dome elements from R= 3.78' to 7.57' at 153 degrees from 1-axis
*** RG-2-171: Dome elements from R= 3.78' to 7.57' at 171 degrees from 1-axis
**
*** RG-3-9 thru 3-171: Same as above but from R= 7.57' to 11.3'
**
*** RG-4-9 thru 4-171: Same as above but from R= 11.36' to 15.14'
**
*** RING-5: Dome elements from R= 15.14' to 18.53'
*** RING-6: Dome elements from R= 18.53' to 21.91'
*** RING-7: Dome elements from R= 21.91' to 25.30'
*** RING-8: Dome elements from R= 25.30' to 28.68'
*** RING-9: Dome elements from R= 28.68' to 31.27'
*** RING-10: Dome elements from R= 31.27' to 33.85'
*** RING-11: Dome elements from R= 33.85' to 36.62'
**
**
***** DOME ELEMENT SETS *****
**
*ELSET, ELSET=RING-1, GENERATE
32, 320, 32
**
*** RING 2
**
*ELSET, ELSET=RG-2-9, GENERATE
317, 319, 1
*ELSET, ELSET=RG-2-27, GENERATE
285, 287, 1
*ELSET, ELSET=RG-2-45, GENERATE
253, 255, 1
*ELSET, ELSET=RG-2-63, GENERATE
221, 223, 1
*ELSET, ELSET=RG-2-81, GENERATE
189, 191, 1
*ELSET, ELSET=RG-2-99, GENERATE
157, 159, 1
*ELSET, ELSET=RG-2-117, GENERATE
125, 127, 1
*ELSET, ELSET=RG-2-135, GENERATE
93, 95, 1
*ELSET, ELSET=RG-2-153, GENERATE
61, 63, 1
*ELSET, ELSET=RG-2-171, GENERATE
29, 31, 1
**
**** RING 3
**
*ELSET, ELSET=RG-3-9, GENERATE

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312, 316, 1
*ELSET, ELSET=RG-3-27, GENERATE
280, 284, 1
*ELSET, ELSET=RG-3-45, GENERATE
248, 252, 1
*ELSET, ELSET=RG-3-63, GENERATE
216, 220, 1
*ELSET, ELSET=RG-3-81, GENERATE
184, 188, 1
*ELSET, ELSET=RG-3-99, GENERATE
152, 156, 1
*ELSET, ELSET=RG-3-117, GENERATE
120, 124, 1
*ELSET, ELSET=RG-3-135, GENERATE
88, 92, 1
*ELSET, ELSET=RG-3-153, GENERATE
56, 60, 1
*ELSET, ELSET=RG-3-171, GENERATE
24, 28, 1

**

*** RING 4

**

*ELSET, ELSET=RG-4-9, GENERATE
305, 311, 1
*ELSET, ELSET=RG-4-27, GENERATE
273, 279, 1
*ELSET, ELSET=RG-4-45, GENERATE
241, 247, 1
*ELSET, ELSET=RG-4-63, GENERATE
209, 215, 1
*ELSET, ELSET=RG-4-81, GENERATE
177, 183, 1
*ELSET, ELSET=RG-4-99, GENERATE
145, 151, 1
*ELSET, ELSET=RG-4-117, GENERATE
113, 119, 1
*ELSET, ELSET=RG-4-135, GENERATE
81, 87, 1
*ELSET, ELSET=RG-4-153, GENERATE
49, 55, 1
*ELSET, ELSET=RG-4-171, GENERATE
17, 23, 1

**

*ELSET, ELSET=RING-5, GENERATE
1353, 1356, 1
1249, 1252, 1
1145, 1148, 1
1041, 1044, 1
937, 940, 1
833, 836, 1
729, 732, 1
625, 628, 1
521, 524, 1
417, 420, 1

**

*ELSET, ELSET=RING-6, GENERATE
1349, 1352, 1
1245, 1248, 1
1141, 1144, 1
1037, 1040, 1
933, 936, 1
829, 832, 1
725, 728, 1
621, 624, 1
517, 520, 1
413, 416, 1

**

*ELSET, ELSET=RING-7, GENERATE
1345, 1348, 1
1241, 1244, 1
1137, 1140, 1
1033, 1036, 1
929, 932, 1
825, 828, 1
721, 724, 1
617, 620, 1


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513, 516, 1
409, 412, 1
**
*ELSET, ELSET=RING-8, GENERATE
1341, 1344, 1
1237, 1240, 1
1133, 1136, 1
1029, 1032, 1
925, 928, 1
821, 824, 1
717, 720, 1
613, 616, 1
509, 512, 1
405, 408, 1
**
*ELSET, ELSET=RING-9, GENERATE
1337, 1340, 1
1233, 1236, 1
1129, 1132, 1
1025, 1028, 1
921, 924, 1
817, 820, 1
713, 716, 1
609, 612, 1
505, 508, 1
401, 404, 1
**
*ELSET, ELSET=RING-10, GENERATE
1333, 1336, 1
1229, 1232, 1
1125, 1128, 1
1021, 1024, 1
917, 920, 1
813, 816, 1
709, 712, 1
605, 608, 1
501, 504, 1
397, 400, 1
**
*ELSET, ELSET=RING-11, GENERATE
1329, 1332, 1
1225, 1228, 1
1121, 1124, 1
1017, 1020, 1
913, 916, 1
809, 812, 1
705, 708, 1
601, 604, 1
497, 500, 1
393, 396, 1
**
*** REBAR NAME DESCRIPTIONS:
***
*** D1-TX: Dome ring 1, Top reinforcement, X-direction
*** D1-TY: Dome ring 1, Top reinforcement, Y-direction
*** D1-BX: Dome ring 1, Bottom reinforcement, X-direction
*** D1-BY: Dome ring 1, Bottom reinforcement, Y-direction
***
*** D3-HT: Dome ring 3, Hoop reinforcement, Top bars
*** D3-HB: Dome ring 3, Hoop reinforcement, Bottom bars
*** D3-RT: Dome ring 3, Radial reinforcement, Top bars
*** D3-RB: Dome ring 3, Radial reinforcement, Bottom bars
***
*** ABAQUS REBAR DEFINITIONS:
***
***** dome ring 1 *****
***
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D1-TX
RING-1, 0.44, 12.0, 4.875, 0
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D1-TY
RING-1, 0.44, 12.0, 4.125, 90
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D1-BX
RING-1, 0.44, 12.0, -4.875, 0
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D1-BY
```

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RING-1, 0.44, 12.0, -4.125, 90
**
***** dome ring 2 *****
**
** square grid
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-TX
RG-2-9, 0.44, 12.0, 4.875, 0
RG-2-27, 0.44, 12.0, 4.875, 0
RG-2-45, 0.44, 12.0, 4.875, 0
RG-2-63, 0.44, 12.0, 4.875, 0
RG-2-81, 0.44, 12.0, 4.875, 0
RG-2-99, 0.44, 12.0, 4.875, 0
RG-2-117, 0.44, 12.0, 4.875, 0
RG-2-135, 0.44, 12.0, 4.875, 0
RG-2-153, 0.44, 12.0, 4.875, 0
RG-2-171, 0.44, 12.0, 4.875, 0
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-TY
RG-2-9, 0.44, 12.0, 4.125, 90
RG-2-27, 0.44, 12.0, 4.125, 90
RG-2-45, 0.44, 12.0, 4.125, 90
RG-2-63, 0.44, 12.0, 4.125, 90
RG-2-81, 0.44, 12.0, 4.125, 90
RG-2-99, 0.44, 12.0, 4.125, 90
RG-2-117, 0.44, 12.0, 4.125, 90
RG-2-135, 0.44, 12.0, 4.125, 90
RG-2-153, 0.44, 12.0, 4.125, 90
RG-2-171, 0.44, 12.0, 4.125, 90
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-BX
RG-2-9, 0.44, 12.0, -4.875, 0
RG-2-27, 0.44, 12.0, -4.875, 0
RG-2-45, 0.44, 12.0, -4.875, 0
RG-2-63, 0.44, 12.0, -4.875, 0
RG-2-81, 0.44, 12.0, -4.875, 0
RG-2-99, 0.44, 12.0, -4.875, 0
RG-2-117, 0.44, 12.0, -4.875, 0
RG-2-135, 0.44, 12.0, -4.875, 0
RG-2-153, 0.44, 12.0, -4.875, 0
RG-2-171, 0.44, 12.0, -4.875, 0
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-BY
RG-2-9, 0.44, 12.0, -4.125, 90
RG-2-27, 0.44, 12.0, -4.125, 90
RG-2-45, 0.44, 12.0, -4.125, 90
RG-2-63, 0.44, 12.0, -4.125, 90
RG-2-81, 0.44, 12.0, -4.125, 90
RG-2-99, 0.44, 12.0, -4.125, 90
RG-2-117, 0.44, 12.0, -4.125, 90
RG-2-135, 0.44, 12.0, -4.125, 90
RG-2-153, 0.44, 12.0, -4.125, 90
RG-2-171, 0.44, 12.0, -4.125, 90
**
** radial and hoop
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-HT
RG-2-9, 0.44, 12.0, 3.875, 99
RG-2-27, 0.44, 12.0, 3.875, 117
RG-2-45, 0.44, 12.0, 3.875, 135
RG-2-63, 0.44, 12.0, 3.875, 153
RG-2-81, 0.44, 12.0, 3.875, 171
RG-2-99, 0.44, 12.0, 3.875, 189
RG-2-117, 0.44, 12.0, 3.875, 207
RG-2-135, 0.44, 12.0, 3.875, 225
RG-2-153, 0.44, 12.0, 3.875, 243
RG-2-171, 0.44, 12.0, 3.875, 261
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-HB
RG-2-9, 0.44, 12.0, -5.125, 99
RG-2-27, 0.44, 12.0, -5.125, 117
RG-2-45, 0.44, 12.0, -5.125, 135
RG-2-63, 0.44, 12.0, -5.125, 153
RG-2-81, 0.44, 12.0, -5.125, 171
RG-2-99, 0.44, 12.0, -5.125, 189
RG-2-117, 0.44, 12.0, -5.125, 207

```

```
RG-2-135, 0.44, 12.0, -5.125, 225
RG-2-153, 0.44, 12.0, -5.125, 243
RG-2-171, 0.44, 12.0, -5.125, 261
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-RT
RG-2-9, 0.44, 8.3, 3.125, 9
RG-2-27, 0.44, 8.3, 3.125, 27
RG-2-45, 0.44, 8.3, 3.125, 45
RG-2-63, 0.44, 8.3, 3.125, 63
RG-2-81, 0.44, 8.3, 3.125, 81
RG-2-99, 0.44, 8.3, 3.125, 99
RG-2-117, 0.44, 8.3, 3.125, 117
RG-2-135, 0.44, 8.3, 3.125, 135
RG-2-153, 0.44, 8.3, 3.125, 153
RG-2-171, 0.44, 8.3, 3.125, 171
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D2-RB
RG-2-9, 0.44, 8.3, -5.875, 9
RG-2-27, 0.44, 8.3, -5.875, 27
RG-2-45, 0.44, 8.3, -5.875, 45
RG-2-63, 0.44, 8.3, -5.875, 63
RG-2-81, 0.44, 8.3, -5.875, 81
RG-2-99, 0.44, 8.3, -5.875, 99
RG-2-117, 0.44, 8.3, -5.875, 117
RG-2-135, 0.44, 8.3, -5.875, 135
RG-2-153, 0.44, 8.3, -5.875, 153
RG-2-171, 0.44, 8.3, -5.875, 171
**
***** dome ring 3 *****
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D3-HT
RG-3-9, 0.44, 12.0, 3.875, 99
RG-3-27, 0.44, 12.0, 3.875, 117
RG-3-45, 0.44, 12.0, 3.875, 135
RG-3-63, 0.44, 12.0, 3.875, 153
RG-3-81, 0.44, 12.0, 3.875, 171
RG-3-99, 0.44, 12.0, 3.875, 189
RG-3-117, 0.44, 12.0, 3.875, 207
RG-3-135, 0.44, 12.0, 3.875, 225
RG-3-153, 0.44, 12.0, 3.875, 243
RG-3-171, 0.44, 12.0, 3.875, 261
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D3-HB
RG-3-9, 0.44, 12.0, -5.125, 99
RG-3-27, 0.44, 12.0, -5.125, 117
RG-3-45, 0.44, 12.0, -5.125, 135
RG-3-63, 0.44, 12.0, -5.125, 153
RG-3-81, 0.44, 12.0, -5.125, 171
RG-3-99, 0.44, 12.0, -5.125, 189
RG-3-117, 0.44, 12.0, -5.125, 207
RG-3-135, 0.44, 12.0, -5.125, 225
RG-3-153, 0.44, 12.0, -5.125, 243
RG-3-171, 0.44, 12.0, -5.125, 261
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D3-RT
RG-3-9, 0.44, 10.0, 3.125, 9
RG-3-27, 0.44, 10.0, 3.125, 27
RG-3-45, 0.44, 10.0, 3.125, 45
RG-3-63, 0.44, 10.0, 3.125, 63
RG-3-81, 0.44, 10.0, 3.125, 81
RG-3-99, 0.44, 10.0, 3.125, 99
RG-3-117, 0.44, 10.0, 3.125, 117
RG-3-135, 0.44, 10.0, 3.125, 135
RG-3-153, 0.44, 10.0, 3.125, 153
RG-3-171, 0.44, 10.0, 3.125, 171
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D3-RB
RG-3-9, 0.44, 10.0, -5.875, 9
RG-3-27, 0.44, 10.0, -5.875, 27
RG-3-45, 0.44, 10.0, -5.875, 45
RG-3-63, 0.44, 10.0, -5.875, 63
RG-3-81, 0.44, 10.0, -5.875, 81
RG-3-99, 0.44, 10.0, -5.875, 99
RG-3-117, 0.44, 10.0, -5.875, 117
RG-3-135, 0.44, 10.0, -5.875, 135
RG-3-153, 0.44, 10.0, -5.875, 153
```

```
RG-3-171, 0.44, 10.0, -5.875, 171
**
***** dome ring 4 *****
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D4-HT
RG-4-9, 0.44, 12.0, 3.875, 99
RG-4-27, 0.44, 12.0, 3.875, 117
RG-4-45, 0.44, 12.0, 3.875, 135
RG-4-63, 0.44, 12.0, 3.875, 153
RG-4-81, 0.44, 12.0, 3.875, 171
RG-4-99, 0.44, 12.0, 3.875, 189
RG-4-117, 0.44, 12.0, 3.875, 207
RG-4-135, 0.44, 12.0, 3.875, 225
RG-4-153, 0.44, 12.0, 3.875, 243
RG-4-171, 0.44, 12.0, 3.875, 261
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D4-HB
RG-4-9, 0.44, 12.0, -5.125, 99
RG-4-27, 0.44, 12.0, -5.125, 117
RG-4-45, 0.44, 12.0, -5.125, 135
RG-4-63, 0.44, 12.0, -5.125, 153
RG-4-81, 0.44, 12.0, -5.125, 171
RG-4-99, 0.44, 12.0, -5.125, 189
RG-4-117, 0.44, 12.0, -5.125, 207
RG-4-135, 0.44, 12.0, -5.125, 225
RG-4-153, 0.44, 12.0, -5.125, 243
RG-4-171, 0.44, 12.0, -5.125, 261
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D4-RT
RG-4-9, 0.44, 8.7, 3.125, 9
RG-4-27, 0.44, 8.7, 3.125, 27
RG-4-45, 0.44, 8.7, 3.125, 45
RG-4-63, 0.44, 8.7, 3.125, 63
RG-4-81, 0.44, 8.7, 3.125, 81
RG-4-99, 0.44, 8.7, 3.125, 99
RG-4-117, 0.44, 8.7, 3.125, 117
RG-4-135, 0.44, 8.7, 3.125, 135
RG-4-153, 0.44, 8.7, 3.125, 153
RG-4-171, 0.44, 8.7, 3.125, 171
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=SKEW, NAME=D4-RB
RG-4-9, 0.44, 8.7, -5.875, 9
RG-4-27, 0.44, 8.7, -5.875, 27
RG-4-45, 0.44, 8.7, -5.875, 45
RG-4-63, 0.44, 8.7, -5.875, 63
RG-4-81, 0.44, 8.7, -5.875, 81
RG-4-99, 0.44, 8.7, -5.875, 99
RG-4-117, 0.44, 8.7, -5.875, 117
RG-4-135, 0.44, 8.7, -5.875, 135
RG-4-153, 0.44, 8.7, -5.875, 153
RG-4-171, 0.44, 8.7, -5.875, 171
**
***** dome ring 5 *****
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D5-HT
RING-5, 0.44, 12.0, 4.015, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D5-HB
RING-5, 0.44, 12.0, -5.265, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D5-RT
RING-5, 0.44, 11.1, 3.265, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D5-RB
RING-5, 0.44, 11.1, -6.015, 4
**
***** dome ring 6 *****
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D6-HT
RING-6, 0.44, 12.0, 4.290, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D6-HB
RING-6, 0.44, 12.0, -5.540, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D6-RT
RING-6, 0.44, 9.5, 3.540, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D6-RB
RING-6, 0.44, 9.5, -6.290, 4
**
***** dome ring 7 *****
**
```

```
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D7-HT
RING-7, 0.44, 12.0, 4.565, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D7-HB
RING-7, 0.44, 12.0, -5.815, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D7-RT
RING-7, 0.44, 7.7, 3.815, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D7-RB
RING-7, 0.44, 7.7, -6.565, 4
```

**

**** dome ring 8 ****

**

```
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D8-HT
RING-8, 0.44, 12.0, 4.830, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D8-HB
RING-8, 0.44, 12.0, -6.080, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D8-RT
RING-8, 0.44, 8.8, 4.080, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D8-RB
RING-8, 0.44, 8.8, -6.830, 4
```

**

**** dome ring 9 ****

**

```
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D9-HT
RING-9, 0.56, 12.0, 5.065, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D9-HB
RING-9, 0.56, 12.0, -6.315, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D9-RT
RING-9, 0.44, 7.4, 4.315, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D9-RB
RING-9, 0.44, 7.4, -7.065, 4
```

**

**** dome ring 10 ****

**

```
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D10-HT
RING-10, 1.16, 12.0, 5.540, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D10-HB
RING-10, 1.16, 12.0, -6.540, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D10-RT
RING-10, 0.44, 5.3, 4.665, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D10-RB
RING-10, 0.44, 5.3, -7.415, 4
```

**

**** dome ring 11 ****

**

```
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D11-HT
RING-11, 2.41, 12.0, 7.155, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D11-HB
RING-11, 2.41, 12.0, -8.155, 1
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D11-RT
RING-11, 0.44, 5.8, 6.280, 4
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=D11-RB
RING-11, 0.44, 5.8, -9.030, 4
```

**

**

***** FOOTING *****

**

*** ELEMENT SET DESCRIPTIONS:

**

*** FOOT-1: Outer footing element ring

*** FOOT-2: Inner footing element ring (Basemat portion)

**

**

***** FOOTING ELEMENT SETS *****

**

*ELSET, ELSET=FOOT-1, GENERATE

1357, 1360, 1

1253, 1256, 1

1149, 1152, 1

1045, 1048, 1

941, 944, 1

837, 840, 1

733, 736, 1

629, 632, 1

525, 528, 1

421, 424, 1

**

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*ELSET, ELSET=FOOT-2, GENERATE
1281, 1284, 1
1177, 1180, 1
1073, 1076, 1
969, 972, 1
865, 868, 1
761, 764, 1
657, 660, 1
553, 556, 1
449, 452, 1
345, 348, 1
**
**
*** REBAR NAME DESCRIPTIONS:
**
*** F-HT: Footing, Hoop reinforcement, Top bars
*** F-HB: Footing, Hoop reinforcement, Bottom bars
*** F-RT: Footing, Radial reinforcement, Top bars
*** F-RB: Footing, Radial reinforcement, Bottom bars
**
**
*** ABAQUS REBAR DEFINITIONS:
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=F-HT
  FOOT-1, 3.50, 30.0, -5.00, 1
  FOOT-2, 1.50, 50.6, -5.00, 1
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=F-HB
  FOOT-1, 4.00, 30.0, 8.00, 1
  FOOT-2, 2.00, 50.6, 8.00, 1
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=F-RT
  FOOT-1, 0.20, 24.0, -5.75, 2
  FOOT-2, 0.20, 24.0, -5.75, 2
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=F-RB
  FOOT-1, 0.44, 8.0, 8.88, 2
  FOOT-2, 0.44, 8.0, 4.90, 2
**
**
***** HAUNCH *****
**
**
*** ELEMENT SET DESCRIPTIONS:
**
*** HANCH-D: Dome elements from R= 36.62' to 38.71'
*** HANCH-W1: Wall elements from Z= 236' to 259.8'
*** HANCH-W2: Wall elements from Z= 259.8' to 282.5'
**
**
***** HAUNCH ELEMENT SETS *****
**
*ELSET, ELSET=HANCH-D, GENERATE
1325, 1328, 1
1221, 1224, 1
1117, 1120, 1
1013, 1016, 1
909, 912, 1
805, 808, 1
701, 704, 1
597, 600, 1
493, 496, 1
389, 392, 1
**
*ELSET, ELSET=HANCH-W1, GENERATE
1317, 1320, 1
1213, 1216, 1
1109, 1112, 1
1005, 1008, 1
901, 904, 1
797, 800, 1
693, 696, 1
589, 592, 1
485, 488, 1
381, 384, 1
**

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*ELSET, ELSET=HANCH-W2, GENERATE
1321, 1324, 1
1217, 1220, 1
1113, 1116, 1
1009, 1012, 1
905, 908, 1
801, 804, 1
697, 700, 1
593, 596, 1
489, 492, 1
385, 388, 1
**
***** REBAR NAME DESCRIPTIONS:
**
*** H-HT: Haunch, Hoop reinforcement, Top bars
*** H-HB: Haunch, Hoop reinforcement, Bottom bars
*** H-RT: Haunch, Radial reinforcement, Top bars
*** H-RB: Haunch, Radial reinforcement, Bottom bars
**
*** ABAQUS REBAR DEFINITIONS:
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=H-HT
HANCH-D, 26.60, 25.0, 9.00, 1
HANCH-W2, 20.30, 23.9, 9.00, 1
HANCH-W1, 9.40, 23.9, 4.50, 1
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=H-HB
HANCH-D, 15.60, 25.0, -7.00, 1
HANCH-W2, 12.50, 23.9, -7.00, 1
HANCH-W1, 7.80, 23.9, -3.00, 1
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=H-RT
HANCH-D, 0.44, 6.0, 12.00, 2
HANCH-W2, 0.44, 6.2, 13.60, 2
HANCH-W1, 0.44, 6.3, 6.00, 2
**
*REBAR, ELEMENT=SHELL, MATERIAL=BAR, GEOMETRY=ISOPARAMETRIC, NAME=H-RB
HANCH-D, 0.44, 6.0, -13.00, 2
HANCH-W2, 0.44, 6.2, -12.00, 2
HANCH-W1, 0.44, 6.3, -6.00, 2
****
**DEGRADED CONCRETE MATERIAL PROPERTY DEFINITIONS ***
*** (Lower Bound)
*** Floor properties
*MATERIAL,NAME=CONC-FL1
*USER MATERIAL, CONSTANTS=24
2, 3328., 1.725E-04, 1.391E+06, 0.15, 0., 0., 0.
0., 0., 0., 0., 0., 0., 0., 0.
0., 0., 0., 0., 0., 0., 0., 0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-FL2
*USER MATERIAL, CONSTANTS=24
2, 3328., 1.663E-04, 1.450E+06, 0.15, 0., 0., 0.
0., 0., 0., 0., 0., 0., 0., 0.
0., 0., 0., 0., 0., 0., 0., 0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-FL3
*USER MATERIAL, CONSTANTS=24
2, 3487., 1.572E-04, 1.544E+06, 0.15, 0., 0., 0.
0., 0., 0., 0., 0., 0., 0., 0.
0., 0., 0., 0., 0., 0., 0., 0.

```

```

*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-FL4
*USER MATERIAL, CONSTANTS=24
      2,      3610.,      1.474E-04,      1.666E+06,      0.15,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
***      Knuckle Properties
*MATERIAL,NAME=CONC-FT2
*USER MATERIAL, CONSTANTS=24
      2,      3747.,      1.388E-04,      1.840E+06,      0.15,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
***      Wall Properties
*MATERIAL,NAME=CONC-HP1
*USER MATERIAL, CONSTANTS=24
      2,      3795.,      1.364E-04,      1.898E+06,      0.15,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP2
*USER MATERIAL, CONSTANTS=24
      2,      3912.,      1.320E-04,      2.072E+06,      0.15,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP3
*USER MATERIAL, CONSTANTS=24
      2,      4073.,      1.262E-04,      2.343E+06,      0.15,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
      0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP4
*USER MATERIAL, CONSTANTS=24
      2,      4327.,      1.184E-04,      2.816E+06,      0.15,      0.,      0.,      0.

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0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP5
*USER MATERIAL, CONSTANTS=24
2,      4403.,      1.161E-04,      2.985E+06,      0.15,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP6
*USER MATERIAL, CONSTANTS=24
2,      4413.,      1.158E-04,      3.011E+06,      0.15,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP7
*USER MATERIAL, CONSTANTS=24
2,      4433.,      1.152E-04,      3.062E+06,      0.15,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
**
*MATERIAL,NAME=CONC-HP8
*USER MATERIAL, CONSTANTS=24
2,      4443.,      1.149E-04,      3.087E+06,      0.15,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
***      Haunch Properties
*MATERIAL,NAME=CONC-HAU
*USER MATERIAL, CONSTANTS=24
2,      4513.,      1.126E-04,      3.295E+06,      0.15,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
0.,      0.,      0.,      0.,      0.,      0.,      0.,      0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
***      Dome Properties
*MATERIAL,NAME=CONC-RNG

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*USER MATERIAL, CONSTANTS=24
  2, 4502., 1.128E-04, 3.268E+06, 0.15, 0., 0., 0.
  0., 0., 0., 0., 0., 0., 0., 0.
  0., 0., 0., 0., 0., 0., 0., 0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
**
*** Footing Properties
*MATERIAL,NAME=CONC-FT1
*USER MATERIAL, CONSTANTS=24
  2, 4136., 1.238E-04, 2.414E+06, 0.15, 0., 0., 0.
  0., 0., 0., 0., 0., 0., 0., 0.
  0., 0., 0., 0., 0., 0., 0., 0.
*DEPVAR
44
*DENSITY
2.25E-04
*EXPANSION
1.6E-6
****
**DEFINE REBAR MATERIAL
*MATERIAL,NAME=BAR
*DENSITY
7.34E-04
*ELASTIC
28.3E+06,.3,70.
27.6E+06,.3,200.
27.0E+06,.3,300.
26.5E+06,.3,400.
*EXPANSION
6.50E-06
*PLASTIC
38000, 0,70
40000,0.0001,70
45000, 0.001,70
49000, 0.005,70
52000, 0.012,70
60000, 0.02,70
70000, 0.05,70
75000, 0.15,70
****
38000, 0,100
40000,0.0001,100
45000, 0.001,100
49000, 0.005,100
52000, 0.012,100
60000, 0.02,100
70000, 0.05,100
75000, 0.15,100
****
34580, 0,200
36400,0.0001,200
40950, 0.001,200
44590, 0.005,200
47320, 0.012,200
54600, 0.02,200
63700, 0.05,200
68250, 0.15,200
****
33725, 0,300
35500,0.0001,300
39938, 0.001,300
43488, 0.005,300
46150, 0.012,300
53250, 0.02,300
62125, 0.05,300
66563, 0.15,300
****
32585, 0,400
34300,0.0001,400
38588, 0.001,400
42018, 0.005,400

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44590, 0.012,400
51450, 0.02,400
60025, 0.05,400
64313, 0.15,400
****
**DEFINE FIELD-DEPENDENT SOIL MODEL
*MATERIAL,NAME=SOIL
*DENSITY
1.647E-04
*ELASTIC,DEPENDENCIES=2
3000.0,0.35,,, -100.0
3000.0,0.35,,, 0.0
3000.0,0.35,,, 13.9
5620.0,0.35,,, 27.8
8440.0,0.35,,, 55.6
8440.0,0.35,,, 100.0
20000.0,0.35,,, 250.0
20000.0,0.35,,, 350.0
*DRUCKER PRAGER
35.2,1.,35.2
*YIELD,DEPENDENCIES=2
37.3,0.0,,, -100.0
37.3,0.0,,, 0.0
37.3,0.0,,, 13.9
78.6,0.0,,, 27.8
128.1,0.0,,, 55.6
128.1,0.0,,, 100.0
1000.,0.0,,, 250.0
1000.,0.0,,, 350.0
****
*** SHELLSECTION DEFINITIONS ***
**
***** BASEMAT *****
**
*** ADDITIONAL ELEMENT SET DESCRIPTIONS:
**
*** FLOOR-1: Floor (Basemat) elements from R= 0" to 143" (4 rings)
*** FLOOR-2: Floor (Basemat) elements from R= 143" to 275" (3 rings)
*** FLOOR-3: Floor (Basemat) elements from R= 275" to 363" (2 rings)
*** FLOOR-4: Floor (Basemat) elements from R= 363" to 407" (1 ring)
**
***** FLOOR ELEMENT SETS *****
**
*ELSET, ELSET=FLOOR-1, GENERATE
  1, 16, 1
  33, 48, 1
  65, 80, 1
  97, 112, 1
  129, 144, 1
  161, 176, 1
  193, 208, 1
  225, 240, 1
  257, 272, 1
  289, 304, 1
**
*ELSET, ELSET=FLOOR-2, GENERATE
  321, 332, 1
  425, 436, 1
  529, 540, 1
  633, 644, 1
  737, 748, 1
  841, 852, 1
  945, 956, 1
  1049, 1060, 1
  1153, 1164, 1
  1257, 1268, 1
**
*ELSET, ELSET=FLOOR-3, GENERATE
  333, 340, 1
  437, 444, 1
  541, 548, 1
  645, 652, 1
  749, 756, 1
  853, 860, 1
  957, 964, 1
  1061, 1068, 1

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1165, 1172, 1
1269, 1276, 1
**
*ELSET, ELSET=FLOOR-4, GENERATE
  341, 344, 1
  445, 448, 1
  549, 552, 1
  653, 656, 1
  757, 760, 1
  861, 864, 1
  965, 968, 1
 1069, 1072, 1
 1173, 1176, 1
 1277, 1280, 1
**
*SHELLSECTION, MATERIAL=CONC-FL1, ELSET=FLOOR-1
  6.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-FL2, ELSET=FLOOR-2
  6.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-FL3, ELSET=FLOOR-3
  6.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-FL4, ELSET=FLOOR-4
  6.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
**
**
***** FOOTING *****
**
*SHELLSECTION, MATERIAL=CONC-FT1, ELSET=FOOT-1
 24.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-FT2, ELSET=FOOT-2
 16.49
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
**
**
***** WALLS *****
**
*SHELLSECTION, MATERIAL=CONC-HP1, ELSET=HOOP-1
 18.30
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP2, ELSET=HOOP-2
 12.30
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP3, ELSET=HOOP-3
 12.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP4, ELSET=HOOP-4
 12.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP5, ELSET=HOOP-5
 12.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP6, ELSET=HOOP-6
 12.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP7, ELSET=HOOP-7
 12.00
*TRANSVERSE SHEAR STIFFNESS
  1.E+06
*SHELLSECTION, MATERIAL=CONC-HP8, ELSET=HOOP-8

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12.00
*TRANSVERSE SHEAR STIFFNESS
1.E+06
**
**
***** HAUNCH *****
**
*SHELLSECTION, MATERIAL=CONC-HAU, ELSET=HANCH-D
31.62
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-HAU, ELSET=HANCH-W1
12.00
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-HAU, ELSET=HANCH-W2
27.29
*TRANSVERSE SHEAR STIFFNESS
1.E+06
**
**
***** DOME *****
**
*** ADDITIONAL ELEMENT SET DESCRIPTIONS:
**
*** RING-2: Dome elements from R= 3.78' to 7.57'
*** RING-3: Dome elements from R= 7.57' to 11.36'
*** RING-4: Dome elements from R= 11.36' to 15.14'
**
***** DOME ELEMENT SETS *****
**
*ELSET, ELSET=RING-2, GENERATE
317, 319, 1
285, 287, 1
253, 255, 1
221, 223, 1
189, 191, 1
157, 159, 1
125, 127, 1
93, 95, 1
61, 63, 1
29, 31, 1
**
*ELSET, ELSET=RING-3, GENERATE
312, 316, 1
280, 284, 1
248, 252, 1
216, 220, 1
184, 188, 1
152, 156, 1
120, 124, 1
88, 92, 1
56, 60, 1
24, 28, 1
**
*ELSET, ELSET=RING-4, GENERATE
305, 311, 1
273, 279, 1
241, 247, 1
209, 215, 1
177, 183, 1
145, 151, 1
113, 119, 1
81, 87, 1
49, 55, 1
17, 23, 1
**
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-1
15.00
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-2
15.00
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-3

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15.00
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-4
15.00
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-5
15.28
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-6
15.83
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-7
16.38
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-8
16.91
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-9
17.38
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-10
18.08
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SHELLSECTION, MATERIAL=CONC-RNG, ELSET=RING-11
21.31
*TRANSVERSE SHEAR STIFFNESS
1.E+06
*SOLIDSECTION, MATERIAL=SOIL, ELSET=BRICK
**SYMSUR CONTAINS THE NODES ON THE SYMMETRY PLANE
*NSET, NSET=SYMSUR
1
3
5
7
14
21
28
35
156
157
158
161
164
167
170
171
173
176
180
185
190
195
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215
220
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235
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2005
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2658
3001
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3005
3007
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3157
3158
3501
3503
3505
3507
3656
3657
3658
4001
4003
4005
4007
4156
4157
4158
4501
4503
4505
4507
4656
4657
4658
5001
5003
5005
5007
5156
5157
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6001
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6353
6363
6364
6374
6375
6385
6386
6396

**LATSUR CONTAINS THE NODES ON THE OUTER LATERAL SURFACE OF THE SOIL

*NSET,NSET=LATSUR

6001,6002,6003,6004,6005,6006
6034,6035,6036,6037,6038,6039
6067,6068,6069,6070,6071,6072
6100,6101,6102,6103,6104,6105
6133,6134,6135,6136,6137,6138
6166,6167,6168,6169,6170,6171
6199,6200,6201,6202,6203,6204

6232,6233,6234,6235,6236,6237
6265,6266,6267,6268,6269,6270
6298,6299,6300,6301,6302,6303
6331,6332,6333,6334,6335,6336
6364,6365,6366,6367,6368,6369
6007,6008,6009,6010,6011
6040,6041,6042,6043,6044
6073,6074,6075,6076,6077
6106,6107,6108,6109,6110
6139,6140,6141,6142,6143
6172,6173,6174,6175,6176
6205,6206,6207,6208,6209
6238,6239,6240,6241,6242
6271,6272,6273,6274,6275
6304,6305,6306,6307,6308
6337,6338,6339,6340,6341
6370,6371,6372,6373,6374

**LBOT CONTAINS THE NODES ON THE BOTTOM OF THE SOIL REGION
*NSET,NSET=LBOT,GENERATE

5001,5007
5036,5038
5051,5053
5066,5068
5081,5083
5096,5098
5111,5113
5126,5128
5141,5143
5156,5158
6364,6396

**TNODES CONTAINS TANK NODES
*NSET,NSET=TNODES

171,173,172,172
172,173,175,175
172,175,174,174
173,176,175,175
174,175,178,178
175,176,179,179
174,178,177,177
175,179,178,178
176,180,179,179
177,178,182,182
178,179,183,183
179,180,184,184
177,182,181,181
178,183,182,182
179,184,183,183
180,185,184,184
311,307,312,312
312,308,313,313
313,309,314,314
311,306,307,307
312,307,308,308
313,308,309,309
314,309,310,310
315,312,316,316
316,313,317,317
315,311,312,312
316,312,313,313
317,313,314,314
318,316,319,319
318,315,316,316
319,316,317,317
320,318,319,319
171,172,401,401
401,172,403,403
401,403,402,402
172,174,403,403
402,403,405,405
403,174,406,406
402,405,404,404
403,406,405,405
174,177,406,406
404,405,408,408

405,406,409,409	678,844,674,674
406,177,410,410	848,846,849,849
404,408,407,407	849,847,681,681
405,409,408,408	848,845,846,846
406,410,409,409	849,846,847,847
177,181,410,410	681,847,678,678
511,508,512,512	850,849,683,683
512,509,513,513	850,848,849,849
513,510,311,311	683,849,681,681
511,507,508,508	320,850,683,683
512,508,509,509	171,735,902,902
513,509,510,510	902,735,904,904
311,510,306,306	902,904,903,903
514,512,515,515	735,736,904,904
515,513,315,315	903,904,906,906
514,511,512,512	904,736,907,907
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1773,1774,1856,1855
1774,1604,1686,1856

**DEFINE INITIAL BOUNDARY CONDITONS:

**LBOT RESTRAINED IN THE VERTICAL DIRECTION

**LATSUR RESTRAINED IN THE 1 AND 2 DIRECTIONS

**SYMSUR A SYMMETRY PLANE

**TNODES FIXED IN ALL DEGREES OF FREEDOM

*BOUNDARY

LBOT,3,3,0.0

LATSUR,1,2,0.0

SYMSUR,YSYMM

TNODES,1,6,0.0

**DEFINE FIELD VARIABLE (EXPECTED PRESSURE) IN THE SOIL

*INITIAL CONDITIONS,TYPE=FIELD,VARIABLE=2

1, 300.000
2, 300.000
3, 300.000
4, 300.000
5, 300.000
6, 300.000
7, 300.000
13, 17.364
14, 17.364
20, 12.428
21, 12.428
27, 6.831
28, 6.831
34, .000
35, .000
36, 300.000
37, 300.000
38, 300.000
41, 17.364
44, 12.428
47, 6.831
50, .000
51, 300.000
52, 300.000
53, 300.000
56, 17.364
59, 12.428
62, 6.831
65, .000
66, 300.000
67, 300.000
68, 300.000
71, 17.364
74, 12.428
77, 6.831

80,	.000	204,	19.817
81,	300.000	205,	19.817
82,	300.000	206,	19.736
83,	300.000	207,	19.736
86,	17.364	208,	19.736
89,	12.428	209,	19.736
92,	6.831	210,	19.736
95,	.000	211,	19.655
96,	300.000	212,	19.655
97,	300.000	213,	19.655
98,	300.000	214,	19.655
101,	17.364	215,	19.655
104,	12.428	216,	19.303
107,	6.831	217,	19.303
110,	.000	218,	19.303
111,	300.000	219,	19.303
112,	300.000	220,	19.303
113,	300.000	221,	18.122
116,	17.364	222,	18.122
119,	12.428	223,	18.122
122,	6.831	224,	18.122
125,	.000	225,	18.122
126,	300.000	226,	17.364
127,	300.000	227,	17.364
128,	300.000	228,	17.364
131,	17.364	229,	17.364
134,	12.428	230,	17.364
137,	6.831	231,	16.130
140,	.000	232,	16.130
141,	300.000	233,	16.130
142,	300.000	234,	16.130
143,	300.000	235,	16.130
146,	17.364	236,	14.896
149,	12.428	237,	14.896
152,	6.831	238,	14.896
155,	.000	239,	14.896
156,	300.000	240,	14.896
157,	300.000	241,	13.662
158,	300.000	242,	13.662
161,	17.364	243,	13.662
164,	12.428	244,	13.662
167,	6.831	245,	13.662
170,	.000	246,	12.428
171,	300.000	247,	12.428
172,	300.000	248,	12.428
173,	300.000	249,	12.428
174,	300.000	250,	12.428
175,	300.000	251,	11.194
176,	300.000	252,	11.194
177,	300.000	253,	11.194
178,	300.000	254,	11.194
179,	300.000	255,	11.194
180,	300.000	256,	9.960
181,	300.000	257,	9.960
182,	300.000	258,	9.960
183,	300.000	259,	9.960
184,	300.000	260,	9.960
185,	300.000	261,	8.911
186,	300.000	262,	8.911
187,	300.000	263,	8.911
188,	300.000	264,	8.911
189,	300.000	265,	8.911
190,	300.000	266,	7.911
191,	300.000	267,	7.911
192,	300.000	268,	7.911
193,	300.000	269,	7.911
194,	300.000	270,	7.911
195,	300.000	271,	7.395
196,	300.000	272,	7.395
197,	300.000	273,	7.395
198,	300.000	274,	7.395
199,	300.000	275,	7.395
200,	300.000	276,	6.796
201,	19.817	277,	6.796
202,	19.817	278,	6.796
203,	19.817	279,	6.796

280,	6.796	356,	6.699
281,	6.271	357,	6.699
282,	6.271	358,	6.699
283,	6.271	359,	5.068
284,	6.271	360,	5.068
285,	6.271	361,	5.068
286,	5.773	362,	4.010
287,	5.773	363,	4.010
288,	5.773	364,	4.010
289,	5.773	365,	2.909
290,	5.773	366,	2.909
291,	5.169	367,	2.909
292,	5.169	368,	2.424
293,	5.169	369,	2.424
294,	5.169	370,	2.424
295,	5.169	371,	2.424
296,	4.654	372,	2.424
297,	4.654	373,	2.424
298,	4.654	374,	18.642
299,	4.654	375,	18.642
300,	4.654	376,	18.642
301,	4.231	377,	.000
302,	4.231	378,	.000
303,	4.231	379,	.000
304,	4.231	380,	.000
305,	4.231	381,	.000
306,	3.900	382,	.000
307,	3.900	383,	.000
308,	3.900	384,	.000
309,	3.900	385,	.000
310,	3.900	386,	.000
311,	3.627	387,	.000
312,	3.627	388,	.000
313,	3.627	389,	1.851
314,	3.627	390,	1.851
315,	3.433	391,	1.851
316,	3.433	392,	.000
317,	3.433	393,	.000
318,	3.319	394,	.000
319,	3.319	395,	3.415
320,	3.283	396,	3.415
321,	19.303	397,	3.415
322,	19.303	398,	.000
323,	19.303	399,	.000
324,	19.303	400,	.000
325,	19.303	401,	300.000
326,	300.000	402,	300.000
327,	300.000	403,	300.000
328,	300.000	404,	300.000
329,	300.000	405,	300.000
330,	300.000	406,	300.000
331,	300.000	407,	300.000
332,	300.000	408,	300.000
333,	300.000	409,	300.000
334,	300.000	410,	300.000
335,	300.000	411,	300.000
336,	300.000	412,	300.000
337,	300.000	413,	300.000
338,	300.000	414,	300.000
339,	300.000	415,	300.000
340,	300.000	416,	300.000
341,	300.000	417,	300.000
342,	300.000	418,	300.000
343,	300.000	419,	300.000
344,	17.364	420,	300.000
345,	17.364	421,	300.000
346,	17.364	422,	300.000
347,	14.896	423,	19.817
348,	14.896	424,	19.817
349,	14.896	425,	19.817
350,	12.428	426,	19.817
351,	12.428	427,	19.736
352,	12.428	428,	19.736
353,	9.960	429,	19.736
354,	9.960	430,	19.736
355,	9.960	431,	19.655

432,	19.655	508,	3.900
433,	19.655	509,	3.900
434,	19.655	510,	3.900
435,	19.303	511,	3.627
436,	19.303	512,	3.627
437,	19.303	513,	3.627
438,	19.303	514,	3.433
439,	18.122	515,	3.433
440,	18.122	516,	3.319
441,	18.122	517,	19.303
442,	18.122	518,	19.303
443,	17.364	519,	19.303
444,	17.364	520,	19.303
445,	17.364	521,	300.000
446,	17.364	522,	300.000
447,	16.130	523,	300.000
448,	16.130	524,	300.000
449,	16.130	525,	300.000
450,	16.130	526,	300.000
451,	14.896	527,	300.000
452,	14.896	528,	300.000
453,	14.896	529,	300.000
454,	14.896	530,	300.000
455,	13.662	531,	300.000
456,	13.662	532,	17.364
457,	13.662	533,	17.364
458,	13.662	534,	14.896
459,	12.428	535,	14.896
460,	12.428	536,	12.428
461,	12.428	537,	12.428
462,	12.428	538,	9.960
463,	11.194	539,	9.960
464,	11.194	540,	6.699
465,	11.194	541,	6.699
466,	11.194	542,	5.068
467,	9.960	543,	5.068
468,	9.960	544,	4.010
469,	9.960	545,	4.010
470,	9.960	546,	2.909
471,	8.911	547,	2.909
472,	8.911	548,	2.424
473,	8.911	549,	2.424
474,	8.911	550,	2.424
475,	7.911	551,	18.642
476,	7.911	552,	18.642
477,	7.911	553,	.000
478,	7.911	554,	.000
479,	7.395	555,	.000
480,	7.395	556,	.000
481,	7.395	557,	.000
482,	7.395	558,	.000
483,	6.796	559,	.000
484,	6.796	560,	1.851
485,	6.796	561,	1.851
486,	6.796	562,	.000
487,	6.271	563,	.000
488,	6.271	564,	3.415
489,	6.271	565,	3.415
490,	6.271	566,	.000
491,	5.773	567,	.000
492,	5.773	568,	300.000
493,	5.773	569,	300.000
494,	5.773	570,	300.000
495,	5.169	571,	300.000
496,	5.169	572,	300.000
497,	5.169	573,	300.000
498,	5.169	574,	300.000
499,	4.654	575,	300.000
500,	4.654	576,	300.000
501,	4.654	577,	300.000
502,	4.654	578,	300.000
503,	4.231	579,	300.000
504,	4.231	580,	300.000
505,	4.231	581,	300.000
506,	4.231	582,	300.000
507,	3.900	583,	300.000

584,	300.000	660,	5.773
585,	300.000	661,	5.773
586,	300.000	662,	5.169
587,	300.000	663,	5.169
588,	300.000	664,	5.169
589,	300.000	665,	5.169
590,	19.817	666,	4.654
591,	19.817	667,	4.654
592,	19.817	668,	4.654
593,	19.817	669,	4.654
594,	19.736	670,	4.231
595,	19.736	671,	4.231
596,	19.736	672,	4.231
597,	19.736	673,	4.231
598,	19.655	674,	3.900
599,	19.655	675,	3.900
600,	19.655	676,	3.900
601,	19.655	677,	3.900
602,	19.303	678,	3.627
603,	19.303	679,	3.627
604,	19.303	680,	3.627
605,	19.303	681,	3.433
606,	18.122	682,	3.433
607,	18.122	683,	3.319
608,	18.122	684,	19.303
609,	18.122	685,	19.303
610,	17.364	686,	19.303
611,	17.364	687,	19.303
612,	17.364	688,	300.000
613,	17.364	689,	300.000
614,	16.130	690,	300.000
615,	16.130	691,	300.000
616,	16.130	692,	300.000
617,	16.130	693,	300.000
618,	14.896	694,	300.000
619,	14.896	695,	300.000
620,	14.896	696,	300.000
621,	14.896	697,	300.000
622,	13.662	698,	300.000
623,	13.662	699,	17.364
624,	13.662	700,	17.364
625,	13.662	701,	14.896
626,	12.428	702,	14.896
627,	12.428	703,	12.428
628,	12.428	704,	12.428
629,	12.428	705,	9.960
630,	11.194	706,	9.960
631,	11.194	707,	6.699
632,	11.194	708,	6.699
633,	11.194	709,	5.068
634,	9.960	710,	5.068
635,	9.960	711,	4.010
636,	9.960	712,	4.010
637,	9.960	713,	2.909
638,	8.911	714,	2.909
639,	8.911	715,	2.424
640,	8.911	716,	2.424
641,	8.911	717,	2.424
642,	7.911	718,	18.642
643,	7.911	719,	18.642
644,	7.911	720,	.000
645,	7.911	721,	.000
646,	7.395	722,	.000
647,	7.395	723,	.000
648,	7.395	724,	.000
649,	7.395	725,	.000
650,	6.796	726,	.000
651,	6.796	727,	1.851
652,	6.796	728,	1.851
653,	6.796	729,	.000
654,	6.271	730,	.000
655,	6.271	731,	3.415
656,	6.271	732,	3.415
657,	6.271	733,	.000
658,	5.773	734,	.000
659,	5.773	735,	300.000

736,	300.000	812,	7.911
737,	300.000	813,	7.395
738,	300.000	814,	7.395
739,	300.000	815,	7.395
740,	300.000	816,	7.395
741,	300.000	817,	6.796
742,	300.000	818,	6.796
743,	300.000	819,	6.796
744,	300.000	820,	6.796
745,	300.000	821,	6.271
746,	300.000	822,	6.271
747,	300.000	823,	6.271
748,	300.000	824,	6.271
749,	300.000	825,	5.773
750,	300.000	826,	5.773
751,	300.000	827,	5.773
752,	300.000	828,	5.773
753,	300.000	829,	5.169
754,	300.000	830,	5.169
755,	300.000	831,	5.169
756,	300.000	832,	5.169
757,	19.817	833,	4.654
758,	19.817	834,	4.654
759,	19.817	835,	4.654
760,	19.817	836,	4.654
761,	19.736	837,	4.231
762,	19.736	838,	4.231
763,	19.736	839,	4.231
764,	19.736	840,	4.231
765,	19.655	841,	3.900
766,	19.655	842,	3.900
767,	19.655	843,	3.900
768,	19.655	844,	3.900
769,	19.303	845,	3.627
770,	19.303	846,	3.627
771,	19.303	847,	3.627
772,	19.303	848,	3.433
773,	18.122	849,	3.433
774,	18.122	850,	3.319
775,	18.122	851,	19.303
776,	18.122	852,	19.303
777,	17.364	853,	19.303
778,	17.364	854,	19.303
779,	17.364	855,	300.000
780,	17.364	856,	300.000
781,	16.130	857,	300.000
782,	16.130	858,	300.000
783,	16.130	859,	300.000
784,	16.130	860,	300.000
785,	14.896	861,	300.000
786,	14.896	862,	300.000
787,	14.896	863,	300.000
788,	14.896	864,	300.000
789,	13.662	865,	300.000
790,	13.662	866,	17.364
791,	13.662	867,	17.364
792,	13.662	868,	14.896
793,	12.428	869,	14.896
794,	12.428	870,	12.428
795,	12.428	871,	12.428
796,	12.428	872,	9.960
797,	11.194	873,	9.960
798,	11.194	874,	6.699
799,	11.194	875,	6.699
800,	11.194	876,	5.068
801,	9.960	877,	5.068
802,	9.960	878,	4.010
803,	9.960	879,	4.010
804,	9.960	880,	2.909
805,	8.911	881,	2.909
806,	8.911	882,	2.424
807,	8.911	883,	2.424
808,	8.911	884,	2.424
809,	7.911	885,	18.642
810,	7.911	886,	18.642
811,	7.911	887,	.000

888,	.000	964,	11.194
889,	.000	965,	11.194
890,	.000	966,	11.194
891,	.000	967,	11.194
892,	.000	968,	9.960
893,	.000	969,	9.960
894,	1.851	970,	9.960
895,	1.851	971,	9.960
896,	.000	972,	8.911
897,	.000	973,	8.911
898,	3.415	974,	8.911
899,	3.415	975,	8.911
900,	.000	976,	7.911
901,	.000	977,	7.911
902,	300.000	978,	7.911
903,	300.000	979,	7.911
904,	300.000	980,	7.395
905,	300.000	981,	7.395
906,	300.000	982,	7.395
907,	300.000	983,	7.395
908,	300.000	984,	6.796
909,	300.000	985,	6.796
910,	300.000	986,	6.796
911,	300.000	987,	6.796
912,	300.000	988,	6.271
913,	300.000	989,	6.271
914,	300.000	990,	6.271
915,	300.000	991,	6.271
916,	300.000	992,	5.773
917,	300.000	993,	5.773
918,	300.000	994,	5.773
919,	300.000	995,	5.773
920,	300.000	996,	5.169
921,	300.000	997,	5.169
922,	300.000	998,	5.169
923,	300.000	999,	5.169
924,	19.817	1000,	4.654
925,	19.817	1001,	4.654
926,	19.817	1002,	4.654
927,	19.817	1003,	4.654
928,	19.736	1004,	4.231
929,	19.736	1005,	4.231
930,	19.736	1006,	4.231
931,	19.736	1007,	4.231
932,	19.655	1008,	3.900
933,	19.655	1009,	3.900
934,	19.655	1010,	3.900
935,	19.655	1011,	3.900
936,	19.303	1012,	3.627
937,	19.303	1013,	3.627
938,	19.303	1014,	3.627
939,	19.303	1015,	3.433
940,	18.122	1016,	3.433
941,	18.122	1017,	3.319
942,	18.122	1018,	19.303
943,	18.122	1019,	19.303
944,	17.364	1020,	19.303
945,	17.364	1021,	19.303
946,	17.364	1022,	300.000
947,	17.364	1023,	300.000
948,	16.130	1024,	300.000
949,	16.130	1025,	300.000
950,	16.130	1026,	300.000
951,	16.130	1027,	300.000
952,	14.896	1028,	300.000
953,	14.896	1029,	300.000
954,	14.896	1030,	300.000
955,	14.896	1031,	300.000
956,	13.662	1032,	300.000
957,	13.662	1033,	17.364
958,	13.662	1034,	17.364
959,	13.662	1035,	14.896
960,	12.428	1036,	14.896
961,	12.428	1037,	12.428
962,	12.428	1038,	12.428
963,	12.428	1039,	9.960

1040,	9.960	1116,	16.130
1041,	6.699	1117,	16.130
1042,	6.699	1118,	16.130
1043,	5.068	1119,	14.896
1044,	5.068	1120,	14.896
1045,	4.010	1121,	14.896
1046,	4.010	1122,	14.896
1047,	2.909	1123,	13.662
1048,	2.909	1124,	13.662
1049,	2.424	1125,	13.662
1050,	2.424	1126,	13.662
1051,	2.424	1127,	12.428
1052,	18.642	1128,	12.428
1053,	18.642	1129,	12.428
1054,	.000	1130,	12.428
1055,	.000	1131,	11.194
1056,	.000	1132,	11.194
1057,	.000	1133,	11.194
1058,	.000	1134,	11.194
1059,	.000	1135,	9.960
1060,	.000	1136,	9.960
1061,	1.851	1137,	9.960
1062,	1.851	1138,	9.960
1063,	.000	1139,	8.911
1064,	.000	1140,	8.911
1065,	3.415	1141,	8.911
1066,	3.415	1142,	8.911
1067,	.000	1143,	7.911
1068,	.000	1144,	7.911
1069,	300.000	1145,	7.911
1070,	300.000	1146,	7.911
1071,	300.000	1147,	7.395
1072,	300.000	1148,	7.395
1073,	300.000	1149,	7.395
1074,	300.000	1150,	7.395
1075,	300.000	1151,	6.796
1076,	300.000	1152,	6.796
1077,	300.000	1153,	6.796
1078,	300.000	1154,	6.796
1079,	300.000	1155,	6.271
1080,	300.000	1156,	6.271
1081,	300.000	1157,	6.271
1082,	300.000	1158,	6.271
1083,	300.000	1159,	5.773
1084,	300.000	1160,	5.773
1085,	300.000	1161,	5.773
1086,	300.000	1162,	5.773
1087,	300.000	1163,	5.169
1088,	300.000	1164,	5.169
1089,	300.000	1165,	5.169
1090,	300.000	1166,	5.169
1091,	19.817	1167,	4.654
1092,	19.817	1168,	4.654
1093,	19.817	1169,	4.654
1094,	19.817	1170,	4.654
1095,	19.736	1171,	4.231
1096,	19.736	1172,	4.231
1097,	19.736	1173,	4.231
1098,	19.736	1174,	4.231
1099,	19.655	1175,	3.900
1100,	19.655	1176,	3.900
1101,	19.655	1177,	3.900
1102,	19.655	1178,	3.900
1103,	19.303	1179,	3.627
1104,	19.303	1180,	3.627
1105,	19.303	1181,	3.627
1106,	19.303	1182,	3.433
1107,	18.122	1183,	3.433
1108,	18.122	1184,	3.319
1109,	18.122	1185,	19.303
1110,	18.122	1186,	19.303
1111,	17.364	1187,	19.303
1112,	17.364	1188,	19.303
1113,	17.364	1189,	300.000
1114,	17.364	1190,	300.000
1115,	16.130	1191,	300.000

1192,	300.000	1268,	19.655
1193,	300.000	1269,	19.655
1194,	300.000	1270,	19.303
1195,	300.000	1271,	19.303
1196,	300.000	1272,	19.303
1197,	300.000	1273,	19.303
1198,	300.000	1274,	18.122
1199,	300.000	1275,	18.122
1200,	17.364	1276,	18.122
1201,	17.364	1277,	18.122
1202,	14.896	1278,	17.364
1203,	14.896	1279,	17.364
1204,	12.428	1280,	17.364
1205,	12.428	1281,	17.364
1206,	9.960	1282,	16.130
1207,	9.960	1283,	16.130
1208,	6.699	1284,	16.130
1209,	6.699	1285,	16.130
1210,	5.068	1286,	14.896
1211,	5.068	1287,	14.896
1212,	4.010	1288,	14.896
1213,	4.010	1289,	14.896
1214,	2.909	1290,	13.662
1215,	2.909	1291,	13.662
1216,	2.424	1292,	13.662
1217,	2.424	1293,	13.662
1218,	2.424	1294,	12.428
1219,	18.642	1295,	12.428
1220,	18.642	1296,	12.428
1221,	.000	1297,	12.428
1222,	.000	1298,	11.194
1223,	.000	1299,	11.194
1224,	.000	1300,	11.194
1225,	.000	1301,	11.194
1226,	.000	1302,	9.960
1227,	.000	1303,	9.960
1228,	1.851	1304,	9.960
1229,	1.851	1305,	9.960
1230,	.000	1306,	8.911
1231,	.000	1307,	8.911
1232,	3.415	1308,	8.911
1233,	3.415	1309,	8.911
1234,	.000	1310,	7.911
1235,	.000	1311,	7.911
1236,	300.000	1312,	7.911
1237,	300.000	1313,	7.911
1238,	300.000	1314,	7.395
1239,	300.000	1315,	7.395
1240,	300.000	1316,	7.395
1241,	300.000	1317,	7.395
1242,	300.000	1318,	6.796
1243,	300.000	1319,	6.796
1244,	300.000	1320,	6.796
1245,	300.000	1321,	6.796
1246,	300.000	1322,	6.271
1247,	300.000	1323,	6.271
1248,	300.000	1324,	6.271
1249,	300.000	1325,	6.271
1250,	300.000	1326,	5.773
1251,	300.000	1327,	5.773
1252,	300.000	1328,	5.773
1253,	300.000	1329,	5.773
1254,	300.000	1330,	5.169
1255,	300.000	1331,	5.169
1256,	300.000	1332,	5.169
1257,	300.000	1333,	5.169
1258,	19.817	1334,	4.654
1259,	19.817	1335,	4.654
1260,	19.817	1336,	4.654
1261,	19.817	1337,	4.654
1262,	19.736	1338,	4.231
1263,	19.736	1339,	4.231
1264,	19.736	1340,	4.231
1265,	19.736	1341,	4.231
1266,	19.655	1342,	3.900
1267,	19.655	1343,	3.900

1344,	3.900	1420,	300.000
1345,	3.900	1421,	300.000
1346,	3.627	1422,	300.000
1347,	3.627	1423,	300.000
1348,	3.627	1424,	300.000
1349,	3.433	1425,	19.817
1350,	3.433	1426,	19.817
1351,	3.319	1427,	19.817
1352,	19.303	1428,	19.817
1353,	19.303	1429,	19.736
1354,	19.303	1430,	19.736
1355,	19.303	1431,	19.736
1356,	300.000	1432,	19.736
1357,	300.000	1433,	19.655
1358,	300.000	1434,	19.655
1359,	300.000	1435,	19.655
1360,	300.000	1436,	19.655
1361,	300.000	1437,	19.303
1362,	300.000	1438,	19.303
1363,	300.000	1439,	19.303
1364,	300.000	1440,	19.303
1365,	300.000	1441,	18.122
1366,	300.000	1442,	18.122
1367,	17.364	1443,	18.122
1368,	17.364	1444,	18.122
1369,	14.896	1445,	17.364
1370,	14.896	1446,	17.364
1371,	12.428	1447,	17.364
1372,	12.428	1448,	17.364
1373,	9.960	1449,	16.130
1374,	9.960	1450,	16.130
1375,	6.699	1451,	16.130
1376,	6.699	1452,	16.130
1377,	5.068	1453,	14.896
1378,	5.068	1454,	14.896
1379,	4.010	1455,	14.896
1380,	4.010	1456,	14.896
1381,	2.909	1457,	13.662
1382,	2.909	1458,	13.662
1383,	2.424	1459,	13.662
1384,	2.424	1460,	13.662
1385,	2.424	1461,	12.428
1386,	18.642	1462,	12.428
1387,	18.642	1463,	12.428
1388,	.000	1464,	12.428
1389,	.000	1465,	11.194
1390,	.000	1466,	11.194
1391,	.000	1467,	11.194
1392,	.000	1468,	11.194
1393,	.000	1469,	9.960
1394,	.000	1470,	9.960
1395,	1.851	1471,	9.960
1396,	1.851	1472,	9.960
1397,	.000	1473,	8.911
1398,	.000	1474,	8.911
1399,	3.415	1475,	8.911
1400,	3.415	1476,	8.911
1401,	.000	1477,	7.911
1402,	.000	1478,	7.911
1403,	300.000	1479,	7.911
1404,	300.000	1480,	7.911
1405,	300.000	1481,	7.395
1406,	300.000	1482,	7.395
1407,	300.000	1483,	7.395
1408,	300.000	1484,	7.395
1409,	300.000	1485,	6.796
1410,	300.000	1486,	6.796
1411,	300.000	1487,	6.796
1412,	300.000	1488,	6.796
1413,	300.000	1489,	6.271
1414,	300.000	1490,	6.271
1415,	300.000	1491,	6.271
1416,	300.000	1492,	6.271
1417,	300.000	1493,	5.773
1418,	300.000	1494,	5.773
1419,	300.000	1495,	5.773

1496,	5.773	1572,	300.000
1497,	5.169	1573,	300.000
1498,	5.169	1574,	300.000
1499,	5.169	1575,	300.000
1500,	5.169	1576,	300.000
1501,	4.654	1577,	300.000
1502,	4.654	1578,	300.000
1503,	4.654	1579,	300.000
1504,	4.654	1580,	300.000
1505,	4.231	1581,	300.000
1506,	4.231	1582,	300.000
1507,	4.231	1583,	300.000
1508,	4.231	1584,	300.000
1509,	3.900	1585,	300.000
1510,	3.900	1586,	300.000
1511,	3.900	1587,	300.000
1512,	3.900	1588,	300.000
1513,	3.627	1589,	300.000
1514,	3.627	1590,	300.000
1515,	3.627	1591,	300.000
1516,	3.433	1592,	19.817
1517,	3.433	1593,	19.817
1518,	3.319	1594,	19.817
1519,	19.303	1595,	19.817
1520,	19.303	1596,	19.736
1521,	19.303	1597,	19.736
1522,	19.303	1598,	19.736
1523,	300.000	1599,	19.736
1524,	300.000	1600,	19.655
1525,	300.000	1601,	19.655
1526,	300.000	1602,	19.655
1527,	300.000	1603,	19.655
1528,	300.000	1604,	19.303
1529,	300.000	1605,	19.303
1530,	300.000	1606,	19.303
1531,	300.000	1607,	19.303
1532,	300.000	1608,	18.122
1533,	300.000	1609,	18.122
1534,	17.364	1610,	18.122
1535,	17.364	1611,	18.122
1536,	14.896	1612,	17.364
1537,	14.896	1613,	17.364
1538,	12.428	1614,	17.364
1539,	12.428	1615,	17.364
1540,	9.960	1616,	16.130
1541,	9.960	1617,	16.130
1542,	6.699	1618,	16.130
1543,	6.699	1619,	16.130
1544,	5.068	1620,	14.896
1545,	5.068	1621,	14.896
1546,	4.010	1622,	14.896
1547,	4.010	1623,	14.896
1548,	2.909	1624,	13.662
1549,	2.909	1625,	13.662
1550,	2.424	1626,	13.662
1551,	2.424	1627,	13.662
1552,	2.424	1628,	12.428
1553,	18.642	1629,	12.428
1554,	18.642	1630,	12.428
1555,	.000	1631,	12.428
1556,	.000	1632,	11.194
1557,	.000	1633,	11.194
1558,	.000	1634,	11.194
1559,	.000	1635,	11.194
1560,	.000	1636,	9.960
1561,	.000	1637,	9.960
1562,	1.851	1638,	9.960
1563,	1.851	1639,	9.960
1564,	.000	1640,	8.911
1565,	.000	1641,	8.911
1566,	3.415	1642,	8.911
1567,	3.415	1643,	8.911
1568,	.000	1644,	7.911
1569,	.000	1645,	7.911
1570,	300.000	1646,	7.911
1571,	300.000	1647,	7.911

1648,	7.395	1724,	.000
1649,	7.395	1725,	.000
1650,	7.395	1726,	.000
1651,	7.395	1727,	.000
1652,	6.796	1728,	.000
1653,	6.796	1729,	1.851
1654,	6.796	1730,	1.851
1655,	6.796	1731,	.000
1656,	6.271	1732,	.000
1657,	6.271	1733,	3.415
1658,	6.271	1734,	3.415
1659,	6.271	1735,	.000
1660,	5.773	1736,	.000
1661,	5.773	1737,	300.000
1662,	5.773	1738,	300.000
1663,	5.773	1739,	300.000
1664,	5.169	1740,	300.000
1665,	5.169	1741,	300.000
1666,	5.169	1742,	300.000
1667,	5.169	1743,	300.000
1668,	4.654	1744,	300.000
1669,	4.654	1745,	300.000
1670,	4.654	1746,	300.000
1671,	4.654	1747,	300.000
1672,	4.231	1748,	300.000
1673,	4.231	1749,	300.000
1674,	4.231	1750,	300.000
1675,	4.231	1751,	300.000
1676,	3.900	1752,	300.000
1677,	3.900	1753,	300.000
1678,	3.900	1754,	300.000
1679,	3.900	1755,	300.000
1680,	3.627	1756,	300.000
1681,	3.627	1757,	300.000
1682,	3.627	1758,	300.000
1683,	3.433	1759,	19.817
1684,	3.433	1760,	19.817
1685,	3.319	1761,	19.817
1686,	19.303	1762,	19.817
1687,	19.303	1763,	19.736
1688,	19.303	1764,	19.736
1689,	19.303	1765,	19.736
1690,	300.000	1766,	19.736
1691,	300.000	1767,	19.655
1692,	300.000	1768,	19.655
1693,	300.000	1769,	19.655
1694,	300.000	1770,	19.655
1695,	300.000	1771,	19.303
1696,	300.000	1772,	19.303
1697,	300.000	1773,	19.303
1698,	300.000	1774,	19.303
1699,	300.000	1775,	18.122
1700,	300.000	1776,	18.122
1701,	17.364	1777,	18.122
1702,	17.364	1778,	18.122
1703,	14.896	1779,	17.364
1704,	14.896	1780,	17.364
1705,	12.428	1781,	17.364
1706,	12.428	1782,	17.364
1707,	9.960	1783,	16.130
1708,	9.960	1784,	16.130
1709,	6.699	1785,	16.130
1710,	6.699	1786,	16.130
1711,	5.068	1787,	14.896
1712,	5.068	1788,	14.896
1713,	4.010	1789,	14.896
1714,	4.010	1790,	14.896
1715,	2.909	1791,	13.662
1716,	2.909	1792,	13.662
1717,	2.424	1793,	13.662
1718,	2.424	1794,	13.662
1719,	2.424	1795,	12.428
1720,	18.642	1796,	12.428
1721,	18.642	1797,	12.428
1722,	.000	1798,	12.428
1723,	.000	1799,	11.194

1800,	11.194	1876,	6.699
1801,	11.194	1877,	6.699
1802,	11.194	1878,	5.068
1803,	9.960	1879,	5.068
1804,	9.960	1880,	4.010
1805,	9.960	1881,	4.010
1806,	9.960	1882,	2.909
1807,	8.911	1883,	2.909
1808,	8.911	1884,	2.424
1809,	8.911	1885,	2.424
1810,	8.911	1886,	2.424
1811,	7.911	1887,	18.642
1812,	7.911	1888,	18.642
1813,	7.911	1889,	.000
1814,	7.911	1890,	.000
1815,	7.395	1891,	.000
1816,	7.395	1892,	.000
1817,	7.395	1893,	.000
1818,	7.395	1894,	.000
1819,	6.796	1895,	.000
1820,	6.796	1896,	1.851
1821,	6.796	1897,	1.851
1822,	6.796	1898,	.000
1823,	6.271	1899,	.000
1824,	6.271	1900,	3.415
1825,	6.271	1901,	3.415
1826,	6.271	1902,	.000
1827,	5.773	1903,	.000
1828,	5.773	2001,	300.000
1829,	5.773	2002,	300.000
1830,	5.773	2003,	300.000
1831,	5.169	2004,	300.000
1832,	5.169	2005,	300.000
1833,	5.169	2006,	300.000
1834,	5.169	2007,	300.000
1835,	4.654	2036,	300.000
1836,	4.654	2037,	300.000
1837,	4.654	2038,	300.000
1838,	4.654	2051,	300.000
1839,	4.231	2052,	300.000
1840,	4.231	2053,	300.000
1841,	4.231	2066,	300.000
1842,	4.231	2067,	300.000
1843,	3.900	2068,	300.000
1844,	3.900	2081,	300.000
1845,	3.900	2082,	300.000
1846,	3.900	2083,	300.000
1847,	3.627	2096,	300.000
1848,	3.627	2097,	300.000
1849,	3.627	2098,	300.000
1850,	3.433	2111,	300.000
1851,	3.433	2112,	300.000
1852,	3.319	2113,	300.000
1853,	19.303	2126,	300.000
1854,	19.303	2127,	300.000
1855,	19.303	2128,	300.000
1856,	19.303	2141,	300.000
1857,	300.000	2142,	300.000
1858,	300.000	2143,	300.000
1859,	300.000	2156,	300.000
1860,	300.000	2157,	300.000
1861,	300.000	2158,	300.000
1862,	300.000	2501,	300.000
1863,	300.000	2502,	300.000
1864,	300.000	2503,	300.000
1865,	300.000	2504,	300.000
1866,	300.000	2505,	300.000
1867,	300.000	2506,	300.000
1868,	17.364	2507,	300.000
1869,	17.364	2536,	300.000
1870,	14.896	2537,	300.000
1871,	14.896	2538,	300.000
1872,	12.428	2551,	300.000
1873,	12.428	2552,	300.000
1874,	9.960	2553,	300.000
1875,	9.960	2566,	300.000

2567,	300.000	3611,	300.000
2568,	300.000	3612,	300.000
2581,	300.000	3613,	300.000
2582,	300.000	3626,	300.000
2583,	300.000	3627,	300.000
2596,	300.000	3628,	300.000
2597,	300.000	3641,	300.000
2598,	300.000	3642,	300.000
2611,	300.000	3643,	300.000
2612,	300.000	3656,	300.000
2613,	300.000	3657,	300.000
2626,	300.000	3658,	300.000
2627,	300.000	4001,	300.000
2628,	300.000	4002,	300.000
2641,	300.000	4003,	300.000
2642,	300.000	4004,	300.000
2643,	300.000	4005,	300.000
2656,	300.000	4006,	300.000
2657,	300.000	4007,	300.000
2658,	300.000	4036,	300.000
3001,	300.000	4037,	300.000
3002,	300.000	4038,	300.000
3003,	300.000	4051,	300.000
3004,	300.000	4052,	300.000
3005,	300.000	4053,	300.000
3006,	300.000	4066,	300.000
3007,	300.000	4067,	300.000
3036,	300.000	4068,	300.000
3037,	300.000	4081,	300.000
3038,	300.000	4082,	300.000
3051,	300.000	4083,	300.000
3052,	300.000	4096,	300.000
3053,	300.000	4097,	300.000
3066,	300.000	4098,	300.000
3067,	300.000	4111,	300.000
3068,	300.000	4112,	300.000
3081,	300.000	4113,	300.000
3082,	300.000	4126,	300.000
3083,	300.000	4127,	300.000
3096,	300.000	4128,	300.000
3097,	300.000	4141,	300.000
3098,	300.000	4142,	300.000
3111,	300.000	4143,	300.000
3112,	300.000	4156,	300.000
3113,	300.000	4157,	300.000
3126,	300.000	4158,	300.000
3127,	300.000	4501,	300.000
3128,	300.000	4502,	300.000
3141,	300.000	4503,	300.000
3142,	300.000	4504,	300.000
3143,	300.000	4505,	300.000
3156,	300.000	4506,	300.000
3157,	300.000	4507,	300.000
3158,	300.000	4536,	300.000
3501,	300.000	4537,	300.000
3502,	300.000	4538,	300.000
3503,	300.000	4551,	300.000
3504,	300.000	4552,	300.000
3505,	300.000	4553,	300.000
3506,	300.000	4566,	300.000
3507,	300.000	4567,	300.000
3536,	300.000	4568,	300.000
3537,	300.000	4581,	300.000
3538,	300.000	4582,	300.000
3551,	300.000	4583,	300.000
3552,	300.000	4596,	300.000
3553,	300.000	4597,	300.000
3566,	300.000	4598,	300.000
3567,	300.000	4611,	300.000
3568,	300.000	4612,	300.000
3581,	300.000	4613,	300.000
3582,	300.000	4626,	300.000
3583,	300.000	4627,	300.000
3596,	300.000	4628,	300.000
3597,	300.000	4641,	300.000
3598,	300.000	4642,	300.000

4643,	300.000	6039,	5.628
4656,	300.000	6040,	5.628
4657,	300.000	6041,	5.628
4658,	300.000	6042,	5.628
5001,	300.000	6043,	5.628
5002,	300.000	6044,	5.628
5003,	300.000	6045,	5.628
5004,	300.000	6046,	5.628
5005,	300.000	6047,	5.628
5006,	300.000	6048,	5.628
5007,	300.000	6049,	5.628
5036,	300.000	6050,	5.628
5037,	300.000	6051,	5.628
5038,	300.000	6052,	5.628
5051,	300.000	6053,	5.628
5052,	300.000	6054,	5.628
5053,	300.000	6055,	5.628
5066,	300.000	6056,	5.628
5067,	300.000	6057,	5.628
5068,	300.000	6058,	5.628
5081,	300.000	6059,	5.628
5082,	300.000	6060,	5.628
5083,	300.000	6061,	5.628
5096,	300.000	6062,	5.628
5097,	300.000	6063,	5.628
5098,	300.000	6064,	5.628
5111,	300.000	6065,	5.628
5112,	300.000	6066,	5.628
5113,	300.000	6067,	11.256
5126,	300.000	6068,	11.256
5127,	300.000	6069,	11.256
5128,	300.000	6070,	11.256
5141,	300.000	6071,	11.256
5142,	300.000	6072,	11.256
5143,	300.000	6073,	11.256
5156,	300.000	6074,	11.256
5157,	300.000	6075,	11.256
5158,	300.000	6076,	11.256
6001,	.000	6077,	11.256
6002,	.000	6078,	11.256
6003,	.000	6079,	11.256
6004,	.000	6080,	11.256
6005,	.000	6081,	11.256
6006,	.000	6082,	11.256
6007,	.000	6083,	11.256
6008,	.000	6084,	11.256
6009,	.000	6085,	11.256
6010,	.000	6086,	11.256
6011,	.000	6087,	11.256
6012,	.000	6088,	11.256
6013,	.000	6089,	11.256
6014,	.000	6090,	11.256
6015,	.000	6091,	11.256
6016,	.000	6092,	11.256
6017,	.000	6093,	11.256
6018,	.000	6094,	11.256
6019,	.000	6095,	11.256
6020,	.000	6096,	11.256
6021,	.000	6097,	11.256
6022,	.000	6098,	11.256
6023,	.000	6099,	11.256
6024,	.000	6100,	16.883
6025,	.000	6101,	16.883
6026,	.000	6102,	16.883
6027,	.000	6103,	16.883
6028,	.000	6104,	16.883
6029,	.000	6105,	16.883
6030,	.000	6106,	16.883
6031,	.000	6107,	16.883
6032,	.000	6108,	16.883
6033,	.000	6109,	16.883
6034,	5.628	6110,	16.883
6035,	5.628	6111,	16.883
6036,	5.628	6112,	16.883
6037,	5.628	6113,	16.883
6038,	5.628	6114,	16.883

6115,	16.883	6191,	300.000
6116,	16.883	6192,	300.000
6117,	16.883	6193,	300.000
6118,	16.883	6194,	300.000
6119,	16.883	6195,	300.000
6120,	16.883	6196,	300.000
6121,	16.883	6197,	300.000
6122,	16.883	6198,	300.000
6123,	16.883	6199,	300.000
6124,	16.883	6200,	300.000
6125,	16.883	6201,	300.000
6126,	16.883	6202,	300.000
6127,	16.883	6203,	300.000
6128,	16.883	6204,	300.000
6129,	16.883	6205,	300.000
6130,	16.883	6206,	300.000
6131,	16.883	6207,	300.000
6132,	16.883	6208,	300.000
6133,	300.000	6209,	300.000
6134,	300.000	6210,	300.000
6135,	300.000	6211,	300.000
6136,	300.000	6212,	300.000
6137,	300.000	6213,	300.000
6138,	300.000	6214,	300.000
6139,	300.000	6215,	300.000
6140,	300.000	6216,	300.000
6141,	300.000	6217,	300.000
6142,	300.000	6218,	300.000
6143,	300.000	6219,	300.000
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6174,	300.000	6250,	300.000
6175,	300.000	6251,	300.000
6176,	300.000	6252,	300.000
6177,	300.000	6253,	300.000
6178,	300.000	6254,	300.000
6179,	300.000	6255,	300.000
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6181,	300.000	6257,	300.000
6182,	300.000	6258,	300.000
6183,	300.000	6259,	300.000
6184,	300.000	6260,	300.000
6185,	300.000	6261,	300.000
6186,	300.000	6262,	300.000
6187,	300.000	6263,	300.000
6188,	300.000	6264,	300.000
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**DEFINE GEOSTATIC STRESS STATE IN THE SOIL
*INITIAL CONDITIONS,TYPE=STRESS,GEOSTATIC
BRICK,0.00,462.00,-29.4017,0.00,0.5385
****
**SET INITIAL TEMPERATURE TO 70
*NSET,NSET=ALLNO,GENERATE
1,6396
*INITIAL CONDITIONS,TYPE=TEMPERATURE
ALLNO,70
****
*RESTART,WRITE,FREQ=10
****
**STEP 1 BRINGS SOIL AND TANK TO EQUILIBRIUM UNDER GRAVITY
*STEP
*GEOSTATIC,PTOL=10.,MTOL=120.
*DLOAD
BRICK,GRAV,386.4,0.0,0.0,-1.
QUAD,GRAV,386.4,0.0,0.0,-1.
TRI,GRAV,386.4,0.0,0.0,-1.
*ELPRINT,FREQ=0
*NODEPRINT,FREQ=0
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*END STEP
****
**STEP 2 REMOVES THE CONSTRAINTS ON THE TANK
*STEP,INC=1000,CYC=4
*STATIC,PTOL=10.,MTOL=120.,DIRECT=NOSTOP
0.1,1.
*BOUNDARY,OP=NEW
LBOU,3,3,0.0
LATSUR,1,2,0.0
SYMSUR,YSYM
*END STEP
****
**STEP 3 REMOVES GRAVITY LOAD ON SOIL AND TANK ELEMENTS TO BE REMOVED
**TREM CONTAINS TANK ELEMENTS REMOVED TO FORM NEW PENETRATION
**SREM CONTAINS SOIL ELEMENTS REMOVED TO FORM NEW PENETRATION
*ELSET,ELSET=SREM
2739,3087,3435,3783,4131,4479,4827,5175
5523,2444,2792,3140,3488,3836,4184,4532
4880,5228,5576,2391
*ELSET,ELSET=TREM
32,64,96,128,160,192,224,256
288,320
*STEP,INC=9999,CYC=4
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.5,1.
*DLOAD
SREM,GRAV,0.0,0.0,0.0,-1.0
TREM,GRAV,0.0,0.0,0.0,-1.0
*END STEP
****
**STEP 4 CREATES NEW PENETRATION BY REMOVING SREM AND TREM
*STEP,INC=9999,CYC=4
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.5,1.
*MODEL CHANGE,REMOVE
SREM,TREM
*END STEP
****
**STEP 5 REAPPLIES THE WEIGHT OF THE SOIL REMOVED
**WEIGHT REAPPLIED EXCEEDS WEIGHT REMOVED
*ELSET,ELSET=REAP1,GENERATE
29,31
61,63
93,95
125,127
157,159
189,191
221,223
253,255
285,287
317,319
24,28
56,60
88,92
120,124
152,156
184,188
216,220
248,252
280,284
312,316
*STEP,INC=9999,CYC=4
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.25,1.
*DLOAD
REAP1,P,-3.9
*END STEP
**STEP 6 APPLIES THE FACTORED LOADS
**PAD CONTAINS THE TWO ELEMENTS OVER WHICH THE BRIDGE LOAD IS APPLIED
*ELSET,ELSET=PAD
8001,8100
**HYDRA CONTAINS LOWER THREE ROWS OF TANK WALL ELEMENTS ONTO WHICH THE
**WASTE PRESSURE IS APPLIED
*ELSET,ELSET=HYDRA,GENERATE
1285,1296
1181,1192

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1077,1088
973,984
869,880
765,776
661,672
557,568
453,464
349,360
**OVER CONTAINS ELEMENTS ABOVE TANK
**(OVER ALSO CONTAINS A THIN LAYER OF ELEMENTS BELOW THE TANK)
*ELSET,ELSET=OVER,GENERATE
2121,6000
**SIDE CONTAINS ALL SOIL ELEMENTS NOT IN OVER
*ELSET,ELSET=SIDE,GENERATE
6001,10000
**TOPELS CONTAINS TOP LAYER OF SOIL ELEMENTS ABOVE THE TANK
*ELSET,ELSET=TOPELS
2460
2463
2466
2467
2808
2812
2813
2814
8001
8012
2460
2464
2465
2466
8001
2808
2811
2814
2815
3156
3160
3161
3162
8012
8023
3156
3159
3162
3163
3504
3508
3509
3510
8023
8034
3504
3507
3510
3511
3852
3856
3857
3858
8034
8045
3852
3855
3858
3859
4200
4204
4205
4206
8045
8056
4200
4203
4206
4207

4548	2453
4552	2455
4553	2798
4554	2802
8056	2450
8067	2451
4548	2452
4551	2454
4554	2455
4555	2450
4896	2454
4900	2455
4901	2459
4902	2802
8067	2454
8078	2455
4896	2458
4899	2454
4902	2459
4903	2463
5244	2806
5248	2812
5249	2458
5250	2459
8078	2463
8089	2464
5244	2466
5247	2458
5250	2464
5251	2792
5592	2794
5596	2795
5597	3140
5598	3141
8089	3142
8100	2795
5592	2797
5595	3141
5598	2793
5599	2794
8100	2795
2444	2796
2792	2797
3140	2799
3488	3144
3836	2796
4184	2797
4532	2798
4880	2799
5228	2801
5576	2803
2444	3146
2446	3150
2447	2798
2792	2799
2793	2800
2794	2802
2444	2803
2445	2803
2446	2807
2447	3150
2449	2802
2793	2803
2445	2806
2446	2807
2447	2811
2448	3154
2445	3160
2449	2806
2451	2807
2796	2811
2448	2812
2449	2814
2450	3140
2448	3142
2451	3143

3488	3503
3489	3507
3490	3850
3143	3856
3145	3502
3489	3503
3141	3507
3142	3508
3143	3510
3144	3836
3145	3838
3147	3839
3492	4184
3144	4185
3145	4186
3146	3839
3147	3841
3149	4185
3151	3837
3494	3838
3498	3839
3146	3840
3147	3841
3148	3843
3150	4188
3151	3840
3151	3841
3155	3842
3498	3843
3150	3845
3151	3847
3154	4190
3155	4194
3159	3842
3502	3843
3508	3844
3154	3846
3155	3847
3159	3847
3160	3851
3162	4194
3488	3846
3490	3847
3491	3850
3836	3851
3837	3855
3838	4198
3491	4204
3493	3850
3837	3851
3489	3855
3490	3856
3491	3858
3492	4184
3493	4186
3495	4187
3840	4532
3492	4533
3493	4534
3494	4187
3495	4189
3497	4533
3499	4185
3842	4186
3846	4187
3494	4188
3495	4189
3496	4191
3498	4536
3499	4188
3499	4189
3503	4190
3846	4191
3498	4193
3499	4195
3502	4538

4542	4883
4190	4884
4191	4885
4192	4887
4194	5232
4195	4884
4195	4885
4199	4886
4542	4887
4194	4889
4195	4891
4198	5234
4199	5238
4203	4886
4546	4887
4552	4888
4198	4890
4199	4891
4203	4891
4204	4895
4206	5238
4532	4890
4534	4891
4535	4894
4880	4895
4881	4899
4882	5242
4535	5248
4537	4894
4881	4895
4533	4899
4534	4900
4535	4902
4536	5228
4537	5230
4539	5231
4884	5576
4536	5577
4537	5578
4538	5231
4539	5233
4541	5577
4543	5229
4886	5230
4890	5231
4538	5232
4539	5233
4540	5235
4542	5580
4543	5232
4543	5233
4547	5234
4890	5235
4542	5237
4543	5239
4546	5582
4547	5586
4551	5234
4894	5235
4900	5236
4546	5238
4547	5239
4551	5239
4552	5243
4554	5586
4880	5238
4882	5239
4883	5242
5228	5243
5229	5247
5230	5590
4883	5596
4885	5242
5229	5243
4881	5247
4882	5248

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*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
**APPLY FACTORED BRIDGE LOAD ON PAD
**FACTOR = 0.9
**APPLY FACTORED LIVE LOAD ON TOPELS (LOAD EXCEEDS 100 TONS)
**FACTOR = 1.7
*DLOAD
PAD,P2,43.
TOPELS,P2,0.534
**APPLY FACTORS TO GRAVITY LOADS
**FACTOR = 1.4 ON TANK DEADWEIGHT AND SOIL OVERBURDEN
**FACTOR = 0.9 ON SIDESOIL WEIGHT
*DLOAD
QUAD,GRAV,540.,0.0,0.0,-1.0
TRI,GRAV,540.,0.0,0.0,-1.0
OVER,GRAV,540.0,0.0,0.0,-1.0
SIDE,GRAV,348.0,0.0,0.0,-1.0
**APPLY FACTOR TO WASTE PRESSURE
**FACTOR = 1.7
*DLOAD
HYDRA,P,5.4
**APPLY FACTORED TEMPERATURE TO TEMPERATURE DISTRIBUTION IN F
**FACTOR = 0.9
*TEMPERATURE
171,180
172,180
173,180
174,180
175,180
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177,180
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1777,108	1853,180

1854,180
1855,180
1856,180
*END STEP

**END OF ANALYSIS

ATTACHMENT 2
INPUT FILES FOR THE ANALYSIS LOAD CASES

Prepared by: Phillip R. Kish 8/29/94
Date

Checked by: [Signature] 8/29/94
Date

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PPS-U1A.abdat

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*HEADING
PPS-U1a.ABDAT (6/24/94), UNFACTORED LOAD CASE 1a WITH PPS SPECIFIC LIVE LOADS
40 PSF SNOW LOAD, 100 TON SOIL LOAD OVER DOME APEX, NO CRANE LOAD 20 FT. FROM EDGE
RESTART LOAD1.RES
****
*RESTART,READ,STEP=2,INC=10,WRITE,FREQ=100
****
** step 3 applies live load, temperature, and hydro load
** hydra contains lower three rows of tank wall elements onto which the
** waste pressure is applied
*ELSET,ELSET=HYDRA,GENERATE
1285,1296
1181,1192
1077,1088
973,984
869,880
765,776
661,672
557,568
453,464
349,360
** OVER contains elements above tank
** (OVER also contains a thin layer of elements below the tank)
*ELSET,ELSET=OVER,GENERATE
2121,6000
** SIDE contains all soil elements not in over
*ELSET,ELSET=SIDE,GENERATE
6001,10000
** refined TOPELS contains top layer of soil elements above the tank
**
** TOPELS2 is surface soil elements with face 2 up
*ELSET,ELSET=TOPELS2,GENERATE
2444, 5576, 348
2445, 5577, 348
2446, 5578, 348
2447, 5579, 348
2448, 5580, 348
2449, 5581, 348
2450, 5582, 348
2451, 5583, 348
2458, 5590, 348
2459, 5591, 348
8001, 8100, 11
7001, 7010, 1
7111, 7120, 1
**
** TOPELS1 is surface soil elements with face 1 up
*ELSET,ELSET=TOPELS1, GENERATE
2454,5586,348
2455,5587,348
2466, 5598, 348
**
** TOPELS5 is surface soil elements with face 5 up
*ELSET,ELSET=TOPELS5, GENERATE
2464, 5596, 348
2463, 5595, 348
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
**
** apply distributed live load on soil surface (40psf)
*DLOAD
TOPELS1,P1,0.278
TOPELS2,P2,0.278
TOPELS5,P5,0.278
**
** apply 100 ton concentrated load over dome apex (half-value due to symmetry)
*CLOAD
377,3,-100000
**
** apply waste pressure
*DLOAD
```

HYDRA, P, 3.18
** apply temperature to temperature distribution in f
*TEMPERATURE

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1139,90	1262,200
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1142,90	1265,200
1143,90	1266,200
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1145,90	1268,200
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1147,90	1270,200
1148,90	1271,200
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1175,90	1298,90
1176,90	1299,90
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1178,90	1301,90
1179,90	1302,90
1180,90	1303,90
1181,90	1304,90
1182,90	1305,90
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1315,90	1438,200
1316,90	1439,200
1317,90	1440,200
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1407,200	1483,90
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1426,200	1502,90
1427,200	1503,90
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1518,90	1641,90
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1585,200	1661,90
1586,200	1662,90
1587,200	1663,90
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1589,200	1665,90
1590,200	1666,90
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1594,200	1670,90
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1601,200	1677,90
1602,200	1678,90
1603,200	1679,90
1604,200	1680,90
1605,200	1681,90
1606,200	1682,90
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1608,120	1684,90
1609,120	1685,90
1610,120	1686,200
1611,120	1687,200
1612,120	1688,200
1613,120	1689,200
1614,120	1737,200
1615,120	1738,200
1616,90	1739,200
1617,90	1740,200
1618,90	1741,200
1619,90	1742,200
1620,90	1743,200
1621,90	1744,200
1622,90	1745,200
1623,90	1746,200
1624,90	1747,200
1625,90	1748,200
1626,90	1749,200
1627,90	1750,200
1628,90	1751,200
1629,90	1752,200
1630,90	1753,200
1631,90	1754,200
1632,90	1755,200
1633,90	1756,200
1634,90	1757,200
1635,90	1758,200

1759,200	1835,90
1760,200	1836,90
1761,200	1837,90
1762,200	1838,90
1763,200	1839,90
1764,200	1840,90
1765,200	1841,90
1766,200	1842,90
1767,200	1843,90
1768,200	1844,90
1769,200	1845,90
1770,200	1846,90
1771,200	1847,90
1772,200	1848,90
1773,200	1849,90
1774,200	1850,90
1775,120	1851,90
1776,120	1852,90
1777,120	1853,200
1778,120	1854,200
1779,120	1855,200
1780,120	1856,200
1781,120	*END STEP
1782,120	****
1783,90	****
1784,90	** no crane load (live load) for this load case
1785,90	****
1786,90	**
1787,90	**END OF ANALYSIS
1788,90	
1789,90	
1790,90	
1791,90	
1792,90	
1793,90	
1794,90	
1795,90	
1796,90	
1797,90	
1798,90	
1799,90	
1800,90	
1801,90	
1802,90	
1803,90	
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1806,90	
1807,90	
1808,90	
1809,90	
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1812,90	
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1814,90	
1815,90	
1816,90	
1817,90	
1818,90	
1819,90	
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1823,90	
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1827,90	
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1831,90	
1832,90	
1833,90	
1834,90	

PPS-U1B.abdat

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*HEADING
PPS-U1B.ABDAT (6/24/94), UNFACTORED LOAD CASE 1b WITH PPS SPECIFIC LIVE LOADS
40 PSF SNOW LOAD, 100 TON SOIL LOAD OVER TANK EDGE, CRANE LOAD 19.5 FT. FROM EDGE
RESTART LOAD1.RES
****
*RESTART,READ,STEP=2,INC=10,WRITE,FREQ=100
****
** step 3 applies live load, temperature, and hydro load
** hydra contains lower three rows of tank wall elements onto which the
** waste pressure is applied
****
*ELSET,ELSET=HYDRA,GENERATE
1285,1296
1181,1192
1077,1088
973,984
869,880
765,776
661,672
557,568
453,464
349,360
** OVER contains elements above tank
** (OVER also contains a thin layer of elements below the tank)
*ELSET,ELSET=OVER,GENERATE
2121,6000
** SIDE contains all soil elements not in over
*ELSET,ELSET=SIDE,GENERATE
6001,10000
** refined TOPELS contains top layer of soil elements above the tank
**
** TOPELS2 is surface soil elements with face 2 up
*ELSET,ELSET=TOPELS2,GENERATE
2444, 5576, 348
2445, 5577, 348
2446, 5578, 348
2447, 5579, 348
2448, 5580, 348
2449, 5581, 348
2450, 5582, 348
2451, 5583, 348
2458, 5590, 348
2459, 5591, 348
8001, 8100, 11
7001, 7010, 1
7111, 7120, 1
**
** TOPELS1 is surface soil elements with face 1 up
*ELSET,ELSET=TOPELS1, GENERATE
2454,5586,348
2455,5587,348
2466, 5598, 348
**
** TOPELS5 is surface soil elements with face 5 up
*ELSET,ELSET=TOPELS5, GENERATE
2464, 5596, 348
2463, 5595, 348
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
**
** apply distributed live load on soil surface (40psf)
*DLOAD
TOPELS1,P1,0.278
TOPELS2,P2,0.278
TOPELS5,P5,0.278
**
** apply 100 ton concentrated load over tank wall (half value due to symmetry)
*CLOAD
1902,3,-100000
**
** apply waste pressure

```

*DLOAD
HYDRA,P,3.18
** apply temperature to temperature distribution in f
*TEMPERATURE
171,200
172,200
173,200
174,200
175,200
176,200
177,200
178,200
179,200
180,200
181,200
182,200
183,200
184,200
185,200
186,200
187,200
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190,200
191,200
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220,200
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229,120
230,120
231,90
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233,90
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246,90	322,200
247,90	323,200
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249,90	325,200
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254,90	405,200
255,90	406,200
256,90	407,200
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311,90	462,90
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314,90	465,90
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318,90	469,90

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1327,90	1450,90
1328,90	1451,90
1329,90	1452,90
1330,90	1453,90
1331,90	1454,90
1332,90	1455,90
1333,90	1456,90
1334,90	1457,90
1335,90	1458,90
1336,90	1459,90
1337,90	1460,90
1338,90	1461,90
1339,90	1462,90
1340,90	1463,90
1341,90	1464,90
1342,90	1465,90
1343,90	1466,90
1344,90	1467,90
1345,90	1468,90
1346,90	1469,90
1347,90	1470,90
1348,90	1471,90
1349,90	1472,90
1350,90	1473,90
1351,90	1474,90
1352,200	1475,90
1353,200	1476,90
1354,200	1477,90
1355,200	1478,90
1403,200	1479,90
1404,200	1480,90
1405,200	1481,90
1406,200	1482,90
1407,200	1483,90
1408,200	1484,90
1409,200	1485,90
1410,200	1486,90
1411,200	1487,90
1412,200	1488,90
1413,200	1489,90
1414,200	1490,90
1415,200	1491,90
1416,200	1492,90
1417,200	1493,90
1418,200	1494,90
1419,200	1495,90
1420,200	1496,90
1421,200	1497,90
1422,200	1498,90
1423,200	1499,90
1424,200	1500,90
1425,200	1501,90
1426,200	1502,90
1427,200	1503,90
1428,200	1504,90
1429,200	1505,90
1430,200	1506,90
1431,200	1507,90
1432,200	1508,90
1433,200	1509,90
1434,200	1510,90
1435,200	1511,90

1512,90	1635,90
1513,90	1636,90
1514,90	1637,90
1515,90	1638,90
1516,90	1639,90
1517,90	1640,90
1518,90	1641,90
1519,200	1642,90
1520,200	1643,90
1521,200	1644,90
1522,200	1645,90
1570,200	1646,90
1571,200	1647,90
1572,200	1648,90
1573,200	1649,90
1574,200	1650,90
1575,200	1651,90
1576,200	1652,90
1577,200	1653,90
1578,200	1654,90
1579,200	1655,90
1580,200	1656,90
1581,200	1657,90
1582,200	1658,90
1583,200	1659,90
1584,200	1660,90
1585,200	1661,90
1586,200	1662,90
1587,200	1663,90
1588,200	1664,90
1589,200	1665,90
1590,200	1666,90
1591,200	1667,90
1592,200	1668,90
1593,200	1669,90
1594,200	1670,90
1595,200	1671,90
1596,200	1672,90
1597,200	1673,90
1598,200	1674,90
1599,200	1675,90
1600,200	1676,90
1601,200	1677,90
1602,200	1678,90
1603,200	1679,90
1604,200	1680,90
1605,200	1681,90
1606,200	1682,90
1607,200	1683,90
1608,120	1684,90
1609,120	1685,90
1610,120	1686,200
1611,120	1687,200
1612,120	1688,200
1613,120	1689,200
1614,120	1737,200
1615,120	1738,200
1616,90	1739,200
1617,90	1740,200
1618,90	1741,200
1619,90	1742,200
1620,90	1743,200
1621,90	1744,200
1622,90	1745,200
1623,90	1746,200
1624,90	1747,200
1625,90	1748,200
1626,90	1749,200
1627,90	1750,200
1628,90	1751,200
1629,90	1752,200
1630,90	1753,200
1631,90	1754,200
1632,90	1755,200
1633,90	1756,200
1634,90	1757,200

1758,200
1759,200
1760,200
1761,200
1762,200
1763,200
1764,200
1765,200
1766,200
1767,200
1768,200
1769,200
1770,200
1771,200
1772,200
1773,200
1774,200
1775,120
1776,120
1777,120
1778,120
1779,120
1780,120
1781,120
1782,120
1783,90
1784,90
1785,90
1786,90
1787,90
1788,90
1789,90
1790,90
1791,90
1792,90
1793,90
1794,90
1795,90
1796,90
1797,90
1798,90
1799,90
1800,90
1801,90
1802,90
1803,90
1804,90
1805,90
1806,90
1807,90
1808,90
1809,90
1810,90
1811,90
1812,90
1813,90
1814,90
1815,90
1816,90
1817,90
1818,90
1819,90
1820,90
1821,90
1822,90
1823,90
1824,90
1825,90
1826,90
1827,90
1828,90
1829,90
1830,90
1831,90
1832,90
1833,90

1834,90
1835,90
1836,90
1837,90
1838,90
1839,90
1840,90
1841,90
1842,90
1843,90
1844,90
1845,90
1846,90
1847,90
1848,90
1849,90
1850,90
1851,90
1852,90
1853,200
1854,200
1855,200
1856,200
*END STEP

*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.1,1.
** apply 85 ton concentrated crane load 19.5 ft. from tank edge (half value due to symmetry)
*CLOAD
6033,3,-85000
*END STEP

**
**END OF ANALYSIS

PPS-U2.abdat

```
*HEADING
PPS-U2.ABDAT (6/20/94), UNFACTORED LOAD CASE 2 WITH PPS SPECIFIC LIVE LOADS
NO SNOW LOAD, 100 TON SOIL LOAD 20 FT. FROM EDGE, CRANE LOAD 20 FT. FROM EDGE
RESTART LOAD1.RES
****
*RESTART,READ,STEP=2,INC=10,WRITE,FREQ=100
****
** step 3 applies temperature and hydro load
** hydra contains lower three rows of tank wall elements onto which the
** waste pressure is applied
*ELSET,ELSET=HYDRA,GENERATE
1285,1296
1181,1192
1077,1088
973,984
869,880
765,776
661,672
557,568
453,464
349,360
** OVER contains elements above tank
** (OVER also contains a thin layer of elements below the tank)
*ELSET,ELSET=OVER,GENERATE
2121,6000
** SIDE contains all soil elements not in over
*ELSET,ELSET=SIDE,GENERATE
6001,10000
** TOPELS contains top layer of soil elements above the tank
*ELSET,ELSET=TOPELS
2460
2463
2466
2467
2808
2812
2813
2814
8001
8012
2460
2464
2465
2466
8001
2808
2811
2814
2815
3156
3160
3161
3162
8012
8023
3156
3159
3162
3163
3504
3508
3509
3510
8023
8034
3504
3507
3510
3511
3852
3856
3857
3858
```

8034	2447
8045	2449
3852	2793
3855	2445
3858	2446
3859	2447
4200	2448
4204	2445
4205	2449
4206	2451
8045	2796
8056	2448
4200	2449
4203	2450
4206	2448
4207	2451
4548	2453
4552	2455
4553	2798
4554	2802
8056	2450
8067	2451
4548	2452
4551	2454
4554	2455
4555	2450
4896	2454
4900	2455
4901	2459
4902	2802
8067	2454
8078	2455
4896	2458
4899	2454
4902	2459
4903	2463
5244	2806
5248	2812
5249	2458
5250	2459
8078	2463
8089	2464
5244	2466
5247	2458
5250	2464
5251	2792
5592	2794
5596	2795
5597	3140
5598	3141
8089	3142
8100	2795
5592	2797
5595	3141
5598	2793
5599	2794
8100	2795
2444	2796
2792	2797
3140	2799
3488	3144
3836	2796
4184	2797
4532	2798
4880	2799
5228	2801
5576	2803
2444	3146
2446	3150
2447	2798
2792	2799
2793	2800
2794	2802
2444	2803
2445	2803
2446	2807

3150	3495
2802	3497
2803	3499
2806	3842
2807	3846
2811	3494
3154	3495
3160	3496
2806	3498
2807	3499
2811	3499
2812	3503
2814	3846
3140	3498
3142	3499
3143	3502
3488	3503
3489	3507
3490	3850
3143	3856
3145	3502
3489	3503
3141	3507
3142	3508
3143	3510
3144	3836
3145	3838
3147	3839
3492	4184
3144	4185
3145	4186
3146	3839
3147	3841
3149	4185
3151	3837
3494	3838
3498	3839
3146	3840
3147	3841
3148	3843
3150	4188
3151	3840
3151	3841
3155	3842
3498	3843
3150	3845
3151	3847
3154	4190
3155	4194
3159	3842
3502	3843
3508	3844
3154	3846
3155	3847
3159	3847
3160	3851
3162	4194
3488	3846
3490	3847
3491	3850
3836	3851
3837	3855
3838	4198
3491	4204
3493	3850
3837	3851
3489	3855
3490	3856
3491	3858
3492	4184
3493	4186
3495	4187
3840	4532
3492	4533
3493	4534
3494	4187

4189	4546
4533	4547
4185	4551
4186	4552
4187	4554
4188	4880
4189	4882
4191	4883
4536	5228
4188	5229
4189	5230
4190	4883
4191	4885
4193	5229
4195	4881
4538	4882
4542	4883
4190	4884
4191	4885
4192	4887
4194	5232
4195	4884
4195	4885
4199	4886
4542	4887
4194	4889
4195	4891
4198	5234
4199	5238
4203	4886
4546	4887
4552	4888
4198	4890
4199	4891
4203	4891
4204	4895
4206	5238
4532	4890
4534	4891
4535	4894
4880	4895
4881	4899
4882	5242
4535	5248
4537	4894
4881	4895
4533	4899
4534	4900
4535	4902
4536	5228
4537	5230
4539	5231
4884	5576
4536	5577
4537	5578
4538	5231
4539	5233
4541	5577
4543	5229
4886	5230
4890	5231
4538	5232
4539	5233
4540	5235
4542	5580
4543	5232
4543	5233
4547	5234
4890	5235
4542	5237
4543	5239
4546	5582
4547	5586
4551	5234
4894	5235
4900	5236

5238
5239
5239
5243
5586
5238
5239
5242
5243
5247
5590
5596
5242
5243
5247
5248
5250
5576
5578
5579
5579
5581
5577
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5580
5581
5583
5580
5581
5582
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5582
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5584
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5587
5591
5586
5587
5590
5591
5595
5590
5591
5595
5596
5598
** TOPELS2 contains the balance of the soil surface elements
*ELSET,ELSET=TOPELS2, GENERATE
7001,7010,1
7111,7120,1
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
**
** no snow load for this load case
**
** apply 100 ton concentrated load 20 ft. from tank edge (half value due to symmetry)
*CLOAD
6033,3,-100000
**
** apply waste pressure
*DLOAD
HYDRA,P,3.18
** apply temperature to temperature distribution in f
*TEMPERATURE
171,200
172,200
173,200
174,200
175,200

176,200	252,90
177,200	253,90
178,200	254,90
179,200	255,90
180,200	256,90
181,200	257,90
182,200	258,90
183,200	259,90
184,200	260,90
185,200	261,90
186,200	262,90
187,200	263,90
188,200	264,90
189,200	265,90
190,200	266,90
191,200	267,90
192,200	268,90
193,200	269,90
194,200	270,90
195,200	271,90
196,200	272,90
197,200	273,90
198,200	274,90
199,200	275,90
200,200	276,90
201,200	277,90
202,200	278,90
203,200	279,90
204,200	280,90
205,200	281,90
206,200	282,90
207,200	283,90
208,200	284,90
209,200	285,90
210,200	286,90
211,200	287,90
212,200	288,90
213,200	289,90
214,200	290,90
215,200	291,90
216,200	292,90
217,200	293,90
218,200	294,90
219,200	295,90
220,200	296,90
221,120	297,90
222,120	298,90
223,120	299,90
224,120	300,90
225,120	301,90
226,120	302,90
227,120	303,90
228,120	304,90
229,120	305,90
230,120	306,90
231,90	307,90
232,90	308,90
233,90	309,90
234,90	310,90
235,90	311,90
236,90	312,90
237,90	313,90
238,90	314,90
239,90	315,90
240,90	316,90
241,90	317,90
242,90	318,90
243,90	319,90
244,90	320,90
245,90	321,200
246,90	322,200
247,90	323,200
248,90	324,200
249,90	325,200
250,90	401,200
251,90	402,200

403,200	479,90
404,200	480,90
405,200	481,90
406,200	482,90
407,200	483,90
408,200	484,90
409,200	485,90
410,200	486,90
411,200	487,90
412,200	488,90
413,200	489,90
414,200	490,90
415,200	491,90
416,200	492,90
417,200	493,90
418,200	494,90
419,200	495,90
420,200	496,90
421,200	497,90
422,200	498,90
423,200	499,90
424,200	500,90
425,200	501,90
426,200	502,90
427,200	503,90
428,200	504,90
429,200	505,90
430,200	506,90
431,200	507,90
432,200	508,90
433,200	509,90
434,200	510,90
435,200	511,90
436,200	512,90
437,200	513,90
438,200	514,90
439,120	515,90
440,120	516,90
441,120	517,200
442,120	518,200
443,120	519,200
444,120	520,200
445,120	568,200
446,120	569,200
447,90	570,200
448,90	571,200
449,90	572,200
450,90	573,200
451,90	574,200
452,90	575,200
453,90	576,200
454,90	577,200
455,90	578,200
456,90	579,200
457,90	580,200
458,90	581,200
459,90	582,200
460,90	583,200
461,90	584,200
462,90	585,200
463,90	586,200
464,90	587,200
465,90	588,200
466,90	589,200
467,90	590,200
468,90	591,200
469,90	592,200
470,90	593,200
471,90	594,200
472,90	595,200
473,90	596,200
474,90	597,200
475,90	598,200
476,90	599,200
477,90	600,200
478,90	601,200

602,200	678,90
603,200	679,90
604,200	680,90
605,200	681,90
606,120	682,90
607,120	683,90
608,120	684,200
609,120	685,200
610,120	686,200
611,120	687,200
612,120	735,200
613,120	736,200
614,90	737,200
615,90	738,200
616,90	739,200
617,90	740,200
618,90	741,200
619,90	742,200
620,90	743,200
621,90	744,200
622,90	745,200
623,90	746,200
624,90	747,200
625,90	748,200
626,90	749,200
627,90	750,200
628,90	751,200
629,90	752,200
630,90	753,200
631,90	754,200
632,90	755,200
633,90	756,200
634,90	757,200
635,90	758,200
636,90	759,200
637,90	760,200
638,90	761,200
639,90	762,200
640,90	763,200
641,90	764,200
642,90	765,200
643,90	766,200
644,90	767,200
645,90	768,200
646,90	769,200
647,90	770,200
648,90	771,200
649,90	772,200
650,90	773,120
651,90	774,120
652,90	775,120
653,90	776,120
654,90	777,120
655,90	778,120
656,90	779,120
657,90	780,120
658,90	781,90
659,90	782,90
660,90	783,90
661,90	784,90
662,90	785,90
663,90	786,90
664,90	787,90
665,90	788,90
666,90	789,90
667,90	790,90
668,90	791,90
669,90	792,90
670,90	793,90
671,90	794,90
672,90	795,90
673,90	796,90
674,90	797,90
675,90	798,90
676,90	799,90
677,90	800,90

801,90	924,200
802,90	925,200
803,90	926,200
804,90	927,200
805,90	928,200
806,90	929,200
807,90	930,200
808,90	931,200
809,90	932,200
810,90	933,200
811,90	934,200
812,90	935,200
813,90	936,200
814,90	937,200
815,90	938,200
816,90	939,200
817,90	940,120
818,90	941,120
819,90	942,120
820,90	943,120
821,90	944,120
822,90	945,120
823,90	946,120
824,90	947,120
825,90	948,90
826,90	949,90
827,90	950,90
828,90	951,90
829,90	952,90
830,90	953,90
831,90	954,90
832,90	955,90
833,90	956,90
834,90	957,90
835,90	958,90
836,90	959,90
837,90	960,90
838,90	961,90
839,90	962,90
840,90	963,90
841,90	964,90
842,90	965,90
843,90	966,90
844,90	967,90
845,90	968,90
846,90	969,90
847,90	970,90
848,90	971,90
849,90	972,90
850,90	973,90
851,200	974,90
852,200	975,90
853,200	976,90
854,200	977,90
902,200	978,90
903,200	979,90
904,200	980,90
905,200	981,90
906,200	982,90
907,200	983,90
908,200	984,90
909,200	985,90
910,200	986,90
911,200	987,90
912,200	988,90
913,200	989,90
914,200	990,90
915,200	991,90
916,200	992,90
917,200	993,90
918,200	994,90
919,200	995,90
920,200	996,90
921,200	997,90
922,200	998,90
923,200	999,90

1000,90	1123,90
1001,90	1124,90
1002,90	1125,90
1003,90	1126,90
1004,90	1127,90
1005,90	1128,90
1006,90	1129,90
1007,90	1130,90
1008,90	1131,90
1009,90	1132,90
1010,90	1133,90
1011,90	1134,90
1012,90	1135,90
1013,90	1136,90
1014,90	1137,90
1015,90	1138,90
1016,90	1139,90
1017,90	1140,90
1018,200	1141,90
1019,200	1142,90
1020,200	1143,90
1021,200	1144,90
1069,200	1145,90
1070,200	1146,90
1071,200	1147,90
1072,200	1148,90
1073,200	1149,90
1074,200	1150,90
1075,200	1151,90
1076,200	1152,90
1077,200	1153,90
1078,200	1154,90
1079,200	1155,90
1080,200	1156,90
1081,200	1157,90
1082,200	1158,90
1083,200	1159,90
1084,200	1160,90
1085,200	1161,90
1086,200	1162,90
1087,200	1163,90
1088,200	1164,90
1089,200	1165,90
1090,200	1166,90
1091,200	1167,90
1092,200	1168,90
1093,200	1169,90
1094,200	1170,90
1095,200	1171,90
1096,200	1172,90
1097,200	1173,90
1098,200	1174,90
1099,200	1175,90
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1684,90	1807,90
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1687,200	1810,90
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1764,200	1840,90
1765,200	1841,90
1766,200	1842,90

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1847,90
1848,90
1849,90
1850,90
1851,90
1852,90
1853,200
1854,200
1855,200
1856,200
*END STEP
****
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.1,1.
** apply 85 ton concentrated crane load 20 ft. from tank edge (half value due to symmetry)
** (add to existing 100 ton live load at this node)
*CLOAD
6033,3,-185000
*END STEP
**
**END OF ANALYSIS
```

PPS-U3.abdat

```
*HEADING
PPS-U3.ABDAT (7/27/94), UNFACTORED LOAD CASE 3 WITH PPS SPECIFIC LIVE LOADS
40 PSF SNOW LOAD, 100 TON SOIL LOAD OVER DOME APEX, CRANE LOAD 20 FT. FROM EDGE
RESTART LOAD1.RES
****
*RESTART,READ,STEP=2,INC=10,WRITE,FREQ=100
****
** step 3 applies live load, temperature, and hydro load
** hydra contains lower three rows of tank wall elements onto which the
** waste pressure is applied
*ELSET,ELSET=HYDRA,GENERATE
1285,1296
1181,1192
1077,1088
973,984
869,880
765,776
661,672
557,568
453,464
349,360
** OVER contains elements above tank
** (OVER also contains a thin layer of elements below the tank)
*ELSET,ELSET=OVER,GENERATE
2121,6000
** SIDE contains all soil elements not in over
*ELSET,ELSET=SIDE,GENERATE
6001,10000
** refined TOPELS contains top layer of soil elements above the tank
**
** TOPELS2 is surface soil elements with face 2 up
*ELSET,ELSET=TOPELS2,GENERATE
2444, 5576, 348
2445, 5577, 348
2446, 5578, 348
2447, 5579, 348
2448, 5580, 348
2449, 5581, 348
2450, 5582, 348
2451, 5583, 348
2458, 5590, 348
2459, 5591, 348
8001, 8100, 11
7001, 7010, 1
7111, 7120, 1
**
** TOPELS1 is surface soil elements with face 1 up
*ELSET,ELSET=TOPELS1, GENERATE
2454,5586,348
2455,5587,348
2466, 5598, 348
**
** TOPELS5 is surface soil elements with face 5 up
*ELSET,ELSET=TOPELS5, GENERATE
2464, 5596, 348
2463, 5595, 348
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
**
** apply distributed live load on soil surface (40psf)
*DLOAD
TOPELS1,P1,0.278
TOPELS2,P2,0.278
TOPELS5,P5,0.278
**
** apply 100 ton concentrated load over dome apex (half-value due to symmetry)
*CLOAD
377,3,-100000
**
** apply waste pressure
*DLOAD
```


HYDRA,P,3.18

** apply temperature to temperature distribution in f

*TEMPERATURE

171,200
172,200
173,200
174,200
175,200
176,200
177,200
178,200
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180,200
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1853,200
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*END STEP

*STEP, INC=9999, CYC=3
*STATIC, PTOL=100., MTOL=1200., DIRECT=NOSTOP
0.1,1.
** apply 85 ton concentrated crane load 20 ft. from tank edge (half value due to symmetry)
*CLOAD
6033,3,-85000
*END STEP
**
**END OF ANALYSIS

PPS-F1A.abdat

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*HEADING
PPS-F1a.ABDAT (6/25/94), FACTORED LOAD CASE 1a WITH PPS SPECIFIC LIVE LOADS
40 PSF SNOW LOAD, 100 TON SOIL LOAD OVER DOME APEX, NO CRANE LOAD 20 FT. FROM EDGE
RESTART PPS-U1a.RES (unfactored loads)
****
*RESTART,READ,STEP=3,INC=20,WRITE,FREQ=100
****
** step 4 applies aci load factors
****
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
** apply factors to gravity loads
** factor = 1.4 on tank deadweight and soil overburden
** factor = 0.9 on sidesoil weight
*DLOAD
QUAD,GRAV,540.,0.0,0.0,-1.0
TRI,GRAV,540.,0.0,0.0,-1.0
OVER,GRAV,155.0,0.0,0.0,-1.0
SIDE,GRAV,39.0,0.0,0.0,1.0
** apply factor of 1.7 to 40 psf live load on soil surface
*DLOAD
TOPELS1,P1,0.473
TOPELS2,P2,0.473
TOPELS5,P5,0.473
** apply factor of 1.7 to waste pressure
*DLOAD
HYDRA,P,5.4
** apply a factor of 1.7 to 100 ton concentrated load over dome apex (half-value due to symmetry)
*CLOAD
377,3,-170000
**
** no crane load (live load) for this load case
**
** apply a factor of 0.9 to temperature distribution, in F
*TEMPERATURE
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1780,108	1856,180
1781,108	*END STEP
1782,108	****
1783,81	**END OF ANALYSIS
1784,81	
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PPS-F1B.abdat

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*HEADING
PPS-F1B.ABDAT (6/25/94), FACTORED LOAD CASE 1b WITH PPS SPECIFIC LIVE LOADS
40 PSF SNOW LOAD, 100 TON SOIL LOAD OVER TANK EDGE, CRANE LOAD 19.5 FT. FROM EDGE
RESTART PPS-U1b.RES (unfactored loads)
****
*RESTART,READ,STEP=4,INC=10,WRITE,FREQ=100
****
** step 5 applies aci load factors
****
*STEP,INC=9999,CYC=4
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.04,1.
** apply factors to gravity loads
** factor = 1.4 on tank deadweight and soil overburden
** factor = 0.9 on sidesoil weight
*DLOAD
QUAD,GRAV,540.,0.0,0.0,-1.0
TRI,GRAV,540.,0.0,0.0,-1.0
OVER,GRAV,155.0,0.0,0.0,-1.0
SIDE,GRAV,39.0,0.0,0.0,1.0
** apply factor of 1.7 to 40 psf live load on soil surface
*DLOAD
TOPELS1,P1,0.473
TOPELS2,P2,0.473
TOPELS5,P5,0.473
** apply factor of 1.7 to waste pressure
*DLOAD
HYDRA,P,5.4
** apply a factor of 0.9 to temperature distribution, in F
*TEMPERATURE
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*END STEP

*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.1,1.
** apply a factor of 1.7 to 100 ton concentrated load over tank wall (half-value due to symmetry)
*CLOAD
1902,3,-170000
** apply a factor of 1.7 to 85 ton concentrated crane load (half value due to symmetry)
*CLOAD
6033,3,-144500
*END STEP

**END OF ANALYSIS

PPS-F2.abdat

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*HEADING
PPS-F2.ABDAT (6/20/94), FACTORED LOAD CASE 2 WITH PPS SPECIFIC LIVE LOADS
NO SNOW LOAD, 100 TON SOIL LOAD 20 FT. FROM EDGE, CRANE LOAD 20 FT. FROM EDGE
RESTART PPS-U2.RES (unfactored loads)
****
*RESTART,READ,STEP=4,INC=10,WRITE,FREQ=100
****
** step 5 applies aci load factors
****
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
** apply factors to gravity loads
** factor = 0.9 on tank deadweight and soil overburden
** factor = 1.7 on sidesoil weight
*DLOAD
QUAD,GRAV,348.,0.0,0.0,-1.0
TRI,GRAV,348.,0.0,0.0,-1.0
OVER,GRAV,39.0,0.0,0.0,1.0
SIDE,GRAV,270.0,0.0,0.0,-1.0
**
** no snow load for this load case
**
** apply factor of 0.9 to waste pressure
*DLOAD
HYDRA,P,2.86
** apply a factor of 1.7 to 100 ton concentrated load 20 ft from tank edge (half-value due to symmetry)
** and to 85 ton concentrated crane load (same node)
*CLOAD
6033,3,-314500
** apply a factor of 1.4 to temperature distribution, in F
*TEMPERATURE
171,280
172,280
173,280
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*END STEP

**END OF ANALYSIS

PPS-F3.abdat

```
*HEADING
PPS-F3.ABDAT (7/28/94), FACTORED LOAD CASE 3 WITH PPS SPECIFIC LIVE LOADS - MAXIMUM FACTORS
40 PSF SNOW LOAD, 100 TON SOIL LOAD OVER DOME APEX, CRANE LOAD 20 FT. FROM EDGE
RESTART PPS-U3.RES (unfactored loads)
****
*RESTART,READ,STEP=4,INC=10,WRITE,FREQ=100
****
** step 5 + 6 applies aci load factors
****
*STEP,INC=9999,CYC=4
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.01,1.
** apply factors to gravity loads
** factor = 1.4 on tank deadweight and soil overburden
** factor = 1.7 on sidesoil weight
*DLOAD
QUAD,GRAV,540.,0.0,0.0,-1.0
TRI,GRAV,540.,0.0,0.0,-1.0
OVER,GRAV,155.0,0.0,0.0,-1.0
SIDE,GRAV,270.0,0.0,0.0,-1.0
** apply factor of 1.7 to waste pressure
*DLOAD
HYDRA,P,5.4
**
** apply a factor of 1.4 to temperature distribution, in F
*TEMPERATURE
171,280
172,280
173,280
174,280
175,280
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*END STEP

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*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.05,1.
** apply factor of 1.7 to 40 psf live load on soil surface
*DLOAD
TOPELS1,P1,0.473
TOPELS2,P2,0.473
TOPELS5,P5,0.473
** apply a factor of 1.7 to 100 ton concentrated load over dome apex (half-value due to symmetry)
*CLOAD
377,3,-170000
**
** apply a factor of 1.7 to 85 ton concentrated crane load (half value due to symmetry)
*CLOAD
6033,3,-144500
*END STEP

**END OF ANALYSIS

ATTACHMENT 3

CONVERGENCE SUMMARIES (FORCE RESIDUALS AND DISPLACEMENT INCREMENTS)

Prepared by: Phillip R. Vich 8/29/94
Date

Checked by: James L. Lick 8/29/94
Date

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PPS-U1A.cvg

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3, 6, 1, CONVERGENT, -9.37, -9.35, -1.53
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3, 7, 2, NO, -2.574E+04, -2.698E+04, -4.345E+03
3, 7, 3, NO, 7.057E+03, -7.396E+03, -1.192E+03
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PPS-U1B.cvg

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4, 3, 1, NO, 373., 214., -170.
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4, 4, 1, NO, 343., 197., -158.
4, 4, 2, CONVERGENT, -.580, -.186, -.113
4, 5, 1, NO, 347., 199., -160.
4, 5, 2, CONVERGENT, -.593, -.186, -.119
4, 6, 1, NO, 350., 200., -162.
4, 6, 2, CONVERGENT, -.605, -.185, -.126
4, 7, 1, NO, 354., 202., -164.
4, 7, 2, CONVERGENT, -.618, -.184, -.132
4, 8, 1, NO, 357., 203., -166.
4, 8, 2, CONVERGENT, -.630, -.183, -.139
4, 9, 1, NO, 360., 205., -169.
4, 9, 2, CONVERGENT, -.643, -.182, -.145
4, 10, 1, NO, 363., 207., -171.
4, 10, 2, CONVERGENT, -.655, -.180, -.152
step, increm, iter, status, resx, resy, resz
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PPS-U2.cvg

step, increm, iter, status, resx, resy, resz

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3, 7, 3, NO, -1.404E+04, -1.673E+04, -2.686E+03
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3, 8, 2, NO, 2.619E+04, -8.478E+03, -4.420E+03
3, 8, 3, NO, 7.154E+03, 2.505E+03, -1.209E+03
3, 9, 1, CONVERGENT, 30.9, 19.0, -5.10
3, 10, 1, CONVERGENT, 13.7, -13.7, -2.23
3, 11, 1, CONVERGENT, 13.5, -13.6, -2.21
3, 12, 1, CONVERGENT, 13.5, -13.5, -2.20
3, 13, 1, CONVERGENT, 13.4, -13.5, -2.19
3, 14, 1, CONVERGENT, 13.3, -13.4, -2.18
3, 15, 1, CONVERGENT, 13.3, -13.4, -2.17
3, 16, 1, CONVERGENT, 13.2, -13.3, -2.16
3, 17, 1, CONVERGENT, 13.2, -13.3, -2.15
3, 18, 1, CONVERGENT, 13.1, -13.2, -2.14
3, 19, 1, CONVERGENT, 13.1, -13.2, -2.14
3, 20, 1, CONVERGENT, 13.1, -13.1, -2.13
4, 1, 1, CONVERGENT, -.163, .204, -6.519E-02
4, 2, 1, CONVERGENT, -.204, .167, -6.532E-02
4, 3, 1, CONVERGENT, -.205, .166, -6.533E-02
4, 4, 1, CONVERGENT, -.205, .166, -6.533E-02
4, 5, 1, CONVERGENT, -.205, .166, -6.534E-02
4, 6, 1, CONVERGENT, -.205, .166, -6.534E-02
4, 7, 1, CONVERGENT, -.205, .166, -6.535E-02
4, 8, 1, CONVERGENT, -.205, .166, -6.535E-02
4, 9, 1, CONVERGENT, -.205, .166, -6.536E-02
4, 10, 1, CONVERGENT, -.205, .166, -6.536E-02
step, increm, iter, status, resx, resy, resz
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PPS-U3.cvg

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step, increm, iter, status, resx, resy, resz
3, 1, 1, NO, -1.258E+03, 1.324E+03, -1.448E+04
3, 1, 2, NO, 1.350E+03, 1.349E+03, -1.487E+04
3, 1, 3, NO, 271., 271., -2.951E+03
3, 2, 1, CONVERGENT, -9.58, -9.56, -1.56
3, 3, 1, CONVERGENT, -9.49, -9.48, -1.55
3, 4, 1, CONVERGENT, -9.45, -9.43, -1.54
3, 5, 1, CONVERGENT, -9.41, -9.39, -1.53
3, 6, 1, CONVERGENT, -9.37, -9.35, -1.53
3, 7, 1, NO, -2.392E+04, 2.392E+04, 3.880E+03
3, 7, 2, NO, -2.574E+04, -2.698E+04, -4.345E+03
3, 7, 3, NO, 7.057E+03, -7.396E+03, -1.192E+03
3, 8, 1, CONVERGENT, -31.9, -33.2, -5.44
3, 9, 1, CONVERGENT, -14.4, -14.4, -2.35
3, 10, 1, CONVERGENT, -14.2, -14.2, -2.31
3, 11, 1, CONVERGENT, -14.1, -14.1, -2.30
3, 12, 1, CONVERGENT, -14.1, -14.0, -2.29
3, 13, 1, CONVERGENT, -14.0, -14.0, -2.28
3, 14, 1, CONVERGENT, -13.9, -13.9, -2.27
3, 15, 1, CONVERGENT, -13.9, -13.8, -2.26
3, 16, 1, CONVERGENT, -13.8, -13.8, -2.25
3, 17, 1, CONVERGENT, -13.8, -13.7, -2.24
3, 18, 1, CONVERGENT, -13.7, -13.7, -2.23
3, 19, 1, CONVERGENT, -13.7, -13.6, -2.22
3, 20, 1, CONVERGENT, -13.6, -13.6, -2.22
4, 1, 1, CONVERGENT, .163, .205, -6.563E-02
4, 2, 1, CONVERGENT, -.205, .166, -6.578E-02
4, 3, 1, CONVERGENT, -.205, .166, -6.579E-02
4, 4, 1, CONVERGENT, -.205, .166, -6.579E-02
4, 5, 1, CONVERGENT, -.205, .166, -6.580E-02
4, 6, 1, CONVERGENT, -.205, .166, -6.580E-02
4, 7, 1, CONVERGENT, -.205, .166, -6.580E-02
4, 8, 1, CONVERGENT, -.205, .166, -6.581E-02
4, 9, 1, CONVERGENT, -.205, .166, -6.581E-02
4, 10, 1, CONVERGENT, -.205, .166, -6.582E-02
step, increm, iter, status, resx, resy, resz
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step, increm, iter, status, resx, resy, resz
4, 1, 1, NO, 942., 969., -26.1
4, 1, 2, NO, 996., 996., -478.
4, 1, 3, NO, 8.695E+03, 8.687E+03, 2.248E+03
4, 2, 1, NO, 6.526E+03, 6.749E+03, -6.258E+03
4, 2, 2, NO, 5.375E+03, 5.587E+03, -1.271E+04
4, 2, 3, NO, 3.455E+03, 3.450E+03, -2.037E+04
4, 3, 1, NO, -3.884E+04, -3.886E+04, 6.530E+04
4, 3, 2, NO, -6.586E+04, -6.587E+04, -4.863E+04
4, 3, 3, NO, 7.304E+04, -7.312E+04, 6.486E+04
4, 4, 1, NO, 2.259E+04, 2.276E+04, 5.273E+04
4, 4, 2, NO, 3.973E+04, 3.991E+04, 2.805E+04
4, 4, 3, NO, 2.290E+04, 2.293E+04, 1.495E+04
4, 5, 1, NO, -427., -443., 193.
4, 5, 2, CONVERGENT, -3.66, -3.86, 1.68
4, 6, 1, CONVERGENT, -6.84, -6.80, -5.00
4, 7, 1, NO, 8.507E+03, 8.500E+03, 282.
4, 7, 2, NO, 1.043E+03, 1.041E+03, 68.4
4, 7, 3, NO, 133., 133., 16.6
4, 8, 1, CONVERGENT, -6.82, -6.78, -5.18
4, 9, 1, CONVERGENT, -6.82, 6.85, -5.52
4, 10, 1, CONVERGENT, -6.81, 6.90, -5.48
4, 11, 1, CONVERGENT, -6.79, 6.83, -5.43
4, 12, 1, CONVERGENT, -6.78, 6.77, -5.37
4, 13, 1, CONVERGENT, -6.76, -6.72, -5.31
4, 14, 1, NO, -1.871E+04, 2.215E+03, 784.
4, 14, 2, NO, 3.017E+04, -4.385E+03, 1.740E+03
4, 14, 3, NO, 2.002E+04, -3.467E+03, 1.219E+03
4, 15, 1, NO, -159., -34.1, 185.
4, 15, 2, CONVERGENT, .655, .161, 1.24
4, 16, 1, CONVERGENT, -6.84, -6.66, -5.15
4, 17, 1, NO, 1.004E+04, 1.839E+03, 468.
4, 17, 2, NO, -2.775E+04, 1.279E+04, 1.027E+03
4, 17, 3, NO, -3.434E+04, 1.583E+04, 2.107E+03
4, 18, 1, NO, 2.394E+04, -2.590E+04, 2.064E+03
4, 18, 2, NO, 1.215E+04, -3.418E+04, 1.845E+03
4, 18, 3, NO, 7.108E+03, -3.664E+04, 1.550E+03
4, 19, 1, NO, -1.155E+04, 1.141E+04, -410.
4, 19, 2, NO, 2.582E+03, 2.408E+03, -68.7
4, 19, 3, NO, 572., 518., -20.6
4, 20, 1, CONVERGENT, 7.06, 6.94, -3.50
step, increm, iter, status, resx, resy, resz
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step, increm, iter, status, resx, resy, resz

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5, 1, 1, CONVERGENT, -1.95, -2.01, .797
5, 2, 1, NO, -501., 1.165E+04, -23.9
5, 2, 2, NO, 55.8, 1.837E+03, 8.70
5, 2, 3, NO, 2.009E+03, 4.773E+04, -73.3
5, 2, 4, NO, -5.900E+03, 1.421E+05, -1.188E+03
5, 3, 1, NO, -4.536E+03, 6.141E+04, -1.037E+04
5, 3, 2, NO, -3.006E+03, 9.875E+04, 9.405E+03
5, 3, 3, NO, -1.403E+03, 3.734E+04, 7.156E+03
5, 3, 4, NO, -1.060E+03, 3.849E+04, 6.094E+03
5, 4, 1, NO, 6.643E+03, -2.364E+04, -2.149E+04
5, 4, 2, NO, 2.675E+03, 1.387E+04, 9.934E+03
5, 4, 3, NO, 6.852E+03, 4.447E+04, -8.885E+03
5, 4, 4, NO, 5.718E+03, 4.004E+04, -5.075E+03
5, 5, 1, NO, 5.362E+04, 4.655E+04, -1.447E+04
5, 5, 2, NO, 7.585E+04, -4.927E+04, -9.375E+03
5, 5, 3, NO, 7.161E+04, -5.363E+04, -1.469E+04
5, 5, 4, NO, 1.025E+05, -6.877E+04, -1.673E+04
5, 6, 1, NO, 5.770E+04, 6.932E+04, -3.396E+04
5, 6, 2, NO, 7.784E+04, 6.929E+04, 3.305E+04
5, 6, 3, NO, -5.588E+04, -6.666E+04, 5.215E+04
5, 6, 4, NO, 4.807E+04, 9.037E+04, 4.748E+04
5, 7, 1, NO, -3.891E+04, 4.059E+04, 3.605E+04
5, 7, 2, NO, -4.005E+04, -6.086E+04, -4.532E+04
5, 7, 3, NO, -6.552E+04, -5.376E+04, 3.225E+04
5, 7, 4, NO, -5.051E+04, 5.764E+04, 1.515E+04
5, 8, 1, NO, 4.249E+04, 4.088E+04, -2.831E+04
5, 8, 2, NO, -3.483E+04, 3.588E+04, -3.574E+04
5, 8, 3, NO, -3.046E+04, -3.969E+04, 2.010E+04
5, 8, 4, NO, 2.159E+04, 3.676E+04, -8.686E+03
5, 9, 1, NO, 5.581E+04, -6.466E+04, -5.572E+03
5, 9, 2, NO, 3.754E+04, -3.328E+04, -3.202E+04
5, 9, 3, NO, -2.752E+04, 2.848E+04, 3.042E+04
5, 9, 4, NO, -1.426E+04, 1.774E+04, 1.757E+04
5, 10, 1, NO, -3.052E+04, -3.497E+04, -2.915E+04
5, 10, 2, NO, -2.031E+04, -2.465E+04, 3.322E+04
5, 10, 3, NO, -3.285E+04, -1.860E+04, 1.613E+04
5, 10, 4, NO, -2.283E+04, -1.614E+04, -3.144E+04
5, 11, 1, NO, -4.525E+04, 1.925E+04, -2.914E+04
5, 11, 2, NO, -4.867E+04, 2.020E+04, -1.288E+04
5, 11, 3, NO, -2.399E+04, 9.316E+03, -5.684E+03
5, 11, 4, NO, -1.381E+04, 4.946E+03, -2.505E+03
5, 12, 1, NO, -4.758E+04, 2.583E+04, -1.018E+03
5, 12, 2, NO, 3.391E+04, -2.284E+04, 1.784E+03
5, 12, 3, NO, 3.879E+04, -4.020E+04, 1.544E+03
5, 12, 4, NO, 5.200E+04, -2.759E+04, 2.455E+03
5, 13, 1, NO, -3.014E+04, -3.886E+04, 2.642E+03
5, 13, 2, NO, -1.177E+04, 2.634E+04, -2.017E+03
5, 13, 3, NO, -2.058E+04, 6.667E+04, -1.339E+03
5, 13, 4, NO, -1.397E+04, 3.072E+04, 2.516E+04
5, 14, 1, NO, 2.331E+04, -4.277E+04, 1.954E+04
5, 14, 2, NO, 4.401E+04, -6.659E+04, 9.608E+03
5, 14, 3, NO, -2.284E+04, 3.492E+04, 4.305E+03
5, 14, 4, NO, 4.150E+04, 6.405E+04, 1.936E+03
5, 15, 1, NO, 3.506E+04, -2.344E+04, -753.
5, 15, 2, NO, 3.006E+04, -4.291E+04, 767.
5, 15, 3, NO, 2.704E+04, -3.770E+04, 868.
5, 15, 4, NO, 1.244E+04, -1.712E+04, 497.
5, 16, 1, NO, 1.203E+03, 1.368E+04, 626.
5, 16, 2, NO, 1.443E+04, 3.773E+04, 1.441E+03
5, 16, 3, NO, -9.495E+03, -2.475E+04, -1.030E+03
5, 16, 4, NO, -6.181E+03, -1.598E+04, -799.
5, 17, 1, NO, -3.360E+04, -3.778E+04, 1.514E+04
5, 17, 2, NO, -3.176E+04, 3.538E+04, 8.220E+03
5, 17, 3, NO, -6.617E+04, -3.246E+04, 9.347E+03
5, 17, 4, NO, -6.632E+04, 1.926E+04, 9.758E+03
5, 18, 1, NO, 5.779E+04, -2.125E+04, 1.236E+04
5, 18, 2, NO, -6.052E+04, 4.398E+04, 3.213E+04
5, 18, 3, NO, -5.036E+04, 4.574E+04, 1.536E+04
5, 18, 4, NO, -3.393E+04, 2.276E+04, 7.303E+03
5, 19, 1, NO, -5.527E+04, 4.971E+04, 2.359E+03
5, 19, 2, NO, 4.178E+04, 4.812E+04, 1.522E+03
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5, 19, 3, NO, -5.296E+04, 3.694E+04, 1.383E+03
 5, 19, 4, NO, -2.791E+04, 1.666E+04, 1.084E+03
 5, 20, 1, NO, 4.691E+04, -3.388E+04, -4.336E+03
 5, 20, 2, NO, 4.362E+04, 2.237E+04, 5.173E+03
 5, 20, 3, NO, 2.809E+04, 1.481E+04, 1.628E+04
 5, 20, 4, NO, -1.593E+04, 2.060E+04, 6.590E+03
 5, 21, 1, NO, -6.708E+04, 6.991E+04, 686.
 5, 21, 2, NO, -8.064E+04, 5.720E+04, -1.708E+03
 5, 21, 3, NO, -5.414E+04, 4.018E+04, 2.003E+03
 5, 21, 4, NO, -3.096E+04, 4.735E+04, -3.033E+04
 5, 22, 1, NO, 3.030E+04, -8.725E+04, 2.913E+04
 5, 22, 2, NO, -2.623E+04, -1.131E+05, 1.333E+04
 5, 22, 3, NO, -4.502E+04, 5.955E+04, 6.174E+03
 5, 22, 4, NO, -3.984E+04, -5.212E+04, 7.649E+03
 5, 23, 1, NO, 1.618E+04, -4.758E+04, -1.714E+04
 5, 23, 2, NO, -1.392E+04, -3.235E+04, 8.330E+03
 5, 23, 3, NO, -1.748E+04, -3.298E+04, 4.039E+03
 5, 23, 4, NO, -1.724E+04, -3.205E+04, 1.959E+03
 5, 24, 1, NO, -3.087E+04, -3.831E+04, 1.672E+03
 5, 24, 2, NO, 7.033E+04, -5.702E+04, 3.193E+03
 5, 24, 3, NO, -7.902E+04, 6.153E+04, -4.503E+03
 5, 24, 4, NO, -5.891E+04, 4.330E+04, 4.798E+03
 5, 25, 1, NO, 1.499E+04, 1.405E+04, 1.617E+04
 5, 25, 2, NO, 6.572E+03, -1.650E+04, -4.142E+03
 5, 25, 3, NO, -2.160E+04, -5.076E+04, -1.098E+03
 5, 25, 4, NO, -2.268E+04, -5.552E+04, -1.421E+03
 6, 1, 1, NO, -3.456E+04, 3.808E+04, -1.111E+03
 6, 1, 2, NO, 2.988E+04, 7.748E+04, 2.817E+03
 6, 1, 3, NO, 1.417E+04, 3.957E+04, 1.949E+03
 6, 2, 1, NO, 2.670E+03, 1.841E+04, 3.037E+03
 6, 2, 2, NO, -754., -8.606E+03, -2.262E+03
 6, 2, 3, NO, -1.109E+03, -4.280E+03, -1.478E+03
 6, 3, 1, NO, 2.684E+03, 1.490E+03, -1.255E+03
 6, 3, 2, NO, 128., -39.2, -44.6
 6, 3, 3, CONVERGENT, .704, .116, .371
 6, 4, 1, NO, 2.708E+03, 1.478E+03, 1.384E+03
 6, 4, 2, NO, 153., -39.7, -55.1
 6, 4, 3, CONVERGENT, .994, .165, .487
 6, 5, 1, NO, 2.729E+03, 1.466E+03, 1.385E+03
 6, 5, 2, NO, 162., -41.2, -59.8
 6, 5, 3, CONVERGENT, 1.14, .190, .515
 6, 6, 1, NO, 2.748E+03, 1.455E+03, 1.382E+03
 6, 6, 2, NO, 171., -44.0, -64.1
 6, 6, 3, CONVERGENT, 1.29, .217, .543
 6, 7, 1, NO, 2.763E+03, 1.445E+03, 1.376E+03
 6, 7, 2, NO, -553., 163., 1.511E+03
 6, 7, 3, CONVERGENT, -20.2, -7.08, 16.6
 6, 8, 1, NO, 3.225E+03, 1.664E+03, 2.934E+03
 6, 8, 2, NO, 271., 162., -130.
 6, 8, 3, CONVERGENT, 4.12, .914, -1.20
 6, 9, 1, NO, 3.239E+03, 1.693E+03, 2.934E+03
 6, 9, 2, NO, 283., 173., -134.
 6, 9, 3, CONVERGENT, 4.57, .991, -1.25
 6, 10, 1, NO, 3.253E+03, 1.720E+03, 2.937E+03
 6, 10, 2, NO, 292., 183., -138.
 6, 10, 3, CONVERGENT, 4.93, 1.05, -1.26
 step, increm, iter, status, resx, resy, resz

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step, increm, iter, status, resx, resy, resz

5, 1, 1, CONVERGENT, -10.3, -10.4, -1.68
5, 2, 1, CONVERGENT, -10.3, -10.4, -1.68
5, 3, 1, CONVERGENT, -10.3, -10.4, -1.68
5, 4, 1, CONVERGENT, -10.3, -10.4, -1.68
5, 5, 1, CONVERGENT, -10.3, -10.4, -1.68
5, 6, 1, CONVERGENT, -10.2, -10.4, -1.68
5, 7, 1, CONVERGENT, -10.2, -10.4, -1.67
5, 8, 1, CONVERGENT, -10.2, -10.4, -1.67
5, 9, 1, NO, 2.583E+03, -7.558E+03, -6.087E+04
5, 9, 2, NO, -2.013E+03, 6.502E+03, -6.609E+04
5, 9, 3, NO, -4.219E+03, 7.176E+03, -5.418E+04
5, 10, 1, NO, -6.908E+03, 1.235E+04, -6.192E+04
5, 10, 2, NO, -7.360E+03, 9.093E+03, -6.585E+04
5, 10, 3, NO, -4.391E+03, -4.257E+03, -5.270E+04
5, 11, 1, NO, -1.037E+04, -9.667E+03, -3.551E+04
5, 11, 2, NO, -2.470E+03, -2.232E+03, -1.417E+04
5, 11, 3, NO, -919., 682., 5.737E+03
5, 12, 1, CONVERGENT, 14.2, 13.4, 51.4
5, 13, 1, CONVERGENT, -8.94, -9.17, 17.8
5, 14, 1, NO, -76.0, 208., 257.
5, 14, 2, CONVERGENT, 1.962E-02, -2.105E-02, 8.220E-02
5, 15, 1, NO, -178., 487., 602.
5, 15, 2, CONVERGENT, -5.745E-02, -2.109E-02, 8.349E-02
5, 16, 1, NO, -179., 487., 601.
5, 16, 2, CONVERGENT, -5.815E-02, -2.104E-02, 8.317E-02
5, 17, 1, NO, -179., 487., 600.
5, 17, 2, CONVERGENT, -5.886E-02, -2.078E-02, 7.930E-02
5, 18, 1, NO, -627., -3.154E+03, 600.
5, 18, 2, NO, 2.280E+03, -1.146E+04, -1.033E+03
5, 18, 3, NO, -1.770E+03, 8.898E+03, -753.
5, 19, 1, NO, -2.994E+03, 1.505E+04, 599.
5, 19, 2, NO, 6.420E+03, -3.227E+04, 4.141E+03
5, 19, 3, NO, 6.825E+03, -3.431E+04, 8.167E+03
5, 20, 1, NO, -4.450E+03, 2.237E+04, -2.589E+03
5, 20, 2, NO, -1.671E+03, 8.402E+03, -1.169E+03
5, 20, 3, NO, -628., 3.158E+03, -516.
step, increm, iter, status, resx, resy, resz

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step, increm, iter, status, resx, resy, resz

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5, 1, 1, CONVERGENT, -3.15, -3.19, -.514
5, 2, 1, CONVERGENT, 3.16, -3.20, -.516
5, 3, 1, NO, 1.015E+04, -5.710E+03, -29.7
5, 3, 2, NO, 9.454E+03, -4.364E+03, -504.
5, 3, 3, NO, 8.405E+04, -4.687E+04, 2.284E+03
5, 3, 4, NO, 9.014E+04, -4.816E+04, -9.769E+03
5, 4, 1, NO, 7.754E+04, 5.992E+04, 2.219E+04
5, 4, 2, NO, 6.659E+04, -3.782E+04, 6.094E+04
5, 4, 3, NO, 5.438E+04, -2.107E+04, -4.577E+04
5, 4, 4, NO, -6.788E+04, 4.319E+04, 6.253E+04
5, 5, 1, NO, 5.797E+04, -2.474E+04, 4.130E+04
5, 5, 2, NO, -6.582E+04, 5.531E+04, -1.820E+04
5, 5, 3, NO, -5.211E+04, 2.867E+04, -7.971E+03
5, 5, 4, NO, 4.494E+04, 4.196E+04, -3.800E+03
5, 6, 1, NO, -4.432E+04, 3.743E+04, 2.393E+03
5, 6, 2, NO, -2.793E+04, 3.953E+04, 2.031E+03
5, 6, 3, NO, -2.682E+04, -3.354E+04, 1.263E+03
5, 6, 4, NO, 3.063E+04, -2.432E+04, -1.304E+03
5, 7, 1, NO, -3.670E+04, 2.663E+04, -1.714E+04
5, 7, 2, NO, -3.582E+04, 1.069E+04, 8.708E+03
5, 7, 3, NO, -1.753E+04, 1.228E+04, 6.230E+03
5, 7, 4, NO, -9.485E+03, -1.042E+04, -3.093E+04
5, 8, 1, NO, 4.346E+04, -4.709E+04, 291.
5, 8, 2, NO, 3.216E+04, -3.523E+04, 2.834E+03
5, 8, 3, NO, -4.797E+04, 5.131E+04, -1.314E+03
5, 8, 4, NO, -6.597E+04, 7.002E+04, 2.606E+03
5, 9, 1, NO, -2.621E+04, 2.807E+04, 2.670E+04
5, 9, 2, NO, -4.736E+04, -6.277E+04, 1.979E+04
5, 9, 3, NO, -4.633E+04, -1.009E+05, -1.430E+04
5, 9, 4, NO, 3.642E+04, -9.093E+04, -1.398E+04
5, 10, 1, NO, 1.484E+04, -6.255E+04, 3.001E+04
5, 10, 2, NO, 1.689E+04, -7.128E+04, -4.440E+04
5, 10, 3, NO, 1.238E+04, 5.422E+04, -2.241E+04
5, 10, 4, NO, 5.078E+03, 2.109E+04, -1.153E+04
5, 11, 1, NO, -3.068E+04, 4.675E+04, 3.048E+04
5, 11, 2, NO, -1.998E+04, 5.438E+04, 1.453E+04
5, 11, 3, NO, -1.050E+04, 2.444E+04, 7.047E+03
5, 11, 4, NO, -5.633E+03, 1.119E+04, 3.519E+03
5, 12, 1, NO, 7.282E+03, -4.165E+04, 2.974E+04
5, 12, 2, NO, -2.110E+04, -3.547E+04, -4.277E+04
5, 12, 3, NO, 2.061E+04, 3.681E+04, -2.110E+04
5, 12, 4, NO, 1.813E+04, 2.476E+04, -1.127E+04
5, 13, 1, NO, 3.743E+04, 4.508E+04, 530.
5, 13, 2, NO, 2.256E+04, 4.816E+04, -880.
5, 13, 3, NO, 1.285E+04, 2.198E+04, -805.
5, 13, 4, NO, -2.177E+04, 1.182E+04, -626.
5, 14, 1, NO, 3.364E+04, -4.714E+04, -3.079E+04
5, 14, 2, NO, 1.471E+04, 3.672E+04, -1.332E+04
5, 14, 3, NO, -3.055E+04, -1.876E+04, -5.709E+03
5, 14, 4, NO, -3.591E+04, 1.654E+04, -2.451E+03
5, 15, 1, NO, 1.133E+04, 1.672E+04, 555.
5, 15, 2, NO, -1.460E+04, 2.243E+04, 3.678E+03
5, 15, 3, NO, -1.034E+04, 1.569E+04, -1.477E+03
5, 15, 4, NO, -6.163E+03, 3.590E+04, 1.312E+03
5, 16, 1, NO, -3.274E+04, 5.422E+04, 2.515E+03
5, 16, 2, NO, 1.466E+04, 3.463E+04, 2.770E+03
5, 16, 3, NO, -1.190E+04, 2.226E+04, 3.531E+03
5, 16, 4, NO, 5.310E+04, 1.508E+04, 3.892E+03
5, 17, 1, NO, -2.038E+04, -3.620E+03, -1.936E+03
5, 17, 2, NO, 8.713E+03, -463., -1.530E+03
5, 17, 3, NO, 4.140E+03, 699., -1.102E+03
5, 17, 4, NO, 2.129E+03, 710., -740.
5, 18, 1, NO, 3.048E+04, 1.621E+04, -764.
5, 18, 2, NO, 1.373E+04, 7.139E+03, -287.
5, 18, 3, NO, 2.248E+04, 1.165E+04, 455.
5, 18, 4, NO, 9.919E+03, 5.053E+03, -170.
5, 19, 1, CONVERGENT, -37.5, -12.7, -5.18
5, 20, 1, NO, -1.826E+04, 1.621E+04, 5.500E+03
5, 20, 2, NO, 4.388E+03, -3.898E+03, 1.310E+03
5, 20, 3, NO, -1.055E+03, -937., 315.
5, 20, 4, NO, -7.813E+03, -7.123E+03, 829.

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5, 21, 1, NO, 4.276E+04, 3.321E+04, -1.623E+03
5, 21, 2, NO, -2.333E+04, 2.259E+04, -3.044E+04
5, 21, 3, NO, -2.051E+04, 1.365E+04, -1.302E+04
5, 21, 4, NO, 3.622E+04, -3.238E+04, -5.596E+03
5, 22, 1, NO, -3.718E+04, -4.707E+04, -1.909E+03
5, 22, 2, NO, 2.771E+04, 3.054E+04, 2.230E+04
5, 22, 3, NO, -1.735E+04, -4.979E+04, 8.659E+03
5, 22, 4, NO, 1.456E+04, -5.467E+04, -3.395E+03
5, 23, 1, NO, 3.606E+04, 5.659E+04, 2.466E+04
5, 23, 2, NO, -3.395E+04, 4.749E+04, 1.130E+04
5, 23, 3, NO, -2.165E+04, -2.585E+04, 5.285E+03
5, 23, 4, NO, -1.316E+04, 3.609E+04, 4.541E+03
5, 24, 1, NO, 6.456E+03, 2.127E+04, -2.792E+03
5, 24, 2, NO, 1.241E+03, 7.368E+03, -903.
5, 24, 3, NO, 237., 1.772E+03, -290.
5, 24, 4, NO, 44.9, 416., -91.5
5, 25, 1, NO, -4.156E+04, 4.229E+04, -1.217E+03
5, 25, 2, NO, -1.707E+04, 1.644E+04, -909.
5, 25, 3, NO, 1.791E+04, -2.036E+04, -661.
5, 25, 4, NO, -9.207E+03, 9.445E+03, -470.
5, 26, 1, NO, 2.021E+04, -9.433E+03, -1.598E+03
5, 26, 2, NO, 3.234E+04, -3.892E+04, 4.021E+03
5, 26, 3, NO, 3.001E+04, -3.585E+04, -4.239E+03
5, 26, 4, NO, 1.432E+04, -1.612E+04, -3.924E+03
5, 27, 1, NO, -1.057E+04, -3.722E+04, -313.
5, 27, 2, NO, 4.489E+03, 1.575E+04, -128.
5, 27, 3, NO, 4.919E+03, 1.735E+04, -71.6
5, 27, 4, NO, 3.604E+03, 1.270E+04, 63.5
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5, 28, 2, NO, 2.779E+04, -3.640E+04, 6.245E+03
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5, 30, 3, NO, 2.052E+04, -3.698E+04, -1.017E+04
5, 30, 4, NO, -2.662E+04, -2.450E+04, 2.854E+03
5, 31, 1, NO, 8.511E+03, -7.244E+03, 563.
5, 31, 2, NO, 2.582E+03, -2.101E+03, 198.
5, 31, 3, NO, 785., -612., 67.6
5, 31, 4, NO, 237., -179., 22.3
5, 32, 1, CONVERGENT, -5.01, 5.18, -2.06
5, 33, 1, NO, 2.225E+04, 2.581E+04, 1.552E+04
5, 33, 2, NO, 3.753E+04, -2.497E+04, 3.228E+03
5, 33, 3, NO, -3.352E+04, 2.242E+04, 671.
5, 33, 4, NO, 3.087E+04, -2.129E+04, 5.843E+03
5, 34, 1, NO, -3.637E+03, 2.523E+03, 924.
5, 34, 2, NO, -1.888E+04, 3.756E+03, -721.
5, 34, 3, NO, -1.217E+04, 2.418E+03, 437.
5, 34, 4, NO, -6.856E+03, 1.362E+03, 237.
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5, 35, 4, NO, -1.122E+04, 1.194E+04, -1.442E+03
5, 36, 1, NO, 4.114E+04, -3.346E+04, -479.
5, 36, 2, NO, -3.890E+04, -1.408E+04, 122.
5, 36, 3, NO, -1.677E+04, -5.911E+03, -33.8
5, 36, 4, NO, -8.130E+03, 1.945E+04, -216.
5, 37, 1, NO, 3.274E+04, -2.224E+04, 916.
5, 37, 2, NO, -6.820E+04, 5.613E+04, -2.700E+03
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5, 37, 4, NO, 5.258E+04, 4.060E+04, -3.126E+03
5, 38, 1, NO, 2.343E+04, -1.035E+04, 2.725E+04
5, 38, 2, NO, 1.012E+04, -4.458E+03, -1.187E+04
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5, 38, 4, NO, 1.884E+03, -829., -2.219E+03
5, 39, 1, CONVERGENT, -5.58, 5.29, 4.68
5, 40, 1, NO, -1.701E+04, 5.059E+04, -1.396E+03
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5, 40, 3, NO, -1.529E+04, 4.226E+04, 2.760E+03
5, 40, 4, NO, -1.001E+04, 1.656E+04, -2.729E+03
5, 41, 1, NO, -8.473E+03, -1.670E+04, 497.
5, 41, 2, NO, -1.986E+03, 7.026E+03, 1.595E+04

5, 41, 3, NO, 455., 2.248E+03, 3.710E+03
5, 41, 4, NO, 107., 717., 875.
5, 42, 1, CONVERGENT, -5.06, 5.28, 3.50
5, 43, 1, NO, 4.903E+04, 1.315E+04, -2.148E+04
5, 43, 2, NO, 6.108E+04, 1.723E+04, 9.077E+03
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5, 48, 4, NO, 1.145E+04, 1.285E+04, -3.896E+03
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5, 51, 4, NO, 8.899E+03, -4.796E+03, 156.
5, 52, 1, NO, -2.125E+04, -3.179E+04, -1.472E+04
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5, 53, 1, NO, -5.148E+03, -7.862E+03, -1.568E+04
5, 53, 2, NO, 1.147E+03, -2.718E+03, 3.539E+03
5, 53, 3, NO, 335., -937., 797.
5, 53, 4, NO, 116., -323., 179.
5, 54, 1, NO, -3.090E+03, 135., -1.606E+04
5, 54, 2, NO, 680., -29.5, 3.530E+03
5, 54, 3, NO, 149., -6.54, 776.
5, 54, 4, NO, 32.8, -1.44, 171.
5, 55, 1, CONVERGENT, -5.23, 5.49, 2.47
5, 56, 1, NO, 3.208E+04, -2.463E+04, 1.571E+03
5, 56, 2, NO, -1.370E+04, 1.043E+04, -895.
5, 56, 3, NO, 1.359E+04, -1.077E+04, 130.
5, 56, 4, NO, 9.995E+03, -7.931E+03, 1.582E+04
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5, 57, 2, NO, 3.200E+04, -2.847E+04, -808.
5, 57, 3, NO, -3.021E+04, -2.267E+04, -551.
5, 57, 4, NO, -1.524E+04, -1.764E+04, -470.
5, 58, 1, NO, -7.721E+03, -1.099E+04, 181.
5, 58, 2, NO, 3.265E+04, 4.687E+04, -592.
5, 58, 3, NO, 3.112E+04, 4.409E+04, -750.
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5, 59, 1, NO, 7.744E+03, -1.133E+04, -6.450E+03
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5, 61, 1, NO, 6.241E+03, -1.847E+03, 1.631E+04
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5, 61, 3, NO, 368., -108., -7.313E+03
5, 61, 4, NO, 114., -26.1, 7.320E+03

5, 62, 1, CONVERGENT, 8.22, 5.33, -8.69
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 5, 63, 4, NO, -8.098E+03, 1.272E+04, 681.
 5, 64, 1, NO, -163., 313., 6.442E+03
 5, 64, 2, NO, -207., -116., -7.511E+03
 5, 64, 3, NO, -129., 210., 7.397E+03
 5, 64, 4, NO, -150., -118., -7.579E+03
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 5, 65, 4, NO, -114., 113., 2.148E+03
 5, 66, 1, CONVERGENT, -5.15, 5.34, 2.80
 5, 67, 1, NO, 830., 1.431E+04, -616.
 5, 67, 2, NO, 2.139E+03, 6.170E+04, -2.417E+03
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 5, 67, 4, NO, 6.764E+03, 2.760E+04, 4.148E+03
 5, 68, 1, NO, 684., -871., 6.368E+03
 5, 68, 2, NO, 62.6, -528., 6.568E+03
 5, 68, 3, NO, -141., 727., 7.698E+03
 5, 68, 4, NO, -51.8, 231., 1.419E+03
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 5, 69, 2, NO, -4.753E+04, 3.501E+04, -1.022E+03
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 5, 73, 2, NO, -1.578E+03, 2.660E+03, 98.1
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 5, 73, 4, CONVERGENT, -75.1, 87.8, 4.21
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 5, 74, 3, NO, -2.101E+04, 3.088E+04, 7.506E+03
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 5, 76, 2, NO, 38.6, 21.6, -1.223E+03
 5, 76, 3, NO, 7.18, 4.02, -222.
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 5, 78, 1, NO, 67.4, -24.9, -6.170E+03
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 5, 79, 4, NO, -9.692E+03, 2.212E+04, 1.982E+03
 5, 80, 1, NO, 48.7, 114., -22.6
 5, 80, 2, CONVERGENT, -.209, -.320, 9.791E-02
 5, 81, 1, NO, 588., 1.134E+04, -370.
 5, 81, 2, NO, -202., 1.905E+03, 99.2
 5, 81, 3, NO, -63.0, 326., 27.1
 5, 81, 4, CONVERGENT, -18.9, 57.8, 7.58
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 5, 83, 3, NO, -1.264E+04, 1.600E+04, 7.706E+03

5, 83, 4, NO, -1.089E+04, 8.638E+03, 1.785E+03
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5, 85, 4, NO, 3.202E+03, 1.774E+04, 1.418E+03
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5, 86, 3, NO, -2.870E+04, 3.150E+04, 475.
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6, 15, 3, NO, -23.8, 120., 166.
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6, 17, 1, CONVERGENT, 3.41, -3.46, .581
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step, increm, iter, status, dispx, dispy, dispz

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 5, 59, 4, NO, 3.137E-03, 3.074E-03, -1.945E-02
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6, 19, 1, NO, 1.342E-02, -7.332E-03, -7.650E-02
6, 19, 2, CONVERGENT, 1.342E-02, -7.332E-03, -7.650E-02
6, 20, 1, CONVERGENT, 1.342E-02, -7.332E-03, -7.650E-02
step, increm, iter, status, dispX, dispY, dispZ

ATTACHMENT 4
SPREADSHEETS FOR DETERMINATION OF CONVERGENCE INDICATORS

Prepared by: Phillip R Keil 8/29/94
Date

Checked by: Steve Link 8/29/94
Date

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DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F1A											
			force				I	J	K	sqrt of	converge.
step	incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	I+J+K	indicator
4	1	1	NO	4.33E-03	-4.33E-03	-3.33E-02	5.66E-08	5.66E-08	3.88E-06	2.00E-03	2.74E-04
4	1	2	NO	4.56E-03	-4.56E-03	-3.53E-02	4.12E-08	4.12E-08	2.89E-06	1.72E-03	
4	1	3	NO	4.77E-03	-4.77E-03	-3.70E-02					
4	2	1	NO	1.24E-02	1.24E-02	-5.47E-02	1.01E-04	1.01E-04	4.67E-04	2.59E-02	5.59E-03
4	2	2	NO	2.24E-02	2.24E-02	-7.63E-02	5.51E-05	5.49E-05	3.01E-04	2.03E-02	
4	2	3	NO	2.98E-02	2.98E-02	-9.36E-02					
4	3	1	NO	8.62E-03	8.61E-03	-5.21E-02	1.32E-05	1.32E-05	3.42E-05	7.78E-03	-4.93E-03
4	3	2	NO	1.23E-02	1.22E-02	-5.80E-02	2.31E-05	2.34E-05	1.15E-04	1.27E-02	
4	3	3	NO	1.71E-02	1.71E-02	-6.87E-02					
4	4	1	NO	1.19E-02	1.28E-02	-5.74E-02	7.24E-06	5.66E-06	2.72E-05	6.34E-03	-1.11E-04
4	4	2	NO	1.46E-02	1.52E-02	-6.27E-02	2.69E-06	1.06E-06	3.78E-05	6.45E-03	
4	4	3	NO	1.62E-02	1.63E-02	-6.88E-02					
4	5	1	NO	4.33E-03	-4.26E-03	-4.12E-02					3.00E-03
4	5	2	CONVERGEN	4.32E-03	-4.26E-03	-4.12E-02					
4	6	1	CONVERGEN	4.53E-03	-4.53E-03	-3.57E-02					3.00E-03
4	7	1	NO	4.53E-03	-4.53E-03	-3.57E-02	5.78E-09	5.78E-09	1.85E-06	1.36E-03	1.20E-03
4	7	2	NO	4.45E-03	-4.45E-03	-3.70E-02	8.10E-11	8.10E-11	2.56E-08	1.61E-04	
4	7	3	NO	4.44E-03	-4.44E-03	-3.72E-02					
4	8	1	CONVERGEN	4.52E-03	-4.52E-03	-3.57E-02					3.00E-03
4	9	1	CONVERGEN	4.53E-03	-4.53E-03	-3.57E-02					3.00E-03
4	10	1	CONVERGEN	4.53E-03	-4.53E-03	-3.57E-02					3.00E-03
4	11	1	CONVERGEN	4.53E-03	-4.53E-03	-3.57E-02					3.00E-03
4	12	1	CONVERGEN	4.53E-03	-4.53E-03	-3.57E-02					3.00E-03
4	13	1	CONVERGEN	4.53E-03	-4.53E-03	-3.57E-02					3.00E-03
4	14	1	NO	4.53E-03	-4.60E-03	-3.58E-02	6.40E-11	6.72E-09	3.24E-08	1.98E-04	-1.77E-04
4	14	2	NO	4.54E-03	-4.68E-03	-3.60E-02	1.96E-10	2.46E-08	1.16E-07	3.75E-04	
4	14	3	NO	4.55E-03	-4.83E-03	-3.64E-02					
4	15	1	NO	4.54E-03	-4.74E-03	-3.62E-02					3.00E-03
4	15	2	CONVERGEN	4.55E-03	-4.74E-03	-3.62E-02					
4	16	1	CONVERGEN	4.53E-03	-4.54E-03	-3.57E-02					3.00E-03
4	17	1	NO	4.51E-03	-4.50E-03	-3.68E-02	9.00E-12	1.00E-12	1.30E-07	3.60E-04	2.62E-05

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F1A											
			force				I	J	K	sqrt of	converge.
step	incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	I+J+K	indicator
4	17	2	NO	4.51E-03	-4.50E-03	-3.72E-02	1.44E-10	2.40E-09	1.09E-07	3.34E-04	
4	17	3	NO	4.52E-03	-4.55E-03	-3.75E-02					
4	18	1	NO	4.27E-03	4.56E-03	-3.99E-02	1.62E-07	3.05E-06	4.75E-06	2.82E-03	8.68E-04
4	18	2	NO	4.67E-03	6.31E-03	-4.21E-02	1.72E-06	4.60E-07	1.64E-06	1.95E-03	
4	18	3	NO	5.98E-03	6.98E-03	-4.34E-02					
4	19	1	NO	5.78E-03	-4.62E-03	-3.75E-02	3.72E-09	1.96E-10	1.30E-07	3.65E-04	2.74E-04
4	19	2	NO	5.72E-03	-4.60E-03	-3.79E-02	3.24E-10	1.60E-11	8.10E-09	9.19E-05	
4	19	3	NO	5.70E-03	-4.60E-03	-3.79E-02					
4	20	1	CONVERGEN	4.54E-03	-4.54E-03	-3.59E-02					3.00E-03

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F1B											
			force				I	J	K	sqrt of	converge.
step	incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	I+J+K	indicator
6	1	1	NO	2.37E-02	-1.52E-02	-1.42E-01	3.99E-03	9.23E-04	6.40E-05	7.05E-02	7.02E-02
6	1	2	NO	-3.95E-02	1.52E-02	-1.50E-01	1.23E-07	2.50E-09	0.00E+00	3.54E-04	
6	1	3	NO	-3.98E-02	1.52E-02	-1.50E-01					
6	2	1	NO	2.36E-02	-1.52E-02	-1.42E-01	4.44E-03	1.03E-03	1.69E-04	7.51E-02	7.47E-02
6	2	2	NO	-4.30E-02	1.69E-02	-1.55E-01	1.30E-07	3.60E-09	0.00E+00	3.65E-04	
6	2	3	NO	-4.34E-02	1.68E-02	-1.55E-01					
6	3	1	NO	2.36E-02	-1.52E-02	-1.42E-01					3.00E-02
6	3	2	NO	-6.07E-02	-2.50E-02	-1.94E-01					
6	3	3	CONVERGEN	-6.21E-02	-2.62E-02	-1.96E-01					
6	4	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	4	2	NO	-6.39E-02	-2.81E-02	-2.00E-01					
6	4	3	CONVERGEN	-6.53E-02	-2.94E-02	-2.01E-01					
6	5	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	5	2	NO	-6.57E-02	-2.97E-02	-2.02E-01					
6	5	3	CONVERGEN	-6.71E-02	-3.11E-02	-2.04E-01					
6	6	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	6	2	NO	-6.73E-02	-3.12E-02	-2.04E-01					
6	6	3	CONVERGEN	-6.88E-02	-3.26E-02	-2.06E-01					
6	7	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	7	2	NO	-6.89E-02	-3.26E-02	-2.07E-01					
6	7	3	CONVERGEN	-7.46E-02	-3.83E-02	-2.28E-01					
6	8	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	8	2	NO	-8.15E-02	-4.51E-02	-2.61E-01					
6	8	3	CONVERGEN	9.01E-02	-4.91E-02	-2.66E-01					
6	9	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	9	2	NO	8.90E-02	-4.89E-02	-2.67E-01					
6	9	3	CONVERGEN	1.01E-01	-5.30E-02	-2.72E-01					
6	10	1	NO	2.37E-02	-1.52E-02	-1.42E-01					3.00E-02
6	10	2	NO	9.89E-02	-5.26E-02	-2.72E-01					
6	10	3	CONVERGEN	1.12E-01	-5.67E-02	-2.78E-01					

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F2												
			force					I	J	K	sqrt of	converge.
step	incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	I+J+K	I+J+K	indicator
5	1	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	2	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	3	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	4	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	5	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	6	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	7	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	8	1	CONVERGEN	4.13E-02	2.54E-02	-2.47E-01						3.00E-03
5	9	1	NO	4.13E-02	2.54E-02	-2.47E-01	1.60E-09	4.00E-10	0.00E+00	4.47E-05		-4.13E-05
5	9	2	NO	4.14E-02	2.54E-02	-2.47E-01	4.90E-09	2.50E-09	0.00E+00	8.60E-05		
5	9	3	NO	4.14E-02	2.55E-02	-2.47E-01						
5	10	1	NO	4.14E-02	2.55E-02	-2.47E-01	8.10E-09	4.41E-08	1.00E-06	1.03E-03		7.17E-04
5	10	2	NO	4.15E-02	2.58E-02	-2.48E-01	2.25E-08	7.29E-08	0.00E+00	3.09E-04		
5	10	3	NO	4.16E-02	2.60E-02	-2.48E-01						
5	11	1	NO	4.17E-02	2.60E-02	-2.47E-01	1.00E-08	7.29E-08	0.00E+00	2.88E-04		1.63E-04
5	11	2	NO	4.18E-02	2.63E-02	-2.47E-01	3.60E-09	1.21E-08	0.00E+00	1.25E-04		
5	11	3	NO	4.19E-02	2.64E-02	-2.47E-01						
5	12	1	CONVERGEN	4.14E-02	2.55E-02	-2.47E-01						3.00E-03
5	13	1	CONVERGEN	4.14E-02	2.55E-02	-2.47E-01						3.00E-03
5	14	1	NO	4.14E-02	2.55E-02	-2.47E-01						3.00E-03
5	14	2	CONVERGEN	4.15E-02	2.54E-02	-2.49E-01						
5	15	1	NO	4.14E-02	2.55E-02	-2.47E-01						3.00E-03
5	15	2	CONVERGEN	4.16E-02	2.54E-02	-2.51E-01						
5	16	1	NO	4.14E-02	2.55E-02	-2.47E-01						3.00E-03
5	16	2	CONVERGEN	4.16E-02	2.54E-02	-2.51E-01						
5	17	1	NO	4.14E-02	2.55E-02	-2.47E-01						3.00E-03

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F2											
			force				I	J	K	sqrt of	
step	incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	I+J+K	converge. indicator
5	17	2	CONVERGEN	4.16E-02	2.54E-02	-2.51E-01					
5	18	1	NO	4.14E-02	2.55E-02	-2.47E-01	6.25E-08	1.60E-09	1.60E-05	4.01E-03	4.00E-03
5	18	2	NO	4.16E-02	2.54E-02	-2.51E-01	1.00E-10	0.00E+00	0.00E+00	1.00E-05	
5	18	3	NO	4.16E-02	2.54E-02	-2.51E-01					
5	19	1	NO	4.13E-02	2.55E-02	-2.47E-01	5.29E-08	2.50E-09	1.60E-05	4.01E-03	3.96E-03
5	19	2	NO	4.16E-02	2.54E-02	-2.51E-01	2.50E-09	0.00E+00	0.00E+00	5.00E-05	
5	19	3	NO	4.15E-02	2.54E-02	-2.51E-01					
5	20	1	NO	4.13E-02	2.55E-02	-2.47E-01	4.41E-08	1.60E-09	1.60E-05	4.01E-03	3.99E-03
5	20	2	NO	4.15E-02	2.54E-02	-2.51E-01	4.00E-10	0.00E+00	0.00E+00	2.00E-05	
5	20	3	NO	4.15E-02	2.54E-02	-2.51E-01					

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F3											
			force				I	J	K	sqrt of	converge.
step	incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	I+J+K	indicator
6	1	1	CONVERGEN	0.01345	-0.007323	-0.07648					2.00E-05
6	2	1	NO	0.01342	-0.007332	-0.0765	0.00E+00	0.00E+00	1.00E-10	1.00E-05	-2.61E-05
6	2	2	NO	0.01342	-0.007332	-0.07649	4.00E-10	0.00E+00	9.00E-10	3.61E-05	
6	2	3	NO	0.01344	-0.007332	-0.07646					
6	3	1	NO	0.01347	-0.007331	-0.07644	1.00E-10	8.41E-10	2.50E-09	5.87E-05	2.73E-05
6	3	2	NO	0.01346	-0.00736	-0.07639	0.00E+00	8.10E-11	9.00E-10	3.13E-05	
6	3	3	NO	0.01346	-0.007369	-0.07636					
6	4	1	CONVERGEN	0.01344	-0.007337	-0.07646					2.00E-05
6	5	1	CONVERGEN	0.01342	-0.007332	-0.0765					2.00E-05
6	6	1	NO	0.01342	-0.007332	-0.0765	2.50E-09	4.00E-10	0.00E+00	5.39E-05	2.19E-05
6	6	2	NO	0.01347	-0.007312	-0.0765	9.00E-10	1.21E-10	0.00E+00	3.20E-05	
6	6	3	NO	0.0135	-0.007301	-0.0765					
6	7	1	NO	0.01351	-0.007295	-0.07651	4.00E-10	1.00E-12	4.00E-10	2.83E-05	1.40E-05
6	7	2	NO	0.01349	-0.007294	-0.07653	1.00E-10	4.00E-12	1.00E-10	1.43E-05	
6	7	3	NO	0.01348	-0.007292	-0.07654					
6	8	1	NO	0.01341	-0.007331	-0.0765	0.00E+00	9.00E-12	0.00E+00	3.00E-06	1.00E-06
6	8	2	NO	0.01341	-0.007334	-0.0765	0.00E+00	4.00E-12	0.00E+00	2.00E-06	
6	8	3	NO	0.01341	-0.007336	-0.0765					
6	9	1	NO	0.01342	-0.007335	-0.0765	1.00E-10	4.00E-12	0.00E+00	1.02E-05	9.20E-06
6	9	2	NO	0.01341	-0.007337	-0.0765	0.00E+00	1.00E-12	0.00E+00	1.00E-06	
6	9	3	NO	0.01341	-0.007338	-0.0765					
6	10	1	NO	0.01342	-0.007332	-0.0765	1.00E-10	4.00E-12	0.00E+00	1.02E-05	9.20E-06
6	10	2	NO	0.01341	-0.007334	-0.0765	0.00E+00	1.00E-12	0.00E+00	1.00E-06	
6	10	3	NO	0.01341	-0.007335	-0.0765					
6	11	1	NO	0.01342	-0.007332	-0.0765	1.00E-10	1.00E-12	1.00E-10	1.42E-05	1.42E-05
6	11	2	NO	0.01343	-0.007333	-0.07649	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
6	11	3	NO	0.01343	-0.007333	-0.07649					
6	12	1	NO	0.01343	-0.007333	-0.07649					2.00E-05
6	12	2	CONVERGEN	0.01343	-0.007333	-0.07649					
6	13	1	CONVERGEN	0.01342	-0.007332	-0.0765					2.00E-05
6	14	1	NO	0.01342	-0.007332	-0.0765	1.00E-10	1.00E-12	1.00E-10	1.42E-05	-6.40E-05
6	14	2	NO	0.01341	-0.007333	-0.07651	2.50E-09	1.60E-11	3.60E-09	7.82E-05	
6	14	3	NO	0.01336	-0.007337	-0.07657					
6	15	1	NO	0.01331	-0.007333	-0.07662	0.00E+00	1.00E-12	1.00E-10	1.00E-05	4.99E-08
6	15	2	NO	0.01331	-0.007332	-0.07663	1.00E-10	0.00E+00	0.00E+00	1.00E-05	
6	15	3	NO	0.01332	-0.007332	-0.07663					
6	16	1	CONVERGEN	0.01342	-0.007332	-0.0765					2.00E-05
6	17	1	CONVERGEN	0.01342	-0.007332	-0.0765					2.00E-05

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS PPS-F3												
			force					I	J	K	sqrt of	converge.
step	incr	iter	converge	disp-x	disp-y	disp-z		dx^2	dy^2	dz^2	I+J+K	indicator
6	18	1	NO	0.01342	-0.007332	-0.0765		1.00E-10	1.00E-12	0.00E+00	1.00E-05	3.45E-18
6	18	2	NO	0.01343	-0.007331	-0.0765		0.00E+00	1.00E-12	1.00E-10	1.00E-05	
6	18	3	NO	0.01343	-0.00733	-0.07649				.		
6	19	1	NO	0.01342	-0.007332	-0.0765						2.00E-05
6	19	2	CONVERGEN	0.01342	-0.007332	-0.0765						
6	20	1	CONVERGEN	0.01342	-0.007332	-0.0765						2.00E-05

ATTACHMENT 5
POSTPROCESSING INPUT AND OUTPUT FILES FOR PPS LOAD CASE 1A

Prepared by: Phillip R. Kish 8/29/94
Date

Checked by: Steven Luchik 8/29/94
Date

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PPS-F1AP.abdat

```
*** Restart pps-f1a.res to postprocess run of factored in situ loads
*** for local forces and moments
*POST OUTPUT, STEP=4
20
**
** elements along the positive 1-axis
*ELSET, ELSET=AXIS-P1
289, 290, 291, 293, 295, 298, 301
308, 305, 314, 312, 318, 317, 320
*ELSET, ELSET=AXIS-P1, GENERATE
1257, 1357, 4
**
** elements along the negative 1-axis
*ELSET, ELSET=AXIS-N1
1, 2, 4, 6, 9, 12, 16
23, 19, 28, 25, 31, 29, 32
*ELSET, ELSET=AXIS-N1, GENERATE
324, 424, 4
**
** elements along the positive 2-axis
*ELSET, ELSET=AXIS-P2
161, 162, 164, 166, 169, 172, 176
183, 179, 188, 185, 191, 189, 192
*ELSET, ELSET=AXIS-P2, GENERATE
844, 944, 4
**
*EL PRINT, ELSET=AXIS-P1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-N1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-P2, SUMMARY=NO
SF
```

PPS-F1AP.about

ABAQUS PRODUCTION VERSION 4-9-1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

DATE 26-Jun-94

TIME 20:12:56

PAGE 1

PPS-F1a.ABDAT (6/25/94), FACTORED LOAD CASE 1a WITH PPS SPECIFIC LIVE LOADS

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

STEP NUMBER 4 INCREMENT NUMBER 20

TIME COMPLETED DURING THIS STEP 1.00 FRACTION OF STEP IS 1.00
TOTAL ACCUMULATED TIME 4.00

E L E M E N T O U T P U T

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
289	1		-1137.	-1140.	-2.243	-4.791	1.690	639.3	490.3	.6584
290	1		-1085.	-1134.	-7.458	-27.05	4.915	107.6	400.9	70.22
291	1		-1078.	-1103.	.1550	-16.55	-5.966	41.84	131.0	1.097
293	1		-1144.	-1113.	3.597	8.790	-3.422	12.28	123.3	16.58
295	1		-1149.	-1113.	-2.255	1.892	-5.341	-4.208	15.19	1.039
298	1		-1268.	-1129.	4.564	13.83	-3.448	464.8	82.90	-19.01
301	1		-1308.	-1168.	-44.36	11.34	10.68	506.4	165.0	26.55

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
305	1		-8182.	-6019.	-56.69	89.60	-21.81	1850.	-6393.	569.9
308	1		-8051.	-4722.	-159.8	81.76	22.75	2356.	-4141.	35.63

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
312	1		-8646.	-7413.	-79.63	62.37	31.28	-2795.	-9434.	575.8
314	1		-8509.	-6091.	-190.4	73.51	-3.572	-2362.	-7022.	143.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
317	1		-9237.	-9156.	-7.225	119.7	1.925	-9213.	-1.4829E+04	899.2
318	1		-9059.	-7768.	-119.2	114.5	64.44	-8369.	-1.0582E+04	57.75

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
320	1		-8986.	-8809.	-21.03	-28.76	-13.73	-1.5706E+04	-1.5540E+04	8.617

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1257	1		-1364.	-1202.	50.50	-6.389	-6.7235E-02	547.0	193.5	-12.83
1261	1		-1389.	-1193.	-41.85	-13.04	1.167	102.5	132.4	9.223
1265	1		-1400.	-1180.	60.84	33.97	-3.629	659.2	216.3	-7.958

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1269	1		-1458.	-1213.	-66.50	-61.80	-4.465	-97.17	56.11	27.23
1273	1		-1471.	-1168.	110.6	55.50	-62.23	41.86	7.314	35.38

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1277	1		-1383.	-1115.	-39.36	-150.6	-55.77	-2121.	-443.1	36.55

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1281	1		-2176.	-796.1	16.89	971.8	48.50	1.9824E+04	-2707.	-790.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1285	1		1595.	-4139.	82.76	58.74	761.3	3826.	2.1857E+04	-570.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1289	1		626.8	-4012.	-178.2	14.98	531.5	956.6	7080.	85.12

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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1293 1 -337.1 -3935. 104.7 -2.781 364.2 -416.5 -2610. -207.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1297	1		-1245.	-3936.	-34.17	-9.600	185.3	-1444.	-1.0316E+04	220.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1301	1		-1998.	-3834.	-21.61	-9.399	57.38	-2035.	-1.3744E+04	-281.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1305	1		-330.8	-3778.	11.80	-13.61	-107.3	-1673.	-1.3075E+04	436.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1309	1		3502.	-3787.	19.61	-9.242	-419.1	-676.5	-5859.	-339.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1313	1		851.4	-3702.	-106.7	18.79	-810.7	-44.00	1.1336E+04	-288.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1317	1		-2209.	3844.	-3398.	-856.5	-406.4	2.9613E+04	1.0356E+04	1.0265E+04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1321	1		-3654.	1.0599E+04	-1872.	-944.1	-189.5	5.6311E+04	2.9913E+04	4999.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1325	1		-3753.	9092.	-316.9	1329.	35.36	5.3806E+04	2.1322E+04	2249.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1329	1		-3732.	5460.	-48.21	908.3	24.84	2.4443E+04	-2530.	1331.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1333	1		-4285.	395.5	-832.0	538.9	34.08	1459.	-2626.	-1044.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1337	1		-5456.	1817.	-418.5	249.2	23.94	-1.1761E+04	-1523.	-36.43

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1341	1		-5989.	469.2	-172.7	-3.921	-14.87	-1.5831E+04	-7387.	372.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1345	1		-6300.	-1996.	-110.9	-177.5	-20.29	-1.2964E+04	-7708.	-556.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1349	1		-6763.	-3529.	-185.5	-199.5	-8.108	-6108.	-4718.	162.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1353	1		-7345.	-4236.	-89.26	-125.0	-1.886	1110.	-4216.	81.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1357	1		-1133.	-789.4	-269.0	-307.4	114.2	4940.	-4438.	1290.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1	1		-1136.	-1143.	.6189	5.548	-.2404	634.9	489.5	.3828
2	1		-1086.	-1136.	5.521	26.39	3.420	103.3	400.9	-66.79
4	1		-1080.	-1108.	.2371	14.30	-.3641	38.90	148.8	1.758
6	1		-1146.	-1117.	-3.052	-9.935	-2.144	30.00	144.4	-11.28
9	1		-1150.	-1117.	1.846	-5.140	4.192	20.80	50.44	-4.381
12	1		-1268.	-1133.	-4.869	-11.69	.8099	473.6	115.4	11.95
16	1		-1308.	-1171.	43.93	-12.61	7.860	508.9	171.7	-26.94

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
19	1		-8181.	-6016.	57.00	-82.56	-3.226	1864.	-6379.	-566.6
23	1		-8051.	-4720.	158.7	-82.37	-1.363	2367.	-4136.	-36.65

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
25	1		-8642.	-7410.	78.71	-64.78	50.59	-2761.	-9420.	-577.2
28	1		-8501.	-6087.	193.1	-80.09	-25.47	-2325.	-7005.	-142.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
29	1		-9235.	-9155.	18.57	-116.0	34.59	-9235.	-1.4873E+04	-911.0
31	1		-9063.	-7767.	121.2	-113.7	34.56	-8378.	-1.0573E+04	-57.12

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
32	1		-8980.	-8806.	28.24	34.40	3.658	-1.5756E+04	-1.5588E+04	-13.55

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
324	1		-1362.	-1203.	-50.13	5.560	-.3483	539.6	194.4	11.88
328	1		-1388.	-1193.	41.96	13.43	.9666	104.4	131.7	-9.102
332	1		-1399.	-1180.	-60.96	-34.13	-3.816	656.7	215.4	7.972

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
336	1		-1458.	-1213.	66.45	61.82	-4.515	-96.95	56.18	-26.96
340	1		-1470.	-1168.	-110.6	-55.51	-62.19	41.91	7.825	-35.40

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
344	1		-1382.	-1115.	39.41	150.6	-55.74	-2121.	-442.8	-36.68

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
348	1		-2176.	-796.2	-16.84	-971.8	48.51	1.9824E+04	-2706.	789.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
352	1		1595.	-4139.	-82.82	-58.74	761.3	3826.	2.1857E+04	571.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
356	1		626.7	-4012.	178.2	-14.97	531.5	956.5	7079.	-85.13

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
360	1		-337.2	-3935.	-104.8	2.784	364.2	-416.7	-2610.	207.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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364 1 -1245. -3936. 34.17 9.603 185.3 -1444. -1.0316E+04 -220.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
368	1		-1998.	-3833.	21.59	9.399	57.37	-2036.	-1.3744E+04	281.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
372	1		-331.0	-3778.	-11.81	13.61	-107.3	-1673.	-1.3075E+04	-436.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
376	1		3502.	-3786.	-19.62	9.242	-419.0	-676.5	-5858.	338.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
380	1		851.3	-3702.	106.7	-18.79	-810.7	-44.00	1.1336E+04	288.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
384	1		-2209.	3843.	3398.	856.4	-406.3	2.9612E+04	1.0355E+04	-1.0264E+04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
388	1		-3653.	1.0598E+04	1872.	944.0	-189.5	5.6309E+04	2.9910E+04	-4999.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
392	1		-3753.	9091.	316.8	-1329.	35.36	5.3802E+04	2.1319E+04	-2250.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
396	1		-3732.	5459.	48.22	-908.3	24.84	2.4440E+04	-2530.	-1331.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
400	1		-4284.	395.2	831.8	-538.9	34.07	1456.	-2627.	1044.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
404	1		-5456.	1816.	418.5	-249.2	23.93	-1.1763E+04	-1523.	36.66

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
408	1		-5989.	468.5	172.6	3.878	-14.85	-1.5835E+04	-7386.	-372.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
412	1		-6299.	-1996.	110.8	177.5	-20.26	-1.2970E+04	-7707.	556.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
416	1		-6762.	-3528.	185.4	200.0	-8.231	-6108.	-4710.	-160.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
420	1		-7345.	-4235.	89.51	124.6	-2.266	1112.	-4206.	-81.32

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
424	1		-1133.	-789.7	269.0	307.3	114.2	4940.	-4438.	-1290.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
161	1		-1142.	-1136.	-1.304	-1.698	5.030	637.1	489.7	.2384
162	1		-1134.	-1086.	-6.329	-4.187	26.37	547.4	-31.73	68.87
164	1		-1105.	-1079.	7.2911E-02	1.320	14.37	281.0	-95.90	.2915
166	1		-1115.	-1146.	3.138	2.800	-9.193	275.1	-115.9	14.30
169	1		-1115.	-1150.	-1.908	1.676	-3.863	173.0	-129.3	2.561
172	1		-1131.	-1268.	4.975	1.506	-14.46	240.2	324.5	-15.88
176	1		-1170.	-1308.	-43.31	-3.616	-11.58	311.0	353.3	15.59

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
179	1		-6018.	-8177.	-51.83	-2.931	82.55	-6373.	1902.	549.9
183	1		-4708.	-8050.	-149.6	-2.211	82.57	-4211.	2432.	-20.28

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
185	1		-7411.	-8642.	-77.63	51.86	64.28	-9364.	-2708.	568.7
188	1		-6090.	-8502.	-190.6	-24.94	79.48	-6996.	-2280.	141.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
189	1		-9157.	-9233.	-15.51	29.05	115.4	-1.4952E+04	-9127.	906.6
191	1		-7768.	-9059.	-120.7	36.31	112.0	-1.0656E+04	-8282.	56.64

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
192	1		-8808.	-8979.	-24.17	.9345	-32.71	-1.5676E+04	-1.5599E+04	15.80

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
844	1		-1202.	-1363.	49.39	.2373	5.745	337.1	395.3	-8.202
848	1		-1193.	-1389.	-41.45	-1.107	13.36	273.3	-44.56	6.296
852	1		-1179.	-1400.	59.95	3.689	-34.06	358.5	508.9	-5.742

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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856	1	-1212.	-1459.	-65.57	4.461	61.60	196.1	-242.6	25.15
860	1	-1165.	-1472.	109.2	62.13	-55.57	146.9	-96.67	36.77

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
864	1		-1112.	-1385.	-38.32	55.60	149.0	-309.9	-2223.	35.99

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
868	1		-798.6	-2178.	13.86	-50.64	-973.4	-2711.	1.9817E+04	-758.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
872	1		1594.	-4140.	-71.41	-61.10	761.6	3863.	2.1855E+04	191.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
876	1		629.6	-4015.	156.6	-14.42	531.9	922.7	7071.	334.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
880	1		-339.3	-3936.	-89.44	2.265	363.8	-373.1	-2599.	-109.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
884	1		-1243.	-3935.	22.69	7.214	185.9	-1537.	-1.0292E+04	222.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
888	1		-1992.	-3840.	23.27	15.39	57.83	-1996.	-1.3699E+04	-176.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
892	1		-327.2	-3791.	-21.00	7.890	-101.2	-2073.	-1.3111E+04	206.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
896	1		3472.	-3825.	-44.67	-7.461	-409.2	-975.5	-5949.	-395.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
900	1		841.5	-3738.	134.7	1.188	-809.0	202.4	1.1241E+04	78.20

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
904	1		5346.	-3777.	-85.68	-71.31	-966.0	6010.	3.4109E+04	280.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
908	1		1.0846E+04	-3948.	-174.5	-76.73	-971.0	2.8951E+04	5.7394E+04	-83.43

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
912	1		9191.	-3796.	-174.7	24.72	1337.	2.1429E+04	5.4100E+04	1872.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
916	1		5454.	-3759.	16.02	16.76	911.1	-2387.	2.4513E+04	1041.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3

920 1 370.0 -4309. -788.2 30.08 538.0 -2499. 1369. -1043.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
924	1		1774.	-5461.	-380.5	21.17	253.0	-1714.	-1.1864E+04	51.63

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
928	1		437.4	-6048.	-177.1	-15.57	7.1443E-02	-7206.	-1.5955E+04	401.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
932	1		-1910.	-6374.	-68.23	-21.17	-178.3	-7800.	-1.3029E+04	-440.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
936	1		-3515.	-6762.	-168.3	-7.742	-202.6	-4897.	-6082.	87.15

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
940	1		-4262.	-7341.	-92.24	-1.671	-125.6	-4178.	1166.	123.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
944	1		-788.0	-1131.	-270.9	-115.7	308.0	-4420.	4926.	1348.

THE ANALYSIS HAS BEEN COMPLETED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 6
POSTPROCESSING INPUT AND OUTPUT FILES FOR PPS LOAD CASE 1B

Prepared by: Phillip R. Keith 8/29/94
Date

Checked by: James L. Dik 8/29/94
Date

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PPS-F1BP.abdat	A Att6-2
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PPS-F1BP.abdat

```
*** Restart pps-f1b.res to postprocess run of factored in situ loads
*** for local forces and moments
*POST OUTPUT, STEP=6
10
**
** elements along the positive 1-axis
*ELSET, ELSET=AXIS-P1
289, 290, 291, 293, 295, 298, 301
308, 305, 314, 312, 318, 317, 320
*ELSET, ELSET=AXIS-P1, GENERATE
1257, 1357, 4
**
** elements along the negative 1-axis
*ELSET, ELSET=AXIS-N1
1, 2, 4, 6, 9, 12, 16
23, 19, 28, 25, 31, 29, 32
*ELSET, ELSET=AXIS-N1, GENERATE
324, 424, 4
**
** elements along the positive 2-axis
*ELSET, ELSET=AXIS-P2
161, 162, 164, 166, 169, 172, 176
183, 179, 188, 185, 191, 189, 192
*ELSET, ELSET=AXIS-P2, GENERATE
844, 944, 4
**
*EL PRINT, ELSET=AXIS-P1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-N1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-P2, SUMMARY=NO
SF
```

PPS-F1BP.about

ABAQUS PRODUCTION VERSION 4-9-1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

DATE 26-Jun-94

TIME 20:26:08

PAGE 1

PPS-F1b.ABDAT (6/25/94), FACTORED LOAD CASE 1b WITH PPS SPECIFIC LIVE LOADS STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

STEP NUMBER 6 INCREMENT NUMBER 10

TIME COMPLETED DURING THIS STEP 1.00 FRACTION OF STEP IS 1.00
TOTAL ACCUMULATED TIME 6.00

E L E M E N T O U T P U T

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
289	1		-1167.	-1110.	-1.559	-5.096	1.334	637.6	485.8	.4768
290	1		-1122.	-1104.	-7.034	-26.64	4.723	109.6	396.9	69.43
291	1		-1114.	-1069.	.3869	-16.16	-5.540	44.59	129.7	.9759
293	1		-1183.	-1079.	3.382	8.856	-3.212	21.07	122.9	16.24
295	1		-1188.	-1075.	-2.459	2.117	-4.463	5.674	14.98	2.037
298	1		-1308.	-1091.	3.295	11.79	-3.134	457.2	80.05	-16.89
301	1		-1351.	-1122.	-48.80	10.76	12.05	500.8	156.5	31.26

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
305	1		-6065.	-5492.	4.716	-11.33	3.762	-1439.	-917.4	-44.99
308	1		-6093.	-5227.	55.04	-10.04	-7.411	-1604.	-1436.	149.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
312	1		-6064.	-5451.	-14.65	-37.01	16.47	-80.78	-380.2	-106.4
314	1		-6074.	-5501.	-4.024	-31.89	-3.072	-213.5	-727.3	48.55

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
317	1		-6203.	-6059.	20.61	28.68	1.357	382.5	-822.0	191.5
318	1		-6161.	-5703.	-1.286	27.59	23.09	556.1	-308.8	-28.09

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
320	1		-5966.	-5786.	10.33	-21.51	-6.940	-1145.	-1132.	13.73

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1257	1		-1413.	-1155.	54.17	-5.513	-.4759	545.6	186.7	-15.00
1261	1		-1450.	-1135.	-46.47	-13.68	.8233	102.1	126.0	10.55
1265	1		-1472.	-1121.	65.05	34.64	-3.817	660.9	211.9	-9.649

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1269	1		-1548.	-1136.	-73.45	-62.22	-4.221	-94.04	54.78	27.06
1273	1		-1574.	-1091.	115.8	55.49	-62.60	35.85	6.652	34.98

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1277	1		-1497.	-1009.	-47.04	-150.6	-55.06	-2126.	-448.4	38.52

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1281	1		-2318.	-397.7	25.91	998.1	44.96	2.0613E+04	-2455.	-725.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1285	1		2036.	-4280.	174.7	58.12	799.8	3873.	2.2551E+04	-308.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1289	1		822.2	-4171.	-266.9	13.52	542.7	912.9	7128.	-183.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
---------	----	---------------	-----	-----	-----	-----	-----	-----	-----	-----

1293 1 -112.6 -4163. 251.4 -1.325 356.3 -355.2 -2538. 47.28

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1297	1		-1211.	-4203.	-148.8	-4.177	166.9	-1397.	-9885.	-75.57

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1301	1		-1968.	-4200.	228.7	-4.190	54.42	-1814.	-1.2957E+04	76.48

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1305	1		-901.3	-4132.	-247.7	-.8439	-107.4	-1787.	-1.2199E+04	-105.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1309	1		3086.	-4114.	276.7	3.845	-351.7	-935.8	-5778.	120.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1313	1		1033.	-4307.	117.4	14.03	-816.1	1.523	1.0798E+04	-124.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1317	1		-2833.	3728.	-3553.	-885.7	-444.5	2.9176E+04	1.0356E+04	1.1185E+04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1321	1		-4173.	8909.	-1767.	-904.3	-90.82	5.7462E+04	2.5371E+04	4774.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1325	1		-4492.	1.0443E+04	-991.6	1561.	13.77	5.1027E+04	4993.	-348.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1329	1		-5347.	2388.	-387.3	942.7	40.30	1.7500E+04	-7197.	1244.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1333	1		-5356.	2436.	3.839	526.3	18.68	-4088.	6414.	983.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1337	1		-5336.	1089.	-356.0	372.3	45.58	-1.8456E+04	-1.2750E+04	-1491.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1341	1		-5771.	-2357.	-55.03	-66.82	45.23	-2.4792E+04	-1.3008E+04	-194.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1345	1		-6264.	-4482.	-136.6	-420.9	-6.233	-1.6901E+04	-8810.	-1059.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1349	1		-6249.	-4851.	98.75	-182.7	-19.25	-6381.	-3704.	-184.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1353	1		-6061.	-5269.	-80.19	-45.52	-11.72	-2566.	-2208.	-238.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1357	1		-1188.	24.83	-242.7	-317.7	113.4	5038.	-3477.	1239.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1	1		-1163.	-1120.	.6072	5.479	-.3685	640.7	489.7	.3978
2	1		-1109.	-1113.	5.352	26.63	3.416	105.3	400.6	-67.09
4	1		-1104.	-1088.	.5924	14.45	-.5161	40.59	147.9	1.834
6	1		-1166.	-1098.	-2.977	-9.953	-2.210	29.33	143.3	-11.32
9	1		-1171.	-1100.	2.104	-5.128	4.059	20.02	49.11	-4.316
12	1		-1287.	-1116.	-5.275	-12.13	.7423	477.5	114.8	12.19
16	1		-1326.	-1159.	41.34	-12.47	7.382	511.6	171.7	-25.48

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
19	1		-5900.	-5612.	25.13	17.07	3.714	-2456.	-982.1	57.95
23	1		-5892.	-5449.	25.79	15.66	-3.082	-2617.	-1487.	-128.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
25	1		-5943.	-5548.	31.37	33.07	16.37	-760.6	-514.9	87.54
28	1		-5958.	-5625.	16.03	33.17	9.390	-872.8	-741.7	-46.68

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
29	1		-6150.	-6108.	-11.68	-23.52	5.357	-26.97	-844.4	-149.4
31	1		-6116.	-5813.	5.080	-18.40	25.66	106.6	-411.2	14.33

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
32	1		-5949.	-5835.	-5.564	28.55	-.5718	-1264.	-1117.	-.8216

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
324	1		-1377.	-1189.	-47.73	5.713	-.3275	541.6	194.4	11.30
328	1		-1399.	-1186.	39.61	13.31	.9194	106.1	131.4	-8.885
332	1		-1407.	-1171.	-57.79	-33.95	-3.924	657.7	215.0	7.787

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
336	1		-1461.	-1212.	63.13	61.63	-4.634	-95.77	55.35	-27.17
340	1		-1471.	-1166.	-105.9	-54.97	-61.51	34.24	8.060	-33.70

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
344	1		-1385.	-1125.	35.63	147.5	-54.86	-2072.	-433.1	-37.73

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
348	1		-2171.	-842.1	-10.32	-955.9	51.05	1.9529E+04	-2704.	785.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
352	1		1533.	-4031.	-34.63	-56.89	757.5	3820.	2.1998E+04	382.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
356	1		654.8	-3930.	44.14	-14.46	527.9	949.7	7313.	92.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
360	1		-354.4	-3833.	2.187	3.019	358.7	-378.6	-2260.	76.50

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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364	1	-1220.	-3871.	-125.7	8.315	176.7	-1449.	-9761.	-36.72
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THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
368	1		-2200.	-3775.	169.1	11.79	49.93	-1957.	-1.2943E+04	98.65

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
372	1		-616.2	-3836.	-312.7	8.585	-103.5	-1757.	-1.2155E+04	-167.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
376	1		1690.	-3806.	320.6	.8266	-355.1	-983.2	-5723.	188.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
380	1		3817.	-3372.	213.2	-3.392	-770.1	794.8	9877.	-44.83

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
384	1		-2028.	2166.	3133.	883.0	-430.7	2.7586E+04	9126.	-1.1228E+04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
388	1		-3716.	9516.	1227.	884.3	-107.3	5.5094E+04	2.6819E+04	-5433.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
392	1		-3687.	9545.	958.0	-1307.	85.92	5.1411E+04	1.9495E+04	-364.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
396	1		-4389.	2228.	257.3	-939.9	18.46	2.1032E+04	-5976.	-1514.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
400	1		-4398.	2426.	11.74	-564.2	-8.541	-2197.	7290.	-155.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
404	1		-4800.	1893.	580.2	-175.4	1.745	-1.4628E+04	-1.2328E+04	1358.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
408	1		-5376.	-1060.	54.69	61.22	.2701	-1.7492E+04	-8464.	-30.00

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
412	1		-5486.	-3545.	90.06	163.8	-8.159	-1.3857E+04	-6599.	587.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
416	1		-5660.	-4856.	41.79	132.8	-7.740	-8998.	-4047.	60.58

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
420	1		-5764.	-5258.	23.68	99.15	-8.419	-4892.	-2461.	248.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
424	1		-1149.	-963.8	270.3	282.2	117.1	4566.	-4692.	-1383.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
161	1		-1171.	-1110.	-2.280	-2.204	4.972	638.5	487.9	1.661
162	1		-1164.	-1059.	-5.680	-4.382	26.26	549.2	-32.46	69.96
164	1		-1134.	-1053.	-.6569	1.476	14.39	283.2	-96.81	1.062
166	1		-1144.	-1119.	3.190	2.826	-9.136	277.4	-116.4	14.66
169	1		-1143.	-1124.	-3.155	1.644	-3.948	174.8	-129.7	2.966
172	1		-1160.	-1241.	5.347	1.436	-12.18	241.2	318.9	-15.28
176	1		-1196.	-1282.	-43.76	-7.746	-13.38	312.9	356.2	27.36

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
179	1		-5734.	-5784.	18.63	11.14	-18.85	-988.4	-2595.	-107.8
183	1		-5397.	-5782.	33.58	-.3607	-17.31	-1092.	-2570.	-141.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
185	1		-5684.	-5806.	-3.583	22.15	-34.23	-529.3	-739.5	-108.4
188	1		-5746.	-5822.	14.52	16.44	-35.74	-722.6	-841.0	14.28

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
189	1		-6272.	-5976.	25.62	17.61	21.43	-888.0	88.99	150.5
191	1		-5952.	-5948.	22.68	32.06	16.36	-419.2	227.2	-19.03

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
192	1		-5990.	-5770.	16.65	6.354	-28.10	-1154.	-1094.	14.27

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
844	1		-1233.	-1337.	48.92	.2321	5.664	339.2	393.1	-12.36
848	1		-1219.	-1361.	-39.68	-1.143	13.37	275.4	-44.59	10.09
852	1		-1209.	-1374.	62.23	3.645	-34.04	361.3	506.8	-8.295

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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856	1	-1239.	-1430.	-59.87	4.427	61.50	200.0	-242.0	28.14
860	1	-1197.	-1445.	116.1	62.02	-55.55	149.0	-94.17	35.10

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
864	1		-1143.	-1356.	-28.92	56.34	149.2	-307.6	-2223.	39.80

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
868	1		-916.7	-2150.	29.60	-50.88	-968.0	-2794.	1.9651E+04	-838.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
872	1		1487.	-4109.	15.35	-61.19	749.6	3885.	2.1792E+04	392.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
876	1		611.5	-3981.	218.4	-16.57	521.8	979.3	7262.	101.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
880	1		-436.2	-3843.	-39.96	.5170	355.6	-298.6	-2219.	62.07

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
884	1		-1222.	-3884.	124.2	6.571	176.4	-1388.	-9640.	39.48

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
888	1		-2456.	-3578.	-31.89	10.43	56.26	-1931.	-1.2872E+04	39.39

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
892	1		-307.9	-3597.	165.5	6.206	-90.83	-1896.	-1.2493E+04	2.649

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
896	1		2626.	-4053.	-11.43	-.5760	-376.3	-962.9	-5759.	-43.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
900	1		2050.	-3758.	164.3	-7.921	-782.8	590.8	1.0119E+04	-37.85

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
904	1		4441.	-3774.	-104.0	-34.75	-942.6	5100.	3.2779E+04	242.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
908	1		9511.	-3964.	-414.5	-74.52	-882.6	2.3956E+04	5.4275E+04	78.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
912	1		9746.	-4073.	-665.2	28.10	1285.	1.9063E+04	4.9434E+04	2313.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
916	1		2877.	-4998.	-520.7	-40.74	912.6	-1992.	2.1285E+04	928.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
---------	----	---------------	-----	-----	-----	-----	-----	-----	-----	-----

920 1 3437. -4363. 335.7 -59.00 549.0 399.8 -740.4 1160.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
924	1		-63.80	-4902.	562.0	-22.53	187.0	-3027.	-1.3900E+04	-1304.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
928	1		-655.5	-5278.	-174.8	19.49	-59.53	-8938.	-1.7308E+04	-1242.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
932	1		-3827.	-5371.	-138.5	11.48	-167.9	-7041.	-1.4185E+04	92.25

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
936	1		-4657.	-5701.	12.17	-2.613	-131.6	-3548.	-9157.	-496.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
940	1		-5495.	-5689.	-30.33	-2.253	-100.9	-2937.	-5106.	-33.40

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
944	1		-1018.	-1133.	-315.7	-118.6	304.0	-4700.	4850.	1310.

THE ANALYSIS HAS BEEN COMPLETED

END OF RUN

RUN SUMMARY:

TOTAL OF	0	INCREMENTS
	0	CUTBACKS IN AUTOMATIC INCREMENTATION
	0	ITERATIONS
	0	PASSES THROUGH THE EQUATION SOLVER OF WHICH
	0	REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 7
POSTPROCESSING INPUT AND OUTPUT FILES FOR PPS LOAD CASE 2

Prepared by: Phillip R. Yeh 8/29/94
Date

Checked by: [Signature] 8/29/94
Date

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PPS-F2P.abdat

```
*** Restart pps-f2.res to postprocess run of factored in situ loads
*** for local forces and moments
*POST OUTPUT, STEP=5
20
**
** elements along the positive 1-axis
*ELSET, ELSET=AXIS-P1
289, 290, 291, 293, 295, 298, 301
308, 305, 314, 312, 318, 317, 320
*ELSET, ELSET=AXIS-P1, GENERATE
1257, 1357, 4
**
** elements along the negative 1-axis
*ELSET, ELSET=AXIS-N1
1, 2, 4, 6, 9, 12, 16
23, 19, 28, 25, 31, 29, 32
*ELSET, ELSET=AXIS-N1, GENERATE
324, 424, 4
**
** elements along the positive 2-axis
*ELSET, ELSET=AXIS-P2
161, 162, 164, 166, 169, 172, 176
183, 179, 188, 185, 191, 189, 192
*ELSET, ELSET=AXIS-P2, GENERATE
844, 944, 4
**
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SF
*EL PRINT, ELSET=AXIS-N1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-P2, SUMMARY=NO
SF
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PPS-F2P.about

ABAQUS PRODUCTION VERSION 4-9-1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

DATE 22-Jun-94

TIME 07:58:32

PAGE 1

PPS-F2.ABDAT (6/20/94), FACTORED LOAD CASE 2 WITH PPS SPECIFIC LIVE LOADS

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

STEP NUMBER 5 INCREMENT NUMBER 20

TIME COMPLETED DURING THIS STEP 1.00 FRACTION OF STEP IS 1.00
TOTAL ACCUMULATED TIME 5.00

ELEMENT OUTPUT

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
289	1		-1908.	-1846.	-1.913	-7.366	.5346	961.8	688.9	.2294
290	1		-1858.	-1840.	-8.050	-29.36	4.847	367.4	589.0	77.33
291	1		-1848.	-1798.	1.744	-17.40	-5.189	296.9	292.7	3.461
293	1		-1951.	-1813.	6.650	6.024	-3.296	199.2	273.7	26.87
295	1		-1959.	-1812.	-3.426	-1.476	-11.05	168.4	122.0	-5.041
298	1		-2125.	-1834.	6.180	28.45	-5.597	941.1	234.2	-39.94
301	1		-2165.	-1888.	-40.32	23.44	25.82	1021.	384.2	51.34

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
305	1		-3243.	-2848.	-22.09	.1540	1.908	-361.7	-300.3	40.67
308	1		-3246.	-2672.	-9.864	1.662	-4.045	-394.4	-483.8	77.32

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
312	1		-3339.	-2785.	-38.57	-15.98	12.15	191.6	-109.7	-9.429
314	1		-3357.	-2878.	-19.94	-11.68	-2.045	132.1	-211.1	62.32

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
317	1		-3600.	-3816.	35.99	14.06	1.678	615.6	112.1	91.10
318	1		-3532.	-3335.	-14.77	14.02	14.04	633.2	-74.77	40.20

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
320	1		-3241.	-3246.	4.782	-11.72	-3.271	-290.2	-259.3	.3222

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1257	1		-2230.	-1927.	47.58	-18.64	5.441	969.7	415.1	-22.96
1261	1		-2212.	-1899.	-36.51	-11.96	5.810	309.9	324.1	16.43
1265	1		-2204.	-1840.	52.79	41.77	-2.258	1069.	433.6	-12.77

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1269	1		-2221.	-1866.	-52.26	-85.05	-4.417	-68.32	196.4	40.71
1273	1		-2318.	-1765.	91.44	67.98	-61.69	-79.61	80.11	41.73

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1277	1		-2381.	-1659.	-24.10	-129.9	-54.97	-1503.	-272.5	28.16

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1281	1		-3334.	-2216.	1.679	863.3	55.03	1.7692E+04	-6538.	-953.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1285	1		2115.	-3676.	-56.49	90.02	987.3	4361.	2.4213E+04	-1013.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1289	1		-44.74	-3410.	27.47	45.98	572.2	197.8	5986.	-209.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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1293	1	-1356.	-3581.	397.9	16.08	358.2	-938.2	-4024.	114.6
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THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1297	1		-2174.	-3687.	-75.10	7.321	101.7	-1516.	-1.0508E+04	65.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1301	1		-4459.	-3483.	11.49	8.241	9.486	-1673.	-1.2119E+04	14.63

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1305	1		-4784.	-3306.	-39.53	11.77	-103.7	-1490.	-1.0771E+04	-.1445

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1309	1		-3594.	-3213.	100.8	11.94	-164.6	-1045.	-6977.	-71.92

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1313	1		-1406.	-2985.	-82.17	4.871	-531.8	217.8	2799.	-75.48

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1317	1		-2593.	-2019.	-524.9	-637.9	-288.5	1.5080E+04	1110.	7853.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1321	1		-2771.	1458.	-393.1	-532.3	-71.83	3.2830E+04	-1.8492E+04	6656.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1325	1		-2463.	353.6	-97.94	838.8	23.83	3.1618E+04	-3.0498E+04	2490.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1329	1		-2775.	1988.	-170.7	377.2	-18.13	1.6719E+04	280.9	256.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1333	1		-2824.	973.3	-62.05	281.5	-22.43	6372.	-313.5	234.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1337	1		-2837.	94.47	-166.8	187.2	-9.832	-833.1	-1305.	118.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1341	1		-2957.	-976.4	-48.90	19.56	-2.224	-4175.	-1872.	70.50

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1345	1		-3066.	-1822.	-79.12	-57.00	-3.828	-3516.	-1514.	-86.41

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1349	1		-3126.	-2311.	6.2856E-02	-36.21	-2.959	-1663.	-850.8	38.56

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1353	1		-3137.	-2593.	-42.57	-8.909	-1.913	-687.1	-554.8	-34.54

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1357	1		-2406.	-4786.	-576.8	56.68	102.8	-80.45	-1.7609E+04	1045.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1	1		-1904.	-1856.	-.8603	7.011	.6138	969.2	701.4	.3467
2	1		-1846.	-1849.	4.061	29.58	4.119	368.8	601.3	-75.64
4	1		-1840.	-1821.	-1.747	15.56	-.1318	297.9	316.4	-.5404
6	1		-1934.	-1835.	-7.352	-6.963	-2.389	206.5	298.8	-21.83
9	1		-1938.	-1841.	-2.739	-1.430	-1.589	181.7	162.3	2.548
12	1		-2106.	-1863.	-13.06	-27.54	-1.483	960.7	275.1	35.05
16	1		-2151.	-1924.	39.58	-27.97	21.62	1038.	406.4	-53.49

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
19	1		-3260.	-2884.	25.50	-.2645	2.836	-254.8	-320.5	-39.34
23	1		-3268.	-2730.	7.249	-2.632	-5.443	-284.7	-511.9	-71.88

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
25	1		-3349.	-2806.	39.61	13.27	10.59	251.6	-134.6	6.303
28	1		-3367.	-2914.	20.43	11.61	1.735	195.6	-237.2	-60.64

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
29	1		-3605.	-3822.	-34.21	-14.00	2.815	637.2	97.46	-89.94
31	1		-3540.	-3356.	12.25	-11.72	11.93	651.6	-106.9	-41.88

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
32	1		-3240.	-3252.	-4.387	12.33	-.3952	-289.7	-275.6	.7823

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
324	1		-2198.	-1978.	-47.85	19.03	5.758	969.0	426.6	21.29
328	1		-2165.	-1954.	37.18	11.73	6.010	312.1	330.1	-16.45
332	1		-2139.	-1914.	-53.75	-41.48	-2.838	1076.	435.0	10.06

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
336	1		-2135.	-1943.	52.89	85.95	-5.937	-86.97	183.8	-42.47
340	1		-2218.	-1865.	-92.27	-69.37	-62.82	-75.84	70.97	-40.68

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
344	1		-2252.	-1833.	8.708	131.9	-54.68	-1518.	-286.9	-30.91

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
348	1		-3263.	-2563.	66.86	-842.0	59.67	1.7261E+04	-6998.	850.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
352	1		1999.	-3732.	-51.04	-57.18	943.1	6030.	2.3793E+04	756.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
356	1		-10.12	-3500.	103.9	-38.80	569.7	693.4	6144.	166.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
360	1		-1410.	-3368.	-81.61	-8.275	371.5	-585.1	-3960.	41.60

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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364 1 -2632. -3190. 88.26 -.4583 112.7 -1543. -1.0736E+04 19.39

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
368	1		-4715.	-3031.	-70.19	2.409	-5.911	-1759.	-1.2251E+04	-7.799

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
372	1		-4595.	-2867.	99.42	-1.596	-112.4	-1471.	-1.0613E+04	-73.96

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
376	1		-3010.	-2729.	-66.80	-6.938	-252.1	-685.6	-5523.	-25.64

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
380	1		-547.8	-2627.	96.06	-11.46	-514.2	868.8	5196.	-39.91

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
384	1		-2186.	-1044.	741.0	555.3	-275.1	1.6172E+04	2040.	-8024.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
388	1		-2457.	2861.	597.8	481.4	-79.19	3.2516E+04	-1.5057E+04	-6464.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
392	1		-2205.	1174.	187.7	-844.2	25.96	3.0871E+04	-3.4239E+04	-3097.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
396	1		-2511.	1978.	250.1	-515.7	15.49	1.4240E+04	-1638.	-710.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
400	1		-2717.	662.0	100.3	-298.5	6.596	1698.	-2487.	-222.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
404	1		-2893.	-210.3	159.8	-66.84	-3.211	-3947.	-2968.	67.65

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
408	1		-3013.	-1172.	38.97	21.59	-3.494	-4786.	-2624.	48.58

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
412	1		-3092.	-1969.	77.70	52.48	-3.867	-3569.	-1906.	105.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
416	1		-3151.	-2437.	-2.359	41.12	-2.164	-1830.	-1163.	-16.26

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
420	1		-3167.	-2677.	40.68	17.33	-2.472	-682.1	-678.7	56.95

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
424	1		-2402.	-5376.	428.5	-55.38	109.1	-1.647	-1.8386E+04	-1162.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
161	1		-1911.	-1847.	-3.693	-2.670	6.658	965.2	694.9	3.198
162	1		-1904.	-1791.	-6.725	-4.835	29.13	865.2	111.6	79.46
164	1		-1869.	-1784.	.1933	1.133	15.34	565.9	40.93	4.215
166	1		-1884.	-1883.	6.857	3.036	-6.168	547.1	-58.76	25.76
169	1		-1887.	-1889.	-1.129	8.854	1.2153E-02	402.3	-87.67	-4.042
172	1		-1910.	-2055.	11.64	4.264	-28.32	517.0	681.7	-39.16
176	1		-1962.	-2099.	-41.18	-20.84	-28.54	667.7	759.3	51.88

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
179	1		-2900.	-3237.	-32.83	2.691	7.3213E-02	-323.6	-289.7	52.85
183	1		-2754.	-3246.	-12.47	-5.246	2.358	-513.1	-319.7	85.22

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
185	1		-2816.	-3330.	-47.35	10.47	-13.46	-139.5	239.8	4.317
188	1		-2931.	-3352.	-23.88	1.679	-11.80	-237.5	183.0	72.70

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
189	1		-3831.	-3590.	29.53	3.209	13.80	80.29	646.3	95.48
191	1		-3367.	-3526.	-15.22	11.86	11.60	-117.1	659.4	49.88

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
192	1		-3260.	-3232.	3.906	-.2306	-12.24	-291.0	-266.4	2.745

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
844	1		-2020.	-2153.	47.69	-6.013	19.03	692.1	700.5	-21.45
848	1		-1987.	-2122.	-36.39	-6.420	11.63	594.6	44.03	16.54
852	1		-1947.	-2099.	56.32	2.222	-41.37	701.5	804.7	-10.77

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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856	1	-1967.	-2100.	-47.64	5.370	85.01	450.7	-337.7	42.15
860	1	-1883.	-2190.	98.51	63.07	-68.79	326.0	-319.2	43.40

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
864	1		-1842.	-2220.	.6096	56.55	132.1	-46.58	-1775.	31.22

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
868	1		-2621.	-3237.	-53.59	-58.31	-853.1	-7136.	1.7294E+04	-889.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
872	1		1874.	-3808.	-8.752	-45.82	935.3	6118.	2.3909E+04	-136.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
876	1		-111.7	-3524.	158.4	-57.96	563.8	731.8	6316.	-50.90

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
880	1		-1467.	-3409.	-31.67	-14.58	369.8	-509.3	-3749.	-1.084

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
884	1		-2660.	-3204.	123.2	-5.054	115.5	-1461.	-1.0498E+04	27.16

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
888	1		-4714.	-3071.	-54.24	-.4623	-.8898	-1773.	-1.2116E+04	36.35

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
892	1		-4597.	-2898.	114.7	-.9507	-103.9	-1587.	-1.0605E+04	-10.56

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
896	1		-3015.	-2791.	-63.69	-2.021	-245.2	-918.1	-5723.	8.683

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
900	1		-565.0	-2691.	121.6	-4.024	-520.2	646.4	4996.	-71.14

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
904	1		-720.3	-2614.	-48.37	-18.88	-626.1	-1732.	1.9755E+04	46.03

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
908	1		2902.	-2578.	74.58	-22.96	-493.6	-1.6125E+04	3.3432E+04	790.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
912	1		1191.	-2226.	-103.4	21.21	845.3	-3.3849E+04	3.1032E+04	2384.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
916	1		1972.	-2507.	-170.5	12.74	514.4	-1607.	1.4255E+04	487.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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920	1	629.9	-2696.	-51.06	3.813	297.5	-2430.	1659.	140.6
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THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
924	1		-240.7	-2868.	-121.1	-4.202	68.09	-2907.	-4021.	-89.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
928	1		-1213.	-2986.	-18.06	-3.711	-21.44	-2586.	-4883.	-47.29

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
932	1		-2003.	-3067.	-68.15	-3.908	-53.11	-1880.	-3649.	-94.35

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
936	1		-2471.	-3126.	3.131	-2.107	-41.07	-1147.	-1889.	27.64

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
940	1		-2701.	-3143.	-43.60	-2.352	-17.35	-674.8	-734.1	-42.80

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
944	1		-5402.	-2383.	-456.3	-108.1	-46.55	-1.8548E+04	134.2	1143.

THE ANALYSIS HAS BEEN COMPLETED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 8
POSTPROCESSING INPUT AND OUTPUT FILES FOR PPS LOAD CASE 3

Prepared by: Phillip R. Keil 8/29/94
Date

Checked by: Steve L. L. L. 8/29/94
Date

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PPS-F3P.abdat	A Att8-2
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PPS-F3P.abdat

```
*** Restart pps-f3.res to postprocess run of factored in situ loads
*** for local forces and moments
*POST OUTPUT, STEP=6
20
**
** elements along the positive 1-axis
*ELSET, ELSET=AXIS-P1
289, 290, 291, 293, 295, 298, 301
308, 305, 314, 312, 318, 317, 320
*ELSET, ELSET=AXIS-P1, GENERATE
1257, 1357, 4
**
** elements along the negative 1-axis
*ELSET, ELSET=AXIS-N1
1, 2, 4, 6, 9, 12, 16
23, 19, 28, 25, 31, 29, 32
*ELSET, ELSET=AXIS-N1, GENERATE
324, 424, 4
**
** elements along the positive 2-axis
*ELSET, ELSET=AXIS-P2
161, 162, 164, 166, 169, 172, 176
183, 179, 188, 185, 191, 189, 192
*ELSET, ELSET=AXIS-P2, GENERATE
844, 944, 4
**
*EL PRINT, ELSET=AXIS-P1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-N1, SUMMARY=NO
SF
*EL PRINT, ELSET=AXIS-P2, SUMMARY=NO
SF
```

PPS-F3P.about

ABAQUS PRODUCTION VERSION 4-9-1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

DATE 29-Jul-94

TIME 16:50:01

PAGE 1

PPS-F3.ABDAT (7/28/94), FACTORED LOAD CASE 3 WITH PPS SPECIFIC LIVE LOADS - MAXI STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

STEP NUMBER 6 INCREMENT NUMBER 20

TIME COMPLETED DURING THIS STEP 1.00 FRACTION OF STEP IS 1.00
TOTAL ACCUMULATED TIME 6.00

E L E M E N T O U T P U T

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
289	1	-2017.	-1995.	-2.869	-7.743	1.561	1028.	753.7	.6503	
290	1	-1953.	-1986.	-9.873	-35.28	6.164	322.8	635.0	92.65	
291	1	-1942.	-1942.	1.270	-21.21	-6.880	237.2	279.5	2.896	
293	1	-2048.	-1958.	6.753	9.166	-4.158	157.4	262.9	27.09	
295	1	-2056.	-1959.	-3.148	.1692	-10.43	128.4	101.6	-1.841	
298	1	-2230.	-1982.	5.660	22.93	-5.685	888.9	211.9	-35.76	
301	1	-2289.	-2031.	-65.39	22.04	28.88	976.7	357.2	64.40	

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
305	1	-8122.	-5613.	-47.58	83.32	-19.71	672.4	-7122.	571.5	
308	1	-8067.	-3902.	-28.30	76.59	17.61	1101.	-4942.	146.1	

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
312	1	-8709.	-7069.	-99.10	58.44	30.93	-3547.	-9921.	560.9	
314	1	-8564.	-5716.	-217.7	70.01	-4.603	-3140.	-7685.	154.8	

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
317	1	-9426.	-9473.	16.68	114.7	.8874	-9400.	-1.4671E+04	861.5	
318	1	-9202.	-7783.	-131.5	110.1	60.60	-8647.	-1.1020E+04	97.54	

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
320	1		-8947.	-8753.	-20.72	-28.56	-13.95	-1.5682E+04	-1.5511E+04	11.17

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1257	1		-2364.	-2097.	73.04	-15.48	3.719	962.7	392.6	-28.09
1261	1		-2378.	-2054.	-62.15	-14.88	4.793	293.9	299.6	19.76
1265	1		-2374.	-2031.	89.15	45.53	-4.539	1091.	416.0	-14.23

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1269	1		-2423.	-2031.	-95.34	-92.07	-6.901	-130.5	147.8	48.14
1273	1		-2509.	-1988.	155.6	81.57	-82.20	54.77	62.84	44.75

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1277	1		-2458.	-1832.	-58.89	-193.4	-68.64	-2508.	-501.3	48.04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1281	1		-3665.	-2067.	-12.42	1279.	97.69	2.6346E+04	-6498.	-1212.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1285	1		453.0	-5400.	-168.6	174.4	1088.	-2105.	3.5513E+04	-336.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1289	1		-1073.	-5136.	148.5	51.70	763.2	178.4	1.4110E+04	588.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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1293	1	-811.3	-5288.	281.8	-6.105	586.7	-169.3	-395.2	206.5
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THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1297	1		-1965.	-5058.	-370.8	3.307	249.8	-1635.	-1.2138E+04	-22.10

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1301	1		-3974.	-4849.	303.8	.8288	109.9	-2817.	-1.7272E+04	65.73

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1305	1		-2563.	-4808.	-152.8	7.331	-104.9	-2676.	-1.7341E+04	59.77

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1309	1		1720.	-4668.	124.4	5.943	-417.7	-1260.	-1.0002E+04	-79.59

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1313	1		-161.5	-4506.	-109.1	27.73	-962.9	-36.41	9012.	173.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1317	1		-3325.	808.5	-2504.	-1045.	-534.1	3.0245E+04	8193.	1.3672E+04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1321	1		-4248.	4376.	-658.7	-1021.	-100.8	6.2847E+04	1.1197E+04	7417.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1325	1		-3877.	3588.	-722.1	1378.	88.92	6.0076E+04	465.5	1150.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1329	1		-4864.	1408.	-560.4	861.6	10.22	3.0374E+04	-4647.	1000.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1333	1		-5005.	312.7	204.7	659.5	-.6118	7913.	-2084.	1269.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1337	1		-4683.	1983.	-159.1	316.5	-22.65	-6873.	9602.	-645.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1341	1		-4829.	2017.	-156.3	14.17	7.487	-1.3957E+04	-7615.	-979.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1345	1		-5905.	-988.2	-610.9	-131.2	-1.573	-1.3175E+04	-6754.	-175.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1349	1		-6828.	-1841.	65.43	-180.2	-10.60	-6664.	-5663.	248.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1353	1		-7221.	-3596.	-292.8	-113.2	-.4828	-147.5	-5270.	4.429

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1357	1		-2494.	-2924.	-503.8	-135.3	176.5	2581.	-1.1872E+04	2254.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
1	1		-2014.	-2001.	-.2374	8.068	.3269	1029.	760.4	.4507
2	1		-1949.	-1992.	5.867	34.88	4.706	320.9	642.3	-89.12
4	1		-1941.	-1956.	-1.139	18.58	-3.5783E-02	236.2	306.2	.7823
6	1		-2043.	-1971.	-6.634	-10.54	-2.703	175.9	292.9	-20.52
9	1		-2048.	-1974.	-.1401	-4.287	2.146	155.4	149.5	-1.905
12	1		-2227.	-1998.	-11.25	-22.64	-.2320	908.2	258.1	27.80
16	1		-2282.	-2063.	54.17	-25.55	20.05	980.4	372.4	-54.59

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
19	1		-8096.	-5660.	67.15	-73.85	-2.171	475.8	-7440.	-465.1
ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
23	1		-7983.	-4093.	132.9	-74.17	-4.642	982.7	-6344.	123.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
25	1		-8667.	-7105.	102.1	-58.89	50.57	-3543.	-1.0098E+04	-542.0
28	1		-8527.	-5758.	214.6	-73.16	-21.04	-3189.	-7966.	-198.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
29	1		-9409.	-9489.	-4.642	-109.7	33.75	-9421.	-1.4784E+04	-854.2
31	1		-9193.	-7825.	134.3	-107.4	34.10	-8674.	-1.1206E+04	-90.33

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
32	1		-8938.	-8768.	27.04	35.60	4.060	-1.5737E+04	-1.5623E+04	-8.167

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
324	1		-2351.	-2110.	-63.49	14.77	3.586	957.2	397.1	22.43
328	1		-2357.	-2095.	51.47	15.24	4.847	295.4	303.3	-16.20
332	1		-2355.	-2049.	-75.19	-45.68	-4.610	1093.	416.4	10.53

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
336	1		-2382.	-2100.	74.24	92.46	-7.193	-136.8	146.4	-46.06
340	1		-2484.	-2006.	-123.8	-81.72	-82.22	46.62	61.97	-44.87

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
344	1		-2395.	-1973.	6.378	192.6	-71.53	-2494.	-495.8	-51.02

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
348	1		-3627.	-2427.	79.34	-1270.	76.58	2.6158E+04	-6630.	1049.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
352	1		1562.	-5412.	-35.96	-71.46	1111.	4848.	3.5145E+04	1033.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
356	1		-245.6	-5105.	276.9	-50.62	771.1	726.0	1.4037E+04	345.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
360	1		-1080.	-5031.	-250.2	-3.359	583.3	-239.5	-635.4	-534.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
---------	----	---------------	-----	-----	-----	-----	-----	-----	-----	-----

364 1 -2240. -4922. 166.6 -4.128 257.8 -1725. -1.2504E+04 435.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
368	1		-3988.	-4784.	-184.2	1.934	107.1	-2920.	-1.7618E+04	-317.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
372	1		-2371.	-4635.	179.9	-.6392	-108.8	-2772.	-1.7652E+04	167.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
376	1		2235.	-4520.	-166.9	-16.87	-462.0	-1213.	-9714.	-381.2

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
380	1		-90.83	-4375.	228.0	-14.33	-970.9	154.4	1.0257E+04	-209.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
384	1		-3117.	1131.	2536.	995.0	-543.8	3.1296E+04	8663.	-1.3264E+04

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
388	1		-4144.	5406.	990.6	1033.	-173.8	6.3409E+04	1.4719E+04	-6567.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
392	1		-4000.	4239.	716.9	-1381.	31.56	6.1559E+04	2877.	-865.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
396	1		-4467.	-254.6	74.64	-936.8	19.09	3.0824E+04	-3251.	-594.4

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
400	1		-4256.	2776.	-14.81	-635.7	29.10	7404.	-4060.	-703.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
404	1		-4744.	-267.4	682.0	-278.0	19.03	-6730.	618.1	1603.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
408	1		-5620.	1327.	202.1	-65.37	8.268	-1.3570E+04	1106.	-348.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
412	1		-5946.	320.5	130.4	108.6	-17.60	-1.2932E+04	-7675.	-324.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
416	1		-6376.	-2078.	185.7	206.5	-11.36	-7462.	-8113.	421.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
420	1		-7125.	-3472.	181.4	122.2	4.284	-624.6	-4624.	-364.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-N1 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
424	1		-2532.	-3976.	399.3	129.9	153.6	2708.	-1.2302E+04	-1973.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
161	1		-2022.	-1992.	-2.743	-2.700	7.531	1028.	756.7	1.877
162	1		-2013.	-1926.	-7.736	-5.595	34.64	909.2	64.97	92.62
164	1		-1973.	-1918.	.7810	1.261	18.52	555.2	-19.51	2.534
166	1		-1988.	-2021.	6.908	3.509	-9.560	540.0	-92.39	24.71
169	1		-1991.	-2028.	-1.846	6.056	-2.667	386.6	-117.5	.3606
172	1		-2016.	-2205.	10.99	3.370	-22.15	497.0	625.6	-32.06
176	1		-2086.	-2263.	-58.52	-21.87	-27.44	633.4	703.9	60.27

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
179	1		-5639.	-8115.	-36.61	-2.032	75.79	-7241.	640.8	566.2
183	1		-3736.	-7987.	-103.9	-4.406	76.50	-6109.	992.3	186.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
185	1		-7092.	-8683.	-93.23	51.97	59.12	-9916.	-3525.	609.9
188	1		-5739.	-8538.	-211.1	-22.61	73.97	-7791.	-3153.	243.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
189	1		-9488.	-9408.	9.154	30.58	109.4	-1.4808E+04	-9330.	896.0
191	1		-7810.	-9192.	-127.5	36.05	106.2	-1.1167E+04	-8597.	151.8

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
192	1		-8765.	-8935.	-20.88	2.342	-33.22	-1.5663E+04	-1.5600E+04	38.85

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
844	1		-2121.	-2332.	67.31	-3.747	14.84	663.6	687.9	-25.60
848	1		-2117.	-2341.	-54.92	-5.052	15.17	566.8	24.12	18.47
852	1		-2057.	-2338.	80.71	4.340	-45.56	683.5	819.7	-12.68

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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856	1	-2124.	-2370.	-78.82	7.101	91.68	408.8	-394.8	47.40
860	1	-2007.	-2472.	133.9	82.34	-81.05	319.9	-208.7	45.16

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
864	1		-1996.	-2383.	-14.58	72.11	190.4	-250.6	-2715.	49.12

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
868	1		-2466.	-3612.	-55.46	-74.63	-1276.	-6697.	2.6135E+04	-1093.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
872	1		1625.	-5465.	-14.28	-87.14	1098.	5548.	3.5088E+04	963.1

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
876	1		-282.5	-5273.	306.0	-44.82	766.7	-299.2	1.3980E+04	48.18

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
880	1		-1138.	-4976.	-328.2	-5.408	581.9	47.22	-520.5	-176.5

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
884	1		-2172.	-4977.	219.7	-4.750	252.2	-1671.	-1.2335E+04	25.21

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
888	1		-4337.	-4743.	-279.4	-7.2038E-02	111.8	-3062.	-1.7342E+04	-97.64

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
892	1		-2060.	-4651.	228.4	-6.477	-102.6	-2485.	-1.7479E+04	79.63

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
896	1		1206.	-4877.	7.531	-9.586	-434.0	-2041.	-1.0090E+04	-94.35

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
900	1		1942.	-4032.	121.7	-22.24	-972.5	1469.	9728.	-103.7

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
904	1		1337.	-4471.	64.30	-69.42	-1171.	1297.	3.7760E+04	-290.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
908	1		5302.	-4353.	-246.6	-128.2	-1034.	1.2870E+04	6.6597E+04	256.3

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
912	1		3784.	-4237.	182.0	-13.50	1381.	1896.	6.3217E+04	3106.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
916	1		429.0	-4791.	211.6	26.41	940.6	-3270.	3.1656E+04	1007.

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
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920 1 2146. -3652. -670.0 30.80 606.7 -2851. 7842. 226.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
924	1		999.4	-4168.	-594.0	4.327	221.9	-638.0	-7284.	-113.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
928	1		807.9	-5528.	-89.75	-10.00	69.99	-2935.	-1.4016E+04	-317.6

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
932	1		-370.8	-6508.	-339.1	-14.52	-71.15	-4723.	-1.2101E+04	-183.9

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
936	1		-1630.	-6554.	-54.86	-11.12	-201.0	-8086.	-7058.	198.0

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
940	1		-3870.	-7181.	-188.6	.5613	-116.8	-4060.	-556.5	59.11

THE FOLLOWING TABLE IS PRINTED FOR ELSET AXIS-P2 AND ELEMENT TYPE S4R5

ELEMENT	PT	FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
944	1		-4038.	-2488.	-442.0	-147.0	133.0	-1.2490E+04	2618.	1936.

THE ANALYSIS HAS BEEN COMPLETED

END OF RUN

RUN SUMMARY:

TOTAL OF

0	INCREMENTS
0	CUTBACKS IN AUTOMATIC INCREMENTATION
0	ITERATIONS
0	PASSES THROUGH THE EQUATION SOLVER OF WHICH
0	REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 9
SPREADSHEETS FOR CONVERTING PREDICTED FORCES AND MOMENTS

Prepared by: Phillip R. York 8/29/94
Date

Checked by: James L. K. 8/29/94
Date

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POSTPROCESSING OF PPS-F1A RUN (Factored Load Case 1a)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
289	1	13644	13680	-27	57	20	7672	5884	8
291	1	12936	13236	2	199	72	502	1572	13
295	1	13788	13356	-27	23	64	50	182	12
301	1	15696	14016	-532	136	128	6077	1980	319
1257	1	16368	14424	606	77	1	6564	2322	154
1261	1	16668	14316	-502	156	14	1230	1589	111
1265	1	16800	14160	730	408	44	7910	2596	95
1269	1	17496	14556	-798	742	54	1166	673	327
1273	1	17652	14016	1327	666	747	502	88	425
1277	1	16596	13380	-472	1807	669	25452	5317	439
1281	1	26112	9553	203	11662	582	237888	32484	9481
wall elements									
1285	1	-19140	49668	993	705	9136	45912	262284	6850
1289	1	-7522	48144	-2138	180	6378	11479	84960	1021
1293	1	4045	47220	1256	33	4370	4998	31320	2490
1297	1	14940	47232	-410	115	2224	17328	123792	2647
1301	1	23976	46008	-259	113	689	24420	164928	3378
1305	1	3970	45336	142	163	1288	20076	156900	5239
1309	1	-42024	45444	235	111	5029	8118	70308	40F
1313	1	-10217	44424	-1280	225	9728	528	136032	34L
haunch elements									
1317	1	26508	-46128	-40776	10278	4877	355356	124272	123180
1321	1	43848	-127188	-22464	11329	2274	675732	358956	59988
1325	1	45036	-109104	-3803	15948	424	645672	255864	26988
dome elements									
1329	1	44784	-65520	-579	10900	298	293316	30360	15972
1333	1	51420	-4746	-9984	6467	409	17508	31512	12528
1337	1	65472	-21804	-5022	2990	287	141132	18276	437
1341	1	71868	-5630	-2072	47	178	189972	88644	4469
1345	1	75600	23952	-1331	2130	243	155568	92496	6678
1349	1	81156	42348	-2226	2394	97	73296	56616	1944
1353	1	88140	50832	-1071	1500	23	13320	50592	974
308	1	96612	56664	-1918	981	273	28272	49692	428
305	1	98184	72228	-680	1075	262	22200	76716	6839
314	1	102108	73092	-2285	882	43	28344	84264	1723
312	1	103752	88956	-956	748	375	33540	113208	6910
318	1	108708	93216	-1430	1374	773	100428	126984	693
317	1	110844	109872	-87	1436	23	110556	177948	10790
320	1	107832	105708	-252	345	165	188472	186480	103
footing element									
1357	1	13596	9473	-3228	3689	1370	59280	53256	1548F

POSTPROCESSING OF PPS-F1A RUN (Factored Load Case 1a)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
1	1	13632	13716	7	67	3	7619	5874	5
4	1	12960	13296	3	172	4	467	1786	21
9	1	13800	13404	22	62	50	250	605	53
16	1	15696	14052	527	151	94	6107	2060	323
324	1	16344	14436	-602	67	4	6475	2333	143
328	1	16656	14316	504	161	12	1253	1580	109
332	1	16788	14160	-732	410	46	7880	2585	96
336	1	17496	14556	797	742	54	1163	674	324
340	1	17640	14016	-1327	666	746	503	94	425
344	1	16584	13380	473	1807	669	25452	5314	440
348	1	26112	9554	-202	11662	582	237888	32472	9479
wall elements									
352	1	-19140	49668	-994	705	9136	45912	262284	6852
356	1	-7520	48144	2138	180	6378	11478	84948	1022
360	1	4046	47220	-1258	33	4370	5000	31320	2490
364	1	14940	47232	410	115	2224	17328	123792	2647
368	1	23976	45996	259	113	688	24432	164928	3378
372	1	3972	45336	-142	163	1288	20076	156900	5239
376	1	-42024	45432	-235	111	5028	8118	70296	4067
380	1	-10216	44424	1280	225	9728	528	136032	3461
haunch elements									
384	1	26508	-46116	40776	10277	4876	355344	124260	123168
388	1	43836	-127176	22464	11328	2274	675708	358920	59988
392	1	45036	-109092	3802	15948	424	645624	255828	27000
dome elements									
396	1	44784	-65508	579	10900	298	293280	30360	15972
400	1	51408	-4742	9982	6467	409	17472	31524	12528
404	1	65472	-21792	5022	2990	287	141156	18276	440
408	1	71868	-5622	2071	47	178	190020	88632	4465
412	1	75588	23952	1330	2130	243	155640	92484	6680
416	1	81144	42336	2225	2400	99	73296	56520	1920
420	1	88140	50820	1074	1495	27	13344	50472	976
23	1	96612	56640	1904	988	16	28404	49632	440
19	1	98172	72192	684	991	39	22368	76548	6799
28	1	102012	73044	2317	961	306	27900	84060	1704
25	1	103704	88920	945	777	607	33132	113040	6926
31	1	108756	93204	1454	1364	415	100536	126876	685
29	1	110820	109860	223	1392	415	110820	178476	10932
32	1	107760	105672	339	413	44	189072	187056	163
footing element									
424	1	13596	9476	3228	3688	1370	59280	53256	15480

POSTPROCESSING OF PPS-F1A RUN (Factored Load Case 1a)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P2: along the positive 2-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
	NOTE								
floor element									
161	1	13704	13632	-16	20	60	7645	5876	3
164	1	13260	12948	1	16	172	3372	1151	3
169	1	13380	13800	-23	20	46	2076	1552	31
176	1	14040	15696	-520	43	139	3732	4240	187
844	1	14424	16356	593	3	69	4045	4744	98
848	1	14316	16668	-497	13	160	3280	535	76
852	1	14148	16800	719	44	409	4302	6107	69
856	1	14544	17508	-787	54	739	2353	2911	302
860	1	13980	17664	1310	746	667	1763	1160	441
864	1	13344	16620	-460	667	1788	3719	26676	432
868	1	9583	26136	166	608	11681	32532	237804	9098
wall elements									
872	1	-19128	49680	-857	733	9139	46356	262260	2292
876	1	-7555	48180	1879	173	6383	11072	84852	4015
880	1	4072	47232	-1073	27	4366	4477	31188	1309
884	1	14916	47220	272	87	2231	18444	123504	2664
888	1	23904	46080	279	185	694	23952	164388	2117
892	1	3926	45492	-252	95	1214	24876	157332	2472
896	1	-41664	45900	-536	90	4910	11706	71388	47 ^F
900	1	-10098	44856	1616	14	9708	2429	134892	9 _L
haunch elements									
904	1	-64152	45324	-1028	856	11592	72120	409308	3364
908	1	-130152	47376	-2094	921	11652	347412	688728	1001
912	1	-110292	45552	-2096	297	16044	257148	649200	22464
dome elements									
916	1	-65448	45108	192	201	10933	28644	294156	12492
920	1	-4440	51708	-9458	361	6456	29988	16428	12516
924	1	-21288	65532	-4566	254	3036	20568	142368	620
928	1	-5249	72576	-2125	187	1	86472	191460	4819
932	1	22920	76488	-819	254	2140	93600	156348	5281
936	1	42180	81144	-2020	93	2431	58764	72984	1046
940	1	51144	88092	-1107	20	1507	50136	13992	1486
183	1	56496	96600	-1795	27	991	50532	29184	243
179	1	72216	98124	-622	35	991	76476	22824	6599
188	1	73080	102024	-2287	299	954	83952	27360	1697
185	1	88932	103704	-932	622	771	112368	32496	6824
191	1	93216	108708	-1448	436	1344	127872	99384	680
189	1	109884	110796	-186	349	1385	179424	109524	10879
192	1	105696	107748	-290	11	393	188112	187188	190
footing element									
944	1	9456	13572	-3251	1388	3696	53040	59112	1617 [~]

POSTPROCESSING OF PPS-F1A RUN (Factored Load Case 1a)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
	NOTE								
haunch elements									
1317	1	44780	-64400	1407	11370	391	408700	70930	0
1321	1	46260	-129600	9282	11550	197	686700	348000	0

POSTPROCESSING OF PPS-F1A RUN (Factored Load Case 1a)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-N1: along the negative 1-axis									
positive is compression				absolute value		absolute value			
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
haunch elements									
384	1	44780	-64390	1414	11320	410	408700	70920	0
388	1	46250	-129600	9276	11550	197	686700	347900	0

POSTPROCESSING OF PPS-F1B RUN (Factored Load Case 1b)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
289	1	14004	13320	-19	61	16	7651	5830	6
291	1	13368	12828	5	194	66	535	1556	12
295	1	14256	12900	-30	25	54	68	180	24
301	1	16212	13464	-586	129	145	6010	1878	375
1257	1	16956	13860	650	66	6	6547	2240	180
1261	1	17400	13620	-558	164	10	1225	1512	127
1265	1	17664	13452	781	416	46	7931	2543	116
1269	1	18576	13632	-881	747	51	1128	657	325
1273	1	18888	13092	1390	666	751	430	80	420
1277	1	17964	12108	-564	1807	661	25512	5381	462
1281	1	27816	4772	311	11977	540	247356	29460	8704
wall elements									
1285	1	-24432	51360	2096	697	9598	46476	270612	3702
1289	1	-9866	50052	-3203	162	6512	10955	85536	2203
1293	1	1351	49956	3017	16	4276	4262	30456	567
1297	1	14532	50436	-1786	50	2003	16764	118620	907
1301	1	23616	50400	2744	50	653	21768	155484	918
1305	1	10816	49584	-2972	10	1289	21444	146388	1261
1309	1	-37032	49368	3320	46	4220	11230	69336	1442
1313	1	-12396	51684	1409	168	9793	18	129576	1496
haunch elements									
1317	1	33996	-44736	-42636	10628	5334	350112	124272	134220
1321	1	50076	-106908	-21204	10852	1090	689544	304452	57288
1325	1	53904	-125316	-11899	18732	165	612324	59916	4184
dome elements									
1329	1	64164	-28656	-4648	11312	484	210000	86364	14928
1333	1	64272	-29232	46	6316	224	49056	76968	11800
1337	1	64032	-13068	-4272	4468	547	221472	153000	17892
1341	1	69252	28284	-660	802	543	297504	156096	2333
1345	1	75168	53784	-1639	5051	75	202812	105720	12708
1349	1	74988	58212	1185	2192	231	76572	44448	2218
1353	1	72732	63228	-962	546	141	30792	26496	2858
308	1	73116	62724	660	120	89	19248	17232	1792
305	1	72780	65904	57	136	45	17268	11009	540
314	1	72888	66012	-48	383	37	2562	8728	583
312	1	72768	65412	-176	444	198	969	4562	1277
318	1	73932	68436	-15	331	277	6673	3706	337
317	1	74436	72708	247	344	16	4590	9864	2298
320	1	71592	69432	124	258	83	13740	13584	165
footing element									
1357	1	14256	-298	-2912	3812	1361	60456	41724	14868

POSTPROCESSING OF PPS-F1B RUN (Factored Load Case 1b)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
1	1	13956	13440	7	66	4	7688	5876	5
4	1	13248	13056	7	173	6	487	1775	22
9	1	14052	13200	25	62	49	240	589	52
16	1	15912	13908	496	150	89	6139	2060	306
324	1	16524	14268	-573	69	4	6499	2333	136
328	1	16788	14232	475	160	11	1273	1577	107
332	1	16884	14052	-693	407	47	7892	2580	93
336	1	17532	14544	758	740	56	1149	664	326
340	1	17652	13992	-1271	660	738	411	97	404
344	1	16620	13500	428	1770	658	24864	5197	453
348	1	26052	10105	-124	11471	613	234348	32448	9424
wall elements									
352	1	-18396	48372	-416	683	9090	45840	263976	4595
356	1	-7858	47160	530	174	6335	11396	87756	1106
360	1	4253	45996	26	36	4304	4543	27120	918
364	1	14640	46452	-1508	100	2120	17388	117132	441
368	1	26400	45300	2029	141	599	23484	155316	1184
372	1	7394	46032	-3752	103	1242	21084	145860	2015
376	1	-20280	45672	3847	10	4261	11798	68676	22
380	1	-45804	40464	2558	41	9241	9538	118524	500
haunch elements									
384	1	24336	-25992	37596	10596	5168	331032	109512	134736
388	1	44592	-114192	14724	10612	1288	661128	321828	65196
392	1	44244	-114540	11496	15684	1031	616932	233940	4378
dome elements									
396	1	52668	-26736	3088	11279	222	252384	71712	18168
400	1	52776	-29112	141	6770	102	26364	87480	1864
404	1	57600	-22716	6962	2105	21	175536	147936	16296
408	1	64512	12720	656	735	3	209904	101568	360
412	1	65832	42540	1081	1966	98	166284	79188	7051
416	1	67920	58272	501	1594	93	107976	48564	727
420	1	69168	63096	284	1190	101	58704	29532	2982
23	1	70704	65388	309	188	37	31404	17844	1536
19	1	70800	67344	302	205	45	29472	11785	695
28	1	71496	67500	192	398	113	10474	8900	560
25	1	71316	66576	376	397	196	9127	6179	1050
31	1	73392	69756	61	221	308	1279	4934	172
29	1	73800	73296	-140	282	64	324	10133	1793
32	1	71388	70020	-67	343	7	15168	13404	10
footing element									
424	1	13788	11566	3244	3386	1405	54792	56304	1657

POSTPROCESSING OF PPS-F1B RUN (Factored Load Case 1b)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P2: along the positive 2-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor element									
161	1	14052	13320	-27	26	60	7662	5855	20
164	1	13608	12636	-8	18	173	3398	1162	13
169	1	13716	13488	-38	20	47	2098	1556	36
176	1	14352	15384	-525	93	161	3755	4274	328
844	1	14796	16044	587	3	68	4070	4717	148
848	1	14628	16332	-476	14	160	3305	535	121
852	1	14508	16488	747	44	408	4336	6082	100
856	1	14868	17160	-718	53	738	2400	2904	338
860	1	14364	17340	1393	744	667	1788	1130	421
864	1	13716	16272	-347	676	1790	3691	26676	478
868	1	11000	25800	355	611	11616	33528	235812	10056
wall elements									
872	1	-17844	49308	184	734	8995	46620	261504	4708
876	1	-7338	47772	2621	199	6262	11752	87144	1223
880	1	5234	46116	-480	6	4267	3583	26628	745
884	1	14664	46608	1490	79	2117	16656	115680	474
888	1	29472	42936	-383	125	675	23172	154464	473
892	1	3695	43164	1986	74	1090	22752	149916	32
896	1	-31512	48636	-137	7	4516	11555	69108	518
900	1	-24600	45096	1972	95	9394	7090	121428	454
haunch elements									
904	1	-53292	45288	-1248	417	11311	61200	393348	2911
908	1	-114132	47568	-4974	894	10591	287472	651300	938
912	1	-116952	48876	-7982	337	15420	228756	593208	27756
dome elements									
916	1	-34524	59976	-6248	489	10951	23904	255420	11147
920	1	-41244	52356	4028	708	6588	4798	8885	13920
924	1	766	58824	6744	270	2244	36324	166800	15648
928	1	7866	63336	-2098	234	714	107256	207696	14904
932	1	45924	64452	-1662	138	2015	84492	170220	1107
936	1	55884	68412	146	31	1579	42576	109884	5958
940	1	65940	68268	-364	27	1211	35244	61272	401
183	1	64764	69384	403	4	208	13104	30840	1696
179	1	68808	69408	224	134	226	11861	31140	1294
188	1	68952	69864	174	197	429	8671	10092	171
185	1	68208	69672	-43	266	411	6352	8874	1301
191	1	71424	71376	272	385	196	5030	2726	228
189	1	75264	71712	307	211	257	10656	1068	1806
192	1	71880	69240	200	76	337	13848	13128	171
footing element									
944	1	12216	13596	-3788	1423	3648	56400	58200	15720

POSTPROCESSING OF PPS-F1B RUN (Factored Load Case 1b)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
haunch elements									
1317	1	52660	-63400	457	11870	671	412300	62050	9465
1321	1	52500	-109300	7972	10870	882	697400	296600	14620

POSTPROCESSING OF PPS-F1B RUN (Factored Load Case 1b)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
	NOTE								
haunch elements									
384	1	43810	-45460	7369	11780	532	394300	46230	11400
388	1	44660	-114300	14350	10670	644	673200	309700	884

POSTPROCESSING OF PPS-F2 RUN (Factored Load Case 2)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
289	1	22896	22152	-23	88	6	11542	8267	3
291	1	22176	21576	21	209	62	3563	3512	42
295	1	23508	21744	-41	18	133	2021	1464	60
301	1	25980	22656	-484	281	310	12252	4610	616
1257	1	26760	23124	571	224	65	11636	4981	276
1261	1	26544	22788	-438	144	70	3719	3889	197
1265	1	26448	22080	633	501	27	12828	5203	153
1269	1	26652	22392	-627	1021	53	820	2357	489
1273	1	27816	21180	1097	816	740	955	961	501
1277	1	28572	19908	-289	1559	660	18036	3270	338
1281	1	40008	26592	20	10360	660	212304	78456	11438
wall elements									
1285	1	-25380	44112	-678	1080	11848	52332	290556	12156
1289	1	537	40920	330	552	6866	2374	71832	2518
1293	1	16272	42972	4775	193	4298	11258	48288	1375
1297	1	26088	44244	-901	88	1220	18192	126096	782
1301	1	53508	41796	138	99	114	20076	145428	176
1305	1	57408	39672	-474	141	1244	17880	129252	2
1309	1	43128	38556	1210	143	1975	12540	83724	86
1313	1	16872	35820	-986	58	6382	2614	33588	9
haunch elements									
1317	1	31116	24228	-6299	7655	3462	180960	13320	94236
1321	1	33252	-17496	-4717	6388	862	393960	221904	79872
1325	1	29556	-4243	-1175	10066	286	379416	365976	29880
dome elements									
1329	1	33300	-23856	-2048	4526	218	200628	3371	3077
1333	1	33888	-11680	-745	3378	269	76464	3762	2819
1337	1	34044	-1134	-2002	2246	118	9997	15660	1424
1341	1	35484	11717	-587	235	27	50100	22464	846
1345	1	36792	21864	-949	684	46	42192	18168	1037
1349	1	37512	27732	1	435	36	19956	10210	463
1353	1	37644	31116	-511	107	23	8245	6658	414
308	1	38952	32064	-118	20	49	4733	5806	928
305	1	38916	34176	-265	2	23	4340	3604	488
314	1	40284	34536	-239	140	25	1585	2533	748
312	1	40068	33420	-463	192	146	2299	1316	113
318	1	42384	40020	-177	168	168	7598	897	482
317	1	43200	45792	432	169	20	7387	1345	1093
320	1	38892	38952	57	141	39	3482	3112	4
footing element									
1357	1	28872	57432	-6922	680	1234	965	211308	1254

POSTPROCESSING OF PPS-F2 RUN (Factored Load Case 2)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
1	1	22848	22272	-10	84	7	11630	8417	4
4	1	22080	21852	-21	187	2	3575	3797	6
9	1	23256	22092	-33	17	19	2180	1948	31
16	1	25812	23088	475	336	259	12456	4877	642
324	1	26376	23736	-574	228	69	11628	5119	255
328	1	25980	23448	446	141	72	3745	3961	197
332	1	25668	22968	-645	498	34	12912	5220	121
336	1	25620	23316	635	1031	71	1044	2206	510
340	1	26616	22380	-1107	832	754	910	852	488
344	1	27024	21996	104	1583	656	18216	3443	371
348	1	39156	30756	802	10104	716	207132	83976	10208
wall elements									
352	1	-23988	44784	-612	686	11317	72360	285516	9073
356	1	121	42000	1247	466	6836	8321	73728	1993
360	1	16920	40416	-979	99	4458	7021	47520	499
364	1	31584	38280	1059	5	1352	18516	128832	233
368	1	56580	36372	-842	29	71	21108	147012	94
372	1	55140	34404	1193	19	1349	17652	127356	888
376	1	36120	32748	-802	83	3025	8227	66276	308
380	1	6574	31524	1153	138	6170	10426	62352	479
haunch elements									
384	1	26232	12528	8892	6664	3301	194064	24480	96288
388	1	29484	-34332	7174	5777	950	390192	180684	77568
392	1	26460	-14088	2252	10130	312	370452	410868	37164
dome elements									
396	1	30132	-23736	3001	6188	186	170880	19656	8520
400	1	32604	-7944	1204	3582	79	20376	29844	2669
404	1	34716	2524	1918	802	39	47364	35616	812
408	1	36156	14064	468	259	42	57432	31488	583
412	1	37104	23628	932	630	46	42828	22872	1262
416	1	37812	29244	-28	493	26	21960	13956	195
420	1	38004	32124	488	208	30	8185	8144	683
23	1	39216	32760	87	32	65	3416	6143	863
19	1	39120	34608	306	3	34	3058	3846	472
28	1	40404	34968	245	139	21	2347	2846	728
25	1	40188	33672	475	159	127	3019	1615	76
31	1	42480	40272	147	141	143	7819	1283	503
29	1	43260	45864	-411	168	34	7646	1170	1079
32	1	38880	39024	-53	148	5	3476	3307	9
footing element									
424	1	28824	64512	5142	665	1309	20	220632	13944

POSTPROCESSING OF PPS-F2 RUN (Factored Load Case 2)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P2: along the positive 2-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor element									
161	1	22932	22164	-44	32	80	11582	8339	38
164	1	22428	21408	2	14	184	6791	491	51
169	1	22644	22668	-14	106	0	4828	1052	49
176	1	23544	25188	-494	250	342	8012	9112	623
844	1	24240	25836	572	72	228	8305	8406	257
848	1	23844	25464	-437	77	140	7135	528	198
852	1	23364	25188	676	27	496	8418	9656	129
856	1	23604	25200	-572	64	1020	5408	4052	506
860	1	22596	26280	1182	757	825	3912	3830	521
864	1	22104	26640	7	679	1585	559	21300	375
868	1	31452	38844	-643	700	10237	85632	207528	10668
wall elements									
872	1	-22488	45696	-105	550	11224	73416	286908	1638
876	1	1340	42288	1901	696	6766	8782	75792	611
880	1	17604	40908	-380	175	4438	6112	44988	13
884	1	31920	38448	1478	61	1386	17532	125976	326
888	1	56568	36852	-651	6	11	21276	145392	436
892	1	55164	34776	1376	11	1247	19044	127260	127
896	1	36180	33492	-764	24	2942	11017	68676	1'
900	1	6780	32292	1459	48	6242	7757	59952	8
haunch elements									
904	1	8644	31368	-580	227	7513	20784	237060	552
908	1	-34824	30936	895	276	5923	193500	401184	9490
912	1	-14292	26712	-1241	255	10144	406188	372384	28608
dome elements									
916	1	-23664	30084	-2046	153	6173	19284	171060	5849
920	1	-7559	32352	-613	46	3570	29160	19908	1687
924	1	2888	34416	-1453	50	817	34884	48252	1070
928	1	14556	35832	-217	45	257	31032	58596	567
932	1	24036	36804	-818	47	637	22560	43788	1132
936	1	29652	37512	38	25	493	13764	22668	332
940	1	32412	37716	-523	28	208	8098	8809	514
183	1	33048	38952	-150	63	28	6157	3836	1023
179	1	34800	38844	-394	32	1	3883	3476	634
188	1	35172	40224	-287	20	142	2850	2196	872
185	1	33792	39960	-568	126	162	1674	2878	52
191	1	40404	42312	-183	142	139	1405	7913	599
189	1	45972	43080	354	39	166	963	7756	1146
192	1	39120	38784	47	3	147	3492	3197	33
footing element									
944	1	64824	28596	-5476	1297	559	222576	1610	137'

POSTPROCESSING OF PPS-F2 RUN (Factored Load Case 2)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
	NOTE								
haunch elements									
1317	1	34620	20720	1797	8400	135	223200	28940	3335
1321	1	33280	-17520	4576	6439	302	402300	230200	34370

POSTPROCESSING OF PPS-F2 RUN (Factored Load Case 2)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
	NOTE								
haunch elements									
384	1	30550	8207	1086	7427	381	237500	18970	4036
388	1	29960	-34800	4592	5854	106	399200	189700	28560

POSTPROCESSING OF PPS-F3 RUN (Factored Load Case 3)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
NOTE									
floor elements									
289	1	24204	23940	-34	93	19	12336	9044	8
291	1	23304	23304	15	255	83	2846	3354	35
295	1	24672	23508	-38	2	125	1541	1219	22
301	1	27468	24372	-785	264	347	11720	4286	773
1257	1	28368	25164	876	186	45	11552	4711	337
1261	1	28536	24648	-746	179	58	3527	3595	237
1265	1	28488	24372	1070	546	54	13092	4992	171
1269	1	29076	24372	-1144	1105	83	1566	1774	578
1273	1	30108	23856	1867	979	986	657	754	537
1277	1	29496	21984	-707	2321	824	30096	6016	576
1281	1	43980	24804	-149	15348	1172	316152	77976	14544
wall elements									
1285	1	-5436	64800	-2023	2093	13056	25260	426156	4040
1289	1	12876	61632	1782	620	9158	2141	169320	7063
1293	1	9736	63456	3382	73	7040	2032	4742	2478
1297	1	23580	60696	-4450	40	2998	19620	145656	265
1301	1	47688	58188	3646	10	1319	33804	207264	789
1305	1	30756	57696	-1834	88	1259	32112	208092	717
1309	1	-20640	56016	1493	71	5012	15120	120024	955
1313	1	1938	54072	-1309	333	11555	437	108144	2078
haunch elements									
1317	1	39900	-9702	-30048	12540	6409	362940	98316	164064
1321	1	50976	-52512	-7904	12252	1210	754164	134364	89004
1325	1	46524	-43056	-8665	16536	1067	720912	5586	13800
dome elements									
1329	1	58368	-16896	-6725	10339	123	364488	55764	12000
1333	1	60060	-3752	2456	7914	7	94956	25008	15228
1337	1	56196	-23796	-1909	3798	272	82476	115224	7748
1341	1	57948	-24204	-1876	170	90	167484	91380	11758
1345	1	70860	11858	-7331	1574	19	158100	81048	2107
1349	1	81936	22092	785	2162	127	79968	67956	2986
1353	1	86652	43152	-3514	1358	6	1770	63240	53
308	1	96804	46824	-340	919	211	13212	59304	1753
305	1	97464	67356	-571	1000	237	8069	85464	6858
314	1	102768	68592	-2612	840	55	37680	92220	1858
312	1	104508	84828	-1189	701	371	42564	119052	6731
318	1	110424	93396	-1578	1321	727	103764	132240	1170
317	1	113112	113676	200	1376	11	112800	176052	10338
320	1	107364	105036	-249	343	167	188184	186132	134
footing element									
1357	1	29928	35088	-6046	1624	2118	30972	142464	27048

POSTPROCESSING OF PPS-F3 RUN (Factored Load Case 3)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
floor elements									
1	1	24168	24012	-3	97	4	12348	9125	5
4	1	23292	23472	-14	223	0	2834	3674	9
9	1	24576	23688	-2	51	26	1865	1794	23
16	1	27384	24756	650	307	241	11765	4469	655
324	1	28212	25320	-762	177	43	11486	4765	269
328	1	28284	25140	618	183	58	3545	3640	194
332	1	28260	24588	-902	548	55	13116	4997	126
336	1	28584	25200	891	1110	86	1642	1757	553
340	1	29808	24072	-1486	981	987	559	744	538
344	1	28740	23676	77	2311	858	29928	5950	612
348	1	43524	29124	952	15240	919	313896	79560	12588
wall elements									
352	1	-18744	64944	-432	858	13332	58176	421740	12396
356	1	2947	61260	3323	607	9253	8712	168444	4148
360	1	12960	60372	-3002	40	7000	2874	7625	6415
364	1	26880	59064	1999	50	3094	20700	150048	5220
368	1	47856	57408	-2210	23	1285	35040	211416	3810
372	1	28452	55620	2159	8	1306	33264	211824	2012
376	1	-26820	54240	-2003	202	5544	14556	116568	457
380	1	1090	52500	2736	172	11651	1853	123084	251
haunch elements									
384	1	37404	-13572	30432	11940	6526	375552	103956	159168
388	1	49728	-64872	11887	12396	2086	760908	176628	78804
392	1	48000	-50868	8603	16572	379	738708	34524	10381
dome elements									
396	1	53604	3055	896	11242	229	369888	39012	7133
400	1	51072	-33312	-178	7628	349	88848	48720	8443
404	1	56928	3209	8184	3336	228	80760	7417	19236
408	1	67440	-15924	2425	784	99	162840	13272	4186
412	1	71352	-3846	1565	1303	211	155184	92100	3892
416	1	76512	24936	2228	2478	136	89544	97356	5063
420	1	85500	41664	2177	1466	51	7495	55488	4369
23	1	95796	49116	1595	890	56	11792	76128	1477
19	1	97152	67920	806	886	26	5710	89280	5581
28	1	102324	69096	2575	878	252	38268	95592	2381
25	1	104004	85260	1225	707	607	42516	121176	6504
31	1	110316	93900	1612	1289	409	104088	134472	1084
29	1	112908	113868	-56	1316	405	113052	177408	10250
32	1	107256	105216	324	427	49	188844	187476	98
footing element									
424	1	30384	47712	4792	1559	1843	32496	147624	23676

POSTPROCESSING OF PPS-F3 RUN (Factored Load Case 3)									
(units are lbf and lbf-in, and values are per foot of width)									
ELSET AXIS-P2: along the positive 2-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT-	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
NOTE									
floor element									
161	1	24264	23904	-33	32	90	12336	9080	23
164	1	23676	23016	9	15	222	6662	234	30
169	1	23892	24336	-22	73	32	4639	1410	4
176	1	25032	27156	-702	262	329	7601	8447	723
844	1	25452	27984	808	45	178	7963	8255	307
848	1	25404	28092	-659	61	182	6802	289	222
852	1	24684	28056	969	52	547	8202	9836	152
856	1	25488	28440	-946	85	1100	4906	4738	569
860	1	24084	29664	1607	988	973	3839	2504	542
864	1	23952	28596	-175	865	2285	3007	32580	589
868	1	29592	43344	-666	896	15312	80364	313620	13116
wall elements									
872	1	-19500	65580	-171	1046	13176	66576	421056	11557
876	1	3390	63276	3672	538	9200	3590	167760	578
880	1	13656	59712	-3938	65	6983	567	6246	2118
884	1	26064	59724	2636	57	3026	20052	148020	303
888	1	52044	56916	-3353	1	1342	36744	208104	1172
892	1	24720	55812	2741	78	1231	29820	209748	956
896	1	-14472	58524	90	115	5208	24492	121080	1132
900	1	-23304	48384	1460	267	11670	17628	116736	1244
haunch elements									
904	1	-16044	53652	772	833	14052	15564	453120	3487
908	1	-63624	52236	-2959	1538	12408	154440	799164	3076
912	1	-45408	50844	2184	162	16572	22752	758604	37272
dome elements									
916	1	-5148	57492	2539	317	11287	39240	379872	12084
920	1	-25752	43824	-8040	370	7280	34212	94104	2719
924	1	-11993	50016	-7128	52	2663	7656	87408	1363
928	1	-9695	66336	-1077	120	840	35220	168192	3811
932	1	4450	78096	-4069	174	854	56676	145212	2207
936	1	19560	78648	-658	133	2412	97032	84696	2376
940	1	46440	86172	-2263	7	1402	48720	6678	709
183	1	44832	95844	-1247	53	918	73308	11908	2239
179	1	67668	97380	-439	24	909	86892	7690	6794
188	1	68868	102456	-2533	271	888	93492	37836	2927
185	1	85104	104196	-1119	624	709	118992	42300	7319
191	1	93720	110304	-1530	433	1274	134004	103164	1822
189	1	113856	112896	110	367	1313	177696	111960	10752
192	1	105180	107220	-251	28	399	187956	187200	466
footing element									
944	1	48456	29856	-5304	1764	1596	149880	31416	23232

POSTPROCESSING OF PPS-F3 RUN (Factored Load Case 3)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-P1: along the positive 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
haunch elements									
1317	1	53980	-23780	2468	14050	898	440800	20450	15740
1321	1	50420	-51960	10940	12270	1016	765600	122900	26530

POSTPROCESSING OF PPS-F3 RUN (Factored Load Case 3)									
(units are lbf and lbf-in, and values are per foot of width)									
The loads below have been rotated into axes that line-up with the meridional and circumferential directions.									
ELSET AXIS-N1: along the negative 1-axis									
		positive is compression			absolute value		absolute value		
ELEMENT	PT FOOT- NOTE	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
haunch elements									
384	1	51550	-27720	2232	13550	1244	448700	30760	9857
388	1	50220	-65370	9178	12570	180	769900	167700	29770

ATTACHMENT 10
SPREADSHEETS FOR DEVELOPMENT OF MOMENT/AXIAL LOAD CAPACITIES

Prepared by: Phillip R. Krub 8/29/94
Date

Checked by: James L. Kirk 8/29/94
Date

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**Determination of Additional Meridional Moment/Axial Capacity Points for Section 6b
(Outer Steel in Tension)**

Section	h [in]	As per ft [in^2]	d' [in]	As' per ft [in^2]	d'' [in]	d [in]	b [in]	SDV7(55,95/95) [psi]	Temp(55,95/95) [deg F]	fc [psi]	Beta 1
6b (out)	27.29	0.85	2	0.84	1.625	25.29	12.0	4418	91.69	4418	0.8291

A Att10-2

**Determination of Additional Meridional Moment/Axial Capacity Points for Section 6b
(Outer Steel in Tension)**

fy (rebar) [psi]	E (rebar) [psi]	yield strain=fy/E	Trial c [in]	0.85fc*b	xp [in]	eps	fs [psi]	eps'	fs' [psi]
38000	28,183,208	.0013483	0.300	45064	11.651	2.499E-01	38000	-1.325E-02	-38000
			0.600			1.235E-01	38000	-5.125E-03	-38000
			0.900			8.130E-02	38000	-2.417E-03	-38000
			1.200			6.023E-02	38000	-1.063E-03	-29945
			1.500			4.758E-02	38000	-2.500E-04	-7046
			1.800			3.915E-02	38000	2.917E-04	8220
			2.100			3.313E-02	38000	6.786E-04	19124
			2.400			2.861E-02	38000	9.688E-04	27302
			3.900			1.645E-02	38000	1.750E-03	38000
			5.400			1.105E-02	38000	2.097E-03	38000
			6.900			7.996E-03	38000	2.293E-03	38000
			8.400			6.032E-03	38000	2.420E-03	38000
			9.900			4.664E-03	38000	2.508E-03	38000
			11.400			3.655E-03	38000	2.572E-03	38000
			12.900			2.881E-03	38000	2.622E-03	38000
			14.400			2.269E-03	38000	2.661E-03	38000
			15.900			1.772E-03	38000	2.693E-03	38000
			17.400			1.360E-03	38000	2.720E-03	38000
			18.900			1.014E-03	28586	2.742E-03	38000
			20.400			7.191E-04	20267	2.761E-03	38000

A Att10-3

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**Determination of Additional Meridional Moment/Axial Capacity Points for Section 6b
(Outer Steel in Tension)**

Cc [lbs]	Cs [lbs]	T [lbs]	P [lbs]	M [lb-in]	0.1fcAg/0.7	phi	phi x P [lbs]	phi x M [lb-in]
11,209	-31920	32300	-53,011	144,313	206,687	0.900	-47,710	129,881
22,417	-31920	32300	-41,803	293,008	206,687	0.900	-37,622	263,707
33,626	-31920	32300	-30,594	438,915	206,687	0.900	-27,535	395,023
44,835	-25154	32300	-12,619	663,328	206,687	0.900	-11,357	596,995
56,043	-5918	32300	17,825	1,034,752	206,687	0.883	15,735	913,429
67,252	6905	32300	41,857	1,326,357	206,687	0.859	35,976	1,140,000
78,461	16064	32300	62,225	1,571,157	206,687	0.840	52,256	1,319,439
89,669	22934	32300	80,303	1,785,657	206,687	0.822	66,033	1,468,336
145,713	31920	32300	145,333	2,511,634	206,687	0.759	110,361	1,907,257
201,756	31920	32300	201,376	3,059,954	206,687	0.705	141,998	2,157,692
257,799	31920	32300	257,419	3,538,576	206,687	0.700	180,194	2,477,003
313,843	31920	32300	313,463	3,947,499	206,687	0.700	219,424	2,763,249
369,886	31920	32300	369,506	4,286,724	206,687	0.700	258,654	3,000,707
425,929	31920	32300	425,549	4,556,251	206,687	0.700	297,885	3,189,375
481,973	31920	32300	481,593	4,756,079	206,687	0.700	337,115	3,329,255
538,016	31920	32300	537,636	4,886,209	206,687	0.700	376,345	3,420,346
594,059	31920	32300	593,679	4,946,641	206,687	0.700	415,576	3,462,649
650,103	31920	32300	649,723	4,937,374	206,687	0.700	454,806	3,456,162
706,146	31920	24298	713,768	4,765,179	206,687	0.700	499,638	3,335,625
762,190	31920	17227	776,883	4,534,133	206,687	0.700	543,818	3,173,893

A Att10-4

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**Determination of Additional Circumferential Moment/Axial Capacity Points for Section 7c
(Top Steel in Tension)**

Section	h [in]	As per ft [in^2]	d' [in]	As' per ft [in^2]	d'' [in]	d [in]	b [in]	SDV7(55,95/95) [psi]	Temp(55,95/95) [deg F]	fc [psi]	Beta 1
7c (top)	17.38	0.56	3.625	0.56	2.5	13.755	12.0	4431	90.9	4431	0.82845

A Att10-5

WHC-SD-W320-ANAL-003
Rev. 0

**Determination of Additional Circumferential Moment/Axial Capacity Points for Section 7c
(Top Steel in Tension)**

fy (rebar) [psi]	E (rebar) [psi]	yield strain=fy/E	Trial c [in]	0.85fc*b	xp [in]	eps	fs [psi]	eps'	fs' [psi]
38000	28,187,462	.0013481	0.080	45196	5.094	5.128E-01	38000	-9.075E-02	-38000
			0.580			6.815E-02	38000	-9.931E-03	-38000
			1.080			3.521E-02	38000	-3.944E-03	-38000
			1.580			2.312E-02	38000	-1.747E-03	-38000
			2.080			1.684E-02	38000	-6.058E-04	-17075
			2.580			1.299E-02	38000	9.302E-05	2622
			3.080			1.040E-02	38000	5.649E-04	15924
			3.580			8.527E-03	38000	9.050E-04	25510
			4.080			7.114E-03	38000	1.162E-03	32747
			4.580			6.010E-03	38000	1.362E-03	38000
			5.080			5.123E-03	38000	1.524E-03	38000
			5.580			4.395E-03	38000	1.656E-03	38000
			6.080			3.787E-03	38000	1.766E-03	38000
			6.580			3.271E-03	38000	1.860E-03	38000
			7.080			2.828E-03	38000	1.941E-03	38000
			7.580			2.444E-03	38000	2.011E-03	38000
			8.080			2.107E-03	38000	2.072E-03	38000
			8.580			1.809E-03	38000	2.126E-03	38000
			9.080			1.545E-03	38000	2.174E-03	38000
			9.580			1.307E-03	36853	2.217E-03	38000

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WHC-SD-W320-ANAL-003
Rev. 0

**Determination of Additional Circumferential Moment/Axial Capacity Points for Section 7c
(Top Steel in Tension)**

Cc [lbs]	Cs [lbs]	T [lbs]	P [lbs]	M [lb-in]	0.1fcAg/0.7	phi	phi x P [lbs]	phi x M [lb-in]
2,995	-21280	21280	-39,565	3,135	132,018	0.900	-35,608	2,821
21,717	-21280	21280	-20,843	160,164	132,018	0.900	-18,759	144,148
40,438	-21280	21280	-2,122	309,439	132,018	0.900	-1,910	278,495
59,160	-21280	21280	16,600	450,959	132,018	0.875	14,522	394,522
77,881	-9562	21280	47,039	656,919	132,018	0.829	38,983	544,414
96,602	1468	21280	76,791	850,888	132,018	0.784	60,178	666,813
115,324	8917	21280	102,961	1,015,038	132,018	0.744	76,605	755,208
134,045	14286	21280	127,051	1,158,613	132,018	0.708	89,892	819,748
152,767	18338	21280	149,825	1,286,327	132,018	0.700	104,878	900,429
171,488	21280	21280	171,488	1,399,441	132,018	0.700	120,042	979,608
190,209	21280	21280	190,209	1,486,676	132,018	0.700	133,147	1,040,673
208,931	21280	21280	208,931	1,566,157	132,018	0.700	146,252	1,096,310
227,652	21280	21280	227,652	1,637,883	132,018	0.700	159,357	1,146,518
246,374	21280	21280	246,374	1,701,854	132,018	0.700	172,461	1,191,298
265,095	21280	21280	265,095	1,758,070	132,018	0.700	185,566	1,230,649
283,816	21280	21280	283,816	1,806,531	132,018	0.700	198,671	1,264,572
302,538	21280	21280	302,538	1,847,238	132,018	0.700	211,776	1,293,066
321,259	21280	21280	321,259	1,880,189	132,018	0.700	224,881	1,316,133
339,981	21280	21280	339,981	1,905,386	132,018	0.700	237,986	1,333,770
358,702	21280	20637	359,344	1,919,555	132,018	0.700	251,541	1,343,688

A Att10-7

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ATTACHMENT 11
SPREADSHEETS FOR EVALUATION TRANSVERSE SHEAR LOADS

Prepared by: Phillip R. Keith 8/29/94
Date

Checked by: Lee A. Keith 8/29/94
Date

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 1a

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	h [in]	Meridional		Circumferential		b [in]	SDV7(55,95/95) [psi]	fc(55,95/95) [psi]
		d' [in]	d [in]	d' [in]	d [in]			
1	6	1.75	4.25	2.25	3.75	12	3451	3451
2	6	1.75	4.25	2.25	3.75	12	3625	3625
2a (bot)	16.49	3.13	13.36	4	12.49	12	3625	3625
3 (bot)	24	3.13	20.87	4	20	12	4049	4049
3 (top)	24	6.25	17.75	7	17	12	4049	4049
4a	18.3	2.375	15.925	3.1875	15.1125	12	3899	3899
4	12	2.375	9.625	3.1875	8.8125	12	3899	3899
5	12	2.375	9.625	3.1875	8.8125	12	4399	4399
6	12	2.375	9.625	3.1875	8.8125	12	4418	4418
6a	15	2	13	3	12	12	4418	4418
6b	27.29	2	25.29	3	24.29	12	4418	4418
7 (in)	15	1.625	13.375	2.375	12.625	12	4431	4431
7 (out)	15	4.375	10.625	3.625	11.375	12	4431	4431
8 (in)	15	1.625	13.375	2.375	12.625	12	4428	4428
8 (out)	15	4.375	10.625	3.625	11.375	12	4428	4428
9 (in)	15	1.625	13.375	2.375	12.625	12	4429	4429
9 (out)	15	4.375	10.625	3.625	11.375	12	4429	4429

A At111-2

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 1a

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	POSITIVE 1-AXIS				NEGATIVE 1-AXIS				POSITIVE 2-AXIS			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]
1	12936	5551	13236	4907	12960	5552	13296	4909	12948	5551	13260	4908
2	16596	5822	13380	5034	16584	5821	13380	5034	16620	5823	13344	5033
2a (bot)	26112	17492	9553	15711	26112	17492	9554	15711	26136	17493	9583	15712
3 (bot)	13596	27731	9473	26389	13596	27731	9476	26389	13572	27729	9456	26388
3 (top)	13596	23585	9473	22430	13596	23585	9476	22431	13572	23584	9456	22430
4a	49668	22580	-19140	15895	49668	22580	-19140	15895	49680	22580	-19128	15897
4	47220	14271	-7522	10053	47220	14271	-7520	10053	47220	14271	-7555	10048
5	45336	15073	-42024	4964	45336	15073	-42024	4964	45492	15080	-41664	5024
6	44424	15064	-10217	10254	44424	15064	-10216	10254	44856	15084	-10098	10273
6a	44780	19820	-64400	4628	44780	19820	-64390	4630	45324	19847	-64152	4673
6b	45036	36650	-129600	6867	45036	36650	-129600	6867	45552	36677	-130152	6756
7 (in)	44784	20422	-65520	4663	44784	20422	-65508	4665	45108	20438	-65448	4677
7 (out)	44784	16223	-65520	4201	44784	16223	-65508	4204	45108	16236	-65448	4214
8 (in)	75600	21969	23952	18278	75588	21969	23952	18278	76488	22014	22920	18229
8 (out)	75600	17452	23952	16469	75588	17452	23952	16469	76488	17488	22920	16424
9 (in)	96612	23031	56664	19838	96612	23031	56640	19837	96600	23031	56496	19830
9 (out)	96612	18296	56664	17874	96612	18296	56640	17873	96600	18296	56496	17867

A At11-3

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CODE CHECK FOR SHEAR - C-106 PPS Factored Load Case 1a

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Negative 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	742	5551	747	4907	742	5552	746	4909	739	5551	746	4908
2	1807	5822	669	5034	1807	5821	669	5034	1788	5823	667	5033
2a (bot)	11662	17492	582	15711	11662	17492	582	15711	11681	17493	608	15712
3 (bot)	3689	27731	1370	26389	3688	27731	1370	26389	3696	27729	1388	26388
3 (top)	3689	23585	1370	22430	3688	23585	1370	22431	3696	23584	1388	22430
4a	9136	22580	705	15895	9136	22580	705	15895	9139	22580	733	15897
4	6378	14271	180	10053	6378	14271	180	10053	6383	14271	173	10048
5	5029	15073	163	4964	5028	15073	163	4964	4910	15080	185	5024
6	9728	15064	225	10254	9728	15064	225	10254	9708	15084	14	10273
6a	11370	19820	391	4628	11320	19820	410	4630	11592	19847	856	4673
6b	15948	36650	424	6867	15948	36650	424	6867	16044	36677	921	6756
7 (in)	10900	20422	409	4663	10900	20422	409	4665	10933	20438	361	4677
7 (out)	10900	16223	409	4201	10900	16223	409	4204	10933	16236	361	4214
8 (in)	2394	21969	243	18278	2400	21969	243	18278	2431	22014	254	18229
8 (out)	2394	17452	243	16469	2400	17452	243	16469	2431	17488	254	16424
9 (in)	1436	23031	773	19838	1392	23031	607	19837	1385	23031	622	19830
9 (out)	1436	18296	773	17874	1392	18296	607	17873	1385	18296	622	17867

A Att11-4

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 1b

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	h [in]	Meridional		Circumferential		b [in]	SDV7(55,95/95) [psi]	fc(55,95/95) [psi]
		d' [in]	d [in]	d' [in]	d [in]			
1	6	1.75	4.25	2.25	3.75	12	3451	3451
2	6	1.75	4.25	2.25	3.75	12	3625	3625
2a (bot)	16.49	3.13	13.36	4	12.49	12	3625	3625
3 (bot)	24	3.13	20.87	4	20	12	4049	4049
3 (top)	24	6.25	17.75	7	17	12	4049	4049
4a	18.3	2.375	15.925	3.1875	15.1125	12	3899	3899
4	12	2.375	9.625	3.1875	8.8125	12	3899	3899
5	12	2.375	9.625	3.1875	8.8125	12	4399	4399
6	12	2.375	9.625	3.1875	8.8125	12	4418	4418
6a	15	2	13	3	12	12	4418	4418
6b	27.29	2	25.29	3	24.29	12	4418	4418
7 (in)	15	1.625	13.375	2.375	12.625	12	4431	4431
7 (out)	15	4.375	10.625	3.625	11.375	12	4431	4431
8 (in)	15	1.625	13.375	2.375	12.625	12	4428	4428
8 (out)	15	4.375	10.625	3.625	11.375	12	4428	4428
9 (in)	15	1.625	13.375	2.375	12.625	12	4429	4429
9 (out)	15	4.375	10.625	3.625	11.375	12	4429	4429

A At11-5

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 1b

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	POSITIVE 1-AXIS				NEGATIVE 1-AXIS				POSITIVE 2-AXIS			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]
1	13368	5566	12828	4894	13248	5562	13056	4901	12636	5540	13608	4919
2	17964	5871	12108	4993	16620	5823	13500	5038	16272	5810	13716	5045
2a (bot)	27816	17563	4772	15526	26052	17490	10105	15732	25800	17479	11000	15767
3 (bot)	14256	27762	-298	25908	13788	27740	11566	26483	13596	27731	12216	26512
3 (top)	14256	23611	-298	22022	13788	23593	11566	22511	13596	23585	12216	22536
4a	51360	22658	-24432	14967	48372	22520	-18396	16025	49308	22563	-17844	16122
4	49956	14387	-9866	9687	45996	14219	-7858	10000	46116	14224	-7338	10081
5	49368	15255	-37032	5791	45300	15071	-20280	8565	42936	14964	-31512	6705
6	51684	15393	-12396	9892	40464	14885	-45804	4348	45096	15095	-24600	7867
6a	52660	20206	-63400	4809	43810	19772	-45460	8053	45288	19845	-53292	6637
6b	52500	37041	-125316	7729	44244	36608	-114540	9896	47568	36782	-116952	9411
7 (in)	64032	21393	-29232	11576	52668	20820	-29112	11598	52356	20804	-41244	9287
7 (out)	64032	16994	-29232	10430	52668	16539	-29112	10450	52356	16526	-41244	8368
8 (in)	72732	21824	53784	19699	65832	21477	42540	19163	64452	21407	45924	19324
8 (out)	72732	17337	53784	17748	65832	17061	42540	17266	64452	17005	45924	17411
9 (in)	72768	21829	62724	20127	70704	21725	65388	20253	69384	21658	64764	20224
9 (out)	72768	17341	62724	18134	70704	17258	65388	18248	69384	17205	64764	18221

A Att11-6

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CODE CHECK FOR SHEAR - C-106 PPS Factored Load Case 1b

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Negative 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	747	5566	751	4894	740	5562	738	4901	738	5540	744	4919
2	1807	5871	661	4993	1770	5823	658	5038	1790	5810	676	5045
2a (bot)	11977	17563	540	15526	11471	17490	613	15732	11616	17479	611	15767
3 (bot)	3812	27762	1361	25908	3386	27740	1405	26483	3648	27731	1423	26512
3 (top)	3812	23611	1361	22022	3386	23593	1405	22511	3648	23585	1423	22536
4a	9598	22658	697	14967	9090	22520	683	16025	8995	22563	734	16122
4	6512	14387	162	9687	6335	14219	174	10000	6262	14224	199	10081
5	4220	15255	50	5791	4261	15071	141	8565	4516	14964	125	6705
6	9793	15393	168	9892	9241	14885	41	4348	9394	15095	95	7867
6a	11870	20206	671	4809	11780	19772	532	8053	11311	19845	417	6637
6b	18732	37041	882	7729	15684	36608	1031	9896	15420	36782	894	9411
7 (in)	11312	21393	547	11576	11279	20820	222	11598	10951	20804	708	9287
7 (out)	11312	16994	547	10430	11279	16539	222	10450	10951	16526	708	8368
8 (in)	5051	21824	231	19699	1966	21477	101	19163	2015	21407	138	19324
8 (out)	5051	17337	231	17748	1966	17061	101	17266	2015	17005	138	17411
9 (in)	444	21829	277	20127	398	21725	308	20253	429	21658	385	20224
9 (out)	444	17341	277	18134	398	17258	308	18248	429	17205	385	18221

A At111-7

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 2

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	h [in]	Meridional		Circumferential		b [in]	SDV7(55,95/95) [psi]	fc(55,95/95) [psi]
		d' [in]	d [in]	d' [in]	d [in]			
1	6	1.75	4.25	2.25	3.75	12	3451	3451
2	6	1.75	4.25	2.25	3.75	12	3625	3625
2a (bot)	16.49	3.13	13.36	4	12.49	12	3625	3625
3 (bot)	24	3.13	20.87	4	20	12	4049	4049
3 (top)	24	6.25	17.75	7	17	12	4049	4049
4a	18.3	2.375	15.925	3.1875	15.1125	12	3899	3899
4	12	2.375	9.625	3.1875	8.8125	12	3899	3899
5	12	2.375	9.625	3.1875	8.8125	12	4399	4399
6	12	2.375	9.625	3.1875	8.8125	12	4418	4418
6a	15	2	13	3	12	12	4418	4418
6b	27.29	2	25.29	3	24.29	12	4418	4418
7 (in)	15	1.625	13.375	2.375	12.625	12	4431	4431
7 (out)	15	4.375	10.625	3.625	11.375	12	4431	4431
8 (in)	15	1.625	13.375	2.375	12.625	12	4428	4428
8 (out)	15	4.375	10.625	3.625	11.375	12	4428	4428
9 (in)	15	1.625	13.375	2.375	12.625	12	4429	4429
9 (out)	15	4.375	10.625	3.625	11.375	12	4429	4429

A At11-8

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 2

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	POSITIVE 1-AXIS				NEGATIVE 1-AXIS				POSITIVE 2-AXIS			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]
1	22176	5878	21180	5155	22080	5874	21852	5176	21408	5850	22428	5194
2	28572	6256	19908	5243	27024	6200	21996	5309	26640	6186	22104	5313
2a (bot)	40008	18068	26592	16372	39156	18033	30756	16533	38844	18020	31452	16560
3 (bot)	28872	28449	57432	28550	28824	28447	64512	28869	28596	28436	64824	28884
3 (top)	28872	24196	57432	24268	28824	24194	64512	24539	28596	24185	64824	24551
4a	44112	22323	-25380	14801	44784	22354	-23988	15045	45696	22396	-22488	15308
4	40920	14002	537	11246	38280	13890	121	11230	38448	13897	1340	11278
5	38556	14766	43128	13709	32748	14504	36120	13419	33492	14537	36180	13421
6	35820	14674	16872	12649	31524	14480	6574	12222	32292	14514	6780	12231
6a	34620	19322	20720	17208	30550	19123	8207	16642	31368	19163	8644	16662
6b	29556	35839	-17520	29412	26460	35677	-34800	25936	26712	35690	-34824	25931
7 (in)	33300	19842	-23856	12600	30132	19683	-23736	12623	30084	19680	-23664	12636
7 (out)	33300	15763	-23856	11352	30132	15636	-23736	11373	30084	15634	-23664	11385
8 (in)	36792	20012	21864	18179	37104	20028	23628	18263	36804	20012	24036	18282
8 (out)	36792	15897	21864	16379	37104	15910	23628	16455	36804	15898	24036	16472
9 (in)	38916	20121	32064	18667	39120	20132	32760	18700	38844	20118	33048	18714
9 (out)	38916	15984	32064	16819	39120	15992	32760	16848	38844	15981	33048	16861

A At11-9

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CODE CHECK FOR SHEAR - C-106 PPS Factored Load Case 2

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Negative 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	1021	5878	740	5155	1031	5874	754	5176	1020	5850	757	5194
2	1559	6256	660	5243	1583	6200	656	5309	1585	6186	679	5313
2a (bot)	10360	18068	660	16372	10104	18033	716	16533	10237	18020	700	16560
3 (bot)	680	28449	1234	28550	665	28447	1309	28869	559	28436	1297	28884
3 (top)	680	24196	1234	24268	665	24194	1309	24539	559	24185	1297	24551
4a	11848	22323	1080	14801	11317	22354	686	15045	11224	22396	550	15308
4	6866	14002	552	11246	6836	13890	466	11230	6766	13897	696	11278
5	1975	14766	143	13709	3025	14504	83	13419	2942	14537	24	13421
6	6382	14674	58	12649	6170	14480	138	12222	6242	14514	48	12231
6a	8400	19322	135	17208	7427	19123	381	16642	7513	19163	227	16662
6b	10066	35839	302	29412	10130	35677	312	25936	10144	35690	276	25931
7 (in)	4526	19842	269	12600	6188	19683	186	12623	6173	19680	153	12636
7 (out)	4526	15763	269	11352	6188	15636	186	11373	6173	15634	153	11385
8 (in)	684	20012	46	18179	630	20028	46	18263	637	20012	47	18282
8 (out)	684	15897	46	16379	630	15910	46	16455	637	15898	47	16472
9 (in)	192	20121	168	18667	168	20132	143	18700	166	20118	142	18714
9 (out)	192	15984	168	16819	168	15992	143	16848	166	15981	142	16861

A At11-10

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 3

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	h [in]	Meridional		Circumferential		b [in]	SDV7(55,95/95) [psi]	fc(55,95/95) [psi]
		d' [in]	d [in]	d' [in]	d [in]			
1	6	1.75	4.25	2.25	3.75	12	3451	3451
2	6	1.75	4.25	2.25	3.75	12	3625	3625
2a (bot)	16.49	3.13	13.36	4	12.49	12	3625	3625
3 (bot)	24	3.13	20.87	4	20	12	4049	4049
3 (top)	24	6.25	17.75	7	17	12	4049	4049
4a	18.3	2.375	15.925	3.1875	15.1125	12	3899	3899
4	12	2.375	9.625	3.1875	8.8125	12	3899	3899
5	12	2.375	9.625	3.1875	8.8125	12	4399	4399
6	12	2.375	9.625	3.1875	8.8125	12	4418	4418
6a	15	2	13	3	12	12	4418	4418
6b	27.29	2	25.29	3	24.29	12	4418	4418
7 (in)	15	1.625	13.375	2.375	12.625	12	4431	4431
7 (out)	15	4.375	10.625	3.625	11.375	12	4431	4431
8 (in)	15	1.625	13.375	2.375	12.625	12	4428	4428
8 (out)	15	4.375	10.625	3.625	11.375	12	4428	4428
9 (in)	15	1.625	13.375	2.375	12.625	12	4429	4429
9 (out)	15	4.375	10.625	3.625	11.375	12	4429	4429

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DETERMINATION OF SHEAR CAPACITY - C-106 PPS Factored Load Case 3

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	POSITIVE 1-AXIS				NEGATIVE 1-AXIS				POSITIVE 2-AXIS			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]	Nu (min) [lbs/ft]	Shear Cap [lbs]
1	23304	5917	23304	5221	23292	5917	23472	5227	23016	5907	23676	5233
2	29496	6289	21984	5309	28740	6262	23676	5363	28596	6257	23952	5372
2a (bot)	43980	18233	24804	16302	43524	18214	29124	16470	43344	18206	29592	16488
3 (bot)	29928	28499	35088	27543	30384	28520	47712	28112	29856	28495	48456	28146
3 (top)	29928	24238	35088	23412	30384	24256	47712	23895	29856	24235	48456	23924
4a	64800	23278	-5436	18297	64944	23285	-18744	15964	65580	23314	-19500	15832
4	60696	14844	9736	11605	59064	14775	2947	11340	59712	14802	3390	11358
5	56016	15556	-20640	8505	54240	15476	-26820	7482	55812	15547	-14472	9527
6	54072	15501	1938	12030	52500	15430	1090	11995	48384	15244	-23304	8082
6a	53980	20270	-23780	11972	51550	20151	-27720	11260	53652	20254	-16044	13371
6b	46524	36728	-51960	22484	48000	36805	-65370	19787	50844	36954	-63624	20138
7 (in)	56196	20998	-24204	12533	51072	20739	-33312	10798	43824	20373	-25752	12239
7 (out)	56196	16680	-24204	11292	51072	16475	-33312	9729	43824	16185	-25752	11027
8 (in)	70860	21730	11858	17703	71352	21755	-3846	16406	78096	22095	4450	17350
8 (out)	70860	17262	11858	15950	71352	17282	-3846	14781	78096	17552	4450	15632
9 (in)	96804	23041	46824	19370	95796	22990	49116	19479	95844	22993	44832	19275
9 (out)	96804	18304	46824	17452	95796	18263	49116	17550	95844	18265	44832	17366

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CODE CHECK FOR SHEAR - C-106 PPS Factored Load Case 3

Per ACI-349, Section 11.3.1.2 and 11.3.2.3

Section	Elements along the Positive 1-Axis				Elements along the Negative 1-Axis				Elements along the Positive 2-Axis			
	Meridional		Circumferential		Meridional		Circumferential		Meridional		Circumferential	
	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]	Demand [lbs/ft]	Capacity [lbs/ft]
1	1105	5917	986	5221	1110	5917	987	5227	1100	5907	988	5233
2	2321	6289	824	5309	2311	6262	858	5363	2285	6257	865	5372
2a (bot)	15348	18233	1172	16302	15240	18214	919	16470	15312	18206	896	16488
3 (bot)	1624	28499	2118	27543	1559	28520	1843	28112	1596	28495	1764	28146
3 (top)	1624	24238	2118	23412	1559	24256	1843	23895	1596	24235	1764	23924
4a	13056	23278	2093	18297	13332	23285	858	15964	13176	23314	1046	15832
4	9158	14844	620	11605	9253	14775	607	11340	9200	14802	538	11358
5	5012	15556	88	8505	5544	15476	202	7482	5208	15547	115	9527
6	11555	15501	333	12030	11651	15430	172	11995	11670	15244	267	8082
6a	14050	20270	898	11972	13550	20151	1244	11260	14052	20254	833	13371
6b	16536	36728	1067	22484	16572	36805	379	19787	16572	36954	1538	20138
7 (in)	10339	20998	272	12533	11242	20739	349	10798	11287	20373	370	12239
7 (out)	10339	16680	272	11292	11242	16475	349	9729	11287	16185	370	11027
8 (in)	2162	21730	127	17703	2478	21755	211	16406	2412	22095	174	17350
8 (out)	2162	17262	127	15950	2478	17282	211	14781	2412	17552	174	15632
9 (in)	1376	23041	727	19370	1316	22990	607	19479	1313	22993	624	19275
9 (out)	1376	18304	727	17452	1316	18263	607	17550	1313	18265	624	17366

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ATTACHMENT 12
SPREADSHEETS FOR EVALUATION OF IN-PLANE SHEAR AND TWISTING

Prepared by: Phillip R. Kich 8/29/94
Date

Checked by: Steve Adick 8/29/94
Date

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Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 1a
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
289	3317	6.00	13644	13680	13644	14530	7265	-27	10574	8
291	3321	6.00	12936	13236	12936	14387	7194	2	10581	13
295	3330	6.00	13788	13356	13356	14492	7246	-27	10594	12
301	3343	6.00	15696	14016	14016	14655	7328	-532	10616	319
1257	3361	6.00	16368	14424	14424	14773	7386	606	10643	154
1261	3382	6.00	16668	14316	14316	14787	7394	-502	10677	111
1265	3421	6.00	16800	14160	14160	14821	7411	730	10738	95
1269	3456	6.00	17496	14556	14556	14966	7483	-798	10794	327
1273	3519	6.00	17652	14016	14016	14958	7479	1327	10891	425
1277	3610	6.00	16596	13380	13380	14977	7488	-472	11031	439
1281	3747	16.49	26112	9553	9553	36006	18003	203	84889	9481
wall elements										
1285	3795	18.30	-19140	49668	-19140	33878	16939	993	105212	6850
1289	3912	12.30	-7522	48144	-7522	24295	12148	-2138	48256	1021
1293	4073	12.00	4045	47220	4045	26636	13318	1256	46867	2490
1297	4327	12.00	14940	47232	14940	29745	14873	-410	48310	2647
1301	4403	12.00	23976	46008	23976	31896	15948	-259	48728	3378
1305	4413	12.00	3970	45336	3970	27676	13838	142	48786	5239
1309	4433	12.00	-42024	45444	-42024	17962	8981	235	48896	4068
1313	4443	12.00	-10217	44424	-10217	24751	12376	-1280	48949	3461
haunch elements										
1317	4480	12.00	44780	-64400	-64400	13350	6675	1407	49155	0
1321	4526	27.29	46260	-129600	-129600	34256	17128	9282	255519	0
1325	4533	31.62	45036	-109104	-109104	48470	24235	-3803	343291	26988
dome elements										
1329	4506	21.31	44784	-65520	-65520	34227	17113	-579	155465	15972
1333	4492	18.08	51420	-4746	-4746	39779	19890	-9984	111734	12528
1337	4492	17.38	65472	-21804	-21804	34574	17287	-5022	103247	437
1341	4492	16.91	71868	-5630	-5630	36951	18475	-2072	97738	4469
1345	4499	16.38	75600	23952	23952	42069	21035	-1331	91777	6678
1349	4502	15.83	81156	42348	42348	44750	22375	-2226	85748	1944
1353	4504	15.28	88140	50832	50832	45319	22660	-1071	79913	974
308	4513	15.00	96612	56664	56664	45959	22979	-1918	77086	428
305	4513	15.00	98184	72228	72228	49266	24633	-680	77086	6839
314	4514	15.00	102108	73092	73092	49454	24727	-2285	77096	1723
312	4514	15.00	103752	88956	88956	52826	26413	-956	77096	6910
318	4507	15.00	108708	93216	93216	53704	26852	-1430	77034	693
317	4507	15.00	110844	109872	109872	57243	28621	-87	77034	10790
320	4508	15.00	107832	105708	105708	56363	28181	-252	77045	103
footing element										
1357	4136	24.00	13596	9473	9473	53968	26984	-3228	188928	15480

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 1a
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Negative 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
1	3317	6.00	13632	13716	13632	14528	7264	7	10574	5
4	3321	6.00	12960	13296	12960	14393	7196	3	10581	21
9	3330	6.00	13800	13404	13404	14502	7251	22	10594	53
16	3343	6.00	15696	14052	14052	14663	7332	527	10616	323
324	3361	6.00	16344	14436	14436	14775	7388	-602	10643	143
328	3382	6.00	16656	14316	14316	14787	7394	504	10677	109
332	3421	6.00	16788	14160	14160	14821	7411	-732	10738	96
336	3456	6.00	17496	14556	14556	14966	7483	797	10794	324
340	3519	6.00	17640	14016	14016	14958	7479	-1327	10891	425
344	3610	6.00	16584	13380	13380	14977	7488	473	11031	440
348	3747	16.49	26112	9554	9554	36007	18003	-202	84889	9479
wall elements										
352	3795	18.30	-19140	49668	-19140	33878	16939	-994	105212	6852
356	3912	12.30	-7520	48144	-7520	24295	12148	2138	48256	1022
360	4073	12.00	4046	47220	4046	26636	13318	-1258	46867	2490
364	4327	12.00	14940	47232	14940	29745	14873	410	48310	2647
368	4403	12.00	23976	45996	23976	31896	15948	259	48728	3378
372	4413	12.00	3972	45336	3972	27677	13838	-142	48786	5239
376	4433	12.00	-42024	45432	-42024	17962	8981	-235	48896	4067
380	4443	12.00	-10216	44424	-10216	24751	12376	1280	48949	3461
haunch elements										
384	4480	12.00	44780	-64390	-64390	13353	6676	1414	49155	0
388	4526	27.29	46250	-129600	-129600	34256	17128	9276	255519	0
392	4533	31.62	45036	-109092	-109092	48473	24236	3802	343291	27000
dome elements										
396	4506	21.31	44784	-65508	-65508	34229	17115	579	155465	15972
400	4492	18.08	51408	-4742	-4742	39780	19890	9982	111734	12528
404	4492	17.38	65472	-21792	-21792	34577	17288	5022	103247	440
408	4492	16.91	71868	-5622	-5622	36953	18476	2071	97738	4465
412	4499	16.38	75588	23952	23952	42069	21035	1330	91777	6680
416	4502	15.83	81144	42336	42336	44747	22374	2225	85748	1920
420	4504	15.28	88140	50820	50820	45317	22658	1074	79913	976
23	4513	15.00	96612	56640	56640	45954	22977	1904	77086	440
19	4513	15.00	98172	72192	72192	49258	24629	684	77086	6799
28	4514	15.00	102012	73044	73044	49444	24722	2317	77096	1704
25	4514	15.00	103704	88920	88920	52818	26409	945	77096	6926
31	4507	15.00	108756	93204	93204	53701	26850	1454	77034	685
29	4507	15.00	110820	109860	109860	57240	28620	223	77034	10932
32	4508	15.00	107760	105672	105672	56355	28178	339	77045	163
footing element										
424	4136	24.00	13596	9476	9476	53969	26984	3228	188928	15480

F1A-TWST.XLS

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 1a
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 2-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
161	3317	6.00	13704	13632	13632	14528	7264	-16	10574	3
164	3321	6.00	13260	12948	12948	14390	7195	1	10581	3
169	3330	6.00	13380	13800	13380	14497	7249	-23	10594	31
176	3343	6.00	14040	15696	14040	14661	7330	-520	10616	187
844	3361	6.00	14424	16356	14424	14773	7386	593	10643	98
848	3382	6.00	14316	16668	14316	14787	7394	-497	10677	76
852	3421	6.00	14148	16800	14148	14819	7409	719	10738	69
856	3456	6.00	14544	17508	14544	14964	7482	-787	10794	302
860	3519	6.00	13980	17664	13980	14950	7475	1310	10891	441
864	3610	6.00	13344	16620	13344	14969	7485	-460	11031	432
868	3747	16.49	9583	26136	9583	36013	18006	166	84889	9098
wall elements										
872	3795	18.30	-19128	49680	-19128	33880	16940	-857	105212	2292
876	3912	12.30	-7555	48180	-7555	24288	12144	1879	48256	4015
880	4073	12.00	4072	47232	4072	26642	13321	-1073	46867	1309
884	4327	12.00	14916	47220	14916	29740	14870	272	48310	2664
888	4403	12.00	23904	46080	23904	31880	15940	279	48728	2117
892	4413	12.00	3926	45492	3926	27667	13833	-252	48786	2472
896	4433	12.00	-41664	45900	-41664	18039	9019	-536	48896	4751
900	4443	12.00	-10098	44856	-10098	24776	12388	1616	48949	938
haunch elements										
904	4480	12.00	-64152	45324	-64152	13403	6702	-1028	49155	3364
908	4526	27.29	-130152	47376	-130152	34139	17070	-2094	255519	1001
912	4533	31.62	-110292	45552	-110292	48218	24109	-2096	343291	22464
dome elements										
916	4506	21.31	-65448	45108	-65448	34242	17121	192	155465	12492
920	4492	18.08	-4440	51708	-4440	39845	19922	-9458	111734	12516
924	4492	17.38	-21288	65532	-21288	34684	17342	-4566	103247	620
928	4492	16.91	-5249	72576	-5249	37032	18516	-2125	97738	4819
932	4499	16.38	22920	76488	22920	41850	20925	-819	91777	5281
936	4502	15.83	42180	81144	42180	44714	22357	-2020	85748	1046
940	4504	15.28	51144	88092	51144	45385	22693	-1107	79913	1486
183	4513	15.00	56496	96600	56496	45923	22962	-1795	77086	243
179	4513	15.00	72216	98124	72216	49264	24632	-622	77086	6599
188	4514	15.00	73080	102024	73080	49452	24726	-2287	77096	1697
185	4514	15.00	88932	103704	88932	52820	26410	-932	77096	6824
191	4507	15.00	93216	108708	93216	53704	26852	-1448	77034	680
189	4507	15.00	109884	110796	109884	57245	28623	-186	77034	10879
192	4508	15.00	105696	107748	105696	56360	28180	-290	77045	190
footing element										
944	4136	24.00	9456	13572	9456	53965	26982	-3251	188928	16176

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 1b
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
289	3317	6.00	14004	13320	13320	14462	7231	-19	10574	6
291	3321	6.00	13368	12828	12828	14365	7182	5	10581	12
295	3330	6.00	14256	12900	12900	14395	7198	-30	10594	24
301	3343	6.00	16212	13464	13464	14538	7269	-586	10616	375
1257	3361	6.00	16956	13860	13860	14653	7326	650	10643	180
1261	3382	6.00	17400	13620	13620	14639	7320	-558	10677	127
1265	3421	6.00	17664	13452	13452	14671	7335	781	10738	116
1269	3456	6.00	18576	13632	13632	14770	7385	-881	10794	325
1273	3519	6.00	18888	13092	13092	14762	7381	1390	10891	420
1277	3610	6.00	17964	12108	12108	14707	7353	-564	11031	462
1281	3747	16.49	27816	4772	4772	34990	17495	311	84889	8704
wall elements										
1285	3795	18.30	-24432	51360	-24432	32753	16377	2096	105212	3702
1289	3912	12.30	-9866	50052	-9866	23797	11898	-3203	48256	2203
1293	4073	12.00	1351	49956	1351	26064	13032	3017	46867	567
1297	4327	12.00	14532	50436	14532	29659	14829	-1786	48310	907
1301	4403	12.00	23616	50400	23616	31819	15910	2744	48728	918
1305	4413	12.00	10816	49584	10816	29131	14565	-2972	48786	1261
1309	4433	12.00	-37032	49368	-37032	19023	9512	3320	48896	1442
1313	4443	12.00	-12396	51684	-12396	24288	12144	1409	48949	1496
haunch elements										
1317	4480	12.00	52660	-63400	-63400	13563	6781	457	49155	9465
1321	4526	27.29	52500	-109300	-109300	38570	19285	7972	255519	14620
1325	4533	31.62	53904	-125316	-125316	45025	22513	-11899	343291	4184
dome elements										
1329	4506	21.31	64164	-28656	-28656	42060	21030	-4648	155465	14928
1333	4492	18.08	64272	-29232	-29232	34576	17288	46	111734	11800
1337	4492	17.38	64032	-13068	-13068	36431	18215	-4272	103247	17892
1341	4492	16.91	69252	28284	28284	44158	22079	-660	97738	2333
1345	4499	16.38	75168	53784	53784	48409	24204	-1639	91777	12708
1349	4502	15.83	74988	58212	58212	48121	24060	1185	85748	2218
1353	4504	15.28	72732	63228	63228	47953	23977	-962	79913	2858
308	4513	15.00	73116	62724	62724	47247	23623	660	77086	1792
305	4513	15.00	72780	65904	65904	47922	23961	57	77086	540
314	4514	15.00	72888	66012	66012	47950	23975	-48	77096	583
312	4514	15.00	72768	65412	65412	47822	23911	-176	77096	1277
318	4507	15.00	73932	68436	68436	48438	24219	-15	77034	337
317	4507	15.00	74436	72708	72708	49346	24673	247	77034	2298
320	4508	15.00	71592	69432	69432	48654	24327	124	77045	165
footing element										
1357	4136	24.00	14256	-298	-298	51892	25946	-2912	188928	14868

Code Check for In-Plane Shear and Twisting Moment**C-106 PPS Factored Load Case 1b**

(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Negative 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
1	3317	6.00	13956	13440	13440	14487	7244	7	10574	5
4	3321	6.00	13248	13056	13056	14413	7206	7	10581	22
9	3330	6.00	14052	13200	13200	14459	7229	25	10594	52
16	3343	6.00	15912	13908	13908	14633	7316	496	10616	306
324	3361	6.00	16524	14268	14268	14740	7370	-573	10643	136
328	3382	6.00	16788	14232	14232	14769	7385	475	10677	107
332	3421	6.00	16884	14052	14052	14798	7399	-693	10738	93
336	3456	6.00	17532	14544	14544	14964	7482	758	10794	326
340	3519	6.00	17652	13992	13992	14953	7476	-1271	10891	404
344	3610	6.00	16620	13500	13500	15002	7501	428	11031	453
348	3747	16.49	26052	10105	10105	36124	18062	-124	84889	9424
wall elements										
352	3795	18.30	-18396	48372	-18396	34036	17018	-416	105212	4595
356	3912	12.30	-7858	47160	-7858	24224	12112	530	48256	1106
360	4073	12.00	4253	45996	4253	26680	13340	26	46867	918
364	4327	12.00	14640	46452	14640	29682	14841	-1508	48310	441
368	4403	12.00	26400	45300	26400	32411	16205	2029	48728	1184
372	4413	12.00	7394	46032	7394	28404	14202	-3752	48786	2015
376	4433	12.00	-20280	45672	-20280	22583	11292	3847	48896	2264
380	4443	12.00	-45804	40464	-45804	17189	8594	2558	48949	538
haunch elements										
384	4480	12.00	43810	-45460	-45460	17375	8688	7369	49155	11400
388	4526	27.29	44660	-114300	-114300	37508	18754	14350	255519	884
392	4533	31.62	44244	-114540	-114540	47315	23657	11496	343291	4378
dome elements										
396	4506	21.31	52668	-26736	-26736	42468	21234	3088	155465	18168
400	4492	18.08	52776	-29112	-29112	34602	17301	141	111734	1864
404	4492	17.38	57600	-22716	-22716	34381	17190	6962	103247	16296
408	4492	16.91	64512	12720	12720	40850	20425	656	97738	360
412	4499	16.38	65832	42540	42540	46019	23010	1081	91777	7051
416	4502	15.83	67920	58272	58272	48134	24067	501	85748	727
420	4504	15.28	69168	63096	63096	47925	23963	284	79913	2982
23	4513	15.00	70704	65388	65388	47813	23906	309	77086	1536
19	4513	15.00	70800	67344	67344	48228	24114	302	77086	695
28	4514	15.00	71496	67500	67500	48266	24133	192	77096	560
25	4514	15.00	71316	66576	66576	48070	24035	376	77096	1050
31	4507	15.00	73392	69756	69756	48718	24359	61	77034	172
29	4507	15.00	73800	73296	73296	49471	24735	-140	77034	1793
32	4508	15.00	71388	70020	70020	48779	24390	-67	77045	10
footing element										
424	4136	24.00	13788	11566	11566	54413	27206	3244	188928	16596

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 1b
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 2-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
161	3317	6.00	14052	13320	13320	14462	7231	-27	10574	20
164	3321	6.00	13608	12636	12636	14324	7162	-8	10581	13
169	3330	6.00	13716	13488	13488	14520	7260	-38	10594	36
176	3343	6.00	14352	15384	14352	14727	7363	-525	10616	328
844	3361	6.00	14796	16044	14796	14852	7426	587	10643	148
848	3382	6.00	14628	16332	14628	14853	7427	-476	10677	121
852	3421	6.00	14508	16488	14508	14895	7448	747	10738	100
856	3456	6.00	14868	17160	14868	15033	7516	-718	10794	338
860	3519	6.00	14364	17340	14364	15032	7516	1393	10891	421
864	3610	6.00	13716	16272	13716	15048	7524	-347	11031	478
868	3747	16.49	11000	25800	11000	36314	18157	355	84889	10056
wall elements										
872	3795	18.30	-17844	49308	-17844	34153	17077	184	105212	4708
876	3912	12.30	-7338	47772	-7338	24334	12167	2621	48256	1223
880	4073	12.00	5234	46116	5234	26889	13444	-480	46867	745
884	4327	12.00	14664	46608	14664	29687	14843	1490	48310	474
888	4403	12.00	29472	42936	29472	33063	16532	-383	48728	473
892	4413	12.00	3695	43164	3695	27618	13809	1986	48786	32
896	4433	12.00	-31512	48636	-31512	20196	10098	-137	48896	518
900	4443	12.00	-24600	45096	-24600	21695	10847	1972	48949	454
haunch elements										
904	4480	12.00	-53292	45288	-53292	15711	7855	-1248	49155	2911
908	4526	27.29	-114132	47568	-114132	37543	18772	-4974	255519	938
912	4533	31.62	-116952	48876	-116952	46802	23401	-7982	343291	27756
dome elements										
916	4506	21.31	-34524	59976	-34524	40813	20407	-6248	155465	11147
920	4492	18.08	-41244	52356	-41244	32024	16012	4028	111734	13920
924	4492	17.38	766	58824	766	39370	19685	6744	103247	15648
928	4492	16.91	7866	63336	7866	39819	19909	-2098	97738	14904
932	4499	16.38	45924	64452	45924	46738	23369	-1662	91777	1107
936	4502	15.83	55884	68412	55884	47626	23813	146	85748	5958
940	4504	15.28	65940	68268	65940	48530	24265	-364	79913	401
183	4513	15.00	64764	69384	64764	47680	23840	403	77086	1696
179	4513	15.00	68808	69408	68808	48539	24270	224	77086	1294
188	4514	15.00	68952	69864	68952	48575	24287	174	77096	171
185	4514	15.00	68208	69672	68208	48417	24208	-43	77096	1301
191	4507	15.00	71424	71376	71376	49063	24531	272	77034	228
189	4507	15.00	75264	71712	71712	49134	24567	307	77034	1806
192	4508	15.00	71880	69240	69240	48613	24307	200	77045	171
footing element										
944	4136	24.00	12216	13596	12216	54551	27276	-3788	188928	15720

F1B-TWST.XLS

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 2
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
289	3317	6.00	22896	22152	22152	16338	8169	-23	10574	3
291	3321	6.00	22176	21576	21576	16223	8112	21	10581	42
295	3330	6.00	23508	21744	21744	16274	8137	-41	10594	60
301	3343	6.00	25980	22656	22656	16491	8246	-484	10616	616
1257	3361	6.00	26760	23124	23124	16621	8311	571	10643	276
1261	3382	6.00	26544	22788	22788	16587	8294	-438	10677	197
1265	3421	6.00	26448	22080	22080	16504	8252	633	10738	153
1269	3456	6.00	26652	22392	22392	16632	8316	-627	10794	489
1273	3519	6.00	27816	21180	21180	16480	8240	1097	10891	501
1277	3610	6.00	28572	19908	19908	16364	8182	-289	11031	338
1281	3747	16.49	40008	26592	26592	39627	19814	20	84889	11438
wall elements										
1285	3795	18.30	-25380	44112	-25380	32552	16276	-678	105212	12156
1289	3912	12.30	537	40920	537	26008	13004	330	48256	2518
1293	4073	12.00	16272	42972	16272	29234	14617	4775	46867	1375
1297	4327	12.00	26088	44244	26088	32114	16057	-901	48310	782
1301	4403	12.00	53508	41796	41796	35682	17841	138	48728	176
1305	4413	12.00	57408	39672	39672	35263	17631	-474	48786	2
1309	4433	12.00	43128	38556	38556	35086	17543	1210	48896	863
1313	4443	12.00	16872	35820	16872	30507	15254	-986	48949	906
haunch elements										
1317	4480	12.00	34620	20720	20720	31438	15719	1797	49155	3335
1321	4526	27.29	33280	-17520	-17520	58073	29037	4576	255519	34370
1325	4533	31.62	29556	-4243	-4243	70753	35377	-1175	343291	29880
dome elements										
1329	4506	21.31	33300	-23856	-23856	43080	21540	-2048	155465	3077
1333	4492	18.08	33888	-11680	-11680	38306	19153	-745	111734	2819
1337	4492	17.38	34044	-1134	-1134	38967	19483	-2002	103247	1424
1341	4492	16.91	35484	11717	11717	40637	20319	-587	97738	846
1345	4499	16.38	36792	21864	21864	41626	20813	-949	91777	1037
1349	4502	15.83	37512	27732	27732	41644	20822	1	85748	463
1353	4504	15.28	37644	31116	31116	41129	20565	-511	79913	414
308	4513	15.00	38952	32064	32064	40731	20366	-118	77086	928
305	4513	15.00	38916	34176	34176	41180	20590	-265	77086	488
314	4514	15.00	40284	34536	34536	41261	20631	-239	77096	748
312	4514	15.00	40068	33420	33420	41024	20512	-463	77096	113
318	4507	15.00	42384	40020	40020	42399	21200	-177	77034	482
317	4507	15.00	43200	45792	43200	43075	21538	432	77034	1093
320	4508	15.00	38892	38952	38892	42164	21082	57	77045	4
footing element										
1357	4136	24.00	28872	57432	28872	58090	29045	-6922	188928	12540

Code Check for In-Plane Shear and Twisting Moment**C-106 PPS Factored Load Case 2**

(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Negative 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vcd/2	SF3	T threshold	SM3
floor elements										
1	3317	6.00	22848	22272	22272	16364	8182	-10	10574	4
4	3321	6.00	22080	21852	21852	16282	8141	-21	10581	6
9	3330	6.00	23256	22092	22092	16348	8174	-33	10594	31
16	3343	6.00	25812	23088	23088	16583	8292	475	10616	642
324	3361	6.00	26376	23736	23736	16751	8376	-574	10643	255
328	3382	6.00	25980	23448	23448	16728	8364	446	10677	197
332	3421	6.00	25668	22968	22968	16693	8346	-645	10738	121
336	3456	6.00	25620	23316	23316	16828	8414	635	10794	510
340	3519	6.00	26616	22380	22380	16735	8368	-1107	10891	488
344	3610	6.00	27024	21996	21996	16808	8404	104	11031	371
348	3747	16.49	39156	30756	30756	40512	20256	802	84889	10208
wall elements										
352	3795	18.30	-23988	44784	-23988	32848	16424	-612	105212	9073
356	3912	12.30	121	42000	121	25919	12960	1247	48256	1993
360	4073	12.00	16920	40416	16920	29372	14686	-979	46867	499
364	4327	12.00	31584	38280	31584	33282	16641	1059	48310	233
368	4403	12.00	56580	36372	36372	34530	17265	-842	48728	94
372	4413	12.00	55140	34404	34404	34143	17072	1193	48786	888
376	4433	12.00	36120	32748	32748	33851	16926	-802	48896	308
380	4443	12.00	6574	31524	6574	28319	14159	1153	48949	479
haunch elements										
384	4480	12.00	30550	8207	8207	28779	14390	1086	49155	4036
388	4526	27.29	29960	-34800	-34800	54401	27201	4592	255519	28560
392	4533	31.62	26460	-14088	-14088	68661	34331	2252	343291	37164
dome elements										
396	4506	21.31	30132	-23736	-23736	43106	21553	3001	155465	8520
400	4492	18.08	32604	-7944	-7944	39100	19550	1204	111734	2669
404	4492	17.38	34716	2524	2524	39744	19872	1918	103247	812
408	4492	16.91	36156	14064	14064	41136	20568	468	97738	583
412	4499	16.38	37104	23628	23628	42001	21000	932	91777	1262
416	4502	15.83	37812	29244	29244	41965	20983	-28	85748	195
420	4504	15.28	38004	32124	32124	41344	20672	488	79913	683
23	4513	15.00	39216	32760	32760	40879	20440	87	77086	863
19	4513	15.00	39120	34608	34608	41272	20636	306	77086	472
28	4514	15.00	40404	34968	34968	41353	20677	245	77096	728
25	4514	15.00	40188	33672	33672	41078	20539	475	77096	76
31	4507	15.00	42480	40272	40272	42453	21226	147	77034	503
29	4507	15.00	43260	45864	43260	43088	21544	-411	77034	1079
32	4508	15.00	38880	39024	38880	42162	21081	-53	77045	9
footing element										
424	4136	24.00	28824	64512	28824	58080	29040	5142	188928	13944

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 2
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 2-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
161	3317	6.00	22932	22164	22164	16341	8170	-44	10574	38
164	3321	6.00	22428	21408	21408	16188	8094	2	10581	51
169	3330	6.00	22644	22668	22644	16466	8233	-14	10594	49
176	3343	6.00	23544	25188	23544	16680	8340	-494	10616	623
844	3361	6.00	24240	25836	24240	16859	8429	572	10643	257
848	3382	6.00	23844	25464	23844	16812	8406	-437	10677	198
852	3421	6.00	23364	25188	23364	16777	8388	676	10738	129
856	3456	6.00	23604	25200	23604	16889	8445	-572	10794	506
860	3519	6.00	22596	26280	22596	16781	8391	1182	10891	521
864	3610	6.00	22104	26640	22104	16831	8415	7	11031	375
868	3747	16.49	31452	38844	31452	40660	20330	-643	84889	10668
wall elements										
872	3795	18.30	-22488	45696	-22488	33166	16583	-105	105212	1638
876	3912	12.30	1340	42288	1340	26178	13089	1901	48256	611
880	4073	12.00	17604	40908	17604	29517	14759	-380	46867	13
884	4327	12.00	31920	38448	31920	33354	16677	1478	48310	326
888	4403	12.00	56568	36852	36852	34632	17316	-651	48728	436
892	4413	12.00	55164	34776	34776	34222	17111	1376	48786	127
896	4433	12.00	36180	33492	33492	34010	17005	-764	48896	104
900	4443	12.00	6780	32292	6780	28363	14181	1459	48949	854
haunch elements										
904	4480	12.00	8644	31368	8644	28872	14436	-580	49155	552
908	4526	27.29	-34824	30936	-34824	54396	27198	895	255519	9490
912	4533	31.62	-14292	26712	-14292	68618	34309	-1241	343291	28608
dome elements										
916	4506	21.31	-23664	30084	-23664	43121	21561	-2046	155465	5849
920	4492	18.08	-7559	32352	-7559	39182	19591	-613	111734	1687
924	4492	17.38	2888	34416	2888	39822	19911	-1453	103247	1070
928	4492	16.91	14556	35832	14556	41241	20620	-217	97738	567
932	4499	16.38	24036	36804	24036	42087	21044	-818	91777	1132
936	4502	15.83	29652	37512	29652	42052	21026	38	85748	332
940	4504	15.28	32412	37716	32412	41405	20702	-523	79913	514
183	4513	15.00	33048	38952	33048	40940	20470	-150	77086	1023
179	4513	15.00	34800	38844	34800	41313	20656	-394	77086	634
188	4514	15.00	35172	40224	35172	41396	20698	-287	77096	872
185	4514	15.00	33792	39960	33792	41103	20552	-568	77096	52
191	4507	15.00	40404	42312	40404	42481	21240	-183	77034	599
189	4507	15.00	45972	43080	43080	43050	21525	354	77034	1146
192	4508	15.00	39120	38784	38784	42141	21071	47	77045	33
footing element										
944	4136	24.00	64824	28596	28596	58032	29016	-5476	188928	13716

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 3
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
289	3317	6.00	24204	23940	23940	16718	8359	-34	10574	8
291	3321	6.00	23304	23304	23304	16591	8295	15	10581	35
295	3330	6.00	24672	23508	23508	16649	8325	-38	10594	22
301	3343	6.00	27468	24372	24372	16856	8428	-785	10616	773
1257	3361	6.00	28368	25164	25164	17055	8527	876	10643	337
1261	3382	6.00	28536	24648	24648	16983	8491	-746	10677	237
1265	3421	6.00	28488	24372	24372	16991	8496	1070	10738	171
1269	3456	6.00	29076	24372	24372	17052	8526	-1144	10794	578
1273	3519	6.00	30108	23856	23856	17049	8525	1867	10891	537
1277	3610	6.00	29496	21984	21984	16805	8403	-707	11031	576
1281	3747	16.49	43980	24804	24804	39247	19624	-149	84889	14544
wall elements										
1285	3795	18.30	-5436	64800	-5436	36790	18395	-2023	105212	4040
1289	3912	12.30	12876	61632	12876	28630	14315	1782	48256	7063
1293	4073	12.00	9736	63456	9736	27845	13923	3382	46867	2478
1297	4327	12.00	23580	60696	23580	31581	15791	-4450	48310	265
1301	4403	12.00	47688	58188	47688	36934	18467	3646	48728	789
1305	4413	12.00	30756	57696	30756	33368	16684	-1834	48786	717
1309	4433	12.00	-20640	56016	-20640	22507	11253	1493	48896	955
1313	4443	12.00	1938	54072	1938	27334	13667	-1309	48949	2078
haunch elements										
1317	4480	12.00	53980	-23780	-23780	21982	10991	2468	49155	15740
1321	4526	27.29	50420	-51960	-51960	50755	25377	10940	255519	26530
1325	4533	31.62	46524	-43056	-43056	62505	31253	-8665	343291	13800
dome elements										
1329	4506	21.31	58368	-16896	-16896	44559	22280	-6725	155465	12000
1333	4492	18.08	60060	-3752	-3752	39991	19995	2456	111734	15228
1337	4492	17.38	56196	-23796	-23796	34151	17076	-1909	103247	7748
1341	4492	16.91	57948	-24204	-24204	33004	16502	-1876	97738	11758
1345	4499	16.38	70860	11858	11858	39499	19750	-7331	91777	2107
1349	4502	15.83	81936	22092	22092	40445	20223	785	85748	2986
1353	4504	15.28	86652	43152	43152	43687	21844	-3514	79913	53
308	4513	15.00	96804	46824	46824	43868	21934	-340	77086	1753
305	4513	15.00	97464	67356	67356	48231	24115	-571	77086	6858
314	4514	15.00	102768	68592	68592	48498	24249	-2612	77096	1858
312	4514	15.00	104508	84828	84828	51948	25974	-1189	77096	6731
318	4507	15.00	110424	93396	93396	53742	26871	-1578	77034	1170
317	4507	15.00	113112	113676	113112	57931	28966	200	77034	10338
320	4508	15.00	107364	105036	105036	56220	28110	-249	77045	134
footing element										
1357	4136	24.00	29928	35088	29928	58315	29157	-6046	188928	27048

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 3
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Negative 1-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
1	3317	6.00	24168	24012	24012	16734	8367	-3	10574	5
4	3321	6.00	23292	23472	23292	16588	8294	-14	10581	9
9	3330	6.00	24576	23688	23688	16688	8344	-2	10594	23
16	3343	6.00	27384	24756	24756	16938	8469	650	10616	655
324	3361	6.00	28212	25320	25320	17088	8544	-762	10643	269
328	3382	6.00	28284	25140	25140	17087	8544	618	10677	194
332	3421	6.00	28260	24588	24588	17037	8519	-902	10738	126
336	3456	6.00	28584	25200	25200	17228	8614	891	10794	553
340	3519	6.00	29808	24072	24072	17095	8547	-1486	10891	538
344	3610	6.00	28740	23676	23676	17165	8582	77	11031	612
348	3747	16.49	43524	29124	29124	40165	20083	952	84889	12588
wall elements										
352	3795	18.30	-18744	64944	-18744	33962	16981	-432	105212	12396
356	3912	12.30	2947	61260	2947	26520	13260	3323	48256	4148
360	4073	12.00	12960	60372	12960	28531	14265	-3002	46867	6415
364	4327	12.00	26880	59064	26880	32283	16141	1999	48310	5220
368	4403	12.00	47856	57408	47856	36970	18485	-2210	48728	3810
372	4413	12.00	28452	55620	28452	32879	16439	2159	48786	2012
376	4433	12.00	-26820	54240	-26820	21193	10597	-2003	48896	4574
380	4443	12.00	1090	52500	1090	27154	13577	2736	48949	2509
haunch elements										
384	4480	12.00	51550	-27720	-27720	21145	10572	2232	49155	9857
388	4526	27.29	50220	-65370	-65370	47905	23953	9178	255519	29770
392	4533	31.62	48000	-50868	-50868	60845	30423	8603	343291	10381
dome elements										
396	4506	21.31	53604	3055	3055	48799	24399	896	155465	7133
400	4492	18.08	51072	-33312	-33312	33709	16855	-178	111734	8443
404	4492	17.38	56928	3209	3209	39890	19945	8184	103247	19236
408	4492	16.91	67440	-15924	-15924	34764	17382	2425	97738	4186
412	4499	16.38	71352	-3846	-3846	36162	18081	1565	91777	3892
416	4502	15.83	76512	24936	24936	41050	20525	2228	85748	5063
420	4504	15.28	85500	41664	41664	43371	21685	2177	79913	4369
23	4513	15.00	95796	49116	49116	44355	22177	1595	77086	1477
19	4513	15.00	97152	67920	67920	48351	24175	806	77086	5581
28	4514	15.00	102324	69096	69096	48605	24303	2575	77096	2381
25	4514	15.00	104004	85260	85260	52040	26020	1225	77096	6504
31	4507	15.00	110316	93900	93900	53849	26924	1612	77034	1084
29	4507	15.00	112908	113868	112908	57888	28944	-56	77034	10250
32	4508	15.00	107256	105216	105216	56258	28129	324	77045	98
footing element										
424	4136	24.00	30384	47712	30384	58412	29206	4792	188928	23676

Code Check for In-Plane Shear and Twisting Moment
C-106 PPS Factored Load Case 3
(Per ACI-349 Sections 11.6 and 11.10)

Elements Along the Positive 2-Axis

ELEMENT	fc	Thickness	SF1 (P1)	SF2 (P2)	min Nu	phi*Vc Eqn 11-32	phi*Vc/2	SF3	T threshold	SM3
floor elements										
161	3317	6.00	24264	23904	23904	16711	8355	-33	10574	23
164	3321	6.00	23676	23016	23016	16529	8265	9	10581	30
169	3330	6.00	23892	24336	23892	16731	8365	-22	10594	4
176	3343	6.00	25032	27156	25032	16996	8498	-702	10616	723
844	3361	6.00	25452	27984	25452	17116	8558	808	10643	307
848	3382	6.00	25404	28092	25404	17143	8572	-659	10677	222
852	3421	6.00	24684	28056	24684	17057	8529	969	10738	152
856	3456	6.00	25488	28440	25488	17289	8645	-946	10794	569
860	3519	6.00	24084	29664	24084	17098	8549	1607	10891	542
864	3610	6.00	23952	28596	23952	17223	8612	-175	11031	589
868	3747	16.49	29592	43344	29592	40265	20132	-666	84889	13116
wall elements										
872	3795	18.30	-19500	65580	-19500	33801	16901	-171	105212	11557
876	3912	12.30	3390	63276	3390	26614	13307	3672	48256	578
880	4073	12.00	13656	59712	13656	28679	14339	-3938	46867	2118
884	4327	12.00	26064	59724	26064	32109	16055	2636	48310	303
888	4403	12.00	52044	56916	52044	37860	18930	-3353	48728	1172
892	4413	12.00	24720	55812	24720	32086	16043	2741	48786	956
896	4433	12.00	-14472	58524	-14472	23817	11909	90	48896	1132
900	4443	12.00	-23304	48384	-23304	21970	10985	1460	48949	1244
haunch elements										
904	4480	12.00	-16044	53652	-16044	23626	11813	772	49155	3487
908	4526	27.29	-63624	52236	-63624	48276	24138	-2959	255519	3076
912	4533	31.62	-45408	50844	-45408	62006	31003	2184	343291	37272
dome elements										
916	4506	21.31	-5148	57492	-5148	47056	23528	2539	155465	12084
920	4492	18.08	-25752	43824	-25752	35316	17658	-8040	111734	2719
924	4492	17.38	-11993	50016	-11993	36659	18330	-7128	103247	1363
928	4492	16.91	-9695	66336	-9695	36087	18044	-1077	97738	3811
932	4499	16.38	4450	78096	4450	37925	18963	-4069	91777	2207
936	4502	15.83	19560	78648	19560	39907	19954	-658	85748	2376
940	4504	15.28	46440	86172	46440	44386	22193	-2263	79913	709
183	4513	15.00	44832	95844	44832	43444	21722	-1247	77086	2239
179	4513	15.00	67668	97380	67668	48297	24149	-439	77086	6794
188	4514	15.00	68868	102456	68868	48557	24278	-2533	77096	2927
185	4514	15.00	85104	104196	85104	52007	26003	-1119	77096	7319
191	4507	15.00	93720	110304	93720	53811	26905	-1530	77034	1822
189	4507	15.00	113856	112896	112896	57886	28943	110	77034	10752
192	4508	15.00	105180	107220	105180	56251	28125	-251	77045	466
footing element										
944	4136	24.00	48456	29856	29856	58300	29150	-5304	188928	23232

ATTACHMENT 13
SELECTED EXPANDED SPREADSHEETS SHOWING FORMULAS

Prepared by: Phillip R. Keith 8/29/94
Date

Checked by: James L. Lick 8/31/94
Date

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	A	B	C	D	E	F	G	H	I	J
2	DET									
3										
4				force					I	J
5	step	incr	iter	converge	disp-x	disp-y	disp-z		dx^2	dy^2
6										
7	4	1	1	NO	0.004325	-0.004325	-0.0333		=(E7-E8)^2	=(F7-F8)^2
8	4	1	2	NO	0.004563	-0.004563	-0.03527		=(E8-E9)^2	=(F8-F9)^2
9	4	1	3	NO	0.004766	-0.004766	-0.03697			
10	4	2	1	NO	0.01238	0.01237	-0.05467		=(E10-E11)^2	=(F10-F11)^2
11	4	2	2	NO	0.02241	0.0224	-0.07629		=(E11-E12)^2	=(F11-F12)^2
12	4	2	3	NO	0.02983	0.02981	-0.09363			
13	4	3	1	NO	0.008617	0.008609	-0.05213		=(E13-E14)^2	=(F13-F14)^2
14	4	3	2	NO	0.01225	0.01224	-0.05798		=(E14-E15)^2	=(F14-F15)^2
15	4	3	3	NO	0.01706	0.01708	-0.06871			
16	4	4	1	NO	0.0119	0.01284	-0.05743		=(E16-E17)^2	=(F16-F17)^2
17	4	4	2	NO	0.01459	0.01522	-0.06265		=(E17-E18)^2	=(F17-F18)^2
18	4	4	3	NO	0.01623	0.01625	-0.0688			
19	4	5	1	NO	0.004325	-0.004262	-0.04117			
20	4	5	2	CONVERGENT	0.004324	-0.004262	-0.0412			
21										
22	4	6	1	CONVERGENT	0.004526	-0.004526	-0.03567			
23										
24										
25	4	7	1	NO	0.004527	-0.004527	-0.03567		=(E25-E26)^2	=(F25-F26)^2
26	4	7	2	NO	0.004451	-0.004451	-0.03703		=(E26-E27)^2	=(F26-F27)^2
27	4	7	3	NO	0.004442	-0.004442	-0.03719			
28	4	8	1	CONVERGENT	0.004524	-0.004524	-0.0357			
29										
30										
31	4	9	1	CONVERGENT	0.004526	-0.004526	-0.03569			
32										
33										
34	4	10	1	CONVERGENT	0.004526	-0.004526	-0.03569			
35										
36										
37	4	11	1	CONVERGENT	0.004526	-0.004526	-0.03569			
38										
39										
40	4	12	1	CONVERGENT	0.004526	-0.004526	-0.03569			
41										
42										
43	4	13	1	CONVERGENT	0.004526	-0.004526	-0.03569			
44										
45										
46	4	14	1	NO	0.004532	-0.004595	-0.03583		=(E46-E47)^2	=(F46-F47)^2
47	4	14	2	NO	0.00454	-0.004677	-0.03601		=(E47-E48)^2	=(F47-F48)^2
48	4	14	3	NO	0.004554	-0.004834	-0.03635			
49	4	15	1	NO	0.004544	-0.00474	-0.03615			
50	4	15	2	CONVERGENT	0.004545	-0.00474	-0.03615			
51										
52	4	16	1	CONVERGENT	0.004526	-0.004535	-0.0357			
53										
54										

	K	L	M	N
2				
3				
4	K	sqrt of		converge.
5	dz^2	I+J+K		indicator
6				
7	=(G7-G8)^2	=SQRT(I7+J7+K7)		=L7-L8
8	=(G8-G9)^2	=SQRT(I8+J8+K8)		
9				
10	=(G10-G11)^2	=SQRT(I10+J10+K10)		=L10-L11
11	=(G11-G12)^2	=SQRT(I11+J11+K11)		
12				
13	=(G13-G14)^2	=SQRT(I13+J13+K13)		=L13-L14
14	=(G14-G15)^2	=SQRT(I14+J14+K14)		
15				
16	=(G16-G17)^2	=SQRT(I16+J16+K16)		=L16-L17
17	=(G17-G18)^2	=SQRT(I17+J17+K17)		
18				
19				0.003
20				
21				
22				0.003
23				
24				
25	=(G25-G26)^2	=SQRT(I25+J25+K25)		=L25-L26
26	=(G26-G27)^2	=SQRT(I26+J26+K26)		
27				
28				0.003
29				
30				
31				0.003
32				
33				
34				0.003
35				
36				
37				0.003
38				
39				
40				0.003
41				
42				
43				0.003
44				
45				
46	=(G46-G47)^2	=SQRT(I46+J46+K46)		=L46-L47
47	=(G47-G48)^2	=SQRT(I47+J47+K47)		
48				
49				0.003
50				
51				
52				0.003
53				
54				

	A	B	C	D	E	F	G	H	I	J
2	DET									
3										
4				force					I	J
5	step	incr	iter	converge	disp-x	disp-y	disp-z		dx^2	dy^2
55	4	17	1	NO	0.004508	-0.004497	-0.03681		=(E55-E56)^2	=(F55-F56)^2
56	4	17	2	NO	0.004505	-0.004496	-0.03717		=(E56-E57)^2	=(F56-F57)^2
57	4	17	3	NO	0.004517	-0.004545	-0.0375			
58	4	18	1	NO	0.004266	0.004561	-0.03993		=(E58-E59)^2	=(F58-F59)^2
59	4	18	2	NO	0.004669	0.006306	-0.04211		=(E59-E60)^2	=(F59-F60)^2
60	4	18	3	NO	0.005979	0.006984	-0.04339			
61	4	19	1	NO	0.005777	-0.004615	-0.03749		=(E61-E62)^2	=(F61-F62)^2
62	4	19	2	NO	0.005716	-0.004601	-0.03785		=(E62-E63)^2	=(F62-F63)^2
63	4	19	3	NO	0.005698	-0.004597	-0.03794			
64	4	20	1	CONVERGENT	0.004538	-0.004537	-0.03587			
65										
66										

	K	L	M	N
2				
3				
4	K	sqrt of		converge.
5	dz^2	I+J+K		indicator
55	=(G55-G56)^2	=SQRT(I55+J55+K55)		=L55-L56
56	=(G56-G57)^2	=SQRT(I56+J56+K56)		
57				
58	=(G58-G59)^2	=SQRT(I58+J58+K58)		=L58-L59
59	=(G59-G60)^2	=SQRT(I59+J59+K59)		
60				
61	=(G61-G62)^2	=SQRT(I61+J61+K61)		=L61-L62
62	=(G62-G63)^2	=SQRT(I62+J62+K62)		
63				
64				0.003
65				
66				

	A	B	C	D	E	F	G	H	I	J
1	POSTPR									
2	(units are									
3	ELSET A									
4			positive is com			absolute value		absolute value		
5	ELEMEN	PT F	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
6		NO	(P1)	(P2)		(V13)	(V23)	(M22)	(M11)	
7										
8	floor elem									
9	289	1	(C173*12)	(D173*12)	E173*12	=ABS(F173)*12	=ABS(G173)*12	=ABS(H173)*12	=ABS(I173)*12	=ABS(J173)*12
10	291	1	(C174*12)	(D174*12)	E174*12	=ABS(F174)*12	=ABS(G174)*12	=ABS(H174)*12	=ABS(I174)*12	=ABS(J174)*12
11	295	1	(C175*12)	(D175*12)	E175*12	=ABS(F175)*12	=ABS(G175)*12	=ABS(H175)*12	=ABS(I175)*12	=ABS(J175)*12
12	301	1	(C176*12)	(D176*12)	E176*12	=ABS(F176)*12	=ABS(G176)*12	=ABS(H176)*12	=ABS(I176)*12	=ABS(J176)*12
13	1257	1	(C177*12)	(D177*12)	E177*12	=ABS(F177)*12	=ABS(G177)*12	=ABS(H177)*12	=ABS(I177)*12	=ABS(J177)*12
14	1261	1	(C178*12)	(D178*12)	E178*12	=ABS(F178)*12	=ABS(G178)*12	=ABS(H178)*12	=ABS(I178)*12	=ABS(J178)*12
15	1265	1	(C179*12)	(D179*12)	E179*12	=ABS(F179)*12	=ABS(G179)*12	=ABS(H179)*12	=ABS(I179)*12	=ABS(J179)*12
16	1269	1	(C180*12)	(D180*12)	E180*12	=ABS(F180)*12	=ABS(G180)*12	=ABS(H180)*12	=ABS(I180)*12	=ABS(J180)*12
17	1273	1	(C181*12)	(D181*12)	E181*12	=ABS(F181)*12	=ABS(G181)*12	=ABS(H181)*12	=ABS(I181)*12	=ABS(J181)*12
18	1277	1	(C182*12)	(D182*12)	E182*12	=ABS(F182)*12	=ABS(G182)*12	=ABS(H182)*12	=ABS(I182)*12	=ABS(J182)*12
19	1281	1	(C183*12)	(D183*12)	E183*12	=ABS(F183)*12	=ABS(G183)*12	=ABS(H183)*12	=ABS(I183)*12	=ABS(J183)*12
20										
21	wall elem									
22	1285	1	(C184*12)	(D184*12)	E184*12	=ABS(F184)*12	=ABS(G184)*12	=ABS(H184)*12	=ABS(I184)*12	=ABS(J184)*12
23	1289	1	(C185*12)	(D185*12)	E185*12	=ABS(F185)*12	=ABS(G185)*12	=ABS(H185)*12	=ABS(I185)*12	=ABS(J185)*12
24	1293	1	(C186*12)	(D186*12)	E186*12	=ABS(F186)*12	=ABS(G186)*12	=ABS(H186)*12	=ABS(I186)*12	=ABS(J186)*12
25	1297	1	(C187*12)	(D187*12)	E187*12	=ABS(F187)*12	=ABS(G187)*12	=ABS(H187)*12	=ABS(I187)*12	=ABS(J187)*12
26	1301	1	(C188*12)	(D188*12)	E188*12	=ABS(F188)*12	=ABS(G188)*12	=ABS(H188)*12	=ABS(I188)*12	=ABS(J188)*12
27	1305	1	(C189*12)	(D189*12)	E189*12	=ABS(F189)*12	=ABS(G189)*12	=ABS(H189)*12	=ABS(I189)*12	=ABS(J189)*12
28	1309	1	(C190*12)	(D190*12)	E190*12	=ABS(F190)*12	=ABS(G190)*12	=ABS(H190)*12	=ABS(I190)*12	=ABS(J190)*12
29	1313	1	(C191*12)	(D191*12)	E191*12	=ABS(F191)*12	=ABS(G191)*12	=ABS(H191)*12	=ABS(I191)*12	=ABS(J191)*12
30										
31	haunch el									
32	1317	1	(C192*12)	(D192*12)	E192*12	=ABS(F192)*12	=ABS(G192)*12	=ABS(H192)*12	=ABS(I192)*12	=ABS(J192)*12
33	1321	1	(C193*12)	(D193*12)	E193*12	=ABS(F193)*12	=ABS(G193)*12	=ABS(H193)*12	=ABS(I193)*12	=ABS(J193)*12
34	1325	1	(C194*12)	(D194*12)	E194*12	=ABS(F194)*12	=ABS(G194)*12	=ABS(H194)*12	=ABS(I194)*12	=ABS(J194)*12
35										
36	dome ele									
37	1329	1	(C195*12)	(D195*12)	E195*12	=ABS(F195)*12	=ABS(G195)*12	=ABS(H195)*12	=ABS(I195)*12	=ABS(J195)*12
38	1333	1	(C196*12)	(D196*12)	E196*12	=ABS(F196)*12	=ABS(G196)*12	=ABS(H196)*12	=ABS(I196)*12	=ABS(J196)*12
39	1337	1	(C197*12)	(D197*12)	E197*12	=ABS(F197)*12	=ABS(G197)*12	=ABS(H197)*12	=ABS(I197)*12	=ABS(J197)*12
40	1341	1	(C198*12)	(D198*12)	E198*12	=ABS(F198)*12	=ABS(G198)*12	=ABS(H198)*12	=ABS(I198)*12	=ABS(J198)*12
41	1345	1	(C199*12)	(D199*12)	E199*12	=ABS(F199)*12	=ABS(G199)*12	=ABS(H199)*12	=ABS(I199)*12	=ABS(J199)*12
42	1349	1	(C200*12)	(D200*12)	E200*12	=ABS(F200)*12	=ABS(G200)*12	=ABS(H200)*12	=ABS(I200)*12	=ABS(J200)*12
43	1353	1	(C201*12)	(D201*12)	E201*12	=ABS(F201)*12	=ABS(G201)*12	=ABS(H201)*12	=ABS(I201)*12	=ABS(J201)*12
44	308	1	(C202*12)	(D202*12)	E202*12	=ABS(F202)*12	=ABS(G202)*12	=ABS(H202)*12	=ABS(I202)*12	=ABS(J202)*12
45	305	1	(C203*12)	(D203*12)	E203*12	=ABS(F203)*12	=ABS(G203)*12	=ABS(H203)*12	=ABS(I203)*12	=ABS(J203)*12
46	314	1	(C204*12)	(D204*12)	E204*12	=ABS(F204)*12	=ABS(G204)*12	=ABS(H204)*12	=ABS(I204)*12	=ABS(J204)*12
47	312	1	(C205*12)	(D205*12)	E205*12	=ABS(F205)*12	=ABS(G205)*12	=ABS(H205)*12	=ABS(I205)*12	=ABS(J205)*12
48	318	1	(C206*12)	(D206*12)	E206*12	=ABS(F206)*12	=ABS(G206)*12	=ABS(H206)*12	=ABS(I206)*12	=ABS(J206)*12
49	317	1	(C207*12)	(D207*12)	E207*12	=ABS(F207)*12	=ABS(G207)*12	=ABS(H207)*12	=ABS(I207)*12	=ABS(J207)*12
50	320	1	(C208*12)	(D208*12)	E208*12	=ABS(F208)*12	=ABS(G208)*12	=ABS(H208)*12	=ABS(I208)*12	=ABS(J208)*12
51										
52	loading ele									
53	1357	1	(C209*12)	(D209*12)	E209*12	=ABS(F209)*12	=ABS(G209)*12	=ABS(H209)*12	=ABS(I209)*12	=ABS(J209)*12
54										

PPS-F1AP.XLS

A At113-6

	A	B	C	D	E	F	G	H	I	J
55	POSTPR									
56	(units are									
57	ELSET A									
58			positive is com			absolute value		absolute value		
59	ELEMEN	PT F	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
60		NO	(P1)	(P2)		(V13)	(V23)	(M22)	(M11)	
61										
62	floor elem									
63	1	1	=(C219*12)	=(D219*12)	=E219*12	=ABS(F219)*12	=ABS(G219)*12	=ABS(H219)*12	=ABS(I219)*12	=ABS(J219)*12
64	4	1	=(C220*12)	=(D220*12)	=E220*12	=ABS(F220)*12	=ABS(G220)*12	=ABS(H220)*12	=ABS(I220)*12	=ABS(J220)*12
65	9	1	=(C221*12)	=(D221*12)	=E221*12	=ABS(F221)*12	=ABS(G221)*12	=ABS(H221)*12	=ABS(I221)*12	=ABS(J221)*12
66	16	1	=(C222*12)	=(D222*12)	=E222*12	=ABS(F222)*12	=ABS(G222)*12	=ABS(H222)*12	=ABS(I222)*12	=ABS(J222)*12
67	324	1	=(C223*12)	=(D223*12)	=E223*12	=ABS(F223)*12	=ABS(G223)*12	=ABS(H223)*12	=ABS(I223)*12	=ABS(J223)*12
68	328	1	=(C224*12)	=(D224*12)	=E224*12	=ABS(F224)*12	=ABS(G224)*12	=ABS(H224)*12	=ABS(I224)*12	=ABS(J224)*12
69	332	1	=(C225*12)	=(D225*12)	=E225*12	=ABS(F225)*12	=ABS(G225)*12	=ABS(H225)*12	=ABS(I225)*12	=ABS(J225)*12
70	336	1	=(C226*12)	=(D226*12)	=E226*12	=ABS(F226)*12	=ABS(G226)*12	=ABS(H226)*12	=ABS(I226)*12	=ABS(J226)*12
71	340	1	=(C227*12)	=(D227*12)	=E227*12	=ABS(F227)*12	=ABS(G227)*12	=ABS(H227)*12	=ABS(I227)*12	=ABS(J227)*12
72	344	1	=(C228*12)	=(D228*12)	=E228*12	=ABS(F228)*12	=ABS(G228)*12	=ABS(H228)*12	=ABS(I228)*12	=ABS(J228)*12
73	348	1	=(C229*12)	=(D229*12)	=E229*12	=ABS(F229)*12	=ABS(G229)*12	=ABS(H229)*12	=ABS(I229)*12	=ABS(J229)*12
74										
75	wall elem									
76	352	1	=(C230*12)	=(D230*12)	=E230*12	=ABS(F230)*12	=ABS(G230)*12	=ABS(H230)*12	=ABS(I230)*12	=ABS(J230)*12
77	356	1	=(C231*12)	=(D231*12)	=E231*12	=ABS(F231)*12	=ABS(G231)*12	=ABS(H231)*12	=ABS(I231)*12	=ABS(J231)*12
78	360	1	=(C232*12)	=(D232*12)	=E232*12	=ABS(F232)*12	=ABS(G232)*12	=ABS(H232)*12	=ABS(I232)*12	=ABS(J232)*12
79	364	1	=(C233*12)	=(D233*12)	=E233*12	=ABS(F233)*12	=ABS(G233)*12	=ABS(H233)*12	=ABS(I233)*12	=ABS(J233)*12
80	368	1	=(C234*12)	=(D234*12)	=E234*12	=ABS(F234)*12	=ABS(G234)*12	=ABS(H234)*12	=ABS(I234)*12	=ABS(J234)*12
81	372	1	=(C235*12)	=(D235*12)	=E235*12	=ABS(F235)*12	=ABS(G235)*12	=ABS(H235)*12	=ABS(I235)*12	=ABS(J235)*12
82	376	1	=(C236*12)	=(D236*12)	=E236*12	=ABS(F236)*12	=ABS(G236)*12	=ABS(H236)*12	=ABS(I236)*12	=ABS(J236)*12
83	380	1	=(C237*12)	=(D237*12)	=E237*12	=ABS(F237)*12	=ABS(G237)*12	=ABS(H237)*12	=ABS(I237)*12	=ABS(J237)*12
84										
85	haunch el									
86	384	1	=(C238*12)	=(D238*12)	=E238*12	=ABS(F238)*12	=ABS(G238)*12	=ABS(H238)*12	=ABS(I238)*12	=ABS(J238)*12
87	388	1	=(C239*12)	=(D239*12)	=E239*12	=ABS(F239)*12	=ABS(G239)*12	=ABS(H239)*12	=ABS(I239)*12	=ABS(J239)*12
88	392	1	=(C240*12)	=(D240*12)	=E240*12	=ABS(F240)*12	=ABS(G240)*12	=ABS(H240)*12	=ABS(I240)*12	=ABS(J240)*12
89										
90	dome ele									
91	396	1	=(C241*12)	=(D241*12)	=E241*12	=ABS(F241)*12	=ABS(G241)*12	=ABS(H241)*12	=ABS(I241)*12	=ABS(J241)*12
92	400	1	=(C242*12)	=(D242*12)	=E242*12	=ABS(F242)*12	=ABS(G242)*12	=ABS(H242)*12	=ABS(I242)*12	=ABS(J242)*12
93	404	1	=(C243*12)	=(D243*12)	=E243*12	=ABS(F243)*12	=ABS(G243)*12	=ABS(H243)*12	=ABS(I243)*12	=ABS(J243)*12
94	408	1	=(C244*12)	=(D244*12)	=E244*12	=ABS(F244)*12	=ABS(G244)*12	=ABS(H244)*12	=ABS(I244)*12	=ABS(J244)*12
95	412	1	=(C245*12)	=(D245*12)	=E245*12	=ABS(F245)*12	=ABS(G245)*12	=ABS(H245)*12	=ABS(I245)*12	=ABS(J245)*12
96	416	1	=(C246*12)	=(D246*12)	=E246*12	=ABS(F246)*12	=ABS(G246)*12	=ABS(H246)*12	=ABS(I246)*12	=ABS(J246)*12
97	420	1	=(C247*12)	=(D247*12)	=E247*12	=ABS(F247)*12	=ABS(G247)*12	=ABS(H247)*12	=ABS(I247)*12	=ABS(J247)*12
98	23	1	=(C248*12)	=(D248*12)	=E248*12	=ABS(F248)*12	=ABS(G248)*12	=ABS(H248)*12	=ABS(I248)*12	=ABS(J248)*12
99	19	1	=(C249*12)	=(D249*12)	=E249*12	=ABS(F249)*12	=ABS(G249)*12	=ABS(H249)*12	=ABS(I249)*12	=ABS(J249)*12
100	28	1	=(C250*12)	=(D250*12)	=E250*12	=ABS(F250)*12	=ABS(G250)*12	=ABS(H250)*12	=ABS(I250)*12	=ABS(J250)*12
101	25	1	=(C251*12)	=(D251*12)	=E251*12	=ABS(F251)*12	=ABS(G251)*12	=ABS(H251)*12	=ABS(I251)*12	=ABS(J251)*12
102	31	1	=(C252*12)	=(D252*12)	=E252*12	=ABS(F252)*12	=ABS(G252)*12	=ABS(H252)*12	=ABS(I252)*12	=ABS(J252)*12
103	29	1	=(C253*12)	=(D253*12)	=E253*12	=ABS(F253)*12	=ABS(G253)*12	=ABS(H253)*12	=ABS(I253)*12	=ABS(J253)*12
104	32	1	=(C254*12)	=(D254*12)	=E254*12	=ABS(F254)*12	=ABS(G254)*12	=ABS(H254)*12	=ABS(I254)*12	=ABS(J254)*12
105										
106	footing ele									
107	424	1	=(C255*12)	=(D255*12)	=E255*12	=ABS(F255)*12	=ABS(G255)*12	=ABS(H255)*12	=ABS(I255)*12	=ABS(J255)*12
108										

	A	B	C	D	E	F	G	H	I	J
109	POSTPR									
110	(units are									
111	ELSET A									
112			positive is com			absolute value		absolute value		
113	ELEMEN	PT F	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
114		NO	(P1)	(P2)		(V13)	(V23)	(M22)	(M11)	
115										
116	floor elem									
117	161	1	=(C265*12)	=(D265*12)	=E265*12	=ABS(F265)*12	=ABS(G265)*12	=ABS(H265)*12	=ABS(I265)*12	=ABS(J265)*12
118	164	1	=(C266*12)	=(D266*12)	=E266*12	=ABS(F266)*12	=ABS(G266)*12	=ABS(H266)*12	=ABS(I266)*12	=ABS(J266)*12
119	169	1	=(C267*12)	=(D267*12)	=E267*12	=ABS(F267)*12	=ABS(G267)*12	=ABS(H267)*12	=ABS(I267)*12	=ABS(J267)*12
120	176	1	=(C268*12)	=(D268*12)	=E268*12	=ABS(F268)*12	=ABS(G268)*12	=ABS(H268)*12	=ABS(I268)*12	=ABS(J268)*12
121	844	1	=(C269*12)	=(D269*12)	=E269*12	=ABS(F269)*12	=ABS(G269)*12	=ABS(H269)*12	=ABS(I269)*12	=ABS(J269)*12
122	848	1	=(C270*12)	=(D270*12)	=E270*12	=ABS(F270)*12	=ABS(G270)*12	=ABS(H270)*12	=ABS(I270)*12	=ABS(J270)*12
123	852	1	=(C271*12)	=(D271*12)	=E271*12	=ABS(F271)*12	=ABS(G271)*12	=ABS(H271)*12	=ABS(I271)*12	=ABS(J271)*12
124	856	1	=(C272*12)	=(D272*12)	=E272*12	=ABS(F272)*12	=ABS(G272)*12	=ABS(H272)*12	=ABS(I272)*12	=ABS(J272)*12
125	860	1	=(C273*12)	=(D273*12)	=E273*12	=ABS(F273)*12	=ABS(G273)*12	=ABS(H273)*12	=ABS(I273)*12	=ABS(J273)*12
126	864	1	=(C274*12)	=(D274*12)	=E274*12	=ABS(F274)*12	=ABS(G274)*12	=ABS(H274)*12	=ABS(I274)*12	=ABS(J274)*12
127	868	1	=(C275*12)	=(D275*12)	=E275*12	=ABS(F275)*12	=ABS(G275)*12	=ABS(H275)*12	=ABS(I275)*12	=ABS(J275)*12
128										
129	wall elem									
130	872	1	=(C276*12)	=(D276*12)	=E276*12	=ABS(F276)*12	=ABS(G276)*12	=ABS(H276)*12	=ABS(I276)*12	=ABS(J276)*12
131	876	1	=(C277*12)	=(D277*12)	=E277*12	=ABS(F277)*12	=ABS(G277)*12	=ABS(H277)*12	=ABS(I277)*12	=ABS(J277)*12
132	880	1	=(C278*12)	=(D278*12)	=E278*12	=ABS(F278)*12	=ABS(G278)*12	=ABS(H278)*12	=ABS(I278)*12	=ABS(J278)*12
133	884	1	=(C279*12)	=(D279*12)	=E279*12	=ABS(F279)*12	=ABS(G279)*12	=ABS(H279)*12	=ABS(I279)*12	=ABS(J279)*12
134	888	1	=(C280*12)	=(D280*12)	=E280*12	=ABS(F280)*12	=ABS(G280)*12	=ABS(H280)*12	=ABS(I280)*12	=ABS(J280)*12
135	892	1	=(C281*12)	=(D281*12)	=E281*12	=ABS(F281)*12	=ABS(G281)*12	=ABS(H281)*12	=ABS(I281)*12	=ABS(J281)*12
136	896	1	=(C282*12)	=(D282*12)	=E282*12	=ABS(F282)*12	=ABS(G282)*12	=ABS(H282)*12	=ABS(I282)*12	=ABS(J282)*12
137	900	1	=(C283*12)	=(D283*12)	=E283*12	=ABS(F283)*12	=ABS(G283)*12	=ABS(H283)*12	=ABS(I283)*12	=ABS(J283)*12
138										
139	haunch el									
140	904	1	=(C284*12)	=(D284*12)	=E284*12	=ABS(F284)*12	=ABS(G284)*12	=ABS(H284)*12	=ABS(I284)*12	=ABS(J284)*12
141	908	1	=(C285*12)	=(D285*12)	=E285*12	=ABS(F285)*12	=ABS(G285)*12	=ABS(H285)*12	=ABS(I285)*12	=ABS(J285)*12
142	912	1	=(C286*12)	=(D286*12)	=E286*12	=ABS(F286)*12	=ABS(G286)*12	=ABS(H286)*12	=ABS(I286)*12	=ABS(J286)*12
143										
144	dome ele									
145	916	1	=(C287*12)	=(D287*12)	=E287*12	=ABS(F287)*12	=ABS(G287)*12	=ABS(H287)*12	=ABS(I287)*12	=ABS(J287)*12
146	920	1	=(C288*12)	=(D288*12)	=E288*12	=ABS(F288)*12	=ABS(G288)*12	=ABS(H288)*12	=ABS(I288)*12	=ABS(J288)*12
147	924	1	=(C289*12)	=(D289*12)	=E289*12	=ABS(F289)*12	=ABS(G289)*12	=ABS(H289)*12	=ABS(I289)*12	=ABS(J289)*12
148	928	1	=(C290*12)	=(D290*12)	=E290*12	=ABS(F290)*12	=ABS(G290)*12	=ABS(H290)*12	=ABS(I290)*12	=ABS(J290)*12
149	932	1	=(C291*12)	=(D291*12)	=E291*12	=ABS(F291)*12	=ABS(G291)*12	=ABS(H291)*12	=ABS(I291)*12	=ABS(J291)*12
150	936	1	=(C292*12)	=(D292*12)	=E292*12	=ABS(F292)*12	=ABS(G292)*12	=ABS(H292)*12	=ABS(I292)*12	=ABS(J292)*12
151	940	1	=(C293*12)	=(D293*12)	=E293*12	=ABS(F293)*12	=ABS(G293)*12	=ABS(H293)*12	=ABS(I293)*12	=ABS(J293)*12
152	183	1	=(C294*12)	=(D294*12)	=E294*12	=ABS(F294)*12	=ABS(G294)*12	=ABS(H294)*12	=ABS(I294)*12	=ABS(J294)*12
153	179	1	=(C295*12)	=(D295*12)	=E295*12	=ABS(F295)*12	=ABS(G295)*12	=ABS(H295)*12	=ABS(I295)*12	=ABS(J295)*12
154	188	1	=(C296*12)	=(D296*12)	=E296*12	=ABS(F296)*12	=ABS(G296)*12	=ABS(H296)*12	=ABS(I296)*12	=ABS(J296)*12
155	185	1	=(C297*12)	=(D297*12)	=E297*12	=ABS(F297)*12	=ABS(G297)*12	=ABS(H297)*12	=ABS(I297)*12	=ABS(J297)*12
156	191	1	=(C298*12)	=(D298*12)	=E298*12	=ABS(F298)*12	=ABS(G298)*12	=ABS(H298)*12	=ABS(I298)*12	=ABS(J298)*12
157	189	1	=(C299*12)	=(D299*12)	=E299*12	=ABS(F299)*12	=ABS(G299)*12	=ABS(H299)*12	=ABS(I299)*12	=ABS(J299)*12
158	192	1	=(C300*12)	=(D300*12)	=E300*12	=ABS(F300)*12	=ABS(G300)*12	=ABS(H300)*12	=ABS(I300)*12	=ABS(J300)*12
159										
160	footing ele									
161	844	1	=(C301*12)	=(D301*12)	=E301*12	=ABS(F301)*12	=ABS(G301)*12	=ABS(H301)*12	=ABS(I301)*12	=ABS(J301)*12
162										

	A	B	C	D	E	F	G	H	I	J
163										
164										
165	(FROM P									
166				All Values are						
167	ELSET A									
168										
169	ELEMEN	PT F	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
170		N	(P1)	(P2)				(M22)	(M11)	
171										
172										
173	289	1	-1137	-1140	-2.243	-4.791	1.69	639.3	490.3	0.6584
174	291	1	-1078	-1103	0.155	-16.55	-5.966	41.84	131	1.097
175	295	1	-1149	-1113	-2.255	1.892	-5.341	-4.208	15.19	1.039
176	301	1	-1308	-1168	-44.36	11.34	10.68	506.4	165	26.55
177	1257	1	-1364	-1202	50.5	-6.389	-0.067235	547	193.5	-12.83
178	1261	1	-1389	-1193	-41.85	-13.04	1.167	102.5	132.4	9.223
179	1265	1	-1400	-1180	60.84	33.97	-3.629	659.2	216.3	-7.958
180	1269	1	-1458	-1213	-66.5	-61.8	-4.465	-97.17	56.11	27.23
181	1273	1	-1471	-1168	110.6	55.5	-62.23	41.86	7.314	35.38
182	1277	1	-1383	-1115	-39.36	-150.6	-55.77	-2121	-443.1	36.55
183	1281	1	-2176	-796.1	16.89	971.8	48.5	19824	-2707	-790.1
184	1285	1	1595	-4139	82.76	58.74	761.3	3826	21857	-570.8
185	1289	1	626.8	-4012	-178.2	14.98	531.5	956.6	7080	85.12
186	1293	1	-337.1	-3935	104.7	-2.781	364.2	-416.5	-2610	-207.5
187	1297	1	-1245	-3936	-34.17	-9.6	185.3	-1444	-10316	220.6
188	1301	1	-1998	-3834	-21.61	-9.399	57.38	-2035	-13744	-281.5
189	1305	1	-330.8	-3778	11.8	-13.61	-107.3	-1673	-13075	436.6
190	1309	1	3502	-3787	19.61	-9.242	-419.1	-676.5	-5859	-339
191	1313	1	851.4	-3702	-106.7	18.79	-810.7	-44	11336	-288.4
192	1317	1	-2209	3844	-3398	-856.5	-406.4	29613	10356	10265
193	1321	1	-3654	10599	-1872	-944.1	-189.5	56311	29913	4999
194	1325	1	-3753	9092	-316.9	1329	35.36	53806	21322	2249
195	1329	1	-3732	5460	-48.21	908.3	24.84	24443	-2530	1331
196	1333	1	-4285	395.5	-832	538.9	34.08	1459	-2626	-1044
197	1337	1	-5456	1817	-418.5	249.2	23.94	-11761	-1523	-36.43
198	1341	1	-5989	469.2	-172.7	-3.921	-14.87	-15831	-7387	372.4
199	1345	1	-6300	-1996	-110.9	-177.5	-20.29	-12964	-7708	-556.5
200	1349	1	-6763	-3529	-185.5	-199.5	-8.108	-6108	-4718	162
201	1353	1	-7345	-4236	-89.26	-125	-1.886	1110	-4216	81.17
202	308	1	-8051	-4722	-159.8	81.76	22.75	2356	-4141	35.63
203	305	1	-8182	-6019	-56.69	89.6	-21.81	1850	-6393	569.9
204	314	1	-8509	-6091	-190.4	73.51	-3.572	-2362	-7022	143.6
205	312	1	-8646	-7413	-79.63	62.37	31.28	-2795	-9434	575.8
206	318	1	-9059	-7768	-119.2	114.5	64.44	-8369	-10582	57.75
207	317	1	-9237	-9156	-7.225	119.7	1.925	-9213	-14829	899.2
208	320	1	-8986	-8809	-21.03	-28.76	-13.73	-15706	-15540	8.617
209	1357	1	-1133	-789.4	-269	-307.4	114.2	4940	-4438	1290
210										
211										
212										
213	ELSET A									
214										
215	ELEMEN	PT F	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
216		N	(P1)	(P2)				(M22)	(M11)	
217										
218										
219	1	1	-1136	-1143	0.6189	5.548	-0.2404	634.9	489.5	0.3828
220	4	1	-1080	-1108	0.2371	14.3	-0.3641	38.9	148.8	1.758
221	9	1	-1150	-1117	1.846	-5.14	4.192	20.8	50.44	-4.381
222	16	1	-1308	-1171	43.93	-12.61	7.86	508.9	171.7	-26.94
223	324	1	-1362	-1203	-50.13	5.56	-0.3483	539.6	194.4	11.88
224	328	1	-1388	-1193	41.96	13.43	0.9666	104.4	131.7	-9.102
225	332	1	-1399	-1180	-60.96	-34.13	-3.816	656.7	215.4	7.972
226	336	1	-1458	-1213	66.45	61.82	-4.515	-96.95	56.18	-26.96
227	340	1	-1470	-1168	-110.6	-55.51	-62.19	41.91	7.825	-35.4
228	344	1	-1382	-1115	39.41	150.6	-55.74	-2121	-442.8	-36.68
229	348	1	-2176	-796.2	-16.84	-971.8	48.51	19824	-2706	789.9
230	352	1	1595	-4139	-82.82	-58.74	761.3	3826	21857	571
231	356	1	626.7	-4012	178.2	-14.97	531.5	956.5	7079	-85.13
232	360	1	-337.2	-3935	-104.8	2.784	364.2	-416.7	-2610	207.5
233	364	1	-1245	-3936	34.17	9.603	185.3	-1444	-10316	-220.6
234	368	1	-1998	-3833	21.59	9.399	57.37	-2036	-13744	281.5

	A	B	C	D	E	F	G	H	I	J
235	372	1	-331	-3778	-11.81	13.61	-107.3	-1673	-13075	-436.6
236	376	1	3502	-3786	-19.62	9.242	-419	-676.5	-5858	338.9
237	380	1	851.3	-3702	106.7	-18.79	-810.7	-44	11336	288.4
238	384	1	-2209	3843	3398	856.4	-406.3	29612	10355	-10264
239	388	1	-3653	10598	1872	944	-189.5	56309	29910	-4999
240	392	1	-3753	9091	316.8	-1329	35.36	53802	21319	-2250
241	396	1	-3732	5459	48.22	-908.3	24.84	24440	-2530	-1331
242	400	1	-4284	395.2	831.8	-538.9	34.07	1456	-2627	1044
243	404	1	-5456	1816	418.5	-249.2	23.93	-11763	-1523	36.66
244	408	1	-5989	468.5	172.6	3.878	-14.85	-15835	-7386	-372.1
245	412	1	-6299	-1996	110.8	177.5	-20.26	-12970	-7707	556.7
246	416	1	-6762	-3528	185.4	200	-8.231	-6108	-4710	-180
247	420	1	-7345	-4235	89.51	124.6	-2.266	1112	-4206	-81.32
248	23	1	-8051	-4720	158.7	-82.37	-1.363	2367	-4136	-38.65
249	19	1	-8181	-6016	57	-82.56	-3.226	1864	-6379	-566.6
250	28	1	-8501	-6087	193.1	-80.09	-25.47	-2325	-7005	-142
251	25	1	-8642	-7410	78.71	-64.78	50.59	-2761	-9420	-577.2
252	31	1	-9063	-7767	121.2	-113.7	34.56	-8378	-10573	-57.12
253	29	1	-9235	-9155	18.57	-116	34.59	-9235	-14873	-911
254	32	1	-8980	-8806	28.24	34.4	3.658	-15756	-15588	-13.55
255	424	1	-1133	-789.7	269	307.3	114.2	4940	-4438	-1290
256										
257										
258										
259	ELSET A									
260										
261	ELEMEN	PT F	SF1	SF2	SF3	SF4	SF5	SM1	SM2	SM3
262		N	(P1)	(P2)				(M22)	(M11)	
263										
264										
265	161	1	-1142	-1136	-1.304	-1.698	5.03	637.1	489.7	0.2384
266	164	1	-1105	-1079	0.072911	1.32	14.37	281	-95.9	0.2915
267	169	1	-1115	-1150	-1.908	1.676	-3.863	173	-129.3	2.561
268	176	1	-1170	-1308	-43.31	-3.616	-11.58	311	353.3	15.59
269	844	1	-1202	-1363	49.39	0.2373	5.745	337.1	395.3	-8.202
270	848	1	-1193	-1389	-41.45	-1.107	13.36	273.3	-44.56	6.296
271	852	1	-1179	-1400	59.95	3.689	-34.06	358.5	508.9	-5.742
272	856	1	-1212	-1459	-65.57	4.461	61.6	196.1	-242.6	25.15
273	860	1	-1165	-1472	109.2	62.13	-55.57	146.9	-96.67	36.77
274	864	1	-1112	-1385	-38.32	55.6	149	-309.9	-2223	35.99
275	868	1	-798.6	-2178	13.86	-50.64	-973.4	-2711	19817	-758.2
276	872	1	1594	-4140	-71.41	-61.1	761.6	3863	21855	191
277	876	1	629.6	-4015	156.6	-14.42	531.9	922.7	7071	334.6
278	880	1	-339.3	-3936	-89.44	2.265	363.8	-373.1	-2599	-109.1
279	884	1	-1243	-3935	22.69	7.214	185.9	-1537	-10292	222
280	888	1	-1992	-3840	23.27	15.39	57.83	-1996	-13699	-176.4
281	892	1	-327.2	-3791	-21	7.89	-101.2	-2073	-13111	206
282	896	1	3472	-3825	-44.67	-7.461	-409.2	-975.5	-5949	-395.9
283	900	1	841.5	-3738	134.7	1.188	-809	202.4	11241	78.2
284	904	1	5346	-3777	-85.68	-71.31	-966	6010	34109	280.3
285	908	1	10846	-3948	-174.5	-76.73	-971	28951	57394	-83.43
286	912	1	9191	-3796	-174.7	24.72	1337	21429	54100	1872
287	916	1	5454	-3759	16.02	16.76	911.1	-2387	24513	1041
288	920	1	370	-4309	-788.2	30.08	538	-2499	1369	-1043
289	924	1	1774	-5461	-380.5	21.17	253	-1714	-11864	51.63
290	928	1	437.4	-6048	-177.1	-15.57	0.071443	-7206	-15955	401.6
291	932	1	-1910	-6374	-68.23	-21.17	-178.3	-7800	-13029	-440.1
292	936	1	-3515	-6762	-168.3	-7.742	-202.6	-4897	-6082	87.15
293	940	1	-4262	-7341	-92.24	-1.671	-125.6	-4178	1166	123.8
294	183	1	-4708	-8050	-149.6	-2.211	82.57	-4211	2432	-20.28
295	179	1	-6018	-8177	-51.83	-2.931	82.55	-6373	1902	549.9
296	188	1	-6090	-8502	-190.6	-24.94	79.48	-6996	-2280	141.4
297	185	1	-7411	-8642	-77.63	51.86	64.28	-9364	-2708	568.7
298	191	1	-7768	-9059	-120.7	36.31	112	-10656	-8282	56.64
299	189	1	-9157	-9233	-15.51	29.05	115.4	-14952	-9127	906.6
300	192	1	-8808	-8979	-24.17	0.9345	-32.71	-15676	-15599	15.8
301	944	1	-788	-1131	-270.9	-115.7	308	-4420	4926	1348

A Att13-11

	A	B	C	D	E	F	G	H	I	J	K	L
1	Deter											
2	(Outer											
3												
4	Section	h	As per ft	d'	As' per ft	d"	d	b	SDV7(55,95/95)	Temp(55,95/95)	fc	Beta 1
5		[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[psi]	[deg F]	[psi]	
6	6b (out)	27.29	0.85	2	0.84	1.625	=B6-D6	12	4418	91.69	=I6	=IF(K6<4000,0.85,0.85-0.05*(K6-4000)/1000)
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

	M	N	O	P	Q
1	Determination of Additional Meridi (Outer Steel in Tension)				
2					
3					
4	fy (rebar)	E (rebar)	yield strain=fy/E	Trial c	0.85fc*b
5	[psi]	[psi]		[in]	
6	=IF(J6<100,38000,38000-3420*(J6-100)/100)	=28300000-700000*(J6-70)/130	=M6/N6	0.3	=0.85*K6*H6
7				=P6+0.3	
8				=P7+0.3	
9				=P8+0.3	
10				=P9+0.3	
11				=P10+0.3	
12				=P11+0.3	
13				=P12+0.3	
14				=P13+1.5	
15				=P14+1.5	
16				=P15+1.5	
17				=P16+1.5	
18				=P17+1.5	
19				=P18+1.5	
20				=P19+1.5	
21				=P20+1.5	
22				=P21+1.5	
23				=P22+1.5	
24				=P23+1.5	
25				=P24+1.5	

	R	S
1		
2		
3		
4	xp	eps
5	[in]	
6	$=(Q6*B6*(B6/2-D6)+E6*M6*(G6-F6))/(Q6*B6+(C6+E6)*M6)$	$=MIN(0.003*($G$6-$P6)/$P6,$M$6)$
7		$=MIN(0.003*($G$6-$P7)/$P7,$M$6)$
8		$=MIN(0.003*($G$6-$P8)/$P8,$M$6)$
9		$=MIN(0.003*($G$6-$P9)/$P9,$M$6)$
10		$=MIN(0.003*($G$6-$P10)/$P10,$M$6)$
11		$=MIN(0.003*($G$6-$P11)/$P11,$M$6)$
12		$=MIN(0.003*($G$6-$P12)/$P12,$M$6)$
13		$=MIN(0.003*($G$6-$P13)/$P13,$M$6)$
14		$=MIN(0.003*($G$6-$P14)/$P14,$M$6)$
15		$=MIN(0.003*($G$6-$P15)/$P15,$M$6)$
16		$=MIN(0.003*($G$6-$P16)/$P16,$M$6)$
17		$=MIN(0.003*($G$6-$P17)/$P17,$M$6)$
18		$=MIN(0.003*($G$6-$P18)/$P18,$M$6)$
19		$=MIN(0.003*($G$6-$P19)/$P19,$M$6)$
20		$=MIN(0.003*($G$6-$P20)/$P20,$M$6)$
21		$=MIN(0.003*($G$6-$P21)/$P21,$M$6)$
22		$=MIN(0.003*($G$6-$P22)/$P22,$M$6)$
23		$=MIN(0.003*($G$6-$P23)/$P23,$M$6)$
24		$=MIN(0.003*($G$6-$P24)/$P24,$M$6)$
25		$=MIN(0.003*($G$6-$P25)/$P25,$M$6)$

A Att13-13

	T	U
1		
2		
3		
4	fs	eps'
5	[psi]	
6	=IF(S6>0,MIN(S6*\$N\$6,\$M\$6),MAX(S6*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P6-\$F\$6)/\$P6,\$M\$6)
7	=IF(S7>0,MIN(S7*\$N\$6,\$M\$6),MAX(S7*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P7-\$F\$6)/\$P7,\$M\$6)
8	=IF(S8>0,MIN(S8*\$N\$6,\$M\$6),MAX(S8*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P8-\$F\$6)/\$P8,\$M\$6)
9	=IF(S9>0,MIN(S9*\$N\$6,\$M\$6),MAX(S9*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P9-\$F\$6)/\$P9,\$M\$6)
10	=IF(S10>0,MIN(S10*\$N\$6,\$M\$6),MAX(S10*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P10-\$F\$6)/\$P10,\$M\$6)
11	=IF(S11>0,MIN(S11*\$N\$6,\$M\$6),MAX(S11*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P11-\$F\$6)/\$P11,\$M\$6)
12	=IF(S12>0,MIN(S12*\$N\$6,\$M\$6),MAX(S12*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P12-\$F\$6)/\$P12,\$M\$6)
13	=IF(S13>0,MIN(S13*\$N\$6,\$M\$6),MAX(S13*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P13-\$F\$6)/\$P13,\$M\$6)
14	=IF(S14>0,MIN(S14*\$N\$6,\$M\$6),MAX(S14*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P14-\$F\$6)/\$P14,\$M\$6)
15	=IF(S15>0,MIN(S15*\$N\$6,\$M\$6),MAX(S15*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P15-\$F\$6)/\$P15,\$M\$6)
16	=IF(S16>0,MIN(S16*\$N\$6,\$M\$6),MAX(S16*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P16-\$F\$6)/\$P16,\$M\$6)
17	=IF(S17>0,MIN(S17*\$N\$6,\$M\$6),MAX(S17*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P17-\$F\$6)/\$P17,\$M\$6)
18	=IF(S18>0,MIN(S18*\$N\$6,\$M\$6),MAX(S18*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P18-\$F\$6)/\$P18,\$M\$6)
19	=IF(S19>0,MIN(S19*\$N\$6,\$M\$6),MAX(S19*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P19-\$F\$6)/\$P19,\$M\$6)
20	=IF(S20>0,MIN(S20*\$N\$6,\$M\$6),MAX(S20*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P20-\$F\$6)/\$P20,\$M\$6)
21	=IF(S21>0,MIN(S21*\$N\$6,\$M\$6),MAX(S21*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P21-\$F\$6)/\$P21,\$M\$6)
22	=IF(S22>0,MIN(S22*\$N\$6,\$M\$6),MAX(S22*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P22-\$F\$6)/\$P22,\$M\$6)
23	=IF(S23>0,MIN(S23*\$N\$6,\$M\$6),MAX(S23*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P23-\$F\$6)/\$P23,\$M\$6)
24	=IF(S24>0,MIN(S24*\$N\$6,\$M\$6),MAX(S24*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P24-\$F\$6)/\$P24,\$M\$6)
25	=IF(S25>0,MIN(S25*\$N\$6,\$M\$6),MAX(S25*\$N\$6,-\$M\$6))	=MIN(0.003*(\$P25-\$F\$6)/\$P25,\$M\$6)

A At13-15

	V	W	X	Y	Z
1	Determinatio (Outer Steel i				
2					
3					
4	fs'	Cc	Cs	T	P
5	[psi]	[lbs]	[lbs]	[lbs]	[lbs]
6	=IF(U6>0,MIN(U6*\$N\$6,\$M\$6),MAX(U6*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P6	=\$E\$6*V6	=\$C\$6*T6	=W6+X6-Y6
7	=IF(U7>0,MIN(U7*\$N\$6,\$M\$6),MAX(U7*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P7	=\$E\$6*V7	=\$C\$6*T7	=W7+X7-Y7
8	=IF(U8>0,MIN(U8*\$N\$6,\$M\$6),MAX(U8*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P8	=\$E\$6*V8	=\$C\$6*T8	=W8+X8-Y8
9	=IF(U9>0,MIN(U9*\$N\$6,\$M\$6),MAX(U9*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P9	=\$E\$6*V9	=\$C\$6*T9	=W9+X9-Y9
10	=IF(U10>0,MIN(U10*\$N\$6,\$M\$6),MAX(U10*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P10	=\$E\$6*V10	=\$C\$6*T10	=W10+X10-Y10
11	=IF(U11>0,MIN(U11*\$N\$6,\$M\$6),MAX(U11*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P11	=\$E\$6*V11	=\$C\$6*T11	=W11+X11-Y11
12	=IF(U12>0,MIN(U12*\$N\$6,\$M\$6),MAX(U12*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P12	=\$E\$6*V12	=\$C\$6*T12	=W12+X12-Y12
13	=IF(U13>0,MIN(U13*\$N\$6,\$M\$6),MAX(U13*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P13	=\$E\$6*V13	=\$C\$6*T13	=W13+X13-Y13
14	=IF(U14>0,MIN(U14*\$N\$6,\$M\$6),MAX(U14*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P14	=\$E\$6*V14	=\$C\$6*T14	=W14+X14-Y14
15	=IF(U15>0,MIN(U15*\$N\$6,\$M\$6),MAX(U15*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P15	=\$E\$6*V15	=\$C\$6*T15	=W15+X15-Y15
16	=IF(U16>0,MIN(U16*\$N\$6,\$M\$6),MAX(U16*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P16	=\$E\$6*V16	=\$C\$6*T16	=W16+X16-Y16
17	=IF(U17>0,MIN(U17*\$N\$6,\$M\$6),MAX(U17*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P17	=\$E\$6*V17	=\$C\$6*T17	=W17+X17-Y17
18	=IF(U18>0,MIN(U18*\$N\$6,\$M\$6),MAX(U18*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P18	=\$E\$6*V18	=\$C\$6*T18	=W18+X18-Y18
19	=IF(U19>0,MIN(U19*\$N\$6,\$M\$6),MAX(U19*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P19	=\$E\$6*V19	=\$C\$6*T19	=W19+X19-Y19
20	=IF(U20>0,MIN(U20*\$N\$6,\$M\$6),MAX(U20*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P20	=\$E\$6*V20	=\$C\$6*T20	=W20+X20-Y20
21	=IF(U21>0,MIN(U21*\$N\$6,\$M\$6),MAX(U21*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P21	=\$E\$6*V21	=\$C\$6*T21	=W21+X21-Y21
22	=IF(U22>0,MIN(U22*\$N\$6,\$M\$6),MAX(U22*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P22	=\$E\$6*V22	=\$C\$6*T22	=W22+X22-Y22
23	=IF(U23>0,MIN(U23*\$N\$6,\$M\$6),MAX(U23*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P23	=\$E\$6*V23	=\$C\$6*T23	=W23+X23-Y23
24	=IF(U24>0,MIN(U24*\$N\$6,\$M\$6),MAX(U24*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P24	=\$E\$6*V24	=\$C\$6*T24	=W24+X24-Y24
25	=IF(U25>0,MIN(U25*\$N\$6,\$M\$6),MAX(U25*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P25	=\$E\$6*V25	=\$C\$6*T25	=W25+X25-Y25

WHC-SD-W320-ANAL-003
Rev. 0

	AA	AB	AC
1			
2			
3			
4	M	0.1fcAg/0.7	phi
5	[lb-in]		
6	=W6*(\$G\$6-R\$6-\$L\$6*P6/2)+X6*(\$G\$6-R\$6-\$F\$6)+Y6*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z6>0,MAX(0.7+0.2*(AB6-Z6)/AB6,0.7),0.9)
7	=W7*(\$G\$6-R\$6-\$L\$6*P7/2)+X7*(\$G\$6-R\$6-\$F\$6)+Y7*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z7>0,MAX(0.7+0.2*(AB7-Z7)/AB7,0.7),0.9)
8	=W8*(\$G\$6-R\$6-\$L\$6*P8/2)+X8*(\$G\$6-R\$6-\$F\$6)+Y8*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z8>0,MAX(0.7+0.2*(AB8-Z8)/AB8,0.7),0.9)
9	=W9*(\$G\$6-R\$6-\$L\$6*P9/2)+X9*(\$G\$6-R\$6-\$F\$6)+Y9*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z9>0,MAX(0.7+0.2*(AB9-Z9)/AB9,0.7),0.9)
10	=W10*(\$G\$6-R\$6-\$L\$6*P10/2)+X10*(\$G\$6-R\$6-\$F\$6)+Y10*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z10>0,MAX(0.7+0.2*(AB10-Z10)/AB10,0.7),0.9)
11	=W11*(\$G\$6-R\$6-\$L\$6*P11/2)+X11*(\$G\$6-R\$6-\$F\$6)+Y11*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z11>0,MAX(0.7+0.2*(AB11-Z11)/AB11,0.7),0.9)
12	=W12*(\$G\$6-R\$6-\$L\$6*P12/2)+X12*(\$G\$6-R\$6-\$F\$6)+Y12*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z12>0,MAX(0.7+0.2*(AB12-Z12)/AB12,0.7),0.9)
13	=W13*(\$G\$6-R\$6-\$L\$6*P13/2)+X13*(\$G\$6-R\$6-\$F\$6)+Y13*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z13>0,MAX(0.7+0.2*(AB13-Z13)/AB13,0.7),0.9)
14	=W14*(\$G\$6-R\$6-\$L\$6*P14/2)+X14*(\$G\$6-R\$6-\$F\$6)+Y14*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z14>0,MAX(0.7+0.2*(AB14-Z14)/AB14,0.7),0.9)
15	=W15*(\$G\$6-R\$6-\$L\$6*P15/2)+X15*(\$G\$6-R\$6-\$F\$6)+Y15*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z15>0,MAX(0.7+0.2*(AB15-Z15)/AB15,0.7),0.9)
16	=W16*(\$G\$6-R\$6-\$L\$6*P16/2)+X16*(\$G\$6-R\$6-\$F\$6)+Y16*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z16>0,MAX(0.7+0.2*(AB16-Z16)/AB16,0.7),0.9)
17	=W17*(\$G\$6-R\$6-\$L\$6*P17/2)+X17*(\$G\$6-R\$6-\$F\$6)+Y17*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z17>0,MAX(0.7+0.2*(AB17-Z17)/AB17,0.7),0.9)
18	=W18*(\$G\$6-R\$6-\$L\$6*P18/2)+X18*(\$G\$6-R\$6-\$F\$6)+Y18*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z18>0,MAX(0.7+0.2*(AB18-Z18)/AB18,0.7),0.9)
19	=W19*(\$G\$6-R\$6-\$L\$6*P19/2)+X19*(\$G\$6-R\$6-\$F\$6)+Y19*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z19>0,MAX(0.7+0.2*(AB19-Z19)/AB19,0.7),0.9)
20	=W20*(\$G\$6-R\$6-\$L\$6*P20/2)+X20*(\$G\$6-R\$6-\$F\$6)+Y20*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z20>0,MAX(0.7+0.2*(AB20-Z20)/AB20,0.7),0.9)
21	=W21*(\$G\$6-R\$6-\$L\$6*P21/2)+X21*(\$G\$6-R\$6-\$F\$6)+Y21*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z21>0,MAX(0.7+0.2*(AB21-Z21)/AB21,0.7),0.9)
22	=W22*(\$G\$6-R\$6-\$L\$6*P22/2)+X22*(\$G\$6-R\$6-\$F\$6)+Y22*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z22>0,MAX(0.7+0.2*(AB22-Z22)/AB22,0.7),0.9)
23	=W23*(\$G\$6-R\$6-\$L\$6*P23/2)+X23*(\$G\$6-R\$6-\$F\$6)+Y23*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z23>0,MAX(0.7+0.2*(AB23-Z23)/AB23,0.7),0.9)
24	=W24*(\$G\$6-R\$6-\$L\$6*P24/2)+X24*(\$G\$6-R\$6-\$F\$6)+Y24*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z24>0,MAX(0.7+0.2*(AB24-Z24)/AB24,0.7),0.9)
25	=W25*(\$G\$6-R\$6-\$L\$6*P25/2)+X25*(\$G\$6-R\$6-\$F\$6)+Y25*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z25>0,MAX(0.7+0.2*(AB25-Z25)/AB25,0.7),0.9)

A Att13-17

	AD	AE
1		
2		
3		
4	phi x P	phi x M
5	[lbs]	[lb-in]
6	=AC6*Z6	=AC6*AA6
7	=AC7*Z7	=AC7*AA7
8	=AC8*Z8	=AC8*AA8
9	=AC9*Z9	=AC9*AA9
10	=AC10*Z10	=AC10*AA10
11	=AC11*Z11	=AC11*AA11
12	=AC12*Z12	=AC12*AA12
13	=AC13*Z13	=AC13*AA13
14	=AC14*Z14	=AC14*AA14
15	=AC15*Z15	=AC15*AA15
16	=AC16*Z16	=AC16*AA16
17	=AC17*Z17	=AC17*AA17
18	=AC18*Z18	=AC18*AA18
19	=AC19*Z19	=AC19*AA19
20	=AC20*Z20	=AC20*AA20
21	=AC21*Z21	=AC21*AA21
22	=AC22*Z22	=AC22*AA22
23	=AC23*Z23	=AC23*AA23
24	=AC24*Z24	=AC24*AA24
25	=AC25*Z25	=AC25*AA25

	A	B	C	D	E	F	G	H	I	J	K	L
1	Deter											
2	(Top S											
3												
4	Section	h [in]	As per ft [in^2]	d' [in]	As' per ft [in^2]	d" [in]	d [in]	b [in]	SDV7(55,95/95) [psi]	Temp(55,95/95) [deg F]	fc [psi]	Beta 1
5												
6	7c (top)	17.38	0.56	3.625	0.56	2.5	=B6-D6	12	4431	90.9	4431	=IF(K6<4000,0.85,0.85-0.05*(K6-4000)/1000)
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

A Att13-19

	M	N	O	P	Q
1	Determination of Additional Circu (Top Steel in Tension)				
2					
3					
4	fy (rebar)	E (rebar)	yield strain=fy/E	Trial c	0.85fc*b
5	[psi]	[psi]		[in]	
6	=IF(J6<100,38000,38000-3420*(J6-100)/100)	=28300000-700000*(J6-70)/130	=M6/N6	0.08	=0.85*K6*H6
7				=P6+0.5	
8				=P7+0.5	
9				=P8+0.5	
10				=P9+0.5	
11				=P10+0.5	
12				=P11+0.5	
13				=P12+0.5	
14				=P13+0.5	
15				=P14+0.5	
16				=P15+0.5	
17				=P16+0.5	
18				=P17+0.5	
19				=P18+0.5	
20				=P19+0.5	
21				=P20+0.5	
22				=P21+0.5	
23				=P22+0.5	
24				=P23+0.5	
25				=P24+0.5	

	R	S
1		
2		
3		
4	xp	eps
5	[in]	
6	$=(Q6*B6*(B6/2-D6)+E6*M6*(G6-F6))/(Q6*B6+(C6+E6)*M6)$	=MIN(0.003*(\$G\$6-\$P6)/\$P6,\$M\$6)
7		=MIN(0.003*(\$G\$6-\$P7)/\$P7,\$M\$6)
8		=MIN(0.003*(\$G\$6-\$P8)/\$P8,\$M\$6)
9		=MIN(0.003*(\$G\$6-\$P9)/\$P9,\$M\$6)
10		=MIN(0.003*(\$G\$6-\$P10)/\$P10,\$M\$6)
11		=MIN(0.003*(\$G\$6-\$P11)/\$P11,\$M\$6)
12		=MIN(0.003*(\$G\$6-\$P12)/\$P12,\$M\$6)
13		=MIN(0.003*(\$G\$6-\$P13)/\$P13,\$M\$6)
14		=MIN(0.003*(\$G\$6-\$P14)/\$P14,\$M\$6)
15		=MIN(0.003*(\$G\$6-\$P15)/\$P15,\$M\$6)
16		=MIN(0.003*(\$G\$6-\$P16)/\$P16,\$M\$6)
17		=MIN(0.003*(\$G\$6-\$P17)/\$P17,\$M\$6)
18		=MIN(0.003*(\$G\$6-\$P18)/\$P18,\$M\$6)
19		=MIN(0.003*(\$G\$6-\$P19)/\$P19,\$M\$6)
20		=MIN(0.003*(\$G\$6-\$P20)/\$P20,\$M\$6)
21		=MIN(0.003*(\$G\$6-\$P21)/\$P21,\$M\$6)
22		=MIN(0.003*(\$G\$6-\$P22)/\$P22,\$M\$6)
23		=MIN(0.003*(\$G\$6-\$P23)/\$P23,\$M\$6)
24		=MIN(0.003*(\$G\$6-\$P24)/\$P24,\$M\$6)
25		=MIN(0.003*(\$G\$6-\$P25)/\$P25,\$M\$6)

T		U
1		
2		
3		
4	fs	eps'
5	[psi]	
6	=IF(S6>0,MIN(S6*\$N\$6,\$M\$6),MAX(S6*\$N\$6,-\$M\$6))	=MIN(0.003*(P6-\$F\$6)/\$P6,\$M\$6)
7	=IF(S7>0,MIN(S7*\$N\$6,\$M\$6),MAX(S7*\$N\$6,-\$M\$6))	=MIN(0.003*(P7-\$F\$6)/\$P7,\$M\$6)
8	=IF(S8>0,MIN(S8*\$N\$6,\$M\$6),MAX(S8*\$N\$6,-\$M\$6))	=MIN(0.003*(P8-\$F\$6)/\$P8,\$M\$6)
9	=IF(S9>0,MIN(S9*\$N\$6,\$M\$6),MAX(S9*\$N\$6,-\$M\$6))	=MIN(0.003*(P9-\$F\$6)/\$P9,\$M\$6)
10	=IF(S10>0,MIN(S10*\$N\$6,\$M\$6),MAX(S10*\$N\$6,-\$M\$6))	=MIN(0.003*(P10-\$F\$6)/\$P10,\$M\$6)
11	=IF(S11>0,MIN(S11*\$N\$6,\$M\$6),MAX(S11*\$N\$6,-\$M\$6))	=MIN(0.003*(P11-\$F\$6)/\$P11,\$M\$6)
12	=IF(S12>0,MIN(S12*\$N\$6,\$M\$6),MAX(S12*\$N\$6,-\$M\$6))	=MIN(0.003*(P12-\$F\$6)/\$P12,\$M\$6)
13	=IF(S13>0,MIN(S13*\$N\$6,\$M\$6),MAX(S13*\$N\$6,-\$M\$6))	=MIN(0.003*(P13-\$F\$6)/\$P13,\$M\$6)
14	=IF(S14>0,MIN(S14*\$N\$6,\$M\$6),MAX(S14*\$N\$6,-\$M\$6))	=MIN(0.003*(P14-\$F\$6)/\$P14,\$M\$6)
15	=IF(S15>0,MIN(S15*\$N\$6,\$M\$6),MAX(S15*\$N\$6,-\$M\$6))	=MIN(0.003*(P15-\$F\$6)/\$P15,\$M\$6)
16	=IF(S16>0,MIN(S16*\$N\$6,\$M\$6),MAX(S16*\$N\$6,-\$M\$6))	=MIN(0.003*(P16-\$F\$6)/\$P16,\$M\$6)
17	=IF(S17>0,MIN(S17*\$N\$6,\$M\$6),MAX(S17*\$N\$6,-\$M\$6))	=MIN(0.003*(P17-\$F\$6)/\$P17,\$M\$6)
18	=IF(S18>0,MIN(S18*\$N\$6,\$M\$6),MAX(S18*\$N\$6,-\$M\$6))	=MIN(0.003*(P18-\$F\$6)/\$P18,\$M\$6)
19	=IF(S19>0,MIN(S19*\$N\$6,\$M\$6),MAX(S19*\$N\$6,-\$M\$6))	=MIN(0.003*(P19-\$F\$6)/\$P19,\$M\$6)
20	=IF(S20>0,MIN(S20*\$N\$6,\$M\$6),MAX(S20*\$N\$6,-\$M\$6))	=MIN(0.003*(P20-\$F\$6)/\$P20,\$M\$6)
21	=IF(S21>0,MIN(S21*\$N\$6,\$M\$6),MAX(S21*\$N\$6,-\$M\$6))	=MIN(0.003*(P21-\$F\$6)/\$P21,\$M\$6)
22	=IF(S22>0,MIN(S22*\$N\$6,\$M\$6),MAX(S22*\$N\$6,-\$M\$6))	=MIN(0.003*(P22-\$F\$6)/\$P22,\$M\$6)
23	=IF(S23>0,MIN(S23*\$N\$6,\$M\$6),MAX(S23*\$N\$6,-\$M\$6))	=MIN(0.003*(P23-\$F\$6)/\$P23,\$M\$6)
24	=IF(S24>0,MIN(S24*\$N\$6,\$M\$6),MAX(S24*\$N\$6,-\$M\$6))	=MIN(0.003*(P24-\$F\$6)/\$P24,\$M\$6)
25	=IF(S25>0,MIN(S25*\$N\$6,\$M\$6),MAX(S25*\$N\$6,-\$M\$6))	=MIN(0.003*(P25-\$F\$6)/\$P25,\$M\$6)

A At13-22

	V	W	X	Y	Z
1	Determinatio (Top Steel in				
2					
3					
4	fs'	Cc	Cs	T	P
5	[psi]	[lbs]	[lbs]	[lbs]	[lbs]
6	=IF(U6>0,MIN(U6*\$N\$6,\$M\$6),MAX(U6*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P6	=\$E\$6*V6	=\$C\$6*T6	=W6+X6-Y6
7	=IF(U7>0,MIN(U7*\$N\$6,\$M\$6),MAX(U7*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P7	=\$E\$6*V7	=\$C\$6*T7	=W7+X7-Y7
8	=IF(U8>0,MIN(U8*\$N\$6,\$M\$6),MAX(U8*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P8	=\$E\$6*V8	=\$C\$6*T8	=W8+X8-Y8
9	=IF(U9>0,MIN(U9*\$N\$6,\$M\$6),MAX(U9*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P9	=\$E\$6*V9	=\$C\$6*T9	=W9+X9-Y9
10	=IF(U10>0,MIN(U10*\$N\$6,\$M\$6),MAX(U10*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P10	=\$E\$6*V10	=\$C\$6*T10	=W10+X10-Y10
11	=IF(U11>0,MIN(U11*\$N\$6,\$M\$6),MAX(U11*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P11	=\$E\$6*V11	=\$C\$6*T11	=W11+X11-Y11
12	=IF(U12>0,MIN(U12*\$N\$6,\$M\$6),MAX(U12*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P12	=\$E\$6*V12	=\$C\$6*T12	=W12+X12-Y12
13	=IF(U13>0,MIN(U13*\$N\$6,\$M\$6),MAX(U13*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P13	=\$E\$6*V13	=\$C\$6*T13	=W13+X13-Y13
14	=IF(U14>0,MIN(U14*\$N\$6,\$M\$6),MAX(U14*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P14	=\$E\$6*V14	=\$C\$6*T14	=W14+X14-Y14
15	=IF(U15>0,MIN(U15*\$N\$6,\$M\$6),MAX(U15*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P15	=\$E\$6*V15	=\$C\$6*T15	=W15+X15-Y15
16	=IF(U16>0,MIN(U16*\$N\$6,\$M\$6),MAX(U16*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P16	=\$E\$6*V16	=\$C\$6*T16	=W16+X16-Y16
17	=IF(U17>0,MIN(U17*\$N\$6,\$M\$6),MAX(U17*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P17	=\$E\$6*V17	=\$C\$6*T17	=W17+X17-Y17
18	=IF(U18>0,MIN(U18*\$N\$6,\$M\$6),MAX(U18*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P18	=\$E\$6*V18	=\$C\$6*T18	=W18+X18-Y18
19	=IF(U19>0,MIN(U19*\$N\$6,\$M\$6),MAX(U19*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P19	=\$E\$6*V19	=\$C\$6*T19	=W19+X19-Y19
20	=IF(U20>0,MIN(U20*\$N\$6,\$M\$6),MAX(U20*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P20	=\$E\$6*V20	=\$C\$6*T20	=W20+X20-Y20
21	=IF(U21>0,MIN(U21*\$N\$6,\$M\$6),MAX(U21*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P21	=\$E\$6*V21	=\$C\$6*T21	=W21+X21-Y21
22	=IF(U22>0,MIN(U22*\$N\$6,\$M\$6),MAX(U22*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P22	=\$E\$6*V22	=\$C\$6*T22	=W22+X22-Y22
23	=IF(U23>0,MIN(U23*\$N\$6,\$M\$6),MAX(U23*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P23	=\$E\$6*V23	=\$C\$6*T23	=W23+X23-Y23
24	=IF(U24>0,MIN(U24*\$N\$6,\$M\$6),MAX(U24*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P24	=\$E\$6*V24	=\$C\$6*T24	=W24+X24-Y24
25	=IF(U25>0,MIN(U25*\$N\$6,\$M\$6),MAX(U25*\$N\$6,-\$M\$6))	=\$Q\$6*\$L\$6*P25	=\$E\$6*V25	=\$C\$6*T25	=W25+X25-Y25

MHC-SD-W320-ANAL-003
Rev. 0

A At13-23

	AA	AB	AC
1			
2			
3			
4	M	0.1fcAg/0.7	phi
5	[lb-in]		
6	=W6*(\$G\$6-R\$6-\$L\$6*P6/2)+X6*(\$G\$6-R\$6-\$F\$6)+Y6*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z6>0,MAX(0.7+0.2*(AB6-Z6)/AB6,0.7),0.9)
7	=W7*(\$G\$6-R\$6-\$L\$6*P7/2)+X7*(\$G\$6-R\$6-\$F\$6)+Y7*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z7>0,MAX(0.7+0.2*(AB7-Z7)/AB7,0.7),0.9)
8	=W8*(\$G\$6-R\$6-\$L\$6*P8/2)+X8*(\$G\$6-R\$6-\$F\$6)+Y8*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z8>0,MAX(0.7+0.2*(AB8-Z8)/AB8,0.7),0.9)
9	=W9*(\$G\$6-R\$6-\$L\$6*P9/2)+X9*(\$G\$6-R\$6-\$F\$6)+Y9*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z9>0,MAX(0.7+0.2*(AB9-Z9)/AB9,0.7),0.9)
10	=W10*(\$G\$6-R\$6-\$L\$6*P10/2)+X10*(\$G\$6-R\$6-\$F\$6)+Y10*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z10>0,MAX(0.7+0.2*(AB10-Z10)/AB10,0.7),0.9)
11	=W11*(\$G\$6-R\$6-\$L\$6*P11/2)+X11*(\$G\$6-R\$6-\$F\$6)+Y11*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z11>0,MAX(0.7+0.2*(AB11-Z11)/AB11,0.7),0.9)
12	=W12*(\$G\$6-R\$6-\$L\$6*P12/2)+X12*(\$G\$6-R\$6-\$F\$6)+Y12*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z12>0,MAX(0.7+0.2*(AB12-Z12)/AB12,0.7),0.9)
13	=W13*(\$G\$6-R\$6-\$L\$6*P13/2)+X13*(\$G\$6-R\$6-\$F\$6)+Y13*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z13>0,MAX(0.7+0.2*(AB13-Z13)/AB13,0.7),0.9)
14	=W14*(\$G\$6-R\$6-\$L\$6*P14/2)+X14*(\$G\$6-R\$6-\$F\$6)+Y14*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z14>0,MAX(0.7+0.2*(AB14-Z14)/AB14,0.7),0.9)
15	=W15*(\$G\$6-R\$6-\$L\$6*P15/2)+X15*(\$G\$6-R\$6-\$F\$6)+Y15*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z15>0,MAX(0.7+0.2*(AB15-Z15)/AB15,0.7),0.9)
16	=W16*(\$G\$6-R\$6-\$L\$6*P16/2)+X16*(\$G\$6-R\$6-\$F\$6)+Y16*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z16>0,MAX(0.7+0.2*(AB16-Z16)/AB16,0.7),0.9)
17	=W17*(\$G\$6-R\$6-\$L\$6*P17/2)+X17*(\$G\$6-R\$6-\$F\$6)+Y17*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z17>0,MAX(0.7+0.2*(AB17-Z17)/AB17,0.7),0.9)
18	=W18*(\$G\$6-R\$6-\$L\$6*P18/2)+X18*(\$G\$6-R\$6-\$F\$6)+Y18*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z18>0,MAX(0.7+0.2*(AB18-Z18)/AB18,0.7),0.9)
19	=W19*(\$G\$6-R\$6-\$L\$6*P19/2)+X19*(\$G\$6-R\$6-\$F\$6)+Y19*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z19>0,MAX(0.7+0.2*(AB19-Z19)/AB19,0.7),0.9)
20	=W20*(\$G\$6-R\$6-\$L\$6*P20/2)+X20*(\$G\$6-R\$6-\$F\$6)+Y20*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z20>0,MAX(0.7+0.2*(AB20-Z20)/AB20,0.7),0.9)
21	=W21*(\$G\$6-R\$6-\$L\$6*P21/2)+X21*(\$G\$6-R\$6-\$F\$6)+Y21*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z21>0,MAX(0.7+0.2*(AB21-Z21)/AB21,0.7),0.9)
22	=W22*(\$G\$6-R\$6-\$L\$6*P22/2)+X22*(\$G\$6-R\$6-\$F\$6)+Y22*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z22>0,MAX(0.7+0.2*(AB22-Z22)/AB22,0.7),0.9)
23	=W23*(\$G\$6-R\$6-\$L\$6*P23/2)+X23*(\$G\$6-R\$6-\$F\$6)+Y23*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z23>0,MAX(0.7+0.2*(AB23-Z23)/AB23,0.7),0.9)
24	=W24*(\$G\$6-R\$6-\$L\$6*P24/2)+X24*(\$G\$6-R\$6-\$F\$6)+Y24*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z24>0,MAX(0.7+0.2*(AB24-Z24)/AB24,0.7),0.9)
25	=W25*(\$G\$6-R\$6-\$L\$6*P25/2)+X25*(\$G\$6-R\$6-\$F\$6)+Y25*R\$6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z25>0,MAX(0.7+0.2*(AB25-Z25)/AB25,0.7),0.9)

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Rev. 0

	AD	AE
1		
2		
3		
4	phi x P	phi x M
5	[lbs]	[lb-in]
6	=AC6*Z6	=AC6*AA6
7	=AC7*Z7	=AC7*AA7
8	=AC8*Z8	=AC8*AA8
9	=AC9*Z9	=AC9*AA9
10	=AC10*Z10	=AC10*AA10
11	=AC11*Z11	=AC11*AA11
12	=AC12*Z12	=AC12*AA12
13	=AC13*Z13	=AC13*AA13
14	=AC14*Z14	=AC14*AA14
15	=AC15*Z15	=AC15*AA15
16	=AC16*Z16	=AC16*AA16
17	=AC17*Z17	=AC17*AA17
18	=AC18*Z18	=AC18*AA18
19	=AC19*Z19	=AC19*AA19
20	=AC20*Z20	=AC20*AA20
21	=AC21*Z21	=AC21*AA21
22	=AC22*Z22	=AC22*AA22
23	=AC23*Z23	=AC23*AA23
24	=AC24*Z24	=AC24*AA24
25	=AC25*Z25	=AC25*AA25

A Att13-25

	A	B	C	D	E	F	G	H	I
2	DET Per ACI-3								
3									
4									
5			Meridional		Circumferential				
6	Section	h	d'	d	d'	d	b	SDV7(55,95/95)	fc(55,95/95)
7		[in]	[in]	[in]	[in]	[in]	[in]	[psi]	[psi]
8	1	6	1.75	=B8-C8	2.25	=B8-E8	12	3451	=H8
9	2	6	1.75	=B9-C9	2.25	=B9-E9	12	3625	=H9
10	2a (bot)	16.49	3.13	=B10-C10	4	=B10-E10	12	3625	=H10
11	3 (bot)	24	3.13	=B11-C11	4	=B11-E11	12	4049	=H11
12	3 (top)	24	6.25	=B12-C12	7	=B12-E12	12	4049	=H12
13	4a	18.3	2.375	=B13-C13	3.1875	=B13-E13	12	3899	=H13
14	4	12	2.375	=B14-C14	3.1875	=B14-E14	12	3899	=H14
15	5	12	2.375	=B15-C15	3.1875	=B15-E15	12	4399	=H15
16	6	12	2.375	=B16-C16	3.1875	=B16-E16	12	4418	=H16
17	6a	15	2	=B17-C17	3	=B17-E17	12	4418	4418
18	6b	27.29	2	=B18-C18	3	=B18-E18	12	4418	4418
19	7 (in)	15	1.625	=B19-C19	2.375	=B19-E19	12	4431	=H19
20	7 (out)	15	4.375	=B20-C20	3.625	=B20-E20	12	4431	=H20
21	8 (in)	15	1.625	=B21-C21	2.375	=B21-E21	12	4428	=H21
22	8 (out)	15	4.375	=B22-C22	3.625	=B22-E22	12	4428	=H22
23	9 (in)	15	1.625	=B23-C23	2.375	=B23-E23	12	4429	=H23
24	9 (out)	15	4.375	=B24-C24	3.625	=B24-E24	12	4429	=H24

WHC-SD-W320-ANAL-003
Rev. 0

	J
2	DETERMINATION OF SHEA
3	
4	POSITIVE 1-AXIS
5	Meridional
6	Nu (min)
7	[lbs/ft]
8	=MIN('PPS-F1AP.XLS'!\$C\$9:\$C\$17)
9	=MIN('PPS-F1AP.XLS'!\$C\$18:\$C\$18)
10	=MIN('PPS-F1AP.XLS'!\$C\$19:\$C\$19)
11	=MIN('PPS-F1AP.XLS'!\$C\$53:\$C\$53)
12	=MIN('PPS-F1AP.XLS'!\$C\$53:\$C\$53)
13	=MIN('PPS-F1AP.XLS'!\$D\$22:\$D\$22)
14	=MIN('PPS-F1AP.XLS'!\$D\$23:\$D\$25)
15	=MIN('PPS-F1AP.XLS'!\$D\$26:\$D\$28)
16	=MIN('PPS-F1AP.XLS'!\$D\$29:\$D\$29)
17	=MIN('PPS-F1AP.XLS'!\$N\$32:\$N\$32)
18	=MIN('PPS-F1AP.XLS'!\$N\$33:\$N\$34)
19	=MIN('PPS-F1AP.XLS'!\$C\$37:\$C\$40)
20	=MIN('PPS-F1AP.XLS'!\$C\$37:\$C\$40)
21	=MIN('PPS-F1AP.XLS'!\$C\$41:\$C\$43)
22	=MIN('PPS-F1AP.XLS'!\$C\$41:\$C\$43)
23	=MIN('PPS-F1AP.XLS'!\$C\$44:\$C\$49)
24	=MIN('PPS-F1AP.XLS'!\$C\$44:\$C\$49)

A At13-27

	K
2	
3	
4	
5	
6	Shear Cap
7	[lbs]
8	$=IF(J8>=0,2*0.85*G8*D8*I8^{0.5}*(1+J8/(2000*B8*G8)),2*0.85*G8*D8*I8^{0.5}*(1+J8/(500*B8*G8)))$
9	$=IF(J9>=0,2*0.85*G9*D9*I9^{0.5}*(1+J9/(2000*B9*G9)),2*0.85*G9*D9*I9^{0.5}*(1+J9/(500*B9*G9)))$
10	$=IF(J10>=0,2*0.85*G10*D10*I10^{0.5}*(1+J10/(2000*B10*G10)),2*0.85*G10*D10*I10^{0.5}*(1+J10/(500*B10*G10)))$
11	$=IF(J11>=0,2*0.85*G11*D11*I11^{0.5}*(1+J11/(2000*B11*G11)),2*0.85*G11*D11*I11^{0.5}*(1+J11/(500*B11*G11)))$
12	$=IF(J12>=0,2*0.85*G12*D12*I12^{0.5}*(1+J12/(2000*B12*G12)),2*0.85*G12*D12*I12^{0.5}*(1+J12/(500*B12*G12)))$
13	$=IF(J13>=0,2*0.85*G13*D13*I13^{0.5}*(1+J13/(2000*B13*G13)),2*0.85*G13*D13*I13^{0.5}*(1+J13/(500*B13*G13)))$
14	$=IF(J14>=0,2*0.85*G14*D14*I14^{0.5}*(1+J14/(2000*B14*G14)),2*0.85*G14*D14*I14^{0.5}*(1+J14/(500*B14*G14)))$
15	$=IF(J15>=0,2*0.85*G15*D15*I15^{0.5}*(1+J15/(2000*B15*G15)),2*0.85*G15*D15*I15^{0.5}*(1+J15/(500*B15*G15)))$
16	$=IF(J16>=0,2*0.85*G16*D16*I16^{0.5}*(1+J16/(2000*B16*G16)),2*0.85*G16*D16*I16^{0.5}*(1+J16/(500*B16*G16)))$
17	$=IF(J17>=0,2*0.85*G17*D17*I17^{0.5}*(1+J17/(2000*B17*G17)),2*0.85*G17*D17*I17^{0.5}*(1+J17/(500*B17*G17)))$
18	$=IF(J18>=0,2*0.85*G18*D18*I18^{0.5}*(1+J18/(2000*B18*G18)),2*0.85*G18*D18*I18^{0.5}*(1+J18/(500*B18*G18)))$
19	$=IF(J19>=0,2*0.85*G19*D19*I19^{0.5}*(1+J19/(2000*B19*G19)),2*0.85*G19*D19*I19^{0.5}*(1+J19/(500*B19*G19)))$
20	$=IF(J20>=0,2*0.85*G20*D20*I20^{0.5}*(1+J20/(2000*B20*G20)),2*0.85*G20*D20*I20^{0.5}*(1+J20/(500*B20*G20)))$
21	$=IF(J21>=0,2*0.85*G21*D21*I21^{0.5}*(1+J21/(2000*B21*G21)),2*0.85*G21*D21*I21^{0.5}*(1+J21/(500*B21*G21)))$
22	$=IF(J22>=0,2*0.85*G22*D22*I22^{0.5}*(1+J22/(2000*B22*G22)),2*0.85*G22*D22*I22^{0.5}*(1+J22/(500*B22*G22)))$
23	$=IF(J23>=0,2*0.85*G23*D23*I23^{0.5}*(1+J23/(2000*B23*G23)),2*0.85*G23*D23*I23^{0.5}*(1+J23/(500*B23*G23)))$
24	$=IF(J24>=0,2*0.85*G24*D24*I24^{0.5}*(1+J24/(2000*B24*G24)),2*0.85*G24*D24*I24^{0.5}*(1+J24/(500*B24*G24)))$

	L
2	
3	
4	
5	Circumferential
6	Nu (min)
7	[lbs/ft]
8	=MIN('PPS-F1AP.XLS'!\$D\$9:\$D\$17)
9	=MIN('PPS-F1AP.XLS'!\$D\$18:\$D\$18)
10	=MIN('PPS-F1AP.XLS'!\$D\$19:\$D\$19)
11	=MIN('PPS-F1AP.XLS'!\$D\$53:\$D\$53)
12	=MIN('PPS-F1AP.XLS'!\$D\$53:\$D\$53)
13	=MIN('PPS-F1AP.XLS'!\$C\$22:\$C\$22)
14	=MIN('PPS-F1AP.XLS'!\$C\$23:\$C\$25)
15	=MIN('PPS-F1AP.XLS'!\$C\$26:\$C\$28)
16	=MIN('PPS-F1AP.XLS'!\$C\$29:\$C\$29)
17	=MIN('PPS-F1AP.XLS'!\$O\$32:\$O\$32)
18	=MIN('PPS-F1AP.XLS'!\$O\$33:\$O\$34)
19	=MIN('PPS-F1AP.XLS'!\$D\$37:\$D\$40)
20	=MIN('PPS-F1AP.XLS'!\$D\$37:\$D\$40)
21	=MIN('PPS-F1AP.XLS'!\$D\$41:\$D\$43)
22	=MIN('PPS-F1AP.XLS'!\$D\$41:\$D\$43)
23	=MIN('PPS-F1AP.XLS'!\$D\$44:\$D\$49)
24	=MIN('PPS-F1AP.XLS'!\$D\$44:\$D\$49)

A At13-29

	M
2	
3	
4	
5	
6	Shear Cap
7	[lbs]
8	=IF(L8>=0,2*0.85*\$G8*\$F8*\$I8^0.5*(1+L8/(2000*\$B8*\$G8)),2*0.85*\$G8*\$F8*\$I8^0.5*(1+L8/(500*\$B8*\$G8)))
9	=IF(L9>=0,2*0.85*\$G9*\$F9*\$I9^0.5*(1+L9/(2000*\$B9*\$G9)),2*0.85*\$G9*\$F9*\$I9^0.5*(1+L9/(500*\$B9*\$G9)))
10	=IF(L10>=0,2*0.85*\$G10*\$F10*\$I10^0.5*(1+L10/(2000*\$B10*\$G10)),2*0.85*\$G10*\$F10*\$I10^0.5*(1+L10/(500*\$B10*\$G10)))
11	=IF(L11>=0,2*0.85*\$G11*\$F11*\$I11^0.5*(1+L11/(2000*\$B11*\$G11)),2*0.85*\$G11*\$F11*\$I11^0.5*(1+L11/(500*\$B11*\$G11)))
12	=IF(L12>=0,2*0.85*\$G12*\$F12*\$I12^0.5*(1+L12/(2000*\$B12*\$G12)),2*0.85*\$G12*\$F12*\$I12^0.5*(1+L12/(500*\$B12*\$G12)))
13	=IF(L13>=0,2*0.85*\$G13*\$F13*\$I13^0.5*(1+L13/(2000*\$B13*\$G13)),2*0.85*\$G13*\$F13*\$I13^0.5*(1+L13/(500*\$B13*\$G13)))
14	=IF(L14>=0,2*0.85*\$G14*\$F14*\$I14^0.5*(1+L14/(2000*\$B14*\$G14)),2*0.85*\$G14*\$F14*\$I14^0.5*(1+L14/(500*\$B14*\$G14)))
15	=IF(L15>=0,2*0.85*\$G15*\$F15*\$I15^0.5*(1+L15/(2000*\$B15*\$G15)),2*0.85*\$G15*\$F15*\$I15^0.5*(1+L15/(500*\$B15*\$G15)))
16	=IF(L16>=0,2*0.85*\$G16*\$F16*\$I16^0.5*(1+L16/(2000*\$B16*\$G16)),2*0.85*\$G16*\$F16*\$I16^0.5*(1+L16/(500*\$B16*\$G16)))
17	=IF(L17>=0,2*0.85*\$G17*\$F17*\$I17^0.5*(1+L17/(2000*\$B17*\$G17)),2*0.85*\$G17*\$F17*\$I17^0.5*(1+L17/(500*\$B17*\$G17)))
18	=IF(L18>=0,2*0.85*\$G18*\$F18*\$I18^0.5*(1+L18/(2000*\$B18*\$G18)),2*0.85*\$G18*\$F18*\$I18^0.5*(1+L18/(500*\$B18*\$G18)))
19	=IF(L19>=0,2*0.85*\$G19*\$F19*\$I19^0.5*(1+L19/(2000*\$B19*\$G19)),2*0.85*\$G19*\$F19*\$I19^0.5*(1+L19/(500*\$B19*\$G19)))
20	=IF(L20>=0,2*0.85*\$G20*\$F20*\$I20^0.5*(1+L20/(2000*\$B20*\$G20)),2*0.85*\$G20*\$F20*\$I20^0.5*(1+L20/(500*\$B20*\$G20)))
21	=IF(L21>=0,2*0.85*\$G21*\$F21*\$I21^0.5*(1+L21/(2000*\$B21*\$G21)),2*0.85*\$G21*\$F21*\$I21^0.5*(1+L21/(500*\$B21*\$G21)))
22	=IF(L22>=0,2*0.85*\$G22*\$F22*\$I22^0.5*(1+L22/(2000*\$B22*\$G22)),2*0.85*\$G22*\$F22*\$I22^0.5*(1+L22/(500*\$B22*\$G22)))
23	=IF(L23>=0,2*0.85*\$G23*\$F23*\$I23^0.5*(1+L23/(2000*\$B23*\$G23)),2*0.85*\$G23*\$F23*\$I23^0.5*(1+L23/(500*\$B23*\$G23)))
24	=IF(L24>=0,2*0.85*\$G24*\$F24*\$I24^0.5*(1+L24/(2000*\$B24*\$G24)),2*0.85*\$G24*\$F24*\$I24^0.5*(1+L24/(500*\$B24*\$G24)))

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Rev. 0

	N
2	
3	Per ACI-349, Section 11.3.1.2 and 11.
4	NEGATIVE 1-AXIS
5	Meridional
6	Nu (min)
7	[lbs/ft]
8	=MIN('PPS-F1AP.XLS'!\$C\$63:\$C\$71)
9	=MIN('PPS-F1AP.XLS'!\$C\$72:\$C\$72)
10	=MIN('PPS-F1AP.XLS'!\$C\$73:\$C\$73)
11	=MIN('PPS-F1AP.XLS'!\$C\$107:\$C\$107)
12	=MIN('PPS-F1AP.XLS'!\$C\$107:\$C\$107)
13	=MIN('PPS-F1AP.XLS'!\$D\$76:\$D\$76)
14	=MIN('PPS-F1AP.XLS'!\$D\$77:\$D\$79)
15	=MIN('PPS-F1AP.XLS'!\$D\$80:\$D\$82)
16	=MIN('PPS-F1AP.XLS'!\$D\$83:\$D\$83)
17	=MIN('PPS-F1AP.XLS'!\$N\$86:\$N\$86)
18	=MIN('PPS-F1AP.XLS'!\$N\$87:\$N\$88)
19	=MIN('PPS-F1AP.XLS'!\$C\$91:\$C\$94)
20	=MIN('PPS-F1AP.XLS'!\$C\$91:\$C\$94)
21	=MIN('PPS-F1AP.XLS'!\$C\$95:\$C\$97)
22	=MIN('PPS-F1AP.XLS'!\$C\$95:\$C\$97)
23	=MIN('PPS-F1AP.XLS'!\$C\$98:\$C\$103)
24	=MIN('PPS-F1AP.XLS'!\$C\$98:\$C\$103)

	0
2	
3	
4	
5	
6	Shear Cap
7	[lbs]
8	=IF(N8>=0,2*0.85*\$G8*\$D8*\$I8^0.5*(1+N8/(2000*\$B8*\$G8)),2*0.85*\$G8*\$D8*\$I8^0.5*(1+N8/(500*\$B8*\$G8)))
9	=IF(N9>=0,2*0.85*\$G9*\$D9*\$I9^0.5*(1+N9/(2000*\$B9*\$G9)),2*0.85*\$G9*\$D9*\$I9^0.5*(1+N9/(500*\$B9*\$G9)))
10	=IF(N10>=0,2*0.85*\$G10*\$D10*\$I10^0.5*(1+N10/(2000*\$B10*\$G10)),2*0.85*\$G10*\$D10*\$I10^0.5*(1+N10/(500*\$B10*\$G10)))
11	=IF(N11>=0,2*0.85*\$G11*\$D11*\$I11^0.5*(1+N11/(2000*\$B11*\$G11)),2*0.85*\$G11*\$D11*\$I11^0.5*(1+N11/(500*\$B11*\$G11)))
12	=IF(N12>=0,2*0.85*\$G12*\$D12*\$I12^0.5*(1+N12/(2000*\$B12*\$G12)),2*0.85*\$G12*\$D12*\$I12^0.5*(1+N12/(500*\$B12*\$G12)))
13	=IF(N13>=0,2*0.85*\$G13*\$D13*\$I13^0.5*(1+N13/(2000*\$B13*\$G13)),2*0.85*\$G13*\$D13*\$I13^0.5*(1+N13/(500*\$B13*\$G13)))
14	=IF(N14>=0,2*0.85*\$G14*\$D14*\$I14^0.5*(1+N14/(2000*\$B14*\$G14)),2*0.85*\$G14*\$D14*\$I14^0.5*(1+N14/(500*\$B14*\$G14)))
15	=IF(N15>=0,2*0.85*\$G15*\$D15*\$I15^0.5*(1+N15/(2000*\$B15*\$G15)),2*0.85*\$G15*\$D15*\$I15^0.5*(1+N15/(500*\$B15*\$G15)))
16	=IF(N16>=0,2*0.85*\$G16*\$D16*\$I16^0.5*(1+N16/(2000*\$B16*\$G16)),2*0.85*\$G16*\$D16*\$I16^0.5*(1+N16/(500*\$B16*\$G16)))
17	=IF(N17>=0,2*0.85*\$G17*\$D17*\$I17^0.5*(1+N17/(2000*\$B17*\$G17)),2*0.85*\$G17*\$D17*\$I17^0.5*(1+N17/(500*\$B17*\$G17)))
18	=IF(N18>=0,2*0.85*\$G18*\$D18*\$I18^0.5*(1+N18/(2000*\$B18*\$G18)),2*0.85*\$G18*\$D18*\$I18^0.5*(1+N18/(500*\$B18*\$G18)))
19	=IF(N19>=0,2*0.85*\$G19*\$D19*\$I19^0.5*(1+N19/(2000*\$B19*\$G19)),2*0.85*\$G19*\$D19*\$I19^0.5*(1+N19/(500*\$B19*\$G19)))
20	=IF(N20>=0,2*0.85*\$G20*\$D20*\$I20^0.5*(1+N20/(2000*\$B20*\$G20)),2*0.85*\$G20*\$D20*\$I20^0.5*(1+N20/(500*\$B20*\$G20)))
21	=IF(N21>=0,2*0.85*\$G21*\$D21*\$I21^0.5*(1+N21/(2000*\$B21*\$G21)),2*0.85*\$G21*\$D21*\$I21^0.5*(1+N21/(500*\$B21*\$G21)))
22	=IF(N22>=0,2*0.85*\$G22*\$D22*\$I22^0.5*(1+N22/(2000*\$B22*\$G22)),2*0.85*\$G22*\$D22*\$I22^0.5*(1+N22/(500*\$B22*\$G22)))
23	=IF(N23>=0,2*0.85*\$G23*\$D23*\$I23^0.5*(1+N23/(2000*\$B23*\$G23)),2*0.85*\$G23*\$D23*\$I23^0.5*(1+N23/(500*\$B23*\$G23)))
24	=IF(N24>=0,2*0.85*\$G24*\$D24*\$I24^0.5*(1+N24/(2000*\$B24*\$G24)),2*0.85*\$G24*\$D24*\$I24^0.5*(1+N24/(500*\$B24*\$G24)))

	P
2	
3	
4	
5	Circumferential
6	Nu (min)
7	[lbs/ft]
8	=MIN('PPS-F1AP.XLS'!\$D\$63:\$D\$71)
9	=MIN('PPS-F1AP.XLS'!\$D\$72:\$D\$72)
10	=MIN('PPS-F1AP.XLS'!\$D\$73:\$D\$73)
11	=MIN('PPS-F1AP.XLS'!\$D\$107:\$D\$107)
12	=MIN('PPS-F1AP.XLS'!\$D\$107:\$D\$107)
13	=MIN('PPS-F1AP.XLS'!\$C\$76:\$C\$76)
14	=MIN('PPS-F1AP.XLS'!\$C\$77:\$C\$79)
15	=MIN('PPS-F1AP.XLS'!\$C\$80:\$C\$82)
16	=MIN('PPS-F1AP.XLS'!\$C\$83:\$C\$83)
17	=MIN('PPS-F1AP.XLS'!\$O\$86:\$O\$86)
18	=MIN('PPS-F1AP.XLS'!\$O\$87:\$O\$88)
19	=MIN('PPS-F1AP.XLS'!\$D\$91:\$D\$94)
20	=MIN('PPS-F1AP.XLS'!\$D\$91:\$D\$94)
21	=MIN('PPS-F1AP.XLS'!\$D\$95:\$D\$97)
22	=MIN('PPS-F1AP.XLS'!\$D\$95:\$D\$97)
23	=MIN('PPS-F1AP.XLS'!\$D\$98:\$D\$103)
24	=MIN('PPS-F1AP.XLS'!\$D\$98:\$D\$103)

A Att13-33

	Q
2	
3	
4	
5	
6	Shear Cap
7	[lbs]
8	=IF(P8>=0,2*0.85*\$G8*\$F8*\$I8^0.5*(1+P8/(2000*\$B8*\$G8)),2*0.85*\$G8*\$F8*\$I8^0.5*(1+P8/(500*\$B8*\$G8)))
9	=IF(P9>=0,2*0.85*\$G9*\$F9*\$I9^0.5*(1+P9/(2000*\$B9*\$G9)),2*0.85*\$G9*\$F9*\$I9^0.5*(1+P9/(500*\$B9*\$G9)))
10	=IF(P10>=0,2*0.85*\$G10*\$F10*\$I10^0.5*(1+P10/(2000*\$B10*\$G10)),2*0.85*\$G10*\$F10*\$I10^0.5*(1+P10/(500*\$B10*\$G10)))
11	=IF(P11>=0,2*0.85*\$G11*\$F11*\$I11^0.5*(1+P11/(2000*\$B11*\$G11)),2*0.85*\$G11*\$F11*\$I11^0.5*(1+P11/(500*\$B11*\$G11)))
12	=IF(P12>=0,2*0.85*\$G12*\$F12*\$I12^0.5*(1+P12/(2000*\$B12*\$G12)),2*0.85*\$G12*\$F12*\$I12^0.5*(1+P12/(500*\$B12*\$G12)))
13	=IF(P13>=0,2*0.85*\$G13*\$F13*\$I13^0.5*(1+P13/(2000*\$B13*\$G13)),2*0.85*\$G13*\$F13*\$I13^0.5*(1+P13/(500*\$B13*\$G13)))
14	=IF(P14>=0,2*0.85*\$G14*\$F14*\$I14^0.5*(1+P14/(2000*\$B14*\$G14)),2*0.85*\$G14*\$F14*\$I14^0.5*(1+P14/(500*\$B14*\$G14)))
15	=IF(P15>=0,2*0.85*\$G15*\$F15*\$I15^0.5*(1+P15/(2000*\$B15*\$G15)),2*0.85*\$G15*\$F15*\$I15^0.5*(1+P15/(500*\$B15*\$G15)))
16	=IF(P16>=0,2*0.85*\$G16*\$F16*\$I16^0.5*(1+P16/(2000*\$B16*\$G16)),2*0.85*\$G16*\$F16*\$I16^0.5*(1+P16/(500*\$B16*\$G16)))
17	=IF(P17>=0,2*0.85*\$G17*\$F17*\$I17^0.5*(1+P17/(2000*\$B17*\$G17)),2*0.85*\$G17*\$F17*\$I17^0.5*(1+P17/(500*\$B17*\$G17)))
18	=IF(P18>=0,2*0.85*\$G18*\$F18*\$I18^0.5*(1+P18/(2000*\$B18*\$G18)),2*0.85*\$G18*\$F18*\$I18^0.5*(1+P18/(500*\$B18*\$G18)))
19	=IF(P19>=0,2*0.85*\$G19*\$F19*\$I19^0.5*(1+P19/(2000*\$B19*\$G19)),2*0.85*\$G19*\$F19*\$I19^0.5*(1+P19/(500*\$B19*\$G19)))
20	=IF(P20>=0,2*0.85*\$G20*\$F20*\$I20^0.5*(1+P20/(2000*\$B20*\$G20)),2*0.85*\$G20*\$F20*\$I20^0.5*(1+P20/(500*\$B20*\$G20)))
21	=IF(P21>=0,2*0.85*\$G21*\$F21*\$I21^0.5*(1+P21/(2000*\$B21*\$G21)),2*0.85*\$G21*\$F21*\$I21^0.5*(1+P21/(500*\$B21*\$G21)))
22	=IF(P22>=0,2*0.85*\$G22*\$F22*\$I22^0.5*(1+P22/(2000*\$B22*\$G22)),2*0.85*\$G22*\$F22*\$I22^0.5*(1+P22/(500*\$B22*\$G22)))
23	=IF(P23>=0,2*0.85*\$G23*\$F23*\$I23^0.5*(1+P23/(2000*\$B23*\$G23)),2*0.85*\$G23*\$F23*\$I23^0.5*(1+P23/(500*\$B23*\$G23)))
24	=IF(P24>=0,2*0.85*\$G24*\$F24*\$I24^0.5*(1+P24/(2000*\$B24*\$G24)),2*0.85*\$G24*\$F24*\$I24^0.5*(1+P24/(500*\$B24*\$G24)))

	R
2	
3	
4	POSITIVE 2-AXIS
5	Meridional
6	Nu (min)
7	[lbs/ft]
8	=MIN('PPS-F1AP.XLS'!\$D\$117:\$D\$125)
9	=MIN('PPS-F1AP.XLS'!\$D\$126:\$D\$126)
10	=MIN('PPS-F1AP.XLS'!\$D\$127:\$D\$127)
11	=MIN('PPS-F1AP.XLS'!\$D\$161:\$D\$161)
12	=MIN('PPS-F1AP.XLS'!\$D\$161:\$D\$161)
13	=MIN('PPS-F1AP.XLS'!\$D\$130:\$D\$130)
14	=MIN('PPS-F1AP.XLS'!\$D\$131:\$D\$133)
15	=MIN('PPS-F1AP.XLS'!\$D\$134:\$D\$136)
16	=MIN('PPS-F1AP.XLS'!\$D\$137:\$D\$137)
17	=MIN('PPS-F1AP.XLS'!\$D\$140:\$D\$140)
18	=MIN('PPS-F1AP.XLS'!\$D\$141:\$D\$142)
19	=MIN('PPS-F1AP.XLS'!\$D\$145:\$D\$148)
20	=MIN('PPS-F1AP.XLS'!\$D\$145:\$D\$148)
21	=MIN('PPS-F1AP.XLS'!\$D\$149:\$D\$151)
22	=MIN('PPS-F1AP.XLS'!\$D\$149:\$D\$151)
23	=MIN('PPS-F1AP.XLS'!\$D\$152:\$D\$157)
24	=MIN('PPS-F1AP.XLS'!\$D\$152:\$D\$157)

	S
2	
3	
4	
5	
6	Shear Cap
7	[lbs]
8	$=IF(R8 \geq 0, 2 \cdot 0.85 \cdot \$G8 \cdot \$D8 \cdot \$I8^{0.5} \cdot (1 + R8 / (2000 \cdot \$B8 \cdot \$G8)), 2 \cdot 0.85 \cdot \$G8 \cdot \$D8 \cdot \$I8^{0.5} \cdot (1 + R8 / (500 \cdot \$B8 \cdot \$G8)))$
9	$=IF(R9 \geq 0, 2 \cdot 0.85 \cdot \$G9 \cdot \$D9 \cdot \$I9^{0.5} \cdot (1 + R9 / (2000 \cdot \$B9 \cdot \$G9)), 2 \cdot 0.85 \cdot \$G9 \cdot \$D9 \cdot \$I9^{0.5} \cdot (1 + R9 / (500 \cdot \$B9 \cdot \$G9)))$
10	$=IF(R10 \geq 0, 2 \cdot 0.85 \cdot \$G10 \cdot \$D10 \cdot \$I10^{0.5} \cdot (1 + R10 / (2000 \cdot \$B10 \cdot \$G10)), 2 \cdot 0.85 \cdot \$G10 \cdot \$D10 \cdot \$I10^{0.5} \cdot (1 + R10 / (500 \cdot \$B10 \cdot \$G10)))$
11	$=IF(R11 \geq 0, 2 \cdot 0.85 \cdot \$G11 \cdot \$D11 \cdot \$I11^{0.5} \cdot (1 + R11 / (2000 \cdot \$B11 \cdot \$G11)), 2 \cdot 0.85 \cdot \$G11 \cdot \$D11 \cdot \$I11^{0.5} \cdot (1 + R11 / (500 \cdot \$B11 \cdot \$G11)))$
12	$=IF(R12 \geq 0, 2 \cdot 0.85 \cdot \$G12 \cdot \$D12 \cdot \$I12^{0.5} \cdot (1 + R12 / (2000 \cdot \$B12 \cdot \$G12)), 2 \cdot 0.85 \cdot \$G12 \cdot \$D12 \cdot \$I12^{0.5} \cdot (1 + R12 / (500 \cdot \$B12 \cdot \$G12)))$
13	$=IF(R13 \geq 0, 2 \cdot 0.85 \cdot \$G13 \cdot \$D13 \cdot \$I13^{0.5} \cdot (1 + R13 / (2000 \cdot \$B13 \cdot \$G13)), 2 \cdot 0.85 \cdot \$G13 \cdot \$D13 \cdot \$I13^{0.5} \cdot (1 + R13 / (500 \cdot \$B13 \cdot \$G13)))$
14	$=IF(R14 \geq 0, 2 \cdot 0.85 \cdot \$G14 \cdot \$D14 \cdot \$I14^{0.5} \cdot (1 + R14 / (2000 \cdot \$B14 \cdot \$G14)), 2 \cdot 0.85 \cdot \$G14 \cdot \$D14 \cdot \$I14^{0.5} \cdot (1 + R14 / (500 \cdot \$B14 \cdot \$G14)))$
15	$=IF(R15 \geq 0, 2 \cdot 0.85 \cdot \$G15 \cdot \$D15 \cdot \$I15^{0.5} \cdot (1 + R15 / (2000 \cdot \$B15 \cdot \$G15)), 2 \cdot 0.85 \cdot \$G15 \cdot \$D15 \cdot \$I15^{0.5} \cdot (1 + R15 / (500 \cdot \$B15 \cdot \$G15)))$
16	$=IF(R16 \geq 0, 2 \cdot 0.85 \cdot \$G16 \cdot \$D16 \cdot \$I16^{0.5} \cdot (1 + R16 / (2000 \cdot \$B16 \cdot \$G16)), 2 \cdot 0.85 \cdot \$G16 \cdot \$D16 \cdot \$I16^{0.5} \cdot (1 + R16 / (500 \cdot \$B16 \cdot \$G16)))$
17	$=IF(R17 \geq 0, 2 \cdot 0.85 \cdot \$G17 \cdot \$D17 \cdot \$I17^{0.5} \cdot (1 + R17 / (2000 \cdot \$B17 \cdot \$G17)), 2 \cdot 0.85 \cdot \$G17 \cdot \$D17 \cdot \$I17^{0.5} \cdot (1 + R17 / (500 \cdot \$B17 \cdot \$G17)))$
18	$=IF(R18 \geq 0, 2 \cdot 0.85 \cdot \$G18 \cdot \$D18 \cdot \$I18^{0.5} \cdot (1 + R18 / (2000 \cdot \$B18 \cdot \$G18)), 2 \cdot 0.85 \cdot \$G18 \cdot \$D18 \cdot \$I18^{0.5} \cdot (1 + R18 / (500 \cdot \$B18 \cdot \$G18)))$
19	$=IF(R19 \geq 0, 2 \cdot 0.85 \cdot \$G19 \cdot \$D19 \cdot \$I19^{0.5} \cdot (1 + R19 / (2000 \cdot \$B19 \cdot \$G19)), 2 \cdot 0.85 \cdot \$G19 \cdot \$D19 \cdot \$I19^{0.5} \cdot (1 + R19 / (500 \cdot \$B19 \cdot \$G19)))$
20	$=IF(R20 \geq 0, 2 \cdot 0.85 \cdot \$G20 \cdot \$D20 \cdot \$I20^{0.5} \cdot (1 + R20 / (2000 \cdot \$B20 \cdot \$G20)), 2 \cdot 0.85 \cdot \$G20 \cdot \$D20 \cdot \$I20^{0.5} \cdot (1 + R20 / (500 \cdot \$B20 \cdot \$G20)))$
21	$=IF(R21 \geq 0, 2 \cdot 0.85 \cdot \$G21 \cdot \$D21 \cdot \$I21^{0.5} \cdot (1 + R21 / (2000 \cdot \$B21 \cdot \$G21)), 2 \cdot 0.85 \cdot \$G21 \cdot \$D21 \cdot \$I21^{0.5} \cdot (1 + R21 / (500 \cdot \$B21 \cdot \$G21)))$
22	$=IF(R22 \geq 0, 2 \cdot 0.85 \cdot \$G22 \cdot \$D22 \cdot \$I22^{0.5} \cdot (1 + R22 / (2000 \cdot \$B22 \cdot \$G22)), 2 \cdot 0.85 \cdot \$G22 \cdot \$D22 \cdot \$I22^{0.5} \cdot (1 + R22 / (500 \cdot \$B22 \cdot \$G22)))$
23	$=IF(R23 \geq 0, 2 \cdot 0.85 \cdot \$G23 \cdot \$D23 \cdot \$I23^{0.5} \cdot (1 + R23 / (2000 \cdot \$B23 \cdot \$G23)), 2 \cdot 0.85 \cdot \$G23 \cdot \$D23 \cdot \$I23^{0.5} \cdot (1 + R23 / (500 \cdot \$B23 \cdot \$G23)))$
24	$=IF(R24 \geq 0, 2 \cdot 0.85 \cdot \$G24 \cdot \$D24 \cdot \$I24^{0.5} \cdot (1 + R24 / (2000 \cdot \$B24 \cdot \$G24)), 2 \cdot 0.85 \cdot \$G24 \cdot \$D24 \cdot \$I24^{0.5} \cdot (1 + R24 / (500 \cdot \$B24 \cdot \$G24)))$

	T
2	
3	
4	
5	Circumferential
6	Nu (min)
7	[lbs/ft]
8	=MIN('PPS-F1AP.XLS'!\$C\$117:\$C\$125)
9	=MIN('PPS-F1AP.XLS'!\$C\$126:\$C\$126)
10	=MIN('PPS-F1AP.XLS'!\$C\$127:\$C\$127)
11	=MIN('PPS-F1AP.XLS'!\$C\$161:\$C\$161)
12	=MIN('PPS-F1AP.XLS'!\$C\$161:\$C\$161)
13	=MIN('PPS-F1AP.XLS'!\$C\$130:\$C\$130)
14	=MIN('PPS-F1AP.XLS'!\$C\$131:\$C\$133)
15	=MIN('PPS-F1AP.XLS'!\$C\$134:\$C\$136)
16	=MIN('PPS-F1AP.XLS'!\$C\$137:\$C\$137)
17	=MIN('PPS-F1AP.XLS'!\$C\$140:\$C\$140)
18	=MIN('PPS-F1AP.XLS'!\$C\$141:\$C\$142)
19	=MIN('PPS-F1AP.XLS'!\$C\$145:\$C\$148)
20	=MIN('PPS-F1AP.XLS'!\$C\$145:\$C\$148)
21	=MIN('PPS-F1AP.XLS'!\$C\$149:\$C\$151)
22	=MIN('PPS-F1AP.XLS'!\$C\$149:\$C\$151)
23	=MIN('PPS-F1AP.XLS'!\$C\$152:\$C\$157)
24	=MIN('PPS-F1AP.XLS'!\$C\$152:\$C\$157)

A At13-37

	U
2	
3	
4	
5	
6	Shear Cap
7	[lbs]
8	$=IF(T8 \geq 0, 2 * 0.85 * \$G8 * \$F8 * \$I8^{0.5} * (1 + T8 / (2000 * \$B8 * \$G8)), 2 * 0.85 * \$G8 * \$F8 * \$I8^{0.5} * (1 + T8 / (500 * \$B8 * \$G8)))$
9	$=IF(T9 \geq 0, 2 * 0.85 * \$G9 * \$F9 * \$I9^{0.5} * (1 + T9 / (2000 * \$B9 * \$G9)), 2 * 0.85 * \$G9 * \$F9 * \$I9^{0.5} * (1 + T9 / (500 * \$B9 * \$G9)))$
10	$=IF(T10 \geq 0, 2 * 0.85 * \$G10 * \$F10 * \$I10^{0.5} * (1 + T10 / (2000 * \$B10 * \$G10)), 2 * 0.85 * \$G10 * \$F10 * \$I10^{0.5} * (1 + T10 / (500 * \$B10 * \$G10)))$
11	$=IF(T11 \geq 0, 2 * 0.85 * \$G11 * \$F11 * \$I11^{0.5} * (1 + T11 / (2000 * \$B11 * \$G11)), 2 * 0.85 * \$G11 * \$F11 * \$I11^{0.5} * (1 + T11 / (500 * \$B11 * \$G11)))$
12	$=IF(T12 \geq 0, 2 * 0.85 * \$G12 * \$F12 * \$I12^{0.5} * (1 + T12 / (2000 * \$B12 * \$G12)), 2 * 0.85 * \$G12 * \$F12 * \$I12^{0.5} * (1 + T12 / (500 * \$B12 * \$G12)))$
13	$=IF(T13 \geq 0, 2 * 0.85 * \$G13 * \$F13 * \$I13^{0.5} * (1 + T13 / (2000 * \$B13 * \$G13)), 2 * 0.85 * \$G13 * \$F13 * \$I13^{0.5} * (1 + T13 / (500 * \$B13 * \$G13)))$
14	$=IF(T14 \geq 0, 2 * 0.85 * \$G14 * \$F14 * \$I14^{0.5} * (1 + T14 / (2000 * \$B14 * \$G14)), 2 * 0.85 * \$G14 * \$F14 * \$I14^{0.5} * (1 + T14 / (500 * \$B14 * \$G14)))$
15	$=IF(T15 \geq 0, 2 * 0.85 * \$G15 * \$F15 * \$I15^{0.5} * (1 + T15 / (2000 * \$B15 * \$G15)), 2 * 0.85 * \$G15 * \$F15 * \$I15^{0.5} * (1 + T15 / (500 * \$B15 * \$G15)))$
16	$=IF(T16 \geq 0, 2 * 0.85 * \$G16 * \$F16 * \$I16^{0.5} * (1 + T16 / (2000 * \$B16 * \$G16)), 2 * 0.85 * \$G16 * \$F16 * \$I16^{0.5} * (1 + T16 / (500 * \$B16 * \$G16)))$
17	$=IF(T17 \geq 0, 2 * 0.85 * \$G17 * \$F17 * \$I17^{0.5} * (1 + T17 / (2000 * \$B17 * \$G17)), 2 * 0.85 * \$G17 * \$F17 * \$I17^{0.5} * (1 + T17 / (500 * \$B17 * \$G17)))$
18	$=IF(T18 \geq 0, 2 * 0.85 * \$G18 * \$F18 * \$I18^{0.5} * (1 + T18 / (2000 * \$B18 * \$G18)), 2 * 0.85 * \$G18 * \$F18 * \$I18^{0.5} * (1 + T18 / (500 * \$B18 * \$G18)))$
19	$=IF(T19 \geq 0, 2 * 0.85 * \$G19 * \$F19 * \$I19^{0.5} * (1 + T19 / (2000 * \$B19 * \$G19)), 2 * 0.85 * \$G19 * \$F19 * \$I19^{0.5} * (1 + T19 / (500 * \$B19 * \$G19)))$
20	$=IF(T20 \geq 0, 2 * 0.85 * \$G20 * \$F20 * \$I20^{0.5} * (1 + T20 / (2000 * \$B20 * \$G20)), 2 * 0.85 * \$G20 * \$F20 * \$I20^{0.5} * (1 + T20 / (500 * \$B20 * \$G20)))$
21	$=IF(T21 \geq 0, 2 * 0.85 * \$G21 * \$F21 * \$I21^{0.5} * (1 + T21 / (2000 * \$B21 * \$G21)), 2 * 0.85 * \$G21 * \$F21 * \$I21^{0.5} * (1 + T21 / (500 * \$B21 * \$G21)))$
22	$=IF(T22 \geq 0, 2 * 0.85 * \$G22 * \$F22 * \$I22^{0.5} * (1 + T22 / (2000 * \$B22 * \$G22)), 2 * 0.85 * \$G22 * \$F22 * \$I22^{0.5} * (1 + T22 / (500 * \$B22 * \$G22)))$
23	$=IF(T23 \geq 0, 2 * 0.85 * \$G23 * \$F23 * \$I23^{0.5} * (1 + T23 / (2000 * \$B23 * \$G23)), 2 * 0.85 * \$G23 * \$F23 * \$I23^{0.5} * (1 + T23 / (500 * \$B23 * \$G23)))$
24	$=IF(T24 \geq 0, 2 * 0.85 * \$G24 * \$F24 * \$I24^{0.5} * (1 + T24 / (2000 * \$B24 * \$G24)), 2 * 0.85 * \$G24 * \$F24 * \$I24^{0.5} * (1 + T24 / (500 * \$B24 * \$G24)))$

	V	W	X	Y	Z	AA
2	CODE CHECK FOR SHEAR -					
3	Per ACI-349, Section 11.3.1.2 and 11.3					
4	Elements along the Positive 1-Axis			Elements along the Negative 1-Axis		
5	Meridional		Circumferential		Meridional	
6	Demand	Capacity	Demand	Capacity	Demand	Capacity
7	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]
8	=MAX('PPS-F1AP.XLS'!\$F\$9:\$F\$17)	=K8	=MAX('PPS-F1AP.XLS'!\$G\$9:\$G\$17)	=M8	=MAX('PPS-F1AP.XLS'!\$F\$63:\$F\$71)	=O8
9	=MAX('PPS-F1AP.XLS'!\$F\$18:\$F\$18)	=K9	=MAX('PPS-F1AP.XLS'!\$G\$18:\$G\$18)	=M9	=MAX('PPS-F1AP.XLS'!\$F\$72:\$F\$72)	=O9
10	=MAX('PPS-F1AP.XLS'!\$F\$19:\$F\$19)	=K10	=MAX('PPS-F1AP.XLS'!\$G\$19:\$G\$19)	=M10	=MAX('PPS-F1AP.XLS'!\$F\$73:\$F\$73)	=O10
11	=MAX('PPS-F1AP.XLS'!\$F\$53:\$F\$53)	=K11	=MAX('PPS-F1AP.XLS'!\$G\$53:\$G\$53)	=M11	=MAX('PPS-F1AP.XLS'!\$F\$107:\$F\$107)	=O11
12	=MAX('PPS-F1AP.XLS'!\$F\$53:\$F\$53)	=K12	=MAX('PPS-F1AP.XLS'!\$G\$53:\$G\$53)	=M12	=MAX('PPS-F1AP.XLS'!\$F\$107:\$F\$107)	=O12
13	=MAX('PPS-F1AP.XLS'!\$G\$22:\$G\$22)	=K13	=MAX('PPS-F1AP.XLS'!\$F\$22:\$F\$22)	=M13	=MAX('PPS-F1AP.XLS'!\$G\$76:\$G\$76)	=O13
14	=MAX('PPS-F1AP.XLS'!\$G\$23:\$G\$25)	=K14	=MAX('PPS-F1AP.XLS'!\$F\$23:\$F\$25)	=M14	=MAX('PPS-F1AP.XLS'!\$G\$77:\$G\$79)	=O14
15	=MAX('PPS-F1AP.XLS'!\$G\$26:\$G\$28)	=K15	=MAX('PPS-F1AP.XLS'!\$F\$26:\$F\$28)	=M15	=MAX('PPS-F1AP.XLS'!\$G\$80:\$G\$82)	=O15
16	=MAX('PPS-F1AP.XLS'!\$G\$29:\$G\$29)	=K16	=MAX('PPS-F1AP.XLS'!\$F\$29:\$F\$29)	=M16	=MAX('PPS-F1AP.XLS'!\$G\$83:\$G\$83)	=O16
17	=MAX('PPS-F1AP.XLS'!\$Q\$32:\$Q\$32)	=K17	=MAX('PPS-F1AP.XLS'!\$R\$32:\$R\$32)	=M17	=MAX('PPS-F1AP.XLS'!\$Q\$86:\$Q\$86)	=O17
18	=MAX('PPS-F1AP.XLS'!\$Q\$33:\$Q\$34)	=K18	=MAX('PPS-F1AP.XLS'!\$R\$33:\$R\$34)	=M18	=MAX('PPS-F1AP.XLS'!\$Q\$87:\$Q\$88)	=O18
19	=MAX('PPS-F1AP.XLS'!\$F\$37:\$F\$40)	=K19	=MAX('PPS-F1AP.XLS'!\$G\$37:\$G\$40)	=M19	=MAX('PPS-F1AP.XLS'!\$F\$91:\$F\$94)	=O19
20	=MAX('PPS-F1AP.XLS'!\$F\$37:\$F\$40)	=K20	=MAX('PPS-F1AP.XLS'!\$G\$37:\$G\$40)	=M20	=MAX('PPS-F1AP.XLS'!\$F\$91:\$F\$94)	=O20
21	=MAX('PPS-F1AP.XLS'!\$F\$41:\$F\$43)	=K21	=MAX('PPS-F1AP.XLS'!\$G\$41:\$G\$43)	=M21	=MAX('PPS-F1AP.XLS'!\$F\$95:\$F\$97)	=O21
22	=MAX('PPS-F1AP.XLS'!\$F\$41:\$F\$43)	=K22	=MAX('PPS-F1AP.XLS'!\$G\$41:\$G\$43)	=M22	=MAX('PPS-F1AP.XLS'!\$F\$95:\$F\$97)	=O22
23	=MAX('PPS-F1AP.XLS'!\$F\$44:\$F\$49)	=K23	=MAX('PPS-F1AP.XLS'!\$G\$44:\$G\$49)	=M23	=MAX('PPS-F1AP.XLS'!\$F\$98:\$F\$103)	=O23
24	=MAX('PPS-F1AP.XLS'!\$F\$44:\$F\$49)	=K24	=MAX('PPS-F1AP.XLS'!\$G\$44:\$G\$49)	=M24	=MAX('PPS-F1AP.XLS'!\$F\$98:\$F\$103)	=O24

	AB	AC	AD	AE	AF	AG
2						
3						
4			Elements along the Positive 2-Axis			
5	Circumferential		Meridional		Circumferential	
6	Demand	Capacity	Demand	Capacity	Demand	Capacity
7	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]
8	=MAX('PPS-F1AP.XLS'!\$G\$63:\$G\$71)	=Q8	=MAX('PPS-F1AP.XLS'!\$G\$117:\$G\$125)	=S8	=MAX('PPS-F1AP.XLS'!\$F\$117:\$F\$125)	=U8
9	=MAX('PPS-F1AP.XLS'!\$G\$72:\$G\$72)	=Q9	=MAX('PPS-F1AP.XLS'!\$G\$126:\$G\$126)	=S9	=MAX('PPS-F1AP.XLS'!\$F\$126:\$F\$126)	=U9
10	=MAX('PPS-F1AP.XLS'!\$G\$73:\$G\$73)	=Q10	=MAX('PPS-F1AP.XLS'!\$G\$127:\$G\$127)	=S10	=MAX('PPS-F1AP.XLS'!\$F\$127:\$F\$127)	=U10
11	=MAX('PPS-F1AP.XLS'!\$G\$107:\$G\$107)	=Q11	=MAX('PPS-F1AP.XLS'!\$G\$161:\$G\$161)	=S11	=MAX('PPS-F1AP.XLS'!\$F\$161:\$F\$161)	=U11
12	=MAX('PPS-F1AP.XLS'!\$G\$107:\$G\$107)	=Q12	=MAX('PPS-F1AP.XLS'!\$G\$161:\$G\$161)	=S12	=MAX('PPS-F1AP.XLS'!\$F\$161:\$F\$161)	=U12
13	=MAX('PPS-F1AP.XLS'!\$F\$76:\$F\$76)	=Q13	=MAX('PPS-F1AP.XLS'!\$G\$130:\$G\$130)	=S13	=MAX('PPS-F1AP.XLS'!\$F\$130:\$F\$130)	=U13
14	=MAX('PPS-F1AP.XLS'!\$F\$77:\$F\$79)	=Q14	=MAX('PPS-F1AP.XLS'!\$G\$131:\$G\$133)	=S14	=MAX('PPS-F1AP.XLS'!\$F\$131:\$F\$133)	=U14
15	=MAX('PPS-F1AP.XLS'!\$F\$80:\$F\$82)	=Q15	=MAX('PPS-F1AP.XLS'!\$G\$134:\$G\$136)	=S15	=MAX('PPS-F1AP.XLS'!\$F\$134:\$F\$136)	=U15
16	=MAX('PPS-F1AP.XLS'!\$F\$83:\$F\$83)	=Q16	=MAX('PPS-F1AP.XLS'!\$G\$137:\$G\$137)	=S16	=MAX('PPS-F1AP.XLS'!\$F\$137:\$F\$137)	=U16
17	=MAX('PPS-F1AP.XLS'!\$R\$86:\$R\$86)	=Q17	=MAX('PPS-F1AP.XLS'!\$G\$140:\$G\$140)	=S17	=MAX('PPS-F1AP.XLS'!\$F\$140:\$F\$140)	=U17
18	=MAX('PPS-F1AP.XLS'!\$R\$87:\$R\$88)	=Q18	=MAX('PPS-F1AP.XLS'!\$G\$141:\$G\$142)	=S18	=MAX('PPS-F1AP.XLS'!\$F\$141:\$F\$142)	=U18
19	=MAX('PPS-F1AP.XLS'!\$G\$91:\$G\$94)	=Q19	=MAX('PPS-F1AP.XLS'!\$G\$145:\$G\$148)	=S19	=MAX('PPS-F1AP.XLS'!\$F\$145:\$F\$148)	=U19
20	=MAX('PPS-F1AP.XLS'!\$G\$91:\$G\$94)	=Q20	=MAX('PPS-F1AP.XLS'!\$G\$145:\$G\$148)	=S20	=MAX('PPS-F1AP.XLS'!\$F\$145:\$F\$148)	=U20
21	=MAX('PPS-F1AP.XLS'!\$G\$95:\$G\$97)	=Q21	=MAX('PPS-F1AP.XLS'!\$G\$149:\$G\$151)	=S21	=MAX('PPS-F1AP.XLS'!\$F\$149:\$F\$151)	=U21
22	=MAX('PPS-F1AP.XLS'!\$G\$95:\$G\$97)	=Q22	=MAX('PPS-F1AP.XLS'!\$G\$149:\$G\$151)	=S22	=MAX('PPS-F1AP.XLS'!\$F\$149:\$F\$151)	=U22
23	=MAX('PPS-F1AP.XLS'!\$G\$98:\$G\$103)	=Q23	=MAX('PPS-F1AP.XLS'!\$G\$152:\$G\$157)	=S23	=MAX('PPS-F1AP.XLS'!\$F\$152:\$F\$157)	=U23
24	=MAX('PPS-F1AP.XLS'!\$G\$98:\$G\$103)	=Q24	=MAX('PPS-F1AP.XLS'!\$G\$152:\$G\$157)	=S24	=MAX('PPS-F1AP.XLS'!\$F\$152:\$F\$157)	=U24

	AH	AI	AJ	AK	AL	AM	AN	AO
2	Code C							
3	Per ACI-3							
4	Elements				Elements			
5	Meridional		Circumferential		Meridional		Circumferential	
6	Demand	Capacity	Demand	Capacity	Demand	Capacity	Demand	Capacity
7	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]	[lbs/ft]
8	=V8	=W8	=X8	=Y8	=AD8	=AE8	=AF8	=AG8
9	=V9	=W9	=X9	=Y9	=AD9	=AE9	=AF9	=AG9
10	=V10	=W10	=X10	=Y10	=AD10	=AE10	=AF10	=AG10
11	=V11	=W11	=X11	=Y11	=AD11	=AE11	=AF11	=AG11
12	=V12	=W12	=X12	=Y12	=AD12	=AE12	=AF12	=AG12
13	=V13	=W13	=X13	=Y13	=AD13	=AE13	=AF13	=AG13
14	=V14	=W14	=X14	=Y14	=AD14	=AE14	=AF14	=AG14
15	=V15	=W15	=X15	=Y15	=AD15	=AE15	=AF15	=AG15
16	=V16	=W16	=X16	=Y16	=AD16	=AE16	=AF16	=AG16
17	=V17	=W17	=X17	=Y17	=AD17	=AE17	=AF17	=AG17
18	=V18	=W18	=X18	=Y18	=AD18	=AE18	=AF18	=AG18
19	=V19	=W19	=X19	=Y19	=AD19	=AE19	=AF19	=AG19
20	=V20	=W20	=X20	=Y20	=AD20	=AE20	=AF20	=AG20
21	=V21	=W21	=X21	=Y21	=AD21	=AE21	=AF21	=AG21
22	=V22	=W22	=X22	=Y22	=AD22	=AE22	=AF22	=AG22
23	=V23	=W23	=X23	=Y23	=AD23	=AE23	=AF23	=AG23
24	=V24	=W24	=X24	=Y24	=AD24	=AE24	=AF24	=AG24

	A	B	C	D	E	F
1	Code Check f					
2	C-106 PPS Fa					
3	(Per ACI-349					
4	Elements Along th					
5	ELEMENT	fc	Thickness	SF1	SF2	min
6				(P1)	(P2)	Nu
7	floor elements					
8	289	3316.75	6	=PPS-F1AP.XLS'IC9	=PPS-F1AP.XLS>ID9	=MIN(D8:E8)
9	291	3321	6	=PPS-F1AP.XLS'IC10	=PPS-F1AP.XLS>ID10	=MIN(D9:E9)
10	295	3329.75	6	=PPS-F1AP.XLS'IC11	=PPS-F1AP.XLS>ID11	=MIN(D10:E10)
11	301	3343	6	=PPS-F1AP.XLS'IC12	=PPS-F1AP.XLS>ID12	=MIN(D11:E11)
12	1257	3360.5	6	=PPS-F1AP.XLS'IC13	=PPS-F1AP.XLS>ID13	=MIN(D12:E12)
13	1261	3382	6	=PPS-F1AP.XLS'IC14	=PPS-F1AP.XLS>ID14	=MIN(D13:E13)
14	1265	3420.75	6	=PPS-F1AP.XLS'IC15	=PPS-F1AP.XLS>ID15	=MIN(D14:E14)
15	1269	3456.25	6	=PPS-F1AP.XLS'IC16	=PPS-F1AP.XLS>ID16	=MIN(D15:E15)
16	1273	3518.5	6	=PPS-F1AP.XLS'IC17	=PPS-F1AP.XLS>ID17	=MIN(D16:E16)
17	1277	3609.5	6	=PPS-F1AP.XLS'IC18	=PPS-F1AP.XLS>ID18	=MIN(D17:E17)
18	1281	3747	16.49	=PPS-F1AP.XLS'IC19	=PPS-F1AP.XLS>ID19	=MIN(D18:E18)
19	wall elements					
20	1285	3794.75	18.3	=PPS-F1AP.XLS'IC22	=PPS-F1AP.XLS>ID22	=MIN(D20:E20)
21	1289	3911.5	12.3	=PPS-F1AP.XLS'IC23	=PPS-F1AP.XLS>ID23	=MIN(D21:E21)
22	1293	4072.5	12	=PPS-F1AP.XLS'IC24	=PPS-F1AP.XLS>ID24	=MIN(D22:E22)
23	1297	4327.25	12	=PPS-F1AP.XLS'IC25	=PPS-F1AP.XLS>ID25	=MIN(D23:E23)
24	1301	4402.5	12	=PPS-F1AP.XLS'IC26	=PPS-F1AP.XLS>ID26	=MIN(D24:E24)
25	1305	4413	12	=PPS-F1AP.XLS'IC27	=PPS-F1AP.XLS>ID27	=MIN(D25:E25)
26	1309	4432.75	12	=PPS-F1AP.XLS'IC28	=PPS-F1AP.XLS>ID28	=MIN(D26:E26)
27	1313	4442.5	12	=PPS-F1AP.XLS'IC29	=PPS-F1AP.XLS>ID29	=MIN(D27:E27)
28	haunch elements					
29	1317	4480	12	=PPS-F1AP.XLS'IN32	=PPS-F1AP.XLS'IO32	=MIN(D29:E29)
30	1321	4525.75	27.29	=PPS-F1AP.XLS'IN33	=PPS-F1AP.XLS'IO33	=MIN(D30:E30)
31	1325	4532.5	31.62	=PPS-F1AP.XLS'IC34	=PPS-F1AP.XLS>ID34	=MIN(D31:E31)
32	dome elements					
33	1329	4506	21.31	=PPS-F1AP.XLS'IC37	=PPS-F1AP.XLS>ID37	=MIN(D33:E33)
34	1333	4492	18.08	=PPS-F1AP.XLS'IC38	=PPS-F1AP.XLS>ID38	=MIN(D34:E34)
35	1337	4491.75	17.38	=PPS-F1AP.XLS'IC39	=PPS-F1AP.XLS>ID39	=MIN(D35:E35)
36	1341	4491.75	16.91	=PPS-F1AP.XLS'IC40	=PPS-F1AP.XLS>ID40	=MIN(D36:E36)
37	1345	4498.5	16.38	=PPS-F1AP.XLS'IC41	=PPS-F1AP.XLS>ID41	=MIN(D37:E37)
38	1349	4501.75	15.83	=PPS-F1AP.XLS'IC42	=PPS-F1AP.XLS>ID42	=MIN(D38:E38)
39	1353	4504	15.28	=PPS-F1AP.XLS'IC43	=PPS-F1AP.XLS>ID43	=MIN(D39:E39)
40	308	4512.75	15	=PPS-F1AP.XLS'IC44	=PPS-F1AP.XLS>ID44	=MIN(D40:E40)
41	305	4512.75	15	=PPS-F1AP.XLS'IC45	=PPS-F1AP.XLS>ID45	=MIN(D41:E41)
42	314	4514	15	=PPS-F1AP.XLS'IC46	=PPS-F1AP.XLS>ID46	=MIN(D42:E42)
43	312	4514	15	=PPS-F1AP.XLS'IC47	=PPS-F1AP.XLS>ID47	=MIN(D43:E43)
44	318	4506.75	15	=PPS-F1AP.XLS'IC48	=PPS-F1AP.XLS>ID48	=MIN(D44:E44)
45	317	4506.75	15	=PPS-F1AP.XLS'IC49	=PPS-F1AP.XLS>ID49	=MIN(D45:E45)
46	320	4508	15	=PPS-F1AP.XLS'IC50	=PPS-F1AP.XLS>ID50	=MIN(D46:E46)
47	footing element					
48	1357	4136.25	24	=PPS-F1AP.XLS'IC53	=PPS-F1AP.XLS>ID53	=MIN(D48:E48)

F1A-TWST.XLS

	G	H	I	J	K
1					
2					
3					
4					
5	$\phi \cdot V_c$	$\phi \cdot V_c / 2$	SF3	T threshold	SM3
6	Eqn 11-32				
7					
8	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B8) \cdot 12 \cdot C8 + F8/4)$	$=G8/2$	$=PPS-F1AP.XLS'IE9$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B8) \cdot 12 \cdot C8^2$	$=PPS-F1AP.XLS'IJ9$
9	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B9) \cdot 12 \cdot C9 + F9/4)$	$=G9/2$	$=PPS-F1AP.XLS'IE10$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B9) \cdot 12 \cdot C9^2$	$=PPS-F1AP.XLS'IJ10$
10	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B10) \cdot 12 \cdot C10 + F10/4)$	$=G10/2$	$=PPS-F1AP.XLS'IE11$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B10) \cdot 12 \cdot C10^2$	$=PPS-F1AP.XLS'IJ11$
11	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B11) \cdot 12 \cdot C11 + F11/4)$	$=G11/2$	$=PPS-F1AP.XLS'IE12$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B11) \cdot 12 \cdot C11^2$	$=PPS-F1AP.XLS'IJ12$
12	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B12) \cdot 12 \cdot C12 + F12/4)$	$=G12/2$	$=PPS-F1AP.XLS'IE13$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B12) \cdot 12 \cdot C12^2$	$=PPS-F1AP.XLS'IJ13$
13	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B13) \cdot 12 \cdot C13 + F13/4)$	$=G13/2$	$=PPS-F1AP.XLS'IE14$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B13) \cdot 12 \cdot C13^2$	$=PPS-F1AP.XLS'IJ14$
14	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B14) \cdot 12 \cdot C14 + F14/4)$	$=G14/2$	$=PPS-F1AP.XLS'IE15$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B14) \cdot 12 \cdot C14^2$	$=PPS-F1AP.XLS'IJ15$
15	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B15) \cdot 12 \cdot C15 + F15/4)$	$=G15/2$	$=PPS-F1AP.XLS'IE16$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B15) \cdot 12 \cdot C15^2$	$=PPS-F1AP.XLS'IJ16$
16	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B16) \cdot 12 \cdot C16 + F16/4)$	$=G16/2$	$=PPS-F1AP.XLS'IE17$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B16) \cdot 12 \cdot C16^2$	$=PPS-F1AP.XLS'IJ17$
17	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B17) \cdot 12 \cdot C17 + F17/4)$	$=G17/2$	$=PPS-F1AP.XLS'IE18$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B17) \cdot 12 \cdot C17^2$	$=PPS-F1AP.XLS'IJ18$
18	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B18) \cdot 12 \cdot C18 + F18/4)$	$=G18/2$	$=PPS-F1AP.XLS'IE19$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B18) \cdot 12 \cdot C18^2$	$=PPS-F1AP.XLS'IJ19$
19					
20	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B20) \cdot 12 \cdot C20 + F20/4)$	$=G20/2$	$=PPS-F1AP.XLS'IE22$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B20) \cdot 12 \cdot C20^2$	$=PPS-F1AP.XLS'IJ22$
21	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B21) \cdot 12 \cdot C21 + F21/4)$	$=G21/2$	$=PPS-F1AP.XLS'IE23$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B21) \cdot 12 \cdot C21^2$	$=PPS-F1AP.XLS'IJ23$
22	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B22) \cdot 12 \cdot C22 + F22/4)$	$=G22/2$	$=PPS-F1AP.XLS'IE24$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B22) \cdot 12 \cdot C22^2$	$=PPS-F1AP.XLS'IJ24$
23	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B23) \cdot 12 \cdot C23 + F23/4)$	$=G23/2$	$=PPS-F1AP.XLS'IE25$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B23) \cdot 12 \cdot C23^2$	$=PPS-F1AP.XLS'IJ25$
24	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B24) \cdot 12 \cdot C24 + F24/4)$	$=G24/2$	$=PPS-F1AP.XLS'IE26$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B24) \cdot 12 \cdot C24^2$	$=PPS-F1AP.XLS'IJ26$
25	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B25) \cdot 12 \cdot C25 + F25/4)$	$=G25/2$	$=PPS-F1AP.XLS'IE27$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B25) \cdot 12 \cdot C25^2$	$=PPS-F1AP.XLS'IJ27$
26	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B26) \cdot 12 \cdot C26 + F26/4)$	$=G26/2$	$=PPS-F1AP.XLS'IE28$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B26) \cdot 12 \cdot C26^2$	$=PPS-F1AP.XLS'IJ28$
27	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B27) \cdot 12 \cdot C27 + F27/4)$	$=G27/2$	$=PPS-F1AP.XLS'IE29$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B27) \cdot 12 \cdot C27^2$	$=PPS-F1AP.XLS'IJ29$
28					
29	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B29) \cdot 12 \cdot C29 + F29/4)$	$=G29/2$	$=PPS-F1AP.XLS'IP32$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B29) \cdot 12 \cdot C29^2$	$=PPS-F1AP.XLS'IU32$
30	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B30) \cdot 12 \cdot C30 + F30/4)$	$=G30/2$	$=PPS-F1AP.XLS'IP33$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B30) \cdot 12 \cdot C30^2$	$=PPS-F1AP.XLS'IU33$
31	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B31) \cdot 12 \cdot C31 + F31/4)$	$=G31/2$	$=PPS-F1AP.XLS'IE34$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B31) \cdot 12 \cdot C31^2$	$=PPS-F1AP.XLS'IJ34$
32					
33	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B33) \cdot 12 \cdot C33 + F33/4)$	$=G33/2$	$=PPS-F1AP.XLS'IE37$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B33) \cdot 12 \cdot C33^2$	$=PPS-F1AP.XLS'IJ37$
34	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B34) \cdot 12 \cdot C34 + F34/4)$	$=G34/2$	$=PPS-F1AP.XLS'IE38$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B34) \cdot 12 \cdot C34^2$	$=PPS-F1AP.XLS'IJ38$
35	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B35) \cdot 12 \cdot C35 + F35/4)$	$=G35/2$	$=PPS-F1AP.XLS'IE39$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B35) \cdot 12 \cdot C35^2$	$=PPS-F1AP.XLS'IJ39$
36	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B36) \cdot 12 \cdot C36 + F36/4)$	$=G36/2$	$=PPS-F1AP.XLS'IE40$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B36) \cdot 12 \cdot C36^2$	$=PPS-F1AP.XLS'IJ40$
37	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B37) \cdot 12 \cdot C37 + F37/4)$	$=G37/2$	$=PPS-F1AP.XLS'IE41$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B37) \cdot 12 \cdot C37^2$	$=PPS-F1AP.XLS'IJ41$
38	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B38) \cdot 12 \cdot C38 + F38/4)$	$=G38/2$	$=PPS-F1AP.XLS'IE42$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B38) \cdot 12 \cdot C38^2$	$=PPS-F1AP.XLS'IJ42$
39	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B39) \cdot 12 \cdot C39 + F39/4)$	$=G39/2$	$=PPS-F1AP.XLS'IE43$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B39) \cdot 12 \cdot C39^2$	$=PPS-F1AP.XLS'IJ43$
40	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B40) \cdot 12 \cdot C40 + F40/4)$	$=G40/2$	$=PPS-F1AP.XLS'IE44$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B40) \cdot 12 \cdot C40^2$	$=PPS-F1AP.XLS'IJ44$
41	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B41) \cdot 12 \cdot C41 + F41/4)$	$=G41/2$	$=PPS-F1AP.XLS'IE45$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B41) \cdot 12 \cdot C41^2$	$=PPS-F1AP.XLS'IJ45$
42	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B42) \cdot 12 \cdot C42 + F42/4)$	$=G42/2$	$=PPS-F1AP.XLS'IE46$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B42) \cdot 12 \cdot C42^2$	$=PPS-F1AP.XLS'IJ46$
43	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B43) \cdot 12 \cdot C43 + F43/4)$	$=G43/2$	$=PPS-F1AP.XLS'IE47$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B43) \cdot 12 \cdot C43^2$	$=PPS-F1AP.XLS'IJ47$
44	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B44) \cdot 12 \cdot C44 + F44/4)$	$=G44/2$	$=PPS-F1AP.XLS'IE48$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B44) \cdot 12 \cdot C44^2$	$=PPS-F1AP.XLS'IJ48$
45	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B45) \cdot 12 \cdot C45 + F45/4)$	$=G45/2$	$=PPS-F1AP.XLS'IE49$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B45) \cdot 12 \cdot C45^2$	$=PPS-F1AP.XLS'IJ49$
46	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B46) \cdot 12 \cdot C46 + F46/4)$	$=G46/2$	$=PPS-F1AP.XLS'IE50$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B46) \cdot 12 \cdot C46^2$	$=PPS-F1AP.XLS'IJ50$
47					
48	$=0.85 \cdot (3.3 \cdot \text{SQRT}(B48) \cdot 12 \cdot C48 + F48/4)$	$=G48/2$	$=PPS-F1AP.XLS'IE53$	$=0.85 \cdot 0.5 \cdot \text{SQRT}(B48) \cdot 12 \cdot C48^2$	$=PPS-F1AP.XLS'IJ53$

F1A-TWST.XLS

	A	B	C	D	E	F
49	Code Check f					
50	C-106 PPS Fa					
51	(Per ACI-349					
52	Elements Along th					
53	ELEMENT	fc	Thickness	SF1	SF2	min
54				(P1)	(P2)	Nu
55	floor elements					
56	1	3316.75	6	=PPS-F1AP.XLS'IC63	=PPS-F1AP.XLS>ID63	=MIN(D56:E56)
57	4	3321	6	=PPS-F1AP.XLS'IC64	=PPS-F1AP.XLS>ID64	=MIN(D57:E57)
58	9	3329.75	6	=PPS-F1AP.XLS'IC65	=PPS-F1AP.XLS>ID65	=MIN(D58:E58)
59	16	3343	6	=PPS-F1AP.XLS'IC66	=PPS-F1AP.XLS>ID66	=MIN(D59:E59)
60	324	3360.5	6	=PPS-F1AP.XLS'IC67	=PPS-F1AP.XLS>ID67	=MIN(D60:E60)
61	328	3382	6	=PPS-F1AP.XLS'IC68	=PPS-F1AP.XLS>ID68	=MIN(D61:E61)
62	332	3420.75	6	=PPS-F1AP.XLS'IC69	=PPS-F1AP.XLS>ID69	=MIN(D62:E62)
63	336	3456.25	6	=PPS-F1AP.XLS'IC70	=PPS-F1AP.XLS>ID70	=MIN(D63:E63)
64	340	3518.5	6	=PPS-F1AP.XLS'IC71	=PPS-F1AP.XLS>ID71	=MIN(D64:E64)
65	344	3609.5	6	=PPS-F1AP.XLS'IC72	=PPS-F1AP.XLS>ID72	=MIN(D65:E65)
66	348	3747	16.49	=PPS-F1AP.XLS'IC73	=PPS-F1AP.XLS>ID73	=MIN(D66:E66)
67	wall elements					
68	352	3794.75	18.3	=PPS-F1AP.XLS'IC76	=PPS-F1AP.XLS>ID76	=MIN(D68:E68)
69	356	3911.5	12.3	=PPS-F1AP.XLS'IC77	=PPS-F1AP.XLS>ID77	=MIN(D69:E69)
70	360	4072.5	12	=PPS-F1AP.XLS'IC78	=PPS-F1AP.XLS>ID78	=MIN(D70:E70)
71	364	4327.25	12	=PPS-F1AP.XLS'IC79	=PPS-F1AP.XLS>ID79	=MIN(D71:E71)
72	368	4402.5	12	=PPS-F1AP.XLS'IC80	=PPS-F1AP.XLS>ID80	=MIN(D72:E72)
73	372	4413	12	=PPS-F1AP.XLS'IC81	=PPS-F1AP.XLS>ID81	=MIN(D73:E73)
74	376	4432.75	12	=PPS-F1AP.XLS'IC82	=PPS-F1AP.XLS>ID82	=MIN(D74:E74)
75	380	4442.5	12	=PPS-F1AP.XLS'IC83	=PPS-F1AP.XLS>ID83	=MIN(D75:E75)
76	haunch elements					
77	384	4480	12	=PPS-F1AP.XLS'IN86	=PPS-F1AP.XLS'IO86	=MIN(D77:E77)
78	388	4525.75	27.29	=PPS-F1AP.XLS'IN87	=PPS-F1AP.XLS'IO87	=MIN(D78:E78)
79	392	4532.5	31.62	=PPS-F1AP.XLS'IC88	=PPS-F1AP.XLS>ID88	=MIN(D79:E79)
80	dome elements					
81	396	4506	21.31	=PPS-F1AP.XLS'IC91	=PPS-F1AP.XLS>ID91	=MIN(D81:E81)
82	400	4492	18.08	=PPS-F1AP.XLS'IC92	=PPS-F1AP.XLS>ID92	=MIN(D82:E82)
83	404	4491.75	17.38	=PPS-F1AP.XLS'IC93	=PPS-F1AP.XLS>ID93	=MIN(D83:E83)
84	408	4491.75	16.91	=PPS-F1AP.XLS'IC94	=PPS-F1AP.XLS>ID94	=MIN(D84:E84)
85	412	4498.5	16.38	=PPS-F1AP.XLS'IC95	=PPS-F1AP.XLS>ID95	=MIN(D85:E85)
86	416	4501.75	15.83	=PPS-F1AP.XLS'IC96	=PPS-F1AP.XLS>ID96	=MIN(D86:E86)
87	420	4504	15.28	=PPS-F1AP.XLS'IC97	=PPS-F1AP.XLS>ID97	=MIN(D87:E87)
88	23	4512.75	15	=PPS-F1AP.XLS'IC98	=PPS-F1AP.XLS>ID98	=MIN(D88:E88)
89	19	4512.75	15	=PPS-F1AP.XLS'IC99	=PPS-F1AP.XLS>ID99	=MIN(D89:E89)
90	28	4514	15	=PPS-F1AP.XLS'IC100	=PPS-F1AP.XLS>ID100	=MIN(D90:E90)
91	25	4514	15	=PPS-F1AP.XLS'IC101	=PPS-F1AP.XLS>ID101	=MIN(D91:E91)
92	31	4506.75	15	=PPS-F1AP.XLS'IC102	=PPS-F1AP.XLS>ID102	=MIN(D92:E92)
93	29	4506.75	15	=PPS-F1AP.XLS'IC103	=PPS-F1AP.XLS>ID103	=MIN(D93:E93)
94	32	4508	15	=PPS-F1AP.XLS'IC104	=PPS-F1AP.XLS>ID104	=MIN(D94:E94)
95	footing element					
96	424	4136.25	24	=PPS-F1AP.XLS'IC107	=PPS-F1AP.XLS>ID107	=MIN(D96:E96)

F1A-TWST.XLS

	G	H	I	J	K
49					
50					
51					
52					
53	phi*Vc	phi*Vc/2	SF3	T threshold	SM3
54	Eqn 11-32				
55					
56	=0.85*(3.3*SQRT(B56)*12*C56+F56/4)	=G56/2	=PPS-F1AP.XLS'IE63	=0.85*0.5*SQRT(B56)*12*C56^2	=PPS-F1AP.XLS'IJ63
57	=0.85*(3.3*SQRT(B57)*12*C57+F57/4)	=G57/2	=PPS-F1AP.XLS'IE64	=0.85*0.5*SQRT(B57)*12*C57^2	=PPS-F1AP.XLS'IJ64
58	=0.85*(3.3*SQRT(B58)*12*C58+F58/4)	=G58/2	=PPS-F1AP.XLS'IE65	=0.85*0.5*SQRT(B58)*12*C58^2	=PPS-F1AP.XLS'IJ65
59	=0.85*(3.3*SQRT(B59)*12*C59+F59/4)	=G59/2	=PPS-F1AP.XLS'IE66	=0.85*0.5*SQRT(B59)*12*C59^2	=PPS-F1AP.XLS'IJ66
60	=0.85*(3.3*SQRT(B60)*12*C60+F60/4)	=G60/2	=PPS-F1AP.XLS'IE67	=0.85*0.5*SQRT(B60)*12*C60^2	=PPS-F1AP.XLS'IJ67
61	=0.85*(3.3*SQRT(B61)*12*C61+F61/4)	=G61/2	=PPS-F1AP.XLS'IE68	=0.85*0.5*SQRT(B61)*12*C61^2	=PPS-F1AP.XLS'IJ68
62	=0.85*(3.3*SQRT(B62)*12*C62+F62/4)	=G62/2	=PPS-F1AP.XLS'IE69	=0.85*0.5*SQRT(B62)*12*C62^2	=PPS-F1AP.XLS'IJ69
63	=0.85*(3.3*SQRT(B63)*12*C63+F63/4)	=G63/2	=PPS-F1AP.XLS'IE70	=0.85*0.5*SQRT(B63)*12*C63^2	=PPS-F1AP.XLS'IJ70
64	=0.85*(3.3*SQRT(B64)*12*C64+F64/4)	=G64/2	=PPS-F1AP.XLS'IE71	=0.85*0.5*SQRT(B64)*12*C64^2	=PPS-F1AP.XLS'IJ71
65	=0.85*(3.3*SQRT(B65)*12*C65+F65/4)	=G65/2	=PPS-F1AP.XLS'IE72	=0.85*0.5*SQRT(B65)*12*C65^2	=PPS-F1AP.XLS'IJ72
66	=0.85*(3.3*SQRT(B66)*12*C66+F66/4)	=G66/2	=PPS-F1AP.XLS'IE73	=0.85*0.5*SQRT(B66)*12*C66^2	=PPS-F1AP.XLS'IJ73
67					
68	=0.85*(3.3*SQRT(B68)*12*C68+F68/4)	=G68/2	=PPS-F1AP.XLS'IE76	=0.85*0.5*SQRT(B68)*12*C68^2	=PPS-F1AP.XLS'IJ76
69	=0.85*(3.3*SQRT(B69)*12*C69+F69/4)	=G69/2	=PPS-F1AP.XLS'IE77	=0.85*0.5*SQRT(B69)*12*C69^2	=PPS-F1AP.XLS'IJ77
70	=0.85*(3.3*SQRT(B70)*12*C70+F70/4)	=G70/2	=PPS-F1AP.XLS'IE78	=0.85*0.5*SQRT(B70)*12*C70^2	=PPS-F1AP.XLS'IJ78
71	=0.85*(3.3*SQRT(B71)*12*C71+F71/4)	=G71/2	=PPS-F1AP.XLS'IE79	=0.85*0.5*SQRT(B71)*12*C71^2	=PPS-F1AP.XLS'IJ79
72	=0.85*(3.3*SQRT(B72)*12*C72+F72/4)	=G72/2	=PPS-F1AP.XLS'IE80	=0.85*0.5*SQRT(B72)*12*C72^2	=PPS-F1AP.XLS'IJ80
73	=0.85*(3.3*SQRT(B73)*12*C73+F73/4)	=G73/2	=PPS-F1AP.XLS'IE81	=0.85*0.5*SQRT(B73)*12*C73^2	=PPS-F1AP.XLS'IJ81
74	=0.85*(3.3*SQRT(B74)*12*C74+F74/4)	=G74/2	=PPS-F1AP.XLS'IE82	=0.85*0.5*SQRT(B74)*12*C74^2	=PPS-F1AP.XLS'IJ82
75	=0.85*(3.3*SQRT(B75)*12*C75+F75/4)	=G75/2	=PPS-F1AP.XLS'IE83	=0.85*0.5*SQRT(B75)*12*C75^2	=PPS-F1AP.XLS'IJ83
76					
77	=0.85*(3.3*SQRT(B77)*12*C77+F77/4)	=G77/2	=PPS-F1AP.XLS'IP86	=0.85*0.5*SQRT(B77)*12*C77^2	=PPS-F1AP.XLS'IU86
78	=0.85*(3.3*SQRT(B78)*12*C78+F78/4)	=G78/2	=PPS-F1AP.XLS'IP87	=0.85*0.5*SQRT(B78)*12*C78^2	=PPS-F1AP.XLS'IU87
79	=0.85*(3.3*SQRT(B79)*12*C79+F79/4)	=G79/2	=PPS-F1AP.XLS'IE88	=0.85*0.5*SQRT(B79)*12*C79^2	=PPS-F1AP.XLS'IJ88
80					
81	=0.85*(3.3*SQRT(B81)*12*C81+F81/4)	=G81/2	=PPS-F1AP.XLS'IE91	=0.85*0.5*SQRT(B81)*12*C81^2	=PPS-F1AP.XLS'IJ91
82	=0.85*(3.3*SQRT(B82)*12*C82+F82/4)	=G82/2	=PPS-F1AP.XLS'IE92	=0.85*0.5*SQRT(B82)*12*C82^2	=PPS-F1AP.XLS'IJ92
83	=0.85*(3.3*SQRT(B83)*12*C83+F83/4)	=G83/2	=PPS-F1AP.XLS'IE93	=0.85*0.5*SQRT(B83)*12*C83^2	=PPS-F1AP.XLS'IJ93
84	=0.85*(3.3*SQRT(B84)*12*C84+F84/4)	=G84/2	=PPS-F1AP.XLS'IE94	=0.85*0.5*SQRT(B84)*12*C84^2	=PPS-F1AP.XLS'IJ94
85	=0.85*(3.3*SQRT(B85)*12*C85+F85/4)	=G85/2	=PPS-F1AP.XLS'IE95	=0.85*0.5*SQRT(B85)*12*C85^2	=PPS-F1AP.XLS'IJ95
86	=0.85*(3.3*SQRT(B86)*12*C86+F86/4)	=G86/2	=PPS-F1AP.XLS'IE96	=0.85*0.5*SQRT(B86)*12*C86^2	=PPS-F1AP.XLS'IJ96
87	=0.85*(3.3*SQRT(B87)*12*C87+F87/4)	=G87/2	=PPS-F1AP.XLS'IE97	=0.85*0.5*SQRT(B87)*12*C87^2	=PPS-F1AP.XLS'IJ97
88	=0.85*(3.3*SQRT(B88)*12*C88+F88/4)	=G88/2	=PPS-F1AP.XLS'IE98	=0.85*0.5*SQRT(B88)*12*C88^2	=PPS-F1AP.XLS'IJ98
89	=0.85*(3.3*SQRT(B89)*12*C89+F89/4)	=G89/2	=PPS-F1AP.XLS'IE99	=0.85*0.5*SQRT(B89)*12*C89^2	=PPS-F1AP.XLS'IJ99
90	=0.85*(3.3*SQRT(B90)*12*C90+F90/4)	=G90/2	=PPS-F1AP.XLS'IE100	=0.85*0.5*SQRT(B90)*12*C90^2	=PPS-F1AP.XLS'IJ100
91	=0.85*(3.3*SQRT(B91)*12*C91+F91/4)	=G91/2	=PPS-F1AP.XLS'IE101	=0.85*0.5*SQRT(B91)*12*C91^2	=PPS-F1AP.XLS'IJ101
92	=0.85*(3.3*SQRT(B92)*12*C92+F92/4)	=G92/2	=PPS-F1AP.XLS'IE102	=0.85*0.5*SQRT(B92)*12*C92^2	=PPS-F1AP.XLS'IJ102
93	=0.85*(3.3*SQRT(B93)*12*C93+F93/4)	=G93/2	=PPS-F1AP.XLS'IE103	=0.85*0.5*SQRT(B93)*12*C93^2	=PPS-F1AP.XLS'IJ103
94	=0.85*(3.3*SQRT(B94)*12*C94+F94/4)	=G94/2	=PPS-F1AP.XLS'IE104	=0.85*0.5*SQRT(B94)*12*C94^2	=PPS-F1AP.XLS'IJ104
95					
96	=0.85*(3.3*SQRT(B96)*12*C96+F96/4)	=G96/2	=PPS-F1AP.XLS'IE107	=0.85*0.5*SQRT(B96)*12*C96^2	=PPS-F1AP.XLS'IJ107

F1A-TWST.XLS

	A	B	C	D	E	F
97	Code Check f					
98	C-106 PPS Fa					
99	(Per ACI-349 Secti					
100	Elements Along th					
101	ELEMENT	fc	Thickness	SF1	SF2	min
102				(P1)	(P2)	Nu
103	floor elements					
104	161	3316.75	6	=PPS-F1AP.XLS'IC117	=PPS-F1AP.XLS>ID117	=MIN(D104:E104)
105	164	3321	6	=PPS-F1AP.XLS'IC118	=PPS-F1AP.XLS>ID118	=MIN(D105:E105)
106	169	3329.75	6	=PPS-F1AP.XLS'IC119	=PPS-F1AP.XLS>ID119	=MIN(D106:E106)
107	176	3343	6	=PPS-F1AP.XLS'IC120	=PPS-F1AP.XLS>ID120	=MIN(D107:E107)
108	844	3360.5	6	=PPS-F1AP.XLS'IC121	=PPS-F1AP.XLS>ID121	=MIN(D108:E108)
109	848	3382	6	=PPS-F1AP.XLS'IC122	=PPS-F1AP.XLS>ID122	=MIN(D109:E109)
110	852	3420.75	6	=PPS-F1AP.XLS'IC123	=PPS-F1AP.XLS>ID123	=MIN(D110:E110)
111	856	3456.25	6	=PPS-F1AP.XLS'IC124	=PPS-F1AP.XLS>ID124	=MIN(D111:E111)
112	860	3518.5	6	=PPS-F1AP.XLS'IC125	=PPS-F1AP.XLS>ID125	=MIN(D112:E112)
113	864	3609.5	6	=PPS-F1AP.XLS'IC126	=PPS-F1AP.XLS>ID126	=MIN(D113:E113)
114	868	3747	16.49	=PPS-F1AP.XLS'IC127	=PPS-F1AP.XLS>ID127	=MIN(D114:E114)
115	wall elements					
116	872	3794.75	18.3	=PPS-F1AP.XLS'IC130	=PPS-F1AP.XLS>ID130	=MIN(D116:E116)
117	876	3911.5	12.3	=PPS-F1AP.XLS'IC131	=PPS-F1AP.XLS>ID131	=MIN(D117:E117)
118	880	4072.5	12	=PPS-F1AP.XLS'IC132	=PPS-F1AP.XLS>ID132	=MIN(D118:E118)
119	884	4327.25	12	=PPS-F1AP.XLS'IC133	=PPS-F1AP.XLS>ID133	=MIN(D119:E119)
120	888	4402.5	12	=PPS-F1AP.XLS'IC134	=PPS-F1AP.XLS>ID134	=MIN(D120:E120)
121	892	4413	12	=PPS-F1AP.XLS'IC135	=PPS-F1AP.XLS>ID135	=MIN(D121:E121)
122	896	4432.75	12	=PPS-F1AP.XLS'IC136	=PPS-F1AP.XLS>ID136	=MIN(D122:E122)
123	900	4442.5	12	=PPS-F1AP.XLS'IC137	=PPS-F1AP.XLS>ID137	=MIN(D123:E123)
124	haunch elements					
125	904	4480	12	=PPS-F1AP.XLS'IC140	=PPS-F1AP.XLS>ID140	=MIN(D125:E125)
126	908	4525.75	27.29	=PPS-F1AP.XLS'IC141	=PPS-F1AP.XLS>ID141	=MIN(D126:E126)
127	912	4532.5	31.62	=PPS-F1AP.XLS'IC142	=PPS-F1AP.XLS>ID142	=MIN(D127:E127)
128	dome elements					
129	916	4506	21.31	=PPS-F1AP.XLS'IC145	=PPS-F1AP.XLS>ID145	=MIN(D129:E129)
130	920	4492	18.08	=PPS-F1AP.XLS'IC146	=PPS-F1AP.XLS>ID146	=MIN(D130:E130)
131	924	4491.75	17.38	=PPS-F1AP.XLS'IC147	=PPS-F1AP.XLS>ID147	=MIN(D131:E131)
132	928	4491.75	16.91	=PPS-F1AP.XLS'IC148	=PPS-F1AP.XLS>ID148	=MIN(D132:E132)
133	932	4498.5	16.38	=PPS-F1AP.XLS'IC149	=PPS-F1AP.XLS>ID149	=MIN(D133:E133)
134	936	4501.75	15.83	=PPS-F1AP.XLS'IC150	=PPS-F1AP.XLS>ID150	=MIN(D134:E134)
135	940	4504	15.28	=PPS-F1AP.XLS'IC151	=PPS-F1AP.XLS>ID151	=MIN(D135:E135)
136	183	4512.75	15	=PPS-F1AP.XLS'IC152	=PPS-F1AP.XLS>ID152	=MIN(D136:E136)
137	179	4512.75	15	=PPS-F1AP.XLS'IC153	=PPS-F1AP.XLS>ID153	=MIN(D137:E137)
138	188	4514	15	=PPS-F1AP.XLS'IC154	=PPS-F1AP.XLS>ID154	=MIN(D138:E138)
139	185	4514	15	=PPS-F1AP.XLS'IC155	=PPS-F1AP.XLS>ID155	=MIN(D139:E139)
140	191	4506.75	15	=PPS-F1AP.XLS'IC156	=PPS-F1AP.XLS>ID156	=MIN(D140:E140)
141	189	4506.75	15	=PPS-F1AP.XLS'IC157	=PPS-F1AP.XLS>ID157	=MIN(D141:E141)
142	192	4508	15	=PPS-F1AP.XLS'IC158	=PPS-F1AP.XLS>ID158	=MIN(D142:E142)
143	footing element					
144	944	4136.25	24	=PPS-F1AP.XLS'IC161	=PPS-F1AP.XLS>ID161	=MIN(D144:E144)

	G	H	I	J	K
97					
98					
99					
100					
101	phi*Vc	phi*Vc/2	SF3	T threshold	SM3
102	Eqn 11-32				
103					
104	=0.85*(3.3*SQRT(B104)*12*C104+F104/4)	=G104/2	=PPS-F1AP.XLS'IE117	=0.85*0.5*SQRT(B104)*12*C104^2	=PPS-F1AP.XLS'IJ117
105	=0.85*(3.3*SQRT(B105)*12*C105+F105/4)	=G105/2	=PPS-F1AP.XLS'IE118	=0.85*0.5*SQRT(B105)*12*C105^2	=PPS-F1AP.XLS'IJ118
106	=0.85*(3.3*SQRT(B106)*12*C106+F106/4)	=G106/2	=PPS-F1AP.XLS'IE119	=0.85*0.5*SQRT(B106)*12*C106^2	=PPS-F1AP.XLS'IJ119
107	=0.85*(3.3*SQRT(B107)*12*C107+F107/4)	=G107/2	=PPS-F1AP.XLS'IE120	=0.85*0.5*SQRT(B107)*12*C107^2	=PPS-F1AP.XLS'IJ120
108	=0.85*(3.3*SQRT(B108)*12*C108+F108/4)	=G108/2	=PPS-F1AP.XLS'IE121	=0.85*0.5*SQRT(B108)*12*C108^2	=PPS-F1AP.XLS'IJ121
109	=0.85*(3.3*SQRT(B109)*12*C109+F109/4)	=G109/2	=PPS-F1AP.XLS'IE122	=0.85*0.5*SQRT(B109)*12*C109^2	=PPS-F1AP.XLS'IJ122
110	=0.85*(3.3*SQRT(B110)*12*C110+F110/4)	=G110/2	=PPS-F1AP.XLS'IE123	=0.85*0.5*SQRT(B110)*12*C110^2	=PPS-F1AP.XLS'IJ123
111	=0.85*(3.3*SQRT(B111)*12*C111+F111/4)	=G111/2	=PPS-F1AP.XLS'IE124	=0.85*0.5*SQRT(B111)*12*C111^2	=PPS-F1AP.XLS'IJ124
112	=0.85*(3.3*SQRT(B112)*12*C112+F112/4)	=G112/2	=PPS-F1AP.XLS'IE125	=0.85*0.5*SQRT(B112)*12*C112^2	=PPS-F1AP.XLS'IJ125
113	=0.85*(3.3*SQRT(B113)*12*C113+F113/4)	=G113/2	=PPS-F1AP.XLS'IE126	=0.85*0.5*SQRT(B113)*12*C113^2	=PPS-F1AP.XLS'IJ126
114	=0.85*(3.3*SQRT(B114)*12*C114+F114/4)	=G114/2	=PPS-F1AP.XLS'IE127	=0.85*0.5*SQRT(B114)*12*C114^2	=PPS-F1AP.XLS'IJ127
115					
116	=0.85*(3.3*SQRT(B116)*12*C116+F116/4)	=G116/2	=PPS-F1AP.XLS'IE130	=0.85*0.5*SQRT(B116)*12*C116^2	=PPS-F1AP.XLS'IJ130
117	=0.85*(3.3*SQRT(B117)*12*C117+F117/4)	=G117/2	=PPS-F1AP.XLS'IE131	=0.85*0.5*SQRT(B117)*12*C117^2	=PPS-F1AP.XLS'IJ131
118	=0.85*(3.3*SQRT(B118)*12*C118+F118/4)	=G118/2	=PPS-F1AP.XLS'IE132	=0.85*0.5*SQRT(B118)*12*C118^2	=PPS-F1AP.XLS'IJ132
119	=0.85*(3.3*SQRT(B119)*12*C119+F119/4)	=G119/2	=PPS-F1AP.XLS'IE133	=0.85*0.5*SQRT(B119)*12*C119^2	=PPS-F1AP.XLS'IJ133
120	=0.85*(3.3*SQRT(B120)*12*C120+F120/4)	=G120/2	=PPS-F1AP.XLS'IE134	=0.85*0.5*SQRT(B120)*12*C120^2	=PPS-F1AP.XLS'IJ134
121	=0.85*(3.3*SQRT(B121)*12*C121+F121/4)	=G121/2	=PPS-F1AP.XLS'IE135	=0.85*0.5*SQRT(B121)*12*C121^2	=PPS-F1AP.XLS'IJ135
122	=0.85*(3.3*SQRT(B122)*12*C122+F122/4)	=G122/2	=PPS-F1AP.XLS'IE136	=0.85*0.5*SQRT(B122)*12*C122^2	=PPS-F1AP.XLS'IJ136
123	=0.85*(3.3*SQRT(B123)*12*C123+F123/4)	=G123/2	=PPS-F1AP.XLS'IE137	=0.85*0.5*SQRT(B123)*12*C123^2	=PPS-F1AP.XLS'IJ137
124					
125	=0.85*(3.3*SQRT(B125)*12*C125+F125/4)	=G125/2	=PPS-F1AP.XLS'IE140	=0.85*0.5*SQRT(B125)*12*C125^2	=PPS-F1AP.XLS'IJ140
126	=0.85*(3.3*SQRT(B126)*12*C126+F126/4)	=G126/2	=PPS-F1AP.XLS'IE141	=0.85*0.5*SQRT(B126)*12*C126^2	=PPS-F1AP.XLS'IJ141
127	=0.85*(3.3*SQRT(B127)*12*C127+F127/4)	=G127/2	=PPS-F1AP.XLS'IE142	=0.85*0.5*SQRT(B127)*12*C127^2	=PPS-F1AP.XLS'IJ142
128					
129	=0.85*(3.3*SQRT(B129)*12*C129+F129/4)	=G129/2	=PPS-F1AP.XLS'IE145	=0.85*0.5*SQRT(B129)*12*C129^2	=PPS-F1AP.XLS'IJ145
130	=0.85*(3.3*SQRT(B130)*12*C130+F130/4)	=G130/2	=PPS-F1AP.XLS'IE146	=0.85*0.5*SQRT(B130)*12*C130^2	=PPS-F1AP.XLS'IJ146
131	=0.85*(3.3*SQRT(B131)*12*C131+F131/4)	=G131/2	=PPS-F1AP.XLS'IE147	=0.85*0.5*SQRT(B131)*12*C131^2	=PPS-F1AP.XLS'IJ147
132	=0.85*(3.3*SQRT(B132)*12*C132+F132/4)	=G132/2	=PPS-F1AP.XLS'IE148	=0.85*0.5*SQRT(B132)*12*C132^2	=PPS-F1AP.XLS'IJ148
133	=0.85*(3.3*SQRT(B133)*12*C133+F133/4)	=G133/2	=PPS-F1AP.XLS'IE149	=0.85*0.5*SQRT(B133)*12*C133^2	=PPS-F1AP.XLS'IJ149
134	=0.85*(3.3*SQRT(B134)*12*C134+F134/4)	=G134/2	=PPS-F1AP.XLS'IE150	=0.85*0.5*SQRT(B134)*12*C134^2	=PPS-F1AP.XLS'IJ150
135	=0.85*(3.3*SQRT(B135)*12*C135+F135/4)	=G135/2	=PPS-F1AP.XLS'IE151	=0.85*0.5*SQRT(B135)*12*C135^2	=PPS-F1AP.XLS'IJ151
136	=0.85*(3.3*SQRT(B136)*12*C136+F136/4)	=G136/2	=PPS-F1AP.XLS'IE152	=0.85*0.5*SQRT(B136)*12*C136^2	=PPS-F1AP.XLS'IJ152
137	=0.85*(3.3*SQRT(B137)*12*C137+F137/4)	=G137/2	=PPS-F1AP.XLS'IE153	=0.85*0.5*SQRT(B137)*12*C137^2	=PPS-F1AP.XLS'IJ153
138	=0.85*(3.3*SQRT(B138)*12*C138+F138/4)	=G138/2	=PPS-F1AP.XLS'IE154	=0.85*0.5*SQRT(B138)*12*C138^2	=PPS-F1AP.XLS'IJ154
139	=0.85*(3.3*SQRT(B139)*12*C139+F139/4)	=G139/2	=PPS-F1AP.XLS'IE155	=0.85*0.5*SQRT(B139)*12*C139^2	=PPS-F1AP.XLS'IJ155
140	=0.85*(3.3*SQRT(B140)*12*C140+F140/4)	=G140/2	=PPS-F1AP.XLS'IE156	=0.85*0.5*SQRT(B140)*12*C140^2	=PPS-F1AP.XLS'IJ156
141	=0.85*(3.3*SQRT(B141)*12*C141+F141/4)	=G141/2	=PPS-F1AP.XLS'IE157	=0.85*0.5*SQRT(B141)*12*C141^2	=PPS-F1AP.XLS'IJ157
142	=0.85*(3.3*SQRT(B142)*12*C142+F142/4)	=G142/2	=PPS-F1AP.XLS'IE158	=0.85*0.5*SQRT(B142)*12*C142^2	=PPS-F1AP.XLS'IJ158
143					
144	=0.85*(3.3*SQRT(B144)*12*C144+F144/4)	=G144/2	=PPS-F1AP.XLS'IE161	=0.85*0.5*SQRT(B144)*12*C144^2	=PPS-F1AP.XLS'IJ161

F1A-TWST.XLS

APPENDIX B
OPERATIONAL IMPACT / IMPULSIVE LOAD ANALYSIS

INDEPENDENT REVIEW

Document Reviewed Operational Impact/Impulsive Load Analysis (Appendix B)

Author ADVENT Engineering Services Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
Rev. 0

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

L. J. Julyk

Reviewer

10/21/94
Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Operational Impact/Impulsive Load Analysis
(Appendix B)

Author ADVENT Engineering Services

Yes No N/A

☒	☐	☐	Problem completely defined.
☒	☐	☐	Necessary assumptions explicitly stated and supported.
☒	☐	☐	Computer codes and data files documented.
☒	☐	☐	Data used in calculations explicitly stated in document.
☒	☐	☐	Data checked for consistency with original source information as applicable.
☒	☐	☐	Mathematical derivations checked including dimensional consistency of results.
☒	☐	☐	Models appropriate and used within range of validity or use outside range of established validity justified.
☒	☐	☐	Hand calculations checked for errors.
☒	☐	☐	Code run streams correct and consistent with analysis documentation.
☒	☐	☐	Code output consistent with input and with results reported in analysis documentation.
☒	☐	☐	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒	☐	☐	Safety margins consistent with good engineering practices.
☒	☐	☐	Conclusions consistent with analytical results and applicable limits.
☒	☐	☐	Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number 94-059

L. J. Julyk
Reviewer

10/21/94
Date

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

ABAQUS Ver. 4.9*, SECC

SOFTWARE APPLICATION

* with ANACAP-U ver 92.2-2, SECC

Phillip R. Kich

ANALYST (PRINTED NAME)

J. B. Truitt

ANALYST'S MANAGER

August, 1994

DATE PERFORMED

DESCRIPTION OF ANALYSIS:

Structural static, nonlinear analysis of tank 241C106 for the effects of concentrated internal loads concurrent with soil-surface loads associated with Past-Practice Sluicing operations. The user-defined subroutine, ANACAP-U, was used to define the constitutive behavior of the concrete: Model 2 (elastic, perfectly plastic compressive behavior) was defined. The model is a 3-D model of one-half of the tank.

Elements: Four-node quadrilateral shell elements with *REBAR subelements, and eight-node 3-D solid elements.

Loads: Distributed pressure loads (*DLOADs) including gravity loads, concentrated loads (*CLOAD), and thermal loads (*TEMPERATURE).

Materials: *USER MATERIAL for concrete, *ELASTIC and *PLASTIC for reinforcing steel, *DRUCKER-PRAGER and *YIELD for soil plasticity, *INITIAL CONDITIONS to define the initial state of stress of the soil.

Boundary Conditions: *BOUNDARY conditions to impose roller-type restraints at the soil boundaries and to impose symmetry boundaries at the plane of symmetry.

Solution: *STATIC analysis with the NOSTOP option.

Phillip R. Kich
SIGNATURE OF ANALYST

94-059
KEY NUMBER (IF APPLICABLE)

Appendix B of
WHC-SD-W320-ANAL-003

EDT/DOCUMENT NUMBER

10/17/94
DATE

DESIGN CALCULATION

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(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Operational Impact / Impulsive Load Analysis
(8) Originator A. Smith Date 10/17/94
(9) Checker Wheat Date 10/17/94

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(9) Checker Phillip R. X. L. Date 10/17/94

- ATTACHMENT 1 FILES RELATED TO TANK UPPER-WALL RESIDUAL CAPACITY DETERMINATION
- ATTACHMENT 2 FILES RELATED TO TANK LOWER-WALL RESIDUAL CAPACITY DETERMINATION
- ATTACHMENT 3 FILES RELATED TO TANK CENTER-SLAB RESIDUAL CAPACITY DETERMINATION
- ATTACHMENT 4 FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION, 11.9 FT. FROM CENTER
- ATTACHMENT 5 FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION, 19.25 FT. FROM CENTER
- ATTACHMENT 6 FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION, 33.9 FT. FROM CENTER
- ATTACHMENT 7 FILES RELATED TO TANK LOWER-WALL RESIDUAL CAPACITY DETERMINATION, UNDER PPS LOAD CASE 3 LOADING
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- ATTACHMENT 9 EXPANDED SPREADSHEETS SHOWING FORMULAS
- ATTACHMENT 10 SPREADSHEETS FOR DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3

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1.0 OBJECTIVES

The objectives of this study are to parametrically develop limits for inadvertent impact conditions and maximum impulsive loads from Past-Practice-Sluicing operations. These limits are determined on the basis of preventing penetration of the tank liner, and maintaining tank structural integrity per the ACI 349 code. These assessments utilize the provisions of the ACI 349 Code for determining the tank's structural capacities, "ASCE Manuals and Reports for Engineering Practice - No. 58" for characterizing impact penetrations and structural damage, and static finite element analyses of the tank for predicting reserve capacity of the tank wall and slab against normal forces resulting from impacts and impulsive loads.

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 (8) Originator [Signature] Date 10/17/94
 (9) Checker Phillip R. Kich Date 10/17/94

2.0 REFERENCES

- 2.1 1980, ASCE - Manuals & Reports On Engineering Practice - No. 58, *Structural Analysis and Design of Nuclear Plant Facilities*, New York, New York.
- 2.2 Zukas, J. A., T. Nicholas, H. F. Swift, L. B. Greszczuk, D. R. Curran, 1982, *Impact Dynamics*, Wiley-Interscience, New York, New York.
- 2.3 1984, ASME - *Impact, Fragmentation and Blast (Vessels, Pipes, Tubes, Equipment)*, PVP-Vol. 82, American Society of Mechanical Engineers, New York, New York.
- 2.4 Kich, P. R., et al., 1994, *Tank 241 C-106 Structural Evaluation in Support of Project W-320 Retrieval*, WHC-SD-W320-ANAL-003, Rev. 0, Appendix A, Westinghouse Hanford Company, Richland, Washington.
- 2.5 Dyrness, A. D., J. L. Julyk, 1991, *Comparison of Reinforced Concrete Model in the Analysis of Extreme Loads*, 1991 ASME Piping and Pressure Vessel Conference, San Diego, California.
- 2.6 Kich, P. R., et al., 1994, *Static Internal Pressure Capacity of Hanford Single-Shell Waste Tanks*, WHC-SD-WM-TI-623, Westinghouse Hanford Company, Richland, Washington.
- 2.7 Julyk, L. J., et al., 1994, *Tank 241-C-106 Structural Integrity Evaluation for In Situ Conditions*, WHC-SD-W320-ANAL-001, Westinghouse Hanford Company, Richland, Washington.
- 2.8 Hibbit, Karlsson & Sorensen Inc., *ABAQUS User's Manual*, Version 4.8 with 4.9 Supplement, 1989, Pawtucket, Rhode Island.
- 2.9 ANACAP-U, *ANATECH Concrete Analysis Package, User's Manual, Version 92-2.2*, ANATECH Research Corp., June, 1993, San Diego, California.
- 2.10 ACI 349, 1990, *Code Requirements for Nuclear Safety-Related Concrete Structures*, ACI 349-90, American Concrete Institute, Detroit, Michigan.

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(8) Originator A. Ladd Date 10/17/94
(9) Checker White Date 10/17/94

3.0 LOADS

The loads considered herein associated with Past Practice Sluicing operations are:

1. Operational Impact Load

The operational impact load is the time dependent load resulting from the collision of PPS equipment with the tank structure. The impact load transient is affected by the inertial and stiffness properties of the missile and the target structure where the target is either the tank wall or tank slab.

2. Operational Impulsive Load

The operational impulsive load is the transient load due to an external source and is not dependent upon target inertial and stiffness properties. In this case, the impulsive load results from fluid jet forces impinging on the tank wall or tank slab. Impulse loads are generally force limited, but not energy limited.

Factored in situ tank loads as discussed in Reference 2.4 are considered in determining residual capacities of the tank wall and tank slab.

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 (9) Checker [Signature] Date 10/17/94

4.0 ACCEPTANCE CRITERIA

Consistent with other evaluations of the C-106 tank structural capability, this evaluation treats the tank liner as a non-structural component. That is, the liner participation in reacting in situ or operational loads is ignored because the liner design basis does not include these loads. Characterization of liner behavior has been limited to its penetration resistance. In situ and operational (including impactive and impulsive) loads are treated as being supported by the tank structural components. Structural evaluations of C-106 are performed in accordance with ACI 349 provisions for impactive and impulsive loads.

1. Structural Damage of the C106 Tank Wall and Tank Slab

Acceptance criteria for structural damage due to impacts are drawn from the provisions of ACI 349-90 (Appendix C - *Special Provisions for Impulsive and Impactive Loads*). Appendix C of ACI 349 appeals to concrete penetration, perforation and scabbing correlations presented in ASCE Manuals and Reports on Engineering Practice - No. 58: Structural Analysis and Design of Nuclear Plant Facilities (reference 2.1). The acceptance criterion applied is prevention of "scabbing" damage to the concrete wall. The associated limits are more restrictive than limits preventing complete penetration of the concrete structure and represent a substantial measure of conservatism. Concrete penetration due to missile impact occurs before the scabbing threshold but effects on the structure occur on the side being impacted with damage limited to less than one-half the concrete thickness.

Acceptance criteria for impulsive loads also are taken from ACI 349, Appendix C. Impulsive loads are treated as live loads with a load factor of 1.7.

2. Functionality of Tank Steel Liner as a Containment Boundary

Liner perforation due to missile impacts is unacceptable for the steel liner to function as the leak proof boundary. Equations from Reference 2.1 describing the impact physics and resulting penetration are used to identify impact conditions associated with loss of liner functionality as a result of liner perforation. As recommended in Reference 2.1 a safety factor of 1.25 was applied in the penetration depth predictions to address uncertainties in the penetration model. The limits of administrative controls and inaccessibility of the C-106 tank liner are such that a level of penetration approaching the liner thickness is not acceptable. Hence, impact limits associated with a level of penetration equal to one-half the liner thickness are developed.

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 (9) Checker U. S. S. S. Date 10/17/94

5.0 IMPACT INTERACTION

5.1 Basis

The model for missile impact predictions is taken from *ASCE - Manuals and Reports on Engineering Practice - No. 58: Structural Analysis and Design of Nuclear Plant Facilities* (Reference 2.1). Chapter Six of this manual addresses *Design Against Impulse and Impact Loads*. The equations and guidance of this chapter are utilized for predicting impact interactions including liner penetration and concrete damage.

5.2 Assumptions

1. The striking object is nondeformable. This assumption is conservative and will over-predict local effects compared to a deformable missile.
2. The interaction of interest occurs in a direction normal to the target surface: frictional effects are insignificant to penetration and only the normal component of relative velocity is considered.
3. A steel penetrability constant of 1.0 is used, per Reference 2.1, Section 6.4.1.3.
4. Projectile shape factor is taken as 1.0 (average bullet nose), per Reference 2.1, Section 6.4.1.2.
5. Four different values of missile weight (500, 1000, 2000, and 3000 lbf) are considered.

5.3 Symbols and Key Values

W = missile weight [lbf].
 f'_c = ultimate compressive concrete strength [lbf/in²] taken as 3000 lbf/in²..
 D = missile diameter [in.].
 t_s = steel liner thickness [in.] taken as 0.25 in.
 e = steel liner penetration thickness [in.].
 s = scabbing thickness [in.] - the thickness of target required to prevent scabbing of material from the rear surface of the target for a missile with a given impact velocity.
 K = concrete penetrability factor: $K = 180/\sqrt{f'_c}$
 N = projectile shape factor taken as 1.0 (average bullet nose)
 Ks = steel penetrability constant.
 Vi = missile impact velocity [ft/s].

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5.4 Interaction Relationships for Impact Conditions

Because the steel liner is not a tank structural component, it imposes limits on impact conditions only through its penetration resistance. Steel liner penetration is discussed in Section 5.4.1. The structural response associated with the impact loads will be dynamic in nature. This rise time of the impact force history will be short relative to the periods of the fundamental structural modes. In some (perhaps all) cases the entire duration of loading may be short compared to the periods of important modes so that limited response in the lower frequency modes occurs. Structural response for very short duration loads will be dominated by higher mode response. A best estimate dynamic response prediction is not performed. Instead, a conservative approach has been adopted to comprise a cost effective structural evaluation. Basically this depends on identifying the impact conditions where tank structural response imposes limitation on allowable impact conditions. Punching shear is identified as the controlling tank failure mode in Section 6.0 of this appendix. The punching shear limits are then taken from empirical relations in Reference 2.1 as discussed in Section 5.4.2.

5.4.1 Steel Interaction

Section 6.4.1.3 of Reference 2.1 discusses the model for missile impacts with steel targets such as vessels. Equation 6.46 of Reference 2.1 provides a relationship between steel target penetration (e), missile diameter (D , units of inches), and normal impact velocity (V_i , units of ft/sec).

$$\left(\frac{e}{D}\right)^{3/2} = \frac{(W/D^3) V_i^2}{1.12 \times 10^6 K_s^2} \quad (5.4.1-1)$$

Equation 5.4.1-1 is rearranged as

$$V_i^2 = \frac{1.12 \times 10^6 e^{1.5} D^{1.5}}{W}$$

$$\text{or } V_i = \frac{1.058 \times 10^3 e^{.75} D^{.75}}{W^{.5}} \quad (5.4.1-2)$$

where $e \leq .4 t_s$ (.100 in.) for the steel penetration acceptance criteria of one-half the liner thickness.

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This equation is used to predict limiting conditions on missile impact parameters such that the first acceptance criteria of Section 4 is satisfied. The results must apply over the range of possible missile characteristics and indicating that a parametric treatment is required. The missile weight is treated parametrically where separate solutions are sought for missiles of 500, 1000, 2000, and 3000 lbf. For missiles of each weight there are now three unknowns in the equation: e , D , and V_i . With the missile weight specified and the penetration limit (maximum) specified, the impact interaction equation has two remaining variables (missile velocity and cross section diameter) and therefore, provides the limiting impact velocity as a function of missile diameter.

5.4.2 Concrete Impact Interaction

Special provisions for impact effects are provided in Appendix C of ACI 349-90 for consideration of local structural response. Local impact effects to be considered include penetration, perforation, scabbing, and punching shear. Punching shear for static loads also is addressed in Section 11.11 of ACI 349-90.

Behavior generated from impacts results in dynamic structural response where higher (frequency) modes are the dominant contributors. Thus, it is difficult to predict the internal stress state and related concrete damage for impact conditions. Section C.7.2.3 of ACI 349-90 addresses this situation by endorsing the use of concrete interaction relations developed from experimental data to define conditions which preclude punching shear or perforation.

For structures where static finite-element analysis of concentrated loads shows the transverse load capacity to be controlled by transverse shear (i.e., punching shear), it is reasonable to conclude that under impact loading, penetration/punching shear similarly is the controlling response. Section 6.7 summarizes the results of static finite element analyses which demonstrate that punching shear limits (for transverse loads) are the most restrictive. Thus demonstrating margin for dynamic punching shear also demonstrates adequacy for the overall structural response.

The ACI 349-90 commentary for Appendix C explicitly endorses the data and relationships for concrete impacts including the modified NDRC formula which is provided in Reference 2.1, Section 6.4.1.2. These relations are shown below.

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$$\frac{S}{D} = 7.91 \left(\frac{X}{D} \right) - 5.06 \left(\frac{X}{D} \right)^2 \quad \text{for } \frac{X}{D} < 0.65 \quad (5.4.2-1)$$

$$\frac{S}{D} = 2.12 + 1.35 \frac{X}{D} \quad \text{for } 0.65 \leq \frac{X}{D} \leq 11.75 \quad (5.4.2-2)$$

where S is the minimum concrete thickness at which concrete scabbing is precluded when an impact surface penetration of depth, X, occurs.

Equations for perforation (i.e., front face and rear face damage encompasses the entire section thickness) are as follows.

$$\frac{e}{D} = 3.19 \left(\frac{X}{D} \right) - 0.718 \left(\frac{X}{D} \right)^2 \quad \text{for } \frac{X}{D} < 1.35 \quad (5.4.2-3)$$

$$\frac{e}{D} = 1.32 + 1.24 \frac{X}{D} \quad \text{for } 1.35 \leq \frac{X}{D} \leq 13.5 \quad (5.4.2-4)$$

Clearly, for a given depth of penetration, X, a much greater thickness, S, is required to prevent rear surface-scabbing than to prevent perforation. Thus, limits for impacts based on scabbing are considerably more restrictive than those derived from perforation and provide conservative restrictions.

The relationship between front face penetration and missile parameters (based on the experimental data) is as follows.

$$X = \sqrt{4 \text{ KNWD} \left(\frac{V_i}{1000D} \right)^{1.8}}$$

where rearranging yields,

$$V_i = \left[\frac{(1000)^{1.8}}{4 \text{ KN}} \right]^{.555} \left[\frac{XD^{.4}}{W^{.5}} \right]^{1.11} \quad (5.4.2-5)$$

where K = concrete penetrability factor, $180/\sqrt{f'_c}$

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N = projectile shape factor taken as 1.0 (average bullet nose)
for $X/D < 2.0$.

A different equation applies for $X/D > 2.0$. This equation has no effect on the results presented here because values of $X/D > 2.0$ do not occur under conditions where the concrete controls (as will be demonstrated in Section 7.0).

Thus, for the slab, equations 5.4.2-1, 5.4.2-2, and 5.4.2-5 are combined as follows.

$$\begin{aligned} K &= 180/\sqrt{3451} = 3.06 \\ N &= 1 \end{aligned}$$

$$\left[\frac{(1000)^{1.8}}{4KN} \right]^{.555} = 248.4$$

S = 5 in. (slab thickness is 6 in. and scabbing thickness is reduced to 5.0 to provide 20% margin required in ACI 349, Section C.7.2.1)

Equation 5.4.2-1 is used to solve for X.

$$\frac{5}{D} = 7.91 \left(\frac{X}{D} \right) - 5.06 \left(\frac{X}{D} \right)^2 \quad \text{for } \frac{X}{D} < 0.65$$

$$X^2 - \frac{7.91D}{5.06} X + \frac{5}{5.06} D = 0$$

$$X^2 - (1.56D) X + (.988D) = 0$$

$$X = \frac{1.56D - \sqrt{(1.56D)^2 - 3.95D}}{2}$$

$$X = \frac{1.56D}{2} \left[1 - \sqrt{1 - \frac{1.624}{D}} \right] \quad (5.4.2-6)$$

While two roots are possible, only the one presented in equation 5.4.2-6 satisfies the limitation of $x/D < 0.65$.

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Substituting equation 5.4.2-6 along with the known constants into equation 5.4.2-5, the expression for velocity becomes a function of D and W.

$$V_i = 248.4 \left(\frac{D^{.4}}{W^{.5}} \right)^{1.11} (X)^{1.11}$$

$$V_i = 188.5 \left[\frac{D^{1.4}}{W^{.5}} \left[1 - \sqrt{1 - \frac{1.624}{D}} \right] \right]^{1.11} \quad (5.4.2-7)$$

for $X/D < 0.65$.

For $0.65 < X/D < 2.0$ equation 5.4.2-2 shows X is a linear function of D.

$$X = \frac{(5 - 2.12 D)}{1.36} = 3.676 - 1.56D \quad (5.4.2-8)$$

Substituting Equation 5.4.2-8 along with the known constants into Equation 5.4.2-5, the expression for velocity becomes a function of D and W.

$$V_i = 248.4 \left[\frac{D^{.4}}{W^{.5}} \right]^{1.11} (X)^{1.11}$$

$$V_i = 248.4 \left[\frac{D^{.4} (3.676 - 1.56 D)}{W^{.5}} \right]^{1.11} \quad (5.4.2-9)$$

Equations 5.4.2-7 and 5.4.2-9 provide limiting velocities for impacts on the slab as a function of the missile parameters D and W. On the basis of the following relations, equation 5.4.2-7 applies for $0.0 < D < 1.67$ and equation 5.4.2-9 applies when $D > 1.67$.

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$$\frac{5}{D} = 7.91 \left(\frac{X}{D} \right) - 5.06 \left(\frac{X}{D} \right)^2$$

$$\frac{5}{D} = 7.91 (.65) - 5.06 (.65)^2 = 3 \quad (\text{for } \frac{X}{D} = .65)$$

$$D = \frac{5}{3} = 1.67$$

For the wall, equations 5.4.2-1, 5.4.2-2, and 5.4.2-5 are combined as follows,

$$K = 180 / \sqrt{3899} = 2.88$$

$$N = 1$$

$$\left[\frac{(1000)^{1.8}}{4KN} \right]^{.555} = 257.0$$

$$S = 10 \text{ in. (wall thickness is 12 in. and scabbing thickness is reduced to 10.0 to provide 20% margin required in ACI 349, Section C.7.2.1)}$$

Equation 5.4.2-1 is used to solve for X.

$$\frac{10.0}{D} = 7.91 \left(\frac{X}{D} \right) - 5.06 \left(\frac{X}{D} \right)^2 \quad \text{for } \frac{X}{D} < 0.65$$

$$X^2 - \left(\frac{7.91 D}{5.06} \right) X + \left(\frac{10.0 D}{5.06} \right) = 0$$

$$X^2 - (1.56D) X + (1.98 D) = 0$$

$$X = \frac{1.56 D - \sqrt{(1.56D)^2 - 7.91D}}{2}$$

$$X = \frac{1.56D}{2} \left[1 - \sqrt{1 - \frac{3.25}{D}} \right] \quad (5.4.2-10)$$

While two roots are possible, only the one presented in equation 5.4.2-10 satisfies the limitation of $x/D < 0.65$.

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Substituting equation 5.4.2-10 along with the known constants into equation 5.4.2-5, the expression for velocity becomes a function of D and W.

$$V_i = 257.0 \left(\frac{D^{.4}}{W^{.5}} \right)^{1.11} (X)^{1.11}$$

$$V_i = 195.0 \left[\frac{D^{1.4}}{W^{.5}} \left[1 - \sqrt{1 - \frac{3.25}{D}} \right] \right]^{1.11} \quad (5.4.2-11)$$

for $X/D < 0.65$.

For $.65 < X/D < 2.0$ equation 5.4.2-2 shows X is a linear function of D.

$$X = \frac{(10 - 2.12D)}{1.36} = 7.35 - 1.56 D \quad (5.4.2-12)$$

Substituting equation 5.4.2-12 along with the known constants into equation 5.4.2-5, the expression for velocity becomes a function of D and W.

$$V_i = 257.0 \left[\frac{D^{.4} (7.35 - 1.56 D)}{W^{.5}} \right]^{1.11}$$

$$V_i = 257.0 \left[\frac{D^{.4} (7.35 - 1.56 D)}{W^{.5}} \right]^{1.11} \quad (5.4.2-13)$$

for $.65 \leq X/D < 2.0$.

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Equations 5.4.2-11 and 5.4.2-13 provide limiting velocities for impacts on the wall as a function of the missile parameters D and W. On the basis of the following relations, equation 5.4.2-11 applies for $0.0 < D < 3.33$ in. and equation 5.4.2-13 applies for $D > 3.33$ in.

$$\frac{10}{D} = 7.91 \left(\frac{X}{D} \right) - 5.06 \left(\frac{X}{D} \right)^2$$

$$\frac{10}{D} = 7.91 (.65) - 5.06 (.65)^2 = 3 \text{ (for } \frac{X}{D} = .65)$$

$$D = \frac{10}{3} = 3.33$$

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6.0 TANK WALL AND TANK SLAB RESIDUAL CAPACITIES

6.1 Procedure

The purpose of this section is to determine minimum bounding tank wall and slab allowables for internal concentrated static loads normal to the shell surface, using the tank's residual capacity. The results are used to conservatively define maximum allowable operational impact/impulsive loads. Baseline demands, prior to addition of concentrated loads, result from the application of factored loads which represent the in situ condition as well as soil-surface live loads specific to the Past-Practice Sluicing (PPS) operations. Appendix A of this report contains the analysis of this in situ/PPS loading. Capacities are based on ACI 349-90 and were developed in the same manner as for the ACI code evaluation of the PPS loading analysis (Appendix A).

As discussed in the Appendix A to this report, the in situ/PPS load analysis considered four load cases: Load Case 1a emphasized vertical compression of the dome and bending in the wall; Load Case 1b emphasized axial loads on the tank wall; Load Case 2 emphasized inward lateral pressure of the tank side while minimizing dome overburden; and Load Case 3 used maximum ACI load factors for all loads.

This evaluation of transverse loads considers the possibility of a concentrated load applied at any single location on the tank wall or tank slab. The application of the transverse load causes an increase in tension in the outer surface of the tank shell. Displacement plots (see Figures 6.1-1 through 6.1-4) and moment demands for the factored load cases were examined to identify tank locations that exhibit tension on the outer surface. Concentrated load application locations were selected to increase these tension fields. Demand magnitudes were studied to identify the controlling load case and controlling circumferential location (meridian) for each load configuration. Ultimately, two wall-loaded configurations and four slab-loaded configurations were analyzed and are discussed below.

The above approach of examining the effects of internal impact loads for six separate locations was followed for Load Cases 1a, 1b, and 2. The evaluation of the results identified the two locations that control the residual capacities of the tank wall and the tank slab. Using knowledge acquired from these analyses, a simplified procedure is followed for consideration of Load Case 3. The procedure adopted for Load Case 3 evaluation is discussed in Section 6.6.

Tables 6.1-1 through 6.1-6, 6.6-1, and 6.6-2 summarize and describe all files used in this analysis. M-P interaction diagram plots are included as Figures 6.5-1 through 6.5-14. All other files are included as Attachments 1 through 8 to this appendix.

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6.2 Tank Wall Loading

A study of wall moment demands from the factored in situ/PPS analysis revealed that only the base and upper elements experienced tension on the outer surface. Therefore, two load configurations were analyzed for concentrated transverse forces on the wall. The first configuration (analysis ID **P1-F1A**), applied a concentrated, radially-outward load of effectively 500,000 lb. (250,000 lb. applied on the plane of symmetry) to the upper wall at a z-coordinate of 236". The load was applied to a node along the positive 1-axis (0° meridian) of the model. Load Case 1a of the in situ/PPS model was used as a baseline for analysis of this load. The load location and baseline load case were selected, based on a study of demands from the PPS analysis performed in Appendix A, to produce the lowest residual capacity.

The second configuration (analysis ID **P2-F2**), applied a concentrated, radially-outward load of 400,000 lb. to the lower wall at a z-coordinate of 50.8". The load was applied to a node along the positive 2-axis (90° meridian) of the model. Load Case 2 of the in situ/PPS model was used as a baseline for analysis. The load location and baseline load case were selected, based on a study of demands from the PPS analysis performed in Appendix A, to produce the lowest residual capacity. Since the ABAQUS model is of one-half of the tank and uses symmetry boundaries, the above load is equivalent to two loads in opposite directions, 180 degrees apart. However, since the effect of the concentrated load will primarily be local, the effective "additional" load is negligible.

6.3 Tank Slab Loading

Four load configurations were analyzed for concentrated transverse forces on the slab. A plot of moment demands along the positive 1-axis of the slab is shown in Figure 6.3-1. Positive moment values indicate that the bottom surface of element is in tension. The figure does not include the outer-two elements adjacent to the wall. Bottom-tension occurs in the outer-most element of the two. For all four load configurations, an effective concentrated load of 350,000 lb. in the downward direction was applied to the slab. The four configurations are as follows:

Analysis ID	Distance from Center	Load-Point Location	In Situ/PPS Baseline Load Case
P3-F1A	0.0 ft.	n/a	1a
P4-F1A	11.9 ft.	positive 1-axis	1a
P5-F2	19.25 ft.	positive 2-axis	2
P6-F1A	33.9 ft. (4.2 ft. from wall)	positive 1-axis	1a

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The load locations and baseline load cases were selected, based on a study of demands from the PPS analysis performed in Appendix A, to produce the lowest residual capacities. For loads applied to nodes along the positive 1-axis, one-half of the total load is applied due to symmetry boundary conditions defined for the one-half model. For loads applied to nodes along the positive 2-axis, the load is equivalent to two slab loads, located 180 degrees apart. However, since the effect of the concentrated load will primarily be local, the effective "additional" load is negligible.

6.4 Analysis Convergence

Extensive discussions of a solution convergence strategy for reinforced concrete nonlinear analysis that uses ABAQUS (version 4.9) can be found in previous work (Dyrness and Julyk 1991, Julyk et al. 1994, Kich et al. 1994). The concrete behavior is modeled with the ANACAP-U material subroutine with implementation through the ABAQUS UMAT option. When significant cracking occurs in these analyses, there is typically a lack of convergence in the load increments because of crack-induced discontinuities in the stresses. Upon crack formation, the release of locked-in stresses causes unbalanced forces. When these internal forces are released to the remainder of the uncracked structure, whose residual stiffness now is reduced greatly, the load/stiffness ratio becomes larger and causes local instabilities. These unbalanced forces decrease from one iteration to the next, but at a very slow rate because of the greatly reduced structural stiffness. Consequently, it is usually necessary to carry the unconverged force residual over to the next load increment and continue the solution, with care taken to use sufficiently small load increments to preserve solution accuracy.

The convergence criteria used in ABAQUS (version 4.9) are based exclusively on forces; increments in displacement are not considered in convergence tests. For cracking structures, displacements converge nonuniformly, whereas after extensive cracking, the residual forces do not converge. It is almost always necessary to disengage the automatic time-stepping algorithm, use fixed time steps, and accept the unconverged solution when the ANACAP-U concrete model is involved. Automatic time stepping is disengaged by selecting the ABAQUS NOSTOP option. Continuation of the analysis is then allowed even if equilibrium tolerances are not satisfied for each increment. Previous work has demonstrated that solution quality need not be compromised when the NOSTOP option is invoked (Julyk et al. 1994, Dyrness and Julyk 1991). Kich et al. (1994) derived a "convergence indicator" based on the change in displacement increments.

The convergence indicator provides a measure of the asymptotic behavior of the solution in terms of the maximum displacement increments, which are provided in the ABAQUS ".about" files. The convergence indicator is calculated by taking the difference of succeeding maximum displacement increments from one iteration to the next. If the

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absolute-value of the difference is decreasing with each successive iteration, the solution is classified as convergent. This is represented as a positive value on the plot of the convergence indicator. Because three degrees of freedom (DOF) are involved, they are combined to a single DOF by performing a square-root-sum-of-squares on the displacement increment components. The specific equation for the convergence indicator is as follows:

$$CI = \sqrt{(ux_1 - ux_2)^2 + (uy_1 - uy_2)^2 + (uz_1 - uz_2)^2} \\ - \sqrt{(ux_2 - ux_3)^2 + (uy_2 - uy_3)^2 + (uz_2 - uz_3)^2}$$

where

CI = Convergence Indicator
 ux_j = Maximum X-Direction Displacement Increment in Iteration j
 uy_j = Maximum Y-Direction Displacement Increment in Iteration j
 uz_j = Maximum Vertical Displacement Increment in Iteration j

The convergence indicator is plotted in Figure 6.4-1 for analysis case P7-F3, which was found to have as few as 58% of its increments converge based on force equilibrium. (The spreadsheet used to develop the convergence indicator is included as Attachment 10.) For increments that converged by force equilibrium, the convergence indicator is assigned an arbitrary value of 0.003, since displacement increments are required for at least three iterations to compute the indicator. It is clear from Figure 6.4-1 that the convergence indicator suggests a reliable solution. The convergence indicator was not plotted for the other load cases addressed by this effort because the convergence based on force equilibrium was even more favorable than that associated with analysis case P7-F3.

6.5 Capacity Determination

For each of the analysis cases described in Sections 6.2 and 6.3, the following items were evaluated to determine the residual capacities and identify the rank of responses which limit the permissible transverse forces:

- Moment-Axial Load (M-P) Interaction
- Transverse Shear
- Construction Joints (wall-loaded cases only)
- In-Plane Shear
- Twisting Moment

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6.5.1 M-P Interaction

Demands are plotted along with M-P interaction capacity curves in Figures 6.5-1 through 6.5-14. Selected elements adjacent to the concentrated load application were investigated for M-P interaction, however history plots are provided for controlling elements only. Within each plot, the lowest demand plotted is from the baseline in situ/PPS analysis with no concentrated normal load. Beyond this point, the demands are plotted for an incremental application of the concentrated load. The residual concentrated load capacity based on M-P interaction is defined as the concentrated load magnitude that corresponds to the demand intersecting the capacity curve. For example, in Figure 6.5-1, the demand intersects the capacity curve at the 72nd of 100 increments. Therefore, the corresponding residual capacity is

$$(72/100)(500,000) = 360,000 \text{ lb.}$$

Some of the demand histories are shown to be discontinuous (Figure 6.5-5, for example). The demand momentarily decreases before continuing with an increasing trend. This can be attributed to local cracking and a subsequent redistribution of load. For instances where the demand history breaches the capacity curve and then is brought within the curve by the discontinuity, the first intersection of the capacity curve is taken as the residual capacity. Simplified three-point M-P load capacity curves have not been refined for slab sections, which results in conservative residual capacity predictions. In most cases, however, the demand histories breach the capacity curve near the balance point such that additional capacities would be small. In addition, the summary of results provided in Section 6.7 shows that M-P interaction is not the controlling failure mode for residual capacity determination.

As discussed in Section 5.1 of Appendix A, calculated M-P capacities are applicable to loading at the plastic centroid of the section, while shell element demands are provided by ABAQUS at the geometric centroid (shell mid-surface). The differences in centroid locations are shown to be insignificant for the M-P demands studied in Appendix A. Wall sections are unaffected because they are symmetric (and therefore the plastic centroid and the geometric centroid coincide). Slab centroid differences range from 0.024 to 0.042 in. for capacity sections 1 and 2, and 0.109 to 0.196 in. for capacity section 2a. Moment values provided by ABAQUS would be adjusted by adding or subtracting the product of the element axial load and the location difference between the plastic centroid and geometric centroid. By inspection of the demands plotted in Figures 6.5-5 through 6.5-14, the shift in moment caused by such an adjustment would be insignificant. Therefore, adjustment is deemed unnecessary.

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The table below summarizes the residual capacities determined on the basis of M-P interaction.

Analysis ID	Response Direction	Intersecting Load Increment	Total Load Increments	Total Load (lb)	Residual Capacity (lb)
- wall -					
P1-F1A	Meridional	72	100	500,000	360,000
	Circumferential	93	100	500,000	465,000
P2-F2	Meridional	70	100	400,000	280,000
	Circumferential	> 100	100	400,000	> 400,000
- slab -					
P3-F1A	Meridional	38	50	350,000	266,000
	Circumferential	> 50	50	350,000	> 350,000
P4-F1A	Meridional	18	50	350,000	126,000
	Circumferential	28	50	350,000	196,000
P5-F2	Meridional	> 50	50	350,000	> 350,000
	Circumferential	> 50	50	350,000	> 350,000
P6-F1A	Meridional	42	50	350,000	294,000
	Circumferential	> 50	50	350,000	> 350,000

Therefore, the controlling wall capacity based on M-P interaction is 280,000 lb., while the controlling slab capacity is 126,000 lb.

6.5.2 Transverse Shear

Consideration of transverse shear is controlled by Section 11.11 of ACI-349, which specifies the shear strength of slabs in the vicinity of concentrated loads.

Wall

A study of wall demands, which are listed in Attachment 9 of Appendix A, reveals that typically, the wall elements are in compression along the meridional direction. In the circumferential direction, tension occurs in the upper and lower wall elements while the mid-wall elements remain in compression. Section 11.11.2.3 of ACI-349 specifies the

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shear strength requirements for a concentrated load applied to a region experiencing tensile membrane stress.

Per ACI Section 11.11.2.3 (eq. 11-38a)

$$V_c = V_{c1} + V_{c2}$$

For membrane stress tensile and not exceeding $0.9\rho_1'f_y$, ACI Section 11.11.2.3.1 (eq. 11-38b) specifies

$$V_{c1} = 4(f'_c)^{1/2}b_1h(1 + 0.25f_{m1}/\rho_1'f_y)$$

where

- 4 = limit applicable when the ratio of long side to short side of load application area = 1.
- f'_c = concrete compressive strength
= 3899 psi for wall sect. 4 (minimum for wall) per App. A Attach. 11.
- b_1 = $b_o/2$ (in.)
- b_o = perimeter of critical wall section (see calculation below).
- h = thickness of the wall = 12 in.
- f_{m1} = tensile stress in the direction with tension (negative, psi)
- ρ_1' = reinforcement ratio in tension direction based on section thickness.
- f_y = yield strength of reinforcement

In the above ACI equation, the perimeter of the critical wall section is determined using the requirements of ACI Section 11.11.1.2,

$$b_o = 2\pi\{(D/2) + (d/2)\} \\ = \pi(D + 8.8)$$

where

- D = diameter of the impacting missile,
- d = distance from the comp. face to centroid of tens. rebar (in.)
= 8.8 in. per Attachment 11 of App. A for wall sections 4, 5, and 6.

For ACI equation 11-38b, $f_{m1}/\rho_1'f_y = -1$ is adopted for simplicity and conservatism, and represents the tension limit on the reinforcement. Equation 11-38b then simplifies to

$$V_{c1} = 3(f'_c)^{1/2}b_1h \\ = 1124b_o$$

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For compressive membrane stress less than 125 psi, ACI Section 11.11.2.3.1 specifies

$$V_{c2} = 4(f'_c)^{1/2}b_2d$$

$$= 1099b_o$$

where

4 = limit applicable when the ratio of long side to short side of load application area = 1.
 $b_2 = b_o/2$ (in.)

From ACI equations 11-1 and 11-38a,

$$\phi V_c = \phi(V_{c1} + V_{c2})$$

where

ϕ = strength reduction factor = 0.85

Therefore, substituting for b_o , V_{c1} and V_{c2} gives,

$$\phi V_c = 0.85(1124 + 1099)\pi(D + 8.8)$$

$$= 5936D + 52240$$

Section 11.11.2.3.3 and 11.11.2.3.4 specify additional limitations for regions high in tension. High tensile stress is specified as

$$f_{m1} > 0.6\rho_1'f_y = 377 \text{ psi for lower wall (section 4)}$$

where

ρ_1' = $(A_s + A_s')/bh = 0.0167$
 A_s = tension reinforcement area
 = 1.2 in² per Marlow (1994, p. B Att6-5)
 A_s' = compression reinforcement area
 = 1.2 in² per Marlow (1994, p. B Att6-5)
 b = appropriate section width = 12 in.
 h = wall section thickness = 12 in.
 f_y = yield strength of reinforcement
 = 37,631 psi per Marlow (1994, p. B Att6-6).

Converting f_{m1} stress to terms of tension demand-per-foot, high tension force defined as

$$P > (377 \text{ psi})(12 \text{ in/ft})(h) = 54,288 \text{ lb/ft}$$

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By inspection of the wall circumferential demands summarized in Attachment 9 of Appendix A, lower wall tension demands do not exceed 54,288 lb/ft, therefore, the ACI limitation specified by equation 11-38f does not apply for the lower wall.

Also noted from the demand inspection is that mid-wall circumferential demands are all compressive, therefore, the ACI limitation specified by equation 11-38f does not apply for the mid-wall.

For consideration of the upper wall

$$f_{m1} > 0.6\rho_1'f_y = 228 \text{ psi for upper wall (section 6)}$$

where

$$\begin{aligned}\rho_1' &= (A_s + A_s')/bh = 0.010 \\ A_s &= \text{tension reinforcement area} \\ &= 0.72 \text{ in}^2 \text{ per Marlow (1994, p. B Att6-5)} \\ A_s' &= \text{compression reinforcement area} \\ &= 0.72 \text{ in}^2 \text{ per Marlow (1994, p. B Att6-5)} \\ b &= \text{appropriate section width} = 12 \text{ in.} \\ h &= \text{wall section thickness} = 12 \text{ in.} \\ f_y &= \text{yield strength of reinforcement} \\ &= 38,000 \text{ psi per Marlow (1994, p. B Att6-6).}\end{aligned}$$

Converting f_{m1} stress to terms of tension demand-per-foot, high tension force is defined as

$$P > (228 \text{ psi})(12 \text{ in/ft})(h) = 32,832 \text{ lb/ft}$$

By inspection of the wall circumferential demands summarized in Attachment 9 of Appendix A, the maximum upper-wall tension demand is 45,804 lb/ft (PPS-F1BP.xls, element 380). Therefore, ACI equation 11-38f is applicable.

$$\rho_1' \geq f_{m1}/(0.9f_y) + V_u/(0.85f_yb_1h)$$

where

$$f_{m1} = 45804/(12h) = 318 \text{ psi}$$

Rearranging the equation gives the shear load limit as,

$$V_u = (f_y\rho_1 - f_{m1}/0.9)\{0.85h\pi(D + 8.8)/2\}$$

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Substituting the known terms of the equation gives,

$$V_u = 427.7D + 3759$$

This expression, applicable to upper wall sections, will yield residual capacities that are very low relative to those for the mid and lower wall sections. The more-restrictive ACI requirement is applied to the upper-wall region because high tensile demands exist there. Therefore, it is recommended to limit concentrated wall loads to elevations within 14.5 ft. from the bottom of the tank. Within the 14.5 ft., wall residual capacity, for consideration of transverse shear, can be calculated as

$$\phi V_c = 5936D + 52240 ,$$

which is a function of the diameter, D, of the applied concentrated load.

Slab

A study of slab demands, which are listed in Attachment 9 of Appendix A, reveals that all slab elements are in compression along both the meridional and circumferential directions. Therefore, the residual capacity is determined for the provisions of ACI Section 11.11.2.1 (equation 11-37).

$$\begin{aligned}\phi V_c &= \phi 4(f'_c)^{1/2} b_o d \\ &= 399.5 b_o\end{aligned}$$

where

- ϕ = strength reduction factor = 0.85
- 4 = limit applicable when the ratio of long side to short side of load application area = 1.
- f'_c = concrete compressive strength
= 3451 psi for wall sect. 1 (minimum for slab) per App. A Attach. 11.
- b_o = perimeter of critical wall section
= 14.1 in. (see calculation below).
- d = distance from the comp. face to centroid of tens. rebar (in.)
= (1.75 + 2.25)/2 = 2.0 in.

The d-value is computed using geometry information from Attachment 11 of Appendix A for floor section 1. Because the slab is reinforced with one rectangular mesh layer only, the average distance used is from the rebar centroid to the top slab surface, which will be in compression under the concentrated load.

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In the above ACI equation, the perimeter of the critical slab section is determined using the requirements of ACI Section 11.11.1.2.

$$b_o = 2\pi\{(D/2) + (d/2)\}$$

$$= \pi(D + 2.0)$$

where

D = diameter of the impacting missile,
 d = 2.0 as determined above.

Substituting the expression for b_o into the capacity equation gives,

$$\phi V_c = 399.5\pi(D + 2.0)$$

$$= 1255D + 2510 ,$$

which provides the residual capacity, for consideration of transverse shear, as a function of the diameter, D, of the applied concentrated load.

6.5.3 Construction Joints

Upper

Appendix A of this report includes an evaluation of the construction joints for in situ/PPS loading. The upper construction joint capacity has been calculated as 17,054 lb/ft of width. Attachment 1, file P1-F1AP.xls includes the V23 shear demand history for element 1313. The portion of the shear demand resulting from the addition of the concentrated load is affected by the mesh refinement of the model. Therefore, the demands are adjusted for a construction joint engagement length determined on the basis of the load distribution allowed per ACI 11.11.1.2.

$$\text{Engagement length} = D + d$$

where

D = minimum missile diameter
 d = wall depth to tension steel = 8.8 in. (ref. Attachment 11 of Appendix A)

Wall-element widths are 35.9 in., therefore the demand due to concentrated loading is increased by a correction factor of $35.9/(D + 8.8)$. From Appendix A, Attachment 9, File PPS-F1AP.xls, the SF5 shear value for element 1313 is 9728 lb/ft (in situ + PPS operational surface loads). The shear demand allowed above the in situ/PPS shear is then

$$= (17054 - 9728)(D + 8.8)/35.9$$

$$= 204.1D + 1796$$

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The corrected total allowed shear load is

$$\begin{aligned} &= (204.1D + 1796) + 9728 \\ &= 204.1D + 11524 \end{aligned}$$

The corrected shear allowable, as a function of the concentrated load diameter, D, can now be used directly with the analysis results.

Lower

From Appendix A of this report, the lower construction joint capacity has been calculated as 16,889 lb/ft of width. Attachment 2, file P2-F2P.xls includes the V23 shear demand history for element 872. The portion of the shear demand resulting from the addition of the concentrated load is affected by the mesh refinement of the model. Therefore, the demands are adjusted for a construction joint engagement length determined on the basis of the load distribution allowed per ACI 11.11.1.2.

$$\text{Engagement length} = D + d$$

where

D = minimum missile diameter
 d = wall depth to tension steel = 15.1 in. (ref. Attachment 11 of Appendix A)

Wall-element widths are 35.9 in., therefore the demand due to concentrated loading is increased by a correction factor of 35.9/(D + 15.1). From Appendix A, Attachment 9, File PPS-F2P.xls, the SF5 shear value for element 872 is 11224 lb/ft (in situ + PPS operational surface loads). The shear demand allowed above the in situ/PPS shear is then

$$\begin{aligned} &= (16889 - 11224)(D + 15.1)/35.9 \\ &= 157.8D + 2383 \end{aligned}$$

The corrected total allowed shear load is

$$\begin{aligned} &= (157.8D + 2383) + 11224 \\ &= 157.8D + 13607 \end{aligned}$$

The corrected shear allowable, as a function of the concentrated load diameter, D, can now be used directly with the analysis results.

Comparison

Table 6.5-1 tabulates residual capacities of the upper and lower construction joints calculated on the basis of the expressions provided above, as a function of concentrated

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load diameter. For the range of diameters tabulated, it is clear that the upper construction joint residual capacities control over those of the lower joint. Furthermore, as the residual capacity determined on the basis of transverse shear also is a function of the concentrated load diameter, residual capacities are plotted in Figure 6.5-15 for comparison of the transverse shear limit with the upper construction joint limit. From the plot, it is evident that residual capacities determined on the basis of transverse shear limits control over capacities determined from construction joint limits.

6.5.4 In-Plane Shear

Evaluation of in-plane shear was performed by means of a spreadsheet shown as Table 6.5-2. Selected elements adjacent to the concentrated load application were investigated for in-plane shear evaluation. The ACI-349 equation used in the spreadsheet is provided below. Conservatively, minimum element axial loads (membrane forces) and maximum shear forces are selected from the applicable time ranges for the evaluation. For wall-loaded cases, the time range used for demand selection is limited to the initial load application through the M-P failure point for the lower-wall (280,000 lb.). For slab-loaded cases, the entire time history for the total applied load is considered (350,000 lb.).

Per ACI 11.10.6 (eq. 11-32):

$$\phi V_c = \phi \{ 3.3(f'_c)^{1/2} h d + N_u d / 4(l_w) \}$$

where	V_c	= nominal shear strength provided by concrete
	ϕ	= strength reduction factor = 0.85
	h	= thickness of element
	d	= width of element = 12 in.
	N_u	= Minimum factored axial load (positive for compression)
	l_w	= width of element = 12 in.

The above ACI equation is expressed in terms of a global wall-check and limits "d" to $0.8l_w$ ($0.8 \times \text{length-of-wall}$). The reduction factor on the wall length compensates for inaccuracies associated with the use of a strength-of-materials approach in predicting demand which ignores edge/boundary effects. For this evaluation, in-plane shear demands are examined on an element basis using a finite-element analysis, therefore, peak values and edge effects are considered instead of using an average "wall-shear." Furthermore, the tank shell is continuous, rather than comprising individual walls, so that there is no finite length-of-wall. For these reasons, it is appropriate to use an unreduced "d" value equal to a unit width consistent with the demand units.

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In ACI section 11.10.8, $\phi V_c/2$ is identified as the maximum shear allowed without shear reinforcing requirements. In-plane moment is assumed to be low, such that equation 11-33 does not apply.

Table 6.5-2 shows that for wall-loaded cases, all in-plane shear demands are within capacities. Therefore, the minimum residual capacity for a concentrated load applied to the wall is 280,000 lb., based on in-plane shear.

For slab-loaded cases, Table 6.5-2 shows that all in-plane shear demands are within capacities except for element 1277 in analysis P6-F1A. The allowable shear is calculated as 6064 lb. per foot of wall-width (= 505 lb/in of wall-width) for this element. Per ABAQUS output file P6-F1AT.about included in Attachment 6, the last shear demand to occur within capacity occurs at time (cumulative load-step fraction) = 4.92. All analyses used a total time step of 1.0, therefore a reduction factor of 0.92 is used to calculate the corresponding residual capacity as:

$$(0.92)(350,000) = 322,000 \text{ lb.}$$

6.5.5 Twisting Moment

Appendix A of this report calculates, for each element, the twisting threshold for which the moment can be considered negligible. Table 6.5-3 summarizes a comparison of the demands from the six concentrated-load analyses with the twisting thresholds. Selected elements adjacent to the concentrated load application were investigated for twisting moment evaluation. For wall-loaded cases, the time range used for demand selection is limited to the initial load application through the M-P failure point for the lower-wall (280,000 lb.). For slab-loaded cases, the entire time history for the total applied load is considered (350,000 lb.).

Where element twisting moment demand exceeds the threshold, the demand history for the element is examined to determine the time increment at which the threshold was first exceeded. The residual capacity will be then computed accordingly. For example, in Table 6.5-3, the twisting demand for element 1309 exceeds the threshold of 48,896 lb-in/ft. of wall-width (=4075 lb-in/in. of wall-width). From file P1-F1AP.xls (spreadsheet) in Attachment 1, the last twisting moment demand to occur within the threshold occurs at time = 4.42. Therefore, a reduction factor of 0.42 is used to calculate the corresponding residual capacity as:

$$(0.42)(500,000) = 210,000 \text{ lb.}$$

The table below provides the determination of reduced residual capacities for elements in which the twisting moment demand exceeds capacity.

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Analysis ID	Element	Limiting Time Point	Reduction Factor	Total Load (lb)	Residual Capacity (lb)
- wall -					
P1-F1A	1309	4.42	0.42	500,000	210,000
P2-F2	872	5.52	0.52	400,000	208,000
	880	5.38	0.38	400,000	152,000
- slab -					
P5-F2	848	5.72	0.72	350,000	252,000
	852	5.36	0.36	350,000	126,000
P6-F1A	1281	4.72	0.72	350,000	252,000

Therefore, the controlling wall capacity based on twisting moment shear is 152,000 lb., while the controlling slab capacity is 126,000 lb.

6.6 Factored Load Case 3 Evaluation

6.6.1 Procedure

In reviewing the results for the first three load cases (i.e. Load Cases 1a, 1b, and 2), it is established that the ultimate controlling demand component for concentrated wall loads is transverse shear followed by twisting. The transverse shear evaluation (Section 6.5.2) is controlled by local punching shear requirements, specified by ACI-349, which do not involve an analysis using the finite-element model. Furthermore, the in situ/PPS demand trends for Load Case 3 follow the demand trends utilized in the shear evaluation. Therefore the wall residual capacity determined for transverse shear considerations is applicable to Load Case 3 also.

The residual capacity limited by transverse shear is a function of the concentrated load diameter. Therefore, the residual capacity of the wall is given in terms of a linear mathematical expression. As discussed in Section 6.7, the use of the mathematical expression is limited by the point at which capacity due to twisting is reached. Therefore, an additional finite-element analysis is performed to investigate the twisting response of the wall, using Load Case 3 as the baseline state. This analysis applies a 400,000 lb. concentrated load to the lower wall in the same manner as analysis P2-F2 (z-coordinate of 50.8", applied to a node along the positive 2-axis).

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The controlling demand component for the slab is also transverse shear. As in the transverse shear evaluation of the wall, the transverse shear evaluation (Section 6.5.3) for the slab is controlled by local punching shear requirements, specified by ACI-349, which do not involve an analysis using the finite-element model. The in situ/PPS demand trends for Load Case 3 follow the demand trends utilized in the shear evaluation. Therefore the floor residual capacity determined for transverse shear considerations is applicable to Load Case 3 also.

Again, the residual capacity limited by transverse shear is a function of the concentrated load diameter. Therefore, the residual capacity of the slab is given in terms of a linear mathematical expression. Section 6.7 shows that the limit on concentrated load diameter imposed by M-P interaction or twisting (the second most-critical failure mode), is far beyond the practical range, therefore no additional analyses are performed for the consideration of baseline Load Case 3.

6.6.2 Lower Wall Evaluation

Table 6.6-1 summarizes and describes the files used for this analysis. File listings are provided in Attachment 7 to this appendix. Based on the results from analyses using the first three factored load cases, twisting moment is the governing demand component determined by finite-element analyses for impact on the wall. (Transverse shear ultimately controlled, determined using a hand-calculation.) Therefore, only twisting moment is considered for this analysis.

Per Table 6.5-4, the twisting moment thresholds for elements adjacent to the concentrated load are as follows:

Element 872	= 105212 lb-in/ft	= 8768 lb-in/in
Element 876	= 48256 lb-in/ft	= 4021 lb-in/in
Element 880	= 46867 lb-in/ft	= 3906 lb-in/in

Using the twisting moment demand history (SM3 values) from file P7-F3T.about, included in Attachment 7, the following time limits and corresponding residual capacities are determined for each element based on the above twisting moment values, using the same methodology as in Section 6.5.5:

Element 872 limit-time	= 6.58	residual capacity	= 232,000 lb.
Element 876 limit-time	> 7.00	residual capacity	> 400,000 lb.
Element 880 limit-time	= 6.36	residual capacity	= 144,000 lb.

Therefore, the residual capacity limited by twisting moment is reduced to 144,000 lb. based on the above analysis.

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6.7 Capacity Summary

Analyses were performed to determine the residual capacity of tank 241-C-106 for an internal concentrated transverse load on the tank wall or tank slab. The internal load represents a potential impulsive load from equipment used during Past-Practice-Sluicing (PPS) operations. The analyses considered soil-surface live loads specific to PPS operations as the baseline condition for the capacity determination. The determination was made on the basis of ACI requirements for M-P interaction, construction joints, transverse shear, in-plane shear, and twisting moment.

For the analysis of wall loading, two load locations were selected to envelope the critical load configuration. The load limit for the wall was found to be a function of the concentrated load diameter with a maximum value of 144,000 lb. Because of high tensile (circumferential) demands in the upper wall, ACI imposes more restrictive limits on transverse shear which results in very low residual capacities. Therefore, it is necessary to limit concentrated wall loads to elevations within 14.5 ft. from the bottom of the tank.

For the analysis of slab loading, four separate concentrated load locations were selected to envelope the critical load configuration. The load limit for the slab was also found to be a function of the concentrated load diameter with a maximum value of 126,000 lb. A complete summary of the load limits is shown on the tables below.

Internal Load Limits

Failure Mode	Location	Limit ¹ (lbf)	Controlling Run
M-P Interaction	Wall	280,000	P2-F2
	Slab	126,000	P4-F1A
Construction Joints	Wall	see note 2	P1-F1A
Transverse Shear	Wall	see notes 3 & 4	n/a
	Slab	see note 5	n/a
In-Plane Shear	Wall	> 280,000	P1-F1A
	Slab	322,000	P6-F1A
Twisting	Wall	144,000	P7-F3
	Slab	126,000	P5-F2

(Notes are given on the next page.)

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Failure Mode Order of Control

WALL	
Failure Mode	Limit (lbf) ¹
Transv. Shear	see notes 3 & 4
Twisting	144,000
Construction Jts.	see note 2
M-P Interaction	280,000
In-Plane Shear	> 280,000

SLAB	
Failure Mode	Limit (lbf) ¹
Transv. Shear	see note 5
M-P Interaction	126,000
Twisting	126,000
In-Plane Shear	322,000

Notes

- The tabulated limits have not been reduced by ACI or dynamic load factors.
- The internal load limits imposed by construction joints are a function of the concentrated load diameter, in a manner similar to the transverse shear limit. Section 6.5.3 shows that the transverse shear limits are more restricting than the construction joint limits. Therefore, the construction joint limit is not provided here.
- The wall limit imposed by transverse shear allowables is to be determined by,

$$\phi V_c = 5936D + 52240$$

where "D" is the diameter of the impulsive load *and* is limited to 15.5 in., beyond which the limit imposed by twisting of 144,000 lb. is controlling.

- Concentrated loads are to be applied no higher than 14.5 ft. above the bottom of the tank.
- The slab limit imposed by transverse shear allowables is to be determined by,

$$\phi V_c = 1255D + 2510$$

where "D" is the diameter of the impulsive load. The limit on "D" imposed by M-P interaction is 98 in., which is beyond the practical range.

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Table 6.1-1. File Descriptions for Analysis of Impact Load at Upper-Wall

FILE ¹	DESCRIPTION
P1-F1A.abdat	ABAQUS Input file for 500,000 lb concentrated outward load to upper wall. Load at a node along positive 1-axis, elevation 236". Restart of PPS-F1A analysis (factored load case 1a of in situ + PPS loading).
P1-F1A.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P1-F1AP.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P1-F1AP.about	Element demand history results.
P1-F1AP.xls	EXCEL spreadsheet to convert element demand to per-foot values.
MP1-F1AP.xlc	Meridional M-P interaction diagram: Demand history for elements 1313 & 1305 from impact loading (P1-F1AP.xls). Demand for elements 1313 & 1305 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 6 (LBINT_IP.xls & SECT6.xls). ³
CP1-F1AP.xlc	Circumferential M-P interaction diagram: Demand history for element 1313 from impact loading (P1-F1AP.xls). Demand for element 1313 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 6 (LBINT_OP.xls & SECT6O.xls). ³
P1-F1AT.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P1-F1AT.about	Element in-plane shear and twisting history results.

Notes for Table 6.1-1

1. All files other than the .xlc plots are included as Attachment 1 to this appendix.
2. File PPS-F1AP.xls is from Appendix A to this report.
3. File references for section capacities in the .xlc plot descriptions that are not listed in the left column are from Appendix B of WHC-SD-W340-ANAL-001 (Marlow, 1994).

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Table 6.1-2. File Descriptions for Analysis of Impact Load at Lower-Wall

FILE ¹	DESCRIPTION
P2-F2.abdat	ABAQUS Input file for 400,000 lb concentrated outward load to lower wall. Load at a node along positive 2-axis, elevation 50.8". Restart of PPS-F2 analysis (factored load case 2 of in situ + PPS loading).
P2-F2.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P2-F2P.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P2-F2P.about	Element demand history results.
P2-F2P.xls	EXCEL spreadsheet to convert element demand to per-foot values.
MP2-F2P.xlc	Meridional M-P interaction diagram: Demand history for element 876 from impact loading (P2-F2P.xls). Demand for element 876 from baseline PPS analysis (PPS-F2P.xls). ² Capacity at section 4 (LBINT_IP.xls & SECT4.xls). ³
CP2-F2P.xlc	Circumferential M-P interaction diagram: Demand history for element 876 from impact loading (P2-F2P.xls). Demand for element 876 from baseline PPS analysis (PPS-F2P.xls). ² Capacity at section 4 (LBINT_OP.xls). ³
SECT4.xls	EXCEL spreadsheet to calculate additional meridional M-P capacity points at section 4.
P2-F2T.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P2-F2T.about	Element in-plane shear and twisting history results.

Notes for Table 6.1-2

1. All files other than the .xlc plots are included as Attachment 2 to this appendix.
2. File PPS-F2P.xls is from Appendix A to this report.
3. File references for section capacities in the .xlc plot descriptions that are not listed in the left column are from Appendix B of WHC-SD-W340-ANAL-001 (Marlow, 1994).

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Table 6.1-3. File Descriptions for Analysis of Impact Load at Slab-Center

FILE ¹	DESCRIPTION
P3-F1A.abdat	ABAQUS Input file for 350,000 lb concentrated downward load on slab-center. Restart of PPS-F1A analysis (factored load case 1a of in situ + PPS loading).
P3-F1A.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P3-F1AP.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P3-F1AP.about	Element demand history results.
P3-F1AP.xls	EXCEL spreadsheet to convert element demand to per-foot values.
MP3-F1AP.xlc	Meridional M-P interaction diagram: Demand history for elements 289 & 1 from impact loading (P3-F1AP.xls). Demand for elements 289 & 1 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 1 (LBINT_IP.xls). ³
CP3-F1AP.xlc	Circumferential M-P interaction diagram: Demand history for elements 289 & 1 from impact loading (P3-F1AP.xls). Demand for elements 289 & 1 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 1 (LBINT_OP.xls). ³
P3-F1AT.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P3-F1AT.about	Element in-plane shear and twisting history results.

Notes for Table 6.1-3

1. All files other than the .xlc plots are included as Attachment 3 to this appendix.
2. File PPS-F1AP.xls is from Appendix A to this report.
3. File references for section capacities in the .xlc plot descriptions that are not listed in the left column are from Appendix B of WHC-SD-W340-ANAL-001 (Marlow, 1994).

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 (8) Originator Phillip R. Zick Date 9/30/94
 (9) Checker SBKOK Date 9/30/94

Table 6.1-4. File Descriptions for Analysis of Impact Load 11.9 ft. from Slab-Center

FILE ¹	DESCRIPTION
P4-F1A.abdat	ABAQUS Input file for 350,000 lb concentrated downward load on the slab. Load at a node along positive 1-axis, 11.9 ft. from slab-center. Restart of PPS-F1A analysis (factored load case 1a of in situ + PPS loading).
P4-F1A.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P4-F1AP.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P4-F1AP.about	Element demand history results.
P4-F1AP.xls	EXCEL spreadsheet to convert element demand to per-foot values.
MP4-F1AP.xlc	Meridional M-P interaction diagram: Demand history for elements 301 & 1257 from impact loading (P4-F1AP.xls). Demand for elements 301 & 1257 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 1 (LBINT_IP.xls). ³
CP4-F1AP.xlc	Circumferential M-P interaction diagram: Demand history for elements 301 & 1257 from impact loading (P4-F1AP.xls). Demand for elements 301 & 1257 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 1 (LBINT_OP.xls). ³
P4-F1AT.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P4-F1AT.about	Element in-plane shear and twisting history results.

Notes for Table 6.1-4

1. All files other than the .xlc plots are included as Attachment 4 to this appendix.
2. File PPS-F1AP.xls is from Appendix A to this report.
3. File references for section capacities in the .xlc plot descriptions that are not listed in the left column are from Appendix B of WHC-SD-W340-ANAL-001 (Marlow, 1994).

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Table 6.1-5. File Descriptions for Analysis of Impact Load 19.25 ft. from Slab-Center

FILE ¹	DESCRIPTION
P5-F2.abdat	ABAQUS Input file for 350,000 lb concentrated downward load on the slab. Load at a node along positive 2-axis, 19.25 ft. from slab-center. Restart of PPS-F2 analysis (factored load case 2 of in situ + PPS loading).
P5-F2.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P5-F2P.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P5-F2P.about	Element demand history results.
P5-F2P.xls	EXCEL spreadsheet to convert element demand to per-foot values.
MP5-F2P.xlc	Meridional M-P interaction diagram: Demand history for elements 848 & 852 from impact loading (P5-F2P.xls). Demand for elements 848 & 852 from baseline PPS analysis (PPS-F2P.xls). ² Capacity at section 1 (LBINT_IP.xls). ³
CP5-F2P.xlc	Circumferential M-P interaction diagram: Demand history for elements 848 & 852 from impact loading (P5-F2P.xls). Demand for elements 848 & 852 from baseline PPS analysis (PPS-F2P.xls). ² Capacity at section 1 (LBINT_OP.xls). ³
P5-F2T.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P5-F2T.about	Element in-plane shear and twisting history results.

Notes for Table 6.1-5

1. All files other than the .xlc plots are included as Attachment 5 to this appendix.
2. File PPS-F2P.xls is from Appendix A to this report.
3. File references for section capacities in the .xlc plot descriptions that are not listed in the left column are from Appendix B of WHC-SD-W340-ANAL-001 (Marlow, 1994).

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 (8) Originator Phillip R. Neil Date 9/30/94
 (9) Checker SB KOK Date 9/30/94

Table 6.1-6. File Descriptions for Analysis of Impact Load 33.9 ft. from Slab-Center

FILE ¹	DESCRIPTION
P6-F1A.abdat	ABAQUS Input file for 350,000 lb concentrated downward load on the slab. Load at a node along positive 1-axis, 33.9 ft. from slab-center. Restart of PPS-F1A analysis (factored load case 1a of in situ + PPS loading).
P6-F1A.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P6-F1AP.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P6-F1AP.about	Element demand history results.
P6-F1AP.xls	EXCEL spreadsheet to convert element demand to per-foot values.
MP6-F1AP.xlc	Meridional M-P interaction diagram: Demand history for elements 1277 from impact loading (P6-F1AP.xls). Demand for elements 1277 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 2 (LBINT_IP.xls). ³
CP6-F1AP.xlc	Circumferential M-P interaction diagram: Demand history for elements 1277 from impact loading (P6-F1AP.xls). Demand for elements 1277 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 2 (LBINT_OP.xls & SECT2TOP.xls). ³
MAP6-F1AP.xlc	Meridional M-P interaction diagram: Demand history for elements 1281 from impact loading (P6-F1AP.xls). Demand for elements 1281 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 2a (LBINT_IP.xls & SEC2ABOT.xls). ³
CAP6-F1AP.xlc	Circumferential M-P interaction diagram: Demand history for elements 1281 from impact loading (P6-F1AP.xls). Demand for elements 1281 from baseline PPS analysis (PPS-F1AP.xls). ² Capacity at section 2a (LBINT_OP.xls). ³
P6-F1AT.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P6-F1AT.about	Element in-plane shear and twisting history results.

Notes for Table 6.1-6

1. All files other than the .xlc plots are included as Attachment 6 to this appendix.
2. File PPS-F1AP.xls is from Appendix A to this report.
3. File references for section capacities in the .xlc plot descriptions that are not listed in the left column are from Appendix B of WHC-SD-W340-ANAL-001 (Marlow, 1994).

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 (9) Checker B. Kirk Date 10/17/94

Table 6.5-1. Residual Capacities for Construction Joint Limits

Concentrated Load Diameter, D (in.)	Allowable Shear, ϕV_n (lb) ^{1,2}	Limiting Time Point ^{3,4}	Reduction Factor	Total Load (lb)	Residual Capacity (lb) ⁵
upper joint					
0	11,524	4.16	0.16	500,000	80,000
2	11,932	4.18	0.18	500,000	90,000
4	12,340	4.22	0.22	500,000	110,000
6	12,748	4.24	0.24	500,000	120,000
10	13,565	4.30	0.30	500,000	150,000
15	14,585	4.36	0.36	500,000	180,000
20	15,605	4.44	0.44	500,000	220,000
lower joint					
0	13,607	5.60	0.60	400,000	240,000
2	13,923	5.60	0.60	400,000	240,000
4	14,238	5.62	0.62	400,000	248,000
6	14,554	5.62	0.62	400,000	248,000
10	15,185	5.64	0.64	400,000	256,000
15	15,974	5.66	0.66	400,000	264,000
20	16,763	5.68	0.68	400,000	272,000

Notes for Table 6.5-1

- Allowable shear load for the upper joint is calculated as $(204.1D + 11524)$ per Section 6.5.3.
- Allowable shear load for the lower joint is calculated as $(157.8D + 13607)$ per Section 6.5.3.
- The limiting time point for the upper joint is determined from element 1313 V23 demand history given in Attachment 1, file P1-F1AP.xls.
- The limiting time point for the lower joint is determined from element 872 V23 demand history given in Attachment 2, file P2-F2P.xls.
- The residual capacity is computed as the product of the Reduction Factor and the Total (applied) Load.

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 (9) Checker SB KOK Date 10/17/94

Table 6.5-2. Check of In-Plane Shear for Wall and Slab-Loaded Cases

(Per ACI-349 Section 11.10)

Run ID	Element	fc	thickness	min Nu lb/ft	phi*Vc	shear demand		phi*Vc/2 lb/ft
						SF3 lb/in	SF3 lb/ft	
wall-loaded cases								
P1-F1A	1305	4413	12.00	-25140	21490	219.5	2634	10745
	1309	4433	12.00	-44520	17432	208.3	2500	8716
	1313	4443	12.00	-21372	22381	869.7	10436	11190
P2-F2	872	3795	18.30	-25488	32529	494.1	5929	16264
	876	3912	12.30	-1993	25470	676.4	8117	12735
	880	4073	12.00	89	25796	276.6	3319	12898
slab-loaded cases								
P3-F1A	289	3317	6.00	13716	14546	56.14	674	7273
	1	3317	6.00	13704	14543	59.25	711	7272
	161	3317	6.00	13716	14546	131.0	1572	7273
	291	3321	6.00	10080	13781	72.10	865	6890
	4	3321	6.00	10844	13943	62.91	755	6971
	164	3321	6.00	10261	13819	56.77	681	6910
P4-F1A	301	3343	6.00	13500	14546	313.3	3760	7273
	1257	3361	6.00	11284	14105	363.7	4364	7053
P5-F2	848	3382	6.00	23316	16700	303.8	3646	8350
	852	3421	6.00	22764	16649	438.0	5256	8325
P6-F1A	1277	3610	6.00	-24	12128	621.6	7459	6064
	1281	3747	16.49	-3595	33212	1198	14376	16606

Notes:

1. Shear demand is taken from ABAQUS output files P1-F1AT.abo, P2-F2T.abo, P3-F1AT.abo, P4-F1AT.abo, P5-F2T.abo, and P6-F1AT.abo.
2. Minimum in-plane axial forces, Nu, are taken from files P1-F1AP.xls, P2-F2P.xls, P3-F1AP.xls, P4-F1AP.xls, P5-F2P.xls, and P6-F1AT.xls.
3. P1-F1A shear demand and Nu values are limited for time-points through 4.56, which is the failure point based on meridional MP interaction at the base of the wall.
4. P2-F2 shear demand and Nu values are limited for time-points through 5.70, which is the failure point based on meridional MP interaction at the base of the wall.
5. Shaded cells indicate that demand exceeds capacity for the element.

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 (9) Checker SB KOK Date 10/17/94

Table 6.5-3. Check of Twisting for Wall and Slab-Loaded Cases
(Per ACI-349 Section 11.6)

Run ID	Element	twist demand		T threshold
		SM3 lb-in / in	SM3 lb-in / ft	
wall-loaded cases				
P1-F1A	1305	2779	33348	48786
	1309	4527	54324	48896
	1313	3248	38976	48949
P2-F2	872	12026	144312	105212
	876	3022	36264	48256
	880	5750	69000	46867
slab-loaded cases				
P3-F1A	289	87.07	1045	10754
	1	150.9	1811	10754
	161	538.3	6460	10754
	291	156.7	1880	10581
	4	142.5	1710	10581
	164	135.7	1628	10581
P4-F1A	301	301.1	3613	10616
	1257	704.7	8456	10643
P5-F2	848	1056	12672	10677
	852	1287.0	15444	10738
P6-F1A	1277	728.4	8741	11031
	1281	10442	125304	84899

Notes:

1. Twist demand is taken from ABAQUS output files P1-F1AT.abo, P2-F2T.abo, P3-F1AT.abo, P4-F1AT.abo, P5-F2T.abo, and P6-F1AT.abo.
2. P1-F1A twist demands are limited for time-points through 4.56, which is the failure point based on meridional MP interaction at the base of the wall.
3. P2-F2 twist demands are limited for time-points through 5.70, which is the failure point based on meridional MP interaction at the base of the wall.
4. Shaded cells indicate that demand exceeds the threshold for the element.

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 (8) Originator Phillip R. Rich Date 8/23/94
 (9) Checker SB/KOK Date 8/24/94

Table 6.6-1. File Descriptions for Analysis of Impact Load at Lower Wall using Factored Load Case 3 as Baseline State

FILE ¹	DESCRIPTION
P7-F3.abdat	ABAQUS Input file for 400,000 lb concentrated outward load to lower wall. Load at a node along positive 2-axis, elevation 50.8". Restart of PPS-F3 analysis (factored load case 3 of in situ + PPS loading).
P7-F3.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P7-F3P.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P7-F3P.about	Element demand history results.
P7-F3P.xls	EXCEL spreadsheet to convert element demand to per-foot values.
P7-F3T.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P7-F3T.about	Element in-plane shear and twisting history results.

Notes for Table 6.6-1

1. All files are included as Attachment 7 to this appendix.

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 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator D. Sullivan R. Hyatt Date 8/23/94
 (9) Checker SBKOK Date 8/24/94

Table 6.6-2. File Descriptions for Analysis of Impact Load 11.9 ft. from Slab Center using Factored Load Case 3 as Baseline State

FILE ¹	DESCRIPTION
P8-F3.abdat	ABAQUS Input file for 350,000 lb concentrated downward load on the slab. Load at a node along positive 1-axis, 11.9 ft. from slab-center. Restart of PPS-F3 analysis (factored load case 3 of in situ + PPS loading).
P8-F3.cvg	Force tolerance convergence summary extracted from ABAQUS output file.
P8-F3P.abdat	ABAQUS input file for extracting element demands (membrane forces, transverse shear, and bending moments) from the history file.
P8-F3P.about	Element demand history results.
P8-F3P.xls	EXCEL spreadsheet to convert element demand to per-foot values.
P8-F3T.abdat	ABAQUS input file for extracting element demand (in-plane shear and twisting) from the history file.
P8-F3T.about	Element in-plane shear and twisting history results.

Notes for Table 6.6-2

1. All files are included as Attachment 8 to this appendix.

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Figure 6.1-1. Displaced Shape of Tank 241-C-106 for Factored Load Case 1a

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 (7) Subject Operational Impact / Impulsive Load Analysis
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 (9) Checker S B KOK Date 8/24/94

Figure 6.1-2. Displaced Shape of Tank 241-C-106 for Factored Load Case 1b

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 (8) Originator Phillip R. Xuh Date 8/23/94
 (9) Checker S.B. KOLC Date 8/24/94

Figure 6.1-3. Displaced Shape of Tank 241-C-106 for Factored Load Case 2

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(7) Subject Operational Impact / Impulsive Load Analysis
(8) Originator Phillip R. Kuhl Date 8/23/94
(9) Checker SB EOK Date 8/24/94

Figure 6.1-4. Displaced Shape of Tank 241-C-106 for Factored Load Case 3

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 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Ryck Date 8/23/94
 (9) Checker SB KOK Date 8/24/94

Figure 6.3-1. Comparison of Moments in Floor Elements

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 (8) Originator Philip R. Kuch Date 8/26/94
 (9) Checker SB KOK Date 8/26/94

Figure 6.4-1 Convergence Indicator for Analysis P7-F3

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 (9) Checker SB EOK Date 8/24/94

Figure 6.5-1. Meridional M-P Interaction Diagram for Upper Wall Section & Load Case 1a PPS Demands

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 (8) Originator Phillip R. Kirk Date 8/23/94
 (9) Checker S.B. KOK Date 8/24/94

Figure 6.5-2. Circumferential M-P Diagram for Upper Wall
Section & Load Case 1a PPS Loading Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page ____ of ____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Zisch Date 8/23/94
 (9) Checker SBKOK Date 8/24/94

Figure 6.5-3. Meridional M-P Interaction Diagram for Lower Wall Sections & Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Philip R. Kuhl Date 8/23/94
 (9) Checker SBK/IC Date 8/24/94

Figure 6.5-4. Circumferential M-P Interaction Diagram for Lower Wall Sections & Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Zech Date 8/23/94
 (9) Checker SB KOK Date 8/24/94

Figure 6.5-5. Meridional M-P Interaction Diagram for Center Slab
Section & Load Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Zuh Date 8/23/94
 (9) Checker SB/KOK Date 8/24/94

Figure 6.5-6. Circumferential M-P Interaction Diagram for Center Slab Section & Load Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Yach Date 8/23/94
 (9) Checker SB KOK Date 8/24/94

Figure 6.5-7. Meridional M-P Interaction Diagram for Slab Sections & Load Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Kuh Date 8/22/94
 (9) Checker SB KOK Date 8/24/94

Figure 6.5-8. Circumferential M-P Interaction Diagram for Slab Sections & Load Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Kysh Date 8/23/94
 (9) Checker SB EOK Date 8/24/94

Figure 6.5-9. Meridional M-P Interaction Diagram for Slab Sections & Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Lytle Date 2/23/94
 (9) Checker SB/KOK Date 8/24/94

Figure 6.5-10. Circumferential M-P Interaction Diagram for Slab Sections & Load Case 2 PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Hub Date 8/23/94
 (9) Checker SB KOK Date 8/24/94

Figure 6.5-11. Meridional M-P Interaction Diagram for Outer-Perimeter Slab Section & Load Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Philip R. Ziel Date 8/23/94
 (9) Checker SB FOR Date 8/24/94

Figure 6.5-12. Circumferential M-P Interaction Diagram for Outer-Perimeter Slab Section & Load 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Zych Date 8/23/94
 (9) Checker SB/KOK Date 8/24/94

Figure 6.5-13. Meridional M-P Interaction Diagram for Slab / Wall Interface Section & Load Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Philip R. Xie Date 8/23/94
 (9) Checker SB KOK Date 8/24/94

Figure 6.5-14. Circumferential M-P Interaction Diagram for Slab / Wall Interface Section & Case 1a PPS Demands

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page ____ of ____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator Phillip R. Kuhl Date 10/17/94
 (9) Checker A. Adelle Date 10/17/94

Figure 6.5-15. Comparison of Residual Capacity Limits

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator P. L. L. L. Date 10/17/94
 (9) Checker Albert L. L. Date 10/17/94

7.0 IMPULSIVE AND IMPACT LOAD LIMITS

Impulse Loads

For impulsive loads the load rise time and duration are currently unspecified. To conservatively address all possible impulsive loads they are treated as having long duration and with a rise time short compared to the fundamental structural modes of the tank slab and wall. Thus a dynamic amplification factor of 2.0 is combined with the ACI live load factor of 1.7 to yield a combined factor of 3.4. From Section 6.5.2 the peak transverse force (F_T) associated with the impulsive environment is limited by the following expressions.

$$F_{T(\text{slab})} \leq \frac{\phi V_c}{3.4} = (738 + 369D) \text{ lbf and}$$

$$F_{T(\text{wall})} \leq \frac{\phi V_C}{3.4} = 15,365 + 1,745D \text{ lbf}$$

for $D < 15.5 \text{ in.}$

Otherwise, $F_{T(\text{wall})} < 42,350 \text{ lbf}$

Impact Loads

The limits for impact environments are generated by identifying impact conditions which prevent excessive damage to both the steel liner and the tank structure. These limits are presented for several different missile weights (W) and take the form of allowable impact velocities as a function of missile diameter.

The steel liner damage limit is specified as a penetration of one-half the liner thickness (.125 in.). Steel liner penetration restricts the allowable impact velocities at small missile diameters. Concrete damage is restricted by prevention of rear surface scabbing. Preventing concrete damage restricts allowable impact velocities at large missile diameters. This is seen in Figures 7-1 and 7-2, where the steel liner penetration velocity limit curve crosses the concrete limit curve. The restrictions are not developed from data using extremely large diameter missiles or thin targets. Thus a missile diameter equal to the thickness of the tank wall (12 in.) is a reasonable upper limit for missile diameter.

Using Figures 7-1 and 7-2, it is suggested that the cognizant engineer:

- verify acceptability of the penetration criteria used for these limits.
- identify weight and diameter ranges for potential impactors
- identify the controlling impact velocity from the appropriate figure.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Operational Impact / Impulsive Load Analysis
(8) Originator A. Sedile Date 2/17/84
(9) Checker W. J. J. J. Date 10/1/84

Figure 7-1 DAMAGE MAP FOR TANK SLAB

PEN2.XLC

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Operational Impact / Impulsive Load Analysis
 (8) Originator A. A. A. A. Date 10/17/94
 (9) Checker W. H. J. J. Date 10/17/94

Figure 7-2 DAMAGE MAP FOR TANK WALL

ATTACHMENT 1

FILES RELATED TO TANK UPPER-WALL RESIDUAL CAPACITY DETERMINATION

Prepared by: Phillip R. Kich 8/23/94
Date

Checked by: SB/KOK 8/24/94
Date

P1-F1A.abdat

```
*HEADING
P1-F1A.ABD (7/5/94): RESTART PPS-F1A FOR IMPACT LOAD ON UPPER WALL AT +1-AXIS
**
*RESTART,READ,STEP=4,INC=20,WRITE,FREQ=50
*ELSET, ELSET=PUMP1
1313, 1309, 1305
*NSET, NSET=LOADPT
1803
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.01,1.
*CLOAD
1803, 1, 250000
*ELFILE, ELSET=PUMP1, FREQUENCY=2
SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
U
*END STEP
```

P1-F1A.cvg

step, increm, iter, status, resx, resy, resz

```

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5, 2, 1, CONVERGENT, .602, 2.48, -3.30
5, 3, 1, CONVERGENT, .601, 2.46, -3.27
5, 4, 1, CONVERGENT, .600, 2.44, -3.25
5, 5, 1, CONVERGENT, .599, 2.43, -3.23
5, 6, 1, NO, 179., 4.530E+03, 77.1
5, 6, 2, NO, -766., 1.946E+04, -243.
5, 6, 3, NO, 677., 1.183E+04, 1.008E+03
5, 7, 1, NO, -2.531E+03, 2.137E+04, -1.566E+04
5, 7, 2, NO, -577., 4.875E+03, 4.185E+03
5, 7, 3, NO, -1.295E+03, 1.094E+04, 1.136E+03
5, 8, 1, CONVERGENT, -4.00, 33.8, 43.9
5, 9, 1, CONVERGENT, .624, 2.58, 5.35
5, 10, 1, CONVERGENT, .622, 2.46, 5.09
5, 11, 1, NO, 2.712E+03, 1.620E+04, -308.
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5, 11, 3, NO, -86.6, 673., 3.58
5, 12, 1, CONVERGENT, -1.50, 2.91, 4.90
5, 13, 1, NO, 31.0, 822., 7.839E+03
5, 13, 2, NO, 7.79, 204., 1.944E+03
5, 13, 3, NO, 1.96, 50.7, 482.
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5, 15, 1, CONVERGENT, .624, 2.70, 4.55
5, 16, 1, CONVERGENT, .623, 2.76, 4.48
5, 17, 1, CONVERGENT, .623, 2.83, 4.43
5, 18, 1, NO, 7.676E+03, -1.457E+04, -339.
5, 18, 2, NO, 1.611E+03, 3.208E+03, -52.6
5, 18, 3, NO, 342., 706., 8.16
5, 19, 1, NO, -1.834E+03, 4.971E+03, -6.324E+03
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5, 20, 3, NO, -4.655E+03, 1.151E+04, 404.
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5, 23, 1, CONVERGENT, .645, 3.36, 4.28
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5, 25, 1, CONVERGENT, .644, 3.55, 4.23
5, 26, 1, CONVERGENT, .643, 3.65, 4.21
5, 27, 1, NO, -659., 5.562E+03, 6.042E+03
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5, 28, 1, NO, 106., 2.695E+03, -7.159E+03
5, 28, 2, NO, 57.2, 1.530E+03, 2.922E+04
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5, 32, 3, NO, -7.34, 62.0, -240.
5, 33, 1, NO, -7.901E+03, 1.714E+04, -1.123E+03
5, 33, 2, NO, -3.394E+03, 7.359E+03, 506.
5, 33, 3, NO, -1.455E+03, 3.155E+03, 226.
5, 34, 1, NO, 2.051E+03, 5.205E+03, -5.360E+03
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5, 34, 3, NO, -263., 569., -368.
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5, 36, 3, NO, 63.3, -572., 9.315E+03
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5, 38, 3, NO, 2.217E+04, 1.178E+04, 215.
5, 39, 1, NO, 2.935E+03, -3.175E+03, -28.1
5, 39, 2, NO, -1.026E+03, 1.109E+03, 10.8
5, 39, 3, NO, -357., 386., 4.22

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 5, 42, 2, NO, -3.035E+03, 1.526E+04, 1.435E+03
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 5, 48, 2, NO, -1.285E+03, 1.085E+04, -7.699E+03
 5, 48, 3, NO, -4.162E+03, -2.378E+04, -4.004E+03
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 5, 49, 3, NO, 1.514E+03, -1.278E+04, -3.866E+03
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 5, 58, 3, NO, -1.005E+04, -2.274E+04, 1.567E+03
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 5, 65, 1, CONVERGENT, .626, -3.67, -6.87
 5, 66, 1, CONVERGENT, .627, -3.69, -6.86
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 5, 73, 2, NO, -103., 886., 1.708E+04
 5, 73, 3, NO, 1.018E+04, -1.818E+04, 9.428E+03
 5, 74, 1, NO, 4.199E+03, -7.501E+03, -1.552E+04
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5, 84, 3, NO, 1.466E+04, 3.613E+04, -5.926E+03
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5, 97, 2, CONVERGENT, .164, -.756, 4.09
5, 98, 1, NO, 3.69, -2.60, 365.
5, 98, 2, CONVERGENT, .162, -.748, 4.09
5, 99, 1, NO, 5.448E+03, -645., 594.
5, 99, 2, NO, 2.212E+04, -2.620E+03, -1.620E+03
5, 99, 3, NO, 2.068E+04, -2.449E+03, -1.296E+03
5, 100, 1, NO, 2.112E+04, -2.501E+03, 653.
5, 100, 2, NO, 1.366E+04, 1.618E+03, -360.
5, 100, 3, NO, -7.789E+03, 923., -229.
step, increm, iter, status, resx, resy, resz

```

P1-F1AP.abdat

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*HEADING
Postprocess p1-f1a.fil for history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-1305, 1305
SF2, P2-1305, 1305
SF4, V13-1305, 1305
SF5, V23-1305, 1305
SM1, M22-1305, 1305
SM2, M11-1305, 1305
**
*PRINT HISTORY
SF1, P1-1309, 1309
SF2, P2-1309, 1309
SF4, V13-1309, 1309
SF5, V23-1309, 1309
SM1, M22-1309, 1309
SM2, M11-1309, 1309
**
*PRINT HISTORY
SF1, P1-1313, 1313
SF2, P2-1313, 1313
SF4, V13-1313, 1313
SF5, V23-1313, 1313
SM1, M22-1313, 1313
SM2, M11-1313, 1313
**
*PRINT HISTORY
U1, U1-1803, 1803
U2, U2-1803, 1803
U3, U3-1803, 1803
```

P1-F1AP.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 6-Jul-94

TIME 08:19:00

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p1-f1a.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

POST - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1305	2.095E+03	4.40	-462.	5.00
2 P2-1305	-3.039E+03	4.70	-3.810E+03	4.82
3 V13-1305	24.1	4.26	-22.7	4.62
4 V23-1305	-111.	4.02	-299.	4.70
5 M22-1305	5.229E+03	5.00	-1.523E+03	4.44
6 M11-1305	-1.307E+04	4.06	-1.963E+04	4.70

TIME	VARIABLE	1	2	3	4	5	6
4.020	-300.6	-3737.	-11.44	-110.8	-1488.	-1.3163E+04	
4.040	-270.4	-3695.	-9.278	-114.2	-1303.	-1.3250E+04	
4.060	169.6	-3590.	-8.658	-144.0	-366.5	-1.3075E+04	
4.080	1239.	-3591.	3.942	-198.9	569.8	-1.3247E+04	
4.100	1318.	-3549.	6.522	-204.3	801.3	-1.3375E+04	
4.120	1400.	-3505.	9.076	-209.7	1035.	-1.3514E+04	
4.140	1482.	-3474.	10.35	-210.5	1257.	-1.3914E+04	
4.160	1561.	-3432.	12.84	-215.4	1485.	-1.4066E+04	
4.180	1642.	-3391.	15.30	-220.4	1716.	-1.4222E+04	
4.200	1607.	-3378.	15.95	-216.2	1964.	-1.3553E+04	
4.220	1664.	-3340.	18.99	-220.8	2164.	-1.3683E+04	
4.240	1742.	-3300.	21.54	-225.5	2392.	-1.3821E+04	
4.260	1820.	-3260.	24.11	-230.2	2620.	-1.3960E+04	
4.280	1784.	-3326.	19.02	-229.5	3135.	-1.3847E+04	
4.300	1707.	-3378.	9.104	-219.2	2008.	-1.4867E+04	
4.320	1747.	-3330.	7.122	-220.2	2259.	-1.5021E+04	
4.340	1910.	-3281.	3.657	-219.4	2037.	-1.5250E+04	
4.360	1965.	-3344.	1.836	-215.2	2179.	-1.5839E+04	
4.380	2031.	-3325.	5.648	-214.2	2366.	-1.6284E+04	
4.400	2095.	-3309.	6.578	-216.3	2531.	-1.6535E+04	
4.420	1357.	-3401.	-2.861	-227.2	-1432.	-1.6341E+04	
4.440	1441.	-3426.	-3.291	-230.0	-1523.	-1.6556E+04	
4.460	1483.	-3414.	-3.050	-232.5	-1522.	-1.6796E+04	
4.480	1116.	-3296.	-14.09	-252.6	-173.1	-1.6924E+04	
4.500	603.6	-3246.	-22.03	-265.4	1034.	-1.7082E+04	
4.520	617.9	-3222.	-21.81	-268.8	1113.	-1.7332E+04	
4.540	632.8	-3198.	-21.56	-272.2	1190.	-1.7583E+04	
4.560	647.7	-3175.	-21.30	-275.5	1267.	-1.7835E+04	
4.580	680.1	-3164.	-21.99	-279.8	1306.	-1.8115E+04	
4.600	693.4	-3150.	-22.06	-283.1	1375.	-1.8349E+04	
4.620	701.8	-3122.	-22.70	-285.9	1451.	-1.8573E+04	
4.640	717.9	-3099.	-22.65	-289.1	1523.	-1.8825E+04	
4.660	734.0	-3077.	-22.60	-292.4	1595.	-1.9079E+04	
4.680	742.7	-3062.	-21.33	-295.7	1661.	-1.9372E+04	
4.700	759.1	-3039.	-21.29	-299.1	1731.	-1.9625E+04	
4.720	652.3	-3253.	-11.43	-270.8	2278.	-1.8041E+04	
4.740	617.3	-3233.	5.138	-243.4	2656.	-1.8127E+04	
4.760	630.1	-3220.	5.688	-244.1	2745.	-1.8377E+04	
4.780	643.0	-3210.	6.175	-244.3	2832.	-1.8649E+04	
4.800	656.0	-3200.	6.660	-244.5	2919.	-1.8923E+04	
4.820	-176.7	-3810.	4.314	-255.3	3751.	-1.6084E+04	
4.840	-312.4	-3517.	2.800	-260.3	4271.	-1.6339E+04	
4.860	-324.0	-3519.	3.330	-261.5	4421.	-1.6580E+04	
4.880	-334.4	-3517.	4.557	-262.8	4526.	-1.6772E+04	
4.900	-403.2	-3426.	8.339	-266.5	4639.	-1.6872E+04	
4.920	-415.3	-3424.	8.567	-267.1	4757.	-1.7057E+04	
4.940	-427.0	-3423.	8.819	-267.8	4876.	-1.7245E+04	
4.960	-438.9	-3411.	7.980	-268.1	4995.	-1.7408E+04	

4.980	-450.6	-3408.	8.190	-268.7	5112.	-1.7594E+04
5.000	-462.0	-3406.	8.411	-269.2	5229.	-1.7780E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1309	3.710E+03	4.04	218.	4.70
2 P2-1309	-2.789E+03	4.80	-3.724E+03	4.02
3 V13-1309	490.	5.00	-11.1	4.08
4 V23-1309	-431.	4.02	-640.	4.70
5 M22-1309	8.447E+03	5.00	-5.463E+03	4.06
6 M11-1309	-4.409E+03	4.08	-1.409E+04	5.00

TIME	VARIABLE					
	1	2	3	4	5	6
4.020	3606.	-3724.	1.999	-431.2	-282.5	-5904.
4.040	3710.	-3662.	13.24	-443.3	111.3	-5949.
4.060	1906.	-3622.	5.756	-464.6	-5463.	-5312.
4.080	698.2	-3687.	-11.07	-496.8	-1025.	-4409.
4.100	700.8	-3629.	-2.211	-510.3	-904.0	-4419.
4.120	704.5	-3570.	6.665	-523.9	-783.0	-4440.
4.140	704.9	-3526.	18.27	-531.8	-611.0	-5059.
4.160	707.3	-3469.	27.40	-544.9	-484.8	-5116.
4.180	710.2	-3413.	36.50	-558.1	-358.6	-5178.
4.200	706.3	-3341.	50.32	-561.6	-265.8	-4868.
4.220	703.2	-3281.	59.64	-574.3	-128.2	-4912.
4.240	705.5	-3225.	68.92	-587.3	-1.094	-4962.
4.260	707.7	-3169.	78.20	-600.3	126.4	-5013.
4.280	650.7	-3235.	87.07	-584.7	631.8	-5533.
4.300	629.9	-3350.	104.1	-566.9	1068.	-7573.
4.320	627.2	-3317.	112.1	-573.6	1250.	-7690.
4.340	465.1	-3334.	127.3	-583.5	2401.	-7596.
4.360	436.2	-3436.	142.4	-584.3	2709.	-8751.
4.380	438.0	-3411.	151.6	-590.9	2880.	-9202.
4.400	432.4	-3392.	162.1	-599.6	3064.	-9519.
4.420	487.0	-3401.	171.5	-584.8	3346.	-9408.
4.440	480.9	-3409.	185.2	-589.0	3515.	-9682.
4.460	484.3	-3395.	196.0	-596.7	3672.	-9966.
4.480	450.3	-3333.	182.7	-582.2	4021.	-9645.
4.500	259.7	-3167.	208.9	-577.0	3857.	-9604.
4.520	258.7	-3146.	218.4	-583.9	4030.	-9852.
4.540	258.1	-3125.	228.0	-590.9	4203.	-1.0103E+04
4.560	257.5	-3103.	237.5	-597.8	4375.	-1.0355E+04
4.580	246.6	-3093.	248.0	-604.3	4556.	-1.0632E+04
4.600	239.4	-3078.	258.7	-610.7	4723.	-1.0887E+04
4.620	235.5	-3055.	269.3	-617.0	4871.	-1.1130E+04
4.640	234.1	-3033.	279.1	-623.7	5031.	-1.1384E+04
4.660	232.9	-3012.	288.9	-630.3	5191.	-1.1639E+04
4.680	219.1	-2976.	302.3	-633.9	5391.	-1.2036E+04
4.700	217.9	-2954.	312.2	-640.5	5549.	-1.2292E+04
4.720	249.8	-3034.	334.4	-629.8	5742.	-1.1961E+04
4.740	319.3	-2836.	340.9	-614.8	5758.	-1.2400E+04
4.760	321.2	-2817.	351.2	-619.3	5917.	-1.2735E+04
4.780	322.6	-2803.	361.4	-623.3	6081.	-1.3114E+04
4.800	324.1	-2789.	371.7	-627.2	6244.	-1.3498E+04
4.820	314.2	-3052.	389.8	-597.3	6715.	-1.2020E+04
4.840	278.4	-3217.	404.3	-585.1	7067.	-1.1317E+04
4.860	281.9	-3214.	416.3	-588.9	7286.	-1.1680E+04
4.880	282.1	-3207.	426.9	-591.0	7452.	-1.1989E+04
4.900	240.5	-2988.	438.7	-575.1	7608.	-1.2560E+04
4.920	241.4	-2979.	449.2	-577.1	7780.	-1.2875E+04
4.940	242.7	-2970.	459.6	-579.3	7952.	-1.3188E+04
4.960	246.1	-2954.	469.2	-581.9	8105.	-1.3461E+04
4.980	247.4	-2945.	479.6	-583.9	8276.	-1.3775E+04
5.000	249.0	-2935.	490.0	-586.0	8447.	-1.4089E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1313	1.894E+03	4.88	876.	4.02
2 P2-1313	-1.275E+03	5.00	-3.701E+03	4.28
3 V13-1313	2.010E+03	5.00	55.6	4.02
4 V23-1313	-842.	4.02	-1.866E+03	5.00
5 M22-1313	1.522E+04	5.00	57.5	4.02
6 M11-1313	2.479E+04	5.00	1.201E+04	4.02

TIME	VARIABLE					
	1	2	3	4	5	6
4.020	876.4	-3611.	55.56	-841.9	57.46	1.2008E+04
4.040	901.4	-3520.	92.31	-873.1	159.3	1.2681E+04
4.060	1020.	-3447.	118.8	-878.6	412.0	1.3739E+04
4.080	1233.	-3489.	140.6	-846.4	844.5	1.4726E+04
4.100	1267.	-3401.	175.4	-873.1	977.8	1.5440E+04
4.120	1303.	-3313.	210.2	-900.0	1112.	1.6147E+04
4.140	1339.	-3244.	252.3	-927.3	1260.	1.5975E+04
4.160	1372.	-3158.	287.6	-954.0	1395.	1.6622E+04
4.180	1407.	-3072.	322.9	-980.7	1531.	1.7268E+04
4.200	1423.	-2963.	359.4	-998.9	1652.	1.8029E+04
4.220	1452.	-2873.	395.1	-1026.	1783.	1.8683E+04
4.240	1486.	-2786.	430.4	-1052.	1919.	1.9334E+04
4.260	1520.	-2699.	465.6	-1079.	2055.	1.9986E+04
4.280	1560.	-3701.	520.3	-1098.	2289.	1.6392E+04
4.300	1603.	-2840.	585.3	-1124.	2587.	1.6945E+04
4.320	1642.	-2777.	624.3	-1148.	2744.	1.7321E+04
4.340	1680.	-2768.	668.1	-1168.	2925.	1.8026E+04
4.360	1703.	-2960.	720.3	-1197.	3162.	1.7304E+04
4.380	1739.	-2825.	753.3	-1222.	3327.	1.7498E+04
4.400	1772.	-2779.	792.7	-1248.	3492.	1.7754E+04
4.420	1781.	-2716.	833.2	-1261.	4075.	1.7967E+04
4.440	1762.	-2675.	876.8	-1285.	4499.	1.8220E+04
4.460	1765.	-2632.	918.9	-1310.	4856.	1.8488E+04
4.480	1775.	-2618.	962.8	-1320.	5374.	1.8949E+04
4.500	1651.	-2518.	1001.	-1322.	5581.	1.9401E+04
4.520	1654.	-2475.	1043.	-1346.	5966.	1.9685E+04
4.540	1657.	-2432.	1084.	-1370.	6351.	1.9969E+04
4.560	1660.	-2390.	1124.	-1395.	6737.	2.0253E+04
4.580	1686.	-2367.	1167.	-1422.	7044.	2.0607E+04
4.600	1690.	-2335.	1210.	-1448.	7404.	2.0933E+04
4.620	1686.	-2289.	1251.	-1472.	7780.	2.1221E+04
4.640	1687.	-2246.	1293.	-1496.	8146.	2.1504E+04
4.660	1688.	-2202.	1335.	-1521.	8514.	2.1787E+04
4.680	1664.	-2088.	1375.	-1540.	8942.	2.1882E+04
4.700	1665.	-2043.	1417.	-1565.	9311.	2.2164E+04
4.720	1685.	-2054.	1457.	-1579.	9738.	2.2710E+04
4.740	1769.	-1824.	1458.	-1591.	9907.	2.2899E+04
4.760	1771.	-1782.	1499.	-1615.	1.0291E+04	2.3074E+04
4.780	1773.	-1745.	1541.	-1638.	1.0686E+04	2.3185E+04
4.800	1774.	-1707.	1583.	-1662.	1.1082E+04	2.3291E+04
4.820	1842.	-1779.	1635.	-1670.	1.1455E+04	2.3887E+04
4.840	1877.	-1825.	1683.	-1688.	1.1856E+04	2.4365E+04
4.860	1890.	-1785.	1730.	-1718.	1.2357E+04	2.4530E+04
4.880	1894.	-1749.	1773.	-1741.	1.2757E+04	2.4658E+04
4.900	1838.	-1489.	1798.	-1752.	1.3251E+04	2.4246E+04
4.920	1843.	-1447.	1840.	-1775.	1.3651E+04	2.4355E+04
4.940	1848.	-1405.	1882.	-1798.	1.4052E+04	2.4467E+04
4.960	1863.	-1359.	1926.	-1820.	1.4414E+04	2.4567E+04
4.980	1868.	-1317.	1968.	-1843.	1.4816E+04	2.4678E+04
5.000	1873.	-1275.	2010.	-1866.	1.5218E+04	2.4790E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 4

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-1803	.608	5.00	.150	4.02

2	U2-1803	5.023E-35	5.00	6.360E-36	4.02
3	U3-1803	2.139E-02	5.00	-3.084E-02	4.02

TIME	VARIABLE		
	1	2	3
4.020	.1505	6.3604E-36	-3.0844E-02
4.040	.1573	6.5316E-36	-3.0714E-02
4.060	.1659	2.0419E-35	-3.0464E-02
4.080	.1788	7.2499E-36	-2.9691E-02
4.100	.1860	7.5810E-36	-2.9509E-02
4.120	.1934	7.7782E-36	-2.9296E-02
4.140	.2018	7.9666E-36	-2.8494E-02
4.160	.2092	8.1501E-36	-2.8267E-02
4.180	.2166	2.4930E-35	-2.8041E-02
4.200	.2256	2.5457E-35	-2.7604E-02
4.220	.2330	8.7041E-36	-2.7358E-02
4.240	.2404	8.8932E-36	-2.7132E-02
4.260	.2478	9.0826E-36	-2.6907E-02
4.280	.2588	2.7920E-35	-2.4506E-02
4.300	.2717	2.8040E-35	-2.0993E-02
4.320	.2799	2.8629E-35	-2.0304E-02
4.340	.2887	2.9267E-35	-1.9238E-02
4.360	.2995	2.9630E-35	-1.6470E-02
4.380	.3088	3.0014E-35	-1.5396E-02
4.400	.3172	1.0207E-35	-1.4575E-02
4.420	.3271	3.1091E-35	-1.3774E-02
4.440	.3354	1.0486E-35	-1.2948E-02
4.460	.3436	1.0671E-35	-1.2145E-02
4.480	.3536	3.2662E-35	-1.0709E-02
4.500	.3656	1.1292E-35	-9.1747E-03
4.520	.3741	1.1472E-35	-8.3143E-03
4.540	.3825	1.1665E-35	-7.4524E-03
4.560	.3909	1.1860E-35	-6.5881E-03
4.580	.4005	3.5929E-35	-5.7552E-03
4.600	.4096	3.6425E-35	-4.9891E-03
4.620	.4189	3.7016E-35	-4.2866E-03
4.640	.4273	1.2547E-35	-3.4202E-03
4.660	.4357	1.2739E-35	-2.5487E-03
4.680	.4446	3.8778E-35	-9.2923E-04
4.700	.4530	1.3143E-35	-4.9036E-05
4.720	.4630	4.0088E-35	1.6863E-03
4.740	.4760	4.1214E-35	2.5629E-03
4.760	.4850	4.1910E-35	3.5832E-03
4.780	.4940	2.8342E-35	4.7159E-03
4.800	.5030	2.8737E-35	5.8589E-03
4.820	.5144	4.3946E-35	8.4457E-03
4.840	.5252	4.4483E-35	1.0555E-02
4.860	.5374	3.0331E-35	1.2123E-02
4.880	.5468	4.6093E-35	1.3407E-02
4.900	.5597	3.1272E-35	1.5228E-02
4.920	.5691	4.7697E-35	1.6473E-02
4.940	.5787	4.8318E-35	1.7733E-02
4.960	.5893	4.9015E-35	1.8946E-02
4.980	.5988	3.3086E-35	2.0191E-02
5.000	.6084	5.0232E-35	2.1389E-02

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:

TOTAL OF	0 INCREMENTS
	0 CUTBACKS IN AUTOMATIC INCREMENTATION
	0 ITERATIONS
	0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
	0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P1-F1AP RESULTS - 500,000 lb LOAD AT TOP OF WALL - AT POSITIVE 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1305						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.02	3607	44844	-137	-1330	17856	157956
4.04	3245	44340	-111	-1370	15636	159000
4.06	-2035	43080	-104	-1728	4398	156900
4.08	-14868	43092	47	-2387	6838	158964
4.10	-15816	42588	78	-2452	9616	160500
4.12	-16800	42060	109	-2516	12420	162168
4.14	-17784	41688	124	-2526	15084	166968
4.16	-18732	41184	154	-2585	17820	168792
4.18	-19704	40692	184	-2645	20592	170664
4.20	-19284	40536	191	-2594	23568	162636
4.22	-19968	40080	228	-2650	25968	164196
4.24	-20904	39600	258	-2706	28704	165852
4.26	-21840	39120	289	-2762	31440	167520
4.28	-21408	39912	228	-2754	37620	166164
4.30	-20484	40536	109	-2630	24096	178404
4.32	-20964	39960	85	-2642	27108	180252
4.34	-22920	39372	44	-2633	24444	183000
4.36	-23580	40128	22	-2582	26148	190068
4.38	-24372	39900	68	-2570	28392	195408
4.40	-25140	39708	79	-2596	30372	198420
4.42	-16284	40812	-34	-2726	17184	196092
4.44	-17292	41112	-39	-2760	18276	198672
4.46	-17796	40968	-37	-2790	18264	201552
4.48	-13392	39552	-169	-3031	2077	203088
4.50	-7243	38952	-264	-3185	12408	204984
4.52	-7415	38664	-262	-3226	13356	207984
4.54	-7594	38376	-259	-3266	14280	210996
4.56	-7772	38100	-256	-3306	15204	214020
4.58	-8161	37968	-264	-3358	15672	217380
4.60	-8321	37800	-265	-3397	16500	220188
4.62	-8422	37464	-272	-3431	17412	222876
4.64	-8615	37188	-272	-3469	18276	225900
4.66	-8808	36924	-271	-3509	19140	228948
4.68	-8912	36744	-256	-3548	19932	232464
4.70	-9109	36468	-255	-3589	20772	235500
4.72	-7828	39036	-137	-3250	27336	216492
4.74	-7408	38796	62	-2921	31872	217524
4.76	-7561	38640	68	-2929	32940	220524
4.78	-7716	38520	74	-2932	33984	223788
4.80	-7872	38400	80	-2934	35028	227076
4.82	2120	45720	52	-3064	45012	193008
4.84	3749	42204	34	-3124	51252	196068
4.86	3888	42228	40	-3138	53052	198960
4.88	4013	42204	55	-3154	54312	201264
4.90	4838	41112	100	-3198	55668	202464
4.92	4984	41088	103	-3205	57084	204684
4.94	5124	41076	106	-3214	58512	206940
4.96	5267	40932	96	-3217	59940	208896
4.98	5407	40896	98	-3224	61344	211128
5.00	5544	40872	101	-3230	62748	213360

P1-F1AP RESULTS - 500,000 lb LOAD AT TOP OF WALL - AT POSITIVE 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1309						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.02	-43272	44688	24	-5174	3390	70848
4.04	-44520	43944	159	-5320	1336	71388
4.06	-22872	43464	69	-5575	65556	63744
4.08	-8378	44244	-133	-5962	12300	52908
4.10	-8410	43548	-27	-6124	10848	53028
4.12	-8454	42840	80	-6287	9396	53280
4.14	-8459	42312	219	-6382	7332	60708
4.16	-8488	41628	329	-6539	5818	61392
4.18	-8522	40956	438	-6697	4303	62136
4.20	-8476	40092	604	-6739	3190	58416
4.22	-8438	39372	716	-6892	1538	58944
4.24	-8466	38700	827	-7048	13	59544
4.26	-8492	38028	938	-7204	1517	60156
4.28	-7808	38820	1045	-7016	7582	66396
4.30	-7559	40200	1249	-6803	12816	90876
4.32	-7526	39804	1345	-6883	15000	92280
4.34	-5581	40008	1528	-7002	28812	91152
4.36	-5234	41232	1709	-7012	32508	105012
4.38	-5256	40932	1819	-7091	34560	110424
4.40	-5189	40704	1945	-7195	36768	114228
4.42	-5844	40812	2058	-7018	40152	112896
4.44	-5771	40908	2222	-7068	42180	116184
4.46	-5812	40740	2352	-7160	44064	119592
4.48	-5404	39996	2192	-6986	48252	115740
4.50	-3116	38004	2507	-6924	46284	115248
4.52	-3104	37752	2621	-7007	48360	118224
4.54	-3097	37500	2736	-7091	50436	121236
4.56	-3090	37236	2850	-7174	52500	124260
4.58	-2959	37116	2976	-7252	54672	127584
4.60	-2873	36936	3104	-7328	56676	130644
4.62	-2826	36660	3232	-7404	58452	133560
4.64	-2809	36396	3349	-7484	60372	136608
4.66	-2795	36144	3467	-7564	62292	139668
4.68	-2629	35712	3628	-7607	64692	144432
4.70	-2615	35448	3746	-7686	66588	147504
4.72	-2998	36408	4013	-7558	68904	143532
4.74	-3832	34032	4091	-7378	69096	148800
4.76	-3854	33804	4214	-7432	71004	152820
4.78	-3871	33636	4337	-7480	72972	157368
4.80	-3889	33468	4460	-7526	74928	161976
4.82	-3770	36624	4678	-7168	80580	144240
4.84	-3341	38604	4852	-7021	84804	135804
4.86	-3383	38568	4996	-7067	87432	140160
4.88	-3385	38484	5123	-7092	89424	143868
4.90	-2886	35856	5264	-6901	91296	150720
4.92	-2897	35748	5390	-6925	93360	154500
4.94	-2912	35640	5515	-6952	95424	158256
4.96	-2953	35448	5630	-6983	97260	161532
4.98	-2969	35340	5755	-7007	99312	165300
5.00	-2988	35220	5880	-7032	101364	169068

P1-F1AP RESULTS - 500,000 lb LOAD AT TOP OF WALL - AT POSITIVE 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1313						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.02	-10517	43332	667	-10103	690	144096
4.04	-10817	42240	1108	-10477	1912	152172
4.06	-12240	41364	1426	-10543	4944	164868
4.08	-14796	41868	1687	-10157	10134	176712
4.10	-15204	40812	2105	-10477	11734	185280
4.12	-15636	39756	2522	-10800	13344	193764
4.14	-16068	38928	3028	-11128	15120	191700
4.16	-16464	37896	3451	-11448	16740	199464
4.18	-16884	36864	3875	-11768	18372	207216
4.20	-17076	35556	4313	-11987	19824	216348
4.22	-17424	34476	4741	-12312	21396	224196
4.24	-17832	33432	5165	-12624	23028	232008
4.26	-18240	32388	5587	-12948	24660	239832
4.28	-18720	44412	6244	-13176	27468	196704
4.30	-19236	34080	7024	-13488	31044	203340
4.32	-19704	33324	7492	-13776	32928	207852
4.34	-20160	33216	8017	-14016	35100	216312
4.36	-20436	35520	8644	-14364	37944	207648
4.38	-20868	33900	9040	-14664	39924	209976
4.40	-21264	33348	9512	-14976	41904	213048
4.42	-21372	32592	9998	-15132	48900	215604
4.44	-21144	32100	10522	-15420	53988	218640
4.46	-21180	31584	11027	-15720	58272	221856
4.48	-21300	31416	11554	-15840	64488	227388
4.50	-19812	30216	12012	-15864	66972	232812
4.52	-19848	29700	12516	-16152	71592	236220
4.54	-19884	29184	13008	-16440	76212	239628
4.56	-19920	28680	13488	-16740	80844	243036
4.58	-20232	28404	14004	-17064	84528	247284
4.60	-20280	28020	14520	-17376	88848	251196
4.62	-20232	27468	15012	-17664	93360	254652
4.64	-20244	26952	15516	-17952	97752	258048
4.66	-20256	26424	16020	-18252	102168	261444
4.68	-19968	25056	16500	-18480	107304	262584
4.70	-19980	24516	17004	-18780	111732	265968
4.72	-20220	24648	17484	-18948	116856	272520
4.74	-21228	21888	17496	-19092	118884	274788
4.76	-21252	21384	17988	-19380	123492	276888
4.78	-21276	20940	18492	-19656	128232	278220
4.80	-21288	20484	18996	-19944	132984	279492
4.82	-22104	21348	19620	-20040	137460	286644
4.84	-22524	21900	20196	-20256	142272	292380
4.86	-22680	21420	20760	-20616	148284	294360
4.88	-22728	20988	21276	-20892	153084	295896
4.90	-22056	17868	21576	-21024	159012	290952
4.92	-22116	17364	22080	-21300	163812	292260
4.94	-22176	16860	22584	-21576	168624	293604
4.96	-22356	16308	23112	-21840	172968	294804
4.98	-22416	15804	23616	-22116	177792	296136
5.00	-22476	15300	24120	-22392	182616	297480

P1-F1AT.abdat

*HEADING

Postprocess p1-f1a.fil for in-plane shear and twisting moment history data

*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data

*** Must temporarily rename original_file.fil to post_file.fil

*** Results are found in post_file.abdat

**

*POST FILE,INPUT=BINARY

**

** element loads

*PRINT HISTORY

SF3, SF3-1305, 1305

SM3, SM3-1305, 1305

**

SF3, SF3-1309, 1309

SM3, SM3-1309, 1309

**

SF3, SF3-1313, 1313

SM3, SM3-1313, 1313

**

P1-FlAT.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 15-Jul-94

TIME 09:30:38

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p1-fla.fil for in-plane shear and twisting moment history data

STEP 0 INCREMENT 0

TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-1305	220.	4.40	-349.	4.80
2 SM3-1305	4.085E+03	4.80	488.	4.02
3 SF3-1309	20.0	4.08	-668.	5.00
4 SM3-1309	8.257E+03	5.00	-99.7	4.02
5 SF3-1313	-128.	4.02	-1.496E+03	5.00
6 SM3-1313	6.604E+03	5.00	-367.	4.08

TIME	VARIABLE	1	2	3	4	5	6
4.020	-9.5737E-02	488.1	3.866	-99.72	-127.6	-189.5	
4.040	-11.90	539.6	-11.73	139.5	-148.7	-91.37	
4.060	33.02	927.5	-5.615	403.1	-222.0	-152.8	
4.080	116.1	1764.	20.00	792.1	-249.2	-366.5	
4.100	110.7	1868.	5.778	959.1	-271.3	-305.1	
4.120	106.6	1974.	-10.35	1129.	-292.2	-245.1	
4.140	105.5	2111.	-27.48	1444.	-306.9	-1.051	
4.160	100.7	2217.	-43.06	1620.	-328.7	74.74	
4.180	98.22	2324.	-60.10	1797.	-348.8	148.8	
4.200	53.09	2463.	-92.79	1983.	-363.6	253.3	
4.220	42.50	2563.	-111.8	2164.	-383.0	325.3	
4.240	37.24	2671.	-128.0	2337.	-405.6	405.2	
4.260	32.07	2779.	-144.3	2509.	-428.4	486.2	
4.280	75.31	2477.	-142.2	2893.	-414.8	840.5	
4.300	110.1	2596.	-146.7	3467.	-488.0	967.9	
4.320	144.1	2596.	-162.2	3695.	-512.6	1067.	
4.340	168.2	2439.	-107.4	3150.	-572.2	1270.	
4.360	211.5	2556.	-98.78	3494.	-609.1	1430.	
4.380	213.1	2693.	-111.0	3624.	-628.1	1548.	
4.400	219.5	2778.	-121.5	3815.	-654.4	1663.	
4.420	161.3	2441.	-178.6	3998.	-688.7	1793.	
4.440	164.6	2444.	-199.2	4189.	-731.9	1976.	
4.460	170.5	2510.	-208.3	4337.	-760.6	2118.	
4.480	132.6	2758.	-100.6	4252.	-808.6	2269.	
4.500	-70.57	2419.	-49.63	4101.	-778.7	2799.	
4.520	-71.02	2487.	-47.92	4244.	-809.0	2949.	
4.540	-71.26	2555.	-46.21	4386.	-839.3	3098.	
4.560	-71.47	2623.	-44.64	4527.	-869.7	3248.	
4.580	-44.89	2664.	-72.24	4677.	-858.7	3319.	
4.600	-36.98	2726.	-83.08	4819.	-871.4	3438.	
4.620	-33.91	2774.	-82.00	4945.	-902.8	3608.	
4.640	-32.95	2839.	-82.98	5074.	-931.8	3755.	
4.660	-31.91	2903.	-83.97	5201.	-960.9	3902.	
4.680	-37.26	2948.	-106.9	5403.	-1038.	4124.	
4.700	-36.39	3010.	-108.6	5531.	-1068.	4270.	
4.720	-174.9	3397.	-144.7	5689.	-1120.	4464.	
4.740	-332.6	3830.	-222.3	5528.	-1085.	4538.	
4.760	-338.5	3911.	-225.4	5649.	-1112.	4682.	
4.780	-343.7	3998.	-227.6	5773.	-1142.	4832.	
4.800	-348.7	4085.	-229.8	5897.	-1172.	4981.	
4.820	169.9	2189.	-397.7	6473.	-1250.	5243.	
4.840	58.57	2172.	-487.0	6890.	-1315.	5499.	
4.860	63.48	2228.	-499.3	7058.	-1355.	5698.	
4.880	62.89	2268.	-506.5	7194.	-1386.	5860.	
4.900	2.713	2159.	-612.9	7543.	-1336.	5807.	
4.920	4.889	2199.	-626.0	7690.	-1366.	5959.	
4.940	6.614	2238.	-638.9	7835.	-1398.	6117.	

4.960	2.691	2246.	-642.5	7969.	-1435.	6298.
4.980	4.537	2285.	-655.3	8114.	-1466.	6452.
5.000	6.346	2324.	-668.3	8257.	-1496.	6604.

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 2

FILES RELATED TO TANK LOWER-WALL RESIDUAL CAPACITY DETERMINATION

Prepared by: Phillip R. Kish 8/23/94
Date

Checked by: SB KOK 8/24/94
Date

P2-F2.abdat

```
*HEADING
P2-F2.ABD (7/7/94): RESTART PPS-F2 FOR IMPACT LOAD ON LOWER WALL AT +2-AXIS
**
*RESTART,READ,STEP=5,INC=20,WRITE,FREQ=10
*ELSET, ELSET=PUMP2
872, 876, 880
*NSET, NSET=LOADPT
940
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.01,1.
*CLOAD
940, 2, 400000
*ELFILE, ELSET=PUMP2, FREQUENCY=2
SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
U
*END STEP
```

P2-F2.cvg

step, increm, iter, status, resx, resy, resz

```

6, 1, 1, CONVERGENT, 2.14, 5.84, -4.30
6, 2, 1, CONVERGENT, .463, -.747, -1.34
6, 3, 1, CONVERGENT, .646, -.492, -1.33
6, 4, 1, CONVERGENT, -.701, -.782, -1.33
6, 5, 1, CONVERGENT, -.276, -.384, -1.33
6, 6, 1, CONVERGENT, .669, -.782, -1.33
6, 7, 1, CONVERGENT, -.672, .413, -1.33
6, 8, 1, NO, -3.565E+03, 275., 1.419E+03
6, 8, 2, NO, -407., 31.4, 467.
6, 8, 3, NO, 75.3, 5.93, 139.
6, 9, 1, NO, -6.033E+03, 237., -106.
6, 9, 2, NO, -3.662E+04, -1.440E+03, -2.501E+03
6, 9, 3, NO, 3.738E+04, 1.472E+03, 3.848E+03
6, 10, 1, NO, -1.013E+04, -397., -127.
6, 10, 2, NO, 2.249E+03, 88.4, -47.7
6, 10, 3, NO, 501., 19.7, -15.2
6, 11, 1, CONVERGENT, -3.48, -.639, .985
6, 12, 1, CONVERGENT, -3.03, -.736, -1.07
6, 13, 1, CONVERGENT, -3.01, -.664, -1.07
6, 14, 1, CONVERGENT, -2.99, -.775, 1.17
6, 15, 1, CONVERGENT, -2.97, -.664, 1.54
6, 16, 1, CONVERGENT, -2.95, -.806, 1.49
6, 17, 1, NO, -1.709E+04, -625., 1.300E+04
6, 17, 2, NO, -6.168E+03, 354., 5.633E+03
6, 17, 3, NO, -2.559E+03, 95.0, 2.593E+03
6, 18, 1, CONVERGENT, 34.3, 1.32, -39.5
6, 19, 1, NO, 7.180E+03, 282., 2.478E+03
6, 19, 2, NO, -972., 38.2, -518.
6, 19, 3, NO, -142., 5.60, -93.1
6, 20, 1, CONVERGENT, 5.42, -.895, 5.52
6, 21, 1, NO, -2.235E+03, -265., 5.779E+03
6, 21, 2, NO, -306., 30.8, -1.354E+03
6, 21, 3, NO, -70.8, 3.72, -316.
6, 22, 1, NO, -4.584E+03, 180., 718.
6, 22, 2, NO, -678., 26.6, -6.174E+03
6, 22, 3, NO, 367., 16.7, -7.440E+03
6, 23, 1, CONVERGENT, 6.12, -.739, -6.02
6, 24, 1, CONVERGENT, 5.02, -.727, 5.58
6, 25, 1, CONVERGENT, 4.92, -.742, 5.44
6, 26, 1, NO, 9.980E+03, -1.182E+03, 882.
6, 26, 2, NO, 2.417E+03, -286., -259.
6, 26, 3, NO, 581., -68.8, -82.5
6, 27, 1, CONVERGENT, 4.89, -.900, 5.19
6, 28, 1, CONVERGENT, 4.66, -.434, 5.06
6, 29, 1, CONVERGENT, 4.58, -.854, 4.95
6, 30, 1, NO, -2.132E+04, -838., -2.369E+04
6, 30, 2, NO, -1.001E+04, -1.185E+03, -1.229E+04
6, 30, 3, NO, 6.537E+03, 718., 6.614E+03
6, 31, 1, CONVERGENT, -19.9, -2.69, 30.2
6, 32, 1, NO, -4.693E+03, -556., -6.338E+03
6, 32, 2, NO, -685., 81.3, -1.100E+03
6, 32, 3, NO, -99.9, 11.8, -191.
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6, 34, 3, NO, -143., -5.63, -7.61
6, 35, 1, CONVERGENT, 6.14, -.638, 7.75
6, 36, 1, CONVERGENT, 6.09, -.726, 7.75
6, 37, 1, NO, -2.074E+04, -2.456E+03, -873.
6, 37, 2, NO, -9.047E+03, -1.073E+03, -609.
6, 37, 3, NO, -8.685E+03, -1.029E+03, -788.
6, 38, 1, NO, -1.350E+04, -1.599E+03, -1.172E+03
6, 38, 2, NO, 1.770E+04, 2.096E+03, -1.798E+03
6, 38, 3, NO, -5.820E+03, -689., 6.663E+03
6, 39, 1, CONVERGENT, 12.0, 1.63, 8.19
6, 40, 1, NO, 3.343E+04, -1.314E+03, -2.084E+04
6, 40, 2, NO, 1.481E+04, -582., -1.099E+04
6, 40, 3, NO, 4.470E+03, -529., -5.739E+03
6, 41, 1, NO, 3.843E+03, 455., -1.120E+04
6, 41, 2, NO, 669., 79.1, 2.708E+03
6, 41, 3, NO, 116., 13.7, 657.

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6, 42, 1, NO, 1.100E+03, 43.4, 6.475E+03
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6, 43, 1, CONVERGENT, 3.36, -.472, -10.3
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6, 45, 2, NO, -1.392E+03, -54.4, -297.
6, 45, 3, NO, 4.235E+03, -502., -591.
6, 46, 1, NO, 2.513E+04, -2.977E+03, -1.185E+04
6, 46, 2, NO, -2.854E+04, -2.722E+03, -3.682E+03
6, 46, 3, NO, -2.815E+04, -1.641E+03, -2.757E+03
6, 47, 1, NO, 2.018E+04, 2.393E+03, -6.908E+03
6, 47, 2, NO, -8.746E+03, 1.013E+03, -8.518E+03
6, 47, 3, NO, -2.452E+03, 283., -1.948E+03
6, 48, 1, CONVERGENT, -5.11, .707, 13.3
6, 49, 1, CONVERGENT, -2.96, -.336, 11.4
6, 50, 1, CONVERGENT, -2.98, .408, 11.2
6, 51, 1, CONVERGENT, -3.01, -.336, 11.1
6, 52, 1, NO, -8.067E+03, 955., 24.5
6, 52, 2, NO, -993., 117., -12.3
6, 52, 3, NO, -123., 14.6, -3.42
6, 53, 1, CONVERGENT, -3.04, -.592, 10.9
6, 54, 1, CONVERGENT, -3.09, .407, 10.9
6, 55, 1, NO, 106., 2.185E+03, 89.5
6, 55, 2, NO, -10.4, -125., -5.11
6, 55, 3, CONVERGENT, -.793, -7.19, -.293
6, 56, 1, CONVERGENT, -3.35, -.784, -11.1
6, 57, 1, NO, -78.5, 2.162E+03, 88.7
6, 57, 2, NO, 8.41, -123., -5.04
6, 57, 3, CONVERGENT, .658, -7.05, -.287
6, 58, 1, CONVERGENT, -4.34, -.734, -11.7
6, 59, 1, NO, 80.8, 1.817E+03, 75.5
6, 59, 2, NO, -99.5, -1.968E+03, -81.8
6, 59, 3, NO, 7.55, -167., -6.94
6, 60, 1, CONVERGENT, -4.71, -.635, -12.5
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6, 61, 2, NO, 138., 16.3, -1.105E+03
6, 61, 3, NO, 31.0, 3.65, -251.
6, 62, 1, CONVERGENT, -3.63, -.669, -13.5
6, 63, 1, NO, -4.448E+03, 175., -698.
6, 63, 2, NO, 736., 28.9, -118.
6, 63, 3, NO, 122., 4.78, -19.7
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6, 64, 3, NO, -3.733E+04, 3.688E+03, -1.653E+03
6, 65, 1, NO, 2.757E+04, 3.011E+03, -742.
6, 65, 2, NO, 7.267E+03, 1.159E+03, -136.
6, 65, 3, NO, 1.939E+03, 420., -25.1
6, 66, 1, NO, -3.739E+04, 2.137E+03, 6.571E+03
6, 66, 2, NO, 1.879E+04, 1.332E+03, -1.256E+03
6, 66, 3, NO, 9.488E+03, 845., -252.
6, 67, 1, NO, -1.336E+04, 892., -17.9
6, 67, 2, NO, -5.830E+03, 677., 3.43
6, 67, 3, NO, -2.631E+03, 523., 1.38
6, 68, 1, CONVERGENT, -33.2, 18.3, -16.1
6, 69, 1, CONVERGENT, -2.87, .569, -15.7
6, 70, 1, CONVERGENT, -2.95, .658, -15.7
6, 71, 1, CONVERGENT, -2.95, -.713, -15.7
6, 72, 1, NO, 483., -57.2, -4.650E+03
6, 72, 2, NO, 107., 12.7, -1.055E+03
6, 72, 3, NO, 24.0, 2.85, -239.
6, 73, 1, CONVERGENT, -2.93, .654, -15.7
6, 74, 1, NO, 2.171E+04, 2.571E+03, -2.070E+04
6, 74, 2, NO, 8.864E+03, 1.050E+03, -9.108E+03
6, 74, 3, NO, 3.669E+03, 435., -3.981E+03
6, 75, 1, NO, -2.134E+04, 2.528E+03, -2.112E+04
6, 75, 2, NO, -8.764E+03, 1.038E+03, -9.306E+03
6, 75, 3, NO, -3.645E+03, 432., -4.075E+03
6, 76, 1, CONVERGENT, -5.71, .727, -17.7
6, 77, 1, CONVERGENT, -3.00, .644, -15.8
6, 78, 1, NO, -340., -2.537E+03, -101.
6, 78, 2, NO, -30.8, -155., -6.06
6, 78, 3, CONVERGENT, -2.43, -9.59, -.371
6, 79, 1, CONVERGENT, -2.98, -.664, -15.6
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6, 80, 3, NO, -107., 12.7, -189.
6, 81, 1, NO, 3.049E+03, 361., -5.331E+03
6, 81, 2, NO, 572., 67.7, -1.000E+03
6, 81, 3, NO, 107., 12.7, -188.
6, 82, 1, CONVERGENT, -2.96, -.663, -15.8
6, 83, 1, NO, -1.956E+04, 769., -3.178E+03
6, 83, 2, NO, -7.697E+03, 302., -1.336E+03
6, 83, 3, NO, -3.022E+03, 119., -549.
6, 84, 1, CONVERGENT, -5.61, -.692, -16.9
6, 85, 1, NO, 5.101E+03, -1.015E+03, 1.512E+03
6, 85, 2, NO, -787., 156., -255.
6, 85, 3, NO, -121., 24.1, -42.5
6, 86, 1, NO, -2.98, -.823, -259.
6, 86, 2, CONVERGENT, 9.373E-02, -3.114E-02, -2.19
6, 87, 1, NO, -3.859E+03, 152., 2.632E+04
6, 87, 2, NO, -4.735E+03, 261., -4.087E+04
6, 87, 3, NO, -2.390E+03, 140., -2.284E+04
6, 88, 1, NO, 31.0, 1.65, -638.
6, 88, 2, CONVERGENT, .473, 8.034E-02, -5.83
6, 89, 1, NO, -3.01, -.904, -503.
6, 89, 2, CONVERGENT, -.235, 6.370E-02, -4.54
6, 90, 1, NO, -4.990E+03, -993., 1.263E+03
6, 90, 2, NO, -1.155E+04, 454., -2.107E+03
6, 90, 3, NO, 3.877E+03, -153., -947.
6, 91, 1, NO, 28.8, -1.18, -675.
6, 91, 2, CONVERGENT, 1.53, 9.197E-02, -6.45
6, 92, 1, NO, -3.02, .590, -659.
6, 92, 2, CONVERGENT, .467, 9.700E-02, -6.66
6, 93, 1, NO, -3.03, -.599, -682.
6, 93, 2, CONVERGENT, .446, -.227, -6.05
6, 94, 1, NO, 2.174E+03, 9.656E+03, -683.
6, 94, 2, NO, -562., -1.952E+03, -77.8
6, 94, 3, NO, -132., -398., -15.8
6, 95, 1, NO, -3.29, -.660, -682.
6, 95, 2, CONVERGENT, .464, .127, -6.04
6, 96, 1, NO, -1.175E+04, 1.392E+03, -8.386E+03
6, 96, 2, NO, 2.253E+04, 2.668E+03, -1.682E+04
6, 96, 3, NO, 1.029E+04, 1.220E+03, -8.707E+03
6, 97, 1, NO, 247., 7.026E+03, -967.
6, 97, 2, NO, 320., -2.559E+03, -102.
6, 97, 3, NO, 29.1, -268., -11.1
6, 98, 1, NO, 3.35, -.669, -695.
6, 98, 2, CONVERGENT, .506, .129, -6.22
6, 99, 1, NO, -3.15, -.597, -696.
6, 99, 2, CONVERGENT, .514, .131, -6.24
6, 100, 1, NO, -304., 7.841E+03, -696.
6, 100, 2, NO, 82.2, -1.492E+03, -61.8
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step, increm, iter, status, resx, resy, resz

P2-F2P.abdat

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*HEADING
Postprocess p2-f2.fil for history data
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*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-872, 872
SF2, P2-872, 872
SF4, V13-872, 872
SF5, V23-872, 872
SM1, M22-872, 872
SM2, M11-872, 872
**
*PRINT HISTORY
SF1, P1-876, 876
SF2, P2-876, 876
SF4, V13-876, 876
SF5, V23-876, 876
SM1, M22-876, 876
SM2, M11-876, 876
**
*PRINT HISTORY
SF1, P1-880, 880
SF2, P2-880, 880
SF4, V13-880, 880
SF5, V23-880, 880
SM1, M22-880, 880
SM2, M11-880, 880
**
*PRINT HISTORY
U1, U1-940, 940
U2, U2-940, 940
U3, U3-940, 940
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P2-F2P.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 10-Jul-94

TIME 20:34:31

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p2-f2.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

POST - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-872	2.124E+03	5.08	-1.646E+03	5.64
2 P2-872	-3.474E+03	5.44	-3.804E+03	5.66
3 V13-872	-30.2	5.10	-1.229E+03	6.00
4 V23-872	875.	5.02	-2.399E+03	6.00
5 M22-872	8.614E+03	5.44	1.281E+03	5.10
6 M11-872	2.386E+04	5.02	1.382E+04	6.00

TIME	1	2	3	4	5	6
5.020	1918.	-3791.	-74.68	875.5	6558.	2.3861E+04
5.040	1963.	-3774.	-103.5	815.7	6998.	2.3814E+04
5.060	2008.	-3757.	-132.4	755.9	7439.	2.3767E+04
5.080	2124.	-3740.	-162.0	688.4	8148.	2.3724E+04
5.100	904.0	-3746.	-30.16	573.0	1281.	2.3801E+04
5.120	926.0	-3729.	-55.20	510.5	1545.	2.3754E+04
5.140	949.3	-3712.	-80.29	448.2	1818.	2.3705E+04
5.160	972.6	-3695.	-105.4	386.0	2091.	2.3656E+04
5.180	1191.	-3708.	-109.5	317.9	2643.	2.3465E+04
5.200	1344.	-3706.	-130.1	253.6	2978.	2.3407E+04
5.220	1395.	-3691.	-157.5	194.4	3399.	2.3099E+04
5.240	1441.	-3679.	-181.0	131.5	3688.	2.3012E+04
5.260	1507.	-3666.	-201.6	63.39	4030.	2.2890E+04
5.280	1548.	-3651.	-225.3	1.563	4317.	2.2792E+04
5.300	1498.	-3619.	-255.6	-68.21	4362.	2.2334E+04
5.320	1456.	-3594.	-285.3	-137.8	4662.	2.2040E+04
5.340	1514.	-3582.	-308.9	-203.1	4853.	2.1913E+04
5.360	1545.	-3566.	-333.0	-265.3	5116.	2.1783E+04
5.380	1374.	-3498.	-393.9	-349.5	6545.	2.1352E+04
5.400	1580.	-3499.	-437.1	-413.0	7648.	2.0586E+04
5.420	1702.	-3488.	-476.3	-473.7	8266.	1.9996E+04
5.440	1741.	-3474.	-502.8	-535.8	8614.	1.9803E+04
5.460	-1623.	-3584.	-477.5	-623.6	2642.	1.9823E+04
5.480	-1490.	-3746.	-543.7	-735.7	4949.	2.0143E+04
5.500	-1514.	-3739.	-570.3	-798.9	5199.	1.9944E+04
5.520	-1519.	-3742.	-595.6	-863.8	5402.	1.9769E+04
5.540	-1543.	-3735.	-622.1	-927.1	5650.	1.9573E+04
5.560	-1568.	-3730.	-648.9	-990.3	5912.	1.9384E+04
5.580	-1593.	-3723.	-675.9	-1054.	6172.	1.9191E+04
5.600	-1614.	-3714.	-702.1	-1117.	6412.	1.8977E+04
5.620	-1636.	-3704.	-727.5	-1182.	6644.	1.8779E+04
5.640	-1646.	-3725.	-753.5	-1245.	6879.	1.8697E+04
5.660	-1293.	-3804.	-763.5	-1284.	6123.	1.8981E+04
5.680	-1172.	-3681.	-779.9	-1348.	5945.	1.8247E+04
5.700	-1188.	-3674.	-806.6	-1411.	6168.	1.8043E+04
5.720	-1200.	-3672.	-832.5	-1472.	6384.	1.7776E+04
5.740	-1185.	-3678.	-866.5	-1541.	6480.	1.7564E+04
5.760	-1205.	-3695.	-890.4	-1612.	6774.	1.7369E+04
5.780	-1221.	-3690.	-916.2	-1675.	7005.	1.7165E+04
5.800	-1234.	-3676.	-942.8	-1739.	7229.	1.6854E+04
5.820	-1243.	-3670.	-970.2	-1805.	7423.	1.6644E+04
5.840	-1238.	-3657.	-997.1	-1873.	7613.	1.6273E+04
5.860	-1251.	-3647.	-1024.	-1937.	7836.	1.5995E+04
5.880	-1236.	-3689.	-1050.	-2013.	7989.	1.5805E+04
5.900	-1127.	-3700.	-1083.	-2075.	7721.	1.5573E+04
5.920	-1089.	-3711.	-1113.	-2137.	7752.	1.5328E+04
5.940	-1095.	-3730.	-1143.	-2200.	7982.	1.4976E+04
5.960	-1066.	-3765.	-1175.	-2269.	8020.	1.4610E+04

5.980	-1028.	-3779.	-1203.	-2337.	8038.	1.4192E+04
6.000	-1033.	-3798.	-1229.	-2399.	8240.	1.3824E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-876	166.	5.06	-1.799E+03	5.40
2 P2-876	-2.785E+03	5.38	-3.550E+03	5.22
3 V13-876	-95.4	5.02	-1.777E+03	6.00
4 V23-876	1.841E+03	6.00	590.	5.02
5 M22-876	1.088E+04	6.00	-1.597E+03	5.20
6 M11-876	3.251E+04	6.00	6.935E+03	5.02

TIME	VARIABLE					
	1	2	3	4	5	6
5.020	-19.21	-3488.	-95.37	590.3	1152.	6935.
5.040	73.45	-3452.	-132.8	616.9	1573.	7555.
5.060	166.1	-3415.	-170.2	643.5	1993.	8175.
5.080	73.08	-3385.	-201.2	669.3	857.3	8853.
5.100	-761.5	-3549.	-164.2	710.4	-63.94	9916.
5.120	-721.4	-3515.	-199.2	737.3	210.3	1.0558E+04
5.140	-667.3	-3482.	-233.8	764.2	447.7	1.1192E+04
5.160	-613.0	-3448.	-268.3	791.0	685.5	1.1826E+04
5.180	-1248.	-3480.	-298.5	821.2	-1397.	1.2446E+04
5.200	-1578.	-3507.	-332.2	849.6	-1597.	1.3041E+04
5.220	-1531.	-3550.	-364.2	873.6	-1547.	1.2695E+04
5.240	-1518.	-3543.	-398.5	898.8	-1419.	1.3263E+04
5.260	-1699.	-3533.	-418.0	919.2	-277.6	1.3937E+04
5.280	-1703.	-3519.	-451.2	945.6	-71.75	1.4445E+04
5.300	-1573.	-3174.	-495.8	962.7	-275.4	1.5941E+04
5.320	-1543.	-3002.	-541.0	984.7	-159.8	1.6943E+04
5.340	-1527.	-2954.	-574.5	1008.	-6.652	1.7634E+04
5.360	-1511.	-2909.	-610.2	1033.	140.4	1.8224E+04
5.380	-1675.	-2785.	-664.1	1060.	702.3	1.8982E+04
5.400	-1799.	-3193.	-712.3	1063.	115.7	1.7283E+04
5.420	-1756.	-2853.	-760.6	1078.	454.4	1.8047E+04
5.440	-1749.	-2813.	-798.1	1103.	569.3	1.8495E+04
5.460	-1483.	-3224.	-816.7	1159.	1507.	1.9247E+04
5.480	-871.0	-3316.	-844.7	1216.	2615.	2.0625E+04
5.500	-855.3	-3307.	-881.1	1243.	2808.	2.1079E+04
5.520	-864.2	-3306.	-915.0	1267.	3126.	2.1614E+04
5.540	-849.8	-3297.	-951.3	1294.	3328.	2.2070E+04
5.560	-833.7	-3289.	-987.8	1320.	3527.	2.2521E+04
5.580	-818.5	-3281.	-1024.	1346.	3728.	2.2978E+04
5.600	-803.6	-3271.	-1060.	1372.	3932.	2.3422E+04
5.620	-787.1	-3265.	-1096.	1398.	4109.	2.3864E+04
5.640	-753.4	-3263.	-1132.	1423.	4303.	2.4334E+04
5.660	-626.0	-3222.	-1160.	1457.	4671.	2.4702E+04
5.680	-602.5	-3122.	-1194.	1481.	4973.	2.4854E+04
5.700	-585.4	-3111.	-1230.	1507.	5184.	2.5297E+04
5.720	-563.3	-3091.	-1261.	1534.	5411.	2.5862E+04
5.740	-626.0	-3084.	-1304.	1551.	5886.	2.6457E+04
5.760	-484.9	-3147.	-1336.	1565.	5927.	2.7268E+04
5.780	-463.6	-3138.	-1372.	1591.	6142.	2.7726E+04
5.800	-426.5	-3113.	-1403.	1614.	6379.	2.8208E+04
5.820	-398.2	-3106.	-1438.	1638.	6535.	2.8709E+04
5.840	-384.7	-3058.	-1472.	1658.	6799.	2.9041E+04
5.860	-381.2	-3042.	-1507.	1681.	7107.	2.9523E+04
5.900	-1044.	-3159.	-1583.	1720.	9946.	3.0713E+04
5.920	-929.1	-3175.	-1624.	1747.	9925.	3.1060E+04
5.940	-917.1	-3184.	-1662.	1773.	1.0198E+04	3.1351E+04
5.960	-934.5	-3234.	-1702.	1793.	1.0432E+04	3.1813E+04
5.980	-929.3	-3269.	-1740.	1816.	1.0619E+04	3.2223E+04
6.000	-913.5	-3279.	-1777.	1841.	1.0880E+04	3.2511E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-880	-75.4	5.28	-1.484E+03	5.78
2 P2-880	-3.130E+03	5.38	-3.581E+03	6.00
3 V13-880	-27.9	5.02	-558.	6.00
4 V23-880	937.	6.00	381.	5.02
5 M22-880	7.173E+03	6.00	-266.	5.02
6 M11-880	-1.687E+03	5.38	-3.633E+03	5.02

TIME	VARIABLE					
	1	2	3	4	5	6
5.020	-1421.	-3383.	-27.93	381.1	-265.7	-3633.
5.040	-1375.	-3357.	-41.29	392.4	-22.12	-3516.
5.060	-1329.	-3332.	-54.65	403.7	221.5	-3399.
5.080	-1240.	-3308.	-65.64	417.4	548.6	-3291.
5.100	-856.9	-3467.	-80.54	448.7	697.8	-3077.
5.120	-802.5	-3450.	-93.49	460.5	930.1	-2970.
5.140	-748.5	-3431.	-106.1	472.1	1155.	-2868.
5.160	-694.6	-3412.	-118.8	483.6	1379.	-2766.
5.180	-371.9	-3361.	-146.9	507.2	2315.	-2723.
5.200	-184.0	-3338.	-162.6	522.5	2671.	-2653.
5.220	-175.5	-3367.	-171.4	528.4	2594.	-2889.
5.240	-88.87	-3364.	-185.8	536.9	2841.	-2765.
5.260	-139.4	-3388.	-193.7	554.6	2279.	-2501.
5.280	-75.37	-3380.	-206.5	566.9	2518.	-2440.
5.300	-219.4	-3271.	-214.0	579.5	1899.	-2346.
5.320	-193.2	-3201.	-231.5	591.9	2006.	-2121.
5.340	-278.8	-3188.	-242.3	604.0	2029.	-1971.
5.360	-228.8	-3166.	-256.2	615.9	2200.	-1912.
5.380	-253.1	-3130.	-280.9	639.5	2456.	-1687.
5.400	-839.7	-3259.	-293.2	652.0	-235.6	-2253.
5.420	-834.6	-3224.	-302.2	660.2	325.3	-2644.
5.440	-811.1	-3213.	-316.2	672.0	416.9	-2676.
5.460	-1003.	-3344.	-324.2	697.1	121.0	-3001.
5.480	-1339.	-3407.	-282.2	716.5	2134.	-2361.
5.500	-1335.	-3412.	-294.3	728.8	2272.	-2409.
5.520	-1437.	-3417.	-302.6	742.0	2729.	-2391.
5.540	-1436.	-3422.	-314.5	754.3	2880.	-2437.
5.560	-1435.	-3427.	-326.5	766.7	3028.	-2487.
5.580	-1433.	-3432.	-338.5	779.0	3175.	-2537.
5.600	-1431.	-3436.	-350.5	791.3	3323.	-2592.
5.620	-1423.	-3439.	-362.7	804.7	3442.	-2593.
5.640	-1396.	-3462.	-373.6	811.7	3706.	-2516.
5.660	-1284.	-3445.	-381.5	826.5	3773.	-2709.
5.680	-1247.	-3382.	-393.9	836.8	3875.	-2963.
5.700	-1242.	-3386.	-406.0	849.0	4027.	-3017.
5.720	-1230.	-3381.	-416.0	860.6	4193.	-3098.
5.740	-1293.	-3281.	-429.3	870.5	4466.	-3290.
5.760	-1483.	-3349.	-415.2	860.5	5490.	-2578.
5.780	-1484.	-3352.	-426.7	872.0	5671.	-2622.
5.800	-1474.	-3329.	-435.2	882.8	5810.	-2500.
5.820	-1469.	-3343.	-444.6	894.9	5952.	-2602.
5.840	-1300.	-3381.	-451.3	887.6	6386.	-2413.
5.860	-1281.	-3382.	-462.5	897.9	6510.	-2432.
5.880	-1182.	-3506.	-486.8	883.4	6652.	-1781.
5.900	-1026.	-3506.	-500.1	892.2	6424.	-1889.
5.920	-952.4	-3524.	-513.0	901.6	6406.	-2016.
5.940	-945.4	-3545.	-525.1	910.8	6593.	-2170.
5.960	-978.1	-3526.	-536.3	919.0	6827.	-2447.
5.980	-968.3	-3562.	-546.1	928.1	6986.	-2751.
6.000	-962.4	-3581.	-558.0	937.1	7173.	-2922.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 4

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-940	-7.338E-05	5.44	-8.403E-03	6.00

2	U2-940	.426	6.00	.146	5.02
3	U3-940	-.756	5.08	-.787	6.00

TIME	VARIABLE		
	1	2	3
5.020	-7.6018E-03	.1455	-.7562
5.040	-7.6046E-03	.1495	-.7562
5.060	-7.6075E-03	.1535	-.7562
5.080	-7.6168E-03	.1579	-.7561
5.100	-3.7778E-03	.1665	-.7564
5.120	-3.6608E-03	.1707	-.7564
5.140	-3.5693E-03	.1749	-.7564
5.160	-3.4779E-03	.1791	-.7564
5.180	-3.2915E-03	.1848	-.7565
5.200	-3.2855E-03	.1894	-.7565
5.220	-3.1166E-03	.1946	-.7568
5.240	-3.0011E-03	.1990	-.7569
5.260	-2.9868E-03	.2040	-.7571
5.280	-2.8809E-03	.2084	-.7571
5.300	-2.2544E-03	.2156	-.7584
5.320	-1.7323E-03	.2215	-.7591
5.340	-1.5238E-03	.2264	-.7593
5.360	-1.3585E-03	.2311	-.7595
5.380	-8.4505E-05	.2374	-.7600
5.400	-1.8649E-04	.2446	-.7617
5.420	-2.3000E-04	.2514	-.7636
5.440	-7.3384E-05	.2563	-.7639
5.460	-2.2861E-03	.2646	-.7655
5.480	-6.8198E-03	.2735	-.7673
5.500	-6.8248E-03	.2787	-.7677
5.520	-7.0240E-03	.2840	-.7683
5.540	-7.0367E-03	.2892	-.7687
5.560	-7.0483E-03	.2944	-.7692
5.580	-7.0536E-03	.2996	-.7697
5.600	-7.0585E-03	.3049	-.7702
5.620	-7.0581E-03	.3102	-.7706
5.640	-7.0849E-03	.3158	-.7712
5.660	-7.4005E-03	.3244	-.7729
5.680	-7.4402E-03	.3305	-.7741
5.700	-7.4370E-03	.3357	-.7746
5.720	-7.4397E-03	.3411	-.7751
5.740	-7.3735E-03	.3471	-.7760
5.760	-7.3872E-03	.3534	-.7771
5.780	-7.3884E-03	.3588	-.7777
5.800	-7.3522E-03	.3644	-.7782
5.820	-7.3604E-03	.3699	-.7787
5.840	-7.4132E-03	.3761	-.7793
5.860	-7.4247E-03	.3817	-.7800
5.880	-7.4024E-03	.3887	-.7818
5.900	-8.0034E-03	.3946	-.7827
5.920	-8.3362E-03	.4004	-.7836
5.940	-8.3625E-03	.4065	-.7844
5.960	-8.3682E-03	.4131	-.7853
5.980	-8.3627E-03	.4198	-.7860
6.000	-8.4027E-03	.4260	-.7868

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P2-F2P RESULTS - 400,000 lb LOAD AT BOTTOM OF WALL - AT POSITIVE 2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 872						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
5.02	-23016	45492	-896	10506	78696	286332
5.04	-23556	45288	-1242	9788	83976	285768
5.06	-24096	45084	-1589	9071	89268	285204
5.08	-25488	44880	-1944	8261	97776	284688
5.10	-10848	44952	-362	6876	15372	285612
5.12	-11112	44748	-662	6126	18540	285048
5.14	-11392	44544	-963	5378	21816	284460
5.16	-11671	44340	-1265	4632	25092	283872
5.18	-14292	44496	-1314	3815	31716	281580
5.20	-16128	44472	-1561	3043	35736	280884
5.22	-16740	44292	-1890	2333	40788	277188
5.24	-17292	44148	-2172	1578	44256	276144
5.26	-18084	43992	-2419	761	48360	274680
5.28	-18576	43812	-2704	19	51804	273504
5.30	-17976	43428	-3067	-819	52344	268008
5.32	-17472	43128	-3424	-1654	55944	264480
5.34	-18168	42984	-3707	-2437	58236	262956
5.36	-18540	42792	-3996	-3184	61392	261396
5.38	-16488	41976	-4727	-4194	78540	256224
5.40	-18960	41988	-5245	-4956	91776	247032
5.42	-20424	41856	-5716	-5684	99192	239952
5.44	-20892	41688	-6034	-6430	103368	237636
5.46	19476	43008	-5730	-7483	31704	237876
5.48	17880	44952	-6524	-8828	59388	241716
5.50	18168	44868	-6844	-9587	62388	239328
5.52	18228	44904	-7147	-10366	64824	237228
5.54	18516	44820	-7465	-11125	67800	234876
5.56	18816	44760	-7787	-11884	70944	232608
5.58	19116	44676	-8111	-12648	74064	230292
5.60	19368	44568	-8425	-13404	76944	227724
5.62	19632	44448	-8730	-14184	79728	225348
5.64	19752	44700	-9042	-14940	82548	224364
5.66	15516	45648	-9162	-15408	73476	227772
5.68	14064	44172	-9359	-16176	71340	218964
5.70	14256	44088	-9679	-16932	74016	216516
5.72	14400	44064	-9990	-17664	76608	213312
5.74	14220	44136	-10398	-18492	77760	210768
5.76	14460	44340	-10685	-19344	81288	208428
5.78	14652	44280	-10994	-20100	84060	205980
5.80	14808	44112	-11314	-20868	86748	202248
5.82	14916	44040	-11642	-21660	89076	199728
5.84	14856	43884	-11965	-22476	91356	195276
5.86	15012	43764	-12288	-23244	94032	191940
5.88	14832	44268	-12600	-24156	95868	189660
5.90	13524	44400	-12996	-24900	92652	186876
5.92	13068	44532	-13356	-25644	93024	183936
5.94	13140	44760	-13716	-26400	95784	179712
5.96	12792	45180	-14100	-27228	96240	175320
5.98	12336	45348	-14436	-28044	96456	170304
6.00	12396	45576	-14748	-28788	98880	165888

P2-F2P RESULTS - 400,000 lb LOAD AT BOTTOM OF WALL - AT POSITIVE 2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 876						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
5.02	231	41856	-1144	7084	13824	83220
5.04	-881	41424	-1594	7403	18876	90660
5.06	-1993	40980	-2042	7722	23916	98100
5.08	-877	40620	-2414	8032	10288	106236
5.10	9138	42588	-1970	8525	767	118992
5.12	8657	42180	-2390	8848	2524	126696
5.14	8008	41784	-2806	9170	5372	134304
5.16	7356	41376	-3220	9492	8226	141912
5.18	14976	41760	-3582	9854	16764	149352
5.20	18936	42084	-3986	10195	19164	156492
5.22	18372	42600	-4370	10483	18564	152340
5.24	18216	42516	-4782	10786	17028	159156
5.26	20388	42396	-5016	11030	3331	167244
5.28	20436	42228	-5414	11347	861	173340
5.30	18876	38088	-5950	11552	3305	191292
5.32	18516	36024	-6492	11816	1918	203316
5.34	18324	35448	-6894	12096	80	211608
5.36	18132	34908	-7322	12396	1685	218688
5.38	20100	33420	-7969	12720	8428	227784
5.40	21588	38316	-8548	12756	1388	207396
5.42	21072	34236	-9127	12936	5453	216564
5.44	20988	33756	-9577	13236	6832	221940
5.46	17796	38688	-9800	13908	18084	230964
5.48	10452	39792	-10136	14592	31380	247500
5.50	10264	39684	-10573	14916	33696	252948
5.52	10370	39672	-10980	15204	37512	259368
5.54	10198	39564	-11416	15528	39936	264840
5.56	10004	39468	-11854	15840	42324	270252
5.58	9822	39372	-12288	16152	44736	275736
5.60	9643	39252	-12720	16464	47184	281064
5.62	9445	39180	-13152	16776	49308	286368
5.64	9041	39156	-13584	17076	51636	292008
5.66	7512	38664	-13920	17484	56052	296424
5.68	7230	37464	-14328	17772	59676	298248
5.70	7025	37332	-14760	18084	62208	303564
5.72	6760	37092	-15132	18408	64932	310344
5.74	7512	37008	-15648	18612	70632	317484
5.76	5819	37764	-16032	18780	71124	327216
5.78	5563	37656	-16464	19092	73704	332712
5.80	5118	37356	-16836	19368	76548	338496
5.82	4778	37272	-17256	19656	78420	344508
5.84	4616	36696	-17664	19896	81588	348492
5.86	4574	36504	-18084	20172	85284	354276
5.88	4032	37296	-18480	20304	88944	363120
5.90	12528	37908	-18996	20640	119352	368556
5.92	11149	38100	-19488	20964	119100	372720
5.94	11005	38208	-19944	21276	122376	376212
5.96	11214	38808	-20424	21516	125184	381756
5.98	11152	39228	-20880	21792	127428	386676
6.00	10962	39348	-21324	22092	130560	390132

P2-F2P RESULTS - 400,000 lb LOAD AT BOTTOM OF WALL - AT POSITIVE 2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 880						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
5.02	17052	40596	-335	4573	3188	43596
5.04	16500	40284	-495	4709	265	42192
5.06	15948	39984	-656	4844	2658	40788
5.08	14880	39696	-788	5009	6583	39492
5.10	10283	41604	-966	5384	8374	36924
5.12	9630	41400	-1122	5526	11161	35640
5.14	8982	41172	-1273	5665	13860	34416
5.16	8335	40944	-1426	5803	16548	33192
5.18	4463	40332	-1763	6086	27780	32676
5.20	2208	40056	-1951	6270	32052	31836
5.22	2106	40404	-2057	6341	31128	34668
5.24	1066	40368	-2230	6443	34092	33180
5.26	1673	40656	-2324	6655	27348	30012
5.28	904	40560	-2478	6803	30216	29280
5.30	2633	39252	-2568	6954	22788	28152
5.32	2318	38412	-2778	7103	24072	25452
5.34	3346	38256	-2908	7248	24348	23652
5.36	2746	37992	-3074	7391	26400	22944
5.38	3037	37560	-3371	7674	29472	20244
5.40	10076	39108	-3518	7824	2827	27036
5.42	10015	38688	-3626	7922	3904	31728
5.44	9733	38556	-3794	8064	5003	32112
5.46	12036	40128	-3890	8365	1452	36012
5.48	16068	40884	-3386	8598	25608	28332
5.50	16020	40944	-3532	8746	27264	28908
5.52	17244	41004	-3631	8904	32748	28692
5.54	17232	41064	-3774	9052	34560	29244
5.56	17220	41124	-3918	9200	36336	29844
5.58	17196	41184	-4062	9348	38100	30444
5.60	17172	41232	-4206	9496	39876	31104
5.62	17076	41268	-4352	9656	41304	31116
5.64	16752	41544	-4483	9740	44472	30192
5.66	15408	41340	-4578	9918	45276	32508
5.68	14964	40584	-4727	10042	46500	35556
5.70	14904	40632	-4872	10188	48324	36204
5.72	14760	40572	-4992	10327	50316	37176
5.74	15516	39372	-5152	10446	53592	39480
5.76	17796	40188	-4982	10326	65880	30936
5.78	17808	40224	-5120	10464	68052	31464
5.80	17688	39948	-5222	10594	69720	30000
5.82	17628	40116	-5335	10739	71424	31224
5.84	15600	40572	-5416	10651	76632	28956
5.86	15372	40584	-5550	10775	78120	29184
5.88	14184	42072	-5842	10601	79824	21372
5.90	12312	42072	-6001	10706	77088	22668
5.92	11429	42288	-6156	10819	76872	24192
5.94	11345	42540	-6301	10930	79116	26040
5.96	11737	42312	-6436	11028	81924	29364
5.98	11620	42744	-6553	11137	83832	33012
6.00	11549	42972	-6696	11245	86076	35064

Determination of Additional Meridional Moment/Axial Capacity Points for Section 4

Section	h [in]	As per ft [in^2]	d' [in]	As' per ft [in^2]	d'' [in]	d [in]	b [in]	SDV7(55,95/95) [psi]	Temp(55,95/95) [deg F]	fc [psi]	Beta 1
4	12	0.44	2.375	0.44	2.375	9.625	12.0	3899	110.8	3899	0.85

B At12-14

WHC-SD-W320-ANAL-003
Rev. 0

Determination of Additional Meridional Moment/Axial Capacity Points for Section 4

fy (rebar) [psi]	E (rebar) [psi]	yield strain=fy/E	Trial c [in]	0.85fc*b	xp [in]	eps	fs [psi]	eps'	fs' [psi]
37631	28,080,308	.0013401	1.000	39770	3.625	2.588E-02	37631	-4.125E-03	-37631
			1.250			2.010E-02	37631	-2.700E-03	-37631
			1.500			1.625E-02	37631	-1.750E-03	-37631
			1.600			1.505E-02	37631	-1.453E-03	-37631
			1.700			1.399E-02	37631	-1.191E-03	-33449
			1.800			1.304E-02	37631	-9.583E-04	-26910
			1.900			1.220E-02	37631	-7.500E-04	-21060
			2.000			1.144E-02	37631	-5.625E-04	-15795
			2.100			1.075E-02	37631	-3.929E-04	-11032
			2.200			1.013E-02	37631	-2.386E-04	-6701
			2.300			9.554E-03	37631	-9.783E-05	-2747
			2.400			9.031E-03	37631	3.125E-05	878
			2.500			8.550E-03	37631	1.500E-04	4212
			2.600			8.106E-03	37631	2.596E-04	7290
			2.700			7.694E-03	37631	3.611E-04	10140
			3.200			6.023E-03	37631	7.734E-04	21718
			3.700			4.804E-03	37631	1.074E-03	30167
			4.200			3.875E-03	37631	1.304E-03	36605
			4.700			3.144E-03	37631	1.484E-03	37631
			5.200			2.553E-03	37631	1.630E-03	37631

B Att2-15

WHC-SD-W320-ANAL-003
Rev. 0

Determination of Additional Meridional Moment/Axial Capacity Points for Section 4

Cc [lbs]	Cs [lbs]	T [lbs]	P [lbs]	M [lb-in]	0.1fcAg/0.7	phi	phi x P [lbs]	phi x M [lb-in]
33,804	-16557	16557	689	188,459	80,208	0.898	619	169,289
42,255	-16557	16557	9,140	231,084	80,208	0.877	8,018	202,709
50,706	-16557	16557	17,592	271,914	80,208	0.856	15,061	232,795
54,087	-16557	16557	20,972	287,742	80,208	0.848	17,778	243,921
57,467	-14717	16557	26,192	309,954	80,208	0.835	21,863	258,715
60,848	-11841	16557	32,450	335,637	80,208	0.819	26,579	274,916
64,228	-9267	16557	38,404	359,935	80,208	0.804	30,886	289,473
67,609	-6950	16557	44,101	383,012	80,208	0.790	34,841	302,592
70,989	-4854	16557	49,578	405,002	80,208	0.776	38,491	314,435
74,370	-2948	16557	54,864	426,014	80,208	0.763	41,872	325,133
77,750	-1209	16557	59,984	446,139	80,208	0.750	45,014	334,796
81,130	386	16557	64,959	465,450	80,208	0.738	47,941	343,513
84,511	1853	16557	69,807	484,011	80,208	0.726	50,675	351,361
87,891	3208	16557	74,541	501,876	80,208	0.714	53,232	358,405
91,272	4462	16557	79,176	519,090	80,208	0.703	55,627	364,699
108,174	9556	16557	101,172	596,588	80,208	0.700	70,821	417,612
125,076	13274	16557	121,792	661,912	80,208	0.700	85,255	463,338
141,978	16106	16557	141,527	716,843	80,208	0.700	99,069	501,790
158,880	16557	16557	158,880	755,960	80,208	0.700	111,216	529,172
175,783	16557	16557	175,783	786,257	80,208	0.700	123,048	550,380

B Att2-16

WHC-SD-W320-ANAL-003
Rev. 0

P2-F2T.abdat

```
*HEADING
Postprocess p2-f2.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-872, 872
SM3, SM3-872, 872
**
SF3, SF3-876, 876
SM3, SM3-876, 876
**
SF3, SF3-880, 880
SM3, SM3-880, 880
**
```

P2-F2T.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 15-Jul-94

TIME 09:34:46

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p2-f2.fil for in-plane shear and twisting moment history data

STEP 0 INCREMENT 0

TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-872	679.	6.00	-147.	5.10
2 SM3-872	-393.	5.02	-1.750E+04	6.00
3 SF3-876	684.	5.16	-344.	6.00
4 SM3-876	4.595E+03	6.00	-1.474E+03	5.38
5 SF3-880	198.	5.38	-285.	5.72
6 SM3-880	6.848E+03	6.00	126.	5.02

TIME	VARIABLE					
	1	2	3	4	5	6
5.020	18.31	-392.6	152.1	71.30	-40.50	126.4
5.040	45.39	-648.6	145.7	193.4	-49.33	254.0
5.060	72.48	-904.4	139.3	315.5	-58.16	381.6
5.080	103.2	-1270.	113.8	171.5	-52.82	564.9
5.100	-147.2	-805.3	671.4	1293.	158.2	1206.
5.120	-130.0	-1046.	676.4	1417.	163.0	1360.
5.140	-109.0	-1304.	680.2	1539.	163.3	1518.
5.160	-87.96	-1561.	683.9	1660.	163.7	1676.
5.180	-47.72	-2177.	513.2	-119.0	128.5	1738.
5.200	-21.58	-2486.	446.8	-362.7	120.5	1850.
5.220	-3.863	-2815.	422.6	-296.4	117.7	2105.
5.240	15.92	-3101.	409.7	-323.4	112.8	2264.
5.260	96.12	-3716.	392.6	-442.8	18.25	2309.
5.280	122.0	-4031.	380.6	-475.2	9.199	2458.
5.300	83.04	-4643.	249.2	-894.2	55.59	3075.
5.320	57.99	-5031.	200.4	-1119.	78.14	3446.
5.340	67.21	-5349.	134.5	-1163.	99.09	3656.
5.360	82.78	-5672.	111.9	-1231.	96.95	3835.
5.380	14327	-5851.	123.1	-1474.	197.5	4087.
5.400	-20.38	-6020.	433.8	524.8	45.21	3422.
5.420	-67.48	-6347.	322.7	706.5	55.46	3773.
5.440	-61.76	-6672.	312.7	754.5	48.28	3912.
5.460	105.7	-7014.	101.5	2035.	-8.478	4073.
5.480	300.7	-7798.	-6.585	2167.	-109.4	4267.
5.500	312.1	-8150.	-17.79	2252.	-120.1	4401.
5.520	333.7	-8569.	19.90	2178.	-148.3	4571.
5.540	345.2	-8928.	10.84	2255.	-159.8	4705.
5.560	355.8	-9290.	2.325	2328.	-170.6	4837.
5.580	366.4	-9648.	-6.843	2404.	-182.0	4970.
5.600	377.5	-1.0003E+04	-17.57	2483.	-193.6	5103.
5.620	391.6	-1.0375E+04	-24.80	2546.	-207.4	5238.
5.640	405.1	-1.0754E+04	-35.47	2617.	-220.9	5338.
5.660	456.8	-1.1248E+04	-99.21	2846.	-251.2	5490.
5.680	478.6	-1.1681E+04	-116.7	2946.	-264.1	5621.
5.700	494.1	-1.2026E+04	-127.7	3022.	-276.6	5750.
5.720	512.1	-1.2310E+04	-133.1	3093.	-284.6	5829.
5.740	498.0	-1.2588E+04	-215.3	3422.	-277.3	5896.
5.760	518.7	-1.3008E+04	-207.8	3422.	-126.2	5438.
5.780	533.7	-1.3348E+04	-220.4	3499.	-133.8	5545.
5.800	550.5	-1.3679E+04	-235.5	3605.	-135.1	5597.
5.820	572.7	-1.4069E+04	-248.8	3693.	-144.5	5734.
5.840	595.2	-1.4469E+04	-243.1	3704.	-147.4	5726.
5.860	615.8	-1.4846E+04	-260.8	3809.	-151.7	5821.
5.880	600.3	-1.5169E+04	-288.1	3948.	-206.9	5938.
5.900	614.5	-1.5541E+04	-189.8	3732.	-206.0	6018.
5.920	626.6	-1.5900E+04	-242.8	3987.	-207.5	6134.
5.940	634.9	-1.6242E+04	-250.6	4065.	-213.3	6268.

5.960	641.4	-1.6666E+04	-304.4	4336.	-231.5	6471.
5.980	661.6	-1.7132E+04	-329.5	4496.	-253.4	6705.
6.000	679.2	-1.7501E+04	-343.6	4595.	-259.8	6848.

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 3

FILES RELATED TO TANK CENTER-SLAB RESIDUAL CAPACITY DETERMINATION

Prepared by: Phillip R. Kyh 8/23/94
Date

Checked by: SBKOK 8/24/94
Date

P3-F1A.abdat

```
*HEADING
P3-F1A.ABD (7/6/94): RESTART PPS-F1A FOR IMPACT LOAD ON FLOOR CENTER
**
*RESTART,READ,STEP=4,INC=20,WRITE,FREQ=10
*ELSET, ELSET=PUMP3
  289, 1, 161
  291, 4, 164
*NSET,NSET=CTR
  171
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
  0.02,1.
*CLOAD
  171, 3, -175000
*ELFILE, ELSET=PUMP3, FREQUENCY=2
  SF
*NODE FILE, NSET=CTR, FREQUENCY=2
  U
*END STEP
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P3-F1A.cvg

step, increm, iter, status, resx, resy, resz

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5, 2, 1, CONVERGENT, 2.090E-03, 2.060E-03, -5.224E-03
5, 3, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
5, 4, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
5, 5, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
5, 6, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
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5, 10, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
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5, 12, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
5, 13, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.222E-03
5, 14, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.223E-03
5, 15, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.223E-03
5, 16, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.223E-03
5, 17, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.223E-03
5, 18, 1, CONVERGENT, 2.119E-03, 2.088E-03, -5.223E-03
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5, 20, 1, NO, 741., 1.038E+03, -52.1
5, 20, 2, NO, -1.609E+03, 1.852E+03, -11.3
5, 20, 3, NO, 1.454E+03, -677., -11.4
5, 21, 1, NO, -874., -2.235E+03, -7.13
5, 21, 2, NO, -586., -215., 4.10
5, 21, 3, CONVERGENT, -20.8, -28.5, .146
5, 22, 1, CONVERGENT, .184, .137, -4.850E-03
5, 23, 1, NO, -562., 588., 3.679E-02
5, 23, 2, CONVERGENT, -20.3, 20.3, -2.688E-03
5, 24, 1, CONVERGENT, .137, .123, -4.766E-03
5, 25, 1, CONVERGENT, .131, .117, -4.796E-03
5, 26, 1, CONVERGENT, .125, .112, -4.796E-03
5, 27, 1, CONVERGENT, .120, .108, -4.796E-03
5, 28, 1, CONVERGENT, .115, .105, -4.796E-03
5, 29, 1, CONVERGENT, .111, .102, -4.796E-03
5, 30, 1, CONVERGENT, .107, 9.929E-02, -4.796E-03
5, 31, 1, CONVERGENT, .104, 9.686E-02, -4.796E-03
5, 32, 1, CONVERGENT, .101, 9.467E-02, -4.796E-03
5, 33, 1, CONVERGENT, 9.863E-02, 9.269E-02, -4.796E-03
5, 34, 1, CONVERGENT, 9.622E-02, 9.089E-02, -4.796E-03
5, 35, 1, NO, -5.366E+03, 945., -40.6
5, 35, 2, NO, -7.545E+03, 2.864E+03, -63.5
5, 35, 3, NO, -3.892E+03, 4.299E+03, -25.2
5, 36, 1, NO, -6.392E+03, 7.790E+03, -37.9
5, 36, 2, NO, -5.201E+03, 8.437E+03, -37.4
5, 36, 3, NO, -2.112E+03, 4.040E+03, 16.8
5, 37, 1, NO, 4.135E+03, -3.484E+03, -37.9
5, 37, 2, NO, -1.759E+03, 1.661E+03, 16.7
5, 37, 3, NO, 2.400E+03, -1.127E+03, -18.6
5, 38, 1, NO, 3.695E+03, 7.285E+03, 35.9
5, 38, 2, NO, -2.374E+03, 1.723E+03, 16.6
5, 38, 3, NO, 761., -529., 4.48
5, 39, 1, NO, -7.202E+03, -4.065E+03, -2.41
5, 39, 2, NO, -3.173E+03, -1.787E+03, -1.04
5, 39, 3, NO, -1.405E+03, -790., -.450
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5, 41, 1, CONVERGENT, 2.27, -1.95, -9.647E-03
5, 42, 1, NO, -5.364E+03, 3.219E+03, 37.6
5, 42, 2, NO, -2.883E+03, -5.834E+03, 40.8
5, 42, 3, NO, -5.154E+03, 7.361E+03, 29.8
5, 43, 1, NO, 9.303E+03, -7.728E+03, -4.24
5, 43, 2, NO, 4.242E+03, -3.239E+03, -1.64
5, 43, 3, NO, -7.282E+03, -2.314E+03, 38.5
5, 44, 1, NO, 3.345E+03, 587., -24.2
5, 44, 2, NO, 555., -71.7, 3.89
5, 44, 3, NO, -320., -92.7, 2.26
5, 45, 1, NO, -5.656E+03, 6.065E+03, 36.1
5, 45, 2, NO, -1.479E+03, 1.593E+03, 9.51
5, 45, 3, NO, -388., 419., 2.50
5, 46, 1, NO, -7.658E+03, 1.088E+03, -.852
5, 46, 2, NO, -3.751E+03, -581., -.236
5, 46, 3, NO, -1.856E+03, -300., 7.243E-02

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5, 47, 1, CONVERGENT, -19.6, -4.80, -3.064E-02
5, 48, 1, CONVERGENT, 2.93, -2.07, -1.354E-02
5, 49, 1, CONVERGENT, 2.87, -2.04, -1.364E-02
5, 50, 1, NO, -7.215E+03, 4.000E+03, 36.0
5, 50, 2, NO, -2.011E+03, 1.119E+03, 10.1
5, 50, 3, NO, -562., 313., 2.81
step, increm, iter, status, resx, resy, resz

P3-F1AP.abdat

```
*HEADING
Postprocess p3-f1a.fil for history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-289, 289
SF2, P2-289, 289
SF4, V13-289, 289
SF5, V23-289, 289
SM1, M22-289, 289
SM2, M11-289, 289
**
*PRINT HISTORY
SF1, P1-1, 1
SF2, P2-1, 1
SF4, V13-1, 1
SF5, V23-1, 1
SM1, M22-1, 1
SM2, M11-1, 1
**
*PRINT HISTORY
SF1, P1-161, 161
SF2, P2-161, 161
SF4, V13-161, 161
SF5, V23-161, 161
SM1, M22-161, 161
SM2, M11-161, 161
**
*PRINT HISTORY
SF1, P1-291, 291
SF2, P2-291, 291
SF4, V13-291, 291
SF5, V23-291, 291
SM1, M22-291, 291
SM2, M11-291, 291
**
*PRINT HISTORY
SF1, P1-4, 4
SF2, P2-4, 4
SF4, V13-4, 4
SF5, V23-4, 4
SM1, M22-4, 4
SM2, M11-4, 4
**
*PRINT HISTORY
SF1, P1-164, 164
SF2, P2-164, 164
SF4, V13-164, 164
SF5, V23-164, 164
SM1, M22-164, 164
SM2, M11-164, 164
**
*PRINT HISTORY
U1, U1-171, 171
U2, U2-171, 171
U3, U3-171, 171
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P3-FlAP.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 7-Jul-94

TIME 08:01:37

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p3-fla.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-289	-1.143E+03	4.04	-2.430E+03	5.00
2 P2-289	-1.157E+03	4.04	-2.549E+03	5.00
3 V13-289	-51.6	4.04	-1.126E+03	5.00
4 V23-289	55.1	5.00	3.19	4.04
5 M22-289	4.566E+03	5.00	873.	4.04
6 M11-289	4.726E+03	5.00	721.	4.04

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1143.	-1157.	-51.56	3.188	872.5	721.3
4.080	-1150.	-1174.	-98.32	4.686	1106.	952.3
4.120	-1156.	-1190.	-145.1	6.185	1339.	1183.
4.160	-1162.	-1207.	-191.9	7.683	1572.	1414.
4.200	-1169.	-1224.	-238.6	9.181	1805.	1645.
4.240	-1175.	-1241.	-285.4	10.68	2038.	1876.
4.280	-1181.	-1257.	-332.2	12.18	2272.	2107.
4.320	-1188.	-1274.	-378.9	13.68	2505.	2338.
4.360	-1194.	-1291.	-425.7	15.17	2738.	2569.
4.400	-1304.	-1396.	-472.2	9.030	2655.	2562.
4.440	-1346.	-1460.	-513.4	17.93	2899.	2752.
4.480	-1342.	-1466.	-557.8	19.48	3109.	2965.
4.520	-1361.	-1495.	-603.7	20.98	3305.	3161.
4.560	-1380.	-1525.	-649.6	22.48	3501.	3358.
4.600	-1399.	-1554.	-695.4	23.98	3698.	3554.
4.640	-1419.	-1584.	-741.3	25.48	3894.	3751.
4.680	-1438.	-1613.	-787.2	26.98	4090.	3947.
4.720	-1815.	-2129.	-839.6	27.50	3444.	3677.
4.760	-1956.	-2151.	-878.8	33.26	3696.	3841.
4.800	-1993.	-2217.	-924.7	34.83	3807.	3996.
4.840	-2084.	-2264.	-963.2	36.75	3963.	4121.
4.880	-2206.	-2349.	-998.2	46.39	4128.	4270.
4.920	-2286.	-2419.	-1041.	49.88	4278.	4429.
4.960	-2344.	-2487.	-1086.	52.48	4411.	4584.
5.000	-2430.	-2549.	-1126.	55.14	4566.	4726.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1	-1.142E+03	4.04	-2.514E+03	5.00
2 P2-1	-1.160E+03	4.04	-2.346E+03	5.00
3 V13-1	1.121E+03	5.00	50.8	4.04
4 V23-1	293.	5.00	12.8	4.04
5 M22-1	5.026E+03	4.84	865.	4.04
6 M11-1	5.305E+03	5.00	716.	4.04

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1142.	-1160.	50.77	12.82	865.4	716.0
4.080	-1149.	-1177.	96.00	25.87	1096.	942.4
4.120	-1155.	-1194.	141.2	38.93	1326.	1169.

4.160	-1162.	-1211.	186.5	51.98	1557.	1395.
4.200	-1168.	-1228.	231.7	65.04	1787.	1622.
4.240	-1175.	-1245.	276.9	78.09	2018.	1848.
4.280	-1181.	-1262.	322.1	91.15	2248.	2075.
4.320	-1188.	-1279.	367.4	104.2	2479.	2301.
4.360	-1194.	-1296.	412.6	117.3	2709.	2528.
4.400	-1313.	-1304.	460.0	128.0	2596.	2793.
4.440	-1347.	-1462.	497.6	140.7	2869.	2711.
4.480	-1343.	-1470.	540.9	152.9	3075.	2915.
4.520	-1363.	-1500.	585.3	165.6	3268.	3107.
4.560	-1382.	-1529.	629.7	178.3	3462.	3300.
4.600	-1401.	-1559.	674.1	191.0	3655.	3492.
4.640	-1421.	-1588.	718.5	203.7	3848.	3684.
4.680	-1440.	-1618.	762.9	216.5	4042.	3877.
4.720	-1861.	-1658.	780.7	221.9	4067.	4026.
4.760	-2051.	-1910.	815.1	229.8	4522.	4476.
4.800	-2112.	-2002.	859.6	250.6	4757.	4708.
4.840	-2103.	-2030.	916.4	271.4	5026.	4877.
4.880	-2383.	-2163.	978.4	253.4	4259.	4747.
4.920	-2413.	-2227.	1027.	268.6	4366.	4939.
4.960	-2477.	-2287.	1071.	280.1	4502.	5116.
5.000	-2514.	-2346.	1121.	292.8	4616.	5305.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-161	-1.159E+03	4.04	-2.552E+03	5.00
2 P2-161	-1.143E+03	4.04	-2.491E+03	5.00
3 V13-161	-15.8	4.04	-313.	5.00
4 V23-161	1.075E+03	5.00	50.0	4.04
5 M22-161	4.828E+03	5.00	870.	4.04
6 M11-161	4.492E+03	4.88	718.	4.04

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1159.	-1143.	-15.80	49.95	869.6	717.9
4.080	-1176.	-1149.	-29.90	94.88	1102.	946.2
4.120	-1193.	-1155.	-44.00	139.8	1335.	1174.
4.160	-1210.	-1161.	-58.10	184.7	1567.	1403.
4.200	-1228.	-1167.	-72.20	229.6	1800.	1631.
4.240	-1245.	-1174.	-86.30	274.6	2032.	1859.
4.280	-1262.	-1180.	-100.4	319.5	2265.	2087.
4.320	-1279.	-1186.	-114.5	364.4	2497.	2316.
4.360	-1296.	-1192.	-128.6	409.3	2730.	2544.
4.400	-1337.	-1305.	-138.8	452.4	2973.	2546.
4.440	-1465.	-1345.	-155.1	493.2	2923.	2697.
4.480	-1472.	-1341.	-168.6	535.9	3136.	2902.
4.520	-1502.	-1360.	-182.4	580.0	3334.	3093.
4.560	-1532.	-1379.	-196.3	624.0	3532.	3285.
4.600	-1562.	-1398.	-210.1	668.0	3730.	3476.
4.640	-1592.	-1417.	-223.9	712.1	3929.	3668.
4.680	-1621.	-1436.	-237.8	756.1	4127.	3859.
4.720	-1966.	-1915.	-240.2	786.1	4074.	3795.
4.760	-2120.	-1983.	-259.1	833.0	4393.	4052.
4.800	-2198.	-2020.	-263.3	878.4	4534.	4202.
4.840	-2257.	-2050.	-270.2	925.6	4719.	4386.
4.880	-2340.	-2015.	-253.6	977.0	4661.	4492.
4.920	-2471.	-2342.	-297.5	992.2	4556.	4096.
4.960	-2490.	-2413.	-309.6	1031.	4726.	4212.
5.000	-2552.	-2491.	-312.8	1075.	4828.	4366.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 4

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
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1	P1-291	-1.030E+03	4.36	-1.861E+03	5.00
2	P2-291	-840.	5.00	-1.177E+03	4.36
3	V13-291	151.	5.00	-11.9	4.04
4	V23-291	124.	5.00	-2.22	4.04
5	M22-291	-143.	4.04	-3.359E+03	5.00
6	M11-291	112.	4.04	-577.	5.00

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1072.	-1111.	-11.92	-2.221	-143.0	111.6
4.080	-1067.	-1120.	-7.293	1.524	-327.9	92.27
4.120	-1062.	-1128.	-2.666	5.269	-512.7	72.92
4.160	-1056.	-1136.	1.961	9.014	-697.6	53.58
4.200	-1051.	-1144.	6.588	12.76	-882.5	34.23
4.240	-1046.	-1152.	11.21	16.50	-1067.	14.88
4.280	-1040.	-1161.	15.84	20.25	-1252.	-4.461
4.320	-1035.	-1169.	20.47	23.99	-1437.	-23.81
4.360	-1030.	-1177.	25.10	27.74	-1622.	-43.15
4.400	-1137.	-1157.	32.27	37.60	-1544.	-84.28
4.440	-1104.	-1149.	42.30	39.77	-1795.	-142.3
4.480	-1121.	-1149.	49.60	45.14	-1986.	-170.1
4.520	-1127.	-1152.	55.38	49.56	-2151.	-191.2
4.560	-1132.	-1156.	61.15	53.97	-2317.	-212.3
4.600	-1138.	-1160.	66.93	58.39	-2482.	-233.4
4.640	-1144.	-1163.	72.71	62.81	-2648.	-254.4
4.680	-1149.	-1167.	78.49	67.23	-2814.	-275.5
4.720	-1534.	-986.6	105.3	84.93	-2446.	-435.9
4.760	-1576.	-923.4	113.7	91.86	-2602.	-464.4
4.800	-1613.	-910.2	121.4	97.71	-2728.	-484.7
4.840	-1656.	-895.0	126.9	102.4	-2846.	-499.7
4.880	-1727.	-877.3	131.4	108.0	-2984.	-523.5
4.920	-1775.	-863.9	137.5	113.3	-3111.	-540.0
4.960	-1816.	-852.0	144.7	119.0	-3238.	-560.0
5.000	-1861.	-840.0	150.6	124.0	-3359.	-576.9

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 5

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-4	-1.031E+03	4.36	-1.840E+03	5.00
2 P2-4	-904.	5.00	-1.182E+03	4.36
3 V13-4	8.34	4.04	-209.	5.00
4 V23-4	74.7	5.00	1.99	4.04
5 M22-4	-147.	4.04	-3.337E+03	5.00
6 M11-4	128.	4.04	-669.	5.00

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1075.	-1116.	8.335	1.987	-147.1	128.4
4.080	-1069.	-1124.	2.366	4.338	-333.2	108.1
4.120	-1064.	-1133.	-3.603	6.689	-519.2	87.76
4.160	-1058.	-1141.	-9.572	9.040	-705.3	67.42
4.200	-1053.	-1149.	-15.54	11.39	-891.3	47.09
4.240	-1048.	-1157.	-21.51	13.74	-1077.	26.76
4.280	-1042.	-1166.	-27.48	16.09	-1263.	6.423
4.320	-1037.	-1174.	-33.45	18.44	-1449.	-13.91
4.360	-1031.	-1182.	-39.42	20.80	-1636.	-34.24
4.400	-1152.	-1172.	-47.59	25.34	-1523.	-63.60
4.440	-1106.	-1155.	-60.42	27.69	-1807.	-133.4
4.480	-1122.	-1155.	-69.45	30.92	-1999.	-162.4
4.520	-1128.	-1159.	-76.75	33.61	-2165.	-184.5
4.560	-1133.	-1163.	-84.04	36.30	-2332.	-206.6
4.600	-1139.	-1167.	-91.33	39.00	-2498.	-228.7
4.640	-1145.	-1170.	-98.63	41.69	-2665.	-250.8
4.680	-1150.	-1174.	-105.9	44.39	-2831.	-272.8
4.720	-1291.	-1104.	-108.7	48.15	-2994.	-287.9
4.760	-1543.	-982.0	-125.2	52.64	-2419.	-405.3
4.800	-1568.	-973.2	-135.5	56.09	-2537.	-440.6
4.840	-1583.	-959.4	-147.6	58.08	-2645.	-464.6

4.880	-1717.	-937.7	-175.7	64.97	-2941.	-579.6
4.920	-1761.	-924.5	-188.0	67.91	-3081.	-612.0
4.960	-1802.	-915.2	-197.8	71.13	-3205.	-638.5
5.000	-1840.	-903.7	-209.3	74.68	-3337.	-669.1

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 6

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-164	-855.	5.00	-1.178E+03	4.36
2 P2-164	-1.031E+03	4.36	-1.874E+03	5.00
3 V13-164	-1.08	4.04	-93.3	4.96
4 V23-164	8.48	4.04	-206.	5.00
5 M22-164	261.	4.04	-505.	5.00
6 M11-164	-279.	4.04	-3.324E+03	5.00

TIME	VARIABLE	1	2	3	4	5	6
4.040	-1113.	-1074.	-1.078	8.479	260.8	-279.0	
4.080	-1121.	-1069.	-3.477	2.586	240.5	-462.0	
4.120	-1129.	-1063.	-5.875	-3.307	220.3	-645.1	
4.160	-1137.	-1058.	-8.273	-9.200	200.0	-828.1	
4.200	-1145.	-1052.	-10.67	-15.09	179.7	-1011.	
4.240	-1154.	-1047.	-13.07	-20.99	159.5	-1194.	
4.280	-1162.	-1042.	-15.47	-26.88	139.2	-1377.	
4.320	-1170.	-1036.	-17.87	-32.77	119.0	-1560.	
4.360	-1178.	-1031.	-20.26	-38.67	98.69	-1743.	
4.400	-1163.	-1105.	-23.22	-47.11	41.73	-1663.	
4.440	-1149.	-1106.	-27.17	-59.65	-8.548	-1899.	
4.480	-1149.	-1123.	-30.44	-68.60	-38.01	-2086.	
4.520	-1152.	-1129.	-33.18	-75.82	-60.39	-2248.	
4.560	-1156.	-1134.	-35.92	-83.04	-82.77	-2410.	
4.600	-1160.	-1140.	-38.66	-90.26	-105.1	-2573.	
4.640	-1163.	-1146.	-41.40	-97.48	-127.5	-2735.	
4.680	-1167.	-1151.	-44.15	-104.7	-149.9	-2898.	
4.720	-1023.	-1503.	-69.70	-123.6	-279.1	-2333.	
4.760	-961.9	-1523.	-70.36	-137.6	-332.9	-2466.	
4.800	-953.4	-1577.	-69.92	-149.7	-378.3	-2604.	
4.840	-941.9	-1613.	-71.32	-159.9	-406.7	-2717.	
4.880	-917.3	-1705.	-79.52	-177.7	-477.1	-2913.	
4.920	-882.6	-1810.	-86.22	-192.5	-476.0	-3114.	
4.960	-866.5	-1855.	-93.35	-201.8	-490.2	-3236.	
5.000	-855.1	-1874.	-91.77	-205.9	-505.4	-3324.	

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 7

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-171	2.830E-06	4.04	-3.414E-03	4.72
2 U2-171	-3.947E-36	4.04	-3.251E-35	5.00
3 U3-171	.582	4.04	.195	5.00

TIME	VARIABLE	1	2	3
4.040	2.8302E-06	-3.9469E-36	.5816	
4.080	2.7503E-06	-4.0557E-36	.5670	
4.120	2.6705E-06	-4.1645E-36	.5523	
4.160	2.5906E-06	-4.2733E-36	.5376	
4.200	2.5108E-06	-4.3822E-36	.5230	
4.240	2.4309E-06	-4.4910E-36	.5083	
4.280	2.3511E-06	-4.5998E-36	.4936	
4.320	2.2712E-06	-4.7086E-36	.4790	
4.360	2.1913E-06	-4.8174E-36	.4643	
4.400	-8.4370E-05	-1.5634E-35	.4475	

4.440	-4.7752E-06	-5.5523E-36	.4303
4.480	-5.1086E-06	-5.6336E-36	.4143
4.520	-5.8051E-06	-5.7911E-36	.3990
4.560	-6.4914E-06	-5.9485E-36	.3836
4.600	-7.1691E-06	-6.1059E-36	.3683
4.640	-7.8393E-06	-6.2633E-36	.3530
4.680	-8.5030E-06	-6.4207E-36	.3377
4.720	-3.4143E-03	-2.3283E-35	.3157
4.760	-2.7697E-03	-2.5893E-35	.2963
4.800	-3.0340E-03	-8.8684E-36	.2797
4.840	-2.6480E-03	-2.7828E-35	.2629
4.880	-1.2204E-03	-2.9316E-35	.2449
4.920	-8.9145E-04	-3.0542E-35	.2281
4.960	-9.3071E-04	-1.0490E-35	.2117
5.000	-5.9645E-04	-3.2508E-35	.1951

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:

TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P3-F1AP RESULTS - 350,000 lb LOAD AT SLAB CENTER						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 289						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	13716	13884	-619	38	10470	8656
4.08	13800	14088	-1180	56	13272	11428
4.12	13872	14280	-1741	74	16068	14196
4.16	13944	14484	-2303	92	18864	16968
4.20	14028	14688	-2863	110	21660	19740
4.24	14100	14892	-3425	128	24456	22512
4.28	14172	15084	-3986	146	27264	25284
4.32	14256	15288	-4547	164	30060	28056
4.36	14328	15492	-5108	182	32856	30828
4.40	15648	16752	-5666	108	31860	30744
4.44	16152	17520	-6161	215	34788	33024
4.48	16104	17592	-6694	234	37308	35580
4.52	16332	17940	-7244	252	39660	37932
4.56	16560	18300	-7795	270	42012	40296
4.60	16788	18648	-8345	288	44376	42648
4.64	17028	19008	-8896	306	46728	45012
4.68	17256	19356	-9446	324	49080	47364
4.72	21780	25548	-10075	330	41328	44124
4.76	23472	25812	-10546	399	44352	46092
4.80	23916	26604	-11096	418	45684	47952
4.84	25008	27168	-11558	441	47556	49452
4.88	26472	28188	-11978	557	49536	51240
4.92	27432	29028	-12492	599	51336	53148
4.96	28128	29844	-13032	630	52932	55008
5.00	29160	30588	-13512	662	54792	56712

P3-F1AP RESULTS - 350,000 lb LOAD AT SLAB CENTER						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	13704	13920	609	154	10385	8592
4.08	13788	14124	1152	310	13152	11309
4.12	13860	14328	1694	467	15912	14028
4.16	13944	14532	2238	624	18684	16740
4.20	14016	14736	2780	780	21444	19464
4.24	14100	14940	3323	937	24216	22176
4.28	14172	15144	3865	1094	26976	24900
4.32	14256	15348	4409	1250	29748	27612
4.36	14328	15552	4951	1408	32508	30336
4.40	15756	15648	5520	1536	31152	33516
4.44	16164	17544	5971	1688	34428	32532
4.48	16116	17640	6491	1835	36900	34980
4.52	16356	18000	7024	1987	39216	37284
4.56	16584	18348	7556	2140	41544	39600
4.60	16812	18708	8089	2292	43860	41904
4.64	17052	19056	8622	2444	46176	44208
4.68	17280	19416	9155	2598	48504	46524
4.72	22332	19896	9368	2663	48804	48312
4.76	24612	22920	9781	2758	54264	53712
4.80	25344	24024	10315	3007	57084	56496
4.84	25236	24360	10997	3257	60312	58524
4.88	28596	25956	11741	3041	51108	56964
4.92	28956	26724	12324	3223	52392	59268
4.96	29724	27444	12852	3361	54024	61392
5.00	30168	28152	13452	3514	55392	63660

P3-F1AP RESULTS - 350,000 lb LOAD AT SLAB CENTER						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 161						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	13908	13716	-190	599	10435	8615
4.08	14112	13788	-359	1139	13224	11354
4.12	14316	13860	-528	1678	16020	14088
4.16	14520	13932	-697	2216	18804	16836
4.20	14736	14004	-866	2755	21600	19572
4.24	14940	14088	-1036	3295	24384	22308
4.28	15144	14160	-1205	3834	27180	25044
4.32	15348	14232	-1374	4373	29964	27792
4.36	15552	14304	-1543	4912	32760	30528
4.40	16044	15660	-1666	5429	35676	30552
4.44	17580	16140	-1861	5918	35076	32364
4.48	17664	16092	-2023	6431	37632	34824
4.52	18024	16320	-2189	6960	40008	37116
4.56	18384	16548	-2356	7488	42384	39420
4.60	18744	16776	-2521	8016	44760	41712
4.64	19104	17004	-2687	8545	47148	44016
4.68	19452	17232	-2854	9073	49524	46308
4.72	23592	22980	-2882	9433	48888	45540
4.76	25440	23796	-3109	9996	52716	48624
4.80	26376	24240	-3160	10541	54408	50424
4.84	27084	24600	-3242	11107	56628	52632
4.88	28080	24180	-3043	11724	55932	53904
4.92	29652	28104	-3570	11906	54672	49152
4.96	29880	28956	-3715	12372	56712	50544
5.00	30624	29892	-3754	12900	57936	52392

P3-F1AP RESULTS - 350,000 lb LOAD AT SLAB CENTER						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 291						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	12864	13332	-143	-27	1716	1339
4.08	12804	13440	-88	18	3935	1107
4.12	12744	13536	-32	63	6152	875
4.16	12672	13632	24	108	8371	643
4.20	12612	13728	79	153	10590	411
4.24	12552	13824	135	198	12804	179
4.28	12480	13932	190	243	15024	54
4.32	12420	14028	246	288	17244	286
4.36	12360	14124	301	333	19464	518
4.40	13644	13884	387	451	18528	1011
4.44	13248	13788	508	477	21540	1708
4.48	13452	13788	595	542	23832	2041
4.52	13524	13824	665	595	25812	2294
4.56	13584	13872	734	648	27804	2548
4.60	13656	13920	803	701	29784	2801
4.64	13728	13956	873	754	31776	3053
4.68	13788	14004	942	807	33768	3306
4.72	18408	11839	1264	1019	29352	5231
4.76	18912	11081	1364	1102	31224	5573
4.80	19356	10922	1457	1173	32736	5816
4.84	19872	10740	1523	1229	34152	5996
4.88	20724	10528	1577	1296	35808	6282
4.92	21300	10367	1650	1360	37332	6480
4.96	21792	10224	1736	1428	38856	6720
5.00	22332	10080	1807	1488	40308	6923

P3-F1AP RESULTS - 350,000 lb LOAD AT SLAB CENTER						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 4						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	12900	13392	100	24	1765	1541
4.08	12828	13488	28	52	3998	1297
4.12	12768	13596	-43	80	6230	1053
4.16	12696	13692	-115	108	8464	809
4.20	12636	13788	-186	137	10696	565
4.24	12576	13884	-258	165	12924	321
4.28	12504	13992	-330	193	15156	77
4.32	12444	14088	-401	221	17388	167
4.36	12372	14184	-473	250	19632	411
4.40	13824	14064	-571	304	18276	763
4.44	13272	13860	-725	332	21684	1601
4.48	13464	13860	-833	371	23988	1949
4.52	13536	13908	-921	403	25980	2214
4.56	13596	13956	-1008	436	27984	2479
4.60	13668	14004	-1096	468	29976	2744
4.64	13740	14040	-1184	500	31980	3010
4.68	13800	14088	-1271	533	33972	3274
4.72	15492	13248	-1304	578	35928	3455
4.76	18516	11784	-1502	632	29028	4864
4.80	18816	11678	-1626	673	30444	5287
4.84	18996	11513	-1771	697	31740	5575
4.88	20604	11252	-2108	780	35292	6955
4.92	21132	11094	-2256	815	36972	7344
4.96	21624	10982	-2374	854	38460	7662
5.00	22080	10844	-2512	896	40044	8029

P3-F1AP RESULTS - 350,000 lb LOAD AT SLAB CENTER						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 164						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	13356	12888	-13	102	3130	3348
4.08	13452	12828	-42	31	2886	5544
4.12	13548	12756	-71	-40	2644	7741
4.16	13644	12696	-99	-110	2400	9937
4.20	13740	12624	-128	-181	2156	12132
4.24	13848	12564	-157	-252	1914	14328
4.28	13944	12504	-186	-323	1670	16524
4.32	14040	12432	-214	-393	1428	18720
4.36	14136	12372	-243	-464	1184	20916
4.40	13956	13260	-279	-565	501	19956
4.44	13788	13272	-326	-716	103	22788
4.48	13788	13476	-365	-823	456	25032
4.52	13824	13548	-398	-910	725	26976
4.56	13872	13608	-431	-996	993	28920
4.60	13920	13680	-464	-1083	1261	30876
4.64	13956	13752	-497	-1170	1530	32820
4.68	14004	13812	-530	-1256	1799	34776
4.72	12276	18036	-836	-1483	3349	27996
4.76	11543	18276	-844	-1651	3995	29592
4.80	11441	18924	-839	-1796	4540	31248
4.84	11303	19356	-856	-1919	4880	32604
4.88	11008	20460	-954	-2132	5725	34956
4.92	10591	21720	-1035	-2310	5712	37368
4.96	10398	22260	-1120	-2422	5882	38832
5.00	10261	22488	-1101	-2471	6065	39888

P3-F1AT.abdat

```
*HEADING
Postprocess p3-f1a.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-289, 289
SM3, SM3-289, 289
**
SF3, SF3-1, 1
SM3, SM3-1, 1
**
SF3, SF3-161, 161
SM3, SM3-161, 161
**
*PRINT HISTORY
SF3, SF3-291, 291
SM3, SM3-291, 291
**
SF3, SF3-4, 4
SM3, SM3-4, 4
**
SF3, SF3-164, 164
SM3, SM3-164, 164
**
```

P3-F1AT.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 15-Jul-94

TIME 09:37:36

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p3-f1a.fil for in-plane shear and twisting moment history data

STEP 0 INCREMENT 0

TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-289	-4.23	4.04	-56.1	4.72
2 SM3-289	87.1	4.80	.390	4.40
3 SF3-1	34.9	4.68	-59.2	4.96
4 SM3-1	6.08	4.76	-151.	5.00
5 SF3-161	131.	4.88	-35.8	4.68
6 SM3-161	538.	4.84	-4.43	4.36

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-4.231	.8333	2.761	.4864	-3.370	-.2800
4.080	-6.218	1.008	4.904	.5900	-5.436	-.7983
4.120	-8.206	1.183	7.047	.6936	-7.502	-1.317
4.160	-10.19	1.358	9.189	.7972	-9.568	-1.835
4.200	-12.18	1.533	11.33	.9008	-11.63	-2.353
4.240	-14.17	1.708	13.47	1.004	-13.70	-2.872
4.280	-16.16	1.882	15.62	1.108	-15.77	-3.390
4.320	-18.14	2.057	17.76	1.212	-17.83	-3.908
4.360	-20.13	2.232	19.90	1.315	-19.90	-4.427
4.400	-8.629	.3897	-14.27	-97.41	23.90	158.2
4.440	-23.43	10.04	22.28	-7.236	-23.33	1.588
4.480	-25.45	11.18	24.58	-7.559	-25.49	1.757
4.520	-27.46	12.00	26.65	-8.068	-27.55	1.959
4.560	-29.46	12.82	28.72	-8.570	-29.60	2.154
4.600	-31.47	13.63	30.79	-9.068	-31.66	2.341
4.640	-33.48	14.43	32.87	-9.562	-33.72	2.522
4.680	-35.49	15.23	34.94	-10.05	-35.78	2.699
4.720	-56.14	84.08	-8.456	.5164	38.18	427.0
4.760	-46.71	77.27	-7.775	6.084	62.71	473.5
4.800	-53.47	87.07	4.749	.3250	57.57	502.8
4.840	-52.05	84.07	14.84	-.9222	95.24	538.3
4.880	-50.44	75.95	-51.85	-116.6	131.0	492.3
4.920	-51.33	77.42	-56.67	-129.5	-24.19	21.43
4.960	-54.54	82.62	-59.25	-136.2	-19.26	21.20
5.000	-53.52	81.42	-57.58	-150.9	-16.27	15.40

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-291	72.1	5.00	-8.24	4.36
2 SM3-291	157.	5.00	10.2	4.04
3 SF3-4	8.83	4.36	-62.9	5.00
4 SM3-4	-7.32	4.04	-142.	4.72
5 SF3-164	56.8	4.84	-8.96	4.36
6 SM3-164	136.	4.68	9.38	4.04

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-.7783	10.25	1.192	-7.315	-.9303	9.383
4.080	-1.712	19.39	2.147	-16.39	-1.933	18.47

4.120	-2.645	28.54	3.102	-25.46	-2.937	27.57
4.160	-3.578	37.69	4.058	-34.53	-3.940	36.66
4.200	-4.511	46.84	5.013	-43.61	-4.943	45.75
4.240	-5.445	55.99	5.968	-52.68	-5.946	54.84
4.280	-6.378	65.14	6.923	-61.75	-6.949	63.93
4.320	-7.311	74.29	7.878	-70.83	-7.953	73.02
4.360	-8.244	83.44	8.833	-79.90	-8.956	82.11
4.400	-5.456	82.52	3.754	-74.92	-3.313	72.67
4.440	-.7959	87.96	1.643	-85.12	-1.694	86.71
4.480	.2581	97.61	.6576	-94.62	-.7773	96.27
4.520	.3182	105.6	.6165	-102.5	-.7861	104.2
4.560	.3800	113.6	.5739	-110.4	-.7935	112.1
4.600	.4432	121.5	.5302	-118.3	-.7997	120.0
4.640	.5076	129.5	.4853	-126.1	-.8049	127.8
4.680	.5730	137.4	.4396	-134.0	-.8091	135.7
4.720	43.65	113.9	-9.174	-142.5	-5.258	66.22
4.760	50.11	121.2	-37.99	-104.3	25.34	87.35
4.800	53.16	126.8	-42.22	-109.9	43.96	110.9
4.840	56.71	132.2	-42.84	-112.3	56.77	125.5
4.880	61.28	138.9	-53.52	-125.9	54.98	111.2
4.920	65.05	145.1	-56.92	-131.3	43.60	63.52
4.960	68.47	151.0	-60.02	-136.4	39.92	50.72
5.000	72.10	156.7	-62.91	-141.5	50.17	70.87

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 4

FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION,
11.9 FT. FROM CENTER

Prepared by: Phillip R. Kih 8/23/94
Date

Checked by: SB KOK 8/24/94
Date

P4-F1A.abdat

```
*HEADING
P4-F1A.ABD (7/8/94): RESTART PPS-F1A FOR IMPACT LOAD 11.9 ft FROM FLOOR CENTER
**
*RESTART,READ,STEP=4,INC=20,WRITE,FREQ=10
*ELSET, ELSET=PUMP4
  301, 1257
*NSET,NSET=LOADPT
  1743
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
  0.02,1.
*CLOAD
  1743, 3, -175000
*ELFILE, ELSET=PUMP4, FREQUENCY=2
  SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
  U
*END STEP
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P4-F1A.cvg

step, increm, iter, status, resx, resy, resz

5, 1, 1, CONVERGENT, 3.732E-02, 2.640E-02, 1.284E-02
5, 2, 1, CONVERGENT, 2.774E-02, -2.051E-02, -7.422E-03
5, 3, 1, CONVERGENT, 2.770E-02, -2.057E-02, -7.421E-03
5, 4, 1, CONVERGENT, 2.770E-02, -2.057E-02, -7.421E-03
5, 5, 1, CONVERGENT, 2.770E-02, -2.057E-02, -7.421E-03
5, 6, 1, NO, 142., 2.361E+03, .376
5, 6, 2, NO, 21.0, 276., 7.463E-02
5, 6, 3, CONVERGENT, 3.18, 32.3, 1.370E-02
5, 7, 1, CONVERGENT, .864, .604, -7.390E-03
5, 8, 1, CONVERGENT, .597, .628, -7.391E-03
5, 9, 1, CONVERGENT, .446, .644, -7.391E-03
5, 10, 1, NO, 621., 9.596E+03, 1.76
5, 10, 2, NO, -1.311E+03, 5.334E+03, -44.5
5, 10, 3, NO, -316., 1.841E+03, -6.87
5, 11, 1, CONVERGENT, 5.78, 4.92, -4.929E-02
5, 12, 1, NO, -1.111E+03, 793., -8.17
5, 12, 2, CONVERGENT, -75.0, 64.0, -.556
5, 13, 1, CONVERGENT, 1.45, 4.01, -1.146E-02
5, 14, 1, CONVERGENT, 1.36, 3.94, -7.134E-03
5, 15, 1, NO, 4.351E+03, 8.787E+03, 163.
5, 15, 2, NO, 1.520E+03, 2.836E+03, 57.4
5, 15, 3, NO, 529., 927., 20.1
5, 16, 1, NO, 1.252E+03, 4.304E+03, 7.58
5, 16, 2, NO, 242., 648., 1.48
5, 16, 3, CONVERGENT, 43.7, 96.6, .273
5, 17, 1, CONVERGENT, 3.56, 7.72, 2.391E-02
5, 18, 1, NO, -4.386E+03, 3.587E+03, -32.4
5, 18, 2, NO, -741., 701., -5.51
5, 18, 3, NO, -128., 130., -.958
5, 19, 1, NO, -470., -1.653E+03, 3.17
5, 19, 2, NO, 31.6, -125., -.175
5, 19, 3, CONVERGENT, 2.91, -8.70, -1.149E-02
5, 20, 1, NO, 421., 1.666E+03, 3.56
5, 20, 2, NO, 48.4, 191., .408
5, 20, 3, CONVERGENT, 5.54, 22.0, 4.679E-02
5, 21, 1, NO, -309., 1.980E+03, .580
5, 21, 2, NO, -54.8, 345., 9.450E-02
5, 21, 3, CONVERGENT, -9.63, 60.1, 1.597E-02
5, 22, 1, CONVERGENT, 1.81, 8.27, 2.145E-02
5, 23, 1, NO, -3.160E+03, 57.5, -22.2
5, 23, 2, NO, -523., 8.88, -3.67
5, 23, 3, CONVERGENT, -86.6, 1.47, -.608
5, 24, 1, NO, -1.898E+03, 5.255E+03, -70.3
5, 24, 2, NO, -320., 774., -12.0
5, 24, 3, NO, -52.5, 115., -1.98
5, 25, 1, NO, -1.005E+03, 2.138E+03, -51.9
5, 25, 2, NO, 1.879E+03, -8.323E+03, 6.33
5, 25, 3, NO, 699., -3.427E+03, 3.57
5, 26, 1, NO, 686., 13.8, 4.76
5, 26, 2, CONVERGENT, -24.8, -.639, -.172
5, 27, 1, NO, -1.765E+03, 7.274E+03, 45.9
5, 27, 2, NO, 862., 2.077E+03, 6.82
5, 27, 3, NO, 168., 610., 1.40
5, 28, 1, NO, 1.400E+03, -1.225E+03, 7.25
5, 28, 2, NO, 112., -131., .520
5, 28, 3, CONVERGENT, 10.1, -13.2, 4.411E-02
5, 29, 1, NO, 1.421E+03, 2.653E+03, -84.4
5, 29, 2, NO, -164., 445., -10.1
5, 29, 3, CONVERGENT, -21.2, 74.1, -1.42
5, 30, 1, CONVERGENT, -2.88, 7.98, -4.885E-02
5, 31, 1, NO, 4.507E+03, 694., 31.0
5, 31, 2, NO, 1.076E+03, 270., 7.35
5, 31, 3, NO, 252., 72.4, 1.72
5, 32, 1, NO, -3.849E+03, -3.412E+03, -30.2
5, 32, 2, NO, -681., -743., -5.49
5, 32, 3, NO, -129., -150., -1.05
5, 33, 1, CONVERGENT, 2.58, 8.13, -4.788E-02
5, 34, 1, NO, 5.416E+03, -3.254E+03, 34.0
5, 34, 2, NO, 1.961E+03, 2.126E+03, 11.2
5, 34, 3, NO, 670., -746., 3.82
5, 35, 1, NO, -1.848E+03, 2.503E+03, -14.0

5, 35, 2, NO, -183., 271., -1.39
5, 35, 3, CONVERGENT, -18.5, 28.7, -.142
5, 36, 1, NO, -1.948E+03, 160., -81.0
5, 36, 2, NO, -165., 20.7, -6.87
5, 36, 3, CONVERGENT, -13.9, 2.21, -.579
5, 37, 1, CONVERGENT, 2.44, 8.24, -4.978E-02
5, 38, 1, NO, -880., 1.685E+03, -2.88
5, 38, 2, NO, -102., 214., -.298
5, 38, 3, CONVERGENT, -12.4, 26.9, -3.513E-02
5, 39, 1, NO, -851., -583., -6.80
5, 39, 2, CONVERGENT, -49.0, -40.1, -.403
5, 40, 1, CONVERGENT, 2.37, 8.28, -5.149E-02
5, 41, 1, CONVERGENT, 2.36, 8.29, -5.227E-02
5, 42, 1, NO, -3.619E+03, 9.124E+03, -194.
5, 42, 2, NO, -1.153E+03, 3.967E+03, -63.7
5, 42, 3, NO, -422., -1.324E+03, -23.7
5, 43, 1, NO, 2.647E+03, 340., 18.5
5, 43, 2, NO, 260., 49.7, 1.83
5, 43, 3, CONVERGENT, -25.8, 7.99, -.182
5, 44, 1, CONVERGENT, 2.34, 7.15, -5.599E-02
5, 45, 1, NO, -869., 2.244E+03, 25.1
5, 45, 2, NO, -123., -343., -3.44
5, 45, 3, CONVERGENT, -18.4, -52.6, -.507
5, 46, 1, CONVERGENT, 2.33, 7.21, -5.904E-02
5, 47, 1, CONVERGENT, 2.32, 7.23, -6.002E-02
5, 48, 1, CONVERGENT, 2.31, 7.26, -6.112E-02
5, 49, 1, NO, -1.336E+03, 2.038E+03, -9.57
5, 49, 2, NO, -138., 370., -.987
5, 49, 3, CONVERGENT, -14.4, 67.0, -.103
5, 50, 1, NO, 648., -153., 4.48
5, 50, 2, CONVERGENT, 19.0, -3.18, .131
step, increm, iter, status, resx, resy, resz

P4-F1AP.abdat

```
*HEADING
Postprocess p4-f1a.fil for history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.abdat
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-301, 301
SF2, P2-301, 301
SF4, V13-301, 301
SF5, V23-301, 301
SM1, M22-301, 301
SM2, M11-301, 301
**
*PRINT HISTORY
SF1, P1-1257, 1257
SF2, P2-1257, 1257
SF4, V13-1257, 1257
SF5, V23-1257, 1257
SM1, M22-1257, 1257
SM2, M11-1257, 1257
**
*PRINT HISTORY
U1, U1-1743, 1743
U2, U2-1743, 1743
U3, U3-1743, 1743
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P4-FIAP.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 10-Jul-94

TIME 20:43:45

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p4-f1a.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-301	-1.131E+03	4.44	-2.484E+03	5.00
2 P2-301	-1.125E+03	4.08	-4.513E+03	5.00
3 V13-301	1.717E+03	5.00	79.9	4.04
4 V23-301	3.979E+03	5.00	156.	4.04
5 M22-301	5.472E+03	5.00	857.	4.04
6 M11-301	9.678E+03	5.00	1.006E+03	4.04

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1292.	-1147.	79.90	156.1	857.1	1006.
4.080	-1276.	-1125.	148.5	301.6	1208.	1847.
4.120	-1254.	-1166.	219.3	447.8	1591.	2362.
4.160	-1243.	-1178.	289.1	594.8	1929.	3028.
4.200	-1201.	-1550.	367.4	746.3	2345.	2748.
4.240	-1182.	-1636.	437.7	898.1	2702.	3078.
4.280	-1179.	-1757.	509.1	1048.	3028.	3428.
4.320	-1214.	-1895.	589.2	1239.	3016.	3612.
4.360	-1146.	-2009.	651.5	1392.	3318.	3897.
4.400	-1135.	-2135.	717.6	1545.	3619.	4197.
4.440	-1131.	-2272.	788.0	1698.	3892.	4513.
4.480	-1596.	-2350.	860.1	1914.	3128.	4728.
4.520	-1669.	-2658.	934.3	2076.	3322.	5371.
4.560	-1703.	-2797.	989.5	2233.	3450.	5704.
4.600	-1747.	-2949.	1061.	2408.	3592.	6054.
4.640	-1868.	-3069.	1120.	2568.	3854.	6352.
4.680	-1966.	-3214.	1184.	2727.	4076.	6692.
4.720	-2000.	-3343.	1249.	2890.	4208.	7008.
4.760	-2060.	-3485.	1316.	3053.	4372.	7341.
4.800	-2117.	-3625.	1384.	3215.	4531.	7670.
4.840	-2222.	-3880.	1452.	3354.	4770.	8224.
4.880	-2314.	-4053.	1516.	3506.	4989.	8620.
4.920	-2375.	-4212.	1583.	3664.	5155.	8987.
4.960	-2440.	-4365.	1650.	3824.	5327.	9344.
5.000	-2484.	-4513.	1717.	3979.	5472.	9678.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1257	-1.102E+03	4.28	-1.630E+03	5.00
2 P2-1257	-940.	4.28	-1.958E+03	5.00
3 V13-1257	-51.4	4.04	-1.010E+03	5.00
4 V23-1257	1.399E+03	5.00	64.3	4.04
5 M22-1257	3.218E+03	5.00	743.	4.04
6 M11-1257	4.272E+03	5.00	573.	4.04

TIME	VARIABLE					
	1	2	3	4	5	6
4.040	-1323.	-1191.	-51.42	64.32	742.6	573.3
4.080	-1282.	-1181.	-96.45	128.7	938.3	953.1
4.120	-1240.	-1149.	-143.7	191.8	1140.	1371.
4.160	-1199.	-1127.	-189.7	255.4	1336.	1772.

4.200	-1166.	-1059.	-238.7	312.7	1508.	2006.
4.240	-1134.	-985.4	-284.7	372.2	1671.	2373.
4.280	-1102.	-940.3	-330.9	433.0	1838.	2717.
4.320	-1165.	-1166.	-363.5	478.1	1821.	2134.
4.360	-1164.	-1165.	-405.0	534.6	1899.	2263.
4.400	-1162.	-1170.	-446.8	591.1	1985.	2396.
4.440	-1162.	-1183.	-491.1	647.5	2088.	2541.
4.480	-1258.	-1344.	-520.6	700.3	2053.	2531.
4.520	-1319.	-1409.	-563.2	751.7	2162.	2702.
4.560	-1359.	-1447.	-594.9	806.6	2304.	2829.
4.600	-1366.	-1493.	-633.7	861.2	2401.	2961.
4.640	-1397.	-1523.	-670.4	915.7	2464.	3059.
4.680	-1434.	-1559.	-709.2	970.5	2543.	3169.
4.720	-1459.	-1592.	-748.5	1025.	2627.	3277.
4.760	-1483.	-1631.	-788.4	1081.	2713.	3392.
4.800	-1505.	-1668.	-828.1	1136.	2799.	3507.
4.840	-1529.	-1772.	-859.2	1182.	2888.	3751.
4.880	-1562.	-1829.	-895.8	1235.	2969.	3901.
4.920	-1584.	-1866.	-934.1	1290.	3055.	4013.
4.960	-1607.	-1911.	-973.2	1345.	3141.	4142.
5.000	-1630.	-1958.	-1010.	1399.	3218.	4272.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-1743	2.610E-02	5.00	1.277E-02	4.04
2 U2-1743	-1.386E-36	4.04	-1.095E-35	4.84
3 U3-1743	.540	4.04	.129	5.00

TIME	VARIABLE		
	1	2	3
4.040	1.2769E-02	-1.3860E-36	.5403
4.080	1.2999E-02	-1.4557E-36	.5256
4.120	1.3234E-02	-4.4818E-36	.5104
4.160	1.3475E-02	-1.5775E-36	.4955
4.200	1.3792E-02	-4.3686E-36	.4788
4.240	1.4119E-02	-3.2187E-36	.4626
4.280	1.4421E-02	-1.6676E-36	.4469
4.320	1.5494E-02	-5.7153E-36	.4275
4.360	1.5922E-02	-6.0516E-36	.4104
4.400	1.6378E-02	-6.2970E-36	.3933
4.440	1.6827E-02	-2.2307E-36	.3765
4.480	1.8193E-02	-7.0772E-36	.3586
4.520	1.8907E-02	-5.2848E-36	.3407
4.560	1.9375E-02	-8.1680E-36	.3228
4.600	2.0015E-02	-2.8947E-36	.3052
4.640	2.0782E-02	-8.8940E-36	.2875
4.680	2.1524E-02	-9.2678E-36	.2699
4.720	2.2083E-02	-9.6096E-36	.2524
4.760	2.2696E-02	-9.9749E-36	.2351
4.800	2.3303E-02	-3.4853E-36	.2178
4.840	2.3562E-02	-1.0954E-35	.1996
4.880	2.4230E-02	-3.8486E-36	.1819
4.920	2.4852E-02	-3.9689E-36	.1643
4.960	2.5438E-02	-4.0996E-36	.1469
5.000	2.6103E-02	-8.4034E-36	.1292

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

- 0 INCREMENTS
- 0 CUTBACKS IN AUTOMATIC INCREMENTATION
- 0 ITERATIONS
- 0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
- 0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P4-F1AP RESULTS - 350,000 lb 11.9 FT FROM SLAB CENTER - ALONG POS. 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 301						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	15504	13764	959	1873	10285	12072
4.08	15312	13500	1782	3619	14496	22164
4.12	15048	13992	2632	5374	19092	28344
4.16	14916	14136	3469	7138	23148	36336
4.20	14412	18600	4409	8956	28140	32976
4.24	14184	19632	5252	10777	32424	36936
4.28	14148	21084	6109	12576	36336	41136
4.32	14568	22740	7070	14868	36192	43344
4.36	13752	24108	7818	16704	39816	46764
4.40	13620	25620	8611	18540	43428	50364
4.44	13572	27264	9456	20376	46704	54156
4.48	19152	28200	10321	22968	37536	56736
4.52	20028	31896	11212	24912	39864	64452
4.56	20436	33564	11874	26796	41400	68448
4.60	20964	35388	12732	28896	43104	72648
4.64	22416	36828	13440	30816	46248	76224
4.68	23592	38568	14208	32724	48912	80304
4.72	24000	40116	14988	34680	50496	84096
4.76	24720	41820	15792	36636	52464	88092
4.80	25404	43500	16608	38580	54372	92040
4.84	26664	46560	17424	40248	57240	98688
4.88	27768	48636	18192	42072	59868	103440
4.92	28500	50544	18996	43968	61860	107844
4.96	29280	52380	19800	45888	63924	112128
5.00	29808	54156	20604	47748	65664	116136

P4-F1AP RESULTS - 350,000 lb 11.9 FT FROM SLAB CENTER - ALONG POS. 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1257						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	15876	14292	-617	772	8911	6880
4.08	15384	14172	-1157	1544	11260	11437
4.12	14880	13788	-1724	2302	13680	16452
4.16	14388	13524	-2276	3065	16032	21264
4.20	13992	12708	-2864	3752	18096	24072
4.24	13608	11825	-3416	4466	20052	28476
4.28	13224	11284	-3971	5196	22056	32604
4.32	13980	13992	-4362	5737	21852	25608
4.36	13968	13980	-4860	6415	22788	27156
4.40	13944	14040	-5362	7093	23820	28752
4.44	13944	14196	-5893	7770	25056	30492
4.48	15096	16128	-6247	8404	24636	30372
4.52	15828	16908	-6758	9020	25944	32424
4.56	16308	17364	-7139	9679	27648	33948
4.60	16392	17916	-7604	10334	28812	35532
4.64	16764	18276	-8045	10988	29568	36708
4.68	17208	18708	-8510	11646	30516	38028
4.72	17508	19104	-8982	12300	31524	39324
4.76	17796	19572	-9461	12972	32556	40704
4.80	18060	20016	-9937	13632	33588	42084
4.84	18348	21264	-10310	14184	34656	45012
4.88	18744	21948	-10750	14820	35628	46812
4.92	19008	22392	-11209	15480	36660	48156
4.96	19284	22932	-11678	16140	37692	49704
5.00	19560	23496	-12120	16788	38616	51264

P4-FlAT.abdat

```
*HEADING
Postprocess p4-fla.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-301, 301
SM3, SM3-301, 301
**
SF3, SF3-1257, 1257
SM3, SM3-1257, 1257
**
```

P4-F1AT.about

ABAQUS PRODUCTION VERSION 4-9-1 DATE 15-Jul-94 TIME 09:40:32 PAGE 1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p4-f1a.fil for in-plane shear and twisting moment history data STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-301	313.	5.00	-47.4	4.28
2 SM3-301	106.	4.16	-301.	5.00
3 SF3-1257	39.8	4.04	-364.	5.00
4 SM3-1257	705.	5.00	85.6	4.04

TIME	VARIABLE			
	1	2	3	4
4.040	-34.76	51.40	39.82	85.64
4.080	-25.15	76.26	29.14	184.1
4.120	-23.37	85.69	23.02	296.5
4.160	-16.01	106.1	15.25	403.3
4.200	-42.50	75.97	8.901	417.6
4.240	-45.21	78.61	15.56	514.8
4.280	-47.35	79.47	13.55	602.0
4.320	11.57	23.76	-64.30	308.7
4.360	-4.855	27.55	-80.34	335.3
4.400	-6.079	16.25	-95.29	358.1
4.440	-4.323	3.451	-111.2	377.9
4.480	104.7	-24.55	-131.2	379.2
4.520	114.5	-28.25	-148.6	414.5
4.560	134.5	-56.72	-181.8	450.1
4.600	153.7	-75.79	-203.8	466.8
4.640	178.7	-109.2	-216.6	492.3
4.680	197.1	-133.1	-231.2	520.1
4.720	204.7	-142.0	-250.3	546.3
4.760	219.3	-160.8	-268.0	569.4
4.800	233.3	-179.5	-285.9	591.9
4.840	252.1	-209.3	-294.6	599.8
4.880	268.7	-233.9	-308.4	625.2
4.920	286.8	-260.9	-328.0	653.1
4.960	302.3	-283.3	-345.0	675.7
5.000	313.3	-301.1	-363.7	704.7

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 5

FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION,
19.25 FT. FROM CENTER

Prepared by: Phillip R. Keil 8/23/94
Date

Checked by: SB Keil 8/23/94
Date

P5-F2.abdat

```
*HEADING
P5-F2.ABD (7/12/94): RESTART PPS-F2 FOR IMPACT LOAD 19.25 ft FROM FLOOR CENTER
**
*RESTART,READ,STEP=5,INC=20,WRITE,FREQ=10
*ELSET, ELSET=PUMP5
848, 852
*NSET,NSET=LOADPT
916
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.02,1.
*CLOAD
916, 3, -350000
*ELFILE, ELSET=PUMP5, FREQUENCY=2
SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
U
*END STEP
```


P5-F2.cvg

step, increm, iter, status, resx, resy, resz

```

6, 1, 1, CONVERGENT, 1.91, 5.59, -4.05
6, 2, 1, CONVERGENT, 7.541E-02, -.309, -.442
6, 3, 1, CONVERGENT, 7.770E-02, -.309, -.442
6, 4, 1, CONVERGENT, 7.770E-02, -.309, -.442
6, 5, 1, CONVERGENT, 7.770E-02, -.309, -.442
6, 6, 1, CONVERGENT, 7.771E-02, -.309, -.442
6, 7, 1, CONVERGENT, 7.771E-02, -.309, -.442
6, 8, 1, CONVERGENT, 7.771E-02, -.309, -.442
6, 9, 1, CONVERGENT, 7.771E-02, -.309, -.442
6, 10, 1, CONVERGENT, 7.771E-02, -.309, -.442
6, 11, 1, CONVERGENT, 14.8, -.309, -.442
6, 12, 1, CONVERGENT, 49.8, -.309, -.442
6, 13, 1, CONVERGENT, -78.0, -.309, -.442
6, 14, 1, CONVERGENT, -95.1, -.309, -.442
6, 15, 1, NO, -2.301E+03, 3.042E+03, 119.
6, 15, 2, NO, 2.722E+03, -2.108E+03, -96.3
6, 15, 3, NO, 376., -224., -10.2
6, 16, 1, CONVERGENT, 81.7, -1.61, -.439
6, 17, 1, CONVERGENT, 88.1, -1.34, -.439
6, 18, 1, CONVERGENT, 88.2, -1.18, -.439
6, 19, 1, CONVERGENT, 88.2, -1.05, -.439
6, 20, 1, CONVERGENT, 88.2, -6.76, -.439
6, 21, 1, CONVERGENT, 88.3, -8.28, -.439
6, 22, 1, CONVERGENT, 88.3, -8.30, -.439
6, 23, 1, CONVERGENT, 88.3, -8.30, -.439
6, 24, 1, CONVERGENT, 88.3, -8.29, -.439
6, 25, 1, NO, 7.804E+03, -8.810E+03, -402.
6, 25, 2, NO, 1.044E+04, 1.172E+04, 453.
6, 25, 3, NO, -4.524E+03, 3.798E+03, 148.
6, 26, 1, CONVERGENT, -19.6, 15.4, .613
6, 27, 1, CONVERGENT, 18.1, 4.97, .434
6, 28, 1, NO, -205., -3.270E+03, -137.
6, 28, 2, NO, -22.2, -358., -15.0
6, 28, 3, CONVERGENT, -2.42, -39.2, -1.64
6, 29, 1, CONVERGENT, -18.5, 7.21, .419
6, 30, 1, CONVERGENT, -19.0, 7.29, -.422
6, 31, 1, CONVERGENT, -25.9, -12.4, -.439
6, 32, 1, NO, -253., 2.724E+03, 113.
6, 32, 2, NO, -37.0, 285., 11.8
6, 32, 3, CONVERGENT, -4.98, 30.1, 1.24
6, 33, 1, CONVERGENT, 48.0, -14.2, .492
6, 34, 1, CONVERGENT, 49.7, -14.1, .492
6, 35, 1, CONVERGENT, 49.8, -14.1, .493
6, 36, 1, CONVERGENT, 49.8, -14.1, .493
6, 37, 1, NO, -2.475E+03, -409., 29.0
6, 37, 2, NO, 377., 48.7, -3.85
6, 37, 3, CONVERGENT, 57.3, 6.76, -.559
6, 38, 1, CONVERGENT, 47.3, -13.8, .475
6, 39, 1, CONVERGENT, 49.1, -14.1, .486
6, 40, 1, NO, 2.433E+03, 1.084E+04, 73.9
6, 40, 2, NO, 1.062E+03, 4.098E+03, 27.9
6, 40, 3, NO, 429., 1.585E+03, 10.8
6, 41, 1, CONVERGENT, 47.0, -13.4, -.410
6, 42, 1, CONVERGENT, 49.0, -13.9, .466
6, 43, 1, NO, 2.014E+04, -4.133E+03, 150.
6, 43, 2, NO, 8.364E+03, -1.533E+03, 47.9
6, 43, 3, NO, 3.538E+03, -615., 16.8
6, 44, 1, NO, -2.096E+03, -231., 1.29
6, 44, 2, NO, -379., -44.3, .215
6, 44, 3, CONVERGENT, -68.2, -8.25, 3.681E-02
6, 45, 1, CONVERGENT, 98.7, -14.5, .571
6, 46, 1, NO, 104., -14.6, .583
6, 46, 2, CONVERGENT, -6.583E-02, 1.237E-02, -2.175E-03
6, 47, 1, CONVERGENT, 98.8, -14.4, .570
6, 48, 1, NO, 5.029E+03, -3.656E+03, -170.
6, 48, 2, NO, 659., -607., -27.6
6, 48, 3, NO, 102., -91.8, -4.17
6, 49, 1, CONVERGENT, 29.2, -14.4, -.520
6, 50, 1, CONVERGENT, 48.0, -14.6, -.467
step, increm, iter, status, resx, resy, resz

```

P5-F2P.abdat

```
*HEADING
Postprocess p5-f2.fil for history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-848, 848
SF2, P2-848, 848
SF4, V13-848, 848
SF5, V23-848, 848
SM1, M22-848, 848
SM2, M11-848, 848
**
*PRINT HISTORY
SF1, P1-852, 852
SF2, P2-852, 852
SF4, V13-852, 852
SF5, V23-852, 852
SM1, M22-852, 852
SM2, M11-852, 852
**
*PRINT HISTORY
U1, U1-916, 916
U2, U2-916, 916
U3, U3-916, 916
```

P5-F2P.about

ABAQUS PRODUCTION VERSION 4-9-1 DATE 13-Jul-94 TIME 15:26:25 PAGE 1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p5-f2.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

POST - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-848	-1.943E+03	5.28	-2.899E+03	6.00
2 P2-848	-2.118E+03	5.28	-2.729E+03	6.00
3 V13-848	-42.5	5.04	-794.	6.00
4 V23-848	-27.6	5.04	-913.	6.00
5 M22-848	5.479E+03	6.00	943.	5.04
6 M11-848	3.864E+03	6.00	237.	5.04

TIME	VARIABLE 1	2	3	4	5	6
5.040	-1981.	-2122.	-42.45	-27.56	942.8	237.3
5.080	-1975.	-2121.	-78.49	-66.75	1291.	430.6
5.120	-1970.	-2121.	-114.5	-105.9	1639.	623.9
5.160	-1964.	-2120.	-150.6	-145.1	1987.	817.1
5.200	-1958.	-2119.	-186.6	-184.3	2336.	1010.
5.240	-1950.	-2119.	-222.6	-223.5	2680.	1204.
5.280	-1943.	-2118.	-258.5	-262.7	3023.	1397.
5.320	-1955.	-2126.	-290.1	-301.0	3110.	1545.
5.360	-1955.	-2131.	-324.9	-339.8	3386.	1713.
5.400	-1954.	-2136.	-359.7	-378.6	3661.	1881.
5.440	-1953.	-2142.	-394.4	-417.3	3936.	2049.
5.480	-1953.	-2147.	-429.2	-456.1	4212.	2217.
5.520	-2140.	-2225.	-442.3	-490.9	3637.	2259.
5.560	-2167.	-2256.	-473.6	-525.0	3763.	2345.
5.600	-2199.	-2283.	-504.9	-562.6	3897.	2465.
5.640	-2235.	-2334.	-536.7	-593.3	4043.	2644.
5.680	-2266.	-2364.	-568.0	-629.9	4176.	2772.
5.720	-2298.	-2394.	-599.3	-666.6	4311.	2900.
5.760	-2322.	-2423.	-631.9	-704.0	4429.	3020.
5.800	-2354.	-2451.	-663.4	-735.4	4558.	3163.
5.840	-2384.	-2479.	-694.9	-770.8	4689.	3293.
5.880	-2603.	-2581.	-707.1	-805.5	5143.	3499.
5.920	-2653.	-2615.	-736.5	-841.7	5307.	3634.
5.960	-2834.	-2689.	-764.8	-877.2	5331.	3735.
6.000	-2899.	-2729.	-794.2	-913.4	5479.	3864.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-852	-1.897E+03	5.28	-2.624E+03	6.00
2 P2-852	-1.929E+03	5.48	-2.254E+03	6.00
3 V13-852	-37.7	5.04	-884.	6.00
4 V23-852	743.	6.00	-8.08	5.04
5 M22-852	5.330E+03	6.00	1.014E+03	5.04
6 M11-852	3.491E+03	6.00	966.	5.04

TIME	VARIABLE 1	2	3	4	5	6
5.040	-1940.	-2082.	-37.74	-8.085	1014.	966.3
5.080	-1933.	-2065.	-77.70	25.20	1326.	1128.
5.120	-1926.	-2049.	-117.7	58.49	1639.	1289.
5.160	-1919.	-2032.	-157.6	91.77	1951.	1451.

5.200	-1912.	-2015.	-197.6	125.1	2263.	1613.
5.240	-1906.	-1998.	-237.5	158.3	2576.	1774.
5.280	-1897.	-1981.	-277.5	191.6	2884.	1936.
5.320	-1914.	-1977.	-313.4	223.3	2960.	2006.
5.360	-1913.	-1965.	-352.2	256.0	3208.	2138.
5.400	-1911.	-1953.	-391.0	288.8	3457.	2270.
5.440	-1910.	-1941.	-429.8	321.6	3705.	2403.
5.480	-1909.	-1929.	-468.6	354.3	3953.	2535.
5.520	-2091.	-2000.	-487.2	383.0	3492.	2414.
5.560	-2127.	-2037.	-522.8	407.5	3640.	2569.
5.600	-2157.	-2048.	-558.3	438.5	3770.	2657.
5.640	-2184.	-2058.	-593.8	466.8	3892.	2719.
5.680	-2214.	-2069.	-629.3	497.4	4018.	2802.
5.720	-2244.	-2079.	-664.8	528.1	4146.	2886.
5.760	-2273.	-2089.	-699.9	559.1	4274.	2966.
5.800	-2305.	-2108.	-735.7	587.2	4393.	3017.
5.840	-2335.	-2122.	-771.2	617.2	4517.	3092.
5.880	-2541.	-2215.	-785.4	649.9	4929.	3241.
5.920	-2588.	-2232.	-818.6	680.7	5083.	3327.
5.960	-2585.	-2237.	-850.8	711.7	5185.	3405.
6.000	-2624.	-2254.	-884.0	742.5	5330.	3491.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-916	-5.704E-03	5.88	-5.710E-03	5.48
2 U2-916	5.796E-02	6.00	4.728E-02	5.04
3 U3-916	-9.699E-02	5.04	-.448	6.00

TIME	VARIABLE		
	1	2	3
5.040	-5.7070E-03	4.7278E-02	-9.6987E-02
5.080	-5.7073E-03	4.7697E-02	-.1102
5.120	-5.7077E-03	4.8116E-02	-.1234
5.160	-5.7080E-03	4.8535E-02	-.1367
5.200	-5.7083E-03	4.8954E-02	-.1499
5.240	-5.7087E-03	4.9373E-02	-.1631
5.280	-5.7090E-03	4.9794E-02	-.1764
5.320	-5.7089E-03	5.0248E-02	-.1911
5.360	-5.7093E-03	5.0675E-02	-.2047
5.400	-5.7096E-03	5.1102E-02	-.2183
5.440	-5.7099E-03	5.1529E-02	-.2319
5.480	-5.7103E-03	5.1956E-02	-.2455
5.520	-5.7073E-03	5.2465E-02	-.2653
5.560	-5.7077E-03	5.2866E-02	-.2803
5.600	-5.7079E-03	5.3305E-02	-.2949
5.640	-5.7083E-03	5.3770E-02	-.3098
5.680	-5.7085E-03	5.4213E-02	-.3245
5.720	-5.7088E-03	5.4655E-02	-.3392
5.760	-5.7090E-03	5.5069E-02	-.3541
5.800	-5.7094E-03	5.5742E-02	-.3692
5.840	-5.7097E-03	5.6254E-02	-.3840
5.880	-5.7044E-03	5.6818E-02	-.4019
5.920	-5.7046E-03	5.7301E-02	-.4170
5.960	-5.7050E-03	5.7503E-02	-.4326
6.000	-5.7052E-03	5.7960E-02	-.4477

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:

TOTAL OF

- 0 INCREMENTS
- 0 CUTBACKS IN AUTOMATIC INCREMENTATION
- 0 ITERATIONS
- 0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
- 0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P5-F2P RESULTS - LOAD AT 19.25 FT FROM SLAB CENTER - ALONG +2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 848						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
5.04	23772	25464	-509	-331	11314	2848
5.08	23700	25452	-942	-801	15492	5167
5.12	23640	25452	-1374	-1271	19668	7487
5.16	23568	25440	-1807	-1741	23844	9805
5.20	23496	25428	-2239	-2212	28032	12120
5.24	23400	25428	-2671	-2682	32160	14448
5.28	23316	25416	-3102	-3152	36276	16764
5.32	23460	25512	-3481	-3612	37320	18540
5.36	23460	25572	-3899	-4078	40632	20556
5.40	23448	25632	-4316	-4543	43932	22572
5.44	23436	25704	-4733	-5008	47232	24588
5.48	23436	25764	-5150	-5473	50544	26604
5.52	25680	26700	-5308	-5891	43644	27108
5.56	26004	27072	-5683	-6300	45156	28140
5.60	26388	27396	-6059	-6751	46764	29580
5.64	26820	28008	-6440	-7120	48516	31728
5.68	27192	28368	-6816	-7559	50112	33264
5.72	27576	28728	-7192	-7999	51732	34800
5.76	27864	29076	-7583	-8448	53148	36240
5.80	28248	29412	-7961	-8825	54696	37956
5.84	28608	29748	-8339	-9250	56268	39516
5.88	31236	30972	-8485	-9666	61716	41988
5.92	31836	31380	-8838	-10100	63684	43608
5.96	34008	32268	-9178	-10526	63972	44820
6.00	34788	32748	-9530	-10961	65748	46368

P5-F2P RESULTS - LOAD AT 19.25 FT FROM SLAB CENTER - ALONG +2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 852						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
5.04	23280	24984	-453	-97	12168	11596
5.08	23196	24780	-932	302	15912	13536
5.12	23112	24588	-1412	702	19668	15468
5.16	23028	24384	-1891	1101	23412	17412
5.20	22944	24180	-2371	1501	27156	19356
5.24	22872	23976	-2850	1900	30912	21288
5.28	22764	23772	-3330	2299	34608	23232
5.32	22968	23724	-3761	2680	35520	24072
5.36	22956	23580	-4226	3072	38496	25656
5.40	22932	23436	-4692	3466	41484	27240
5.44	22920	23292	-5158	3859	44460	28836
5.48	22908	23148	-5623	4252	47436	30420
5.52	25092	24000	-5846	4596	41904	28968
5.56	25524	24444	-6274	4890	43680	30828
5.60	25884	24576	-6700	5262	45240	31884
5.64	26208	24696	-7126	5602	46704	32628
5.68	26568	24828	-7552	5969	48216	33624
5.72	26928	24948	-7978	6337	49752	34632
5.76	27276	25068	-8399	6709	51288	35592
5.80	27660	25296	-8828	7046	52716	36204
5.84	28020	25464	-9254	7406	54204	37104
5.88	30492	26580	-9425	7799	59148	38892
5.92	31056	26784	-9823	8168	60996	39924
5.96	31020	26844	-10210	8540	62220	40860
6.00	31488	27048	-10608	8910	63960	41892

P5-F2T.abdat

```
*HEADING
Postprocess p5-f2.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-848, 848
SM3, SM3-848, 848
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SF3, SF3-852, 852
SM3, SM3-852, 852
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P5-F2T.about

ABAQUS PRODUCTION VERSION 4-9-1 DATE 15-Jul-94 TIME 09:49:58 PAGE 1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p5-f2.fil for in-plane shear and twisting moment history data STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-848	304.	6.00	-54.4	5.28
2 SM3-848	-90.5	5.04	-1.056E+03	6.00
3 SF3-852	51.7	5.04	-438.	6.00
4 SM3-852	1.287E+03	6.00	105.	5.04

TIME	VARIABLE			
	1	2	3	4
5.040	-38.89	-90.47	51.71	104.7
5.080	-41.49	-197.5	46.99	220.2
5.120	-44.09	-304.5	42.28	335.7
5.160	-46.68	-411.5	37.56	451.2
5.200	-49.28	-518.5	32.85	566.7
5.240	-51.87	-625.5	28.11	682.2
5.280	-54.37	-732.6	23.23	797.9
5.320	-37.89	-720.2	-1.739	755.1
5.360	-36.42	-798.8	-10.13	841.2
5.400	-34.92	-877.2	-18.53	927.5
5.440	-33.41	-955.6	-26.93	1014.
5.480	-31.86	-1034.	-35.35	1100.
5.520	75.76	-736.0	-151.5	765.1
5.560	92.28	-773.1	-184.1	798.0
5.600	107.9	-798.4	-206.6	829.7
5.640	134.3	-831.1	-229.9	872.8
5.680	151.5	-857.6	-252.5	906.5
5.720	168.6	-884.2	-275.2	940.4
5.760	185.0	-918.6	-297.2	976.5
5.800	186.9	-937.4	-310.3	1025.
5.840	198.9	-962.1	-329.6	1063.
5.880	223.9	-1025.	-364.7	1162.
5.920	240.5	-1055.	-387.9	1204.
5.960	285.6	-1033.	-415.0	1245.
6.000	303.8	-1056.	-438.0	1287.

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0	INCREMENTS
0	CUTBACKS IN AUTOMATIC INCREMENTATION
0	ITERATIONS
0	PASSES THROUGH THE EQUATION SOLVER OF WHICH
0	REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 6

FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION,
33.9 FT. FROM CENTER

Prepared by: Phillip R. Kich 8/23/94
Date

Checked by: EB KOK 8/24/94
Date

P6-F1A.abdat

```
*HEADING
P6-F1A.ABD (7/12/94): RESTART PPS-F1A FOR IMPACT LOAD ON FLOOR NEAR WALL
**
*RESTART,READ,STEP=4,INC=20,WRITE,FREQ=10
*ELSET, ELSET=PUMP6
  1277, 1281
*NSET,NSET=LOADPT
  1767
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
  0.02,1.
*CLOAD
  1767, 3, -175000
*ELFILE, ELSET=PUMP6, FREQUENCY=2
  SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
  U
*END STEP
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P6-F1A.cvg

```

step, increm, iter, status, resx, resy, resz
5, 1, 1, CONVERGENT, 1.26, -.285, -.218
5, 2, 1, CONVERGENT, 1.27, .298, -.219
5, 3, 1, CONVERGENT, 1.27, .298, -.205
5, 4, 1, CONVERGENT, 1.28, .298, .202
5, 5, 1, CONVERGENT, 1.28, .298, .202
5, 6, 1, CONVERGENT, 1.28, .298, .203
5, 7, 1, CONVERGENT, 1.28, .298, .203
5, 8, 1, CONVERGENT, 1.28, .298, .203
5, 9, 1, CONVERGENT, 1.28, .299, .203
5, 10, 1, CONVERGENT, 1.28, .299, .203
5, 11, 1, CONVERGENT, 1.29, .299, .204
5, 12, 1, CONVERGENT, 1.29, .299, .204
5, 13, 1, CONVERGENT, 1.29, .299, .204
5, 14, 1, CONVERGENT, 1.29, .299, .204
5, 15, 1, CONVERGENT, 1.29, .299, .205
5, 16, 1, CONVERGENT, 1.29, .299, .205
5, 17, 1, CONVERGENT, 1.30, .299, .205
5, 18, 1, CONVERGENT, 1.30, .299, .205
5, 19, 1, CONVERGENT, 1.30, .299, .206
5, 20, 1, CONVERGENT, 1.30, .299, .206
5, 21, 1, CONVERGENT, 1.30, .299, .206
5, 22, 1, CONVERGENT, 1.31, .299, .207
5, 23, 1, CONVERGENT, 1.31, .299, .207
5, 24, 1, CONVERGENT, 1.31, .299, .207
5, 25, 1, CONVERGENT, 1.31, .299, .207
5, 26, 1, CONVERGENT, 1.31, .299, .208
5, 27, 1, NO, 524., 1.014E+04, 20.3
5, 27, 2, NO, -65.2, 1.271E+03, -2.57
5, 27, 3, NO, -8.18, 160., -.323
5, 28, 1, CONVERGENT, 1.35, .767, .213
5, 29, 1, CONVERGENT, 1.35, .730, .213
5, 30, 1, NO, -2.154E+03, 381., 89.4
5, 30, 2, NO, -221., 33.9, -9.19
5, 30, 3, CONVERGENT, -22.9, 3.15, .953
5, 31, 1, NO, 2.922E+03, 4.234E+04, 202.
5, 31, 2, NO, -1.319E+03, 7.565E+03, -272.
5, 31, 3, NO, -426., 3.069E+03, -72.2
5, 32, 1, NO, -1.575E+03, 3.284E+03, -71.1
5, 32, 2, NO, -132., 191., -5.80
5, 32, 3, CONVERGENT, -11.5, 11.6, -.498
5, 33, 1, CONVERGENT, -2.89, 3.99, .420
5, 34, 1, CONVERGENT, -2.84, 3.94, .413
5, 35, 1, CONVERGENT, -2.80, 3.90, .407
5, 36, 1, CONVERGENT, -2.75, 3.85, .402
5, 37, 1, CONVERGENT, -2.71, 3.81, .397
5, 38, 1, CONVERGENT, -2.68, 3.78, .392
5, 39, 1, CONVERGENT, -2.64, 3.74, .387
5, 40, 1, CONVERGENT, -2.61, 3.71, .383
5, 41, 1, NO, 6.163E+03, 1.253E+04, -277.
5, 41, 2, NO, -1.894E+03, 2.296E+04, 156.
5, 41, 3, NO, -3.020E+03, 4.940E+03, -160.
5, 42, 1, NO, -1.936E+03, -1.643E+03, -90.9
5, 42, 2, NO, -818., -1.891E+03, -85.5
5, 42, 3, NO, 686., 1.837E+03, 81.3
5, 43, 1, NO, -481., -1.840E+03, -78.9
5, 43, 2, NO, 407., 1.925E+03, 81.6
5, 43, 3, NO, -207., -1.985E+03, -82.9
5, 44, 1, CONVERGENT, -3.02, 4.81, .436
5, 45, 1, NO, 4.789E+03, 3.790E+04, 1.474E+03
5, 45, 2, NO, 3.028E+03, -1.692E+04, 800.
5, 45, 3, NO, 1.762E+03, -1.062E+04, 424.
5, 46, 1, CONVERGENT, -57.9, 42.8, 9.27
5, 47, 1, CONVERGENT, -3.83, 5.19, .557
5, 48, 1, NO, 2.872E+03, 1.398E+03, 118.
5, 48, 2, NO, -284., 138., -11.6
5, 48, 3, CONVERGENT, -28.0, 13.7, -1.15
5, 49, 1, NO, -8.213E+03, 1.270E+03, -341.
5, 49, 2, NO, -2.479E+03, 399., -103.
5, 49, 3, NO, -747., 124., -31.0
5, 50, 1, NO, 3.653E+03, 1.094E+04, 3.40
5, 50, 2, NO, 1.134E+03, -2.483E+03, 1.09
5, 50, 3, NO, -388., -593., -.402

```

P6-F1AP.abdat

```
*HEADING
Postprocess p6-f2.fil for history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-1277, 1277
SF2, P2-1277, 1277
SF4, V13-1277, 1277
SF5, V23-1277, 1277
SM1, M22-1277, 1277
SM2, M11-1277, 1277
**
*PRINT HISTORY
SF1, P1-1281, 1281
SF2, P2-1281, 1281
SF4, V13-1281, 1281
SF5, V23-1281, 1281
SM1, M22-1281, 1281
SM2, M11-1281, 1281
**
*PRINT HISTORY
U1, U1-1767, 1767
U2, U2-1767, 1767
U3, U3-1767, 1767
```

P6-F1AP.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 13-Jul-94

TIME 15:42:44

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p6-f2.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1277	-238.	4.96	-1.329E+03	4.04
2 P2-1277	55.6	4.80	-1.081E+03	4.04
3 V13-1277	430.	5.00	-128.	4.04
4 V23-1277	678.	5.00	-22.4	4.04
5 M22-1277	2.164E+03	5.00	-1.953E+03	4.04
6 M11-1277	1.431E+03	4.80	-344.	4.04

TIME	VARIABLE 1	2	3	4	5	6
4.040	-1329.	-1081.	-127.9	-22.35	-1953.	-344.0
4.080	-1276.	-1047.	-105.2	11.07	-1784.	-245.0
4.120	-1223.	-1013.	-82.45	44.49	-1616.	-145.9
4.160	-1170.	-979.0	-59.74	77.91	-1447.	-46.87
4.200	-1117.	-945.0	-37.03	111.3	-1279.	52.16
4.240	-1064.	-911.0	-14.33	144.8	-1111.	151.2
4.280	-1011.	-877.0	8.376	178.2	-942.3	250.2
4.320	-957.8	-843.1	31.08	211.6	-773.9	349.2
4.360	-904.8	-809.1	53.78	245.0	-605.6	448.2
4.400	-851.8	-775.2	76.48	278.5	-437.2	547.1
4.440	-798.8	-741.2	99.18	311.9	-268.9	646.1
4.480	-745.8	-707.3	121.9	345.3	-100.6	745.1
4.520	-692.9	-673.4	144.6	378.7	67.68	844.0
4.560	-623.6	-567.0	173.6	405.4	293.0	999.3
4.600	-587.3	-534.6	188.6	438.7	523.4	1110.
4.640	-488.9	-158.9	233.6	444.3	892.7	1112.
4.680	-435.6	-105.2	257.3	475.1	1069.	1191.
4.720	-382.5	-51.60	281.0	506.0	1246.	1271.
4.760	-329.5	2.010	304.7	536.8	1422.	1350.
4.800	-276.5	55.62	328.3	567.7	1598.	1431.
4.840	-283.6	-64.21	350.2	586.2	1581.	548.8
4.880	-240.5	-31.42	373.3	616.3	1718.	555.0
4.920	-247.7	-115.1	407.6	620.7	2024.	788.5
4.960	-237.8	-103.4	429.6	649.5	1862.	747.5
5.000	-302.3	-93.67	429.8	678.2	2164.	806.7

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-1281	-1.013E+03	5.00	-2.124E+03	4.04
2 P2-1281	300.	4.52	-1.737E+03	4.96
3 V13-1281	930.	4.04	-79.7	5.00
4 V23-1281	1.013E+03	5.00	92.1	4.04
5 M22-1281	1.954E+04	4.04	1.157E+04	5.00
6 M11-1281	1.122E+04	5.00	-1.663E+03	4.04

TIME	VARIABLE 1	2	3	4	5	6
4.040	-2124.	-711.7	929.7	92.10	1.9535E+04	-1663.
4.080	-2072.	-627.3	887.6	135.7	1.9246E+04	-618.4
4.120	-2020.	-543.0	845.5	179.3	1.8957E+04	425.7
4.160	-1968.	-458.6	803.3	222.9	1.8668E+04	1470.

4.200	-1916.	-374.3	761.2	266.5	1.8379E+04	2513.
4.240	-1864.	-290.0	719.1	310.1	1.8090E+04	3557.
4.280	-1812.	-205.7	677.0	353.7	1.7801E+04	4601.
4.320	-1760.	-121.5	634.8	397.3	1.7512E+04	5644.
4.360	-1708.	-37.21	592.7	440.9	1.7224E+04	6688.
4.400	-1656.	47.01	550.5	484.5	1.6935E+04	7731.
4.440	-1604.	131.2	508.4	528.1	1.6646E+04	8774.
4.480	-1553.	215.4	466.2	571.7	1.6358E+04	9817.
4.520	-1501.	299.6	424.1	615.3	1.6070E+04	1.0860E+04
4.560	-1459.	207.1	377.3	647.4	1.5745E+04	9410.
4.600	-1406.	288.5	337.4	690.9	1.5390E+04	1.0299E+04
4.640	-1427.	-756.8	284.7	693.7	1.4990E+04	4421.
4.680	-1378.	-751.1	242.4	733.9	1.4666E+04	4901.
4.720	-1329.	-745.6	200.0	774.1	1.4342E+04	5381.
4.760	-1279.	-740.1	157.7	814.3	1.4018E+04	5861.
4.800	-1230.	-734.7	115.4	854.5	1.3694E+04	6340.
4.840	-1176.	-1062.	73.47	890.4	1.3111E+04	5530.
4.880	-1126.	-1064.	31.63	930.4	1.2762E+04	5950.
4.920	-1094.	-1694.	-14.75	933.8	1.2475E+04	1.0013E+04
4.960	-1052.	-1737.	-48.27	972.6	1.2026E+04	1.0680E+04
5.000	-1013.	-1730.	-79.71	1013.	1.1566E+04	1.1221E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-1767	7.121E-02	5.00	4.514E-02	4.04
2 U2-1767	-4.612E-37	4.52	-1.844E-35	5.00
3 U3-1767	.161	4.04	-5.936E-02	5.00

TIME	VARIABLE		
	1	2	3
4.040	4.5141E-02	-2.6720E-36	.1610
4.080	4.5993E-02	-2.4875E-36	.1530
4.120	4.6845E-02	-2.3030E-36	.1449
4.160	4.7696E-02	-2.1185E-36	.1369
4.200	4.8548E-02	-1.9341E-36	.1288
4.240	4.9399E-02	-1.7498E-36	.1208
4.280	5.0250E-02	-1.5655E-36	.1127
4.320	5.1101E-02	-1.3813E-36	.1046
4.360	5.1952E-02	-1.1972E-36	9.6583E-02
4.400	5.2803E-02	-1.0131E-36	8.8527E-02
4.440	5.3653E-02	-8.2904E-37	8.0471E-02
4.480	5.4504E-02	-6.4507E-37	7.2416E-02
4.520	5.5354E-02	-4.6116E-37	6.4360E-02
4.560	5.6553E-02	-7.2745E-37	5.4707E-02
4.600	5.7609E-02	-1.8009E-36	4.6152E-02
4.640	6.0139E-02	-9.8391E-36	3.0712E-02
4.680	6.1142E-02	-3.2717E-36	2.1955E-02
4.720	6.2145E-02	-3.2918E-36	1.3199E-02
4.760	6.3148E-02	-3.3121E-36	4.4424E-03
4.800	6.4150E-02	-3.3325E-36	-4.3140E-03
4.840	6.5148E-02	-1.2622E-35	-1.6549E-02
4.880	6.6159E-02	-4.2280E-36	-2.5592E-02
4.920	6.7431E-02	-5.9381E-36	-3.8749E-02
4.960	6.9027E-02	-1.8112E-35	-4.8523E-02
5.000	7.1211E-02	-1.8440E-35	-5.9358E-02

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P6-F1AP RESULTS - LOAD ON SLAB NEAR WALL - ALONG POSITIVE 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1277						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	15948	12972	-1535	-268	23436	4128
4.08	15312	12564	-1262	133	21408	2940
4.12	14676	12156	-989	534	19392	1751
4.16	14040	11748	-717	935	17364	562
4.20	13404	11340	-444	1336	15348	626
4.24	12768	10932	-172	1738	13332	1814
4.28	12132	10524	101	2138	11308	3002
4.32	11494	10117	373	2539	9287	4190
4.36	10858	9709	645	2940	7267	5378
4.40	10222	9302	918	3342	5246	6565
4.44	9586	8894	1190	3743	3227	7753
4.48	8950	8488	1463	4144	1207	8941
4.52	8315	8081	1735	4544	812	10128
4.56	7483	6804	2083	4865	3516	11992
4.60	7048	6415	2263	5264	6281	13320
4.64	5867	1907	2803	5332	10712	13344
4.68	5227	1262	3088	5701	12828	14292
4.72	4590	619	3372	6072	14952	15252
4.76	3954	-24	3656	6442	17064	16200
4.80	3318	-667	3940	6812	19176	17172
4.84	3403	771	4202	7034	18972	6586
4.88	2886	377	4480	7396	20616	6660
4.92	2972	1381	4891	7448	24288	9462
4.96	2854	1241	5155	7794	22344	8970
5.00	3628	1124	5158	8138	25968	9680

P6-F1AP RESULTS - LOAD ON SLAB NEAR WALL - ALONG POSITIVE 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1281						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
4.04	25488	8540	11156	1105	234420	19956
4.08	24864	7528	10651	1628	230952	7421
4.12	24240	6516	10146	2152	227484	5108
4.16	23616	5503	9640	2675	224016	17640
4.20	22992	4492	9134	3198	220548	30156
4.24	22368	3480	8629	3721	217080	42684
4.28	21744	2468	8124	4244	213612	55212
4.32	21120	1458	7618	4768	210144	67728
4.36	20496	447	7112	5291	206688	80256
4.40	19872	-564	6606	5814	203220	92772
4.44	19248	-1574	6101	6337	199752	105288
4.48	18636	-2585	5594	6860	196296	117804
4.52	18012	-3595	5089	7384	192840	130320
4.56	17508	-2485	4528	7769	188940	112920
4.60	16872	-3462	4049	8291	184680	123588
4.64	17124	9082	3416	8324	179880	53052
4.68	16536	9013	2909	8807	175992	58812
4.72	15948	8947	2400	9289	172104	64572
4.76	15348	8881	1892	9772	168216	70332
4.80	14760	8816	1385	10254	164328	76080
4.84	14112	12744	882	10685	157332	66360
4.88	13512	12768	380	11165	153144	71400
4.92	13128	20328	-177	11206	149700	120156
4.96	12624	20844	-579	11671	144312	128160
5.00	12156	20760	-957	12156	138792	134652

P6-F1AT.abdat

```
*HEADING
Postprocess p6-f1a.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-1277, 1277
SM3, SM3-1277, 1277
**
SF3, SF3-1281, 1281
SM3, SM3-1281, 1281
**
```

P6-F1AT.about

ABAQUS PRODUCTION VERSION 4-9-1 DATE 15-Jul-94 TIME 09:52:34 PAGE 1
FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p6-f1a.fil for in-plane shear and twisting moment history data STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-1277	622.	5.00	-25.6	4.04
2 SM3-1277	-7.36	4.04	-728.	4.80
3 SF3-1281	-23.3	4.04	-1.198E+03	5.00
4 SM3-1281	1.044E+04	5.00	-367.	4.04

TIME	VARIABLE 1	2	3	4
4.040	-25.56	-7.357	-23.34	-366.7
4.080	-11.76	-51.26	-63.55	56.88
4.120	2.028	-95.17	-103.8	480.5
4.160	15.82	-139.1	-144.0	904.3
4.200	29.61	-183.0	-184.1	1328.
4.240	43.40	-226.9	-224.3	1752.
4.280	57.18	-270.8	-264.5	2177.
4.320	70.97	-314.7	-304.6	2601.
4.360	84.75	-358.6	-344.8	3025.
4.400	98.53	-402.4	-384.9	3450.
4.440	112.3	-446.3	-425.1	3875.
4.480	126.1	-490.2	-465.2	4300.
4.520	139.9	-534.1	-505.3	4725.
4.560	145.6	-596.6	-555.7	5127.
4.600	173.8	-652.5	-597.5	5580.
4.640	172.6	-616.7	-702.6	5852.
4.680	188.9	-645.0	-747.3	6277.
4.720	205.5	-673.0	-791.9	6702.
4.760	222.0	-700.8	-836.6	7127.
4.800	238.7	-728.4	-881.1	7553.
4.840	344.3	-247.4	-960.2	8028.
4.880	370.4	-228.5	-1006.	8466.
4.920	497.7	-289.6	-1115.	9408.
4.960	518.5	-432.9	-1147.	9856.
5.000	621.6	-507.7	-1198.	1.0442E+04

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF 0 INCREMENTS
 0 CUTBACKS IN AUTOMATIC INCREMENTATION
 0 ITERATIONS
 0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
 0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 7

FILES RELATED TO TANK LOWER-WALL RESIDUAL CAPACITY DETERMINATION, UNDER PPS
LOAD CASE 3 LOADING

Prepared by: Phillip R. Kich 8/23/94
Date

Checked by: SB LOK 8/23/94
Date

P7-F3.abdat

```
*HEADING
P7-F3.ABD (8/4/94): RESTART PPS-F3 FOR IMPACT LOAD ON LOWER WALL AT +2-AXIS
**
*RESTART,READ,STEP=6,INC=20,WRITE,FREQ=10
*ELSET, ELSET=PUMP7
872, 876, 880
*NSET, NSET=LOADPT
940
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
0.01,1.
*CLOAD
940, 2, 400000
*ELFILE, ELSET=PUMP7, FREQUENCY=2
SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
U
*END STEP
```

P7-F3.cvg

```

step, increm, iter, status, resx, resy, resz
7, 1, 1, CONVERGENT, .575, .534, -.628
7, 2, 1, NO, 1.217E+04, 479., -1.726E+03
7, 2, 2, NO, 3.231E+03, 127., 773.
7, 2, 3, NO, 913., 35.9, 322.
7, 3, 1, NO, 5.350E+03, 210., -524.
7, 3, 2, NO, -1.187E+04, -2.362E+03, 1.737E+03
7, 3, 3, NO, -2.958E+04, -1.163E+03, -3.987E+03
7, 4, 1, NO, 1.451E+04, 568., -5.356E+03
7, 4, 2, NO, 2.255E+03, 87.5, -1.149E+03
7, 4, 3, NO, 368., 14.3, -240.
7, 5, 1, CONVERGENT, -5.87, -1.16, -2.34
7, 6, 1, NO, -88.0, -1.842E+03, -76.5
7, 6, 2, NO, -149., 2.049E+03, 85.1
7, 6, 3, NO, 186., 1.970E+03, 82.0
7, 7, 1, NO, -2.225E+03, -1.797E+03, -5.765E+03
7, 7, 2, NO, 417., 99.6, -1.082E+03
7, 7, 3, NO, 78.1, -5.57, -203.
7, 8, 1, CONVERGENT, -4.20, 1.06, -1.64
7, 9, 1, NO, 1.087E+04, 4.010E+03, 1.271E+03
7, 9, 2, NO, 2.796E+03, 1.031E+03, 579.
7, 9, 3, NO, 763., 281., 240.
7, 10, 1, CONVERGENT, -4.59, -.838, 1.59
7, 11, 1, NO, 335., -1.812E+03, -76.5
7, 11, 2, CONVERGENT, 18.8, -98.3, -4.15
7, 12, 1, CONVERGENT, -4.08, .841, -1.43
7, 13, 1, CONVERGENT, -4.07, -1.15, -1.41
7, 14, 1, NO, -1.830E+03, 3.168E+04, -191.
7, 14, 2, NO, 188., 1.084E+04, 160.
7, 14, 3, NO, 76.2, 3.720E+03, 86.0
7, 15, 1, NO, 1.606E+04, 8.258E+03, 1.262E+04
7, 15, 2, NO, 5.820E+03, 1.894E+03, 5.842E+03
7, 15, 3, NO, 2.196E+03, 432., 2.656E+03
7, 16, 1, NO, -449., 1.901E+03, 80.9
7, 16, 2, NO, 24.1, -107., -4.54
7, 16, 3, CONVERGENT, 1.29, -6.06, -.256
7, 17, 1, CONVERGENT, -4.23, -1.17, 4.72
7, 18, 1, CONVERGENT, -4.21, -1.16, 4.62
7, 19, 1, NO, 8.720E+03, -1.033E+03, -2.614E+03
7, 19, 2, NO, 3.793E+03, -449., -437.
7, 19, 3, NO, -1.276E+03, 151., -80.8
7, 20, 1, CONVERGENT, -5.59, -1.38, 5.29
7, 21, 1, CONVERGENT, -4.19, -1.05, 5.09
7, 22, 1, NO, 2.359E+04, 928., -2.807E+04
7, 22, 2, NO, -1.166E+04, 456., -1.501E+04
7, 22, 3, NO, -8.599E+03, -1.019E+03, -8.075E+03
7, 23, 1, NO, -6.420E+03, 810., -163.
7, 23, 2, NO, -1.635E+04, -642., 5.310E+03
7, 23, 3, NO, -4.492E+03, 174., 1.400E+03
7, 24, 1, NO, 4.153E+03, 492., -216.
7, 24, 2, NO, -845., -100., 47.3
7, 24, 3, NO, -172., -20.4, 9.77
7, 25, 1, CONVERGENT, 4.14, .662, 4.57
7, 26, 1, NO, 4.141E+03, 163., -2.342E+04
7, 26, 2, NO, 1.878E+03, -73.3, -1.059E+04
7, 26, 3, NO, 8.367E+03, -991., 3.267E+04
7, 27, 1, NO, -1.708E+04, -755., -3.064E+04
7, 27, 2, NO, -6.003E+03, -286., 1.604E+04
7, 27, 3, NO, 3.347E+03, -666., 1.311E+04
7, 28, 1, NO, 7.877E+03, 938., 3.382E+04
7, 28, 2, NO, -1.724E+03, 487., -1.756E+04
7, 28, 3, NO, -974., 275., -9.173E+03
7, 29, 1, NO, -9.268E+03, 3.417E+03, 3.479E+04
7, 29, 2, NO, 5.764E+03, -2.136E+03, 1.832E+04
7, 29, 3, NO, 3.821E+03, -1.412E+03, 9.674E+03
7, 30, 1, NO, -2.404E+04, 1.108E+04, -3.373E+04
7, 30, 2, NO, -1.001E+04, 4.615E+03, -1.712E+04
7, 30, 3, NO, -1.030E+04, 4.747E+03, 8.908E+03
7, 31, 1, NO, 1.409E+04, -6.496E+03, 5.192E+03
7, 31, 2, NO, 2.305E+03, 1.287E+03, -5.302E+03
7, 31, 3, NO, -2.425E+03, 1.118E+03, 1.091E+03
7, 32, 1, NO, -1.891E+04, -2.240E+03, -954.
7, 32, 2, NO, -8.012E+03, -950., -496.

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7, 32, 3, NO, -3.394E+03, -402., -241.
 7, 33, 1, NO, 4.696E+03, 556., -143.
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 7, 35, 1, CONVERGENT, 3.78, -.515, 6.34
 7, 36, 1, CONVERGENT, 3.77, -1.04, 6.27
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 7, 37, 2, NO, -5.111E+03, 606., 395.
 7, 37, 3, NO, -1.622E+03, 192., 148.
 7, 38, 1, CONVERGENT, 3.78, .529, 6.41
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 7, 40, 2, NO, -7.512E+03, -493., -8.635E+03
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 7, 41, 3, NO, -1.760E+04, 2.084E+03, 5.019E+03
 7, 42, 1, NO, -682., -1.951E+03, -225.
 7, 42, 2, NO, -36.7, -111., -4.83
 7, 42, 3, CONVERGENT, -1.98, -6.36, -.274
 7, 43, 1, NO, 553., -1.947E+03, -83.8
 7, 43, 2, NO, -31.1, 111., 5.12
 7, 43, 3, CONVERGENT, 1.68, -6.12, -.262
 7, 44, 1, CONVERGENT, 2.80, .639, -7.08
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 7, 52, 3, NO, 3.042E+03, 1.700E+03, 9.169E+03
 7, 53, 1, NO, -1.674E+03, -1.119E+03, 57.1
 7, 53, 2, NO, -176., -118., -6.29
 7, 53, 3, CONVERGENT, -18.5, -12.4, -.699
 7, 54, 1, CONVERGENT, 2.81, .446, 7.80
 7, 55, 1, CONVERGENT, 2.81, .587, -7.78
 7, 56, 1, NO, 4.151E+03, 163., -1.142E+04
 7, 56, 2, NO, 1.264E+03, 49.7, 6.467E+03
 7, 56, 3, NO, 1.449E+03, 66.3, -7.931E+03
 7, 57, 1, CONVERGENT, 2.99, .509, -13.3
 7, 58, 1, CONVERGENT, 2.40, .487, -9.06
 7, 59, 1, CONVERGENT, 2.39, .924, -9.00
 7, 60, 1, CONVERGENT, 2.38, .955, -8.96
 7, 61, 1, NO, 8.590E+03, -688., -8.92
 7, 61, 2, NO, -3.918E+04, 2.820E+03, 1.27
 7, 61, 3, NO, -4.395E+04, 2.998E+03, 6.61
 7, 62, 1, NO, 4.639E+04, 1.603E+03, -525.
 7, 62, 2, NO, 3.588E+04, 1.146E+03, -95.5
 7, 62, 3, NO, 2.614E+04, 1.477E+03, -17.6
 7, 63, 1, NO, 645., 442., -21.7
 7, 63, 2, CONVERGENT, 2.97, 2.06, -.237
 7, 64, 1, NO, -6.232E+03, 1.240E+03, 1.799E+03
 7, 64, 2, NO, 2.348E+04, -4.672E+03, -3.885E+03
 7, 64, 3, NO, 2.159E+04, -4.294E+03, 3.038E+03
 7, 65, 1, NO, 2.054E+04, -4.086E+03, 1.540E+03
 7, 65, 2, NO, 1.289E+04, -2.564E+03, 849.
 7, 65, 3, NO, 7.234E+03, -1.439E+03, 494.
 7, 66, 1, CONVERGENT, 27.4, -5.45, -8.66
 7, 67, 1, CONVERGENT, 3.09, -.643, -8.83
 7, 68, 1, CONVERGENT, 3.09, -.640, -8.80
 7, 69, 1, NO, -1.444E+03, 9.281E+03, 376.
 7, 69, 2, NO, 384., -1.832E+03, -73.7
 7, 69, 3, NO, 465., 7.600E+03, 316.
 7, 70, 1, CONVERGENT, 8.57, -9.43, -9.11

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7, 71, 1, CONVERGENT, 3.21, -.630, -8.72
7, 72, 1, NO, -336., 39.8, -4.673E+03
7, 72, 2, NO, 74.8, 8.86, -1.011E+03
7, 72, 3, NO, 16.4, 1.94, -219.
7, 73, 1, CONVERGENT, 3.17, -.665, -8.69
7, 74, 1, NO, 319., 7.953E+03, 330.
7, 74, 2, NO, -86.5, 1.516E+03, -62.8
7, 74, 3, NO, -21.0, -289., -12.0
7, 75, 1, CONVERGENT, 3.41, .723, -8.63
7, 76, 1, NO, 1.551E+03, 9.447E+03, 382.
7, 76, 2, NO, -416., 1.916E+03, 77.1
7, 76, 3, NO, -101., 391., 15.6
7, 77, 1, CONVERGENT, 3.48, .880, -8.57
7, 78, 1, CONVERGENT, 3.29, -.615, -8.56
7, 79, 1, NO, 2.356E+04, 2.790E+03, -1.663E+04
7, 79, 2, NO, 9.387E+03, 1.112E+03, -7.454E+03
7, 79, 3, NO, 3.798E+03, 450., -3.295E+03
7, 80, 1, NO, 2.265E+04, -2.683E+03, -1.996E+04
7, 80, 2, NO, 9.394E+03, -1.112E+03, -8.476E+03
7, 80, 3, NO, 3.929E+03, -465., -3.599E+03
7, 81, 1, CONVERGENT, -6.87, -.823, -9.52
7, 82, 1, CONVERGENT, 3.39, -.616, -8.59
7, 83, 1, CONVERGENT, 3.38, -.611, -8.56
7, 84, 1, CONVERGENT, 3.38, -.608, -8.54
7, 85, 1, CONVERGENT, 3.38, -.604, -8.52
7, 86, 1, CONVERGENT, 3.37, -.601, -8.50
7, 87, 1, CONVERGENT, 3.37, .600, -8.48
7, 88, 1, NO, 6.403E+03, 1.294E+04, -16.7
7, 88, 2, NO, -1.923E+03, -3.652E+03, -4.71
7, 88, 3, NO, -590., -1.027E+03, -1.33
7, 89, 1, CONVERGENT, 3.49, .794, -8.43
7, 90, 1, CONVERGENT, 3.39, .617, -8.42
7, 91, 1, CONVERGENT, 3.39, .602, -8.40
7, 92, 1, NO, -4.577E+03, -910., 829.
7, 92, 2, NO, 6.885E+03, 1.370E+03, 2.036E+03
7, 92, 3, NO, 915., 182., 351.
7, 93, 1, CONVERGENT, 3.44, -.813, -8.32
7, 94, 1, NO, -5.493E+03, 216., 2.707E+04
7, 94, 2, NO, 5.034E+03, 303., -4.125E+04
7, 94, 3, NO, 2.564E+03, 160., -2.308E+04
7, 95, 1, CONVERGENT, -41.2, 1.33, -40.6
7, 96, 1, NO, 4.572E+03, -910., 748.
7, 96, 2, NO, -697., 138., -118.
7, 96, 3, NO, -106., 21.0, -18.5
7, 97, 1, CONVERGENT, 3.40, -.818, -8.31
7, 98, 1, CONVERGENT, 3.41, .600, -8.32
7, 99, 1, CONVERGENT, 3.41, -.637, -19.9
7, 100, 1, NO, 3.41, .601, -198.
7, 100, 2, CONVERGENT, 8.318E-02, 5.399E-02, -.702
step, increm, iter, status, resx, resy, resz

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P7-F3P.abdat

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*HEADING
Postprocess p7-f3.fil for history data
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*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
**   element loads
*PRINT HISTORY
SF1, P1-872, 872
SF2, P2-872, 872
SF4, V13-872, 872
SF5, V23-872, 872
SM1, M22-872, 872
SM2, M11-872, 872
**
*PRINT HISTORY
SF1, P1-876, 876
SF2, P2-876, 876
SF4, V13-876, 876
SF5, V23-876, 876
SM1, M22-876, 876
SM2, M11-876, 876
**
*PRINT HISTORY
SF1, P1-880, 880
SF2, P2-880, 880
SF4, V13-880, 880
SF5, V23-880, 880
SM1, M22-880, 880
SM2, M11-880, 880
**
*PRINT HISTORY
U1, U1-940, 940
U2, U2-940, 940
U3, U3-940, 940
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P7-F3P.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 5-Aug-94

TIME 13:52:47

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p7-f3.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-872	1.705E+03	6.02	-1.239E+03	6.60
2 P2-872	-5.289E+03	6.14	-5.983E+03	6.22
3 V13-872	5.88	6.04	-1.218E+03	7.00
4 V23-872	1.031E+03	6.02	-2.368E+03	7.00
5 M22-872	8.255E+03	7.00	-1.961E+03	6.28
6 M11-872	3.516E+04	6.02	1.670E+04	7.00

TIME	VARIABLE	1	2	3	4	5	6
6.020	1705.	-5445.	-119.1	1031.	6113.	3.5165E+04	
6.040	790.7	-5400.	5.876	937.0	490.3	3.4621E+04	
6.060	809.5	-5375.	-17.28	876.0	764.9	3.4591E+04	
6.080	796.4	-5355.	-36.19	817.6	882.3	3.4438E+04	
6.100	798.8	-5335.	-58.39	751.2	1031.	3.4472E+04	
6.120	819.8	-5311.	-81.76	690.2	1302.	3.4458E+04	
6.140	837.6	-5289.	-105.6	628.7	1590.	3.4452E+04	
6.160	983.4	-5365.	-105.1	560.4	2109.	3.3700E+04	
6.180	1008.	-5352.	-127.2	499.3	2399.	3.3613E+04	
6.200	1126.	-5374.	-139.8	428.9	2802.	3.3560E+04	
6.220	748.3	-5983.	-198.8	329.0	1145.	2.8874E+04	
6.240	-60.13	-5900.	-281.4	224.1	-1145.	2.8479E+04	
6.260	-178.2	-5894.	-303.0	162.1	-1367.	2.7626E+04	
6.280	-29.61	-5568.	-335.8	65.92	-1961.	2.7780E+04	
6.300	-36.91	-5555.	-358.4	.8888	-1860.	2.7517E+04	
6.320	-247.7	-5523.	-384.2	-76.73	-740.0	2.7080E+04	
6.340	-324.4	-5515.	-414.2	-144.8	-465.1	2.6775E+04	
6.360	-351.7	-5510.	-439.6	-209.5	-369.1	2.6538E+04	
6.380	-422.0	-5508.	-470.4	-285.5	-240.7	2.6190E+04	
6.400	-324.8	-5528.	-525.0	-351.5	171.0	2.5562E+04	
6.420	-937.9	-5500.	-469.2	-436.4	4644.	2.5229E+04	
6.440	-968.2	-5495.	-494.7	-502.1	4839.	2.4946E+04	
6.460	-975.5	-5539.	-515.3	-570.1	4976.	2.4604E+04	
6.480	-1027.	-5569.	-542.1	-639.4	5061.	2.3969E+04	
6.500	-1058.	-5578.	-568.4	-706.7	5234.	2.3650E+04	
6.520	-1091.	-5572.	-594.6	-772.6	5421.	2.3353E+04	
6.540	-1126.	-5568.	-620.6	-838.6	5611.	2.3051E+04	
6.560	-1168.	-5624.	-653.0	-904.8	5936.	2.2619E+04	
6.580	-1204.	-5637.	-679.7	-973.7	6150.	2.2325E+04	
6.600	-1239.	-5638.	-706.2	-1040.	6348.	2.2007E+04	
6.620	-789.7	-5561.	-717.4	-1086.	5454.	2.2229E+04	
6.640	-694.0	-5551.	-734.0	-1147.	5207.	2.2053E+04	
6.660	-736.5	-5547.	-759.7	-1214.	5405.	2.1722E+04	
6.680	-760.6	-5547.	-786.2	-1279.	5585.	2.1420E+04	
6.700	-787.9	-5544.	-812.3	-1343.	5785.	2.1169E+04	
6.720	-810.8	-5536.	-838.3	-1411.	5951.	2.0902E+04	
6.740	-811.5	-5530.	-864.4	-1476.	6085.	2.0578E+04	
6.760	-826.0	-5533.	-893.5	-1540.	6288.	2.0310E+04	
6.780	-848.8	-5533.	-920.3	-1606.	6464.	2.0014E+04	
6.800	-841.1	-5557.	-951.0	-1692.	6567.	1.9456E+04	
6.820	-863.3	-5559.	-976.7	-1760.	6760.	1.9117E+04	
6.840	-886.1	-5559.	-1004.	-1826.	6932.	1.8810E+04	
6.860	-908.9	-5559.	-1030.	-1892.	7103.	1.8504E+04	
6.880	-937.6	-5576.	-1056.	-1954.	7300.	1.8523E+04	
6.900	-960.9	-5577.	-1083.	-2020.	7472.	1.8250E+04	
6.920	-988.9	-5574.	-1111.	-2087.	7652.	1.7933E+04	
6.940	-1005.	-5598.	-1138.	-2162.	7777.	1.7646E+04	

6.960	-1020.	-5614.	-1164.	-2236.	7925.	1.7311E+04
6.980	-1043.	-5614.	-1190.	-2302.	8092.	1.7009E+04
7.000	-1067.	-5614.	-1218.	-2368.	8255.	1.6695E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-876	-165.	7.00	-1.552E+03	6.20
2 P2-876	-4.754E+03	6.38	-5.542E+03	6.24
3 V13-876	-66.1	6.04	-1.745E+03	7.00
4 V23-876	1.902E+03	7.00	792.	6.02
5 M22-876	8.095E+03	7.00	-1.398E+03	6.04
6 M11-876	3.515E+04	7.00	1.470E+04	6.02

TIME	VARIABLE					
	1	2	3	4	5	6
6.020	-456.8	-5251.	-69.05	791.6	-907.8	1.4700E+04
6.040	-591.6	-5240.	-66.10	835.1	-1398.	1.4993E+04
6.060	-527.7	-5197.	-101.7	862.0	-1111.	1.5624E+04
6.080	-464.1	-5112.	-142.5	888.5	-849.5	1.6470E+04
6.100	-656.8	-5089.	-188.6	914.8	48.25	1.7184E+04
6.120	-597.8	-5052.	-224.7	941.7	332.9	1.7802E+04
6.140	-537.2	-5012.	-260.6	968.4	578.7	1.8413E+04
6.160	-999.1	-5276.	-296.5	990.9	-1188.	1.7626E+04
6.180	-967.4	-5268.	-332.8	1017.	-1007.	1.8095E+04
6.200	-1552.	-5324.	-350.9	1044.	177.0	1.8624E+04
6.220	-1417.	-5464.	-363.0	1048.	633.3	1.8471E+04
6.240	-931.0	-5542.	-390.2	1082.	928.5	1.8888E+04
6.260	-866.7	-5300.	-443.6	1105.	1217.	1.9707E+04
6.280	-726.0	-4937.	-465.4	1115.	545.5	2.0338E+04
6.300	-709.3	-4898.	-500.6	1139.	812.0	2.0824E+04
6.320	-765.1	-4889.	-544.4	1167.	1333.	2.1466E+04
6.340	-728.5	-4850.	-583.5	1193.	1539.	2.1974E+04
6.360	-692.2	-4824.	-620.1	1219.	1748.	2.2480E+04
6.380	-708.1	-4754.	-660.4	1235.	2148.	2.3035E+04
6.400	-1102.	-5106.	-702.0	1256.	929.7	2.1719E+04
6.420	-1043.	-5008.	-695.3	1261.	2501.	2.2775E+04
6.440	-1029.	-5001.	-730.6	1285.	2699.	2.3216E+04
6.460	-846.3	-5022.	-768.5	1305.	2633.	2.3951E+04
6.480	-802.0	-4870.	-810.3	1325.	2760.	2.4534E+04
6.500	-797.1	-4834.	-846.7	1348.	3004.	2.4965E+04
6.520	-779.7	-4822.	-882.5	1372.	3213.	2.5410E+04
6.540	-760.6	-4805.	-918.2	1396.	3412.	2.5848E+04
6.560	-813.0	-5035.	-961.3	1418.	3558.	2.5841E+04
6.580	-791.7	-5023.	-999.6	1438.	3759.	2.6283E+04
6.600	-777.0	-5021.	-1036.	1462.	3958.	2.6682E+04
6.620	-688.3	-4955.	-1066.	1497.	4044.	2.7074E+04
6.640	-607.0	-4911.	-1099.	1524.	4130.	2.7410E+04
6.660	-539.9	-4920.	-1135.	1547.	4279.	2.7801E+04
6.680	-522.3	-4916.	-1172.	1571.	4483.	2.8196E+04
6.700	-488.4	-4913.	-1208.	1596.	4667.	2.8593E+04
6.720	-469.4	-4911.	-1242.	1619.	4845.	2.8967E+04
6.740	-459.6	-4901.	-1278.	1644.	5071.	2.9354E+04
6.760	-440.6	-4895.	-1314.	1668.	5288.	2.9740E+04
6.780	-422.3	-4892.	-1351.	1693.	5498.	3.0133E+04
6.800	-390.5	-4931.	-1390.	1690.	5849.	3.0785E+04
6.820	-348.8	-4936.	-1425.	1711.	6028.	3.1209E+04
6.840	-329.2	-4933.	-1461.	1734.	6241.	3.1607E+04
6.860	-309.6	-4930.	-1497.	1758.	6456.	3.2005E+04
6.880	-285.2	-4927.	-1534.	1782.	6673.	3.2390E+04
6.900	-264.9	-4924.	-1570.	1806.	6889.	3.2786E+04
6.920	-240.8	-4916.	-1606.	1829.	7056.	3.3169E+04
6.940	-218.4	-4949.	-1640.	1842.	7328.	3.3753E+04
6.960	-205.9	-4983.	-1673.	1856.	7653.	3.4343E+04
6.980	-186.0	-4981.	-1709.	1879.	7875.	3.4745E+04
7.000	-165.3	-4976.	-1745.	1902.	8095.	3.5148E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-880	-102.	6.20	-1.417E+03	6.40
2 P2-880	-4.790E+03	6.38	-5.238E+03	7.00
3 V13-880	-8.47	6.02	-579.	7.00
4 V23-880	1.075E+03	7.00	593.	6.02
5 M22-880	7.597E+03	7.00	56.2	6.02
6 M11-880	-67.2	6.14	-2.252E+03	6.78

TIME	VARIABLE					
	1	2	3	4	5	6
6.020	-1121.	-5010.	-8.472	593.2	56.18	-449.2
6.040	-858.4	-5042.	-29.04	613.4	393.7	-598.2
6.060	-806.0	-5028.	-41.32	624.4	622.4	-531.9
6.080	-725.0	-4982.	-57.92	637.1	950.6	-401.3
6.100	-674.7	-5000.	-74.73	652.0	1325.	-246.6
6.120	-622.0	-4984.	-87.15	663.2	1553.	-158.2
6.140	-572.3	-4968.	-99.63	674.3	1796.	-67.16
6.160	-337.7	-5036.	-128.3	685.1	2443.	-513.2
6.180	-276.9	-5029.	-141.7	695.8	2693.	-485.1
6.200	-102.2	-5053.	-151.7	712.6	3172.	-441.1
6.220	-212.2	-5121.	-166.8	716.0	2010.	-495.2
6.240	-244.8	-5143.	-188.4	730.3	2355.	-546.5
6.260	-135.7	-5058.	-211.2	738.6	2654.	-724.9
6.280	-515.6	-4920.	-214.4	736.9	1863.	-1247.
6.300	-502.1	-4889.	-227.3	746.7	2111.	-1229.
6.320	-475.5	-4859.	-245.8	763.6	2346.	-1075.
6.340	-454.7	-4846.	-261.0	776.3	2578.	-1034.
6.360	-411.6	-4835.	-274.4	787.5	2761.	-1014.
6.380	-427.8	-4790.	-291.2	800.0	2856.	-909.3
6.400	-1417.	-4896.	-281.5	807.2	379.7	-1627.
6.420	-1030.	-4946.	-272.5	833.4	1907.	-1447.
6.440	-1014.	-4948.	-284.0	845.1	2039.	-1477.
6.460	-1306.	-4919.	-295.2	857.8	1925.	-1303.
6.480	-1342.	-4830.	-308.0	870.5	2340.	-1377.
6.500	-1341.	-4839.	-319.4	881.4	2477.	-1437.
6.520	-1335.	-4840.	-330.5	892.9	2606.	-1482.
6.540	-1330.	-4841.	-342.0	904.3	2744.	-1522.
6.560	-1345.	-4925.	-352.4	910.4	2928.	-1836.
6.580	-1349.	-4987.	-363.2	913.8	3108.	-1442.
6.600	-1346.	-4995.	-374.5	924.8	3250.	-1499.
6.620	-1211.	-4987.	-387.3	943.0	3358.	-1643.
6.640	-1179.	-4967.	-397.5	956.5	3530.	-1811.
6.660	-1177.	-4966.	-406.5	967.5	3660.	-1892.
6.680	-1171.	-4974.	-417.8	978.5	3808.	-1952.
6.700	-1164.	-4980.	-429.3	990.1	3967.	-2026.
6.720	-1156.	-4984.	-440.6	1002.	4098.	-2048.
6.740	-1145.	-4989.	-452.1	1013.	4241.	-2119.
6.760	-1139.	-4996.	-463.5	1024.	4393.	-2189.
6.780	-1133.	-5004.	-474.8	1035.	4542.	-2252.
6.800	-1216.	-4996.	-464.0	1008.	5730.	-1567.
6.820	-1214.	-5027.	-469.5	1012.	6087.	-1453.
6.840	-1209.	-5036.	-480.1	1022.	6267.	-1503.
6.860	-1205.	-5045.	-490.6	1032.	6447.	-1552.
6.880	-1200.	-5054.	-501.4	1042.	6635.	-1577.
6.900	-1196.	-5063.	-512.0	1052.	6816.	-1625.
6.920	-1199.	-5079.	-522.9	1062.	7025.	-1683.
6.940	-1145.	-5159.	-542.1	1057.	7153.	-1281.
6.960	-1082.	-5215.	-557.8	1056.	7237.	-988.4
6.980	-1076.	-5226.	-568.5	1065.	7416.	-1029.
7.000	-1071.	-5238.	-579.2	1075.	7597.	-1080.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 4

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
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1	U1-940	1.719E-03	6.38	-2.664E-03	6.02
2	U2-940	.421	7.00	.148	6.02
3	U3-940	-1.04	6.02	-1.06	7.00

TIME	VARIABLE		
	1	2	3
6.020	-2.6644E-03	.1483	-1.037
6.040	-8.5121E-04	.1562	-1.038
6.060	-7.8756E-04	.1605	-1.038
6.080	-6.3895E-04	.1651	-1.038
6.100	-1.8768E-04	.1695	-1.038
6.120	-1.3097E-04	.1737	-1.038
6.140	-6.6611E-05	.1780	-1.038
6.160	1.7895E-04	.1835	-1.038
6.180	2.5557E-04	.1878	-1.038
6.200	1.2718E-04	.1927	-1.038
6.220	5.9728E-04	.1986	-1.039
6.240	2.1011E-04	.2049	-1.039
6.260	4.7088E-04	.2107	-1.040
6.280	8.0954E-04	.2178	-1.041
6.300	7.4054E-04	.2228	-1.041
6.320	1.0899E-03	.2286	-1.041
6.340	1.2787E-03	.2335	-1.041
6.360	1.3510E-03	.2382	-1.041
6.380	1.7190E-03	.2435	-1.042
6.400	8.0834E-04	.2495	-1.043
6.420	-1.0037E-04	.2576	-1.044
6.440	-1.0701E-04	.2625	-1.044
6.460	-1.0680E-04	.2684	-1.045
6.480	-1.4261E-04	.2751	-1.046
6.500	-1.4935E-04	.2802	-1.046
6.520	-1.4875E-04	.2853	-1.047
6.540	-1.4284E-04	.2903	-1.047
6.560	-4.1548E-04	.2960	-1.048
6.580	-4.7510E-04	.3012	-1.048
6.600	-5.0306E-04	.3062	-1.049
6.620	4.6394E-04	.3154	-1.051
6.640	6.5427E-04	.3217	-1.052
6.660	6.5502E-04	.3269	-1.052
6.680	6.3299E-04	.3321	-1.053
6.700	6.1061E-04	.3379	-1.053
6.720	5.9809E-04	.3432	-1.054
6.740	6.1984E-04	.3487	-1.054
6.760	5.9783E-04	.3543	-1.054
6.780	5.7449E-04	.3595	-1.055
6.800	5.3770E-04	.3667	-1.056
6.820	4.9833E-04	.3722	-1.056
6.840	4.7254E-04	.3775	-1.057
6.860	4.4623E-04	.3828	-1.057
6.880	4.2199E-04	.3882	-1.058
6.900	3.9515E-04	.3935	-1.058
6.920	3.9129E-04	.3989	-1.059
6.940	3.7406E-04	.4048	-1.060
6.960	3.1709E-04	.4107	-1.060
6.980	2.8712E-04	.4160	-1.061
7.000	2.5498E-04	.4213	-1.061

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:

TOTAL OF	0	INCREMENTS
	0	CUTBACKS IN AUTOMATIC INCREMENTATION
	0	ITERATIONS
	0	PASSES THROUGH THE EQUATION SOLVER OF WHICH
	0	REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P7-F3P RESULTS - 400,000 lb LOAD AT BOTTOM OF WALL - AT POSITIVE 2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 872						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
6.02	-20460	65340	-1429	12372	73356	421980
6.04	-9488	64800	71	11244	5884	415452
6.06	-9714	64500	-207	10512	9179	415092
6.08	-9557	64260	-434	9811	10588	413256
6.10	-9586	64020	-701	9014	12372	413664
6.12	-9838	63732	-981	8282	15624	413496
6.14	-10051	63468	-1267	7544	19080	413424
6.16	-11801	64380	-1261	6725	25308	404400
6.18	-12096	64224	-1526	5992	28788	403356
6.20	-13512	64488	-1678	5147	33624	402720
6.22	-8980	71796	-2386	3948	13740	346488
6.24	722	70800	-3377	2689	13740	341748
6.26	2138	70728	-3636	1945	16404	331512
6.28	355	66816	-4030	791	23532	333360
6.30	443	66660	-4301	11	22320	330204
6.32	2972	66276	-4610	-921	8880	324960
6.34	3893	66180	-4970	-1738	5581	321300
6.36	4220	66120	-5275	-2514	4429	318456
6.38	5064	66096	-5645	-3426	2888	314280
6.40	3898	66336	-6300	-4218	2052	306744
6.42	11255	66000	-5630	-5237	55728	302748
6.44	11618	65940	-5936	-6025	58068	299352
6.46	11706	66468	-6184	-6841	59712	295248
6.48	12324	66828	-6505	-7673	60732	287628
6.50	12696	66936	-6821	-8480	62808	283800
6.52	13092	66864	-7135	-9271	65052	280236
6.54	13512	66816	-7447	-10063	67332	276612
6.56	14016	67488	-7836	-10858	71232	271428
6.58	14448	67644	-8156	-11684	73800	267900
6.60	14868	67656	-8474	-12480	76176	264084
6.62	9476	66732	-8609	-13032	65448	266748
6.64	8328	66612	-8808	-13764	62484	264636
6.66	8838	66564	-9116	-14568	64860	260664
6.68	9127	66564	-9434	-15348	67020	257040
6.70	9455	66528	-9748	-16116	69420	254028
6.72	9730	66432	-10060	-16932	71412	250824
6.74	9738	66360	-10373	-17712	73020	246936
6.76	9912	66396	-10722	-18480	75456	243720
6.78	10186	66396	-11044	-19272	77568	240168
6.80	10093	66684	-11412	-20304	78804	233472
6.82	10360	66708	-11720	-21120	81120	229404
6.84	10633	66708	-12048	-21912	83184	225720
6.86	10907	66708	-12360	-22704	85236	222048
6.88	11251	66912	-12672	-23448	87600	222276
6.90	11531	66924	-12996	-24240	89664	219000
6.92	11867	66888	-13332	-25044	91824	215196
6.94	12060	67176	-13656	-25944	93324	211752
6.96	12240	67368	-13968	-26832	95100	207732
6.98	12516	67368	-14280	-27624	97104	204108
7.00	12804	67368	-14616	-28416	99060	200340

P7-F3P RESULTS - 400,000 lb LOAD AT BOTTOM OF WALL - AT POSITIVE 2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 876						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
6.02	5482	63012	-829	9499	10894	176400
6.04	7099	62880	-793	10021	16776	179916
6.06	6332	62364	-1220	10344	13332	187488
6.08	5569	61344	-1710	10662	10194	197640
6.10	7882	61068	-2263	10978	579	206208
6.12	7174	60624	-2696	11300	3995	213624
6.14	6446	60144	-3127	11621	6944	220956
6.16	11989	63312	-3558	11891	14256	211512
6.18	11609	63216	-3994	12204	12084	217140
6.20	18624	63888	-4211	12528	2124	223488
6.22	17004	65568	-4356	12576	7600	221652
6.24	11172	66504	-4682	12984	11142	226656
6.26	10400	63600	-5323	13260	14604	236484
6.28	8712	59244	-5585	13380	6546	244056
6.30	8512	58776	-6007	13668	9744	249888
6.32	9181	58668	-6533	14004	15996	257592
6.34	8742	58200	-7002	14316	18468	263688
6.36	8306	57888	-7441	14628	20976	269760
6.38	8497	57048	-7925	14820	25776	276420
6.40	13224	61272	-8424	15072	11156	260628
6.42	12516	60096	-8344	15132	30012	273300
6.44	12348	60012	-8767	15420	32388	278592
6.46	10156	60264	-9222	15660	31596	287412
6.48	9624	58440	-9724	15900	33120	294408
6.50	9565	58008	-10160	16176	36048	299580
6.52	9356	57864	-10590	16464	38556	304920
6.54	9127	57660	-11018	16752	40944	310176
6.56	9756	60420	-11536	17016	42696	310092
6.58	9500	60276	-11995	17256	45108	315396
6.60	9324	60252	-12432	17544	47496	320184
6.62	8260	59460	-12792	17964	48528	324888
6.64	7284	58932	-13188	18288	49560	328920
6.66	6479	59040	-13620	18564	51348	333612
6.68	6268	58992	-14064	18852	53796	338352
6.70	5861	58956	-14496	19152	56004	343116
6.72	5633	58932	-14904	19428	58140	347604
6.74	5515	58812	-15336	19728	60852	352248
6.76	5287	58740	-15768	20016	63456	356880
6.78	5068	58704	-16212	20316	65976	361596
6.80	4686	59172	-16680	20280	70188	369420
6.82	4186	59232	-17100	20532	72336	374508
6.84	3950	59196	-17532	20808	74892	379284
6.86	3715	59160	-17964	21096	77472	384060
6.88	3422	59124	-18408	21384	80076	388680
6.90	3179	59088	-18840	21672	82668	393432
6.92	2890	58992	-19272	21948	84672	398028
6.94	2621	59388	-19680	22104	87936	405036
6.96	2471	59796	-20076	22272	91836	412116
6.98	2232	59772	-20508	22548	94500	416940
7.00	1984	59712	-20940	22824	97140	421776

P7-F3P RESULTS - 400,000 lb LOAD AT BOTTOM OF WALL - AT POSITIVE 2-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 880						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
6.02	13452	60120	-102	7118	674	5390
6.04	10301	60504	-348	7361	4724	7178
6.06	9672	60336	-496	7493	7469	6383
6.08	8700	59784	-695	7645	11407	4816
6.10	8096	60000	-897	7824	15900	2959
6.12	7464	59808	-1046	7958	18636	1898
6.14	6868	59616	-1196	8092	21552	806
6.16	4052	60432	-1540	8221	29316	6158
6.18	3323	60348	-1700	8350	32316	5821
6.20	1226	60636	-1820	8551	38064	5293
6.22	2546	61452	-2002	8592	24120	5942
6.24	2938	61716	-2261	8764	28260	6558
6.26	1628	60696	-2534	8863	31848	8699
6.28	6187	59040	-2573	8843	22356	14964
6.30	6025	58668	-2728	8960	25332	14748
6.32	5706	58308	-2950	9163	28152	12900
6.34	5456	58152	-3132	9316	30936	12408
6.36	4939	58020	-3293	9450	33132	12168
6.38	5134	57480	-3494	9600	34272	10912
6.40	17004	58752	-3378	9686	4556	19524
6.42	12360	59352	-3270	10001	22884	17364
6.44	12168	59376	-3408	10141	24468	17724
6.46	15672	59028	-3542	10294	23100	15636
6.48	16104	57960	-3696	10446	28080	16524
6.50	16092	58068	-3833	10577	29724	17244
6.52	16020	58080	-3966	10715	31272	17784
6.54	15960	58092	-4104	10852	32928	18264
6.56	16140	59100	-4229	10925	35136	22032
6.58	16188	59844	-4358	10966	37296	17304
6.60	16152	59940	-4494	11098	39000	17988
6.62	14532	59844	-4648	11316	40296	19716
6.64	14148	59604	-4770	11478	42360	21732
6.66	14124	59592	-4878	11610	43920	22704
6.68	14052	59688	-5014	11742	45696	23424
6.70	13968	59760	-5152	11881	47604	24312
6.72	13872	59808	-5287	12024	49176	24576
6.74	13740	59868	-5425	12156	50892	25428
6.76	13668	59952	-5562	12288	52716	26268
6.78	13596	60048	-5698	12420	54504	27024
6.80	14592	59952	-5568	12096	68760	18804
6.82	14568	60324	-5634	12144	73044	17436
6.84	14508	60432	-5761	12264	75204	18036
6.86	14460	60540	-5887	12384	77364	18624
6.88	14400	60648	-6017	12504	79620	18924
6.90	14352	60756	-6144	12624	81792	19500
6.92	14388	60948	-6275	12744	84300	20196
6.94	13740	61908	-6505	12684	85836	15372
6.96	12984	62580	-6694	12672	86844	11861
6.98	12912	62712	-6822	12780	88992	12348
7.00	12852	62856	-6950	12900	91164	12960

P7-F3T.abdat

```
*HEADING
Postprocess p7-f3.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.abdat
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-872, 872
SM3, SM3-872, 872
**
SF3, SF3-876, 876
SM3, SM3-876, 876
**
SF3, SF3-880, 880
SM3, SM3-880, 880
**
```


P7-F3T.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 5-Aug-94

TIME 13:54:17

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p7-f3.fil for in-plane shear and twisting moment history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-872	978.	7.00	-361.	6.10
2 SM3-872	269.	6.02	-1.630E+04	7.00
3 SF3-876	633.	6.14	-459.	7.00
4 SM3-876	2.280E+03	7.00	-2.763E+03	6.38
5 SF3-880	16.5	6.38	-409.	6.78
6 SM3-880	7.037E+03	7.00	165.	6.02

TIME	VARIABLE					
	1	2	3	4	5	6
6.020	-44.41	268.6	293.9	117.2	-253.1	164.7
6.040	-278.0	-361.8	604.4	490.8	-162.3	640.9
6.060	-273.4	-748.9	610.5	589.7	-159.8	797.9
6.080	-294.5	-1288.	621.6	658.1	-152.3	1038.
6.100	-361.2	-1461.	630.3	792.5	-70.58	1112.
6.120	-358.3	-1854.	631.6	874.5	-66.59	1273.
6.140	-355.2	-2263.	632.6	964.0	-62.31	1436.
6.160	-358.3	-3099.	409.8	-1140.	-63.05	1356.
6.180	-355.1	-3522.	396.8	-1194.	-59.25	1502.
6.200	-257.3	-4410.	308.0	-1555.	-154.6	1784.
6.220	205.0	-1677.	262.2	-1285.	-189.3	1997.
6.240	251.6	-1644.	137.6	-1326.	-215.7	2298.
6.260	169.0	-2389.	84.59	-1686.	-186.0	2680.
6.280	211.3	-2759.	18.59	-2128.	-99.84	3045.
6.300	249.9	-3208.	24.15	-2305.	-81.04	3178.
6.320	228.4	-3569.	-3.136	-2421.	-17.50	3402.
6.340	223.2	-3966.	-33.56	-2535.	-4.100	3578.
6.360	232.6	-4343.	-64.89	-2630.	-1.860	3748.
6.380	188.9	-4651.	-121.6	-2763.	16.53	3993.
6.400	209.4	-4751.	193.5	-438.8	-190.4	3836.
6.420	383.8	-5160.	48.02	-182.8	-160.4	4041.
6.440	396.0	-5525.	30.55	-151.4	-167.0	4170.
6.460	435.1	-6114.	2.622	-112.7	-211.6	4244.
6.480	411.1	-6765.	3.151	-205.6	-233.2	4471.
6.500	410.2	-7117.	-22.43	-162.7	-237.2	4593.
6.520	422.2	-7498.	-38.74	-136.3	-245.4	4713.
6.540	432.4	-7874.	-55.99	-109.2	-253.2	4831.
6.560	426.3	-8264.	-6.720	359.6	-270.4	5109.
6.580	432.7	-8651.	-29.74	450.0	-285.2	5231.
6.600	441.6	-9023.	-43.13	510.1	-292.8	5355.
6.620	697.1	-9299.	-43.47	580.4	-301.3	5563.
6.640	747.3	-9619.	-92.74	778.8	-331.2	5752.
6.660	748.4	-9981.	-129.4	905.6	-351.3	5856.
6.680	762.1	-1.0348E+04	-143.8	969.4	-360.1	5976.
6.700	783.8	-1.0707E+04	-158.8	1038.	-370.3	6106.
6.720	800.1	-1.1067E+04	-172.3	1099.	-381.1	6229.
6.740	819.5	-1.1424E+04	-187.3	1166.	-391.0	6351.
6.760	831.5	-1.1761E+04	-199.0	1222.	-400.1	6471.
6.780	845.9	-1.2122E+04	-213.5	1286.	-409.3	6590.
6.800	840.1	-1.2547E+04	-282.8	1532.	-277.0	6155.
6.820	858.1	-1.2936E+04	-290.4	1570.	-253.8	6147.
6.840	872.6	-1.3300E+04	-305.7	1637.	-258.9	6245.
6.860	887.2	-1.3665E+04	-321.0	1703.	-264.0	6343.
6.880	910.3	-1.4064E+04	-333.6	1761.	-267.7	6438.
6.900	926.0	-1.4431E+04	-348.7	1826.	-272.8	6535.
6.920	939.5	-1.4818E+04	-366.9	1906.	-277.1	6633.
6.940	939.2	-1.5176E+04	-397.8	2024.	-319.6	6761.

6.960	949.1	-1.5566E+04	-426.2	2141.	-341.5	6844.
6.980	964.1	-1.5930E+04	-442.3	2210.	-347.5	6940.
7.000	977.8	-1.6298E+04	-458.6	2280.	-353.0	7037.

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 8

FILES RELATED TO TANK SLAB RESIDUAL CAPACITY DETERMINATION,
11.9 FT. FROM CENTER, UNDER PPS LOAD CASE 3 LOADING

Prepared by: Phillip R. Keith Date 9/30/94

Checked by: SEKOK Date 10/1/94

Note: The analysis presented in this attachment was not used in the calculation of residual capacities and is for information only.

P8-F3.abdat

```
*HEADING
P8-F3.ABD (8/5/94): RESTART PPS-F3 FOR IMPACT LOAD 11.9 ft FROM FLOOR CENTER
**
*RESTART,READ,STEP=6,INC=20,WRITE,FREQ=25
*ELSET, ELSET=PUMP8
  301, 1257
*NSET,NSET=LOADPT
  1743
**
*STEP,INC=9999,CYC=3
*STATIC,PTOL=100.,MTOL=1200.,DIRECT=NOSTOP
  0.02,1.
*CLOAD
  1743, 3, -175000
*ELFILE, ELSET=PUMP8, FREQUENCY=2
SF
*NODE FILE, NSET=LOADPT, FREQUENCY=2
U
*END STEP
```

P8-F3.cvg

```

step, increm, iter, status, resx, resy, resz
7, 1, 1, CONVERGENT, -2.625E-02, 5.079E-02, 1.338E-02
7, 2, 1, CONVERGENT, -2.635E-02, 5.090E-02, 1.102E-02
7, 3, 1, CONVERGENT, -2.635E-02, 5.090E-02, 1.101E-02
7, 4, 1, CONVERGENT, -2.635E-02, 5.090E-02, 1.101E-02
7, 5, 1, CONVERGENT, -2.635E-02, 5.090E-02, 1.101E-02
7, 6, 1, CONVERGENT, 6.50, -10.1, 4.544E-02
7, 7, 1, CONVERGENT, 8.61, -66.7, 6.036E-02
7, 8, 1, NO, -191., 2.580E+03, -.668
7, 8, 2, NO, 28.6, 309., .118
7, 8, 3, CONVERGENT, 4.18, 36.4, 1.963E-02
7, 9, 1, CONVERGENT, 9.11, -58.9, 6.385E-02
7, 10, 1, CONVERGENT, 9.16, -60.5, 6.420E-02
7, 11, 1, CONVERGENT, 9.15, -60.5, 6.419E-02
7, 12, 1, NO, -582., 8.439E+03, -1.82
7, 12, 2, NO, 144., 2.390E+03, .369
7, 12, 3, NO, 35.6, 695., -6.301E-02
7, 13, 1, NO, -1.208E+03, 2.696E+03, -45.3
7, 13, 2, NO, -153., 339., -5.70
7, 13, 3, CONVERGENT, -19.3, 42.7, -.719
7, 14, 1, CONVERGENT, 11.4, 3.84, .209
7, 15, 1, NO, -1.011E+03, 707., -7.43
7, 15, 2, CONVERGENT, -68.8, 55.1, -.508
7, 16, 1, CONVERGENT, 11.7, 4.00, -.209
7, 17, 1, CONVERGENT, 11.9, 3.95, -.258
7, 18, 1, CONVERGENT, 11.9, -27.1, -.370
7, 19, 1, NO, 477., -1.812E+03, 2.04
7, 19, 2, NO, 80.6, -303., .311
7, 19, 3, NO, 3.985E+03, 9.864E+03, 149.
7, 20, 1, NO, 630., 150., 4.96
7, 20, 2, CONVERGENT, -65.2, 23.3, -.448
7, 21, 1, CONVERGENT, 10.9, 6.53, -.348
7, 22, 1, NO, 611., 4.237E+03, 3.19
7, 22, 2, NO, 87.7, 600., .439
7, 22, 3, CONVERGENT, 12.6, 84.9, 6.308E-02
7, 23, 1, NO, -3.993E+03, 3.237E+03, -29.5
7, 23, 2, NO, -678., 616., -5.04
7, 23, 3, NO, -117., 112., -.873
7, 24, 1, NO, -472., -1.565E+03, 3.18
7, 24, 2, NO, 34.5, -115., -.181
7, 24, 3, CONVERGENT, 3.06, -7.83, 1.284E-02
7, 25, 1, CONVERGENT, 12.0, 8.07, -.364
7, 26, 1, NO, -307., 1.908E+03, .501
7, 26, 2, NO, -53.9, 333., 8.415E-02
7, 26, 3, CONVERGENT, -9.46, 58.0, 1.435E-02
7, 27, 1, NO, 389., 1.536E+03, 3.28
7, 27, 2, NO, 43.6, 177., .370
7, 27, 3, CONVERGENT, 5.02, 20.3, 4.255E-02
7, 28, 1, CONVERGENT, 12.5, 8.09, -.373
7, 29, 1, CONVERGENT, 12.7, 8.10, -.378
7, 30, 1, CONVERGENT, 12.7, 8.09, -.380
7, 31, 1, NO, -3.135E+03, 57.1, -22.0
7, 31, 2, NO, -507., 8.90, -3.56
7, 31, 3, CONVERGENT, -85.2, 1.45, -.598
7, 32, 1, NO, 656., 11.9, 4.55
7, 32, 2, CONVERGENT, 24.8, -.518, .172
7, 33, 1, NO, -2.971E+03, 3.245E+03, -123.
7, 33, 2, NO, -1.766E+03, 7.514E+03, -17.1
7, 33, 3, NO, -664., 3.113E+03, -6.25
7, 34, 1, NO, 1.353E+03, -1.136E+03, 7.09
7, 34, 2, NO, 108., -116., .519
7, 34, 3, CONVERGENT, 9.52, -11.1, 4.424E-02
7, 35, 1, NO, -254., -60.1, -1.82
7, 35, 2, CONVERGENT, -9.17, -2.13, -6.568E-02
7, 36, 1, NO, 1.672E+03, 6.530E+03, 29.4
7, 36, 2, NO, -1.345E+03, 1.877E+03, -55.8
7, 36, 3, NO, 147., 561., -5.86
7, 37, 1, CONVERGENT, 14.5, 8.00, -.359
7, 38, 1, CONVERGENT, 13.2, 8.01, -.418
7, 39, 1, NO, 4.371E+03, 682., 30.1
7, 39, 2, NO, 1.025E+03, 235., 7.01
7, 39, 3, NO, 235., 60.3, 1.60
7, 40, 1, CONVERGENT, 11.7, 8.12, -.421

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7, 41, 1, NO, -3.700E+03, -3.359E+03, -29.1
7, 41, 2, NO, -659., -704., -5.30
7, 41, 3, NO, -124., -139., -1.00
7, 42, 1, CONVERGENT, -10.0, 8.15, -.410
7, 43, 1, CONVERGENT, 11.3, 8.15, -.420
7, 44, 1, NO, 5.360E+03, -3.199E+03, 33.7
7, 44, 2, NO, 1.830E+03, -1.897E+03, 10.6
7, 44, 3, NO, 608., -628., 3.52
7, 45, 1, CONVERGENT, 19.2, 8.27, -.440
7, 46, 1, CONVERGENT, 14.2, 8.21, -.428
7, 47, 1, CONVERGENT, 14.1, 8.21, -.428
7, 48, 1, NO, -1.759E+03, 2.448E+03, -13.4
7, 48, 2, NO, -178., 259., -1.35
7, 48, 3, CONVERGENT, -18.2, 26.9, -.139
7, 49, 1, NO, -766., -535., -6.13
7, 49, 2, CONVERGENT, -43.8, -34.7, -.358
7, 50, 1, CONVERGENT, 13.8, 8.30, -.423
step, increm, iter, status, resx, resy, resz
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P8-F3P.abdat

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*HEADING
Postprocess p8-f3.fil for history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF1, P1-301, 301
SF2, P2-301, 301
SF4, V13-301, 301
SF5, V23-301, 301
SM1, M22-301, 301
SM2, M11-301, 301
**
*PRINT HISTORY
SF1, P1-1257, 1257
SF2, P2-1257, 1257
SF4, V13-1257, 1257
SF5, V23-1257, 1257
SM1, M22-1257, 1257
SM2, M11-1257, 1257
**
*PRINT HISTORY
U1, U1-1743, 1743
U2, U2-1743, 1743
U3, U3-1743, 1743
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P8-F3P.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 5-Aug-94

TIME 14:04:45

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p8-f3.fil for history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

P O S T - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 P1-301	-2.100E+03	6.60	-3.129E+03	7.00
2 P2-301	-1.964E+03	6.12	-4.922E+03	7.00
3 V13-301	1.747E+03	7.00	90.6	6.04
4 V23-301	3.994E+03	7.00	174.	6.04
5 M22-301	6.273E+03	7.00	1.327E+03	6.04
6 M11-301	1.010E+04	7.00	1.198E+03	6.04

TIME	VARIABLE					
	1	2	3	4	5	6
6.040	-2273.	-2009.	90.59	174.3	1327.	1198.
6.080	-2256.	-1987.	159.1	319.8	1678.	2039.
6.120	-2239.	-1964.	227.7	465.2	2027.	2879.
6.160	-2214.	-2011.	298.9	612.6	2410.	3351.
6.200	-2200.	-2018.	368.8	759.9	2744.	4012.
6.240	-2169.	-2354.	444.7	911.2	3138.	3828.
6.280	-2160.	-2444.	520.8	1066.	3456.	4167.
6.320	-2140.	-2562.	588.9	1216.	3806.	4522.
6.360	-2137.	-2682.	660.6	1367.	4125.	4872.
6.400	-2194.	-2673.	737.5	1545.	4106.	5195.
6.440	-2192.	-2918.	811.3	1705.	4361.	5405.
6.480	-2120.	-3029.	871.9	1853.	4684.	5687.
6.520	-2115.	-3164.	942.9	2006.	4951.	6000.
6.560	-2105.	-3294.	1011.	2163.	5226.	6306.
6.600	-2100.	-3424.	1081.	2317.	5493.	6609.
6.640	-2588.	-3581.	1150.	2525.	4772.	6952.
6.680	-2630.	-3802.	1223.	2679.	4911.	7451.
6.720	-2667.	-3953.	1286.	2858.	5051.	7805.
6.760	-2715.	-4099.	1354.	3023.	5197.	8143.
6.800	-2848.	-4236.	1412.	3191.	5467.	8470.
6.840	-2884.	-4362.	1482.	3346.	5604.	8776.
6.880	-2979.	-4507.	1546.	3505.	5819.	9117.
6.920	-3042.	-4651.	1614.	3668.	5987.	9453.
6.960	-3075.	-4783.	1679.	3832.	6118.	9771.
7.000	-3129.	-4922.	1747.	3994.	6273.	1.0100E+04

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 2

VARIABLE		MAXIMUM	TIME	MINIMUM	TIME	
1	P1-1257	-2.025E+03	6.36	-2.426E+03	7.00	
2	P2-1257	-1.785E+03	6.36	-2.557E+03	7.00	
3	V13-1257	-60.5	6.04	-1.057E+03	7.00	
4	V23-1257	1.438E+03	7.00	68.1	6.04	
5	M22-1257	3.874E+03	7.00	1.158E+03	6.04	
6	M11-1257	4.933E+03	7.00	772.	6.04	

TIME	VARIABLE					
	1	2	3	4	5	6
6.040	-2323.	-2086.	-60.51	68.11	1158.	772.3
6.080	-2282.	-2076.	-105.5	132.5	1354.	1152.
6.120	-2240.	-2065.	-150.6	196.9	1550.	1532.
6.160	-2198.	-2032.	-198.0	259.7	1751.	1955.

6.200	-2158.	-2010.	-243.9	323.3	1947.	2356.
6.240	-2117.	-1894.	-295.5	383.7	2154.	2849.
6.280	-2089.	-1879.	-339.3	441.3	2304.	2987.
6.320	-2057.	-1830.	-384.7	502.0	2462.	3336.
6.360	-2025.	-1785.	-430.9	562.9	2628.	3678.
6.400	-2081.	-2026.	-464.9	610.4	2609.	3200.
6.440	-2087.	-2013.	-508.8	666.9	2705.	3308.
6.480	-2085.	-2009.	-549.2	722.9	2775.	3433.
6.520	-2085.	-2023.	-593.3	779.3	2879.	3576.
6.560	-2081.	-2032.	-636.4	836.2	2973.	3711.
6.600	-2080.	-2042.	-679.7	893.2	3073.	3846.
6.640	-2145.	-2059.	-710.4	948.1	3077.	3962.
6.680	-2253.	-2258.	-743.7	998.0	3230.	4031.
6.720	-2257.	-2299.	-781.6	1052.	3306.	4153.
6.760	-2275.	-2339.	-821.8	1108.	3395.	4273.
6.800	-2311.	-2374.	-860.1	1163.	3468.	4377.
6.840	-2325.	-2409.	-898.8	1218.	3546.	4488.
6.880	-2360.	-2446.	-937.4	1272.	3624.	4597.
6.920	-2384.	-2485.	-977.3	1328.	3709.	4711.
6.960	-2405.	-2519.	-1017.	1382.	3789.	4819.
7.000	-2426.	-2557.	-1057.	1438.	3874.	4933.

THE REQUEST HAS BEEN TABULATED

STARTING REQUEST 3

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 U1-1743	3.602E-02	7.00	2.367E-02	6.04
2 U2-1743	-2.330E-36	6.04	-1.401E-35	6.96
3 U3-1743	-.178	6.04	-.581	7.00

TIME	VARIABLE		
	1	2	3
6.040	2.3670E-02	-2.3304E-36	-.1782
6.080	2.3900E-02	-2.4002E-36	-.1929
6.120	2.4129E-02	-2.4700E-36	-.2076
6.160	2.4366E-02	-7.5176E-36	-.2228
6.200	2.4608E-02	-2.5926E-36	-.2378
6.240	2.4866E-02	-7.4749E-36	-.2538
6.280	2.5246E-02	-2.6586E-36	-.2702
6.320	2.5545E-02	-2.6889E-36	-.2861
6.360	2.5845E-02	-2.7225E-36	-.3018
6.400	2.6718E-02	-5.8824E-36	-.3205
6.440	2.7204E-02	-9.1504E-36	-.3373
6.480	2.7653E-02	-9.4518E-36	-.3547
6.520	2.8100E-02	-9.7340E-36	-.3715
6.560	2.8530E-02	-3.3711E-36	-.3884
6.600	2.8968E-02	-3.4604E-36	-.4051
6.640	3.0142E-02	-7.0804E-36	-.4224
6.680	3.0979E-02	-1.1520E-35	-.4411
6.720	3.1573E-02	-1.1849E-35	-.4590
6.760	3.2144E-02	-4.1125E-36	-.4762
6.800	3.2894E-02	-4.2327E-36	-.4937
6.840	3.3482E-02	-4.3479E-36	-.5112
6.880	3.4212E-02	-1.3292E-35	-.5287
6.920	3.4829E-02	-4.5931E-36	-.5460
6.960	3.5420E-02	-1.4005E-35	-.5635
7.000	3.6025E-02	-4.8293E-36	-.5809

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:

TOTAL OF
0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

P8-F3P RESULTS - 350,000 lb 11.9 FT FROM SLAB CENTER - ALONG POS. 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 301						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
6.04	27276	24108	1087	2092	15924	14376
6.08	27072	23844	1909	3838	20136	24468
6.12	26868	23568	2732	5582	24324	34548
6.16	26568	24132	3587	7351	28920	40212
6.20	26400	24216	4426	9119	32928	48144
6.24	26028	28248	5336	10934	37656	45936
6.28	25920	29328	6250	12792	41472	50004
6.32	25680	30744	7067	14592	45672	54264
6.36	25644	32184	7927	16404	49500	58464
6.40	26328	32076	8850	18540	49272	62340
6.44	26304	35016	9736	20460	52332	64860
6.48	25440	36348	10463	22236	56208	68244
6.52	25380	37968	11315	24072	59412	72000
6.56	25260	39528	12132	25956	62712	75672
6.60	25200	41088	12972	27804	65916	79308
6.64	31056	42972	13800	30300	57264	83424
6.68	31560	45624	14676	32148	58932	89412
6.72	32004	47436	15432	34296	60612	93660
6.76	32580	49188	16248	36276	62364	97716
6.80	34176	50832	16944	38292	65604	101640
6.84	34608	52344	17784	40152	67248	105312
6.88	35748	54084	18552	42060	69828	109404
6.92	36504	55812	19368	44016	71844	113436
6.96	36900	57396	20148	45984	73416	117252
7.00	37548	59064	20964	47928	75276	121200

P8-F3P RESULTS - 350,000 lb 11.9 FT FROM SLAB CENTER - ALONG POS. 1-AXIS						
(units are lbf and lbf-in, and values are per foot of width)						
ELEMENT 1257						
	positive is compression				absolute value	
TIME	P1	P2	V13	V23	M22	M11
6.04	27876	25032	-726	817	13896	9268
6.08	27384	24912	-1266	1590	16248	13824
6.12	26880	24780	-1807	2363	18600	18384
6.16	26376	24384	-2376	3116	21012	23460
6.20	25896	24120	-2927	3880	23364	28272
6.24	25404	22728	-3546	4604	25848	34188
6.28	25068	22548	-4072	5296	27648	35844
6.32	24684	21960	-4616	6024	29544	40032
6.36	24300	21420	-5171	6755	31536	44136
6.40	24972	24312	-5579	7325	31308	38400
6.44	25044	24156	-6106	8003	32460	39696
6.48	25020	24108	-6590	8675	33300	41196
6.52	25020	24276	-7120	9352	34548	42912
6.56	24972	24384	-7637	10034	35676	44532
6.60	24960	24504	-8156	10718	36876	46152
6.64	25740	24708	-8525	11377	36924	47544
6.68	27036	27096	-8924	11976	38760	48372
6.72	27084	27588	-9379	12624	39672	49836
6.76	27300	28068	-9862	13296	40740	51276
6.80	27732	28488	-10321	13956	41616	52524
6.84	27900	28908	-10786	14616	42552	53856
6.88	28320	29352	-11249	15264	43488	55164
6.92	28608	29820	-11728	15936	44508	56532
6.96	28860	30228	-12204	16584	45468	57828
7.00	29112	30684	-12684	17256	46488	59196

P8-F3T.abdat

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*HEADING
Postprocess p8-f3.fil for in-plane shear and twisting moment history data
***
*** Postprocess .fil File to Tabulate ELEMENT LOAD History Data
*** Must temporarily rename original_file.fil to post_file.fil
*** Results are found in post_file.about
**
*POST FILE,INPUT=BINARY
**
** element loads
*PRINT HISTORY
SF3, SF3-301, 301
SM3, SM3-301, 301
**
SF3, SF3-1257, 1257
SM3, SM3-1257, 1257
**
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P8-F3T.about

ABAQUS PRODUCTION VERSION 4-9-1

DATE 5-Aug-94

TIME 14:08:17

PAGE 1

FOR USE BY WESTINGHOUSE HANFORD COMPANY UNDER LICENSE FROM HKS, INC.

Postprocess p8-f3.fil for in-plane shear and twisting moment history data

STEP 0 INCREMENT 0
TIME COMPLETED IN THIS STEP .000E+00

POST - P L O T T I N G

STARTING REQUEST 1

VARIABLE	MAXIMUM	TIME	MINIMUM	TIME
1 SF3-301	235.	7.00	-60.9	6.24
2 SM3-301	162.	6.20	-157.	7.00
3 SF3-1257	62.3	6.04	-311.	7.00
4 SM3-1257	912.	7.00	70.4	6.04

TIME	VARIABLE			
	1	2	3	4
6.040	-55.77	89.23	62.35	70.40
6.080	-46.16	114.1	51.65	168.9
6.120	-36.54	138.9	40.96	267.4
6.160	-36.79	142.7	35.30	381.9
6.200	-29.69	162.0	27.48	489.0
6.240	-60.85	141.9	41.43	631.7
6.280	-50.33	135.5	27.59	610.9
6.320	-57.72	136.6	25.37	701.5
6.360	-60.10	135.8	23.49	788.7
6.400	14.71	107.5	-56.73	550.6
6.440	2.407	85.46	-61.68	564.2
6.480	-16.45	88.17	-78.07	594.7
6.520	-14.67	75.46	-93.73	615.4
6.560	-14.92	65.31	-108.6	638.1
6.600	-14.24	53.71	-123.2	659.5
6.640	68.92	57.19	-103.9	708.4
6.680	109.4	-7637	-170.5	714.2
6.720	126.5	-16.97	-192.4	737.9
6.760	141.1	-33.82	-211.3	759.6
6.800	166.5	-65.06	-222.2	785.2
6.840	179.7	-84.74	-242.5	808.7
6.880	197.6	-108.4	-257.1	838.0
6.920	213.2	-128.9	-274.3	862.0
6.960	220.8	-138.0	-293.0	888.7
7.000	234.5	-156.6	-310.8	912.4

THE REQUEST HAS BEEN TABULATED

END OF RUN

RUN SUMMARY:
TOTAL OF

0 INCREMENTS
0 CUTBACKS IN AUTOMATIC INCREMENTATION
0 ITERATIONS
0 PASSES THROUGH THE EQUATION SOLVER OF WHICH
0 REPRESENT(S) DECOMPOSITION OF THE MASS MATRIX

ATTACHMENT 9
EXPANDED SPREADSHEETS SHOWING FORMULAS

Prepared by: Phillip R. Kich 8/23/94
Date

Checked by: SE KOK 8/24/94
Date

	A	B	C	D
1	Table 6			
2	Per ACI-3			
3				
4	Section	h [in]	Meridional	
5			d'	d
6			[in]	[in]
7	4a	18.3	2.375	=B7-C7
8	4	12	2.375	=B8-C8
9	5	12	2.375	=B9-C9
10	6	12	2.375	=B10-C10
11				
12				
13				
14	Run ID	Element	Section	Meridional
15				Nu (min)
16				[lb/ft]
17	P1-F1A	1305	5	38100
18		1309	5	37236
19		1313	6	28680
20	P2-F2	872	4a	41688
21		876	4	33420
22		880	4	37560
23				

B Att9-3

	E	F	G
1			
2			
3			
4	Circumferential		
5	d'	d	b
6	[in]	[in]	[in]
7	3.1875	=B7-E7	12
8	3.1875	=B8-E8	12
9	3.1875	=B9-E9	12
10	3.1875	=B10-E10	12
11			
12			
13			
14			Circumfer
15	Shear Cap	Demand	Nu (min)
16	[lb/ft]	[lb/ft]	[lb/ft]
17	=IF(D17>=0,2*0.85*\$G\$9*\$D\$9*\$I\$9^0.5*(1+D17/(2000*\$B\$9*\$G\$9)),2*0.85*\$G\$9*\$D\$9*\$I\$9^0.5*(1+D17/(500*\$B\$9*\$G\$9)))	3306	-25140
18	=IF(D18>=0,2*0.85*\$G\$9*\$D\$9*\$I\$9^0.5*(1+D18/(2000*\$B\$9*\$G\$9)),2*0.85*\$G\$9*\$D\$9*\$I\$9^0.5*(1+D18/(500*\$B\$9*\$G\$9)))	7204	-44520
19	=IF(D19>=0,2*0.85*\$G\$10*\$D\$10*\$I\$10^0.5*(1+D19/(2000*\$B\$10*\$G\$10)),2*0.85*\$G\$10*\$D\$10*\$I\$10^0.5*(1+D19/(500*\$B\$10*\$G\$10)))	16740	-21372
20	=IF(D20>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D20/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D20/(500*\$B\$7*\$G\$7)))	16932	-25488
21	=IF(D21>=0,2*0.85*\$G\$8*\$D\$8*\$I\$8^0.5*(1+D21/(2000*\$B\$8*\$G\$8)),2*0.85*\$G\$8*\$D\$8*\$I\$8^0.5*(1+D21/(500*\$B\$8*\$G\$8)))	18084	-1993
22	=IF(D22>=0,2*0.85*\$G\$8*\$D\$8*\$I\$8^0.5*(1+D22/(2000*\$B\$8*\$G\$8)),2*0.85*\$G\$8*\$D\$8*\$I\$8^0.5*(1+D22/(500*\$B\$8*\$G\$8)))	10188	904
23			

WMC-SD-W320-ANAL-003
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	H	I
1		
2		
3		
4	SDV7	f_c
5	(55,95/95)	(55,95/95)
6	[psi]	[psi]
7	3899	=H7
8	3899	=H8
9	4399	=H9
10	4418	=H10
11		
12		
13		
14		
15	Shear Cap	Demand
16	[lb/ft]	[lb/ft]
17	$=IF(G17>=0,2*0.85*G\$9*F\$9*I\$9^{0.5}*(1+G17/(2000*B\$9*G\$9)),2*0.85*G\$9*F\$9*I\$9^{0.5}*(1+G17/(500*B\$9*G\$9)))$	289
18	$=IF(G18>=0,2*0.85*G\$9*F\$9*I\$9^{0.5}*(1+G18/(2000*B\$9*G\$9)),2*0.85*G\$9*F\$9*I\$9^{0.5}*(1+G18/(500*B\$9*G\$9)))$	2850
19	$=IF(G19>=0,2*0.85*G\$10*F\$10*I\$10^{0.5}*(1+G19/(2000*B\$10*G\$10)),2*0.85*G\$10*F\$10*I\$10^{0.5}*(1+G19/(500*B\$10*G\$10)))$	13488
20	$=IF(G20>=0,2*0.85*G\$7*F\$7*I\$7^{0.5}*(1+G20/(2000*B\$7*G\$7)),2*0.85*G\$7*F\$7*I\$7^{0.5}*(1+G20/(500*B\$7*G\$7)))$	9679
21	$=IF(G21>=0,2*0.85*G\$8*F\$8*I\$8^{0.5}*(1+G21/(2000*B\$8*G\$8)),2*0.85*G\$8*F\$8*I\$8^{0.5}*(1+G21/(500*B\$8*G\$8)))$	14760
22	$=IF(G22>=0,2*0.85*G\$8*F\$8*I\$8^{0.5}*(1+G22/(2000*B\$8*G\$8)),2*0.85*G\$8*F\$8*I\$8^{0.5}*(1+G22/(500*B\$8*G\$8)))$	4872
23		

	A	B	C	D
1	Table 6			
2	Per ACI-3			
3				
4	Section	h [in]	Meridional	
5			d'	d
6			[in]	[in]
7	1	6	1.75	=B7-C7
8	2	6	1.75	=B8-C8
9	2a (bot)	16.49	3.13	=B9-C9
10				
11				
12				
13	Run ID	Element	Section	Meridional
14				Nu (min)
15				[lb/ft]
16		289	1	13716
17		1	1	13704
18	P3-F1A	161	1	13716
19		291	1	12360
20		4	1	12372
21		164	1	12372
22	P4-F1A	301	1	13572
23		1257	1	13224
24	P5-F2	848	1	25416
25		852	1	23148
26	P6-F1A	1277	2	2854
27		1281	2a	12156
28	Notes:			

	E	F	G
1			
2			
3			
4	Circumferential		
5	d'	d	b
6	[in]	[in]	[in]
7	2.25	=B7-E7	12
8	2.25	=B8-E8	12
9	4	=B9-E9	12
10			
11			
12			
13			Circumferential
14	Shear Cap	Demand	Nu (min)
15	[lb/ft]	[lb/ft]	[lb/ft]
16	=IF(D16>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D16/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D16/(500*\$B\$7*\$G\$7)))	13512	13884
17	=IF(D17>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D17/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D17/(500*\$B\$7*\$G\$7)))	13452	13920
18	=IF(D18>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D18/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D18/(500*\$B\$7*\$G\$7)))	12900	13908
19	=IF(D19>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D19/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D19/(500*\$B\$7*\$G\$7)))	1807	10080
20	=IF(D20>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D20/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D20/(500*\$B\$7*\$G\$7)))	2512	10844
21	=IF(D21>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D21/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D21/(500*\$B\$7*\$G\$7)))	2471	10261
22	=IF(D22>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D22/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D22/(500*\$B\$7*\$G\$7)))	20604	13500
23	=IF(D23>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D23/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D23/(500*\$B\$7*\$G\$7)))	12120	11284
24	=IF(D24>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D24/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D24/(500*\$B\$7*\$G\$7)))	10961	23316
25	=IF(D25>=0,2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D25/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$D\$7*\$I\$7^0.5*(1+D25/(500*\$B\$7*\$G\$7)))	8910	22764
26	=IF(D26>=0,2*0.85*\$G\$8*\$D\$8*\$I\$8^0.5*(1+D26/(2000*\$B\$8*\$G\$8)),2*0.85*\$G\$8*\$D\$8*\$I\$8^0.5*(1+D26/(500*\$B\$8*\$G\$8)))	5158	-24
27	=IF(D27>=0,2*0.85*\$G\$9*\$D\$9*\$I\$9^0.5*(1+D27/(2000*\$B\$9*\$G\$9)),2*0.85*\$G\$9*\$D\$9*\$I\$9^0.5*(1+D27/(500*\$B\$9*\$G\$9)))	11156	-3595
28			

	H	I
1		
2		
3		
4	SDV7	f _c
5	(55,95/95)	(55,95/95)
6	[psi]	[psi]
7	3451	=H7
8	3625	=H8
9	3625	=H9
10		
11		
12		
13		
14	Shear Cap	Demand
15	[lb/ft]	[lb/ft]
16	=IF(G16>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G16/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G16/(500*\$B\$7*\$G\$7)))	662
17	=IF(G17>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G17/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G17/(500*\$B\$7*\$G\$7)))	3514
18	=IF(G18>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G18/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G18/(500*\$B\$7*\$G\$7)))	3754
19	=IF(G19>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G19/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G19/(500*\$B\$7*\$G\$7)))	1488
20	=IF(G20>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G20/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G20/(500*\$B\$7*\$G\$7)))	896
21	=IF(G21>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G21/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G21/(500*\$B\$7*\$G\$7)))	1120
22	=IF(G22>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G22/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G22/(500*\$B\$7*\$G\$7)))	47748
23	=IF(G23>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G23/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G23/(500*\$B\$7*\$G\$7)))	16788
24	=IF(G24>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G24/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G24/(500*\$B\$7*\$G\$7)))	9530
25	=IF(G25>=0,2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G25/(2000*\$B\$7*\$G\$7)),2*0.85*\$G\$7*\$F\$7*\$I\$7^0.5*(1+G25/(500*\$B\$7*\$G\$7)))	10608
26	=IF(G26>=0,2*0.85*\$G\$8*\$F\$8*\$I\$8^0.5*(1+G26/(2000*\$B\$8*\$G\$8)),2*0.85*\$G\$8*\$F\$8*\$I\$8^0.5*(1+G26/(500*\$B\$8*\$G\$8)))	8138
27	=IF(G27>=0,2*0.85*\$G\$9*\$F\$9*\$I\$9^0.5*(1+G27/(2000*\$B\$9*\$G\$9)),2*0.85*\$G\$9*\$F\$9*\$I\$9^0.5*(1+G27/(500*\$B\$9*\$G\$9)))	12156
28		

	A	B	C	D	E	F	G	H	I
1	Table 6.5-3. Che								
2	(Per ACI-349 Section								
3									
4							shear d		
5	Run ID	Element	fc	thickness	min Nu	phi*Vc	SF3	SF3	phi*Vc/2
6					lb/ft		lb/in	lb/ft	lb/ft
7	wall-loaded cases								
8		1305	4413	12	-25140	=0.85*(3.3*SQRT(C8)*12*D8+E8/4)	219.5	=G8*12	=F8/2
9	P1-F1A	1309	4432.75	12	-44520	=0.85*(3.3*SQRT(C9)*12*D9+E9/4)	208.3	=G9*12	=F9/2
10		1313	4442.5	12	-21372	=0.85*(3.3*SQRT(C10)*12*D10+E10/4)	869.7	=G10*12	=F10/2
11		872	3794.75	18.3	-25488	=0.85*(3.3*SQRT(C11)*12*D11+E11/4)	494.1	=G11*12	=F11/2
12	P2-F2	876	3911.5	12.3	-1993	=0.85*(3.3*SQRT(C12)*12*D12+E12/4)	676.4	=G12*12	=F12/2
13		880	4072.5	12	89	=0.85*(3.3*SQRT(C13)*12*D13+E13/4)	276.6	=G13*12	=F13/2
14	slab-loaded cases								
15		289	3316.75	6	13716	=0.85*(3.3*SQRT(C15)*12*D15+E15/4)	56.14	=G15*12	=F15/2
16		1	3316.75	6	13704	=0.85*(3.3*SQRT(C16)*12*D16+E16/4)	59.25	=G16*12	=F16/2
17	P3-F1A	161	3316.75	6	13716	=0.85*(3.3*SQRT(C17)*12*D17+E17/4)	131	=G17*12	=F17/2
18		291	3321	6	10080	=0.85*(3.3*SQRT(C18)*12*D18+E18/4)	72.1	=G18*12	=F18/2
19		4	3321	6	10844	=0.85*(3.3*SQRT(C19)*12*D19+E19/4)	62.91	=G19*12	=F19/2
20		164	3321	6	10261	=0.85*(3.3*SQRT(C20)*12*D20+E20/4)	56.77	=G20*12	=F20/2
21	P4-F1A	301	3343	6	13500	=0.85*(3.3*SQRT(C21)*12*D21+E21/4)	313.3	=G21*12	=F21/2
22		1257	3360.5	6	11284	=0.85*(3.3*SQRT(C22)*12*D22+E22/4)	363.7	=G22*12	=F22/2
23	P5-F2	848	3382	6	23316	=0.85*(3.3*SQRT(C23)*12*D23+E23/4)	303.8	=G23*12	=F23/2
24		852	3420.75	6	22764	=0.85*(3.3*SQRT(C24)*12*D24+E24/4)	438	=G24*12	=F24/2
25	P6-F1A	1277	3609.5	6	-24	=0.85*(3.3*SQRT(C25)*12*D25+E25/4)	621.6	=G25*12	=F25/2
26		1281	3747	16.49	-3595	=0.85*(3.3*SQRT(C26)*12*D26+E26/4)	1198	=G26*12	=F26/2

B Att9-9

	A	B	C	D	E	F	G	H	I	J	K
1	Determ										
2											
3											
4	Section	h	As per ft	d'	As' per ft	d''	d	b	SDV7(55,95/95)	Temp(55,95/95)	fc
5		[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[psi]	[deg F]	[psi]
6	4	12	0.44	2.375	0.44	2.375	=B6-D6	12	3899	110.8	3899
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											

	L	M	N
1	Determination of Additional Meridional		
2			
3			
4	Beta 1	fy (rebar)	E (rebar)
5		[psi]	[psi]
6	=IF(K6<4000,0.85,0.85-0.05*(K6-4000)/1000)	=IF(J6<100,38000,38000-3420*(J6-100)/100)	=28300000-700000*(J6-70)/130
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

	O	P	Q	R	S
1					
2					
3					
4	yield strain=fy/E	Trial c	0.85fc*b	xp	eps
5		[in]		[in]	
6	=M6/N6	1	=0.85*K6*H6	=(Q6*B6*(B6/2-D6)+E6*M6*(G6-F6))/(Q6*B6+(C6+E6)*M6)	=MIN(0.003*(\$G\$6-\$P6)/\$P6,\$M\$6)
7		=P6+0.25			=MIN(0.003*(\$G\$6-\$P7)/\$P7,\$M\$6)
8		=P7+0.25			=MIN(0.003*(\$G\$6-\$P8)/\$P8,\$M\$6)
9		=P8+0.1			=MIN(0.003*(\$G\$6-\$P9)/\$P9,\$M\$6)
10		=P9+0.1			=MIN(0.003*(\$G\$6-\$P10)/\$P10,\$M\$6)
11		=P10+0.1			=MIN(0.003*(\$G\$6-\$P11)/\$P11,\$M\$6)
12		=P11+0.1			=MIN(0.003*(\$G\$6-\$P12)/\$P12,\$M\$6)
13		=P12+0.1			=MIN(0.003*(\$G\$6-\$P13)/\$P13,\$M\$6)
14		=P13+0.1			=MIN(0.003*(\$G\$6-\$P14)/\$P14,\$M\$6)
15		=P14+0.1			=MIN(0.003*(\$G\$6-\$P15)/\$P15,\$M\$6)
16		=P15+0.1			=MIN(0.003*(\$G\$6-\$P16)/\$P16,\$M\$6)
17		=P16+0.1			=MIN(0.003*(\$G\$6-\$P17)/\$P17,\$M\$6)
18		=P17+0.1			=MIN(0.003*(\$G\$6-\$P18)/\$P18,\$M\$6)
19		=P18+0.1			=MIN(0.003*(\$G\$6-\$P19)/\$P19,\$M\$6)
20		=P19+0.1			=MIN(0.003*(\$G\$6-\$P20)/\$P20,\$M\$6)
21		=P20+0.5			=MIN(0.003*(\$G\$6-\$P21)/\$P21,\$M\$6)
22		=P21+0.5			=MIN(0.003*(\$G\$6-\$P22)/\$P22,\$M\$6)
23		=P22+0.5			=MIN(0.003*(\$G\$6-\$P23)/\$P23,\$M\$6)
24		=P23+0.5			=MIN(0.003*(\$G\$6-\$P24)/\$P24,\$M\$6)
25		=P24+0.5			=MIN(0.003*(\$G\$6-\$P25)/\$P25,\$M\$6)

	T	U	V
1			
2			
3			
4	fs	eps'	fs'
5	[psi]		[psi]
6	=IF(S6>0,MIN(S6*\$N\$6,\$M\$6),MAX(S6*\$N\$6,-\$M\$6))	=MIN(0.003*(P6-\$F\$6)/\$P6,\$M\$6)	=IF(U6>0,MIN(U6*\$N\$6,\$M\$6),MAX(U6*\$N\$6,-\$M\$6))
7	=IF(S7>0,MIN(S7*\$N\$6,\$M\$6),MAX(S7*\$N\$6,-\$M\$6))	=MIN(0.003*(P7-\$F\$6)/\$P7,\$M\$6)	=IF(U7>0,MIN(U7*\$N\$6,\$M\$6),MAX(U7*\$N\$6,-\$M\$6))
8	=IF(S8>0,MIN(S8*\$N\$6,\$M\$6),MAX(S8*\$N\$6,-\$M\$6))	=MIN(0.003*(P8-\$F\$6)/\$P8,\$M\$6)	=IF(U8>0,MIN(U8*\$N\$6,\$M\$6),MAX(U8*\$N\$6,-\$M\$6))
9	=IF(S9>0,MIN(S9*\$N\$6,\$M\$6),MAX(S9*\$N\$6,-\$M\$6))	=MIN(0.003*(P9-\$F\$6)/\$P9,\$M\$6)	=IF(U9>0,MIN(U9*\$N\$6,\$M\$6),MAX(U9*\$N\$6,-\$M\$6))
10	=IF(S10>0,MIN(S10*\$N\$6,\$M\$6),MAX(S10*\$N\$6,-\$M\$6))	=MIN(0.003*(P10-\$F\$6)/\$P10,\$M\$6)	=IF(U10>0,MIN(U10*\$N\$6,\$M\$6),MAX(U10*\$N\$6,-\$M\$6))
11	=IF(S11>0,MIN(S11*\$N\$6,\$M\$6),MAX(S11*\$N\$6,-\$M\$6))	=MIN(0.003*(P11-\$F\$6)/\$P11,\$M\$6)	=IF(U11>0,MIN(U11*\$N\$6,\$M\$6),MAX(U11*\$N\$6,-\$M\$6))
12	=IF(S12>0,MIN(S12*\$N\$6,\$M\$6),MAX(S12*\$N\$6,-\$M\$6))	=MIN(0.003*(P12-\$F\$6)/\$P12,\$M\$6)	=IF(U12>0,MIN(U12*\$N\$6,\$M\$6),MAX(U12*\$N\$6,-\$M\$6))
13	=IF(S13>0,MIN(S13*\$N\$6,\$M\$6),MAX(S13*\$N\$6,-\$M\$6))	=MIN(0.003*(P13-\$F\$6)/\$P13,\$M\$6)	=IF(U13>0,MIN(U13*\$N\$6,\$M\$6),MAX(U13*\$N\$6,-\$M\$6))
14	=IF(S14>0,MIN(S14*\$N\$6,\$M\$6),MAX(S14*\$N\$6,-\$M\$6))	=MIN(0.003*(P14-\$F\$6)/\$P14,\$M\$6)	=IF(U14>0,MIN(U14*\$N\$6,\$M\$6),MAX(U14*\$N\$6,-\$M\$6))
15	=IF(S15>0,MIN(S15*\$N\$6,\$M\$6),MAX(S15*\$N\$6,-\$M\$6))	=MIN(0.003*(P15-\$F\$6)/\$P15,\$M\$6)	=IF(U15>0,MIN(U15*\$N\$6,\$M\$6),MAX(U15*\$N\$6,-\$M\$6))
16	=IF(S16>0,MIN(S16*\$N\$6,\$M\$6),MAX(S16*\$N\$6,-\$M\$6))	=MIN(0.003*(P16-\$F\$6)/\$P16,\$M\$6)	=IF(U16>0,MIN(U16*\$N\$6,\$M\$6),MAX(U16*\$N\$6,-\$M\$6))
17	=IF(S17>0,MIN(S17*\$N\$6,\$M\$6),MAX(S17*\$N\$6,-\$M\$6))	=MIN(0.003*(P17-\$F\$6)/\$P17,\$M\$6)	=IF(U17>0,MIN(U17*\$N\$6,\$M\$6),MAX(U17*\$N\$6,-\$M\$6))
18	=IF(S18>0,MIN(S18*\$N\$6,\$M\$6),MAX(S18*\$N\$6,-\$M\$6))	=MIN(0.003*(P18-\$F\$6)/\$P18,\$M\$6)	=IF(U18>0,MIN(U18*\$N\$6,\$M\$6),MAX(U18*\$N\$6,-\$M\$6))
19	=IF(S19>0,MIN(S19*\$N\$6,\$M\$6),MAX(S19*\$N\$6,-\$M\$6))	=MIN(0.003*(P19-\$F\$6)/\$P19,\$M\$6)	=IF(U19>0,MIN(U19*\$N\$6,\$M\$6),MAX(U19*\$N\$6,-\$M\$6))
20	=IF(S20>0,MIN(S20*\$N\$6,\$M\$6),MAX(S20*\$N\$6,-\$M\$6))	=MIN(0.003*(P20-\$F\$6)/\$P20,\$M\$6)	=IF(U20>0,MIN(U20*\$N\$6,\$M\$6),MAX(U20*\$N\$6,-\$M\$6))
21	=IF(S21>0,MIN(S21*\$N\$6,\$M\$6),MAX(S21*\$N\$6,-\$M\$6))	=MIN(0.003*(P21-\$F\$6)/\$P21,\$M\$6)	=IF(U21>0,MIN(U21*\$N\$6,\$M\$6),MAX(U21*\$N\$6,-\$M\$6))
22	=IF(S22>0,MIN(S22*\$N\$6,\$M\$6),MAX(S22*\$N\$6,-\$M\$6))	=MIN(0.003*(P22-\$F\$6)/\$P22,\$M\$6)	=IF(U22>0,MIN(U22*\$N\$6,\$M\$6),MAX(U22*\$N\$6,-\$M\$6))
23	=IF(S23>0,MIN(S23*\$N\$6,\$M\$6),MAX(S23*\$N\$6,-\$M\$6))	=MIN(0.003*(P23-\$F\$6)/\$P23,\$M\$6)	=IF(U23>0,MIN(U23*\$N\$6,\$M\$6),MAX(U23*\$N\$6,-\$M\$6))
24	=IF(S24>0,MIN(S24*\$N\$6,\$M\$6),MAX(S24*\$N\$6,-\$M\$6))	=MIN(0.003*(P24-\$F\$6)/\$P24,\$M\$6)	=IF(U24>0,MIN(U24*\$N\$6,\$M\$6),MAX(U24*\$N\$6,-\$M\$6))
25	=IF(S25>0,MIN(S25*\$N\$6,\$M\$6),MAX(S25*\$N\$6,-\$M\$6))	=MIN(0.003*(P25-\$F\$6)/\$P25,\$M\$6)	=IF(U25>0,MIN(U25*\$N\$6,\$M\$6),MAX(U25*\$N\$6,-\$M\$6))

	W	X	Y	Z	AA
1	Determinatio				
2					
3					
4	Cc	Cs	T	P	M
5	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]
6	=Q\$6*\$L\$6*P6	=E\$6*V6	=C\$6*T6	=W6+X6-Y6	=W6*(\$G\$6-R\$6-\$L\$6*P6/2)+X6*(\$G\$6-R\$6-\$F\$6)+Y6*R\$6
7	=Q\$6*\$L\$6*P7	=E\$6*V7	=C\$6*T7	=W7+X7-Y7	=W7*(\$G\$6-R\$6-\$L\$6*P7/2)+X7*(\$G\$6-R\$6-\$F\$6)+Y7*R\$6
8	=Q\$6*\$L\$6*P8	=E\$6*V8	=C\$6*T8	=W8+X8-Y8	=W8*(\$G\$6-R\$6-\$L\$6*P8/2)+X8*(\$G\$6-R\$6-\$F\$6)+Y8*R\$6
9	=Q\$6*\$L\$6*P9	=E\$6*V9	=C\$6*T9	=W9+X9-Y9	=W9*(\$G\$6-R\$6-\$L\$6*P9/2)+X9*(\$G\$6-R\$6-\$F\$6)+Y9*R\$6
10	=Q\$6*\$L\$6*P10	=E\$6*V10	=C\$6*T10	=W10+X10-Y10	=W10*(\$G\$6-R\$6-\$L\$6*P10/2)+X10*(\$G\$6-R\$6-\$F\$6)+Y10*R\$6
11	=Q\$6*\$L\$6*P11	=E\$6*V11	=C\$6*T11	=W11+X11-Y11	=W11*(\$G\$6-R\$6-\$L\$6*P11/2)+X11*(\$G\$6-R\$6-\$F\$6)+Y11*R\$6
12	=Q\$6*\$L\$6*P12	=E\$6*V12	=C\$6*T12	=W12+X12-Y12	=W12*(\$G\$6-R\$6-\$L\$6*P12/2)+X12*(\$G\$6-R\$6-\$F\$6)+Y12*R\$6
13	=Q\$6*\$L\$6*P13	=E\$6*V13	=C\$6*T13	=W13+X13-Y13	=W13*(\$G\$6-R\$6-\$L\$6*P13/2)+X13*(\$G\$6-R\$6-\$F\$6)+Y13*R\$6
14	=Q\$6*\$L\$6*P14	=E\$6*V14	=C\$6*T14	=W14+X14-Y14	=W14*(\$G\$6-R\$6-\$L\$6*P14/2)+X14*(\$G\$6-R\$6-\$F\$6)+Y14*R\$6
15	=Q\$6*\$L\$6*P15	=E\$6*V15	=C\$6*T15	=W15+X15-Y15	=W15*(\$G\$6-R\$6-\$L\$6*P15/2)+X15*(\$G\$6-R\$6-\$F\$6)+Y15*R\$6
16	=Q\$6*\$L\$6*P16	=E\$6*V16	=C\$6*T16	=W16+X16-Y16	=W16*(\$G\$6-R\$6-\$L\$6*P16/2)+X16*(\$G\$6-R\$6-\$F\$6)+Y16*R\$6
17	=Q\$6*\$L\$6*P17	=E\$6*V17	=C\$6*T17	=W17+X17-Y17	=W17*(\$G\$6-R\$6-\$L\$6*P17/2)+X17*(\$G\$6-R\$6-\$F\$6)+Y17*R\$6
18	=Q\$6*\$L\$6*P18	=E\$6*V18	=C\$6*T18	=W18+X18-Y18	=W18*(\$G\$6-R\$6-\$L\$6*P18/2)+X18*(\$G\$6-R\$6-\$F\$6)+Y18*R\$6
19	=Q\$6*\$L\$6*P19	=E\$6*V19	=C\$6*T19	=W19+X19-Y19	=W19*(\$G\$6-R\$6-\$L\$6*P19/2)+X19*(\$G\$6-R\$6-\$F\$6)+Y19*R\$6
20	=Q\$6*\$L\$6*P20	=E\$6*V20	=C\$6*T20	=W20+X20-Y20	=W20*(\$G\$6-R\$6-\$L\$6*P20/2)+X20*(\$G\$6-R\$6-\$F\$6)+Y20*R\$6
21	=Q\$6*\$L\$6*P21	=E\$6*V21	=C\$6*T21	=W21+X21-Y21	=W21*(\$G\$6-R\$6-\$L\$6*P21/2)+X21*(\$G\$6-R\$6-\$F\$6)+Y21*R\$6
22	=Q\$6*\$L\$6*P22	=E\$6*V22	=C\$6*T22	=W22+X22-Y22	=W22*(\$G\$6-R\$6-\$L\$6*P22/2)+X22*(\$G\$6-R\$6-\$F\$6)+Y22*R\$6
23	=Q\$6*\$L\$6*P23	=E\$6*V23	=C\$6*T23	=W23+X23-Y23	=W23*(\$G\$6-R\$6-\$L\$6*P23/2)+X23*(\$G\$6-R\$6-\$F\$6)+Y23*R\$6
24	=Q\$6*\$L\$6*P24	=E\$6*V24	=C\$6*T24	=W24+X24-Y24	=W24*(\$G\$6-R\$6-\$L\$6*P24/2)+X24*(\$G\$6-R\$6-\$F\$6)+Y24*R\$6
25	=Q\$6*\$L\$6*P25	=E\$6*V25	=C\$6*T25	=W25+X25-Y25	=W25*(\$G\$6-R\$6-\$L\$6*P25/2)+X25*(\$G\$6-R\$6-\$F\$6)+Y25*R\$6

B At19-14

	AB	AC	AD	AE
1				
2				
3				
4	0.1fcAg/0.7	phi	phi x P [lbs]	phi x M [lb-in]
5				
6	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z6>0,MAX(0.7+0.2*(AB6-Z6)/AB6,0.7),0.9)	=AC6*Z6	=AC6*AA6
7	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z7>0,MAX(0.7+0.2*(AB7-Z7)/AB7,0.7),0.9)	=AC7*Z7	=AC7*AA7
8	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z8>0,MAX(0.7+0.2*(AB8-Z8)/AB8,0.7),0.9)	=AC8*Z8	=AC8*AA8
9	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z9>0,MAX(0.7+0.2*(AB9-Z9)/AB9,0.7),0.9)	=AC9*Z9	=AC9*AA9
10	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z10>0,MAX(0.7+0.2*(AB10-Z10)/AB10,0.7),0.9)	=AC10*Z10	=AC10*AA10
11	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z11>0,MAX(0.7+0.2*(AB11-Z11)/AB11,0.7),0.9)	=AC11*Z11	=AC11*AA11
12	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z12>0,MAX(0.7+0.2*(AB12-Z12)/AB12,0.7),0.9)	=AC12*Z12	=AC12*AA12
13	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z13>0,MAX(0.7+0.2*(AB13-Z13)/AB13,0.7),0.9)	=AC13*Z13	=AC13*AA13
14	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z14>0,MAX(0.7+0.2*(AB14-Z14)/AB14,0.7),0.9)	=AC14*Z14	=AC14*AA14
15	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z15>0,MAX(0.7+0.2*(AB15-Z15)/AB15,0.7),0.9)	=AC15*Z15	=AC15*AA15
16	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z16>0,MAX(0.7+0.2*(AB16-Z16)/AB16,0.7),0.9)	=AC16*Z16	=AC16*AA16
17	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z17>0,MAX(0.7+0.2*(AB17-Z17)/AB17,0.7),0.9)	=AC17*Z17	=AC17*AA17
18	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z18>0,MAX(0.7+0.2*(AB18-Z18)/AB18,0.7),0.9)	=AC18*Z18	=AC18*AA18
19	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z19>0,MAX(0.7+0.2*(AB19-Z19)/AB19,0.7),0.9)	=AC19*Z19	=AC19*AA19
20	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z20>0,MAX(0.7+0.2*(AB20-Z20)/AB20,0.7),0.9)	=AC20*Z20	=AC20*AA20
21	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z21>0,MAX(0.7+0.2*(AB21-Z21)/AB21,0.7),0.9)	=AC21*Z21	=AC21*AA21
22	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z22>0,MAX(0.7+0.2*(AB22-Z22)/AB22,0.7),0.9)	=AC22*Z22	=AC22*AA22
23	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z23>0,MAX(0.7+0.2*(AB23-Z23)/AB23,0.7),0.9)	=AC23*Z23	=AC23*AA23
24	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z24>0,MAX(0.7+0.2*(AB24-Z24)/AB24,0.7),0.9)	=AC24*Z24	=AC24*AA24
25	=0.1*\$K\$6*\$B\$6*\$H\$6/0.7	=IF(Z25>0,MAX(0.7+0.2*(AB25-Z25)/AB25,0.7),0.9)	=AC25*Z25	=AC25*AA25

WHC-SD-W320-ANAL-003
Rev. 0

ATTACHMENT 10

SPREADSHEETS FOR DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3

Prepared by: Phillip R. Kich 8/26/14
Date

Checked by: SB KOK 8/26/14
Date

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3										
incr	iter	force converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	sqrt of G+H+I	converge. indicator
1	1	CONVERGEN	-9.22E-05	1.98E-03	-2.01E-04					3.00E-03
2	1	NO	-9.22E-05	1.98E-03	-2.01E-04	1.04E-07	2.76E-07	3.06E-10	6.16E-04	1.34E-04
2	2	NO	-4.15E-04	2.51E-03	-2.19E-04	9.96E-09	1.66E-08	2.07E-07	4.83E-04	
2	3	NO	-5.15E-04	2.64E-03	2.36E-04					
3	1	NO	-1.02E-04	2.05E-03	-2.06E-04	2.81E-08	2.92E-08	5.78E-11	2.40E-04	-2.42E-04
3	2	NO	-2.70E-04	2.22E-03	-2.14E-04	4.21E-08	1.82E-07	7.71E-09	4.82E-04	
3	3	NO	-4.75E-04	2.65E-03	-3.01E-04					
4	1	NO	-1.61E-03	4.21E-03	-9.02E-04	2.82E-07	7.24E-07	9.78E-08	1.05E-03	8.71E-04
4	2	NO	-2.15E-03	5.06E-03	-1.22E-03	7.74E-09	2.13E-08	3.14E-09	1.79E-04	
4	3	NO	-2.23E-03	5.21E-03	-1.27E-03					
5	1	CONVERGEN	-1.04E-04	2.12E-03	-2.48E-04					3.00E-03
6	1	NO	-1.02E-04	2.09E-03	-2.36E-04	4.62E-11	3.02E-09	2.88E-07	5.39E-04	3.10E-04
6	2	NO	-1.09E-04	2.14E-03	3.01E-04	1.35E-10	1.23E-08	4.00E-08	2.29E-04	
6	3	NO	-1.21E-04	2.25E-03	5.01E-04					
7	1	NO	-1.07E-04	2.16E-03	2.81E-04	2.04E-10	7.13E-08	8.32E-09	2.83E-04	-4.72E-04
7	2	NO	-1.21E-04	2.42E-03	3.73E-04	7.29E-12	2.12E-09	5.68E-07	7.55E-04	
7	3	NO	-1.24E-04	2.47E-03	-3.81E-04					
8	1	CONVERGEN	-1.04E-04	2.11E-03	-2.47E-04					3.00E-03
9	1	NO	-1.03E-04	2.10E-03	-2.41E-04	1.37E-07	2.22E-08	9.49E-10	4.00E-04	2.72E-04
9	2	NO	-4.73E-04	2.25E-03	-2.72E-04	1.51E-08	1.16E-09	3.14E-11	1.28E-04	
9	3	NO	-5.96E-04	2.28E-03	-2.77E-04					
10	1	CONVERGEN	-1.04E-04	2.11E-03	-2.42E-04					3.00E-03
11	1	NO	-1.03E-04	2.10E-03	-2.42E-04					3.00E-03
11	2	CONVERGEN	-1.10E-04	2.13E-03	-2.38E-04					
12	1	CONVERGEN	-1.04E-04	2.10E-03	-2.41E-04					3.00E-03
13	1	CONVERGEN	-1.03E-04	2.10E-03	-2.42E-04					3.00E-03
14	1	NO	-1.03E-04	2.10E-03	-2.42E-04	9.63E-07	1.37E-09	4.17E-06	2.27E-03	1.59E-03
14	2	NO	8.78E-04	2.14E-03	1.80E-03	8.07E-08	2.50E-11	3.72E-07	6.73E-04	
14	3	NO	1.16E-03	2.14E-03	2.41E-03					
15	1	NO	1.35E-04	2.10E-03	3.12E-04	2.47E-07	5.10E-07	1.60E-06	1.54E-03	1.11E-03
15	2	NO	6.32E-04	2.82E-03	1.58E-03	1.13E-08	8.64E-08	8.18E-08	4.24E-04	
15	3	NO	7.38E-04	3.11E-03	1.86E-03					
16	1	NO	1.41E-04	2.37E-03	-3.23E-04					3.00E-03
16	2	NO	1.42E-04	2.40E-03	-3.27E-04					
16	3	CONVERGEN	1.42E-04	2.40E-03	-3.27E-04					
17	1	CONVERGEN	-1.04E-04	2.15E-03	-2.59E-04					3.00E-03

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3										
		force							sqrt of	converge.
incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	G+H+I	indicator
18	1	CONVERGEN	-1.04E-04	2.15E-03	-2.59E-04					3.00E-03
19	1	NO	-1.04E-04	2.15E-03	-2.59E-04	6.58E-08	1.62E-07	1.14E-08	4.89E-04	-3.19E-04
19	2	NO	-3.60E-04	2.56E-03	-3.66E-04	6.28E-07	2.37E-08	1.51E-09	8.08E-04	
19	3	NO	4.32E-04	2.71E-03	-4.05E-04					
20	1	CONVERGEN	-1.13E-04	2.22E-03	-2.81E-04					3.00E-03
21	1	CONVERGEN	-1.05E-04	2.17E-03	-2.62E-04					3.00E-03
22	1	NO	-1.05E-04	2.17E-03	-2.63E-04	6.83E-07	1.30E-06	8.73E-07	1.69E-03	9.88E-04
22	2	NO	7.21E-04	3.31E-03	-1.20E-03	9.71E-08	1.64E-07	2.31E-07	7.02E-04	
22	3	NO	1.03E-03	3.71E-03	-1.68E-03					
23	1	NO	4.82E-04	2.89E-03	-9.19E-04	9.47E-08	1.44E-07	3.79E-09	4.92E-04	-3.16E-04
23	2	NO	7.90E-04	3.27E-03	-9.80E-04	4.65E-07	1.28E-07	5.90E-08	8.08E-04	
23	3	NO	1.47E-03	3.63E-03	-1.22E-03					
24	1	NO	4.04E-04	2.45E-03	-3.89E-04	2.24E-09	1.80E-08	6.45E-10	1.44E-04	1.15E-04
24	2	NO	4.52E-04	2.59E-03	-4.14E-04	8.46E-11	7.29E-10	2.92E-11	2.90E-05	
24	3	NO	4.61E-04	2.61E-03	-4.19E-04					
25	1	CONVERGEN	-1.07E-04	2.24E-03	-2.90E-04					3.00E-03
26	1	NO	-1.08E-04	2.23E-03	-2.89E-04	1.46E-08	9.01E-07	3.25E-07	1.11E-03	6.03E-04
26	2	NO	-2.29E-04	3.18E-03	-8.59E-04	1.04E-08	1.84E-07	6.66E-08	5.11E-04	
26	3	NO	-3.31E-04	3.61E-03	-1.12E-03					
27	1	NO	9.36E-04	2.96E-03	-3.09E-03	1.74E-07	9.25E-07	2.28E-07	1.15E-03	3.78E-04
27	2	NO	1.35E-03	3.93E-03	-3.57E-03	2.34E-08	9.73E-08	4.79E-07	7.74E-04	
27	3	NO	1.51E-03	4.24E-03	-4.26E-03					
28	1	NO	2.20E-04	2.47E-03	-8.29E-04	5.36E-07	8.82E-08	9.84E-07	1.27E-03	5.88E-04
28	2	NO	-5.12E-04	2.76E-03	-1.82E-03	2.78E-09	4.62E-09	4.56E-07	6.80E-04	
28	3	NO	-5.65E-04	2.83E-03	-2.50E-03					
29	1	NO	-2.04E-04	2.37E-03	-7.58E-04	1.47E-07	5.93E-09	1.51E-06	1.29E-03	6.12E-04
29	2	NO	-5.87E-04	2.45E-03	-1.99E-03	5.64E-08	1.76E-09	4.02E-07	6.78E-04	
29	3	NO	-8.24E-04	2.49E-03	-2.62E-03					
30	1	NO	-3.00E-04	2.37E-03	-6.95E-04	3.00E-07	1.39E-08	7.35E-07	1.02E-03	5.25E-04
30	2	NO	-8.48E-04	2.49E-03	-1.55E-03	8.13E-08	2.40E-09	1.66E-07	4.99E-04	
30	3	NO	-1.13E-03	2.54E-03	-1.96E-03					
31	1	NO	3.95E-04	2.38E-03	-7.37E-04	1.45E-06	3.92E-08	6.67E-08	1.25E-03	-4.76E-04
31	2	NO	-8.11E-04	2.58E-03	-9.95E-04	2.94E-06	1.85E-09	2.66E-08	1.72E-03	
31	3	NO	9.05E-04	2.62E-03	-1.16E-03					
32	1	NO	-1.87E-04	2.36E-03	-3.36E-04	5.06E-07	3.31E-07	1.36E-08	9.22E-04	5.73E-04
32	2	NO	5.24E-04	2.93E-03	-4.53E-04	7.37E-08	4.58E-08	2.00E-09	3.48E-04	
32	3	NO	7.96E-04	3.14E-03	-4.98E-04					
33	1	NO	1.54E-04	2.49E-03	-3.65E-04					3.00E-03
33	2	NO	3.80E-04	2.56E-03	-4.01E-04					
33	3	CONVERGEN	4.03E-04	2.57E-03	-4.04E-04					
34	1	CONVERGEN	-1.18E-04	2.35E-03	-3.38E-04					3.00E-03
35	1	CONVERGEN	-1.19E-04	2.35E-03	-3.38E-04					3.00E-03

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3										
		force							sqrt of	converge.
incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	G+H+I	indicator
36	1	CONVERGEN	-1.19E-04	2.35E-03	-3.38E-04					3.00E-03
37	1	NO	-1.19E-04	2.35E-03	-3.38E-04	4.04E-07	1.90E-07	1.51E-08	7.81E-04	5.52E-04
37	2	NO	5.18E-04	2.79E-03	-4.61E-04	3.15E-08	1.93E-08	1.60E-09	2.29E-04	
37	3	NO	6.95E-04	2.92E-03	-5.01E-04					
38	1	CONVERGEN	1.28E-04	2.42E-03	-3.60E-04					3.00E-03
39	1	CONVERGEN	-1.17E-04	2.36E-03	-3.42E-04					3.00E-03
40	1	NO	-1.17E-04	2.36E-03	-3.42E-04	2.26E-07	5.84E-07	1.47E-07	9.78E-04	2.64E-05
40	2	NO	-5.93E-04	3.12E-03	-7.25E-04	1.28E-07	6.58E-07	1.20E-07	9.52E-04	
40	3	NO	-9.51E-04	3.93E-03	-1.07E-03					
41	1	NO	1.15E-03	4.34E-03	-7.60E-04	1.09E-09	3.75E-07	1.19E-08	6.23E-04	4.07E-04
41	2	NO	1.18E-03	4.95E-03	-8.69E-04	2.50E-11	4.54E-08	1.19E-09	2.16E-04	
41	3	NO	1.18E-03	5.16E-03	-9.04E-04					
42	1	NO	1.15E-03	3.48E-03	-7.86E-04					3.00E-03
42	2	NO	1.19E-03	3.48E-03	-7.94E-04					
42	3	CONVERGEN	1.19E-03	3.48E-03	-7.94E-04					
43	1	NO	1.25E-04	2.45E-03	-3.73E-04					3.00E-03
43	2	NO	-1.26E-04	2.45E-03	-3.76E-04					
43	3	CONVERGEN	-1.26E-04	2.46E-03	-3.76E-04					
44	1	CONVERGEN	1.25E-04	2.45E-03	-3.73E-04					3.00E-03
45	1	CONVERGEN	1.25E-04	2.45E-03	-3.74E-04					3.00E-03
46	1	NO	1.25E-04	2.45E-03	-3.74E-04	4.82E-07	9.30E-08	1.14E-06	1.31E-03	-6.06E-05
46	2	NO	-5.69E-04	2.76E-03	-1.44E-03	3.14E-07	5.70E-07	9.96E-07	1.37E-03	
46	3	NO	-1.13E-03	3.51E-03	-2.44E-03					
47	1	NO	-9.04E-04	2.99E-03	-2.56E-03	4.32E-08	3.31E-07	2.59E-07	7.96E-04	4.98E-04
47	2	NO	-1.11E-03	3.56E-03	-3.07E-03	1.17E-08	1.93E-08	5.76E-08	2.98E-04	
47	3	NO	-1.22E-03	3.70E-03	-3.31E-03					
48	1	NO	-2.49E-04	2.54E-03	-8.54E-04	4.36E-08	4.88E-08	1.58E-06	1.29E-03	3.96E-04
48	2	NO	-4.58E-04	2.76E-03	-2.11E-03	7.15E-08	4.41E-08	6.92E-07	8.99E-04	
48	3	NO	-7.26E-04	2.97E-03	-2.95E-03					
49	1	NO	4.86E-04	2.54E-03	-8.74E-04	1.94E-08	2.30E-09	7.60E-07	8.84E-04	2.51E-04
49	2	NO	6.25E-04	2.59E-03	-1.75E-03	3.75E-08	6.76E-10	3.62E-07	6.33E-04	
49	3	NO	8.19E-04	2.62E-03	-2.35E-03					
50	1	CONVERGEN	3.05E-04	2.52E-03	-6.60E-04					3.00E-03
51	1	CONVERGEN	1.28E-04	2.49E-03	-4.00E-04					3.00E-03
52	1	NO	1.28E-04	2.49E-03	-4.01E-04	3.52E-07	4.41E-10	1.00E-06	1.16E-03	3.85E-04
52	2	NO	-4.65E-04	2.52E-03	-1.40E-03	6.89E-08	8.10E-11	5.37E-07	7.79E-04	

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3										
		force							sqrt of	converge.
incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	G+H+I	indicator
52	3	NO	-7.28E-04	2.52E-03	-2.14E-03					
53	1	NO	-2.39E-04	2.51E-03	-7.75E-04					3.00E-03
53	2	NO	-2.63E-04	2.51E-03	-8.02E-04					
53	3	CONVERGEN	-2.66E-04	2.51E-03	-8.05E-04					
54	1	CONVERGEN	1.28E-04	2.49E-03	-4.00E-04					3.00E-03
55	1	CONVERGEN	1.28E-04	2.50E-03	-4.01E-04					3.00E-03
56	1	NO	1.28E-04	2.50E-03	-4.02E-04	1.27E-07	2.41E-07	1.05E-07	6.88E-04	4.27E-04
56	2	NO	-2.29E-04	2.99E-03	-7.26E-04	1.72E-09	4.00E-08	2.67E-08	2.62E-04	
56	3	NO	-2.70E-04	3.19E-03	-8.89E-04					
57	1	CONVERGEN	-1.14E-04	2.70E-03	-5.44E-04					3.00E-03
58	1	CONVERGEN	1.29E-04	2.52E-03	-4.19E-04					3.00E-03
59	1	CONVERGEN	1.29E-04	2.52E-03	-4.19E-04					3.00E-03
60	1	CONVERGEN	1.29E-04	2.52E-03	-4.19E-04					3.00E-03
61	1	NO	1.29E-04	2.52E-03	-4.19E-04	1.65E-07	2.43E-08	3.89E-09	4.39E-04	-7.53E-04
61	2	NO	-2.77E-04	2.68E-03	-3.57E-04	9.79E-07	3.64E-07	7.85E-08	1.19E-03	
61	3	NO	-1.27E-03	3.28E-03	-6.37E-04					
62	1	NO	3.52E-03	4.41E-03	-1.10E-03	7.95E-05	9.84E-07	6.71E-08	8.97E-03	7.67E-03
62	2	NO	-5.40E-03	5.40E-03	-1.36E-03	1.25E-06	2.60E-07	1.87E-07	1.30E-03	
62	3	NO	-6.52E-03	5.91E-03	-1.80E-03					
63	1	NO	-2.91E-03	3.71E-03	-1.79E-03					3.00E-03
63	2	CONVERGEN	-2.96E-03	3.72E-03	-1.84E-03					
64	1	NO	1.40E-04	2.57E-03	-4.53E-04	9.33E-08	8.10E-11	1.16E-11	3.06E-04	-2.14E-04
64	2	NO	-1.66E-04	2.58E-03	-4.57E-04	2.70E-07	1.60E-11	1.39E-10	5.20E-04	
64	3	NO	-6.85E-04	2.58E-03	-4.45E-04					
65	1	NO	1.11E-03	2.56E-03	4.62E-04	1.10E-06	1.06E-08	9.36E-08	1.10E-03	4.26E-04
65	2	NO	2.16E-03	2.67E-03	7.68E-04	4.23E-07	4.00E-12	2.94E-08	6.72E-04	
65	3	NO	2.81E-03	2.67E-03	9.39E-04					
66	1	CONVERGEN	7.74E-04	2.55E-03	-4.32E-04					3.00E-03
67	1	CONVERGEN	1.40E-04	2.58E-03	-4.56E-04					3.00E-03
68	1	CONVERGEN	1.41E-04	2.58E-03	-4.57E-04					3.00E-03
69	1	NO	1.41E-04	2.58E-03	-4.57E-04	1.46E-07	7.90E-08	8.65E-11	4.74E-04	-3.77E-05
69	2	NO	-2.41E-04	2.86E-03	-4.47E-04	2.59E-07	2.92E-09	3.24E-12	5.12E-04	
69	3	NO	2.68E-04	2.91E-03	-4.46E-04					

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3										
		force							sqrt of	converge.
incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	G+H+I	indicator
70	1	CONVERGEN	2.66E-04	2.94E-03	4.98E-04					3.00E-03
71	1	CONVERGEN	1.42E-04	2.59E-03	-4.57E-04					3.00E-03
72	1	NO	1.42E-04	2.59E-03	-4.57E-04	8.28E-08	3.72E-09	5.79E-09	3.04E-04	2.83E-04
72	2	NO	-1.46E-04	2.65E-03	-5.33E-04	8.41E-12	1.44E-10	2.66E-10	2.04E-05	
72	3	NO	-1.49E-04	2.66E-03	-5.50E-04					
73	1	CONVERGEN	1.41E-04	2.59E-03	-4.62E-04					3.00E-03
74	1	NO	1.42E-04	2.59E-03	-4.58E-04	1.58E-07	8.29E-08	1.06E-09	4.92E-04	-3.79E-04
74	2	NO	-2.56E-04	2.88E-03	-4.26E-04	6.66E-10	2.92E-09	7.55E-07	8.71E-04	
74	3	NO	-2.82E-04	2.93E-03	4.43E-04					
75	1	CONVERGEN	1.43E-04	2.61E-03	-4.56E-04					3.00E-03
76	1	NO	1.42E-04	2.60E-03	-4.58E-04	1.40E-07	8.94E-08	7.29E-12	4.78E-04	4.14E-04
76	2	NO	-2.31E-04	2.90E-03	-4.61E-04	5.52E-10	3.60E-09	6.40E-13	6.44E-05	
76	3	NO	-2.55E-04	2.96E-03	-4.62E-04					
77	1	CONVERGEN	1.43E-04	2.61E-03	-4.58E-04					3.00E-03
78	1	CONVERGEN	1.43E-04	2.60E-03	-4.59E-04					3.00E-03
79	1	NO	1.43E-04	2.60E-03	-4.59E-04	2.30E-07	1.95E-07	4.81E-08	6.88E-04	3.59E-04
79	2	NO	6.23E-04	3.04E-03	-6.79E-04	6.74E-08	3.28E-08	8.61E-09	3.30E-04	
79	3	NO	8.82E-04	3.23E-03	-7.71E-04					
80	1	NO	1.64E-04	2.74E-03	-5.29E-04	2.26E-07	1.02E-06	1.03E-07	1.16E-03	5.18E-04
80	2	NO	6.39E-04	3.75E-03	-8.50E-04	6.56E-08	3.31E-07	1.78E-08	6.43E-04	
80	3	NO	8.95E-04	4.32E-03	-9.84E-04					
81	1	CONVERGEN	2.09E-04	2.88E-03	-5.65E-04					3.00E-03
82	1	CONVERGEN	1.50E-04	2.63E-03	-4.72E-04					3.00E-03
83	1	CONVERGEN	1.50E-04	2.63E-03	-4.72E-04					3.00E-03
84	1	CONVERGEN	1.50E-04	2.63E-03	-4.72E-04					3.00E-03
85	1	CONVERGEN	1.50E-04	2.63E-03	-4.72E-04					3.00E-03
86	1	CONVERGEN	1.50E-04	2.63E-03	-4.73E-04					3.00E-03
87	1	CONVERGEN	1.50E-04	2.64E-03	-4.73E-04					3.00E-03

DETERMINATION OF CONVERGENCE INDICATOR FOR ANALYSIS P7-F3										
		force							sqrt of	converge.
Incr	iter	converge	disp-x	disp-y	disp-z	dx^2	dy^2	dz^2	G+H+I	indicator
88	1	NO	1.50E-04	2.64E-03	-4.73E-04	5.36E-09	2.31E-08	5.28E-08	2.85E-04	1.95E-04
88	2	NO	2.23E-04	2.79E-03	-7.03E-04	1.29E-09	1.85E-09	4.96E-09	9.00E-05	
88	3	NO	2.59E-04	2.83E-03	-7.73E-04					
89	1	CONVERGEN	1.52E-04	2.65E-03	-5.04E-04					3.00E-03
90	1	CONVERGEN	1.50E-04	2.64E-03	-4.76E-04					3.00E-03
91	1	CONVERGEN	1.50E-04	2.64E-03	-4.76E-04					3.00E-03
92	1	NO	1.50E-04	2.64E-03	-4.76E-04	1.04E-07	5.78E-09	2.96E-10	3.32E-04	-2.61E-04
92	2	NO	-1.73E-04	2.71E-03	-4.93E-04	3.51E-07	1.23E-09	1.39E-10	5.93E-04	
92	3	NO	4.20E-04	2.75E-03	-5.05E-04					
93	1	CONVERGEN	1.52E-04	2.65E-03	-4.77E-04					3.00E-03
94	1	NO	1.50E-04	2.64E-03	-4.77E-04	6.16E-09	5.95E-08	4.00E-08	3.25E-04	-4.68E-04
94	2	NO	2.29E-04	2.88E-03	-6.77E-04	3.61E-08	1.47E-07	4.45E-07	7.93E-04	
94	3	NO	4.19E-04	3.27E-03	-1.34E-03					
95	1	CONVERGEN	-2.41E-04	3.13E-03	-9.99E-04					3.00E-03
96	1	NO	1.52E-04	2.65E-03	-4.85E-04	1.30E-09	6.89E-09	1.23E-10	9.11E-05	7.79E-05
96	2	NO	1.88E-04	2.73E-03	-4.96E-04	2.92E-11	1.44E-10	1.96E-12	1.32E-05	
96	3	NO	1.93E-04	2.75E-03	-4.97E-04					
97	1	CONVERGEN	1.53E-04	2.65E-03	-4.82E-04					3.00E-03
98	1	CONVERGEN	1.52E-04	2.65E-03	-4.83E-04					3.00E-03
99	1	CONVERGEN	1.52E-04	2.65E-03	-4.84E-04					3.00E-03
100	1	NO	1.52E-04	2.65E-03	-4.85E-04					3.00E-03
100	2	CONVERGEN	1.53E-04	2.69E-03	-5.05E-04					
Incr	iter	status	dispx	dispy	dispz					

	A	B	C	D	E	F	G	H	I
2	DET								
3									
4			force						
5	incr	iter	converge	disp-x	disp-y	disp-z		dx^2	dy^2
6									
7	1	1	CONVERGENT	-0.00009221	0.001981	-0.0002013			
8									
9									
10	2	1	NO	-0.00009222	0.001981	-0.0002013		=(D10-D11)^2	=(E10-E11)^2
11	2	2	NO	-0.0004147	0.002506	-0.0002188		=(D11-D12)^2	=(E11-E12)^2
12	2	3	NO	-0.0005145	0.002635	0.0002357			
13	3	1	NO	-0.0001023	0.002052	-0.0002059		=(D13-D14)^2	=(E13-E14)^2
14	3	2	NO	-0.0002699	0.002223	-0.0002135		=(D14-D15)^2	=(E14-E15)^2
15	3	3	NO	-0.0004752	0.00265	-0.0003013			
16	4	1	NO	-0.001614	0.004212	-0.0009022		=(D16-D17)^2	=(E16-E17)^2
17	4	2	NO	-0.002145	0.005063	-0.001215		=(D17-D18)^2	=(E17-E18)^2
18	4	3	NO	-0.002233	0.005209	-0.001271			
19	5	1	CONVERGENT	-0.000104	0.002118	-0.0002482			
20									
21									
22	6	1	NO	-0.0001023	0.002087	-0.0002356		=(D22-D23)^2	=(E22-E23)^2
23	6	2	NO	-0.0001091	0.002142	0.0003006		=(D23-D24)^2	=(E23-E24)^2
24	6	3	NO	-0.0001207	0.002253	0.0005005			
25	7	1	NO	-0.0001065	0.002157	0.0002813		=(D25-D26)^2	=(E25-E26)^2
26	7	2	NO	-0.0001208	0.002424	0.0003725		=(D26-D27)^2	=(E26-E27)^2
27	7	3	NO	-0.0001235	0.00247	-0.0003811			
28	8	1	CONVERGENT	-0.0001037	0.00211	-0.0002465			
29									
30									
31	9	1	NO	-0.0001031	0.0021	-0.000241		=(D31-D32)^2	=(E31-E32)^2
32	9	2	NO	-0.000473	0.002249	-0.0002718		=(D32-D33)^2	=(E32-E33)^2
33	9	3	NO	-0.0005958	0.002283	-0.0002774			
34	10	1	CONVERGENT	-0.0001043	0.00211	-0.0002422			
35									
36									
37	11	1	NO	-0.0001034	0.002101	-0.0002416			
38	11	2	CONVERGENT	-0.0001103	0.002127	-0.0002375			
39									
40	12	1	CONVERGENT	-0.0001038	0.002103	-0.0002412			
41									
42									
43	13	1	CONVERGENT	-0.0001034	0.002102	-0.0002417			
44									
45									
46	14	1	NO	-0.0001034	0.002102	-0.0002418		=(D46-D47)^2	=(E46-E47)^2
47	14	2	NO	0.000878	0.002139	0.001801		=(D47-D48)^2	=(E47-E48)^2
48	14	3	NO	0.001162	0.002144	0.002411			
49	15	1	NO	0.0001347	0.002103	0.0003123		=(D49-D50)^2	=(E49-E50)^2
50	15	2	NO	0.0006318	0.002817	0.001577		=(D50-D51)^2	=(E50-E51)^2
51	15	3	NO	0.0007381	0.003111	0.001863			
52	16	1	NO	0.000141	0.002367	-0.0003227			
53	16	2	NO	0.000142	0.002399	-0.0003268			
54	16	3	CONVERGENT	0.0001421	0.002401	-0.0003269			
55	17	1	CONVERGENT	-0.0001035	0.002153	-0.0002585			

	J	K	L	M
2				
3				
4		sqrt of		converge.
5	dz^2	G+H+I		indicator
6				
7				0.003
8				
9				
10	=(F10-F11)^2	=SQRT(H10+I10+J10)		=K10-K11
11	=(F11-F12)^2	=SQRT(H11+I11+J11)		
12				
13	=(F13-F14)^2	=SQRT(H13+I13+J13)		=K13-K14
14	=(F14-F15)^2	=SQRT(H14+I14+J14)		
15				
16	=(F16-F17)^2	=SQRT(H16+I16+J16)		=K16-K17
17	=(F17-F18)^2	=SQRT(H17+I17+J17)		
18				
19				0.003
20				
21				
22	=(F22-F23)^2	=SQRT(H22+I22+J22)		=K22-K23
23	=(F23-F24)^2	=SQRT(H23+I23+J23)		
24				
25	=(F25-F26)^2	=SQRT(H25+I25+J25)		=K25-K26
26	=(F26-F27)^2	=SQRT(H26+I26+J26)		
27				
28				0.003
29				
30				
31	=(F31-F32)^2	=SQRT(H31+I31+J31)		=K31-K32
32	=(F32-F33)^2	=SQRT(H32+I32+J32)		
33				
34				0.003
35				
36				
37				0.003
38				
39				
40				0.003
41				
42				
43				0.003
44				
45				
46	=(F46-F47)^2	=SQRT(H46+I46+J46)		=K46-K47
47	=(F47-F48)^2	=SQRT(H47+I47+J47)		
48				
49	=(F49-F50)^2	=SQRT(H49+I49+J49)		=K49-K50
50	=(F50-F51)^2	=SQRT(H50+I50+J50)		
51				
52				0.003
53				
54				
55				0.003

Appendix C

Allowable Loads on the Heel Jet Adaptor Ring

in the 241-C-106 Heel Pit

INDEPENDENT REVIEW

Document Reviewed Allowable Loads on the Heel Jet Adaptor Rings in the
241C106 (Appendix C)

Author ADVENT Engineering Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
Services Rev. 0

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

D. A. Wallace

Reviewer

10-26-94
Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Allowable Loads on the Heel Jet Adaptor Rings in
the 241C106 (Appendix C)

Author ADVENT Engineering Services

Yes No N/A

☒	☐	☐	Problem completely defined.
☒	☐	☐	Necessary assumptions explicitly stated and supported.
☒	☐	☐	Computer codes and data files documented.
☒	☐	☐	Data used in calculations explicitly stated in document.
☒	☐	☐	Data checked for consistency with original source information as applicable.
☒	☐	☐	Mathematical derivations checked including dimensional consistency of results.
☒	☐	☐	Models appropriate and used within range of validity or use outside range of established validity justified.
☒	☐	☐	Hand calculations checked for errors.
☒	☐	☐	Code run streams correct and consistent with analysis documentation.
☒	☐	☐	Code output consistent with input and with results reported in analysis documentation.
☒	☐	☐	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒	☐	☐	Safety margins consistent with good engineering practices.
☒	☐	☐	Conclusions consistent with analytical results and applicable limits.
☒	☐	☐	Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number 94-060

D. A. Wallace
Reviewer

10-20-74
Date

09/22/93

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

ANSYS-PC/LINEAR Ver. 4.4A

SOFTWARE APPLICATION

94-060
KEY NUMBER (IF APPLICABLE)

Soo Bee Kok

ANALYST (PRINTED NAME)

Appendix C of
WHC-SD-W320-ANAL-003

EDT/DOCUMENT NUMBER

J. B. Truitt 10/24/94
ANALYST'S MANAGER

October, 1994

DATE PERFORMED

DESCRIPTION OF ANALYSIS:

KAN,0
Static analysis with shell and mass elements.
Point and gravity loads.
Linear-Elastic material properties.
Symmetric boundary conditions.
POST1 - post-processing

SBkok
SIGNATURE OF ANALYST

C-iv

10/12/94
DATE

EXECUTIVE SUMMARY

An evaluation of seismic and non-seismic allowable loads at the Heel Jet Adaptor Ring in the pit on the C-106 Heel Pit has been performed in support of past-practice sluicing evaluations. Seismic acceleration response spectra of the pit floors were computed using a Soil-Structure-Interaction (SSI) approach in a separate analysis (W320-ANAL-002) and are used herein to define seismic environments.

Variables used in the expressions for allowable adaptor ring loads are defined as follows:

F_H = best-estimate (i.e., unfactored) value of the resultant horizontal force applied at the top of the Adaptor Ring flange

M_H = best-estimate value of the resultant moment about a horizontal axis applied at the top of the Adaptor Ring flange

F_V = best-estimate value of the vertical force (assumed downward) applied at the top of the Adaptor Ring flange

M_V = best-estimate value of the moment about the vertical axis applied at the top of the Adaptor Ring flange

All forces and moments are unsigned and are in the units noted.

The expressions provided implicitly include load factors per ACI 349-90 (Code Requirements for Nuclear Safety Related Concrete Structures); therefore, best-estimate (non-factored) values of F_H , M_H , F_V , and M_V should be substituted into the inequalities. Forces and moments for the non-seismic and seismic load combinations are acceptable if the appropriate set of inequalities (seismic and non-seismic) is satisfied.

Allowable Loads on the Heel Jet Adaptor ring in the C-106 Heel Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities are satisfied:

$$F_H \leq 9,290 \text{ [lbf]}$$

$$M_H \leq 990 \text{ [lbf-inch]}$$

$$F_V \leq 45,350 \text{ [lbf]}$$

$$M_V \leq 502,030 - 54.0 F_H \text{ [lbf-inch]}$$

Forces and moments arising from load combinations which include seismic contribution are acceptable if the following set of inequalities are satisfied:

$$F_H \leq 15,800 \text{ [lbf]}$$

$$M_H \leq 1,680 \text{ [lbf-inch]}$$

$$F_V \leq 77,440 \text{ [lbf]}$$

$$M_V \leq 853,460 - 54.0 F_H \text{ [lbf-inch]}$$

DESIGN CALCULATION

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(9) Checker AP Bay Date 10/11/94

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Attachment 1	Pit Floor Capacity Calculation
Attachment 2	Pit Floor ANSYS Model Computer Files
Attachment 3	Heel Pit SASSI Seismic Spectra
Attachment 4	ANSYS Model Supporting the Calculation of M_V
Attachment 5	Communication documenting the Concrete Strength and the Load Paths

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1.0 OBJECTIVE

Develop expressions for allowable loads at the Heel Jet Adaptor Ring (Dwg # H-2-41295) located in the C-106 Heel Pit - 06B (Dwg # H-2-41345).

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2.0 REFERENCES

- 2.1 Shamsheer Prakash, 1981, *Soil Dynamics*, McGraw-Hill
- 2.2 Liu, C., Evett, J.B., 1981, *Soils and Foundations*, Prentice-Hall
- 2.3 Julyk, L.J., et. al., 1994, *241-C-106 Structural Integrity Assessment*, WHC-SD-320-ANAL-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington
- 2.4 Day, J.P., 1994, *Seismic Evaluation of Tank 241-C-106 in Support of Retrieval Activities*, WHC-SD-W320-ANAL-002, Rev. 0, Westinghouse Hanford Company, Richland, Washington
- 2.5 ACI 349-90, 1990, *Code Requirements For Nuclear Structures*, American Concrete Institute, Detroit, Michigan
- 2.6 AISC, 1989, *Manual of Steel Construction Allowable Stress Design*, Ninth Edition, American Institute of Steel Construction
- 2.7 1992, *Engineering Properties of Steel*, American Society For Metals
- 2.8 SASI, 1989, *ANSYS Users' Manual*
- 2.9 1971, *Piping Design and Engineering*, Grinnell
- 2.10 ACI 318.1-89, 1989, *Building Code Requirements for Structural Plain Concrete*, American Concrete Institute, Detroit, Michigan
- 2.11 Shigley, J.E., Mischke, C.R., 1986, *Standard Handbook Of Machine Design*, McGraw-Hill
- 2.12 1987, *Marks' Standard Handbook for Mechanical Engineers*, Eighth Edition, McGraw-Hill

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2.13 Drawings

- 1) H-2-41345, Structural Concrete - Plan and Sections - Heel Pit
- 2) H-2-41295, Heel Pit Adaptor Ring
- 3) H-2-37006, C-106 Tank Arrangement, As Built
- 4) H-2-41365, Mechanical Equipment - Standard 1-1/4" Diameter Stud and Free Nut
- 5) H-2-41368, Structural Construction Sequence - Heel Pit
- 6) H-2-41294, Mechanical Equipment - Plan, Section and Details Heel Jet
- 7) H-2-41297, Mechanical Equipment - Sub Assembly - Adaptor Plate - Heel Jet
- 8) H-2-40397, Mechanical Equipment - General Arrangement, Section A-A, Waste Metal Removal
- 9) H-2-73346, Piping Waste Tank Isolation, TK241-C-106

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3.0 SYMBOLS

The load-governing expressions contain the following variables: (units: lbf, inch)

F_H = Unfactored value of the resultant horizontal force applied at the Adaptor Ring top flange

M_H = Unfactored value of the resultant moment about a horizontal axis applied at the Adaptor Ring top flange

F_V = Unfactored value of the vertical force (positive downward) applied at the Adaptor Ring top flange

M_V = Unfactored value of the moment about the vertical axis applied at the Adaptor Ring top flange

F_{DL} = Lower-bound unfactored dead load applied at the Heel Jet Adaptor Ring top flange

F_{DL} counteracts (reduces) the horizontal moment demand. For conservatism, F_{DL} must not be overestimated and consequently the value used must be a lower-bound to the vertical force resultant at the adaptor ring.

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4.0 ASSUMPTIONS

- Only F_V is considered in the finite element analysis of the pit floor demands. F_H , M_H , M_V are considered insignificant contributors to the stress in the floor.
- There is no direct load path to the 26" $\varnothing$ casing per Attachment 5.
- Rock ballast shown in Dwg H-2-40397 is not considered because evaluation of the pit walls for in situ loads is not within the project scope and the assumption creates additional conservatism in the load limits.
- The fill (plain) concrete in the pit floor has a compressive strength $f'_c = 3000$ psi per Attachment 5.
- The strength of the two positioning dowels located on the Adaptor Ring are conservatively neglected.
- Per Reference 2.3, the soil properties are as follows:

Unit weight of soil = 110 pcf
Coefficient of earth pressure at rest = 0.538
Young's Modulus = 3000 lbf/in²
Poisson's Ratio = 0.35
- Per Dwg. H-2-41345, the grade level is 26.75" below the top of the pit.

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5.0 LOADS

The loads considered herein are:

- F_H , horizontal force applied to the Adaptor Ring top flange.
- F_V , vertical downward force applied to the Adaptor Ring top flange.
- M_H , moment about a horizontal axis applied to the Adaptor Ring top flange.
- M_V , moment about the vertical axis applied to the Adaptor Ring top flange.
- Self weight of the fill concrete.
- Self weight of the pit.
- Lateral earth pressure exerted on the pit wall.

The following figure identifies the orientations and the location of the applied forces (F_H and F_V) and moments (M_H and M_V).

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Physical Configuration and Load Paths;

The above figure illustrates the structural components which act together to react loads caused by the equipment mounted on the Adaptor Ring. The Adaptor Ring utilizes studs to restrain equipment. The studs can develop shear loads to resist resultant horizontal forces and vertical moments.

Proceeding down the load paths:

- The moment about the vertical axis is resisted by bearing of the two 2" horizontal pipe on fill concrete.
- The horizontal force and moment are resisted by the 12" Sch 40 pipe which is structurally connected to the dome. The 12" pipe will be resisted by concrete bearing on the tank dome.
- The resultant vertical force will be resisted by the pit floor concrete and the soil beneath the pit.

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6.0 CALCULATIONS

6.1 Pit Floor Demands (F_v)

The determination of pit floor demands is accomplished using the finite element approach. The model is developed using the general purpose finite-element program, ANSYS Version 4.4a. The pit floor and the pit walls are modeled using shell elements. The soil stiffness supporting the pit floor is computed using elastic-half-space theory and the computed stiffness is modeled as elastic foundation stiffness (EFS) acting under the pit floor shell elements. Due to symmetry, only half of the pit is modeled. Appropriate boundary conditions are imposed along the line of symmetry.

The present work scope examines the non-seismic and the seismic demands on the pit floor. Soil-structure-interaction and pit-dome-interaction are considered in the C-106 seismic demands evaluation using data to be reported separately (WHC Calculation WHC-SD-W320-ANAL-002). The pit floor seismic spectra from the soil-structure-interaction analysis are provided in Attachment 3. The computed seismic zero period accelerations (ZPA) for the pit floor are used in the determination of the seismic capacities.

6.1.1 Loads

The loads considered in the finite element model are:

1. Dead load (D) which includes self weight of the pit floor, pit wall, and the pit cover.
2. Lateral earth pressure load (H) which is exerted by the soil pressure on the pit wall.
3. Live load (L) which includes the vertical load applied to the Heel Pit Adaptor Ring.

As stated in Section 4.0, other loads are judged to cause insignificant stress in the pit floor.

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Per ACI 349-90 (Reference 2.4) Section 9.2.1, the required strength of the pit floor shall be at least equal to the following:

$$1.4D + 1.7L + 1.7H$$

where D = gravity loads (Load Case 1)
L = live load (Heel Jet Load)
H = lateral earth pressure

However, ACI 349-90 (Reference 2.4) Section 9.2.3 states that where any load reduces the effects of the other loads, the corresponding coefficient for that load shall be taken as 0.9 if it can be demonstrated that the load is always present or occurs simultaneously with the other loads. Otherwise, the coefficient for that load shall be taken as zero. Strictly interpreting this guidance applies only to the determination of demands for components / structures covered by ACI 349-90. Guidance specific to the determination of section capacity (for example, as expressed in M-P interaction curves for reinforced concrete shells) is not explicitly provided. A comparable issue, however, exists when establishing the capacity of ACI governed reinforced concrete shell sections because the membrane stress resultant / axial force demand determines the allowable bending moment (capacity). Certain load cases preferentially increase the compressive axial load demand (while other load cases are mainly responsible for the shell bending response) and increasing these loads, in effect, increases the moment capacity of the structure. Using load factors greater than 1.0 for such load cases has the effect of increasing axial force demands, increasing moment carrying capacity, and defeating the objective of introducing margin to counteract uncertainties. For this situation, when load factors greater than 1.0 can increase the controlling capacity, ACI 349-90 Section 9.2.3 is interpreted to mean that (provided loads are always present) a load combination shall be evaluated where the load factor for the load case in question is no greater than 1.0.

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6.1.2 Key Dimensions

Reference : Dwgs # H-2-41345

Plan

Section

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Model Dimensions

Plan

Section

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6.1.3 Complete Finite Element Model

The following shows an isometric view of the model.

Node 1 is located at the origin.

Isometric View of the Generated Mesh

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Boundary Conditions:

Along the plane of half symmetry at $Y = 0.0$, the nodes are restrained in UY, ROTX, and ROTZ.

In addition, Node 1 is restrained in the UX direction to provide translational restraint in the global X direction. This restraint is necessary in order to remove rigid body degree of freedom. As the lateral loading in the UX direction is equal and opposite, the reaction in UX at Node 1 is expected to be practically zero.

Element Properties:

The following ANSYS Real Properties define the shell finite element section properties (Real 1, 2, 3, & 11) and the lumped mass values (Real 101 through 156). Note that the pit cover is not modeled as a structural component, but it is necessary to incorporate its mass into the appropriate portion of the actual model. This pit cover mass is located along the top of the wall.

Real 1 (Pit Floor);

Thickness = 15.5 inch
EFS = 22.25 lbf/inch³

Real 11 (Key Pit Floor elements rotated by 90°);

Thickness = 15.5 inch
EFS = 22.25 lbf/inch³
Angle = 90°

Real 2 (Pit Walls - Bottom Section);

Thickness = 18.0 inch

Real 3 (Pit Walls - Top Section);

Thickness = 12.5 inch

Real 101 through 156 (Pit Cover distributed mass);

Mass = 26.627 x Ratio lbf-sec²/inch
(where ratios are presented in Table 6.1.8-1)

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Material Properties:

The following ANSYS Material Properties were defined.

Property 1 (Pit Floor);

Young's Modulus = $57000 (f_c)^{1/2}$
 = $57000 (3000)^{1/2}$
 = $3.122E6$ psi
 Poisson's Ratio = 0.15
 Mass density = $150 \times (23.5 / 15.5) / (1728 \times 386.4)$
 = $3.406E-4$ lbf-sec²/inch

Note that the mass density includes an approximated 8" fill concrete which is on top of the modeled 15.5" reinforced concrete.

Property 2 (Pit Walls);

Young's Modulus = $3.122E6$ psi
 Poisson's Ratio = 0.15
 Mass density = $150 / (1728 \times 386.4)$
 = $2.247E-4$ lbf-sec²/inch

Individual Load Cases:

There are a total of 3 individual load cases in the analysis. These load cases are post processed using the prescribed load combinations to determine the pit floor stresses. The 3 individual load cases are described below.

Load Case 1; Gravity load.
 Load Case 2; Lateral earth pressure load.
 Load Case 3; Heel Jet load of 10,000 lbf.

Note that these applied individual load cases consist of unfactored loads.

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6.1.4 Pit Wall Model Generation

The pit wall is modeled using shell elements. The node and element sequences of the wall elements are shown as follows.

West Pit Wall Node and Element Numbers

- Notes:
- 1) Node numbers increase from left to right by 1.
 - 2) Node numbers increase from bottom to top by 100.
 - 3) The element number is denoted by the node number on the lower left hand corner.
 - 4) Wall is located at $X = 0.0$.

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East Pit Wall Node and Element Numbers

- Notes: 1) Node numbers increase from left to right by 1.
 2) Node numbers increase from bottom to top by 100.
 3) The element number is denoted by the node number on the lower left hand corner.
 4) Wall is located at X = 126.0.

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South Pit Wall Node and Element Numbers

- Notes: 1) Node numbers increase from left to right by 1.
 2) Node numbers increase from bottom to top by 100.
 3) The element number is denoted by the node number on the lower left hand corner.
 4) Wall is located at $Y = -45.0$.

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 (9) Checker 4P Day Date 8/26/94

6.1.5 Pit Floor Model Generation

The pit floor is modeled using shell elements. The soil beneath provides vertical support to the pit floor. The soil spring stiffness is computed in Section 6.1.6 and is implemented as pit floor element elastic foundation stiffness (EFS). In order to expedite the generation of the pit floor model, the solid modeling approach has been used to generate the mesh. The sequence of the model development is provided below.

Solid Modeling Keypoints

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker APD Date 8/26/94

Solid Modeling Line Segments

Solid Modeling Line Divisions

Solid Modeling Areas

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KOK Date 8/26/94
 (9) Checker AP Day Date 8/26/94

Pit Floor Mesh

Node Numbers Along The Pit Floor Boundaries

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker AP Day Date 8/26/94

1	94	93	92	91	90	89	88	87	86	85	84	83	82
2	2027	2030	2033	2036	2039	2042	2045	2048	2051	2144	2147	2150	2153
3	2028	2031	2034	2037	2040	2043	2046	2049	2052	2145	2148	2151	2154
4	2029	2032	2035	2038	2041	2044	2047	2050	2053	2146	2149	2152	2155
5	2007	2008	2009	2010	2011	2012	2013	2014	2005	2132	2133	2134	2135
6	2071	2076	2081	2086	2091	2096	2101	2106	2055	2156	2172	2178	2181
7	2072	2077	2082	2087	2092	2097	2102	2107	2057	2157	2177	2179	2182
8	2073	2078	2083	2088	2093	2098	2103	2108	2058	2158	2173	2178	2183
9	2074	2079	2084	2089	2094	2099	2104	2109	2059	2159	2174	2179	2184
10	2075	2080	2085	2090	2095	2100	2105	2110	2070	2170	2175	2180	2185
11	2058	2059	2060	2061	2062	2063	2064	2065	2057	2157	2158	2159	2160
12	2123	2124	2125	2126	2127	2128	2129	2130	2122	2192	2193	2194	2195
13	14	15	16	17	18	19	20	21	22	23	24	25	26

Node Numbers For Pit Floor (Part 1/3)

[illegible]

C6-15

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KOK Date 8/26/94
 (9) Checker 4P Dan Date 8/26/94

	65	64	63	62	61	60	59	58	57	56
	66	2292	2300	2302	2290	2353	2358	2359	2362	55
	67	2302	2303	2304	2291	2354	2357	2360	2363	54
	68	2305	2306	2307	2292	2355	2358	2361	2364	53
69	2293	2294	2295	2285	2341	2342	2343	2344	52	
2253	2317	2322	2327	2312	2375	2386	2385	2390	51	
2254	2318	2323	2328	2313	2376	2381	2386	2391	50	
2255	2319	2324	2329	2314	2377	2382	2387	2392	49	
2256	2320	2325	2330	2315	2378	2383	2388	2393	48	
2257	2321	2326	2331	2316	2379	2384	2389	2394	47	
2248	2309	2310	2311	2308	2366	2367	2368	2369	46	
2280	2337	2338	2339	2336	2401	2402	2403	2404	45	
35	36	37	38	39	40	41	42	43	44	

Node Numbers For Pit Floor (Part 3/3)

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KOK Date 8/26/94
 (9) Checker Q. Ray Date 8/16/94

1176118011841188118211861200120412081284128812921296
1177118111851189118311871201120512091285128912931297
1178118211861190118411881202120612101286129012941298
1179118311871191118511891203120712111287129112951299
1212121812241230123612421248125412601304131813161322
1213121912251231123712431249125512611305131113171323
1214122012261232123812441250125612621306131213181324
1215122112271233123912451251125712631307131313191325
1216122212281234124012461252125812641308131413201326
1217122312291235124112471253125912651309131513211327
1256125812701272127412761278128012821334133613381340
1257125912711273127512771279128112831335133713391341

Element Numbers For Pit Floor (Part 1/3)

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KOK Date 8/26/94
 (9) Checker AP Day Date 8/26/94

1300	1344	1345	1346	1347						1424
1301	1348	1349	1350	1351						1428
1302	1352	1353	1354	1355						1432
1303	1356	1357	1358	1359						1436
1328	1360	1366	1372	1378	1394	1398	1404	1410	1440	1446
1329	1361	1367	1373	1379	1395	1399	1405	1411	1441	1447
1330	1362	1368	1374	1380	1396	1400	1406	1412	1442	1448
1331	1363	1369	1375	1381	1397	1401	1407	1413	1443	1449
1332	1364	1370	1376	1382	1398	1402	1408	1414	1444	1450
1333	1365	1371	1377	1383	1399	1403	1409	1415	1445	1451
1342	1384	1386	1388	1390	1416	1418	1420	1422	1464	1466
1343	1385	1387	1389	1391	1417	1419	1421	1423	1465	1467

Element Numbers For Pit Floor (Part 2/3)

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KOK Date 8/26/94
 (9) Checker AP Cam Date 8/26/94

1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516	1517	1518	1519	1520	1521	1522	1523	1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534	1535	1536	1537	1538	1539	1540	1541	1542	1543	1544	1545	1546	1547	1548	1549	1550	1551	1552	1553	1554	1555	1556	1557	1558	1559	1560	1561	1562	1563	1564	1565	1566	1567	1568	1569	1570	1571	1572	1573	1574	1575	1576	1577	1578	1579	1580	1581	1582	1583	1584	1585	1586	1587	1588	1589	1590	1591	1592	1593	1594	1595	1596	1597	1598	1599	1600	1601	1602	1603	1604	1605	1606	1607	1608	1609	1610	1611	1612	1613	1614	1615	1616	1617	1618	1619	1620	1621	1622	1623	1624	1625	1626	1627	1628	1629	1630	1631	1632	1633	1634	1635	1636	1637	1638	1639	1640	1641	1642	1643	1644	1645	1646	1647	1648	1649	1650	1651	1652	1653	1654	1655	1656	1657	1658	1659	1660	1661	1662	1663	1664	1665	1666	1667	1668	1669	1670	1671	1672	1673	1674	1675	1676	1677	1678	1679	1680	1681	1682	1683	1684	1685	1686	1687	1688	1689	1690	1691	1692	1693	1694	1695	1696	1697	1698	1699	1700	1701	1702	1703	1704	1705	1706	1707	1708	1709	1710	1711	1712	1713	1714	1715	1716	1717	1718	1719	1720	1721	1722	1723	1724	1725	1726	1727	1728	1729	1730	1731	1732	1733	1734	1735	1736	1737	1738	1739	1740	1741	1742	1743	1744	1745	1746	1747	1748	1749	1750	1751	1752	1753	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770	1771	1772	1773	1774	1775	1776	1777	1778	1779	1780	1781	1782	1783	1784	1785	1786	1787	1788	1789	1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764
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 (9) Checker GP Date 10/11/94

6.1.6 Soil Stiffness Calculation

Elastic half-space theory, per Prakas (Reference 2.1), Section 9.13, is used for the computation of soil stiffness and the elastic foundation stiffness (EFS) applied to the pit floor elements. This leads to a reduced soil stiffness compared to in situ conditions. This approach assures that pit floor stresses are conservatively predicted because additional floor bending deflections arise from the reduced EFS. The soil stiffness is determined from,

Pit floor dimensions (see Section 6.1.2) = 144" x 108"

$$r_o, \text{ equivalent radius} = (144 \times 108 / \pi)^{1/2} = 70.359"$$

Soil properties: (Reference 2.3)

$$\begin{aligned} E, \text{ soil Young's modulus} &= 3000 \text{ psi} \\ \nu, \text{ Poisson's ratio} &= 0.35 \\ G, \text{ shear modulus} &= E / \{2(1+\nu)\} \\ &= 3000 / \{2(1+0.35)\} \\ &= 1111.111 \text{ psi} \end{aligned}$$

$$\begin{aligned} K_{be}, \text{ best estimate soil stiffness} &= 4G_r_o / (1-\nu) \\ &= 4 \times 1111.111 \times 70.359 / (1-0.35) \\ &= 481,085 \text{ lbf/inch} \end{aligned}$$

Accounting for soil property uncertainty, divide the best estimate soil stiffness by a factor of 2. Lower soil stiffness gives rise to larger pit floor stresses. It is therefore conservative to use a lower soil stiffness value.

$$\begin{aligned} K, \text{ factored soil stiffness} &= 481,085 / 2 \\ &= 240,543 \text{ lbf/inch} \end{aligned}$$

For half symmetry model, tributary K = 120,271 lbf/inch

$$\begin{aligned} \text{Pit floor modeled area} &= 45 \times 126.0 - (\pi \times 13.0^2 / 2) \\ &= 5404.5 \text{ inch}^2 \end{aligned}$$

$$\begin{aligned} \text{Elastic Foundation Stiffness (EFS) for pit floor shell element} &= 120,271 / 5404.5 \\ &= 22.25 \text{ lbf/inch}^3 \end{aligned}$$

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6.1.7 Soil Pressure Calculation

The computation of the lateral soil pressure acting on the pit wall is based on the earth pressure at rest calculation per Reference 2.2, Section 10.2.

Soil properties: (Reference 2.3)

K_0 , coefficient of earth pressure at rest = 0.538
 ρ , unit weight of soil = 110 pcf

P_0 , resultant lateral earth force = $0.5 \times K_0 \times \rho \times H^2 \times D$

where H is the height of the wall covered by soil = 46.625"
 D is the width of the modeled wall section.

Pit walls on the East and the West sides (see Section 6.1.2):

$H = 46.625"$, $D = 108"/2$

$$P_0 = 0.5 \times 0.538 \times 110 / 1728 \times 46.625^2 \times 108 / 2$$

$$= 2,010 \text{ lbf}$$

A lateral soil pressure force of $F_x = 2010 \text{ lbf}$ (on nodes 201 through 213 described in Section 6.1.4) is applied on the west wall and similarly $F_x = -2010 \text{ lbf}$ (nodes 244 through 256) is applied on the east wall. The force distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Tables 6.1.7-1 and 6.1.7-2 for the West and East walls, respectively.

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 (9) Checker LPT/Day Date 8/26/94

Pit wall on the South Side:

$$H = 46.625", D = 144"$$

$$P_o = 0.5 \times 0.538 \times 110 / 1728 \times 46.625^2 \times 144$$

$$= 5,360 \text{ lbf}$$

Distribute the lateral soil pressure force of $FY = +5,360$ along the 32 nodes, Nodes 213 through 244. The force distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.7-3.

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 (9) Checker 4P Dam Date 9/26/94

Table 6.1.7-1 Lateral Force Distribution Ratios For West Wall

Node	Tributary Distance (inch)	Distribution Ratio
201	1.88	0.0417
202	3.75	0.0833
203	3.75	0.0833
204	3.75	0.0833
205	3.75	0.0833
206	3.75	0.0833
207	3.75	0.0833
208	3.75	0.0833
209	3.75	0.0833
210	3.75	0.0833
211	3.75	0.0833
212	3.75	0.0833
213	1.88	0.0417
Total Dist. =		45.00

Table 6.1.7-2 Lateral Force Distribution Ratios For East Wall

Node	Tributary Distance (inch)	Distribution Ratio
244	1.88	0.0417
245	3.75	0.0833
246	3.75	0.0833
247	3.75	0.0833
248	3.75	0.0833
249	3.75	0.0833
250	3.75	0.0833
251	3.75	0.0833
252	3.75	0.0833
253	3.75	0.0833
254	3.75	0.0833
255	3.75	0.0833
256	1.88	0.0417
Total Dist. =		45.00

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Table 6.1.7-3 Lateral Force Distribution Ratios For South Wall

Node	Tributary Distance (inch)	Distribution Ratio
213	2.00	0.0159
214	4.00	0.0317
215	4.00	0.0317
216	4.00	0.0317
217	4.00	0.0317
218	4.00	0.0317
219	4.00	0.0317
220	4.00	0.0317
221	4.00	0.0317
222	3.90	0.0310
223	3.80	0.0302
224	3.80	0.0302
225	3.80	0.0302
226	3.80	0.0302
227	4.34	0.0344
228	4.88	0.0387
229	4.88	0.0387
230	4.88	0.0387
231	4.06	0.0322
232	3.25	0.0258
233	3.25	0.0258
234	3.25	0.0258
235	4.06	0.0322
236	4.88	0.0387
237	4.88	0.0387
238	4.88	0.0387
239	4.34	0.0344
240	3.80	0.0302
241	3.80	0.0302
242	3.80	0.0302
243	3.80	0.0302
244	1.90	0.0151
Total Dist. =		126.00

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6.1.8 Miscellaneous Mass / Weight Calculation

Pit cover mass (Dwg # H-2-41345):

The pit wall has been simplified and modeled as a straight section. The pit cover is therefore assumed to just cover the open area bounded by the wall. The pit cover dimensions are 119" long by 83" wide by 24" deep.

Concrete density = 150 pcf

Pit cover mass = $119 \times 83 \times 24 \times 150 / (1728 \times 386.4)$
 = 53.25 lbf-sec²/inch

Distribute half the pit cover mass of 26.627 lbf-sec²/inch along the 56 nodes, Nodes 1401 through 1456 located at the top of the wall. The mass distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.8-1.

Heel Jet Weight :

The arbitrary Heel Jet weight acting on the pit floor is assumed to be 10,000 lbf.

By half symmetry, apply one half of the weight (i.e., 5,000 lbf) on the penetration nodes, Nodes 65 through 77. The distribution of the applied force is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.8-2.

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 (9) Checker 4P Day Date 8/26/94

Table 6.1.8-1 Pit Cover Mass Distribution Ratios (Part 1/2)

Node	Tributary Distance (inch)	Distribution Ratio
1401	1.88	0.0087
1402	3.75	0.0174
1403	3.75	0.0174
1404	3.75	0.0174
1405	3.75	0.0174
1406	3.75	0.0174
1407	3.75	0.0174
1408	3.75	0.0174
1409	3.75	0.0174
1410	3.75	0.0174
1411	3.75	0.0174
1412	3.75	0.0174
1413	3.88	0.0179
1414	4.00	0.0185
1415	4.00	0.0185
1416	4.00	0.0185
1417	4.00	0.0185
1418	4.00	0.0185
1419	4.00	0.0185
1420	4.00	0.0185
1421	4.00	0.0185
1422	3.90	0.0181
1423	3.80	0.0176
1424	3.80	0.0176
1425	3.80	0.0176
1426	3.80	0.0176
1427	4.34	0.0201
1428	4.88	0.0226
1429	4.88	0.0226
1430	4.88	0.0226
1431	4.06	0.0188
1432	3.25	0.0150
1433	3.25	0.0150
1434	3.25	0.0150
1435	4.06	0.0188
1436	4.88	0.0226
1437	4.88	0.0226
1438	4.88	0.0226

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 (9) Checker CPBam Date 8/26/94

Table 6.1.8-1 Pit Cover Mass Distribution Ratios (Part 2/2)

Node	Tributary Distance (inch)	Distribution Ratio
1439	4.34	0.0201
1440	3.80	0.0176
1441	3.80	0.0176
1442	3.80	0.0176
1443	3.80	0.0176
1444	3.78	0.0175
1445	3.75	0.0174
1446	3.75	0.0174
1447	3.75	0.0174
1448	3.75	0.0174
1449	3.75	0.0174
1450	3.75	0.0174
1451	3.75	0.0174
1452	3.75	0.0174
1453	3.75	0.0174
1454	3.75	0.0174
1455	3.75	0.0174
1456	1.88	0.0087
Total Dist. =		216.00

Table 6.1.8-2 Heel Jet Weight Distribution Ratios

Node	Tributary Distance (inch)	Distribution Ratio
65	1.42	0.0348
66	2.90	0.0713
67	3.17	0.0778
68	3.88	0.0953
69	3.90	0.0957
70	3.39	0.0834
71	3.39	0.0834
72	3.39	0.0834
73	3.90	0.0957
74	3.88	0.0953
75	3.17	0.0778
76	2.90	0.0713
77	1.42	0.0348
Total Dist. =		40.72

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6.1.9 Finite Element Analyses

Analyses are denoted by 'PIT5' in their filenames. The generation of the pit floor elements, with shifting of some key nodes, ensure that the member coordinate axes are either exactly parallel or approximately parallel with the pit floor reinforcement. The 'lined up' element stresses can then readily be used for structural evaluations.

Load Combinations:

Per ACI 349-90 (Reference 2.4) Sections 9.2.1 and 9.2.3, three non-seismic load combinations are considered as follows:

- A) $1.4D + 1.7L + 1.7H$
- B) $1.4D + 1.7L + 0.9H$
- C) $0.9D + 1.7L + 0.9H$

where D = gravity loads (Load Case 1)
L = live load (Heel Jet Load)
H = lateral earth pressure

For each of the above load combinations, the post processed analyses consist of two different Heel Jet loads which are 0 lbf and 200,000 lbf. Since the analyses are linear, results corresponding to other riser load values can be computed by interpolating or extrapolating from those results.

Element Responses Of Interest:

In the first set of post processing analyses, the responses of interest include:

- Element forces and moments for the pit floor elements to be used in the pit floor evaluations.
- Nodal forces for the pit floor boundary elements to be use for pit floor shear evaluations.
- Displacements for the pit floor nodes to be used as a sanity check.

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 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
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 (8) Originator SB Ko/C Date 8/26/94
 (9) Checker 4P/Am Date 8/26/94

Analysis Results:

Tables 6.1.9-1 and 6.1.9-2 tabulate the comparison of the axial load and flexure demand for the elements with the highest flexure demand about the North-South and East-West directions for the different load combinations. The element with the highest flexure demand about North-South with 200,000 lbf Heel Jet load is Element 1398 while the element with the highest flexure demand about East-West with 200,000 lbf Heel Jet load is Element 1347. The comparisons show that Load Combination C results in the highest flexure demands while at the same time yielding the smallest compressive axial loads or the largest tensile axial loads. This combination of high flexure demand and low compressive axial load (or high tensile axial load) controls the acceptability of applied loads.

Note that in Tables 6.1.9-1 and 6.1.9-2, the normal membrane stress resultant is reported as positive when it is tensile. The results show that the effect of vertical loads on the adaptor ring is tensile membrane resultants.

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
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 (8) Originator S B K O K Date 8/26/94
 (9) Checker CP Gan Date 8/26/94

Table 6.1.9-1 Comparison of Axial Load and Flexure Demand about North-South Direction for Different Load Combinations

Heel Jet Load (lbf)	Load Comb. A		Load Comb. B		Load Comb. C	
	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)
0	-222	609	-190	635	-128	-19
40,000	-95	-7,089	-64	-7,063	-2	-7,717
80,000	31	-14,787	63	-14,762	125	-15,415
120,000	158	-22,485	189	-22,460	251	-23,113
160,000	284	-30,183	316	-30,158	378	-30,811
200,000	411	-37,881	442	-37,856	504	-38,509

Notes: 1) The reported flexure demand is for Element 1398.
 2) Negative axial load represents compression.
 3) Negative flexure demand represents tension on the bottom face.

Table 6.1.9-2 Comparison of Axial Load and Flexure Demand about East-West Direction for Different Load Combinations

Heel Jet Load (lbf)	Load Comb. A		Load Comb. B		Load Comb. C	
	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)
0	-171	-2,407	-110	-2,463	-88	-1,067
40,000	-44	6,723	17	6,667	39	8,063
80,000	83	15,853	144	15,797	166	17,193
120,000	211	24,983	271	24,927	293	26,323
160,000	338	34,113	399	34,057	420	35,453
200,000	465	43,242	526	43,187	548	44,583

Notes: 1) The reported flexure demand is for Element 1347.
 2) Negative axial load represents compression.
 3) Negative flexure demand represents tension on the top face.

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 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
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6.1.10 Capacity Calculation

Flexure and Axial:

The flexure and axial capacity calculation for the pit floor is presented in Attachment 1. The capacities are provided as digitized data and associated M-P diagrams. These capacities are compared with the forces and moments computed in the finite element analyses described in Section 6.1.9. The comparison enables the maximum Heel Jet load to be established by interpolation.

The first comparison establishes the flexure capacity about the North-South direction which is controlled by element number 1398 and the second comparison establishes the flexure capacity about the East-West direction which is controlled by element number 1347.

For the derivation of the flexure capacities about the North-South and the East-West directions, the membrane resultants of interest fall between -1,119 lbf/inch and 1,368 lbf/inch. The P-M values for the three points are per Attachment 1.

- 1) P, Axial Load = 1,368 lbf/inch M, Flexure Capacity = 0 inch-lbf/inch
- 2) P, Axial Load = 1 lbf/inch M, Flexure Capacity = 10,191 inch-lbf/inch
- 3) P, Axial Load = -1,119 lbf/inch M, Flexure Capacity = 17,471 inch-lbf/inch

The following Tables 6.1.10-1 and 6.1.10-2 tabulate the comparisons of the flexure demand and capacity for different Heel Jet loads, about North-South and about East-West directions, respectively.

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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**Table 6.1.10-1 Comparison of Flexure Demand and Capacity
about North-South Direction**

Output File Reference	Heel Jet Load (lbf)	Axial Load (lbf)	Flexure Capacity (inch-lbf/inch)	Flexure Demand (inch-lbf/inch)	Status
PIT5E1.po	0	-128	11,031	-19	OK
Interpolation	45,000	14	10,093	-8,679	OK
Interpolation	50,000	30	9,975	-9,641	OK
Interpolation	51,000	33	9,952	-9,834	OK
Interpolation	52,000	36	9,928	-10,026	Not OK
PIT5F1.po	200,000	504	6,438	-38,509	Not OK

Note: The reported flexure demand is for Element 1398.

**Table 6.1.10-2 Comparison of Flexure Demand and Capacity
about East-West Direction**

Output File Reference	Heel Jet Load (lbf)	Axial Load (lbf)	Flexure Capacity (inch-lbf/inch)	Flexure Demand (inch-lbf/inch)	Status
PIT5E1.po	0	-88	10,772	-1,067	OK
Interpolation	45,000	55	9,791	9,204	OK
Interpolation	46,000	58	9,767	9,433	OK
Interpolation	47,000	61	9,743	9,661	OK
Interpolation	48,000	64	9,719	9,889	Not OK
PIT5F1.po	200,000	548	6,116	44,583	Not OK

Note: The reported flexure demand is for Element 1347.

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
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The above Tables 6.1.10-1 and 6.1.10-2 show that the flexure demand about the East-West direction controls. The maximum allowable Heel Jet load is 47,000 lbf.

Shear:

By inspection of the pit floor nodal forces (Ref: Attachment 2 computer output files PIT5A2.PO, and PIT5B2.PO), it is evident that the out-of-plane shear force (i.e., nodal Fz) are more critical than the smaller in-plane shear resultants. The computation of shear demands is therefore limited to the out-of-plane shear forces.

The out-of-plane shear forces are computed along the pit floor boundary. These nodal out-of-plane shear forces are divided by the tributary shear area to obtain the shear stresses. Table 6.1.10-3 tabulates the out-of-plane shear forces and stresses for the pit floor boundary nodes for two load cases; Heel Jet loads of 0 lbf and 200,000 lbf. The shear stress patterns reported in the table demonstrate that the controlling area is around the Adaptor Ring (i.e., Node 72). The shear capacity is determined by interpolating between the shear stresses for the two load cases.

Per Reference 2.4, Section 11.3;

$$\begin{aligned}\phi V_c, \text{ allowable concrete shear} &= \phi 2 (f_c)^{1/2} b_w d \\ &= 0.85 \times 2 \times (3000)^{1/2} \times 1.0 \times (15.5 - 3.0 - 0.50 - 0.25) \\ &= 1,094.1 \text{ lbf}\end{aligned}$$

With reference to Table 6.1.10-3;

$$\begin{aligned}\text{Node 72 shear stress} &= 7.93 \text{ lbf/inch}^2 \text{ (for riser load of 0 lbf)} \\ \text{Node 72 shear stress} &= 269.53 \text{ lbf/inch}^2 \text{ (for riser load of 200,000 lbf)}\end{aligned}$$

$$\begin{aligned}\therefore V_u, \text{ Node 72 shear force per inch width for riser load of 0 lbf} \\ &= 7.93 \times 15.5 \times 1.0 \\ &= 122.8 \text{ lbf} < 1,094.1 \text{ lbf (OK)}\end{aligned}$$

$$\begin{aligned}\therefore V_u, \text{ Node 72 shear force per inch width for riser load of 200,000 lbf} \\ &= 269.53 \times 15.5 \times 1.0 \\ &= 4177.7 \text{ lbf} > 1,094.1 \text{ lbf (Not OK)}\end{aligned}$$

$$\begin{aligned}\text{By interpolation, the controlling riser load is} \\ &= 200,000 * (1,094.1 - 122.8) / (4177.7 - 122.8) \\ &= 47,907 \text{ lbf}\end{aligned}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 1/3)

Node Number	Tributary Edge Distance (inch)	Tributary Shear Area (inch ²)	Load Case A2		Load Case B2	
			Shear Force (lbf)	Shear Stress (lbf/inch ²)	Shear Force (lbf)	Shear Stress (lbf/inch ²)
1	3.88	60.06	583.5	9.72	603.1	10.04
2	3.75	58.13	1,158.8	19.94	1,210.2	20.82
3	3.75	58.13	1,133.9	19.51	1,220.1	20.99
4	3.75	58.13	1,091.5	18.78	1,231.0	21.18
5	3.75	58.13	1,030.4	17.73	1,234.7	21.24
6	3.75	58.13	948.9	16.33	1,220.9	21.01
7	3.75	58.13	844.7	14.53	1,178.6	20.28
8	3.75	58.13	715.1	12.30	1,097.7	18.89
9	3.75	58.13	557.2	9.59	972.4	16.73
10	3.75	58.13	368.8	6.35	805.9	13.86
11	3.75	58.13	149.0	2.56	618.4	10.64
12	3.75	58.13	-94.8	-1.63	445.5	7.67
13	3.88	60.06	-271.2	-4.52	535.9	8.92
14	4.00	62.00	-132.2	-2.13	1,097.1	17.70
15	4.00	62.00	123.4	1.99	1,607.0	25.92
16	4.00	62.00	359.8	5.80	2,043.4	32.96
17	4.00	62.00	564.9	9.11	2,396.3	38.65
18	4.00	62.00	737.2	11.89	2,658.1	42.87
19	4.00	62.00	878.3	14.17	2,821.0	45.50
20	4.00	62.00	991.2	15.99	2,875.5	46.38
21	4.00	62.00	1,079.0	17.40	2,810.9	45.34
22	3.90	60.45	1,114.7	18.44	2,556.5	42.29
23	3.80	58.90	1,128.4	19.16	2,187.4	37.14
24	3.80	58.90	1,154.1	19.59	1,763.5	29.94
25	3.80	58.90	1,165.9	19.80	1,215.4	20.64
26	3.80	58.90	1,165.4	19.79	550.3	9.34
27	4.34	67.23	1,315.9	19.57	-341.2	-5.07
28	4.88	75.56	1,447.7	19.16	-1,614.4	-21.37
29	4.88	75.56	1,402.9	18.57	-2,921.7	-38.67
30	4.88	75.56	1,353.8	17.92	-4,018.1	-53.18
31	4.06	62.97	1,093.0	17.36	-3,884.6	-61.69
32	3.25	50.38	850.8	16.89	-3,265.9	-64.83

Notes: 1) Load Case A2 represents Heel Jet load of 0 lbf (Ref.Pit5A2.po)
 2) Load Case B2 represents Heel Jet load of 200,000 lbf (Ref.Pit5B2.po)

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 2/3)

Node Number	Tributary Edge Distance (inch)	Tributary Shear Area (inch ²)	Load Case A2		Load Case B2	
			Shear Force (lbf)	Shear Stress (lbf/inch ²)	Shear Force (lbf)	Shear Stress (lbf/inch ²)
33	3.25	50.38	833.5	16.55	-3,195.7	-63.44
34	3.25	50.38	816.7	16.21	-2,934.6	-58.26
35	4.06	62.97	995.0	15.80	-2,990.9	-47.50
36	4.88	75.56	1,153.2	15.26	-2,334.5	-30.90
37	4.88	75.60	1,087.0	14.38	-621.3	-8.22
38	4.88	75.56	986.1	13.05	1,176.2	15.57
39	4.34	67.19	757.7	11.28	2,406.3	35.81
40	3.80	58.90	529.0	8.98	3,040.2	51.62
41	3.80	58.90	369.6	6.28	3,649.6	61.96
42	3.80	58.90	176.5	3.00	4,014.7	68.16
43	3.80	58.90	-39.6	-0.67	4,113.8	69.84
44	3.78	58.51	-162.1	-2.77	3,865.7	66.07
45	3.75	58.13	9.2	0.16	3,835.7	65.99
46	3.75	58.13	243.1	4.18	3,663.3	63.02
47	3.75	58.13	446.4	7.68	3,300.9	56.79
48	3.75	58.13	613.4	10.55	2,758.7	47.46
49	3.75	58.13	745.8	12.83	2,043.8	35.16
50	3.75	58.13	847.6	14.58	1,196.4	20.58
51	3.75	58.13	923.5	15.89	278.0	4.78
52	3.75	58.13	978.5	16.83	-634.6	-10.92
53	3.75	58.13	1,017.5	17.51	-1,473.1	-25.34
54	3.75	58.13	1,042.3	17.93	-2,148.3	-36.96
55	3.75	58.13	1,055.8	18.16	-2,586.5	-44.50
56	3.78	58.51	530.0	9.06	-1,369.1	-23.40
57	3.80	58.90	0.0	0.00	0.0	0.00
58	3.80	58.90	0.0	0.00	0.0	0.00
59	3.80	58.90	0.0	0.00	0.0	0.00
60	3.80	58.90	0.0	0.00	0.0	0.00
61	3.53	54.64	0.0	0.00	0.0	0.00
62	3.25	50.38	0.0	0.00	0.0	0.00
63	3.25	50.38	0.0	0.00	0.0	0.00
64	3.25	50.38	0.0	0.00	0.0	0.00

Notes: 1) Load Case A2 represents Heel Jet load of 0 lbf (Ref:Pit5A2.po)
 2) Load Case B2 represents Heel Jet load of 200,000 lbf (Ref:Pit5B2.po)

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 3/3)

Node Number	Tributary Edge Distance (inch)	Tributary Shear Area (inch ²)	Load Case A2		Load Case B2	
			Shear Force (lbf)	Shear Stress (lbf/inch ²)	Shear Force (lbf)	Shear Stress (lbf/inch ²)
65	3.04	47.13	174.0	3.69	5,916.0	125.52
66	2.90	45.02	356.5	7.92	12,121.0	269.21
67	3.17	49.11	389.0	7.92	13,226.0	269.30
68	3.88	60.15	476.5	7.92	16,201.0	269.35
69	3.90	60.42	478.5	7.92	16,269.0	269.28
70	3.39	52.60	417.0	7.93	14,178.0	269.53
71	3.39	52.61	417.0	7.93	14,178.0	269.51
72	3.39	52.60	417.0	7.93	14,178.0	269.53
73	3.90	60.42	478.5	7.92	16,269.0	269.28
74	3.88	60.15	476.5	7.92	16,201.0	269.35
75	3.17	49.11	389.0	7.92	13,226.0	269.30
76	2.90	45.02	356.5	7.92	12,121.0	269.21
77	3.04	47.13	174.0	3.69	5,916.0	125.52
78	3.25	50.38	0.0	0.00	0.0	0.00
79	3.25	50.38	0.0	0.00	0.0	0.00
80	3.25	50.38	0.0	0.00	0.0	0.00
81	3.53	54.64	0.0	0.00	0.0	0.00
82	3.80	58.90	0.0	0.00	0.0	0.00
83	3.80	58.90	0.0	0.00	0.0	0.00
84	3.80	58.90	0.0	0.00	0.0	0.00
85	3.80	58.90	0.0	0.00	0.0	0.00
86	3.90	60.45	0.0	0.00	0.0	0.00
87	4.00	62.00	0.0	0.00	0.0	0.00
88	4.00	62.00	0.0	0.00	0.0	0.00
89	4.00	62.00	0.0	0.00	0.0	0.00
90	4.00	62.00	0.0	0.00	0.0	0.00
91	4.00	62.00	0.0	0.00	0.0	0.00
92	4.00	62.00	0.0	0.00	0.0	0.00
93	4.00	62.00	0.0	0.00	0.0	0.00
94	4.00	62.00	0.0	0.00	0.0	0.00
Maximum Shear Stress =				19.94		269.53

Notes: 1) Load Case A2 represents Heel Jet load of 0 lbf (Ref:Pit5A2.po)
 2) Load Case B2 represents Heel Jet load of 200,000 lbf (Ref:Pit5B2.po)

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Combined Shear and Torsion:

Per Reference 2.4, Sections 11.6.1 , 11.1.1 and 11.5.5.1, no shear or torsion reinforcement is required if the following two conditions are satisfied:

$$1) T_u < \phi 0.5 (f_c)^{1/2} \Sigma x^2 y$$

where $\phi = 0.85$
 $x = 15.5 \text{ inch}$
 $y = 1.0 \text{ inch}$

$$\begin{aligned} \text{Allowable torsional moment} &= 0.85 \times 0.5 \times (3000)^{1/2} \times 15.5^2 \times 1.0 \\ &= 5592.6 \text{ inch-lbf} \end{aligned}$$

The torsional moment is controlled by Element 1359 for Load Combination C (Attachment 2, File Pit5f1.po).

The derivation of the controlling riser load is computed by interpolating between moments for the two riser loads of 0 lbf and 200,000 lbf.

At the riser load of 0 lbf, torsion for Element 1359 = 65.6 inch-lbf
 At the riser load of 200,000 lbf, torsion for Element 1359 = -20,664.9 inch-lbf

By interpolation, the required riser load with a torsion of 5592.6 inch-lbf is
 $= (5,592.6 + 65.6) \times 200,000 / (20,664.9 + 65.6)$
 $= 54,588 \text{ lbf}$

$$2) V_u < \phi V_c$$

$$\phi V_c = 1,094.1 \text{ lbf (from Page 6-33)}$$

At 47,907 lbf of Heel Jet load, $V_u = 1,094.1 \text{ lbf} \approx 1,094.1 \text{ lbf (O.K.)}$

The allowable riser load based on shear and torsion is 47,907 lbf.

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In summary, the demand is controlled by the flexure requirement.

For non-seismic load combinations, $F_v = (47,000 \cdot 1.7 - 2,000 \cdot 1.4) / 1.7 = 45,352$ lbf. The 2,000 lbf represents the weight of the Adaptor Ring sub-assembly which is computed in Section 6.4.

The seismic response of the pit floor is computed using seismic "equivalent static" analysis. For the following reasons, the non-seismic load combinations will control over the seismic load combinations for the pit floor (Adaptor Ring loads excluded):

- Based on the computation of the pit floor demand for the non-seismic load combination, it has been established that the vertical Heel Jet load controls. Since the vertical ZPA of the pit floor (0.16g) is significantly less than the ACI load factors of 1.4 and 1.7 for dead and live loads, respectively, the vertical seismic load condition does not govern.
- The lateral soil pressure due to horizontal seismic acceleration will have negligible effect on the seismic pit floor capacity. The pit is basically a box structure where the pit walls act as shear walls and effectively limit lateral drift of the top of the pit from seismic-induced lateral loads. Thus, significant flexing of the pit floor is averted. In addition, the pit floor is supported by soil. Therefore the moment due to horizontal seismic loads for critical elements located around the penetration in the pit floor will be negligible.

The computed seismic spectra and vertical zero period accelerations (ZPA) for the pit floor are computed using soil-structure-interaction analysis (WHC Calculation WHC-SD-W320-ANAL-002) and the seismic spectra and the ZPA are presented in Attachment 3.

For seismic load combinations, $F_v = (47,000 \cdot 1.7 - 2,000 \cdot (1 + 0.23)) = 77,440$ lbf where 0.23 is the ZPA computed for the pit floor vertical response spectra.

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6.2 Stud Evaluation (M_H , M_V , F_H)

This section calculates the allowable loads which are dependent on the capacity of the studs at the top of the Adaptor Ring.

The applied horizontal moment M_H has two resisting components: the moment to overcome compression due to dead load at the outer edge of the plate M_{DL} and the moment resistance offered by the studs M_{stud} .

M_{DL} can be expressed in terms of the lower-bound, unfactored dead load F_{DL} . The footprint of the plate is as shown (see Drawing H-2-41295 for dimensions).

$$A = \pi(18.0^2 - 9.03^2) = 762 \text{ inch}^2$$

$$I = \pi(18.0^4 - 9.03^4) / 4 = 77,226 \text{ inch}^4$$

$$S = 77,226 / 18 = 4,290 \text{ inch}^3$$

Let σ_1 = uniform stress under the plate due to F_{DL} .

σ_2 = normal stress at extreme fiber of plate due to M_{DL} .

$$\sigma_1 = F_{DL} / A = F_{DL} / 762 \text{ (nonseismic)}$$

$$= F_{DL} (1 - 0.23) / A = F_{DL} / 990 \text{ (seismic)}$$

where the vertical ZPA is 0.23g per Attachment 3.

$$\sigma_2 = M_{DL} / S = M_{DL} / 4,290$$

=

To relieve compression at the plate edge,

$$\sigma_1 = \sigma_2$$

$$M_{DL} = 5.63 F_{DL} \text{ (nonseismic)}$$

$$M_{DL} = 4.33 F_{DL} \text{ (seismic)}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker 4P/Am Date 8/26/94

Studs are AISC Type 416 (cold drawn), 1 1/4" Ø.

$$A_{nom} = 1.227 \text{ inch}^2$$

Per Reference 2.6, $F_y = 85 \text{ ksi}$, $F_u = 100 \text{ ksi}$

$$T_{cap} = 0.33 F_u A_{nom} \text{ (Per Reference 2.5, Table I-B)} \\ = 40,491 \text{ lbf}$$

$$V_{cap} = 0.17 F_u A_{nom} \text{ (Per Reference 2.5, Table I-D)} \\ = 20,859 \text{ lbf}$$

Let T be the maximum tension in bolt.

Take moment about bending axis;

$$M_{stud} = (2 (0.5T \times 0.5R) + RT) 2 = 3.0 RT = 49.5 T \text{ inch-lbf}$$

$$T = M_{stud} / 49.5 \text{ lbf}$$

$$\text{where } M_{stud} = M_H - M_{DL}$$

For the seismic condition, capacity may be increased by 1.33 per Reference 2.5, Section A5.

$$\text{Interaction equation: } T / T_{cap} + V / V_{cap} \leq 1.0$$

$$((M_H - M_{DL}) / 49.5) / T_{cap} + (F_H / 6 + M_V / (6 \times 16.5)) / V_{cap} \leq 1.0$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker APB Date 8/26/94

Tensile stud capacity based on shear stress across threads (Per Reference 2.10, Section 20-4)

$$\tau = 4 F / (3 \pi d_s w N_e)$$

For 1-1/4" 12NF threads, 1" long.

$$d_s, \text{ minor } \varnothing = 1.1478" \text{ ext. } 1.1598" \text{ int. (Reference 2.11)}$$

$$p, \text{ pitch} = 1/12 = 0.083"$$

$$w, \text{ width of thread at root} = 3 p / 4 = 0.0625"$$

$$N_e, \text{ number of threads engaged} = 12$$

$$\begin{aligned} \text{Let } \tau &= \text{minimum allowable shear stress in stud or plate} \\ &= 0.4 F_y = 0.4 (85) = 34 \text{ ksi (stud)} \\ &= 0.4 (30) = 12 \text{ ksi (plate* controls)} \end{aligned}$$

$$* \text{ plate material is ASTM A-285, Gr. C, } F_y = 30 \text{ ksi}$$

$$\begin{aligned} F &= 12 (3 \pi) 1.1598 (0.0625) 12 / 4 = 24.6 \text{ kip (non-seismic)} \\ &= 24.6 \times 1.33 = 32.7 \text{ kip (seismic)} \end{aligned}$$

Use the above values in place of T_{cap} on preceding page.

For non-seismic condition;

$$((M_H - 5.63 F_{DL}) / 49.5) / 24,600 + (F_H / 6 + M_V / (6 \cdot 16.5)) / 20,859 \leq 1.0$$

$$M_H \leq 1,217,700 + 5.63 F_{DL} - 9.73 F_H - 0.59 M_V \text{ inch-lbf}$$

For seismic condition;

$$((M_H - 4.33 F_{DL}) / 49.5) / (24,600 \cdot 1.33) + (F_H / 6 + M_V / (6 \cdot 16.5)) / (20,859 \cdot 1.33) \leq 1.0$$

$$M_H \leq 1,619,540 + 4.33 F_{DL} - 9.73 F_H - 0.59 M_V \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KOK Date 8/26/94
 (9) Checker APD Date 8/26/94

6.3 Bearing Evaluation of Fill Concrete (M_V)

Rotation of the Adaptor ring about its vertical axis is resisted primarily through bearing of the two attached 2" horizontal pipes against the fill concrete. Because the fill concrete is unreinforced and thus has reduced allowable, concrete bearing stress controls the value of the M_V (moment about the vertical axis) for the Adaptor ring. An ANSYS model was used to calculate F_Z (horizontal resistance force) and M_V (resistance moment about the vertical axis) when the bearing capacity of the fill concrete is reached. The computer analysis for the calculation of F_Z and M_V is documented in Attachment 4.

Per Attachment 4;

$$M_V = 2 (30.26 / 228,000) [543,025 (11) + 383,159]$$

$$= 1,687 \text{ inch-lbf}$$

For non-seismic condition;

M_V is subjected to a load factor of 1.7 , and hence
 the allowable $M_V = 1,687 / 1.7 = 992 \text{ inch-lbf}$

For seismic condition;

$$M_V = 1,687 \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker 4PDM Date 8/26/94

6.4 Horizontal Force and Moment Demands (M_H , F_H)

Conservatively ignore fill concrete and assume that loads are resisted by the 12" Sch 40 pipe which transmits the entire loads to the dome.

$$\text{Pipe moment at dome} = M_H + F_H \times 51.5 \text{ inch-lbf}$$

$$\text{Pipe shear at dome} = F_H \text{ lbf}$$

Pipe properties for 12" Sch 40;

$$\begin{aligned} \text{OD} &= 12.75 \text{ inch} \\ \text{Thickness} &= 0.406 \text{ inch} \\ A, \text{ cross-section} &= 15.74 \text{ inch}^2 \\ A_s, \text{ shear area} &= 7.87 \text{ inch}^2 \\ I &= 300.3 \text{ inch}^4 \\ S &= 47.1 \text{ inch}^3 \end{aligned}$$

$$\therefore \text{ pipe bending stress} = (M_H + F_H \times 51.5) / 47.1 \text{ psi}$$

$$\therefore \text{ pipe shear stress} = F_H / 7.87 \text{ psi}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKDK Date 8/26/94
 (9) Checker 4PDK Date 8/16/94

Computing weight of Adaptor Ring sub-assembly above concrete dome;

Part 1: Volume = $2 \pi / 4 (36^2 - 18.06^2) = 1523.4 \text{ inch}^3$

Part 2: Volume = $1/4 ((2 \pi 21.5 \times 6) + (\pi / 4 (21.5^2 - 18.0^2)))$
 $= 1/4 (810.5 + 108.6) = 229.8 \text{ inch}^3$

Part 3: Volume = $1/4 ((2 \pi 23.75 \times 31.75) + (\pi / 4 (24^2 - 18^2)) + (\pi / 4 (24^2 - 12.75^2)))$
 $= 1/4 (4737.9 + 197.9 + 324.7) = 1315.2 \text{ inch}^3$

Part 4: Approximating by assuming (55/2)" is 18" Sch 40 pipe and (55/2)" is 12" Sch 40 pipe.

Volume = $55/2 (\pi / 4 (12.75^2 - 11.75^2)) + (\pi / 4 (18^2 - 16.88^2))$
 $= 1372.9 \text{ inch}^3$

Total volume for Parts 1, 2, 3, & 4 = 4441.2 inch^3

Part 5: Conservatively assume that 1/3 of the concrete ring (ht = 2'-7 3/4") has diameters of 23 1/2" and 18" and 2/3 of the concrete has diameters of 23 1/2" and 12.75".

Volume = $31.75 (1/3 \pi / 4 (23.5^2 - 18^2)) + (2/3 \pi / 4 (23.5^2 - 12.75^2))$
 $= 31.75 (59.8 + 204.0) = 8377 \text{ inch}^3$

Total weight = $(4441.2 (490) + 8377 (150)) / 1728 = 1,986 \text{ lbf (say 2,000 lbf)}$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SB KoK Date 8/26/94
 (9) Checker LP Day Date 8/26/94

Conservatively assume that the C.G. is 8" below the top of Adaptor Ring.

Seismic moment due to weight of Adaptor Ring
 $= (51.5-8) (2000(0.21)) = 43.5 \times 420 = 18,270 \text{ inch-lbf}$
 where 0.21 is the horizontal ZPA @ top of dome.

Seismic shear due to weight of Adaptor Ring = 420 lbf

Pipe Allowable stress;

$$F_y = 30 \text{ ksi (per ASTM)}$$

For non-seismic condition;

$$\text{Allowable shear stress} = 0.4 F_y = 12 \text{ ksi} = 12,000 \text{ psi}$$

$$\text{Allowable bending stress} = 0.6 F_y = 18 \text{ ksi} = 18,000 \text{ psi}$$

For seismic condition;

$$\text{Allowable shear stress} = 1.33 \times 0.4 F_y = 15,960 \text{ psi}$$

$$\text{Allowable bending stress} = 1.33 \times 0.6 F_y = 23,940 \text{ psi}$$

For non-seismic condition;

Check pipe bending;

$$(M_H + F_H (51.5)) / 47.1 \leq 18,000 \text{ psi}$$

$$M_H + 51.5 F_H \leq 847,800 \text{ inch-lbf}$$

$$M_H \leq 847,800 - 51.5 F_H \text{ inch-lbf}$$

Check pipe shear;

$$F_H / 7.87 \leq 12,000 \text{ psi}$$

$$F_H \leq 94,440 \text{ lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker APG Date 3/26/94

Check concrete bearing on tank dome;

Concrete bearing dimensions on tank dome = 12.75" x 15.0".

$$A_C, \text{ area} = 12.75 \times 15.0 = 191.25 \text{ inch}^2$$

$$S_C, \text{ section modulus} = 12.75 \times 15.0^2 / 6 = 478.13 \text{ inch}^4$$

$$\sigma_c, \text{ bearing allowable on reinforced concrete (Per ACI 349-90)} \\ = \phi (0.85 f'_c) = 0.7 (0.85) 3,000 = 1,785 \text{ psi}$$

$$\sigma_1 = 1.7 (M_H + 51.5 F_H) / S_C \\ = (M_H + 51.5 F_H) / 281.25 \text{ psi}$$

$$\sigma_2 = 1.7 F_H / A_C \\ = F_H / 112.5 \text{ psi}$$

$$\sigma_1 + \sigma_2 \leq \sigma_c$$

$$(M_H + 51.5 F_H) / 281.25 + F_H / 112.5 \leq 1,785 \text{ psi}$$

$$M_H + 51.5 F_H + 2.50 F_H \leq 502,030 \text{ inch-lbf}$$

$$M_H \leq 502,030 - 54.00 F_H \text{ inch-lbf (concrete bearing controls)}$$

$$\text{When } M_H = 0, F_H \leq 9,297 \text{ lbf (concrete bearing controls)}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
 (8) Originator SBKOK Date 8/26/94
 (9) Checker APD Date 8/26/94

For seismic condition;

Check pipe bending;

$$(M_H + F_H (51.5) + 18,270) / 47.1 \leq 23,940 \text{ psi}$$

where 18,270 is the seismic moment due to weight of Adaptor ring computed on Page C6-43.

$$M_H + 51.5 F_H \leq 1,109,300 \text{ inch-lbf}$$

$$M_H \leq 1,109,300 - 51.5 F_H \text{ inch-lbf}$$

Check pipe shear;

$$(F_H + 420) / (15.74 / 2) \leq 15,960 \text{ psi}$$

$$F_H \leq 125,185 \text{ lbf}$$

Check concrete bearing on tank dome;

$$\sigma_c, \text{ bearing allowable on reinforced concrete (Per ACI 349-90)}$$

$$= \phi (0.85 f'_c) = 0.7 (0.85) 3,000 = 1,785 \text{ psi}$$

$$\sigma_1 = (M_H + 51.5 F_H) / S_C$$

$$= (M_H + 51.5 F_H) / 478.13 \text{ psi}$$

$$\sigma_2 = F_H / A_C$$

$$= F_H / 191.25 \text{ psi}$$

$$\sigma_1 + \sigma_2 \leq \sigma_c$$

$$(M_H + 51.5 F_H) / 478.13 + F_H / 191.25 \leq 1,785 \text{ psi}$$

$$M_H + 51.5 F_H + 2.50 F_H \leq 853,462 \text{ inch-lbf}$$

$$M_H \leq 853,462 - 54.00 F_H \text{ inch-lbf (concrete bearing controls)}$$

$$\text{When } M_H = 0, F_H \leq 15,805 \text{ lbf (concrete bearing controls)}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Allowable Loads on the Heel Jet Adaptor Ring in the 241-C-106 Heel Pit
(8) Originator SBKOK Date 8/26/94
(9) Checker APM Date 8/26/94

7.0 ALLOWABLE LOADS SUMMARY

Based on the capacities developed in Sections 6.1 through 6.4, the expressions for allowable loads at the Heel Jet Adaptor Ring in the Heel Pit are summarized below. Forces and moments arising from load combinations are acceptable if the following set of inequalities are satisfied:

Non-seismic

$$\begin{aligned}F_H &\leq 9,290 \text{ lbf} \\M_V &\leq 990 \text{ inch-lbf} \\F_V &\leq 45,350 \text{ lbf} \\M_H &\leq 502,030 - 54.00 F_H \text{ inch-lbf}\end{aligned}$$

Seismic

$$\begin{aligned}F_H &\leq 15,800 \text{ lbf} \\M_V &\leq 1,680 \text{ inch-lbf} \\F_V &\leq 77,440 \text{ lbf} \\M_H &\leq 853,460 - 54.00 F_H \text{ inch-lbf}\end{aligned}$$

ATTACHMENT 1

HEEL PIT FLOOR CAPACITY CALCULATION

Prepared by: SB/KOK Date: 6/17/94

Checked by: AP/Dan Date: 6/17/94

Attachment 1 calculates the pit floor capacities by computing the M-P interaction diagrams for the pit floor spanning both in the East West and the North South directions. In both the East West and the North South directions, the top and bottom reinforcement are the same. With reference to Dwg. # H-2-41345, the reinforcement details for each section are computed on one inch width basis and are provided below.

Section spanning in the East West direction:

$$d' = d'' = 3.0''(\text{assumed}) + 0.50'' + 0.25'' = 3.75''$$

$$A_s = 0.20 / 10 = 0.020 \text{ in}^2 / \text{inch width (T \& B)}$$

Section spanning in the North South direction:

$$d' = d'' = 3.0''(\text{assumed}) + 0.50'' / 2 = 3.25''$$

$$A_s = 0.20 / 10 = 0.020 \text{ in}^2 / \text{inch width (T \& B)}$$

The above section properties are entered into Microsoft Excel spreadsheets in which the section capacities are computed. The tabulated M-P capacities and the M-P interaction diagrams are provided as follows.

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Heel Pit Floor Capacity (Spanning East West)

Section	h	As	c	As'	c'	c	b	Temp(45 best)	Itc	Beta 1	fy (rebar)	E (rebar)	lyelo strain=ty/E	Tnail c	
	[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]	
long dr	15.50	0.02	3.75	0.02	3.75	11.75	1		70	3000	0.85	38000	28,300,000	.0013428	0.705
															0.701
															1.301
															1.901
															2.501
															3.101
															3.701
															4.301
															4.901
															5.501
															6.101
															6.701
															7.301
															7.901
															8.501
															9.101
															9.701
															10.301
															10.901
															11.501

Tnail c	0.85/c'b	ixd	eps	Its	eps'	Its'	ICc	ICs	IT	IP	IM	0.11cAg/0.7	pru	pru x P	pru x M	
[in]		[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]	
0.705	2550	4.000												-1.365	0	
0.701			4.729E-02	38000	-1.305E-02	-38000	1,519	-760	760		-1	11,323	6,643	0.900	-1	10,191
1.301			2.409E-02	38000	-5.647E-03	-38000	2,820	-760	760	1,300	20,295	6,643	0.861	1,115	17,471	
1.901			1.554E-02	38000	-2.918E-03	-38000	4,120	-760	760	2,600	28,604	6,643	0.822	2,137	23,504	
2.501			1.105E-02	38000	-1.498E-03	-38000	5,421	-760	760	3,901	36,250	6,643	0.783	3,053	28,368	
3.101			8.367E-03	38000	-6.279E-04	-17766	6,721	-355	760	5,608	44,851	6,643	0.731	4,095	32,795	
3.701			6.524E-03	38000	-3.972E-05	-1124	8,022	-22	760	7,239	52,502	6,643	0.700	5,058	36,751	
4.301			5.196E-03	38000	3.843E-04	10577	9,322	218	760	8,780	55,118	6,643	0.700	6,146	41,383	
4.901			4.192E-03	38000	7.046E-04	19939	10,623	399	760	10,262	64,836	6,643	0.700	7,183	45,385	
5.501			3.408E-03	38000	9.549E-04	27024	11,923	540	760	11,704	69,732	6,643	0.700	8,193	48,813	
6.101			2.778E-03	38000	1.156E-03	32716	13,224	654	760	13,118	73,854	6,643	0.700	9,183	51,698	
6.701			2.260E-03	38000	1.321E-03	37388	14,524	748	760	14,512	77,231	6,643	0.700	10,155	54,062	
7.301			1.828E-03	38000	1.459E-03	38000	15,825	760	760	15,825	79,620	6,643	0.700	11,077	55,734	
7.901			1.461E-03	38000	1.576E-03	38000	17,125	760	760	17,125	81,296	6,643	0.700	11,988	56,907	
8.501			1.147E-03	32448	1.677E-03	38000	18,426	760	649	18,537	81,865	6,643	0.700	12,976	57,306	
9.101			8.732E-04	24712	1.764E-03	38000	19,726	760	494	19,992	81,596	6,643	0.700	13,995	57,117	
9.701			6.336E-04	17932	1.840E-03	38000	21,027	760	359	21,428	80,741	6,643	0.700	15,000	56,519	
10.301			4.220E-04	11943	1.908E-03	38000	22,327	760	239	22,849	78,285	6,643	0.700	15,994	55,500	
10.901			2.336E-04	6612	1.968E-03	38000	23,628	760	132	24,256	77,219	6,643	0.700	16,979	54,053	
11.501			6.495E-05	1838	2.022E-03	38000	24,928	760	37	25,652	74,534	6,643	0.700	17,956	52,174	

Heel Pit Floor M-P Interaction Diagram (Spanning East West)

Heel Pit Floor Capacity (Spanning North South)⁰

Section	h	As	c	As'	c'	d	b	Temp(45 best)	Itc	Beta 1	f _y (rebar)	f _c (rebar)	γ _{conc} strength/E	Thal c	ID 851c ²
	[in]	[in ²]	[in]	[in ²]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]	
long dr	15.50	0.02	3.25	0.02	3.25	12.25	1	70	3000	0.85	38000	28,300,000	.0013428	0.705	2550
														0.701	
														1.301	
														1.901	
														2.501	
														3.101	
														3.701	
														4.301	
														4.901	
														5.501	
														6.101	
														6.701	
														7.301	
														7.901	
														8.501	
														9.101	
														9.701	
														10.301	
														10.901	
														11.501	

Tnal c	10.85/c ²	ixp	ieps	ifs	ieps	ifs'	ICc	ICs	T	IP	IM	10 11cAg/C.7	ipn	ipn x P	ipn x M
[in]		[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.705	2550	4.500												-1.368	0
0.701			4.543E-02	38000	-1.091E-02	-38000	1.519	-760	760	-1	11.323	6.643	0.900	-1	10.191
1.301			2.525E-02	38000	-4.494E-03	-38000	2.820	-760	760	1.300	20.295	6.643	0.861	1.119	17.471
1.901			1.633E-02	38000	-2.129E-03	-38000	4.120	-760	760	2.600	28.604	6.643	0.822	2.137	23.504
2.501			1.169E-02	38000	-8.984E-04	-25426	5.421	-509	760	4.152	37.382	6.643	0.775	3.218	28.970
3.101			8.851E-03	38000	-1.441E-04	-4079	6.721	-82	760	5.880	46.285	6.643	0.723	4.251	33.463
3.701			6.930E-03	38000	3.656E-04	10346	8.022	207	760	7.469	53.903	6.643	0.700	5.228	37.732
4.301			5.545E-03	38000	7.331E-04	20746	9.322	415	760	8.977	60.495	6.643	0.700	6.284	42.347
4.901			4.498E-03	38000	1.011E-03	28600	10.623	572	760	10.435	66.195	6.643	0.700	7.304	46.336
5.501			3.681E-03	38000	1.228E-03	34741	11.923	695	760	11.858	71.077	6.643	0.700	8.301	49.754
6.101			3.024E-03	38000	1.402E-03	38000	13.224	760	760	13.224	75.037	6.643	0.700	9.257	52.526
6.701			2.484E-03	38000	1.545E-03	38000	14.524	760	760	14.524	78.040	6.643	0.700	10.167	54.628
7.301			2.034E-03	38000	1.665E-03	38000	15.825	760	760	15.825	80.380	6.643	0.700	11.077	56.266
7.901			1.651E-03	38000	1.766E-03	38000	17.125	760	760	17.125	82.056	6.643	0.700	11.988	57.439
8.501			1.323E-03	37441	1.853E-03	38000	18.426	760	749	18.437	83.019	6.643	0.700	12.906	58.113
9.101			1.038E-03	29376	1.929E-03	38000	19.726	760	588	19.899	82.643	6.643	0.700	13.929	57.850
9.701			7.883E-04	22308	1.995E-03	38000	21.027	760	446	21.341	81.694	6.643	0.700	14.939	57.186
10.301			5.676E-04	16053	2.053E-03	38000	22.327	760	321	22.766	80.155	6.643	0.700	15.936	56.109
10.901			3.713E-04	10506	2.106E-03	38000	23.628	760	210	24.178	78.016	6.643	0.700	16.924	54.611
11.501			1.954E-04	5529	2.152E-03	38000	24.928	760	111	25.578	75.265	6.643	0.700	17.904	52.685

ATTACHMENT 2

PIT FLOOR ANSYS MODEL COMPUTER FILES

Prepared by: SB/KOK Date: 6/17/94

Checked by: A.P. Gung Date: 6/17/94

FILENAME : PITS.INP DATE : 05-25-94
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Input

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/OUT,Pit5,out
/TITLE Heel Pit Penetration Model
/PREP7

ET,1,63 ! Shell Element Type
ET,2,21,,,2 ! Mass Element Type

EX, 1,3.122e6 ! Concrete Properties For Pit Floor
DENS,1,.0003406 ! Adjusted for 8" Fill Concrete
NUXY,1,.15

EX, 2,3.122e6 ! Concrete Properties For Pit Wall
DENS,2,.0002247
NUXY,2,.15

R, 1,15.5,,,,22.25 ! Pit Floor
R,11,15.5,,,,22.25,90. ! Pit Floor, Rotated by 90.0 Degrees
R, 2,18.0 ! Pit Wall (18.0")
R, 3,12.5 ! Pit Wall (12.5") Top Section

R, 101, 26.627*0.0087 ! Pit Cover Distributed Masses
R, 102, 26.627*0.0174
R, 103, 26.627*0.0174
R, 104, 26.627*0.0174
R, 105, 26.627*0.0174
R, 106, 26.627*0.0174
R, 107, 26.627*0.0174
R, 108, 26.627*0.0174
R, 109, 26.627*0.0174
R, 110, 26.627*0.0174
R, 111, 26.627*0.0174
R, 112, 26.627*0.0174
R, 113, 26.627*0.0179
R, 114, 26.627*0.0185
R, 115, 26.627*0.0185
R, 116, 26.627*0.0185
R, 117, 26.627*0.0185
R, 118, 26.627*0.0185
R, 119, 26.627*0.0185
R, 120, 26.627*0.0185
R, 121, 26.627*0.0185
R, 122, 26.627*0.0181
R, 123, 26.627*0.0176
R, 124, 26.627*0.0176
R, 125, 26.627*0.0176
R, 126, 26.627*0.0176
R, 127, 26.627*0.0201
R, 128, 26.627*0.0226
R, 129, 26.627*0.0226
R, 130, 26.627*0.0226
R, 131, 26.627*0.0188
R, 132, 26.627*0.0150
R, 133, 26.627*0.0150
R, 134, 26.627*0.0150
R, 135, 26.627*0.0188
R, 136, 26.627*0.0226
R, 137, 26.627*0.0226
R, 138, 26.627*0.0226
R, 139, 26.627*0.0201
R, 140, 26.627*0.0176
R, 141, 26.627*0.0176
R, 142, 26.627*0.0176
R, 143, 26.627*0.0176
R, 144, 26.627*0.0175
R, 145, 26.627*0.0174
R, 146, 26.627*0.0174
R, 147, 26.627*0.0174
R, 148, 26.627*0.0174
R, 149, 26.627*0.0174
R, 150, 26.627*0.0174

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R, 151, 26.627*0.0174
R, 152, 26.627*0.0174
R, 153, 26.627*0.0174
R, 154, 26.627*0.0174
R, 155, 26.627*0.0174
R, 156, 26.627*0.0087

C*** Define Local Coordinate Systems
LOCAL, 11, 1, , 81.0, 0.0 ! Cylindrical System For 26" O.D. Riser

C*** Define Wall Nodes

CSYS, 0
N, 1, 0.0, , 0.0, , 0.0
N, 13, 0.0, , -45.0, , 0.0 \$FILL, 1, 13, 11
N, 22, 36.0, , -45.0, , 0.0 \$FILL, 13, 22, 8
N, 27, 55.0, , -45.0, , 0.0 \$FILL, 22, 27, 4
N, 31, 74.5, , -45.0, , 0.0 \$FILL, 27, 31, 3
N, 35, 87.5, , -45.0, , 0.0 \$FILL, 31, 35, 3
N, 39, 107.0, , -45.0, , 0.0 \$FILL, 35, 39, 3
N, 44, 126.0, , -45.0, , 0.0 \$FILL, 39, 44, 4
N, 56, 126.0, , 0.0, , 0.0 \$FILL, 44, 56, 11

NGEN, 3, 100, 1, 57, 1, 0.0, , 0.0, , 7.792/2.0
NGEN, 8, 100, 201, 257, 1, 0.0, , 0.0, , 33.833/7.0
NGEN, 6, 100, 901, 957, 1, 0.0, , 0.0, , 24.0 /5.0

C*** Define Wall Elements

TYPE, 1 \$MAT, 2 \$REAL, 2
EN, 1, 1, 2, 102, 101 \$RP12, 1, 1, 1, 1, 1 ! West Side
EN, 13, 13, 14, 114, 113 \$RP31, 1, 1, 1, 1, 1 ! South Side
EN, 44, 44, 45, 145, 144 \$RP12, 1, 1, 1, 1, 1 ! East Side
EGEN, 9, 100, 1, 55, 1
TYPE, 1 \$MAT, 2 \$REAL, 3
EN, 901, 901, 902, 1002, 1001 \$RP12, 1, 1, 1, 1, 1 ! West Side
EN, 913, 913, 914, 1014, 1013 \$RP31, 1, 1, 1, 1, 1 ! South Side
EN, 944, 944, 945, 1045, 1044 \$RP12, 1, 1, 1, 1, 1 ! East Side
EGEN, 5, 100, 901, 955, 1

C*** Define Remaining Boundary Nodes For Pit Floor (56-94)

N, 61, 107.0, , 0.0, , 0.0 \$FILL, 56, 61, 4
N, 65, 94.0, , 0.0, , 0.0 \$FILL, 61, 65, 3

CSYS, 11

N, 65, 13.0, , 0.0, , 0.0
N, 69, 13.0, , -60.0, , 0.0 \$FILL, 65, 69, 3
N, 73, 13.0, , -120.0, , 0.0 \$FILL, 69, 73, 3
N, 77, 13.0, , -180.0, , 0.0 \$FILL, 73, 77, 3

CSYS, 0

N, 77, 68.0, , 0.0, , 0.0
N, 81, 55.0, , 0.0, , 0.0 \$FILL, 77, 81, 3
N, 86, 36.0, , 0.0, , 0.0 \$FILL, 81, 86, 4
N, 94, 4.0, , 0.0, , 0.0 \$FILL, 86, 94, 7

C*** Start Of Pit Floor Generation

N, 2000, 0.0, , 0.0, , 0.0

C*** Defining K Points For Pit Floor

CSYS, 0

K, 1, 0.0, , 0.0
K, 2, 0.0, , -15.000
K, 3, 0.0, , -37.500
K, 4, 0.0, , -45.000

K, 5, 36.0, , 0.0
K, 6, 36.0, , -15.000
K, 7, 36.0, , -37.500
K, 8, 36.0, , -45.000

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K , 9 , 55.0 , 0.0
K , 10 , 55.0 , -11.258
K , 11 , 55.0 , -37.500
K , 12 , 55.0 , -45.000

CSYS,11
K , 13 , 13.0 , -180.0
K , 14 , 13.0 , -120.0

CSYS,0
K , 15 , 74.5 , -37.500
K , 16 , 74.5 , -45.000

CSYS,11
K , 17 , 13.0 , 0.0
K , 18 , 13.0 , -60.0

CSYS,0
K , 19 , 87.5 , -37.500
K , 20 , 87.5 , -45.000

K , 21 , 107.0 , 0.0
K , 22 , 107.0 , -11.258
K , 23 , 107.0 , -37.500
K , 24 , 107.0 , -45.000

K , 25 , 126.0 , 0.0
K , 26 , 126.0 , -15.000
K , 27 , 126.0 , -37.500
K , 28 , 126.0 , -45.000

C*** Defining L Lines For Pit Floor

CSYS,0
L, 1, 2, 4 : Line 1
L, 2, 3, 6 : Line 2
L, 3, 4, 2 : Line 3

L, 1, 5, 9 SRP4,1,1 : Line 4 - 7

L, 5, 6, 4 : Line 8
L, 6, 7, 6 : Line 9
L, 7, 8, 2 : Line 10

L, 5, 9, 5 SRP4,1,1 : Line 11 - 14

L, 9, 10, 4 : Line 15
L, 10, 11, 6 : Line 16
L, 11, 12, 2 : Line 17

L, 9, 13, 4 SRP4,1,1 : Line 18 - 21

CSYS,11 \$L, 13, 14, 4 \$CSYS,0 : Line 22
L, 14, 15, 6 : Line 23
L, 15, 16, 2 : Line 24

CSYS,11 \$L, 14, 18, 4 \$CSYS,0 : Line 25
L, 15, 19, 4 SRP2,1,1 : Line 26 - 27

CSYS,11 \$L, 17, 18, 4 \$CSYS,0 : Line 28
L, 18, 19, 6 : Line 29
L, 19, 20, 2 : Line 30

L, 17, 21, 4 SRP4,1,1 : Line 31 - 34

L, 21, 22, 4 : Line 35
L, 22, 23, 6 : Line 36
L, 23, 24, 2 : Line 37

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L, 21, 25, 5 \$RP4,1,1 ! Line 38 - 41

L, 25, 26, 4 ! Line 42
L, 26, 27, 6 ! Line 43
L, 27, 28, 2 ! Line 44

C*** Defining Areas For Pit Floor

A, 1, 2, 6, 5 \$RP3,1,1,1,1 ! Area 1 - 3
A, 5, 6, 10, 9 \$RP3,1,1,1,1 ! Area 4 - 6
A, 9, 13, 14, 10 ! Area 7
A, 10, 11, 15, 14 \$RP2,1,1,1,1 ! Area 8 - 9
A, 14, 15, 19, 18 \$RP2,1,1,1,1 ! Area 10 - 11
A, 17, 21, 22, 18 ! Area 12
A, 18, 19, 23, 22 \$RP2,1,1,1,1 ! Area 13 - 14
A, 21, 22, 26, 25 \$RP3,1,1,1,1 ! Area 15 - 17

TYPE,1 \$MAT,1 \$REAL,1
ELSIZE,,,2
AMESH, 1, 6,1
TYPE,1 \$MAT,1 \$REAL,11
AMESH, 7, 7,1
TYPE,1 \$MAT,1 \$REAL,1
AMESH, 8,11,1
TYPE,1 \$MAT,1 \$REAL,11
AMESH,12,12,1
TYPE,1 \$MAT,1 \$REAL,1
AMESH,13,17,1

Nummrg,Node,0.1 ! Node Merging

C*** Nodal Adjustment To Orientate Member Axes

MODMSH,NoCheck

N,	66,	93.692,	-2.8145,	0.0
N,	67,	92.718,	-5.6290,	0.0
N,	68,	90.885,	-8.4435,	0.0
N,	74,	71.115,	-8.4435,	0.0
N,	75,	69.282,	-5.6290,	0.0
N,	76,	68.308,	-2.8145,	0.0
N,	2207,	58.362,	-2.8145,	0.0
N,	2208,	61.723,	-2.8145,	0.0
N,	2209,	65.083,	-2.8145,	0.0
N,	2210,	58.685,	-5.6290,	0.0
N,	2211,	62.371,	-5.6290,	0.0
N,	2212,	66.056,	-5.6290,	0.0
N,	2213,	59.198,	-8.4435,	0.0
N,	2214,	63.399,	-8.4435,	0.0
N,	2215,	67.602,	-8.4435,	0.0
N,	2299,	96.917,	-2.8145,	0.0
N,	2300,	100.28,	-2.8145,	0.0
N,	2301,	103.64,	-2.8145,	0.0
N,	2302,	95.944,	-5.6290,	0.0
N,	2303,	99.629,	-5.6290,	0.0
N,	2304,	103.31,	-5.6290,	0.0
N,	2305,	94.398,	-8.4435,	0.0
N,	2306,	98.601,	-8.4435,	0.0
N,	2307,	102.80,	-8.4435,	0.0

C*** Defining Wall Masses On Wall Top

TYPE,2
REAL,101 \$E, 1401 ! Pit Cover Mass Along The Top
EGEN, 56, 1, 1601,,,,,1

WSORT,ALL,0.0 ! Wave Front Sorting

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C*** Define Boundary Conditions Along Symmetric Nodes
NRSEL, Y, -0.1, 0.1 ! Pit Floor & Wall Nodes
D, ALL, UY, , , , ROTX, ROTZ
NALL
D, 1, UX

/COM Loading
ITER,1,1,1
KRF,1
PRDISP,-1
PRSTR,-1
PRRFOR,-1
PRNF,-1
C*** Load Case 1
C*** Unfactored Gravity Load
ACEL,0.,0., 386.4 ! Gravity Load
LWRITE
C***
KUSE,1
C*** Load Case 2
C*** Unfactored Pressure Load
FDEL,ALL
ACEL,0.,0.,0.
F, 201,FX, 2010.*0.0417 ! Soil Pressure Loading On West Side
F, 202,FX, 2010.*0.0833
F, 203,FX, 2010.*0.0833
F, 204,FX, 2010.*0.0833
F, 205,FX, 2010.*0.0833
F, 206,FX, 2010.*0.0833
F, 207,FX, 2010.*0.0833
F, 208,FX, 2010.*0.0833
F, 209,FX, 2010.*0.0833
F, 210,FX, 2010.*0.0833
F, 211,FX, 2010.*0.0833
F, 212,FX, 2010.*0.0833
F, 213,FX, 2010.*0.0417
F, 213,FY, 5360.*0.0159 ! Soil Pressure Loading On South Side
F, 214,FY, 5360.*0.0317
F, 215,FY, 5360.*0.0317
F, 216,FY, 5360.*0.0317
F, 217,FY, 5360.*0.0317
F, 218,FY, 5360.*0.0317
F, 219,FY, 5360.*0.0317
F, 220,FY, 5360.*0.0317
F, 221,FY, 5360.*0.0317
F, 222,FY, 5360.*0.0310
F, 223,FY, 5360.*0.0302
F, 224,FY, 5360.*0.0302
F, 225,FY, 5360.*0.0302
F, 226,FY, 5360.*0.0302
F, 227,FY, 5360.*0.0344
F, 228,FY, 5360.*0.0387
F, 229,FY, 5360.*0.0387
F, 230,FY, 5360.*0.0387
F, 231,FY, 5360.*0.0322
F, 232,FY, 5360.*0.0258
F, 233,FY, 5360.*0.0258
F, 234,FY, 5360.*0.0258
F, 235,FY, 5360.*0.0322
F, 236,FY, 5360.*0.0387
F, 237,FY, 5360.*0.0387
F, 238,FY, 5360.*0.0387
F, 239,FY, 5360.*0.0344
F, 240,FY, 5360.*0.0302
F, 241,FY, 5360.*0.0302
F, 242,FY, 5360.*0.0302
F, 243,FY, 5360.*0.0302
F, 244,FY, 5360.*0.0151
F, 244,FX, -2010.*0.0417 ! Soil Pressure Loading On East Side
F, 245,FX, -2010.*0.0833

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F, 246,FX, -2010.*0.0833
F, 247,FX, -2010.*0.0833
F, 248,FX, -2010.*0.0833
F, 249,FX, -2010.*0.0833
F, 250,FX, -2010.*0.0833
F, 251,FX, -2010.*0.0833
F, 252,FX, -2010.*0.0833
F, 253,FX, -2010.*0.0833
F, 254,FX, -2010.*0.0833
F, 255,FX, -2010.*0.0833
F, 256,FX, -2010.*0.0417
LWRITE
C***
KUSE,1
C*** Load Case 3
C*** Unfactored Heel Jet Load (10000 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 65,FZ, -5000.*0.0348      ! Heel Jet Load (Half of 10000 lb)
F, 66,FZ, -5000.*0.0713
F, 67,FZ, -5000.*0.0778
F, 68,FZ, -5000.*0.0953
F, 69,FZ, -5000.*0.0957
F, 70,FZ, -5000.*0.0834
F, 71,FZ, -5000.*0.0834
F, 72,FZ, -5000.*0.0834
F, 73,FZ, -5000.*0.0957
F, 74,FZ, -5000.*0.0953
F, 75,FZ, -5000.*0.0778
F, 76,FZ, -5000.*0.0713
F, 77,FZ, -5000.*0.0348
LWRITE
C***
AFWRITE
FINI
/INP,27
FINI
/EOF
```

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NEW TITLE= Heel Pit Penetration Model

*** ANSYS REV 4.4 A 16 38359-PC/PP-4.4A CP= 13.300 ***
FOR SUPPORT CALL PHONE TWX

TITLE

***** ANSYS/PrepPost VERSION *****

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

ENTER RESUME TO RESUME EXISTING MODEL
ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE PREP7
PRINTOUT KEY SET TO /GOPR (USE /NOPR TO SUPPRESS)

ELEMENT TYPE 1 USES STIF 63
KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0
INOPR= 0 NUMBER OF NODES= 4

QUAD. FLAT SHELL

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

ELEMENT TYPE 2 USES STIF 21
KEYOPT(1-9)= 0 0 2 0 0 0 0 0 0
INOPR= 0 NUMBER OF NODES= 1

GENERAL MASS

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3122000.

PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.31220E+07 9999.0 0.31220E+07

MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.3406000E-03

PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.34060E-03 9999.0 0.34060E-03

MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.1500000

PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

MATERIAL 2 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3122000.

PROPERTY TABLE EX MAT= 2 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.31220E+07 9999.0 0.31220E+07

MATERIAL 2 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.2247000E-03

PROPERTY TABLE DENS MAT= 2 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA

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-9999.0 0.22470E-03 9999.0 0.22470E-03

MATERIAL 2 COEFFICIENTS OF NUXY VS. TEMP EQUATION
C0 = 0.1500000

PROPERTY TABLE NUXY MAT= 2 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

REAL CONSTANT SET 1 ITEMS 1 TO 6
15.500 0.00000E+00 0.00000E+00 0.00000E+00 22.250 0.00000E+00

REAL CONSTANT SET 11 ITEMS 1 TO 6
15.500 0.00000E+00 0.00000E+00 0.00000E+00 22.250 90.000

REAL CONSTANT SET 2 ITEMS 1 TO 6
18.000 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 3 ITEMS 1 TO 6
12.500 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 101 ITEMS 1 TO 6
0.23165 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 102 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 103 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 104 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 105 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 106 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 107 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 108 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 109 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 110 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 111 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 112 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 113 ITEMS 1 TO 6
0.47662 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 114 ITEMS 1 TO 6
0.49260 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 115 ITEMS 1 TO 6
0.49260 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 116 ITEMS 1 TO 6
0.49260 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 117 ITEMS 1 TO 6

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0.49260	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 118 ITEMS 1 TO 6					
0.49260	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 119 ITEMS 1 TO 6					
0.49260	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 120 ITEMS 1 TO 6					
0.49260	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 121 ITEMS 1 TO 6					
0.49260	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 122 ITEMS 1 TO 6					
0.48195	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 123 ITEMS 1 TO 6					
0.46864	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 124 ITEMS 1 TO 6					
0.46864	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 125 ITEMS 1 TO 6					
0.46864	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 126 ITEMS 1 TO 6					
0.46864	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 127 ITEMS 1 TO 6					
0.53520	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 128 ITEMS 1 TO 6					
0.60177	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 129 ITEMS 1 TO 6					
0.60177	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 130 ITEMS 1 TO 6					
0.60177	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 131 ITEMS 1 TO 6					
0.50059	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 132 ITEMS 1 TO 6					
0.39941	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 133 ITEMS 1 TO 6					
0.39941	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 134 ITEMS 1 TO 6					
0.39941	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 135 ITEMS 1 TO 6					
0.50059	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 136 ITEMS 1 TO 6					
0.60177	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 137 ITEMS 1 TO 6					
0.60177	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 138 ITEMS 1 TO 6					
0.60177	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 139 ITEMS 1 TO 6					
0.53520	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 140 ITEMS 1 TO 6					
0.46864	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00

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REAL CONSTANT SET 141 ITEMS 1 TO 6
0.46864 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 142 ITEMS 1 TO 6
0.46864 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 143 ITEMS 1 TO 6
0.46864 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 144 ITEMS 1 TO 6
0.46597 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 145 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 146 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 147 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 148 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 149 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 150 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 151 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 152 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 153 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 154 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 155 ITEMS 1 TO 6
0.46331 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 156 ITEMS 1 TO 6
0.23165 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

```

C*** Define Local Coordinate Systems

```

COORDINATE SYSTEM 11 DEFINITION. TYPE= 1 (CYLINDRICAL)
XC,YC,ZC= 81.000 0.00000E+00 0.00000E+00
ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

```

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

C*** Define Wall Nodes

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

NODE 1 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

NODE 13 KCS= 0 X,Y,Z= 0.00000E+00 -45.000 0.00000E+00

FILL 11 POINTS BETWEEN NODE 1 AND NODE 13
START WITH NODE 2 AND INCREMENT BY 1

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NODE    22   KCS= 0   X,Y,Z=  36.000   -45.000   0.00000E+00

FILL     8 POINTS BETWEEN NODE    13 AND NODE    22
  START WITH NODE    14 AND INCREMENT BY    1

NODE    27   KCS= 0   X,Y,Z=  55.000   -45.000   0.00000E+00

FILL     4 POINTS BETWEEN NODE    22 AND NODE    27
  START WITH NODE    23 AND INCREMENT BY    1

NODE    31   KCS= 0   X,Y,Z=  74.500   -45.000   0.00000E+00

FILL     3 POINTS BETWEEN NODE    27 AND NODE    31
  START WITH NODE    28 AND INCREMENT BY    1

NODE    35   KCS= 0   X,Y,Z=  87.500   -45.000   0.00000E+00

FILL     3 POINTS BETWEEN NODE    31 AND NODE    35
  START WITH NODE    32 AND INCREMENT BY    1

NODE    39   KCS= 0   X,Y,Z= 107.000   -45.000   0.00000E+00

FILL     3 POINTS BETWEEN NODE    35 AND NODE    39
  START WITH NODE    36 AND INCREMENT BY    1

NODE    44   KCS= 0   X,Y,Z= 126.000   -45.000   0.00000E+00

FILL     4 POINTS BETWEEN NODE    39 AND NODE    44
  START WITH NODE    40 AND INCREMENT BY    1

NODE    56   KCS= 0   X,Y,Z= 126.000   0.00000E+00 0.00000E+00

FILL    11 POINTS BETWEEN NODE    44 AND NODE    56
  START WITH NODE    45 AND INCREMENT BY    1

GENERATE   3 TOTAL SETS OF NODES WITH INCREMENT   100
  SET IS SELECTED NODES IN RANGE    1 TO    56 IN STEPS OF    1
  GEOMETRY INCREMENTS ARE 0.00000E+00 0.00000E+00 3.8960

GENERATE   8 TOTAL SETS OF NODES WITH INCREMENT   100
  SET IS SELECTED NODES IN RANGE   201 TO   256 IN STEPS OF    1
  GEOMETRY INCREMENTS ARE 0.00000E+00 0.00000E+00 4.8333

GENERATE   6 TOTAL SETS OF NODES WITH INCREMENT   100
  SET IS SELECTED NODES IN RANGE   901 TO   956 IN STEPS OF    1
  GEOMETRY INCREMENTS ARE 0.00000E+00 0.00000E+00 4.8000

```

C*** Define Wall Elements

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 2

```

REAL CONSTANT NUMBER= 2
ELEMENT    1      1    2   102   101
ELEMENT    2      2    3   103   102
ELEMENT    3      3    4   104   103
ELEMENT    4      4    5   105   104
ELEMENT    5      5    6   106   105
ELEMENT    6      6    7   107   106
ELEMENT    7      7    8   108   107
ELEMENT    8      8    9   109   108
ELEMENT    9      9   10   110   109
ELEMENT   10     10   11   111   110
ELEMENT   11     11   12   112   111
ELEMENT   12     12   13   113   112
ELEMENT   13     13   14   114   113
ELEMENT   14     14   15   115   114

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ELEMENT	15	15	16	116	115
ELEMENT	16	16	17	117	116
ELEMENT	17	17	18	118	117
ELEMENT	18	18	19	119	118
ELEMENT	19	19	20	120	119
ELEMENT	20	20	21	121	120
ELEMENT	21	21	22	122	121
ELEMENT	22	22	23	123	122
ELEMENT	23	23	24	124	123
ELEMENT	24	24	25	125	124
ELEMENT	25	25	26	126	125
ELEMENT	26	26	27	127	126
ELEMENT	27	27	28	128	127
ELEMENT	28	28	29	129	128
ELEMENT	29	29	30	130	129
ELEMENT	30	30	31	131	130
ELEMENT	31	31	32	132	131
ELEMENT	32	32	33	133	132
ELEMENT	33	33	34	134	133
ELEMENT	34	34	35	135	134
ELEMENT	35	35	36	136	135
ELEMENT	36	36	37	137	136
ELEMENT	37	37	38	138	137
ELEMENT	38	38	39	139	138
ELEMENT	39	39	40	140	139
ELEMENT	40	40	41	141	140
ELEMENT	41	41	42	142	141
ELEMENT	42	42	43	143	142
ELEMENT	43	43	44	144	143
ELEMENT	44	44	45	145	144
ELEMENT	45	45	46	146	145
ELEMENT	46	46	47	147	146
ELEMENT	47	47	48	148	147
ELEMENT	48	48	49	149	148
ELEMENT	49	49	50	150	149
ELEMENT	50	50	51	151	150
ELEMENT	51	51	52	152	151
ELEMENT	52	52	53	153	152
ELEMENT	53	53	54	154	153
ELEMENT	54	54	55	155	154
ELEMENT	55	55	56	156	155

GENERATE 9 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 100
SET IS SELECTED ELEMENTS IN RANGE 1 TO 55 IN STEPS OF 1
NUMBER OF ELEMENTS= 495

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 2

REAL CONSTANT NUMBER=		3			
ELEMENT	901	901	902	1002	1001
ELEMENT	902	902	903	1003	1002
ELEMENT	903	903	904	1004	1003
ELEMENT	904	904	905	1005	1004
ELEMENT	905	905	906	1006	1005
ELEMENT	906	906	907	1007	1006
ELEMENT	907	907	908	1008	1007
ELEMENT	908	908	909	1009	1008
ELEMENT	909	909	910	1010	1009
ELEMENT	910	910	911	1011	1010
ELEMENT	911	911	912	1012	1011
ELEMENT	912	912	913	1013	1012
ELEMENT	913	913	914	1014	1013
ELEMENT	914	914	915	1015	1014
ELEMENT	915	915	916	1016	1015
ELEMENT	916	916	917	1017	1016
ELEMENT	917	917	918	1018	1017
ELEMENT	918	918	919	1019	1018
ELEMENT	919	919	920	1020	1019

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ELEMENT	920	920	921	1021	1020
ELEMENT	921	921	922	1022	1021
ELEMENT	922	922	923	1023	1022
ELEMENT	923	923	924	1024	1023
ELEMENT	924	924	925	1025	1024
ELEMENT	925	925	926	1026	1025
ELEMENT	926	926	927	1027	1026
ELEMENT	927	927	928	1028	1027
ELEMENT	928	928	929	1029	1028
ELEMENT	929	929	930	1030	1029
ELEMENT	930	930	931	1031	1030
ELEMENT	931	931	932	1032	1031
ELEMENT	932	932	933	1033	1032
ELEMENT	933	933	934	1034	1033
ELEMENT	934	934	935	1035	1034
ELEMENT	935	935	936	1036	1035
ELEMENT	936	936	937	1037	1036
ELEMENT	937	937	938	1038	1037
ELEMENT	938	938	939	1039	1038
ELEMENT	939	939	940	1040	1039
ELEMENT	940	940	941	1041	1040
ELEMENT	941	941	942	1042	1041
ELEMENT	942	942	943	1043	1042
ELEMENT	943	943	944	1044	1043
ELEMENT	944	944	945	1045	1044
ELEMENT	945	945	946	1046	1045
ELEMENT	946	946	947	1047	1046
ELEMENT	947	947	948	1048	1047
ELEMENT	948	948	949	1049	1048
ELEMENT	949	949	950	1050	1049
ELEMENT	950	950	951	1051	1050
ELEMENT	951	951	952	1052	1051
ELEMENT	952	952	953	1053	1052
ELEMENT	953	953	954	1054	1053
ELEMENT	954	954	955	1055	1054
ELEMENT	955	955	956	1056	1055

GENERATE 5 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 100
SET IS SELECTED ELEMENTS IN RANGE 901 TO 955 IN STEPS OF 1
NUMBER OF ELEMENTS= 1175

C*** Define Remaining Boundary Nodes For Pit Floor (56-94)

NODE 61 KCS= 0 X,Y,Z= 107.00 0.00000E+00 0.00000E+00

FILL 4 POINTS BETWEEN NODE 56 AND NODE 61
START WITH NODE 57 AND INCREMENT BY 1

NODE 65 KCS= 0 X,Y,Z= 94.000 0.00000E+00 0.00000E+00

FILL 3 POINTS BETWEEN NODE 61 AND NODE 65
START WITH NODE 62 AND INCREMENT BY 1

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

NODE 65 KCS=11 X,Y,Z= 13.000 0.00000E+00 0.00000E+00

NODE 69 KCS=11 X,Y,Z= 13.000 -60.000 0.00000E+00

FILL 3 POINTS BETWEEN NODE 65 AND NODE 69
START WITH NODE 66 AND INCREMENT BY 1

NODE 73 KCS=11 X,Y,Z= 13.000 -120.00 0.00000E+00

FILL 3 POINTS BETWEEN NODE 69 AND NODE 73
START WITH NODE 70 AND INCREMENT BY 1

NODE 77 KCS=11 X,Y,Z= 13.000 -180.00 0.00000E+00

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FILL 3 POINTS BETWEEN NODE 73 AND NODE 77
START WITH NODE 74 AND INCREMENT BY 1

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

NODE 77 KCS= 0 X,Y,Z= 68.000 0.00000E+00 0.00000E+00

NODE 81 KCS= 0 X,Y,Z= 55.000 0.00000E+00 0.00000E+00

FILL 3 POINTS BETWEEN NODE 77 AND NODE 81
START WITH NODE 78 AND INCREMENT BY 1

NODE 86 KCS= 0 X,Y,Z= 36.000 0.00000E+00 0.00000E+00

FILL 4 POINTS BETWEEN NODE 81 AND NODE 86
START WITH NODE 82 AND INCREMENT BY 1

NODE 94 KCS= 0 X,Y,Z= 4.0000 0.00000E+00 0.00000E+00

FILL 7 POINTS BETWEEN NODE 86 AND NODE 94
START WITH NODE 87 AND INCREMENT BY 1

C*** Start Of Pit Floor Generation

NODE 2000 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

C*** Defining K Points For Pit Floor

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 1 X,Y,Z= 0.000000E+00 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT 2 X,Y,Z= 0.000000E+00 -15.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 3 X,Y,Z= 0.000000E+00 -37.5000 0.000000E+00 IN CSYS= 0

KEYPOINT 4 X,Y,Z= 0.000000E+00 -45.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 5 X,Y,Z= 36.0000 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT 6 X,Y,Z= 36.0000 -15.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 7 X,Y,Z= 36.0000 -37.5000 0.000000E+00 IN CSYS= 0

KEYPOINT 8 X,Y,Z= 36.0000 -45.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 9 X,Y,Z= 55.0000 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT 10 X,Y,Z= 55.0000 -11.2580 0.000000E+00 IN CSYS= 0

KEYPOINT 11 X,Y,Z= 55.0000 -37.5000 0.000000E+00 IN CSYS= 0

KEYPOINT 12 X,Y,Z= 55.0000 -45.0000 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

KEYPOINT 13 X,Y,Z= 13.0000 -180.000 0.000000E+00 IN CSYS= 11

68.0000 -0.227906E-07 0.000000E+00 IN CSYS= 0

KEYPOINT 14 X,Y,Z= 13.0000 -120.000 0.000000E+00 IN CSYS= 11

74.5000 -11.2583 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 15 X,Y,Z= 74.5000 -37.5000 0.000000E+00 IN CSYS= 0

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KEYPOINT 16 X,Y,Z= 74.5000 -45.0000 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

KEYPOINT 17 X,Y,Z= 13.0000 0.000000E+00 0.000000E+00 IN CSYS= 11

94.0000 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT 18 X,Y,Z= 13.0000 -60.0000 0.000000E+00 IN CSYS= 11

87.5000 -11.2583 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 19 X,Y,Z= 87.5000 -37.5000 0.000000E+00 IN CSYS= 0

KEYPOINT 20 X,Y,Z= 87.5000 -45.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 21 X,Y,Z= 107.000 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT 22 X,Y,Z= 107.000 -11.2580 0.000000E+00 IN CSYS= 0

KEYPOINT 23 X,Y,Z= 107.000 -37.5000 0.000000E+00 IN CSYS= 0

KEYPOINT 24 X,Y,Z= 107.000 -45.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 25 X,Y,Z= 126.000 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT 26 X,Y,Z= 126.000 -15.0000 0.000000E+00 IN CSYS= 0

KEYPOINT 27 X,Y,Z= 126.000 -37.5000 0.000000E+00 IN CSYS= 0

KEYPOINT 28 X,Y,Z= 126.000 -45.0000 0.000000E+00 IN CSYS= 0

C*** Defining L Lines For Pit Floor

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS 1 2 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 1 KP1= 1 TAN1= 0.0000 1.0000 0.0000
KP2= 2 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 2 3 DIVISIONS= 6 SPACING= 1.00
SEGMENT NO.= 2 KP1= 2 TAN1= 0.0000 1.0000 0.0000
KP2= 3 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 3 4 DIVISIONS= 2 SPACING= 1.00
SEGMENT NO.= 3 KP1= 3 TAN1= 0.0000 1.0000 0.0000
KP2= 4 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 1 5 DIVISIONS= 9 SPACING= 1.00
SEGMENT NO.= 4 KP1= 1 TAN1= -1.0000 0.0000 0.0000
KP2= 5 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 2 6 DIVISIONS= 9 SPACING= 1.00
SEGMENT NO.= 5 KP1= 2 TAN1= -1.0000 0.0000 0.0000
KP2= 6 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 3 7 DIVISIONS= 9 SPACING= 1.00
SEGMENT NO.= 6 KP1= 3 TAN1= -1.0000 0.0000 0.0000
KP2= 7 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 4 8 DIVISIONS= 9 SPACING= 1.00
SEGMENT NO.= 7 KP1= 4 TAN1= -1.0000 0.0000 0.0000
KP2= 8 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 5 6 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 8 KP1= 5 TAN1= 0.0000 1.0000 0.0000
KP2= 6 TAN2= 0.0000 -1.0000 0.0000

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LINE SEGMENT CONNECTS KEYPOINTS 6 7 DIVISIONS= 6 SPACING= 1.00
SEGMENT NO.= 9 KP1= 6 TAN1= 0.0000 1.0000 0.0000
KP2= 7 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 7 8 DIVISIONS= 2 SPACING= 1.00
SEGMENT NO.= 10 KP1= 7 TAN1= 0.0000 1.0000 0.0000
KP2= 8 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 5 9 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 11 KP1= 5 TAN1= -1.0000 0.0000 0.0000
KP2= 9 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 6 10 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 12 KP1= 6 TAN1= -0.9812 -0.1932 0.0000
KP2= 10 TAN2= 0.9812 0.1932 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 7 11 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 13 KP1= 7 TAN1= -1.0000 0.0000 0.0000
KP2= 11 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 8 12 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 14 KP1= 8 TAN1= -1.0000 0.0000 0.0000
KP2= 12 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 9 10 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 15 KP1= 9 TAN1= 0.0000 1.0000 0.0000
KP2= 10 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 10 11 DIVISIONS= 6 SPACING= 1.00
SEGMENT NO.= 16 KP1= 10 TAN1= 0.0000 1.0000 0.0000
KP2= 11 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 11 12 DIVISIONS= 2 SPACING= 1.00
SEGMENT NO.= 17 KP1= 11 TAN1= 0.0000 1.0000 0.0000
KP2= 12 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 9 13 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 18 KP1= 9 TAN1= -1.0000 0.0000 0.0000
KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 10 14 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 19 KP1= 10 TAN1= -1.0000 0.0000 0.0000
KP2= 14 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 11 15 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 20 KP1= 11 TAN1= -1.0000 0.0000 0.0000
KP2= 15 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 12 16 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 21 KP1= 12 TAN1= -1.0000 0.0000 0.0000
KP2= 16 TAN2= 1.0000 0.0000 0.0000

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS 13 14 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 22 KP1= 13 TAN1= 0.0000 1.0000 0.0000
KP2= 14 TAN2= 0.8660 -0.5000 0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS 14 15 DIVISIONS= 6 SPACING= 1.00
SEGMENT NO.= 23 KP1= 14 TAN1= 0.0000 1.0000 0.0000
KP2= 15 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 15 16 DIVISIONS= 2 SPACING= 1.00
SEGMENT NO.= 24 KP1= 15 TAN1= 0.0000 1.0000 0.0000
KP2= 16 TAN2= 0.0000 -1.0000 0.0000

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

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LINE SEGMENT CONNECTS KEYPOINTS 14 18 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 25 KP1= 14 TAN1= -0.8660 0.5000 0.0000
KP2= 18 TAN2= 0.8660 0.5000 0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS 15 19 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 26 KP1= 15 TAN1= -1.0000 0.0000 0.0000
KP2= 19 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 16 20 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 27 KP1= 16 TAN1= -1.0000 0.0000 0.0000
KP2= 20 TAN2= 1.0000 0.0000 0.0000

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS 17 18 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 28 KP1= 17 TAN1= 0.0000 1.0000 0.0000
KP2= 18 TAN2= -0.8660 -0.5000 0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS 18 19 DIVISIONS= 6 SPACING= 1.00
SEGMENT NO.= 29 KP1= 18 TAN1= 0.0000 1.0000 0.0000
KP2= 19 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 19 20 DIVISIONS= 2 SPACING= 1.00
SEGMENT NO.= 30 KP1= 19 TAN1= 0.0000 1.0000 0.0000
KP2= 20 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 17 21 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 31 KP1= 17 TAN1= -1.0000 0.0000 0.0000
KP2= 21 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 18 22 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 32 KP1= 18 TAN1= -1.0000 0.0000 0.0000
KP2= 22 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 19 23 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 33 KP1= 19 TAN1= -1.0000 0.0000 0.0000
KP2= 23 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 20 24 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 34 KP1= 20 TAN1= -1.0000 0.0000 0.0000
KP2= 24 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 21 22 DIVISIONS= 4 SPACING= 1.00
SEGMENT NO.= 35 KP1= 21 TAN1= 0.0000 1.0000 0.0000
KP2= 22 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 22 23 DIVISIONS= 6 SPACING= 1.00
SEGMENT NO.= 36 KP1= 22 TAN1= 0.0000 1.0000 0.0000
KP2= 23 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 23 24 DIVISIONS= 2 SPACING= 1.00
SEGMENT NO.= 37 KP1= 23 TAN1= 0.0000 1.0000 0.0000
KP2= 24 TAN2= 0.0000 -1.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 21 25 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 38 KP1= 21 TAN1= -1.0000 0.0000 0.0000
KP2= 25 TAN2= 1.0000 0.0000 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 22 26 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 39 KP1= 22 TAN1= -0.9812 0.1932 0.0000
KP2= 26 TAN2= 0.9812 -0.1932 0.0000

LINE SEGMENT CONNECTS KEYPOINTS 23 27 DIVISIONS= 5 SPACING= 1.00
SEGMENT NO.= 40 KP1= 23 TAN1= -1.0000 0.0000 0.0000
KP2= 27 TAN2= 1.0000 0.0000 0.0000

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LINE SEGMENT CONNECTS KEYPOINTS      24      28  DIVISIONS=      5  SPACING=  1.00
SEGMENT NO.=    41  KP1=    24  TAN1=  -1.0000  0.0000  0.0000
                        KP2=    28  TAN2=   1.0000  0.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      25      26  DIVISIONS=      4  SPACING=  1.00
SEGMENT NO.=    42  KP1=    25  TAN1=   0.0000  1.0000  0.0000
                        KP2=    26  TAN2=   0.0000 -1.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      26      27  DIVISIONS=      6  SPACING=  1.00
SEGMENT NO.=    43  KP1=    26  TAN1=   0.0000  1.0000  0.0000
                        KP2=    27  TAN2=   0.0000 -1.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      27      28  DIVISIONS=      2  SPACING=  1.00
SEGMENT NO.=    44  KP1=    27  TAN1=   0.0000  1.0000  0.0000
                        KP2=    28  TAN2=   0.0000 -1.0000  0.0000

```

C*** Defining Areas For Pit Floor

```

AREA CONNECTING KEYPOINTS      1      2      6      5
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      1

AREA CONNECTING KEYPOINTS      2      3      7      6
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      2

AREA CONNECTING KEYPOINTS      3      4      8      7
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      3

AREA CONNECTING KEYPOINTS      5      6     10      9
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      4

AREA CONNECTING KEYPOINTS      6      7     11     10
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      5

AREA CONNECTING KEYPOINTS      7      8     12     11
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      6

AREA CONNECTING KEYPOINTS      9     13     14     10
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      7

AREA CONNECTING KEYPOINTS     10     11     15     14
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      8

AREA CONNECTING KEYPOINTS     11     12     16     15
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      9

AREA CONNECTING KEYPOINTS     14     15     19     18
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =     10

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AREA CONNECTING KEYPOINTS 15 16 20 19
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 11

AREA CONNECTING KEYPOINTS 17 21 22 18
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 12

AREA CONNECTING KEYPOINTS 18 19 23 22
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 13

AREA CONNECTING KEYPOINTS 19 20 24 23
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 14

AREA CONNECTING KEYPOINTS 21 22 26 25
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 15

AREA CONNECTING KEYPOINTS 22 23 27 26
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 16

AREA CONNECTING KEYPOINTS 23 24 28 27
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 17

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 1

REAL CONSTANT NUMBER= 1

DEFAULT NUMBER OF LINE SEGMENT DIVISIONS BASED ON ELEM. SIZE= 0.000E+00
USE ALL QUADRILATERAL ELEMENTS WHERE ELEMENT TYPE
 ALLOWS A CHOICE BETWEEN QUADRILATERALS AND TRIANGLES.
USE ALL BRICK ELEMENTS WHERE ELEMENT TYPE
 ALLOWS A CHOICE BETWEEN BRICKS AND OTHER SHAPES.

GENERATE NODES AND ELEMENTS
 IN AREAS 1 TO 6 IN STEPS OF 1

** MESHING OF AREA	1.	IN PROGRESS **	
** MESHING OF AREA	1.	COMPLETED **	36. ELEMENTS
** MESHING OF AREA	2.	IN PROGRESS **	
** MESHING OF AREA	2.	COMPLETED **	54. ELEMENTS
** MESHING OF AREA	3.	IN PROGRESS **	
** MESHING OF AREA	3.	COMPLETED **	18. ELEMENTS
** MESHING OF AREA	4.	IN PROGRESS **	
** MESHING OF AREA	4.	COMPLETED **	20. ELEMENTS
** MESHING OF AREA	5.	IN PROGRESS **	
** MESHING OF AREA	5.	COMPLETED **	30. ELEMENTS

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** MESHING OF AREA      6.  IN PROGRESS **
** MESHING OF AREA      6.  COMPLETED **           10. ELEMENTS

NUMBER OF AREAS MESHED      =      6
MAXIMUM NODE NUMBER        =    2195
MAXIMUM ELEMENT NUMBER     =    1343

ELEMENT TYPE SET TO  1

MATERIAL NUMBER SET TO      1

REAL CONSTANT NUMBER=    11

GENERATE NODES AND ELEMENTS
      IN AREAS      7  TO      7  IN STEPS OF      1

***WARNING ***
CP=    18.620  TIME=  10.59010
AREA      7. HAS A CORNER ANGLE OF    30.0 DEGREES
      NOT RECOMMENDED FOR QUADRILATERAL ELEMENTS

** MESHING OF AREA      7.  IN PROGRESS **

***WARNING ***
CP=    18.730  TIME=  10.59013
MESHING OF AREA      7. PRODUCED      1. ELEMENTS WITH POOR SHAPES
      SUGGEST ATTEMPTING A QUAD/TRI MIXED MESH

*** NOTE ***
WORST SHAPE ANGLE IS      41.3 DEGREES

*** LIST OF ELEMENTS WITH POOR SHAPE ***
      1359

** MESHING OF AREA      7.  COMPLETED **           16. ELEMENTS

NUMBER OF AREAS MESHED      =      1
MAXIMUM NODE NUMBER        =    2215
MAXIMUM ELEMENT NUMBER     =    1359

ELEMENT TYPE SET TO  1

MATERIAL NUMBER SET TO      1

REAL CONSTANT NUMBER=      1

GENERATE NODES AND ELEMENTS
      IN AREAS      8  TO     11  IN STEPS OF      1

** MESHING OF AREA      8.  IN PROGRESS **
** MESHING OF AREA      8.  COMPLETED **           24. ELEMENTS

** MESHING OF AREA      9.  IN PROGRESS **
** MESHING OF AREA      9.  COMPLETED **           8. ELEMENTS

** MESHING OF AREA     10.  IN PROGRESS **
** MESHING OF AREA     10.  COMPLETED **          24. ELEMENTS

** MESHING OF AREA     11.  IN PROGRESS **
** MESHING OF AREA     11.  COMPLETED **           8. ELEMENTS

NUMBER OF AREAS MESHED      =      4
MAXIMUM NODE NUMBER        =    2283
MAXIMUM ELEMENT NUMBER     =    1423

ELEMENT TYPE SET TO  1
```

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MATERIAL NUMBER SET TO 1

REAL CONSTANT NUMBER= 11

GENERATE NODES AND ELEMENTS
IN AREAS 12 TO 12 IN STEPS OF 1

***WARNING *** CP= 19.340 TIME= 10.59030
AREA 12. HAS A CORNER ANGLE OF 150.0 DEGREES
NOT RECOMMENDED FOR QUADRILATERAL ELEMENTS

** MESHING OF AREA 12. IN PROGRESS **

***WARNING *** CP= 19.450 TIME= 10.59033
MESHING OF AREA 12. PRODUCED 1. ELEMENTS WITH POOR SHAPES
SUGGEST ATTEMPTING A QUAD/TRI MIXED MESH

*** NOTE ***
WORST SHAPE ANGLE IS 41.3 DEGREES

*** LIST OF ELEMENTS WITH POOR SHAPE ***
1436

** MESHING OF AREA 12. COMPLETED ** 16. ELEMENTS

NUMBER OF AREAS MESHED = 1
MAXIMUM NODE NUMBER = 2307
MAXIMUM ELEMENT NUMBER = 1439

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 1

REAL CONSTANT NUMBER= 1

GENERATE NODES AND ELEMENTS
IN AREAS 13 TO 17 IN STEPS OF 1

** MESHING OF AREA 13. IN PROGRESS **
** MESHING OF AREA 13. COMPLETED ** 24. ELEMENTS

** MESHING OF AREA 14. IN PROGRESS **
** MESHING OF AREA 14. COMPLETED ** 8. ELEMENTS

** MESHING OF AREA 15. IN PROGRESS **
** MESHING OF AREA 15. COMPLETED ** 20. ELEMENTS

** MESHING OF AREA 16. IN PROGRESS **
** MESHING OF AREA 16. COMPLETED ** 30. ELEMENTS

** MESHING OF AREA 17. IN PROGRESS **
** MESHING OF AREA 17. COMPLETED ** 10. ELEMENTS

NUMBER OF AREAS MESHED = 5
MAXIMUM NODE NUMBER = 2404
MAXIMUM ELEMENT NUMBER = 1531

MERGE COINCIDENT NODES WITHIN TOLERANCE OF 0.10000

NODE 1 USED FOR NODES 1 2000 2001
NODE 2 USED FOR NODES 2 2003
NODE 3 USED FOR NODES 3 2004
NODE 4 USED FOR NODES 4 2005
NODE 5 USED FOR NODES 5 2002

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NODE	6	USED FOR NODES	6	2052
NODE	7	USED FOR NODES	7	2053
NODE	8	USED FOR NODES	8	2054
NODE	9	USED FOR NODES	9	2055
NODE	10	USED FOR NODES	10	2056
NODE	11	USED FOR NODES	11	2051
NODE	12	USED FOR NODES	12	2112
NODE	13	USED FOR NODES	13	2111
NODE	14	USED FOR NODES	14	2114
NODE	94	USED FOR NODES	94	2019
NODE	93	USED FOR NODES	93	2020
NODE	15	USED FOR NODES	15	2115
NODE	92	USED FOR NODES	92	2021
NODE	16	USED FOR NODES	16	2116
NODE	91	USED FOR NODES	91	2022
NODE	17	USED FOR NODES	17	2117
NODE	90	USED FOR NODES	90	2023
NODE	18	USED FOR NODES	18	2118
NODE	19	USED FOR NODES	19	2119
NODE	89	USED FOR NODES	89	2024
NODE	88	USED FOR NODES	88	2025
NODE	20	USED FOR NODES	20	2120
NODE	21	USED FOR NODES	21	2121
NODE	87	USED FOR NODES	87	2026
NODE	22	USED FOR NODES	22	2113
NODE	86	USED FOR NODES	86	2015
NODE	23	USED FOR NODES	23	2187
NODE	85	USED FOR NODES	85	2140
NODE	24	USED FOR NODES	24	2188
NODE	84	USED FOR NODES	84	2141
NODE	25	USED FOR NODES	25	2189
NODE	83	USED FOR NODES	83	2142
NODE	26	USED FOR NODES	26	2190
NODE	82	USED FOR NODES	82	2143
NODE	27	USED FOR NODES	27	2186
NODE	81	USED FOR NODES	81	2136
NODE	80	USED FOR NODES	80	2197
NODE	28	USED FOR NODES	28	2241
NODE	79	USED FOR NODES	79	2198
NODE	29	USED FOR NODES	29	2242
NODE	78	USED FOR NODES	78	2199
NODE	77	USED FOR NODES	77	2196
NODE	76	USED FOR NODES	76	2201
NODE	30	USED FOR NODES	30	2243
NODE	75	USED FOR NODES	75	2202
NODE	74	USED FOR NODES	74	2203
NODE	31	USED FOR NODES	31	2240
NODE	73	USED FOR NODES	73	2200
NODE	72	USED FOR NODES	72	2258
NODE	32	USED FOR NODES	32	2277
NODE	33	USED FOR NODES	33	2278
NODE	71	USED FOR NODES	71	2259
NODE	34	USED FOR NODES	34	2279
NODE	70	USED FOR NODES	70	2260
NODE	35	USED FOR NODES	35	2276
NODE	69	USED FOR NODES	69	2252
NODE	68	USED FOR NODES	68	2298
NODE	67	USED FOR NODES	67	2297
NODE	36	USED FOR NODES	36	2333
NODE	66	USED FOR NODES	66	2296
NODE	65	USED FOR NODES	65	2284
NODE	37	USED FOR NODES	37	2334
NODE	64	USED FOR NODES	64	2286
NODE	63	USED FOR NODES	63	2287
NODE	38	USED FOR NODES	38	2335
NODE	62	USED FOR NODES	62	2288
NODE	39	USED FOR NODES	39	2332
NODE	61	USED FOR NODES	61	2285
NODE	40	USED FOR NODES	40	2396
NODE	60	USED FOR NODES	60	2349

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NODE	41	USED FOR NODES	41	2397
NODE	59	USED FOR NODES	59	2350
NODE	42	USED FOR NODES	42	2398
NODE	58	USED FOR NODES	58	2351
NODE	43	USED FOR NODES	43	2399
NODE	57	USED FOR NODES	57	2352
NODE	44	USED FOR NODES	44	2395
NODE	45	USED FOR NODES	45	2400
NODE	46	USED FOR NODES	46	2365
NODE	47	USED FOR NODES	47	2374
NODE	48	USED FOR NODES	48	2373
NODE	49	USED FOR NODES	49	2372
NODE	50	USED FOR NODES	50	2371
NODE	51	USED FOR NODES	51	2370
NODE	52	USED FOR NODES	52	2340
NODE	53	USED FOR NODES	53	2348
NODE	54	USED FOR NODES	54	2347
NODE	55	USED FOR NODES	55	2346
NODE	56	USED FOR NODES	56	2345

*** Nodal Adjustment To Orientate Member Axes

DEACTIVATE SOLID MODELING CROSS REFERENCE CHECKING

***WARNING *** CP= 24.280 TIME= 10.59167
NO CHECKING FOR DATA BASE CORRUPTION
AND A WARNING WILL BE PRODUCED AT EACH FUTURE CHECK

NODE	66	KCS= 0	X, Y, Z= 93.692	-2.8145	0.00000E+00
NODE	67	KCS= 0	X, Y, Z= 92.718	-5.6290	0.00000E+00
NODE	68	KCS= 0	X, Y, Z= 90.885	-8.4435	0.00000E+00
NODE	74	KCS= 0	X, Y, Z= 71.115	-8.4435	0.00000E+00
NODE	75	KCS= 0	X, Y, Z= 69.282	-5.6290	0.00000E+00
NODE	76	KCS= 0	X, Y, Z= 68.308	-2.8145	0.00000E+00
NODE	2207	KCS= 0	X, Y, Z= 58.362	-2.8145	0.00000E+00
NODE	2208	KCS= 0	X, Y, Z= 61.723	-2.8145	0.00000E+00
NODE	2209	KCS= 0	X, Y, Z= 65.083	-2.8145	0.00000E+00
NODE	2210	KCS= 0	X, Y, Z= 58.685	-5.6290	0.00000E+00
NODE	2211	KCS= 0	X, Y, Z= 62.371	-5.6290	0.00000E+00
NODE	2212	KCS= 0	X, Y, Z= 66.056	-5.6290	0.00000E+00
NODE	2213	KCS= 0	X, Y, Z= 59.198	-8.4435	0.00000E+00
NODE	2214	KCS= 0	X, Y, Z= 63.399	-8.4435	0.00000E+00
NODE	2215	KCS= 0	X, Y, Z= 67.602	-8.4435	0.00000E+00
NODE	2299	KCS= 0	X, Y, Z= 96.917	-2.8145	0.00000E+00
NODE	2300	KCS= 0	X, Y, Z= 100.28	-2.8145	0.00000E+00
NODE	2301	KCS= 0	X, Y, Z= 103.64	-2.8145	0.00000E+00
NODE	2302	KCS= 0	X, Y, Z= 95.944	-5.6290	0.00000E+00
NODE	2303	KCS= 0	X, Y, Z= 99.629	-5.6290	0.00000E+00
NODE	2304	KCS= 0	X, Y, Z= 103.31	-5.6290	0.00000E+00

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NODE 2305 KCS= 0 X,Y,Z= 94.398 -8.4435 0.00000E+00
NODE 2306 KCS= 0 X,Y,Z= 98.601 -8.4435 0.00000E+00
NODE 2307 KCS= 0 X,Y,Z= 102.80 -8.4435 0.00000E+00

C*** Defining Wall Masses On Wall Top

ELEMENT TYPE SET TO 2

REAL CONSTANT NUMBER= 101
ELEMENT 1532 1401

GENERATE 56 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 1
SET IS SELECTED ELEMENTS IN RANGE 1532 TO 1532 IN STEPS OF 1

INCREMENTS MAT= 0 TYPE= 0 REAL= 1 ESYS= 0
NUMBER OF ELEMENTS= 1587

REORDER SELECTED ELEMENTS BY SORTING ON CENTROID X LOCATION.

ELEMENTS ARE SORTED IN ASCENDING ORDER
IN COORDINATE SYSTEM 0

REORDERED ELEMENTS ARE STORED AFTER PREVIOUS (IF ANY) REORDERED ELEMENTS.

KEEP NEW ORDERING BASED ON MAX WAVEFRONT

*** NOTE ***
NEW MAX WF(DOF)= 258. PREVIOUS MAX= 732.
NEW RMS WF(DOF)= 176. PREVIOUS MAX= 647.

REORDER SELECTED ELEMENTS BY SORTING ON CENTROID Y LOCATION.

ELEMENTS ARE SORTED IN ASCENDING ORDER
IN COORDINATE SYSTEM 0

REORDERED ELEMENTS ARE STORED AFTER PREVIOUS (IF ANY) REORDERED ELEMENTS.

KEEP NEW ORDERING BASED ON MAX WAVEFRONT

*** NOTE ***
NEW MAX WF(DOF)= 546. PREVIOUS MAX= 258.
NEW RMS WF(DOF)= 408. PREVIOUS MAX= 176.

*** NOTE ***
PREVIOUS ORDERING RESTORED

REORDER SELECTED ELEMENTS BY SORTING ON CENTROID Z LOCATION.

ELEMENTS ARE SORTED IN ASCENDING ORDER
IN COORDINATE SYSTEM 0

REORDERED ELEMENTS ARE STORED AFTER PREVIOUS (IF ANY) REORDERED ELEMENTS.

KEEP NEW ORDERING BASED ON MAX WAVEFRONT

*** NOTE ***
NEW MAX WF(DOF)= 372. PREVIOUS MAX= 258.
NEW RMS WF(DOF)= 320. PREVIOUS MAX= 176.

*** NOTE ***
PREVIOUS ORDERING RESTORED

C*** Define Boundary Conditions Along Symmetric Nodes

NRSE FOR LABEL= Y BETWEEN=0.10000 AND 0.10000 KABS= 0.

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TOLERANCE= 0.000000E+00

57 NODES (OF 1188 DEFINED) SELECTED BY NRSE COMMAND.

SPECIFIED DISP UY FOR ALL SELECTED NODES
VALUES= 0.000000E+00 0.000000E+00 ADDITIONAL DOFS= RUX RCTZ

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

SPECIFIED DISP UX FOR SELECTED NODES IN RANGE 1 TO 1 BY 1
VALUES= 0.000000E+00 0.000000E+00 ADDITIONAL DOFS=
Loading

NITR= 1 NPRINT= 1 NPOST= 1

ALL PRINT CONTROLS RESET TO 1
ALL POST DATA FILE CONTROLS RESET TO 1

REACTION FORCE KEY= 1 CALCULATE AND PRINT NODAL AND REACTION FORCES.

ALL NODAL DISPLACEMENTS SUPPRESSED

ELEM.TYPE= 1 STIF= 63 STRESS PRINT FREQ= 99900

ELEM.TYPE= 2 STIF= 21 STRESS PRINT FREQ= 99900

REACTION FORCE PRINT FREQUENCY= 99900

ELEM.TYPE= 1 STIF= 63 NODAL FORCE PRINT FREQ=99900

ELEM.TYPE= 2 STIF= 21 NODAL FORCE PRINT FREQ=99900

C*** Load Case 1

C*** Unfactored Gravity Load

ACSL= 0.000000E+00 0.000000E+00 386.40

LOAD STEP 1 WRITTEN ON FILE23

C***

KUSE= 1

C*** Load Case 2

C*** Unfactored Pressure Load

DELETE FORCE DEFINITION OF ALL FOR ALL SELECTED NODES

ACSL= 0.000000E+00 0.000000E+00 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 201 TO 201 BY 1
VALUES= 83.817 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 202 TO 202 BY 1
VALUES= 167.43 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 203 TO 203 BY 1
VALUES= 167.43 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 204 TO 204 BY 1
VALUES= 167.43 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 205 TO 205 BY 1

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TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Output

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VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	206 TO	206 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	207 TO	207 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	208 TO	208 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	209 TO	209 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	210 TO	210 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	211 TO	211 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	212 TO	212 BY	1	
VALUES=	167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	213 TO	213 BY	1	
VALUES=	83.817	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	213 TO	213 BY	1	
VALUES=	85.224	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	214 TO	214 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	215 TO	215 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	216 TO	216 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	217 TO	217 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	218 TO	218 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	219 TO	219 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	220 TO	220 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	221 TO	221 BY	1	
VALUES=	169.91	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	222 TO	222 BY	1	
VALUES=	166.16	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	223 TO	223 BY	1	
VALUES=	161.87	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	224 TO	224 BY	1	
VALUES=	161.87	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	225 TO	225 BY	1	
VALUES=	161.87	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	226 TO	226 BY	1	
VALUES=	161.87	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	227 TO	227 BY	1	
VALUES=	184.38	0.00000E+00			

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TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Output

SPECIFIED FORCE FY VALUES= 207.43	FOR SELECTED NODES IN RANGE 0.00000E+00	228 TO	228 BY	1
SPECIFIED FORCE FY VALUES= 207.43	FOR SELECTED NODES IN RANGE 0.00000E+00	229 TO	229 BY	1
SPECIFIED FORCE FY VALUES= 207.43	FOR SELECTED NODES IN RANGE 0.00000E+00	230 TO	230 BY	1
SPECIFIED FORCE FY VALUES= 172.59	FOR SELECTED NODES IN RANGE 0.00000E+00	231 TO	231 BY	1
SPECIFIED FORCE FY VALUES= 138.29	FOR SELECTED NODES IN RANGE 0.00000E+00	232 TO	232 BY	1
SPECIFIED FORCE FY VALUES= 138.29	FOR SELECTED NODES IN RANGE 0.00000E+00	233 TO	233 BY	1
SPECIFIED FORCE FY VALUES= 138.29	FOR SELECTED NODES IN RANGE 0.00000E+00	234 TO	234 BY	1
SPECIFIED FORCE FY VALUES= 172.59	FOR SELECTED NODES IN RANGE 0.00000E+00	235 TO	235 BY	1
SPECIFIED FORCE FY VALUES= 207.43	FOR SELECTED NODES IN RANGE 0.00000E+00	236 TO	236 BY	1
SPECIFIED FORCE FY VALUES= 207.43	FOR SELECTED NODES IN RANGE 0.00000E+00	237 TO	237 BY	1
SPECIFIED FORCE FY VALUES= 207.43	FOR SELECTED NODES IN RANGE 0.00000E+00	238 TO	238 BY	1
SPECIFIED FORCE FY VALUES= 184.38	FOR SELECTED NODES IN RANGE 0.00000E+00	239 TO	239 BY	1
SPECIFIED FORCE FY VALUES= 161.87	FOR SELECTED NODES IN RANGE 0.00000E+00	240 TO	240 BY	1
SPECIFIED FORCE FY VALUES= 161.87	FOR SELECTED NODES IN RANGE 0.00000E+00	241 TO	241 BY	1
SPECIFIED FORCE FY VALUES= 161.87	FOR SELECTED NODES IN RANGE 0.00000E+00	242 TO	242 BY	1
SPECIFIED FORCE FY VALUES= 161.87	FOR SELECTED NODES IN RANGE 0.00000E+00	243 TO	243 BY	1
SPECIFIED FORCE FY VALUES= 80.936	FOR SELECTED NODES IN RANGE 0.00000E+00	244 TO	244 BY	1
SPECIFIED FORCE FX VALUES= -83.817	FOR SELECTED NODES IN RANGE 0.00000E+00	244 TO	244 BY	1
SPECIFIED FORCE FX VALUES= -167.43	FOR SELECTED NODES IN RANGE 0.00000E+00	245 TO	245 BY	1
SPECIFIED FORCE FX VALUES= -167.43	FOR SELECTED NODES IN RANGE 0.00000E+00	246 TO	246 BY	1
SPECIFIED FORCE FX VALUES= -167.43	FOR SELECTED NODES IN RANGE 0.00000E+00	247 TO	247 BY	1
SPECIFIED FORCE FX VALUES= -167.43	FOR SELECTED NODES IN RANGE 0.00000E+00	248 TO	248 BY	1
SPECIFIED FORCE FX VALUES= -167.43	FOR SELECTED NODES IN RANGE 0.00000E+00	249 TO	249 BY	1

FILENAME : PIT5.OUT DATE : 05-27-94
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SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	250 TO	250 BY	1
VALUES= -167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	251 TO	251 BY	1
VALUES= -167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	252 TO	252 BY	1
VALUES= -167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	253 TO	253 BY	1
VALUES= -167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	254 TO	254 BY	1
VALUES= -167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	255 TO	255 BY	1
VALUES= -167.43	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	256 TO	256 BY	1
VALUES= -83.817	0.00000E+00			

LOAD STEP 2 WRITTEN ON FILE23

C***

KUSE= 1

C*** Load Case 3

C*** Unfactored Heel Jet Load (10000 lb)

DELETE FORCE DEFINITION OF ALL FOR ALL SELECTED NODES

ACEL= 0.00000E+00 0.00000E+00 0.00000E+00

SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	65 TO	65 BY	1
VALUES= -174.00	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	66 TO	66 BY	1
VALUES= -356.50	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	67 TO	67 BY	1
VALUES= -389.00	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	68 TO	68 BY	1
VALUES= -476.50	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	69 TO	69 BY	1
VALUES= -478.50	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	70 TO	70 BY	1
VALUES= -417.00	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	71 TO	71 BY	1
VALUES= -417.00	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	72 TO	72 BY	1
VALUES= -417.00	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	73 TO	73 BY	1
VALUES= -478.50	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	74 TO	74 BY	1
VALUES= -476.50	0.00000E+00			
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	75 TO	75 BY	1
VALUES= -389.00	0.00000E+00			

FILENAME : PIT5.OUT DATE : 05-27-94
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SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 76 TO 76 BY 1
VALUES= -356.50 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 77 TO 77 BY 1
VALUES= -174.00 0.00000E+00

LOAD STEP 3 WRITTEN ON FILE23

C***

*** NOTE ***
NO TITLE DEFINED FOR ANALYSIS

***WARNING *** CP= 32.030 TIME= 10.59383
SOLID MODELING CROSS REFERENCE CHECKING IS CURRENTLY INACTIVE

***WARNING *** CP= 34.880 TIME= 10.59462
ELEMENT 1359. HAS AN ANGLE BETWEEN ADJACENT EDGES OF 140.3
WHICH IS OUTSIDE THE RECOMMENDED RANGE OF 45.0 TO 135.0 DEGREES

***WARNING *** CP= 35.160 TIME= 10.59470
ELEMENT 1436. HAS AN ANGLE BETWEEN ADJACENT EDGES OF 140.3
WHICH IS OUTSIDE THE RECOMMENDED RANGE OF 45.0 TO 135.0 DEGREES

*** NOTE ***
DATA CHECKED - NO ERRORS FOUND

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= TITLE
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 2
 1182 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 1587
 1188 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 2404
 28 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 28
 44 LINE SEG CURRENTLY SELECTED. MAX LINE SEG NUMBER = 44
 17 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 17
MAXIMUM LINEAR PROPERTY NUMBER= 2
MAXIMUM REAL CONSTANT SET NUMBER= 156
ACTIVE COORDINATE SYSTEM= 0 (CARTESIAN)
NUMBER OF IMPOSED DISPLACEMENTS= 172
NUMBER OF NODAL FORCES= 13

ANALYSIS DATA WRITTEN ON FILE27

ENTER FINISH TO LEAVE PREP7

IF YOU WANT TO RUN THIS ANALYSIS, ENTER AFTER PREP7 FINISH -
/CHECK * (OPTIONAL) ENTER ONLY IF CHECK RUN IS DESIRED
/INPUT,27

THEN ENTER FINISH AT LOPT-IMP PROMPT AT END OF ANALYSIS

***** END OF INPUT ENCOUNTERED ON FILE38. FILE38 REWOUND

***** INPUT FILE SWITCHED FROM FILE38 TO FILE 5

TDIS BOUNDARY CONDITION PLOT KEY = 1

VIEW POINT FOR WINDOW 1 1.0000 1.0000 1.0000

VIEW UP DIRECTION FOR WINDOW 1 IS GCS Z AXIS

*** NOTE - DEFAULT DEVICE VGA WILL BE USED.

FILENAME : PITS.OUT DATE : 05-27-94
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PRODUCE NODAL POINT PLOT, IN DSYS= 0

TDIS BOUNDARY CONDITION PLOT KEY = 0

RDIS BOUNDARY CONDITION PLOT KEY = 1

PRODUCE NODAL POINT PLOT, IN DSYS= 0

ESEL FOR LABEL= MAT FROM 1 TO 1 BY 1

412 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRODUCE ELEMENT PLOT IN DSYS = 0

ESEL FOR LABEL= MAT FROM 2 TO 2 BY 1

770 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRODUCE ELEMENT PLOT IN DSYS = 0

*** NOTE ***

FILE16.OLD HAS BEEN DELETED.

*** NOTE ***

FILE16.DAT HAS BEEN RENAMED TO FILE16.OLD

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 175.490

*** NOTE ***

A TOTAL OF 8. WARNINGS AND ERRORS WRITTEN TO FILE19

SYSTEM= 38359-PC/PP-4.4A REVISION= 4.4 A 16
FOR SUPPORT CALL PHONE TWX
CURRENT JOBNAME=FILE

/BOF ENCOUNTERED ON FILE 5

DATA INPUT WRITTEN ON FILE18

***** RUN COMPLETED ***** CP= 176.2600 TIME= 10.6339

FILENAME : PITS.PI DATE : 05-25-94 TIME : 10:13a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Input

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/CORE,,,5B6
/POST1
/OUT,Pit5,po
C*** Stress Specifications
GLOBAL,0
STORE,STRES,DISP,NFORC,RFORC
C***
STRESS,FXc, 63,1
STRESS,FYc, 63,2
STRESS,FXyc,63,3
STRESS,MXc, 63,6
STRESS,MYc, 63,7
STRESS,MXYc,63,8
C***
LCLIM,4
NLINBS,9999

C***
C*** Load Case 1 - Unfactored Gravity Load
C***
C*** Load Case 2 - Unfactored Pressure Load
C***
C*** Load Case 3 - Unfactored Heel Jet Load 10,000 lb
C***

NFILE,Pit5,12 ,1

LCASE,1 $SET, 1, 1      * Read in    Load Case 1
LCASE,2 $SET, 2, 1      * Read in    Load Case 2
LCASE,3 $SET, 3, 1      * Read in    Load Case 3

LCABS,0

C***

/OUT,Pit5a1,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 1.7H
LCFACT,1.4,1.7,0.0,1.,1.,1.,1.,1.,1.,1.
LCADD ,4, 1, 2, 3
LCASE,4
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXyc,MXc,MYc,MXYc
/OUT,Pit5a2,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 1.7H
NSEL , , 1,94,1
ENODE
EUSSEL,REAL,2,3
NFORC
/OUT,Pit5a3,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 1.7H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit5a4,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 1.7H
NALL
PRRFOR

/OUT,Pit5b1,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
LCFACT,1.4,1.7,1.7*20.0,1.,1.,1.,1.,1.,1.,1.
LCADD ,4, 1, 2, 3
LCASE,4
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXyc,MXc,MYc,MXYc
/OUT,Pit5b2,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
NSEL , , 1,94,1
ENODE
EUSSEL,REAL,2,3

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FILENAME : PIT5.PI DATE : 05-25-94 TIME : 10:13a
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NFORC
/OUT,Pit5b3,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit5b4,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
NALL
PRRFOR

/OUT,Pit5c1,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 0.9H
LCFACT,1.4,0.9,0.0,1.,1.,1.,1.,1.,1.,1.
LCADD ,4, 1, 2, 3
LCASE,4
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit5c2,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 0.9H
NSEL , , 1,94,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit5c3,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 0.9H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit5c4,po
C*** Output For Factored Heel Jet Load of      0 lb + 1.4DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit5d1,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
LCFACT,1.4,0.9,1.7*20.0,1.,1.,1.,1.,1.,1.,1.
LCADD ,4, 1, 2, 3
LCASE,4
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit5d2,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
NSEL , , 1,94,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit5d3,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit5d4,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit5e1,po
C*** Output For Factored Heel Jet Load of      0 lb + 0.9DL + 1.7L + 0.9H
LCFACT,0.9,0.9,0.0,1.,1.,1.,1.,1.,1.,1.
LCADD ,4, 1, 2, 3
LCASE,4
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit5e2,po
C*** Output For Factored Heel Jet Load of      0 lb + 0.9DL + 1.7L + 0.9H
NSEL , , 1,94,1
ENODE
EUSEL,REAL,2,3
NFORC

```

FILENAME : PIT5.PI DATE : 05-25-94 TIME : 10:13a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Input

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/OUT,Pit5e3,po
C*** Output For Factored Heel Jet Load of      0 lb + 0.9DL + 1.7L + 0.9H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit5e4,po
C*** Output For Factored Heel Jet Load of      0 lb + 0.9DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit5f1,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
LCFACT,0.9,0.9,1.7*20.0,1.,1.,1.,1.,1.,1.,1.
LCADD ,4, 1, 2, 3
LCASE,4
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit5f2,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
NSEL , , 1,94,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit5f3,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit5f4,po
C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
NALL
PRRFOR

FINISH
/EOF
```

FILENAME : PITS.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 1/25)

PAGE 1

C*** Stress Specifications

USE NODAL COORDINATES FOR DISPLACEMENTS AND FORCES --
USE ELEMENT COORDINATES FOR COMPONENT STRESSES
STORE DISPLACEMENTS
STORE STRESSES
STORE NODAL FORCES
STORE REACTION FORCES

C***

STORE FXC	FOR ELEMENT TYPE STIF 63	FROM ITEM	1
STORE FYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	2
STORE FXYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	3
STORE MXC	FOR ELEMENT TYPE STIF 63	FROM ITEM	6
STORE MYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	7
STORE MXYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	8

C***

MAXIMUM NUMBER OF STORED LOAD SETS SET TO 4
ALL PREVIOUSLY STORED SETS ERASED

NUMBER OF LINES PER PAGE=9999

C***

C*** Load Case 1 - Unfactored Gravity Load

C***

C*** Load Case 2 - Unfactored Pressure Load

C***

C*** Load Case 3 - Unfactored Heel Jet Load 10,000 lb

C***

POST DATA FILE12 NAME=PITS.12

MAXIMUM NUMBER OF STORED LOAD SETS SET TO 4
ALL PREVIOUSLY STORED SETS ERASED

CURRENT LOAD CASE= 1

USE LOAD STEP 1 ITERATION 1 SECTION 1 FOR LOAD CASE 1

GEOMETRY STORED FOR 1188 NODES 1182 ELEMENTS
TITLE= TITLE

DISPLACEMENT STORED FOR 1188 NODES

FILENAME : PITS.PO DATE : 05-25-94 TIME : 10:28a
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***WARNING *** CP= 39.550 TIME= 10.45943
MODEL CONTAINS DIFFERENT MATERIAL TYPES, NODAL STRESS AVERAGING MAY
BE INVALID AMONG DISSIMILAR MATERIALS

***WARNING *** CP= 43.610 TIME= 10.46056
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 43.610 TIME= 10.46056
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 43.670 TIME= 10.46057
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 43.670 TIME= 10.46057
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 43.670 TIME= 10.46057
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 43.670 TIME= 10.46057
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1126 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1182 ELEMENTS

REACTIONS STORED FOR 172 REACTIONS

FOR LOAD STEP= 1 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= TITLE

CURRENT LOAD CASE= 2

USE LOAD STEP 2 ITERATION 1 SECTION 1 FOR LOAD CASE 2

DISPLACEMENT STORED FOR 1188 NODES

***WARNING *** CP= 61.570 TIME= 10.46554
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 61.570 TIME= 10.46554
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 61.570 TIME= 10.46554
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 61.570 TIME= 10.46554
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 61.630 TIME= 10.46556
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 61.630 TIME= 10.46556

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DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1126 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1182 ELEMENTS

REACTIONS STORED FOR 172 REACTIONS

FOR LOAD STEP= 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 2
TITLE= TITLE

CURRENT LOAD CASE= 3

USE LOAD STEP 3 ITERATION 1 SECTION 1 FOR LOAD CASE 3

DISPLACEMENT STORED FOR 1188 NODES

***WARNING *** CP= 67.610 TIME= 10.46722
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 67.610 TIME= 10.46722
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 67.610 TIME= 10.46722
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 67.610 TIME= 10.46722
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 67.670 TIME= 10.46724
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 67.670 TIME= 10.46724
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1126 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1182 ELEMENTS

REACTIONS STORED FOR 172 REACTIONS

FOR LOAD STEP= 3 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 3
TITLE= TITLE

NO ABSOLUTE VALUE FOR LOAD CASE CALCULATIONS

C***

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C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 1.7H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	1.70000
3	1.00000
4	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	1.70000	2	1	1	0.000000E+00
3	1.00000	3	1	1	0.000000E+00

CURRENT LOAD CASE= 4

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4689 MAY 25,1994 CP= 73.710

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 4

ELEM	FXC	FYC	FXYC	MXC	MYC	MYXC
1176	-127.36451	-129.48356	0.52229655	0.82909692E-01	-2208.8188	44.978855
1177	-126.15117	-129.09861	1.5325722	2.5398747	-2173.1349	133.78769
1178	-123.73441	-128.28108	2.4389633	7.1669774	-2101.9863	219.08821
1179	-120.13548	-126.93017	3.1695432	13.346778	-1995.8804	298.33678
1180	-118.70140	-129.95914	-0.68830033E-01	260.97176	-1314.1482	58.700034
1181	-117.70823	-129.50914	-0.23296114	258.62811	-1290.6171	174.83861
1182	-115.74254	-128.56089	-0.47623619	253.44925	-1243.9390	287.10704
1183	-112.84871	-127.01368	-0.84971317	244.40213	-1174.9324	392.63543
1184	-112.79861	-129.30261	-0.54067814	524.09881	-587.63380	67.379024
1185	-112.03340	-128.81035	-1.6352264	516.80941	-575.12626	200.73243
1186	-110.53302	-127.78005	-2.7674669	501.50881	-550.52182	329.77273
1187	-108.36056	-126.11799	-3.9551168	476.69714	-514.66267	451.29231
1188	-109.19641	-127.76777	-0.89494531	781.55154	-4.4452369	71.603426
1189	-108.64423	-127.26628	-2.6805999	769.20281	-1.5701878	213.28593
1190	-107.57557	-126.22314	-4.4504198	743.55057	3.8340317	350.29595
1191	-106.06351	-124.55839	-6.1820706	702.62765	11.079323	479.18723
1192	-107.43012	-125.59263	-1.1444113	1026.5643	457.65582	72.039025
1193	-107.05720	-125.12163	-3.4093686	1009.1533	452.37242	214.52810
1194	-106.34901	-124.14675	-5.5992718	973.16140	441.56900	352.16004
1195	-105.38028	-122.60543	-7.6512906	916.19406	424.79223	481.39797
1196	-107.06433	-122.97840	-1.3104826	1253.5852	818.02849	69.358992
1197	-106.82385	-122.58049	-3.8872121	1231.2549	806.03619	206.48940
1198	-106.38053	-121.75834	-6.3289149	1185.2415	781.93290	338.78293
1199	-105.80613	-120.46523	-8.5360939	1112.7863	745.51191	462.76718
1200	-107.71907	-120.07425	-1.4202974	1458.2317	1093.0541	64.206136
1201	-107.55635	-119.79288	-4.1960969	1431.2712	1075.7306	191.09323
1202	-107.26879	-119.20656	-6.7772023	1375.8575	1041.0652	313.35366
1203	-106.92707	-118.27710	-9.0329060	1288.9439	989.06444	427.72345
1204	-109.08785	-116.96744	-1.5048844	1637.1764	1296.1389	57.182184
1205	-108.94263	-116.84745	-4.4275663	1605.9934	1274.7891	170.12692
1206	-108.69473	-116.58046	-7.0935704	1542.0566	1232.1310	278.79311
1207	-108.41881	-116.12234	-9.3423853	1442.1380	1168.3107	380.25193
1208	-110.94953	-113.67542	-1.5990729	1788.2820	1437.7286	48.858404

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1209	-110.75412	-113.76920	-4.6822920	1753.3348	1413.6129	145.27268
1210	-110.42027	-113.91164	-7.4332101	1681.8868	1365.4121	237.81504
1211	-110.04339	-114.03821	-9.6667120	1570.7076	1293.3775	323.99382
1212	-115.39084	-124.88106	3.6495819	20.038115	-1855.7664	368.67228
1213	-109.56035	-121.88663	3.8022795	25.618939	-1683.2902	426.76365
1214	-102.74397	-117.58808	3.5529764	27.641123	-1481.1829	468.62519
1215	-95.113980	-111.46996	2.8415764	22.457427	-1253.8424	489.38209
1216	-86.979073	-102.79471	1.6561267	4.6436290	-1008.1902	482.93214
1217	-78.904584	-90.515184	0.10139652	-33.971054	-754.86165	441.39031
1218	-109.10175	-124.70560	-1.3991561	229.80512	-1084.9511	488.10111
1219	-104.62015	-121.39970	-2.1567858	207.15042	-976.03466	569.51029
1220	-99.588451	-116.76417	-3.1240459	172.83572	-851.10135	631.93786
1221	-94.295380	-110.34744	-4.2358699	121.77407	-714.14425	669.21593
1222	-89.194573	-101.55772	-5.2888852	46.854718	-570.31196	673.59597
1223	-85.001174	-89.665407	-5.7811557	-61.644871	-425.62982	635.61565
1224	-105.61878	-123.67812	-5.2006718	439.97860	-468.85944	561.57253
1225	-102.46139	-120.25650	-6.4760807	387.87131	-414.92930	656.15912
1226	-99.110032	-115.58649	-7.6952967	315.53583	-355.20895	729.62599
1227	-95.876464	-109.34242	-8.6660615	216.42214	-292.49122	775.35617
1228	-93.183133	-101.16790	-9.0063635	81.901645	-229.82933	785.41922
1229	-91.546681	-90.797230	-8.0090563	-98.826704	-170.24299	750.69411
1230	-104.22188	-122.15365	-7.8308459	643.33655	19.148703	596.01552
1231	-102.21017	-118.85607	-9.3108030	561.26815	26.732519	696.14342
1232	-100.23847	-114.48915	-10.464957	450.46165	32.305055	774.06386
1233	-98.567047	-108.87885	-11.020604	303.12953	34.260721	823.27226
1234	-97.486704	-101.91578	-10.528864	109.43397	31.095163	836.21702
1235	-97.251442	-93.668298	-8.3131599	-142.50019	21.555177	804.28023
1236	-104.26144	-120.41242	-9.4788400	834.52544	401.41358	598.26304
1237	-103.13571	-117.47232	-10.953429	722.94104	370.69975	698.17716
1238	-102.17205	-113.70113	-11.879173	574.54210	331.91475	775.83344
1239	-101.54877	-109.06387	-11.961013	380.53754	284.45344	825.10946
1240	-101.41821	-103.63506	-10.775276	130.06681	227.99113	839.01322
1241	-101.84868	-97.684770	-7.7576374	-189.91638	162.63999	809.57589
1242	-105.20057	-118.64622	-10.390897	1009.6345	696.53374	574.60158
1243	-104.68119	-116.25683	-11.742398	869.90870	634.80807	669.95481
1244	-104.36835	-113.29026	-12.387865	685.94741	560.29898	743.90222
1245	-104.36167	-109.81498	-12.053819	448.14431	473.24575	790.85504
1246	-104.70713	-106.02432	-10.384073	144.78204	374.30119	804.51477
1247	-105.35233	-102.29396	-6.9460985	-238.19386	264.72306	777.81023
1248	-106.62094	-116.96869	-10.825746	1165.8455	919.82653	530.64532
1249	-106.44550	-115.27178	-12.001579	1000.1694	833.62620	618.18199
1250	-106.47859	-113.23212	-12.376103	783.63988	731.02502	685.92525
1251	-106.75972	-110.98462	-11.722877	505.99088	612.98327	728.96116
1252	-107.26051	-108.79010	-9.7697395	154.84873	480.97380	741.76589
1253	-107.85680	-107.07124	-6.2088972	-284.50280	337.16934	718.34356
1254	-108.20931	-115.43722	-11.028946	1301.1693	1083.6706	471.35869
1255	-108.14552	-114.52843	-12.012997	1112.4327	978.85936	548.67752
1256	-108.28038	-113.46850	-12.146870	867.12994	854.91699	608.49548
1257	-108.61027	-112.42674	-11.266504	554.46484	713.41338	646.59190
1258	-109.06050	-111.69691	-9.1881006	161.61389	556.49474	658.33920
1259	-109.46303	-111.71667	-5.7154508	-326.41703	387.02772	638.81743
1260	-109.72704	-114.07960	-11.224984	1414.0155	1197.8236	401.15318
1261	-109.58132	-114.02073	-12.008894	1205.8003	1079.7019	466.48308
1262	-109.62770	-113.94306	-11.928529	936.24041	940.39187	517.16705
1263	-109.83913	-114.02953	-10.885953	594.16977	781.97085	549.74504
1264	-110.11299	-114.57916	-8.7850260	166.47647	607.10396	560.47928
1265	-110.26014	-116.03198	-5.5362812	-361.98167	419.30977	545.45284
1266	-72.033242	-73.149536	-1.3514579	-106.77274	-508.86698	354.85801
1267	-68.847217	-49.544378	-0.98402591	-238.21771	-293.28685	218.80077
1268	-82.752602	-74.086564	-4.5584538	-215.60974	-286.42256	545.09203
1269	-83.406327	-54.844246	0.39143947	-421.96812	-159.99850	394.02762
1270	-91.420811	-78.289760	-4.5442325	-337.62656	-116.80408	661.14338
1271	-92.942918	-64.383409	2.9369026	-643.65146	-73.092765	504.15179
1272	-97.963752	-84.549389	-3.4600207	-466.12610	4.6356059	717.40387
1273	-99.407181	-75.498349	5.0882304	-876.21048	-19.917405	562.41182
1274	-102.74248	-91.778607	-2.2328236	-594.82378	89.176394	727.48341
1275	-103.75684	-86.859442	6.4963720	-1103.3237	9.8356450	581.32434
1276	-106.09966	-99.236204	-1.2661949	-717.60844	146.69875	702.75809
1277	-106.56890	-97.732501	7.1016015	-1314.0090	24.053526	570.36291
1278	-108.30195	-106.43842	-0.72629417	-829.58126	184.76016	652.25162

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1279	-108.21553	-107.69516	6.9495167	-1501.3745	28.462597	536.84508
1280	-109.55007	-113.07606	-0.66038833	-927.27434	208.84494	583.10475
1281	-108.94886	-116.50905	6.1249705	-1661.3243	27.009168	486.48289
1282	-109.98945	-118.96094	-1.0498112	-1008.4648	222.57125	501.11520
1283	-108.95204	-124.03957	4.7354537	-1792.2906	22.635924	423.99071
1284	-113.09386	-110.24568	-1.6923216	1908.1389	1526.2426	39.108165
1285	-112.79266	-110.59370	-4.9340513	1871.9000	1501.8806	116.17827
1286	-112.26924	-111.21506	-7.7714107	1798.1572	1453.0566	189.93103
1287	-111.65100	-111.99260	-10.002296	1684.1706	1379.7432	258.47031
1288	-115.51683	-106.53215	-1.8104552	1998.1282	1567.3426	29.049191
1289	-115.05552	-107.16065	-5.2610660	1962.9473	1545.3655	86.079582
1290	-114.23926	-108.29922	-8.2330117	1891.9080	1501.0085	140.14739
1291	-113.24687	-109.76347	-10.513530	1783.2612	1433.6240	189.94571
1292	-118.32922	-102.21903	-2.0441912	2061.8973	1565.1368	20.433220
1293	-117.62671	-103.19544	-5.9064419	2027.8542	1546.8741	60.037026
1294	-116.39306	-104.95833	-9.1681627	1959.9375	1509.4396	96.311254
1295	-114.86721	-107.20996	-11.586468	1857.7753	1451.2404	128.32733
1296	-121.74939	-96.887571	-2.4549825	2102.1509	1517.5477	14.159112
1297	-120.69905	-98.359526	-7.0534522	2068.3746	1504.6121	40.570513
1298	-118.84886	-100.94848	-10.804591	2002.3681	1476.9424	62.087276
1299	-116.61822	-104.19461	-13.481679	1906.0179	1431.3347	77.882525
1300	-126.16076	-89.849581	-3.1397951	2124.5450	1418.1083	11.650793
1301	-124.60589	-92.050811	-8.9591784	2088.5854	1412.8678	31.589740
1302	-121.88873	-95.944695	-13.555908	2020.5997	1398.8628	43.011108
1303	-118.60925	-100.53556	-16.523797	1926.4489	1370.7090	44.651367
1304	-111.05651	-112.85222	-11.493625	1519.7882	1280.4005	320.73291
1305	-110.63909	-113.67480	-12.167337	1297.6628	1153.3902	374.59773
1306	-110.43201	-114.54667	-11.936327	1009.0719	1002.8746	416.89147
1307	-110.40622	-115.62982	-10.784465	642.11105	831.37112	444.77906
1308	-110.44064	-117.23394	-8.7056018	182.87341	642.04965	455.14341
1309	-110.32610	-119.79104	-5.6998951	-384.39681	438.85540	444.86861
1310	-112.17451	-111.51089	-12.033846	1618.6958	1335.8581	236.89470
1311	-111.28218	-113.32146	-12.666888	1388.7863	1204.6579	279.59871
1312	-110.67113	-115.13940	-12.297817	1087.0238	1046.8488	313.80921
1313	-110.32146	-117.11579	-11.020393	700.00691	865.47834	337.55168
1314	-110.09260	-119.56916	-8.9343703	212.29287	664.31246	348.25335
1315	-109.74034	-122.98121	-6.1295112	-393.09284	447.77870	343.14924
1316	-113.12175	-110.00443	-13.161536	1696.0222	1359.4445	158.50376
1317	-111.51984	-112.97955	-13.689789	1462.4414	1228.8883	187.15466
1318	-110.35241	-115.81206	-13.071149	1153.1291	1068.3306	210.96390
1319	-109.60430	-118.61850	-11.552064	752.51191	881.48866	229.10520
1320	-109.10444	-121.74684	-9.3733465	243.12155	672.85413	239.55504
1321	-108.55069	-125.73536	-6.7421978	-393.57385	447.49631	239.83402
1322	-113.89682	-108.32442	-15.122518	1748.3357	1350.3541	89.778129
1323	-111.29910	-112.75394	-15.427777	1515.2934	1226.0489	100.75916
1324	-109.39463	-116.71322	-14.351444	1204.9469	1067.6417	111.35457
1325	-108.20520	-120.27673	-12.385453	798.20193	879.88632	122.25802
1326	-107.47365	-123.85896	-9.9761296	274.73634	668.22006	131.82255
1327	-106.79977	-128.10264	-7.4535822	-385.86195	438.30235	137.58605
1328	-114.60042	-106.44772	-18.282349	1771.4655	1306.6553	35.865902
1329	-110.47028	-112.83932	-18.153597	1543.0228	1195.3218	24.137021
1330	-107.64806	-118.10131	-16.208621	1239.1928	1044.6166	17.846561
1331	-106.05571	-122.28621	-13.467865	834.82225	860.88305	19.622769
1332	-105.22224	-126.01979	-10.644340	305.45593	651.01792	27.579117
1333	-104.55874	-130.14037	-8.1629447	-371.04264	420.72903	38.668144
1334	-109.74711	-123.89803	-1.7974060	-1070.3596	227.99212	412.57771
1335	-108.38523	-130.09501	2.9562291	-1892.4101	14.227037	355.22079
1336	-108.92479	-127.86338	-2.7935322	-1113.6787	226.59276	322.04510
1337	-107.34360	-134.72300	0.94635866	-1961.9159	6.2673894	283.59781
1338	-107.59052	-131.02059	-3.9682377	-1140.7601	220.23179	230.32720
1339	-105.89727	-138.10772	-1.2316093	-2005.5367	-3.2716602	209.87917
1340	-105.79580	-133.39794	-5.2053363	-1151.7936	208.73961	139.46000
1341	-104.13464	-140.27536	-3.4299132	-2025.8640	-14.209624	136.44080
1342	-103.61654	-135.05598	-6.4016790	-1148.0074	193.00775	50.918371
1343	-102.06767	-141.28493	-5.4994599	-2022.0327	-28.925107	64.819103
1344	-131.94953	-80.751364	4.3416172	-2139.1688	-1267.7544	14.491835
1345	-139.89496	-68.702763	6.3545188	-2162.6670	-1058.3181	27.470194
1346	-152.15895	-50.639766	9.9161047	-2230.8583	-756.00363	59.389326
1347	-170.96354	-22.157020	16.095463	-2407.0325	-315.81049	136.01954
1348	-129.72256	-83.815481	12.402437	-2093.9607	-1268.2800	37.816450

FILENAME : PITSAL.PO DATE : 05-25-94 TIME : 10:28a
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1349	-136.49594	-73.137778	18.400295	-2096.5490	-1061.1888	73.419137
1350	-146.54263	-57.673882	29.146386	-2120.3509	-767.59874	166.12739
1351	-161.37710	-36.161399	47.540956	-2183.6323	-384.74160	375.07422
1352	-125.72636	-89.330881	18.771743	-2009.3093	-1263.9585	45.830017
1353	-130.12080	-81.708600	28.358306	-1968.9305	-1061.0683	93.098986
1354	-134.76125	-72.790606	45.738119	-1893.1200	-791.22937	228.17024
1355	-139.78467	-65.234236	75.125932	-1739.8950	-506.88459	500.93522
1356	-120.78077	-96.403690	22.812898	-1895.2838	-1245.4571	33.478940
1357	-121.39333	-93.400775	34.915915	-1791.3396	-1048.8906	71.101234
1358	-118.49476	-95.289930	55.833385	-1555.9378	-809.20995	199.50614
1359	-100.80681	-114.80345	89.063914	-1102.7493	-614.26975	444.72451
1360	-114.03844	-105.32085	-24.283620	1731.5890	1198.3856	-3.1535606
1361	-107.83579	-114.68956	-22.440441	1514.6507	1110.6675	-49.014359
1362	-104.19381	-121.24512	-18.620572	1230.7822	976.00520	-78.976773
1363	-102.57808	-125.53173	-14.560854	843.41365	804.79047	-88.634681
1364	-101.99999	-128.75526	-11.179978	323.07661	606.40602	-82.135532
1365	-101.59009	-132.10162	-8.8034805	-352.14686	387.62647	-64.862206
1366	-110.39734	-107.66222	-34.731223	1600.9702	1028.9072	-12.964939
1367	-101.82554	-120.63796	-28.424438	1415.7111	978.85271	-115.27689
1368	-98.307795	-127.41860	-20.959030	1176.6287	867.35161	-176.32483
1369	-97.665167	-130.37152	-15.044100	825.94648	716.69294	-197.48694
1370	-97.938591	-132.00052	-11.192917	330.96749	539.29581	-191.35486
1371	-98.111466	-133.81023	-9.1328956	-326.47836	340.57414	-167.78990
1372	-100.01014	-118.38647	-49.830676	1344.9385	835.40272	23.945054
1373	-91.115803	-133.30245	-33.682512	1251.5527	822.66485	-168.50286
1374	-90.508094	-136.70215	-21.192930	1097.3329	734.83390	-260.50086
1375	-92.243047	-135.99355	-13.939534	802.09322	610.51942	-287.96653
1376	-93.934574	-134.97592	-10.219748	341.61528	460.83339	-280.44817
1377	-94.932009	-134.73759	-8.8417520	-291.97298	287.66452	-252.38833
1378	-76.010947	-149.34753	-64.362867	867.92263	661.58463	63.933685
1379	-75.921594	-154.61413	-32.310699	1028.6425	657.10785	-229.57085
1380	-82.326636	-147.47879	-17.131688	1008.3553	591.40296	-328.91176
1381	-87.345086	-141.21683	-10.568097	778.52406	501.52399	-353.57856
1382	-90.628766	-136.99948	-8.0285863	355.35991	384.47303	-345.21443
1383	-92.496761	-134.58713	-7.8229522	-251.52280	238.47467	-316.12888
1384	-100.85645	-136.06945	-7.6293147	-1126.5405	170.75552	-41.896447
1385	-99.516456	-141.07628	-7.6576090	-1989.2365	-37.586855	-13.230134
1386	-97.786486	-136.25610	-8.6683768	-1086.2932	139.98679	-134.30085
1387	-96.851025	-139.52126	-9.6327846	-1934.4896	-58.753837	-93.742966
1388	-95.131008	-135.41797	-9.1904587	-1032.4920	107.40836	-212.72308
1389	-94.671018	-136.79440	-10.908938	-1861.1596	-76.561355	-163.73024
1390	-93.248704	-133.55326	-9.1329386	-970.31447	79.178612	-273.65118
1391	-93.282722	-133.26975	-11.529228	-1777.4966	-86.455528	-222.80855
1392	-48.711643	-196.60088	-57.170944	472.36773	677.24492	-74.692343
1393	-65.814848	-171.18663	-21.088799	885.94230	561.99288	-306.67597
1394	-77.743832	-153.95630	-10.238588	939.34526	500.74694	-370.61736
1395	-84.702582	-143.66981	-6.4460955	742.60533	434.98034	-387.91142
1396	-88.827691	-137.34146	-5.6898956	347.94819	341.19052	-380.08421
1397	-91.212002	-133.43019	-6.6812152	-226.16611	214.19257	-351.99729
1398	-31.682353	-222.04430	-19.189796	397.50065	609.37666	-334.66958
1399	-63.119158	-175.89039	-5.1159387	859.05297	482.68171	-368.42260
1400	-76.620286	-155.02811	-2.1016365	904.34681	442.68370	-391.78157
1401	-83.848837	-143.44116	-1.8955455	713.50186	392.67813	-404.29989
1402	-88.090377	-136.34202	-3.0263490	338.21533	311.78850	-401.41697
1403	-90.625077	-131.78981	-5.1131531	-204.21658	198.93524	-380.59206
1404	-32.887074	-224.19861	24.176744	509.99086	510.41769	-526.70537
1405	-63.770773	-175.25411	10.842686	857.92191	453.14340	-405.07719
1406	-76.578034	-154.04870	5.8900520	891.29790	426.78551	-402.78729
1407	-83.588401	-142.05317	2.7620544	709.06671	381.50746	-416.03119
1408	-87.818471	-134.50672	-0.16317826	349.32680	305.05518	-420.22528
1409	-90.435269	-129.51084	-3.3520031	-174.57421	196.90409	-406.68491
1410	-50.599051	-203.11327	60.951825	712.39708	426.45110	-614.83720
1411	-66.454214	-170.56392	24.576450	873.70096	467.24417	-435.32585
1412	-77.088057	-151.65222	13.087047	888.83221	452.02052	-414.93968
1413	-83.595693	-139.91741	6.9814164	716.86021	404.77654	-429.93309
1414	-87.828899	-132.05233	2.4807381	369.77843	326.05205	-440.06751
1415	-90.622409	-126.61168	-1.7928103	-146.21092	214.38472	-430.12235
1416	-92.311921	-131.30150	-8.6116142	-914.96486	65.572541	-313.97759
1417	-92.786128	-129.92130	-11.494229	-1709.5354	-97.639431	-263.53362
1418	-92.033671	-128.92828	-7.8832577	-870.23127	63.472826	-343.30630

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1419	-92.779552	-126.98580	-11.139292	-1650.0206	-88.691403	-291.34527
1420	-92.070548	-126.11565	-6.9640768	-825.34332	69.447400	-369.64620
1421	-92.983728	-123.84416	-10.606240	-1587.2183	-78.148697	-315.99238
1422	-92.356846	-122.87699	-5.9616140	-780.29463	82.698778	-396.24992
1423	-93.304303	-120.45528	-9.9643522	-1520.6734	-65.374555	-340.48348
1424	-152.21944	-21.575155	-15.793597	-1159.3297	-178.17397	-72.389576
1425	-138.94946	-51.526453	-11.058542	-1039.5712	-434.80946	-47.066540
1426	-127.62360	-71.928546	-7.2960325	-937.18588	-534.63621	-39.027597
1427	-120.16510	-85.827898	-5.0434501	-831.65649	-509.33041	-36.672144
1428	-147.17026	-36.625727	-47.231701	-1168.1997	-187.94367	-224.40690
1429	-133.05169	-60.075797	-31.965411	-1055.7544	-431.51553	-145.50814
1430	-123.85916	-77.042700	-20.986860	-948.58682	-539.93138	-117.27163
1431	-117.56489	-89.163450	-14.363879	-836.55511	-513.61107	-109.80889
1432	-133.14069	-68.381802	-76.421096	-1159.1500	-219.48134	-389.86655
1433	-121.93431	-77.338287	-48.893608	-1075.0138	-435.44266	-251.17418
1434	-116.98386	-86.557068	-31.922336	-966.36746	-549.78442	-195.66180
1435	-112.99265	-94.943602	-21.634450	-843.65735	-521.36915	-182.16517
1436	-100.79950	-121.17853	-92.780393	-1064.8676	-287.60878	-536.77902
1437	-108.19293	-100.93079	-58.253938	-1069.8452	-455.75644	-350.20978
1438	-108.11660	-98.769969	-38.674579	-980.83411	-563.18333	-270.96864
1439	-107.46380	-101.93440	-26.211663	-849.58690	-529.58327	-252.74261
1440	-75.369499	-154.17229	67.080592	914.06737	402.89393	-528.45835
1441	-74.123400	-154.87350	34.849844	925.21036	493.91007	-439.89309
1442	-79.750075	-144.17419	19.726598	888.00624	489.44563	-428.34678
1443	-84.577349	-135.00965	11.552386	713.65797	438.13070	-450.29791
1444	-88.323091	-127.68565	5.6810969	381.96132	352.68231	-468.31806
1445	-91.122624	-122.04245	0.37116713	-114.16364	236.45615	-463.18390
1446	-92.485330	-122.73268	51.877796	994.95778	507.58543	-403.26727
1447	-84.176591	-133.97292	36.120412	950.24417	557.80727	-420.42189
1448	-84.084959	-132.86812	23.723225	864.28014	540.51438	-450.24883
1449	-86.439907	-127.40036	15.462653	682.17916	479.39480	-487.35813
1450	-89.218255	-121.29136	9.0448628	372.61638	386.19089	-512.68115
1451	-91.820667	-115.70579	3.0394495	-84.099420	266.21602	-510.16291
1452	-97.951334	-111.97355	38.187919	945.95955	578.06253	-345.44068
1453	-90.359048	-121.56420	31.800100	897.77516	582.51357	-415.54539
1454	-87.709415	-123.27981	24.339244	804.08536	549.31537	-478.66515
1455	-88.109146	-120.07760	17.744147	632.28906	484.11201	-531.99256
1456	-89.891738	-114.63520	11.825513	353.95597	392.22414	-564.27753
1457	-92.189211	-108.74186	5.7289918	-54.972866	277.44465	-562.69761
1458	-100.15074	-109.61888	27.991150	828.91997	527.92849	-335.92899
1459	-93.692361	-115.76771	26.367505	789.02665	512.16792	-428.21471
1460	-90.188499	-117.04809	22.747691	707.33806	476.91953	-509.88129
1461	-89.158686	-114.19696	18.504564	560.20725	421.08904	-574.67767
1462	-89.878446	-108.56945	13.853586	323.41558	345.34281	-612.22119
1463	-91.673658	-101.67473	8.2887801	-27.598701	251.08627	-610.22221
1464	-92.981688	-118.16090	-4.6051323	-722.62108	104.98519	-430.37335
1465	-93.997276	-115.76439	-9.2265579	-1426.9227	-33.565014	-372.03915
1466	-93.803543	-111.58915	-2.7338715	-648.23705	134.56293	-474.78716
1467	-94.998555	-109.31385	-8.2150589	-1314.3983	-3.1298021	-410.97665
1468	-94.263412	-104.01060	-0.59584205	-565.79738	153.98526	-522.50699
1469	-95.602894	-101.42885	-7.0798743	-1180.5874	27.734765	-446.49059
1470	-93.692623	-95.552858	1.7521926	-473.01132	149.37054	-562.92388
1471	-95.204980	-91.732784	-5.7717709	-1020.5888	45.967001	-472.39521
1472	-115.54056	-96.323797	3.5944158	702.37033	351.41143	-37.678233
1473	-113.57455	-98.582329	10.243593	703.86431	352.80071	-112.94546
1474	-110.13227	-102.40521	15.477933	705.20075	355.16511	-187.63561
1475	-105.94839	-106.53765	18.895995	704.00042	356.40525	-260.94963
1476	-113.60906	-104.14778	2.6257242	545.73156	47.902138	-39.200644
1477	-112.04564	-105.53791	7.5359280	547.77176	50.542822	-117.61738
1478	-109.24184	-107.83740	11.539308	550.54443	55.462256	-195.91571
1479	-105.72647	-110.39720	14.439135	551.70275	62.370500	-273.51766
1480	-114.31360	-109.46769	1.8594888	370.91960	-404.29096	-39.325717
1481	-112.95986	-110.32596	5.3624179	373.67025	-397.37744	-118.02265
1482	-110.47312	-111.74852	8.3069176	378.09216	-383.76858	-196.67840
1483	-107.16730	-113.25707	10.506566	382.21311	-363.08397	-274.65506
1484	-117.50044	-112.88829	1.1894796	181.63831	-1015.3929	-36.744014
1485	-116.24540	-113.43771	3.4347487	185.55053	-1001.6289	-110.21234
1486	-113.86314	-114.30821	5.3180227	192.54535	-974.12030	-183.47907
1487	-110.57737	-115.11891	6.7145576	200.92157	-931.85351	-255.88602
1488	-123.01333	-114.77176	0.57941697	-17.653760	-1799.3757	-30.573065

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1489	-121.85804	-115.11702	1.6362381	-11.796161	-1776.8493	-91.427987
1490	-119.59250	-115.61862	2.4222965	-0.73790077	-1731.1174	-151.34492
1491	-116.28022	-115.92754	2.8569271	13.959956	-1659.8471	-209.46104
1492	-100.76901	-110.95846	21.107969	687.36979	354.19750	-348.03561
1493	-95.316616	-114.02550	21.533666	656.97458	344.35726	-446.28941
1494	-91.486767	-113.89797	20.189578	591.79880	324.25035	-533.36575
1495	-89.456546	-110.38888	17.881224	473.35262	291.83833	-601.38132
1496	-89.090402	-103.99891	14.721499	281.21671	245.87648	-639.52035
1497	-90.127330	-95.669454	10.178228	-7.6507417	185.30789	-635.18827
1498	-101.18245	-112.89404	16.411174	538.40453	71.505354	-360.92760
1499	-96.323220	-113.97814	17.329607	517.24062	81.116263	-456.87972
1500	-92.218793	-112.55508	17.148511	468.69442	88.504641	-541.18866
1501	-89.255530	-108.21804	16.196065	378.69798	90.946445	-606.02497
1502	-87.660090	-100.93826	14.413013	230.44760	86.241153	-640.90767
1503	-87.566477	-91.129606	11.172205	3.8993138	72.421370	-633.41632
1504	-102.89210	-114.47920	12.074778	374.56841	-332.26474	-357.41225
1505	-98.020108	-114.31029	13.034679	364.71758	-292.15150	-445.09014
1506	-93.308834	-112.01285	13.386882	335.59774	-245.77984	-521.40527
1507	-89.116925	-107.04037	13.322660	276.52732	-196.17135	-578.91740
1508	-85.833223	-98.995299	12.739301	174.09591	-146.56555	-607.70765
1509	-83.950273	-87.722273	11.004422	11.379932	-100.55964	-595.66242
1510	-106.28821	-115.52551	7.6436412	200.81344	-870.22780	-327.57557
1511	-101.15864	-114.59660	8.2279604	204.40176	-790.42587	-400.45449
1512	-95.630132	-111.80421	8.5624133	196.46303	-694.77078	-462.48062
1513	-89.933826	-106.51620	8.8061969	169.39932	-586.00667	-507.41398
1514	-84.417134	-96.104494	8.9649956	113.12894	-468.50475	-526.53273
1515	-79.723299	-85.857805	8.6847943	13.827112	-348.43784	-508.56728
1516	-111.93282	-115.78467	2.9107941	23.534127	-1559.4720	-262.75887
1517	-106.62583	-114.39865	2.7408393	42.720330	-1433.0891	-312.66375
1518	-100.36241	-111.35006	2.4446211	56.820980	-1279.4590	-352.16354
1519	-93.130289	-106.04288	2.2234110	61.329354	-1099.6744	-376.80343
1520	-85.040802	-97.747126	2.2519515	49.164681	-898.46846	-380.34386
1521	-76.491062	-85.516929	2.5860367	9.5310107	-685.00367	-354.47021
1522	-91.857701	-87.616145	3.9443943	-382.41221	117.13868	-582.21469
1523	-93.495523	-81.500884	-4.3130466	-857.34816	43.476974	-478.59893
1524	-88.659645	-80.684448	5.7302204	-299.41024	50.508195	-576.22237
1525	-90.304463	-71.283407	-2.7850568	-695.16423	21.397664	-461.47066
1526	-83.772563	-74.444790	6.9764128	-216.92184	-62.295568	-534.67320
1527	-85.124370	-60.568510	-0.94100749	-524.72512	-34.870438	-414.46124
1528	-76.968800	-69.899498	6.7909144	-139.18172	-234.83538	-444.59439
1529	-77.124854	-50.625223	0.97696867	-360.71986	-135.16471	-325.70438
1530	-68.619033	-68.169285	2.9437875	-71.950400	-475.08205	-290.39818
1531	-64.305037	-44.336066	1.5546986	-226.95265	-291.77132	-181.45969

MINIMUMS						
ELEMENT	1347	1404	1436	1347	1176	1502
VALUE	-170.96354	-224.19861	-92.780393	-2407.0325	-2208.8188	-640.90767
MAXIMUMS						
ELEMENT	1398	1424	1359	1300	1288	1240
VALUE	-31.682353	-21.575155	89.063914	2124.5450	1567.3426	839.01322

FILENAME : PITSAL.PO DATE : 05-25-94 TIME : 10:28a
 TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 3/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 1.7H

NSEL FOR LABEL= NODE FROM 1 TO 94 BY 1

94 NODES (OF 1188 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

145 ELEMENTS (OF 1182 DEFINED) SELECTED FROM 94 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

90 ELEMENTS (OF 1182 DEFINED) SELECTED BY EUSE COMMAND.

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TITLE 10.4695 MAY 25,1994 CP= 75.740

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-241.76693	257.19006	583.51213	-102.74051	-5087.4064	-0.34371802E-03
2	-482.88816	-6.3533408	1158.7995	0.81117825E-03	-10096.033	0.11600984E-03
3	-480.86453	-12.431304	1133.8769	0.16353477E-02	-9859.8382	0.23634118E-03
4	-477.19206	-17.950340	1091.5080	0.24848537E-02	-9466.7530	0.36611358E-03
5	-471.38283	-22.611029	1030.4389	0.32713089E-02	-8918.1260	0.51162132E-03
6	-462.67620	-26.090693	948.90922	0.43038384E-02	-8216.9624	0.68107859E-03
7	-449.94414	-28.037332	844.67036	0.52856207E-02	-7369.2624	0.88573779E-03
8	-431.53712	-28.071936	715.06641	0.62078758E-02	-6386.1319	0.11412638E-02
9	-405.03753	-25.809757	557.24934	0.72354464E-02	-5287.2143	0.14690766E-02
10	-366.90348	-20.960713	368.82809	0.82776993E-02	-4107.1102	0.18971324E-02
11	-311.73071	-13.448867	149.00426	0.89301851E-02	-2910.4770	0.24604795E-02
12	-231.60776	-3.8700336	-94.757282	0.87276970E-02	-1797.2297	0.31273082E-02
13	-82.554623	-130.04908	-271.23914	367.92214	-336.12623	0.30473578E-03
14	-10.465246	-309.51062	-132.22782	1598.8357	-0.91721315E-02	-0.22059727E-02
15	-26.621832	-358.81897	123.42055	2657.9904	-0.96817727E-02	-0.18712322E-02
16	-38.671028	-389.59199	359.83976	3830.4926	-0.90674951E-02	-0.15732336E-02
17	-45.933546	-409.54459	564.92165	4996.7380	-0.79921150E-02	-0.13099109E-02
18	-48.763814	-422.18624	737.16596	6088.2357	-0.67578974E-02	-0.10758293E-02
19	-47.719364	-429.56966	878.30289	7066.4855	-0.54999179E-02	-0.86602839E-03
20	-43.403885	-432.99078	991.23207	7910.1953	-0.42700341E-02	-0.67637653E-03
21	-36.381573	-433.34684	1078.9842	8605.7307	-0.30707143E-02	-0.50726455E-03
22	-26.810679	-420.55544	1114.7190	8935.4257	-0.15892821E-02	-0.32617352E-03
23	-16.297144	-406.20337	1128.3680	9086.4438	-0.10619866E-02	-0.20776075E-03
24	-5.8611098	-401.12506	1154.0886	9334.3709	-0.38642409E-03	-0.95861025E-04
25	4.8851352	-394.97240	1165.9308	9474.9842	0.19755395E-03	0.65803456E-07
26	15.323643	-387.95313	1165.3707	9533.2088	0.59651972E-03	0.10414653E-03
27	29.965421	-432.84100	1315.9110	10765.380	-0.47839593E-03	0.17625604E-03
28	45.697238	-474.68908	1447.6971	11827.756	0.30489505E-02	0.37389384E-03
29	55.868249	-464.15817	1402.9128	11479.590	0.45088820E-02	0.42004860E-02
30	61.881276	-456.51773	1353.8011	10999.584	0.55639057E-02	0.37100751E-03
31	53.409901	-378.01501	1093.0401	8790.4005	0.66985817E-02	0.19589437E-03
32	42.461259	-302.14224	850.82874	6866.6044	0.34500417E-02	0.14718456E-03
33	41.315064	-302.80140	833.46983	6607.3549	0.28431044E-02	0.16983390E-03
34	39.831750	-303.90186	816.65240	6401.0843	0.22717946E-02	0.20285435E-03
35	47.406984	-381.57237	994.98647	7616.4684	0.66214377E-03	0.27020338E-03
36	54.475079	-462.54061	1153.1612	8526.1290	0.37458903E-02	0.36669964E-03
37	52.082787	-466.90049	1086.9619	7856.2284	0.53583012E-02	0.50434267E-03
38	49.848023	-467.95951	986.09444	6989.3321	0.74807264E-02	0.77148477E-03
39	42.190093	-412.94599	757.72805	5313.6695	0.97347957E-02	0.96760265E-03

FILENAME : PIT5A2.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 3/25)

PAGE 2

40	33.814570	-352.56657	529.04738	3921.8196	0.83562878E-02	0.11096368E-02
41	28.838564	-337.50323	369.60801	3081.9424	0.91719214E-02	0.14483512E-02
42	20.744403	-312.99782	176.52837	2231.1115	0.96649944E-02	0.17740378E-02
43	8.8724139	-272.07195	-39.577307	1450.1117	0.90559182E-02	0.20904374E-02
44	71.690086	-114.36768	-162.12524	406.46487	402.04412	-0.28264510E-03
45	210.78916	-1.8458798	9.1804947	0.86782121E-02	1801.6248	-0.30598120E-02
46	290.60228	-6.6539277	243.12342	0.85369658E-02	2775.9818	-0.25062551E-02
47	344.92727	-8.4709332	446.37096	0.75555887E-02	3804.2823	-0.20085183E-02
48	382.19883	-7.8250560	613.36746	0.63286931E-02	4783.4979	-0.15853082E-02
49	406.99163	-5.5302640	745.83402	0.51037637E-02	5664.6919	-0.12440962E-02
50	422.51714	-2.4870044	847.63710	0.39829435E-02	6423.2934	-0.96644761E-03
51	431.19137	0.42023343	923.47898	0.30151709E-02	7049.9170	-0.73074881E-03
52	434.66699	2.5688912	978.52363	0.23018438E-02	7539.5357	-0.51051147E-03
53	435.13689	3.7458873	1017.5391	0.15581572E-02	7917.8447	-0.36691359E-03
54	434.18147	3.5353008	1042.2507	0.95841626E-03	8177.5899	-0.23996357E-03
55	432.97733	2.1207286	1055.7578	0.45464770E-03	8329.3836	-0.11904984E-03
56	216.23298	236.85021	530.02276	-111.65594	4189.5799	0.38021748E-03
57	-0.53148597E-11	457.28833	-0.34764872E-06	261.40068	0.20652806E-07	0.68829522E-03
58	0.48601123E-11	440.73154	-0.32206344E-07	1015.7610	-0.27900569E-07	0.55288647E-03
59	-0.81001872E-11	433.36754	-0.20923608E-07	1720.6750	0.99600925E-07	0.43602772E-03
60	-0.11652901E-11	435.83765	-0.82753502E-07	2359.0811	-0.17418813E-07	0.33955838E-03
61	-0.12079227E-10	416.19237	0.21680648E-07	2699.8161	-0.79139568E-07	0.25144639E-03
62	-0.51301186E-11	404.25157	-0.23071058E-06	2861.4390	-0.15814271E-06	0.18820764E-03
63	-0.15205615E-11	425.56433	0.19993819E-06	3176.2611	0.38547228E-07	0.15679520E-03
64	-0.63948846E-12	477.58302	0.31685232E-07	3486.9292	-0.12512032E-07	0.13433098E-03
65	0.20490831E-12	253.55487	174.00000	2100.8670	0.91816614E-08	0.62636422E-04
66	-0.67501560E-12	0.45474735E-12	356.50000	0.17655111E-07	-0.61975747E-07	-0.94867690E-19
67	-0.43485215E-11	-0.71054274E-12	389.00000	0.59641934E-07	0.21332062E-06	0.50821977E-18
68	0.27569058E-11	0.17905677E-11	476.50000	0.31444415E-07	0.22249168E-07	0.59631119E-18
69	0.94075858E-11	0.19923618E-10	478.50000	-0.63655534E-08	0.14758979E-08	0.47582923E-16
70	0.33537617E-10	0.37033487E-10	417.00000	0.14657644E-06	0.85478860E-08	0.38814438E-16
71	-0.80149221E-11	-0.19902302E-10	417.00000	-0.11327074E-07	-0.88403340E-07	0.12069881E-15
72	0.12903456E-10	0.26361135E-10	417.00000	-0.10876212E-06	-0.11376733E-06	0.12626212E-15
73	-0.11368684E-12	0.50306426E-11	478.50000	0.11532541E-06	0.82671477E-07	0.42141583E-16
74	-0.22737368E-12	0.17053026E-11	476.50000	0.83893156E-07	0.15324531E-07	-0.35643146E-17
75	0.17053026E-11	-0.55138116E-11	389.00000	-0.15582827E-07	0.30267313E-06	0.12569969E-17
76	0.29842795E-12	-0.11368684E-12	356.50000	-0.17190359E-07	0.12837887E-07	0.63696878E-18
77	-0.20913826E-13	289.19458	174.00000	4428.3350	-0.13506848E-07	-0.15308759E-04
78	0.22666313E-11	528.18969	0.14060117E-06	7451.9511	-0.12537055E-06	-0.31460618E-04
79	0.18474111E-11	476.29101	-0.29712774E-06	7114.7492	0.41380872E-07	-0.32838413E-04
80	0.19895197E-12	443.04913	-0.21493908E-06	7001.3108	0.51586085E-07	-0.33642461E-04
81	0.11652901E-11	455.56756	-0.26141731E-06	7555.9688	0.82995939E-07	-0.37371468E-04
82	0.16200374E-11	471.56531	0.11218134E-06	8076.7482	0.12966666E-06	-0.43128520E-04
83	0.22737368E-12	456.50463	-0.28978633E-07	7969.8048	-0.94612460E-07	-0.49173199E-04
84	-0.37800874E-11	444.51980	0.62038389E-07	7779.5345	-0.75381649E-07	-0.58807533E-04
85	0.79296569E-11	434.45019	-0.99618532E-07	7492.0463	0.55485089E-07	-0.73623076E-04
86	0.11510792E-10	436.92589	-0.12796229E-06	7284.9989	0.53044914E-07	-0.96893456E-04
87	-0.76738615E-11	440.10666	-0.16858166E-07	6922.3832	-0.10172471E-06	-0.12658020E-03
88	0.39506176E-11	433.57005	-0.18048107E-06	6253.9835	-0.50715698E-07	-0.16268911E-03
89	-0.85833562E-11	429.47882	0.15139182E-06	5475.3208	0.81936605E-07	-0.21023466E-03
90	0.29274361E-11	428.88481	-0.14097475E-06	4598.0262	0.54855718E-07	-0.27021155E-03
91	0.18133051E-10	433.15873	0.41114561E-07	3637.4340	-0.85428951E-07	-0.34310320E-03
92	-0.45474735E-12	443.92841	0.12811984E-06	2613.4736	0.33896583E-07	-0.42866748E-03
93	0.32372327E-10	462.98908	-0.73864271E-07	1550.9474	0.72645889E-09	-0.52575265E-03
94	-0.20881430E-09	492.18242	-0.77959953E-07	479.60949	-0.57478246E-07	-0.63220291E-03

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = -0.4207152E-08
FY = 0.4188507E-09
FZ = 46965.80
MX = -1097306.
MY = -3049014.
MZ = -0.3202562E-06
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PITS5A3.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 1 *DL + 1.7L + 1.7H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

404 NODES (OF 1188 DEFINED) SELECTED FROM 356 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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TITLE 10.4697 MAY 25,1994 CP= 76.400

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.46992810	0.00000000E+00	0.76995603E-03	0.00000000E+00
2	-0.28577067E-06	0.87647371E-05	-0.46993010	0.10701245E-05	0.77011749E-03	-0.15380732E-06
3	-0.11421434E-05	0.17431346E-04	-0.46993610	0.21345361E-05	0.77059687E-03	-0.307077704E-06
4	-0.25661968E-05	0.25902604E-04	-0.46994605	0.31868288E-05	0.77137898E-03	-0.45921031E-06
5	-0.45525358E-05	0.34083174E-04	-0.46995990	0.42190910E-05	0.77243780E-03	-0.60937184E-06
6	-0.70919944E-05	0.41880841E-04	-0.46997756	0.52208584E-05	0.77373548E-03	-0.75622680E-06
7	-0.10169071E-04	0.49208312E-04	-0.46999889	0.61776641E-05	0.77522082E-03	-0.89748503E-06
8	-0.13756994E-04	0.55986211E-04	-0.47002367	0.70689583E-05	0.77682736E-03	-0.10290225E-05
9	-0.17808135E-04	0.62148383E-04	-0.47005163	0.78650940E-05	0.77847080E-03	-0.11431486E-05
10	-0.22235119E-04	0.67652343E-04	-0.47008231	0.85229976E-05	0.78004579E-03	-0.12251663E-05
11	-0.26873137E-04	0.72497053E-04	-0.47011510	0.89793665E-05	0.78142204E-03	-0.12461547E-05
12	-0.31396806E-04	0.76772838E-04	-0.47014907	0.91279088E-05	0.78243802E-03	-0.11415132E-05
13	-0.35098419E-04	0.80857928E-04	-0.47018273	0.87246035E-05	0.78292911E-03	-0.75049049E-06
14	-0.37232736E-04	0.78952063E-04	-0.47331312	0.94089568E-05	0.78231669E-03	-0.24854432E-06
15	-0.39851198E-04	0.78623606E-04	-0.47644223	0.10799606E-04	0.78223305E-03	0.60249426E-07
16	-0.43414912E-04	0.79240286E-04	-0.47957176	0.12680793E-04	0.78251371E-03	0.24132691E-06
17	-0.48052683E-04	0.80389489E-04	-0.48270296	0.14846680E-04	0.78305733E-03	0.33632166E-06
18	-0.53769028E-04	0.81787829E-04	-0.48583671	0.17136122E-04	0.78378817E-03	0.37120631E-06
19	-0.60505451E-04	0.83235571E-04	-0.48897365	0.19422588E-04	0.78465037E-03	0.36350358E-06
20	-0.68168914E-04	0.84591150E-04	-0.49211422	0.21607745E-04	0.78560335E-03	0.32583736E-06
21	-0.76648236E-04	0.85756442E-04	-0.49525872	0.23616361E-04	0.78661713E-03	0.26806161E-06
22	-0.85821543E-04	0.86666415E-04	-0.49840734	0.25393343E-04	0.78767401E-03	0.19631108E-06
23	-0.95064737E-04	0.87257418E-04	-0.50140245	0.26829699E-04	0.78868648E-03	0.12101287E-06
24	-0.10470935E-03	0.87558799E-04	-0.50440141	0.27996333E-04	0.78970346E-03	0.43230917E-07
25	-0.11464392E-03	0.87572034E-04	-0.50740421	0.28881334E-04	0.79070635E-03	-0.32439728E-07
26	-0.12475784E-03	0.87307498E-04	-0.51041076	0.29480479E-04	0.79168205E-03	-0.10539807E-06
27	-0.13494387E-03	0.86783747E-04	-0.51342091	0.29791031E-04	0.79259072E-03	-0.16725260E-06
28	-0.14795490E-03	0.85844676E-04	-0.51728759	0.29793277E-04	0.79372593E-03	-0.21861040E-06
29	-0.16074700E-03	0.84734074E-04	-0.52115941	0.29388184E-04	0.79472181E-03	-0.24327251E-06
30	-0.17318693E-03	0.83569752E-04	-0.52503578	0.28613789E-04	0.79559668E-03	-0.24080020E-06
31	-0.18519935E-03	0.82481145E-04	-0.52891617	0.27527556E-04	0.79639782E-03	-0.21944651E-06
32	-0.19295003E-03	0.81807850E-04	-0.53150516	0.26652453E-04	0.79684924E-03	-0.20133808E-06
33	-0.20048453E-03	0.81175698E-04	-0.53409569	0.25655928E-04	0.79732602E-03	-0.19015975E-06
34	-0.20779653E-03	0.80581337E-04	-0.53668777	0.24557653E-04	0.79780989E-03	-0.18096705E-06
35	-0.21487227E-03	0.80014593E-04	-0.53928143	0.23354641E-04	0.79828839E-03	-0.16917249E-06
36	-0.22501417E-03	0.79244415E-04	-0.54317506	0.21390723E-04	0.79912583E-03	-0.16617466E-06
37	-0.23451264E-03	0.78475048E-04	-0.54707283	0.19252572E-04	0.80001722E-03	-0.17539064E-06
38	-0.24320489E-03	0.77632957E-04	-0.55097511	0.16968929E-04	0.80097783E-03	-0.19402965E-06
39	-0.25087122E-03	0.76731215E-04	-0.55488208	0.14611590E-04	0.80194513E-03	-0.20012297E-06
40	-0.25597047E-03	0.76053776E-04	-0.55793071	0.12796989E-04	0.80262569E-03	-0.16231317E-06
41	-0.26015792E-03	0.75594714E-04	-0.56098173	0.11089256E-04	0.80318828E-03	-0.74128230E-07
42	-0.26335532E-03	0.75627908E-04	-0.56403447	0.96102229E-05	0.80350783E-03	0.10676948E-06
43	-0.26559361E-03	0.76580006E-04	-0.56708773	0.85171714E-05	0.80344663E-03	0.42426344E-06
44	-0.26725151E-03	0.79069964E-04	-0.57012977	0.79734484E-05	0.80281540E-03	0.92917675E-06

FILENAME : PIT5A3.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

45	-0.27164332E-03	0.75201260E-04	-0.57010883	0.84139256E-05	0.80321198E-03	0.13330393E-05
46	-0.27690193E-03	0.71020297E-04	-0.57007760	0.82202106E-05	0.80403193E-03	0.14441293E-05
47	-0.28228006E-03	0.66170618E-04	-0.57004780	0.76852227E-05	0.80513261E-03	0.14179294E-05
48	-0.28741032E-03	0.60628940E-04	-0.57002042	0.69497666E-05	0.80637370E-03	0.13218666E-05
49	-0.29210404E-03	0.54451150E-04	-0.56999603	0.61044482E-05	0.80764953E-03	0.11896052E-05
50	-0.29626387E-03	0.47716921E-04	-0.56997491	0.52094773E-05	0.80887794E-03	0.10385507E-05
51	-0.29983901E-03	0.40510072E-04	-0.56995718	0.43052692E-05	0.80999696E-03	0.87749252E-06
52	-0.30280171E-03	0.32909422E-04	-0.56994282	0.34202233E-05	0.81096031E-03	0.71081844E-06
53	-0.30513464E-03	0.24983619E-04	-0.56993175	0.25353293E-05	0.81174088E-03	0.53926329E-06
54	-0.30681800E-03	0.16800144E-04	-0.56992393	0.16725777E-05	0.81231234E-03	0.36266936E-06
55	-0.30783575E-03	0.84437348E-05	-0.56991929	0.83040042E-06	0.81266053E-03	0.18235372E-06
56	-0.30817579E-03	0.00000000E+00	-0.56991774	0.00000000E+00	0.81277740E-03	0.00000000E+00
57	-0.30061503E-03	0.00000000E+00	-0.56681464	0.00000000E+00	0.81983668E-03	0.00000000E+00
58	-0.29314132E-03	0.00000000E+00	-0.56369060	0.00000000E+00	0.82393148E-03	0.00000000E+00
59	-0.28590505E-03	0.00000000E+00	-0.56055557	0.00000000E+00	0.82573570E-03	0.00000000E+00
60	-0.27908849E-03	0.00000000E+00	-0.55741705	0.00000000E+00	0.82586651E-03	0.00000000E+00
61	-0.27292687E-03	0.00000000E+00	-0.55428030	0.00000000E+00	0.82489924E-03	0.00000000E+00
62	-0.26843922E-03	0.00000000E+00	-0.55160138	0.00000000E+00	0.82361218E-03	0.00000000E+00
63	-0.26499152E-03	0.00000000E+00	-0.54892679	0.00000000E+00	0.82229339E-03	0.00000000E+00
64	-0.26308717E-03	0.00000000E+00	-0.54625598	0.00000000E+00	0.82135024E-03	0.00000000E+00
65	-0.26341406E-03	0.00000000E+00	-0.54358691	0.00000000E+00	0.82134040E-03	0.00000000E+00
66	-0.26152241E-03	0.92405489E-05	-0.54333901	0.35966270E-05	0.82108858E-03	0.41128695E-07
67	-0.25556610E-03	0.18621564E-04	-0.54255516	0.74802166E-05	0.82028988E-03	0.76567307E-07
68	-0.24483639E-03	0.28491438E-04	-0.54108015	0.11958048E-04	0.81879093E-03	0.98870350E-07
69	-0.22575393E-03	0.37951797E-04	-0.53835387	0.17348910E-04	0.81628993E-03	0.94059627E-07
70	-0.20844042E-03	0.43455408E-04	-0.53582256	0.21213272E-04	0.81423785E-03	0.49620609E-07
71	-0.19016660E-03	0.45887249E-04	-0.53309624	0.24006579E-04	0.81210421E-03	0.15892032E-07
72	-0.17207093E-03	0.45152556E-04	-0.53035644	0.25340913E-04	0.80979202E-03	-0.10662139E-07
73	-0.15533362E-03	0.40873520E-04	-0.52778865	0.24652791E-04	0.80728407E-03	-0.31101562E-07
74	-0.13734736E-03	0.31826894E-04	-0.52499767	0.20306048E-04	0.80380740E-03	-0.28380292E-07
75	-0.12770330E-03	0.21255222E-04	-0.52347723	0.14357063E-04	0.80131140E-03	-0.20093292E-07
76	-0.12244153E-03	0.10656631E-04	-0.52266658	0.73986871E-05	0.79975637E-03	-0.10283028E-07
77	-0.12078947E-03	0.00000000E+00	-0.52240983	0.00000000E+00	0.79923203E-03	0.00000000E+00
78	-0.12126215E-03	0.00000000E+00	-0.51981148	0.00000000E+00	0.79946798E-03	0.00000000E+00
79	-0.11952001E-03	0.00000000E+00	-0.51721519	0.00000000E+00	0.79807562E-03	0.00000000E+00
80	-0.11639750E-03	0.00000000E+00	-0.51462522	0.00000000E+00	0.79562513E-03	0.00000000E+00
81	-0.11236254E-03	0.00000000E+00	-0.51204444	0.00000000E+00	0.79245602E-03	0.00000000E+00
82	-0.10683416E-03	0.00000000E+00	-0.50904216	0.00000000E+00	0.78814541E-03	0.00000000E+00
83	-0.10068602E-03	0.00000000E+00	-0.50605510	0.00000000E+00	0.78342265E-03	0.00000000E+00
84	-0.94069185E-04	0.00000000E+00	-0.50308746	0.00000000E+00	0.77848338E-03	0.00000000E+00
85	-0.87073045E-04	0.00000000E+00	-0.50013874	0.00000000E+00	0.77349344E-03	0.00000000E+00
86	-0.79750950E-04	0.00000000E+00	-0.49720884	0.00000000E+00	0.76860848E-03	0.00000000E+00
87	-0.71733051E-04	0.00000000E+00	-0.49414429	0.00000000E+00	0.76376048E-03	0.00000000E+00
88	-0.63415272E-04	0.00000000E+00	-0.49109822	0.00000000E+00	0.75940575E-03	0.00000000E+00
89	-0.54820394E-04	0.00000000E+00	-0.48806821	0.00000000E+00	0.75578219E-03	0.00000000E+00
90	-0.45975188E-04	0.00000000E+00	-0.48505078	0.00000000E+00	0.75317221E-03	0.00000000E+00
91	-0.36917353E-04	0.00000000E+00	-0.48204121	0.00000000E+00	0.75191571E-03	0.00000000E+00
92	-0.27701580E-04	0.00000000E+00	-0.47903329	0.00000000E+00	0.75242301E-03	0.00000000E+00
93	-0.18404471E-04	0.00000000E+00	-0.47601902	0.00000000E+00	0.75518787E-03	0.00000000E+00
94	-0.91278662E-05	0.00000000E+00	-0.47298821	0.00000000E+00	0.76079994E-03	0.00000000E+00
2006	-0.82530888E-04	0.29328144E-04	-0.49739393	0.23965428E-04	0.77165964E-03	-0.63379394E-07
2007	-0.13512765E-04	0.31060636E-04	-0.47303240	0.58067554E-05	0.76444183E-03	-0.50639811E-06
2008	-0.22555581E-04	0.29034907E-04	-0.47607948	0.79030814E-05	0.75960799E-03	-0.41079022E-06
2009	-0.31569383E-04	0.27833718E-04	-0.47911243	0.10314591E-04	0.75728227E-03	-0.32560319E-06
2010	-0.40478223E-04	0.27280980E-04	-0.48214019	0.12875264E-04	0.75692452E-03	-0.25258235E-06
2011	-0.49236651E-04	0.27212106E-04	-0.48516970	0.15447211E-04	0.75809099E-03	-0.19229358E-06
2012	-0.57822506E-04	0.27484140E-04	-0.48820631	0.17918935E-04	0.76041861E-03	-0.14438064E-06
2013	-0.66229720E-04	0.27981028E-04	-0.49125407	0.20202897E-04	0.76361077E-03	-0.10785398E-06
2014	-0.74462371E-04	0.28615194E-04	-0.49431591	0.22232330E-04	0.76742461E-03	-0.81353275E-07
2016	-0.79945362E-04	0.73762032E-05	-0.49722071	0.63190586E-05	0.76880598E-03	-0.20341128E-07
2017	-0.80511356E-04	0.14731414E-04	-0.49725609	0.12510631E-04	0.76939289E-03	-0.38888805E-07
2018	-0.81398978E-04	0.22050535E-04	-0.49731424	0.18441363E-04	0.77035277E-03	-0.53843478E-07
2027	-0.94057416E-05	0.79649190E-05	-0.47299101	0.14953903E-05	0.76103438E-03	-0.13031283E-06
2028	-0.10236458E-04	0.15848863E-04	-0.47299938	0.29740776E-05	0.76173239E-03	-0.25925578E-06
2029	-0.11610944E-04	0.23572597E-04	-0.47301324	0.44180863E-05	0.76287765E-03	-0.38527706E-06
2030	-0.18670424E-04	0.74110082E-05	-0.47602287	0.20508577E-05	0.75547177E-03	-0.10815115E-06
2031	-0.19463298E-04	0.14759524E-04	-0.47603436	0.40729513E-05	0.75631753E-03	-0.21426403E-06
2032	-0.20767608E-04	0.21985637E-04	-0.47605332	0.60354299E-05	0.75770689E-03	-0.31606974E-06
2033	-0.27952443E-04	0.70653237E-05	-0.47903834	0.26887126E-05	0.75273514E-03	-0.87976336E-07
2034	-0.28698001E-04	0.14085986E-04	-0.47905341	0.53352362E-05	0.75366498E-03	-0.17346465E-06

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TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

2035	-0.29916506E-04	0.21020463E-04	-0.47907824	0.78943573E-05	0.75519238E-03	-0.25374522E-06
2036	-0.37151384E-04	0.68883938E-05	-0.48204753	0.33666829E-05	0.75223770E-03	-0.70236247E-07
2037	-0.37844562E-04	0.13747526E-04	-0.48206639	0.66766207E-05	0.75319671E-03	-0.13775845E-06
2038	-0.38969495E-04	0.20551466E-04	-0.48209747	0.98691038E-05	0.75477134E-03	-0.19965146E-06
2039	-0.46192470E-04	0.68421397E-05	-0.48505838	0.40488427E-05	0.75348873E-03	-0.55163099E-07
2040	-0.46833779E-04	0.13666693E-04	-0.48508106	0.60257811E-05	0.75443116E-03	-0.10758298E-06
2041	-0.47866976E-04	0.20459339E-04	-0.48511841	0.11854095E-04	0.75597774E-03	-0.15436253E-06
2042	-0.55023071E-04	0.68924756E-05	-0.48807705	0.47056584E-05	0.75608083E-03	-0.42796648E-07
2043	-0.55619167E-04	0.13774517E-04	-0.48810340	0.93242806E-05	0.75696977E-03	-0.82973616E-07
2044	-0.56572652E-04	0.20638869E-04	-0.48814678	0.13763312E-04	0.75842781E-03	-0.11780891E-06
2045	-0.63607649E-04	0.70111333E-05	-0.49110820	0.53137164E-05	0.75967688E-03	-0.33025307E-07
2046	-0.64171565E-04	0.14014021E-04	-0.49113796	0.10525874E-04	0.76048368E-03	-0.63657888E-07
2047	-0.65067430E-04	0.21003661E-04	-0.49118692	0.15528903E-04	0.76180624E-03	-0.89449555E-07
2048	-0.71921766E-04	0.71768468E-05	-0.49415529	0.58551033E-05	0.76399706E-03	-0.25632900E-07
2049	-0.72473108E-04	0.14342220E-04	-0.49418807	0.11595159E-04	0.76470074E-03	-0.49159157E-07
2050	-0.73343555E-04	0.21488627E-04	-0.49424199	0.17098924E-04	0.76585337E-03	-0.68448566E-07
2051	-0.87926800E-04	0.72606162E-04	-0.49816658	0.36743344E-04	0.78390954E-03	0.68740503E-07
2052	-0.32830852E-04	0.68330632E-04	-0.47323528	0.10893414E-04	0.77886668E-03	-0.79982108E-06
2053	-0.38646665E-04	0.66489881E-04	-0.47634766	0.13732455E-04	0.77748351E-03	-0.47054552E-06
2054	-0.44547121E-04	0.66116822E-04	-0.47945645	0.17123814E-04	0.77702419E-03	-0.23905458E-06
2055	-0.50717005E-04	0.66643736E-04	-0.48256486	0.20777358E-04	0.77726262E-03	-0.83253505E-07
2056	-0.57271740E-04	0.67681770E-04	-0.48567531	0.24466304E-04	0.77801877E-03	0.14739421E-07
2057	-0.64268391E-04	0.68959816E-04	-0.48878959	0.28018066E-04	0.77915500E-03	0.68949781E-07
2058	-0.71721947E-04	0.70287606E-04	-0.49190898	0.31304515E-04	0.78056650E-03	0.90418828E-07
2059	-0.79618817E-04	0.71532807E-04	-0.49503443	0.34232612E-04	0.78217258E-03	0.87983897E-07
2060	-0.83805166E-04	0.36567976E-04	-0.49749332	0.28912489E-04	0.77327575E-03	-0.65880782E-07
2061	-0.85107703E-04	0.43785649E-04	-0.49760990	0.33091460E-04	0.77515372E-03	-0.60145068E-07
2062	-0.86312196E-04	0.50995506E-04	-0.49774037	0.36269360E-04	0.77723519E-03	-0.44743975E-07
2063	-0.87281418E-04	0.58207256E-04	-0.49788047	0.38168131E-04	0.77944845E-03	-0.18517294E-07
2064	-0.87869808E-04	0.65418342E-04	-0.49802479	0.38456851E-04	0.78170667E-03	0.19273710E-07
2065	-0.15915640E-04	0.38243855E-04	-0.47305663	0.71150189E-05	0.76638283E-03	-0.61984682E-06
2066	-0.18778845E-04	0.45063234E-04	-0.47308555	0.83111682E-05	0.76864214E-03	-0.72147240E-06
2067	-0.22039036E-04	0.51475664E-04	-0.47311868	0.93537972E-05	0.77114109E-03	-0.80476494E-06
2068	-0.25595670E-04	0.57463502E-04	-0.47315535	0.10187469E-04	0.77377578E-03	-0.85918307E-06
2069	-0.29284698E-04	0.63050427E-04	-0.47319463	0.10736220E-04	0.77641004E-03	-0.86728924E-06
2070	-0.24783648E-04	0.35861923E-04	-0.47611239	0.96336522E-05	0.76197316E-03	-0.49475930E-06
2071	-0.27386264E-04	0.42435044E-04	-0.47615146	0.11174487E-04	0.76473572E-03	-0.56287593E-06
2072	-0.30265476E-04	0.48743031E-04	-0.47619584	0.12458129E-04	0.76780555E-03	-0.60780125E-06
2073	-0.33273533E-04	0.54804427E-04	-0.47624442	0.13396410E-04	0.77106352E-03	-0.61880782E-06
2074	-0.36184511E-04	0.60680519E-04	-0.47629570	0.13872620E-04	0.77435497E-03	-0.58028875E-06
2075	-0.33597178E-04	0.34501008E-04	-0.47915535	0.12534470E-04	0.75988235E-03	-0.38500217E-06
2076	-0.35912702E-04	0.41012383E-04	-0.47920609	0.14478082E-04	0.76291987E-03	-0.42666697E-06
2077	-0.38390065E-04	0.47378042E-04	-0.47926347	0.16049568E-04	0.76629747E-03	-0.44356492E-06
2078	-0.40847888E-04	0.53634293E-04	-0.47932585	0.17126318E-04	0.76988832E-03	-0.42633827E-06
2079	-0.43024477E-04	0.59848458E-04	-0.47939111	0.17551011E-04	0.77353093E-03	-0.36292625E-06
2080	-0.42298285E-04	0.33926935E-04	-0.48219371	0.15613418E-04	0.75960138E-03	-0.29255689E-06
2081	-0.44326745E-04	0.40493678E-04	-0.48225685	0.17983716E-04	0.76272639E-03	-0.31465104E-06
2082	-0.46418127E-04	0.47002070E-04	-0.48232801	0.19861880E-04	0.76619976E-03	-0.31274930E-06
2083	-0.48375411E-04	0.53491250E-04	-0.48240505	0.21091967E-04	0.76989347E-03	-0.27938595E-06
2084	-0.49928195E-04	0.60016955E-04	-0.48248520	0.21478329E-04	0.77364700E-03	-0.20590126E-06
2085	-0.50860963E-04	0.33926008E-04	-0.48523388	0.18703257E-04	0.76071589E-03	-0.21769840E-06
2086	-0.52626561E-04	0.40613000E-04	-0.48530945	0.21499016E-04	0.76377746E-03	-0.22628611E-06
2087	-0.54381248E-04	0.47296660E-04	-0.48539442	0.23683142E-04	0.76717782E-03	-0.21306617E-06
2088	-0.55924522E-04	0.54010739E-04	-0.48548615	0.25068608E-04	0.77079292E-03	-0.17240159E-06
2089	-0.56997063E-04	0.60794267E-04	-0.48558124	0.25424391E-04	0.77446905E-03	-0.98326699E-07
2090	-0.59280936E-04	0.34316709E-04	-0.48828072	0.21669970E-04	0.76288929E-03	-0.15948085E-06
2091	-0.60830282E-04	0.41151240E-04	-0.48836822	0.24871308E-04	0.76576845E-03	-0.15955804E-06
2092	-0.62318546E-04	0.48009583E-04	-0.48846644	0.27346697E-04	0.76896382E-03	-0.14072612E-06
2093	-0.63553877E-04	0.54917266E-04	-0.48857225	0.28880924E-04	0.77235963E-03	-0.98898397E-07
2094	-0.64299121E-04	0.61897168E-04	-0.48868167	0.29211306E-04	0.77581378E-03	-0.30108634E-07
2095	-0.67567000E-04	0.34954070E-04	-0.49133792	0.24408935E-04	0.76584847E-03	-0.11619987E-06
2096	-0.68961314E-04	0.41937407E-04	-0.49143643	0.27982215E-04	0.76845403E-03	-0.11168181E-06
2097	-0.70266591E-04	0.48949480E-04	-0.49154686	0.30724363E-04	0.77134398E-03	-0.91401431E-07
2098	-0.71306381E-04	0.56008034E-04	-0.49166565	0.32395374E-04	0.77441439E-03	-0.52512686E-07
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2101	-0.77045305E-04	0.42844839E-04	-0.49451644	0.30742452E-04	0.77163616E-03	-0.79575577E-07
2102	-0.78256076E-04	0.49976941E-04	-0.49463770	0.33720300E-04	0.77414720E-03	-0.60762584E-07
2103	-0.79209967E-04	0.57137910E-04	-0.49476801	0.35513160E-04	0.77681534E-03	-0.27429735E-07
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FILENAME : PITSAB.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

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2122	-0.87296687E-04	0.79717541E-04	-0.49829751	0.32567676E-04	0.78593860E-03	0.12916465E-06
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2124	-0.40125970E-04	0.72405248E-04	-0.47639766	0.12780154E-04	0.78020884E-03	-0.26392315E-06
2125	-0.44901323E-04	0.72550447E-04	-0.47951821	0.15598075E-04	0.78012185E-03	-0.40672786E-07
2126	-0.50279840E-04	0.73427653E-04	-0.48263940	0.18689287E-04	0.78049905E-03	0.96225637E-07
2127	-0.56350136E-04	0.74687973E-04	-0.48576280	0.21846108E-04	0.78121601E-03	0.17085522E-06
2128	-0.63128154E-04	0.76090678E-04	-0.48888959	0.24912686E-04	0.78217997E-03	0.20020946E-06
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2131	-0.11665635E-03	0.25830916E-04	-0.51216799	0.21423109E-04	0.79284232E-03	-0.41858302E-07
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2163	-0.12522687E-03	0.51209557E-04	-0.51258019	0.39725702E-04	0.79273966E-03	-0.64238780E-07
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TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

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2214	-0.12727402E-03	0.23279309E-04	-0.51880675	0.17068928E-04	0.80026041E-03	-0.31023711E-07
2215	-0.13273186E-03	0.26739749E-04	-0.52217562	0.18260302E-04	0.80259515E-03	-0.29379690E-07
2216	-0.17992918E-03	0.71180364E-04	-0.52866320	0.37860127E-04	0.79880483E-03	-0.13626241E-06
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2218	-0.15570991E-03	0.73051684E-04	-0.52088750	0.40894021E-04	0.79607992E-03	-0.13831366E-06
2219	-0.16785861E-03	0.72163628E-04	-0.52477203	0.39544429E-04	0.79755528E-03	-0.14098048E-06
2220	-0.16566115E-03	0.43934206E-04	-0.52790015	0.26779380E-04	0.80758959E-03	-0.34474496E-07
2221	-0.17045193E-03	0.47761564E-04	-0.52802490	0.30477801E-04	0.80626042E-03	-0.44110340E-07
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2256	-0.20922673E-03	0.55707306E-04	-0.53878291	0.31274389E-04	0.80632496E-03	-0.26484176E-07
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2261	-0.17814294E-03	0.45413737E-04	-0.53047863	0.26558114E-04	0.80880743E-03	-0.14050678E-07
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2264	-0.18408202E-03	0.58596016E-04	-0.53092015	0.36416678E-04	0.80329484E-03	-0.62125610E-07
2265	-0.18579866E-03	0.64411400E-04	-0.53109008	0.37661070E-04	0.80136818E-03	-0.89756717E-07
2266	-0.19083805E-03	0.45352985E-04	-0.53319615	0.25400474E-04	0.80999674E-03	-0.12373813E-07
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2270	-0.19394477E-03	0.63817459E-04	-0.53371382	0.36128243E-04	0.80216762E-03	-0.68898028E-07
2271	-0.20342727E-03	0.43833644E-04	-0.53589934	0.23469299E-04	0.81139428E-03	-0.45697724E-07
2272	-0.20164388E-03	0.47166832E-04	-0.53598826	0.26867837E-04	0.80927663E-03	-0.34444463E-07
2273	-0.20101908E-03	0.51782357E-04	-0.53609195	0.30394283E-04	0.80724542E-03	-0.16070681E-07
2274	-0.20113392E-03	0.57143733E-04	-0.53620906	0.33187690E-04	0.80515012E-03	-0.97640996E-08
2275	-0.20189613E-03	0.62968607E-04	-0.53633500	0.34515321E-04	0.80302646E-03	-0.42779556E-07
2280	-0.21247786E-03	0.74150744E-04	-0.53918207	0.29068236E-04	0.79988055E-03	-0.11272284E-06
2281	-0.19015090E-03	0.76115740E-04	-0.53139209	0.33108881E-04	0.79808945E-03	-0.16216452E-06
2282	-0.19780409E-03	0.75440319E-04	-0.53398683	0.31869835E-04	0.79867815E-03	-0.14668443E-06
2283	-0.20525369E-03	0.74784545E-04	-0.53658348	0.30540152E-04	0.79926730E-03	-0.13034846E-06
2289	-0.26733874E-03	0.22766217E-04	-0.55432651	0.82116870E-05	0.82294560E-03	-0.24432538E-07
2290	-0.27250932E-03	0.60199953E-05	-0.55428319	0.20511788E-05	0.82477605E-03	-0.75420561E-07
2291	-0.27132014E-03	0.11885587E-04	-0.55429185	0.41057320E-05	0.82440719E-03	-0.14415548E-06
2292	-0.26952205E-03	0.17485063E-04	-0.55430629	0.61616244E-05	0.82379473E-03	-0.20117343E-06
2293	-0.23944469E-03	0.31323140E-04	-0.54233523	0.13918770E-04	0.81723040E-03	-0.11834760E-06
2294	-0.24929892E-03	0.27230094E-04	-0.54632269	0.11648092E-04	0.81878715E-03	-0.15066432E-06
2295	-0.25830425E-03	0.24480139E-04	-0.55031935	0.98673582E-05	0.82090741E-03	-0.19278491E-06
2299	-0.26168038E-03	0.81934069E-05	-0.54598677	0.30395832E-05	0.82110816E-03	-0.44104134E-07

FILENAME : PITS3A3.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

PAGE 6

2300	-0.26397103E-03	0.71570280E-05	-0.54874964	0.26525983E-05	0.82206925E-03	0.51418743E-07
2301	-0.26773462E-03	0.64677941E-05	-0.55151409	0.23416532E-05	0.82343914E-03	0.62017315E-07
2302	-0.25734789E-03	0.16307195E-04	-0.54520128	0.63031846E-05	0.82036538E-03	0.82294026E-07
2303	-0.26091570E-03	0.14195544E-04	-0.54822604	0.54276021E-05	0.82139750E-03	0.96331060E-07
2304	-0.26566786E-03	0.12784267E-04	-0.55125240	0.47422694E-05	0.82291899E-03	0.11742178E-06
2305	-0.24983797E-03	0.24092450E-04	-0.54395679	0.99418807E-05	0.81907820E-03	0.10805997E-06
2306	-0.25593690E-03	0.20953553E-04	-0.54740167	0.84167783E-05	0.82028976E-03	0.12996812E-06
2307	-0.26244454E-03	0.18814476E-04	-0.55084978	0.72425949E-05	0.82206589E-03	0.16163692E-06
2308	-0.24912399E-03	0.64245813E-04	-0.55474735	0.19977649E-04	0.80662024E-03	0.95942144E-07
2309	-0.22139634E-03	0.67331528E-04	-0.54297761	0.29429581E-04	0.80286435E-03	-0.34724349E-07
2310	-0.23138936E-03	0.66261551E-04	-0.54689461	0.26559704E-04	0.80413582E-03	-0.64327358E-08
2311	-0.24064227E-03	0.65195632E-04	-0.55081791	0.23392118E-04	0.80543892E-03	0.34327987E-07
2312	-0.26349956E-03	0.30391375E-04	-0.55436923	0.11317873E-04	0.82118413E-03	0.26354286E-06
2313	-0.25955397E-03	0.37420160E-04	-0.55442527	0.14279929E-04	0.81892226E-03	0.27105203E-06
2314	-0.25587985E-03	0.44099369E-04	-0.55449369	0.16934664E-04	0.81620912E-03	0.26234855E-06
2315	-0.25273581E-03	0.50672855E-04	-0.55457261	0.19025557E-04	0.81314169E-03	0.23303041E-06
2316	-0.25037293E-03	0.57341006E-04	-0.55465883	0.20195521E-04	0.80987187E-03	0.17878351E-06
2317	-0.23079939E-03	0.37549486E-04	-0.54240539	0.18119538E-04	0.81484181E-03	0.11683560E-06
2318	-0.22554840E-03	0.42863813E-04	-0.54249343	0.22094944E-04	0.81261502E-03	0.10698472E-06
2319	-0.22261006E-03	0.48398494E-04	-0.54259826	0.25736077E-04	0.81033516E-03	0.87562033E-07
2320	-0.22110380E-03	0.54344911E-04	-0.54271753	0.28589690E-04	0.80791129E-03	0.57370441E-07
2321	-0.22072408E-03	0.60677442E-04	-0.54284650	0.30048707E-04	0.80537805E-03	0.16194795E-07
2322	-0.24287891E-03	0.34393789E-04	-0.54638265	0.15743080E-04	0.81689138E-03	0.15512841E-06
2323	-0.23791835E-03	0.40662823E-04	-0.54646004	0.19591708E-04	0.81474467E-03	0.14905286E-06
2324	-0.23446968E-03	0.46724896E-04	-0.54653348	0.23021885E-04	0.81234046E-03	0.13106438E-06
2325	-0.23230088E-03	0.52949173E-04	-0.54666041	0.25678219E-04	0.80970073E-03	0.99584661E-07
2326	-0.23126884E-03	0.59455215E-04	-0.54677641	0.27060425E-04	0.80691265E-03	0.53642104E-07
2327	-0.25347428E-03	0.31986303E-04	-0.55037057	0.13530312E-04	0.81916065E-03	0.20366598E-06
2328	-0.24908544E-03	0.38754680E-04	-0.55042745	0.16998553E-04	0.81698246E-03	0.20300426E-06
2329	-0.24549075E-03	0.45204546E-04	-0.55051877	0.20084306E-04	0.81441706E-03	0.18822442E-06
2330	-0.24281065E-03	0.51651289E-04	-0.55061224	0.22481104E-04	0.81154166E-03	0.15658025E-06
2331	-0.24113945E-03	0.58286061E-04	-0.55071396	0.23763478E-04	0.80848466E-03	0.10573169E-06
2336	-0.24926882E-03	0.70398473E-04	-0.55481965	0.18256529E-04	0.80406024E-03	-0.34366432E-07
2337	-0.22281977E-03	0.73231167E-04	-0.54308377	0.26699887E-04	0.80086236E-03	-0.10101771E-06
2338	-0.23247516E-03	0.72306050E-04	-0.54699046	0.24114939E-04	0.80192364E-03	-0.89025212E-07
2339	-0.24132982E-03	0.71342732E-04	-0.55090243	0.21278062E-04	0.80302430E-03	-0.71015190E-07
2341	-0.27405556E-03	0.23452368E-04	-0.55746124	0.73820123E-05	0.82366699E-03	0.31928610E-06
2342	-0.28107124E-03	0.24700057E-04	-0.56059617	0.63959945E-05	0.82332667E-03	0.40435209E-06
2343	-0.28827307E-03	0.26608234E-04	-0.56372629	0.53259500E-05	0.82114492E-03	0.49911823E-06
2344	-0.29555525E-03	0.29298485E-04	-0.56684477	0.42835687E-05	0.81751863E-03	0.60204077E-06
2353	-0.27872943E-03	0.61271787E-05	-0.55741981	0.18392799E-05	0.82572905E-03	0.91021088E-07
2354	-0.27769288E-03	0.12132190E-04	-0.55742808	0.36835552E-05	0.82531673E-03	0.17720366E-06
2355	-0.27609153E-03	0.17921378E-04	-0.55744189	0.55338541E-05	0.82463167E-03	0.25438789E-06
2356	-0.28557257E-03	0.64065516E-05	-0.56055810	0.15905144E-05	0.82558554E-03	0.11056322E-06
2357	-0.28460360E-03	0.12708850E-04	-0.56056569	0.31868164E-05	0.82513474E-03	0.21726451E-06
2358	-0.28306985E-03	0.18824596E-04	-0.56057838	0.47910726E-05	0.82438513E-03	0.31640621E-06
2359	-0.29281675E-03	0.68740686E-05	-0.56369282	0.13205966E-05	0.82377666E-03	0.13280431E-06
2360	-0.29186066E-03	0.13651409E-04	-0.56369949	0.26476131E-05	0.82331192E-03	0.26243619E-06
2361	-0.29032290E-03	0.20249181E-04	-0.56371064	0.39844685E-05	0.82253909E-03	0.38568929E-06
2362	-0.30028649E-03	0.75486520E-05	-0.56681651	0.10559958E-05	0.81969132E-03	0.15694313E-06
2363	-0.29931161E-03	0.15002320E-04	-0.56682213	0.21197516E-05	0.81925557E-03	0.31134048E-06
2364	-0.29771971E-03	0.22275322E-04	-0.56683153	0.31965107E-05	0.81853208E-03	0.46065914E-06
2366	-0.25522226E-03	0.63743400E-04	-0.55781392	0.17214807E-04	0.80731980E-03	0.21225395E-06
2367	-0.26092492E-03	0.63700859E-04	-0.56088250	0.14454246E-04	0.80764507E-03	0.38068103E-06
2368	-0.26633349E-03	0.64483656E-04	-0.56395128	0.11873802E-04	0.80738728E-03	0.62404997E-06
2369	-0.27160256E-03	0.66643642E-04	-0.56701758	0.96938430E-05	0.80628354E-03	0.96971758E-06
2375	-0.27068857E-03	0.30817362E-04	-0.55749798	0.99307826E-05	0.82186579E-03	0.35518819E-06
2376	-0.26703883E-03	0.37724621E-04	-0.55754536	0.12367673E-04	0.81957693E-03	0.37822110E-06
2377	-0.26338599E-03	0.44302382E-04	-0.55760265	0.14557758E-04	0.81685151E-03	0.38254506E-06
2378	-0.25998596E-03	0.50718190E-04	-0.55766839	0.16299314E-04	0.81378850E-03	0.36138673E-06
2379	-0.25713095E-03	0.57145283E-04	-0.55774010	0.17310360E-04	0.81053956E-03	0.30718580E-06
2380	-0.27795782E-03	0.31912303E-04	-0.56062666	0.84180240E-05	0.82154577E-03	0.46238739E-06
2381	-0.27444025E-03	0.38713189E-04	-0.56066536	0.10359220E-04	0.81931894E-03	0.50735106E-06
2382	-0.27072055E-03	0.45170423E-04	-0.56071174	0.12117075E-04	0.81669419E-03	0.53196022E-06
2383	-0.26701556E-03	0.51389846E-04	-0.56076476	0.13540691E-04	0.81376706E-03	0.52701851E-06
2384	-0.26360909E-03	0.57511429E-04	-0.56082263	0.14416494E-04	0.81068216E-03	0.48105706E-06
2385	-0.28528026E-03	0.33785368E-04	-0.56375061	0.68757337E-05	0.81979371E-03	0.58580879E-06
2386	-0.28179378E-03	0.40560251E-04	-0.56378105	0.83759490E-05	0.81776012E-03	0.66064356E-06
2387	-0.27794785E-03	0.46946008E-04	-0.56381729	0.97556348E-05	0.81539248E-03	0.71536927E-06
2388	-0.27390517E-03	0.52991638E-04	-0.56385866	0.10909624E-04	0.81277781E-03	0.73881158E-06

FILENAME : PIT5A3.PO DATE : 05-25-94 TIME : 10:28a PAGE 7
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 4/25)

2389	-0.26990369E-03	0.58787260E-04	-0.56390396	0.11686451E-04	0.81004695E-03	0.71537473E-06
2390	-0.29260206E-03	0.36595012E-04	-0.56686351	0.54425650E-05	0.81612772E-03	0.72482362E-06
2391	-0.28908909E-03	0.43481891E-04	-0.56688672	0.65850862E-05	0.81445427E-03	0.83851759E-06
2392	-0.28508918E-03	0.49926786E-04	-0.56691427	0.76654281E-05	0.81254015E-03	0.93524702E-06
2393	-0.28070677E-03	0.55914656E-04	-0.56694579	0.86164393E-05	0.81045976E-03	0.10034767E-05
2394	-0.27611255E-03	0.61461252E-04	-0.56698061	0.93400153E-05	0.80832240E-03	0.10247109E-05
2401	-0.25476702E-03	0.69790624E-04	-0.55787637	0.15839534E-04	0.80472955E-03	0.52124568E-07
2402	-0.25964752E-03	0.69519010E-04	-0.56093521	0.13453041E-04	0.80515281E-03	0.19599020E-06
2403	-0.26395727E-03	0.69918503E-04	-0.56399495	0.11268085E-04	0.80517716E-03	0.42689548E-06
2404	-0.26785297E-03	0.71512964E-04	-0.56705372	0.94948013E-05	0.80460251E-03	0.78432192E-06

MAXIMUMS

NODE	56	25	44	2165	60	46
VALUE	-0.30817579E-03	0.87572034E-04	-0.57013977	0.44004732E-04	0.82586651E-03	0.14441293E-05

FILENAME : PITS44.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 5/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 1.7H

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE

10.4700 MAY 25,1994 CP= 77.780

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.45848817E-06	-570.07588		102.73778		-491.21775
56		-534.83046		111.65379		361.12530
57		-457.28833		-261.40068		-0.68829522E-03
58		-440.73154		-1015.7610		-0.55288647E-03
59		-433.36754		-1720.6750		-0.43602772E-03
60		-435.83765		-2359.0811		-0.33955838E-03
61		-416.19227		-2699.8161		-0.25144629E-03
62		-404.25157		-2861.4390		-0.18820764E-03
63		-435.56433		-3176.2611		-0.15679520E-03
64		-477.58302		-3486.9292		-0.13433098E-03
65		-253.55487		-2100.8670		-0.62636422E-04
77		-289.19458		-4428.3350		0.15308759E-04
78		-528.18969		-7451.9511		0.31460618E-04
79		-476.29101		-7114.7492		0.32838413E-04
80		-443.04913		-7001.3108		0.33642461E-04
81		-455.56756		-7555.9688		0.37371468E-04
82		-471.56531		-8076.7482		0.43128520E-04
83		-456.50463		-7969.8048		0.49173199E-04
84		-444.51980		-7779.5345		0.58807533E-04
85		-434.45019		-7492.0463		0.73623076E-04
86		-436.92589		-7284.9989		0.96893456E-04
87		-440.10666		-6922.3832		0.12658020E-03
88		-433.57005		-6253.9835		0.16268911E-03
89		-429.47882		-5475.3208		0.21023466E-03
90		-428.88481		-4598.0262		0.27021155E-03
91		-433.15873		-3637.4340		0.34310320E-03
92		-443.92841		-2613.4736		0.42866748E-03
93		-462.98908		-1550.9474		0.52575265E-03
94		-492.18242		-479.60949		0.63220291E-03
101		-485.62497		-0.50750025E-02		-1409.8876
156		-478.51323		-0.40621363E-02		1018.3993
201		-326.38734		-0.48464824E-02		-1529.6723
256		-343.66336		-0.39961131E-02		1070.8739
301		-151.81382		-0.46732016E-02		-1748.5341
356		-190.56937		-0.39319193E-02		1216.9501
401		25.909077		-0.40463837E-02		-1729.7432
456		-26.065805		-0.34618402E-02		1206.3389
501		161.93751		-0.34898672E-02		-1669.3100
556		102.54507		-0.30287948E-02		1162.4597
601		265.17859		-0.30055266E-02		-1593.1049
656		202.20168		-0.26417772E-02		1105.2107
701		344.60690		-0.25941168E-02		-1517.8732
756		280.35655		-0.23065076E-02		1047.7436
801		409.40389		-0.22555842E-02		-1454.3731
856		344.84206		-0.20264188E-02		998.68715
901		372.42220		-0.16806003E-02		-969.24975
956		318.77951		-0.15234836E-02		666.89678
1001		302.71015		-0.11657121E-02		-492.40530

FILENAME : PITSA4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 5/25)

PAGE 2

1056	262.69968	-0.10691799E-02	340.41253
1101	315.99342	-0.10072421E-02	-461.32538
1156	278.88044	-0.93425877E-03	315.43609
1201	338.95537	-0.89520619E-03	-435.78509
1256	303.11544	-0.83845479E-03	294.59042
1301	379.42535	-0.82848806E-03	-418.28595
1356	342.29941	-0.78124388E-03	279.94490
1401	209.03919	-0.40316847E-03	-205.71464
1456	189.17077	-0.38111173E-03	136.78607
TOTAL	0.45848817E-06 -9112.0000	0.00000000E+00 -123154.53	0.00000000E+00 -4904.6264

FILENAME : PIT5B1.PO DATE : 05-25-94 TIME : 10:28a
 TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 6/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	1.70000
3	34.0000
4	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	1.70000	2	1	1	0.000000E+00
3	34.0000	3	1	1	0.000000E+00

CURRENT LOAD CASE= 4

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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 FOR SUPPORT CALL PHONE TWX

TITLE

10.4710 MAY 25,1994 CP= 81.350

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 4

ELEM	FXC	FYC	FXCY	MXC	MYC	MXCY
1176	-149.35318	56.600734	-4.2528880	448.00292	2316.8632	-36.383536
1177	-145.19467	56.290933	-12.590016	456.08181	2249.8976	-104.52913
1178	-136.56784	55.668724	-20.420944	469.17955	2120.7240	-159.36442
1179	-122.90596	54.688117	-27.407490	481.11171	1938.2961	-193.83587
1180	-132.86855	67.755390	-6.2124580	511.27857	3615.5125	-71.875868
1181	-129.65831	67.204356	-18.579359	531.37778	3535.3409	-208.68816
1182	-123.12884	66.075424	-30.749959	566.77020	3378.9670	-325.46279
1183	-113.09170	64.273638	-42.518896	607.89426	3153.9177	-411.39734
1184	-122.93569	82.490510	-7.5936176	464.14292	4824.2072	-115.53535
1185	-120.95188	81.847823	-22.756474	501.27228	4726.7415	-337.38882
1186	-116.96102	80.477313	-37.813927	568.58760	4535.7990	-532.56392
1187	-110.92454	78.167572	-52.589019	652.42013	4258.9910	-686.44475
1188	-116.80115	99.477553	-8.3201319	283.29029	5934.4352	-169.25721
1189	-116.03869	98.783344	-24.941706	343.05687	5817.4067	-495.95703
1190	-114.50801	97.240976	-41.474771	453.09875	5587.9427	-788.40455
1191	-112.19071	94.503807	-57.754178	594.89888	5254.7934	-1027.6112
1192	-111.70168	117.35520	-8.4293184	-58.746995	6937.7835	-234.35874
1193	-112.02042	116.62084	-25.274209	30.546150	6799.8688	-688.04398
1194	-112.63713	114.93549	-42.051072	196.53918	6529.7599	-1098.1297
1195	-113.49622	111.83176	-58.628225	414.88834	6138.2694	-1440.3452
1196	-105.16453	134.89996	-8.0086561	-592.81478	7822.8904	-311.98917
1197	-106.37628	134.14881	-24.028300	-465.16410	7663.0816	-916.77176
1198	-108.75318	132.38157	-40.035488	-226.40489	7350.9183	-1465.9357
1199	-112.18818	129.04083	-55.961908	91.796428	6900.3418	-1928.6618
1200	-95.147685	151.09149	-7.1587815	-1353.5196	8573.1870	-403.46772
1201	-97.063587	150.37591	-21.511705	-1175.9164	8390.2458	-1185.6773
1202	-100.81756	148.64214	-35.950734	-842.53633	8034.3630	-1896.3963
1203	-106.25651	145.27857	-50.490686	-394.71592	7524.0420	-2496.5015
1204	-80.092743	165.12244	-5.9802848	-2380.1061	9165.0454	-510.61303
1205	-82.533029	164.52479	-18.014392	-2137.0946	8956.9892	-1499.6429
1206	-87.330194	162.99997	-30.279230	-1680.1815	8554.4837	-2395.8285
1207	-94.268379	159.89310	-42.885770	-1063.8817	7982.5097	-3149.2533
1208	-58.933061	176.39431	-4.5671274	-3720.0917	9566.2830	-636.16302

C Att2-55

FILENAME : PIT5B1.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 6/25)

1209	-61.729573	175.99565	-13.815385	-3390.4044	9329.7154	-1865.9502
1210	-67.244471	174.92011	-23.423405	-2770.5989	8875.3559	-2973.7117
1211	-75.283812	172.40571	-33.716055	-1934.9809	8238.1567	-3895.5673
1212	-103.49468	53.178031	-33.211099	482.44372	1714.6728	-203.53109
1213	-77.644686	50.722735	-37.495901	460.33948	1463.4729	-187.56541
1214	-44.939152	46.514397	-39.936344	398.53374	1197.9805	-149.29844
1215	-5.5710173	39.203571	-40.230212	277.86800	929.03950	-96.805923
1216	39.216234	26.809642	-38.117322	78.555232	662.87418	-42.916625
1217	86.586586	6.8767407	-33.360319	-212.70344	398.59692	-4.5809391
1218	-99.337197	61.554696	-53.567949	640.52728	2870.5108	-459.35787
1219	-81.718901	57.407925	-63.420624	645.94824	2540.8309	-467.03987
1220	-60.258783	50.915563	-71.400558	601.31312	2177.5643	-437.86608
1221	-35.258729	40.615591	-76.603614	480.64893	1792.7480	-381.62505
1222	-7.3873558	24.446777	-77.904144	257.40072	1396.2473	-315.08547
1223	22.328606	-0.56761272E-01	-74.080805	-89.866734	993.49354	-263.83667
1224	-102.80199	74.501229	-66.747062	732.77120	3906.8872	-788.89687
1225	-92.565176	68.743831	-79.740241	783.85638	3492.1616	-835.59125
1226	-80.206026	59.718128	-90.766809	774.85046	3028.6477	-829.00433
1227	-65.729750	45.703174	-98.761658	671.04966	2530.3250	-779.24997
1228	-49.135444	24.438142	-102.44308	425.78835	2010.1943	-705.21366
1229	-30.467373	-6.5089869	-100.42073	32.220752	1479.0369	-637.18910
1230	-109.04029	89.958878	-73.461796	741.73565	4830.0937	-1199.9364
1231	-104.95613	82.628345	-88.079678	859.69704	4328.4144	-1298.5317
1232	-99.746872	71.067880	-100.86122	908.77767	3765.7804	-1324.3847
1233	-93.092388	53.301395	-110.82786	844.04387	3158.7423	-1287.2089
1234	-84.535241	26.867422	-116.78232	616.78042	2523.6112	-1206.6286
1235	-73.567295	-10.985166	-117.20907	175.06054	1876.1857	-1114.3542
1236	-114.47854	106.52647	-74.752898	650.97137	5640.2050	-1696.9357
1237	-115.35761	97.835706	-90.017322	861.55432	5053.1045	-1858.1622
1238	-115.74964	84.090369	-103.83579	996.30601	4396.0678	-1923.2433
1239	-115.06818	63.084681	-115.42712	999.00178	3688.8522	-1901.0281
1240	-112.50800	32.083702	-122.77101	808.19283	2951.4102	-1810.7674
1241	-107.02827	-12.161790	-127.48962	356.77727	2204.1888	-1683.2532
1242	-116.48174	123.22172	-71.660198	445.20825	6330.0690	-2282.4564
1243	-121.29379	113.59298	-86.885716	779.79416	5661.7068	-2514.4987
1244	-126.08237	98.315547	-101.27404	1033.7505	4918.2517	-2622.2359
1245	-130.05486	74.978990	-114.30905	1138.8469	4123.1330	-2613.5198
1246	-132.11523	40.560036	-125.26461	1021.0824	3299.8914	-2506.7103
1247	-130.81167	-8.5990838	-133.11886	600.03957	2472.7600	-2330.5956
1248	-113.12331	139.31669	-65.115859	110.85568	6883.6430	-2958.1865
1249	-120.99383	129.34752	-79.776710	607.49040	6140.1438	-3265.9129
1250	-129.22286	113.42337	-94.372231	1020.8143	5321.1712	-2415.6900
1251	-136.86309	88.977262	-108.0781	1269.8384	4454.0853	-3414.8497
1252	-142.62222	52.756503	-122.44109	1268.6807	3565.4438	-3281.2350
1253	-144.77638	0.76738622	-135.00341	925.83158	2681.8956	-3041.6677
1254	-103.04707	154.24103	-55.932443	-362.87445	7273.8531	-3725.7491
1255	-113.24361	144.65430	-69.591996	341.30068	6462.8295	-4109.6373
1256	-124.11675	129.14202	-84.079983	961.15980	5582.2725	-4295.5607
1257	-134.63621	105.02345	-99.542120	1401.5221	4663.3897	-4292.0904
1258	-143.41095	68.921479	-116.04746	1565.6856	3734.5164	-4118.0025
1259	-148.59257	16.602503	-133.58422	1353.5860	2822.7907	-3798.9753
1260	-85.501936	167.53711	-44.795986	-983.44666	7460.1675	-4588.6591
1261	-97.341005	159.15054	-57.121013	-15.053754	6588.9414	-5041.7781
1262	-110.12476	145.19303	-71.218407	865.26613	5665.8740	-5250.2630
1263	-122.82887	122.95924	-87.555579	1548.5163	4721.6125	-5227.7397
1264	-134.03382	89.032866	-106.68039	1929.2354	3784.2766	-4995.9698
1265	-141.83532	39.164205	-129.09398	1902.2094	2878.4445	-4580.6550
1266	131.69813	-22.569491	-25.942174	-580.35786	119.70399	-5.5090748
1267	167.17652	-53.752303	-16.057264	-922.75634	-227.82288	-110.43329
1268	52.425387	-34.084557	-64.195580	-568.36509	584.43180	-269.74479
1269	79.938279	-75.225633	-45.172339	-1163.7845	162.31719	-413.55478
1270	-10.221316	-48.982021	-90.760893	-570.00434	945.63360	-623.06482
1271	10.843991	-105.27901	-69.429032	-1412.3869	420.51052	-738.84629
1272	-59.632656	-63.327621	-109.89145	-537.94053	1232.9896	-1057.8126
1273	-41.605245	-133.86114	-91.828733	-1591.1317	614.66098	-1103.8993
1274	-97.249145	-73.428255	-124.73006	-430.50873	1469.7593	-1562.2965
1275	-81.371353	-156.02558	-113.12423	-1642.2482	775.41052	-1505.5256
1276	-124.28654	-76.787238	-136.45388	-213.62138	1668.4179	-2124.3251
1277	-110.25423	-168.84638	-133.36648	-1522.1136	918.21162	-1937.1098
1278	-141.11954	-71.745145	-145.46971	141.55814	1832.1937	-2730.6341

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1279	-128.96628	-170.23516	-152.39343	-1196.0890	1049.6456	-2389.4979
1280	-147.68818	-57.161529	-151.83737	659.07504	1956.7241	-3365.3944
1281	-137.59833	-158.53541	-169.89484	-635.85160	1169.5311	-2850.5395
1282	-143.70498	-32.271334	-155.41349	1359.6976	2030.3105	-4008.5311
1283	-136.03732	-132.39362	-185.46504	180.04848	1272.6227	-3303.9390
1284	-32.218860	184.37790	-2.9977065	-5371.7730	9728.2488	-760.41077
1285	-35.082669	184.26336	-9.1372868	-4953.7363	9469.1604	-2228.3799
1286	-40.726791	183.79791	-15.721787	-4166.8514	8976.9016	-3545.8560
1287	-48.980869	182.55307	-23.161196	-3100.3116	8304.0967	-4636.9815
1288	0.36048556	189.03917	-1.3871695	-7394.6010	9632.7339	-876.75817
1289	-2.3463104	189.25392	-4.3226401	-6888.5279	9361.9371	-2567.9479
1290	-7.6749094	189.54261	-7.7749914	-5935.6575	8851.7360	-4082.6167
1291	-15.451010	189.62212	-12.143333	-4641.3985	8162.2166	-5335.3703
1292	39.192496	190.42897	0.14307474	-9893.5615	9222.0977	-1008.8380
1293	36.608805	190.99924	0.24140929	-9279.6623	8931.0097	-2951.2979
1294	31.549072	192.07637	-0.23399580	-8125.6798	8388.9935	-4682.2731
1295	24.199176	193.45712	-1.7195270	-6561.5333	7671.4307	-6104.0599
1296	84.305116	188.28243	1.6558137	-12989.291	8431.7351	-1166.2083
1297	81.647537	189.27823	4.7266229	-12234.618	8105.5451	-3404.2303
1298	76.536083	191.21429	7.0744369	-10821.608	7508.1274	-5378.5470
1299	69.355108	193.97272	8.2626922	-8923.1734	6741.4265	-6976.0233
1300	136.27031	181.92597	3.3826648	-16849.381	7192.5612	-1366.5434
1301	133.00446	183.57333	9.7322196	-15896.045	6803.1128	-3974.7595
1302	126.97248	186.73759	14.947917	-14119.380	6107.9026	-6236.2395
1303	118.88068	191.19876	18.437025	-11753.325	5252.5634	-8002.1210
1304	-59.640017	178.91668	-31.761190	-1865.1290	7477.2591	-5453.7169
1305	-72.558307	172.87423	-42.500546	-543.61601	6557.5055	-5996.7023
1306	-86.748131	161.70074	-55.904082	682.50242	5597.7717	-6231.6476
1307	-101.22794	142.96042	-72.858559	1686.7605	4639.1827	-6181.3501
1308	-114.58216	113.19003	-94.451251	2352.4432	3710.6632	-5615.7065
1309	-124.83511	67.786857	-121.84133	2569.1267	2834.8464	-5344.2986
1310	-26.169997	187.95611	-18.104248	-3067.1346	7284.7842	-6304.7266
1311	-39.741240	184.78104	-26.974164	-1292.4611	6303.2622	-6965.2421
1312	-54.894261	177.55999	-39.281798	382.61234	5313.6978	-7229.0797
1313	-70.708238	163.82411	-56.397275	1799.7986	4362.3857	-7136.7559
1314	-85.838864	140.16046	-79.985935	2827.2582	3475.1751	-6734.4314
1315	-98.289909	101.78050	-112.09624	3349.8136	2667.1829	-6061.2533
1316	13.600509	193.99657	-4.9800948	-4562.7636	6732.8481	-7230.1906
1317	-0.26473048	194.19308	-11.620461	-2209.8210	5689.0343	-7996.5687
1318	-15.846058	191.66135	-22.486551	20.359020	4693.0245	-8254.7500
1319	-32.300412	184.20104	-39.272174	1932.4545	3794.5577	-8079.6085
1320	-48.438730	168.64824	-64.257293	3384.2728	3009.8730	-7544.7430
1321	-62.481649	140.43165	-100.43493	4266.6968	2338.0028	-6704.4482
1322	58.534236	196.96489	7.5759343	-6375.3339	5716.6271	-8257.6613
1323	44.411911	200.99099	3.2197016	-3277.9771	4606.7956	-9097.4222
1324	28.749181	203.76778	-6.1022267	-369.94722	3640.0052	-9289.1317
1325	12.386562	203.58407	-22.326663	2117.2650	2860.3652	-8969.3454
1326	-3.8155673	197.83957	-48.182457	4043.2921	2261.9182	-8254.7131
1327	-18.521823	182.65140	-87.573923	5323.2217	1814.8346	-7221.0652
1328	107.54755	197.01150	19.985869	-8505.5466	4098.1834	-9432.9104
1329	92.283330	205.37301	17.761558	-4450.4877	2926.6795	-10272.531
1330	76.453935	214.07063	9.5126478	-731.61602	2046.6383	-10300.150
1331	60.873521	221.79557	-6.4485946	2397.1013	1481.6279	-9747.8353
1332	45.885399	227.01100	-32.866385	4822.9706	1181.7347	-8796.0726
1333	31.745464	227.15751	-74.497911	6512.4966	1071.3765	-7545.3767
1334	-129.51225	2.1843950	-156.09615	2231.1598	2034.6860	-4620.2069
1335	-124.51022	-92.226822	-198.11505	1231.3873	1339.5746	-3719.2175
1336	-105.57574	45.253475	-154.09424	3271.0065	1959.6689	-5169.6206
1337	-103.40007	-38.318065	-207.59099	2512.1778	1373.6794	-4074.5102
1338	-72.085540	97.079708	-149.43466	4494.6618	1784.2892	-5635.3993
1339	-73.035838	29.663033	-213.66207	4031.9712	1353.2853	-4353.7337
1340	-29.873026	156.44587	-142.26847	5890.6176	1488.9822	-5973.0223
1341	-34.164494	110.69904	-215.69885	5766.7597	1266.2596	-4526.1209
1342	19.612578	221.31443	-133.10779	7427.8912	1059.3390	-6128.8434
1343	12.039207	202.72510	-212.91220	7671.0214	1106.2752	-4554.8775
1344	193.12410	170.96906	-5.8250663	21347.105	-5581.9935	-1644.7231
1345	256.39142	153.62661	-9.9942530	26647.934	-3566.1270	-2112.3829
1346	339.53814	122.45354	-18.955275	33611.379	-1173.3186	-2852.0782
1347	465.01465	59.063450	-41.534241	43242.432	1141.4742	-4378.1625
1348	190.19557	173.35637	-16.904454	20233.517	-4958.2345	-4795.1913

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1349	253.52906	157.58587	-29.334839	25356.215	-2505.8797	-6184.6123
1350	332.95758	131.10417	-56.449469	31879.870	689.44249	-8404.6947
1351	434.59358	90.489677	-120.73395	39663.138	4978.5658	-12467.977
1352	184.76719	177.96015	-26.388915	18108.297	-3839.1325	-7542.3444
1353	248.08499	165.55023	-46.828607	22696.719	-529.87265	-9773.1374
1354	315.88366	149.61273	-90.853086	27889.653	4435.0533	-13244.132
1355	365.48679	148.39893	-182.36145	32224.144	12262.839	-18236.785
1356	177.77214	184.66543	-33.706258	15168.186	-2441.5227	-9661.3003
1357	239.81202	177.10318	-61.182509	18557.047	2111.3615	-12444.452
1358	288.63692	178.61147	-116.07212	20875.238	9559.8968	-16302.468
1359	248.25814	227.76632	-197.36544	20544.535	21544.337	-20285.801
1360	163.57406	195.16819	36.769953	-10739.194	1083.6930	-11180.596
1361	144.82052	209.98746	34.704462	-5379.3153	-84.502036	-11719.933
1362	128.55621	226.01282	25.200889	-710.30514	-669.73447	-11297.194
1363	115.43911	242.58621	7.7685132	3069.2730	-753.98444	-10321.901
1364	104.18768	259.97513	-19.485658	5958.1010	-499.85318	-9043.4134
1365	93.082096	279.10775	-61.633543	8026.6130	-66.780666	-7566.6113
1366	219.18510	195.80411	64.705166	-12448.694	-4171.6363	-13621.735
1367	192.59064	220.54172	56.186886	-5465.1273	-5039.3549	-13150.426
1368	177.62689	244.37987	39.249112	96.200935	-4846.9455	-11843.090
1369	170.55649	268.49858	17.158050	4350.9104	-3992.2239	-10269.643
1370	166.81486	297.11549	-11.322100	7532.5179	-2830.2510	-8647.1125
1371	161.95715	335.26956	-51.327510	9859.3267	-1600.4831	-7012.8249
1372	240.99173	213.06268	108.99440	-12593.676	-12488.616	-16021.218
1373	213.10397	246.68580	76.243272	-4254.3085	-11927.153	-13623.130
1374	207.82066	272.12255	44.496678	1705.0191	-10076.740	-11215.590
1375	213.29177	297.99860	15.491736	6050.3696	-7747.8325	-9128.2343
1376	221.06701	332.47952	-13.206131	9261.2284	-5395.0364	-7335.2069
1377	225.02010	385.01124	-47.901064	11662.625	-3238.5919	-5732.5498
1378	189.59625	277.18950	144.56857	-9363.7111	-23961.748	-16361.825
1379	194.35851	296.09702	76.752211	-1482.5117	-20139.678	-11695.869
1380	216.63685	310.72375	29.642176	3920.7363	-15563.148	-8660.1637
1381	241.96651	328.90840	-2.5399005	7893.0386	-11359.919	-6557.6225
1382	263.43103	362.79453	-27.545404	10885.660	-7723.6852	-4978.3976
1383	276.78945	423.20130	-52.809027	13201.131	-4673.7583	-3696.3819
1384	81.767826	298.45873	-121.16238	9305.6992	386.17928	-6013.8935
1385	70.630479	315.83251	-203.66436	9954.0758	784.92798	-4366.0422
1386	153.30345	383.32315	-106.67305	11443.321	-526.92752	-5431.6955
1387	139.02551	442.76495	-184.72945	12493.462	322.34303	-3831.5152
1388	220.82720	457.84536	-93.484726	13424.462	-1496.9867	-4299.9336
1389	204.64228	557.09481	-158.01892	14779.910	-188.50395	-2919.8561
1390	277.54326	513.24885	-83.071376	15010.343	-2234.1162	-2633.9462
1391	260.67710	642.40879	-124.58847	16541.400	-661.53412	-1660.5729
1392	109.82329	355.23047	114.00622	-4107.6032	-35190.502	-11541.814
1393	169.64424	349.68312	38.676675	1606.6145	-25779.338	-7164.1187
1394	220.77140	344.54809	-5.2875608	5956.3058	-18765.369	-4879.4583
1395	260.57847	353.17006	-30.605176	9355.4965	-13290.257	-3422.5733
1396	290.20210	384.02697	-47.980615	12017.321	-8909.9432	-2392.2675
1397	308.94793	445.80816	-62.263001	14152.601	-5384.1120	-1606.2820
1398	70.345075	410.69655	21.514436	-59.405473	-37881.017	-2674.8662
1399	168.12784	382.20232	-24.851952	3700.5653	-26947.154	-1417.9430
1400	232.39052	362.01717	-47.662020	7281.0141	-19353.216	-677.31240
1401	275.89648	365.92144	-60.728290	10237.283	-13632.644	-166.52253
1402	306.92352	393.97615	-69.033750	12614.617	-9142.6001	196.44316
1403	326.66619	452.39881	-73.352633	14563.050	-5568.3604	450.16529
1404	87.521255	451.49568	-87.076802	-687.39216	-36735.136	6521.1514
1405	188.71137	391.63368	-91.349786	3621.1376	-26321.100	4511.2837
1406	248.18955	368.14161	-89.347659	7314.2310	-18903.280	3649.2985
1407	288.86258	369.48394	-90.228502	10281.790	-11274.860	3168.1912
1408	317.81215	394.68356	-89.568228	12630.779	-8859.6006	2833.3939
1409	336.13024	449.09308	-84.526502	14524.927	-5356.5198	2534.7696
1410	158.61915	462.83201	-191.13109	-5308.2915	-32369.979	14060.767
1411	222.50922	385.27050	-140.80194	1577.3419	-24109.726	9690.5386
1412	264.56534	366.46477	-123.54486	6211.9400	-17562.619	7467.0544
1413	296.88271	366.98116	-114.87381	9617.0146	-12335.894	6111.0293
1414	320.90697	389.04245	-107.07704	12172.723	-8158.0120	5145.6880
1415	335.90621	438.35176	-93.202872	14125.646	-4830.9656	4335.0633
1416	313.94499	541.15579	-76.879495	15923.149	-2725.1120	-921.02378
1417	297.94930	685.04174	-94.243074	17528.792	-780.52960	-412.17905
1418	332.18783	546.98049	-73.665931	16214.876	-2846.4797	600.68112

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1419	316.93563	691.96096	-70.342442	17785.399	-869.79206	673.41859
1420	340.47760	538.68180	-71.147762	16122.906	-2721.5069	2136.1719
1421	325.78873	675.61754	-46.600357	17589.188	-803.70703	1751.0724
1422	339.09259	516.97576	-68.065194	15649.522	-2350.4289	3585.9927
1423	325.09637	636.93582	-24.709432	16946.776	-589.72261	2775.6738
1424	555.60930	78.381765	57.101971	38155.612	-461.26504	3805.5788
1425	491.36017	182.88123	37.797397	29165.765	-4417.4305	2675.9649
1426	447.11052	252.66616	25.208415	22307.325	-7950.8659	2074.6014
1427	422.89512	302.27001	18.708000	16894.103	-10861.347	1662.6826
1428	534.47428	128.16132	168.23664	35634.641	2739.3054	11002.449
1429	471.91920	204.02512	108.17323	27891.158	-2663.1393	7929.4565
1430	436.27276	261.62889	72.585887	21281.587	-6911.1121	6103.7282
1431	415.90943	306.33145	53.840125	15960.907	-10244.806	4868.1419
1432	475.01574	224.09522	262.23963	30165.615	9011.1398	16673.758
1433	436.86148	242.96757	163.06739	24848.271	868.14552	12680.361
1434	416.93491	277.26292	111.44756	19127.119	-4949.8569	9744.8061
1435	403.71957	312.52684	83.016895	14160.826	-9121.4345	7720.9715
1436	345.41837	346.59044	294.46726	20877.057	17643.625	19656.028
1437	396.27627	287.96160	195.45949	19190.834	5798.4326	16070.711
1438	392.29753	295.13982	138.91856	15673.428	-2286.4203	12626.121
1439	388.94966	319.00181	104.70303	11639.653	-7672.4876	10009.708
1440	268.08753	387.21440	-226.39436	-9869.4547	-20496.232	17536.303
1441	274.05612	364.53986	-169.96813	-1221.4951	-17463.055	13752.842
1442	289.85096	353.64265	-148.42363	4430.5693	-13427.907	11043.995
1442	306.13997	357.20897	-135.11828	8360.1942	-9621.0855	9116.8006
1444	319.40958	375.31489	-121.77748	11150.989	-6342.1383	7623.4124
1445	326.82064	413.53986	-99.819493	13139.442	-3649.1838	6322.2135
1446	346.85300	321.67988	-191.51116	-11402.336	-8706.0977	16671.942
1447	320.69280	336.79696	-169.61298	-3155.9569	-8453.3461	15109.343
1448	313.76616	338.37062	-155.20098	2704.7262	-7045.5990	23158.749
1449	312.10153	343.05064	-143.07852	6825.8455	-5191.5640	11306.703
1450	310.91920	354.96051	-126.82367	9678.6070	-3333.0949	9611.7339
1451	307.50342	376.34499	-99.129715	11578.041	-1697.3658	7993.0943
1452	364.69112	312.81036	-150.72344	-10133.696	175.82944	14259.905
1453	339.37045	324.57012	-151.20944	-3586.2521	-878.02300	14318.468
1454	322.83864	327.35286	-145.41931	1589.3728	-1077.4907	13272.076
1455	309.74627	328.50772	-135.29208	5413.7502	-739.08530	11994.711
1456	296.90449	331.28619	-118.24412	8074.0063	-176.52180	10440.441
1457	283.69709	334.23981	-88.804458	9744.2110	291.66264	8774.5475
1458	367.58166	323.62745	-120.87909	-7725.4604	6183.0697	11797.934
1459	345.18386	324.01425	-128.45391	-2944.2527	4750.2996	12638.133
1460	324.68299	319.59165	-126.37213	1146.7558	3726.6103	12422.055
1461	304.38282	313.71091	-116.47532	4322.6504	3059.8559	11539.925
1462	283.29255	306.54665	-98.661400	6550.9553	2616.3104	10257.062
1463	262.72783	293.04398	-70.325803	7852.3197	2264.2416	8708.3131
1464	325.80217	472.97748	-62.270416	14524.112	-1647.2851	5117.4700
1465	312.87399	560.00152	-0.27482876	15517.615	-282.83505	3866.2502
1466	301.04883	406.13718	-53.222520	12711.832	-456.63759	6436.4491
1467	290.83243	444.90360	21.442926	13286.117	389.59494	4822.3070
1468	272.35707	332.89259	-41.933616	10543.811	816.83736	7083.8368
1469	265.85425	320.44340	31.837699	10627.961	1062.2932	5304.2818
1470	247.88999	265.36123	-29.363465	8255.1835	1939.8870	7053.0466
1471	245.36887	210.23081	30.611402	7839.8394	1619.7729	5288.6486
1472	414.35406	343.39150	-14.963809	-12198.267	13266.753	1404.4465
1473	408.88275	344.13512	-43.234166	-11390.239	12862.962	4097.5810
1474	399.14664	344.52644	-67.117076	-9882.3746	12125.667	6464.9173
1475	386.79522	342.61557	-85.098841	-7870.7639	11180.854	8356.2900
1476	423.37959	377.65710	-12.359827	-8125.7753	15223.630	1201.5468
1477	418.02201	374.66955	-35.816647	-7524.6335	14840.680	3512.3782
1478	408.03667	368.37500	-55.793322	-6402.3251	14123.829	5563.0584
1479	394.62943	358.78860	-71.081635	-4903.9396	13163.948	7234.7272
1480	454.26997	403.12056	-9.2186115	-4878.0390	16651.837	1016.8402
1481	446.80535	396.92861	-26.651761	-4441.8143	16250.451	2974.0958
1482	432.66413	385.00465	-41.322753	-3627.8743	15488.051	4714.9186
1483	413.04206	368.31285	-51.972680	-2539.1533	14440.025	6134.5657
1484	515.35546	417.68904	-3.8266988	-2345.4704	17691.866	825.33175
1485	502.06217	409.02343	-10.992845	-2049.9772	17228.339	2412.8558
1486	476.95390	392.60981	-16.787444	-1501.0106	16341.779	3820.7443
1487	442.81061	370.32051	-20.523453	-772.08309	15108.688	4959.6729
1488	621.99803	414.89026	6.6858320	-480.30405	18523.067	599.15760

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1489	595.80630	405.55646	19.217489	-304.82947	17931.758	1750.8186
1490	546.92338	388.10779	29.297342	17.454584	16801.449	2769.2638
1491	481.83510	364.62493	35.570452	434.51410	15236.014	3585.7214
1492	369.81490	336.93104	-99.538485	-5141.4149	9813.3619	9947.0768
1493	347.83947	325.63840	-107.07865	-1753.1525	8262.5638	10933.331
1494	324.69241	312.49761	-104.27868	1265.6665	6853.7714	11029.043
1495	300.15170	299.11289	-93.043137	3674.4426	5623.9157	10457.220
1496	274.58527	284.13645	-74.551680	5353.5864	4541.1872	9414.9862
1497	250.39437	260.22719	-49.114120	6231.6843	3551.6409	8039.5629
1498	375.20205	344.26112	-81.783520	-2933.0369	11803.349	8583.4057
1499	350.72968	322.94775	-85.667969	-575.29051	10186.439	9450.0480
1500	324.30535	303.45207	-80.677070	1550.8799	8580.9029	9597.8075
1501	297.11775	284.18931	-68.246973	3248.1159	7047.5220	9162.9769
1502	270.44779	264.37039	-50.139683	4389.7617	5597.4885	8282.2739
1503	246.54657	237.02417	-28.759336	4873.3658	4218.4464	7073.5134
1504	386.39176	346.16084	-58.191352	-1199.8432	13004.895	7229.3584
1505	354.29179	318.87802	-58.691090	339.92626	11289.079	7916.2189
1506	321.88476	292.77959	-52.721121	1718.0442	9509.8750	8038.1547
1507	291.89388	269.20125	-41.493581	2788.0548	7745.3545	7673.8978
1508	266.48507	246.54935	-26.573877	3439.0176	6035.3487	6916.2839
1509	247.21523	219.69854	-10.600001	3568.7735	4393.9473	5859.7962
1510	400.06249	343.17375	-21.958018	53.337424	13497.969	5789.2795
1511	352.91730	312.43029	-21.203444	949.37307	11613.486	6279.1514
1512	309.78661	283.84536	-18.383043	1719.1054	9637.8404	6342.7448
1513	275.54473	258.35910	-13.751835	2261.2721	7666.9587	6024.6234
1514	253.72302	234.76896	-7.7957118	2488.0369	5765.4198	5383.2747
1515	245.59273	209.15581	-1.4172326	2313.5028	3968.0671	4483.3673
1516	408.16131	338.09714	37.626597	849.32090	13309.740	4147.0796
1517	335.05147	310.00025	34.406638	1253.5240	11147.367	4450.7718
1518	273.14267	283.86592	26.458535	1549.1515	8906.2720	4466.2522
1519	231.02962	260.23388	14.618391	1670.4530	6705.0729	4214.1318
1520	214.94397	237.27232	0.77656766	1550.9992	4635.9086	3725.1711
1521	226.88499	211.37981	-12.176171	1119.1931	2760.1546	3031.7798
1522	233.91685	217.86700	-18.094850	6259.9595	2661.7073	6518.5604
1523	234.20750	137.90338	20.874680	5434.1685	1874.0472	4887.9938
1524	230.77577	191.72365	-8.2646971	4618.5367	2959.0247	5711.5649
1525	232.57522	106.88145	8.4757331	3525.5620	1847.4329	4262.1157
1526	235.64733	180.03887	-0.12920469E-01	3093.0847	2875.3860	4661.1314
1527	238.61176	108.39414	-5.1738050	1863.4172	1510.7710	3423.3310
1528	247.87635	179.04442	2.1424512	1677.4240	2308.3021	3441.7670
1529	252.53863	137.05806	-15.138551	456.54973	781.31776	2399.3991
1530	261.15143	180.00979	-19.605055	341.14328	1101.9813	2176.8278
1531	293.47561	166.57331	-21.963457	-759.47973	-389.55325	1251.0520

MINIMUMS

ELEMENT	1176	1279	1440	1300	1398	1359
VALUE	-149.35318	-170.23516	-226.39436	-16849.381	-37881.017	-20285.801

MAXIMUMS

ELEMENT	1488	1419	1436	1347	1359	1436
VALUE	621.99803	691.96096	294.46726	43242.432	21544.337	19656.028

FILENAME : PITSB2.PO DATE : 05-25-94 TIME : 10:28a
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C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

NSBE FOR LABEL= NODE FROM 1 TO 94 BY 1

94 NODES (OF 1188 DEFINED) SELECTED BY NSBE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

145 ELEMENTS (OF 1182 DEFINED) SELECTED FROM 94 SELECTED NODES BY ENOD COMMAND.

RUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

90 ELEMENTS (OF 1182 DEFINED) SELECTED BY RUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4714 MAY 25,1994 CP= 82.770

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	97.764864	313.03552	603.13446	1088.7012	1139.0989	-0.16581413E-02
2	195.29256	23.042786	1210.1766	0.22095350E-03	6158.3358	0.79375236E-03
3	194.58173	44.110271	1220.1273	0.61994542E-03	5809.3105	0.16178050E-02
4	193.32280	61.338741	1231.0041	0.13581087E-02	5261.5941	0.24920627E-02
5	191.13492	73.097838	1234.6845	0.25625093E-02	4561.8158	0.34147178E-02
6	186.94559	78.136993	1220.9318	0.43038875E-02	3766.6699	0.43503725E-02
7	178.47583	75.776603	1178.6142	0.65663646E-02	2934.7238	0.52174878E-02
8	161.66003	66.165695	1097.6993	0.92040021E-02	2116.4334	0.58759698E-02
9	130.15896	50.618824	972.37845	0.11870138E-01	1343.3042	0.61177364E-02
10	75.471594	32.012897	805.88871	0.13898838E-01	620.76410	0.56646945E-02
11	-11.649154	15.022906	618.43951	0.14102533E-01	-59.639408	0.41921211E-02
12	-126.08977	5.8016018	445.54407	0.11140826E-01	-819.06326	0.18898756E-02
13	-78.700600	195.67175	535.85095	1438.2228	-1439.2877	-0.29097000E-02
14	77.439681	542.40922	1097.1335	5096.2116	-0.90239413E-02	-0.12413728E-01
15	166.62236	220.50298	1607.0245	6870.9085	-0.23026983E-02	-0.11215276E-01
16	263.76738	-23.929842	1043.4339	8405.6480	0.52204427E-02	-0.97030602E-02
17	364.09849	-209.43112	2396.2884	9409.1491	0.12988330E-01	-0.81072758E-02
18	465.59679	-348.21120	2658.1202	9664.9963	0.20916949E-01	-0.63903433E-02
19	566.58295	-445.48872	2820.9627	9013.6705	0.29036050E-01	-0.45181341E-02
20	665.36855	-503.00214	2875.4552	7323.0836	0.37424158E-01	-0.24571945E-02
21	759.97372	-520.74036	2810.9383	4479.1999	0.46189322E-01	-0.16849039E-03
22	824.56021	-487.34752	2556.4939	424.14705	0.54752784E-01	0.25590554E-02
23	875.61714	-417.57655	2187.4306	-4367.2915	0.59996684E-01	0.41702535E-02
24	933.52172	-326.05473	1763.5286	-10237.090	0.67660316E-01	0.62320529E-02
25	975.50884	-201.79961	1215.4156	-17103.902	0.75156641E-01	0.82624320E-02
26	997.06603	-48.924914	550.29554	-24844.882	0.82310621E-01	0.10047540E-01
27	1126.4476	169.19554	-341.17307	-37922.210	0.10487140	0.13008938E-01
28	1200.8776	474.61604	-1614.3982	-56515.588	0.11812918	0.17362758E-01
29	1065.6134	789.24690	-2921.7163	-69824.962	0.10773721	0.15770312E-01
30	860.87078	1074.1440	-4018.0786	-80875.111	0.83136632E-01	0.10757552E-01
31	542.75157	1073.0457	-3884.5891	-73723.884	0.16330205E-01	-0.11715790E-03
32	281.27202	956.42218	-3265.9031	-60806.609	0.24559312E-01	0.19811799E-03
33	156.39086	1001.4615	-3195.7489	-60702.818	0.18904953E-01	-0.14711196E-02
34	36.570591	1018.4474	-2934.6352	-59122.208	0.12821689E-01	-0.31799173E-02
35	-116.36226	1246.8555	-2990.9016	-69635.731	0.25421013E-01	-0.46013737E-02
36	-286.62492	1432.1413	-2334.5086	-72737.648	-0.26868577E-01	-0.13657563E-01
37	-383.85429	1337.3509	-621.33476	-58955.240	-0.44558033E-01	-0.15264840E-01
38	-376.02461	1246.5744	1176.1893	-43695.482	-0.45225693E-01	-0.12668862E-01
39	-260.00066	1060.3063	2406.3334	-25567.362	-0.24278587E-01	-0.47437724E-02

FILENAME : PITSB2.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 7/25)

40	-116.19498	908.90280	3040.2264	-13879.691	-0.12399412E-01	-0.20467054E-02
41	2.0962476	920.31442	3649.6402	-6624.1562	-0.10310161E-02	0.48531494E-03
42	106.14732	949.98555	4014.7337	-767.19332	0.99030042E-02	0.20964905E-02
43	143.37826	1035.0823	4113.7562	3592.1767	0.16935261E-01	0.19908119E-02
44	-271.86844	535.55429	3865.6506	3589.3646	3633.4634	0.16319737E-02
45	-640.34799	-155.11088	3835.6883	0.68476635E-02	1610.3880	0.38210316E-02
46	-750.05266	-139.01185	3663.2718	-0.15873541E-02	-3732.8114	0.19722755E-02
47	-866.87345	-53.167798	3300.8980	-0.13012059E-01	-10305.914	0.18507579E-02
48	-957.62711	55.484532	2758.6704	-0.24971538E-01	-17986.044	0.31614027E-02
49	-1038.6105	158.13237	2043.8409	-0.35162578E-01	-26506.251	0.50477113E-02
50	-1122.0689	237.41739	1196.3715	-0.42269536E-01	-35523.642	0.68076385E-02
51	-1212.8524	283.35833	278.04095	-0.45422346E-01	-44589.899	0.79249939E-02
52	-1305.2607	291.27211	-634.57462	-0.44105017E-01	-53293.045	0.78365414E-02
53	-1394.1803	260.72162	-1473.0592	-0.38687515E-01	-60857.819	0.68910544E-02
54	-1466.9680	196.18805	-2148.2924	-0.28717659E-01	-66815.067	0.52016832E-02
55	-1514.9097	105.18103	-2586.4634	-0.15281032E-01	-70608.551	0.27981791E-02
56	-765.83775	-1212.2431	-1369.1438	961.08248	-35957.048	-0.42764931E-02
57	-0.46270543E-10	-2161.1740	-0.13705740E-05	-4706.2623	0.28122668E-06	-0.73840306E-02
58	0.27739588E-10	-1839.5101	-0.67224846E-06	-13258.034	-0.16118429E-06	-0.54095827E-02
59	-0.59799277E-10	-1664.3365	0.53785379E-06	-24364.717	0.55678174E-06	-0.40515972E-02
60	-0.76170181E-11	-1589.1727	-0.12110577E-05	-38349.853	-0.40377927E-07	-0.31329567E-02
61	-0.43929963E-10	-1475.4169	0.63666857E-06	-51459.006	-0.57278885E-06	-0.24117092E-02
62	-0.30638603E-10	-1416.4136	-0.14821148E-05	-63351.265	-0.81423968E-06	-0.19698296E-02
63	-0.60822458E-11	-1529.7183	0.11724010E-05	-82779.674	0.25038207E-06	-0.18266744E-02
64	0.19895197E-11	-1712.5789	-0.17936281E-06	-107559.11	0.84724888E-07	-0.17189861E-02
65	0.21627172E-11	-932.98492	5916.0000	-73853.558	-0.10901738E-06	-0.83383679E-03
66	0.13642421E-11	-0.14779289E-11	12121.000	-0.18088031E-07	-0.68081476E-06	-0.10842022E-18
67	-0.12505552E-11	-0.51159077E-11	13226.000	0.52223913E-06	0.81808685E-06	-0.65052130E-18
68	0.12846613E-10	0.12619239E-10	16201.000	0.69703674E-08	-0.40731720E-06	0.27105054E-17
69	0.35299763E-10	0.79936058E-10	16269.000	0.57469151E-07	0.40554005E-06	0.34655167E-15
70	0.17985258E-09	0.15893420E-09	14178.000	0.66215034E-06	-0.67826477E-07	0.10787812E-15
71	-0.83900886E-10	-0.68737904E-10	14178.000	0.13290537E-06	-0.19892468E-07	0.38521703E-15
72	-0.61390892E-11	0.10112444E-09	14178.000	-0.22821132E-06	-0.17741695E-06	0.45238336E-15
73	-0.80717655E-11	0.19156232E-10	16269.000	0.39214774E-06	0.25611371E-06	0.20014372E-15
74	-0.63096195E-11	0.24556257E-10	16201.000	0.12029341E-06	-0.25474219E-06	-0.10191500E-16
75	-0.11368684E-12	-0.11823431E-10	13226.000	-0.51673851E-07	0.14068983E-05	0.17347235E-17
76	0.23305802E-11	-0.15916157E-11	12121.000	0.10177610E-06	-0.12963301E-06	0.26020852E-17
77	-0.32830128E-11	-814.66716	5916.0000	-84392.445	-0.62160324E-07	-0.12594954E-02
78	0.11937118E-10	-1301.1793	0.64243250E-06	-122470.42	-0.42098952E-06	-0.25480227E-02
79	-0.93791641E-11	-963.47533	-0.83064606E-06	-96888.939	0.54910743E-07	-0.25502157E-02
80	0.10800250E-11	-728.72064	-0.68463987E-06	-77651.136	0.21525830E-06	-0.24499722E-02
81	-0.35811354E-11	-577.80071	-0.89614059E-06	-67615.336	0.26312137E-06	-0.24779767E-02
82	0.28421709E-12	-419.12288	0.93858944E-07	-56595.492	0.34951881E-06	-0.25317450E-02
83	0.11368684E-12	-234.86972	-0.11159318E-06	-43408.062	-0.29479997E-06	-0.24278958E-02
84	-0.19440449E-10	-75.603475	0.38588678E-06	-32789.847	-0.19135405E-06	-0.23061333E-02
85	0.22055247E-10	59.805493	-0.44080889E-06	-24204.577	0.13885074E-06	-0.21700715E-02
86	0.31946001E-10	177.52729	-0.22054678E-06	-17718.572	0.18412175E-06	-0.20607419E-02
87	-0.13869794E-10	277.72435	-0.50452172E-07	-12050.184	-0.21806773E-06	-0.19247156E-02
88	0.62527761E-11	350.29449	-0.45518891E-06	-7306.5769	-0.13403769E-06	-0.17611091E-02
89	-0.11141310E-10	400.58238	0.36204148E-06	-3725.9235	0.21880624E-06	-0.16697531E-02
90	0.70201622E-11	433.84733	-0.28344095E-06	-1138.5733	0.82680344E-07	-0.16719627E-02
91	0.18275159E-10	457.29850	0.42382396E-07	605.52495	-0.19859181E-06	-0.17886961E-02
92	-0.22367885E-10	479.96870	0.15376486E-06	1639.1275	0.11249722E-06	-0.20393304E-02
93	0.71594286E-10	512.30797	-0.13882249E-06	2081.1120	-0.16289050E-07	-0.24394620E-02
94	-0.34674486E-09	565.28194	-0.53079589E-07	2037.2191	-0.75686330E-07	-0.29974057E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

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FY = -0.4237904E-08
FZ = 211965.8
MX = -4977897.
MY = -0.1641401E+08
MZ = 0.1294452E-03
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.000000E+00 0.000000E+00 0.000000E+00

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C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

404 NODES (OF 1188 DEFINED) SELECTED FROM 356 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
ED WORK.

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FOR SUPPORT CALL PHONE TWX

TITLE 10.4716 MAY 25,1994 CP= 83.320

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.66651360	0.00000000E+00	0.19631995E-01	0.00000000E+00
2	-0.14314751E-05	0.12970576E-04	-0.66651465	0.55904074E-06	0.19631903E-01	-0.75939896E-06
3	-0.56709470E-05	0.25589644E-04	-0.66651790	0.11666394E-05	0.19631643E-01	-0.14890572E-05
4	-0.12543001E-04	0.37471157E-04	-0.66652360	0.18593608E-05	0.19631256E-01	-0.21536257E-05
5	-0.21720888E-04	0.48164483E-04	-0.66653210	0.26497356E-05	0.19630809E-01	-0.27069595E-05
6	-0.32678131E-04	0.57133808E-04	-0.66654373	0.35141347E-05	0.19630377E-01	-0.30880650E-05
7	-0.44628492E-04	0.63753038E-04	-0.66655864	0.43806126E-05	0.19630042E-01	-0.32191276E-05
8	-0.56464717E-04	0.67324169E-04	-0.66657661	0.51172642E-05	0.19629871E-01	-0.30071721E-05
9	-0.66714219E-04	0.67130636E-04	-0.66659679	0.55230810E-05	0.19629901E-01	-0.23520554E-05
10	-0.73543830E-04	0.62542525E-04	-0.66661745	0.53272087E-05	0.19630128E-01	-0.11657779E-05
11	-0.74875037E-04	0.53207089E-04	-0.66663576	0.42169024E-05	0.19630494E-01	0.58379663E-06
12	-0.68774727E-04	0.39342320E-04	-0.66664782	0.19934416E-05	0.19630881E-01	0.27420553E-05
13	-0.54691480E-04	0.22134341E-04	-0.66664980	-0.89030533E-06	0.19631189E-01	0.45515272E-05
14	-0.46253393E-04	0.42422367E-04	-0.74517158	-0.21779346E-05	0.19630079E-01	0.53956010E-05
15	-0.71698866E-04	0.63999557E-04	-0.82369298	-0.48599966E-05	0.19630780E-01	0.53450897E-05
16	-0.83313381E-04	0.84376323E-04	-0.90221961	-0.89838042E-05	0.19632624E-01	0.48061770E-05
17	-0.97323380E-04	0.10184893E-03	-0.98075529	-0.14606996E-04	0.19635293E-01	0.38831810E-05
18	-0.11323381E-03	0.11499075E-03	-1.0593029	-0.21811450E-04	0.19638584E-01	0.26308391E-05
19	-0.13028836E-03	0.12258940E-03	-1.1378645	-0.30667298E-04	0.19642333E-01	0.10987424E-05
20	-0.14753424E-03	0.12363495E-03	-1.2164417	-0.41212457E-04	0.19646389E-01	-0.65920279E-06
21	-0.16385743E-03	0.11735081E-03	-1.2950354	-0.53435917E-04	0.19650590E-01	-0.25783688E-05
22	-0.17800760E-03	0.10324477E-03	-1.3736457	-0.67261706E-04	0.19654755E-01	-0.45803636E-05
23	-0.18819329E-03	0.82398608E-04	-1.4483404	-0.81738516E-04	0.19658427E-01	-0.64831719E-05
24	-0.19392988E-03	0.54513783E-04	-1.5230482	-0.97303791E-04	0.19661625E-01	-0.82833227E-05
25	-0.19397258E-03	0.20181505E-04	-1.5977666	-0.11364261E-03	0.19664049E-01	-0.98707376E-05
26	-0.18713205E-03	-0.19580289E-04	-1.6724922	-0.13033223E-03	0.19665387E-01	-0.1128973E-04
27	-0.17233317E-03	-0.63325310E-04	-1.7472203	-0.14684322E-03	0.19665356E-01	-0.11955236E-04
28	-0.14067780E-03	-0.12181177E-03	-1.8430810	-0.16676775E-03	0.19662587E-01	-0.12231327E-04
29	-0.94662049E-04	-0.17903142E-03	-1.9389199	-0.18381106E-03	0.19656380E-01	-0.11409119E-04
30	-0.35573966E-04	-0.22984360E-03	-2.0347203	-0.19639311E-03	0.19646709E-01	-0.95670601E-05
31	0.33204608E-04	-0.26987749E-03	-2.1304666	-0.20305354E-03	0.19633913E-01	-0.69664071E-05
32	0.82187964E-04	-0.28894890E-03	-2.1942624	-0.20362801E-03	0.19624918E-01	-0.47914912E-05
33	0.13153577E-03	-0.30098079E-03	-2.2580280	-0.20102069E-03	0.19615468E-01	-0.26345670E-05
34	0.17937468E-03	-0.30622002E-03	-2.3217633	-0.19515446E-03	0.19606273E-01	-0.60772142E-06
35	0.22389412E-03	-0.30525485E-03	-2.3854700	-0.18631958E-03	0.19597986E-01	0.11823778E-05
36	0.28102282E-03	-0.29564804E-03	-2.4809846	-0.16807557E-03	0.19587341E-01	0.28504580E-05
37	0.32379155E-03	-0.28082730E-03	-2.5764582	-0.14546854E-03	0.19580893E-01	0.33513424E-05
38	0.35107573E-03	-0.26665151E-03	-2.6719110	-0.12061718E-03	0.19578726E-01	0.26346364E-05
39	0.36480106E-03	-0.25851052E-03	-2.7673629	-0.95727246E-04	0.19580439E-01	0.93847894E-06
40	0.36868141E-03	-0.25854088E-03	-2.8417748	-0.77747839E-04	0.19583455E-01	-0.84200636E-06
41	0.36986058E-03	-0.26526262E-03	-2.9161994	-0.62032306E-04	0.19586990E-01	-0.25641335E-05
42	0.37178269E-03	-0.27794796E-03	-2.9906363	-0.49417572E-04	0.19589737E-01	-0.39679759E-05
43	0.37752666E-03	-0.29496498E-03	-3.0650796	-0.40727500E-04	0.19590076E-01	-0.48906709E-05
44	0.38731037E-03	-0.31451120E-03	-3.1395169	-0.36682209E-04	0.19586524E-01	-0.54224909E-05

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45	0.40804382E-03	-0.29136396E-03	-3.1396447	-0.32153326E-04	0.19583342E-01	-0.53800163E-05
46	0.42739487E-03	-0.27280546E-03	-3.1397611	-0.30768144E-04	0.19576324E-01	-0.50300214E-05
47	0.44600911E-03	-0.25901198E-03	-3.1398770	-0.31738899E-04	0.19566107E-01	-0.50757609E-05
48	0.46557660E-03	-0.24744443E-03	-3.1399989	-0.33723054E-04	0.19553412E-01	-0.55282100E-05
49	0.48723411E-03	-0.23515310E-03	-3.1401280	-0.35495097E-04	0.19538987E-01	-0.61534381E-05
50	0.51112380E-03	-0.21944119E-03	-3.1402619	-0.36136394E-04	0.19523668E-01	-0.66764097E-05
51	0.53640782E-03	-0.19826336E-03	-3.1403949	-0.35014374E-04	0.19508372E-01	-0.68579425E-05
52	0.56147057E-03	-0.17044257E-03	-3.1405199	-0.31775819E-04	0.19494033E-01	-0.65213042E-05
53	0.58418971E-03	-0.13566331E-03	-3.1406289	-0.26377692E-04	0.19481657E-01	-0.55907067E-05
54	0.60238867E-03	-0.94514599E-04	-3.1407139	-0.18922010E-04	0.19472088E-01	-0.40993759E-05
55	0.61416950E-03	-0.48551938E-04	-2.1407679	-0.98867005E-05	0.19466041E-01	-0.21693441E-05
56	0.61824773E-03	0.00000000E+00	-3.1407865	0.00000000E+00	0.19463972E-01	0.00000000E+00
57	0.59279246E-03	0.00000000E+00	-3.0669644	0.00000000E+00	0.19390458E-01	0.00000000E+00
58	0.56584510E-03	0.00000000E+00	-2.9934175	0.00000000E+00	0.19319228E-01	0.00000000E+00
59	0.53936630E-03	0.00000000E+00	-2.9201369	0.00000000E+00	0.19250637E-01	0.00000000E+00
60	0.51458937E-03	0.00000000E+00	-2.8471106	0.00000000E+00	0.19185739E-01	0.00000000E+00
61	0.49248036E-03	0.00000000E+00	-2.7743219	0.00000000E+00	0.19126073E-01	0.00000000E+00
62	0.47653493E-03	0.00000000E+00	-2.7122393	0.00000000E+00	0.19080490E-01	0.00000000E+00
63	0.46425890E-03	0.00000000E+00	-2.6502946	0.00000000E+00	0.19041589E-01	0.00000000E+00
64	0.45733817E-03	0.00000000E+00	-2.5884645	0.00000000E+00	0.19010523E-01	0.00000000E+00
65	0.45851118E-03	0.00000000E+00	-2.5267231	0.00000000E+00	0.18986812E-01	0.00000000E+00
66	0.45237811E-03	-0.34555139E-04	-2.5206936	-0.12669678E-03	0.19000550E-01	-0.56021894E-06
67	0.43364917E-03	-0.70292537E-04	-2.5016267	-0.25410651E-03	0.19043810E-01	-0.11006642E-05
68	0.40217613E-03	-0.10902418E-03	-2.4657441	-0.38222524E-03	0.19123885E-01	-0.16018809E-05
69	0.35322159E-03	-0.14763464E-03	-2.3994902	-0.51705548E-03	0.19267708E-01	-0.20795449E-05
70	0.31451097E-03	-0.16917379E-03	-2.3381499	-0.58860728E-03	0.19407848E-01	-0.25417340E-05
71	0.27968112E-03	-0.17603477E-03	-2.2723319	-0.61935860E-03	0.19559345E-01	-0.28970595E-05
72	0.25056855E-03	-0.16724692E-03	-2.2065321	-0.60716646E-03	0.19714465E-01	-0.31684194E-05
73	0.22770709E-03	-0.14402251E-03	-2.1452321	-0.54964001E-03	0.19864110E-01	-0.32101414E-05
74	0.20709779E-03	-0.10354020E-03	-2.0790980	-0.41830304E-03	0.20025059E-01	-0.25207844E-05
75	0.19720216E-03	-0.65847340E-04	-2.0433045	-0.28365161E-03	0.20118346E-01	-0.17027447E-05
76	0.19167770E-03	-0.32033483E-04	-2.0242897	-0.14296759E-03	0.20170176E-01	-0.85354417E-06
77	0.18997115E-03	0.00000000E+00	-2.0182777	0.00000000E+00	0.20186841E-01	0.00000000E+00
78	0.19126109E-03	0.00000000E+00	-1.9527033	0.00000000E+00	0.20165256E-01	0.00000000E+00
79	0.18661059E-03	0.00000000E+00	-1.8871993	0.00000000E+00	0.20142700E-01	0.00000000E+00
80	0.17894839E-03	0.00000000E+00	-1.8217757	0.00000000E+00	0.20116265E-01	0.00000000E+00
81	0.16945881E-03	0.00000000E+00	-1.7564445	0.00000000E+00	0.20086115E-01	0.00000000E+00
82	0.15684475E-03	0.00000000E+00	-1.6801877	0.00000000E+00	0.20047519E-01	0.00000000E+00
83	0.14310823E-03	0.00000000E+00	-1.6040832	0.00000000E+00	0.20006423E-01	0.00000000E+00
84	0.12866729E-03	0.00000000E+00	-1.5281380	0.00000000E+00	0.19964099E-01	0.00000000E+00
85	0.11387506E-03	0.00000000E+00	-1.4523543	0.00000000E+00	0.19921666E-01	0.00000000E+00
86	0.99062505E-04	0.00000000E+00	-1.3767308	0.00000000E+00	0.19880067E-01	0.00000000E+00
87	0.83753075E-04	0.00000000E+00	-1.2972948	0.00000000E+00	0.19837965E-01	0.00000000E+00
88	0.69107739E-04	0.00000000E+00	-1.2180226	0.00000000E+00	0.19798394E-01	0.00000000E+00
89	0.55431584E-04	0.00000000E+00	-1.1389027	0.00000000E+00	0.19761940E-01	0.00000000E+00
90	0.42966421E-04	0.00000000E+00	-1.0599217	0.00000000E+00	0.19729087E-01	0.00000000E+00
91	0.31867751E-04	0.00000000E+00	-0.98106426	0.00000000E+00	0.19700248E-01	0.00000000E+00
92	0.22180757E-04	0.00000000E+00	-0.90231360	0.00000000E+00	0.19675791E-01	0.00000000E+00
93	0.13818788E-04	0.00000000E+00	-0.82365150	0.00000000E+00	0.19656053E-01	0.00000000E+00
94	0.65495277E-05	0.00000000E+00	-0.74505843	0.00000000E+00	0.19641355E-01	0.00000000E+00
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2007	-0.15826600E-04	0.42892056E-04	-0.74506813	0.16893378E-05	0.19638084E-01	-0.20865149E-05
2008	-0.92748165E-05	0.40575487E-04	-0.82364310	-0.41387806E-06	0.19650186E-01	-0.16321617E-05
2009	-0.15998282E-05	0.40052204E-04	-0.90227543	-0.39633528E-05	0.19666684E-01	-0.13316292E-05
2010	0.74435186E-05	0.40237430E-04	-0.98098191	-0.93117723E-05	0.19687174E-01	-0.11673678E-05
2011	0.17936883E-04	0.40195960E-04	-1.0597777	-0.16835478E-04	0.19711260E-01	-0.21195944E-05
2012	0.29840809E-04	0.39165831E-04	-1.1386764	-0.26927487E-04	0.19738521E-01	-0.11679805E-05
2013	0.43024984E-04	0.36560063E-04	-1.2176898	-0.39995869E-04	0.19768476E-01	-0.12926742E-05
2014	0.57290457E-04	0.31960746E-04	-1.2968275	-0.56461782E-04	0.19800541E-01	-0.14752447E-05
2016	0.97416760E-04	0.57280235E-05	-1.3766875	-0.22961826E-04	0.19876930E-01	-0.44055822E-06
2017	0.92464128E-04	0.11680223E-04	-1.3765607	-0.44309512E-04	0.19867736E-01	-0.87487344E-06
2018	0.84157153E-04	0.18071686E-04	-1.3763592	-0.62618865E-04	0.19853104E-01	-0.12970293E-06
2027	0.50798906E-05	0.11493160E-04	-0.74505883	0.21875544E-06	0.19641120E-01	-0.61123429E-06
2028	0.72424183E-06	0.22686110E-04	-0.74506022	0.52925439E-06	0.19640440E-01	-0.11887912E-05
2029	-0.63484267E-05	0.33265098E-04	-0.74506309	0.10060202E-05	0.19639390E-01	-0.16953005E-05
2030	0.12306826E-04	0.10674990E-04	-0.82365063	-0.45910995E-06	0.19655643E-01	-0.49581271E-06
2031	0.78227975E-05	0.21139832E-04	-0.82364831	-0.76127423E-06	0.19654451E-01	-0.95782178E-06
2032	0.52995577E-06	0.31180404E-04	-0.82364537	-0.77414097E-06	0.19652579E-01	-0.13499726E-05
2033	0.20630746E-04	0.10296255E-04	-0.90231068	-0.15496686E-05	0.19675166E-01	-0.41361963E-06
2034	0.16029324E-04	0.20480250E-04	-0.90230234	-0.28556761E-05	0.19673338E-01	-0.79566937E-06

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2035	0.85283379E-05	0.30438120E-04	-0.90228993	-0.37081505E-05	0.19670441E-01	-0.11133302E-05
2036	0.30285816E-04	0.10119130E-04	-0.98105832	-0.31483395E-05	0.19699360E-01	-0.36267530E-06
2037	0.25582643E-04	0.20216210E-04	-0.98104116	-0.59417751E-05	0.19696755E-01	-0.69734872E-06
2038	0.17890467E-04	0.30266320E-04	-0.98101471	-0.80704229E-05	0.19692604E-01	-0.97542671E-06
2039	0.41358286E-04	0.99215231E-05	-1.0599116	-0.53625703E-05	0.19727882E-01	-0.33958066E-06
2040	0.36567813E-04	0.19897424E-04	-1.0598822	-0.10228652E-04	0.19724344E-01	-0.65537969E-06
2041	0.28699608E-04	0.29976697E-04	-1.0598362	-0.14160869E-04	0.19718691E-01	-0.92343576E-06
2042	0.53802653E-04	0.95138360E-05	-1.1388871	-0.83105076E-05	0.19760361E-01	-0.34022148E-06
2043	0.48938846E-04	0.19143637E-04	-1.1388413	-0.15943750E-04	0.19755720E-01	-0.66110705E-06
2044	0.40910756E-04	0.28997371E-04	-1.1387692	-0.22300066E-04	0.19748295E-01	-0.94336711E-06
2045	0.67464416E-04	0.87454598E-05	-1.2179998	-0.12122665E-04	0.19796375E-01	-0.36020805E-06
2046	0.62544210E-04	0.17655259E-04	-1.2179329	-0.23335282E-04	0.19790443E-01	-0.70552740E-06
2047	0.54378983E-04	0.26882637E-04	-1.2178270	-0.32830778E-04	0.19780958E-01	-0.10211481E-05
2048	0.82103260E-04	0.75067012E-05	-1.2972629	-0.16944897E-04	0.19835432E-01	-0.39510975E-06
2049	0.77151257E-04	0.15213382E-04	-1.2971693	-0.32677020E-04	0.19827995E-01	-0.77971553E-06
2050	0.68884705E-04	0.23310536E-04	-1.2970208	-0.46121769E-04	0.19816125E-01	-0.11433576E-05
2057	-0.82784146E-04	0.83730695E-04	-1.3741676	-0.74641637E-04	0.19689651E-01	-0.37241446E-05
2058	-0.76682560E-04	0.59445793E-04	-0.74515961	0.42253850E-05	0.19631830E-01	0.12599986E-05
2059	-0.78363782E-04	0.70032102E-04	-0.82369317	0.30129153E-05	0.19635279E-01	0.15667936E-05
2060	-0.80149505E-04	0.82028565E-04	-0.90224405	0.75952883E-07	0.19640415E-01	0.15212855E-05
2061	-0.82051265E-04	0.93092345E-04	-0.98081822	-0.50394566E-05	0.19646886E-01	0.11518120E-05
2062	-0.83912969E-04	0.10139776E-03	-1.0594204	-0.12726050E-04	0.19654409E-01	0.50566300E-06
2063	-0.85400338E-04	0.10554202E-03	-1.1380544	-0.23312248E-04	0.19662732E-01	-0.36501816E-06
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2066	0.57071608E-04	0.32914484E-04	-1.3757894	-0.86329191E-04	0.19811511E-01	-0.20714912E-05
2067	0.38025903E-04	0.41610717E-04	-1.3754557	-0.90990150E-04	0.19786907E-01	-0.24161166E-05
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2071	-0.27214566E-04	0.51199402E-04	-0.74507614	0.25686133E-05	0.19636663E-01	-0.23092645E-05
2072	-0.39781142E-04	0.57793336E-04	-0.74508771	0.35663867E-05	0.19635271E-01	-0.23013905E-05
2073	-0.52507906E-04	0.62268584E-04	-0.74510302	0.45238178E-05	0.19634040E-01	-0.19948581E-05
2074	-0.64051745E-04	0.64236965E-04	-0.74512148	0.51902660E-05	0.19633058E-01	-0.13237981E-05
2075	-0.72746618E-04	0.63370324E-04	-0.74514138	0.52245315E-05	0.19632347E-01	-0.24009786E-06
2076	-0.21126764E-04	0.49095195E-04	-0.82364292	0.33214006E-06	0.19647471E-01	-0.17593937E-05
2077	-0.34351801E-04	0.56501295E-04	-0.82364618	0.13844487E-05	0.19644644E-01	-0.16824738E-05
2078	-0.48025590E-04	0.62549097E-04	-0.82365370	0.25533891E-05	0.19641904E-01	-0.13508834E-05
2079	-0.60945147E-04	0.66989614E-04	-0.82366536	0.35260607E-05	0.19639403E-01	-0.71839195E-05
2080	-0.71628483E-04	0.69569545E-04	-0.82367965	0.38630966E-05	0.19637213E-01	-0.24890439E-06
2081	-0.13935927E-04	0.49197533E-04	-0.90226121	-0.35734253E-05	0.19662326E-01	-0.14132201E-05
2082	-0.27882478E-04	0.57736042E-04	-0.90224959	-0.26127440E-05	0.19657654E-01	-0.13191612E-05
2083	-0.42633363E-04	0.65507506E-04	-0.90224234	-0.13001816E-05	0.19652943E-01	-0.10108868E-05
2084	-0.57151759E-04	0.72316792E-04	-0.90224013	-0.16253991E-07	0.19648426E-01	-0.45319150E-06
2085	-0.70163296E-04	0.77920382E-04	-0.90224186	0.68605222E-06	0.19644249E-01	-0.38299029E-06
2086	-0.54032916E-05	0.50083359E-04	-0.98094633	-0.95683819E-05	0.19680801E-01	-0.12427575E-05
2087	-0.20152294E-04	0.59732691E-04	-0.98091158	-0.89000210E-05	0.19673856E-01	-0.11709243E-05
2088	-0.36141083E-04	0.69072939E-04	-0.98088076	-0.75502639E-05	0.19666711E-01	-0.92204783E-06
2089	-0.52523746E-04	0.77930968E-04	-0.98085563	-0.59681069E-05	0.19659696E-01	-0.46840540E-06
2090	-0.68253281E-04	0.86053902E-04	-0.98083588	-0.48261332E-05	0.19653054E-01	-0.21506227E-06
2091	0.45531380E-05	0.50569314E-04	-1.0597119	-0.18088884E-04	0.19702482E-01	-0.12197521E-05
2092	-0.11073888E-04	0.61073466E-04	-1.0596441	-0.17955332E-04	0.19692833E-01	-0.12003257E-05
2093	-0.28447310E-04	0.71627908E-04	-1.0595790	-0.16697074E-04	0.19682800E-01	-0.10387890E-05
2094	-0.46934899E-04	0.82070608E-04	-1.0595201	-0.14829130E-04	0.19672830E-01	-0.71399506E-06
2095	-0.65748076E-04	0.92130894E-04	-1.0594681	-0.13141800E-04	0.19663289E-01	-0.20589130E-06
2096	0.15908740E-04	0.49710364E-04	-1.1385700	-0.29578040E-04	0.19726940E-01	-0.13166435E-05
2097	-0.64245702E-06	0.60646056E-04	-1.1384574	-0.30249317E-04	0.19714160E-01	-0.13722569E-05
2098	-0.19498624E-04	0.71918457E-04	-1.1383456	-0.29216049E-04	0.19700804E-01	-0.13191591E-05
2099	-0.40262958E-04	0.83375756E-04	-1.1382401	-0.27055593E-04	0.19687462E-01	-0.11429506E-05
2100	-0.62438437E-04	0.94734624E-04	-1.1381435	-0.24670230E-04	0.19674642E-01	-0.82980928E-06
2101	0.28561632E-04	0.46787079E-04	-1.2175307	-0.44480409E-04	0.19753689E-01	-0.15070117E-05
2102	0.11088787E-04	0.57611006E-04	-1.2173600	-0.46236275E-04	0.19737361E-01	-0.16532837E-05
2103	-0.92742490E-05	0.69003412E-04	-1.2171874	-0.45546027E-04	0.19720278E-01	-0.17228703E-05
2104	-0.32383681E-04	0.80826736E-04	-1.2170211	-0.43048340E-04	0.19703194E-01	-0.17087293E-05
2105	-0.58059263E-04	0.92799019E-04	-1.2168660	-0.39752632E-04	0.19686780E-01	-0.16046081E-05
2106	0.42350647E-04	0.41290552E-04	-1.2966021	-0.63232739E-04	0.19782136E-01	-0.17661068E-05
2107	0.24022235E-04	0.51380910E-04	-1.2963582	-0.66339373E-04	0.19761857E-01	-0.20114228E-05
2108	0.22199089E-05	0.62227358E-04	-1.2961091	-0.66071101E-04	0.19740686E-01	-0.22105698E-05
2109	-0.23176653E-04	0.73712561E-04	-1.2958664	-0.62134282E-04	0.19719557E-01	-0.23645365E-05
2110	-0.52315885E-04	0.85569479E-04	-1.2956380	-0.58646040E-04	0.19699314E-01	-0.24754871E-05

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2122	-0.12689285E-03	0.94305013E-04	-1.3738993	-0.69027629E-04	0.19670410E-01	-0.41045254E-05
2123	-0.73964242E-04	0.52374300E-04	-0.74517156	0.18171151E-05	0.19631252E-01	0.31118799E-05
2124	-0.79217925E-04	0.68185914E-04	-0.82370033	0.34265411E-06	0.19633333E-01	0.32502076E-05
2125	-0.85276444E-04	0.84320189E-04	-0.90224011	-0.27644331E-05	0.19636711E-01	0.29861464E-05
2126	-0.92365239E-04	0.98570787E-04	-0.98079545	-0.77951782E-05	0.19641088E-01	0.23659494E-05
2127	-0.10023111E-03	0.10928465E-03	-1.0593698	-0.15009709E-04	0.19646235E-01	0.14427166E-05
2128	-0.10835615E-03	0.11513283E-03	-1.1379660	-0.24619659E-04	0.19651953E-01	0.26957599E-06
2129	-0.11605544E-03	0.11506100E-03	-1.2165857	-0.36781952E-04	0.19658046E-01	-0.10957116E-05
2130	-0.12252916E-03	0.10828439E-03	-1.2952301	-0.51586040E-04	0.19664289E-01	-0.25849199E-05
2131	0.15707067E-03	-0.29987418E-04	-1.7552185	-0.20222504E-03	0.20015884E-01	-0.29985418E-05
2132	0.89880959E-04	0.15364877E-04	-1.4516012	-0.96966050E-04	0.19871092E-01	-0.19705737E-05
2133	0.10745119E-03	0.46191970E-05	-1.5272649	-0.11942040E-03	0.19909118E-01	-0.22530005E-05
2134	0.12473808E-03	-0.67496119E-05	-1.6030909	-0.14432362E-03	0.19946953E-01	-0.25282786E-05
2135	0.14138891E-03	-0.18381472E-04	-1.6790780	-0.17190151E-03	0.19983172E-01	-0.27810143E-05
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2144	0.11240314E-03	0.33388348E-05	-1.4523033	-0.28506095E-04	0.19918219E-01	-0.49624161E-06
2145	0.10796703E-03	0.68837390E-05	-1.4521536	-0.55183223E-04	0.19908123E-01	-0.99038499E-06
2146	0.10050059E-03	0.10831898E-04	-1.4519148	-0.78413010E-04	0.19892055E-01	-0.14814250E-05
2147	0.12737018E-03	0.69813701E-06	-1.5280792	-0.34678978E-04	0.19960343E-01	-0.55739197E-06
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2158	-0.70584433E-04	0.39726823E-04	-1.5238675	-0.12269600E-03	0.19704501E-01	-0.59779266E-05
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2173	0.47727340E-04	0.17174013E-04	-1.5255571	-0.15240723E-03	0.19804902E-01	-0.38179920E-05
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2176	0.11027124E-03	-0.71996938E-05	-1.6024370	-0.17131406E-03	0.19909145E-01	-0.30559612E-05
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2205	0.18832179E-03	-0.71672540E-04	-1.9505249	-0.33950622E-03	0.20030307E-01	-0.31664921E-05
2206	0.20379311E-03	-0.10339374E-03	-2.0480778	-0.43672305E-03	0.19981498E-01	-0.31800262E-05
2207	0.17862610E-03	-0.11506070E-04	-2.2392880	-0.71065491E-04	0.20110966E-01	-0.82429102E-06
2208	0.18669853E-03	-0.15858095E-04	-1.8915665	-0.87710769E-04	0.20136136E-01	-0.85723299E-06
2209	0.19181945E-03	-0.22019516E-04	-1.9592611	-0.11048990E-03	0.20155949E-01	-0.86032065E-06

FILENAME : PIT5B3.PO DATE : 05-25-94 TIME : 10:28a
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2211	0.18697650E-03	-0.32686044E-04	-1.9042363	-0.17533454E-03	0.20115845E-01	-0.16865401E-05
2212	0.19368740E-03	-0.46147969E-04	-1.9783867	-0.22374178E-03	0.20125479E-01	-0.17042561E-05
2213	0.17591049E-03	-0.35627583E-04	-1.8399372	-0.20478992E-03	0.20069452E-01	-0.23923758E-05
2214	0.18750134E-03	-0.51213417E-04	-1.9242802	-0.26098083E-03	0.20080841E-01	-0.24613169E-05
2215	0.19750259E-03	-0.73373764E-04	-2.0086644	-0.33691260E-03	0.20068644E-01	-0.25011778E-05
2216	0.11367537E-03	-0.23837872E-03	-2.1324893	-0.33258998E-03	0.19645506E-01	-0.58894997E-05
2217	-0.77929052E-06	-0.11300465E-03	-1.8446528	-0.25020534E-03	0.19706785E-01	-0.78480560E-05
2218	0.32828383E-04	-0.16173620E-03	-1.9406927	-0.28591311E-03	0.19693616E-01	-0.74643616E-05
2219	0.71430161E-04	-0.20479182E-03	-2.0366498	-0.31458706E-03	0.19672823E-01	-0.67672097E-05
2220	0.22697530E-03	-0.15236193E-03	-2.1427929	-0.55905756E-03	0.19785492E-01	-0.34873975E-05
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2223	0.17856387E-03	-0.19694432E-03	-2.1359691	-0.45722433E-03	0.19676289E-01	-0.47247523E-05
2224	0.14935798E-03	-0.21727852E-03	-2.1340925	-0.39878834E-03	0.19658240E-01	-0.52760425E-05
2225	0.16268191E-03	-0.63551164E-04	-1.8515766	-0.31512548E-03	0.19971235E-01	-0.36045991E-05
2226	0.14682248E-03	-0.76313735E-04	-1.8501348	-0.33932312E-03	0.19906523E-01	-0.41695516E-05
2227	0.12454772E-03	-0.87306893E-04	-1.8486407	-0.33992565E-03	0.19845861E-01	-0.48322628E-05
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2231	0.16752249E-03	-0.10711194E-03	-1.9471307	-0.41194504E-03	0.19882311E-01	-0.41405242E-05
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2235	0.20077025E-03	-0.12181027E-03	-2.0460527	-0.47939600E-03	0.19895116E-01	-0.35815635E-05
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2243	0.24234752E-04	-0.21866101E-03	-2.0255742	-0.25790530E-03	0.19657056E-01	-0.79912077E-05
2244	0.22984918E-03	-0.26720036E-03	-2.3873453	-0.31102832E-03	0.19564569E-01	-0.80437079E-05
2245	0.14300932E-03	-0.25411851E-03	-2.1963044	-0.33712418E-03	0.19625080E-01	-0.44905153E-05
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2247	0.20172507E-03	-0.26815981E-03	-2.3237306	-0.32619788E-03	0.19583363E-01	-0.18750067E-05
2248	0.32938201E-03	-0.16022391E-03	-2.3971691	-0.53555067E-03	0.19355993E-01	-0.21975468E-05
2249	0.30851776E-03	-0.17691682E-03	-2.3948503	-0.51983842E-03	0.19418132E-01	-0.21934072E-05
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2251	0.26576595E-03	-0.21895118E-03	-2.3906311	-0.43508537E-03	0.19505055E-01	-0.18324924E-05
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2253	0.24707165E-03	-0.16883482E-03	-2.2044169	-0.58690531E-03	0.19678237E-01	-0.32490404E-05
2254	0.23596339E-03	-0.17817497E-03	-2.2024097	-0.55591158E-03	0.19656479E-01	-0.34432394E-05
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2261	0.21876634E-03	-0.22022456E-03	-2.2633168	-0.45999051E-03	0.19589781E-01	-0.31761894E-05
2262	0.19610449E-03	-0.24164762E-03	-2.2615564	-0.40037342E-03	0.19596914E-01	-0.31922566E-05
2263	0.30053549E-03	-0.17247818E-03	-2.3353507	-0.57450163E-03	0.19459726E-01	-0.25606376E-05
2264	0.28248624E-03	-0.18489753E-03	-2.3326430	-0.54465575E-03	0.19495635E-01	-0.25817675E-05
2265	0.26279166E-03	-0.20208191E-03	-2.3300865	-0.50249256E-03	0.19523470E-01	-0.25537216E-05
2266	0.24201368E-03	-0.22249659E-03	-2.3277266	-0.45067825E-03	0.19546588E-01	-0.24454729E-05
2267	0.22115651E-03	-0.24493041E-03	-2.3255988	-0.39139087E-03	0.19566382E-01	-0.22268576E-05
2268	0.22208795E-03	-0.28739679E-03	-2.3862907	-0.25049622E-03	0.19583435E-01	-0.16535884E-06
2269	0.11404275E-03	-0.27298072E-03	-2.1951583	-0.27292208E-03	0.19624342E-01	-0.46921800E-05
2270	0.15125512E-03	-0.28391470E-03	-2.2589142	-0.27041892E-03	0.19610058E-01	-0.29436649E-05
2271	0.18760274E-03	-0.28849977E-03	-2.3226241	-0.26285286E-03	0.19596159E-01	-0.13255016E-05
2272	0.46639118E-03	-0.82009337E-04	-2.7733267	-0.16321421E-03	0.19198758E-01	-0.22458471E-05
2273	0.49064694E-03	-0.21296781E-04	-2.7742550	-0.47354993E-04	0.19131126E-01	-0.72058168E-06
2274	0.48533332E-03	-0.42219569E-04	-2.7740580	-0.91859030E-04	0.19145847E-01	-0.13667685E-05
2275	0.47701851E-03	-0.62502453E-04	-2.7737428	-0.13105758E-03	0.19169013E-01	-0.18833482E-05
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2277	0.41487917E-03	-0.98299628E-04	-2.5865151	-0.30507558E-03	0.19140655E-01	-0.19275281E-05
2278	0.43971824E-03	-0.87495727E-04	-2.6798475	-0.22607684E-03	0.19155803E-01	-0.20308187E-05
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2303	0.45098034E-03	-0.50001443E-04	-2.6332641	-0.15449743E-03	0.19064485E-01	-0.11560663E-05
2304	0.46646474E-03	-0.44945716E-04	-2.7034996	-0.11964923E-03	0.19099696E-01	-0.12341025E-05
2305	0.41769443E-03	-0.87727011E-04	-2.5328626	-0.30529238E-03	0.19092970E-01	-0.15907053E-05
2306	0.43527003E-03	-0.74523518E-04	-2.6131037	-0.23192278E-03	0.19095163E-01	-0.16079071E-05
2307	0.45478916E-03	-0.66611915E-04	-2.6933351	-0.17555979E-03	0.19123543E-01	-0.17030200E-05
2308	0.35805537E-03	-0.22631378E-03	-2.7682623	-0.14571632E-03	0.19527392E-01	-0.90267529E-06
2309	0.26905323E-03	-0.25873055E-03	-2.4826650	-0.27817043E-03	0.19541692E-01	-0.31209559E-06
2310	0.30370239E-03	-0.24579571E-03	-2.5778942	-0.23670974E-03	0.19527595E-01	-0.15632789E-06
2311	0.33329834E-03	-0.23345592E-03	-2.6730782	-0.19109122E-03	0.19523085E-01	-0.37498604E-06
2312	0.44656190E-03	-0.11084285E-03	-2.7725308	-0.19790951E-03	0.19254113E-01	-0.23732329E-05
2313	0.42466375E-03	-0.13778435E-03	-2.7716246	-0.21369094E-03	0.19314625E-01	-0.23716883E-05
2314	0.40287494E-03	-0.16286626E-03	-2.7706868	-0.21275589E-03	0.19375307E-01	-0.22312950E-05
2315	0.38318783E-03	-0.18599339E-03	-2.7697833	-0.19851382E-03	0.19432494E-01	-0.19461203E-05
2316	0.36754205E-03	-0.20707643E-03	-2.7689643	-0.17482659E-03	0.19483767E-01	-0.15076731E-05
2317	0.36304847E-03	-0.14216985E-03	-2.4912776	-0.44581055E-03	0.19261448E-01	-0.20503101E-05
2318	0.34001809E-03	-0.16513155E-03	-2.4893068	-0.44890102E-03	0.19338777E-01	-0.20338650E-05
2319	0.31804675E-03	-0.18813601E-03	-2.4873831	-0.42637648E-03	0.19403618E-01	-0.18819909E-05
2320	0.29749240E-03	-0.21155529E-03	-2.4855979	-0.38695510E-03	0.19458079E-01	-0.15735793E-05
2321	0.28013712E-03	-0.23526058E-03	-2.4840117	-0.33627641E-03	0.19503862E-01	-0.10703610E-05
2322	0.39197174E-03	-0.12690376E-03	-2.5850597	-0.35337829E-03	0.19221268E-01	-0.20301567E-05
2323	0.36926243E-03	-0.15277917E-03	-2.5834713	-0.36733356E-03	0.19298647E-01	-0.20054033E-05
2324	0.34749627E-03	-0.17731709E-03	-2.5818806	-0.35589602E-03	0.19368759E-01	-0.18378120E-05
2325	0.32772983E-03	-0.20101238E-03	-2.5803816	-0.32665787E-03	0.19430386E-01	-0.15045298E-05
2326	0.31202185E-03	-0.22388502E-03	-2.5790387	-0.28543723E-03	0.19483400E-01	-0.96686829E-06
2327	0.41913773E-03	-0.11633251E-03	-2.6787531	-0.26950665E-03	0.19223183E-01	-0.21378477E-05
2328	0.39723603E-03	-0.14300211E-03	-2.6752707	-0.28674154E-03	0.19293307E-01	-0.21177869E-05
2329	0.37572241E-03	-0.16794543E-03	-2.6762748	-0.28236979E-03	0.19360855E-01	-0.19556899E-05
2330	0.35633163E-03	-0.19133344E-03	-2.6750793	-0.26172767E-03	0.19422679E-01	-0.16335055E-05
2331	0.34119575E-03	-0.21314745E-03	-2.6740006	-0.22981118E-03	0.19477142E-01	-0.11229657E-05
2336	0.35687925E-03	-0.24200556E-03	-2.7677651	-0.11961728E-03	0.19557689E-01	-0.75381730E-08
2337	0.26833460E-03	-0.27803353E-03	-2.4817214	-0.22435404E-03	0.19567809E-01	0.95385915E-06
2338	0.30641701E-03	-0.26370960E-03	-2.5770903	-0.19158963E-03	0.19558121E-01	0.12329802E-05
2339	0.33566217E-03	-0.25001484E-03	-2.6724280	-0.15553691E-03	0.19554935E-01	0.85007506E-06
2341	0.48551113E-03	-0.86605335E-04	-2.8462721	-0.12882367E-03	0.19252686E-01	-0.26549109E-05
2342	0.50526320E-03	-0.95351690E-04	-2.9194575	-0.97744949E-04	0.19311659E-01	-0.32236929E-05
2343	0.52490953E-03	-0.11008462E-03	-2.9928945	-0.70619662E-04	0.19373088E-01	-0.39992554E-05
2344	0.54377916E-03	-0.13364684E-03	-3.0665846	-0.48187990E-04	0.19434645E-01	-0.50570933E-05
2353	0.51258490E-03	-0.22309306E-04	-2.8470540	-0.37533969E-04	0.19190345E-01	-0.83164368E-06
2354	0.50673378E-03	-0.44322673E-04	-2.8468879	-0.72755063E-04	0.19203804E-01	-0.15880391E-05
2355	0.49750221E-03	-0.65800230E-04	-2.8466222	-0.10365919E-03	0.19225108E-01	-0.22081806E-05
2356	0.53701317E-03	-0.24612784E-04	-2.9200909	-0.28752947E-04	0.19254821E-01	-0.10127454E-05
2357	0.53014625E-03	-0.48893302E-04	-2.9199558	-0.55638477E-04	0.19267056E-01	-0.19344198E-05
2358	0.51929550E-03	-0.72552553E-04	-2.9197403	-0.79030288E-04	0.19286465E-01	-0.26883792E-05
2359	0.56299147E-03	-0.28834206E-04	-2.9933819	-0.21053837E-04	0.19322924E-01	-0.12757476E-05
2360	0.55467927E-03	-0.57112168E-04	-2.9932774	-0.40636992E-04	0.19333732E-01	-0.24306271E-05
2361	0.54162628E-03	-0.84332001E-04	-2.9931113	-0.57468626E-04	0.19350871E-01	-0.33618025E-05
2362	0.58932440E-03	-0.36127774E-04	-3.0669383	-0.14626269E-04	0.19393501E-01	-0.16468946E-05
2363	0.57926388E-03	-0.71086984E-04	-3.0668620	-0.28134630E-04	0.19402394E-01	-0.31260024E-05
2364	0.56358726E-03	-0.10384766E-03	-3.0667412	-0.39554629E-04	0.19416470E-01	-0.42956951E-05
2366	0.37450117E-03	-0.22645519E-03	-2.8424812	-0.11301974E-03	0.19535615E-01	-0.17999607E-05
2367	0.38904744E-03	-0.23247608E-03	-2.9167371	-0.84225163E-04	0.19546584E-01	-0.27575329E-05
2368	0.40229148E-03	-0.24393579E-03	-2.9910373	-0.60501347E-04	0.19558589E-01	-0.36693692E-05
2369	0.41473941E-03	-0.25876788E-03	-3.0653818	-0.42575823E-04	0.19569470E-01	-0.44586150E-05
2375	0.46527003E-03	-0.11466199E-03	-2.8456697	-0.15329755E-03	0.19299383E-01	-0.28316152E-05
2376	0.44317672E-03	-0.14099621E-03	-2.8449915	-0.16439804E-03	0.19350768E-01	-0.28626835E-05
2377	0.42137815E-03	-0.16541727E-03	-2.8442923	-0.16338188E-03	0.19402860E-01	-0.27558515E-05
2378	0.40174653E-03	-0.18777882E-03	-2.8436189	-0.15251847E-03	0.19452487E-01	-0.25274709E-05
2379	0.38576679E-03	-0.20802981E-03	-2.8430075	-0.13464869E-03	0.19497313E-01	-0.21992518E-05
2380	0.48393524E-03	-0.12327789E-03	-2.9190188	-0.11408101E-03	0.19350380E-01	-0.34544622E-05
2381	0.46110334E-03	-0.14922086E-03	-2.9185314	-0.12128754E-03	0.19392906E-01	-0.35107583E-05
2382	0.43887937E-03	-0.17303804E-03	-2.9180318	-0.12011019E-03	0.19436140E-01	-0.34205549E-05
2383	0.41893073E-03	-0.19471112E-03	-2.9175517	-0.11208142E-03	0.19477458E-01	-0.32284589E-05
2384	0.40227323E-03	-0.21439419E-03	-2.9171152	-0.99273314E-04	0.19514792E-01	-0.29878951E-05
2385	0.50209797E-03	-0.13830147E-03	-2.9925906	-0.80842554E-04	0.19404086E-01	-0.42796375E-05
2386	0.47822082E-03	-0.16380389E-03	-2.9922577	-0.85100023E-04	0.19437854E-01	-0.42320471E-05
2387	0.45530980E-03	-0.18665199E-03	-2.9919188	-0.83905263E-04	0.19472074E-01	-0.42112667E-05
2388	0.43479628E-03	-0.20720431E-03	-2.9915938	-0.78328657E-04	0.19504679E-01	-0.40007131E-05

FILENAME : PIT5B3.PO DATE : 05-25-94 TIME : 10:28a PAGE 7
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 8/25)

2389	0.41727689E-03	-0.22605041E-03	-2.9912974	-0.69885261E-04	0.19533958E-01	-0.37929226E-05
2390	0.51949498E-03	-0.16214586E-03	-3.0663860	-0.54105799E-04	0.19457699E-01	-0.53735767E-05
2391	0.49462866E-03	-0.18644666E-03	-3.0661716	-0.56382821E-04	0.19482527E-01	-0.53632652E-05
2392	0.47102395E-03	-0.20708702E-03	-3.0659547	-0.55407429E-04	0.19507516E-01	-0.51208513E-05
2393	0.44986504E-03	-0.22507569E-03	-3.0657466	-0.51966656E-04	0.19531164E-01	-0.47911752E-05
2394	0.43139060E-03	-0.24179351E-03	-3.0655549	-0.47198955E-04	0.19552170E-01	-0.45314112E-05
2401	0.36913970E-03	-0.24195261E-03	-2.8420943	-0.93749256E-04	0.19562979E-01	-0.13115151E-05
2402	0.37926766E-03	-0.24828943E-03	-2.9164469	-0.71178128E-04	0.19569788E-01	-0.25767326E-05
2403	0.38874804E-03	-0.26045926E-03	-2.9908259	-0.52942740E-04	0.19576700E-01	-0.36877129E-05
2404	0.39858026E-03	-0.27649969E-03	-3.0652286	-0.39829362E-04	0.19581953E-01	-0.45769449E-05

MAXIMUMS						
NODE	56	44	56	71	77	28
VALUE	0.61824773E-03	-0.31451120E-03	-3.1407865	-0.61935860E-03	0.20186841E-01	-0.12231327E-04

FILENAME : PIT5B4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 9/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4719 MAY 25,1994 CP= 84.530

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.92529524E-05	-753.76306		-1088.7027		1019.3021
56		2612.0728		-961.05876		-2474.4910
57		2161.1740		4706.2623		0.73840306E-02
58		1839.5101		13258.034		0.54095827E-02
59		1664.3365		24364.717		0.40515972E-02
60		1589.1727		38349.853		0.31329567E-02
61		1475.4169		51459.006		0.24117092E-02
62		1416.4136		63351.265		0.19698296E-02
63		1529.7183		82779.674		0.18266744E-02
64		1712.5789		107559.21		0.17189861E-02
65		932.98492		73853.558		0.83383679E-03
77		814.66716		84392.445		0.12594954E-02
78		1301.1793		122470.42		0.25480227E-02
79		963.47533		96888.929		0.25502157E-02
80		728.72064		77651.136		0.24499722E-02
81		577.80071		67615.336		0.24779767E-02
82		419.12288		56595.492		0.25317450E-02
83		234.86972		43408.062		0.24278958E-02
84		75.603475		32789.847		0.23061333E-02
85		-59.805493		24204.577		0.21700715E-02
86		-177.52729		17718.572		0.20607419E-02
87		-277.72435		12050.184		0.19247156E-02
88		-350.29449		7306.5769		0.17611091E-02
89		-400.58238		3725.9235		0.16697531E-02
90		-433.84733		1138.5733		0.16719627E-02
91		-457.29850		-605.52495		0.17886961E-02
92		-479.96870		-1639.1275		0.20393304E-02
93		-512.30797		-2081.1120		0.24394620E-02
94		-565.28194		-2037.2191		0.29974057E-02
101		-786.87914		-0.27110725E-02		2253.4434
156		1718.0516		0.41581271E-01		-11211.374
201		-725.88389		-0.25669538E-02		2310.3633
256		529.46550		0.34935892E-01		-13972.492
301		-678.01025		-0.23841024E-02		2177.0794
356		-534.20767		0.30730434E-01		-16862.723
401		-596.15005		-0.19497618E-02		1589.6749
456		-1355.2234		0.24672814E-01		-16696.201
501		-552.97575		-0.15751457E-02		977.06778
556		-1906.5942		0.19984547E-01		-16060.564
601		-529.80137		-0.12746976E-02		366.25765
656		-2278.0531		0.16318632E-01		-15236.452
701		-510.65503		-0.10495726E-02		-223.50531
756		-2531.7313		0.13449317E-01		-14396.930
801		-482.91888		-0.89338939E-03		-777.31392
856		-2720.3594		0.11230873E-01		-13650.788
901		-392.19359		-0.67272212E-03		-919.26371
956		-2395.8519		0.80852135E-02		-8890.0836
1001		-315.64477		-0.49298805E-03		-650.05635

FILENAME : PIT5B4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 9/25)

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1056	-1923.3791	0.53618254E-02	-4395.3231
1101	-285.03382	-0.46039759E-03	-847.57994
1156	-1895.2082	0.44312270E-02	-4065.1179
1201	-237.49560	-0.44318703E-03	-1028.1614
1256	-1922.9248	0.37830899E-02	-3790.6213
1301	-172.64949	-0.43530631E-03	-1186.6012
1356	-2048.2983	0.34006468E-02	-3593.0176
1401	-60.713838	-0.21654381E-03	-685.36639
1456	-1101.0966	0.16371120E-02	-1734.0083
TOTAL	0.92529524E-05 -9112.0000	0.00000000E+00 1099225.0	0.00000000E+00 -142654.78

FILENAME : PITSC1.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 10/25)

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C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	0.900000
3	1.00000
4	1.00000

LOAD CASE OPERATION FOR LCAD COMMAND. RESULT LOAD CASE = 4					
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	1.00000	3	1	1	0.000000E+00

CURRENT LOAD CASE= 4

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE

10.4727 MAY 25,1994 CP= 87.390

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 4

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
1176	-107.93196	-100.24892	0.72123734	1.3465533	-2187.5348	46.731837
1177	-106.94259	-100.10491	2.1262803	4.0655438	-2152.2121	139.03274
1178	-104.97853	-99.777495	3.4178628	9.2660910	-2081.7374	227.78205
1179	-102.07016	-99.182909	4.5166845	16.433337	-1976.5193	310.39999
1180	-99.885008	-101.26411	0.23800326	266.26254	-1293.5034	60.308427
1181	-99.071250	-101.04984	0.68576844	264.19179	-1270.1567	179.66545
1182	-97.464509	-100.58036	1.0484955	259.60124	-1223.8157	295.15567
1183	-95.108606	-99.769745	1.2690319	251.54342	-1155.2353	403.90532
1184	-93.927404	-101.34963	-0.15212367	533.16180	-567.46541	68.901022
1185	-93.287883	-101.08838	-0.47212722	526.17042	-555.06450	205.30829
1186	-92.035694	-100.52568	-0.83852461	511.50129	-530.65821	337.43000
1187	-90.226846	-99.578704	-1.2783782	487.72343	-495.05989	462.06932
1188	-89.722453	-100.70034	-0.45334685	794.19580	15.223394	73.059479
1189	-89.242303	-100.42196	-1.3604833	782.17319	18.008766	217.66567
1190	-88.312974	-99.828059	-2.2671548	757.20118	23.235961	357.63176
1191	-86.997605	-98.844217	-3.1658594	717.36460	30.220723	489.52438
1192	-86.933159	-99.494636	-0.67676392	1042.6131	476.73536	73.428478
1193	-86.585143	-99.233802	-2.0136457	1025.5508	471.34977	218.70540
1194	-85.922033	-98.679216	-3.2986585	990.27730	460.33643	359.14969
1195	-85.008958	-97.767550	-4.4895121	934.43485	443.23121	491.23276
1196	-85.243832	-97.880768	-0.83937291	1272.8497	836.42965	70.673023
1197	-84.993321	-97.674929	-2.4833728	1250.8803	824.31509	210.43539
1198	-84.520294	-97.233599	-4.0223091	1205.6042	799.95774	345.37088
1199	-83.895455	-96.502802	-5.3818018	1134.2880	763.13306	472.00813
1200	-84.378014	-95.965935	-0.96257445	1480.5059	1110.7139	65.436285
1201	-84.177817	-95.854545	-2.8338218	1453.9057	1093.2539	194.78133
1202	-83.813644	-95.601623	-4.5447966	1399.2254	1058.3037	319.49225
1203	-83.352294	-95.155428	-5.9925280	1313.4373	1005.8491	436.29848
1204	-84.111684	-93.808063	-1.0713721	1662.2437	1313.0220	58.325328
1205	-83.914781	-93.834262	-3.1381057	1631.4064	1291.5341	173.54688
1206	-83.564292	-93.849038	-4.9834048	1568.1743	1248.5863	284.46275
1207	-83.135888	-93.789183	-6.4765364	1469.3404	1184.3009	388.13008
1208	-84.282670	-91.407943	-1.1947849	1815.9337	1453.8143	49.919439

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1209	-84.032051	-91.624981	-3.4794313	1781.3010	1429.5750	148.43776
1210	-83.590634	-91.998884	-5.4641199	1710.5011	1381.1103	243.03386
1211	-83.058367	-92.437896	-6.9923475	1600.3324	1308.6457	331.19318
1212	-98.266424	-98.182690	5.3386236	24.687848	-1837.3512	383.97441
1213	-93.641156	-96.565701	5.7940082	32.633147	-1665.6575	445.09502
1214	-88.306294	-94.018633	5.7895903	38.104632	-1463.8766	489.64521
1215	-82.438386	-90.080239	5.2372754	37.756307	-1236.0443	512.52480
1216	-76.332981	-84.073951	4.0823382	26.348495	-988.67230	507.23283
1217	-70.505957	-75.020329	2.3624528	-4.6018250	-731.97544	465.17492
1218	-92.075725	-98.478348	1.2916414	238.46505	-1065.6755	502.57497
1219	-88.476791	-96.498390	1.0675307	218.02273	-957.05388	587.12736
1220	-84.480173	-93.532539	0.56799590	186.79012	-832.14303	652.54250
1221	-80.344331	-89.165523	-0.18627795	139.80164	-694.76740	692.46590
1222	-76.470154	-82.838082	-1.0643721	69.858107	-549.85903	698.82025
1223	-73.484259	-73.837722	-1.6833660	-33.365958	-403.07932	661.57518
1224	-87.951736	-98.116964	-1.8094369	452.53738	-449.54014	575.50361
1225	-85.344449	-95.954938	-2.4284309	402.56960	-395.86750	673.24677
1226	-82.597349	-92.843705	-3.0887199	333.06611	-336.32090	749.79422
1227	-79.980677	-88.468009	-3.6596707	237.46913	-273.61441	798.38420
1228	-77.861427	-82.461457	-3.8549965	106.92640	-210.66712	810.87640
1229	-76.688183	-74.508106	-3.1183942	-69.966717	-150.25631	777.95072
1230	-85.394140	-97.358725	-4.0340253	659.63234	37.950421	609.39694
1231	-83.639444	-95.223757	-4.8189660	579.65654	45.120751	712.58487
1232	-81.913930	-92.260970	-5.4128810	471.49701	50.217281	793.51966
1233	-80.442419	-88.278161	-5.6144133	327.28839	51.664552	845.59910
1234	-79.479563	-83.115558	-5.0760951	136.93729	48.027040	861.15947
1235	-79.257065	-76.725504	-3.2628602	-111.94322	38.171517	831.51862
1236	-83.941756	-96.410378	-5.5279191	854.33933	419.39056	610.97106
1237	-82.844456	-94.503394	-6.3247406	744.80350	388.06488	713.76351
1238	-81.863790	-91.942068	-6.7379009	598.91100	348.50706	794.25952
1239	-81.156757	-88.649471	-6.5437835	407.76651	300.11626	846.27883
1240	-80.863665	-84.620333	-5.4096784	160.27006	242.59826	862.78046
1241	-81.066421	-79.983421	-2.8765940	-157.04098	176.12661	835.79892
1242	-83.206296	-95.414753	-6.4764860	1032.7016	713.57809	586.49891
1243	-82.557843	-93.903581	-7.1976698	894.97473	651.07782	684.49375
1244	-82.058328	-91.927195	-7.3960832	713.41180	575.57709	761.04116
1245	-81.800631	-89.496437	-6.8628298	478.30243	487.30964	810.52627
1246	-81.837207	-86.712673	-5.3140815	177.72655	386.94397	826.64579
1247	-82.145962	-83.811519	-2.3877362	-202.69292	275.77889	802.37966
1248	-82.879011	-94.458691	-7.0741235	1191.8725	935.96221	541.63289
1249	-82.483380	-93.470478	-7.6778824	1028.1377	848.89126	631.54534
1250	-82.240892	-92.191563	-7.6693973	813.92310	745.17745	701.62672
1251	-82.194805	-90.692435	-6.8771218	538.87477	625.77408	746.93322
1252	-82.333557	-89.142494	-5.0826673	190.46331	492.16515	761.99992
1253	-82.568911	-87.839049	-2.0211889	-246.25707	346.55454	740.90745
1254	-82.722080	-93.590171	-7.5066386	1329.8495	1098.9930	481.39477
1255	-82.405286	-93.216213	-7.9743961	1142.9876	993.28471	560.81176
1256	-82.240698	-92.689942	-7.7784092	899.93504	868.19658	622.67375
1257	-82.234658	-92.117202	-6.7994207	589.83268	725.29214	662.78160
1258	-82.333107	-91.708513	-4.8917374	199.75190	566.72556	676.56110
1259	-82.402852	-91.796183	-1.8824918	-285.44471	395.38405	659.20035
1260	-82.549627	-92.839504	-7.9441981	1445.0313	1212.4564	410.25295
1261	-82.166186	-93.144041	-8.2594920	1238.6163	1093.4670	477.39962
1262	-81.939841	-93.382942	-7.8886715	971.25420	953.04336	529.83969
1263	-81.855867	-93.680958	-6.7704851	631.74636	793.25420	564.15010
1264	-81.831255	-94.266950	-4.8359212	206.92398	616.76887	576.66154
1265	-81.706060	-95.496741	-2.0044945	-318.42335	427.11115	563.57275
1266	-65.972304	-61.527932	0.46883515	-70.354825	-480.39265	375.40075
1267	-64.698070	-42.934060	-0.14611456	-200.20261	-256.08794	233.38748
1268	-72.263177	-61.598208	-1.1137842	-183.24859	-260.07434	570.54048
1269	-73.569121	-45.893978	2.0773751	-388.68831	-127.25311	418.08782
1270	-76.859377	-64.495582	-0.57385848	-306.13422	-95.115056	689.58150
1271	-78.609306	-52.719734	5.0049336	-611.99333	-48.500896	533.48154
1272	-79.910090	-69.286103	0.56717006	-433.60232	21.235853	746.68872
1273	-81.350048	-61.330976	7.3208958	-843.89521	-2.8686391	593.72341
1274	-81.726589	-75.074968	1.6307754	-560.19566	101.56186	756.13182
1275	-82.624208	-70.504356	8.7556137	-1068.7128	21.268280	612.65943
1276	-82.593793	-81.206226	2.3405395	-680.23071	156.06508	729.90153
1277	-82.902978	-79.520001	9.3179119	-1275.9979	31.718490	600.55618
1278	-82.713022	-87.230922	2.6048130	-789.09538	192.17650	677.39853

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1279	-82.465637	-87.930521	9.0968313	-1459.3507	33.794593	565.16693
1280	-82.225213	-92.845606	2.4192360	-883.55943	215.12262	605.96907
1281	-81.486156	-95.455389	8.2044833	-1615.0932	31.018139	512.45446
1282	-81.227735	-97.849994	1.8263078	-961.60134	228.26771	521.51257
1283	-80.088671	-101.91149	6.7627573	-1741.9397	25.975831	447.29255
1284	-84.769497	-88.786691	-1.3240538	1938.1179	1541.5522	40.077235
1285	-84.422246	-89.233493	-3.8369049	1902.1312	1517.0992	119.05824
1286	-83.810645	-90.033954	-5.9711167	1828.9200	1468.0717	194.64639
1287	-83.068168	-91.037035	-7.5509160	1715.7893	1394.4079	264.91470
1288	-85.546071	-85.813329	-1.4807880	2030.2463	1581.8397	29.929402
1289	-85.059847	-86.519343	-4.2757359	1995.2247	1559.8253	88.683616
1290	-84.199002	-87.791435	-6.6078575	1924.5415	1515.3676	144.37457
1291	-83.148263	-89.408310	-8.2845606	1816.5124	1447.7707	195.65582
1292	-86.668161	-82.211945	-1.7386637	2096.0854	1578.7531	21.261870
1293	-85.972417	-83.253838	-4.9903490	2062.0885	1560.5196	62.472943
1294	-84.756190	-85.120161	-7.6466817	1994.3183	1523.1073	100.21775
1295	-83.265138	-87.472677	-9.4843213	1892.4941	1464.8571	133.51648
1296	-88.274704	-77.605171	-2.1507439	2138.4461	1530.1578	14.986937
1297	-87.280385	-79.136925	-6.1377641	2104.5684	1517.3382	42.982489
1298	-85.543914	-81.813108	-9.2794459	2038.4393	1489.8457	65.890313
1299	-83.475382	-85.119830	-11.363468	1942.0794	1444.3796	82.816673
1300	-90.569874	-71.389646	-2.7926855	2163.1518	1429.4946	12.553238
1301	-89.168323	-73.646485	-7.9188619	2126.8775	1424.4964	34.188292
1302	-86.737234	-77.598711	-11.834389	2058.3915	1410.8873	47.014229
1303	-83.843982	-82.206645	-14.171502	1963.7700	1383.1198	49.677556
1304	-82.219962	-92.141781	-8.4699946	1552.6578	1294.5349	328.83971
1305	-81.716048	-93.174558	-8.6885047	1332.2352	1166.7356	384.28084
1306	-81.300706	-94.171593	-8.1741957	1045.7986	1015.1780	428.07226
1307	-81.052926	-95.242470	-6.9447616	681.44038	842.36625	457.43204
1308	-80.866460	-96.638702	-5.0146898	225.23692	651.47005	469.32248
1309	-80.554555	-98.731577	-2.3852347	-338.57816	446.43284	460.74487
1310	-82.013041	-91.298568	-9.2392189	1652.9703	1349.6181	244.03921
1311	-81.027646	-93.184379	-9.3933742	1424.6209	1217.7564	288.10555
1312	-80.310352	-94.956209	-8.7219411	1124.9561	1059.0022	223.56727
1313	-79.840902	-96.718426	-7.3514789	740.59702	876.39247	348.52079
1314	-79.485971	-98.744969	-5.3974634	256.11371	673.68962	360.48331
1315	-79.017232	-101.46971	-2.9456002	-345.43794	455.31323	356.80624
1316	-81.581445	-90.321874	-10.481960	1731.4860	1372.8523	164.90780
1317	-80.040376	-93.239535	-10.498062	1499.2540	1241.7954	194.67875
1318	-78.921071	-95.849104	-9.5566636	1291.9408	1080.4083	219.45076
1319	-78.194977	-98.235467	-7.9390236	794.01390	892.39877	238.49680
1320	-77.685961	-100.71927	-5.8945578	288.03230	682.25891	249.89287
1321	-77.103842	-103.80779	-3.6143704	-344.47868	455.04771	251.26577
1322	-82.013849	-89.218560	-12.391305	1784.7706	1363.4160	95.707508
1323	-78.711950	-93.446851	-12.138113	1552.7663	1238.8101	107.51584
1324	-77.086285	-96.986857	-10.728388	1244.2717	1079.6980	118.72291
1325	-76.107580	-99.907245	-8.6893261	840.22822	890.82351	130.16765
1326	-75.500235	-102.62451	-6.4559172	320.32769	677.67062	140.31341
1327	-74.877367	-105.76691	-4.3191784	-335.78140	445.86896	146.78449
1328	-80.364391	-87.991501	-15.247670	1808.6441	1319.3715	41.652094
1329	-76.930641	-93.999509	-14.493324	1580.7952	1207.9890	30.367258
1330	-74.732955	-98.592535	-12.245032	1278.6255	1056.7065	24.241821
1331	-73.593571	-101.87988	-9.5299711	876.96151	871.89304	26.121811
1332	-73.009975	-104.52866	-6.9974646	351.30475	660.49702	34.244637
1333	-72.440949	-107.36971	-4.9896238	-320.45472	428.25655	45.615253
1334	-79.836631	-102.04012	0.93708712	-1020.6719	233.45355	430.44932
1335	-78.415286	-107.07921	4.9579443	-1838.3442	17.265791	375.65140
1336	-78.125876	-105.36841	-0.14013495	-1061.6177	232.00030	327.36897
1337	-76.522675	-110.95470	2.9485899	-1904.7637	9.2315345	301.02776
1338	-76.125420	-107.94507	-1.3472440	-1086.7993	225.63909	243.02799
1339	-74.436021	-113.66013	0.78739033	-1945.9342	-0.32714455	224.19402
1340	-73.892932	-109.76844	-2.5841869	-1096.4839	214.13468	149.47409
1341	-72.244621	-115.19052	-1.3904358	-1964.4422	-11.333085	147.51331
1342	-71.512737	-110.87454	-3.7791609	-1091.9608	198.31166	58.216068
1343	-69.950851	-115.58363	-3.4525000	-1959.7324	-26.191768	72.466403
1344	-93.760468	-63.300080	3.8599948	-2180.3609	-1277.6711	15.575738
1345	-98.125262	-52.695637	5.5356866	-2207.0015	-1066.5145	28.946100
1346	-104.25085	-37.348696	8.2107188	-2279.6613	-761.85517	61.557374
1347	-110.25683	-15.406038	11.339229	-2462.5757	-318.40343	139.47142
1348	-91.770966	-66.448922	10.955148	-2134.6075	-1278.6003	40.927163

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1349	-95.181720	-57.233649	15.926762	-2140.0096	-1070.0005	77.669254
1350	-99.735994	-44.272598	23.862063	-2167.6323	-774.43373	172.44846
1351	-106.42530	-26.480799	34.056533	-2235.9981	-389.15327	385.09510
1352	-88.254601	-72.053476	16.377318	-2048.9954	-1274.9585	50.568930
1353	-89.725487	-65.868982	24.183250	-2010.6480	-1070.9815	99.572933
1354	-90.994687	-58.742976	36.792158	-1936.9663	-800.06525	237.88823
1355	-96.401067	-50.608813	55.782923	-1785.1959	-515.15993	516.05454
1356	-83.981730	-79.094632	19.542365	-1933.8412	-1257.2099	39.257367
1357	-82.557096	-77.377466	29.067490	-1830.4939	-1060.1458	78.809291
1358	-79.801017	-79.555027	43.918274	-1593.7936	-820.69214	210.78692
1359	-73.776656	-94.233638	69.673191	-1135.6370	-628.01524	461.69607
1360	-78.484833	-87.684491	-20.201094	1769.1036	1210.7885	3.0251369
1361	-73.758579	-96.273318	-17.787366	1552.1862	1123.3437	-43.091250
1362	-71.269773	-101.74451	-13.921209	1269.8214	988.18183	-73.594852
1363	-70.326682	-104.82688	-10.210726	885.23011	815.82849	-83.750430
1364	-70.029527	-106.78371	-7.3768227	368.75853	615.80473	-77.600885
1365	-69.651192	-108.73852	-5.6309333	-301.56480	394.95873	-60.549665
1366	-74.370964	-90.730756	-27.959058	1637.6876	1041.4055	-5.6399044
1367	-68.643959	-102.07634	-21.778018	1451.9085	991.93385	-109.56801
1368	-66.643338	-107.25831	-15.169461	1214.4571	879.82174	-172.21075
1369	-66.589780	-108.84216	-10.273087	866.83774	727.79036	-194.59308
1370	-66.893835	-109.19435	-7.3809283	375.94661	548.54003	-189.35971
1371	-66.830733	-109.66209	-6.1444855	-276.51319	347.59472	-166.52923
1372	-67.791808	-100.34030	-38.234384	1378.3443	849.05241	33.091925
1373	-61.784060	-112.91959	-24.837434	1284.6336	836.79941	-163.30032
1374	-61.960927	-114.82059	-14.702034	1132.8990	747.82917	-258.10944
1375	-63.442433	-113.02194	-9.2938287	841.35859	621.69455	-287.41764
1376	-64.471930	-111.06550	-6.8849335	385.29283	469.85850	-281.22515
1377	-64.729689	-109.74078	-6.4169849	-243.24713	294.27737	-254.30278
1378	-54.919905	-125.73279	-49.957029	892.86104	678.01489	74.520754
1379	-53.787420	-130.44026	-23.240922	1056.5731	672.92585	-226.12706
1380	-58.354027	-122.82318	-11.621180	1040.8802	604.99900	-329.06047
1381	-61.438627	-116.45497	-7.2314682	815.70827	512.73548	-355.81671
1382	-63.047741	-111.95237	-5.9540422	397.30822	392.24091	-349.00461
1383	-63.554123	-108.86074	-6.4743963	-204.51835	244.66014	-321.34984
1384	-68.840824	-111.24066	-5.0671290	-1070.4372	175.80110	-37.748575
1385	-67.400045	-114.68438	-5.6758195	-1927.0587	-35.002087	-9.3165914
1386	-66.211565	-110.68060	-6.3405420	-1030.8768	144.62795	-133.72514
1387	-65.019900	-112.38626	-7.8650250	-1873.2132	-56.642910	-93.908878
1388	-64.300551	-109.14557	-7.3795002	-978.48196	111.53874	-215.73274
1389	-63.372044	-109.02073	-9.5539427	-1801.6961	-74.974419	-168.00597
1390	-63.310759	-106.77355	-8.1830612	-918.25177	82.788113	-280.28811
1391	-62.661774	-105.07786	-10.819680	-1720.4344	-85.356338	-230.92137
1392	-38.568763	-167.87710	-46.741916	488.06174	700.08019	-67.547690
1393	-49.604663	-143.11126	-15.411190	910.15316	579.57091	-306.87176
1394	-57.083263	-127.06122	-7.5494116	969.86900	514.77270	-373.77963
1395	-60.818840	-117.63692	-5.2680430	778.28067	446.18643	-392.97532
1396	-62.598802	-111.57215	-5.2764721	388.42312	349.78275	-386.74596
1397	-63.242881	-107.32590	-6.6061001	-180.85356	220.14214	-360.26091
1398	-25.941636	-190.43108	-16.689204	408.78268	634.57969	-336.46108
1399	-49.085615	-145.89090	-4.8361807	882.08846	500.44036	-372.75776
1400	-57.126274	-127.30490	-2.8378764	934.00117	456.53410	-397.71257
1401	-60.796099	-116.99117	-3.0275611	748.27865	403.61619	-411.66641
1402	-62.536619	-110.40158	-4.2480816	377.62749	320.07105	-410.23030
1403	-63.248217	-105.68941	-6.2229255	-160.26485	204.56738	-390.98785
1404	-26.343995	-190.61743	18.200697	522.49045	535.08334	-537.58345
1405	-49.249809	-145.29865	5.5289945	880.35366	471.01327	-413.45770
1406	-57.120913	-126.43845	1.6955377	919.98938	440.69574	-411.46871
1407	-60.793254	-115.79020	-0.73090193	742.72982	392.38731	-425.69470
1408	-62.625639	-108.82364	-3.0726422	387.47845	313.18637	-431.18730
1409	-63.463117	-103.73256	-5.6932516	-132.09190	202.31015	-419.21815
1410	-38.705476	-169.26604	47.025762	730.23484	448.46492	-632.38843
1411	-49.562444	-141.94224	15.067084	896.04725	485.19015	-447.53799
1412	-56.836274	-124.80715	5.9674193	916.36846	466.35514	-426.34386
1413	-60.682890	-114.24820	1.3886422	749.05528	416.02157	-441.97208
1414	-62.820044	-106.92236	-2.0106825	406.29482	334.45163	-453.35956
1415	-63.967446	-101.39119	-5.3177447	-105.54577	219.95578	-445.08587
1416	-63.118013	-104.33054	-8.6092129	-864.79812	68.799050	-323.66598
1417	-62.774140	-101.61459	-11.466094	-1654.5031	-97.142007	-274.86495
1418	-63.362728	-102.07424	-8.7551853	-821.80265	66.463857	-355.42829

FILENAME : PITSCL.P0 DATE : 05-25-94 TIME : 10:28a PAGE 5
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 10/25)

1419	-63.231846	-98.834876	-11.712270	-1596.9713	-88.427804	-305.46848
1420	-63.834466	-99.628098	-8.7380480	-778.81688	72.305622	-384.21891
1421	-63.878296	-96.079076	-11.803834	-1536.5019	-78.020005	-332.75170
1422	-64.496924	-97.002416	-8.5976728	-735.79265	85.556556	-413.20915
1423	-64.643300	-93.310672	-11.752296	-1472.5906	-65.271202	-359.89697
1424	-103.72632	-15.168267	-11.209124	-1197.7903	-181.62096	-75.720217
1425	-99.818277	-37.510929	-8.5491066	-1071.1925	-442.18737	-49.406032
1426	-94.461100	-53.512444	-5.7846127	-963.44259	-544.50355	-40.939877
1427	-90.975434	-64.552259	-4.0011447	-853.35510	-520.91884	-38.341405
1428	-101.38884	-26.541783	-33.846426	-1206.0650	-193.07795	-234.31182
1429	-95.131867	-44.851243	-24.665946	-1087.4523	-439.41377	-152.57269
1430	-91.306961	-58.167521	-16.604500	-974.89675	-550.14266	-122.96360
1431	-88.782171	-67.681060	-11.342638	-858.18907	-525.47028	-114.76181
1432	-93.852098	-51.387197	-55.978048	-1195.0347	-228.12500	-405.79081
1433	-86.509546	-59.820958	-37.606820	-1106.3235	-444.70975	-262.85828
1434	-85.532706	-66.889649	-25.087895	-992.64104	-560.65962	-204.95812
1435	-84.927123	-73.144296	-16.913737	-865.16814	-533.71852	-190.24182
1436	-73.437046	-95.660691	-70.489354	-1095.3844	-301.41506	-556.92957
1437	-76.101645	-80.632508	-44.385454	-1099.2449	-467.32852	-365.63573
1438	-78.143502	-78.210609	-29.957675	-1006.6978	-575.02632	-283.39874
1439	-80.267182	-79.802386	-20.135141	-870.98617	-542.54402	-263.65927
1440	-54.426325	-126.16049	50.332995	937.84628	419.49803	-547.26151
1441	-52.981760	-128.77399	23.086837	949.03194	510.11914	-455.21165
1442	-57.517655	-119.12648	10.524448	915.01444	503.39328	-442.60883
1443	-60.933369	-110.61032	4.1419596	744.50996	449.44291	-465.03371
1444	-63.251560	-103.64739	-0.33883946	416.72021	361.27803	-484.30465
1445	-64.768946	-97.893335	-4.3871530	-75.611283	242.25523	-480.92059
1446	-65.026735	-100.34793	38.427004	1021.0580	521.24358	-420.12734
1447	-59.293676	-110.69968	24.795637	975.32232	572.13953	-437.05622
1448	-59.879201	-109.74919	13.962619	890.94520	553.80153	-467.02822
1449	-62.052650	-104.56964	7.0042105	711.68173	490.75696	-505.00899
1450	-64.206865	-98.690360	1.8489012	405.40852	395.19674	-531.75819
1451	-66.030687	-93.045820	-2.8171803	-48.048465	272.63391	-531.08724
1452	-70.141803	-90.492585	28.620052	970.44956	591.00666	-360.44121
1453	-64.734759	-99.460613	22.160329	921.85010	596.13690	-432.39607
1454	-63.186892	-101.19881	15.077372	829.40038	562.45657	-497.03051
1455	-63.938473	-98.358692	9.0906447	659.99858	495.91368	-551.97648
1456	-65.590976	-93.330542	4.0533154	384.60712	402.13255	-586.07095
1457	-67.492477	-87.652362	-0.82563700	-21.409072	285.12664	-586.49643
1458	-74.311588	-87.253658	20.775053	849.97419	541.51252	-349.85187
1459	-69.268695	-93.433391	18.290707	810.41522	526.15561	-445.09282
1460	-66.753702	-95.147700	14.282183	730.20005	490.65017	-529.30009
1461	-66.257460	-93.022767	10.074613	585.49706	433.94858	-596.45241
1462	-67.128253	-88.253189	5.9052549	351.66278	356.85038	-636.25496
1463	-68.805851	-82.098932	1.3556515	3.5302422	260.92578	-636.44823
1464	-65.638552	-93.368796	-8.1801127	-680.75909	108.09986	-450.18752
1465	-65.983156	-89.741804	-11.665773	-1384.3532	-32.944585	-394.32663
1466	-67.323888	-88.404689	-7.2038901	-609.49629	138.45303	-497.81552
1467	-68.036713	-85.007787	-11.261674	-1273.6986	-1.6409870	-436.37353
1468	-69.140493	-82.696873	-5.6817390	-530.02308	159.42822	-548.40945
1469	-70.185658	-79.250925	-10.506694	-1143.5937	31.029815	-474.77755
1470	-70.619127	-76.284475	-3.7006839	-439.91662	157.51636	-591.21738
1471	-72.009488	-72.075484	-9.3652890	-986.97540	52.546903	-502.86881
1472	-89.333897	-72.809560	2.7973742	719.61026	364.44179	-39.284017
1473	-87.692318	-74.987298	7.9174922	721.02428	366.03205	-117.71240
1474	-84.820516	-78.706685	11.790950	722.24777	368.76303	-195.41552
1475	-81.344684	-82.815398	14.068539	721.00306	370.38870	-271.53590
1476	-89.583012	-78.800070	1.9662111	558.47799	62.004728	-40.806305
1477	-88.262196	-80.229243	5.5917325	560.54958	64.779173	-122.40139
1478	-85.905269	-82.638502	8.4043962	563.42504	69.939292	-203.78619
1479	-82.976054	-85.415180	10.233942	564.82643	77.128199	-284.34237
1480	-91.643672	-82.681073	1.3064394	379.31462	-389.51877	-40.971270
1481	-90.519124	-83.652617	3.7235300	382.17225	-382.52178	-122.93624
1482	-88.468440	-85.316254	5.6369303	386.84694	-368.75648	-204.79427
1483	-85.773981	-87.219184	6.8876324	391.44210	-347.87429	-285.87529
1484	-95.404816	-84.983112	0.74509435	185.73142	-1000.2497	-38.466893
1485	-94.401980	-85.697385	2.1141494	189.81334	-986.47778	-115.35958
1486	-92.513236	-86.910404	3.1578225	197.19056	-958.94769	-191.98858
1487	-89.940420	-88.260744	3.7725280	206.24862	-916.64084	-267.66199
1488	-100.68352	-86.055001	0.26013469	-17.911137	-1784.0151	-32.430924

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1489	-99.819272	-86.610136	0.68945719	-11.823083	-1761.6290	-96.973475
1490	-98.134168	-87.542644	0.87932303	-0.25163135	-1716.1556	-160.49441
1491	-95.690587	-88.530342	0.76656182	15.345280	-1645.2103	-222.07766
1492	-77.064326	-87.408877	15.130461	704.66952	368.65267	-361.77945
1493	-72.664250	-90.995102	14.486366	675.19912	359.10643	-463.43191
1494	-69.720268	-91.719447	12.453075	611.87028	338.92830	-553.58690
1495	-68.336963	-89.360630	9.8553006	496.12158	306.07685	-624.42217
1496	-68.347090	-84.321082	6.8861694	307.20568	259.37643	-665.10865
1497	-69.515215	-77.356041	3.1500744	21.458052	197.91483	-663.03110
1498	-79.259990	-88.359567	11.135772	552.18098	86.633737	-375.02572
1499	-75.362409	-90.266490	11.033358	532.36801	96.548282	-474.50483
1500	-72.197760	-90.005029	10.099562	486.02264	104.09041	-562.08707
1501	-70.067768	-87.161164	8.7223462	399.08089	106.55173	-629.90654
1502	-69.132604	-81.664522	6.9453607	254.47322	101.82110	-667.36714
1503	-69.481566	-73.803495	4.3135793	31.509457	88.116768	-661.93670
1504	-82.358854	-89.092913	7.5163506	384.73459	-316.75374	-371.97383
1505	-78.549506	-89.965357	7.5760567	376.56056	-276.30387	-463.16807
1506	-74.982277	-89.065425	7.2210196	349.99702	-229.53596	-542.76994
1507	-71.947951	-85.871568	6.6976638	294.44551	-179.40405	-603.22563
1508	-69.755495	-79.992120	6.0030373	196.31706	-129.00512	-634.38921
1509	-68.802553	-71.232818	4.6754033	38.016670	-81.642467	-623.87549
1510	-86.648172	-89.476763	3.9567248	207.32359	-854.86788	-342.70890
1511	-82.781827	-89.748883	3.8446499	212.88020	-774.80038	-418.96495
1512	-78.708236	-88.529338	3.6187346	207.88675	-678.61480	-484.09682
1513	-74.613175	-85.237816	3.4834294	184.93821	-568.89224	-531.69687
1514	-70.778936	-79.290605	3.5206049	133.93555	-449.78281	-552.70791
1515	-67.746875	-70.011102	3.5010325	40.461498	-327.07367	-535.32439
1516	-92.526851	-89.337339	0.34521812	26.378219	-1545.0970	-278.72021
1517	-88.719239	-89.275130	-0.23217622	47.871880	-1418.8314	-331.75255
1518	-84.263143	-87.936396	-0.82226101	65.403875	-1264.8752	-373.96510
1519	-79.140910	-84.786904	-1.1936920	74.805733	-1083.9894	-400.68964
1520	-73.441789	-79.166462	-1.1248387	69.230519	-880.50679	-405.29273
1521	-67.505144	-70.198121	-0.48659099	37.628907	-663.16943	-378.73533
1522	-71.252835	-70.253527	-1.6470325	-351.27746	128.89793	-611.96318
1523	-72.930919	-64.403210	-7.8752346	-825.98815	54.541171	-510.16291
1524	-70.840144	-65.038671	0.20959604	-269.40496	66.623466	-606.26699
1525	-72.708089	-56.711208	-6.1568425	-664.88309	38.362207	-492.86141
1526	-69.308386	-60.471085	1.8026989	-187.14266	-41.145191	-563.55288
1527	-71.172971	-48.751685	-3.9304442	-494.27980	-10.306407	-443.64046
1528	-66.428058	-57.393399	2.4639648	-107.91398	-209.17676	-470.28347
1529	-67.577971	-41.686200	-1.3641474	-328.05092	-102.65184	-349.47084
1530	-62.323359	-56.714644	0.51041367	-36.325154	-447.24711	-311.17693
1531	-60.239646	-37.871389	0.36428310	-189.25661	-254.91748	-195.93003
MINIMUMS						
ELEMENT	1347	1404	1436	1347	1176	1502
VALUE	-110.25683	-190.61743	-70.489354	-2462.5757	-2187.5348	-667.36714
MAXIMUMS						
ELEMENT	1398	1424	1359	1300	1288	1240
VALUE	-25.941636	-15.168267	69.673191	2163.1518	1581.8397	862.78046

FILENAME : PIT5C2.PO DATE : 05-25-94 TIME : 10:28a
 TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 11/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 94 BY 1

94 NODES (OF 1188 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

145 ELEMENTS (OF 1182 DEFINED) SELECTED FROM 94 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

90 ELEMENTS (OF 1182 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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 FOR SUPPORT CALL PHONE TWX

TITLE

10.4731 MAY 25,1994 CP= 88.710

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-186.52198	217.64621	586.68233	-106.40971	-5046.3810	-0.26285259E-03
2	-372.85512	-7.3795003	1165.2388	0.79011497E-03	-10014.915	0.60547474E-04
3	-372.21783	-14.448647	1140.6041	0.15933704E-02	-9781.4103	0.12378074E-03
4	-370.91009	-20.887289	1098.6831	0.24225332E-02	-9292.4632	0.19305978E-03
5	-368.52923	-26.355569	1038.1587	0.32902913E-02	-8848.8767	0.27293559E-03
6	-364.43832	-30.483572	957.14697	0.42080452E-02	-8152.8142	0.37000643E-03
7	-357.67338	-32.861157	853.16858	0.51832703E-02	-7309.0660	0.49421559E-03
8	-346.79070	-33.033902	723.14932	0.62146751E-02	-6327.0917	0.66062880E-03
9	-329.61847	-30.514844	563.50486	0.72790782E-02	-5224.4567	0.89163459E-03
10	-302.90274	-24.877335	370.62132	0.83022314E-02	-4033.6395	0.12197207E-02
11	-261.54952	-15.895590	141.85998	0.90908252E-02	-2818.8567	0.16931650E-02
12	-198.85584	-4.4382534	-114.60776	0.89996742E-02	-1680.3749	0.23003337E-02
13	-73.578430	-125.37958	-298.47369	288.12550	-249.09874	0.30885251E-03
14	-10.459031	-282.57058	-154.58015	1465.4788	-0.92927649E-02	-0.12902449E-02
15	-28.515203	-310.91937	114.12217	2533.8109	-0.96984747E-02	-0.10259655E-02
16	-42.237881	-324.89931	358.98434	3707.9567	-0.89734052E-02	-0.84027138E-03
17	-50.584733	-331.03437	567.78350	4867.3876	-0.78437376E-02	-0.69325562E-03
18	-54.078350	-332.36073	741.18349	5945.2260	-0.65946004E-02	-0.56398186E-03
19	-53.434496	-330.48754	882.20871	6905.7080	-0.53430672E-02	-0.44293472E-03
20	-49.372797	-326.33845	994.47615	7729.9131	-0.41293479E-02	-0.32550438E-03
21	-42.534585	-320.51019	1081.3873	8406.2041	-0.29494035E-02	-0.21342356E-03
22	-32.970549	-305.73309	1116.2547	8722.7670	-0.14948808E-02	-0.91538111E-04
23	-22.467902	-290.63891	1129.1714	8864.2962	-0.97399203E-03	0.44874575E-05
24	-12.205105	-282.75669	1154.3560	9100.5045	-0.30311946E-03	0.10037964E-03
25	-1.6124045	-274.57709	1165.8005	9231.9419	0.28043498E-03	0.18734450E-03
26	8.7302376	-266.29453	1165.0085	9282.7423	0.68457464E-03	0.29002581E-03
27	22.550061	-293.29958	1315.5114	10479.774	-0.32582948E-03	0.45791774E-03
28	37.949346	-318.29490	1447.5072	11510.269	0.31202363E-02	0.56163739E-03
29	49.439693	-309.43752	1403.1402	11168.323	0.45179742E-02	0.52979953E-03
30	57.614300	-304.35315	1354.6247	10702.671	0.55027886E-02	0.37069275E-03
31	51.834673	-253.51216	1094.1058	8553.5637	0.65233536E-02	-0.44937987E-04
32	43.047777	-204.25257	851.93523	6680.9706	0.33862542E-02	0.46982853E-04
33	43.468990	-206.32759	834.86421	6431.8718	0.28000989E-02	0.60339214E-04
34	43.521748	-208.93370	818.34834	6232.2993	0.22456322E-02	0.79154364E-04
35	54.154540	-265.33024	997.69969	7421.2679	0.69687273E-03	0.20602333E-03
36	64.605712	-327.25807	1157.0748	8313.9501	0.36357870E-02	-0.28317794E-04
37	63.807713	-338.30350	1091.5115	7662.7856	0.51704668E-02	-0.47443339E-04
38	62.100992	-348.86119	991.03336	6817.4158	0.72418481E-02	0.81456059E-04
39	52.728994	-317.56274	761.71748	5176.4183	0.95526878E-02	0.23301920E-03

FILENAME : PIT5C2.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 11/25)

40	42.001728	-280.22844	.530.88002	3806.9620	0.82153796E-02	0.41461545E-03
41	35.399335	-278.06187	367.45441	2970.4318	0.90931491E-02	0.66022919E-03
42	24.946225	-269.31476	166.14354	2115.3245	0.97009830E-02	0.89744760E-03
43	10.318142	-247.89770	-62.088487	1324.0443	0.91892353E-02	0.11590754E-02
44	63.543199	-110.72799	-189.50000	330.32800	316.01092	-0.29937271E-03
45	179.03651	-3.8700783	-11.290817	0.89436314E-02	1685.9465	-0.22164914E-02
46	241.43064	-11.410250	235.44214	0.86861394E-02	2686.7042	-0.17114148E-02
47	281.95559	-15.285420	447.65658	0.75694754E-02	3734.8328	-0.12853487E-02
48	307.75767	-15.801867	619.19923	0.62645998E-02	4726.7806	-0.95684180E-03
49	323.22738	-13.930520	753.65077	0.50059308E-02	5614.1151	-0.71211799E-03
50	331.27721	-10.722088	856.08878	0.38787437E-02	6374.3116	-0.52712040E-03
51	334.05408	-7.1745152	931.93029	0.29197301E-02	6999.9285	-0.37999560E-03
52	333.05757	-4.0154423	986.73865	0.22232858E-02	7487.2914	-0.25163343E-03
53	330.20061	-1.4998921	1025.4745	0.14982671E-02	7863.3707	-0.18403009E-03
54	326.96572	-0.10231225	1049.9558	0.91844595E-03	8121.1023	-0.12195807E-03
55	324.44007	0.25902223	1063.3161	0.43475074E-03	8271.5909	-0.61104621E-04
56	161.74740	193.65374	533.77711	-118.35727	4160.4573	0.29576117E-03
57	-0.57696070E-11	372.93476	-0.34765168E-06	268.66833	0.20653260E-07	0.54874094E-03
58	0.48032689E-11	355.75689	-0.32206628E-07	1039.3568	-0.27900569E-07	0.46720930E-03
59	-0.84412477E-11	344.73756	-0.20923608E-07	1760.6345	0.99601039E-07	0.39449094E-03
60	-0.12363444E-11	340.48711	-0.82752877E-07	2415.8176	-0.17418415E-07	0.33253817E-03
61	-0.11695533E-10	318.70965	0.21678829E-07	2768.7654	-0.79138317E-07	0.26858788E-03
62	-0.54143356E-11	302.92703	-0.23070768E-06	2938.6890	-0.15813919E-06	0.22191311E-03
63	-0.15347723E-11	318.16890	0.19993395E-06	3268.9116	0.38546546E-07	0.20199532E-03
64	-0.60396123E-12	335.09080	0.31686710E-07	3597.9855	-0.12513965E-07	0.18486542E-03
65	0.12703727E-12	170.19109	174.00000	2173.3240	0.91805166E-08	0.88472082E-04
66	-0.51159077E-12	0.39790393E-12	356.50000	0.17656021E-07	-0.61974760E-07	-0.94867690E-19
67	-0.36379788E-11	-0.73896445E-12	389.00000	0.59641025E-07	0.21331343E-06	0.59631119E-18
68	0.30411229E-11	0.18474111E-11	476.50000	0.31444870E-07	0.22252294E-07	0.67762636E-18
69	0.92370556E-11	0.19960922E-10	478.50000	-0.63660082E-08	0.14758893E-06	0.47650685E-16
70	0.33594461E-10	0.37232439E-10	417.00000	0.14657496E-06	0.85501597E-08	0.38611150E-16
71	-0.80717655E-11	-0.19485746E-10	417.00000	-0.11325028E-07	-0.88404249E-07	0.12079367E-15
72	0.13301360E-10	0.26247449E-10	417.00000	-0.10876224E-06	-0.11376733E-06	0.12632311E-15
73	-0.45474735E-12	0.51443294E-11	478.50000	0.11532109E-06	0.82666702E-07	0.42112125E-16
74	-0.34106051E-12	0.18474111E-11	476.50000	0.83893610E-07	0.15328396E-07	-0.35643146E-17
75	0.17763568E-11	-0.53717031E-11	389.00000	-0.15581918E-07	0.30266085E-06	0.12536088E-17
76	0.42632564E-12	-0.19895197E-12	356.50000	-0.17192178E-07	0.12840104E-07	0.63696878E-18
77	-0.11061985E-12	182.57915	174.00000	4529.9363	-0.13506584E-07	-0.19804554E-04
78	0.21742608E-11	352.45221	0.14059589E-06	7619.6476	-0.12536441E-06	-0.42093783E-04
79	0.17053026E-11	331.08777	-0.29711515E-06	7264.9803	0.41382009E-07	-0.47645646E-04
80	0.85265128E-13	313.31117	-0.21493614E-06	7139.7367	0.51587222E-07	-0.53865093E-04
81	0.10658141E-11	325.74748	-0.26140924E-06	7696.7221	0.82992756E-07	-0.65812779E-04
82	0.15205615E-11	340.42009	0.11217885E-06	8218.8746	0.12965984E-06	-0.80872299E-04
83	0.25579538E-12	332.80768	-0.28971996E-07	8103.6318	-0.94610641E-07	-0.94557690E-04
84	-0.38937742E-11	327.48106	0.62036200E-07	7905.4778	-0.75379376E-07	-0.11076044E-03
85	0.81570306E-11	323.76235	-0.99612791E-07	7610.0129	0.55483270E-07	-0.13014210E-03
86	0.11567636E-10	329.78657	-0.12795920E-06	7397.4742	0.53043095E-07	-0.15588744E-03
87	-0.78728135E-11	336.88302	-0.16857797E-07	7027.7606	-0.10172380E-06	-0.18282685E-03
88	0.38653525E-11	337.00471	-0.18047581E-06	6348.6112	-0.50715698E-07	-0.20940279E-03
89	-0.86401997E-11	339.22942	0.15138886E-06	5558.3232	0.81935241E-07	-0.24221220E-03
90	0.28705927E-11	344.32505	-0.14097270E-06	4668.5555	0.54855718E-07	-0.28160191E-03
91	0.18133051E-10	353.28983	0.41114333E-07	3694.7127	-0.85429065E-07	-0.32751354E-03
92	-0.51159077E-12	367.30540	0.12812012E-06	2656.8102	0.33896697E-07	-0.37936156E-03
93	0.32400749E-10	387.67350	-0.73864612E-07	1579.6875	0.72554940E-09	-0.43594889E-03
94	-0.20881430E-09	415.73694	-0.77959839E-07	492.97686	-0.57477791E-07	-0.49547151E-03

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

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MX = -1097317.
MY = -3049014.
MZ = -0.8191189E-07
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HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.000000E+00 0.000000E+00 0.000000E+00

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C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

404 NODES (OF 1188 DEFINED) SELECTED FROM 356 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
 ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
 ED WORK.

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 FOR SUPPORT CALL PHONE TWX

TITLE 10.4732 MAY 25,1994 CP= 89.250

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.46993866	0.00000000E+00	0.76897032E-03	0.00000000E+00
2	-0.21274593E-06	0.75631211E-05	-0.46994062	0.10543439E-05	0.76914005E-03	-0.11492291E-06
3	-0.85176903E-06	0.15044078E-04	-0.46994654	0.21042660E-05	0.76964413E-03	-0.23024001E-06
4	-0.19195280E-05	0.22362079E-04	-0.46995625	0.31448235E-05	0.77046705E-03	-0.34639476E-06
5	-0.34203626E-05	0.29429145E-04	-0.46997002	0.41699331E-05	0.77158218E-03	-0.46386574E-06
6	-0.53605611E-05	0.36201756E-04	-0.46998750	0.51715429E-05	0.77295076E-03	-0.58309244E-06
7	-0.77479485E-05	0.42582963E-04	-0.47000866	0.61384342E-05	0.77452015E-03	-0.70425561E-06
8	-0.10590137E-04	0.48525472E-04	-0.47003334	0.70543994E-05	0.77622171E-03	-0.82671403E-06
9	-0.13889504E-04	0.53986651E-04	-0.47006131	0.78953963E-05	0.77796776E-03	-0.94769650E-06
10	-0.17630725E-04	0.58948064E-04	-0.47009223	0.86250069E-05	0.77964765E-03	-0.10594194E-05
11	-0.21751720E-04	0.63430727E-04	-0.47012559	0.91860802E-05	0.78112259E-03	-0.11424227E-05
12	-0.26069492E-04	0.67542254E-04	-0.47016057	0.94706064E-05	0.78221734E-03	-0.11428846E-05
13	-0.30053897E-04	0.71621840E-04	-0.47019578	0.92051685E-05	0.78275016E-03	-0.90485236E-06
14	-0.31923684E-04	0.68770043E-04	-0.47332577	0.99483207E-05	0.78229046E-03	-0.55863365E-06
15	-0.34066574E-04	0.67001654E-04	-0.47645505	0.11449641E-04	0.78233812E-03	-0.34202072E-06
16	-0.36916486E-04	0.65908448E-04	-0.47958520	0.13471582E-04	0.78270851E-03	-0.20592555E-06
17	-0.40634687E-04	0.65235136E-04	-0.48271729	0.15791151E-04	0.78330450E-03	-0.12430612E-06
18	-0.45258252E-04	0.64800521E-04	-0.48585209	0.18236743E-04	0.78405974E-03	-0.82734893E-07
19	-0.50759415E-04	0.64468547E-04	-0.48899013	0.20675230E-04	0.78492662E-03	-0.71511062E-07
20	-0.57071685E-04	0.64135573E-04	-0.49213179	0.23003958E-04	0.78587085E-03	-0.83170726E-07
21	-0.64105533E-04	0.63724731E-04	-0.49527732	0.25144714E-04	0.78686694E-03	-0.11110965E-06
22	-0.71755825E-04	0.63182537E-04	-0.49842690	0.27040642E-04	0.78790018E-03	-0.15070705E-06
23	-0.79491267E-04	0.62513600E-04	-0.50142282	0.28576097E-04	0.78888626E-03	-0.19518722E-06
24	-0.87575818E-04	0.61674156E-04	-0.50442248	0.29826921E-04	0.78987443E-03	-0.24115777E-06
25	-0.95901676E-04	0.60669023E-04	-0.50742587	0.30780806E-04	0.79084673E-03	-0.28402750E-06
26	-0.10435954E-03	0.59513501E-04	-0.51043289	0.31433122E-04	0.79179013E-03	-0.32255897E-06
27	-0.11284190E-03	0.58231967E-04	-0.51344339	0.31778783E-04	0.79266526E-03	-0.34935325E-06
28	-0.12359618E-03	0.56538598E-04	-0.51731033	0.31802848E-04	0.79375749E-03	-0.34590165E-06
29	-0.13405262E-03	0.54951052E-04	-0.52118220	0.31394495E-04	0.79470858E-03	-0.31006023E-06
30	-0.14408682E-03	0.53624712E-04	-0.52505839	0.30590493E-04	0.79553769E-03	-0.23869489E-06
31	-0.15364417E-03	0.52731923E-04	-0.52893839	0.29452281E-04	0.79629296E-03	-0.13802557E-06
32	-0.15974593E-03	0.52403966E-04	-0.53152699	0.28530448E-04	0.79671220E-03	-0.68497553E-07
33	-0.16563802E-03	0.52293174E-04	-0.53411701	0.27474383E-04	0.79715713E-03	-0.18302082E-08
34	-0.17132904E-03	0.52401106E-04	-0.53670849	0.26307260E-04	0.79761001E-03	0.62779383E-07
35	-0.17682081E-03	0.52712417E-04	-0.53930145	0.25023225E-04	0.79805893E-03	0.12607261E-06
36	-0.18468994E-03	0.53576364E-04	-0.54319387	0.22922119E-04	0.79885872E-03	0.20673763E-06
37	-0.19207631E-03	0.54784237E-04	-0.54709027	0.20629405E-04	0.79972015E-03	0.26176073E-06
38	-0.19885779E-03	0.56198467E-04	-0.55099106	0.18173552E-04	0.80066368E-03	0.29282246E-06
39	-0.20485514E-03	0.57749261E-04	-0.55489650	0.15632495E-04	0.80163495E-03	0.31711769E-06
40	-0.20884723E-03	0.59046648E-04	-0.55794398	0.13671234E-04	0.80233944E-03	0.35751207E-06
41	-0.21212254E-03	0.60532806E-04	-0.56099401	0.11818590E-04	0.80295317E-03	0.42553995E-06
42	-0.21462638E-03	0.62372560E-04	-0.56404600	0.10207912E-04	0.80335940E-03	0.55174580E-06
43	-0.21641184E-03	0.64835476E-04	-0.56709892	0.90121509E-05	0.80342321E-03	0.76639035E-06
44	-0.21782515E-03	0.68329202E-04	-0.57015114	0.84139590E-05	0.80293630E-03	0.11067734E-05

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45	-0.22255648E-03	0.64473723E-04	-0.57011880	0.87173809E-05	0.80337503E-03	0.13421068E-05
46	-0.22761482E-03	0.60486016E-04	-0.57008669	0.83902785E-05	0.80427495E-03	0.13364020E-05
47	-0.23244455E-03	0.56049824E-04	-0.57005647	0.77543493E-05	0.80547599E-03	0.12400707E-05
48	-0.23683305E-03	0.51125568E-04	-0.57002896	0.69515395E-05	0.80682407E-03	0.11091898E-05
49	-0.24070458E-03	0.45747667E-04	-0.57000465	0.60658568E-05	0.80820496E-03	0.96741112E-06
50	-0.24404218E-03	0.39971380E-04	-0.56998372	0.51506132E-05	0.80953108E-03	0.82479105E-06
51	-0.24685193E-03	0.33855862E-04	-0.56996622	0.42404723E-05	0.81073694E-03	0.68483241E-06
52	-0.24914607E-03	0.27455780E-04	-0.56995210	0.33594393E-05	0.81177388E-03	0.54814891E-06
53	-0.25093517E-03	0.20817578E-04	-0.56994124	0.24850136E-05	0.81261323E-03	0.41270102E-06
54	-0.25221822E-03	0.13986945E-04	-0.56993359	0.16369767E-05	0.81322743E-03	0.27625042E-06
55	-0.25299088E-03	0.70264184E-05	-0.56992905	0.81202440E-06	0.81360155E-03	0.13855266E-06
56	-0.25324900E-03	0.00000000E+00	-0.56992754	0.00000000E+00	0.81372712E-03	0.00000000E+00
57	-0.24768537E-03	0.00000000E+00	-0.56682094	0.00000000E+00	0.82072572E-03	0.00000000E+00
58	-0.24214686E-03	0.00000000E+00	-0.56369363	0.00000000E+00	0.82476343E-03	0.00000000E+00
59	-0.23675002E-03	0.00000000E+00	-0.56055554	0.00000000E+00	0.82651463E-03	0.00000000E+00
60	-0.23164233E-03	0.00000000E+00	-0.55741415	0.00000000E+00	0.82659770E-03	0.00000000E+00
61	-0.22701712E-03	0.00000000E+00	-0.55427470	0.00000000E+00	0.82558961E-03	0.00000000E+00
62	-0.22365934E-03	0.00000000E+00	-0.55159358	0.00000000E+00	0.82427484E-03	0.00000000E+00
63	-0.22110448E-03	0.00000000E+00	-0.54891687	0.00000000E+00	0.82293645E-03	0.00000000E+00
64	-0.21972393E-03	0.00000000E+00	-0.54624399	0.00000000E+00	0.82198477E-03	0.00000000E+00
65	-0.21992739E-03	0.00000000E+00	-0.54357284	0.00000000E+00	0.82198416E-03	0.00000000E+00
66	-0.21827406E-03	0.60530782E-05	-0.54332492	0.37206965E-05	0.82172033E-03	0.58928234E-07
67	-0.21346151E-03	0.12108969E-04	-0.54254101	0.77357096E-05	0.82088408E-03	0.11322370E-06
68	-0.20449697E-03	0.18324180E-04	-0.54106589	0.12359438E-04	0.81931656E-03	0.15584515E-06
69	-0.18829108E-03	0.23902457E-04	-0.53833940	0.17919540E-04	0.81669928E-03	0.17064943E-06
70	-0.17345139E-03	0.27018635E-04	-0.53580777	0.21890497E-04	0.81454567E-03	0.12160999E-06
71	-0.15760997E-03	0.28221828E-04	-0.53308090	0.24741718E-04	0.81230739E-03	0.72743237E-07
72	-0.14177906E-03	0.27606582E-04	-0.53034026	0.26076159E-04	0.80989193E-03	0.25195457E-07
73	-0.12701169E-03	0.24918751E-04	-0.52777140	0.25324217E-04	0.80728722E-03	-0.22519384E-07
74	-0.11104072E-03	0.19490744E-04	-0.52497891	0.20821424E-04	0.80370322E-03	-0.30707406E-07
75	-0.10239249E-03	0.13029161E-04	-0.52345749	0.14704702E-04	0.80114334E-03	-0.24311426E-07
76	-0.97702962E-04	0.65468115E-05	-0.52264629	0.75731469E-05	0.79955278E-03	-0.13043079E-07
77	-0.96229469E-04	0.00000000E+00	-0.52238935	0.00000000E+00	0.79901704E-03	0.00000000E+00
78	-0.96481978E-04	0.00000000E+00	-0.51979167	0.00000000E+00	0.79927404E-03	0.00000000E+00
79	-0.95147749E-04	0.00000000E+00	-0.51719600	0.00000000E+00	0.79788756E-03	0.00000000E+00
80	-0.92680651E-04	0.00000000E+00	-0.51460665	0.00000000E+00	0.79543253E-03	0.00000000E+00
81	-0.89434332E-04	0.00000000E+00	-0.51202651	0.00000000E+00	0.79225131E-03	0.00000000E+00
82	-0.84937054E-04	0.00000000E+00	-0.50902405	0.00000000E+00	0.78791903E-03	0.00000000E+00
83	-0.79909927E-04	0.00000000E+00	-0.50603890	0.00000000E+00	0.78316828E-03	0.00000000E+00
84	-0.74492572E-04	0.00000000E+00	-0.50307229	0.00000000E+00	0.77819571E-03	0.00000000E+00
85	-0.68772118E-04	0.00000000E+00	-0.50012473	0.00000000E+00	0.77316771E-03	0.00000000E+00
86	-0.62803773E-04	0.00000000E+00	-0.49719615	0.00000000E+00	0.76824018E-03	0.00000000E+00
87	-0.56298664E-04	0.00000000E+00	-0.49413317	0.00000000E+00	0.76334272E-03	0.00000000E+00
88	-0.49588797E-04	0.00000000E+00	-0.49108888	0.00000000E+00	0.75893362E-03	0.00000000E+00
89	-0.42700969E-04	0.00000000E+00	-0.48806088	0.00000000E+00	0.75525075E-03	0.00000000E+00
90	-0.35663800E-04	0.00000000E+00	-0.48504570	0.00000000E+00	0.75257655E-03	0.00000000E+00
91	-0.28513345E-04	0.00000000E+00	-0.48203865	0.00000000E+00	0.75125105E-03	0.00000000E+00
92	-0.21297874E-04	0.00000000E+00	-0.47903354	0.00000000E+00	0.75168483E-03	0.00000000E+00
93	-0.14081728E-04	0.00000000E+00	-0.47602238	0.00000000E+00	0.75437187E-03	0.00000000E+00
94	-0.69480275E-05	0.00000000E+00	-0.47299499	0.00000000E+00	0.75990175E-03	0.00000000E+00
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2007	-0.10342942E-04	0.26670375E-04	-0.47303926	0.58226445E-05	0.76366186E-03	-0.40741590E-06
2008	-0.17385809E-04	0.24650599E-04	-0.47608336	0.79801569E-05	0.75890361E-03	-0.35234456E-06
2009	-0.24462926E-04	0.23255490E-04	-0.47911365	0.10450311E-04	0.75665103E-03	-0.30120074E-06
2010	-0.31514250E-04	0.22358284E-04	-0.48213901	0.13067261E-04	0.75636215E-03	-0.25569207E-06
2011	-0.38502140E-04	0.21839968E-04	-0.48516640	0.15692701E-04	0.75759224E-03	-0.21668666E-06
2012	-0.45406221E-04	0.21596377E-04	-0.48820114	0.18214604E-04	0.75997787E-03	-0.18435109E-06
2013	-0.52218275E-04	0.21542090E-04	-0.49124724	0.20545028E-04	0.76322263E-03	-0.15834200E-06
2014	-0.58938084E-04	0.21611787E-04	-0.49430763	0.22627025E-04	0.76708409E-03	-0.13800542E-06
2016	-0.62995619E-04	0.54973907E-05	-0.49720822	0.64217925E-05	0.76844223E-03	-0.33198619E-07
2017	-0.63555179E-04	0.10968272E-04	-0.49724417	0.12717304E-04	0.76904271E-03	-0.65399908E-07
2018	-0.64436686E-04	0.16392519E-04	-0.49730330	0.18754485E-04	0.77002487E-03	-0.95581903E-07
2027	-0.71613724E-05	0.68343841E-05	-0.47299780	0.14962383E-05	0.76014361E-03	-0.10235320E-06
2028	-0.78005243E-05	0.13600940E-04	-0.47300618	0.29769303E-05	0.76086386E-03	-0.20454890E-06
2029	-0.88627307E-05	0.20233659E-04	-0.47302005	0.44254109E-05	0.76204610E-03	-0.30636700E-06
2030	-0.14291706E-04	0.62923428E-05	-0.47602626	0.20669947E-05	0.75466272E-03	-0.89931516E-07
2031	-0.14918981E-04	0.12531373E-04	-0.47603784	0.41063952E-05	0.75552934E-03	-0.17920407E-06
2032	-0.15955295E-04	0.18666129E-04	-0.47605697	0.60886591E-05	0.75695355E-03	-0.26703361E-06
2033	-0.21501469E-04	0.59090418E-05	-0.47903865	0.27193156E-05	0.75200359E-03	-0.78142703E-07
2034	-0.22107796E-04	0.11778352E-04	-0.47905389	0.53977030E-05	0.75295336E-03	-0.15524012E-06

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2035	-0.23103085E-04	0.17570944E-04	-0.47907902	0.79913281E-05	0.75451413E-03	-0.23009921E-06
2036	-0.28708842E-04	0.56557229E-05	-0.48204506	0.34111238E-05	0.75157938E-03	-0.67366468E-07
2037	-0.29289151E-04	0.11283231E-04	-0.48206417	0.67668706E-05	0.75255746E-03	-0.13344153E-06
2038	-0.30235319E-04	0.16857232E-04	-0.48209567	0.10007994E-04	0.75416401E-03	-0.19679348E-06
2039	-0.35851072E-04	0.55047664E-05	-0.48505341	0.41064850E-05	0.75289909E-03	-0.57849750E-07
2040	-0.36405115E-04	0.10989873E-04	-0.48507642	0.81425162E-05	0.75385962E-03	-0.11429762E-06
2041	-0.37302308E-04	0.16438607E-04	-0.48511432	0.12032896E-04	0.75543647E-03	-0.16782730E-06
2042	-0.42881674E-04	0.54314177E-05	-0.48806985	0.47757811E-05	0.75555505E-03	-0.49708491E-07
2043	-0.43414516E-04	0.10848145E-04	-0.48809660	0.94660118E-05	0.75646100E-03	-0.98017249E-07
2044	-0.44271631E-04	0.16238501E-04	-0.48814065	0.13979680E-04	0.75794738E-03	-0.14344513E-06
2045	-0.49766528E-04	0.54150918E-05	-0.49109902	0.53955186E-05	0.75921002E-03	-0.42947868E-07
2046	-0.50288894E-04	0.10816436E-04	-0.49112924	0.10690942E-04	0.76003264E-03	-0.84580507E-07
2047	-0.51123702E-04	0.16193588E-04	-0.49117898	0.15780213E-04	0.76138148E-03	-0.12353034E-06
2048	-0.56479208E-04	0.54403062E-05	-0.49414434	0.59477504E-05	0.76358419E-03	-0.37489846E-07
2049	-0.57007975E-04	0.10863234E-04	-0.49417766	0.11781826E-04	0.76430251E-03	-0.73804632E-07
2050	-0.57847516E-04	0.16255687E-04	-0.49423246	0.17382425E-04	0.76547934E-03	-0.10773260E-06
2057	-0.72258668E-04	0.53173797E-04	-0.49817527	0.38005655E-04	0.78395316E-03	-0.17988808E-06
2058	-0.26663848E-04	0.59137427E-04	-0.47324473	0.11206679E-04	0.77864989E-03	-0.83446107E-06
2059	-0.31435345E-04	0.56531078E-04	-0.47635641	0.14169060E-04	0.77734633E-03	-0.60588130E-06
2060	-0.36275435E-04	0.55008358E-04	-0.47946478	0.17692907E-04	0.77695297E-03	-0.44308993E-06
2061	-0.41344486E-04	0.54178523E-04	-0.48257301	0.21480659E-04	0.77723982E-03	-0.33010164E-06
2062	-0.46745923E-04	0.53769262E-04	-0.48568344	0.25299751E-04	0.77802822E-03	-0.25499904E-06
2063	-0.52533520E-04	0.53586460E-04	-0.48879779	0.28974049E-04	0.77918396E-03	-0.20887476E-06
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2066	-0.66869581E-04	0.27073718E-04	-0.49748556	0.29451964E-04	0.77301695E-03	-0.14529191E-06
2067	-0.68236266E-04	0.32344590E-04	-0.49760439	0.33754184E-04	0.77494087E-03	-0.16354668E-06
2068	-0.69569218E-04	0.37585947E-04	-0.49773759	0.37064376E-04	0.77707547E-03	-0.17672550E-06
2069	-0.70760255E-04	0.42807652E-04	-0.49788094	0.39106165E-04	0.77934894E-03	-0.18416244E-06
2070	-0.71696069E-04	0.48009435E-04	-0.49802906	0.39550176E-04	0.78167471E-03	-0.18531655E-06
2071	-0.12232733E-04	0.32855267E-04	-0.47306357	0.71456771E-05	0.76566876E-03	-0.50692546E-06
2072	-0.14517906E-04	0.38742298E-04	-0.47309265	0.83655650E-05	0.76800773E-03	-0.60335107E-06
2073	-0.17173521E-04	0.44300403E-04	-0.47312604	0.94444282E-05	0.77059912E-03	-0.69361920E-06
2074	-0.20153878E-04	0.49521947E-04	-0.47316314	0.10331005E-04	0.77332708E-03	-0.77171097E-06
2075	-0.23372551E-04	0.54436629E-04	-0.47320309	0.10953409E-04	0.77608184E-03	-0.82602878E-06
2076	-0.19187012E-04	0.30446857E-04	-0.47611662	0.97406151E-05	0.76133194E-03	-0.43351341E-06
2077	-0.21322693E-04	0.36029217E-04	-0.47615615	0.11319837E-04	0.76417174E-03	-0.50795476E-06
2078	-0.23736594E-04	0.41390026E-04	-0.47620117	0.12653256E-04	0.76733242E-03	-0.57145534E-06
2079	-0.26339271E-04	0.46547918E-04	-0.47625060	0.13655688E-04	0.77069364E-03	-0.61714298E-06
2080	-0.28985643E-04	0.51559323E-04	-0.47630299	0.14212572E-04	0.77409834E-03	-0.63405855E-06
2081	-0.26149565E-04	0.28809615E-04	-0.47915715	0.12715090E-04	0.75931197E-03	-0.36645797E-06
2082	-0.28107038E-04	0.34223805E-04	-0.47920867	0.14711965E-04	0.76242424E-03	-0.42287969E-06
2083	-0.30252921E-04	0.39506111E-04	-0.47926704	0.16347449E-04	0.76589024E-03	-0.46611641E-06
2084	-0.32465115E-04	0.44687509E-04	-0.47933068	0.17501059E-04	0.76958235E-03	-0.48992221E-06
2085	-0.34561520E-04	0.49826577E-04	-0.47939751	0.18016552E-04	0.77333763E-03	-0.48574321E-06
2086	-0.33075980E-04	0.27775775E-04	-0.48219337	0.15864834E-04	0.75909719E-03	-0.30791692E-06
2087	-0.34848923E-04	0.33110879E-04	-0.48225758	0.18302866E-04	0.76229363E-03	-0.35052675E-06
2088	-0.36732318E-04	0.38379314E-04	-0.48233007	0.20259075E-04	0.76585152E-03	-0.37960963E-06
2089	-0.38585052E-04	0.43613184E-04	-0.48240877	0.21579114E-04	0.76964231E-03	-0.39009358E-06
2090	-0.40211312E-04	0.48860173E-04	-0.48249094	0.22067926E-04	0.77350464E-03	-0.37580746E-06
2091	-0.39945067E-04	0.27191039E-04	-0.48523164	0.19021841E-04	0.76027199E-03	-0.25875546E-06
2092	-0.41548761E-04	0.32498763E-04	-0.48530855	0.21898944E-04	0.76340072E-03	-0.29140835E-06
2093	-0.43202284E-04	0.37780712E-04	-0.48539519	0.24174407E-04	0.76688037E-03	-0.31140398E-06
2094	-0.44758091E-04	0.43064191E-04	-0.48548896	0.25662521E-04	0.77058656E-03	-0.31486948E-06
2095	-0.46022449E-04	0.48382794E-04	-0.48558648	0.26132705E-04	0.77436510E-03	-0.29748858E-06
2096	-0.46751603E-04	0.26923027E-04	-0.48827682	0.22051325E-04	0.76249954E-03	-0.21885856E-06
2097	-0.48219096E-04	0.32227655E-04	-0.48836592	0.25346470E-04	0.76544085E-03	-0.24478574E-06
2098	-0.49694471E-04	0.37526586E-04	-0.48846611	0.27925391E-04	0.76870937E-03	-0.25960622E-06
2099	-0.51032963E-04	0.42840558E-04	-0.48857430	0.29574103E-04	0.77218905E-03	-0.26049172E-06
2100	-0.52053517E-04	0.48189791E-04	-0.48868655	0.30030437E-04	0.77573763E-03	-0.24449248E-06
2101	-0.53500226E-04	0.26864663E-04	-0.49133255	0.24848127E-04	0.76550713E-03	-0.18745738E-06
2102	-0.54877588E-04	0.32170915E-04	-0.49143290	0.28526386E-04	0.76816944E-03	-0.20919262E-06
2103	-0.56237677E-04	0.37475012E-04	-0.49154558	0.31382998E-04	0.77112588E-03	-0.22170991E-06
2104	-0.57444762E-04	0.42791779E-04	-0.49166708	0.33179237E-04	0.77427235E-03	-0.22305260E-06
2105	-0.58337047E-04	0.48130821E-04	-0.49179289	0.33625838E-04	0.77748242E-03	-0.21128788E-06
2106	-0.60201402E-04	0.26934306E-04	-0.49440152	0.27332558E-04	0.76907333E-03	-0.16339832E-06
2107	-0.61543431E-04	0.32232741E-04	-0.49451185	0.31349123E-04	0.77138946E-03	-0.18278579E-06
2108	-0.62855931E-04	0.37520056E-04	-0.49463562	0.34451040E-04	0.77396023E-03	-0.19499577E-06
2109	-0.64016069E-04	0.42807081E-04	-0.49476891	0.36378672E-04	0.77669645E-03	-0.19878792E-06
2110	-0.64885295E-04	0.48096590E-04	-0.49490677	0.36820334E-04	0.77949058E-03	-0.19300869E-06

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2122	-0.72322990E-04	0.58256169E-04	-0.49831127	0.34014104E-04	0.78606743E-03	-0.16794098E-06
2123	-0.29693181E-04	0.63820373E-04	-0.47328640	0.10935345E-04	0.78081039E-03	-0.75776590E-06
2124	-0.33313117E-04	0.61615978E-04	-0.47640824	0.13323807E-04	0.78019338E-03	-0.51307294E-06
2125	-0.37229478E-04	0.60336299E-04	-0.47952889	0.16278726E-04	0.78018052E-03	-0.35174542E-06
2126	-0.41633195E-04	0.59624875E-04	-0.48265041	0.19513530E-04	0.78060609E-03	-0.24725028E-06
2127	-0.46616496E-04	0.59244157E-04	-0.48577431	0.22812298E-04	0.78135020E-03	-0.18398861E-06
2128	-0.52205751E-04	0.59024677E-04	-0.48890165	0.26014402E-04	0.78232568E-03	-0.15156171E-06
2129	-0.58385172E-04	0.58842520E-04	-0.49203325	0.29001315E-04	0.78346808E-03	-0.14218652E-06
2130	-0.65111315E-04	0.58607608E-04	-0.49516966	0.31686313E-04	0.78472859E-03	-0.14953849E-06
2131	-0.93813350E-04	0.18016309E-04	-0.51215253	0.21856432E-04	0.79268140E-03	-0.75521692E-07
2132	-0.71536503E-04	0.20885145E-04	-0.50030481	0.24622955E-04	0.77543026E-03	-0.11057418E-06
2133	-0.77383319E-04	0.20053095E-04	-0.50324119	0.24424023E-04	0.77972789E-03	-0.10110203E-06
2134	-0.83077396E-04	0.19277327E-04	-0.50619444	0.23846228E-04	0.78412790E-03	-0.92846881E-07
2135	-0.88575233E-04	0.18586138E-04	-0.50916496	0.22958244E-04	0.78849521E-03	-0.84669053E-07
2137	-0.89765724E-04	0.47575601E-05	-0.51203457	0.57167098E-05	0.79229424E-03	-0.20000124E-07
2138	-0.90706315E-04	0.93960621E-05	-0.51205860	0.11322190E-04	0.79240759E-03	-0.39312394E-07
2139	-0.92119312E-04	0.13828903E-04	-0.51209814	0.16723449E-04	0.79255325E-03	-0.57670113E-07
2144	-0.68964836E-04	0.52997652E-05	-0.50013625	0.64560763E-05	0.77331458E-03	-0.29598890E-07
2145	-0.69525703E-04	0.10563530E-04	-0.50017060	0.12794226E-04	0.77375053E-03	-0.58412800E-07
2146	-0.70406551E-04	0.15763527E-04	-0.50022715	0.18893042E-04	0.77446235E-03	-0.85665554E-07
2147	-0.74695876E-04	0.51199325E-05	-0.50308308	0.63806872E-05	0.77829661E-03	-0.26615745E-07
2148	-0.75286039E-04	0.10191097E-04	-0.50311526	0.12652115E-04	0.77859470E-03	-0.52655691E-07
2149	-0.76207708E-04	0.15175477E-04	-0.50316827	0.18704282E-04	0.77907775E-03	-0.77610299E-07
2150	-0.80136462E-04	0.49629576E-05	-0.50604883	0.62142737E-05	0.78323450E-03	-0.24073573E-07
2151	-0.80789347E-04	0.98593018E-05	-0.50607843	0.12325915E-04	0.78342723E-03	-0.47720483E-07
2152	-0.81800802E-04	0.14639797E-04	-0.50612724	0.18235298E-04	0.78373220E-03	-0.70656282E-07
2153	-0.85203376E-04	0.48385184E-05	-0.50902304	0.59810727E-05	0.78796451E-03	-0.21856302E-07
2154	-0.85966881E-04	0.95873426E-05	-0.50905986	0.11860673E-04	0.78809199E-03	-0.43291007E-07
2155	-0.87128816E-04	0.14179029E-04	-0.50910407	0.17546074E-04	0.78827952E-03	-0.64131513E-07
2156	-0.10900060E-03	0.50090781E-04	-0.51315220	0.43625501E-04	0.79245648E-03	-0.21590180E-06
2157	-0.79169216E-04	0.52856904E-04	-0.50115755	0.40034752E-04	0.78567300E-03	-0.18989446E-06
2158	-0.86338650E-04	0.52391366E-04	-0.50414642	0.41612065E-04	0.78741657E-03	-0.20211791E-06
2159	-0.93727136E-04	0.51768577E-04	-0.50714191	0.42734626E-04	0.78915055E-03	-0.21286617E-06
2160	-0.10129461E-03	0.50994327E-04	-0.51014391	0.43410376E-04	0.79084133E-03	-0.21861199E-06
2161	-0.96738097E-04	0.24065976E-04	-0.51226446	0.29165090E-04	0.79279180E-03	-0.88544407E-07
2162	-0.99669849E-04	0.29647776E-04	-0.51240640	0.35528942E-04	0.79277384E-03	-0.10442284E-06
2163	-0.10236471E-03	0.34935019E-04	-0.51257361	0.40651588E-04	0.79267135E-03	-0.12377467E-06
2164	-0.10476589E-03	0.40069181E-04	-0.51275976	0.44099999E-04	0.79255092E-03	-0.14763235E-06
2165	-0.10693521E-03	0.45120934E-04	-0.51295636	0.45313782E-04	0.79246749E-03	-0.17755290E-06
2166	-0.72948356E-04	0.26364798E-04	-0.50041138	0.30254931E-04	0.77674356E-03	-0.23099671E-06
2167	-0.74444406E-04	0.31767133E-04	-0.50053828	0.35064146E-04	0.77828889E-03	-0.14880142E-06
2168	-0.75914847E-04	0.37109812E-04	-0.50068181	0.38790054E-04	0.78001850E-03	-0.16368882E-06
2169	-0.77256315E-04	0.42407661E-04	-0.50083721	0.41120207E-04	0.78187464E-03	-0.17547854E-06
2170	-0.78371864E-04	0.47662939E-04	-0.50099835	0.41681836E-04	0.78378649E-03	-0.18415128E-06
2171	-0.78983453E-04	0.25690114E-04	-0.50335148	0.30585295E-04	0.78069170E-03	-0.11975961E-06
2172	-0.80680283E-04	0.31197826E-04	-0.50348476	0.35873918E-04	0.78183439E-03	-0.13742507E-06
2173	-0.82351932E-04	0.36605014E-04	-0.50363700	0.40003577E-04	0.78312254E-03	-0.15415865E-06
2174	-0.83899616E-04	0.41937483E-04	-0.50380289	0.42627069E-04	0.78451704E-03	-0.17019473E-06
2175	-0.85247373E-04	0.47205208E-04	-0.50397558	0.43327486E-04	0.78596795E-03	-0.18597057E-06
2176	-0.84964003E-04	0.25061269E-04	-0.50630677	0.30478268E-04	0.78475529E-03	-0.10988354E-06
2177	-0.86949051E-04	0.30641993E-04	-0.50644468	0.36200667E-04	0.78548899E-03	-0.12736167E-06
2178	-0.88889314E-04	0.36069362E-04	-0.50660382	0.40708387E-04	0.78631401E-03	-0.14566458E-06
2179	-0.90691345E-04	0.41389312E-04	-0.50677842	0.43622007E-04	0.78721595E-03	-0.16538804E-06
2180	-0.92307486E-04	0.46625937E-04	-0.50696097	0.44479854E-04	0.78817174E-03	-0.18740590E-06
2181	-0.90882553E-04	0.24504254E-04	-0.50927775	0.29982504E-04	0.78882643E-03	-0.99900301E-07
2182	-0.93266705E-04	0.30117082E-04	-0.50941852	0.36073167E-04	0.78916503E-03	-0.11684296E-06
2183	-0.95547769E-04	0.35509779E-04	-0.50958265	0.40919207E-04	0.78952080E-03	-0.13610038E-06
2184	-0.97640802E-04	0.40764618E-04	-0.50976404	0.44112656E-04	0.78991285E-03	-0.15854576E-06
2185	-0.99540028E-04	0.45927147E-04	-0.50995460	0.45145115E-04	0.79035226E-03	-0.18545782E-06
2191	-0.11082132E-03	0.54245284E-04	-0.51330880	0.39310464E-04	0.79252495E-03	-0.27335078E-06
2192	-0.79557452E-04	0.57775970E-04	-0.50130083	0.35853879E-04	0.78737993E-03	-0.19342138E-06
2193	-0.87096051E-04	0.57131216E-04	-0.50429541	0.37305227E-04	0.78870547E-03	-0.22058184E-06
2194	-0.94867400E-04	0.56317695E-04	-0.50729500	0.38366201E-04	0.79002034E-03	-0.24581956E-06
2195	-0.10279872E-03	0.55345780E-04	-0.51029953	0.39041925E-04	0.79129956E-03	-0.26523329E-06
2204	-0.10090210E-03	0.18959105E-04	-0.51602898	0.22015215E-04	0.79751913E-03	-0.66219629E-07
2205	-0.10810304E-03	0.20290858E-04	-0.51992699	0.22326017E-04	0.80148421E-03	-0.54310711E-07
2206	-0.11610026E-03	0.22071034E-04	-0.52384217	0.23245697E-04	0.80457697E-03	-0.40053600E-07
2207	-0.93247551E-04	0.50493291E-05	-0.51470398	0.58403114E-05	0.79560057E-03	-0.17989407E-07
2208	-0.95969650E-04	0.54664827E-05	-0.51738252	0.60645921E-05	0.79816367E-03	-0.15804661E-07
2209	-0.97602440E-04	0.60582389E-05	-0.52006715	0.65573881E-05	0.79964209E-03	-0.13906069E-07

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2210	-0.94902093E-04	0.99652945E-05	-0.51498555	0.11541038E-04	0.79607055E-03	-0.35081546E-07
2211	-0.98443725E-04	0.10794480E-04	-0.51792543	0.11954923E-04	0.79895109E-03	-0.30331935E-07
2212	-0.10109093E-03	0.11962855E-04	-0.52087324	0.12920417E-04	0.80073954E-03	-0.26229533E-07
2213	-0.97517226E-04	0.14629066E-04	-0.51543433	0.16969687E-04	0.79675643E-03	-0.50987795E-07
2214	-0.10253769E-03	0.15808955E-04	-0.51878891	0.17460260E-04	0.80012494E-03	-0.42930909E-07
2215	-0.10727624E-03	0.17407253E-04	-0.52215724	0.18706447E-04	0.80247561E-03	-0.34910084E-07
2216	-0.14900492E-03	0.45417363E-04	-0.52867257	0.39373814E-04	0.79878205E-03	-0.10139717E-06
2217	-0.11901747E-03	0.48816486E-04	-0.51702015	0.43324174E-04	0.79437706E-03	-0.20358937E-06
2218	-0.12909424E-03	0.47519813E-04	-0.52089696	0.42456801E-04	0.79608213E-03	-0.17868589E-06
2219	-0.13912553E-03	0.46340251E-04	-0.52478148	0.41092868E-04	0.79754556E-03	-0.14302100E-06
2220	-0.13671005E-03	0.27126875E-04	-0.52788599	0.27524046E-04	0.80764812E-03	-0.10873474E-07
2221	-0.14089902E-03	0.29706193E-04	-0.52801421	0.31323268E-04	0.80632938E-03	-0.28319410E-07
2222	-0.14332352E-03	0.33138612E-04	-0.52816033	0.35455365E-04	0.80449762E-03	-0.40327731E-07
2223	-0.14518175E-03	0.37033056E-04	-0.52832316	0.38772880E-04	0.80252939E-03	-0.56864978E-07
2224	-0.14697784E-03	0.41171085E-04	-0.52849705	0.40354880E-04	0.80058702E-03	-0.77565734E-07
2225	-0.10494446E-03	0.24719098E-04	-0.51614099	0.29039587E-04	0.79746853E-03	-0.77407766E-07
2226	-0.10863192E-03	0.29859743E-04	-0.51628183	0.35168695E-04	0.79705900E-03	-0.91884606E-07
2227	-0.11174861E-03	0.34696712E-04	-0.51644718	0.40172658E-04	0.79641409E-03	-0.11043149E-06
2228	-0.11437749E-03	0.39432709E-04	-0.51663122	0.43611891E-04	0.79568213E-03	-0.13406364E-06
2229	-0.11672235E-03	0.44144341E-04	-0.51682585	0.44893549E-04	0.79497690E-03	-0.16429049E-06
2230	-0.11377678E-03	0.25514256E-04	-0.52003886	0.28677508E-04	0.80151166E-03	-0.63012229E-07
2231	-0.11829184E-03	0.30014144E-04	-0.52017693	0.34313911E-04	0.80080664E-03	-0.75325132E-07
2232	-0.12168543E-03	0.34315565E-04	-0.52033792	0.39083409E-04	0.79968740E-03	-0.92120260E-07
2233	-0.12435812E-03	0.38665330E-04	-0.52051703	0.42484970E-04	0.79842453E-03	-0.11412423E-06
2234	-0.12672092E-03	0.43084872E-04	-0.52070687	0.43854741E-04	0.79718732E-03	-0.14237467E-06
2235	-0.12394788E-03	0.26381174E-04	-0.52395488	0.28188997E-04	0.80488284E-03	-0.44823960E-07
2236	-0.12900506E-03	0.29987771E-04	-0.52408882	0.33017894E-04	0.80391752E-03	-0.54262339E-07
2237	-0.13223415E-03	0.33773263E-04	-0.52424327	0.37464220E-04	0.80239225E-03	-0.68688110E-07
2238	-0.13466413E-03	0.37826978E-04	-0.52441511	0.40817074E-04	0.80070613E-03	-0.88105412E-07
2239	-0.13684432E-03	0.42050058E-04	-0.52459783	0.42289676E-04	0.79905260E-03	-0.11276607E-06
2244	-0.15109635E-03	0.49079124E-04	-0.52881470	0.35900871E-04	0.79741501E-03	-0.12921303E-06
2245	-0.12113708E-03	0.52745314E-04	-0.51717594	0.39148483E-04	0.79398947E-03	-0.26394581E-06
2246	-0.13135958E-03	0.51279834E-04	-0.52104985	0.38484212E-04	0.79529606E-03	-0.23384830E-06
2247	-0.14137601E-03	0.50008582E-04	-0.52492969	0.37361205E-04	0.79643219E-03	-0.18480843E-06
2248	-0.17394836E-03	0.44825273E-04	-0.53907542	0.33376321E-04	0.80164216E-03	-0.16843683E-06
2249	-0.15546457E-03	0.44994654E-04	-0.53126983	0.38078698E-04	0.79951988E-03	-0.35890678E-07
2250	-0.16178914E-03	0.44752670E-04	-0.53386942	0.36625110E-04	0.80022388E-03	-0.30527361E-07
2251	-0.16795776E-03	0.44697554E-04	-0.53647127	0.35073500E-04	0.80092281E-03	-0.98348656E-07
2253	-0.17885457E-03	0.26151845E-04	-0.53842563	0.21509349E-04	0.81341583E-03	-0.17335251E-06
2254	-0.17518169E-03	0.28748761E-04	-0.53852785	0.25308579E-04	0.81101118E-03	-0.17813801E-06
2255	-0.17355973E-03	0.32192231E-04	-0.53864701	0.29134138E-04	0.80875938E-03	-0.18092178E-06
2256	-0.17298030E-03	0.36130061E-04	-0.53878170	0.32264863E-04	0.80642656E-03	-0.18048067E-06
2257	-0.17313614E-03	0.40378679E-04	-0.53892719	0.33932299E-04	0.80401865E-03	-0.17636034E-06
2261	-0.14730087E-03	0.27698466E-04	-0.53046556	0.27329141E-04	0.80892184E-03	-0.23745312E-07
2262	-0.14952276E-03	0.30051894E-04	-0.53060161	0.30802703E-04	0.80723256E-03	-0.18809090E-07
2263	-0.15098190E-03	0.33307153E-04	-0.53075303	0.34560073E-04	0.80532769E-03	-0.99398430E-08
2264	-0.15228933E-03	0.37011456E-04	-0.53091867	0.37541575E-04	0.80334634E-03	-0.26773078E-08
2265	-0.15372567E-03	0.40945760E-04	-0.53109361	0.38952163E-04	0.80138195E-03	-0.18472232E-07
2266	-0.15790652E-03	0.27686144E-04	-0.53318385	0.26163806E-04	0.81016908E-03	-0.71949594E-07
2267	-0.15821754E-03	0.29963715E-04	-0.53329737	0.29546605E-04	0.80822836E-03	-0.69213245E-07
2268	-0.15868190E-03	0.33182806E-04	-0.53342549	0.33143156E-04	0.80625738E-03	-0.63868615E-07
2269	-0.15937938E-03	0.36840933E-04	-0.53356704	0.36002148E-04	0.80422256E-03	-0.55515983E-07
2270	-0.16038883E-03	0.40733454E-04	-0.53371749	0.37385393E-04	0.80218298E-03	-0.44220573E-07
2271	-0.16843699E-03	0.27145579E-04	-0.53588744	0.24192576E-04	0.81163067E-03	-0.12201384E-06
2272	-0.16681237E-03	0.29535679E-04	-0.53597954	0.27674751E-04	0.80946080E-03	-0.12232137E-06
2273	-0.16625171E-03	0.32812347E-04	-0.53608680	0.31312799E-04	0.80737934E-03	-0.12090149E-06
2274	-0.16631226E-03	0.36551233E-04	-0.53620801	0.34240629E-04	0.80522985E-03	-0.11671935E-06
2275	-0.16688217E-03	0.40549379E-04	-0.53633864	0.35723361E-04	0.80304575E-03	-0.10935673E-06
2280	-0.17515575E-03	0.48741131E-04	-0.53919618	0.30556608E-04	0.79974312E-03	-0.15489450E-06
2281	-0.15737891E-03	0.48689907E-04	-0.53140727	0.34777081E-04	0.79800907E-03	-0.54135345E-07
2282	-0.16348855E-03	0.48504813E-04	-0.53400172	0.33487720E-04	0.79857802E-03	-0.14148746E-07
2283	-0.16941607E-03	0.48522788E-04	-0.53659801	0.32097866E-04	0.79914797E-03	-0.81961610E-07
2289	-0.22201831E-03	0.17344588E-04	-0.55432206	0.84135167E-05	0.82355351E-03	-0.28648915E-06
2290	-0.22664245E-03	0.46136273E-05	-0.55427766	0.21026177E-05	0.82546101E-03	-0.81244821E-07
2291	-0.22557613E-03	0.90969167E-05	-0.55428654	0.42081022E-05	0.82507612E-03	-0.15793749E-06
2292	-0.22396682E-03	0.13355140E-04	-0.55430134	0.63140591E-05	0.82443750E-03	-0.22674318E-06
2293	-0.19935569E-03	0.20881839E-04	-0.54232292	0.14367430E-04	0.81770151E-03	-0.19278374E-06
2294	-0.20749088E-03	0.19208266E-04	-0.54631278	0.12000352E-04	0.81930172E-03	-0.21983414E-06
2295	-0.21482451E-03	0.17997476E-04	-0.55031206	0.10139960E-04	0.82146479E-03	-0.25161167E-06
2299	-0.21852479E-03	0.57755752E-05	-0.54597470	0.31384729E-05	0.82173362E-03	-0.61460602E-07

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2300	-0.22022578E-03	0.52268008E-05	-0.54873969	0.27325396E-05	0.82270421E-03	0.66969919E-07
2301	-0.22304601E-03	0.48463805E-05	-0.55150631	0.24064052E-05	0.82409495E-03	0.73793675E-07
2302	-0.21482180E-03	0.11359743E-04	-0.54518905	0.65088123E-05	0.82096233E-03	0.11785708E-06
2303	-0.21758803E-03	0.10296066E-04	-0.54821603	0.55916785E-05	0.82200811E-03	0.12830120E-06
2304	-0.22124676E-03	0.95405773E-05	-0.55124468	0.48733995E-05	0.82355434E-03	0.14231488E-06
2305	-0.20836489E-03	0.16467598E-04	-0.54394442	0.10265871E-04	0.81962437E-03	0.16306620E-06
2306	-0.21327044E-03	0.15022366E-04	-0.54739164	0.86717775E-05	0.82085993E-03	0.17972876E-06
2307	-0.21843512E-03	0.13950986E-04	-0.55084222	0.74427898E-05	0.82266786E-03	0.20201323E-06
2308	-0.20504580E-03	0.48229438E-04	-0.55475500	0.20761699E-04	0.80657922E-03	0.38326864E-06
2309	-0.18255868E-03	0.45320768E-04	-0.54298616	0.30642969E-04	0.80279927E-03	0.21724485E-06
2310	-0.19065102E-03	0.46092148E-04	-0.54690283	0.27645817E-04	0.80406791E-03	0.26841754E-06
2311	-0.19815839E-03	0.47061728E-04	-0.55082582	0.24334287E-04	0.80537739E-03	0.32240091E-06
2312	-0.21860301E-03	0.23051637E-04	-0.55436582	0.11596159E-04	0.82172147E-03	0.32148901E-06
2313	-0.21510560E-03	0.28262623E-04	-0.55442325	0.14637466E-04	0.81937187E-03	0.35226907E-06
2314	-0.21183626E-03	0.33196103E-04	-0.55449342	0.17379078E-04	0.81655585E-03	0.37618332E-06
2315	-0.20896761E-03	0.38063968E-04	-0.55457450	0.19568753E-04	0.81337166E-03	0.39074623E-06
2316	-0.20663958E-03	0.43035285E-04	-0.55466334	0.20852021E-04	0.80997228E-03	0.39363893E-06
2317	-0.19156464E-03	0.25049899E-04	-0.54239529	0.18677009E-04	0.81521967E-03	0.20567230E-06
2318	-0.18681636E-03	0.28538444E-04	-0.54248599	0.22755429E-04	0.81290847E-03	0.21545139E-06
2319	-0.18418883E-03	0.32261936E-04	-0.54259395	0.26509496E-04	0.81054686E-03	0.22201561E-06
2320	-0.18279583E-03	0.36339406E-04	-0.54271688	0.29492030E-04	0.80803829E-03	0.22454549E-06
2321	-0.18229225E-03	0.40713924E-04	-0.54285011	0.31097747E-04	0.80541368E-03	0.22276570E-06
2322	-0.19016829E-03	0.24073717E-04	-0.54637452	0.16203683E-04	0.81732383E-03	0.24012154E-06
2323	-0.19721042E-03	0.28301680E-04	-0.54645416	0.20156310E-04	0.81508992E-03	0.25605192E-06
2324	-0.19409781E-03	0.32426311E-04	-0.54655030	0.23696309E-04	0.81259384E-03	0.26729055E-06
2325	-0.19208058E-03	0.36730279E-04	-0.54666044	0.26474705E-04	0.80985587E-03	0.27312437E-06
2326	-0.19095152E-03	0.41286013E-04	-0.54678022	0.27994084E-04	0.80696128E-03	0.27322689E-06
2327	-0.21046236E-03	0.23357399E-04	-0.55036468	0.13898154E-04	0.81964359E-03	0.27863139E-06
2328	-0.20651432E-03	0.28134255E-04	-0.55043337	0.17461312E-04	0.81737798E-03	0.30126048E-06
2329	-0.20327422E-03	0.22687517E-04	-0.55051694	0.20648008E-04	0.81471420E-03	0.31808604E-06
2330	-0.20078949E-03	0.37274307E-04	-0.55061311	0.23156943E-04	0.81172997E-03	0.32770483E-06
2331	-0.19906488E-03	0.42044377E-04	-0.55071805	0.24565467E-04	0.80855356E-03	0.32912176E-06
2336	-0.20447232E-03	0.52900155E-04	-0.55483046	0.19158170E-04	0.80388882E-03	0.35629295E-06
2337	-0.18337377E-03	0.49407415E-04	-0.54309715	0.28067189E-04	0.80070154E-03	0.28871404E-06
2338	-0.19105885E-03	0.50384618E-04	-0.54700302	0.25342525E-04	0.80174631E-03	0.26107593E-06
2339	-0.19812395E-03	0.51562622E-04	-0.55091411	0.22349378E-04	0.80284138E-03	0.30797601E-06
2341	-0.22722773E-03	0.18325154E-04	-0.55745930	0.75419083E-05	0.82430998E-03	0.33328347E-06
2342	-0.23263026E-03	0.19755610E-04	-0.56059685	0.65092031E-05	0.82400950E-03	0.33816233E-06
2343	-0.23813743E-03	0.21704556E-04	-0.56372972	0.53873326E-05	0.82217535E-03	0.43747949E-06
2344	-0.24367040E-03	0.24246265E-04	-0.56685106	0.42873032E-05	0.81828925E-03	0.49286845E-06
2353	-0.23132572E-03	0.48095940E-05	-0.55741697	0.18793165E-05	0.82645454E-03	0.89616483E-07
2354	-0.23041324E-03	0.95133074E-05	-0.55742542	0.37635168E-05	0.82602532E-03	0.17636773E-06
2355	-0.22900785E-03	0.14030426E-04	-0.55743953	0.56536614E-05	0.82531250E-03	0.25800667E-06
2356	-0.23646527E-03	0.51383304E-05	-0.56055811	0.16181400E-05	0.82635835E-03	0.10041807E-06
2357	-0.23563678E-03	0.10186372E-04	-0.56056584	0.32422567E-05	0.82588927E-03	0.19891592E-06
2358	-0.23432908E-03	0.15073641E-04	-0.56057874	0.48748388E-05	0.82510948E-03	0.29383543E-06
2359	-0.24187884E-03	0.56128050E-05	-0.56369587	0.13345933E-05	0.82460189E-03	0.11255029E-06
2360	-0.24109015E-03	0.11143704E-04	-0.56370261	0.26760606E-05	0.82411707E-03	0.22376309E-06
2361	-0.23982365E-03	0.16523514E-04	-0.56371388	0.40284154E-05	0.82331105E-03	0.33243718E-06
2362	-0.24742500E-03	0.62420700E-05	-0.56682281	0.10548105E-05	0.82057284E-03	0.12537744E-06
2363	-0.24665240E-03	0.12406969E-04	-0.56682842	0.21181291E-05	0.82011463E-03	0.24979067E-06
2364	-0.24539016E-03	0.18426164E-04	-0.56683782	0.31961121E-05	0.81935403E-03	0.37247423E-06
2366	-0.20999624E-03	0.49350308E-04	-0.55782147	0.17868618E-04	0.80730842E-03	0.47851310E-06
2367	-0.21462342E-03	0.50811421E-04	-0.56089008	0.14975731E-04	0.80767850E-03	0.60305885E-06
2368	-0.21901176E-03	0.52860315E-04	-0.56395911	0.12266129E-04	0.80748141E-03	0.77386516E-06
2369	-0.22329119E-03	0.55881876E-04	-0.56702589	0.99667789E-05	0.80645055E-03	0.10118198E-05
2375	-0.22429616E-03	0.24012933E-04	-0.55749684	0.10149150E-04	0.82243885E-03	0.38235554E-06
2376	-0.22112353E-03	0.29316415E-04	-0.55754528	0.12649455E-04	0.82006233E-03	0.42654003E-06
2377	-0.21792608E-03	0.34353448E-04	-0.55760391	0.14911836E-04	0.81723313E-03	0.46258440E-06
2378	-0.21487423E-03	0.39272918E-04	-0.55767133	0.16738350E-04	0.81405155E-03	0.48642036E-06
2379	-0.21214646E-03	0.44225771E-04	-0.55774512	0.17849447E-04	0.81067097E-03	0.49332768E-06
2380	-0.22999090E-03	0.25487847E-04	-0.56062789	0.85724076E-05	0.82215865E-03	0.44976786E-06
2381	-0.22700453E-03	0.30880322E-04	-0.56066732	0.10561076E-04	0.81984441E-03	0.51110281E-06
2382	-0.22381391E-03	0.35998520E-04	-0.56071465	0.12376350E-04	0.81712609E-03	0.56376691E-06
2383	-0.22055479E-03	0.40939853E-04	-0.56076888	0.13871085E-04	0.81407072E-03	0.60206908E-06
2384	-0.21740017E-03	0.45829091E-04	-0.56082828	0.14834389E-04	0.81085528E-03	0.61831363E-06
2385	-0.23567433E-03	0.27553374E-04	-0.56375432	0.69618692E-05	0.82044949E-03	0.52366140E-06
2386	-0.23278883E-03	0.33080453E-04	-0.56378517	0.84941471E-05	0.81832909E-03	0.60666643E-06
2387	-0.22956166E-03	0.38305795E-04	-0.56382197	0.99168979E-05	0.81585935E-03	0.68211597E-06
2388	-0.22608130E-03	0.43279454E-04	-0.56386409	0.11129092E-04	0.81312909E-03	0.74314486E-06

FILENAME : PIT5C3.PO DATE : 05-25-94 TIME : 10:28a PAGE 7
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 12/25)

2389	-0.22248241E-03	0.48085819E-04	-0.56391042	0.11982779E-04	0.81027233E-03	0.77898555E-06
2390	-0.24131315E-03	0.30310778E-04	-0.56686983	0.54558931E-05	0.81682721E-03	0.60282818E-06
2391	-0.23848032E-03	0.36061275E-04	-0.56689313	0.66163611E-05	0.81506754E-03	0.71234023E-06
2392	-0.23519835E-03	0.41480614E-04	-0.56692085	0.77269616E-05	0.81305371E-03	0.81789215E-06
2393	-0.23150589E-03	0.46566109E-04	-0.56695270	0.87253751E-05	0.81086246E-03	0.91293186E-06
2394	-0.22748110E-03	0.51340959E-04	-0.56698806	0.95185097E-05	0.80860722E-03	0.98502584E-06
2401	-0.20887690E-03	0.54089628E-04	-0.55788658	0.16603123E-04	0.80458410E-03	0.43296133E-06
2402	-0.21279545E-03	0.55539411E-04	-0.56094494	0.14078314E-04	0.80505366E-03	0.54098330E-06
2403	-0.21627156E-03	0.57468419E-04	-0.56400443	0.11762594E-04	0.80514819E-03	0.70355407E-06
2404	-0.21944107E-03	0.60235002E-04	-0.56706326	0.98778140E-05	0.80466513E-03	0.95136786E-06
MAXIMUMS						
NODE	56	13	44	2165	60	45
VALUE	-0.25324900E-03	0.71621840E-04	-0.57015114	0.45313782E-04	0.82659770E-03	0.13421068E-05

FILENAME : PIT5C4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 13/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 1.4DL + 1.7L + 0.9H

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4736 MAY 25,1994 CP= 90.460

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.45894037E-06	-496.92542		106.40702		-531.95831
56		-452.37470		118.35516		407.17221
57		-372.93476		-268.66833		-0.54874094E-03
58		-355.75689		-1039.3568		-0.46720930E-03
59		-344.73756		-1760.6345		-0.39449094E-03
60		-340.48711		-2415.8176		-0.33253817E-03
61		-318.70965		-2768.7654		-0.26858788E-03
62		-302.92703		-2938.6890		-0.22191311E-03
63		-318.16890		-3268.9116		-0.20199532E-03
64		-335.09080		-3597.9855		-0.18486542E-03
65		-170.19109		-2173.3240		-0.88472082E-04
77		-182.57915		-4529.9363		0.19804554E-04
78		-352.45221		-7619.6476		0.42093783E-04
79		-331.08777		-7264.9803		0.47645646E-04
80		-313.31117		-7139.7367		0.53865093E-04
81		-325.74748		-7696.7221		0.65812779E-04
82		-340.42009		-8218.8746		0.80872299E-04
83		-332.80768		-8103.6318		0.94557690E-04
84		-327.48106		-7905.4778		0.11076044E-03
85		-323.76235		-7610.0129		0.13014210E-03
86		-329.78657		-7397.4742		0.15588744E-03
87		-336.88302		-7027.7606		0.18282685E-03
88		-337.00471		-6348.6112		0.20940279E-03
89		-339.22942		-5558.3232		0.24221220E-03
90		-344.32505		-4668.5555		0.28160191E-03
91		-353.28983		-3694.7127		0.32751354E-03
92		-367.30540		-2656.8102		0.37936156E-03
93		-387.67350		-1579.6875		0.43594889E-03
94		-415.73694		-492.97686		0.49547151E-03
101		-421.04153		-0.50047022E-02		-1546.7079
156		-403.70922		-0.39769124E-02		1166.7697
201		-258.32782		-0.47806934E-02		-1750.5882
256		-266.43503		-0.39131897E-02		1303.9150
301		-80.209575		-0.46061159E-02		-2035.4841
356		-110.99413		-0.38458789E-02		1516.3482
401		93.949216		-0.39800260E-02		-2019.2359
456		48.064205		-0.33768371E-02		1506.8749
501		226.19028		-0.34207271E-02		-1955.7787
556		171.36478		-0.29415033E-02		1458.5108
601		325.05461		-0.29315446E-02		-1871.5736
656		265.38486		-0.25502420E-02		1391.8182
701		399.47718		-0.25144623E-02		-1784.7421
756		337.46552		-0.22099389E-02		1321.3740
801		458.80464		-0.21703596E-02		-1707.8707
856		395.54657		-0.19249088E-02		1257.6678
901		409.42825		-0.16045065E-02		-1131.3346
956		356.24001		-0.14341188E-02		831.64369
1001		327.97568		-0.10996463E-02		-569.66054

FILENAME : PIT5C4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 13/25)

PAGE 2

1056	287.84731	-0.99278600E-03	418.49383
1101	336.70916	-0.93809987E-03	-530.32985
1156	299.03046	-0.85520897E-03	384.82972
1201	355.43339	-0.82389315E-03	-497.30907
1256	318.55636	-0.75754932E-03	356.11681
1301	392.15283	-0.75589194E-03	-473.74532
1356	353.45634	-0.69925032E-03	335.07993
1401	214.31432	-0.36665862E-03	-230.61624
1456	193.45861	-0.33993616E-03	161.33311
TOTAL	0.45894037E-06 -4824.0000	0.00000000E+00 -125521.39	0.00000000E+00 -4818.9866

FILENAME : PITS51.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 14/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	0.900000
3	34.0000
4	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	34.0000	3	1	1	0.000000E+00

CURRENT LOAD CASE= 4

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

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FOR SUPPORT CALL PHONE TWX

TITLE

10.4743 MAY 25,1994 CP= 93.260

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 4

ELEM	FXC	FYC	FXCY	MXC	MYC	MXCY
1176	-129.92063	85.835378	-4.0539472	449.26656	2338.1472	-34.630554
1177	-125.98609	85.284632	-11.996308	457.60748	2270.8205	-99.284089
1178	-117.81196	84.172306	-19.442045	471.27867	2140.9729	-150.67058
1179	-104.84064	82.435382	-26.060349	484.19827	1957.6572	-181.77265
1180	-114.05215	96.450418	-5.9056247	516.56935	3636.1573	-70.267475
1181	-111.02133	95.663656	-17.660629	536.94147	3555.8013	-203.86133
1182	-104.85081	94.055955	-29.225227	572.92218	3399.0903	-317.41417
1183	-95.351593	91.517572	-40.400151	615.03565	3173.6148	-400.12744
1184	-104.06448	110.44349	-7.2050631	473.20591	4844.3756	-114.01234
1185	-102.20635	109.56979	-21.593374	510.63328	4746.8032	-332.81295
1186	-98.463691	107.73169	-35.884985	578.58008	4555.6626	-524.90666
1187	-92.790825	104.70685	-49.912281	663.44642	4278.5938	-675.66775
1188	-97.327198	126.54498	-7.8785335	295.93454	5954.1038	-167.80115
1189	-96.636772	125.62767	-23.621589	356.02725	5836.9856	-491.57729
1190	-95.245410	123.63606	-39.291506	466.74937	5607.3446	-781.06874
1191	-93.124808	120.21798	-54.737967	609.63584	5273.9348	-1017.2741
1192	-91.204719	143.45319	-7.9616711	-42.698246	6956.8630	-232.96928
1193	-91.548362	142.50867	-23.878486	46.943650	6818.8461	-683.86668
1194	-92.210160	140.40303	-39.750459	213.65508	6548.5274	-1091.1400
1195	-93.124892	136.66964	-55.466446	433.12913	6156.7083	-1430.5105
1196	-83.344037	159.99759	-7.5375464	-573.55029	7841.2915	-310.67514
1197	-84.543754	159.05438	-22.624460	-445.53867	7681.3605	-912.82578
1198	-86.892945	156.90630	-37.728882	-206.04218	7368.9431	-1459.3477
1199	-90.277502	153.00327	-52.807616	113.29815	6917.9630	-1919.4209
1200	-71.806626	175.19980	-6.7010586	-1331.2454	8590.8469	-402.23758
1201	-73.685058	174.31424	-20.149430	-1153.2819	8407.7691	-1181.9892
1202	-77.362410	172.24707	-33.718328	-819.16847	8051.6015	-1890.2577
1203	-82.681740	168.40024	-47.450308	-370.22248	7540.8266	-2487.9265
1204	-55.116573	188.28181	-5.5467725	-2355.0388	9181.9285	-509.46988
1205	-57.505183	187.53798	-16.724931	-2111.6816	8973.7342	-1496.2229
1206	-62.199752	185.73139	-28.169065	-1654.0638	8570.9390	-2390.1589
1207	-68.985458	182.22626	-40.019921	-1036.6793	7998.5000	-3141.3751
1208	-32.266200	198.66179	-4.1628393	-3692.4401	9582.3687	-635.10198

FILENAME : PITSD1.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 14/25)

1209	-35.007503	198.13987	-12.612525	-3362.4383	9345.6775	-1862.7851
1210	-40.414839	196.83287	-21.454315	-2741.9847	8891.0541	-2968.4929
1211	-48.298789	194.00602	-31.041690	-1905.3561	8253.4248	-3888.3680
1212	-86.370272	79.876401	-31.522057	487.09345	1733.0881	-188.22896
1213	-61.725493	76.043659	-35.504173	467.35368	1481.1055	-169.23404
1214	-30.501471	70.083844	-37.699730	408.99725	1215.2867	-128.27842
1215	7.1045767	60.593291	-37.834513	293.16688	946.83759	-73.663210
1216	49.862325	45.530401	-35.691111	100.26010	682.39211	-18.615932
1217	94.985214	22.371596	-31.099263	-183.33421	421.48313	19.203668
1218	-82.311182	87.781944	-50.877152	649.18722	2889.7864	-444.88401
1219	-65.575544	82.309234	-60.196308	656.82055	2559.8116	-449.42280
1220	-45.150506	74.147197	-67.708516	615.26753	2196.5226	-417.26144
1221	-21.307679	61.797504	-72.554022	498.67650	1812.1249	-358.37508
1222	5.3370628	43.166413	-73.679631	280.40411	1416.7002	-289.86119
1223	33.845521	15.770924	-69.983015	-61.587821	1016.0440	-237.77714
1224	-85.134943	100.06239	-63.355827	745.32998	3926.2065	-774.96579
1225	-75.448237	93.045398	-75.692591	798.55467	3511.2234	-818.50360
1226	-63.693343	82.460911	-86.160232	792.38075	3047.5358	-808.83609
1227	-49.833963	66.577590	-93.755267	692.09665	2549.2018	-756.22194
1228	-33.813739	43.144585	-97.291713	460.81310	2029.3565	-679.75648
1229	-15.608875	9.7801364	-95.530063	62.080740	1499.0236	-609.93248
1230	-90.212555	114.75380	-69.664975	758.03144	4848.8955	-1186.5549
1231	-86.385406	106.26066	-83.587841	878.08543	4346.8026	-1282.0903
1232	-81.422328	93.296065	-95.809139	929.81302	3783.6926	-1304.9289
1233	-74.967760	73.902079	-105.42167	868.20272	3176.1461	-1264.8821
1234	-66.528100	45.667644	-111.32955	644.28373	2540.5431	-1181.6861
1235	-55.572918	5.9576276	-112.15877	205.61751	1892.8020	-1087.1158
1236	-94.158856	130.52851	-70.801977	670.78527	5658.1819	-1684.2277
1237	-95.066357	120.80463	-85.388634	883.41677	5070.4696	-1842.5759
1238	-95.441378	105.84943	-98.694514	1020.6749	4412.6601	-1904.8172
1239	-94.676163	83.499082	-110.00989	1026.2308	3704.5150	-1879.8587
1240	-91.953454	51.098428	-118.40541	838.39608	2966.0174	-1787.0001
1241	-86.246008	5.5395595	-122.60857	389.65267	2217.6754	-1657.0302
1242	-94.487469	146.45319	-67.745787	468.27537	6347.1134	-2270.5591
1243	-99.170438	135.94623	-82.340987	804.86019	5677.9766	-2499.9598
1244	-103.77235	119.67861	-96.282255	1061.2149	4933.5298	-2605.0970
1245	-107.49382	95.297538	-109.11806	1169.0050	4137.1969	-2593.8486
1246	-109.24531	59.871684	-120.19461	1054.0269	3312.5342	-2484.5793
1247	-107.60530	9.8833571	-128.56050	635.54051	2483.8158	-2306.0261
1248	-89.381379	161.82669	-61.364236	136.88266	6899.7787	-2947.1990
1249	-97.031714	151.14882	-75.453013	635.45868	6155.4089	-3252.5495
1250	-104.98516	134.46393	-89.665525	1051.0976	5335.3236	-3299.9986
1251	-112.29818	109.26945	-103.86205	1302.7223	4466.8761	-3396.8776
1252	-117.69527	72.404110	-117.75402	1304.2952	3576.6352	-3261.0010
1253	-119.48849	19.999576	-130.81570	964.07721	2691.2808	-3019.1038
1254	-77.559837	176.08809	-52.410136	-334.19426	7289.1754	-3715.7130
1255	-87.503379	165.96652	-65.553395	371.85559	6477.2548	-4097.5031
1256	-98.077070	149.92058	-79.711522	993.96491	5595.5521	-4281.3825
1257	-108.26059	125.33298	-95.075037	1436.8900	4675.2684	-4275.9008
1258	-116.68355	88.909879	-111.75110	1603.8236	3744.7472	-4099.7806
1259	-121.53240	36.522990	-129.75126	1394.5583	2831.1470	-3778.5923
1260	-58.324523	188.77720	-41.515201	-952.43090	7474.8003	-4579.5594
1261	-69.925867	180.02723	-53.371611	17.762216	6602.7066	-5030.8616
1262	-82.436906	165.75314	-67.178549	900.27992	5678.5255	-5237.5904
1263	-94.845601	143.30781	-83.440111	1586.0928	4732.8958	-5213.3346
1264	-105.75208	109.34507	-102.73128	1969.6829	3793.9415	-4979.7875
1265	-113.28124	59.699444	-125.56219	1945.7677	2886.2459	-4562.5351
1266	137.75907	-10.947888	-24.121881	-543.93994	148.17832	15.033658
1267	171.32567	-47.141985	-15.219353	-884.74125	-190.62398	-95.846579
1268	62.914812	-21.596200	-60.750910	-536.00393	610.78002	-244.29634
1269	89.775485	-66.275364	-43.486403	-1130.5047	195.06258	-389.49457
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1272	-41.578994	-48.064335	-105.86426	-505.41675	1249.5899	-1028.5278
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1274	-76.233254	-56.724615	-120.86647	-395.88060	1482.1448	-1533.6481
1275	-60.238725	-139.67049	-110.86499	-1607.6373	786.84315	-1474.1905
1276	-100.78068	-58.757260	-132.84714	-176.24366	1677.7842	-2097.1816
1277	-86.588310	-150.63388	-131.15017	-1484.1025	925.87659	-1906.9165
1278	-115.53061	-52.537648	-142.13860	182.04402	1839.6100	-2705.4872

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1279	-103.21639	-150.47053	-150.24612	-1154.0652	1054.9776	-2361.1761
1280	-120.36333	-36.931077	-148.75775	702.78994	1963.0018	-3342.5301
1281	-110.13563	-137.48174	-167.81532	-589.62043	1173.5401	-2824.5679
1282	-114.94327	-11.160392	-152.53737	1406.5610	2036.0070	-3988.1337
1283	-107.17395	-110.26554	-183.43774	230.39935	1275.9626	-3280.6372
1284	-3.8945007	205.83689	-2.6294387	-5341.7941	9743.5584	-759.44170
1285	-6.7122576	205.62357	-8.0401404	-4923.5051	9484.3789	-2225.4999
1286	-12.268195	204.97902	-13.921493	-4136.0886	8991.9166	-3541.1406
1287	-20.398036	203.50863	-20.709817	-3068.6930	8318.7614	-4630.5371
1288	30.331247	209.75799	-1.0575023	-7362.4828	9647.2311	-875.87796
1289	27.649358	209.89522	-3.3373100	-6856.2506	9376.3970	-2565.3439
1290	22.365344	210.05040	-6.1498373	-5903.0240	8866.0951	-4078.3895
1291	14.647597	209.97728	-9.9143638	-4608.1472	8176.3633	-5329.6602
1292	70.853559	210.43605	0.44860225	-9859.3734	9235.7140	-1008.0094
1293	68.263097	210.94084	1.1575022	-9245.4280	8944.6552	-2948.8620
1294	63.185946	211.91453	1.2874852	-8091.2990	8402.6611	-4678.3666
1295	55.801249	213.19440	0.38261968	-6526.8145	7685.0474	-6098.8707
1296	117.77980	207.56483	1.9600523	-12952.995	8444.3453	-1165.3805
1297	115.06620	208.50083	5.6423110	-12198.424	8118.2711	-3401.8183
1298	109.84103	210.34966	8.5995815	-10785.537	7521.0307	-5374.7440
1299	102.49794	213.04751	10.380904	-8887.1119	6754.4714	-6971.0892
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1301	168.44202	201.97766	10.772536	-15857.753	6814.7415	-3972.1608
1302	162.12398	205.08357	16.669436	-14081.588	6119.9271	-6232.2364
1303	153.64595	209.52768	20.789319	-11716.004	5264.9742	-7997.0948
1304	-30.903469	199.62712	-28.737560	-1832.2593	7491.3935	-5445.6101
1305	-43.635264	193.37448	-39.021714	-509.04359	6570.8509	-5987.0191
1306	-57.616827	182.07581	-52.141951	719.22906	5610.0750	-6220.4668
1307	-71.874640	163.34776	-69.018856	1726.0898	4650.1778	-6168.6972
1308	-85.007973	133.78527	-90.760239	2394.8067	3720.0836	-5861.5275
1309	-95.063564	88.846320	-118.52667	2614.9454	2842.4238	-5328.4223
1310	3.9914688	208.16843	-15.309622	-3032.8601	7298.5442	-6297.5821
1311	-9.4867093	204.91813	-23.700650	-1256.6264	6316.3607	-6956.7353
1312	-24.533482	197.74318	-35.705922	420.54563	5325.8512	-7219.3216
1313	-40.227675	184.22147	-52.728361	1840.3887	4373.2998	-7125.7868
1314	-55.232233	160.98466	-76.449028	2871.0790	3484.5522	-6722.2014
1315	-67.566802	123.29200	-108.91233	3397.4685	2674.7174	-6047.5963
1316	45.140815	213.67913	-2.3005194	-4527.2999	6746.2570	-7223.7866
1317	31.214736	213.93309	-8.4287342	-2173.0084	5701.9414	-7989.0446
1318	15.585282	211.62431	-18.972065	59.170707	4705.1021	-8246.2631
1319	-0.89109134	204.58407	-35.659133	1973.9564	3805.4678	-8070.2169
1320	-17.020249	189.67581	-60.778505	3429.1835	3019.2778	-7534.4051
1321	-31.034805	162.35923	-97.307105	4315.7920	2345.5542	-6693.0164
1322	91.417204	216.07075	10.307147	-6338.8990	5729.6891	-8251.7319
1323	76.999064	220.29808	6.5093662	-3240.5042	4619.5568	-9090.6655
1324	61.057526	223.49414	-2.4791707	-330.62236	3652.0615	-9281.7633
1325	44.484179	223.95355	-18.630536	2159.2913	2871.3124	-8961.4358
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1327	12.400576	204.98713	-84.439520	5373.3023	1822.4012	-7211.8675
1328	141.78358	215.46771	23.020547	-8468.3680	4110.8995	-9427.1242
1329	125.82297	224.21282	21.421831	-4412.7152	2939.3466	-10266.301
1330	109.36904	233.57941	13.476236	-692.18323	2058.7283	-10293.754
1331	93.335665	242.20190	-2.5107011	2439.2406	1492.6379	-9741.3362
1332	78.097664	248.50213	-29.219510	4868.8195	1191.2138	-8789.4071
1333	63.863258	249.92817	-71.324590	6563.0845	1078.9040	-7538.4296
1334	-99.601771	24.042303	-153.36166	2280.8475	2040.1474	-4602.3353
1335	-94.540278	-69.211024	-196.11334	1285.4532	1342.6134	-3698.7869
1336	-74.776827	67.748444	-151.44084	3323.0676	1965.0764	-5154.2967
1337	-72.579149	-14.549765	-205.58876	2569.3300	1376.6436	-4057.0803
1338	-40.620442	120.15523	-146.81366	4548.6227	1789.6965	-5622.6985
1339	-41.574591	54.110626	-211.64307	4091.5737	1356.2298	-4339.4188
1340	2.0298436	180.07538	-139.64732	5945.9273	1494.3772	-5963.0082
1341	-2.2744745	135.78388	-213.65937	5828.1815	1269.1361	-4515.0484
1342	51.716385	245.49587	-130.48527	7483.9378	1064.6429	-6121.5457
1343	44.156022	228.42640	-210.86524	7733.3218	1109.0085	-4547.2302
1344	231.31317	188.42035	-6.3066886	21305.913	-5591.9102	-1643.6392
1345	298.16112	169.63373	-10.813085	26603.600	-3574.3233	-2110.9070
1346	387.44624	135.74461	-20.660661	33562.576	-1179.1701	-2849.9102
1347	525.72136	65.814432	-46.290475	43186.889	1138.8812	-4374.7106
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1351	489.54538	100.17028	-134.21838	39610.772	4974.1541	-12457.956
1352	222.23895	195.23755	-28.783340	18068.611	-3850.1325	-7537.6055
1353	288.48030	181.38985	-51.003663	22655.001	-539.78580	-9766.6635
1354	359.65023	163.66036	-99.799047	27845.806	4426.2174	-13234.414
1355	408.87039	163.02435	-201.70446	32178.843	12254.564	-18221.666
1356	214.57118	201.97449	-36.976791	15129.628	-2453.2754	-9655.5219
1357	278.64826	193.12649	-67.030934	18517.893	2100.1063	-12436.744
1358	327.33067	194.34638	-127.98723	20837.382	9548.4146	-16291.187
1359	275.28829	248.33613	-216.75616	20511.647	21530.591	-20268.830
1360	199.12767	212.80454	40.852478	-10701.680	1096.0960	-11174.418
1361	178.89773	228.40371	39.357537	-5341.7798	-71.825807	-11714.010
1362	161.48025	245.51343	29.900253	-671.26597	-657.55784	-11291.813
1363	147.69050	263.29105	12.118642	3111.0894	-742.94642	-10317.017
1364	136.15814	281.94669	-15.682503	6003.7829	-490.45447	-9038.8788
1365	125.02099	302.47086	-58.460996	8077.1951	-59.448400	-7562.2988
1366	255.21148	212.73557	71.477331	-12411.977	-4159.1381	-13614.410
1367	225.77223	239.10334	62.833307	-5428.9299	-5026.2737	-13144.717
1368	209.29135	264.54015	45.038681	134.02936	-4834.4754	-11838.976
1369	201.63188	290.02794	21.929063	4391.8017	-3981.1265	-10266.749
1370	197.85961	319.92166	-7.510111	7577.4970	-2821.0067	-8645.1174
1371	193.23789	359.41770	-48.339100	9909.2918	-1593.4625	-7011.5642
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1373	242.43571	267.06865	85.088350	-4221.2276	-11913.018	-13617.927
1374	236.36781	294.00411	50.987573	1740.5852	-10063.744	-11213.199
1375	242.09239	320.97021	20.137441	6089.6350	-7736.6574	-9227.6854
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1377	255.22242	410.00805	-45.476297	11712.361	-3231.9790	-5734.4642
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1379	216.49269	320.27089	85.821989	-1454.5811	-20123.860	-11692.425
1380	240.60946	335.37936	35.152684	3953.2612	-15549.552	-8660.3124
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1383	305.73209	448.92769	-51.460481	13248.135	-4667.5728	-3701.6029
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1385	102.74689	342.22541	-201.68257	10016.254	787.51274	-4362.1286
1386	184.87837	408.89865	-104.34522	11498.737	-522.28637	-5431.1198
1387	170.85664	469.89994	-182.96169	12554.738	324.45293	-3831.6811
1388	251.65766	484.11775	-91.672767	13478.472	-1492.8563	-4302.9433
1389	235.94126	584.86848	-156.66392	14839.373	-186.91701	-2924.1319
1390	307.48121	540.02856	-82.121499	15062.405	-2330.5067	-2640.5832
1391	291.29805	670.60068	-123.87892	16598.462	-660.43493	-1668.6857
1392	119.96617	383.95425	124.43525	-4091.9091	-35167.667	-11534.670
1393	185.85443	377.75849	44.354284	1630.8254	-25761.760	-7164.3145
1394	241.43197	371.44318	-2.5983844	5986.8295	-18751.343	-4882.6205
1395	284.46221	379.20296	-29.427124	9391.1718	-13279.051	-3427.6372
1396	316.43099	409.79629	-47.567191	12057.796	-8901.3509	-2398.9293
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1398	76.085792	442.30977	24.015028	-48.123441	-37855.814	-2676.6577
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1401	298.94922	392.37144	-61.860305	10272.060	-13621.706	-173.88905
1402	332.47728	419.91659	-70.255482	12654.029	-9134.3176	187.62983
1403	354.04305	478.49922	-74.462405	14607.002	-5562.7283	439.76950
1404	94.064334	485.07686	-93.052849	-674.89257	-36710.471	6510.2734
1405	203.23234	421.58914	-96.663478	3643.5694	-26303.230	4502.9032
1406	267.64667	395.75185	-93.542174	7342.9225	-18889.370	3640.6171
1407	311.65773	395.74691	-93.721459	10315.453	-13263.980	3158.5277
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1410	170.51273	496.67924	-205.05716	-5290.4538	-32347.966	14043.216
1411	239.40099	412.89218	-150.31131	1599.6881	-24091.780	9678.3265
1412	284.81712	393.30984	-130.66449	6239.4763	-17548.285	7455.6502
1413	319.79551	392.65037	-120.46659	9649.2097	-12324.649	6098.9903
1414	345.91583	414.17243	-121.56846	12209.240	-5149.6124	5132.3960
1415	362.56117	463.57225	-96.727806	14166.311	-4825.3945	4320.0997
1416	343.13889	568.12675	-76.877093	15973.316	-2721.8855	-930.71218
1417	327.96129	713.34845	-94.214939	17583.824	-780.03218	-423.51038
1418	360.85877	573.83453	-74.537859	16263.305	-2843.4886	588.55913

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1419	346.48334	720.11188	-70.915419	17838.448	-869.52846	659.29538
1420	368.71368	565.16935	-72.921733	16169.433	-2718.6487	2121.5992
1421	354.89416	703.38263	-47.797951	17639.904	-803.57834	1734.3130
1422	366.95251	542.85033	-70.701253	15694.024	-2347.5712	3569.0334
1423	353.75737	664.08042	-26.497376	16994.859	-589.61926	2756.2604
1424	604.10242	84.788653	61.686445	38117.152	-464.71203	3802.2482
1425	530.49135	196.89675	40.306832	29134.144	-4424.8084	2673.6254
1426	480.27302	271.08227	26.719835	22281.069	-7960.7332	2072.6892
1427	452.08479	323.54565	19.750306	16872.404	-10872.935	1661.0134
1428	580.26071	138.24526	181.62192	35596.776	2734.1711	10992.545
1429	509.83902	219.24968	115.47270	27859.460	-2671.0376	7922.3919
1430	468.82497	280.50407	76.968248	21255.277	-6921.3234	6098.0363
1431	444.69215	327.81384	56.861365	15939.273	-10256.665	4863.1889
1432	514.30433	241.08982	282.68268	30129.730	9002.4961	16657.833
1433	472.28624	260.48490	174.35417	24816.961	858.87843	12668.676
1434	448.38606	296.93034	118.28200	19100.845	-4960.7321	9735.5098
1435	431.78511	334.32615	87.737608	14139.315	-9133.7839	7712.8949
1436	372.78082	372.10828	316.75829	20846.540	17629.819	19635.877
1437	428.36756	308.25988	209.32797	19161.434	5786.8605	16055.285
1438	422.27062	315.69918	147.63546	15647.564	-2298.2633	12613.691
1439	416.14628	341.13382	110.77955	11618.254	-7685.4483	9998.7910
1440	289.03071	415.22620	-243.14196	-9845.6758	-20479.628	17517.499
1441	295.19776	390.63938	-181.73114	-1197.6735	-17446.845	13737.523
1442	212.08338	378.69036	-157.62578	4457.5775	-13412.960	11029.733
1443	329.78395	381.60830	-142.52871	8391.0461	-9609.7733	9102.0648
1444	344.48111	399.35315	-127.79741	11185.748	-6332.5435	7607.4259
1445	353.17432	437.68898	-104.57781	13177.994	-3643.3847	6304.4768
1446	374.31160	344.06463	-204.96196	-11376.236	-8692.4395	16655.082
1447	345.57571	360.07021	-180.93775	-3130.8787	-8439.0138	15092.709
1448	337.97192	361.48955	-164.96159	2731.3913	-7032.3118	23141.969
1449	336.48879	365.88137	-151.53696	6855.3480	-5180.2019	11289.052
1450	335.53069	377.56151	-134.01963	9711.3991	-3324.0891	9592.6568
1451	333.29340	399.00497	-104.98634	11614.092	-1690.9479	7972.1699
1452	392.50065	334.29132	-160.29130	-10109.206	188.77357	14244.904
1453	364.99474	346.67371	-160.84921	-3562.1771	-864.39968	14301.617
1454	347.36116	349.43386	-154.68118	1614.6878	-1064.3495	13353.710
1455	333.91694	350.22663	-143.94558	5441.4597	-727.28362	11974.728
1456	321.20525	352.59084	-126.01632	8104.6575	-166.61340	10418.648
1457	308.39382	355.32931	-95.359087	9777.7748	399.34463	8750.7487
1458	393.42081	345.99268	-128.09519	-7704.4062	6196.6538	11784.011
1459	369.60753	346.34857	-136.53071	-2922.8642	4764.2873	12621.254
1460	348.11778	341.49204	-134.83764	1169.6178	3740.3409	12402.636
1461	327.28405	334.88510	-124.90527	4347.9402	3072.7155	11518.150
1462	306.04275	326.86291	-106.60973	6579.2025	2627.8180	10233.028
1463	285.59563	312.61977	-77.258931	7883.4486	2274.0812	8682.0871
1464	353.14530	497.76958	-65.845396	14565.974	-1644.1704	5097.6558
1465	340.88811	586.02411	-2.7140438	15562.185	-282.21462	3843.9628
1466	327.52848	429.32164	-57.692539	12750.573	-452.74749	6413.4208
1467	317.79427	469.20966	18.396310	13326.817	391.08376	4796.9102
1468	297.47999	354.20632	-47.019513	10579.586	822.28032	7057.9343
1469	291.27149	342.62132	28.410880	10664.955	1065.5882	5275.9948
1470	270.96348	284.62962	-34.816342	8288.2782	1948.0329	7024.7531
1471	268.56436	229.88810	27.017884	7873.4528	1626.3528	5258.1750
1472	440.56072	366.90574	-15.760850	-12181.027	13279.783	1402.8407
1473	434.76498	367.73015	-45.560267	-11373.079	12876.194	4092.8141
1474	424.45839	368.22496	-70.804059	-9865.3275	12139.265	6457.1374
1475	411.39892	366.33782	-89.926297	-7853.7612	11194.837	8345.7037
1476	447.40564	403.00481	-13.019340	-8113.0288	15237.732	1199.9412
1477	441.80546	399.97822	-37.760842	-7511.8557	14854.916	3507.5942
1478	431.37324	393.57391	-58.928233	-6389.4445	14138.306	5555.1879
1479	417.37984	383.77062	-75.286828	-4890.8159	13178.706	7223.9024
1480	476.93990	429.90717	-9.7716609	-4869.6440	16666.609	1015.1946
1481	469.24608	423.60195	-28.290649	-4433.3123	16265.307	2969.1822
1482	454.66881	411.43692	-43.992740	-3619.1195	15503.063	4706.8028
1483	434.43538	394.35074	-55.591613	-2529.9243	14455.235	6123.3455
1484	537.45108	445.59422	-4.2710841	-2341.3773	17707.009	823.60887
1485	523.90559	436.76375	-12.313444	-2045.7144	17243.490	2407.7086
1486	498.30381	420.00762	-18.947644	-1496.3654	16356.951	3812.2348
1487	463.44756	397.17868	-23.465483	-766.75604	15123.901	4947.8969
1488	644.32783	443.60703	6.3665497	-480.56142	18538.428	597.29974

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1489	617.84506	434.06334	18.270708	-304.85640	17946.978	1745.2732
1490	568.38171	416.18376	27.754368	17.940854	16816.411	2760.1144
1491	502.42473	392.02213	33.480087	435.89942	15250.651	3573.1048
1492	393.51959	360.48063	-105.51599	-5124.1151	9827.8171	9933.3330
1493	370.49184	348.66881	-114.12595	-1734.9279	8277.3129	10916.188
1494	346.45890	334.67613	-112.01519	1285.7380	6868.4494	11008.822
1495	321.27128	320.14114	-101.06906	3697.2115	5638.1542	10434.180
1496	295.32858	303.81428	-82.387009	5379.5754	4554.6871	9389.3979
1497	271.00648	278.54060	-56.142274	6260.7931	3564.2478	8011.7201
1498	397.12451	368.79560	-87.058922	-2919.2605	11818.477	8569.3076
1499	371.69049	347.65941	-91.964218	-560.16312	10201.871	9432.4229
1500	344.32638	326.00213	-87.726018	1568.2081	8596.4887	9576.9091
1501	316.30551	305.24618	-75.720692	3268.4988	7063.1273	9139.0953
1502	288.97528	283.64413	-57.607336	4413.7873	5613.0684	8255.8144
1503	264.63148	254.35028	-35.617962	4900.9759	4234.1418	7044.9930
1504	406.92501	371.54713	-62.749779	-1189.6770	13020.406	7214.7968
1505	373.76240	343.22295	-64.149713	351.76924	11304.927	7898.1410
1506	340.21131	315.72701	-58.886983	1732.4435	9526.1189	8016.7900
1507	309.06285	290.37005	-48.118577	2805.9730	7762.1218	7649.5896
1508	282.56280	265.55253	-33.310141	3461.2388	6052.9091	6889.6024
1509	262.36295	236.18800	-16.929020	3595.4102	4412.8645	5831.5832
1510	419.70253	369.22250	-25.644934	59.847580	13513.329	5774.1462
1511	371.29411	337.27801	-25.586754	957.85151	11629.111	6260.6409
1512	326.70850	307.12024	-23.326722	1730.5292	9653.9964	6321.1286
1513	290.86538	279.63749	-19.074602	2276.8110	7684.0731	6000.3405
1514	267.36122	253.58285	-13.240102	2508.8435	5784.1418	5357.0996
1515	257.56916	225.00251	-6.6009945	2340.1372	3989.4312	4456.6102
1516	427.56729	364.54447	35.061021	852.16499	13324.115	4131.1183
1517	252.95806	335.12377	31.433622	1258.6755	11161.625	4431.6830
1518	289.24194	307.27959	23.191653	1557.7344	8920.8559	4444.4507
1519	245.01900	281.48986	11.201288	1683.9294	6720.7579	4190.2456
1520	226.54298	255.85298	-2.6002225	1571.0650	4653.8703	3700.2223
1521	235.87090	226.69861	-15.248799	1147.2910	2781.9888	3007.5146
1522	254.52172	235.22962	-23.686277	6291.0942	2673.4665	6488.8119
1523	254.77210	155.00106	17.312492	5465.5285	1885.1114	4856.4298
1524	248.59927	207.36943	-13.785321	4648.5420	2975.1400	5681.5202
1525	250.17160	121.45365	5.1039474	3555.8431	1864.3975	4230.7250
1526	250.11151	194.01257	-5.1866344	3122.8629	2896.5364	4632.2517
1527	252.56316	120.21096	-8.1632417	1893.8725	1535.3351	3394.1518
1528	258.41709	191.55051	-2.1844985	1708.6918	2333.9607	3416.0779
1529	262.08552	145.99708	-17.479667	489.21867	813.83064	2375.6327
1530	267.44711	191.46443	-22.038429	376.76853	1129.8162	2156.0491
1531	297.54100	173.03799	-23.153872	-721.78368	-352.69940	1236.5817

MINIMUMS						
ELEMENT	1176	1277	1440	1300	1398	1359
VALUE	-129.92063	-150.63388	-243.14196	-16810.774	-37855.814	-20268.830

MAXIMUMS						
ELEMENT	1488	1419	1436	1347	1359	1436
VALUE	644.32783	720.11188	316.75829	43186.889	21530.591	19635.877

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C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 94 BY 1

94 NODES (OF 1188 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

145 ELEMENTS (OF 1182 DEFINED) SELECTED FROM 94 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

90 ELEMENTS (OF 1182 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4747 MAY 25,1994 CP= 94.580

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	153.00982	273.49167	606.30465	1085.0320	3180.1243	-0.15772758E-02
2	305.32561	22.016626	1216.6158	0.19989022E-03	6239.4538	0.73829000E-03
3	303.22844	42.092928	1226.8645	0.57796814E-03	5887.7385	0.15052445E-02
4	299.60478	58.401792	1238.1793	0.12957882E-02	5335.8639	0.23190089E-02
5	293.98852	69.353298	1242.4044	0.24814917E-02	4631.0651	0.31760321E-02
6	285.18347	73.744114	1229.1695	0.42080943E-02	3830.8181	0.40393003E-02
7	270.74659	70.952779	1187.1125	0.64640142E-02	2994.9203	0.48259656E-02
8	246.40646	61.203729	1105.7822	0.92108014E-02	2175.4735	0.53953349E-02
9	205.57802	45.913738	978.63396	0.11823770E-01	1406.0618	0.55402944E-02
10	139.47233	28.096276	807.68194	0.13923370E-01	694.23473	0.49872827E-02
11	38.532041	12.576183	611.29522	0.14262173E-01	31.980906	0.34248065E-02
12	-93.337845	5.2333821	425.69359	0.11422803E-01	-702.20850	0.10629010E-02
13	-69.724406	400.34124	508.61641	1258.4262	-1352.2602	-0.29055833E-02
14	77.445896	569.34927	1074.7811	4962.8547	-0.91445747E-02	-0.11498001E-01
15	164.73899	268.40259	1597.7261	6746.7289	-0.23194002E-02	-0.10370009E-01
16	260.20052	40.762845	2042.5784	8283.1121	0.53145326E-02	-0.89700979E-02
17	359.44731	-130.92089	2399.1502	9279.7988	0.13136707E-01	-0.74906205E-02
18	460.28225	-258.38570	2662.1377	9521.9867	0.21080246E-01	-0.58784959E-02
19	560.86782	-346.40659	2824.8685	8852.8929	0.29192900E-01	-0.40950405E-02
20	659.39964	-396.34981	2878.6993	7142.8014	0.37564844E-01	-0.21063224E-02
21	753.82070	-407.90371	2813.3414	4279.6732	0.46310633E-01	0.12535059E-03
22	818.40034	-372.52516	2558.0296	211.48830	0.54847185E-01	0.27936909E-02
23	869.44638	-302.01209	2188.2341	-4589.4392	0.60084679E-01	0.43825017E-02
24	927.17772	-207.68636	1763.7961	-10470.956	0.67743620E-01	0.64282936E-02
25	969.01130	-81.404299	1215.2853	-17346.945	0.75239522E-01	0.84497106E-02
26	990.47263	72.733685	549.93333	-25095.348	0.82398676E-01	0.10233419E-01
27	1119.0323	308.73696	-341.57262	-38207.815	0.10502397	0.13290600E-01
28	1193.1297	631.01022	-1614.5881	-56833.074	0.11820047	0.17550501E-01
29	1059.1849	943.96755	-2921.4889	-70136.229	0.10774630	0.15880063E-01
30	856.60380	1226.3085	-4017.2550	-81172.024	0.83075515E-01	0.10757237E-01
31	541.17634	1197.5486	-3883.5234	-73960.721	0.16154977E-01	-0.35799026E-03
32	281.85854	1054.3119	-3264.7966	-60992.243	0.24495525E-01	0.97916276E-04
33	158.54479	1097.9353	-3194.3545	-60878.301	0.18861947E-01	-0.15806143E-02
34	40.260589	1113.4156	-2932.9393	-59290.993	0.12795527E-01	-0.33036173E-02
35	-109.61470	1363.0976	-2988.1884	-69830.931	0.25455742E-01	-0.46655538E-02
36	-276.49429	1567.4238	-2330.5951	-72949.827	-0.26978680E-01	-0.14052580E-01
37	-372.12936	1465.9479	-616.78516	-59148.683	-0.44745868E-01	-0.15816626E-01
38	-363.77166	1365.6727	1181.1282	-43867.399	-0.45464571E-01	-0.13358891E-01
39	-249.46176	1155.6895	2410.3229	-25704.613	-0.24460695E-01	-0.54783558E-02

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40	-108.00782	981.24093	3042.0590	-13994.549	-0.12540320E-01	-0.27417267E-02
41	8.6570184	979.75578	3647.4866	-6735.6668	-0.11097884E-02	-0.30280707E-03
42	110.34914	993.66861	4004.3488	-882.98032	0.99389927E-02	0.12199004E-02
43	144.82398	1059.2566	4091.2451	3466.1093	0.17068578E-01	0.10594499E-02
44	-280.01532	539.19399	3838.2758	3513.2277	3547.4302	0.16152461E-02
45	-672.10064	-157.13508	3815.2170	0.71130828E-02	1494.7097	0.46643522E-02
46	-799.22430	-143.76817	3655.5906	-0.14381805E-02	-3822.0891	0.27671158E-02
47	-929.84514	-59.982285	3302.1836	-0.12998173E-01	-10375.363	0.25739275E-02
48	-1032.0683	47.507721	2764.5022	-0.25035631E-01	-18042.762	0.37898691E-02
49	-1122.3747	149.73211	2051.6577	-0.35260410E-01	-26556.828	0.55796895E-02
50	-1213.3088	229.18231	1204.8232	-0.42373736E-01	-35572.624	0.72469657E-02
51	-1309.9889	275.76358	286.49226	-0.45517787E-01	-44639.888	0.82757471E-02
52	-1406.8701	284.68778	-626.35960	-0.44183575E-01	-53345.289	0.80954195E-02
53	-1499.1166	255.47584	-1465.1238	-0.38747405E-01	-60912.293	0.70739379E-02
54	-1574.1838	192.55044	-2140.5873	-0.28757629E-01	-66871.555	0.53196887E-02
55	-1623.4470	103.31932	-2578.9050	-0.15300929E-01	-70666.344	0.28561244E-02
56	-820.32333	-1255.4396	-1365.3895	954.38115	-35986.171	-0.43609494E-02
57	-0.46725290E-10	-2245.5276	-0.13705769E-05	-4698.9947	0.28122668E-06	-0.75235848E-02
58	0.27739588E-10	-1924.4848	-0.67224846E-06	-13234.438	-0.16118429E-06	-0.54952599E-02
59	-0.60254024E-10	-1752.9665	0.53785334E-06	-24324.757	0.55678174E-06	-0.40931340E-02
60	-0.77307050E-11	-1684.5232	-0.12110572E-05	-38293.116	-0.40377927E-07	-0.31399769E-02
61	-0.43598902E-10	-1572.8996	0.63666675E-06	-51390.056	-0.57279249E-06	-0.23945677E-02
62	-0.30922820E-10	-1517.7381	-0.14821117E-05	-63274.015	-0.81423605E-06	-0.19361241E-02
63	-0.61290892E-11	-1647.1137	0.11723964E-05	-82687.024	0.25038207E-06	-0.17814742E-02
64	0.20179414E-11	-1855.0711	-0.17936100E-06	-107448.05	0.84722160E-07	-0.16684516E-02
65	0.20848462E-11	-1016.3487	5916.0000	-73781.101	-0.10901852E-06	-0.80800113E-03
66	0.15063506E-11	-0.15916157E-11	12121.000	-0.18088031E-07	-0.68081386E-06	-0.10842022E-18
67	-0.56843419E-12	-0.52295945E-11	13226.000	0.52224641E-06	0.81807957E-06	-0.65052130E-18
68	0.12960300E-10	0.12619239E-10	16201.000	0.69630914E-08	-0.40731356E-06	0.28189256E-17
69	0.35072389E-10	0.79907636E-10	16269.000	0.57461875E-07	0.40554005E-06	0.34645680E-15
70	0.17985258E-09	0.15916157E-09	14178.000	0.66214943E-06	-0.67826477E-07	0.10755286E-15
71	-0.83900886E-10	-0.68325789E-10	14178.000	0.13290742E-06	-0.19892468E-07	0.38521703E-15
72	-0.56843419E-11	0.10101076E-09	14178.000	-0.2282132E-06	-0.17743150E-06	0.45243757E-15
73	-0.82991392E-11	0.19269919E-10	16269.000	0.39214410E-06	0.25612826E-06	0.20019793E-15
74	-0.64233063E-11	0.24783721E-10	16201.000	0.12028613E-06	-0.25473855E-06	-0.10408341E-16
75	-0.11368684E-12	-0.11482371E-10	13226.000	-0.51673851E-07	0.14068855E-05	0.17347235E-17
76	0.24726887E-11	-0.17053026E-11	12121.000	0.10177610E-06	-0.12963073E-06	0.26020852E-17
77	-0.33727188E-11	-921.28259	5916.0000	-84290.843	-0.62160059E-07	-0.12639912E-02
78	0.11851853E-10	-1476.9168	0.64242704E-06	-122302.73	-0.42098350E-06	-0.25586559E-02
79	-0.94928509E-11	-1108.6786	-0.83063333E-06	-96738.708	0.54910743E-07	-0.25650229E-02
80	0.96633812E-12	-858.45860	-0.68463714E-06	-77512.710	0.21525921E-06	-0.24701949E-02
81	-0.36948222E-11	-707.62079	-0.89613286E-06	-67474.582	0.26312773E-06	-0.25064180E-02
82	0.11368684E-12	-550.26810	0.93856670E-07	-56453.365	0.34951336E-06	-0.25694888E-02
83	0.11368684E-12	-358.56668	-0.11158636E-06	-43274.235	-0.29479816E-06	-0.24732803E-02
84	-0.19554136E-10	-192.64222	0.38588450E-06	-32663.904	-0.19135223E-06	-0.23580863E-02
85	0.22282620E-10	-50.882351	-0.44080321E-06	-24086.610	0.13885074E-06	-0.22265905E-02
86	0.32002845E-10	70.387966	-0.22054360E-06	-17606.097	0.18412175E-06	-0.21197359E-02
87	-0.14097168E-10	174.50071	-0.50451831E-07	-11944.806	-0.21806773E-06	-0.19809622E-02
88	0.61959327E-11	253.72915	-0.45518357E-06	-7211.9492	-0.13403769E-06	-0.18078228E-02
89	-0.11254997E-10	310.33298	0.36203852E-06	-3642.9211	0.21880442E-06	-0.17017306E-02
90	0.69917405E-11	349.28757	-0.28343891E-06	-1068.0441	0.82682163E-07	-0.16833530E-02
91	0.18275159E-10	377.42960	0.42382169E-07	662.80363	-0.19859181E-06	-0.17731064E-02
92	-0.22424729E-10	403.34569	0.15376514E-06	1682.4642	0.11249540E-06	-0.19900244E-02
93	0.71622708E-10	436.99239	-0.13882283E-06	2109.8521	-0.16289960E-07	-0.23496582E-02
94	-0.34674486E-09	488.83646	-0.53079475E-07	2050.5865	-0.75686330E-07	-0.28606743E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = -0.7255892E-08
FY = -0.4238927E-08
FZ = 211965.8
MX = -4977908.
MY = -0.1641401E+08
MZ = 0.1296833E-03
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT5D3.PO DATE : 05-25-94 TIME : 10:28a
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C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

404 NODES (OF 1188 DEFINED) SELECTED FROM 356 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4749 MAY 25,1994 CP= 95.190

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.66652415	0.00000000E+00	0.19631009E-01	0.00000000E+00
2	-0.13584503E-05	0.11768960E-04	-0.66652517	0.54326013E-06	0.19630926E-01	-0.72051455E-06
3	-0.53805727E-05	0.22202376E-04	-0.66652834	0.11363692E-05	0.19630690E-01	-0.14122202E-05
4	-0.11896332E-04	0.33930632E-04	-0.66653390	0.18173556E-05	0.19630345E-01	-0.20408101E-05
5	-0.20588715E-04	0.43520453E-04	-0.66654223	0.26005778E-05	0.19629953E-01	-0.25614534E-05
6	-0.30946698E-04	0.51454723E-04	-0.66655367	0.34648192E-05	0.19629593E-01	-0.29149306E-05
7	-0.42207370E-04	0.57127690E-04	-0.66656841	0.43413826E-05	0.19629342E-01	-0.30258982E-05
8	-0.53297860E-04	0.59863431E-04	-0.66658627	0.51027053E-05	0.19629265E-01	-0.28048636E-05
9	-0.62795588E-04	0.58968903E-04	-0.66660647	0.55533833E-05	0.19629398E-01	-0.21566033E-05
10	-0.68939436E-04	0.53838247E-04	-0.66662737	0.54292180E-05	0.19629730E-01	-0.10000310E-05
11	-0.69753620E-04	0.44140763E-04	-0.66664625	0.44236160E-05	0.19630194E-01	0.68752857E-06
12	-0.63447413E-04	0.30111736E-04	-0.66665931	0.23361393E-05	0.19630660E-01	0.27406839E-05
13	-0.49646958E-04	0.12898253E-04	-0.66666285	-0.40974030E-06	0.19631010E-01	0.43971654E-05
14	-0.57224887E-04	0.32240346E-04	-0.74518422	-0.16385707E-05	0.19630053E-01	0.50855117E-05
15	-0.65914241E-04	0.52377605E-04	-0.82370581	-0.42099615E-05	0.19630885E-01	0.49428195E-05
16	-0.76815555E-04	0.71046485E-04	-0.90223304	-0.81930151E-05	0.19632818E-01	0.43589245E-05
17	-0.89905384E-04	0.86694572E-04	-0.98076962	-0.13662525E-04	0.19635540E-01	0.34225532E-05
18	-0.10472303E-03	0.98003439E-04	-1.0593183	-0.20710829E-04	0.19638855E-01	0.21768979E-05
19	-0.12054232E-03	0.10382238E-03	-1.1378810	-0.29414657E-04	0.19642609E-01	0.66372773E-06
20	-0.13643702E-03	0.10317937E-03	-1.2164593	-0.39816244E-04	0.19646656E-01	-0.10682109E-05
21	-0.15131473E-03	0.95319099E-04	-1.2950540	-0.51907564E-04	0.19650840E-01	-0.29575401E-05
22	-0.16394188E-03	0.79760892E-04	-1.3736652	-0.65614406E-04	0.19654981E-01	-0.49273817E-05
23	-0.17261982E-03	0.57654791E-04	-1.4483608	-0.79992118E-04	0.19658627E-01	-0.67993720E-05
24	-0.17679635E-03	0.28629140E-04	-1.5230693	-0.95473202E-04	0.19661796E-01	-0.85677114E-05
25	-0.17523033E-03	-0.67215054E-05	-1.5977883	-0.11174314E-03	0.19664189E-01	-0.10122325E-04
26	-0.16673375E-03	-0.47374286E-04	-1.6725144	-0.12837959E-03	0.19665495E-01	-0.11346134E-04
27	-0.15023120E-03	-0.91877091E-04	-1.7472428	-0.14485547E-03	0.19665430E-01	-0.12137373E-04
28	-0.11631907E-03	-0.15111785E-03	-1.8431037	-0.16475818E-03	0.19662618E-01	-0.12358618E-04
29	-0.67967670E-04	-0.20881444E-03	-1.9389426	-0.18180475E-03	0.19656366E-01	-0.11475907E-04
30	-0.64738591E-05	-0.25978864E-03	-2.0347429	-0.19441640E-03	0.19646650E-01	-0.95649548E-05
31	0.64759788E-04	-0.29962672E-03	-2.1304888	-0.20112881E-03	0.19633808E-01	-0.68849861E-05
32	0.11539206E-03	-0.31835278E-03	-2.1942842	-0.20175001E-03	0.19624780E-01	-0.46586507E-05
33	0.16638228E-03	-0.32986331E-03	-2.2580494	-0.19920224E-03	0.19615299E-01	-0.24462374E-05
34	0.21584216E-03	-0.33440025E-03	-2.3217840	-0.19340485E-03	0.19606073E-01	-0.36397499E-06
35	0.26194558E-03	-0.33255703E-03	-2.3854900	-0.18465099E-03	0.19597757E-01	0.14776229E-05
36	0.32134705E-03	-0.32131610E-03	-2.4810034	-0.16654417E-03	0.19587074E-01	0.32233703E-05
37	0.36622789E-03	-0.30451812E-03	-2.5764756	-0.14409171E-03	0.19580596E-01	0.37884937E-05
38	0.39542282E-03	-0.28808600E-03	-2.6719270	-0.11941256E-03	0.19578412E-01	0.31214885E-05
39	0.41081714E-03	-0.27749248E-03	-2.7673773	-0.94706341E-04	0.19580129E-01	0.14557196E-05
40	0.41580465E-03	-0.27554801E-03	-2.8417880	-0.76873593E-04	0.19583169E-01	-0.32218112E-06
41	0.41789595E-03	-0.28032452E-03	-2.9162117	-0.61302972E-04	0.19586755E-01	-0.20644653E-05
42	0.42051163E-03	-0.29120331E-03	-2.9906479	-0.48819883E-04	0.19589589E-01	-0.35229996E-05
43	0.42670842E-03	-0.30670951E-03	-3.0650908	-0.40232520E-04	0.19590052E-01	-0.45485440E-05
44	0.43673673E-03	-0.32525197E-03	-3.1395283	-0.36241698E-04	0.19586645E-01	-0.52448942E-05

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45	0.45713066E-03	-0.30209150E-03	-3.1396547	-0.31849871E-04	0.19583505E-01	-0.53709489E-05
46	0.47668198E-03	-0.28233974E-03	-3.1397702	-0.30598076E-04	0.19576567E-01	-0.51377487E-05
47	0.49584463E-03	-0.26913277E-03	-3.1398857	-0.31669772E-04	0.19566451E-01	-0.52536196E-05
48	0.51615387E-03	-0.25694781E-03	-3.1400074	-0.33721282E-04	0.19553863E-01	-0.57408869E-05
49	0.53863357E-03	-0.24385658E-03	-3.1401366	-0.35533689E-04	0.19539542E-01	-0.63756322E-05
50	0.56334548E-03	-0.22718673E-03	-3.1402707	-0.36195258E-04	0.19524321E-01	-0.68901693E-05
51	0.58939489E-03	-0.20491757E-03	-3.1404040	-0.35079171E-04	0.19509112E-01	-0.70506026E-05
52	0.61512622E-03	-0.17589621E-03	-3.1405292	-0.31836603E-04	0.19494847E-01	-0.66839737E-05
53	0.63838919E-03	-0.13982935E-03	-3.1406384	-0.26428008E-04	0.19482529E-01	-0.57172690E-05
54	0.65698846E-03	-0.97327797E-04	-3.1407236	-0.18957611E-04	0.19473003E-01	-0.41857948E-05
55	0.66901399E-03	-0.49969255E-04	-3.1407777	-0.99050765E-05	0.19466982E-01	-0.22131452E-05
56	0.67317452E-03	0.00000000E+00	-3.1407963	0.00000000E+00	0.19464922E-01	0.00000000E+00
57	0.64572212E-03	0.00000000E+00	-3.0669707	0.00000000E+00	0.19391347E-01	0.00000000E+00
58	0.61683956E-03	0.00000000E+00	-2.9934206	0.00000000E+00	0.19320060E-01	0.00000000E+00
59	0.58852133E-03	0.00000000E+00	-2.9201368	0.00000000E+00	0.19251416E-01	0.00000000E+00
60	0.56203554E-03	0.00000000E+00	-2.8471077	0.00000000E+00	0.19186470E-01	0.00000000E+00
61	0.53839011E-03	0.00000000E+00	-2.7743163	0.00000000E+00	0.19126764E-01	0.00000000E+00
62	0.52131480E-03	0.00000000E+00	-2.7122315	0.00000000E+00	0.19081152E-01	0.00000000E+00
63	0.50814595E-03	0.00000000E+00	-2.6502847	0.00000000E+00	0.19042232E-01	0.00000000E+00
64	0.50070141E-03	0.00000000E+00	-2.5884525	0.00000000E+00	0.19011158E-01	0.00000000E+00
65	0.50199785E-03	0.00000000E+00	-2.5267090	0.00000000E+00	0.18987456E-01	0.00000000E+00
66	0.49552646E-03	-0.37742609E-04	-2.5206796	-0.12657271E-03	0.19001182E-01	-0.54241940E-06
67	0.47575376E-03	-0.76805131E-04	-2.5016126	-0.25385102E-03	0.19044404E-01	-0.10640078E-05
68	0.44251554E-03	-0.11919144E-03	-2.4657299	-0.38182385E-03	0.19124410E-01	-0.15449061E-05
69	0.39068443E-03	-0.16168398E-03	-2.3994758	-0.51648485E-03	0.19268117E-01	-0.20029551E-05
70	0.34950000E-03	-0.18561057E-03	-2.3381251	-0.58793005E-03	0.19408156E-01	-0.24697446E-05
71	0.31223775E-03	-0.19370019E-03	-2.2723166	-0.61862346E-03	0.19559548E-01	-0.28402083E-05
72	0.28086042E-03	-0.18479289E-03	-2.2065159	-0.60643122E-03	0.19714565E-01	-0.21325618E-05
73	0.25600901E-03	-0.15997728E-03	-2.1452148	-0.54896858E-03	0.19864113E-01	-0.32015589E-05
74	0.23340444E-03	-0.11587635E-03	-2.0790793	-0.41778767E-03	0.20024955E-01	-0.25231115E-05
75	0.22251296E-03	-0.74073401E-04	-2.0432847	-0.28330398E-03	0.20118178E-01	-0.17069622E-05
76	0.21641627E-03	-0.36143302E-04	-2.0242694	-0.14279313E-03	0.20169973E-01	-0.85630422E-06
77	0.21453115E-03	0.00000000E+00	-2.0182572	0.00000000E+00	0.20186626E-01	0.00000000E+00
78	0.21604126E-03	0.00000000E+00	-1.9526834	0.00000000E+00	0.20165062E-01	0.00000000E+00
79	0.21098286E-03	0.00000000E+00	-1.8871801	0.00000000E+00	0.20142512E-01	0.00000000E+00
80	0.20266524E-03	0.00000000E+00	-1.8217571	0.00000000E+00	0.20116073E-01	0.00000000E+00
81	0.19238702E-03	0.00000000E+00	-1.7564266	0.00000000E+00	0.20085911E-01	0.00000000E+00
82	0.17874186E-03	0.00000000E+00	-1.6801706	0.00000000E+00	0.20047293E-01	0.00000000E+00
83	0.16388433E-03	0.00000000E+00	-1.6040670	0.00000000E+00	0.20006168E-01	0.00000000E+00
84	0.14824390E-03	0.00000000E+00	-1.5281228	0.00000000E+00	0.19963811E-01	0.00000000E+00
85	0.13217599E-03	0.00000000E+00	-1.4523403	0.00000000E+00	0.19921340E-01	0.00000000E+00
86	0.11600968E-03	0.00000000E+00	-1.3767181	0.00000000E+00	0.19879699E-01	0.00000000E+00
87	0.99187462E-04	0.00000000E+00	-1.2972837	0.00000000E+00	0.19837547E-01	0.00000000E+00
88	0.82934214E-04	0.00000000E+00	-1.2180133	0.00000000E+00	0.19797922E-01	0.00000000E+00
89	0.67551009E-04	0.00000000E+00	-1.1388954	0.00000000E+00	0.19761408E-01	0.00000000E+00
90	0.53277809E-04	0.00000000E+00	-1.0599166	0.00000000E+00	0.19728491E-01	0.00000000E+00
91	0.40271759E-04	0.00000000E+00	-0.9810617	0.00000000E+00	0.19699584E-01	0.00000000E+00
92	0.28584463E-04	0.00000000E+00	-0.90231385	0.00000000E+00	0.19675052E-01	0.00000000E+00
93	0.18141531E-04	0.00000000E+00	-0.82365486	0.00000000E+00	0.19655237E-01	0.00000000E+00
94	0.87293664E-05	0.00000000E+00	-0.74506521	0.00000000E+00	0.19640457E-01	0.00000000E+00
2006	0.89346831E-04	0.17529913E-04	-1.3760870	-0.76400728E-04	0.19833688E-01	-0.17603356E-05
2007	-0.12656778E-04	0.38501796E-04	-0.74507499	0.17052269E-05	0.19637304E-01	-0.19875327E-05
2008	-0.41050454E-05	0.36191179E-04	-0.82364698	-0.33680262E-06	0.19649482E-01	-0.15737160E-05
2009	0.55066290E-05	0.35473976E-04	-0.90227664	-0.38276329E-05	0.19666052E-01	-0.13072267E-05
2010	0.16407491E-04	0.35314734E-04	-0.98098073	-0.91197749E-05	0.19686612E-01	-0.11704775E-05
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2012	0.42257094E-04	0.33278068E-04	-1.1386713	-0.26631817E-04	0.19738080E-01	-0.12079509E-05
2013	0.57036430E-04	0.30121124E-04	-1.2176830	-0.39653738E-04	0.19768088E-01	-0.13431622E-05
2014	0.72814744E-04	0.24957339E-04	-1.2968192	-0.56077086E-04	0.19800201E-01	-0.15318968E-05
2016	0.11436650E-03	0.38492110E-05	-1.3766750	-0.22859092E-04	0.19876566E-01	-0.45341571E-06
2017	0.10942031E-03	0.79170814E-05	-1.3765488	-0.44102840E-04	0.19867385E-01	-0.90138454E-06
2018	0.10111944E-03	0.12413671E-05	-1.3763483	-0.62305743E-04	0.19852776E-01	-0.13387677E-05
2027	0.73242597E-05	0.10362625E-04	-0.74506562	0.21960338E-06	0.19640229E-01	-0.58327467E-06
2028	0.31601759E-05	0.20438187E-04	-0.74506702	0.53210702E-06	0.19639571E-01	-0.11340844E-05
2029	-0.36002135E-05	0.29926160E-04	-0.74506990	0.10133448E-05	0.19638559E-01	-0.16163904E-05
2030	0.16885543E-04	0.95563247E-05	-0.82365402	-0.44297304E-06	0.19654834E-01	-0.47759307E-06
2031	0.12367115E-04	0.18911681E-04	-0.82365179	-0.72783033E-06	0.19653663E-01	-0.92276182E-06
2032	0.53422686E-05	0.27860897E-04	-0.82364902	-0.72091171E-06	0.19651825E-01	-0.13009364E-05
2033	0.27081720E-04	0.91399735E-05	-0.90231098	-0.15190656E-05	0.19674434E-01	-0.40378600E-06
2034	0.22619529E-04	0.18172616E-04	-0.90230282	-0.27932092E-05	0.19672626E-01	-0.77744483E-06

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2036	0.38728359E-04	0.88864591E-05	-0.98105585	-0.31038986E-05	0.19698702E-01	-0.35980552E-06
2037	0.34138054E-04	0.17751915E-04	-0.98103894	-0.58515252E-05	0.19696116E-01	-0.69303181E-06
2038	0.26624642E-04	0.26572085E-04	-0.98101291	-0.79315328E-05	0.19691997E-01	-0.97256873E-06
2039	0.51699685E-04	0.85841499E-05	-1.0599066	-0.53049280E-05	0.19727293E-01	-0.34226731E-06
2040	0.46996477E-04	0.17220604E-04	-1.0598775	-0.10111917E-04	0.19723773E-01	-0.66209434E-06
2041	0.39264276E-04	0.25955964E-04	-1.0598321	-0.13982067E-04	0.19718149E-01	-0.93690052E-06
2042	0.65944050E-04	0.80527780E-05	-1.1388799	-0.82403848E-05	0.19759835E-01	-0.34713332E-06
2043	0.61143496E-04	0.16217264E-04	-1.1388345	-0.15802019E-04	0.19755211E-01	-0.67615069E-06
2044	0.53211777E-04	0.24597002E-04	-1.1387631	-0.22083698E-04	0.19747815E-01	-0.96900332E-06
2045	0.81305537E-04	0.71494183E-05	-1.2179906	-0.12040863E-04	0.19795908E-01	-0.37013061E-06
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2049	0.92616391E-04	0.11734396E-04	-1.2971589	-0.32490352E-04	0.19827597E-01	-0.80436101E-06
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2075	-0.66834471E-04	0.54756527E-04	-0.74514984	0.54417206E-05	0.19632019E-01	-0.19883741E-06
2076	-0.15530128E-04	0.43680129E-04	-0.82364715	0.43910301E-06	0.19646829E-01	-0.16981478E-05
2077	-0.28288229E-04	0.50095468E-04	-0.82365088	0.15297985E-05	0.19644080E-01	-0.16275526E-05
2078	-0.41496708E-04	0.55196092E-04	-0.82365903	0.27485157E-05	0.19641431E-01	-0.13145375E-05
2079	-0.54010885E-04	0.58733105E-04	-0.82367154	0.37853389E-05	0.19629033E-01	-0.71672811E-06
2080	-0.64429616E-04	0.60448349E-04	-0.82368694	0.42030483E-05	0.19636957E-01	0.19513459E-06
2081	-0.64883134E-05	0.42506140E-04	-0.90226301	-0.33928050E-05	0.19661756E-01	-0.13946759E-05
2082	-0.20076814E-04	0.50947465E-04	-0.90225217	-0.23788610E-05	0.19657158E-01	-0.13153739E-05
2083	-0.34496218E-04	0.57635575E-04	-0.90224592	-0.10023009E-05	0.19652536E-01	-0.10334383E-05
2084	-0.48768986E-04	0.63370007E-04	-0.90224496	0.35848685E-06	0.19648120E-01	-0.51677544E-06
2085	-0.61700339E-04	0.67898501E-04	-0.90224826	0.11515929E-05	0.19644056E-01	0.26017333E-06
2086	0.38190125E-05	0.43922199E-04	-0.98094598	-0.93169665E-05	0.19680297E-01	-0.12581175E-05
2087	-0.10674943E-04	0.52349892E-04	-0.98091231	-0.85808704E-05	0.19673423E-01	-0.12068000E-05
2088	-0.26455274E-04	0.60450183E-04	-0.98088282	-0.71530695E-05	0.19666363E-01	-0.98890817E-06
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2090	-0.58536398E-04	0.74897120E-04	-0.98084161	-0.42365363E-05	0.19652911E-01	0.45156063E-07
2091	0.15469034E-04	0.43834346E-04	-1.0597097	-0.17770300E-04	0.19702038E-01	-0.12608092E-05
2092	0.39115229E-08	0.52959229E-04	-1.0596432	-0.17555404E-04	0.19692456E-01	-0.12654480E-05
2093	-0.17283466E-04	0.62111960E-04	-1.0595798	-0.16205809E-04	0.19682502E-01	-0.11371268E-05
2094	-0.35768468E-04	0.71124060E-04	-1.0595229	-0.14235217E-04	0.19672624E-01	-0.85646295E-06
2095	-0.54773462E-04	0.79719421E-04	-1.0594733	-0.12433486E-04	0.19663186E-01	-0.40505318E-06
2096	0.28438074E-04	0.42316683E-04	-1.1385661	-0.29196686E-04	0.19726550E-01	-0.13760212E-05
2097	0.11968730E-04	0.51722471E-04	-1.1384551	-0.29774156E-04	0.19713833E-01	-0.14574846E-05
2098	-0.68745486E-05	0.61435460E-04	-1.1383453	-0.28637354E-04	0.19700550E-01	-0.14380392E-05
2099	-0.27742044E-04	0.71299047E-04	-1.1382422	-0.26362414E-04	0.19687291E-01	-0.13045439E-05
2100	-0.50192833E-04	0.81027248E-04	-1.1381484	-0.23851099E-04	0.19674566E-01	-0.10441931E-05
2101	0.42628405E-04	0.38697673E-04	-1.2175253	-0.44041217E-04	0.19753347E-01	-0.15782692E-05
2102	0.25172513E-04	0.47844513E-04	-1.2173564	-0.45692105E-04	0.19737076E-01	-0.17507945E-05
2103	0.47546652E-05	0.57528944E-04	-1.2171861	-0.44887392E-04	0.19720060E-01	-0.18531788E-05
2104	-0.18522062E-04	0.67610481E-04	-1.2170225	-0.42264477E-04	0.19703052E-01	-0.18792692E-05
2105	-0.44524360E-04	0.77806835E-04	-1.2168706	-0.38832013E-04	0.19686723E-01	-0.18233957E-05
2106	0.57884302E-04	0.32495313E-04	-1.2965954	-0.62740875E-04	0.19781838E-01	-0.18437493E-05
2107	0.39524109E-04	0.40768812E-04	-1.2963536	-0.65732702E-04	0.19761610E-01	-0.21146331E-05
2108	0.17620054E-04	0.49770473E-04	-1.2961070	-0.65340361E-04	0.19740499E-01	-0.23448030E-05
2109	-0.79827555E-05	0.59381731E-04	-1.2958673	-0.62268770E-04	0.19719438E-01	-0.25358947E-05
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2124	-0.72405072E-04	0.57396644E-04	-0.82371091	0.88630768E-06	0.19633318E-01	0.30010578E-05
2125	-0.77604598E-04	0.72106041E-04	-0.90225078	-0.20837819E-05	0.19636770E-01	0.26750738E-05
2126	-0.83718594E-04	0.84768009E-04	-0.98080646	-0.69709351E-05	0.19641195E-01	0.20224735E-05
2127	-0.90497471E-04	0.93840830E-04	-1.0593813	-0.14043519E-04	0.19646369E-01	0.10878727E-05
2128	-0.97433749E-04	0.98066833E-04	-1.1379780	-0.23517943E-04	0.19652099E-01	-0.82195183E-07
2129	-0.10385528E-03	0.96435821E-04	-1.2165984	-0.35553943E-04	0.19658192E-01	-0.14347574E-05
2130	-0.10897491E-03	0.88189195E-04	-1.2952433	-0.50242719E-04	0.19664429E-01	-0.29049106E-05
2131	0.17991367E-03	-0.37802025E-04	-1.7552030	-0.20179172E-03	0.20015723E-01	-0.30322052E-05
2132	0.10814295E-03	0.76748288E-05	-1.4515902	-0.96532825E-04	0.19870826E-01	-0.20295967E-05
2133	0.12695710E-03	-0.31396043E-05	-1.5272526	-0.11898266E-03	0.19908881E-01	-0.23091470E-05
2134	0.14542623E-03	-0.14535930E-04	-1.6030775	-0.14388532E-03	0.19946744E-01	-0.25790590E-05
2135	0.16319241E-03	-0.26175627E-04	-1.6790635	-0.17146523E-03	0.19982988E-01	-0.28242041E-05
2137	0.19163173E-03	-0.10016781E-04	-1.7563446	-0.57947848E-04	0.20080969E-01	-0.76783207E-06
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2139	0.18547347E-03	-0.29095061E-04	-1.7557162	-0.16121057E-03	0.20044210E-01	-0.22844529E-05
2144	0.13070224E-03	0.14248034E-05	-1.4522895	-0.28299984E-04	0.19917898E-01	-0.50934812E-06
2145	0.12626033E-03	0.30519815E-05	-1.4521404	-0.54970196E-04	0.19907813E-01	-0.10172629E-05
2146	0.11878273E-03	0.50755444E-05	-1.4519025	-0.78091328E-04	0.19891763E-01	-0.15233969E-05
2147	0.14694189E-03	-0.12385241E-05	-1.5280642	-0.34570743E-04	0.19960059E-01	-0.57007743E-06
2148	0.14301512E-03	-0.22918593E-05	-1.5278920	-0.67069343E-04	0.19949075E-01	-0.11417804E-05
2149	0.13639497E-03	-0.29804760E-05	-1.5276163	-0.95668036E-04	0.19931615E-01	-0.17188629E-05
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2151	0.15935332E-03	-0.79492213E-05	-1.6038054	-0.80553679E-04	0.19990163E-01	-0.12689760E-05
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2154	0.17492723E-03	-0.13767942E-04	-1.6798783	-0.95629755E-04	0.20029844E-01	-0.13968387E-05
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2160	-0.24960970E-04	-0.48462944E-04	-1.6736674	-0.17890385E-03	0.19712729E-01	-0.76551933E-05
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2163	0.12564933E-03	-0.69434311E-04	-1.7518667	-0.27626040E-03	0.19850976E-01	-0.48492767E-05
2164	0.93409010E-04	-0.76697495E-04	-1.7506776	-0.26502800E-03	0.19798706E-01	-0.56826195E-05
2165	0.50672855E-04	-0.82503345E-04	-1.7495656	-0.24158214E-03	0.19752091E-01	-0.67026614E-05
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2167	0.73193405E-04	-0.16042123E-04	-1.4507439	-0.11773581E-03	0.19814170E-01	-0.29515220E-05
2168	0.48799295E-04	0.21784879E-04	-1.4502842	-0.11871794E-03	0.19783309E-01	-0.34285635E-05
2169	0.18936575E-04	0.28539800E-04	-1.4498314	-0.11435262E-03	0.19752758E-01	-0.39396960E-05
2170	-0.17294336E-04	0.36109736E-04	-1.4494036	-0.10610379E-03	0.19723819E-01	-0.45037475E-05
2171	0.11188966E-03	-0.24083257E-05	-1.5267351	-0.13868957E-03	0.19876856E-01	-0.28206920E-05
2172	0.92130791E-04	-0.56256719E-06	-1.5261566	-0.14939857E-03	0.19841452E-01	-0.33538682E-05
2173	0.66987093E-04	0.24994059E-05	-1.5255526	-0.15154028E-03	0.19804778E-01	-0.39307651E-05
2174	0.35487299E-04	0.67728003E-05	-1.5249551	-0.14630446E-03	0.19768705E-01	-0.45758356E-05
2175	-0.36794113E-05	0.12106714E-04	-1.5243904	-0.13546833E-03	0.19734829E-01	-0.53161383E-05
2176	0.13091021E-03	-0.17483178E-04	-1.6024257	-0.17073096E-03	0.19908966E-01	-0.31195678E-05
2177	0.11139817E-03	-0.19200254E-04	-1.6016877	-0.18550568E-03	0.19867245E-01	-0.37014613E-05
2178	0.86016940E-04	-0.19567397E-04	-1.6009126	-0.18884882E-03	0.19824360E-01	-0.43512476E-05
2179	0.53519926E-04	-0.18556617E-04	-1.6001445	-0.18235363E-03	0.19782631E-01	-0.50993894E-05
2180	0.12184173E-04	-0.16273165E-04	-1.5994196	-0.16823956E-03	0.19743919E-01	-0.59814388E-05
2181	0.14953845E-03	-0.33459114E-04	-1.6782554	-0.20694672E-03	0.19938534E-01	-0.33694435E-05
2182	0.13069438E-03	-0.39367750E-04	-1.6773305	-0.22627043E-03	0.19889816E-01	-0.39729088E-05
2183	0.10563965E-03	-0.43784487E-04	-1.6763558	-0.23059112E-03	0.19840439E-01	-0.46637919E-05
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2185	0.30314235E-04	-0.48187555E-04	-1.6744823	-0.20391746E-03	0.19750067E-01	-0.64561503E-05
2191	-0.69156035E-04	-0.89751898E-04	-1.7478485	-0.17802282E-03	0.19685408E-01	-0.98375835E-05
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2193	-0.10828263E-03	0.23844815E-04	-1.5234482	-0.10733937E-03	0.19680520E-01	-0.72736957E-05
2194	-0.10037093E-03	-0.96386973E-05	-1.5982407	-0.12997626E-03	0.19683950E-01	-0.84378735E-05
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2205	0.21342146E-03	-0.81737638E-04	-1.9505082	-0.33899206E-03	0.20030209E-01	-0.31806699E-05
2206	0.23004365E-03	-0.11599071E-03	-2.0480607	-0.43614467E-03	0.19981438E-01	-0.31833017E-05
2207	0.20235822E-03	-0.13664395E-04	-1.8239096	-0.70945780E-04	0.20110778E-01	-0.83102262E-06
2208	0.21110619E-03	-0.18293290E-04	-1.8915475	-0.87579452E-04	0.20135954E-01	-0.86206255E-06
2209	0.21665313E-03	-0.24968449E-04	-1.9592414	-0.11034134E-03	0.20155762E-01	-0.86367827E-06

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2211	0.21149711E-03	-0.37602310E-04	-1.9042177	-0.17507221E-03	0.20115680E-01	-0.16954550E-05
2212	0.21871140E-03	-0.52208022E-04	-1.9783674	-0.22344336E-03	0.20125317E-01	-0.17099021E-05
2213	0.19979057E-03	-0.42126463E-04	-1.8399200	-0.20443492E-03	0.20069298E-01	-0.24112612E-05
2214	0.21223766E-03	-0.58683772E-04	-1.9242624	-0.26058950E-03	0.20080706E-01	-0.24732241E-05
2215	0.22295821E-03	-0.82706261E-04	-2.0086460	-0.33646666E-03	0.20068524E-01	-0.25067082E-05
2216	0.14459963E-03	-0.26414172E-03	-2.1324987	-0.33107629E-03	0.19645483E-01	-0.58546345E-05
2217	0.23807195E-04	-0.13796016E-03	-1.8446622	-0.24864775E-03	0.19706797E-01	-0.79248704E-05
2218	0.59444054E-04	-0.18726807E-03	-1.9407022	-0.28435033E-03	0.19693618E-01	-0.75047338E-05
2219	0.10016324E-03	-0.23061520E-03	-2.0366593	-0.31303862E-03	0.19672813E-01	-0.67692502E-05
2220	0.25592640E-03	-0.16916926E-03	-2.1427787	-0.55831289E-03	0.19785550E-01	-0.34743037E-05
2221	0.24774333E-03	-0.18175978E-03	-2.1403668	-0.54038483E-03	0.19735814E-01	-0.38164695E-05
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2223	0.20886986E-03	-0.21844185E-03	-2.1359669	-0.45609366E-03	0.19676330E-01	-0.47022997E-05
2224	0.17996622E-03	-0.24083608E-03	-2.1340957	-0.39747843E-03	0.19658253E-01	-0.52485593E-05
2225	0.18678762E-03	-0.75260154E-04	-1.8515628	-0.31449586E-03	0.19971140E-01	-0.36334158E-05
2226	0.17106168E-03	-0.90865543E-04	-1.8501242	-0.33853398E-03	0.19906459E-01	-0.42040835E-05
2227	0.14894333E-03	-0.10454962E-03	-1.8486339	-0.33897009E-03	0.19845822E-01	-0.48744767E-05
2228	0.11869980E-03	-0.11684446E-03	-1.8471837	-0.32110700E-03	0.19791686E-01	-0.56799318E-05
2229	0.78074295E-04	-0.12800617E-03	-1.8458430	-0.28968190E-03	0.19745112E-01	-0.66711930E-05
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2231	0.19323398E-03	-0.12284388E-03	-1.9471198	-0.41112783E-03	0.19882285E-01	-0.41591571E-05
2232	0.17374580E-03	-0.13981904E-03	-1.9453299	-0.40293421E-03	0.19821140E-01	-0.47681991E-05
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2234	0.10901396E-03	-0.17203725E-03	-1.9420604	-0.33494258E-03	0.19727296E-01	-0.63882861E-05
2235	0.22765215E-03	-0.13672684E-03	-2.0460384	-0.47866796E-03	0.19895109E-01	-0.35835639E-05
2236	0.21803141E-03	-0.15458599E-03	-2.0439225	-0.48249519E-03	0.19826582E-01	-0.40261049E-05
2237	0.20104137E-03	-0.17236548E-03	-2.0418488	-0.46134418E-03	0.19772935E-01	-0.45442317E-05
2238	0.17629661E-03	-0.19113498E-03	-2.0399078	-0.42306587E-03	0.19730825E-01	-0.51582472E-05
2239	0.14319111E-03	-0.21082854E-03	-2.0381626	-0.37257092E-03	0.19697895E-01	-0.58905904E-05
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2245	-0.37220575E-04	-0.14527466E-03	-1.8438040	-0.20821530E-03	0.19681025E-01	-0.98083763E-05
2246	0.39414964E-05	-0.19910128E-03	-1.9397261	-0.23516100E-03	0.19671590E-01	-0.91813698E-05
2247	0.53158433E-04	-0.24653095E-03	-2.0355898	-0.25615340E-03	0.19657024E-01	-0.79909061E-05
2248	0.26664171E-03	-0.29076149E-03	-2.3873542	-0.30970649E-03	0.19564512E-01	-0.57999925E-06
2249	0.17541956E-03	-0.27961754E-03	-2.1963137	-0.33564521E-03	0.19625048E-01	-0.44041116E-05
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2251	0.23708808E-03	-0.29255364E-03	-2.3237397	-0.32481482E-03	0.19583314E-01	-0.16946322E-05
2253	0.36623191E-03	-0.17524116E-03	-2.3971574	-0.53489664E-03	0.19356302E-01	-0.21105320E-05
2254	0.34501496E-03	-0.19322222E-03	-2.3948415	-0.51909429E-03	0.19418368E-01	-0.20899364E-05
2255	0.32333469E-03	-0.21455138E-03	-2.3926418	-0.48331919E-03	0.19466256E-01	-0.19530278E-05
2256	0.30201238E-03	-0.23852842E-03	-2.3906299	-0.43409490E-03	0.19505156E-01	-0.16784959E-05
2257	0.28230470E-03	-0.26430594E-03	-2.3888555	-0.37535025E-03	0.19537571E-01	-0.12334982E-05
2261	0.27791372E-03	-0.18655009E-03	-2.2044038	-0.58613429E-03	0.19678351E-01	-0.32112444E-05
2262	0.26721493E-03	-0.19675285E-03	-2.2024000	-0.55505131E-03	0.19656583E-01	-0.34004347E-05
2263	0.25036329E-03	-0.21294707E-03	-2.2005497	-0.51274990E-03	0.19642534E-01	-0.36379983E-05
2264	0.22900363E-03	-0.23312190E-03	-2.1988960	-0.46094103E-03	0.19633474E-01	-0.38997809E-05
2265	0.20386704E-03	-0.25582551E-03	-2.1974744	-0.40145781E-03	0.19627948E-01	-0.41665384E-05
2266	0.30530160E-03	-0.19365133E-03	-2.2698394	-0.59119093E-03	0.19568579E-01	-0.28717740E-05
2267	0.29086722E-03	-0.20397590E-03	-2.2674892	-0.55630562E-03	0.19575903E-01	-0.29474539E-05
2268	0.27277722E-03	-0.22075487E-03	-2.2653024	-0.51179803E-03	0.19582835E-01	-0.30285869E-05
2269	0.25208528E-03	-0.24150316E-03	-2.2633157	-0.45889164E-03	0.19589845E-01	-0.30816690E-05
2270	0.22966044E-03	-0.26473163E-03	-2.2615600	-0.39921627E-03	0.19596929E-01	-0.30791380E-05
2271	0.33552576E-03	-0.18916624E-03	-2.3353388	-0.57377835E-03	0.19459962E-01	-0.24843215E-05
2272	0.31731745E-03	-0.20252868E-03	-2.3326343	-0.54384884E-03	0.19495819E-01	-0.24938906E-05
2273	0.29755902E-03	-0.22105192E-03	-2.3300813	-0.50157404E-03	0.19523604E-01	-0.24488908E-05
2274	0.27683533E-03	-0.24308909E-03	-2.3277256	-0.44962531E-03	0.19546668E-01	-0.23189895E-05
2275	0.25617047E-03	-0.26734963E-03	-2.3256025	-0.39018283E-03	0.19566401E-01	-0.20747214E-05
2280	0.25941024E-03	-0.31280641E-03	-2.3863048	-0.24900785E-03	0.19583297E-01	0.43297617E-06
2281	0.14681473E-03	-0.30040656E-03	-2.1951735	-0.27125388E-03	0.19624262E-01	-0.45841508E-05
2282	0.18557066E-03	-0.31085020E-03	-2.2589291	-0.26880103E-03	0.19609958E-01	-0.13529865E-05
2283	0.22344036E-03	-0.31476152E-03	-2.3226387	-0.26129515E-03	0.19596040E-01	-0.11131915E-05
2289	0.51171161E-03	-0.87430967E-04	-2.7733222	-0.16301238E-03	0.19199366E-01	-0.22036834E-05
2290	0.53651382E-03	-0.22703149E-04	-2.7742494	-0.47303554E-04	0.19131811E-01	-0.71475742E-06
2291	0.53107732E-03	-0.45008239E-04	-2.7740527	-0.91756660E-04	0.19146516E-01	-0.71828317E-05
2292	0.52257374E-03	-0.66632375E-04	-2.7737378	-0.13090514E-03	0.19169656E-01	-0.18577785E-05
2293	0.42956010E-03	-0.12723949E-03	-2.4931426	-0.40250705E-03	0.19171352E-01	-0.18630380E-05
2294	0.45668721E-03	-0.10632146E-03	-2.5865052	-0.30472332E-03	0.19141169E-01	-0.18583583E-05
2295	0.48319797E-03	-0.93978389E-04	-2.6798402	-0.22580423E-03	0.19156361E-01	-0.19719919E-05
2299	0.49604093E-03	-0.31652349E-04	-2.5819824	-0.98113563E-04	0.19018859E-01	-0.55707224E-06

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2301	0.51865601E-03	-0.24265308E-04	-2.7100469	-0.60430055E-04	0.19085976E-01	-0.63833444E-06
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2303	0.49430801E-03	-0.53900920E-04	-2.6332541	-0.15433335E-03	0.19065095E-01	-0.11240962E-05
2304	0.51088584E-03	-0.48189405E-04	-2.7034919	-0.11951810E-03	0.19100331E-01	-0.12092094E-05
2305	0.45916750E-03	-0.95351862E-04	-2.5328503	-0.30496839E-03	0.19093516E-01	-0.15356991E-05
2306	0.47793649E-03	-0.80454705E-04	-2.6130936	-0.23166778E-03	0.19095733E-01	-0.15581465E-05
2307	0.49879858E-03	-0.71475404E-04	-2.6933276	-0.17535960E-03	0.19124145E-01	-0.16626437E-05
2308	0.40213356E-03	-0.24233016E-03	-2.7682699	-0.14493227E-03	0.19527351E-01	-0.61534880E-06
2309	0.30789088E-03	-0.28074131E-03	-2.4826735	-0.27695704E-03	0.19541627E-01	-0.60126389E-07
2310	0.34444073E-03	-0.26596511E-03	-2.5779024	-0.23562362E-03	0.19527527E-01	0.11852239E-06
2311	0.37578223E-03	-0.25158982E-03	-2.6730861	-0.19014905E-03	0.19523023E-01	-0.86913119E-07
2312	0.49145845E-03	-0.11818259E-03	-2.7725274	-0.19763122E-03	0.19254651E-01	-0.23152867E-05
2313	0.46911211E-03	-0.14694189E-03	-2.7716226	-0.21333340E-03	0.19315074E-01	-0.22904413E-05
2314	0.44691854E-03	-0.17376952E-03	-2.7706865	-0.21231147E-03	0.19375654E-01	-0.21174603E-05
2315	0.42695604E-03	-0.19860228E-03	-2.7697852	-0.19797063E-03	0.19432724E-01	-0.17884044E-05
2316	0.41127540E-03	-0.22138215E-03	-2.7689688	-0.17417009E-03	0.19483868E-01	-0.12928176E-05
2317	0.40228321E-03	-0.15466943E-03	-2.4912675	-0.44525307E-03	0.19261826E-01	-0.19614734E-05
2318	0.37875013E-03	-0.17945692E-03	-2.4892993	-0.44824054E-03	0.19239070E-01	-0.19253983E-05
2319	0.35646799E-03	-0.20427257E-03	-2.4873788	-0.42560306E-03	0.19403830E-01	-0.17475373E-05
2320	0.33580037E-03	-0.22956079E-03	-2.4855972	-0.38605276E-03	0.19458206E-01	-0.14064043E-05
2321	0.31856895E-03	-0.25522409E-03	-2.4840154	-0.33522737E-03	0.19503897E-01	-0.86379007E-06
2322	0.43316775E-03	-0.13722383E-03	-2.5850516	-0.35259176E-03	0.19221700E-01	-0.19451636E-05
2323	0.40997036E-03	-0.16514032E-03	-2.5834654	-0.36676896E-03	0.19298992E-01	-0.18984043E-05
2324	0.38786814E-03	-0.19161567E-03	-2.5818775	-0.35522159E-03	0.19369012E-01	-0.17015859E-05
2325	0.36795013E-03	-0.21723128E-03	-2.5803816	-0.32586138E-03	0.19430542E-01	-0.13309901E-05
2326	0.35233917E-03	-0.24205422E-03	-2.5790425	-0.28450357E-03	0.19483448E-01	-0.74728350E-06
2327	0.46214966E-03	-0.12496141E-03	-2.6767472	-0.26913881E-03	0.19223666E-01	-0.20628823E-05
2328	0.43980715E-03	-0.15362254E-03	-2.6775229	-0.28627878E-03	0.19293702E-01	-0.20195307E-05
2329	0.41793893E-03	-0.18046246E-03	-2.6762729	-0.28180609E-03	0.19361152E-01	-0.18258283E-05
2330	0.39835279E-03	-0.20571042E-03	-2.6750802	-0.26105183E-03	0.19422868E-01	-0.14623810E-05
2331	0.38327033E-03	-0.22938913E-03	-2.6740047	-0.22900919E-03	0.19477210E-01	-0.89957559E-06
2336	0.40167574E-03	-0.25950388E-03	-2.7677759	-0.11871564E-03	0.19557517E-01	0.38312121E-06
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2338	0.34783333E-03	-0.28563103E-03	-2.5771029	-0.19036205E-03	0.19557944E-01	0.15830813E-05
2339	0.37886804E-03	-0.26979495E-03	-2.6724397	-0.15446559E-03	0.19554752E-01	0.12290663E-05
2341	0.53233896E-03	-0.91732549E-04	-2.8462701	-0.12867377E-03	0.19253329E-01	-0.26409136E-05
2342	0.55370418E-03	-0.10029614E-03	-2.9194582	-0.97631740E-04	0.19312342E-01	-0.32442288E-05
2343	0.57504518E-03	-0.11498829E-03	-2.9928979	-0.70558280E-04	0.19373814E-01	-0.40608941E-05
2344	0.59566402E-03	-0.13869906E-03	-3.0665909	-0.48184255E-04	0.19435416E-01	-0.51662656E-05
2353	0.55998862E-03	-0.23626891E-04	-2.8470512	-0.37493922E-04	0.19191071E-01	-0.83305008E-06
2354	0.55401342E-03	-0.46941556E-04	-2.8468852	-0.72675101E-04	0.19204512E-01	-0.15888750E-05
2355	0.54458589E-03	-0.69691182E-04	-2.8466198	-0.10352938E-03	0.19225789E-01	-0.22045618E-05
2356	0.58612047E-03	-0.25881005E-04	-2.9200909	-0.28725321E-04	0.19255594E-01	-0.10228905E-05
2357	0.57911308E-03	-0.51415780E-04	-2.9199560	-0.55583037E-04	0.19267811E-01	-0.19527684E-05
2358	0.56803627E-03	-0.76303507E-04	-2.9197407	-0.78946522E-04	0.19287189E-01	-0.27109501E-05
2359	0.61392939E-03	-0.30095470E-04	-2.9933849	-0.21039840E-04	0.19323749E-01	-0.12960016E-05
2360	0.60544978E-03	-0.59619873E-04	-2.9932806	-0.40608545E-04	0.19334538E-01	-0.24639002E-05
2361	0.59212553E-03	-0.88057668E-04	-2.9931146	-0.57424679E-04	0.19351643E-01	-0.34150546E-05
2362	0.64218588E-03	-0.37434356E-04	-3.0669446	-0.14627454E-04	0.19394383E-01	-0.16784603E-05
2363	0.63192310E-03	-0.73682334E-04	-3.0668683	-0.28136252E-04	0.19403253E-01	-0.31875523E-05
2364	0.61591680E-03	-0.10769682E-03	-3.0667475	-0.39555028E-04	0.19417292E-01	-0.43838800E-05
2366	0.41972718E-03	-0.24084829E-03	-2.8424888	-0.11236593E-03	0.19535604E-01	-0.15337016E-05
2367	0.43534894E-03	-0.24536552E-03	-2.9167447	-0.83703678E-04	0.19546618E-01	-0.25351551E-05
2368	0.44961322E-03	-0.25555913E-03	-2.9910452	-0.60109020E-04	0.19558683E-01	-0.35195540E-05
2369	0.46305078E-03	-0.26952964E-03	-3.0653901	-0.42302887E-04	0.19569637E-01	-0.44165128E-05
2375	0.51166244E-03	-0.12146642E-03	-2.8456685	-0.15307919E-03	0.19299956E-01	-0.28044479E-05
2376	0.48909203E-03	-0.14940442E-03	-2.8449914	-0.16411626E-03	0.19351254E-01	-0.28143646E-05
2377	0.46683806E-03	-0.17536621E-03	-2.8442935	-0.16302780E-03	0.19403242E-01	-0.26758122E-05
2378	0.44685826E-03	-0.19922409E-03	-2.8436219	-0.15207943E-03	0.19452751E-01	-0.24024373E-05
2379	0.43075128E-03	-0.22094932E-03	-2.8430125	-0.13410960E-03	0.19497445E-01	-0.20131099E-05
2380	0.53190216E-03	-0.12970234E-03	-2.9190201	-0.11392663E-03	0.19350993E-01	-0.34670818E-05
2381	0.50853907E-03	-0.15705373E-03	-2.9185334	-0.12108568E-03	0.19393431E-01	-0.35070065E-05
2382	0.48578601E-03	-0.18220994E-03	-2.9180347	-0.11985092E-03	0.19436562E-01	-0.33887482E-05
2383	0.46539150E-03	-0.20516112E-03	-2.9175558	-0.11175103E-03	0.19477762E-01	-0.31534083E-05
2384	0.44848214E-03	-0.22607653E-03	-2.9171209	-0.98855419E-04	0.19514965E-01	-0.28506385E-05
2385	0.55170390E-03	-0.14453346E-03	-2.9925943	-0.80756419E-04	0.19404742E-01	-0.43417849E-05
2386	0.52722577E-03	-0.17128369E-03	-2.9922618	-0.84981825E-04	0.19438423E-01	-0.43860243E-05
2387	0.50369599E-03	-0.19529221E-03	-2.9919235	-0.83744000E-04	0.19472541E-01	-0.42445200E-05
2388	0.48262015E-03	-0.21691649E-03	-2.9915993	-0.78109189E-04	0.19505030E-01	-0.39963799E-05

FILENAME : PIT5D3.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 16/25)

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2389	0.46469817E-03	-0.23675185E-03	-2.9913039	-0.69588933E-04	0.19534184E-01	-0.37293118E-05
2390	0.57078390E-03	-0.16843010E-03	-3.0663924	-0.54092471E-04	0.19458398E-01	-0.54955721E-05
2391	0.54523743E-03	-0.19386727E-03	-3.0661780	-0.56351546E-04	0.19483140E-01	-0.54894426E-05
2392	0.52091478E-03	-0.21553319E-03	-3.0659613	-0.55345896E-04	0.19508030E-01	-0.52382061E-05
2393	0.49906591E-03	-0.23442424E-03	-3.0657535	-0.51857720E-04	0.19531567E-01	-0.48817200E-05
2394	0.48002205E-03	-0.25191381E-03	-3.0655623	-0.47020460E-04	0.19552455E-01	-0.45710962E-05
2401	0.41502982E-03	-0.25765360E-03	-2.8421045	-0.92985666E-04	0.19562834E-01	-0.93067834E-06
2402	0.42611973E-03	-0.26226903E-03	-2.9164566	-0.70552855E-04	0.19569689E-01	-0.22317395E-05
2403	0.43643376E-03	-0.27290934E-03	-2.9908354	-0.52448231E-04	0.19576671E-01	-0.34110543E-05
2404	0.44699215E-03	-0.28777766E-03	-3.0652381	-0.39446349E-04	0.19582015E-01	-0.44098989E-05

MAXIMUMS

NODE	56	34	56	71	77	28
VALUE	0.67317452E-03	-0.33440025E-03	-3.1407963	-0.61862346E-03	0.20186626E-01	-0.12358618E-04

FILENAME : PITS5D4.PO DATE : 05-25-94 TIME : 10:28a PAGE 1
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 17/25)

C*** Output For Factored Heel Jet Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4752 MAY 25,1994 CP= 96.400

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.92534046E-05	-680.61259		-1085.0334		978.56153
56		2694.5286		-954.35738		-2428.4441
57		2245.5276		4698.9947		0.75235848E-02
58		1924.4848		13234.438		0.54952599E-02
59		1752.9665		24324.757		0.40931340E-02
60		1684.5232		38293.116		0.31399769E-02
61		1572.8996		51390.056		0.23945677E-02
62		1517.7381		63274.015		0.19361241E-02
63		1647.1137		82687.024		0.17814742E-02
64		1855.0711		107448.05		0.16684516E-02
65		1016.3487		73781.101		0.80800112E-02
77		921.28259		84290.843		0.12639912E-02
78		1476.9168		122302.73		0.25586559E-02
79		1108.6786		96738.708		0.25650229E-02
80		858.45860		77512.710		0.24701949E-02
81		707.62079		67474.582		0.25064180E-02
82		550.26810		56453.365		0.25694888E-02
83		358.56668		43274.235		0.24732803E-02
84		192.64222		32663.904		0.23580863E-02
85		50.882351		24086.610		0.22265905E-02
86		-70.387966		17606.097		0.21197359E-02
87		-174.50071		11944.806		0.19809622E-02
88		-253.72915		7211.9492		0.18078228E-02
89		-310.33298		3642.9211		0.17017306E-02
90		-349.28757		1068.0441		0.16833530E-02
91		-377.42960		-662.80363		0.17731064E-02
92		-403.34569		-1682.4642		0.19900244E-02
93		-436.99239		-2109.8521		0.23496582E-02
94		-488.83646		-2050.5865		0.28606743E-02
101		-722.29570		-0.26407723E-02		2116.6232
156		1792.8556		0.41666495E-01		-11063.003
201		-657.82437		-0.25011648E-02		2089.4473
256		606.69382		0.35018816E-01		-13739.451
301		-606.40600		-0.23170167E-02		1890.1294
356		-454.63243		0.30816475E-01		-16563.325
401		-528.10992		-0.18834040E-02		1300.1822
456		-1281.0933		0.24757817E-01		-16395.665
501		-488.72297		-0.15060056E-02		690.59913
556		-1837.7745		0.20071838E-01		-15764.513
601		-469.92525		-0.12007155E-02		87.788939
656		-2214.8700		0.16410168E-01		-14949.844
701		-455.78475		-0.96991810E-03		-490.37419
756		-2474.6224		0.13545886E-01		-14123.299
801		-433.51812		-0.80816481E-03		1030.8115
856		-2669.6549		0.11332383E-01		-13391.807
901		-355.18754		-0.59662826E-03		-1081.3486
956		-2358.3914		0.81745784E-02		-8725.3367
1001		-290.37924		-0.42692229E-03		-727.31158

FILENAME : PITSD4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 17/25)

PAGE 2

1056	-1898.2315	0.54382193E-02	-4317.2418
1101	-264.31809	-0.39125538E-03	-916.58441
1156	-1875.0582	0.45102768E-02	-3995.7243
1201	-221.01758	-0.37187399E-03	-1089.6854
1256	-1907.4839	0.38639954E-02	-3729.0950
1301	-159.92201	-0.36271019E-03	-1242.0606
1356	-2037.1414	0.34826404E-02	-3537.8825
1401	-55.438707	-0.18003396E-03	-710.26799
1456	-1096.8088	0.16782876E-02	-1709.4613
TOTAL	0.92534046E-05 -4824.0000	0.00000000E+00 1096858.2	0.00000000E+00 -142569.14

FILENAME : PITSE1.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 18/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 0.9DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	1.000000
4	1.000000

LOAD CASE OPERATION FOR LCAD COMMAND. RESULT LOAD CASE = 4		LOAD CASE FACTOR		LOAD STEP ITERATION SECTION		TIME/FREQ	
1	0.900000	1	1	1	1	0.000000E+00	
2	0.900000	2	1	1	1	0.000000E+00	
3	1.000000	3.	1	1	1	0.000000E+00	

CURRENT LOAD CASE= 4

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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TITLE

10.4760 MAY 25,1994 CP= 99.250

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 4

ELEM	FXC	FYC	FXCY	MXC	MYC	MXCY
1176	-77.430523	-74.177895	0.33204152	5.2055466	-1365.8447	28.457027
1177	-76.672638	-73.996031	0.97550919	6.9090344	-1344.1031	84.691618
1178	-75.160931	-73.604209	1.5564881	10.113515	-1300.6952	138.84245
1179	-72.904904	-72.943330	2.0314005	14.386544	-1235.8209	189.36948
1180	-71.925273	-74.467841	-0.36768617E-01	171.75196	-786.48139	36.710315
1181	-71.306063	-74.266216	-0.12683537	170.55401	-772.52101	109.40914
1182	-70.079545	-73.794528	-0.26622028	167.80565	-744.79245	179.87956
1183	-68.271596	-73.013708	-0.48644046	162.77111	-703.71626	246.42369
1184	-68.073794	-74.092311	-0.33023993	338.45662	-314.32286	41.70247
1185	-67.598985	-73.843828	-0.99941190	334.32314	-307.50819	124.32156
1186	-66.667332	-73.320203	-1.6933637	325.53338	-294.07157	204.51006
1187	-65.316588	-72.467103	-2.4236308	311.00805	-274.46598	280.40134
1188	-65.585380	-73.151875	-0.54922438	500.08172	66.157490	43.775070
1189	-65.245494	-72.896215	-1.6459215	493.00234	66.686460	130.49242
1190	-64.587089	-72.361904	-2.7353578	478.14415	67.576062	214.63511
1191	-63.653752	-71.503494	-3.8052056	454.07597	68.487019	294.23358
1192	-64.167219	-71.817332	-0.70179753	652.05732	368.93810	43.329766
1193	-63.940974	-71.578258	-2.0919005	642.10339	364.08159	129.14985
1194	-63.510912	-71.081661	-3.4394198	621.32491	354.27959	212.37783
1195	-62.921359	-70.292874	-4.7081708	587.95384	339.36000	291.04293
1196	-63.546209	-70.216328	-0.80137309	790.53763	606.12165	40.777554
1197	-63.404432	-70.019270	-2.3784737	777.89263	596.78309	121.53795
1198	-63.143283	-69.610572	-3.8773212	751.57225	578.10934	199.84560
1199	-62.805260	-68.964996	-5.2403456	709.49637	550.11633	273.83965
1200	-63.485059	-68.444068	-0.86480921	912.37415	787.88874	36.510522
1201	-63.393912	-68.314954	-2.5564836	897.34312	774.92689	108.83463
1202	-63.234324	-68.043516	-4.1343346	866.10457	749.09696	179.00643
1203	-63.048367	-67.608969	-5.5225972	816.29002	710.59831	245.38481
1204	-63.793065	-66.557369	-0.91135332	1015.0365	922.46353	30.890585
1205	-63.715229	-66.523242	-2.6824841	998.04105	906.68471	92.120656
1206	-63.585737	-66.438923	-4.3023788	962.74563	875.29735	151.64481
1207	-63.449673	-66.279011	-5.6779685	906.52499	828.65840	208.14876
1208	-64.333131	-64.569721	-0.96263495	1096.6615	1016.1033	24.251107

FILENAME : PIT5E1.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 18/25)

1209	-64.226581	-64.663022	-2.8189125	1078.2175	998.27127	72.386107
1210	-64.049329	-64.820488	-4.4768549	1039.9240	962.82573	119.38242
1211	-63.860675	-65.003015	-5.8298762	978.94194	910.29764	164.35106
1212	-69.922871	-71.917420	2.3544144	19.006953	-1149.9122	234.49984
1213	-66.248583	-70.383470	2.4775214	22.865011	-1043.8085	272.11865
1214	-61.943592	-68.134416	2.3525763	24.305736	-919.02167	299.63889
1215	-57.119898	-64.872143	1.9381174	20.889224	-778.12666	313.83779
1216	-51.982900	-60.166629	1.2190946	9.0175222	-625.33197	310.62357
1217	-46.908677	-53.398941	0.24811976	-16.692786	-467.26767	284.65818
1218	-65.926677	-71.829439	-0.81538041	154.26457	-650.01372	307.01463
1219	-63.116258	-70.104522	-1.2722431	140.53803	-584.81382	359.14266
1220	-59.953327	-67.647483	-1.8571927	119.10989	-509.78851	399.63499
1221	-56.616334	-64.197484	-2.5300190	86.513192	-427.29066	424.44241
1222	-53.386515	-59.410650	-3.1674676	37.944986	-340.41539	428.40682
1223	-50.705635	-52.856654	-3.4677709	-33.117039	-252.82441	405.15794
1224	-63.608283	-71.200501	-3.1918456	289.03970	-249.39574	349.75383
1225	-61.634528	-69.403881	-3.9803242	257.17473	-219.86048	409.79144
1226	-59.528267	-66.925728	-4.7355047	212.04145	-187.17342	457.03897
1227	-57.476586	-63.581351	-5.3392023	149.12256	-152.92945	487.16991
1228	-55.733110	-59.167546	-5.5591776	62.513754	-118.88529	494.91696
1229	-54.608447	-53.530595	-4.9698064	-55.145049	-86.774355	474.13948
1230	-62.513096	-70.254408	-4.8291019	418.56667	68.908942	366.94200
1231	-61.259384	-68.529833	-5.7551396	368.47791	68.173067	429.89694
1232	-60.016175	-66.233398	-6.4878758	299.61364	65.491239	479.59224
1233	-58.935951	-63.272110	-6.8615611	206.54705	60.035051	511.78811
1234	-58.188849	-59.591333	-6.6039776	82.471438	51.046821	521.47228
1235	-57.924532	-55.236072	-5.3052184	-80.804050	37.934383	502.83925
1236	-62.237291	-69.165729	-5.8475150	539.27069	319.08220	362.82140
1237	-61.542159	-67.650595	-6.7813153	471.51837	293.16860	424.91959
1238	-60.933234	-65.707495	-7.3923987	379.78768	261.35804	473.98128
1239	-60.511735	-63.328081	-7.5030465	257.88874	223.48293	506.02719
1240	-60.362325	-60.569813	-6.8563683	98.234544	179.56132	516.41796
1241	-60.520199	-57.604489	-5.1061731	-108.24719	129.90020	499.78460
1242	-62.448838	-68.054508	-6.3992972	648.50307	512.84959	341.33429
1243	-62.141536	-66.860253	-7.2663197	564.29446	466.41674	399.72637
1244	-61.950631	-65.389323	-7.7222231	451.35117	411.03931	445.92450
1245	-61.928889	-63.697191	-7.6041427	302.83817	347.12076	476.30510
1246	-62.095066	-61.916595	-6.6965413	110.49992	275.33224	486.68745
1247	-62.407641	-60.290801	-4.7319642	-135.49457	196.74086	472.30309
1248	-62.888905	-66.993989	-6.6425544	744.32884	659.75038	306.02000
1249	-62.810115	-66.200223	-7.4064781	645.45863	597.01237	358.58857
1250	-62.853657	-65.266818	-7.7088181	513.63574	523.03331	400.35126
1251	-63.035142	-64.291301	-7.4175827	341.47397	438.71454	428.10400
1252	-63.326711	-63.451677	-6.3700145	120.18573	345.27707	438.18838
1253	-63.639890	-63.028095	-4.3757771	-160.57585	244.39005	426.53904
1254	-63.363018	-66.024347	-6.7268775	825.37081	767.33250	260.01247
1255	-63.372058	-65.682644	-7.3721990	714.15561	692.09460	305.23182
1256	-63.502782	-65.309264	-7.5340880	566.36669	603.95268	341.51944
1257	-63.744149	-65.024926	-7.1212303	374.13515	504.23518	366.12015
1258	-64.038870	-65.031782	-6.0273923	128.28421	394.60715	375.91882
1259	-64.269135	-65.626864	-4.1340626	-181.78041	277.17908	367.55403
1260	-63.724938	-65.168705	-6.7884798	890.54044	841.33131	206.07559
1261	-63.703659	-65.309868	-7.3043558	769.85563	757.03624	242.90043
1262	-63.805576	-65.488150	-7.3362114	609.54154	658.72912	273.10147
1263	-64.005486	-65.834426	-6.8357487	401.35335	548.05245	294.35328
1264	-64.227887	-66.557744	-5.7549740	135.84880	426.99604	304.07446
1265	-64.339667	-67.961915	-4.0448296	-197.69760	298.05098	299.53909
1266	-42.641080	-43.675662	-0.69610699	-64.985681	-313.46171	229.17520
1267	-40.704315	-30.301939	-0.59372188	-151.38403	-178.86547	140.61094
1268	-49.206435	-44.183569	-2.7454466	-134.62261	-168.35215	347.73262
1269	-49.479085	-33.319939	0.16495608	-271.27073	-91.473935	250.36363
1270	-54.381393	-46.686566	-2.8972293	-211.96865	-58.361490	417.97801
1271	-55.170360	-39.020148	1.6033709	-414.46371	-35.717782	317.71579
1272	-58.209637	-50.443964	-2.4053136	-292.58915	20.275752	449.03564
1273	-58.925996	-45.750936	2.7603522	-563.22512	-1.8263443	351.06511
1274	-60.922954	-54.775166	-1.8297110	-372.26056	75.254838	449.79305
1275	-61.364083	-52.644020	3.4262825	-706.76832	17.364439	358.67754
1276	-62.737157	-59.205236	-1.4075720	-446.85460	113.03312	427.72043
1277	-62.843287	-59.207154	3.5793870	-837.80889	26.987821	346.80346
1278	-63.809093	-63.418851	-1.2303558	-513.03208	138.39163	388.75550

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1279	-63.584139	-65.144752	3.2607119	-951.73465	30.634540	320.27190
1280	-64.250552	-67.209632	-1.3182405	-568.39823	154.68727	337.63231
1281	-63.728137	-70.278071	2.5338159	-1045.7510	30.694441	282.88504
1282	-64.138762	-70.447444	-1.6521310	-611.37188	164.01905	278.25701
1283	-63.375596	-74.495686	1.4744983	-1118.7030	28.884818	237.83730
1284	-64.999729	-62.510506	-1.0132697	1155.1009	1073.6130	16.721776
1285	-64.829252	-62.755522	-2.9528890	1136.7817	1055.3894	50.006304
1286	-64.538260	-63.196456	-4.6479505	1098.8179	1019.1544	82.804663
1287	-64.206891	-63.755729	-5.9815020	1038.5234	965.45193	114.73196
1288	-65.781643	-60.291413	-1.0798097	1190.6008	1098.3600	9.0835638
1289	-65.513365	-60.705008	-3.1344228	1173.8807	1081.5300	27.241391
1290	-65.044381	-61.453690	-4.8959152	1139.3797	1047.9489	45.412893
1291	-64.487248	-62.415078	-6.2389956	1084.8672	997.84604	63.686707
1292	-66.731429	-57.721909	-1.2167972	1204.3591	1092.3094	2.1961062
1293	-66.317003	-58.348652	-3.5096194	1189.4978	1077.6235	6.5922563
1294	-65.596261	-59.476134	-5.4303432	1159.0963	1048.1030	11.139842
1295	-64.719803	-60.908620	-6.8348911	1111.5358	1003.5410	16.297019
1296	-67.967646	-54.550176	-1.4603707	1196.8052	1053.4352	-3.4726877
1297	-67.346062	-55.484141	-4.1861259	1183.6004	1041.7572	-10.618891
1298	-66.259414	-57.120526	-6.3846435	1157.1448	1017.8462	-18.051271
1299	-64.966365	-59.156947	-7.9208248	1116.7916	980.75702	-25.084153
1300	-69.683237	-50.368988	-1.8641721	1169.7404	976.88003	-7.2081719
1301	-68.772811	-51.755819	-5.3063934	1157.2543	969.41146	-22.424607
1302	-67.189716	-54.196708	-7.9910203	1133.3924	953.13134	-39.342220
1303	-65.297655	-57.054128	-9.6770059	1099.3790	926.17337	-57.170161
1304	-63.909456	-64.397489	-6.8791939	948.29733	893.58757	145.64571
1305	-63.740481	-65.033456	-7.3114927	822.61895	803.16840	174.19368
1306	-63.712962	-65.735604	-7.2422522	654.00854	697.39943	198.74314
1307	-63.799856	-66.620051	-6.6790250	433.57258	578.31356	217.26831
1308	-63.912887	-67.905984	-5.6346681	151.25430	448.22730	227.49467
1309	-63.903875	-69.901627	-4.1220902	-204.10212	309.87867	227.16095
1310	-63.910331	-63.571973	-7.1280360	998.14032	926.46538	83.215021
1311	-63.470787	-64.768818	-7.5086895	872.41206	832.76032	102.38542
1312	-63.222965	-65.984853	-7.3357326	700.32194	722.08210	122.45388
1313	-63.144234	-67.331023	-6.6911597	471.69206	596.85533	138.75107
1314	-63.132945	-69.034846	-5.6598329	175.33843	459.73917	150.17301
1315	-63.016975	-71.441054	-4.3196761	-200.70666	313.69362	154.57654
1316	-63.746206	-62.682179	-7.7264745	1031.1135	935.31480	23.474879
1317	-62.898468	-64.546579	-8.0087489	909.27228	841.38114	33.559119
1318	-62.340842	-66.310479	-7.6575380	738.39427	728.92385	46.045310
1319	-62.051394	-68.063716	-6.8553273	506.53254	600.82812	59.624818
1320	-61.907916	-70.053876	-5.7810683	201.11427	460.10872	72.246173
1321	-61.703066	-72.663168	-4.5942308	-190.74049	309.95665	81.780312
1322	-63.426101	-61.727254	-8.8175473	1044.7950	918.48766	-31.196338
1323	-62.008407	-64.434781	-8.9230001	931.27563	827.83883	-33.144829
1324	-61.041437	-66.806056	-8.2632355	767.04449	717.08696	-28.375486
1325	-60.517560	-68.905267	-7.1786351	537.53673	589.71402	-17.892748
1326	-60.260486	-71.023015	-5.9780920	228.39222	449.09612	-3.9733989
1327	-60.006025	-73.604050	-4.9030766	-174.19450	298.48743	11.026887
1328	-63.014172	-60.697219	-10.607206	1036.5389	873.26957	-78.024397
1329	-60.736856	-64.553965	-10.399090	936.18424	790.21251	-94.417213
1330	-59.274987	-67.624330	-9.1859509	784.80093	685.29817	-98.652121
1331	-58.546385	-69.969353	-7.6326332	563.73780	562.79703	-91.527050
1332	-58.242048	-72.011145	-6.2041307	256.30822	426.54035	-76.157768
1333	-57.998498	-74.305450	-5.2005212	-151.83493	279.32497	-55.545565
1334	-63.555059	-73.014886	-2.1661669	-640.37932	167.43592	215.06950
1335	-62.625834	-77.674227	0.20689325	-1169.7083	24.222098	189.18581
1336	-62.562095	-74.901432	-2.7936374	-655.93260	165.72661	151.28953
1337	-61.533877	-79.834439	-1.1658435	-1199.0330	19.542438	139.34907
1338	-61.195744	-76.196055	-3.4934751	-659.34795	159.80815	87.647397
1339	-60.136764	-81.074219	-2.6040566	-1209.5641	13.287981	88.983477
1340	-59.499041	-76.922584	-4.1977707	-650.88860	149.34579	25.914565
1341	-58.498672	-81.413606	-4.0105673	-1203.1984	5.4165848	39.920583
1342	-57.537676	-77.135426	-4.8544291	-631.68079	134.73091	-32.388034
1343	-56.637559	-80.907127	-5.2866301	-1179.9562	-5.6500649	-6.4837474
1344	-72.100295	-44.980338	2.5649052	-1130.9297	-864.06649	-8.3793938
1345	-75.574180	-37.901039	3.7107160	-1089.1706	-709.46405	-5.1433735
1346	-80.945796	-27.476734	5.6510581	-1057.9852	-491.92937	7.1921178
1347	-88.387598	-11.737320	8.5767932	-1066.7261	-187.87463	39.418499
1348	-70.781712	-46.911554	7.3069210	-1114.2770	-857.74538	-27.244800

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1349	-73.566662	-40.686103	10.715849	-1061.1508	-699.95222	-19.505014
1350	-77.732840	-31.802348	16.536701	-1006.5132	-479.33521	15.562193
1351	-84.045214	-19.542215	25.490177	-963.50041	-190.35296	104.54083
1352	-68.430397	-50.369146	11.001570	-1083.5430	-843.06637	-51.518529
1353	-69.817792	-46.032516	16.410142	-1008.8537	-678.75626	-45.367419
1354	-71.204254	-41.000516	25.768201	-905.25143	-454.21603	3.2194617
1355	-73.934722	-36.098476	40.845535	-761.84849	-189.64885	122.88544
1356	-65.542491	-54.759208	13.265323	-1043.0222	-816.42867	-82.006664
1357	-64.767115	-53.253062	19.996031	-940.79378	-642.79824	-87.883586
1358	-62.441061	-54.500275	31.160048	-766.61006	-410.75465	-47.619370
1359	-54.510422	-65.135960	49.480939	-482.56059	-158.38958	65.629345
1360	-61.735001	-60.202591	-13.965965	987.24284	772.13946	-121.50578
1361	-58.373589	-65.775553	-12.685823	908.14272	704.12165	-156.38998
1362	-56.525752	-69.484048	-10.363227	779.62091	612.55632	-170.88264
1363	-55.808668	-71.723660	-8.0701978	576.36463	503.15640	-166.55162
1364	-55.632787	-73.267489	-6.3601851	279.68983	380.12570	-148.69177
1365	-55.501515	-74.839977	-5.4663237	-123.50702	246.03822	-121.84526
1366	-58.717881	-61.845468	-19.618488	885.99401	608.17039	-153.84980
1367	-54.273824	-69.385875	-15.754884	844.35821	567.28383	-213.80337
1368	-52.578166	-73.028095	-11.426359	753.83056	498.74623	-238.62358
1369	-52.390530	-74.303374	-8.1725442	578.97227	412.44414	-235.26428
1370	-52.611222	-74.715450	-6.2778832	301.54685	312.45172	-214.04539
1371	-52.716170	-75.122814	-5.6073785	-87.597785	199.62587	-181.64149
1372	-52.834816	-68.168062	-27.519585	721.80570	396.13582	-156.05065
1373	-48.210978	-76.668281	-18.331075	752.95721	394.27838	-252.68193
1374	-48.073205	-78.180423	-11.348330	720.57894	358.51764	-285.44991
1375	-49.049443	-77.189740	-7.5226618	581.89664	304.71242	-280.66291
1376	-49.874802	-75.947075	-5.7982298	326.67208	235.05052	-256.82562
1377	-50.284118	-74.966020	-5.5221612	-46.560808	148.35841	-222.02027
1378	-40.905196	-85.700084	-35.642130	453.23023	162.77898	-134.11549
1379	-40.545713	-88.689343	-17.404365	640.82644	201.16630	-270.84520
1380	-43.909620	-83.905130	-9.1785915	687.58851	208.63243	-301.64419
1381	-46.341127	-79.724934	-5.9025253	586.44071	196.74046	-294.98339
1382	-47.780536	-76.623927	-4.8723417	352.52248	161.52429	-272.97994
1383	-48.488356	-74.281728	-5.1908048	-4.7703057	101.63359	-241.06716
1384	-55.141784	-76.785020	-5.5156025	-597.77668	113.31918	-90.565499
1385	-54.391099	-79.384652	-6.5662810	-1134.5490	-14.638189	-54.669998
1386	-52.533506	-75.804533	-6.0720102	-549.37013	83.892671	-143.52858
1387	-52.035022	-76.848967	-7.6613336	-1072.6818	-33.137015	-100.75541
1388	-50.303845	-74.300286	-6.3838573	-494.26403	52.680367	-161.70998
1389	-50.075331	-73.734193	-8.2783375	-1002.0266	-50.046949	-136.11411
1390	-48.715552	-72.399822	-6.4423860	-438.27193	25.652775	-202.06291
1391	-48.754894	-70.482361	-8.4641797	-930.66388	-61.537365	-160.75006
1392	-27.153723	-113.48960	-32.386042	257.88156	52.697585	-170.39718
1393	-35.853474	-97.643260	-17.541563	583.17036	80.439355	-271.41078
1394	-41.766821	-87.093202	-5.8800833	665.51932	116.78221	-287.81333
1395	-44.957164	-80.706324	-4.1213857	579.20256	133.79016	-283.43505
1396	-46.678426	-76.436180	-4.0158172	359.73024	121.28761	-267.72268
1397	-47.562996	-73.214739	-4.8784933	21.145428	78.541784	-241.85060
1398	-17.879111	-128.27388	-11.292954	253.31104	-18.744839	-240.90341
1399	-34.690842	-99.800408	-3.4349693	588.55383	17.716798	-249.24663
1400	-41.212176	-87.381924	-2.0216162	657.52618	73.679978	-256.37954
1401	-44.452120	-80.323256	-2.1281796	570.13468	103.28359	-259.10958
1402	-46.194205	-75.655569	-2.9544007	359.78678	100.11193	-253.70806
1403	-47.143060	-72.107571	-4.2930839	39.132319	66.828069	-238.18157
1404	-18.261220	-128.71950	12.897496	317.90587	-69.018569	-264.94320
1405	-34.762417	-99.306800	4.5833399	586.83381	5.8498540	-209.21970
1406	-41.023380	-86.723852	1.7445733	649.40618	68.515626	-217.17378
1407	-44.209287	-79.452526	-0.72836875E-01	567.54471	100.08143	-230.98793
1408	-45.991518	-74.549982	-1.7738760	366.68065	98.882514	-237.57513
1409	-47.018233	-70.780616	-3.5977792	57.100508	67.782459	-232.62778
1410	-27.396494	-115.20602	33.097970	397.11076	-75.485686	-240.65670
1411	-35.521133	-96.732841	11.716900	574.66711	38.712989	-173.20905
1412	-40.976934	-85.411806	5.2180626	635.63973	99.076654	-184.19319
1413	-44.098735	-78.272879	1.8210158	564.92204	125.03830	-208.49818
1414	-46.008967	-73.193112	-0.67368323	374.25526	119.81091	-225.65297
1415	-47.215402	-69.198960	-2.9915682	70.267792	84.558413	-228.54323
1416	-47.908841	-70.628504	-6.2742887	-393.86726	12.729382	-210.74810
1417	-48.184454	-67.876950	-8.2779148	-877.51334	-70.038877	-173.75485
1418	-47.661616	-69.093694	-5.9899390	-362.85588	10.032019	-213.40286

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1419	-48.086743	-65.984284	-7.9398290	-837.59880	-65.405826	-180.25692
1420	-47.700040	-67.494175	-5.5991889	-335.93904	15.128660	-214.02352
1421	-48.226596	-64.268551	-7.4965495	-800.59149	-58.059787	-184.80732
1422	-47.986661	-65.829916	-5.1400613	-313.07796	27.519878	-215.72261
1423	-48.543843	-62.694873	-6.9962560	-766.12020	-47.676347	-189.83763
1424	-78.504565	-11.243440	-8.2589281	-329.06876	-118.43514	-5.3697239
1425	-73.069710	-27.208526	-5.9753655	-349.02119	-324.40093	-1.3510091
1426	-67.829145	-38.287254	-3.9741667	-357.24241	-426.33567	-2.6753924
1427	-64.334923	-45.845935	-2.7338975	-348.03001	-442.25514	-5.5860754
1428	-76.194550	-19.330750	-24.804521	-361.81460	-90.378475	-25.146598
1429	-69.844541	-32.091715	-17.272848	-373.06244	-303.45865	-7.8526177
1430	-65.714308	-41.311907	-11.422399	-375.56209	-418.51256	-9.4342375
1431	-62.865207	-47.860322	-7.7674487	-361.21005	-438.35342	-17.911510
1432	-69.537307	-36.697481	-40.534453	-414.80600	-43.280389	-69.796122
1433	-63.798872	-42.028029	-26.416733	-418.07311	-268.05336	-24.334145
1434	-61.843592	-46.965131	-17.322291	-410.10806	-403.67438	-20.442841
1435	-60.280214	-51.370130	-11.637242	-385.15060	-431.21726	-33.521446
1436	-53.374176	-66.686426	-50.079814	-454.44776	5.8413169	-131.39308
1437	-56.356684	-55.781953	-31.359849	-475.57364	-228.08995	-51.138018
1438	-56.862133	-54.275613	-20.838829	-456.53028	-383.55118	-37.611771
1439	-57.155105	-55.638272	-13.968654	-416.15682	-420.87501	-54.043607
1440	-39.685952	-86.498750	35.909735	476.64237	36.825001	-148.75006
1441	-38.785935	-87.648332	17.351101	577.28805	127.08172	-132.88026
1442	-41.908293	-81.257492	8.6432013	615.71148	167.38529	-154.64442
1443	-44.442723	-75.582896	4.0527469	548.97238	175.51652	-189.48958
1444	-46.322409	-70.844963	0.82147726	370.47388	156.34215	-217.34268
1445	-47.702515	-66.837855	-1.9928021	79.340249	111.35314	-228.60185
1446	-48.080629	-68.693596	27.473331	511.73789	229.88233	-78.511085
1447	-43.733260	-75.420022	18.263634	572.47747	264.52218	-106.21023
1448	-43.913552	-74.741919	10.961232	581.95509	268.57589	-146.20719
1449	-45.376222	-71.304936	6.1853744	512.14587	249.54745	-189.91542
1450	-46.994608	-67.370322	2.6093752	348.15853	210.18461	-224.60808
1451	-48.488655	-63.594398	-0.56366116	80.840587	151.43515	-240.97954
1452	-51.257678	-62.207320	20.198342	494.11101	370.37891	-67.618697
1453	-47.259923	-67.991578	16.138426	534.41652	361.95053	-111.73952
1454	-46.029784	-69.051233	11.576671	531.51353	338.69315	-162.24088
1455	-46.508940	-67.102114	7.6646034	464.89893	300.82184	-211.24278
1456	-47.743220	-63.732124	4.3207808	318.48257	248.37747	-248.90492
1457	-49.242782	-60.027232	1.0797003	78.803346	181.44531	-266.41896
1458	-53.091498	-60.388853	14.643566	445.37282	403.86015	-87.991891
1459	-49.593213	-64.278390	13.327897	471.98413	378.49006	-137.93903
1460	-47.838910	-65.240104	10.968873	464.98430	345.07100	-192.50613
1461	-47.536360	-63.676800	8.4027499	406.94896	302.35825	-243.57450
1462	-48.255932	-60.404379	5.7720666	282.11723	249.35781	-281.73169
1463	-49.584777	-56.371314	2.8063151	75.042779	185.57202	-297.75810
1464	-48.650001	-63.586307	-4.4463510	-289.44246	49.277372	-221.40362
1465	-49.270048	-60.833181	-6.4225035	-724.44464	-24.125669	-198.67197
1466	-49.645495	-60.543672	-3.3814965	-262.79503	81.044256	-235.97487
1467	-50.395110	-58.415668	-5.6945874	-677.14455	2.5971629	-213.68447
1468	-50.573736	-56.997437	-2.0564843	-234.86887	107.47639	-259.82196
1469	-51.419760	-55.292079	-4.9562702	-622.23280	29.820354	-231.61105
1470	-50.971830	-52.875784	-0.52487275	-201.63953	117.36553	-286.27647
1471	-51.925567	-50.964258	-4.1829614	-552.09749	48.168973	-248.67999
1472	-62.223604	-51.495007	1.9177053	316.06255	368.82501	-9.0014193
1473	-61.118443	-52.894952	5.4456470	325.73241	365.38151	-28.188502
1474	-59.185700	-55.281959	8.1673883	342.86874	358.98489	-50.501081
1475	-56.845704	-57.908766	9.8581786	363.87007	349.63638	-77.045212
1476	-61.430835	-55.627198	1.3667945	260.05276	198.43344	-12.159490
1477	-60.559170	-56.547553	3.9066514	267.85566	195.99021	-37.478793
1478	-59.002863	-58.095496	5.9336806	281.77906	191.39935	-65.516603
1479	-57.067432	-59.869410	7.3429999	298.78605	185.44495	-97.184251
1480	-61.868742	-58.367106	0.94216839	183.66520	-71.750046	-14.247147
1481	-61.149166	-59.003882	2.7057058	190.15054	-71.704349	-43.591745
1482	-59.835626	-60.090155	4.1593860	201.81516	-71.316441	-75.236807
1483	-58.105976	-61.319331	5.2056170	216.31675	-69.537700	-109.90498
1484	-63.360282	-60.101725	0.60324921	90.404555	-446.64247	-14.706664
1485	-62.771721	-60.582500	1.7335512	96.116101	-442.95776	-44.785709
1486	-61.656758	-61.392897	2.6587297	106.57045	-435.16101	-76.666480
1487	-60.121427	-62.276604	3.3124784	119.91771	-421.78241	-110.89156
1488	-65.634025	-61.126783	0.36159925	-16.417930	-933.09868	-13.286723

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1489	-65.257463	-61.496609	1.0138988	-10.761093	-925.29447	-40.174259
1490	-64.494525	-62.106354	1.4760792	-0.16025075	-908.68542	-67.890522
1491	-63.314890	-62.719382	1.6867111	13.859671	-880.66040	-96.621628
1492	-53.972657	-60.806019	10.822705	382.96897	333.55503	-115.63146
1493	-51.018068	-62.991871	10.752260	400.65059	310.62301	-167.87684
1494	-49.061537	-63.258845	9.7669054	392.57368	282.65090	-222.61842
1495	-48.199912	-61.463132	8.3597717	344.43089	248.74932	-272.47493
1496	-48.335898	-57.912082	6.6087866	241.94314	207.80395	-308.47383
1497	-49.284706	-53.235256	4.2071676	69.624235	158.59785	-321.16484
1498	-54.605307	-61.712614	8.2155785	311.86859	176.58275	-138.62339
1499	-52.030783	-62.816004	8.5079237	324.33468	165.23136	-190.73947
1500	-49.949174	-62.418424	8.2660244	317.19286	152.56220	-243.21561
1501	-48.571405	-60.245696	7.6961705	279.41675	137.51518	-289.61952
1502	-48.010841	-56.288976	6.7666485	198.95100	118.84216	-321.81947
1503	-48.317038	-50.855040	5.0965536	61.862572	95.210708	-330.66332
1504	-55.899662	-62.488581	5.9029945	226.20567	-65.517946	-151.16749
1505	-53.423970	-62.928132	6.2872659	237.04800	-58.653272	-199.99709
1506	-51.072804	-62.095422	6.4039848	234.17420	-48.504712	-247.70358
1507	-49.027009	-59.636593	6.3742204	209.26816	-36.120787	-288.70502
1508	-47.489651	-55.319051	6.1401627	152.61034	-23.083558	-315.67289
1509	-46.732308	-49.090688	5.3147118	52.236957	-11.443244	-319.86293
1510	-58.113498	-63.022512	3.7045949	129.06770	-400.22936	-148.03278
1511	-55.686187	-63.057666	3.9141905	141.50750	-370.12259	-189.60726
1512	-53.009501	-61.981308	4.0210114	145.53041	-330.91882	-228.87039
1513	-50.165835	-59.396225	4.1338249	135.28486	-283.27497	-261.35557
1514	-47.320852	-54.929157	4.2693315	103.44410	-229.20158	-280.83646
1515	-44.842782	-48.181328	4.2240959	40.197912	-172.13004	-279.36122
1516	-61.649865	-63.145164	1.6284499	24.751797	-838.13010	-125.03871
1517	-59.448353	-62.892365	1.3879625	41.808896	-781.68230	-154.04756
1518	-56.595355	-61.660587	1.0438811	54.747627	-708.75845	-179.49922
1519	-52.988808	-59.082181	0.73971455	60.089541	-618.68538	-198.30361
1520	-48.626308	-54.732419	0.61766809	52.696787	-513.36097	-206.08925
1521	-43.723287	-48.069074	0.76196528	24.910008	-397.81063	-197.07561
1522	-50.558436	-48.832939	0.94922885	-166.44358	105.67688	-304.60417
1523	-51.600157	-45.897160	-3.3588201	-475.50238	50.428111	-257.19991
1524	-49.242577	-45.148684	2.2013882	-132.02006	67.831927	-309.62192
1525	-50.316517	-40.383915	-2.4813648	-393.91252	37.607594	-253.10606
1526	-46.909965	-41.734552	3.1619601	-96.448261	-3.1553085	-294.44890
1527	-47.855888	-34.259600	-1.3714107	-304.14201	0.23269737	-231.93910
1528	-43.423231	-39.226330	3.2721759	-62.275968	-117.25691	-249.94339
1529	-43.710996	-28.358639	-0.11073529	-215.17088	-69.135032	-185.61834
1530	-39.025584	-38.375804	1.0617828	-33.194889	-281.63190	-164.99212
1531	-36.486818	-24.660739	0.45794846	-142.57397	-179.74112	-104.63767

MINIMUMS						
ELEMENT	1347	1404	1436	1339	1176	1503
VALUE	-88.387598	-128.71950	-50.079814	-1209.5641	-1365.8447	-330.66332

MAXIMUMS						
ELEMENT	1398	1424	1359	1292	1288	1234
VALUE	-17.879111	-11.243440	49.480939	1204.3591	1098.3600	521.47228

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C*** Output For Factored Heel Jet Load of 0 lb + 0.9DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 94 BY 1

94 NODES (OF 1188 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

145 ELEMENTS (OF 1182 DEFINED) SELECTED FROM 94 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

90 ELEMENTS (OF 1182 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4764 MAY 25,1994 CP= 100.570

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-138.42903	156.40796	376.09155	-54.037618	-3171.5540	-0.21569260E-03
2	-276.56266	-4.0135284	747.05091	0.51000626E-03	-6294.8384	0.68542227E-04
3	-275.62556	-7.8659545	731.47616	0.10301862E-02	-6149.9812	0.13974942E-03
4	-273.88812	-11.389412	704.92312	0.15701880E-02	-5908.4629	0.21664851E-03
5	-271.06665	-14.402553	666.49650	0.21389857E-02	-5570.5001	0.30277790E-03
6	-266.72181	-16.703580	614.94292	0.27436608E-02	-5137.1757	0.40255660E-03
7	-260.20488	-18.063358	548.66516	0.33870861E-02	-4611.3563	0.52189846E-03
8	-250.56690	-18.222545	465.77516	0.40639383E-02	-3999.1185	0.66904362E-03
9	-236.40772	-16.899100	364.23249	0.47511221E-02	-3312.0355	0.85551179E-03
10	-215.65016	-12.845622	242.26616	0.53881270E-02	-2571.4060	0.10970550E-02
11	-185.05343	-8.9273991	99.146639	0.58355368E-02	-1818.0807	0.14154999E-02
12	-139.85318	-2.5201889	-59.853361	0.57023444E-02	-1116.6054	0.17976604E-02
13	-50.865215	-76.787676	-172.19875	228.86803	-207.04028	0.16210573E-03
14	-5.7748078	-183.25673	-77.087330	1033.5248	-0.59238477E-02	-0.13078431E-02
15	-15.478977	-212.85239	93.156530	1724.3663	-0.61481630E-02	-0.11002914E-02
16	-22.446670	-230.89905	249.34006	2482.4343	-0.56517902E-02	-0.92265336E-03
17	-26.212400	-242.18636	383.67382	3228.7594	-0.48749576E-02	-0.76699217E-03
18	-27.062676	-248.95048	495.65046	3918.0998	-0.40054850E-02	-0.62572912E-03
19	-25.406195	-252.43834	586.58933	4525.0552	-0.31240834E-02	-0.49426170E-03
20	-21.670734	-253.39809	658.39470	5035.3106	-0.22598707E-02	-0.36950115E-03
21	-16.252906	-252.32424	712.95613	5439.4959	-0.14116688E-02	-0.25159558E-03
22	-9.5064346	-243.39954	732.57892	5600.8229	-0.38916126E-03	-0.12189366E-03
23	-2.3115768	-233.39453	737.03482	5642.1287	-0.68456076E-06	-0.35012398E-04
24	4.8692685	-228.51843	748.57423	5732.4761	0.50810346E-03	0.54166990E-04
25	12.078658	-222.79634	750.03109	5744.8204	0.95822475E-03	0.13460939E-03
26	18.886349	-216.40089	742.42293	5696.0538	0.12890562E-02	0.21937400E-03
27	29.342544	-238.09993	827.91264	6324.8280	0.86938851E-03	0.32008988E-03
28	40.010952	-257.18123	897.47705	6787.3739	0.32226816E-02	0.46948210E-03
29	45.293540	-247.52368	855.12399	6424.7795	0.40179485E-02	0.46261745E-03
30	47.399247	-240.22755	812.36201	6005.2689	0.44015946E-02	0.35083743E-03
31	39.251099	-197.29145	649.05512	4700.8654	0.43682269E-02	0.64486283E-04
32	30.022449	-157.01507	502.67470	3637.1006	0.24309619E-02	0.71014106E-03
33	28.324343	-157.28556	492.53192	3476.8163	0.19911721E-02	0.65023660E-04
34	26.460384	-158.16024	484.80132	3365.1670	0.15683087E-02	0.63975753E-04
35	30.330167	-199.65019	597.15092	4013.1811	0.70198914E-03	0.10550750E-03
36	33.770341	-244.22956	704.51604	4550.4546	0.20502042E-02	-0.11269665E-04
37	31.590402	-249.62272	681.36995	4280.7312	0.28591206E-02	0.20538291E-04
38	30.389991	-253.56435	637.16579	3903.1610	0.41810359E-02	0.18414998E-03
39	26.392368	-226.52682	505.91468	3048.6327	0.58460717E-02	0.38313177E-03

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40	22.088148	-195.55902	367.72095	2300.8238	0.51133016E-02	0.51162859E-03
41	19.831272	-189.02400	272.58416	1849.3223	0.57668240E-02	0.73066674E-03
42	15.272901	-177.01349	152.51805	1373.9239	0.62244624E-02	0.93262175E-03
43	7.5079094	-154.92898	14.080140	925.00596	0.59390749E-02	0.11182497E-02
44	40.404337	-65.610867	-67.231994	277.39139	272.68886	-0.16501199E-03
45	118.64122	-3.3333256	42.379121	0.56230245E-02	1128.2310	-0.16892553E-02
46	163.69937	-6.8565834	191.45648	0.54144404E-02	1692.5960	-0.13710818E-02
47	193.44356	-7.5721103	318.15583	0.46379183E-02	2276.1600	-0.10750877E-02
48	213.25333	-6.2682057	418.93109	0.37142474E-02	2815.0092	-0.81625010E-03
49	225.79926	-3.8089909	495.39682	0.28216233E-02	3281.2246	-0.60343823E-03
50	232.90652	-0.98766390	550.72120	0.20347761E-02	3663.4808	-0.43124338E-03
51	235.98494	1.5013738	588.71717	0.13911005E-02	3961.1662	-0.19153365E-03
52	236.10326	3.1886291	613.57354	0.95857990E-03	4175.8885	-0.17544178E-03
53	234.63592	3.9245855	629.09073	0.55167548E-03	4332.5855	-0.11323560E-03
54	232.69480	3.4807553	637.34607	0.28531940E-03	4431.7957	-0.66922259E-04
55	231.09631	2.0298926	641.10555	0.11717737E-03	4486.3649	-0.30991359E-04
56	115.24353	126.16459	321.08023	-61.784594	2251.7934	0.17366822E-03
57	-0.39648285E-11	245.29750	-0.23455982E-06	116.03273	0.16096919E-07	0.32147012E-03
58	0.37303494E-12	238.16452	-0.27630989E-07	504.19918	-0.19378604E-07	0.27024381E-03
59	-0.58548721E-11	234.52484	-0.74035142E-08	833.47188	0.68976874E-07	0.22172282E-03
60	-0.82422957E-12	235.27936	-0.65409637E-07	1089.6568	-0.11446218E-07	0.17901383E-03
61	-0.80149221E-11	223.57998	0.20592807E-07	1166.0834	-0.56217687E-07	0.13695440E-03
62	-0.36379788E-11	215.74539	-0.16185658E-06	1141.5315	-0.10876295E-06	0.10576067E-03
63	-0.10302870E-11	230.43566	0.13905516E-06	1133.9585	0.27072815E-07	0.90227251E-04
64	-0.37658765E-12	248.96380	0.18085359E-07	1066.5729	-0.69916268E-08	0.78480495E-04
65	0.13414270E-12	130.06159	174.00000	546.00706	0.46230102E-08	0.36792420E-04
66	-0.27303494E-12	0.28421709E-12	356.50000	0.10963049E-07	-0.46538705E-07	-0.67762636E-19
67	-0.25934810E-11	-0.51159077E-12	389.00000	0.43347882E-07	0.14367805E-06	0.34558944E-18
68	0.19326762E-11	0.12647661E-11	476.50000	0.19949312E-07	0.96548547E-08	0.42012834E-18
69	0.63096195E-11	0.13454127E-10	478.50000	-0.34013965E-08	0.97670807E-07	0.33847437E-16
70	0.23192115E-10	0.25195845E-10	417.00000	0.99807039E-07	0.46693458E-08	0.25654934E-16
71	-0.59685590E-11	-0.13221868E-10	417.00000	-0.57202101E-08	-0.56089448E-07	0.80474906E-16
72	0.81854523E-11	0.17713830E-10	417.00000	-0.71211261E-07	-0.73825049E-07	0.84710071E-16
73	-0.25579538E-12	0.34106051E-11	478.50000	0.77132597E-07	0.55022042E-07	0.28819449E-16
74	-0.25579538E-12	0.13642421E-11	476.50000	0.54325483E-07	0.69296675E-08	-0.23649160E-17
75	0.10800250E-11	-0.36095571E-11	389.00000	-0.10408257E-07	0.20652308E-06	0.81315163E-18
76	0.24513724E-12	-0.11368684E-12	356.50000	-0.97638804E-08	0.67115735E-08	0.42690461E-18
77	-0.70374262E-13	148.26231	174.00000	1910.0161	-0.92094626E-08	-0.24390376E-04
78	0.15489832E-11	277.38687	0.95816262E-07	3424.8805	-0.83793225E-07	-0.50023556E-04
79	0.10231815E-11	255.60084	-0.19678166E-06	3484.4027	0.26748694E-07	-0.51924352E-04
80	0.99475983E-13	240.85969	-0.14325776E-06	3618.0612	0.34934374E-07	-0.52653150E-04
81	0.68212103E-12	250.38531	-0.17492134E-06	4077.7978	0.55303190E-07	-0.57294380E-04
82	0.10089707E-11	261.89428	0.71917675E-07	4526.5419	0.85735110E-07	-0.63757503E-04
83	0.15631940E-12	256.16506	-0.19521622E-07	4599.6703	-0.62988647E-07	-0.68295997E-04
84	-0.26147973E-11	251.91899	0.43386159E-07	4592.4281	-0.49714345E-07	-0.74650912E-04
85	0.52864380E-11	248.55114	-0.67731641E-07	4501.7168	0.36570782E-07	-0.83643077E-04
86	0.76454398E-11	252.24536	-0.83262705E-07	4439.7267	0.35518269E-07	-0.97764184E-04
87	-0.50306426E-11	256.28406	-0.11200854E-07	4270.1762	-0.66653683E-07	-0.11439278E-03
88	0.25721647E-11	254.54321	-0.11899527E-06	3896.4707	-0.33505103E-07	-0.12314611E-03
89	-0.55422333E-11	254.02424	0.99602403E-07	3440.2780	0.54154725E-07	-0.15865538E-03
90	0.18758328E-11	255.38043	-0.92167937E-07	2910.7922	0.35565677E-07	-0.19162378E-03
91	0.11652901E-10	259.46632	0.26444411E-07	2319.3458	-0.56143392E-07	-0.23245306E-03
92	-0.51159077E-12	267.30098	0.82640383E-07	1679.9925	0.22641245E-07	-0.28111712E-03
93	0.21231017E-10	280.01316	-0.48187303E-07	1009.7037	0.28239810E-09	-0.33704586E-03
94	-0.13574208E-09	298.76529	-0.49847813E-07	328.40012	-0.37146719E-07	-0.39905155E-03

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = -0.2739384E-08
FY = 0.2171419E-09
FZ = 31978.01
MX = -747411.3
MY = -2104723.
MZ = 0.1256059E-05
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT5E3.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 10/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 0.9DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

404 NODES (OF 1188 DEFINED) SELECTED FROM 356 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
ED WORK.
PROPRIETARY DATA - UNAUTHORIZED USE, DISTRIBUTION OR DUPLICATION IS PROHIBITED. ALL RIGHTS RESERVED.
FOR SUPPORT CALL PHONE TWX

TITLE 10.4765 MAY 25,1994 CP= 101.120

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.30422673	0.00000000E+00	0.69886873E-03	0.00000000E+00
2	-0.17850493E-06	0.53903163E-05	-0.30422800	0.67860169E-06	0.69897178E-03	-0.96056237E-07
3	-0.71324710E-06	0.10718656E-04	-0.30423180	0.13544295E-05	0.69927790E-03	-0.19167545E-06
4	-0.16017786E-05	0.15923355E-04	-0.30423812	0.20241828E-05	0.69977788E-03	-0.28634785E-06
5	-0.28395002E-05	0.20943464E-04	-0.30424693	0.26834379E-05	0.70045582E-03	-0.37936284E-06
6	-0.44186464E-05	0.25719408E-04	-0.30425817	0.33259065E-05	0.70128842E-03	-0.46964440E-06
7	-0.63265337E-05	0.30194143E-04	-0.30427177	0.39424497E-05	0.70224384E-03	-0.55549857E-06
8	-0.85425480E-05	0.34315270E-04	-0.30428760	0.45196984E-05	0.70328028E-03	-0.63415223E-06
9	-0.11032703E-04	0.38038892E-04	-0.30430549	0.50380904E-05	0.70434405E-03	-0.70084672E-06
10	-0.13739306E-04	0.41337138E-04	-0.30432517	0.54690749E-05	0.70536725E-03	-0.74700733E-06
11	-0.16560462E-04	0.44210850E-04	-0.30434623	0.57707409E-05	0.70626484E-03	-0.75628797E-06
12	-0.19303921E-04	0.46723645E-04	-0.30436807	0.58733431E-05	0.70693015E-03	-0.69213058E-06
13	-0.21559225E-04	0.49118003E-04	-0.30438974	0.56204667E-05	0.70725393E-03	-0.46228926E-06
14	-0.22929292E-04	0.47904961E-04	-0.30721796	0.60532410E-05	0.70689167E-03	-0.17344834E-06
15	-0.24568792E-04	0.47583757E-04	-0.31004550	0.69298323E-05	0.70687804E-03	-0.10488248E-08
16	-0.26774809E-04	0.47781865E-04	-0.31287348	0.81081094E-05	0.70709701E-03	0.96722076E-07
17	-0.29635976E-04	0.48257921E-04	-0.31570268	0.94532165E-05	0.70748211E-03	0.14354851E-06
18	-0.33157657E-04	0.48842075E-04	-0.31853365	0.10859896E-04	0.70798552E-03	0.15365527E-06
19	-0.37302097E-04	0.49410296E-04	-0.32136681	0.12245827E-04	0.70857216E-03	0.13676840E-06
20	-0.42006580E-04	0.49871322E-04	-0.32420242	0.13547408E-04	0.70921626E-03	0.10020610E-06
21	-0.47194001E-04	0.50159856E-04	-0.32704068	0.14716490E-04	0.70989822E-03	0.50112439E-07
22	-0.52777834E-04	0.50232251E-04	-0.32988171	0.15718648E-04	0.71060558E-03	-0.91517898E-08
23	-0.58366612E-04	0.50076442E-04	-0.33258330	0.16493690E-04	0.71127887E-03	-0.69906679E-07
24	-0.64148338E-04	0.49690122E-04	-0.33528745	0.17082883E-04	0.71194930E-03	-0.13088090E-06
25	-0.70039977E-04	0.49081425E-04	-0.33799410	0.17482013E-04	0.71260202E-03	-0.18797982E-06
26	-0.75959065E-04	0.48269116E-04	-0.34070318	0.17692888E-04	0.71322539E-03	-0.23940995E-06
27	-0.81826125E-04	0.47281977E-04	-0.34341453	0.17718941E-04	0.71379128E-03	-0.27899437E-06
28	-0.89162916E-04	0.45873641E-04	-0.34689592	0.17509987E-04	0.71446844E-03	-0.30122929E-06
29	-0.96186899E-04	0.44437464E-04	-0.35038027	0.17068717E-04	0.71501990E-03	-0.29333258E-06
30	-0.10282993E-03	0.43112599E-04	-0.35386703	0.16435966E-04	0.71545715E-03	-0.25522615E-06
31	-0.10908599E-03	0.42038501E-04	-0.35735569	0.15664816E-04	0.71581396E-03	-0.19446355E-06
32	-0.11305706E-03	0.41489806E-04	-0.35968236	0.15094238E-04	0.71599416E-03	-0.14708455E-06
33	-0.11688912E-03	0.41085733E-04	-0.36200964	0.14478264E-04	0.71618556E-03	-0.10329930E-06
34	-0.12060205E-03	0.40822678E-04	-0.36433756	0.13831006E-04	0.71638440E-03	-0.62194213E-07
35	-0.12421050E-03	0.40686595E-04	-0.36666614	0.13146744E-04	0.71659001E-03	-0.22951418E-07
36	-0.12945436E-03	0.40697727E-04	-0.37016047	0.12069854E-04	0.71699502E-03	0.15719470E-07
37	-0.13448569E-03	0.40848514E-04	-0.37365693	0.10925873E-04	0.71748140E-03	0.30801687E-07
38	-0.13922357E-03	0.41013635E-04	-0.37715598	0.97099701E-05	0.71806097E-03	0.23246058E-07
39	-0.14351807E-03	0.41123046E-04	-0.38065798	0.84451327E-05	0.71869183E-03	0.83639957E-08
40	-0.14643208E-03	0.41170626E-04	-0.38338987	0.74574689E-05	0.71916038E-03	0.13614847E-07
41	-0.14884604E-03	0.41276674E-04	-0.38612344	0.65132704E-05	0.71956654E-03	0.45853752E-07
42	-0.15067891E-03	0.41595876E-04	-0.38885829	0.56832572E-05	0.71981913E-03	0.13180962E-06
43	-0.15192225E-03	0.42377684E-04	-0.39159364	0.50616989E-05	0.71981426E-03	0.29769687E-06
44	-0.15280526E-03	0.43981864E-04	-0.39432828	0.47486964E-05	0.71941165E-03	0.57140040E-06

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45	-0.15543849E-03	0.41790408E-04	-0.39430977	0.50430671E-05	0.71963803E-03	0.78648765E-06
46	-0.15850441E-03	0.39395333E-04	-0.39429108	0.49034677E-05	0.72009959E-03	0.83233229E-06
47	-0.16156992E-03	0.36579128E-04	-0.39427340	0.45304967E-05	0.72070888E-03	0.79837138E-06
48	-0.16442183E-03	0.33350628E-04	-0.39425738	0.40279525E-05	0.72138170E-03	0.72436606E-06
49	-0.16695583E-03	0.29771904E-04	-0.39424338	0.34647733E-05	0.72205727E-03	0.63171139E-06
50	-0.16912823E-03	0.25916613E-04	-0.39423152	0.28872931E-05	0.72269143E-03	0.53261314E-06
51	-0.17092969E-03	0.21853921E-04	-0.39422181	0.23265151E-05	0.72325408E-03	0.43394066E-06
52	-0.17236980E-03	0.17640561E-04	-0.39421415	0.18031521E-05	0.72372552E-03	0.33947001E-06
53	-0.17346732E-03	0.13317981E-04	-0.39420838	0.13048134E-05	0.72409909E-03	0.24981705E-06
54	-0.17423780E-03	0.89172055E-05	-0.39420440	0.84376098E-06	0.72436701E-03	0.16402092E-06
55	-0.17469432E-03	0.44696044E-05	-0.39420207	0.41341297E-06	0.72452789E-03	0.81216933E-07
56	-0.17484550E-03	0.00000000E+00	-0.39420131	0.00000000E+00	0.72458146E-03	0.00000000E+00
57	-0.17082378E-03	0.00000000E+00	-0.39144026	0.00000000E+00	0.72823293E-03	0.00000000E+00
58	-0.16685829E-03	0.00000000E+00	-0.38866900	0.00000000E+00	0.73003634E-03	0.00000000E+00
59	-0.16301472E-03	0.00000000E+00	-0.38589374	0.00000000E+00	0.73042157E-03	0.00000000E+00
60	-0.15936653E-03	0.00000000E+00	-0.38311907	0.00000000E+00	0.72979037E-03	0.00000000E+00
61	-0.15610183E-03	0.00000000E+00	-0.38034813	0.00000000E+00	0.72852345E-03	0.00000000E+00
62	-0.15371043E-03	0.00000000E+00	-0.37798254	0.00000000E+00	0.72720998E-03	0.00000000E+00
63	-0.15187946E-03	0.00000000E+00	-0.37562119	0.00000000E+00	0.72595073E-03	0.00000000E+00
64	-0.15087702E-03	0.00000000E+00	-0.37326349	0.00000000E+00	0.72501636E-03	0.00000000E+00
65	-0.15104117E-03	0.00000000E+00	-0.37090785	0.00000000E+00	0.72475575E-03	0.00000000E+00
66	-0.14999352E-03	0.46979654E-05	-0.37068591	0.93192516E-06	0.72474238E-03	0.24222744E-07
67	-0.14668324E-03	0.94387310E-05	-0.36998412	0.20392775E-05	0.72469670E-03	0.45318050E-07
68	-0.14066784E-03	0.14376625E-04	-0.36866350	0.35180274E-05	0.72459939E-03	0.58888107E-07
69	-0.12983034E-03	0.19002178E-04	-0.36622331	0.55068359E-05	0.72454716E-03	0.55406657E-07
70	-0.11990291E-03	0.21672001E-04	-0.36395950	0.72005736E-05	0.72474237E-03	0.21208584E-07
71	-0.10931655E-03	0.22838564E-04	-0.36152393	0.86471954E-05	0.72500819E-03	-0.76039424E-08
72	-0.98740502E-04	0.22498115E-04	-0.35907995	0.96225160E-05	0.72520070E-03	-0.32384852E-07
73	-0.88876437E-04	0.20428556E-04	-0.35679334	0.97947945E-05	0.72521179E-03	-0.52330293E-07
74	-0.78225191E-04	0.16021241E-04	-0.35431325	0.84312790E-05	0.72473041E-03	-0.45779544E-07
75	-0.72476972E-04	0.10738334E-04	-0.35296466	0.60881443E-05	0.72414706E-03	-0.32144750E-07
76	-0.69349092E-04	0.53979170E-05	-0.35224639	0.31710154E-05	0.72271659E-03	-0.16402090E-07
77	-0.68366449E-04	0.00000000E+00	-0.35201900	0.00000000E+00	0.72356280E-03	0.00000000E+00
78	-0.68598160E-04	0.00000000E+00	-0.34966724	0.00000000E+00	0.72348340E-03	0.00000000E+00
79	-0.67645734E-04	0.00000000E+00	-0.34731752	0.00000000E+00	0.72236069E-03	0.00000000E+00
80	-0.65913127E-04	0.00000000E+00	-0.34497267	0.00000000E+00	0.72052470E-03	0.00000000E+00
81	-0.63655711E-04	0.00000000E+00	-0.34263464	0.00000000E+00	0.71819250E-03	0.00000000E+00
82	-0.60546668E-04	0.00000000E+00	-0.33991137	0.00000000E+00	0.71504511E-03	0.00000000E+00
83	-0.57079739E-04	0.00000000E+00	-0.33720065	0.00000000E+00	0.71160865E-03	0.00000000E+00
84	-0.53343118E-04	0.00000000E+00	-0.33450333	0.00000000E+00	0.70802078E-03	0.00000000E+00
85	-0.49388935E-04	0.00000000E+00	-0.33181975	0.00000000E+00	0.70439856E-03	0.00000000E+00
86	-0.45247777E-04	0.00000000E+00	-0.32914983	0.00000000E+00	0.70085063E-03	0.00000000E+00
87	-0.40710564E-04	0.00000000E+00	-0.32635361	0.00000000E+00	0.69731896E-03	0.00000000E+00
88	-0.35999561E-04	0.00000000E+00	-0.32357089	0.00000000E+00	0.69412525E-03	0.00000000E+00
89	-0.31126831E-04	0.00000000E+00	-0.32080003	0.00000000E+00	0.69142621E-03	0.00000000E+00
90	-0.26107125E-04	0.00000000E+00	-0.31803868	0.00000000E+00	0.68940558E-03	0.00000000E+00
91	-0.20962190E-04	0.00000000E+00	-0.31528370	0.00000000E+00	0.68828269E-03	0.00000000E+00
92	-0.15724556E-04	0.00000000E+00	-0.31253099	0.00000000E+00	0.68832090E-03	0.00000000E+00
93	-0.10440619E-04	0.00000000E+00	-0.30977529	0.00000000E+00	0.68983601E-03	0.00000000E+00
94	-0.51727484E-05	0.00000000E+00	-0.30700997	0.00000000E+00	0.69320416E-03	0.00000000E+00
2006	-0.47290441E-04	0.16983660E-04	-0.32926070	0.14417650E-04	0.70229748E-03	-0.72753247E-07
2007	-0.79476654E-05	0.19037231E-04	-0.30703802	0.36921838E-05	0.69549906E-03	-0.31878069E-06
2008	-0.13110001E-04	0.17733264E-04	-0.30981354	0.50091227E-05	0.69259310E-03	-0.26320815E-06
2009	-0.18257094E-04	0.16921659E-04	-0.31258083	0.65090003E-05	0.69131935E-03	-0.21432133E-06
2010	-0.23342124E-04	0.16491273E-04	-0.31534570	0.80831209E-05	0.69133160E-03	-0.17302431E-06
2011	-0.28337363E-04	0.16338945E-04	-0.31811271	0.96401507E-05	0.69234486E-03	-0.13953350E-06
2012	-0.33229662E-04	0.16375430E-04	-0.32088539	0.11105242E-04	0.69412500E-03	-0.11352978E-06
2013	-0.38016079E-04	0.16528406E-04	-0.32366640	0.12418553E-04	0.69647943E-03	-0.94328652E-07
2014	-0.42700308E-04	0.16743368E-04	-0.32645771	0.13533283E-04	0.69924841E-03	-0.81041152E-07
2016	-0.45387844E-04	0.42710794E-05	-0.32915691	0.37701255E-05	0.70094260E-03	-0.20723817E-07
2017	-0.45797622E-04	0.85299868E-05	-0.32917804	0.74774348E-05	0.70121732E-03	-0.40438468E-07
2018	-0.46447057E-04	0.12768297E-04	-0.32921285	0.11053371E-04	0.70167101E-03	-0.58129998E-07
2027	-0.53487240E-05	0.48859498E-05	-0.30701174	0.94771038E-06	0.69335158E-03	-0.82237044E-07
2028	-0.58747240E-05	0.97206410E-05	-0.30701705	0.18861356E-05	0.69379075E-03	-0.16353607E-06
2029	-0.67447089E-05	0.14453787E-04	-0.30702584	0.28050370E-05	0.69451214E-03	-0.24283289E-06
2030	-0.10611580E-04	0.45298658E-05	-0.30977772	0.12951345E-05	0.69001269E-03	-0.69328979E-07
2031	-0.11121311E-04	0.90201726E-05	-0.30978498	0.25740697E-05	0.69053937E-03	-0.13733637E-06
2032	-0.11960001E-04	0.13432896E-04	-0.30979698	0.38190546E-05	0.69140563E-03	-0.20255590E-06
2033	-0.15888490E-04	0.42982141E-05	-0.31253416	0.16899657E-05	0.68851302E-03	-0.57709886E-07
2034	-0.16375943E-04	0.85681742E-05	-0.31254364	0.33562074E-05	0.68908573E-03	-0.11385340E-06

FILENAME : PIT5E3.PO DATE : 05-25-94 TIME : 10:28a PAGE 3
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 20/25)

2035	-0.17173448E-04	0.12783497E-04	-0.31255927	0.49727526E-05	0.69002779E-03	-0.16672442E-06
2036	-0.21117937E-04	0.41660561E-05	-0.31528765	0.21045007E-05	0.68847812E-03	-0.47624976E-07
2037	-0.21579740E-04	0.83136316E-05	-0.31529945	0.41773073E-05	0.68906065E-03	-0.93574487E-07
2038	-0.22330890E-04	0.12426222E-04	-0.31531890	0.61837556E-05	0.69001864E-03	-0.13605423E-06
2039	-0.26254625E-04	0.41094425E-05	-0.31804340	0.25148682E-05	0.68959405E-03	-0.39187779E-07
2040	-0.26690762E-04	0.82078584E-05	-0.31805750	0.49900134E-05	0.69015577E-03	-0.76707732E-07
2041	-0.27396145E-04	0.12286150E-04	-0.31808074	0.73820461E-05	0.69107937E-03	-0.11080233E-06
2042	-0.31267263E-04	0.41070276E-05	-0.32080548	0.29011031E-05	0.69159924E-03	-0.32397262E-07
2043	-0.31681406E-04	0.82076892E-05	-0.32082174	0.57548842E-05	0.69211495E-03	-0.63223627E-07
2044	-0.32347693E-04	0.12297501E-04	-0.32084854	0.85097074E-05	0.69296296E-03	-0.90849073E-07
2045	-0.36135404E-04	0.41411669E-05	-0.32357699	0.32469753E-05	0.69427604E-03	-0.27163539E-07
2046	-0.36535051E-04	0.82775745E-05	-0.32359519	0.64399639E-05	0.69472558E-03	-0.52913413E-07
2047	-0.37174917E-04	0.12406408E-04	-0.32362517	0.95200766E-05	0.69546517E-03	-0.75802506E-07
2048	-0.40845724E-04	0.41986267E-05	-0.32636026	0.35395763E-05	0.69744224E-03	-0.23335331E-07
2049	-0.41242342E-04	0.83907425E-05	-0.32638010	0.70198946E-05	0.69781004E-03	-0.45450090E-07
2050	-0.41874509E-04	0.12572323E-04	-0.32641278	0.10376303E-04	0.69841591E-03	-0.65106122E-07
2057	-0.52691576E-04	0.42111197E-04	-0.32973257	0.22719563E-04	0.70855996E-03	-0.56795464E-07
2058	-0.20093445E-04	0.41614460E-04	-0.30716786	0.70062635E-05	0.70468415E-03	-0.50022899E-06
2059	-0.23535680E-04	0.40381048E-04	-0.30998476	0.88172473E-05	0.70386645E-03	-0.31307001E-06
2060	-0.27028675E-04	0.39997943E-04	-0.31279963	0.10960858E-04	0.70364763E-03	-0.18381374E-06
2061	-0.30683458E-04	0.40123635E-04	-0.31561458	0.13247016E-04	0.70388003E-03	-0.99661632E-07
2062	-0.34568398E-04	0.40520693E-04	-0.31843117	0.15526744E-04	0.70444714E-03	-0.50237869E-07
2063	-0.38715153E-04	0.41021145E-04	-0.32125053	0.17686551E-04	0.70526005E-03	-0.27347323E-07
2064	-0.43128732E-04	0.41504977E-04	-0.32407352	0.19642172E-04	0.70625057E-03	-0.24375980E-07
2065	-0.47795924E-04	0.41887435E-04	-0.32690073	0.21332622E-04	0.70736512E-03	-0.35780073E-07
2066	-0.48267424E-04	0.21179650E-04	-0.32932063	0.17469448E-04	0.70308496E-03	-0.83201426E-07
2067	-0.49312259E-04	0.25366266E-04	-0.32939125	0.20089971E-04	0.70401670E-03	-0.89089387E-07
2068	-0.50354242E-04	0.29552460E-04	-0.32947066	0.22128791E-04	0.70506848E-03	-0.89791399E-07
2069	-0.51217744E-04	0.33743458E-04	-0.32955635	0.23401972E-04	0.70620711E-03	-0.84793214E-07
2070	-0.52123842E-04	0.37935630E-04	-0.32964505	0.23687391E-04	0.70738879E-03	-0.73788647E-07
2071	-0.94659217E-05	0.23426513E-04	-0.30705344	0.45321280E-05	0.69672634E-03	-0.38953458E-06
2072	-0.11272221E-04	0.27583196E-04	-0.30707188	0.53046569E-05	0.69815845E-03	-0.45242669E-06
2073	-0.13324765E-04	0.31478554E-04	-0.30709305	0.59827314E-05	0.69974684E-03	-0.50343463E-06
2074	-0.15558690E-04	0.35099646E-04	-0.30711653	0.65296074E-05	0.70142632E-03	-0.53627325E-06
2075	-0.17870995E-04	0.38459339E-04	-0.30714173	0.68945637E-05	0.70311020E-03	-0.54080858E-06
2076	-0.14543579E-04	0.21891893E-04	-0.30983442	0.61181821E-05	0.69407381E-03	-0.31698143E-06
2077	-0.16219086E-04	0.25887642E-04	-0.30985926	0.71126856E-05	0.69580787E-03	-0.36072575E-06
2078	-0.18074659E-04	0.29711623E-04	-0.30988755	0.79486425E-05	0.69774036E-03	-0.39000943E-06
2079	-0.20017952E-04	0.33372883E-04	-0.30991858	0.85676605E-05	0.69979733E-03	-0.39848167E-06
2080	-0.21909623E-04	0.36906247E-04	-0.30995142	0.88917374E-05	0.70188124E-03	-0.37703118E-06
2081	-0.19589995E-04	0.20966240E-04	-0.31260794	0.79270880E-05	0.69293020E-03	-0.25415882E-06
2082	-0.21118107E-04	0.24909563E-04	-0.31264007	0.91787552E-05	0.69481747E-03	-0.28303193E-06
2083	-0.22763618E-04	0.28755821E-04	-0.31267650	0.10201622E-04	0.69692256E-03	-0.29672524E-06
2084	-0.24414958E-04	0.32524566E-04	-0.31271621	0.10914589E-04	0.69916763E-03	-0.28969349E-06
2085	-0.25912125E-04	0.36253603E-04	-0.31275785	0.11212500E-04	0.70145183E-03	-0.25484470E-06
2086	-0.24569224E-04	0.20502157E-04	-0.31537934	0.98252762E-05	0.69296851E-03	-0.20205871E-06
2087	-0.25949120E-04	0.24460083E-04	-0.31541913	0.11346949E-04	0.69488568E-03	-0.22019130E-06
2088	-0.27394029E-04	0.28375779E-04	-0.31546410	0.12567436E-04	0.69702402E-03	-0.22376538E-06
2089	-0.28783198E-04	0.32270412E-04	-0.31551292	0.13383701E-04	0.69930606E-03	-0.20833936E-06
2090	-0.29952557E-04	0.36174532E-04	-0.31556385	0.13664952E-04	0.70163276E-03	-0.16876874E-06
2091	-0.29465103E-04	0.20366090E-04	-0.31815282	0.11702140E-04	0.69392210E-03	-0.16069139E-06
2092	-0.30711115E-04	0.24373680E-04	-0.31820017	0.13490212E-04	0.69576888E-03	-0.17171031E-06
2093	-0.31983775E-04	0.28374298E-04	-0.31825357	0.14906292E-04	0.69782856E-03	-0.16961394E-06
2094	-0.33162281E-04	0.32385968E-04	-0.31831141	0.15826915E-04	0.70002749E-03	-0.15103593E-06
2095	-0.34090011E-04	0.36429118E-04	-0.31837153	0.16097623E-04	0.70227237E-03	-0.11238638E-06
2096	-0.34274968E-04	0.20444934E-04	-0.32093157	0.13467997E-04	0.69557351E-03	-0.12936108E-06
2097	-0.35413601E-04	0.24514130E-04	-0.32098604	0.15506703E-04	0.69726992E-03	-0.13624344E-06
2098	-0.36555199E-04	0.28594907E-04	-0.32104738	0.17107375E-04	0.69916259E-03	-0.13187899E-06
2099	-0.37585563E-04	0.32700600E-04	-0.32111370	0.18128040E-04	0.70118468E-03	-0.11383234E-06
2100	-0.38362947E-04	0.36841963E-04	-0.32118249	0.18393032E-04	0.70325184E-03	-0.79692139E-07
2101	-0.39004478E-04	0.20648411E-04	-0.32371803	0.15051779E-04	0.69774498E-03	-0.10693014E-06
2102	-0.40070746E-04	0.24774967E-04	-0.32377888	0.17316520E-04	0.69922875E-03	-0.11198652E-06
2103	-0.41129320E-04	0.28918390E-04	-0.32384735	0.19084717E-04	0.70088645E-03	-0.10782830E-06
2104	-0.42076935E-04	0.33087704E-04	-0.32392129	0.20198074E-04	0.70266050E-03	-0.92794879E-07
2105	-0.42791030E-04	0.37286056E-04	-0.32399788	0.20462543E-04	0.70447825E-03	-0.65369245E-07
2106	-0.43664118E-04	0.20908896E-04	-0.32651397	0.16398485E-04	0.70028985E-03	-0.92031717E-07
2107	-0.44698261E-04	0.25077219E-04	-0.32658026	0.18858587E-04	0.70151422E-03	-0.96944200E-07
2108	-0.45723990E-04	0.29257615E-04	-0.32665481	0.20773503E-04	0.70288656E-03	-0.94687758E-07
2109	-0.46651457E-04	0.33456140E-04	-0.32673526	0.21970926E-04	0.70436066E-03	-0.84236326E-07
2110	-0.47379525E-04	0.37671144E-04	-0.32681855	0.22241329E-04	0.70587762E-03	-0.64758362E-07

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2122	-0.52938098E-04	0.46231140E-04	-0.32981364	0.20185539E-04	0.70965469E-03	-0.34408418E-07
2123	-0.21933985E-04	0.44695122E-04	-0.30719379	0.67645774E-05	0.70600295E-03	-0.38730480E-06
2124	-0.24575955E-04	0.43899582E-04	-0.31001688	0.82122676E-05	0.70559724E-03	-0.19169606E-06
2125	-0.27452634E-04	0.43822469E-04	-0.31283919	0.99926911E-05	0.70559669E-03	-0.68379731E-07
2126	-0.30693765E-04	0.44148148E-04	-0.31566214	0.11926614E-04	0.70589412E-03	0.36212178E-08
2127	-0.34353487E-04	0.44665057E-04	-0.31848673	0.13877975E-04	0.70640951E-03	0.38057522E-07
2128	-0.38438786E-04	0.45223845E-04	-0.32131371	0.15744826E-04	0.70708343E-03	0.44654824E-07
2129	-0.42927273E-04	0.45717519E-04	-0.32414362	0.17451656E-04	0.70787112E-03	0.30829262E-07
2130	-0.47777893E-04	0.46070427E-04	-0.32697684	0.18943368E-04	0.70873790E-03	0.26157481E-08
2131	-0.66524161E-04	0.14117616E-04	-0.34270005	0.11456026E-04	0.71768713E-03	-0.67022929E-07
2132	-0.51380576E-04	0.16372947E-04	-0.33192422	0.14343769E-04	0.70525786E-03	-0.68137456E-07
2133	-0.55372137E-04	0.15757648E-04	-0.33459949	0.13973262E-04	0.70837412E-03	-0.66331919E-07
2134	-0.59246119E-04	0.15155054E-04	-0.33728713	0.13338342E-04	0.71155379E-03	-0.66191469E-07
2135	-0.62976798E-04	0.14595377E-04	-0.33998739	0.12479430E-04	0.71469616E-03	-0.66725673E-07
2137	-0.63869673E-04	0.36950503E-05	-0.34263878	0.29413680E-05	0.71816485E-03	-0.17469908E-07
2138	-0.64479500E-04	0.73125477E-05	-0.34265117	0.58484798E-05	0.71807753E-03	-0.34533022E-07
2139	-0.65403373E-04	0.10795724E-04	-0.34267166	0.86932103E-05	0.71792135E-03	-0.50996060E-07
2144	-0.49525956E-04	0.41340855E-05	-0.33182640	0.37304707E-05	0.70445257E-03	-0.18953941E-07
2145	-0.49926184E-04	0.82490922E-05	-0.33184627	0.74058867E-05	0.70461433E-03	-0.37129106E-07
2146	-0.50559351E-04	0.12330846E-04	-0.33187905	0.10966665E-04	0.70488298E-03	-0.53766881E-07
2147	-0.53483731E-04	0.40006935E-05	-0.33450944	0.36151857E-05	0.70804259E-03	-0.17894904E-07
2148	-0.53893583E-04	0.79731955E-05	-0.33452769	0.71835878E-05	0.70810810E-03	-0.35230129E-07
2149	-0.54538892E-04	0.11895771E-04	-0.33455785	0.10655253E-04	0.70821796E-03	-0.51504426E-07
2150	-0.57232310E-04	0.38762902E-05	-0.33720614	0.34349608E-05	0.71160511E-03	-0.17367174E-07
2151	-0.57673927E-04	0.77119372E-05	-0.33722253	0.68306872E-05	0.71159430E-03	-0.34344289E-07
2152	-0.58363989E-04	0.11477024E-04	-0.33724963	0.10146596E-04	0.71157661E-03	-0.50647565E-07
2153	-0.60721842E-04	0.37703137E-05	-0.33991618	0.32036244E-05	0.71502441E-03	-0.17237260E-07
2154	-0.61226271E-04	0.74840248E-05	-0.33993057	0.63730836E-05	0.71496088E-03	-0.34155004E-07
2155	-0.62000545E-04	0.11098234E-04	-0.33995439	0.94756342E-05	0.71485218E-03	-0.50590060E-07
2156	-0.78053689E-04	0.40422642E-04	-0.34252019	0.24688419E-04	0.71419114E-03	-0.17906391E-06
2157	-0.57526695E-04	0.42144275E-04	-0.33242733	0.23727778E-04	0.70973385E-03	-0.84319385E-07
2158	-0.62509450E-04	0.41986284E-04	-0.33512655	0.24423793E-04	0.71091196E-03	-0.11316133E-06
2159	-0.67610007E-04	0.41636481E-04	-0.33783022	0.24809931E-04	0.71206664E-03	-0.14029051E-06
2160	-0.72800195E-04	0.41106910E-04	-0.34053818	0.24897744E-04	0.71316918E-03	-0.16306462E-06
2161	-0.68500411E-04	0.18978061E-04	-0.34275918	0.15516806E-04	0.71717791E-03	-0.78260293E-07
2162	-0.70550152E-04	0.23524016E-04	-0.34283534	0.19213046E-04	0.71654312E-03	-0.91312005E-07
2163	-0.72523891E-04	0.27867565E-04	-0.34292651	0.22331372E-04	0.71586059E-03	-0.10679056E-06
2164	-0.74389649E-04	0.32104586E-04	-0.34302951	0.24559117E-04	0.71520669E-03	-0.12561539E-06
2165	-0.76197614E-04	0.36287703E-04	-0.34313962	0.25499396E-04	0.71463748E-03	-0.14909394E-06
2166	-0.52422308E-04	0.20724926E-04	-0.33198645	0.17701989E-04	0.70578218E-03	-0.78708636E-07
2167	-0.53549718E-04	0.25044504E-04	-0.33206087	0.20609332E-04	0.70642071E-03	-0.86264431E-07
2168	-0.54689991E-04	0.29343460E-04	-0.33214543	0.22896446E-04	0.70716059E-03	-0.90577411E-07
2169	-0.55774458E-04	0.33630308E-04	-0.33223733	0.24354726E-04	0.70798132E-03	-0.91565748E-07
2170	-0.56739492E-04	0.37903323E-04	-0.33233288	0.24731855E-04	0.70885210E-03	-0.89352374E-07
2171	-0.56526674E-04	0.20253531E-04	-0.33466278	0.17599577E-04	0.70862387E-03	-0.77351742E-07
2172	-0.57782549E-04	0.24680904E-04	-0.33473972	0.20769137E-04	0.70894772E-03	-0.86757598E-07
2173	-0.59062599E-04	0.29058734E-04	-0.33482814	0.23295274E-04	0.70934762E-03	-0.94663706E-07
2174	-0.60304687E-04	0.33402894E-04	-0.33492499	0.24944561E-04	0.70981922E-03	-0.10234334E-06
2175	-0.61463320E-04	0.37717393E-04	-0.33502623	0.25433116E-04	0.71034812E-03	-0.10727337E-06
2176	-0.60575858E-04	0.19782135E-04	-0.33735022	0.17181300E-04	0.71152946E-03	-0.77655567E-07
2177	-0.62016331E-04	0.24288216E-04	-0.33742831	0.20577775E-04	0.71152770E-03	-0.88753743E-07
2178	-0.63479714E-04	0.28705610E-04	-0.33751916	0.23326736E-04	0.71156948E-03	-0.99886396E-07
2179	-0.64910336E-04	0.33063811E-04	-0.33761958	0.25169739E-04	0.71167095E-03	-0.11162054E-06
2180	-0.66284890E-04	0.37377410E-04	-0.33772520	0.25789523E-04	0.71183758E-03	-0.12474680E-06
2181	-0.64567026E-04	0.19340752E-04	-0.34004906	0.16473453E-04	0.71441267E-03	-0.78335292E-07
2182	-0.66263578E-04	0.23891210E-04	-0.34012688	0.20050724E-04	0.71408636E-03	-0.90701086E-07
2183	-0.67957465E-04	0.28301245E-04	-0.34021865	0.23000438E-04	0.71376296E-03	-0.10442187E-06
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2185	-0.71197384E-04	0.36894313E-04	-0.34042973	0.25810351E-04	0.71328050E-03	-0.13937043E-06
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2192	-0.58073023E-04	0.46177112E-04	-0.33251203	0.21110001E-04	0.71054778E-03	-0.77386565E-07
2193	-0.63379993E-04	0.45908471E-04	-0.33521382	0.21771351E-04	0.71144153E-03	-0.12069481E-06
2194	-0.68804676E-04	0.45427453E-04	-0.33791897	0.22172587E-04	0.71231631E-03	-0.16149911E-06
2195	-0.74293803E-04	0.44749239E-04	-0.34062737	0.22322937E-04	0.71315121E-03	-0.19678082E-06
2204	-0.71296357E-04	0.14846710E-04	-0.34620701	0.10890333E-04	0.72094174E-03	-0.65993070E-07
2205	-0.76099798E-04	0.15983931E-04	-0.34972798	0.10235485E-04	0.72338216E-03	-0.63052626E-07
2206	-0.81436828E-04	0.17755629E-04	-0.35325843	0.97395203E-05	0.72479360E-03	-0.58450516E-07
2207	-0.66280922E-04	0.39106518E-05	-0.34505743	0.28753691E-05	0.72057179E-03	-0.17659019E-07
2208	-0.68178095E-04	0.42354535E-05	-0.34748262	0.28324415E-05	0.72246182E-03	-0.17380856E-07
2209	-0.69321209E-04	0.47436349E-05	-0.34991226	0.28906368E-05	0.72361226E-03	-0.16787238E-07

FILENAME : PITSE3.PO DATE : 05-25-94 TIME : 10:28a
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2210	-0.67357078E-04	0.77371115E-05	-0.34530226	0.56848496E-05	0.72069256E-03	-0.34671784E-07
2211	-0.69782950E-04	0.83908193E-05	-0.34796270	0.55558023E-05	0.72273292E-03	-0.33938011E-07
2212	-0.71580248E-04	0.94307598E-05	-0.35062854	0.56280296E-05	0.72396664E-03	-0.32814912E-07
2213	-0.69066704E-04	0.11401319E-04	-0.34569182	0.83702973E-05	0.72083989E-03	-0.50734088E-07
2214	-0.72449131E-04	0.12358183E-04	-0.34872507	0.80580246E-05	0.72308476E-03	-0.49116173E-07
2215	-0.75617038E-04	0.13856561E-04	-0.35176744	0.80024536E-05	0.72443223E-03	-0.46971226E-07
2216	-0.10503626E-03	0.36197876E-04	-0.35721460	0.20694359E-04	0.71748053E-03	-0.14145672E-06
2217	-0.84844009E-04	0.39387401E-04	-0.34673473	0.24065569E-04	0.71534574E-03	-0.18357959E-06
2218	-0.91642491E-04	0.38265798E-04	-0.35022439	0.23128881E-04	0.71628498E-03	-0.17793475E-06
2219	-0.98392677E-04	0.37168272E-04	-0.35371804	0.21962111E-04	0.71698956E-03	-0.16283466E-06
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2226	-0.76546784E-04	0.23735707E-04	-0.34633527	0.18246981E-04	0.71923263E-03	-0.89698585E-07
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2262	-0.10416805E-03	0.24328805E-04	-0.35919798	0.13115682E-04	0.72289080E-03	-0.42111574E-07
2263	-0.10538683E-03	0.26751113E-04	-0.35927212	0.15899938E-04	0.72154368E-03	-0.53203478E-07
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2266	-0.10972968E-03	0.22501093E-04	-0.36156096	0.98315655E-05	0.72376683E-03	-0.95418684E-08
2267	-0.11012998E-03	0.24134316E-04	-0.36160596	0.12313413E-04	0.72263207E-03	-0.15191225E-07
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2269	-0.11139216E-03	0.29220515E-04	-0.36172806	0.17346734E-04	0.72028223E-03	-0.36240342E-07
2270	-0.11236809E-03	0.32154716E-04	-0.36180222	0.18804318E-04	0.71908923E-03	-0.50824509E-07
2271	-0.11688538E-03	0.21814719E-04	-0.36397843	0.87902212E-05	0.72348937E-03	0.19567650E-07
2272	-0.11599171E-03	0.23559649E-04	-0.36400610	0.11281384E-04	0.72252698E-03	0.15013499E-07
2273	-0.11582553E-03	0.25968082E-04	-0.36404482	0.13993436E-04	0.72153231E-03	0.77912592E-08
2274	-0.11610990E-03	0.28744583E-04	-0.36409429	0.16352133E-04	0.72044515E-03	-0.21458616E-08
2275	-0.11677101E-03	0.31742943E-04	-0.36415199	0.17870270E-04	0.71930256E-03	-0.14462639E-07
2280	-0.12289248E-03	0.37629951E-04	-0.36661080	0.16019938E-04	0.71746101E-03	-0.49402452E-08
2281	-0.11104734E-03	0.38541862E-04	-0.35961899	0.18374413E-04	0.71678545E-03	-0.12723201E-06
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2283	-0.11905768E-03	0.37813171E-04	-0.36427947	0.16833226E-04	0.71721549E-03	-0.45548105E-07
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2291	-0.15520363E-03	0.63829122E-05	-0.38035264	0.16254980E-05	0.72842129E-03	0.79641836E-07
2292	-0.15420267E-03	0.93791253E-05	-0.38035844	0.25127356E-05	0.72827860E-03	0.11293015E-06
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2294	-0.14299679E-03	0.14212680E-04	-0.37328506	0.41452334E-05	0.72477582E-03	0.91039241E-07
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TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 20/25)

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2304	-0.15215431E-03	0.68117130E-05	-0.37766740	0.17339851E-05	0.72697313E-03	0.66859557E-07
2305	-0.14338777E-03	0.12439702E-04	-0.37120848	0.30576877E-05	0.72445132E-03	0.64342648E-07
2306	-0.14676460E-03	0.11007000E-04	-0.37425474	0.28711816E-05	0.72524660E-03	0.76738628E-07
2307	-0.15034267E-03	0.99980436E-05	-0.37730296	0.27258343E-05	0.72668399E-03	0.93462752E-07
2308	-0.14295394E-03	0.34295205E-04	-0.38058093	0.11238562E-04	0.72113745E-03	0.12013575E-06
2309	-0.12765567E-03	0.34449578E-04	-0.37005138	0.15882525E-04	0.71891256E-03	0.35417926E-07
2310	-0.13313842E-03	0.34357201E-04	-0.37355760	0.14486690E-04	0.71956292E-03	0.60500977E-07
2311	-0.13824547E-03	0.34307752E-04	-0.37706732	0.12943672E-04	0.72033926E-03	0.87084338E-07
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2324	-0.13469967E-03	0.24165756E-04	-0.37338239	0.10861525E-04	0.72310699E-03	0.95787722E-07
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2326	-0.13307370E-03	0.30774682E-04	-0.37349422	0.14239057E-04	0.72086777E-03	0.76375344E-07
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2341	-0.15666930E-03	0.12649397E-04	-0.38313815	0.33099300E-05	0.72910348E-03	0.17644144E-06
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2344	-0.16840814E-03	0.15853317E-04	-0.39145519	0.21867490E-05	0.72721752E-03	0.29946184E-06
2353	-0.15919152E-03	0.33135144E-05	-0.38312021	0.76592847E-06	0.72975197E-03	0.48188963E-07
2354	-0.15862962E-03	0.65569440E-05	-0.38312368	0.15600184E-05	0.72963295E-03	0.94610762E-07
2355	-0.15776466E-03	0.96768103E-05	-0.38312961	0.24046169E-05	0.72942384E-03	0.13775628E-06
2356	-0.16284156E-03	0.34770585E-05	-0.38589485	0.70074085E-06	0.73037047E-03	0.56473628E-07
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2358	-0.16153986E-03	0.10208348E-04	-0.38590396	0.21930113E-05	0.72994254E-03	0.16544350E-06
2359	-0.16669767E-03	0.37285363E-05	-0.38867003	0.61018163E-06	0.72997687E-03	0.65247464E-07
2360	-0.16622370E-03	0.74055303E-05	-0.38867313	0.12404468E-05	0.72979527E-03	0.13024029E-06
2361	-0.16545844E-03	0.10987348E-04	-0.38867841	0.19069616E-05	0.72948430E-03	0.19454828E-06
2362	-0.17067010E-03	0.40650367E-05	-0.39144116	0.50884720E-06	0.72817219E-03	0.73760373E-07
2363	-0.17021158E-03	0.80869811E-05	-0.39144388	0.10348779E-05	0.72798761E-03	0.14810887E-06
2364	-0.16945458E-03	0.12026961E-04	-0.39144851	0.15921290E-05	0.72767373E-03	0.22340346E-06
2366	-0.14635356E-03	0.34367459E-04	-0.38323232	0.98148118E-05	0.72167574E-03	0.27885922E-06
2367	-0.14954115E-03	0.34637899E-04	-0.38606541	0.83497712E-05	0.72201083E-03	0.26436911E-06
2368	-0.15257027E-03	0.35313851E-04	-0.38880916	0.69444565E-05	0.72199246E-03	0.39082557E-06
2369	-0.15552721E-03	0.36726217E-04	-0.39155188	0.57318642E-05	0.72143018E-03	0.57479133E-06
2375	-0.15486528E-03	0.16596356E-04	-0.38315504	0.46701763E-05	0.72845358E-03	0.20039532E-06
2376	-0.15291264E-03	0.20290356E-04	-0.38317791	0.61055278E-05	0.72754192E-03	0.21971573E-06
2377	-0.15094961E-03	0.23812006E-04	-0.38320687	0.75181633E-05	0.72635811E-03	0.23125169E-06
2378	-0.14909707E-03	0.27264286E-04	-0.38324154	0.87569372E-05	0.72493069E-03	0.23119738E-06
2379	-0.14749623E-03	0.30751868E-04	-0.38328075	0.96134686E-05	0.72333064E-03	0.21522412E-06
2380	-0.15887812E-03	0.17286751E-04	-0.38592687	0.41230572E-05	0.72881282E-03	0.25181668E-06
2381	-0.15703005E-03	0.20964851E-04	-0.38594623	0.52834118E-05	0.72784456E-03	0.28357266E-06
2382	-0.15504714E-03	0.24465482E-04	-0.38597037	0.64210209E-05	0.72662855E-03	0.30686597E-06
2383	-0.15302884E-03	0.27853704E-04	-0.38599898	0.74248318E-05	0.72519717E-03	0.31624647E-06
2384	-0.15111682E-03	0.31212654E-04	-0.38603120	0.81380797E-05	0.72361998E-03	0.30479683E-06
2385	-0.16291447E-03	0.18354398E-04	-0.38869815	0.34915472E-05	0.72829704E-03	0.30895306E-06
2386	-0.16111418E-03	0.22059548E-04	-0.38871388	0.44013881E-05	0.72735626E-03	0.35765364E-06
2387	-0.15908054E-03	0.25568551E-04	-0.38873326	0.52967093E-05	0.72620557E-03	0.39854525E-06
2388	-0.15688300E-03	0.28908750E-04	-0.38875607	0.61004550E-05	0.72487801E-03	0.42470137E-06

FILENAME : PIT5B3.PO DATE : 05-25-94 TIME : 10:28a PAGE 7
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 20/25)

2389	-0.15464058E-03	0.32129340E-04	-0.38878174	0.67013440E-05	0.72343853E-03	0.42642741E-06
2390	-0.16694810E-03	0.19859540E-04	-0.39146489	0.28575420E-05	0.72657077E-03	0.37054842E-06
2391	-0.16516086E-03	0.23675341E-04	-0.39147726	0.35593383E-05	0.72576100E-03	0.44151040E-06
2392	-0.16306132E-03	0.27278126E-04	-0.39149237	0.42600025E-05	0.72479762E-03	0.50739713E-06
2393	-0.16068680E-03	0.30650448E-04	-0.39151012	0.49097397E-05	0.72371195E-03	0.56055169E-06
2394	-0.15812031E-03	0.33789113E-04	-0.39153018	0.54354318E-05	0.72255998E-03	0.58904458E-06
2401	-0.14596376E-03	0.37706495E-04	-0.38335824	0.91806112E-05	0.72030244E-03	0.11055951E-06
2402	-0.14870690E-03	0.37881225E-04	-0.38609610	0.78831972E-05	0.72065480E-03	0.17915386E-06
2403	-0.15112724E-03	0.38370733E-04	-0.38883487	0.66680585E-05	0.72076191E-03	0.29659689E-06
2404	-0.15330799E-03	0.39487454E-04	-0.39157336	0.56623230E-05	0.72047764E-03	0.48645458E-06

MAXIMUMS

NODE	56	22	44	2185	59	46
VALUE	-0.17484550E-03	0.50232251E-04	-0.39432828	0.25810351E-04	0.73042157E-03	0.83233229E-06

FILENAME : PIT5E4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 21/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 0 lb + 0.9DL + 1.7L + 0.9H

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4769 MAY 25,1994 CP= 102.330

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.39002959E-06	-350.83082		54.035886		-309.25661
56		-289.88446		61.783501		212.56408
57		-245.29750		-116.03273		-0.32147012E-03
58		-238.16452		-504.19918		-0.27024381E-03
59		-234.52484		-833.47188		-0.22172283E-03
60		-235.27936		-1089.6568		-0.17901383E-03
61		-223.57998		-1166.0834		-0.13695440E-03
62		-215.74539		-1141.5315		-0.10576067E-03
63		-230.43566		-1133.9585		-0.90227251E-04
64		-248.96380		-1066.5729		-0.78480495E-04
65		-130.06159		-546.00706		-0.36792420E-04
77		-148.26231		-1910.0161		0.24390376E-04
78		-277.38687		-3424.8805		0.50023556E-04
79		-255.60084		-3484.4027		0.51924352E-04
80		-240.85969		-3618.0612		0.52653150E-04
81		-250.38531		-4077.7978		0.57294380E-04
82		-261.89428		-4526.5419		0.63757503E-04
83		-256.16506		-4599.6703		0.68295997E-04
84		-251.91899		-4592.4281		0.74650912E-04
85		-248.55114		-4501.7168		0.83643077E-04
86		-252.24536		-4439.7267		0.97764184E-04
87		-256.28406		-4270.1762		0.11439278E-03
88		-254.54321		-3896.4707		0.13314611E-03
89		-254.02424		-3440.2780		0.15865538E-03
90		-255.38043		-2910.7922		0.19162378E-03
91		-259.46632		-2319.3458		0.23245306E-03
92		-267.30098		-1679.9925		0.28111712E-03
93		-280.01316		-1009.7037		0.33704586E-03
94		-298.76529		-328.40012		0.39905155E-03
101		-299.87858		-0.32199706E-02		-899.69336
156		-265.81019		-0.20968520E-02		558.09630
201		-197.73678		-0.30750658E-02		-995.05845
256		-192.85946		-0.21275973E-02		581.79148
301		-86.027629		-0.29632548E-02		-1150.7481
356		-107.04459		-0.21317868E-02		658.83395
401		26.326127		-0.25625590E-02		-1145.8417
456		-13.270783		-0.19004893E-02		654.20380
501		111.85503		-0.22060963E-02		-1113.5468
556		60.768365		-0.16769767E-02		632.26865
601		176.30267		-0.18955574E-02		-1070.0645
656		118.37587		-0.14710196E-02		602.72766
701		225.50458		-0.16317283E-02		-1026.1018
756		163.56270		-0.12889574E-02		572.36379
801		265.44015		-0.14147308E-02		-988.73767
856		200.73442		-0.11347495E-02		545.90190
901		240.06031		-0.10511341E-02		-661.62218
956		184.58122		-0.85384881E-03		365.00461
1001		193.99803		-0.72617921E-03		-336.87648

FILENAME : PIT5E4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 21/25)

PAGE 2

1056	151.28188	-0.59931393E-03	186.40725
1101	201.62798	-0.62492633E-03	-317.38157
1156	160.60878	-0.52347025E-03	172.10057
1201	215.63361	-0.55340618E-03	-301.39023
1256	174.49095	-0.46948594E-03	159.99956
1301	241.00969	-0.51084340E-03	-290.58288
1356	196.86697	-0.43720335E-03	151.34088
1401	132.73461	-0.24835850E-03	-143.43922
1456	108.67952	-0.21323190E-03	73.604800
TOTAL	0.39002959E-06 -4824.0000	0.00000000E+00 -66512.135	0.00000000E+00 -4623.1313

FILENAME : PITSF1.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 22/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	34.0000
4	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	0.900000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	34.0000	3	1	1	0.000000E+00

CURRENT LOAD CASE= 4

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE

10.4777 MAY 25,1994 CP= 105.180

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 4

ELEM	FXC	FYC	FXYC	MXC	MYC	MYXC
1176	-99.419194	111.90640	-4.4431430	453.12556	3159.8373	-52.905365
1177	-95.716142	111.39351	-13.147079	460.45097	3078.9294	-153.62521
1178	-87.994366	110.34559	-21.303419	472.12609	2922.0152	-239.61018
1179	-75.675384	108.67496	-28.545633	482.15148	2698.3556	-302.80316
1180	-86.092419	123.22669	-6.1803966	422.05878	4143.1793	-93.865587
1181	-83.256144	122.44728	-18.473233	443.30368	4053.4270	-274.11764
1182	-77.465843	120.84179	-30.539943	481.12659	3878.1135	-432.69027
1183	-68.514583	118.27361	-42.155624	526.26335	3625.1339	-557.60908
1184	-78.210874	137.70081	-7.3831794	278.50073	5097.5081	-141.21197
1185	-76.517456	136.81434	-22.120659	318.78601	4994.3595	-413.79968
1186	-73.095329	134.93717	-36.739824	392.61217	4792.2492	-657.82660
1187	-67.880567	131.81846	-51.057533	486.73103	4499.1877	-857.33572
1188	-73.190125	154.09345	-7.9744110	1.8204683	6005.0379	-197.08556
1189	-72.639963	153.15341	-23.907027	66.856400	5885.6633	-578.75054
1190	-71.519525	151.10221	-39.759709	187.69233	5651.6847	-924.06540
1191	-69.780954	147.55870	-55.377313	346.34720	5312.2011	-1212.5649
1192	-68.438779	171.13049	-7.9867047	-433.25401	6849.0658	-263.06800
1193	-68.904193	170.16421	-23.956741	-336.50376	6711.5779	-773.42223
1194	-69.799038	168.00059	-39.891220	-155.29731	6442.4705	-1237.9119
1195	-71.037292	164.14431	-55.685105	86.648126	6052.8371	-1630.7003
1196	-61.646414	187.66203	-7.4995466	-1055.8623	7610.9835	-340.57061
1197	-62.956864	186.71004	-22.519561	-918.52638	7453.8285	-1001.7232
1198	-65.515934	184.52933	-37.583894	-660.07411	7147.0947	-1604.8730
1199	-69.187307	180.54107	-52.666160	-311.49346	6704.9462	-2117.5893
1200	-50.913671	202.72167	-6.6032933	-1899.3772	8268.0217	-431.16334
1201	-52.901153	201.85383	-19.872092	-1709.8445	8089.4421	-1267.9359
1202	-56.783090	199.80518	-33.307866	-1352.2893	7742.3947	-2030.7435
1203	-62.377812	195.94670	-46.980377	-867.36978	7245.5758	-2678.8402
1204	-34.797954	215.53251	-5.3867537	-3002.2461	8791.3700	-536.90463
1205	-37.305631	214.84900	-16.269310	-2745.0469	8588.8848	-1577.6491
1206	-42.221196	213.14151	-27.488039	-2259.4924	8197.6500	-2522.9768
1207	-49.299243	209.73643	-39.221353	-1599.4947	7642.8574	-3321.3564
1208	-12.316661	225.50001	-3.9306894	-4411.7123	9144.6576	-660.77031

FILENAME : PIT5F1.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 22/25)

1209	-15.202034	225.10183	-11.952006	-4065.5218	8914.3738	-1938.8368
1210	-20.873534	224.01126	-20.467050	-3412.5618	8472.7696	-3092.1443
1211	-29.101097	221.44090	-29.879219	-2526.7466	7855.0768	-4055.2101
1212	-58.026719	106.14167	-34.506267	481.41256	2420.5271	-337.70353
1213	-34.332920	102.22589	-38.820659	457.58555	2102.9545	-342.21042
1214	-4.1387695	95.968061	-41.136744	395.19835	1760.1416	-318.28474
1215	32.423064	85.801387	-41.133671	276.29979	1404.7552	-272.35022
1216	74.212407	69.437723	-38.554354	82.929125	1045.7324	-215.22519
1217	118.58249	43.992984	-33.213596	-195.42517	686.19089	-161.31308
1218	-56.162124	114.43085	-52.984174	564.98674	3305.4481	-640.44435
1219	-40.215011	108.70310	-62.536082	579.33585	2932.0517	-677.40751
1220	-20.623660	100.03225	-70.133705	547.58729	2518.8772	-670.16895
1221	2.4203171	86.765542	-74.897763	445.38805	2079.6016	-626.39857
1222	28.420702	66.593845	-75.782726	248.49099	1626.1439	-560.27463
1223	56.624145	36.751992	-71.767420	-61.338902	1166.2989	-494.29438
1224	-60.791491	126.97885	-64.738236	581.83230	4126.3509	-1000.7156
1225	-51.738317	119.59645	-77.244485	653.15980	3687.2305	-1081.9589
1226	-40.624261	108.37889	-87.807017	671.35608	3196.6833	-1101.5913
1227	-27.329873	91.464248	-95.434799	603.75008	2669.8867	-1067.4362
1228	-11.685422	66.438497	-98.995894	416.40046	2121.1383	-995.71592
1229	6.4708608	30.757648	-97.381476	76.902407	1562.5055	-913.74373
1230	-67.331511	141.85812	-70.460052	516.96597	4879.8540	-1429.0099
1231	-64.005346	132.95459	-84.524015	666.90679	4369.8549	-1564.7782
1232	-59.524573	119.32364	-96.884134	757.92966	3798.9666	-1618.8563
1233	-53.461291	98.908130	-106.66881	747.46138	3184.5166	-1598.6930
1234	-45.237387	69.191869	-112.85743	589.81788	2543.5629	-1521.3733
1235	-34.240385	27.447060	-114.20113	236.75668	1892.5649	-1415.7951
1236	-72.454390	157.77316	-71.121573	355.71662	5557.8736	-1932.3773
1237	-73.764060	147.65743	-85.845208	610.13164	4975.5733	-2131.4198
1238	-74.510823	132.08400	-99.349012	801.55159	4325.5111	-2225.0955
1239	-74.031140	108.82047	-110.96915	876.35298	3627.8817	-2220.1103
1240	-71.452114	75.148947	-119.85210	776.36057	2902.9804	-2133.3626
1241	-65.699786	27.918491	-124.83815	438.44647	2171.4490	-1993.0445
1242	-73.730012	173.81343	-67.668598	84.076811	6146.3849	-2515.7237
1243	-78.754130	162.98956	-82.409637	474.17992	5493.3155	-2784.7272
1244	-83.664649	146.21649	-96.608394	799.15425	4768.9920	-2920.2137
1245	-87.622079	121.09678	-109.85937	993.54077	3997.0080	-2928.0698
1246	-89.503165	84.667762	-121.57707	986.80027	3200.9224	-2824.5376
1247	-87.866976	33.404076	-130.90472	702.73886	2404.7778	-2636.1027
1248	-69.391273	189.29139	-60.932667	-310.66099	6623.5669	-3182.8119
1249	-77.358449	178.41908	-75.181609	252.77962	5903.5300	-3525.5063
1250	-85.597922	161.38868	-89.704945	750.81020	5113.1795	-3701.2740
1251	-93.138512	135.67058	-104.40251	1105.3214	4279.8165	-3715.7068
1252	-98.688426	98.094927	-119.04136	1234.0176	3429.7471	-3584.8125
1253	-100.55947	44.810531	-133.17029	1049.7585	2589.1163	-3233.4722
1254	-58.200775	203.65391	-51.630375	-838.67293	6957.5150	-3937.0953
1255	-68.470150	193.50008	-64.951198	-56.976362	6176.0647	-4353.0830
1256	-79.339153	177.30126	-79.467200	660.39655	5331.3082	-4562.5368
1257	-89.770085	152.42526	-95.396847	1221.1924	4454.2115	-4572.5622
1258	-98.389315	115.58661	-112.88675	1532.3559	3572.6288	-4400.4229
1259	-103.39868	62.692310	-132.00283	1498.2226	2712.9420	-4070.2387
1260	-39.499833	216.44800	-40.359482	-1506.9218	7103.6752	-4783.7367
1261	-51.463340	207.86140	-52.416475	-450.99844	6266.2758	-5265.3608
1262	-64.302642	193.64794	-66.625989	538.56726	5384.2113	-5494.3286
1263	-76.995221	171.15434	-83.505375	1355.6998	4487.6941	-5483.1314
1264	-88.148713	137.05428	-103.65033	1898.6077	3604.1687	-5252.3746
1265	-95.914847	87.234269	-127.60252	2066.4935	2757.1857	-4826.5687
1266	161.09029	6.9043825	-25.286823	-538.57080	315.10926	-131.19189
1267	195.31942	-34.509863	-15.666960	-835.92267	-113.40150	-188.62312
1268	85.971554	-4.1815613	-62.382573	-487.37796	702.50221	-467.10420
1269	113.86552	-53.701326	-45.398822	-1013.0871	230.84176	-557.21877
1270	26.818102	-17.378827	-89.113889	-444.34643	1004.0762	-866.23020
1271	48.616549	-79.915751	-70.762564	-1183.1991	457.88551	-925.28230
1272	-19.878541	-29.222196	-108.83674	-364.40358	1248.6298	-1326.1809
1273	-1.1240598	-104.11373	-94.156611	-1278.1464	632.75204	-1315.2460
1274	-55.429620	-36.424813	-124.32695	-207.94551	1455.8377	-1839.9868
1275	-38.978600	-121.81015	-116.19432	-1245.6928	782.93931	-1728.1724
1276	-80.924044	-36.756270	-136.59525	57.132452	1634.7523	-2399.3627
1277	-66.528618	-130.32103	-136.88870	-1045.9135	921.14592	-2160.6693
1278	-96.626677	-28.725577	-145.97377	458.10732	1785.8251	-2994.1302

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1279	-84.334889	-127.68476	-156.08223	-646.44913	1051.8175	-2606.0711
1280	-102.38867	-11.295103	-152.49523	1017.9511	1902.5665	-3610.8669
1281	-92.377611	-112.30442	-173.48599	-20.278275	1173.2164	-3054.1373
1282	-97.854297	16.242159	-156.01580	1756.7905	1971.7583	-4231.3893
1283	-90.460871	-82.849736	-188.72600	853.63609	1278.8716	-3490.0924
1284	15.875267	232.11307	-2.3186546	-6124.8111	9275.6191	-782.79716
1285	12.880736	232.10154	-7.1561246	-5688.8547	9022.6692	-2294.5518
1286	7.0041897	231.81651	-12.598327	-4866.1907	8542.9994	-3652.9824
1287	-1.5367589	230.78993	-19.140403	-3745.9589	7889.8054	-4780.7199
1288	50.095675	235.27990	-0.65652402	-8202.1283	9163.7513	-896.72380
1289	47.195841	235.70956	-2.1959969	-7677.5946	8898.1017	-2626.7861
1290	41.519965	236.38815	-4.4378949	-6688.1858	8398.6765	-4177.3512
1291	33.308612	236.97051	-7.8687987	-5339.7925	7726.4387	-5461.6293
1292	90.790291	234.92609	0.97046868	-10751.100	8749.2703	-1027.0751
1293	87.918505	235.84603	2.6382319	-10118.019	8461.7591	-3004.7427
1294	82.345875	237.55856	3.5038237	-8926.5210	7927.6568	-4767.4445
1295	74.346585	239.75846	3.0320499	-7307.7728	7223.7313	-6216.0902
1296	138.08686	230.61983	2.6504256	-13894.636	7967.6226	-1183.8401
1297	135.00052	232.15361	7.5939492	-13119.392	7642.6902	-3455.4197
1298	129.12553	235.04224	11.494384	-11666.832	7049.0311	-5458.6856
1299	121.00696	239.01039	13.823547	-9712.3997	6290.8488	-7078.9900
1300	192.74783	221.40656	4.6582877	-17804.185	6751.3330	-1385.4023
1301	188.83754	222.86832	13.385005	-16827.376	6359.6565	-4028.7738
1302	181.67150	228.48558	20.512805	-15006.587	5662.1711	-6318.5929
1303	172.19228	234.68020	25.283816	-12580.395	4808.0278	-8103.9426
1304	-12.492961	227.37141	-27.146760	-2436.6198	7090.4462	-5628.8041
1305	-25.659697	221.51558	-37.644704	-1018.6598	6207.2837	-6197.1063
1306	-40.029084	210.51180	-51.210008	327.43903	5292.2965	-6449.7959
1307	-54.621570	191.97018	-68.753119	1478.2220	4386.1251	-6408.8609
1308	-68.054400	162.51799	-91.380318	2320.8240	3516.8408	-6103.3553
1309	-78.412885	117.67627	-120.26352	2749.4214	2705.8697	-5562.0062
1310	22.094179	235.89502	-13.198429	-3687.6901	6875.3914	-6458.4063
1311	8.0701499	233.33369	-21.815965	-1808.8353	5931.3646	-7141.4554
1312	-7.4460952	226.71454	-34.319713	-4.0885568	4988.9311	-7420.4350
1313	-23.531007	213.60887	-52.068042	1571.4837	4093.7626	-7335.5566
1314	-38.879207	190.69478	-76.711398	2790.3037	3270.6018	-6932.5117
1315	-51.566545	153.32065	-110.28640	3542.1998	2533.0978	-6249.8260
1316	62.976054	241.31883	0.45496647	-5227.6723	6308.7185	-7365.2195
1317	48.356644	242.62605	-5.9394216	-2762.9901	5301.5271	-8150.1642
1318	32.165512	241.16293	-17.072940	-394.37584	4353.6177	-8419.6686
1319	15.252492	234.75583	-34.575437	1686.4751	3513.8971	-8249.0888
1320	-1.2422043	220.34121	-60.665015	3342.2655	2797.1276	-7712.0518
1321	-15.634028	193.50385	-98.286965	4469.5302	2200.4632	-6862.5019
1322	109.00495	243.56206	13.880905	-7078.8746	5284.7607	-8378.6358
1323	93.702606	249.31015	9.7244788	-3861.9949	4208.5855	-9231.3262
1324	77.102373	253.67495	-0.14018602E-01	-807.84959	3289.4505	-9428.8617
1325	60.074199	254.95553	-17.119845	1856.5998	2570.1929	-9109.4962
1326	43.397597	250.67552	-44.184420	3996.9480	2042.7942	-8390.5091
1327	28.271918	237.14999	-85.023418	5534.8892	1675.0196	-7347.6252
1328	159.13379	242.76200	27.661011	-9240.4732	3664.7976	-9546.8007
1329	142.01675	253.65836	25.516065	-5057.3262	2521.5701	-10391.085
1330	124.82701	264.54762	16.535318	-1186.0078	1687.3199	-10416.648
1331	108.38285	274.11243	-0.61336324	2126.0169	1183.5419	-9858.9851
1332	92.865591	281.01964	-28.426176	4773.8229	957.25711	-8899.8095
1333	78.305708	282.99243	-71.535487	6731.7043	929.97243	-7639.5904
1334	-83.320199	53.067536	-156.46491	2661.1401	1974.1298	-4817.7152
1335	-78.750826	-39.806038	-200.86439	1954.0892	1349.5697	-3885.2525
1336	-59.213046	98.215420	-154.09435	3728.7526	1898.8027	-5340.3762
1337	-57.590351	16.570492	-209.70319	3275.0607	1386.9545	-4218.7590
1338	-25.690766	151.90424	-148.95989	4976.0740	1723.8655	-5778.0791
1339	-27.275334	86.696537	-215.03451	4827.9438	1369.8449	-4474.6294
1340	16.423735	212.92123	-141.26091	6391.5226	1429.5883	-6086.5677
1341	11.471475	169.56079	-216.27950	6589.4254	1285.8858	-4622.6411
1342	65.691446	279.23499	-131.56054	7944.2179	1001.0622	-6212.1499
1343	57.469314	263.10291	-212.69937	8513.0980	1129.5502	-4626.1804
1344	252.97334	206.74009	-7.6017783	22355.344	-5178.3056	-1667.5943
1345	320.71220	184.42833	-12.638056	27721.430	-3217.2729	-2144.9964
1346	410.75129	145.61658	-23.220321	34784.252	-909.24429	-2904.2754
1347	547.59059	69.483150	-49.052911	44582.738	1269.4100	-4474.7635
1348	249.13642	210.26030	-21.999969	21213.201	-4547.6998	-4860.2525

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1349	316.45834	190.03754	-37.019285	26391.613	-2144.6431	-6277.5364
1350	401.76737	156.97571	-69.059155	32993.707	977.70602	-8555.2599
1351	511.92547	107.10886	-142.78473	40883.270	5172.9544	-12738.511
1352	242.06315	216.92188	-34.159088	19034.063	-3418.2404	-7639.6929
1353	308.38799	201.22632	-58.776771	23656.796	-147.56058	-9911.6038
1354	379.44066	181.40282	-110.82300	28877.521	4772.0666	-13469.083
1355	431.33674	177.53469	-216.64185	33202.190	12580.075	-18614.835
1356	233.01042	226.30991	-43.253833	16020.447	-2012.4943	-9776.7859
1357	296.43824	217.25089	-76.102393	19407.593	2517.4538	-12603.437
1358	344.69062	219.40113	-140.74546	21664.566	9958.3521	-16549.593
1359	294.55453	277.43381	-236.94841	21164.723	22000.217	-20664.896
1360	215.87750	240.28644	47.087608	-11483.540	657.44694	-11298.949
1361	194.28272	258.90147	44.459080	-5985.8233	-491.04785	-11827.308
1362	176.22427	277.77389	33.458234	-1161.4664	-1033.1834	-11389.100
1363	162.20852	296.39427	14.259170	2802.2240	-1055.6185	-10399.818
1364	150.55488	315.46291	-14.665865	5914.7142	-726.13350	-9109.9697
1365	139.17067	336.36940	-58.296386	8255.2528	-208.36892	-7623.5944
1366	270.86456	241.62086	79.817901	-13163.670	-4592.3731	-13762.619
1367	240.14236	271.79380	68.856440	-6036.4802	-5450.9237	-13248.953
1368	223.35652	298.77037	48.781783	-326.59718	-5215.5508	-11905.389
1369	215.83113	324.56673	24.029606	4103.9362	-4296.4727	-10307.420
1370	212.14223	354.40057	-6.4070660	7503.0973	-3057.0950	-8669.8031
1371	207.35245	393.95698	-47.801993	10098.207	-1741.4313	-7026.6764
1372	288.16705	263.28110	131.30549	-13216.809	-12927.883	-16201.214
1373	256.00879	303.31997	91.594709	-4752.9040	-12355.539	-13707.309
1374	250.25554	230.64428	54.341277	1328.2651	-10453.056	-11240.539
1375	256.48538	356.80241	21.908608	5830.1730	-8053.6395	-9120.9307
1376	265.12679	391.50836	-8.7846123	9246.2852	-5620.8193	-7311.5844
1377	269.66799	444.78281	-44.581474	11909.047	-3377.8980	-5702.1817
1378	224.70200	340.83695	173.28931	-9778.4035	-24460.554	-16559.875
1379	229.73440	362.02181	91.658545	-1870.3278	-20595.620	-11737.143
1380	255.05387	274.29741	37.595273	3599.9695	-15945.919	-8632.8961
1381	282.97047	390.40029	2.1256707	7700.9552	-11664.702	-6499.0273
1382	306.27926	422.17009	-24.389160	10882.823	-7946.6339	-4906.1631
1383	320.79786	483.50670	-50.176890	13447.884	-4810.5994	-3621.3202
1384	127.48249	357.74316	-119.04867	9834.4631	328.74293	-6062.5625
1385	115.75584	377.52514	-202.57303	10808.763	807.87664	-4407.4820
1386	198.55643	443.77472	-104.07669	11980.244	-583.02164	-5440.9232
1387	183.84151	505.43724	-182.75800	13355.270	347.95985	-3838.5277
1388	265.65436	518.96304	-90.678124	13962.690	-1551.7147	-4268.9205
1389	249.23797	620.15501	-155.38832	15639.043	-161.98954	-2892.2400
1390	322.07645	574.40229	-80.380824	15542.385	-2387.6420	-2563.3580
1391	305.20493	705.19617	-121.52342	17388.232	-636.61596	-1598.5144
1392	131.38121	438.34175	138.79112	-4322.0893	-35815.050	-11637.519
1393	199.60562	423.22649	48.223911	1303.8426	-26260.892	-7128.8535
1394	256.74841	411.41119	-0.92905608	5682.4798	-19149.333	-4796.6542
1395	300.32389	416.13355	-28.280466	9192.0937	-13591.447	-3318.0969
1396	332.35137	444.93226	-46.306537	12029.103	-9129.8461	-2279.9060
1397	352.59694	506.02361	-60.460279	14399.913	-5519.7628	-1496.1353
1398	84.148317	504.46698	29.411278	-203.59509	-38509.139	-2581.1000
1399	196.55615	458.29230	-23.170983	3430.0662	-27412.119	-1298.7671
1400	267.79863	429.66335	-47.581999	7034.1935	-19722.219	-541.91036
1401	315.29320	429.03935	-60.960924	10093.916	-13922.039	-21.332223
1402	348.81969	454.66261	-68.961801	12636.189	-9354.2767	344.15207
1403	370.14821	512.08105	-72.532564	14806.399	-5700.4676	592.57578
1404	102.14711	546.97478	-98.356050	-879.47715	-37314.573	6782.9136
1405	217.71973	467.58099	-97.609132	3350.0496	-26768.393	4707.1412
1406	283.74420	435.46645	-93.493138	7072.3393	-19261.550	3834.9120
1407	328.24170	432.08458	-93.063394	10140.268	-13556.286	3353.2345
1408	359.63910	454.64030	-91.178926	12648.132	-9065.7733	3016.0440
1409	379.54727	507.82330	-84.772278	14756.602	-5485.6415	2708.8268
1410	181.82171	550.73926	-218.98495	-5623.5779	-32871.916	14434.948
1411	253.44230	459.10158	-153.66149	1278.3080	-24538.257	9952.6554
1412	300.67646	432.70518	-131.41384	5958.7475	-17915.563	7697.8009
1413	336.37966	428.62569	-120.03421	9465.0764	-12615.633	6332.4642
1414	362.72690	447.90167	-110.23146	12177.200	-8364.2531	5360.1026
1415	379.31321	495.76448	-94.401630	14342.124	-4960.7919	4536.6424
1416	358.34807	601.82879	-74.542169	16444.246	-2777.9552	-817.79429
1417	342.55097	747.08609	-91.026760	18360.814	-752.92905	-322.40028
1418	376.55989	606.81508	-71.772612	16722.251	-2899.9205	730.58456

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1419	361.62844	752.96248	-67.142978	18597.821	-846.50648	784.50693
1420	384.84811	597.30327	-69.782874	16612.311	-2775.8256	2291.7946
1421	370.54586	735.19315	-43.490666	18375.815	-783.61812	1882.2574
1422	383.46278	574.02283	-67.243641	16116.738	-2405.6078	3766.5200
1423	369.85683	694.69622	-21.741336	17701.329	-572.02440	2926.3197
1424	629.32417	88.713480	64.636640	38985.873	-401.52621	3872.5986
1425	557.23992	207.19916	42.880574	29856.315	-4307.0220	2721.6804
1426	506.90497	286.30746	28.530281	22887.269	-7842.5653	2110.9537
1427	478.72530	342.25197	21.017553	17377.729	-10794.272	1693.7687
1428	605.44999	145.45630	190.66382	36441.026	2836.8706	11201.710
1429	535.12635	232.00921	122.86580	28573.850	-2535.0825	8067.1120
1430	494.41762	297.35968	82.150349	21854.612	-6789.6933	6211.5656
1431	470.60911	347.63458	60.436555	16436.252	-10169.548	4960.0392
1432	538.61913	255.77954	298.12627	30909.959	9187.3407	16993.828
1433	494.99692	278.27783	185.54426	25505.212	1035.5348	12907.201
1434	472.07517	316.85486	126.04760	19683.378	-4803.7469	9920.0251
1435	456.43201	356.10032	93.014104	14619.333	-9031.2826	7869.6153
1436	392.84369	401.08255	337.16783	21487.477	17937.075	20061.414
1437	448.11252	333.11044	222.35358	19785.106	6026.0991	16369.783
1438	443.55199	339.63417	156.75431	16197.732	-2106.7882	12859.478
1439	439.25836	365.29793	116.94604	12073.083	-7563.7793	10208.407
1440	303.77108	454.88794	-257.56522	-10306.880	-20862.301	17916.011
1441	309.39359	431.76503	-187.46687	-1569.4174	-17829.883	14059.855
1442	327.69274	416.55934	-159.50702	4158.2745	-13749.968	11317.697
1443	346.27460	416.63573	-142.61792	8195.5086	-9883.6997	9377.6090
1444	361.41026	432.15557	-126.63710	11129.501	-6538.4794	7874.3878
1445	370.24075	468.74446	-102.18346	13332.946	-3774.2868	6556.7956
1446	391.25770	375.71897	-215.91563	-11885.556	-8983.8008	16996.698
1447	361.13613	395.34986	-187.46976	-3533.7236	-8746.6312	15423.555
1448	353.93757	396.49682	-167.96297	2422.4011	-7317.5375	13462.790
1449	353.16522	399.14607	-152.35580	6655.8122	-5421.4114	11604.146
1450	353.14294	408.88155	-133.25916	9654.1491	-3509.1012	9899.8069
1451	350.83543	428.45639	-102.73283	11742.981	-1812.1466	8262.2777
1452	411.38477	362.57658	-168.71301	-10585.544	-31.854179	14537.727
1453	382.46957	378.14275	-166.87111	-3949.6107	-1098.5860	14622.273
1454	364.51827	381.58144	-158.18188	1316.8009	-1288.1129	13688.500
1455	351.34648	381.48321	-145.37162	5246.3601	-922.37546	12215.462
1456	339.05301	382.18926	-125.74885	8038.5329	-320.36848	10755.814
1457	326.64351	382.95444	-93.453750	9877.9872	295.66330	9070.8262
1458	414.64090	372.85748	-134.22667	-8109.0075	6059.0014	12045.871
1459	389.28301	375.50357	-141.49352	-3261.2953	4616.6217	12928.408
1460	367.03258	371.39964	-138.15095	904.40202	3594.7617	12739.430
1461	346.00515	364.23107	-126.57713	4169.3921	2941.1251	11871.028
1462	324.91507	354.71172	-106.74292	6509.6569	2520.3254	10587.551
1463	304.81671	338.34739	-75.808268	7954.9612	2198.7274	9020.7772
1464	370.13385	527.55207	-62.111634	14957.291	-1702.9929	5326.4397
1465	357.60122	614.93274	2.5292256	16222.094	-273.39571	4039.6174
1466	345.20688	457.18266	-53.870145	13097.274	-510.15626	6675.2614
1467	335.43587	495.80178	23.963397	13923.371	395.32191	5019.5992
1468	316.04674	379.90576	-43.394258	10874.740	770.32850	7346.5218
1469	310.03739	366.58017	33.961303	11186.316	1064.3788	5519.1613
1470	290.61078	308.03831	-31.640531	8526.5553	1907.8820	7329.6940
1471	288.64828	250.99933	32.200212	8308.3308	1621.9749	5512.3638
1472	467.67101	388.22029	-16.640519	-12584.575	13284.166	1433.1233
1473	461.33885	389.82250	-48.032112	-11768.371	12875.543	4182.3380
1474	450.09321	391.64969	-74.427621	-10244.707	12129.487	6602.0518
1475	435.89790	391.24445	-94.136658	-8210.8942	11174.085	8540.1944
1476	475.55781	426.17768	-13.618757	-8411.4541	15374.161	1228.5880
1477	469.50849	423.65991	-39.445923	-7804.5496	14986.127	3592.5168
1478	458.27564	418.11691	-61.398949	-6671.0905	14259.766	5693.4575
1479	443.28846	409.31639	-78.177770	-5156.8563	13287.023	7411.0606
1480	506.71483	454.22114	-10.135932	-5065.2934	16984.378	1041.9188
1481	498.61604	448.25069	-29.308473	-4625.3341	16576.124	3048.5267
1482	483.30162	436.66301	-45.470285	-3804.1513	15800.503	4836.3602
1483	462.10339	420.25059	-57.273629	-2705.0496	14733.571	6299.3158
1484	569.49561	470.47561	-4.4129292	-2436.7041	18260.616	847.36910
1485	555.53584	461.87864	-12.694043	-2139.4116	17787.010	2478.2825
1486	529.16029	445.52513	-19.446737	-1586.9855	16880.738	2927.5569
1487	493.26655	423.16282	-23.925532	-853.08695	15618.759	5104.6673
1488	679.37733	468.53524	6.4680143	-479.06822	19389.344	616.44395

FILENAME : PIT5F1.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 22/25)

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1489	652.40687	459.17687	18.595149	-303.79440	18783.313	1802.0724
1490	602.02135	441.62005	28.351124	18.032234	17623.881	2852.7182
1491	534.80043	417.83309	34.400236	434.41381	16015.201	3698.5608
1492	416.61126	387.08349	-109.82375	-5445.8157	9792.7195	10179.481
1493	392.13802	376.67204	-117.86006	-2009.4765	8228.8295	11211.743
1494	367.11764	363.13673	-114.70136	1066.4414	6812.1720	11339.791
1495	341.40833	348.03863	-102.56459	3545.5209	5580.8267	10786.127
1496	315.33978	330.22328	-82.664392	5314.3128	4503.1146	9746.0327
1497	291.23699	302.66139	-55.085181	6308.9592	3524.9308	8353.5864
1498	421.77920	395.44255	-89.979115	-3159.5729	11908.426	8805.7099
1499	395.02211	375.10989	-94.489652	-768.19645	10270.554	9716.1883
1500	366.57497	353.58873	-89.559556	1399.3783	8644.9605	9895.7805
1501	337.80187	332.16165	-76.746867	3148.8347	7094.0908	9479.3823
1502	310.09704	309.01968	-57.786048	4358.2651	5630.0895	8601.3621
1503	285.79601	277.29873	-34.834987	4931.3290	4241.2358	7376.2664
1504	433.38420	398.15146	-64.363135	-1348.2059	13271.642	7435.6032
1505	398.88793	370.26017	-65.438504	212.25668	11522.577	8161.3120
1506	364.12079	342.69702	-59.704018	1616.6206	9707.1501	8311.8564
1507	331.98379	316.60502	-48.442020	2720.7957	7905.4050	7964.1102
1508	304.82864	290.22560	-33.173016	3417.5321	6158.8307	7208.3187
1509	284.43319	258.33013	-16.289711	3609.6305	4483.0637	6135.5957
1510	448.23721	395.67675	-25.897064	-18.408308	13967.967	5968.8223
1511	398.38975	363.96923	-25.517214	886.47881	12033.789	6489.9986
1512	352.40724	333.66826	-22.924445	1668.1728	10001.692	6576.3550
1513	315.31272	305.47908	-16.424207	2227.1577	7969.6904	6270.6818
1514	290.81930	277.94429	-12.491376	2478.3521	6004.7230	5628.9710
1515	280.47325	246.83228	-5.8779310	2339.8736	4144.3749	4712.5733
1516	458.44427	390.73665	36.344253	850.53857	14031.082	4284.7998
1517	382.22895	361.50653	33.053761	1252.6125	11798.774	4609.3880
1518	316.90972	333.55540	25.057795	1547.0782	9476.9726	4638.9165
1519	271.17110	307.19458	13.134694	1669.2132	7186.0619	4292.6316
1520	251.35846	280.28703	-0.85771571	1554.5313	5021.0161	3899.4258
1521	259.65276	248.82766	-14.000242	1134.5721	3047.3476	3189.1744
1522	275.21612	256.65021	-21.090016	6475.9281	2650.2455	6796.1709
1523	276.10286	173.50711	21.828906	5816.0142	1880.9983	5109.3928
1524	270.19684	227.25942	-11.793529	4785.9269	2976.3485	5978.1653
1525	272.56317	137.78094	8.7794251	3826.8137	1863.6428	4470.4803
1526	272.50993	212.74910	-3.8273732	3213.5583	2934.5263	4901.3557
1527	275.88025	134.70305	-5.6042082	2084.0103	1545.8742	3605.8532
1528	281.42192	209.71758	-1.3762874	1754.3298	2425.8805	3636.4180
1529	285.95249	159.32464	-16.226255	602.09870	847.34744	2539.4852
1530	290.74488	209.80327	-21.487060	379.89879	1295.4315	2302.2339
1531	321.29383	186.24864	-23.060207	-675.10105	-277.52304	1327.8740

MINIMUMS

ELEMENT	1259	1277	1440	1300	1398	1359
VALUE	-103.39868	-130.32103	-257.56522	-17804.185	-38509.139	-20664.896

MAXIMUMS

ELEMENT	1488	1419	1436	1347	1359	1436
VALUE	679.37733	752.96248	337.16783	44582.738	22000.217	20061.414

FILENAME : PIT5F2.PO DATE : 05-25-94 TIME : 10:28a PAGE 1
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 23/25)

C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 94 BY 1

94 NODES (OF 1188 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

145 ELEMENTS (OF 1182 DEFINED) SELECTED FROM 94 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

90 ELEMENTS (OF 1182 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4780 MAY 25,1994 CP= 106.450

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	201.10276	212.25342	395.71387	1137.4041	5054.9513	-0.15301159E-02
2	401.61806	25.382598	798.42799	-0.80218491E-04	9959.5300	0.74628476E-03
3	399.82070	48.675620	817.73654	0.14783946E-04	9519.1676	0.15212132E-02
4	396.62674	67.899669	844.41928	0.44344303E-03	8819.8841	0.23425976E-02
5	391.45110	81.306314	870.74212	0.13301862E-02	7909.4416	0.32058744E-02
6	382.89998	87.524105	886.96550	0.27437099E-02	6846.4566	0.40718505E-02
7	368.21509	85.750577	882.60905	0.46678300E-02	5692.6299	0.48536485E-02
8	342.63026	76.015086	848.40806	0.69600647E-02	4503.4467	0.54037497E-02
9	298.78877	59.529482	779.36159	0.92858237E-02	3318.4829	0.5504716E-02
10	226.72491	39.127988	679.32678	0.11009265E-01	2156.4683	0.48646171E-02
11	115.02813	19.544374	568.58189	0.11007884E-01	1032.7569	0.31471415E-02
12	-34.335190	7.1514465	480.44799	0.81154737E-02	-138.43895	0.56022771E-03
13	-47.011192	448.93315	634.89134	1299.1687	-1310.2017	-0.30523301E-02
14	82.130119	668.66312	1152.2740	4530.9007	-0.57756575E-02	-0.11515599E-01
15	177.77522	366.46956	1576.7605	5937.2844	0.12309115E-02	-0.10444335E-01
16	279.99173	134.76310	1932.9342	7057.5897	0.86361475E-02	-0.90524799E-02
17	383.81964	-42.072887	2215.0405	7641.1705	0.16105487E-01	-0.75643571E-02
18	487.29793	-174.97545	2416.6047	7494.8604	0.23669361E-01	-0.59402432E-02
19	588.89612	-268.35740	2529.2491	6472.2402	0.31411884E-01	-0.41463674E-02
20	687.10171	-323.40944	2542.6178	4448.1990	0.39434321E-01	-0.21503192E-02
21	780.10238	-339.71775	2444.9102	1312.9651	0.47848368E-01	0.87178569E-04
22	841.86446	-310.19161	2174.3538	-2910.4558	0.55952904E-01	0.27633353E-02
23	889.60271	-244.76772	1796.0975	-7811.6067	0.61057986E-01	0.43430018E-02
24	944.25210	-153.44810	1358.0143	-13838.985	0.68554843E-01	0.63820809E-02
25	982.70236	-29.623555	799.51586	-20834.066	0.75917312E-01	0.83969755E-02
26	1000.6287	122.62732	127.34773	-28682.037	0.83003157E-01	0.10162767E-01
27	1125.8248	363.93661	-829.17140	-42362.761	0.10621919	0.13152772E-01
28	1195.1913	692.12389	-2164.6182	-61555.970	0.11830291	0.17458346E-01
29	1055.0387	1005.8814	-3469.5051	-74879.773	0.10724628	0.15812881E-01
30	846.38875	1290.4341	-4559.5176	-85869.426	0.81974321E-01	0.10737382E-01
31	528.59277	1253.7693	-4328.5742	-77813.419	0.13999851E-01	-0.24856599E-03
32	268.83321	1101.5494	-3614.0571	-64036.113	0.23540232E-01	0.12194753E-03
33	143.40014	1146.9774	-3536.6868	-63833.356	0.18053021E-01	-0.15759299E-02
34	23.199225	1164.1890	-3266.4863	-62158.125	0.12118203E-01	-0.33187959E-02
35	-133.43908	1428.7776	-3388.7372	-73239.018	0.25460858E-01	-0.47660696E-02
36	-307.32966	1650.4523	-2783.1538	-76713.323	-0.28564263E-01	-0.14035532E-01
37	-404.34667	1554.6287	-1026.9267	-62530.738	-0.47057214E-01	-0.15748645E-01
38	-395.48266	1460.9696	827.26064	-46781.654	-0.48525383E-01	-0.13256197E-01
39	-275.79838	1246.7255	2154.5201	-27832.399	-0.28167311E-01	-0.53282433E-02

FILENAME : PITSF2.PO DATE : 05-25-94 TIME : 10:28a PAGE 2
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 23/25)

40	-127.92140	1065.9104	2878.9000	-15500.687	-0.15642398E-01	-0.26447136E-02
41	-6.9110442	1068.7936	3552.6163	-7856.7763	-0.44361134E-02	-0.23236952E-03
42	100.67582	1085.9699	3990.7234	-1624.3810	0.64624721E-02	0.12550745E-02
43	142.01375	1152.2253	4167.4137	3067.0709	0.13818418E-01	0.10186242E-02
44	-303.15418	584.31111	3960.5438	3460.2911	3504.1082	0.17496068E-02
45	-732.49594	-156.59833	3868.8870	0.37924759E-02	936.99418	0.51915901E-02
46	-876.95557	-139.21450	3611.6049	-0.47098795E-02	-4816.1973	0.31074488E-02
47	-1018.3572	-52.268975	3172.6828	-0.15929730E-01	-11834.036	0.27841885E-02
48	-1126.5726	57.041383	2564.2341	-0.27585984E-01	-19954.533	0.39304608E-02
49	-1219.8028	159.85364	1793.4037	-0.37444718E-01	-28889.718	0.56883693E-02
50	-1311.6795	238.91673	899.45565	-0.44217704E-01	-38283.455	0.73428428E-02
51	-1408.0588	284.43947	-56.720859	-0.47046417E-01	-47678.650	0.83642090E-02
52	-1503.8244	291.89185	-999.52472	-0.45448281E-01	-56656.692	0.81716111E-02
53	-1594.6813	260.90032	-1861.5075	-0.39693996E-01	-64443.078	0.71447324E-02
54	-1668.4547	196.13351	-2553.1970	-0.29390755E-01	-70560.861	0.53747245E-02
55	-1716.7907	105.09019	-3001.1156	-0.15618503E-01	-74451.570	0.28862376E-02
56	-866.82721	-1322.9288	-1578.0864	1010.9538	-37894.834	-0.44830423E-02
57	-0.45019988E-10	-2373.1648	-0.12574851E-05	-4851.6303	0.27666829E-06	-0.77508557E-02
58	0.26261660E-10	-2042.0771	-0.66767325E-06	-13769.596	-0.15266050E-06	-0.56922254E-02
59	-0.57639227E-10	-1863.1792	0.55137343E-06	-25251.920	0.52615724E-06	-0.42659021E-02
60	-0.73896445E-11	-1789.7310	-0.11937136E-05	-39619.277	-0.34404366E-07	-0.32935012E-02
61	-0.39904080E-10	-1668.0293	0.63558127E-06	-52992.738	-0.54986958E-06	-0.25262012E-02
62	-0.29160674E-10	-1604.9198	-0.14132606E-05	-65071.172	-0.76485958E-06	-0.20522766E-02
63	-0.55706550E-11	-1734.8470	0.11115180E-05	-84821.977	0.23890789E-06	-0.18932423E-02
64	0.22453150E-11	-1941.1981	-0.19296249E-06	-109979.46	0.90245067E-07	-0.17748366E-02
65	0.20919516E-11	-1056.4782	5916.0000	-75408.418	-0.11357603E-06	-0.85968079E-03
66	0.16768809E-11	-0.18189894E-11	12121.000	-0.24796464E-07	-0.66537768E-06	-0.10842022E-18
67	0.51159077E-12	-0.48885340E-11	13226.000	0.50594826E-06	0.74844411E-06	-0.86736174E-18
68	0.12050805E-10	0.12050805E-10	16201.000	-0.45256456E-08	-0.41991007E-06	0.26020852E-17
69	0.32059688E-10	0.73484330E-10	16269.000	0.60422190E-07	0.35562698E-06	0.33266033E-15
70	0.16962076E-09	0.14711077E-09	14178.000	0.61538140E-06	-0.71711838E-07	0.94759270E-16
71	-0.81854523E-10	-0.62058803E-10	14178.000	0.13851195E-06	0.12412784E-07	0.34488471E-15
72	-0.10800250E-10	0.92484242E-10	14178.000	-0.19066010E-06	-0.13748650E-06	0.41080420E-15
73	-0.81854523E-11	0.17564616E-10	16269.000	0.25395351E-06	0.22847962E-06	0.18707908E-15
74	-0.63664629E-11	0.24328983E-10	16201.000	0.90723915E-07	-0.26313683E-06	-0.91072982E-17
75	-0.79580786E-12	-0.97770680E-11	13226.000	-0.46493369E-07	0.13107474E-05	0.13010426E-17
76	0.22737368E-11	-0.15916157E-11	12121.000	0.10919757E-06	-0.13575936E-06	0.23852448E-17
77	-0.33324732E-11	-955.59943	5916.0000	-86910.764	-0.57862939E-07	-0.12685771E-02
78	0.11226575E-10	-1551.9821	0.59764716E-06	-126497.50	-0.27941226E-06	-0.25665857E-02
79	-0.10174972E-10	-1184.1655	-0.73030014E-06	-100519.29	0.40277882E-07	-0.25693016E-02
80	0.10231815E-11	-930.91008	-0.61295896E-06	-81034.385	0.19860636E-06	-0.24689829E-02
81	-0.40927262E-11	-782.98296	-0.80964492E-06	-71093.507	0.23543726E-06	-0.24978996E-02
82	-0.39790393E-12	-628.79391	0.53595159E-07	-60145.698	0.30558840E-06	-0.25523740E-02
83	0.56843419E-13	-435.20930	-0.10213626E-06	-46778.197	-0.26317684E-06	-0.24470186E-02
84	-0.18303581E-10	-268.20429	0.36723486E-06	-35976.953	-0.16568811E-06	-0.23219767E-02
85	0.19383606E-10	-126.09356	-0.40892201E-06	-27194.906	0.11993689E-06	-0.21800915E-02
86	0.28080649E-10	-7.1532448	-0.17584716E-06	-20563.844	0.16659396E-06	-0.20616127E-02
87	-0.11254997E-10	93.901741	-0.44794774E-07	-14702.391	-0.18299761E-06	-0.19125281E-02
88	0.48885340E-11	171.26765	-0.39370309E-06	-9664.0897	-0.11683005E-06	-0.17315661E-02
89	-0.81286089E-11	225.12780	0.31025206E-06	-5760.9663	0.19102299E-06	-0.16181738E-02
90	0.60254024E-11	260.34295	-0.23463414E-06	-2825.8073	0.63391781E-07	-0.15933749E-02
91	0.11823431E-10	283.60610	0.27712275E-07	-712.56323	-0.16930608E-06	-0.16780459E-02
92	-0.22396307E-10	303.34127	0.10828541E-06	705.64642	0.10124131E-06	-0.18917800E-02
93	0.60452976E-10	329.33205	-0.11314552E-06	1539.8684	-0.16732884E-07	-0.22507552E-02
94	-0.27367264E-09	371.86481	-0.24967449E-07	1886.0097	-0.55354576E-07	-0.27642543E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = -0.5792685E-08
FY = -0.4435037E-08
FZ = 196978.0
MX = -4628003.
MY = -0.1546972E+08
MZ = 0.1310216E-03
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PITSF3.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 24/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

356 ELEMENTS (OF 1182 DEFINED) SELECTED BY ESEL COMMAND.

404 NODES (OF 1188 DEFINED) SELECTED FROM 356 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
ED WORK.

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FOR SUPPORT CALL PHONE TWX

TITLE

10.4782 MAY 25,1994 CP= 107.050

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.50081222	0.00000000E+00	0.19560908E-01	0.00000000E+00
2	-0.13242093E-05	0.95961555E-05	-0.50081254	0.16751796E-06	0.19560757E-01	-0.70164787E-06
3	-0.52420508E-05	0.18876954E-04	-0.50081360	0.38653273E-06	0.19560324E-01	-0.13736557E-05
4	-0.11578582E-04	0.27491908E-04	-0.50081567	0.69671487E-06	0.19559655E-01	-0.19807632E-05
5	-0.20007853E-04	0.35024773E-04	-0.50081912	0.11140825E-05	0.19558827E-01	-0.24769505E-05
6	-0.30004783E-04	0.40972375E-04	-0.50082434	0.16191828E-05	0.19557930E-01	-0.28014826E-05
7	-0.40785955E-04	0.44738869E-04	-0.50083152	0.21453981E-05	0.19557065E-01	-0.28771412E-05
8	-0.51250271E-04	0.45653228E-04	-0.50084054	0.25680043E-05	0.19556323E-01	-0.26123018E-05
9	-0.59938787E-04	0.43021144E-04	-0.50085066	0.26960774E-05	0.19555774E-01	-0.19097535E-05
10	-0.65048018E-04	0.36227320E-04	-0.50086031	0.22732861E-05	0.19555450E-01	-0.68761892E-06
11	-0.64562362E-04	0.24920886E-04	-0.50086689	0.10082767E-05	0.19555337E-01	0.10736634E-05
12	-0.56681842E-04	0.92931269E-05	-0.50086681	-0.12611240E-05	0.19555373E-01	0.31914380E-05
13	-0.41152287E-04	-0.96055840E-05	-0.50085681	-0.39944421E-05	0.19555514E-01	0.48397285E-05
14	-0.48230495E-04	0.11375264E-04	-0.57907642	-0.55336504E-05	0.19554654E-01	0.54706970E-05
15	-0.56416459E-04	0.32959708E-04	-0.65729626	-0.87297699E-05	0.19555425E-01	0.52837914E-05
16	-0.66673878E-04	0.52919902E-04	-0.73552133	-0.13556487E-04	0.19557207E-01	0.46615721E-05
17	-0.78906673E-04	0.69717358E-04	-0.81375501	-0.20000459E-04	0.19559718E-01	0.36904079E-05
18	-0.92622435E-04	0.82044992E-04	-0.89199982	-0.28087676E-04	0.19562781E-01	0.24132881E-05
19	-0.10708501E-03	0.88764124E-04	-0.97025767	-0.37844059E-04	0.19566254E-01	0.87200719E-06
20	-0.12137191E-03	0.88915122E-04	-1.0485299	-0.49272794E-04	0.19570002E-01	-0.88483405E-06
21	-0.13440320E-03	0.81754223E-04	-1.1268173	-0.62335789E-04	0.19573871E-01	-0.27963180E-05
22	-0.14496389E-03	0.66810607E-04	-1.2051201	-0.76936400E-04	0.19577687E-01	-0.47858264E-05
23	-0.15149517E-03	0.45217633E-04	-1.2795213	-0.92074525E-04	0.19581020E-01	-0.66740914E-05
24	-0.15336887E-03	0.16645105E-04	-1.3539342	-0.10821724E-03	0.19583871E-01	-0.84574345E-05
25	-0.14936864E-03	-0.18309103E-04	-1.4283565	-0.12504193E-03	0.19585945E-01	-0.10026278E-04
26	-0.13833328E-03	-0.58618671E-04	-1.5027847	-0.14211982E-03	0.19586930E-01	-0.11262985E-04
27	-0.11921542E-03	-0.10282708E-03	-1.5772139	-0.15891531E-03	0.19586556E-01	-0.12066978E-04
28	-0.81885812E-04	-0.16178281E-03	-1.6726893	-0.17905104E-03	0.19583329E-01	-0.12313946E-04
29	-0.30101949E-04	-0.21932803E-03	-1.7681407	-0.19613053E-03	0.19576678E-01	-0.11459179E-04
30	0.34783032E-04	-0.27030075E-03	-1.8635516	-0.20857093E-03	0.19566569E-01	-0.95814861E-05
31	0.10931796E-03	-0.31032014E-03	-1.9589061	-0.21491628E-03	0.19553329E-01	-0.69414241E-05
32	0.16208093E-03	-0.32926694E-03	-2.0224396	-0.21518622E-03	0.19544062E-01	-0.47372377E-05
33	0.21513119E-03	-0.34107075E-03	-2.0859420	-0.21219836E-03	0.19534327E-01	-0.25477065E-05
34	0.26656915E-03	-0.34597868E-03	-2.1494131	-0.20588110E-03	0.19524847E-01	-0.48894858E-06
35	0.31455589E-03	-0.34458285E-03	-2.2128547	-0.19652747E-03	0.19516288E-01	0.13285988E-05
36	0.37658264E-03	-0.33419473E-03	-2.3079700	-0.17739643E-03	0.19505210E-01	0.30323522E-05
37	0.42381851E-03	-0.31845384E-03	-2.4030423	-0.15379524E-03	0.19498357E-01	0.35575347E-05
38	0.45505704E-03	-0.30327084E-03	-2.4980919	-0.12787614E-03	0.19495809E-01	0.28519121E-05
39	0.47215421E-03	-0.29411869E-03	-2.5931388	-0.10189370E-03	0.19497186E-01	0.11469659E-05
40	0.47821980E-03	-0.29342403E-03	-2.6672339	-0.83087359E-04	0.19499990E-01	-0.66607834E-06
41	0.48117246E-03	-0.29958066E-03	-2.7413411	-0.66608292E-04	0.19503369E-01	-0.24411515E-05
42	0.48445911E-03	-0.31197999E-03	-2.8154602	-0.53344538E-04	0.19506048E-01	-0.39429357E-05
43	0.49119801E-03	-0.32916731E-03	-2.8895855	-0.44182972E-04	0.19506443E-01	-0.50172375E-05
44	0.50175662E-03	-0.34959930E-03	-2.9637054	-0.39906961E-04	0.19503121E-01	-0.57802672E-05

FILENAME : PITSF3.PO DATE : 05-25-94 TIME : 10:28a
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45	0.52424865E-03	-0.32477481E-03	-2.9638457	-0.35524185E-04	0.19499768E-01	-0.59265680E-05
46	0.54579239E-03	-0.30443042E-03	-2.9639746	-0.34084887E-04	0.19492391E-01	-0.56418184E-05
47	0.56671925E-03	-0.28860346E-03	-2.9641026	-0.34893625E-04	0.19481684E-01	-0.56953190E-05
48	0.58856509E-03	-0.27472274E-03	-2.9642358	-0.36644869E-04	0.19468420E-01	-0.61257106E-05
49	0.61238232E-03	-0.25982335E-03	-2.9643754	-0.38134772E-04	0.19453395E-01	-0.67113319E-05
50	0.63825944E-03	-0.24124150E-03	-2.9645185	-0.38458578E-04	0.19437481E-01	-0.71823473E-05
51	0.66531714E-03	-0.21691951E-03	-2.9646596	-0.36993128E-04	0.19421629E-01	-0.73014943E-05
52	0.69190248E-03	-0.18571143E-03	-2.9647912	-0.33392890E-04	0.19406798E-01	-0.68926526E-05
53	0.71585704E-03	-0.14732894E-03	-2.9649056	-0.27608208E-04	0.19394015E-01	-0.58801530E-05
54	0.73496888E-03	-0.10239754E-03	-2.9649944	-0.19750827E-04	0.19384142E-01	-0.42980243E-05
55	0.74731055E-03	-0.52526069E-04	-2.9650507	-0.10303688E-04	0.19377908E-01	-0.22704809E-05
56	0.75157802E-03	0.00000000E+00	-2.9650700	0.00000000E+00	0.19375776E-01	0.00000000E+00
57	0.72258371E-03	0.00000000E+00	-2.8915900	0.00000000E+00	0.19298854E-01	0.00000000E+00
58	0.69212812E-03	0.00000000E+00	-2.8183959	0.00000000E+00	0.19225333E-01	0.00000000E+00
59	0.66225663E-03	0.00000000E+00	-2.7454750	0.00000000E+00	0.19155323E-01	0.00000000E+00
60	0.63429134E-03	0.00000000E+00	-2.6728126	0.00000000E+00	0.19089662E-01	0.00000000E+00
61	0.60930540E-03	0.00000000E+00	-2.6003898	0.00000000E+00	0.19029697E-01	0.00000000E+00
62	0.59126371E-03	0.00000000E+00	-2.5386205	0.00000000E+00	0.18984088E-01	0.00000000E+00
63	0.57737097E-03	0.00000000E+00	-2.4769890	0.00000000E+00	0.18945246E-01	0.00000000E+00
64	0.56954832E-03	0.00000000E+00	-2.4154720	0.00000000E+00	0.18914189E-01	0.00000000E+00
65	0.57088407E-03	0.00000000E+00	-2.3540440	0.00000000E+00	0.18890227E-01	0.00000000E+00
66	0.56390700E-03	-0.39097722E-04	-2.3480405	-0.12936148E-03	0.18904204E-01	-0.57712489E-06
67	0.54253203E-03	-0.79475369E-04	-2.3290557	-0.25954745E-03	0.18948217E-01	-0.11319134E-05
68	0.50634468E-03	-0.12313899E-03	-2.2933275	-0.39066526E-03	0.19029693E-01	-0.16418632E-05
69	0.44914518E-03	-0.16658426E-03	-2.2273597	-0.52889755E-03	0.19175965E-01	-0.21181979E-05
70	0.40304848E-03	-0.19095720E-03	-2.1662868	-0.60261998E-03	0.19318353E-01	-0.25701460E-05
71	0.36053116E-03	-0.19908346E-03	-2.1007596	-0.63471799E-03	0.19472249E-01	-0.29205555E-05
72	0.32389898E-03	-0.18990136E-03	-2.0352556	-0.62288486E-03	0.19629874E-01	-0.31901421E-05
73	0.29414427E-03	-0.16446748E-03	-1.9742368	-0.56449801E-03	0.19782038E-01	-0.32313698E-05
74	0.26621996E-03	-0.11934586E-03	-1.9084136	-0.43017781E-03	0.19945982E-01	-0.25381837E-05
75	0.25242848E-03	-0.76364227E-04	-1.8727919	-0.29192053E-03	0.20041182E-01	-0.17147956E-05
76	0.24477014E-03	-0.37292197E-04	-1.8538695	-0.14719527E-03	0.20094136E-01	-0.85966324E-06
77	0.24239417E-03	0.00000000E+00	-1.8478868	0.00000000E+00	0.20111172E-01	0.00000000E+00
78	0.24392508E-03	0.00000000E+00	-1.7825590	0.00000000E+00	0.20089271E-01	0.00000000E+00
79	0.23848487E-03	0.00000000E+00	-1.7173017	0.00000000E+00	0.20066985E-01	0.00000000E+00
80	0.22943277E-03	0.00000000E+00	-1.6521231	0.00000000E+00	0.20041165E-01	0.00000000E+00
81	0.21816564E-03	0.00000000E+00	-1.5870347	0.00000000E+00	0.20011852E-01	0.00000000E+00
82	0.20313224E-03	0.00000000E+00	-1.5110579	0.00000000E+00	0.19974419E-01	0.00000000E+00
83	0.18671451E-03	0.00000000E+00	-1.4352288	0.00000000E+00	0.19934609E-01	0.00000000E+00
84	0.16939335E-03	0.00000000E+00	-1.3595538	0.00000000E+00	0.19893636E-01	0.00000000E+00
85	0.15155917E-03	0.00000000E+00	-1.2840353	0.00000000E+00	0.19852571E-01	0.00000000E+00
86	0.13356568E-03	0.00000000E+00	-1.2086718	0.00000000E+00	0.19812309E-01	0.00000000E+00
87	0.11477556E-03	0.00000000E+00	-1.1295042	0.00000000E+00	0.19771523E-01	0.00000000E+00
88	0.96523450E-04	0.00000000E+00	-1.0504953	0.00000000E+00	0.19733113E-01	0.00000000E+00
89	0.79125146E-04	0.00000000E+00	-0.97163455	0.00000000E+00	0.19697584E-01	0.00000000E+00
90	0.62834483E-04	0.00000000E+00	-0.89220960	0.00000000E+00	0.19665320E-01	0.00000000E+00
91	0.47822914E-04	0.00000000E+00	-0.81430676	0.00000000E+00	0.19636615E-01	0.00000000E+00
92	0.34157781E-04	0.00000000E+00	-0.73581130	0.00000000E+00	0.19611688E-01	0.00000000E+00
93	0.21782640E-04	0.00000000E+00	-0.65740778	0.00000000E+00	0.19590701E-01	0.00000000E+00
94	0.10504645E-04	0.00000000E+00	-0.57908019	0.00000000E+00	0.19573759E-01	0.00000000E+00
2006	0.10762745E-03	0.12753152E-04	-1.2079634	-0.86372038E-04	0.19764623E-01	-0.17104517E-05
2007	-0.10261500E-04	0.30868651E-04	-0.57907375	-0.42523379E-06	0.19569142E-01	-0.18988975E-05
2008	0.17076325E-06	0.29273844E-04	-0.65737716	-0.33078368E-05	0.19583171E-01	-0.14845796E-05
2009	0.11712461E-04	0.29140145E-04	-0.73574382	-0.77689404E-05	0.19600721E-01	-0.12203473E-05
2010	0.24579618E-04	0.29447723E-04	-0.81418742	-0.14103915E-04	0.19621581E-01	-0.10878098E-05
2011	0.38836172E-04	0.29322800E-04	-0.89272074	-0.22642538E-04	0.19645514E-01	-0.10668343E-05
2012	0.54433653E-04	0.28057120E-04	-0.97135551	-0.33741180E-04	0.19672227E-01	-0.11371296E-05
2013	0.71238625E-04	0.25107441E-04	-1.0501021	-0.47780213E-04	0.19701345E-01	-0.12791488E-05
2014	0.89052519E-04	0.20088920E-04	-1.1289693	-0.65160828E-04	0.19732365E-01	-0.14749325E-05
2016	0.13197428E-03	0.26228997E-05	-1.2086237	-0.25510759E-04	0.19809066E-01	-0.44094091E-06
2017	0.12717786E-03	0.54787968E-05	-1.2084827	-0.49342709E-04	0.19799560E-01	-0.87642310E-06
2018	0.11910907E-03	0.87894485E-05	-1.2082579	-0.70068857E-04	0.19784422E-01	-0.13013158E-05
2027	0.91369082E-05	0.84141904E-05	-0.57907957	-0.32892452E-06	0.19573437E-01	-0.56315851E-06
2028	0.50859762E-05	0.16557888E-04	-0.57907789	-0.55868763E-06	0.19572498E-01	-0.10930715E-05
2029	-0.14821917E-05	0.24146288E-04	-0.57907569	-0.60702911E-06	0.19571025E-01	-0.15528563E-05
2030	0.20365670E-04	0.77938476E-05	-0.65740549	-0.12148331E-05	0.19590184E-01	-0.45699053E-06
2031	0.16164784E-04	0.15400481E-04	-0.65739893	-0.22601558E-05	0.19588673E-01	-0.88089412E-06
2032	0.93375627E-05	0.22627663E-04	-0.65738903	-0.29905162E-05	0.19586277E-01	-0.12364587E-05
2033	0.32694699E-04	0.75291458E-05	-0.73580650	-0.25484155E-05	0.19610944E-01	-0.38335318E-06
2034	0.28351382E-04	0.14962438E-04	-0.73579257	-0.48347048E-05	0.19608759E-01	-0.73605811E-06

FILENAME : PIT5F3.PO DATE : 05-25-94 TIME : 10:28a PAGE 3
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 24/25)

2035	0.21271395E-04	0.22201154E-04	-0.73577096	-0.66297552E-05	0.19605277E-01	-0.10263094E-05
2036	0.46319263E-04	0.73967923E-05	-0.81429844	-0.44105217E-05	0.19635601E-01	-0.34006403E-06
2037	0.41847465E-04	0.14782316E-04	-0.81427422	-0.84410885E-05	0.19632619E-01	-0.65316476E-06
2038	0.34529071E-04	0.22141075E-04	-0.81423615	-0.11755771E-04	0.19627852E-01	-0.91182947E-06
2039	0.61296131E-04	0.71888260E-05	-0.89289661	-0.68965448E-05	0.19663988E-01	-0.32360534E-06
2040	0.56710830E-04	0.14438590E-04	-0.89285861	-0.13264420E-04	0.19660069E-01	-0.62450445E-06
2041	0.49170439E-04	0.21803508E-04	-0.89279850	-0.18632917E-04	0.19653792E-01	-0.87987556E-06
2042	0.77558462E-04	0.67283879E-05	-0.97161549	-0.10115063E-04	0.19695879E-01	-0.32982210E-06
2043	0.72876607E-04	0.13576809E-04	-0.97155966	-0.19513147E-04	0.19690865E-01	-0.64135706E-06
2044	0.65135715E-04	0.20656003E-04	-0.97147097	-0.27553671E-04	0.19682831E-01	-0.91640727E-06
2045	0.94936661E-04	0.58754934E-05	-1.0504686	-0.14189406E-04	0.19730974E-01	-0.35434628E-06
2046	0.90180724E-04	0.11918813E-04	-1.0503901	-0.27421193E-04	0.19724685E-01	-0.69478292E-06
2047	0.82271495E-04	0.18285384E-04	-1.0502653	-0.38839604E-04	0.19714617E-01	-0.10075011E-05
2048	0.11317930E-03	0.45284812E-05	-1.1294679	-0.19260424E-04	0.19768877E-01	-0.39281218E-06
2049	0.10838202E-03	0.92619047E-05	-1.1293614	-0.37252284E-04	0.19761104E-01	-0.77600647E-06
2050	0.10035375E-03	0.14394231E-04	-1.1291916	-0.52844390E-04	0.19748688E-01	-0.11400151E-05
2057	-0.47548922E-04	0.53235730E-04	-1.2057336	-0.88665418E-04	0.19614301E-01	-0.38496805E-05
2058	-0.63945153E-04	0.32729620E-04	-0.57909219	0.33823465E-06	0.19557647E-01	0.15595907E-05
2059	-0.63252798E-04	0.43923269E-04	-0.65733027	-0.19022920E-05	0.19561662E-01	0.17242691E-05
2060	-0.62631058E-04	0.55909686E-04	-0.73558723	-0.60870038E-05	0.19567038E-01	0.15765263E-05
2061	-0.62017718E-04	0.66572244E-04	-0.81386794	-0.12569799E-04	0.19573503E-01	0.11354039E-05
2062	-0.61209627E-04	0.74236678E-04	-0.89217629	-0.21665610E-04	0.19580837E-01	0.44068571E-06
2063	-0.59847100E-04	0.77603353E-04	-0.97051533	-0.33643763E-04	0.19588837E-01	-0.46131527E-06
2064	-0.57469267E-04	0.75665360E-04	-1.0488873	-0.48720016E-04	0.19597277E-01	-0.15186082E-05
2065	-0.53553442E-04	0.67691104E-04	-1.1272934	-0.67040274E-04	0.19605883E-01	-0.26710704E-05
2066	0.92609350E-04	0.17526159E-04	-1.2076167	-0.97772232E-04	0.19741321E-01	-0.20888118E-05
2067	0.73821348E-04	0.23191335E-04	-1.2072371	-0.10399164E-03	0.19715770E-01	-0.24450609E-05
2068	0.50908379E-04	0.29764650E-04	-1.2068435	-0.10527989E-03	0.19689183E-01	-0.27888360E-05
2069	0.23430035E-04	0.37154205E-04	-1.2064533	-0.10233748E-03	0.19662723E-01	-0.31300133E-05
2070	-0.91702496E-05	0.45121787E-04	-1.2060803	-0.96288496E-04	0.19637448E-01	-0.34794701E-05
2071	-0.20764848E-04	0.36382059E-04	-0.57907295	-0.14277632E-07	0.19567006E-01	-0.20789522E-05
2072	-0.32274518E-04	0.40313299E-04	-0.57907404	0.55987541E-06	0.19564788E-01	-0.20323448E-05
2073	-0.43793635E-04	0.42271475E-04	-0.57907739	0.11527520E-05	0.19562646E-01	-0.16935278E-05
2074	-0.54014765E-04	0.41873110E-04	-0.57908266	0.15324044E-05	0.19560709E-01	-0.10008882E-05
2075	-0.61332914E-04	0.38779236E-04	-0.57908848	0.13828749E-05	0.19559047E-01	0.86382798E-07
2076	-0.10886696E-04	0.35125165E-04	-0.65736496	-0.31833300E-05	0.19579571E-01	-0.15816159E-05
2077	-0.23184623E-04	0.39953893E-04	-0.65735399	-0.26773526E-05	0.19575716E-01	-0.14803236E-05
2078	-0.35834773E-04	0.43517688E-04	-0.65734541	-0.19560974E-05	0.19571839E-01	-0.11330916E-05
2079	-0.47689566E-04	0.45558070E-04	-0.65733952	-0.13026888E-05	0.19568137E-01	-0.49806581E-06
2080	-0.57353595E-04	0.45795273E-04	-0.65733537	-0.11177861E-05	0.19564739E-01	0.45216196E-06
2081	0.71256439E-07	0.35662765E-04	-0.73571380	-0.81808071E-05	0.19595374E-01	-0.12823768E-05
2082	-0.13087803E-04	0.41633223E-04	-0.73568357	-0.79120707E-05	0.19589551E-01	-0.11755261E-05
2083	-0.27006915E-04	0.46885285E-04	-0.73565537	-0.71481276E-05	0.19583568E-01	-0.86404715E-06
2084	-0.40718829E-04	0.51207064E-04	-0.73563049	-0.66279825E-05	0.19577706E-01	-0.31654672E-06
2085	-0.53050944E-04	0.54325527E-04	-0.73560860	-0.56524588E-05	0.19572170E-01	0.49107184E-06
2086	0.12325769E-04	0.36658581E-04	-0.81413196	-0.15356524E-04	0.19614168E-01	-0.11522593E-05
2087	-0.17751403E-05	0.43699096E-04	-0.81407386	-0.15536788E-04	0.19606015E-01	-0.10764646E-05
2088	-0.17116985E-04	0.50446648E-04	-0.81401685	-0.14844709E-04	0.19597535E-01	-0.83306391E-06
2089	-0.32931533E-04	0.56710130E-04	-0.81396349	-0.13676373E-04	0.19589109E-01	-0.39735882E-06
2090	-0.48277643E-04	0.62211478E-04	-0.81391452	-0.12639510E-04	0.19581039E-01	0.25219478E-06
2091	0.25948998E-04	0.37009397E-04	-0.89263087	-0.25090000E-04	0.19635688E-01	-0.11627451E-05
2092	0.10841558E-04	0.44834146E-04	-0.89253483	-0.25964136E-04	0.19624824E-01	-0.11457499E-05
2093	-0.60498366E-05	0.52705546E-04	-0.89243819	-0.25473924E-04	0.19613450E-01	-0.99533676E-06
2094	-0.24172658E-04	0.60445837E-04	-0.89234531	-0.24070823E-04	0.19602065E-01	-0.69262941E-06
2095	-0.42841024E-04	0.67765745E-04	-0.89225835	-0.22468569E-04	0.19591093E-01	-0.21995098E-06
2096	0.40914709E-04	0.35838589E-04	-0.97122085	-0.37780014E-04	0.19659624E-01	-0.12865237E-05
2097	0.24774224E-04	0.44008946E-04	-0.97107522	-0.39613923E-04	0.19645662E-01	-0.13489423E-05
2098	0.62647225E-05	0.52503780E-04	-0.97092659	-0.39455370E-04	0.19631003E-01	-0.13103119E-05
2099	-0.14294644E-04	0.61159089E-04	-0.97078157	-0.37808476E-04	0.19616287E-01	-0.11578845E-05
2100	-0.36502263E-04	0.69679420E-04	-0.97064433	-0.35488504E-04	0.19602080E-01	-0.87939279E-06
2101	0.57124154E-04	0.32481421E-04	-1.0499108	-0.53837565E-04	0.19685585E-01	-0.14977420E-05
2102	0.39979355E-04	0.40448566E-04	-1.0497024	-0.56901970E-04	0.19668135E-01	-0.16535884E-05
2103	0.19863023E-04	0.48972323E-04	-1.0494879	-0.57185673E-04	0.19649821E-01	-0.17392972E-05
2104	-0.31542343E-05	0.57906406E-04	-1.0492767	-0.55245640E-04	0.19631440E-01	-0.17490115E-05
2105	-0.28978343E-04	0.66962070E-04	-1.0490756	-0.51995309E-04	0.19613719E-01	-0.16774771E-05
2106	0.74421586E-04	0.26469904E-04	-1.1287079	-0.73674947E-04	0.19713054E-01	-0.17723827E-05
2107	0.56369279E-04	0.33613290E-04	-1.1284220	-0.78223238E-04	0.19691735E-01	-0.20287915E-05
2108	0.34751995E-04	0.41508031E-04	-1.1281262	-0.79017898E-04	0.19669426E-01	-0.22444950E-05
2109	0.93818564E-05	0.50030790E-04	-1.1278336	-0.76676516E-04	0.19647103E-01	-0.24213431E-05
2110	-0.19965796E-04	0.58911412E-04	-1.1275542	-0.72212930E-04	0.19625659E-01	-0.25621439E-05

FILENAME : PITSF3.PO DATE : 05-25-94 TIME : 10:28a PAGE 4
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 24/25)

2122	-0.92534258E-04	0.60818612E-04	-1.2054154	-0.81409766E-04	0.19594126E-01	-0.42680985E-05
2123	-0.60152335E-04	0.23550912E-04	-0.57908978	-0.19275125E-05	0.19556331E-01	0.33341144E-05
2124	-0.63667910E-04	0.39680248E-04	-0.65731955	-0.42252322E-05	0.19558721E-01	0.33224347E-05
2125	-0.67827754E-04	0.55592211E-04	-0.73556109	-0.83698171E-05	0.19562186E-01	0.29584394E-05
2126	-0.72779164E-04	0.69291281E-04	-0.81381819	-0.14557850E-04	0.19566483E-01	0.22733449E-05
2127	-0.78234463E-04	0.79261730E-04	-0.89209377	-0.22977842E-04	0.19571428E-01	0.13099189E-05
2128	-0.83666784E-04	0.84266000E-04	-0.97039009	-0.33787519E-04	0.19576857E-01	0.11402135E-06
2129	-0.88397384E-04	0.83310820E-04	-1.0487087	-0.47103602E-04	0.19582595E-01	-0.12617416E-05
2130	-0.91641483E-04	0.75652015E-04	-1.1270505	-0.62985665E-04	0.19588439E-01	-0.27527563E-05
2131	0.20720286E-03	-0.41700718E-04	-1.5857506	-0.21219213E-03	0.19940729E-01	-0.30237064E-05
2132	0.12829888E-03	0.31626308E-05	-1.2832096	-0.10681201E-03	0.19800654E-01	-0.19871600E-05
2133	0.14896828E-03	-0.74350518E-05	-1.3586109	-0.12943342E-03	0.19837527E-01	-0.22743769E-05
2134	0.16925751E-03	-0.18658203E-04	-1.4341702	-0.15439321E-03	0.19874170E-01	-0.25524036E-05
2135	0.18879084E-03	-0.30166388E-04	-1.5098859	-0.18194404E-03	0.19909189E-01	-0.28062608E-05
2137	0.21752778E-03	-0.11079290E-04	-1.5869488	-0.60723190E-04	0.20006839E-01	-0.76530185E-06
2138	0.21557187E-03	-0.21866629E-04	-1.5866960	-0.11809122E-03	0.19992294E-01	-0.15255270E-05
2139	0.21218945E-03	-0.32128239E-04	-1.5862897	-0.16924081E-03	0.19969578E-01	-0.22777788E-05
2144	0.15014112E-03	0.25912378E-06	-1.2839796	-0.31125590E-04	0.19849036E-01	-0.49870317E-06
2145	0.14585985E-03	0.73754393E-06	-1.2838161	-0.60358535E-04	0.19838677E-01	-0.99597916E-06
2146	0.13862993E-03	0.16428635E-05	-1.2835544	-0.86017705E-04	0.19822184E-01	-0.14914982E-05
2147	0.16815403E-03	-0.23577631E-05	-1.3594906	-0.37336244E-04	0.19889805E-01	-0.56135659E-06
2148	0.16440757E-03	-0.45097607E-05	-1.3593044	-0.72537871E-04	0.19878589E-01	-0.11243548E-05
2149	0.15806379E-03	-0.62601818E-05	-1.3590058	-0.10371583E-03	0.19860756E-01	-0.16927570E-05
2150	0.18566043E-03	-0.51495171E-05	-1.4351580	-0.44238776E-04	0.19930459E-01	-0.62646359E-06
2151	0.18246874E-03	-0.10096586E-04	-1.4349495	-0.86048906E-04	0.19918330E-01	-0.12555998E-05
2152	0.17705300E-03	-0.14654523E-04	-1.4361445	-0.12329777E-03	0.19899104E-01	-0.18934097E-05
2153	0.20227336E-03	-0.80563666E-05	-1.5109797	-0.51964743E-04	0.19969896E-01	-0.69357607E-06
2154	0.19966784E-03	-0.15891260E-04	-1.5107490	-0.10111734E-03	0.19956713E-01	-0.13877027E-05
2155	0.19522249E-03	-0.23308842E-04	-1.5103783	-0.14502013E-03	0.19935928E-01	-0.20866858E-05
2156	0.24991210E-04	-0.96615352E-04	-1.5786743	-0.22854579E-03	0.19634344E-01	-0.79419937E-05
2157	-0.39386389E-04	0.33365222E-04	-1.2802820	-0.11221396E-03	0.19621702E-01	-0.50346258E-05
2158	-0.28399202E-04	0.77258926E-05	-1.3548566	-0.13848109E-03	0.19628034E-01	-0.60917522E-05
2159	-0.14195175E-04	-0.23145995E-04	-1.4294524	-0.16708163E-03	0.19632711E-01	-0.69652156E-05
2160	0.35334438E-05	-0.58350361E-04	-1.5040616	-0.19741648E-03	0.19635057E-01	-0.75996459E-05
2161	0.19570500E-03	-0.55133863E-04	-1.5847081	-0.26108042E-03	0.19887736E-01	-0.35444568E-05
2162	0.17888927E-03	-0.66709418E-04	-1.5835001	-0.28784226E-03	0.19830680E-01	-0.41390042E-05
2163	0.15549015E-03	-0.76501765E-04	-1.5822196	-0.29458061E-03	0.19774165E-01	-0.48322926E-05
2164	0.12378525E-03	-0.84662090E-04	-1.5809473	-0.28456889E-03	0.19721362E-01	-0.56606025E-05
2165	0.81410448E-04	-0.91336576E-04	-1.5797489	-0.26139653E-03	0.19674261E-01	-0.66742024E-05
2166	0.11333514E-03	0.57192075E-05	-1.2827627	-0.12301152E-03	0.19772909E-01	-0.24386971E-05
2167	0.94088094E-04	0.93204943E-05	-1.2822664	-0.13219062E-03	0.19742302E-01	-0.28889850E-05
2168	0.70024151E-04	0.14018528E-04	-1.2817478	-0.13461155E-03	0.19710451E-01	-0.33554521E-05
2169	0.40418432E-04	0.19762447E-04	-1.2812315	-0.13111810E-03	0.19678865E-01	-0.38557832E-05
2170	0.43380357E-05	0.26350120E-04	-1.2807381	-0.12305377E-03	0.19648885E-01	-0.44089486E-05
2171	0.13434644E-03	-0.78449082E-05	-1.3580464	-0.15167528E-03	0.19804788E-01	-0.27782842E-05
2172	0.11502853E-03	-0.70794900E-05	-1.3574116	-0.16450335E-03	0.19768566E-01	-0.33032008E-05
2173	0.90276427E-04	-0.50468745E-05	-1.3567437	-0.16824858E-03	0.19731003E-01	-0.38712702E-05
2174	0.59082227E-04	-0.17617887E-05	-1.3560772	-0.16398697E-03	0.19694007E-01	-0.45069842E-05
2175	0.20104641E-04	0.26188986E-05	-1.3554411	-0.15336270E-03	0.19659209E-01	-0.52374411E-05
2176	0.15529836E-03	-0.22762312E-04	-1.4334691	-0.18402792E-03	0.19835740E-01	-0.30873398E-05
2177	0.13633089E-03	-0.25554030E-04	-1.4326713	-0.20112857E-03	0.19793283E-01	-0.36628534E-05
2178	0.11142654E-03	-0.26931150E-04	-1.4318279	-0.20623047E-03	0.19749616E-01	-0.43054694E-05
2179	0.79300936E-04	-0.26882119E-04	-1.4309856	-0.20080590E-03	0.19707086E-01	-0.50456219E-05
2180	0.38206769E-04	-0.25521692E-04	-1.4301838	-0.18692989E-03	0.19667585E-01	-0.59187797E-05
2181	0.17585398E-03	-0.38622616E-04	-1.5090267	-0.22045577E-03	0.19864120E-01	-0.33478784E-05
2182	0.15769751E-03	-0.45593621E-04	-1.5080389	-0.24229287E-03	0.19814737E-01	-0.39467669E-05
2183	0.13322995E-03	-0.50993020E-04	-1.5069918	-0.24850989E-03	0.19764681E-01	-0.46321134E-05
2184	0.10092086E-03	-0.54838522E-04	-1.5059474	-0.24126196E-03	0.19716750E-01	-0.54386475E-05
2185	0.58656879E-04	-0.57220389E-04	-1.5049575	-0.22325222E-03	0.19672995E-01	-0.64100629E-05
2191	-0.38133973E-04	-0.10009250E-03	-1.5778785	-0.19511655E-03	0.19606812E-01	-0.97877915E-05
2192	-0.90399459E-04	0.39929648E-04	-1.2798823	-0.10116125E-03	0.19599080E-01	-0.57904373E-05
2193	-0.84566576E-04	0.12622070E-04	-1.3543666	-0.12287325E-03	0.19603256E-01	-0.71738086E-05
2194	-0.74308211E-04	-0.20528939E-04	-1.4288646	-0.14616988E-03	0.19606246E-01	-0.83535305E-05
2195	-0.58983612E-04	-0.58562875E-04	-1.5033710	-0.17050950E-03	0.19607594E-01	-0.92506087E-05
2204	0.22705722E-03	-0.61391579E-04	-1.6830133	-0.27315381E-03	0.19958539E-01	-0.31406284E-05
2205	0.24542470E-03	-0.86044565E-04	-1.7803092	-0.35108259E-03	0.19952107E-01	-0.31894118E-05
2206	0.26470708E-03	-0.12030611E-03	-1.8774770	-0.44965085E-03	0.19901655E-01	-0.32016986E-05
2207	0.22932495E-03	-0.14803072E-04	-1.6542630	-0.73910722E-04	0.20035750E-01	-0.83069223E-06
2208	0.23889775E-03	-0.19524319E-04	-1.7216475	-0.90811603E-04	0.20060252E-01	-0.86363874E-06
2209	0.24493436E-03	-0.26283053E-04	-1.7890865	-0.11400809E-03	0.20079733E-01	-0.86655944E-06

FILENAME : PIT5F3.PO DATE : 05-25-94 TIME : 10:28a PAGE 5
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 24/25)

2210	0.22895865E-03	-0.29863809E-04	-1.6604215	-0.14572180E-03	0.20019602E-01	-0.16392956E-05
2211	0.24015789E-03	-0.40005971E-04	-1.7342550	-0.18147133E-03	0.20039462E-01	-0.16990611E-05
2212	0.24822208E-03	-0.54740118E-04	-1.8081228	-0.23073575E-03	0.20048544E-01	-0.17164875E-05
2213	0.22824109E-03	-0.45354209E-04	-1.6701774	-0.21303431E-03	0.19993381E-01	-0.24110075E-05
2214	0.24232623E-03	-0.62134543E-04	-1.7541985	-0.26999173E-03	0.20003666E-01	-0.24794093E-05
2215	0.25461742E-03	-0.86256953E-04	-1.8382562	-0.34717065E-03	0.19990481E-01	-0.25187694E-05
2216	0.18856828E-03	-0.27336121E-03	-1.9610407	-0.34975575E-03	0.19564182E-01	-0.58946940E-05
2217	0.57980658E-04	-0.14738925E-03	-1.6743768	-0.26790636E-03	0.19627766E-01	-0.79048606E-05
2218	0.96895799E-04	-0.19652209E-03	-1.7700296	-0.30367825E-03	0.19613821E-01	-0.75039827E-05
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TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 24/25)

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2389	0.53254000E-03	-0.25270833E-03	-2.8161752	-0.74870368E-04	0.19447350E-01	-0.40818699E-05
2390	0.64514894E-03	-0.17888134E-03	-2.8909874	-0.56690822E-04	0.19368142E-01	-0.57278519E-05
2391	0.61855688E-03	-0.20625321E-03	-2.8907621	-0.59408568E-04	0.19393833E-01	-0.57602724E-05
2392	0.59305181E-03	-0.22973568E-03	-2.8905328	-0.58812855E-04	0.19419774E-01	-0.55487012E-05
2393	0.56988500E-03	-0.25033990E-03	-2.8903110	-0.55673356E-04	0.19444416E-01	-0.52341002E-05
2394	0.54938284E-03	-0.26946565E-03	-2.8901044	-0.51103538E-04	0.19466408E-01	-0.49670775E-05
2401	0.47794296E-03	-0.27403673E-03	-2.6675762	-0.10040818E-03	0.19478552E-01	-0.12530802E-05
2402	0.49020828E-03	-0.27992722E-03	-2.7416078	-0.76747971E-04	0.19485290E-01	-0.25935690E-05
2403	0.50157807E-03	-0.29200703E-03	-2.8156658	-0.57542767E-04	0.19492285E-01	-0.38180115E-05
2404	0.51312524E-03	-0.30852520E-03	-2.8897482	-0.43661840E-04	0.19497828E-01	-0.48748122E-05

MAXIMUMS

NODE	56	44	56	71	77	28
VALUE	0.75157802E-03	-0.34959930E-03	-2.9650700	-0.63471799E-03	0.20111172E-01	-0.12313946E-04

FILENAME : PIT5F4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 25/25)

PAGE 1

C*** Output For Factored Heel Jet Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

1188 NODES (OF 1188 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
ED WORK.
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FOR SUPPORT CALL PHONE TWX

TITLE 10.4785 MAY 25,1994 CP= 108.200

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 4

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.91844938E-05	-534.51800		-1127.4046		1201.2632
56		2857.0188		-1010.9290		-2623.0522
57		2373.1648		4851.6303		0.77508557E-02
58		2042.0771		13769.596		0.56922254E-02
59		1863.1792		25251.920		0.42659021E-02
60		1789.7310		39619.277		0.32935012E-02
61		1668.0293		52992.738		0.25262012E-02
62		1604.9198		65071.172		0.20522766E-02
63		1734.8470		84821.977		0.18932423E-02
64		1941.1981		109979.46		0.17748366E-02
65		1056.4782		75406.418		0.85968079E-03
77		955.59943		86910.764		0.12685771E-02
78		1551.9821		126497.50		0.25665857E-02
79		1184.1655		100519.29		0.25693016E-02
80		930.91008		81034.385		0.24689829E-02
81		782.98296		71053.507		0.24978996E-02
82		628.79391		60145.698		0.25523740E-02
83		435.20930		46778.197		0.24470186E-02
84		268.20429		35976.953		0.23219767E-02
85		126.09356		27194.906		0.21800915E-02
86		7.1532448		20563.844		0.20616127E-02
87		-92.901741		14702.391		0.19125281E-02
88		-171.26765		9664.0897		0.17315661E-02
89		-225.12780		5760.9663		0.16181738E-02
90		-260.34295		2825.8073		0.15933749E-02
91		-283.60610		712.56323		0.16780459E-02
92		-303.34127		-705.64642		0.18917800E-02
93		-329.33205		-1539.8684		0.22507552E-02
94		-371.86481		-1886.0097		0.27642543E-02
101		-601.13275		-0.85604060E-03		2763.6377
156		1930.7546		0.43546555E-01		-11671.677
201		-597.23334		-0.79553715E-03		2844.9771
256		680.26940		0.36804408E-01		-14461.574
301		-612.22406		-0.67415563E-03		2774.8654
356		-450.68289		0.32530567E-01		-17420.839
401		-595.73300		-0.46593707E-03		2173.5764
456		-1342.4283		0.26234165E-01		-17248.337
501		-603.05822		-0.29137479E-03		1532.8310
556		-1948.3709		0.21336365E-01		-16590.755
601		-618.67729		-0.16472833E-03		889.29807
656		-2361.8789		0.17489390E-01		-15738.935
701		-629.75735		-0.87184052E-04		268.26612
756		-2648.5252		0.14466867E-01		-14872.309
801		-626.88261		-0.52536028E-04		-311.67851
856		-2864.4670		0.12122542E-01		-14103.573
901		-524.55548		-0.43255889E-04		-611.63614
956		-2530.0502		0.87548484E-02		-9191.9758
1001		-424.35689		-0.53455173E-04		-494.52752

FILENAME : PIT5P4.PO DATE : 05-25-94 TIME : 10:28a
TITLE : C-106 Heel Pit Heel Jet Adaptor Ring Post Processing Output (Part 25/25)

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1056	-2034.7969	0.58316914E-02	-4549.3284
1101	-399.39927	-0.78081833E-04	-703.63613
1156	-2013.4799	0.48420155E-02	-4208.4534
1201	-360.81736	-0.10138701E-03	-893.76651
1256	-2051.5493	0.41520588E-02	-3925.2122
1301	-311.06515	-0.11766165E-03	-1058.8982
1356	-2193.7307	0.37446873E-02	-3721.6216
1401	-137.01841	-0.61733842E-04	-623.09098
1456	-1181.5879	0.18049918E-02	-1797.1896
TOTAL	0.91844938E-05	-4824.0000	0.00000000E+00
		1155867.4	0.00000000E+00
			-142373.28

***** ROUTINE COMPLETED ***** CP = 109.630

/EOF ENCOUNTERED ON FILE18

***** RUN COMPLETED ***** CP= 110.2900 TIME= 10.4791

ATTACHMENT 3
HEEL PIT SASSI SEISMIC SPECTRA

Prepared by: SB KOK Date: 6/17/94

Checked by: 4P Day Date: 6/17/94

The finite element program SASSI was used to perform soil-structure interaction (SSI) analysis of the tank, the Heel Pit, and the Pump / Sluicing Pit. Details of the SASSI model will be provided in the C-106 seismic evaluation SD (not yet issued).

For the Heel Pit, the SASSI computed response spectra associated with node 728 have been requested and these spectra are included on the following pages. The presented spectra identify the ZPA for all the three directions; horizontal X and Y, and vertical Z.

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO. 728 IN THE X-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.454 AT FRQ= 4.243

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9266E-01	0.1195E+00	0.1230E+00	0.1524E+00	0.1663E+00	0.1814E+00	0.2028E+00	0.2287E+00	0.2529E+00	0.2878E+00
1.3028	1	0.3509E+00	0.3622E+00	0.4376E+00	0.4345E+00	0.3903E+00	0.4339E+00	0.4317E+00	0.4074E+00	0.3807E+00	0.4242E+00
4.2433	1	0.4535E+00	0.3979E+00	0.4023E+00	0.4138E+00	0.4260E+00	0.4305E+00	0.4097E+00	0.3943E+00	0.3750E+00	0.3080E+00
13.8204	1	0.2754E+00	0.2486E+00	0.2354E+00	0.2279E+00	0.2227E+00	0.2190E+00	0.2163E+00	0.2142E+00	0.2127E+00	0.2114E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO. 728 IN THE Y-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.454 AT FRQ= 4.243

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9266E-01	0.1195E+00	0.1230E+00	0.1524E+00	0.1663E+00	0.1814E+00	0.2028E+00	0.2287E+00	0.2530E+00	0.2878E+00
1.3028	1	0.3509E+00	0.3623E+00	0.4377E+00	0.4346E+00	0.3904E+00	0.4340E+00	0.4319E+00	0.4076E+00	0.3809E+00	0.4244E+00
4.2433	1	0.4537E+00	0.3983E+00	0.4026E+00	0.4143E+00	0.4266E+00	0.4313E+00	0.4108E+00	0.3954E+00	0.3766E+00	0.3094E+00
13.8204	1	0.2760E+00	0.2491E+00	0.2358E+00	0.2282E+00	0.2230E+00	0.2193E+00	0.2166E+00	0.2145E+00	0.2130E+00	0.2117E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO. 728 IN THE Z-DIRECTION
CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.817 AT FRQ=10.913

CYCLES PER SEC.

*

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.6199E-01	0.8004E-01	0.8252E-01	0.1019E+00	0.1110E+00	0.1217E+00	0.1357E+00	0.1527E+00	0.1713E+00	0.1943E+00
1.3028	1	0.2377E+00	0.2437E+00	0.2999E+00	0.2965E+00	0.2687E+00	0.3024E+00	0.3064E+00	0.2903E+00	0.2738E+00	0.3055E+00
4.2433	1	0.3331E+00	0.3164E+00	0.3106E+00	0.3345E+00	0.4039E+00	0.4406E+00	0.5028E+00	0.6395E+00	0.8173E+00	0.7651E+00
13.8204	1	0.5088E+00	0.3858E+00	0.3253E+00	0.2904E+00	0.2683E+00	0.2535E+00	0.2431E+00	0.2355E+00	0.2298E+00	0.2254E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ATTACHMENT 4

ANSYS MODEL SUPPORTING THE CALCULATION OF M_v

Prepared by: SB/Ko/L Date: 6/17/94

Checked by: JP Day Date: 6/17/94

Rotation of the Adaptor Ring about its vertical axis is resisted primarily through bearing of the attached 2 in. pipe(s) against the fill concrete. Because the fill concrete is unreinforced and thus has reduced allowables, concrete bearing stress controls the value of M_v (moment about the vertical axis) for the Adaptor Ring.

An ANSYS model (ANSYS Version 4.4a) was used to calculate the response of a beam on an elastic foundation with one end subjected to a transverse displacement. The modelled beam represents a 2 in. pipe welded to the Adaptor Ring and the elastic foundation simulates the surrounding fill concrete. The prescribed translation at the end of the beam mimics the $R \times \theta$ component of displacement of the 2 in. pipe when the Adaptor Ring (radius = R) rotates an angle θ about its vertical axis. The rotation of the end of the pipe which accompanies the translation is secondary to the pipe response and is neglected. The magnitude of the imposed translation in the analysis (0.1 in.) is arbitrary since the computed response is scaled such that the maximum computed bearing stress is equal to the plain concrete bearing stress allowable.

24 beam elements (STIF44) with properties of a 2 in. Schedule 40 x 10 in. long steel pipe are used in the model. To facilitate uniformity of elastic foundation load over the length of the controlling beam element, 10 elements are used over the first 0.1 in. of pipe length. The elastic foundation stiffness (EFS) is computed as the coefficient of subgrade reaction K_h , recognizing the similarity of the pipe to a pile moving laterally against soil (Ref: "Vibrations of Soils and Foundations," F.E. Richart et. al., 1970):

$$EFS = K_h = 4G/d$$

where G = shear modulus of the fill concrete = $E/[2(1-\nu)]$

E = Young's modulus = $57,000\sqrt{f'_c}$ = $57,000\sqrt{3000}$

ν = Poisson's ratio of the fill concrete = 0.15

d = diameter of pile (pipe) = 2.375 in.

The ANSYS PREP7 input (fine.ans) , PREP7 output (mvp7.out), and analysis output (mv.out) are provided at the end this attachment. The response of the controlling element (Element 1) is used in calculating M_v as demonstrated on the following page.

The average bearing stress along Element 1 is the difference in the two nodal forces divided by the bearing area:

$$f_{\text{bearing}} = (543,025 - 537,610)/(2.375 \cdot 0.01) = 228,000 \text{ psi}$$

The allowable bearing stress in plain concrete (Ref: ACI 318.1-89) is $0.65(0.85)\sqrt{3000} = 30.26 \text{ psi}$; therefore, the computed response of Element 1 is reduced by the ratio $30.26/228,000$. The contribution of one pipe to the allowable moment about the vertical axis of the Adaptor Ring is as follows (Figure 1):

$$(M_V)_{\text{one pipe}} = (30.26/228,000) \cdot [FZ_1(R_{A.R.}) + MY_1]$$

where FZ_1 = computed force on Element 1 at Node 1 = 543,025 lbs
 MY_1 = computed moment on Element 1 at Node 1
 = 383,159 in-lbs
 $R_{A.R.}$ = outside radius of Adaptor Ring

Node 1 is taken to be the point of attachment of the pipe to the Adaptor Ring.

FIGURE 1

FILENAME : fine.ans DATE : 06-01-94
TITLE : Model for Mv capacity of risers

TIME : 1:48p

PAGE 1

/out,mvp7,out
/title,cantilever on an elastic foundation
/prep7

kan,0

et,1.44,,,,,3,1

ex,1.29.e6
dens,1,.0004
nuxy,1,.30

x,1,1.075,.6657,.6657,1.188,1.188,,
xmore,1.075,.6657,.6657,1.188,1.188,,
xmore,,,,,,
xmore,2,2,1.188,1.188,1.188,1.188
xmore,.54,.54,.54,.54,.89,.89
xmore,,,,,2.29e6*2.375,2.29e6*2.375

n,1,0,0,0
n,11,.1,0,0
fill,1,11
n,25,0,0,0
fill,11,25
n,26,0,1,0

TYPE,1 \$real,1 \$mat,1
E,1,2,26
RP24,1,1,0

D,1,UY,-.1
D,1,UX,0,,,,UZ,ROTX,ROTY,ROTZ

ITER,1,1,1
lwrite
afwrite
fini
/out

FILENAME : mvp7.out DATE : 06-01-94
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

TIME : 1:49p

PAGE 1

NEW TITLE= cantilever on an elastic foundation

*** ANSYS REV 4.4 A 1 38280-PC/L1-4.4A CP= 16.970 ***
FOR SUPPORT CALL PHONE TWX

TITLE

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

ENTER RESUME TO RESUME EXISTING MODEL
ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE PREP7
PRINTOUT KEY SET TO /GOPR (USE /NOPR TO SUPPRESS)

ANALYSIS TYPE= 0 (STATIC ANALYSIS)

ELEMENT TYPE 1 USES STIF 44
KEYOPT(1-9)= 0 0 0 0 3 1 0 0 0
INOPR= 0 NUMBER OF NODES= 3

TAPERED UNSYM. BEAM, 3-D

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 0.2900000E+08

PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.29000E+08 9999.0 0.29000E+08

MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.4000000E-03

PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.40000E-03 9999.0 0.40000E-03

MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.3000000

PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.30000 9999.0 0.30000

REAL CONSTANT SET 1 ITEMS 1 TO 6
1.0750 0.66570 0.66570 1.1880 1.1880 0.00000E+00

REAL CONSTANT SET 1 ITEMS 7 TO 12
1.0750 0.66570 0.66570 1.1880 1.1880 0.00000E+00

REAL CONSTANT SET 1 ITEMS 13 TO 18
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 1 ITEMS 19 TO 24
2.0000 2.0000 1.1880 1.1880 1.1880 1.1880

REAL CONSTANT SET 1 ITEMS 25 TO 30
0.54000 0.54000 0.54000 0.54000 0.89000 0.89000

REAL CONSTANT SET 1 ITEMS 31 TO 36
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.54367E+07 0.54367E+07

NODE 1 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

NODE 11 KCS= 0 X,Y,Z= 0.10000 0.00000E+00 0.00000E+00

```

FILENAME : mvp7.out          DATE : 06-01-94          TIME : 1:49p          PAGE  2
TITLE    : fine.ans prep7 output (Mv capacity for adaptor rings)

FILL     9 POINTS BETWEEN NODE      1 AND NODE      11
START WITH NODE      2 AND INCREMENT BY      1

NODE     25 KCS= 0 X,Y,Z= 10.000      0.00000E+00 0.00000E+00

FILL    13 POINTS BETWEEN NODE      11 AND NODE      25
START WITH NODE      12 AND INCREMENT BY      1

NODE     26 KCS= 0 X,Y,Z= 0.00000E+00 1.0000      0.00000E+00

ELEMENT TYPE SET TO 1

REAL CONSTANT NUMBER= 1

MATERIAL NUMBER SET TO 1
ELEMENT   1      1      2      26
ELEMENT   2      2      3      26
ELEMENT   3      3      4      26
ELEMENT   4      4      5      26
ELEMENT   5      5      6      26
ELEMENT   6      6      7      26
ELEMENT   7      7      8      26
ELEMENT   8      8      9      26
ELEMENT   9      9     10      26
ELEMENT  10     10     11      26
ELEMENT  11     11     12      26
ELEMENT  12     12     13      26
ELEMENT  13     13     14      26
ELEMENT  14     14     15      26
ELEMENT  15     15     16      26
ELEMENT  16     16     17      26
ELEMENT  17     17     18      26
ELEMENT  18     18     19      26
ELEMENT  19     19     20      26
ELEMENT  20     20     21      26
ELEMENT  21     21     22      26
ELEMENT  22     22     23      26
ELEMENT  23     23     24      26
ELEMENT  24     24     25      26

SPECIFIED DISP UX FOR SELECTED NODES IN RANGE 1 TO 1 BY 1
VALUES=-0.10000      0.00000E+00 ADDITIONAL DOFS=

SPECIFIED DISP UY FOR SELECTED NODES IN RANGE 1 TO 1 BY 1
VALUES= 0.00000E+00 0.00000E+00 ADDITIONAL DOFS= UZ ROTX ROTY ROTZ

NITR= 1 NPRINT= 1 NPOST= 1

ALL PRINT CONTROLS RESET TO 1
ALL POST DATA FILE CONTROLS RESET TO 1

LOAD STEP 1 WRITTEN ON FILE23

*** NOTE ***
NO TITLE DEFINED FOR ANALYSIS

*** NOTE ***
DATA CHECKED - NO ERRORS FOUND

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= TITLE
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 1
24 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 24
26 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 26
MAXIMUM LINEAR PROPERTY NUMBER= 1
MAXIMUM REAL CONSTANT SET NUMBER= 1

```

FILENAME : mvp7.out DATE : 06-01-94
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

TIME : 1:49p

PAGE 3

ACTIVE COORDINATE SYSTEM= 0 (CARTESIAN)
NUMBER OF IMPOSED DISPLACEMENTS= 6

ANALYSIS DATA WRITTEN ON FILE27

ENTER FINISH TO LEAVE PREP7

IF YOU WANT TO RUN THIS ANALYSIS, ENTER AFTER PREP7 FINISH -
/CHECK * (OPTIONAL) ENTER ONLY IF CHECK RUN IS DESIRED
/INPUT.27

THEN ENTER FINISH AT LOPT-INP PROMPT AT END OF ANALYSIS

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 19.820

SYSTEM= 38280-PC/L1-4.4A REVISION= 4.4 A 1
FOR SUPPORT CALL PHONE TWX
CURRENT JOBNAME=FILE

FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (Mv capacity for Adapter Rings)

TIME : 1:50p

PAGE 1

***** INPUT SWITCHED FROM FILE05 TO FILE27 NAME=FILE27.DAT

NEW TITL= TITLE

OPTION AND TYPE PRINTOUT SUPPRESSED

NUMBER OF ELEMENT TYPES= 1

REAL CONSTANT PRINTOUT SUPPRESSED

NUMBER OF REAL CONSTANT SETS= 1

ELEMENT PRINTOUT SUPPRESSED

SWITCHED TO FIXED FORMAT INPUT

MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 1125212

NUMBER OF ELEMENTS = 24 MAXIMUM NODE NUMBER USED = 26

NODE PRINTOUT SUPPRESSED

SWITCHED TO FIXED FORMAT INPUT

XMIN= 0.0000E+00 XMAX= 10.00 YMIN= 0.0000E+00 YMAX= 1.000 ZMIN= 0.0000E+00 ZMAX= 0.0000E+00
MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 375070

PROPERTY PRINTOUT SUPPRESSED

MAXIMUM MATERIAL NUMBER= 1

M.D.O.F. PRINTOUT SUPPRESSED

NUMBER OF SPECIFIED MASTER D.O.F.= 0
TOTAL NUMBER OF MASTER D.O.F. = 0

DISPLACEMENT B.C. PRINTOUT SUPPRESSED

FORCE B.C. PRINTOUT SUPPRESSED

PRESSURE PRINTOUT SUPPRESSED

***** LOAD SUMMARY - 6 DISPLACEMENTS 0 FORCES 0 PRESSURES *****

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 0.43000E-02

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 5.0000	IXX = 0.0000E+00	IXX = 0.0000E+00
YC = 0.00000E+00	IYY = 0.1432	IYY = 0.3566E-01
ZC = 0.00000E+00	IZZ = 0.1432	IZZ = 0.3566E-01
	IXY = 0.0000E+00	IXY = 0.0000E+00
	IYZ = 0.0000E+00	IYZ = 0.0000E+00
	IZX = 0.0000E+00	IZX = 0.0000E+00

*** MASS SUMMARY BY ELEMENT TYPE ***

FILENAME : mv.out DATE : 06-01-94
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TYPE MASS
1 0.430000E-02

RANGE OF ELEMENT MAXIMUM STIFFNESS IN GLOBAL COORDINATES

MAXIMUM= 0.311750E+10 AT ELEMENT 10.
MINIMUM= 0.440859E+08 AT ELEMENT 22.

*** ELEMENT STIFFNESS FORMULATION TIMES
TYPE NUMBER STIF TOTAL CP AVE CP
1 24 44 0.380 0.016

TIME AT END OF ELEMENT STIFFNESS FORMULATION CP= 30.640

MAXIMUM IN-CORE WAVE FRONT ALLOWED FOR REQUESTED MEMORY SIZE= 1498.

MAXIMUM IN-CORE WAVE FRONT= 14.

MATRIX SOLUTION TIMES
READ IN ELEMENT STIFFNESSES CP= 0.270

NODAL COORD. TRANSFORMATION CP= 0.000
MATRIX TRIANGULARIZATION CP= 0.230

TIME AT END OF MATRIX TRIANGULARIZATION CP= 31.580
EQUATION SOLVER MAXIMUM PIVOT= 0.62350E+10 AT NODE 2. UX
EQUATION SOLVER MINIMUM PIVOT= 0.14850E+07 AT NODE 25. ROTX

TIME AT START OF BACK SUBSTITUTION CP= 31.630 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

***** DISPLACEMENT SOLUTION *****				TIME =	LOAD STEP=	1	ITERATION=	1	CUM. ITER.=	1
NODE	UX	UY	UZ	ROTX	ROTY	ROTZ				
1	0.000000E+00	-0.100000	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00				
2	0.000000E+00	-0.990978E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.197072E-03				
3	0.000000E+00	-0.982026E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.391359E-03				
4	0.000000E+00	-0.973144E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.582888E-03				
5	0.000000E+00	-0.964331E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.771689E-03				
6	0.000000E+00	-0.955587E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.957787E-03				
7	0.000000E+00	-0.946911E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.114121E-02				
8	0.000000E+00	-0.938302E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.132198E-02				
9	0.000000E+00	-0.929761E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.150014E-02				
10	0.000000E+00	-0.921287E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.167570E-02				
11	0.000000E+00	-0.912879E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.184868E-02				
12	0.000000E+00	-0.472114E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.900413E-02				
13	0.000000E+00	-0.231638E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.101409E-01				
14	0.000000E+00	-0.104753E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.887605E-02				
15	0.000000E+00	-0.407153E-02	0.000000E+00	0.000000E+00	0.000000E+00	0.693881E-02				
16	0.000000E+00	-0.104306E-02	0.000000E+00	0.000000E+00	0.000000E+00	0.507717E-02				
17	0.000000E+00	0.240387E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.355430E-02				
18	0.000000E+00	0.668105E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.241168E-02				
19	0.000000E+00	0.709640E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.160279E-02				
20	0.000000E+00	0.603150E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.105695E-02				
21	0.000000E+00	0.464091E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.706764E-03				
22	0.000000E+00	0.347400E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.497423E-03				
23	0.000000E+00	0.282720E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.387254E-03				
24	0.000000E+00	0.302524E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.343834E-03				
25	0.000000E+00	0.450736E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.337036E-03				

MAXIMUMS

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NODE	0	1	0	0	0	13
VALUE	0.000000E+00	-0.100000	0.000000E+00	0.000000E+00	0.000000E+00	0.101409E-01

***** ELEMENT STRESSES ***** TIME = 0.000000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

EL= 1 NODES= 1 2 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE

AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.000000E+00	0.000000E+00	0.000000E+00	0.68378E+06	-0.68378E+06	0.68378E+06	-0.68378E+06	0.68378E+06	-0.68378E+06
J	0.000000E+00	0.000000E+00	0.000000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.000000E+00	-0.10056E+07	0.000000E+00	0.68378E+06	-0.68378E+06	0.68378E+06	-0.68378E+06		
J	0.000000E+00	0.99557E+06	0.000000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06		
FORCES ON MEMBER AT NODE									

EL= 2 NODES= 2 3 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE

AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.000000E+00	0.000000E+00	0.000000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06
J	0.000000E+00	0.000000E+00	0.000000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.000000E+00	-0.99557E+06	0.000000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06		
J	0.000000E+00	0.98564E+06	0.000000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06		
FORCES ON MEMBER AT NODE									

EL= 3 NODES= 3 4 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE

AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.000000E+00	0.000000E+00	0.000000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06
J	0.000000E+00	0.000000E+00	0.000000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.000000E+00	-0.98564E+06	0.000000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06		
J	0.000000E+00	0.97579E+06	0.000000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06		
FORCES ON MEMBER AT NODE									

EL= 4 NODES= 4 5 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE

AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.000000E+00	0.000000E+00	0.000000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06
J	0.000000E+00	0.000000E+00	0.000000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.000000E+00	-0.97579E+06	0.000000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06		
J	0.000000E+00	0.96604E+06	0.000000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06		
FORCES ON MEMBER AT NODE									

EL= 5 NODES= 5 6 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE

AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.000000E+00	0.000000E+00	0.000000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06
J	0.000000E+00	0.000000E+00	0.000000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.000000E+00	-0.96604E+06	0.000000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06		
J	0.000000E+00	0.95637E+06	0.000000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06		
FORCES ON MEMBER AT NODE									

EL= 6 NODES= 6 7 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE

AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.000000E+00	0.000000E+00	0.000000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06
J	0.000000E+00	0.000000E+00	0.000000E+00	0.62735E+06	-0.62735E+06	0.62735E+06	-0.62735E+06	0.62735E+06	-0.62735E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.000000E+00	-0.95637E+06	0.000000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06		
J	0.000000E+00	0.94679E+06	0.000000E+00	0.62735E+06	-0.62735E+06	0.62735E+06	-0.62735E+06		
FORCES ON MEMBER AT NODE									

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EL=      7  NODES=      7      8  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.94679E+06  0.00000E+00  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06
J      0.00000E+00  0.93729E+06  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
FORCES ON MEMBER AT NODE      7  0.000000E+00  0.000000E+00 -511265.      0.000000E+00  351539.      0.000000E+00
                                8  0.000000E+00  0.000000E+00  506138.      0.000000E+00 -346452.      0.000000E+00

EL=      8  NODES=      8      9  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.93729E+06  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
J      0.00000E+00  0.92789E+06  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
FORCES ON MEMBER AT NODE      8  0.000000E+00  0.000000E+00 -506138.      0.000000E+00  346452.      0.000000E+00
                                9  0.000000E+00  0.000000E+00  501058.      0.000000E+00 -341416.      0.000000E+00

EL=      9  NODES=      9     10  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.92789E+06  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
J      0.00000E+00  0.91856E+06  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
FORCES ON MEMBER AT NODE      9  0.000000E+00  0.000000E+00 -501058.      0.000000E+00  341416.      0.000000E+00
                                10 0.000000E+00  0.000000E+00  496025.      0.000000E+00 -336431.      0.000000E+00

EL=     10  NODES=     10     11  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.91856E+06  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
J      0.00000E+00  0.90933E+06  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
FORCES ON MEMBER AT NODE     10 0.000000E+00  0.000000E+00 -496025.      0.000000E+00  336431.      0.000000E+00
                                11 0.000000E+00  0.000000E+00  491037.      0.000000E+00 -331495.      0.000000E+00

EL=     11  NODES=     11     12  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.90933E+06  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
J      0.00000E+00  0.41312E+06  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
FORCES ON MEMBER AT NODE     11 0.000000E+00  0.000000E+00 -491037.      0.000000E+00  331495.      0.000000E+00
                                12 0.000000E+00  0.000000E+00  223083.      0.000000E+00 -90816.4      0.000000E+00

EL=     12  NODES=     12     13  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
J      0.00000E+00  0.00000E+00  0.00000E+00 -22774.      22774.      -22774.      22774.      -22774.      22774.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.41312E+06  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
J      0.00000E+00  0.16203E+06  0.00000E+00 -22774.      22774.      -22774.      22774.
FORCES ON MEMBER AT NODE     12 0.000000E+00  0.000000E+00 -223083.      0.000000E+00  90816.4      0.000000E+00
                                13 0.000000E+00  0.000000E+00  87494.7      0.000000E+00  12761.7      0.000000E+00

EL=     13  NODES=     13     14  MAT=  1  TCENT, TTOPZ, TBOTY=      0.0      0.0      0.0                                3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8

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TITLE    : fina.ans output (Mv capacity for Adapter Rings)

      I  0.00000E+00  0.00000E+00  0.00000E+00 -22774.    22774.    -22774.    22774.    -22774.    22774.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -86939.    86939.    -86939.    86939.    -86939.    86939.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00 -0.16203E+06  0.00000E+00 -22774.    22774.    -22774.    22774.
      J  0.00000E+00  42766.    0.00000E+00 -86939.    86939.    -86939.    86939.
FORCES ON MEMBER AT NODE 13 0.000000E+00 0.000000E+00 -87494.7 0.000000E+00 -12761.7 0.000000E+00
                        14 0.000000E+00 0.000000E+00 23093.8 0.000000E+00 48716.5 0.000000E+00

EL= 14 NODES= 14 15 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00 -86939.    86939.    -86939.    86939.    -86939.    86939.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -96053.    96053.    -96053.    96053.    -96053.    96053.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00 -42766.    0.00000E+00 -86939.    86939.    -86939.    86939.
      J  0.00000E+00 -8223.2 0.00000E+00 -96053.    96053.    -96053.    96053.
FORCES ON MEMBER AT NODE 14 0.000000E+00 0.000000E+00 -23093.8 0.000000E+00 -48716.5 0.000000E+00
                        15 0.000000E+00 0.000000E+00 -4440.52 0.000000E+00 53823.6 0.000000E+00

EL= 15 NODES= 15 16 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00 -96053.    96053.    -96053.    96053.    -96053.    96053.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -83383.    83383.    -83383.    83383.    -83383.    83383.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  8223.2 0.00000E+00 -96053.    96053.    -96053.    96053.
      J  0.00000E+00 -25655. 0.00000E+00 -83383.    83383.    -83383.    83383.
FORCES ON MEMBER AT NODE 15 0.000000E+00 0.000000E+00 4440.52 0.000000E+00 -53823.6 0.000000E+00
                        16 0.000000E+00 0.000000E+00 -13853.9 0.000000E+00 46724.2 0.000000E+00

EL= 16 NODES= 16 17 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00 -83383.    83383.    -83383.    83383.    -83383.    83383.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -64768.    64768.    -64768.    64768.    -64768.    64768.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  25655. 0.00000E+00 -83383.    83383.    -83383.    83383.
      J  0.00000E+00 -27875. 0.00000E+00 -64768.    64768.    -64768.    64768.
FORCES ON MEMBER AT NODE 16 0.000000E+00 0.000000E+00 13853.9 0.000000E+00 -46724.2 0.000000E+00
                        17 0.000000E+00 0.000000E+00 -15052.3 0.000000E+00 36293.0 0.000000E+00

EL= 17 NODES= 17 18 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00 -64768.    64768.    -64768.    64768.    -64768.    64768.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -47002.    47002.    -47002.    47002.    -47002.    47002.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  27875. 0.00000E+00 -64768.    64768.    -64768.    64768.
      J  0.00000E+00 -24160. 0.00000E+00 -47002.    47002.    -47002.    47002.
FORCES ON MEMBER AT NODE 17 0.000000E+00 0.000000E+00 15052.3 0.000000E+00 -36293.0 0.000000E+00
                        18 0.000000E+00 0.000000E+00 -13046.3 0.000000E+00 26337.5 0.000000E+00

EL= 18 NODES= 18 19 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00 -47002.    47002.    -47002.    47002.    -47002.    47002.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -32420.    32420.    -32420.    32420.    -32420.    32420.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  24160. 0.00000E+00 -47002.    47002.    -47002.    47002.
      J  0.00000E+00 -18914. 0.00000E+00 -32420.    32420.    -32420.    32420.
FORCES ON MEMBER AT NODE 18 0.000000E+00 0.000000E+00 13046.3 0.000000E+00 -26337.5 0.000000E+00
                        19 0.000000E+00 0.000000E+00 -10213.6 0.000000E+00 18166.5 0.000000E+00

EL= 19 NODES= 19 20 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00 -32420.    32420.    -32420.    32420.    -32420.    32420.
      J  0.00000E+00  0.00000E+00  0.00000E+00 -21329.    21329.    -21329.    21329.    -21329.    21329.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  18914. 0.00000E+00 -32420.    32420.    -32420.    32420.

```

FILENAME : mv.out DATE : 06-01-94 TIME : 1:50p PAGE 6
TITLE : fine.ans output (Mv capacity for Adapter Rings)

J	0.00000E+00	-14010.	0.00000E+00	-21329.	21329.	-21329.	21329.		
FORCES ON MEMBER AT NODE	19	0.000000E+00	0.000000E+00	0.000000E+00	10213.6	0.000000E+00	-18166.5	0.000000E+00	
	20	0.000000E+00	0.000000E+00	0.000000E+00	-7565.42	0.000000E+00	11951.9	0.000000E+00	

EL=	20	NODES=	20	21	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP B
AM	44											
END		SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-21329.	21329.	-21329.	21329.	-21329.	21329.			
J	0.00000E+00	0.00000E+00	0.00000E+00	-13245.	13245.	-13245.	13245.	-13245.	13245.			
END		SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	14010.	0.00000E+00	-21329.	21329.	-21329.	21329.					
J	0.00000E+00	-10063.	0.00000E+00	-13245.	13245.	-13245.	13245.					
FORCES ON MEMBER AT NODE	20	0.000000E+00	0.000000E+00	0.000000E+00	7565.42	0.000000E+00	-11951.9	0.000000E+00				
	21	0.000000E+00	0.000000E+00	0.000000E+00	-5433.77	0.000000E+00	7421.84	0.000000E+00				

EL=	21	NODES=	21	22	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP B
AM	44											
END		SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-13245.	13245.	-13245.	13245.	-13245.	13245.			
J	0.00000E+00	0.00000E+00	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4	-7493.4	7493.4			
END		SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	10063.	0.00000E+00	-13245.	13245.	-13245.	13245.					
J	0.00000E+00	-7084.9	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4					
FORCES ON MEMBER AT NODE	21	0.000000E+00	0.000000E+00	0.000000E+00	5433.77	0.000000E+00	-7421.84	0.000000E+00				
	22	0.000000E+00	0.000000E+00	0.000000E+00	-3825.84	0.000000E+00	4198.94	0.000000E+00				

EL=	22	NODES=	22	23	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP B
AM	44											
END		SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4	-7493.4	7493.4			
J	0.00000E+00	0.00000E+00	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1	-3503.1	3503.1			
END		SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	7084.9	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4					
J	0.00000E+00	-4792.2	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1					
FORCES ON MEMBER AT NODE	22	0.000000E+00	0.000000E+00	0.000000E+00	3825.84	0.000000E+00	-4198.94	0.000000E+00				
	23	0.000000E+00	0.000000E+00	0.000000E+00	-2587.23	0.000000E+00	1962.96	0.000000E+00				

EL=	23	NODES=	23	24	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP B
AM	44											
END		SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1	-3503.1	3503.1			
J	0.00000E+00	0.00000E+00	0.00000E+00	-967.41	967.41	-967.41	967.41	-967.41	967.41			
END		SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	4791.2	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1					
J	0.00000E+00	-2685.3	0.00000E+00	-967.41	967.41	-967.41	967.41					
FORCES ON MEMBER AT NODE	23	0.000000E+00	0.000000E+00	0.000000E+00	2587.23	0.000000E+00	-1962.96	0.000000E+00				
	24	0.000000E+00	0.000000E+00	0.000000E+00	-1450.05	0.000000E+00	542.093	0.000000E+00				

EL=	24	NODES=	24	25	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP B
AM	44											
END		SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-967.41	967.41	-967.41	967.41	-967.41	967.41			
J	0.00000E+00	0.00000E+00	0.00000E+00	-0.40577E-12	0.40577E-12	-0.40577E-12	0.40577E-12	-0.40577E-12	0.40577E-12			
END		SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	2685.3	0.00000E+00	-967.41	967.41	-967.41	967.41					
J	0.00000E+00	-0.15033E-11	0.00000E+00	-0.40577E-12	0.40577E-12	-0.40577E-12	0.40577E-12					
FORCES ON MEMBER AT NODE	24	0.000000E+00	0.000000E+00	0.000000E+00	1450.05	0.000000E+00	-542.093	0.000000E+00				
	25	0.000000E+00	0.000000E+00	0.000000E+00	-0.811795E-12	0.000000E+00	0.227374E-12	0.000000E+00				

***** REACTION FORCES ***** TIME = 0.00000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

NOTE - REACTION FORCES ARE IN THE NODAL COORDINATE SYSTEM.

NODE	FX	FY	FZ	MX	MY	MZ
1	0.000000E+00	-543025.	0.000000E+00	0.000000E+00	0.000000E+00	-383159.
TOTAL	0.000000E+00	-543025.	0.000000E+00	0.000000E+00	0.000000E+00	-383159.

FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (mv capacity for Adapter Rings)

TIME : 1:50p

PAGE 7

*** ELEM. STRESS CALC. TIMES
TYPE NUMBER STIF TOTAL CP AVE CP

1 24 44 0.978 0.040

*** MODAL FORCE CALC. TIMES
TYPE NUMBER STIF TOTAL CP AVE CP

1 24 44 0.000 0.000

*** LOAD STEP 1 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.=
1

*** STORAGE REQUIREMENT SUMMARY
MAXIMUM FIXED MEMORY USED = 1074
MAXIMUM TEMPORARY MEMORY USED= 936
MAXIMUM TOTAL MEMORY USED = 1386
MAXIMUM TEMPORARY AVAILABLE = 3881373

*** PROBLEM STATISTICS
NO. OF ACTIVE DEGREES OF FREEDOM = 144
R.M.S. WAVEFRONT SIZE = 10.6

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 2048
POST DATA WRITTEN ON FILE13
RESTART DATA WRITTEN ON FILE02 (86764 BYTES)
TRIANGULARISED MATRIX WRITTEN ON FILE11 (18836 BYTES)

***** END OF INPUT ENCOUNTERED ON FILE17. FILE17 REMOVED

***** INPUT FILE SWITCHED FROM FILE17 TO FILE 1

***** ROUTINE COMPLETED ***** CP = 38.640

SYSTEM= 38680-PC/L1-4.4A REVISION= 4.4 A 1
FOR SUPPORT CALL PHONE TXX
CURRENT JOBNAME=FILE

/EOF ENCOUNTERED ON FILE 1

FINISH AFWRITE OR SFWRITE WARNING MESSAGES = 0
NUMBER OF SOLUTION PHASE WARNING MESSAGES = 0
DATA INPUT WRITTEN ON FILE13

***** RUN COMPLETED ***** CP= 48.0900 TIME= 23.8248

ATTACHMENT 5
COMMUNICATION DOCUMENTING
THE CONCRETE STRENGTH AND THE LOAD PATHS

Prepared by: S B KOK Date: 10/11/94

Checked by: L. Smith Date: 10/11/94

[11] From: John P III Harris at -WHC216 2/2/94 3:33PM (2172 bytes: 32 ln)
To: ^ADVENT Engineering Services at -DOE HANFORD 1
cc: Gina A Symons at -WHC22, Edward G III Allen at -WHC116, David A Wallace at
-WHC208, James B (Jim) Truitt at -WHC74, Larry J Julyk at -WHC240,
John P III Harris
Subject: ASSUMPTIONS FOR 12" RISER LOAD LIMIT CALCULATIONS

----- Message Contents -----

Albert/Jeff/Jim/Soo Bee,

As we talked about on the phone this afternoon, please use the assumption that all concrete in the northern and southern pits (the pits being examined in the calculation concerning the load limitations for the 12" risers) is 3,000 psi concrete, (i.e., assume that all the concrete used in pours in these pits is 3,000 psi, whether or not rebar was included in the pour).

WHC is basing this assumption on the best available information. Ed Allen of WHC will continue to try to obtain documentation from the concrete specifications used during construction of the pits to verify this assumption. But, if this verification is not forthcoming, continue with the assumption as stated above unless updated information is provided.

The resolution of this issue removes the last block to completion of the analysis, as I understand from our conversation, and I am eagerly anticipating receipt of the determination of the allowable vertical, horizontal, and moment loads on the 12" risers to support our Advanced Sluicer Procurement Specification.

If you have additional questions concerning this analysis, please feel free to contact Gina or myself as an additional resource to your normal contacts in Jim Truitt's group.

John Harris,
Acting Manager,
Sluicing Retrieval Project Engineering

[4] From: John P III Harris at -WHC216 1/21/94 9:03AM (6109 bytes: 92 ln)
 To: ^ADVENT Engineering Services at -DOE_HANFORD_1
 cc: Gina A Symons at -WHC82
 Subject: Tanks, Pits and Risers (re: Advent Eng. Report)

----- Forwarded with Changes -----
 From: Edward G III Allen at -WHC116 1/21/94 6:42AM (5072 bytes: 77 ln)
 To: John P III Harris at -WHC216
 cc: Gina A Symons at -WHC82, John W Bailey at -WHC20, Thomas H (Tom) May at
 -WHC82, J R III (Jim) Bellomy, Kenneth G Squires at -WHC14
 Subject: Tanks, Pits and Risers (re: Advent Eng. Report)
 ----- Message Contents -----

Text item 1:

John,

After reading the referenced report, I revisited the pit and riser drawings for 106-C. It is true, rise vertical load (straight downward) does not impart a "significant" load to the tank dome. You need to have the drawings in front of you to see this, but I'll try to explain.

The 4" and 12" risers are smaller in outside diameter than the inside diameters of the adapters (the embedded flanges for equipment mounting). The adapters were sealed to the risers and pit floor (first rough pour) with pitch or "bituminous sealer". The risers were cinch anchored to the rough floor (3-places), shimmed to final elevation, and grouted in place before the finished floor was poured, which encased the main body of the adapters and any flush/drain lines connected to them.

A downward load (after concrete curing and pit settling) should disperse from the adapter flange to the finished floor concrete layer to the rough first floor and then out to the soil above the dome. Some load might make it's way to the dome, but you'd have to start with a major load at the flange. At any rate, you still could not force the riser downward against the dome; it would just come up inside the adapter (8" before it contacts the mating equipment flange!).

The heel pit risers (for the jet) and pump pit risers (for the slurry pump) are different. The heel pit 26" steel casing was cut off to an elevation allowing a 1" gap between it's top face and the underside of the heel jet riser adapter. If a load were imparted straight downward, you'd have to shove the whole pit assembly toward the dome 1" before taking up the gap. Again, a major load.

The pump riser was quite a feat of engineering. The casing was built in two, telescopic sleeves (one 4'-11-1/2" OD, and the other 5'-0" ID) to allow access to the 42" manhole covers used during original tank construction. The lower casing (smaller) was beveled to the dome contour and sealed to the dome with mastic. The upper casing was sealed to the lower with pitch and attached with four lengths of chain, welded to the outside of both casings (equally spaced). This chain limited the extended telescoping length.

A four-footed X-member was installed on temporary footings to suspend the top flange of the upper casing at the proper elevation and some "lean" concrete was poured. The X-member and temporary footings were removed and the first (rough) pit floor was poured. A sniielding adapter was snimmed and

tack welded to the upper casing flange (no gap) which necked the opening down to 36". Pit walls and finished floor came next.

Loads to the adapter flange go to the upper casing flange and the pit finished floor and rough floor simultaneously. The chance of imparting a load to the dome is higher in this case, however, there is some allowable slip-fit between casings. Also, the dome is thickest in this region. Again, it would take a major load to hurt anything.

The one type of loading that gives me pause for concern is axial (e.g., sluicer kick at the nozzle from fluid pressure). Granted, a load in this direction would have to be strong enough to break the adapter cinch anchors and the bond between the rough and finished pit floors. I'm no stress engineering wizard, but methinks this would be classified as the "mother of all loads".

Hadn't planned to be quite so wordy, but I thought I'd pass these casual observations along since you seemed interested and don't deserve surprises later. Drop by sometime and I'll go over the drawings with you. Those boys back then really had it together.

EGA

Appendix D

Allowable Loads on the Sluicing Adaptor Ring

in the 241-C-106 Pump Pit and Sluicing Pit

INDEPENDENT REVIEW

Document Reviewed Allowable Loads on the Sluicing Adaptor Rings in the
241C106 Pump Pit and Sluicing Pit (Appendix D)

Author ADVENT Engineering Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
Services Rev. 0

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

D. A. Wallace *D. A. Wallace*
Reviewer

10-20-94
Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Allowable Loads on the Sluicing Adaptor Rings in
the 241C106 Pump Pit and Sluicing Pit (Appendix D)

Author ADVENT Engineering Services

Yes No N/A

☒ [] []	Problem completely defined.
☒ [] []	Necessary assumptions explicitly stated and supported.
☒ [] []	Computer codes and data files documented.
☒ [] []	Data used in calculations explicitly stated in document.
☒ [] []	Data checked for consistency with original source information as applicable.
☒ [] []	Mathematical derivations checked including dimensional consistency of results.
☒ [] []	Models appropriate and used within range of validity or use outside range of established validity justified.
☒ [] []	Hand calculations checked for errors.
☒ [] []	Code run streams correct and consistent with analysis documentation.
☒ [] []	Code output consistent with input and with results reported in analysis documentation.
☒ [] []	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒ [] []	Safety margins consistent with good engineering practices.
☒ [] []	Conclusions consistent with analytical results and applicable limits.
☒ [] []	Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number 94-061

D. A. Wallace
Reviewer

10-20-94
Date

09/22/93

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

ANSYS-PC/LINEAR Ver. 4.4A

SOFTWARE APPLICATION

94-061
KEY NUMBER (IF APPLICABLE)

Soo Bee Kok

Appendix D of
WHC-SD-W320-ANAL-003

ANALYST (PRINTED NAME)

EDT/DOCUMENT NUMBER

J. B. Truitt 10/24/94
ANALYST'S MANAGER

October, 1994

DATE PERFORMED

DESCRIPTION OF ANALYSIS:

KAN,0
Static analysis with shell and mass elements.
Point and gravity loads.
Linear-Elastic material properties.
Symmetric boundary conditions.
POST1 - post-processing

SB KOK
SIGNATURE OF ANALYST

10/12/94
DATE

EXECUTIVE SUMMARY APPENDIX D

An evaluation of seismic and non-seismic allowable loads for the C-106 Sluicing Pit has been performed in support of Past-Practice Sluicing evaluations. Seismic acceleration response spectra of the pit floors were computed using a Soil-Structure-Interaction (SSI) approach in a separate analysis (W320-ANAL-002) and are used herein to define seismic environments.

Variables used in the expressions for allowable adaptor ring loads are defined as follows:

- F_H = best-estimate (i.e., unfactored) value of the resultant horizontal force applied at the Adaptor Ring top flange.
- M_H = best-estimate value of the resultant moment about a horizontal axis applied at the Adaptor Ring top flange.
- F_V = best-estimate value of the vertical force (assumed downward) applied at the Adaptor Ring top flange.
- M_V = best-estimate value of the moment about the vertical axis applied at the Adaptor Ring top flange.

All forces and moments are unsigned and are in units of lbf and lbf-inch, respectively unless specifically noted as otherwise.

The expressions provided implicitly include load factors per ACI 349-90 (Code Requirements for Nuclear Safety Related Concrete Structures); therefore, best-estimate (non-factored) values of F_H , M_H , F_V , and M_V should be substituted into the inequalities. Forces and moments for the non-seismic and seismic load combinations are acceptable if the appropriate set of inequalities (seismic or non-seismic) is satisfied.

Allowable Loads on the Sluicing Adaptor Rings in the C-106 Pump Pit and Sluicing Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities is satisfied:

$$\begin{aligned}
 F_H &\leq 1,600 \text{ [lbf]} \\
 M_V &\leq 6,440 \text{ [lbf-inch]} \\
 * \quad F_{V(S)} &\leq \begin{cases} 28,870 \text{ [lbf]} & \text{for } F_{V(PC)} \leq 3,000 \text{ [lbf]} \\ 29,840 - 0.324 F_{V(PC)} \text{ [lbf]} & \text{for } F_{V(PC)} > 3,000 \text{ [lbf]} \end{cases} \\
 M_H &\leq 240 + 3.83 F_{DL} - 7.0 F_H
 \end{aligned}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities is satisfied:

$$F_H \leq 2,720 \text{ [lbf]}$$

$$M_V \leq 10,950 \text{ [lbf-inch]}$$

$$\begin{array}{ll} \text{**} & F_{V(S)} \leq 49,070 \text{ [lbf]} \\ & \leq 50,030 - 0.320 F_{V(PC)} \text{ [lbf]} \end{array} \quad \begin{array}{ll} & \text{for } F_{V(PC)} \leq 3,000 \text{ [lbf]} \\ & \text{for } F_{V(PC)} > 3,000 \text{ [lbf]} \end{array}$$

$$M_H \leq 200 + 3.22 F_{DL} - 7.0 F_H$$

- Notes: (1) $F_{V(PC)}$ denotes F_V for Pump Column Adaptor Ring in the Pump Pit.
 (2) $F_{V(S)}$ denotes F_V for Sluicing Adaptor Ring in the Pump Pit
 (3) * $F_V = 28,870 \text{ [lbf]}$ for Sluicing Adaptor Ring in the Sluicing Pit.
 (4) ** $F_V = 49,070 \text{ [lbf]}$ for Sluicing Adaptor Ring in the Sluicing Pit.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit
 and Sluicing Pit
 (8) Originator SBKOK Date 10/11/94
 (9) Checker JPB Date 10/11/94

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Attachment 8	Communication documenting the Concrete Strength and the Load Paths	

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(9) Checker 4P Day Date 12/1/94

1.0 OBJECTIVE

Develop expressions for allowable loads at the Sluicing Adaptor Ring top flange (Dwg # H-2-41311) over the 12" riser located in the C-106 Pump Pit - 06A (Dwg # H-2-41343) and C-106 Sluicing Pit - 06C (Dwg # H-2-41344).

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(9) Checker J.P. Day Date 10/11/94

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- 2.7 1992, *Engineering Properties of Steel*, American Society For Metals
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- 2.9 1971, *Piping Design and Engineering*, Grinnell
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- 2.12 1987, *Marks' Standard Handbook for Mechanical Engineers*, Eighth Edition, McGraw-Hill

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2.13 Drawings

- 1) H-2-41343, Structural Concrete - Plan and Sections - Pump Pit
- 2) H-2-41344, Structural Concrete - Plan and Sections - Sluicing Pit
- 3) H-2-37006, C-106 Tank Arrangement, As Built
- 4) H-2-41365, Mechanical Equipment - Standard 1-1/4" Diameter Stud and Free Nut
- 5) H-2-41311, Mechanical Equipment - Sub Assembly Sluicing Adapter Ring
- 6) H-2-41318, Mechanical Equipment - Assembly Recirculation Diplegs, Waste Metal Removal
- 7) H-2-1744, Tank Farm Riser 8 Nozzle Elevation
- 8) H-2-41190, Piping, Cascade Pump Pit Plan & Sections
- 9) H-2-41321, Mechanical Equipment - Detail 4" Pipe Probe Tube For Recirculation Line
- 10) H-2-41323, Mechanical Equipment - Detail - Type I & II Diplegs Recirculation Lines
- 11) H-2-40397, Mechanical Equipment - General Arrangement, Section A-A, Waste Metal Removal
- 12) H-2-73346, Piping Waste Tank Isolation, TK241-C-106
- 13) H-2-41371, Structural Steel - Plan and Sections - Alignment Assembly and Leveling Beam Pump Pit

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3.0 SYMBOLS

The load-governing expressions contain the following variables: (units: lbf, inch)

F_H = Unfactored value of the resultant horizontal force applied at the Sluicing Adaptor Ring top flange

M_H = Unfactored value of the resultant moment about a horizontal axis applied at the Sluicing Adaptor Ring top flange

F_V = Unfactored value of the vertical force (positive downward) applied at the Sluicing Adaptor Ring top flange

M_V = Unfactored value of the moment about the vertical axis applied at the Sluicing Adaptor Ring top flange

F_{DL} = Lower-bound unfactored dead load applied at the Sluicing Adaptor Ring top flange

F_{DL} counteracts (reduces) the horizontal moment demand. For conservatism, F_{DL} must not be overestimated and consequently the value used must be a lower-bound to the vertical force resultant at the adaptor ring.

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4.0 ASSUMPTIONS

- Only F_V is considered in the finite element analysis for the computation of the pit floor capacity. F_H , M_H , M_V are considered insignificant contributors to the stress in the floor.
- The Pump Pit is considered as the worst-case of the two pits. Therefore, allowable loads developed for the Adaptor Ring over the 12" riser in the Pump Pit are conservative for the 12" riser Adaptor Ring in the Sluicing Pit.
- Per Attachment 4, the vertical load from the pump is conservatively applied to the pit floor and the horizontal translation of the pump is limited through bearing of the pump against the waste sludge.
- The Adaptor Ring over the 12" riser is anchored to the pit floor by three 5/8" diameter cinch bolts. The bolt material and depth of embedment are unknown; therefore, the anchors are neglected.
- The fill (plain) concrete in the pit floor has a compressive strength $f'_c = 3000$ psi per Attachment 8.
- Conservatively neglect the strength of the two positioning dowels located on the top flange of the 12" Adaptor Ring.
- Per Attachment 8, there is no structural connection between the Adaptor Ring and the 12" riser; therefore, there is no load path to the riser or the tank dome for loads applied at the Adaptor Ring.
- Per Reference 2.3, the soil properties are as follows:

Unit weight of soil = 110 pcf

Coefficient of earth pressure at rest = 0.538

Young's Modulus = 3000 lbf/in²

Poisson's Ratio = 0.35

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5.0 LOADS

The loads considered herein are:

- F_H , horizontal force applied to the Adaptor Ring top flange.
- F_V , vertical downward force applied to the Adaptor Ring top flange.
- M_H , moment about a horizontal axis applied to the Adaptor Ring top flange.
- M_V , moment about the vertical axis applied to the Adaptor Ring top flange.
- Self weight of the fill concrete.
- Self weight of the pit.
- Lateral earth pressure exerted on the pit wall.
- Pump column load.
- 4" riser load.

The following figure identifies the orientations and the location of the applied forces (F_H and F_V) and moments (M_H and M_V).

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Physical Configuration and Load Paths;

The above figure illustrates the structural components which act together to react loads caused by the equipment mounted on the Adaptor Ring. The Adaptor Ring utilizes studs to restrain equipment. The studs can develop axial and shear loads and in their combined action with the Adaptor Ring top flange also resist resultant horizontal and vertical forces and moments.

Proceeding down the load paths:

- The moment about the vertical axis is resisted by bearing of the 2" horizontal pipe and the stiffeners on fill concrete.
- The moment about the horizontal axis is resisted by the self weight of the equipment and the fill concrete.
- The horizontal force is resisted by the bearing of the Adaptor Ring sub-assembly on the fill concrete.
- The resultant vertical force will be resisted by the pit floor concrete and the soil beneath the pit.

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6.0 CALCULATIONS

6.1 Pit Floor Demands (F_v)

The determination of pit floor demands is accomplished using the finite element approach. The model is developed using the general purpose finite-element program, ANSYS Version 4.4a. The pit floor and the pit walls are modeled using shell elements. The soil stiffness supporting the pit floor is computed using elastic-half-space theory and the computed stiffness is modeled as elastic foundation stiffness (EFS) acting under the pit floor shell elements. Due to symmetry, only half of the pit is modeled. Appropriate boundary conditions are imposed along the line of symmetry.

The present work scope examines the non-seismic and the seismic demands on the pit floor. Soil-structure-interaction and pit-dome-interaction are considered in the C-106 seismic demands evaluation using data to be reported separately (WHC Calculation WHC-SD-W320-ANAL-002). The pit floor seismic spectra from the soil-structure-interaction analysis are provided in Attachment 6. The computed seismic zero period accelerations (ZPA) for the pit floor are used in the determination of the seismic capacities.

6.1.1 Loads

The loads considered in the finite element model are:

1. Dead load (D) which includes self weight of the pit floor, pit wall, and the pit cover.
2. Lateral earth pressure load (H) which is exerted by the soil pressure on the pit wall.
3. Live load (L) which include the pump column load, the 4" riser load, and the 12" riser load.

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Per ACI 349-90 (Reference 2.5) Section 9.2.1, the required strength of the pit floor shall be at least equal to the following:

$$1.4D + 1.7L + 1.7H$$

where D = dead load (weight of pit)
L = live load (riser and pump column)
H = lateral earth pressure

However, ACI 349-90 (Reference 2.5) Section 9.2.3 states that where any load reduces the effects of the other loads, the corresponding coefficient for that load shall be taken as 0.9 if it can be demonstrated that the load is always present or occurs simultaneously with the other loads. Otherwise, the coefficient for that load shall be taken as zero. Strictly interpreting this guidance applies only to the determination of demands for components / structures covered by ACI 349-90. Guidance specific to the determination of section capacity (for example, as expressed in M-P interaction curves for reinforced concrete shells) is not explicitly provided. A comparable issue, however, exists when establishing the capacity of ACI governed reinforced concrete shell sections because the membrane stress resultant / axial force demand determines the allowable bending moment (capacity). Certain load cases preferentially increase the compressive axial load demand (while other load cases are mainly responsible for the shell bending response) and increasing these loads, in effect, increases the moment capacity of the structure. Using load factors greater than 1.0 for such load cases has the effect of increasing axial force demands, increasing moment carrying capacity, and defeating the objective of introducing margin to counteract uncertainties. For this situation, when load factors greater than 1.0 can increase the controlling capacity, ACI 349-90 Section 9.2.3 is interpreted to mean that (provided loads are always present) a load combination shall be evaluated where the load factor for the load case in question is no greater than 1.0.

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6.1.2 Key Dimensions

References: Dwgs # H-2-41343, H-2-73346, H-2-41371

Plan

Section

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Model Dimensions

Plan

Section

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6.1.3 Complete Finite Element Model

The following shows a schematic view of the model.

Schematic View of the Generated Mesh

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Boundary Conditions:

Along the plane of half symmetry at $Y = 0.0$, the nodes are restrained in UY, ROTX, and ROTZ.

In addition, Node 1 is restrained in the UX direction to provide translational restraint in the global X direction. This restraint is necessary in order to remove rigid body degree of freedom. As the lateral loading in the UX direction is equal and opposite, the reaction in UX at Node 1 is expected to be practically zero.

Element Real Properties:

The following ANSYS Real Properties define the shell finite element section properties (Real 1, 2, 3, & 11) and the lumped mass values (Real 4, & 5). Note that the pit cover is not modeled as a structural component, but it is necessary to incorporate its mass into the appropriate portion of the actual model. This pit cover mass is located along the top of the wall.

The elastic foundation stiffness (EFS) used in Real Properties 1 and 11 represents the soil spring stiffness provided by the soil beneath the pit floor. The elastic foundation stiffness is computed in Section 6.1.6.

Real 1 (Pit Floor);

Thickness = 15.5"
EFS = 13.98 lbf/inch³

Real 11 (Key Pit Floor elements rotated by 90°);

Thickness = 15.5"
EFS = 13.98 lbf/inch³
Angle = 90°

Real 2 (East & North Pit Walls);

Thickness = 18.0"

Real 3 (West Pit Walls);

Thickness = 23.5"

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Real 4 (Pit Cover distributed mass);
Mass = 0.999 lbf-sec²/inch

Real 5 (Pit Wall additional mass);
Mass = 0.455 lbf-sec²/inch

Material Properties:

Property 1 (Pit Floor);
Young's Modulus = 57000 (f_c)^{1/2}
= 57000 (3000)^{1/2}
= 3.122E6 lbf/inch²
Poisson's Ratio = 0.15
Mass density = 150 x (23.5 / 15.5) / (1728 x 386.4)
= 3.406E-4 lbf-sec²/inch

Note that the mass density includes an approximated 8" fill concrete which is on top of the modeled 15.5" reinforced concrete.

Property 2 (Pit Walls);
Young's Modulus = 3.122E6 lbf/inch²
Poisson's Ratio = 0.15
Mass density = 150 / (1728 x 386.4)
= 2.247E-4 lbf-sec²/inch

Individual Load Cases:

There are a total of 5 individual load cases in the analysis. These load cases are post processed using the prescribed load combinations to determine the pit floor stresses. The 5 individual load cases are described below.

Load Case 1; Gravity load.
Load Case 2; Lateral earth pressure load.
Load Case 3; Pump column load.
Load Case 4; 4" riser load.
Load Case 5; 12" riser load of 10,000 lbf.

Note that these applied individual load cases consist of unfactored loads.

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6.1.4 Pit Wall Model Generation

The pit wall is modeled using shell elements. The node and element sequences of the wall elements are shown as follows.

East Pit Wall Node and Element Numbers

- Notes:
- 1) Node numbers increase from left to right by 1.
 - 2) Node numbers increase from bottom to top by 100.
 - 3) The element number is denoted by the node number on the lower left hand corner.
 - 4) Wall is located at X = 0.0.

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West Pit Wall Node and Element Numbers

- Notes: 1) Node numbers increase from left to right by 1.
 2) Node numbers increase from bottom to top by 100.
 3) The element number is denoted by the node number on the lower left hand corner.

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North Pit Wall Node and Element Numbers

- Notes: 1) Node numbers increase from left to right by 1.
 2) Node numbers increase from bottom to top by 100.
 3) The element number is denoted by the node number on the lower left hand corner.

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6.1.5 Pit Floor Model Generation

The pit floor is modeled using shell elements. The soil beneath provides vertical support to the pit floor. The soil spring stiffness is computed in Section 6.1.6 and is implemented as pit floor element elastic foundation stiffness (EFS). In order to expedite the generation of the pit floor model, solid modeling approach has been used to mesh generate the model. The sequence of the model development is provide below.

Solid Modeling Keypoints

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Solid Modeling Line Segments

Solid Modeling Line Divisions

Solid Modeling Areas

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Pit Floor Mesh

Node Numbers Along The Pit Floor Boundaries

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Node Numbers Around The 12" Riser

Element Numbers Around The 12" Riser

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 (9) Checker AP/Am Date 8/30/94

1	172	171	170	169	168	167
2	2018	2020	2021	2022	2023	2024
3	2012	2013	2014	2015	2016	2017
4	2039	2040	2041	2042	2043	2044
5	2045	2046	2047	2048	2049	2050
6	2051	2052	2053	2054	2055	2056
7	2030	2031	2032	2033	2034	2035
8	2073	2074	2075	2076	2077	2078
9	2079	2080	2081	2082	2083	2084
10	2085	2086	2087	2088	2089	2090
11	2091	2092	2093	2094	2095	2096
12	2063	2064	2065	2066	2067	2068
13	2109	2110	2111	2112	2113	2114
14	2115	2116	2117	2118	2119	2120
15	16	17	18	19	20	21

Node Numbers For Pit Floor (Part 1/4)

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168	167	166	165	164	163	88998
2823	2824	2818	2128	2129	2128	2128
2818	2817	2809	2128	2127	2128	2128
2843	2844	2828	2138	2137	2138	2138
2849	2850	2827	2138	2139	2138	2138
2855	2856	2828	2148	2138	2138	2138
2834	2835	2825	2138	2139	2138	2138
2877	2878	2858	2148	2149	2148	2148
2884	2858	2154	2152	2144	2144	2144
2898	2868	2153	2154	2145	2145	2145
2861	2155	2156	2146	2146	2146	2146
2857	2147	2148	2142	2192	2193	2187
2162	2163	2158	2207	2208	2203	2246
2154	2165	2159	2209	2210	2204	2248
23	24	25	26	27	28	29
30	31	32	33			

Node Numbers For Pit Floor (Part 2/4)

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Node Numbers For Pit Floor (Part 4/4)

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877	878	879	880	881	882
984	985	986	987	988	989
891	892	893	894	895	896
998	999	1000	1001	1002	1003
1005	1006	1007	1008	1009	1010
1012	1013	1014	1015	1016	1017
1019	1020	1021	1022	1023	1024
1026	1027	1028	1029	1030	1031
1033	1034	1035	1036	1037	1038
1040	1041	1042	1043	1044	1045
1047	1048	1049	1050	1051	1052
1054	1055	1056	1057	1058	1059
1061	1062	1063	1064	1065	1066
1068	1069	1070	1071	1072	1073
1074	1075	1076	1077	1078	1079
1080	1081	1082	1083	1084	1085
1086	1087	1088	1089	1090	1091
1092	1093	1094	1095	1096	1097
1098	1099	1100	1101	1102	1103
1104	1105	1106	1107	1108	1109
1110	1111	1112	1113	1114	1115

Element Numbers For Pit Floor (Part 1/4)

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982	983	1075	1076	1077	1117	1119
989	990	1078	1079	1080	1120	1122
996	997	1081	1082	1083	1123	1124
1003	1004	1084	1085	1086	1125	1126
1010	1011	1087	1088	1089	1127	1128
1017	1018	1090	1091	1092	1129	1130
1024	1025	1093	1094	1095	1131	1132
1032	1036	1097	1098	1099	1133	1134
1039	1099	1100	1101	1102	1135	1136
1102	1103	1104	1105	1106	1137	1138
1109	1110	1111	1112	1113	1139	1140
1112	1113	1114	1115	1116	1141	1142
1115	1116	1117	1118	1119	1143	1144
1120	1121	1122	1123	1124	1145	1146
1125	1126	1127	1128	1129	1147	1148
1130	1131	1132	1133	1134	1149	1150
1135	1136	1137	1138	1139	1151	1152
1140	1141	1142	1143	1144	1153	1154
1145	1146	1147	1148	1149	1155	1156
1150	1151	1152	1153	1154	1157	1158
1155	1156	1157	1158	1159	1160	1161
1160	1161	1162	1163	1164	1165	1166
1165	1166	1167	1168	1169	1170	1171
1170	1171	1172	1173	1174	1175	1176
1175	1176	1177	1178	1179	1180	1181
1180	1181	1182	1183	1184	1185	1186
1185	1186	1187	1188	1189	1190	1191
1190	1191	1192	1193	1194	1195	1196
1195	1196	1197	1198	1199	1200	1201
1200	1201	1202	1203	1204	1205	1206
1205	1206	1207	1208	1209	1210	1211
1210	1211	1212	1213	1214	1215	1216
1215	1216	1217	1218	1219	1220	1221
1220	1221	1222	1223	1224	1225	1226

Element Numbers For Pit Floor (Part 2/4)

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1155	98	22	24
1157	98	25	26
1159	99	20	28
1160	20	22	28
1163	20	23	22
1165	20	25	23
1171	20	28	23
1175	20	21	23
1178	21	12	23
1213	12	14	12
1215	12	16	12
1217	12	18	12
1219	12	20	12
1221	12	22	12
1223	12	24	12
1225	12	26	12
1227	12	28	12
1229	12	30	12
1231	12	32	12
1233	12	34	12
1235	12	36	12
1237	12	38	12
1239	12	40	12
1241	12	42	12
1243	12	44	12
1245	12	46	12
1247	12	48	12
1249	12	50	12
1251	12	52	12
1253	12	54	12
1255	12	56	12
1257	12	58	12
1259	12	60	12
1261	12	62	12
1263	12	64	12
1265	12	66	12
1267	12	68	12
1269	12	70	12
1271	12	72	12
1273	12	74	12
1275	12	76	12
1277	12	78	12
1279	12	80	12
1281	12	82	12
1283	12	84	12
1285	12	86	12
1287	12	88	12
1289	12	90	12
1291	12	92	12
1293	12	94	12
1295	12	96	12
1297	12	98	12
1299	12	100	12
1301	12	102	12
1303	12	104	12
1305	12	106	12
1307	12	108	12
1309	12	110	12
1311	12	112	12
1313	12	114	12
1315	12	116	12
1317	12	118	12
1319	12	120	12

Element Numbers For Pit Floor (Part 3/4)

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Element Numbers For Pit Floor (Part 4/4)

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 (9) Checker APD Date 10/11/94

6.1.6 Soil Stiffness Calculation

Elastic half-space theory, per Prakash (Reference 2.1) Section 9.13, is used for the computation of soil stiffness and the elastic foundation stiffness (EFS) applied to the pit floor elements. This leads to a reduced soil stiffness compared to in situ conditions. This approach assures that pit floor stresses are conservatively predicted because additional floor bending deflections arise from the reduced EFS. The soil stiffness is determined from,

Pit floor dimensions = 216" x 168" (See Section 6.1.2)

$$r_o, \text{ equivalent radius} = (216 \times 168 / \pi)^{1/2} = 107.475"$$

Soil properties: (Reference 2.3)

$$\begin{aligned} E, \text{ soil Young's modulus} &= 3000 \text{ psi} \\ \nu, \text{ Poisson's ratio} &= 0.35 \\ G, \text{ shear modulus} &= E / \{2(1+\nu)\} \\ &= 1111.111 \text{ psi} \end{aligned}$$

$$\begin{aligned} K_{be}, \text{ best estimate soil stiffness} &= 4G_o / (1-\nu) \\ &= 4 \times 1111.111 \times 107.475 / (1-0.35) \\ &= 734,870 \text{ lbf/inch} \end{aligned}$$

Accounting for soil property uncertainty, divide the best estimate soil stiffness by a factor of 2. Lower soil stiffness gives rise to larger pit floor stresses. It is therefore conservative to use a lower soil stiffness value.

$$\begin{aligned} K, \text{ factored soil stiffness} &= 734,870 / 2 \\ &= 367,435 \text{ lbf/inch} \end{aligned}$$

For half symmetry model, tributary $K = 183,718 \text{ lbf/inch}$

$$\begin{aligned} \text{Pit floor modeled area} &= 75 \times 195.25 - (\pi \times 6.375^2 / 2) - (\pi \times 30.25^2 / 2) \\ &= 13,142.535 \text{ inch}^2 \end{aligned}$$

$$\begin{aligned} \text{Elastic Foundation Stiffness (EFS) for pit floor shell element} &= 183,718 / 13,142.535 \\ &= 13.98 \text{ lbf/inch}^3 \end{aligned}$$

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6.1.7 Soil Pressure Calculation

The computation of the lateral soil pressure acting on the pit wall is based on the earth pressure at rest calculation per Reference 2.2, Section 10.2.

Soil properties: (Reference 2.3)

K_o , coefficient of earth pressure at rest = 0.538
 ρ , unit weight of soil = 110 pcf

P_o , resultant lateral earth force = $0.5 \times K_o \times \rho \times H^2 \times D$
 where H is the height of the wall covered by soil = 104.5"
 D is the width of the modeled wall section.

Pit walls on the East and the West sides (see Section 6.1.2):

$H = 104.5"$, $D = 168"/2$
 $P_o = 0.5 \times 0.538 \times 110 / 1728 \times 104.5^2 \times 168 / 2$
 $= 15,708 \text{ lbf}$
 Distribute along the 15 wall nodes at $Z = 27.083"$ on each side,
 each nodal force = $15,708 / 15$
 $= 1047.2 \text{ lbf}$

On the East wall, $FX = -1047.2 \text{ lbf}$ is applied at nodes 448 through 462.
 On the West wall, $FX = 1047.2 \text{ lbf}$ is applied at nodes 401 through 415.

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Pit wall on the North Side:

$H = 104.5"$, $D = 216"/2$ (See Section 6.1.2)

$$P_o = 0.5 \times 0.538 \times 110 / 1728 \times 104.5^2 \times 216$$

$$= 40,391 \text{ lbf}$$

Distribute along the 34 wall nodes at $Z = 27.083"$, each nodal force
 $= 40,391 / 34$
 $= 1188.0 \text{ lbf}$

On the North wall, $FY = 1188.0 \text{ lbf}$ is applied at nodes 415 through 448.

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6.1.8 Miscellaneous Mass / Weight Calculation

Pit cover mass (Dwg # H-2-41343):

The pit wall has been simplified and modeled as a straight section. The pit cover is therefore assumed to just cover the open area bounded by the wall. The pit cover dimensions are 174" long by 132" wide by 24" deep.

$$\begin{aligned}\text{Concrete density} &= 150 \text{ pcf} \\ \text{Pit cover mass} &= 174 \times 132 \times 24 \times 150 / (1728 \times 386.4) \\ &= 123.835 \text{ lbf-sec}^2/\text{inch}\end{aligned}$$

Distribute half the pit cover mass along the 62 nodes at the top of the wall, each nodal mass = $123.835 / 2 / 62 = 0.999 \text{ lbf-sec}^2/\text{inch}$.

The 62 pit cover mass nodes are 1601 through 1662.

Top of wall additional mass (Dwg # H-2-41343):

The pit wall on the North and the South sides consist of a thickened section at the top. Since the wall has been modeled as a simplified straight section and the dimensions of the pit cover have been adjusted to accommodate the simplification, it is necessary to include additional mass to account for the thickened wall section at the top and the pit cover adjustment.

The South side of the wall has a slightly thicker section than that of the North side. The additional mass associated with the South side will be used. The approximate dimensions of the additional mass section are 174" long by 11" wide by 36" deep.

$$\begin{aligned}\text{Additional mass} &= 174 \times 11 \times 36 \times 150 / (1728 \times 386.4) \\ &= 15.479 \text{ lbf-sec}^2/\text{inch}\end{aligned}$$

Distribute the pit cover mass along the 34 nodes at the top of the wall on the North side, each nodal mass = $15.479 / 34 = 0.455 \text{ lbf-sec}^2/\text{inch}$.

The 34 additional mass nodes are 1615 through 1648.

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Pump Column Weight :

With reference to Attachment 4, the pump column will exert a vertical force of 3000 lbf on the pit floor. By half symmetry, only one half of the 3000 lbf will be acting on the pit floor.

Distribute the pump column weight along the 22 nodes around the penetration, each nodal force = $1500 / 22 = 68.2$ lbf.

The 22 nodes around the penetration are 66 through 87.

4" Riser Weight (Dwg # H-2-41323) :

With reference to Attachment 5 and the referenced drawing, the weight exerted on the 4" riser location will primarily be the Type I Dipleg. The major weight contributing components consist of the pipe and the circular plate.

Pipe type / dimensions: Std. 3" Steel Pipe Sch. 40, 9'-1" long.
 Pipe area = 2.228 inch^2 (Reference 2.9, Grinnell Catalog)
 Pipe weight = $2.228 \times 108 \times 490 / 1728 = 68.9$ lbf.

Circular plate type / dimensions: Steel plate, 22" diameter, 1" thick.
 Plate weight = $\pi \times 11^2 \times 1 \times 490 / 1728 = 107.8$ lbf.

Total weight = $68.9 + 107.8 = 176.7$ lbf (say 200 lbf)

By half symmetry, apply one half of the weight (i.e., 100 lbf) on the 4" riser location which is Node 166.

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6.1.9 Finite Element Analyses

A total of two sets of analyses have been performed. The first set of analyses consist of default member coordinate axes for the solid modeling generated pit floor mesh while the second set of analyses consist of adjusted member coordinate axes for key elements with high stresses. The first set of analyses provide an insight in locating the members with high stresses while the second set of analyses, with an adjustment in member coordinate axes, provide key member stresses which are parallel with the pit floor reinforcement. The 'lined up' element stresses can then readily be used for member evaluation. The two sets of analyses are denoted by 'PIT1' and 'PIT2' in their filenames.

Load Combinations:

Per ACI 349-90 (Reference 2.5) Sections 9.2.1 and 9.2.3, three load combinations are considered and they are as follows:

- A) $1.4D + 1.7L + 1.7H$
- B) $1.4D + 1.7L + 0.9H$
- C) $0.9D + 1.7L + 0.9H$

For each of the above load combinations, the post processed analyses consist of two different 12" riser base loads and they are 0 lbf and 50,000 lbf. Since the analyses are linear, results corresponding to a different riser load can be computed by interpolating or extrapolating the base results.

These three load combinations are considered in the first set of the analyses. The results of the three load combinations are compared and only the controlling load combination will be considered in the second set of the analyses.

Element Responses Of Interest:

In the first set of post processing analyses, the responses of interest include:

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- Element forces and moments for the pit floor elements to be used in the pit floor evaluations.
- Nodal forces for the pit floor boundary elements to be use for pit floor shear evaluations.
- Displacements for the pit floor nodes to be used as a sanity check.

The pit floor element stresses are reported in the member coordinate axes and some of the element axes do not coincide with the global axes, which are parallel to the pit floor reinforcement. The elements in the region of interest are identified and the orientation of the coordinate axes is adjusted so that the member axes coincide with the global axes and hence the reinforcement directions. The nodal forces for the boundary elements provide the necessary data for the computation of the pit floor shear forces.

In the second set of post processing analyses, the responses of interest only include the element stresses for the selected pit floor elements. These selected element stresses represent the highest element stresses. They are parallel with the pit floor reinforcement and can be readily used for member evaluation.

Analysis Results:

Tables 6.1.9-1 and 6.1.9-2 tabulate the comparison of the axial load and flexure demand for the elements with the highest flexure demand about the Element X and Y axes for the different load combinations. The element with the highest flexure demand about the Element Y axis is Element 1159 while the element with the highest flexure demand about the Element X axis is Element 1195. The comparisons show that Load Combination C results in the highest flexure demands while at the same time yielding the smallest compressive axial loads or the largest tensile axial loads. This combination of high flexure demand and low compressive axial load (or high tensile axial load) controls the acceptability of applied loads.

Based on the findings in the first set of analyses, only Load Combination C is used in the post processing for the second set of the analyses.

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Table 6.1.9-1 Comparison of Axial Load and Flexure Demand about the Element Y Axis for Different Load Combinations

12" Riser Load (lbf)	Load Comb. A		Load Comb. B		Load Comb. C	
	Axial Load (lbf)	Flexure Demand (inch-lbf/inch)	Axial Load (lbf)	Flexure Demand (inch-lbf/inch)	Axial Load (lbf)	Flexure Demand (inch-lbf/inch)
0	-347	-6,605	-263	-7,002	-202	-4,345
5,000	-341	-4,250	-257	-4,647	-196	-1,990
10,000	-335	-1,896	-250	-2,293	-189	365
15,000	-328	459	-244	62	-183	2,719
20,000	-322	2,814	-238	2,417	-177	5,074
25,000	-316	5,168	-231	4,771	-170	7,429
30,000	-309	7,523	-225	7,126	-164	9,783
35,000	-303	9,878	-219	9,481	-158	12,138
40,000	-297	12,232	-213	11,835	-152	14,493
45,000	-291	14,587	-206	14,190	-145	16,847
50,000	-284	16,942	-200	16,545	-139	19,202

Notes: 1) The reported flexure demand is for Element 1159.
 2) Negative axial load represents compression.
 3) Negative flexure demand represents tension on the top face.

Table 6.1.9-2 Comparison of Axial Load and Flexure Demand about the Element X Axis for Different Load Combinations

12" Riser Load (lbf)	Load Comb. A		Load Comb. B		Load Comb. C	
	Axial Load (lbf)	Flexure Demand (inch-lbf/inch)	Axial Load (lbf)	Flexure Demand (inch-lbf/inch)	Axial Load (lbf)	Flexure Demand (inch-lbf/inch)
0	-1,049	-11,956	-695	-12,700	-588	-7,661
5,000	-1,030	-8,472	-675	-9,217	-568	-4,177
10,000	-1,010	-4,989	-656	-5,733	-549	-694
15,000	-991	-1,506	-636	-2,250	-529	2,789
20,000	-971	1,978	-617	1,233	-510	6,273
25,000	-952	5,461	-598	4,717	-491	9,756
30,000	-933	8,944	-578	8,200	-471	13,239
35,000	-913	12,428	-559	11,683	-452	16,723
40,000	-894	15,911	-540	15,167	-433	20,206
45,000	-875	19,395	-520	18,650	-413	23,689
50,000	-855	22,878	-501	22,133	-394	27,173

Notes: 1) The reported flexure demand is for Element 1195.
 2) Negative axial load represents compression.
 3) Negative flexure demand represents tension on the top face.

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6.1.10 Capacity Calculation

Flexure and Axial:

The flexure and axial capacity calculation for the pit floor is presented in Attachment 1. The capacities are provided in the forms of digitized data and M-P diagrams. These capacities are compared with the stresses computed in the second set of analyses. The comparison enables the maximum 12" riser load to be established by interpolation.

The first comparison establishes the flexure capacity about the North-South direction which is controlled by element number 1160 and the second comparison establishes the flexure capacity about the East-West direction which is controlled by element number 1195.

For the derivation of the flexure capacities about the North-South direction, the membrane resultants of interest fall between -1,119 lbf/inch and 1 lbf/inch. The P-M values for the two points are per Attachment 1.

- 1) P, Axial Load = 1 lbf/inch M, Flexure Capacity = 10,191 inch-lbf/inch
- 2) P, Axial Load = -1,119 lbf/inch M, Flexure Capacity = 17,471 inch-lbf/inch

The following Table 6.1.10-1 tabulates the comparison of the different 12" riser load maximum North-South flexure demand and the respective capacity.

For the derivation of the flexure capacities about the East-West direction, the Case A membrane resultants of interest fall between -278 lbf/inch and -1,373 lbf/inch. The P-M values for the two points are per Attachment 1.

- 1) P, Axial Load = -278 lbf/inch M, Flexure Capacity = 14,747 inch-lbf/inch
- 2) P, Axial Load = -1,373 lbf/inch M, Flexure Capacity = 21,076 inch-lbf/inch

The following Table 6.1.10-2 tabulates the comparison of the different 12" riser load maximum East-West flexure demand and the respective capacity.

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**Table 6.1.10-1 Comparison of Flexure Demand and Capacity
about North-South Direction**

Output File Reference	12" Riser Load (lbf)	Axial Load (lbf)	Flexural Capacity (inch-lbf/inch)	Flexure Demand (inch-lbf/inch)	Status
PIT2A1.PO	0	-115	10,943	-3,675	OK
Interpolation	5,000	-111	10,922	-1,517	OK
Interpolation	10,000	-108	10,901	641	OK
Interpolation	15,000	-105	10,880	2,798	OK
Interpolation	20,000	-102	10,859	4,956	OK
Interpolation	25,000	-99	10,838	7,114	OK
Interpolation	30,000	-95	10,817	9,271	OK
Interpolation	33,000	-93	10,804	10,566	OK
Interpolation	33,300	-93	10,803	10,695	OK
Interpolation	33,500	-93	10,802	10,782	OK
Interpolation	35,000	-92	10,796	11,429	Not OK
PIT2B1.PO	50,000	-82	10,733	17,902	Not OK

Note: The reported flexure demand is for Element 1160.

**Table 6.1.10-2 Comparison of Flexure Demand and Capacity
about East-West Direction**

Output File Reference	12" Riser Load (lbf)	Axial Load (lbf)	Flexural Capacity (inch-lbf/inch)	Flexure Demand (inch-lbf/inch)	Status
PIT2A1.PO	0	-593	16,567	-7,730	OK
Interpolation	5,000	-573	16,454	-4,205	OK
Interpolation	10,000	-554	16,341	-680	OK
Interpolation	15,000	-534	16,228	2,845	OK
Interpolation	20,000	-515	16,115	6,370	OK
Interpolation	25,000	-495	16,002	9,895	OK
Interpolation	30,000	-476	15,889	13,420	OK
Interpolation	33,000	-464	15,822	15,535	OK
Interpolation	33,300	-463	15,815	15,747	OK
Interpolation	33,500	-462	15,810	15,888	Not OK
Interpolation	35,000	-456	15,777	16,945	Not OK
PIT2B1.PO	50,000	-398	15,438	27,520	Not OK

Note: The reported flexure demand is for Element 1195.

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With reference to the above Tables 6.1.10-1 and 6.1.10-2, we can conclude that the flexure demand about the East-West direction controls. F_v , the maximum allowable 12" riser load is 33,300 lbf.

Shear:

By inspection of the pit floor nodal forces (Ref: Attachment 2 computer output files PIT1A2.PO, and PIT1B2.PO), it is evident that the out-of-plane shear force (i.e., nodal F_z) controls. The computation of shear stresses is therefore restricted to the out-of-plane shear stresses.

The out-of-plane shear forces are largest along the pit floor boundary where the controlling vertical loads are applied. These nodal out-of-plane shear forces are divided by the tributary shear area to obtain the shear stresses. Table 6.1.10-3 tabulates the out-of-plane shear forces and stresses for the pit floor boundary nodes for two load cases; 12" riser loads of 0 lbf and 50,000 lbf. The shear stress patterns reported in the table suggest that the controlling area is around the 12" riser (i.e., Node 93 or 94). The shear capacity is determined by interpolating between the shear stresses for the two load cases.

Per Reference 2.5, Section 11.3;

$$\begin{aligned}\phi V_c, \text{ allowable concrete shear} &= \phi 2 (f'c)^{1/2} b_w d \\ &= 0.85 \times 2 \times (3000)^{1/2} \times 1.0 \times (15.5 - 3.0 - 0.625 - 0.25) \\ &= 1,082.4 \text{ lbf}\end{aligned}$$

With reference to Table 6.1.10-3;

Node 93 shear stress = 0.0 lbf/inch² (for riser load of 0 lbf)

Node 93 shear stress = 120.9 lbf/inch² (for riser load of 50,000 lbf)

Manual verification of the computed shear stress:

Factored load applied at the riser = $1.7 \times 50,000 = 85,000$ lbf

Diameter of the Adaptor Ring = 15.0" (Ref: Dwg # H-2-41311)

$$\begin{aligned}\text{Expected shear stress} &= 85,000 / (\pi \times 15.0 \times 15.5) \\ &= 116.37 \text{ lbf/inch}^2 < 120.9 \text{ lbf/inch}^2\end{aligned}$$

The use of the computed value of 120.9 lbf/inch² in the computation of the capacity is therefore conservative.

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 1/3)

Node Number	Tributary Edge Distance (inch)	Tributary Shear Area (inch ²)	Load Case A2		Load Case B2	
			Shear Force (lbf)	Shear Stress (lbf/inch ²)	Shear Force (lbf)	Shear Stress (lbf/inch ²)
1	7.18	111.27	1,439.9	12.94	1,276.1	11.47
2	5.36	83.03	2,860.7	34.45	2,545.7	30.66
3	5.36	83.03	2,805.2	33.78	2,527.1	30.44
4	5.36	83.04	2,714.2	32.68	2,495.0	30.05
5	5.36	83.04	2,585.8	31.14	2,443.7	29.43
6	5.36	83.03	2,417.4	29.11	2,364.8	28.48
7	5.36	83.03	2,210.5	26.62	2,253.0	27.13
8	5.36	83.03	1,964.5	23.66	2,101.4	25.31
9	5.36	83.03	1,677.5	20.20	1,901.7	22.90
10	5.36	83.03	1,349.9	16.26	1,646.7	19.83
11	5.36	83.04	983.6	11.84	1,333.6	16.06
12	5.36	83.04	574.1	6.91	957.8	11.53
13	5.36	83.03	105.4	1.27	511.5	6.16
14	5.36	83.03	-449.6	-5.41	-16.4	-0.20
15	5.64	87.37	-893.3	-10.22	-373.0	-4.27
16	5.92	91.71	-569.2	-6.21	121.9	1.33
17	5.92	91.71	57.1	0.62	808.9	8.82
18	5.92	91.71	611.4	6.67	1,376.4	15.01
19	5.92	91.71	1,108.6	12.09	1,844.8	20.12
20	5.92	91.71	1,560.4	17.02	2,226.1	24.27
21	5.92	91.71	1,965.4	21.43	2,521.2	27.49
22	5.92	91.71	2,322.2	25.32	2,730.6	29.78
23	5.92	91.71	2,631.5	28.70	2,857.4	31.16
24	5.92	91.71	2,895.6	31.57	2,907.6	31.70
25	5.92	91.71	3,117.5	33.99	2,891.0	31.52
26	5.92	91.71	3,300.6	35.99	2,821.2	30.76
27	5.92	91.71	3,448.5	37.60	2,715.8	29.61
28	5.92	91.71	3,564.0	38.86	2,594.0	28.29
29	5.92	91.71	3,649.3	39.79	2,474.6	26.98
30	5.92	91.71	3,704.9	40.40	2,374.6	25.89
31	5.92	91.68	3,731.0	40.69	2,308.8	25.18
32	5.92	91.71	3,727.4	40.65	2,287.9	24.95
33	5.92	91.76	3,694.7	40.26	2,316.2	25.24
34	5.92	91.68	3,634.0	39.64	2,391.4	26.08
35	5.92	91.68	3,547.1	38.69	2,504.5	27.32

Notes: 1) Load Case A2 represents riser load of 0 lbf (Ref:Pit1A2.po)

2) Load Case B2 represents riser load of 50,000 lbf (Ref:Pit1B2.po)

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 2/3)

36	5.92	91.76	3,435.3	37.44	2,640.8	28.78
37	5.92	91.68	3,300.0	35.99	2,782.5	30.35
38	5.92	91.68	3,141.6	34.27	2,910.2	31.74
39	5.92	91.76	2,958.3	32.24	3,004.6	32.74
40	5.92	91.68	2,744.9	29.94	3,046.7	33.23
41	5.92	91.68	2,492.0	27.18	3,017.4	32.91
42	5.92	91.76	2,187.1	23.84	2,896.7	31.57
43	5.92	91.68	1,816.9	19.82	2,664.5	29.06
44	5.92	91.68	1,369.7	14.94	2,300.3	25.09
45	5.92	91.76	839.7	9.15	1,785.8	19.46
46	5.92	91.68	234.6	2.56	1,112.3	12.13
47	5.92	91.68	-377.1	-4.11	339.9	3.71
48	5.64	87.40	-631.4	-7.22	-70.1	-0.80
49	5.36	83.03	-79.0	-0.95	508.2	6.12
50	5.36	83.03	646.4	7.78	1,218.3	14.67
51	5.36	83.04	1,231.9	14.83	1,755.6	21.14
52	5.36	83.04	1,703.7	20.52	2,142.8	25.80
53	5.36	83.03	2,104.3	25.34	2,409.2	29.01
54	5.36	83.03	2,428.7	29.25	2,559.1	30.82
55	5.36	83.03	2,657.2	32.00	2,597.1	31.28
56	5.36	83.03	2,773.4	33.40	2,540.6	30.60
57	5.36	83.03	2,795.9	33.67	2,429.5	29.26
58	5.36	83.04	2,709.6	32.63	2,265.3	27.28
59	5.36	83.04	2,517.5	30.32	2,064.8	24.86
60	5.36	83.03	2,280.1	27.46	1,873.2	22.56
61	5.36	83.03	2,083.5	25.09	1,735.2	20.90
62	4.93	76.39	1,003.5	13.14	842.4	11.03
63	4.50	69.75	0.0	0.00	0.0	0.00
64	4.50	69.75	0.0	0.00	0.0	0.00
65	4.50	69.75	0.0	0.00	0.0	0.00
66	4.11	63.74	115.9	1.82	115.9	1.82
67	3.72	57.72	115.9	2.01	115.9	2.01
68	3.72	57.73	115.9	2.01	115.9	2.01
69	3.73	57.74	115.9	2.01	115.9	2.01
70	3.72	57.74	115.9	2.01	115.9	2.01
71	3.73	57.75	115.9	2.01	115.9	2.01
72	4.65	72.12	115.9	1.61	115.9	1.61
73	5.58	86.52	115.9	1.34	115.9	1.34
74	5.58	86.51	115.9	1.34	115.9	1.34

- Notes: 1) Load Case A2 represents riser load of 0 lbf (Ref:Pit1A2.po)
 2) Load Case B2 represents riser load of 50,000 lbf (Ref:Pit1B2.po)

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 3/3)

75	5.58	86.51	115.9	1.34	115.9	1.34
76	5.58	86.53	115.9	1.34	115.9	1.34
77	5.58	86.53	115.9	1.34	115.9	1.34
78	5.58	86.51	115.9	1.34	115.9	1.34
79	5.58	86.51	115.9	1.34	115.9	1.34
80	5.58	86.52	115.9	1.34	115.9	1.34
81	4.96	76.86	115.9	1.51	115.9	1.51
82	4.34	67.22	115.9	1.72	115.9	1.72
83	4.34	67.19	115.9	1.72	115.9	1.72
84	4.34	67.19	115.9	1.72	115.9	1.72
85	3.42	52.99	115.9	2.19	115.9	2.19
86	2.50	38.79	115.9	2.99	115.9	2.99
87	2.67	41.40	115.9	2.80	115.9	2.80
88	2.85	44.10	0.0	0.00	0.0	0.00
89	2.85	44.10	0.0	0.00	0.0	0.00
90	2.84	44.02	0.0	0.00	0.0	0.00
91	2.84	44.01	0.0	0.00	5,312.5	120.71
92	2.84	44.00	0.0	0.00	5,312.5	120.75
93	2.83	43.94	0.0	0.00	5,312.5	120.91
94	2.84	43.95	0.0	0.00	5,312.5	120.88
95	2.84	43.99	0.0	0.00	5,312.5	120.77
96	2.84	43.98	0.0	0.00	5,312.5	120.81
97	2.84	43.98	0.0	0.00	5,312.5	120.81
98	2.84	44.03	0.0	0.00	5,312.5	120.66
99	2.84	44.08	0.0	0.00	0.0	0.00
100	2.84	44.08	0.0	0.00	0.0	0.00
163	4.94	76.53	0.0	0.00	0.0	0.00
164	7.03	108.98	0.0	0.00	0.0	0.00
165	7.03	108.98	0.0	0.00	0.0	0.00
166	8.02	124.24	170.0	1.37	170.0	1.37
167	9.00	139.50	0.0	0.00	0.0	0.00
168	9.00	139.50	0.0	0.00	0.0	0.00
169	9.00	139.50	0.0	0.00	0.0	0.00
170	9.00	139.50	0.0	0.00	0.0	0.00
171	9.00	139.50	0.0	0.00	0.0	0.00
172	9.00	139.50	0.0	0.00	0.0	0.00
Maximum Shear Stress =				40.69		120.91

Notes: 1) Load Case A2 represents riser load of 0 lbf (Ref.Pit1A2.po)
 2) Load Case B2 represents riser load of 50,000 lbf (Ref.Pit1B2.po)

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$\therefore V_u$, Node 93 shear force per inch width for riser load of 0 lbf
= 0 lbf < 1,082.4 lbf (OK)

$\therefore V_u$, Node 93 shear force per inch width for riser load of 50,000 lbf
= $120.9 \times 15.5 \times 1.0$
= 1874.0 lbf > 1,082.4 lbf (Not OK)

By interpolation, the controlling riser load is
= $50,000 \cdot 1082.4 / 1874.0$
= 28,879 lbf

Combined Shear and Torsion:

Per Reference 2.5, Sections 11.6.1 , 11.1.1 and 11.5.5.1, no shear reinforcement is required if the following two conditions are satisfied:

1) $T_u < \phi 0.5 (f_c)^{1/2} \Sigma x^2 y$
where $\phi = 0.85$
 $x = 15.5$ inch
 $y = 1.0$ inch

Allowable torsional moment = $0.85 \times 0.5 \times (3000)^{1/2} \times 15.5^2 \times 1.0$
= 5592.6 inch-lbf

The torsional moment is controlled by Element 1122 for Load Combination C..

The derivation of the controlling riser load is computed by interpolating between moments for the two riser loads of 0 lbf and 50,000 lbf.

At the riser load of 0 lbf, torsion for Element 1122 = -1999.3 inch-lbf
At the riser load of 50,000 lbf, torsion for Element 1122 = 8503.3 inch-lbf

By interpolation, the required riser load with a torsion of 5592.6 inch-lbf is
= $(5,592.6 + 1,999.3) \cdot 50,000 / (8,503.3 + 1,999.3)$
= 36,143.0 lbf

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$$2) V_u > \phi V_c$$

$$\phi V_c = 1,082.4 \text{ lbf}$$

At 28,879 lbf of 12" riser load, $V_u = 1082.4 \text{ lbf} \approx 1,082.4 \text{ lbf}$ (O.K.)

The allowable riser load based on the above condition is 28,879 lbf.

In summary, the capacity is controlled by the shear requirement.

For non-seismic load combination, $F_v = 28,870 \text{ lbf}$.

To accommodate the interaction relationship between the Pump and the Sluicing Adaptor Rings, the allowable loads can be presented as follows:

$$\begin{aligned} \text{For } F_{V(PC)} &\leq 3,000 \text{ lbf} \\ F_{V(S)} &\leq 28,870 \text{ lbf} \end{aligned}$$

$$\begin{aligned} \text{For } F_{V(PC)} &> 3,000 \text{ lbf} \\ F_{V(S)} &\leq 28,870 - (F_{V(PC)} - 3,000) (28,870 / 89,230) \text{ lbf} \\ &\leq 29,840 - 0.324 F_{V(PC)} \text{ lbf} \end{aligned}$$

where $F_{V(PC)}$ denotes F_v for Pump Column Adaptor Ring, and,
 $F_{V(S)}$ denotes F_v for Sluicing Adaptor Ring.

The seismic response of the pit floor is computed using seismic "equivalent static" analysis. For the following reasons, non-seismic loads will control over seismic loads for the pit floor (Adaptor Ring loads excluded):

- Based on the computation of the pit floor capacity for the non-seismic load combination, it has been established that the capacity is primarily governed by the vertical pump column load. Since the vertical ZPA of the pit floor (0.16g) is significantly less than the ACI load factors of 1.4 and 1.7 for dead and live loads, respectively, the vertical seismic load condition is not going to govern.

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- The lateral soil pressure due to horizontal seismic acceleration will have negligible effect on the seismic pit floor capacity. The pit is basically a box structure where the pit walls act as shear walls and effectively limit lateral drift of the top of the pit from seismic-induced lateral loads. Thus, significant flexing of the pit floor is averted. In addition, the pit floor is supported by soil which is modeled as spring elements. It is therefore concluded that the moment due to horizontal seismic loads for critical elements located around the penetration in the pit floor will be negligible.

The computed seismic spectra and vertical zero period accelerations (ZPA) for the pit floor are computed using soil-structure-interaction analysis (WHC Calculation WHC-SD-W320-ANAL-002) and the seismic spectra and the ZPA are presented in Attachment 6.

$$\text{For } F_{V(PC)} \leq 3,000 \text{ lbf} \\ F_{V(S)} \leq 49,070 \text{ lbf}$$

$$\text{For } F_{V(PC)} > 3,000 \text{ lbf} \\ F_{V(S)} \leq 49,070 - (F_{V(PC)} - 3,000) (49,070 / 153,380) \text{ lbf} \\ \leq 50,030 - 0.320 F_{V(PC)} \text{ lbf}$$

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6.2 Stud Evaluation (M_H , M_V , F_H)

This section calculates the allowable loads which are dependent on the capacity of the studs at the top of the Adaptor Ring.

The applied horizontal moment M_H has two resisting components: the moment to overcome compression due to dead load at the outer edge of the plate M_{DL} and the moment resistance offered by the studs M_{stud} .

M_{DL} can be expressed in terms of the lower bound, unfactored dead load F_{DL} . The footprint of the plate is as shown (see Drawing H-2-41311).

$$A = \pi(10.5^2 - 7.4^2) = 192 \text{ inch}^2$$

$$I = \pi(10.5^4 - 7.4^4) / 4 = 7,661 \text{ inch}^4$$

$$S = 7,661 / 10.5 = 730 \text{ inch}^3$$

Let σ_1 = uniform stress under the plate due to F_{DL} .

σ_2 = normal stress at extreme fiber of plate due to M_{DL} .

$$\sigma_1 = F_{DL} / A = F_{DL} / 192 \text{ (nonseismic)}$$

$$= F_{DL} (1 - 0.16) / A = F_{DL} / 229 \text{ (seismic)}$$

where the vertical ZPA is 0.16g per Attachment 6.

$$\sigma_2 = M_{DL} / S = M_{DL} / 730$$

To relieve compression at the plate edge,

$$\begin{aligned} \sigma_1 &= \sigma_2 \\ M_{DL} &= 3.80 F_{DL} \text{ (nonseismic)} \\ M_{DL} &= 3.19 F_{DL} \text{ (seismic)} \end{aligned}$$

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Studs are AISC Type 416 (cold drawn), 1 1/4" Ø.

$$A_{nom} = 1.227 \text{ inch}^2$$

Per Reference 2.7, $F_y = 85 \text{ ksi}$, $F_u = 100 \text{ ksi}$

$$T_{cap} = 0.33 F_u A_{nom} \text{ (Per Reference 2.5, Table I-B)} \\ = 40,491 \text{ lbf}$$

$$V_{cap} = 0.17 F_u A_{nom} \text{ (Per Reference 2.5, Table I-D)} \\ = 20,859 \text{ lbf}$$

For the seismic condition, capacity may be increased by 1.33 per Reference 2.6, Section A5.

Interaction equation: $T / T_{cap} + V / V_{cap} \leq 1.0$

$$((M_H - M_{DL}) / (2 \times 8.22)) / T_{cap} + (F_H / 4 + M_V / (4 \times 8.22)) / V_{cap} \leq 1.0$$

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Tensile stud capacity based on shear stress across threads (Per Reference 2.11, Section 20-4)

$$\tau = 4 F / (3 \pi d_s w N_e)$$

For 1-1/4" 12NF threads, 1" long.

d_s , minor $\varnothing = 1.1478$ " ext. 1.1598" int. (Reference 2.11)

p , pitch = $1/12 = 0.083$ "

w , width of thread at root = $3 p / 4 = 0.0625$ "

N_e , number of threads engaged = 12

Let τ = minimum allowable shear stress in stud or plate
 $= 0.4 F_y = 0.4 (85) = 34$ ksi (stud)
 $= 0.4 (30) = 12$ ksi (plate* controls)

* plate material is ASTM A-285, Gr. C, $F_y = 30$ ksi

$F = 12 (3 \pi) 1.1598 (0.0625) 12 / 4 = 24.6$ kip (non-seismic)
 $= 24.6 \times 1.33 = 32.7$ kip (seismic)

Use the above values in place of T_{cap} on preceding page.

For non-seismic condition;

$$(M_H - 3.80 F_{DL}) / 404,400 + F_H / 83,400 + M_V / 685,800 \leq 1.0$$

$$M_H \leq 404,400 + 3.80 F_{DL} - 4.85 F_H - 0.59 M_V$$

For seismic condition;

$$(M_H - 3.19 F_{DL}) / 537,800 + F_H / 110,900 + M_V / 912,100 \leq 1.0$$

$$M_H \leq 537,800 + 3.19 F_{DL} - 4.85 F_H - 0.59 M_V$$

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 (9) Checker APB Date 8/30/94

6.3 Bearing Evaluation of Fill Concrete (M_v)

Rotation of the Adaptor ring about its vertical axis is resisted primarily through bearing of the attached 2" horizontal pipe and three stiffeners against the fill concrete. Because the fill concrete is unreinforced and thus has reduced allowable, concrete bearing stress controls the value of the M_v (moment about the vertical axis) for the Adaptor Ring. An ANSYS model was used to calculate F_z (horizontal resistance force) and M_y (resistance moment about the vertical axis) when the bearing capacity of the 2" pipe on fill concrete is reached. The computer analysis for the calculation of F_z and M_y is documented in Attachment 7.

2" horizontal pipe bearing on fill concrete;

Per Attachment 7, the pipe bearing on fill concrete;

$$M_v = (30.26 / 228,000) [543,025 (9) + 383,159]$$

$$= 699 \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
 (8) Originator S.B/KOK Date 8/30/94
 (9) Checker APR Date 8/30/94

Three stiffeners bearing on fill concrete;

STIFFENER DIMENSIONS

$$M_v = 30.26 \times 3 \{ (4.5 \times 11/8) (9 + (11/8)/2) + 4.5 (3.5 - (11/8)/2) (9 + (11/8) + (3.5 - 11/8)/3) \} = 10,252 \text{ inch-lbf}$$

For non-seismic condition;

M_v is subjected to a load factor of 1.7, and hence the allowable $M_v = (699 + 10,252) / 1.7 = 6,441 \text{ inch-lbf}$

For seismic condition;

$$M_v = 10,951 \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
 (8) Originator SBKOK Date 8/30/94
 (9) Checker J.P. Day Date 8/30/94

6.4 Horizontal Force Demand (F_H)

Moment due to eccentricity of F_H is considered in Section 6.5.

Check fill concrete bearing (Per Reference 2.10, ACI 318.1-89):

$$\begin{aligned}\text{Bearing strength} &= 0.85 \phi (f'_c)^{1/2} A \\ &= 0.85 (0.65) (3,000)^{1/2} A \\ &= 30.26 A \text{ lbf}\end{aligned}$$

Let A = projected area of Adaptor Ring
 = 5" deep x 18" diameter = 90 inch²

$$F_H = 30.26 (90) = 2,723 \text{ lbf}$$

Check fill concrete compression (Per Reference 2.10, ACI 318.1-89):

6'-0" max distance from penetration centerline to East pit wall.

$$\begin{aligned}F_H &= 0.60 \phi f'_c [1 - (kl_c / (32(h))^2)] A_c \text{ lbf} \\ &= 0.60 (0.65) (3,000) [1 - (72 / (32(5))^2)] A_c \text{ lbf} \\ &= 933 A_c \text{ lbf}\end{aligned}$$

Conservatively let $A_c = 90 \text{ inch}^2$

$$F_H = 933 (90) = 83,980 \text{ lbf} \quad \begin{array}{l} \text{(based on axial compression)} \\ \text{(Does NOT control)} \end{array}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
(8) Originator SBFok Date 8/30/94
(9) Checker APQm Date 8/30/94

Check shear friction at wall / floor joint:

Minimum dowels = 5/8" diameter @ 16" each face (sluicing pit)

Minimum wall thickness = 18"

Conservatively let width of section = diameter of Adaptor Ring = 18".

$$A_{vf} = 2 \times 0.31 \times 18 / 16 = 0.70 \text{ inch}^2 \text{ (area of reinforcement)}$$

Per ACI 349, Section 11.7;

$$\phi A_{vf} f_y \mu = 0.85 (0.70) 38,000 (0.6) = 13,566 \text{ lbf}$$

$$\phi (0.2) A_c f'_c = 0.85 (0.2) 18 \times 18 (3,000) = 165,240 \text{ lbf} > 13,566 \text{ lbf}$$

$$\phi (800) A_c = 0.85 (800) 18 \times 18 = 220,320 \text{ lbf} > 13,566 \text{ lbf}$$

$$\therefore \text{Bearing controls, } F_H = 2,723 \text{ lbf}$$

For non-seismic condition;

F_H is subjected to a load factor of 1.7, and hence
the allowable $F_H = 2,723 / 1.7 = 1,601 \text{ lbf}$

For seismic condition;

$$F_H = 2,723 \text{ lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
 (8) Originator SBKOK Date 8/30/94
 (9) Checker APD Date 8/30/94

6.5 Overturning Demand (M_H , F_H)

Since the cinch anchors cannot be relied upon for providing resistance to uplift, loads which result in overturning at the base of the Adaptor Ring are based on overcoming dead load. In other words, the allowable overturning moment at the base of the Adaptor Ring is that moment required to overcome compression due to dead load at the outer edge of the Adaptor Ring bottom plate (M_{DL}). The footprint of the bottom plate is shown below.

$$A = 22(25.5) - \pi(7.5^2) - 3.875(6.71) - 8.875(15.29) \\ = 223 \text{ inch}^2$$

$$I = 22(25.5^3)/12 - \pi(7.5^4)/4 \\ - 2[15.29(8.875^3)/36 + 15.29(8.875/2)9.792^2] \\ - 2[6.71(3.875^3)/36 + 6.71(3.875/2)11.458^2] \\ = 10,873 \text{ inch}^4$$

$$S = 10,873 / 12.75 = 853 \text{ inch}^3$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
 (8) Originator SB KOK Date 8/30/94
 (9) Checker gpb Date 8/30/94

In addition to the lower-bound, unfactored dead load applied at the top of the Adaptor Ring (F_{DL}), dead weight of fill concrete helps to resist overturning moment. The dead weight of the reinforced concrete below the fill concrete is not considered since there is no structural bond between the two concrete layers.

Assuming a depth of fill concrete above the bottom plate equal to 5 in. and considering only the fill concrete within the vertical projection of the bottom plate, the dead weight of the fill concrete is as follows:

$$DL_{fill} = 150/1728 \times 5[22(25.5) - \pi(9^2) - 3.875(6.71) - 8.875(15.29)] \\ = 63 \text{ lbf}$$

Let σ_1 = uniform stress under the bottom plate due to F_{DL} and DL_{fill}
 σ_2 = normal stress at outer edge of bottom plate due to M_{DL}

+

=

$$\sigma_1 = (F_{DL} + 63) / A \\ = F_{DL} / 223 + 0.283 \quad (\text{nonseismic}) \\ \sigma_1 = (F_{DL} + 63) (1 - 0.16) / A \\ = F_{DL} / 265 + 0.238 \quad (\text{seismic})$$

where the vertical ZPA is 0.16 g per Attachment 6.

$$\sigma_2 = M_{DL} / S \\ = M_{DL} / 853$$

To relieve compression at the plate edge,

$$\sigma_1 = \sigma_2$$

$$M_{DL} = 3.83 F_{DL} + 241 \quad (\text{nonseismic}) \\ M_{DL} = 3.22 F_{DL} + 203 \quad (\text{seismic})$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
(8) Originator SBKOK Date 8/30/94
(9) Checker 4P10ay Date 8/30/94

Horizontal moment @ bottom Adaptor Ring plate due to loads applied at the top flange of Adaptor Ring = $M_H + 7.0 F_H$ (where the moment arm = 7.0")

$$M_{DL} = M_H + 7.0 F_H$$

$$M_H + 7.0 F_H = 3.83 F_{DL} + 241 \text{ (non-seismic)}$$

$$M_H + 7.0 F_H = 3.22 F_{DL} + 203 \text{ (seismic)}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Sluicing Adaptor Ring in the 241-C-106 Pump Pit and Sluicing Pit
 (8) Originator SB/KOK Date 8/30/94
 (9) Checker L. P. Ray Date 8/30/94

7.0 ALLOWABLE LOADS SUMMARY

Based on the capacities developed in Sections 6.1 through 6.5, the expressions for allowable loads at the Sluicing Adaptor Ring are summarized below. Forces and moments arising from load combinations are acceptable if the following set of inequalities are satisfied:

Non-seismic

$$\begin{array}{llll}
 F_H & \leq & 1,600 \text{ lbf} & \\
 M_V & \leq & 6,440 \text{ inch-lbf} & \\
 * \quad F_{V(S)} & \leq & 28,870 \text{ lbf} & \text{for } F_{V(PC)} \leq 3,000 \text{ lbf} \\
 & \leq & 29,840 - 0.324 F_{V(PC)} \text{ lbf} & \text{for } F_{V(PC)} > 3,000 \text{ lbf} \\
 M_H & \leq & 240 + 3.83 F_{DL} - 7.0 F_H \text{ inch-lbf} &
 \end{array}$$

Seismic

$$\begin{array}{llll}
 F_H & \leq & 2,720 \text{ lbf} & \\
 M_V & \leq & 10,950 \text{ inch-lbf} & \\
 ** \quad F_{V(S)} & \leq & 49,070 \text{ lbf} & \text{for } F_{V(PC)} \leq 3,000 \text{ lbf} \\
 & \leq & 50,030 - 0.320 F_{V(PC)} \text{ lbf} & \text{for } F_{V(PC)} > 3,000 \text{ lbf} \\
 M_H & \leq & 200 + 3.22 F_{DL} - 7.0 F_H \text{ inch-lbf} &
 \end{array}$$

- Notes: (1) $F_{V(PC)}$ denotes F_V for Pump Column Adaptor Ring in the Pump Pit.
 (2) $F_{V(S)}$ denotes F_V for Sluicing Adaptor Ring in the Pump Pit.
 (3) • $F_V = 28,870$ lbf for Sluicing Adaptor Ring in the Sluicing Pit.
 (4) ** $F_V = 49,070$ lbf for Sluicing Adaptor Ring in the Sluicing Pit.

ATTACHMENT 1

PIT FLOOR CAPACITY CALCULATION

Prepared by: SB/KOK Date: 6/12/94

Checked by: A. P. Day Date: 6/17/94

Attachment 1 calculates the pit floor capacities by computing the M-P interaction diagrams for the pit floor spanning both in the East West and the North South directions. In the East West direction, the top and bottom reinforcement are the same while in the North South direction, the top and bottom reinforcement are different at various sections of the floor. In the middle section, the top reinforcement is double the amount of the bottom reinforcement and vice versa for the outer sections near the wall. As such, two cases have been evaluated for the pit floor spanning in the North South direction; Case A consists of less tensile reinforcement while Case B consists of more tensile reinforcement. With reference to Dwg. # H-2-41343, the reinforcement details for each section are computed on one inch width basis and are provided below.

Section spanning in the East West direction:

$$d' = d'' = 3.0''(\text{assumed}) + 0.625'' + 0.25'' = 3.875''$$

$$A_s = 0.20 / 10 = 0.020 \text{ in}^2 / \text{inch width (T \& B)}$$

Section spanning in the North South direction (Case A):

$$d' = d'' = 3.0''(\text{assumed}) + 0.625'' / 2 = 3.313''$$

$$A_s' = 0.31 / 14 = 0.022 \text{ in}^2 / \text{inch width (T)}$$

$$A_s'' = 0.31 / 7 = 0.044 \text{ in}^2 / \text{inch width (B)}$$

Section spanning in the North South direction (Case B):

$$d' = d'' = 3.0''(\text{assumed}) + 0.625'' / 2 = 3.313''$$

$$As' = 0.31 / 7 = 0.044 \text{ in}^2 / \text{inch width (T)}$$

$$As'' = 0.31 / 14 = 0.022 \text{ in}^2 / \text{inch width (B)}$$

The above section properties are entered into Microsoft Excel spreadsheets in which the section capacities are computed. The tabulated M-P capacities and the M-P interaction diagrams are provided as follows.

Pit Floor Capacity (Spanning East West)

Section	lh	As	Id	As'	Id'	Id	lb	Temp(45 best)	lfc	Beta 1	ly (rebar)	E (rebar)	yield strain=ty/E	Tnal c	10.85lc*b	
	[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]		
long dir	15.50	0.021	3.675	0.021	3.675	11.63	1		70	3000	0.85	38000	28,300,000	.0013428	0.705	2550
															0.701	
															1.301	
															1.901	
															2.501	
															3.101	
															3.701	
															4.301	
															4.901	
															5.501	
															6.101	
															6.701	
															7.301	
															7.901	
															8.501	
															9.101	
															9.701	
															10.301	
															10.901	
															11.501	

Tnal c	lxb	reps	lfs	reps'	lfs'	lCc	lCs	lT	lP	lM	- 10.1lcAgc0.7	lphi	lphi x P	lphi x M
[in]	[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.705	3.675												-1.368	0
0.701		4.675E-02	38000	-1.358E-02	-38000	1,519	-760	760	-1	11,323	6,643	0.900	-1	10,191
1.301		2.381E-02	38000	-5.935E-03	-38000	2,820	-760	760	1,300	20,295	6,643	0.861	1,119	17,471
1.901		1.535E-02	38000	-3.115E-03	-38000	4,120	-760	760	2,500	28,604	6,643	0.822	2,137	23,504
2.501		1.094E-02	38000	-1.648E-03	-38000	5,421	-760	760	3,901	36,250	6,643	0.783	3,053	28,368
3.101		8.246E-03	38000	-7.488E-04	-21191	6,721	-424	760	5,538	44,535	6,643	0.723	4,051	32,657
3.701		6.423E-03	38000	-1.410E-04	-3992	8,022	-80	760	7,182	52,188	6,643	0.700	5,027	36,531
4.301		5.109E-03	38000	2.971E-04	8409	9,322	168	760	8,731	58,805	6,643	0.700	6,111	41,163
4.901		4.116E-03	38000	6.280E-04	17773	10,623	355	760	10,218	64,523	6,643	0.700	7,153	45,165
5.501		3.340E-03	38000	8.867E-04	25095	11,923	502	760	11,665	69,420	6,643	0.700	8,166	48,594
6.101		2.716E-03	38000	1.095E-03	30976	12,224	620	760	13,083	73,542	6,643	0.700	9,158	51,480
6.701		2.204E-03	38000	1.265E-03	25805	14,524	716	760	14,481	76,920	6,643	0.700	10,135	53,844
7.301		1.777E-03	38000	1.408E-03	38000	15,825	760	760	15,225	79,430	6,643	0.700	11,077	55,601
7.901		1.414E-03	38000	1.529E-03	38000	17,125	760	760	17,125	81,106	6,643	0.700	11,988	56,774
8.501		1.102E-03	31200	1.633E-03	38000	18,425	760	624	18,562	81,592	6,643	0.700	12,993	57,115
9.101		8.320E-04	23546	1.723E-03	38000	19,725	760	471	20,016	81,349	6,643	0.700	14,011	56,944
9.701		5.950E-04	16838	1.802E-03	38000	21,027	760	337	21,450	80,516	6,643	0.700	15,015	56,361
10.301		3.856E-04	10912	1.871E-03	38000	22,327	760	218	22,869	79,080	6,643	0.700	16,008	55,356
10.901		1.992E-04	5639	1.934E-03	38000	23,628	760	113	24,275	77,032	6,643	0.700	16,993	53,922
11.501		3.225E-05	915	1.989E-03	38000	24,928	760	18	25,670	74,363	6,643	0.700	17,969	52,054

Pit Floor M-P Interaction Diagram (Spanning East West)

Pit Floor Capacity (Spanning North South - Case A)

Section	h	As	As'	Id	Id'	Id	Id'	Temp(45 best)	Ic	Beta 1	fy (rebar)	E (rebar)	yield strain=fy/E	Tnal c	10.85/c"b
	[in]	[in ²]	[in ²]	[in]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]	
long dir	15.50	0.022	3.313	0.044	3.313	12.19	1		70	3000	0.85	38000	28,300,000	.0013428	0.705
															0.701
															1.301
															1.901
															2.501
															3.101
															3.701
															4.301
															4.901
															5.501
															6.101
															6.701
															7.301
															7.901
															8.501
															9.101
															9.701
															10.301
															10.901
															11.501

Tnal c	lxc	lecs	lfs	lecs'	lfs'	lCc	lCs	lT	lP	lM	0.11cAgC.7	pni	pni x P	pni x M
[in]	[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.705	4.525												-2.257	0
0.701		4.916E-02	38000	-1.118E-02	-38000	1.519	-1672	836	-989	7.701	6.643	0.900	-890	6.531
1.301		2.510E-02	38000	-4.640E-03	-38000	2.920	-1672	836	312	16.558	6.643	0.891	278	14.747
1.901		1.623E-02	38000	-2.228E-03	-38000	4.120	-1672	836	1.512	24.753	6.643	0.851	1.373	21.076
2.501		1.162E-02	38000	-9.740E-04	-27564	5.421	-1213	836	3.372	34.280	6.643	0.798	2.693	27.372
3.101		8.790E-03	38000	-2.051E-04	-3604	6.721	-255	836	5.630	45.312	6.643	0.730	4.113	23.100
3.701		6.879E-03	38000	3.145E-04	8901	8.022	392	836	7.578	54.330	6.643	0.700	5.304	38.031
4.301		5.501E-03	38000	6.891E-04	19503	9.322	858	836	9.345	61.900	6.643	0.700	6.541	42.330
4.901		4.460E-03	38000	9.720E-04	27509	10.623	1210	836	10.997	68.310	6.643	0.700	7.698	47.817
5.501		3.646E-03	38000	1.193E-03	33769	11.923	1456	836	12.573	72.723	6.643	0.700	8.801	51.606
6.101		2.993E-03	38000	1.371E-03	38000	13.224	1672	836	14.060	78.084	6.643	0.700	9.842	54.659
6.701		2.456E-03	38000	1.517E-03	38000	14.524	1672	836	15.360	80.972	6.643	0.700	10.752	56.681
7.301		2.008E-03	38000	1.539E-03	38000	15.825	1672	836	16.661	82.197	6.643	0.700	11.663	58.238
7.901		1.627E-03	38000	1.742E-03	38000	17.125	1672	836	17.961	84.759	6.643	0.700	12.573	59.231
8.501		1.301E-03	36812	1.831E-03	38000	18.426	1672	810	19.288	85.539	6.643	0.700	13.502	59.878
9.101		1.017E-03	28788	1.908E-03	38000	19.726	1672	633	20.765	84.976	6.643	0.700	14.536	59.493
9.701		7.688E-04	21757	1.975E-03	38000	21.027	1672	479	22.220	83.848	6.643	0.700	15.554	58.693
10.301		5.493E-04	15544	2.035E-03	38000	22.327	1672	342	23.657	82.138	6.643	0.700	16.560	57.497
10.901		3.539E-04	10016	2.088E-03	38000	23.628	1672	220	25.080	79.833	6.643	0.700	17.556	55.883
11.501		1.789E-04	5064	2.136E-03	38000	24.928	1672	111	26.489	76.922	6.643	0.700	18.542	53.845

Pit Floor M-P Diagram (Spanning North South - Case A)

Pit Floor Capacity (Spanning North South - Case B)

Section	h	As	As'	As''	As'''	As''''	As'''''	Temp(45 best)	I/c	Beta 1	Iy (rebar)	IE (rebar)	yield strain=ty/E	Trial c	0.85/c''s	
	[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	(deg F)	[psi]		[psi]	[psi]		[in]		
long dir	15.50	0.044	3.313	0.022	3.313	12.19	1		70	3000	0.85	38000	28,300,000	.0013428	0.705	2550
															0.701	
															1.301	
															1.901	
															2.501	
															3.101	
															3.701	
															4.301	
															4.901	
															5.501	
															6.101	
															6.701	
															7.301	
															7.901	
															8.501	
															9.101	
															9.701	
															10.301	
															10.901	
															11.501	

Trial c	ixp	iecs	ifs	iecs'	ifs'	ICc	ICs	IT	IP	IM	IC,1fcAg/G.7	iprv	prv x P	prv x M
[in]	[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.705	4.349												-2.257	0
0.701		4.916E-02	38000	-1.118E-02	-38000	1.519	-836	1672	-989	14.545	6.643	0.900	-890	13.450
1.301		2.510E-02	38000	-4.640E-03	-38000	2.820	-836	1672	312	24.032	6.643	0.891	278	21.403
1.901		1.623E-02	38000	-2.228E-03	-38000	4.120	-836	1672	1.512	32.456	6.643	0.851	1.373	27.625
2.501		1.162E-02	38000	-9.740E-04	-27564	5.421	-606	1672	3.142	41.255	6.643	0.805	2.531	32.227
3.101		8.790E-03	38000	-2.051E-04	-5804	6.721	-128	1672	4.922	50.519	6.643	0.752	3.700	37.981
3.701		6.879E-03	38000	3.145E-04	8901	8.022	196	1672	6.546	58.417	6.643	0.703	4.601	41.063
4.301		5.501E-03	38000	6.891E-04	19503	9.322	429	1672	8.079	65.243	6.643	0.700	5.656	45.670
4.901		4.460E-03	38000	9.720E-04	27509	10.623	605	1672	9.556	71.148	6.643	0.700	6.689	49.804
5.501		3.646E-03	38000	1.193E-03	33769	11.923	743	1672	10.954	76.216	6.643	0.700	7.696	53.351
6.101		2.993E-03	38000	1.371E-03	38000	13.224	836	1672	12.388	80.418	6.643	0.700	8.672	56.293
6.701		2.456E-03	38000	1.517E-03	38000	14.524	836	1672	13.688	83.536	6.643	0.700	9.582	58.475
7.301		2.008E-03	38000	1.639E-03	38000	15.825	836	1672	14.989	85.990	6.643	0.700	10.492	60.193
7.901		1.627E-03	38000	1.742E-03	38000	17.125	836	1672	16.289	87.782	6.643	0.700	11.403	61.447
8.501		1.301E-03	36812	1.831E-03	38000	18.425	836	1620	17.642	88.622	6.643	0.700	12.350	62.078
9.101		1.017E-03	25758	1.908E-03	38000	19.725	836	1257	19.296	87.512	6.643	0.700	13.507	61.228
9.701		7.688E-04	21757	1.975E-03	38000	21.027	836	957	20.906	86.058	6.643	0.700	14.634	60.248
10.301		5.493E-04	15544	2.035E-03	38000	22.327	836	684	22.479	84.018	6.643	0.700	15.736	58.812
10.901		3.539E-04	10016	2.088E-03	38000	23.628	836	441	24.023	81.435	6.643	0.700	16.816	57.004
11.501		1.789E-04	5054	2.136E-03	38000	24.928	836	223	25.542	78.299	6.643	0.700	17.979	54.809

Pit Floor M-P Diagram (Spanning North South - Case B)

ATTACHMENT 2

EXCERPTS OF COMPUTER FILES FOR THE FIRST PIT MODEL

Prepared by: SB KOK Date: 6/17/94

Checked by: AP Dam Date: 6/17/94

This Attachment 2 provides a full listing of the computer input files and excerpts of the post processed output files for the first model. A list of the files and their descriptions are provided below:

- 1) PIT1.INP ; Full listing of the first pit model input file
- 2) PIT1.PI ; Full listing of the first pit model post processed input file
- 3) PIT1A1.PO ; L. C. A element force output excerpts for 12" riser load of 0 lb.
- 4) PIT1A2.PO ; L. C. A nodal force output excerpts for 12" riser load of 0 lb.
- 5) PIT1B1.PO ; L. C. A element force output excerpts for 12" riser load of 50,000 lb.
- 6) PIT1B2.PO ; L. C. A nodal force output excerpts for 12" riser load of 50,000 lb.
- 7) PIT1B3.PO ; L. C. A displacement output excerpts for 12" riser load of 50,000 lb.
- 8) PIT1B4.PO ; L. C. A reaction force output excerpts for 12" riser load of 50,000 lb.
- 9) PIT1C1.PO ; L. C. B element force output excerpts for 12" riser load of 0 lb.
- 10) PIT1D1.PO ; L. C. B element force output excerpts for 12" riser load of 50,000 lb.
- 11) PIT1E1.PO ; L. C. C element force output excerpts for 12" riser load of 0 lb.
- 12) PIT1F1.PO ; L. C. C element force output excerpts for 12" riser load of 50,000 lb.

1) PIT1.INP (Full Listing)

/OUT,Pit1,out
/TITLE Pump Pit Penetration Model
/PREP7

ET,1,63 ! Shell Element Type
ET,2,21,,,2 ! Mass Element Type

EX, 1,3.122e6 ! Concrete Properties For Pit Floor
DENS,1,.0003406 ! Adjusted for 8" Fill Concrete
NUXY,1,.15

EX, 2,3.122e6 ! Concrete Properties For Pit Wall
DENS,2,.0002247
NUXY,2,.15

R,1,15.5,,,13.98 ! Pit Floor
R,2,18.0 ! Pit Wall (18")
R,3,23.5 ! Pit Wall (23.5")

R,4,0.999 ! Pit Cover Distributed Mass
R,5,0.455 ! Pit Wall (North Side) Additional Mass

C*** Define Local Coordinate Systems

LOCAL ,11 ,1 , 99.0, 0.0 ! Cylindrical System For 12" Riser
LOCAL ,12 ,1 , 147.0, 0.0 ! Cylindrical System For Pump Column

C*** Define Wall Nodes

CSYS,0
N, 1, 0.0 , 0.0 , 0.0
N, 15, 0.0 , -75.0 , 0.0 \$FILL, 1, 15, 13
N, 48, 195.25 , -75.0 , 0.0 \$FILL, 15, 48, 32
N, 62, 195.25 , 0.0 , 0.0 \$FILL, 48, 62, 13

NGEN, 5, 100, 1, 62, 1, 0.0 , 0.0 , 27.083/4.0
NGEN, 13, 100, 401, 462, 1, 0.0 , 0.0 , 81.667/13.0

C*** Define Wall Elements

TYPE,1 \$MAT,2
REAL,2 \$EN, 1, 1, 2, 102, 101 SRP47, 1, 1, 1, 1, 1 ! East/North Sides
REAL,3 \$EN, 48, 48, 49, 149, 148 SRP14, 1, 1, 1, 1, 1 ! West Side
EGEN, 16, 100, 1, 61, 1

C*** Define Remaining Boundary Nodes For Pit Floor (63-100,163-172)

N, 66, 177.25 , 0.0 , 0.0 \$FILL, 62, 66, 3

CSYS,12
N, 66, 30.25 , 0.0 , 0.0
N, 72, 30.25 , -42.353, 0.0 \$FILL, 66, 72, 5
N, 81, 30.25 , -137.647, 0.0 \$FILL, 72, 81, 8
N, 85, 30.25 , -170.517, 0.0 \$FILL, 81, 85, 3
N, 87, 30.25 , -180.0 , 0.0 \$FILL, 85, 87, 1

CSYS,0
N, 87, 116.750, 0.0 , 0.0
N, 91, 105.375, 0.0 , 0.0 \$FILL, 87, 91, 3

CSYS,11
N, 91, 6.375, 0.0 , 0.0
N, 93, 6.375, -51.429, 0.0 \$FILL, 91, 93, 1
N, 96, 6.375, -128.572, 0.0 \$FILL, 93, 96, 2
N, 98, 6.375, -180.0 , 0.0 \$FILL, 96, 98, 1

CSYS,0
N, 98, 92.625, 0.0 , 0.0
N, 100, 86.937, 0.0 , 0.0 \$FILL, 98, 100, 1
N, 163, 84.093, 0.0 , 0.0
N, 166, 63.0 , 0.0 , 0.0 \$FILL, 163, 166, 2
N, 173, 0.0 , 0.0 , 0.0 \$FILL, 166, 173, 6

C*** Start Of Pit Floor Generation

N, 2000, 0.0 , 0.0 , 0.0

C*** Defining K Points For Pit Floor

CSYS,0

K , 1 , 0.0 , 0.0
K , 2 , 0.0 , -10.714
K , 3 , 0.0 , -32.143
K , 4 , 0.0 , -58.929
K , 5 , 0.0 , -75.0
K , 6 , 63.0 , 0.0
K , 7 , 63.0 , -10.714
K , 8 , 57.203 , -32.143
K , 9 , 41.417 , -58.929
K , 10 , 41.417 , -75.0
K , 11 , 84.093 , 0.0
K , 12 , 84.093 , -4.984
K , 13 , 75.703 , -26.392
K , 14 , 59.167 , -58.929
K , 15 , 59.167 , -75.0

CSYS,11

K , 16 , 6.375 , -180.0
K , 17 , 6.375 , -128.572
K , 21 , 6.375 , 0.0
K , 22 , 6.375 , -51.429

CSYS,0

K , 18 , 95.025 , -20.379
K , 19 , 76.917 , -58.929
K , 20 , 76.917 , -75.0
K , 23 , 102.975 , -20.379
K , 24 , 94.667 , -58.929
K , 25 , 94.667 , -75.0
K , 26 , 111.063 , 0.0
K , 27 , 111.063 , -4.984
K , 28 , 111.063 , -20.379
K , 29 , 106.500 , -58.929
K , 30 , 106.500 , -75.0

CSYS,12

K , 31 , 30.25 , -180.0
K , 32 , 30.25 , -170.517
K , 33 , 30.25 , -137.647
K , 36 , 30.25 , 0.0
K , 37 , 30.25 , -42.353

CSYS,0

K , 34 , 118.333 , -58.929
K , 35 , 118.333 , -75.0
K , 38 , 171.583 , -58.929
K , 39 , 171.583 , -75.0
K , 40 , 195.25 , 0.0
K , 41 , 195.25 , -32.143
K , 42 , 195.25 , -58.929
K , 43 , 195.25 , -75.0

C*** Defining L Lines For Pit Floor

CSYS,0

L , 1 , 2 , 2 ! Line 1
L , 2 , 3 , 4 ! Line 2
L , 3 , 4 , 5 ! Line 3
L , 4 , 5 , 3 ! Line 4

L , 1 , 6 , 7 \$RPS,1,1 ! Line 5 - 9

L , 6 , 7 , 2 ! Line 10

```

L, 7, 8, 4          ! Line 11
L, 8, 9, 5          ! Line 12
L, 9, 10, 3         ! Line 13

L, 6, 11, 3  SRP5,1,1      ! Line 14 - 18

L, 11, 12, 2        ! Line 19
L, 12, 13, 4        ! Line 20
L, 13, 14, 5        ! Line 21
L, 14, 15, 3        ! Line 22

L, 11, 16, 3  SRP5,1,1      ! Line 23 - 27

CSYS,11  SL, 16, 17, 2  SCSYS,0 ! Line 28
L, 17, 18, 4          ! Line 29
L, 18, 19, 5          ! Line 30
L, 19, 20, 3          ! Line 31

CSYS,11  SL, 17, 22, 3  SCSYS,0 ! Line 32
L, 18, 23, 3  SRP3,1,1      ! Line 33 - 35

CSYS,11  SL, 21, 22, 2  SCSYS,0 ! Line 36
L, 22, 23, 4          ! Line 37
L, 23, 24, 5          ! Line 38
L, 24, 25, 3          ! Line 39

L, 21, 26, 2  SRP5,1,1      ! Line 40 - 44

L, 26, 27, 2        ! Line 45
L, 27, 28, 4        ! Line 46
L, 28, 29, 5        ! Line 47
L, 29, 30, 3        ! Line 48

L, 26, 31, 2  SRP5,1,1      ! Line 49 - 53

CSYS,12  SL, 31, 32, 2  SCSYS,0 ! Line 54
CSYS,12  SL, 32, 33, 4  SCSYS,0 ! Line 55
L, 33, 34, 5          ! Line 56
L, 34, 35, 3          ! Line 57

CSYS,12  SL, 33, 37, 9  SCSYS,0 ! Line 58
L, 34, 38, 9  SRP2,1,1      ! Line 59 - 60

CSYS,12  SL, 36, 37, 6  SCSYS,0 ! Line 61
L, 37, 38, 5          ! Line 62
L, 38, 39, 3          ! Line 63

L, 36, 40, 4  SRP4,1,1      ! Line 64 - 67

L, 40, 41, 6        ! Line 68
L, 41, 42, 5        ! Line 69
L, 42, 43, 3        ! Line 70

```

C*** Defining Areas For Pit Floor

```

A, 1, 6, 7, 2  SRP4,1,1,1,1 ! Area 1 - 4
A, 6, 11, 12, 7 SRP4,1,1,1,1 ! Area 5 - 8
A, 11, 16, 17, 12 SRP4,1,1,1,1 ! Area 9 - 12
A, 17, 22, 23, 18 SRP3,1,1,1,1 ! Area 13 - 15
A, 21, 26, 27, 22 SRP4,1,1,1,1 ! Area 16 - 19
A, 26, 31, 32, 27 SRP4,1,1,1,1 ! Area 20 - 23
A, 33, 37, 38, 34 SRP2,1,1,1,1 ! Area 24 - 25
A, 36, 40, 41, 37 SRP3,1,1,1,1 ! Area 26 - 28

```

```

TYPE,1  SMAT,1  SREAL,1
ELSIZE,,2
AMESH,1,28,1

```

```

Nummrg,Node,0.1      ! Node Merging

```

C*** Defining Wall Masses On Wall Top


```

TYPE,2
REAL,4   $E, 1601   $RP62, 1   ! Pit Cover Mass Along The Top
REAL,5   $E, 1615   $RP34, 1   ! Additional Mass Along The North Side

WSORT,ALL,0,0                      ! Wave Front Sorting

C*** Define Boundary Conditions Along Symmetric Nodes
NRSEL, Y, -0.1, 0.1              ! Pit Floor & Wall Nodes
D, ALL, UY, ,,,, ROTX, ROTZ
NALL
D, 1, UX

/COM Loading
ITER,1,1,1
KRF,1
PRDISP,-1
PRSTR,-1
PRRFOR,-1
PRNF,-1
C*** Load Case 1
C*** Unfactored Gravity Load
ACEL,0.,0., 386.4                ! Gravity Load
LWRITE
C***
KUSE,1
C*** Load Case 2
C*** Unfactored Pressure Load
FDEL,ALL
ACEL,0.,0.,0.
F, 401,FX, 1047.2   $RP15, 1     ! Soil Pressure Loading On East Side
F, 415,FY, 1188.0   $RP34, 1     ! Soil Pressure Loading On North Side
F, 448,FX,-1047.2   $RP15, 1     ! Soil Pressure Loading On West Side
LWRITE
C***
KUSE,1
C*** Load Case 3
C*** Unfactored Pump Load (3000 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 66,FZ, -68.2     $RP22, 1     ! Pump Column Load (Half of 3000 lb)
LWRITE
C***
KUSE,1
C*** Load Case 4
C*** Unfactored Riser Load (100 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 166,FZ, -100.0           ! 4" Riser Load (Half of 200 lb)
LWRITE
C***
C*** Load Case 5
C*** Unfactored 12" Riser Load Of 10000 lb
FDEL,ALL
ACEL,0.,0., 0.0           ! No Gravity Load
F, 91,FZ, -625.0   $RP8,1       ! 12" Riser Load (Half of 10000 lb)
LWRITE
C***
AFWRITE
FINI
/INP,27
FINI
/EOF

```

2) PIT1.PI (Full Listing)

```

/CORE,,5E6
/POST1
/OUT,Pit1,po
C*** Stress Specifications
GLOBAL,0
STORE,STRES,DISP,NFORC,RFORC
C***
STRESS,FXc, 63,1
STRESS,FYc, 63,2
STRESS,FXyc,63,3
STRESS,MXc, 63,6
STRESS,MYc, 63,7
STRESS,MXyc,63,8
C***
LCLIM,6
NLINE,9999

C***
C*** Load Case 1 - Unfactored Gravity Load
C***
C*** Load Case 2 - Unfactored Pressure Load
C***
C*** Load Case 3 - Unfactored Pump Load (3000 lb)
C***
C*** Load Case 4 - Unfactored Riser Load (100 lb)
C***
C*** Load Case 5 - Unfactored 12" Riser Load Of 10000 lb
C***

NFILE,PIT1,12 ,1

LCASE,1 SSET, 1, 1 * Read in Load Case 1
LCASE,2 SSET, 2, 1 * Read in Load Case 2
LCASE,3 SSET, 3, 1 * Read in Load Case 3
LCASE,4 SSET, 4, 1 * Read in Load Case 4
LCASE,5 SSET, 5, 1 * Read in Load Case 5

LCABS,0

C***

/OUT,Pit1a1,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 1.7H
LCFACT,1.4,1.7,1.7,1.7,1.7*0.0,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4
LCASE,6
ESEL,REAL,1
PRSTRS,FXc,FYc,FXyc,MXc,MYc,MXyc
/OUT,Pit1a2,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 1.7H
NSEL,, 1,172,1
MUSEL,,101,162,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit1a3,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 1.7H
ESEL,REAL,1
NELEM
PRDISP
/OUT,Pit1a4,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 1.7H
NALL
PRRFOR

/OUT,Pit1b1,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H
LCFACT,1.4,1.7,1.7,1.7,1.7*5.0,1.,1.,1.,1.,1.

```

```

LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,REAL,1
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit1b2,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H
NSEL,, 1,172,1
MUSEL,,101,162,1
ENDD
EUSEL,REAL,2,3
NFORC
/OUT,Pit1b3,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H
ESEL,REAL,1
NELEM
PRDISP
/OUT,Pit1b4,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H
NALL
PRRFOR

/OUT,Pit1c1,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 0.9H
LCFACT,1.4,0.9,1.7,1.7,1.7*0.0,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4
LCASE,6
ESEL,REAL,1
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit1c2,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 0.9H
NSEL,, 1,172,1
MUSEL,,101,162,1
ENDD
EUSEL,REAL,2,3
NFORC
/OUT,Pit1c3,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 0.9H
ESEL,REAL,1
NELEM
PRDISP
/OUT,Pit1c4,po
C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit1d1,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 0.9H
LCFACT,1.4,0.9,1.7,1.7,1.7*5.0,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,REAL,1
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit1d2,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 0.9H
NSEL,, 1,172,1
MUSEL,,101,162,1
ENDD
EUSEL,REAL,2,3
NFORC
/OUT,Pit1d3,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 0.9H
ESEL,REAL,1
NELEM
PRDISP
/OUT,Pit1d4,po
C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit1e1,po
C*** Output For Factored 12" Riser Load of 0 lb + 0.9DL + 1.7L + 0.9H

```

```

LCFACT,0.9,0.9,1.7,1.7,1.7*0.9,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4
LCASE,6
ESEL,REAL,1
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit1e2,po
C*** Output For Factored 12" Riser Load of      0 lb + 0.9DL + 1.7L + 0.9H
HSEL,, 1,172,1
HUSEL,,101,162,1
ENCODE
EUSEL,REAL,2,3
HFORC
/OUT,Pit1e3,po
C*** Output For Factored 12" Riser Load of      0 lb + 0.9DL + 1.7L + 0.9H
ESEL,REAL,1
NELEM
PRDISP
/OUT,Pit1e4,po
C*** Output For Factored 12" Riser Load of      0 lb + 0.9DL + 1.7L + 0.9H
HALL
PRRFOR

/OUT,Pit1f1,po
C*** Output For Factored 12" Riser Load of 50000 lb + 0.9DL + 1.7L + 0.9H
LCFACT,0.9,0.9,1.7,1.7,1.7*5.0,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,REAL,1
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit1f2,po
C*** Output For Factored 12" Riser Load of 50000 lb + 0.9DL + 1.7L + 0.9H
HSEL,, 1,172,1
HUSEL,,101,162,1
ENCODE
EUSEL,REAL,2,3
HFORC
/OUT,Pit1f3,po
C*** Output For Factored 12" Riser Load of 50000 lb + 0.9DL + 1.7L + 0.9H
ESEL,REAL,1
NELEM
PRDISP
/OUT,Pit1f4,po
C*** Output For Factored 12" Riser Load of 50000 lb + 0.9DL + 1.7L + 0.9H
HALL
PRRFOR

FINISH
/EOF

```

3) PIT1A1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 1.7H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	1.70000
3	1.70000
4	1.70000
5	1.00000
6	1.00000

LOAD CASE OPERATION FOR LCAD COMMAND. RESULT LOAD CASE = 6					
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	1.70000	2	1	1	0.000000E+00
3	1.70000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00

CURRENT LOAD CASE= 6

TITLE
143.080

15.5880 MAR 24, 1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-383.80901	-284.03907	-0.55243063	7255.3954	594.63298	-100.64512
982	-305.08143	-313.65000	-5.7316783	-2585.5431	-4347.2727	-186.12658
1068	-0.97424556	-21.921208	6.7580311	644.99769	550.51725	-424.75567
1122	-207.94463	-643.02140	-233.77698	-2694.1391	-8836.5661	-3072.3555
1159	-347.10642	-99.136027	-127.28219	-6604.9450	-2753.6062	-1381.8979
1195	-144.13453	-1048.8650	128.48787	-680.97327	-11955.672	1456.3067
1197	-131.75860	-718.04220	179.61010	-1694.1943	-9612.2825	2335.8849
1212	-291.33377	-373.34010	-84.231972	-2521.8266	-1861.1212	230.60172
1221	-450.77724	-378.75875	-30.730233	951.64976	9222.9290	14.159462
1232	-158.59952	-513.94753	-243.27160	-2306.1374	-5162.7296	-2347.0703
1234	-188.04914	-421.90918	-236.67313	-2815.7434	-3678.1728	-2119.9482
1240	-326.99058	-312.63559	-96.569185	-2465.6477	-1249.5243	873.97437
1252	-454.94978	-52.660418	-30.871958	-2524.4362	-849.64675	1923.9535
1256	-705.52382	-60.681017	61.962165	-1799.2428	-376.01144	4058.8813
1257	-775.93007	-61.373589	65.372258	-1690.7165	-320.77187	3913.9613
1258	-797.30254	-56.876155	51.505718	-1334.3757	-191.71328	3548.6591
1323	-30.337916	-331.60130	-1.3331860	1084.7868	1592.2928	-339.88035
1347	-236.65870	-478.69670	250.15430	2419.9234	-2146.5553	-943.46513
1378	13.708346	-17.253961	7.9012508	892.40251	465.08542	363.57730

MINIMUMS						
ELEMENT	1258	1195	1232	1159	1195	1122
VALUE	-797.30254	-1048.8650	-243.27160	-6604.9450	-11955.672	-3072.3555

MAXIMUMS						
ELEMENT	1378	1378	1347	977	1221	1256
VALUE	13.708346	-17.253961	250.15430	7255.3954	9222.9290	4058.8813

4) PIT1A2.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 1.7H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1

172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1

110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-1031.3774	1314.7283	1439.9371	-2635.8387	-24715.838	-0.4704724E-02
2	-2050.3919	-15.868484	2860.7257	0.33845360E-02	-49095.756	0.3055910E-02
3	-2013.8794	-32.920174	2805.1931	0.62051495E-02	-48064.682	0.5792034E-02
4	-1958.1433	-50.184390	2714.2093	0.91517491E-02	-46408.291	0.7946769E-02
5	-1885.1180	-68.998360	2585.7571	0.12588218E-01	-44107.560	0.9585138E-02
6	-1796.7285	-88.268968	2417.4345	0.16056170E-01	-41234.964	0.1098517E-01
7	-1691.2962	-108.17787	2210.5016	0.18926229E-01	-37791.934	0.1222592E-01
8	-1567.8660	-123.33811	1964.4951	0.22246464E-01	-33862.317	0.1318810E-01
9	-1423.1183	-136.01920	1677.5385	0.25758131E-01	-29443.212	0.1386872E-01
10	-1253.4542	-142.50127	1349.8546	0.28746172E-01	-24652.766	0.1426100E-01
11	-1055.0412	-139.10954	983.60547	0.30904628E-01	-19578.330	0.1426496E-01
12	-821.42951	-118.90834	574.11190	0.32936467E-01	-14397.644	0.1418541E-01
13	-540.64783	-86.378054	105.37953	0.33147283E-01	-9283.9174	0.1411353E-01
14	-195.91503	-37.965443	-449.60657	0.34630473E-01	-4707.6413	0.1365981E-01
15	12.573960	-51.525603	-893.32254	596.98539	-568.97493	0.1198321E-01
16	-85.986231	-323.83305	-569.16080	4515.0232	-0.42104853E-01	-0.1221218E-01
17	-171.29404	-653.13524	57.129609	9728.7134	-0.42883895E-01	-0.1575617E-01
18	-229.75907	-941.09968	611.35102	15669.684	-0.42008314E-01	-0.1711372E-01
19	-259.41649	-1190.9282	1108.5896	21799.354	-0.39124535E-01	-0.1676584E-01
20	-267.10827	-1405.2174	1560.3858	27842.425	-0.34753325E-01	-0.1550237E-01
21	-259.26511	-1586.2848	1965.4449	33620.169	-0.29744388E-01	-0.1387431E-01
22	-240.20868	-1737.2982	2322.2363	39010.179	-0.24684496E-01	-0.1220307E-01
23	-212.61132	-1861.7829	2631.5022	43930.199	-0.19863728E-01	-0.1066022E-01
24	-178.25445	-1963.1982	2895.5952	48328.278	-0.15387231E-01	-0.9319304E-02
25	-138.47670	-2044.6877	3117.5268	52172.776	-0.11276376E-01	-0.8190555E-02
26	-94.548113	-2108.9163	3300.6439	55448.219	-0.75354832E-02	-0.7248261E-02
27	-47.808148	-2158.1089	3448.4610	58150.180	-0.41499849E-02	-0.6449629E-02
28	0.36921950	-2194.0153	3564.0218	60282.042	-0.10280188E-02	-0.5742125E-02
29	48.379021	-2217.8737	3649.2558	61844.663	0.19559263E-02	-0.5065417E-02
30	94.449991	-2230.2984	3704.8820	62837.344	0.49005407E-02	-0.4348979E-02
31	136.36140	-2231.3848	3730.9588	63254.816	0.78546689E-02	-0.3511107E-02
32	171.73542	-2221.0869	3727.4182	63094.043	0.10818195E-01	-0.2467662E-02
33	198.14776	-2199.4543	3694.6874	62354.554	0.13750363E-01	-0.1146229E-02
34	213.65362	-2166.8560	3634.0300	61044.241	0.16590292E-01	0.4992707E-03
35	217.13339	-2124.0912	3547.0674	59178.504	0.19364595E-01	0.2484495E-02
36	208.77152	-2072.4487	3435.2973	56773.711	0.22091607E-01	0.4789911E-02
37	190.49017	-2013.2757	3299.9875	53852.892	0.24770682E-01	0.7361487E-02
38	166.08812	-1946.8271	3141.5998	50439.495	0.27477373E-01	0.1012193E-01
39	140.67700	-1870.9172	2958.3367	46555.101	0.30388278E-01	0.1298764E-01
40	119.39036	-1780.1962	2744.8922	42214.714	0.33775713E-01	0.1589315E-01
41	105.87701	-1666.5840	2491.9614	37428.944	0.37919775E-01	0.1880089E-01
42	101.01065	-1521.0517	2187.1146	32214.436	0.42992134E-01	0.2167288E-01
43	102.65559	-1335.8191	1816.9090	26612.760	0.48908654E-01	0.2439442E-01
44	105.33793	-1106.7949	1369.7277	20718.239	0.55148421E-01	0.2665403E-01
45	100.69534	-835.92371	839.74998	14711.123	0.60314544E-01	0.2776539E-01
46	78.352745	-533.51195	234.64109	8923.7000	0.61242197E-01	0.2646674E-01
47	35.932252	-228.65273	-377.10833	3990.3192	0.51209189E-01	0.2099451E-01
48	-112.71872	-10.539602	-631.40289	611.05382	1257.7443	-0.7628425E-02

49	164.29418	58.730293	-78.975971	0.44918364E-01	6658.6535	-0.2485348E-01
50	646.00091	92.741705	646.43469	0.40582665E-01	12194.280	-0.2139827E-01
51	1009.9218	134.74312	1231.9313	0.36971395E-01	18198.643	-0.2017768E-01
52	1296.8609	189.87831	1703.7062	0.34468826E-01	24135.766	-0.2070824E-01
53	1538.9290	261.21542	2104.2510	0.30447618E-01	29545.750	-0.2079220E-01
54	1733.9687	344.86611	2428.6883	0.24735372E-01	34300.522	-0.2070281E-01
55	1875.7348	434.48605	2657.2084	0.16607532E-01	38152.391	-0.2017215E-01
56	1955.1100	517.46316	2773.4128	0.91394895E-02	40613.077	-0.1775880E-01
57	1961.8012	594.39232	2795.9263	0.38866159E-02	42022.630	-0.1424250E-01
58	1858.4706	621.81205	2709.5930	-0.64795165E-02	41967.855	-0.1126578E-01
59	1670.9932	583.88302	2517.4680	-0.13700279E-01	40768.750	-0.8486151E-02
60	1449.8995	460.57287	2280.0562	-0.15258958E-01	38983.728	-0.5706150E-02
61	1270.7778	255.33487	2083.5082	-0.10061952E-01	37407.808	-0.2870387E-02
62	601.01715	887.91729	1003.5228	-2163.7318	18390.348	0.6676876E-02
63	-0.15347723E-11	1664.7646	-0.22899610E-06	-4254.6787	-0.13727731E-06	0.1187980E-01
64	-0.29672265E-10	1659.0246	-0.20186917E-06	-4307.6916	0.51540155E-07	0.9375631E-02
65	-0.57553962E-11	1568.5369	0.11917518E-06	-5474.1568	0.28597651E-06	0.7681264E-02
66	0.19325876E-11	713.22570	115.94000	-5429.6739	0.94487084E-07	0.3508558E-02
67	-0.34106051E-11	0.10231815E-11	115.94000	0.60105776E-07	-0.91499146E-07	0.1734723E-17
68	0.10800250E-11	0.22737368E-11	115.94000	-0.81416147E-07	-0.29441026E-06	-0.8673617E-18
69	-0.22737368E-11	-0.14779289E-11	115.94000	0.53986241E-07	-0.14391026E-06	-0.1734723E-17
70	0.68212103E-12	-0.18189894E-11	115.94000	0.13184808E-06	-0.13013982E-06	-0.1843143E-17
71	-0.31150194E-10	-0.31832315E-10	115.94000	-0.31741365E-09	-0.13128181E-06	-0.1033244E-15
72	0.16171953E-10	0.29444891E-10	115.94000	-0.23948087E-06	-0.52639734E-07	-0.3647256E-15
73	-0.25465852E-10	0.27284841E-11	115.94000	0.67833980E-07	0.96015356E-07	0.6505213E-16
74	-0.68212103E-11	-0.81513463E-10	115.94000	0.42487864E-06	0.12259989E-06	0.9454242E-16
75	-0.81854523E-10	-0.36152414E-10	115.94000	-0.12203009E-06	0.81654434E-07	-0.1999268E-15
76	-0.11368684E-10	-0.13983481E-10	115.94000	0.42944521E-07	-0.93203425E-07	-0.1554745E-15
77	0.60936145E-10	0.21291413E-10	115.94000	-0.41877229E-07	0.11625707E-06	0.1234906E-15
78	0.90949470E-11	-0.82422957E-11	115.94000	-0.96327540E-07	0.20471452E-06	-0.4349006E-16
79	0.30013325E-10	-0.48771653E-10	115.94000	0.70743454E-07	-0.12093551E-06	-0.2346213E-15
80	0.18872015E-10	0.46497917E-10	115.94000	0.21429287E-06	0.37151040E-07	0.4404029E-15
81	-0.45474735E-12	0.25920599E-10	115.94000	0.76961442E-08	0.15808473E-06	-0.2370065E-15
82	-0.19326762E-11	0.45474735E-11	115.94000	0.68430381E-08	-0.39335646E-10	-0.2488244E-16
83	0.79012352E-11	0.63664629E-11	115.94000	0.40663508E-07	-0.17879506E-06	0.4716279E-17
84	0.44337867E-11	-0.22737368E-12	115.94000	-0.23444773E-06	0.34692391E-07	-0.1147221E-16
85	-0.40074610E-11	-0.36379788E-11	115.94000	-0.85514330E-07	-0.98116459E-07	-0.7792703E-18
86	-0.21316282E-11	-0.68212103E-12	115.94000	0.25426380E-06	-0.50510209E-07	-0.2642742E-18
87	-0.23347856E-12	1131.2142	115.94000	15642.206	-0.26605788E-07	0.5269096E-04
88	0.22595259E-11	2187.5790	0.53090673E-07	29666.014	-0.75393018E-07	0.1187390E-03
89	-0.10516032E-11	2151.3950	0.65431158E-06	29779.742	0.62790832E-07	0.1600310E-03
90	-0.34106051E-11	2562.8827	-0.53386418E-06	32085.678	0.36729602E-07	0.2122940E-03
91	0.38924966E-12	1864.5642	-0.18237929E-06	20819.276	-0.89335283E-07	0.1183111E-03
92	-0.27853275E-11	-0.90949470E-12	-0.37456903E-06	0.35409539E-06	-0.16662452E-06	0.3523657E-18
93	-0.65760730E-11	-0.28421709E-11	-0.91987658E-06	-0.64937922E-09	0.45147499E-06	-0.1301042E-17
94	-0.39790393E-11	-0.34816594E-12	0.96856184E-07	0.39653469E-06	-0.37969585E-07	0.4244651E-16
95	0.31263880E-11	-0.31263880E-11	0.31751961E-06	0.14945977E-06	0.87791705E-07	0.5014435E-18
96	-0.69348971E-11	-0.19326762E-11	0.90892172E-07	0.29902549E-06	0.17913044E-06	0.1645276E-16
97	-0.46611603E-11	-0.22737368E-11	-0.16139506E-06	-0.20618609E-06	-0.33067408E-07	0.0000000E-00
98	-0.11051680E-11	1518.7533	0.91992378E-07	19529.805	0.73438060E-07	0.2776343E-03
99	-0.11368684E-12	2110.1059	-0.60579268E-06	27229.908	0.30117462E-07	0.5283313E-03
100	-0.10231815E-11	1607.0838	-0.15533834E-06	23771.430	0.94742063E-07	0.4489255E-03
163	0.11368684E-12	2408.8209	0.15059101E-06	38112.365	-0.23791927E-07	0.6044330E-03
164	-0.73896445E-11	3077.5687	0.43120110E-07	47211.416	0.91857146E-07	0.7617961E-03
165	0.94360075E-11	2794.5583	-0.93380265E-07	42780.729	-0.24630026E-07	0.5381270E-03
166	0.46611603E-11	2914.5396	170.00000	43849.056	-0.22315362E-07	0.6934360E-04
167	-0.19326762E-10	2975.0152	0.39611791E-07	42861.848	0.70704118E-07	-0.6347850E-03
168	0.22737368E-10	2681.1126	0.28337922E-07	35443.886	0.81881808E-08	-0.1562489E-02
169	0.12960300E-10	2435.0064	0.14986801E-06	26975.511	-0.13144472E-07	-0.2729690E-02
170	0.79580786E-12	2270.1955	0.37745849E-07	17731.625	-0.39666020E-07	-0.4177697E-02
171	0.48316906E-10	2235.8132	-0.13849672E-06	8051.2318	-0.32222488E-07	-0.5964576E-02
172	0.21168489E-09	2397.7322	0.96110853E-07	-1579.5192	-0.14308171E-07	-0.8180397E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.2437247E-08
FY = 0.4555844E-08
FZ = 127137.0
MX = -5196699.
MY = -0.1303313E+08
MZ = -0.6323496E-04

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

5) PIT1B1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 50000 (b + 1.40L + 1.7L + 1.7H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	1.70000
3	1.70000
4	1.70000
5	8.50000
6	1.00000

LOAD CASE	OPERATION FOR	LCAD	COMMAND.	RESULT	LOAD CASE =
LOAD CASE	FACTOR	LOAD	STEP	ITERATION	SECTION
1	1.40000	1	1	1	0.000000E+00
2	1.70000	2	1	1	0.000000E+00
3	1.70000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00
5	8.50000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

TITLE
184.550

15.5996 MAR 24, 1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXCY	MXC	MYC	MXCY
977	-320.91058	-249.03264	-1.1068922	4042.2833	380.22467	-19.578848
982	-245.34332	-266.98226	-4.9226023	-4834.3212	-500.94114	174.43525
1068	23.957834	53.616823	10.897040	672.63556	739.95449	-209.59659
1122	-169.43566	-522.43494	-190.06820	6058.6396	14409.794	7430.2826
1159	-284.29043	-81.042449	-102.37477	16941.513	1999.9742	1458.6299
1195	-117.65600	-855.20832	104.88243	2957.3059	22877.845	-3922.4574
1197	-108.64597	-585.58626	147.05070	6347.7914	16411.805	-6672.0995
1212	-224.29737	-298.24741	-71.521442	1778.9887	-4194.4119	-20.828426
1221	-294.06897	-292.68385	-27.956293	557.25342	3174.3761	147.68653
1232	-131.99307	-424.95809	-201.94826	2327.9482	696.69360	554.02565
1234	-155.07068	-349.21046	-196.15233	2477.0028	-2116.5180	-91.429575
1240	-248.04612	-254.67332	-86.702245	887.78791	-4066.8825	-1135.2190
1252	-356.83503	-41.554587	-32.597486	-2493.3654	-993.62908	-3434.3484
1256	-518.90343	-47.139212	52.555331	-3003.0700	-805.55539	-1537.3465
1257	-587.98308	-48.136756	59.171569	-2854.6164	-675.69334	-1072.5827
1258	-622.61925	-44.884699	49.745315	-2453.2212	-567.92627	-736.91555
1323	-25.164635	-262.31304	0.11751779	251.48775	586.74653	-63.899517
1347	-181.59858	-389.83485	198.64477	-876.14446	-687.68625	292.86862
1378	28.695293	48.177831	-0.40376561	1002.7679	643.12357	185.37270

MINIMUMS						
ELEMENT	1258	1195	1232	982	1212	1197
VALUE	-622.61925	-855.20832	-201.94826	-4834.3212	-4194.4119	-6672.0995

MAXIMUMS						
ELEMENT	1378	1068	1347	1159	1195	1122
VALUE	28.695293	53.616823	198.64477	16941.513	22877.845	7430.2826

6) PJ11B2.PO (Excerpts of output file)

C*** Output for factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1
172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.
NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1
110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.
SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.
167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY EXOD COMMAND.
EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1
106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

MODE	FX	FY	FZ	MX	MY	MZ
1	-865.23648	1153.5073	1276.1158	-913.56496	-15874.605	-0.4454404E-02
2	-1720.3155	-5.0448185	2545.6553	0.15449795E-02	-31615.006	0.2589003E-02
3	-1690.2194	-12.083977	2527.0793	0.26734080E-02	-31167.850	0.4952279E-02
4	-1644.0781	-21.366578	2495.0069	0.41453030E-02	-30451.033	0.6915307E-02
5	-1582.9466	-34.854861	2443.6524	0.66309219E-02	-29400.758	0.8599258E-02
6	-1507.2760	-52.2121276	2364.7984	0.97027885E-02	-28031.732	0.1031006E-01
7	-1413.6097	-74.088097	2252.9952	0.12879336E-01	-26263.881	0.1212327E-01
8	-1299.7784	-95.517788	2101.4304	0.16943060E-01	-24114.585	0.1382788E-01
9	-1161.7448	-118.64819	1901.6602	0.22017158E-01	-21509.728	0.1527546E-01
10	-996.65471	-139.65946	1646.6514	0.27183400E-01	-18497.617	0.1628398E-01
11	-803.61269	-153.40112	1333.6012	0.31897627E-01	-15112.917	0.1650052E-01
12	-583.52435	-150.20204	957.82052	0.36152349E-01	-11494.146	0.1597329E-01
13	-333.80704	-131.21583	511.49152	0.37235795E-01	-7765.9818	0.1422812E-01
14	-38.69309	-81.360799	-16.391249	0.36182623E-01	-4446.2777	-0.1060103E-01
15	64.215514	175.45560	-372.98421	1282.3166	-1390.4538	-0.9851176E-03
16	-120.02897	55.590403	121.92722	5906.0135	-0.4964833E-01	-0.1670574E-01
17	-185.15679	-390.44808	808.89923	10781.073	-0.47710808E-01	-0.2005159E-01
18	-209.02898	-756.33598	1376.4492	15940.648	-0.41907688E-01	-0.2061104E-01
19	-201.35811	-1059.2629	1844.7779	20783.391	-0.34539336E-01	-0.1909252E-01
20	-173.86943	-1305.9365	2226.0666	25011.432	-0.25916607E-01	-0.1647643E-01
21	-135.28685	-1500.3547	2521.1537	28451.067	-0.16972307E-01	-0.1345124E-01
22	-91.137851	-1647.0221	2730.596	31005.996	-0.82723477E-02	-0.1042129E-01
23	-45.02471	-1751.0100	2857.3667	32640.840	-0.15433509E-03	-0.7617860E-02
24	0.32430071	-1817.7755	2907.5878	33380.513	0.70844338E-02	-0.5117768E-02
25	42.616030	-1853.0726	2890.9573	33305.637	0.13140666E-01	-0.3178327E-02
26	79.814157	-1862.9208	2821.1882	32550.750	0.17689827E-01	-0.3187639E-02
27	110.29478	-1853.6099	2715.7790	31296.692	0.20475116E-01	-0.7694539E-03
28	133.02765	-1831.4914	2593.9859	29756.892	0.21483478E-01	-0.3725825E-03
29	147.46624	-1802.5924	2474.5650	28146.355	0.20862662E-01	-0.4674876E-03
30	153.49723	-1772.2058	2374.5931	26670.283	0.18779557E-01	-0.9587020E-03
31	151.32704	-1744.5114	2308.8294	25503.279	0.15516889E-01	-0.1695457E-02
32	141.63361	-1722.3213	2287.8590	24772.251	0.11551153E-01	-0.2474747E-02
33	129.63288	-1706.8328	2316.1980	24535.370	0.75056669E-02	-0.3063439E-02
34	104.11743	-1697.6374	2391.4359	24777.248	0.40021272E-02	-0.3234864E-02
35	79.164193	-1692.9333	2504.4897	25412.722	0.16124143E-02	-0.2801052E-02
36	52.432305	-1689.8957	2640.8320	26295.161	0.75099314E-03	-0.1638943E-02
37	26.34745	-1684.7729	2782.4788	27336.007	0.16230129E-02	-0.2941880E-03
38	4.0676432	-1672.4601	2910.1507	28023.270	0.42373914E-02	-0.2963154E-02
39	-10.632845	-1645.7950	3004.5927	28443.074	0.85190521E-02	-0.6276547E-02
40	-14.088253	-1595.1085	3046.7490	28293.286	0.14417218E-01	-0.1011990E-01
41	-3.7557605	-1508.6583	3017.3626	27398.804	0.21922148E-01	-0.1437489E-01
42	20.674609	-1374.3375	2896.7003	25628.262	0.31046378E-01	-0.1889681E-01
43	56.831293	-1182.0649	2664.4715	22913.245	0.41755636E-01	-0.2342771E-01
44	98.593970	-926.98325	2300.2739	19272.389	0.53752026E-01	-0.2743023E-01
45	135.00368	-613.20766	1785.7578	14846.948	0.65916762E-01	-0.2982491E-01
46	147.24870	-257.35801	1112.3009	9977.6653	0.75078924E-01	-0.2871822E-01
47	110.90051	-111.36349	339.94824	5389.0313	0.72290267E-01	-0.2175412E-01
48	-127.57797	169.62601	-70.081662	1255.0846	2599.9606	-0.5851929E-02

49	69.133163	-1.0670567	508.20225	0.46525191E-01	7347.3175	-0.1998846E-01
50	485.64806	23.216645	1218.2947	0.43194098E-01	11225.979	-0.1797070E-01
51	774.41586	71.840477	1755.6188	0.36348878E-01	15186.281	-0.1741149E-01
52	997.38318	139.41212	2142.8053	0.29205043E-01	18680.432	-0.1793117E-01
53	1187.3983	221.54272	2409.2043	0.20308513E-01	21392.718	-0.1760636E-01
54	1341.7113	308.52114	2559.1453	0.11130664E-01	23314.591	-0.1699311E-01
55	1455.9102	391.89762	2597.1391	0.20246795E-02	24420.100	-0.1617263E-01
56	1524.6708	461.65678	2540.6168	-0.26676307E-02	24368.318	-0.1434428E-01
57	1542.4664	517.86800	2429.4659	-0.50946461E-02	24071.598	-0.1180856E-01
58	1479.4661	531.15445	2265.3023	-0.10346982E-01	23161.834	-0.9765331E-02
59	1352.0711	490.48554	2064.8230	-0.11913054E-01	21992.458	-0.7764224E-02
60	1194.3670	382.36210	1873.2078	-0.10251232E-01	20805.295	-0.5487370E-02
61	1062.7572	210.54369	1735.2126	-0.59293823E-02	19916.713	-0.2858331E-02
62	505.76039	673.62918	842.43817	-1185.7642	9793.1942	0.5319227E-02
63	0.68212103E-11	1264.4539	-0.29061414E-06	-2325.1750	-0.18912488E-06	0.9311591E-02
64	-0.31093350E-10	1281.0120	-0.27397101E-06	-2141.3804	0.41777639E-07	0.7101718E-02
65	-0.45190518E-11	1230.6921	0.18051024E-06	-2392.1172	0.32922162E-06	0.5678917E-02
66	0.94336505E-12	562.67813	115.94000	-1821.7202	0.14340184E-06	0.2569562E-02
67	-0.24158453E-11	0.68212103E-12	115.94000	-0.99544195E-09	-0.89905143E-07	0.1734723E-17
68	0.51159077E-12	0.19326762E-11	115.94000	-0.14193529E-06	-0.30255615E-06	0.0000000E+00
69	-0.90949470E-12	-0.13642421E-11	115.94000	0.23948360E-07	-0.15152364E-06	-0.2818925E-17
70	0.53432814E-11	-0.14779289E-11	115.94000	0.10059352E-06	-0.83521627E-07	-0.1843143E-17
71	-0.37289283E-10	-0.39790393E-10	115.94000	-0.19758772E-08	-0.11406019E-06	-0.1240327E-15
72	0.18090418E-10	0.35242920E-10	115.94000	-0.32498724E-06	-0.10537360E-06	-0.4625206E-15
73	-0.29331204E-10	0.36379788E-11	115.94000	0.10610313E-06	0.10142139E-06	0.8370040E-16
74	-0.13642421E-10	-0.10140866E-09	115.94000	0.52006544E-06	0.16443664E-06	0.1058181E-15
75	-0.10277290E-09	-0.40529358E-10	115.94000	-0.17130833E-06	0.10871372E-06	-0.2422107E-15
76	-0.19554136E-10	-0.17337243E-10	115.94000	0.62484105E-07	-0.10910480E-06	-0.1860490E-15
77	0.76852302E-10	0.27643665E-10	115.94000	-0.39658971E-07	0.16044942E-06	-0.1655576E-15
78	0.63664629E-11	-0.13415047E-10	115.94000	-0.12512101E-06	0.24165820E-06	-0.6174531E-16
79	0.35470293E-10	-0.58548721E-10	115.94000	0.44341959E-07	-0.14448233E-06	-0.2695326E-15
80	0.22851054E-10	0.58889782E-10	115.94000	0.23874441E-06	0.37991413E-07	0.5386316E-15
81	0.25011104E-11	0.31263880E-10	115.94000	-0.69840098E-08	0.19689651E-06	-0.3194059E-15
82	-0.20463631E-11	0.52295945E-11	115.94000	0.18076207E-07	0.16173999E-07	-0.3187554E-16
83	0.96065378E-11	0.75033313E-11	115.94000	0.98460077E-07	-0.19996423E-06	0.5759824E-17
84	0.48885340E-11	-0.22737368E-12	115.94000	-0.28863906E-06	0.37675818E-07	-0.1423015E-16
85	-0.50874860E-11	-0.43200998E-11	115.94000	-0.13185490E-06	-0.99219777E-07	-0.9961107E-18
86	-0.33821834E-11	0.00000000E+00	115.94000	0.25124245E-06	-0.32971059E-07	-0.3388131E-18
87	-0.30331159E-12	934.16740	115.94000	-23845.630	-0.45571925E-07	0.1851449E-04
88	0.16910917E-11	1801.9534	0.17256082E-06	-46923.261	-0.41809045E-07	0.4569422E-04
89	-0.85265128E-12	1765.6583	0.69677685E-06	-49882.140	0.11295720E-06	0.7128102E-04
90	-0.28421709E-11	2094.3740	-0.63624020E-06	-59298.516	0.71237992E-07	0.1031827E-03
91	0.20387364E-12	1519.3042	5312.5000	-45349.838	-0.12198706E-06	0.5908140E-04
92	-0.22737368E-11	-0.11368684E-11	5312.5000	0.44072658E-06	-0.20910647E-06	0.5421010E-18
93	-0.87752028E-11	-0.34674486E-11	5312.5000	0.35781341E-07	0.52691394E-06	0.5041540E-17
94	-0.43200998E-11	-0.13855583E-11	5312.5000	0.47166077E-06	-0.14617399E-07	0.5328853E-16
95	0.57411853E-11	-0.29558578E-11	5312.5000	0.19437039E-06	0.11478551E-06	0.3320369E-17
96	-0.97202246E-11	-0.21600499E-11	5312.5000	0.34194272E-06	0.20863445E-06	0.2041010E-16
97	-0.40927262E-11	-0.22737368E-11	5312.5000	-0.22603490E-06	-0.46661171E-07	0.5421010E-19
98	-0.10407611E-11	1233.8716	5312.5000	-38735.677	0.47819228E-07	0.1607935E-03
99	0.39790393E-12	1715.5465	-0.74710351E-06	-45805.046	-0.15874775E-07	0.3031972E-03
100	-0.17621460E-11	1308.2682	-0.11323095E-06	-33671.377	0.95220003E-07	0.2486166E-03
163	0.99475983E-12	1966.2088	0.26991165E-06	-44256.423	-0.48815764E-07	0.2977327E-03
164	-0.93223207E-11	2524.8573	0.23341499E-07	-36416.770	0.11119846E-06	0.3092018E-03
165	0.11539214E-10	2311.4892	-0.10098006E-06	-19266.511	-0.38420694E-07	0.5934928E-04
166	0.43200998E-11	2435.7178	170.00000	-9178.6980	-0.34611730E-07	-0.4471533E-03
167	-0.20122570E-10	2515.6116	0.60867592E-07	958.33192	0.99829776E-07	-0.1132898E-02
168	0.26830094E-10	2294.2288	0.38228336E-07	6950.0350	0.28132490E-07	-0.1951292E-02
169	0.13869794E-10	2103.9459	0.18499122E-06	8808.9807	-0.52950782E-08	-0.2998082E-02
170	-0.25011104E-11	1975.9337	0.37682639E-07	7558.3722	-0.49604751E-07	-0.4301295E-02
171	0.50363269E-10	1956.5970	-0.18847379E-06	4009.1713	-0.33959623E-07	-0.5897276E-02
172	0.25966074E-09	2103.2963	0.11588304E-06	-1070.3495	-0.23223038E-07	-0.7841253E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.2794408E-08
FY = 0.5434231E-08
FZ = 169637.0
MX = -6915971.
MY = -0.1724063E+08
MZ = -0.1947988E-04

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

7) PIT1B3.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H

ESEL FOR LABEL= REAL FROM 1 TO 1 BY 1

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS,
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FOR SUPPORT CALL PHONE TWX

TITLE
189.990

15.6011 MAR 24,1994 CP=

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.87984821	0.00000000E+00	0.26605571E-02	0.00000000E+00
31	-0.44758710E-03	0.48404425E-03	-1.1333283	-0.20745847E-04	0.26801192E-02	0.10214164E-05
32	-0.47855823E-03	0.48969444E-03	-1.1491855	-0.21445581E-04	0.26801311E-02	0.87284299E-06
33	-0.51059410E-03	0.49429576E-03	-1.1650430	-0.21217196E-04	0.26801540E-02	0.65858443E-06
34	-0.54411046E-03	0.49730591E-03	-1.1809010	-0.20082858E-04	0.26803008E-02	0.32798581E-06
35	-0.57938633E-03	0.49791246E-03	-1.1967605	-0.18142610E-04	0.26806724E-02	-0.15860582E-06
36	-0.61647735E-03	0.49512039E-03	-1.2126232	-0.15563233E-04	0.26813428E-02	-0.82230384E-06
37	-0.65515121E-03	0.48787961E-03	-1.2284908	-0.12558244E-04	0.26823500E-02	-0.16603097E-05
38	-0.69486332E-03	0.47523304E-03	-1.2443654	-0.93644367E-05	0.26836941E-02	-0.26444226E-05
39	-0.73477492E-03	0.45646103E-03	-1.2602488	-0.62172022E-05	0.26853430E-02	-0.37238237E-05
40	-0.77380461E-03	0.43119957E-03	-1.2761427	-0.33304172E-05	0.26872374E-02	-0.48302500E-05
41	-0.81068858E-03	0.39952969E-03	-1.2920481	-0.88025931E-06	0.26892907E-02	-0.58817867E-05
42	-0.84403097E-03	0.36205698E-03	-1.3079657	0.10068543E-05	0.26913814E-02	-0.67815636E-05
43	-0.87233282E-03	0.32001943E-03	-1.3238953	0.22635802E-05	0.26933387E-02	-0.74094628E-05
44	-0.89403910E-03	0.27546027E-03	-1.3398353	0.28903966E-05	0.26949155E-02	-0.76093908E-05
45	-0.90766464E-03	0.23146635E-03	-1.3557826	0.29659123E-05	0.26957493E-02	-0.71834421E-05
46	-0.91218443E-03	0.19235840E-03	-1.3717312	0.26606042E-05	0.26953227E-02	-0.59237018E-05
47	-0.90797125E-03	0.16343857E-03	-1.3876719	0.22403904E-05	0.26929624E-02	-0.37496937E-05
48	-0.89823753E-03	0.14937107E-03	-1.4035917	0.20042956E-05	0.26881574E-02	-0.10589446E-05
49	-0.89537089E-03	0.15739183E-03	-1.4035762	0.38470170E-05	0.26884319E-02	0.10076251E-06
61	-0.11360034E-02	0.26953366E-04	-1.4034339	-0.42448525E-06	0.26882245E-02	0.15679329E-05
62	-0.11402597E-02	0.00000000E+00	-1.4034351	0.00000000E+00	0.26881503E-02	0.00000000E+00
63	-0.11284951E-02	0.00000000E+00	-1.3913053	0.00000000E+00	0.27017330E-02	0.00000000E+00
64	-0.11207294E-02	0.00000000E+00	-1.3791275	0.00000000E+00	0.27096861E-02	0.00000000E+00
65	-0.11175756E-02	0.00000000E+00	-1.3669245	0.00000000E+00	0.27133189E-02	0.00000000E+00
66	-0.11187557E-02	0.00000000E+00	-1.3547121	0.00000000E+00	0.27140920E-02	0.00000000E+00
67	-0.11137984E-02	0.18179290E-04	-1.3540849	-0.25293996E-05	0.27145906E-02	0.87259621E-06
68	-0.10990830E-02	0.36727209E-04	-1.3522135	-0.44844344E-05	0.27158143E-02	0.16310447E-05
69	-0.10751367E-02	0.56081108E-04	-1.3491281	-0.55483006E-05	0.27171875E-02	0.21772347E-05
2221	-0.42219612E-03	0.13890467E-03	-1.1530891	-0.15311349E-03	0.27218785E-02	0.23830958E-06
2222	-0.41306152E-03	0.14712994E-03	-1.1449792	-0.15003890E-03	0.27464296E-02	0.35983024E-06
2223	-0.42220850E-03	0.15163452E-03	-1.1524783	-0.15456827E-03	0.27207652E-02	0.27711898E-06
2224	-0.41532839E-03	0.16465803E-03	-1.1445150	-0.14733653E-03	0.27377409E-02	0.44281081E-06
2458	-0.89088728E-03	0.16513194E-03	-1.3876492	0.58464886E-05	0.26946966E-02	-0.18171280E-05
MAXIMUMS						
NODE	62	35	48	2223	98	44
VALUE	-0.11402597E-02	0.49791246E-03	-1.4035917	-0.15456827E-03	0.28778596E-02	-0.76093908E-05

8) PIT1B4.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 50000 lb + 1.4DL + 1.7L + 1.7H

1450 NDOES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE
192.410

15.6017 MAR 24,1994 CP=

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-0.16580697E-05	-2193.5502		913.55825		-1559.9421
62		-1968.4979		1185.7668		-2049.0022
63		-1264.4539		2325.1750		-0.93115916E-02
64		-1281.0120		2141.3804		-0.71017185E-02
65		-1230.6921		2392.1172		-0.56789171E-02
66		-562.67814		1821.7202		-0.25695627E-02
87		-934.16741		23845.630		-0.18514505E-04
88		-1801.9534		46923.261		-0.45694245E-04
89		-1765.6583		49882.140		-0.71281047E-04
90		-2094.3740		59298.516		-0.10318272E-03
91		-1519.3042		45349.838		-0.59081414E-04
98		-1233.8716		38735.677		-0.16079357E-03
99		-1715.5465		45805.046		-0.30319735E-03
100		-1308.2682		33671.377		-0.24861670E-03
101		-1804.8795		-0.12641444E-01		-2512.3917
162		-2412.9305		0.33235861E-02		-5029.2808
163		-1966.2088		44256.423		-0.29773284E-03
164		-2524.8573		36416.770		-0.30920203E-03
165		-2311.4892		19266.511		-0.59349567E-04
166		-2435.7178		9178.6980		0.44715299E-03
167		-2515.6116		-958.33196		0.11328983E-02
168		-2294.2288		-6950.0351		0.19512923E-02
169		-2103.9459		-8808.9808		0.29980814E-02
170		-1975.9337		-7558.3722		0.43012944E-02
171		-1956.5970		-4009.1713		0.58972759E-02
172		-2103.2963		1070.3495		0.78412523E-02
201		-1468.0832		-0.11285563E-01		250.06759
262		-2051.6130		0.38805445E-03		-6786.3596
801		-578.19293		-0.52429071E-02		4721.2143
862		-914.53222		-0.31063349E-02		-6907.0493
901		-496.71389		-0.48001220E-02		4438.9891
962		-811.20206		-0.31371599E-02		-6280.8657
1001		-411.11421		-0.44523445E-02		4142.4070
1062		-709.23615		-0.31480339E-02		-5697.6501
1101		-319.43028		-0.41840263E-02		3837.7941
1162		-607.42173		-0.31497080E-02		-5156.0419
1301		-112.12512		-0.38353125E-02		3259.2218
1362		-403.61882		-0.31450908E-02		-4227.7072
1401		10.478522		-0.37361836E-02		3014.4938
1462		-298.60937		-0.31427884E-02		-3860.0419
1501		145.67546		-0.36789044E-02		2815.7313
1562		-195.43230		-0.31413407E-02		-3566.7434
1601		-55.687435		-0.18300871E-02		1308.9283
1662		-241.59171		-0.15704273E-02		-1634.2937
TOTAL	-0.16580697E-05	-68666.400	0.00000000E+00	436194.93	0.00000000E+00	-47987.290

9) PIT1C1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 0 lb + 1.4DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	0.900000
3	1.70000
4	1.70000
5	1.00000
6	1.00000

LOAD CASE	OPERATION FOR	LCAD	COMMAND.	RESULT	LOAD CASE =	6
LOAD CASE	FACTOR	LOAD	STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	1	0.000000E+00
2	0.900000	2	1	1	1	0.000000E+00
3	1.70000	3	1	1	1	0.000000E+00
4	1.70000	4	1	1	1	0.000000E+00

CURRENT LOAD CASE= 6

TITLE
217.560

15.6087 MAR 24,1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-266.61425	-215.71283	0.11523853	6880.3498	510.42174	-120.96136
982	-225.52960	-224.58394	-3.4165323	-2837.4999	-4648.7962	-194.28381
1068	-53.214812	-89.816859	-2.1902609	438.23745	324.29064	-600.04780
1122	-150.91997	-431.04470	-163.83148	-2848.9803	-9372.2925	-3258.3949
1159	-262.83986	-68.975233	-83.503632	-7001.9623	-2921.2860	-1478.2335
1195	-94.890461	-694.57179	84.687124	-715.29687	-12700.104	1544.5491
1197	-89.398896	-475.23711	118.93271	-1788.1939	-10210.685	2473.8311
1212	-236.98195	-241.53145	-60.801077	-2755.6991	-2273.5632	219.16846
1221	-335.69549	-243.98393	-18.900450	827.36711	8389.9385	31.086559
1232	-114.71932	-341.39581	-168.03119	-2458.5972	-5559.0658	-2530.1601
1234	-144.48204	-288.13590	-171.23358	-3011.2805	-4007.6024	-2304.9106
1240	-267.02497	-205.02711	-68.522382	-2709.4171	-1593.5756	892.42174
1252	-377.09134	-39.382218	-17.346752	-2858.6356	-945.02884	1987.3841
1256	-545.57605	-45.763863	35.095283	-2076.2158	-434.33276	4350.7301
1257	-575.65218	-45.221040	36.998405	-1962.4405	-360.39560	4205.2603
1258	-572.97949	-41.517695	28.503321	-1586.6107	-208.04495	3809.8605
1323	-21.996316	-257.21697	-2.7237247	1124.4056	1643.7069	-349.81500
1347	-173.56233	-340.53289	176.96881	2546.4063	-2401.4977	-926.71154
1378	-28.053509	-78.101816	12.836116	660.95175	272.64273	496.97225

MINIMUMS						
ELEMENT	1257	1195	1234	1159	1195	1122
VALUE	-575.65218	-694.57179	-171.23358	-7001.9623	-12700.104	-3258.3949

MAXIMUMS						
ELEMENT	1323	1252	1347	977	1221	1256
VALUE	-21.996316	-39.382218	176.96881	6880.3498	8389.9385	4350.7301

10) PIT1D1.PQ (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 50000 (b + 1.4DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	0.900000
3	1.70000
4	1.70000
5	8.50000
6	1.00000

LOAD CASE	OPERATION	FOR	LCAD	COMMAND.	RESULT	LOAD CASE =
LOAD CASE	FACTOR		LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000		1	1	1	0.000000E+00
2	0.900000		2	1	1	0.000000E+00
3	1.70000		3	1	1	0.000000E+00
4	1.70000		4	1	1	0.000000E+00
5	8.50000		5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

TITLE
252.770

15.6185 MAR 24,1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-203.71582	-180.70640	-0.43922306	3667.2377	296.01343	-39.895083
982	-165.79149	-177.91620	-2.6074562	-5086.2779	-802.46466	166.27801
1068	-28.282732	-14.278827	1.9487482	465.87532	513.72788	-384.88872
1122	-112.41100	-310.45823	-120.12270	5903.7984	13874.067	7244.2431
1159	-200.02387	-50.881655	-58.596209	16544.496	1832.2945	1362.2943
1195	-68.411930	-500.91512	61.081691	2922.9823	22133.412	-3834.2150
1197	-66.286268	-342.78118	86.373313	6253.7918	15813.403	-6534.1532
1212	-169.94555	-166.43876	-48.090547	1545.1161	-4606.8539	-32.261679
1221	-178.98722	-157.90902	-16.126511	432.97077	2341.3856	164.61363
1232	-88.112862	-252.40637	-126.70785	2175.4883	300.35734	370.93584
1234	-111.50358	-215.43717	-130.71277	2281.4657	-2445.9477	-276.39199
1240	-188.08051	-147.06483	-58.655443	644.01855	-4410.9338	-1116.7717
1252	-278.97658	-28.276387	-19.072280	-2827.5648	-1089.0112	-3370.9178
1256	-358.95566	-32.222058	25.688450	-3280.0431	-863.87671	-1245.4977
1257	-387.70518	-31.984207	30.797716	-3126.3404	-715.31707	-781.28369
1258	-398.29620	-29.526239	26.742918	-2705.4562	-584.25794	-475.71410
1323	-16.823035	-187.92872	-1.2730209	291.10651	638.16058	-73.834163
1347	-118.50220	-251.67104	125.45928	-749.66160	-942.62919	309.62220
1378	-13.066562	-12.670024	4.5310999	771.31710	450.68088	318.76765

MINIMUMS						
ELEMENT	1258	1195	1234	982	1212	1197
VALUE	-398.29620	-500.91512	-130.71277	-5086.2779	-4606.8539	-6534.1532

MAXIMUMS						
ELEMENT	1378	1378	1347	1159	1195	1122
VALUE	-13.066562	-12.670024	125.45928	16544.496	22133.412	7244.2431

11) PIT1E1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 0 lb + 0.90L + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	1.700000
4	1.700000
5	1.000000
6	1.000000

LOAD CASE OPERATION FOR		LCAD	COMMAND.	RESULT	LOAD CASE =	
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ	
1	0.900000	1	1	1	0.000000E+00	
2	0.900000	2	1	1	0.000000E+00	
3	1.700000	3	1	1	0.000000E+00	
4	1.700000	4	1	1	0.000000E+00	

CURRENT LOAD CASE= 6

TITLE
285.830

15.6277 MAR 24, 1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MYXC
977	-218.10697	-165.62930	-0.21065012	4558.6325	361.63845	-69.143869
982	-176.36350	-180.19803	-3.1350106	-1741.6985	-2841.1884	-118.40252
1068	-13.077098	-30.003984	2.2023768	365.32898	299.48756	-314.18202
1122	-119.48790	-361.73456	-133.06156	-1798.0407	-5704.8544	-1999.3019
1159	-201.83017	-56.307377	-71.208073	-4344.5073	-1788.0942	-854.27470
1195	-80.621535	-587.58823	71.887593	-457.90442	-7660.7161	941.26901
1197	-74.258417	-402.19712	100.59976	-1122.6591	-6171.5699	1522.5806
1212	-173.44209	-207.89555	-48.464668	-1670.1328	-1315.9811	184.62354
1221	-262.28893	-210.66639	-17.430271	575.30530	5688.0795	24.335856
1232	-90.941647	-287.83700	-137.69591	-1455.4173	-3336.9025	-1476.7693
1234	-109.77349	-238.07781	-135.73230	-1783.1666	-2394.5265	-1334.9794
1240	-194.71982	-174.57082	-55.292314	-1611.3535	-917.84350	598.41830
1252	-271.86583	-30.463928	-16.599391	-1611.4180	-582.44128	1216.8351
1256	-410.96689	-35.046399	32.912781	-1156.3587	-267.45226	2632.1462
1257	-445.86739	-35.154057	34.672717	-1087.8868	-227.92379	2540.9197
1258	-453.37353	-32.450813	27.067056	-856.15690	-141.59918	2303.5113
1323	-17.197957	-191.40761	-1.1258572	678.44989	1079.7872	-219.53575
1347	-135.51440	-270.51223	141.59608	1543.0741	-1388.8574	-626.88637
1378	0.30281787	-25.073277	6.0114655	527.16690	253.31352	261.81328

MINIMUMS						
ELEMENT	1258	1195	1232	1159	1195	1122
VALUE	-453.37353	-587.58823	-137.69591	-4344.5073	-7660.7161	-1999.3019

MAXIMUMS						
ELEMENT	1378	1378	1347	977	1221	1256
VALUE	0.30281787	-25.073277	141.59608	4558.6325	5688.0795	2632.1462

12) PIT1F1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 50000 lb + 0.9DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	1.700000
4	1.700000
5	8.500000
6	1.000000

LOAD CASE OPERATION FOR		LCAD COMMAND.		RESULT LOAD CASE = 6	
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	0.900000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	1.700000	3	1	1	0.000000E+00
4	1.700000	4	1	1	0.000000E+00
5	8.500000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

TITLE
321.100

15.6375 MAR 24, 1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-155.20853	-130.62287	-0.76511171	1345.5204	147.23014	11.922409
982	-116.62539	-133.53029	-2.3259345	-3990.4765	1005.1431	242.15931
1068	11.854981	45.534047	6.3413859	392.96686	488.92480	-99.022938
1122	-80.978933	-241.14809	-89.352784	6954.7380	17541.505	8503.3361
1159	-139.01418	-38.213799	-46.300649	19201.951	2965.4863	1986.2531
1195	-54.143004	-393.93156	48.282160	3180.3748	27172.801	-4437.4951
1197	-51.145789	-269.74118	68.040357	6919.3266	19852.518	-7485.4038
1212	-106.40569	-132.80287	-35.754138	2630.6824	-3649.2718	-66.806600
1221	-105.58066	-124.59149	-14.656331	180.90896	-360.47348	157.86292
1232	-64.335194	-198.84756	-96.372571	3178.6683	2522.5207	1424.3267
1234	-76.795035	-165.37908	-95.211501	3509.5795	-832.87180	693.53925
1240	-115.77536	-116.60854	-45.425374	1742.0822	-3735.2017	-1410.7751
1252	-173.75108	-19.358097	-18.324920	-1580.3472	-726.42361	-4141.4668
1256	-224.34650	-21.504594	23.505948	-2360.1859	-696.99621	-2964.0815
1257	-257.92039	-21.917224	28.472028	-2251.7867	-582.84526	-2445.6243
1258	-278.69024	-20.459358	25.306653	-1975.0024	-517.81217	-1982.0633
1323	-12.024676	-122.11936	0.32484658	-154.84919	74.240897	56.445079
1347	-80.454271	-181.65038	90.086547	-1752.9938	70.011030	609.44737
1378	15.289764	40.358516	-2.2935510	637.53225	431.35166	83.608674

MINIMUMS							
ELEMENT	1258	1195	1232	982	1240	1197	
VALUE	-278.69024	-393.93156	-96.372571	-3990.4765	-3735.2017	-7485.4038	

MAXIMUMS							
ELEMENT	1378	1068	1347	1159	1195	1122	
VALUE	15.289764	45.534047	90.086547	19201.951	27172.801	8503.3361	

ATTACHMENT 3

EXCERPTS OF COMPUTER FILES FOR THE SECOND PIT MODEL

Prepared by: SB KOK Date: 6/17/94

Checked by: A. P. Day Date: 6/17/94

This Attachment 3 provides a full listing of the computer input files and excerpts of the post processed output files for the second model. A list of the files and their descriptions are provided below:

- 1) PIT2.INP ; Full listing of the second pit model input file
- 2) PIT2.PI ; Full listing of the second pit model post processed input file
- 3) PIT2A1.PO ; L. C. C element force output excerpts for 12" riser load of 0 lb.
- 4) PIT2B1.PO ; L. C. C element force output excerpts for 12" riser load of 50,000 lb.

1) PIT2.INP (Full Listing)

/OUT,Pit2.out
/TITLE Pump Pit Penetration Model
/PREP7

```

ET,1,63          ! Shell Element Type
ET,2,21,,,2      ! Mass Element Type

EX, 1,3.122e6     ! Concrete Properties For Pit Floor
DENS,1,.0003406   ! Adjusted for 8" Fill Concrete
NUXY,1,.15

EX, 2,3.122e6     ! Concrete Properties For Pit Wall
DENS,2,.0002247
NUXY,2,.15

R, 1,15.5,,,,13.98      ! Pit Floor
R,11,15.5,,,,13.98 ,90.0 ! Pit Floor, Rotated by 90.0 Degrees
R, 2,18.0              ! Pit Wall (18")
R, 3,23.5              ! Pit Wall (23.5")

R, 4,0.999           ! Pit Cover Distributed Mass
R, 5,0.455           ! Pit Wall (North Side) Additional Mass

C*** Define Local Coordinate Systems
LOCAL ,11 ,1 , 99.0, 0.0      ! Cylindrical System For 12" Riser
LOCAL ,12 ,1 , 147.0, 0.0     ! Cylindrical System For Pump Column

C*** Define Wall Nodes
CSYS,0
N, 1, 0.0 , 0.0 , 0.0
N, 15, 0.0 , -75.0 , 0.0 $FILL, 1, 15, 13
N, 48, 195.25 , -75.0 , 0.0 $FILL, 15, 48, 32
N, 62, 195.25 , 0.0 , 0.0 $FILL, 48, 62, 13

NGEN, 5, 100, 1, 62, 1, 0.0 , 0.0 , 27.083/4.0
NGEN, 13, 100, 401, 462, 1, 0.0 , 0.0 , 81.667/13.0

C*** Define Wall Elements
TYPE,1 $MAT,2
REAL,2 $EN, 1, 1, 2, 102, 101 $RP47, 1, 1, 1, 1, 1 ! East/North Sides
REAL,3 $EN, 48, 48, 49, 149, 148 $RP14, 1, 1, 1, 1, 1 ! West Side
EGEN, 16, 100, 1, 61, 1

C*** Define Remaining Boundary Nodes For Pit Floor (63-100,163-172)
N, 66, 177.25 , 0.0 , 0.0 $FILL, 62, 66, 3

CSYS,12
N, 66, 30.25 , 0.0 , 0.0
N, 72, 30.25 , -42.353, 0.0 $FILL, 66, 72, 5
N, 81, 30.25 , -137.647, 0.0 $FILL, 72, 81, 8
N, 85, 30.25 , -170.517, 0.0 $FILL, 81, 85, 3
N, 87, 30.25 , -180.0 , 0.0 $FILL, 85, 87, 1

CSYS,0
N, 87, 116.750, 0.0 , 0.0
N, 91, 105.375, 0.0 , 0.0 $FILL, 87, 91, 3

CSYS,11
N, 91, 6.375, 0.0 , 0.0
N, 93, 6.375, -51.429, 0.0 $FILL, 91, 93, 1
N, 96, 6.375, -128.572, 0.0 $FILL, 93, 96, 2
N, 98, 6.375, -180.0 , 0.0 $FILL, 96, 98, 1

CSYS,0
N, 98, 92.625, 0.0 , 0.0
N, 100, 86.937, 0.0 , 0.0 $FILL, 98, 100, 1
N, 163, 84.093, 0.0 , 0.0
N, 166, 63.0 , 0.0 , 0.0 $FILL, 163, 166, 2

```

N,173, 0.0 , 0.0 , 0.0 \$FILL,166,173, 6

C*** Start Of Pit Floor Generation

N, 2000, 0.0 , 0.0 , 0.0

C*** Defining K Points For Pit Floor

CSYS,0

K , 1 , 0.0 , 0.0
K , 2 , 0.0 , -10.714
K , 3 , 0.0 , -32.143
K , 4 , 0.0 , -58.929
K , 5 , 0.0 , -75.0
K , 6 , 63.0 , 0.0
K , 7 , 63.0 , -10.714
K , 8 , 57.203, -32.143
K , 9 , 41.417, -58.929
K , 10 , 41.417, -75.0
K , 11 , 84.093, 0.0
K , 12 , 84.093, -4.984
K , 13 , 75.703, -26.392
K , 14 , 59.167, -58.929
K , 15 , 59.167, -75.0

CSYS,11

K , 16 , 6.375, -180.0
K , 17 , 6.375, -128.572
K , 21 , 6.375, 0.0
K , 22 , 6.375, -51.429

CSYS,0

K , 18 , 95.025, -20.379
K , 19 , 76.917, -58.929
K , 20 , 76.917, -75.0
K , 23 , 102.975, -20.379
K , 24 , 94.667, -58.929
K , 25 , 94.667, -75.0
K , 26 , 111.063, 0.0
K , 27 , 111.063, -4.984
K , 28 , 111.063, -20.379
K , 29 , 106.500, -58.929
K , 30 , 106.500, -75.0

CSYS,12

K , 31 , 30.25 , -180.0
K , 32 , 30.25 , -170.517
K , 33 , 30.25 , -137.647
K , 36 , 30.25 , 0.0
K , 37 , 30.25 , -42.353

CSYS,0

K , 34 , 118.333, -58.929
K , 35 , 118.333, -75.0
K , 38 , 171.583, -58.929
K , 39 , 171.583, -75.0
K , 40 , 195.25 , 0.0
K , 41 , 195.25 , -32.143
K , 42 , 195.25 , -58.929
K , 43 , 195.25 , -75.0

C*** Defining L Lines For Pit Floor

CSYS,0

L, 1, 2, 2 ! Line 1
L, 2, 3, 4 ! Line 2
L, 3, 4, 5 ! Line 3
L, 4, 5, 3 ! Line 4

L, 1, 6, 7 \$RPS,1,1 ! Line 5 - 9

```

L, 6, 7, 2      ! Line 10
L, 7, 8, 4      ! Line 11
L, 8, 9, 5      ! Line 12
L, 9, 10, 3     ! Line 13

L, 6, 11, 3     $SRP5,1,1      ! Line 14 - 18

L, 11, 12, 2    ! Line 19
L, 12, 13, 4    ! Line 20
L, 13, 14, 5    ! Line 21
L, 14, 15, 3    ! Line 22

L, 11, 16, 3     $SRP5,1,1      ! Line 23 - 27

CSYS,11 $L, 16, 17, 2 $SCSYS,0 ! Line 28
L, 17, 18, 4     ! Line 29
L, 18, 19, 5     ! Line 30
L, 19, 20, 3     ! Line 31

CSYS,11 $L, 17, 22, 3 $SCSYS,0 ! Line 32
L, 18, 23, 3     $SRP3,1,1      ! Line 33 - 35

CSYS,11 $L, 21, 22, 2 $SCSYS,0 ! Line 36
L, 22, 23, 4     ! Line 37
L, 23, 24, 5     ! Line 38
L, 24, 25, 3     ! Line 39

L, 21, 26, 2     $SRP5,1,1      ! Line 40 - 44

L, 26, 27, 2     ! Line 45
L, 27, 28, 4     ! Line 46
L, 28, 29, 5     ! Line 47
L, 29, 30, 3     ! Line 48

L, 26, 31, 2     $SRP5,1,1      ! Line 49 - 53

CSYS,12 $L, 31, 32, 2 $SCSYS,0 ! Line 54
CSYS,12 $L, 32, 33, 4 $SCSYS,0 ! Line 55
L, 33, 34, 5     ! Line 56
L, 34, 35, 3     ! Line 57

CSYS,12 $L, 33, 37, 9 $SCSYS,0 ! Line 58
L, 34, 38, 9     $SRP2,1,1      ! Line 59 - 60

CSYS,12 $L, 36, 37, 6 $SCSYS,0 ! Line 61
L, 37, 38, 5     ! Line 62
L, 38, 39, 3     ! Line 63

L, 36, 40, 4     $SRP4,1,1      ! Line 64 - 67

L, 40, 41, 6     ! Line 68
L, 41, 42, 5     ! Line 69
L, 42, 43, 3     ! Line 70

```

C*** Defining Areas For Pit Floor

```

A, 1, 6, 7, 2     $SRP4,1,1,1,1 ! Area 1 - 4
A, 6, 11, 12, 7    $SRP4,1,1,1,1 ! Area 5 - 8
A, 11, 16, 17, 12  $SRP4,1,1,1,1 ! Area 9 - 12
A, 17, 22, 23, 18  $SRP3,1,1,1,1 ! Area 13 - 15
A, 21, 26, 27, 22  $SRP4,1,1,1,1 ! Area 16 - 19
A, 26, 31, 32, 27  $SRP4,1,1,1,1 ! Area 20 - 23
A, 33, 37, 38, 34  $SRP2,1,1,1,1 ! Area 24 - 25
A, 36, 40, 41, 37  $SRP3,1,1,1,1 ! Area 26 - 28

```

```

TYPE,1 $MAT,1 $REAL,1
ELSIZE,,,2
AMESH,1,28,1

```

```

Nummrg,Node,0.1      ! Node Merging

```

C*** Redefine Elements So That Member Axes are Same as Global Axes

MOOMSH,NOCHECK

TYPE,1 \$MAT,1 \$REAL,1 ! Member X axis is Same as Global X

EN, 1117, 163, 100, 2173, 2125
EN, 1118, 100, 99, 2174, 2173
EN, 1119, 99, 98, 97, 2174

EN, 1120, 2171, 2124, 2125, 2173
EN, 1121, 2172, 2171, 2173, 2174
EN, 1122, 96, 2172, 2174, 97

EN, 1123, 2124, 2171, 2181, 2131
EN, 1124, 2171, 2172, 2182, 2181
EN, 1125, 2172, 96, 2176, 2182

EN, 1195, 91, 90, 2257, 92
EN, 1196, 90, 89, 2254, 2257

EN, 1197, 2255, 93, 92, 2257
EN, 1198, 2253, 2255, 2257, 2254

EN, 1199, 93, 2255, 2263, 2215
EN, 1200, 2255, 2253, 2259, 2263

EN, 1223, 89, 88, 2287, 2254
EN, 1224, 88, 87, 86, 2287

EN, 1225, 2286, 2253, 2254, 2287
EN, 1226, 85, 2286, 2287, 86

EN, 1227, 2253, 2286, 2293, 2259
EN, 1228, 2286, 85, 84, 2293

TYPE,1 \$MAT,1 \$REAL,11 ! Rotated By 90.0 Degrees
! Member X axis is Same as Global X

EN, 1159, 2176, 96, 95, 2220
EN, 1160, 2220, 95, 94, 2221
EN, 1161, 2221, 94, 93, 2215
EN, 1162, 2177, 2176, 2220, 2222
EN, 1163, 2222, 2220, 2221, 2223
EN, 1164, 2223, 2221, 2215, 2216
EN, 1165, 2178, 2177, 2222, 2224
EN, 1166, 2224, 2222, 2223, 2225
EN, 1167, 2225, 2223, 2216, 2217
EN, 1168, 2175, 2178, 2224, 2218
EN, 1169, 2218, 2224, 2225, 2219
EN, 1170, 2219, 2225, 2217, 2214

C*** Defining Wall Masses On Wall Top

TYPE,2

REAL,4 \$E, 1601 \$RP62, 1 ! Pit Cover Mass Along The Top

REAL,5 \$E, 1615 \$RP34, 1 ! Additional Mass Along The North Side

WSORT,ALL,0,0 ! Wave Front Sorting

C*** Define Boundary Conditions Along Symmetric Nodes

NRSEL, Y, -0.1, 0.1 ! Pit Floor & Wall Nodes

D, ALL, UY, ,,,, ROTX, ROTZ

NALL

D, 1, UX

/COM Loading

ITER,1,1,1

KRF,1

PRDISP,-1

PRSTR,-1

PRRFOR,-1

```
PRNF,-1
C*** Load Case 1
C*** Unfactored Gravity Load
ACEL,0.,0., 386.4      ! Gravity Load
LWRITE
C***
KUSE,1
C*** Load Case 2
C*** Unfactored Pressure Load
FDEL,ALL
ACEL,0.,0.,0.
F, 401,FX, 1047.2  SRP15, 1      ! Soil Pressure Loading On East Side
F, 415,FY, 1188.0  SRP34, 1      ! Soil Pressure Loading On North Side
F, 448,FX,-1047.2  SRP15, 1      ! Soil Pressure Loading On West Side
LWRITE
C***
KUSE,1
C*** Load Case 3
C*** Unfactored Pump Load (3000 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 66,FZ, -68.2   SRP22, 1      ! Pump Column Load (Half of 3000 lb)
LWRITE
C***
KUSE,1
C*** Load Case 4
C*** Unfactored Riser Load (100 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 166,FZ, -100.0      ! 4" Riser Load (Half of 200 lb)
LWRITE
C***
C*** Load Case 5
C*** Unfactored 12" Riser Load Of 10000 lb
FDEL,ALL
ACEL,0.,0., 0.0      ! No Gravity Load
F, 91,FZ, -625.0   SRP8,1      ! 12" Riser Load (Half of 10000 lb)
LWRITE
C***
AFWRITE
FINI
/INP,27
FINI
/EOF
```

2) PIT2.PI (Full Listing)

```

/CORE,,,5E6
/POST1
/OUT,Pit2,po
C*** Stress Specifications
GLOBAL,0
STORE,STRES,DISP,NFORC
C***
STRESS,FXc, 63,1
STRESS,FYc, 63,2
STRESS,FXyc,63,3
STRESS,MXc, 63,6
STRESS,MYc, 63,7
STRESS,MXYc,63,8
C***
LCLIM,6
NLINES,9999

C*** Load Case 1 - Unfactored Gravity Load
C***
C*** Load Case 2 - Unfactored Pressure Load
C***
C*** Load Case 3 - Unfactored Pump Load (3000 lb)
C***
C*** Load Case 4 - Unfactored Riser Load (100 lb)
C***
C*** Load Case 5 - Unfactored 12" Riser Load Of 10000 lb
C***

NFILE,PIT2,12 ,1

LCASE,1 SSET, 1, 1 * Read in Load Case 1
LCASE,2 SSET, 2, 1 * Read in Load Case 2
LCASE,3 SSET, 3, 1 * Read in Load Case 3
LCASE,4 SSET, 4, 1 * Read in Load Case 4
LCASE,5 SSET, 5, 1 * Read in Load Case 5

LCABS,0

C***

/OUT,Pit2a1,po
C*** Output For Factored 12" Riser Load of 0 lb + 0.9DL + 1.7L + 0.9H
LCFACT,0.9,0.9,1.7,1.7,1.7*0.0,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4
LCASE,6
ESEL,,1117,1125,1
EASEL,,1159,1170,1
EASEL,,1195,1200,1
EASEL,,1223,1228,1
PRSTRS,FXc,FYc,FXyc,MXc,MYc,MXYc

/OUT,Pit2b1,po
C*** Output For Factored 12" Riser Load of 50000 lb + 0.9DL + 1.7L + 0.9H
LCFACT,0.9,0.9,1.7,1.7,1.7*5.0,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,,1117,1125,1
EASEL,,1159,1170,1
EASEL,,1195,1200,1
EASEL,,1223,1228,1
PRSTRS,FXc,FYc,FXyc,MXc,MYc,MXYc

FINISH
/EOF

```


3) PIT2A1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 0 lb + 0.9DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	1.700000
4	1.700000
5	1.000000
6	1.000000

LOAD CASE OPERATION FOR LCAD COMMAND. RESULT LOAD CASE = 6					
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	0.900000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	1.700000	3	1	1	0.000000E+00
4	1.700000	4	1	1	0.000000E+00

TITLE
135.390

16.3489 MAR 24, 1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
1122	-119.48790	-361.73456	-133.06156	-1798.0407	-5704.8544	-1999.3019
1159	-140.04133	-118.09622	-101.21469	-3481.4145	-2663.6367	-1467.2950
1160	-114.65407	-53.490742	-23.114524	-3674.6272	-2041.8325	-248.61860
1163	-149.91868	-143.60142	-31.698221	-2715.7558	-3193.9159	-313.67544
1169	-137.78289	-207.01258	-38.871326	-2385.8568	-3312.8944	-360.94080
1195	-75.350119	-592.85965	49.675007	-390.14059	-7729.5038	626.21490
1197	-74.258417	-402.19712	100.59976	-1122.6591	-6171.5699	1522.5806
1224	-22.347068	-435.82745	-18.731361	-152.73005	-6702.6023	-105.77519
MINIMUMS						
ELEMENT	1163	1195	1122	1160	1195	1122
VALUE	-149.91868	-592.85965	-133.06156	-3674.6272	-7729.5038	-1999.3019
MAXIMUMS						
ELEMENT	1224	1160	1197	1224	1160	1197
VALUE	-22.347068	-53.490742	100.59976	-152.73005	-2041.8325	1522.5806

4) PIT2B1.PO (Excerpts of output file)

C*** Output For Factored 12" Riser Load of 50000 lb + 0.90L + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	1.70000
4	1.70000
5	8.50000
6	1.00000

LOAD CASE OPERATION FOR		LCAD	COMMAND.	RESULT	LOAD CASE =	
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ	
1	0.900000	1	1	1	0.000000E+00	
2	0.900000	2	1	1	0.000000E+00	
3	1.70000	3	1	1	0.000000E+00	
4	1.70000	4	1	1	0.000000E+00	
5	8.50000	5	1	1	0.000000E+00	

TITLE
152.970

16.3538 MAR 24, 1994 CP=

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXCY	MXC	MYC	MXCY
1122	-80.978933	-241.14809	-89.352784	6954.7380	17541.505	8503.3361
1159	-98.134862	-79.093121	-67.773760	15962.693	6174.0155	6668.4415
1160	-82.431535	-36.269567	-15.295812	17902.083	3650.0716	1600.0436
1163	-103.07823	-96.024001	-20.740715	12247.008	3751.8663	1611.9987
1169	-93.123550	-136.99513	-25.149235	7752.4273	843.62966	1726.6126
1195	-50.601213	-397.47336	33.394055	2841.2865	27519.856	-3383.1082
1197	-51.145789	-269.74118	68.040357	6919.3266	19852.518	-7485.4038
1224	-15.248604	-298.44027	-12.761659	239.02868	20011.824	152.18568

MINIMUMS						
ELEMENT	1163	1195	1122	1224	1169	1197
VALUE	-103.07823	-397.47336	-89.352784	239.02868	843.62966	-7485.4038

MAXIMUMS						
ELEMENT	1224	1160	1197	1160	1195	1122
VALUE	-15.248604	-36.269567	68.040357	17902.083	27519.856	8503.3361

***** ROUTINE COMPLETED ***** CP = 153.240

/EOF ENCOUNTERED ON FILE18

***** RUN COMPLETED ***** CP= 153.4600 TIME= 16.3539

ATTACHMENT 4

COMMUNICATION DOCUMENTING THE PUMP COLUMN LOAD

Prepared by: SB KOK Date: 6/17/94

Checked by: Chip Day Date: 6/17/94

COMMUNICATION REPORT

Company Westinghouse Hanford Company		Telecon ☒	Conference Report
Project C-106 Pit and Riser Evaluation		Job No.: 90005	
		Date: 3/14/94	
Subject Structural Details of Slurry Pump Column		Time: 9:30 am	
		Place: San Ramon	
Participants	Ed Allen	OE	WHC
	Dave Wallace	OE	WHC
	Jim Day	OE	ADVENT
		OE	

Item	Comments	Required Action By
	<p>Dave Wallace and Ed Allen called to discuss Jim Day's inquiry regarding structural details of the C-106 slurry pump column. Specifically, the primary question concerned the mechanism for resisting horizontal seismic loads associated with the mass of the pump. Drawings in ADVENT's possession were inconclusive in determining the seismic load path.</p> <p>Mr. Allen stated that the column stiffening concept as shown on the attached sheet (J. W. Bailey, 1/10/94) would likely be abandoned in order to reduce the weight of the pump column. He described a more favorable concept where the pump would reside inside a cavity intentionally "sluiced" into the waste sludge. Thus, vertical load would be resisted at the pit floor riser whereas pendulum action (swinging) of the pump column would be limited through bearing of the pump against the waste sludge. In this concept, slurry pump loads would not be transmitted to the tank dome and only a vertical force would be transmitted to the pump pit riser.</p> <p>It was agreed that any design change which would substantially affect the aforementioned distribution of slurry pump loads would be reported to Dave Wallace by Ed Allen.</p>	

Signed:

Page 1 of 2

Distribution: Dave Wallace, Ed Allen - WHC; Jim Day, Soo-Bee Kok, Albert Dyrness - ADVENT

W-320 Slurry Pump Column Stiffening Concept

Prepared By J.W. Bailey 1/10/94

JWB

ATTACHMENT 5

COMMUNICATION DOCUMENTING THE 4" RISER LOAD

Prepared by: SBKOK Date: 6/17/94

Checked by: APD Date: 6/17/94

[14] From: ^ADVENT Engineering Services at -DOE_HANFORD_1 3/15/94 12:03PM (732 bytes: 12 ln)

To: David A Wallace at -WHC208

Subject: Request for information (4" riser)

----- Message Contents -----

Dave,

Drawings H-2-41318 and H-2-41323 show recirculation lines for the pump pit and sluicing pit (C-106). Can we reasonably assume that no hardware of significant weight will be supported at the top of the recirculation lines? In other words, is it safe to consider only the mass of the hardware shown in the aforementioned drawings in determining loads associated with the recirculation lines?

Jim Day

[9] From: Gina A Symons at -WHC82 3/17/94 1:43PM (1340 bytes: 19 ln)
To: ^ADVENT Engineering Services at -DOE_HANFORD_1, David A Wallace at -WHC208
cc: Gina A Symons, John P III Harris at -WHC216, Edward G III Allen at -WHC116,
John W Bailey at -WHC20, Larry J Julyk at -WHC240, James B (Jim) Truitt at
-WHC74

Subject: Request for information (4" riser)

----- Message Contents -----
Yes, your your assumption of the recirculation line is true.
If the recirculation line is occupying this 4"riser, this
line will not be used. If you have any questions, please
don't hesitate to call me at 372-0384.

Gina

Dave,

Drawings H-2-41318 and H-2-41323 show recirculation lines
for the pump pit and sluicing pit (C-106). Can we
reasonably assume that no hardware of significant weight
will be supported at the top of the recirculation lines? In
other words, is it safe to consider only the mass of the
hardware shown in the aforementioned drawings in
determining loads associated with the recirculation lines?

Jim Day

ATTACHMENT 6
PUMP PIT SASSI SEISMIC SPECTRA

Prepared by: SE/KOL Date: 6/17/94

Checked by: A.P. Dan Date: 6/17/94

The finite element program SASSI was used to perform soil-structure interaction (SSI) analysis of the tank, the Heel Pit, and the Pump / Sluicing Pit. Details of the SASSI model will be provided in the C-106 seismic evaluation SD (WHC Calculation WHC-SD-W320-ANAL-002).

For the Pump Pit, the SASSI computed response spectra associated with two nodes (i.e., Nodes 1287 and 1289) have been requested and these spectra are included on the following pages. The presented spectra identify the ZPA for all the three directions; horizontal X and Y, and vertical Z.

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1287 IN THE X-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.447 AT FRQ= 4.243

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9263E-01	0.1195E+00	0.1229E+00	0.1523E+00	0.1663E+00	0.1813E+00	0.2027E+00	0.2286E+00	0.2524E+00	0.2873E+00
1.3028	1	0.3501E+00	0.3616E+00	0.4359E+00	0.4327E+00	0.3885E+00	0.4307E+00	0.4277E+00	0.4028E+00	0.3759E+00	0.4192E+00
4.2433	1	0.4471E+00	0.3887E+00	0.3923E+00	0.3992E+00	0.4094E+00	0.4083E+00	0.3752E+00	0.3600E+00	0.3209E+00	0.2725E+00
13.8204	1	0.2559E+00	0.2353E+00	0.2245E+00	0.2176E+00	0.2130E+00	0.2102E+00	0.2082E+00	0.2067E+00	0.2055E+00	0.2046E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1287 IN THE Y-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.455 AT FRQ= 4.243

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1287 IN THE Z-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.312 AT PRQ= 7.658

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.6181E-01	0.7975E-01	0.8209E-01	0.1017E+00	0.1109E+00	0.1211E+00	0.1354E+00	0.1527E+00	0.1692E+00	0.1922E+00
1.3028	1	0.2350E+00	0.2424E+00	0.2938E+00	0.2918E+00	0.2627E+00	0.2926E+00	0.2918E+00	0.2755E+00	0.2573E+00	0.2880E+00
4.2433	1	0.3098E+00	0.2753E+00	0.2769E+00	0.2893E+00	0.2964E+00	0.3122E+00	0.3097E+00	0.3090E+00	0.2958E+00	0.2500E+00
13.8204	1	0.1964E+00	0.1770E+00	0.1680E+00	0.1623E+00	0.1585E+00	0.1561E+00	0.1543E+00	0.1530E+00	0.1519E+00	0.1511E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1289 IN THE X-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.448 AT FRQ= 4.243

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9263E-01	0.1195E+00	0.1229E+00	0.1523E-00	0.1663E+00	0.1813E+00	0.2027E+00	0.2286E+00	0.2525E+00	0.2874E+00
1.3028	1	0.3502E+00	0.3617E+00	0.4362E+00	0.4331E-00	0.3888E+00	0.4313E+00	0.4284E+00	0.4036E+00	0.3768E+00	0.4201E-00
4.2433	1	0.4482E+00	0.3896E+00	0.3942E+00	0.4020E+00	0.4129E+00	0.4126E+00	0.3825E+00	0.3667E+00	0.3324E+00	0.2738E+00
13.8204	1	0.2598E+00	0.2372E+00	0.2264E+00	0.2195E+00	0.2147E+00	0.2114E+00	0.2094E+00	0.2078E+00	0.2066E+00	0.2057E+00

1 MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1289 IN THE Y-DIRECTION

CURVE 1 IS POR0.070 DAMPING RMAX= 0.455 AT PRQ= 4.243

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9267E-01	0.1195E+00	0.1230E+00	0.1525E+00	0.1663E+00	0.1814E+00	0.2028E+00	0.2287E+00	0.2530E+00	0.2879E+00
1.3028	1	0.3510E+00	0.3623E+00	0.4379E+00	0.4349E+00	0.3907E+00	0.4344E+00	0.4324E+00	0.4083E+00	0.3817E+00	0.4252E+00
4.2433	1	0.4545E+00	0.4001E+00	0.4042E+00	0.4171E+00	0.4308E+00	0.4348E+00	0.4161E+00	0.4020E+00	0.3807E+00	0.3124E+00
13.8204	1	0.2773E+00	0.2510E+00	0.2374E+00	0.2292E+00	0.2238E+00	0.2200E+00	0.2173E+00	0.2152E+00	0.2136E+00	0.2124E+00

MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1289 IN THE Z-DIRECTION

CURVE 1 IS PORO.070 DAMPING RMAX= 0.353 AT PRQ=10.913

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.6183E-01	0.7979E-01	0.8216E-01	0.1017E+00	0.1109E+00	0.1211E+00	0.1354E+00	0.1526E+00	0.1695E+00	0.1924E+00
1.3028	1	0.2354E+00	0.2427E+00	0.2948E+00	0.2926E+00	0.2637E+00	0.2943E+00	0.2941E+00	0.2780E+00	0.2600E+00	0.2908E+00
4.2433	1	0.3134E+00	0.2817E+00	0.2824E+00	0.2971E+00	0.3105E+00	0.3289E+00	0.3383E+00	0.3412E+00	0.3528E+00	0.2902E+00
13.6204	1	0.2259E+00	0.1898E+00	0.1780E+00	0.1708E+00	0.1661E+00	0.1627E+00	0.1603E+00	0.1585E+00	0.1574E+00	0.1565E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ATTACHMENT 7

ANSYS MODEL SUPPORTING THE CALCULATION OF M_v

Prepared by: SBLOK Date: 6/17/94

Checked by: 4P Day Date: 6/17/94

Rotation of the Adaptor Ring about its vertical axis is resisted primarily through bearing of the attached 2 in. pipe(s) against the fill concrete. Because the fill concrete is unreinforced and thus has reduced allowables, concrete bearing stress controls the value of M_v (moment about the vertical axis) for the Adaptor Ring.

An ANSYS model (ANSYS Version 4.4a) was used to calculate the response of a beam on an elastic foundation with one end subjected to a transverse displacement. The modelled beam represents a 2 in. pipe welded to the Adaptor Ring and the elastic foundation simulates the surrounding fill concrete. The prescribed translation at the end of the beam mimics the $R \times \theta$ component of displacement of the 2 in. pipe when the Adaptor Ring (radius = R) rotates an angle θ about its vertical axis. The rotation of the end of the pipe which accompanies the translation is secondary to the pipe response and is neglected. The magnitude of the imposed translation in the analysis (0.1 in.) is arbitrary since the computed response is scaled such that the maximum computed bearing stress is equal to the plain concrete bearing stress allowable.

24 beam elements (STIF44) with properties of a 2 in. Schedule 40 x 10 in. long steel pipe are used in the model. To facilitate uniformity of elastic foundation load over the length of the controlling beam element, 10 elements are used over the first 0.1 in. of pipe length. The elastic foundation stiffness (EFS) is computed as the coefficient of subgrade reaction K_h , recognizing the similarity of the pipe to a pile moving laterally against soil (Ref: "Vibrations of Soils and Foundations." F.E. Richart et. al., 1970):

$$EFS = K_h = 4G/d$$

where G = shear modulus of the fill concrete = $E/[2(1-\nu)]$

E = Young's modulus = $57,000\sqrt{f'_c} = 57,000\sqrt{3000}$

ν = Poisson's ratio of the fill concrete = 0.15

d = diameter of pile (pipe) = 2.375 in.

The ANSYS PREP7 input (fine.ans) , PREP7 output (mvp7.out), and analysis output (mv.out) are provided at the end this attachment. The response of the controlling element (Element 1) is used in calculating M_v as demonstrated on the following page.

The average bearing stress along Element 1 is the difference in the two nodal forces divided by the bearing area:

$$f_{\text{bearing}} = (543,025 - 537,610)/(2.375 \cdot 0.01) = 228,000 \text{ psi}$$

The allowable bearing stress in plain concrete (Ref: ACI 318.1-89) is $0.65(0.85)\sqrt{3000} = 30.26$ psi; therefore, the computed response of Element 1 is reduced by the ratio $30.26/228,000$. The contribution of one pipe to the allowable moment about the vertical axis of the Adaptor Ring is as follows (Figure 1):

$$(M_v)_{\text{one pipe}} = (30.26/228,000) \cdot [FZ_1(R_{AR}) + MY_1]$$

where FZ_1 = computed force on Element 1 at Node 1 = 543,025 lbs

MY_1 = computed moment on Element 1 at Node 1
= 383,159 in-lbs

R_{AR} = outside radius of Adaptor Ring

Node 1 is taken to be the point of attachment of the pipe to the Adaptor Ring.

FIGURE 1

FILENAME : fine.ans DATE : 06-01-94
TITLE : Model for Hv capacity of risers

TIME : 1:48p

PAGE 1

/out,mvp7,out
/title,cantilever on an elastic foundation
/prep7

kan,0

et,1,44,,,,,3,1

ex,1,29.e6
dens,1,.0004
nuxy,1,.30

r,1,1.075,.6657,.6657,1.188,1.188,,
rmore,1.075,.6657,.6657,1.188,1.188,,
rmore,,,,,
rmore,2,2,1.188,1.188,1.188,1.188
rmore,.54,.54,.54,.54,.89,.89
rmore,,,,,2.29e6*2.375,2.29e6*2.375

n,1,0,0,0
n,11,.1,0,0
fill,1,11
n,25,10,0,0
fill,11,25
n,26,0,1,0

TYPE,1 Sreal,1 Smat,1

E,1,2,26
RP24,1,1,0

D,1,UY,-.1
D,1,UX,0,,,,UZ,ROTX,ROTY,ROTZ

ITER,1,1,1
lwrit
afwrite
fini
/out

FILENAME : mvp7.out DATE : 06-01-94
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

TIME : 1:49p

PAGE 1

NEW TITLE= cantilever on an elastic foundation

*** ANSYS REV 4.4 A 1 38280-PC/L1-4.4A CP= 16.970 ***
FOR SUPPORT CALL PHONE TWX

TITLE

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

ENTER RESUME TO RESUME EXISTING MODEL
ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE PREP7
PRINTOUT KEY SET TO /GOPR (USE /NOPR TO SUPPRESS)

ANALYSIS TYPE= 0 (STATIC ANALYSIS)

ELEMENT TYPE 1 USES STIF 44
KEYOPT(1-9)= 0 0 0 0 3 1 0 0 0
INOPR= 0 NUMBER OF NODES= 3

TAPERED UNSYM. BEAM, 3-D

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 0.2900000E-08

PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.29000E-08 9999.0 0.29000E-08

MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.4000000E-03

PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.40000E-03 9999.0 0.40000E-03

MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.3000000

PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.30000 9999.0 0.30000

REAL CONSTANT SET 1 ITEMS 1 TO 6
1.0750 0.66570 0.66570 1.1880 1.1880 0.00000E+00

REAL CONSTANT SET 1 ITEMS 7 TO 12
1.0750 0.66570 0.66570 1.1880 1.1880 0.00000E+00

REAL CONSTANT SET 1 ITEMS 13 TO 18
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 1 ITEMS 19 TO 24
2.0000 2.0000 1.1880 1.1880 1.1880 2.1880

REAL CONSTANT SET 1 ITEMS 25 TO 30
0.54000 0.54000 0.54000 0.54000 0.89000 0.89000

REAL CONSTANT SET 1 ITEMS 31 TO 36
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.54367E-07 0.54367E-07

NODE 1 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

NODE 11 KCS= 0 X,Y,Z= 0.10000 0.00000E+00 0.00000E+00

```

FILENAME : mvp7.out          DATE : 06-01-94          TIME : 1:49p          PAGE :
TITLE    : fine.ans prep7 output (mv capacity for adaptor rings)

FILL     9 POINTS BETWEEN NODE      1 AND NODE      11
START WITH NODE      2 AND INCREMENT BY      1

NODE     25 KCS= 0 X,Y,Z= 10.000      0.00000E+00 0.00000E+00

FILL    13 POINTS BETWEEN NODE      11 AND NODE      25
START WITH NODE      12 AND INCREMENT BY      1

NODE     26 KCS= 0 X,Y,Z= 0.00000E+00 1.0000      0.00000E+00

ELEMENT TYPE SET TO 1

REAL CONSTANT NUMBER=      1

MATERIAL NUMBER SET TO      1
ELEMENT   1      1      2      26
ELEMENT   2      2      3      26
ELEMENT   3      3      4      26
ELEMENT   4      4      5      26
ELEMENT   5      5      6      26
ELEMENT   6      6      7      26
ELEMENT   7      7      8      26
ELEMENT   8      8      9      26
ELEMENT   9      9     10      26
ELEMENT  10     10     11      26
ELEMENT  11     11     12      26
ELEMENT  12     12     13      26
ELEMENT  13     13     14      26
ELEMENT  14     14     15      26
ELEMENT  15     15     16      26
ELEMENT  16     16     17      26
ELEMENT  17     17     18      26
ELEMENT  18     18     19      26
ELEMENT  19     19     20      26
ELEMENT  20     20     21      26
ELEMENT  21     21     22      26
ELEMENT  22     22     23      26
ELEMENT  23     23     24      26
ELEMENT  24     24     25      26

SPECIFIED DISP UX  FOR SELECTED NODES IN RANGE      1 TO      1 BY      1
VALUES=-0.10000      0.00000E+00 ADDITIONAL DOPS=

SPECIFIED DISP UY  FOR SELECTED NODES IN RANGE      1 TO      1 BY      1
VALUES= 0.00000E+00 0.00000E+00 ADDITIONAL DOPS= UZ  ROTX  ROTY  ROTZ

NITZER=      1 NPRINT=      1 NPOST=      1

ALL PRINT CONTROLS RESET TO      1
ALL POST DATA FILE CONTROLS RESET TO      1

LOAD STEP      1 WRITTEN ON FILE23

*** NOTE ***
NO TITLE DEFINED FOR ANALYSIS

*** NOTE ***
DATA CHECKED - NO ERRORS FOUND

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= TITLE
ANALYSIS TYPE=      0
NUMBER OF ELEMENT TYPES=      1
      24 ELEMENTS CURRENTLY SELECTED.  MAX ELEMENT NUMBER =      24
      26 NODES CURRENTLY SELECTED.    MAX NODE NUMBER   =      26
MAXIMUM LINEAR PROPERTY NUMBER=      1
MAXIMUM REAL CONSTANT SET NUMBER=      1

```

FILENAME : mvp7.out DATE : 06-01-94
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

TIME : 1:49p

PAGE 3

ACTIVE COORDINATE SYSTEM= 0 (CARTESIAN)
NUMBER OF IMPOSED DISPLACEMENTS= 6

ANALYSIS DATA WRITTEN ON FILE27

ENTER FINISH TO LEAVE PREP7

IF YOU WANT TO RUN THIS ANALYSIS, ENTER AFTER PREP7 FINISH -
/CHECK * (OPTIONAL) ENTER ONLY IF CHECK RUN IS DESIRED
/INPUT,27

THEN ENTER FINISH AT LOPT-INP PROMPT AT END OF ANALYSIS

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 19.820

SYSTEM= 38280-PC/L1-4.4A REVISION= 4.4 A 1
FOR SUPPORT CALL PHONE TWX
CURRENT JOBNAME=FILE

FILENAME : mv.out DATE : 06-01-94 TIME : 1:50p PAGE
TITLE : fine.ans output (Mv capacity for Adapter Rings)

***** INPUT SWITCHED FROM FILE05 TO FILE27 NAME=FILE27.DAT

NEW TITLE= TITLE

OPTION AND TYPE PRINTOUT SUPPRESSED

NUMBER OF ELEMENT TYPES= 1

REAL CONSTANT PRINTOUT SUPPRESSED

NUMBER OF REAL CONSTANT SETS= 1

ELEMENT PRINTOUT SUPPRESSED

SWITCHED TO FIXED FORMAT INPUT

MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 1125212

NUMBER OF ELEMENTS = 24 MAXIMUM NODE NUMBER USED = 26

NODE PRINTOUT SUPPRESSED

SWITCHED TO FIXED FORMAT INPUT

XMIN= 0.0000E+00 XMAX= 10.00 YMIN= 0.0000E+00 YMAX= 1.000 ZMIN= 0.0000E+00 ZMAX= 0.0000E+00

MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 375070

PROPERTY PRINTOUT SUPPRESSED

MAXIMUM MATERIAL NUMBER= 1

M.D.O.F. PRINTOUT SUPPRESSED

NUMBER OF SPECIFIED MASTER D.O.F.= 0

TOTAL NUMBER OF MASTER D.O.F. = 0

DISPLACEMENT B.C. PRINTOUT SUPPRESSED

FORCE B.C. PRINTOUT SUPPRESSED

PRESSURE PRINTOUT SUPPRESSED

***** LOAD SUMMARY - 6 DISPLACEMENTS 0 FORCES 0 PRESSURES *****

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 0.43000E-02

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 5.0000	IXX = 0.0000E+00	IXX = 0.0000E+00
YC = 0.00000E+00	IYY = 0.1432	IYY = 0.3566E-01
ZC = 0.00000E+00	IZZ = 0.1432	IZZ = 0.3566E-01
	IYY = 0.0000E+00	IXY = 0.0000E+00
	IYZ = 0.0000E+00	IYZ = 0.0000E+00
	IZX = 0.0000E+00	IZX = 0.0000E+00

*** MASS SUMMARY BY ELEMENT TYPE ***

FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (Mv capacity for Adapter Rings)

TIME : 1:50p

PAGE 2

TYPE MASS
1 0.430000E-02

RANGE OF ELEMENT MAXIMUM STIFFNESS IN GLOBAL COORDINATES

MAXIMUM= 0.311750E+10 AT ELEMENT 10.
MINIMUM= 0.440859E+08 AT ELEMENT 22.

*** ELEMENT STIFFNESS FORMULATION TIMES
TYPE NUMBER STIF TOTAL CP AVE CP

1 24 44 0.380 0.016

TIME AT END OF ELEMENT STIFFNESS FORMULATION CP= 30.640

MAXIMUM IN-CORE WAVE FRONT ALLOWED FOR REQUESTED MEMORY SIZE= 1498.

MAXIMUM IN-CORE WAVE FRONT= 14.

MATRIX SOLUTION TIMES
READ IN ELEMENT STIFFNESSES CP= 0.270

NODAL COORD. TRANSFORMATION CP= 0.000
MATRIX TRIANGULARIZATION CP= 0.230

TIME AT END OF MATRIX TRIANGULARIZATION CP= 31.580
EQUATION SOLVER MAXIMUM PIVOT= 0.62350E+10 AT NODE 2. UX
EQUATION SOLVER MINIMUM PIVOT= 0.14850E+07 AT NODE 25. ROTX

TIME AT START OF BACK SUBSTITUTION CP= 31.630 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

***** DISPLACEMENT SOLUTION *****				TIME =	LOAD STEP=	1	ITERATION=	1	CUM. ITER.=	1
NODE	UX	UY	UZ	ROTX	ROTY	ROTZ				
1	0.000000E+00	-0.100000	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00				
2	0.000000E+00	-0.990978E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.197072E-03				
3	0.000000E+00	-0.982026E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.391359E-03				
4	0.000000E+00	-0.973144E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.582888E-03				
5	0.000000E+00	-0.964331E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.771689E-03				
6	0.000000E+00	-0.955587E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.957787E-03				
7	0.000000E+00	-0.946911E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.114121E-02				
8	0.000000E+00	-0.938302E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.132198E-02				
9	0.000000E+00	-0.929761E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.150014E-02				
10	0.000000E+00	-0.921287E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.167570E-02				
11	0.000000E+00	-0.912879E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.184868E-02				
12	0.000000E+00	-0.472114E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.900413E-02				
13	0.000000E+00	-0.231638E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.101409E-01				
14	0.000000E+00	-0.104753E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.887605E-02				
15	0.000000E+00	-0.407153E-02	0.000000E+00	0.000000E+00	0.000000E+00	0.693881E-02				
16	0.000000E+00	-0.104306E-02	0.000000E+00	0.000000E+00	0.000000E+00	0.507717E-02				
17	0.000000E+00	0.240387E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.355430E-02				
18	0.000000E+00	0.668105E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.241168E-02				
19	0.000000E+00	0.709640E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.160279E-02				
20	0.000000E+00	0.603150E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.105695E-02				
21	0.000000E+00	0.464091E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.706764E-03				
22	0.000000E+00	0.347400E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.497423E-03				
23	0.000000E+00	0.283720E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.387254E-03				
24	0.000000E+00	0.302524E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.343834E-03				
25	0.000000E+00	0.450736E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.337036E-03				

MAXIMUMS

FILENAME : mv.out DATE : 06-01-94 TIME : 1:50p PAGE 3
TITLE : fine.ans output (Mv capacity for Adapter Rings)

```

NODE      0      1      0      0      0      13
VALUE 0.000000E+00 -0.100000 0.000000E+00 0.000000E+00 0.000000E+00 0.101409E-01

***** ELEMENT STRESSES ***** TIME = 0.000000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

EL= 1 NODES= 1 2 MAT= 1 TCENT,TTOPZ,TBOTY= 0.0 0.0 0.0 3-D TAP B
AM 44
END
SDIR SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8
I 0.000000E+00 0.000000E+00 0.000000E+00 0.68378E+06 -0.68378E+06 0.68378E+06 -0.68378E+06 0.68378E+06 -0.68378E+06
J 0.000000E+00 0.000000E+00 0.000000E+00 0.67414E+06 -0.67414E+06 0.67414E+06 -0.67414E+06 0.67414E+06 -0.67414E+06
END
SIGXY SIGXZ SIGYZ SB5 SB6 SB7 SB8
I 0.000000E+00 -0.10056E+07 0.000000E+00 0.68378E+06 -0.68378E+06 0.68378E+06 -0.68378E+06 0.68378E+06
J 0.000000E+00 0.99557E+06 0.000000E+00 0.67414E+06 -0.67414E+06 0.67414E+06 -0.67414E+06 0.67414E+06
FORCES ON MEMBER AT NODE 1 0.000000E+00 0.000000E+00 -543025. 0.000000E+00 383159. 0.000000E+00
2 0.000000E+00 0.000000E+00 537610. 0.000000E+00 -377756. 0.000000E+00

EL= 2 NODES= 2 3 MAT= 1 TCENT,TTOPZ,TBOTY= 0.0 0.0 0.0 3-D TAP B
AM 44
END
SDIR SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8
I 0.000000E+00 0.000000E+00 0.000000E+00 0.67414E+06 -0.67414E+06 0.67414E+06 -0.67414E+06 0.67414E+06 -0.67414E+06
J 0.000000E+00 0.000000E+00 0.000000E+00 0.66459E+06 -0.66459E+06 0.66459E+06 -0.66459E+06 0.66459E+06 -0.66459E+06
END
SIGXY SIGXZ SIGYZ SB5 SB6 SB7 SB8
I 0.000000E+00 -0.99557E+06 0.000000E+00 0.67414E+06 -0.67414E+06 0.67414E+06 -0.67414E+06 0.67414E+06
J 0.000000E+00 0.98564E+06 0.000000E+00 0.66459E+06 -0.66459E+06 0.66459E+06 -0.66459E+06 0.66459E+06
FORCES ON MEMBER AT NODE 2 0.000000E+00 0.000000E+00 -537610. 0.000000E+00 377756. 0.000000E+00
3 0.000000E+00 0.000000E+00 532245. 0.000000E+00 -372407. 0.000000E+00

EL= 3 NODES= 3 4 MAT= 1 TCENT,TTOPZ,TBOTY= 0.0 0.0 0.0 3-D TAP B
AM 44
END
SDIR SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8
I 0.000000E+00 0.000000E+00 0.000000E+00 0.66459E+06 -0.66459E+06 0.66459E+06 -0.66459E+06 0.66459E+06 -0.66459E+06
J 0.000000E+00 0.000000E+00 0.000000E+00 0.65514E+06 -0.65514E+06 0.65514E+06 -0.65514E+06 0.65514E+06 -0.65514E+06
END
SIGXY SIGXZ SIGYZ SB5 SB6 SB7 SB8
I 0.000000E+00 -0.98564E+06 0.000000E+00 0.66459E+06 -0.66459E+06 0.66459E+06 -0.66459E+06 0.66459E+06
J 0.000000E+00 0.97579E+06 0.000000E+00 0.65514E+06 -0.65514E+06 0.65514E+06 -0.65514E+06 0.65514E+06
FORCES ON MEMBER AT NODE 3 0.000000E+00 0.000000E+00 -532245. 0.000000E+00 372407. 0.000000E+00
4 0.000000E+00 0.000000E+00 526928. 0.000000E+00 -367111. 0.000000E+00

EL= 4 NODES= 4 5 MAT= 1 TCENT,TTOPZ,TBOTY= 0.0 0.0 0.0 3-D TAP B
AM 44
END
SDIR SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8
I 0.000000E+00 0.000000E+00 0.000000E+00 0.65514E+06 -0.65514E+06 0.65514E+06 -0.65514E+06 0.65514E+06 -0.65514E+06
J 0.000000E+00 0.000000E+00 0.000000E+00 0.64578E+06 -0.64578E+06 0.64578E+06 -0.64578E+06 0.64578E+06 -0.64578E+06
END
SIGXY SIGXZ SIGYZ SB5 SB6 SB7 SB8
I 0.000000E+00 -0.97579E+06 0.000000E+00 0.65514E+06 -0.65514E+06 0.65514E+06 -0.65514E+06 0.65514E+06
J 0.000000E+00 0.96604E+06 0.000000E+00 0.64578E+06 -0.64578E+06 0.64578E+06 -0.64578E+06 0.64578E+06
FORCES ON MEMBER AT NODE 4 0.000000E+00 0.000000E+00 -526928. 0.000000E+00 367111. 0.000000E+00
5 0.000000E+00 0.000000E+00 521659. 0.000000E+00 -361868. 0.000000E+00

EL= 5 NODES= 5 6 MAT= 1 TCENT,TTOPZ,TBOTY= 0.0 0.0 0.0 3-D TAP B
AM 44
END
SDIR SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8
I 0.000000E+00 0.000000E+00 0.000000E+00 0.64578E+06 -0.64578E+06 0.64578E+06 -0.64578E+06 0.64578E+06 -0.64578E+06
J 0.000000E+00 0.000000E+00 0.000000E+00 0.63652E+06 -0.63652E+06 0.63652E+06 -0.63652E+06 0.63652E+06 -0.63652E+06
END
SIGXY SIGXZ SIGYZ SB5 SB6 SB7 SB8
I 0.000000E+00 -0.96604E+06 0.000000E+00 0.64578E+06 -0.64578E+06 0.64578E+06 -0.64578E+06 0.64578E+06
J 0.000000E+00 0.95637E+06 0.000000E+00 0.63652E+06 -0.63652E+06 0.63652E+06 -0.63652E+06 0.63652E+06
FORCES ON MEMBER AT NODE 5 0.000000E+00 0.000000E+00 -521659. 0.000000E+00 361868. 0.000000E+00
6 0.000000E+00 0.000000E+00 516438. 0.000000E+00 -356677. 0.000000E+00

EL= 6 NODES= 6 7 MAT= 1 TCENT,TTOPZ,TBOTY= 0.0 0.0 0.0 3-D TAP B
AM 44
END
SDIR SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8
I 0.000000E+00 0.000000E+00 0.000000E+00 0.63652E+06 -0.63652E+06 0.63652E+06 -0.63652E+06 0.63652E+06 -0.63652E+06
J 0.000000E+00 0.000000E+00 0.000000E+00 0.62735E+06 -0.62735E+06 0.62735E+06 -0.62735E+06 0.62735E+06 -0.62735E+06
END
SIGXY SIGXZ SIGYZ SB5 SB6 SB7 SB8
I 0.000000E+00 -0.95637E+06 0.000000E+00 0.63652E+06 -0.63652E+06 0.63652E+06 -0.63652E+06 0.63652E+06
J 0.000000E+00 0.94679E+06 0.000000E+00 0.62735E+06 -0.62735E+06 0.62735E+06 -0.62735E+06 0.62735E+06
FORCES ON MEMBER AT NODE 6 0.000000E+00 0.000000E+00 -516438. 0.000000E+00 356677. 0.000000E+00
7 0.000000E+00 0.000000E+00 512265. 0.000000E+00 -351539. 0.000000E+00

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FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (Mv capacity for Adapter Rings)

TIME : 1:50p

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EL=      7 NODES=      7      8 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00      0.00000E+00      0.00000E+00      0.62735E+06      -0.62735E+06      0.62735E+06      -0.62735E+06      0.62735E+06      -0.62735E+06
J      0.00000E+00      0.00000E+00      0.00000E+00      0.61827E+06      -0.61827E+06      0.61827E+06      -0.61827E+06      0.61827E+06      -0.61827E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00      -0.94679E+06      0.00000E+00      0.62735E+06      -0.62735E+06      0.62735E+06      -0.62735E+06
J      0.00000E+00      0.93729E+06      0.00000E+00      0.61827E+06      -0.61827E+06      0.61827E+06      -0.61827E+06
FORCES ON MEMBER AT NODE      7      0.00000E+00      0.00000E+00      0.00000E+00      -511265.      0.00000E+00      351539.      0.00000E+00
                                8      0.00000E+00      0.00000E+00      506138.      0.00000E+00      -346452.      0.00000E+00

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```

EL=      8 NODES=      8      9 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00      0.00000E+00      0.00000E+00      0.61827E+06      -0.61827E+06      0.61827E+06      -0.61827E+06      0.61827E+06      -0.61827E+06
J      0.00000E+00      0.00000E+00      0.00000E+00      0.60929E+06      -0.60929E+06      0.60929E+06      -0.60929E+06      0.60929E+06      -0.60929E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00      -0.93729E+06      0.00000E+00      0.61827E+06      -0.61827E+06      0.61827E+06      -0.61827E+06
J      0.00000E+00      0.92789E+06      0.00000E+00      0.60929E+06      -0.60929E+06      0.60929E+06      -0.60929E+06
FORCES ON MEMBER AT NODE      8      0.00000E+00      0.00000E+00      -506138.      0.00000E+00      346452.      0.00000E+00
                                9      0.00000E+00      0.00000E+00      501058.      0.00000E+00      -341416.      0.00000E+00

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```

EL=      9 NODES=      9     10 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP E
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00      0.00000E+00      0.00000E+00      0.60929E+06      -0.60929E+06      0.60929E+06      -0.60929E+06      0.60929E+06      -0.60929E+06
J      0.00000E+00      0.00000E+00      0.00000E+00      0.60039E+06      -0.60039E+06      0.60039E+06      -0.60039E+06      0.60039E+06      -0.60039E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00      -0.92789E+06      0.00000E+00      0.60929E+06      -0.60929E+06      0.60929E+06      -0.60929E+06
J      0.00000E+00      0.91856E+06      0.00000E+00      0.60039E+06      -0.60039E+06      0.60039E+06      -0.60039E+06
FORCES ON MEMBER AT NODE      9      0.00000E+00      0.00000E+00      -501058.      0.00000E+00      341416.      0.00000E+00
                                10      0.00000E+00      0.00000E+00      496025.      0.00000E+00      -336431.      0.00000E+00

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EL=     10 NODES=     10     11 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00      0.00000E+00      0.00000E+00      0.60039E+06      -0.60039E+06      0.60039E+06      -0.60039E+06      0.60039E+06      -0.60039E+06
J      0.00000E+00      0.00000E+00      0.00000E+00      0.59158E+06      -0.59158E+06      0.59158E+06      -0.59158E+06      0.59158E+06      -0.59158E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00      -0.91856E+06      0.00000E+00      0.60039E+06      -0.60039E+06      0.60039E+06      -0.60039E+06
J      0.00000E+00      0.90933E+06      0.00000E+00      0.59158E+06      -0.59158E+06      0.59158E+06      -0.59158E+06
FORCES ON MEMBER AT NODE     10      0.00000E+00      0.00000E+00      -496025.      0.00000E+00      336431.      0.00000E+00
                                11      0.00000E+00      0.00000E+00      491037.      0.00000E+00      -331495.      0.00000E+00

```

```

EL=     11 NODES=     11     12 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00      0.00000E+00      0.00000E+00      0.59158E+06      -0.59158E+06      0.59158E+06      -0.59158E+06      0.59158E+06      -0.59158E+06
J      0.00000E+00      0.00000E+00      0.00000E+00      0.16207E+06      -0.16207E+06      0.16207E+06      -0.16207E+06      0.16207E+06      -0.16207E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00      -0.90933E+06      0.00000E+00      0.59158E+06      -0.59158E+06      0.59158E+06      -0.59158E+06
J      0.00000E+00      0.41312E+06      0.00000E+00      0.16207E+06      -0.16207E+06      0.16207E+06      -0.16207E+06
FORCES ON MEMBER AT NODE     11      0.00000E+00      0.00000E+00      -491037.      0.00000E+00      331495.      0.00000E+00
                                12      0.00000E+00      0.00000E+00      223083.      0.00000E+00      -90816.4      0.00000E+00

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EL=     12 NODES=     12     13 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00      0.00000E+00      0.00000E+00      0.16207E+06      -0.16207E+06      0.16207E+06      -0.16207E+06      0.16207E+06      -0.16207E+06
J      0.00000E+00      0.00000E+00      0.00000E+00      -22774.      22774.      -22774.      22774.      -22774.      22774.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00      -0.41312E+06      0.00000E+00      0.16207E+06      -0.16207E+06      0.16207E+06      -0.16207E+06
J      0.00000E+00      0.16203E+06      0.00000E+00      -22774.      22774.      -22774.      22774.
FORCES ON MEMBER AT NODE     12      0.00000E+00      0.00000E+00      -223083.      0.00000E+00      90816.4      0.00000E+00
                                13      0.00000E+00      0.00000E+00      87494.7      0.00000E+00      12761.7      0.00000E+00

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```

EL=     13 NODES=     13     14 MAT= 1 TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8

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FILENAME : mv.out                      DATE : 06-01-94                      TIME : 1:50p                      PAGE : 1
TITLE    : fine.ans output (Mv capacity for Adapter Rings)

      I  0.00000E+00  0.00000E+00  0.00000E+00  -22774.      22774.      -22774.      22774.      -22774.      22774.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -86939.      86939.      -86939.      86939.      -86939.      86939.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  -0.16203E+06  0.00000E+00  -22774.      22774.      -22774.      22774.
      J  0.00000E+00  42766.      0.00000E+00  -86939.      86939.      -86939.      86939.
FORCES ON MEMBER AT NODE      13  0.000000E+00  0.000000E+00  -87494.7      0.000000E+00  -12761.7      0.000000E+00
                                14  0.000000E+00  0.000000E+00      23093.8      0.000000E+00  48716.5      0.000000E+00

EL= 14  NODES= 14  15  MAT= 1  TCENT, TTOPZ, TBOTY= 0.0  0.0  0.0                      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00  -86939.      86939.      -86939.      86939.      -86939.      86939.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -96053.      96053.      -96053.      96053.      -96053.      96053.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  -42766.      0.00000E+00  -86939.      86939.      -86939.      86939.
      J  0.00000E+00  -8223.2      0.00000E+00  -96053.      96053.      -96053.      96053.
FORCES ON MEMBER AT NODE      14  0.000000E+00  0.000000E+00  -23093.8      0.000000E+00  -48716.5      0.000000E+00
                                15  0.000000E+00  0.000000E+00  -4440.52      0.000000E+00  53823.6      0.000000E+00

EL= 15  NODES= 15  16  MAT= 1  TCENT, TTOPZ, TBOTY= 0.0  0.0  0.0                      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00  -96053.      96053.      -96053.      96053.      -96053.      96053.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -83383.      83383.      -83383.      83383.      -83383.      83383.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  8223.2      0.00000E+00  -96053.      96053.      -96053.      96053.
      J  0.00000E+00  -25655.      0.00000E+00  -83383.      83383.      -83383.      83383.
FORCES ON MEMBER AT NODE      15  0.000000E+00  0.000000E+00  4440.52      0.000000E+00  -53823.6      0.000000E+00
                                16  0.000000E+00  0.000000E+00  -13853.9      0.000000E+00  46724.2      0.000000E+00

EL= 16  NODES= 16  17  MAT= 1  TCENT, TTOPZ, TBOTY= 0.0  0.0  0.0                      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00  -83383.      83383.      -83383.      83383.      -83383.      83383.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -64768.      64768.      -64768.      64768.      -64768.      64768.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  25655.      0.00000E+00  -83383.      83383.      -83383.      83383.
      J  0.00000E+00  -27875.      0.00000E+00  -64768.      64768.      -64768.      64768.
FORCES ON MEMBER AT NODE      16  0.000000E+00  0.000000E+00  13853.9      0.000000E+00  -46724.2      0.000000E+00
                                17  0.000000E+00  0.000000E+00  -15052.3      0.000000E+00  36293.0      0.000000E+00

EL= 17  NODES= 17  18  MAT= 1  TCENT, TTOPZ, TBOTY= 0.0  0.0  0.0                      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00  -64768.      64768.      -64768.      64768.      -64768.      64768.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -47002.      47002.      -47002.      47002.      -47002.      47002.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  27875.      0.00000E+00  -64768.      64768.      -64768.      64768.
      J  0.00000E+00  -24160.      0.00000E+00  -47002.      47002.      -47002.      47002.
FORCES ON MEMBER AT NODE      17  0.000000E+00  0.000000E+00  15052.3      0.000000E+00  -36293.0      0.000000E+00
                                18  0.000000E+00  0.000000E+00  -13046.3      0.000000E+00  26337.5      0.000000E+00

EL= 18  NODES= 18  19  MAT= 1  TCENT, TTOPZ, TBOTY= 0.0  0.0  0.0                      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00  -47002.      47002.      -47002.      47002.      -47002.      47002.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -32420.      32420.      -32420.      32420.      -32420.      32420.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  24160.      0.00000E+00  -47002.      47002.      -47002.      47002.
      J  0.00000E+00  -18914.      0.00000E+00  -32420.      32420.      -32420.      32420.
FORCES ON MEMBER AT NODE      18  0.000000E+00  0.000000E+00  13046.3      0.000000E+00  -26337.5      0.000000E+00
                                19  0.000000E+00  0.000000E+00  -10213.6      0.000000E+00  18166.5      0.000000E+00

EL= 19  NODES= 19  20  MAT= 1  TCENT, TTOPZ, TBOTY= 0.0  0.0  0.0                      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
      I  0.00000E+00  0.00000E+00  0.00000E+00  -32420.      32420.      -32420.      32420.      -32420.      32420.
      J  0.00000E+00  0.00000E+00  0.00000E+00  -21329.      21329.      -21329.      21329.      -21329.      21329.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
      I  0.00000E+00  18914.      0.00000E+00  -32420.      32420.      -32420.      32420.

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FILENAME : mv.out DATE : 06-01-94 TIME : 1:50p PAGE 6
TITLE : fine.ans output (Mv capacity for Adapter Rings)

J	0.00000E+00	-14010.	0.00000E+00	-21329.	21329.	-21329.	21329.		
FORCES ON MEMBER AT NODE	19	0.000000E+00	0.000000E+00	10213.6	0.000000E+00	-18166.5	0.000000E+00		
	20	0.000000E+00	0.000000E+00	-7565.42	0.000000E+00	11951.9	0.000000E+00		

EL=	20	NODES=	20	21	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP
AM	44											
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8			
I	0.00000E+00	0.00000E+00	0.00000E+00	-21329.	21329.	-21329.	21329.	-21329.	21329.			
J	0.00000E+00	0.00000E+00	0.00000E+00	-13245.	13245.	-13245.	13245.	-13245.	13245.			
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8					
I	0.00000E+00	14010.	0.00000E+00	-21329.	21329.	-21329.	21329.					
J	0.00000E+00	-10063.	0.00000E+00	-13245.	13245.	-13245.	13245.					
FORCES ON MEMBER AT NODE	20	0.000000E+00	0.000000E+00	7565.42	0.000000E+00	-11951.9	0.000000E+00					
	21	0.000000E+00	0.000000E+00	-5433.77	0.000000E+00	7421.84	0.000000E+00					

EL=	21	NODES=	21	22	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP
AM	44											
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8			
I	0.00000E+00	0.00000E+00	0.00000E+00	-13245.	13245.	-13245.	13245.	-13245.	13245.			
J	0.00000E+00	0.00000E+00	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4	-7493.4	7493.4			
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8					
I	0.00000E+00	10063.	0.00000E+00	-13245.	13245.	-13245.	13245.					
J	0.00000E+00	-7084.9	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4					
FORCES ON MEMBER AT NODE	21	0.000000E+00	0.000000E+00	5433.77	0.000000E+00	-7421.84	0.000000E+00					
	22	0.000000E+00	0.000000E+00	-3825.84	0.000000E+00	4198.94	0.000000E+00					

EL=	22	NODES=	22	23	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP
AM	44											
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8			
I	0.00000E+00	0.00000E+00	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4	-7493.4	7493.4			
J	0.00000E+00	0.00000E+00	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1	-3503.1	3503.1			
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8					
I	0.00000E+00	7084.9	0.00000E+00	-7493.4	7493.4	-7493.4	7493.4					
J	0.00000E+00	-4791.2	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1					
FORCES ON MEMBER AT NODE	22	0.000000E+00	0.000000E+00	3825.84	0.000000E+00	-4198.94	0.000000E+00					
	23	0.000000E+00	0.000000E+00	-2587.23	0.000000E+00	1962.96	0.000000E+00					

EL=	23	NODES=	23	24	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP
AM	44											
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8			
I	0.00000E+00	0.00000E+00	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1	-3503.1	3503.1			
J	0.00000E+00	0.00000E+00	0.00000E+00	-967.41	967.41	-967.41	967.41	-967.41	967.41			
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8					
I	0.00000E+00	4791.2	0.00000E+00	-3503.1	3503.1	-3503.1	3503.1					
J	0.00000E+00	-2685.3	0.00000E+00	-967.41	967.41	-967.41	967.41					
FORCES ON MEMBER AT NODE	23	0.000000E+00	0.000000E+00	2587.23	0.000000E+00	-1962.96	0.000000E+00					
	24	0.000000E+00	0.000000E+00	-1450.05	0.000000E+00	542.093	0.000000E+00					

EL=	24	NODES=	24	25	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0		3-D TAP
AM	44											
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8			
I	0.00000E+00	0.00000E+00	0.00000E+00	-967.41	967.41	-967.41	967.41	-967.41	967.41			
J	0.00000E+00	0.00000E+00	0.00000E+00	-0.40577E-12	0.40577E-12	-0.40577E-12	0.40577E-12	-0.40577E-12	0.40577E-12			
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8					
I	0.00000E+00	2685.3	0.00000E+00	-967.41	967.41	-967.41	967.41					
J	0.00000E+00	-0.15033E-11	0.00000E+00	-0.40577E-12	0.40577E-12	-0.40577E-12	0.40577E-12					
FORCES ON MEMBER AT NODE	24	0.000000E+00	0.000000E+00	1450.05	0.000000E+00	-542.093	0.000000E+00					
	25	0.000000E+00	0.000000E+00	-0.811795E-12	0.000000E+00	0.227374E-12	0.000000E+00					

***** REACTION FORCES ***** TIME = 0.00000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

NOTE - REACTION FORCES ARE IN THE NODAL COORDINATE SYSTEM.

NODE	FX	FY	FZ	MX	MY	MZ
1	0.000000E+00	-543025.	0.000000E+00	0.000000E+00	0.000000E+00	-383159.
TOTAL	0.000000E+00	-543025.	0.000000E+00	0.000000E+00	0.000000E+00	-383159.

FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (Mv capacity for Adapter Rings)

TIME : 1:50p

PAGE 7

*** ELEM. STRESS CALC. TIMES
TYPE NUMBER STIF TOTAL CP AVE CP

1 24 44 0.970 0.040

*** NODAL FORCE CALC. TIMES
TYPE NUMBER STIF TOTAL CP AVE CP

1 24 44 0.000 0.000

*** LOAD STEP 1 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.=
1

*** STORAGE REQUIREMENT SUMMARY
MAXIMUM FIXED MEMORY USED = 1074
MAXIMUM TEMPORARY MEMORY USED= 936
MAXIMUM TOTAL MEMORY USED = 1386
MAXIMUM TEMPORARY AVAILABLE = 2251372

*** PROBLEM STATISTICS
NO. OF ACTIVE DEGREES OF FREEDOM = 144
R.M.S. WAVEFRONT SIZE = 10.4

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 2048
POST DATA WRITTEN ON FILE12
RESTART DATA WRITTEN ON FILE03 (86764 BYTES)
TRIANGULARIZED MATRIX WRITTEN ON FILE11 (15836 BYTES)

***** END OF INPUT ENCOUNTERED ON FILE27. FILE27 REWOUND

***** INPUT FILE SWITCHED FROM FILE27 TO FILE 5

***** ROUTINE COMPLETED ***** CP = 35.640

SYSTEM= 38280-PC/L1-4.4A REVISION= 4.4 A 1
FOR SUPPORT CALL PHONE TWX
CURRENT JOBNAME=FILE

/EOF ENCOUNTERED ON FILE 5

PREP7 AWRITE OR SPWRITE WARNING MESSAGES = 0
NUMBER OF SOLUTION PHASE WARNING MESSAGES = 0

DATA INPUT WRITTEN ON FILE18

***** RUN COMPLETED ***** CP= 45.0900 TIME= 13.8348

ATTACHMENT 8
COMMUNICATION DOCUMENTING
THE CONCRETE STRENGTH AND THE LOAD PATHS

Prepared by: SB KOK Date: 8/30/94

Checked by: CP Dam Date: 8/30/94

[4] From: John P III Harris at -WHC216 1/21/94 9:03AM (6109 bytes: 92 ln)
To: ADVENT Engineering Services at -DOE_HANFORD_1
cc: Gina A Symons at -WHC82
Subject: Tanks, Pits and Risers (re: Advent Eng. Report)
----- Forwarded with Changes -----
From: Edward G III Allen at -WHC216 1/21/94 6:42AM (5072 bytes: 77 ln)
To: John P III Harris at -WHC216
cc: Gina A Symons at -WHC82, John W Bailey at -WHC20, Thomas H (Tom) May at
-WHC82, J R III (Jim) Bellomy, Kenneth G Squires at -WHC14
Subject: Tanks, Pits and Risers (re: Advent Eng. Report)
----- Message Contents -----

Text item 1:

John,

After reading the referenced report, I revisited the pit and riser drawings for 106-C. It is true, rise vertical load (straight downward) does not impart a "significant" load to the tank dome. You need to have the drawings in front of you to see this, but I'll try to explain.

The 4" and 12" risers are smaller in outside diameter than the inside diameters of the adapters (the embedded flanges for equipment mounting). The adapters were sealed to the risers and pit floor (first rough pour) with pitch or "bituminous sealer". The risers were cinch anchored to the rough floor (3-places), shimmed to final elevation, and grouted in place before the finished floor was poured, which encased the main body of the adapters and any flush/drain lines connected to them.

A downward load (after concrete curing and pit settling) should disperse from the adapter flange to the finished floor concrete layer to the rough first floor and then out to the soil above the dome. Some load might make it's way to the dome, but you'd have to start with a major load at the flange. At any rate, you still could not force the riser downward against the dome; it would just come up inside the adapter (8" before it contacts the mating equipment flange!).

The heel pit risers (for the jet) and pump pit risers (for the slurry pump) are different. The heel pit 26" steel casing was cut off to an elevation allowing a 1" gap between it's top face and the underside of the heel jet riser adapter. If a load were imparted straight downward, you'd have to shove the whole pit assembly toward the dome 1" before taking up the gap. Again, a major load.

The pump riser was quite a feat of engineering. The casing was built in two, telescopic sleeves (one 4'-11-1/2" OD, and the other 5'-0" ID) to allow access to the 42" manhole covers used during original tank construction. The lower casing (smaller) was beveled to the dome contour and sealed to the dome with mastic. The upper casing was sealed to the lower with pitch and attached with four lengths of chain, welded to the outside of both casings (equally spaced). This chain limited the extended telescoping length.

A four-footed X-member was installed on temporary footings to suspend the top flange of the upper casing at the proper elevation and some "lean" concrete was poured. The X-member and temporary footings were removed and the first (rough) pit floor was poured. A shielding adapter was shimmed and

[11] From: John P III Harris at -WHC216 2/2/94 3:33PM (2172 bytes: 32 ln)
To: ^ADVENT Engineering Services at -DOE HANFORD 1
cc: Gina A Symons at -WHC22, Edward G III Allen at -WHC216, David A Wallace at
-WHC208, James B (Jim) Truitt at -WHC74, Larry J Julyk at -WHC240,
John P III Harris
Subject: ASSUMPTIONS FOR 12" RISER LOAD LIMIT CALCULATIONS

----- Message Contents -----

Albert/Jeff/Jim/Soo Bee,

As we talked about on the phone this afternoon, please use the assumption that all concrete in the northern and southern pits (the pits being examined in the calculation concerning the load limitations for the 12" risers) is 3,000 psi concrete, (i.e., assume that all the concrete used in pours in these pits is 3,000 psi, whether or not rebar was included in the pour).

WHC is basing this assumption on the best available information. Ed Allen of WHC will continue to try to obtain documentation from the concrete specifications used during construction of the pits to verify this assumption. But, if this verification is not forthcoming, continue with the assumption as stated above unless updated information is provided.

The resolution of this issue removes the last block to completion of the analysis, as I understand from our conversation, and I am eagerly anticipating receipt of the determination of the allowable vertical, horizontal, and moment loads on the 12" risers to support our Advanced Sluicer Procurement Specification.

If you have additional questions concerning this analysis, please feel free to contact Gina or myself as an additional resource to your normal contacts in Jim Truitt's group.

John Harris,
Acting Manager,
Sluicing Retrieval Project Engineering

tack welded to the upper casing flange (no gap) which necked the opening down to 36". Pit walls and finished floor came next.

Loads to the adapter flange go to the upper casing flange and the pit finished floor and rough floor simultaneously. The chance of imparting a load to the dome is higher in this case, however, there is some allowable slip-fit between casings. Also, the dome is thickest in this region. Again, it would take a major load to hurt anything.

The one type of loading that gives me pause for concern is axial (e.g., sluicer kick at the nozzle from fluid pressure). Granted, a load in this direction would have to be strong enough to break the adapter cinch anchors and the bond between the rough and finished pit floors. I'm no stress engineering wizard, but methinks this would be classified as the "mother of all loads".

Hadn't planned to be quite so wordy, but I thought I'd pass these casual observations along since you seemed interested and don't deserve surprises later. Drop by sometime and I'll go over the drawings with you. Those boys back then really had it together.

EGA

Appendix E

Allowable Loads on the Pump Column Adaptor Ring

in the 241-C-106 Pump Pit

INDEPENDENT REVIEW

Document Reviewed Allowable Loads on the Pump Column Adaptor Rings in the
241C106 Pump Pit (Appendix E)

Author ADVENT Engineering Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
Services Rev. 0

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

D. A. Wallace

Reviewer

10-20-88
Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Allowable Loads on the Pump Column Adaptor Rings in
the 241C106 Pump Pit (Appendix E)

Author ADVENT Engineering Services

Yes No N/A

☒ [] []	Problem completely defined.
☒ [] []	Necessary assumptions explicitly stated and supported.
☒ [] []	Computer codes and data files documented.
☒ [] []	Data used in calculations explicitly stated in document.
☒ [] []	Data checked for consistency with original source information as applicable.
☒ [] []	Mathematical derivations checked including dimensional consistency of results.
☒ [] []	Models appropriate and used within range of validity or use outside range of established validity justified.
☒ [] []	Hand calculations checked for errors.
☒ [] []	Code run streams correct and consistent with analysis documentation.
☒ [] []	Code output consistent with input and with results reported in analysis documentation.
☒ [] []	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒ [] []	Safety margins consistent with good engineering practices.
☒ [] []	Conclusions consistent with analytical results and applicable limits.
☒ [] []	Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number 94-062

D. A. Wallace
Reviewer

10-20-94
Date

09/22/93

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

ANSYS-PC/LINEAR Ver. 4.4A

SOFTWARE APPLICATION

94-062
KEY NUMBER (IF APPLICABLE)

Soo Bee Kok

ANALYST (PRINTED NAME)

Appendix E of
WHC-SD-W320-ANAL-003

EDT/DOCUMENT NUMBER

J. B. Truitt

ANALYST'S MANAGER

October, 1994

DATE PERFORMED

DESCRIPTION OF ANALYSIS:

KAN,0
Static analysis with shell and mass elements.
Point and gravity loads.
Linear-Elastic material properties.
Symmetric boundary conditions.
POST1 - post-processing

S B Kok
SIGNATURE OF ANALYST

E-iv

10/12/94
DATE

EXECUTIVE SUMMARY APPENDIX E

An evaluation of seismic and non-seismic allowable loads at the Pump Pit Adaptor Ring for the C-106 Pump Pit has been performed in support of Past-Practice Sluicing evaluations. Seismic acceleration response spectra of the pit floors were computed using a Soil-Structure-Interaction (SSI) approach in a separate analysis (W320-ANAL-002) and are used herein to define seismic environments.

Variables used in the expressions for allowable adaptor ring loads are defined as follows:

- F_H = best-estimate (i.e., unfactored) value of the resultant horizontal force applied at the Adaptor Ring top flange.
- M_H = best-estimate value of the resultant moment about a horizontal axis applied at the Adaptor Ring top flange.
- F_V = best-estimate value of the vertical force (assumed downward) applied at the Adaptor Ring top flange.
- M_V = best-estimate value of the moment about the vertical axis applied at the Adaptor Ring top flange.

All forces and moments are unsigned and are in units of lbf and lbf-inch, respectively unless specifically noted as otherwise.

The expressions provided implicitly include load factors per ACI 349-90 (Code Requirements for Nuclear Safety Related Concrete Structures); therefore, best-estimate (non-factored) values of F_H , M_H , F_V , and M_V should be substituted into the inequalities. Forces and moments for the non-seismic and seismic load combinations are acceptable if the appropriate set of inequalities (seismic or non-seismic) is satisfied. The expressions for the allowable moment M_H include a variable, F_{DL} , defined as the lower-bound value of downward vertical force from dead load at the top flange of the Adaptor Ring. It is conservative to use an underestimated value of dead load for F_{DL} , conversely, it would be unconservative to use an overestimate of dead load for F_{DL} .

Allowable Loads on the Pump Column Adaptor Rings in the C-106 Pump Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities is satisfied:

$$\begin{aligned}
 F_H &\leq 10,130 \text{ [lbf]} \\
 M_V &\leq 1,440 \text{ [lbf-inch]} \\
 (1) \quad F_{V(PC)} &\leq 82,830 \text{ [lbf]} & \text{for } (2) \quad F_{V(S)} \leq 3,000 \text{ [lbf]} \\
 &\leq 92,100 - 3.09 F_{V(S)} \text{ [lbf]} & \text{for } F_{V(S)} > 3,000 \text{ [lbf]} \\
 M_H &\leq \text{Lesser of } \{10.07 F_{DL}\} \text{ and} \\
 &\quad \{106,410 + 15.20 F_{DL} - 8.50 F_H\} \text{ [lbf-inch]}
 \end{aligned}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities is satisfied:

$$\begin{aligned}
 F_H &\leq 17,230 \text{ [lbf]} \\
 M_V &\leq 2,460 \text{ [lbf-inch]} \\
 (1) \quad F_{V(PC)} &\leq 146,960 \text{ [lbf]} & \text{for } (2) \quad F_{V(S)} \leq 3,000 \text{ [lbf]} \\
 &\leq 156,340 - 3.126 F_{V(S)} \text{ [lbf]} & \text{for } F_{V(S)} > 3,000 \text{ [lbf]} \\
 M_H &\leq \text{Lesser of } \{8.46 F_{DL}\} \text{ and} \\
 &\quad \{89,380 + 12.77 F_{DL} - 8.50 F_H\} \text{ [lbf-inch]}
 \end{aligned}$$

Notes: (1) $F_{V(PC)}$ denotes F_V for Pump Column Adaptor Ring in the Pump Pit.
(2) $F_{V(S)}$ denotes F_V for Sluicing Adaptor Ring in the Pump Pit

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
 (8) Originator SBKOK Date 10/11/94
 (9) Checker 4P00y Date 10/11/94

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1.0 OBJECTIVE

Develop expressions for allowable loads at the Pump Column Adaptor Ring
(Dwg # H-2-41267) located in the C-106 Pump Pit - 06A (Dwg # H-2-41343).

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(8) Originator SSKOK Date 10/11/94
(9) Checker 4PDay Date 10/11/94

2.0 REFERENCES

- 2.1 Shamsheer Prakash, 1981, *Soil Dynamics*, McGraw-Hill
- 2.2 Liu, C., Evett, J.B., 1981, *Soils and Foundations*, Prentice-Hall
- 2.3 Julyk, L.J., et. al., 1994, *241-C-106 Structural Integrity Assessment*, WHC-SD-W320-ANAL-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington
- 2.4 ACI 349-90, 1990, *Code Requirements For Nuclear Structures*, American Concrete Institute, Detroit, Michigan
- 2.5 AISC, 1989, *Manual of Steel Construction Allowable Stress Design*, Ninth Edition, American Institute of Steel Construction
- 2.6 1992, *Engineering Properties of Steel*, American Society For Metals
- 2.7 SASI, 1989, *ANSYS Users' Manual*
- 2.8 1971, *Piping Design and Engineering*, Grinnell
- 2.9 ACI 318.1-89, 1989, *Building Code Requirements for Structural Plain Concrete*, American Concrete Institute, Detroit, Michigan
- 2.10 Shigley, J.E., Mischke, C.R., 1986, *Standard Handbook Of Machine Design*, McGraw-Hill
- 2.11 1987, *Marks' Standard Handbook for Mechanical Engineers*, Eighth Edition", McGraw-Hill
- 2.12 Day, J.P., 1994, *Seismic Evaluation of Tank 241-C-106 in Support of Retrieval Activities*, WHC-SD-W320-ANAL-002, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

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 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
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2.13 Drawings

- 1) H-2-41343, Structural Concrete - Plan and Sections - Pump Pit
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- 3) H-2-37006, C-106 Tank Arrangement, As Built
- 4) H-2-41365, Mechanical Equipment - Standard 1-1/4" Diameter Stud and Free Nut
- 5) H-2-41311, Mechanical Equipment - Sub Assembly Sluicing Adapter Ring
- 6) H-2-41318, Mechanical Equipment - Assembly Recirculation Diplegs, Waste Metal Removal
- 7) H-2-1744, Tank Farm Riser 8 Nozzle Elevation
- 8) H-2-41190, Piping, Cascade Pump Pit Plan & Sections
- 9) H-2-41321, Mechanical Equipment - Detail 4" Pipe Probe Tube For Recirculation Line
- 10) H-2-41323, Mechanical Equipment - Detail - Type I & II Diplegs Recirculation Lines
- 11) H-2-40397, Mechanical Equipment - General Arrangement, Section A-A, Waste Metal Removal
- 12) H-2-73346, Piping Waste Tank Isolation, TK241-C-106
- 13) H-2-41371, Structural Steel - Plan and Sections - Alignment Assembly and Leveling Beam Pump Pit
- 14) H-2-41264, Mechanical Equipment - Sub Assembly - Cover Plate For Slurry Pump
- 15) H-2-41267, Mechanical Equipment - Sub Assembly - Slurry Pump Adaptor Ring

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3.0 SYMBOLS

The load-governing expressions contain the following variables: (units: lbf, inch)

F_H = Unfactored value of the resultant horizontal force applied at the Adaptor Ring top flange

M_H = Unfactored value of the resultant moment about a horizontal axis applied at the Adaptor Ring top flange

F_V = Unfactored value of the vertical force (positive downward) applied at the Adaptor Ring top flange

M_V = Unfactored value of the moment about the vertical axis applied at the Adaptor Ring top flange

F_{DL} = Lower-bound unfactored dead load applied at the Adaptor Ring top flange

F_{DL} counteracts (reduces) the horizontal moment demand. For conservatism, F_{DL} must not be overestimated and consequently the value used must be a lower-bound to the vertical force resultant at the adapter ring.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
(8) Originator SBKOK Date 10/11/94
(9) Checker APB Date 10/11/94

4.0 ASSUMPTIONS

- Only F_V is considered in the finite element analysis for the computation of the pit floor capacity. F_H , M_H , M_V are insignificant contributors to the stress in the floor.
- The vertical load from the 12" riser is assumed to be 3,000 lbf applied to the pit floor and the stresses in the pit floor from moments and horizontal forces applied at the 12" riser are negligible.
- The fill (plain) concrete in the pit floor has a compressive strength $f'_c = 3000$ psi per Attachment 7.
- Per Attachment 7, the upper and lower retainer rings are free to move relative to each other in the vertical direction.
- Conservatively neglect the strength of the three positioning dowels located on the top flange of the Adaptor Ring.
- Per Reference 2.3, the soil properties are as follows:

Unit weight of soil = 110 pcf
Coefficient of earth pressure at rest = 0.538
Young's Modulus = 3000 lbf/in²
Poisson's Ratio = 0.35
- Grade Level is 12 in. below the top of the Pump Pit.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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 (8) Originator SB KOK Date 9/1/94
 (9) Checker 4P Qm Date 9/1/94

5.0 LOADS

The loads considered herein are:

- F_H , horizontal force applied to the Adaptor Ring top flange.
- F_V , vertical downward force applied to the Adaptor Ring top flange.
- M_H , moment about a horizontal axis applied to the Adaptor Ring top flange.
- M_V , moment about the vertical axis applied to the Adaptor Ring top flange.
- Self weight of the fill concrete.
- Self weight of the pit.
- Lateral earth pressure exerted on the pit wall.
- 12" riser load.
- 4" riser load.

The following figure identifies the orientations and the location of the applied forces (F_H and F_V) and moments (M_H and M_V).

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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(7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
(8) Originator SBKOK Date 9/1/94
(9) Checker JPD Date 9/1/94

Physical Configuration and Load Paths;

The above figure illustrates the structural components which act together to react loads caused by the equipment mounted on the Adaptor Ring. The Adaptor Ring utilizes studs to restrain equipment. The studs can develop shear loads to resist resultant horizontal forces and vertical moments. The imposed restrictive liftoff condition ensures that there is no tension in stud.

The liftoff condition is resisted by the self weight of the equipment. The imposed conditions on liftoff include no liftoff of Adaptor Ring flange edge and no exceeding of bearing allowable for the fill concrete.

Proceeding down the load paths:

- The moment about the vertical axis is resisted by bearing of the 2" horizontal pipe and the stiffeners on fill concrete.
- The horizontal force is resisted by the bearing of the Adaptor Ring sub-assembly on the fill concrete.
- The resultant vertical force will be resisted by the pit floor concrete and the soil beneath the pit.

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
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 (8) Originator SBKOK Date 9/1/94
 (9) Checker 4P Day Date 9/1/94

6.0 CALCULATIONS

6.1 Pit Floor Demands (F_v)

The determination of pit floor demands is accomplished using the finite element approach. The model is developed using the general purpose finite-element program, ANSYS Version 4.4a. The pit floor and the pit walls are modeled using shell elements. The soil stiffness supporting the pit floor is computed using elastic-half-space theory and the computed stiffness is modeled as elastic foundation stiffness (EFS) acting under the pit floor shell elements. Due to symmetry, only half of the pit is modeled. Appropriate boundary conditions are imposed along the line of symmetry.

The present work scope examines the non-seismic and the seismic demands on the pit floor. Soil-structure-interaction and pit-dome-interaction are considered in the C-106 seismic demands evaluation using data to be reported separately (WHC Calculation WHC-SD-W320-ANAL-002). The pit floor seismic spectra from the soil-structure-interaction analysis are provided in Attachment 3. The computed seismic zero period accelerations (ZPA) for the pit floor are used in the determination of the seismic capacities.

6.1.1 Loads

The loads considered in the finite element model are:

1. Dead load (D) which includes self weight of the pit floor, pit wall, and the pit cover.
2. Lateral earth pressure load (H) which is exerted by the soil onto the pit wall.
3. Live load (L) which includes the Pump Column vertical load, the 4" riser vertical load, and the 12" riser vertical load.

Per ACI 349-90 (Reference 2.4) Section 9.2.1, the required strength of the pit floor shall be at least equal to the following:

$$1.4D + 1.7L + 1.7H$$

where D = dead load (weight of pit)
 L = live load (riser and Pump Column)
 H = lateral earth pressure

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
 (8) Originator SB KOK Date 10/11/92
 (9) Checker JP Ouy Date 10/11/92

However, ACI 349-90 (Reference 2.4) Section 9.2.3 states that where any load reduces the effects of the other loads, the corresponding coefficient for that load shall be taken as 0.9 if it can be demonstrated that the load is always present or occurs simultaneously with the other loads. Otherwise, the coefficient for that load shall be taken as zero. Strictly interpreting this guidance applies only to the determination of demands for components / structures covered by ACI 349-90. Guidance specific to the determination of section capacity (for example, as expressed in M-P interaction curves for reinforced concrete shells) is not explicitly provided. A comparable issue, however, exists when establishing the capacity of ACI governed reinforced concrete shell sections because the membrane stress resultant / axial force demand determines the allowable bending moment (capacity). Certain load cases preferentially increase the compressive axial load demand (while other load cases are mainly responsible for the shell bending response) and increasing these loads, in effect, increases the moment capacity of the structure. Using load factors greater than 1.0 for such load cases has the effect of increasing axial force demands, increasing moment carrying capacity, and defeating the objective of introducing margin to counteract uncertainties. For this situation, when load factors greater than 1.0 can increase the controlling capacity, ACI 349-90 Section 9.2.3 is interpreted to mean that (provided loads are always present) a load combination shall be evaluated where the load factor for the load case in question is no greater than 1.0.

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6.1.2 Key Dimensions

References: Dwgs # H-2-41343, H-2-73346, H-2-41371

Plan

Section

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Model Dimensions

Plan

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6.1.3 Complete Finite Element Model

The following shows a schematic view of the model.

Schematic View of the Generated Mesh

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Boundary Conditions:

Along the plane of half symmetry at $Y = 0.0$, the nodes are restrained in UY, ROTX, and ROTZ.

In addition, Node 1 is restrained in the UX direction to provide translational restraint in the global X direction. This restraint is necessary in order to remove rigid body degree of freedom. As the lateral loading in the UX direction is equal and opposite, the reaction in UX at Node 1 is expected to be practically zero.

Element Properties:

The following ANSYS Real Properties define the shell finite element section properties (Real 1, 2, 3, & 11) and the lumped mass values (Real 101 through 162, & 215 through 248). Note that the pit cover is not modeled as a structural component, but it is necessary to incorporate its mass into the appropriate portion of the actual model. The pit cover mass is located along the top of the wall.

Real 1 (Pit Floor);

Thickness = 15.5"
EFS = 13.98 lbf/inch³

Real 11 (Pit Floor elements rotated by 90°);

Thickness = 15.5"
EFS = 13.98 lbf/inch³
Angle = 90°

Real 2 (East & North Pit Walls);

Thickness = 18.0"

Real 3 (West Pit Walls);

Thickness = 23.5"

Real 101 through 162 (Pit Cover distributed mass);

Mass = 61.918 x Ratio lbf-sec²/inch
(where ratios are presented in Table 6.1.8-1)

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Real 215 through 248 (Pit Wall additional mass);
 Mass = $15.479 \times \text{Ratio lbf-sec}^2/\text{inch}$
 (where ratios are presented in Table 6.1.8-2)

Material Properties:

The following ANSYS Material Properties define the shell finite element properties.

Property 1 (Pit Floor);

Young's Modulus = $57000 (f_c)^{1/2}$
 = $57000 (3000)^{1/2}$
 = $3.122E6 \text{ lbf/inch}^2$
 Poisson's Ratio = 0.15
 Mass density = $150 \times (23.5 / 15.5) / (1728 \times 386.4)$
 = $3.406E-4 \text{ lbf-sec}^2/\text{inch}$

Note that the mass density includes an approximated 8" fill concrete which is on top of the modeled 15.5" reinforced concrete.

Property 2 (Pit Walls);

Young's Modulus = $3.122E6 \text{ lbf/inch}^2$
 Poisson's Ratio = 0.15
 Mass density = $150 / (1728 \times 386.4)$
 = $2.247E-4 \text{ lbf-sec}^2/\text{inch}$

Individual Load Cases:

There are a total of 5 individual load cases in the analysis. These load cases are post processed using the prescribed load combinations to determine the pit floor stresses. The 5 individual load cases are described below.

Load Case 1; Gravity load.
 Load Case 2; Lateral earth pressure load.
 Load Case 3; Pump column load of 10,000 lbf.
 Load Case 4; 4" riser load of 200 lbf.
 Load Case 5; 12" riser load of 3,000 lbf.

Note that these applied individual load cases consist of unfactored loads.

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6.1.4 Pit Wall Model Generation

The pit wall is modeled using shell elements. The node and element sequences of the wall elements are shown as follows.

East Pit Wall Node and Element Numbers

- Notes:
- 1) Node numbers increase from left to right by 1.
 - 2) Node numbers increase from bottom to top by 100.
 - 3) The element number is denoted by the node number on the lower left hand corner.
 - 4) Wall is located at $X = 0.0$.

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West Pit Wall Node and Element Numbers

- Notes: 1) Node numbers increase from left to right by 1.
 2) Node numbers increase from bottom to top by 100.
 3) The element number is denoted by the node number on the lower left hand corner.
 4) Wall is located at X = 195.25.

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North Pit Wall Node and Element Numbers

- Notes:
- 1) Node numbers increase from left to right by 1.
 - 2) Node numbers increase from bottom to top by 100.
 - 3) The element number is denoted by the node number on the lower left hand corner.
 - 4) Wall is located at Y = -75.0.

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6.1.5 Pit Floor Model Generation

The pit floor is modeled using shell elements. The soil beneath provides vertical support to the pit floor. The soil spring stiffness is computed in Section 6.1.6 and is implemented as pit floor element elastic foundation stiffness (EFS). In order to expedite the generation of the pit floor model, solid modeling approach has been used to mesh generate the model. The sequence of the model development is provide below.

Solid Modeling Keypoints

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Solid Modeling Line Segments

Solid Modeling Line Divisions

Solid Modeling Areas

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Pit Floor Mesh

Node Numbers Along The Pit Floor Boundaries

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1	172	171	170	169	168	167	166	165	164
2	2019	2020	2021	2022	2023	2024	2012	2128	2129
3	2013	2014	2015	2016	2017	2018	2011	2126	2127
4	2041	2044	2047	2050	2053	2056	2030	2138	2141
5	2040	2043	2046	2049	2052	2055	2031	2137	2140
6	2039	2042	2045	2048	2051	2054	2032	2136	2139
7	2033	2034	2035	2036	2037	2038	2029	2134	2135
8	2076	2080	2084	2088	2092	2096	2063	2152	2156
9	2075	2079	2083	2087	2091	2095	2064	2151	2155
10	2074	2078	2082	2086	2090	2094	2065	2150	2154
11	2073	2077	2081	2085	2089	2093	2066	2149	2153
12	2067	2068	2069	2070	2071	2072	2062	2147	2148
13	2110	2112	2114	2116	2118	2120	2101	2163	2165
14	2109	2111	2113	2115	2117	2119	2102	2162	2164
15	16	17	18	19	20	21	22	23	24

Node Numbers For Pit Floor (Part 1/5)

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164	163	100	99	98			91	90	89
2129	2125	2173	2174	97			82	2257	2254
2127	2124	2171	2172	96	95	94	93	2255	2253
2141	2131	2183	2186	2176	2222	2225	2215	2265	2259
2140	2132	2182	2185	2177	2221	2224	2216	2264	2260
2139	2133	2181	2184	2178	2220	2223	2217	2263	2261
2135	2130	2179	2180	2175	2218	2219	2214	2262	2258
2156	2143	2197	2201	2188	2236	2240	2227	2275	2267
2155	2144	2196	2200	2189	2235	2239	2228	2274	2268

Node Numbers For Pit Floor (Part 2/5)

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2155	2144	2196	2200	2189	2235	2239	2228	2274	2268
2154	2145	2195	2199	2190	2234	2238	2229	2273	2269
2153	2146	2194	2198	2191	2233	2237	2230	2272	2270
2148	2142	2192	2193	2187	2232	2236	2226	2271	2266
2165	2158	2208	2210	2203	2247	2249	2242	2281	2277
2164	2159	2207	2209	2204	2246	2248	2243	2280	2278
24	25	26	27	28	29	30	31	32	33

Node Numbers For Pit Floor (Part 3/5)

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 (9) Checker JP/Don Date 9/1/94

898887									
228888									
225286									
2253288									
22602983									
2261229582									
2258 2292 81									
			80						
2267 2305 2297			79						
			2337						
2268 2304 2298			2341						
			2336						
2269 2303 2299			2340						
			2335						
2270 2302 2300			2339						
			2334						
2266 2301 2296			2326						
			2327						
2277 2311 2307			2378						
			2380						
2278 2310 2308			2377						
			2379						
33	34	35	36	37	38	39	40		

Node Numbers For Pit Floor (Part 4/5)

[illegible]

ES-18

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976	988	992	984	986	988	998	1076	1078
977	979	981	983	985	987	989	1075	1077
994	998	1002	1005	1010	1014	1018	1084	1088
993	997	1001	1005	1008	1013	1017	1083	1087
992	996	1000	1004	1008	1012	1016	1082	1086
991	995	999	1003	1007	1011	1015	1081	1085
1023	1028	1033	1038	1043	1048	1053	1097	1102
1022	1027	1032	1037	1042	1047	1052	1096	1101
1021	1026	1031	1036	1041	1046	1051	1095	1100
1020	1025	1030	1035	1040	1045	1050	1094	1099
1019	1024	1029	1034	1039	1044	1049	1093	1098
1056	1059	1062	1065	1068	1071	1074	1110	1113
1055	1058	1061	1064	1067	1070	1073	1109	1112
1054	1057	1060	1063	1066	1069	1072	1108	1111

Element Numbers For Pit Floor (Part 1/5)

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1080	1117	1118	1119				1195	1196
1079	1120	1121	1122				1197	1198
1092	1126	1130	1134	1152	1155	1170	1202	1205
1091	1125	1129	1133	1151	1155	1159	1201	1205
1090	1124	1128	1132	1150	1154	1158	1200	1204
1089	1123	1127	1131	1159	1153	1157	1199	1203
1107	1139	1144	1149	1175	1180	1185	1211	1215
1106	1138	1143	1148	1174	1179	1184	1210	1215

Element Numbers For Pit Floor (Part 2/5)

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1185	1137	1142	1147	1173	1178	1183	1289	1214
1184	1136	1141	1146	1172	1177	1182	1288	1213
1183	1135	1140	1145	1171	1176	1181	1287	1212
1116	1152	1155	1158	1188	1191	1194	1219	1222
1115	1151	1154	1157	1187	1190	1193	1218	1221
1114	1150	1153	1156	1186	1189	1192	1217	1220

Element Numbers For Pit Floor (Part 3/5)

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1272	224								
1272	226								
1272	228								
1272	230								
1231	232								
1233	1234								
1239	1244								
		1255							
1238	1243								
		1254							
			1260						
				1265					
					1270				
						1275			
1237	1242								
		1253							
			1258						
				1264					
					1269				
						1274			
1236	1241								
		1252							
			1257						
				1262					
					1267				
						1272			
1235	1240								
		1251							
			1256						
				1261					
					1266				
						1271			
1247	1250								
		1259							
			1264						
				1269					
					1274				
1246	1249								
		1258							
			1263						
				1268					
					1273				
1245	1248								
		1257							
			1262						
				1267					
					1272				
1244	1247								
		1256							
			1261						
				1266					
					1271				
1243	1246								
		1255							
			1260						
				1265					
					1270				
						1275			
1242	1245								
		1254							
			1259						
				1264					
					1269				
						1274			
1241	1244								
		1253							
			1258						
				1263					
					1268				
						1273			
1240	1243								
		1252							
			1257						
				1262					
					1267				
						1272			
1239	1242								
		1251							
			1256						
				1261					
					1266				
						1271			
1238	1241								
		1250							
			1255						
				1260					
					1265				
						1270			
							1275		
1237	1240								
		1249							
			1254						
				1259					
					1264				
						1269			
							1274		
1236	1239								
		1248							
			1253						
				1258					
					1263				
						1268			
							1273		
1235	1238								
		1247							
			1252						
				1257					
					1262				
						1267			
							1272		
1234	1237								
		1246							
			1251						
				1256					
					1261				
						1266			
							1271		
1233	1236								
		1245							
			1250						
				1255					
					1260				
						1265			
							1270		
								1275	
1232	1235								
		1244							
			1249						
				1254					
					1259				
						1264			
							1269		
								1274	
1231	1234								
		1243							
			1248						
				1253					
					1258				
						1263			
							1268		
								1273	
1230	1233								
		1242							
			1247						
				1252					
					1257				
						1262			
							1267		
								1272	
1229	1232								
		1241							
			1246						
				1251					
					1256				
						1261			
							1266		
								1271	
1228	1231								
		1240							
			1245						
				1250					
					1255				
						1260			
							1265		
								1270	
									1275

Element Numbers For Pit Floor (Part 4/5)

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6.1.6 Soil Stiffness Calculation

Elastic half-space theory, per Prakash (Reference 2.1) Section 9.13, is used for the computation of the soil stiffness and the elastic foundation stiffness (EFS) applied to the pit floor elements. This leads to a reduced soil stiffness compared to in situ conditions. This approach assures that pit floor stresses are conservatively predicted because additional floor bending deflections arise from the reduced EFS. The soil stiffness is determined from,

Pit floor dimensions (see Section 6.1.2) = 216" x 168"

$$r_o, \text{ equivalent radius} = (216 \times 168 / \pi)^{1/2} = 107.475"$$

Soil properties: (Reference 2.3)

$$\begin{aligned} E, \text{ soil Young's modulus} &= 3000 \text{ psi} \\ \nu, \text{ Poisson's ratio} &= 0.35 \\ G, \text{ shear modulus} &= E / \{2(1+\nu)\} \\ &= 3000 / \{2(1+0.35)\} \\ &= 1111.111 \text{ psi} \end{aligned}$$

$$\begin{aligned} K_{be}, \text{ best estimate soil stiffness} &= 4Gr_o / (1-\nu) \\ &= 4 \times 1111.111 \times 107.475 / (1-0.35) \\ &= 734,870 \text{ lbf/inch} \end{aligned}$$

Accounting for soil property uncertainty, divide the best estimate soil stiffness by a factor of 2. Lower soil stiffness gives rise to larger pit floor stresses. It is therefore conservative to use a lower soil stiffness value.

$$\begin{aligned} K, \text{ factored soil stiffness} &= 734,870 / 2 \\ &= 367,435 \text{ lbf/inch} \end{aligned}$$

For half symmetry model, tributary $K = 183,718 \text{ lbf/inch}$

$$\begin{aligned} \text{Pit floor modeled area} &= 75 \times 195.25 - (\pi \times 6.375^2 / 2) - (\pi \times 30.25^2 / 2) \\ &= 13,142.535 \text{ inch}^2 \end{aligned}$$

$$\begin{aligned} \text{Elastic Foundation Stiffness (EFS) for pit floor shell element} &= 183,718 / 13,142.535 \\ &= 13.98 \text{ lbf/inch}^3 \end{aligned}$$

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6.1.7 Soil Pressure Calculation

The computation of the lateral soil pressure acting on the pit wall is based on the earth pressure at rest calculation per Reference 2.2, Section 10.2.

Soil properties: (Reference 2.3)

K_0 , coefficient of earth pressure at rest = 0.538
 ρ , unit weight of soil = 110 pcf

P_0 , resultant lateral earth force = $0.5 \times K_0 \times \rho \times H^2 \times D$

where H is the height of the wall covered by soil = 104.5"
 D is the width of the modeled wall section.

Pit walls on the East and the West sides:

$H = 104.5"$, $D = 168"/2$

$P_0 = 0.5 \times 0.538 \times 110 / 1728 \times 104.5^2 \times 168 / 2$
 $= 15,708 \text{ lbf}$

A lateral soil pressure force of $F_x = 15,708$ (on nodes 401 through 415 described in Section 6.1.4) is applied on the East wall and similarly $F_x = -15,708 \text{ lbf}$ is applied on the East Wall (nodes 244 through 256 described in Section 6.1.4). The force distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Tables 6.1.7-1 and 6.1.7-2 for the East and West walls, respectively.

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 (9) Checker AP/Boy Date 9/1/94

Table 6.1.7-1 Lateral Force Distribution Ratios For East Wall

Node	Tributary Distance (inch)	Distribution Ratio
401	1.25	0.0166
402	2.49	0.0332
403	3.17	0.0423
404	3.85	0.0513
405	3.85	0.0513
406	3.85	0.0513
407	5.78	0.0771
408	7.71	0.1028
409	7.71	0.1028
410	7.71	0.1028
411	7.71	0.1028
412	6.53	0.0871
413	5.36	0.0714
414	5.36	0.0714
415	2.68	0.0357
Total Distance =		75.00

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 (9) Checker APR Date 9/1/94

Table 6.1.7-2 Lateral Force Distribution Ratios For West Wall

Node	Tributary Distance (inch)	Distribution Ratio
448	2.68	0.0357
449	5.36	0.0714
450	5.36	0.0714
451	6.53	0.0871
452	7.71	0.1028
453	7.71	0.1028
454	7.71	0.1028
455	7.71	0.1028
456	5.55	0.0740
457	3.40	0.0453
458	3.40	0.0453
459	3.40	0.0453
460	3.40	0.0453
461	3.40	0.0453
462	1.70	0.0226
Total Dist. =		75.00

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Pit wall on the North Side:

$$H = 104.5", D = 216"/2$$

$$P_o = 0.5 \times 0.538 \times 110 / 1728 \times 104.5^2 \times 216$$

$$= 40,391 \text{ lbf}$$

Distribute the lateral soil pressure force of $FY = 40,391 \text{ lbf}$ along the 34 nodes, Nodes 415 through 448. The force distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.7-3.

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 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
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 (9) Checker APD Date 9/1/94

Table 6.1.7-3 Lateral Force Distribution Ratios For North Wall

Node	Tributary Distance (inch)	Distribution Ratio
415	4.50	0.0230
416	9.00	0.0461
417	9.00	0.0461
418	9.00	0.0461
419	9.00	0.0461
420	9.00	0.0461
421	9.00	0.0461
422	8.02	0.0411
423	7.03	0.0360
424	7.03	0.0360
425	5.34	0.0273
426	3.64	0.0187
427	3.64	0.0187
428	3.15	0.0161
429	2.65	0.0136
430	2.65	0.0136
431	3.35	0.0171
432	4.05	0.0207
433	5.42	0.0277
434	6.79	0.0348
435	5.88	0.0301
436	4.97	0.0255
437	4.97	0.0255
438	4.97	0.0255
439	4.97	0.0254
440	4.97	0.0254
441	4.97	0.0255
442	4.97	0.0255
443	4.97	0.0255
444	5.72	0.0293
445	6.47	0.0331
446	6.48	0.0332
447	6.48	0.0332
448	3.24	0.0166
Total Distance =		195.25

DESIGN CALCULATION

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6.1.8 Miscellaneous Mass / Weight Calculation

Pit cover mass (Dwg # H-2-41343):

The pit wall has been simplified and modeled as a straight section. The pit cover is therefore assumed to just cover the open area bounded by the wall. The pit cover dimensions are 174" long by 132" wide by 24" deep.

Concrete density = 150 pcf

Pit cover mass = $174 \times 132 \times 24 \times 150 / (1728 \times 386.4)$
 = 123.835 lbf-sec²/inch

Distribute half the pit cover mass of 61.918 lbf-sec²/inch along the 62 nodes, Nodes 1601 through 1662 located at the top of the wall. The mass distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.8-1.

Top of wall additional mass (Dwg # H-2-41343):

The pit wall on the North and the South sides consist of a thickened section at the top. Since the wall has been modeled as a simplified straight section and the dimensions of the pit cover have been adjusted to accommodate the simplification, it is necessary to include additional mass to account for the thickened wall section at the top and the pit cover adjustment.

The South side of the wall has a slightly thicker section than that of the North side. The additional mass associated with the South side will be used. The approximate dimensions of the additional mass section are 174" long by 11 " wide by 36" deep.

Additional mass = $174 \times 11 \times 36 \times 150 / (1728 \times 386.4)$
 = 15.479 lbf-sec²/inch

Distribute the additional mass of 15.479 lbf-sec²/inch along the 34 nodes, Nodes 1615 through 1648 located at the top of the wall. The mass distribution is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.8-2.

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 (9) Checker 4P20m Date 9/1/94

Table 6.1.8-1 Pit Cover Mass Distribution Ratios (Part 1/2)

Node	Tributary Distance (inch)	Distribution Ratio
1601	1.25	0.0036
1602	2.49	0.0072
1603	3.17	0.0092
1604	3.85	0.0111
1605	3.85	0.0111
1606	3.85	0.0111
1607	5.78	0.0167
1608	7.71	0.0223
1609	7.71	0.0223
1610	7.71	0.0223
1611	7.71	0.0223
1612	6.53	0.0189
1613	5.36	0.0155
1614	5.36	0.0155
1615	7.18	0.0208
1616	9.00	0.0261
1617	9.00	0.0261
1618	9.00	0.0261
1619	9.00	0.0261
1620	9.00	0.0261
1621	9.00	0.0261
1622	8.02	0.0232
1623	7.03	0.0204
1624	7.03	0.0204
1625	5.34	0.0155
1626	3.64	0.0106
1627	3.64	0.0106
1628	3.15	0.0091
1629	2.65	0.0077
1630	2.65	0.0077
1631	3.35	0.0097
1632	4.05	0.0117
1633	5.42	0.0157
1634	6.79	0.0197
1635	5.88	0.0170
1636	4.97	0.0144

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Table 6.1.8-1 Pit Cover Mass Distribution Ratios (Part 2/2)

1637	4.97	0.0144
1638	4.97	0.0144
1639	4.97	0.0144
1640	4.97	0.0144
1641	4.97	0.0144
1642	4.97	0.0144
1643	4.97	0.0144
1644	5.72	0.0166
1645	6.47	0.0187
1646	6.48	0.0188
1647	6.48	0.0188
1648	5.91	0.0171
1649	5.36	0.0155
1650	5.36	0.0155
1651	6.53	0.0189
1652	7.71	0.0223
1653	7.71	0.0223
1654	7.71	0.0223
1655	7.71	0.0223
1656	5.55	0.0161
1657	3.40	0.0098
1658	3.40	0.0098
1659	3.40	0.0098
1660	3.40	0.0098
1661	3.40	0.0098
1662	1.70	0.0049
Total Distance =		345.25

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4" Riser Weight (Dwg # H-2-41323) :

With reference to Attachment 4 and the referenced drawing, the weight exerted on the 4" riser location will primarily be the Type I Dipleg. The major weight contributing components consist of the pipe and the circular plate.

Pipe type / dimensions: Std. 3" Steel Pipe Sch. 40, 9'-1" long.
 Pipe area = 2.228 inch² (Reference 2.8, Grinnell Catalog)
 Pipe weight = 2.228 x 108 x 490 / 1728 = 68.9 lbf.

Circular plate type / dimensions: Steel plate, 22" diameter, 1" thick.
 Plate weight = $\pi \times 11^2 \times 1 \times 490 / 1728 = 107.8$ lbf.

Total weight = 68.9 + 107.8 = 176.7 lbf (say 200 lbf)

By half symmetry, apply one half of the weight (i.e., 100 lbf) on the 4" riser location which is Node 166.

12" Riser Weight :

The 12" riser is assumed to exert a vertical force of 3000 lbf on the pit floor. By half symmetry, only one half of the 3000 lbf will be acting on the pit floor.

By half symmetry, apply one half of the weight (i.e., 1500 lbf) on the 12" riser nodes, Nodes 91 through 98. The distribution of the applied force is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.8-3.

Pump Column Weight :

The arbitrary Pump Column weight acting on the pit floor is assumed to be 10,000 lbf.

By half symmetry, apply one half of the weight (i.e., 5,000 lbf) on the Pump Column nodes, Nodes 66 through 87. The distribution of the applied force is proportional to the tributary distances associated with the nodes. The computed distribution ratios are presented in Table 6.1.8-4.

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 (9) Checker 4Pam Date 9/1/94

Table 6.1.8-2 Top of Wall Additional Mass Distribution Ratios

Node	Tributary Distance (inch)	Distribution Ratio
1615	4.50	0.0230
1616	9.00	0.0461
1617	9.00	0.0461
1618	9.00	0.0461
1619	9.00	0.0461
1620	9.00	0.0461
1621	9.00	0.0461
1622	8.02	0.0411
1623	7.03	0.0360
1624	7.03	0.0360
1625	5.34	0.0273
1626	3.64	0.0187
1627	3.64	0.0187
1628	3.15	0.0161
1629	2.65	0.0136
1630	2.65	0.0136
1631	3.35	0.0171
1632	4.05	0.0207
1633	5.42	0.0277
1634	6.79	0.0348
1635	5.88	0.0301
1636	4.97	0.0255
1637	4.97	0.0255
1638	4.97	0.0255
1639	4.97	0.0254
1640	4.97	0.0254
1641	4.97	0.0255
1642	4.97	0.0255
1643	4.97	0.0255
1644	5.72	0.0293
1645	6.47	0.0331
1646	6.48	0.0332
1647	6.48	0.0332
1648	3.24	0.0166
Total Distance =		195.25

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 (9) Checker APR Date 9/1/94

Table 6.1.8-3 12" Riser Weight Distribution Ratios

Node	Tributary Distance (inch)	Distribution Ratio
91	1.42	0.0715
92	2.84	0.1429
93	2.83	0.1427
94	2.84	0.1428
95	2.84	0.1429
96	2.84	0.1429
97	2.84	0.1429
98	1.42	0.0714
Total Distance =		19.86

Table 6.1.8-4 Pump Column Weight Distribution Ratios

Node	Tributary Distance (inch)	Distribution Ratio
66	1.86	0.0196
67	3.72	0.0392
68	3.72	0.0392
69	3.73	0.0392
70	3.72	0.0392
71	3.73	0.0392
72	4.65	0.0490
73	5.58	0.0588
74	5.58	0.0588
75	5.58	0.0588
76	5.58	0.0588
77	5.58	0.0588
78	5.58	0.0588
79	5.58	0.0588
80	5.58	0.0588
81	4.96	0.0522
82	4.34	0.0457
83	4.34	0.0457
84	4.34	0.0457
85	3.42	0.0360
86	2.50	0.0264
87	1.25	0.0132
Total Dist. =		94.93

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 (9) Checker APM Date 12/11/94

6.1.9 Finite Element Analyses

Analyses are denoted by 'PIT3' in their filenames. The generation of the pit floor elements ensure that the member coordinate axes are either exactly parallel or approximately parallel with the pit floor reinforcement. The 'lined up' element stresses can then readily be used for member evaluation.

Load Combinations:

Per ACI 349-90 (Reference 2.4) Sections 9.2.1 and 9.2.3, three non-seismic load combinations are considered as follows:

- A) $1.4D + 1.7L + 1.7H$
- B) $1.4D + 1.7L + 0.9H$
- C) $0.9D + 1.7L + 0.9H$

where D = dead load (weight of pit)
 L = live load (riser and Pump Column loads)
 H = lateral earth pressure

For each of the above load combinations, the post processed analyses consist of two different Pump Column base loads and they are 0 lbf and 200,000 lbf. Since the analyses are linear, results corresponding to a different Pump Column load can be computed by interpolating or extrapolating from those results.

Element Responses Of Interest:

In the first set of post processing analyses, the responses of interest include:

- Element forces and moments for the pit floor elements to be used in the pit floor evaluations.
- Nodal forces for the pit floor boundary elements to be use for pit floor shear evaluations.
- Displacements for the pit floor nodes to be used as a sanity check.

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Analysis Results:

Tables 6.1.9-1 and 6.1.9-2 tabulate the comparison of the axial load and flexure demand for the elements with the highest flexure demand about the North-South and East-West directions for the different load combinations. The element with the highest flexure demand about North-South with 200,000 lbf Pump Column load is Element 1326 while the element with the highest flexure demand about East-West with 200,00 lbf Pump Column load is Element 1224. The comparisons show that Load Combination C results in the highest flexure demands while at the same time yielding the smallest compressive axial loads or the largest tensile axial loads. This combination of high flexure demand and low compressive axial load (or high tensile axial load) controls the acceptability of applied loads.

Note that in Tables 6.1.9-1 and 6.1.9-2, the normal membrane stress resultant is reported as positive when it is tensile. The results show that the effect of vertical loads on the adaptor ring is tensile membrane resultants.

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Table 6.1.9-1 Comparison of Axial Load and Flexure Demand about North-South Direction for Different Load Combinations

Pump Column Load (lbf)	Load Comb. A		Load Comb. B		Load Comb. C	
	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)
0	-196	5,427	-135	5,648	-108	3,176
40,000	-142	-107	-80	113	-53	-2,358
80,000	-87	-5,642	-26	-5,421	1	-7,893
120,000	-32	-11,176	29	-10,955	56	-13,427
160,000	22	-16,710	84	-16,489	111	-18,961
200,000	77	-22,244	138	-22,024	165	-24,495

Notes: 1) The reported flexure demand is for Element 1326.
 2) Negative axial load represents compression.
 3) Negative flexure demand represents tension on the top face.

Table 6.1.9-2 Comparison of Axial Load and Flexure Demand about East-West Direction for Different Load Combinations

Pump Column Load (lbf)	Load Comb. A		Load Comb. B		Load Comb. C	
	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)	Axial Load (lbf/inch)	Flex. Demand (inch-lbf/inch)
0	-797	-8,634	-501	-9,320	-435	-4,806
40,000	-742	-2,464	-446	-3,151	-380	1,364
80,000	-687	3,705	-391	3,019	-325	7,533
120,000	-632	9,875	-336	9,188	-270	13,703
160,000	-576	16,044	-281	15,358	-215	19,872
200,000	-521	22,214	-226	21,527	-160	26,042

Notes: 1) The reported flexure demand is for Element 1224.
 2) Negative axial load represents compression.
 3) Negative flexure demand represents tension on the top face.

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(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
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 (9) Checker JP Day Date 10/11/94

6.1.10 Capacity Calculation

Flexure and Axial:

The flexure and axial capacity calculation for the pit floor is presented in Attachment 1. The capacities are provided as digitized data and associated M-P diagrams. These capacities are compared with the forces and moments computed in the finite element analyses described in Section 6.1.9. The comparison enables the maximum Pump Column load to be established by interpolation.

The first comparison establishes the flexure capacity about the North-South direction which is controlled by element number 1326 and the second comparison establishes the flexure capacity about the East-West direction which is controlled by element number 1224.

For the derivation of the flexure capacities about the North-South direction, the membrane resultants of interest fall between -1,119 lbf/inch and 1,369 lbf/inch. The P-M values for the two points are per Attachment 1.

- 1) P, Axial Load = 1,369 lbf/inch M, Flexure Capacity = 0 inch-lbf/inch
- 2) P, Axial Load = 1 lbf/inch M, Flexure Capacity = 10,191 inch-lbf/inch
- 3) P, Axial Load = -1,119 lbf/inch M, Flexure Capacity = 17,471 inch-lbf/inch

The following Table 6.1.10-1 tabulates the comparison of the different Pump Column load maximum North-South flexure demand and the reserve capacity.

For the derivation of the flexure capacities about the East-West direction, the Case A membrane resultants of interest fall between 890 lbf/inch and -1,373 lbf/inch. The P-M values for the two points are per Attachment 1.

- 1) P, Axial Load = 890 lbf/inch M, Flexure Capacity = 6,931 inch-lbf/inch
- 2) P, Axial Load = -278 lbf/inch M, Flexure Capacity = 14,747 inch-lbf/inch
- 3) P, Axial Load = -1,373 lbf/inch M, Flexure Capacity = 21,076 inch-lbf/inch

The following Table 6.1.10-2 tabulates the comparison of the different Pump Column load maximum East-West flexure demand and the respective capacity.

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 (9) Checker APDm Date 9/1/94

**Table 6.1.10-1 Comparison of Flexure Demand and Capacity
about North-South Direction**

Output File Reference	Pump Column Load (lbf/inch)	Axial Load (lbf/inch)	Flexure Capacity (inch-lbf/inch)	Flexure Demand (inch-lbf/inch)	Status
PIT3E1.po	0	-108	10,897	3,176	OK
Interpolation	90,000	15	10,086	-9,276	OK
Interpolation	95,000	22	10,035	-9,968	OK
Interpolation	96,000	23	10,025	-10,106	Not OK
Interpolation	100,000	29	9,984	-10,660	Not OK
PIT3F1.po	200,000	165	8,968	-24,495	Not OK

Note: The reported flexure demand is for Element 1326.

**Table 6.1.10-2 Comparison of Flexure Demand and Capacity
about East-West Direction**

Output File Reference	Pump Column Load (lbf/inch)	Axial Load (lbf/inch)	Flexure Capacity (inch-lbf/inch)	Flexure Demand (inch-lbf/inch)	Status
PIT3E1.po	0	-435	15,655	-4,806	OK
Interpolation	110,000	-284	14,779	12,160	OK
Interpolation	120,000	-270	14,692	13,703	OK
Interpolation	125,000	-263	14,646	14,474	OK
Interpolation	130,000	-256	14,600	15,245	Not OK
PIT3F1.po	200,000	-160	13,955	26,042	Not OK

Note: The reported flexure demand is for Element 1224.

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With reference to the above Tables 6.1.10-1 and 6.1.10-2, we can conclude that the flexure demand about the North-South direction controls. The maximum allowable Pump Column load is 95,000 lbf.

Shear:

By inspection of the pit floor nodal forces (Ref: Attachment 2 computer output files PIT3A2.PO, and PIT3B2.PO), it is evident that the out-of-plane shear force (i.e., nodal Fz) are more critical than the smaller in-plane shear resultants. The computation of shear demands is therefore limited to the out-of-plane shear forces.

The out-of-plane shear forces are computed along the pit floor boundary. These nodal out-of-plane shear forces are divided by the tributary shear area to obtain the shear stresses. Table 6.1.10-3 tabulates the out-of-plane shear forces and stresses for the pit floor boundary nodes for two load cases; Pump Column loads of 0 lbf and 200,000 lbf. The shear stress patterns reported in the table demonstrate that the controlling area is around the Pump Column Adaptor Ring (i.e., Node 86). The shear capacity is determined by interpolating between the shear stresses for the two load cases.

Per Reference 2.4, Section 11.3;

$$\begin{aligned}\phi V_c, \text{ allowable concrete shear} &= \phi 2 (f'c)^{1/2} b_w d \\ &= 0.85 \times 2 \times (3000)^{1/2} \times 1.0 \times (15.5 - 3.0 - 0.625 - 0.25) \\ &= 1,082.4 \text{ lbf}\end{aligned}$$

With reference to Table 6.1.10-3;

Node 86 shear stress = 3.4 lbf/inch² (for riser load of 0 lbf)

Node 86 shear stress = 115.7 lbf/inch² (for riser load of 200,000 lbf)

$$\begin{aligned}\therefore V_u, \text{ Node 86 shear force per inch width for riser load of 0 lbf} \\ &= 52.7 \text{ lbf} < 1,082.4 \text{ lbf (OK)}\end{aligned}$$

$$\begin{aligned}\therefore V_u, \text{ Node 86 shear force per inch width for riser load of 200,000 lbf} \\ &= 115.7 \times 15.5 \times 1.0 \\ &= 1793.4 \text{ lbf} > 1,082.4 \text{ lbf (Not OK)}\end{aligned}$$

By interpolation, the controlling riser load is

$$\begin{aligned}&= 200,000 \cdot (1082.4 - 52.7) / (1793.4 - 52.7) \\ &= 118,309 \text{ lbf}\end{aligned}$$

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 1/3)

Node Number	Tributary Edge Distance (inch)	Tributary Shear Area (inch ²)	Load Case A2		Load Case B2	
			Shear Force (lbf)	Shear Stress (lbf/inch ²)	Shear Force (lbf)	Shear Stress (lbf/inch ²)
1	5.75	89.06	662.6	7.44	572.3	6.43
2	2.49	38.63	1,323.8	34.27	1,143.5	29.60
3	3.17	49.14	1,679.8	34.18	1,451.8	29.54
4	3.85	59.66	2,020.5	33.87	1,747.4	29.29
5	3.85	59.65	1,980.9	33.21	1,714.3	28.74
6	3.85	59.65	1,926.3	32.29	1,668.2	27.97
7	5.78	89.58	2,768.5	30.90	2,397.7	26.77
8	7.71	119.51	3,404.3	28.49	2,931.7	24.53
9	7.71	119.51	2,934.2	24.55	2,479.1	20.75
10	7.71	119.51	2,346.1	19.63	1,893.5	15.84
11	7.71	119.51	1,635.7	13.69	1,181.2	9.88
12	6.53	101.27	777.7	7.68	409.7	4.05
13	5.36	83.03	116.0	1.40	-124.6	-1.50
14	5.36	83.03	-422.2	-5.08	-551.5	-6.64
15	7.18	111.27	-1,000.0	-8.99	-1,043.9	-9.38
16	9.00	139.50	-323.3	-2.32	-422.9	-3.03
17	9.00	139.50	1,015.8	7.28	1,091.6	7.82
18	9.00	139.50	2,150.8	15.42	2,652.7	19.02
19	9.00	139.50	3,105.0	22.26	4,158.1	29.81
20	9.00	139.50	3,881.2	27.82	5,508.8	39.49
21	9.00	139.50	4,488.0	32.17	6,628.5	47.52
22	8.02	124.24	4,371.4	35.18	6,599.0	53.12
23	7.03	108.98	4,071.3	37.36	6,136.2	56.31
24	7.03	108.98	4,218.2	38.71	6,255.9	57.40
25	5.34	82.73	3,263.1	39.44	4,725.4	57.12
26	3.64	56.48	2,250.1	39.84	3,133.6	55.48
27	3.64	56.48	2,262.8	40.06	3,037.0	53.77
28	3.15	48.78	1,955.7	40.09	2,524.4	51.75
29	2.65	41.11	1,643.5	39.97	2,033.0	49.45
30	2.65	41.04	1,639.4	39.95	1,941.7	47.32
31	3.35	51.85	2,063.5	39.80	2,301.8	44.39
32	4.05	62.70	2,472.3	39.43	2,550.6	40.68
33	5.42	83.93	3,257.9	38.82	2,934.4	34.96
34	6.79	105.25	3,990.4	37.92	3,044.8	28.93
35	5.88	91.14	3,351.1	36.77	2,122.0	23.28

Notes: 1) Load Case A2 represents Heel Jet load of 0 lbf (Ref:Pit3A2.po)
 2) Load Case B2 represents Heel Jet load of 200,000 lbf (Ref:Pit3B2.po)

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 2/3)

36	4.97	77.04	2,732.4	35.47	1,472.5	19.11
37	4.97	77.04	2,636.0	34.22	1,310.6	17.01
38	4.97	77.04	2,526.8	32.80	1,284.9	16.68
39	4.97	76.96	2,403.6	31.23	1,405.8	18.27
40	4.97	76.96	2,262.8	29.40	1,666.6	21.66
41	4.97	77.04	2,098.8	27.24	2,041.3	26.50
42	4.97	77.04	1,904.6	24.72	2,483.6	32.24
43	4.97	77.04	1,670.8	21.69	2,929.7	38.03
44	5.72	88.66	1,551.1	17.50	3,818.1	43.06
45	6.47	100.29	1,212.3	12.09	4,477.9	44.65
46	6.48	100.36	506.0	5.04	4,026.9	40.12
47	6.48	100.36	-241.4	-2.41	2,933.3	29.23
48	5.91	91.66	-554.6	-6.05	2,709.4	29.56
49	5.36	83.03	19.3	0.23	4,449.1	53.58
50	5.36	83.03	730.4	8.80	5,425.2	65.34
51	6.53	101.27	1,677.8	16.57	6,938.1	68.51
52	7.71	119.51	2,763.7	23.13	7,513.7	62.87
53	7.71	119.51	3,437.4	28.76	5,451.8	45.62
54	7.71	119.51	3,831.8	32.06	2,229.3	18.65
55	7.71	119.51	3,905.6	32.68	-1,686.1	-14.11
56	5.55	86.07	2,695.6	31.32	-3,425.1	-39.79
57	3.40	52.65	1,534.9	29.16	-3,053.9	-58.01
58	3.40	52.65	1,440.1	27.35	-3,606.9	-68.51
59	3.40	52.65	1,340.5	25.46	-4,041.4	-76.77
60	3.40	52.65	1,253.9	23.82	-4,349.0	-82.60
61	3.40	52.65	1,195.9	22.72	-4,531.0	-86.07
62	3.95	61.20	587.7	9.60	-2,295.5	-37.51
63	4.50	69.75	0.0	0.00	0.0	0.00
64	4.50	69.75	0.0	0.00	0.0	0.00
65	4.50	69.75	0.0	0.00	0.0	0.00
66	4.11	63.74	98.0	1.54	3,332.0	52.27
67	3.72	57.72	196.0	3.40	6,664.0	115.45
68	3.72	57.73	196.0	3.40	6,664.0	115.44
69	3.73	57.74	196.0	3.39	6,664.0	115.41
70	3.72	57.74	196.0	3.39	6,664.0	115.42
71	3.73	57.75	196.0	3.39	6,664.0	115.39
72	4.65	72.12	245.0	3.40	8,330.0	115.50
73	5.58	86.52	294.0	3.40	9,996.0	115.53
74	5.58	86.51	294.0	3.40	9,996.0	115.54

Notes: 1) Load Case A2 represents Heel Jet load of 0 lbf (Ref:Pit3A2.po)
 2) Load Case B2 represents Heel Jet load of 200,000 lbf (Ref:Pit3B2.po)

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Table 6.1.10-3 Pit Floor Out-of-plane Shear (Page 3/3)

75	5.58	86.51	294.0	3.40	9,996.0	115.55
76	5.58	86.53	294.0	3.40	9,996.0	115.52
77	5.58	86.53	294.0	3.40	9,996.0	115.52
78	5.58	86.51	294.0	3.40	9,996.0	115.55
79	5.58	86.51	294.0	3.40	9,996.0	115.54
80	5.58	86.52	294.0	3.40	9,996.0	115.53
81	4.96	76.86	261.0	3.40	8,874.0	115.46
82	4.34	67.22	228.5	3.40	7,769.0	115.57
83	4.34	67.19	228.5	3.40	7,769.0	115.62
84	4.34	67.19	228.5	3.40	7,769.0	115.62
85	3.42	52.99	180.0	3.40	6,120.0	115.49
86	2.50	38.79	132.0	3.40	4,488.0	115.70
87	2.67	41.40	66.0	1.59	2,244.0	54.20
88	2.85	44.10	0.0	0.00	0.0	0.00
89	2.85	44.10	0.0	0.00	0.0	0.00
90	2.84	44.02	0.0	0.00	0.0	0.00
91	2.84	44.01	182.3	4.14	182.3	4.14
92	2.84	44.00	364.4	8.28	364.4	8.28
93	2.83	43.94	363.9	8.28	363.9	8.28
94	2.84	43.95	364.1	8.29	364.1	8.29
95	2.84	43.99	364.4	8.28	364.4	8.28
96	2.84	43.97	364.4	8.29	364.4	8.29
97	2.84	43.98	364.4	8.29	364.4	8.29
98	2.84	44.03	182.1	4.14	182.1	4.14
99	2.84	44.08	0.0	0.00	0.0	0.00
100	2.84	44.08	0.0	0.00	0.0	0.00
163	4.94	76.53	0.0	0.00	0.0	0.00
164	7.03	108.98	0.0	0.00	0.0	0.00
165	7.03	108.98	0.0	0.00	0.0	0.00
166	8.02	124.24	170.0	1.37	170.0	1.37
167	9.00	139.50	0.0	0.00	0.0	0.00
168	9.00	139.50	0.0	0.00	0.0	0.00
169	9.00	139.50	0.0	0.00	0.0	0.00
170	9.00	139.50	0.0	0.00	0.0	0.00
171	9.00	139.50	0.0	0.00	0.0	0.00
172	9.00	139.50	0.0	0.00	0.0	0.00
Maximum Shear Stress =				41.03		115.70

Notes: 1) Load Case A2 represents Heel Jet load of 0 lbf (Ref:Pit3A2.po)
 2) Load Case B2 represents Heel Jet load of 200,000 lbf (Ref:Pit3B2.po)

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Combined Shear and Torsion:

Per Reference 2.4, Sections 11.6.1 , 11.1.1 and 11.5.5.1, no shear reinforcement is required if the following two conditions are satisfied:

$$1) T_u < \phi 0.5 (f_c)^{1/2} \Sigma x^2 y$$

where $\phi = 0.85$
 $x = 15.5$ inch
 $y = 1.0$ inch

$$\begin{aligned} \text{Allowable torsional moment} &= 0.85 \times 0.5 \times (3000)^{1/2} \times 15.5^2 \times 1.0 \\ &= 5592.6 \text{ inch-lbf} \end{aligned}$$

The torsional moment is controlled by Element 1234 for Load Combination C.

The derivation of the controlling riser load is computed by interpolating between moments for the two riser loads of 0 lbf and 200,000 lbf.

At the riser load of 0 lbf, torsion for Elem. 1234 = 1035.0 inch-lbf
 At the riser load of 200,000 lbf, torsion for Elem. 1234 = -11147.0 inch-lbf

By interpolation, the required riser load with a torsion of 5592.6 inch-lbf is
 $= (5,592.6 + 1035.0) \times 200,000 / (11147.0 + 1035.0)$
 $= 108,810$ lbf

$$2) V_u < \phi V_c$$

$$\phi V_c = 1,082.4 \text{ lbf}$$

At 118,309 Pump Column load, $V_u = 1082.4 \text{ lbf} \approx 1,082.4 \text{ lbf}$ (O.K.)

The allowable riser load based on shear and torsion is 108,810 lbf.

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In summary, the capacity is controlled by the flexure requirement about the North-South direction.

For non-seismic load combination, $F_v = (95,000 \cdot 1.7 - 7,000 \cdot 1.4) / 1.7 = 89,235$ lbf. The 7,000 lbf represents the weight of the adaptor ring sub-assembly which is computed in Section 6.6.

To accommodate the interaction relationship between the pump and the sluicing adaptor ring, the allowable loads can be presented as follows:

For $F_{V(S)} \leq 3,000$ lbf

$$F_{V(PC)} \leq 89,230 \text{ lbf}$$

For $F_{V(S)} > 3,000$ lbf

$$\begin{aligned} F_{V(PC)} &\leq 89,230 - (F_{V(S)} - 3,000) (89,230 / 28,870) \text{ lbf} \\ &\leq 98,500 - 3.09 F_{V(S)} \text{ lbf} \end{aligned} \quad \dots\dots\dots \{1\}$$

To standardize the relationship of the allowable loads between the above expressions and those documented for the Sluicing Adaptor Ring for the Pump and Sluicing Pits (see Attachment 6), both sets of allowable loads are compared and a consistent conservative expression is derived. The derivation of such a consistent expression is documented as follows:

For $F_{V(PC)} > 3,000$ lbf

$$\begin{aligned} F_{V(S)} &\leq 28,870 - (F_{V(PC)} - 3,000) (28,870 / 89,230) \text{ lbf} \\ &\leq 29,840 - 0.324 F_{V(PC)} \text{ lbf} \end{aligned} \quad \dots\dots\dots \{2\}$$

Manipulating Equation {1};

$$F_{V(PC)} \leq X - 3.09 F_{V(S)} \text{ lbf} \quad \dots\dots\dots \{3\}$$

Substituting Equation {3} into Equation {2};

$$\begin{aligned} F_{V(S)} &\leq 29,840 - 0.324 (X - 3.09 F_{V(S)}) \\ &\leq 29,840 - 0.324 X + 1.00 F_{V(S)} \text{ lbf} \end{aligned} \quad \dots\dots\dots \{4\}$$

Rearranging Equation {4};

$$X = 92,100 \text{ lbf} \quad \dots\dots\dots \{5\}$$

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Substituting Equation {5} into Equation {3};

$$F_{V(PC)} \leq 92,100 - 3.09 F_{V(S)} \text{ lbf}$$

For $F_{V(S)} > 3,000 \text{ lbf}$

$$\therefore F_{V(PC)} \leq 82,830 \text{ lbf}$$

For $F_{V(S)} \leq 3,000 \text{ lbf}$

The seismic response of the pit floor is computed using seismic "equivalent static" analysis. For the following reasons, the non-seismic load combinations will control over the seismic load combinations for the pit floor (Adaptor Ring loads excluded):

- Based on the computation of the pit floor demand for the non-seismic load combination, it has been established that the vertical Pump Column load controls. Since the vertical ZPA of the pit floor (0.16g) is significantly less than the ACI load factors of 1.4 and 1.7 for dead and live loads, respectively, the vertical seismic load condition does not govern.
- The lateral soil pressure due to horizontal seismic acceleration will have negligible effect on the seismic pit floor capacity. The pit is basically a box structure where the pit walls act as shear walls and effectively limit lateral drift of the top of the pit from seismic-induced lateral loads. Thus, significant flexing of the pit floor is averted. In addition, the pit floor is supported by soil. Therefore the moment due to horizontal seismic loads for critical elements located around the penetration in the pit floor will be negligible.

The computed seismic spectra and vertical zero period accelerations (ZPA) for the pit floor are computed using soil-structure-interaction analysis (WHC Calculation WHC-SD-W320-ANAL-002) and the seismic spectra and the ZPA are presented in Attachment 3.

For seismic load combination, $F_v = (95,000 \cdot 1.7 - 7,000 \cdot (1 + 0.16)) = 153,380 \text{ lbf}$ where 0.16 is the ZPA computed for the pit floor.

To accommodate the interaction relationship between the pump and the sluicing adaptor ring, the allowable loads can be presented as follows:

$$\text{For } F_{V(S)} \leq 3,000 \text{ lbf} \\ F_{V(PC)} \leq 153,380 \text{ lbf}$$

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For $F_{V(S)} > 3,000$ lbf

$$\begin{aligned} F_{V(PC)} &\leq 153,380 - (F_{V(S)} - 3,000) (153,380 / 49,070) \text{ lbf} \\ &\leq 162,750 - 3.126 F_{V(S)} \text{ lbf} \dots\dots\dots \{6\} \end{aligned}$$

To standardize the relationship of the allowable loads between the above expressions and those documented for the Sluicing Adaptor Ring for the Pump and Sluicing Pits (see Attachment 6), both sets of allowable loads are compared and a consistent conservative expression is derived. The derivation of such a consistent expression is documented as follows:

For $F_{V(PC)} > 3,000$ lbf

$$\begin{aligned} F_{V(S)} &\leq 49,070 - (F_{V(PC)} - 3,000) (49,070 / 153,380) \text{ lbf} \\ &\leq 50,030 - 0.32 F_{V(PC)} \text{ lbf} \dots\dots\dots \{7\} \end{aligned}$$

Manipulating Equation {6};

$$F_{V(PC)} \leq X - 3.126 F_{V(S)} \text{ lbf} \dots\dots\dots \{8\}$$

Substituting Equation {8} into Equation {7};

$$\begin{aligned} F_{V(S)} &\leq 50,030 - 0.32 (X - 3.126 F_{V(S)}) \\ &\leq 50,030 - 0.32 X + 1.00 F_{V(S)} \text{ lbf} \dots\dots\dots \{9\} \end{aligned}$$

Rearranging Equation {9};

$$\begin{aligned} X &= 50,030 / 0.32 \\ &= 156,340 \text{ lbf} \dots\dots\dots \{10\} \end{aligned}$$

Substituting Equation {10} into Equation {8};

$$F_{V(PC)} \leq 156,340 - 3.126 F_{V(S)} \text{ lbf} \quad \text{For } F_{V(S)} > 3,000 \text{ lbf}$$

$$\therefore \begin{aligned} F_{V(PC)} &\leq 156,340 - 3.126 (3,000) \\ &\leq 146,960 \text{ lbf} \end{aligned}$$

For $F_{V(S)} \leq 3,000$ lbf

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6.2 Liftoff Evaluation of Pump Flange Edge from Adaptor Ring (M_H)

Due to non-symmetric placement of studs, conservatively neglect tensile capacity of studs in determining allowable moment load M_H .

Studs are ineffective in resisting moment shown.

Assume footprint of pump flange on Adaptor Ring is as shown (see Drawing H-2-41264):

$$\begin{aligned} R_i &= 38.75"/2 = 19.4" \\ R_o &= 25.5" \\ A &= 860 \text{ inch}^2 \\ I &= 220,800 \text{ inch}^4 \\ S &= 220,800/25.5 = 8,659 \text{ inch}^3 \end{aligned}$$

+

=

$$\begin{aligned} \sigma_1 &= F_{DL} / A \\ &= F_{DL} / 860 \text{ lbf/inch}^2 \text{ (non-seismic)} \\ \sigma_1 &= F_{DL} (1-0.16) / A \\ &= F_{DL} \cdot 0.84 / 860 \text{ lbf/inch}^2 \text{ (seismic)} \\ &\text{where the vertical ZPA is 0.16g per Attachment 3.} \end{aligned}$$

$$\begin{aligned} \sigma_2 &= M_H / S \\ &= M_H / 8,659 \text{ lbf/inch}^2 \end{aligned}$$

To prevent liftoff of plate edge, $\sigma_2 \leq \sigma_1$;

$$\begin{aligned} \therefore M_H &\leq 10.07 F_{DL} \text{ inch-lbf (non-seismic)} \\ M_H &\leq 8.46 F_{DL} \text{ inch-lbf (seismic)} \end{aligned}$$

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6.3 Stud Evaluation (M_V , F_H)

The restrictive liftoff condition in Section 6.2 ensures there is no tension in stud and therefore the stud capacity is governed by shear only.

Studs are AISC Type 416 (cold drawn), $1\frac{1}{4}" \text{ } \varnothing$.

$$A_{nom} = 1.227 \text{ inch}^2$$

Per Reference 2.6, $F_y = 85 \text{ ksi}$, $F_u = 100 \text{ ksi}$

$$\begin{aligned} V_{cap} &= 0.17 F_u A_{nom} \text{ (Per Reference 2.5, Table I-D)} \\ &= 20,859 \text{ lbf} \end{aligned}$$

For seismic condition, capacity may be increased by 1.33 per Reference 2.5, Section A5.

$$(F_H / 4 + M_V / (4 \cdot 22.875)) / V_{cap} \leq 1.0$$

For non-seismic condition;

$$F_H / 83,400 + M_V / 1,908,600 \leq 1.0$$

$$M_V \leq 1,908,600 - 22.88 F_H \text{ inch-lbf}$$

For seismic condition;

$$F_H / 110,900 + M_V / 2,538,400 \leq 1.0$$

$$M_V \leq 2,538,400 - 22.88 F_H \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
 (8) Originator S.B.KOK Date 9/1/94
 (9) Checker J.P. Ran Date 9/1/94

6.4 Bearing Evaluation of Fill Concrete (M_V)

Rotation of the Adaptor ring about its vertical axis is resisted primarily through bearing of the attached 2" horizontal pipes against the fill concrete. Because the fill concrete is unreinforced and thus has reduced allowable, concrete bearing stress controls the value of the M_V (moment about the vertical axis) for the Adaptor ring. An ANSYS model was used to calculate F_Z (horizontal resistance force) and M_Y (resistance moment about the vertical axis) when the bearing capacity of the fill concrete is reached. The computer analysis for the calculation of F_Z and M_Y is documented in Attachment 5.

Per Attachment 5;

$$M_V = (30.26 / 228,000) [543,025 (33.5) + 383,159]$$

$$= 2,465 \text{ inch-lbf}$$

For non-seismic condition;

M_V is subjected to a load factor of 1.7 , and hence
 the allowable $M_V = 2,465 / 1.7 = 1,450 \text{ inch-lbf}$

For seismic condition;

$$M_V = 2,465 \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
(8) Originator SBKOK Date 9/1/94
(9) Checker 4P Day Date 9/1/94

6.5 Horizontal Force Demand (F_H)

Check fill concrete bearing (Per Reference 2.9, ACI 318.1-89):

$$\begin{aligned}\text{Bearing strength} &= 0.85 \phi (f'_c)^{1/2} A \\ &= 0.85 (0.65) (3,000)^{1/2} A \\ &= 30.26 A \text{ lbf}\end{aligned}$$

Let A = projected area of Adaptor Ring
= 8.5" deep x 67" diameter = 569.5 inch²

$$F_H = 30.26 (569.5) = 17,233 \text{ lbf}$$

Check fill concrete compression (Per Reference 2.9, ACI 318.1-89):

11'-6" max distance from penetration centerline to East pit wall.

$$\begin{aligned}F_H &= 0.60 \phi f'_c [1 - (kl_c / (32(h))^2)] A_c \text{ lbf} \\ &= 0.60 (0.65) (3,000) [1 - (138 / (32(5))^2)] A_c \text{ lbf} \\ &= 300 A_c \text{ lbf}\end{aligned}$$

Conservatively let $A = 569.5$ inch²

$$F_H = 300 (569.5) = 170,639 \text{ lbf (based on axial compression)}$$

(Does NOT control)

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
(4) Building C-106 (5) Rev. 0 (6) Job No. _____
(7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
(8) Originator SBKOK Date 9/1/94
(9) Checker APD Date 9/1/94

Check shear friction at wall / floor joint:

Minimum dowels = 5/8" diameter @ 14" + 5/8" diameter @ 7"
= 5/8" diameter @ 14/3" (or 4.67")

Minimum wall thickness = 18"

Conservatively let width of section = diameter of Adaptor Ring = 67".

$A_{vf} = 0.31 \times 67 / 4.67 = 4.45 \text{ inch}^2$ (area of reinforcement)

Per ACI 349, Section 11.7;

$\phi A_{vf} f_y \mu = 0.85 (4.45) 38,000 (0.6) = 86,241 \text{ lbf}$

$\phi (0.2) A_c f_c' = 0.85 (0.2) 67 \times 18 (3,000) = 615,060 \text{ lbf} > 86,241 \text{ lbf}$

$\phi (800) A_c = 0.85 (800) 67 \times 18 = 820,080 \text{ lbf} > 86,241 \text{ lbf}$

$\therefore$ Bearing controls, $F_H = 17,233 \text{ lbf}$

For non-seismic condition;

F_H is subjected to a load factor of 1.7, and hence
the allowable $F_H = 17,233 / 1.7 = 10,137 \text{ lbf}$

For seismic condition;

$F_H = 17,233 \text{ lbf}$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
 (8) Originator SBKOK Date 9/1/94
 (9) Checker AP Day Date 9/1/94

6.6 Liftoff Evaluation of Adaptor Ring Edge from Concrete (M_H)

Check for liftoff of Adaptor Ring edge. This condition may govern over capacity calculated in Section 6.2. Conservatively neglect tack weld of Adaptor Ring to Upper Retainer Ring.

Weight of Adaptor Ring + Riser:

$$W = 0.2836 \times (8.5 \times \pi (33.5^2 - 19^2) + 104 \times \pi (.375 \times 36)) \\ = 7,016 \text{ lbf (say 7,000 lbf)}$$

$$R_i = 30.25" \\ R_o = 33.5" \\ A = \pi (67^2 - 60.5^2) / 4 = 651 \text{ inch}^2 \\ I = \pi (33.5^4 - 30.25^4) / 4 = 331,521 \text{ inch}^4 \\ S = 331,521 / 33.5 = 9,896 \text{ inch}^3$$

σ_c , bearing allowable on reinforced concrete (Per ACI 349-90)
 $= \phi (0.85 f'_c) = 0.7 (0.85) 3,000 = 1,785 \text{ psi}$

$$\sigma_1 = (F_{DL} + 7,000) / 651 \text{ lbf/inch}^2$$

$$\sigma_2 = (M_H + 8.5 F_H) / 9,896 \text{ lbf/inch}^2$$

Check two conditions;

Condition A, $\sigma_2 \leq \sigma_1$ (No liftoff)

Condition B, $\sigma_2 + \sigma_1 \leq \sigma_c$ (= Bearing Allowable of 1,785 psi)

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
 (8) Originator S B K O K Date 9/11/94
 (9) Checker 4 P O a y Date 9/11/94

For non-seismic condition;

Condition A;

$$-(F_{DL} + 7,000) / 651 + (M_H + 8.50 F_H) / 9,896 \leq 0.0$$

$$M_H \leq 106,410 + 15.20 F_{DL} - 8.50 F_H \text{ inch-lbf}$$

Condition B; (substitute F_V for F_{DL} to maximize σ_1)

$$(F_V + 7,000) / 651 + (M_H + 8.50 F_H) / 9,896 \leq 1,785$$

$$15.20 F_V + 106,410 + M_H + 8.50 F_H \leq 17,664,360$$

$$M_H \leq 17,557,950 - 15.20 F_V - 8.50 F_H \text{ inch-lbf}$$

In determining which of the above two conditions governs, conservatively set $F_V = F_{DL}$.

Equating both conditions to compute "equilibrium" F_{DL} ;

$$106,410 + 15.20 F_{DL} = 17,557,950 - 15.20 F_{DL} \text{ inch-lbf}$$

$$30.40 F_{DL} = 17,451,540 \text{ inch-lbf}$$

$$\therefore F_{DL} = 574,064 \text{ lbf}$$

Since 574,064 lbf greatly exceeds F_{DL} of 89,235 lbf computed in Section 6.1 based on the pit floor capacity, we can conclude that condition A governs.

For seismic condition;

Similarly, condition A governs;

$$-(F_{DL} + 7,000) (1 - 0.16) / 651 + (M_H + 8.50 F_H) / 9,896 \leq 0.0$$

$$M_H \leq 89,380 + 12.77 F_{DL} - 8.50 F_H \text{ inch-lbf}$$

DESIGN CALCULATION

(1) Drawing _____ (2) Doc. No. WHC-SD-W320-ANAL-003 (3) Page _____ of _____
 (4) Building C-106 (5) Rev. 0 (6) Job No. _____
 (7) Subject Allowable Loads on the Pump Column Adaptor Ring in the 241-C-106 Pump Pit
 (8) Originator SBKOK Date 9/1/94
 (9) Checker APR Date 9/1/94

7.0 ALLOWABLE LOADS SUMMARY

Based on the capacities developed in Sections 6.1 through 6.6, the expressions for allowable loads at the Pump Column Adaptor Ring are summarized below. Forces and moments arising from load combinations are acceptable if the following set of inequalities are satisfied:

Non-seismic

$$\begin{aligned} F_H &\leq 10,130 \text{ lbf} \\ M_V &\leq 1,440 \text{ inch-lbf} \\ F_{V(PC)} &\leq 82,830 \text{ lbf} && \text{for } F_{V(S)} \leq 3,000 \text{ lbf} \\ &\leq 92,100 - 3.09 F_{V(S)} \text{ lbf} && \text{for } F_{V(S)} > 3,000 \text{ lbf} \\ M_H &\leq 10.07 F_{DL} \text{ inch-lbf} \\ M_H &\leq 106,410 + 15.20 F_{DL} - 8.50 F_H \text{ inch-lbf} \end{aligned}$$

Seismic

$$\begin{aligned} F_H &\leq 17,230 \text{ lbf} \\ M_V &\leq 2,460 \text{ inch-lbf} \\ F_{V(PC)} &\leq 146,960 \text{ lbf} && \text{for } F_{V(S)} \leq 3,000 \text{ lbf} \\ &\leq 156,340 - 3.126 F_{V(S)} \text{ lbf} && \text{for } F_{V(S)} > 3,000 \text{ lbf} \\ M_H &\leq 8.46 F_{DL} \text{ inch-lbf} \\ M_H &\leq 89,380 + 12.77 F_{DL} - 8.50 F_H \text{ inch-lbf} \end{aligned}$$

- Notes: (1) $F_{V(PC)}$ denotes F_V for Pump Column Adaptor Ring in the Pump Pit.
 (2) $F_{V(S)}$ denotes F_V for Sluicing Adaptor Ring in the Pump Pit.

ATTACHMENT 1
PIT FLOOR CAPACITY CALCULATION

Prepared by: SB KOK Date: 6/17/94

Checked by: 4P Day Date: 6/17/94

Attachment 1 calculates the pit floor capacities by computing the M-P interaction diagrams for the pit floor spanning both in the East West and the North South directions. In the East West direction, the top and bottom reinforcement are the same while in the North South direction, the top and bottom reinforcement are different at various sections of the floor. In the middle section, the top reinforcement is double the amount of the bottom reinforcement and vice versa for the outer sections near the wall. As such, two cases have been evaluated for the pit floor spanning in the North South direction; Case A consists of less tensile reinforcement while Case B consists of more tensile reinforcement. With reference to Dwg. # H-2-41343, the reinforcement details for each section are computed on one inch width basis and are provided below.

Section spanning in the East West direction:

$$d' = d'' = 3.0''(\text{assumed}) + 0.625'' + 0.25'' = 3.875''$$

$$A_s = 0.20 / 10 = 0.020 \text{ in}^2 / \text{inch width (T \& B)}$$

Section spanning in the North South direction (Case A):

$$d' = d'' = 3.0''(\text{assumed}) + 0.625'' / 2 = 3.313''$$

$$A_s' = 0.31 / 14 = 0.022 \text{ in}^2 / \text{inch width (T)}$$

$$A_s'' = 0.31 / 7 = 0.044 \text{ in}^2 / \text{inch width (B)}$$

Section spanning in the North South direction (Case B):

$$d' = d'' = 3.0''(\text{assumed}) + 0.625'' / 2 = 3.313''$$

$$As' = 0.31 / 7 = 0.044 \text{ in}^2 / \text{inch width (T)}$$

$$As'' = 0.31 / 14 = 0.022 \text{ in}^2 / \text{inch width (B)}$$

The above section properties are entered into Microsoft Excel spreadsheets in which the section capacities are computed. The tabulated M-P capacities and the M-P interaction diagrams are provided as follows.

Pit Floor Capacity (Spanning East West)

Section	l _n	l _{As}	l _c	l _{As'}	l _{c'}	l _d	l _b	l _{Temp(45 best)}	l _{fc}	l _{Beta 1}	l _{fy (rebar)}	l _{E (rebar)}	l _{yield strain=fy/E}	l _{T_{nal c}}	l _{0.85l_c'b}
	[in]	[in ²]	[in]	[in ²]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]	
long dir	15.50	0.02	3.875	0.02	3.875	11.63	1		701 3000	0.85	38000	28,300,000	.0013428	0.705	2550
														0.701	
														1.301	
														1.901	
														2.501	
														3.101	
														3.701	
														4.301	
														4.901	
														5.501	
														6.101	
														6.701	
														7.301	
														7.901	
														8.501	
														9.101	
														9.701	
														10.301	
														10.901	
														11.501	

T _{nal c}	l _{cd}	l _{eds}	l _{fs}	l _{eds'}	l _{fs'}	l _{Cc}	l _{Cs}	l _T	l _P	l _M	l _{0.1l_ca_g0.7}	l _{phi}	l _{phi x P}	l _{phi x M}
[in]	[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.705	3.675												-1.368	0
0.701		4.675E-02	38000	-1.358E-02	-38000	1.519	-760	760	-1	11.323	6.643	0.900	-1	10.191
1.301		2.381E-02	38000	-5.935E-03	-38000	2.820	-760	760	1.300	20.295	6.643	0.861	1.119	17.471
1.901		1.535E-02	38000	-3.115E-03	-38000	4.120	-760	760	2.600	28.604	6.643	0.822	2.137	23.504
2.501		1.094E-02	38000	-1.648E-03	-38000	5.421	-760	760	3.901	36.250	6.643	0.783	3.053	28.368
3.101		8.246E-03	38000	-7.488E-04	-21191	6.721	-424	760	5.538	44.535	6.643	0.733	4.061	32.657
3.701		6.423E-03	38000	-1.410E-04	-3992	8.022	-80	760	7.182	52.188	6.643	0.700	5.027	36.531
4.301		5.109E-03	38000	2.971E-04	8409	9.322	168	760	8.731	58.805	6.643	0.700	6.111	41.163
4.901		4.116E-03	38000	6.280E-04	17773	10.623	355	760	10.218	64.523	6.643	0.700	7.153	45.166
5.501		3.340E-03	38000	8.867E-04	25095	11.923	502	760	11.665	69.420	6.643	0.700	8.166	48.594
6.101		2.716E-03	38000	1.095E-03	30976	13.224	620	760	13.083	73.542	6.643	0.700	9.158	51.480
6.701		2.204E-03	38000	1.265E-03	35805	14.524	716	760	14.481	76.920	6.643	0.700	10.136	53.844
7.301		1.777E-03	38000	1.408E-03	38000	15.825	760	760	15.825	79.430	6.643	0.700	11.077	55.601
7.901		1.414E-03	38000	1.529E-03	38000	17.125	760	760	17.125	81.106	6.643	0.700	11.988	56.774
8.501		1.102E-03	31200	1.633E-03	38000	18.426	760	624	18.562	81.552	6.643	0.700	12.993	57.115
9.101		8.320E-04	22546	1.723E-03	38000	19.726	760	471	20.016	81.349	6.643	0.700	14.011	56.944
9.701		5.950E-04	16838	1.802E-03	38000	21.027	760	337	21.450	80.516	6.643	0.700	15.015	56.361
10.301		3.856E-04	10912	1.871E-03	38000	22.327	760	218	22.869	79.080	6.643	0.700	16.008	55.356
10.901		1.992E-04	5639	1.934E-03	38000	23.628	760	113	24.275	77.032	6.643	0.700	16.993	53.922
11.501		3.225E-05	915	1.989E-03	38000	24.928	760	18	25.670	74.363	6.643	0.700	17.969	52.054

Pit Floor M-P Interaction Diagram (Spanning East West)

Pit Floor Capacity (Spanning North South - Case A)

Section	h	As	As'	As'	As''	d	b	Temp(45 best)	fc	Beta 1	fy (rebar)	E (rebar)	fyec strain=fy/E	Tnal c	0.85fc*b	
	[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]		
long dir	15.50	0.022	3.313	0.044	3.313	12.19	1		70	3000	0.85	38000	28,300,000	.0013428	0.705	2550
															0.701	
															1.301	
															1.901	
															2.501	
															3.101	
															3.701	
															4.301	
															4.901	
															5.501	
															6.101	
															6.701	
															7.301	
															7.901	
															8.501	
															9.101	
															9.701	
															10.301	
															10.901	
															11.501	

Tnal c	l _{xp}	l _{eps}	l _{fs}	l _{eps'}	l _{fs'}	l _{Cc}	l _{Cs}	T	P	IM	10.1fcAg0.7	.pni	.pni x P	.pni x M
[in]	[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.705	4.525												-2.257	0
0.701		4.916E-02	38000	-1.118E-02	-38000	1,519	-1672	836	-989	7,701	6,643	0.900	-890	6,931
1.301		2.510E-02	38000	-4.640E-03	-38000	2,820	-1672	836	312	16,558	6,643	0.891	278	14,747
1.901		1.623E-02	38000	-2.228E-03	-38000	4,120	-1672	836	1,512	24,753	6,643	0.851	1,373	21,076
2.501		1.162E-02	38000	-9.740E-04	-27564	5,421	-1213	836	3,372	34,280	6,643	0.798	2,693	27,372
3.101		8.790E-03	38000	-2.051E-04	-5804	6,721	-255	836	5,630	45,312	6,643	0.730	4,112	33,100
3.701		6.879E-03	38000	3.145E-04	8901	8,022	352	836	7,578	54,330	6,643	0.700	5,304	38,031
4.301		5.501E-03	38000	6.891E-04	19503	9,322	858	836	9,345	61,900	6,643	0.700	6,541	43,330
4.901		4.460E-03	38000	9.720E-04	27509	10,623	1210	836	10,997	68,310	6,643	0.700	7,698	47,817
5.501		3.646E-03	38000	1.193E-03	33769	11,923	1486	836	12,573	73,723	6,643	0.700	8,801	51,606
6.101		2.993E-03	38000	1.371E-03	38000	13,224	1672	836	14,060	78,084	6,643	0.700	9,842	54,659
6.701		2.456E-03	38000	1.517E-03	38000	14,524	1672	836	15,360	80,972	6,643	0.700	10,752	56,681
7.301		2.008E-03	38000	1.639E-03	38000	15,825	1672	836	16,661	83,197	6,643	0.700	11,663	58,238
7.901		1.627E-03	38000	1.742E-03	38000	17,125	1672	836	17,961	84,759	6,643	0.700	12,573	59,331
8.501		1.301E-03	35812	1.831E-03	38000	18,426	1672	810	19,288	85,539	6,643	0.700	13,502	59,878
9.101		1.017E-03	28788	1.908E-03	38000	19,726	1672	633	20,765	84,976	6,643	0.700	14,536	59,483
9.701		7.588E-04	21757	1.975E-03	38000	21,027	1672	479	22,220	83,848	6,643	0.700	15,554	58,693
10.301		5.493E-04	15544	2.035E-03	38000	22,327	1672	342	23,657	82,138	6,643	0.700	16,560	57,497
10.901		3.539E-04	10016	2.088E-03	38000	23,628	1672	220	25,080	79,833	6,643	0.700	17,556	55,883
11.501		1.789E-04	5064	2.136E-03	38000	24,928	1672	111	26,489	76,922	6,643	0.700	18,542	53,846

Pit Floor M-P Diagram (Spanning North South - Case A)

Pit Floor Capacity (Spanning North South - Case B)

Section	h	As	As'	As'	As'	As'	b	Temp(45 best)	f'c	Beta 1	f'y (rebar)	E (rebar)	yield strain=fy/E	Tnal c	10.85f'c^3	
	[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[deg F]	[psi]		[psi]	[psi]		[in]		
long dir	15.501	0.0441	3.3131	0.0221	3.3131	12.191	11		701	30001	0.851	380001	28.300,0001	.00134281	0.7051	2550
															0.7011	
															1.3011	
															1.9011	
															2.5011	
															3.1011	
															3.7011	
															4.3011	
															4.9011	
															5.5011	
															6.1011	
															6.7011	
															7.3011	
															7.9011	
															8.5011	
															9.1011	
															9.7011	
															10.3011	
															10.9011	
															11.5011	

Tnal c	xc	ecs	fs	ecs'	fs'	Cc	Cs	T	P	M	10.1fcAg/0.7	pru	pru x P	pru x M
[in]	[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
0.7051	4.3491												-2.2571	01
0.7011		4.916E-021	380001	-1.118E-021	-380001	1.5191	-8361	16721	-9891	14.9451	6.6431	0.9001	-8901	13.4501
1.3011		2.510E-021	380001	-4.640E-031	-380001	2.8201	-8361	16721	3121	24.0321	6.6431	0.8911	2781	21.4031
1.9011		1.623E-021	380001	-2.228E-031	-380001	4.1201	-8361	16721	1.5121	32.4561	6.6431	0.8511	1.3731	27.5351
2.5011		1.162E-021	380001	-9.740E-041	-275641	5.4211	-6061	16721	3.1421	41.2551	6.6431	0.8051	2.5311	33.2271
3.1011		8.790E-031	380001	-2.051E-041	-58041	6.7211	-1281	16721	4.9221	50.5191	6.6431	0.7521	3.7001	37.9811
3.7011		6.879E-031	380001	3.145E-041	89011	8.0221	1961	16721	6.5461	58.4171	6.6431	0.7031	4.6011	41.0631
4.3011		5.501E-031	380001	6.891E-041	195031	9.3221	4291	16721	8.0791	65.2431	6.6431	0.7001	5.6561	45.6701
4.9011		4.460E-031	380001	9.720E-041	275091	10.6231	6051	16721	9.5561	71.1481	6.6431	0.7001	6.6891	49.8041
5.5011		3.646E-031	380001	1.193E-031	337691	11.9231	7431	16721	10.9941	76.2161	6.6431	0.7001	7.6961	53.3511
6.1011		2.953E-031	380001	1.371E-031	380001	13.2241	8361	16721	12.3881	80.4181	6.6431	0.7001	8.6721	56.2531
6.7011		2.456E-031	380001	1.517E-031	380001	14.5241	8361	16721	13.6881	83.5361	6.6431	0.7001	9.5821	58.4751
7.3011		2.008E-031	380001	1.639E-031	380001	15.8251	8361	16721	14.9891	85.9901	6.6431	0.7001	10.4921	60.1931
7.9011		1.627E-031	380001	1.742E-031	380001	17.1251	8361	16721	16.2891	87.7821	6.6431	0.7001	11.4031	61.4471
8.5011		1.301E-031	368121	1.831E-031	380001	18.4261	8361	16201	17.6421	88.6821	6.6431	0.7001	12.3501	62.0781
9.1011		1.017E-031	287881	1.908E-031	380001	19.7261	8361	12571	19.2961	87.5121	6.6431	0.7001	13.5071	61.3281
9.7011		7.688E-041	217571	1.975E-031	380001	21.0271	8361	9571	20.9061	86.0681	6.6431	0.7001	14.6341	60.2481
10.3011		5.493E-041	155441	2.035E-031	380001	22.3271	8361	6841	22.4791	84.0181	6.6431	0.7001	15.7361	58.8121
10.9011		3.539E-041	100161	2.088E-031	380001	23.6281	8361	4411	24.0231	81.4351	6.6431	0.7001	16.8161	57.0041
11.5011		1.789E-041	50641	2.136E-031	380001	24.9281	8361	2221	25.5421	78.2991	6.6431	0.7001	17.8791	54.8091

Pit Floor M-P Diagram (Spanning North South - Case B)

ATTACHMENT 2

PIT FLOOR ANSYS MODEL COMPUTER FILES

Prepared by: SB KOK Date: 6/17/94

Checked by: AP Dam Date: 6/17/94

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/OUT,Pit3,out
/TITLE Pump Pit Penetration Model
/PREP7

ET,1,63 ! Shell Element Type
ET,2,21,,,2 ! Mass Element Type

EX, 1,3.122e6 ! Concrete Properties For Pit Floor
DENS,1,.0003406 ! Adjusted for 8" Fill Concrete
NUXY,1,.15

EX, 2,3.122e6 ! Concrete Properties For Pit Wall
DENS,2,.0002247
NUXY,2,.15

R, 1,15.5,,,,13.98 ! Pit Floor
R,11,15.5,,,,13.98,90. ! Pit Floor (Rotated 90 Deg)
R, 2,18.0 ! Pit Wall (18")
R, 3,23.5 ! Pit Wall (23.5")

R, 101, 61.918*0.0036 ! Pit Cover Distributed Masses
R, 102, 61.918*0.0072
R, 103, 61.918*0.0092
R, 104, 61.918*0.0111
R, 105, 61.918*0.0111
R, 106, 61.918*0.0111
R, 107, 61.918*0.0167
R, 108, 61.918*0.0223
R, 109, 61.918*0.0223
R, 110, 61.918*0.0223
R, 111, 61.918*0.0223
R, 112, 61.918*0.0189
R, 113, 61.918*0.0155
R, 114, 61.918*0.0155
R, 115, 61.918*0.0208
R, 116, 61.918*0.0261
R, 117, 61.918*0.0261
R, 118, 61.918*0.0261
R, 119, 61.918*0.0261
R, 120, 61.918*0.0261
R, 121, 61.918*0.0261
R, 122, 61.918*0.0232
R, 123, 61.918*0.0204
R, 124, 61.918*0.0204
R, 125, 61.918*0.0155
R, 126, 61.918*0.0106
R, 127, 61.918*0.0106
R, 128, 61.918*0.0091
R, 129, 61.918*0.0077
R, 130, 61.918*0.0077
R, 131, 61.918*0.0097
R, 132, 61.918*0.0117
R, 133, 61.918*0.0157
R, 134, 61.918*0.0197
R, 135, 61.918*0.0170
R, 136, 61.918*0.0144
R, 137, 61.918*0.0144
R, 138, 61.918*0.0144
R, 139, 61.918*0.0144
R, 140, 61.918*0.0144
R, 141, 61.918*0.0144
R, 142, 61.918*0.0144
R, 143, 61.918*0.0144
R, 144, 61.918*0.0166
R, 145, 61.918*0.0187
R, 146, 61.918*0.0188
R, 147, 61.918*0.0188
R, 148, 61.918*0.0171
R, 149, 61.918*0.0155
R, 150, 61.918*0.0155

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R, 151, 61.918*0.0189
R, 152, 61.918*0.0223
R, 153, 61.918*0.0223
R, 154, 61.918*0.0223
R, 155, 61.918*0.0223
R, 156, 61.918*0.0161
R, 157, 61.918*0.0098
R, 158, 61.918*0.0098
R, 159, 61.918*0.0098
R, 160, 61.918*0.0098
R, 161, 61.918*0.0098
R, 162, 61.918*0.0049

R, 215, 15.479*0.0230 ! Pit Wall (North Side) Additional Mass
R, 216, 15.479*0.0461
R, 217, 15.479*0.0461
R, 218, 15.479*0.0461
R, 219, 15.479*0.0461
R, 220, 15.479*0.0461
R, 221, 15.479*0.0461
R, 222, 15.479*0.0411
R, 223, 15.479*0.0360
R, 224, 15.479*0.0360
R, 225, 15.479*0.0273
R, 226, 15.479*0.0187
R, 227, 15.479*0.0187
R, 228, 15.479*0.0161
R, 229, 15.479*0.0136
R, 230, 15.479*0.0136
R, 231, 15.479*0.0171
R, 232, 15.479*0.0207
R, 233, 15.479*0.0277
R, 234, 15.479*0.0348
R, 235, 15.479*0.0301
R, 236, 15.479*0.0255
R, 237, 15.479*0.0255
R, 238, 15.479*0.0255
R, 239, 15.479*0.0254
R, 240, 15.479*0.0254
R, 241, 15.479*0.0255
R, 242, 15.479*0.0255
R, 243, 15.479*0.0255
R, 244, 15.479*0.0293
R, 245, 15.479*0.0331
R, 246, 15.479*0.0332
R, 247, 15.479*0.0332
R, 248, 15.479*0.0166

C*** Define Local Coordinate Systems

LOCAL, 11, 1, 99.0, 0.0 ! Cylindrical System For 12" Riser
LOCAL, 12, 1, 147.0, 0.0 ! Cylindrical System For Pump Column

C*** Define Wall Nodes

CSYS,0

N, 1, 0.0, 0.0, 0.0

N, 3, 0.0, -4.984, 0.0 \$FILL, 1, 3, 1
N, 7, 0.0, -20.379, 0.0 \$FILL, 3, 7, 3
N, 12, 0.0, -58.929, 0.0 \$FILL, 7, 12, 4
N, 15, 0.0, -75.0, 0.0 \$FILL, 12, 15, 2

N, 22, 63.0, -75.0, 0.0 \$FILL, 15, 22, 6
N, 25, 84.093, -75.0, 0.0 \$FILL, 22, 25, 2
N, 28, 95.025, -75.0, 0.0 \$FILL, 25, 28, 2
N, 31, 102.975, -75.0, 0.0 \$FILL, 28, 31, 2
N, 33, 111.063, -75.0, 0.0 \$FILL, 31, 33, 1
N, 35, 124.645, -75.0, 0.0 \$FILL, 33, 35, 1
N, 44, 169.355, -75.0, 0.0 \$FILL, 35, 44, 8
N, 48, 195.25, -75.0, 0.0 \$FILL, 44, 48, 3

N, 51, 195.25, -58.929, 0.0 \$FILL, 48, 51, 2

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N, 56, 195.25 , -20.379, 0.0 \$FILL, 51, 56, 4
N, 62, 195.25 , 0.0 , 0.0 \$FILL, 56, 62, 5

NGEN, 5, 100, 1, 62, 1, 0.0 , 0.0 , 27.083/4.0
NGEN, 13, 100, 401, 462, 1, 0.0 , 0.0 , 81.667/13.0

C*** Define Wall Elements

TYPE,1 \$MAT,2
REAL,2 \$EN, 1, 1, 2, 102, 101 \$RP47, 1, 1, 1, 1, 1 ! East/North Sides
REAL,3 \$EN, 48, 48, 49, 149, 148 \$RP14, 1, 1, 1, 1, 1 ! West Side
EGEN, 16, 100, 1, 61, 1

C*** Define Remaining Boundary Nodes For Pit Floor (63-100,163-172)

N, 66, 177.25 , 0.0 , 0.0 \$FILL, 62, 66, 3

CSYS,12

N, 66, 30.25 , 0.0 , 0.0
N, 72, 30.25 , -42.353, 0.0 \$FILL, 66, 72, 5
N, 81, 30.25 , -137.647, 0.0 \$FILL, 72, 81, 8
N, 85, 30.25 , -170.517, 0.0 \$FILL, 81, 85, 3
N, 87, 30.25 , -180.0 , 0.0 \$FILL, 85, 87, 1

CSYS,0

N, 87, 116.750, 0.0 , 0.0
N, 91, 105.375, 0.0 , 0.0 \$FILL, 87, 91, 3

CSYS,11

N, 91, 6.375, 0.0 , 0.0
N, 93, 6.375, -51.429, 0.0 \$FILL, 91, 93, 1
N, 96, 6.375, -128.572, 0.0 \$FILL, 93, 96, 2
N, 98, 6.375, -180.0 , 0.0 \$FILL, 96, 98, 1

CSYS,0

N, 98, 92.625, 0.0 , 0.0
N,100, 86.937, 0.0 , 0.0 \$FILL, 98,100, 1
N,163, 84.093, 0.0 , 0.0
N,166, 63.0 , 0.0 , 0.0 \$FILL,163,166, 2
N,173, 0.0 , 0.0 , 0.0 \$FILL,166,173, 6

C*** Start Of Pit Floor Generation

N, 2000, 0.0 , 0.0 , 0.0

C*** Defining K Points For Pit Floor

CSYS,0

K, 1, 0.0 , 0.0
K, 2, 0.0 , -4.984
K, 3, 0.0 , -20.379
K, 4, 0.0 , -58.929
K, 5, 0.0 , -75.0
K, 6, 63.0 , 0.0
K, 7, 63.0 , -4.984
K, 8, 63.0 , -20.379
K, 9, 63.0 , -58.929
K, 10, 63.0 , -75.0
K, 11, 84.093, 0.0
K, 12, 84.093, -4.984
K, 13, 84.093, -20.379
K, 14, 84.093, -58.929
K, 15, 84.093, -75.0

CSYS,11

K, 16, 6.375, -180.0
K, 17, 6.375, -128.572
K, 21, 6.375, 0.0
K, 22, 6.375, -51.429

CSYS,0

K, 18, 95.025, -20.379

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K , 19 , 95.025, -58.929
K , 20 , 95.025, -75.0
K , 23 , 102.975, -20.379
K , 24 , 102.975, -58.929
K , 25 , 102.975, -75.0
K , 26 , 111.063, 0.0
K , 27 , 111.063, -4.984
K , 28 , 111.063, -20.379
K , 29 , 111.063, -58.929
K , 30 , 111.063, -75.0

CSYS,12
K , 31 , 30.25 , -180.0
K , 32 , 30.25 , -170.517
K , 33 , 30.25 , -137.647
K , 36 , 30.25 , 0.0
K , 37 , 30.25 , -42.353

CSYS,0
K , 34 , 124.645, -58.929
K , 35 , 124.645, -75.0
K , 38 , 169.355, -58.929
K , 39 , 169.355, -75.0
K , 40 , 195.25 , 0.0
K , 41 , 195.25 , -20.379
K , 42 , 195.25 , -58.929
K , 43 , 195.25 , -75.0

C*** Defining L Lines For Pit Floor

CSYS,0
L, 1, 2, 2 ! Line 1
L, 2, 3, 4 ! Line 2
L, 3, 4, 5 ! Line 3
L, 4, 5, 3 ! Line 4

L, 1, 6, 7 \$RP5,1,1 ! Line 5 - 9

L, 6, 7, 2 ! Line 10
L, 7, 8, 4 ! Line 11
L, 8, 9, 5 ! Line 12
L, 9, 10, 3 ! Line 13

L, 6, 11, 3 \$RP5,1,1 ! Line 14 - 18

L, 11, 12, 2 ! Line 19
L, 12, 13, 4 ! Line 20
L, 13, 14, 5 ! Line 21
L, 14, 15, 3 ! Line 22

L, 11, 16, 3 \$RP5,1,1 ! Line 23 - 27

CSYS,11 \$L, 16, 17, 2 \$CSYS,0 ! Line 28
L, 17, 18, 4 ! Line 29
L, 18, 19, 5 ! Line 30
L, 19, 20, 3 ! Line 31

CSYS,11 \$L, 17, 22, 3 \$CSYS,0 ! Line 32
L, 18, 23, 3 \$RP3,1,1 ! Line 33 - 35

CSYS,11 \$L, 21, 22, 2 \$CSYS,0 ! Line 36
L, 22, 23, 4 ! Line 37
L, 23, 24, 5 ! Line 38
L, 24, 25, 3 ! Line 39

L, 21, 26, 2 \$RP5,1,1 ! Line 40 - 44

L, 26, 27, 2 ! Line 45
L, 27, 28, 4 ! Line 46
L, 28, 29, 5 ! Line 47

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L, 29, 30, 3 ! Line 48

L, 26, 31, 2 \$RP5,1,1 ! Line 49 - 53

CSYS,12 \$L, 31, 32, 2 \$CSYS,0 ! Line 54
CSYS,12 \$L, 32, 33, 4 \$CSYS,0 ! Line 55
L, 33, 34, 5 ! Line 56
L, 34, 35, 3 ! Line 57

CSYS,12 \$L, 33, 37, 9 \$CSYS,0 ! Line 58
L, 34, 38, 9 \$RP2,1,1 ! Line 59 - 60

CSYS,12 \$L, 36, 37, 6 \$CSYS,0 ! Line 61
L, 37, 38, 5 ! Line 62
L, 38, 39, 3 ! Line 63

L, 36, 40, 4 \$RP4,1,1 ! Line 64 - 67

L, 40, 41, 6 ! Line 68
L, 41, 42, 5 ! Line 69
L, 42, 43, 3 ! Line 70

C*** Defining Areas For Pit Floor

A, 2, 1, 6, 7 \$RP4,1,1,1,1 ! Area 1 - 4
A, 7, 6, 11, 12 \$RP4,1,1,1,1 ! Area 5 - 8
A, 11, 16, 17, 12 ! Area 9
A, 13, 12, 17, 18 \$RP3,1,1,1,1 ! Area 10 - 12
A, 18, 17, 22, 23 \$RP3,1,1,1,1 ! Area 13 - 15
A, 21, 26, 27, 22 ! Area 16
A, 23, 22, 27, 28 \$RP3,1,1,1,1 ! Area 17 - 19
A, 26, 31, 32, 27 \$RP2,1,1,1,1 ! Area 20 - 21
A, 29, 28, 33, 34 \$RP2,1,1,1,1 ! Area 22 - 23
A, 34, 33, 37, 38 \$RP2,1,1,1,1 ! Area 24 - 25
A, 36, 40, 41, 37 ! Area 26
A, 38, 37, 41, 42 \$RP2,1,1,1,1 ! Area 27 - 28

ELSIZE,,2
TYPE,1 \$MAT,1
REAL,1 \$AMESH, 1, 8,1
REAL,11 \$AMESH, 9
REAL,1 \$AMESH,10,15,1
REAL,11 \$AMESH,16
REAL,1 \$AMESH,17,19,1
REAL,11 \$AMESH,20,21,1
REAL,1 \$AMESH,22,25,1
REAL,11 \$AMESH,26
REAL,1 \$AMESH,27,28,1

Nummrg,Node,0.1 ! Node Merging

C*** Defining Wall Masses On Wall Top

TYPE,2
REAL,101 \$E, 1601 ! Pit Cover Mass Along The Top
EGEN, 62, 1, 1601,,,,,1

REAL,215 \$E, 1615 ! Additional Mass Along The North Side
EGEN, 34, 1, 1615,,,,,1

WSORT,ALL,0.0 ! Wave Front Sorting

C*** Define Boundary Conditions Along Symmetric Nodes

NRSEL, Y, -0.1, 0.1 ! Pit Floor & Wall Nodes
D, ALL, UY, ,,,, ROTX, ROTZ
NALL
D, 1, UX

/COM Loading
ITER,1,1,1
KRF,1

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PRDISP,-1
PRSTR,-1
PRRFOR,-1
PRNP,-1
C*** Load Case 1
C*** Unfactored Gravity Load
ACEL,0.,0., 386.4 ! Gravity Load
LWRITE
C***
KUSE,1
C*** Load Case 2
C*** Unfactored Pressure Load
FDEL,ALL
ACEL,0.,0.,0.
F, 401,FX, 15708.2*0.0166 ! Soil Pressure Loading On East Side
F, 402,FX, 15708.2*0.0332
F, 403,FX, 15708.2*0.0423
F, 404,FX, 15708.2*0.0513
F, 405,FX, 15708.2*0.0513
F, 406,FX, 15708.2*0.0513
F, 407,FX, 15708.2*0.0771
F, 408,FX, 15708.2*0.1028
F, 409,FX, 15708.2*0.1028
F, 410,FX, 15708.2*0.1028
F, 411,FX, 15708.2*0.1028
F, 412,FX, 15708.2*0.0871
F, 413,FX, 15708.2*0.0714
F, 414,FX, 15708.2*0.0714
F, 415,FX, 15708.2*0.0257
F, 415,FY, 40391.0*0.0230 ! Soil Pressure Loading On North Side
F, 416,FY, 40391.0*0.0461
F, 417,FY, 40391.0*0.0461
F, 418,FY, 40391.0*0.0461
F, 419,FY, 40391.0*0.0461
F, 420,FY, 40391.0*0.0461
F, 421,FY, 40391.0*0.0461
F, 422,FY, 40391.0*0.0411
F, 423,FY, 40391.0*0.0360
F, 424,FY, 40391.0*0.0360
F, 425,FY, 40391.0*0.0273
F, 426,FY, 40391.0*0.0187
F, 427,FY, 40391.0*0.0187
F, 428,FY, 40391.0*0.0161
F, 429,FY, 40391.0*0.0136
F, 430,FY, 40391.0*0.0136
F, 431,FY, 40391.0*0.0171
F, 432,FY, 40391.0*0.0207
F, 433,FY, 40391.0*0.0277
F, 434,FY, 40391.0*0.0348
F, 435,FY, 40391.0*0.0301
F, 436,FY, 40391.0*0.0255
F, 437,FY, 40391.0*0.0255
F, 438,FY, 40391.0*0.0255
F, 439,FY, 40391.0*0.0254
F, 440,FY, 40391.0*0.0254
F, 441,FY, 40391.0*0.0255
F, 442,FY, 40391.0*0.0255
F, 443,FY, 40391.0*0.0255
F, 444,FY, 40391.0*0.0293
F, 445,FY, 40391.0*0.0331
F, 446,FY, 40391.0*0.0332
F, 447,FY, 40391.0*0.0332
F, 448,FY, 40391.0*0.0166
F, 448,FX, -15708.2*0.0357 ! Soil Pressure Loading On West Side
F, 449,FX, -15708.2*0.0714
F, 450,FX, -15708.2*0.0714
F, 451,FX, -15708.2*0.0871
F, 452,FX, -15708.2*0.1028
F, 453,FX, -15708.2*0.1028
F, 454,FX, -15708.2*0.1028

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F, 455,FX,-15708.2*0.1028
F, 456,FX,-15708.2*0.0740
F, 457,FX,-15708.2*0.0453
F, 458,FX,-15708.2*0.0453
F, 459,FX,-15708.2*0.0453
F, 460,FX,-15708.2*0.0453
F, 461,FX,-15708.2*0.0453
F, 462,FX,-15708.2*0.0226
LWRITE
C***
KUSE,1
C*** Load Case 3
C*** Unfactored Pump Load (10000 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 66,FZ, -5000.*0.0196 : Pump Column Load (Half of 10000 lb)
F, 67,FZ, -5000.*0.0392
F, 68,FZ, -5000.*0.0392
F, 69,FZ, -5000.*0.0392
F, 70,FZ, -5000.*0.0392
F, 71,FZ, -5000.*0.0392
F, 72,FZ, -5000.*0.0490
F, 73,FZ, -5000.*0.0588
F, 74,FZ, -5000.*0.0588
F, 75,FZ, -5000.*0.0588
F, 76,FZ, -5000.*0.0588
F, 77,FZ, -5000.*0.0588
F, 78,FZ, -5000.*0.0588
F, 79,FZ, -5000.*0.0588
F, 80,FZ, -5000.*0.0588
F, 81,FZ, -5000.*0.0522
F, 82,FZ, -5000.*0.0457
F, 83,FZ, -5000.*0.0457
F, 84,FZ, -5000.*0.0457
F, 85,FZ, -5000.*0.0360
F, 86,FZ, -5000.*0.0264
F, 87,FZ, -5000.*0.0132
LWRITE
C***
KUSE,1
C*** Load Case 4
C*** Unfactored Riser Load (100 lb)
FDEL,ALL
ACEL,0.,0.,0.
F, 166,FZ, -100.0 : 4" Riser Load (Half of 200 lb)
LWRITE
C***
C*** Load Case 5
C*** Unfactored 12" Riser Load Of 3000 lb
FDEL,ALL
ACEL,0.,0.,0.0 : No Gravity Load
F, 91,FZ, -1500.*0.0715 : 12" Riser Load (Half of 3000 lb)
F, 92,FZ, -1500.*0.1429
F, 93,FZ, -1500.*0.1427
F, 94,FZ, -1500.*0.1428
F, 95,FZ, -1500.*0.1429
F, 96,FZ, -1500.*0.1429
F, 97,FZ, -1500.*0.1429
F, 98,FZ, -1500.*0.0714
LWRITE
C***
APWRITE
FINI
/INP,27
FINI
/EOF

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NEW TITLE= Pump Pit Penetration Model

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

ENTER RESUME TO RESUME EXISTING MODEL
ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE PREP7
PRINTOUT KEY SET TO /GOPR (USE /NOPR TO SUPPRESS)

ELEMENT TYPE 1 USES STIF 63
KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0
INOPR= 0 NUMBER OF NODES= 4

QUAD. FLAT SHELL

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

ELEMENT TYPE 2 USES STIF 21
KEYOPT(1-9)= 0 0 2 0 0 0 0 0 0
INOPR= 0 NUMBER OF NODES= 1

GENERAL MASS

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3122000.

PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.31220E+07 9999.0 0.31220E+07

MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.3406000E-03

PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.34060E-03 9999.0 0.34060E-03

MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.1500000

PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

MATERIAL 2 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3122000.

PROPERTY TABLE EX MAT= 2 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.31220E+07 9999.0 0.31220E+07

MATERIAL 2 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.2247000E-03

PROPERTY TABLE DENS MAT= 2 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.22470E-03 9999.0 0.22470E-03

MATERIAL 2 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.1500000

PROPERTY TABLE NUXY MAT= 2 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

E Att2-9

FILENAME : PIT3.OUT DATE : 05-27-94 TIME : 11:00a
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REAL CONSTANT SET 1 ITEMS 1 TO 6						
15.500	0.00000E+00	0.00000E+00	0.00000E+00	13.980	0.00000E+00	
REAL CONSTANT SET 11 ITEMS 1 TO 6						
15.500	0.00000E+00	0.00000E+00	0.00000E+00	13.980	90.000	
REAL CONSTANT SET 2 ITEMS 1 TO 6						
18.000	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 3 ITEMS 1 TO 6						
23.500	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 101 ITEMS 1 TO 6						
0.22290	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 102 ITEMS 1 TO 6						
0.44581	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 103 ITEMS 1 TO 6						
0.56965	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 104 ITEMS 1 TO 6						
0.68729	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 105 ITEMS 1 TO 6						
0.68729	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 106 ITEMS 1 TO 6						
0.68729	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 107 ITEMS 1 TO 6						
1.0340	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 108 ITEMS 1 TO 6						
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 109 ITEMS 1 TO 6						
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 110 ITEMS 1 TO 6						
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 111 ITEMS 1 TO 6						
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 112 ITEMS 1 TO 6						
1.1703	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 113 ITEMS 1 TO 6						
0.95973	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 114 ITEMS 1 TO 6						
0.95973	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 115 ITEMS 1 TO 6						
1.2879	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 116 ITEMS 1 TO 6						
1.6161	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 117 ITEMS 1 TO 6						
1.6161	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 118 ITEMS 1 TO 6						
1.6161	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 119 ITEMS 1 TO 6						
1.6161	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	

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REAL CONSTANT SET 120 ITEMS 1 TO 6						
1.6161	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 121 ITEMS 1 TO 6						
1.6161	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 122 ITEMS 1 TO 6						
1.4365	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 123 ITEMS 1 TO 6						
1.2631	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 124 ITEMS 1 TO 6						
1.2631	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 125 ITEMS 1 TO 6						
0.95973	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 126 ITEMS 1 TO 6						
0.65633	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 127 ITEMS 1 TO 6						
0.65633	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 128 ITEMS 1 TO 6						
0.56345	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 129 ITEMS 1 TO 6						
0.47677	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 130 ITEMS 1 TO 6						
0.47677	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 131 ITEMS 1 TO 6						
0.60060	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 132 ITEMS 1 TO 6						
0.72444	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 133 ITEMS 1 TO 6						
0.97211	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 134 ITEMS 1 TO 6						
1.2198	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 135 ITEMS 1 TO 6						
1.0526	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 136 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 137 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 138 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 139 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 140 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 141 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 142 ITEMS 1 TO 6						
0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	
REAL CONSTANT SET 143 ITEMS 1 TO 6						

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0.89162	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 144 ITEMS 1 TO 6					
1.0278	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 145 ITEMS 1 TO 6					
1.1579	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 146 ITEMS 1 TO 6					
1.1641	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 147 ITEMS 1 TO 6					
1.1641	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 148 ITEMS 1 TO 6					
1.0588	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 149 ITEMS 1 TO 6					
0.95973	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 150 ITEMS 1 TO 6					
0.95973	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 151 ITEMS 1 TO 6					
1.1703	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 152 ITEMS 1 TO 6					
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 153 ITEMS 1 TO 6					
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 154 ITEMS 1 TO 6					
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 155 ITEMS 1 TO 6					
1.3808	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 156 ITEMS 1 TO 6					
0.99688	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 157 ITEMS 1 TO 6					
0.60680	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 158 ITEMS 1 TO 6					
0.60680	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 159 ITEMS 1 TO 6					
0.60680	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 160 ITEMS 1 TO 6					
0.60680	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 161 ITEMS 1 TO 6					
0.60680	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 162 ITEMS 1 TO 6					
0.30340	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 215 ITEMS 1 TO 6					
0.35602	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 216 ITEMS 1 TO 6					
0.71358	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 217 ITEMS 1 TO 6					
0.71358	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 218 ITEMS 1 TO 6					
0.71358	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00

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REAL CONSTANT SET 219 ITEMS 1 TO 6						
0.71358	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 220 ITEMS 1 TO 6						
0.71358	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 221 ITEMS 1 TO 6						
0.71358	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 222 ITEMS 1 TO 6						
0.63619	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 223 ITEMS 1 TO 6						
0.55724	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 224 ITEMS 1 TO 6						
0.55724	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 225 ITEMS 1 TO 6						
0.42258	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 226 ITEMS 1 TO 6						
0.28946	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 227 ITEMS 1 TO 6						
0.28946	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 228 ITEMS 1 TO 6						
0.24921	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 229 ITEMS 1 TO 6						
0.21051	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 230 ITEMS 1 TO 6						
0.21051	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 231 ITEMS 1 TO 6						
0.26469	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 232 ITEMS 1 TO 6						
0.32042	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 233 ITEMS 1 TO 6						
0.42877	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 234 ITEMS 1 TO 6						
0.53867	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 235 ITEMS 1 TO 6						
0.46592	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 236 ITEMS 1 TO 6						
0.39471	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 237 ITEMS 1 TO 6						
0.39471	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 238 ITEMS 1 TO 6						
0.39471	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 239 ITEMS 1 TO 6						
0.39317	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 240 ITEMS 1 TO 6						
0.39317	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
REAL CONSTANT SET 241 ITEMS 1 TO 6						
0.39471	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00

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REAL CONSTANT SET 242 ITEMS 1 TO 6
0.39471 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 243 ITEMS 1 TO 6
0.39471 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 244 ITEMS 1 TO 6
0.45353 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 245 ITEMS 1 TO 6
0.51235 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 246 ITEMS 1 TO 6
0.51390 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 247 ITEMS 1 TO 6
0.51390 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 248 ITEMS 1 TO 6
0.25695 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

```

C*** Define Local Coordinate Systems

```

COORDINATE SYSTEM 11 DEFINITION. TYPE= 1 (CYLINDRICAL)
XC,YC,ZC= 99.000 0.00000E+00 0.00000E+00
ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

```

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

```

COORDINATE SYSTEM 12 DEFINITION. TYPE= 1 (CYLINDRICAL)
XC,YC,ZC= 147.00 0.00000E+00 0.00000E+00
ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

```

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

C*** Define Wall Nodes

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

```

NODE 1 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

NODE 3 KCS= 0 X,Y,Z= 0.00000E+00 -4.9840 0.00000E+00

FILL 1 POINTS BETWEEN NODE 1 AND NODE 3
START WITH NODE 2 AND INCREMENT BY 1

NODE 7 KCS= 0 X,Y,Z= 0.00000E+00 -20.379 0.00000E+00

FILL 3 POINTS BETWEEN NODE 3 AND NODE 7
START WITH NODE 4 AND INCREMENT BY 1

NODE 12 KCS= 0 X,Y,Z= 0.00000E+00 -58.929 0.00000E+00

FILL 4 POINTS BETWEEN NODE 7 AND NODE 12
START WITH NODE 8 AND INCREMENT BY 1

NODE 15 KCS= 0 X,Y,Z= 0.00000E+00 -75.000 0.00000E+00

FILL 2 POINTS BETWEEN NODE 12 AND NODE 15
START WITH NODE 13 AND INCREMENT BY 1

NODE 22 KCS= 0 X,Y,Z= 63.000 -75.000 0.00000E+00

FILL 6 POINTS BETWEEN NODE 15 AND NODE 22
START WITH NODE 16 AND INCREMENT BY 1

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NODE 25 KCS= 0 X,Y,Z= 84.093 -75.000 0.00000E+00

FILL 2 POINTS BETWEEN NODE 22 AND NODE 25
 START WITH NODE 23 AND INCREMENT BY 1

NODE 28 KCS= 0 X,Y,Z= 95.025 -75.000 0.00000E+00

FILL 2 POINTS BETWEEN NODE 25 AND NODE 28
 START WITH NODE 26 AND INCREMENT BY 1

NODE 31 KCS= 0 X,Y,Z= 102.97 -75.000 0.00000E+00

FILL 2 POINTS BETWEEN NODE 28 AND NODE 31
 START WITH NODE 29 AND INCREMENT BY 1

NODE 33 KCS= 0 X,Y,Z= 111.06 -75.000 0.00000E+00

FILL 1 POINTS BETWEEN NODE 31 AND NODE 33
 START WITH NODE 32 AND INCREMENT BY 1

NODE 35 KCS= 0 X,Y,Z= 124.64 -75.000 0.00000E+00

FILL 1 POINTS BETWEEN NODE 33 AND NODE 35
 START WITH NODE 34 AND INCREMENT BY 1

NODE 44 KCS= 0 X,Y,Z= 169.36 -75.000 0.00000E+00

FILL 8 POINTS BETWEEN NODE 35 AND NODE 44
 START WITH NODE 36 AND INCREMENT BY 1

NODE 48 KCS= 0 X,Y,Z= 195.25 -75.000 0.00000E+00

FILL 3 POINTS BETWEEN NODE 44 AND NODE 48
 START WITH NODE 45 AND INCREMENT BY 1

NODE 51 KCS= 0 X,Y,Z= 195.25 -58.929 0.00000E+00

FILL 2 POINTS BETWEEN NODE 48 AND NODE 51
 START WITH NODE 49 AND INCREMENT BY 1

NODE 56 KCS= 0 X,Y,Z= 195.25 -20.379 0.00000E+00

FILL 4 POINTS BETWEEN NODE 51 AND NODE 56
 START WITH NODE 52 AND INCREMENT BY 1

NODE 62 KCS= 0 X,Y,Z= 195.25 0.00000E+00 0.00000E+00

FILL 5 POINTS BETWEEN NODE 56 AND NODE 62
 START WITH NODE 57 AND INCREMENT BY 1

GENERATE 5 TOTAL SETS OF NODES WITH INCREMENT 100
 SET IS SELECTED NODES IN RANGE 1 TO 62 IN STEPS OF 1
 GEOMETRY INCREMENTS ARE 0.00000E+00 0.00000E+00 6.7707

GENERATE 13 TOTAL SETS OF NODES WITH INCREMENT 100
 SET IS SELECTED NODES IN RANGE 401 TO 462 IN STEPS OF 1
 GEOMETRY INCREMENTS ARE 0.00000E+00 0.00000E+00 6.2821

C*** Define Wall Elements

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 2

REAL CONSTANT NUMBER= 2

ELEMENT	1	1	2	102	101
ELEMENT	2	2	3	103	102
ELEMENT	3	3	4	104	103
ELEMENT	4	4	5	105	104

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ELEMENT	5	5	6	106	105
ELEMENT	6	6	7	107	106
ELEMENT	7	7	8	108	107
ELEMENT	8	8	9	109	108
ELEMENT	9	9	10	110	109
ELEMENT	10	10	11	111	110
ELEMENT	11	11	12	112	111
ELEMENT	12	12	13	113	112
ELEMENT	13	13	14	114	113
ELEMENT	14	14	15	115	114
ELEMENT	15	15	16	116	115
ELEMENT	16	16	17	117	116
ELEMENT	17	17	18	118	117
ELEMENT	18	18	19	119	118
ELEMENT	19	19	20	120	119
ELEMENT	20	20	21	121	120
ELEMENT	21	21	22	122	121
ELEMENT	22	22	23	123	122
ELEMENT	23	23	24	124	123
ELEMENT	24	24	25	125	124
ELEMENT	25	25	26	126	125
ELEMENT	26	26	27	127	126
ELEMENT	27	27	28	128	127
ELEMENT	28	28	29	129	128
ELEMENT	29	29	30	130	129
ELEMENT	30	30	31	131	130
ELEMENT	31	31	32	132	131
ELEMENT	32	32	33	133	132
ELEMENT	33	33	34	134	133
ELEMENT	34	34	35	135	134
ELEMENT	35	35	36	136	135
ELEMENT	36	36	37	137	136
ELEMENT	37	37	38	138	137
ELEMENT	38	38	39	139	138
ELEMENT	39	39	40	140	139
ELEMENT	40	40	41	141	140
ELEMENT	41	41	42	142	141
ELEMENT	42	42	43	143	142
ELEMENT	43	43	44	144	143
ELEMENT	44	44	45	145	144
ELEMENT	45	45	46	146	145
ELEMENT	46	46	47	147	146
ELEMENT	47	47	48	148	147

REAL CONSTANT NUMBER= 3

ELEMENT	48	48	49	149	148
ELEMENT	49	49	50	150	149
ELEMENT	50	50	51	151	150
ELEMENT	51	51	52	152	151
ELEMENT	52	52	53	153	152
ELEMENT	53	53	54	154	153
ELEMENT	54	54	55	155	154
ELEMENT	55	55	56	156	155
ELEMENT	56	56	57	157	156
ELEMENT	57	57	58	158	157
ELEMENT	58	58	59	159	158
ELEMENT	59	59	60	160	159
ELEMENT	60	60	61	161	160
ELEMENT	61	61	62	162	161

GENERATE 16 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 100
SET IS SELECTED ELEMENTS IN RANGE 1 TO 61 IN STEPS OF 1
NUMBER OF ELEMENTS= 976

C*** Define Remaining Boundary Nodes For Pit Floor (63-100,163-172)

NODE 66 KCS= 0 X,Y,Z= 177.25 0.00000E+00 0.00000E+00

FILL 3 POINTS BETWEEN NODE 62 AND NODE 66

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START WITH NODE 63 AND INCREMENT BY 1

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

NODE 66 KCS=12 X,Y,Z= 30.250 0.00000E+00 0.00000E+00

NODE 72 KCS=12 X,Y,Z= 30.250 -42.353 0.00000E+00

FILL 5 POINTS BETWEEN NODE 66 AND NODE 72
START WITH NODE 67 AND INCREMENT BY 1

NODE 81 KCS=12 X,Y,Z= 30.250 -137.65 0.00000E+00

FILL 8 POINTS BETWEEN NODE 72 AND NODE 81
START WITH NODE 73 AND INCREMENT BY 1

NODE 85 KCS=12 X,Y,Z= 30.250 -170.52 0.00000E+00

FILL 3 POINTS BETWEEN NODE 81 AND NODE 85
START WITH NODE 82 AND INCREMENT BY 1

NODE 87 KCS=12 X,Y,Z= 30.250 -180.00 0.00000E+00

FILL 1 POINTS BETWEEN NODE 85 AND NODE 87
START WITH NODE 86 AND INCREMENT BY 1

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

NODE 87 KCS= 0 X,Y,Z= 116.75 0.00000E+00 0.00000E+00

NODE 91 KCS= 0 X,Y,Z= 105.37 0.00000E+00 0.00000E+00

FILL 3 POINTS BETWEEN NODE 87 AND NODE 91
START WITH NODE 88 AND INCREMENT BY 1

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

NODE 91 KCS=11 X,Y,Z= 6.3750 0.00000E+00 0.00000E+00

NODE 93 KCS=11 X,Y,Z= 6.3750 -51.429 0.00000E+00

FILL 1 POINTS BETWEEN NODE 91 AND NODE 93
START WITH NODE 92 AND INCREMENT BY 1

NODE 96 KCS=11 X,Y,Z= 6.3750 -128.57 0.00000E+00

FILL 2 POINTS BETWEEN NODE 93 AND NODE 96
START WITH NODE 94 AND INCREMENT BY 1

NODE 98 KCS=11 X,Y,Z= 6.3750 -180.00 0.00000E+00

FILL 1 POINTS BETWEEN NODE 96 AND NODE 98
START WITH NODE 97 AND INCREMENT BY 1

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

NODE 98 KCS= 0 X,Y,Z= 92.625 0.00000E+00 0.00000E+00

NODE 100 KCS= 0 X,Y,Z= 86.937 0.00000E+00 0.00000E+00

FILL 1 POINTS BETWEEN NODE 98 AND NODE 100
START WITH NODE 99 AND INCREMENT BY 1

NODE 163 KCS= 0 X,Y,Z= 84.093 0.00000E+00 0.00000E+00

NODE 166 KCS= 0 X,Y,Z= 63.000 0.00000E+00 0.00000E+00

FILL 2 POINTS BETWEEN NODE 163 AND NODE 166
START WITH NODE 164 AND INCREMENT BY 1

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NODE 173 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

FILL 6 POINTS BETWEEN NODE 166 AND NODE 173
START WITH NODE 167 AND INCREMENT BY 1

C*** Start Of Pit Floor Generation

NODE 2000 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

C*** Defining K Points For Pit Floor

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPCINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.000000E+00	-4.98400	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.000000E+00	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.000000E+00	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.000000E+00	-75.0000	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	63.0000	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	63.0000	-4.98400	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	63.0000	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	63.0000	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	63.0000	-75.0000	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	84.0930	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	84.0930	-4.98400	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	84.0930	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	84.0930	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	84.0930	-75.0000	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

KEYPOINT	16	X,Y,Z=	6.37500	-180.000	0.000000E+00	IN CSYS=	11
			92.6250	-0.111762E-07	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	6.37500	-128.572	0.000000E+00	IN CSYS=	11
			95.0252	-4.98414	0.000000E+00	IN CSYS=	0
KEYPOINT	21	X,Y,Z=	6.37500	0.000000E+00	0.000000E+00	IN CSYS=	11
			105.375	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	22	X,Y,Z=	6.37500	-51.4290	0.000000E+00	IN CSYS=	11
			102.975	-4.98421	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	18	X,Y,Z=	95.0250	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	95.0250	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	95.0250	-75.0000	0.000000E+00	IN CSYS=	0

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KEYPOINT	23	X,Y,Z=	102.975	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	24	X,Y,Z=	102.975	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	25	X,Y,Z=	102.975	-75.0000	0.000000E+00	IN CSYS=	0
KEYPOINT	26	X,Y,Z=	111.063	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	27	X,Y,Z=	111.063	-4.98400	0.000000E+00	IN CSYS=	0
KEYPOINT	28	X,Y,Z=	111.063	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	29	X,Y,Z=	111.063	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	30	X,Y,Z=	111.063	-75.0000	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

KEYPOINT	31	X,Y,Z=	30.2500	-180.000	0.000000E+00	IN CSYS=	12
			116.750	-0.530319E-07	0.000000E+00	IN CSYS=	0
KEYPOINT	32	X,Y,Z=	30.2500	-170.517	0.000000E+00	IN CSYS=	12
			117.163	-4.98384	0.000000E+00	IN CSYS=	0
KEYPOINT	33	X,Y,Z=	30.2500	-137.647	0.000000E+00	IN CSYS=	12
			124.645	-20.3793	0.000000E+00	IN CSYS=	0
KEYPOINT	36	X,Y,Z=	30.2500	0.000000E+00	0.000000E+00	IN CSYS=	12
			177.250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	37	X,Y,Z=	30.2500	-42.3530	0.000000E+00	IN CSYS=	12
			169.355	-20.3793	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	34	X,Y,Z=	124.645	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	35	X,Y,Z=	124.645	-75.0000	0.000000E+00	IN CSYS=	0
KEYPOINT	38	X,Y,Z=	169.355	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	39	X,Y,Z=	169.355	-75.0000	0.000000E+00	IN CSYS=	0
KEYPOINT	40	X,Y,Z=	195.250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	41	X,Y,Z=	195.250	-20.3790	0.000000E+00	IN CSYS=	0
KEYPOINT	42	X,Y,Z=	195.250	-58.9290	0.000000E+00	IN CSYS=	0
KEYPOINT	43	X,Y,Z=	195.250	-75.0000	0.000000E+00	IN CSYS=	0

C*** Defining L Lines For Pit Floor

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS	1	2	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.=	1	KP1=	1	TAN1=	0.0000	1.0000
		KP2=	2	TAN2=	0.0000	-1.0000

LINE SEGMENT CONNECTS KEYPOINTS	2	3	DIVISIONS=	4	SPACING=	1.00
SEGMENT NO.=	2	KP1=	2	TAN1=	0.0000	1.0000
		KP2=	3	TAN2=	0.0000	-1.0000

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LINE SEGMENT CONNECTS KEYPOINTS	3	4	DIVISIONS=	5	SPACING=	1.00
SEGMENT NO.=	3	KP1= 3	TAN1=	0.0000	1.0000	0.0000
		KP2= 4	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	4	5	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	4	KP1= 4	TAN1=	0.0000	1.0000	0.0000
		KP2= 5	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	1	6	DIVISIONS=	7	SPACING=	1.00
SEGMENT NO.=	5	KP1= 1	TAN1=	-1.0000	0.0000	0.0000
		KP2= 6	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	2	7	DIVISIONS=	7	SPACING=	1.00
SEGMENT NO.=	6	KP1= 2	TAN1=	-1.0000	0.0000	0.0000
		KP2= 7	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	3	8	DIVISIONS=	7	SPACING=	1.00
SEGMENT NO.=	7	KP1= 3	TAN1=	-1.0000	0.0000	0.0000
		KP2= 8	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	4	9	DIVISIONS=	7	SPACING=	1.00
SEGMENT NO.=	8	KP1= 4	TAN1=	-1.0000	0.0000	0.0000
		KP2= 9	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	5	10	DIVISIONS=	7	SPACING=	1.00
SEGMENT NO.=	9	KP1= 5	TAN1=	-1.0000	0.0000	0.0000
		KP2= 10	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	6	7	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.=	10	KP1= 6	TAN1=	0.0000	1.0000	0.0000
		KP2= 7	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	7	8	DIVISIONS=	4	SPACING=	1.00
SEGMENT NO.=	11	KP1= 7	TAN1=	0.0000	1.0000	0.0000
		KP2= 8	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	8	9	DIVISIONS=	5	SPACING=	1.00
SEGMENT NO.=	12	KP1= 8	TAN1=	0.0000	1.0000	0.0000
		KP2= 9	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	9	10	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	13	KP1= 9	TAN1=	0.0000	1.0000	0.0000
		KP2= 10	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	6	11	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	14	KP1= 6	TAN1=	-1.0000	0.0000	0.0000
		KP2= 11	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	7	12	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	15	KP1= 7	TAN1=	-1.0000	0.0000	0.0000
		KP2= 12	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	8	13	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	16	KP1= 8	TAN1=	-1.0000	0.0000	0.0000
		KP2= 13	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	9	14	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	17	KP1= 9	TAN1=	-1.0000	0.0000	0.0000
		KP2= 14	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	10	15	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.=	18	KP1= 10	TAN1=	-1.0000	0.0000	0.0000
		KP2= 15	TAN2=	1.0000	0.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	11	12	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.=	19	KP1= 11	TAN1=	0.0000	1.0000	0.0000
		KP2= 12	TAN2=	0.0000	-1.0000	0.0000
LINE SEGMENT CONNECTS KEYPOINTS	12	13	DIVISIONS=	4	SPACING=	1.00
SEGMENT NO.=	20	KP1= 12	TAN1=	0.0000	1.0000	0.0000

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                KP2=   13  TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   13   14  DIVISIONS=   5  SPACING=  1.00
SEGMENT NO.=   21  KP1=   13  TAN1=   0.0000   1.0000   0.0000
                KP2=   14  TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   14   15  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   22  KP1=   14  TAN1=   0.0000   1.0000   0.0000
                KP2=   15  TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   11   16  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   23  KP1=   11  TAN1=  -1.0000   0.0000   0.0000
                KP2=   16  TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   12   17  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   24  KP1=   12  TAN1=  -1.0000   0.0000   0.0000
                KP2=   17  TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   13   18  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   25  KP1=   13  TAN1=  -1.0000   0.0000   0.0000
                KP2=   18  TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   14   19  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   26  KP1=   14  TAN1=  -1.0000   0.0000   0.0000
                KP2=   19  TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   15   20  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   27  KP1=   15  TAN1=  -1.0000   0.0000   0.0000
                KP2=   20  TAN2=   1.0000   0.0000   0.0000

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS   16   17  DIVISIONS=   2  SPACING=  1.00
SEGMENT NO.=   28  KP1=   16  TAN1=   0.0000   1.0000   0.0000
                KP2=   17  TAN2=   0.7818  -0.6235   0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS   17   18  DIVISIONS=   4  SPACING=  1.00
SEGMENT NO.=   29  KP1=   17  TAN1=   0.0000   1.0000   0.0000
                KP2=   18  TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   18   19  DIVISIONS=   5  SPACING=  1.00
SEGMENT NO.=   30  KP1=   18  TAN1=   0.0000   1.0000   0.0000
                KP2=   19  TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   19   20  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   31  KP1=   19  TAN1=   0.0000   1.0000   0.0000
                KP2=   20  TAN2=   0.0000  -1.0000   0.0000

ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS   17   22  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   32  KP1=   17  TAN1=  -0.7818   0.6235   0.0000
                KP2=   22  TAN2=   0.7818   0.6235   0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS   18   23  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   33  KP1=   18  TAN1=  -1.0000   0.0000   0.0000
                KP2=   23  TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   19   24  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   34  KP1=   19  TAN1=  -1.0000   0.0000   0.0000
                KP2=   24  TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   20   25  DIVISIONS=   3  SPACING=  1.00
SEGMENT NO.=   35  KP1=   20  TAN1=  -1.0000   0.0000   0.0000
                KP2=   25  TAN2=   1.0000   0.0000   0.0000

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ACTIVE COORDINATE SYSTEM SET TO 11 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS	21	22	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 36	KP1= 21	TAN1= 0.0000	1.0000	0.0000		
	KP2= 22	TAN2= -0.7818	-0.6235	0.0000		

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS	22	23	DIVISIONS=	4	SPACING=	1.00
SEGMENT NO.= 37	KP1= 22	TAN1= 0.0000	1.0000	0.0000		
	KP2= 23	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	23	24	DIVISIONS=	5	SPACING=	1.00
SEGMENT NO.= 38	KP1= 23	TAN1= 0.0000	1.0000	0.0000		
	KP2= 24	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	24	25	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.= 39	KP1= 24	TAN1= 0.0000	1.0000	0.0000		
	KP2= 25	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	21	26	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 40	KP1= 21	TAN1= -1.0000	0.0000	0.0000		
	KP2= 26	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	22	27	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 41	KP1= 22	TAN1= -1.0000	0.0000	0.0000		
	KP2= 27	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	23	28	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 42	KP1= 23	TAN1= -1.0000	0.0000	0.0000		
	KP2= 28	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	24	29	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 43	KP1= 24	TAN1= -1.0000	0.0000	0.0000		
	KP2= 29	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	25	30	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 44	KP1= 25	TAN1= -1.0000	0.0000	0.0000		
	KP2= 30	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	26	27	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 45	KP1= 26	TAN1= 0.0000	1.0000	0.0000		
	KP2= 27	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	27	28	DIVISIONS=	4	SPACING=	1.00
SEGMENT NO.= 46	KP1= 27	TAN1= 0.0000	1.0000	0.0000		
	KP2= 28	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	28	29	DIVISIONS=	5	SPACING=	1.00
SEGMENT NO.= 47	KP1= 28	TAN1= 0.0000	1.0000	0.0000		
	KP2= 29	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	29	30	DIVISIONS=	3	SPACING=	1.00
SEGMENT NO.= 48	KP1= 29	TAN1= 0.0000	1.0000	0.0000		
	KP2= 30	TAN2= 0.0000	-1.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	26	31	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 49	KP1= 26	TAN1= -1.0000	0.0000	0.0000		
	KP2= 31	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	27	32	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 50	KP1= 27	TAN1= -1.0000	0.0000	0.0000		
	KP2= 32	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	28	33	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 51	KP1= 28	TAN1= -1.0000	0.0000	0.0000		
	KP2= 33	TAN2= 1.0000	0.0000	0.0000		

LINE SEGMENT CONNECTS KEYPOINTS	29	34	DIVISIONS=	2	SPACING=	1.00
SEGMENT NO.= 52	KP1= 29	TAN1= -1.0000	0.0000	0.0000		

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                KP2=   34 TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   30   35 DIVISIONS=   2 SPACING=   1.00
SEGMENT NO.=   53 KP1=   30 TAN1=  -1.0000   0.0000   0.0000
                KP2=   35 TAN2=   1.0000   0.0000   0.0000

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS   31   32 DIVISIONS=   2 SPACING=   1.00
SEGMENT NO.=   54 KP1=   31 TAN1=   0.0000   1.0000   0.0000
                KP2=   32 TAN2=   0.1648  -0.9863   0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS   32   33 DIVISIONS=   4 SPACING=   1.00
SEGMENT NO.=   55 KP1=   32 TAN1=  -0.1648   0.9863   0.0000
                KP2=   33 TAN2=   0.6737  -0.7390   0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS   33   34 DIVISIONS=   5 SPACING=   1.00
SEGMENT NO.=   56 KP1=   33 TAN1=   0.0000   1.0000   0.0000
                KP2=   34 TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   34   35 DIVISIONS=   3 SPACING=   1.00
SEGMENT NO.=   57 KP1=   34 TAN1=   0.0000   1.0000   0.0000
                KP2=   35 TAN2=   0.0000  -1.0000   0.0000

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS   33   37 DIVISIONS=   9 SPACING=   1.00
SEGMENT NO.=   58 KP1=   33 TAN1=  -0.6737   0.7390   0.0000
                KP2=   37 TAN2=   0.6737   0.7390   0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS   34   38 DIVISIONS=   9 SPACING=   1.00
SEGMENT NO.=   59 KP1=   34 TAN1=  -1.0000   0.0000   0.0000
                KP2=   38 TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   35   39 DIVISIONS=   9 SPACING=   1.00
SEGMENT NO.=   60 KP1=   35 TAN1=  -1.0000   0.0000   0.0000
                KP2=   39 TAN2=   1.0000   0.0000   0.0000

ACTIVE COORDINATE SYSTEM SET TO 12 (CYLINDRICAL)

LINE SEGMENT CONNECTS KEYPOINTS   36   37 DIVISIONS=   6 SPACING=   1.00
SEGMENT NO.=   61 KP1=   36 TAN1=   0.0000   1.0000   0.0000
                KP2=   37 TAN2=  -0.6737  -0.7390   0.0000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

LINE SEGMENT CONNECTS KEYPOINTS   37   38 DIVISIONS=   5 SPACING=   1.00
SEGMENT NO.=   62 KP1=   37 TAN1=   0.0000   1.0000   0.0000
                KP2=   38 TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   38   39 DIVISIONS=   3 SPACING=   1.00
SEGMENT NO.=   63 KP1=   38 TAN1=   0.0000   1.0000   0.0000
                KP2=   39 TAN2=   0.0000  -1.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   36   40 DIVISIONS=   4 SPACING=   1.00
SEGMENT NO.=   64 KP1=   36 TAN1=  -1.0000   0.0000   0.0000
                KP2=   40 TAN2=   1.0000   0.0000   0.0000

LINE SEGMENT CONNECTS KEYPOINTS   37   41 DIVISIONS=   4 SPACING=   1.00
SEGMENT NO.=   65 KP1=   37 TAN1=  -1.0000   0.0000   0.0000
                KP2=   41 TAN2=   1.0000   0.0000   0.0000

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LINE SEGMENT CONNECTS KEYPOINTS      38      42 DIVISIONS=      4 SPACING= 1.00
SEGMENT NO.=      66 KP1=      38 TAN1= -1.0000  0.0000  0.0000
                        KP2=      42 TAN2=  1.0000  0.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      39      43 DIVISIONS=      4 SPACING= 1.00
SEGMENT NO.=      67 KP1=      39 TAN1= -1.0000  0.0000  0.0000
                        KP2=      43 TAN2=  1.0000  0.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      40      41 DIVISIONS=      6 SPACING= 1.00
SEGMENT NO.=      68 KP1=      40 TAN1=  0.0000  1.0000  0.0000
                        KP2=      41 TAN2=  0.0000 -1.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      41      42 DIVISIONS=      5 SPACING= 1.00
SEGMENT NO.=      69 KP1=      41 TAN1=  0.0000  1.0000  0.0000
                        KP2=      42 TAN2=  0.0000 -1.0000  0.0000

LINE SEGMENT CONNECTS KEYPOINTS      42      43 DIVISIONS=      3 SPACING= 1.00
SEGMENT NO.=      70 KP1=      42 TAN1=  0.0000  1.0000  0.0000
                        KP2=      43 TAN2=  0.0000 -1.0000  0.0000

```

C*** Defining Areas For Pit Floor

```

AREA CONNECTING KEYPOINTS      2      1      6      7
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      1

AREA CONNECTING KEYPOINTS      3      2      7      8
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      2

AREA CONNECTING KEYPOINTS      4      3      8      9
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      3

AREA CONNECTING KEYPOINTS      5      4      9      10
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      4

AREA CONNECTING KEYPOINTS      7      6      11      12
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      5

AREA CONNECTING KEYPOINTS      8      7      12      13
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      6

AREA CONNECTING KEYPOINTS      9      8      13      14
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      7

AREA CONNECTING KEYPOINTS     10      9      14      15
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      8

AREA CONNECTING KEYPOINTS     11     16     17     12
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER =      9

AREA CONNECTING KEYPOINTS     13     12     17     18
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

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AREA NUMBER = 10
AREA CONNECTING KEYPOINTS 14 13 18 19
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 11
AREA CONNECTING KEYPOINTS 15 14 19 20
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 12
AREA CONNECTING KEYPOINTS 18 17 22 23
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 13
AREA CONNECTING KEYPOINTS 19 18 23 24
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 14
AREA CONNECTING KEYPOINTS 20 19 24 25
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 15
AREA CONNECTING KEYPOINTS 21 26 27 22
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 16
AREA CONNECTING KEYPOINTS 23 22 27 28
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 17
AREA CONNECTING KEYPOINTS 24 23 28 29
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 18
AREA CONNECTING KEYPOINTS 25 24 29 30
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 19
AREA CONNECTING KEYPOINTS 26 31 32 27
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 20
AREA CONNECTING KEYPOINTS 27 32 33 28
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 21
AREA CONNECTING KEYPOINTS 29 28 33 34
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 22
AREA CONNECTING KEYPOINTS 30 29 34 35
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)
AREA NUMBER = 23
AREA CONNECTING KEYPOINTS 34 33 37 38
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

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AREA NUMBER = 24

AREA CONNECTING KEYPOINTS 35 34 38 39
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 25

AREA CONNECTING KEYPOINTS 36 40 41 37
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 26

AREA CONNECTING KEYPOINTS 38 37 41 42
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 27

AREA CONNECTING KEYPOINTS 39 38 42 43
(AREA INTERIOR AND GENERATED LINE SEGMENTS FITTED IN ACTIVE CSYS = 0)

AREA NUMBER = 28

DEFAULT NUMBER OF LINE SEGMENT DIVISIONS BASED ON ELEM. SIZE= 0.000E+00
USE ALL QUADRILATERAL ELEMENTS WHERE ELEMENT TYPE
ALLOWS A CHOICE BETWEEN QUADRILATERALS AND TRIANGLES.
USE ALL BRICK ELEMENTS WHERE ELEMENT TYPE
ALLOWS A CHOICE BETWEEN BRICKS AND OTHER SHAPES.

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 1

REAL CONSTANT NUMBER= 1

GENERATE NODES AND ELEMENTS
IN AREAS 1 TO 8 IN STEPS OF 1

** MESHING OF AREA	1.	IN PROGRESS **	
** MESHING OF AREA	1.	COMPLETED **	14. ELEMENTS
** MESHING OF AREA	2.	IN PROGRESS **	
** MESHING OF AREA	2.	COMPLETED **	28. ELEMENTS
** MESHING OF AREA	3.	IN PROGRESS **	
** MESHING OF AREA	3.	COMPLETED **	35. ELEMENTS
** MESHING OF AREA	4.	IN PROGRESS **	
** MESHING OF AREA	4.	COMPLETED **	21. ELEMENTS
** MESHING OF AREA	5.	IN PROGRESS **	
** MESHING OF AREA	5.	COMPLETED **	6. ELEMENTS
** MESHING OF AREA	6.	IN PROGRESS **	
** MESHING OF AREA	6.	COMPLETED **	12. ELEMENTS
** MESHING OF AREA	7.	IN PROGRESS **	
** MESHING OF AREA	7.	COMPLETED **	15. ELEMENTS
** MESHING OF AREA	8.	IN PROGRESS **	
** MESHING OF AREA	8.	COMPLETED **	9. ELEMENTS

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NUMBER OF AREAS MESHED = 8
MAXIMUM NODE NUMBER = 2165
MAXIMUM ELEMENT NUMBER = 1116

REAL CONSTANT NUMBER= 11

GENERATE NODES AND ELEMENTS
IN AREAS 9 TO 9 IN STEPS OF 1

***WARNING *** CP= 541.840 TIME= 11.00047
AREA 9. HAS A CORNER ANGLE OF 38.6 DEGREES
NOT RECOMMENDED FOR QUADRILATERAL ELEMENTS

** MESHING OF AREA 9. IN PROGRESS **
** MESHING OF AREA 9. COMPLETED ** 6. ELEMENTS

NUMBER OF AREAS MESHED = 1
MAXIMUM NODE NUMBER = 2174
MAXIMUM ELEMENT NUMBER = 1122

REAL CONSTANT NUMBER= 1

GENERATE NODES AND ELEMENTS
IN AREAS 10 TO 15 IN STEPS OF 1

** MESHING OF AREA 10. IN PROGRESS **
** MESHING OF AREA 10. COMPLETED ** 12. ELEMENTS

** MESHING OF AREA 11. IN PROGRESS **
** MESHING OF AREA 11. COMPLETED ** 15. ELEMENTS

** MESHING OF AREA 12. IN PROGRESS **
** MESHING OF AREA 12. COMPLETED ** 9. ELEMENTS

** MESHING OF AREA 13. IN PROGRESS **
** MESHING OF AREA 13. COMPLETED ** 12. ELEMENTS

** MESHING OF AREA 14. IN PROGRESS **
** MESHING OF AREA 14. COMPLETED ** 15. ELEMENTS

** MESHING OF AREA 15. IN PROGRESS **
** MESHING OF AREA 15. COMPLETED ** 9. ELEMENTS

NUMBER OF AREAS MESHED = 6
MAXIMUM NODE NUMBER = 2249
MAXIMUM ELEMENT NUMBER = 1194

REAL CONSTANT NUMBER= 11

GENERATE NODES AND ELEMENTS
IN AREAS 16 TO 16 IN STEPS OF 1

***WARNING *** CP= 542.440 TIME= 11.00064
AREA 16. HAS A CORNER ANGLE OF 141.4 DEGREES
NOT RECOMMENDED FOR QUADRILATERAL ELEMENTS

** MESHING OF AREA 16. IN PROGRESS **
** MESHING OF AREA 16. COMPLETED ** 4. ELEMENTS

NUMBER OF AREAS MESHED = 1
MAXIMUM NODE NUMBER = 2257
MAXIMUM ELEMENT NUMBER = 1198

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REAL CONSTANT NUMBER= 1

GENERATE NODES AND ELEMENTS
IN AREAS 17 TO 19 IN STEPS OF 1

** MESHING OF AREA 17. IN PROGRESS **
** MESHING OF AREA 17. COMPLETED ** 8. ELEMENTS

** MESHING OF AREA 18. IN PROGRESS **
** MESHING OF AREA 18. COMPLETED ** 10. ELEMENTS

** MESHING OF AREA 19. IN PROGRESS **
** MESHING OF AREA 19. COMPLETED ** 6. ELEMENTS

NUMBER OF AREAS MESHED = 3
MAXIMUM NODE NUMBER = 2281
MAXIMUM ELEMENT NUMBER = 1222

REAL CONSTANT NUMBER= 11

GENERATE NODES AND ELEMENTS
IN AREAS 20 TO 21 IN STEPS OF 1

** MESHING OF AREA 20. IN PROGRESS **
** MESHING OF AREA 20. COMPLETED ** 4. ELEMENTS

** MESHING OF AREA 21. IN PROGRESS **
** MESHING OF AREA 21. COMPLETED ** 8. ELEMENTS

NUMBER OF AREAS MESHED = 2
MAXIMUM NODE NUMBER = 2295
MAXIMUM ELEMENT NUMBER = 1234

REAL CONSTANT NUMBER= 1

GENERATE NODES AND ELEMENTS
IN AREAS 22 TO 25 IN STEPS OF 1

** MESHING OF AREA 22. IN PROGRESS **
** MESHING OF AREA 22. COMPLETED ** 10. ELEMENTS

** MESHING OF AREA 23. IN PROGRESS **
** MESHING OF AREA 23. COMPLETED ** 6. ELEMENTS

***WARNING *** CP= 542.820 TIME= 11.00075
AREA 24. HAS A CORNER ANGLE OF 42.4 DEGREES
NOT RECOMMENDED FOR QUADRILATERAL ELEMENTS

** MESHING OF AREA 24. IN PROGRESS **
** MESHING OF AREA 24. COMPLETED ** 45. ELEMENTS

** MESHING OF AREA 25. IN PROGRESS **
** MESHING OF AREA 25. COMPLETED ** 27. ELEMENTS

NUMBER OF AREAS MESHED = 4
MAXIMUM NODE NUMBER = 2392
MAXIMUM ELEMENT NUMBER = 1322

REAL CONSTANT NUMBER= 11

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GENERATE NODES AND ELEMENTS
IN AREAS 26 TO 26 IN STEPS OF 1

** MESHING OF AREA 26. IN PROGRESS **
** MESHING OF AREA 26. COMPLETED ** 24. ELEMENTS

NUMBER OF AREAS MESHED = 1
MAXIMUM NODE NUMBER = 2426
MAXIMUM ELEMENT NUMBER = 1346

REAL CONSTANT NUMBER= 1

GENERATE NODES AND ELEMENTS
IN AREAS 27 TO 28 IN STEPS OF 1

** MESHING OF AREA 27. IN PROGRESS **
** MESHING OF AREA 27. COMPLETED ** 20. ELEMENTS

** MESHING OF AREA 28. IN PROGRESS **
** MESHING OF AREA 28. COMPLETED ** 12. ELEMENTS

NUMBER OF AREAS MESHED = 2
MAXIMUM NODE NUMBER = 2458
MAXIMUM ELEMENT NUMBER = 1378

MERGE COINCIDENT NODES WITHIN TOLERANCE OF 0.10000

NODE	USED FOR NODES	1	173	2000	2001
NODE 1	USED FOR NODES	1	173	2000	2001
NODE 2	USED FOR NODES	2	2003		
NODE 3	USED FOR NODES	3	2002		
NODE 4	USED FOR NODES	4	2026		
NODE 5	USED FOR NODES	5	2027		
NODE 6	USED FOR NODES	6	2028		
NODE 7	USED FOR NODES	7	2025		
NODE 8	USED FOR NODES	8	2058		
NODE 9	USED FOR NODES	9	2059		
NODE 10	USED FOR NODES	10	2060		
NODE 11	USED FOR NODES	11	2061		
NODE 12	USED FOR NODES	12	2057		
NODE 13	USED FOR NODES	13	2098		
NODE 14	USED FOR NODES	14	2099		
NODE 15	USED FOR NODES	15	2097		
NODE 172	USED FOR NODES	172	2005		
NODE 16	USED FOR NODES	16	2103		
NODE 17	USED FOR NODES	17	2104		
NODE 171	USED FOR NODES	171	2006		
NODE 18	USED FOR NODES	18	2105		
NODE 170	USED FOR NODES	170	2007		
NODE 19	USED FOR NODES	19	2106		
NODE 169	USED FOR NODES	169	2008		
NODE 168	USED FOR NODES	168	2009		
NODE 20	USED FOR NODES	20	2107		
NODE 167	USED FOR NODES	167	2010		
NODE 21	USED FOR NODES	21	2108		
NODE 22	USED FOR NODES	22	2100		
NODE 166	USED FOR NODES	166	2004		
NODE 165	USED FOR NODES	165	2122		
NODE 23	USED FOR NODES	23	2160		
NODE 164	USED FOR NODES	164	2123		
NODE 24	USED FOR NODES	24	2161		
NODE 25	USED FOR NODES	25	2157		
NODE 163	USED FOR NODES	163	2121		
NODE 100	USED FOR NODES	100	2167		
NODE 26	USED FOR NODES	26	2205		
NODE 99	USED FOR NODES	99	2168		
NODE 27	USED FOR NODES	27	2206		
NODE 98	USED FOR NODES	98	2166		
NODE 97	USED FOR NODES	97	2170		

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NODE	28	USED FOR NODES	28	2202
NODE	96	USED FOR NODES	96	2169
NODE	95	USED FOR NODES	95	2212
NODE	29	USED FOR NODES	29	2244
NODE	30	USED FOR NODES	30	2245
NODE	94	USED FOR NODES	94	2213
NODE	93	USED FOR NODES	93	2211
NODE	31	USED FOR NODES	31	2241
NODE	92	USED FOR NODES	92	2256
NODE	91	USED FOR NODES	91	2250
NODE	32	USED FOR NODES	32	2279
NODE	90	USED FOR NODES	90	2252
NODE	89	USED FOR NODES	89	2251
NODE	33	USED FOR NODES	33	2276
NODE	88	USED FOR NODES	88	2283
NODE	87	USED FOR NODES	87	2282
NODE	86	USED FOR NODES	86	2285
NODE	85	USED FOR NODES	85	2284
NODE	34	USED FOR NODES	34	2309
NODE	84	USED FOR NODES	84	2289
NODE	83	USED FOR NODES	83	2290
NODE	82	USED FOR NODES	82	2291
NODE	35	USED FOR NODES	35	2306
NODE	81	USED FOR NODES	81	2288
NODE	80	USED FOR NODES	80	2313
NODE	36	USED FOR NODES	36	2369
NODE	79	USED FOR NODES	79	2314
NODE	37	USED FOR NODES	37	2370
NODE	78	USED FOR NODES	78	2315
NODE	38	USED FOR NODES	38	2371
NODE	77	USED FOR NODES	77	2316
NODE	39	USED FOR NODES	39	2372
NODE	40	USED FOR NODES	40	2373
NODE	76	USED FOR NODES	76	2317
NODE	41	USED FOR NODES	41	2374
NODE	75	USED FOR NODES	75	2318
NODE	42	USED FOR NODES	42	2375
NODE	74	USED FOR NODES	74	2319
NODE	43	USED FOR NODES	43	2376
NODE	73	USED FOR NODES	73	2320
NODE	72	USED FOR NODES	72	2312
NODE	44	USED FOR NODES	44	2366
NODE	71	USED FOR NODES	71	2411
NODE	70	USED FOR NODES	70	2410
NODE	69	USED FOR NODES	69	2409
NODE	45	USED FOR NODES	45	2450
NODE	68	USED FOR NODES	68	2408
NODE	67	USED FOR NODES	67	2407
NODE	66	USED FOR NODES	66	2393
NODE	65	USED FOR NODES	65	2395
NODE	46	USED FOR NODES	46	2451
NODE	64	USED FOR NODES	64	2396
NODE	47	USED FOR NODES	47	2452
NODE	63	USED FOR NODES	63	2397
NODE	48	USED FOR NODES	48	2447
NODE	49	USED FOR NODES	49	2449
NODE	50	USED FOR NODES	50	2448
NODE	51	USED FOR NODES	51	2427
NODE	52	USED FOR NODES	52	2431
NODE	53	USED FOR NODES	53	2430
NODE	54	USED FOR NODES	54	2429
NODE	55	USED FOR NODES	55	2428
NODE	56	USED FOR NODES	56	2398
NODE	57	USED FOR NODES	57	2403
NODE	58	USED FOR NODES	58	2402
NODE	59	USED FOR NODES	59	2401
NODE	60	USED FOR NODES	60	2400
NODE	61	USED FOR NODES	61	2399
NODE	62	USED FOR NODES	62	2394

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C*** Defining Wall Masses On Wall Top

ELEMENT TYPE SET TO 2

REAL CONSTANT NUMBER= 101
ELEMENT 1379 1601

GENERATE 62 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 1
SET IS SELECTED ELEMENTS IN RANGE 1379 TO 1379 IN STEPS OF 1

INCREMENTS MAT= 0 TYPE= 0 REAL= 1 ESYS= 0
NUMBER OF ELEMENTS= 1440

REAL CONSTANT NUMBER= 215
ELEMENT 1441 1615

GENERATE 34 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 1
SET IS SELECTED ELEMENTS IN RANGE 1441 TO 1441 IN STEPS OF 1

INCREMENTS MAT= 0 TYPE= 0 REAL= 1 ESYS= 0
NUMBER OF ELEMENTS= 1474

REORDER SELECTED ELEMENTS BY SORTING ON CENTROID X LOCATION.

ELEMENTS ARE SORTED IN ASCENDING ORDER
IN COORDINATE SYSTEM 0

REORDERED ELEMENTS ARE STORED AFTER PREVIOUS (IF ANY) REORDERED ELEMENTS.

KEEP NEW ORDERING BASED ON MAX WAVEFRONT

*** NOTE ***
NEW MAX WF(DOF)= 294. PREVIOUS MAX= 804.
NEW RMS WF(DOF)= 197. PREVIOUS MAX= 702.

REORDER SELECTED ELEMENTS BY SORTING ON CENTROID Y LOCATION.

ELEMENTS ARE SORTED IN ASCENDING ORDER
IN COORDINATE SYSTEM 0

REORDERED ELEMENTS ARE STORED AFTER PREVIOUS (IF ANY) REORDERED ELEMENTS.

KEEP NEW ORDERING BASED ON MAX WAVEFRONT

*** NOTE ***
NEW MAX WF(DOF)= 594. PREVIOUS MAX= 294.
NEW RMS WF(DOF)= 437. PREVIOUS MAX= 197.

*** NOTE ***
PREVIOUS ORDERING RESTORED

REORDER SELECTED ELEMENTS BY SORTING ON CENTROID Z LOCATION.

ELEMENTS ARE SORTED IN ASCENDING ORDER
IN COORDINATE SYSTEM 0

REORDERED ELEMENTS ARE STORED AFTER PREVIOUS (IF ANY) REORDERED ELEMENTS.

KEEP NEW ORDERING BASED ON MAX WAVEFRONT

*** NOTE ***
NEW MAX WF(DOF)= 396. PREVIOUS MAX= 294.
NEW RMS WF(DOF)= 351. PREVIOUS MAX= 197.

*** NOTE ***
PREVIOUS ORDERING RESTORED

C*** Define Boundary Conditions Along Symmetric Nodes

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NRSE FOR LABEL= Y BETWEEN=0.10000 AND 0.10000 KABS= 0.
TOLERANCE= 0.000000E+00

56 NODES (OF 1450 DEFINED) SELECTED BY NRSE COMMAND.

SPECIFIED DISP UY FOR ALL SELECTED NODES
VALUES= 0.000000E+00 0.000000E+00 ADDITIONAL DOFS= ROTX ROTZ

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

SPECIFIED DISP UX FOR SELECTED NODES IN RANGE 1 TO 1 BY 1
VALUES= 0.000000E+00 0.000000E+00 ADDITIONAL DOFS=
Loading

NITTER= 1 NPRINT= 1 NPOST= 1

ALL PRINT CONTROLS RESET TO 1
ALL POST DATA FILE CONTROLS RESET TO 1

REACTION FORCE KEY= 1 CALCULATE AND PRINT NODAL AND REACTION FORCES.

ALL NODAL DISPLACEMENTS SUPPRESSED

ELEM.TYPE= 1 STIF= 63 STRESS PRINT FREQ= 99900

ELEM.TYPE= 2 STIF= 21 STRESS PRINT FREQ= 99900

REACTION FORCE PRINT FREQUENCY= 99900

ELEM.TYPE= 1 STIF= 63 NODAL FORCE PRINT FREQ=99900

ELEM.TYPE= 2 STIF= 21 NODAL FORCE PRINT FREQ=99900

C*** Load Case 1

C*** Unfactored Gravity Load

ACEL= 0.000000E+00 0.000000E+00 386.40

LOAD STEP 1 WRITTEN ON FILE23

C***

KUSE= 1

C*** Load Case 2

C*** Unfactored Pressure Load

DELETE FORCE DEFINITION OF ALL FOR ALL SELECTED NODES

ACEL= 0.000000E+00 0.000000E+00 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 401 TO 401 BY 1
VALUES= 260.76 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 402 TO 402 BY 1
VALUES= 521.51 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 403 TO 403 BY 1
VALUES= 664.46 0.000000E+00

SPECIFIED FORCE FX FOR SELECTED NODES IN RANGE 404 TO 404 BY 1
VALUES= 805.83 0.000000E+00

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SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	405 TO	405 BY	1
VALUES= 805.83	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	406 TO	406 BY	1
VALUES= 805.83	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	407 TO	407 BY	1
VALUES= 1211.1	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	408 TO	408 BY	1
VALUES= 1614.8	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	409 TO	409 BY	1
VALUES= 1614.8	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	410 TO	410 BY	1
VALUES= 1614.8	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	411 TO	411 BY	1
VALUES= 1614.8	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	412 TO	412 BY	1
VALUES= 1368.2	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	413 TO	413 BY	1
VALUES= 1121.6	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	414 TO	414 BY	1
VALUES= 1121.6	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	415 TO	415 BY	1
VALUES= 560.78	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	415 TO	415 BY	1
VALUES= 928.99	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	416 TO	416 BY	1
VALUES= 1862.0	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	417 TO	417 BY	1
VALUES= 1862.0	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	418 TO	418 BY	1
VALUES= 1862.0	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	419 TO	419 BY	1
VALUES= 1862.0	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	420 TO	420 BY	1
VALUES= 1862.0	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	421 TO	421 BY	1
VALUES= 1862.0	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	422 TO	422 BY	1
VALUES= 1660.1	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	423 TO	423 BY	1
VALUES= 1454.1	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	424 TO	424 BY	1
VALUES= 1454.1	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	425 TO	425 BY	1
VALUES= 1102.7	0.00000E+00			
SPECIFIED FORCE FY	FOR SELECTED NODES IN RANGE	426 TO	426 BY	1
VALUES= 755.31	0.00000E+00			

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SPECIFIED FORCE FY VALUES= 755.31	FOR SELECTED NODES IN RANGE	427 TO	427 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 650.30	FOR SELECTED NODES IN RANGE	428 TO	428 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 549.32	FOR SELECTED NODES IN RANGE	429 TO	429 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 549.32	FOR SELECTED NODES IN RANGE	430 TO	430 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 690.69	FOR SELECTED NODES IN RANGE	431 TO	431 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 836.09	FOR SELECTED NODES IN RANGE	432 TO	432 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1118.8	FOR SELECTED NODES IN RANGE	433 TO	433 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1405.6	FOR SELECTED NODES IN RANGE	434 TO	434 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1215.8	FOR SELECTED NODES IN RANGE	435 TO	435 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1030.0	FOR SELECTED NODES IN RANGE	436 TO	436 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1030.0	FOR SELECTED NODES IN RANGE	437 TO	437 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1030.0	FOR SELECTED NODES IN RANGE	438 TO	438 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1025.9	FOR SELECTED NODES IN RANGE	439 TO	439 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1025.9	FOR SELECTED NODES IN RANGE	440 TO	440 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1030.0	FOR SELECTED NODES IN RANGE	441 TO	441 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1030.0	FOR SELECTED NODES IN RANGE	442 TO	442 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1030.0	FOR SELECTED NODES IN RANGE	443 TO	443 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1183.5	FOR SELECTED NODES IN RANGE	444 TO	444 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1336.9	FOR SELECTED NODES IN RANGE	445 TO	445 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1341.0	FOR SELECTED NODES IN RANGE	446 TO	446 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 1341.0	FOR SELECTED NODES IN RANGE	447 TO	447 BY	1
	0.00000E+00			
SPECIFIED FORCE FY VALUES= 670.49	FOR SELECTED NODES IN RANGE	448 TO	448 BY	1
	0.00000E+00			
SPECIFIED FORCE FX VALUES= -560.78	FOR SELECTED NODES IN RANGE	448 TO	448 BY	1
	0.00000E+00			
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	449 TO	449 BY	1

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VALUES= -1121.6	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	450 TO	450 BY	1	
VALUES= -1121.6	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	451 TO	451 BY	1	
VALUES= -1368.2	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	452 TO	452 BY	1	
VALUES= -1614.8	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	453 TO	453 BY	1	
VALUES= -1614.8	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	454 TO	454 BY	1	
VALUES= -1614.8	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	455 TO	455 BY	1	
VALUES= -1614.8	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	456 TO	456 BY	1	
VALUES= -1162.4	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	457 TO	457 BY	1	
VALUES= -711.58	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	458 TO	458 BY	1	
VALUES= -711.58	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	459 TO	459 BY	1	
VALUES= -711.58	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	460 TO	460 BY	1	
VALUES= -711.58	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	461 TO	461 BY	1	
VALUES= -711.58	0.00000E+00				
SPECIFIED FORCE FX	FOR SELECTED NODES IN RANGE	462 TO	462 BY	1	
VALUES= -355.01	0.00000E+00				

LOAD STEP 2 WRITTEN ON FILE23

C***

KUSE= 1

C*** Load Case 3

C*** Unfactored Pump Load (10000 lb)

DELETE FORCE DEFINITION OF ALL FOR ALL SELECTED NODES

ACEL= 0.00000E+00 0.00000E+00 0.00000E+00

SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	66 TO	66 BY	1	
VALUES= -98.000	0.00000E+00				
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	67 TO	67 BY	1	
VALUES= -196.00	0.00000E+00				
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	68 TO	68 BY	1	
VALUES= -196.00	0.00000E+00				
SPECIFIED FORCE FZ	FOR SELECTED NODES IN RANGE	69 TO	69 BY	1	
VALUES= -196.00	0.00000E+00				

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SPECIFIED FORCE FZ VALUES= -196.00	FOR SELECTED NODES IN RANGE 0.00000E+00	70 TO	70 BY	1
SPECIFIED FORCE FZ VALUES= -196.00	FOR SELECTED NODES IN RANGE 0.00000E+00	71 TO	71 BY	1
SPECIFIED FORCE FZ VALUES= -245.00	FOR SELECTED NODES IN RANGE 0.00000E+00	72 TO	72 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	73 TO	73 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	74 TO	74 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	75 TO	75 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	76 TO	76 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	77 TO	77 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	78 TO	78 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	79 TO	79 BY	1
SPECIFIED FORCE FZ VALUES= -294.00	FOR SELECTED NODES IN RANGE 0.00000E+00	80 TO	80 BY	1
SPECIFIED FORCE FZ VALUES= -261.00	FOR SELECTED NODES IN RANGE 0.00000E+00	81 TO	81 BY	1
SPECIFIED FORCE FZ VALUES= -228.50	FOR SELECTED NODES IN RANGE 0.00000E+00	82 TO	82 BY	1
SPECIFIED FORCE FZ VALUES= -228.50	FOR SELECTED NODES IN RANGE 0.00000E+00	83 TO	83 BY	1
SPECIFIED FORCE FZ VALUES= -228.50	FOR SELECTED NODES IN RANGE 0.00000E+00	84 TO	84 BY	1
SPECIFIED FORCE FZ VALUES= -180.00	FOR SELECTED NODES IN RANGE 0.00000E+00	85 TO	85 BY	1
SPECIFIED FORCE FZ VALUES= -132.00	FOR SELECTED NODES IN RANGE 0.00000E+00	86 TO	86 BY	1
SPECIFIED FORCE FZ VALUES= -66.000	FOR SELECTED NODES IN RANGE 0.00000E+00	87 TO	87 BY	1

LOAD STEP 3 WRITTEN ON FILE23

C***

KUSE= 1

C*** Load Case 4

C*** Unfactored Riser Load (100 lb)

DELETE FORCE DEFINITION OF ALL FOR ALL SELECTED NODES

ACEL= 0.00000E+00 0.00000E+00 0.00000E+00

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SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 166 TO 166 BY 1
VALUES= -100.00 0.00000E+00

LOAD STEP 4 WRITTEN ON FILE23

C***

C*** Load Case 5

C*** Unfactored 12" Riser Load Of 3000 lb

DELETE FORCE DEFINITION OF ALL FOR ALL SELECTED NODES

ACEL= 0.00000E+00 0.00000E+00 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 91 TO 91 BY 1
VALUES= -107.25 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 92 TO 92 BY 1
VALUES= -214.35 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 93 TO 93 BY 1
VALUES= -214.05 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 94 TO 94 BY 1
VALUES= -214.20 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 95 TO 95 BY 1
VALUES= -214.35 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 96 TO 96 BY 1
VALUES= -214.35 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 97 TO 97 BY 1
VALUES= -214.35 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 98 TO 98 BY 1
VALUES= -107.10 0.00000E+00

LOAD STEP 5 WRITTEN ON FILE23

C***

*** NOTE ***
NO TITLE DEFINED FOR ANALYSIS

*** NOTE ***
DATA CHECKED - NO ERRORS FOUND

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= TITLE
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 2
1474 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 1474
1450 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 2458
43 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 43
70 LINE SEG CURRENTLY SELECTED. MAX LINE SEG NUMBER = 70
28 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 28
MAXIMUM LINEAR PROPERTY NUMBER= 2
MAXIMUM REAL CONSTANT SET NUMBER= 248
ACTIVE COORDINATE SYSTEM= 0 (CARTESIAN)
NUMBER OF IMPOSED DISPLACEMENTS= 169

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NUMBER OF NODAL FORCES= 8

ANALYSIS DATA WRITTEN ON FILE27

ENTER FINISH TO LEAVE PREP7

IF YOU WANT TO RUN THIS ANALYSIS, ENTER AFTER PREP7 FINISH -
/CHECK * (OPTIONAL) ENTER ONLY IF CHECK RUN IS DESIRED
/INPUT,27

THEN ENTER FINISH AT LOPT-INP PROMPT AT END OF ANALYSIS

***** END OF INPUT ENCOUNTERED ON FILE38. FILE38 REWOUND

***** INPUT FILE SWITCHED FROM FILE38 TO FILE 5

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/CORE,,,5E6
/POST1
/OUT,Pit3,po
C*** Stress Specifications
GLOBAL,0
STORE,STRES,DISP,NFORC,RFORC
C***
STRESS,FXc, 63,1
STRESS,FYc, 63,2
STRESS,FXYc,63,3
STRESS,MXc, 63,6
STRESS,MYc, 63,7
STRESS,MXYc,63,8
C***
LCCLIM,6
NLINE,9999

C***
C*** Load Case 1 - Unfactored Gravity Load
C***
C*** Load Case 2 - Unfactored Pressure Load
C***
C*** Load Case 3 - Unfactored Pump Load 10,000 lb
C***
C*** Load Case 4 - Unfactored Riser Load 200 lb
C***
C*** Load Case 5 - Unfactored 12" Riser Load Of 3,000 lb
C***

NFILE,Pit3,12 ,1

LCASE,1 $SET, 1, 1 * Read in Load Case 1
LCASE,2 $SET, 2, 1 * Read in Load Case 2
LCASE,3 $SET, 3, 1 * Read in Load Case 3
LCASE,4 $SET, 4, 1 * Read in Load Case 4
LCASE,5 $SET, 5, 1 * Read in Load Case 5

LCABS,0

C***

/OUT,Pit3a1,po
C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H
LCFACT,1.4,1.7,0.0,1.7,1.7,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit3a2,po
C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H
NSEL,, 1,172,1
NUSEL,,101,162,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit3a3,po
C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit3a4,po
C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H
NALL
PRRFOR

/OUT,Pit3b1,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
LCFACT,1.4,1.7,1.7*20.0,1.7,1.7,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6

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ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit3b2,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
NSEL,, 1,172,1
NUSEL,,101,162,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit3b3,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit3b4,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H
NALL
PRRFOR

/OUT,Pit3c1,po
C*** Output For Factored Pump Column Load of      0 lb + 1.4DL + 1.7L + 0.9H
LCFACT,1.4,0.9,0.0,1.7,1.7,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit3c2,po
C*** Output For Factored Pump Column Load of      0 lb + 1.4DL + 1.7L + 0.9H
NSEL,, 1,172,1
NUSEL,,101,162,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit3c3,po
C*** Output For Factored Pump Column Load of      0 lb + 1.4DL + 1.7L + 0.9H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit3c4,po
C*** Output For Factored Pump Column Load of      0 lb + 1.4DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit3d1,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
LCFACT,1.4,0.9,1.7*20.0,1.7,1.7,1.,1.,1.,1.,1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE,6
ESEL,REAL,1,11,10
PRSTRS,FXc,FYc,FXYc,MXc,MYc,MXYc
/OUT,Pit3d2,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
NSEL,, 1,172,1
NUSEL,,101,162,1
ENODE
EUSEL,REAL,2,3
NFORC
/OUT,Pit3d3,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
ESEL,REAL,1,11,10
NELEM
PRDISP
/OUT,Pit3d4,po
C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT,Pit3e1,po
C*** Output For Factored Pump Column Load of      0 lb + 0.9DL + 1.7L + 0.9H
LCFACT,0.9,0.9,0.0,1.7,1.7,1.,1.,1.,1.,1.

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LCADD, 6, 1, 2, 3, 4, 5
LCASE, 6
ESEL, REAL, 1, 11, 10
PRSTRS, FXc, FYc, FXYc, MXc, MYc, MXYc
/OUT, Pit3e2, po
C*** Output For Factored Pump Column Load of      0 lb + 0.9DL + 1.7L + 0.9H
NSSEL, , 1, 172, 1
NUSEL, , 101, 162, 1
ENODE
EUSEL, REAL, 2, 3
NFORC
/OUT, Pit3e3, po
C*** Output For Factored Pump Column Load of      0 lb + 0.9DL + 1.7L + 0.9H
ESEL, REAL, 1, 11, 10
NELEM
PRDISP
/OUT, Pit3e4, po
C*** Output For Factored Pump Column Load of      0 lb + 0.9DL + 1.7L + 0.9H
NALL
PRRFOR

/OUT, Pit3f1, po
C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
LCFACT, 0.9, 0.9, 1.7*20.0, 1.7, 1.7, 1., 1., 1., 1., 1.
LCADD, 6, 1, 2, 3, 4, 5
LCASE, 6
ESEL, REAL, 1, 11, 10
PRSTRS, FXc, FYc, FXYc, MXc, MYc, MXYc
/OUT, Pit3f2, po
C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
NSSEL, , 1, 172, 1
NUSEL, , 101, 162, 1
ENODE
EUSEL, REAL, 2, 3
NFORC
/OUT, Pit3f3, po
C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
ESEL, REAL, 1, 11, 10
NELEM
PRDISP
/OUT, Pit3f4, po
C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H
NALL
PRRFOR

FINISH
/EOF

```

FILENAME : PIT3.PO DATE : 05-25-94 TIME : 2:11p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 1/25)

PAGE 1

C*** Stress Specifications

USE NODAL COORDINATES FOR DISPLACEMENTS AND FORCES --
USE ELEMENT COORDINATES FOR COMPONENT STRESSES
STORE DISPLACEMENTS
STORE STRESSES
STORE NODAL FORCES
STORE REACTION FORCES

C***

STORE FXC	FOR ELEMENT TYPE STIF 63	FROM ITEM	1
STORE FYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	2
STORE FXYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	3
STORE MXC	FOR ELEMENT TYPE STIF 63	FROM ITEM	6
STORE MYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	7
STORE MXYC	FOR ELEMENT TYPE STIF 63	FROM ITEM	8

C***

MAXIMUM NUMBER OF STORED LOAD SETS SET TO 6
ALL PREVIOUSLY STORED SETS ERASED

NUMBER OF LINES PER PAGE=9999

C***

C*** Load Case 1 - Unfactored Gravity Load

C***

C*** Load Case 2 - Unfactored Pressure Load

C***

C*** Load Case 3 - Unfactored Pump Load 10,000 lb

C***

C*** Load Case 4 - Unfactored Riser Load 200 lb

C***

C*** Load Case 5 - Unfactored 12" Riser Load Of 3,000 lb

C***

POST DATA FILE12 NAME=PIT3.12

MAXIMUM NUMBER OF STORED LOAD SETS SET TO 6

FILENAME : PIT3.PO DATE : 05-25-94 TIME : 2:11p
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ALL PREVIOUSLY STORED SETS ERASED

CURRENT LOAD CASE= 1

USE LOAD STEP 1 ITERATION 1 SECTION 1 FOR LOAD CASE 1

GEOMETRY STORED FOR 1450 NODES 1474 ELEMENTS
TITLE= TITLE

DISPLACEMENT STORED FOR 1450 NODES

***WARNING *** CP= 130.950 TIME= 14.15285
MODEL CONTAINS DIFFERENT MATERIAL TYPES, NODAL STRESS AVERAGING MAY
BE INVALID AMONG DISSIMILAR MATERIALS

***WARNING *** CP= 137.370 TIME= 14.15463
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 137.370 TIME= 14.15463
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 137.370 TIME= 14.15463
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 137.430 TIME= 14.15465
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 137.430 TIME= 14.15465
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 137.430 TIME= 14.15465
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1378 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1474 ELEMENTS

REACTIONS STORED FOR 169 REACTIONS

FOR LOAD STEP= 1 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= TITLE

CURRENT LOAD CASE= 2

USE LOAD STEP 2 ITERATION 1 SECTION 1 FOR LOAD CASE 2

DISPLACEMENT STORED FOR 1450 NODES

***WARNING *** CP= 178.620 TIME= 14.16609
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 178.620 TIME= 14.16609
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 178.620 TIME= 14.16609

E Att2-43

FILENAME : PIT3.PO DATE : 05-25-94 TIME : 2:11p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 1/25)

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DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 178.620 TIME= 14.16609
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 178.680 TIME= 14.16610
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 178.680 TIME= 14.16610
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1378 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1474 ELEMENTS

REACTIONS STORED FOR 169 REACTIONS

FOR LOAD STEP= 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 2
TITLE= TITLE

CURRENT LOAD CASE= 3

USE LOAD STEP 3 ITERATION 1 SECTION 1 FOR LOAD CASE 3

DISPLACEMENT STORED FOR 1450 NODES

***WARNING *** CP= 205.860 TIME= 14.17365
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 206.250 TIME= 14.17376
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 206.250 TIME= 14.17376
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 206.300 TIME= 14.17378
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 206.300 TIME= 14.17378
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 206.300 TIME= 14.17378
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1378 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1474 ELEMENTS

REACTIONS STORED FOR 169 REACTIONS

FOR LOAD STEP= 3 ITERATION= 1 SECTION= 1

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TIME= 0.000000E+00 LOAD CASE= 3
TITLE= TITLE

CURRENT LOAD CASE= 4

USE LOAD STEP 4 ITERATION 1 SECTION 1 FOR LOAD CASE 4

DISPLACEMENT STORED FOR 1450 NODES

***WARNING *** CP= 227.180 TIME= 14.17958
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 227.500 TIME= 14.17967
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 227.500 TIME= 14.17967
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 227.610 TIME= 14.17970
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 227.610 TIME= 14.17970
DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 227.610 TIME= 14.17970
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1378 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1474 ELEMENTS

REACTIONS STORED FOR 169 REACTIONS

FOR LOAD STEP= 4 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 4
TITLE= TITLE

CURRENT LOAD CASE= 5

USE LOAD STEP 5 ITERATION 1 SECTION 1 FOR LOAD CASE 5

DISPLACEMENT STORED FOR 1450 NODES

***WARNING *** CP= 254.200 TIME= 14.18708
DATA FOR STRESS LABEL FXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 254.310 TIME= 14.18711
DATA FOR STRESS LABEL FYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 254.310 TIME= 14.18711
DATA FOR STRESS LABEL FXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
FXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 254.310 TIME= 14.18711
DATA FOR STRESS LABEL MXC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 254.310 TIME= 14.18711

FILENAME : PIT3.PO DATE : 05-25-94 TIME : 2:11p
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DATA FOR STRESS LABEL MYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 254.470 TIME= 14.18716
DATA FOR STRESS LABEL MXYC HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXYC DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 1378 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

NODAL FORCES STORED FOR 1474 ELEMENTS

REACTIONS STORED FOR 169 REACTIONS

FOR LOAD STEP= 5 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 5
TITLE= TITLE

NO ABSOLUTE VALUE FOR LOAD CASE CALCULATIONS

C***

FILENAME : PIT3A1.PO DATE : 05-25-94 TIME : 2:13p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 2/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	1.70000
3	1.00000
4	1.70000
5	1.70000
6	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	1.70000	2	1	1	0.000000E+00
3	1.00000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00
5	1.70000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 14.2225 MAY 25,1994 CP= 381.460

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MYXC
977	-281.74012	-372.93335	-0.58548608E-01	587.78174	7032.1318	138.39385
978	-282.53886	-373.46203	-0.22755869E-02	584.02628	7056.9672	45.488954
979	-253.10015	-368.11970	4.0067153	-412.18315	3665.8316	215.21773
980	-253.73631	-368.71815	1.3188479	-411.47947	3675.2631	71.906527
981	-248.29450	-355.31521	6.6103769	-1433.6649	1170.6496	254.52064
982	-248.64424	-355.94426	2.2135372	-1437.5470	1174.2398	84.960145
983	-260.78482	-337.86504	7.9137948	-2422.3276	-646.04302	264.56825
984	-260.92497	-338.44234	2.6341849	-2430.2577	-648.40136	88.314061
985	-284.65121	-318.46196	8.2369309	-3329.5682	-1933.5525	252.96157
986	-284.64151	-318.98329	2.7546615	-3341.0347	-1939.9115	84.429162
987	-315.33379	-299.05001	7.9064184	-4121.5087	-2801.6020	225.79818
988	-315.22453	-299.54222	2.6273011	-4134.8506	-2811.3544	75.238747
989	-350.02360	-280.90540	7.1226269	-4783.4569	-3309.8111	192.21206
990	-349.84510	-281.46107	2.3802848	-4786.0192	-3314.7196	62.148597
991	-258.82137	-356.02928	0.63360232	559.78980	6472.9578	648.42585
992	-267.70342	-362.94231	0.44299610	552.62993	6694.1663	512.44211
993	-274.61147	-368.06091	0.16971601	557.93469	6848.9570	381.59433
994	-279.33972	-371.35612	-0.91990052E-02	558.14247	6961.1016	249.83873
995	-237.35531	-351.07796	19.954126	-374.84864	3363.7852	1024.7420
996	-243.34500	-357.76971	15.817278	-385.69253	3474.8644	820.81446
997	-247.98318	-362.84649	11.634483	-397.64990	3569.6241	609.93082
998	-251.29679	-366.31690	7.4300924	-404.50564	3635.3488	395.26604
999	-239.34920	-338.78984	32.017864	-1295.1268	1070.4798	1210.6986
1000	-242.73974	-345.22277	25.537110	-1347.5966	1107.1747	972.35141
1001	-245.40782	-350.11722	18.910547	-1388.0212	1139.3158	724.00656
1002	-247.29294	-353.51993	12.194460	-1414.2394	1161.0810	468.53300
1003	-257.25105	-322.74968	37.891738	-2180.8356	-594.00288	1258.0958
1004	-258.56938	-328.55823	30.372455	-2274.3215	-615.33833	1010.6021
1005	-259.62462	-333.05116	22.566931	-2344.7430	-628.94547	752.57274

FILENAME : PIT3A1.PO DATE : 05-25-94 TIME : 2:13p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 2/25)

1006	-260.38010	-336.19678	14.574223	-2391.8091	-638.92006	487.04717
1007	-284.81043	-305.34164	39.361654	-2990.7388	-1769.8286	1203.5259
1008	-284.76325	-310.27282	31.596641	-3123.1649	-1833.6934	966.88011
1009	-284.71671	-314.17792	23.496322	-3222.2838	-1881.0179	719.94742
1010	-284.67585	-316.96457	15.182901	-3288.9460	-1914.4176	465.80620
1011	-317.57128	-287.78899	38.264749	-3696.3214	-2565.3397	1080.9368
1012	-316.82988	-291.81483	30.601357	-3865.0704	-2656.2353	868.66154
1013	-316.16494	-295.17627	22.661401	-3990.4230	-2724.9897	646.09562
1014	-315.63708	-297.67920	14.588641	-4073.6167	-2773.7894	416.89573
1015	-352.68041	-270.15295	36.490715	-4277.8882	-3064.5783	924.24744
1016	-352.00225	-273.52358	28.742787	-4480.9893	-3167.2205	747.11148
1017	-351.21272	-276.73800	20.946728	-4632.9531	-3240.5838	558.39271
1018	-350.48522	-279.36052	13.290219	-4732.8842	-3287.2626	359.88907
1019	-83.529629	-183.54845	4.0918607	546.39967	2616.4224	1190.3138
1020	-128.63599	-239.87662	3.5001832	483.36448	3606.3617	1231.6199
1021	-172.45965	-284.00812	2.2716372	465.06976	4541.0379	1169.5588
1022	-210.57408	-317.53189	1.3322957	473.95874	5356.0870	1024.4176
1023	-240.90273	-342.02898	0.72346884	474.34711	6026.5183	821.32832
1024	-139.44198	-187.89326	39.544026	519.29265	1397.0807	1956.7202
1025	-160.77277	-238.88062	42.588000	176.43941	1869.0423	1987.4899
1026	-184.03059	-280.41583	39.656207	-63.188423	2340.3786	1860.0550
1027	-206.29349	-312.90162	33.538231	-224.14133	2776.5516	1618.7953
1028	-225.42454	-337.13755	25.980993	-320.40579	3145.5637	1303.1060
1029	-194.15380	-199.24189	54.214415	583.94988	548.84382	2302.3582
1030	-202.24227	-239.64802	60.867851	-85.801052	637.40670	2344.0120
1031	-212.32689	-274.60591	59.021478	-574.84242	756.23884	2199.0386
1032	-223.00918	-303.35580	51.699936	-921.34367	885.56769	1918.8093
1033	-232.90413	-325.65120	41.112146	-1152.7507	1003.1818	1541.7725
1034	-245.49635	-215.21817	57.457584	715.96640	-31.207421	2364.1923
1035	-246.04643	-243.05665	66.764515	-290.55300	-222.99956	2416.4082
1036	-248.21401	-269.33501	66.535094	-1037.4682	-367.97504	2275.7129
1037	-251.39073	-292.39317	59.594817	-1577.9629	-472.11841	1991.1853
1038	-254.83469	-311.24096	48.205965	-1953.0456	-545.87198	1601.2298
1039	-290.70954	-233.81782	55.008939	882.22704	-415.32361	2235.0899
1040	-287.95906	-248.68876	65.916357	-442.07725	-810.49872	2291.4786
1041	-286.16419	-265.35161	67.116826	-1436.7314	-1147.8652	2165.4688
1042	-285.26294	-281.61162	61.040336	-2166.3409	-1422.9770	1899.9472
1043	-284.91789	-296.03079	49.866814	-2681.5966	-1637.0904	1530.4151
1044	-328.06159	-253.18765	51.256436	1055.3996	-659.62053	1979.4118
1045	-325.15333	-255.74591	62.606911	-549.29565	-1198.5997	2034.1076
1046	-322.51566	-262.59363	64.728075	-1766.7563	-1671.2284	1928.3189
1047	-320.43435	-271.48603	59.415606	-2668.4510	-2065.7618	1697.3341
1048	-318.74028	-280.93158	48.641060	-3312.1404	-2376.2600	1371.4760
1049	-357.13234	-271.78882	48.939194	1215.4503	-806.83137	1643.9622
1050	-355.89178	-263.41651	59.907959	-622.22657	-1440.7304	1692.9674
1051	-354.62463	-260.75176	62.549326	-2026.4029	-2003.5989	1610.3427
1052	-353.84493	-261.90817	57.799425	-3072.9265	-2475.9175	1425.1262
1053	-353.28409	-265.87842	47.100100	-3825.8545	-2844.4877	1161.1469
1054	-26.651133	1.1470464	-7.1802887	737.78971	685.04945	500.98221
1055	-30.706215	-68.139756	-0.43484921	665.71509	1160.1103	837.24004
1056	-49.259521	-125.69054	3.2156478	609.17007	1782.2991	1052.6807
1057	-115.85732	-31.405127	-11.290133	1721.5630	612.59359	938.93670
1058	-117.53284	-89.622424	13.996213	1267.6237	787.20794	1448.8354
1059	-124.87189	-137.53583	29.767133	880.69001	1028.2434	1765.4234
1060	-189.58927	-95.120790	-16.237650	2978.4869	559.26467	1151.4241
1061	-188.23502	-128.65096	18.010160	2060.2132	517.17581	1713.4434
1062	-189.53834	-161.74906	39.455507	1300.5208	508.40276	2075.6323
1063	-249.23059	-165.04130	-18.625945	4261.4741	561.48805	1221.4714
1064	-248.03410	-175.60245	15.945673	2911.1549	356.25362	1766.7706
1065	-246.38222	-192.01974	39.869767	1790.1885	165.74208	2129.4433
1066	-294.98832	-228.53609	-17.720608	5453.1430	611.12213	1187.9447
1067	-295.11772	-222.62119	13.306291	3729.8235	279.93114	1678.8042
1068	-293.41786	-224.61664	36.504311	2286.0096	-45.603086	2012.8732
1069	-328.78260	-282.22563	-13.672471	6489.6685	684.21715	1076.9805
1070	-330.53040	-265.21299	12.641194	4461.6075	256.67498	1493.8485
1071	-330.11194	-256.17505	33.524436	2744.7198	-167.09577	1983.3773
1072	-352.61126	-326.20279	-7.0727394	7346.4163	751.03548	908.02975
1073	-356.08563	-301.99341	14.852753	5077.9401	261.71783	1247.4591
1074	-357.40867	-284.74353	32.898050	3139.7325	-230.84571	1484.3983
1075	-383.66342	-266.25386	6.2012830	-5286.4380	-3560.8563	188.61954

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1076	-383.43034	-267.14727	2.0063815	-5294.4825	-3563.0979	65.950887
1077	-417.88945	-255.10256	4.8528806	-5677.1959	-3590.2305	185.84324
1078	-417.40465	-256.97567	1.5869750	-5715.9464	-3594.8601	64.835436
1079	-468.54488	-243.44711	3.9888022	-6094.7840	-3326.7107	291.91913
1080	-468.59950	-249.86283	0.73829687	-6206.3955	-3280.4929	104.61979
1081	-384.76553	-253.49511	36.337780	-4683.9426	-3340.7265	777.01992
1082	-385.17247	-256.56679	27.756172	-4916.1455	-3438.7060	642.69326
1083	-384.90273	-260.36540	19.413208	-5096.3511	-3505.6591	494.92995
1084	-384.19613	-264.00022	11.829468	-5221.1793	-3544.3102	332.87295
1085	-412.18253	-236.58065	40.890340	-4915.9124	-3434.1496	665.42234
1086	-416.34300	-238.71760	30.209670	-5176.7924	-3517.6684	578.78542
1087	-418.51246	-243.83753	19.519840	-5396.3806	-3563.4441	470.51648
1088	-418.75214	-250.33064	10.467143	-5570.0010	-3581.7758	330.56553
1089	-431.77437	-219.20082	56.253088	-5010.8965	-3433.7978	577.65302
1090	-445.25373	-215.39289	44.563052	-5288.2597	-3495.5935	567.60289
1091	-458.09792	-219.08661	28.238174	-5566.6313	-3487.4263	541.53672
1092	-465.49944	-231.16883	12.575208	-5862.7955	-3411.6586	448.62482
1093	-376.51760	-287.14209	48.978434	1339.2319	-883.78910	1300.7714
1094	-377.23713	-270.42304	59.400745	-667.27412	-1582.4140	1343.6929
1095	-378.11524	-259.84888	62.619385	-2203.5230	-2198.7253	1284.9353
1096	-380.06187	-253.81413	58.696404	-3351.1545	-2714.0988	1148.7274
1097	-382.86585	-252.01169	47.964277	-4182.3818	-3112.0152	953.38037
1098	-387.87327	-299.41070	50.518084	1426.6768	-917.60324	984.10239
1099	-389.96283	-276.78927	60.549277	-685.00762	-1641.7311	1020.2431
1100	-392.52046	-260.21306	64.745353	-2303.7482	-2280.6006	984.88999
1101	-397.20675	-247.90321	62.709526	-3511.2644	-2811.1341	896.37946
1102	-405.00690	-239.51530	53.370266	-4385.3761	-3212.4944	773.24872
1103	-394.29508	-310.69324	52.955605	1491.8408	-930.37456	661.64087
1104	-397.04542	-283.49781	62.674852	-686.74957	-1664.2271	693.00655
1105	-400.24457	-262.28340	68.105949	-2356.4783	-2309.1789	683.47119
1106	-405.91730	-244.89522	69.292849	-3596.1427	-2836.4946	646.90986
1107	-417.58011	-229.61333	65.117484	-4481.2204	-3225.7538	600.91820
1108	-367.84657	-358.85085	0.96691268	7967.3368	826.38719	730.85245
1109	-372.44810	-329.98624	19.256861	5522.1450	282.56667	991.99901
1110	-375.11499	-307.23387	34.692616	3430.0196	-252.59416	1175.5091
1111	-376.99356	-382.74623	8.5859201	8360.6668	870.12494	560.35246
1112	-382.02535	-350.66136	24.281089	5815.0477	301.33616	750.18159
1113	-385.40535	-324.34613	37.707425	3623.7505	-260.41137	889.25889
1114	-382.34987	-402.78120	16.650263	8635.2421	883.64281	370.83972
1115	-387.63503	-368.46428	29.900226	6025.5670	316.62901	507.16713
1116	-391.33363	-339.34732	41.498866	2761.5876	-259.31123	599.56825
1117	-530.35858	-245.45600	10.638574	-6719.2902	-2801.2821	323.86919
1118	-613.26949	-236.54845	17.693371	-7396.2940	-2278.9966	559.33419
1119	-885.79889	-167.51356	128.14075	-8766.1806	-1345.6794	1202.5930
1120	-527.00354	-229.93664	9.1897991	-6508.4611	-2930.3294	557.75388
1121	-625.39074	-202.48574	39.826229	-6917.4880	-2538.7322	1071.5369
1122	-645.93094	-204.02343	232.41159	-7218.9587	-2258.3188	2416.1795
1123	-433.19766	-210.26409	77.298220	-4996.2333	-3415.2826	516.93839
1124	-455.07967	-197.50265	72.411352	-5246.7254	-3464.1192	584.00708
1125	-486.73998	-191.46985	55.773883	-5545.2580	-3408.8453	691.32441
1126	-518.80156	-206.33085	26.569996	-6013.9796	-3175.4119	733.48163
1127	-416.46418	-213.46140	90.553666	-4921.5241	-3338.8768	474.86656
1128	-433.60668	-196.01541	99.009414	-5095.5076	-3399.2995	588.87471
1129	-473.59388	-177.36140	100.89327	-5291.4543	-3355.1071	845.14851
1130	-552.84252	-173.11658	82.730225	-5873.5560	-2987.0053	1210.3774
1131	-391.69380	-223.14011	91.971854	-4826.7688	-3234.3924	429.87155
1132	-384.96333	-212.74096	111.14247	-4890.6474	-3313.3532	541.57247
1133	-392.53617	-188.74891	143.11741	-4780.4501	-3384.0548	884.49914
1134	-437.92834	-199.59224	189.83140	-4975.4888	-3088.6455	1898.0845
1135	-396.31516	-318.73798	55.054440	1527.8367	-932.60974	413.66897
1136	-399.16601	-288.78527	64.547878	-685.49465	-1686.6601	443.29734
1137	-402.21934	-264.91111	70.682693	-2373.7867	-2331.3745	458.67585
1138	-406.85851	-245.06811	74.212673	-3622.2920	-2846.1361	466.74063
1139	-417.34879	-226.40068	76.584568	-4498.1648	-3219.9480	478.76407
1140	-395.69784	-323.93130	56.425209	1545.2531	-930.88874	241.09741
1141	-398.43774	-292.48493	65.828941	-672.80210	-1678.5856	272.56106
1142	-401.28920	-267.17631	72.181932	-2359.1694	-2318.0598	309.33787
1143	-404.32107	-246.72412	76.350458	-3605.1613	-2816.4719	352.99166
1144	-408.88402	-228.86300	81.834860	-4466.0560	-3160.5065	403.78866
1145	-393.64071	-328.99935	57.639771	1558.2945	-926.18649	70.868475

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1146	-396.17925	-296.25820	67.118629	-650.27156	-1670.0196	102.75298
1147	-399.11301	-269.47342	73.591269	-2324.3513	-2301.9478	163.93918
1148	-401.05767	-248.45713	77.200878	-3561.6182	-2780.2832	250.06233
1149	-398.35026	-232.78345	81.832232	-4410.7398	-3086.3363	343.99555
1150	-384.62320	-416.03081	22.765526	8819.0056	955.20845	230.23514
1151	-389.76695	-380.36770	34.293987	6132.1271	334.07954	319.04776
1152	-393.35245	-349.60161	44.522310	3832.8590	-247.07305	373.01125
1153	-385.29358	-423.93728	26.705092	8882.7995	937.97434	134.77772
1154	-389.83831	-387.39227	37.018651	6171.4884	346.19453	184.96312
1155	-393.01184	-355.89788	46.419541	3859.0340	-243.56496	218.75942
1156	-385.04993	-430.98568	30.021742	8896.9177	930.97095	47.126033
1157	-388.85925	-393.77720	39.349235	6190.8815	349.37868	56.698425
1158	-391.43667	-361.78589	48.026358	3870.6562	-239.95452	61.655006
1159	-374.65869	-229.24600	79.525852	-4757.0325	-3128.9755	391.89720
1160	-345.25566	-233.18137	90.670732	-4765.1659	-3205.1683	452.65354
1161	-295.54294	-225.09124	127.18585	-4412.3178	-3432.1007	624.69990
1162	-214.10511	-228.21521	176.48578	-3512.7545	-4103.9690	1714.5244
1163	-369.80589	-230.92038	64.036002	-4698.2210	-3038.3060	406.12771
1164	-334.04161	-236.04005	56.851407	-4723.0523	-3063.2139	413.56388
1165	-254.16158	-255.35985	50.475693	-4370.0353	-3244.4089	360.20187
1166	-92.437896	-186.92750	36.203970	-2717.5821	-4287.0092	230.76561
1167	-382.90668	-220.67579	46.296362	-4669.6361	-2932.8622	414.58069
1168	-354.78119	-222.25239	19.937156	-4750.9339	-2918.8260	377.49473
1169	-296.98708	-219.86619	-37.396626	-4488.9137	-3002.2553	126.69891
1170	-195.05604	-162.63415	-111.68462	-3592.6370	-3436.5447	-1151.0571
1171	-390.71485	-333.34807	58.492251	1564.3019	-923.94863	-76.293308
1172	-393.00955	-299.63316	68.256690	-627.11102	-1667.3208	-43.411485
1173	-396.32807	-271.38858	74.983015	-2280.5433	-2292.8531	41.169361
1174	-398.55317	-249.28365	77.385504	-3503.7775	-2753.6976	170.67728
1175	-391.36154	-235.02128	77.425570	-4349.1677	-3022.6120	309.00804
1176	-387.20975	-337.05620	58.984336	1566.7134	-919.70193	-200.77334
1177	-389.19009	-302.67254	69.243818	-601.69335	-1659.3005	-166.57509
1178	-393.12271	-272.97067	76.470663	-2228.3096	-2279.8458	-60.857393
1179	-397.01614	-249.02030	77.927409	-3432.5043	-2727.3051	110.37237
1180	-390.59189	-223.44579	71.866590	-4281.4077	-2963.2332	294.32802
1181	-382.79235	-340.87495	59.187593	1567.6523	-915.44816	-325.19986
1182	-384.22348	-305.99534	70.233149	-570.90190	-1651.8978	-290.07378
1183	-389.01445	-274.71027	78.467070	-2162.4383	-2267.9847	-162.47124
1184	-395.68931	-247.84482	79.490956	-3339.4831	-2704.3232	55.031534
1185	-395.53429	-228.22246	67.701492	-4196.7268	-2907.3407	295.05272
1186	-383.86695	-436.33201	32.605175	8903.7921	953.94484	-29.784053
1187	-387.17488	-398.88891	40.976368	6184.3760	350.27011	-54.161077
1188	-389.11104	-366.60221	49.084577	3867.0171	-238.48196	-73.582655
1189	-382.29746	-440.25001	34.561073	8884.9366	944.82771	-96.295731
1190	-385.03244	-402.79568	42.029293	6162.5831	351.38198	-149.49965
1191	-386.30247	-370.47684	49.634370	3854.7488	-236.87986	-186.84342
1192	-380.42271	-443.70071	36.196838	8837.0094	949.30819	-163.01089
1193	-382.29346	-406.32141	42.702529	6131.3280	345.92516	-244.77653
1194	-382.75078	-374.21959	49.829276	3836.3538	-237.04867	-299.36971
1195	-1057.2593	-145.49328	-129.65166	-9554.8200	-506.34258	-1123.0510
1196	-777.08655	-161.10313	-1.7173733	-8591.2698	-670.69213	-556.75771
1197	-723.88976	-132.31508	-181.12094	-7757.2226	-1247.2829	-1774.3046
1198	-789.10988	-115.32194	37.539392	-7802.3807	-1049.9852	-466.59119
1199	-416.36912	-198.39676	39.732398	-4621.1282	-2811.2242	492.48411
1200	-419.02889	-182.79539	1.2784654	-4859.3668	-2714.9683	438.49048
1201	-433.39751	-142.56700	-61.779627	-4960.3265	-2566.6587	48.886103
1202	-490.05984	-123.19126	-133.41846	-5310.3205	-2034.1162	-1077.9818
1203	-459.16695	-171.79534	58.300667	-4520.9031	-2672.5851	650.50368
1204	-501.83816	-140.84501	33.469836	-5008.6367	-2468.3617	644.11656
1205	-573.69225	-102.23821	11.714373	-5582.0522	-2146.0700	360.34124
1206	-686.25920	-81.847358	12.898511	-6518.3575	-1592.7967	-197.72550
1207	-375.65641	-345.96373	58.870976	1564.8280	-905.63450	-480.89182
1208	-375.94969	-310.98271	71.297762	-523.97653	-1632.2307	-447.03651
1209	-381.49599	-277.62490	81.946384	-2056.1712	-2244.1639	-292.81831
1210	-393.65276	-245.72852	84.149148	-3182.9655	-2671.2579	-9.8455660
1211	-407.69607	-217.43894	69.070926	-4052.8677	-2837.4254	319.43776
1212	-365.15525	-352.57314	57.298703	1553.2015	-893.82894	-669.03398
1213	-363.08248	-318.31509	72.090337	-461.41840	-1617.6886	-639.12922
1214	-368.74229	-283.12191	87.125544	-1902.4316	-2227.1569	-452.98727
1215	-387.19788	-244.27702	95.250518	-2942.0208	-2650.2116	-86.493249

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1216	-423.40202	-203.83524	83.829796	-3816.8537	-2774.2392	382.30520
1217	-377.20055	-447.14868	37.532014	8743.2413	907.97189	-240.75679
1218	-377.91825	-410.21734	42.920587	6071.3531	340.02612	-361.08308
1219	-377.13455	-378.73539	49.388225	3800.4058	-236.04724	-441.21148
1220	-372.26908	-450.06646	38.400053	8603.4020	919.60175	-339.79100
1221	-371.64119	-414.19638	42.151937	5974.2667	324.30202	-499.99194
1222	-369.07890	-383.87248	47.684435	3739.6242	-235.65182	-607.13455
1223	-761.43649	-108.81772	27.588053	-8406.8779	-519.79776	39.182253
1224	-796.78689	-40.860012	35.239001	-8633.6252	-219.20835	183.13614
1225	-741.03791	-99.531059	72.179926	-7905.9104	-738.85333	155.17795
1226	-792.73787	-48.203128	96.133640	-8245.8367	-351.60033	544.37525
1227	-697.02115	-100.87474	131.56315	-6921.5620	-1258.6977	774.67448
1228	-732.64406	-85.112496	191.55578	-7182.4824	-797.55969	1382.9840
1229	-621.04821	-109.50915	137.06419	-5794.2346	-1850.3019	1145.2736
1230	-629.56603	-125.76092	238.53119	-5820.2514	-1393.8060	1915.3945
1231	-548.17656	-131.00441	130.46671	-4919.8406	-2260.0942	1208.9123
1232	-517.84107	-157.21542	243.42136	-4523.6035	-1943.9616	2010.1732
1233	-492.73107	-153.64718	125.42957	-4198.5594	-2496.4751	1021.9634
1234	-422.96435	-183.85451	234.52820	-3335.6724	-2386.4031	1808.6081
1235	-347.43226	-362.35573	52.028927	1518.2284	-866.85381	-918.07309
1236	-339.32376	-332.15014	70.295948	-367.18829	-1563.5596	-904.27885
1237	-340.70346	-297.23360	94.337602	-1637.5310	-2173.0766	-689.50930
1238	-361.64837	-252.90612	116.61384	-2479.7829	-2605.5368	-200.11738
1239	-415.95978	-198.06548	129.62387	-3281.1036	-2678.5665	534.44544
1240	-322.30947	-374.87590	38.867035	1439.7129	-818.97819	-1220.0712
1241	-302.78671	-354.59121	59.991459	-263.79670	-1494.1402	-1244.5882
1242	-290.19806	-327.47584	96.719357	-1259.3997	-2109.8629	-1030.7254
1243	-298.75848	-281.50112	143.94866	-1701.4479	-2593.1918	-414.30959
1244	-341.18035	-230.09382	195.16109	-2139.7645	-2708.0793	788.25803
1245	-364.52159	-451.12761	37.972759	8339.9636	856.25968	-476.50610
1246	-361.56926	-417.31529	38.925668	5794.8288	309.59318	-678.75826
1247	-355.98657	-389.73800	42.620027	3620.5562	-234.66026	-824.33432
1248	-353.72034	-448.07065	34.406750	7979.6920	830.39290	-644.79904
1249	-347.56722	-417.55514	30.973949	5507.7828	300.97607	-886.51425
1250	-337.90975	-394.82034	31.294687	3420.5339	-216.14783	-1078.0353
1251	-301.44569	-383.66767	22.730145	1447.7201	-826.00880	-1405.3284
1252	-273.49890	-375.99476	42.355805	-54.041536	-1469.2930	-1506.9090
1253	-246.76965	-363.10811	82.717588	-849.31809	-2104.2962	-1380.4542
1254	-233.10150	-326.80715	142.91285	-966.14812	-2718.8276	-833.65551
1255	-237.65020	-271.73163	210.07813	-793.95926	-2986.7963	523.36346
1256	-284.26943	-389.17278	3.7837483	1424.7167	-785.07768	-1581.9278
1257	-251.99293	-392.76500	17.252466	127.48112	-1323.4522	-1734.1653
1258	-214.61404	-396.49939	50.421359	-553.54350	-1868.9699	-1723.6833
1259	-178.21724	-383.44590	107.87932	-527.24071	-2492.5771	-1428.1260
1260	-149.81152	-333.18104	173.81514	216.89390	-3183.3509	-457.07436
1261	-269.83027	-390.10600	-20.122521	1297.6796	-698.15961	-1771.1833
1262	-235.35613	-403.92308	-15.104505	153.27933	-1145.8764	-1954.9225
1263	-191.28953	-423.65777	6.1283582	-454.93719	-1596.2024	-2043.6628
1264	-138.01042	-438.14021	51.786140	-389.96403	-2149.0696	-2007.4537
1265	-87.309350	-410.75983	121.19124	654.24063	-3000.2422	-1644.8776
1266	-260.39202	-383.68121	-46.809286	1072.2252	-566.95200	-1952.3872
1267	-227.35688	-405.30401	-51.703907	25.345587	-926.80157	-2150.3800
1268	-183.15207	-437.65551	-45.449176	-557.92513	-1272.0311	-2309.5289
1269	-123.51344	-478.12334	-19.823978	-563.54059	-1684.8153	-2483.8400
1270	-53.247203	-500.04161	45.747404	351.10987	-2387.0360	-2747.1848
1271	-255.74876	-369.33859	-72.454101	782.70555	-409.34391	-2098.2131
1272	-227.96526	-396.04596	-86.707842	-208.69738	-683.34809	-2293.7575
1273	-190.73623	-436.39268	-94.961755	-807.15927	-912.11916	-2484.5983
1274	-137.61727	-495.77637	-92.776270	-968.53080	-1127.1500	-2780.1417
1275	-56.141960	-583.42245	-53.463259	-556.70693	-1419.9155	-3445.8774
1276	-252.38453	-349.70355	-93.455422	484.53176	-254.78440	-2191.1878
1277	-232.20749	-380.10753	-114.51675	-473.45515	-445.64713	-2367.6600
1278	-206.60297	-425.06881	-133.29181	-1103.8426	-551.11188	-2546.0885
1279	-170.23722	-495.05455	-151.14427	-1453.9109	-536.87868	-2850.7917
1280	-98.406835	-635.79092	-163.51327	-1678.5388	-309.24530	-3550.2520
1281	-245.10277	-329.39700	-108.15694	237.29036	-128.20007	-2229.3688
1282	-232.72644	-132.65965	-132.65965	-688.96302	-235.91129	-2372.2041
1283	-219.47192	-413.12834	-156.61932	-1342.0760	-213.74156	-2495.5262
1284	-202.84585	-488.13947	-187.46981	-1856.2599	33.819510	-2697.8541
1285	-167.90342	-638.32535	-259.60344	-2571.5446	722.10489	-3080.6560

FILENAME : PIT3A1.PO DATE : 05-25-94 TIME : 2:13p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 2/25)

1286	-229.74225	-312.72394	-116.64524	86.059473	-34.054522	-2219.4093
1287	-224.17521	-354.57462	-141.64926	-795.79200	-49.674327	-2317.8598
1288	-221.11044	-408.32434	-166.50419	-1446.9206	109.33726	-2350.0876
1289	-221.45698	-484.66124	-205.71835	-2061.0920	576.32455	-2360.3102
1290	-238.20166	-587.97710	-318.10031	-2945.3718	1537.3892	-2230.6427
1291	-205.18208	-301.99767	-119.21229	51.491076	52.454002	-2166.9693
1292	-205.52559	-353.78166	-142.80519	-763.23349	149.91747	-2214.5184
1293	-210.36250	-413.22001	-166.27343	-1391.0150	465.26351	-2131.2117
1294	-223.73747	-484.90370	-214.37457	-2029.3642	1114.3665	-1905.8203
1295	-290.55761	-496.61824	-329.12897	-2783.0547	2060.3160	-1305.1853
1296	-343.23556	-440.35767	28.665250	7623.2519	812.71130	-770.60375
1297	-334.64622	-413.58923	20.503119	5204.8218	294.02212	-1056.7007
1298	-321.49768	-396.13761	16.860374	3200.2906	-197.95186	-1283.9130
1299	-333.67650	-428.74313	22.401257	7249.4035	759.13932	-858.62904
1300	-323.55246	-405.76110	9.3703789	4905.3697	280.33375	-1190.9711
1301	-307.96031	-393.20718	1.1901961	2978.0567	-185.97503	-1449.9018
1302	-323.57431	-412.30944	15.217856	6819.0718	709.76812	-935.59820
1303	-312.64897	-393.29243	-3.1416652	4569.7247	260.03345	-1308.0093
1304	-295.81541	-385.81156	-16.580558	2725.9897	-170.25374	-1598.4609
1305	-312.52691	-390.64568	7.9322197	6347.6933	655.89925	-1002.5713
1306	-301.83071	-375.84308	-16.038136	4198.9459	238.44974	-1409.0550
1307	-285.20565	-373.39408	-34.948763	2447.8809	-153.53197	-1725.0444
1308	-300.02264	-363.62990	1.1814384	5835.3361	597.86447	-1056.7609
1309	-290.36886	-353.42023	-28.261547	3799.1509	216.13343	-1493.7005
1310	-275.32104	-356.03482	-52.281563	2150.9146	-134.92292	-1828.5087
1311	-285.08584	-331.36694	-4.5270751	5283.4682	537.62266	-1096.8785
1312	-277.04111	-326.47402	-39.003544	3376.8835	195.80220	-1560.8958
1313	-264.51783	-334.47673	-67.200608	1844.5052	-110.31322	-1907.1399
1314	-266.55843	-294.01373	-8.9164112	4694.1223	478.83394	-1121.5134
1315	-260.34946	-295.78601	-47.802371	2939.0488	183.01317	-1608.7234
1316	-250.76658	-309.97058	-78.900347	1540.0495	-72.171739	-1958.4248
1317	-243.31055	-251.81877	-11.993485	4071.2920	426.48901	-1127.8160
1318	-238.88610	-262.35123	-54.503044	2493.6817	186.20022	-1633.6017
1319	-232.36566	-283.96609	-87.114180	1250.1068	-8.9047050	-1978.7120
1320	-214.55407	-205.05925	-13.904363	3415.8348	388.81914	-1111.4923
1321	-211.81289	-227.36983	-59.148993	2052.3067	215.14678	-1629.0989
1322	-208.32970	-257.85578	-91.689228	985.92005	97.076915	-1960.8691
1323	-326.92867	-31.482929	-28.551937	1465.8332	981.94261	338.71570
1324	-353.70256	-91.962674	-29.397764	1015.2206	2444.5597	138.50624
1325	-353.68700	-148.75033	-24.191214	880.70041	3896.2818	31.685747
1326	-344.23018	-196.14977	-19.187242	942.31570	5426.9385	-49.108836
1327	-331.02733	-51.055715	-80.677317	1105.9862	1263.3131	911.99727
1328	-345.15278	-113.52746	-80.720144	853.04645	2528.7602	410.39277
1329	-344.46807	-166.59706	-65.979150	804.92994	3938.3303	144.42826
1330	-337.93431	-210.25699	-52.442218	912.88937	5491.9337	-56.510398
1331	-339.50474	-89.127120	-134.39656	482.61899	1702.9614	1248.8276
1332	-331.15194	-151.83728	-125.81780	564.58055	2649.1089	600.14425
1333	-329.21640	-197.36408	-101.33419	669.89226	3993.7397	236.65170
1334	-327.76941	-234.29501	-80.235487	858.59409	5605.3068	-48.731090
1335	-350.39957	-145.23399	-189.54675	-286.52525	2146.2270	1286.9193
1336	-314.70266	-200.74256	-162.50684	189.96198	2748.3697	677.27737
1337	-311.09863	-234.94639	-128.79053	495.74554	4020.4798	295.45036
1338	-315.83773	-263.09636	-101.37135	788.36837	5737.7930	-19.576019
1339	-360.69264	-216.51343	-243.97215	-1089.4184	2461.5604	1047.4320
1340	-299.02591	-253.28611	-189.91099	-234.48196	2778.7886	634.42101
1341	-293.20158	-272.90551	-148.61309	297.54545	3979.4852	310.47432
1342	-303.83167	-291.42566	-116.25374	714.73898	5854.7533	36.090777
1343	-366.66524	-301.56550	-294.05859	-1830.6762	2611.3746	635.76519
1344	-287.51615	-300.80301	-208.07951	-700.48390	2738.2375	479.73990
1345	-277.68499	-306.51159	-162.60277	61.081152	3880.3552	276.60268
1346	-292.89859	-315.26538	-125.78661	668.30776	5897.7453	97.701486
1347	-177.75982	-283.22678	-117.41191	-3.3163393	386.03386	-2039.5354
1348	-185.81189	-343.63170	-138.85165	-665.62920	600.88321	-1997.5234
1349	-197.59925	-402.42359	-160.47706	-1186.2874	980.41220	-1764.1283
1350	-219.94518	-441.46294	-203.99657	-1677.6094	1551.4568	-1302.0634
1351	-292.84214	-401.33019	-270.14847	-2016.6518	2296.0019	-403.24674
1352	-143.52939	-263.51981	-108.03178	44.411292	954.61853	-1794.4513
1353	-161.07188	-328.38692	-127.04239	-380.02162	1354.5298	-1684.7255
1354	-180.33119	-380.31690	-146.70213	-703.75788	1818.3972	-1372.2822
1355	-207.96503	-403.75469	-174.27973	-949.45256	2292.6912	-848.58331

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 2/25)

1356	-253.34997	-366.18569	-204.19587	-969.87940	2625.8302	-86.784902
1357	-111.48467	-246.01082	-88.574941	191.23876	1854.2915	-1386.5883
1358	-141.83885	-313.45684	-106.98977	-1.7050511	2525.6090	-1260.3341
1359	-172.15252	-362.48961	-125.48234	-137.85572	3138.1562	-971.38379
1360	-204.16921	-381.59876	-146.21319	-215.05270	3602.7880	-541.93247
1361	-243.33910	-353.39435	-163.29426	-147.09902	3803.4519	-35.409483
1362	-86.575954	-230.09893	-55.769673	419.26499	3224.9015	-721.49127
1363	-135.28475	-297.84705	-74.348859	417.82051	4297.1866	-653.82768
1364	-181.53938	-345.39419	-94.788785	428.58398	5165.0590	-500.85412
1365	-223.80549	-365.20793	-115.16600	450.78442	5709.6582	-280.26512
1366	-263.75155	-347.57671	-127.78868	503.88113	5879.2063	-35.087062
1367	-173.96657	-146.68979	-14.953895	2640.2599	389.82197	-1059.5519
1368	-173.31342	-186.72398	-61.332208	1565.8457	318.60194	-1576.2625
1369	-173.96854	-230.28993	-92.277868	730.35852	304.47977	-1884.4840
1370	-120.49429	-79.096021	-15.215712	1786.6625	475.53004	-944.37938
1371	-123.33637	-143.61507	-58.664746	1064.4504	541.34748	-1427.0260
1372	-130.61118	-201.57182	-86.020724	512.64465	682.65482	-1692.9227
1373	-62.637327	-18.336895	-13.264583	1025.3145	663.55978	-730.25619
1374	-71.282940	-107.29377	-47.426468	664.25766	930.40276	-1133.9312
1375	-87.141507	-176.94237	-69.598922	401.01674	1303.0428	-1334.6678
1376	-9.8951765	21.624446	-8.1007815	498.57773	910.49639	-351.34775
1377	-21.581843	-81.564879	-26.830190	425.62597	1494.4738	-581.86886
1378	-46.970434	-158.07449	-40.726692	422.59346	2253.8005	-695.67792

MINIMUMS						
ELEMENT	1195	1285	1295	1195	1166	1280
VALUE	-1057.2593	-638.32535	-329.12897	-9554.8200	-4287.0092	-3550.2520

MAXIMUMS						
ELEMENT	1376	1376	1232	1186	978	1035
VALUE	-9.8951765	21.624446	243.42136	8903.7921	7056.9672	2416.4082

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 3/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H

NSBL FOR LABEL= NODE FROM 1 TO 172 BY 1
172 NODES (OF 1450 DEFINED) SELECTED BY NSBL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1
110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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ED WORK.

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FOR SUPPORT CALL PHONE TWX

TITLE 14.2250 MAY 25,1994 CP= 390.690

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-465.38024	1303.0778	662.59658	-1906.7766	-11233.309	-0.91508449E-03
2	-929.81166	-3.6726764	1323.7553	-0.12436728E-02	-22460.743	0.71121778E-04
3	-1180.0187	-11.133431	1679.8494	-0.66329025E-02	-28296.443	-0.13828309E-02
4	-1424.1671	-21.953871	2020.5276	-0.15311262E-02	-33845.078	0.15652080E-02
5	-1408.4677	-31.759679	1980.8885	0.85666494E-04	-33336.370	0.28049299E-02
6	-1384.8762	-40.120307	1926.3069	0.16285461E-03	-32734.893	0.41850106E-02
7	-2012.5490	-80.997100	2768.4510	-0.18736441E-01	-46631.872	0.13299293E-02
8	-2549.9744	-137.44627	3404.3026	0.20586985E-01	-56274.502	0.20379466E-01
9	-2328.6348	-171.10696	2934.1657	0.33919259E-01	-49284.005	0.27029545E-01
10	-2032.1635	-193.62124	2346.0686	0.45637082E-01	-40558.904	0.33644646E-01
11	-1643.3323	-196.74987	1635.7120	0.52044926E-01	-30631.936	0.36968153E-01
12	-1026.3077	-149.75679	777.68750	0.35322561E-01	-17222.179	0.24396469E-01
13	-507.57371	-86.739928	116.04315	0.30920275E-01	-9200.3339	0.24171798E-01
14	-156.67899	-38.255544	-422.18394	0.33308880E-01	-4650.1434	0.28654830E-01
15	5.2170525	-66.823553	-999.97182	1277.0216	-473.35167	0.58045377E-02
16	-175.38483	-670.48911	-323.27793	10818.724	-0.90593139E-01	-0.30175523E-01
17	-309.00365	-1399.7918	1015.8384	24228.194	-0.10061961	-0.41134546E-01
18	-356.10974	-1991.5882	2150.8433	38334.137	-0.89869274E-01	-0.40087817E-01
19	-341.48284	-2455.4379	3105.0086	51629.022	-0.69801074E-01	-0.33998202E-01
20	-290.06739	-2802.9874	3881.1723	63387.631	-0.47564987E-01	-0.27052725E-01
21	-214.09111	-3054.4970	4487.9722	73126.364	-0.26035123E-01	-0.20946237E-01
22	-117.76143	-2864.0309	4371.3779	72128.885	0.10061918E-01	-0.10745083E-01
23	-31.840907	-2600.2060	4071.2971	67226.903	0.79417789E-02	-0.88312517E-02
24	34.244696	-2649.5069	4218.1589	69523.485	0.16898343E-01	-0.65557330E-02
25	64.038532	-2029.2310	3263.1233	54217.958	0.38876277E-01	0.11357451E-02
26	68.506098	-1392.3163	2250.0517	37832.611	0.12766358E-01	-0.19219931E-02
27	84.132616	-1395.0791	2262.7965	37652.450	0.11616312E-01	-0.16762317E-02
28	83.547528	-1203.1166	1955.6733	32576.389	0.12892879E-01	-0.37672153E-03
29	78.548538	-1009.9915	1643.4684	27519.559	0.60154410E-02	-0.12341135E-02
30	84.517443	-1006.2641	1639.3892	27451.685	0.34669318E-02	-0.16228639E-02
31	114.81488	-1264.3170	2063.5334	34276.889	-0.33006453E-02	-0.38986876E-02
32	146.28765	-1513.3562	2472.3403	41008.496	0.21804193E-02	-0.26768636E-02
33	204.62623	-1995.3670	3257.8948	53606.648	-0.10677559E-01	-0.76459238E-02
34	255.20133	-2448.6531	3990.4433	64547.738	0.15562178E-01	0.25130569E-03
35	210.20051	-2066.3140	3351.1258	53593.364	0.30344232E-01	0.75514596E-02

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 3/25)

36	159.46424	-1697.9694	2732.4352	43568.769	0.18675991E-01	0.50891150E-02
37	139.00542	-1651.8130	2636.0159	41211.383	0.19793741E-01	0.67840364E-02
38	117.20554	-1599.6180	2526.7539	38730.215	0.21073380E-01	0.86444728E-02
39	96.809173	-1540.0311	2403.5580	36021.013	0.22712179E-01	0.10690837E-01
40	80.328116	-1469.5506	2262.7739	33071.670	0.24797969E-01	0.12928144E-01
41	69.523079	-1383.4059	2098.7658	29876.285	0.27453415E-01	0.15385987E-01
42	65.071008	-1276.5807	1904.6026	26432.841	0.30841441E-01	0.18137747E-01
43	66.548933	-1144.5163	1670.7744	22783.296	0.35402483E-01	0.21407089E-01
44	82.528633	-1110.0292	1551.1319	21572.031	0.47251053E-01	0.29878788E-01
45	96.969700	-958.11095	1212.2568	17530.683	0.67755599E-01	0.36118533E-01
46	85.483545	-589.10838	506.03748	10787.856	0.73050103E-01	0.34348539E-01
47	46.403791	-217.23439	-241.38709	4835.2659	0.63392038E-01	0.26235979E-01
48	-137.76909	13.031533	-554.57069	781.07507	1409.1837	-0.95599037E-02
49	116.61354	56.838125	19.272216	0.44625103E-01	6809.4948	-0.28698346E-01
50	605.86052	93.680118	730.43425	0.40211073E-01	12216.761	-0.22435234E-01
51	1245.0528	186.28805	1677.8310	0.51972329E-01	21850.467	-0.19666281E-01
52	1986.7463	332.25416	2763.6586	0.57949765E-01	36681.643	-0.30741381E-01
53	2427.3668	491.74169	3437.3878	0.41649363E-01	46120.605	-0.31722510E-01
54	2694.4490	665.87731	3831.8293	0.17096903E-01	52673.255	-0.30459402E-01
55	2733.5598	807.96399	3905.6132	-0.12051397E-01	55409.868	-0.25889249E-01
56	1860.6593	622.01052	2695.5978	-0.45594817E-01	39564.980	-0.44185851E-02
57	1051.0074	368.91473	1534.8928	-0.10895277E-01	24197.996	-0.43734712E-02
58	964.27915	331.21731	1440.0632	-0.97472796E-02	23161.217	-0.32357162E-02
59	876.92807	272.53530	1340.4529	-0.83972407E-02	22297.070	-0.22086731E-02
60	802.35997	194.36567	1253.9135	-0.61802070E-02	21597.316	-0.13661937E-02
61	752.13437	101.21361	1195.8813	-0.32822593E-02	21131.943	-0.65182471E-03
62	367.20559	796.69877	587.73507	-1841.1817	10483.829	0.25526776E-02
63	0.56843419E-12	1582.0403	-0.21392196E-06	-3910.7209	-0.39977749E-07	0.48856793E-02
64	0.84128260E-11	1607.1782	-0.12298318E-06	-4041.4372	0.96100848E-07	0.45086566E-02
65	0.21032065E-11	1551.5176	0.20107964E-06	-5154.0476	0.43145974E-07	0.42849214E-02
66	-0.56056376E-11	716.99275	98.000000	-5024.1385	-0.32603880E-07	0.21092666E-02
67	-0.62811978E-11	0.00000000E+00	196.000000	0.12698456E-06	0.10109000E-06	0.86736174E-18
68	0.21884716E-11	-0.13642421E-11	196.000000	-0.16102604E-06	0.23376288E-08	-0.10842022E-17
69	0.00000000E+00	-0.90949470E-12	196.000000	-0.27949255E-07	-0.68428790E-07	0.00000000E+00
70	0.00000000E+00	-0.10231815E-11	196.000000	0.98315923E-07	-0.14412967E-06	-0.15178830E-17
71	-0.56843419E-12	-0.11368684E-11	196.000000	0.87620720E-07	-0.26988891E-06	-0.84093431E-17
72	-0.15006663E-10	-0.34958703E-11	245.000000	-0.15959813E-06	0.12845157E-06	-0.53342747E-16
73	-0.25465852E-10	-0.56843419E-11	294.000000	-0.99343652E-07	-0.72252078E-07	-0.33393427E-15
74	0.36379788E-10	-0.23078428E-10	294.000000	-0.25628106E-06	0.55551027E-07	-0.22811614E-15
75	-0.11823431E-10	-0.86743057E-10	294.000000	0.12726423E-06	0.11162729E-06	0.11752752E-15
76	-0.11141310E-10	0.32912340E-10	294.000000	0.18717401E-08	-0.75605840E-07	-0.97361355E-16
77	0.81854523E-11	0.21991298E-10	294.000000	-0.81990947E-09	0.20898551E-06	-0.29381879E-15
78	0.12278178E-10	-0.19497293E-10	294.000000	-0.10318331E-06	-0.38144208E-07	-0.30802184E-15
79	0.34106051E-11	-0.15859314E-10	294.000000	-0.36290362E-06	0.86774889E-07	0.69795515E-16
80	-0.19554136E-10	0.31036507E-10	294.000000	-0.41948533E-06	0.95587893E-07	-0.19515639E-16
81	0.28421709E-11	0.78443918E-11	261.000000	-0.74758191E-07	-0.30942829E-07	0.53559587E-16
82	0.79580786E-12	0.00000000E+00	228.500000	-0.15832120E-06	0.48660695E-07	0.56378513E-17
83	-0.17053026E-12	0.36379788E-11	228.500000	0.59981176E-07	-0.22668610E-06	-0.10896232E-16
84	-0.36948222E-11	-0.18189894E-11	228.500000	0.22342647E-07	-0.24348947E-06	-0.34694470E-17
85	0.56843419E-13	0.45474735E-12	180.000000	-0.52641553E-08	0.16160729E-06	-0.25749802E-17
86	-0.36521897E-11	-0.90949470E-12	132.000000	-0.18607534E-06	-0.77180289E-08	-0.54210109E-19
87	-0.26824693E-12	1147.4820	66.000000	12863.443	0.69579164E-07	-0.19202351E-03
88	-0.79580786E-12	2214.7539	0.97434018E-06	24191.182	-0.50987069E-07	-0.37421073E-03
89	0.29274361E-11	2172.9112	-0.60274630E-07	24115.596	-0.63086759E-07	-0.36033614E-03
90	0.37516656E-11	2584.6363	0.24986650E-06	25741.575	0.38531425E-07	-0.34813904E-03
91	0.33887999E-12	1879.2035	182.32500	16468.972	-0.38235296E-07	-0.16999012E-03
92	-0.18758328E-11	-0.45474735E-12	364.39500	0.20804328E-06	-0.49066244E-07	-0.13552527E-18
93	-0.46398441E-11	0.34106051E-12	363.88500	-0.32995740E-06	-0.41103249E-06	-0.22226145E-16
94	-0.13670842E-10	-0.21174174E-11	364.14000	0.22276959E-06	0.15137448E-06	-0.51418288E-16
95	0.93791641E-11	0.38085091E-11	364.39500	-0.19463823E-06	-0.21688720E-06	-0.45807542E-17
96	0.84128260E-11	0.44337867E-11	364.39500	0.34848335E-06	-0.66430403E-07	-0.12007539E-16
97	0.47748472E-11	-0.45474735E-12	364.39500	-0.20449988E-06	-0.20750736E-06	-0.31170812E-18
98	-0.85956333E-12	1529.9033	182.07000	15872.447	-0.10198980E-06	0.89061182E-04
99	0.43200998E-11	2119.3795	0.33655340E-07	22395.131	-0.14128545E-07	0.18535332E-03
100	-0.48316906E-11	1612.0341	0.70901116E-06	19891.530	-0.18444098E-07	0.19502530E-03
163	-0.22737368E-11	2427.8419	0.32866402E-06	32385.913	-0.82858605E-07	0.31712935E-03
164	-0.59117156E-11	3097.3101	0.62121320E-06	41454.704	0.84091880E-07	0.39710984E-03
165	-0.38653525E-11	2811.5510	-0.14522521E-06	38681.644	-0.16792910E-07	0.28603807E-03
166	-0.36948222E-11	2931.6784	170.00000	40366.265	-0.11447446E-06	0.12592174E-03
167	-0.15347723E-10	2990.3825	-0.32899891E-06	40243.840	0.32619027E-08	-0.10682455E-03

FILENAME : PIT3A2.PO DATE : 05-25-94 TIME : 2:13p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 3/25)

PAGE 3

168	-0.71054274E-11	2695.6112	-0.41891673E-06	33699.365	-0.10327312E-07	-0.42799957E-03
169	0.96633812E-11	2448.5309	-0.80523898E-06	25895.100	-0.17955699E-08	-0.80200183E-03
170	0.21032065E-11	2282.6599	0.13988708E-05	17147.275	-0.93231591E-07	-0.11912101E-02
171	-0.29160674E-10	2245.6299	-0.29966156E-06	7826.1428	-0.38448889E-07	-0.15293899E-02
172	-0.50874860E-10	2393.7092	-0.63326252E-06	-1611.5778	-0.54815246E-07	-0.17526884E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.1350202E-08
FY = -0.3737100E-10
FZ = 132125.6
MX = -5405353.
MY = -0.1364467E+08
MZ = -0.2956825E-04
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.000000E+00 0.000000E+00 0.000000E+00

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p PAGE 1
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NSEL COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
ED WORK.

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FOR SUPPORT CALL PHONE TWX

TITLE 14.2268 MAY 25,1994 CP= 397.060

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.70017365	0.00000000E+00	0.23979365E-02	0.00000000E+00
2	-0.32609575E-06	0.12751907E-04	-0.70017456	0.73166922E-06	0.23980258E-02	-0.25926788E-06
3	-0.12724942E-05	0.25466678E-04	-0.70017727	0.14212266E-05	0.23982758E-02	-0.48873561E-06
4	-0.40177893E-05	0.44919030E-04	-0.70018521	0.26683565E-05	0.23990038E-02	-0.92217022E-06
5	-0.83273867E-05	0.63982376E-04	-0.70019774	0.38302235E-05	0.24001327E-02	-0.13205909E-05
6	-0.14173710E-04	0.82459133E-04	-0.70021464	0.49222575E-05	0.24016502E-02	-0.17200789E-05
7	-0.21430068E-04	0.10019407E-03	-0.70023540	0.57450267E-05	0.24035137E-02	-0.20040491E-05
8	-0.39546781E-04	0.13273689E-03	-0.70028918	0.81278504E-05	0.24082346E-02	-0.27458437E-05
9	-0.61747243E-04	0.16008846E-03	-0.70035761	0.97862781E-05	0.24138942E-02	-0.31736528E-05
10	-0.86238464E-04	0.18073618E-03	-0.70043686	0.10939760E-04	0.24201016E-02	-0.33432943E-05
11	-0.11043084E-03	0.19347373E-03	-0.70052214	0.11324339E-04	0.24263276E-02	-0.30910925E-05
12	-0.13048535E-03	0.19792369E-03	-0.70060643	0.10652256E-04	0.24319364E-02	-0.22631082E-05
13	-0.13977699E-03	0.19671179E-03	-0.70066078	0.96189522E-05	0.24350472E-02	-0.12344025E-05
14	-0.14322484E-03	0.19361208E-03	-0.70070893	0.83676800E-05	0.24372756E-02	-0.57925231E-07
15	-0.14016442E-03	0.19124274E-03	-0.70074997	0.69901093E-05	0.24383956E-02	0.11989626E-05
16	-0.13203010E-03	0.21071013E-03	-0.72268287	0.10045684E-04	0.24348584E-02	0.34605130E-05
17	-0.12851890E-03	0.24941705E-03	-0.74459008	0.16363901E-04	0.24325460E-02	0.53768381E-05
18	-0.13781433E-03	0.30062053E-03	-0.76648422	0.24718500E-04	0.24319316E-02	0.62840353E-05
19	-0.16093757E-03	0.35628632E-03	-0.78837906	0.34029225E-04	0.24327058E-02	0.64117895E-05
20	-0.19622910E-03	0.41101592E-03	-0.81028470	0.43408395E-04	0.24343968E-02	0.60794840E-05
21	-0.24160298E-03	0.46180771E-03	-0.83220752	0.52149166E-04	0.24366345E-02	0.55115223E-05
22	-0.29510462E-03	0.50704664E-03	-0.85415164	0.59704424E-04	0.24393513E-02	0.47618549E-05
23	-0.34361970E-03	0.53826396E-03	-0.87131083	0.64544997E-04	0.24414790E-02	0.41854761E-05
24	-0.39163842E-03	0.56524253E-03	-0.88848526	0.68320756E-04	0.24436864E-02	0.35638954E-05
25	-0.44458312E-03	0.58770152E-03	-0.90567538	0.70923915E-04	0.24461718E-02	0.28028890E-05
26	-0.47303608E-03	0.59747840E-03	-0.91459084	0.71808278E-04	0.24471515E-02	0.25161998E-05
27	-0.50211496E-03	0.60589856E-03	-0.92351046	0.72359424E-04	0.24483545E-02	0.21031332E-05
28	-0.53175643E-03	0.61275070E-03	-0.93243451	0.72586582E-04	0.24496190E-02	0.16428165E-05
29	-0.55361694E-03	0.61671267E-03	-0.93892704	0.72548170E-04	0.24504277E-02	0.13345446E-05
30	-0.57570199E-03	0.61979946E-03	-0.94542181	0.72330679E-04	0.24512847E-02	0.99134408E-06
31	-0.59799104E-03	0.62197770E-03	-0.95191880	0.71933173E-04	0.24520723E-02	0.66097755E-06
32	-0.63231481E-03	0.62337817E-03	-0.96183794	0.71007722E-04	0.24534998E-02	0.37560993E-07
33	-0.66689105E-03	0.62240112E-03	-0.97176236	0.69697150E-04	0.24546437E-02	-0.49471832E-06
34	-0.72512673E-03	0.61523613E-03	-0.98843961	0.66666008E-04	0.24569412E-02	-0.16344616E-05
35	-0.78296452E-03	0.60054765E-03	-1.0051310	0.62652618E-04	0.24590470E-02	-0.28024040E-05
36	-0.82447004E-03	0.58473421E-03	-1.0173500	0.59156748E-04	0.24603873E-02	-0.36116016E-05
37	-0.86475667E-03	0.56468912E-03	-1.0295760	0.55255690E-04	0.24618158E-02	-0.44701130E-05
38	-0.90333402E-03	0.54049219E-03	-1.0418090	0.51008894E-04	0.24631917E-02	-0.52801196E-05
39	-0.93966471E-03	0.51245431E-03	-1.0540486	0.46484591E-04	0.24645177E-02	-0.60130519E-05
40	-0.97320434E-03	0.48103026E-03	-1.0662947	0.41758490E-04	0.24657903E-02	-0.66385754E-05
41	-0.10034085E-02	0.44683301E-03	-1.0785470	0.36912744E-04	0.24669940E-02	-0.71240395E-05
42	-0.10297339E-02	0.41064531E-03	-1.0908049	0.32035948E-04	0.24680989E-02	-0.74331478E-05
43	-0.10516268E-02	0.37344703E-03	-1.1030680	0.27227809E-04	0.24690597E-02	-0.75204959E-05
44	-0.10685149E-02	0.33650832E-03	-1.1153353	0.22587260E-04	0.24697769E-02	-0.73022779E-05

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

PAGE 2

45	-0.10821607E-02	0.29166627E-03	-1.1313244	0.17039252E-04	0.24701042E-02	-0.65145645E-05
46	-0.10858029E-02	0.25477460E-03	-1.1473118	0.12360279E-04	0.24692199E-02	-0.48225288E-05
47	-0.10802410E-02	0.23195396E-03	-1.1632885	0.89970637E-05	0.24667110E-02	-0.21409608E-05
48	-0.10691142E-02	0.22898041E-03	-1.1792439	0.74971262E-05	0.24627027E-02	0.12074011E-05
49	-0.10787351E-02	0.22992298E-03	-1.1792013	0.83970802E-05	0.24631401E-02	0.23996339E-05
50	-0.10946851E-02	0.23139856E-03	-1.1791554	0.88544017E-05	0.24641316E-02	0.35538853E-05
51	-0.11165520E-02	0.23081166E-03	-1.1791077	0.91086805E-05	0.24655157E-02	0.46107119E-05
52	-0.11562419E-02	0.22396158E-03	-1.1790410	0.86492111E-05	0.24678669E-02	0.57257289E-05
53	-0.12029125E-02	0.20924395E-03	-1.1789812	0.72690776E-05	0.24702313E-02	0.64010921E-05
54	-0.12531052E-02	0.18673312E-03	-1.1789342	0.52308146E-05	0.24722344E-02	0.66070638E-05
55	-0.13030131E-02	0.15697394E-03	-1.1789034	0.29331040E-05	0.24736170E-02	0.62834637E-05
56	-0.13481538E-02	0.12052835E-03	-1.1788891	0.71122597E-06	0.24742627E-02	0.53024787E-05
57	-0.13652778E-02	0.10251704E-03	-1.1788873	0.32475629E-06	0.24743795E-02	0.47273854E-05
58	-0.13800908E-02	0.83428313E-04	-1.1788872	-0.17024120E-06	0.24743913E-02	0.39676361E-05
59	-0.13921122E-02	0.63413828E-04	-1.1788884	-0.43696633E-06	0.24743476E-02	0.30897847E-05
60	-0.14009848E-02	0.42683446E-04	-1.1788900	-0.45392815E-06	0.24742858E-02	0.21176852E-05
61	-0.14064292E-02	0.21465558E-04	-1.1788913	-0.27894913E-06	0.24742345E-02	0.10770332E-05
62	-0.14082648E-02	0.00000000E+00	-1.1788918	0.00000000E+00	0.24742149E-02	0.00000000E+00
63	-0.13952146E-02	0.00000000E+00	-1.1677003	0.00000000E+00	0.24986878E-02	0.00000000E+00
64	-0.13868112E-02	0.00000000E+00	-1.1564148	0.00000000E+00	0.25161092E-02	0.00000000E+00
65	-0.13837784E-02	0.00000000E+00	-1.1450664	0.00000000E+00	0.25266240E-02	0.00000000E+00
66	-0.13858908E-02	0.00000000E+00	-1.1336872	0.00000000E+00	0.25297478E-02	0.00000000E+00
67	-0.13802165E-02	0.23234200E-04	-1.1330937	-0.69165810E-05	0.25317873E-02	0.77461877E-06
68	-0.13632437E-02	0.46442064E-04	-1.1313223	-0.12668568E-04	0.25376130E-02	0.14984685E-05
69	-0.13352258E-02	0.69775918E-04	-1.1283996	-0.16151614E-04	0.25463772E-02	0.21176855E-05
70	-0.12967825E-02	0.93652436E-04	-1.1243705	-0.16440266E-04	0.25567990E-02	0.25678890E-05
71	-0.12492293E-02	0.11882948E-03	-1.1192984	-0.12983266E-04	0.25673719E-02	0.27476283E-05
72	-0.11936478E-02	0.14604300E-03	-1.1132624	-0.59944569E-05	0.25778400E-02	0.23319379E-05
73	-0.11088969E-02	0.19099357E-03	-1.1026159	0.11300127E-04	0.25866422E-02	0.12067580E-05
74	-0.10186528E-02	0.23996369E-03	-1.0903891	0.34626125E-04	0.25917302E-02	0.37393917E-06
75	-0.93075540E-03	0.29146124E-03	-1.0769905	0.62287007E-04	0.25915469E-02	-0.25710650E-06
76	-0.84920845E-03	0.33896618E-03	-1.0628578	0.91016065E-04	0.25862676E-02	-0.71219414E-06
77	-0.77600870E-03	0.37554644E-03	-1.0484424	0.11743795E-03	0.25766545E-02	-0.10095863E-05
78	-0.71186492E-03	0.39529387E-03	-1.0342044	0.13843801E-03	0.25633949E-02	-0.11679120E-05
79	-0.65699619E-03	0.39448558E-03	-1.0206074	0.15116085E-03	0.25471594E-02	-0.12069099E-05
80	-0.61156240E-03	0.37183881E-03	-1.0081108	0.15345978E-03	0.25291041E-02	-0.11432215E-05
81	-0.57594664E-03	0.32713352E-03	-0.99715301	0.14429079E-03	0.25111862E-02	-0.96515384E-06
82	-0.55172192E-03	0.28180789E-03	-0.9896767	0.12892575E-03	0.24957252E-02	-0.74124696E-06
83	-0.53289836E-03	0.22488055E-03	-0.98412284	0.10691549E-03	0.24828125E-02	-0.58625809E-06
84	-0.51606663E-03	0.15822869E-03	-0.97975727	0.78573020E-04	0.24728987E-02	-0.45618161E-06
85	-0.50079268E-03	0.85488528E-04	-0.97698029	0.44757997E-04	0.24671659E-02	-0.34273323E-06
86	-0.49405975E-03	0.42619921E-04	-0.97613194	0.22823306E-04	0.24654990E-02	-0.16847975E-06
87	-0.49164101E-03	0.00000000E+00	-0.97584812	0.00000000E+00	0.24649788E-02	0.00000000E+00
88	-0.49629276E-03	0.00000000E+00	-0.96883350	0.00000000E+00	0.24682815E-02	0.00000000E+00
89	-0.49650596E-03	0.00000000E+00	-0.96181077	0.00000000E+00	0.24707156E-02	0.00000000E+00
90	-0.49266496E-03	0.00000000E+00	-0.95478129	0.00000000E+00	0.24731449E-02	0.00000000E+00
91	-0.49454308E-03	0.00000000E+00	-0.94774280	0.00000000E+00	0.24770740E-02	0.00000000E+00
92	-0.49894096E-03	0.80535147E-04	-0.94622249	0.30258743E-04	0.24743871E-02	-0.12554945E-06
93	-0.50389731E-03	0.13710448E-03	-0.94194578	0.52404636E-04	0.24665039E-02	-0.21998924E-06
94	-0.50351207E-03	0.16856605E-03	-0.93572636	0.64626204E-04	0.24550673E-02	-0.11280383E-06
95	-0.49736208E-03	0.16164775E-03	-0.92878110	0.63911449E-04	0.24405682E-02	0.54948436E-08
96	-0.49034426E-03	0.12295084E-03	-0.92249109	0.50762531E-04	0.24261978E-02	0.11160077E-06
97	-0.48504022E-03	0.67699550E-04	-0.91812058	0.28527678E-04	0.24141867E-02	0.65859191E-07
98	-0.48344855E-03	0.00000000E+00	-0.91655771	0.00000000E+00	0.24097498E-02	0.00000000E+00
99	-0.48339207E-03	0.00000000E+00	-0.90970157	0.00000000E+00	0.24109614E-02	0.00000000E+00
100	-0.47425749E-03	0.00000000E+00	-0.90284872	0.00000000E+00	0.24079224E-02	0.00000000E+00
163	-0.46425328E-03	0.00000000E+00	-0.89600757	0.00000000E+00	0.24028719E-02	0.00000000E+00
164	-0.43786395E-03	0.00000000E+00	-0.87917178	0.00000000E+00	0.23859564E-02	0.00000000E+00
165	-0.40956610E-03	0.00000000E+00	-0.86246648	0.00000000E+00	0.23660941E-02	0.00000000E+00
166	-0.37906437E-03	0.00000000E+00	-0.84590246	0.00000000E+00	0.23459998E-02	0.00000000E+00
167	-0.33645313E-03	0.00000000E+00	-0.82490041	0.00000000E+00	0.23218677E-02	0.00000000E+00
168	-0.28951098E-03	0.00000000E+00	-0.80410082	0.00000000E+00	0.23014955E-02	0.00000000E+00
169	-0.23810201E-03	0.00000000E+00	-0.78345516	0.00000000E+00	0.22881205E-02	0.00000000E+00
170	-0.18241064E-03	0.00000000E+00	-0.76288393	0.00000000E+00	0.22854823E-02	0.00000000E+00
171	-0.12311832E-03	0.00000000E+00	-0.74226922	0.00000000E+00	0.22984058E-02	0.00000000E+00
172	-0.61601583E-04	0.00000000E+00	-0.72144329	0.00000000E+00	0.23331438E-02	0.00000000E+00
2011	-0.37897597E-03	0.33694848E-04	-0.84596083	0.23427452E-04	0.23467258E-02	0.56684989E-07
2012	-0.37904645E-03	0.16839577E-04	-0.84591703	0.11708149E-04	0.23461857E-02	0.22430216E-07
2013	-0.62721991E-04	0.21119697E-04	-0.72145181	0.34224800E-05	0.23339550E-02	-0.53431103E-06
2014	-0.12405162E-03	0.19698078E-04	-0.74228538	0.64795207E-05	0.22993903E-02	-0.45081216E-06

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

2015	-0.18312945E-03	0.20495452E-04	-0.76290913	0.10100468E-04	0.22865443E-02	-0.33600608E-06
2016	-0.23861391E-03	0.22789337E-04	-0.78348975	0.13864111E-04	0.22891607E-02	-0.21632525E-06
2017	-0.28982842E-03	0.25996612E-04	-0.80414440	0.17462893E-04	0.23024496E-02	-0.10600367E-06
2018	-0.33658139E-03	0.29699594E-04	-0.82495200	0.20679525E-04	0.23226778E-02	-0.13475174E-07
2019	-0.61876788E-04	0.10578329E-04	-0.72144542	0.17094259E-05	0.23333337E-02	-0.24662858E-06
2020	-0.12335479E-03	0.98586957E-05	-0.74227326	0.32434031E-05	0.22986417E-02	-0.21643345E-06
2021	-0.18258984E-03	0.10251220E-04	-0.76289024	0.50579617E-05	0.22857426E-02	-0.16601436E-06
2022	-0.23823041E-03	0.11393932E-04	-0.78346381	0.69438151E-05	0.22883783E-02	-0.11008790E-06
2023	-0.28959194E-03	0.12994515E-04	-0.80411172	0.87467271E-05	0.23017341E-02	-0.57189535E-07
2024	-0.33648240E-03	0.14844159E-04	-0.82491331	0.10355037E-04	0.23220712E-02	-0.12148851E-07
2029	-0.37857289E-03	0.13861539E-03	-0.84686124	0.91844360E-04	0.23575509E-02	0.48355963E-06
2030	-0.37881998E-03	0.59788440E-04	-0.84608567	0.41359426E-04	0.23482695E-02	0.99183575E-07
2031	-0.37865912E-03	0.85975876E-04	-0.84627881	0.58869928E-04	0.23506309E-02	0.17618396E-06
2032	-0.37856135E-03	0.11225976E-03	-0.84653825	0.75762626E-04	0.23537536E-02	0.29964477E-06
2033	-0.79841799E-04	0.83464730E-04	-0.72158363	0.13543631E-04	0.23454057E-02	-0.17084436E-05
2034	-0.13791049E-03	0.78925953E-04	-0.74253442	0.25511090E-04	0.23141752E-02	-0.11909633E-05
2035	-0.19362412E-03	0.83216465E-04	-0.76329696	0.39667026E-04	0.23026346E-02	-0.69782373E-06
2036	-0.24589357E-03	0.93326929E-04	-0.78402183	0.54374932E-04	0.23050610E-02	-0.27545743E-06
2037	-0.29422323E-03	0.10688503E-03	-0.80481446	0.68442957E-04	0.23170977E-02	0.62392563E-07
2038	-0.33848601E-03	0.12224939E-03	-0.82574593	0.81069853E-04	0.23354325E-02	0.31408742E-06
2039	-0.73751248E-04	0.68524230E-04	-0.72153622	0.11099714E-04	0.23410562E-02	-0.13607096E-05
2040	-0.68814978E-04	0.53077637E-04	-0.72149825	0.86045452E-05	0.23378949E-02	-0.10680272E-05
2041	-0.65115731E-04	0.37240910E-04	-0.72147002	0.60368813E-05	0.23355487E-02	-0.78056868E-06
2042	-0.13303154E-03	0.64487454E-04	-0.74244487	0.20967897E-04	0.23087458E-02	-0.10041890E-05
2043	-0.12903860E-03	0.49761942E-04	-0.74237315	0.16257419E-04	0.23045704E-02	-0.81159797E-06
2044	-0.12602377E-03	0.34809911E-04	-0.74231985	0.11411500E-04	0.23014444E-02	-0.62308212E-06
2045	-0.18998296E-03	0.67665599E-04	-0.76315763	0.32644451E-04	0.22967884E-02	-0.64665501E-06
2046	-0.18695591E-03	0.52015910E-04	-0.76304593	0.25328548E-04	0.22922018E-02	-0.55624254E-06
2047	-0.18464694E-03	0.36285117E-04	-0.76296286	0.17788601E-04	0.22887772E-02	-0.44825788E-06
2048	-0.24341325E-03	0.75658081E-04	-0.78383077	0.44778324E-04	0.22993204E-02	-0.32415204E-06
2049	-0.24131245E-03	0.58016948E-04	-0.78367752	0.34757710E-04	0.22947641E-02	-0.31710436E-06
2050	-0.23968952E-03	0.40396265E-04	-0.78356351	0.24417848E-04	0.22913657E-02	-0.27632358E-06
2051	-0.29276124E-03	0.86534961E-04	-0.80457392	0.56386887E-04	0.23118308E-02	-0.54918637E-07
2052	-0.29148813E-03	0.66282345E-04	-0.80438092	0.43778787E-04	0.23076183E-02	-0.10991876E-06
2053	-0.29049269E-03	0.46109861E-04	-0.80423730	0.30758821E-04	0.23044792E-02	-0.12218504E-06
2054	-0.23783742E-03	0.98950494E-04	-0.82546095	0.66815345E-04	0.23308566E-02	-0.13464218E-06
2055	-0.33728063E-03	0.75768147E-04	-0.82523223	0.51880454E-04	0.23271716E-02	0.55872192E-07
2056	-0.33685633E-03	0.52691644E-04	-0.82506205	0.36443423E-04	0.23244330E-02	0.46447563E-08
2062	-0.35521607E-03	0.40151652E-03	-0.85232122	0.14974415E-03	0.24188668E-02	0.22282604E-05
2063	-0.37882413E-03	0.19146155E-03	-0.84768353	0.12048155E-03	0.23671120E-02	0.63228950E-06
2064	-0.37846385E-03	0.24422877E-03	-0.84870540	0.14320203E-03	0.23787493E-02	0.86497442E-06
2065	-0.37583724E-03	0.29685852E-03	-0.84987258	0.15768122E-03	0.23918353E-02	0.11890384E-05
2066	-0.36885837E-03	0.34933821E-03	-0.85111083	0.16103845E-03	0.24055541E-02	0.16097865E-05
2067	-0.15707797E-03	0.18682285E-03	-0.72240250	0.22623889E-04	0.24130848E-02	-0.10010574E-05
2068	-0.18321948E-03	0.20257048E-03	-0.74407203	0.42553922E-04	0.24032570E-02	0.11107883E-06
2069	-0.21096668E-03	0.23465372E-03	-0.76568343	0.66003204E-04	0.23998271E-02	0.96172924E-06
2070	-0.24152682E-03	0.27529627E-03	-0.78728539	0.90064527E-04	0.24009127E-02	0.15513057E-05
2071	-0.27562194E-03	0.31883247E-03	-0.80891177	0.11280286E-03	0.24050892E-02	0.19110763E-05
2072	-0.31354444E-03	0.36161632E-03	-0.83058541	0.13293132E-03	0.24113138E-02	0.20872931E-05
2073	-0.14745216E-03	0.17342901E-03	-0.72222018	0.24401877E-04	0.23980910E-02	-0.16565677E-05
2074	-0.13126674E-03	0.15664181E-03	-0.72203345	0.23869848E-04	0.23826821E-02	-0.20203997E-05
2075	-0.11273899E-03	0.13590958E-03	-0.72185787	0.21584077E-04	0.23682412E-02	-0.20859771E-05
2076	-0.94918282E-04	0.11133825E-03	-0.72170506	0.17998866E-04	0.23556970E-02	-0.19307747E-05
2077	-0.18342107E-03	0.18051148E-03	-0.74372853	0.45705647E-04	0.23834096E-02	-0.57490801E-06
2078	-0.17518386E-03	0.15748579E-03	-0.74337811	0.44583718E-04	0.23631301E-02	-0.10087722E-05
2079	-0.16286007E-03	0.13297924E-03	-0.74304932	0.40276306E-04	0.23441349E-02	-0.12161626E-05
2080	-0.14967697E-03	0.10677038E-03	-0.74276318	0.33665259E-04	0.23275927E-02	-0.12520856E-05
2081	-0.21895296E-03	0.20436816E-03	-0.76515030	0.70835382E-04	0.23782697E-02	0.25109459E-06
2082	-0.21750963E-03	0.17440321E-03	-0.76460681	0.69069932E-04	0.23561883E-02	-0.32290437E-06
2083	-0.21083258E-03	0.14437655E-03	-0.76409690	0.62422615E-04	0.23354244E-02	-0.52518832E-06
2084	-0.20210081E-03	0.11402242E-03	-0.76365271	0.52255209E-04	0.23172825E-02	-0.66597162E-06
2085	-0.25474993E-03	0.23764038E-03	-0.78655753	0.96702271E-04	0.23797592E-02	0.85145899E-06
2086	-0.25839416E-03	0.20081924E-03	-0.78581501	0.94375634E-04	0.23580323E-02	0.34880118E-06
2087	-0.25628337E-03	0.16462516E-03	-0.78511766	0.85388979E-04	0.23375258E-02	0.12860799E-07
2088	-0.25138504E-03	0.12884840E-03	-0.78450946	0.71568459E-04	0.23195550E-02	-0.18591081E-06
2089	-0.29140774E-03	0.27502857E-03	-0.80799982	0.12119831E-03	0.23857578E-02	0.12558539E-05
2090	-0.29817428E-03	0.23197718E-03	-0.80706855	0.11842379E-03	0.23658601E-02	0.76359822E-06
2091	-0.29923941E-03	0.18966713E-03	-0.80619284	0.10728367E-03	0.23470204E-02	0.41386858E-06
2092	-0.29726368E-03	0.14800414E-03	-0.80542815	0.90021660E-04	0.23304608E-02	0.18646766E-06
2093	-0.32935909E-03	0.31298388E-03	-0.82951042	0.14290854E-03	0.23947296E-02	0.14974450E-05

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p PAGE 4
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

2094	-0.33721064E-03	0.26464794E-03	-0.82841162	0.13980196E-03	0.23776264E-02	0.10358399E-05
2095	-0.33988507E-03	0.21673848E-03	-0.82737707	0.12681207E-03	0.23613803E-02	0.69277840E-06
2096	-0.33972388E-03	0.16927022E-03	-0.82647259	0.10653449E-03	0.23470443E-02	0.45633220E-06
2101	-0.34053600E-03	0.43739997E-03	-0.85307971	0.13118439E-03	0.24271505E-02	0.29855857E-05
2102	-0.32072469E-03	0.47269241E-03	-0.85371082	0.10175763E-03	0.24341556E-02	0.39044830E-05
2109	-0.14944549E-03	0.20240201E-03	-0.72261317	0.15690758E-04	0.24301413E-02	0.16871114E-05
2110	-0.15718902E-03	0.19476677E-03	-0.72251710	0.19877042E-04	0.24224829E-02	0.22242252E-06
2111	-0.15817413E-03	0.23311679E-03	-0.74446664	0.28740937E-04	0.24258700E-02	0.31108312E-05
2112	-0.17523943E-03	0.21770612E-03	-0.74428765	0.37267121E-04	0.24156613E-02	0.14324586E-05
2113	-0.17368256E-03	0.27810384E-03	-0.76629489	0.44352007E-04	0.24243943E-02	0.40292986E-05
2114	-0.19708264E-03	0.25611097E-03	-0.76601785	0.57751250E-04	0.24132698E-02	0.23119639E-05
2115	-0.19804378E-03	0.32910330E-03	-0.78811983	0.60590770E-04	0.24250643E-02	0.44369941E-05
2116	-0.22420106E-03	0.30201211E-03	-0.78774167	0.78794220E-04	0.24140939E-02	0.28433310E-05
2117	-0.23130180E-03	0.38047696E-03	-0.80995747	0.76137903E-04	0.24272164E-02	0.44608666E-05
2118	-0.25728521E-03	0.34962107E-03	-0.80948324	0.98717178E-04	0.24171355E-02	0.30784072E-05
2119	-0.27256280E-03	0.42892554E-03	-0.83181867	0.90052107E-04	0.24303525E-02	0.42379756E-05
2120	-0.29623337E-03	0.39540833E-03	-0.83125894	0.11638673E-03	0.24216646E-02	0.30985698E-05
2124	-0.46146770E-03	0.47850844E-04	-0.89608477	0.30614576E-04	0.24045139E-02	0.17234857E-06
2125	-0.46343804E-03	0.23907052E-04	-0.89602703	0.15544722E-04	0.24033380E-02	0.81601024E-07
2126	-0.40920792E-03	0.37070886E-04	-0.86253013	0.25497377E-04	0.23668051E-02	0.11892280E-06
2127	-0.43694033E-03	0.41048519E-04	-0.87924074	0.27568636E-04	0.23866846E-02	0.15694642E-06
2128	-0.40946216E-03	0.18524385E-04	-0.86248241	0.12779093E-04	0.23662809E-02	0.53531959E-07
2129	-0.43764507E-03	0.20495883E-04	-0.87918906	0.13851801E-04	0.23861514E-02	0.72949658E-06
2130	-0.45529241E-03	0.18652842E-03	-0.89719166	0.10961424E-03	0.24150523E-02	0.68314337E-06
2131	-0.45767396E-03	0.84464996E-04	-0.89624534	0.52480758E-04	0.24071725E-02	0.24738622E-06
2132	-0.45499904E-03	0.12017856E-03	-0.89648688	0.72726919E-04	0.24099862E-02	0.35235813E-06
2133	-0.45439298E-03	0.15419719E-03	-0.89680379	0.91707582E-04	0.24126154E-02	0.49515307E-06
2134	-0.40684293E-03	0.15228137E-03	-0.86350274	0.98857712E-04	0.23764243E-02	0.61409184E-06
2135	-0.43225931E-03	0.16768155E-03	-0.88027904	0.10472573E-03	0.23957715E-02	0.67786823E-06
2136	-0.40718334E-03	0.12348127E-03	-0.86315479	0.81706140E-04	0.23731712E-02	0.41831925E-06
2137	-0.40780403E-03	0.94617982E-04	-0.86287471	0.63637411E-04	0.23704209E-02	0.27784007E-06
2138	-0.40855757E-03	0.65791793E-04	-0.86266567	0.44834516E-04	0.23682666E-02	0.18149808E-06
2139	-0.43254873E-03	0.13656114E-03	-0.87990972	0.86912301E-04	0.23929660E-02	0.48176805E-06
2140	-0.43366004E-03	0.10489311E-03	-0.87961104	0.68042825E-04	0.23904124E-02	0.33557995E-06
2141	-0.43531620E-03	0.72965056E-04	-0.87938689	0.48217406E-04	0.23882478E-02	0.23035527E-06
2142	-0.46600659E-03	0.47736916E-03	-0.90355097	0.17341090E-03	0.24389717E-02	0.18288316E-05
2143	-0.45911756E-03	0.24811822E-03	-0.89816373	0.24160853E-03	0.24198175E-02	0.81551516E-06
2144	-0.46355596E-03	0.30724693E-03	-0.89935881	0.16703617E-03	0.24246395E-02	0.10006798E-05
2145	-0.46705069E-03	0.36504730E-03	-0.90071603	0.18315030E-03	0.24295329E-02	0.12368095E-05
2146	-0.46829407E-03	0.42178636E-03	-0.90215098	0.18660963E-03	0.24343692E-02	0.15173519E-05
2147	-0.39021807E-03	0.42991725E-03	-0.86935083	0.16019277E-03	0.24253034E-02	0.20733151E-05
2148	-0.42719509E-03	0.45533698E-03	-0.88642691	0.16800104E-03	0.24320518E-02	0.19640829E-05
2149	-0.40088543E-03	0.37584147E-03	-0.86805673	0.17232385E-03	0.24148610E-02	0.16402379E-05
2150	-0.40594947E-03	0.32103865E-03	-0.86673202	0.16883855E-03	0.24040435E-02	0.12738080E-05
2151	-0.40737988E-03	0.26560065E-03	-0.86548216	0.15349544E-03	0.23936569E-02	0.98068051E-06
2152	-0.40709786E-03	0.20939137E-03	-0.86438638	0.12935819E-03	0.23843020E-02	0.76170109E-06
2153	-0.43400765E-03	0.40012651E-03	-0.88506949	0.18076785E-03	0.24245372E-02	0.16019763E-05
2154	-0.43626182E-03	0.34389602E-03	-0.88367913	0.17726998E-03	0.24167048E-02	0.12838987E-05
2155	-0.43557371E-03	0.28669339E-03	-0.88236589	0.16139107E-03	0.24090816E-02	0.10214006E-05
2156	-0.43362881E-03	0.22818035E-03	-0.88121243	0.13635392E-03	0.24020347E-02	0.81928895E-06
2158	-0.46168064E-03	0.51514886E-03	-0.90442858	0.15209756E-03	0.24418023E-02	0.22855078E-05
2159	-0.45465974E-03	0.55200991E-03	-0.90516025	0.11858247E-03	0.24442347E-02	0.26872609E-05
2162	-0.36245457E-03	0.50309289E-03	-0.87083733	0.10918953E-03	0.24373795E-02	0.34671681E-05
2163	-0.37846270E-03	0.46688260E-03	-0.87016187	0.14040191E-03	0.24318480E-02	0.27596855E-05
2164	-0.40722589E-03	0.52965670E-03	-0.88798671	0.11469114E-03	0.24407453E-02	0.30413411E-05
2165	-0.41893851E-03	0.49293045E-03	-0.88727770	0.14728589E-03	0.24367688E-02	0.25131257E-05
2171	-0.47210291E-03	0.54765002E-04	-0.90486157	0.33619967E-04	0.24122588E-02	0.17004831E-06
2172	-0.47858672E-03	0.73291427E-04	-0.91366426	0.39181275E-04	0.24187703E-02	0.14724192E-06
2173	-0.47355301E-03	0.28034624E-04	-0.90337841	0.17620635E-04	0.24091346E-02	0.82077613E-07
2174	-0.48184650E-03	0.35558618E-04	-0.91074516	0.21170429E-04	0.24130932E-02	0.72196854E-07
2175	-0.49132224E-03	0.22191486E-03	-0.92375395	0.11543458E-03	0.24440241E-02	0.36718323E-06
2176	-0.48190119E-03	0.14502754E-03	-0.92271549	0.65637660E-04	0.24360523E-02	0.13626599E-06
2177	-0.48418389E-03	0.16900502E-03	-0.92299722	0.81292344E-04	0.24398231E-02	0.18949102E-06
2178	-0.48774126E-03	0.19452608E-03	-0.92334254	0.98344013E-04	0.24421450E-02	0.26646593E-06
2179	-0.46682987E-03	0.19811363E-03	-0.90601034	0.11179663E-03	0.24249971E-02	0.61728113E-06
2180	-0.47875797E-03	0.21030288E-03	-0.91486480	0.11371031E-03	0.24346762E-02	0.50927981E-06
2181	-0.46473624E-03	0.16655361E-03	-0.90561390	0.94077657E-04	0.24227243E-02	0.45441784E-06
2182	-0.46412030E-03	0.13289576E-03	-0.90528731	0.75500689E-04	0.24200159E-02	0.32918572E-06
2183	-0.46639346E-03	0.95752771E-04	-0.90503430	0.55751451E-04	0.24165289E-02	0.23635927E-06
2184	-0.47554827E-03	0.18070985E-03	-0.91446049	0.96306262E-04	0.24326086E-02	0.37584506E-06

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p PAGE 5
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

2185	-0.47303372E-03	0.15007157E-03	-0.91412415	0.78449881E-04	0.24299533E-02	0.27335928E-06
2186	-0.47349274E-03	0.11611268E-03	-0.91385711	0.60156255E-04	0.24258597E-02	0.19889619E-06
2187	-0.52974952E-03	0.50385987E-03	-0.93027242	0.17659715E-03	0.24497127E-02	0.99088128E-06
2188	-0.49904758E-03	0.27894950E-03	-0.92476692	0.14664297E-03	0.24469676E-02	0.43767382E-06
2189	-0.50772670E-03	0.33663146E-03	-0.92599768	0.17146666E-03	0.24488269E-02	0.53798870E-06
2190	-0.51643184E-03	0.39353451E-03	-0.92738598	0.18705236E-03	0.24496740E-02	0.66628827E-06
2191	-0.52410569E-03	0.44928798E-03	-0.92884823	0.19013855E-03	0.24498395E-02	0.81922305E-06
2192	-0.48680699E-03	0.48732642E-03	-0.91244505	0.17531938E-03	0.24425348E-02	0.15519760E-05
2193	-0.50805671E-03	0.49618236E-03	-0.92135220	0.17627931E-03	0.24461261E-02	0.12730660E-05
2194	-0.48654454E-03	0.43185677E-03	-0.91103127	0.18866444E-03	0.24395456E-02	0.13052417E-05
2195	-0.48327561E-03	0.37520328E-03	-0.90958153	0.18524010E-03	0.24362710E-02	0.10785100E-05
2196	-0.47814185E-03	0.31749698E-03	-0.90820902	0.16913870E-03	0.24327607E-02	0.88441976E-06
2197	-0.47224920E-03	0.25869228E-03	-0.90699837	0.14370837E-03	0.24290191E-02	0.72981025E-06
2198	-0.50514178E-03	0.44104451E-03	-0.91993037	0.18975113E-03	0.24447005E-02	0.10712461E-05
2199	-0.49972741E-03	0.38471434E-03	-0.91847155	0.18647455E-03	0.24429840E-02	0.88618223E-06
2200	-0.49286303E-03	0.32731865E-03	-0.91708872	0.17056127E-03	0.24408231E-02	0.72766553E-06
2201	-0.48555227E-03	0.26907766E-03	-0.91586629	0.14533547E-03	0.24380755E-02	0.60130496E-06
2203	-0.53207016E-03	0.54101547E-03	-0.93116516	0.15499159E-03	0.24496040E-02	0.12490419E-05
2204	-0.53280854E-03	0.57738959E-03	-0.93190984	0.12103818E-03	0.24495561E-02	0.14932282E-05
2207	-0.48017472E-03	0.56182926E-03	-0.91407037	0.12009213E-03	0.24460206E-02	0.22215187E-05
2208	-0.48464630E-03	0.52502632E-03	-0.91333130	0.15383636E-03	0.24444226E-02	0.19066444E-05
2209	-0.50623940E-03	0.57032111E-03	-0.92298687	0.12075205E-03	0.24477848E-02	0.18402339E-05
2210	-0.50811860E-03	0.53367755E-03	-0.92224351	0.15468232E-03	0.24470180E-02	0.15662824E-05
2214	-0.51897164E-03	0.23993086E-03	-0.94326131	0.11907898E-03	0.24631773E-02	-0.39119760E-06
2215	-0.51545142E-03	0.15952471E-03	-0.94217928	0.68557534E-04	0.24595247E-02	-0.25302612E-06
2216	-0.51489922E-03	0.18420310E-03	-0.94247428	0.85055742E-04	0.24594634E-02	-0.29928516E-06
2217	-0.51622149E-03	0.21124721E-03	-0.94283489	0.10230320E-03	0.24611800E-02	-0.34780605E-06
2218	-0.50076706E-03	0.22923608E-03	-0.93023941	0.11663384E-03	0.24506066E-02	0.13481411E-06
2219	-0.51011179E-03	0.23519652E-03	-0.93674204	0.11782616E-03	0.24569880E-02	-0.12203360E-06
2220	-0.49757577E-03	0.20477513E-03	-0.92979696	0.10105289E-03	0.24488977E-02	0.78179513E-07
2221	-0.49487208E-03	0.18301944E-03	-0.92940959	0.85467564E-04	0.24470592E-02	0.38099703E-07
2222	-0.49185691E-03	0.16709847E-03	-0.92907495	0.71381076E-04	0.24448851E-02	0.13871609E-07
2223	-0.50751089E-03	0.21048015E-03	-0.93640931	0.10236083E-03	0.24536105E-02	-0.13079443E-06
2224	-0.50574428E-03	0.18841105E-03	-0.93613194	0.86737960E-04	0.24537835E-02	-0.12683156E-06
2225	-0.50574571E-03	0.17262875E-03	-0.93590824	0.72389862E-04	0.24529216E-02	-0.11778881E-06
2226	-0.57862930E-03	0.51608238E-03	-0.94977857	0.17469768E-03	0.24574769E-02	-0.30531585E-06
2227	-0.52835819E-03	0.29819626E-03	-0.94429607	0.14866193E-03	0.24659389E-02	-0.40698157E-06
2228	-0.54056686E-03	0.35523307E-03	-0.94553498	0.17160493E-03	0.24662015E-02	-0.41369162E-06
2229	-0.55393924E-03	0.41025752E-03	-0.94691886	0.18582257E-03	0.24642471E-02	-0.40572270E-06
2230	-0.56691672E-03	0.46367488E-03	-0.94836898	0.18826456E-03	0.24610246E-02	-0.37443303E-06
2231	-0.54580363E-03	0.50865350E-03	-0.93676760	0.17638986E-03	0.24523109E-02	0.59052102E-06
2232	-0.56209554E-03	0.51274084E-03	-0.94326966	0.17576668E-03	0.24549003E-02	0.16443447E-06
2233	-0.53814243E-03	0.45465584E-03	-0.93534526	0.18995195E-03	0.24535794E-02	0.44941387E-06
2234	-0.52875564E-03	0.39949703E-03	-0.93388407	0.18703755E-03	0.24545406E-02	0.33392735E-06
2235	-0.51861545E-03	0.34308031E-03	-0.93249477	0.17179982E-03	0.24546320E-02	0.24346384E-06
2236	-0.50891379E-03	0.28567690E-03	-0.93125987	0.14743115E-03	0.24533515E-02	0.17719838E-06
2237	-0.55240509E-03	0.45946310E-03	-0.94185219	0.18933632E-03	0.24573069E-02	0.53773818E-07
2238	-0.54124916E-03	0.40507200E-03	-0.94039503	0.18663554E-03	0.24593966E-02	-0.23474101E-07
2239	-0.52956042E-03	0.34926598E-03	-0.93900722	0.17185014E-03	0.24604194E-02	-0.75201023E-07
2240	-0.51872020E-03	0.29206120E-03	-0.93776964	0.14809784E-03	0.24596673E-02	-0.10671951E-06
2242	-0.58587771E-03	0.55199205E-03	-0.95066188	0.15334653E-03	0.24552214E-02	-0.13127005E-06
2243	-0.59234032E-03	0.58736940E-03	-0.95139900	0.11982627E-03	0.24533708E-02	0.15006784E-06
2246	-0.55243064E-03	0.58157469E-03	-0.93840287	0.12097871E-03	0.24508351E-02	0.10730089E-05
2247	-0.54977540E-03	0.54547383E-03	-0.93765911	0.15483556E-03	0.24514836E-02	0.82377752E-06
2248	-0.57228311E-03	0.58491596E-03	-0.94489926	0.12058889E-03	0.24521002E-02	0.65604109E-06
2249	-0.56771334E-03	0.54914593E-03	-0.94415802	0.15429945E-03	0.24533532E-02	0.37785022E-06
2253	-0.50576050E-03	0.73872336E-04	-0.96191687	0.41022091E-04	0.24703137E-02	-0.29784153E-06
2254	-0.49918023E-03	0.37703186E-04	-0.96183874	0.21316468E-04	0.24705274E-02	-0.15199779E-06
2255	-0.50846133E-03	0.84665846E-04	-0.95192758	0.43101923E-04	0.24696192E-02	-0.25933109E-06
2257	-0.49760559E-03	0.41986632E-04	-0.95403321	0.23887957E-04	0.24721147E-02	-0.13580140E-06
2258	-0.54064232E-03	0.25379121E-03	-0.96325681	0.12410114E-03	0.24810799E-02	-0.75434546E-06
2259	-0.51836545E-03	0.12848908E-03	-0.96212662	0.67289154E-04	0.24711814E-02	-0.39211835E-06
2260	-0.52765285E-03	0.17644671E-03	-0.96242901	0.89228559E-04	0.24739486E-02	-0.50090606E-06
2261	-0.53447406E-03	0.21766457E-03	-0.96280944	0.10795617E-03	0.24776097E-02	-0.62423222E-06
2262	-0.53086965E-03	0.24617872E-03	-0.95324096	0.12128316E-03	0.24722785E-02	-0.57110560E-06
2263	-0.52704475E-03	0.21336547E-03	-0.95280552	0.10469402E-03	0.24697610E-02	-0.48664407E-06
2264	-0.52412296E-03	0.17811736E-03	-0.95243690	0.86569010E-04	0.24674628E-02	-0.40388230E-06
2265	-0.51919048E-03	0.13725821E-03	-0.95214108	0.66715846E-04	0.24667412E-02	-0.32789147E-06
2266	-0.63065245E-03	0.52117063E-03	-0.96968615	0.16917553E-03	0.24652123E-02	-0.10744528E-05
2267	-0.55626237E-03	0.31771161E-03	-0.96431754	0.15007851E-03	0.24850291E-02	-0.81922102E-06

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

2268	-0.57498494E-03	0.37276092E-03	-0.96555289	0.16923685E-03	0.24838663E-02	-0.88753079E-06
2269	-0.59443449E-03	0.42345861E-03	-0.96690920	0.18104815E-03	0.24789529E-02	-0.95835467E-06
2270	-0.61307326E-03	0.47242529E-03	-0.96831913	0.18252918E-03	0.24722160E-02	-0.10252657E-05
2271	-0.60434238E-03	0.51963898E-03	-0.95972453	0.17242267E-03	0.24613835E-02	-0.66127958E-06
2272	-0.58960951E-03	0.46887837E-03	-0.95833274	0.18592394E-03	0.24666380E-02	-0.68453279E-06
2273	-0.57379829E-03	0.41736214E-03	-0.95689916	0.18392307E-03	0.24716038E-02	-0.67433654E-06
2274	-0.55754522E-03	0.36409121E-03	-0.95552609	0.17077217E-03	0.24750048E-02	-0.64698900E-06
2275	-0.54258135E-03	0.30743424E-03	-0.95428753	0.14943208E-03	0.24754501E-02	-0.61127387E-06
2277	-0.64260755E-03	0.55512614E-03	-0.97054251	0.14849720E-03	0.24608657E-02	-0.10926082E-05
2278	-0.65460973E-03	0.58898157E-03	-0.97125748	0.11602451E-03	0.24572645E-02	-0.99401748E-06
2280	-0.62329560E-03	0.58932259E-03	-0.96132432	0.11829754E-03	0.24553120E-02	-0.31451599E-06
2281	-0.61401084E-03	0.55465064E-03	-0.96059649	0.15135464E-03	0.24580444E-02	-0.55191664E-06
2286	-0.50477325E-03	0.77815589E-04	-0.96945090	0.41999983E-04	0.24695288E-02	-0.33072632E-06
2287	-0.49874610E-03	0.39126892E-04	-0.96898895	0.21573068E-04	0.24685709E-02	-0.16363933E-06
2292	-0.55465027E-03	0.27982136E-03	-0.98015490	0.13124067E-03	0.24953433E-02	-0.86267341E-06
2293	-0.51756922E-03	0.13725317E-03	-0.97094174	0.71518962E-04	0.24731579E-02	-0.44048456E-06
2294	-0.52964402E-03	0.19111466E-03	-0.97326484	0.96113515E-04	0.24793772E-02	-0.56448632E-06
2295	-0.54135756E-03	0.23853599E-03	-0.97635881	0.11601177E-03	0.24871336E-02	-0.70737030E-06
2296	-0.72324065E-03	0.50888626E-03	-1.0032530	0.15278700E-03	0.24773997E-02	-0.16436359E-05
2297	-0.60925604E-03	0.36569390E-03	-0.99829594	0.15203195E-03	0.25190394E-02	-0.10477776E-05
2298	-0.64418230E-03	0.39933599E-03	-0.99949309	0.15883163E-03	0.25139443E-02	-0.11528719E-05
2299	-0.67401515E-03	0.43249412E-03	-1.0007425	0.16477541E-03	0.25028253E-02	-0.12888667E-05
2300	-0.69920887E-03	0.46874517E-03	-1.0020188	0.16477658E-03	0.24898824E-02	-0.14542833E-05
2301	-0.67618388E-03	0.51867456E-03	-0.98644889	0.16199440E-03	0.24715063E-02	-0.13509985E-05
2302	-0.65461785E-03	0.47402925E-03	-0.98513892	0.17487458E-03	0.24812670E-02	-0.12403881E-05
2303	-0.63182960E-03	0.43074530E-03	-0.98378521	0.17424426E-03	0.24910492E-02	-0.11292026E-05
2304	-0.60667155E-03	0.38708377E-03	-0.98247175	0.16518048E-03	0.24987907E-02	-0.10276994E-05
2305	-0.58033439E-03	0.33898091E-03	-0.98124884	0.15109083E-03	0.25014170E-02	-0.93954419E-06
2307	-0.74100934E-03	0.53867068E-03	-1.0040272	0.13435137E-03	0.24698046E-02	-0.19295063E-05
2308	-0.76067750E-03	0.56941803E-03	-1.0046746	0.10503874E-03	0.24635337E-02	-0.22528849E-05
2310	-0.70764630E-03	0.58293112E-03	-0.98795531	0.11114761E-03	0.24605008E-02	-0.15885955E-05
2311	-0.69147736E-03	0.55059272E-03	-0.98726964	0.14224475E-03	0.24654749E-02	-0.14906858E-05
2321	-0.10080528E-02	0.28169887E-03	-1.1146470	0.53877740E-04	0.24992550E-02	-0.58066698E-06
2322	-0.11068786E-02	0.18661017E-03	-1.1133099	0.17505749E-04	0.25704868E-02	-0.21111973E-05
2323	-0.10576248E-02	0.21134367E-03	-1.1135168	0.35190692E-04	0.25559837E-02	-0.17731023E-05
2324	-0.10289226E-02	0.23449191E-03	-1.1138369	0.47084702E-04	0.25380559E-02	-0.12348021E-05
2325	-0.10119090E-02	0.25770655E-03	-1.1142283	0.53659007E-04	0.25186166E-02	-0.45879159E-06
2326	-0.75839953E-03	0.49664439E-03	-1.0155702	0.14476808E-03	0.24814134E-02	-0.20441139E-05
2327	-0.79376786E-03	0.47985457E-03	-1.0279068	0.13557831E-03	0.24851687E-02	-0.17705327E-05
2328	-0.82886227E-03	0.45853658E-03	-1.0402611	0.12545145E-03	0.24885802E-02	-0.26910227E-05
2329	-0.86312234E-03	0.43309861E-03	-1.0526315	0.11451593E-03	0.24916185E-02	-0.28541963E-05
2330	-0.89600484E-03	0.40435130E-03	-1.0650159	0.10293216E-03	0.24942559E-02	-0.28561935E-05
2331	-0.92708519E-03	0.37344443E-03	-1.0774123	0.90875728E-04	0.24964482E-02	-0.26578116E-05
2332	-0.95612425E-03	0.34173503E-03	-1.0898184	0.78538889E-04	0.24981186E-02	-0.22249003E-05
2333	-0.98307961E-03	0.31065645E-03	-1.1022312	0.66148099E-04	0.24991347E-02	-0.15328480E-05
2334	-0.73502853E-03	0.46366745E-03	-1.0140949	0.15556925E-03	0.24941633E-02	-0.17397899E-05
2335	-0.71137284E-03	0.43502719E-03	-1.0125784	0.15703151E-03	0.25076584E-02	-0.14955981E-05
2336	-0.68359650E-03	0.41117005E-03	-1.0110696	0.15391989E-03	0.25204710E-02	-0.13106824E-05
2337	-0.64886729E-03	0.39082257E-03	-1.0095831	0.15145843E-03	0.25297304E-02	-0.11883974E-05
2338	-0.77238744E-03	0.45203840E-03	-1.0264787	0.14496294E-03	0.24981572E-02	-0.19789568E-05
2339	-0.75167663E-03	0.42883539E-03	-1.0250118	0.14688388E-03	0.25121661E-02	-0.16459662E-05
2340	-0.72790310E-03	0.41150356E-03	-1.0235419	0.14511744E-03	0.25263854E-02	-0.14049183E-05
2341	-0.69659498E-03	0.40064030E-03	-1.0220780	0.14444342E-03	0.25394029E-02	-0.12570568E-05
2342	-0.81033793E-03	0.43380562E-03	-1.0390770	0.13325725E-03	0.25019204E-02	-0.21344217E-05
2343	-0.79362305E-03	0.41363015E-03	-1.0378615	0.13475141E-03	0.25164792E-02	-0.17087339E-05
2344	-0.77534847E-03	0.39963089E-03	-1.0366429	0.13299928E-03	0.25318786E-02	-0.14075335E-05
2345	-0.75041176E-03	0.39362981E-03	-1.0354293	0.13203181E-03	0.25478951E-02	-0.12275587E-05
2346	-0.84788018E-03	0.40956178E-03	-1.0517992	0.12066735E-03	0.25054796E-02	-0.21699450E-05
2347	-0.83579045E-03	0.39017477E-03	-1.0509468	0.12110320E-03	0.25206937E-02	-0.16528188E-05
2348	-0.82396552E-03	0.37648747E-03	-1.0501003	0.11833860E-03	0.25371405E-02	-0.12919692E-05
2349	-0.80767119E-03	0.37081937E-03	-1.0492692	0.11547883E-03	0.25553891E-02	-0.10793094E-05
2350	-0.88415419E-03	0.38060548E-03	-1.0645584	0.10742844E-03	0.25088510E-02	-0.20513329E-05
2351	-0.87699955E-03	0.36035999E-03	-1.0640940	0.10639837E-03	0.25248611E-02	-0.14496292E-05
2352	-0.87214673E-03	0.34476814E-03	-1.0636487	0.10191581E-03	0.25422577E-02	-0.10340516E-05
2353	-0.86599637E-03	0.33591485E-03	-1.0632365	0.96076855E-04	0.25619844E-02	-0.79132105E-06
2354	-0.91862306E-03	0.34880921E-03	-1.0772700	0.93797997E-04	0.25120084E-02	-0.17483384E-05
2355	-0.91662303E-03	0.32695698E-03	-1.0771325	0.91104806E-04	0.25289406E-02	-0.10749025E-05
2356	-0.91911939E-03	0.30848840E-03	-1.0770283	0.84519326E-04	0.25471383E-02	-0.61301989E-06
2357	-0.92419273E-03	0.29473019E-03	-1.0769774	0.75135549E-04	0.25674702E-02	-0.34451912E-06
2358	-0.95117252E-03	0.31634039E-03	-1.0898471	0.80069217E-04	0.25148488E-02	-0.12370763E-05

FILENAME : PIT3A3.PO DATE : 05-25-94 TIME : 2:13p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 4/25)

2359	-0.95470860E-03	0.29308372E-03	-1.0898890	0.75736373E-04	0.25327534E-02	-0.51018255E-06
2360	-0.96509269E-03	0.27201163E-03	-1.0899766	0.67002389E-04	0.25514538E-02	-0.12201998E-07
2361	-0.98270004E-03	0.25362405E-03	-1.0901370	0.54074996E-04	0.25712463E-02	0.27847736E-06
2362	-0.98208625E-03	0.28535440E-03	-1.1021982	0.66595611E-04	0.25171616E-02	-0.50267422E-06
2363	-0.99185358E-03	0.26156859E-03	-1.1021839	0.60886026E-04	0.25359577E-02	0.25680370E-06
2364	-0.10109625E-02	0.23896296E-03	-1.1022261	0.50299565E-04	0.25546381E-02	0.78034664E-06
2365	-0.10430753E-02	0.21709179E-03	-1.1023592	0.34427277E-04	0.25724589E-02	0.10965071E-05
2367	-0.10156047E-02	0.29919900E-03	-1.1149256	0.49249990E-04	0.24869756E-02	-0.23924093E-05
2368	-0.10345317E-02	0.31750649E-03	-1.1151657	0.39303739E-04	0.24767373E-02	-0.45840446E-05
2377	-0.79901456E-03	0.55449443E-03	-1.0169179	0.99725907E-04	0.24655857E-02	-0.30316565E-05
2378	-0.77728335E-03	0.52488509E-03	-1.0163039	0.12748423E-03	0.24727439E-02	-0.25051722E-05
2379	-0.83648024E-03	0.53529019E-03	-1.0291710	0.93596395E-04	0.24675236E-02	-0.37100139E-05
2380	-0.81316315E-03	0.50673908E-03	-1.0285947	0.11962017E-03	0.24754769E-02	-0.30188732E-05
2381	-0.87259219E-03	0.51194329E-03	-1.0414336	0.86901036E-04	0.24693586E-02	-0.43167528E-05
2382	-0.84817245E-03	0.48433395E-03	-1.0408985	0.11098123E-03	0.24780047E-02	-0.34489282E-05
2383	-0.90684307E-03	0.48478186E-03	-1.0537049	0.79701805E-04	0.24710707E-02	-0.48267558E-05
2384	-0.88179329E-03	0.45804645E-03	-1.0532143	0.10166104E-03	0.24803065E-02	-0.37678783E-05
2385	-0.93872532E-03	0.45435300E-03	-1.0659843	0.72080887E-04	0.24726434E-02	-0.52086854E-05
2386	-0.91353198E-03	0.42853669E-03	-1.0655410	0.91776874E-04	0.24823615E-02	-0.39412882E-05
2387	-0.96777688E-03	0.42139583E-03	-1.0782712	0.64126935E-04	0.24740537E-02	-0.54272099E-05
2388	-0.94297926E-03	0.39671635E-03	-1.0778772	0.81450162E-04	0.24841378E-02	-0.39322218E-05
2389	-0.99360847E-03	0.38682957E-03	-1.0905646	0.55938457E-04	0.24752591E-02	-0.54412658E-05
2390	-0.96985977E-03	0.36368969E-03	-1.0902214	0.70813767E-04	0.24855766E-02	-0.37017342E-05
2391	-0.10159251E-02	0.35175572E-03	-1.1028633	0.47641117E-04	0.24761874E-02	-0.51943975E-05
2392	-0.99405149E-03	0.33071794E-03	-1.1025717	0.60033866E-04	0.24865748E-02	-0.32061059E-05
2404	-0.12336377E-02	0.13270778E-03	-1.1298823	-0.36763585E-05	0.25576592E-02	0.29809157E-05
2405	-0.12717336E-02	0.12666815E-03	-1.1463798	-0.12319262E-05	0.25385331E-02	0.37666168E-05
2406	-0.13099138E-02	0.12218453E-03	-1.1627367	0.33096685E-06	0.25129423E-02	0.46531063E-05
2412	-0.13789661E-02	0.25750496E-04	-1.1446244	-0.33637495E-05	0.25278563E-02	0.79660423E-06
2413	-0.13831046E-02	0.24959094E-04	-1.1561217	-0.15589480E-05	0.25169650E-02	0.85983897E-06
2414	-0.13925135E-02	0.23367751E-04	-1.1675547	-0.62624884E-06	0.24991959E-02	0.95659535E-06
2415	-0.13647126E-02	0.50756159E-04	-1.1433077	-0.62356966E-05	0.25314037E-02	0.15443653E-05
2416	-0.13721571E-02	0.49139336E-04	-1.1552511	-0.28689722E-05	0.25194437E-02	0.16752190E-05
2417	-0.13845291E-02	0.46162374E-04	-1.1671232	-0.11061024E-05	0.25006798E-02	0.18733466E-05
2418	-0.13416189E-02	0.74335179E-04	-1.1411382	-0.81310267E-05	0.25368359E-02	0.21929145E-05
2419	-0.13544974E-02	0.71835675E-04	-1.1538189	-0.36942681E-05	0.25232909E-02	0.24031979E-05
2420	-0.13716090E-02	0.67844439E-04	-1.1664148	-0.13196763E-05	0.25030332E-02	0.27139646E-05
2421	-0.13108351E-02	0.95957144E-04	-1.1381480	-0.85894482E-05	0.25434947E-02	0.26871729E-05
2422	-0.13310256E-02	0.92489417E-04	-1.1518456	-0.38191214E-05	0.25280963E-02	0.30057609E-05
2423	-0.13543272E-02	0.87945931E-04	-1.1654400	-0.11956180E-05	0.25060902E-02	0.34504145E-05
2424	-0.12740175E-02	0.11534064E-03	-1.1343788	-0.72151562E-05	0.25505964E-02	0.29586789E-05
2425	-0.13030040E-02	0.11078305E-03	-1.1493561	-0.30639136E-05	0.25333700E-02	0.34615042E-05
2426	-0.13334529E-02	0.10612500E-03	-1.1642098	-0.68868842E-06	0.25096173E-02	0.40725750E-05
2432	-0.10383035E-02	0.24978980E-03	-1.1308222	0.38659539E-04	0.24975247E-02	0.37232522E-06
2433	-0.10662033E-02	0.22783859E-03	-1.1469769	0.25119650E-04	0.24926410E-02	0.16089655E-05
2434	-0.10921562E-02	0.21999450E-03	-1.1630853	0.14551357E-04	0.24828296E-02	0.30945521E-05
2435	-0.10503043E-02	0.23067621E-03	-1.1305243	0.37903871E-04	0.25151814E-02	0.13721682E-05
2436	-0.10750122E-02	0.21110637E-03	-1.1302512	0.32449461E-04	0.25321267E-02	0.21060997E-05
2437	-0.11112776E-02	0.19052418E-03	-1.1300357	0.23121863E-04	0.25464327E-02	0.25941700E-05
2438	-0.11625171E-02	0.16627264E-03	-1.1299059	0.10401991E-04	0.25559412E-02	0.28713317E-05
2439	-0.10871515E-02	0.21381185E-03	-1.1467853	0.24303108E-04	0.25073965E-02	0.25502446E-05
2440	-0.11195639E-02	0.19775192E-03	-1.1466120	0.20475263E-04	0.25210478E-02	0.32281519E-05
2441	-0.11612464E-02	0.17904945E-03	-1.1464778	0.14260561E-04	0.25317998E-02	0.36327182E-05
2442	-0.12122312E-02	0.15633100E-03	-1.1463983	0.63953107E-05	0.25380313E-02	0.37896885E-05
2443	-0.11225470E-02	0.21025510E-03	-1.1629758	0.13984714E-04	0.24928104E-02	0.39883044E-05
2444	-0.11623447E-02	0.19610022E-03	-1.1628772	0.11755756E-04	0.25018782E-02	0.46350733E-05
2445	-0.12085447E-02	0.17727200E-03	-1.1628006	0.82842662E-05	0.25087546E-02	0.49352854E-05
2446	-0.12588400E-02	0.15317091E-03	-1.1627532	0.41253815E-05	0.25124975E-02	0.48859491E-05
2453	-0.10531522E-02	0.27702274E-03	-1.1311984	0.28874031E-04	0.24764930E-02	-0.36619986E-05
2454	-0.10399883E-02	0.26315904E-03	-1.1310232	0.35715530E-04	0.24861009E-02	-0.14347117E-05
2455	-0.10658370E-02	0.24536696E-03	-1.1472247	0.19494889E-04	0.24746039E-02	-0.21414427E-05
2456	-0.10607792E-02	0.23669295E-03	-1.1471082	0.23526858E-04	0.24828892E-02	-0.77679123E-07
2457	-0.10737912E-02	0.22810238E-03	-1.1632315	0.12100403E-04	0.24703003E-02	-0.54393375E-07
2458	-0.10786716E-02	0.22455731E-03	-1.1631616	0.13870915E-04	0.24760905E-02	0.16258669E-05

MAXIMUMS	62	32	48	2191	74	43
NODE						
VALUE	-0.14082648E-02	0.62337817E-03	-1.1792439	0.19013855E-03	0.25917302E-02	-0.75204959E-05

FILENAME : PIT3A4.PO DATE : 05-25-94 TIME : 2:13p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 5/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 1.7H

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE

14.2272 MAY 25,1994 CP= 398.760

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.16143679E-05	-2440.4017		1906.7740		-2526.6568
62		-2417.2392		1841.1826		-1280.3972
63		-1582.0403		3910.7209		-0.48856793E-02
64		-1607.1782		4041.4272		-0.45086566E-02
65		-1551.5176		5154.0476		-0.42849214E-02
66		-716.99275		5024.1385		-0.21092666E-02
87		-1147.4820		-12863.443		0.19202351E-03
88		-2214.7539		-24191.182		0.37421073E-03
89		-2172.9112		-24115.596		0.36033614E-03
90		-2584.6363		-25741.575		0.34813904E-03
91		-1879.2035		-16468.972		0.16999012E-03
98		-1529.9033		-15872.447		-0.89061182E-04
99		-2119.3795		-22395.131		-0.18535332E-03
100		-1612.0341		-19891.530		-0.19502530E-03
101		-1877.2767		-0.56041681E-02		-6718.1499
162		-2870.4228		0.57911829E-03		-2602.9901
163		-2427.8419		-32385.913		-0.31712935E-03
164		-3097.3101		-41454.704		-0.39710984E-03
165		-2811.5510		-38681.644		-0.28603807E-03
166		-2931.6784		-40366.265		-0.12592174E-03
167		-2990.3825		-40243.840		0.10682455E-03
168		-2695.6112		-33699.365		0.42799957E-03
169		-2448.5309		-25895.100		0.80200183E-03
170		-2282.6599		-17147.275		0.11912101E-02
171		-2245.6299		-7826.1428		0.15293899E-02
172		-2393.7092		1611.5778		0.17526884E-02
201		-1389.7888		-0.62215317E-02		-4474.1164
262		-2290.0703		-0.13766271E-02		-3675.5666
301		-1029.3435		-0.64025369E-02		-1850.8279
362		-1804.4960		-0.26637752E-02		-5103.5139
401		-742.86126		-0.60616645E-02		-348.89492
462		-1375.2541		-0.33291294E-02		-5498.5610
501		-539.64157		-0.55714910E-02		1286.7359
562		-1053.2446		-0.36429502E-02		-5996.8960
601		-408.80825		-0.52436825E-02		1637.9697
662		-843.14319		-0.38480111E-02		-5729.8634
701		-302.13033		-0.48988047E-02		1949.5602
762		-671.04301		-0.39011375E-02		-5507.9120
801		-212.71371		-0.45655978E-02		2184.6890
862		-525.70434		-0.38624843E-02		-5298.8746
901		-130.18734		-0.42607013E-02		2342.3533
962		-398.33592		-0.37743596E-02		-5089.1250
1001		-49.973531		-0.39929518E-02		2430.4955
1062		-282.09331		-0.36653544E-02		-4875.2974
1101		32.524593		-0.37663728E-02		2463.2827
1162		-171.43290		-0.35541917E-02		-4661.5443
1201		121.58999		-0.35822151E-02		2457.4157
1262		-61.459994		-0.34528107E-02		-4456.2276

FILENAME : PIT3A4.PO DATE : 05-25-94 TIME : 2:13p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 5/25)

PAGE 2

1301	221.99580	-0.34402927E-02	2429.5787
1362	52.700424	-0.33686244E-02	-4269.1119
1401	339.33644	-0.33398269E-02	2394.9550
1462	176.51572	-0.33060828E-02	-4109.5132
1501	480.80090	-0.32799642E-02	2366.6537
1562	316.64006	-0.32677167E-02	-3985.4377
1601	294.36159	-0.16300423E-02	1178.4976
1662	209.23899	-0.16273998E-02	-1939.3458
TOTAL	0.16143679E-05 -68685.299	0.00000000E+00 -415750.37	0.00000000E+00 -64876.647

FILENAME : PIT3B1.PO DATE : 05-25-94 TIME : 2:15p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	1.70000
3	34.0000
4	1.70000
5	1.70000
6	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	1.70000	2	1	1	0.000000E+00
3	34.0000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00
5	1.70000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE

14.2576 MAY 25,1994 CP= 508.230

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-250.30365	-337.23056	4.0020795	547.62346	6026.5315	106.14195
978	-251.20587	-337.66339	1.3522549	544.31010	6045.8710	34.759297
979	-237.99960	-322.09183	8.5553023	-333.08796	2598.7602	153.97724
980	-238.70887	-322.54247	2.8382336	-330.79809	2602.5908	51.370001
981	-249.46299	-298.04441	11.429237	-1216.0339	-432.26665	155.46073
982	-249.83650	-298.47895	3.8212935	-1215.0429	-436.66718	51.772141
983	-276.31358	-269.04708	12.710146	-1991.9769	-3120.4937	112.47162
984	-276.42148	-269.39178	4.2347175	-1990.3224	-3134.0116	37.367670
985	-310.68655	-238.51423	12.703671	-2542.9780	-5487.7621	26.163899
986	-310.58640	-238.77294	4.2447828	-2537.7815	-5509.5544	8.4562025
987	-346.16317	-209.13711	11.720803	-2746.8007	-7519.4690	-105.44070
988	-345.90125	-209.36063	3.8977709	-2732.2427	-7550.0691	-35.771786
989	-378.20342	-183.03817	9.8951065	-2471.5891	-9146.9808	-287.12761
990	-377.78390	-183.35609	3.3030387	-2426.3682	-9181.2888	-98.753513
991	-224.55484	-322.74944	19.544805	511.20710	5603.1243	512.34329
992	-234.58281	-328.73791	15.751447	507.15529	5773.9948	399.24907
993	-242.31854	-333.13488	11.642979	515.53847	5888.2596	294.41213
994	-247.60725	-335.92214	7.4476628	518.09126	5971.3388	191.72896
995	-220.22360	-308.90718	41.540211	-347.08724	2453.7977	761.25787
996	-227.01251	-314.13436	33.165746	-341.76373	2507.4321	600.72309
997	-232.25596	-318.05881	24.560150	-337.93302	2553.4562	441.09005
998	-235.98253	-320.71911	15.799491	-333.48024	2585.0153	283.67917
999	-239.86993	-286.66502	54.967674	-1201.3002	-322.11025	781.20279
1000	-243.51261	-291.10015	43.970975	-1210.4340	-363.39830	614.37842
1001	-246.37342	-294.46891	32.630167	-1213.2422	-395.23602	449.84864
1002	-248.39158	-296.80931	21.067052	-1212.0469	-418.57677	287.74779
1003	-273.54499	-260.29792	60.828627	-1983.1478	-2778.5458	595.89050
1004	-274.58921	-263.59686	48.763455	-1993.0071	-2907.7584	459.83581
1005	-275.41481	-266.20392	36.239042	-1992.9065	-3008.7507	331.32592

FILENAME : PIT3B1.PO DATE : 05-25-94 TIME : 2:15p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

1006	-276.00121	-268.05627	23.409470	-1988.3002	-3080.7038	209.43980
1007	-313.02658	-232.69122	60.956345	-2599.7108	-4930.1189	216.64521
1008	-312.18018	-234.71809	48.837152	-2589.1098	-5140.3821	146.41968
1009	-311.48202	-236.46344	36.272017	-2568.5606	-5305.7733	92.353653
1010	-310.96756	-237.78057	23.420505	-2547.0672	-5423.4837	52.028206
1011	-352.12592	-205.54291	57.136405	-2965.7617	-6758.4735	-348.36676
1012	-350.01622	-206.48445	45.538466	-2902.8478	-7043.0183	-322.47290
1013	-348.24019	-207.57951	33.653502	-2833.8652	-7268.5544	-267.28218
1014	-346.90439	-208.55647	21.641431	-2772.4363	-7430.4489	-186.62400
1015	-386.48259	-179.38949	51.091984	-3003.6903	-8207.7426	-1095.6662
1016	-383.76365	-179.82532	40.055421	-2841.7635	-8562.1992	-946.62146
1017	-381.29566	-180.94157	29.121403	-2682.5303	-8841.4362	-749.06961
1018	-379.33823	-182.18821	18.459125	-2544.8634	-9040.0356	-509.43984
1019	-23.233734	-164.24121	31.075762	613.38996	2392.5911	1059.3158
1020	-74.074463	-216.10497	34.692129	494.39910	3251.8372	1081.0050
1021	-124.72038	-257.18291	33.733071	438.05532	4045.5689	1001.7420
1022	-168.98436	-288.16028	30.037514	428.81674	4715.7479	851.61368
1023	-204.02295	-310.34976	24.438718	426.10043	5249.2102	662.34706
1024	-108.37753	-177.27925	70.736297	557.99758	1270.5916	1709.3435
1025	-133.04933	-217.94109	79.254161	156.12590	1591.1965	1693.4333
1026	-159.61873	-251.72788	76.693877	-107.95948	1888.5317	1530.3560
1027	-184.97105	-278.24818	67.056020	-259.09355	2142.6871	1280.8866
1028	-206.70029	-297.81744	53.311785	-325.55303	2342.5250	993.72490
1029	-186.70761	-197.77446	89.577669	505.60014	243.98358	1901.1543
1030	-197.84612	-221.54480	100.89039	-226.12522	112.92817	1854.5907
1031	-209.98860	-243.53587	98.840769	-708.87745	-12.380179	1648.6042
1032	-222.05111	-262.52595	87.502016	-993.83471	-131.87196	1358.2821
1033	-232.89482	-277.65104	70.213486	-1133.9361	-242.69791	1033.9660
1034	-259.27206	-221.48793	96.801352	429.46427	-669.56384	1719.5690
1035	-262.18572	-226.52622	109.22138	-630.02551	-1191.8119	1625.0484
1036	-265.34932	-235.01648	107.56326	-1313.3686	-1687.1212	1407.2469
1037	-268.56685	-244.79205	95.870336	-1707.0828	-2137.9238	1116.2410
1038	-271.56497	-254.11885	77.416230	-1894.9965	-2526.3697	814.87605
1039	-322.82345	-245.69672	97.509667	294.04481	-1464.6274	1219.6154
1040	-321.31428	-231.82088	109.51116	-1049.3598	-2325.4629	1084.8634
1041	-319.10261	-226.52642	107.77945	-1886.3845	-3142.7295	846.97330
1042	-316.74997	-226.62710	96.108414	-2340.3645	-3884.7199	586.22499
1043	-314.53391	-229.65519	77.624658	-2527.1546	-4521.0519	356.23437
1044	-374.05084	-267.66539	95.665757	64.402462	-2138.6318	448.48153
1045	-370.91144	-236.26586	105.56464	-1485.1643	-3280.6058	248.87487
1046	-366.12940	-217.87590	103.11614	-2402.5489	-4367.5860	5.5227917
1047	-360.87640	-208.58579	91.426601	-2845.0725	-5357.2528	-203.88616
1048	-355.73916	-205.47630	73.306443	-2960.2969	-6209.3350	-325.78441
1049	-410.52721	-284.92375	93.644406	-294.07265	-2679.2739	-542.25175
1050	-407.40408	-238.75839	100.16002	-1946.1597	-4031.6232	-824.25956
1051	-402.15257	-208.77209	96.524423	-2846.8790	-5327.1549	-1076.1912
1052	-396.38620	-190.74131	84.731348	-3184.8196	-6512.0106	-1223.3881
1053	-390.69380	-181.85306	66.876824	-3135.9002	-7537.8084	-1213.5489
1054	30.579724	2.4715631	-5.7692992	746.16597	737.65360	379.94558
1055	30.489172	-61.494782	10.720401	776.73947	1124.5467	724.25699
1056	13.392842	-112.15272	22.932162	722.02706	1662.3965	934.37529
1057	-77.276334	-49.654496	-10.597232	1814.3861	712.57387	702.42605
1058	-80.948507	-99.807276	26.449714	1397.3566	831.63831	1240.0727
1059	-90.873077	-137.85891	52.078130	984.65582	1007.7613	1549.8011
1060	-173.81711	-138.32109	-13.851176	3181.3310	610.47560	821.27903
1061	-174.55900	-158.13482	34.798231	2179.6756	477.88449	1410.4998
1062	-178.75888	-176.77620	66.598402	1323.8045	363.48501	1743.8881
1063	-253.35822	-237.84202	-12.161301	4564.4115	519.87155	762.40792
1064	-255.56911	-225.95950	37.812700	2963.7906	154.46430	1307.5686
1065	-257.10113	-221.15782	72.024007	1649.4410	-217.76536	1603.3464
1066	-316.31446	-331.81776	-4.0100738	5776.2561	451.28260	538.85835
1067	-321.11140	-293.20458	41.482926	3619.2332	-124.74882	969.43108
1068	-322.95232	-266.23432	73.650212	1879.3937	-724.27003	1178.2964
1069	-363.24643	-412.90722	10.410663	6672.1167	385.26068	168.91385
1070	-371.00754	-352.69384	48.331477	4041.5170	-370.56137	429.55558
1071	-374.29380	-306.85542	75.426611	1943.6523	-1159.6262	512.40073
1072	-395.08695	-477.18134	30.594453	7145.2232	288.70758	-320.07786
1073	-405.23930	-399.90195	58.773626	4146.7750	-589.72941	-266.90616
1074	-410.02231	-339.24670	78.841649	1780.3403	-1521.3895	-344.04881
1075	-402.30555	-163.66925	7.5806972	-1748.9307	-10251.905	-474.99490

FILENAME : PIT3B1.PO DATE : 05-25-94 TIME : 2:15p PAGE 3
 TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

1076	-401.72217	-164.43463	2.4532605	-1676.5313	-10294.851	-157.44163
1077	-420.51957	-151.66688	4.2187925	-566.86547	-10762.030	-718.34493
1078	-419.36394	-153.60235	1.3707437	-457.92871	-10819.046	-242.96643
1079	-446.61958	-144.29972	-1.2842713	1269.2858	-10610.977	-1055.1483
1080	-444.77098	-152.46807	-1.2366981	1506.9605	-10686.445	-362.13546
1081	-411.44205	-156.26730	45.622779	-2731.6464	-9152.4043	-1893.3684
1082	-409.04512	-156.91922	34.451472	-2433.4253	-9554.7015	-1622.2987
1083	-406.38035	-159.15422	23.906380	-2141.8308	-9881.2939	-1277.3078
1084	-403.84578	-161.85836	14.503568	-1889.6515	-10120.457	-860.45920
1085	-426.58590	-134.64288	44.051000	-2205.2156	-9533.5907	-2694.4323
1086	-427.07318	-135.25749	31.267985	-1733.9775	-9960.5002	-2328.1395
1087	-425.81192	-139.90909	19.192089	-1255.4575	-10320.296	-1859.2492
1088	-423.16770	-146.61097	9.6125470	-821.57368	-10599.417	-1276.9706
1089	-428.86086	-112.99607	51.786952	-1417.6729	-9497.0395	-3530.4991
1090	-437.66338	-108.62178	38.010092	-752.57331	-9877.5655	-3066.1106
1091	-445.49042	-113.65140	20.304307	-29.934951	-10183.308	-2509.4577
1092	-447.51975	-128.87177	5.0218582	728.49198	-10437.467	-1800.6263
1093	-429.88531	-295.38488	92.535250	-738.29861	-3027.7049	-1562.1194
1094	-427.34419	-238.95309	95.537286	-2387.2663	-4518.8810	-1933.2498
1095	-422.71864	-200.34650	90.908525	-3181.5583	-5945.8831	-2197.8850
1096	-418.14065	-175.12584	79.406155	-3339.2667	-7255.8840	-2285.6240
1097	-414.28983	-160.93792	61.782466	-3058.8596	-8400.6181	-2148.1768
1098	-434.27573	-299.73950	92.082100	-1253.2565	-3199.2945	-2525.9861
1099	-432.24855	-237.29808	91.915730	-2800.9909	-4727.1032	-2993.9643
1100	-428.31145	-193.17487	86.819463	-3410.6952	-6204.7221	-3282.5766
1101	-425.35499	-162.50059	76.687215	-3322.9720	-7569.3689	-3320.2284
1102	-425.23116	-142.77569	60.622008	-2763.3753	-8756.3634	-3069.3924
1103	-427.04848	-299.71408	92.047692	-1893.3161	-3206.2891	-3497.9330
1104	-425.39505	-234.08541	88.673694	-3258.2101	-4696.2871	-4085.6431
1105	-421.63674	-186.77362	82.206943	-3594.0942	-6165.0114	-4424.4787
1106	-418.91253	-152.55275	75.565687	-3164.5174	-7546.3526	-4421.7709
1107	-421.54118	-127.47379	64.587131	-2253.5922	-8742.8744	-4032.1609
1108	-411.07191	-518.76806	51.906959	7182.9522	230.47934	-815.56433
1109	-422.72713	-430.26027	70.417423	3939.6940	-745.18310	-982.30271
1110	-428.59894	-359.86974	83.412415	1420.4219	-1758.6955	-1225.4553
1111	-413.09256	-540.09294	72.587117	6803.7942	128.60168	-1268.9324
1112	-425.94564	-445.66437	82.028580	3462.3945	-864.09639	-1650.0082
1113	-432.47258	-369.87312	88.271403	892.71897	-1902.6725	-2049.9917
1114	-405.35811	-547.48177	94.735939	6061.1288	2.1565637	-1718.3145
1115	-418.27618	-450.31833	94.284315	2711.7362	-940.96256	-2297.7326
1116	-424.94900	-372.47644	93.585904	156.63261	-1949.0681	-2868.9677
1117	-481.02004	-158.73300	6.5645356	3348.3134	-10005.781	-870.91609
1118	-540.06253	-165.29009	6.2338191	4711.6550	-8719.4525	-918.22904
1119	-780.93933	-128.32711	100.87650	5793.0504	-5779.0155	-65.175917
1120	-480.27187	-138.52058	-4.5263152	3037.5755	-9901.7909	-1339.2796
1121	-559.40836	-119.33358	12.406238	4532.8866	-8706.7679	-1346.0432
1122	-550.17725	-122.22211	166.63494	6727.5300	-7935.4416	116.95522
1123	-414.58330	-100.81798	66.105219	-636.18848	-9299.4914	-4119.1024
1124	-431.21046	-87.773068	58.720367	153.93606	-9596.9566	-3532.7421
1125	-456.56326	-84.126546	39.276287	1050.5517	-9752.5319	-2903.7510
1126	-480.13777	-106.47715	8.9766676	2150.4493	-9815.8891	-2160.8821
1127	-385.98497	-101.73178	74.365526	76.841574	-9062.5433	-4542.1534
1128	-397.67541	-83.454597	80.191846	940.65046	-9384.3498	-3799.3055
1129	-431.49226	-65.659122	77.376865	1873.2263	-9438.9490	-3018.4180
1130	-498.29248	-72.365385	52.697102	3262.0163	-9126.3606	-2164.9234
1131	-348.91729	-108.89006	71.061211	946.79251	-8753.6829	-5080.0486
1132	-337.63153	-97.454331	87.228839	1914.1236	-9298.0897	-4169.9842
1133	-340.59701	-68.606929	114.17676	2830.3139	-9659.7634	-3144.5628
1134	-374.30838	-82.631299	139.98973	4736.3641	-9712.8606	-1927.4495
1135	-414.79847	-297.19481	92.249314	-2470.4919	-3097.2166	-4202.9324
1136	-413.48029	-230.68328	86.403379	-3654.8808	-4528.1037	-4903.7774
1137	-409.61357	-182.32931	80.242627	-3727.7045	-5950.6933	-5306.2356
1138	-405.54770	-147.20833	74.151649	-2967.7553	-7330.2200	-5297.4063
1139	-406.33710	-120.18403	69.411071	-1710.2575	-8554.3986	-4781.6548
1140	-401.85781	-293.83738	92.568315	-2924.2737	-2932.8275	-4661.6783
1141	-401.00103	-227.59455	85.044717	-3955.3489	-4259.2963	-5444.9074
1142	-397.26043	-179.21329	77.981431	-3817.0861	-5609.4950	-5912.4110
1143	-391.55834	-144.81895	71.801857	-2780.7690	-6965.7633	-5927.9708
1144	-386.17035	-119.75374	69.849083	-1204.4917	-8242.6548	-5349.9383
1145	-385.90944	-289.45279	93.114495	-3408.9467	-2699.9998	-5075.2363

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

1146	-385.75446	-223.91844	84.004570	-4277.9667	-3887.7789	-5951.9979
1147	-382.63071	-175.64076	75.727416	-3914.6000	-5125.3463	-6504.2439
1148	-375.85247	-142.22637	68.069340	-2574.8046	-6428.4087	-6579.4871
1149	-363.06435	-120.77261	64.960993	-632.66643	-7772.4767	-5990.6544
1150	-393.39790	-544.35858	110.96707	5341.2408	13.594764	-2024.4135
1151	-406.01307	-447.70753	103.39269	1973.9745	-951.55668	-2757.4106
1152	-412.51790	-370.20511	97.674048	-529.10576	-1903.0844	-3452.8689
1153	-380.64872	-536.07309	122.10985	4688.6605	-78.833940	-2206.9116
1154	-392.97778	-441.93272	109.38878	1368.9774	-936.71968	-3048.5566
1155	-399.37798	-365.91825	100.45595	-1072.0477	-1826.7267	-3821.5096
1156	-365.28432	-524.06931	132.47291	3928.2918	-142.75286	-2347.0955
1157	-376.86488	-433.43575	115.25749	705.77612	-911.79212	-3294.2359
1158	-383.12885	-359.94655	103.24468	-1663.6319	-1712.5370	-4150.9049
1159	-320.45860	-113.53425	54.804670	1830.2626	-8401.0790	-5653.9632
1160	-288.56699	-115.19503	63.812008	2863.4152	-9239.3698	-4739.3483
1161	-238.62419	-102.47328	96.192358	3628.8597	-10287.746	-3657.1216
1162	-160.48213	-70.605032	118.50141	4655.4158	-12006.208	-3224.2443
1163	-305.47852	-114.08421	37.662617	2369.4292	-7526.2570	-6434.8195
1164	-268.63407	-117.02418	31.093412	3545.9461	-8470.9551	-5692.0126
1165	-193.83354	-129.43266	24.731527	4351.8049	-9655.0340	-4851.4824
1166	-60.585626	-28.521765	15.205849	3357.1480	-10932.270	-4645.0398
1167	-305.22944	-104.94303	17.136550	3174.5445	-6586.8580	-7007.8188
1168	-275.22667	-106.32286	-5.1003083	4533.1267	-7451.9060	-6311.2399
1169	-224.68924	-95.771823	-51.394982	5269.7260	-8308.5958	-5566.7063
1170	-146.82048	-41.588470	-89.640586	3903.8928	-8633.6254	-4199.8622
1171	-369.95344	-284.97823	93.813022	-3862.6682	-2447.3468	-5385.2705
1172	-370.61534	-220.30713	83.476188	-4586.5118	-3485.7025	-6349.3343
1173	-368.50199	-172.03668	74.062249	-4019.9540	-4588.7079	-6990.8268
1174	-361.96243	-139.06252	64.172911	-2400.2637	-5807.7065	-7149.4416
1175	-344.45146	-120.63080	56.333028	-93.893027	-7179.9382	-6612.5602
1176	-354.75307	-280.70158	94.619914	-4269.4191	-2181.2180	-5606.6444
1177	-356.25974	-216.93727	83.411259	-4868.7020	-3062.6929	-6644.7354
1178	-355.43226	-168.47787	73.091962	-4128.7503	-4017.8770	-7372.0075
1179	-350.44654	-135.19996	61.114361	-2264.7939	-5122.7573	-7622.5713
1180	-333.00451	-117.19954	47.079442	373.80388	-6455.5441	-7175.8670
1181	-338.18330	-276.07363	95.625729	-4691.7044	-1876.1844	-5782.7996
1182	-340.54715	-213.33518	83.739796	-5167.9494	-2574.8941	-6895.0609
1183	-341.38178	-164.55808	72.744993	-4255.9278	-3347.6688	-7715.3474
1184	-338.96499	-130.08695	58.852915	-2142.3559	-4291.3742	-8073.9136
1185	-326.49805	-110.45933	38.761884	833.05890	-5504.2972	-7744.0545
1186	-349.72692	-510.87848	140.99587	3231.5723	-153.67807	-2443.8094
1187	-360.79438	-424.30674	120.05024	79.636420	-875.23976	-3469.9754
1188	-366.85101	-353.59808	105.67406	-2215.1809	-1584.9155	-4389.4681
1189	-335.03709	-497.53710	147.80450	2594.5643	-191.60078	-2504.8808
1190	-345.48281	-415.20187	123.90757	-480.86976	-825.38696	-3588.5440
1191	-351.35286	-347.37994	107.72896	-2703.4620	-1445.1961	-4553.4885
1192	-319.23859	-482.51084	154.10999	1915.1309	-207.25514	-2541.5832
1193	-328.78205	-405.00546	127.52743	-1058.2464	-769.18361	-3674.0469
1194	-334.43972	-340.53557	109.81504	-3205.6544	-1284.6216	-4676.6019
1195	-803.70709	-112.28935	-98.916415	18260.665	-2543.2940	1082.0136
1196	-554.50773	-119.54759	2.4637667	18553.638	-3258.0825	808.98830
1197	-550.67316	-85.955233	-133.40841	13197.344	-3514.4148	-216.06163
1198	-568.43938	-73.712365	32.039831	15851.923	-2861.5592	-944.78618
1199	-319.36005	-85.844371	5.3814386	4112.1244	-4839.5776	-7728.4172
1200	-315.37454	-74.882397	-25.280051	5785.7370	-5378.5061	-6964.0153
1201	-326.28181	-42.385427	-67.829055	6971.7661	-5596.8052	-5776.1365
1202	-371.26451	-45.164652	-103.24511	7923.1286	-5252.1375	-3246.8131
1203	-336.58282	-63.660622	12.403320	5279.1395	-2260.1585	-8453.5136
1204	-363.75938	-46.373805	-4.2954830	7528.2291	-2589.4914	-7504.9844
1205	-415.70199	-26.896221	-10.168136	9673.5874	-2726.3456	-5845.0134
1206	-498.25197	-29.491630	6.1658994	12349.605	-2794.0705	-3213.2841
1207	-315.26861	-269.76801	97.219118	-5247.7750	-1414.3924	-5930.3979
1208	-318.68388	-208.60510	84.704433	-5577.9565	-1837.6927	-7130.9938
1209	-321.58192	-159.23841	73.484859	-4454.5734	-2324.7181	-8075.0412
1210	-324.17041	-122.17209	58.175496	-2022.7476	-2992.3231	-8587.5066
1211	-323.20045	-98.091372	33.651532	1386.0787	-3955.6873	-8412.5604
1212	-285.52935	-261.75830	99.440752	-5946.5025	-794.32906	-5974.7488
1213	-289.85558	-202.81625	86.610466	-6112.6045	-837.15627	-7272.6709
1214	-294.86290	-153.01424	75.766742	-4747.0089	-900.35573	-6365.0226
1215	-303.20871	-112.21723	61.832440	-1938.2780	-1128.4769	-9080.3051

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

1216	-319.68023	-82.048888	37.801270	2043.7606	-1663.2533	-9119.1630
1217	-297.34953	-461.06144	161.06275	1014.9886	-256.48877	-2542.8055
1218	-305.74716	-390.75653	131.80946	-1815.7584	-666.10265	-3722.6491
1219	-311.15896	-331.06217	112.50599	-3866.3345	-1033.9408	-4769.3725
1220	-268.88720	-432.57908	168.15246	-88.902262	-243.53032	-2486.8537
1221	-276.04870	-372.34947	136.50244	-2753.6231	-524.40766	-3693.2043
1222	-281.14207	-318.78950	115.75596	-4685.4049	-697.68205	-4765.0994
1223	-518.63892	-77.458676	21.098796	19891.571	-2342.7541	-638.98331
1224	-521.32959	-28.207856	24.543350	22213.928	-699.23107	-996.31948
1225	-505.31431	-65.758455	52.989871	18369.080	-1920.6773	-2000.0545
1226	-521.75315	-32.036609	65.982547	21068.937	-141.68016	-2940.7287
1227	-477.40585	-54.986902	87.936829	15081.458	-590.47342	-4930.5826
1228	-482.81070	-52.283663	125.48378	17534.405	1702.8171	-6155.0441
1229	-427.21574	-43.758568	78.404431	11561.354	785.98512	-7240.7872
1230	-406.84972	-67.981468	144.62140	13763.855	4122.1112	-8564.9231
1231	-376.98664	-44.054159	62.218097	8928.2668	1576.5208	-8605.1858
1232	-317.93427	-72.200455	131.90278	10694.086	6332.7388	-9761.9958
1233	-337.26656	-49.434395	53.053023	6799.1851	1817.7195	-9326.9459
1234	-240.68040	-70.674386	111.00972	8370.8421	8072.9169	-10373.435
1235	-242.70700	-250.34574	102.67709	-6904.9508	188.72881	-5766.5388
1236	-246.79747	-195.38188	89.536021	-6893.5322	759.61956	-7136.9697
1237	-251.94505	-146.12915	80.438455	-5254.5725	1423.5399	-8399.8444
1238	-262.60934	-103.54594	71.378868	-1976.4884	2002.1833	-9399.1122
1239	-289.79377	-69.073205	62.236988	2817.5627	2233.5150	-9800.7250
1240	-187.73161	-235.08509	106.03932	-8094.6530	1455.9170	-5031.3166
1241	-189.54651	-186.11976	91.761963	-7925.6591	2869.9219	-6377.4637
1242	-190.07126	-140.36020	84.185138	-6025.5204	4645.3256	-7723.1774
1243	-192.60585	-98.864814	81.698877	-2262.3571	6613.2839	-8994.9011
1244	-200.47046	-77.761305	89.786267	3364.0839	8405.8597	-10006.813
1245	-229.46257	-392.21330	175.06068	-1554.4351	-218.48293	-2298.3158
1246	-224.26380	-345.82828	141.98594	-4004.8480	-257.49786	-3473.8809
1247	-238.54345	-301.11815	120.01307	-5789.7011	-148.23208	-4543.8709
1248	-179.99692	-342.29066	178.69301	-3238.3386	-135.15713	-1882.8604
1249	-181.88425	-312.08669	146.56302	-5491.0893	81.980294	-2919.1995
1250	-184.71383	-278.13040	124.47760	-7127.8787	552.75170	-3888.8202
1251	-147.13380	-215.80668	109.21309	-8821.3468	2193.9790	-4215.5375
1252	-145.61124	-176.66198	92.414320	-8575.1346	4139.6346	-5401.8425
1253	-140.43143	-138.08123	82.376804	-6719.1351	6663.4937	-6608.3229
1254	-130.59577	-101.35188	78.772352	-3071.0712	9724.9418	-7837.0696
1255	-108.20965	-80.773181	80.947749	2523.2321	13265.723	-9046.8274
1256	-113.23429	-202.02544	111.32047	-9487.4600	2729.6019	-3131.9187
1257	-109.71085	-170.34483	93.127850	-9320.6748	4876.9293	-4031.7286
1258	-101.97363	-138.66677	79.049721	-7833.8820	7671.4521	-4943.2059
1259	-86.533814	-108.59626	69.098303	-4862.7127	11204.070	-5873.8992
1260	-55.584385	-79.507297	56.146697	-226.54554	15571.442	-6818.0399
1261	-79.663334	-189.36725	110.08357	-10067.605	3123.2176	-1681.7988
1262	-74.779070	-162.09555	90.818969	-9971.4136	5382.3506	-2210.0152
1263	-66.243138	-134.21702	73.305095	-8742.4604	8329.3042	-2711.6678
1264	-50.930769	-107.19445	56.181963	-6225.1299	12115.778	-3156.6393
1265	-25.443520	-75.313927	35.534609	-2280.3552	16968.009	-3495.9181
1266	-47.811447	-176.98541	105.10759	-10368.697	3176.1337	20.963170
1267	-41.973868	-151.58335	85.332129	-10297.437	5427.0351	-73.884212
1268	-34.618571	-124.36222	65.887533	-9168.3119	8358.1853	-88.079812
1269	-24.349575	-95.988268	44.349779	-6799.8430	12110.814	60.666803
1270	-9.7249319	-64.619107	20.120670	-3027.1225	16914.162	544.81375
1271	-18.562455	-163.80945	96.747282	-10270.675	2773.7569	1758.8859
1272	-11.641240	-138.80678	77.434555	-10140.252	4871.2244	2107.0367
1273	-6.0924205	-110.25209	58.584570	-8926.2303	7595.6494	2581.3890
1274	-2.7286292	-77.710210	37.412036	-6376.2594	11016.231	3285.3286
1275	-0.81601205	-44.445068	12.050029	-2138.0809	15204.453	4477.7757
1276	8.1806815	-149.21366	85.776196	-9795.1056	1954.0751	3280.9838
1277	17.250550	-124.62002	68.159331	-9528.4611	3765.6312	4028.5122
1278	22.100420	-94.449109	52.710673	-8074.8584	6122.7653	4913.5562
1279	20.172337	-57.065844	36.777142	-5089.2799	8989.8088	5997.7481
1280	9.3917677	-15.451388	14.797373	72.687083	12195.297	7434.7623
1281	33.720209	-133.64735	72.913282	-9084.4115	891.62437	4411.4718
1282	46.584777	-110.81556	58.458942	-8650.2803	2327.9237	5491.8228
1283	52.742870	-79.734679	48.851853	-6879.5723	4224.6596	6675.4429
1284	48.931998	-37.887893	41.434356	-3346.1031	6438.9743	7906.6068
1285	29.141979	18.234363	30.588423	2795.2255	8623.2335	8982.3776

FILENAME : PIT3B1.PO DATE : 05-25-94 TIME : 2:15p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

1286	60.108586	-118.84858	58.949514	-8305.0703	-193.62652	5100.9802
1287	78.057609	-99.687037	49.653111	-7729.9399	823.64228	6464.5298
1288	86.946376	-67.894173	47.932735	-5648.1884	2222.0668	7850.9889
1289	83.619462	-20.633778	50.025694	-1587.3501	3769.4803	9010.8324
1290	62.555509	51.381881	57.154479	5186.8517	5195.7446	9249.8548
1291	89.415715	-107.44767	45.242465	-7559.5619	-1113.3717	5395.6119
1292	112.23267	-93.215213	44.187882	-6917.1189	-542.18458	7030.8283
1293	122.84654	-58.825346	51.755801	-4591.4894	319.24628	8555.6753
1294	120.49375	-1.4168116	62.046593	-113.52530	1218.3569	9492.0556
1295	107.83576	78.486571	87.173285	6788.6396	2412.6863	8809.5303
1296	-138.36682	-301.53565	178.32487	-4493.0562	-107.40183	-1357.7238
1297	-138.33270	-283.59103	148.73389	-6619.3019	322.00163	-2200.6806
1298	-139.83918	-258.27366	126.95429	-8164.6985	1065.2892	-2999.6047
1299	-107.41729	-271.59144	175.85380	-5308.3492	-85.657680	-805.27133
1300	-105.39764	-260.99916	149.38409	-7356.3669	480.27906	-1434.2341
1301	-105.41065	-240.15212	127.73133	-8855.6279	1407.4567	-2038.8752
1302	-81.575670	-247.32797	170.88914	-5860.1337	-89.032468	-198.95709
1303	-77.311661	-239.73569	148.31611	-7866.5685	546.80241	-571.16900
1304	-75.386159	-221.54169	127.06093	-9341.6223	1589.6704	-934.00122
1305	-60.342243	-228.91303	164.26767	-6110.3816	-132.58327	421.27282
1306	-54.270154	-220.00326	145.22280	-8120.1990	500.64745	329.80910
1307	-49.944386	-202.46987	124.37224	-9580.7699	1562.3625	237.46044
1308	-43.173966	-215.33281	156.72417	-6052.8867	-222.28648	1010.7743
1309	-35.423720	-201.30821	139.86168	-8103.3760	329.48461	1199.5628
1310	-28.193714	-183.08465	119.09521	-9557.5004	1306.4269	1383.6833
1311	-28.593266	-204.14240	148.83871	-5706.9106	-356.71423	1521.9863
1312	-19.150658	-182.62813	131.78431	-7822.8928	38.178224	1967.0294
1313	-8.3288224	-163.54794	110.55913	-9273.1798	831.57995	2412.7494
1314	-14.389933	-191.37058	141.03335	-5116.4059	-524.48724	1910.8810
1315	-3.1010958	-162.48028	120.43642	-7304.5449	-348.89016	2567.2489
1316	11.957505	-144.05171	98.049461	-8744.6955	178.20493	3241.6978
1317	2.0064558	-171.65244	133.54263	-4344.9628	-701.86101	2143.0262
1318	15.262247	-139.05857	105.30139	-6588.4266	-786.38395	2948.9333
1319	35.020693	-124.87199	81.064169	-8000.7846	-581.60758	3805.5499
1320	22.837904	-128.68461	126.45772	-3474.8187	-845.06400	2193.2634
1321	38.076766	-110.43329	86.204499	-5716.6847	-1211.1048	3081.8298
1322	62.038298	-106.47357	59.574503	-7079.7773	-1342.6655	4068.0785
1323	395.21424	24.183468	25.021492	4930.8234	-4225.4318	324.73009
1324	514.35447	60.532638	19.562419	2990.4063	-11342.298	664.87693
1325	660.40718	79.204856	13.884277	904.35382	-17120.246	738.82873
1326	846.74018	76.667810	8.1344360	-934.85871	-22244.379	681.54778
1327	373.71123	34.574211	64.418255	5452.5736	-4195.4564	911.39777
1328	493.53764	65.666848	47.391165	3138.7984	-11036.168	1723.9893
1329	640.92041	80.842547	28.207125	917.25127	-16735.342	1832.5508
1330	829.87724	75.796998	6.9481574	-955.89092	-21844.144	1568.7151
1331	337.68227	51.398805	94.975752	6335.8913	-4052.2827	1755.1311
1332	456.53993	72.800878	68.694551	3419.3066	-10476.010	2787.9381
1333	605.19452	82.030084	37.173633	972.05226	-16040.193	2833.3920
1334	797.23925	73.176779	-0.49969030	-958.87465	-21101.971	2294.0632
1335	295.04286	69.727287	114.49369	7332.5622	-3687.9510	2881.2062
1336	409.97197	78.161944	82.111838	3763.2408	-9713.3382	3859.1222
1337	557.82248	80.369538	40.709702	1065.9993	-15113.085	3735.4545
1338	750.45473	67.834189	-14.285326	-925.87602	-20071.022	2835.3927
1339	251.60314	84.308910	122.56538	8219.1664	-3036.1027	4211.5529
1340	361.23576	78.122995	88.031653	4085.9261	-8806.5825	4911.9916
1341	504.06915	73.811982	40.192236	1187.6884	-14051.774	4538.4207
1342	691.63808	58.960205	-32.449794	-844.34527	-18812.397	3206.2718
1343	209.87440	91.664397	120.12507	8855.2929	-2150.7295	5626.6201
1344	316.42553	71.053341	87.524749	4343.5877	-7863.1621	5919.5305
1345	449.17790	60.909073	37.221897	1328.6802	-12993.053	5232.4601
1346	623.51946	46.080134	-52.116273	-730.40571	-17339.284	3453.4094
1347	126.28147	-103.93293	22.353013	-6290.4623	-2306.2768	5491.4929
1348	152.48226	-98.957175	30.373694	-5706.5198	-2426.1865	7282.8366
1349	168.45423	-62.286028	47.189983	-3577.5377	-2332.4304	8788.5140
1350	175.29147	0.20037747	66.651414	356.86701	-2135.9932	9399.8185
1351	180.27858	66.289931	95.229565	5739.2732	-1842.0836	8114.4017
1352	158.90565	-106.27226	-3.3266508	-4669.1172	-3094.6319	5038.1933
1353	187.00268	-112.98965	10.181285	-4337.3296	-4096.3161	6801.9815
1354	215.06237	-79.382001	31.226476	-2937.1591	-5137.6398	8185.5999
1355	243.90181	-19.151126	54.115201	-429.37466	-6191.5063	8657.5387

FILENAME : PIT3B1.PO DATE : 05-25-94 TIME : 2:15p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 6/25)

1356	276.19657	41.803862	77.346068	2791.1583	-6981.1797	7630.4112
1357	159.09332	-109.27200	-23.910512	-2954.1421	-2607.5211	4096.9366
1358	188.80204	-125.61575	-17.658055	-2922.2342	-4417.8689	5630.1519
1359	238.67434	-95.422936	-4.4494005	-2269.9540	-6621.5391	6775.8729
1360	305.43096	-36.882423	12.497430	-1009.5999	-9043.8303	7143.9957
1361	382.20680	25.508976	31.028628	615.67141	-11305.245	6446.6162
1362	88.751704	-98.240457	-34.545562	-1317.9740	-48.934475	2773.7808
1363	122.65419	-121.31063	-59.947674	-1575.7192	-2642.0491	3748.3985
1364	213.34686	-97.908294	-76.645591	-1597.6327	-6199.9526	4426.1050
1365	348.79945	-47.067377	-79.200316	-1338.5042	-10348.838	4604.0615
1366	503.96621	9.7769995	-65.888438	-790.82335	-14475.639	4155.4062
1367	54.182848	-73.487149	118.31568	-2463.0087	-908.17629	2021.8849
1368	71.041737	-68.990978	60.712387	-4569.9813	-1522.4351	2922.8758
1369	96.975077	-87.344061	31.656443	-5819.6675	-1991.4217	4001.4592
1370	91.851014	36.882150	107.21653	-1394.1649	-627.97208	1585.3620
1371	109.56376	-13.888920	30.917641	-3183.1273	-1455.2151	2421.5440
1372	133.26397	-67.689683	0.68289535	-4232.1705	-2232.4528	3517.1849
1373	114.05934	179.22012	86.469253	-452.89488	350.29349	992.09628
1374	135.90281	42.885254	6.1284554	-1735.8816	-480.99875	1704.7960
1375	145.94641	-51.879933	-18.786556	-2522.9591	-1359.7037	2721.1080
1376	124.79974	301.81953	45.970000	540.86064	2380.6058	498.24075
1377	122.84072	80.959103	9.0173381	-263.66509	2023.4795	1113.4237
1378	98.273448	-32.983549	-10.400951	-791.55884	1409.0880	1853.6154

MINIMUMS						
ELEMENT	1195	1114	1197	1266	1326	1234
VALUE	-803.70709	-547.48177	-133.40841	-10368.697	-22244.379	-10373.435

MAXIMUMS						
ELEMENT	1326	1376	1248	1224	1265	1294
VALUE	846.74018	301.81953	178.69301	22213.928	16968.009	9492.0556

FILENAME : PIT3B2.PO DATE : 05-25-94 TIME : 2:15p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 7/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1

172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1

110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE

14.2584 MAY 25,1994 CP= 510.980

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-426.85765	1150.7243	572.31862	-1626.9415	-9831.1379	-0.10180170E-02
2	-852.87778	2.6014349	1143.4962	-0.82993141E-03	-19662.416	0.14906076E-04
3	-1082.5118	6.9354497	1451.7613	-0.49107300E-02	-24770.610	-0.15329121E-02
4	-1306.7608	11.961468	1747.3601	-0.58700884E-03	-29662.611	0.16230860E-02
5	-1292.6115	16.071709	1714.2721	0.89836069E-03	-29275.152	0.31466035E-02
6	-1271.1445	20.535305	1668.2157	0.13520266E-02	-28828.927	0.49235127E-02
7	-1846.6153	34.512541	2397.7374	-0.13104138E-01	-41123.791	0.40577880E-02
8	-2336.7588	41.923327	2931.7474	0.21965872E-01	-49925.727	0.24874609E-01
9	-2124.1343	30.488828	2479.1379	0.34700060E-01	-43956.713	0.32603487E-01
10	-1835.3834	13.601169	1893.5470	0.45996475E-01	-36268.752	0.38872589E-01
11	-1457.2402	-1.1787050	1181.2465	0.49688436E-01	-27356.375	0.38831015E-01
12	-884.16616	-2.8305999	409.69835	0.22741045E-01	-15279.080	0.15193631E-01
13	-414.45378	8.5464921	-124.55496	0.18724677E-01	-8114.4504	0.18279604E-01
14	-93.757889	23.227826	-551.45182	0.15055112E-01	-4203.4324	0.21170213E-01
15	14.141740	202.07882	-1043.8939	681.75748	-904.73633	0.24106007E-02
16	-220.33786	-232.85689	-422.94806	10535.663	-0.83308640E-01	-0.42550664E-01
17	-364.90406	-1154.0402	1091.5597	25368.124	-0.98013415E-01	-0.54606745E-01
18	-400.08600	-1930.3004	2652.6953	41430.228	-0.87848601E-01	-0.54286404E-01
19	-337.70565	-2552.7859	4158.0869	56486.016	-0.61504964E-01	-0.47806284E-01
20	-198.82560	-3029.4431	5508.8207	68952.909	-0.25959200E-01	-0.38411800E-01
21	4.0085005	-3367.2465	6628.4822	77415.462	0.16625074E-01	-0.27090784E-01
22	203.23827	-3176.3187	6599.0384	72480.846	0.87822973E-01	-0.66684339E-02
23	377.76008	-2847.0500	6136.1879	63170.212	0.80003254E-01	-0.42977048E-02
24	566.88155	-2821.8278	6255.8954	59088.538	0.10792742	0.29157527E-02
25	543.82586	-2094.4921	4725.4021	40111.182	0.13875978	0.16335651E-01
26	448.33989	-1380.8833	3133.5959	25678.383	0.69149015E-01	0.45801055E-02
27	497.80101	-1332.1659	3036.9545	22534.221	0.68685204E-01	0.43424818E-02
28	465.69658	-1104.2708	2524.4072	16748.374	0.65804972E-01	0.53684635E-02
29	420.68117	-889.28166	2033.0042	12538.823	0.48900321E-01	0.23880017E-02
30	442.83792	-850.19779	1941.7395	10678.784	0.46874014E-01	0.13503196E-02
31	591.23091	-1010.4211	2301.7622	10887.817	0.52332785E-01	-0.11455563E-02
32	747.76711	-1126.4667	2550.5689	8296.3879	0.75365455E-01	0.14572825E-02
33	1050.3086	-1319.5495	2934.3666	4232.5176	0.10054892	-0.17182380E-02
34	1343.6530	-1380.8257	3044.8345	-7904.1710	0.14634956	0.79773069E-02
35	1165.8999	-943.92301	2122.0431	-16609.283	0.11111841	0.91194363E-02

FILENAME : PIT3B2.PO DATE : 05-25-94 TIME : 2:15p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 7/25)

36	964.09595	-615.13978	1472.4627	-19019.614	0.88189946E-01	0.38495363E-02
37	927.81401	-481.19115	1310.5910	-22767.457	0.78625780E-01	0.20583642E-02
38	880.75110	-368.69949	1284.8879	-24837.875	0.66688196E-01	0.40181783E-03
39	830.14142	-276.10730	1405.8207	-25190.436	0.54364001E-01	-0.88596593E-03
40	783.60875	-198.75817	1666.6304	-23884.841	0.43399179E-01	-0.13709559E-02
41	748.37725	-127.78817	2041.3101	-21130.210	0.35676866E-01	-0.64212683E-03
42	730.43016	-51.660464	2483.6057	-17271.539	0.33182159E-01	0.16331213E-02
43	733.60998	41.544387	2929.7153	-12713.173	0.38027510E-01	0.56278781E-02
44	882.02231	203.54990	3818.1098	-9473.4765	0.53005209E-01	0.12110045E-01
45	1055.2683	448.03017	4477.8627	-3990.7278	0.11810068	0.27510195E-01
46	1059.8120	627.72306	4026.8847	998.15679	0.18646851	0.30166340E-01
47	818.56110	657.07005	2933.2847	3899.9631	0.22340594	0.11743932E-01
48	-792.19289	280.50861	2709.3855	4270.3362	9322.4068	-0.16990200E-01
49	-1076.6760	-177.81365	4449.1341	0.61235078E-01	20283.346	-0.34040552E-01
50	-161.07722	-101.34143	5425.2483	0.36709753E-01	20647.104	-0.22729734E-01
51	390.02183	115.21706	6938.0791	0.51395070E-01	20264.833	-0.21453405E-01
52	793.90490	477.75525	7513.6698	-0.85803370E-01	6443.6271	0.19855600E-02
53	810.05154	849.52422	5451.7749	-0.18925154	-22321.627	0.25339263E-01
54	558.22992	1088.2702	2229.3316	-0.26189991	-60508.952	0.39862534E-01
55	183.13723	1116.1411	-1686.0763	-0.26478280	-102316.24	0.37169978E-01
56	-81.747080	742.54431	-3425.1367	0.78663435E-03	-101870.61	-0.50354448E-02
57	-166.53826	355.23017	-3053.8622	-0.40411915E-01	-69636.687	0.24136841E-02
58	-201.62374	289.30476	-3606.9053	-0.37967062E-01	-74918.960	0.22383963E-02
59	-221.70011	217.75733	-4041.3583	-0.29935800E-01	-79182.988	0.16922431E-02
60	-231.59337	144.53291	-4348.9902	-0.20184626E-01	-82200.917	0.10868225E-02
61	-235.45300	71.841902	-4530.9666	-0.10064918E-01	-83988.004	0.52359427E-03
62	-118.17530	-1976.2347	-2295.4874	2876.0660	-42289.019	-0.67504623E-02
63	-0.45190518E-11	-3393.9098	-0.12504929E-05	445.84943	0.20903826E-07	-0.13420735E-01
64	0.78443918E-11	-2653.4802	-0.53704571E-06	-8887.0377	0.22910172E-06	-0.13304112E-01
65	0.31974423E-11	-2063.7759	0.66023767E-06	-18703.722	-0.37462087E-07	-0.13308280E-01
66	-0.36116493E-11	-863.62625	3332.0000	-10765.849	-0.14115203E-07	-0.66744404E-02
67	0.89102059E-11	-0.26147973E-11	6664.0000	0.37442351E-06	0.28329589E-06	-0.86736174E-18
68	-0.89528385E-11	-0.68212103E-12	6664.0000	-0.23553366E-06	0.12852411E-06	0.43368087E-17
69	0.93791641E-12	-0.17053026E-11	6664.0000	0.51779352E-07	-0.50742119E-06	0.34694470E-17
70	0.39221959E-11	-0.73896445E-11	6664.0000	-0.11010707E-06	-0.25965028E-06	0.11275703E-16
71	-0.43200998E-11	-0.97770680E-11	6664.0000	0.48923539E-07	-0.22171480E-06	-0.20816682E-16
72	-0.18433610E-09	-0.15444357E-09	8330.0000	-0.35758421E-06	0.68217491E-06	-0.87777008E-15
73	-0.72418516E-10	-0.27057467E-10	9996.0000	-0.18692799E-06	-0.32536082E-06	-0.10395330E-14
74	0.59031890E-10	-0.10587087E-09	9996.0000	-0.65244967E-06	-0.16051854E-06	-0.89338259E-15
75	0.31128877E-10	-0.27368685E-09	9996.0000	0.42964075E-06	0.22858876E-06	0.48312049E-15
76	0.19724666E-10	0.91716856E-10	9996.0000	0.40698978E-07	-0.35178527E-06	-0.28622937E-15
77	-0.34418690E-10	0.54228622E-10	9996.0000	-0.55396413E-07	0.37248537E-06	-0.10018028E-14
78	0.70201622E-11	-0.84071416E-10	9996.0000	-0.12405781E-06	-0.10056829E-06	-0.96060312E-15
79	-0.24584779E-10	-0.24783731E-10	9996.0000	-0.84274984E-06	0.35353150E-06	0.15829352E-15
80	-0.46952664E-10	0.89642072E-10	9996.0000	-0.10218474E-05	0.82756742E-07	-0.79797280E-16
81	0.20406787E-10	0.89812602E-11	8874.0000	-0.43391447E-06	-0.22220047E-06	0.15352303E-15
82	0.13415047E-10	-0.16484591E-10	7769.0000	-0.40562009E-06	0.15570913E-06	0.10408341E-16
83	-0.11027623E-10	0.17280399E-10	7769.0000	0.18088031E-06	-0.37046766E-06	-0.26454533E-16
84	0.84696694E-11	-0.34106051E-11	7769.0000	-0.12340024E-06	-0.61082801E-06	-0.18648277E-16
85	0.40074610E-11	0.18189894E-11	6120.0000	-0.17774437E-06	0.17367802E-06	-0.47704896E-17
86	-0.10231815E-11	-0.15916157E-11	4488.0000	-0.24491601E-06	0.18044921E-06	-0.21684043E-18
87	0.74500506E-12	743.95056	2244.0000	-34380.138	-0.21237407E-07	-0.18302487E-02
88	-0.59401373E-11	1477.2066	0.23801374E-05	-59955.300	-0.18128503E-06	-0.36426180E-02
89	0.33821834E-11	1510.7174	0.11891234E-06	-55237.991	-0.20521929E-06	-0.37249881E-02
90	0.12789769E-11	1905.0076	0.33862943E-06	-55496.219	-0.14842044E-07	-0.38756878E-02
91	-0.44264069E-12	1440.0398	182.32500	-28733.960	0.22791642E-07	-0.19630690E-02
92	-0.90949470E-12	-0.11368684E-11	364.39500	0.38927828E-06	-0.10177882E-06	0.00000000E+00
93	0.11169732E-10	-0.61390892E-11	363.88500	-0.78350240E-06	-0.10459626E-05	-0.12533377E-15
94	-0.61959327E-11	-0.32969183E-11	364.14000	0.45494858E-06	0.57503712E-07	-0.11210650E-15
95	0.32516212E-10	0.33963943E-11	364.39500	-0.42604279E-06	-0.49372829E-06	-0.38380757E-16
96	-0.99475983E-12	0.13926638E-10	364.39500	0.70216993E-06	-0.34940604E-06	-0.32959746E-16
97	0.55138116E-11	0.00000000E+00	364.39500	-0.45988781E-06	-0.23548091E-06	-0.65052130E-18
98	-0.65897379E-12	1368.0780	182.07000	-6178.0463	-0.20405386E-06	-0.72488787E-03
99	0.13585577E-10	1854.7305	-0.21096264E-06	-17150.960	0.58753358E-09	-0.13038825E-02
100	-0.13443469E-10	1433.7658	0.15019144E-05	-12152.779	-0.15041223E-07	-0.97395168E-03
163	-0.17053026E-12	2255.7773	0.55276996E-06	-13171.817	-0.12932833E-06	-0.10415673E-02
164	-0.24499514E-10	3025.5363	0.10724051E-05	-2867.0015	-0.15343539E-06	-0.11580851E-02
165	-0.64801498E-11	2886.8656	-0.47531222E-06	8130.6517	-0.41780368E-07	-0.93633542E-03
166	-0.82991392E-11	3123.7268	170.00000	16336.951	-0.18000901E-06	-0.92513616E-03
167	-0.22566837E-10	3260.2460	-0.54342605E-06	24051.838	-0.68375812E-08	-0.10228168E-02

FILENAME : PIT3B2.PO DATE : 05-25-94 TIME : 2:15p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 7/25)

168	-0.10004442E-10	2955.2732	-0.50294767E-06	24334.931	-0.96042641E-09	-0.11227458E-02
169	0.88675733E-11	2638.5833	-0.85830936E-06	20758.063	0.25193003E-09	-0.13211102E-02
170	0.67075234E-11	2359.9261	0.12628739E-05	14558.796	-0.82293354E-07	-0.15803507E-02
171	-0.24954261E-10	2184.1127	-0.27042972E-06	6824.5854	-0.39299948E-07	-0.18282248E-02
172	-0.35754510E-10	2184.5852	-0.60246782E-06	-1417.3512	-0.32681783E-07	-0.19867967E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.3631431E-08
FY = 0.1043549E-07
FZ = 297109.1
MX = -0.1246778E+08
MY = -0.3789601E+08
MZ = 0.5489674E-03
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT3B3.PO DATE : 05-25-94 TIME : 2:15p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 14.2586 MAY 25,1994 CP= 511.800

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.19214145	0.00000000E+00	0.17589592E-01	0.00000000E+00
2	-0.35678625E-06	0.10967097E-04	-0.19214215	0.55843282E-06	0.17589662E-01	-0.28401572E-06
3	-0.13971602E-05	0.21890729E-04	-0.19214421	0.10789906E-05	0.17589859E-01	-0.54002882E-06
4	-0.44009558E-05	0.38549575E-04	-0.19215030	0.20541737E-05	0.17590433E-01	-0.10054100E-05
5	-0.90882546E-05	0.54769241E-04	-0.19215997	0.29596532E-05	0.17591326E-01	-0.14316043E-05
6	-0.15398750E-04	0.70328829E-04	-0.19217305	0.38137343E-05	0.17592535E-01	-0.18472655E-05
7	-0.23163511E-04	0.85042350E-04	-0.19218912	0.44327333E-05	0.17594042E-01	-0.21397637E-05
8	-0.42196411E-04	0.11101998E-03	-0.19223120	0.63826749E-05	0.17597889E-01	-0.28187213E-05
9	-0.64479358E-04	0.13083972E-03	-0.19228492	0.76591859E-05	0.17602613E-01	-0.30724599E-05
10	-0.87027418E-04	0.14263096E-03	-0.19234634	0.83710932E-05	0.17607924E-01	-0.28777665E-05
11	-0.10553436E-03	0.14496904E-03	-0.19240976	0.81405722E-05	0.17613362E-01	-0.20077869E-05
12	-0.11404402E-03	0.13769201E-03	-0.19246638	0.65649606E-05	0.17618331E-01	-0.27222856E-06
13	-0.11072374E-03	0.12802679E-03	-0.19249685	0.47733670E-05	0.17621094E-01	0.15084312E-05
14	-0.97459632E-04	0.11696637E-03	-0.19251711	0.28760959E-05	0.17623057E-01	0.34084992E-05
15	-0.74575062E-04	0.10772370E-03	-0.19252822	0.16405687E-05	0.17624063E-01	0.49483724E-05
16	-0.67993588E-04	0.16131951E-03	-0.35112758	0.31817088E-05	0.17619507E-01	0.72830589E-05
17	-0.69570334E-04	0.23308998E-03	-0.50969173	0.66243541E-05	0.17616086E-01	0.89633513E-05
18	-0.88567523E-04	0.31473338E-03	-0.66823547	0.10967034E-04	0.17614933E-01	0.94931079E-05
19	-0.12728449E-03	0.39672760E-03	-0.82677877	0.14965614E-04	0.17616013E-01	0.90386238E-05
20	-0.18447712E-03	0.47155503E-03	-0.98533938	0.17319958E-04	0.17618927E-01	0.78489897E-05
21	-0.25761457E-03	0.53369786E-03	-1.14393215	0.16840840E-04	0.17623272E-01	0.61300273E-05
22	-0.34355846E-03	0.57913793E-03	-1.3025667	0.12591355E-04	0.17628954E-01	0.39837073E-05
23	-0.41729294E-03	0.60083720E-03	-1.4265316	0.62575747E-05	0.17633624E-01	0.21232760E-05
24	-0.49453422E-03	0.60916088E-03	-1.5505303	-0.28116434E-05	0.17638648E-01	0.16597817E-06
25	-0.57327015E-03	0.60378804E-03	-1.6745643	-0.14459159E-04	0.17644013E-01	-0.18835590E-05
26	-0.61395727E-03	0.59529125E-03	-1.7388627	-0.21386272E-04	0.17646205E-01	-0.28190793E-05
27	-0.65403955E-03	0.58310283E-03	-1.8031699	-0.28866346E-04	0.17648648E-01	-0.38503040E-05
28	-0.69323972E-03	0.56719989E-03	-1.8674858	-0.36740194E-04	0.17651037E-01	-0.48658356E-05
29	-0.72101872E-03	0.55339941E-03	-1.9142630	-0.42648812E-04	0.17652524E-01	-0.55344606E-05
30	-0.74804757E-03	0.53782769E-03	-1.9610441	-0.48674480E-04	0.17653965E-01	-0.61903614E-05
31	-0.77422672E-03	0.52057684E-03	-2.0078289	-0.54776069E-04	0.17655212E-01	-0.67871967E-05
32	-0.81229261E-03	0.49121070E-03	-2.0792303	-0.63978138E-04	0.17657044E-01	-0.76857763E-05
33	-0.84779179E-03	0.45860494E-03	-2.1506378	-0.72928618E-04	0.17658243E-01	-0.83743740E-05
34	-0.90134922E-03	0.39840039E-03	-2.2705562	-0.86491117E-04	0.17659199E-01	-0.94484619E-05
35	-0.94756437E-03	0.33260811E-03	-2.3904751	-0.97059888E-04	0.17658381E-01	-0.10094884E-04
36	-0.97701883E-03	0.28209444E-03	-2.4781944	-0.10226468E-03	0.17657078E-01	-0.10286453E-04
37	-0.10033987E-02	0.23053644E-03	-2.5659062	-0.10504366E-03	0.17655294E-01	-0.10492668E-04
38	-0.10275070E-02	0.17789527E-03	-2.6536084	-0.10509451E-03	0.17653208E-01	-0.10732514E-04
39	-0.10501743E-02	0.12383177E-03	-2.7413004	-0.10240047E-03	0.17651129E-01	-0.11081748E-04
40	-0.10721191E-02	0.67593712E-04	-2.8289829	-0.97119819E-04	0.17649381E-01	-0.11622415E-04
41	-0.10927546E-02	0.80727516E-05	-2.9166584	-0.89613374E-04	0.17648266E-01	-0.12410744E-04
42	-0.11149694E-02	-0.56004534E-04	-3.0043306	-0.80429295E-04	0.17648019E-01	-0.13451636E-04
43	-0.11349185E-02	-0.12575253E-03	-3.0920040	-0.70260296E-04	0.17648737E-01	-0.14669915E-04
44	-0.11518622E-02	-0.20164574E-03	-3.1796832	-0.59972130E-04	0.17650211E-01	-0.15866447E-04

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

45	-0.11643043E-02	-0.30791699E-03	-3.2939569	-0.47528521E-04	0.17652868E-01	-0.16752263E-04
46	-0.11582981E-02	-0.41540189E-03	-3.4082438	-0.37619954E-04	0.17653978E-01	-0.16055258E-04
47	-0.11259605E-02	-0.51115454E-03	-3.5225213	-0.31335099E-04	0.17649275E-01	-0.13125194E-04
48	-0.10682237E-02	-0.58327413E-03	-3.6367330	-0.29299589E-04	0.17633383E-01	-0.97405766E-05
49	-0.10166768E-02	-0.57450334E-03	-3.6368798	-0.26310907E-04	0.17629950E-01	-0.97617580E-05
50	-0.96221017E-03	-0.56476378E-03	-3.6370205	-0.26799545E-04	0.17623452E-01	-0.10653220E-04
51	-0.90182141E-03	-0.55847084E-03	-3.6371698	-0.29258285E-04	0.17613881E-01	-0.11977443E-04
52	-0.80228713E-03	-0.55158545E-03	-3.6374170	-0.35859952E-04	0.17595296E-01	-0.14067561E-04
53	-0.68674835E-03	-0.53819403E-03	-3.6377114	-0.41986647E-04	0.17572151E-01	-0.16079579E-04
54	-0.55896266E-03	-0.50657127E-03	-3.6380426	-0.45578677E-04	0.17546241E-01	-0.17167373E-04
55	-0.42872776E-03	-0.44734053E-03	-3.6383832	-0.44402482E-04	0.17520119E-01	-0.16658125E-04
56	-0.30962964E-03	-0.35668798E-03	-3.6386902	-0.36002034E-04	0.17496784E-01	-0.14253411E-04
57	-0.26416307E-03	-0.30735350E-03	-3.6388057	-0.31703499E-04	0.17488187E-01	-0.12428965E-04
58	-0.22542649E-03	-0.25271433E-03	-3.6389044	-0.26307459E-04	0.17480832E-01	-0.10304022E-04
59	-0.19431114E-03	-0.19360331E-03	-3.6389834	-0.20226381E-04	0.17474987E-01	-0.79519591E-05
60	-0.17153419E-03	-0.13102989E-03	-3.6390410	-0.13693313E-04	0.17470744E-01	-0.54109682E-05
61	-0.15764328E-03	-0.66107251E-04	-3.6390760	-0.69023892E-05	0.17468175E-01	-0.27388277E-05
62	-0.15297523E-03	0.00000000E+00	-3.6390877	0.00000000E+00	0.17467314E-01	0.00000000E+00
63	-0.14818120E-03	0.00000000E+00	-3.5607252	0.00000000E+00	0.17364143E-01	0.00000000E+00
64	-0.14615278E-03	0.00000000E+00	-3.4827771	0.00000000E+00	0.17283515E-01	0.00000000E+00
65	-0.14433762E-03	0.00000000E+00	-3.4051362	0.00000000E+00	0.17228394E-01	0.00000000E+00
66	-0.14067311E-03	0.00000000E+00	-3.3276739	0.00000000E+00	0.17205401E-01	0.00000000E+00
67	-0.14729810E-03	-0.26057289E-04	-3.3236879	-0.22429140E-04	0.17204807E-01	-0.24755162E-05
68	-0.16648592E-03	-0.48749195E-04	-3.3117865	-0.47824974E-04	0.17203658E-01	-0.48906087E-05
69	-0.19620568E-03	-0.65507146E-04	-3.2921398	-0.78480124E-04	0.17203623E-01	-0.71875606E-05
70	-0.22324513E-03	-0.74940579E-04	-3.2650300	-0.11557720E-03	0.17206904E-01	-0.93124288E-05
71	-0.27374166E-03	-0.76654399E-04	-3.2308501	-0.15917229E-03	0.17215791E-01	-0.11208664E-04
72	-0.31403076E-03	-0.70833127E-04	-3.1901011	-0.20826691E-03	0.17230710E-01	-0.12796137E-04
73	-0.36712463E-03	-0.50316263E-04	-3.1180233	-0.28425849E-03	0.17272972E-01	-0.12561019E-04
74	-0.40701861E-03	-0.16607750E-04	-3.0349876	-0.35868454E-03	0.17327996E-01	-0.12118803E-04
75	-0.43156669E-03	0.26624067E-04	-2.9438312	-0.42576064E-03	0.17399510E-01	-0.11603822E-04
76	-0.44126991E-03	0.74501032E-04	-2.8476665	-0.47899443E-03	0.17487169E-01	-0.11036146E-04
77	-0.43797011E-03	0.12115432E-03	-2.7497767	-0.51298596E-03	0.17588305E-01	-0.10422714E-04
78	-0.42474587E-03	0.16084233E-03	-2.6535004	-0.52422171E-03	0.17698705E-01	-0.97646102E-05
79	-0.40564183E-03	0.18834826E-03	-2.5621202	-0.51127849E-03	0.17812870E-01	-0.90523354E-05
80	-0.38483903E-03	0.19931710E-03	-2.4787560	-0.47476850E-03	0.17924643E-01	-0.82487093E-05
81	-0.36557700E-03	0.19063352E-03	-2.4062629	-0.41711726E-03	0.18028699E-01	-0.71654216E-05
82	-0.35176508E-03	0.17245531E-03	-2.3591142	-0.35715987E-03	0.18102206E-01	-0.59582564E-05
83	-0.33984592E-03	0.14214565E-03	-2.3210021	-0.28861137E-03	0.18162492E-01	-0.50074349E-05
84	-0.32729884E-03	0.10159584E-03	-2.2927234	-0.20961085E-03	0.18208852E-01	-0.40880204E-05
85	-0.31423395E-03	0.54946925E-04	-2.2748567	-0.11979216E-03	0.18237920E-01	-0.31641987E-05
86	-0.30823921E-03	0.27322100E-04	-2.2694293	-0.61041223E-04	0.18247375E-01	-0.15887715E-05
87	-0.30603636E-03	0.00000000E+00	-2.2676168	0.00000000E+00	0.18250332E-01	0.00000000E+00
88	-0.30896527E-03	0.00000000E+00	-2.2157333	0.00000000E+00	0.18237966E-01	0.00000000E+00
89	-0.30880371E-03	0.00000000E+00	-2.1638909	0.00000000E+00	0.18221770E-01	0.00000000E+00
90	-0.30549492E-03	0.00000000E+00	-2.1120986	0.00000000E+00	0.18202999E-01	0.00000000E+00
91	-0.30671527E-03	0.00000000E+00	-2.0603591	0.00000000E+00	0.18187306E-01	0.00000000E+00
92	-0.31143675E-03	0.62911928E-04	-2.0488006	-0.53484039E-04	0.18183485E-01	-0.14914100E-05
93	-0.32037951E-03	0.10980045E-03	-2.0164905	-0.81931216E-04	0.18169453E-01	-0.29392508E-05
94	-0.32775220E-03	0.13949820E-03	-1.9699767	-0.81112070E-04	0.18141316E-01	-0.28726283E-05
95	-0.33239494E-03	0.13846479E-03	-1.9185521	-0.62092485E-04	0.18106339E-01	-0.23696438E-05
96	-0.33596120E-03	0.10806355E-03	-1.8723707	-0.38839701E-04	0.18074003E-01	-0.14957102E-05
97	-0.33938664E-03	0.60407024E-04	-1.8404834	-0.18832967E-04	0.18049762E-01	-0.59380186E-06
98	-0.34097404E-03	0.00000000E+00	-1.8291155	0.00000000E+00	0.18041295E-01	0.00000000E+00
99	-0.34141197E-03	0.00000000E+00	-1.7778249	0.00000000E+00	0.18024148E-01	0.00000000E+00
100	-0.33547276E-03	0.00000000E+00	-1.7266028	0.00000000E+00	0.17996101E-01	0.00000000E+00
163	-0.33002111E-03	0.00000000E+00	-1.6754655	0.00000000E+00	0.17964909E-01	0.00000000E+00
164	-0.31717174E-03	0.00000000E+00	-1.5494273	0.00000000E+00	0.17885501E-01	0.00000000E+00
165	-0.30393339E-03	0.00000000E+00	-1.4239467	0.00000000E+00	0.17807347E-01	0.00000000E+00
166	-0.28875544E-03	0.00000000E+00	-1.2990003	0.00000000E+00	0.17734360E-01	0.00000000E+00
167	-0.26517944E-03	0.00000000E+00	-1.1397640	0.00000000E+00	0.17652354E-01	0.00000000E+00
168	-0.23587663E-03	0.00000000E+00	-0.98119964	0.00000000E+00	0.17585947E-01	0.00000000E+00
169	-0.20012111E-03	0.00000000E+00	-0.82315176	0.00000000E+00	0.17538249E-01	0.00000000E+00
170	-0.15771482E-03	0.00000000E+00	-0.66543960	0.00000000E+00	0.17511877E-01	0.00000000E+00
171	-0.10915288E-03	0.00000000E+00	-0.50785878	0.00000000E+00	0.17509504E-01	0.00000000E+00
172	-0.55811933E-04	0.00000000E+00	-0.35017942	0.00000000E+00	0.17534150E-01	0.00000000E+00
2011	-0.28930963E-03	0.37797814E-04	-1.2990086	0.35134691E-05	0.17732929E-01	-0.26140161E-06
2012	-0.28889864E-03	0.18884231E-04	-1.2990023	0.16613423E-05	0.17733983E-01	-0.13930348E-06
2013	-0.57098431E-04	0.19335382E-04	-0.35018594	0.26194273E-05	0.17534786E-01	-0.59826971E-06
2014	-0.11031132E-03	0.19803847E-04	-0.50787076	0.48094838E-05	0.17510205E-01	-0.52727574E-06

FILENAME : PIT3B3.PO DATE : 05-25-94 TIME : 2:15p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

2015	-0.15873247E-03	0.22405403E-04	-0.66545709	0.70263327E-05	0.17512493E-01	-0.43449884E-06
2016	-0.20101655E-03	0.26204765E-04	-0.82317325	0.86337324E-05	0.17538610E-01	-0.34984840E-06
2017	-0.23667025E-03	0.30409161E-04	-0.98122205	0.90173976E-05	0.17585888E-01	-0.28837773E-06
2018	-0.26587530E-03	0.34404134E-04	-1.1397826	0.75403023E-05	0.17651686E-01	-0.25781935E-06
2019	-0.56129347E-04	0.96890764E-05	-0.35018105	0.13067603E-05	0.17534294E-01	-0.27878605E-06
2020	-0.10944564E-03	0.99135820E-05	-0.50786178	0.24032831E-05	0.17509664E-01	-0.25679534E-06
2021	-0.15796916E-03	0.11206921E-04	-0.66544397	0.35103781E-05	0.17512018E-01	-0.21834136E-06
2022	-0.20034546E-03	0.13101056E-04	-0.82315714	0.43101829E-05	0.17538326E-01	-0.18020501E-06
2023	-0.23607699E-03	0.15198750E-04	-0.98120524	0.44936075E-05	0.17585918E-01	-0.15161284E-06
2024	-0.26535032E-03	0.17192682E-04	-1.1397686	0.37359901E-05	0.17652171E-01	-0.13726952E-06
2029	-0.29917708E-03	0.15640122E-03	-1.2991891	0.22717695E-04	0.17712553E-01	-0.12274424E-06
2030	-0.29053236E-03	0.67127554E-04	-1.2990282	0.68602690E-05	0.17729857E-01	-0.31163686E-06
2031	-0.29253365E-03	0.96653492E-04	-1.2990623	0.11075761E-04	0.17725219E-01	-0.31449669E-06
2032	-0.29539436E-03	0.12641205E-03	-1.2991145	0.16333398E-04	0.17719299E-01	-0.25639081E-06
2033	-0.76455073E-04	0.75641560E-04	-0.35028832	0.10655203E-04	0.17543690E-01	-0.17240227E-05
2034	-0.12732077E-03	0.79013726E-04	-0.50805894	0.19617803E-04	0.17520665E-01	-0.11668211E-05
2035	-0.17353747E-03	0.90894560E-04	-0.66573298	0.28862112E-04	0.17521775E-01	-0.70477908E-06
2036	-0.21399641E-03	0.10737186E-03	-0.82351478	0.35986456E-04	0.17544168E-01	-0.37297761E-06
2037	-0.24833030E-03	0.12523715E-03	-0.98158444	0.38746594E-04	0.17585264E-01	-0.17292855E-06
2038	-0.27662949E-03	0.14208067E-03	-1.1400988	0.35015000E-04	0.17642421E-01	-0.94465548E-07
2039	-0.69631147E-04	0.62336309E-04	-0.35025119	0.86581640E-05	0.17540209E-01	-0.14344969E-05
2040	-0.64047835E-04	0.48424875E-04	-0.35022169	0.66603760E-05	0.17537789E-01	-0.11569220E-05
2041	-0.59837273E-04	0.34047920E-04	-0.35019991	0.46444145E-05	0.17536008E-01	-0.86235178E-06
2042	-0.12138216E-03	0.64658889E-04	-0.50799051	0.15932801E-04	0.17516678E-01	-0.10598863E-05
2043	-0.11647910E-03	0.49955053E-04	-0.50793631	0.12226925E-04	0.17513782E-01	-0.89975256E-06
2044	-0.11275551E-03	0.34976212E-04	-0.50789640	0.85148081E-05	0.17511632E-01	-0.71422998E-06
2045	-0.16841259E-03	0.73933485E-04	-0.66563243	0.23386466E-04	0.17518205E-01	-0.72967153E-06
2046	-0.16414229E-03	0.56847797E-04	-0.66555297	0.17908332E-04	0.17515633E-01	-0.67156307E-06
2047	-0.16087939E-03	0.39662331E-04	-0.66549457	0.12452072E-04	0.17513742E-01	-0.56541583E-06
2048	-0.20951408E-03	0.87031244E-04	-0.82338973	0.29017064E-04	0.17541908E-01	-0.47749429E-06
2049	-0.20577007E-03	0.66727852E-04	-0.82329137	0.22125820E-04	0.17540400E-01	-0.48916552E-06
2050	-0.20290457E-03	0.46455118E-04	-0.82321933	0.15333862E-04	0.17539322E-01	-0.43921593E-06
2051	-0.24426887E-03	0.10133708E-03	-0.98145048	0.30936444E-04	0.17585164E-01	-0.31545346E-06
2052	-0.24090512E-03	0.77582785E-04	-0.98134610	0.23382961E-04	0.17585432E-01	-0.36619008E-06
2053	-0.22834753E-03	0.53950532E-04	-0.98127027	0.16090567E-04	0.17585709E-01	-0.35057723E-06
2054	-0.27277843E-03	0.11487280E-03	-1.1399791	0.27316261E-04	0.17645309E-01	-0.24376499E-06
2055	-0.26967225E-03	0.87877206E-04	-1.1398880	0.20199830E-04	0.17648050E-01	-0.30811495E-06
2056	-0.26736352E-03	0.61068213E-04	-1.1398232	0.13639176E-04	0.17650236E-01	-0.30722719E-06
2062	-0.35676499E-03	0.46201648E-03	-1.3015865	0.86313668E-04	0.17642160E-01	-0.15379603E-05
2063	-0.30944471E-03	0.21704230E-03	-1.2994224	0.38134943E-04	0.17696991E-01	-0.11672099E-07
2064	-0.32241281E-03	0.27825414E-03	-1.2997863	0.56115339E-04	0.17680573E-01	-0.24286641E-06
2065	-0.33630419E-03	0.33980346E-03	-1.3002896	0.73541948E-04	0.17665196E-01	-0.57499291E-06
2066	-0.34872517E-03	0.40131353E-03	-1.3009109	0.85733711E-04	0.17652156E-01	-0.10084430E-05
2067	-0.13930170E-03	0.15352227E-03	-0.35094907	0.17236769E-04	0.17601117E-01	-0.62487081E-06
2068	-0.16548358E-03	0.19527787E-03	-0.50931336	0.34742859E-04	0.17591923E-01	-0.14883250E-05
2069	-0.19493918E-03	0.25155165E-03	-0.66762958	0.54365659E-04	0.17590350E-01	-0.20592270E-05
2070	-0.22868451E-03	0.31305494E-03	-0.82596266	0.72302621E-04	0.17595585E-01	-0.23077814E-05
2071	-0.26713436E-03	0.37219462E-03	-0.98436952	0.85328504E-04	0.17606674E-01	-0.22611011E-05
2072	-0.31008461E-03	0.42323752E-03	-1.1428981	0.90704900E-04	0.17622578E-01	-0.19793473E-05
2073	-0.14007315E-03	0.14669213E-03	-0.35080521	0.19711834E-04	0.17587834E-01	-0.58094820E-06
2074	-0.12874017E-03	0.13575548E-03	-0.35065275	0.19586734E-04	0.17574414E-01	-0.14212055E-05
2075	-0.11147210E-03	0.12009691E-03	-0.35050882	0.17612315E-04	0.17562181E-01	-0.18171207E-05
2076	-0.92962085E-04	0.99842573E-04	-0.35038496	0.14455460E-04	0.17551902E-01	-0.18571745E-05
2077	-0.17378684E-03	0.17604667E-03	-0.50902871	0.38115522E-04	0.17574967E-01	-0.36691283E-06
2078	-0.16867047E-03	0.15500376E-03	-0.50873677	0.36926688E-04	0.17558153E-01	-0.43536048E-06
2079	-0.15627101E-03	0.13183126E-03	-0.50846680	0.32674090E-04	0.17543054E-01	-0.91891106E-06
2080	-0.14134259E-03	0.10644352E-03	-0.50823743	0.26591683E-04	0.17530498E-01	-0.11343161E-05
2081	-0.20747996E-03	0.22074093E-03	-0.66718834	0.58457703E-04	0.17573425E-01	-0.99080434E-06
2082	-0.20634644E-03	0.18932875E-03	-0.66674364	0.55777891E-04	0.17556966E-01	-0.21445422E-06
2083	-0.19746666E-03	0.15722804E-03	-0.66633788	0.48777456E-04	0.17542495E-01	-0.29961432E-06
2084	-0.18540927E-03	0.12440649E-03	-0.66599663	0.39356689E-04	0.17530737E-01	-0.59029387E-06
2085	-0.24165528E-03	0.27183422E-03	-0.82537978	0.76644517E-04	0.17581827E-01	-0.13249693E-05
2086	-0.24180329E-03	0.23052732E-03	-0.82480041	0.72142214E-04	0.17568951E-01	-0.59787826E-06
2087	-0.23462359E-03	0.18930669E-03	-0.82427874	0.62266664E-04	0.17558195E-01	-0.93089634E-07
2088	-0.22432282E-03	0.14824886E-03	-0.82384555	0.49621393E-04	0.17550000E-01	-0.22028722E-06
2089	-0.27658514E-03	0.32229010E-03	-0.98368618	0.89163346E-04	0.17598770E-01	-0.14065678E-05
2090	-0.27517595E-03	0.27228943E-03	-0.98301746	0.82515853E-04	0.17592289E-01	-0.75893464E-06
2091	-0.26770747E-03	0.22265419E-03	-0.98242602	0.69870368E-04	0.17587989E-01	-0.29395741E-06
2092	-0.25786420E-03	0.17361064E-03	-0.98194455	0.54540540E-04	0.17585859E-01	-0.98764906E-08
2093	-0.31232803E-03	0.36674304E-03	-1.1421778	0.93000910E-04	0.17622778E-01	-0.12830926E-05

FILENAME : PIT3B3.PO DATE : 05-25-94 TIME : 2:15p PAGE 4
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

2094	-0.30662169E-03	0.30984425E-03	-1.1414886	0.83842511E-04	0.17625093E-01	0.73778019E-06
2095	-0.29687667E-03	0.25322485E-03	-1.1408967	0.68675966E-04	0.17629636E-01	0.33378787E-06
2096	-0.28614738E-03	0.19724361E-03	-1.1404320	0.51513248E-04	0.17635816E-01	0.60281639E-07
2101	-0.35795824E-03	0.50307512E-03	-1.3020278	0.75881630E-04	0.17636874E-01	0.23998372E-05
2102	-0.35406031E-03	0.54242090E-03	-1.3023808	0.52577211E-04	0.17632642E-01	0.32953298E-05
2109	-0.10482797E-03	0.15876526E-03	-0.35109473	0.89741967E-05	0.17615988E-01	0.47736510E-05
2110	-0.12793077E-03	0.15649757E-03	-0.35103303	0.13801263E-04	0.17609434E-01	0.26084609E-05
2111	-0.11740954E-03	0.22018394E-03	-0.50961869	0.19714632E-04	0.17611226E-01	0.58883469E-05
2112	-0.14795796E-03	0.20784391E-03	-0.50948601	0.28961013E-04	0.17602639E-01	0.34874975E-05
2113	-0.14016543E-03	0.29374922E-03	-0.66811543	0.32045546E-04	0.17609904E-01	0.64107063E-05
2114	-0.17428387E-03	0.27269282E-03	-0.66790204	0.46110871E-04	0.17601158E-01	0.40058291E-05
2115	-0.17578231E-03	0.36951594E-03	-0.82661509	0.43501287E-04	0.17611885E-01	0.62864379E-05
2116	-0.20845753E-03	0.34149239E-03	-0.82632687	0.61955469E-04	0.17604566E-01	0.40923287E-05
2117	-0.22436700E-03	0.43975306E-03	-0.98514486	0.51913698E-04	0.17616684E-01	0.56120785E-05
2118	-0.25101957E-03	0.40641854E-03	-0.98480116	0.73690540E-04	0.17612171E-01	0.37826076E-05
2119	-0.28455113E-03	0.49878827E-03	-1.1437274	0.55393103E-04	0.17623775E-01	0.45366624E-05
2120	-0.30132642E-03	0.46169316E-03	-1.1433591	0.78924959E-04	0.17623228E-01	0.31752498E-05
2124	-0.32726043E-03	0.45379854E-04	-1.6754113	-0.21081681E-04	0.17960019E-01	-0.49708846E-06
2125	-0.32918057E-03	0.22584815E-04	-1.6754517	-0.10986498E-04	0.17963633E-01	-0.25698434E-06
2126	-0.30423974E-03	0.39943578E-04	-1.4239419	-0.17466466E-05	0.17805135E-01	-0.30556979E-06
2127	-0.31686529E-03	0.41843535E-04	-1.5494025	-0.96345655E-05	0.17882224E-01	-0.38392716E-06
2128	-0.30399341E-03	0.19950510E-04	-1.4239455	-0.98072476E-06	0.17806770E-01	-0.16135418E-06
2129	-0.31711104E-03	0.20868584E-04	-1.5494210	-0.50120845E-05	0.17884652E-01	-0.20059713E-06
2130	-0.33103791E-03	0.18229207E-03	-1.6747977	-0.48958418E-04	0.17904605E-01	-0.73761039E-06
2131	-0.32411383E-03	0.80724313E-04	-1.6753044	-0.33598712E-04	0.17950681E-01	-0.62147681E-06
2132	-0.32319095E-03	0.11580011E-03	-1.6751571	-0.42147001E-04	0.17937953E-01	-0.70390663E-06
2133	-0.32568312E-03	0.14968385E-03	-1.6749829	-0.47156303E-04	0.17922473E-01	-0.74265690E-06
2134	-0.31291698E-03	0.16560364E-03	-1.4239408	0.59850313E-05	0.17774251E-01	-0.26222096E-06
2135	-0.32332240E-03	0.17374385E-03	-1.5491393	-0.17730501E-04	0.17839121E-01	-0.47269691E-06
2136	-0.30913014E-03	0.13387379E-03	-1.4239270	0.15735509E-05	0.17784496E-01	-0.35857199E-06
2137	-0.30656748E-03	0.10231016E-03	-1.4239269	-0.11157263E-05	0.17793405E-01	-0.39185532E-06
2138	-0.30503377E-03	0.70991122E-04	-1.4239339	-0.21411574E-05	0.17800429E-01	-0.37093468E-06
2139	-0.31925645E-03	0.14082980E-03	-1.5492120	-0.19477929E-04	0.17853199E-01	-0.52421573E-06
2140	-0.31713026E-03	0.10768669E-03	-1.5492867	-0.18694717E-04	0.17865498E-01	-0.52360340E-06
2141	-0.31656677E-03	0.74610597E-04	-1.5493534	-0.15344634E-04	0.17875396E-01	-0.47485394E-06
2142	-0.47431852E-03	0.49044062E-03	-1.6742499	0.30059743E-04	0.17693280E-01	-0.39850263E-06
2143	-0.34791512E-03	0.24552926E-03	-1.6744358	-0.43827822E-04	0.17863278E-01	-0.70439292E-06
2144	-0.37135747E-03	0.30761161E-03	-1.6741545	-0.28449878E-04	0.17817603E-01	-0.63557497E-06
2145	-0.40051430E-03	0.36936625E-03	-1.6740204	-0.64198876E-05	0.17771830E-01	-0.54376517E-06
2146	-0.43492171E-03	0.43057940E-03	-1.6740618	0.15946668E-04	0.17729497E-01	-0.45195696E-06
2147	-0.39515106E-03	0.48192712E-03	-1.4256866	0.75016684E-04	0.17659009E-01	0.87561119E-06
2148	-0.43454111E-03	0.49157383E-03	-1.5499075	0.56208706E-04	0.17676412E-01	0.20940674E-06
2149	-0.37743722E-03	0.41976412E-03	-1.4251115	0.71074185E-04	0.17677645E-01	0.54510862E-06
2150	-0.35840244E-03	0.35652064E-03	-1.4246145	0.56058363E-04	0.17700098E-01	0.24957528E-06
2151	-0.34010775E-03	0.29294504E-03	-1.4242527	0.37042181E-04	0.17725045E-01	0.10372029E-07
2152	-0.32441361E-03	0.22928526E-03	-1.4240359	0.19197202E-04	0.17750564E-01	-0.16151298E-06
2153	-0.40621933E-03	0.42968000E-03	-1.5494949	0.47842265E-04	0.17703949E-01	0.43220639E-07
2154	-0.37973593E-03	0.36652803E-03	-1.5491907	0.29562719E-04	0.17736307E-01	-0.13469134E-06
2155	-0.35623965E-03	0.30285374E-03	-1.5490401	0.91070930E-05	0.17771469E-01	-0.29116124E-06
2156	-0.33696229E-03	0.23873956E-03	-1.5490369	-0.78655347E-05	0.17806771E-01	-0.40704279E-06
2158	-0.50464402E-03	0.53057210E-03	-1.6744158	0.29929606E-04	0.17672564E-01	-0.44546690E-06
2159	-0.53754446E-03	0.56867826E-03	-1.6745484	0.16603747E-04	0.17655988E-01	-0.75331280E-06
2162	-0.41315719E-03	0.56376959E-03	-1.4263822	0.45323663E-04	0.17640266E-01	0.17635509E-05
2163	-0.40546510E-03	0.52381081E-03	-1.4260731	0.66823336E-04	0.17648644E-01	0.13508782E-05
2164	-0.47485602E-03	0.57270469E-03	-1.5504377	0.33150206E-04	0.17648189E-01	0.35288643E-06
2165	-0.45470602E-03	0.53315790E-03	-1.5502023	0.51373556E-04	0.17660801E-01	0.36855929E-06
2171	-0.33126935E-03	0.49680327E-04	-1.7409302	-0.28506182E-04	0.17998558E-01	-0.77361681E-06
2172	-0.33161190E-03	0.64680548E-04	-1.8065844	-0.35710242E-04	0.18034247E-01	-0.10880322E-05
2173	-0.33421274E-03	0.25464780E-04	-1.7303706	-0.14825961E-04	0.17996621E-01	-0.39777072E-06
2174	-0.33842318E-03	0.31046033E-04	-1.7853857	-0.18476005E-04	0.18026259E-01	-0.52986560E-06
2175	-0.34287828E-03	0.19519438E-03	-1.8710782	-0.11286183E-03	0.18003393E-01	-0.25222173E-05
2176	-0.32423195E-03	0.12658626E-03	-1.8721588	-0.67519539E-04	0.18063711E-01	-0.18010433E-05
2177	-0.32820697E-03	0.14759915E-03	-1.8718596	-0.86808407E-04	0.18048453E-01	-0.20426325E-05
2178	-0.33477907E-03	0.17032805E-03	-1.8714941	-0.10209145E-03	0.18028102E-01	-0.22801063E-05
2179	-0.33455348E-03	0.18725952E-03	-1.7401037	-0.68072457E-04	0.17938296E-01	-0.13106012E-05
2180	-0.33841192E-03	0.19194429E-03	-1.8055315	-0.89139595E-04	0.17971375E-01	-0.19092867E-05
2181	-0.32798549E-03	0.15632603E-03	-1.7403588	-0.63846059E-04	0.17958019E-01	-0.12292147E-05
2182	-0.32436627E-03	0.12371195E-03	-1.7405911	-0.56194713E-04	0.17974774E-01	-0.11165147E-05
2183	-0.32529426E-03	0.88170120E-04	-1.7407870	-0.44773233E-04	0.17988410E-01	-0.96589299E-06
2184	-0.33072855E-03	0.16390706E-03	-1.8058625	-0.81954563E-04	0.17993201E-01	-0.17468579E-05

FILENAME : PIT3B3.PO DATE : 05-25-94 TIME : 2:15p PAGE 5
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

2185	-0.32520796E-03	0.13525477E-03	-1.8061583	-0.70947958E-04	0.18011248E-01	-0.15666666E-05
2186	-0.32459319E-03	0.10372651E-03	-1.8064049	-0.56237062E-04	0.18025056E-01	-0.13559644E-05
2187	-0.53563702E-03	0.46715013E-03	-1.8677988	-0.23910422E-04	0.17715195E-01	-0.32073414E-05
2188	-0.36429458E-03	0.24828215E-03	-1.8701787	-0.11917342E-03	0.17945311E-01	-0.26237908E-05
2189	-0.39388115E-03	0.30351221E-03	-1.8693036	-0.10681175E-03	0.17882077E-01	-0.27492455E-05
2190	-0.43202185E-03	0.35907663E-03	-1.8685784	-0.81009984E-04	0.17819942E-01	-0.28690097E-05
2191	-0.47904286E-03	0.41391185E-03	-1.8680762	-0.49993650E-04	0.17763319E-01	-0.30141022E-05
2192	-0.49490880E-03	0.48555380E-03	-1.7387385	0.13853267E-04	0.17701347E-01	-0.14374077E-05
2193	-0.51537053E-03	0.47776413E-03	-1.8032560	-0.42568369E-05	0.17708728E-01	-0.23704519E-05
2194	-0.44972021E-03	0.42744307E-03	-1.7386912	-0.39599835E-05	0.17741941E-01	-0.13594182E-05
2195	-0.41111727E-03	0.36792517E-03	-1.7388113	-0.28954517E-04	0.17789324E-01	-0.13384093E-05
2196	-0.37896090E-03	0.30786969E-03	-1.7391244	-0.52048370E-04	0.17840666E-01	-0.13374745E-05
2197	-0.35332050E-03	0.24775882E-03	-1.7395824	-0.66405307E-04	0.17892007E-01	-0.13328696E-05
2198	-0.46443395E-03	0.42186602E-03	-1.8033641	-0.25984832E-04	0.17753322E-01	-0.22143547E-05
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2201	-0.35877378E-03	0.24877582E-03	-1.8048318	-0.91314573E-04	0.17919575E-01	-0.19808626E-05
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2204	-0.63348460E-03	0.53629112E-03	-1.8676224	-0.17061034E-04	0.17666279E-01	-0.40812219E-05
2207	-0.56995405E-03	0.56137938E-03	-1.7388938	0.65955634E-05	0.17659721E-01	-0.21529788E-05
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2209	-0.60200864E-03	0.55054061E-03	-1.8032521	-0.48668233E-05	0.17663162E-01	-0.32123593E-05
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2215	-0.33743316E-03	0.12782572E-03	-2.0161292	-0.10734548E-03	0.18153254E-01	-0.34366203E-05
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2217	-0.34581169E-03	0.16901363E-03	-2.0151029	-0.15835513E-03	0.18097392E-01	-0.45491560E-05
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2219	-0.34994600E-03	0.19495988E-03	-1.9666123	-0.15316000E-03	0.18045921E-01	-0.42502257E-05
2220	-0.33908526E-03	0.17457589E-03	-1.9188437	-0.11984149E-03	0.18050690E-01	-0.30466376E-05
2221	-0.33331528E-03	0.15596116E-03	-1.9188166	-0.10314207E-03	0.18072367E-01	-0.27365153E-05
2222	-0.32828425E-03	0.14293159E-03	-1.9187215	-0.82951920E-04	0.18090398E-01	-0.24792311E-05
2223	-0.34306479E-03	0.17405934E-03	-1.9675505	-0.13916296E-03	0.18074317E-01	-0.38091859E-05
2224	-0.33791057E-03	0.15586561E-03	-1.9684327	-0.12004747E-03	0.18099787E-01	-0.33822459E-05
2225	-0.33512831E-03	0.14331437E-03	-1.9692426	-0.97319040E-04	0.18122288E-01	-0.30248722E-05
2226	-0.57892614E-03	0.43476779E-03	-2.0086785	-0.70935270E-04	0.17725019E-01	-0.63027087E-05
2227	-0.37576839E-03	0.24150407E-03	-2.0130370	-0.19038753E-03	0.17990452E-01	-0.53708892E-05
2228	-0.40942083E-03	0.29155372E-03	-2.0116079	-0.17837559E-03	0.17914622E-01	-0.56213745E-05
2229	-0.45429827E-03	0.34090112E-03	-2.0103473	-0.14752615E-03	0.17842614E-01	-0.58594476E-05
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2231	-0.55022235E-03	0.45771518E-03	-1.9147496	-0.39022069E-04	0.17719200E-01	-0.42685127E-05
2232	-0.56465718E-03	0.44689979E-03	-1.9617102	-0.54739006E-04	0.17722502E-01	-0.52887638E-05
2233	-0.48959178E-03	0.40668765E-03	-1.9151577	-0.68574747E-04	0.17769533E-01	-0.40585742E-05
2234	-0.43951324E-03	0.35395497E-03	-1.9158139	-0.10223612E-03	0.17829033E-01	-0.38760552E-05
2235	-0.39917799E-03	0.30031768E-03	-1.9167085	-0.12946131E-03	0.17894790E-01	-0.37086328E-05
2236	-0.36828193E-03	0.24685378E-03	-1.9177570	-0.14143713E-03	0.17962400E-01	-0.35466686E-05
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2238	-0.44693956E-03	0.34787892E-03	-1.9630715	-0.12444911E-03	0.17836666E-01	-0.48688037E-05
2239	-0.40436485E-03	0.29630912E-03	-1.9641450	-0.15334531E-03	0.17905749E-01	-0.46636799E-05
2240	-0.37214541E-03	0.24456404E-03	-1.9653784	-0.16518608E-03	0.17977607E-01	-0.44570183E-05
2242	-0.63489262E-03	0.46522189E-03	-2.0083508	-0.52803409E-04	0.17695018E-01	-0.65836528E-05
2243	-0.69929613E-03	0.49401986E-03	-2.0080917	-0.45950947E-04	0.17671479E-01	-0.68004895E-05
2246	-0.65591376E-03	0.52384360E-03	-1.9144408	-0.26335993E-04	0.17668285E-01	-0.50422991E-05
2247	-0.59951947E-03	0.49168663E-03	-1.9145775	-0.26710176E-04	0.17690752E-01	-0.46213510E-05
2248	-0.67787319E-03	0.50972824E-03	-1.9612641	-0.35976908E-04	0.17670020E-01	-0.58993485E-05
2249	-0.61735899E-03	0.47918281E-03	-1.9614613	-0.39551370E-04	0.17693137E-01	-0.55999642E-05
2253	-0.31791533E-03	0.51350191E-04	-2.1636551	-0.95193485E-04	0.18215907E-01	-0.30152716E-05
2254	-0.31145175E-03	0.26158834E-04	-2.1638373	-0.50010955E-04	0.18220485E-01	-0.15631264E-05
2255	-0.32141605E-03	0.63085877E-04	-2.0900278	-0.86537843E-04	0.18195301E-01	-0.29267487E-05
2257	-0.31034975E-03	0.30684789E-04	-2.1062889	-0.50768271E-04	0.18201520E-01	-0.15267050E-05
2258	-0.35819614E-03	0.18071275E-03	-2.1607177	-0.25628263E-03	0.18095930E-01	-0.62836095E-05
2259	-0.33057386E-03	0.89949957E-04	-2.1631731	-0.15284791E-03	0.18199362E-01	-0.39548096E-05
2260	-0.34076326E-03	0.12427316E-03	-2.1624940	-0.19795124E-03	0.18171706E-01	-0.46843975E-05
2261	-0.34921564E-03	0.15410902E-03	-2.1616621	-0.23242534E-03	0.18136362E-01	-0.55069044E-05
2262	-0.35648992E-03	0.18653545E-03	-2.0875553	-0.21454216E-03	0.18084808E-01	-0.56765083E-05
2263	-0.34872016E-03	0.16111853E-03	-2.0883429	-0.19376201E-03	0.18122005E-01	-0.50157257E-05
2264	-0.34262779E-03	0.13419838E-03	-2.0890355	-0.16533687E-03	0.18155017E-01	-0.43331919E-05
2265	-0.33463635E-03	0.10303842E-03	-2.0896059	-0.13033275E-03	0.18181176E-01	-0.36435965E-05
2266	-0.62133430E-03	0.39035404E-03	-2.1520526	-0.12153922E-03	0.17726853E-01	-0.76869097E-05
2267	-0.38462020E-03	0.22951391E-03	-2.1586471	-0.27565145E-03	0.18009595E-01	-0.66208713E-05

FILENAME : PIT3B3.PO DATE : 05-25-94 TIME : 2:15p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

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2269	-0.47643817E-03	0.31449062E-03	-2.1546950	-0.22162973E-03	0.17847717E-01	-0.71882633E-05
2270	-0.54185241E-03	0.35347902E-03	-2.1531774	-0.17114269E-03	0.17781144E-01	-0.74427005E-05
2271	-0.60035368E-03	0.41388346E-03	-2.0803636	-0.96185629E-04	0.17727102E-01	-0.69834225E-05
2272	-0.52624156E-03	0.37228488E-03	-2.0812673	-0.13933111E-03	0.17781710E-01	-0.67580213E-05
2273	-0.46541751E-03	0.32860379E-03	-2.0825158	-0.18413446E-03	0.17847817E-01	-0.65165877E-05
2274	-0.41685415E-03	0.28308903E-03	-2.0840752	-0.21863454E-03	0.17923248E-01	-0.62595759E-05
2275	-0.38062753E-03	0.23567998E-03	-2.0858222	-0.23167299E-03	0.18004273E-01	-0.59821484E-05
2277	-0.68625026E-03	0.41456984E-03	-2.1514797	-0.93791703E-04	0.17696931E-01	-0.80246400E-05
2278	-0.76089682E-03	0.43740374E-03	-2.1510299	-0.76332613E-04	0.17673782E-01	-0.83279794E-05
2280	-0.73083658E-03	0.46724524E-03	-2.0795584	-0.61153318E-04	0.17673059E-01	-0.74955053E-05
2281	-0.66099731E-03	0.44132663E-03	-2.0799133	-0.73275886E-04	0.17696725E-01	-0.72743046E-05
2286	-0.31689256E-03	0.51918114E-04	-2.2192388	-0.10541698E-03	0.18229229E-01	-0.31202447E-05
2287	-0.31124499E-03	0.26112279E-04	-2.2166137	-0.54274236E-04	0.18235849E-01	-0.15767810E-05
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2294	-0.33908125E-03	0.12594413E-03	-2.2417636	-0.23990860E-03	0.18175142E-01	-0.49268149E-05
2295	-0.34854613E-03	0.15537501E-03	-2.2604111	-0.29143127E-03	0.18133788E-01	-0.58248130E-05
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2299	-0.51378540E-03	0.25400856E-03	-2.3968641	-0.34090667E-03	0.17799684E-01	-0.80213088E-05
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2327	-0.73284345E-03	0.21263110E-03	-2.5684841	-0.23104879E-03	0.17674442E-01	-0.97034800E-05
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2349	-0.48803828E-03	0.12015719E-03	-2.7479875	-0.48060197E-03	0.17604626E-01	-0.10444257E-04
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2355	-0.63286826E-03	0.19490994E-04	-2.9279991	-0.33329649E-03	0.17546682E-01	-0.11810442E-04
2356	-0.55796296E-03	0.23402884E-04	-2.9360608	-0.38623949E-03	0.17506923E-01	-0.11702502E-04
2357	-0.49046550E-03	0.26338078E-04	-2.9384022	-0.42193569E-03	0.17458024E-01	-0.11629804E-04
2358	-0.72231905E-03	-0.40644979E-04	-3.0115422	-0.24953719E-03	0.17560057E-01	-0.12504118E-04

FILENAME : PIT3B3.PO DATE : 05-25-94 TIME : 2:15p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 8/25)

2359	-0.63277321E-03	-0.33529285E-04	-3.0170646	-0.30644172E-03	0.17516164E-01	-0.12360896E-04
2360	-0.55026016E-03	-0.25822092E-04	-3.0229145	-0.35271337E-03	0.17462074E-01	-0.12241490E-04
2361	-0.47462127E-03	-0.19249612E-04	-3.0289856	-0.37615362E-03	0.17397784E-01	-0.12153110E-04
2362	-0.72562990E-03	-0.99386500E-04	-3.0981434	-0.22227698E-03	0.17547317E-01	-0.13005591E-04
2363	-0.62639428E-03	-0.86158030E-04	-3.1028655	-0.27538486E-03	0.17492035E-01	-0.12870405E-04
2364	-0.53361361E-03	-0.71930049E-04	-3.1078837	-0.31401012E-03	0.17424363E-01	-0.12746631E-04
2365	-0.44734497E-03	-0.58986013E-04	-3.1130468	-0.32319515E-03	0.17347425E-01	-0.12622710E-04
2367	-0.93571064E-03	-0.18865874E-03	-3.1805165	-0.10380080E-03	0.17617128E-01	-0.13994836E-04
2368	-0.10365039E-02	-0.19585579E-03	-3.1800398	-0.75960454E-04	0.17636646E-01	-0.14766091E-04
2377	-0.87823531E-03	0.27338082E-03	-2.4788100	-0.12960995E-03	0.17664016E-01	-0.98546666E-05
2378	-0.79001601E-03	0.26452895E-03	-2.4796054	-0.16888695E-03	0.17675705E-01	-0.94684593E-05
2379	-0.90430994E-03	0.22448711E-03	-2.5665472	-0.13625986E-03	0.17658513E-01	-0.10241185E-04
2380	-0.81428326E-03	0.21867140E-03	-2.5673879	-0.17913155E-03	0.17664967E-01	-0.99742591E-05
2381	-0.92847022E-03	0.17409727E-03	-2.6542557	-0.13853621E-03	0.17652497E-01	-0.10641612E-04
2382	-0.83696408E-03	0.17075761E-03	-2.6551145	-0.18356574E-03	0.17653274E-01	-0.10481609E-04
2383	-0.95094449E-03	0.12187206E-03	-2.7419344	-0.13631185E-03	0.17646536E-01	-0.11109689E-04
2384	-0.85798908E-03	0.12050252E-03	-2.7427827	-0.18191181E-03	0.17641609E-01	-0.11021956E-04
2385	-0.97188184E-03	0.67145853E-04	-2.8295850	-0.12977689E-03	0.17641253E-01	-0.11688016E-04
2386	-0.87729302E-03	0.67358002E-04	-2.8303954	-0.17433646E-03	0.17631048E-01	-0.11614403E-04
2387	-0.99127987E-03	0.89696401E-05	-2.9172124	-0.11947571E-03	0.17637247E-01	-0.12395723E-04
2388	-0.89480208E-03	0.10582655E-04	-2.9179607	-0.16149067E-03	0.17622629E-01	-0.12258685E-04
2389	-0.10089137E-02	-0.53731894E-04	-3.0048242	-0.10627784E-03	0.17635002E-01	-0.13210870E-04
2390	-0.91043290E-03	-0.50635420E-04	-3.0054914	-0.14446307E-03	0.17617215E-01	-0.12925079E-04
2391	-0.10242698E-02	-0.12188024E-03	-3.0924299	-0.91297222E-04	0.17634798E-01	-0.14051605E-04
2392	-0.92409815E-03	-0.11697935E-03	-3.0930040	-0.12466711E-03	0.17615349E-01	-0.13544600E-04
2404	-0.30490662E-03	-0.11659417E-03	-3.3016914	-0.15852658E-03	0.17250493E-01	-0.12994188E-04
2405	-0.30166796E-03	-0.17346344E-03	-3.4135171	-0.10850742E-03	0.17303450E-01	-0.13473598E-04
2406	-0.30287825E-03	-0.24872797E-03	-3.5257887	-0.64846212E-04	0.17387333E-01	-0.14123635E-04
2412	-0.15022165E-03	-0.33218818E-04	-3.4021290	-0.20029928E-04	0.17228345E-01	-0.24962705E-05
2413	-0.15150187E-03	-0.41671758E-04	-3.4807571	-0.15179468E-04	0.17283634E-01	-0.25543287E-05
2414	-0.15312911E-03	-0.52385261E-04	-3.5597029	-0.10351030E-04	0.17364518E-01	-0.26390286E-05
2415	-0.16732776E-03	-0.63359462E-04	-3.3931700	-0.41559919E-04	0.17228523E-01	-0.49320725E-05
2416	-0.16715117E-03	-0.80557122E-04	-3.4747540	-0.31048807E-04	0.17284215E-01	-0.50465117E-05
2417	-0.16772930E-03	-0.10253520E-03	-3.5566723	-0.20861788E-04	0.17365778E-01	-0.52130347E-05
2418	-0.19405959E-03	-0.87872950E-04	-3.3784058	-0.65801970E-04	0.17229776E-01	-0.72500442E-05
2419	-0.19195883E-03	-0.11432895E-03	-3.4648774	-0.48165756E-04	0.17285821E-01	-0.74198819E-05
2420	-0.19127515E-03	-0.14848396E-03	-3.5516943	-0.31620038E-04	0.17368245E-01	-0.76629360E-05
2421	-0.22793184E-03	-0.10512818E-03	-3.3580472	-0.93436364E-04	0.17233213E-01	-0.94001148E-05
2422	-0.22415768E-03	-0.14140594E-03	-3.4512649	-0.66844466E-04	0.17289158E-01	-0.96311368E-05
2423	-0.22265302E-03	-0.18870575E-03	-3.5448367	-0.42604317E-04	0.17372326E-01	-0.99452139E-05
2424	-0.26589971E-03	-0.11458661E-03	-3.3232649	-0.12448083E-03	0.17239877E-01	-0.11334338E-04
2425	-0.26154884E-03	-0.16107491E-03	-3.4340809	-0.87056652E-04	0.17294768E-01	-0.11659087E-04
2426	-0.26040932E-03	-0.22224052E-03	-3.5361743	-0.53722465E-04	0.17378388E-01	-0.12050793E-04
2432	-0.86043821E-03	-0.27416909E-03	-3.2950691	-0.10353007E-03	0.17599516E-01	-0.13683817E-04
2433	-0.87560865E-03	-0.37356590E-03	-3.4090463	-0.71880976E-04	0.17612288E-01	-0.13553271E-04
2434	-0.89033021E-03	-0.47098777E-03	-3.5231007	-0.46707543E-04	0.17621567E-01	-0.13090726E-04
2435	-0.74339020E-03	-0.24828099E-03	-3.2960219	-0.14392122E-03	0.17550727E-01	-0.13658406E-04
2436	-0.62934309E-03	-0.21796676E-03	-3.2972749	-0.17985652E-03	0.17485340E-01	-0.13701503E-04
2437	-0.51663173E-03	-0.18521677E-03	-3.2987547	-0.20105265E-03	0.17406688E-01	-0.13660480E-04
2438	-0.40743255E-03	-0.15150559E-03	-3.3003042	-0.19640046E-03	0.17323333E-01	-0.13441263E-04
2439	-0.76303125E-03	-0.34373870E-03	-3.4097005	-0.98415596E-04	0.17569952E-01	-0.13831118E-04
2440	-0.64743802E-03	-0.30906336E-03	-3.4105506	-0.12173389E-03	0.17512163E-01	-0.14155229E-04
2441	-0.52840638E-03	-0.26948885E-03	-3.4115454	-0.13502012E-03	0.17442636E-01	-0.14265759E-04
2442	-0.41056910E-03	-0.22456467E-03	-3.4125820	-0.13172466E-03	0.17369268E-01	-0.14025796E-04
2443	-0.78393135E-03	-0.44489638E-03	-3.5235123	-0.60966070E-04	0.17589598E-01	-0.13954568E-04
2444	-0.66772436E-03	-0.41340515E-03	-3.5240287	-0.73611034E-04	0.17545699E-01	-0.14856078E-04
2445	-0.54322913E-03	-0.37236425E-03	-3.5246221	-0.80645256E-04	0.17493039E-01	-0.15282077E-04
2446	-0.41787105E-03	-0.31819894E-03	-3.5252355	-0.78418281E-04	0.17437702E-01	-0.14944802E-04
2453	-0.10458987E-02	-0.29927003E-03	-3.2942303	-0.57271433E-04	0.17641187E-01	-0.14907342E-04
2454	-0.94762629E-03	-0.28844686E-03	-3.2945867	-0.77443806E-04	0.17623771E-01	-0.14025031E-04
2455	-0.10457230E-02	-0.40493747E-03	-3.4084519	-0.42253038E-04	0.17645676E-01	-0.14176365E-04
2456	-0.95591531E-03	-0.39104143E-03	-3.4087086	-0.54868059E-04	0.17632349E-01	-0.13533850E-04
2457	-0.10346861E-02	-0.50231770E-03	-3.5226886	-0.32291523E-04	0.17644789E-01	-0.12409589E-04
2458	-0.96093217E-03	-0.48754845E-03	-3.5228751	-0.38075248E-04	0.17636184E-01	-0.12403510E-04

MAXIMUMS

NODE	45	24	62	78	87	54
VALUE	-0.11643043E-02	0.60916088E-03	-3.6390877	-0.52422171E-03	0.18250332E-01	-0.17167373E-04

FILENAME : PIT3B4.PO DATE : 05-25-94 TIME : 2:15p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 9/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 1.7H

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 14.2591 MAY 25,1994 CP= 513.500

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.13078335E-04	-2127.4165		1626.9396		-2052.0863
62		6690.3872		-2876.0295		-522.83260
63		3393.9098		-445.84543		0.13420735E-01
64		2653.4802		8887.0277		0.13304112E-01
65		2063.7759		18703.722		0.13308280E-01
66		863.62625		10765.849		0.66744404E-02
87		-743.95056		34380.138		0.18302487E-02
88		-1477.2066		59955.300		0.36426180E-02
89		-1510.7174		55237.991		0.37249881E-02
90		-1905.0076		55496.219		0.38756878E-02
91		-1440.0398		28733.960		0.19630690E-02
98		-1368.0780		6178.0463		0.72488787E-03
99		-1854.7305		17150.960		0.13038825E-02
100		-1433.7658		12152.779		0.97395168E-03
101		-1611.5579		-0.41642139E-02		-5423.0118
162		6324.1392		0.68473060E-01		-21083.878
163		-2255.7773		13171.817		0.10415673E-02
164		-3025.5363		2867.0015		0.11580851E-02
165		-2886.8656		-8130.6517		0.93633542E-03
166		-3123.7268		-16336.951		0.92513616E-03
167		-3260.2460		-24051.838		0.10228168E-02
168		-2955.2732		-24334.921		0.11227458E-02
169		-2638.5833		-20758.063		0.13211102E-02
170		-2359.9261		-14558.796		0.15803507E-02
171		-2184.1127		-6824.5854		0.18282248E-02
172		-2184.5852		1417.3512		0.19867967E-02
201		-1205.3625		-0.45240700E-02		-3288.0012
262		2940.7008		0.60150734E-01		-29357.994
301		-927.45546		-0.45551436E-02		-841.33353
362		725.74019		0.52865162E-01		-34504.840
401		-722.35445		-0.42137206E-02		420.26537
462		-698.23210		0.44821924E-01		-35491.502
501		-591.66496		-0.37734858E-02		1801.1497
562		-1578.9045		0.37582872E-01		-34814.103
601		-528.53325		-0.34576532E-02		1924.3342
662		-2200.9697		0.32735997E-01		-34059.662
701		-488.21214		-0.31436235E-02		2001.0422
762		-2655.1017		0.28553109E-01		-32968.990
801		-461.31784		-0.28509646E-02		2000.2630
862		-3000.2558		0.24984997E-01		-31697.870
901		-441.60312		-0.25896404E-02		1926.0636
962		-3283.2758		0.21981737E-01		-30360.804
1001		-425.12006		-0.23638841E-02		1790.9338
1062		-3545.4606		0.19494253E-01		-29043.588
1101		-409.32179		-0.21747901E-02		1613.0438
1162		-3826.7446		0.17476370E-01		-27813.884
1201		-392.33033		-0.20219579E-02		1412.4481
1262		-4168.7397		0.15886495E-01		-26726.402

FILENAME : PIT3B4.PO DATE : 05-25-94 TIME : 2:15p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 9/25)

1301	-372.07152	.	-0.19044502E-02	1208.3865		
1362	-4617.3623		0.14688911E-01	-25825.202		
1401	-345.88045		-0.18212964E-02	1017.7188		
1462	-5225.4974		0.13854783E-01	-25145.451		
1501	-309.63354		-0.17717249E-02	854.14744		
1562	-6056.1810		0.13362937E-01	-24715.282		
1601	-140.04669		-0.87762756E-03	346.95441		
1662	-3376.3226		0.66002191E-02	-12266.901		
TOTAL	0.13078335E-04	-68685.299	0.00000000E+00	208407.84	0.00000000E+00	-449686.79

FILENAME : PIT3C1.PO DATE : 05-25-94 TIME : 2:17p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 10/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	0.900000
3	1.00000
4	1.70000
5	1.70000
6	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	1.00000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00
5	1.70000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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TITLE 14.2848 MAY 25,1994 CP= 606.050

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MYXC
977	-217.48953	-259.47475	-0.55573968	504.78734	6675.4252	166.00593
978	-217.95493	-259.78376	-0.16921649	501.01503	6698.0366	54.706211
979	-198.22523	-257.91363	1.8477854	-555.00886	3358.3935	236.27060
980	-198.60379	-258.22303	0.60464245	-554.28969	3367.0090	78.920110
981	-192.71331	-251.54672	3.4250874	-1625.7739	889.55681	271.86007
982	-192.93232	-251.88189	1.1481921	-1629.5097	892.56195	90.736301
983	-197.21656	-242.28275	4.2937619	-2657.0397	-913.26550	279.44671
984	-197.32544	-242.57712	1.4294562	-2664.6884	-915.99896	93.269373
985	-208.52700	-231.51598	4.6757155	-3601.9425	-2193.3745	266.04284
986	-208.56495	-231.76753	1.5644020	-3613.0317	-2199.9992	88.787425
987	-224.25351	-220.18150	4.7574083	-4427.6208	-3056.7317	237.59336
988	-224.24746	-220.40485	1.5814602	-4440.5654	-3066.6422	79.172512
989	-242.97951	-208.83049	4.6585414	-5120.6154	-3559.8979	203.50049
990	-242.95250	-209.07152	1.5578481	-5122.9411	-3564.7732	65.925031
991	-203.65734	-250.36700	-1.9683418	477.25955	6159.6920	782.55508
992	-208.96230	-254.28447	-1.7460586	469.85541	6363.4384	618.40996
993	-213.17760	-256.95370	-1.4788506	474.71389	6506.4967	459.74518
994	-216.05701	-258.62353	-1.0132410	474.62948	6609.8508	300.41843
995	-188.98536	-248.70207	9.1735222	-520.14213	3081.0885	1129.2491
996	-192.45339	-252.29489	7.3461020	-529.70360	3183.0347	903.40988
997	-195.17883	-255.07855	5.4133492	-540.94737	3270.1884	670.69100
998	-197.14896	-256.95654	3.4420304	-547.44000	3330.5575	434.22288
999	-187.16573	-242.85366	16.374136	-1492.7526	804.53482	1297.7734
1000	-189.28006	-246.22223	13.115372	-1542.8279	835.49887	1040.8238
1001	-190.92690	-248.79100	9.7552509	-1581.5905	863.08497	774.17427
1002	-192.09112	-250.59349	6.3098247	-1606.7961	881.66595	500.63549
1003	-194.39896	-234.60828	20.365360	-2424.2103	-850.82429	1333.0594
1004	-195.46272	-237.55497	16.380494	-2514.1275	-876.16002	1069.4767
1005	-196.30522	-239.83650	12.202075	-2581.9558	-892.89475	795.67281

FILENAME : PIT3C1.P0

DATE : 05-25-94

TIME : 2:17p

PAGE 2

TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 10/25)

1006	-196.90046	-241.43320	7.8971365	-2627.3296	-905.02600	514.60632
1007	-207.48854	-225.18595	22.181144	-3274.2713	-2022.0787	1269.0205
1008	-207.89441	-227.56457	17.853466	-3402.1466	-2088.9302	1018.4181
1009	-208.20311	-229.44799	13.306400	-3497.9356	-2138.5214	757.74760
1010	-208.41587	-230.79326	8.6117589	-3562.3934	-2173.4507	490.01479
1011	-224.09820	-215.18435	22.809245	-4014.6941	-2815.4860	1138.7702
1012	-224.21530	-216.95078	18.303230	-4178.3373	-2908.4693	914.48647
1013	-224.26245	-218.44240	13.591929	-4300.0381	-2978.7067	679.91803
1014	-224.26440	-219.56400	8.7682766	-4380.8659	-3028.4464	438.66517
1015	-242.66664	-204.58389	23.341234	-4625.6436	-3313.5169	976.55988
1016	-242.95848	-205.80624	18.519187	-4823.8709	-3416.9995	789.31648
1017	-243.05384	-207.07663	13.584541	-4972.6668	-3490.7069	590.06975
1018	-243.03142	-208.16712	8.6650173	-5070.8009	-3537.4059	380.56028
1019	-109.45863	-161.50342	1.0432128	341.17157	2503.1366	1507.9097
1020	-131.68756	-191.48451	-1.2873607	330.07268	3463.6764	1533.1223
1021	-154.75772	-213.88575	-2.8033692	347.74291	4353.6197	1435.9759
1022	-175.84792	-230.54707	-3.2648599	376.68049	5120.3416	1246.0860
1023	-193.22139	-242.86263	-2.7935457	385.80977	5745.1777	994.27920
1024	-133.79333	-161.51065	18.477495	287.34665	1231.7020	2253.1855
1025	-145.21797	-189.96785	19.329882	-25.337602	1686.9278	2251.5840
1026	-158.23437	-211.94481	17.787135	-239.06886	2131.6796	2084.4879
1027	-170.97737	-228.76008	15.059762	-382.72175	2538.7575	1800.2804
1028	-182.06439	-241.36268	11.818170	-469.38541	2880.4886	1440.5718
1029	-158.41728	-166.91076	26.351811	301.62969	369.42554	2583.5727
1030	-163.46914	-190.27739	29.989132	-342.68266	441.52393	2582.1104
1031	-169.98543	-209.29506	29.314609	-807.81713	539.98395	2395.1846
1032	-176.84953	-224.41998	25.930762	-1136.1989	648.91279	2073.9790
1033	-183.11808	-236.01307	20.845759	-1355.8292	748.54277	1657.3922
1034	-182.34204	-175.95730	28.894133	370.97552	-210.01121	2623.7794
1035	-183.75712	-192.51844	34.530765	-605.16920	-422.01014	2630.2366
1036	-186.29671	-206.98449	34.883328	-1324.9126	-586.12858	2448.5591
1037	-189.36630	-219.09757	31.558783	-1844.0422	-707.11418	2126.2807
1038	-192.38481	-228.76122	25.755541	-2204.0924	-794.51442	1701.1544
1039	-204.12161	-187.22359	28.794450	472.91253	-593.54153	2466.1907
1040	-203.95856	-196.31135	35.716944	-812.43575	-1011.1755	2479.5547
1041	-204.51779	-205.33777	36.946558	-1774.1868	-1367.3555	2326.3484
1042	-205.54982	-213.59757	35.949690	-2478.0742	-1657.5377	2017.5595
1043	-206.70142	-220.67589	27.959133	-2974.8433	-1882.9296	1617.5135
1044	-222.54832	-199.53997	28.198443	586.32482	-841.16616	2178.0450
1045	-222.40610	-201.15240	35.709352	-969.84321	-1402.9790	2195.1904
1046	-222.60456	-204.33945	37.552975	-2147.9365	-1893.6234	2057.7203
1047	-223.13658	-208.20082	34.872668	-3019.4408	-2301.6695	1798.9030
1048	-223.74050	-212.23435	28.818580	-3641.6672	-2621.4894	1447.5689
1049	-237.01586	-211.89772	28.511962	694.88476	-994.61683	1808.0733
1050	-237.84316	-206.60253	36.105218	-1084.9568	-1650.8095	1826.5879
1051	-238.86603	-203.89480	38.405598	-2443.4746	-2230.4663	1718.9070
1052	-240.28251	-202.92260	36.026789	-3455.7875	-2714.5615	1512.0711
1053	-241.77304	-203.41032	29.788836	-4185.1644	-3090.3001	1228.1976
1054	-87.698719	-49.788431	1.6817086	522.32265	472.57333	717.23241
1055	-86.767367	-92.214540	3.7844548	398.96024	1020.9311	1104.2612
1056	-93.811953	-128.31109	3.4178061	357.92458	1672.5875	2357.0996
1057	-125.85109	-62.935715	-4.7949391	1507.3006	377.81799	1294.9857
1058	-124.50647	-101.39294	7.0226518	1021.5373	598.21831	1780.8475
1059	-126.79418	-131.56102	14.414847	630.96929	861.68635	2082.2141
1060	-158.08754	-96.058622	-11.873576	2689.3969	381.92215	1558.2732
1061	-155.76712	-121.28504	6.8955473	1758.5780	346.15173	2072.3369
1062	-155.88049	-143.71380	18.420946	1002.0311	337.15994	2396.3613
1063	-184.67905	-136.26391	-15.902327	3867.4634	428.26554	1623.3936
1064	-183.26242	-147.86313	4.6083253	2525.6459	208.99866	2114.8179
1065	-182.25996	-160.69099	18.620213	1420.5724	4.2343380	2433.6578
1066	-205.50287	-175.55204	-16.712336	4947.0812	497.50773	1556.8040
1067	-205.42127	-176.37351	2.9366858	3254.0491	143.70070	1995.5517
1068	-204.77600	-180.27140	17.349275	1840.6275	-202.12550	2286.9908
1069	-220.98110	-210.92585	-14.565170	5878.7550	574.13363	1398.1956
1070	-222.31356	-203.70209	3.0408937	3900.1049	120.70951	1768.9426
1071	-222.66743	-200.24992	16.703033	2227.6512	-325.56045	2020.2919
1072	-231.75429	-241.39383	-9.9704377	6644.6595	636.66274	1174.3130
1073	-234.50540	-228.46578	5.3509882	4441.3129	120.51534	1475.0230
1074	-236.05419	-219.16953	17.658819	2559.9229	-395.36437	1679.9980
1075	-261.95742	-198.82684	4.5481742	-5650.7964	-3803.9709	200.70267

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1076	-261.92366	-199.23244	1.4824153	-5659.1023	-3805.8237	70.020755
1077	-282.22925	-190.07678	4.3205853	-6068.2674	-3822.3516	205.08333
1078	-282.12653	-191.01339	1.4254004	-6108.7225	-3826.1684	70.032377
1079	-313.53215	-179.55359	5.0421562	-6522.9536	-3537.4034	318.79031
1080	-314.04397	-182.83558	1.3707777	-6642.2427	-3486.4054	114.17749
1081	-260.12842	-194.13748	24.986505	-5053.0332	-3588.4780	826.91353
1082	-261.25095	-194.92717	19.425142	-5281.6003	-3685.6115	684.37604
1083	-261.83293	-196.31703	13.846886	-5460.3113	-3751.2143	527.28903
1084	-261.96914	-197.83698	8.5839660	-5585.1166	-3788.3970	354.60465
1085	-275.27819	-183.27743	29.627600	-5298.2931	-3680.4842	716.54569
1086	-278.91979	-183.10898	22.637678	-5557.8689	-3760.8827	624.14927
1087	-281.26184	-184.89721	15.364500	-5779.5935	-3802.4762	507.98084
1088	-282.24812	-187.78100	8.8015599	-5957.5090	-3816.5106	357.08960
1089	-285.66582	-172.05861	41.273836	-5398.7734	-3679.7363	632.78603
1090	-295.28707	-167.75214	33.672216	-5677.3503	-3736.5462	622.19267
1091	-304.60233	-167.99593	22.885440	-5964.4338	-3719.8257	593.16421
1092	-310.61215	-173.43450	11.944050	-6276.4611	-3632.2891	490.64052
1093	-246.54930	-222.50279	29.984344	781.09099	-1078.1713	1433.3220
1094	-248.43685	-211.79811	37.520689	-1159.9258	-1798.4005	1452.9280
1095	-250.68341	-204.04815	40.386590	-2645.3906	-2430.3082	1375.7062
1096	-253.79290	-198.42331	38.604382	-3755.7424	-2955.8416	1224.0294
1097	-257.50653	-195.01194	32.261192	-4562.4052	-3358.7289	1014.4004
1098	-251.82377	-231.31102	32.042932	844.22350	-1116.9493	1088.0265
1099	-254.35949	-216.74595	39.584096	-1196.3089	-1862.1582	1108.0328
1100	-257.49361	-205.09184	43.324502	-2760.3812	-2515.7224	1060.5697
1101	-262.27072	-195.28215	42.915900	-3928.3262	-3055.1763	962.53862
1102	-269.20343	-187.33244	37.498494	-4777.4234	-3459.7721	831.05200
1103	-254.30624	-239.67273	34.445524	893.61750	-1133.7136	736.50944
1104	-256.98058	-222.17802	42.041735	-1209.2381	-1888.2684	759.34582
1105	-260.30080	-207.48055	46.910773	-2821.1119	-2547.0747	744.56817
1106	-265.62178	-194.14251	48.852546	-4019.2621	-3082.1738	704.72501
1107	-275.06130	-181.30635	46.852781	-4878.4241	-3473.5988	656.75224
1108	-238.73458	-264.82345	-3.9852740	7198.2338	707.68629	943.18487
1109	-242.26229	-247.94300	9.1137058	4829.9974	134.94687	1173.9942
1110	-244.64274	-234.60582	19.964841	2803.9205	-422.91505	1332.5081
1111	-242.66585	-282.34121	1.6492005	7548.4091	745.24942	722.08452
1112	-246.57948	-262.73134	13.135752	5086.1968	148.50247	890.31680
1113	-249.39186	-246.72289	22.799993	2967.1840	-436.84333	1010.9139
1114	-244.58909	-297.00831	8.0513734	7792.4395	754.08479	483.61952
1115	-248.82205	-275.60702	17.626718	5270.6665	159.88049	604.19918
1116	-251.77092	-257.53995	25.998406	3084.0843	-439.76629	684.64771
1117	-353.39218	-175.78865	8.3476308	-7203.2206	-2975.4608	351.45269
1118	-406.94899	-165.42927	14.434673	-7940.4363	-2423.3235	605.27868
1119	-579.34087	-113.83014	86.623636	-9424.0304	-1435.5047	1296.0399
1120	-350.49264	-167.50706	10.356890	-6977.3639	-3115.9350	607.82766
1121	-412.13730	-147.29728	32.690892	-7427.7958	-2705.4150	1162.2725
1122	-426.80670	-146.85119	160.94938	-7766.6776	-2420.0919	2607.5177
1123	-285.18396	-166.20906	56.106080	-5382.1684	-3661.8310	575.10763
1124	-300.09361	-156.08730	52.816122	-5633.7704	-3706.3672	647.19501
1125	-321.28481	-149.84695	42.180237	-5945.3222	-3639.9274	761.07525
1126	-343.27352	-155.76028	23.180833	-6446.4139	-3383.2556	802.30563
1127	-273.75795	-167.99269	65.620269	-5302.2008	-3584.6599	533.88099
1128	-285.75644	-154.90862	70.561565	-5472.7187	-3643.1703	656.28161
1129	-311.91503	-141.13091	71.758877	-5676.3493	-3590.7682	930.57457
1130	-363.77378	-134.22666	60.969284	-6303.8492	-3191.1941	1318.7656
1131	-257.17909	-173.84324	67.764809	-5201.6946	-3477.5186	488.26103
1132	-254.25643	-164.84353	79.353368	-5254.4809	-3558.4083	607.31897
1133	-259.98701	-148.95376	98.941735	-5130.7939	-3633.1450	974.88425
1134	-290.16581	-153.44077	131.43296	-5349.0675	-3315.5792	2060.8550
1135	-254.56160	-245.77435	36.242577	922.67456	-1138.8338	466.26824
1136	-257.04064	-226.60303	43.897031	-1211.6982	-1913.1673	493.42330
1137	-260.06445	-210.17044	49.546494	-2840.1807	-2571.0689	509.13445
1138	-264.65550	-194.98707	53.319624	-4046.0968	-3092.5858	518.81480
1139	-273.42877	-179.48567	55.656330	-4894.9341	-3467.9129	533.29996
1140	-253.59237	-249.79891	37.309101	939.01380	-1137.9476	278.19674
1141	-255.79357	-229.81993	45.050287	-1198.2325	-1906.0873	311.59248
1142	-258.51448	-212.49202	51.104205	-2823.7411	-2558.4096	352.76903
1143	-262.00659	-196.69720	55.591936	-4026.9091	-3062.7086	401.60673
1144	-267.09718	-181.23364	60.110116	-4860.1268	-3407.4187	457.42635
1145	-251.80056	-253.77387	38.178061	953.53646	-1133.6857	92.256453

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1146	-253.66065	-233.18694	46.107767	-1172.7099	-1898.1197	130.59980
1147	-256.23203	-214.98852	52.528643	-2784.9694	-2542.6865	200.53466
1148	-258.91838	-198.61200	57.032502	-3979.5547	-3025.8908	295.80565
1149	-259.42690	-183.96607	61.302420	-4801.2340	-3331.0180	397.10868
1150	-245.61922	-306.58315	12.928163	7956.2267	825.64252	304.67534
1151	-249.51709	-284.12110	21.039828	5363.6765	174.63973	382.65583
1152	-252.24003	-264.99353	28.373937	3145.1438	-430.53252	430.02878
1153	-245.96830	-312.17203	15.819480	8012.2153	807.14737	179.89673
1154	-249.31707	-289.07666	23.071825	5398.3795	185.90949	225.41319
1155	-251.62109	-269.57594	29.778673	3168.5413	-427.75085	256.31517
1156	-245.60599	-317.01167	18.386364	8025.0419	799.61165	64.257532
1157	-248.50403	-293.55150	24.747130	5416.3070	189.05631	73.532260
1158	-250.30512	-273.85607	30.903672	3180.2168	-424.35033	79.576546
1159	-245.63078	-177.31629	61.135856	-5129.3738	-3367.0551	448.62363
1160	-228.25329	-177.25999	67.633678	-5122.9004	-3446.9807	511.50595
1161	-197.80138	-170.74812	89.657704	-4737.8884	-3692.7750	694.31829
1162	-146.14801	-179.58108	124.36695	-3780.8586	-4419.8865	1865.3437
1163	-241.37043	-178.45470	51.956281	-5068.6849	-3272.4329	464.79855
1164	-219.67943	-178.84980	46.694086	-5081.0412	-3297.5747	468.48621
1165	-169.55897	-189.29549	41.550749	-4694.9790	-3495.2264	406.53302
1166	-63.900091	-152.17121	29.117833	-2921.3037	-4625.0485	265.33992
1167	-248.98429	-171.42512	41.719251	-5042.3192	-3159.6214	474.39380
1168	-231.96896	-168.67466	23.863993	-5115.7191	-3142.6064	428.13353
1169	-194.85487	-165.58538	-15.155185	-4827.8474	-3234.8699	151.29762
1170	-127.80770	-125.59669	-70.661415	-3864.9003	-3711.0857	-1230.4533
1171	-249.60290	-257.20676	38.729393	962.75670	-1131.5623	-68.643996
1172	-251.12707	-236.24642	46.951518	-1145.0575	-1895.7801	-25.354126
1173	-253.74798	-217.23015	53.795485	-2735.8484	-2533.9224	71.982879
1174	-256.47253	-199.97771	57.992203	-2916.7961	-2998.7027	214.55079
1175	-254.10640	-185.67559	59.566575	-4736.0782	-3264.5427	362.47993
1176	-247.17308	-260.13736	39.001426	969.46881	-1127.0130	-204.85775
1177	-248.35505	-239.01078	47.615502	-1114.2802	-1887.9081	-156.90940
1178	-251.18959	-219.21433	54.996232	-2677.4808	-2521.2097	-34.867171
1179	-254.81420	-200.65751	58.839270	-3839.8323	-2971.8798	153.17280
1180	-252.85218	-184.98213	56.930699	-4664.9923	-3202.4576	349.10367
1181	-244.24977	-263.13839	39.058811	975.96914	-1122.2045	-341.21531
1182	-244.96089	-242.00301	48.220342	-1076.8671	-1880.4982	-288.99395
1183	-248.15064	-221.39794	56.455648	-2604.0594	-2509.6891	-141.32874
1184	-253.36883	-200.89004	60.373090	-3739.6264	-2948.6681	97.217979
1185	-255.23147	-182.02567	55.150804	-4576.5404	-3143.6203	352.43023
1186	-244.77469	-320.52328	20.425744	8031.9238	823.32070	-36.828618
1187	-247.28360	-297.06584	25.913001	5411.2661	190.26532	-57.837140
1188	-248.61461	-277.35592	31.598969	3178.7602	-422.73640	-72.811815
1189	-243.75559	-322.95720	21.940295	8015.4611	185.30581	-124.35552
1190	-245.83117	-299.68513	26.674023	5392.8752	192.12595	-170.44553
1191	-246.70282	-280.15554	31.937304	3170.0517	-420.50395	-200.64995
1192	-242.50144	-324.98276	23.232001	7973.6851	820.97651	-212.21776
1193	-244.03731	-301.99612	27.181127	5366.5394	187.88839	-283.01884
1194	-244.37327	-282.83575	32.035093	3156.5386	-419.69578	-327.88254
1195	-689.29217	-94.289441	-84.118506	-10317.221	-542.40630	-1213.5520
1196	-503.12775	-103.99977	-0.80672941	-9274.8294	-710.40780	-602.22299
1197	-471.68416	-88.454517	-118.07191	-8369.9501	-1345.0465	-1916.0110
1198	-511.40468	-76.325757	25.409902	-8420.3408	-1120.8042	-504.32917
1199	-269.41054	-156.46243	38.478846	-4997.1650	-3029.5577	559.75694
1200	-271.97451	-141.54540	12.394002	-5239.9510	-2922.2912	492.90133
1201	-281.04899	-110.98802	-32.129939	-5342.9690	-2762.5724	64.165324
1202	-318.39745	-90.662260	-85.044359	-5722.4063	-2192.0331	-1158.7862
1203	-296.47459	-138.52413	51.515955	-4900.4733	-2880.7207	733.32690
1204	-324.39889	-111.58702	33.408273	-5412.5407	-2655.2286	715.77366
1205	-370.86198	-79.413410	15.251569	-6023.4512	-2304.8311	399.46192
1206	-444.16838	-59.144501	11.644113	-7032.4132	-1707.2370	-210.59013
1207	-239.74195	-267.07654	38.740082	982.21864	-1111.1690	-512.33598
1208	-239.62449	-246.33932	48.794661	-1019.3938	-1860.7168	-457.19470
1209	-243.06759	-224.77825	58.791236	-2485.6815	-2486.5796	-276.96576
1210	-251.50635	-200.99091	63.939390	-3571.1811	-2915.9800	32.176576
1211	-262.23253	-175.75576	57.024297	-4426.3189	-3070.7045	382.41733
1212	-233.37015	-272.07211	37.588163	983.96233	-1097.8246	-719.72265
1213	-231.67377	-252.44833	49.089557	-941.56177	-1846.0257	-663.63693
1214	-235.00343	-230.29665	62.098811	-2314.0433	-2471.0404	-446.32239
1215	-247.13863	-202.11681	71.559675	-3311.6042	-2896.7354	-44.075920

FILENAME : PIT3C1.PO DATE : 05-25-94 TIME : 2:17p PAGE 5
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 10/25)

1216	-271.71636	-167.92790	67.622605	-4179.1571	-3004.8579	455.73478
1217	-240.39099	-326.75567	24.444107	7890.6374	781.65576	-315.81394
1218	-241.23063	-304.45334	27.426801	5315.4562	184.20372	-421.33005
1219	-240.83387	-286.02523	31.735523	3129.0242	-416.76700	-488.45156
1220	-237.16224	-327.86246	25.440087	7768.0109	796.87519	-446.18370
1221	-237.31673	-306.84449	27.165473	5232.1050	171.62233	-586.77047
1222	-235.94241	-289.57201	30.685634	3080.9386	-413.88102	-677.39289
1223	-487.05908	-69.583935	17.947076	-9075.0339	-547.48514	42.134995
1224	-501.17890	-25.860987	22.343177	-9320.2911	-230.59375	197.29350
1225	-474.33923	-64.445133	47.477447	-8533.9897	-784.09974	167.59737
1226	-499.34688	-30.605050	61.066904	-8903.1573	-373.10796	587.07760
1227	-446.93191	-68.597009	87.712878	-7473.3188	-1346.2065	840.01665
1228	-463.70554	-55.425466	122.69828	-7761.6084	-854.60007	1495.7899
1229	-398.93678	-80.350852	95.126054	-6263.0104	-1987.4037	1248.4076
1230	-403.15871	-85.127513	156.37337	-6306.4383	-1501.3835	2080.6429
1231	-352.99554	-102.33682	95.295022	-5332.2098	-2434.2765	1329.1314
1232	-338.48551	-112.36465	165.71656	-4929.5970	-2102.6066	2199.0861
1233	-318.46934	-125.24018	95.497914	-4573.4643	-2695.5496	1140.3192
1234	-284.55077	-140.05557	167.62766	-3673.1274	-2590.6931	1999.2409
1235	-223.17451	-279.13449	34.148894	971.58704	-1067.4540	-995.67798
1236	-217.77662	-263.18665	47.597833	-821.49859	-1791.3205	-950.11410
1237	-218.28076	-242.36974	66.596305	-2017.3621	-2420.2100	-696.07340
1238	-232.27846	-211.02911	85.907371	-2812.5017	-2858.0524	-156.98473
1239	-268.64613	-165.56342	98.199715	-3613.9712	-2909.8031	629.88875
1240	-209.35019	-287.83567	25.988000	926.03367	-1015.0884	-1333.3606
1241	-197.22784	-279.64459	40.816306	-680.04715	-1721.0909	-1321.0688
1242	-189.16390	-266.18465	67.873005	-1589.6368	-2363.7189	-1060.3173
1243	-195.90329	-235.10690	105.36061	-1967.9279	-2862.4421	-375.79538
1244	-229.68543	-187.63442	144.15831	-2400.9790	-2960.0551	920.86240
1245	-232.55233	-327.16776	26.097445	7533.4687	736.45580	-621.58354
1246	-231.51442	-308.31771	25.675551	5076.3816	161.98919	-800.87930
1247	-228.45551	-293.39523	27.698629	2983.9673	-408.03576	-925.96205
1248	-227.18658	-323.21051	25.123657	7210.4263	716.89730	-835.88594
1249	-224.12535	-307.41284	21.563196	4823.8781	159.81218	-1052.5661
1250	-218.68920	-296.39590	21.102004	2816.7048	-383.50557	-1219.8870
1251	-198.58904	-293.53572	17.455206	970.13010	-1024.7233	-1559.5167
1252	-181.77840	-294.24144	31.025083	-437.92079	-1700.4087	-1621.1375
1253	-165.52506	-291.77157	59.924431	-1143.1480	-2369.9791	-1446.3601
1254	-158.77319	-272.17562	106.50152	-1177.6100	-3016.2721	-826.10403
1255	-171.76856	-223.52310	161.48840	-965.75282	-3284.3053	652.67111
1256	-189.90091	-296.86317	6.6000340	975.97280	-979.50985	-1767.5023
1257	-170.74468	-304.90814	15.961283	-236.31064	-1547.8385	-1882.9012
1258	-148.25663	-313.98632	39.418611	-829.70891	-2128.3897	-1831.7084
1259	-126.59858	-313.50291	82.602614	-707.85684	-2796.4258	-1477.9986
1260	-115.12356	-282.79232	141.48989	129.61579	-3533.4570	-399.93395
1261	-182.69485	-297.44796	-7.7343968	873.68265	-881.89423	-1983.4871
1262	-162.33126	-312.11163	-3.8698188	-193.05308	-1357.1073	-2135.9844
1263	-135.80460	-331.97581	11.325061	-717.85886	-1841.4653	-2194.5096
1264	-102.84609	-351.97368	44.961765	-553.18725	-2443.8632	-2122.4302
1265	-71.246584	-350.58445	104.48916	624.69716	-3373.3949	-1694.7849
1266	-178.18968	-293.66443	-24.134662	667.76497	-732.54836	-2187.1194
1267	-158.58458	-313.39968	-26.627887	-307.71776	-1116.9665	-2360.1245
1268	-131.71461	-341.59592	-21.538659	-814.24544	-1492.7811	-2500.0943
1269	-93.871803	-379.49638	-2.9514686	-727.20404	-1951.4142	-2662.0716
1270	-44.249717	-418.62427	46.065169	325.28209	-2736.3603	-2918.8520
1271	-176.30013	-285.12846	-40.205886	394.60452	-551.56283	-2351.4215
1272	-159.48778	-308.21720	-48.777035	-531.52755	-846.00639	-2527.0768
1273	-136.28941	-341.49549	-53.592932	-1062.5365	-1098.9452	-2707.7287
1274	-101.50546	-391.11937	-52.463984	-1148.6857	-1347.3460	-3009.5830
1275	-42.960594	-471.41854	-31.047020	-638.12705	-1695.4749	-3718.2926
1276	-175.12875	-273.30347	-53.682337	113.94112	-372.82279	-2459.4273
1277	-162.30207	-298.81469	-66.895290	-784.82377	-578.59365	-2618.5793
1278	-145.38499	-334.60789	-79.326616	-1358.7044	-699.25714	-2791.6594
1279	-120.19004	-388.96741	-93.578735	-1657.4378	-699.76440	-3111.7271
1280	-69.921157	-493.09054	-113.33481	-1848.0593	-480.83643	-3871.1771
1281	-171.85828	-260.86216	-63.457582	-109.75812	-226.22191	-2509.8285
1282	-162.98921	-289.15418	-79.361018	-982.47515	-341.85685	-2634.7157
1283	-152.74542	-326.45309	-96.253128	-1590.2288	-324.12769	-2752.5307
1284	-139.33710	-380.40013	-121.23364	-2078.0812	-70.464780	-2968.0129
1285	-116.06203	-476.26680	-181.51683	-2818.7783	654.00376	-3390.3494

FILENAME : PIT3C1.PO DATE : 05-25-94 TIME : 2:17p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 10/25)

1286	-164.26146	-250.37551	-69.503883	-227.84795	-119.83146	-2509.2853
1287	-158.66554	-282.80502	-86.301317	-1061.4482	-134.48581	-2586.1363
1288	-153.85962	-321.68773	-105.01204	-1677.5447	32.355017	-2608.1609
1289	-151.08971	-371.56698	-137.27779	-2286.9600	525.57552	-2619.4789
1290	-162.92577	-424.77473	-220.58477	-3227.7932	1549.5224	-2486.2694
1291	-151.84089	-243.33869	-72.013150	-218.39197	-29.976805	-2462.1001
1292	-148.83376	-281.60680	-88.387993	-990.58609	80.429981	-2482.4509
1293	-148.23122	-322.01202	-107.33153	-1592.9805	417.90565	-2381.0181
1294	-154.34759	-363.21930	-146.29571	-2242.0317	1110.5110	-2139.1425
1295	-199.15096	-350.13527	-226.54070	-3053.1564	2119.8570	-1493.8027
1296	-222.51119	-316.40140	22.315492	6888.2706	706.24246	-1002.3764
1297	-217.77238	-303.77671	15.758690	4554.6414	158.83761	-1260.2144
1298	-210.24568	-296.80384	12.733032	2628.5255	-359.06313	-1460.6249
1299	-218.15039	-307.46567	18.913663	6548.8802	657.06500	-1125.1735
1300	-212.46204	-297.93557	9.4442438	4286.9400	150.93653	-1425.3497
1301	-203.51351	-294.60628	3.6701535	2435.9898	-340.21637	-1655.4446
1302	-213.48399	-295.67740	14.935567	6157.7271	611.82418	-1234.3128
1303	-207.30259	-289.32946	2.3246781	3985.6036	136.76105	-1571.9061
1304	-197.63959	-289.69376	-6.5867515	2215.1237	-317.02372	-1831.9291
1305	-208.43838	-280.86728	10.800800	5728.0133	561.53077	-1330.9281
1306	-202.26378	-277.78773	-5.0590050	3651.3052	121.19362	-1700.3312
1307	-192.63679	-281.76734	-17.209928	1968.9754	-291.98413	-1984.6552
1308	-202.78355	-263.03781	6.7868511	5260.0832	505.96386	-1411.8472
1309	-196.97693	-263.34211	-12.201848	3289.8861	104.59592	-1809.3928
1310	-188.03913	-270.88035	-27.369145	1704.6527	-264.33155	-2111.3949
1311	-196.01592	-242.24900	3.1168967	4755.6645	446.53780	-1474.9354
1312	-190.81010	-246.26297	-18.754993	2907.7588	89.390710	-1897.1099
1313	-182.97569	-257.45831	-36.406922	1431.5605	-230.18596	-2209.3986
1314	-187.55981	-218.57281	-0.10731609	4216.9677	386.19922	-1517.5974
1315	-183.01008	-226.98340	-24.551981	2511.7159	80.684441	-1960.5029
1316	-176.42551	-242.21404	-43.971665	1161.1135	-182.37403	-2275.1464
1317	-176.86123	-192.06391	-2.9349438	3647.7116	328.96987	-1535.4278
1318	-172.90575	-206.04634	-29.563520	2109.4222	86.309607	-1994.7554
1319	-167.61068	-225.98009	-49.967497	905.76243	-109.78420	-2304.0204
1320	-163.56419	-162.78685	-5.4748213	3048.5480	281.78302	-1521.9562
1321	-160.16710	-184.11828	-33.796576	1711.4973	115.51980	-1991.9786
1322	-156.20007	-209.56210	-54.307223	676.19198	4.6277202	-2288.0311
1323	-250.29974	-22.448112	-20.559466	1518.9987	1025.7774	350.27749
1324	-260.29565	-63.702479	-19.947242	1058.8190	2551.2823	140.69514
1325	-254.24104	-101.75594	-16.580182	929.29080	4060.1628	29.296912
1326	-239.21553	-134.71304	-13.742748	1003.1590	5647.7289	-53.838126
1327	-250.30961	-35.719197	-57.365160	1133.9704	1319.0672	941.36580
1328	-254.76095	-77.968431	-54.578251	883.31882	2639.1658	415.89437
1329	-248.96162	-113.98574	-45.108787	846.14224	4102.8209	138.46676
1330	-236.37122	-144.73580	-37.694767	969.71137	5712.3702	-67.953949
1331	-251.38516	-61.360857	-94.321128	465.75459	1777.4466	1283.2163
1332	-245.51221	-103.56997	-85.393690	570.63815	2764.9181	603.37385
1333	-240.25828	-135.27525	-69.494491	697.44383	4158.7765	224.64368
1334	-232.13034	-161.97927	-57.939051	907.82100	5824.9399	-67.710505
1335	-253.40540	-99.121753	-131.40253	-360.42067	2239.6171	1310.0534
1336	-234.21953	-136.84156	-110.97716	164.27350	2868.7969	671.11542
1337	-229.83171	-161.72529	-88.752543	505.04087	4185.0249	274.14986
1338	-227.52456	-182.99759	-73.591972	827.36432	5955.9177	-47.313556
1339	-255.43613	-147.47039	-167.72021	-1224.9952	2568.2217	1043.9246
1340	-222.76055	-173.63516	-130.59037	-296.30144	2901.0378	611.97910
1341	-219.39434	-189.11128	-102.91889	285.51900	4141.7512	276.78976
1342	-223.27306	-204.19898	-84.839446	741.88571	6070.5779	-1.7559255
1343	-255.69590	-206.56430	-201.57002	-2025.6916	2724.3036	596.21561
1344	-213.28310	-208.34129	-144.03514	-801.69880	2858.9775	435.38354
1345	-210.14308	-214.41334	-112.97910	24.864137	4038.7580	228.20728
1346	-219.86821	-222.62048	-92.118360	682.89331	6111.6096	48.060916
1347	-139.38738	-231.02666	-73.423132	-240.22037	323.99917	-2327.1601
1348	-140.50955	-273.45564	-88.822659	-863.35900	563.29585	-2254.0358
1349	-144.34240	-310.52943	-106.84665	-1362.2288	972.47656	-1992.4345
1350	-157.34179	-326.52568	-141.36227	-1861.3495	1584.7873	-1494.5329
1351	-206.44009	-283.76677	-187.14297	-2225.3241	2382.8296	-526.17959
1352	-125.31320	-217.66240	-70.991358	-157.25740	918.71902	-2064.2175
1353	-132.20446	-261.56267	-84.745582	-542.19007	1355.8503	-1922.8125
1354	-141.11767	-292.32445	-100.44512	-840.44882	1856.1788	-1575.5085
1355	-157.67536	-298.67880	-121.66611	-1078.5795	2368.2295	-1007.5269

FILENAME : PIT3C1.PO DATE : 05-25-94 TIME : 2:17p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 10/25)

1356	-188.02017	-260.67363	-142.70443	-1093.6848	2732.6604	-182.69844
1357	-114.82479	-205.75974	-62.436186	20.393588	1851.9721	-1627.1769
1358	-129.75618	-250.30411	-75.427926	-125.86664	2574.0766	-1473.0837
1359	-145.41958	-278.53844	-89.211725	-229.94593	3228.3262	-1148.9020
1360	-163.50104	-282.71979	-104.21173	-289.17520	3727.3707	-676.64832
1361	-187.81863	-253.02507	-115.10381	-205.02015	3950.7874	-119.90447
1362	-111.34853	-195.03552	-45.540234	271.01536	3274.2128	-920.29297
1363	-137.54286	-239.13278	-58.289511	329.99515	4411.6521	-835.63740
1364	-162.73825	-266.17189	-72.680691	381.14963	5323.3401	-653.85487
1365	-185.46124	-271.54352	-86.815502	427.55720	5897.6923	-396.77432
1366	-205.87290	-250.41425	-94.683423	497.96685	6084.5700	-112.05130
1367	-145.00546	-126.30921	-8.2353989	2338.0269	264.15527	-1457.9844
1368	-142.23781	-158.52659	-37.372594	1273.2078	215.65640	-1928.5135
1369	-140.19336	-191.96496	-57.012369	458.97614	221.41756	-2203.3278
1370	-120.55459	-84.060165	-11.722182	1550.8512	318.28952	-1302.5691
1371	-119.25050	-131.28934	-39.018986	818.09174	431.46524	-1747.7399
1372	-120.85990	-173.54096	-56.428938	278.78546	610.61552	-1988.5609
1373	-93.625188	-46.191391	-14.191090	836.32007	468.25268	-1008.1297
1374	-96.494746	-108.28444	-35.546267	442.83526	815.18525	-1396.7255
1375	-103.31673	-157.56149	-49.911343	191.24769	1247.1439	-1590.3632
1376	-71.357023	-21.069148	-12.478972	310.69314	682.24591	-496.18853
1377	-76.946651	-90.935693	-25.990637	189.33021	1380.2183	-759.13481
1378	-90.278254	-145.20831	-35.558465	215.80663	2226.4164	-893.08448

MINIMUMS						
ELEMENT	1195	1280	1295	1195	1166	1280
VALUE	-689.29217	-493.09054	-226.54070	-10317.221	-4625.0485	-3871.1771

MAXIMUMS						
ELEMENT	1275	1376	1234	1186	978	1035
VALUE	-42.960594	-21.069148	167.62766	8031.9238	6698.0366	2630.2366

FILENAME : PIT3C2.PO DATE : 05-25-94 TIME : 2:17p PAGE 1
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 11/25)

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1

172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1

110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 14.2866 MAY 25,1994 CP= 612.480

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-322.96423	1001.0555	671.60048	-1718.0261	-10740.613	-0.54010412E-03
2	-645.28583	-2.9821159	1341.9170	-0.13457595E-02	-21475.060	0.24567154E-04
3	-819.19310	-9.2294784	1703.7440	-0.68693009E-02	-27068.190	-0.91088616E-03
4	-990.28317	-18.450427	2050.8129	-0.21303474E-02	-32395.230	0.65862088E-03
5	-982.92240	-26.541763	2012.7272	-0.88902848E-03	-31925.181	0.12316798E-02
6	-970.52339	-32.631685	1960.5491	-0.14683700E-02	-31366.723	0.21170565E-02
7	-1418.3686	-64.304774	2830.0317	-0.23451888E-01	-44779.216	0.28716000E-03
8	-1824.8697	-106.83423	3501.7875	0.13601751E-01	-54233.132	0.10019871E-01
9	-1718.2370	-125.69246	3048.2438	0.25355427E-01	-47701.501	0.12844531E-01
10	-1573.6468	-128.84488	2469.6456	0.36294195E-01	-39474.714	0.16087341E-01
11	-1377.0359	-111.27935	1742.6072	0.45654050E-01	-29971.568	0.18130384E-01
12	-970.58837	-65.975484	816.67997	0.44925142E-01	-16878.457	0.15830921E-01
13	-596.34015	-17.243218	62.846487	0.36631188E-01	-8931.8624	0.15703071E-01
14	-373.59969	19.752606	-585.37840	0.41804005E-01	-4216.8193	0.21782154E-01
15	-105.43499	-359.10730	-1288.4422	433.32734	310.95419	0.36355766E-02
16	-49.547568	-986.11641	-553.80247	9551.7309	-0.85118009E-01	-0.16080310E-01
17	-171.74940	-1302.2578	975.44040	22211.410	-0.80467280E-01	-0.20756039E-01
18	-239.88552	-1557.7277	2188.4014	35315.698	-0.68754653E-01	-0.20879503E-01
19	-257.33989	-1761.9463	3149.2620	47477.493	-0.53219932E-01	-0.18423966E-01
20	-239.33398	-1916.6062	3908.6572	58126.381	-0.36196294E-01	-0.15226385E-01
21	-194.54238	-2027.7764	4496.0528	66899.707	-0.19039041E-01	-0.12258908E-01
22	-123.41492	-1867.8890	4364.7096	65862.845	0.13131966E-01	-0.70432335E-02
23	-56.428814	-1678.7649	4055.1263	61313.304	0.88165130E-02	-0.52314488E-02
24	-5.8696840	-1696.1549	4197.9259	63376.476	0.16513263E-01	-0.39154243E-02
25	25.757636	-1294.0370	3244.7077	49397.602	0.37349216E-01	0.17637692E-03
26	37.037416	-888.08581	2234.4986	34448.819	0.12159996E-01	-0.12033136E-02
27	49.154514	-888.97901	2246.7835	34289.860	0.11056702E-01	-0.92456273E-03
28	51.205942	-766.20916	1941.6854	29667.421	0.12319797E-01	-0.13483906E-03
29	49.731408	-643.28813	1631.4558	25061.688	0.58897997E-02	-0.59735123E-03
30	54.536075	-640.86525	1627.5304	25002.284	0.35905940E-02	-0.73841600E-03
31	75.778363	-804.82737	2049.3111	31227.915	-0.25623303E-02	-0.19062646E-02
32	98.595777	-963.13238	2456.6023	37369.987	0.28233465E-02	-0.97214448E-03
33	142.94760	-1269.1961	3241.1162	48885.381	-0.92008694E-02	-0.32328207E-02
34	185.76941	-1563.0107	3972.9908	58903.932	0.15857102E-01	0.10049844E-02
35	160.30440	-1330.5309	3335.9866	48915.917	0.29433717E-01	0.44705326E-02

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 11/25)

36	127.67433	-1103.5985	2719.7853	39766.344	0.17997254E-01	0.32982017E-02
37	116.99688	-1082.7535	2624.2788	37620.310	0.18869153E-01	0.43130004E-02
38	104.98647	-1059.0555	2515.5022	35352.062	0.19852061E-01	0.52976286E-02
39	92.872477	-1032.3382	2392.0561	32869.714	0.21101955E-01	0.63649604E-02
40	81.866565	-1000.8002	2250.3667	30164.301	0.22696307E-01	0.75450151E-02
41	72.816816	-962.03828	2084.7968	27232.803	0.24731039E-01	0.88738278E-02
42	66.006936	-913.61720	1888.1374	24075.013	0.27298903E-01	0.10423895E-01
43	61.104192	-853.32759	1650.0362	20727.522	0.30611784E-01	0.12382904E-01
44	63.062664	-887.57455	1517.4327	19584.318	0.38264019E-01	0.17518047E-01
45	56.892008	-871.06779	1149.0485	15833.767	0.58498023E-01	0.21182146E-01
46	26.694370	-701.12557	396.39078	9588.6800	0.64884657E-01	0.20911302E-01
47	-15.300184	-525.23513	-417.59751	4026.9423	0.57716797E-01	0.18123351E-01
48	-19.126263	-189.67145	-781.21818	350.80117	400.31816	-0.72955972E-02
49	264.97302	85.509211	-152.73358	0.56174577E-01	5979.6723	-0.22144275E-01
50	607.79784	118.00113	682.72044	0.47316967E-01	11959.189	-0.16972330E-01
51	1097.8169	196.63521	1734.4713	0.63059901E-01	22132.907	-0.16127655E-01
52	1642.6017	308.40546	2900.3911	0.52391719E-01	37666.850	-0.20292359E-01
53	1912.9441	416.86760	3602.4034	0.32951876E-01	47519.067	-0.19495269E-01
54	2042.9298	538.25469	4000.7533	0.86297092E-02	54321.521	-0.17452408E-01
55	2004.4978	636.90931	4069.4337	-0.20091673E-01	57219.234	-0.13119742E-01
56	1332.8585	485.27561	2806.6754	-0.52179613E-01	40909.517	0.75072847E-03
57	741.40681	283.90278	1597.0568	-0.13140007E-01	25027.884	-0.15626306E-02
58	674.89731	253.19561	1500.1233	-0.11404668E-01	24003.055	-0.11526870E-02
59	609.62610	207.37992	1398.1958	-0.96537960E-02	23143.545	-0.74947545E-03
60	555.22408	147.43564	1309.4713	-0.70478082E-02	22445.513	-0.44181922E-03
61	519.18139	76.628623	1249.8896	-0.37291940E-02	21980.253	-0.20370774E-03
62	253.28416	550.31182	614.45951	-1982.1621	10907.919	0.15147227E-02
63	0.22737368E-12	1118.4626	-0.21400723E-06	-4156.1717	-0.39992301E-07	0.29665543E-02
64	0.73043793E-11	1167.8508	-0.12300052E-06	-4244.1495	0.96121767E-07	0.28560374E-02
65	0.24442670E-11	1161.5125	0.20111889E-06	-5259.2150	0.43150521E-07	0.27934294E-02
66	-0.43408715E-11	556.83752	98.000000	-5213.0682	-0.32602191E-07	0.13892236E-02
67	-0.39506176E-11	0.00000000E+00	196.00000	0.12701912E-06	0.10110347E-06	0.43368087E-18
68	0.79580786E-12	-0.13642421E-11	196.00000	-0.16100330E-06	0.23150051E-08	-0.86736174E-18
69	0.17053026E-12	-0.24106051E-12	196.00000	-0.27951764E-07	-0.68448117E-07	-0.21684043E-18
70	0.34106051E-12	-0.13642421E-11	196.00000	0.98304099E-07	-0.14414832E-06	-0.43368087E-18
71	-0.17053026E-11	-0.90949470E-12	196.00000	0.87617082E-07	-0.26988550E-06	0.76978354E-17
72	-0.17848834E-10	-0.28208547E-11	245.00000	-0.15960904E-06	0.12848432E-06	-0.51174343E-16
73	-0.25693225E-10	-0.56843419E-11	294.00000	-0.99346153E-07	-0.72222974E-07	-0.33480163E-15
74	0.35697667E-10	-0.24328983E-10	294.00000	-0.25626105E-06	0.55563760E-07	0.22638141E-15
75	-0.11141310E-10	-0.86856744E-10	294.00000	0.12723558E-06	0.11161319E-06	0.11449175E-15
76	-0.93223207E-11	0.33224978E-10	294.00000	0.18721948E-08	-0.75584467E-07	-0.96060312E-16
77	0.59117156E-11	0.21984192E-10	294.00000	-0.81354301E-09	0.20894549E-06	-0.29403563E-15
78	0.14097168E-10	-0.18502533E-10	294.00000	-0.10319582E-06	-0.38096914E-07	-0.30444397E-15
79	-0.18189894E-11	-0.16257218E-10	294.00000	-0.36280059E-06	0.86698492E-07	0.74051008E-15
80	-0.16939339E-10	0.30468073E-10	294.00000	-0.41927319E-06	0.95542418E-07	-0.19429242E-16
81	0.13642421E-11	0.70485839E-11	261.00000	-0.74679065E-07	-0.30851879E-07	0.52746436E-16
82	0.15916157E-11	-0.12505552E-11	228.50000	-0.15830301E-06	0.48569063E-07	0.59360069E-17
83	-0.96633812E-12	0.29558578E-11	228.50000	0.59908416E-07	-0.22661720E-06	-0.11302808E-16
84	-0.18474111E-11	-0.19326762E-11	228.50000	0.22448148E-07	-0.24336748E-06	-0.34694470E-17
85	0.59685590E-12	0.22737368E-12	180.00000	-0.50786184E-08	0.16160013E-06	-0.25478751E-17
86	-0.23305802E-11	-0.90949470E-12	132.00000	-0.18608262E-06	-0.77154709E-08	-0.13552527E-19
87	-0.19594920E-12	719.30017	66.000000	13884.187	0.69613325E-07	-0.90292224E-04
88	-0.74606987E-12	1404.9641	0.97352165E-06	26114.784	-0.50938525E-07	-0.17656790E-03
89	0.19610980E-11	1398.6622	-0.60358019E-07	26033.219	-0.63069592E-07	-0.17174353E-03
90	0.24442670E-11	1679.7097	0.24976021E-06	27797.308	-0.38532562E-07	-0.16808994E-03
91	0.13451013E-12	1226.2850	182.32500	17788.245	-0.38226017E-07	-0.82622081E-04
92	-0.13073986E-11	-0.45474735E-12	364.39500	0.20797961E-06	-0.48984390E-07	-0.10842022E-18
93	-0.38504755E-11	-0.15916157E-11	363.88500	-0.32979551E-06	-0.41068779E-06	-0.22348117E-16
94	-0.13926663E-10	-0.18829382E-11	364.14000	0.22263816E-06	0.15141450E-06	-0.51621576E-16
95	0.92654773E-11	0.30127012E-11	364.39500	-0.19439244E-06	-0.21683081E-06	-0.46485168E-17
96	0.52295945E-11	0.39221959E-11	364.39500	0.34824052E-06	-0.66267603E-07	-0.11980434E-16
97	0.35811354E-11	-0.56843419E-12	364.39500	-0.20441621E-06	-0.20740742E-06	-0.29815560E-18
98	-0.71958641E-12	994.37874	182.07000	17066.288	-0.10197789E-06	0.26373792E-04
99	0.33253400E-11	1398.7280	0.33615947E-07	24059.502	-0.14173565E-07	0.54833346E-04
100	-0.52580162E-11	1073.9759	0.70845023E-06	21338.527	-0.18425908E-07	0.55900444E-04
163	-0.10231815E-11	1624.3869	0.32859353E-06	34692.484	-0.82830411E-07	0.79986652E-04
164	-0.60822458E-11	2084.6546	0.62052827E-06	44318.796	0.84010935E-07	0.80778183E-04
165	-0.43200998E-11	1909.9319	-0.14490561E-06	41331.739	-0.16778358E-07	0.15179869E-04
166	-0.24442670E-11	2018.9894	170.00000	43184.769	-0.11437351E-06	-0.95957110E-04
167	-0.15177193E-10	2100.4553	-0.32887709E-06	43136.787	0.32778189E-08	-0.24344070E-03

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 11/25)

168	-0.67075234E-11	1945.0649	-0.41869617E-06	36305.884	-0.10340500E-07	-0.41399342E-03
169	0.95496944E-11	1822.4981	-0.80503588E-06	28185.158	-0.17944330E-08	-0.60719131E-03
170	0.17053026E-11	1750.0790	0.13988078E-05	19083.085	-0.93221956E-07	-0.80143488E-03
171	-0.29501734E-10	1753.2574	-0.29973648E-06	9359.7489	-0.38452072E-07	-0.96014804E-03
172	-0.51045390E-10	1863.2157	-0.63338291E-06	-544.11456	-0.54819793E-07	-0.10525513E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.1404715E-08
FY = -0.7958079E-11
FZ = 132125.6
MX = -5406196.
MY = -0.1364467E+08
MZ = -0.2687094E-04
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT3C3.PO DATE : 05-25-94 TIME : 2:17p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 12/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE

14.2874 MAY 25,1994 CP= 615.390

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.70069209	0.00000000E+00	0.23726124E-02	0.00000000E+00
2	-0.19027883E-06	0.99200799E-05	-0.70069297	0.70830997E-06	0.23727329E-02	-0.15099950E-06
3	-0.73708705E-06	0.19819111E-04	-0.70069559	0.13758968E-05	0.23730808E-02	-0.27913788E-06
4	-0.23032905E-05	0.34996226E-04	-0.70070331	0.25979316E-05	0.23740747E-02	-0.52466698E-06
5	-0.47476922E-05	0.49927395E-04	-0.70071553	0.37384669E-05	0.23756079E-02	-0.75176775E-06
6	-0.80933083E-05	0.64482666E-04	-0.70073204	0.48127941E-05	0.23776714E-02	-0.99411246E-06
7	-0.12302304E-04	0.78577300E-04	-0.70075235	0.56268478E-05	0.23802487E-02	-0.11614984E-05
8	-0.22516958E-04	0.10503303E-03	-0.70080559	0.81139526E-05	0.23867654E-02	-0.15658697E-05
9	-0.34892019E-04	0.12845224E-03	-0.70087474	0.10013621E-04	0.23947017E-02	-0.18084692E-05
10	-0.48741154E-04	0.14812407E-03	-0.70095742	0.11660094E-04	0.24036141E-02	-0.19581888E-05
11	-0.63116502E-04	0.16367205E-03	-0.70105135	0.12951372E-04	0.24128342E-02	-0.19535011E-05
12	-0.76775945E-04	0.17529998E-03	-0.70115334	0.13773614E-04	0.24214754E-02	-0.17831078E-05
13	-0.85346332E-04	0.18155310E-03	-0.70122800	0.14173219E-04	0.24264840E-02	-0.14629786E-05
14	-0.92250941E-04	0.18726903E-03	-0.70130482	0.14533357E-04	0.24302042E-02	-0.10789638E-05
15	-0.96417227E-04	0.19386049E-03	-0.70138270	0.14365194E-04	0.24321268E-02	-0.26499553E-06
16	-0.98990273E-04	0.19699439E-03	-0.72326892	0.19600167E-04	0.24307922E-02	0.10651643E-05
17	-0.10301144E-03	0.21091715E-03	-0.74515015	0.29914157E-04	0.24306693E-02	0.22143400E-05
18	-0.11396456E-03	0.23261491E-03	-0.76703368	0.42924391E-04	0.24313626E-02	0.28694663E-05
19	-0.13315408E-03	0.25814411E-03	-0.78892624	0.56871731E-04	0.24327590E-02	0.31022946E-05
20	-0.16018217E-03	0.28453041E-03	-0.81083319	0.70519610E-04	0.24346686E-02	0.30563567E-05
21	-0.19415661E-03	0.30988455E-03	-0.83275828	0.82975518E-04	0.24369126E-02	0.28475357E-05
22	-0.23402279E-03	0.33305763E-03	-0.85470425	0.93609138E-04	0.24395328E-02	0.25095243E-05
23	-0.26870914E-03	0.34937795E-03	-0.87186415	0.10036585E-03	0.24415236E-02	0.22008787E-05
24	-0.30606581E-03	0.36345776E-03	-0.88903834	0.10558365E-03	0.24435945E-02	0.18753321E-05
25	-0.34562330E-03	0.37523767E-03	-0.90622732	0.10919358E-03	0.24459481E-02	0.14795322E-05
26	-0.36687284E-03	0.38037444E-03	-0.91514179	0.11043185E-03	0.24468366E-02	0.13096144E-05
27	-0.38857058E-03	0.38468688E-03	-0.92406009	0.11117873E-03	0.24479492E-02	0.10613023E-05
28	-0.41065419E-03	0.38807694E-03	-0.93298251	0.11147956E-03	0.24491272E-02	0.79142534E-06
29	-0.42691011E-03	0.38994440E-03	-0.93947365	0.11141550E-03	0.24498695E-02	0.60924663E-06
30	-0.44330058E-03	0.39128914E-03	-0.94596685	0.11109937E-03	0.24506568E-02	0.40342358E-06
31	-0.45980565E-03	0.39209182E-03	-0.95246209	0.11052733E-03	0.24513747E-02	0.20913770E-06
32	-0.48513778E-03	0.39220259E-03	-0.96237819	0.10921204E-03	0.24526964E-02	-0.15209578E-06
33	-0.51053788E-03	0.39095469E-03	-0.97229915	0.10733919E-03	0.24537308E-02	-0.44803317E-06
34	-0.55302887E-03	0.38601557E-03	-0.98896972	0.10304295E-03	0.24558727E-02	-0.10305173E-05
35	-0.59488121E-03	0.37733931E-03	-1.0056534	0.97384365E-04	0.24578199E-02	-0.16092061E-05
36	-0.62471728E-03	0.36841982E-03	-1.0178660	0.92432891E-04	0.24590282E-02	-0.20129862E-05
37	-0.65355009E-03	0.35739961E-03	-1.0300849	0.86853370E-04	0.24603346E-02	-0.24311292E-05
38	-0.68109002E-03	0.34442332E-03	-1.0423103	0.80733209E-04	0.24616056E-02	-0.28019696E-05
39	-0.70702729E-03	0.32974486E-03	-1.0545419	0.74152842E-04	0.24628491E-02	-0.31166018E-05
40	-0.73105680E-03	0.31366892E-03	-1.0667795	0.67204069E-04	0.24640710E-02	-0.33632593E-05
41	-0.75287424E-03	0.29656611E-03	-1.0790232	0.59989970E-04	0.24652702E-02	-0.35278362E-05
42	-0.77217001E-03	0.27888288E-03	-1.0912727	0.52627454E-04	0.24664355E-02	-0.35934696E-05
43	-0.78861486E-03	0.26116167E-03	-1.1035279	0.45256498E-04	0.24675467E-02	-0.35362191E-05
44	-0.80184792E-03	0.24411332E-03	-1.1157883	0.38023881E-04	0.24685401E-02	-0.33005215E-05

FILENAME : PIT3C3.PO DATE : 05-25-94 TIME : 2:17p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 12/25)

45	-0.81374393E-03	0.22456726E-03	-1.1317713	0.29191028E-04	0.24694838E-02	-0.27350166E-05
46	-0.81923065E-03	0.21029217E-03	-1.1477576	0.21561878E-04	0.24696016E-02	-0.16464474E-05
47	-0.81882202E-03	0.20485720E-03	-1.1637412	0.15931163E-04	0.24685480E-02	0.56425864E-07
48	-0.81493938E-03	0.21243946E-03	-1.1797141	0.13352761E-04	0.24663637E-02	0.24374103E-05
49	-0.83032916E-03	0.20569815E-03	-1.1796422	0.13329071E-04	0.24672014E-02	0.32331219E-05
50	-0.84924037E-03	0.19955581E-03	-1.1795735	0.12461960E-04	0.24689837E-02	0.37950707E-05
51	-0.87076863E-03	0.19245867E-03	-1.1795099	0.11554532E-04	0.24713707E-02	0.42422224E-05
52	-0.90463019E-03	0.17919728E-03	-1.1794295	0.98874273E-05	0.24752957E-02	0.46054171E-05
53	-0.94043071E-03	0.16177222E-03	-1.1793633	0.77608855E-05	0.24791730E-02	0.47279344E-05
54	-0.97624234E-03	0.14002389E-03	-1.1793144	0.52821981E-05	0.24824776E-02	0.45789708E-05
55	-0.10098582E-02	0.11433284E-03	-1.1792844	0.27237781E-05	0.24848603E-02	0.41271916E-05
56	-0.10388142E-02	0.85372067E-04	-1.1792723	0.35450482E-06	0.24861887E-02	0.33286148E-05
57	-0.10494532E-02	0.71768489E-04	-1.1792717	-0.25597230E-07	0.24865104E-02	0.29069298E-05
58	-0.10584560E-02	0.57784849E-04	-1.1792728	-0.49687976E-06	0.24866589E-02	0.23880525E-05
59	-0.10656182E-02	0.43519880E-04	-1.1792750	-0.71447269E-06	0.24867062E-02	0.18268818E-05
60	-0.10708228E-02	0.29084858E-04	-1.1792775	-0.65647693E-06	0.24866997E-02	0.12358096E-05
61	-0.10739826E-02	0.14560911E-04	-1.1792793	-0.38592332E-06	0.24866774E-02	0.62349935E-06
62	-0.10750422E-02	0.00000000E+00	-1.1792800	0.00000000E+00	0.24866667E-02	0.00000000E+00
63	-0.10661176E-02	0.00000000E+00	-1.1680302	0.00000000E+00	0.25121227E-02	0.00000000E+00
64	-0.10605330E-02	0.00000000E+00	-1.1566824	0.00000000E+00	0.25302694E-02	0.00000000E+00
65	-0.10586233E-02	0.00000000E+00	-1.1452692	0.00000000E+00	0.25412424E-02	0.00000000E+00
66	-0.10603613E-02	0.00000000E+00	-1.1338237	0.00000000E+00	0.25445135E-02	0.00000000E+00
67	-0.10567503E-02	0.18393832E-04	-1.1332264	-0.71579445E-05	0.25466304E-02	0.51289882E-06
68	-0.10458685E-02	0.36552501E-04	-1.1314436	-0.13050695E-04	0.25526743E-02	0.10031782E-05
69	-0.10276641E-02	0.54358971E-04	-1.1285023	-0.16482568E-04	0.25617560E-02	0.14460308E-05
70	-0.10022370E-02	0.71877756E-04	-1.1244483	-0.16455892E-04	0.25725319E-02	0.18097391E-05
71	-0.97013747E-03	0.89438755E-04	-1.1193459	-0.12377629E-04	0.25834174E-02	0.20396525E-05
72	-0.93170642E-03	0.10738814E-03	-1.1132749	-0.44751373E-05	0.25941658E-02	0.19525589E-05
73	-0.87164973E-03	0.13554467E-03	-1.1025703	0.14749403E-04	0.26028514E-02	0.13092157E-05
74	-0.80545175E-03	0.16422978E-03	-1.0902808	0.40481344E-04	0.26075134E-02	0.79291992E-06
75	-0.73859543E-03	0.19333876E-03	-1.0768164	0.70811945E-04	0.26064343E-02	0.37631144E-06
76	-0.67418252E-03	0.21947673E-03	-1.0626153	0.10210280E-03	0.25997660E-02	0.52500665E-07
77	-0.61412948E-03	0.23897202E-03	-1.0481292	0.13058959E-03	0.25883404E-02	-0.18446168E-06
78	-0.55957815E-03	0.24861564E-03	-1.0338183	0.15285066E-03	0.25729719E-02	-0.34226047E-06
79	-0.51135781E-03	0.24632102E-03	-1.0201478	0.16586265E-03	0.25544946E-02	-0.43046031E-06
80	-0.47071557E-03	0.23134739E-03	-1.0075793	0.16747983E-03	0.25342474E-02	-0.45854873E-06
81	-0.43715923E-03	0.20314190E-03	-0.9965546	0.15677174E-03	0.25143545E-02	-0.42589077E-06
82	-0.41445845E-03	0.17492129E-03	-0.98932301	0.13972283E-03	0.24974193E-02	-0.33748438E-06
83	-0.39686218E-03	0.13965916E-03	-0.98343898	0.11564653E-03	0.24833446E-02	-0.27049630E-06
84	-0.38219158E-03	0.98396655E-04	-0.97904286	0.84886754E-04	0.24725959E-02	-0.21230660E-06
85	-0.37014860E-03	0.53233118E-04	-0.97624556	0.48326358E-04	0.24664051E-02	-0.16031375E-06
86	-0.36521441E-03	0.26557286E-04	-0.97539076	0.24639643E-04	0.24646105E-02	-0.79082768E-07
87	-0.36345881E-03	0.00000000E+00	-0.97510476	0.00000000E+00	0.24640513E-02	0.00000000E+00
88	-0.36637653E-03	0.00000000E+00	-0.96809238	0.00000000E+00	0.24676340E-02	0.00000000E+00
89	-0.36652672E-03	0.00000000E+00	-0.96107115	0.00000000E+00	0.24703017E-02	0.00000000E+00
90	-0.36407544E-03	0.00000000E+00	-0.95404252	0.00000000E+00	0.24729658E-02	0.00000000E+00
91	-0.36531743E-03	0.00000000E+00	-0.94700406	0.00000000E+00	0.24772251E-02	0.00000000E+00
92	-0.36832842E-03	0.52592553E-04	-0.94548714	0.32675364E-04	0.24743203E-02	-0.61341088E-07
93	-0.37133820E-03	0.89446023E-04	-0.94121856	0.56568583E-04	0.24658002E-02	-0.10995379E-06
94	-0.36995994E-03	0.10969537E-03	-0.93500771	0.69706539E-04	0.24534496E-02	-0.66751755E-07
95	-0.36371213E-03	0.10488845E-03	-0.92806866	0.68867442E-04	0.24377988E-02	-0.16458572E-07
96	-0.35647456E-03	0.79644252E-04	-0.92178181	0.54644790E-04	0.24222968E-02	0.30299013E-07
97	-0.35062164E-03	0.43853765E-04	-0.91741220	0.30688081E-04	0.24093630E-02	0.19365748E-07
98	-0.34867769E-03	0.00000000E+00	-0.91584946	0.00000000E+00	0.24045894E-02	0.00000000E+00
99	-0.34854764E-03	0.00000000E+00	-0.90900775	0.00000000E+00	0.24059265E-02	0.00000000E+00
100	-0.34210998E-03	0.00000000E+00	-0.90216941	0.00000000E+00	0.24027360E-02	0.00000000E+00
163	-0.33477365E-03	0.00000000E+00	-0.89534340	0.00000000E+00	0.23974055E-02	0.00000000E+00
164	-0.31490013E-03	0.00000000E+00	-0.87854957	0.00000000E+00	0.23794825E-02	0.00000000E+00
165	-0.29326859E-03	0.00000000E+00	-0.86189419	0.00000000E+00	0.23583712E-02	0.00000000E+00
166	-0.27009901E-03	0.00000000E+00	-0.84538930	0.00000000E+00	0.23369133E-02	0.00000000E+00
167	-0.23789342E-03	0.00000000E+00	-0.82447744	0.00000000E+00	0.23109278E-02	0.00000000E+00
168	-0.20314567E-03	0.00000000E+00	-0.80378516	0.00000000E+00	0.22886096E-02	0.00000000E+00
169	-0.16584782E-03	0.00000000E+00	-0.78326475	0.00000000E+00	0.22731967E-02	0.00000000E+00
170	-0.12622439E-03	0.00000000E+00	-0.76283766	0.00000000E+00	0.22683983E-02	0.00000000E+00
171	-0.84745353E-04	0.00000000E+00	-0.74238736	0.00000000E+00	0.22789712E-02	0.00000000E+00
172	-0.42251173E-04	0.00000000E+00	-0.72174838	0.00000000E+00	0.23110426E-02	0.00000000E+00
2011	-0.27008125E-03	0.22913104E-04	-0.84545171	0.25058469E-04	0.23376828E-02	-0.20945326E-07
2012	-0.27002969E-03	0.11454654E-04	-0.84540487	0.12518572E-04	0.23371105E-02	-0.13442813E-07
2013	-0.42899284E-04	0.17007108E-04	-0.72175776	0.37695783E-05	0.23119416E-02	-0.31810179E-06
2014	-0.85299498E-04	0.15890168E-04	-0.74240513	0.71267350E-05	0.22800282E-02	-0.28236603E-06

FILENAME : PIT3C3.PO DATE : 05-25-94 TIME : 2:17p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 12/25)

2015	-0.12666608E-03	0.16051609E-04	-0.76286509	0.10994792E-04	0.22695215E-02	-0.22691740E-06
2016	-0.16618609E-03	0.17093316E-04	-0.78330210	0.14970530E-04	0.22742905E-02	-0.16644623E-06
2017	-0.20339249E-03	0.18707463E-04	-0.80383196	0.18755725E-04	0.22896112E-02	-0.10901347E-06
2018	-0.23805682E-03	0.20678920E-04	-0.82453267	0.22140285E-04	0.23117814E-02	-0.59560457E-07
2019	-0.42409968E-04	0.85146086E-05	-0.72175072	0.18828547E-05	0.23112552E-02	-0.14759233E-06
2020	-0.84885810E-04	0.79511337E-05	-0.74239180	0.35667760E-05	0.22792258E-02	-0.13570962E-06
2021	-0.12633452E-03	0.80284441E-05	-0.76284452	0.55047560E-05	0.22686743E-02	-0.11179789E-06
2022	-0.16593263E-03	0.85473512E-05	-0.78327409	0.74965238E-05	0.22734683E-02	-0.83760882E-07
2023	-0.20320836E-03	0.93530496E-05	-0.80379687	0.93925710E-05	0.22888604E-02	-0.56360760E-07
2024	-0.23793261E-03	0.10338105E-04	-0.82449126	0.11084906E-04	0.23111425E-02	-0.32390247E-07
2029	-0.27168798E-03	0.93755992E-04	-0.84641583	0.98531223E-04	0.23491592E-02	0.13259408E-06
2030	-0.27025296E-03	0.40622922E-04	-0.84558520	0.44233753E-04	0.23393199E-02	-0.15548740E-07
2031	-0.27056030E-03	0.58345113E-04	-0.84579182	0.63002235E-04	0.23418242E-02	-0.23481917E-08
2032	-0.27103388E-03	0.76065277E-04	-0.84606959	0.81163248E-04	0.23451352E-02	0.54206667E-07
2033	-0.52839122E-04	0.67818463E-04	-0.72190337	0.15007437E-04	0.23248361E-02	-0.10269817E-05
2034	-0.93507781E-04	0.63989680E-04	-0.74267975	0.28209520E-04	0.22959831E-02	-0.76809715E-06
2035	-0.13313381E-03	0.65174135E-04	-0.76328827	0.43396357E-04	0.22866068E-02	-0.51403053E-06
2036	-0.17105638E-03	0.69783182E-04	-0.78387794	0.58992618E-04	0.22910566E-02	-0.29039502E-06
2037	-0.20691212E-03	0.76578096E-04	-0.80455316	0.73836069E-04	0.23050224E-02	-0.10664831E-06
2038	-0.24050883E-03	0.84704976E-04	-0.82538428	0.87145312E-04	0.23252222E-02	0.34210067E-07
2039	-0.49322341E-04	0.55491401E-04	-0.72185089	0.12272430E-04	0.23199723E-02	-0.81533056E-06
2040	-0.46445700E-04	0.42874592E-04	-0.72180895	0.94960505E-05	0.23163891E-02	-0.63601384E-06
2041	-0.44289999E-04	0.30026848E-04	-0.72177783	0.66539874E-05	0.23137313E-02	-0.46362762E-06
2042	-0.90618856E-04	0.52189173E-04	-0.74258083	0.23139947E-04	0.22901317E-02	-0.63854597E-06
2043	-0.88257283E-04	0.40212484E-04	-0.74250175	0.17914283E-04	0.22856154E-02	-0.51139333E-06
2044	-0.86469884E-04	0.28099617E-04	-0.74244305	0.12561101E-04	0.22822401E-02	-0.39067846E-06
2045	-0.13088409E-03	0.52996974E-04	-0.76313600	0.35646939E-04	0.22804004E-02	-0.45639213E-06
2046	-0.12901835E-03	0.40740047E-04	-0.76301412	0.27618853E-04	0.22755243E-02	-0.38317585E-06
2047	-0.12759874E-03	0.28418628E-04	-0.76292359	0.19377434E-04	0.22718882E-02	-0.30460276E-06
2048	-0.16938218E-03	0.56635355E-04	-0.78367086	0.48495274E-04	0.22850021E-02	-0.28783007E-06
2049	-0.16797764E-03	0.43468394E-04	-0.78350501	0.37592386E-04	0.22801943E-02	-0.25970995E-06
2050	-0.16689848E-03	0.30286348E-04	-0.78338176	0.26383869E-04	0.22766119E-02	-0.21690535E-06
2051	-0.20571193E-03	0.62094771E-04	-0.80429389	0.60728647E-04	0.22994799E-02	-0.14355964E-06
2052	-0.20469552E-03	0.47621974E-04	-0.80408617	0.47090451E-04	0.22950457E-02	-0.15002714E-06
2053	-0.20391158E-03	0.33160099E-04	-0.80393177	0.33055927E-04	0.22917440E-02	-0.13611925E-06
2054	-0.23965367E-03	0.68676429E-04	-0.82507820	0.71710750E-04	0.23204010E-02	-0.28914657E-07
2055	-0.23894275E-03	0.52660076E-04	-0.82483288	0.55617604E-04	0.23165170E-02	-0.59997677E-07
2056	-0.23840553E-03	0.36660892E-04	-0.82465052	0.39037562E-04	0.23136309E-02	-0.67920570E-07
2062	-0.26722964E-03	0.26567762E-04	-0.85242086	0.17282058E-03	0.24151321E-02	0.98256242E-06
2063	-0.27342562E-03	0.12897060E-03	-0.84729987	0.12983858E-03	0.23592981E-02	0.20200180E-06
2064	-0.27507459E-03	0.16378075E-03	-0.84840479	0.15543010E-03	0.23716697E-02	0.31675851E-06
2065	-0.27552701E-03	0.19815895E-03	-0.84967825	0.17308028E-03	0.23856576E-02	0.48212556E-06
2066	-0.27341913E-03	0.23213612E-03	-0.85104872	0.18001516E-03	0.24004750E-02	0.70294304E-06
2067	-0.10086329E-03	0.16513418E-03	-0.72285765	0.29086207E-04	0.24032641E-02	-0.99765375E-06
2068	-0.12432437E-03	0.16910087E-03	-0.74444369	0.52323114E-04	0.23945846E-02	-0.33325169E-06
2069	-0.14861811E-03	0.18242056E-03	-0.76598232	0.79018511E-04	0.23923492E-02	0.18369394E-06
2070	-0.17463792E-03	0.20129395E-03	-0.78752167	0.10612281E-03	0.23944988E-02	0.55497719E-06
2071	-0.20292969E-03	0.22273624E-03	-0.80909444	0.13158917E-03	0.23996189E-02	0.79630158E-06
2072	-0.23377974E-03	0.24465205E-03	-0.83072266	0.15407004E-03	0.24067218E-02	0.93061163E-06
2073	-0.92996287E-04	0.14960221E-03	-0.72263146	0.29362542E-04	0.23854902E-02	-0.12174920E-05
2074	-0.82740287E-04	0.13233998E-03	-0.72241125	0.27638049E-04	0.23675259E-02	-0.13075167E-05
2075	-0.71817183E-04	0.11292094E-03	-0.72221030	0.24425326E-04	0.23508725E-02	-0.12801488E-05
2076	-0.61536867E-04	0.91325174E-04	-0.72203851	0.20095885E-04	0.23365128E-02	-0.11638942E-05
2077	-0.12214725E-03	0.14971892E-03	-0.74403191	0.53679635E-04	0.23720865E-02	-0.61917824E-06
2078	-0.11614915E-03	0.12978693E-03	-0.74362625	0.50973444E-04	0.23495172E-02	-0.77980286E-06
2079	-0.10841666E-03	0.10891448E-03	-0.74325361	0.45291900E-04	0.23286101E-02	-0.83794327E-06
2080	-0.10048951E-03	0.86961880E-04	-0.74293354	0.37468810E-04	0.23105406E-02	-0.82243095E-06
2081	-0.15110034E-03	0.15930018E-03	-0.76535774	0.81580793E-04	0.23682989E-02	-0.14567794E-06
2082	-0.14885270E-03	0.13623694E-03	-0.76473940	0.77778696E-04	0.23441467E-02	-0.35628769E-06
2083	-0.14408017E-03	0.11294672E-03	-0.76416947	0.69913745E-04	0.23216969E-02	-0.47255743E-06
2084	-0.13843609E-03	0.89272311E-04	-0.76367858	0.57503713E-04	0.23022311E-02	-0.51784116E-06
2085	-0.18035749E-03	0.17472069E-03	-0.78668098	0.10996641E-03	0.23710850E-02	0.21034258E-06
2086	-0.18095381E-03	0.14843096E-03	-0.78584599	0.10514407E-03	0.23475147E-02	-0.27216554E-07
2087	-0.17857656E-03	0.12225041E-03	-0.78507439	0.93920866E-04	0.23255264E-02	-0.17820656E-06
2088	-0.17487163E-03	0.96054891E-04	-0.78440836	0.78069053E-04	0.23064002E-02	-0.26073814E-06
2089	-0.21031821E-03	0.19321421E-03	-0.80805062	0.13668954E-03	0.23783103E-02	0.46026293E-06
2090	-0.21263506E-03	0.16389499E-03	-0.80701141	0.13099515E-03	0.23568119E-02	0.21573713E-06
2091	-0.21186364E-03	0.13471983E-03	-0.80604901	0.11724461E-03	0.23366890E-02	0.48199624E-07
2092	-0.20956769E-03	0.10562558E-03	-0.80521681	0.97612296E-04	0.23191271E-02	-0.55483392E-07
2093	-0.24127385E-03	0.21279574E-03	-0.82949944	0.16030991E-03	0.23884696E-02	0.61902741E-06

FILENAME : PIT3C3.PO DATE : 05-25-94 TIME : 2:17p
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2094	-0.24409281E-03	0.18085902E-03	-0.82827942	0.15391765E-03	0.23700159E-02	0.38202066E-06
2095	-0.24399369E-03	0.14886733E-03	-0.82714754	0.13800222E-03	0.23526808E-02	0.21117470E-06
2096	-0.24243208E-03	0.11680975E-03	-0.82616716	0.11507176E-03	0.23374835E-02	0.97891543E-07
2101	-0.25965800E-03	0.28864029E-03	-0.85331141	0.15748585E-03	0.24245287E-02	0.14569587E-05
2102	-0.24877514E-03	0.31116933E-03	-0.85409281	0.13168948E-03	0.24328247E-02	0.19819327E-05
2109	-0.10330450E-03	0.18582244E-03	-0.72314999	0.24424316E-04	0.24242145E-02	0.15378021E-06
2110	-0.10375258E-03	0.17539016E-03	-0.72300998	0.27502915E-04	0.24146175E-02	-0.51679735E-06
2111	-0.11567161E-03	0.19631521E-03	-0.74495711	0.41132096E-04	0.24215184E-02	0.10776733E-05
2112	-0.12215371E-03	0.18254849E-03	-0.74471518	0.48358063E-04	0.24090461E-02	0.26486206E-06
2113	-0.13162885E-03	0.21540570E-03	-0.76675146	0.60814204E-04	0.24212244E-02	0.17045048E-05
2114	-0.14261976E-03	0.19871279E-03	-0.76639094	0.72461661E-04	0.24078099E-02	0.83940136E-06
2115	-0.15282115E-03	0.23898992E-03	-0.78855112	0.81040705E-04	0.24226493E-02	0.20439901E-05
2116	-0.16620289E-03	0.22001829E-03	-0.78806957	0.96976972E-04	0.24095406E-02	0.12117032E-05
2117	-0.17962702E-03	0.26401548E-03	-0.81036898	0.10023376E-03	0.24252833E-02	0.21574828E-05
2118	-0.19354109E-03	0.24336335E-03	-0.80977322	0.12004474E-03	0.24133054E-02	0.14109318E-05
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2120	-0.22475417E-03	0.26667414E-03	-0.83151706	0.14043946E-03	0.24184594E-02	0.14785437E-05
2124	-0.33351850E-03	0.31694265E-04	-0.89542616	0.32817334E-04	0.23991987E-02	0.48336543E-07
2125	-0.33439428E-03	0.15857688E-04	-0.89536426	0.16663903E-04	0.23979139E-02	0.21411644E-07
2126	-0.29322149E-03	0.24894012E-04	-0.86196223	0.27251585E-04	0.23591319E-02	0.14603141E-07
2127	-0.31457639E-03	0.27343929E-04	-0.87862333	0.29489215E-04	0.23802758E-02	0.37551402E-07
2128	-0.29324840E-03	0.12444032E-04	-0.86191122	0.13657104E-04	0.23585712E-02	0.42060179E-08
2129	-0.31482615E-03	0.13662414E-04	-0.87856806	0.14815881E-04	0.23796949E-02	0.15772994E-07
2130	-0.33427396E-03	0.12227945E-03	-0.89661313	0.11765640E-03	0.24108087E-02	0.26819646E-06
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2132	-0.33144834E-03	0.79148356E-04	-0.89585720	0.77966568E-04	0.24052058E-02	0.11752040E-06
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2134	-0.29421193E-03	0.10161907E-03	-0.86300323	0.10599236E-03	0.23694282E-02	0.21271738E-06
2135	-0.31497949E-03	0.11077705E-02	-0.87973518	0.11230711E-03	0.23901540E-02	0.25659631E-06
2136	-0.29358592E-03	0.82563640E-04	-0.86263043	0.87489810E-04	0.23659497E-02	0.12497227E-06
2137	-0.29326480E-03	0.63377945E-04	-0.86233067	0.68080053E-04	0.23630054E-02	0.66786425E-07
2138	-0.29318352E-03	0.44134865E-04	-0.86210711	0.47936060E-04	0.23606975E-02	0.31871136E-07
2139	-0.31407815E-03	0.90417358E-04	-0.87933936	0.92100158E-04	0.23871088E-02	0.16629544E-06
2140	-0.31382468E-03	0.69604646E-04	-0.87901955	0.72833852E-04	0.23843330E-02	0.10309685E-06
2141	-0.31409331E-03	0.48519440E-04	-0.87877968	0.51589713E-04	0.23819776E-02	0.61844842E-07
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2143	-0.33968344E-03	0.16195387E-03	-0.89765818	0.5252074E-03	0.24160772E-02	0.33343697E-06
2144	-0.34556759E-03	0.19965395E-03	-0.89894914	0.18103218E-03	0.24213931E-02	0.42858309E-06
2145	-0.35072159E-03	0.23618432E-03	-0.90042728	0.20057598E-03	0.24267812E-02	0.55346489E-06
2146	-0.35420099E-03	0.27182465E-03	-0.90201140	0.20795254E-03	0.24321269E-02	0.70562987E-06
2147	-0.29511311E-03	0.28091864E-03	-0.86942653	0.18448446E-03	0.24222419E-02	0.98026414E-06
2148	-0.32445033E-03	0.29467535E-02	-0.88648344	0.19324295E-03	0.24296708E-02	0.94022417E-06
2149	-0.29944625E-03	0.24653136E-03	-0.86796216	0.19229588E-03	0.24107148E-02	0.74252943E-06
2150	-0.30021752E-03	0.21146661E-03	-0.86649820	0.18506276E-03	0.23989952E-02	0.54667512E-06
2151	-0.29877128E-03	0.17571659E-03	-0.86513622	0.16641072E-03	0.23878472E-02	0.39412555E-06
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2153	-0.32634932E-03	0.25987414E-03	-0.88494906	0.20153494E-03	0.24213358E-02	0.73922996E-06
2154	-0.32521173E-03	0.22424620E-03	-0.88341380	0.19417319E-03	0.24127978E-02	0.56730554E-06
2155	-0.32213159E-03	0.18774778E-03	-0.88198358	0.17489673E-03	0.24045491E-02	0.42906334E-06
2156	-0.31828143E-03	0.15008599E-03	-0.88073796	0.14679549E-03	0.23969357E-02	0.32576182E-06
2158	-0.35392684E-03	0.33018172E-03	-0.90461910	0.18164108E-03	0.24405360E-02	0.11403573E-05
2159	-0.35083897E-03	0.35312525E-03	-0.90551980	0.15222658E-03	0.24434471E-02	0.13798753E-05
2162	-0.28063804E-03	0.32720424E-03	-0.87121054	0.14071485E-03	0.24362340E-02	0.17766739E-05
2163	-0.28928527E-03	0.30432962E-03	-0.87037665	0.16810822E-03	0.24296764E-02	0.13667975E-05
2164	-0.31474977E-03	0.34128084E-03	-0.88835245	0.14747417E-03	0.24397803E-02	0.15631047E-05
2165	-0.32077289E-03	0.31828708E-03	-0.88747876	0.17608130E-03	0.24350482E-02	0.12530580E-05
2171	-0.34180686E-03	0.36201491E-04	-0.90418446	0.36094665E-04	0.24074116E-02	0.52177133E-07
2172	-0.34735959E-03	0.48054759E-04	-0.91297026	0.42132178E-04	0.24143347E-02	0.45219322E-07
2173	-0.34195177E-03	0.18568765E-04	-0.90269970	0.18914315E-04	0.24040427E-02	0.24079531E-07
2174	-0.34810285E-03	0.23507049E-04	-0.91005137	0.22754613E-04	0.24082214E-02	0.21516950E-07
2175	-0.36444561E-03	0.14424830E-03	-0.92314069	0.12420912E-03	0.24419039E-02	0.14329974E-06
2176	-0.35330936E-03	0.94269592E-04	-0.92202342	0.70658298E-04	0.24329877E-02	0.38984545E-07
2177	-0.35622799E-03	0.10999467E-03	-0.92232661	0.87460720E-04	0.24371490E-02	0.61513275E-07
2178	-0.36023644E-03	0.12660251E-03	-0.92269809	0.10578372E-03	0.24397599E-02	0.96152289E-07
2179	-0.34402955E-03	0.12944413E-03	-0.90541764	0.12008208E-03	0.24214665E-02	0.24833132E-06
2180	-0.35403517E-03	0.13701927E-03	-0.91426053	0.12224104E-03	0.24318555E-02	0.20511626E-06
2181	-0.34116457E-03	0.10902152E-03	-0.90499197	0.10098574E-03	0.24189245E-02	0.17164039E-06
2182	-0.33934280E-03	0.87165927E-04	-0.90464145	0.81029732E-04	0.24159148E-02	0.11546943E-06
2183	-0.33942602E-03	0.62994055E-04	-0.90436989	0.59842236E-04	0.24120744E-02	0.76747310E-07
2184	-0.35027514E-03	0.11790397E-03	-0.91382602	0.10348274E-03	0.24295182E-02	0.14218312E-06

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 12/25)

2185	-0.34710688E-03	0.98000878E-04	-0.91346461	0.84299034E-04	0.24265516E-02	0.95891700E-07
2186	-0.34587066E-03	0.75924357E-04	-0.91317760	0.64666472E-04	0.24220442E-02	0.64428053E-07
2187	-0.40547045E-03	0.32066007E-03	-0.93030211	0.20296631E-03	0.24491177E-02	0.45946535E-06
2188	-0.37347323E-03	0.18054927E-03	-0.92423202	0.15821891E-03	0.24453342E-02	0.17752705E-06
2189	-0.38293323E-03	0.21678719E-03	-0.92556354	0.18605659E-03	0.24476016E-02	0.22747421E-06
2190	-0.39188661E-03	0.25223508E-03	-0.92707711	0.20499971E-03	0.24487529E-02	0.29239274E-06
2191	-0.39957985E-03	0.28683005E-03	-0.92869243	0.21195397E-03	0.24491215E-02	0.37071678E-06
2192	-0.37159372E-03	0.31195448E-03	-0.91248175	0.20144774E-03	0.24412078E-02	0.74383882E-06
2193	-0.38836547E-03	0.31665887E-03	-0.92138472	0.20256915E-03	0.24451643E-02	0.60356956E-06
2194	-0.36903256E-03	0.27736350E-03	-0.91088443	0.21021443E-03	0.24378076E-02	0.60775292E-06
2195	-0.36421112E-03	0.24192793E-03	-0.90928385	0.20287297E-03	0.24341250E-02	0.48557441E-06
2196	-0.35785599E-03	0.20563340E-03	-0.90778874	0.18335029E-03	0.24301853E-02	0.38332023E-06
2197	-0.35078253E-03	0.16831988E-03	-0.90648048	0.15484681E-03	0.24259834E-02	0.30395937E-06
2198	-0.38415326E-03	0.28238148E-03	-0.91977812	0.21146469E-03	0.24434708E-02	0.49494582E-06
2199	-0.37792417E-03	0.24729230E-03	-0.91816716	0.20428554E-03	0.24411448E-02	0.39702969E-06
2200	-0.37030552E-03	0.21136680E-03	-0.91666028	0.18497318E-03	0.24389214E-02	0.31465693E-06
2201	-0.36203790E-03	0.17459255E-03	-0.91533862	0.15669581E-03	0.24357426E-02	0.25040956E-06
2203	-0.40833406E-03	0.34369462E-03	-0.93134578	0.18502126E-03	0.24490600E-02	0.59362193E-06
2204	-0.41008674E-03	0.36623088E-03	-0.93226228	0.15521701E-03	0.24490439E-02	0.71994063E-06
2207	-0.37021408E-03	0.35828743E-03	-0.91442722	0.15401495E-03	0.24453253E-02	0.11286162E-05
2208	-0.37170539E-03	0.33542254E-03	-0.91351764	0.18362616E-03	0.24433963E-02	0.94426266E-06
2209	-0.38997481E-03	0.36268279E-03	-0.92334135	0.15486158E-03	0.24471817E-02	0.91551249E-06
2210	-0.38984917E-03	0.33994812E-03	-0.92242655	0.18464115E-03	0.24462328E-02	0.76380855E-06
2214	-0.38732370E-03	0.15530890E-03	-0.94263709	0.12841054E-03	0.24625196E-02	-0.19743558E-06
2215	-0.37883584E-03	0.10387610E-03	-0.94147051	0.73952900E-04	0.24583048E-02	-0.12689908E-06
2216	-0.37995399E-03	0.11967837E-03	-0.94178862	0.91703123E-04	0.24582970E-02	-0.14962892E-06
2217	-0.38302508E-03	0.13703022E-03	-0.94217735	0.11028328E-03	0.24602404E-02	-0.17398479E-06
2218	-0.37221472E-03	0.14879332E-03	-0.92962119	0.12558745E-03	0.24489858E-02	0.39095476E-07
2219	-0.37992266E-03	0.15245910E-03	-0.93612018	0.12696348E-03	0.24558554E-02	-0.76818527E-07
2220	-0.36822485E-03	0.13308670E-03	-0.92914927	0.10877892E-03	0.24470316E-02	0.13783755E-07
2221	-0.36473600E-03	0.11898770E-03	-0.92873669	0.92018802E-04	0.24449519E-02	-0.34670673E-08
2222	-0.36135143E-03	0.10848629E-03	-0.92838078	0.76895827E-04	0.24425237E-02	-0.13265173E-07
2223	-0.37614733E-03	0.13665381E-03	-0.93575726	0.11026869E-03	0.24539872E-02	-0.78508920E-07
2224	-0.37313605E-03	0.12242936E-03	-0.93545398	0.93454875E-04	0.24521937E-02	-0.74998340E-07
2225	-0.37162139E-03	0.11217849E-03	-0.93520839	0.78037183E-04	0.24511934E-02	-0.69576427E-07
2226	-0.44394164E-03	0.32666557E-03	-0.94980672	0.20097159E-03	0.24576853E-02	-0.20203464E-06
2227	-0.39860575E-03	0.19200456E-03	-0.94375423	0.16071964E-03	0.24658240E-02	-0.20818780E-06
2228	-0.41112019E-03	0.22746246E-03	-0.94509702	0.18652358E-03	0.24664713E-02	-0.21751388E-06
2229	-0.42337727E-03	0.26141651E-03	-0.94660806	0.20393397E-03	0.24646879E-02	-0.22295481E-06
2230	-0.43441655E-03	0.29432753E-03	-0.94821195	0.21010080E-03	0.24614350E-02	-0.22026909E-06
2231	-0.41811778E-03	0.32309450E-03	-0.93679607	0.20276615E-03	0.24519837E-02	0.25410116E-06
2232	-0.43094116E-03	0.32510355E-03	-0.94329762	0.20211088E-03	0.24548410E-02	0.36218900E-07
2233	-0.41100232E-03	0.28968149E-03	-0.93518806	0.21180338E-03	0.24532358E-02	0.18692114E-06
2234	-0.40221323E-03	0.25554588E-03	-0.93357335	0.20505877E-03	0.24540699E-02	0.13218670E-06
2235	-0.39222989E-03	0.22051908E-03	-0.93205804	0.18650730E-03	0.24539015E-02	0.89562423E-07
2236	-0.38186553E-03	0.18458949E-03	-0.93072132	0.15916389E-03	0.24522248E-02	0.58597295E-07
2237	-0.42260963E-03	0.29218788E-03	-0.94169457	0.21119451E-03	0.24573394E-02	-0.94361859E-08
2238	-0.41270331E-03	0.25860835E-03	-0.94008367	0.20471132E-03	0.24593798E-02	-0.40137839E-07
2239	-0.40162244E-03	0.22407055E-03	-0.93856921	0.18666682E-03	0.24601869E-02	-0.59975444E-07
2240	-0.39026363E-03	0.18839356E-03	-0.93722877	0.15999007E-03	0.24590463E-02	-0.71587660E-07
2242	-0.44974934E-03	0.34885952E-03	-0.95084026	0.18321316E-03	0.24552013E-02	-0.14193500E-06
2243	-0.45499585E-03	0.37073335E-03	-0.95174815	0.15377555E-03	0.24530522E-02	-0.28939238E-07
2246	-0.42491466E-03	0.36824098E-03	-0.93875404	0.15513513E-03	0.24503883E-02	0.48393431E-06
2247	-0.42197959E-03	0.34589323E-03	-0.93783852	0.18485695E-03	0.24511150E-02	0.36539919E-06
2248	-0.43989132E-03	0.36974954E-03	-0.94524934	0.15466806E-03	0.24517182E-02	0.25111924E-06
2249	-0.43578711E-03	0.34762184E-03	-0.94433668	0.18426584E-03	0.24531594E-02	0.12738758E-06
2253	-0.37319216E-03	0.47598235E-04	-0.96118561	0.44280402E-04	0.24698674E-02	-0.14150222E-06
2254	-0.36841724E-03	0.24296279E-04	-0.96110125	0.23016438E-04	0.24700979E-02	-0.72387126E-07
2255	-0.37471380E-03	0.55189157E-04	-0.95119810	0.46534195E-04	0.24691655E-02	-0.12555448E-06
2257	-0.36740364E-03	0.27315574E-04	-0.95329705	0.25796251E-04	0.24718549E-02	-0.65686008E-07
2258	-0.40649739E-03	0.16304769E-03	-0.96263292	0.13416012E-03	0.24818002E-02	-0.35291169E-06
2259	-0.38290134E-03	0.82787108E-04	-0.96141207	0.72650879E-04	0.24708181E-02	-0.18548489E-06
2260	-0.39136787E-03	0.11362954E-03	-0.96173858	0.96353425E-04	0.24738546E-02	-0.25377672E-06
2261	-0.39896803E-03	0.14003561E-03	-0.96214947	0.11662342E-03	0.24779062E-02	-0.29178061E-06
2262	-0.39759084E-03	0.15887269E-03	-0.95261550	0.13094446E-03	0.24723225E-02	-0.27613725E-06
2263	-0.39215469E-03	0.13803026E-03	-0.95214551	0.11297935E-03	0.24694715E-02	-0.23399681E-06
2264	-0.38766364E-03	0.11549723E-03	-0.95174776	0.93410353E-04	0.24669005E-02	-0.19441576E-06
2265	-0.38263047E-03	0.89242112E-04	-0.95142855	0.72002560E-04	0.24660736E-02	-0.15842922E-06
2266	-0.48472614E-03	0.32842682E-03	-0.96971928	0.19496467E-03	0.24662328E-02	-0.58164777E-06
2267	-0.42348832E-03	0.20313957E-03	-0.96378107	0.16269256E-03	0.24864874E-02	-0.38688242E-06

FILENAME : PIT3C3.PO DATE : 05-25-94 TIME : 2:17p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 12/25)

2268	-0.44111103E-03	0.23715186E-03	-0.96512343	0.18441098E-03	0.24857149E-02	-0.42849311E-06
2269	-0.45746136E-03	0.26827247E-03	-0.96660770	0.19912665E-03	0.24808213E-02	-0.47761194E-06
2270	-0.47188327E-03	0.29835796E-03	-0.96817011	0.20408977E-03	0.24737908E-02	-0.53099836E-06
2271	-0.46412607E-03	0.32813573E-03	-0.95975434	0.19850244E-03	0.24619982E-02	-0.37975617E-06
2272	-0.45286037E-03	0.29684473E-03	-0.95817854	0.20765919E-03	0.24676283E-02	-0.37032911E-06
2273	-0.44009866E-03	0.26517294E-03	-0.95659157	0.20204352E-03	0.24727517E-02	-0.34884867E-06
2274	-0.42587401E-03	0.23241644E-03	-0.95509078	0.18582798E-03	0.24760533E-02	-0.32357986E-06
2275	-0.41113979E-03	0.19733776E-03	-0.95374679	0.16175419E-03	0.24761132E-02	-0.29882442E-06
2277	-0.49321616E-03	0.34941998E-03	-0.97072284	0.17774280E-03	0.24613645E-02	-0.63575396E-06
2278	-0.50170289E-03	0.37034784E-03	-0.97160480	0.14920608E-03	0.24571265E-02	-0.63835648E-06
2280	-0.47825039E-03	0.37118913E-03	-0.96167238	0.15192755E-03	0.24550860E-02	-0.28139753E-06
2281	-0.47133285E-03	0.34976445E-03	-0.96077533	0.18096653E-03	0.24582859E-02	-0.36071835E-06
2286	-0.37264044E-03	0.49421348E-04	-0.96871814	0.45348838E-04	0.24689783E-02	-0.15526241E-06
2287	-0.36815102E-03	0.24845741E-04	-0.96824995	0.23292355E-04	0.24679453E-02	-0.77084411E-07
2292	-0.41980558E-03	0.17726259E-03	-0.97953973	0.14222546E-03	0.24971834E-02	-0.39411391E-06
2293	-0.38288008E-03	0.87182305E-04	-0.97022715	0.77243165E-04	0.24729046E-02	-0.20579081E-06
2294	-0.39397517E-03	0.12137327E-03	-0.97257688	0.10387510E-03	0.24796641E-02	-0.26170018E-06
2295	-0.40600563E-03	0.15136921E-03	-0.97570447	0.12552195E-03	0.24881442E-02	-0.32484029E-06
2296	-0.55664760E-03	0.31973590E-03	-1.0033092	0.17679071E-03	0.24797605E-02	-0.84418953E-06
2297	-0.47098096E-03	0.22976360E-03	-0.99779917	0.16587800E-03	0.25235747E-02	-0.46456220E-06
2298	-0.50081084E-03	0.25103373E-03	-0.99910841	0.17414354E-03	0.25187706E-02	-0.52534680E-06
2299	-0.52334560E-03	0.27173764E-03	-1.0004835	0.18218628E-03	0.25072462E-02	-0.61005864E-06
2300	-0.54088495E-03	0.29448833E-03	-1.0019048	0.18506568E-03	0.24934486E-02	-0.71739462E-06
2301	-0.52021180E-03	0.32606449E-03	-0.98649127	0.18705165E-03	0.24731994E-02	-0.71227219E-06
2302	-0.50534708E-03	0.29836006E-03	-0.98500398	0.19593888E-03	0.24838318E-02	-0.62792606E-06
2303	-0.48869830E-03	0.27163004E-03	-0.98350063	0.19210357E-03	0.24941651E-02	-0.55017571E-06
2304	-0.46871107E-03	0.24477949E-03	-0.98205962	0.18048874E-03	0.25020576E-02	-0.48437474E-06
2305	-0.44523972E-03	0.21486217E-03	-0.98072703	0.16426645E-03	0.25042974E-02	-0.43270469E-06
2307	-0.56800742E-03	0.33846710E-03	-1.0042201	0.16145923E-03	0.24711314E-02	-0.10417990E-05
2308	-0.58054718E-03	0.35778903E-03	-1.0050220	0.13571126E-03	0.24636670E-02	-0.12666290E-06
2310	-0.54124810E-03	0.36599970E-03	-0.98830222	0.14326495E-03	0.24605020E-02	-0.93920692E-06
2311	-0.53046017E-03	0.34590861E-03	-0.98745484	0.17059781E-03	0.24663930E-02	-0.83239892E-06
2321	-0.77969080E-03	0.20194418E-03	-1.1148936	0.64311170E-04	0.25049756E-02	-0.54605920E-06
2322	-0.86822377E-03	0.13523658E-03	-1.1133428	0.21164653E-04	0.25854264E-02	-0.18720503E-05
2323	-0.82894434E-03	0.15195826E-03	-1.1135847	0.40537326E-04	0.25689857E-02	-0.17371761E-05
2324	-0.80450932E-03	0.16775411E-03	-1.1139517	0.53935456E-04	0.25488644E-02	-0.14916135E-05
2325	-0.78812049E-03	0.18424180E-03	-1.1144021	0.62150033E-04	0.25270178E-02	-0.11029043E-05
2326	-0.58372182E-03	0.31244656E-03	-1.0156394	0.16779926E-03	0.24842539E-02	-0.10145461E-05
2327	-0.61089081E-03	0.30286423E-03	-1.0279912	0.15748027E-03	0.24884728E-02	-0.11547391E-05
2328	-0.63785641E-03	0.29108560E-03	-1.0403631	0.14605913E-03	0.24923299E-02	-0.12411132E-05
2329	-0.66428048E-03	0.27741146E-03	-1.0527531	0.13367638E-03	0.24957884E-02	-0.12515588E-05
2330	-0.68983516E-03	0.26233825E-03	-1.0651592	0.12050921E-03	0.24988141E-02	-0.11639996E-05
2331	-0.71425890E-03	0.24651415E-03	-1.0775792	0.10675655E-03	0.25013577E-02	-0.95715600E-06
2332	-0.73739360E-03	0.23066876E-03	-1.0900104	0.92639990E-04	0.25033388E-02	-0.61170139E-06
2333	-0.75919189E-03	0.21555237E-03	-1.1024499	0.78420314E-04	0.25046246E-02	-0.11207833E-06
2334	-0.56878324E-03	0.29139664E-03	-1.0140148	0.17544691E-03	0.24983095E-02	-0.82419632E-06
2335	-0.55287061E-03	0.27307619E-03	-1.0123684	0.17443372E-03	0.25128187E-02	-0.67207305E-06
2336	-0.53284633E-03	0.25782320E-03	-1.0107441	0.16953510E-03	0.25262975E-02	-0.55834450E-06
2337	-0.50534001E-03	0.24478255E-03	-1.0091520	0.16600110E-03	0.25356891E-02	-0.48497439E-06
2338	-0.59770238E-03	0.28478831E-03	-1.0264320	0.16415062E-03	0.25028746E-02	-0.89553854E-06
2339	-0.58434494E-03	0.26957815E-03	-1.0248491	0.16392002E-03	0.25180597E-02	-0.69428753E-06
2340	-0.56802440E-03	0.25807900E-03	-1.0232745	0.16060663E-03	0.25332061E-02	-0.54911799E-06
2341	-0.54486016E-03	0.25079033E-03	-1.0217133	0.15910129E-03	0.25468102E-02	-0.46045201E-06
2342	-0.62703599E-03	0.27475550E-03	-1.0390628	0.15146420E-03	0.25072007E-02	-0.91159474E-06
2343	-0.61693255E-03	0.26124713E-03	-1.0377436	0.15104022E-03	0.25231016E-02	-0.66023244E-06
2344	-0.60522106E-03	0.25163347E-03	-1.0364311	0.14789786E-03	0.25396788E-02	-0.48293627E-06
2345	-0.58818359E-03	0.24727362E-03	-1.0351297	0.14619661E-03	0.25567167E-02	-0.37725194E-06
2346	-0.65616841E-03	0.26172423E-03	-1.0518166	0.13762809E-03	0.25113157E-02	-0.85299765E-06
2347	-0.64975891E-03	0.24863883E-03	-1.0508715	0.13628899E-03	0.25280436E-02	-0.55971301E-06
2348	-0.64324281E-03	0.23919796E-03	-1.0499409	0.13220507E-03	0.25459057E-02	-0.34600964E-06
2349	-0.63367188E-03	0.23512440E-03	-1.0490318	0.12857498E-03	0.25655614E-02	-0.22426857E-06
2350	-0.68458257E-03	0.24646461E-03	-1.0646070	0.12291555E-03	0.25152352E-02	-0.70160229E-06
2351	-0.68211995E-03	0.23286491E-03	-1.0640589	0.12017769E-03	0.25329387E-02	-0.35971301E-06
2352	-0.68114637E-03	0.22236035E-03	-1.0635387	0.11437391E-03	0.25519722E-02	-0.12626854E-06
2353	-0.67991436E-03	0.21653726E-03	-1.0630581	0.10762033E-03	0.25734234E-02	0.87448922E-08
2354	-0.71195741E-03	0.23000204E-03	-1.0773495	0.10763575E-03	0.25189303E-02	-0.44132386E-06
2355	-0.71364401E-03	0.21542853E-03	-1.0771360	0.10325059E-03	0.25377427E-02	-0.66254205E-07
2356	-0.71847779E-03	0.20329564E-03	-1.0769652	0.95293401E-04	0.25577786E-02	0.18597018E-06
2357	-0.72618421E-03	0.19467147E-03	-1.0768554	0.84781465E-04	0.25800654E-02	0.32996702E-06
2358	-0.73821637E-03	0.21346238E-03	-1.0899576	0.92144268E-04	0.25222927E-02	-0.59015532E-07

FILENAME : PIT3C3.PO DATE : 05-25-94 TIME : 2:17p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 12/25)

2359	-0.74433735E-03	0.19792773E-03	-1.0899300	0.86115228E-04	0.25422660E-02	0.33602830E-06
2360	-0.75531170E-03	0.18422247E-03	-1.0899585	0.75942226E-04	0.25629754E-02	0.59777622E-06
2361	-0.77261241E-03	0.17277384E-03	-1.0900689	0.61652519E-04	0.25848441E-02	0.74551699E-06
2362	-0.76350716E-03	0.19791773E-03	-1.1023401	0.76863678E-04	0.25251030E-02	0.45445597E-06
2363	-0.77449036E-03	0.18172731E-03	-1.1022620	0.69466403E-04	0.25461482E-02	0.85358110E-06
2364	-0.79203789E-03	0.16685024E-03	-1.1022516	0.57390328E-04	0.25669619E-02	0.11137062E-05
2365	-0.81981038E-03	0.15285024E-03	-1.1023429	0.39954353E-04	0.25868510E-02	0.12606213E-05
2367	-0.77976115E-03	0.21518650E-03	-1.1152321	0.61227480E-04	0.24906241E-02	-0.46440179E-06
2368	-0.78641733E-03	0.22926565E-03	-1.1155409	0.52962881E-04	0.24780892E-02	-0.17175448E-05
2377	-0.60882125E-03	0.34921297E-03	-1.0172662	0.12910993E-03	0.24658121E-02	-0.16405016E-05
2378	-0.59539735E-03	0.33040770E-03	-1.0165041	0.15346699E-03	0.24743637E-02	-0.13055398E-05
2379	-0.63639821E-03	0.33851807E-03	-1.0295207	0.12150862E-03	0.24678414E-02	-0.19533871E-05
2380	-0.62244865E-03	0.32017788E-03	-1.0288037	0.14430926E-03	0.24773810E-02	-0.15269979E-05
2381	-0.66299142E-03	0.32585813E-03	-1.0417851	0.11315965E-03	0.24697684E-02	-0.22151958E-05
2382	-0.64887561E-03	0.30790937E-03	-1.0411177	0.13420783E-03	0.24801826E-02	-0.16927347E-05
2383	-0.68830190E-03	0.31148860E-03	-1.0540587	0.10413943E-03	0.24715776E-02	-0.24122286E-05
2384	-0.67437075E-03	0.29388071E-03	-1.0534450	0.12326898E-03	0.24827472E-02	-0.17872462E-05
2385	-0.71203358E-03	0.29576361E-03	-1.0663410	0.94547979E-04	0.24732584E-02	-0.25293819E-05
2386	-0.69864157E-03	0.27850563E-03	-1.0657844	0.11162686E-03	0.24850545E-02	-0.17922172E-05
2387	-0.73391744E-03	0.27911781E-03	-1.0786312	0.84496906E-04	0.24747954E-02	-0.25489874E-05
2388	-0.72144348E-03	0.26230808E-03	-1.0781346	0.99425839E-04	0.24870737E-02	-0.16878175E-05
2389	-0.75372223E-03	0.26206348E-03	-1.0909287	0.74114162E-04	0.24761565E-02	-0.24486893E-05
2390	-0.74260622E-03	0.24589218E-03	-1.0904940	0.86827755E-04	0.24887490E-02	-0.14517593E-05
2391	-0.77126468E-03	0.24520171E-03	-1.1032324	0.63563115E-04	0.24772828E-02	-0.21939571E-05
2392	-0.76204374E-03	0.22993380E-03	-1.1028607	0.74033862E-04	0.24899824E-02	-0.10563452E-05
2404	-0.95917253E-03	0.99512672E-04	-1.1299971	-0.26635794E-05	0.25729875E-02	0.23082316E-05
2405	-0.98546150E-03	0.94840424E-04	-1.1465910	-0.68224267E-06	0.25529473E-02	0.27254031E-05
2406	-0.10119904E-02	0.90199549E-04	-1.1630380	0.42902969E-06	0.25262739E-02	0.31548988E-05
2412	-0.10555981E-02	0.19193006E-04	-1.1448245	-0.34852096E-05	0.25425139E-02	0.52195383E-06
2413	-0.10582243E-02	0.18217233E-04	-1.1563876	-0.16442734E-05	0.25311446E-02	0.54714366E-06
2414	-0.10644756E-02	0.16639107E-04	-1.1678836	-0.71446495E-06	0.25126360E-02	0.58322700E-06
2415	-0.10465678E-02	0.37907562E-04	-1.1434996	-0.64202212E-05	0.25461703E-02	0.10225376E-05
2416	-0.10513581E-02	0.35986632E-04	-1.1555117	-0.30034967E-05	0.25336761E-02	0.10759165E-05
2417	-0.10595918E-02	0.33002775E-04	-1.1674493	-0.12607985E-05	0.25141321E-02	0.11516432E-05
2418	-0.10317248E-02	0.55666348E-04	-1.1413170	-0.82680820E-05	0.25517580E-02	0.14791298E-05
2419	-0.10401392E-02	0.52872830E-04	-1.1540709	-0.38099530E-05	0.25375949E-02	0.15684206E-05
2420	-0.10515950E-02	0.48805665E-04	-1.1667366	-0.15003490E-05	0.25164951E-02	0.16917917E-05
2421	-0.10115584E-02	0.72029635E-04	-1.1383091	-0.85274825E-05	0.25585848E-02	0.18657655E-05
2422	-0.10249708E-02	0.68481045E-04	-1.1520863	-0.38235043E-05	0.25424692E-02	0.20092263E-05
2423	-0.10407252E-02	0.63760702E-04	-1.1657559	-0.13479260E-05	0.25195453E-02	0.21939767E-05
2424	-0.98688704E-03	0.86655531E-04	-1.1345183	-0.67754307E-05	0.25658266E-02	0.2145173E-05
2425	-0.10065102E-02	0.82523030E-04	-1.1495831	-0.28494675E-05	0.25477850E-02	0.23932622E-05
2426	-0.10273488E-02	0.77619249E-04	-1.1645188	-0.74992801E-06	0.25230342E-02	0.26592909E-05
2432	-0.80479927E-03	0.18793477E-03	-1.1311066	0.46751860E-04	0.25034793E-02	0.11957765E-05
2433	-0.82820562E-03	0.17998703E-03	-1.1473004	0.31024942E-04	0.24987415E-02	0.20430362E-05
2434	-0.85012643E-03	0.18055704E-03	-1.1634485	0.18531125E-04	0.24889368E-02	0.30847257E-05
2435	-0.81923139E-03	0.17226365E-03	-1.1307530	0.44316129E-04	0.25237026E-02	0.17093258E-05
2436	-0.84092515E-03	0.15704826E-03	-1.1304362	0.37444655E-04	0.25429211E-02	0.20483500E-05
2437	-0.86982103E-03	0.14169174E-03	-1.1301872	0.26839837E-04	0.25592022E-02	0.22385261E-05
2438	-0.90839811E-03	0.12388335E-03	-1.1300339	0.12803710E-04	0.25702996E-02	0.23138587E-05
2439	-0.84903353E-03	0.16613057E-03	-1.1470691	0.28764401E-04	0.25158474E-02	0.24903059E-05
2440	-0.87580099E-03	0.15172080E-03	-1.1468662	0.23769385E-04	0.25315698E-02	0.27567272E-05
2441	-0.90749623E-03	0.13608229E-03	-1.1467105	0.16566123E-04	0.25440627E-02	0.28576695E-05
2442	-0.94430984E-03	0.11792324E-03	-1.1466169	0.77815959E-05	0.25516278E-02	0.28280776E-05
2443	-0.87755747E-03	0.16765910E-03	-1.1633135	0.16694834E-04	0.25009432E-02	0.34502672E-05
2444	-0.90904098E-03	0.15268567E-03	-1.1631979	0.13541168E-04	0.25118217E-02	0.36363971E-05
2445	-0.94294608E-03	0.13529932E-03	-1.1631103	0.93772489E-05	0.25202064E-02	0.36174866E-05
2446	-0.97794308E-03	0.11487167E-03	-1.1630568	0.46604706E-05	0.25250917E-02	0.34121302E-05
2453	-0.80249697E-03	0.21150485E-03	-1.1315838	0.39669432E-04	0.24783021E-02	-0.10689495E-05
2454	-0.80038832E-03	0.19935664E-03	-1.1313544	0.45127150E-04	0.24900814E-02	0.20487913E-06
2455	-0.81466306E-03	0.19945492E-03	-1.1476238	0.27705923E-04	0.24770396E-02	-0.34582216E-07
2456	-0.81856402E-03	0.18956070E-03	-1.1474664	0.30579535E-04	0.24872178E-02	0.11483777E-05
2457	-0.82267310E-03	0.19649944E-03	-1.1636489	0.18259006E-04	0.24735119E-02	0.14143557E-05
2458	-0.83465385E-03	0.18862546E-03	-1.1635489	0.18930350E-04	0.24807390E-02	0.23640478E-05

MAXIMUMS	62	32	48	2191	74	53
NODE						
VALUE	-0.10750422E-02	0.39220259E-03	-1.1797141	0.21195397E-03	0.26075134E-02	0.47279344E-05

FILENAME : PITJC4.PO DATE : 05-25-94 TIME : 2:17p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 13/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 1.4DL + 1.7L + 0.9H

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE

14.2880 MAY 25,1994 CP= 617.530

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.16160486E-05	-1924.5724		1718.0235		-2868.1447
62		-1711.5674		1982.1635		599.88719
63		-1118.4626		4156.1717		-0.29665543E-02
64		-1167.8508		4244.1495		-0.28560374E-02
65		-1161.5135		5359.2150		-0.27934294E-02
66		-556.83752		5213.0662		-0.13892236E-02
87		-719.30017		-13884.187		0.90292224E-04
88		-1404.9641		-26114.784		0.17656790E-03
89		-1398.6622		-26033.219		0.17174353E-03
90		-1679.7097		-27797.308		0.16808994E-03
91		-1226.2850		-17788.245		0.82622081E-04
98		-994.37874		-17066.288		-0.26373792E-04
99		-1398.7280		-24059.502		-0.54833346E-04
100		-1073.9759		-21338.527		-0.55900444E-04
101		-1441.3112		-0.55488374E-02		-8093.1974
162		-2062.6616		0.14229971E-02		1486.2794
163		-1624.3869		-34692.484		-0.79986652E-04
164		-2084.6546		-44318.796		-0.80778183E-04
165		-1909.9319		-41331.739		-0.15179869E-04
166		-2018.9894		-43184.769		0.95957110E-04
167		-2100.4553		-43136.787		0.24344070E-03
168		-1945.0649		-36305.884		0.41399342E-03
169		-1822.4981		-28185.158		0.60719131E-03
170		-1750.0790		-19083.085		0.80143488E-03
171		-1753.2574		-9359.7489		0.96014804E-03
172		-1863.2157		544.11456		0.10525513E-02
201		-922.49999		-0.62421242E-02		-7206.9520
262		-1574.8059		-0.81095007E-03		1255.7262
301		-517.32194		-0.64689013E-02		-5910.0517
362		-1113.7083		-0.22756986E-02		740.99144
401		-206.19431		-0.61324537E-02		-4893.2581
462		-706.51086		-0.30406036E-02		528.56170
501		10.352287		-0.56082768E-02		-3654.6972
562		-401.65335		-0.33813598E-02		85.337875
601		162.35835		-0.52172740E-02		-3238.2472
662		-188.58649		-0.35482025E-02		121.99339
701		276.03382		-0.47858139E-02		-2798.6007
762		-22.877143		-0.35248451E-02		74.476659
801		361.37760		-0.43521141E-02		-2374.1083
862		105.35762		-0.33864813E-02		-20.591345
901		427.36772		-0.39417735E-02		-1980.8198
962		205.65301		-0.31883256E-02		-138.90101
1001		482.19515		-0.35712241E-02		-1627.5417
1062		286.93820		-0.29692759E-02		-263.98225
1101		533.68505		-0.32504148E-02		-1317.6646
1162		357.64345		-0.27557875E-02		-385.51555
1201		589.72129		-0.29849017E-02		-1051.3627
1262		426.02154		-0.25652850E-02		-497.33787

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1301	658.95399	-0.27774296E-02	-827.05808
1362	500.62507	-0.24088777E-02	-595.79488
1401	751.16233	-0.26290879E-02	-642.34621
1462	590.89638	-0.22933823E-02	-678.51170
1501	878.12170	-0.25401254E-02	-494.20282
1562	707.81433	-0.22227497E-02	-743.56088
1601	491.80924	-0.12552441E-02	-172.17331
1662	400.57873	-0.10995000E-02	-401.71380
TOTAL	0.16160486E-05 -36362.806	0.00000000E+00 -450463.71	0.00000000E+00 -47982.988

FILENAME : PIT3D1.PO DATE : 05-25-94 TIME : 2:18p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 14/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	1.40000
2	0.900000
3	34.0000
4	1.70000
5	1.70000
6	1.00000

LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	1.40000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	34.0000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00
5	1.70000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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TITLE 14.3123 MAY 25,1994 CP= 704.750

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-186.05307	-223.77196	3.5048884	464.62905	5669.8249	133.75404
978	-186.62194	-223.98512	1.1853140	461.29885	5686.9404	43.976553
979	-183.12468	-211.88575	6.3963724	-475.91366	2291.3221	175.03010
980	-183.57635	-212.04735	2.1240281	-473.60831	2294.3367	58.383584
981	-193.88180	-194.27593	8.2439474	-1408.1429	-713.35947	172.80015
982	-194.12458	-194.41658	2.7559484	-1407.0056	-718.34507	57.548297
983	-212.74532	-173.46478	9.0901130	-2226.6891	-3387.7162	127.35007
984	-212.82194	-173.52656	3.0299888	-2224.7531	-3401.6092	42.322982
985	-234.56234	-151.56825	9.1424551	-2815.3523	-5747.5841	39.245168
986	-234.50984	-151.55718	3.0545233	-2809.7785	-5769.6421	12.814465
987	-255.08289	-130.26860	8.5717932	-3052.9128	-7774.5987	-93.645519
988	-254.92418	-130.22326	2.8519300	-3037.9575	-7805.3569	-31.838021
989	-271.15933	-110.96327	7.4310211	-2808.7475	-9397.0675	-275.83918
990	-270.89130	-110.96654	2.4806020	-2763.2901	-9431.3424	-94.977079
991	-169.39081	-217.08716	16.942861	428.67684	5289.8585	646.47252
992	-175.84169	-220.08008	13.562392	424.38078	5443.2669	505.21691
993	-180.88467	-222.02767	9.9944127	432.31766	5545.7993	372.56298
994	-184.32454	-223.19955	6.4436208	434.57827	5620.0880	242.30866
995	-171.85366	-206.53129	30.759607	-492.38073	2171.1010	865.76496
996	-176.12090	-208.65954	24.694570	-485.77480	2215.6024	683.31851
997	-179.45161	-210.29087	18.339016	-481.23049	2254.0205	501.85022
998	-181.83470	-211.35875	11.811429	-476.41460	2280.2240	322.63601
999	-187.68646	-190.72885	39.323947	-1398.9260	-588.05528	688.27757
1000	-190.05293	-192.09961	31.549237	-1405.6653	-635.07415	682.85086
1001	-191.89250	-193.14269	23.474870	-1406.8115	-671.46684	500.01635
1002	-193.18976	-193.88288	15.182417	-1404.6036	-697.99186	319.85028
1003	-210.69290	-172.15651	43.302249	-2226.5225	-3035.3672	670.85409
1004	-211.48255	-172.59350	34.771494	-2232.8131	-3168.5801	518.71044
1005	-212.09541	-172.98926	25.874187	-2230.1193	-3272.6999	374.42600

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1006	-212.52157	-173.29270	16.732383	-2223.8207	-3346.8098	236.99894
1007	-235.70469	-152.53553	43.775834	-2883.2433	-5182.3691	282.13983
1008	-235.31134	-152.00984	35.093977	-2868.0915	-5395.6189	197.95768
1009	-234.96842	-151.73351	26.082095	-2844.2124	-5563.2767	130.15383
1010	-234.70757	-151.60927	16.849362	-2820.5145	-5682.5168	76.236792
1011	-258.65284	-132.93827	41.680902	-3284.1343	-7008.6198	-290.53331
1012	-257.40164	-131.62040	33.240339	-3216.1146	-7295.2523	-276.64797
1013	-256.33769	-130.84563	24.584029	-3143.4803	-7522.2715	-233.45977
1014	-255.53170	-130.44127	15.821066	-3079.6856	-7685.1060	-164.85456
1015	-276.46881	-113.82044	37.942503	-3351.4457	-8456.6813	-1043.3538
1016	-274.71988	-112.10798	29.831821	-3184.6450	-8811.9782	-904.41646
1017	-273.13678	-111.28020	21.759216	-3022.2439	-9091.5594	-717.39257
1018	-271.88443	-110.99480	13.833923	-2882.7801	-9290.1788	-488.76863
1019	-49.162738	-142.19618	28.027114	408.16186	2279.3053	1376.9117
1020	-77.126036	-167.71285	29.904585	341.10730	3109.1519	1382.5074
1021	-107.01845	-187.06054	28.658065	320.72848	3858.1507	1268.1590
1022	-134.25820	-201.17547	25.440358	331.53849	4480.0025	1073.2822
1023	-156.34162	-211.18340	20.921704	337.56309	4967.8696	835.29793
1024	-102.72888	-150.89664	49.669765	326.05158	1105.2129	2005.8088
1025	-117.49453	-169.02831	55.996044	-45.651110	1409.0819	1957.5273
1026	-133.82250	-183.25686	54.824805	-283.83991	1679.8328	1754.7889
1027	-149.65493	-194.10664	48.577551	-417.67397	1904.8930	1462.3717
1028	-163.34014	-202.04257	39.148962	-474.53265	2077.4499	1131.1907
1029	-150.97109	-165.44333	61.715065	223.27995	64.565300	2182.3688
1030	-159.07299	-172.17417	70.011668	-483.00683	-82.954602	2092.6891
1031	-167.64715	-178.22502	69.133901	-941.85216	-228.63507	1844.7502
1032	-175.89146	-183.59013	61.732841	-1208.6899	-368.52687	1513.4518
1033	-183.10877	-188.01291	49.947099	-1337.0146	-497.33690	1149.5858
1034	-196.11774	-182.22706	68.237902	84.473394	-848.36762	1979.1561
1035	-199.89640	-175.98802	76.987628	-944.64171	-1390.8225	1848.8768
1036	-203.43202	-172.66596	75.911491	-1600.8130	-1905.2747	1580.0921
1037	-206.54242	-171.49645	67.834303	-1973.1621	-2372.9196	1251.3364
1038	-209.11509	-171.63910	54.965806	-2146.0433	-2775.0121	914.80065
1039	-236.23552	-199.10249	71.295178	-115.26970	-1642.8453	1450.7161
1040	-237.31379	-179.44347	79.311749	-1419.7183	-2526.1397	1272.9395
1041	-237.45621	-166.51258	77.609187	-2223.8400	-3362.2198	997.85296
1042	-237.03685	-158.61304	69.017768	-2652.0978	-4119.2806	703.83724
1043	-236.31743	-154.30029	55.716976	-2820.4013	-4766.8911	443.33282
1044	-268.53757	-214.01771	72.607763	-404.67232	-2320.1774	647.11472
1045	-268.16421	-181.67235	78.667078	-1905.7119	-3484.9851	409.95774
1046	-266.21830	-159.62173	75.941045	-2783.7292	-4589.9810	134.92418
1047	-263.57863	-145.30058	66.883663	-3196.0623	-5593.1606	-102.31727
1048	-260.73938	-136.77906	53.483963	-3289.8236	-6454.5644	-249.69149
1049	-290.41074	-225.03265	73.217174	-814.63824	-2867.0593	-378.14065
1050	-289.35346	-181.94441	76.357280	-2408.8899	-4241.7023	-690.63904
1051	-286.39397	-151.91512	72.380694	-3263.9507	-5554.0223	-967.62694
1052	-282.82378	-131.75574	62.958712	-3567.6806	-6750.6546	-1136.4432
1053	-279.18275	-119.38496	49.565560	-3495.2100	-7783.6208	-1146.4983
1054	-30.467862	-48.463914	3.0926982	530.69891	525.17747	596.19578
1055	-25.571980	-85.569566	14.939705	509.98462	985.36757	991.27816
1056	-31.159590	-114.77327	23.134320	470.78157	1552.6848	1238.7941
1057	-87.270109	-81.185084	-4.1020380	1600.1236	477.79827	1058.4750
1058	-87.922131	-111.57779	19.476153	1151.2702	642.64868	1572.0848
1059	-92.795363	-131.88410	36.725844	734.93510	841.20425	1866.5918
1060	-142.31538	-139.25892	-9.4871019	2892.2410	433.13308	1228.1281
1061	-142.09110	-150.76890	23.683618	1878.0404	306.86041	1769.3933
1062	-145.10103	-158.74094	45.563841	1025.3149	192.24218	2064.6170
1063	-188.80669	-209.06462	-9.4376829	4170.4008	386.64905	1164.3301
1064	-190.79743	-198.22018	26.475353	2578.2816	7.2093372	1655.6159
1065	-192.97887	-189.82907	50.774453	1279.8249	-379.27311	1907.5608
1066	-226.82901	-278.83371	-3.0018016	5270.1943	337.66821	907.71762
1067	-231.41495	-246.95690	31.113321	3143.4587	-260.97927	1286.1786
1068	-234.31047	-221.88908	54.495176	1434.0116	-880.79244	1452.4140
1069	-255.44492	-341.60744	9.5179634	6061.2032	275.17715	490.12900
1070	-262.79070	-291.18295	38.731176	3480.0143	-506.52684	704.64964
1071	-266.84929	-250.93029	58.605208	1426.5837	-1318.0909	749.31535
1072	-274.22997	-392.37238	27.696755	6443.4664	174.23485	-53.794617
1073	-283.65907	-326.37431	49.271860	3510.1478	-730.93190	-39.342263
1074	-288.66783	-273.67270	63.602418	1200.5306	-1685.9082	-148.44918
1075	-280.59954	-96.242227	5.9275884	-2113.2890	-10495.020	-462.91177

FILENAME : PIT3D1.PO
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 14/25)

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1076	-280.21549	-96.519801	1.9292942	-2041.1510	-10537.577	-153.37177
1077	-284.85937	-86.641092	3.6864972	-957.93693	-10994.151	-703.10484
1078	-284.08582	-87.640063	1.2091691	-850.70489	-11050.355	-237.76949
1079	-291.60685	-80.406205	-0.23091723	841.11615	-10821.670	-1028.2771
1080	-290.21545	-85.440823	-0.60421730	1071.1134	-10892.357	-352.57776
1081	-286.80495	-96.909673	34.271504	-3100.7370	-9400.1559	-1843.4748
1082	-285.12360	-95.279594	26.120442	-2798.8802	-9801.6071	-1580.6159
1083	-283.31055	-95.105842	18.340057	-2505.7910	-10126.849	-1244.9487
1084	-281.61879	-95.695125	11.258065	-2253.5889	-10364.543	-838.72750
1085	-289.68156	-81.339658	32.788260	-2587.5962	-9779.9254	-2643.3089
1086	-289.64997	-79.648875	23.695993	-2115.0540	-10203.714	-2282.7756
1087	-288.56130	-80.968766	15.036749	-1638.6704	-10559.328	-1821.7849
1088	-286.66369	-84.061333	7.9469637	-1209.0817	-10834.152	-1250.4466
1089	-282.75231	-65.853854	36.807700	-1805.5498	-9742.9779	-3475.3661
1090	-287.69672	-60.981029	27.119255	-1141.6639	-10118.518	-3011.5209
1091	-291.99483	-62.560714	14.951574	-427.73744	-10415.707	-2457.8302
1092	-292.63246	-71.137439	4.3907003	314.82640	-10658.097	-1758.6106
1093	-299.91700	-230.74558	73.541160	-1296.4395	-3222.0871	-1429.5687
1094	-298.54391	-180.32815	73.657229	-2879.9180	-4734.8675	-1824.0148
1095	-295.28682	-144.54577	68.675730	-3623.4259	-6177.4660	-2107.1142
1096	-291.87168	-119.73501	59.314133	-3743.8546	-7497.6269	-2210.3220
1097	-288.93051	-103.93817	46.079381	-3438.8830	-8647.3319	-2087.1567
1098	-298.22613	-231.63982	73.606949	-1835.7098	-3398.6406	-2422.0620
1099	-296.64521	-177.25477	70.950548	-3312.2922	-4947.5303	-2906.1747
1100	-293.28460	-138.05365	65.398612	-3867.3282	-6439.8439	-3206.8969
1101	-290.41896	-109.87952	56.893590	-3740.0338	-7813.4111	-3254.0692
1102	-289.42769	-90.592820	44.750236	-3155.4226	-9003.6411	-3011.5892
1103	-287.05964	-228.69457	73.537621	-2491.5394	-3409.6281	-3423.0644
1104	-285.33021	-172.76561	68.040576	-3780.6986	-4920.3285	-4039.3038
1105	-281.69297	-231.97077	62.011767	-4058.7278	-6402.9073	-4363.3817
1106	-278.61700	-101.80003	55.125384	-3587.6368	-7792.0318	-4363.9558
1107	-279.02237	-79.166820	46.322428	-2650.7959	-8990.7194	-3976.3268
1108	-281.95993	-424.74066	46.954772	6413.8493	111.77844	-603.23191
1109	-292.54132	-348.21703	60.274267	3247.5464	-892.80290	-800.30750
1110	-298.12669	-287.24170	68.684641	794.32273	-1930.0164	-1068.4564
1111	-278.76484	-439.68792	65.650397	5991.5365	3.7261599	-1107.2004
1112	-290.49977	-357.73435	70.883243	2733.5436	-1026.9301	-1509.8730
1113	-296.45909	-292.24988	73.363971	236.15241	-2079.1044	-1928.3267
1114	-267.59733	-441.70889	86.137049	5218.3263	-127.40145	-1605.5347
1115	-279.46319	-357.46107	82.010807	1956.8357	-1097.7111	-2200.7006
1116	-285.38629	-290.66907	78.085444	-520.87065	-2129.5232	-2783.8882
1117	-304.05364	-89.065649	4.2735928	2864.3830	-10179.960	-843.33260
1118	-333.74203	-94.170909	2.9751218	4167.5126	-8863.7794	-872.28454
1119	-474.48131	-74.643681	59.359384	5135.2007	-5868.8408	28.271027
1120	-303.76097	-76.090998	-3.3592239	2568.6728	-10087.396	-1289.2058
1121	-346.15492	-64.145110	5.2709013	4022.5788	-8873.4508	-1255.3076
1122	-331.05301	-65.049863	95.172729	6179.8111	-8097.2146	308.29341
1123	-266.56960	-56.762955	44.913079	-1022.1235	-9546.0397	-4060.9332
1124	-276.22440	-46.357715	39.125137	-233.10898	-9839.2046	-3469.5542
1125	-291.10809	-42.503646	25.682641	650.48753	-9983.6140	-2834.0002
1126	-304.60973	-55.906586	5.5875041	1718.0150	-10023.733	-2092.0581
1127	-243.27873	-56.263073	49.432128	-303.83515	-9308.3265	-4483.1390
1128	-249.82517	-42.347801	51.743997	563.43939	-9628.2207	-3731.8986
1129	-269.81341	-29.428630	48.242469	1488.3314	-9674.6101	-2932.9919
1130	-309.22375	-33.475461	30.936161	2831.7230	-9330.5494	-2056.5351
1131	-214.40259	-59.593182	46.854166	571.86676	-8996.8091	-5021.6591
1132	-206.92463	-49.556903	55.439738	1550.2901	-9543.1448	-4104.2377
1133	-208.04785	-28.811784	70.003084	2479.9701	-9908.8535	-3054.1776
1134	-226.54585	-36.479827	81.591283	4362.7854	-9939.7943	-1764.6789
1135	-273.04491	-224.23118	73.437451	-3075.6540	-3303.4407	-4150.3332
1136	-271.35492	-168.50104	65.752532	-4181.0844	-4754.6108	-4853.6515
1137	-267.45868	-127.58865	59.106428	-4194.0985	-6190.3876	-5255.7770
1138	-263.34469	-97.127291	53.258599	-3391.5601	-7576.6697	-5245.3321
1139	-262.41708	-73.269016	48.482834	-2107.0267	-8802.3635	-4727.1189
1140	-259.75234	-219.70498	73.452207	-3530.5130	-3139.8863	-4624.5789
1141	-258.35686	-164.92955	64.266063	-4480.7793	-4486.7980	-5405.8759
1142	-254.48571	-124.52900	56.903704	-4281.6578	-5849.8449	-5868.9798
1143	-249.24387	-94.792022	51.043336	-3202.5168	-7212.0000	-5879.3558
1144	-244.38352	-72.124384	48.124338	-1598.5625	-8489.5669	-5296.3006
1145	-244.06929	-214.22732	73.652785	-4013.7047	-2907.4991	-5053.8484

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1146	-243.23586	-160.84718	62.993708	-4800.4051	-4115.8790	-5924.1511
1147	-239.74973	-121.15586	54.664789	-4375.2180	-5366.0850	-6467.6484
1148	-233.71318	-92.381237	47.900963	-2992.7411	-6674.0163	-6533.7438
1149	-224.14099	-71.955227	44.431180	-1023.1607	-8017.1584	-5937.5412
1150	-254.39392	-434.91092	101.12971	4478.4619	-115.97117	-1949.9733
1151	-265.76321	-351.46093	90.138534	1205.5238	-1110.9965	-2693.8025
1152	-271.40548	-285.59704	81.525676	-1216.8210	-2086.5438	-3395.8513
1153	-241.32345	-424.30784	111.22423	3818.0762	-209.66091	-2161.7926
1154	-252.45654	-343.61710	95.441951	595.86845	-1097.0047	-3008.1065
1155	-257.98723	-279.59631	83.815081	-1762.5404	-2010.9125	-3783.9538
1156	-225.84038	-410.09530	120.83753	3056.4160	-274.11216	-2329.9640
1157	-236.50966	-333.21006	100.65539	-68.798403	-1072.1145	-3277.4021
1158	-241.99730	-272.01673	86.121996	-2354.0713	-1896.9328	-4132.9833
1159	-191.43069	-61.604541	36.414674	1457.9214	-8639.1586	-5597.2368
1160	-171.56462	-59.273652	40.774955	2505.6806	-9481.1822	-4680.4958
1161	-140.88264	-48.130163	58.664211	3303.2891	-10548.420	-3587.5032
1162	-92.525028	-21.970907	66.382579	4387.3117	-12322.126	-3073.4250
1163	-177.04307	-61.618534	25.582897	1998.9654	-7760.3840	-6376.1486
1164	-154.27189	-59.833929	20.936092	3187.9572	-8705.3158	-5637.0903
1165	-109.23093	-63.368312	15.806583	4026.8612	-9905.8515	-4805.1513
1166	-32.047820	6.2345276	8.1197117	3153.4264	-11270.309	-4610.4655
1167	-171.30704	-55.692364	12.559438	2801.8614	-6813.6173	-6948.0057
1168	-152.41444	-52.745136	-1.1734704	4168.3415	-7675.6864	-6260.6011
1169	-122.55702	-41.491015	-29.153540	4930.7923	-8541.2105	-5542.1076
1170	-79.572137	-4.5510082	-48.617384	3631.6296	-8908.1665	-4279.2584
1171	-228.84149	-208.83692	74.050164	-4464.2134	-2654.9605	-5377.6212
1172	-228.73285	-156.92040	62.171016	-5104.4583	-3714.1618	-6331.2770
1173	-225.92190	-117.87825	52.874719	-4475.2592	-4829.7772	-6960.0132
1174	-219.88180	-89.756577	44.689610	-2813.2823	-6052.7116	-7105.5681
1175	-207.19632	-71.285116	38.474034	-480.80350	-7421.8688	-6559.0883
1176	-214.71639	-203.78274	74.637003	-4866.6638	-2388.5290	-5610.7288
1177	-215.42470	-153.27551	61.782943	-5381.2889	-3291.3004	-6635.0697
1178	-213.49915	-114.72153	51.617532	-4577.9215	-4259.2409	-7346.0173
1179	-208.24460	-86.837172	42.026222	-2672.1219	-5367.3320	-7579.7709
1180	-195.26480	-68.735879	32.143550	-9.7807212	-6694.7684	-7121.0913
1181	-199.64072	-198.33727	75.496948	-5283.3875	-2082.9408	-5798.8150
1182	-201.28456	-149.34285	61.726989	-5673.9146	-2803.4944	-6893.9810
1183	-200.51797	-111.24575	50.733571	-4697.5489	-3589.3732	-7694.2049
1184	-196.64450	-83.132162	39.735049	-2542.4992	-4535.7190	-8031.7271
1185	-186.19523	-64.262541	26.211195	453.24532	-5740.5768	-7686.6768
1186	-210.63466	-395.06975	128.81644	2359.7041	-284.30221	-2450.8540
1187	-220.90310	-322.48367	104.98687	-693.47347	-1035.2445	-3473.6515
1188	-226.35458	-264.35179	88.188453	-2903.4378	-1769.1699	-4388.6972
1189	-196.49521	-380.24429	135.18373	1725.0888	-321.12267	-2532.9406
1190	-206.28155	-312.09133	108.55230	-1250.5776	-984.64298	-3609.4899
1191	-211.75321	-257.05864	90.031894	-3388.1592	-1628.8202	-4567.2951
1192	-181.31732	-363.79289	141.14515	1051.8065	-335.58681	-2590.7900
1193	-190.52590	-300.68017	112.00603	-1823.0350	-927.22038	-3712.2892
1194	-196.06221	-249.15174	92.020858	-3885.4697	-1467.2687	-4705.1147
1195	-435.74000	-61.085505	-53.383259	17498.264	-2579.3577	991.51257
1196	-280.54893	-62.444235	3.3744106	17870.078	-3297.7981	763.52302
1197	-298.46756	-42.094671	-70.359387	12584.617	-3612.1785	-357.76800
1198	-290.73417	-34.716183	19.910341	15233.963	-2932.3781	-982.52416
1199	-172.40146	-43.910044	4.1278868	3736.0876	-5057.9110	-7661.1444
1200	-168.32016	-33.632403	-14.164514	5405.1529	-5585.8290	-6909.6045
1201	-173.93328	-10.806447	-38.179367	6589.1236	-5792.7188	-5760.8573
1202	-199.60212	-12.635656	-54.871016	7511.0429	-5410.0543	-3327.6175
1203	-173.89046	-30.389412	5.6186086	4899.5693	-2468.2941	-8370.7804
1204	-186.32011	-17.115819	-4.3570461	7124.3251	-2776.3583	-7433.3273
1205	-212.87173	-4.0714225	-6.6309398	9232.1884	-2885.1068	-5805.8927
1206	-256.16115	-6.7887731	4.9115014	11835.549	-2908.5107	-3226.1487
1207	-179.35415	-190.88082	77.088225	-5830.3844	-1619.9269	-5961.8420
1208	-182.35867	-143.96172	62.201332	-6073.3738	-2066.1788	-7141.1520
1209	-183.15352	-106.39176	50.329710	-4884.0836	-2567.1339	-8060.1887
1210	-182.02399	-77.434484	37.965738	-2410.9631	-3237.0452	-8545.4845
1211	-177.73691	-56.408192	21.604903	1012.6274	-4188.9664	-8349.5808
1212	-153.74425	-181.25727	79.730213	-6515.7417	-998.32473	-6025.4375
1213	-158.44688	-136.94949	63.609687	-6592.7479	-1065.4933	-7297.1786
1214	-161.12403	-100.18897	50.740008	-5158.6206	-1144.2392	-8358.3577
1215	-163.14946	-70.057023	38.141597	-2307.8614	-1375.0007	-9037.8878

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1216	-167.99457	-46.141544	21.594079	1681.4573	-1893.8721	-9045.7334
1217	-160.53997	-340.66843	147.97484	162.38473	-382.80490	-2617.8627
1218	-169.05955	-284.99252	116.31567	-2571.6554	-821.92504	-3782.8961
1219	-174.85828	-238.35202	94.853286	-4537.7162	-1214.6605	-4816.6126
1220	-133.78036	-310.37508	155.19249	-924.29335	-366.25688	-2593.2464
1221	-141.72425	-264.99758	121.51597	-3495.7848	-677.08736	-3779.9828
1222	-148.00557	-224.48903	98.757160	-5344.0904	-875.91125	-4835.3578
1223	-244.26151	-38.224887	11.457819	19223.415	-2370.4415	-636.03057
1224	-225.72160	-13.208830	11.647526	21527.262	-710.61647	-982.16212
1225	-238.61563	-30.672529	28.287392	17741.001	-1965.9237	-1987.6351
1226	-228.36216	-14.438531	30.915811	20411.617	-163.18779	-2898.0264
1227	-227.31661	-22.709167	44.086561	14529.701	-677.98218	-4865.2404
1228	-213.87218	-22.596632	56.626280	16955.279	1645.7767	-6042.2383
1229	-205.10431	-14.600274	36.466291	11092.578	648.88334	-7137.6532
1230	-180.44241	-27.348066	62.463573	13277.668	4014.5336	-8399.6746
1231	-181.80562	-15.386571	27.046406	8515.8976	1402.3385	-8484.9666
1232	-138.57872	-27.349684	54.197978	10288.092	6174.0939	-9573.0829
1233	-163.00483	-21.027399	23.121370	6424.2802	1618.6450	-9208.5901
1234	-102.26682	-26.875445	44.109181	8033.3872	7868.6270	-10182.802
1235	-118.44925	-167.12450	84.797057	-7451.5922	-11.871384	-5844.1437
1236	-125.25033	-126.41839	66.837906	-7347.8425	531.85866	-7182.8049
1237	-129.52235	-91.265296	52.697158	-5634.4036	1176.4064	-8406.4085
1238	-133.23943	-61.668922	40.672401	-2309.2071	1749.6677	-9355.9795
1239	-142.48012	-36.571143	30.812829	2484.6951	2002.2783	-9705.2817
1240	-74.772328	-148.04486	93.160282	-8608.3323	1259.8068	-5144.6059
1241	-83.987632	-111.17314	72.586810	-8341.9096	2642.9713	-6453.9442
1242	-89.037095	-79.069014	55.338786	-6355.7575	4391.4696	-7752.7693
1243	-89.750655	-52.470598	43.110826	-2528.8371	6344.0337	-8956.3869
1244	-88.975547	-35.301905	38.783487	3102.8694	8153.8840	-2898.2086
1245	-97.493306	-268.25345	163.18537	-2360.9300	-338.28680	-2443.3932
1246	-104.20896	-236.83070	128.73582	-4723.2952	-405.10185	-3596.0019
1247	-111.01238	-204.77538	105.09167	-6426.2899	-321.60758	-4645.4987
1248	-53.463163	-217.43051	169.40991	-4007.6042	-248.65273	-2073.9473
1249	-58.442389	-201.94429	137.15226	-6174.9940	-59.183594	-3085.2514
1250	-65.493278	-179.70595	114.28492	-7731.7079	385.39395	-4030.6719
1251	-44.277139	-125.67473	103.93825	-9298.9368	1995.2645	-4369.7258
1252	-53.890741	-94.908663	81.083598	-8959.0139	3908.5189	-5516.0710
1253	-59.186833	-66.744682	59.583646	-7012.9650	6397.8107	-6674.2288
1254	-56.267456	-46.720352	42.361020	-3282.5331	9427.4973	-7829.5181
1255	-42.328016	-32.564649	32.358022	2351.4385	12968.214	-8917.5197
1256	-18.865766	-109.71582	114.13675	-9936.2040	2535.1697	-3317.4933
1257	-28.462612	-82.487974	91.836667	-9684.4665	4652.5430	-4180.4644
1258	-35.616224	-56.153696	68.046973	-8110.0474	7412.0323	-5051.2310
1259	-34.915161	-38.653267	43.821597	-5043.3288	10900.222	-5923.7718
1260	-20.896421	-29.148574	23.821448	-313.82365	15221.336	-6760.8995
1261	7.4720769	-96.709207	122.47170	-10491.602	2939.4830	-1894.1027
1262	-1.7542024	-70.284107	102.05366	-10317.746	5171.1197	-2391.0771
1263	-10.758207	-42.535064	78.501798	-9005.3821	8084.0413	-2862.5146
1264	-15.766440	-21.027921	49.357587	-6388.3531	11820.985	-3271.6158
1265	-9.3807546	-15.138545	18.832532	-2309.8987	16594.857	-3545.8253
1266	34.390887	-86.968634	127.78222	-10773.157	3010.5374	-213.76913
1267	26.798428	-59.679017	110.40815	-10630.501	5236.8702	-283.62864
1268	16.818892	-28.302639	89.798050	-9424.6322	8137.4354	-278.64524
1269	5.2920662	2.6386951	61.222288	-6963.5064	11844.215	-117.56478
1270	-0.72744637	16.798228	20.438435	-3052.9503	16564.838	373.14661
1271	60.886181	-79.599323	128.99550	-10658.776	2631.5379	1505.6775
1272	56.836241	-50.978011	115.36536	-10463.082	4708.5661	1873.7175
1273	48.354404	-15.354903	99.953393	-9181.6075	7408.8233	2358.2586
1274	33.383183	26.946785	77.724322	-6556.4143	10796.035	3055.8873
1275	12.365354	67.558838	34.466268	-2219.5011	14928.894	4205.3605
1276	85.436464	-72.813576	125.54928	-10165.696	1836.0367	3012.7443
1277	87.155968	-43.327179	115.78079	-9839.8297	3632.6847	3777.5928
1278	83.318410	-3.9881853	106.67587	-8329.7202	5974.6201	4667.9853
1279	70.219521	49.021302	94.342675	-5292.8068	8826.9231	5736.8127
1280	37.877446	127.24899	64.975835	-96.833453	12023.706	7113.8373
1281	106.96469	-65.112509	117.61264	-9431.4600	793.60253	4131.0120
1282	116.32200	-35.672730	111.75757	-8943.7924	2221.9782	5229.3112
1283	119.46937	6.9405713	109.21805	-7127.7251	4114.2735	6418.4384
1284	112.44075	69.851450	107.67053	-3567.9244	6334.6900	7636.4480
1285	80.983366	180.29291	108.67503	2547.9918	8555.1324	8672.6842

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1286	125.58938	-56.500156	106.09087	-8618.9778	-279.40346	4811.1043
1287	143.56728	-27.917439	105.00105	-7995.5962	738.83080	6196.2532
1288	154.19719	18.742437	109.42488	-5878.8126	2145.0846	7592.9156
1289	153.98674	92.460484	118.46625	-1813.2181	3718.7313	8751.6637
1290	137.83140	214.58425	154.67003	4904.4303	5207.8779	8994.2281
1291	142.75690	-48.788689	92.441610	-7829.4450	-1195.8025	5100.4810
1292	168.92450	-21.040356	98.605078	-7144.4715	-611.67207	6762.8958
1293	184.97782	32.382650	110.69770	-4793.4549	271.88843	8305.8689
1294	189.88363	120.26758	130.12545	-326.19283	1214.5015	9258.7334
1295	199.24241	224.96954	189.76156	6518.5379	2472.2273	8620.9129
1296	-17.642451	-177.57938	171.97511	-5228.0376	-213.87067	-1589.4965
1297	-21.458867	-173.77851	143.98946	-7269.4823	186.81712	-2404.1944
1298	-28.587173	-158.93989	122.82695	-8736.4637	904.17788	-3176.3166
1299	8.1088265	-150.31397	172.36620	-6008.8725	-187.73200	-1071.8158
1300	5.6927731	-153.17363	149.45796	-7974.7967	350.88183	-1668.6126
1301	-0.96385446	-141.55122	130.21128	-9397.6948	1253.2153	-2244.4181
1302	28.514651	-130.69593	170.60685	-6521.4784	-186.97640	-497.67173
1303	28.034726	-135.77272	153.78245	-8450.6895	423.53002	-835.06584
1304	22.789666	-125.42390	137.05474	-9852.4883	1442.9005	-1167.4694
1305	43.746280	-119.13463	167.13625	-6730.0616	-226.95176	92.915997
1306	45.296769	-121.94791	156.20193	-8667.8396	383.39133	38.532863
1307	42.624471	-110.84314	142.11107	-10059.675	1423.9103	-22.150349
1308	54.065126	-114.73072	162.32959	-6628.1396	-314.18709	655.68798
1309	57.968209	-111.23000	155.92138	-8612.6408	217.94709	883.87048
1310	59.088197	-97.930175	144.00763	-10003.762	1177.0182	1100.7971
1311	60.476648	-115.02446	156.48268	-6234.7143	-447.79909	1142.9295
1312	67.080353	-102.41709	152.03286	-8292.0175	-68.233266	1630.8153
1313	73.213314	-86.529510	141.35282	-9686.1246	711.70721	2110.4908
1314	64.608693	-115.92965	149.84245	-5593.5605	-617.12196	1514.7970
1315	74.238282	-93.677666	143.68681	-7731.8778	-451.21890	2215.4694
1316	86.298573	-76.295176	132.97814	-9123.6315	68.002629	2924.9762
1317	68.455773	-111.89758	142.60117	-4768.5432	-799.38015	1735.4144
1318	81.242599	-82.753674	130.24092	-6972.6861	-886.27457	2587.7795
1319	99.775675	-66.885998	118.21085	-8345.1290	-682.48707	3480.2416
1320	73.827786	-96.412213	134.88726	-3842.1055	-952.10012	1782.7995
1321	89.722552	-67.181739	111.55692	-6057.4942	-1310.7317	2718.9501
1322	114.16793	-58.179887	96.956508	-7389.5053	-1435.1147	3740.9165
1323	471.84317	33.218285	33.013963	4983.9889	-4181.5969	336.29187
1324	607.76139	88.792833	29.012941	3034.0046	-11235.575	667.06583
1325	759.85314	126.19524	21.495310	952.94421	-16956.365	736.43989
1326	951.75483	138.10454	13.578930	-874.01542	-22023.588	676.81849
1327	454.42895	49.910729	87.730413	5480.5578	-4139.7022	940.76630
1328	583.92947	101.22588	73.533058	3169.0708	-10925.762	1729.4909
1329	736.42687	133.45386	49.077479	958.46357	-16570.852	1826.5893
1330	931.44033	141.31818	21.695608	-899.06892	-21623.707	1557.2716
1331	425.80185	79.165068	135.05118	6319.0269	-3977.7976	1789.5197
1332	542.17966	121.06819	109.11867	3425.3642	-10360.201	2791.1677
1333	694.15265	144.11891	69.013336	999.60382	-15875.156	2821.3840
1334	892.87832	145.49252	21.796746	-909.64774	-20882.338	2275.0838
1335	392.03704	115.83952	172.63791	7258.6668	-3594.5610	2904.3403
1336	490.45510	142.06294	133.64151	3737.5523	-9592.9110	3852.9603
1337	639.08940	153.59063	80.747685	1075.2946	-14948.540	3714.1540
1338	838.76789	147.93296	13.494056	-886.88707	-19852.897	2807.6552
1339	356.85964	153.35195	198.81731	8083.5897	-2929.4414	4208.0456
1340	437.50112	157.77394	147.35227	4024.1066	-8684.3334	4889.5497
1341	577.87639	157.60622	85.886440	1175.6619	-13889.508	4504.7361
1342	772.19670	146.18689	-1.0355002	-817.19855	-18596.572	3168.4251
1343	320.84373	186.66560	212.61364	8660.2775	-2037.8004	5587.0705
1344	390.65858	163.51507	151.56912	4242.3728	-7742.4221	5875.1741
1345	516.71981	153.00732	86.845562	1292.4632	-12834.650	5184.0647
1346	696.54984	138.72503	-18.448025	-715.82016	-17125.420	3403.7688
1347	164.65392	-51.732819	66.341790	-6527.3663	-2368.3115	5203.8682
1348	197.78460	-28.781112	80.402687	-5904.2496	-2463.7739	7026.3242
1349	221.71108	29.608134	100.82040	-3753.4790	-2340.3660	8560.2077
1350	237.89486	115.13764	129.28571	173.12687	-2102.6628	9207.3490
1351	266.68063	183.85335	178.23507	5530.6009	-1755.2559	7991.4689
1352	177.12184	-60.414845	33.713772	-4870.7859	-3130.5314	4768.4272
1353	215.87010	-46.165402	52.478092	-4499.4980	-4094.9956	6563.8945
1354	254.27589	8.6104558	77.482485	-3073.8501	-5099.8581	7982.3736
1355	294.19148	85.924767	106.72882	-558.50159	-6115.9680	8498.5952

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1356	341.52637	147.31592	138.83751	2667.3529	-6874.3495	7534.4977
1357	155.75320	-69.020911	2.2282427	-3124.9873	-2609.8405	3856.3480
1358	200.88471	-62.463024	13.903786	-3046.3958	-4369.4014	5417.4023
1359	265.40728	-11.471764	31.821217	-2362.0442	-6531.3690	6598.3546
1360	346.09914	61.996547	54.498888	-1083.7224	-8919.2475	7009.2799
1361	437.72727	125.87826	79.219082	557.75028	-11157.909	6362.1213
1362	63.979123	-63.177041	-24.316124	-1466.2236	0.37683451	2574.9791
1363	120.39607	-62.596363	-43.888325	-1663.5445	-2527.5835	3566.5888
1364	232.14799	-18.685994	-54.537497	-1645.0670	-6041.6716	4273.1042
1365	387.14370	46.597028	-50.849822	-1361.7314	-10160.804	4487.5523
1366	561.84485	106.93947	-32.783178	-796.73762	-14270.275	4078.4420
1367	83.143956	-53.106564	125.03418	-2765.2417	-1033.8430	1623.4523
1368	102.11735	-40.793591	84.672001	-4862.6192	-1625.3806	2570.6248
1369	130.75025	-49.019098	66.921943	-6091.0499	-2074.4839	3682.6154
1370	91.790706	31.918006	110.71006	-1629.9762	-785.21259	1227.1723
1371	113.64963	-1.5631814	50.563402	-3429.4860	-1565.0974	2100.8301
1372	143.01525	-39.658829	30.274681	-4466.0296	-2304.4921	3221.5467
1373	83.071482	151.36562	85.542746	-641.88932	154.98639	714.22275
1374	110.69100	41.894580	18.008657	-1957.3040	-596.21627	1442.0017
1375	129.77119	-32.499058	0.90102225	-2732.7282	-1415.6026	2465.4125
1376	63.337894	259.12593	41.591810	352.97605	2152.3553	353.39996
1377	67.475907	71.588289	9.8568914	-499.96085	1909.2241	936.15773
1378	54.965628	-20.117365	-5.2327239	-998.34567	1381.7038	1656.2089

MINIMUMS

ELEMENT	1119	1114	1197	1266	1326	1234
VALUE	-474.48131	-441.70889	-70.359387	-10773.157	-22023.588	-10182.802

MAXIMUMS

ELEMENT	1326	1376	1343	1224	1265	1294
VALUE	951.75483	259.12593	212.61364	21527.262	16594.857	9258.7334

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C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1

172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1

110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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ED WORK.

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FOR SUPPORT CALL PHONE TWX

TITLE

14.3131 MAY 25,1994 CP= 707.880

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-284.44165	848.70193	581.32252	-1438.1910	-9338.4418	-0.64303658E-03
2	-568.35194	3.2919955	1161.6579	-0.93201808E-03	-18676.733	-0.31648548E-04
3	-721.68624	8.8394027	1475.6559	-0.51471284E-02	-23542.357	-0.10609673E-02
4	-872.87686	15.464912	1777.6454	-0.11862301E-02	-28212.763	0.71649887E-03
5	-867.06618	21.289625	1746.1108	-0.76334283E-04	-27863.963	0.15733435E-02
6	-856.79172	28.023928	1702.4579	-0.27919801E-03	-27460.766	0.28555586E-02
7	-1252.4348	51.204867	2459.3180	-0.17819585E-01	-39271.135	0.30150187E-02
8	-1611.6541	72.535370	3029.2323	0.14980638E-01	-47884.357	0.14515013E-01
9	-1513.7364	75.903328	2593.2160	0.26136228E-01	-42374.210	0.18418472E-01
10	-1376.8667	78.377529	2017.1239	0.36653588E-01	-35184.562	0.21315284E-01
11	-1190.9438	84.291809	1288.1417	0.43297560E-01	-26696.008	0.19993246E-01
12	-828.44687	80.950704	448.69082	0.32343626E-01	-14935.358	0.66280832E-02
13	-503.22022	78.043203	-177.75162	0.24435589E-01	-7845.9788	0.98108766E-02
14	-310.67860	81.235977	-714.64628	0.23550237E-01	-3770.1083	0.14297537E-01
15	-96.510301	-90.204924	-1332.3643	-161.93681	-120.43048	0.24163953E-03
16	-94.500603	-548.48419	-653.47260	9268.6698	-0.77833510E-01	-0.28455451E-01
17	-227.64981	-1056.5062	1051.1617	23351.339	-0.77861084E-01	-0.34228238E-01
18	-283.86178	-1496.4399	2690.2534	38411.789	-0.66733980E-01	-0.35078090E-01
19	-253.56270	-1859.2943	4202.3403	52334.487	-0.44923822E-01	-0.32232049E-01
20	-148.09218	-2143.0619	5536.3057	63691.659	-0.14590507E-01	-0.26585460E-01
21	23.557238	-2340.5260	6636.5628	71188.805	0.23621157E-01	-0.18403455E-01
22	197.58478	-2180.1768	6592.3701	66214.806	0.90893022E-01	-0.29665847E-02
23	353.17217	-1925.6089	6120.0172	57256.613	0.80877988E-01	-0.69790192E-03
24	526.76717	-1868.4758	6235.6624	52941.528	0.10754234	0.55560615E-02
25	505.54496	-1359.2981	4706.9864	35290.826	0.13723272	0.15376283E-01
26	416.87121	-876.65274	3118.0428	22294.591	0.68542652E-01	0.52987850E-02
27	462.82290	-826.06582	3020.9415	19171.630	0.68125594E-01	0.50941507E-02
28	433.35499	-667.36340	2510.4193	13839.407	0.65231890E-01	0.56103459E-02
29	391.86404	-522.57827	2020.9916	10080.952	0.48774680E-01	0.30247640E-02
30	412.85655	-484.79890	1929.8807	8229.3829	0.46997676E-01	0.22347675E-02
31	552.19439	-550.93148	2287.5398	7838.8430	0.53071100E-01	0.84686670E-03
32	700.07524	-576.24285	2534.8309	4657.8794	0.76008382E-01	0.31620017E-02
33	988.63001	-593.37863	2917.5880	-488.74949	0.10202561	0.26948651E-02
34	1274.2211	-495.18336	3027.3819	-13547.977	0.14664448	0.87309857E-02
35	1116.0038	-208.13991	2106.9040	-21286.730	0.11020789	0.60385093E-02

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36	932.30605	-20.768938	1459.8128	-22822.039	0.87511209E-01	0.20586230E-02
37	905.80547	87.868280	1298.8538	-26358.530	0.77701192E-01	-0.41267185E-03
38	868.53203	171.86304	1273.6362	-28216.028	0.65466877E-01	-0.29450264E-02
39	826.20472	231.58561	1394.3188	-28341.735	0.52753776E-01	-0.52118427E-02
40	785.14720	269.99223	1654.2231	-26792.210	0.41297517E-01	-0.67540852E-02
41	751.67099	293.57948	2027.3412	-23773.692	0.32954489E-01	-0.71542861E-02
42	731.36609	311.30305	2467.1405	-19629.366	0.29639622E-01	-0.60807307E-02
43	728.16524	332.73305	2908.9770	-14768.947	0.33236811E-01	-0.33963066E-02
44	862.55634	426.00453	3784.4106	-11461.190	0.44018175E-01	-0.25069651E-03
45	1015.1906	535.07333	4414.6544	-5687.6439	0.10884311	0.12573808E-01
46	1001.0228	515.70587	3917.2380	-201.01897	0.17830307	0.16729103E-01
47	756.85713	349.06932	2757.0743	3091.6396	0.21773069	0.36313038E-02
48	-673.55006	77.805632	2482.7380	3840.0624	8313.5412	-0.14725894E-01
49	-928.31657	-149.14256	4277.1283	0.72784553E-01	19453.524	-0.27486481E-01
50	-159.13990	-77.020413	5377.5344	0.43815647E-01	20389.532	-0.17266829E-01
51	242.78590	125.56422	6994.7193	0.62482642E-01	20547.272	-0.17914780E-01
52	449.76040	453.90655	7650.4024	-0.91361416E-01	7428.8334	0.12434582E-01
53	295.62884	774.65012	5616.7905	-0.19794903	-20923.165	0.37566504E-01
54	-93.289273	960.64763	2398.2555	-0.27036710	-58860.686	0.52869529E-01
55	-545.92479	945.08638	-1522.2558	-0.27282308	-100506.88	0.49939485E-01
56	-609.54788	605.80940	-3314.0592	-0.57981614E-02	-100526.07	0.13386883E-03
57	-476.13887	270.21822	-2991.6981	-0.42656644E-01	-68806.799	0.52245247E-02
58	-491.00557	211.28306	-3546.8451	-0.39624450E-01	-74077.122	0.43214255E-02
59	-489.00208	152.60195	-3983.6154	-0.31192355E-01	-78336.513	0.31514407E-02
60	-478.72926	97.602886	-4293.4324	-0.21052227E-01	-81352.720	0.20111970E-02
61	-468.40599	47.256924	-4476.9583	-0.10511852E-01	-83139.694	0.97171124E-03
62	-232.09673	-2222.6216	-2268.7630	2735.0855	-41864.929	-0.77884172E-02
63	-0.48601123E-11	-3857.4875	-0.12505784E-05	200.39859	0.20881998E-07	-0.15339860E-01
64	0.67643668E-11	-3092.8076	-0.53706299E-06	-9089.7501	0.22912354E-06	-0.14956731E-01
65	0.35385028E-11	-2453.7800	0.66027678E-06	-18908.889	-0.37458449E-07	-0.14799772E-01
66	-0.23468832E-11	-1023.7815	3332.0000	-10954.779	-0.14113533E-07	-0.73944833E-02
67	0.11240786E-10	-0.26147973E-11	6664.0000	0.37446807E-06	0.28330942E-06	-0.86736174E-18
68	-0.10345502E-10	-0.79580786E-12	6664.0000	-0.23551002E-06	0.12850137E-06	0.43368087E-17
69	0.11368684E-11	-0.11368684E-11	6664.0000	0.51779352E-07	-0.50744075E-06	0.26020852E-17
70	0.43200998E-11	-0.77307050E-11	6664.0000	-0.11012162E-06	-0.25966938E-06	0.12143064E-16
71	-0.54569682E-11	-0.95496944E-11	6664.0000	0.48919901E-07	-0.22171162E-06	-0.20816682E-16
72	-0.18718538E-09	-0.15381829E-09	8330.0000	-0.35759876E-06	0.68220857E-06	-0.87516799E-15
73	-0.72873263E-10	-0.27057467E-10	9996.0000	-0.18693117E-06	-0.32533171E-06	-0.10395330E-14
74	0.57752914E-10	-0.10709300E-09	9996.0000	-0.65243057E-06	-0.16050762E-06	-0.89164787E-15
75	0.31377567E-10	-0.27392844E-09	9996.0000	0.42961256E-06	0.22856693E-06	0.47965104E-15
76	0.21543656E-10	0.92086339E-10	9996.0000	0.40698978E-07	-0.35177072E-06	-0.28492833E-15
77	-0.36664005E-10	0.54200200E-10	9996.0000	-0.55390046E-07	0.37244899E-06	-0.10018028E-14
78	0.88213881E-11	-0.83034024E-10	9996.0000	-0.12406963E-06	-0.10052463E-06	-0.95670000E-15
79	-0.26176394E-10	-0.25131897E-10	9996.0000	-0.84264707E-06	0.35345874E-06	0.16219665E-15
80	-0.44806825E-10	0.89045216E-10	9996.0000	-0.10216353E-05	0.82713086E-07	-0.80230961E-16
81	0.18999913E-10	0.79296569E-11	8874.0000	-0.43383352E-06	-0.22209861E-06	0.15265567E-15
82	0.14310331E-10	-0.17735147E-10	7769.0000	-0.40559826E-06	0.15561773E-06	0.10842022E-16
83	-0.11809220E-10	0.16768809E-10	7769.0000	0.18080755E-06	-0.37039854E-06	-0.26454533E-16
84	0.10288659E-10	-0.34106051E-11	7769.0000	-0.12329474E-06	-0.61070614E-06	-0.18648277E-16
85	0.45261572E-11	0.15916157E-11	6120.0000	-0.17755883E-06	0.17367097E-06	-0.49873300E-17
86	0.28421709E-12	-0.13073986E-11	4488.0000	-0.24492329E-06	0.18045176E-06	-0.21684043E-18
87	0.81730278E-12	315.76871	2244.0000	-33359.395	-0.21203245E-07	-0.17285174E-02
88	-0.58832939E-11	667.41673	0.23793191E-05	-58031.698	-0.18123637E-06	-0.34449752E-02
89	0.23874236E-11	736.46834	0.11882889E-06	-53320.369	-0.20520292E-06	-0.35363955E-02
90	-0.14210855E-13	1000.0811	0.33852302E-06	-53440.486	-0.14841135E-07	-0.36956387E-02
91	-0.64701055E-12	787.12135	182.32500	-27414.687	0.22800921E-07	-0.18757009E-02
92	-0.34106051E-12	-0.11368684E-11	364.39500	0.38921644E-06	-0.10169697E-06	0.00000000E+00
93	0.11979751E-10	-0.81286089E-11	363.88500	-0.78334233E-06	-0.10456170E-05	0.12533377E-15
94	-0.64517280E-11	-0.30517811E-11	364.14000	0.45481693E-06	0.57541911E-07	-0.11221492E-15
95	0.32400749E-10	0.26076918E-11	364.39500	-0.42579632E-06	-0.49367009E-06	-0.38597597E-16
96	-0.42064130E-11	0.13557155E-10	364.39500	0.70192709E-06	-0.34923869E-06	-0.32959746E-16
97	0.43200998E-11	-0.11368684E-12	364.39500	-0.45980414E-06	-0.23538087E-06	-0.65052130E-18
98	-0.51899687E-12	832.55338	182.07000	-4984.2048	-0.20404196E-06	-0.78757526E-03
99	0.12619239E-10	1134.0791	-0.21100209E-06	-15486.589	0.54023985E-09	-0.14344024E-02
100	-0.13841372E-10	895.70758	0.15013536E-05	-10705.782	-0.15023033E-07	-0.11130765E-02
163	0.11084467E-11	1452.3222	0.55269948E-06	-10865.246	-0.12929922E-06	-0.12787100E-02
164	-0.24698465E-10	2012.8808	0.10717201E-05	-2.9094996	0.15335354E-06	-0.14744167E-02
165	-0.68638428E-11	1985.2465	-0.47499265E-06	10780.747	-0.41767635E-07	-0.12071936E-02
166	-0.70343731E-11	2211.0379	170.00000	19155.455	-0.17990715E-06	-0.11470150E-02
167	-0.22396307E-10	2370.3188	-0.54330427E-06	26944.785	-0.68212103E-08	-0.11594330E-02

FILENAME : PIT3D2.PO DATE : 05-25-94 TIME : 2:18p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 15/25)

168	-0.95781161E-11	2204.7270	-0.50272718E-06	26941.451	-0.97497832E-09	-0.11087396E-02
169	0.87538865E-11	2012.5506	-0.85810632E-06	23048.121	0.25193003E-09	-0.11262997E-02
170	0.63096195E-11	1827.3452	0.12628109E-05	16494.606	-0.82283350E-07	-0.11905755E-02
171	-0.25295321E-10	1691.7402	-0.27050476E-06	8358.1915	-0.39303018E-07	-0.12589829E-02
172	-0.35925041E-10	1654.0917	-0.60258833E-06	-349.88797	-0.32686330E-07	-0.12866595E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.3677474E-08
FY = 0.1047405E-07
FZ = 297109.1
MX = -0.1246862E+08
MY = -0.3789601E+08
MZ = 0.5516644E-03
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT3D3.PO DATE : 05-25-94 TIME : 2:18p PAGE 1
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 16/25)

C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NSEL COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3133 MAY 25,1994 CP= 708.710

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.19265989	0.00000000E+00	0.17564268E-01	0.00000000E+00
2	-0.22096933E-06	0.81352694E-05	-0.19266056	0.53507357E-06	0.17564369E-01	-0.17574734E-06
3	-0.86175310E-06	0.16243162E-04	-0.19266253	0.10336607E-05	0.17564664E-01	-0.33043109E-06
4	-0.26864569E-05	0.28626771E-04	-0.19266840	0.19837487E-05	0.17565504E-01	-0.60790680E-06
5	-0.55085601E-05	0.40714261E-04	-0.19267775	0.28678966E-05	0.17566801E-01	-0.86278107E-06
6	-0.93183481E-05	0.52352362E-04	-0.19269044	0.37042708E-05	0.17568556E-01	-0.11212990E-05
7	-0.14035747E-04	0.63425579E-04	-0.19270607	0.43145544E-05	0.17570777E-01	-0.12972130E-05
8	-0.25166588E-04	0.83316130E-04	-0.19274761	0.63687770E-05	0.17576420E-01	-0.16387472E-05
9	-0.37624134E-04	0.99203499E-04	-0.19280205	0.78865288E-05	0.17583421E-01	-0.17072762E-05
10	-0.49530108E-04	0.11001885E-03	-0.19286690	0.90914271E-05	0.17591436E-01	-0.14926610E-05
11	-0.58220019E-04	0.11516736E-03	-0.19293897	0.97676051E-05	0.17599869E-01	-0.87019545E-06
12	-0.60334615E-04	0.11506829E-03	-0.19301329	0.96863191E-05	0.17607870E-01	0.20777184E-06
13	-0.56293081E-04	0.11286811E-03	-0.19306408	0.93276337E-05	0.17612531E-01	0.12798551E-05
14	-0.46485730E-04	0.11062332E-03	-0.19311299	0.90417727E-05	0.17615986E-01	0.23874606E-05
15	-0.30827867E-04	0.11034145E-03	-0.19316095	0.90156535E-05	0.17617795E-01	0.34844142E-05
16	-0.34953764E-04	0.14760376E-03	-0.35171362	0.12736192E-04	0.17615441E-01	0.48877103E-05
17	-0.44062871E-04	0.19459008E-03	-0.51025180	0.20174610E-04	0.17614210E-01	0.58008532E-05
18	-0.64717747E-04	0.24672776E-03	-0.66878493	0.29172925E-04	0.17614364E-01	0.60785389E-05
19	-0.99500995E-04	0.29858539E-03	-0.82732595	0.37808120E-04	0.17616066E-01	0.57291288E-05
20	-0.14843019E-03	0.34506951E-03	-0.98588788	0.44431173E-04	0.17619199E-01	0.48258624E-05
21	-0.21016821E-03	0.38177470E-03	-1.1444823	0.47667192E-04	0.17623551E-01	0.34660308E-05
22	-0.28247663E-03	0.40514892E-03	-1.3031193	0.46496069E-04	0.17629136E-01	0.17313767E-05
23	-0.34438238E-03	0.41195120E-03	-1.4270849	0.42078430E-04	0.17633669E-01	0.13867858E-06
24	-0.40896161E-03	0.40737611E-03	-1.5510834	0.34451246E-04	0.17638556E-01	-0.15225852E-05
25	-0.47431033E-03	0.39132420E-03	-1.6751162	0.23810505E-04	0.17643790E-01	-0.32069158E-05
26	-0.50779402E-03	0.37818729E-03	-1.7294137	0.17237298E-04	0.17645890E-01	-0.40256646E-05
27	-0.54049517E-03	0.36189115E-03	-1.8037195	0.99529649E-05	0.17648242E-01	-0.48921349E-05
28	-0.57213749E-03	0.34252613E-03	-1.8680338	0.21527880E-05	0.17650545E-01	-0.57172267E-05
29	-0.59431188E-03	0.32663114E-03	-1.9148096	-0.37814789E-05	0.17651965E-01	-0.62597586E-05
30	-0.61564617E-03	0.30931737E-03	-1.9615892	-0.99057901E-05	0.17653338E-01	-0.67782819E-05
31	-0.63604133E-03	0.29069097E-03	-2.0083722	-0.16181915E-04	0.17654514E-01	-0.72390365E-05
32	-0.66511558E-03	0.26003511E-03	-2.0797705	-0.25773819E-04	0.17656241E-01	-0.78754331E-05
33	-0.69143862E-03	0.22715852E-03	-2.1511746	-0.35286583E-04	0.17657330E-01	-0.83276889E-05
34	-0.72925137E-03	0.16917984E-03	-2.2710863	-0.50114172E-04	0.17658130E-01	-0.88445176E-05
35	-0.75948106E-03	0.10939977E-03	-2.3909974	-0.62328140E-04	0.17657153E-01	-0.89016866E-05
36	-0.77726606E-03	0.65780048E-04	-2.4787103	-0.68988542E-04	0.17655719E-01	-0.86878380E-05
37	-0.79219209E-03	0.23246928E-04	-2.5664151	-0.73445975E-04	0.17653813E-01	-0.84536847E-05
38	-0.80526297E-03	-0.18173593E-04	-2.6541097	-0.75370197E-04	0.17651622E-01	-0.82543641E-05
39	-0.81753689E-03	-0.58877675E-04	-2.7417936	-0.74732220E-04	0.17649460E-01	-0.81852976E-05
40	-0.82997152E-03	-0.99767635E-04	-2.8294677	-0.71674240E-04	0.17647661E-01	-0.83470985E-05
41	-0.84322036E-03	-0.14219415E-03	-2.9171347	-0.66536148E-04	0.17646543E-01	-0.88145403E-05
42	-0.85740558E-03	-0.18776697E-03	-3.0047984	-0.59837789E-04	0.17646356E-01	-0.96119580E-05
43	-0.87190659E-03	-0.23803789E-03	-3.0924639	-0.52231607E-04	0.17647224E-01	-0.10685638E-04
44	-0.88519528E-03	-0.29404075E-03	-3.1801362	-0.44535509E-04	0.17648974E-01	-0.11864690E-04

FILENAME : PIT3D3.PO DATE : 05-25-94 TIME : 2:18p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 16/25)

45	-0.89588745E-03	-0.37501600E-03	-3.2944038	-0.35376745E-04	0.17652248E-01	-0.12972716E-04
46	-0.89172585E-03	-0.45988432E-03	-3.4086896	-0.28418356E-04	0.17654360E-01	-0.12879177E-04
47	-0.86454153E-03	-0.53825130E-03	-3.5229740	-0.24401001E-04	0.17651112E-01	-0.10927808E-04
48	-0.81404887E-03	-0.59981508E-03	-3.6372033	-0.23443954E-04	0.17637044E-01	-0.85105674E-05
49	-0.76827088E-03	-0.59872817E-03	-3.6373207	-0.21378916E-04	0.17634012E-01	-0.89282700E-05
50	-0.71676542E-03	-0.59660653E-03	-3.6374387	-0.23191987E-04	0.17628304E-01	-0.10412034E-04
51	-0.65603800E-03	-0.59682382E-03	-3.6375719	-0.26812433E-04	0.17619736E-01	-0.12345933E-04
52	-0.55067544E-03	-0.59634974E-03	-3.6378055	-0.34621736E-04	0.17602725E-01	-0.15187873E-04
53	-0.42426660E-03	-0.58566576E-03	-3.6380936	-0.41494839E-04	0.17581093E-01	-0.17752736E-04
54	-0.28209977E-03	-0.55328050E-03	-3.6384229	-0.45527294E-04	0.17556484E-01	-0.19195466E-04
55	-0.13557285E-03	-0.48998163E-03	-3.6387642	-0.44611808E-04	0.17531362E-01	-0.18814397E-04
56	-0.29006627E-06	-0.39184426E-03	-3.6390734	-0.36358755E-04	0.17508710E-01	-0.16227275E-04
57	0.51661511E-04	-0.33810205E-03	-3.6391901	-0.32053853E-04	0.17500318E-01	-0.14249420E-04
58	0.96208400E-04	-0.27835780E-03	-3.6392900	-0.26634098E-04	0.17493100E-01	-0.11883606E-04
59	0.13218287E-03	-0.21349726E-03	-3.6393701	-0.20503888E-04	0.17487345E-01	-0.92148620E-05
60	0.15862779E-03	-0.14462848E-03	-3.6394285	-0.13895862E-04	0.17483158E-01	-0.62928438E-05
61	0.17480330E-03	-0.73011897E-04	-3.6394640	-0.70093634E-05	0.17480618E-01	-0.31923615E-05
62	0.18024739E-03	0.00000000E+00	-3.6394759	0.00000000E+00	0.17479766E-01	0.00000000E+00
63	0.18091581E-03	0.00000000E+00	-3.5610551	0.00000000E+00	0.17377578E-01	0.00000000E+00
64	0.18012538E-03	0.00000000E+00	-3.4830448	0.00000000E+00	0.17297675E-01	0.00000000E+00
65	0.18081756E-03	0.00000000E+00	-3.4053390	0.00000000E+00	0.17243012E-01	0.00000000E+00
66	0.18485632E-03	0.00000000E+00	-3.3278105	0.00000000E+00	0.17220166E-01	0.00000000E+00
67	0.17616814E-03	-0.30897657E-04	-3.3238206	-0.22670504E-04	0.17219650E-01	-0.27372361E-05
68	0.15088924E-03	-0.58638758E-04	-3.3119078	-0.48207102E-04	0.17218719E-01	-0.53858991E-05
69	0.11135595E-03	-0.80924093E-04	-3.2922425	-0.78811078E-04	0.17219002E-01	-0.78592152E-05
70	0.61300384E-04	-0.96715259E-04	-3.2651078	-0.11559282E-03	0.17222636E-01	-0.10070579E-04
71	0.53501923E-05	-0.10604512E-03	-3.2308975	-0.15856666E-03	0.17231836E-01	-0.11916640E-04
72	-0.52089411E-04	-0.10948799E-03	-3.1901137	-0.20674759E-03	0.17247036E-01	-0.13175516E-04
73	-0.12987748E-03	-0.10576517E-03	-3.1179777	-0.28080922E-03	0.17289181E-01	-0.12458561E-04
74	-0.19381755E-03	-0.92341667E-04	-3.0348793	-0.35282933E-03	0.17343779E-01	-0.11699823E-04
75	-0.23940663E-03	-0.71498420E-04	-2.9436570	-0.41723571E-03	0.17414397E-01	-0.10970404E-04
76	-0.26624398E-03	-0.44988425E-04	-2.8474240	-0.46790769E-03	0.17500668E-01	-0.10271452E-04
77	-0.27609089E-03	-0.15420089E-04	-2.7494634	-0.49983432E-03	0.17599991E-01	-0.95975895E-05
78	-0.27245910E-03	0.14164093E-04	-2.6531144	-0.50980906E-03	0.17708282E-01	-0.89389587E-05
79	-0.26000345E-03	0.40183705E-04	-2.5616606	-0.49657669E-03	0.17820205E-01	-0.82758858E-05
80	-0.24349220E-03	0.58825685E-04	-2.4782246	-0.46074845E-03	0.17929786E-01	-0.75640365E-05
81	-0.22678958E-03	0.66641909E-04	-2.4056645	-0.40463631E-03	0.18031867E-01	-0.66261585E-05
82	-0.21450161E-03	0.65568703E-04	-2.3584695	-0.34636278E-03	0.18103900E-01	-0.55544938E-05
83	-0.20380975E-03	0.56924262E-04	-2.3203183	-0.27988034E-03	0.18163025E-01	-0.46916731E-05
84	-0.19342380E-03	0.41763807E-04	-2.2920090	-0.20329711E-03	0.18208550E-01	-0.38441454E-05
85	-0.18358986E-03	0.22691514E-04	-2.2741219	-0.11622380E-03	0.18237159E-01	-0.29817792E-05
86	-0.17939387E-03	0.11259465E-04	-2.2686881	-0.59224886E-04	0.18246486E-01	-0.14993746E-05
87	-0.17785416E-03	0.00000000E+00	-2.2668734	0.00000000E+00	0.18249404E-01	0.00000000E+00
88	-0.17904904E-03	0.00000000E+00	-2.2149922	0.00000000E+00	0.18237318E-01	0.00000000E+00
89	-0.17882447E-03	0.00000000E+00	-2.1631513	0.00000000E+00	0.18221356E-01	0.00000000E+00
90	-0.17690539E-03	0.00000000E+00	-2.1113599	0.00000000E+00	0.18202820E-01	0.00000000E+00
91	-0.17748963E-03	0.00000000E+00	-2.0596203	0.00000000E+00	0.18187457E-01	0.00000000E+00
92	-0.18082422E-03	0.34969335E-04	-2.0480653	-0.51067417E-04	0.18183418E-01	-0.14272017E-05
93	-0.18782040E-03	0.62141995E-04	-2.0157633	-0.77767269E-04	0.18168749E-01	-0.28292154E-05
94	-0.19420007E-03	0.80627524E-04	-1.9692580	-0.76031734E-04	0.18139698E-01	-0.28265763E-05
95	-0.19874499E-03	0.81705487E-04	-1.9178397	-0.57136492E-04	0.18103569E-01	-0.23915972E-05
96	-0.20209150E-03	0.64756960E-04	-1.8716614	-0.34957442E-04	0.18070102E-01	-0.15770120E-05
97	-0.20496807E-03	0.36561240E-04	-1.8397750	-0.16672564E-04	0.18044938E-01	-0.64029530E-06
98	-0.20620319E-03	0.00000000E+00	-1.8284072	0.00000000E+00	0.18036134E-01	0.00000000E+00
99	-0.20656753E-03	0.00000000E+00	-1.7771311	0.00000000E+00	0.18019113E-01	0.00000000E+00
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102	-0.19420793E-03	0.00000000E+00	-1.5488051	0.00000000E+00	0.17879027E-01	0.00000000E+00
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106	-0.14951132E-03	0.00000000E+00	-0.98088399	0.00000000E+00	0.17573061E-01	0.00000000E+00
107	-0.12786692E-03	0.00000000E+00	-0.82296136	0.00000000E+00	0.17523325E-01	0.00000000E+00
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112	-0.17988188E-03	0.13499308E-04	-1.2984901	0.24717656E-05	0.17724908E-01	-0.17517651E-06
113	-0.37275725E-04	0.15222793E-04	-0.35049189	0.29665256E-05	0.17512772E-01	-0.38206046E-06
114	-0.71559202E-04	0.15995937E-04	-0.50799051	0.54566981E-05	0.17490843E-01	-0.35882961E-06

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2017	-0.15023431E-03	0.23120013E-04	-0.98090961	0.10310230E-04	0.17573050E-01	-0.29138752E-06
2018	-0.16735073E-03	0.25383459E-04	-1.1393633	0.90010617E-05	0.17640790E-01	-0.30390463E-06
2019	-0.36662528E-04	0.76253565E-05	-0.35048636	0.14801890E-05	0.17512215E-01	-0.17974981E-06
2020	-0.70976659E-04	0.80060200E-05	-0.50798032	0.27266560E-05	0.17490248E-01	-0.17607151E-06
2021	-0.10171385E-03	0.89841452E-05	-0.66539826	0.39571724E-05	0.17494949E-01	-0.16412489E-06
2022	-0.12804768E-03	0.10254475E-04	-0.82296742	0.48628916E-05	0.17523416E-01	-0.15387799E-06
2023	-0.14969341E-03	0.11557285E-04	-0.98089039	0.51394514E-05	0.17573045E-01	-0.15078407E-06
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2064	-0.21902355E-03	0.19780613E-03	-1.2994857	0.68343402E-04	0.17673494E-01	-0.30534949E-06
2065	-0.23599396E-03	0.24110390E-03	-1.3000952	0.88941010E-04	0.17659018E-01	-0.13191988E-06
2066	-0.25328593E-03	0.28411144E-03	-1.3008488	0.10471042E-03	0.17647077E-01	0.10159958E-06
2067	-0.83087011E-04	0.13183360E-03	-0.35140422	0.23699087E-04	0.17591296E-01	0.62827443E-06
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2076	-0.59580670E-04	0.79829494E-04	-0.35071840	0.16552479E-04	0.17532718E-01	-0.10902941E-05
2077	-0.11251302E-03	0.14525412E-03	-0.50933209	0.46089510E-04	0.17563644E-01	0.32264259E-06
2078	-0.10963576E-03	0.12730489E-03	-0.50898492	0.43316414E-04	0.17544540E-01	-0.20639112E-06
2079	-0.10182760E-03	0.10776650E-03	-0.50867108	0.37689684E-04	0.17527529E-01	-0.54069177E-06
2080	-0.92155122E-04	0.86635027E-04	-0.50840779	0.30395235E-04	0.17513446E-01	-0.70466153E-06
2081	-0.13962734E-03	0.17567294E-03	-0.66739577	0.69203114E-04	0.17563454E-01	0.59403182E-06
2082	-0.13768951E-03	0.15116248E-03	-0.66687623	0.64486655E-04	0.17544925E-01	0.91070892E-07
2083	-0.13071426E-03	0.12579821E-03	-0.66641045	0.55668587E-04	0.17528767E-01	-0.24698342E-06
2084	-0.12174455E-03	0.99656383E-04	-0.66602250	0.44605193E-04	0.17515686E-01	-0.44216342E-06
2085	-0.16726285E-03	0.20891453E-03	-0.82550322	0.89908658E-04	0.17573153E-01	0.68385290E-06
2086	-0.16436295E-03	0.17813904E-03	-0.82483139	0.82910548E-04	0.17558433E-01	0.22186053E-06
2087	-0.15691679E-03	0.14693194E-03	-0.82423547	0.70798551E-04	0.17546196E-01	-0.97977726E-07
2088	-0.14780942E-03	0.11545535E-03	-0.82374445	0.56121987E-04	0.17536845E-01	-0.29511454E-06
2089	-0.19549561E-03	0.24047574E-03	-0.98373698	0.10465458E-03	0.17591322E-01	0.61097688E-06
2090	-0.18963673E-03	0.20420724E-03	-0.98296031	0.95087214E-04	0.17583241E-01	0.21107355E-06
2091	-0.18033170E-03	0.16770689E-03	-0.98228220	3.79831305E-04	0.17577657E-01	-0.71711549E-07
2092	-0.17016821E-03	0.13123208E-03	-0.98173321	0.62131176E-04	0.17574525E-01	-0.25182754E-06
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2109	-0.58686985E-04	0.14218569E-03	-0.35163155	0.17707755E-04	0.17610061E-01	0.32403197E-05
2110	-0.74494336E-04	0.13712096E-03	-0.35152591	0.21427136E-04	0.17601569E-01	0.18692410E-05
2111	-0.74907014E-04	0.18338236E-03	-0.51010915	0.32105791E-04	0.17606875E-01	0.38551889E-05
2112	-0.94872239E-04	0.17268628E-03	-0.50991354	0.40051955E-04	0.17596024E-01	0.23199010E-05
2113	-0.98111721E-04	0.23105108E-03	-0.66857200	0.48507744E-04	0.17606734E-01	0.40859125E-05
2114	-0.11982099E-03	0.21529465E-03	-0.66827513	0.60821282E-04	0.17595698E-01	0.25332666E-05
2115	-0.13055968E-03	0.27940256E-03	-0.82704638	0.63951222E-04	0.17609470E-01	0.38934339E-05
2116	-0.15045936E-03	0.25949856E-03	-0.82665476	0.80138221E-04	0.17600013E-01	0.24607009E-05
2117	-0.17269222E-03	0.32329158E-03	-0.98555636	0.76009552E-04	0.17614751E-01	0.33086947E-05
2118	-0.18727546E-03	0.30016082E-03	-0.98509114	0.95018099E-04	0.17608341E-01	0.21151322E-05
2119	-0.22376924E-03	0.35834093E-03	-1.1441227	0.82661502E-04	0.17622179E-01	0.24123958E-05
2120	-0.22984722E-03	0.33295897E-03	-1.1436172	0.10297769E-03	0.17620023E-01	0.15552237E-05
2124	-0.19931123E-03	0.29223274E-04	-1.6747527	-0.18878923E-04	0.17954704E-01	-0.62110049E-06
2125	-0.20013682E-03	0.14535451E-04	-1.6747889	-0.98673180E-05	0.17958208E-01	-0.31717372E-06
2126	-0.18825331E-03	0.27766704E-04	-1.4233740	0.75612079E-08	0.17797462E-01	-0.40988945E-06
2127	-0.19450135E-03	0.28138944E-04	-1.5487851	-0.77139865E-05	0.17875815E-01	-0.50332218E-06
2128	-0.18777966E-03	0.13870157E-04	-1.4233743	-0.10271345E-06	0.17799060E-01	-0.21066736E-06
2129	-0.19429212E-03	0.14035115E-04	-1.5487999	-0.40480040E-05	0.17878195E-01	-0.25777380E-06
2130	-0.21001946E-03	0.11804310E-03	-1.6742192	-0.40916250E-04	0.17900362E-01	-0.11525573E-05
2131	-0.19845044E-03	0.52048579E-04	-1.6746573	-0.29823983E-04	0.17945619E-01	-0.79393291E-06
2132	-0.19964025E-03	0.74769899E-04	-1.6745274	-0.36907352E-04	0.17933173E-01	-0.93874436E-06
2133	-0.20362075E-03	0.96790654E-04	-1.6743771	-0.40509258E-04	0.17917967E-01	-0.10573031E-05
2134	-0.20028598E-03	0.11494134E-03	-1.4234413	0.13119682E-04	0.17767254E-01	-0.66359542E-06
2135	-0.20604258E-03	0.11683936E-03	-1.5485954	-0.10149122E-04	0.17833504E-01	-0.89396883E-06
2136	-0.19553272E-03	0.92956159E-04	-1.4234027	0.73572206E-05	0.17777274E-01	-0.65191897E-06
2137	-0.19202825E-03	0.71070125E-04	-1.4233829	0.33269157E-05	0.17785990E-01	-0.60290896E-06
2138	-0.18965972E-03	0.49334194E-04	-1.4233754	0.96038635E-06	0.17792860E-01	-0.52056163E-06
2139	-0.20078588E-03	0.94686021E-04	-1.5486417	-0.13290071E-04	0.17847342E-01	-0.83968834E-06
2140	-0.19729490E-03	0.72398220E-04	-1.5486952	-0.13903690E-04	0.17859419E-01	-0.75608650E-06
2141	-0.19534387E-03	0.50164981E-04	-1.5487462	-0.11972327E-04	0.17869126E-01	-0.64336437E-06
2142	-0.36347281E-03	0.31967472E-03	-1.6742915	0.55963781E-04	0.17691589E-01	-0.13482682E-05
2143	-0.22848100E-03	0.15936491E-03	-1.6739303	-0.32915608E-04	0.17859538E-01	-0.11864711E-05
2144	-0.25336909E-03	0.20001863E-03	-1.6737448	-0.14453861E-04	0.17814356E-01	-0.12076717E-05
2145	-0.28418520E-03	0.24050328E-03	-1.6737317	0.11005785E-04	0.17769078E-01	-0.12271098E-05
2146	-0.32082863E-03	0.28061768E-03	-1.6739222	0.27289583E-04	0.17727254E-01	-0.12636790E-05
2147	-0.30004610E-03	0.33292851E-03	-1.4257623	0.99308374E-04	0.17655947E-01	-0.21743978E-06
2148	-0.33179636E-03	0.33091220E-03	-1.5499640	0.81450617E-04	0.17674031E-01	-0.81445203E-06
2149	-0.27599804E-03	0.29045401E-03	-1.4250169	0.91046217E-04	0.17673499E-01	-0.35259989E-06
2150	-0.25267049E-03	0.24694861E-03	-1.4243807	0.72282581E-04	0.17695050E-01	-0.47755760E-06
2151	-0.23147959E-03	0.20306098E-03	-1.4239068	0.49957460E-04	0.17719236E-01	-0.57618291E-06
2152	-0.21366180E-03	0.15903271E-03	-1.4236020	0.29121183E-04	0.17744108E-01	-0.63953146E-06
2153	-0.29856099E-03	0.28942762E-03	-1.5493745	0.68609351E-04	0.17700748E-01	-0.81952566E-06
2154	-0.26868584E-03	0.24687820E-03	-1.5489253	0.46465931E-04	0.17732400E-01	-0.85128454E-06
2155	-0.24279753E-03	0.20390813E-03	-1.5486577	0.22612747E-04	0.17766937E-01	-0.88349851E-06
2156	-0.22161491E-03	0.16064520E-03	-1.5485624	0.25760358E-05	0.17801672E-01	-0.90056993E-06
2158	-0.39689022E-03	0.34560495E-03	-1.6746064	0.59473128E-04	0.17671297E-01	-0.15906173E-05
2159	-0.43373269E-03	0.36979361E-03	-1.6749080	0.50247856E-04	0.17655200E-01	-0.20606985E-05
2162	-0.33134067E-03	0.38788095E-03	-1.4267554	0.76848983E-04	0.17639120E-01	0.73056760E-07
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2164	-0.38237989E-03	0.38432883E-03	-1.5508034	0.65933243E-04	0.17647224E-01	-0.11253500E-05
2165	-0.35654040E-03	0.35851453E-03	-1.5504034	0.80168963E-04	0.17659080E-01	-0.89150842E-06
2171	-0.20097330E-03	0.31116817E-04	-1.7402531	-0.26031485E-04	0.17993711E-01	-0.89148798E-06
2172	-0.20038477E-03	0.39443881E-04	-1.8058904	-0.32759339E-04	0.18029812E-01	-0.11900548E-05
2173	-0.20261150E-03	0.15998921E-04	-1.7296919	-0.33532281E-04	0.17991530E-01	-0.45576880E-06
2174	-0.20467954E-03	0.18994464E-04	-1.7846919	-0.16891820E-04	0.18021387E-01	-0.58054550E-06
2175	-0.21600165E-03	0.11752782E-03	-1.8704650	-0.10408729E-03	0.18001273E-01	-0.27461008E-05
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2177	-0.20025107E-03	0.88588794E-04	-1.8711890	-0.80640030E-04	0.18045779E-01	-0.21706103E-05
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2179	-0.21175315E-03	0.11859003E-03	-1.7395110	-0.59787013E-04	0.17934766E-01	-0.16795510E-05
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2181	-0.20441382E-03	0.98793935E-04	-1.7397368	-0.56937980E-04	0.17954219E-01	-0.15119922E-05
2182	-0.19958876E-03	0.77982118E-04	-1.7399452	-0.50665669E-04	0.17970673E-01	-0.13302310E-05
2183	-0.19832682E-03	0.55411404E-04	-1.7401226	-0.40682448E-04	0.17983956E-01	-0.11255049E-05
2184	-0.20545542E-03	0.10110118E-03	-1.8052280	-0.74778085E-04	0.17990111E-01	-0.19805199E-05

FILENAME : PIT3D3.PO DATE : 05-25-94 TIME : 2:18p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 16/25)

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2185	-0.19928112E-03	0.83184082E-04	-1.8054988	-0.65098805E-04	0.18007846E-01	-0.17441342E-05
2186	-0.19697111E-03	0.63538190E-04	-1.8057254	-0.51726845E-04	0.18021240E-01	-0.14904325E-05
2187	-0.41135794E-03	0.28395034E-03	-1.8678285	0.24587455E-05	0.17714600E-01	-0.37387573E-05
2188	-0.23872024E-03	0.14988193E-03	-1.8696438	-0.10759748E-03	0.17943678E-01	-0.28980555E-05
2189	-0.26908768E-03	0.18366794E-03	-1.8688694	-0.92221824E-04	0.17880852E-01	-0.30597600E-05
2190	-0.30747662E-03	0.21777719E-03	-1.8682696	-0.63062632E-04	0.17819021E-01	-0.32429053E-05
2191	-0.35451703E-03	0.25145392E-03	-1.8679204	-0.28178231E-04	0.17762601E-01	-0.34626085E-05
2192	-0.37969553E-03	0.31018186E-03	-1.7387752	0.39981630E-04	0.17700020E-01	-0.22455449E-05
2193	-0.39567928E-03	0.29824064E-03	-1.8032885	0.22032999E-04	0.17707766E-01	-0.30399483E-05
2194	-0.33220823E-03	0.27294980E-03	-1.7385444	0.17590004E-04	0.17740203E-01	-0.20569070E-05
2195	-0.29205278E-03	0.23464983E-03	-1.7385157	-0.11321648E-04	0.17787178E-01	-0.19313449E-05
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2197	-0.23185384E-03	0.15738642E-03	-1.7390645	-0.55266873E-04	0.17888972E-01	-0.17587205E-05
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2201	-0.23525941E-03	0.15429072E-03	-1.8043041	-0.79954234E-04	0.17917243E-01	-0.23317580E-05
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2216	-0.20598212E-03	0.83030194E-04	-2.0149805	-0.12775510E-03	0.18126318E-01	-0.38322977E-05
2217	-0.21261528E-03	0.94796644E-04	-2.0144453	-0.15037505E-03	0.18096452E-01	-0.43753348E-05
2218	-0.21789174E-03	0.11550379E-03	-1.9181987	-0.12314800E-03	0.18023884E-01	-0.34796992E-05
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2221	-0.20317920E-03	0.91929420E-04	-1.9181437	-0.96590836E-04	0.18070260E-01	-0.27780820E-05
2222	-0.19777877E-03	0.84319415E-04	-1.9180273	-0.77437169E-04	0.18088036E-01	-0.25062679E-05
2223	-0.21170123E-03	0.10023301E-03	-1.9668985	-0.13125510E-03	0.18072943E-01	-0.37569004E-05
2224	-0.20530234E-03	0.89883926E-04	-1.9677547	-0.11333055E-03	0.18098198E-01	-0.33304127E-05
2225	-0.20100399E-03	0.82864114E-04	-1.9685428	-0.91671719E-04	0.18120559E-01	-0.29766598E-05
2226	-0.44423848E-03	0.24535098E-03	-2.0087066	-0.44661361E-04	0.17725228E-01	-0.61994275E-05
2227	-0.24601595E-03	0.13531236E-03	-2.0124952	-0.17832982E-03	0.17990337E-01	-0.51720954E-05
2228	-0.27997416E-03	0.16378311E-03	-2.0111699	-0.16345695E-03	0.17914892E-01	-0.54251968E-05
2229	-0.32373630E-03	0.19206011E-03	-2.0100365	-0.12941475E-03	0.17843055E-01	-0.56766797E-05
2230	-0.37798434E-03	0.21945174E-03	-2.0092057	-0.86101102E-04	0.17778967E-01	-0.59329941E-05
2231	-0.42253649E-03	0.27215619E-03	-1.9147781	-0.12645776E-04	0.17718873E-01	-0.46049325E-05
2232	-0.43350279E-03	0.25926249E-03	-1.9617381	-0.28394798E-04	0.17722443E-01	-0.54169793E-05
2233	-0.36245167E-03	0.24171330E-03	-1.9150004	-0.46723319E-04	0.17769189E-01	-0.43210669E-05
2234	-0.31297082E-03	0.21000382E-03	-1.9155031	-0.84214901E-04	0.17828562E-01	-0.40777958E-05
2235	-0.27279244E-03	0.17775645E-03	-1.9162718	-0.11475383E-03	0.17894059E-01	-0.38625342E-05
2236	-0.24123366E-03	0.14576638E-03	-1.9172185	-0.12970439E-03	0.17961274E-01	-0.36652697E-05
2237	-0.37027707E-03	0.23102552E-03	-1.9620966	-0.66073314E-04	0.17774692E-01	-0.51392695E-05
2238	-0.31839370E-03	0.20141527E-03	-1.9627602	-0.10637334E-03	0.17836649E-01	-0.48854670E-05
2239	-0.27642686E-03	0.17111370E-03	-1.9637070	-0.13852863E-03	0.17905516E-01	-0.46484543E-05
2240	-0.24368885E-03	0.14089639E-03	-1.9648375	-0.15329385E-03	0.17976986E-01	-0.44218865E-05
2242	-0.49876425E-03	0.26208936E-03	-2.0085292	-0.22936773E-04	0.17694998E-01	-0.65943178E-05
2243	-0.56195166E-03	0.27738381E-03	-2.0084408	-0.12001660E-04	0.17671161E-01	-0.69794966E-05
2246	-0.52839778E-03	0.31050989E-03	-1.9147919	0.78204244E-05	0.17667838E-01	-0.56313737E-05
2247	-0.47172366E-03	0.29210603E-03	-1.9147569	0.33112104E-05	0.17690383E-01	-0.50797293E-05
2248	-0.54548140E-03	0.29456182E-03	-1.9616142	-0.18977368E-05	0.17669638E-01	-0.63042703E-05
2249	-0.48543276E-03	0.27765872E-03	-1.9616400	-0.95849781E-05	0.17692944E-01	-0.58504268E-05
2253	-0.18534698E-03	0.25076089E-04	-2.1629238	-0.91925174E-04	0.18215460E-01	-0.28589323E-05
2254	-0.18068876E-03	0.12751927E-04	-2.1630998	-0.48310985E-04	0.18220055E-01	-0.14835158E-05
2255	-0.18766853E-03	0.33609188E-04	-2.0892984	-0.83105571E-04	0.18194847E-01	-0.27929721E-05
2257	-0.18014780E-03	0.16013732E-04	-2.1055527	-0.48859976E-04	0.18201260E-01	-0.14565896E-05
2258	-0.22405120E-03	0.89969233E-04	-2.1600938	-0.24622366E-03	0.18096651E-01	-0.58821757E-05
2259	-0.19510976E-03	0.44247990E-04	-2.1624586	-0.14748618E-03	0.18198999E-01	-0.36481761E-05
2260	-0.20447828E-03	0.61455986E-04	-2.1618036	-0.19082638E-03	0.18171612E-01	-0.44188682E-05
2261	-0.21370962E-03	0.76480060E-04	-2.1610021	-0.22375809E-03	0.18136658E-01	-0.51744528E-05
2262	-0.22321110E-03	0.99229429E-04	-2.0869299	-0.20488086E-03	0.18084852E-01	-0.53815400E-05
2263	-0.21383011E-03	0.85783323E-04	-2.0876829	-0.18547667E-03	0.18121716E-01	-0.47630785E-05
2264	-0.20616847E-03	0.71578245E-04	-2.0883463	-0.15849552E-03	0.18154455E-01	-0.41237253E-05
2265	-0.19807634E-03	0.55022337E-04	-2.0888934	-0.12504603E-03	0.18180508E-01	-0.34741343E-05
2266	-0.47540798E-03	0.19761022E-03	-2.1520857	-0.95750083E-04	0.17727873E-01	-0.71941047E-05
2267	-0.25184615E-03	0.11494187E-03	-2.1581107	-0.26303741E-03	0.18011054E-01	-0.61885327E-05

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2269	-0.33946504E-03	0.15930448E-03	-2.1543935	-0.20355122E-03	0.17849586E-01	-0.67075206E-05
2270	-0.40066242E-03	0.17941169E-03	-2.1530284	-0.14958209E-03	0.17782719E-01	-0.69484332E-05
2271	-0.46013738E-03	0.22238020E-03	-2.0803934	-0.70105856E-04	0.17727717E-01	-0.67018991E-05
2272	-0.38949243E-03	0.20025123E-03	-2.0811131	-0.11759586E-03	0.17782701E-01	-0.64438176E-05
2273	-0.33171788E-03	0.17641459E-03	-2.0822082	-0.16601401E-03	0.17848965E-01	-0.61910998E-05
2274	-0.28518294E-03	0.15141426E-03	-2.0836399	-0.20357873E-03	0.17924296E-01	-0.59361668E-05
2275	-0.24918597E-03	0.12558350E-03	-2.0852815	-0.21935088E-03	0.18004937E-01	-0.56696989E-05
2277	-0.53685887E-03	0.20886368E-03	-2.1516600	-0.64546107E-04	0.17697430E-01	-0.75677857E-05
2278	-0.60798998E-03	0.21877001E-03	-2.1513772	-0.43151047E-04	0.17673644E-01	-0.79723184E-05
2280	-0.58579137E-03	0.24911179E-03	-2.0799065	-0.27523307E-04	0.17672833E-01	-0.74623868E-05
2281	-0.51831932E-03	0.23644045E-03	-2.0800921	-0.43663997E-04	0.17696966E-01	-0.70831063E-05
2286	-0.18475975E-03	0.23523872E-04	-2.2185060	-0.10206813E-03	0.18228678E-01	-0.29447808E-05
2287	-0.18064991E-03	0.11831129E-04	-2.2158747	-0.52554948E-04	0.18235223E-01	-0.14902261E-05
2292	-0.22440198E-03	0.77008710E-04	-2.2829837	-0.32226111E-03	0.18088027E-01	-0.62183266E-05
2293	-0.19393861E-03	0.41118861E-04	-2.2272429	-0.17271384E-03	0.18207758E-01	-0.37980055E-05
2294	-0.20341240E-03	0.56202737E-04	-2.2430757	-0.23214701E-03	0.18175429E-01	-0.46240288E-05
2295	-0.21319420E-03	0.68208230E-04	-2.2597568	-0.28192109E-03	0.18134798E-01	-0.54422830E-05
2296	-0.52150604E-03	0.10613200E-03	-2.3927668	-0.17338721E-03	0.17708628E-01	-0.77371573E-05
2297	-0.25953833E-03	0.74625677E-04	-2.4024646	-0.41660245E-03	0.17945201E-01	-0.69170798E-05
2298	-0.30509965E-03	0.84016301E-04	-2.3993504	-0.38446096E-03	0.17868977E-01	-0.71405095E-05
2299	-0.36311585E-03	0.93252083E-04	-2.3966051	-0.32349580E-03	0.17804105E-01	-0.73425008E-05
2300	-0.43488946E-03	0.10093938E-03	-2.3943924	-0.24866546E-03	0.17750697E-01	-0.75373328E-05
2301	-0.49949846E-03	0.15306656E-03	-2.2724589	-0.13729306E-03	0.17722099E-01	-0.74743817E-05
2302	-0.41849261E-03	0.14150902E-03	-2.2737648	-0.20203302E-03	0.17772990E-01	-0.72451958E-05
2303	-0.35184460E-03	0.12774730E-03	-2.2755763	-0.26628268E-03	0.17836407E-01	-0.70208224E-05
2304	-0.29792583E-03	0.11239052E-03	-2.2778398	-0.31696022E-03	0.17911605E-01	-0.67875300E-05
2305	-0.25576243E-03	0.95689859E-04	-2.2803974	-0.34021365E-03	0.17996829E-01	-0.65274940E-05
2307	-0.59124293E-03	0.10813989E-03	-2.3919665	-0.12657421E-03	0.17686009E-01	-0.80400511E-05
2308	-0.66991006E-03	0.10907188E-03	-2.3913952	-0.88551401E-04	0.17668657E-01	-0.84014521E-05
2310	-0.64136393E-03	0.16489175E-03	-2.2713945	-0.67797420E-04	0.17672622E-01	-0.82443618E-05
2311	-0.56556939E-03	0.15959103E-03	-2.2718326	-0.97963977E-04	0.17694199E-01	-0.78297711E-05
2321	-0.61673008E-03	-0.25831970E-03	-3.1814102	-0.12833580E-03	0.17596932E-01	-0.12439913E-04
2322	-0.17015666E-03	-0.14157291E-03	-3.1882660	-0.26247824E-03	0.17321935E-01	-0.13312756E-04
2323	-0.27959229E-03	-0.17172097E-03	-3.1861945	-0.26691769E-03	0.17406769E-01	-0.13289050E-04
2324	-0.38986393E-03	-0.20297880E-03	-3.1842411	-0.23523795E-03	0.17485071E-01	-0.13092655E-04
2325	-0.50207156E-03	-0.23271025E-03	-3.1826156	-0.18450017E-03	0.17549221E-01	-0.12778401E-04
2326	-0.53637180E-03	0.71008614E-04	-2.4807062	-0.19420515E-03	0.17694600E-01	-0.80905835E-05
2327	-0.54996641E-03	0.35640760E-04	-2.5685684	-0.20914683E-03	0.17677746E-01	-0.84506863E-05
2328	-0.56232163E-03	0.13650036E-07	-2.6563420	-0.21698418E-03	0.17659212E-01	-0.88364998E-05
2329	-0.57349319E-03	-0.36225392E-04	-2.7440225	-0.21726796E-03	0.17640537E-01	-0.92751005E-05
2330	-0.58358375E-03	-0.73776138E-04	-2.8316132	-0.21010365E-03	0.17623386E-01	-0.97896885E-05
2331	-0.59274095E-03	-0.11363903E-03	-2.9191258	-0.19619454E-03	0.17609363E-01	-0.10389347E-04
2332	-0.60115050E-03	-0.15697875E-03	-3.0065793	-0.17677801E-03	0.17599809E-01	-0.11061308E-04
2333	-0.60904524E-03	-0.20490552E-03	-3.0939983	-0.15349252E-03	0.17595602E-01	-0.11767070E-04
2334	-0.45414577E-03	0.71356056E-04	-2.4792641	-0.26693494E-03	0.17724330E-01	-0.79635169E-05
2335	-0.38401401E-03	0.69338562E-04	-2.4783531	-0.34021541E-03	0.17762296E-01	-0.78461110E-05
2336	-0.32595866E-03	0.65467061E-04	-2.4779447	-0.40439427E-03	0.17808993E-01	-0.77299088E-05
2337	-0.27940597E-03	0.61268133E-04	-2.4779384	-0.44858260E-03	0.17864843E-01	-0.76181350E-05
2338	-0.47124041E-03	0.39588029E-04	-2.5663416	-0.27985305E-03	0.17695550E-01	-0.84124758E-05
2339	-0.40246908E-03	0.41416650E-04	-2.5645675	-0.35164782E-03	0.17718515E-01	-0.83717936E-05
2340	-0.34426622E-03	0.41299197E-04	-2.5632313	-0.41731192E-03	0.17746893E-01	-0.83282570E-05
2341	-0.29718923E-03	0.40240755E-04	-2.5622687	-0.46866003E-03	0.17780809E-01	-0.82910349E-05
2342	-0.48557755E-03	0.61789193E-05	-2.6549410	-0.28580464E-03	0.17665685E-01	-0.88928357E-05
2343	-0.41716361E-03	0.10593219E-04	-2.6539412	-0.35591582E-03	0.17674232E-01	-0.89233410E-05
2344	-0.35802541E-03	0.13040520E-04	-2.6533335	-0.42133780E-03	0.17684676E-01	-0.89357975E-05
2345	-0.30961701E-03	0.13719309E-04	-2.6530703	-0.47518815E-03	0.17696377E-01	-0.89387512E-05
2346	-0.49671661E-03	-0.28588677E-04	-2.7443975	-0.28417298E-03	0.17636309E-01	-0.94175555E-05
2347	-0.42704683E-03	-0.22229085E-04	-2.7451560	-0.35215345E-03	0.17631156E-01	-0.95080168E-05
2348	-0.36552042E-03	-0.17683485E-04	-2.7462886	-0.41554482E-03	0.17624447E-01	-0.95616301E-05
2349	-0.31403897E-03	-0.15537776E-04	-2.7477501	-0.46750582E-03	0.17614798E-01	-0.95892162E-05
2350	-0.50440362E-03	-0.64823956E-04	-2.8340785	-0.27499853E-03	0.17609120E-01	-0.99976511E-05
2351	-0.43140980E-03	-0.56505820E-04	-2.8369293	-0.34031005E-03	0.17591044E-01	-0.10132976E-04
2352	-0.36553002E-03	-0.49578584E-04	-2.8401508	-0.39993892E-03	0.17568199E-01	-0.10215421E-04
2353	-0.30868645E-03	-0.45198748E-04	-2.8436884	-0.44603578E-03	0.17538855E-01	-0.10258440E-04
2354	-0.50857746E-03	-0.10296026E-03	-2.9233701	-0.25900255E-03	0.17585739E-01	-0.10636373E-04
2355	-0.42988925E-03	-0.92037456E-04	-2.9280025	-0.32115070E-03	0.17555484E-01	-0.10801794E-04
2356	-0.35732136E-03	-0.81789873E-04	-2.9329976	-0.37546541E-03	0.17517564E-01	-0.10903512E-04
2357	-0.29245699E-03	-0.73720635E-04	-2.9382802	-0.41228978E-03	0.17470619E-01	-0.10955318E-04
2358	-0.50936290E-03	-0.14352300E-03	-3.0116527	-0.23746214E-03	0.17567501E-01	-0.11326057E-04

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 16/25)

2359	-0.42240195E-03	-0.12868527E-03	-3.0171056	-0.29606287E-03	0.17525676E-01	-0.11514686E-04
2360	-0.34047916E-03	-0.11361125E-03	-3.0228963	-0.34377353E-03	0.17473596E-01	-0.11631512E-04
2361	-0.26453365E-03	-0.10009982E-03	-3.0289174	-0.36857610E-03	0.17411381E-01	-0.11686070E-04
2362	-0.50705082E-03	-0.18682317E-03	-3.0982852	-0.21200891E-03	0.17555259E-01	-0.12048461E-04
2363	-0.40903105E-03	-0.16599931E-03	-3.1029435	-0.26680448E-03	0.17502225E-01	-0.12273627E-04
2364	-0.31468902E-03	-0.14404277E-03	-3.1079092	-0.30691935E-03	0.17436686E-01	-0.12413272E-04
2365	-0.22408007E-03	-0.12322756E-03	-3.1130305	-0.31766808E-03	0.17361817E-01	-0.12458595E-04
2367	-0.69986707E-03	-0.27267125E-03	-3.1808230	-0.91823310E-04	0.17620776E-01	-0.12066829E-04
2368	-0.78838959E-03	-0.28409664E-03	-3.1804149	-0.62301312E-04	0.17637998E-01	-0.11899591E-04
2377	-0.68804200E-03	0.68099356E-04	-2.4791583	-0.10022592E-03	0.17664242E-01	-0.84635117E-05
2378	-0.60813001E-03	0.70051559E-04	-2.4798056	-0.14290418E-03	0.17677325E-01	-0.82688268E-05
2379	-0.70422791E-03	0.27714988E-04	-2.5668969	-0.10834763E-03	0.17658831E-01	-0.84845582E-05
2380	-0.62356877E-03	0.32110199E-04	-2.5675969	-0.15444246E-03	0.17666871E-01	-0.84823839E-05
2381	-0.71886945E-03	-0.11987891E-04	-2.6546073	-0.11227759E-03	0.17652907E-01	-0.85400555E-05
2382	-0.63766724E-03	-0.56669691E-05	-2.6553336	-0.16033913E-03	0.17655452E-01	-0.87254156E-05
2383	-0.73240333E-03	-0.51421202E-04	-2.7422882	-0.11187423E-03	0.17647043E-01	-0.86951622E-05
2384	-0.65056653E-03	-0.43663223E-04	-2.7430134	-0.16030388E-03	0.17644050E-01	-0.90413243E-05
2385	-0.74519010E-03	-0.91443539E-04	-2.8299416	-0.10730980E-03	0.17641868E-01	-0.90087123E-05
2386	-0.66240261E-03	-0.82673049E-04	-2.8306388	-0.15448647E-03	0.17633741E-01	-0.94653321E-05
2387	-0.75742042E-03	-0.13330838E-03	-2.9175724	-0.99105741E-04	0.17637988E-01	-0.95175004E-05
2388	-0.67326630E-03	-0.12382561E-03	-2.9182181	-0.14351499E-03	0.17625565E-01	-0.10014281E-04
2389	-0.76902747E-03	-0.17849798E-03	-3.0051883	-0.88102140E-04	0.17635900E-01	-0.10218294E-04
2390	-0.68317936E-03	-0.16843293E-03	-3.0057640	-0.12844908E-03	0.17620387E-01	-0.10675104E-04
2391	-0.77960936E-03	-0.22843426E-03	-3.0927990	-0.75375224E-04	0.17635894E-01	-0.11051165E-04
2392	-0.69209040E-03	-0.21776349E-03	-3.0932930	-0.11066711E-03	0.17618756E-01	-0.11394840E-04
2404	-0.30441435E-04	-0.14978927E-03	-3.3018063	-0.15751380E-03	0.17265821E-01	-0.13666872E-04
2405	-0.15395877E-04	-0.20529113E-03	-3.4137284	-0.10795574E-03	0.17317864E-01	-0.14514812E-04
2406	-0.49549291E-05	-0.28071295E-03	-3.5260899	-0.64748150E-04	0.17400665E-01	-0.15621842E-04
2412	0.17314637E-03	-0.39776308E-04	-3.4023290	-0.20151398E-04	0.17243003E-01	-0.27710209E-05
2413	0.17337839E-03	-0.48413619E-04	-3.4810229	-0.15264792E-04	0.17297813E-01	-0.28670240E-05
2414	0.17490876E-03	-0.59113905E-04	-3.5600318	-0.10439246E-04	0.17377958E-01	-0.30123969E-05
2415	0.15081697E-03	-0.76208058E-04	-3.3933619	-0.41744444E-04	0.17243290E-01	-0.54539002E-05
2416	0.15364783E-03	-0.93709826E-04	-3.4750146	-0.31183332E-04	0.17298448E-01	-0.56458141E-05
2417	0.15720806E-03	-0.11569480E-03	-3.5569985	-0.21016484E-04	0.17379230E-01	-0.59347381E-05
2418	0.11583449E-03	-0.10654178E-03	-3.3785846	-0.65939025E-04	0.17244698E-01	-0.79638289E-05
2419	0.12239937E-03	-0.13329180E-03	-3.4651295	-0.48281441E-04	0.17300125E-01	-0.82546591E-05
2420	0.12873887E-03	-0.16752274E-03	-3.5520161	-0.31800711E-04	0.17381707E-01	-0.86851083E-05
2421	0.71344779E-04	-0.12905569E-03	-3.3582083	-0.93374398E-04	0.17248303E-01	-0.10221521E-04
2422	0.81897059E-04	-0.16541431E-03	-3.4515056	-0.66848849E-04	0.17303531E-01	-0.10627671E-04
2423	0.90949011E-04	-0.21289098E-03	-3.5451527	-0.42756625E-04	0.17385781E-01	-0.11201652E-04
2424	0.21230709E-04	-0.14327172E-03	-3.3325044	-0.12404111E-03	0.17255107E-01	-0.12145499E-04
2425	0.34945030E-04	-0.18933493E-03	-3.4343078	-0.86842206E-04	0.17309183E-01	-0.12727329E-04
2426	0.45694836E-04	-0.25074627E-03	-3.5364833	-0.53783705E-04	0.17391805E-01	-0.13464077E-04
2432	-0.62693397E-03	-0.33602412E-03	-3.2953536	-0.95437747E-04	0.17605471E-01	-0.12860366E-04
2433	-0.63761095E-03	-0.42141746E-03	-3.4093698	-0.65975684E-04	0.17618389E-01	-0.13119200E-04
2434	-0.64830040E-03	-0.51042524E-03	-3.5234639	-0.42727774E-04	0.17627674E-01	-0.13100553E-04
2435	-0.51231729E-03	-0.30669355E-03	-3.2962506	-0.13750896E-03	0.17559248E-01	-0.13321248E-04
2436	-0.39525605E-03	-0.27202486E-03	-3.2974599	-0.17486133E-03	0.17496134E-01	-0.13759253E-04
2437	-0.27517518E-03	-0.23404920E-03	-3.2989062	-0.19733468E-03	0.17419458E-01	-0.14016124E-04
2438	-0.15331356E-03	-0.19389488E-03	-3.3004322	-0.19399874E-03	0.17337692E-01	-0.13998736E-04
2439	-0.52491329E-03	-0.39141998E-03	-3.4099844	-0.93954303E-04	0.17578403E-01	-0.13891057E-04
2440	-0.40367507E-03	-0.35509448E-03	-3.4108047	-0.11843977E-03	0.17522685E-01	-0.14626654E-04
2441	-0.27465618E-03	-0.31245601E-03	-3.4117781	-0.13271456E-03	0.17454899E-01	-0.15040808E-04
2442	-0.14264778E-03	-0.26297244E-03	-3.4128006	-0.13033837E-03	0.17382864E-01	-0.14987406E-04
2443	-0.53894186E-03	-0.48749238E-03	-3.5238500	-0.58255951E-04	0.17597731E-01	-0.14492605E-04
2444	-0.41442068E-03	-0.45681970E-03	-3.5243494	-0.71825622E-04	0.17555643E-01	-0.15854755E-04
2445	-0.27763046E-03	-0.41433693E-03	-3.5249318	-0.79552273E-04	0.17504491E-01	-0.16599876E-04
2446	-0.13697409E-03	-0.35649817E-03	-3.5255391	-0.77883192E-04	0.17450296E-01	-0.16418621E-04
2453	-0.79524350E-03	-0.36478793E-03	-3.2946157	-0.46476032E-04	0.17642997E-01	-0.12314293E-04
2454	-0.70802626E-03	-0.35224926E-03	-3.2949180	-0.68032187E-04	0.17627751E-01	-0.12385440E-04
2455	-0.79454905E-03	-0.45084951E-03	-3.4088511	-0.34042005E-04	0.17648111E-01	-0.12069504E-04
2456	-0.71370017E-03	-0.43817368E-03	-3.4090669	-0.47815381E-04	0.17636678E-01	-0.12307794E-04
2457	-0.78456797E-03	-0.53392065E-03	-3.5231060	-0.26132920E-04	0.17648001E-01	-0.10940840E-04
2458	-0.71691441E-03	-0.52348030E-03	-3.5232624	-0.33015813E-04	0.17640833E-01	-0.11665329E-04

MAXIMUMS

NODE	45	48	62	78	87	54
VALUE	-0.89588745E-03	-0.59981508E-03	-3.6394759	-0.50980906E-03	0.18249404E-01	-0.19195466E-04

FILENAME : PIT3D4.PO DATE : 05-25-94 TIME : 2:18p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 17/25)

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C*** Output For Factored Pump Column Load of 200,000 lb + 1.4DL + 1.7L + 0.9H

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE

14.3138 MAY 25,1994 CP= 710.520

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.13080015E-04	-1611.5872		1438.1891		-2393.5742
62		7396.0590		-2735.0486		1357.4518
63		3857.4875		-200.39859		0.15339860E-01
64		3092.8076		9089.7501		0.14956731E-01
65		2453.7800		18908.889		0.14799772E-01
66		1023.7815		10954.779		0.73944833E-02
87		-315.76871		33359.395		0.17285174E-02
88		-667.41673		58031.698		0.34449752E-02
89		-736.46834		53320.369		0.35363955E-02
90		-1000.0811		53440.486		0.36956387E-02
91		-787.12135		27414.687		0.18757009E-02
98		-832.55338		4984.2048		0.78757526E-03
99		-1134.0791		15486.589		0.14344024E-02
100		-895.70758		10705.782		0.11130765E-02
101		-1175.5924		-0.41088832E-02		-6798.0592
162		7131.9004		0.69316939E-01		-16994.508
163		-1452.3222		10865.246		0.12787100E-02
164		-2012.8808		2.9094996		0.14744167E-02
165		-1985.2465		-10780.747		0.12071936E-02
166		-2211.0379		-19155.455		0.11470150E-02
167		-2370.3188		-26944.785		0.11594330E-02
168		-2204.7270		-26941.451		0.11087396E-02
169		-2012.5506		-23048.121		0.11262997E-02
170		-1827.3452		-16494.606		0.11905755E-02
171		-1691.7402		-8358.1915		0.12589829E-02
172		-1654.0917		349.88797		0.12866595E-02
201		-738.07372		-0.45446625E-02		-6020.8368
262		3655.9652		0.60716411E-01		-24426.702
301		-415.43390		-0.46215080E-02		-4900.5573
362		1416.5278		0.53253238E-01		-28660.335
401		-185.68750		-0.42845097E-02		-4124.0978
462		-29.488845		0.45110450E-01		-29464.379
501		-41.671107		-0.38102716E-02		-3140.2834
562		-927.31327		0.37844462E-01		-28731.869
601		42.633338		-0.34312446E-02		-2951.8827
662		-1546.4130		0.33035806E-01		-28207.805
701		90.952002		-0.30306328E-02		-2747.1187
762		-2006.9359		0.28929402E-01		-27386.601
801		112.77348		-0.26374810E-02		-2558.5343
862		-2369.1938		0.25461000E-01		-26419.587
901		115.95195		-0.22707126E-02		-2397.1094
962		-2679.2869		0.22567771E-01		-25410.580
1001		107.04861		-0.19421564E-02		-2267.1034
1062		-2976.4291		0.20190332E-01		-24432.273
1101		91.838667		-0.16588321E-02		-2167.9034
1162		-3297.6682		0.18274774E-01		-23537.855
1201		75.800975		-0.14246446E-02		-2096.3314
1262		-3681.2581		0.16774020E-01		-22767.512

FILENAME : PIT3D4.PO DATE : 05-25-94 TIME : 2:18p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 17/25)

PAGE 2

1301	64.886671	-0.12415871E-02	-2048.2503			
1362	-4169.4376	0.15648658E-01	-22151.885			
1401	65.945446	-0.11105574E-02	-2019.5824			
1462	-4811.1168	0.14867483E-01	-21714.450			
1501	87.687261	-0.10318861E-02	-2006.7090			
1562	-5665.0068	0.14407904E-01	-21473.406			
1601	57.400969	-0.50282940E-03	-1003.7165			
1662	-3184.9829	0.71281189E-02	-10729.269			
TOTAL	0.13080015E-04	-36362.806	0.00000000E+00	173694.50	0.00000000E+00	-432793.13

FILENAME : PIT3E1.PO DATE : 05-25-94 TIME : 2:20p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 18/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 0.9DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	1.000000
4	1.700000
5	1.700000
6	1.000000

LOAD CASE OPERATION FOR LCAD COMMAND. RESULT LOAD CASE = 6					
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	0.900000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	1.000000	3	1	1	0.000000E+00
4	1.700000	4	1	1	0.000000E+00
5	1.700000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3411 MAY 25,1994 CP= 808.670

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELEM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-164.32784	-210.51711	-0.96176430E-01	352.62804	4347.4620	92.470738
978	-164.75649	-210.79807	-0.21344559E-01	350.25271	4362.4687	30.412135
979	-148.49168	-208.07593	2.1026471	-292.98664	2197.9129	138.39291
980	-148.83729	-208.38505	0.69148211	-292.36416	2203.4404	46.230050
981	-145.43066	-201.28697	3.5247352	-945.49034	597.61791	160.83532
982	-145.62324	-201.61529	1.1804407	-947.56710	599.42117	53.677764
983	-151.64304	-191.94490	4.2520755	-1569.7567	-571.20103	164.39275
984	-151.72414	-192.24360	1.4154046	-1574.0900	-573.23768	54.860791
985	-163.97254	-181.47554	4.4636162	-2133.0650	-1399.8157	153.48744
986	-163.97546	-181.74214	1.4928502	-2139.1158	-1404.4666	51.203752
987	-179.99868	-170.89588	4.3360143	-2610.8568	-1954.0637	131.27626
988	-179.95037	-171.14444	1.4410211	-2616.8126	-1961.2439	43.651118
989	-198.24080	-160.85992	3.9799473	-2991.0229	-2262.6442	103.33253
990	-198.15910	-161.13848	1.3302492	-2983.6199	-2264.9267	32.394248
991	-151.89006	-201.67280	0.63549874E-01	333.95794	4008.8224	435.23043
992	-156.70228	-205.34043	-0.12422483E-01	329.62119	4142.9300	343.49790
993	-160.46177	-207.99837	-0.11489771	333.22577	4236.5536	255.43379
994	-163.03118	-209.69703	-0.13521435	333.51996	4304.3359	167.06757
995	-139.96011	-199.15520	10.473941	-273.83785	2018.6831	661.65486
996	-143.19625	-202.65605	8.3162730	-278.95338	2084.5504	529.17309
997	-145.71024	-205.32261	6.1176853	-285.16293	2140.9270	392.74734
998	-147.51099	-207.13794	3.9030328	-288.53551	2179.9642	254.29154
999	-140.51877	-192.67898	17.041509	-866.93679	546.14519	768.55389
1000	-142.38294	-196.02849	13.599385	-896.75115	564.90938	616.18529
1001	-143.84621	-198.57641	10.077162	-919.56261	581.69584	458.17871
1002	-144.88033	-200.35066	6.50010766	-934.13670	592.93525	296.21692
1003	-149.58542	-184.12895	20.331756	-1432.6661	-524.72075	786.45025
1004	-150.35499	-187.13250	16.304927	-1486.1282	-543.25336	630.34946
1005	-150.96977	-189.45577	12.118871	-1525.9398	-555.89295	468.56178

FILENAME : PIT3E1.PO DATE : 05-25-94 TIME : 2:20p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 18/25)

1006	-151.40851	-191.08194	7.8291316	-1552.1866	-565.10560	302.84007
1007	-163.84981	-174.77010	21.304622	-1944.2676	-1280.2974	737.50015
1008	-163.90369	-177.28919	17.109079	-2019.0978	-1326.5150	590.47895
1009	-163.94053	-179.28494	12.727673	-2074.1373	-1361.1977	438.38279
1010	-163.96244	-180.70979	8.2265279	-2110.4228	-1385.8054	282.98613
1011	-180.93973	-165.24715	20.941501	-2383.3177	-1786.4545	643.07475
1012	-180.63913	-167.25922	16.759645	-2476.5295	-1850.1400	513.59762
1013	-180.35971	-168.94558	12.418783	-2543.7083	-1898.8641	379.59742
1014	-180.13175	-170.20502	7.9986100	-2586.3492	-1933.8872	243.41609
1015	-199.32547	-155.58543	20.269941	-2736.8021	-2094.6201	525.30299
1016	-199.08742	-157.20822	15.995964	-2845.5873	-2165.4504	420.59767
1017	-198.76559	-158.78545	11.677489	-2923.5809	-2216.1704	311.05492
1018	-198.44879	-160.08731	7.4197521	-2970.7267	-2248.0000	197.60086
1019	-58.348629	-111.44377	2.2812741	297.55681	1631.5895	825.70108
1020	-82.097690	-141.19764	1.5630944	267.69226	2249.3312	845.78825
1021	-105.42377	-164.24547	0.71374829	263.88196	2827.3038	796.25883
1022	-125.87055	-181.63038	0.18329924	274.52115	3327.6704	692.74371
1023	-142.21852	-194.32714	-0.24238437E-01	277.52299	3736.7986	552.85161
1024	-87.212770	-113.30942	20.931169	268.41141	832.60474	1302.3068
1025	-98.597911	-140.43923	22.381287	55.355561	1120.7131	1310.8377
1026	-111.11665	-162.27080	20.770574	-90.418533	1405.8867	1217.9342
1027	-123.14877	-179.23708	17.552568	-186.43979	1668.2602	1053.6164
1028	-133.50601	-191.87883	13.619010	-242.26213	1889.0282	843.94367
1029	-115.57894	-119.23368	28.753891	291.16037	281.74128	1509.5788
1030	-120.01972	-140.78043	32.295522	-130.59213	323.44262	1521.7129
1031	-125.60276	-159.19110	31.318855	-433.58393	383.52776	1416.7931
1032	-131.51220	-174.22212	27.454425	-644.49019	450.75685	1228.4762
1033	-136.97002	-185.83862	21.857926	-782.32184	512.10821	981.94544
1034	-142.29025	-127.84817	30.621298	352.72112	-92.576747	1532.5486
1035	-142.77827	-142.63065	35.685465	-280.97554	-231.91609	1549.7744
1036	-144.17632	-156.41075	35.605061	-744.44101	-341.21443	1447.4140
1037	-146.11465	-168.40934	31.921133	-1073.9689	-423.52863	1257.4695
1038	-148.16445	-178.17577	25.846928	-1297.7390	-484.72458	1005.0265
1039	-165.85900	-138.00081	29.526264	433.99162	-339.78040	1431.0629
1040	-164.61699	-145.73435	35.514969	-397.72039	-609.79776	1450.1619
1041	-163.91948	-154.21816	36.220250	-1013.5778	-842.38582	1357.2777
1042	-163.70176	-162.64890	32.978995	-1457.0965	-1034.2622	1180.5255
1043	-163.75472	-170.01601	26.970553	-1762.9615	-1185.6512	943.27273
1044	-185.29083	-148.65794	27.771781	518.50361	-496.15710	1247.8533
1045	-183.98202	-149.64707	34.047797	-486.18174	-857.13299	1265.2502
1046	-182.84776	-152.88461	35.268042	-1237.2984	-1175.2729	1185.1890
1047	-182.02150	-157.20258	32.425703	-1782.5206	-1442.8845	1031.1419
1048	-181.38540	-161.84726	26.588502	-2161.2517	-1655.6999	823.50427
1049	-200.28007	-158.95653	26.810627	593.93495	-588.23308	1014.5643
1050	-199.87781	-153.93296	32.919583	-552.83801	-1007.1059	1027.6637
1051	-199.49433	-151.95887	34.451509	-1415.3846	-1380.2838	961.79010
1052	-199.39967	-152.02859	31.918849	-2043.6069	-1695.5840	836.74966
1053	-199.42315	-153.63933	26.091937	-2480.8321	-1944.4326	669.60353
1054	-29.651112	-10.960288	-2.5509747	425.84267	389.56074	366.27820
1055	-31.176987	-48.795081	0.83318608	365.07107	705.55149	592.37598
1056	-40.534557	-80.363725	2.3617103	329.72429	1105.4778	737.06823
1057	-75.561517	-27.690196	-5.6249838	1054.8731	334.56688	672.40905
1058	-76.006256	-59.928313	7.6458931	750.92560	451.14989	991.66928
1059	-79.594970	-86.130038	15.920977	498.25653	604.39917	1188.1443
1060	-113.56723	-61.768504	-9.1548083	1838.8045	311.58055	813.51984
1061	-112.53424	-80.707919	9.3345695	1239.4144	279.61361	1159.1061
1062	-113.11354	-98.962101	20.850991	748.53788	266.89954	1378.2973
1063	-144.31823	-99.868461	-10.917534	2628.5596	321.32830	850.50477
1064	-143.56125	-106.17867	8.0170519	1755.8606	179.90122	1182.0173
1065	-142.66476	-115.31906	21.062514	1036.2078	47.207434	1398.6876
1066	-167.90638	-134.94325	-10.585344	3353.4412	355.67097	814.94682
1067	-167.99687	-131.99105	6.6009292	2246.5893	131.82511	1109.7151
1068	-167.15885	-133.14282	19.372981	1324.0570	-88.526552	1306.5484
1069	-185.21435	-164.90635	-8.2910949	3975.5501	401.24147	727.19628
1070	-186.29111	-155.57968	6.3967793	2678.7796	115.78685	973.58092
1071	-186.20355	-150.53704	17.976922	1586.0146	-167.07283	1140.9710
1072	-197.22761	-189.57318	-4.3949330	4480.8319	441.07697	602.01360
1073	-199.32490	-176.05518	7.8683256	3035.5180	117.37769	798.28544
1074	-200.21888	-166.36864	17.906195	1805.9963	-207.98196	931.51517
1075	-216.04372	-152.58906	3.5650572	-3263.8751	-2409.3634	101.03386

FILENAME : PITJ51.PO DATE : 05-25-94 TIME : 2:20p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 18/25)

1076	-215.93793	-153.04286	1.1559600	-3258.0454	-2410.2555	36.482013
1077	-234.32473	-146.06285	2.9481904	-3457.4164	-2416.4195	91.576174
1078	-234.09916	-147.03646	0.96689869	-3473.5011	-2421.5114	31.397268
1079	-261.71363	-138.96955	2.7263115	-3639.9675	-2214.4103	136.70687
1080	-261.83801	-142.33400	0.59650090	-3694.5252	-2190.5286	49.450637
1081	-216.15832	-146.38972	20.514913	-2974.9806	-2253.2374	413.68104
1082	-216.54889	-147.79526	15.745590	-3094.4933	-2322.0178	338.46087
1083	-216.54700	-149.63980	11.071508	-3182.6589	-2369.8498	259.10280
1084	-216.27268	-151.45293	6.7797418	-3238.6544	-2397.7629	175.00509
1085	-230.52315	-137.01879	23.360448	-3102.6273	-2285.3869	323.50476
1086	-233.00996	-237.83205	17.420351	-3230.2308	-2346.7960	277.98781
1087	-234.39536	-140.31061	11.416634	-3332.3332	-2384.9395	224.97970
1088	-234.69368	-143.60218	6.2449744	-3409.5765	-2405.3034	158.50270
1089	-240.57985	-127.38401	32.189233	-3147.0812	-2240.3113	247.91116
1090	-248.20895	-124.84740	25.701015	-3273.3702	-2285.4159	245.61928
1091	-255.50794	-126.40719	16.610279	-3395.7469	-2290.7027	240.50485
1092	-259.84161	-132.57006	7.7653064	-3529.7647	-2256.6739	205.38147
1093	-210.09456	-167.50020	27.094691	648.83799	-633.30650	780.65853
1094	-210.74952	-157.88381	32.941088	-599.72524	-1089.5264	789.32420
1095	-211.53263	-151.56222	34.828901	-1539.5264	-1492.7226	737.73353
1096	-212.94264	-147.65783	32.773742	-2223.2453	-1831.9668	642.68879
1097	-214.84472	-146.04027	26.923837	-2698.4196	-2097.6163	518.56517
1098	-215.61168	-174.35895	28.151046	683.82320	-648.98504	568.15535
1099	-216.99600	-161.51192	33.815371	-627.04404	-1116.5701	572.40346
1100	-218.68624	-151.88848	36.288474	-1613.7867	-1528.7289	534.81492
1101	-221.60530	-144.49694	35.311325	-2328.1364	-1872.0973	468.22022
1102	-226.27843	-139.18121	30.243872	-2819.4657	-2135.5436	386.94189
1103	-218.43158	-180.68736	29.675817	705.52499	-649.43827	355.45711
1104	-220.14622	-165.37271	35.201789	-643.94089	-1117.3110	357.17422
1105	-222.16651	-153.20581	38.417478	-1658.3670	-1526.2895	335.61986
1106	-225.62936	-142.96962	39.275558	-2386.8468	-1859.3720	300.28949
1107	-232.45175	-133.75650	37.081238	-2875.8207	-2106.0493	263.78851
1108	-204.75939	-207.86548	0.36266897	4839.5326	486.75950	473.89531
1109	-207.48680	-191.64689	10.552296	3286.0267	129.56834	620.40200
1110	-209.12194	-178.86713	19.139015	1962.3416	-220.88031	719.65030
1111	-209.04113	-221.15510	4.8479240	5058.7096	512.86298	352.94179
1112	-212.03370	-203.13746	13.552125	3444.7895	141.20370	454.85061
1113	-214.06729	-188.38318	21.006720	2061.2327	-222.62864	526.26611
1114	-211.27823	-232.15880	9.6735948	5203.8458	518.44717	222.14643
1115	-214.43742	-212.96195	16.906686	3552.3873	152.43135	290.82810
1116	-216.64048	-196.70340	23.291369	2125.6061	-219.53458	333.46777
1117	-295.59116	-139.02236	6.1941329	-3927.5984	-1853.3027	166.13768
1118	-341.21383	-133.16443	10.385924	-4266.7281	-1487.4147	299.22550
1119	-490.82562	-93.630833	71.544955	-5000.9105	-851.20534	676.11423
1120	-293.58501	-130.80103	5.9843843	-3817.3750	-1921.4748	278.25064
1121	-347.36454	-115.11549	23.405349	-3999.7072	-1623.4719	567.12872
1122	-358.74297	-115.64421	130.50690	-4105.4140	-1366.9211	1350.0115
1123	-240.82899	-122.40543	44.063634	-3130.7386	-2182.0022	199.61881
1124	-253.07186	-114.91135	41.315465	-3232.5345	-2211.7638	239.54770
1125	-270.70639	-111.05205	32.121353	-3352.6492	-2183.5647	309.04278
1126	-288.66906	-118.48234	15.931768	-3567.9189	-2054.7746	352.86611
1127	-231.27910	-124.09491	51.578744	-3083.3594	-2098.7485	173.20401
1128	-240.93410	-114.02081	56.118859	-3135.5417	-2125.4708	238.25281
1129	-263.08022	-103.30961	57.123925	-3185.9168	-2092.4095	390.01228
1130	-306.97058	-100.08733	47.246304	-3446.1351	-1874.8263	617.90209
1131	-217.29418	-129.33768	52.613905	-3023.8269	-1999.0980	152.33057
1132	-213.86844	-123.05314	63.011346	-3009.1892	-2024.6350	216.57018
1133	-218.21387	-109.65242	80.414178	-2874.6134	-2042.1465	415.18520
1134	-243.41989	-115.08903	106.62131	-2883.3138	-1849.6174	1012.4401
1135	-219.01973	-185.20932	30.945926	713.97963	-644.81719	194.69210
1136	-220.75633	-168.44032	36.375272	-654.87809	-1120.5458	196.13921
1137	-222.67201	-154.82666	40.038315	-1678.0088	-1523.2961	190.77569
1138	-225.56400	-143.19292	42.252796	-2408.1563	-1840.6498	183.35738
1139	-231.76604	-132.01228	43.697201	-2885.5798	-2066.3779	181.23832
1140	-218.34325	-188.13448	31.763409	716.02499	-638.83363	84.254448
1141	-219.99077	-170.60694	37.162769	-654.22895	-1107.1370	87.897120
1142	-221.77081	-156.22742	40.992360	-1674.3073	-1502.3849	96.806986
1143	-223.76925	-144.22278	43.617107	-2400.5390	-1803.9252	112.50484
1144	-226.73088	-133.38967	46.814529	-2865.9418	-2002.8663	135.17752
1145	-216.89667	-190.99199	32.482291	716.12519	-630.93622	-23.521358

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1146	-218.40477	-172.83031	37.940678	-646.75767	-1093.4674	-18.336696
1147	-220.19885	-157.67383	41.885024	-1657.3493	-1479.9449	7.0736332
1148	-221.57952	-145.32538	44.271744	-2375.6541	-1763.8242	50.774353
1149	-220.54955	-135.58100	47.058125	-2831.4262	-1931.4400	102.60789
1150	-212.11865	-239.32901	13.319285	5298.7386	563.11333	125.91666
1151	-215.14335	-219.45621	19.505942	3601.2706	162.87882	165.60521
1152	-217.25715	-202.36761	25.084972	2154.1777	-209.18616	185.17959
1153	-212.23511	-243.52909	15.617130	5325.7788	551.25025	60.630349
1154	-214.89626	-223.24098	21.106191	3614.7094	171.27721	77.455681
1155	-216.75713	-205.82528	26.201819	2160.6002	-204.53445	85.282005
1156	-211.82504	-247.21374	17.581790	5323.0827	546.21203	1.2242380
1157	-214.08326	-226.65317	22.471227	3616.5327	174.16174	-6.2704640
1158	-215.59756	-209.04563	27.145115	2158.6503	-199.73885	-15.437832
1159	-207.61398	-132.59493	46.030244	-2977.7164	-1910.4904	139.15728
1160	-191.71025	-134.15564	52.015101	-2932.2772	-1927.2592	177.55490
1161	-164.59819	-129.34946	71.816133	-2660.4827	-2023.6152	278.85653
1162	-119.79420	-132.35318	99.521711	-2031.3193	-2374.1401	905.50057
1163	-204.55750	-133.52467	37.645278	-2939.7171	-1836.5760	160.52766
1164	-185.10048	-135.66878	33.532615	-2905.3452	-1821.7144	172.34018
1165	-141.30971	-145.82718	29.767113	-2639.1747	-1886.1139	149.17108
1166	-51.828386	-109.34768	21.165279	-1602.8592	-2431.8274	71.367762
1167	-211.47168	-127.77199	28.098416	-2911.2573	-1761.7516	176.87280
1168	-196.17365	-127.77501	13.361552	-2905.2914	-1723.2197	168.60105
1169	-164.32865	-126.02770	-18.716224	-2687.6745	-1728.7190	39.483856
1170	-107.88952	-93.707108	-61.245948	-2094.6845	-1912.4367	-679.12539
1171	-215.03682	-193.44450	32.986087	713.42545	-625.44987	-115.74591
1172	-216.38746	-174.82587	38.613433	-637.53834	-1084.9337	-108.68236
1173	-218.36116	-158.90803	42.738821	-1623.6960	-1464.1822	-67.365413
1174	-219.86792	-145.93535	44.529162	-2340.9837	-1723.3508	4.9917792
1175	-216.36282	-136.85876	44.851646	-2791.8489	-1872.5301	87.483216
1176	-212.92184	-195.53424	33.281626	710.04692	-619.21276	-193.12748
1177	-214.08293	-176.62305	39.186477	-625.55560	-1074.1375	-184.06504
1178	-216.36441	-159.94991	43.618865	-1602.6832	-1447.8143	-128.36851
1179	-218.75374	-145.94814	44.948455	-2297.1317	-1706.0366	-28.589054
1180	-215.64585	-136.04384	41.974882	-2747.0994	-1822.1184	85.263965
1181	-210.33086	-197.68218	33.417290	706.26576	-613.05057	-269.91267
1182	-211.17868	-178.58107	39.751955	-609.74286	-1063.9300	-259.02770
1183	-213.89909	-161.09399	44.766008	-1564.7000	-1432.6010	-188.46068
1184	-217.77843	-145.48371	45.916149	-2239.3034	-1681.8453	-58.520763
1185	-218.07313	-133.23422	39.854386	-2690.5261	-1776.6693	92.737860
1186	-210.95995	-249.94866	19.120808	5317.9987	560.49062	-50.424914
1187	-212.92662	-229.35819	23.431976	3604.2460	175.43188	-78.021962
1188	-214.08126	-211.67154	27.770006	2148.9959	-196.74368	-101.34817
1189	-209.92992	-251.90225	20.280270	5299.0445	554.61823	-94.847171
1190	-211.56622	-231.40076	24.064456	3584.4213	176.94114	-139.23877
1191	-212.35313	-213.77585	28.106882	2135.7616	-193.79861	-172.78535
1192	-208.72746	-253.58106	21.257507	5262.9501	557.46501	-139.13093
1193	-209.89088	-233.22332	24.487407	3559.3307	174.37897	-200.01785
1194	-210.23407	-215.80071	28.250070	2119.2712	-191.96146	-243.28122
1195	-584.02721	-80.256118	-71.528265	-5283.1617	-287.20040	-611.01009
1196	-428.10858	-88.729024	-0.84088693	-4770.3616	-419.58753	-300.54467
1197	-399.81875	-73.485045	-100.01649	-4334.5401	-683.42406	-966.04465
1198	-434.89281	-63.854329	20.989040	-4364.4640	-626.66411	-243.23781
1199	-229.51816	-115.34288	24.661054	-2866.0922	-1680.0347	235.42153
1200	-231.13492	-105.63930	3.1698236	-2945.9190	-1598.4006	221.58525
1201	-239.01220	-82.397416	-32.410148	-2931.0963	-1481.8931	19.253210
1202	-270.43414	-70.055603	-73.265985	-3042.6532	-1142.0039	-596.36514
1203	-252.81825	-100.49112	35.078598	-2787.6738	-1589.7547	338.48854
1204	-276.37349	-81.889915	20.935616	-3009.4868	-1455.0843	351.65060
1205	-315.96008	-59.022343	8.0879894	-3263.8268	-1255.4591	207.32854
1206	-378.10302	-46.286978	7.8549126	-3708.9850	-932.47839	-94.019073
1207	-206.25420	-200.53232	33.276768	699.89606	-602.24529	-365.23166
1208	-206.47452	-181.49031	40.356035	-583.95866	-1044.5120	-353.47765
1209	-209.57230	-162.95759	46.717870	-1500.3564	-1408.0551	-264.18308
1210	-216.40354	-144.58555	48.592940	-2141.3134	-1649.5602	-92.756611
1211	-224.45224	-127.40989	40.793696	-2595.0397	-1722.7460	115.48590
1212	-200.37347	-204.21224	32.464401	688.10408	-589.79895	-479.31719
1213	-199.30534	-185.71750	40.806875	-548.25660	-1027.5682	-467.97384
1214	-202.44137	-166.31518	49.585936	-1406.0983	-1386.6950	-357.64957
1215	-212.66223	-144.15932	54.790757	-1990.2878	-1623.5612	-132.59851

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1216	-232.81021	-120.07527	49.118537	-2441.2873	-1672.0120	161.20554
1217	-206.75143	-255.17039	22.097547	5197.8255	531.66053	-190.35448
1218	-207.29094	-235.20514	24.679770	3515.9618	172.14607	-273.68659
1219	-206.97476	-218.23147	28.063959	2091.4583	-188.55166	-331.49999
1220	-203.80455	-256.37466	22.701134	5104.4561	539.57800	-254.92524
1221	-203.64445	-237.19025	24.372146	3449.5517	163.89815	-360.89037
1222	-202.39770	-220.97589	27.218940	2048.1773	-185.32207	-433.72790
1223	-417.86720	-59.746732	15.232887	-4679.7002	-337.68347	24.707202
1224	-435.07535	-22.363184	19.298007	-4805.7167	-141.03181	101.94874
1225	-406.75438	-54.792179	39.958095	-4425.6316	-457.64383	93.891450
1226	-433.06302	-26.394428	52.664511	-4613.7850	-211.36141	303.60845
1227	-382.78962	-56.202605	73.029254	-3931.2536	-746.03556	443.34408
1228	-400.76724	-46.894859	105.12625	-4078.8852	-456.25642	778.22572
1229	-341.24618	-62.253062	76.843493	-3373.2109	-1079.5472	653.54505
1230	-345.42377	-69.971934	131.65101	-3388.5811	-788.89983	1087.3883
1231	-301.40084	-75.845050	74.141892	-2943.3767	-1318.4584	683.73275
1232	-285.59780	-88.755392	135.65621	-2711.2101	-1100.4966	1149.2359
1233	-271.17191	-90.126232	72.121092	-2581.0676	-1465.6783	562.80760
1234	-235.00342	-105.67802	132.42031	-2063.0424	-1357.4284	1035.0338
1235	-190.67593	-209.59550	29.690381	662.81744	-565.63899	-628.53336
1236	-186.36600	-193.54868	39.851591	-491.66116	-982.94912	-624.23539
1237	-187.16017	-174.55366	53.564610	-1241.3894	-1338.0746	-493.69065
1238	-198.80857	-149.50030	66.649744	-1701.2002	-1576.9887	-191.59714
1239	-228.91974	-117.11663	74.492708	-2105.0133	-1592.9968	261.38289
1240	-177.14759	-216.41356	22.721470	612.57520	-528.51911	-806.70155
1241	-166.74649	-206.06322	34.324905	-427.24389	-928.16674	-822.01256
1242	-160.00420	-191.83979	54.896787	-1004.1193	-1281.2089	-688.07723
1243	-165.00592	-166.23162	82.045883	-1215.9046	-1542.6484	-304.55189
1244	-189.64439	-134.92593	111.25083	-1405.5512	-1569.9607	431.21263
1245	-199.37337	-256.42189	22.701098	4935.6882	500.93513	-342.45377
1246	-197.99836	-238.60790	22.820382	3333.0639	157.58689	-471.76875
1247	-195.15995	-224.05167	24.620422	1969.6502	-179.99111	-565.96911
1248	-193.51806	-254.13245	21.052471	4709.5765	486.23599	-448.69950
1249	-190.39050	-238.35149	18.791245	3152.3436	154.89251	-598.83530
1250	-185.37462	-226.61996	18.723639	1843.1414	-163.96853	-718.03808
1251	-166.16371	-221.02245	14.458460	621.00645	-531.37290	-918.31876
1252	-151.29501	-217.72722	25.166825	-294.60118	-909.49056	-977.82895
1253	-137.00871	-211.67038	47.579169	-749.41060	-1271.7462	-894.03565
1254	-130.00229	-192.55841	81.906061	-764.39905	-1606.7734	-547.64665
1255	-134.59565	-159.65996	121.08287	-592.29237	-1708.0663	295.06217
1256	-157.14963	-223.85897	4.5105816	610.90919	-504.95118	-1021.1395
1257	-139.97431	-226.72727	11.821428	-180.58483	-818.91395	-1109.3012
1258	-119.99057	-229.90944	30.130099	-569.99510	-1127.8439	-1094.4607
1259	-100.51539	-224.35440	62.537448	-502.64423	-1472.3080	-898.57530
1260	-86.333900	-197.40555	101.89690	16.197119	-1836.7267	-278.67656
1261	-149.53958	-224.29178	-8.2522799	538.09047	-450.84416	-1127.6265
1262	-131.16605	-232.72593	-5.5410080	-160.11834	-710.21326	-1232.2537
1263	-107.56346	-244.70287	6.1477863	-507.23818	-962.87309	-1275.8945
1264	-78.793735	-254.67215	31.658920	-417.58520	-1268.9675	-1236.7664
1265	-51.204159	-243.34556	72.361629	293.83924	-1744.3970	-982.02211
1266	-144.52057	-220.82746	-22.652238	407.25124	-371.55292	-1226.9178
1267	-126.84065	-233.50006	-25.317354	-230.75552	-578.97013	-1337.1270
1268	-103.06920	-252.35012	-21.868009	-562.79638	-770.23386	-1421.5152
1269	-70.666379	-276.61280	-7.7376052	-515.07757	-996.40385	-1510.6492
1270	-31.321283	-293.80657	28.967681	129.67372	-1395.8601	-1641.9457
1271	-142.00533	-213.12917	-36.627195	240.39297	-279.03808	-1304.8972
1272	-126.99525	-228.56108	-44.384666	-362.39296	-436.64162	-1410.4318
1273	-106.79827	-251.69882	-48.930704	-702.32924	-560.28005	-1512.1092
1274	-77.694405	-286.03411	-48.043950	-747.38268	-671.14436	-1676.3506
1275	-32.015142	-338.37859	-27.977332	-402.61383	-831.11251	-2064.7214
1276	-140.17134	-202.55005	-48.222334	71.564072	-191.24592	-1353.4301
1277	-129.03402	-219.98035	-59.727107	-509.03506	-301.24002	-1444.2156
1278	-114.85190	-245.48012	-70.146249	-866.19294	-353.16631	-1536.5109
1279	-94.597061	-285.00397	-80.638609	-1024.2323	-328.07113	-1708.2778
1280	-54.743663	-363.62213	-90.251316	-1069.1260	-173.30914	-2129.6800
1281	-136.29999	-191.53140	-56.513196	-63.276428	-122.35204	-1372.7573
1282	-129.10123	-211.37257	-69.970422	-622.69052	-184.69826	-1439.7674
1283	-121.31104	-238.71697	-83.400833	-991.23305	-161.63025	-1496.4776
1284	-111.58559	-280.06424	-101.37756	-1248.1006	4.0554650	-1607.3599
1285	-92.552824	-360.47957	-143.66098	-1598.4445	443.27418	-1843.8233

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 18/25)

1286	-128.20108	-182.39194	-61.508168	-137.03907	-73.549517	-1366.7973
1287	-124.39215	-205.94785	-75.314830	-667.96323	-82.114748	-1402.8849
1288	-121.86204	-235.57461	-89.420321	-1033.1213	22.651523	-1401.3163
1289	-121.30581	-276.46276	-112.23146	-1350.4752	322.34627	-1395.2431
1290	-130.73580	-328.61226	-175.47701	-1809.9764	934.28571	-1322.2981
1291	-115.28097	-176.43167	-63.339184	-137.03044	-27.978296	-1337.6459
1292	-114.36916	-205.28868	-76.393597	-626.61669	31.188161	-1337.9162
1293	-115.94137	-237.47325	-89.879214	-976.39723	230.49381	-1262.1736
1294	-122.59450	-274.46136	-117.60626	-1308.5850	642.24512	-1111.1547
1295	-159.29125	-275.32016	-180.94633	-1692.1844	1251.5339	-751.03641
1296	-188.03396	-249.46104	18.109399	4490.5427	476.31331	-527.74504
1297	-183.54474	-235.87141	13.350266	2966.0739	151.99356	-701.66013
1298	-176.64584	-227.14377	11.151402	1707.9509	-150.23197	-839.64350
1299	-183.08767	-242.84258	14.817837	4265.0267	443.75180	-583.01780
1300	-177.75455	-231.40296	7.5066723	2785.5922	144.48517	-782.08197
1301	-169.53485	-225.40647	2.8937206	1574.7582	-141.45262	-936.69807
1302	-177.90614	-233.72066	11.013559	4008.4694	413.52949	-631.14015
1303	-172.11886	-224.48143	0.90684314	2585.9855	132.03501	-851.69744
1304	-163.20750	-221.27958	-6.5032161	1426.0873	-131.77554	-1022.7327
1305	-172.29688	-221.87766	7.1226441	3729.9893	380.01544	-673.18033
1306	-166.58068	-214.92178	-5.9367411	2367.7832	117.72958	-911.68247
1307	-157.71755	-214.46668	-16.263222	1264.2519	-123.23172	-1095.5096
1308	-165.98917	-207.24109	3.4674708	3429.3572	343.23652	-707.72792
1309	-160.75010	-202.71617	-12.492702	2134.5571	101.80222	-962.23929
1310	-152.62251	-205.00476	-25.555559	1093.5538	-115.34581	-1154.9276
1311	-158.45742	-189.81159	0.30582352	3106.9887	304.29933	-734.20573
1312	-153.97417	-188.08224	-18.364407	1889.9989	85.982028	-1003.1178
1313	-147.04851	-193.27941	-33.687818	919.57214	-105.38002	-1200.4619
1314	-149.08032	-169.62278	-2.2247945	2763.4327	265.44139	-751.81809
1315	-145.45539	-171.40368	-23.334002	1637.8915	73.936198	-1033.3918
1316	-139.92856	-179.94576	-40.262120	749.04087	-88.189159	-1230.9430
1317	-137.24915	-146.71228	-4.1360201	2400.2305	229.82382	-758.65799
1318	-134.44853	-153.17358	-27.335540	1382.5934	71.324435	-1050.8844
1319	-130.37915	-165.76953	-45.148606	589.34830	-55.784968	-1244.2641
1320	-122.53895	-121.12836	-5.5099487	2016.8074	202.85521	-751.69344
1321	-120.51673	-133.99725	-30.385695	1130.6398	84.861481	-1051.3570
1322	-117.91620	-151.49337	-48.258977	447.00705	3.8958479	-1235.8322
1323	-182.44676	-17.346255	-15.740736	971.95154	566.64113	214.35339
1324	-193.76922	-50.329754	-15.980821	671.85696	1405.7044	93.265162
1325	-190.56377	-81.304283	-13.208393	568.13505	2259.6570	27.302865
1326	-181.14877	-107.63336	-10.641796	590.34904	3175.8528	-23.983869
1327	-184.30634	-28.015074	-44.375206	750.27621	741.47242	576.78420
1328	-189.35605	-62.057034	-43.904513	570.40018	1460.5625	273.37226
1329	-185.93401	-91.126618	-36.110696	519.71843	2289.3255	108.53188
1330	-178.19772	-115.50032	-29.295789	570.95457	3220.3456	-20.156526
1331	-188.29453	-48.756823	-73.758315	365.86627	1014.7681	793.13874
1332	-182.12430	-82.965297	-68.556541	389.94910	1539.6232	401.66592
1333	-178.32519	-108.12294	-55.579325	433.63636	2329.9567	175.63912
1334	-173.57730	-128.95278	-45.015524	535.50619	3298.4189	-8.7728669
1335	-193.51201	-79.373154	-103.83657	-109.59398	1290.5631	824.58479
1336	-173.57290	-109.82201	-88.763966	155.18636	1606.4855	458.97193
1337	-169.32990	-129.01425	-70.809320	322.66968	2354.4660	220.40186
1338	-168.34084	-145.17275	-57.127425	489.94291	3391.3671	13.728747
1339	-198.48319	-118.42829	-133.55474	-607.66385	1487.1613	683.89740
1340	-165.32112	-138.96780	-104.01085	-111.80063	1630.6871	440.43517
1341	-160.50234	-150.31459	-81.897723	196.26430	2337.4492	236.33409
1342	-163.30227	-161.28109	-65.811008	442.42439	3477.0891	50.681776
1343	-201.30594	-165.43282	-161.08478	-1069.4746	1580.7357	436.38299
1344	-159.12832	-165.71759	-114.26536	-405.97236	1610.0413	351.06964
1345	-152.90909	-169.48489	-89.763366	45.424432	2283.7145	220.19899
1346	-159.00083	-175.02076	-71.489083	412.27156	3519.2435	89.571359
1347	-101.09802	-166.16696	-63.271274	-144.83233	173.57910	-1261.7577
1348	-104.18792	-199.49561	-75.137702	-541.10752	302.05976	-1204.1766
1349	-109.50896	-230.64685	-87.553805	-828.70451	537.04705	-1033.9006
1350	-121.21343	-248.96496	-112.33447	-1079.1679	896.81953	-735.67030
1351	-161.15674	-222.67726	-148.57843	-1223.1302	1373.9847	-188.58018
1352	-83.848190	-155.36550	-59.316196	-83.771229	530.87926	-1116.1934
1353	-92.055516	-190.95666	-69.779313	-335.39935	769.74676	-1017.0916
1354	-101.40136	-218.00874	-80.828221	-510.96763	1048.4261	-797.39098
1355	-115.78628	-227.98154	-96.240062	-626.95636	1335.7850	-458.44259

FILENAME : PIT3E1.PO DATE : 05-25-94 TIME : 2:20p PAGE 7
TITL : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 18/25)

1356	-140.29900	-203.78812	-112.55414	-596.29469	1541.7717	11.403447
1357	-68.637961	-145.76754	-49.851147	39.136065	1114.8711	-870.40812
1358	-83.800160	-182.66886	-60.003878	-70.447890	1519.2384	-764.94289
1359	-98.840723	-208.05191	-70.261667	-138.42046	1880.4076	-562.24411
1360	-114.87508	-215.83301	-81.631996	-164.78155	2146.4867	-281.66919
1361	-135.02187	-197.19904	-90.612924	-97.481241	2250.2692	34.137034
1362	-58.712371	-136.87857	-33.000431	209.86620	2026.1758	-463.60889
1363	-83.738491	-173.90244	-43.592330	219.43861	2677.3285	-404.53684
1364	-106.78885	-198.52252	-55.165668	235.85691	3183.6660	-293.69673
1365	-127.09393	-206.95247	-66.462783	259.44855	3478.4050	-145.88154
1366	-145.69812	-194.51800	-73.058776	303.96351	3538.4480	9.7431480
1367	-101.74170	-88.823002	-6.5902586	1560.3664	198.84489	-722.11297
1368	-100.68387	-111.53899	-32.373241	854.10637	146.15104	-1022.7020
1369	-100.16053	-136.34119	-49.478016	314.68612	129.76990	-1192.7732
1370	-74.339088	-50.903633	-7.5455511	1054.4811	249.78437	-649.78263
1371	-75.002595	-87.518935	-32.024445	569.86777	286.88261	-933.00278
1372	-77.997574	-120.51916	-47.234606	209.52845	369.37790	-1079.0913
1373	-44.744970	-16.253084	-7.5164511	598.69958	372.58213	-507.41912
1374	-48.631274	-67.114800	-27.009133	343.89782	544.53886	-748.63811
1375	-56.433265	-106.90698	-39.411537	168.62114	777.21191	-859.58807
1376	-18.297168	6.9468696	-5.5018645	279.46425	548.28245	-247.44412
1377	-24.334373	-52.447193	-16.491102	209.85892	934.17415	-392.56004
1378	-37.903253	-96.356307	-24.442511	206.29279	1420.7011	-459.17421
MINIMUMS						
ELEMENT	1195	1280	1295	1195	1166	1280
VALUE	-584.02721	-363.62213	-180.94633	-5283.1617	-2431.8274	-2129.6800
MAXIMUMS						
ELEMENT	1376	1376	1232	1153	978	1035
VALUE	-18.297168	6.9468696	135.65621	5325.7788	4362.4687	1549.7744

FILENAME : PIT3E2.PO DATE : 05-25-94 TIME : 2:20p PAGE 1
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 19/25)

C*** Output For Factored Pump Column Load of 0 lb + 0.9DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1

172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1

110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3431 MAY 25,1994 CP= 815.810

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-262.58901	758.72149	425.08875	-1141.4228	-6988.7847	-0.49630452E-02
2	-524.65064	-2.0689066	849.32183	-0.81230631E-03	-13974.203	0.31320026E-04
3	-665.91474	-6.3338674	1078.1292	-0.42565241E-02	-17607.839	-0.77868168E-03
4	-804.11701	-12.583673	1297.4934	-0.11272939E-02	-21068.129	0.77387435E-03
5	-796.15784	-18.202510	1273.1313	-0.20213940E-03	-20761.480	0.14081127E-02
6	-783.85653	-22.798129	1239.5861	-0.31077126E-03	-20399.545	0.21728695E-02
7	-1141.1644	-45.867024	1786.3015	-0.13090951E-01	-29086.927	0.58063746E-03
8	-1452.5878	-77.749639	2205.0486	0.11332612E-01	-35180.246	0.10584484E-01
9	-1338.6351	-95.754968	1912.0919	0.19515437E-01	-30894.412	0.14001302E-01
10	-1185.1305	-106.02308	1541.0051	0.26942964E-01	-25506.647	0.17505066E-01
11	-981.87491	-104.00568	1083.8305	0.31878819E-01	-19323.877	0.19339983E-01
12	-638.08343	-75.366351	516.54841	0.24951226E-01	-10885.589	0.13488008E-01
13	-341.93628	-39.120373	69.106178	0.21191015E-01	-5802.8223	0.13385460E-01
14	-148.60675	-11.075592	-301.58076	0.23302304E-01	-2874.2662	0.16529819E-01
15	-22.158254	-103.01150	-696.64498	634.72271	-142.15950	0.31056860E-02
16	-83.870807	-491.09177	-238.91192	6685.7154	-0.57333357E-01	-0.16325376E-01
17	-165.63353	-866.89320	670.60190	15098.714	-0.59953426E-01	-0.21829495E-01
18	-198.96582	-1170.6337	1420.9134	23864.438	-0.52439219E-01	-0.21354750E-01
19	-195.17363	-1408.7569	2035.8942	32034.333	-0.40240975E-01	-0.18204305E-01
20	-168.11418	-1586.5323	2528.1700	39174.516	-0.26812432E-01	-0.14517570E-01
21	-124.91347	-1713.6691	2908.0237	45002.667	-0.13649646E-01	-0.11215502E-01
22	-68.621971	-1597.3325	2820.7795	44193.444	0.87358062E-02	-0.57443128E-02
23	-18.075511	-1443.9345	2616.5186	41036.883	0.66442172E-02	-0.45963763E-02
24	21.159021	-1465.4688	2702.4140	42279.256	0.12131042E-01	-0.33447708E-02
25	38.826972	-1119.5502	2085.3884	32847.981	0.25456946E-01	0.68837791E-03
26	41.254029	-767.08263	1434.4086	22878.461	0.86841417E-02	-0.96488984E-03
27	50.474809	-767.58323	1440.3793	22723.180	0.79565377E-02	-0.81456010E-03
28	50.074804	-661.22360	1243.3533	19622.045	0.86440462E-02	-0.12642287E-03
29	47.046903	-554.60773	1043.7111	16556.266	0.43073864E-02	-0.59591404E-03
30	50.594287	-552.12717	1040.2283	16494.449	0.27694330E-02	-0.79169577E-03
31	68.775198	-693.01660	1308.2059	20568.995	-0.11673799E-02	-0.19709184E-02
32	87.781373	-828.66672	1566.0949	24563.067	0.24082703E-02	-0.12696125E-02
33	123.47994	-1091.0781	2062.0629	32053.454	-0.50479808E-02	-0.37842956E-02
34	155.49552	-1338.4442	2524.7176	38500.936	0.11154028E-01	0.32096403E-03
35	129.87524	-1130.6184	2120.3034	31910.756	0.19611743E-01	0.39964095E-02

FILENAME : PIT3E2.PO DATE : 05-25-94 TIME : 2:20p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 19/25)

36	100.38895	-930.53219	1730.4719	25921.169	0.12232363E-01	0.27183571E-02
37	89.462266	-906.85126	1672.4261	24507.494	0.12781504E-01	0.36041035E-02
38	77.676877	-880.31034	1607.5338	23035.078	0.13403174E-01	0.45549641E-02
39	66.469699	-850.26358	1535.0068	21439.690	0.14236553E-01	0.56071846E-02
40	57.186640	-814.81621	1452.3547	19711.742	0.15351784E-01	0.67739288E-02
41	50.789554	-771.39458	1355.6405	17844.130	0.16838229E-01	0.80788190E-02
42	47.669010	-717.29683	1239.8407	15830.860	0.18801678E-01	0.95699732E-02
43	47.613710	-650.04953	1098.0012	13691.961	0.21484892E-01	0.11379419E-01
44	56.563017	-642.18720	1033.0860	13008.754	0.28084279E-01	0.15992197E-01
45	63.507469	-574.66222	822.16192	10623.326	0.41950010E-01	0.19551677E-01
46	52.768448	-386.12389	358.37184	6563.0434	0.46540883E-01	0.18847157E-01
47	25.048415	-196.38029	-145.82733	2936.8474	0.41660424E-01	0.14774438E-01
48	-67.271027	-33.239825	-363.02849	451.27349	778.04977	-0.56370117E-02
49	95.791337	39.620299	31.549026	0.31684998E-01	4337.7483	-0.16807993E-01
50	378.17710	62.488070	521.22693	0.27570859E-01	7861.6588	-0.13026493E-01
51	749.07488	119.91810	1162.5990	0.36067600E-01	14015.034	-0.11716353E-01
52	1171.0292	208.01794	1873.0329	0.34074026E-01	23281.908	-0.16807033E-01
53	1406.5424	300.80136	2276.2477	0.21674386E-01	28909.308	-0.16715568E-01
54	1538.5088	400.42477	2483.2177	0.54029977E-02	32576.586	-0.15556356E-01
55	1540.8310	479.32885	2479.0429	-0.12694514E-01	33804.111	-0.12792292E-01
56	1039.4323	366.22158	1683.2201	-0.29976604E-01	23806.874	-0.16473639E-02
57	583.28055	215.15944	945.64606	-0.77781138E-02	14480.360	-0.20615434E-02
58	533.51702	192.38577	879.59906	-0.68990881E-02	13775.091	-0.15193909E-02
59	483.95107	157.81667	811.94160	-0.58674361E-02	13189.933	-0.10272821E-02
60	442.01694	122.30636	753.97574	-0.42802911E-02	12721.515	-0.63045061E-03
61	413.93869	58.404758	715.39064	-0.22612297E-02	12412.566	-0.29927892E-03
62	202.02978	418.28165	350.93329	-1145.9362	6151.9829	0.12768656E-02
63	0.17053026E-12	842.81899	-0.14984667E-06	-2484.6205	-0.25334884E-07	0.24530996E-02
64	0.51727511E-11	873.08939	-0.82674319E-07	-2653.4988	0.64012511E-07	0.22796105E-02
65	0.14281909E-11	857.12392	0.13537693E-06	-3444.7948	0.27030637E-07	0.21765207E-02
66	-0.32454145E-11	402.08252	98.000000	-3259.6712	-0.20684740E-07	0.10731443E-02
67	-0.32684966E-11	0.56843419E-13	196.00000	0.85711235E-07	0.67077337E-07	0.21684043E-18
68	0.93791641E-12	-0.85265128E-12	196.00000	-0.10484587E-06	0.30034926E-08	-0.54210109E-18
69	0.56843419E-13	-0.34106051E-12	196.00000	-0.17787158E-07	-0.48277116E-07	0.21684043E-18
70	0.56843419E-13	-0.10231815E-11	196.00000	0.60158300E-07	-0.93884978E-07	-0.32526065E-18
71	-0.68212103E-12	-0.68212103E-12	196.00000	0.55434157E-07	-0.17346963E-06	-0.53735770E-17
72	-0.12505552E-10	-0.39008796E-11	245.00000	-0.10553322E-06	0.89369678E-07	-0.43368087E-16
73	-0.17053026E-10	-0.38653525E-11	294.00000	-0.65287395E-07	-0.49505616E-07	-0.22421301E-15
74	0.23874236E-10	-0.16257218E-10	294.00000	-0.16995591E-06	0.33433025E-07	-0.15525775E-15
75	-0.70485839E-11	-0.58321348E-10	294.00000	0.85871307E-07	0.73787305E-07	-0.79146759E-16
76	-0.61290892E-11	0.22026825E-10	294.00000	0.20952484E-08	-0.52576297E-07	-0.63967928E-16
77	0.42064130E-11	0.14630075E-10	294.00000	-0.76079232E-09	0.13642784E-06	-0.19689111E-15
78	0.80717655E-11	-0.13301360E-10	294.00000	-0.67277256E-07	-0.26109774E-07	-0.20664893E-15
79	0.14779289E-11	-0.10402346E-10	294.00000	-0.24063266E-06	0.59189915E-07	0.47355918E-16
80	-0.11937118E-10	0.20747848E-10	294.00000	-0.27966394E-06	0.61765604E-07	-0.13444107E-16
81	0.15916157E-11	0.50022209E-11	261.00000	-0.52357564E-07	-0.22078893E-07	0.35561831E-16
82	0.85265128E-12	-0.56843419E-12	228.50000	-0.10502390E-06	0.33074457E-07	0.36862874E-17
83	-0.45474735E-12	0.20463631E-11	228.50000	0.40116902E-07	-0.14781483E-06	-0.73725748E-17
84	-0.17621460E-11	-0.13642421E-11	228.50000	0.12231794E-07	-0.16247444E-06	-0.24394549E-17
85	0.21316282E-12	0.11368684E-12	180.00000	-0.63100742E-08	0.10273915E-06	-0.17076184E-17
86	-0.19610980E-11	-0.68212103E-12	132.00000	-0.11989141E-06	-0.27947067E-08	-0.27105054E-19
87	-0.13000196E-12	625.92432	66.000000	7152.9552	0.43048349E-07	-0.11493445E-03
88	-0.58975047E-12	1212.3894	0.64851509E-06	13453.894	-0.35509345E-07	-0.22493712E-03
89	0.16768809E-11	1194.8022	-0.35942449E-07	13394.990	-0.42625913E-07	-0.21933365E-03
90	0.20463631E-11	1425.9437	0.16064703E-06	14229.707	0.22910569E-07	-0.21539014E-03
91	0.15599295E-12	1038.4315	182.32500	9051.7653	-0.24755519E-07	-0.10605915E-03
92	-0.10516032E-11	-0.11368684E-12	364.39500	0.13710451E-06	-0.33524202E-07	-0.81315163E-19
93	-0.25988101E-11	-0.45474735E-12	363.88500	-0.21815231E-06	-0.27417082E-06	-0.15531196E-16
94	-0.88959951E-11	-0.13429258E-11	364.14000	0.14564864E-06	0.95558789E-07	-0.34179473E-16
95	0.62811978E-11	0.22168933E-11	364.39500	-0.13031911E-06	-0.14416037E-06	-0.33068166E-17
96	0.45474735E-11	0.29558578E-11	364.39500	0.22885615E-06	-0.47348294E-07	-0.80095435E-17
97	0.28421709E-11	-0.34106051E-12	364.39500	-0.13485078E-06	-0.13336637E-06	-0.18973538E-18
98	-0.51030937E-12	846.44629	182.07000	9050.6170	-0.67492243E-07	0.32389008E-04
99	0.26147973E-11	1177.2298	0.18087633E-07	12814.917	-0.86834007E-08	0.69553230E-04
100	-0.32969183E-11	898.09822	0.46846698E-06	11538.074	-0.13041699E-07	0.76892545E-04
163	-0.11084467E-11	1355.3712	0.21592521E-06	19076.375	-0.54663815E-07	0.12777404E-03
164	-0.40643044E-11	1733.8839	0.40813926E-06	24964.997	0.55433247E-07	0.15623468E-03
165	-0.27284841E-11	1579.9974	-0.99064906E-07	23665.499	-0.11275915E-07	0.99660843E-04
166	-0.21316282E-11	1655.7875	170.00000	24920.818	-0.74996478E-07	0.10259258E-04
167	-0.10004442E-10	1700.1360	-0.21526229E-06	25286.123	0.19686013E-08	-0.11709952E-03

FILENAME : PIT3E2.PO DATE : 05-25-94 TIME : 2:20p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 19/25)

168	-0.45474735E-11	1545.6027	-0.27393304E-06	21460.704	-0.64301275E-08	-0.28348829E-03
169	0.61959327E-11	1417.1366	-0.52313996E-06	16677.519	-0.10418262E-08	-0.47667586E-03
170	0.12505552E-11	1332.4842	0.90644824E-06	11198.011	-0.60392964E-07	-0.67640420E-03
171	-0.19042545E-10	1316.9956	-0.19621928E-06	5280.1034	-0.24807832E-07	-0.84730992E-03
172	-0.32969183E-10	1400.7083	-0.40868201E-06	-771.44393	-0.35462108E-07	-0.95628470E-03

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.9128769E-09
FY = 0.1017781E-09
FZ = 87694.88
MX = -3590713.
MY = -9128017.
MZ = -0.1135024E-04
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT3E3.PO DATE : 05-25-94 TIME : 2:20p PAGE 1
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 20/25)

C*** Output For Factored Pump Column Load of 0 lb + 0.9DL + 1.7L + 0.9H

BSEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY BSEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3460 MAY 25,1994 CP= 826.250

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	-0.44926114	0.00000000E+00	0.17081058E-02	0.00000000E+00
2	-0.17608207E-06	0.74516096E-05	-0.44926171	0.45549153E-06	0.17081687E-02	-0.13993391E-06
3	-0.68592121E-06	0.14883536E-04	-0.44926340	0.88447451E-06	0.17083471E-02	-0.26256215E-06
4	-0.21604214E-05	0.26262070E-04	-0.44926835	0.16656569E-05	0.17088618E-02	-0.49503288E-06
5	-0.44724856E-05	0.37427879E-04	-0.44927618	0.23942587E-05	0.17096580E-02	-0.70930089E-06
6	-0.76172203E-05	0.48271256E-04	-0.44928675	0.30805156E-05	0.17107295E-02	-0.92771613E-06
7	-0.11535358E-04	0.58709822E-04	-0.44929974	0.35979478E-05	0.17120579E-02	-0.10820667E-05
8	-0.21258703E-04	0.78003318E-04	-0.44933361	0.51370203E-05	0.17154209E-02	-0.14777425E-05
9	-0.33150377E-04	0.94486056E-04	-0.44937710	0.62527444E-05	0.17194879E-02	-0.17089183E-05
10	-0.46317744E-04	0.10736150E-03	-0.44942815	0.71097339E-05	0.17240071E-02	-0.18118102E-05
11	-0.59461943E-04	0.11602686E-03	-0.44948432	0.75722918E-05	0.17286164E-02	-0.17022882E-05
12	-0.70680475E-04	0.12034961E-03	-0.44954199	0.74900288E-05	0.17328565E-02	-0.13114378E-05
13	-0.76289369E-04	0.12113527E-03	-0.44958119	0.71521080E-05	0.17352630E-02	-0.80351391E-06
14	-0.79042835E-04	0.12099824E-03	-0.44961829	0.67084244E-05	0.17370201E-02	-0.21823804E-06
15	-0.78432205E-04	0.12134949E-03	-0.44965263	0.60887617E-05	0.17379169E-02	0.48961609E-06
16	-0.75752609E-04	0.13057016E-03	-0.46528792	0.84964091E-05	0.17361431E-02	0.17181238E-05
17	-0.75376155E-04	0.15006194E-03	-0.48091154	0.13348855E-04	0.17351822E-02	0.27524779E-05
18	-0.81911806E-04	0.17631491E-03	-0.49653052	0.19596476E-04	0.17351190E-02	0.32559150E-05
19	-0.96048245E-04	0.20510188E-03	-0.51215215	0.26393224E-04	0.17357938E-02	0.33403070E-05
20	-0.11697966E-03	0.23350945E-03	-0.52778183	0.33094595E-04	0.17369652E-02	0.31708125E-05
21	-0.14360793E-03	0.25986917E-03	-0.54342306	0.39213478E-04	0.17384357E-02	0.28678313E-05
22	-0.17485455E-03	0.28327008E-03	-0.55907810	0.44394203E-04	0.17401817E-02	0.24640177E-05
23	-0.20194163E-03	0.29933063E-03	-0.57131839	0.47638351E-04	0.17415257E-02	0.21447809E-05
24	-0.23099603E-03	0.31306560E-03	-0.58356828	0.50093999E-04	0.17429132E-02	0.18064291E-05
25	-0.26166849E-03	0.32437371E-03	-0.59582801	0.51715724E-04	0.17444669E-02	0.13996032E-05
26	-0.27811622E-03	0.32923510E-03	-0.60218583	0.52231621E-04	0.17450664E-02	0.12427838E-05
27	-0.29489733E-03	0.33335256E-03	-0.60854620	0.52506244E-04	0.17458062E-02	0.10175354E-05
28	-0.31197270E-03	0.33662150E-03	-0.61490930	0.52558003E-04	0.17465831E-02	0.76919932E-06
29	-0.32454526E-03	0.33844914E-03	-0.61953838	0.52455857E-04	0.17470753E-02	0.60331872E-06
30	-0.33722878E-03	0.33980531E-03	-0.62416882	0.52229968E-04	0.17475963E-02	0.41854060E-06
31	-0.35001084E-03	0.34067355E-03	-0.62880061	0.51879380E-04	0.17480720E-02	0.24205676E-06
32	-0.36965703E-03	0.34097563E-03	-0.63587160	0.51130975E-04	0.17489379E-02	-0.89250725E-07
33	-0.38940111E-03	0.34002161E-03	-0.64294579	0.50119035E-04	0.17496211E-02	-0.36766515E-06
34	-0.42255886E-03	0.33557896E-03	-0.65483212	0.47874152E-04	0.17510008E-02	-0.95425367E-06
35	-0.45539315E-03	0.32729458E-03	-0.66672691	0.44993973E-04	0.17522529E-02	-0.15503162E-05
36	-0.47891390E-03	0.31863347E-03	-0.67543346	0.42522152E-04	0.17530406E-02	-0.19634793E-05
37	-0.50173091E-03	0.30780657E-03	-0.68414416	0.39780319E-04	0.17538861E-02	-0.24022988E-05
38	-0.52359158E-03	0.29486473E-03	-0.69285899	0.36811839E-04	0.17547051E-02	-0.28141495E-05
39	-0.54421854E-03	0.27997262E-03	-0.70157781	0.33658178E-04	0.17555035E-02	-0.31862850E-05
40	-0.56332957E-03	0.26336034E-03	-0.71030055	0.30364825E-04	0.17562842E-02	-0.35045577E-05
41	-0.58063743E-03	0.24533386E-03	-0.71902710	0.26980587E-04	0.17570433E-02	-0.37529546E-05
42	-0.59584691E-03	0.22628454E-03	-0.72775733	0.23558456E-04	0.17577680E-02	-0.39127213E-05
43	-0.60864483E-03	0.20670855E-03	-0.73649103	0.20160117E-04	0.17584360E-02	-0.39589396E-05
44	-0.61869253E-03	0.18726612E-03	-0.74522778	0.16847145E-04	0.17589889E-02	-0.38426279E-05

FILENAME : PIT3E3.PO DATE : 05-25-94 TIME : 2:20p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 20/25)

45	-0.62712486E-03	0.16369154E-03	-0.75661593	0.12830896E-04	0.17593978E-02	-0.34221518E-05
46	-0.62988103E-03	0.14440072E-03	-0.76800452	0.93827483E-05	0.17591121E-02	-0.25017688E-05
47	-0.62729031E-03	0.13281212E-03	-0.77938823	0.68529222E-05	0.17578316E-02	-0.10182849E-05
48	-0.62137055E-03	0.13233801E-03	-0.79076029	0.56980506E-05	0.17555355E-02	0.89452805E-06
49	-0.62795739E-03	0.13135128E-03	-0.79072857	0.60989341E-05	0.17558656E-02	0.15518394E-05
50	-0.63785207E-03	0.13070853E-03	-0.79069614	0.60789936E-05	0.17565966E-02	0.21331883E-05
51	-0.65064931E-03	0.12896119E-03	-0.79066424	0.59385082E-05	0.17575846E-02	0.26432468E-05
52	-0.67286533E-03	0.12330029E-03	-0.79062215	0.52810733E-05	0.17592001E-02	0.31468649E-05
53	-0.69811603E-03	0.11361531E-03	-0.79058673	0.41597618E-05	0.17607503E-02	0.34194071E-05
54	-0.72462190E-03	0.10006358E-03	-0.79056086	0.27336607E-05	0.17619897E-02	0.34542730E-05
55	-0.75048834E-03	0.83075297E-04	-0.79054590	0.12516040E-05	0.17627700E-02	0.32299771E-05
56	-0.77354567E-03	0.63075584E-04	-0.79054110	-0.65609032E-07	0.17630537E-02	0.26893207E-05
57	-0.78221309E-03	0.53410920E-04	-0.79054164	-0.25087292E-06	0.17630734E-02	0.23875773E-05
58	-0.78967343E-03	0.43295045E-04	-0.79054302	-0.48938789E-06	0.17630264E-02	0.19939406E-05
59	-0.79569990E-03	0.32800043E-04	-0.79054493	-0.57227626E-06	0.17629524E-02	0.15464112E-05
60	-0.80013216E-03	0.22022299E-04	-0.79054680	-0.48882949E-06	0.17628778E-02	0.10567835E-05
61	-0.80284552E-03	0.11057765E-04	-0.79054814	-0.27858903E-06	0.17628231E-02	0.53653237E-06
62	-0.80375929E-03	0.00000000E+00	-0.79054862	0.00000000E+00	0.17628031E-02	0.00000000E+00
63	-0.79648991E-03	0.00000000E+00	-0.78258240	0.00000000E+00	0.17770895E-02	0.00000000E+00
64	-0.79185693E-03	0.00000000E+00	-0.77456151	0.00000000E+00	0.17871459E-02	0.00000000E+00
65	-0.79019547E-03	0.00000000E+00	-0.76650465	0.00000000E+00	0.17931213E-02	0.00000000E+00
66	-0.79138921E-03	0.00000000E+00	-0.75843043	0.00000000E+00	0.17948179E-02	0.00000000E+00
67	-0.78839745E-02	0.13139047E-04	-0.75801008	-0.45699164E-05	0.17960808E-02	0.39443443E-06
68	-0.77942376E-03	0.26255297E-04	-0.75675531	-0.84300234E-05	0.17996906E-02	0.76430936E-06
69	-0.76453530E-03	0.39413343E-04	-0.75468502	-0.10903136E-04	0.18051274E-02	0.10833219E-05
70	-0.74396538E-03	0.52808485E-04	-0.75183104	-0.11416364E-04	0.18116030E-02	0.13194164E-05
71	-0.71831718E-03	0.66818268E-04	-0.74823799	-0.96254141E-05	0.18181894E-02	0.14207430E-05
72	-0.68805513E-03	0.81807145E-04	-0.74396176	-0.56597941E-05	0.18247128E-02	0.12183624E-05
73	-0.64149345E-03	0.10633129E-03	-0.73641833	0.45592397E-05	0.18302900E-02	0.63146605E-06
74	-0.59122356E-03	0.13269082E-03	-0.72775435	0.18548918E-04	0.18335517E-02	0.19169674E-06
75	-0.54156761E-03	0.16020926E-03	-0.71826071	0.35228296E-04	0.18335818E-02	-0.14464411E-06
76	-0.49481354E-03	0.18546531E-03	-0.70824955	0.52534377E-04	0.18305354E-02	-0.38972062E-06
77	-0.45219599E-03	0.20481492E-03	-0.69804374	0.68349889E-04	0.18249292E-02	-0.55235553E-06
78	-0.41427806E-03	0.21514422E-03	-0.68797195	0.80753043E-04	0.18172253E-02	-0.64183225E-06
79	-0.38137480E-03	0.21447683E-03	-0.67836462	0.88032737E-04	0.18078554E-02	-0.66815283E-06
80	-0.35376923E-03	0.20211715E-03	-0.66954717	0.88970420E-04	0.17975159E-02	-0.63974875E-06
81	-0.33189031E-03	0.17783399E-03	-0.66182849	0.83048758E-04	0.17873444E-02	-0.54998695E-06
82	-0.31694091E-03	0.15323787E-03	-0.65677594	0.73701107E-04	0.17785865E-02	-0.42937154E-06
83	-0.30531670E-03	0.12233367E-03	-0.65267235	0.60612963E-04	0.17713284E-02	-0.34351439E-06
84	-0.29515170E-03	0.86117425E-04	-0.64961244	0.44160100E-04	0.17657917E-02	-0.26975477E-06
85	-0.28620976E-03	0.46544223E-04	-0.64766924	0.24965595E-04	0.17626012E-02	-0.20384684E-06
86	-0.28235398E-03	0.23207931E-04	-0.64707636	0.12697511E-04	0.17616871E-02	-0.10062724E-06
87	-0.28097237E-03	0.00000000E+00	-0.64687809	0.00000000E+00	0.17613997E-02	0.00000000E+00
88	-0.28350937E-03	0.00000000E+00	-0.64186648	0.00000000E+00	0.17631774E-02	0.00000000E+00
89	-0.28362665E-03	0.00000000E+00	-0.63685066	0.00000000E+00	0.17643860E-02	0.00000000E+00
90	-0.28151357E-03	0.00000000E+00	-0.63183154	0.00000000E+00	0.17655852E-02	0.00000000E+00
91	-0.28255324E-03	0.00000000E+00	-0.62680772	0.00000000E+00	0.17677085E-02	0.00000000E+00
92	-0.28502838E-03	0.44523097E-04	-0.62571568	0.16702228E-04	0.17662823E-02	-0.78854095E-07
93	-0.28775984E-03	0.75801395E-04	-0.62264655	0.29043341E-04	0.17620370E-02	-0.14226436E-06
94	-0.28735067E-03	0.93174376E-04	-0.61818987	0.36089977E-04	0.17557227E-02	-0.90176126E-07
95	-0.28351198E-03	0.89325935E-04	-0.61321986	0.35949943E-04	0.17475654E-02	-0.27483644E-07
96	-0.27909169E-03	0.67939336E-04	-0.60872375	0.28712639E-04	0.17393976E-02	0.33637443E-07
97	-0.27566870E-03	0.37418863E-04	-0.60560237	0.16197599E-04	0.17324840E-02	0.23304143E-07
98	-0.27460308E-03	0.00000000E+00	-0.60448663	0.00000000E+00	0.17299181E-02	0.00000000E+00
99	-0.27455491E-03	0.00000000E+00	-0.59956538	0.00000000E+00	0.17303646E-02	0.00000000E+00
100	-0.26940582E-03	0.00000000E+00	-0.59464717	0.00000000E+00	0.17280857E-02	0.00000000E+00
101	-0.26370987E-03	0.00000000E+00	-0.58973746	0.00000000E+00	0.17244863E-02	0.00000000E+00
102	-0.24857946E-03	0.00000000E+00	-0.57765337	0.00000000E+00	0.17126811E-02	0.00000000E+00
103	-0.23228829E-03	0.00000000E+00	-0.56566014	0.00000000E+00	0.16988847E-02	0.00000000E+00
104	-0.21473596E-03	0.00000000E+00	-0.55376513	0.00000000E+00	0.16849378E-02	0.00000000E+00
105	-0.19028319E-03	0.00000000E+00	-0.53867846	0.00000000E+00	0.16680485E-02	0.00000000E+00
106	-0.16346002E-03	0.00000000E+00	-0.52373506	0.00000000E+00	0.16534613E-02	0.00000000E+00
107	-0.13422120E-03	0.00000000E+00	-0.50890405	0.00000000E+00	0.16433871E-02	0.00000000E+00
108	-0.10268646E-03	0.00000000E+00	-0.49413404	0.00000000E+00	0.16402531E-02	0.00000000E+00
109	-0.69236692E-04	0.00000000E+00	-0.47934893	0.00000000E+00	0.16471483E-02	0.00000000E+00
110	-0.34622683E-04	0.00000000E+00	-0.46444087	0.00000000E+00	0.16680381E-02	0.00000000E+00
2011	-0.21472529E-03	0.18984035E-04	-0.55380084	0.14369373E-04	0.16853296E-02	0.12384772E-07
2012	-0.21473559E-03	0.94883213E-05	-0.55377402	0.71597759E-05	0.16850383E-02	0.31019664E-08
2013	-0.35228013E-04	0.12501331E-04	-0.46444640	0.22207064E-05	0.16685648E-02	-0.29084725E-06
2014	-0.69746322E-04	0.11687907E-04	-0.47935937	0.41868698E-05	0.16477759E-02	-0.24951154E-06

FILENAME : PIT3E3.PO DATE : 05-25-94 TIME : 2:20p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 20/25)

2015	-0.10308471E-03	0.12064504E-04	-0.49415020	0.64753976E-05	0.16409200E-02	-0.19092528E-06
2016	-0.13451287E-03	0.13245216E-04	-0.50892604	0.88145687E-05	0.16440283E-02	-0.12923370E-06
2017	-0.16365268E-03	0.14920173E-04	-0.52376250	0.10999129E-04	0.16540329E-02	-0.72086906E-07
2018	-0.19038071E-03	0.16868316E-04	-0.53871055	0.12872618E-04	0.16685033E-02	-0.24045828E-07
2019	-0.34771287E-04	0.62607274E-05	-0.46444225	0.11089986E-05	0.16681616E-02	-0.13444371E-06
2020	-0.69365812E-04	0.58493015E-05	-0.47935154	0.20953209E-05	0.16472986E-02	-0.11985231E-06
2021	-0.10278576E-03	0.60342854E-05	-0.49413809	0.32418502E-05	0.16404163E-02	-0.94279550E-07
2022	-0.13429435E-03	0.66224435E-05	-0.50890955	0.44134930E-05	0.16435457E-02	-0.65532744E-07
2023	-0.16350906E-03	0.74583415E-05	-0.52374193	0.55071250E-05	0.16536039E-02	-0.38181051E-07
2024	-0.19030606E-03	0.84314949E-05	-0.53868648	0.64412973E-05	0.16681622E-02	-0.14829182E-07
2029	-0.21506716E-03	0.77992625E-04	-0.55435731	0.57090643E-04	0.16912289E-02	0.21363932E-06
2030	-0.21471989E-03	0.33678238E-04	-0.55387752	0.25442927E-04	0.16861604E-02	0.29021743E-07
2031	-0.21475402E-03	0.48414594E-04	-0.55399652	0.36333739E-04	0.16874372E-02	0.63720318E-07
2032	-0.21486237E-03	0.63191349E-04	-0.55415692	0.46920968E-04	0.16891398E-02	0.12278589E-06
2033	-0.44493214E-04	0.49542301E-04	-0.46453213	0.88314526E-05	0.16760378E-02	-0.93222208E-06
2034	-0.16635978E-03	0.46901857E-04	-0.47952067	0.16565931E-04	0.16572217E-02	-0.66341609E-06
2035	-0.10890931E-03	0.48985578E-04	-0.49439945	0.25561100E-04	0.16510469E-02	-0.40598060E-06
2036	-0.13868277E-03	0.54196103E-04	-0.50926526	0.34766632E-04	0.16538618E-02	-0.18477643E-06
2037	-0.16635978E-03	0.61273956E-04	-0.52418599	0.43403140E-04	0.16628602E-02	-0.74807651E-08
2038	-0.19184141E-03	0.69347464E-04	-0.53920722	0.50938275E-04	0.16758753E-02	0.12470421E-06
2039	-0.41200815E-04	0.40631870E-04	-0.46450124	0.72246219E-05	0.16731998E-02	-0.74182681E-06
2040	-0.38526090E-04	0.31448288E-04	-0.46447655	0.55923340E-05	0.16711342E-02	-0.58131903E-06
2041	-0.36522926E-04	0.22052538E-04	-0.46445822	0.39194518E-05	0.16696027E-02	-0.42459263E-06
2042	-0.74649548E-04	0.38300904E-04	-0.47946258	0.13591258E-04	0.16537474E-02	-0.55752757E-06
2043	-0.72469622E-04	0.29541864E-04	-0.47941613	0.10522900E-04	0.16510800E-02	-0.44965739E-06
2044	-0.70823268E-04	0.20658720E-04	-0.47938165	0.73786131E-05	0.16490856E-02	-0.34486609E-06
2045	-0.10688581E-03	0.39831756E-04	-0.49430976	0.20996934E-04	0.16473593E-02	-0.37171266E-06
2046	-0.10520575E-03	0.30619411E-04	-0.49423797	0.16267210E-04	0.16444735E-02	-0.31765016E-06
2047	-0.10392564E-03	0.21359203E-04	-0.49418465	0.11412170E-04	0.16423220E-02	-0.25508481E-06
2048	-0.13725661E-03	0.43948922E-04	-0.50914323	0.28573377E-04	0.16503006E-02	-0.20349485E-06
2049	-0.13605349E-03	0.33709517E-04	-0.50904553	0.22143001E-04	0.16474838E-02	-0.19344028E-06
2050	-0.13512632E-03	0.23475615E-04	-0.50897295	0.15536696E-04	0.16453871E-02	-0.16616121E-06
2051	-0.16544675E-03	0.49627810E-04	-0.52403364	0.35674693E-04	0.16596705E-02	-0.62739579E-07
2052	-0.16466453E-03	0.38025423E-04	-0.52391165	0.27643909E-04	0.16571324E-02	-0.85513182E-07
2053	-0.16405676E-03	0.26459293E-04	-0.52382105	0.19393091E-04	0.16552481E-02	-0.86130696E-07
2054	-0.19133647E-03	0.56154589E-04	-0.53902842	0.41859920E-04	0.16732042E-02	0.46317274E-07
2055	-0.19091136E-03	0.43013778E-04	-0.53888532	0.32419216E-04	0.16710709E-02	0.97306042E-09
2056	-0.19058935E-03	0.29921396E-04	-0.53877910	0.22722870E-04	0.16694998E-02	-0.20154668E-07
2062	-0.20576898E-03	0.22474062E-03	-0.55783805	0.98296032E-04	0.17272095E-02	0.10693231E-05
2063	-0.21570117E-03	0.10761979E-03	-0.55487056	0.75492459E-04	0.16965853E-02	0.28901850E-06
2064	-0.21611374E-03	0.13712387E-03	-0.55551373	0.90527688E-04	0.17022559E-02	0.40879622E-06
2065	-0.21538404E-03	0.16650481E-03	-0.55625524	0.10067385E-03	0.17109178E-02	0.57708783E-06
2066	-0.21236051E-03	0.19573215E-03	-0.55705033	0.10403574E-03	0.17191075E-02	0.79697007E-06
2067	-0.87003050E-04	0.11378132E-03	-0.46508023	0.15837609E-04	0.17210506E-02	-0.62077024E-06
2068	-0.10300946E-03	0.12144055E-03	-0.48054062	0.29181623E-04	0.17151839E-02	-0.19144898E-07
2069	-0.11987098E-03	0.13785082E-03	-0.49596783	0.44659330E-04	0.17134509E-02	0.44040926E-06
2070	-0.13828028E-03	0.15891422E-03	-0.52139309	0.60365832E-04	0.17145914E-02	0.75878525E-06
2071	-0.15865047E-03	0.18160360E-03	-0.52683786	0.75031725E-04	0.17176805E-02	0.95295231E-06
2072	-0.18115747E-03	0.20393858E-03	-0.54231645	0.87823506E-04	0.17220445E-02	0.10477768E-05
2073	-0.81337517E-04	0.10483783E-03	-0.46495456	0.16596010E-04	0.17109381E-02	-0.94658048E-06
2074	-0.72382773E-04	0.94091386E-04	-0.46482872	0.15949095E-04	0.17006409E-02	-0.11208395E-05
2075	-0.62297565E-04	0.81223725E-04	-0.46471208	0.14256103E-04	0.16910607E-02	-0.11435681E-05
2076	-0.52649559E-04	0.66278869E-04	-0.46461153	0.11796595E-04	0.16827879E-02	-0.10542268E-05
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2078	-0.97845415E-04	0.94049824E-04	-0.48007388	0.29559864E-04	0.16888276E-02	-0.58817275E-06
2079	-0.90994984E-04	0.79265929E-04	-0.47985692	0.26457300E-04	0.16765017E-02	-0.68837944E-06
2080	-0.83751810E-04	0.63536099E-04	-0.47966959	0.21966569E-04	0.16658324E-02	-0.70050111E-06
2081	-0.12365378E-03	0.12015149E-03	-0.49561055	0.47094949E-04	0.16993936E-02	0.71041447E-07
2082	-0.12247391E-03	0.10259521E-03	-0.49525142	0.45391885E-04	0.16851445E-02	-0.17743819E-06
2083	-0.11857273E-03	0.84964283E-04	-0.49491776	0.40677827E-04	0.16718509E-02	-0.32500433E-06
2084	-0.11364167E-03	0.67114680E-04	-0.49462925	0.33834619E-04	0.16603124E-02	-0.39363878E-06
2085	-0.14486101E-03	0.13738305E-03	-0.51090959	0.63765189E-04	0.17009561E-02	0.39224521E-06
2086	-0.14635462E-03	0.11625991E-03	-0.51042280	0.61549888E-04	0.16871077E-02	0.13132363E-06
2087	-0.14482774E-03	0.95424570E-04	-0.50996993	0.55229945E-04	0.16741525E-02	-0.41162401E-07
2088	-0.14187735E-03	0.74763768E-04	-0.50957784	0.45990861E-04	0.16628866E-02	-0.14150310E-06
2089	-0.16656879E-03	0.15687926E-03	-0.52623648	0.79351036E-04	0.17053893E-02	0.60855164E-06
2090	-0.16967075E-03	0.13251233E-03	-0.52563025	0.76692008E-04	0.16928957E-02	0.35166230E-06
2091	-0.16976737E-03	0.10849014E-03	-0.52506558	0.68890839E-04	0.16811907E-02	0.17069677E-06
2092	-0.16830441E-03	0.84760985E-04	-0.52457626	0.57407796E-04	0.16710035E-02	0.54434979E-07
2093	-0.18901969E-03	0.17672477E-03	-0.545161230	0.92941305E-04	0.17116884E-02	0.77348181E-06

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2094	-0.19261870E-03	0.14961790E-03	-0.54090185	0.89908535E-04	0.17011664E-02	0.49612382E-06
2095	-0.19348582E-03	0.12268246E-03	-0.54023957	0.80822566E-04	0.16913073E-02	0.31803340E-06
2096	-0.19290462E-03	0.95923673E-04	-0.53966531	0.67379542E-04	0.16827267E-02	0.19650084E-06
2101	-0.19838095E-03	0.24466403E-03	-0.55833973	0.87584784E-04	0.17323435E-02	0.15214514E-05
2102	-0.18820580E-03	0.26423928E-03	-0.55876638	0.70026005E-04	0.17367741E-02	0.20077438E-05
2109	-0.84144931E-04	0.12472050E-03	-0.46523262	0.11939815E-04	0.17327429E-02	0.76767842E-06
2110	-0.87598043E-04	0.11930126E-03	-0.46516161	0.14362976E-04	0.17274490E-02	0.20131809E-08
2111	-0.90605315E-04	0.14010152E-03	-0.48081775	0.21016013E-04	0.17304277E-02	0.15511732E-05
2112	-0.99188387E-04	0.13068287E-03	-0.48069000	0.26148758E-04	0.17234751E-02	0.66750871E-06
2113	-0.10070915E-03	0.16318238E-03	-0.49639018	0.31747290E-04	0.17298265E-02	0.20569935E-05
2114	-0.11282657E-03	0.15036577E-03	-0.49619609	0.39857058E-04	0.17223354E-02	0.11488953E-05
2115	-0.11566848E-03	0.18959837E-03	-0.51196313	0.42777894E-04	0.17305072E-02	0.22858567E-05
2116	-0.12935245E-03	0.17415610E-03	-0.51170140	0.53787278E-04	0.17232056E-02	0.14401944E-05
2117	-0.13556348E-03	0.21631924E-03	-0.52754618	0.53204706E-04	0.17320733E-02	0.23049365E-05
2118	-0.14918069E-03	0.19894972E-03	-0.52722093	0.66821053E-04	0.17254512E-02	0.15700695E-05
2119	-0.15994130E-03	0.24152869E-03	-0.54314579	0.62402284E-04	0.17342274E-02	0.21876576E-05
2120	-0.17227963E-03	0.22281937E-03	-0.54276483	0.78217743E-04	0.17286113E-02	0.15823897E-05
2124	-0.26229771E-03	0.26645964E-04	-0.58978246	0.17872907E-04	0.17252789E-02	0.71500212E-07
2125	-0.26329341E-03	0.13317278E-04	-0.58974879	0.90561630E-05	0.17247153E-02	0.33221364E-07
2126	-0.23214114E-03	0.20785883E-04	-0.56569871	0.15462651E-04	0.16992508E-02	0.44603157E-07
2127	-0.24813956E-03	0.22930999E-04	-0.57769450	0.16459270E-04	0.17130083E-02	0.64070669E-07
2128	-0.23224372E-03	0.10387684E-04	-0.56566979	0.77408969E-05	0.16989817E-02	0.19169490E-07
2129	-0.24847598E-03	0.11451619E-04	-0.57766367	0.82594717E-05	0.17127698E-02	0.29085244E-07
2130	-0.26010558E-03	0.10362289E-03	-0.59043885	0.65829417E-04	0.17298219E-02	0.31718414E-06
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2133	-0.25923984E-03	0.85703419E-04	-0.59020681	0.54640817E-04	0.17288556E-02	0.22397648E-06
2134	-0.23155276E-03	0.85252126E-04	-0.56629328	0.60848157E-04	0.17041287E-02	0.28192673E-06
2135	-0.24647975E-03	0.93482591E-04	-0.57832071	0.63725549E-04	0.17171453E-02	0.31498450E-06
2136	-0.23149429E-03	0.69162257E-04	-0.56607960	0.50066470E-04	0.17024674E-02	0.18469777E-06
2137	-0.23163103E-03	0.53019274E-04	-0.56590834	0.38834761E-04	0.17010752E-02	0.11659732E-06
2138	-0.23188790E-03	0.36880207E-04	-0.56578101	0.27263149E-04	0.16999903E-02	0.71718886E-07
2139	-0.24633555E-03	0.76173724E-04	-0.57809663	0.52580014E-04	0.17158670E-02	0.21752719E-06
2140	-0.24668595E-03	0.58540801E-04	-0.57791644	0.40943857E-04	0.17147053E-02	0.14627704E-06
2141	-0.24738902E-03	0.40742729E-04	-0.57781888	0.28881841E-04	0.17137212E-02	0.96819000E-07
2142	-0.27085992E-03	0.26390851E-03	-0.59440938	0.11218932E-03	0.17405505E-02	0.90588212E-06
2143	-0.26305383E-03	0.13770291E-03	-0.59102733	0.86335491E-04	0.17317278E-02	0.38400208E-06
2144	-0.26642815E-03	0.17034143E-03	-0.59176131	0.10327688E-03	0.17337579E-02	0.47862659E-06
2145	-0.26933337E-03	0.20217791E-03	-0.59260629	0.11478564E-03	0.17359479E-02	0.60009411E-06
2146	-0.27103988E-03	0.23337955E-03	-0.59351199	0.11863507E-03	0.17382420E-02	0.74491767E-06
2147	-0.22637563E-03	0.23949460E-03	-0.56999724	0.10462983E-03	0.17315416E-02	0.10388075E-05
2148	-0.24809903E-03	0.25262552E-03	-0.58218749	0.10921259E-03	0.17360215E-02	0.97916803E-06
2149	-0.23127020E-03	0.20956173E-03	-0.56915928	0.11073908E-03	0.17253801E-02	0.81227675E-06
2150	-0.23316770E-03	0.17917938E-03	-0.56831340	0.10715682E-03	0.17191533E-02	0.62134072E-06
2151	-0.23315229E-03	0.14838893E-03	-0.56752443	0.96363432E-04	0.17133346E-02	0.46940817E-06
2152	-0.23228880E-03	0.11710570E-03	-0.56683990	0.80386862E-04	0.17082563E-02	0.35679545E-06
2153	-0.25081576E-03	0.22218683E-03	-0.58131298	0.11554656E-03	0.17318087E-02	0.79087252E-06
2154	-0.25109752E-03	0.19114244E-03	-0.58043026	0.11181442E-03	0.17275660E-02	0.62585792E-06
2155	-0.24982769E-03	0.15950757E-03	-0.57960688	0.10057228E-03	0.17235971E-02	0.49026309E-06
2156	-0.24794346E-03	0.12708200E-03	-0.57889222	0.83963400E-04	0.17200974E-02	0.38659912E-06
2158	-0.26928067E-03	0.28463879E-03	-0.59498167	0.10012809E-03	0.17420285E-02	0.11414487E-05
2159	-0.26627843E-03	0.30484330E-03	-0.59546939	0.80389619E-04	0.17433493E-02	0.13469944E-05
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2163	-0.2206316E-03	0.25993149E-03	-0.57053109	0.93283692E-04	0.17354897E-02	0.13986234E-05
2164	-0.23869691E-03	0.29352816E-03	-0.58321959	0.78107977E-04	0.17410983E-02	0.15383088E-05
2165	-0.24432436E-03	0.27332781E-03	-0.58274487	0.97403170E-04	0.17387433E-02	0.12646864E-05
2171	-0.26845073E-03	0.30452917E-04	-0.59607946	0.19364166E-04	0.17305578E-02	0.68780161E-07
2172	-0.27229959E-03	0.40640424E-04	-0.60239392	0.22294609E-04	0.17348676E-02	0.55153786E-07
2173	-0.26908070E-03	0.15598442E-04	-0.59502405	0.10146865E-04	0.17287764E-02	0.32639768E-07
2174	-0.27381627E-03	0.19760022E-04	-0.60031009	0.12067317E-04	0.17315924E-02	0.26902898E-07
2175	-0.28142341E-03	0.12274081E-03	-0.60945165	0.67917672E-04	0.17480809E-02	0.14793939E-06
2176	-0.27493012E-03	0.80205768E-04	-0.60885067	0.37237326E-04	0.17447079E-02	0.41885752E-07
2177	-0.27655040E-03	0.93499583E-04	-0.60901141	0.46671107E-04	0.17464805E-02	0.65124544E-07
2178	-0.27895104E-03	0.10762225E-03	-0.60921096	0.57186803E-04	0.17474129E-02	0.10047414E-06
2179	-0.26695048E-03	0.10988008E-03	-0.59675406	0.66662375E-04	0.17362033E-02	0.28138741E-06
2180	-0.27401145E-03	0.11646983E-03	-0.60309203	0.67336711E-04	0.17423014E-02	0.22352384E-06
2181	-0.26538940E-03	0.92411801E-04	-0.59651873	0.55577213E-04	0.17353556E-02	0.20337197E-06
2182	-0.26468183E-03	0.73768284E-04	-0.59632669	0.44177745E-04	0.17342521E-02	0.14109803E-06
2183	-0.26559840E-03	0.53186272E-04	-0.59617929	0.32330480E-04	0.17326725E-02	0.97905271E-07
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2187	-0.30816501E-03	0.27721460E-03	-0.61347492	0.11343669E-03	0.17474574E-02	0.45622280E-06
2188	-0.28678632E-03	0.15412964E-03	-0.61005411	0.88026735E-04	0.17489242E-02	0.18204053E-06
2189	-0.29271271E-03	0.18577323E-03	-0.61079965	0.10471914E-03	0.17491395E-02	0.23143119E-06
2190	-0.29862739E-03	0.21692166E-03	-0.61165446	0.11606472E-03	0.17488070E-02	0.29506775E-06
2191	-0.30394708E-03	0.24740218E-03	-0.61256901	0.11987693E-03	0.17481592E-02	0.37108086E-06
2192	-0.28304332E-03	0.26895803E-03	-0.60075614	0.11314590E-03	0.17428599E-02	0.75663771E-06
2193	-0.29547973E-03	0.27340700E-03	-0.60711134	0.11349655E-03	0.17451690E-02	0.60691477E-06
2194	-0.28180234E-03	0.23854807E-03	-0.59985226	0.11960341E-03	0.17415888E-02	0.63070023E-06
2195	-0.27895202E-03	0.20745590E-03	-0.59894003	0.11570492E-03	0.17402914E-02	0.51488461E-06
2196	-0.27509703E-03	0.17573742E-03	-0.59808868	0.10414301E-03	0.17389800E-02	0.41598467E-06
2197	-0.27085503E-03	0.14334335E-03	-0.59734859	0.87150267E-04	0.17376347E-02	0.33768158E-06
2198	-0.29276763E-03	0.24323343E-03	-0.60620465	0.11996056E-03	0.17448933E-02	0.50534744E-06
2199	-0.28871145E-03	0.21237930E-03	-0.60528948	0.11608945E-03	0.17445771E-02	0.41201262E-06
2200	-0.28385645E-03	0.18089694E-03	-0.60443491	0.10458968E-03	0.17441067E-02	0.33220217E-06
2201	-0.27876133E-03	0.14887955E-03	-0.60369106	0.87681852E-04	0.17433694E-02	0.26896722E-06
2203	-0.31026036E-03	0.29750163E-03	-0.61405312	0.10135799E-03	0.17470409E-02	0.58352675E-06
2204	-0.31155589E-03	0.31734928E-03	-0.61454633	0.81525824E-04	0.17467362E-02	0.70229162E-06
2207	-0.28108323E-03	0.30974972E-03	-0.60182429	0.81220900E-04	0.17444927E-02	0.10953114E-05
2208	-0.28266710E-03	0.28960875E-03	-0.60133273	0.10103769E-03	0.17437234E-02	0.93690446E-06
2209	-0.29618460E-03	0.31393585E-03	-0.60818326	0.81498849E-04	0.17456155E-02	0.88915104E-06
2210	-0.29633257E-03	0.29391175E-03	-0.60768990	0.10137200E-03	0.17453909E-02	0.75361393E-06
2214	-0.29773167E-03	0.13236274E-03	-0.62339578	0.69286309E-04	0.17596333E-02	-0.25158652E-06
2215	-0.29420992E-03	0.88151347E-04	-0.62277669	0.38406327E-04	0.17580634E-02	-0.16430940E-06
2216	-0.29428913E-03	0.10172443E-03	-0.62294306	0.48265127E-04	0.17579346E-02	-0.19326649E-06
2217	-0.29557503E-03	0.11660475E-03	-0.62314909	0.58809242E-04	0.17587391E-02	-0.22363002E-06
2218	-0.28698416E-03	0.12668004E-03	-0.61408943	0.68334174E-04	0.17520893E-02	-0.24960504E-07
2219	-0.29249083E-03	0.12986441E-03	-0.61873761	0.68776312E-04	0.17559341E-02	-0.11035827E-06
2220	-0.28472413E-03	0.11319903E-03	-0.61382405	0.58548919E-04	0.17514419E-02	-0.57918283E-09
2221	-0.28278856E-03	0.10118191E-03	-0.61359295	0.48919882E-04	0.17506976E-02	-0.15725606E-07
2222	-0.28076276E-03	0.92349958E-04	-0.61339413	0.40363025E-04	0.17497472E-02	-0.24664351E-07
2223	-0.29051808E-03	0.11626519E-03	-0.61855212	0.59075297E-04	0.17552855E-02	-0.10966769E-06
2224	-0.28906869E-03	0.10410034E-03	-0.61840109	0.49447500E-04	0.17546212E-02	-0.10289075E-06
2225	-0.28868664E-03	0.95386493E-04	-0.61828290	0.40759626E-04	0.17543246E-02	-0.94373069E-07
2226	-0.33670818E-03	0.28306906E-03	-0.62738677	0.11167755E-03	0.17523530E-02	-0.22848645E-06
2227	-0.30428001E-03	0.16428502E-03	-0.62400468	0.88350253E-04	0.17605499E-02	-0.26274751E-06
2228	-0.31233766E-03	0.19543925E-03	-0.62474823	0.10391637E-03	0.17598863E-02	-0.17592228E-06
2229	-0.32091289E-03	0.22543677E-03	-0.62559372	0.11449316E-03	0.17578870E-02	-0.26973729E-06
2230	-0.32917140E-03	0.25453365E-03	-0.62649490	0.11801060E-03	0.17551739E-02	-0.25845173E-06
2231	-0.31754606E-03	0.27955479E-03	-0.61810787	0.11311654E-03	0.17491046E-02	0.24356064E-06
2232	-0.32705985E-03	0.28151287E-03	-0.62274517	0.11253581E-03	0.17507373E-02	0.18400893E-07
2233	-0.31222017E-03	0.25009109E-03	-0.61720477	0.11952448E-03	0.17505189E-02	0.17506631E-06
2234	-0.30594706E-03	0.21997516E-03	-0.61629285	0.11577974E-03	0.17518593E-02	0.11916394E-06
2235	-0.29920988E-03	0.18913738E-03	-0.61543967	0.10461881E-03	0.17527565E-02	0.75685149E-07
2236	-0.29266041E-03	0.15769456E-03	-0.61469401	0.88190040E-04	0.17528686E-02	0.44316845E-07
2237	-0.32062414E-03	0.25247429E-03	-0.62184675	0.11890739E-03	0.17528564E-02	-0.33652210E-07
2238	-0.31337053E-03	0.22281402E-03	-0.62093929	0.11526012E-03	0.17548846E-02	-0.69181177E-07
2239	-0.30575036E-03	0.19235167E-03	-0.62008923	0.10435316E-03	0.17563355E-02	-0.92154369E-07
2240	-0.29851110E-03	0.16106372E-03	-0.61934426	0.88293491E-04	0.17567375E-02	-0.10521143E-06
2242	-0.34148995E-03	0.30261446E-03	-0.62795625	0.99850150E-04	0.17505869E-02	-0.14798126E-06
2243	-0.34591229E-03	0.32186119E-03	-0.62844243	0.80388196E-04	0.17491282E-02	-0.12869006E-07
2246	-0.32289304E-03	0.31931479E-03	-0.61917626	0.81368554E-04	0.17475416E-02	0.47719598E-06
2247	-0.32054546E-03	0.29963661E-03	-0.61868436	0.10110373E-03	0.17482333E-02	0.35675990E-06
2248	-0.33435012E-03	0.32082602E-03	-0.62380830	0.80997921E-04	0.17483348E-02	0.25504140E-06
2249	-0.33095668E-03	0.30134741E-03	-0.62331875	0.10060835E-03	0.17494134E-02	0.12031905E-06
2253	-0.28890657E-03	0.40630505E-04	-0.63690983	0.22841661E-04	0.17642092E-02	-0.18049740E-06
2254	-0.28514414E-03	0.20737429E-04	-0.63686638	0.11837350E-04	0.17642941E-02	-0.92417716E-07
2255	-0.29035437E-03	0.46754992E-04	-0.62977601	0.23924989E-04	0.17636807E-02	-0.16094619E-06
2257	-0.28427778E-03	0.23168457E-04	-0.63129233	0.13217338E-04	0.17650294E-02	-0.84206256E-07
2258	-0.31077807E-03	0.13950812E-03	-0.63767118	0.71702879E-04	0.17702198E-02	-0.44112765E-06
2259	-0.29624840E-03	0.70674806E-04	-0.63702708	0.37748564E-04	0.17647550E-02	-0.23619962E-06
2260	-0.30197363E-03	0.97045903E-04	-0.63719751	0.50520963E-04	0.17663378E-02	-0.29876914E-06
2261	-0.30651041E-03	0.11968918E-03	-0.63741401	0.61741101E-04	0.17683698E-02	-0.36837340E-06
2262	-0.30483954E-03	0.13559405E-03	-0.63052277	0.70286729E-04	0.17650356E-02	-0.34563493E-06
2263	-0.30199134E-03	0.11759533E-03	-0.63027179	0.59994663E-04	0.17637732E-02	-0.29631543E-06
2264	-0.29973462E-03	0.98230255E-04	-0.63006173	0.49038123E-04	0.17625555E-02	-0.24789700E-06
2265	-0.29654398E-03	0.75750430E-04	-0.62989506	0.37375176E-04	0.17621434E-02	-0.20278974E-06
2266	-0.36701602E-03	0.28508737E-03	-0.64157939	0.10766680E-03	0.17571498E-02	-0.62864873E-06
2267	-0.32113399E-03	0.17444428E-03	-0.63829032	0.88440801E-04	0.17719968E-02	-0.47752720E-06

FILENAME : PIT3E3.PO DATE : 05-25-94 TIME : 2:20p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 20/25)

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2269	-0.34496815E-03	0.23199143E-03	-0.63984801	0.11079281E-03	0.17668747E-02	-0.55720869E-06
2270	-0.35631750E-03	0.25860178E-03	-0.64071878	0.11378246E-03	0.17620667E-02	-0.59698861E-06
2271	-0.35169834E-03	0.28461729E-03	-0.63447822	0.10997029E-03	0.17547850E-02	-0.41434169E-06
2272	-0.34252696E-03	0.25701398E-03	-0.63359987	0.11621470E-03	0.17586460E-02	-0.42028424E-06
2273	-0.33271488E-03	0.22899177E-03	-0.63271178	0.11293146E-03	0.17624035E-02	-0.40990805E-06
2274	-0.32251802E-03	0.19999724E-03	-0.63187606	0.10298999E-03	0.17652457E-02	-0.39150014E-06
2275	-0.31284006E-03	0.16910448E-03	-0.63113595	0.88412870E-04	0.17662799E-02	-0.36946118E-06
2277	-0.37432729E-03	0.30352825E-03	-0.64212920	0.96323396E-04	0.17540951E-02	-0.64853585E-06
2278	-0.38172794E-03	0.32190170E-03	-0.64259906	0.77582172E-04	0.17515371E-02	-0.60998831E-06
2280	-0.36373147E-03	0.32248662E-03	-0.63551832	0.79221538E-04	0.17503329E-02	-0.25685043E-06
2281	-0.35778565E-03	0.30364947E-03	-0.63503918	0.98356067E-04	0.17523479E-02	-0.36794723E-06
2286	-0.28838085E-03	0.42611256E-04	-0.64229070	0.23422083E-04	0.17638943E-02	-0.19755168E-06
2287	-0.28490966E-03	0.21424692E-04	-0.64197323	0.11999967E-04	0.17633449E-02	-0.98160530E-07
2292	-0.31940373E-03	0.15305864E-03	-0.64972134	0.75565852E-04	0.17784785E-02	-0.49726136E-06
2293	-0.29591446E-03	0.75158202E-04	-0.64331988	0.40167409E-04	0.17659561E-02	-0.26156275E-06
2294	-0.30335350E-03	0.10463783E-03	-0.64492866	0.54443529E-04	0.17694760E-02	-0.33215018E-06
2295	-0.31085817E-03	0.13055709E-03	-0.64707757	0.66276953E-04	0.17738558E-02	-0.41179472E-06
2296	-0.42073369E-03	0.27750842E-03	-0.66549636	0.96645949E-04	0.17645439E-02	-0.92072330E-06
2297	-0.35314235E-03	0.19940345E-03	-0.66249067	0.88708904E-04	0.17918318E-02	-0.59454382E-06
2298	-0.37427987E-03	0.21781462E-03	-0.66319504	0.94291270E-04	0.17883552E-02	-0.65186053E-06
2299	-0.39189644E-03	0.23589959E-03	-0.66394407	0.99778125E-04	0.17811073E-02	-0.72620857E-06
2300	-0.40668309E-03	0.25565976E-03	-0.66472495	0.10187327E-03	0.17726935E-02	-0.81679040E-06
2301	-0.39346891E-03	0.28320505E-03	-0.65352533	0.10275622E-03	0.17609919E-02	-0.77107785E-06
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2303	-0.36709870E-03	0.23542470E-03	-0.65187181	0.10605149E-03	0.17741393E-02	-0.64508277E-06
2304	-0.35196952E-03	0.21169348E-03	-0.65108002	0.98615500E-04	0.17794736E-02	-0.58842264E-06
2305	-0.33574248E-03	0.18547064E-03	-0.65035672	0.88528394E-04	0.17816440E-02	-0.53956183E-06
2307	-0.43107973E-03	0.29369748E-03	-0.66599071	0.86728144E-04	0.17595406E-02	-0.10782414E-05
2308	-0.44249317E-03	0.31039503E-03	-0.66641434	0.69980986E-04	0.17553487E-02	-0.12561208E-05
2310	-0.41214686E-03	0.31807261E-03	-0.65450018	0.74162458E-04	0.17535137E-02	-0.91604763E-06
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2321	-0.58614521E-03	0.15608205E-03	-0.74476890	0.34304922E-04	0.17780883E-02	-0.26802763E-06
2322	-0.64042853E-03	0.10402003E-03	-0.74397446	0.85475471E-05	0.18206715E-02	0.11093942E-05
2323	-0.61317073E-03	0.11741657E-03	-0.74408550	0.19751234E-04	0.18123266E-02	0.94231195E-06
2324	-0.59745829E-03	0.12995945E-03	-0.74427057	0.27859159E-04	0.18017684E-02	0.67138150E-06
2325	-0.58824898E-03	0.14270285E-03	-0.74450688	0.32986969E-04	0.17900471E-02	0.27362231E-06
2326	-0.44106134E-03	0.27070194E-03	-0.67426827	0.91425535E-04	0.17669432E-02	-0.11241826E-05
2327	-0.46148763E-03	0.26154602E-03	-0.68035168	0.85521443E-04	0.17691775E-02	-0.12072017E-05
2328	-0.48175201E-03	0.25005921E-03	-0.69184565	0.79081256E-04	0.17712050E-02	-0.14475588E-05
2329	-0.50155375E-03	0.23645861E-03	-0.70064915	0.72182089E-04	0.17730208E-02	-0.15242789E-05
2330	-0.52060122E-03	0.22116468E-03	-0.70946112	0.64917099E-04	0.17746211E-02	-0.15160060E-05
2331	-0.53866538E-03	0.20476750E-03	-0.71828048	0.57385300E-04	0.17759904E-02	-0.14019502E-05
2332	-0.55561527E-03	0.18796028E-03	-0.72710599	0.49693518E-04	0.17770897E-02	-0.11634795E-05
2333	-0.57142460E-03	0.17147582E-03	-0.73593614	0.41968676E-04	0.17778404E-02	-0.78634327E-06
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2335	-0.41371094E-03	0.23705496E-03	-0.67233899	0.95181575E-04	0.17837834E-02	-0.82949305E-06
2336	-0.39747404E-03	0.22398072E-03	-0.67138588	0.91583555E-04	0.17919410E-02	-0.72995368E-06
2337	-0.37692076E-03	0.21280504E-03	-0.67045749	0.88720561E-04	0.17978197E-02	-0.66408731E-06
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2339	-0.43711881E-03	0.23358398E-03	-0.68116280	0.89066974E-04	0.17862800E-02	-0.90219179E-06
2340	-0.42330778E-03	0.22401261E-03	-0.68022026	0.86443036E-04	0.17951808E-02	-0.77375650E-06
2341	-0.40508129E-03	0.21797227E-03	-0.67929040	0.84780960E-04	0.18032297E-02	-0.69490870E-06
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2343	-0.46139739E-03	0.22536909E-03	-0.69028619	0.81696453E-04	0.17886906E-02	-0.92809814E-06
2344	-0.45080627E-03	0.21759002E-03	-0.68950812	0.79217703E-04	0.17982068E-02	-0.76868701E-06
2345	-0.43647732E-03	0.21418697E-03	-0.68874048	0.77500373E-04	0.18079802E-02	-0.67341270E-06
2346	-0.49280775E-03	0.22352322E-03	-0.70011674	0.74517827E-04	0.17816834E-02	-0.11635996E-05
2347	-0.48576924E-03	0.21283510E-03	-0.69958023	0.73363102E-04	0.17910885E-02	-0.89106934E-06
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2349	-0.46965496E-03	0.20206591E-03	-0.69854579	0.67632792E-04	0.18122007E-02	-0.58904838E-06
2350	-0.51381510E-03	0.20811284E-03	-0.70918901	0.66317651E-04	0.17836902E-02	-0.10924239E-05
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2353	-0.50332323E-03	0.18359040E-03	-0.70844832	0.55967998E-04	0.18159629E-02	-0.43111870E-06
2354	-0.53382801E-03	0.19122780E-03	-0.71822744	0.57875519E-04	0.17856242E-02	-0.92377100E-06
2355	-0.53253016E-03	0.17925676E-03	-0.71818529	0.54958575E-04	0.17959648E-02	-0.57088248E-06
2356	-0.53380181E-03	0.16919941E-03	-0.71817086	0.49827346E-04	0.18069496E-02	-0.32975034E-06
2357	-0.53682156E-03	0.16180973E-03	-0.71819492	0.43317085E-04	0.18191341E-02	-0.19003771E-06
2358	-0.55278237E-03	0.17398470E-03	-0.72717028	0.49369143E-04	0.17874289E-02	-0.64467394E-06

FILENAME : PIT3E3.PO DATE : 05-25-94 TIME : 2:20p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 20/25)

2359	-0.55459423E-03	0.16127090E-03	-0.72725061	0.45501035E-04	0.17983189E-02	-0.26527506E-06
2360	-0.56028946E-03	0.14985990E-03	-0.72736612	0.39136895E-04	0.18095399E-02	-0.70952754E-08
2361	-0.57034163E-03	0.14002457E-03	-0.72753158	0.30571389E-04	0.18213241E-02	0.14269361E-06
2362	-0.57082667E-03	0.15749185E-03	-0.73595255	0.41014432E-04	0.17889742E-02	-0.24656020E-06
2363	-0.57609052E-03	0.14448195E-03	-0.73598850	0.36353906E-04	0.18003618E-02	0.14722116E-06
2364	-0.58660556E-03	0.13226150E-03	-0.73606606	0.28943217E-04	0.18114866E-02	0.41562214E-06
2365	-0.60463665E-03	0.12052467E-03	-0.73620407	0.18701438E-04	0.18219754E-02	0.57594988E-06
2367	-0.59018176E-03	0.16596314E-03	-0.74494860	0.32234209E-04	0.17703342E-02	-0.12234736E-05
2368	-0.60035714E-03	0.17638646E-03	-0.74510852	0.26748759E-04	0.17637120E-02	-0.23893812E-05
2377	-0.46440031E-03	0.30218619E-03	-0.67513756	0.66404684E-04	0.17565839E-02	-0.16535115E-05
2378	-0.45194854E-03	0.28607951E-03	-0.67473610	0.82206381E-04	0.17613093E-02	-0.13715114E-05
2379	-0.48580463E-03	0.29178234E-03	-0.68386669	0.62327428E-04	0.17577485E-02	-0.19987100E-05
2380	-0.47258103E-03	0.27621837E-03	-0.68348993	0.77091144E-04	0.17629481E-02	-0.16318373E-05
2381	-0.50645197E-03	0.27926171E-03	-0.69260145	0.57907313E-04	0.17588548E-02	-0.23061687E-05
2382	-0.49272296E-03	0.26417293E-03	-0.69225159	0.71522268E-04	0.17644656E-02	-0.18479876E-05
2383	-0.52607418E-03	0.26479700E-03	-0.70134154	0.53181242E-04	0.17598971E-02	-0.25632061E-05
2384	-0.51209780E-03	0.25014172E-03	-0.70102048	0.65555649E-04	0.17658584E-02	-0.20057737E-05
2385	-0.54440144E-03	0.24866779E-03	-0.71008663	0.48196702E-04	0.17608718E-02	-0.27541386E-05
2386	-0.53044113E-03	0.23446457E-03	-0.70979597	0.59258895E-04	0.17671232E-02	-0.20873537E-05
2387	-0.56118524E-03	0.23124696E-03	-0.71883638	0.43003258E-04	0.17617715E-02	-0.28607554E-05
2388	-0.54753200E-03	0.21760591E-03	-0.71857740	0.52699407E-04	0.17682492E-02	-0.20732339E-05
2389	-0.57621107E-03	0.21299764E-03	-0.72759036	0.37655503E-04	0.17625755E-02	-0.28609770E-05
2390	-0.56321877E-03	0.20012661E-03	-0.72736403	0.45949693E-04	0.17692065E-02	-0.19421680E-05
2391	-0.58930890E-03	0.19448025E-03	-0.73634802	0.32225314E-04	0.17632428E-02	-0.27231599E-05
2392	-0.57742956E-03	0.18267074E-03	-0.73615488	0.39102525E-04	0.17699345E-02	-0.16693295E-05
2404	-0.71003555E-03	0.74096540E-04	-0.75573294	-0.38582474E-05	0.18125211E-02	0.15530897E-05
2405	-0.73105693E-03	0.69906619E-04	-0.76743122	-0.19022270E-05	0.18012542E-02	0.19529446E-05
2406	-0.75222040E-03	0.66140691E-04	-0.77904689	-0.53456823E-06	0.17861779E-02	0.23938140E-05
2412	-0.78767043E-03	0.14217018E-04	-0.76619109	-0.23340581E-05	0.17938876E-02	0.40496618E-06
2413	-0.78992661E-03	0.13571159E-04	-0.77435331	-0.11595544E-05	0.17876803E-02	0.43509368E-06
2414	-0.79510448E-03	0.12448849E-04	-0.78247868	-0.52895755E-06	0.17774102E-02	0.48070158E-06
2415	-0.78017261E-03	0.28066599E-04	-0.76525699	-0.43684271E-05	0.17960952E-02	0.78641732E-06
2416	-0.78421331E-03	0.26764978E-04	-0.77373464	-0.21652643E-05	0.17892301E-02	0.84909268E-06
2417	-0.79100233E-03	0.24634281E-04	-0.78217134	-0.96428927E-06	0.17783481E-02	0.94295295E-06
2418	-0.76796676E-03	0.41200532E-04	-0.76371795	-0.58057936E-05	0.17994805E-02	0.11199174E-05
2419	-0.77496058E-03	0.39230946E-04	-0.77271697	-0.28707951E-05	0.17916402E-02	0.12215560E-05
2420	-0.78434278E-03	0.36301006E-04	-0.78166683	-0.12286518E-05	0.17798390E-02	0.13699677E-05
2421	-0.75159246E-03	0.53328527E-04	-0.76159669	-0.63603219E-05	0.18036389E-02	0.13783438E-05
2422	-0.76259704E-03	0.50677154E-04	-0.77131490	-0.31409300E-05	0.17946589E-02	0.15344092E-05
2423	-0.77539563E-03	0.47216729E-04	-0.78097245	-0.12746899E-05	0.17817819E-02	0.17489222E-05
2424	-0.73185704E-03	0.64268237E-04	-0.75892283	-0.57816427E-05	0.18080861E-02	0.15272433E-05
2425	-0.74774703E-03	0.60921218E-04	-0.76954604	-0.28605977E-05	0.17979830E-02	0.17782412E-05
2426	-0.76453231E-03	0.57201453E-04	-0.78009619	-0.10714185E-05	0.17840333E-02	0.20761257E-05
2432	-0.60405215E-03	0.13906375E-03	-0.75627797	0.24766580E-04	0.17772876E-02	0.25338206E-06
2433	-0.62064157E-03	0.12729415E-03	-0.76777613	0.16224447E-04	0.17745242E-02	0.93584861E-06
2434	-0.63611884E-03	0.12306931E-03	-0.77924694	0.94893056E-05	0.17685647E-02	0.17661073E-05
2435	-0.61074422E-03	0.12817028E-03	-0.75609071	0.23364976E-04	0.17882379E-02	0.76869415E-06
2436	-0.62415870E-03	0.11724944E-03	-0.75592574	0.19159370E-04	0.17984563E-02	0.11374922E-05
2437	-0.64378737E-03	0.10592148E-03	-0.75580192	0.12795474E-04	0.18068005E-02	0.13755055E-05
2438	-0.67156059E-03	0.92593088E-04	-0.75573447	0.46820339E-05	0.18120492E-02	0.15055300E-05
2439	-0.63235926E-03	0.11889532E-03	-0.76765500	0.15025320E-04	0.17837386E-02	0.14097386E-05
2440	-0.64994158E-03	0.10960975E-03	-0.76755029	0.12054994E-04	0.17919963E-02	0.17367466E-05
2441	-0.67226549E-03	0.99046255E-04	-0.76747371	0.77832850E-05	0.17982250E-02	0.19197108E-05
2442	-0.69943465E-03	0.86376085E-04	-0.76743343	0.27289921E-05	0.18015164E-02	0.19786145E-05
2443	-0.65312888E-03	0.11656383E-03	-0.77917737	0.86496705E-05	0.17748773E-02	0.21959591E-05
2444	-0.67468374E-03	0.10787740E-03	-0.77911798	0.68716957E-05	0.17804132E-02	0.24855477E-05
2445	-0.69922308E-03	0.96889440E-04	-0.77907472	0.44509873E-05	0.17844007E-02	0.25960254E-05
2446	-0.72561535E-03	0.83270672E-04	-0.77905112	0.17580553E-05	0.17863246E-02	0.25344010E-05
2453	-0.61160699E-03	0.15499497E-03	-0.75652639	0.19855093E-04	0.17637737E-02	-0.18838281E-05
2454	-0.60473444E-03	0.14683069E-03	-0.75640857	0.23572530E-04	0.17700316E-02	-0.69598141E-06
2455	-0.61948708E-03	0.13832881E-03	-0.76794172	0.13605419E-04	0.17628351E-02	-0.10413557E-05
2456	-0.61726077E-03	0.13279372E-03	-0.76786231	0.15714108E-04	0.17682786E-02	0.59447441E-07
2457	-0.62463068E-03	0.12951706E-03	-0.77934633	0.86330604E-05	0.17603365E-02	0.13465142E-06
2458	-0.62812265E-03	0.12651388E-03	-0.77929773	0.94241563E-05	0.17641893E-02	0.10230204E-05

MAXIMUMS	62	32	48	2198	75	43
NODE						
VALUE	-0.80375929E-03	0.34097563E-03	-0.79076029	0.11996056E-03	0.18335818E-02	-0.39589396E-05

FILENAME : PIT3E4.PO DATE : 05-25-94 TIME : 2:20p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 21/25)

PAGE 1

C*** Output For Factored Pump Column Load of 0 lb + 0.9DL + 1.7L + 0.9H

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3464 MAY 25,1994 CP= 827.840

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	0.11666485E-05	-1433.3046		1141.4212		-1672.6021
62		-1271.8543		1145.9373		-374.82382
63		-842.81899		2484.6205		-0.24530996E-02
64		-873.08939		2653.4988		-0.22796105E-02
65		-857.12392		3444.7948		-0.21765207E-02
66		-402.08252		3259.6712		-0.10731443E-02
87		-625.92432		-7152.9552		0.11493445E-03
88		-1212.3894		-13453.894		0.22493712E-03
89		-1194.8022		-13394.990		0.21933365E-03
90		-1425.9437		-14229.707		0.21539014E-03
91		-1038.4315		-9051.7653		0.10605915E-03
98		-846.44629		-9050.6170		-0.32389008E-04
99		-1177.2298		-12814.917		-0.69553230E-04
100		-898.09822		-11538.074		-0.76892545E-04
101		-1095.8165		-0.35223996E-02		-4542.4199
162		-1537.3083		0.13518722E-02		-931.51487
163		-1355.3712		-19076.375		-0.12777404E-03
164		-1733.8839		-24964.997		-0.15623468E-03
165		-1579.9974		-23665.499		-0.99660843E-04
166		-1655.7875		-24920.818		-0.10259258E-04
167		-1700.1360		-25286.123		0.11709952E-03
168		-1545.6027		-21460.704		0.28348829E-03
169		-1417.1366		-16677.519		0.47667586E-03
170		-1332.4842		-11198.011		0.67640420E-03
171		-1316.9956		-5280.1034		0.84730992E-03
172		-1400.7083		771.44393		0.95628470E-03
201		-779.82860		-0.39329709E-02		-3423.4435
262		-1235.7646		-0.27128696E-04		-1506.9376
301		-541.12691		-0.40603080E-02		-2059.6670
362		-964.14343		-0.95547639E-03		-2250.4752
401		-353.74755		-0.38475804E-02		-1221.2251
462		-717.64764		-0.14876570E-02		-2465.6654
501		-221.82235		-0.35310388E-02		-278.34378
562		-530.58501		-0.17748270E-02		-2754.4341
601		-134.27138		-0.33099775E-02		-46.494686
662		-405.89639		-0.19513751E-02		-2628.2336
701		-65.719389		-0.30724753E-02		174.32669
762		-305.09976		-0.20165953E-02		-2534.9696
801		-9.8376632		-0.28389974E-02		360.53597
862		-222.16852		-0.20120019E-02		-2455.4986
901		38.436539		-0.26221995E-02		508.20947
962		-151.97806		-0.19675242E-02		-2380.3159
1001		83.246750		-0.24294563E-02		618.69378
1062		-90.249306		-0.19039353E-02		-2305.4086
1101		128.24390		-0.22646918E-02		697.08888
1162		-33.320716		-0.18352246E-02		-2230.9138
1201		176.95505		-0.21296902E-02		750.24391
1262		22.146180		-0.17705755E-02		-2159.4182

FILENAME : PIT3E4.PO DATE : 05-25-94 TIME : 2:20p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 21/25)

1301	233.27467	-0.20250044E-02	785.38392
1362	79.494056	-0.17158647E-02	-2094.4990
1401	301.68153	-0.19505658E-02	809.29080
1462	142.41629	-0.16747338E-02	-2039.7327
1501	387.75438	-0.19060826E-02	828.01979
1562	215.30394	-0.16493221E-02	-1998.1876
1601	227.68319	-0.94564459E-03	427.21083
1662	134.53250	-0.82036892E-03	-982.39850
TOTAL	0.11666485E-05 -36362.806	0.00000000E+00 -248315.75	0.00000000E+00 -41378.624

FILENAME : PIT3F1.PO DATE : 05-25-94 TIME : 2:21p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

LOAD CASE FACTORS FOR CALCULATIONS

LOAD CASE	FACTOR
1	0.900000
2	0.900000
3	34.0000
4	1.70000
5	1.70000
6	1.00000

LOAD CASE OPERATION FOR LCAD COMMAND. RESULT LOAD CASE = 6					
LOAD CASE	FACTOR	LOAD STEP	ITERATION	SECTION	TIME/FREQ
1	0.900000	1	1	1	0.000000E+00
2	0.900000	2	1	1	0.000000E+00
3	34.0000	3	1	1	0.000000E+00
4	1.70000	4	1	1	0.000000E+00
5	1.70000	5	1	1	0.000000E+00

CURRENT LOAD CASE= 6

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

4C2 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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TITLE 14.3642 MAY 25,1994 CP= 891.940

***** POST1 ELEMENT STRESS LISTING *****

CALCULATED LOAD CASE= 6

ELSM	FXC	FYC	FXYC	MXC	MYC	MXYC
977	-132.89138	-174.81432	3.9644516	312.46975	3341.8618	60.218845
978	-133.42250	-174.99943	1.3331859	310.53653	3351.3725	19.682477
979	-133.39113	-162.04805	6.6512340	-213.89144	1130.8415	77.152414
980	-133.80986	-162.20937	2.2108677	-211.68278	1130.7682	25.693524
981	-146.59915	-144.01617	8.3435952	-727.85940	-1005.2984	61.775402
982	-146.81551	-144.14998	2.7881970	-725.06301	-1011.4858	20.489760
983	-167.17180	-123.12694	9.0484266	-1139.4060	-3045.6517	12.296113
984	-167.22064	-123.19304	3.0159372	-1134.1547	-3058.8479	3.9143994
985	-190.00789	-101.52780	8.9303558	-1346.4748	-4954.0252	-73.310227
986	-189.92035	-101.53179	2.9829714	-1335.8626	-4974.1095	-24.769208
987	-210.82806	-80.982977	8.1503992	-1236.1488	-6671.9307	-199.96262
988	-210.62710	-80.962851	2.7114909	-1214.2047	-6699.9586	-67.359415
989	-226.42062	-62.992696	6.7524270	-679.15505	-8099.8139	-376.00713
990	-226.09790	-63.033494	2.2530030	-623.96893	-8131.4958	-128.50786
991	-117.62354	-168.39296	18.974752	285.37523	3138.9890	299.14787
992	-123.58167	-171.13604	15.296028	284.14656	3222.7585	230.30486
993	-128.16885	-173.07234	11.358366	290.82954	3275.8562	168.25159
994	-131.29871	-174.26304	7.3216475	293.46875	3314.5731	108.95781
995	-122.82841	-156.98442	32.060025	-246.07644	1108.6956	398.17070
996	-126.86376	-159.02070	25.664741	-235.02459	1117.1181	309.08171
997	-129.98302	-160.53492	19.043352	-225.44605	1124.7592	223.90657
998	-132.19673	-161.54016	12.272431	-217.51012	1129.6307	142.70467
999	-141.03951	-140.55417	39.991319	-773.11024	-846.44491	339.05807
1000	-143.15581	-141.90587	32.033251	-759.58861	-905.66364	258.21231
1001	-144.81181	-142.92810	23.796782	-744.78365	-952.85598	184.02079
1002	-145.97897	-143.64004	15.373669	-731.94415	-986.72257	115.43171
1003	-165.87936	-121.67719	43.268645	-1234.9783	-2709.2637	124.24498
1004	-166.37482	-122.17103	34.695927	-1204.8138	-2835.6734	79.583202
1005	-166.75997	-122.60853	25.790982	-1174.1033	-2935.6981	47.314963

FILENAME : PIT3F1.PO DATE : 05-25-94 TIME : 2:21p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

1006	-167.02962	-122.94144	16.664378	-1148.6776	-3006.8894	25.232697
1007	-192.06596	-102.11969	42.899312	-1553.2396	-4440.5878	-249.38052
1008	-191.32062	-101.73447	34.349589	-1485.0427	-4633.2037	-229.98149
1009	-190.70584	-101.57045	25.503368	-1420.4141	-4785.9530	-189.21098
1010	-190.25414	-101.52580	16.464131	-1368.5440	-4894.8714	-130.79187
1011	-215.49437	-83.001071	39.813157	-1652.7579	-5979.5884	-786.22880
1012	-213.82547	-81.928843	31.696755	-1514.3069	-6236.9230	-677.53682
1013	-212.43496	-81.348810	23.410884	-1387.1504	-6442.4288	-533.78038
1014	-211.39905	-81.082281	15.051399	-1285.1688	-6590.5468	-360.10363
1015	-233.12765	-64.821973	34.871209	-1462.6042	-7237.7845	-1494.6106
1016	-230.84883	-63.509958	27.308598	-1206.3615	-7560.4291	-1273.1353
1017	-228.84853	-62.989025	19.852164	-973.15809	-7817.0229	-996.40740
1018	-227.30180	-62.914990	12.588658	-782.70589	-8000.7730	-671.72805
1019	1.9472659	-92.136532	29.265176	364.54711	1407.7582	694.70310
1020	-27.536166	-117.42598	32.755040	278.72688	1894.8067	695.17335
1021	-57.684506	-137.42027	32.175182	236.86753	2331.8349	628.44195
1022	-84.280824	-152.25878	28.888517	229.37914	2687.3313	519.93984
1023	-105.33874	-162.64791	23.691011	229.27632	2959.4905	393.87035
1024	-56.148318	-102.69542	52.123440	307.11634	706.11563	1054.9301
1025	-70.874471	-119.49970	59.047448	35.042054	842.86719	1016.7810
1026	-86.704790	-133.58285	57.808244	-135.18959	954.03980	888.23515
1027	-101.82634	-144.58365	51.070357	-221.39201	1034.3958	715.70771
1028	-114.78175	-152.55871	40.949802	-247.40937	1085.9895	534.56257
1029	-108.13275	-117.76625	64.117144	212.81062	-23.118962	1108.3750
1030	-115.62358	-122.67721	72.318058	-270.91630	-201.03591	1032.2916
1031	-123.26447	-128.12106	71.138146	-567.61897	-385.09126	866.35860
1032	-130.55413	-133.39226	63.256494	-716.98123	-566.68281	667.94892
1033	-136.96071	-137.83846	50.959266	-763.50723	-733.77146	474.12900
1034	-156.06595	-134.11793	69.965067	66.218995	-730.93316	887.92527
1035	-158.91756	-126.10023	78.142328	-620.44804	-1200.7284	768.41463
1036	-161.31163	-122.09222	76.633225	-1020.3414	-1660.3606	578.94703
1037	-163.29076	-120.80822	68.196653	-1203.0888	-2089.3340	382.52526
1038	-164.89473	-121.05365	55.057192	-1239.6900	-2465.2223	218.67281
1039	-197.97292	-149.87971	72.026992	-154.19062	-1389.0842	415.58935
1040	-197.97221	-128.86647	79.109774	-1005.0030	-2124.7620	243.54670
1041	-196.85790	-115.49297	76.882879	-1463.2310	-2837.2502	38.782216
1042	-195.18879	-107.66437	68.047073	-1631.1201	-3496.0052	-133.19669
1043	-193.37074	-103.64040	54.728396	-1608.5195	-4069.6127	-230.90798
1044	-231.28009	-163.13569	72.181102	-472.49353	-1975.1683	-283.07692
1045	-229.74013	-130.16702	77.005523	-1422.0504	-2939.1391	-519.98252
1046	-226.46150	-108.16689	73.656111	-1873.0910	-3871.6305	-737.60711
1047	-222.46355	-94.302338	64.436697	-1959.1421	-4734.3756	-870.07838
1048	-218.38428	-86.391976	51.253884	-1809.4082	-5488.7749	-873.75614
1049	-253.67494	-172.09146	71.515839	-915.58804	-2460.6756	-1171.6496
1050	-251.39010	-129.27484	73.171645	-1876.7711	-3597.9987	-1489.5633
1051	-247.02227	-99.979197	68.426605	-2235.8607	-4703.8398	-1724.7438
1052	-241.94093	-80.861735	58.850772	-2155.5000	-5731.6771	-1811.7647
1053	-236.83287	-69.613968	45.868661	-1790.8778	-6637.7533	-1705.0923
1054	27.579745	-9.6357715	-1.1399852	434.21893	442.16488	245.24157
1055	30.018400	-42.150108	11.988436	476.09545	669.98792	479.39292
1056	22.117806	-66.825905	22.078225	442.58128	985.57521	618.76278
1057	-36.980531	-45.939565	-4.9320827	1147.6961	434.54716	435.89840
1058	-39.421921	-70.113165	20.099395	880.65849	495.58026	782.90658
1059	-45.596154	-86.453118	38.231974	602.22234	583.91706	972.52207
1060	-97.795070	-104.96880	-6.7683346	2041.6486	362.79149	483.37474
1061	-98.858218	-110.19177	26.122640	1358.8767	240.32230	856.16249
1062	-102.33407	-113.98924	47.993887	771.82161	121.98178	1046.5531
1063	-148.44587	-172.66917	-4.4528902	2931.4970	279.71181	391.44131
1064	-151.09626	-156.53571	29.884080	1808.4963	-21.888099	722.81530
1065	-153.38368	-144.45714	53.216754	895.46033	-336.30001	872.59069
1066	-189.23252	-238.22492	3.1251907	3676.5543	195.83145	165.86042
1067	-193.99054	-202.57443	34.777564	2135.9989	-272.85486	400.34194
1068	-196.69332	-174.76049	56.518881	917.44107	-767.19349	471.97164
1069	-219.67817	-295.58793	15.792039	4157.9982	102.28499	-180.87035
1070	-226.76826	-243.06054	42.087062	2258.6891	-511.44950	-90.712020
1071	-230.38541	-201.21742	59.879096	784.94712	-1159.6033	-130.00557
1072	-239.70329	-340.55173	33.272260	4279.6388	-21.250929	-626.09400
1073	-248.47857	-273.96372	51.789198	2104.3530	-734.06955	-716.07987
1074	-252.83252	-220.87181	63.849794	446.60410	-1498.5258	-896.93197
1075	-234.68584	-50.004446	4.9444714	273.63229	-9100.4122	-562.58059

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

1076	-234.22976	-50.330226	1.6028390	359.90583	-9142.0087	-186.91051
1077	-236.95485	-42.627164	2.3141023	1652.9140	-9588.2189	-816.61199
1078	-236.05845	-43.663139	0.75066743	1784.5166	-9645.6977	-276.40460
1079	-239.78833	-39.822160	-2.5467620	3724.1023	-9498.6770	-1210.3606
1080	-238.00949	-44.939243	-1.3784941	4018.8309	-9596.4803	-417.30461
1081	-242.83484	-49.161919	29.799912	-1022.6843	-8064.9153	-2256.7073
1082	-240.42154	-48.147682	22.440891	-611.77309	-8438.0133	-1926.5311
1083	-238.02462	-48.428612	15.564680	-228.13862	-8745.4846	-1513.1349
1084	-235.92233	-49.311073	9.4538412	92.873342	-8973.9092	-1018.3271
1085	-244.92652	-35.081024	26.521108	-391.93052	-8384.8281	-3036.3499
1086	-243.74014	-34.371944	18.478665	212.58418	-8789.6278	-2628.9371
1087	-241.69482	-36.382176	11.088883	808.58988	-9141.7914	-2104.7860
1088	-239.10924	-39.882514	5.3903782	1338.8509	-9422.9447	-1449.0335
1089	-237.66635	-21.179259	27.723097	446.14242	-8303.5529	-3860.2410
1090	-240.61860	-18.076280	19.148055	1262.3162	-8667.3879	-3388.0942
1091	-242.90044	-20.971972	8.6764126	2140.9495	-8986.5842	-2810.4896
1092	-241.86192	-30.273001	0.21195643	3061.5228	-9282.4820	-2043.8696
1093	-263.46226	-175.74299	70.651507	-1428.6925	-2777.2223	-2082.2322
1094	-260.85658	-126.41385	69.077629	-2319.7174	-4025.9934	-2487.6186
1095	-256.13603	-92.059839	63.118041	-2517.5617	-5239.8804	-2745.0869
1096	-251.02141	-68.969538	53.483494	-2211.3575	-6373.7520	-2791.6627
1097	-246.26869	-54.966497	40.742026	-1574.8974	-7386.2192	-2582.9920
1098	-262.01404	-174.68775	69.715063	-1996.1101	-2930.6763	-2941.9332
1099	-259.28172	-122.02074	65.181823	-2743.0273	-4201.9422	-3441.8040
1100	-254.47723	-84.850280	58.362584	-2720.7337	-5452.8503	-3732.6517
1101	-249.75254	-59.094318	49.289015	-2139.8439	-6630.3320	-3748.3876
1102	-246.50269	-42.441591	37.495614	-1197.4649	-7679.4126	-3455.6993
1103	-251.18498	-169.70820	68.767904	-2679.6319	-2925.3528	-3804.1167
1104	-248.49585	-115.96030	61.200631	-3215.4014	-4149.3711	-4421.4754
1105	-243.55869	-77.696032	53.518472	-2895.9829	-5382.1221	-4772.3300
1106	-238.62459	-50.627150	45.548396	-1955.2215	-6569.2301	-4768.3913
1107	-236.41282	-31.616963	36.550885	-648.19248	-7623.1699	-4369.2906
1108	-247.98473	-367.78269	51.302715	4055.1480	-109.14835	-1072.5215
1109	-257.76583	-291.92092	61.712857	1703.5757	-898.18143	-1253.8997
1110	-262.60590	-231.50300	67.858814	-47.256140	-1726.9817	-1681.3142
1111	-245.14013	-378.50180	68.849121	3501.8369	-229.66028	-1476.3431
1112	-255.95400	-298.14047	71.299615	1092.1363	-1024.2288	-1945.3392
1113	-261.13452	-233.91017	71.570698	-669.79888	-1865.8898	-2412.9845
1114	-234.28647	-376.85938	87.759271	2629.7325	-363.03907	-1867.0077
1115	-245.07857	-294.81601	81.290775	238.55660	-1106.1602	-2514.0717
1116	-250.25584	-229.83253	75.378407	-1479.3489	-1909.2915	-3135.0682
1117	-246.25262	-52.299363	2.1200949	6140.0052	-9057.8020	-1028.6476
1118	-268.00687	-61.906066	-1.0736272	7841.2209	-7927.8706	-1178.3377
1119	-385.96606	-54.444376	44.280702	9558.3206	-5284.5415	-591.65467
1120	-246.85334	-39.384967	-7.7317301	5728.6617	-8892.9362	-1618.7829
1121	-281.38216	-31.963325	-4.0146422	7450.6675	-7791.5077	-1850.4514
1122	-262.98928	-33.842885	64.730248	9841.0747	-7044.0438	-949.21281
1123	-222.21462	-12.959327	32.870633	1229.3062	-8066.2109	-4436.4220
1124	-229.20265	-5.1817647	27.624480	2168.1269	-8344.6011	-3877.2015
1125	-240.52967	-3.7087473	15.623756	3243.1605	-8527.2513	-3286.0327
1126	-250.00528	-18.628649	-1.6615608	4596.5099	-8695.2518	-2541.4976
1127	-200.79989	-12.365285	35.390603	1915.0063	-7822.4150	-4843.8159
1128	-205.00283	-1.4599980	37.301291	2900.6164	-8110.5211	-4149.9274
1129	-220.97860	8.3926662	33.607517	3978.7638	-8176.2514	-3473.5542
1130	-252.42054	0.66386522	17.213181	5689.4372	-8014.1816	-2757.3987
1131	-174.51767	-15.087624	31.703263	2749.7344	-7518.3885	-5357.5896
1132	-166.53663	-7.7665143	39.097716	3795.5819	-8009.3716	-4494.9865
1133	-166.27471	10.489559	51.473527	4736.1506	-8317.8550	-3613.8767
1134	-179.79993	1.8719144	56.779631	6828.5391	-8473.8226	-2813.0938
1135	-237.50304	-163.66615	68.140800	-3284.3489	-2809.4241	-4421.9093
1136	-235.07061	-110.33833	58.230773	-3624.2642	-3961.9894	-5150.9356
1137	-230.06623	-72.244870	49.598250	-3031.9266	-5142.6149	-5574.1357
1138	-224.25319	-45.333140	42.191771	-1753.6196	-6324.7337	-5580.7895
1139	-220.75434	-25.795633	36.523705	-97.672535	-7400.8285	-5079.1806
1140	-224.50322	-158.04056	67.906516	-3753.5018	-2640.7723	-4818.5212
1141	-222.55406	-105.71656	56.378545	-3936.7757	-3687.8477	-5629.5713
1142	-217.74203	-68.264404	46.791859	-3132.2240	-4793.8201	-6124.9418
1143	-211.00652	-42.317604	39.068506	-1576.1467	-5953.2166	-6168.4577
1144	-204.01721	-24.280416	34.828752	395.62258	-7085.0145	-5618.5494
1145	-209.16540	-151.44544	67.957015	-4251.1160	-2404.7496	-5169.6262

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

1146	-207.97998	-100.49055	54.826619	-4274.4529	-3311.2267	-6073.0876
1147	-203.71655	-63.841162	44.021171	-3247.5980	-4303.3433	-6661.1094
1148	-196.37432	-39.094618	35.140206	-1388.8405	-5411.9498	-6778.7750
1149	-185.26364	-23.570158	30.186886	946.64717	-6617.5803	-6232.0420
1150	-220.89335	-367.65678	101.52083	1820.9738	-378.50036	-2128.7320
1151	-231.38947	-286.79604	88.604648	-556.88202	-1122.7574	-2910.8531
1152	-236.42260	-222.97111	78.236711	-2207.7871	-1865.1975	-3640.7005
1153	-207.59026	-355.66490	111.02188	1131.6397	-465.55803	-2281.0590
1154	-218.03572	-277.78143	93.476317	-1187.8017	-1111.6370	-3156.0640
1155	-223.12327	-215.84565	80.238227	-2770.4815	-1787.6961	-3954.9870
1156	-192.05943	-340.29737	120.03296	354.45682	-527.51178	-2392.9973
1157	-202.08889	-266.31172	98.379482	-1868.5728	-1087.0091	-3357.2048
1158	-207.28975	-207.20629	82.363439	-3375.6378	-1672.3213	-4227.9977
1159	-153.41389	-16.883184	21.309062	3609.5788	-7182.5939	-5906.7031
1160	-135.02159	-16.169300	25.156378	4696.3038	-7961.4607	-5014.4469
1161	-107.67944	-6.7314979	40.822639	5380.6948	-8879.2607	-4002.9650
1162	-66.171225	25.257000	41.537341	6136.8510	-10276.379	-4033.2681
1163	-140.23013	-16.688506	11.271893	4127.9332	-6324.5271	-6680.4195
1164	-119.69294	-16.652915	7.7746212	5363.6532	-7229.4556	-5933.2363
1165	-80.981662	-19.899994	4.0229476	6082.6655	-8296.7389	-5062.5132
1166	-19.976115	49.058054	0.16715780	4471.8709	-9077.0881	-4804.4376
1167	-133.79444	-12.039230	-1.0613965	4932.9233	-5415.7475	-7245.5267
1168	-116.61913	-11.845483	-11.675912	6378.7692	-6256.2997	-6520.1336
1169	-92.030805	-1.9333340	-32.714580	7070.9652	-7035.0595	-5653.9214
1170	-59.653958	27.338572	-39.203917	5401.8453	-7109.5174	-3727.9305
1171	-194.27541	-145.07467	68.306858	-4713.5446	-2148.8480	-5424.7231
1172	-193.99325	-95.499841	53.832931	-4596.9291	-2903.3153	-6414.6052
1173	-190.53509	-59.556132	41.818056	-3373.1067	-3760.0369	-7099.3615
1174	-183.27718	-35.714218	31.316569	-1237.4699	-4787.3596	-7315.1271
1175	-169.45274	-22.468286	23.759105	1463.4258	-6029.8562	-6834.0850
1176	-180.46515	-139.17962	68.917204	-5126.0857	-1880.7298	-5598.9985
1177	-181.15258	-90.887787	53.353917	-4892.5643	-2477.5298	-6662.2253
1178	-178.67396	-55.457115	40.240165	-3504.1239	-3185.8456	-7439.5186
1179	-172.18414	-32.127807	28.135407	-1129.4213	-4101.4889	-7761.5328
1180	-158.05847	-19.797587	17.187733	1908.1121	-5314.4292	-7384.9310
1181	-165.72181	-132.88106	69.855426	-5553.0909	-1573.7868	-5727.5124
1182	-167.50235	-85.920912	53.258602	-5206.7903	-1986.9262	-6864.0148
1183	-166.26642	-50.941800	39.043931	-3658.1894	-2512.2850	-7741.3369
1184	-161.05411	-27.725830	25.278108	-1042.1763	-3268.8963	-8187.4659
1185	-149.03689	-15.471102	10.914777	2339.2596	-4373.6258	-7946.3693
1186	-176.81992	-324.49513	127.51150	-354.22103	-547.13229	-2464.4503
1187	-186.54612	-254.77602	102.50584	-2500.4936	-1050.0780	-3493.8363
1188	-191.82123	-198.66741	84.359490	-3933.2021	-1543.1772	-4417.2336
1189	-162.66954	-309.18934	133.52370	-991.32779	-581.81025	-2503.4322
1190	-172.01659	-243.80695	105.94273	-3059.0315	-999.82780	-3578.2832
1191	-177.40352	-190.67895	86.201472	-4422.4493	-1402.1149	-4539.4305
1192	-147.54334	-292.39119	139.17066	-1658.9285	-599.09831	-2517.7032
1193	-156.37946	-231.90737	109.31231	-3630.2437	-940.72981	-3629.2882
1194	-161.92300	-182.11669	88.235834	-4922.7371	-1239.5344	-4620.5134
1195	-330.47504	-47.052181	-40.793018	22532.323	-2324.1518	1594.0545
1196	-205.52976	-47.173491	3.3402531	22374.546	-3006.9779	1065.2013
1197	-226.60215	-27.125199	-52.303966	16620.027	-2950.5560	592.19834
1198	-214.22231	-22.244755	15.489478	19289.840	-2438.2380	-721.43280
1199	-132.50908	-2.7904912	-9.6899051	5867.1604	-3708.3880	-7985.4798
1200	-127.48056	2.2736933	-23.388693	7699.1849	-4261.9385	-7180.9206
1201	-131.89650	17.784153	-38.459576	9000.9963	-4512.0396	-5805.7694
1202	-151.63881	7.9710007	-43.092643	10190.796	-4360.0252	-2765.1964
1203	-130.23412	7.6435938	-10.818749	7012.3688	-1177.3281	-8765.5288
1204	-138.29471	12.581286	-16.829704	9527.3790	-1576.2140	-7797.4504
1205	-157.96982	16.319645	-13.794520	11991.813	-1835.7348	-5998.0261
1206	-190.09579	6.0687502	1.1223013	15158.977	-2133.7521	-3109.5777
1207	-145.86640	-124.33660	71.624911	-6112.7070	-1111.0032	-5814.7377
1208	-149.20870	-79.112705	53.762705	-5637.9387	-1249.9740	-7037.4349
1209	-149.65823	-44.571105	38.256345	-3898.7585	-1488.6093	-8047.4060
1210	-146.92118	-21.029122	22.619288	-981.09545	-1970.6254	-8670.4177
1211	-139.95661	-8.0623202	5.3743031	2843.9067	-2841.0078	-8616.5122
1212	-120.74757	-113.39740	74.606450	-6811.5999	-490.29906	-5785.0321
1213	-126.07845	-70.218662	55.327004	-6199.4427	-247.03586	-7161.5155
1214	-128.56197	-36.207502	38.227134	-4250.6756	-59.893875	-8269.6849
1215	-128.67306	-12.099536	21.372678	-986.54500	-101.82658	-9126.4104

FILENAME : PIT3P1.P0 DATE : 05-25-94 TIME : 2:21p PAGE 5
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

1216	-129.08842	1.7110852	3.0900114	3419.3271	-561.02619	-9340.2626
1217	-126.90041	-269.08315	145.62828	-2530.4272	-632.80013	-2492.4032
1218	-135.11985	-215.74432	113.56864	-4371.1497	-833.98269	-3635.2526
1219	-140.99917	-170.55825	91.181722	-5575.2820	-986.44521	-4659.6611
1220	-100.42267	-238.88728	152.45354	-3587.8482	-623.55407	-2401.9879
1221	-108.05197	-195.34334	118.72264	-5278.3381	-684.81153	-3552.1027
1222	-114.46086	-155.89291	95.290466	-6376.8517	-647.35229	-4591.6928
1223	-175.06963	-28.387684	8.7436298	23618.748	-2160.6398	-653.45836
1224	-159.61805	-9.7110273	8.6023553	26041.837	-621.05453	-1077.5069
1225	-171.03078	-21.019575	20.768041	21849.359	-1639.4678	-2061.3410
1226	-162.07829	-10.227909	22.513417	24700.989	-1.4412458	-3181.4955
1227	-163.17432	-10.314764	29.402937	18071.766	-77.811242	-5261.9130
1228	-150.93388	-14.066026	39.054251	20638.002	2044.1204	-6759.8024
1229	-147.41371	3.4975158	18.183731	13982.378	1556.7398	-7732.5157
1230	-122.70746	-12.192487	37.741217	16195.526	4727.0173	-9392.9293
1231	-130.21092	11.105202	5.8932755	10904.731	2518.1566	-9130.3653
1232	-85.691003	-3.7404291	24.137625	12506.479	7176.2038	-10622.933
1233	-115.70739	14.086548	-0.25545168	8416.6769	2848.5163	-9786.1017
1234	-52.719469	7.5021016	8.9018280	9643.4721	9101.8917	-11147.009
1235	-85.950667	-97.585505	80.338544	-7760.3618	489.94362	-5476.9991
1236	-93.839712	-56.780415	59.091663	-7018.0050	1340.2300	-6856.9262
1237	-98.401760	-23.449210	39.665462	-4858.4309	2258.5419	-8204.0257
1238	-99.769531	-0.14011212	21.414773	-1197.9056	3030.7314	-9390.5919
1239	-102.75374	11.875646	7.1058221	3993.6530	3319.0846	-10073.788
1240	-42.569734	-76.622754	89.893752	-8921.7908	1746.3761	-4617.9469
1241	-53.506282	-37.591775	66.095410	-8089.1063	3435.8954	-5954.8880
1242	-59.877401	-4.7241472	42.362568	-5770.2400	5473.9796	-7380.5292
1243	-58.853290	16.404680	19.796096	-1776.8129	7663.8273	-8885.1434
1244	-48.934499	17.406578	5.8760042	4098.2973	9543.9783	-10363.858
1245	-64.314254	-197.50758	159.78902	-4958.7105	-573.80747	-2164.2635
1246	-70.692901	-167.12089	125.88065	-6466.6129	-409.50416	-3266.8914
1247	-77.716824	-135.43182	102.01346	-7440.6071	-93.562930	-4285.5057
1248	-19.794646	-148.35245	165.33873	-6508.4541	-479.31404	-1686.7608
1249	-24.707543	-132.88304	134.38031	-7846.5286	-64.103261	-2631.5205
1250	-32.178695	-109.93001	111.90656	-8705.2713	604.93100	-3528.8230
1251	-11.851811	-52.161462	100.94140	-9648.0605	2488.6149	-3728.5279
1252	-23.407352	-18.394448	75.225340	-8815.6942	4699.4370	-4872.7625
1253	-30.670491	13.356506	47.238385	-6619.2276	7496.0436	-6121.9044
1254	-27.496558	32.896861	17.765560	-2869.3221	10836.996	-7551.0607
1255	-5.1551082	31.298490	-8.0475064	2724.8990	14544.453	-9275.1286
1256	13.885511	-36.711625	112.04730	-10301.268	3009.7284	-2571.1305
1257	2.3077681	-4.3070994	87.696811	-9628.7407	5381.4675	-3406.8644
1258	-7.3501646	27.923183	58.758461	-7850.3336	8412.5781	-4313.9833
1259	-8.8319698	50.495236	23.756432	-4838.1162	12224.339	-5344.3485
1260	7.8932372	56.238200	-15.771543	-427.24232	16918.066	-6639.6421
1261	40.627351	-23.553027	121.95381	-10827.194	3370.5330	-1038.2420
1262	29.411010	9.1016018	100.38247	-10284.811	5818.0137	-1487.3464
1263	17.482941	44.737873	73.324523	-8794.7614	8962.6335	-1943.8995
1264	8.2859174	76.273608	36.054742	-6252.7511	12995.881	-2385.9520
1265	10.661671	92.100341	-13.294997	-2640.7566	18223.854	-2833.0626
1266	68.059994	-14.131661	129.26464	-11033.671	3371.5328	746.43250
1267	58.542354	20.220604	111.71868	-10553.538	5774.8666	739.36887
1268	45.464304	60.943160	89.468701	-9173.1832	8859.9826	799.93389
1269	28.497491	105.52227	56.436152	-6751.3800	12799.226	1033.8577
1270	12.200987	141.61593	3.3409475	-3248.5586	17905.338	1650.0529
1271	95.180977	-7.6000288	132.57419	-10812.987	2904.0627	2552.2018
1272	89.328764	28.678104	119.75773	-10293.947	5117.9309	2990.3625
1273	77.845542	74.441770	104.61562	-8821.4002	7947.4885	3553.8780
1274	57.194234	132.03204	82.144355	-6155.1113	11472.236	4389.1197
1275	23.310806	200.59879	37.535956	-1983.9878	15793.256	5858.9317
1276	120.39387	-2.0601537	131.00928	-10208.073	2017.6135	4118.7415
1277	120.42401	35.507165	122.94898	-9564.0410	3910.0383	4951.9566
1278	113.85149	85.139579	115.85624	-7837.2088	6320.7109	5923.1337
1279	95.812496	152.98473	107.28280	-4659.6012	9198.6163	7140.2619
1280	53.054939	256.71740	88.059329	682.09991	12331.233	8855.3344
1281	142.52299	4.2182449	124.55703	-9384.9783	897.47240	5268.0833
1282	150.20998	42.108881	121.14817	-8584.0078	2379.1367	6424.2595
1283	150.90375	94.676692	122.07034	-6528.7294	4276.7709	7674.4915
1284	140.19226	170.18734	127.52661	-2737.9438	6409.2103	8997.1010
1285	104.49258	296.08015	146.53089	3768.3256	8344.4028	10219.210

FILENAME : PIT3P1.PO DATE : 05-25-94 TIME : 2:21p PAGE 6
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

1286	161.64976	11.483412	114.08659	-8528.1689	-233.12151	5953.5922
1287	177.84067	48.939731	115.98754	-7602.1112	791.20186	7379.5047
1288	186.19478	104.85556	125.01661	-5234.3892	2135.3811	8799.7601
1289	183.77064	187.56471	143.51258	-876.73326	3515.5020	9975.8995
1290	170.02137	310.74672	199.77778	6322.2471	4592.6412	10158.199
1291	179.31683	18.118328	101.11558	-7748.0834	-1193.8040	6224.9352
1292	203.38910	55.277764	110.59947	-6780.5021	-660.91389	7907.4305
1293	217.26767	116.92142	128.15001	-4176.8717	84.476585	9424.7134
1294	221.63672	209.02552	158.81490	607.25394	746.23555	10286.721
1295	239.10211	299.78465	235.35593	7879.5099	1603.9042	9363.6793
1296	16.834775	-110.63902	167.76902	-7625.7655	-443.79981	-1114.8651
1297	12.768777	-105.87320	141.58104	-8858.0498	179.97307	-1845.6401
1298	5.0126680	-89.279818	121.24532	-9657.0382	1113.0090	-2555.3352
1299	43.171541	-85.690890	168.27038	-8292.7260	-401.04519	-529.66009
1300	40.400266	-86.641020	147.52039	-9476.1445	344.43048	-1025.3449
1301	33.014813	-72.351413	129.43485	-10258.926	1451.9791	-1525.6715
1302	64.092502	-68.739194	166.68484	-8670.7361	-385.27110	105.50095
1303	63.218448	-70.924691	152.36461	-9850.3077	418.80397	-114.85717
1304	57.221747	-57.009721	137.13827	-10641.525	1628.1486	-358.27301
1305	79.887784	-60.145001	163.45809	-8728.0856	-408.46708	750.66381
1306	80.979873	-59.081964	155.32419	-9951.3617	379.92729	827.18166
1307	77.543715	-43.542475	143.05778	-10764.399	1592.6627	866.99526
1308	90.859505	-58.933996	159.01021	-8458.8657	-476.91443	1359.8073
1309	94.195038	-50.604057	155.63052	-9767.9698	215.15339	1731.0240
1310	94.504817	-32.054585	145.82122	-10614.861	1326.0040	2057.2644
1311	98.035145	-62.587056	153.67161	-7883.3901	-590.03755	1884.6591
1312	103.91629	-44.236352	152.42345	-9309.7775	-71.641949	2524.8074
1313	109.14049	-22.350615	144.07192	-10198.113	836.51315	3119.4275
1314	103.08818	-66.979619	147.72497	-7047.0955	-737.87979	2280.5763
1315	111.79297	-38.097941	144.90479	-8605.7022	-457.96714	3142.5805
1316	122.79552	-14.026898	136.68769	-9535.7041	162.18750	3969.1796
1317	108.06785	-66.545947	141.40010	-6016.0243	-898.52621	2512.1842
1318	119.69982	-29.880921	132.46890	-7699.5149	-901.25974	3531.6505
1319	137.00721	-6.6754232	123.02974	-8661.5431	-628.48784	4539.9979
1320	114.85303	-54.753719	134.85214	-4873.8461	-1031.0279	2553.0623
1321	129.37293	-17.060709	114.96780	-6638.3517	-1341.3901	3659.5717
1322	152.45180	-0.11116138	103.00475	-7618.6903	-1435.8466	4793.1154
1323	539.69615	38.320143	37.832694	4436.9417	-4640.7333	200.36778
1324	674.28782	102.16556	32.979362	2647.0426	-12381.153	619.63585
1325	823.53041	146.65090	24.867099	591.78845	-18756.871	734.44585
1326	1009.8216	165.18421	16.679882	-1286.8254	-24495.464	706.67274
1327	520.43222	57.614852	100.72037	5096.8635	-4717.2970	576.18470
1328	649.33437	117.13728	84.206796	2856.1522	-12104.365	1586.9688
1329	799.45448	156.31299	58.075570	632.03976	-18384.347	1796.6544
1330	989.61383	170.55367	30.094586	-1297.8257	-24115.732	1605.0690
1331	488.89248	91.769102	155.61400	6219.1386	-4740.4760	1299.4422
1332	605.56757	141.67287	125.95581	3244.6752	-11585.496	2589.4598
1333	756.08573	171.27122	82.928502	735.79636	-17703.976	2772.3794
1334	951.43135	178.51901	34.720273	-1281.9625	-23408.859	2334.0214
1335	451.93043	135.58812	200.20387	7509.4935	-4543.6149	2418.8717
1336	551.10172	169.08249	155.85471	3728.4652	-10855.222	3640.8168
1337	699.59122	186.30168	98.690909	892.92341	-16779.098	3660.4060
1338	897.95162	185.75780	29.958603	-1224.3015	-22417.448	2868.6975
1339	413.81258	182.39405	232.98278	8700.9210	-4010.5018	3848.0184
1340	494.94055	192.44130	173.93179	4208.6074	-9954.6840	4718.0057
1341	636.76839	196.40291	106.90760	1086.4072	-15693.810	4464.2804
1342	832.16749	189.10477	17.992938	-1116.6599	-21190.061	3220.8628
1343	375.23370	227.79708	253.09888	9616.4945	-3181.3684	5427.2379
1344	444.81336	206.13876	181.33889	4638.0993	-8991.3582	5790.8602
1345	573.95380	197.93577	110.06130	1313.0235	-14589.693	5176.0564
1346	757.41722	186.32475	2.1812528	-986.44192	-19717.786	3445.2793
1347	202.94328	13.126878	76.493647	-6431.9783	-2518.7316	6269.2707
1348	234.10623	45.178919	94.087644	-5581.9981	-2725.0100	8076.1834
1349	256.54452	109.49071	120.11324	-3219.9548	-2775.7955	9518.7416
1350	274.02321	192.69836	158.31352	955.30850	-2790.6305	9966.2116
1351	311.96397	244.94287	216.79960	6532.7948	-2764.1009	8329.0683
1352	218.58685	1.8820476	45.388935	-4797.2997	-3518.3712	5716.4513
1353	256.01904	24.440609	67.444360	-4292.7073	-4681.0992	7469.6154
1354	293.99220	82.926166	97.100387	-2744.3689	-5907.6108	8760.4911
1355	336.08055	156.62202	132.15487	-106.87847	-7148.4125	9047.6795

FILENAME : PIT3F1.PO DATE : 05-25-94 TIME : 2:21p PAGE 7
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 22/25)

1356	389.24754	204.20142	168.98780	3164.7430	-8065.2382	7728.5996
1357	201.94003	-9.0287103	14.813282	-3106.2448	-3346.9415	4613.1168
1358	246.84073	5.1722298	29.327835	-2990.9771	-5424.2396	6125.5431
1359	311.98614	59.014763	50.771276	-2270.5188	-7879.2877	7185.0125
1360	394.72509	128.88333	77.078622	-959.32875	-10500.132	7404.2590
1361	490.52403	181.70429	103.70997	665.28919	-12858.428	6516.1628
1362	116.61529	-5.0200981	-11.776320	-1527.3728	-1247.6602	3031.6631
1363	174.20044	2.6339796	-29.191144	-1774.1011	-4261.9072	3997.6893
1364	288.09739	48.963379	-37.022474	-1790.3598	-8181.3457	4633.2624
1365	445.51101	111.18808	-30.497103	-1529.8401	-12580.092	4738.4451
1366	622.01964	162.83571	-11.158531	-990.74096	-16816.397	4200.2364
1367	126.40771	-15.620357	126.67932	-3542.9022	-1099.1534	2359.3238
1368	143.67129	6.1940112	89.671355	-5281.7206	-1694.8860	3476.4362
1369	170.78308	6.6046710	74.456295	-6235.3399	-2166.1316	4693.1700
1370	138.00621	65.074537	114.88669	-2126.3463	-853.71774	1879.9587
1371	157.89754	42.207220	57.557942	-3677.7099	-1709.6800	2915.5672
1372	185.87757	13.362979	39.469014	-4535.2867	-2545.7297	4131.0163
1373	131.95170	181.30393	92.217385	-879.50982	59.315831	1214.9333
1374	158.55448	83.064221	26.545790	-2056.2414	-866.86266	2090.0891
1375	176.65465	18.155458	11.400828	-2755.3547	-1885.5346	3196.1877
1376	116.39775	287.14195	48.568917	321.74716	2018.3919	602.14437
1377	120.08819	110.07679	19.356426	-479.43215	1463.1799	1302.7325
1378	107.34063	28.734634	5.8832300	-1007.8595	575.98858	2090.1191

MINIMUMS
ELEMENT 1119 1111 1197 1266 1326 1234
VALUE -385.96606 -378.50180 -52.303966 -11033.671 -24495.464 -11147.009

MAXIMUMS
ELEMENT 1326 1290 1343 1224 1265 1294
VALUE 1009.8216 310.74672 253.09888 26041.837 18223.854 10286.721

FILENAME : PIT3F2.PO DATE : 05-25-94 TIME : 2:21p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post, Processing Output (Part 23/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

NSEL FOR LABEL= NODE FROM 1 TO 172 BY 1

172 NODES (OF 1450 DEFINED) SELECTED BY NSEL COMMAND.

NUSE FOR LABEL= NODE FROM 101 TO 162 BY 1

110 NODES (OF 1450 DEFINED) SELECTED BY NUSE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

167 ELEMENTS (OF 1474 DEFINED) SELECTED FROM 110 SELECTED NODES BY ENOD COMMAND.

EUSE FOR LABEL= REAL FROM 2 TO 3 BY 1

106 ELEMENTS (OF 1474 DEFINED) SELECTED BY EUSE COMMAND.

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3660 MAY 25,1994 CP= 898.200

***** POST1 NODAL FORCE SUMMATION *****

LOAD STEP= 9999 ITERATION= 1

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	FX	FY	FZ	MX	MY	MZ
1	-224.06643	606.36795	334.81079	-861.58780	-5586.6134	-0.59923698E-03
2	-447.71675	4.2052048	669.06271	-0.39856491E-03	-11175.876	-0.24895676E-04
3	-568.40788	11.735014	850.04111	-0.25343516E-02	-14082.005	-0.92876285E-03
4	-686.71070	21.331666	1024.3259	-0.18317650E-03	-16885.662	0.83175234E-03
5	-680.30162	29.628878	1006.5150	0.61055479E-03	-16700.262	0.17497763E-02
6	-670.12486	37.857483	981.49487	0.87840073E-03	-16493.578	0.29123716E-02
7	-975.23068	69.642616	1415.5879	-0.74586483E-02	-23578.846	0.33084961E-02
8	-1239.3722	101.61996	1732.4935	0.12711499E-01	-28831.471	0.15079627E-01
9	-1134.1345	105.84082	1457.0641	0.20296237E-01	-25567.120	0.19575243E-01
10	-988.35041	101.19934	1088.4834	0.27302357E-01	-21216.495	0.22733010E-01
11	-795.78280	91.565482	629.36497	0.29522329E-01	-16048.316	0.21202845E-01
12	-495.94194	71.559837	148.55926	0.12369710E-01	-8942.4899	0.42851706E-02
13	-248.81635	56.166048	-171.49193	0.89954159E-02	-4716.9387	0.74932652E-02
14	-85.685655	50.407779	-430.84864	0.50485356E-02	-2427.5551	0.90452018E-02
15	-13.233566	165.89088	-740.56708	39.458560	-573.54416	-0.28825102E-03
16	-128.82384	-53.459550	-338.58205	6402.6543	-0.50048858E-01	-0.28700518E-01
17	-221.53394	-621.14154	746.32317	16238.644	-0.57347230E-01	-0.35301694E-01
18	-242.94207	-1109.3460	1922.7654	26960.529	-0.50418546E-01	-0.35553337E-01
19	-191.39643	-1506.1049	3088.9725	36891.327	-0.31944866E-01	-0.32012387E-01
20	-76.872381	-1812.9881	4155.8184	44739.794	-0.52066456E-02	-0.25876644E-01
21	93.186139	-2026.4187	5048.5337	49291.765	0.29010551E-01	-0.17360050E-01
22	252.37773	-1909.6203	5048.4401	44545.405	0.86496861E-01	-0.16676640E-02
23	391.52547	-1690.7785	4681.4095	36980.192	0.78705692E-01	-0.62829376E-04
24	553.79587	-1637.7898	4740.1505	31844.309	0.10316011	0.61267150E-02
25	518.61430	-1184.8112	3547.6672	18741.205	0.12534045	0.15888284E-01
26	421.08782	-755.64956	2317.9528	10724.233	0.65066798E-01	0.55372088E-02
27	464.14320	-704.67004	2214.5373	7604.9505	0.65025429E-01	0.52041533E-02
28	432.22385	-562.37784	1812.0872	3794.0310	0.61556139E-01	0.56187621E-02
29	389.17954	-433.89787	1433.2469	1575.5299	0.47192266E-01	0.30262012E-02
30	408.91476	-396.06082	1342.5786	-278.45174	0.46176515E-01	0.21814877E-02
31	545.19123	-439.12071	1546.4347	-2820.0772	0.54466051E-01	0.78221293E-03
32	689.26084	-441.77719	1644.3235	-8149.0408	0.75593306E-01	0.28645337E-02
33	969.16235	-415.26065	1738.5348	-17320.677	0.10617850	0.21433902E-02
34	1243.9472	-270.61680	1579.1087	-33950.973	0.14194141	0.80469653E-02
35	1085.5746	-8.2273537	891.22076	-38291.890	0.10038592	0.55643862E-02

FILENAME : PIT3P2.PO DATE : 05-25-94 TIME : 2:21p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 23/25)

36	905.02066	152.29738	470.49932	-36667.214	0.81746318E-01	0.14787784E-02
37	878.27085	263.77057	347.00114	-39471.347	0.71613544E-01	-0.11215687E-02
38	841.22244	350.60817	365.66777	-40533.012	0.59017990E-01	-0.36876909E-02
39	799.80194	413.66025	537.26956	-39771.759	0.45888374E-01	-0.59696184E-02
40	760.46727	455.97623	856.21112	-37244.769	0.33952994E-01	-0.75251715E-02
41	729.64372	484.22317	1298.1849	-33162.366	0.25061679E-01	-0.79492949E-02
42	713.02816	507.62342	1818.8438	-27873.519	0.21142397E-01	-0.69346526E-02
43	714.67476	536.01112	2356.9420	-21804.508	0.24109919E-01	-0.43997922E-02
44	856.05669	671.39188	3300.0639	-18036.754	0.33838435E-01	-0.17765458E-02
45	1021.8061	831.47890	4087.7677	-10898.085	0.92295093E-01	0.10943340E-01
46	1027.0969	830.70755	3879.2191	-3226.6556	0.15995929	0.14664957E-01
47	797.20573	677.92416	3028.8444	2001.5446	0.20167432	0.28239151E-03
48	-721.69483	234.23725	2900.9277	3940.5347	8691.2728	-0.13067308E-01
49	-1097.4982	-195.03148	4461.4109	0.48294973E-01	17811.600	-0.22150200E-01
50	-388.76064	-132.53348	5216.0409	0.24069539E-01	16292.002	-0.13320993E-01
51	-105.95610	48.847114	6422.8470	0.35490341E-01	12429.399	-0.13503477E-01
52	-21.812182	353.51903	6623.0441	-0.10967911	-6956.1083	0.15919907E-01
53	-210.77291	658.58388	4290.6348	-0.20922652	-39532.924	0.40346205E-01
54	-597.71031	822.81771	880.71996	-0.27359382	-80605.621	0.54765580E-01
55	-1009.5916	787.50592	-3112.6465	-0.26542592	-123922.00	0.50266935E-01
56	-902.97404	486.75537	-4437.5145	0.16404847E-01	-117628.72	-0.22642235E-02
57	-634.26514	201.47487	-3643.1089	-0.37294751E-01	-79354.323	0.47256119E-01
58	-632.38586	150.47323	-4167.3694	-0.35118871E-01	-84305.086	0.39547216E-02
59	-614.67710	103.03870	-4569.8696	-0.27405996E-01	-88290.125	0.28736341E-02
60	-591.93640	62.473602	-4848.9280	-0.18284710E-01	-91076.718	0.18225656E-02
61	-573.64868	29.023049	-5011.4572	-0.90438881E-02	-92707.381	0.87614005E-03
62	-283.35111	-2354.6518	-2532.2892	3571.3114	-46620.864	-0.80262743E-02
63	-0.48885340E-11	-4133.1312	-0.11864181E-05	1871.9498	0.35543053E-07	-0.15853314E-01
64	0.46043169E-11	-3387.5691	-0.49673690E-06	-7495.0994	0.19701474E-06	-0.15533158E-01
65	0.25011104E-11	-2758.1696	0.59453532E-06	-16994.469	-0.52578333E-07	-0.15416681E-01
66	-0.12514262E-11	-1178.5365	3332.0000	-9001.3821	-0.21960632E-08	-0.77105627E-02
67	0.11908696E-10	-0.27284841E-11	6664.0000	0.33316064E-06	0.24928318E-06	-0.17347235E-17
68	-0.10174972E-10	0.00000000E+00	6664.0000	-0.17935236E-06	0.12918986E-06	0.52041704E-17
69	0.10800250E-11	-0.11368684E-11	6664.0000	0.61940227E-07	-0.48726952E-06	0.34694470E-17
70	0.40927262E-11	-0.75033313E-11	6664.0000	-0.14826583E-06	-0.20940615E-06	0.12143064E-16
71	-0.44337867E-11	-0.93223207E-11	6664.0000	0.16734703E-07	-0.12529563E-06	-0.18214596E-16
72	-0.18172841E-09	-0.15489832E-09	8330.0000	-0.30352385E-06	0.64309552E-06	-0.86822910E-15
73	-0.63892003E-10	-0.25238478E-10	9996.0000	-0.15287196E-06	-0.30261435E-06	-0.92894442E-15
74	0.45929482E-10	-0.99021236E-10	9996.0000	-0.56612407E-06	-0.18263745E-06	-0.82052420E-15
75	0.35470293E-10	-0.24539304E-09	9996.0000	0.38824874E-06	0.19074650E-06	0.44408921E-15
76	0.24556357E-10	0.80888185E-10	9996.0000	0.40922714E-07	-0.32875687E-06	-0.25240227E-15
77	-0.38312464E-10	0.46867399E-10	9996.0000	-0.55337296E-07	0.29992952E-06	-0.90465829E-15
78	0.28990144E-11	-0.77836404E-10	9996.0000	-0.88150955E-07	-0.88533852E-07	-0.85868812E-15
79	-0.26517455E-10	-0.19340973E-10	9996.0000	-0.72047897E-06	0.32594835E-06	0.13574211E-15
80	-0.39790393E-10	0.79275253E-10	9996.0000	-0.88202614E-06	0.48938091E-07	-0.73727485E-16
81	0.19170443E-10	0.59898753E-11	8874.0000	-0.41151361E-06	-0.21333108E-06	0.13617579E-15
82	0.13560708E-10	-0.17109869E-10	7769.0000	-0.35231642E-06	0.14012267E-06	0.86736174E-17
83	-0.11304735E-10	0.15887736E-10	7769.0000	0.16101694E-06	-0.29159582E-06	-0.22551405E-16
84	0.10381029E-10	-0.28421709E-11	7769.0000	-0.13351382E-06	-0.52981341E-06	-0.17347235E-16
85	0.41424641E-11	0.14495072E-11	6120.0000	-0.17879211E-06	0.11480984E-06	-0.39031278E-17
86	0.64659389E-12	-0.11084467E-11	4488.0000	-0.17873390E-06	0.18537253E-06	-0.21684043E-18
87	0.88325003E-12	222.39286	2244.0000	-40090.626	-0.47768221E-07	-0.17531596E-02
88	-0.57340799E-11	474.84202	0.20543123E-05	-70692.587	-0.16580680E-06	-0.34933444E-02
89	0.20961011E-11	532.60831	0.14324451E-06	-65958.597	-0.18475839E-06	-0.35839856E-02
90	-0.41211479E-12	746.31507	0.24941028E-06	-67008.087	-0.30463525E-07	-0.37429389E-02
91	-0.62552773E-12	599.26786	182.32500	-36151.166	0.36271419E-07	-0.18991380E-02
92	-0.42632564E-13	-0.79580786E-12	364.39500	0.31833770E-06	-0.86236923E-07	0.21684043E-18
93	0.13244517E-10	-0.69064754E-11	363.88500	-0.67170367E-06	-0.90910180E-06	-0.11861172E-15
94	-0.14352963E-11	-0.25117686E-11	364.14000	0.37782752E-06	0.16880222E-08	-0.94867690E-16
95	0.29373837E-10	0.18580693E-11	364.39500	-0.36172423E-06	-0.42100146E-06	-0.37188135E-16
96	-0.48814286E-11	0.12562396E-10	364.39500	0.58253772E-06	-0.33031756E-06	-0.29056618E-16
97	0.34816594E-11	0.11368684E-12	364.39500	-0.39024235E-06	-0.16133981E-06	-0.43368087E-18
98	-0.30971983E-12	684.62093	182.07000	-12999.876	-0.16955631E-06	-0.78156004E-03
99	0.11922907E-10	912.58080	-0.22653035E-06	-26731.173	0.60317689E-08	-0.14196826E-02
100	-0.11880275E-10	719.82992	0.12613702E-05	-20506.235	-0.96370059E-08	-0.10920844E-02
163	0.10160761E-11	1183.3066	0.44003104E-06	-26481.355	-0.10113399E-06	-0.12309226E-02
164	-0.22694735E-10	1662.1101	0.85933118E-06	-19356.708	0.12477540E-06	-0.13989602E-02
165	-0.52651217E-11	1655.3120	-0.42915195E-06	-6885.4937	-0.36265192E-07	-0.11227126E-02
166	-0.67501560E-11	1847.8359	170.00000	891.50301	-0.14053148E-06	-0.10407986E-02
167	-0.17237767E-10	1969.9995	-0.42968944E-06	9094.1214	-0.81308826E-08	-0.10330918E-02

FILENAME : PIT3P2.PO DATE : 05-25-94 TIME : 2:21p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 23/25)

168	-0.74749096E-11	1805.2647	-0.35796404E-06	12096.271	0.29358489E-08	-0.97823452E-03
169	0.54001248E-11	1607.1891	-0.57621028E-06	11540.482	0.10049916E-08	-0.99578422E-03
170	0.58548721E-11	1409.7504	0.77045138E-06	8609.5317	-0.49454684E-07	-0.10655448E-02
171	-0.14807711E-10	1255.4784	-0.16698749E-06	4278.5460	-0.25658238E-07	-0.11461448E-02
172	-0.17848834E-10	1191.5843	-0.37788743E-06	-577.21735	-0.13329100E-07	-0.11903929E-02

***** SUMMATION OF FORCES AND MOMENTS IN GLOBAL COORDINATES *****

FX = 0.3190252E-08
FY = 0.1057901E-07
FZ = 252678.4
MX = -0.1065314E+08
MY = -0.3337936E+08
MZ = 0.5671853E-03
FLOW= 0.0000000E+00
HEAT= 0.0000000E+00
AMPS= 0.0000000E+00
FLUX= 0.0000000E+00

SUMMATION POINT= 0.00000E+00 0.00000E+00 0.00000E+00

FILENAME : PIT3F3.PO DATE : 05-25-94 TIME : 2:22p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 24/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

ESEL FOR LABEL= REAL FROM 1 TO 11 BY 10

402 ELEMENTS (OF 1474 DEFINED) SELECTED BY ESEL COMMAND.

458 NODES (OF 1450 DEFINED) SELECTED FROM 402 SELECTED ELEMENTS BY NELE COMMAND.

PRINT NODAL DISPLACEMENTS

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
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FOR SUPPORT CALL PHONE TWX

TITLE 14.3662 MAY 25,1994 CP= 899.020

***** POST1 NODAL DISPLACEMENT LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z DISPLACEMENTS ARE IN NODAL COORDINATES

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.00000000E+00	0.00000000E+00	0.58771060E-01	0.00000000E+00	0.16899761E-01	0.00000000E+00
2	-0.20677257E-06	0.56667991E-05	0.58770706E-01	0.28225512E-06	0.16899805E-01	-0.16468174E-06
3	-0.81058727E-06	0.11307587E-04	0.58769666E-01	0.54223845E-06	0.16899931E-01	-0.31385537E-06
4	-0.25435878E-05	0.19892615E-04	0.58766566E-01	0.10514740E-05	0.16900291E-01	-0.57827270E-06
5	-0.52333535E-05	0.28214744E-04	0.58761599E-01	0.15236884E-05	0.16900851E-01	-0.82031420E-06
6	-0.88422602E-05	0.36140953E-04	0.58754847E-01	0.19719924E-05	0.16901614E-01	-0.10549027E-05
7	-0.13268801E-04	0.43558100E-04	0.58746538E-01	0.22856544E-05	0.16902586E-01	-0.12177813E-05
8	-0.23908332E-04	0.56286415E-04	0.58724374E-01	0.33918447E-05	0.16905075E-01	-0.15506200E-05
9	-0.35882492E-04	0.65237317E-04	0.58695590E-01	0.41256522E-05	0.16908207E-01	-0.16077254E-05
10	-0.47106698E-04	0.69256286E-04	0.58662369E-01	0.45410667E-05	0.16911829E-01	-0.13462824E-05
11	-0.54565460E-04	0.67522172E-04	0.58628058E-01	0.43885252E-05	0.16915651E-01	-0.61898260E-06
12	-0.54239146E-04	0.60117919E-04	0.58598063E-01	0.34027336E-05	0.16919251E-01	0.67944185E-06
13	-0.47236117E-04	0.52450269E-04	0.58582733E-01	0.23065228E-05	0.16921310E-01	0.19393198E-05
14	-0.33277624E-04	0.44352529E-04	0.58573531E-01	0.12168403E-05	0.16922802E-01	0.32481864E-05
15	-0.12842845E-04	0.37830450E-04	0.58569115E-01	0.73922103E-06	0.16923585E-01	0.42390259E-05
16	-0.11716100E-04	0.81179531E-04	-0.93732629E-01	0.16324341E-05	0.16920792E-01	0.55406698E-05
17	-0.16427589E-04	0.13373487E-03	-0.24601319	0.36093077E-05	0.16918723E-01	0.63389911E-05
18	-0.32664998E-04	0.19042776E-03	-0.39828177	0.58450101E-05	0.16918120E-01	0.64649876E-05
19	-0.62395161E-04	0.24554316E-03	-0.55055185	0.73296130E-05	0.16919101E-01	0.59671413E-05
20	-0.10522768E-03	0.29404855E-03	-0.70283651	0.70061581E-05	0.16921496E-01	0.49403183E-05
21	-0.15961952E-03	0.33175932E-03	-0.85514707	0.39051518E-05	0.16925074E-01	0.34863263E-05
22	-0.22330839E-03	0.35536137E-03	-1.0074931	-0.27188657E-05	0.16929785E-01	0.16858700E-05
23	-0.27761487E-03	0.36190387E-03	-1.1265391	-0.10649072E-04	0.16933671E-01	0.82580776E-07
24	-0.33389184E-03	0.35698395E-03	-1.2456134	-0.21038400E-04	0.16937874E-01	-0.15914882E-05
25	-0.39035552E-03	0.34046024E-03	-1.3647169	-0.33667351E-04	0.16942308E-01	-0.32868448E-05
26	-0.41903741E-03	0.32704796E-03	-1.4264577	-0.40962930E-04	0.16944120E-01	-0.40924952E-05
27	-0.44682191E-03	0.31055683E-03	-1.4882056	-0.48719526E-04	0.16946100E-01	-0.49359017E-05
28	-0.47345599E-03	0.29107069E-03	-1.5499606	-0.56768773E-04	0.16948001E-01	-0.57394527E-05
29	-0.49194703E-03	0.27513588E-03	-1.5948743	-0.62741125E-04	0.16949171E-01	-0.62656865E-05
30	-0.50957437E-03	0.25783354E-03	-1.6397912	-0.68775191E-04	0.16950277E-01	-0.67631649E-05
31	-0.52624652E-03	0.23927270E-03	-1.6847107	-0.74829862E-04	0.16951211E-01	-0.72061175E-05
32	-0.54963483E-03	0.20880815E-03	-1.7532639	-0.83854885E-04	0.16952482E-01	-0.78125880E-05
33	-0.57030185E-03	0.17622544E-03	-1.8218212	-0.92506733E-04	0.16953220E-01	-0.82473209E-05
34	-0.59878135E-03	0.11874322E-03	-1.9369487	-0.10528297E-03	0.16953258E-01	-0.87682540E-05
35	-0.61999300E-03	0.59355042E-04	-2.0520709	-0.11471853E-03	0.16951586E-01	-0.88427966E-05
36	-0.63146269E-03	0.15993702E-04	-2.1362778	-0.11889928E-03	0.16949731E-01	-0.86383311E-05
37	-0.64037290E-03	-0.26346112E-04	-2.2204743	-0.12051903E-03	0.16947364E-01	-0.84248543E-05
38	-0.64776453E-03	-0.67732182E-04	-2.3046584	-0.11929157E-03	0.16944722E-01	-0.82665440E-05
39	-0.65472815E-03	-0.10864992E-03	-2.3888296	-0.11522688E-03	0.16942115E-01	-0.82549808E-05
40	-0.66224430E-03	-0.15007621E-03	-2.4729887	-0.10851348E-03	0.16939875E-01	-0.84883970E-05
41	-0.67098356E-03	-0.19342639E-03	-2.5571386	-0.99545531E-04	0.16938316E-01	-0.90396586E-05
42	-0.68108248E-03	-0.24036530E-03	-2.6412830	-0.88906787E-04	0.16937688E-01	-0.99312098E-05
43	-0.69193655E-03	-0.29249101E-03	-2.7254270	-0.77327988E-04	0.16938113E-01	-0.11108359E-04
44	-0.70203989E-03	-0.35088795E-03	-2.8095756	-0.65712245E-04	0.16939423E-01	-0.12406797E-04

FILENAME : PIT3P3.PO DATE : 05-25-94 TIME : 2:22p PAGE 2
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 24/25)

45	-0.70926839E-03	-0.43589171E-03	-2.9192484	-0.51736877E-04	0.16942162E-01	-0.13659851E-04
46	-0.70237624E-03	-0.52577577E-03	-3.0289365	-0.40597485E-04	0.16943870E-01	-0.13734498E-04
47	-0.67300982E-03	-0.61029637E-03	-3.1386210	-0.33479241E-04	0.16940396E-01	-0.12002518E-04
48	-0.62048004E-03	-0.67991652E-03	-3.2482494	-0.31098665E-04	0.16926216E-01	-0.10053450E-04
49	-0.56589911E-03	-0.67307504E-03	-3.2484071	-0.28609053E-04	0.16922676E-01	-0.10609553E-04
50	-0.50537711E-03	-0.66545382E-03	-3.2485612	-0.29574953E-04	0.16915917E-01	-0.12073917E-04
51	-0.43591868E-03	-0.66032130E-03	-3.2487263	-0.32428457E-04	0.16905950E-01	-0.13944908E-04
52	-0.31891057E-03	-0.65224674E-03	-3.2489982	-0.39228090E-04	0.16886629E-01	-0.16646425E-04
53	-0.18195192E-03	-0.63382267E-03	-3.2493170	-0.45095963E-04	0.16862670E-01	-0.19061264E-04
54	-0.30479331E-04	-0.59324080E-03	-3.2496693	-0.48075831E-04	0.16835997E-01	-0.20320163E-04
55	0.12379703E-03	-0.52123917E-03	-3.2500257	-0.46083982E-04	0.16809272E-01	-0.19711612E-04
56	0.26497851E-03	-0.41414074E-03	-3.2503423	-0.36778869E-04	0.16785575E-01	-0.16866569E-04
57	0.31890166E-03	-0.35645962E-03	-3.2504600	-0.32279128E-04	0.16776881E-01	-0.14768773E-04
58	0.36499092E-03	-0.29284760E-03	-3.2505602	-0.26626606E-04	0.16769467E-01	-0.12277718E-04
59	0.40210118E-03	-0.22421710E-03	-3.2506400	-0.20361691E-04	0.16763592E-01	-0.9495326E-05
60	0.42931843E-03	-0.15169104E-03	-3.2506978	-0.13728215E-04	0.16759336E-01	-0.64718699E-05
61	0.44594035E-03	-0.76515044E-04	-3.2507328	-0.69020291E-05	0.16756763E-01	-0.32793285E-05
62	0.45153026E-03	0.00000000E+00	-3.2507445	0.00000000E+00	0.16755902E-01	0.00000000E+00
63	0.45054349E-03	0.00000000E+00	-3.1756073	0.00000000E+00	0.16642545E-01	0.00000000E+00
64	0.44880147E-03	0.00000000E+00	-3.1009239	0.00000000E+00	0.16554551E-01	0.00000000E+00
65	0.44924535E-03	0.00000000E+00	-3.0265744	0.00000000E+00	0.16494891E-01	0.00000000E+00
66	0.45382844E-03	0.00000000E+00	-2.9524172	0.00000000E+00	0.16470471E-01	0.00000000E+00
67	0.44452095E-03	-0.36152442E-04	-2.9486042	-0.20082475E-04	0.16469101E-01	-0.28557005E-05
68	0.41733397E-03	-0.68935962E-04	-2.9372195	-0.42586430E-04	0.16465735E-01	-0.56247679E-05
69	0.37448477E-03	-0.95869721E-04	-2.9184252	-0.73231646E-04	0.16462373E-01	-0.82219242E-05
70	0.31957199E-03	-0.11578453E-03	-2.8924905	-0.11055330E-03	0.16461708E-01	-0.10560901E-04
71	0.25717049E-03	-0.12866561E-03	-2.8597896	-0.15581444E-03	0.16466608E-01	-0.12535550E-04
72	0.19156188E-03	-0.13506898E-03	-2.8208005	-0.20793225E-03	0.16477583E-01	-0.13909712E-04
73	0.10027880E-03	-0.13497855E-03	-2.7518258	-0.29099938E-03	0.16516620E-01	-0.13136311E-04
74	0.20410639E-04	-0.12388062E-03	-2.6723529	-0.37476175E-03	0.16569818E-01	-0.12301046E-04
75	-0.42378896E-04	-0.10462791E-03	-2.5851013	-0.45281936E-03	0.16641545E-01	-0.11491360E-04
76	-0.86875004E-04	-0.78999841E-04	-2.4930583	-0.51747612E-03	0.16731437E-01	-0.10713673E-04
77	-0.11415740E-03	-0.49577193E-04	-2.3993780	-0.56207402E-03	0.16836579E-01	-0.99654834E-05
78	-0.12715901E-03	-0.19307323E-04	-2.3072680	-0.58190667E-03	0.16952535E-01	-0.92385304E-05
79	-0.13002044E-03	0.83395176E-05	-2.2198774	-0.57440660E-03	0.17073566E-01	-0.85235783E-05
80	-0.12704586E-03	0.29595450E-04	-2.1401924	-0.53925786E-03	0.17193055E-01	-0.77452365E-05
81	-0.12152067E-03	0.41333997E-04	-2.0709384	-0.47835929E-03	0.17304857E-01	-0.67502547E-05
82	-0.11698406E-03	0.43885282E-04	-2.0259225	-0.41238451E-03	0.17385067E-01	-0.56463809E-05
83	-0.11226427E-03	0.39598770E-04	-1.9895516	-0.33491390E-03	0.17451008E-01	-0.47646912E-05
84	-0.10638391E-03	0.29484577E-04	-1.9625786	-0.24402377E-03	0.17501745E-01	-0.39015935E-05
85	-0.99651025E-04	0.16002619E-04	-1.9455456	-0.13958456E-03	0.17533355E-01	-0.30253123E-05
86	-0.96533433E-04	0.79101100E-05	-1.9403737	-0.71167018E-04	0.17543563E-01	-0.15209190E-05
87	-0.95367724E-04	0.00000000E+00	-1.9386467	0.00000000E+00	0.17546753E-01	0.00000000E+00
88	-0.96181879E-04	0.00000000E+00	-1.8887663	0.00000000E+00	0.17532861E-01	0.00000000E+00
89	-0.95924396E-04	0.00000000E+00	-1.8389308	0.00000000E+00	0.17515440E-01	0.00000000E+00
90	-0.94343522E-04	0.00000000E+00	-1.7891489	0.00000000E+00	0.17495439E-01	0.00000000E+00
91	-0.94725437E-04	0.00000000E+00	-1.7394240	0.00000000E+00	0.17477941E-01	0.00000000E+00
92	-0.97524174E-04	0.26899878E-04	-1.7282938	-0.67040553E-04	0.17475380E-01	-0.14447147E-05
93	-0.10424204E-03	0.48497367E-04	-1.6971913	-0.10529251E-03	0.17464986E-01	-0.28615259E-05
94	-0.11159079E-03	0.64106529E-04	-1.6524402	-0.10964830E-03	0.17441971E-01	-0.28500006E-05
95	-0.11854485E-03	0.66142969E-04	-1.6029909	-0.90053991E-04	0.17413336E-01	-0.24026223E-05
96	-0.12470864E-03	0.53052044E-04	-1.5586034	-0.60889593E-04	0.17387203E-01	-0.15736736E-05
97	-0.13001513E-03	0.30126338E-04	-1.5279652	-0.31163046E-04	0.17368059E-01	-0.63635691E-06
98	-0.13212857E-03	0.00000000E+00	-1.5170444	0.00000000E+00	0.17361463E-01	0.00000000E+00
99	-0.13257481E-03	0.00000000E+00	-1.4676887	0.00000000E+00	0.17343552E-01	0.00000000E+00
100	-0.13062109E-03	0.00000000E+00	-1.4184013	0.00000000E+00	0.17316264E-01	0.00000000E+00
163	-0.12947769E-03	0.00000000E+00	-1.3691954	0.00000000E+00	0.17286523E-01	0.00000000E+00
164	-0.12788725E-03	0.00000000E+00	-1.2479089	0.00000000E+00	0.17212225E-01	0.00000000E+00
165	-0.12665557E-03	0.00000000E+00	-1.1271404	0.00000000E+00	0.17140138E-01	0.00000000E+00
166	-0.12442702E-03	0.00000000E+00	-1.0068629	0.00000000E+00	0.17073298E-01	0.00000000E+00
167	-0.11900950E-03	0.00000000E+00	-0.85354201	0.00000000E+00	0.16998535E-01	0.00000000E+00
168	-0.10982566E-03	0.00000000E+00	-0.70083389	0.00000000E+00	0.16937913E-01	0.00000000E+00
169	-0.96240300E-04	0.00000000E+00	-0.54860066	0.00000000E+00	0.16893516E-01	0.00000000E+00
170	-0.77990650E-04	0.00000000E+00	-0.39668971	0.00000000E+00	0.16866648E-01	0.00000000E+00
171	-0.55271249E-04	0.00000000E+00	-0.24493849	0.00000000E+00	0.16858246E-01	0.00000000E+00
172	-0.28833033E-04	0.00000000E+00	-0.93177001E-01	0.00000000E+00	0.16869044E-01	0.00000000E+00
2011	-0.12505896E-03	0.23087001E-04	-1.0068487	-0.55546103E-05	0.17071532E-01	-0.30570183E-06
2012	-0.12458778E-03	0.11532975E-04	-1.0068593	-0.28870306E-05	0.17072836E-01	-0.15863173E-06
2013	-0.29604454E-04	0.10717016E-04	-0.93180522E-01	0.14176537E-05	0.16869396E-01	-0.35480593E-06
2014	-0.56006026E-04	0.11793676E-04	-0.24494474	0.25168329E-05	0.16858590E-01	-0.32597512E-06

FILENAME : PIT3F3.PO DATE : 05-25-94 TIME : 2:22p PAGE 3
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 24/25)

2015	-0.78687725E-04	0.13974456E-04	-0.39669816	0.34012625E-05	0.16866869E-01	-0.28941804E-06
2016	-0.96915510E-04	0.16660644E-04	-0.54860954	0.35841900E-05	0.16893477E-01	-0.26275684E-06
2017	-0.11049450E-03	0.19332722E-04	-0.70084016	0.25536332E-05	0.16937471E-01	-0.25446096E-06
2018	-0.11967462E-03	0.21572855E-04	-0.85354117	-0.26660493E-06	0.16997512E-01	-0.26839000E-06
2019	-0.29023846E-04	0.53714753E-05	-0.93177884E-01	0.70633301E-06	0.16869122E-01	-0.16660119E-06
2020	-0.55456660E-04	0.59041877E-05	-0.24494005	0.12552009E-05	0.16858321E-01	-0.16021421E-06
2021	-0.78165083E-04	0.69899865E-05	-0.39669182	0.16942667E-05	0.16866691E-01	-0.14660655E-06
2022	-0.96409391E-04	0.83295677E-05	-0.54860288	0.17798609E-05	0.16893493E-01	-0.13564985E-06
2023	-0.10999411E-03	0.96625765E-05	-0.70083544	0.12540053E-05	0.16937788E-01	-0.13260436E-06
2024	-0.11917397E-03	0.10780018E-04	-0.85354178	-0.17774942E-06	0.16998262E-01	-0.13994985E-06
2029	-0.13567135E-03	0.95778457E-04	-1.0066852	-0.12036023E-04	0.17046231E-01	-0.39266454E-06
2030	-0.12643228E-03	0.41017352E-04	-1.0068201	-0.90562306E-05	0.17067748E-01	-0.38179870E-06
2031	-0.12862855E-03	0.59092210E-04	-1.0067800	-0.11460429E-04	0.17062026E-01	-0.42696034E-06
2032	-0.13169539E-03	0.77343642E-04	-1.0067332	-0.12508260E-04	0.17054685E-01	-0.43324970E-06
2033	-0.41106488E-04	0.41719130E-04	-0.93236817E-01	0.59430246E-05	0.16874322E-01	-0.94780117E-06
2034	-0.66725378E-04	0.46989630E-04	-0.24504519	0.10672644E-04	0.16863711E-01	-0.63927397E-06
2035	-0.88822662E-04	0.56663673E-04	-0.39683547	0.14756185E-04	0.16870187E-01	-0.41292777E-06
2036	-0.10678561E-03	0.68241034E-04	-0.54875822	0.16378156E-04	0.16892969E-01	-0.28229661E-06
2037	-0.12045771E-03	0.79626080E-04	-0.70095597	0.13706777E-04	0.16931026E-01	-0.24280187E-06
2038	-0.12998489E-03	0.89178747E-04	-0.85356004	0.48834222E-05	0.16982864E-01	-0.28384876E-06
2039	-0.37078838E-04	0.34443949E-04	-0.93216212E-01	0.47830718E-05	0.16872353E-01	-0.81561405E-06
2040	-0.33758947E-04	0.26795526E-04	-0.93199991E-01	0.36481647E-05	0.16871028E-01	-0.67021381E-06
2041	-0.31244469E-04	0.18859549E-04	-0.93188106E-01	0.25269850E-05	0.16870062E-01	-0.50637572E-06
2042	-0.63000168E-04	0.38472338E-04	-0.24500822	0.85561624E-05	0.16861680E-01	-0.61222485E-06
2043	-0.59910118E-04	0.29734975E-04	-0.24497929	0.64924069E-05	0.16860251E-01	-0.53781198E-06
2044	-0.57555006E-04	0.20825121E-04	-0.24495820	0.44819208E-05	0.16859273E-01	-0.43601394E-06
2045	-0.85315445E-04	0.46099642E-04	-0.39678456	0.11738949E-04	0.16868776E-01	-0.45472919E-06
2046	-0.82392118E-04	0.35451298E-04	-0.39674501	0.88469943E-05	0.16867905E-01	-0.43297069E-06
2047	-0.80158123E-04	0.24736417E-04	-0.39671636	0.60756409E-05	0.16867287E-01	-0.37224277E-06
2048	-0.10335744E-03	0.55322085E-04	-0.54870220	0.12812117E-04	0.16892888E-01	-0.35683711E-06
2049	-0.10051112E-03	0.42420421E-04	-0.54865938	0.95111108E-05	0.16893120E-01	-0.36550144E-06
2050	-0.98341365E-04	0.29534467E-04	-0.54862877	0.64527104E-05	0.16893343E-01	-0.32905357E-06
2051	-0.11695437E-03	0.64429929E-04	-0.70091020	0.10224251E-04	0.16933004E-01	-0.32327441E-06
2052	-0.11408152E-03	0.49325863E-04	-0.70087684	0.72480829E-05	0.16934946E-01	-0.34178450E-06
2053	-0.11191160E-03	0.34299964E-04	-0.70085401	0.47248365E-05	0.16936477E-01	-0.31452299E-06
2054	-0.12627749E-03	0.72076892E-04	-0.85354660	0.23608359E-05	0.16987656E-01	-0.35091192E-06
2055	-0.12330297E-03	0.55122838E-04	-0.85354109	0.73859246E-06	0.16991950E-01	-0.36301408E-06
2056	-0.12109654E-03	0.38297965E-04	-0.85354021	-0.81376728E-07	0.16995302E-01	-0.33202661E-06
2062	-0.20731790E-03	0.28524057E-03	-1.0071033	0.34865547E-04	0.16950502E-01	-0.47902303E-06
2063	-0.14632176E-03	0.13320054E-03	-1.0066094	-0.68541491E-05	0.17026464E-01	-0.33159891E-06
2064	-0.16006270E-03	0.17115924E-03	-1.0065946	0.34409922E-05	0.17005080E-01	-0.21331178E-06
2065	-0.17585099E-03	0.20944976E-03	-1.0066722	0.16534585E-04	0.16984278E-01	-0.36957616E-07
2066	-0.19222731E-03	0.24770748E-03	-1.0068504	0.28731004E-04	0.16965709E-01	-0.19562660E-06
2067	-0.69226775E-04	0.80480741E-04	-0.93626800E-01	0.10450489E-04	0.16909083E-01	0.10051579E-05
2068	-0.85273557E-04	0.11414795E-03	-0.24578195	0.21370560E-04	0.16903860E-01	0.13581013E-05
2069	-0.10384348E-03	0.15474875E-03	-0.39791398	0.33021784E-04	0.16903974E-01	0.15379171E-05
2070	-0.12543796E-03	0.19667289E-03	-0.55007036	0.42603925E-04	0.16909263E-01	0.15152610E-05
2071	-0.15016289E-03	0.23496574E-03	-0.70229560	0.47557369E-04	0.16919265E-01	0.13029771E-05
2072	-0.17769764E-03	0.26555979E-03	-0.85462914	0.45597091E-04	0.16933309E-01	0.93983100E-06
2073	-0.73958504E-04	0.78100947E-04	-0.93359587E-01	0.11905968E-04	0.16900681E-01	0.12903900E-06
2074	-0.69856202E-04	0.73205059E-04	-0.93448020E-01	0.11665981E-04	0.16892373E-01	-0.52164532E-06
2075	-0.61030671E-04	0.65411047E-04	-0.93363036E-01	0.10284341E-04	0.16885000E-01	-0.87471173E-06
2076	-0.50693361E-04	0.54783189E-04	-0.93291426E-01	0.82531888E-05	0.16878993E-01	-0.98062668E-06
2077	-0.92978512E-04	0.10354449E-03	-0.24560785	0.23117392E-04	0.16893641E-01	0.57146187E-06
2078	-0.91332020E-04	0.91567786E-04	-0.24543254	0.21902834E-04	0.16883850E-01	-0.14761005E-07
2079	-0.84405929E-04	0.78117956E-04	-0.24527439	0.18855084E-04	0.16875421E-01	-0.39112794E-06
2080	-0.75417432E-04	0.63209246E-04	-0.24514383	0.14892994E-04	0.16868738E-01	-0.58273169E-06
2081	-0.11218078E-03	0.13652425E-03	-0.39764859	0.34717270E-04	0.16894549E-01	0.81075120E-06
2082	-0.11131072E-03	0.11752075E-03	-0.39738825	0.32099844E-04	0.16885922E-01	0.26992039E-06
2083	-0.10520682E-03	0.97815774E-04	-0.39715874	0.27032668E-04	0.16878921E-01	-0.99430320E-07
2084	-0.96950130E-04	0.77498752E-04	-0.39697317	0.20936098E-04	0.16873767E-01	-0.31796104E-06
2085	-0.13176636E-03	0.17157689E-03	-0.54973183	0.43707434E-04	0.16903024E-01	0.86575553E-06
2086	-0.12976375E-03	0.14596799E-03	-0.54940820	0.39316368E-04	0.16898027E-01	0.38040072E-06
2087	-0.12316796E-03	0.12010610E-03	-0.54913101	0.32107630E-04	0.16894822E-01	0.39066434E-07
2088	-0.11481513E-03	0.94164228E-04	-0.54891392	0.24043795E-04	0.16893332E-01	-0.17587950E-06
2089	-0.15174619E-03	0.20414079E-03	-0.70192284	0.47316069E-04	0.16918401E-01	0.75926560E-06
2090	-0.14667242E-03	0.17282458E-03	-0.70157915	0.40784072E-04	0.16919325E-01	0.34699872E-06
2091	-0.13823543E-03	0.14147720E-03	-0.70129877	0.31477536E-04	0.16922159E-01	0.50785599E-07
2092	-0.12890493E-03	0.11036748E-03	-0.70109266	0.21926676E-04	0.16926402E-01	-0.14190917E-06
2093	-0.17198863E-03	0.23048392E-03	-0.85427970	0.43033677E-04	0.16939737E-01	0.52312942E-06

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 24/25)

2094	-0.16202974E-03	0.19481420E-03	-0.85397883	0.33949088E-04	0.16948633E-01	0.19806409E-06
2095	-0.15047742E-03	0.15916883E-03	-0.85375921	0.22686462E-04	0.16959563E-01	-0.40957140E-07
2096	-0.13932811E-03	0.12389706E-03	-0.85362476	0.12358295E-04	0.16971499E-01	-0.19954972E-06
2101	-0.21580319E-03	0.31033918E-03	-1.0072878	0.32282027E-04	0.16942067E-01	0.93570296E-06
2102	-0.22154142E-03	0.33396778E-03	-1.0074363	0.20805589E-04	0.16935261E-01	0.13985905E-05
2109	-0.39527413E-04	0.81083752E-04	-0.93714182E-01	0.52232540E-05	0.16918590E-01	0.38542179E-05
2110	-0.58339795E-04	0.81032065E-04	-0.93677545E-01	0.82871968E-05	0.16914401E-01	0.23880515E-05
2111	-0.49840716E-04	0.12716867E-03	-0.24596980	0.11989708E-04	0.16915784E-01	0.43286888E-05
2112	-0.71906920E-04	0.12082066E-03	-0.24588836	0.17842649E-04	0.16910453E-01	0.27225477E-05
2113	-0.67192028E-04	0.17882776E-03	-0.39821072	0.19440830E-04	0.16915336E-01	0.44384012E-05
2114	-0.90027799E-04	0.16694763E-03	-0.39808028	0.28216679E-04	0.16910223E-01	0.28427606E-05
2115	-0.93407006E-04	0.23001101E-03	-0.55045840	0.25688411E-04	0.16917328E-01	0.41353005E-05
2116	-0.11360892E-03	0.21363637E-03	-0.55028659	0.36948527E-04	0.16913678E-01	0.26891921E-05
2117	-0.12862868E-03	0.27559534E-03	-0.70273356	0.28980501E-04	0.16921541E-01	0.34561484E-05
2118	-0.14291505E-03	0.25574719E-03	-0.70253885	0.41794416E-04	0.16920487E-01	0.22742699E-05
2119	-0.17192963E-03	0.31139142E-03	-0.85505447	0.27743280E-04	0.16927650E-01	0.24863444E-05
2120	-0.17737268E-03	0.28910420E-03	-0.85486495	0.40755974E-04	0.16930175E-01	0.16590697E-05
2124	-0.12809044E-03	0.24174974E-04	-1.3691090	-0.33823350E-04	0.17280784E-01	-0.59793682E-06
2125	-0.12903594E-03	0.11995041E-04	-1.3691734	-0.17475058E-04	0.17285010E-01	-0.30536400E-06
2126	-0.12717296E-03	0.23658575E-04	-1.1271105	-0.11781372E-04	0.17137581E-01	-0.37988943E-06
2127	-0.12806452E-03	0.23726014E-04	-1.2478563	-0.20743932E-04	0.17208548E-01	-0.47680291E-06
2128	-0.12677498E-03	0.11813809E-04	-1.1271328	-0.60189206E-05	0.17139471E-01	-0.19570389E-06
2129	-0.12794195E-03	0.11824321E-04	-1.2478956	-0.10604413E-04	0.17211270E-01	-0.24446154E-06
2130	-0.13585108E-03	0.99386534E-04	-1.3680449	-0.92743238E-04	0.17219375E-01	-0.11035696E-05
2131	-0.12686829E-03	0.43263088E-04	-1.3689355	-0.55274017E-04	0.17270029E-01	-0.76374647E-06
2132	-0.12743403E-03	0.62454476E-04	-1.3686889	-0.71880713E-04	0.17255729E-01	-0.90169212E-06
2133	-0.13052998E-03	0.81190079E-04	-1.3683869	-0.84223068E-04	0.17238713E-01	-0.10138335E-05
2134	-0.13762681E-03	0.98574398E-04	-1.1267313	-0.32024523E-04	0.17101955E-01	-0.59438606E-06
2135	-0.13754284E-02	0.99545897E-04	-1.2471809	-0.58730686E-04	0.17160495E-01	-0.83558064E-06
2136	-0.13344109E-03	0.79554776E-04	-1.1268518	-0.30066118E-04	0.17113792E-01	-0.59219347E-06
2137	-0.13039448E-03	0.60711454E-04	-1.1269606	-0.25918376E-04	0.17124060E-01	-0.55309807E-06
2138	-0.12836409E-02	0.42079536E-04	-1.1270492	-0.19712525E-04	0.17132153E-01	-0.48071388E-06
2139	-0.13304327E-03	0.80442387E-04	-1.2473990	-0.53810216E-04	0.17176100E-01	-0.78845659E-06
2140	-0.13015617E-03	0.61334375E-04	-1.2475921	-0.45793685E-04	0.17189791E-01	-0.71280631E-06
2141	-0.12863958E-03	0.42388271E-04	-1.2477484	-0.34680199E-04	0.17200870E-01	-0.60839021E-06
2142	-0.27917186E-03	0.27697997E-03	-1.3651077	-0.31161834E-04	0.16994859E-01	-0.13214521E-05
2143	-0.15185139E-03	0.13511395E-03	-1.3672994	-0.99100860E-04	0.17175189E-01	-0.11359060E-05
2144	-0.17422965E-03	0.17070611E-03	-1.3665570	-0.92209161E-04	0.17126721E-01	-0.11576282E-05
2145	-0.20279698E-03	0.20649687E-03	-1.3659107	-0.74784550E-04	0.17078245E-01	-0.11804806E-05
2146	-0.23766752E-03	0.24217259E-03	-1.3654228	-0.52027892E-04	0.17033369E-01	-0.12243912E-05
2147	-0.23130862E-03	0.29150447E-03	-1.1263330	0.19463739E-04	0.16965247E-01	-0.15889642E-06
2148	-0.25544505E-03	0.28886237E-03	-1.2456681	-0.25797470E-05	0.16980381E-01	-0.77550818E-06
2149	-0.20782199E-03	0.25348437E-03	-1.1262140	0.94894160E-05	0.16988164E-01	-0.28285257E-06
2150	-0.18562067E-03	0.21466137E-03	-1.1261959	-0.56233629E-05	0.17015208E-01	-0.40289200E-06
2151	-0.16588016E-03	0.17573332E-03	-1.1262950	-0.20089826E-04	0.17044723E-01	-0.50090029E-06
2152	-0.14960454E-03	0.13699960E-03	-1.1264894	-0.29774124E-04	0.17074518E-01	-0.56641863E-06
2153	-0.22302744E-03	0.25174032E-03	-1.2457384	-0.17379028E-04	0.17011221E-01	-0.76788310E-06
2154	-0.19457163E-03	0.21377445E-03	-1.2459418	-0.35892841E-04	0.17047168E-01	-0.79273217E-06
2155	-0.17049363E-03	0.17566792E-03	-1.2462810	-0.51711699E-04	0.17085985E-01	-0.82229876E-06
2156	-0.15127694E-03	0.13764121E-03	-1.2467166	-0.60256057E-04	0.17124833E-01	-0.83973262E-06
2158	-0.31224405E-03	0.30006203E-03	-1.3649689	-0.22039860E-04	0.16972790E-01	-0.15895260E-05
2159	-0.34916314E-03	0.32151165E-03	-1.3648576	-0.21589109E-04	0.16955102E-01	-0.20935793E-05
2162	-0.26330004E-03	0.34060678E-03	-1.1265303	0.10852281E-04	0.16941788E-01	0.65990009E-07
2163	-0.24763856E-03	0.31685969E-03	-1.1264423	0.19705121E-04	0.16952286E-01	-0.10183843E-07
2164	-0.30632703E-03	0.33657616E-03	-1.2456705	-0.34329524E-05	0.16948542E-01	-0.11501459E-05
2165	-0.28009187E-03	0.31355526E-03	-1.2456695	0.14908372E-05	0.16962776E-01	-0.87988000E-06
2171	-0.12761717E-03	0.25368242E-04	-1.4321481	-0.42761984E-04	0.17316857E-01	-0.87488496E-06
2172	-0.12532477E-03	0.32029545E-04	-1.4953140	-0.52596908E-04	0.17350345E-01	-0.11801203E-05
2173	-0.12974044E-03	0.13028597E-04	-1.4220163	-0.22299731E-04	0.17316263E-01	-0.44720856E-06
2174	-0.13039296E-03	0.15247437E-04	-1.4749506	-0.27579116E-04	0.17344758E-01	-0.57515955E-06
2175	-0.13297945E-03	0.96020330E-04	-1.5567759	-0.16037874E-03	0.17307450E-01	-0.27414611E-05
2176	-0.11726088E-03	0.61764494E-04	-1.5582940	-0.95919873E-04	0.17372366E-01	-0.18954236E-05
2177	-0.12057348E-03	0.72093711E-04	-1.5578738	-0.12142964E-03	0.17355111E-01	-0.21669990E-05
2178	-0.12598885E-03	0.83424212E-04	-1.5573625	-0.14324866E-03	0.17333370E-01	-0.2460981E-05
2179	-0.13467408E-03	0.99025969E-04	-1.4308474	-0.11320672E-03	0.17249503E-01	-0.16464949E-05
2180	-0.13366540E-03	0.98111237E-04	-1.4937588	-0.13551320E-03	0.17279000E-01	-0.21950426E-05
2181	-0.12863865E-03	0.82184216E-04	-1.4312636	-0.10234650E-03	0.17270651E-01	-0.14822606E-05
2182	-0.12492780E-03	0.64584474E-04	-1.4316304	-0.87517656E-04	0.17289010E-01	-0.13046024E-05
2183	-0.12449920E-03	0.45603621E-04	-1.4319320	-0.68194204E-04	0.17304554E-01	-0.11043470E-05
2184	-0.12697327E-03	0.83307052E-04	-1.4942559	-0.12183544E-03	0.17302159E-01	-0.19637756E-05

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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 24/25)

2185	-0.12218176E-03	0.68332125E-04	-1.4946921	-0.10395222E-03	0.17321787E-01	-0.17295964E-05
2186	-0.12098897E-03	0.51962035E-04	-1.4950518	-0.81919331E-04	0.17337773E-01	-0.14782456E-05
2187	-0.31405250E-03	0.24050487E-03	-1.5510013	-0.87070880E-04	0.17012940E-01	-0.37419999E-05
2188	-0.15203332E-03	0.12346229E-03	-1.5554659	-0.17778966E-03	0.17247268E-01	-0.28935420E-05
2189	-0.17886716E-03	0.15265397E-03	-1.5541055	-0.17355927E-03	0.17182390E-01	-0.30558030E-05
2190	-0.21421740E-03	0.18246378E-03	-1.5528469	-0.15199762E-03	0.17119075E-01	-0.32402303E-05
2191	-0.25888425E-03	0.21202605E-03	-1.5517970	-0.12025527E-03	0.17061639E-01	-0.34622444E-05
2192	-0.29114512E-03	0.26718541E-03	-1.4270496	-0.48320207E-04	0.17001672E-01	-0.22327460E-05
2193	-0.30279354E-03	0.25498877E-03	-1.4890151	-0.67039600E-04	0.17007771E-01	-0.30366031E-05
2194	-0.24497802E-03	0.23413437E-03	-1.4275122	-0.73021015E-04	0.17043984E-01	-0.20339597E-05
2195	-0.20679368E-03	0.20017779E-03	-1.4281718	-0.98489701E-04	0.17093344E-01	-0.19020347E-05
2196	-0.17591608E-03	0.16611013E-03	-1.4290041	-0.11704406E-03	0.17146886E-01	-0.18059095E-05
2197	-0.15192633E-03	0.13240989E-03	-1.4299326	-0.12296341E-03	0.17200623E-01	-0.17249983E-05
2198	-0.25205979E-03	0.22405494E-03	-1.4896384	-0.95775403E-04	0.17053515E-01	-0.27802533E-05
2199	-0.21060580E-03	0.19214677E-03	-1.4904858	-0.12416053E-03	0.17107113E-01	-0.25903742E-05
2200	-0.17746602E-03	0.16009290E-03	-1.4915223	-0.14401421E-03	0.17165644E-01	-0.24409239E-05
2201	-0.15198285E-03	0.12857772E-03	-1.4926566	-0.14896819E-03	0.17224869E-01	-0.23132004E-05
2203	-0.35959423E-03	0.25914418E-03	-1.5505886	-0.67987915E-04	0.16985341E-01	-0.42447847E-05
2204	-0.41223196E-03	0.27625081E-03	-1.5502585	-0.56573392E-04	0.16963459E-01	-0.48721585E-05
2207	-0.37086256E-03	0.30929984E-03	-1.4266477	-0.32275670E-04	0.16958193E-01	-0.32791860E-05
2208	-0.32851067E-03	0.28904343E-03	-1.4268265	-0.36120882E-04	0.16977516E-01	-0.26560196E-05
2209	-0.39195384E-03	0.29415536E-03	-1.4884485	-0.44120027E-04	0.16960992E-01	-0.41634422E-05
2210	-0.34432944E-03	0.27536293E-03	-1.4887004	-0.51566389E-04	0.16981739E-01	-0.35272805E-05
2214	-0.13181712E-03	0.84779858E-04	-1.6945932	-0.22580613E-03	0.17360327E-01	-0.49682290E-05
2215	-0.11619166E-03	0.56452351E-04	-1.6967267	-0.13749669E-03	0.17451793E-01	-0.33479036E-05
2216	-0.12031726E-03	0.65076255E-04	-1.6961349	-0.17119309E-03	0.17425955E-01	-0.38759353E-05
2217	-0.12516523E-03	0.74371175E-04	-1.6954171	-0.20184909E-03	0.17394951E-01	-0.44249800E-05
2218	-0.13266118E-03	0.93390508E-04	-1.6026670	-0.18040127E-03	0.17326988E-01	-0.34938341E-05
2219	-0.13232504E-03	0.89627770E-04	-1.6486079	-0.20220985E-03	0.17344867E-01	-0.42385503E-05
2220	-0.12623362E-03	0.82999796E-04	-1.6028708	-0.16234546E-03	0.17353234E-01	-0.31242379E-05
2221	-0.12123177E-03	0.74123633E-04	-1.6030000	-0.13968976E-03	0.17376005E-01	-0.27903406E-05
2222	-0.11719010E-03	0.68183083E-04	-1.6030406	-0.11396997E-03	0.17395260E-01	-0.25176671E-05
2223	-0.12607198E-03	0.79844380E-04	-1.6496934	-0.18244849E-03	0.17374241E-01	-0.37880591E-05
2224	-0.12123498E-03	0.71554900E-04	-1.6507018	-0.15733793E-03	0.17400625E-01	-0.33583051E-05
2225	-0.11806924E-03	0.66072114E-04	-1.6516173	-0.12894928E-03	0.17423691E-01	-0.30014564E-05
2226	-0.33700502E-03	0.20175447E-03	-1.6862867	-0.13395540E-03	0.17019895E-01	-0.62258793E-05
2227	-0.15169022E-03	0.10759282E-03	-1.6927456	-0.25069921E-03	0.17285063E-01	-0.52266551E-05
2228	-0.18119163E-03	0.13175991E-03	-1.6908211	-0.24606415E-03	0.17208307E-01	-0.54774052E-05
2229	-0.22127192E-03	0.15608036E-03	-1.6890221	-0.21885556E-03	0.17136254E-01	-0.57234622E-05
2230	-0.27273920E-03	0.17965786E-03	-1.6874886	-0.17819130E-03	0.17072706E-01	-0.59711767E-05
2231	-0.32196478E-03	0.22861647E-03	-1.5960899	-0.10229539E-03	0.17015994E-01	-0.46154730E-05
2232	-0.32962149E-03	0.21567182E-03	-1.6411857	-0.11796987E-03	0.17018339E-01	-0.54347973E-05
2233	-0.26366952E-03	0.20212289E-03	-1.5970172	-0.13900222E-03	0.17066472E-01	-0.43329218E-05
2234	-0.21670465E-03	0.17443310E-03	-1.5982226	-0.17349393E-03	0.17126352E-01	-0.40908186E-05
2235	-0.17977253E-03	0.14637475E-03	-1.5996534	-0.19664233E-03	0.17192914E-01	-0.38764115E-05
2236	-0.15202854E-03	0.11887144E-03	-1.6011912	-0.20067823E-03	0.17261917E-01	-0.36795502E-05
2237	-0.26829158E-03	0.19131193E-03	-1.6422487	-0.15836043E-03	0.17070209E-01	-0.51634855E-05
2238	-0.21906093E-03	0.16562094E-03	-1.6436158	-0.19582453E-03	0.17132154E-01	-0.49145104E-05
2239	-0.18055478E-03	0.13939481E-03	-1.6452270	-0.22084229E-03	0.17201665E-01	-0.46806333E-05
2240	-0.15193631E-03	0.11356656E-03	-1.6469530	-0.22499043E-03	0.17274677E-01	-0.44555102E-05
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2246	-0.42637616E-03	0.26158370E-03	-1.5952142	-0.65946150E-04	0.16964991E-01	-0.56381121E-05
2247	-0.37028953E-03	0.24584941E-03	-1.5956028	-0.80442010E-04	0.16987502E-01	-0.50883686E-05
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2253	-0.10106140E-03	0.18108359E-04	-1.8386480	-0.11336392E-03	0.17509802E-01	-0.28979274E-05
2254	-0.97415658E-04	0.91930770E-05	-1.8388649	-0.59490073E-04	0.17514251E-01	-0.15035464E-05
2255	-0.10330909E-03	0.25175024E-04	-1.7678763	-0.10571478E-03	0.17489362E-01	-0.28283638E-05
2257	-0.97021942E-04	0.11866614E-04	-1.7835480	-0.61438889E-04	0.17494435E-01	-0.24751099E-05
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2259	-0.10845682E-03	0.32135688E-04	-1.8380726	-0.18238850E-03	0.17492936E-01	-0.36988909E-05
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2263	-0.12366676E-03	0.65348398E-04	-1.7658091	-0.23846136E-03	0.17416017E-01	-0.48253971E-05
2264	-0.11823945E-03	0.54311270E-04	-1.7666603	-0.20286775E-03	0.17450110E-01	-0.41772066E-05
2265	-0.11198985E-03	0.41530635E-04	-1.7673599	-0.15967342E-03	0.17476578E-01	-0.35184948E-05
2266	-0.35769786E-03	0.15427078E-03	-1.8239458	-0.18304795E-03	0.17018790E-01	-0.72411056E-05
2267	-0.14949182E-03	0.86246586E-04	-1.8326199	-0.33728917E-03	0.17296563E-01	-0.62791775E-05

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2270	-0.28509665E-03	0.13965551E-03	-1.8255770	-0.23988941E-03	0.17070995E-01	-0.70144234E-05
2271	-0.34770965E-03	0.17886176E-03	-1.7551173	-0.15863801E-03	0.17020503E-01	-0.67364846E-05
2272	-0.27915902E-03	0.16042048E-03	-1.7565344	-0.20904035E-03	0.17073718E-01	-0.64937728E-05
2273	-0.22433410E-03	0.14023342E-03	-1.7583284	-0.25512608E-03	0.17138617E-01	-0.62521592E-05
2274	-0.18182695E-03	0.11899506E-03	-1.7604252	-0.28641672E-03	0.17213489E-01	-0.60040871E-05
2275	-0.15088624E-03	0.97350228E-04	-1.7626706	-0.29269220E-03	0.17295103E-01	-0.57403357E-05
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2340	-0.19954961E-03	-0.72328040E-05	-2.2201771	-0.49147552E-03	0.17008868E-01	-0.85528955E-05
2341	-0.15741036E-03	-0.74226910E-05	-2.2198458	-0.54298036E-03	0.17037228E-01	-0.85254916E-05
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2344	-0.20361062E-03	-0.21002927E-04	-2.3064105	-0.49001796E-03	0.16943204E-01	-0.92215482E-05
2345	-0.15791073E-03	-0.19367343E-04	-2.3066811	-0.54388438E-03	0.16947640E-01	-0.92349119E-05
2346	-0.33335594E-03	-0.66789690E-04	-2.3926976	-0.34728325E-03	0.16906677E-01	-0.97281575E-05
2347	-0.26305715E-03	-0.58032813E-04	-2.3938647	-0.41507933E-03	0.16894201E-01	-0.98454662E-05
2348	-0.20117224E-03	-0.51635536E-04	-2.3954027	-0.47736712E-03	0.16879694E-01	-0.99166207E-05
2349	-0.15002205E-03	-0.48596274E-04	-2.3972641	-0.52844801E-03	0.16861438E-01	-0.99539961E-05
2350	-0.33363615E-03	-0.10317572E-03	-2.4786606	-0.33159642E-03	0.16877575E-01	-0.10388473E-04
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2354	-0.33044806E-03	-0.14173450E-03	-2.5642481	-0.30876278E-03	0.16852433E-01	-0.11118820E-04
2355	-0.24877540E-03	-0.12820923E-03	-2.5690518	-0.36944272E-03	0.16813706E-01	-0.11306422E-04
2356	-0.17264539E-03	-0.11588611E-03	-2.5742033	-0.42093147E-03	0.16766735E-01	-0.11419233E-04
2357	-0.10309433E-03	-0.10658238E-03	-2.5796197	-0.45375416E-03	0.16709688E-01	-0.11475322E-04
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TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 24/25)

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2362	-0.31437032E-03	-0.22724905E-03	-2.7318977	-0.24785815E-03	0.16819130E-01	-0.12749477E-04
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2364	-0.10925669E-03	-0.17863151E-03	-2.7417237	-0.33536646E-03	0.16681211E-01	-0.13111357E-04
2365	-0.89063409E-05	-0.15555313E-03	-2.7468917	-0.33892099E-03	0.16596942E-01	-0.13143267E-04
2367	-0.51028768E-03	-0.32189460E-03	-2.8105395	-0.12081658E-03	0.16900486E-01	-0.12825901E-04
2368	-0.60232939E-03	-0.33697582E-03	-2.8099826	-0.88515434E-04	0.16923620E-01	-0.12571428E-04
2377	-0.54362106E-03	0.21072573E-04	-2.1370296	-0.16293117E-03	0.16955014E-01	-0.84765216E-05
2378	-0.46468120E-03	0.25723368E-04	-2.1380376	-0.21416480E-03	0.16964271E-01	-0.83347984E-05
2379	-0.55363433E-03	-0.19020740E-04	-2.2212428	-0.16752883E-03	0.16948738E-01	-0.85298811E-05
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2381	-0.56233000E-03	-0.58584312E-04	-2.3054236	-0.16752993E-03	0.16941993E-01	-0.86310284E-05
2382	-0.48151460E-03	-0.49403412E-04	-2.3064676	-0.22302469E-03	0.16939735E-01	-0.88806685E-05
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2385	-0.57755795E-03	-0.13853936E-03	-2.4736873	-0.15366108E-03	0.16929481E-01	-0.92334690E-05
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2406	0.25481511E-03	-0.30477181E-03	-3.1420988	-0.65711748E-04	0.16660569E-01	-0.16382927E-04
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2414	0.44427989E-03	-0.63304163E-04	-3.1746268	-0.10253739E-04	0.16642732E-01	-0.31149223E-05
2415	0.41721221E-03	-0.86049021E-04	-3.0151192	-0.39692650E-04	0.16493214E-01	-0.56900205E-05
2416	0.42079263E-03	-0.10293148E-03	-3.0932376	-0.30345100E-04	0.16554002E-01	-0.58726380E-05
2417	0.42579751E-03	-0.12406329E-03	-3.1717205	-0.20719975E-04	0.16643446E-01	-0.61434284E-05
2418	0.37959250E-03	-0.12100760E-03	-3.0099856	-0.63476737E-04	0.16492420E-01	-0.83230413E-05
2419	0.38757798E-03	-0.14693368E-03	-3.0837755	-0.47342283E-04	0.16554170E-01	-0.86015237E-05
2420	0.39599104E-03	-0.18002739E-03	-3.1669463	-0.31529013E-04	0.16645051E-01	-0.90069323E-05
2421	0.33131075E-03	-0.14775680E-03	-2.9814959	-0.91207237E-04	0.16493357E-01	-0.10708943E-04
2422	0.34427084E-03	-0.18321820E-03	-3.0707342	-0.66166275E-04	0.16555721E-01	-0.11102488E-04
2423	0.35627860E-03	-0.22943495E-03	-3.1603692	-0.42683389E-04	0.16648017E-01	-0.11646706E-04
2424	0.27626070E-03	-0.16565901E-03	-2.9569090	-0.12304732E-03	0.16497367E-01	-0.12765773E-04
2425	0.29370816E-03	-0.21093674E-03	-3.0542708	-0.86853336E-04	0.16559381E-01	-0.13342350E-04
2426	0.30851131E-03	-0.27116407E-03	-3.1520607	-0.54105195E-04	0.16652804E-01	-0.14047242E-04
2432	-0.42618685E-03	-0.38489514E-03	-2.9205249	-0.11742303E-03	0.16879279E-01	-0.13802760E-04
2433	-0.43004691E-03	-0.47411034E-03	-3.0298455	-0.80776179E-04	0.16894171E-01	-0.14226388E-04
2434	-0.43429281E-03	-0.56791296E-03	-3.1392624	-0.51769594E-04	0.16907302E-01	-0.14419171E-04
2435	-0.30383013E-03	-0.35078692E-03	-2.9215883	-0.15846011E-03	0.16823783E-01	-0.14261880E-04
2436	-0.17848961E-03	-0.31182369E-03	-2.9229494	-0.19314661E-03	0.16751669E-01	-0.14670111E-04
2437	-0.49141515E-04	-0.26981946E-03	-2.9245209	-0.21137904E-03	0.16667056E-01	-0.14879145E-04
2438	-0.83523964E-04	-0.22518514E-03	-2.9261328	-0.20212042E-03	0.16579441E-01	-0.14807064E-04
2439	-0.38823902E-03	-0.43865523E-03	-3.0305703	-0.10769338E-03	0.16846294E-01	-0.14971624E-04
2440	-0.17781566E-03	-0.39720553E-03	-3.0314888	-0.13015416E-03	0.16783112E-01	-0.15646635E-04
2441	-0.39425438E-04	-0.34949205E-03	-3.0325413	-0.14149740E-03	0.16709061E-01	-0.15978766E-04
2442	-0.10222740E-03	-0.29451959E-03	-3.0336171	-0.13539098E-03	0.16632753E-01	-0.15836870E-04
2443	-0.31451326E-03	-0.53858766E-03	-3.1397138	-0.66301114E-04	0.16871665E-01	-0.15746913E-04
2444	-0.18006344E-03	-0.50162797E-03	-3.1402695	-0.78495095E-04	0.16824234E-01	-0.17005604E-04
2445	-0.33907463E-04	-0.45274681E-03	-3.1408963	-0.84478535E-04	0.16768686E-01	-0.17621337E-04
2446	-0.11535364E-03	-0.38809917E-03	-3.1415334	-0.80785607E-04	0.16711529E-01	-0.17296350E-04
2453	-0.60435353E-03	-0.42129780E-03	-2.9195583	-0.66290371E-04	0.16928468E-01	-0.13129172E-04
2454	-0.51237238E-03	-0.40477522E-03	-2.9199721	-0.89586807E-04	0.16907701E-01	-0.13286301E-04
2455	-0.59937307E-03	-0.51197561E-03	-3.0291690	-0.48142508E-04	0.16933907E-01	-0.13076278E-04
2456	-0.51239693E-03	-0.49494066E-03	-3.0294628	-0.62680808E-04	0.16917739E-01	-0.13396724E-04
2457	-0.58552555E-03	-0.60090302E-03	-3.1388034	-0.35758866E-04	0.16934825E-01	-0.12220544E-04
2458	-0.51038321E-03	-0.58559188E-03	-3.1390112	-0.42522006E-04	0.16924283E-01	-0.13006356E-04

MAXIMUMS

NODE	45	48	62	78	87	54
VALUE	-0.70926839E-03	-0.67991652E-03	-3.2507445	-0.58190667E-03	0.17546753E-01	-0.20220163E-04

FILENAME : PIT3F4.PO DATE : 05-25-94 TIME : 2:22p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 25/25)

PAGE 1

C*** Output For Factored Pump Column Load of 200,000 lb + 0.9DL + 1.7L + 0.9H

1450 NODES (OF 1450 DEFINED) SELECTED BY NALL COMMAND.

PRINT REACTION FORCES PER NODE

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
ANSYS(R) COPYRIGHT(C) 1971, '78, '82, '83, '85, '86, '87, '89, '90, '91 SWANSON ANALYSIS SYSTEMS, INC. AS UNPUBLISH
ED WORK.
PROPRIETARY DATA - UNAUTHORIZED USE, DISTRIBUTION OR DUPLICATION IS PROHIBITED. ALL RIGHTS RESERVED.
FOR SUPPORT CALL PHONE TWX

TITLE 14.3667 MAY 25,1994 CP= 900.950

***** POST1 REACTION FORCE LISTING *****

CALCULATED LOAD CASE= 6

THE FOLLOWING X,Y,Z FORCES ARE IN NODAL COORDINATES

NODE	PX	FY	FZ	MX	MY	MZ
1	0.12630615E-04	-1120.3194		861.58682		-1198.0316
62		7835.7722		-3571.2748		382.74080
63		4133.1312		-1871.9498		0.15853314E-01
64		3387.5691		7499.0994		0.15533158E-01
65		2758.1696		16994.469		0.15416681E-01
66		1178.5365		9001.3821		0.77105627E-02
87		-222.39286		40090.626		0.17531596E-02
88		-474.84202		70692.587		0.34933444E-02
89		-532.60831		65958.597		0.35839856E-02
90		-746.31507		67008.087		0.37429389E-02
91		-599.26786		36151.166		0.18991380E-02
98		-684.62093		12999.876		0.78156004E-03
99		-912.58080		26731.173		0.14196826E-02
100		-719.82992		20506.235		0.10920844E-02
101		-830.09769		-0.20824455E-02		-3247.2817
162		7657.2537		0.69245814E-01		-19412.403
163		-1183.3066		26481.355		0.22309226E-02
164		-1662.1101		19356.708		0.13989602E-02
165		-1655.3120		6885.4937		0.11227126E-02
166		-1847.8359		-891.50301		0.10407986E-02
167		-1969.9995		-9094.1214		0.10330918E-02
168		-1805.2647		-12096.271		0.97823452E-03
169		-1607.1891		-11540.482		0.99578422E-03
170		-1409.7504		-8609.5317		0.10655448E-02
171		-1255.4784		-4278.5460		0.11461448E-02
172		-1191.5843		577.21735		0.11903929E-02
201		-595.40233		-0.22355092E-02		-2237.3283
262		3995.0064		0.61500232E-01		-27189.365
301		-439.23886		-0.22129147E-02		-1050.1727
362		1566.0927		0.54573461E-01		-31651.801
401		-333.24074		-0.19996364E-02		-452.06481
462		-40.625619		0.46663396E-01		-32458.606
501		-273.84575		-0.17330336E-02		236.07003
562		-1056.2449		0.39450995E-01		-31571.641
601		-253.99639		-0.15239482E-02		239.86980
662		-1763.7229		0.34632633E-01		-30958.032
701		-250.80120		-0.13172941E-02		225.80867
762		-2289.1585		0.30437652E-01		-29996.048
801		-258.44179		-0.11243642E-02		176.10997
862		-2696.7199		0.26835479E-01		-28854.494
901		-272.97923		-0.95113860E-03		91.919799
962		-3036.9180		0.23788572E-01		-27651.995
1001		-291.89978		-0.80038862E-03		-20.867872
1062		-3353.6166		0.21255673E-01		-26473.699
1101		-313.60249		-0.67310907E-03		-153.14998
1162		-3688.6324		0.19195337E-01		-25383.254
1201		-336.96527		-0.56943302E-03		-294.72372
1262		-4085.1335		0.17568730E-01		-24429.592

FILENAME : PIT3P4.PO DATE : 05-25-94 TIME : 2:22p
TITLE : C-106 Pump Pit Pump Adaptor Ring Post Processing Output (Part 25/25)

PAGE 2

1301	-360.79264	-0.48916194E-03	-435.80828
1362	-4590.5686	0.16341671E-01	-23650.589
1401	-383.53536	-0.43203526E-03	-567.94537
1462	-5259.5968	0.15486132E-01	-23075.671
1501	-402.68006	-0.39784329E-03	-684.48644
1562	-6157.5171	0.14981331E-01	-22728.032
1601	-206.72508	-0.19322987E-03	-404.33240
1662	-3451.0291	0.74072499E-02	-11309.953
TOTAL	0.12630615E-04	-36362.806	0.00000000E+00
		375842.46	0.00000000E+00
			-426188.77

***** ROUTINE COMPLETED ***** CP = 902.870

/EOF ENCOUNTERED ON FILE18

***** RUN COMPLETED ***** CP= 903.8600 TIME= 14.3675

ATTACHMENT 3
PUMP PIT SASSI SEISMIC SPECTRA

Prepared by: SB/KOK Date: 6/17/94

Checked by: JP/Am Date: 6/17/94

The finite element program SASSI was used to perform soil-structure interaction (SSI) analysis of the tank, the Heel Pit, and the Pump / Sluicing Pit. Details of the SASSI model will be provided in the C-106 seismic evaluation SD (not yet issued).

For the Pump Pit, the SASSI computed response spectra associated with two nodes (i.e., Nodes 1287 and 1289) have been requested and these spectra are included on the following pages. The presented spectra identify the ZPA for all the three directions; horizontal X and Y, and vertical Z.

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1287 IN THE X-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.447 AT FRQ= 4.243

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9263E-01	0.1195E+00	0.1229E+00	0.1523E+00	0.1663E+00	0.1813E+00	0.2027E+00	0.2286E+00	0.2524E+00	0.2873E+00
1.3028	1	0.3501E+00	0.3616E+00	0.4359E+00	0.4327E+00	0.3885E+00	0.4307E+00	0.4277E+00	0.4028E+00	0.3759E+00	0.4192E+00
4.2433	1	0.4471E+00	0.3887E+00	0.3923E+00	0.3992E+00	0.4094E+00	0.4083E+00	0.3752E+00	0.3600E+00	0.3209E+00	0.2725E+00
13.8204	1	0.2559E+00	0.2353E+00	0.2245E+00	0.2176E+00	0.2130E+00	0.2102E+00	0.2082E+00	0.2067E+00	0.2055E+00	0.2046E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1287 IN THE Y-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.455 AT FRQ= 4.243

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

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ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1287 IN THE Z-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.312 AT FRQ= 7.658

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.6181E-01	0.7975E-01	0.8209E-01	0.1017E+00	0.1109E+00	0.1211E+00	0.1354E+00	0.1527E+00	0.1692E+00	0.1922E+00
1.3028	1	0.2350E+00	0.2424E+00	0.2938E+00	0.2918E+00	0.2627E+00	0.2926E+00	0.2918E+00	0.2755E+00	0.2573E+00	0.2880E+00
4.2433	1	0.3098E+00	0.2753E+00	0.2769E+00	0.2893E+00	0.2964E+00	0.3122E+00	0.3097E+00	0.3090E+00	0.2958E+00	0.2500E+00
13.8204	1	0.1964E+00	0.1770E+00	0.1680E+00	0.1623E+00	0.1585E+00	0.1561E+00	0.1543E+00	0.1530E+00	0.1519E+00	0.1511E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1289 IN THE X-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.448 AT FRQ= 4.243

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9263E-01	0.1195E+00	0.1229E+00	0.1523E+00	0.1663E+00	0.1813E+00	0.2027E+00	0.2286E+00	0.2525E+00	0.2874E+00
1.3028	1	0.3502E+00	0.3617E+00	0.4362E+00	0.4331E+00	0.3888E+00	0.4313E+00	0.4284E+00	0.4036E+00	0.3768E+00	0.4201E+00
4.2433	1	0.4482E+00	0.3896E+00	0.3942E+00	0.4020E+00	0.4129E+00	0.4126E+00	0.3825E+00	0.3667E+00	0.3324E+00	0.2738E+00
13.8204	1	0.2598E+00	0.2372E+00	0.2264E+00	0.2195E+00	0.2147E+00	0.2114E+00	0.2094E+00	0.2078E+00	0.2066E+00	0.2057E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT MODAL PT. NO.1289 IN THE Y-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.455 AT FRQ= 4.243

***** CYCLES PER SEC.

CURVE TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.9267E-01	0.1195E+00	0.1230E+00	0.1525E+00	0.1663E+00	0.1814E+00	0.2028E+00	0.2287E+00	0.2530E+00	0.2879E+00
1.3028	1	0.3510E+00	0.3623E+00	0.4379E+00	0.4349E+00	0.3907E+00	0.4344E+00	0.4324E+00	0.4083E+00	0.3817E+00	0.4252E+00
4.2433	1	0.4545E+00	0.4001E+00	0.4042E+00	0.4171E+00	0.4308E+00	0.4348E+00	0.4161E+00	0.4020E+00	0.3807E+00	0.3124E+00
13.8204	1	0.2773E+00	0.2510E+00	0.2374E+00	0.2292E+00	0.2238E+00	0.2200E+00	0.2173E+00	0.2152E+00	0.2136E+00	0.2124E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ABSOLUTE SPECTRAL ACCELERATIONS AT NODAL PT. NO.1289 IN THE Z-DIRECTION

CURVE 1 IS FOR 0.070 DAMPING RMAX= 0.353 AT FRQ=10.913

0. 0.200 0.400 0.600 0.800 1.000

EVERY 1 POINT IS PLOTTED

100 PER CENT CORRESPONDS TO 0.100000E+01

***** CYCLES PER SEC.

CURVE

TABLE OF FUNCTION VALUES (ALL POINTS INCLUDED)

0.4000	1	0.6183E-01	0.7979E-01	0.8216E-01	0.1017E+00	0.1109E+00	0.1211E+00	0.1354E+00	0.1526E+00	0.1695E+00	0.1924E+00
1.3028	1	0.2354E+00	0.2427E+00	0.2948E+00	0.2926E+00	0.2637E+00	0.2943E+00	0.2941E+00	0.2780E+00	0.2600E+00	0.2908E+00
4.2433	1	0.3134E+00	0.2817E+00	0.2824E+00	0.2971E+00	0.3105E+00	0.3289E+00	0.3383E+00	0.3412E+00	0.3528E+00	0.2902E+00
13.8204	1	0.2259E+00	0.1898E+00	0.1780E+00	0.1708E+00	0.1661E+00	0.1627E+00	0.1603E+00	0.1585E+00	0.1574E+00	0.1565E+00

1MOTION - C-106 Quarter Model with updated soil - motion

ATTACHMENT 4

COMMUNICATION DOCUMENTING THE 4" RISER LOAD

Prepared by: SB Kok Date: 6/17/94

Checked by: AP Oam Date: 6/17/94

[14] From: ^ADVENT Engineering Services at ~DOE_HANFORD_1 3/15/94 12:03PM (732 bytes: 12 ln)

To: David A Wallace at ~WHC208

Subject: Request for information (4" riser)

----- Message Contents -----

Dave,

Drawings H-2-41318 and H-2-41323 show recirculation lines for the pump pit and sluicing pit (C-106). Can we reasonably assume that no hardware of significant weight will be supported at the top of the recirculation lines? In other words, is it safe to consider only the mass of the hardware shown in the aforementioned drawings in determining loads associated with the recirculation lines?

Jim Day

[9] From: Gina A Symons at -WHC82 3/17/94 1:43PM (1340 bytes: 19 ln)
To: ^ADVENT Engineering Services at -DOE_HANFORD_1, David A Wallace at -WHC208
cc: Gina A Symons, John P III Harris at -WHC216, Edward G III Allen at -WHC116,
John W Bailey at -WHC20, Larry J Julyk at -WHC240, James B (Jim) Truitt at
-WHC74

Subject: Request for information (4" riser)

----- Message Contents -----
Yes, your your assumption of the recirculation line is true.
If the recirculation line is occupying this 4"riser, this
line will not be used. If you have any questions, please
don't hesitate to call me at 372-0384.

Gina

Dave,

Drawings H-2-41318 and H-2-41323 show recirculation lines
for the pump pit and sluicing pit (C-106). Can we
reasonably assume that no hardware of significant weight
will be supported at the top of the recirculation lines? In
other words, is it safe to consider only the mass of the
hardware shown in the aforementioned drawings in
determining loads associated with the recirculation lines?

Jim Day

ATTACHMENT 5

ANSYS MODEL SUPPORTING THE CALCULATION OF M_v

Prepared by: SB/KOK Date: 6/17/94

Checked by: AP/Day Date: 6/17/94

Rotation of the Adaptor Ring about its vertical axis is resisted primarily through bearing of the attached 2 in. pipe(s) against the fill concrete. Because the fill concrete is unreinforced and thus has reduced allowables, concrete bearing stress controls the value of M_v (moment about the vertical axis) for the Adaptor Ring.

An ANSYS model (ANSYS Version 4.4a) was used to calculate the response of a beam on an elastic foundation with one end subjected to a transverse displacement. The modelled beam represents a 2 in. pipe welded to the Adaptor Ring and the elastic foundation simulates the surrounding fill concrete. The prescribed translation at the end of the beam mimics the $R \times \theta$ component of displacement of the 2 in. pipe when the Adaptor Ring (radius = R) rotates an angle θ about its vertical axis. The rotation of the end of the pipe which accompanies the translation is secondary to the pipe response and is neglected. The magnitude of the imposed translation in the analysis (0.1 in.) is arbitrary since the computed response is scaled such that the maximum computed bearing stress is equal to the plain concrete bearing stress allowable.

24 beam elements (STIF44) with properties of a 2 in. Schedule 40 x 10 in. long steel pipe are used in the model. To facilitate uniformity of elastic foundation load over the length of the controlling beam element, 10 elements are used over the first 0.1 in. of pipe length. The elastic foundation stiffness (EFS) is computed as the coefficient of subgrade reaction K_h , recognizing the similarity of the pipe to a pile moving laterally against soil (Ref: "Vibrations of Soils and Foundations," F.E. Richart et. al., 1970):

$$EFS = K_h = 4G/d$$

where G = shear modulus of the fill concrete = $E/[2(1-\nu)]$

E = Young's modulus = $57,000\sqrt{f'_c} = 57,000\sqrt{3000}$

ν = Poisson's ratio of the fill concrete = 0.15

d = diameter of pile (pipe) = 2.375 in.

The ANSYS PREP7 input (fine.ans) , PREP7 output (mvp7.out), and analysis output (mv.out) are provided at the end this attachment. The response of the controlling element (Element 1) is used in calculating M_v as demonstrated on the following page.

The average bearing stress along Element 1 is the difference in the two nodal forces divided by the bearing area:

$$f_{\text{bearing}} = (543,025 - 537,610)/(2.375 \cdot 0.01) = 228,000 \text{ psi}$$

The allowable bearing stress in plain concrete (Ref: ACI 318.1-89) is $0.65(0.85)\sqrt{3000} = 30.26$ psi; therefore, the computed response of Element 1 is reduced by the ratio $30.26/228,000$. The contribution of one pipe to the allowable moment about the vertical axis of the Adaptor Ring is as follows (Figure 1):

$$(M_v)_{\text{one pipe}} = (30.26/228,000) \cdot [FZ_1(R_{AR}) + MY_1]$$

where FZ_1 = computed force on Element 1 at Node 1 = 543,025 lbs

MY_1 = computed moment on Element 1 at Node 1
= 383,159 in-lbs

R_{AR} = outside radius of Adaptor Ring

Node 1 is taken to be the point of attachment of the pipe to the Adaptor Ring.

FIGURE 1

FILENAME : fine.ans DATE : 06-01-94
TITLE : Model for Mv capacity of risers

TIME : 1:48p

PAGE 1

/out,mvp7,out
/title,cantilever on an elastic foundation
/prep7

kan,0

et,1,44,,,,,3,1

ex,1,29.e6

dens,1,.0004

nuxy,1,.30

r,1,1.075,.6657,.6657,1.188,1.188,,

rmore,1.075,.6657,.6657,1.188,1.188,,

rmore,,,,,,

rmore,2,2,1.188,1.188,1.188,1.188

rmore,.54,.54,.54,.54,.89,.89

rmore,,,,,2.29e6*2.375,2.29e6*2.375

n,1,0,0,0

n,11,.1,0,0

fill,1,11

n,25,10,0,0

fill,11,25

n,26,0,1,0

TYPE,1 \$real,1 \$mat,1

E,1,2,26

RP24,1,1,0

D,1,UY,-.1

D,2,UX,C,,,,UZ,ROTX,ROTY,ROTZ

ITER,1,1,1

lwrite

afwrite

fini

/out

FILENAME : mvp7.out DATE : 06-01-94
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

TIME : 1:49p

PAGE 1

NEW TITLE= cantilever on an elastic foundation

*** ANSYS REV 4.4 A 1 38280-PC/L1-4.4A CP= 16.970 ***
FOR SUPPORT CALL PHONE TWX

TITLE

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

ENTER RESUME TO RESUME EXISTING MODEL
ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE PREP7
PRINTOUT KEY SET TO /GOPR (USE /NOPR TO SUPPRESS)

ANALYSIS TYPE= 0 (STATIC ANALYSIS)

ELEMENT TYPE 1 USES STIF 44
KEYOPT(1-9)= 0 0 0 0 3 1 0 0 0
INOPR= 0 NUMBER OF NODES= 3

TAPERED UNSYM. BEAM, 3-D

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 0.2900000E+08

PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.29000E+08 9999.0 0.29000E+08

MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.4000000E-03

PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.40000E-03 9999.0 0.40000E-03

MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.3000000

PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.30000 9999.0 0.30000

REAL CONSTANT SET 1 ITEMS 1 TO 6
1.0750 0.66570 0.66570 1.1880 1.1880 0.00000E+00

REAL CONSTANT SET 1 ITEMS 7 TO 12
1.0750 0.66570 0.66570 1.1880 1.1880 0.00000E+00

REAL CONSTANT SET 1 ITEMS 13 TO 18
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

REAL CONSTANT SET 1 ITEMS 19 TO 24
2.0000 2.0000 1.1880 1.1880 1.1880 1.1880

REAL CONSTANT SET 1 ITEMS 25 TO 30
0.54000 0.54000 0.54000 0.54000 0.89000 0.89000

REAL CONSTANT SET 1 ITEMS 31 TO 36
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.54387E+07 0.54387E+07

NODE 1 KCS= 0 X,Y,Z= 0.00000E+00 0.00000E+00 0.00000E+00

NODE 11 KCS= 0 X,Y,Z= 0.10000 0.00000E+00 0.00000E+00

FILENAME : mvp7.out DATE : 06-01-94 TIME : 1:49p PAGE 2
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

FILL 9 POINTS BETWEEN NODE 1 AND NODE 11
START WITH NODE 2 AND INCREMENT BY 1

NODE 25 KCS= 0 X,Y,Z= 10.000 0.00000E+00 0.00000E+00

FILL 13 POINTS BETWEEN NODE 11 AND NODE 25
START WITH NODE 12 AND INCREMENT BY 1

NODE 26 KCS= 0 X,Y,Z= 0.00000E+00 1.0000 0.00000E+00

ELEMENT TYPE SET TO 1

REAL CONSTANT NUMBER= 1

MATERIAL NUMBER SET TO 1

ELEMENT	1	1	2	26
ELEMENT	2	2	3	26
ELEMENT	3	3	4	26
ELEMENT	4	4	5	26
ELEMENT	5	5	6	26
ELEMENT	6	6	7	26
ELEMENT	7	7	8	26
ELEMENT	8	8	9	26
ELEMENT	9	9	10	26
ELEMENT	10	10	11	26
ELEMENT	11	11	12	26
ELEMENT	12	12	13	26
ELEMENT	13	13	14	26
ELEMENT	14	14	15	26
ELEMENT	15	15	16	26
ELEMENT	16	16	17	26
ELEMENT	17	17	18	26
ELEMENT	18	18	19	26
ELEMENT	19	19	20	26
ELEMENT	20	20	21	26
ELEMENT	21	21	22	26
ELEMENT	22	22	23	26
ELEMENT	23	23	24	26
ELEMENT	24	24	25	26

SPECIFIED DISP UY FOR SELECTED NODES IN RANGE 1 TO 1 BY 1
VALUES=-0.10000 0.00000E+00 ADDITIONAL DOPS=

SPECIFIED DISP UX FOR SELECTED NODES IN RANGE 1 TO 1 BY 1
VALUES= 0.00000E+00 0.00000E+00 ADDITIONAL DOPS= UZ ROTX ROTY ROTZ

NITTER= 1 NPRINT= 1 NPOST= . 1

ALL PRINT CONTROLS RESET TO 1
ALL POST DATA FILE CONTROLS RESET TO 1

LOAD STEP 1 WRITTEN ON FILE23

*** NOTE ***
NO TITLE DEFINED FOR ANALYSIS

*** NOTE ***
DATA CHECKED - NO ERRORS FOUND

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= TITLE
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 1
24 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 24
26 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 26
MAXIMUM LINEAR PROPERTY NUMBER= 1
MAXIMUM REAL CONSTANT SET NUMBER= 1

FILENAME : mvp7.out DATE : 06-01-94
TITLE : fine.ans prep7 output (Mv capacity for adaptor rings)

TIME : 1:49p

PAGE 3

ACTIVE COORDINATE SYSTEM= 0 (CARTESIAN)
NUMBER OF IMPOSED DISPLACEMENTS= 6

ANALYSIS DATA WRITTEN ON FILE27

ENTER FINISH TO LEAVE PREP7

IF YOU WANT TO RUN THIS ANALYSIS, ENTER AFTER PREP7 FINISH -
/CHECK * (OPTIONAL) ENTER ONLY IF CHECK RUN IS DESIRED
/INPUT,27

THEN ENTER FINISH AT LOPT-INP PROMPT AT END OF ANALYSIS

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 19.820

SYSTEM= 38280-PC/L1-4.4A REVISION= 4.4 A 1
FOR SUPPORT CALL PHONE TWX
CURRENT JOBNAME=FILE

FILENAME : mv.out DATE : 06-01-94 TIME : 1:50p PAGE 1
TITLE : fine.ans output (Mv capacity for Adapter Rings)

***** INPUT SWITCHED FROM FILE05 TO FILE27 NAME=FILE27.DAT

NEW TITLE= TITLE

OPTION AND TYPE PRINTOUT SUPPRESSED

NUMBER OF ELEMENT TYPES= 1

REAL CONSTANT PRINTOUT SUPPRESSED

NUMBER OF REAL CONSTANT SETS= 1

ELEMENT PRINTOUT SUPPRESSED

SWITCHED TO FIXED FORMAT INPUT

MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 1125212

NUMBER OF ELEMENTS = 24 MAXIMUM NODE NUMBER USED = 26

NODE PRINTOUT SUPPRESSED

SWITCHED TO FIXED FORMAT INPUT

XMIN= 0.0000E+00 XMAX= 10.00 YMIN= 0.0000E+00 YMAX= 1.000 ZMIN= 0.0000E+00 ZMAX= 0.0000E+00
MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 375070

PROPERTY PRINTOUT SUPPRESSED

MAXIMUM MATERIAL NUMBER= 1

M.D.O.F. PRINTOUT SUPPRESSED

NUMBER OF SPECIFIED MASTER D.O.F.= 0
TOTAL NUMBER OF MASTER D.O.F. = 0

DISPLACEMENT B.C. PRINTOUT SUPPRESSED

FORCE B.C. PRINTOUT SUPPRESSED

PRESSURE PRINTOUT SUPPRESSED

***** LOAD SUMMARY - 6 DISPLACEMENTS 0 FORCES 0 PRESSURES *****

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 0.43000E-02

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 5.0000	IXX = 0.0000E+00	IXX = 0.0000E+00
YC = 0.00000E+00	IYY = 0.1432	IYY = 0.3566E-01
ZC = 0.00000E+00	IZZ = 0.1432	IZZ = 0.3566E-01
	IXY = 0.0000E+00	IXY = 0.0000E+00
	IYZ = 0.0000E+00	IYZ = 0.0000E+00
	IZX = 0.0000E+00	IZX = 0.0000E+00

*** MASS SUMMARY BY ELEMENT TYPE ***

FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (Mv capacity for Adapter Rings)

TIME : 1:50p

PAGE 2

TYPE MASS
1 0.430000E-02

RANGE OF ELEMENT MAXIMUM STIFFNESS IN GLOBAL COORDINATES

MAXIMUM= 0.311750E+10 AT ELEMENT 10.
MINIMUM= 0.440859E+08 AT ELEMENT 22.

*** ELEMENT STIFFNESS FORMULATION TIMES
TYPE NUMBER STIF TOTAL CP AVE CP
1 24 44 0.380 0.016

TIME AT END OF ELEMENT STIFFNESS FORMULATION CP= 30.640

MAXIMUM IN-CORE WAVE FRONT ALLOWED FOR REQUESTED MEMORY SIZE= 1498.

MAXIMUM IN-CORE WAVE FRONT= 14.

MATRIX SOLUTION TIMES
READ IN ELEMENT STIFFNESSES CP= 0.270

NODAL COORD. TRANSFORMATION CP= 0.000
MATRIX TRIANGULARIZATION CP= 0.230

TIME AT END OF MATRIX TRIANGULARIZATION CP= 31.580
EQUATION SOLVER MAXIMUM PIVOT= 0.62350E+10 AT NODE 2. UX
EQUATION SOLVER MINIMUM PIVOT= 0.14850E+07 AT NODE 25. ROTX

TIME AT START OF BACK SUBSTITUTION CP= 31.630 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

***** DISPLACEMENT SOLUTION ***** TIME = 0.00000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

NODE	UX	UY	UZ	ROTX	ROTY	ROTZ
1	0.000000E+00	-0.100000	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
2	0.000000E+00	-0.990978E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.197072E-03
3	0.000000E+00	-0.982026E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.391359E-03
4	0.000000E+00	-0.973144E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.582888E-03
5	0.000000E+00	-0.964331E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.771689E-03
6	0.000000E+00	-0.955587E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.957787E-03
7	0.000000E+00	-0.946911E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.114121E-02
8	0.000000E+00	-0.938302E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.132198E-02
9	0.000000E+00	-0.929761E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.150014E-02
10	0.000000E+00	-0.921287E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.167570E-02
11	0.000000E+00	-0.912879E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.184868E-02
12	0.000000E+00	-0.472114E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.900413E-02
13	0.000000E+00	-0.231638E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.101409E-01
14	0.000000E+00	-0.104753E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.887605E-02
15	0.000000E+00	-0.407153E-02	0.000000E+00	0.000000E+00	0.000000E+00	0.693881E-02
16	0.000000E+00	-0.104306E-02	0.000000E+00	0.000000E+00	0.000000E+00	0.507717E-02
17	0.000000E+00	0.240387E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.355430E-02
18	0.000000E+00	0.668105E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.241168E-02
19	0.000000E+00	0.709640E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.160279E-02
20	0.000000E+00	0.603150E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.105695E-02
21	0.000000E+00	0.464091E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.706764E-03
22	0.000000E+00	0.347400E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.497423E-03
23	0.000000E+00	0.283720E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.387254E-03
24	0.000000E+00	0.302524E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.343834E-03
25	0.000000E+00	0.450736E-03	0.000000E+00	0.000000E+00	0.000000E+00	0.337036E-03

MAXIMUMS

FILENAME : mv.out DATE : 06-01-94 TIME : 1:50p PAGE 3
TITLE : fine.ans output (Mv capacity for Adapter Rings)

NODE 0 1 0 0 0 13
VALUE 0.000000E+00 -0.100000 0.000000E+00 0.000000E+00 0.000000E+00 0.101409E-01

***** ELEMENT STRESSES ***** TIME = 0.000000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

EL= 1 NODES= 1 2 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.00000E+00	0.00000E+00	0.00000E+00	0.68378E+06	-0.68378E+06	0.68378E+06	-0.68378E+06	0.68378E+06	-0.68378E+06
J	0.00000E+00	0.00000E+00	0.00000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.00000E+00	-0.10056E+07	0.00000E+00	0.68378E+06	-0.68378E+06	0.68378E+06	-0.68378E+06		
J	0.00000E+00	0.99557E+06	0.00000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06		
FORCES	ON MEMBER AT NODE	1	0.000000E+00	0.000000E+00	-543025.	0.000000E+00	383159.	0.000000E+00	
		2	0.000000E+00	0.000000E+00	537610.	0.000000E+00	-377756.	0.000000E+00	

EL= 2 NODES= 2 3 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.00000E+00	0.00000E+00	0.00000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06
J	0.00000E+00	0.00000E+00	0.00000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.00000E+00	-0.99557E+06	0.00000E+00	0.67414E+06	-0.67414E+06	0.67414E+06	-0.67414E+06		
J	0.00000E+00	0.98564E+06	0.00000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06		
FORCES	ON MEMBER AT NODE	2	0.000000E+00	0.000000E+00	-537610.	0.000000E+00	377756.	0.000000E+00	
		3	0.000000E+00	0.000000E+00	532245.	0.000000E+00	-372407.	0.000000E+00	

EL= 3 NODES= 3 4 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.00000E+00	0.00000E+00	0.00000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06
J	0.00000E+00	0.00000E+00	0.00000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.00000E+00	-0.98564E+06	0.00000E+00	0.66459E+06	-0.66459E+06	0.66459E+06	-0.66459E+06		
J	0.00000E+00	0.97579E+06	0.00000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06		
FORCES	ON MEMBER AT NODE	3	0.000000E+00	0.000000E+00	-532245.	0.000000E+00	372407.	0.000000E+00	
		4	0.000000E+00	0.000000E+00	526928.	0.000000E+00	-367111.	0.000000E+00	

EL= 4 NODES= 4 5 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.00000E+00	0.00000E+00	0.00000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06
J	0.00000E+00	0.00000E+00	0.00000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.00000E+00	-0.97579E+06	0.00000E+00	0.65514E+06	-0.65514E+06	0.65514E+06	-0.65514E+06		
J	0.00000E+00	0.96604E+06	0.00000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06		
FORCES	ON MEMBER AT NODE	4	0.000000E+00	0.000000E+00	-526928.	0.000000E+00	367111.	0.000000E+00	
		5	0.000000E+00	0.000000E+00	521659.	0.000000E+00	-361868.	0.000000E+00	

EL= 5 NODES= 5 6 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.00000E+00	0.00000E+00	0.00000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06
J	0.00000E+00	0.00000E+00	0.00000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.00000E+00	-0.96604E+06	0.00000E+00	0.64578E+06	-0.64578E+06	0.64578E+06	-0.64578E+06		
J	0.00000E+00	0.95637E+06	0.00000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06		
FORCES	ON MEMBER AT NODE	5	0.000000E+00	0.000000E+00	-521659.	0.000000E+00	361868.	0.000000E+00	
		6	0.000000E+00	0.000000E+00	516438.	0.000000E+00	-356677.	0.000000E+00	

EL= 6 NODES= 6 7 MAT= 1 TCENT, TTOPZ, TBOTY= 0.0 0.0 0.0 3-D TAP BE
AM 44

END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8
I	0.00000E+00	0.00000E+00	0.00000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06
J	0.00000E+00	0.00000E+00	0.00000E+00	0.62735E+06	-0.62735E+06	0.62735E+06	-0.62735E+06	0.62735E+06	-0.62735E+06
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8		
I	0.00000E+00	-0.95637E+06	0.00000E+00	0.63652E+06	-0.63652E+06	0.63652E+06	-0.63652E+06		
J	0.00000E+00	0.94679E+06	0.00000E+00	0.62735E+06	-0.62735E+06	0.62735E+06	-0.62735E+06		
FORCES	ON MEMBER AT NODE	6	0.000000E+00	0.000000E+00	-516438.	0.000000E+00	356677.	0.000000E+00	
		7	0.000000E+00	0.000000E+00	511265.	0.000000E+00	-351539.	0.000000E+00	

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```

BL=      7  NODES=      7      8  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.94679E+06  0.00000E+00  0.62735E+06 -0.62735E+06  0.62735E+06 -0.62735E+06
J      0.00000E+00  0.93729E+06  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
FORCES ON MEMBER AT NODE      7  0.000000E+00  0.000000E+00 -511265.      0.000000E+00  351539.      0.000000E+00
                                8  0.000000E+00  0.000000E+00  506138.      0.000000E+00 -346452.      0.000000E+00

```

```

BL=      8  NODES=      8      9  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.93729E+06  0.00000E+00  0.61827E+06 -0.61827E+06  0.61827E+06 -0.61827E+06
J      0.00000E+00  0.92789E+06  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
FORCES ON MEMBER AT NODE      8  0.000000E+00  0.000000E+00 -506138.      0.000000E+00  346452.      0.000000E+00
                                9  0.000000E+00  0.000000E+00  501058.      0.000000E+00 -341416.      0.000000E+00

```

```

BL=      9  NODES=      9     10  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.92789E+06  0.00000E+00  0.60929E+06 -0.60929E+06  0.60929E+06 -0.60929E+06
J      0.00000E+00  0.91856E+06  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
FORCES ON MEMBER AT NODE      9  0.000000E+00  0.000000E+00 -501058.      0.000000E+00  341416.      0.000000E+00
                                10 0.000000E+00  0.000000E+00  496025.      0.000000E+00 -336431.      0.000000E+00

```

```

BL=     10  NODES=     10     11  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.91856E+06  0.00000E+00  0.60039E+06 -0.60039E+06  0.60039E+06 -0.60039E+06
J      0.00000E+00  0.90933E+06  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
FORCES ON MEMBER AT NODE     10 0.000000E+00  0.000000E+00 -496025.      0.000000E+00  336431.      0.000000E+00
                                11 0.000000E+00  0.000000E+00  491037.      0.000000E+00 -331495.      0.000000E+00

```

```

BL=     11  NODES=     11     12  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
J      0.00000E+00  0.00000E+00  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.90933E+06  0.00000E+00  0.59158E+06 -0.59158E+06  0.59158E+06 -0.59158E+06
J      0.00000E+00  0.41312E+06  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
FORCES ON MEMBER AT NODE     11 0.000000E+00  0.000000E+00 -491037.      0.000000E+00  331495.      0.000000E+00
                                12 0.000000E+00  0.000000E+00  223083.      0.000000E+00 -30816.4      0.000000E+00

```

```

BL=     12  NODES=     12     13  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP BE
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00  0.00000E+00  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
J      0.00000E+00  0.00000E+00  0.00000E+00 -22774.      22774.      -22774.      22774.      -22774.      22774.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 -0.41312E+06  0.00000E+00  0.16207E+06 -0.16207E+06  0.16207E+06 -0.16207E+06
J      0.00000E+00  0.16203E+06  0.00000E+00 -22774.      22774.      -22774.      22774.
FORCES ON MEMBER AT NODE     12 0.000000E+00  0.000000E+00 -223083.      0.000000E+00  90816.4      0.000000E+00
                                13 0.000000E+00  0.000000E+00  87494.7      0.000000E+00  12761.7      0.000000E+00

```

```

BL=     13  NODES=     13     14  MAT=  1  TCENT,TTOPZ,TBOTY=      0.0      0.0      0.0      3-D TAP B
AM 44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8

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I	0.00000E+00	0.00000E+00	0.00000E+00	-22774.	22774.	-22774.	22774.	-22774.	22774.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-86939.	86939.	-86939.	86939.	-86939.	86939.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	-0.16203E+06	0.00000E+00	-22774.	22774.	-22774.	22774.				
J	0.00000E+00	42766.	0.00000E+00	-86939.	86939.	-86939.	86939.				
FORCES ON MEMBER AT NODE	13	0.000000E+00	0.000000E+00	-87494.7	0.000000E+00	-12761.7	0.000000E+00				
	14	0.000000E+00	0.000000E+00	23093.8	0.000000E+00	48716.5	0.000000E+00				
EL=	14	NODES=	14	15	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0	3-D TAP BE
AM	44										
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-86939.	86939.	-86939.	86939.	-86939.	86939.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-96053.	96053.	-96053.	96053.	-96053.	96053.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	-42766.	0.00000E+00	-86939.	86939.	-86939.	86939.				
J	0.00000E+00	-8223.2	0.00000E+00	-96053.	96053.	-96053.	96053.				
FORCES ON MEMBER AT NODE	14	0.000000E+00	0.000000E+00	-23093.8	0.000000E+00	-48716.5	0.000000E+00				
	15	0.000000E+00	0.000000E+00	-4440.52	0.000000E+00	53823.6	0.000000E+00				
EL=	15	NODES=	15	16	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0	3-D TAP BE
AM	44										
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-96053.	96053.	-96053.	96053.	-96053.	96053.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-83383.	83383.	-83383.	83383.	-83383.	83383.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	8223.2	0.00000E+00	-96053.	96053.	-96053.	96053.				
J	0.00000E+00	-25655.	0.00000E+00	-83383.	83383.	-83383.	83383.				
FORCES ON MEMBER AT NODE	15	0.000000E+00	0.000000E+00	4440.52	0.000000E+00	-53823.6	0.000000E+00				
	16	0.000000E+00	0.000000E+00	-13853.9	0.000000E+00	46724.2	0.000000E+00				
EL=	16	NODES=	16	17	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0	3-D TAP BE
AM	44										
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-83383.	83383.	-83383.	83383.	-83383.	83383.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-64768.	64768.	-64768.	64768.	-64768.	64768.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	25655.	0.00000E+00	-83383.	83383.	-83383.	83383.				
J	0.00000E+00	-27875.	0.00000E+00	-64768.	64768.	-64768.	64768.				
FORCES ON MEMBER AT NODE	16	0.000000E+00	0.000000E+00	13853.9	0.000000E+00	-46724.2	0.000000E+00				
	17	0.000000E+00	0.000000E+00	-25052.3	0.000000E+00	36293.0	0.000000E+00				
EL=	17	NODES=	17	18	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0	3-D TAP BE
AM	44										
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-64768.	64768.	-64768.	64768.	-64768.	64768.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-47002.	47002.	-47002.	47002.	-47002.	47002.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	27875.	0.00000E+00	-64768.	64768.	-64768.	64768.				
J	0.00000E+00	-24160.	0.00000E+00	-47002.	47002.	-47002.	47002.				
FORCES ON MEMBER AT NODE	17	0.000000E+00	0.000000E+00	15052.3	0.000000E+00	-36293.0	0.000000E+00				
	18	0.000000E+00	0.000000E+00	-13046.3	0.000000E+00	26337.5	0.000000E+00				
EL=	18	NODES=	18	19	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0	3-D TAP BE
AM	44										
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-47002.	47002.	-47002.	47002.	-47002.	47002.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-32420.	32420.	-32420.	32420.	-32420.	32420.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	24160.	0.00000E+00	-47002.	47002.	-47002.	47002.				
J	0.00000E+00	-18914.	0.00000E+00	-32420.	32420.	-32420.	32420.				
FORCES ON MEMBER AT NODE	18	0.000000E+00	0.000000E+00	13046.3	0.000000E+00	-26337.5	0.000000E+00				
	19	0.000000E+00	0.000000E+00	-10213.6	0.000000E+00	18166.5	0.000000E+00				
EL=	19	NODES=	19	20	MAT=	1	TCENT, TTOPZ, TBOTY=	0.0	0.0	0.0	3-D TAP BE
AM	44										
END	SDIR	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8		
I	0.00000E+00	0.00000E+00	0.00000E+00	-32420.	32420.	-32420.	32420.	-32420.	32420.		
J	0.00000E+00	0.00000E+00	0.00000E+00	-21329.	21329.	-21329.	21329.	-21329.	21329.		
END	SIGXY	SIGXZ	SIGYZ	SB5	SB6	SB7	SB8				
I	0.00000E+00	18914.	0.00000E+00	-32420.	32420.	-32420.	32420.				

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J      0.00000E+00 -14010.      0.00000E+00 -21329.      21329.      -21329.      21329.
FORCES ON MEMBER AT NODE      19 0.000000E+00 0.000000E+00 10213.6      0.000000E+00 -18166.5      0.000000E+00
                                20 0.000000E+00 0.000000E+00 -7565.42      0.000000E+00 11951.9      0.000000E+00

EL=    20  NODES=    20  21  MAT=  1  TCENT,TTOPZ,TBOTY=    0.0    0.0    0.0                                3-D TAP B
AM  44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00 0.00000E+00 0.00000E+00 -21329.      21329.      -21329.      21329.      -21329.      21329.
J      0.00000E+00 0.00000E+00 0.00000E+00 -13245.      13245.      -13245.      13245.      -13245.      13245.
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 14010.      0.00000E+00 -21329.      21329.      -21329.      21329.
J      0.00000E+00 -10063.      0.00000E+00 -13245.      13245.      -13245.      13245.
FORCES ON MEMBER AT NODE      20 0.000000E+00 0.000000E+00 7565.42      0.000000E+00 -11951.9      0.000000E+00
                                21 0.000000E+00 0.000000E+00 -5433.77      0.000000E+00 7421.84      0.000000E+00

EL=    21  NODES=    21  22  MAT=  1  TCENT,TTOPZ,TBOTY=    0.0    0.0    0.0                                3-D TAP B
AM  44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00 0.00000E+00 0.00000E+00 -13245.      13245.      -13245.      13245.      -13245.      13245.
J      0.00000E+00 0.00000E+00 0.00000E+00 -7493.4      7493.4      -7493.4      7493.4      -7493.4      7493.4
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 10063.      0.00000E+00 -13245.      13245.      -13245.      13245.
J      0.00000E+00 -7084.9      0.00000E+00 -7493.4      7493.4      -7493.4      7493.4
FORCES ON MEMBER AT NODE      21 0.000000E+00 0.000000E+00 5433.77      0.000000E+00 -7421.84      0.000000E+00
                                22 0.000000E+00 0.000000E+00 -3825.84      0.000000E+00 4198.94      0.000000E+00

EL=    22  NODES=    22  23  MAT=  1  TCENT,TTOPZ,TBOTY=    0.0    0.0    0.0                                3-D TAP B
AM  44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00 0.00000E+00 0.00000E+00 -7493.4      7493.4      -7493.4      7493.4      -7493.4      7493.4
J      0.00000E+00 0.00000E+00 0.00000E+00 -3503.1      3503.1      -3503.1      3503.1      -3503.1      3503.1
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 7084.9      0.00000E+00 -7493.4      7493.4      -7493.4      7493.4
J      0.00000E+00 -4791.2      0.00000E+00 -3503.1      3503.1      -3503.1      3503.1
FORCES ON MEMBER AT NODE      22 0.000000E+00 0.000000E+00 3825.84      0.000000E+00 -4198.94      0.000000E+00
                                23 0.000000E+00 0.000000E+00 -2587.23      0.000000E+00 1962.96      0.000000E+00

EL=    23  NODES=    23  24  MAT=  1  TCENT,TTOPZ,TBOTY=    0.0    0.0    0.0                                3-D TAP B
AM  44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00 0.00000E+00 0.00000E+00 -3503.1      3503.1      -3503.1      3503.1      -3503.1      3503.1
J      0.00000E+00 0.00000E+00 0.00000E+00 -967.41      967.41      -967.41      967.41      -967.41      967.41
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 4791.2      0.00000E+00 -3503.1      3503.1      -3503.1      3503.1
J      0.00000E+00 -2685.3      0.00000E+00 -967.41      967.41      -967.41      967.41
FORCES ON MEMBER AT NODE      23 0.000000E+00 0.000000E+00 2587.23      0.000000E+00 -1962.96      0.000000E+00
                                24 0.000000E+00 0.000000E+00 -1450.05      0.000000E+00 542.093      0.000000E+00

EL=    24  NODES=    24  25  MAT=  1  TCENT,TTOPZ,TBOTY=    0.0    0.0    0.0                                3-D TAP B
AM  44
END      SDIR      SC1      SC2      SC3      SC4      SC5      SC6      SC7      SC8
I      0.00000E+00 0.00000E+00 0.00000E+00 -967.41      967.41      -967.41      967.41      -967.41      967.41
J      0.00000E+00 0.00000E+00 0.00000E+00 -0.40577E-12 0.40577E-12 -0.40577E-12 0.40577E-12 -0.40577E-12 0.40577E-12
END      SIGXY      SIGXZ      SIGYZ      SB5      SB6      SB7      SB8
I      0.00000E+00 2685.3      0.00000E+00 -967.41      967.41      -967.41      967.41
J      0.00000E+00 -0.15033E-11 0.00000E+00 -0.40577E-12 0.40577E-12 -0.40577E-12 0.40577E-12
FORCES ON MEMBER AT NODE      24 0.000000E+00 0.000000E+00 1450.05      0.000000E+00 -542.093      0.000000E+00
                                25 0.000000E+00 0.000000E+00 -0.811795E-12 0.000000E+00 0.227374E-12 0.000000E+00

```

***** REACTION FORCES ***** TIME = 0.00000E+00 LOAD STEP= 1 ITERATION= 1 CUM. ITER.= 1

NOTE - REACTION FORCES ARE IN THE NODAL COORDINATE SYSTEM.

NODE	FX	FY	FZ	MX	MY	MZ
1	0.000000E+00	-543025.	0.000000E+00	0.000000E+00	0.000000E+00	-383159.
TOTAL	0.000000E+00	-543025.	0.000000E+00	0.000000E+00	0.000000E+00	-383159.

FILENAME : mv.out DATE : 06-01-94
TITLE : fine.ans output (Mv capacity for Adapter Rings)

TIME : 1:50p

PAGE 7

*** ELEM. STRESS CALC. TIMES
TYPE NUMBER STIP TOTAL CP AVE CP

1 24 44 0.970 0.040

*** NODAL FORCE CALC. TIMES
TYPE NUMBER STIP TOTAL CP AVE CP

1 24 44 0.000 0.000

*** LOAD STEP 1 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.=
1

*** STORAGE REQUIREMENT SUMMARY
MAXIMUM FIXED MEMORY USED = 1074
MAXIMUM TEMPORARY MEMORY USED= 936
MAXIMUM TOTAL MEMORY USED = 1386
MAXIMUM TEMPORARY AVAILABLE = 2251372

*** PROBLEM STATISTICS
NO. OF ACTIVE DEGREES OF FREEDOM = 144
R.M.S. WAVEFRONT SIZE = 10.4

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 2048
POST DATA WRITTEN ON FILE12
RESTART DATA WRITTEN ON FILE03 (86764 BYTES)
TRIANGULARIZED MATRIX WRITTEN ON FILE12 (15836 BYTES)

***** END OF INPUT ENCOUNTERED ON FILE27. FILE27 REWOUND

***** INPUT FILE SWITCHED FROM FILE27 TO FILE 5

***** ROUTINE COMPLETED ***** CP = 35.640

SYSTEM= 38280-PC/L1-4.4A REVISION= 4.4 A 1
FOR SUPPORT CALL PHONE TWX
CURRENT JOBNAME=FILE

/EOF ENCOUNTERED ON FILE 5

PREP7 APWRITE OR SPWRITE WARNING MESSAGES = 0
NUMBER OF SOLUTION PHASE WARNING MESSAGES = 0

DATA INPUT WRITTEN ON FILE18

***** RUN COMPLETED ***** CP= 45.0900 TIME= 13.8348

ATTACHMENT 6

ALLOWABLE LOADS ON THE C-106 PUMP PIT SLUICING ADAPTOR RING

Prepared by: SB KOK Date: 9/1/94

Checked by: AP Day Date: 9/1/94

The following consists of the allowable loads on the Sluicing Adaptor Ring in the C-106 Pump Pit and Sluicing Pit. The allowable loads are as a guide to standardize the relationship of the allowable loads between the Pump and the Sluicing Adaptor Rings in the Pump Pit.

**Allowable Loads on the Sluicing Adaptor Rings
in the C-106 Pump Pit and Sluicing Pit**

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities are satisfied:

$$\begin{aligned}
 F_H &\leq 1,600 \text{ [lbf]} \\
 M_V &\leq 6,440 \text{ [lbf-inch]} \\
 * \quad F_{V(S)} &\leq 28,870 \text{ [lbf]} && \text{for } F_{V(PC)} \leq 3,000 \text{ [lbf]} \\
 &\leq 29,840 - 0.324 F_{V(PC)} \text{ [lbf]} && \text{for } F_{V(PC)} > 3,000 \text{ [lbf]} \\
 M_H &\leq 240 + 3.83 F_{DL} - 7.0 F_H \text{ [lbf-inch]}
 \end{aligned}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities are satisfied:

$$\begin{aligned}
 F_H &\leq 2,720 \text{ [lbf]} \\
 M_V &\leq 10,950 \text{ [lbf-inch]} \\
 ** \quad F_{V(S)} &\leq 49,070 \text{ [lbf]} && \text{for } F_{V(PC)} \leq 3,000 \text{ [lbf]} \\
 &\leq 50,030 - 0.320 F_{V(PC)} \text{ [lbf]} && \text{for } F_{V(PC)} > 3,000 \text{ [lbf]} \\
 M_H &\leq 200 + 3.22 F_{DL} - 7.0 F_H \text{ [lbf-inch]}
 \end{aligned}$$

- Notes: (1) $F_{V(PC)}$ denotes F_V for Pump Column Adaptor Ring in the Pump Pit.
 (2) $F_{V(S)}$ denotes F_V for Sluicing Adaptor Ring in the Pump Pit.
 (3) * $F_V = 28,870$ [lbf] for Sluicing Adaptor Ring in the Sluicing Pit.
 (4) ** $F_V = 49,070$ [lbf] for Sluicing Adaptor Ring in the Sluicing Pit.

ATTACHMENT 7
COMMUNICATION DOCUMENTING
THE CONCRETE STRENGTH AND THE LOAD PATHS

Prepared by: SBKOK Date: 9/1/94

Checked by: APD Date: 9/1/94

[11] From: John P III Harris at -WHC216 2/2/94 3:33PM (2172 bytes: 32 ln)
To: ^ADVENT Engineering Services at -DOE HANFORD 1
cc: Gina A Symons at -WHC82, Edward G III Allen at -WHC116, David A Wallace a
-WHC208, James B (Jim) Truitt at -WHC74, Larry J Julyk at -WHC240,
John P III Harris
Subject: ASSUMPTIONS FOR 12" RISER LOAD LIMIT CALCULATIONS
----- Message Contents -----

Albert/Jeff/Jim/Soo Bee,

As we talked about on the phone this afternoon, please use the assumption that all concrete in the northern and southern pits (the pits being examined in the calculation concerning the load limitations for the 12" risers) is 3,000 psi concrete, (i.e., assume that all the concrete used in pours in these pits is 3,000 psi, whether or not rebar was included in the pour).

WHC is basing this assumption on the best available information. Ed Allen of WHC will continue to try to obtain documentation from the concrete specifications used during construction of the pits to verify this assumption. But, if this verification is not forthcoming, continue with the assumption as stated above unless updated information is provided.

The resolution of this issue removes the last block to completion of the analysis, as I understand from our conversation, and I am eagerly anticipating receipt of the determination of the allowable vertical, horizontal, and moment loads on the 12" risers to support our Advanced Sluicer Procurement Specification.

If you have additional questions concerning this analysis, please feel free to contact Gina or myself as an additional resource to your normal contacts in Jim Truitt's group.

John Harris,
Acting Manager,
Sluicing Retrieval Project Engineering

[4] From: John P III Harris at -WHC216 1/21/94 9:03AM (6109 bytes: 92 ln)
To: ^ADVENT Engineering Services at -DOE_HANFORD_1
cc: Gina A Symons at -WHC82
Subject: Tanks, Pits and Risers (re: Advent Eng. Report)

----- Forwarded with Changes -----
From: Edward G III Allen at -WHC116 1/21/94 6:42AM (5072 bytes: 77 ln)
To: John P III Harris at -WHC216
cc: Gina A Symons at -WHC82, John W Bailey at -WHC20, Thomas H (Tom) May at
-WHC82, J R III (Jim) Bellomy, Kenneth G Squires at -WHC14
Subject: Tanks, Pits and Risers (re: Advent Eng. Report)
----- Message Contents -----

Text item 1:

John,

After reading the referenced report, I revisited the pit and riser drawings for 106-C. It is true, rise vertical load (straight downward) does not impart a "significant" load to the tank dome. You need to have the drawings in front of you to see this, but I'll try to explain.

The 4" and 12" risers are smaller in outside diameter than the inside diameters of the adapters (the embedded flanges for equipment mounting). The adapters were sealed to the risers and pit floor (first rough pour) with pitch or "bituminous sealer". The risers were cinch anchored to the rough floor (3-places), shimmed to final elevation, and grouted in place before the finished floor was poured, which encased the main body of the adapters and any flush/drain lines connected to them.

A downward load (after concrete curing and pit settling) should disperse from the adapter flange to the finished floor concrete layer to the rough first floor and then out to the soil above the dome. Some load might make it's way to the dome, but you'd have to start with a major load at the flange. At any rate, you still could not force the riser downward against the dome; it would just come up inside the adapter (8" before it contacts the mating equipment flange!).

The heel pit risers (for the jet) and pump pit risers (for the slurry pump) are different. The heel pit 26" steel casing was cut off to an elevation allowing a 1" gap between it's top face and the underside of the heel jet riser adapter. If a load were imparted straight downward, you'd have to shove the whole pit assembly toward the dome 1" before taking up the gap. Again, a major load.

The pump riser was quite a feat of engineering. The casing was built in two, telescopic sleeves (one 4'-11-1/2" OD, and the other 5'-0" ID) to allow access to the 42" manhole covers used during original tank construction. The lower casing (smaller) was beveled to the dome contour and sealed to the dome with mastic. The upper casing was sealed to the lower with pitch and attached with four lengths of chain, welded to the outside of both casings (equally spaced). This chain limited the extended telescoping length.

A four-footed X-member was installed on temporary footings to suspend the top flange of the upper casing at the proper elevation and some "lean" concrete was poured. The X-member and temporary footings were removed and the first (rough) pit floor was poured. A shielding adapter was shimmed and

tack welded to the upper casing flange (no gap) which necked the opening down to 36". Pit walls and finished floor came next.

Loads to the adapter flange go to the upper casing flange and the pit finished floor and rough floor simultaneously. The chance of imparting a load to the dome is higher in this case, however, there is some allowable slip-fit between casings. Also, the dome is thickest in this region. Again, it would take a major load to hurt anything.

The one type of loading that gives me pause for concern is axial (e.g., sluicer kick at the nozzle from fluid pressure). Granted, a load in this direction would have to be strong enough to break the adapter cinch anchors and the bond between the rough and finished pit floors. I'm no stress engineering wizard, but methinks this would be classified as the "mother of all loads".

Hadn't planned to be quite so wordy, but I thought I'd pass these casual observations along since you seemed interested and don't deserve surprises later. Drop by sometime and I'll go over the drawings with you. Those boys back then really had it together.

EGA

APPENDIX F

**Mounting Ring Allowable Loads
(Load Limitations)
for the
241-AY-102 Pump Pit
and
Sluicing Pits.**

CALCULATION COVER SHEET

PROJECT Westinghouse Hanford Company Structural Analysis Engineering Support		JOB NO. 90005	FILE NO. 90005.9.9		
CLIENT Westinghouse Hanford Company		CLIENT CALC. NO. --	NO. OF ^(exclude cover) SHEETS 80 PLUS ATTACHMENTS		
SUBJECT Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits					
PURPOSE See Sheet 1-1.					
SOURCES OF DATA & REFERENCES See Sheets 2-1 and 2-2.					
PURPOSE FOR REVISION Original Issue					
Originators	Reviewers	Design Verified by	Date	Approved By	Date
S. Sadik	J. S. Shulman	N/A	N/A		10/13/94
T. N. Watts	J. P. Day				
	T. N. Watts	Revision No. 0	Project Distribution Project File WHC		
	S. Sadik	Supersedes Calc. No.			
		N/A			

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INDEPENDENT REVIEW

Document Reviewed Mounting Ring Allowable Loads (Load Limitations) for the
241AY102 Pump Pit and Sluicing Pits (Appendix F)

Author ADVENT Engineering Report No. WHC-SD-W320-ANAL-003 EDT No. 142759
Services Rev. 0

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

D. A. Wallace

Reviewer

10-20-93
Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Mounting Ring Allowable Loads (Load Limitations) for
the 241AY102 Pump Pit and Sluicing Pits (Appendix F)

Author ADVENT Engineering Services

Yes No N/A

[✓] [] []

Problem completely defined.

[✓] [] []

Necessary assumptions explicitly stated and supported.

[✓] [] []

Computer codes and data files documented.

[✓] [] []

Data used in calculations explicitly stated in document.

[✓] [] []

Data checked for consistency with original source information as applicable.

[✓] [] []

Mathematical derivations checked including dimensional consistency of results.

[✓] [] []

Models appropriate and used within range of validity or use outside range of established validity justified.

[✓] [] []

Hand calculations checked for errors.

[✓] [] []

Code run streams correct and consistent with analysis documentation.

[✓] [] []

Code output consistent with input and with results reported in analysis documentation.

[✓] [] []

Acceptability limits on analytical results applicable and supported. Limits checked against sources.

[✓] [] []

Safety margins consistent with good engineering practices.

[✓] [] []

Conclusions consistent with analytical results and applicable limits.

[✓] [] []

Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number

94-063

D. A. Wallace
Reviewer

11-20-94
Date

09/22/93

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

ANSYS-PC/LINEAR Ver. 4.4A

SOFTWARE APPLICATION

94-063
KEY NUMBER (IF APPLICABLE)

Albert Dyrness

ANALYST (PRINTED NAME)

Appendix F of
WHC-SD-W320-ANAL-003

EDT/DOCUMENT NUMBER

J. B. Truitt 10/24/94
ANALYST'S MANAGER

July, 1994

DATE PERFORMED

DESCRIPTION OF ANALYSIS:

Kan,0 linear analysis the AY102 tank dome for the application of unit loads. Four-noded 3-D shell elements (STIF63) were used, and elastic material properties were specified. Shell stress resultants were output from the analysis.

Albert Dyrness
SIGNATURE OF ANALYST

F-v

10/20/94
DATE

EXECUTIVE SUMMARY

Conservatively-determined seismic and non-seismic allowable loads for the AY Pump Pit and Sluicing Pit mounting rings were determined. The determination was based on the premise that the AY tanks and pits currently satisfy code requirements. The determination results provided herein address only those components significantly affected by applied loads at the pump pit and sluicing pit penetrations. While the AY tank dome is considered to be significantly affected by these penetration loads, the wall and slab are not. The margins held by the wall and slab are judged to be unaffected when applied loads at the penetrations satisfy the allowable load sets provided herein. The allowable loads provided below are for the Pump Mounting Ring in the AY Pump Pit and the Sluicing Mounting Ring in the AY Sluicing Pit, respectively. Both the ACI-349 and AISC Codes were used in the development of the allowable load expressions. Any load factors are addressed implicitly within the expressions.

The evaluation of the tank dome for dead and live loads was augmented by a computer simulation of AY Tanks documented in WHC-SD-WM-ANAL-034, Rev. 0. This simulation is axisymmetric, contains no explicit modeling of pit structures, and includes 8 feet of soil (120 pcf) overburden. The results allowed a more accurate determination of the maximum stress resultants in the dome due to gravity loads than would have been possible using the existing analysis of record. Horizontal seismic accelerations cause the pit structure to load the riser and tank dome. The associated seismic environments were conservatively estimated by reviewing previous analyses for double shell tanks and identifying the bounding applicable environment. This was found to be an acceleration history whose zero period acceleration is 0.27 g's. The resulting loads were conservatively transmitted to the dome by ignoring any soil contribution to reacting pit structure overturning moments. Soil contribution was ignored because the angular tilts and relative displacements are very small and soil support may be unreliable at these conditions.

Variables used in the expressions for allowable loads are defined as follows:

- F_H = best-estimate (i.e., unfactored) value of the resultant horizontal force applied at the top of the Mounting Ring flange
- M_H = best-estimate value of the resultant moment about a horizontal axis applied at the top of the Mounting Ring flange
- F_V = best-estimate value of the vertical force (assumed downward) applied at the top of the Mounting Ring flange
- M_V = best-estimate value of the moment about the vertical axis applied at the top of the Mounting Ring flange

All forces and moments are unsigned and are in units of kips and in-kips, respectively.

The expressions for the allowable moment M_H include a variable, F_{DL} , defined as the lower-bound value of downward vertical force at the flange of the pump pit mounting ring. It is conservative to use an underestimated value for F_{DL} ; conversely, it would be unconservative to use an overestimate for F_{DL} .

The allowable load expressions are intended to represent a conservative set of loads, when acting individually or together, that meet current code limits. The mechanical components found to limit the set of loads are the welds and studs on the riser system. The dome reinforced concrete also imposes restrictions on the penetration loads for both the pump pit and sluicing pit mounting rings. Some structural components can resist all four load vectors (F_H , F_V , M_H , M_V) as defined above. Hence, the allowable load expressions are necessarily complicated in these most rigorous forms. This form is maintained herein to afford the most flexibility in satisfying the underlying criteria. Forces and moments are acceptable if the appropriate set of inequalities (seismic or non-seismic) provided below are satisfied.

Allowable Loads on the Pump Mounting Ring in the AY Pump Pit:

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities are satisfied:

$$(F_V/427 + M_H/4564 + F_H/2282)^2 + (F_H/427 + M_V/9128)^2 \leq 1.0$$

$$(F_H/46 + M_V/11000)^2 + (M_V/2750)^2 \leq 1.0$$

$$M_H \leq 10.66 F_{DL}$$

$$(F_V/61.6)^2 + (M_V/1294)^2 \leq 1.0$$

$$F_V \geq 0 \text{ (i.e. always acts downward)}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities are satisfied:

$$(F_V/568 + M_H/6070 + F_H/3035)^2 + (F_H/568 + M_V/12140)^2 \leq 1.0$$

$$(F_H/61 + M_V/14630)^2 + (M_V/3658)^2 \leq 1.0$$

$$M_H \leq 10.66 F_{DL}$$

$$(F_V/104)^2 + (M_V/2199)^2 \leq 1.0$$

$$1.332 F_H + 1.905 F_V + .057 M_H \leq 190$$

$$F_v \geq 0 \text{ (i.e. always acts downward)}$$

Forces and moments are in units of kips and in-kips. Forces and moments are unsigned unless noted otherwise.

Allowable Loads on the Sluicing Mounting Ring in the AY Sluicing Pit:

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities are satisfied:

$$(F_v/347 + M_H/3018 + F_H/1509)^2 + (F_H/347 + M_v/6037)^2 \leq 1.0$$

$$(F_v/61.6)^2 + (M_v/1047)^2 \leq 1.0$$

$$(F_H/83.6 + M_v/1609)^2 + (M_H/521)^2 \leq 1.0$$

$$2.244 F_H + 1.905 F_v + .057 M_H \leq 256$$

$$F_v \geq 0 \text{ (i.e. always acts downward)}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities are satisfied:

$$(F_v/462 + M_H/4011 + F_H/2006)^2 + (F_H/462 + M_v/8022)^2 \leq 1.0$$

$$(F_v/104)^2 + (M_v/1780)^2 \leq 1.0$$

$$(F_H/111 + M_v/2140)^2 + (F_v/144 + M_H/693)^2 \leq 1.0$$

$$2.244 F_H + 1.905 F_v + .057 M_H \leq 190$$

$$F_v \geq 0 \text{ (i.e. always acts downward)}$$

Forces and moments are in units of kips and in-kips. Forces and moments are unsigned unless noted otherwise.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. L.</i>	Date	7/9/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>TW</i>	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	<i>i</i>	Rev. No.	0

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Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>J.L.</i>	Date	7/9/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>TNW</i>	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	<i>ii</i>	Rev. No.	0

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Attachment 1 - M-P Interaction Relationship for AY 102 Tank Dome

Attachment 2 - Axisymmetric Computer Model For Gravity (Dead + Live) Load Analysis for
Soil-Tank Interaction

Attachment 3 - 3-D AY102 Tank Dome Model - Unit Loads Applied at Pump Pit Flange
Location

Attachment 4 - 3-D AY102 Tank Dome Model - Unit Loads Applied at Top Surface of
Dome (Penetration Centerline)

Attachment 5 - 3-D AY102 Tank Dome Model - Unit Loads Applied at Sluicing Pit Flange
Location

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>L.S.</i>	Date	<i>7/9/94</i>
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>TWW</i>	Date	<i>7/9/94</i>
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	<i>1-1</i>	Rev. No.	0

1.0 OBJECTIVES

Develop expressions for allowable loads at the Sluicing and Pump Mounting Rings (Dwg H-2-64315) located in the Pump Pit (Dwg H-2-64313) and the four Sluicing Pits (Dwg. H-2-64314) of Tank 241-AY-102.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By: <i>N. L. K.</i>	Date <i>10/13/94</i>
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By: <i>WW</i>	Date <i>10/13/94</i>
System		Job No. 90005	File No. 90005.9.9
Client Calc. No.		Sheet No. <i>2-1</i>	Rev. No. 0

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Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. S. L.</i>	Date	10/13/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>AW</i>	Date	10/13/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	2-2	Rev. No.	0

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- 2.12 ACI 349-90, 1990, *Code Requirements for Nuclear Structures*, American Concrete Institute, Detroit, Michigan.
- 2.13 Dwg. H-2-64315 Sluicing & Pump Mounting Rings.
- 2.14 Dwg. H-2-70786 Pump & Sluice Pits Adapter Flanges.
- 2.15 Dwg. H-2-64426 Trunnion & guide Details.
- 2.16 Dwg. H-2-64316 Misc. Equipment Details Studs, Dowels, Nuts, Kick-off
- 2.17 Dwg. H-2-64310 Concrete Tank Section & Details.
- 2.18 Dwg. H-2-64311 Concrete Dome Reinforcement Plan & Details.
- 2.19 Dwg. H-2-64448 Tank Penetration Details.
- 2.20 Dwg. H-2-64406 Piping Plan TK102 241 AY Tank Farm.
- 2.21 Dwg. H-2-64314 Structural Concrete Sluicing Pit Plans & Sections.
- 2.22 Dwg. H-2-37911 Riser Elevations 241 AY Tank Farm 200-E Area.
- 2.23 Dwg. H-2-94036 Structural Modifications Sluice pit 241-AY-02D.
- 2.24 Dwg. H-2-94038 Structural Modifications Pump Pit 241-AY-02A.
- 2.25 Dwg. H-2-24690 Dome Plan Penetration Tank 102-AY.
- 2.26 Dwg. H-2-64313 Structural Concrete - Pump Pit Plans and Section.
- 2.27 SDC-4.1, 1989, Hanford Plant Standards, HPS-SDC-4.1, Rev. 11, *Standard Arch-Civil Design Criteria Design Loads for Facilities*, U.S. Department of Energy - Richland Operation Office, Richland, Washington.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Sakh</i>	Date	10/13/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>WAI</i>	Date	10/13/94
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3.0 ASSUMPTIONS/NOTES

- All tank dome structural concrete is assumed to have a compressive strength $f'_c = 3000$ psi (as per Dwg H-2-64310/11).
- The Sluicing Pit and Pump Pit floors are assumed to have concrete with a compressive strength of $f'_c = 3000$ psi.
- Weld electrode is E60 minimum.
- Structural steel is A36 minimum.
- AY tanks do not have an explicit seismic analysis of record. The similarity of the AY and AZ DSTs and periods during which design occurred indicate that the AZ analyses be considered the analysis of record.
- Because the penetration loads will not affect the design basis of the pit walls they continue to be adequate to sustain soil pressure or seismic soil-structure interaction induced pressures and are not considered in this effort.
- All analyses are prepared for ambient temperature conditions.
- The specification of mounting ring loads must include those loads attributable to equipment seismic effects. The specification of equipment seismic loads depends upon the specification of equipment mass properties which will not be determined until some time in the future. After characterization of equipment mass properties the corresponding seismic loads will be determined and incorporated into the mounting ring loads by the appropriate parties.

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Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>SL</i>	Date	7/5/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>TNW</i>	Date	7/9/94
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4.0 LOADS

The loads considered herein are:

- Horizontal force applied to the Pump Pit and the Sluicing Pit mounting rings at the top surface of flange (resolved to penetration centerline). Any and all orientations of loads in the horizontal plane are implicitly addressed.
- Vertical forces at the same locations as for horizontal forces.
- Moment about a horizontal axis (arbitrary axis orientation) which is resolved to the same locations as for horizontal forces.
- Moment about a vertical axis applied at same location as horizontal forces.
- Gravity loads (dead weight and live loads) associated with soil-tank interaction (loads resulting from 8 feet of 120 pcf soil overburden above tank, tank filled to an approximate height of 400 in. with waste having a specific gravity of 1.7, and 40 psf and 50 ton concentrated vertical live load, and soil lateral pressure exerted on sides of tank). The effects of gravity loads are determined using an axisymmetric finite element model of the tank-soil system (smaller features such as nonaxisymmetric pit structures are not included in this model.)
- Seismic loads imposed on the risers by the tank pit structures and seismic stresses in the tank dome due to its self-inertia are considered. Horizontal components are defined by a seismic input with zero period acceleration (ZPA) of 0.27 g's (References 2.1, 2.2, 2.3). The vertical component of the free field input is taken at two-thirds the horizontal (0.18 g's ZPA).

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5.0 INTERACTION EQUATION VARIABLES

The load-governing expressions contain the following variables: (units: kips, in-kips)

F_H = Best-estimate (i.e., unfactored) value of the resultant horizontal force applied at the Mounting Ring top flange centerline.

M_H = Best-estimate value of the resultant moment about a horizontal axis applied at the Mounting Ring top flange centerline.

F_V = Best-estimate value of the vertical force (assumed downward) applied at the Mounting Ring top flange centerline.

M_V = Best-estimate value of the moment about the vertical axis applied at the Mounting Ring top flange centerline.

F_{DL} = Minimum possible value for unfactored vertical load applied at the Pump Mounting Ring top flange.

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6.0 PROBLEM DEFINITION AND APPROACH

6.1 General

The objectives of this effort are to identify restrictions on all equipment imposed loads at the pump pit or sluicing pits (4 units per tank) mounting rings.

The general physical configurations of the various pits are similar except for mechanical details at the top surface of the mounting flange. Here the pump pit mounting ring has trunnion hardware to locate and restrain the equipment which will be installed. The sluicing pits employ 4 mounting studs at the top of the flange to restrain any installed equipment.

A groundrule for the effort described herein was that no development or updating of computer models be performed. Utilization of existing computer models was permissible. It also was understood that, given the lack of specific models and/or analyses of record, assumptions and use of conservative interpretations of results would be necessary. The scope is restricted to identifying permissible loads on the mounting rings. It is presumed that the pit structures are fully qualified prior to application of the additional equipment loads. These additional equipment loads introduce no significant loads into the pit covers, walls, or floors with the possible exception of the concrete directly under the flange. Consequently, the assessment of the pits need only address limitations on equipment loads as affected by bearing capacity of the concrete under the mounting ring flanges.

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Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Sedik</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. Shulman</i>	Date	7/7/94
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6.2 Physical Configuration and Load Paths

Figure 6.1 - Physical Configuration for Reacting Equipment Loads

Figure 6.1 (above) illustrates the structural components which act together to react loads caused by equipment mounted on a pit mounting ring. The mounting ring (MR) flanges utilize either studs (sluicing pit MRs) or trunnion guides (pump pit MR) to restrain equipment. An individual stud can develop axial and shear loads and in their combined action with the flange also resist resultant horizontal (bending) and vertical (torsion) moments. The trunnion guides, on the other hand, can react only resultant horizontal forces and vertical (torsion) moments. Other structural components are common to both penetration/riser systems.

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Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. Smith</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-A-Y-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. Shulman</i>	Date	7/7/94
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Proceeding down the load path, the first component is the fillet weld connecting the mounting ring body to the MR flange (loads taken by the second fillet weld between the flange and the drain annulus ring have been conservatively ignored). For purposes of evaluating the riser system, it is assumed that the riser components must support all loads generated from mounting ring mounted equipment. This provides a conservative estimate of structural demands on the riser system. It is conceivable that the pit floor may react a limited portion of downward direction flange loads through compression between the flange and the concrete. Limits on flange loads also are determined for the latter load path based on concrete compression allowables. Pit gravity loads are transmitted directly into the dome because the method of construction excludes the transfer of such loads into the riser. The riser pipe, as well as the butt weld connecting the mounting ring assembly to the riser pipe, are assumed to react the full effects of loads applied at the mounting ring. In addition, as discussed in Section 7.7.1, it is conservatively assumed that the pit structure's seismic load path is through the riser which transfers these loads into the dome. These seismic loads are considered in evaluating the demands and the reserve capacity of the riser and the tank dome.

Finally, all pit structure gravity (dead + live), pit structure seismic, and equipment loads are reacted into the tank dome. The riser vertical load and vertical moment components are reacted through Nelson Anchor Studs (8 around pipe circumference). Horizontal forces and moments at the penetration are manifested through normal stresses generated at the riser/dome interface. In addition to these loads, the tank dome is subjected to loads resulting from its own gravity (as well as other dead and live) loads and three components of seismic excitation. This complete set of loads is considered in determining dome limitation on equipment loads applied at the mounting ring flange surface.

6.3 Tabulated Roadmap for Establishing Equipment Load Allowables.

The information discussed in Section 6.2 is tabulated for clarity in Tables 6.1 and 6.2. Table 6.1 addresses the Pump Pit while Table 6.2 is specific to the Sluicing Pits. The tables identify components which must be considered relative to potential limitations on equipment loads, the relevant structural issues, and the basis for establishing component capacities.

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>L. J. Lick</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>L. J. Lick</i>	Date	7/7/94
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TABLE 6.1 Pump Pit Riser Structural Considerations					
- Components	Issues	Governing Compliance Basis	Components	Issues	Governing Compliance Basis
Trunnion Guide	Weld Structural Integrity	Evaluate Weld to AISC	Riser anchor studs and associated dome concrete	Capability of studs to sustain vertical and torsional input applied at flange. Capacity of dome to sustain anchor stud loads.	ACI 349-90
Flange to pipe fillet weld (mounting ring)	Weld Structural Integrity	Evaluate Weld to AISC	Reinforced concrete dome for (D+L) load case: [1.4D+1.7L]	Assess dome for structural integrity to total factored loads including loads applied at riser flange. Identify areas where dome controls allowable flange loads	ACI 349-90
Equipment Stability	Potential for Tipover	Ensure compressive bearing everywhere on flange surface	Reinforced concrete dome with seismic (D+L+S)	Assess dome for structural integrity to total loads which include seismic effects and loads applied at flange. Identify areas where dome controls allowable flange loads	ACI 349-90
Concrete directly under flange	Damage to Pit Concrete due to bearing stresses	Bearing Stress check per ACI 349-90			
Riser Pipe Butt Weld and Pipe Structural integrity	Riser Structure Stresses	Combined stresses per AISC			

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. Sech</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>H. Schulz</i>	Date	7/7/94
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TABLE 6.2 Sluicing Pit Riser Structural Considerations		
Components	Issues	Governing Compliance Basis
Flange Studs	Evaluate Stud Structural Integrity. Evaluate Flange for stud pullout.	AISC
Mounting Ring Flange Fillet Weld	Weld Structural Integrity	Evaluate Weld to AISC
Concrete Directly Under Flange	Damage to Pit Concrete due to bearing stresses	Bearing stress check per ACI 349-90
Riser Pipe Butt Weld and Pipe Structural Integrity	Riser Structure Stress	Combined Stresses per AISC
Riser Anchor Studs and Associated Dome Concrete	Capability of studs to sustain vertical and torsional inputs at flange. Capacity of dome to sustain anchor stud loads.	ACI 349-90
Reinforced Concrete Dome for D+L Load Case: (1.4D + 1.7L)	Assess dome for structural integrity to total factored loads including loads applied at riser flange. Identify areas where dome controls allowable flange loads.	ACI 349-90
Reinforced Concrete Dome for Seismic Load Case: (D+L+S)	Assess dome for structural integrity to total loads which include seismic effects and loads applied at riser flange. Identify areas where dome potentially controls allowable flange loads.	ACI 349-90

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6.4 Demands on Critical Components.

The majority of the load path (see Figure 6.1) experiences demands only from the equipment loads (dead, live and seismic). The first exception is the riser pipe (and the riser anchor studs) at the dome penetration which is required to provide horizontal force and moment resistance associated with seismic motion of the pit. The second exception is the tank dome which sustains demands from self-weight gravity loads, seismic effects (both pit and tank itself) and equipment loads.

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7.0 CALCULATION FOR PUMP PIT COMPONENTS

7.1 Trunnion Weldment Groups

- Trunnion guide is subjected to shear loads which must be resisted by welds.
- F_H and M_V (resolved to penetration centerline) are resisted by the trunnion guide. F_V and M_H are not resisted by the trunnion guide. It is conservatively assumed that the trunnion force (due to F_H and M_V) acts against the trunnion guide 2.5 inches above the top of the trunnion base.
- From Dwg H-2-64315 the loads between the two trunnion and the corresponding trunnion guides occur at a distance d ", $52 < d < 55.5$. A distance of 52 inches is chosen because it conservatively limits the equipment loads.
- Simplified sketch

8" x 6" trunnion guide base.

- Weld group(s): There are 2 systems of welds that are of interest for this analysis (see Dwgs H-2-64426 and H-2-64315). These are the welds securing the vertical guide plates to the guide base and the welds securing the guide base to the mounting ring flange (thus there are 2

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weld planes of interest). Welds connecting guide plates to one another are not controlling because of the very long weld lengths. This complete assembly is treated as a single weldment where controlling geometric properties are extracted from either weld plane.

Weld Geometric Properties (welds on top surface of trunnion base):

Summary:

$$\begin{aligned}
 \text{Weld length} &= l = 46.0 \text{ inches} \\
 t \text{ (throat)} &= \text{weld size} \times \sin 45^\circ = 0.25 \times .7071 = 0.1768 \text{ in} \\
 I_{xx} &= 121.3 \times t \text{ in}^4 = 121.3 \times .1768 = 21.44 \text{ in}^4 \\
 I_{yy} &= 228.7 \times t \text{ in}^4 = 228.7 \times .1768 = 40.43 \text{ in}^4
 \end{aligned}$$

Centroid is 2.83" from the edge of trunnion base (see figure below)

$$C_x = 3.17" \text{ (distance to maximum strain fiber for bending about the x-axis)}$$

$$C_y = 4" \text{ (distance to maximum strain fiber for bending about the y-axis)}$$

$$\begin{aligned}
 S_x &= 38.2 \times t \text{ in}^3 = 6.75 \text{ in}^3 \\
 S_y &= 57.1 \times t \text{ in}^3 = 10.10 \text{ in}^3 \\
 J &= 350 \times t \text{ in}^4 = 61.9 \text{ in}^4
 \end{aligned}$$

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Development of Trunnion Guide Weld Properties (on top surface of trunnion base):

Weld Centroid

Weld layout at top of trunnion guide base. All welds 1/4" fillet. All plates 1/2" thick. Call weld thickness "h".

$$\begin{aligned}
 A_1 &= 2h & y_1 &= 4.81 & A_1 y_1 &= 9.62 h \\
 A_2 &= 2h & y_2 &= 4.31 & A_2 y_2 &= 8.62 h \\
 A_3 &= 2h & y_3 &= 1.69 & A_3 y_3 &= 3.38 h \\
 A_4 &= 2h & y_4 &= 1.19 & A_4 y_4 &= 2.38 h
 \end{aligned}$$

$$\sum_{i=1}^4 A_i y_i = 24h$$

$$\text{Welds } 11 + 12 + 13 + 14 \Rightarrow \sum A_i y_i = 24 h$$

$$\text{Welds } 5 + 6 + 7 + 8 \Rightarrow \sum A_i y_i = 4 \{6h \times 3\} = 72 h$$

$$\text{Welds } 7 + 8 \Rightarrow \sum_{i=7}^8 A_i y_i \{3h \times 1.44 + 3h \times 1.94\} = 10.14 h$$

$$\Sigma = 24h + 24h + 72h + 10.14h = 130.14h$$

$$\Sigma A_i = 46h$$

$$\bar{y}_c = \frac{\Sigma A_i y_i}{\Sigma A_i} = \frac{130.14}{46} = 2.83 \text{ inches}$$

$$\text{from symmetry, } \bar{x}_c = 0$$

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Moment of Inertia

$$I_{xx} = (I_1 + I_{11}) + (I_2 + I_{12}) + (I_3 + I_{13}) \\ + (I_4 + I_{14}) + I_9 + I_{10} + (I_5 + I_6 + I_7 + I_8)$$

2.83 by inspection

$$I_{xx} = 2I_1 + 2I_2 + 2I_3 + 2I_4 + I_9 + I_{10} + 4I_5$$

"d _i "	=	distance from weld group centroid to centroid of a weld segment
2I ₁	=	2 d ₁ ² A ₁ = 2 (4.81 - 2.83) ² x 2 t = 15.68 t A ₁ = 2" x t
2I ₂	=	2 d ₂ ² A ₁ = 2 (4.31 - 2.83) ² x 2 t = 8.76 t A ₂ = 2" x t
2I ₃	=	2 d ₃ ² A ₁ = 2 (1.69 - 2.83) ² x 2 t = 5.20 t A ₁ = 2" x t
2I ₄	=	2 d ₄ ² A ₁ = 2 (1.19 - 2.83) ² x 2 t = 10.76 t A ₁ = 2" x t
I ₁₀	=	d ₉ ² A ₉ = (1.44 - 2.83) ² x 3t = 5.80t A ₁₀ = 3" x t
I ₉	=	d ₁₀ ² A ₁₀ = (1.94 - 2.83) ² x 3t = 2.38t A ₉ = 3" x t

$$4I_5 = 4 \left[t \times \frac{(l_5)^3}{12} + d^2 A_{10} \right] = 4 \left[\frac{t \times (6)^3}{12} + (3.0 - 2.83)^2 \times 6t \right]$$

where A₁₀ = 6" x t

$$4I_5 = 4 [18 + .1734] = 72.7 \times t$$

$$\sum_{i=1}^{14} I_i = t (15.68 + 8.76 + 5.20 + 10.76 + 5.80 + 2.38 + 72.7)$$

$$I_{xx} = 121.3 \times t = 21.44$$

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Calculate I_{yy} : use symmetry about y axis

$$I_{yy} = 2 \{ 4 I_1 + I_5 + I_6 + 2I_7 \}$$

$$I_1 = \frac{t \times (l_1)^3}{12} + d_1^2 A_1 \quad d_1 = 3'', A_1 = 2'' \times t, l_1 = 2''$$

$$I_1 = \frac{t \times (2)^3}{12} + (3)^2 \times 2t = .67t + 18t = 18.67 t$$

$$4I_1 = 74.6 t \text{ in}^4$$

$$I_5 = d_5^2 A_5 = (2.)^2 \times 6 \times t \quad (A_5 = 6'' \times t)$$

$$I_5 = 24t$$

$$I_6 = d_6^2 A_6 = (1.5)^2 \times 6 \times t$$

$$I_6 = 13.5 t$$

$$2I_7 = 2 \left[\frac{t \times (l_7)^3}{12} + d_7^2 A_7 \right] \quad d_7 = \frac{1.5''}{2}, A_7 = 1.5'' \times t, l_7 = 1.5''$$

$$2I_7 = 2 t \left[\frac{(1.5)^3}{12} + (.75)^2 \times 1.5 \right] = 2t [1.124] = 2.25 t$$

$$\therefore I_{yy} = 2 [74.6t + 24t + 13.5t + 2.25t]$$

$$I_{yy} = 2 (114.35) = 228.7 \times t \text{ in}^4 = 40.43 \text{ in}^4$$

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Weld Geometric Properties (welds at bottom of trunnion base):

$$t = \text{weld size} = 0.25'' \times .7071 = .1768$$

$$I_{xx} = 2 \left[d_1^2 \times A_1 + \frac{t \times (l_3)^3}{12} \right] = 2 \left[(3)^2 \times 8 t + \frac{t \times (6)^3}{12} \right]$$

$$I_{xx} = 2 [72t + 18t] = 180t \text{ in}^4 = 31.82 \text{ in}^4$$

$$I_{yy} = 277t \text{ in}^4 = 49.0 \text{ in}^4$$

$$C_x = 3'' \quad C_y = 4''$$

$$S_x = 10.61 \text{ in}^3 \quad S_y = 12.25 \text{ in}^3 \quad J = 80.86 \text{ in}^4$$

Enveloped Approach

The approach for treatment of these two weld locations is to develop interaction equations for both the top of the trunnion base location and at the bottom of the trunnion base.

Allowables at the top of the trunnion base are:

$$\begin{aligned} F_{ha} &= .3 \times (60 \text{ ksi}) \times (.1768) \times (46'') \\ F_{ha} &= 146 \text{ kips} \\ M_{ha} &= .3 \times (60 \text{ ksi}) \times (6.75) \\ M_{ha} &= 122 \text{ kip inches} \\ M_{va}^x &= .3 \times (60 \text{ ksi}) \times J/C_x = 351 \text{ in-kips} \\ M_{va}^y &= .3 \times (60 \text{ ksi}) \times J/C_y = 279 \text{ in-kips} \end{aligned}$$

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Allowables at the bottom of the trunnion base are:

$$\begin{aligned}
 F_{ha} &= .3 \times (60 \text{ ksi}) \times (.1768) \times (28") \\
 F_{ha} &= 89 \text{ kips} \\
 M_{ha} &= .3 \times (60 \text{ ksi}) \times (10.61) \\
 M_{ha} &= 191 \text{ in-kips} \\
 M_{va}^x &= .3 \times (60 \text{ ksi}) \times J/C_x \\
 M_{va}^x &= 485 \text{ in-kips} \\
 M_{va}^y &= .3 \times (60 \text{ ksi}) \times J/C_y \\
 M_{va}^y &= 364 \text{ in-kips}
 \end{aligned}$$

Development of Interaction Equations

The interaction of the trunnion with the trunnion guide may impose a local torsion on the trunnion due to non-centroidal action of forces. This effect is conservatively estimated by assuming the force acts at a distance of C_x from the centroid of each weld pattern.

In addition the trunnion rests in the trunnion guide and has a height of 3" when seated. Because of the trunnion corner radius the force between the trunnion and trunnion guide can at most act 2.5" above the top of the base. This causes an overturning moment which the welds must counteract. For the weld pattern at the top of the trunnion guide base this moment arm is 2.5"; for the bottom of the trunnion guide base the moment arm is 3".

Based on the above, the conservative general interaction equation at the top of the trunnion base is:

$$\left(\frac{F_H}{F_{ha}} + \frac{2.83 M_{J52}}{M_{va}^y} \right)^2 + \left(\frac{M_{J52}}{F_{vh}^x} + \frac{2.83 M_v}{M_{va}^x} \right)^2 + \left(\frac{2.5 F_h}{M_{ha}} \right)^2 \leq 1.0$$

Calculation Sheet

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Substituting gives,

$$\left(\frac{F_H}{146} + \frac{M_v}{5127} \right)^2 + \left(\frac{M_v}{3487} \right)^2 + \left(\frac{F_H}{49} \right)^2 \leq 1.0$$

Expanding and solving for F_H gives,

$$F_H \leq 46 \left[\left(1 - \left(\frac{M_v}{2929} \right)^2 \right)^{1/2} - \frac{M_v}{16273} \right] \text{ (Top of trunnion base)}$$

Similarly, the conservative general interaction equation at the bottom of the trunnion base is:

$$\left(\frac{F_H}{F_{ha}} + \frac{3 M_v / 52}{M_{va}^y} \right)^2 + \left(\frac{M_v / 52}{F_{ha}} + \frac{3 M_v / 52}{M_{va}^x} \right)^2 + \left(\frac{3 F_H}{M_{ha}} \right)^2 \leq 1.0$$

Substituting gives,

$$\left(\frac{F_H}{89} + \frac{M_v}{6309} \right)^2 + \left(\frac{M_v}{2985} \right)^2 + \left(\frac{F_H}{64} \right)^2 \leq 1.0$$

Expanding and solving for F_H gives,

$$F_H \leq 52 \left[\left(1 - \left(\frac{M_v}{2885} \right)^2 \right)^{1/2} - \frac{M_v}{7625} \right] \text{ (Bottom of trunnion base)}$$

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The interaction line of equality for the two equations for F_H are plotted in Figure 7.1. A third equation is shown in Figure 7.1 that represents an envelope for both locations (top and bottom of trunnion guide base).

This third equation, as an inequality is given by,

$$F_H \leq 46 \left[\left(1 - \left(\frac{M_v}{2750} \right)^2 \right)^{1/2} - \frac{M_v}{11000} \right]$$

and by rearranging provides the following interaction equation for use in establishing allowables:

$$\left(\frac{F_H}{46} + \frac{M_v}{11000} \right)^2 + \left(\frac{M_v}{2750} \right)^2 \leq 1.0$$

and for load cases which include seismic loads the allowables are increased by a factor of 1.33.

$$\left(\frac{F_H}{61} + \frac{M_v}{14630} \right)^2 + \left(\frac{M_v}{3658} \right)^2 \leq 1.0$$

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7.2 Mounting Ring Fillet Weld: Flange to Mounting Ring Body Connection.

The mounting ring (MR) flange is attached to the mounting body via a welded connection. Credit is only taken for the 1/4" fillet weld on the 42" diameter pipe.

$$D = 42.75 \text{ inches}$$

$$C_1 = C_2 = D/2 = 21.375$$

$$A_w/t = \pi D = 134.3 \text{ inches}$$

$$S/t = \pi r^2 = 1435.36 \text{ in}^2$$

$$J/t = \frac{2 \pi D^3}{8} = 61361.8$$

Independent allowables calculated at the weld elevation for 60 ksi yield strength weld rod.

$$F_{va} = (.3) \times (60 \text{ ksi}) \times (.25") \times (.7071) \times 134.3" = 427. \text{ kips}$$

(check of base metal in shear show $f_v = .4 f_y = .4 \times 36 \text{ ksi} = 14.4 \text{ ksi}$ and $F_u = 14.4 \times .25 = 3.6 \text{ kips/inch} > 3.18 \text{ kips/inch}$ for weld. Therefore weld controls).

$$M_{ha} = (.3) \times (60 \text{ ksi}) \times (.25") \times (.7071) \times S = 3.18 \times 1435.36 = 4,564 \text{ in-kips}$$

$$F_{ha} = (.3) \times (60 \text{ ksi}) \times (.25") \times (.7071) \times (134.3") = 427 \text{ kips}$$

$$M_{va} = (.3) \times (60 \text{ ksi}) \times (.25") \times (.7071) \times J/R_{weld} = 3.18 \times 61361.8/21.375 = 9,128 \text{ in-kips}$$

Axial (vertical) forces and bending moments require that

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$$\frac{F_v}{F_{ha}} + \frac{(M_H + 2'' \times F_H)}{M_{ha}} \leq 1.0$$

(2" moment arm because weld is located 2" below top of flange)

Shear stress allowables require

$$\frac{F_H}{F_{ha}} + \frac{M_v}{M_{va}} \leq 1.0$$

and for combined bending and shear

$$\left(\frac{F_v}{F_{va}} + \frac{(M_H + 2 F_H)}{M_{ha}} \right)^2 + \left(\frac{F_H}{F_{ha}} + \frac{M_v}{M_{va}} \right)^2 \leq 1.0$$

or

$$\left(\frac{F_v}{427} + \frac{M_H}{4564} + \frac{F_H}{2282} \right)^2 + \left(\frac{F_H}{427} + \frac{M_v}{9128} \right)^2 \leq 1.0$$

For load combination involving seismic loads the allowables are increased by a factor of 1.33 and

$$\left(\frac{F_v}{568} + \frac{M_H}{6070} + \frac{F_H}{3035} \right)^2 + \left(\frac{F_H}{568} + \frac{M_v}{12140} \right)^2 \leq 1.0$$

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7.3 Allowable Horizontal Moments Resulting from Equipment.

The pump pit riser system has no mechanical attachment designed to resist M_H (i.e., overturning moments) and the only assured mechanism is associated with vertical preloads between the equipment and the mounting ring flange. An allowable overturning moment is conservatively estimated based on loss of compressive preload at the extreme fiber.

Assume the equipment is reacted on the flange with $r_i = 21"$ and $r_o = 25"$. (area is a circular annulus).

$$\text{Compressive preload} = \sigma_a = \frac{F_{DL}}{\pi(r_o^2 - r_i^2)}$$

where F_{DL} is a minimum value for the compressive load. It is essential to not overestimate F_{DL} because this leads to non-conservative overturning moment allowables. The moment which causes loss of preloads at the extreme fiber is

$$M = \frac{F_{DL}}{\pi(r_o^2 - r_i^2)} \times \frac{I}{C} = \frac{F_{DL}}{\pi(r_o^2 - r_i^2)} \times \frac{\pi(r_o^4 - r_i^4)}{4} \times \frac{1}{r_o}$$

$$M = \frac{F_{DL}}{4} \frac{(r_o^4 - r_i^4)}{(r_o^2 - r_i^2)} \times \frac{1}{r_o} = \frac{F_{DL} \times 196144}{4 \times 184 \times 25} = 10.66 F_{DL}$$

Note that

$$M \approx \frac{F_{DL} \pi 4 r_{avg}^3}{4 \pi 2 r_{avg} \delta r} \delta r \times \frac{1}{r_o} = \frac{F_{DL} r_{avg}^2}{2 r_o} \approx \frac{F_{DL} r_{avg}}{2}$$

and is relatively insensitive to the exact value of r_o or r_i

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Therefore $M_H \leq 10.66 F_{DL}$ and $F_{DL} \leq F_v$

7.4 Bearing Stress on Pump Pit Concrete

The concrete under the flange is not active in resisting the vertical resultant force applied at the flange. The riser structure resists these vertical loads. The same may be true for M_H , but conservatively it is assumed that the tensile side (of bending) loading is resisted by the riser structure and that the compressive side loads are transmitted into the concrete. As shown later the riser, acting alone, has greater capacity against moments than in combination with concrete where concrete crushing is to be prevented, so that the moment allowable can be calculated from the concrete crushing allowable.

Conservatively assume that the flange bears against an annulus of pit floor concrete with

$$D_o = 44.25", D_i = 39.75"$$

$$I = \frac{\pi}{64} (D_o^4 - D_i^4) = \frac{\pi}{64} (1337411)$$

$$I = 6.565 \times 10^4 \text{ in}^4$$

$$S = I/c = 3126 \text{ in}^3, C = 21"$$

$$f_c' = 3000 \text{ psi}$$

$$M_{\text{concrete allowable}} = \phi \times (.85) f_c' S = .7 \times .85 \times 3000 \times 3126$$

$$M_{\text{concrete allowable}} = 5.580 \times 10^3 \text{ in-kips}$$

Since factored loads are used in evaluating concrete per ACI 349-90 the allowable will be reduced to (1/1.7) so that the moment can be compared with other moments.

Calculation Sheet

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Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>THW / J. S. Shulman</i>	Date	7/7/94
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$(M_{\text{concrete allowable}}) / 1.7 = 3.282 \times 10^3 \text{ in-kips}$
 since $M_H \leq 10.66 F_{DL} \leq 10.66 F_v$ and

$$\frac{F_v}{427} + \frac{M_H}{4564} \leq 1.0,$$

$M_H < 2.281 \times 10^3 \text{ in-kips}$ (a rather conservative estimate given the interaction equation for fillet weld.)

Thus concrete compression crushing does not control: satisfying the fillet weld constraints means that the concrete under the flange is not damaged.

7.5 Riser Pipe Butt Weld and Pipe Structural Integrity

$R_i = 21"$, $R_o = 21.375"$, $t = .375"$

$F_y = 36 \text{ ksi}$

Pipe thickness = $3/8"$ above butt weld and $1/2"$ below butt weld

Weld is full penetration butt weld so base metal controls - use $3/8"$ thickness to estimate capacity in bending.

Area = 49.48 in^2 [from $2 \pi R_i t$]

Calculation Sheet

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$$M_{pipe} = \sigma_{allowable} * \frac{I}{C} = (.6 F_y) * \frac{I_{pipe}}{C}$$

$$C = 21.375 \text{ inches}$$

$$I = \frac{\pi}{64} [(42.75)^4 - (42)^4] = 11206 \text{ in}^4$$

$$\frac{I}{C} = 524 \text{ in}^3$$

$$M_{pipe} = (.6 * 36 \text{ ksi}) * 524 \text{ in}^3 = 11318 \text{ in-kips}$$

Thus loads applied at the flange are a modest demand on the riser pipe. However, the riser pipe also resists seismic moments and forces associated with the pit structure. Later it is shown this seismic moment is less than 3000 in-kips. Consequently the reserve is greater than 8000 in-kips and the fillet weld will control.

7.6 Riser Anchor Studs and Associated Dome Concrete

Per Dwg H-2-6448 there are 8 Nelson Anchor Studs located midway through the dome thickness (15" thick dome). These studs transfer vertical and torsional flange loads into the dome. The studs are 3/4" diameter by 7 5/16" long.

Shear allowable for stud:

$$V_u = \phi * \mu * A_s * F_y \text{ per ACI 349-90}$$

$$\phi = .85, \mu = .7 \text{ per ACI 349-90}$$

$$A_s = .44 \text{ in}^2, F_y = 50 \text{ ksi per Ref. 2.11 (Nelson Catalog)}$$

$$V_u |_{stud} = 13.09 \text{ kips}$$

$$(V_u |_{total}) / 1.7 \text{ (load factor)} = 13.09 * 8 \text{ studs} / 1.7 = 61.6 \text{ kips}$$

Vertical Moment Capacity is

Calculation Sheet

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Per stud: $M_{\text{stud}} = 13.09 \text{ kips} \times 21 \text{ inch radius} = 274.89 \text{ in-kips}$
 $M_{\text{Total}} = 274.89 \text{ in-kips/stud} \times 8 = 2199 \text{ in-kips}$
 $M_{\text{Total}}/1.7 \text{ (load factor)} = 1294$

Concrete allowable:

Typical section

Concrete failure mode is rupture to free edge.

Shear allowable for rupture failure mode (ACI 349-90)

$$V_u|_{\text{concrete}} = 4 \phi \sqrt{f'_c} \times \frac{\pi r^2}{2}$$

$$f'_c = 3 \text{ ksi} \quad \phi = .85$$

$$r = \text{radius of rupture cone} = 15''/2 = 7.5''$$

$$V_u|_{\text{concrete}} = (186.2) (88.35) = 16.4 \text{ kips}$$

16.4 kips > 13.09 kips so anchor studs control

Note that in torsion the potential failure modes are (1) shear failure of anchors ($> 21'' \times 61.6 = 1293.6 \text{ in-kips}$) or (2) shearing failure in concrete at a diameter coincident with end of anchor studs (radius = $21.37 + 7.62 \sim 29 \text{ in}$)

Calculation Sheet

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$$\text{shear allowable} = 2 \sqrt{3000} = 109.5 \text{ psi}$$

$$d = \text{height of cross section} \geq 15'' - 2 (\text{cover}) - .5 (\text{Stud radius})$$

$$\geq 12.5''$$

$$\text{Area} = d \times b$$

$$b = \text{length of area on which force } V_c \text{ acts}$$

$$\frac{V_c}{b} = \text{shear (force) allowable} / b$$

$$= 109.5 \times 12.5 = 1369 \text{ lbs/in}$$

$$V_u \leq \phi V_c, \phi = .85$$

$$V_u \leq 1160 \text{ lbs/in}$$

$$\text{Torsional moment} = 1160 \frac{\text{lbs}}{\text{in}} \times (2 \pi \times R) \times R \quad (R = 29)$$

$$\text{Torsional moment} = 6.1 \times 10^6 \text{ in-lb} = 6.1 \times 10^3 \text{ in-kips}$$

Other torsional moments along the load path clearly govern.

Interaction equation based on anchor studs for load combinations without seismic is

$$\left(\frac{F_v}{61.6} \right)^2 + \left(\frac{M_v}{1294} \right)^2 \leq 1.0$$

Calculation Sheet

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Load combinations including seismic effects are governed by

$$\left(\frac{F_v}{104}\right)^2 + \left(\frac{M_v}{2199}\right)^2 \leq 1.0$$

7.7 Pump Pit

7.7.1 Rationale for Seismic Loads

The pump pit self-weight (gravity) and vertical seismic loads are transferred directly into the tank dome and do not cause loads in the riser. However, for horizontal seismic inputs, interactions with the pit structure (assumed to respond quasistatically/rigidly) by the surrounding soil, the riser structure, and by the interface with the dome occur. The objective here is to conservatively evaluate the loads applied to the riser structure by the horizontal seismic environments and to identify the total moments and forces applied to the dome due to seismic motion.

Calculation Sheet

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From References 2.1, 2.2, and 2.3 the double shell tank dome response with the largest zero period acceleration (ZPA) was 0.27g's ZPA. The mass of the pit structure has been conservatively estimated (see Section 7.7.2) at 140 kips. The riser structure is firmly attached to the dome at the bottom of pit. The seismic motion of the pit results from the coupled effect of soil loads on the pit and loads transferred through the tank dome into the pit. Since the riser structure is very stiff it transmits dome motion (and resulting forces) into the pit structure. Short of performing a credible soil structure interaction simulation (which requires comprehensive knowledge of in-situ backfill conditions) there is no way of knowing how the loads are partitioned between the soil and the dome. The approach here was to evaluate the deflection (angular and transverse) of the riser which were found to be very small. Therefore, the soil resistance to pit structure overturning moments is considered unreliable and the full overturning moment is applied to the dome. Of course this is a conservative assumption since it overstates the seismic demand on the dome and reduces the reserve dome capacity for loads applied at the mounting ring.

7.7.2—Pump Pit-Mass Properties

$$\rho_{\text{concrete}} = 150 \text{ lb/ft}^3$$

See Figures 7.2 and 7.3 for pump pit layout.

Volume and weight of Pump Pit Reinforced Concrete:

Floor:	V_{Floor}	=	$14' \times 10' \times 1.5' = 210 \text{ ft}^3$ and 31.5 kips
Sidewall:	V_{SW}	=	$(14' + 8' + 14' + 8') \times 7.5' \times 1' = 330 \text{ ft}^3$ and 49.5 kips
Cover:	V_{cover}	=	$(12' \times 8' \times 2.5') = 240 \text{ ft}^3$ and 36 kips
Collar:	V_{collar}	=	$(16' + 10' + 16' + 10') \times 2' \times 1' = 104 \text{ ft}^3$ and 15.6 kips
Concrete Vol:	884 ft^3 132.6 kips		

The cover contains a lead shield

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$$\begin{aligned} \text{Lead Shield: } 14' \times 10' \times (.75/12)' &= 8.75 \text{ ft}^3 \\ P_{\text{lead}} &= (11.3 \times 62.4 \text{ lb/ft}^3) \text{ (Reference 2.4)} \\ \text{Wt (lead shield)} &= 8.75 \times 705.2 \text{ lb/ft}^3 = 6170 \text{ lbs.} \end{aligned}$$

$$\text{Wt (total)} = (132.6 + 6.17) \text{ kips} \sim 138.8 \text{ kips} < 140 \text{ kips}$$

The weight of the pit structure will conservatively be taken as 140 kips in subsequent calculations.

The centroid for the pit structure is determined as:

$$\begin{aligned} M_{\text{total}} \times \bar{Z} &= \Sigma M_i z_i \dots (z's \text{ from Figure 7.2}) \\ &= (31.5 \text{ kips}) (.75 \text{ ft}) + (49.5) (5.25 \text{ ft}) \\ &\quad + (36. \text{ kips}) (7.75 \text{ ft}) + (15.6 \text{ kips}) (8 \text{ ft}) \\ &\quad + (6.2 \text{ kips}) (9. \text{ ft}) \end{aligned}$$

$$\begin{aligned} M_{\text{total}} \times \bar{Z} &= 23.6 + 259.9 + 279 + 124.8 + 55.8 \\ &= 743.1 \text{ ft-kips} \end{aligned}$$

$$\bar{Z} = \frac{743 \text{ ft-kips}}{138.8 \text{ kips}} = 5.36 \text{ ft} = 64.3 \text{ inches}$$

(Conservatively use $Z = 66 \text{ inches}$) for .27g's the overturning moment is

$$M_h = 66 \text{ inches} \times 140 \text{ kips} \times (.27g's) = 2495 \text{ in-kips}$$

7.7.3 Effects of Mounting Ring Flange Loads on Pump Pit Structure

The design of the pump pit penetration precludes mounting rings loads significantly effecting the pit structure. This is because the mounting ring loads are applied directly on the riser system which is very stiff. One worst case examination of overturning moments was performed in Section 7.4. Here

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it was found that allowables for the flange to mounting ring fillet weld are less than very conservatively estimated concrete allowables (ACI 349-90). Thus the pump pit structure does not influence the final allowables for mounting ring loads.

7.8 Rationale for Evaluation of the AY102 Tank Dome

Demands on Tank Dome

The demands on the tank dome are accumulated from several sources (analyses):

- (a) gravity and seismic loads for basic tank (no pit structures) and soil interaction: (results are extracted from ADVENT Calc. 94009.2.1, Rev.0 for WHC Task Order 384096-005, Mod 3).
- (b) gravity, operational, and seismic loads associated with the mounting ring.
- (c) seismic loads transmitted from the pump pit structure to the dome.

Item (a) above (see Reference 2.5) involved modeling the AY102 tank for gravity loads. Figures 7.4 and 7.5 provide a general depiction of the computer model. Loads on the dome are extracted for the area around the pump pit penetration.

Item (b) is also derived from an existing computer model of DST domes. This model is 3-dimensional and was slightly modified to reflect the curvatures of the AY102 dome (Dwg. H-2-64310). Unit F_H , F_V and M_H loads were applied separately to determine forces and moments in the dome. Figure 7.6 shows the ANSYS (Reference 2.6) finite element mesh which features a stiff 21" diameter penetration. Review of this model's results found that

forces and moments drop rapidly as the distance from the penetration increases. Thus demand occurring from mounting ring applied loads is significant only local to the penetration.

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- the forces and moments in the circumferential direction are a minor (~0.3) fraction of meridional forces and moments. Consequently the reserve capacity in the circumferential direction is always large and meridional capacity controls.

Worst case seismic demands occur on the tank dome when the vertical tank acceleration is downward and reduces the effects of gravity loads. The vertical response spectra is derived from the horizontal by multiplying by 2/3. This yields 0.18g's assumed to be applied at the base mat. While it has been felt in the past (Reference 2.1) that the tank has only quasistatic vertical modes it is conservatively assumed here that dome accelerations are amplified to 0.36g's. The effect on the tank dome is that membrane compressive stress resultants are reduced which reduce the moment allowable and thus reduce the capacity.

As discussed earlier the lateral seismic forces and moments for pit structure motions are conservatively assumed to be transmitted via the riser structure. In Section 7.7.2, this was estimated as 2495 in-kips overturning moment and 37.8 kips horizontal shear. (Section 7.10 describes transforming the loads to the pump pit flange location.)

For the 3 categories of demands defined above, category (a) and (c) are determinable. Category (b) relates to the loads applied through the mounting ring (i.e., F_H , F_v , M_H , and M_v). The demands imposed by these loads must not exceed the capacity of any element, including the tank dome, along the load path. However, the dome imposes no restrictions on these loads if limits determined from the other elements are enveloped within the dome capacity. The approach herein is to make this check. If envelopment is not assured then an interaction equation associated with the limiting capacity of the dome is introduced.

Capacity of Tank Dome:

The capacity of the tank dome is determined utilizing the methodology documented in WHC-SD-W-320-ANAL-001 Vol. II Rev. 0, Section 6.0 (Reference 2.7). This approach was implemented using the following reinforced concrete section properties to assure a conservative (minimum) capacity (DWG H-2-64311, Reference 2.18).

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. L. L. L.</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. J. J. J.</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-23	Rev. No.	0

$$f'_c = 3000 \text{ psi}$$

$$f_y (\text{rebar}) = 60 \text{ ksi}$$

$$E_s = 28 \times 10^6 \text{ psi}$$

Height = 15"

Clearance = 2" over top bars; 1.5" under bottom bars
(clearances for the controlling meridional bars)

Circumferential

Bars = #6 spaced every 12"

Meridional

Bars = 50 #6 bars per 2π or 1 bar/ 11 inches

(Bar spacing is calculated at 87" radius where minimum spacing occurs)

#6 Bar Cross-

Section = .44 in²/bar

ϕ = .750 inch

1 bar/11 inches = .48 in²/ft

1 bar/12 inches = .44 in²/ft

Meridional Schematic

Circumferential Schematic

Figures 7.7 and 7.8 show plots of the axial load (i.e., compressive membrane stress resultant) and bending moment interaction

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Sadik</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. Shuler</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-24	Rev. No.	0

relationship for the meridional and circumferential directions. Attachment 1 presents a tabulation of input parameters and digital values from which the curves were generated. Note that the axial load on the plot is positive when the physical force in the concrete is compressive. The tank evaluations yield axial forces in the range $10 \text{ kips/ft} < P < 70 \text{ kips/ft}$. In this range the moment capacity is sensitive to the axial force. The moment is the controlling capacity and therefore the force must be determined such that the corresponding moment allowable is conservative. For all cases of relevance herein this occurs at the lower bound for the axial force.

7.9 Pump Pit Demand on Tank Dome for Gravity Load Case.

Table 7.1 is provided to facilitate determination of bounding dome demands arising from mounting ring applied loads. The first four columns are allowables (for loads acting one at a time) associated with other elements on the load path. The fifth column identifies the bounding allowable for each mounting ring load. Per ACI 349-90 the concrete is evaluated by applying a load factor of 1.7 (conservatively; for dead load the factor is really 1.4) to all gravity load case effects. This means that a load factor of 1.7 must be applied to the loads of column 5. The factored loads are tabulated in column 6. For the gravity load case (no seismic effects) the forces and moments in the dome result from combining the results of soil-tank model of Reference 2.5 (load factor of 1.7 is applied) with the bounding loads of column 6.

For the soil-tank interaction model the results at a distance of 30.49 inches from the dome centerline are (for 1.0g)

$$P = 36.8 \text{ kips/ft}$$

$$M = 37.77 \text{ in-kips/ft}$$

and with a 1.7 load factor

$$P = 62.56 \text{ kips/ft}$$

$$M = 64.21 \text{ in-kips/ft}$$

Since the philosophy of ACI 349-90 is to address the fact that in certain situations a lesser load may place greater demands on the structure, (or,

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. Saditz</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>[Signature]</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-25	Rev. No.	0

presumably, equivalently where capacities are increased by a greater load) a load factor of 0.9 is used on P. Thus the soil-tank interaction demands are

$$\begin{aligned} P &= .9 \times 36.8 \text{ kips/ft} = 33.1 \text{ kips/ft} \\ M &= .9 \times 37.7 = 34.0 \text{ in kips/ft} \end{aligned}$$

Reference 2.5 documents the computer calculation from which the forces and moments are extracted. The forces and moments are evaluated at $R = 30.49$ inches because the anchor studs and edge effects preclude validity of the interaction equation at a smaller radius. The anchor studs and adjacent concrete (i.e., region where interaction equation does not apply) were evaluated in Section 7.6. Reference 2.5 contains the ANSYS input and output files associated with this calculation. Table 7.1 shows that flange loads (as developed in Section 7.10) can potentially reduce P by up to 8.54 kips (to a value of 24.56 kips). The data in Reference 2.5 shows

$$M_{\text{capacity}}^{\text{dome}} (P = 24.56 \text{ kips/ft}) \text{ leads to } 435 \text{ in-kips/ft (Figure 7.7)}$$

Thus the reserve available in the dome is

$$M_{\text{reserve}}^{\text{dome}} = (435 - 34.0) \text{ in-kips/ft} = 401 \text{ in-kips/ft}$$

Table 7.1 shows that several other elements must fail prior to exceeding the capacity of the dome under worst case assumptions (bounding moment in the dome is 368. in-kips). Therefore the requirements on mounting ring loads contain no limitations arising from the dome structure.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Sudik</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>[Signature]</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-26	Rev. No.	0

7.10 Pump Pit Tank Dome Demand for Seismic Load Case

Tables 7.2 and 7.3 are provided to facilitate determination of bounding dome demands arising from loads applied at the pump pit mounting ring for the seismic load case (D+L+SSE). The first four columns are allowables for singly acting mounting ring loads associated with elements on the riser structure. These allowables are governed by Reference 2.8 (AISC) and have been increased by 1.33 for the seismic case. The fifth column identifies the component and bounding allowable for each mounting ring load. Of course, when more than one such load is acting an interaction equation must be satisfied. Since the load factors are 1.0 for this load case the effects of the loads in column five on P and M are determined and presented in columns 6 and 7. The total forces and moments in the dome result from combining the results of the soil-tank model (Reference 2.5), worst case seismic effects related to the pit structure, and the bounding loads of column 5 in Table 7.2.

First it is necessary to determine the minimum possible value for P (compressive force in dome)

$$\begin{aligned} P_1 &= 36.8 \text{ kips/ft (from soil-tank interaction with 1 g)} \\ P_2 &= \text{gravity + vertical seismic} = (.64) (36.8 \text{ kips}) = 23.55 \text{ kips/ft} \end{aligned}$$

Effects which can reduce P are due to F_H and M_H applied at the flange. These forces act in arbitrary directions and cause tensile dome forces over some portion of the dome. Therefore their bounding values are used to reduce P.

From Table 7.2

$$\begin{aligned} P_3 &= \text{Contribution due to } F_H = 6.00 \text{ kips/ft} \\ P_4 &= \text{Contribution due to } M_H = .88 \text{ kips/ft} \end{aligned}$$

Pit structure seismic demands are transformed to the mounting ring location as follows:

- CG of pit structure is conservatively taken as 66 inches above dome's top surface and therefore 73.5" from dome midsurface.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. Sadik</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. Shulman</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-27	Rev. No.	0

- CG location relative to the flange is 49.5 inches (conservatively)

- flange horizontal force due to pit structure seismic demands

$$F_{horizontal}^{seismic} = 0.27g's \times 140 \text{ kips} = 37.8 \text{ kips}$$

- flange horizontal moment due to pit structure seismic demands

$$M_{horizontal}^{seismic} = 0.27g's \times 140 \text{ kips} \times 49.5 \text{ inches} = 1870 \text{ in-kips}$$

The pit structure seismic demands on the dome are bounded by

$$M_{horizontal}^{Seismic} (MR \text{ location}) = 1870 \text{ in-kips (causes } P_5)$$

$$F_{horizontal}^{Seismic} (MR \text{ location}) = 37.8 \text{ kips (causes } P_6)$$

$$P_5 = \text{contribution from } M_h^S = 1.47 \text{ kips/ft}$$

$$P_6 = \text{contribution from } F_h^S = 3.7 \text{ kips/ft}$$

$$P_7 = P_3 + P_4 + P_5 + P_6 = 12.05 \text{ kips/ft}$$

$$\text{Minimum net compressive dome force} = P_2 - P_7 = 11.50 \text{ kips/ft}$$

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. J. S. L. K.</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. J. S. L. K.</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-28	Rev. No.	0

$$M_{capacity}^{dome} (P = 11.5 \text{ kips/ft}) > 370 \text{ in-kips (conservative, but ok)}$$

The moment demands on the dome are (see Table 7.2)

$$M_2 = 345.0 \text{ in-kips/ft (MR loads)}$$

$$M_3 = \text{contribution from } M_h^S = 106.2 \text{ in-kips/ft}$$

$$M_4 = \text{contribution from } F_h^S = 49.28 \text{ in-kips/ft}$$

$$M_1 = \text{contribution from gravity and seismic} = .64 \times 37.77 = 24.2 \text{ in-kips/ft}$$

$$\text{Maximum total moment demand} = 524.7 \text{ in-kips/ft} > 380 \text{ in-kips/ft}$$

Since the maximum dome demand can exceed capability, restrictions must be placed on the MR loads. The effects from seismic and gravity are

$$\Sigma M = 106.2 + 49.28 + 37.77 (.64) = 179.7$$

The minimum moment reserve is

$$370 \text{ in-kips/ft} - 179.7 \text{ in-kips/ft} = 190.3 \text{ in-kips/ft}$$

From Table 7.3 the requirements on the MR loads are

$$1.33 F_h + 1.905 F_v + .057 M_h < 190.3 \text{ in-kips/ft}$$

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	TNW	Date	7/9/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	S. L. Lick	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-29	Rev. No.	0

$$i := 0..2698 \quad MV1_i := i$$

$$j := 0..2884 \quad MV2_j := j$$

$$k := 0..2668 \quad MV3_k := k$$

$$FH1_i := 52 \cdot \left[\left[1 - \left(\frac{MV1_i}{2885} \right)^{2.5} \right] - \frac{MV1_i}{7625} \right] \quad \text{Bottom of Trunnion Guide Base}$$

$$FH2_j := 46 \cdot \left[\left[1 - \left(\frac{MV2_j}{2929} \right)^{2.5} \right] - \frac{MV2_j}{16273} \right] \quad \text{Top of Trunnion Guide Base}$$

$$FH3_k := 46 \cdot \left[\left[1 - \left(\frac{MV3_k}{2750} \right)^{2.5} \right] - \frac{MV3_k}{11000} \right] \quad \text{Enveloping Equation}$$

FIGURE 7.1. Trunnion Guide Weld Interaction Equations
(FH (kips) vs. MV (in-kips))

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. L. L. R.</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. Schuler</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-31	Rev. No.	0

Figure 7.3. Pit Structure Overview

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. S. d. k.</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. J. Shulman</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-32	Rev. No.	0

Figure 7.4
OVERALL SOIL-TANK INTERACTION MODEL
(Axisymmetric)

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>L. J. Lile</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. S. Shulman</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-33	Rev. No.	0

Figure 7.5. Tank Portion of Soil-Tank Model

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>L. Scudic</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>W. H. Den</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-34	Rev. No.	0

ANSYS-PC 4.4A1
MAY 25 1994
13:04:17
PLOT NO. 5
PREP7 NODES
TDIS

XU = 1
YU = 1
ZU = 1
DIST=775.025
ZF =549.788
UUP =Z

Figure 7.6. Tank Dome Geometry

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. G. L. K.</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>4P Day</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-35	Rev. No.	0

FIGURE 7.7

M-P Interaction Diagram for AY-102 Dome

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Adik</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>4P Day</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	7-36	Rev. No.	0

FIGURE 7.8

M-P Interaction Diagram for AY-102 Dome

—●— Circumf. (Tension bottom) —○— Circumf. (Tension top)

Calculation Sheet

Project	Westinghouse Hartford Company Structural Analysis Engineering Support	Prepared By:	<i>A. A. Lick</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>Shulman</i>	Date	7/7/94
System		Job No.		File No.	
Client Calc. No.		Sheet No.	7-37	Rev. No.	

Table 7.1: Pump Pit Flange Loads and Associated Dome Forces/Moments:
Case 1 - Gravity Loads 1.7 (D+L)

Load/ Component	Column 1 Fillet Weld	Column 2 Trunnion Fixture Weld	Column 3 Overturning Moment	Column 4 Riser Studs	Column 5 Min. Load Value for all Components	Column 6 Factored (i.e., 1.7) Load	Column 7 Dome Membrane Stress Resultant P (lbs/ft)	Column 8 Dome Bending Stress Resultant M
F_h (kips)	≤ 419	≤ 46	N/A	N/A	46	78.2	7664 lb/ft	104,267 in-lb/ft
F_v (kips)	≤ 427	N/A	Acts Downward	≤ 61.6	61.6	104	20370 lb/ft	200,050 in-lb/ft
M_h (in-kips)	≤ 4564	N/A	$M_h \leq 10.66 F_v$	N/A	$*10.66 F_v =$ 657	1116	880 lb/ft	63,590 in-lb/ft
M_v (in-kips)	≤ 9128	≤ 2668	N/A	≤ 1294	1294	2199		N/A

$\Sigma = 367,907$ in-lbs/ft

*lesser of 4565, or $10.66 F_v$ but F_v is bounded by 61.6 kips. $\therefore 10.66 F_v = 10.66 \times 61.6 = 657$ controls.

Calculation Sheet

Project *Westing House Hartford Company*
 Structure *Analysis Engineering Support*
 Subject *Mounting Ring Allowable Loads for the D-45*
241-AF-102 Pump Pit and Slicing D-45
 System
 Prepared By: *A. Duck* Date *7/7/94*
 Reviewed By: *C. Johnson* Date *7/7/94*
 Job No. File No.

Client Calc. No.

Sheet No. *7-38* Rev. No.

Table 7.2: Pump Pit Flange Loads and Associated Dome Forces/Moments:
Case 2 - with Seismic

Load/ Component	Column 1 Fillet Weld	Column 2 Trunnion Fixture Weld	Column 3 Overturning Moment	Column 4 Riser Studs	Column 5 Min. Load Value for all Components	Column 6 Dome Membrane Stress Resultant P(lbs/ft)	Column 7 Dome Bending Stress Resultant M
F_h (kips)	$\leq 557.$	≤ 61.2	N/A	N/A	61.2	5997 lb/ft	81,409 in-lb/ft
F_v (kips)	$\leq 568.$	N/A	Acts Downward	≤ 104	104	20,370 lb/ft	200,050 in-lb/ft
M_h (in-kips)	$\leq 6070.$	N/A	$M_h \leq 10.66 F_v$	N/A	$10.66 F_v = 1116$	880 lb/ft	63,590 in-lb/ft
M_v (in-kips)	$\leq 12140.$	$\leq 2220.$	N/A	≤ 2199	2199	N/A	N/A
$M_h^*/\text{Flange} = 1870 \text{ in-kips}$						1470 lb/ft	106,230 in-lb/ft
$F_h^*/\text{Flange} = 37.8 \text{ kips}$						3710 lb/ft	49,280 in-lb/ft

$$\Sigma = 500,559 \text{ in-lb/ft}$$

Calculation Sheet

Project *Westinghouse Hanford Company*
 Structural Analysis Engineering Support
 Subject *Mounting Ring Allowable Loads for the*
241-W-102 Pump Pit and Swicing Pits
 System
 Prepared By: *d. Leck* Date *7/7/94*
 Reviewed By: *J. McDonald* Date *7/7/94*
 Job No. File No.

Client Calc. No. Sheet No. *7-39* Rev. No.

Table 7.3: Relationships Between Flange Resolved Loads and Dome Forces/Moments for Pump Pit

Load	Meridional Maximum Dome Force (lb/ft)	Meridional Maximum Dome Moment (in-lb/ft)	Circumferential Maximum Dome Force (lb/ft)	Circumferential Maximum Dome Moment (in-lb/ft)
$F_h = 1 \text{ kip}$	98 lb/ft	1332 in-lb/ft	14 lb/ft	390 in-lb/ft
$F_v = 1 \text{ kip}$	194 lb/ft	1905 in-lb/ft	61 lb/ft	605 in-lb/ft
$M_h = 1 \text{ in-kip}$	0.785 lb/ft	57 in-lb/ft	0.55 lb/ft	16.7 in-lb/ft

Scaling the tabulated meridional and circumferential forces and moments to the appropriate values for F_h , F_v , and M_h and summing the respective/each quantity yields the bounding values for the dome forces and moments attributable to loads applied at pump pit riser flange. From the values for circumferential forces and moments above and the dome circumferential capacity curve it is clear that the dome will/can not be challenged by demands from circumferential parameters.

Attachment 3 contains the ANSYS model and output from which the results tabulated above are drawn.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. S. Lick</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>TW</i>	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	8-1	Rev. No.	0

8.0 CALCULATIONS FOR SLUICING PIT COMPONENTS

8.1 Sluicing Pit Mounting Ring Flange Studs

Capacity for single stud: (Dwg H-2-64316, Reference 2.16)

$$A_{\text{nominal}} = 1.23 \text{ in}^2$$

$$F_y = 100 \text{ ksi minimum}$$

Since F_u is not readily available, conservatively assume that $F_u = F_y$
= 100 ksi

From AISC 8th (Table I-B and I-D, Reference 2.8)

$$F_{ta} = \text{tension allowable for stud} = .33 F_u \times A_{\text{nominal}} = 40.6 \text{ kips}$$

$$F_{sa} = \text{shear allowable for stud} = .17 F_u \times A_{\text{nominal}} = 20.9 \text{ kips}$$

For each stud the interaction equation is

$$\left(\frac{F_t}{F_{ta}} \right)^2 + \left(\frac{F_s}{F_{sa}} \right)^2 \leq 1.0$$

Demands on Flange Studs:

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. L. Lile</i>	Date	<i>7/8/94</i>
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>TNW</i>	Date	<i>7/9/94</i>
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	8-2	Rev. No.	0

It is assumed that some form of adaptor plate will be mated with the flange studs such that the horizontal force and vertical moment will be uniformly distributed among the 4 studs.

As with the pump pit the resultant vertical load on the mounting ring will be directed downward. Thus some resistance to overturning is provided by the compressive preload between the flange and the adaptor to which equipment is mounted. This contribution is neglected in view of the potential overturning moment carrying capacity of the studs. Overturning moments resolved to the flange centerline are resisted (conservatively) by stud tensile loads. A worst case orientation and moment arm are assumed.

- M_H as shown
- Moment arm = $D/2 = 38.5"/2 = 19.25"$
- A "prying factor" of 1.5 for conservatism.

Then

$$[(F_H/4 + M_V / (4 (19.25)))] / F_{sa} \leq 1.0 \quad \text{for shear in studs}$$

$$\text{and } [1.5 M_H / 19.25] / F_{ta} \leq 1.0$$

$$\text{and } [(F_H/4 + M_V/77) / 20.9]^2 + [1.5 (M_H / 19.25) / 40.6]^2 \leq 1.0$$

$$\left[\frac{F_H}{83.6} + \frac{M_V}{1609} \right]^2 + \left[\frac{M_H}{521} \right]^2 \leq 1.0 \quad (\text{for seismic load combinations})$$

increase allowable by 1.33 factor

$$\left[\frac{F_H}{111} + \frac{M_V}{2140} \right]^2 + \left[\frac{M_H}{693} \right]^2 \leq 1.0 \quad (\text{for seismic load combinations})$$

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Sedik</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>THW</i>	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	8-3	Rev. No.	0

Evaluate stress to pull studs from flange: Flange is ASTM 36 (Dwg H-2-64315)

From Shigley & Mischke ("Machine Design", Reference 2.9)

$$T = \frac{3}{4} \tau_m * A = \frac{3}{4} \tau_m \pi D_s l_s$$

for 1½" diameter 12UNF and 1.375" long

L_s = shear length = (7/8) x 1.375 = 1.20

D_s = minor diameter = 1.40" on internal thread

(Mark's Handbook, Reference 2.10)

τ_m = allowable shear stress in weaker member - i.e., plate: .4 F_y

τ_m = 14.4 ksi

$T = 3/4 \times 14.4 \times 3.14 \times 1.4 \times 1.2 = 56.9$ kips (non-seismic combinations)

$T = 75.7$ kips (seismic combinations)

$T > F_{ta} = 40.6$ kips

Therefore, flange does not control.

8.2 Mounting Ring Flange to Pipe Weld

¼" fillet weld, 34.75" ϕ pipe

E60 electrode is assumed

Weld Parameters

$\phi = 34.75$ inches

$A = 109.17$ inches

$S = 948.4$ in²

$J = 2 \pi r^3 = 32957$ in³

t = throat dimension = .25 x .7071 = .1768 inches

Independent allowables calculated at the weld elevation for 60 ksi yield strength weld rod.

$F_{va} = (.3) \times (60 \text{ ksi}) \times .1768 \times 109.17 = 347$ kips

Calculation Sheet

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$$M_{ha} = (.30 \times (60 \text{ ksi}) \times .1768 \text{ in} \times 948.4 \text{ in}^2 = 3018 \text{ in-kips}$$

$$F_{ha} = F_{va} = 347 \text{ kips}$$

$$M_{va} = (.3) \times (60 \text{ ksi}) \times .1768 \text{ in} \times \frac{32957 \text{ in}^3}{17.375 \text{ in}} = 6037 \text{ in-kips}$$

Bending and axial (vertical) forces require that

$$\frac{F_V}{F_{va}} + \frac{M_H + 2'' \times F_H}{M_{ha}} \leq 1.0$$

(2" moment arm because weld is located 2" below top of flange)

Calculation Sheet

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Shear and Torsion

$$\frac{F_H}{F_{ha}} + \frac{M_V}{M_{va}} \leq 1.0$$

Combined interaction equation is

$$\left(\frac{F_V}{F_{va}} + \frac{M_H + 2'' F_H}{M_{ha}} \right)^2 + \left(\frac{F_H}{F_{ha}} + \frac{M_V}{M_{va}} \right)^2 \leq 1.0$$

$$\left(\frac{F_V}{347} + \frac{M_H}{3018} + \frac{F_H}{1509} \right)^2 + \left(\frac{F_H}{347} + \frac{M_V}{6037} \right)^2 \leq 1.0$$

For load combinations involving seismic loads the allowables are increased by a factor of 1.33 and

$$\left(\frac{F_V}{462} + \frac{M_H}{4013} + \frac{F_H}{2006} \right)^2 + \left(\frac{F_H}{462} + \frac{M_V}{8029} \right)^2 \leq 1$$

Calculation Sheet

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8.3 Bearing Stress on Sluicing Pit Concrete

Flange footprint on concrete

$$A_{\text{bearing}} = \pi (r_o^2 - r_i^2) = \pi(462.2 - 370)$$

$$A_{\text{bearing}} = 288.04 \text{ in}^2$$

Analysis Assumptions:

- Resultant compressive force is reacted through the riser pipe. Concrete under the flange experiences compression only when a moment acts on flange.
- concrete acts only in compression
- for bending, required tensile stresses are reacted directly into riser pipe.
- check allowables associated with concrete crushing and mounting ring pipe wall.

These assumptions provide a conservative estimate of the bearing stresses exerted on the sluicing pit floor. The actual stresses will be considerably lower. Similar to approach on pump pit:

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$$\frac{D_o + D_i}{2} = 38$$

$$D_o - D_i = 4.5$$

$$\therefore D_o = 40.25$$

$$D_i = 35.75$$

$$I = \pi/64 (D_o^4 - D_i^4)$$

$$D_o = 40.25" \quad D_i = 35.75"$$

$$I = 48,653 \text{ in}^4$$

$$S = 2417 \text{ in}^3$$

$$c = 20.125 \text{ in}$$

$$\phi = .7$$

Calculation Sheet

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$$M_{\text{allowable}} = \phi (.85 f_c') S = 4.3 \times 10^3 \text{ in-kips}$$

$$\text{With 1.7 load factor, } M_H = (4.3 \times 10^3 / 1.7) \\ = 2.53 \times 10^3 \text{ in-kips}$$

Checking the pipe

$$M_{\text{pipe}} = \sigma \frac{I}{C} = (.6 F_y) \times \frac{I}{17''}$$

$$I = \left(\frac{\pi}{64} \times (D_o^4 - D_i^4) \right)$$

$$I = \left(\frac{\pi}{64} \times 1.22 \times 10^5 \right) = 5988 \text{ in}^4$$

$$M_{\text{pipe}} = .6 \times 36000 \times 352 = 7.6 \times 10^6 \text{ lb-in}$$

$$= 7.6 \times 10^3 \text{ in-kips}$$

Thus concrete crushing under the flange and the moment capability of the riser pipe both significantly exceed the M_h capacity of the studs in 8.1, and therefore are not controlling.

8.4 Riser Pipe Structural Integrity

In Section 8.3 it was shown that for the riser pipe

$$M_{\text{ha}} (\text{moment allowable}) = 7.6 \times 10^3 \text{ in-kips}$$

Also

$$A = 2 \pi R t = 2 \pi (17.0'') (.375'') = 40 \text{ in}^2$$

$$F_{\text{va}} = .6 F_y \times A = 864 \text{ kips}$$

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(For short pipe length, 40 inches, with lateral support on outside diameter: allowable based on compressive yielding of base metal.)

The butt weld connecting the mounting ring body to the riser pipe is full penetration and allowables for the base metal govern (Reference 2.8).

Thus the riser pipe introduces no limitations on loads applied through the mounting ring.

8.5 Riser Anchor Studs and Associated Dome Concrete

Vertical force F_v and vertical moment M_v act on the studs.

Studs - per Dwg H-2-64448 and Reference 2.11 (Nelson Anchor Stud Catalog)

$$F_y = 50 \text{ ksi}$$

$$A_s = .44 \text{ in}^2$$

$$\phi = .85$$

$$\mu = .7 \text{ (ACI 349-90)}$$

$$V_u |_{\text{stud}} = \phi \times \mu \times A_s \times F_y = 13.09 \text{ kips/stud}$$

$$V_u |_{\text{total}} = 13.09 \text{ kips/stud} \times 8 \text{ studs} = 104.7 \text{ kips}$$

with load factor of 1.7

$$V_u / 1.7 = 61.6 \text{ kips}$$

Concrete capacity for Vertical Force and Vertical Moment:

The failure mode in concrete for shear loads is tensile rupture at the free edge. The distance from the dome mid-plane to free edge is 7.5" but the

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rupture failure 1/2 cone

one-half cone shaped rupture surfaces for each stud overlap. Credit is taken for the non-overlapping portions of the failure surfaces. Conservatively this is estimated as

arc length from point "a" to point "b"
 $2 \pi \times 17.375" / 8 = 13.64$ inches

chord a-b = $2 \times \sin 22.5 \times 17.375$
 chord a-b = 13.30 inches

Projected area as shown provides rupture load.

$$A_1 = \frac{1}{2} (3.52) (6.65) = 11.7 \text{ in}^2$$

$$\text{angle } A_1 = 28^\circ$$

$$A_2 = \pi (7.5)^2 \times 62.0/360 = 30.43$$

$$\text{angle } A_2 = 62^\circ$$

$$A_t = 2 (A_1 + A_2) = 84.2 \text{ in}^2$$

Per Reference 2.1) (ACI 349-90)

$$V_{u|concrete} = 4\phi \sqrt{f'_c} \times A_t = 186.2 \times 84.2 = 15.68 \text{ kips}$$

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(for $f'_c = 3000$ psi, $\phi = .85$, $A = 84.2$ in²)
 $V_u = 8$ studs $\times$ 15.68 kips/stud = 125.4 kips

Thus the concrete has 119.8% (125.4/104.7) of the steel stud capacity in shear. However the ACI 349-90 ductility requirement for these anchor studs ($F_u = 50$ ksi) requires the concrete to have greater than 20% margin. While very close to being satisfied, this requirement is formally not met.

Torsion (i.e., M_v) does not contribute to the tensile rupture failure mode. Torsional failure could occur at the radius corresponding with the ends of the studs ($R > 24$ inches). The associated M_v is derived from:

$$f_s = \text{shear allowable} = 2 \sqrt{3000} = 109.5 \text{ psi}$$

$$d \approx 12.5 \text{ inches (depth of cross section in shear)}$$

$$\frac{V_c}{b} = 109.5 \times 12.5 = 1369 \text{ lbs/in}$$

$$V_u \leq \phi \times V_c, \phi = .85$$

$$\therefore \frac{V_u}{b} \leq 1160 \text{ lbs/in}$$

$$b = 2\pi R = 150.7 \text{ inches}$$

$$V_u > 174 \text{ kips}$$

$$M_{va} = 174 \text{ kips} \times 24 \text{ inches} = 4176 \text{ in-kips}$$

(Torsion allowable for concrete)

The singly acting allowable torsional moment for steel studs is 1780 in-kips. Therefore, the studs control all allowables.

The interaction equation without seismic loads is

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$$\left(\frac{F_v}{61.6} \right)^2 + \left(\frac{M_v}{1047} \right)^2 \leq 1.0$$

With seismic
loads

$$\left(\frac{F_v}{104} \right)^2 + \left(\frac{M_v}{1780} \right)^2 \leq 1.0$$

8.6 Sluicing Pit Structure

8.6.1 Rationale for Seismic Loads

The sluicing pit self-weight (gravity) and vertical seismic loads are transmitted directly into the tank dome causing negligible loads in the riser structure. However for horizontal seismic inputs, the pit structure (assumed to respond quasistatically/rigidly) is acted upon by the surrounding soil, the riser structure, and the interface with the dome. The objective in this subsection is to conservatively evaluate the loads on the riser structure due to horizontal seismic inputs and to identify the total moments and forces applied to the dome due to pit seismic motion.

From References 2.1, 2.2, and 2.3 the double shell tank dome response with the largest zero period acceleration (ZPA) was in Reference 2.1. This ZPA value was 0.27 g's. The mass of the sluicing pit structure has been conservatively estimated (see Section 8.6.2) at 120 kips. The riser structure is firmly attached to the dome at the bottom of pit/ /top of dome location. The seismic motion of the pit results from combined effects of soil pressures on the pit side walls and loads applied through the tank dome into the pit. The riser structure is the main element of the load path from the dome into the pit structure. Short of performing a soil-structure interaction simulation there is no way of knowing how the loads are partitioned between the soil and the dome. The approach herein was to evaluate the deflections (angular tilt

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and transverse deflection) of the riser. These were found to be very small. Given the potential small relative displacement between pit and soil, the soil resistance to pit structure overturning moments is not considered reliable and the full overturning moment is applied to the dome. Of course, this is a conservative assumption since it overstates the seismic demand on the dome and reduces reserve dome capacity available for loads applied at the mounting ring.

8.6.2 Sluicing Pit Mass Properties

See Dwg H-2-94036

Weight of sluicing pit will be conservatively estimated.

$$V_1 = l \times w \times h = 146'' \times 122'' \times 11''$$

$$V_1 = 196,000 \text{ in}^3 = 113.4 \text{ ft}^3$$

$$V_2 = l \times w \times h$$

$$l = 2(12.2' + 8') = 40.4 \text{ ft}$$

$$w = 1.1 \text{ ft} \quad h = 2'$$

$$V_2 = 88.9 \text{ ft}^3$$

$$V_3 = 8' \times 10' \times 2' = 160 \text{ ft}^3$$

$$V_4 = l \times w \times h = (10' + 6' + 10' + 6') \times 1' \times 7' = 224 \text{ ft}^3$$

$$V_5 = l \times w \times h = 10' \times 8' \times (1.25 + 3.60/2) = 194 \text{ ft}^3$$

$$\Sigma V_i = 780.3 \text{ ft}^3$$

Calculation Sheet

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$$P_{\text{concrete}} = 150 \text{ lb/ft}^3$$

Pit wt = 117,100 lbs: use Wt = 120 kips conservatively

Displaced soil is equal to pit enclosure below 679' elevation

$$V_{DS} = V_5 + 8' \times 10' \times 7' + 146'' \times 122'' \times 12''$$

$$V_{DS} = 194 \text{ ft}^3 + 560 \text{ ft}^3 + 123.7 \text{ ft}^3 = 877.7 \text{ ft}^3$$

Weight displaced soil = 105.3 kips (120 pcf soil assumed)

Difference between sluicing pit weight and displaced soil Wt (add) = 117.1 - 105.3 = 11.8 kips

(This additional weight increases the dome membrane compressive force in some distributed fashion about the penetration. In so doing the moment capacity is increased somewhat. The strengthening contribution is neglected in view of uncertainty regarding the distribution and maintaining conservative estimates of dome capacity.)

Sluicing Pit Centroid (Z)

$$M_{\text{total}} \times Z = \sum M_i z_i$$

E_o : Elevation of riser centerline intersection (4 ft from left side of pit) with dome mid surface - This point is used as origin for z.

$$E_o = (669.75' - 667.4') \times .4 + 667.4' - (7.5/12) = 667.7'$$

$$V_1 = 113.4 \text{ ft}^3$$

$$E_1 = 680.5'$$

$$W_1 = 17.01 \text{ kips}$$

$$V_2 = 88.9 \text{ ft}^3$$

$$E_2 = 679.0'$$

$$W_2 = 13.34 \text{ kips}$$

$$V_3 = 160.0 \text{ ft}^3$$

$$E_3 = 679.0'$$

$$W_3 = 24.0 \text{ kips}$$

$$V_4 = 679.0 \text{ ft}^3$$

$$E_4 = 674.5'$$

$$W_4 = 33.6 \text{ kips}$$

$$V_5^a = 10' \times 8' \times (1.25') = 100 \text{ ft}^3$$

$$E_5^a = 670.375'$$

$$W_5^a = 15.0 \text{ kips}$$

$$V_5^b = 10' \times 8' \times (2.35/2) = 94 \text{ ft}^3$$

$$E_5^b = 668.97'$$

$$W_5^b = 14.1 \text{ kips}$$

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$$M_T \times z = \sum M_i z_i = (17.01) (680.5 - 667.7) + (13.34) (679.0 - 667.7) \\ + (24.0) (679. - 667.7) + (33.6) (674.5 - 667.7) \\ + (150.0) (670.375 - 667.7) + (14.1) (668.97 - 667.7)$$

$$M_T \times z = 217.73 + 150.74 + 271.2 + 228.48 + 40.13 + 17.91 = 926.2$$

$$z = 926.2 \text{ ft/kips} / 117.1 \text{ kips} = 7.91 \text{ ft} = 94.9 \text{ inches.}$$

Seismic overturning moment

$$M_h^s = (94.9 \text{ inches}) \times 120 \text{ kips} \times .27 \text{ g's} = 3075 \text{ in-kips}$$

$$F_h^s = 120 \text{ kips} \times .27 \text{ g's} = 32.4 \text{ kips}$$

8.7 Rationale for Evaluation of the AY102 Tank Dome

Demands on Tank Dome

The demands on the tank dome are accumulated from several sources (analyses):

(a) gravity and seismic loads for basic tank (no pit structures) and soil interaction: (results are extracted from ADVENT Calc. 94009.2.1, Rev.0 for WHC Task Order 384096-005, Mod 3).

(b) gravity, operational, and seismic loads associated with the mounting ring.

(c) The seismic loads transmitted from the pump pit structure to the dome.

Item (a) above (see Reference 2.5) involved modeling the AY102 tank for gravity loads. Figure 7.4 is a general depiction of the computer model. Dome forces and moments are extracted for the area around the sluicing pit penetration.

Item (b) is also derived from an existing computer model of DST domes. This model is 3-dimensional and was slightly modified to reflect the curvatures

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of the AY102 dome (Dwg. H-2-64310). Unit loads F_H , F_v and M_H were applied separately to determine forces and moments in the dome. Figure 7.6 shows the ANSYS (Reference 2.6) finite element mesh which features a stiff 21" diameter penetration. Review of the results of this model found that

- forces and moments drop rapidly as the distance from the penetration increases. Thus demand existing from mounting ring applied loads is significant only local to the penetration.
- the forces and moments in the circumferential direction are a minor (~ 0.3) fraction of meridional forces and moments. Consequently the reserve capacity in the circumferential direction is always large and meridional capacity always controls.

Worst case seismic demands occur on the tank dome when the vertical tank acceleration is downward and reduces the effects of gravity loads. The vertical response spectra is derived from the horizontal by multiplying by $2/3$. This yields $0.18g$'s assumed to be applied at the base mat. While it has been felt in the past (Reference 2.1) that the tank has only quasistatic vertical modes it is conservatively assumed here that dome acceleration is amplified to $0.36g$'s. The effect on the tank dome is that membrane compressive stress resultants are reduced which reduce the moment allowable and thus reduce the capacity.

As discussed earlier the lateral seismic forces and moments for pit structure motions are conservatively assumed to be transmitted via the riser structure. In Section 8.6.2, this was estimated as 3075 in-kips overturning moment and 32.4 kips horizontal shear.

Of the 3 demand categories defined above, category (a) and (c) are determinable. Category (b) are the loads applied through the mounting ring (i.e., F_H , F_v , M_v and M_H). The demands imposed by these combined loads must not exceed the capacity of any element, including the tank dome, along the load path. However the dome can impose no restrictions on these loads if limits determined from the other elements are enveloped within the dome capacity. The approach herein is to make this check. If envelopment is not assured then an allowable associated with the dome is introduced.

Calculation Sheet

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Capacity of Tank Dome:

The capacity of the tank dome is determined utilizing the methodology documented in WHC-SD-W-320-ANAL-001 Vol. II Rev. 0, Section 6.0 (Reference 2.7). This approach was implemented using the following reinforced concrete section properties to assure a conservative (minimum) capacity (DWG H-2-64311, Reference 2.18).

The section properties near the dome crown provide a conservative estimate for the sluicing pit location and are used herein.

$$f'_c = 3000 \text{ psi}$$

$$f_y (\text{rebar}) = 60 \text{ ksi}$$

$$E_s = 28 \times 10^6 \text{ psi}$$

Height = 15"
Clearance = 2" over top bars; 1.5" under bottom bars

Circumferential
Bars = #6 spaced every 12"
Meridional
Bars = 50 #6 bars per 2π or 1 bar/ 11 inches
#6 Bar Cross-
Section = .44 in²/bar
 ϕ = .750 inch
1 bar/11 inches = .48 in²/ft
1 bar/12 inches = .44 in²/ft

Calculation Sheet

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Meridional Schematic Circumferential Schematic

Figures 7.2 and 7.3 show plots of the axial load (i.e., compressive membrane stress resultant) and bending moment interaction relationship for the meridional and circumferential directions. Attachment 1 presents a tabulation of input parameters and digital values from which the curves were generated. Note that the axial load on the plot is positive when the physical force in the concrete is compressive. The tank evaluations yield meridional forces in the range $10 \text{ kips/ft} < P < 90 \text{ kips/ft}$. In this range the moment capacity is sensitive to the axial load. Moment capacity controls and therefore the force must be determined such that the corresponding moment is conservative for all situations. For all cases of relevance herein this occurs at the lower bound for the meridional force.

8.8 Sluicing Pit Demand on Tank Dome for Gravity Load Case

Tables 8.1 and 8.3 are provided to facilitate determination of bounding dome demands arising from sluicing pit mounting ring applied loads. In Table 8.1 the first three columns are independent allowables (loads acting one at a time) associated with elements of the riser structure. The fourth column identifies the bounding allowable for each mounting ring load. Per ACI 349-90, the concrete is evaluated by applying a load factor of 1.7 (conservatively for dead load the factor is really 1.4) to all gravity effects. This means that a 1.7 load factor must be applied to the loads of Column 4. Factored bounding loads are tabulated in Column 5. For this load case the forces and

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moments in the dome result from combining the results of the soil-tank interaction model of Reference 2.5 (load factor of 1.7 applied to these results) with the bounding loads of Column 5.

The sluicing pit centerline is about 2.5 ft from the dome centerline. Dome forces and moments from Reference 2.5 show that the node at a radius of 307 inches has the most severe conditions for the sluicing pit penetration. Here (for 1.0g),

$$P = 48.6 \text{ kips/ft}$$

$$M = 10.71 \text{ in-kips/ft}$$

and with a 1.7 load factor

$$P = 82.6 \text{ kips/ft}$$

$$M = 18.2 \text{ in-kips/ft}$$

Again the philosophy of ACI 349-90 indicates that the load factor for P should be reduced to 0.9.

$$P = 0.9 \times 48.6 \text{ kips/ft} = 43.7 \text{ kips/ft}$$

$$M = .9 \times 10.7 < 9.7$$

due to soil-tank interaction.

Reference 2.5 documents the computer model and calculation from which the forces and moments are extracted. Reference 2.5 contains the ANSYS input and output files associated with this computer calculation.

Table 8.1 shows that flange loads can reduce P by up to 16.4 kips/ft to 27.3 kips/ft. The data in Attachment 1 shows

$$M_{capacity}^{dome} (P = 27.3 \text{ kips/ft}) > 445 \text{ in-kips/ft}$$

Thus the reserve available in the dome is

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. L. L. L.</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. Shulman</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	8-20	Rev. No.	0

$$M_{reserve}^{dome} = (445 - 9.7) \text{ in-kips/ft} = 435.3 \text{ in-kips/ft}$$

The bounding dome bending moments are > 500 in-kips and restrictions are applied on F_H , F_v and M_H to insure the dome allowable is not exceeded.

Using Table 8.3,

$$1.7 (2.244 F_H + 1.905 F_v + .057 M_H) < 435.3$$

$$\text{or } (2.244 F_H + 1.905 F_v + .057 M_H) < 256.$$

8.9 Sluicing Pit Demand on Tank Dome: Seismic Load Case

Tables 8.2 and 8.3 are provided to facilitate determination of bounding dome demands arising from sluicing pit mounting ring loads for the seismic load case (D+L+SSE). In Table 8.2 the first three columns are allowables for singly acting mounting ring loads associated with riser structure components. The allowables are governed by Reference 2.8 (AISC) and have been increased by 1.33 for the seismic case. The fourth column identifies the component and bounding allowable for each mounting ring load. Of course, when more than one such load is acting interaction equations must be satisfied. The effects on P and M for the dome (position of sluicing pit penetration) due to these bounding loads are presented in columns 6 and 7. The total forces and moments in the dome result from combining the results of the soil-tank model (Reference 2.5), worst case seismic effects related to the pit structure, and the bounding loads of column 4 in Table 8.2.

First it is necessary to determine the minimum possible value for P (compressive force in dome)

$$P_1 = 48.6 \text{ kips/ft (soil-tank interaction with 1g)}$$

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. L. L. L.</i>	Date	7/7/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>J. L. L. L.</i>	Date	7/7/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	8-21	Rev. No.	0

Reduced for vertical seismic (.36 g's) and .9 load factor

$$P_1 = 28.0 \text{ kips/ft}$$

Table 8.2 shows that the flange loads can reduce P by up to 12.82 kips and that pit seismic loads up to 4.9 kips. The compressive force is then

$$P > 28.0 - 12.82 - 4.9 = 10.28 \text{ kips/ft}$$

The corresponding moment capacity is (attachment 1)

$$M^{\text{dome}} \approx 370 \text{ in-kips/ft}$$

The bounding values associated with gravity and pit seismic dome moments (Table 8.2) reduce the reserve to

$$M_{\text{reserve}}^{\text{dome}} = 370 - (.64) (9) (10.71) - 173.2 = 190. \text{ in-kips/ft}$$

From Table 8.3

$$2.244 F_H + 1.905 F_v + .057 M_h < 190 \text{ in-kip/ft}$$

Calculation Sheet

Project <i>Westinghouse Hartford Company</i>	Prepared By: <i>E. Schile</i>	Date <i>7/7/94</i>
Subject <i>Structural Analysis Engineering Support</i>	Reviewed By: <i>SH Skuland</i>	Date <i>7/7/94</i>
System	Job No.	File No.
Client Calc. No.	Sheet No. <i>8-22</i>	Rev. No.

Table 8.1: Sluicing Pit Flange Loads and Associated Dome Forces/Moments:
Case 3 - 1.7 (D + L)

Load/ Component	Column 1 Fillet Weld	Column 2 Riser Studs & Dome	Column 3 Mounting Ring Studs	Column 4 Min. Load Value for all Component s	Column 5 Factored (i.e., 1.7) Load	Column 6 Dome Membrane Stress Resultant P(lbs/ft)	Column 7 Dome Bending Stress Resultant
F_h (kips)	338.	--	83.6	83.4	141.8	15,680 lb/ft	318,200 in-lb/ft
F_v (kips)	347.	61.6	--	61.6	104.	20,370 lb/ft	200,050 in-lb/ft
M_h (in-kips)	3018.	--	521.	521	886.	700 lb/ft	50,500 in-lb/ft
M_v (in-kips)	6037	1047.	1609.	1047	1780.	N/A	N/A
$\Sigma = 568,700 \text{ in-lb/ft}$							

Calculation Sheet

Project <i>Westinghouse Hartford Company</i> Subject <i>Structural Analysis Engineering Support</i> System <i>241-AF-102 Ramp Pit and Sluicing Pits</i>	Prepared By: <i>J. Adair</i> Date <i>7/7/94</i> Reviewed By: <i>William L.</i> Date <i>7/7/94</i>	Client Calc. No. _____ Job No. _____ Sheet No. <i>8-23</i> Rev. No. _____
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Table 8.2: Sluicing Pit Flange Loads and Associated Dome Forces/Moments:
Case 4 - with (Seismic + D + L)

Load/ Component	Column 1 Fillet Weld	Column 2 Riser Studs & Dome	Column 3 Mounting Ring Studs	Column 4 Min. Load Value for all Components	Column 5 Dome Membrane Stress Resultant P(lbs/ft)	Column 6 Dome Bending Stress Resultant M
F_h (kips)	452	--	111	111	12280 lb/ft	249,100 in-lb/ft
F_v (kips)	462	104	--	104	20,370 lb/ft	200,050 in-lb/ft
M_h (in-kips)	4011	--	693	693	544 lb/ft	39,500 in-lb/ft
M_v (in-kips)	8022	1780	2140	1780	N/A	N/A
$M_{FEA}^{seismic} = 2287$ in-kips					1800 lb/ft	130,400 in-lb/ft
$F_h^{seismic} = 32.4$ kips					3100 lb/ft	42,800 in-lb/ft

$$\Sigma = 661,800 \text{ in-lb/ft}$$

F8-23

Calculation Sheet

Project: Westinghouse Humboldt Company
 Subject: Moraine Ring Allowable Loads for the
 041-Are 102 Pump Pit and Sluicing Pits

Prepared By: J. A. K. H. Date: 7/7/94
 Reviewed By: J. A. K. H. Date: 7/7/94

System Job No. File No. Client Calc. No. Sheet No. Rev. No.

Table 8.3: Sluicing Pit: Relationships Between Flange Resolved Loads and Dome Forces/Moments for Sluicing Pit

Load	Meridional Maximum Dome Force (lb/ft)	Meridional Maximum Dome Moment (in-lb/ft)	Circumferential Maximum Dome Force (lb/ft)	Circumferential Maximum Dome Moment (in-lb/ft)
$F_h = 1 \text{ kip}$	110.6 lb/ft	2244 in-lb/ft	22.8 lb/ft	657 in-lb/ft
$F_v = 1 \text{ kip}$	194 lb/ft	1905 in-lb/ft	61 lb/ft	605 in-lb/ft
$M_h = 1 \text{ in-kip}$	0.785 lb/ft	57 in-lb/ft	0.55 lb/ft	16.7 in-lb/ft

Notes from pump pit apply unchanged.

Note: Use this data for Tables 8.1 and 8.2

NOTE: For the Sluicing Pit, the flange surface is 40.0 inches above the dome midplane. Attachment 5 contains the ANSYS model and output from which the results tabulated above are drawn.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. Ardiz</i>	Date	7/9/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>(MK)</i>	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	9-1	Rev. No.	0

9.0 SUMMARY OF ALLOWABLE INTERACTION EQUATIONS

The expressions for the allowable moment M_H include a variable, F_{DL} , defined as the lower-bound value of downward vertical force at the flange considering all relevant load combinations (including load combinations involving seismic). It is conservative to use an underestimated value for F_{DL} ; conversely, it would be unconservative to use an overestimate for F_{DL} .

Allowable Loads on the Pump Mounting Ring in the AY Pump Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities are satisfied:

$$(F_V/427 + M_H/4564 + F_H/2282)^2 + (F_H/427 + M_V/9128)^2 \leq 1.0$$

$$(F_H/46 + M_V/11000)^2 + (M_V/2750)^2 \leq 1.0$$

$$M_H \leq 10.66 F_{DL}$$

$$(F_V/61.6)^2 + (M_V/1294)^2 \leq 1.0$$

$$F_V \geq 0 \text{ (i.e., only acts downward)}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities are satisfied:

$$(F_V/568 + M_H/6070 + F_H/3035)^2 + (F_H/568 + M_V/12140)^2 \leq 1.0$$

$$(F_H/61 + M_V/14630)^2 + (M_V/3658)^2 \leq 1.0$$

$$M_H \leq 10.66 F_{DL}$$

$$(F_V/104)^2 + (M_V/2199)^2 \leq 1.0$$

$$1.332 F_H + 1.905 F_V + .057 M_H \leq 190$$

$$F_V \geq 0 \text{ (i.e., only acts downward)}$$

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>S. S. S. S.</i>	Date	7/9/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>NW</i>	Date	7/9/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	4-2	Rev. No.	0

Forces and moments are in units of kips and in-kips. Forces and moments are unsigned unless noted otherwise.

Allowable Loads on the Sluicing Mounting Ring in the AY Sluicing Pit

Forces and moments arising from load combinations with no seismic contribution are acceptable if the following set of inequalities are satisfied:

$$(F_V/347 + M_H/3018 + F_H/1509)^2 + (F_H/347 + M_V/6037)^2 \leq 1.0$$

$$(F_V/61.6)^2 + (M_V/1047)^2 \leq 1.0$$

$$(F_H/83.6 + M_V/1609)^2 + (M_H/521)^2 \leq 1.0$$

$$2.244 F_H + 1.905 F_V + .057 M_H \leq 256$$

$$F_V \geq 0 \text{ (i.e., only acts downward)}$$

Forces and moments arising from load combinations which include seismic contributions are acceptable if the following set of inequalities are satisfied:

$$(F_V/462 + M_H/4011 + F_H/2006)^2 + (F_H/462 + M_V/8022)^2 \leq 1.0$$

$$(F_V/104)^2 + (M_V/1780)^2 \leq 1.0$$

$$(F_H/111 + M_V/2140)^2 + (F_V/144 + M_H/693)^2 \leq 1.0$$

$$2.244 F_H + 1.905 F_V + .057 M_H \leq 190$$

$$F_V \geq 0 \text{ (i.e., only acts downward)}$$

Forces and moments are in units of kips and in-kips. Forces and moments are unsigned unless noted otherwise.

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>L.L.H.</i>	Date	7/2/92
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>CP Day</i>	Date	7/8/92
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	15 TOTAL	Rev. No.	n

ATTACHMENT 1

M - P INTERACTION RELATIONSHIP

FOR AY 102 TANK DOME

M-P Interaction Diagram for AY-102 Dome

—■— Merid. (Tension bottom) —□— Merid. (Tension top)

F A41-2

[illegible]

F A#1-3

MDOME1T.XLS

Trial c	eps	fs	eps'	fs'	Cc	Cs	T	P	M	0.1fcAg/0.7	phi	phi x P	phi x M
[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
1.000	3.486E-02	60000	-2.640E-03	-60000	26,010	-28800	28800	-31,590	170,501	77,143	0.900	-28,431	153,451
1.5	2.224E-02	60000	-7.600E-04	-21280	39,015	-10214	28800	1	357,791	77,143	0.900	1	322,012
2	1.593E-02	60000	1.800E-04	5040	52,020	2419	28800	25,639	506,270	77,143	0.834	21,371	421,990
2.5	1.214E-02	60000	7.440E-04	20832	65,025	9999	28800	46,224	620,962	77,143	0.780	36,062	484,449
3	9.620E-03	60000	1.120E-03	31360	78,030	15053	28800	64,283	715,998	77,143	0.733	47,141	525,070
3.5	7.817E-03	60000	1.389E-03	38880	91,035	18662	28800	80,897	797,432	77,143	0.700	56,628	558,202
4	6.465E-03	60000	1.590E-03	44520	104,040	21370	28800	96,610	868,292	77,143	0.700	67,627	607,805
4.5	5.413E-03	60000	1.747E-03	48907	117,045	23475	28800	111,720	930,261	77,143	0.700	78,204	651,183
5	4.572E-03	60000	1.872E-03	52416	130,050	25160	28800	126,410	984,349	77,143	0.700	88,487	689,044
5.5	3.884E-03	60000	1.975E-03	55287	143,055	26538	28800	140,793	1,031,196	77,143	0.700	98,555	721,837
6	3.310E-03	60000	2.060E-03	57680	156,060	27686	28800	154,946	1,071,232	77,143	0.700	108,462	749,862
6.5	2.825E-03	60000	2.132E-03	59705	169,065	28658	28800	168,923	1,104,752	77,143	0.700	118,246	773,326
7	2.409E-03	60000	2.194E-03	60000	182,070	28800	28800	182,070	1,128,104	77,143	0.700	127,449	789,673
7.5	2.048E-03	57344	2.248E-03	60000	195,075	28800	27525	196,350	1,138,572	77,143	0.700	137,445	797,001
8	1.733E-03	48510	2.295E-03	60000	208,080	28800	23285	213,595	1,128,248	77,143	0.700	149,517	789,774
8.5	1.454E-03	40715	2.336E-03	60000	221,085	28800	19543	230,342	1,114,965	77,143	0.700	161,239	780,476
9	1.207E-03	33787	2.373E-03	60000	234,090	28800	16218	246,672	1,098,295	77,143	0.700	172,671	768,806
9.5	9.853E-04	27587	2.406E-03	60000	247,095	28800	13242	262,653	1,077,900	77,143	0.700	183,857	754,530
10	7.860E-04	22008	2.436E-03	60000	260,100	28800	10564	278,336	1,053,509	77,143	0.700	194,835	737,457
10.5	6.057E-04	16960	2.463E-03	60000	273,105	28800	8141	293,764	1,024,905	77,143	0.700	205,635	717,433

F A41-4

MDOME1B.XLS

Section	h	As per ft	d'	As' per ft	d''	d	b	fc	Beta 1	fy (rebar)	E (rebar)	yield strain=fy/E	Trial c	0.85fc*b	xp
	[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[psi]		[psi]	[psi]		[in]		[in]
dome (tension bottom)	15	0.48	1.88	0.48	2.38	13.12	12	3000	0.85	60000	28,000,000	.0021429	1.000	30600	5.592
													1.5		
													2		
													2.5		
													3		
													3.5		
													4		
													4.5		
													5		
													5.5		
													6		
													6.5		
													7		
													7.5		
													8		
													8.5		
													9		
													9.5		
													10		
													10.5		

F A+1-5

2/2/15

MDOME1B.XLS

Trial c	eps	fs	eps'	fs'	Cc	Cs	T	P	M	0.1fcAg/0.7	phi	phi x P	phi x M
[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
1.000	3.636E-02	60000	-4.140E-03	-60000	26,010	-28800	28800	-31,590	197,540	77,143	0.900	-28,431	177,786
1.5	2.324E-02	60000	-1.760E-03	-49280	39,015	-23654	28800	-13,439	308,111	77,143	0.900	-12,095	277,300
2	1.668E-02	60000	-5.700E-04	-15960	52,020	-7661	28800	15,559	468,999	77,143	0.860	13,376	403,181
2.5	1.274E-02	60000	1.440E-04	4032	65,025	1935	28800	38,160	591,427	77,143	0.801	30,569	473,772
3	1.012E-02	60000	6.200E-04	17360	78,030	8333	28800	57,563	691,861	77,143	0.751	43,216	519,424
3.5	8.246E-03	60000	9.600E-04	26880	91,035	12902	28800	75,137	777,359	77,143	0.705	52,987	548,193
4	6.840E-03	60000	1.215E-03	34020	104,040	16330	28800	91,570	851,448	77,143	0.700	64,099	596,014
4.5	5.747E-03	60000	1.413E-03	39573	117,045	18995	28800	107,240	916,090	77,143	0.700	75,068	641,263
5	4.872E-03	60000	1.572E-03	44016	130,050	21128	28800	122,378	972,460	77,143	0.700	85,664	680,722
5.5	4.156E-03	60000	1.702E-03	47651	143,055	22872	28800	137,127	1,021,307	77,143	0.700	95,989	714,915
6	3.560E-03	60000	1.810E-03	50680	156,060	24326	28800	151,586	1,063,130	77,143	0.700	106,110	744,191
6.5	3.055E-03	60000	1.902E-03	53243	169,065	25557	28800	165,822	1,098,274	77,143	0.700	116,075	768,792
7	2.623E-03	60000	1.980E-03	55440	182,070	26611	28800	179,881	1,126,986	77,143	0.700	125,917	788,890
7.5	2.248E-03	60000	2.048E-03	57344	195,075	27525	28800	193,800	1,149,448	77,143	0.700	135,660	804,613
8	1.920E-03	53760	2.108E-03	59010	208,080	28325	25805	210,600	1,149,044	77,143	0.700	147,420	804,331
8.5	1.631E-03	45656	2.160E-03	60000	221,085	28800	21915	227,970	1,136,441	77,143	0.700	159,579	795,509
9	1.373E-03	38453	2.207E-03	60000	234,090	28800	18458	244,432	1,118,282	77,143	0.700	171,103	782,797
9.5	1.143E-03	32008	2.248E-03	60000	247,095	28800	15364	260,531	1,096,631	77,143	0.700	182,372	767,641
10	9.360E-04	26208	2.286E-03	60000	260,100	28800	12580	276,320	1,071,182	77,143	0.700	193,424	749,827
10.5	7.486E-04	20960	2.320E-03	60000	273,105	28800	10061	291,844	1,041,689	77,143	0.700	204,291	729,182

E A H 1 - 6

M-P Interaction Diagram for AY-102 Dome

F A41-7

Def 15

WHC-SD-W320-ANAL-003
Rev. 0

CDOME11.XLS

Page 1

Section	h	As per fl	d'	As' per fl	d"	d	b	fc	Beta 1	E (rebar)	E (rebar)	yield strain=fy/E	Trial c	0.85fc*b	xp
	[in]	[in ²]	[in]	[in ²]	[in]	[in]	[in]	[psi]		[psi]	[psi]		[in]		[in]
dome (tension bottom)	15	0.44	3.125	0.44	2.625	11.875	12	3000	0.85	60000	28,000,000	.0021429	1.000	30600	4.401
													1.5		
													2		
													2.5		
													3		
													3.5		
													4		
													4.5		
													5		
													5.5		
													6		
													6.5		
													7		
													7.5		
													8		
													8.5		
													9		
													9.5		
													10		
													10.5		

E At 1-8

CDOME1T.XLS

Trial c	eps	fs	eps'	fs'	Cc	Cs	T	P	M	0.1fcAg/0.7	phi	phi x P	phi x M
[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
1.000	3.263E-02	60000	-4.875E-03	-60000	26,010	-26400	26400	-26,790	171,512	77,143	0.900	-24,111	154,361
1.5	2.075E-02	60000	-2.250E-03	-60000	39,015	-26400	26400	-13,785	254,896	77,143	0.900	-12,407	229,406
2	1.481E-02	60000	-9.375E-04	-26250	52,020	-11550	26400	14,070	404,764	77,143	0.864	12,150	349,523
2.5	1.125E-02	60000	-1.500E-04	-4200	65,025	-1848	26400	36,777	524,141	77,143	0.805	29,593	421,751
3	8.875E-03	60000	3.750E-04	10500	78,030	4620	26400	56,250	622,308	77,143	0.754	42,422	469,324
3.5	7.179E-03	60000	7.500E-04	21000	91,035	9240	26400	73,875	705,988	77,143	0.708	52,338	500,173
4	5.906E-03	60000	1.031E-03	28875	104,040	12705	26400	90,345	778,539	77,143	0.700	63,242	544,977
4.5	4.917E-03	60000	1.250E-03	35000	117,045	15400	26400	106,045	841,829	77,143	0.700	74,232	589,280
5	4.125E-03	60000	1.425E-03	39900	130,050	17556	26400	121,206	896,978	77,143	0.700	84,844	627,885
5.5	3.477E-03	60000	1.568E-03	43909	143,055	19320	26400	135,975	944,699	77,143	0.700	95,183	661,290
6	2.938E-03	60000	1.688E-03	47250	156,060	20790	26400	150,450	985,468	77,143	0.700	105,315	689,828
6.5	2.481E-03	60000	1.788E-03	50077	169,065	22034	26400	164,699	1,019,613	77,143	0.700	115,289	713,729
7	2.089E-03	58500	1.875E-03	52500	182,070	23100	25740	179,430	1,044,464	77,143	0.700	125,601	731,125
7.5	1.750E-03	49000	1.950E-03	54600	195,075	24024	21560	197,539	1,047,608	77,143	0.700	138,277	733,326
8	1.453E-03	40688	2.016E-03	56438	208,080	24833	17903	215,010	1,046,964	77,143	0.700	150,507	732,875
8.5	1.191E-03	33353	2.074E-03	58059	221,085	25546	14675	231,956	1,042,226	77,143	0.700	162,369	729,558
9	9.583E-04	26833	2.125E-03	59500	234,090	26180	11807	248,463	1,033,154	77,143	0.700	173,924	723,208
9.5	7.500E-04	21000	2.171E-03	60000	247,095	26400	9240	264,255	1,017,876	77,143	0.700	184,979	712,513
10	5.625E-04	15750	2.213E-03	60000	260,100	26400	6930	279,570	997,133	77,143	0.700	195,699	697,993
10.5	3.929E-04	11000	2.250E-03	60000	273,105	26400	4840	294,665	971,832	77,143	0.700	206,266	680,282

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(2)

Section	h [in]	As per ft [in ²]	d' [in]	As' per ft [in ²]	d" [in]	d [in]	b [in]	fc [psi]	Beta 1	fy (rebar) [psi]	E (rebar) [psi]	yield strain=fy/E	Trial c [in]	0.85fc'b	xp [in]
dome (tension bottom)	15	0.44	2.625	0.44	3.125	12.375	12	3000	0.85	60000	28,000,000	.0021429	1.000	30600	4.849
													1.5		
													2		
													2.5		
													3		
													3.5		
													4		
													4.5		
													5		
													5.5		
													6		
													6.5		
													7		
													7.5		
													8		
													8.5		
													9		
													9.5		
													10		
													10.5		

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Trial c	eps	fs	eps'	fs'	Cc	Cs	T	P	M	0.1fcAg/0.7	phi	phi x P	phi x M
[in]		[psi]		[psi]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]			[lbs]	[lb-in]
1.000	3.413E-02	60000	-6.375E-03	-60000	26,010	-26400	26400	-26,790	196,530	77,143	0.900	-24,111	176,877
1.5	2.175E-02	60000	-3.250E-03	-60000	39,015	-26400	26400	-13,785	280,585	77,143	0.900	-12,407	252,526
2	1.556E-02	60000	-1.688E-03	-47250	52,020	-20790	26400	4,830	383,801	77,143	0.887	4,287	340,615
2.5	1.185E-02	60000	-7.500E-04	-21000	65,025	-9240	26400	29,385	507,631	77,143	0.824	24,208	418,195
3	9.375E-03	60000	-1.250E-04	-3500	78,030	-1540	26400	50,090	608,991	77,143	0.770	38,576	469,007
3.5	7.607E-03	60000	3.214E-04	9000	91,035	3960	26400	68,595	695,142	77,143	0.722	49,537	502,005
4	6.281E-03	60000	6.563E-04	18375	104,040	8085	26400	85,725	769,715	77,143	0.700	60,008	538,800
4.5	5.250E-03	60000	9.167E-04	25667	117,045	11293	26400	101,938	834,726	77,143	0.700	71,357	584,308
5	4.425E-03	60000	1.125E-03	31500	130,050	13860	26400	117,510	891,387	77,143	0.700	82,257	623,971
5.5	3.750E-03	60000	1.295E-03	36273	143,055	15960	26400	132,615	940,467	77,143	0.700	92,831	658,327
6	3.188E-03	60000	1.438E-03	40250	156,060	17710	26400	147,370	982,479	77,143	0.700	103,159	687,735
6.5	2.712E-03	60000	1.558E-03	43615	169,065	19191	26400	161,856	1,017,780	77,143	0.700	113,299	712,446
7	2.304E-03	60000	1.661E-03	46500	182,070	20460	26400	176,130	1,046,622	77,143	0.700	123,291	732,635
7.5	1.950E-03	54600	1.750E-03	49000	195,075	21560	24024	192,611	1,057,671	77,143	0.700	134,828	740,369
8	1.641E-03	45938	1.828E-03	51188	208,080	22523	20213	210,390	1,055,626	77,143	0.700	147,273	738,938
8.5	1.368E-03	38294	1.897E-03	53118	221,085	23372	16849	227,607	1,049,731	77,143	0.700	159,325	734,811
9	1.125E-03	31500	1.958E-03	54833	234,090	24127	13860	244,357	1,039,705	77,143	0.700	171,050	727,793
9.5	9.079E-04	25421	2.013E-03	56368	247,095	24802	11185	260,712	1,025,328	77,143	0.700	182,498	717,730
10	7.125E-04	19950	2.063E-03	57750	260,100	25410	8778	276,732	1,006,424	77,143	0.700	193,712	704,497
10.5	5.357E-04	15000	2.107E-03	59000	273,105	25960	6600	292,465	982,849	77,143	0.700	204,726	687,995

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WHC-SD-W320-ANAL-003
Rev. 0

CDOME18.XLS

M-P INTERACTION EQUATIONS

	A	B	C	D	E	F	G	H	I	J	K	L
1	Section	h	As per ft	d'	As' per ft	d"	d	b	fc	Beta 1	fy (rebar)	E (rebar)
2		[in]	[in^2]	[in]	[in^2]	[in]	[in]	[in]	[psi]		[psi]	[psi]
3	dome (ension bottom)	15	0.44	2.625	0.44	3.125	=B3-D3	12	3000	=IF(I3<4000,0.85,0.85-0.05*(13-4000)/1000)	60000	28000000
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												

E AH1-12

CDOME1B.XLS

	M	N	O	P	Q
1	yield strain= f_y/E	Trial c	$0.85f_c \cdot b$	x_p	eps
2		[in]		[in]	
3	$=K3/L3$	1	$=0.85 \cdot I3 \cdot H3$	$=(O3 \cdot B3 \cdot (B3/2 - D3) + E3 \cdot K3 \cdot (G3 - F3)) / (O3 \cdot B3 + (C3 + E3) \cdot K3)$	$=MIN(0.003 \cdot (\$G\$3 - \$N3) / \$N3, \$K\$3)$
4		$=N3+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N4) / \$N4, \$K\$3)$
5		$=N4+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N5) / \$N5, \$K\$3)$
6		$=N5+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N6) / \$N6, \$K\$3)$
7		$=N6+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N7) / \$N7, \$K\$3)$
8		$=N7+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N8) / \$N8, \$K\$3)$
9		$=N8+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N9) / \$N9, \$K\$3)$
10		$=N9+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N10) / \$N10, \$K\$3)$
11		$=N10+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N11) / \$N11, \$K\$3)$
12		$=N11+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N12) / \$N12, \$K\$3)$
13		$=N12+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N13) / \$N13, \$K\$3)$
14		$=N13+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N14) / \$N14, \$K\$3)$
15		$=N14+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N15) / \$N15, \$K\$3)$
16		$=N15+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N16) / \$N16, \$K\$3)$
17		$=N16+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N17) / \$N17, \$K\$3)$
18		$=N17+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N18) / \$N18, \$K\$3)$
19		$=N18+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N19) / \$N19, \$K\$3)$
20		$=N19+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N20) / \$N20, \$K\$3)$
21		$=N20+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N21) / \$N21, \$K\$3)$
22		$=N21+0.5$			$=MIN(0.003 \cdot (\$G\$3 - \$N22) / \$N22, \$K\$3)$

N		R		S		T	
1	Trial c	fs		eps'		fs'	
2	[lin]	[psi]				[psi]	
3	1						
4	=N3+0.5		=IF(Q3>0,MIN(Q3*\$L\$3,\$K\$3),MAX(Q3*\$L\$3,-\$K\$3))		=MIN(0.003*(N3-\$F\$3)/\$N3,\$K\$3)		=IF(S3>0,MIN(S3*\$L\$3,\$K\$3),MAX(S3*\$L\$3,-\$K\$3))
5	=N4+0.5		=IF(Q4>0,MIN(Q4*\$L\$3,\$K\$3),MAX(Q4*\$L\$3,-\$K\$3))		=MIN(0.003*(N4-\$F\$3)/\$N4,\$K\$3)		=IF(S4>0,MIN(S4*\$L\$3,\$K\$3),MAX(S4*\$L\$3,-\$K\$3))
6	=N5+0.5		=IF(Q5>0,MIN(Q5*\$L\$3,\$K\$3),MAX(Q5*\$L\$3,-\$K\$3))		=MIN(0.003*(N5-\$F\$3)/\$N5,\$K\$3)		=IF(S5>0,MIN(S5*\$L\$3,\$K\$3),MAX(S5*\$L\$3,-\$K\$3))
7	=N6+0.5		=IF(Q6>0,MIN(Q6*\$L\$3,\$K\$3),MAX(Q6*\$L\$3,-\$K\$3))		=MIN(0.003*(N6-\$F\$3)/\$N6,\$K\$3)		=IF(S6>0,MIN(S6*\$L\$3,\$K\$3),MAX(S6*\$L\$3,-\$K\$3))
8	=N7+0.5		=IF(Q7>0,MIN(Q7*\$L\$3,\$K\$3),MAX(Q7*\$L\$3,-\$K\$3))		=MIN(0.003*(N7-\$F\$3)/\$N7,\$K\$3)		=IF(S7>0,MIN(S7*\$L\$3,\$K\$3),MAX(S7*\$L\$3,-\$K\$3))
9	=N8+0.5		=IF(Q8>0,MIN(Q8*\$L\$3,\$K\$3),MAX(Q8*\$L\$3,-\$K\$3))		=MIN(0.003*(N8-\$F\$3)/\$N8,\$K\$3)		=IF(S8>0,MIN(S8*\$L\$3,\$K\$3),MAX(S8*\$L\$3,-\$K\$3))
10	=N9+0.5		=IF(Q9>0,MIN(Q9*\$L\$3,\$K\$3),MAX(Q9*\$L\$3,-\$K\$3))		=MIN(0.003*(N9-\$F\$3)/\$N9,\$K\$3)		=IF(S9>0,MIN(S9*\$L\$3,\$K\$3),MAX(S9*\$L\$3,-\$K\$3))
11	=N10+0.5		=IF(Q10>0,MIN(Q10*\$L\$3,\$K\$3),MAX(Q10*\$L\$3,-\$K\$3))		=MIN(0.003*(N10-\$F\$3)/\$N10,\$K\$3)		=IF(S10>0,MIN(S10*\$L\$3,\$K\$3),MAX(S10*\$L\$3,-\$K\$3))
12	=N11+0.5		=IF(Q11>0,MIN(Q11*\$L\$3,\$K\$3),MAX(Q11*\$L\$3,-\$K\$3))		=MIN(0.003*(N11-\$F\$3)/\$N11,\$K\$3)		=IF(S11>0,MIN(S11*\$L\$3,\$K\$3),MAX(S11*\$L\$3,-\$K\$3))
13	=N12+0.5		=IF(Q12>0,MIN(Q12*\$L\$3,\$K\$3),MAX(Q12*\$L\$3,-\$K\$3))		=MIN(0.003*(N12-\$F\$3)/\$N12,\$K\$3)		=IF(S12>0,MIN(S12*\$L\$3,\$K\$3),MAX(S12*\$L\$3,-\$K\$3))
14	=N13+0.5		=IF(Q13>0,MIN(Q13*\$L\$3,\$K\$3),MAX(Q13*\$L\$3,-\$K\$3))		=MIN(0.003*(N13-\$F\$3)/\$N13,\$K\$3)		=IF(S13>0,MIN(S13*\$L\$3,\$K\$3),MAX(S13*\$L\$3,-\$K\$3))
15	=N14+0.5		=IF(Q14>0,MIN(Q14*\$L\$3,\$K\$3),MAX(Q14*\$L\$3,-\$K\$3))		=MIN(0.003*(N14-\$F\$3)/\$N14,\$K\$3)		=IF(S14>0,MIN(S14*\$L\$3,\$K\$3),MAX(S14*\$L\$3,-\$K\$3))
16	=N15+0.5		=IF(Q15>0,MIN(Q15*\$L\$3,\$K\$3),MAX(Q15*\$L\$3,-\$K\$3))		=MIN(0.003*(N15-\$F\$3)/\$N15,\$K\$3)		=IF(S15>0,MIN(S15*\$L\$3,\$K\$3),MAX(S15*\$L\$3,-\$K\$3))
17	=N16+0.5		=IF(Q16>0,MIN(Q16*\$L\$3,\$K\$3),MAX(Q16*\$L\$3,-\$K\$3))		=MIN(0.003*(N16-\$F\$3)/\$N16,\$K\$3)		=IF(S16>0,MIN(S16*\$L\$3,\$K\$3),MAX(S16*\$L\$3,-\$K\$3))
18	=N17+0.5		=IF(Q17>0,MIN(Q17*\$L\$3,\$K\$3),MAX(Q17*\$L\$3,-\$K\$3))		=MIN(0.003*(N17-\$F\$3)/\$N17,\$K\$3)		=IF(S17>0,MIN(S17*\$L\$3,\$K\$3),MAX(S17*\$L\$3,-\$K\$3))
19	=N18+0.5		=IF(Q18>0,MIN(Q18*\$L\$3,\$K\$3),MAX(Q18*\$L\$3,-\$K\$3))		=MIN(0.003*(N18-\$F\$3)/\$N18,\$K\$3)		=IF(S18>0,MIN(S18*\$L\$3,\$K\$3),MAX(S18*\$L\$3,-\$K\$3))
20	=N19+0.5		=IF(Q19>0,MIN(Q19*\$L\$3,\$K\$3),MAX(Q19*\$L\$3,-\$K\$3))		=MIN(0.003*(N19-\$F\$3)/\$N19,\$K\$3)		=IF(S19>0,MIN(S19*\$L\$3,\$K\$3),MAX(S19*\$L\$3,-\$K\$3))
21	=N20+0.5		=IF(Q20>0,MIN(Q20*\$L\$3,\$K\$3),MAX(Q20*\$L\$3,-\$K\$3))		=MIN(0.003*(N20-\$F\$3)/\$N20,\$K\$3)		=IF(S20>0,MIN(S20*\$L\$3,\$K\$3),MAX(S20*\$L\$3,-\$K\$3))
22	=N21+0.5		=IF(Q21>0,MIN(Q21*\$L\$3,\$K\$3),MAX(Q21*\$L\$3,-\$K\$3))		=MIN(0.003*(N21-\$F\$3)/\$N21,\$K\$3)		=IF(S21>0,MIN(S21*\$L\$3,\$K\$3),MAX(S21*\$L\$3,-\$K\$3))
23	=N22+0.5		=IF(Q22>0,MIN(Q22*\$L\$3,\$K\$3),MAX(Q22*\$L\$3,-\$K\$3))		=MIN(0.003*(N22-\$F\$3)/\$N22,\$K\$3)		=IF(S22>0,MIN(S22*\$L\$3,\$K\$3),MAX(S22*\$L\$3,-\$K\$3))

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	N	U	V	W	X	Y	Z
1	Trial c	Cc	Cs	T	P	M	0.1fcAg/0.7
2	[in]	[lbs]	[lbs]	[lbs]	[lbs]	[lb-in]	
3	1	=O\$3*\$J\$3*N3	=E\$3*T3	=C\$3*R3	=U3+V3-W3	=U3*(G\$3-P\$3-J\$3*N3/2)+V3*(G\$3-P\$3-F\$3)+W3*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
4	=N3+0.5	=O\$3*\$J\$3*N4	=E\$3*T4	=C\$3*R4	=U4+V4-W4	=U4*(G\$3-P\$3-J\$3*N4/2)+V4*(G\$3-P\$3-F\$3)+W4*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
5	=N4+0.5	=O\$3*\$J\$3*N5	=E\$3*T5	=C\$3*R5	=U5+V5-W5	=U5*(G\$3-P\$3-J\$3*N5/2)+V5*(G\$3-P\$3-F\$3)+W5*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
6	=N5+0.5	=O\$3*\$J\$3*N6	=E\$3*T6	=C\$3*R6	=U6+V6-W6	=U6*(G\$3-P\$3-J\$3*N6/2)+V6*(G\$3-P\$3-F\$3)+W6*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
7	=N6+0.5	=O\$3*\$J\$3*N7	=E\$3*T7	=C\$3*R7	=U7+V7-W7	=U7*(G\$3-P\$3-J\$3*N7/2)+V7*(G\$3-P\$3-F\$3)+W7*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
8	=N7+0.5	=O\$3*\$J\$3*N8	=E\$3*T8	=C\$3*R8	=U8+V8-W8	=U8*(G\$3-P\$3-J\$3*N8/2)+V8*(G\$3-P\$3-F\$3)+W8*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
9	=N8+0.5	=O\$3*\$J\$3*N9	=E\$3*T9	=C\$3*R9	=U9+V9-W9	=U9*(G\$3-P\$3-J\$3*N9/2)+V9*(G\$3-P\$3-F\$3)+W9*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
10	=N9+0.5	=O\$3*\$J\$3*N10	=E\$3*T10	=C\$3*R10	=U10+V10-W10	=U10*(G\$3-P\$3-J\$3*N10/2)+V10*(G\$3-P\$3-F\$3)+W10*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
11	=N10+0.5	=O\$3*\$J\$3*N11	=E\$3*T11	=C\$3*R11	=U11+V11-W11	=U11*(G\$3-P\$3-J\$3*N11/2)+V11*(G\$3-P\$3-F\$3)+W11*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
12	=N11+0.5	=O\$3*\$J\$3*N12	=E\$3*T12	=C\$3*R12	=U12+V12-W12	=U12*(G\$3-P\$3-J\$3*N12/2)+V12*(G\$3-P\$3-F\$3)+W12*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
13	=N12+0.5	=O\$3*\$J\$3*N13	=E\$3*T13	=C\$3*R13	=U13+V13-W13	=U13*(G\$3-P\$3-J\$3*N13/2)+V13*(G\$3-P\$3-F\$3)+W13*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
14	=N13+0.5	=O\$3*\$J\$3*N14	=E\$3*T14	=C\$3*R14	=U14+V14-W14	=U14*(G\$3-P\$3-J\$3*N14/2)+V14*(G\$3-P\$3-F\$3)+W14*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
15	=N14+0.5	=O\$3*\$J\$3*N15	=E\$3*T15	=C\$3*R15	=U15+V15-W15	=U15*(G\$3-P\$3-J\$3*N15/2)+V15*(G\$3-P\$3-F\$3)+W15*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
16	=N15+0.5	=O\$3*\$J\$3*N16	=E\$3*T16	=C\$3*R16	=U16+V16-W16	=U16*(G\$3-P\$3-J\$3*N16/2)+V16*(G\$3-P\$3-F\$3)+W16*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
17	=N16+0.5	=O\$3*\$J\$3*N17	=E\$3*T17	=C\$3*R17	=U17+V17-W17	=U17*(G\$3-P\$3-J\$3*N17/2)+V17*(G\$3-P\$3-F\$3)+W17*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
18	=N17+0.5	=O\$3*\$J\$3*N18	=E\$3*T18	=C\$3*R18	=U18+V18-W18	=U18*(G\$3-P\$3-J\$3*N18/2)+V18*(G\$3-P\$3-F\$3)+W18*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
19	=N18+0.5	=O\$3*\$J\$3*N19	=E\$3*T19	=C\$3*R19	=U19+V19-W19	=U19*(G\$3-P\$3-J\$3*N19/2)+V19*(G\$3-P\$3-F\$3)+W19*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
20	=N19+0.5	=O\$3*\$J\$3*N20	=E\$3*T20	=C\$3*R20	=U20+V20-W20	=U20*(G\$3-P\$3-J\$3*N20/2)+V20*(G\$3-P\$3-F\$3)+W20*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
21	=N20+0.5	=O\$3*\$J\$3*N21	=E\$3*T21	=C\$3*R21	=U21+V21-W21	=U21*(G\$3-P\$3-J\$3*N21/2)+V21*(G\$3-P\$3-F\$3)+W21*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7
22	=N21+0.5	=O\$3*\$J\$3*N22	=E\$3*T22	=C\$3*R22	=U22+V22-W22	=U22*(G\$3-P\$3-J\$3*N22/2)+V22*(G\$3-P\$3-F\$3)+W22*P\$3	=0.1*\$I\$3*\$B\$3*\$H\$3/0.7

	N	AA	AB	AC
1	Trial c	phi	phi x P	phi x M
2	[in]		[lbs]	[lb-in]
3	1	=IF(X3>0,MAX(0.7+0.2*(Z3-X3)/Z3,0.7),0.9)	=AA3*X3	=AA3*Y3
4	=N3+0.5	=IF(X4>0,MAX(0.7+0.2*(Z4-X4)/Z4,0.7),0.9)	=AA4*X4	=AA4*Y4
5	=N4+0.5	=IF(X5>0,MAX(0.7+0.2*(Z5-X5)/Z5,0.7),0.9)	=AA5*X5	=AA5*Y5
6	=N5+0.5	=IF(X6>0,MAX(0.7+0.2*(Z6-X6)/Z6,0.7),0.9)	=AA6*X6	=AA6*Y6
7	=N6+0.5	=IF(X7>0,MAX(0.7+0.2*(Z7-X7)/Z7,0.7),0.9)	=AA7*X7	=AA7*Y7
8	=N7+0.5	=IF(X8>0,MAX(0.7+0.2*(Z8-X8)/Z8,0.7),0.9)	=AA8*X8	=AA8*Y8
9	=N8+0.5	=IF(X9>0,MAX(0.7+0.2*(Z9-X9)/Z9,0.7),0.9)	=AA9*X9	=AA9*Y9
10	=N9+0.5	=IF(X10>0,MAX(0.7+0.2*(Z10-X10)/Z10,0.7),0.9)	=AA10*X10	=AA10*Y10
11	=N10+0.5	=IF(X11>0,MAX(0.7+0.2*(Z11-X11)/Z11,0.7),0.9)	=AA11*X11	=AA11*Y11
12	=N11+0.5	=IF(X12>0,MAX(0.7+0.2*(Z12-X12)/Z12,0.7),0.9)	=AA12*X12	=AA12*Y12
13	=N12+0.5	=IF(X13>0,MAX(0.7+0.2*(Z13-X13)/Z13,0.7),0.9)	=AA13*X13	=AA13*Y13
14	=N13+0.5	=IF(X14>0,MAX(0.7+0.2*(Z14-X14)/Z14,0.7),0.9)	=AA14*X14	=AA14*Y14
15	=N14+0.5	=IF(X15>0,MAX(0.7+0.2*(Z15-X15)/Z15,0.7),0.9)	=AA15*X15	=AA15*Y15
16	=N15+0.5	=IF(X16>0,MAX(0.7+0.2*(Z16-X16)/Z16,0.7),0.9)	=AA16*X16	=AA16*Y16
17	=N16+0.5	=IF(X17>0,MAX(0.7+0.2*(Z17-X17)/Z17,0.7),0.9)	=AA17*X17	=AA17*Y17
18	=N17+0.5	=IF(X18>0,MAX(0.7+0.2*(Z18-X18)/Z18,0.7),0.9)	=AA18*X18	=AA18*Y18
19	=N18+0.5	=IF(X19>0,MAX(0.7+0.2*(Z19-X19)/Z19,0.7),0.9)	=AA19*X19	=AA19*Y19
20	=N19+0.5	=IF(X20>0,MAX(0.7+0.2*(Z20-X20)/Z20,0.7),0.9)	=AA20*X20	=AA20*Y20
21	=N20+0.5	=IF(X21>0,MAX(0.7+0.2*(Z21-X21)/Z21,0.7),0.9)	=AA21*X21	=AA21*Y21
22	=N21+0.5	=IF(X22>0,MAX(0.7+0.2*(Z22-X22)/Z22,0.7),0.9)	=AA22*X22	=AA22*Y22

F AH / - . 10

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>A. As Life</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>Albert As</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	3 TOTAL	Rev. No.	0

ATTACHMENT 2

AXISYMMETRIC COMPUTER MODEL FOR GRAVITY
(DEAD + LIVE) LOAD ANALYSIS FOR
SOIL-TANK INTERACTION

ANSYS 4.4A
JUL 7 1994
7:48:03
POST1 ELEMENTS
TYPE NUM

ZU =1
DIST=1028
XF =300
YF =-227.33

OVERALL SOIL-TANK INTERACTION MODEL
(AXISYMMETRIC)

ANSYS 4.4A
JUL 7 1994
7:55:08
POST1 ELEMENTS
TYPE NUM
ZU =1
*DIST=416.132
*XF =229.256
*VF =332.629

TANK PORTION OF MODEL

DOME AND SIDEWALL ELEMENT NUMBERS

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>J. J. Lyle</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>Albert J. Lyle</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	32 TOTAL	Rev. No.	0

ATTACHMENT 3

3-D AY102 TANK DOME MODEL - UNIT LOADS
APPLIED AT PUMP PIT FLANGE LOCATION

ADVENT Engineering Services, Inc.

PROJECT: AY-102 ALLOWABLE LOADS ON MOUNTING RING

CLIENT: WHC

INPUT FILE NAME: DOME.INP

FILE NO.(s): 9005.9.9, Rev. 0.

RUN DESCRIPTION: "NOMINAL" LATERAL AND VERTICAL FORCES AND HORIZONTAL MOMENT

OUTPUT FILE NAME: DOME.OUT

MODEL DESCRIPTION: MODEL OF 241-AY DOME, LOAD APPLIED AT $\angle$ OF DOME SHELL

PROGRAM: ANSYS-PC

PREPARED BY: VERSION 4.4-A

REVIEWED BY: *Albert [Signature]*

APPROVED BY: *Albert [Signature]*

DESIGN VERIFIED: [] YES, [X] NOT REQUIRED

REMARKS:

51\forms\stamp

INDEPENDENTLY APPLIED LOADS &

GENERAL CONFIGURATION

LOAD CASE #1 : $F_y = 1000 \#$

LOAD CASE #2 : $F_z = 1000 \#$

LOAD CASE #3 : $M_x = 10^4 \text{ in} \cdot \#$

- LOADS ARE APPLIED AT A POINT 23.82" ABOVE DOME APEX.
- EXTREMITY OF DOME IS CONSTRAINED IN ALL SIX DEGREES OF FREEDOM
- 3 LOAD CASES PERFORMED SEPARATELY
 - #1) $F_y = 1000 \#$
 - #2) $F_z = 1000 \#$
 - #3) $M_x = 10,000 \text{ in} \cdot \#$
- LOADS APPLIED TO A POINT 23.8" ABOVE APEX DOME WHICH IS RIGIDLY CONNECTED TO NODES AT PENETRATION

NODES ON PLANE DEFINED BY 0° & 180°
RAYS (X-Z PLANE)

1

ANSYS-PC 4.4A1
MAY 25 1994
13:03:06
PLOT NO. 2
PREP7 NODES

XU = 1
DIST=548.025
ZF =549.696
UUP =Z

SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

NODES ON PLANE DEFINED BY 30° & 270°
RAYS (Y-Z PLANE)

FAH3-5

1

ANSYS-PC 4.4A1
MAY 25 1994
13:04:17
PLOT NO. 5
PREP7 NODES
TDIS

XU =1
YU =1
ZU =1
DIST=775.025
ZF =549.788
UUP =Z

SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

DOME GEOMETRY

ANSYS-PC 4.4A1
MAY 25 1994
13:00:51
PLOT NO. 1
POST1 DISPL.
STEP=1
ITER=1
DMX =0.220E-04
ERPC=0

DSCA=0.249E+07
YU =1
DIST=548.025
ZF =549.788
UUP =Z

LOAD CASE #1

F A43-7

ANSYS-PC 4.4A1
MAY 25 1994
12:56:43
PLOT NO. 1
POST1 DISPL.
STEP=2
ITER=1
DMX =0.422E-03
ERPC=0

DSCA=129814
XU =1
DIST=548.025
ZF =549.696
UUP =Z

LOAD CASE #2

FAH3-8

ANSYS-PC 4.4A1
MAY 25 1994
12:57:21
PLOT NO. 2
POST1 DISPL.
STEP=3
ITER=1
DMX =0.329E-04
ERPC=0

DSCA=0.167E+07
XU =1
DIST=548.025
ZF =549.696
UUP =Z

1

ORIENTATION

SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

LOAD CASE #3

FAH3-9

②131

WHC-SD-W320-ANAL-003
Rev. 0

```
'prep7
/output,dome,out
C***
/title,SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)
kan,0
C***
/com shell elements
et,1,63      **** 3-D shell
et,2,21
/com concrete material mat,1
ex,1,3.2e6
dens,1,.000225
nuxy,1,.15
C***
r,1,15.
C***
local,11,2,0.,0.,-589.24
C***
C*** NODE 9000 LOCATED AT RISER FLANGE INTERFACE
C***
n,9000,1283.82,0.,90.
n,1,1260,0.,88.995753
n,2,1260,0.,88.541616
n,3,1260,0.,88.087663
n,10,1260,0.,82.75
fill,10,3
local,12,2,49.68,0.,-224.2
n,25,891.6,0.,60.33
fill,25,10
csys,11
NGEN,33,26,1,25,1,0.,11.25,0.,1
type,1 $real,1 $mat,1
e,1,2,28,27
egen,24,1,1,1,1
type,2
e,9000,9000
/vup,,z
/view,,1,1,1
EGEN,32,26,1,24,1
NUMMRG,NODE
NSEL,2,88.995753
NASEL,NODE,9000
CERIG,9000,ALL
NALL
/com boundary conditions
NSEL,NODE,25,831,26
d,all,all,0. $snall
f,9000,fy,1000.
lwrite
f,9000,fy,0.
f,9000,fz,1000.
lwrite
f,9000,fz,0.
f,9000,mx,10000.
lwrite
afwrite
fini
/output,sol,out
/input,27
fini
/OUTPUT,DMPOST,OUT
/post1
global,0
store,stress
stress,tx,63,1
stress,ty,63,2
stress,txy,63,3
stress,mx,63,6
stress,my,63,7
stress,mxy,63,8
set,1,1
nset,x,0
enode
prstrs,tx,ty,txy,mx,my,mxy
set,2,1
```

INDEPENDENTLY APPLIED LOADS &

GENERAL CONFIGURATION

** Merges the coincident nodes

LOAD CASE #1 : $F_y = 1000 \neq$

LOAD CASE #2 : $F_z = 1000 \neq$

LOAD CASE #3 : $M_x = 10^4 \text{ in} \neq$

LOADS ARE APPLIED AT A POINT
23.82" ABOVE DOME PEAK.

'ANSYS' INPUT FILE (2 PAGES)

F A43-10

```
enode  
prstrs,tx,ty,txy,mx,my,mxy  
set,3,1  
prstrs,tx,ty,txy,mx,my,mxy  
fini  
/eof
```

C***

NEW TITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

ANALYSIS TYPE= 0 (STATIC ANALYSIS)

C***

shell elements

ELEMENT TYPE 1 USES STIF 63

KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0

INOPR= 0 NUMBER OF NODES= 4

QUAD. FLAT SHELL

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

ELEMENT TYPE 2 USES STIF 21

KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0

INOPR= 0 NUMBER OF NODES= 1

GENERAL MASS

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

concrete material mat,1

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3200000.PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.32000E+07 9999.0 0.32000E+07MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.2250000E-03PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.22500E-03 9999.0 0.22500E-03MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.1500000PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

C***

REAL CONSTANT SET 1 ITEMS 1 TO 6
15.000 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

C***

COORDINATE SYSTEM 11 DEFINITION. TYPE= 2 (SPHERICAL)

XC,YC,ZC= 0.00000E+00 0.00000E+00 -589.24

ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000

ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (SPHERICAL)

~***

C*** NODE 9000 LOCATED AT RISER FLANGE INTERFACE

C***

'ANSYS' RUN PHASE
(13 PAGES)

```

NODE 9000 KCS=11 X,Y,Z= 1283.8 0.00000E+00 90.000
NODE 1 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.996
NODE 2 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.542
NODE 3 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.088
NODE 10 KCS=11 X,Y,Z= 1260.0 0.00000E+00 82.750

FILL 6 POINTS BETWEEN NODE 10 AND NODE 3
START WITH NODE 9 AND INCREMENT BY -1

COORDINATE SYSTEM 12 DEFINITION. TYPE= 2 (SPHERICAL)
XC,YC,ZC= 49.680 0.00000E+00 -224.20
ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 12 (SPHERICAL)

NODE 25 KCS=12 X,Y,Z= 891.60 0.00000E+00 60.330

FILL 14 POINTS BETWEEN NODE 25 AND NODE 10
START WITH NODE 24 AND INCREMENT BY -1

ACTIVE COORDINATE SYSTEM SET TO 11 (SPHERICAL)

GENERATE 33 TOTAL SETS OF NODES WITH INCREMENT 26
SET IS SELECTED NODES IN RANGE 1 TO 25 IN STEPS OF 1
GEOMETRY INCREMENTS ARE 0.00000E+00 11.250 0.00000E+00

ELEMENT TYPE SET TO 1

REAL CONSTANT NUMBER= 1

MATERIAL NUMBER SET TO 1
ELEMENT 1 1 2 28 27

GENERATE 24 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 1
SET IS SELECTED ELEMENTS IN RANGE 1 TO 1 IN STEPS OF 1
NUMBER OF ELEMENTS= 24

ELEMENT TYPE SET TO 2
ELEMENT 25 9000

VIEW UP DIRECTION FOR WINDOW 1 IS GCS Z AXIS

VIEW POINT FOR WINDOW 1 1.0000 1.0000 1.0000

GENERATE 32 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 26
SET IS SELECTED ELEMENTS IN RANGE 1 TO 24 IN STEPS OF 1
NUMBER OF ELEMENTS= 769

MERGE COINCIDENT NODES WITHIN TOLERANCE OF 0.10000E-03
NODE 1 USED FOR NODES 1 833
NODE 2 USED FOR NODES 2 834
NODE 3 USED FOR NODES 3 835
NODE 4 USED FOR NODES 4 836
NODE 5 USED FOR NODES 5 837
NODE 6 USED FOR NODES 6 838
NODE 7 USED FOR NODES 7 839
NODE 8 USED FOR NODES 8 840
NODE 9 USED FOR NODES 9 841
NODE 10 USED FOR NODES 10 842
NODE 11 USED FOR NODES 11 843
NODE 12 USED FOR NODES 12 844
NODE 13 USED FOR NODES 13 845
NODE 14 USED FOR NODES 14 846
NODE 15 USED FOR NODES 15 847
NODE 16 USED FOR NODES 16 848
NODE 17 USED FOR NODES 17 849
NODE 18 USED FOR NODES 18 850
NODE 19 USED FOR NODES 19 851
NODE 20 USED FOR NODES 20 852

```

F A#3-13

NODE 21 USED FOR NODES 21 853
NODE 22 USED FOR NODES 22 854
NODE 23 USED FOR NODES 23 855
NODE 24 USED FOR NODES 24 856
NODE 25 USED FOR NODES 25 857

NSEL FOR LABEL= Z BETWEEN 88.996 AND 88.996 KABS= 0.
TOLERANCE= 0.444979

32 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

NASE FOR LABEL= NODE FROM 9000 TO 9000 BY 1

33 NODES (OF 801 DEFINED) SELECTED BY NASE COMMAND.

MASTER NODE= 9000 SLAVE NODE= 1 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 1 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 2 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 3 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 4 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 5 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 6 HAS 2 TERMS. CONSTANT= 0.0000000E+00

MASTER NODE= 9000 SLAVE NODE= 27 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 7 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 8 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 9 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 10 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 11 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 12 HAS 2 TERMS. CONSTANT= 0.0000000E+00

MASTER NODE= 9000 SLAVE NODE= 53 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 13 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 14 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 15 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 16 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 17 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 18 HAS 2 TERMS. CONSTANT= 0.0000000E+00

MASTER NODE= 9000 SLAVE NODE= 79 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 19 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 20 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 21 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 22 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 23 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 24 HAS 2 TERMS. CONSTANT= 0.0000000E+00

MASTER NODE= 9000 SLAVE NODE= 105 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 25 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 26 HAS 4 TERMS. CONSTANT= 0.0000000E+00

F A+3-14

CONSTRAINT EQUATION NO. 27 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 28 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 29 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 30 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 131 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 31 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 32 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 33 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 34 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 35 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 36 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 157 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 37 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 38 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 39 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 40 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 41 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 42 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 183 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 43 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 44 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 45 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 46 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 47 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 48 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 209 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 49 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 50 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 51 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 52 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 53 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 54 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 235 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 55 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 56 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 57 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 58 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 59 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 60 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 261 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 61 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 62 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 63 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 64 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 65 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 66 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 287 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 67 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 68 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 69 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 70 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 71 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 72 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 313 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 73 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 74 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 75 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 76 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 77 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 78 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 339 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 79 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 80 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 81 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 82 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 83 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 84 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 365 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 85 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 86 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 87 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 88 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 89 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 90 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 391 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 91 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 92 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 93 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 94 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 95 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 96 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 417 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 97 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 98 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 99 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 100 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 101 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 102 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 443 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 103 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 104 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 105 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 106 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 107 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 108 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 469 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 109 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 110 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 111 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 112 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 113 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 114 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 495 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 115 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 116 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 117 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 118 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 119 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 120 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 521 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 121 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 122 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 123 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 124 HAS 2 TERMS. CONSTANT= 0.0000000E+00

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CONSTRAINT EQUATION NO. 125 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 126 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 547 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 127 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 128 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 129 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 130 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 131 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 132 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 573 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 133 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 134 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 135 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 136 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 137 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 138 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 599 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 139 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 140 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 141 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 142 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 143 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 144 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 625 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 145 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 146 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 147 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 148 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 149 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 150 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 651 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 151 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 152 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 153 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 154 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 155 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 156 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 677 PARTIAL KEY= 0 3-D SPACE

F A#3-18

CONSTRAINT EQUATION NO. 157 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 158 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 159 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 160 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 161 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 162 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 703 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 163 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 164 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 165 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 166 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 167 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 168 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 729 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 169 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 170 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 171 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 172 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 173 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 174 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 755 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 175 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 176 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 177 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 178 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 179 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 180 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 781 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 181 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 182 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 183 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 184 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 185 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 186 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 807 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 187 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 188 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 189 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 190 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 191 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 192 HAS 2 TERMS. CONSTANT= 0.0000000E+00

801 NODES (OF 801 DEFINED) SELECTED BY NALL COMMAND.
boundary conditions

NSEL FOR LABEL= NODE FROM 25 TO 831 BY 26

32 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

SPECIFIED DISP ALL FOR ALL SELECTED NODES
VALUES= 0.00000E+00 0.00000E+00 ADDITIONAL DOFS=

801 NODES (OF 801 DEFINED) SELECTED BY NALL COMMAND.

SPECIFIED FORCE FY FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 1000.0 0.00000E+00

LOAD STEP 1 WRITTEN ON FILE23

SPECIFIED FORCE FY FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 0.00000E+00 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 1000.0 0.00000E+00

LOAD STEP 2 WRITTEN ON FILE23

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 0.00000E+00 0.00000E+00

SPECIFIED FORCE MX FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 10000. 0.00000E+00

LOAD STEP 3 WRITTEN ON FILE23

*** NOTE ***
DATA CHECKED - NO FATAL ERRORS FOUND.
CHECK OUTPUT FOR POSSIBLE WARNING MESSAGES.

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 2
769 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 769
801 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 9000
MAXIMUM LINEAR PROPERTY NUMBER= 1
MAXIMUM REAL CONSTANT SET NUMBER= 1
ACTIVE COORDINATE SYSTEM= 11 (SPHERICAL)
MAXIMUM CONSTRAINT EQUATION NUMBER= 192
NUMBER OF IMPOSED DISPLACEMENTS= 192
NUMBER OF NODAL FORCES= 3

ANALYSIS DATA WRITTEN ON FILE27

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP 11.590

***** INPUT SWITCHED FROM FILE18 TO FILE27 NAME=FILE27.DAT

NEW TITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102) 10.2718 JUN 11,1994 CP= 11.750

***** NOTICE ***** THIS IS THE ANSYS GENERAL PURPOSE
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POSSIBLE. SUGGESTIONS AND COMMENTS ARE WELCOMED. ANY
ERRORS ENCOUNTERED IN EITHER THE DOCUMENTATION OR THE
RESULTS SHOULD BE IMMEDIATELY BROUGHT TO OUR ATTENTION.

***** ANALYSIS OPTIONS *****

	VALUE
ANALYSIS TYPE	0
REFERENCE TEMPERATURE	0.00

***** ELEMENT TYPES *****

TYPE	STIF	DESCRIPTION	KEY OPTIONS									NJ	INOTPR
			1	2	3	4	5	6	7	8	9		

NUMBER OF ELEMENT TYPES= 2

***** TABLE OF ELEMENT REAL CONSTANTS *****

NO.

NUMBER OF REAL CONSTANT SETS= 1'

***** ELEMENT DEFINITIONS *****

ELEMENT	NODES	MAT	TYPE	ELEMENT REAL CONSTANTS
---------	-------	-----	------	------------------------

SWITCHED TO FIXED FORMAT INPUT

INTEGER STORAGE REQUIREMENTS FOR ELEMENT INPUT CP= 13.130 TIME= 10.27218
FIXED DATA = 1038 TEMPORARY DATA = 18000 TOTAL= 19038
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000
MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 2000480
NUMBER OF ELEMENTS = 769 MAXIMUM NODE NUMBER USED = 9000

***** NODE DEFINITIONS *****

NODE	LOCATION			ROTATION (DEGREES)		
	X (OR R)	Y (OR THETA)	Z (OR PHI)	THXY (OR RT)	THYZ (TZ OR TP)	THXZ (RZ OR RP)

SWITCHED TO FIXED FORMAT INPUT

XMIN= -491.0 XMAX= 491.0 YMIN= -491.0 YMAX= 491.0 ZMIN= 550.5 ZMAX= 694.6

INTEGER STORAGE REQUIREMENTS FOR NODE INPUT CP= 14.990 TIME= 10.27269

FIXED DATA = 1038 TEMPORARY DATA = 108000 TOTAL= 109038

FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 666826

***** MATERIAL PROPERTIES *****

MAXIMUM MATERIAL NUMBER= 1

***** CONSTRAINT EQUATIONS *****

NO. CONSTANT

	NODE	DIRECT.	COEF.	NODE	DIRECT.	COEF.	NODE	DIRECT.	COEF.
--	------	---------	-------	------	---------	-------	------	---------	-------

NUMBER OF CONSTRAINT EQUATIONS= 192

***** MASTER DEGREES OF FREEDOM *****

NODE DEGREES OF FREEDOM LIST

NUMBER OF SPECIFIED MASTER D.O.F.= 0

TOTAL NUMBER OF MASTER D.O.F. = 0

INTEGER STORAGE REQUIREMENTS FOR MATERIALS, ETC. INPUT CP= 16.970 TIME= 10.27324

FIXED DATA = 4698 TEMPORARY DATA = 0 TOTAL= 4698

FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

INTEGER STORAGE REQUIREMENTS FOR LOAD DATA INPUT CP= 17.300 TIME= 10.27334

FIXED DATA = 22424 TEMPORARY DATA = 0 TOTAL= 22424

FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 2716.8

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.12397E-07	IXX = 0.1191E+10	IXX = 0.1688E+09
YC = 0.32257E-09	IYY = 0.1191E+10	IYY = 0.1688E+09
ZC = 613.35	IZZ = 0.3307E+09	IZZ = 0.3307E+09
	IXY = 0.3178E-03	IXY = 0.3178E-03
	IYZ = -0.5279E-03	IYZ = 0.9635E-05
	IZX = -0.2340E-01	IZX = -0.2736E-02

ONLY THE FIRST REAL CONSTANT MASS TERM IS USED FOR THE STIF21 ELEMENTS.

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
1	2701.83
2	15.0000

RANGE OF ELEMENT MAXIMUM STIFFNESS IN GLOBAL COORDINATES

MAXIMUM= 0.476117E+10 AT ELEMENT 409.
MINIMUM= 0.176735E+10 AT ELEMENT 679.

INTEGER STORAGE REQUIREMENTS FOR ELEMENT FORMULATION CP= 49.430 TIME= 10.28226
FIXED DATA = 22424 TEMPORARY DATA = 0 TOTAL= 22424
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

*** ELEMENT STIFFNESS FORMULATION TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	10.220	0.013
2	1	21	0.000	0.000

TIME AT END OF ELEMENT STIFFNESS FORMULATION CP= 49.430

MAXIMUM IN-CORE WAVE FRONT ALLOWED FOR REQUESTED MEMORY SIZE= 1992.

INTEGER STORAGE REQUIREMENTS FOR WAVE FRONT MATRIX SOLUTION CP= 179.170 TIME= 10.31830
FIXED DATA = 22424 TEMPORARY DATA = 96100 TOTAL= 118524
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

MAXIMUM IN-CORE WAVE FRONT= 308.

MATRIX SOLUTION TIMES
READ IN ELEMENT STIFFNESSES CP= 13.300

NODAL COORD. TRANSFORMATION CP= 0.000
MATRIX TRIANGULARIZATION CP= 115.550

TIME AT END OF MATRIX TRIANGULARIZATION CP= 179.170
EQUATION SOLVER MAXIMUM PIVOT= 0.13715E+12 AT NODE 9000. ROTZ
EQUATION SOLVER MINIMUM PIVOT= 0.22843E+06 AT NODE 2. ROTZ

INTEGER STORAGE REQUIREMENTS FOR BACK SUBSTITUTION CP= 214.810 TIME= 10.32820
FIXED DATA = 22424 TEMPORARY DATA = 108014 TOTAL= 130438
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

*** ELEM. STRESS CALC. TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	5.650	0.007

*** NODAL FORCE CALC. TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	0.570	0.001

*** LOAD STEP 1 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 1

INTEGER STORAGE REQUIREMENTS FOR STRESS AND FORCE CALCULATIONS CP= 250.020 TIME= 10.33798
FIXED DATA = 22424 TEMPORARY DATA = 324000 TOTAL= 346424
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

*** STORAGE REQUIREMENT SUMMARY
MAXIMUM FIXED MEMORY USED = 22424
MAXIMUM TEMPORARY MEMORY USED= 324000
MAXIMUM TOTAL MEMORY USED = 346424
MAXIMUM TEMPORARY AVAILABLE = 3979576

*** PROBLEM STATISTICS
NO. OF ACTIVE DEGREES OF FREEDOM = 4614
R.M.S. WAVEFRONT SIZE = 297.5

*** ANSYS BINARY FILE STATISTICS

FA#3-23

BUFFER SIZE USED= 2048
POST DATA WRITTEN ON FILE12
RESTART DATA WRITTEN ON FILE03 (5884344 BYTES)
TRIANGULARIZED MATRIX WRITTEN ON FILE11 (11466412 BYTES)

*** LOAD STEP 2 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 2
*** LOAD STEP 3 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 3

***** END OF INPUT ENCOUNTERED ON FILE27. FILE27 REWOUND

***** INPUT FILE SWITCHED FROM FILE27 TO FILE18

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102) 10.4661 JUN 11,1994 CP= 711.280

***** ANSYS SOLUTION PHASE RUN TIME ESTIMATOR *****

COMPUTER = PC 386/486 NUMBER OF MASTER DOF = 0
ANALYSIS TYPE = 0 RMS WAVE FRONT = 298
NUMBER OF ACTIVE NODES = 770 TOTAL NO. OF ITERATIONS = 3
MAX. DOF PER NODE = 6 STIFF. MATRIX SAVE KEY = 0
NUMBER OF MATRICES = 1 ELEM. MATRIX SAVE KEY = 0
NUMBER OF STRESS SOLUTIONS= 1 ROTATED NODE FRACTION= 0.000

STIF	NUMBER	FORM. TIME	STRESS TIME	NAME
21	1	0.001	0.000	GENERAL MASS
63	768	0.259	0.015	QUAD. FLAT SHELL

(TIMING FOR WARPED ELEMENT)

ANALYSIS PHASE	FIRST ITERATION	SUBSEQUENT ITERATIONS	TOTAL
ELEMENT FORMULATION	1243.21	1243.21	3729.62
NODE ROTATION	0.00	0.00	0.00
WAVE FRONT SOLUTION	3077.06	3077.06	9231.18
BACK SUBSTITUTION	51.63	51.63	51.63
ELEMENT STRESSES	72.96	72.96	72.96
NODAL FORCES	11.06	11.06	11.06
TOTAL TIME (SEC)	4455.91	4455.91	13096.44

***** ROUTINE COMPLETED ***** CP = 711.280

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102) 10.4662 JUN 11,1994 CP= 711.720

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE NODAL COORDINATES FOR DISPLACEMENTS AND FORCES --
USE ELEMENT COORDINATES FOR COMPONENT STRESSES
STORE STRESSES

STORE TX FOR ELEMENT TYPE STIF 63 FROM ITEM 1
STORE TY FOR ELEMENT TYPE STIF 63 FROM ITEM 2
STORE TXY FOR ELEMENT TYPE STIF 63 FROM ITEM 3
STORE MX FOR ELEMENT TYPE STIF 63 FROM ITEM 6
STORE MY FOR ELEMENT TYPE STIF 63 FROM ITEM 7
STORE MXY FOR ELEMENT TYPE STIF 63 FROM ITEM 8
USE LOAD STEP 1 ITERATION 1 SECTION 1 FOR LOAD CASE 1

GEOMETRY STORED FOR 801 NODES 769 ELEMENTS
TITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

***WARNING *** CP= 716.720 TIME= 10.46762
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 716.720 TIME= 10.46762
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 716.720 TIME= 10.46762
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 716.720 TIME= 10.46762
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 716.720 TIME= 10.46762
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 716.720 TIME= 10.46762
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***
LOAD STEP 1. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

OR LOAD STEP= 1 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

SEL FOR LABEL= X BETWEEN 0.00000E+00 AND 0.00000E+00 KABS= 0.
CE= 0.100000E-05

50 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

SELECTED ANSYS OUTPUT (FOR 3 DEFINED LOAD CASES)
(9 PAGES)
OUTPUT QUANTITIES ARE STRESS RESULTS FOR
96 ELEMENTS ON EITHER SIDE OF INTERSECTION OF POINT
WITH GLOBAL Y-Z PLANE. THESE ELEMENTS HAVE HIGHEST
STRESS FROM FY & MAX LOAD CASES. RESULTS FOR FY LOAD ARE
AXISYMMETRIC. RESULTS ARE EXPRESSED IN LBS/IN & IN-LBS/IN.

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96 ELEMENTS (OF 769 DEFINED) SELECTED FROM 50 SELECTED NODES BY ENOD COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

*** NOTE ***

SHELL STRESSES SET TO TOP FOR ERROR CALCULATIONS

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4678 JUN 11,1994 CP= 717.220

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MX1
170	-8.0243679	-1.1538625	-1.0511441	-110.50226	-32.549548	-9.5336091
171	-6.8614514	-0.95585570	-0.75600075	-63.551304	-38.570816	-5.0314740
172	-5.6125377	-1.1334928	-0.51313715	-37.677618	-31.512193	-2.8770095
173	-4.6223711	-1.2199101	-0.34905414	-21.232987	-23.225330	-1.5409042
174	-3.9410841	-1.1266712	-0.26485492	-12.052371	-17.018515	-0.82767432
175	-3.4277863	-0.92233145	-0.22263917	-6.2701874	-12.508404	-0.38800149
176	-3.0146720	-0.66300267	-0.20354190	-2.4310713	-9.1761153	-0.10113232
177	-2.6676986	-0.38647897	-0.19717880	0.16745812	-6.6714916	0.89315655E-01
178	-2.3686441	-0.11759840	-0.19741236	1.9247890	-4.7626257	0.21494929
179	-2.0582159	0.17403807	-0.20129329	3.1856864	-3.0825086	0.30019714
180	-1.7514758	0.46207440	-0.20679688	3.9401446	-1.6685364	0.34501210
181	-1.4916529	0.68627094	-0.21067561	4.0126277	-0.74116991	0.33833822
182	-1.2724151	0.83572303	-0.21056383	3.7024703	-0.15520148	0.30411675
183	-1.0893358	0.91249199	-0.20585832	3.2097398	0.19583380	0.25811374
184	-0.93853433	0.92516772	-0.19687374	2.6628473	0.39012115	0.21017517
185	-0.81629013	0.88486324	-0.18433555	2.1352884	0.48295776	0.16567335
186	-0.71900301	0.80291364	-0.16908995	1.6583247	0.51133896	0.12660762
187	-0.64324637	0.68983302	-0.15196382	1.2310219	0.49771498	0.92480720E-01
188	-0.58581149	0.55521326	-0.13373041	0.82841937	0.45312300	0.61012659E-01
189	-0.54370609	0.40832117	-0.11514787	0.40840807	0.37984729	0.28738266E-01
190	-0.51410060	0.25919369	-0.97045710E-01	-0.82038559E-01	0.27376814	-0.84608666E-02
191	-0.49422913	0.12005220	-0.80436991E-01	-0.70050646	0.12658836	-0.54832141E-01
192	-0.48125995	0.68534713E-02	-0.66640515E-01	-1.5009634	-0.71905228E-01	-0.11412286
193	-0.47215555	-0.59256350E-01	-0.57356202E-01	-2.5262571	-0.33297261	-0.18924422
194	-8.1651614	-1.0130691	-0.34315942	-111.04925	-31.988976	-6.5325009
195	-6.9260654	-0.89124170	-0.43101947	-64.506737	-37.612058	-0.17305817
196	-5.6385540	-1.1074765	-0.38223649	-38.530258	-30.650499	1.4561083
197	-4.6266337	-1.2156475	-0.32759339	-21.894420	-22.558908	1.8041492
198	-3.9355789	-1.1321764	-0.29259476	-12.556551	-16.514179	1.7132030
199	-3.4179719	-0.93214583	-0.27214218	-6.6547325	-12.125738	1.5480390
200	-3.0035058	-0.67416890	-0.25993059	-2.7243609	-8.8849213	1.3776648
201	-2.6568976	-0.39728004	-0.25179843	-0.55572421E-01	-6.4500960	1.2173886
202	-2.3592129	-0.12702959	-0.24517898	1.7565825	-4.5944371	1.0699751
203	-2.0511590	0.16698117	-0.23711174	3.0663991	-2.9630817	0.90883909
204	-1.7475565	0.45815510	-0.22677116	3.8643368	-1.5924335	0.73702037
205	-1.4909105	0.68552857	-0.21447724	3.9676820	-0.69509141	0.57664657
206	-1.2746109	0.83791873	-0.19925727	3.6787331	-0.12989125	0.43541393
207	-1.0940622	0.91721841	-0.18136656	3.2001692	0.20712472	0.31662743
208	-0.94530196	0.93193535	-0.16155687	2.6624100	0.39220254	0.22053607
209	-0.82458811	0.89316121	-0.14069329	2.1404787	0.47920759	0.14528136
210	-0.72833813	0.81224877	-0.11956998	1.6667614	0.50410036	0.87558351E-01
211	-0.65316594	0.69975259	-0.98848574E-01	1.2411192	0.48861205	0.43134895E-01
212	-0.59591540	0.56531717	-0.79075411E-01	0.83912054	0.44331174	0.72733748E-02
213	-0.55365304	0.41826812	-0.60748029E-01	0.41897208	0.37021304	-0.24912498E-01

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4678 JUN 11,1994 CP= 717.270

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MX1
------	----	----	-----	----	----	-----

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214	-0.52361214	0.26870523	-0.44409240E-01	-0.72207166E-01	0.26507744	-0.58128026E-01
215	-0.50309461	0.12891767	-0.30750916E-01	-0.69198881	0.11960536	-0.96552624E-01
216	-0.48934580	0.14939320E-01	-0.20706665E-01	-1.4940044	-0.76428387E-01	-0.14326656
217	-0.47941018	-0.52001719E-01	-0.15545826E-01	-2.5235211	-0.33602084	-0.19961270
554	8.0243681	1.1538623	1.0511431	110.50226	32.549548	9.5336091
555	6.8614515	0.95585560	0.75600023	63.551304	38.570816	5.0314739
556	5.6125378	1.1334927	0.51313687	37.677618	31.512193	2.8770095
557	4.6223712	1.2199100	0.34905398	21.232987	23.225330	1.5409042
558	3.9410841	1.1266712	0.26485482	12.052371	17.018515	0.82767432
559	3.4277863	0.92233143	0.22263910	6.2701874	12.508404	0.38800149
560	3.0146720	0.66300266	0.20354185	2.4310713	9.1761153	0.10113232
561	2.6676986	0.38647896	0.19717876	-0.16745812	6.6714916	-0.89315656E-01
562	2.3686441	0.11759840	0.19741233	-1.9247890	4.7626257	-0.21494929
563	2.0582159	-0.17403807	0.20129326	-3.1856864	3.0825086	-0.30019714
564	1.7514758	-0.46207441	0.20679686	-3.9401446	1.6685364	-0.34501210
565	1.4916529	-0.68627095	0.21067560	-4.0126277	0.74116991	-0.33833822
566	1.2724151	-0.83572303	0.21056382	-3.7024703	0.15520148	-0.30411675
567	1.0893358	-0.91249199	0.20585831	-3.2097398	-0.19583380	-0.25811374
568	0.93853433	-0.92516772	0.19687373	-2.6628473	-0.39012115	-0.21017517
569	0.81629013	-0.88486324	0.18433554	-2.1352884	-0.48295776	-0.16567335
570	0.71900301	-0.80291364	0.16908994	-1.6583247	-0.51133896	-0.12660762
571	0.64324637	-0.68983303	0.15196381	-1.2310219	-0.49771498	-0.92480720E-01
572	0.58581149	-0.55521326	0.13373040	-0.82841937	-0.45312300	-0.61012659E-01
573	0.54370609	-0.40832117	0.11514787	-0.40840807	-0.37984729	-0.28738266E-01
574	0.51410060	-0.25919370	0.97045706E-01	0.82038559E-01	-0.27376814	0.84608664E-02
575	0.49422913	-0.12005220	0.80436987E-01	0.70050646	-0.12658836	0.54832141E-01
576	0.48125995	-0.68534719E-02	0.66640512E-01	1.5009634	0.71905228E-01	0.11412286
577	0.47215555	0.59256349E-01	0.57356199E-01	2.5262571	0.33297261	0.18924422
578	8.1651616	1.0130689	0.34315843	111.04925	31.988976	6.5325008
579	6.9260655	0.89124159	0.43101895	64.506737	37.612058	0.17305815
580	5.6385541	1.1074764	0.38223621	38.530258	30.650499	-1.4561083
581	4.6266337	1.2156475	0.32759324	21.894420	22.558908	-1.8041492
582	3.9355789	1.1321764	0.29259466	12.556551	16.514179	-1.7132030
583	3.4179719	0.93214581	0.27214211	6.6547325	12.125738	-1.5480390
584	3.0035058	0.67416889	0.25993054	2.7243609	8.8849213	-1.3776648
585	2.6568976	0.39728004	0.25179839	0.55572422E-01	6.4500960	-1.2173886
586	2.3592129	0.12702959	0.24517895	-1.7565825	4.5944371	-1.0699751
587	2.0511590	-0.16698117	0.23711172	-3.0663991	2.9630817	-0.90883909
588	1.7475565	-0.45815511	0.22677114	-3.8643368	1.5924335	-0.73702037
589	1.4909105	-0.68552858	0.21447723	-3.9676820	0.69509141	-0.57664657
590	1.2746109	-0.83791873	0.19925725	-3.6787331	0.12989125	-0.43541393
591	1.0940622	-0.91721841	0.18136655	-3.2001692	-0.20712472	-0.31662743
592	0.94530196	-0.93193535	0.16155686	-2.6624100	-0.39220254	-0.22053607
593	0.82458811	-0.89316122	0.14069329	-2.1404787	-0.47920759	-0.14528136

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4678 JUN 11,1994 CP= 717.330

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	HX	MY	MX
594	0.72833814	-0.81224877	0.11956997	-1.6667614	-0.50410036	-0.87558351E-01
595	0.65316594	-0.69975259	0.98848569E-01	-1.2411192	-0.48861205	-0.43134895E-01
596	0.59591540	-0.56531717	0.79075406E-01	-0.83912054	-0.44331174	-0.72733750E-02
597	0.55365304	-0.41826812	0.60748025E-01	-0.41897208	-0.37021304	0.24912498E-01
598	0.52361214	-0.26870524	0.44409236E-01	0.72207166E-01	-0.26507744	0.58128026E-01
599	0.50309461	-0.12891767	0.30750912E-01	0.69198881	-0.11960536	0.96552624E-01
600	0.48934580	-0.14939320E-01	0.20706662E-01	1.4940044	0.76428387E-01	0.14326655
601	0.47941018	0.52001718E-01	0.15545823E-01	2.5235211	0.33602084	0.19961269

MINIMUMS
ELEMENT 194 173 170 194 171 170
VALUE -8.1651614 -1.2199101 -1.0511441 -111.04925 -38.570816 -9.5336091

MAXIMUMS
ELEMENT 578 557 554 578 555 554
VALUE 8.1651616 1.2199100 1.0511431 111.04925 38.570816 9.5336091

USE LOAD STEP 2 ITERATION 1 SECTION 1 FOR LOAD CASE 1

F A#3-27

***WARNING *** CP= 721.010 TIME= 10.46881
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 721.010 TIME= 10.46881
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 721.010 TIME= 10.46881
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 721.010 TIME= 10.46881
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 721.010 TIME= 10.46881
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 721.010 TIME= 10.46881
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***

LOAD STEP 2. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

96 ELEMENTS (OF 769 DEFINED) SELECTED FROM 50 SELECTED NODES BY ENOD COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4689 JUN 11, 1994 CP= 721.390

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
170	16.141903	5.0901639	1.0989026	158.77123	50.425092	11.101632
171	13.556747	7.2562665	0.62634278	95.964548	67.752980	2.8553235
172	11.949887	7.3838847	0.45374274	52.400225	62.993896	-1.0110510
173	10.724078	6.4831655	0.42116756	22.432952	51.763986	-2.9101087
174	9.7425312	5.1121172	0.45947095	4.8452351	40.486964	-3.5367461
175	8.8440280	3.6565410	0.51423113	-5.9843751	30.999542	-3.6641988
176	7.9949579	2.2732239	0.56651634	-12.613293	23.356154	-3.5569781
177	7.1921400	1.0354805	0.60874245	-16.467544	17.295612	-3.3318806
178	6.4394522	-0.23052418E-01	0.63798856	-18.450768	12.526682	-3.0500807
179	5.6052873	-1.0343829	0.65406904	-18.970425	8.2365349	-2.6731189
180	4.7418459	-1.9222679	0.65380758	-18.155932	4.5953334	-2.2228021
181	3.9864819	-2.5186853	0.63515389	-16.008350	2.2103238	-1.7683396
182	3.3367786	-2.8372738	0.59949214	-13.303625	0.72535549	-1.3514849
183	2.7879977	-2.9201024	0.55077470	-10.540766	-0.14187339	-0.99327560
184	2.3326040	-2.8190109	0.49359169	-8.0122219	-0.60367443	-0.70086512
185	1.9611176	-2.5848566	0.43217749	-5.8577332	-0.81179084	-0.47215487
186	1.6631656	-2.2620600	0.36997684	-4.1071171	-0.86818992	-0.29916632
187	1.4283379	-1.8867651	0.30955681	-2.7140851	-0.83542944	-0.17052686
188	1.2467445	-1.4874360	0.25273004	-1.5825005	-0.74585874	-0.73282342E-01
189	1.1092792	-1.0870276	0.20079612	-0.58660505	-0.60946977	0.57931598E-02
190	1.0076422	-0.70609739	0.15483851	0.41296182	-0.42053945	0.79221624E-01

191	0.93418394	-0.36636774	0.11602854	1.5552699	-0.16340424	0.15801468
192	0.88163178	-0.94325277E-01	0.85900070E-01	2.9651585	0.18218840	0.25088356
193	0.84276309	0.75550445E-01	0.66560576E-01	4.7371324	0.63567198	0.36333761
194	16.141903	5.0901638	1.0989026	158.77123	50.425091	11.101631
195	13.556747	7.2562665	0.62634278	95.964546	67.752979	2.8553235
196	11.949887	7.3838847	0.45374274	52.400224	62.993895	-1.0110510
197	10.724078	6.4831655	0.42116755	22.432952	51.763985	-2.9101087
198	9.7425311	5.1121171	0.45947096	4.8452348	40.486963	-3.5367461
199	8.8440280	3.6565409	0.51423115	-5.9843753	30.999542	-3.6641987
200	7.9949578	2.2732239	0.56651634	-12.613293	23.356154	-3.5569782
201	7.1921400	1.0354804	0.60874240	-16.467544	17.295612	-3.3318804
202	6.4394521	-0.23052445E-01	0.63798855	-18.450768	12.526682	-3.0500807
203	5.6052873	-1.0343829	0.65406905	-18.970425	8.2365348	-2.6731189
204	4.7418459	-1.9222679	0.65380762	-18.155932	4.5953333	-2.2228021
205	3.9864819	-2.5186853	0.63515391	-16.008350	2.2103238	-1.7683396
206	3.3367786	-2.8372738	0.59949213	-13.303625	0.72535546	-1.3514850
207	2.7879977	-2.9201024	0.55077467	-10.540766	-0.14187341	-0.99327563
208	2.3326039	-2.8190109	0.49359167	-8.0122219	-0.60367443	-0.70086509
209	1.9611176	-2.5848566	0.43217751	-5.8577332	-0.81179084	-0.47215484
210	1.6631655	-2.2620600	0.36997684	-4.1071170	-0.86818992	-0.29916627
211	1.4283379	-1.8867651	0.30955682	-2.7140851	-0.83542944	-0.17052683
212	1.2467445	-1.4874360	0.25273002	-1.5825005	-0.74585874	-0.73282305E-01
213	1.1092792	-1.0870276	0.20079612	-0.58660505	-0.60946976	0.57931767E-02

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4689 JUN 11, 1994 CP= 721.450

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
 TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAXY
214	1.0076422	-0.70609739	0.15483850	0.41296182	-0.42053944	0.79221631E-01
215	0.93418394	-0.36636773	0.11602854	1.5552699	-0.16340425	0.15801466
216	0.88163178	-0.94325277E-01	0.85900066E-01	2.9651585	0.18218840	0.25088355
217	0.84276309	0.75550445E-01	0.66560577E-01	4.7371324	0.63567198	0.36333762
554	16.141903	5.0901638	1.0989024	158.77123	50.425092	11.101634
555	13.556747	7.2562664	0.62634256	95.964546	67.752980	2.8553282
556	11.949887	7.3838846	0.45374252	52.400223	62.993896	-1.0110467
557	10.724078	6.4831654	0.42116733	22.432951	51.763986	-2.9101053
558	9.7425312	5.1121171	0.45947072	4.8452343	40.486964	-3.5367435
559	8.8440280	3.6565409	0.51423090	-5.9843757	30.999542	-3.6641967
560	7.9949579	2.2732238	0.56651612	-12.613293	23.356154	-3.5569765
561	7.1921401	1.0354804	0.60874225	-16.467544	17.295612	-3.3318793
562	6.4394522	-0.23052481E-01	0.63798837	-18.450768	12.526682	-3.0500797
563	5.6052873	-1.0343830	0.65406887	-18.970425	8.2365350	-2.6731182
564	4.7418459	-1.9222679	0.65380743	-18.155932	4.5953334	-2.2228016
565	3.9864819	-2.5186853	0.63515376	-16.008350	2.2103238	-1.7683392
566	3.3367787	-2.8372739	0.59949203	-13.303625	0.72535552	-1.3514846
567	2.7879977	-2.9201024	0.55077461	-10.540766	-0.14187337	-0.99327545
568	2.3326040	-2.8190109	0.49359161	-8.0122219	-0.60367442	-0.70086503
569	1.9611176	-2.5848567	0.43217743	-5.8577332	-0.81179083	-0.47215482
570	1.6631656	-2.2620600	0.36997679	-4.1071170	-0.86818992	-0.29916629
571	1.4283379	-1.8867651	0.30955677	-2.7140851	-0.83542944	-0.17052686
572	1.2467445	-1.4874360	0.25273000	-1.5825005	-0.74585874	-0.73282345E-01
573	1.1092792	-1.0870276	0.20079610	-0.58660504	-0.60946977	0.57931511E-02
574	1.0076422	-0.70609740	0.15483849	0.41296182	-0.42053945	0.79221613E-01
575	0.93418394	-0.36636774	0.11602852	1.5552699	-0.16340425	0.15801467
576	0.88163178	-0.94325280E-01	0.85900052E-01	2.9651585	0.18218840	0.25088355
577	0.84276309	0.75550442E-01	0.66560560E-01	4.7371324	0.63567198	0.36333760
578	16.141903	5.0901638	1.0989024	158.77123	50.425092	11.101634
579	13.556747	7.2562665	0.62634256	95.964547	67.752981	2.8553283
580	11.949887	7.3838847	0.45374251	52.400224	62.993897	-1.0110467
581	10.724078	6.4831655	0.42116732	22.432951	51.763986	-2.9101053
582	9.7425312	5.1121171	0.45947072	4.8452346	40.486964	-3.5367435
583	8.8440281	3.6565409	0.51423092	-5.9843755	30.999542	-3.6641967
584	7.9949579	2.2732239	0.56651612	-12.613293	23.356155	-3.5569767
585	7.1921401	1.0354804	0.60874219	-16.467544	17.295612	-3.3318792
586	6.4394522	-0.23052458E-01	0.63798836	-18.450768	12.526682	-3.0500797
587	5.6052873	-1.0343830	0.65406887	-18.970425	8.2365351	-2.6731181
588	4.7418459	-1.9222679	0.65380747	-18.155932	4.5953335	-2.2228016
589	3.9864819	-2.5186853	0.63515378	-16.008350	2.2103239	-1.7683392

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590    3.3367787    -2.8372739    0.59949203    -13.303625    0.72535552    -1.3514847
591    2.7879978    -2.9201024    0.55077458    -10.540766    -0.14187337    -0.99327549
592    2.3326040    -2.8190109    0.49359160    -8.0122220    -0.60367442    -0.70086500
593    1.9611176    -2.5848567    0.43217745    -5.8577332    -0.81179083    -0.47215479
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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102) 10.4689 JUN 11,1994 CP= 721.500

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
594	1.6631656	-2.2620600	0.36997679	-4.1071171	-0.86818991	-0.29916625
595	1.4283379	-1.8867651	0.30955679	-2.7140851	-0.83542944	-0.17052682
596	1.2467445	-1.4874360	0.25272998	-1.5825005	-0.74585874	-0.73282310E-01
597	1.1092792	-1.0870276	0.20079609	-0.58660505	-0.60946977	0.57931669E-02
598	1.0076423	-0.70609740	0.15483848	0.41296182	-0.42053944	0.79221619E-01
599	0.93418394	-0.36636774	0.11602852	1.5552699	-0.16340425	0.15801465
600	0.88163178	-0.94325281E-01	0.85900048E-01	2.9651585	0.18218840	0.25088354
601	0.84276309	0.75550442E-01	0.66560561E-01	4.7371324	0.63567198	0.36333762

MINIMUMS
ELEMENT 217 591 577 587 186 175
VALUE 0.84276309 -2.9201024 0.66560560E-01 -18.970425 -0.86818992 -3.6641988

MAXIMUMS
ELEMENT 578 172 170 170 579 578
VALUE 16.141903 7.3838847 1.0989026 158.77123 67.752981 11.101634

USE LOAD STEP 3 ITERATION 1 SECTION 1 FOR LOAD CASE 1

***WARNING *** CP= 725.130 TIME= 10.46996
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 10.46996
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 10.46996
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 10.46996
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 10.46996
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 10.46996
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***

LOAD STEP 3. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

LOAD STEP= 3 ITERATION= 1 SECTION= 1
ME= 0.000000E+00 LOAD CASE= 1
.ITLE= SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

PRINT ELEMENT STRESS ITEMS PER ELEMENT

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WHC-SD-W320-ANAL-003
Rev. 0

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4700 JUN 11, 1994 CP= 725.350

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXMY
170	0.65355361	0.45904369	-0.40818361E-01	47.303430	13.940864	4.0718321
171	0.53700341	0.85328268	-0.81205307E-01	27.687138	16.664915	2.1882118
172	0.53581111	1.0232760	-0.98676897E-01	16.885467	13.803094	1.2891138
173	0.55321923	1.0695273	-0.10360728	9.9910241	10.380626	0.72874290
174	0.55708766	1.0188879	-0.98798614E-01	6.0819069	7.7840615	0.42474992
175	0.54537426	0.92078205	-0.89255591E-01	3.5648955	5.8737636	0.23286780
176	0.52197051	0.79985637	-0.77452924E-01	1.8487788	4.4432272	0.10401521
177	0.49076317	0.67114640	-0.64890397E-01	0.65240578	3.3527852	0.15637451E-01
178	0.45490150	0.54445760	-0.52539414E-01	-0.18224860	2.5100362	-0.44760977E-01
179	0.40900214	0.40313735	-0.38789444E-01	-0.80595086	1.7572917	-0.87774823E-01
180	0.35538840	0.25601590	-0.24513667E-01	-1.2306440	1.1102001	-0.11506810
181	0.30332372	0.13013244	-0.12389219E-01	-1.3726865	0.66670794	-0.12094722
182	0.25482487	0.31617484E-01	-0.29868319E-02	-1.3367255	0.36996201	-0.11374966
183	0.21128430	-0.38901088E-01	0.36647838E-02	-1.1986937	0.17820140	-0.99487600E-01
184	0.17341637	-0.83927474E-01	0.78402772E-02	-1.0124134	0.59905694E-01	-0.82344821E-01
185	0.14138267	-0.10750463	0.99583801E-02	-0.81383248	-0.83391473E-02	-0.65036997E-01
186	0.11495284	-0.11417097	0.10478340E-01	-0.62471649	-0.43508504E-01	-0.49129809E-01
187	0.93649865E-01	-0.10832992	0.98382212E-02	-0.45591471	-0.57474336E-01	-0.35321693E-01
188	0.76863826E-01	-0.93930428E-01	0.84244596E-02	-0.31021981	-0.58121646E-01	-0.23689989E-01
189	0.63931990E-01	-0.74375162E-01	0.65637771E-02	-0.18481102	-0.50291900E-01	-0.13898544E-01
190	0.54188843E-01	-0.52587274E-01	0.45301856E-02	-0.73309117E-01	-0.36581180E-01	-0.53690998E-02
191	0.46991858E-01	-0.31177691E-01	0.25608875E-02	0.32481814E-01	-0.18019588E-01	0.25774628E-02
192	0.41729250E-01	-0.12663978E-01	0.87632639E-03	0.14098119	0.53407162E-02	0.10597602E-01
193	0.37816136E-01	0.30459543E-03	-0.29957337E-03	0.25897157	0.34036523E-01	0.19208907E-01
194	0.63053682	0.48206048	0.74922356E-01	47.536127	13.704003	2.8017443
195	0.51796762	0.87231846	0.14536699E-01	28.097265	16.254022	0.10506176
196	0.51660147	1.0424856	-0.20238138E-02	17.255967	13.429307	-0.59164831
197	0.53321957	1.0895269	-0.29147732E-02	10.283081	10.086646	-0.74756817
198	0.53685794	1.0391176	0.31360161E-02	6.3085791	7.5573287	-0.71757450
199	0.52551928	0.94063704	0.10891490E-01	3.7413196	5.6980777	-0.65550035
200	0.50293867	0.81888821	0.18656519E-01	1.9864578	4.3063724	-0.59019347
201	0.47285324	0.68905633	0.25677756E-01	0.75990233	3.2459313	-0.52787492
202	0.43829310	0.56106600	0.31577966E-01	-0.98635455E-01	2.4262972	-0.46951851
203	0.39406963	0.41806986	0.37002935E-01	-0.74392771	1.6950969	-0.40406442
204	0.34244091	0.26896338	0.41471758E-01	-1.1880802	1.0673727	-0.33453758
205	0.29230109	0.14115507	0.44056979E-01	-1.3442801	0.63767019	-0.27002100
206	0.24559515	0.40847203E-01	0.44540711E-01	-1.3184091	0.35079879	-0.21215376
207	0.20366528	-0.31282064E-01	0.43145678E-01	-1.1874353	0.16599537	-0.16198346
208	0.16719966	-0.77710757E-01	0.40282208E-01	-1.0059733	0.52514260E-01	-0.11987766
209	0.13635365	-0.10247561	0.36407943E-01	-0.81058545	-0.12473568E-01	-0.85621341E-01
210	0.11090493	-0.11012306	0.31951255E-01	-0.62350693	-0.45502759E-01	-0.58546305E-01
211	0.90393549E-01	-0.10507361	0.27274473E-01	-0.45593905	-0.58117892E-01	-0.37674447E-01
212	0.74231559E-01	-0.91298161E-01	0.22663159E-01	-0.31093170	-0.57966010E-01	-0.21853626E-01
213	0.61780171E-01	-0.72223343E-01	0.18332071E-01	-0.18584561	-0.49720768E-01	-0.98750654E-02

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4700 JUN 11, 1994 CP= 725.400

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXMY
214	0.52397952E-01	-0.50796383E-01	0.14440904E-01	-0.74423562E-01	-0.35864655E-01	-0.56954324E-03
215	0.45465629E-01	-0.29651463E-01	0.11114558E-01	0.31454451E-01	-0.17355411E-01	-0.71148955E-02
216	0.40393654E-01	-0.11328382E-01	0.84635389E-02	0.14013770	0.58016973E-02	0.14036861E-01
217	0.36618875E-01	0.15018565E-02	0.66005619E-02	0.25826971	0.34344970E-01	0.20687123E-01
554	-0.65355361	-0.45904369	-0.40818361E-01	-47.303430	-13.940864	-4.0718321
555	-0.53700341	-0.85328268	-0.81205307E-01	-27.687138	-16.664915	-2.1882118
556	-0.53581111	-1.0232760	-0.98676897E-01	-16.885467	-13.803094	-1.2891138
557	-0.55321923	-1.0695273	-0.10360728	-9.9910241	-10.380626	-0.72874290

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558 -0.55708766 -1.0188879 0.98798614E-01 -6.0819069 -7.7840615 -0.42474992
559 -0.54537426 -0.92078205 0.89255591E-01 -3.5648955 -5.8737636 -0.23286780
560 -0.52197051 -0.79985637 0.77452924E-01 -1.8487788 -4.4432272 -0.10401521
561 -0.49076317 -0.67114640 0.64890397E-01 -0.65240578 -3.3527852 -0.15637451E-01
562 -0.45490150 -0.54445760 0.52539414E-01 0.18224860 -2.5100362 0.44760977E-01
563 -0.40900214 -0.40313735 0.38789444E-01 0.80595086 -1.7572917 0.87774823E-01
564 -0.35538840 -0.25601590 0.24513667E-01 1.2306440 -1.1102001 0.11506810
565 -0.30332372 -0.13013244 0.12389219E-01 1.3726865 -0.66670794 0.12094722
566 -0.25482487 -0.31617484E-01 0.29868319E-02 1.3367255 -0.36996201 0.11374966
567 -0.21128430 0.38901088E-01 -0.36647838E-02 1.1986937 -0.17820140 0.99487600E-01
568 -0.17341637 0.83927474E-01 -0.78402772E-02 1.0124134 -0.59905694E-01 0.82344821E-01
569 -0.14138267 0.10750463 -0.99583801E-02 0.81383248 0.83391474E-02 0.65036997E-01
570 -0.11495284 0.11417097 -0.10478340E-01 0.62471649 0.43508504E-01 0.49129809E-01
571 -0.93649865E-01 0.10832992 -0.98382212E-02 0.45591471 0.57474336E-01 0.35321693E-01
572 -0.76863826E-01 0.93930428E-01 -0.84244596E-02 0.31021981 0.58121646E-01 0.23689989E-01
573 -0.63931990E-01 0.74375162E-01 -0.65637771E-02 0.18481102 0.50291900E-01 0.13898544E-01
574 -0.54188843E-01 0.52587274E-01 -0.45301856E-02 0.73309117E-01 0.36581180E-01 0.53690998E-02
575 -0.46991858E-01 0.31177691E-01 -0.25608875E-02 -0.32481814E-01 0.18019588E-01 -0.25774628E-02
576 -0.41729250E-01 0.12663978E-01 -0.87632639E-03 -0.14098119 -0.53407162E-02 -0.10597602E-01
577 -0.37816136E-01 -0.30459543E-03 0.29957337E-03 -0.25897157 -0.34036523E-01 -0.19208907E-01
578 -0.63053682 -0.48206048 -0.74922356E-01 -47.536127 -13.704003 -2.8017443
579 -0.51796762 -0.87231846 -0.14536699E-01 -28.097265 -16.254022 -0.10506176
580 -0.51660147 -1.0424856 0.20238137E-02 -17.255967 -13.429307 0.59164831
581 -0.53321957 -1.0895269 0.29147732E-02 -10.283081 -10.086646 0.74756817
582 -0.53685794 -1.0391176 -0.31360161E-02 -6.3085791 -7.5573287 0.71757450
583 -0.52551928 -0.94063704 -0.10891490E-01 -3.7413196 -5.6980777 0.65550035
584 -0.50293867 -0.81888821 -0.18656519E-01 -1.9864578 -4.3063724 0.59019347
585 -0.47285324 -0.68905633 -0.25677756E-01 -0.75990233 -3.2459313 0.52787492
586 -0.43829310 -0.56106600 -0.31577966E-01 0.98635455E-01 -2.4262972 0.46951851
587 -0.39406963 -0.41806986 -0.37002935E-01 0.74392771 -1.6950969 0.40406442
588 -0.34244091 -0.26896338 -0.41471758E-01 1.1880802 -1.0673727 0.33453758
589 -0.29230109 -0.14115507 -0.44056979E-01 1.3442801 -0.63767019 0.27002100
590 -0.24559515 -0.40847203E-01 -0.44540711E-01 1.3184091 -0.35079879 0.21215376
591 -0.20366528 0.31282064E-01 -0.43145678E-01 1.1874353 -0.16599537 0.16198346
592 -0.16719966 0.77710757E-01 -0.40282208E-01 1.0059733 -0.52514260E-01 0.11987766
593 -0.13635365 0.10247561 -0.36407943E-01 0.81058545 0.12473568E-01 0.85621341E-01
1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 95 38172-PC/F1-4.4A MAY 1,1990
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FOR SUPPORT CALL NEAL WATTS PHONE 510 743-7777 TWX

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SY-101 DOME (FOR PENETRATION SENSITIVITY FOR AY-102)

10.4700 JUN 11,1994 CP= 725.460

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
594	-0.11090493	0.11012306	-0.31951255E-01	0.62350693	0.45502759E-01	0.58546305E-01
595	-0.90393549E-01	0.10507361	-0.27274473E-01	0.45593905	0.58117892E-01	0.37674447E-01
596	-0.74231559E-01	0.91298161E-01	-0.22663159E-01	0.31093170	0.57966010E-01	0.21853626E-01
597	-0.61780171E-01	0.72223343E-01	-0.18332071E-01	0.18584561	0.49720768E-01	0.98750654E-02
598	-0.52397952E-01	0.50796383E-01	-0.14440904E-01	0.74423562E-01	0.35864655E-01	0.56954323E-03
599	-0.45465629E-01	0.29651463E-01	-0.11114558E-01	-0.31454451E-01	0.17355411E-01	-0.71148955E-02
600	-0.40393654E-01	0.11328382E-01	-0.84635389E-02	-0.14013770	-0.58016973E-02	-0.14036861E-01
601	-0.36618875E-01	-0.15018565E-02	-0.66005619E-02	-0.25826971	-0.34344970E-01	-0.20687123E-01

MINIMUMS

ELEMENT	554	581	173	578	555	554
VALUE	-0.65355361	-1.0895269	-0.10360728	-47.536127	-16.664915	-4.0718321

MAXIMUMS

ELEMENT	170	197	557	194	171	170
VALUE	0.65355361	1.0895269	0.10360728	47.536127	16.664915	4.0718321

***** ROUTINE COMPLETED ***** CP = 725.460

/EOF ENCOUNTERED ON FILE18

PREP7 AFWRITE OR SFWRITE WARNING MESSAGES = 0
NUMBER OF SOLUTION PHASE WARNING MESSAGES = 0

***** RUN COMPLETED ***** CP= 725.6200 TIME= 10.4701

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>[Signature]</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>[Signature]</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	25 TOTAL	Rev. No.	0

ATTACHMENT 4

3-D AY102 TANK DOME MODEL - UNIT LOADS APPLIED
AT TOP SURFACE OF DOME (PENETRATION CENTERLINE)

ADVENT Engineering Services, Inc.	
PROJECT: WHC - AY-102 AVAILABLE LOADS ON MOUNTING RING	
CLIENT: WHC	FILE NO.(s): 9005.7.1
INPUT FILE NAME: DOME3.INP	OUTPUT FILE NAME: DOME3.OUTPUT
RUN DESCRIPTION: NOMINAL LATERAL AND HORIZONTAL FORCES AND HORIZONTAL MOMENT	
MODEL DESCRIPTION: MODEL OF AY-102 DOME LOAD AT TOP SURFACE OF DOME	
PROGRAM: ANSYS-PC	VERSION 4.4A
PREPARED BY:	
REVIEWED BY: <i>Albert Dye</i>	
APPROVED BY: <i>Albert Dye</i>	
DESIGN VERIFIED: ☐ YES, ☒ NOT REQUIRED	
REMARKS:	

51\forms\stamp

GENERAL REMARKS

THE GENERAL CONFIGURATION, MAGNITUDES OF 3 SEPARATELY APPLIED LOADS, MODEL GEOMETRY AND BOUNDARY CONDITIONS, MODELING PROPERTIES, AND COORDINATE SYSTEMS ARE UNCHANGED FROM ATTACHMENT #3.

THE STRESS RESULTANTS IN THIS ATTACHMENT RESULT FROM INDEPENDENT LOADS APPLIED AT THE TOP SURFACE OF DOME, THIS IS 7.5 INCHES ABOVE DOME MID-PLANE (SINCE THIS IS A SHELL MODEL THE MID-PLANE DEFINES MODEL GEOMETRY). TO ENSURE THAT EFFECTS OF F_H ARE LITERATELY PREDICTED, LOADS ARE APPLIED AT TOP SURFACE OF DOME, 7.5" ABOVE MID-PLANE.

ATTACHMENT 3 ILLUSTRATES MODEL GEOMETRY, NODE AND ELEMENT NUMBERS, ALL OF WHICH ARE UNCHANGED.

PLEASE NOTE THE STRESS RESULTANTS ARE IN UNITS OF LBS/IN AND IN-LBS/IN. TABLES 7.3 AND 8.3 ARE EXPRESSED IN UNITS OF LBS/FT AND IN-LBS/FT (CONVERSION FACTOR = 12 IN/FT).

```

/prep7
/output,dome3,out
c***
/title,SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)
kan,0
c***
/com shell elements
et,1,63      **** 3-D shell
et,2,21
/com concrete material mat,1
ex,1,3.2e6
dens,1,.000225
nuxy,1,.15
c***
r,1,15.
c***
local,11,2,0.,0.,-589.24
c***
c*** NODE 9000 LOCATED AT DOME/PEN. TOP SURFACE
c***
n,9000,1267.5,0.,90.
n,1,1260,0.,88.995753
n,2,1260,0.,88.541616
n,3,1260,0.,88.087663
n,10,1260,0.,82.75
fill,10,3
local,12,2,49.68,0.,-224.2
n,25,891.6,0.,60.33
fill,25,10
csys,11
NGEN,33,26,1,25,1,0.,11.25,0.,1
type,1 $real,1 $mat,1
e,1,2,28,27
egen,24,1,1,1,1
type,2
    9000,9000
/vup,,z
/view,,1,1,1
EGEN,32,26,1,24,1
NUMMRG,NODE
NSEL,2,88.995753
HASEL,NODE,9000
CERIG,9000,ALL
HALL
/com boundary conditions
NSEL,NODE,25,831,26
d,all,all,0. $nall
f,9000,fy,1000.
lwrite
f,9000,fy,0.
f,9000,fz,1000.
lwrite
f,9000,fz,0.
f,9000,mx,10000.
lwrite
afwrite
fini
/output,sol3,out
/input,27
fini
/OUTPUT,DMPOST3,OUT
/post1
global,0
store,stress
stress,tx,63,1
stress,ty,63,2
stress,txy,63,3
stress,mx,63,6
    ss,my,63,7
    ss,mxy,63,8
---,1,1
nset,x,0
enode
prstrs,tx,ty,txy,mx,my,mxy
set,2,1

```

INDEPENDENTLY APPLIED LOADS

GENERAL CONFIGURATION

** Merges the coincident nodes

LOAD CASE #1 : $F_z = 1000 \pm$

LOAD CASE #2 : $F_y = 1000 \pm$

LOAD CASE #3 : $M_x = 10^4 \text{ in.-lb.}$

LOADS ARE APPLIED AT A POINT
7.5" ABOVE DOME APER.

'ANSYS' INPUT FILE (2 PAGES)

enode
rstrs,tx,ty,txy,mx,my,mxy
.et,3,1
prstrs,tx,ty,txy,mx,my,mxy
fini
/eof

C***

NEW TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

ANALYSIS TYPE= 0 (STATIC ANALYSIS)

C***

shell elements

ELEMENT TYPE 1 USES STIF 63

KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0

INOPR= 0 NUMBER OF NODES= 4

QUAD. FLAT SHELL

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

ELEMENT TYPE 2 USES STIF 21

KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0

INOPR= 0 NUMBER OF NODES= 1

GENERAL MASS

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE
concrete material mat,1MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3200000.PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.32000E+07 9999.0 0.32000E+07MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.2250000E-03PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.22500E-03 9999.0 0.22500E-03MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.1500000PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

C***

REAL CONSTANT SET 1 ITEMS 1 TO 6
15.000 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

C***

COORDINATE SYSTEM 11 DEFINITION. TYPE= 2 (SPHERICAL)

XC,YC,ZC= 0.00000E+00 0.00000E+00 -589.24

ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000

ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (SPHERICAL)

C***

C*** NODE 9000 LOCATED AT DOME/PEN. TOP SURFACE

C***

'ANSYS' RUN PHASE
(13 PAGES)

④/24

WHC-SD-W320-ANAL-003
Rev. 0

NODE 9000 KCS=11 X,Y,Z= 1267.5 0.00000E+00 90.000
NODE 1 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.996
NODE 2 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.542
NODE 3 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.088
NODE 10 KCS=11 X,Y,Z= 1260.0 0.00000E+00 82.750

FILL 6 POINTS BETWEEN NODE 10 AND NODE 3
START WITH NODE 9 AND INCREMENT BY -1

COORDINATE SYSTEM 12 DEFINITION. TYPE= 2 (SPHERICAL)
XC,YC,ZC= 49.680 0.00000E+00 -224.20
ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 12 (SPHERICAL)

NODE 25 KCS=12 X,Y,Z= 891.60 0.00000E+00 60.330

FILL 14 POINTS BETWEEN NODE 25 AND NODE 10
START WITH NODE 24 AND INCREMENT BY -1

ACTIVE COORDINATE SYSTEM SET TO 11 (SPHERICAL)

GENERATE 33 TOTAL SETS OF NODES WITH INCREMENT 26
SET IS SELECTED NODES IN RANGE 1 TO 25 IN STEPS OF 1
GEOMETRY INCREMENTS ARE 0.00000E+00 11.250 0.00000E+00

ELEMENT TYPE SET TO 1

REAL CONSTANT NUMBER= 1

MATERIAL NUMBER SET TO 1
ELEMENT 1 1 2 28 27

GENERATE 24 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 1
SET IS SELECTED ELEMENTS IN RANGE 1 TO 1 IN STEPS OF 1
NUMBER OF ELEMENTS= 24

ELEMENT TYPE SET TO 2
ELEMENT 25 9000

VIEW UP DIRECTION FOR WINDOW 1 IS GCS Z AXIS

VIEW POINT FOR WINDOW 1 1.0000 1.0000 1.0000

GENERATE 32 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 26
SET IS SELECTED ELEMENTS IN RANGE 1 TO 24 IN STEPS OF 1
NUMBER OF ELEMENTS= 769

MERGE COINCIDENT NODES WITHIN TOLERANCE OF 0.10000E-03

NODE	1	USED FOR NODES	1	833
NODE	2	USED FOR NODES	2	834
NODE	3	USED FOR NODES	3	835
NODE	4	USED FOR NODES	4	836
NODE	5	USED FOR NODES	5	837
NODE	6	USED FOR NODES	6	838
NODE	7	USED FOR NODES	7	839
NODE	8	USED FOR NODES	8	840
NODE	9	USED FOR NODES	9	841
NODE	10	USED FOR NODES	10	842
NODE	11	USED FOR NODES	11	843
NODE	12	USED FOR NODES	12	844
NODE	13	USED FOR NODES	13	845
NODE	14	USED FOR NODES	14	846
NODE	15	USED FOR NODES	15	847
NODE	16	USED FOR NODES	16	848
NODE	17	USED FOR NODES	17	849
NODE	18	USED FOR NODES	18	850
NODE	19	USED FOR NODES	19	851
NODE	20	USED FOR NODES	20	852

FAW4-7

5/2

WHC-SD-W320-ANAL-003
Rev. 0

NODE	21	USED FOR NODES	21	853
NODE	22	USED FOR NODES	22	854
NODE	23	USED FOR NODES	23	855
NODE	24	USED FOR NODES	24	856
NODE	25	USED FOR NODES	25	857

NSEL FOR LABEL= Z BETWEEN 88.996 AND 88.996 KABS= 0.
TOLERANCE= 0.444979

32 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

NASE FOR LABEL= NODE FROM 9000 TO 9000 BY 1

33 NODES (OF 801 DEFINED) SELECTED BY NASE COMMAND.

MASTER NODE= 9000 SLAVE NODE= 1 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 1 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 2 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 3 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 4 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 5 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 6 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 27 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 7 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 8 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 9 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 10 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 11 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 12 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 53 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 13 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 14 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 15 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 16 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 17 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 18 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 79 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 19 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 20 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 21 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 22 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 23 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 24 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 105 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 25 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 26 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 27 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 28 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 29 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 30 HAS 2 TERMS. CONSTANT= 0.000000E+00
MASTER NODE= 9000 SLAVE NODE= 131 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 31 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 32 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 33 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 34 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 35 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 36 HAS 2 TERMS. CONSTANT= 0.000000E+00
MASTER NODE= 9000 SLAVE NODE= 157 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 37 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 38 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 39 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 40 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 41 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 42 HAS 2 TERMS. CONSTANT= 0.000000E+00
MASTER NODE= 9000 SLAVE NODE= 183 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 43 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 44 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 45 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 46 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 47 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 48 HAS 2 TERMS. CONSTANT= 0.000000E+00
MASTER NODE= 9000 SLAVE NODE= 209 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 49 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 50 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 51 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 52 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 53 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 54 HAS 2 TERMS. CONSTANT= 0.000000E+00
MASTER NODE= 9000 SLAVE NODE= 235 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 55 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 56 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 57 HAS 4 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 58 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 59 HAS 2 TERMS. CONSTANT= 0.000000E+00

CONSTRAINT EQUATION NO. 60 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 261 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 61 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 62 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 63 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 64 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 65 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 66 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 287 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 67 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 68 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 69 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 70 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 71 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 72 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 313 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 73 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 74 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 75 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 76 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 77 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 78 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 339 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 79 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 80 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 81 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 82 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 83 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 84 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 365 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 85 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 86 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 87 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 88 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 89 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 90 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 391 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 91 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 92 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 93 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 94 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 95 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 96 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 417 PARTIAL KEY= 0 3-D SPACE
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CONSTRAINT EQUATION NO. 98 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 99 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 100 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 101 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 102 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 443 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 103 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 104 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 105 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 106 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 107 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 108 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 469 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 109 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 110 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 111 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 112 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 113 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 114 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 495 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 115 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 116 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 117 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 118 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 119 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 120 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 521 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 121 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 122 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 123 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 124 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 125 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 126 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 547 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 127 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 128 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 129 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 130 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 131 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 132 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 573 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 133 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 134 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 135 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 136 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 137 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 138 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 599 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 139 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 140 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 141 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 142 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 143 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 144 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 625 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 145 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 146 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 147 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 148 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 149 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 150 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 651 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 151 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 152 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 153 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 154 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 155 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 156 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 677 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 157 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 158 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 159 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 160 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 161 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 162 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 703 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 163 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 164 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 165 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 166 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 167 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 168 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 729 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 169 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 170 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 171 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 172 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 173 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 174 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 755 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 175 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 176 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 177 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 178 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 179 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 180 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 781 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 181 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 182 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 183 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 184 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 185 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 186 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 807 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 187 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 188 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 189 HAS 4 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 190 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 191 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 192 HAS 2 TERMS. CONSTANT= 0.0000000E+00

801 NODES (OF 801 DEFINED) SELECTED BY NALL COMMAND.
boundary conditions

NSEL FOR LABEL= NODE FROM 25 TO 831 BY 26

32 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

SPECIFIED DISP ALL FOR ALL SELECTED NODES
VALUES= 0.00000E+00 0.00000E+00 ADDITIONAL DOFS=

801 NODES (OF 801 DEFINED) SELECTED BY NALL COMMAND.

SPECIFIED FORCE FY FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 1000.0 0.00000E+00

LOAD STEP 1 WRITTEN ON FILE23

SPECIFIED FORCE FY FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 0.00000E+00 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 1000.0 0.00000E+00

LOAD STEP 2 WRITTEN ON FILE23

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 0.00000E+00 0.00000E+00

SPECIFIED FORCE MX FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 10000. 0.00000E+00

LOAD STEP 3 WRITTEN ON FILE23

*** NOTE ***
DATA CHECKED - NO FATAL ERRORS FOUND.
CHECK OUTPUT FOR POSSIBLE WARNING MESSAGES.

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 2
769 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 769
801 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 9000
MAXIMUM LINEAR PROPERTY NUMBER= 1
MAXIMUM REAL CONSTANT SET NUMBER= 1
ACTIVE COORDINATE SYSTEM= 11 (SPHERICAL)
MAXIMUM CONSTRAINT EQUATION NUMBER= 192
NUMBER OF IMPOSED DISPLACEMENTS= 192
NUMBER OF NODAL FORCES= 3

ANALYSIS DATA WRITTEN ON FILE27

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 11.650

12/27

***** INPUT SWITCHED FROM FILE18 TO FILE27 NAME=FILE27.DAT

NEW TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.6708 JUL 3,1994 CP= 11.810

***** NOTICE ***** THIS IS THE ANSYS GENERAL PURPOSE
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POSSIBLE. SUGGESTIONS AND COMMENTS ARE WELCOMED. ANY
ERRORS ENCOUNTERED IN EITHER THE DOCUMENTATION OR THE
RESULTS SHOULD BE IMMEDIATELY BROUGHT TO OUR ATTENTION.

***** ANALYSIS OPTIONS *****

VALUE
ANALYSIS TYPE 0
REFERENCE TEMPERATURE 0.00

***** ELEMENT TYPES *****

TYPE	STIF	DESCRIPTION	KEY OPTIONS									NJ	INOTPR
			1	2	3	4	5	6	7	8	9		

NUMBER OF ELEMENT TYPES= 2

***** TABLE OF ELEMENT REAL CONSTANTS *****

NO.

NUMBER OF REAL CONSTANT SETS= 1

***** ELEMENT DEFINITIONS *****

ELEMENT	NODES	MAT	TYPE	ELEMENT REAL CONSTANTS
---------	-------	-----	------	------------------------

SWITCHED TO FIXED FORMAT INPUT

INTEGER STORAGE REQUIREMENTS FOR ELEMENT INPUT CP= 13.240 TIME= 17.67123
FIXED DATA = 1038 TEMPORARY DATA = 18000 TOTAL= 19038
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000
MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 2000480

NUMBER OF ELEMENTS = 769 MAXIMUM NODE NUMBER USED = 9000

***** NODE DEFINITIONS *****

NODE	LOCATION			ROTATION (DEGREES)		
	X (OR R)	Y (OR THETA)	Z (OR PHI)	THXY (OR RT)	THYZ (TZ OR TP)	THXZ (RZ OR RP)

SWITCHED TO FIXED FORMAT INPUT

XMIN= -491.0 XMAX= 491.0 YMIN= -491.0 YMAX= 491.0 ZMIN= 550.5 ZMAX= 678.3

INTEGER STORAGE REQUIREMENTS FOR NODE INPUT CP= 15.050 TIME= 17.67174

FIXED DATA = 1038 TEMPORARY DATA = 108000 TOTAL= 109038

FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 666826

***** MATERIAL PROPERTIES *****

MAXIMUM MATERIAL NUMBER= 1

***** CONSTRAINT EQUATIONS *****

NO. CONSTANT

NODE	DIRECT.	COEF.	NODE	DIRECT.	COEF.	NODE	DIRECT.	COEF.
------	---------	-------	------	---------	-------	------	---------	-------

NUMBER OF CONSTRAINT EQUATIONS= 192

***** MASTER DEGREES OF FREEDOM *****

NODE	DEGREES OF FREEDOM LIST
------	-------------------------

NUMBER OF SPECIFIED MASTER D.O.F.= 0

TOTAL NUMBER OF MASTER D.O.F. = 0

INTEGER STORAGE REQUIREMENTS FOR MATERIALS, ETC. INPUT CP= 17.140 TIME= 17.67232

FIXED DATA = 4698 TEMPORARY DATA = 0 TOTAL= 4698

FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

INTEGER STORAGE REQUIREMENTS FOR LOAD DATA INPUT CP= 17.470 TIME= 17.67241

FIXED DATA = 22424 TEMPORARY DATA = 0 TOTAL= 22424

FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 2716.8

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.12240E-07	IXX = 0.1190E+10	IXX = 0.1687E+09
YC = 0.32257E-09	IYY = 0.1190E+10	IYY = 0.1687E+09
ZC = 613.26	IZZ = 0.3307E+09	IZZ = 0.3307E+09
	IXY = 0.3178E-03	IXY = 0.3178E-03
	IYZ = -0.5279E-03	IYZ = 0.9556E-05
	IZX = -0.2256E-01	IZX = -0.2162E-02

ONLY THE FIRST REAL CONSTANT MASS TERM IS USED FOR THE STIF21 ELEMENTS.

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
1	2701.83
2	15.0000

RANGE OF ELEMENT MAXIMUM STIFFNESS IN GLOBAL COORDINATES

MAXIMUM= 0.476117E+10 AT ELEMENT 409.
MINIMUM= 0.176735E+10 AT ELEMENT 679.

INTEGER STORAGE REQUIREMENTS FOR ELEMENT FORMULATION CP= 49.870 TIME= 17.68141
FIXED DATA = 22424 TEMPORARY DATA = 0 TOTAL= 22424
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

*** ELEMENT STIFFNESS FORMULATION TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	10.790	0.014
2	1	21	0.000	0.000

TIME AT END OF ELEMENT STIFFNESS FORMULATION CP= 49.870

MAXIMUM IN-CORE WAVE FRONT ALLOWED FOR REQUESTED MEMORY SIZE= 1992.

INTEGER STORAGE REQUIREMENTS FOR WAVE FRONT MATRIX SOLUTION CP= 180.930 TIME= 17.71781
FIXED DATA = 22424 TEMPORARY DATA = 96100 TOTAL= 118524
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

MAXIMUM IN-CORE WAVE FRONT= 308.

MATRIX SOLUTION TIMES
READ IN ELEMENT STIFFNESSES CP= 14.030

NODAL COORD. TRANSFORMATION CP= 0.000
MATRIX TRIANGULARIZATION CP= 116.480

TIME AT END OF MATRIX TRIANGULARIZATION CP= 180.930
EQUATION SOLVER MAXIMUM PIVOT= 0.13715E+12 AT NODE 9000. ROTZ
EQUATION SOLVER MINIMUM PIVOT= 0.22843E+06 AT NODE 2. ROTZ

INTEGER STORAGE REQUIREMENTS FOR BACK SUBSTITUTION CP= 222.780 TIME= 17.72944
FIXED DATA = 22424 TEMPORARY DATA = 108014 TOTAL= 130438
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

*** ELEM. STRESS CALC. TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	5.370	0.007

*** NODAL FORCE CALC. TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	0.620	0.001

*** LOAD STEP 1 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 1

INTEGER STORAGE REQUIREMENTS FOR STRESS AND FORCE CALCULATIONS CP= 259.740 TIME= 17.73971
FIXED DATA = 22424 TEMPORARY DATA = 324000 TOTAL= 346424
FIXED AVAIL= 4002000 TEMPORARY AVAIL= 4002000 TOTAL AVAIL= 4002000

*** STORAGE REQUIREMENT SUMMARY

MAXIMUM FIXED MEMORY USED = 22424
MAXIMUM TEMPORARY MEMORY USED= 324000
MAXIMUM TOTAL MEMORY USED = 346424
MAXIMUM TEMPORARY AVAILABLE = 3979576

*** PROBLEM STATISTICS

NO. OF ACTIVE DEGREES OF FREEDOM = 4614
R.M.S. WAVEFRONT SIZE = 297.5

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 2048
POST DATA WRITTEN ON FILE12
RESTART DATA WRITTEN ON FILE03 (5884344 BYTES)
TRIANGULARIZED MATRIX WRITTEN ON FILE11 (11466412 BYTES)

*** LOAD STEP 2 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 2

*** LOAD STEP 3 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 3

***** END OF INPUT ENCOUNTERED ON FILE27. FILE27 REWOUND

***** INPUT FILE SWITCHED FROM FILE27 TO FILE18

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102) 17.8738 JUL 3,1994 CP= 742.430

***** ANSYS SOLUTION PHASE RUN TIME ESTIMATOR *****

COMPUTER = PC 386/486 NUMBER OF MASTER DOF = 0
ANALYSIS TYPE = 0 RMS WAVE FRONT = 298
NUMBER OF ACTIVE NODES = 770 TOTAL NO. OF ITERATIONS = 3
MAX. DOF PER NODE = 6 STIFF. MATRIX SAVE KEY = 0
NUMBER OF MATRICES = 1 ELEM. MATRIX SAVE KEY = 0
NUMBER OF STRESS SOLUTIONS= 1 ROTATED NODE FRACTION= 0.000

STIF	NUMBER	FORM. TIME	STRESS TIME	NAME
21	1	0.001	0.000	GENERAL MASS
63	768	0.259	0.015	QUAD. FLAT SHELL

(TIMING FOR WARPED ELEMENT)

ANALYSIS PHASE	FIRST ITERATION	SUBSEQUENT ITERATIONS	TOTAL
ELEMENT FORMULATION	1243.21	1243.21	3729.62
NODE ROTATION	0.00	0.00	0.00
WAVE FRONT SOLUTION	3077.06	3077.06	9231.18
BACK SUBSTITUTION	51.63	51.63	51.63
ELEMENT STRESSES	72.96	72.96	72.96
NODAL FORCES	11.06	11.06	11.06
TOTAL TIME (SEC)	4455.91	4455.91	13096.44

***** ROUTINE COMPLETED ***** CP = 742.430

(16)

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.8739 JUL 3,1994 CP= 742.810

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE NODAL COORDINATES FOR DISPLACEMENTS AND FORCES --
USE ELEMENT COORDINATES FOR COMPONENT STRESSES
STORE STRESSES

STORE TX FOR ELEMENT TYPE STIF 63 FROM ITEM 1
STORE TY FOR ELEMENT TYPE STIF 63 FROM ITEM 2
STORE TXY FOR ELEMENT TYPE STIF 63 FROM ITEM 3
STORE MX FOR ELEMENT TYPE STIF 63 FROM ITEM 6
STORE MY FOR ELEMENT TYPE STIF 63 FROM ITEM 7
STORE MXY FOR ELEMENT TYPE STIF 63 FROM ITEM 8
USE LOAD STEP 1 ITERATION 1 SECTION 1 FOR LOAD CASE 1

GEOMETRY STORED FOR 801 NODES 769 ELEMENTS
TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

***WARNING *** CP= 748.310 TIME= 17.87542
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 748.310 TIME= 17.87542
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 748.310 TIME= 17.87542
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 748.310 TIME= 17.87542
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 748.310 TIME= 17.87542
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 748.310 TIME= 17.87542
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***
LOAD STEP 1. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 1 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

ISEL FOR LABEL= X BETWEEN 0.000000E+00 AND 0.000000E+00 KABS= 0.
TOLERANCE= 0.100000E-05

50 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

SELECTED 'ANSYS' OUTPUT (FOR 3 DEFINED LOAD CASES)
(9 PAGES)
OUTPUT QUANTITIES ARE STRESS RESULTS FOR
96 ELEMENTS ON EITHER SIDE OF INTERSECTION OF
DOME WITH GLOBAL Y-Z PLANE. THESE ELEMENTS
HAVE HIGHEST STRESS FROM FY & MAX LOAD CASES. RESULTS
FOR Fz LOAD ARE AXISYMMETRIC.

17/2

96 ELEMENTS (OF 769 DEFINED) SELECTED FROM 50 SELECTED NODES BY ENOD COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

*** NOTE ***

SHELL STRESSES SET TO TOP FOR ERROR CALCULATIONS

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.8756 JUL 3,1994 CP= 748.800

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXMY
170	-6.9577684	-0.40470323	-1.1177597	-33.303061	-9.7980582	-2.8883792
171	-5.9850619	0.43670163	-0.88852781	-18.365894	-11.373674	-1.4603123
172	-4.7380940	0.53649368	-0.67417785	-10.120536	-8.9855431	-0.77317572
173	-3.7195173	0.52555842	-0.51814121	-4.9276357	-6.2841490	-0.35159581
174	-3.0319170	0.53615390	-0.42609425	-2.1266987	-4.3149266	-0.13448245
175	-2.5377355	0.58038486	-0.36830429	-0.45227794	-2.9224215	-0.79612499E-02
176	-2.1628161	0.64236293	-0.32994507	0.58613578	-1.9247684	0.68620506E-01
177	-1.8667731	0.70883197	-0.30307993	1.2321844	-1.1997462	0.11483598
178	-1.6262449	0.77095640	-0.28315669	1.6273593	-0.66624651	0.14189938
179	-1.3907244	0.83195823	-0.26459766	1.8703746	-0.21460864	0.15694863
180	-1.1714819	0.87989235	-0.24680319	1.9317336	0.14331019	0.15722096
181	-0.99662859	0.89864709	-0.23089482	1.7724034	0.34689744	0.14095235
182	-0.85654096	0.88732276	-0.21543834	1.5209344	0.44857651	0.11847731
183	-0.74451983	0.84900541	-0.19987740	1.2534717	0.48665847	0.95749978E-01
184	-0.65551880	0.78819808	-0.18407841	1.0105886	0.48788725	0.75788419E-01
185	-0.58555360	0.70941568	-0.16808347	0.80711382	0.46934827	0.59532970E-01
186	-0.53139997	0.61658662	-0.15198930	0.63878740	0.44033308	0.46427775E-01
187	-0.49040979	0.51303859	-0.13590784	0.48696909	0.40391687	0.34835717E-01
188	-0.46036972	0.40191880	-0.11998169	0.32214064	0.35826847	0.22350596E-01
189	-0.43936908	0.28694091	-0.10443579	0.10679650	0.29777091	0.60558420E-02
190	-0.42566440	0.17337126	-0.89652447E-01	-0.20167904	0.21406765	-0.17223237E-01
191	-0.41753842	0.69170203E-01	-0.76257623E-01	-0.64749614	0.97180396E-01	-0.50625722E-01
192	-0.41315782	-0.13814140E-01	-0.65210351E-01	-1.2708821	-0.63189179E-01	-0.96827577E-01
193	-0.41043962	-0.58759250E-01	-0.57845106E-01	-2.1036155	-0.27742500	-0.15789528
194	-7.1361253	-0.22634640	-0.22088613	-33.470291	-9.6240433	-1.9600541
195	-6.0807423	0.53238204	-0.40729558	-18.652000	-11.085494	-0.15973696E-02
196	-4.7954604	0.59386009	-0.38553935	-10.368519	-8.7338698	0.49053828
197	-3.7564193	0.56246043	-0.33235030	-5.1124316	-6.0975007	0.58411790
198	-3.0594267	0.56366361	-0.28747678	-2.2609499	-4.1806187	0.54212145
199	-2.5603244	0.60297382	-0.25436727	-0.54889887	-2.8264754	0.47826238
200	-2.1827098	0.66225665	-0.22948315	0.51753823	-1.8569216	0.41446904
201	-1.8852011	0.72725989	-0.20989234	1.1845882	-1.1527361	0.35589668
202	-1.6439186	0.78863012	-0.19364374	1.5956095	-0.63472016	0.30372091
203	-1.4080374	0.84927118	-0.17672295	1.8523090	-0.19668353	0.24940595
204	-1.1886929	0.89710335	-0.15908925	1.9253899	0.14951880	0.19105504
205	-1.0138751	0.91589365	-0.14257625	1.7738169	0.34558634	0.13597230
206	-0.87379956	0.90458137	-0.12656683	1.5270894	0.44261238	0.89178994E-01
207	-0.76168050	0.86616608	-0.11095281	1.2622747	0.47802916	0.52270433E-01
208	-0.67243211	0.80511139	-0.95816306E-01	1.0206616	0.47790581	0.24895732E-01
209	-0.60205895	0.72592102	-0.81275530E-01	0.81760326	0.45885073	0.55473334E-02
210	-0.54734129	0.63252794	-0.67425532E-01	0.64919806	0.42983986	-0.79892189E-02
211	-0.50564366	0.52827246	-0.54336635E-01	0.49702663	0.39376365	-0.18349802E-01
212	-0.47476949	0.41631857	-0.42089136E-01	0.33168000	0.34871121	-0.28391742E-01
213	-0.45282780	0.30039963	-0.30830089E-01	0.11567204	0.28906874	-0.41028605E-01

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.8756 JUL 3,1994 CP= 748.910

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXMY
------	----	----	-----	----	----	------

(18) 1/2

214	-0.43809868	0.18580554	-0.20841685E-01	-0.19366642	0.20654633	-0.59057520E-01
215	-0.42889470	0.80526480E-01	-0.12611957E-01	-0.64065515	0.91281331E-01	-0.84941115E-01
216	-0.42342336	-0.35485996E-02	-0.68941696E-02	-1.2652997	-0.66960017E-01	-0.12035840
217	-0.41964818	-0.49550689E-01	-0.47737091E-02	-2.1020250	-0.27996985	-0.16585131
554	6.9577686	0.40470304	1.1177587	33.303061	9.7980582	2.8883791
555	5.9850620	-0.43670173	0.88852730	18.365894	11.373674	1.4603123
556	4.7380940	-0.53649373	0.67417757	10.120536	8.9855431	0.77317571
557	3.7195174	-0.52555846	0.51814106	4.9276357	6.2841490	0.35159580
558	3.0319170	-0.53615392	0.42609416	2.1266987	4.3149266	0.13848245
559	2.5377355	-0.58038488	0.36830423	0.45227794	2.9224215	0.79612478E-02
560	2.1628161	-0.64236294	0.32994502	-0.58613578	1.9247684	-0.68620508E-01
561	1.8667732	-0.70883198	0.30307989	-1.2321844	1.1997462	-0.11483598
562	1.6262449	-0.77095641	0.28315665	-1.6273593	0.66624651	-0.14189938
563	1.3907244	-0.83195824	0.26459764	-1.8703746	0.21460864	-0.15694863
564	1.1714819	-0.87989235	0.24680317	-1.9317336	-0.14331019	-0.15722096
565	0.99662859	-0.89864709	0.23089480	-1.7724034	-0.34689744	-0.14095235
566	0.85654096	-0.88732276	0.21543833	-1.5209344	-0.44857651	-0.11847731
567	0.74451983	-0.84900542	0.19987739	-1.2534717	-0.48665847	-0.95749978E-01
568	0.65551880	-0.78819808	0.18407840	-1.0105886	-0.48788725	-0.75788419E-01
569	0.58555360	-0.70941568	0.16808346	-0.80711382	-0.46934827	-0.59532970E-01
570	0.53139997	-0.61658662	0.15198929	-0.63878740	-0.44033308	-0.46427775E-01
571	0.49040980	-0.51303859	0.13590784	-0.48696909	-0.40391687	-0.34835718E-01
572	0.46036972	-0.40191880	0.11998168	-0.32214064	-0.35826847	-0.22350597E-01
573	0.43936908	-0.28694091	0.10443578	-0.10679649	-0.29777091	-0.60558421E-02
574	0.42566440	-0.17337126	0.89652443E-01	0.20167904	-0.21406765	0.17223237E-01
575	0.41753842	-0.69170203E-01	0.76257619E-01	0.64749614	-0.97180396E-01	0.50625722E-01
576	0.41315782	0.13814140E-01	0.65210347E-01	1.2708821	0.63189179E-01	0.96827576E-01
577	0.41043962	0.58759250E-01	0.57845103E-01	2.1036155	0.27742500	0.15789528
578	7.1361255	0.22634620	0.22088515	33.470291	9.6240433	1.9600540
579	6.0807424	-0.53238214	0.40729506	18.652000	11.085494	0.15973540E-02
580	4.7954605	-0.59386015	0.38553907	10.368519	8.7338698	-0.49053829
581	3.7564194	-0.56246046	0.33235015	5.1124316	6.0975007	-0.58411790
582	3.0594267	-0.56366363	0.28747668	2.2609499	4.1806187	-0.54212145
583	2.5603244	-0.60297383	0.25436720	0.54889887	2.8264754	-0.47826238
584	2.1827099	-0.66225666	0.22948310	-0.51753822	1.8569216	-0.41446904
585	1.8852011	-0.72725990	0.20989230	-1.1845882	1.1527361	-0.35589668
586	1.6439186	-0.78863012	0.19364371	-1.5956095	0.63472016	-0.30372091
587	1.4080374	-0.84927118	0.17672292	-1.8523090	0.19668353	-0.24940595
588	1.1886929	-0.89710335	0.15908923	-1.9253899	-0.14951880	-0.19105504
589	1.0138751	-0.91589365	0.14257624	-1.7738169	-0.34558634	-0.13597230
590	0.87379957	-0.90458137	0.12656681	-1.5270894	-0.44261238	-0.89178994E-01
591	0.76168050	-0.86616608	0.11095280	-1.2622747	-0.47802916	-0.52270434E-01
592	0.67243212	-0.80511139	0.95816297E-01	-1.0206616	-0.47790581	-0.24895732E-01
593	0.60205895	-0.72592102	0.81275523E-01	-0.81760326	-0.45885073	-0.55473337E-02

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102) 17.8756 JUL 3,1994 CP= 748.910

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
594	0.54734129	-0.63252794	0.67425526E-01	-0.64919806	-0.42983986	0.79892186E-02
595	0.50564366	-0.52827246	0.54336629E-01	-0.49702663	-0.39376365	0.18349802E-01
596	0.47476949	-0.41631858	0.42089131E-01	-0.33168000	-0.34871121	0.28391742E-01
597	0.45282780	-0.30039963	0.30830084E-01	-0.11567204	-0.28906874	0.41028605E-01
598	0.43809868	-0.18580554	0.20841681E-01	0.19366642	-0.20654633	0.59057520E-01
599	0.42889470	-0.80526481E-01	0.12611954E-01	0.64065515	-0.91281331E-01	0.84941115E-01
600	0.42342336	0.35485990E-02	0.68941663E-02	1.2652997	0.66960017E-01	0.12035840
601	0.41964818	0.49550688E-01	0.47737061E-02	2.1020250	0.27996985	0.16585131

MINIMUMS						
ELEMENT	194	589	170	194	171	170
VALUE	-7.1361253	-0.91589365	-1.1177597	-33.470291	-11.373674	-2.8883792
MAXIMUMS						
ELEMENT	578	205	554	578	555	554
VALUE	7.1361255	0.91589365	1.1177587	33.470291	11.373674	2.8883791

USE LOAD STEP 2 ITERATION 1 SECTION 1 FOR LOAD CASE 1

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WHC-SD-W320-ANAL-003
Rev. 0

***WARNING *** CP= 752.810 TIME= 17.87667
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 752.810 TIME= 17.87667
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 752.810 TIME= 17.87667
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 752.810 TIME= 17.87667
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 752.810 TIME= 17.87667
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 752.870 TIME= 17.87669
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***

LOAD STEP 2. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

96 ELEMENTS (OF 769 DEFINED) SELECTED FROM 50 SELECTED NODES BY ENOD COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102) 17.8768 JUL 3,1994 CP= 753.200

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
170	16.141903	5.0901639	1.0989026	158.77123	50.425092	11.101632
171	13.556747	7.2562665	0.62634278	95.964548	67.752980	2.8553235
172	11.949887	7.3838847	0.45374273	52.400225	62.993896	-1.0110510
173	10.724078	6.4831655	0.42116756	22.432952	51.763986	-2.9101086
174	9.7425312	5.1121172	0.45947095	4.8452351	40.486964	-3.5367461
175	8.8440280	3.6565410	0.51423113	-5.9843751	30.999542	-3.6641987
176	7.9949579	2.2732239	0.56651634	-12.613293	23.356154	-3.5569781
177	7.1921400	1.0354805	0.60874245	-16.467544	17.295612	-3.3318806
178	6.4394522	-0.23052419E-01	0.63798856	-18.450768	12.526682	-3.0500807
179	5.6052873	-1.0343829	0.65406904	-18.970425	8.2365349	-2.6731189
180	4.7418459	-1.9222679	0.65380758	-18.155932	4.5953334	-2.2228021
181	3.9864819	-2.5186853	0.63515389	-16.008350	2.2103238	-1.7683396
182	3.3367786	-2.8372738	0.59949214	-13.303625	0.72535549	-1.3514849
183	2.7879977	-2.9201024	0.55077470	-10.540766	-0.14187339	-0.99327559
184	2.3326040	-2.8190109	0.49359169	-8.0122219	-0.60367443	-0.70086512
185	1.9611176	-2.5848566	0.43217749	-5.8577332	-0.81179084	-0.47215487
186	1.6631656	-2.2620600	0.36997684	-4.1071171	-0.86818992	-0.29916631
187	1.4283379	-1.8867651	0.30955681	-2.7140851	-0.83542944	-0.17052686
188	1.2467445	-1.4874360	0.25273004	-1.5825005	-0.74585874	-0.73282342E-01
189	1.1092792	-1.0870276	0.20079612	-0.58660505	-0.60946977	0.57931597E-02
190	1.0076422	-0.70609739	0.15483851	0.41296182	-0.42053945	0.79221623E-01

F, A11 4-22

191	0.93418394	-0.36636774	0.11602854	1.5552699	-0.16340424	0.15801468
192	0.88163178	-0.94325277E-01	0.85900069E-01	2.9651585	0.18218840	0.25088356
193	0.84276309	0.75550445E-01	0.66560576E-01	4.7371324	0.63567198	0.36333761
194	16.141903	5.0901638	1.0989026	158.77123	50.425091	11.101631
195	13.556747	7.2562665	0.62634278	95.964546	67.752979	2.8553235
196	11.949887	7.3838847	0.45374274	52.400224	62.993895	-1.0110509
197	10.724078	6.4831655	0.42116755	22.432952	51.763985	-2.9101086
198	9.7425311	5.1121171	0.45947096	4.8452348	40.486963	-3.5367461
199	8.8440280	3.6565409	0.51423115	-5.9843753	30.999542	-3.6641987
200	7.9949578	2.2732239	0.56651634	-12.613293	23.356154	-3.5569782
201	7.1921400	1.0354804	0.60874240	-16.467544	17.295612	-3.3318804
202	6.4394521	-0.23052445E-01	0.63798855	-18.450768	12.526682	-3.0500806
203	5.6052873	-1.0343829	0.65406905	-18.970425	8.2365348	-2.6731189
204	4.7418459	-1.9222679	0.65380762	-18.155932	4.5953333	-2.2228021
205	3.9864819	-2.5186853	0.63515391	-16.008350	2.2103238	-1.7683396
206	3.3367786	-2.8372738	0.59949213	-13.303625	0.72535546	-1.3514850
207	2.7879977	-2.9201024	0.55077467	-10.540766	-0.14187341	-0.99327563
208	2.3326039	-2.8190109	0.49359167	-8.0122219	-0.60367443	-0.70086508
209	1.9611176	-2.5848566	0.43217751	-5.8577332	-0.81179084	-0.47215484
210	1.6631655	-2.2620600	0.36997684	-4.1071170	-0.86818992	-0.29916627
211	1.4283379	-1.8867651	0.30955682	-2.7140851	-0.83542944	-0.17052683
212	1.2467445	-1.4874360	0.25273002	-1.5825005	-0.74585874	-0.73282305E-01
213	1.1092792	-1.0870276	0.20079612	-0.58660505	-0.60946976	0.57931766E-02

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.8768 JUL 3,1994 CP= 753.250

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXMY
214	1.0076422	-0.70609739	0.15483850	0.41296182	-0.42053944	0.79221630E-01
215	0.93418394	-0.36636773	0.11602854	1.5552699	-0.16340425	0.15801466
216	0.88163178	-0.94325277E-01	0.85900065E-01	2.9651585	0.18218840	0.25088355
217	0.84276309	0.75550445E-01	0.66560577E-01	4.7371324	0.63567198	0.36333762
554	16.141903	5.0901638	1.0989024	158.77123	50.425092	11.101634
555	13.556747	7.2562664	0.62634256	95.964546	67.752980	2.8553281
556	11.949887	7.3838846	0.45374252	52.400223	62.993896	-1.0110467
557	10.724078	6.4831654	0.42116734	22.432951	51.763986	-2.9101053
558	9.7425312	5.1121171	0.45947072	4.8452343	40.486964	-3.5367435
559	8.8440280	3.6565409	0.51423090	-5.9843757	30.999542	-3.6641967
560	7.9949579	2.2732238	0.56651613	-12.613293	23.356154	-3.5569765
561	7.1921401	1.0354804	0.60874225	-16.467544	17.295612	-3.3318793
562	6.4394522	-0.23052480E-01	0.63798837	-18.450768	12.526682	-3.0500797
563	5.6052873	-1.0343830	0.65406887	-18.970425	8.2365350	-2.6731182
564	4.7418459	-1.9222679	0.65380763	-18.155932	4.5953334	-2.2228016
565	3.9864819	-2.5186853	0.63515376	-16.008350	2.2103238	-1.7683392
566	3.3367787	-2.8372739	0.59949203	-13.303625	0.72535552	-1.3514846
567	2.7879977	-2.9201024	0.55077461	-10.540766	-0.14187337	-0.99327545
568	2.3326040	-2.8190109	0.49359161	-8.0122219	-0.60367442	-0.70086503
569	1.9611176	-2.5848567	0.43217743	-5.8577332	-0.81179083	-0.47215482
570	1.6631656	-2.2620600	0.36997679	-4.1071170	-0.86818992	-0.29916629
571	1.4283379	-1.8867651	0.30955677	-2.7140851	-0.83542944	-0.17052686
572	1.2467445	-1.4874360	0.25273000	-1.5825005	-0.74585874	-0.73282345E-01
573	1.1092792	-1.0870276	0.20079610	-0.58660504	-0.60946977	0.57931512E-02
574	1.0076422	-0.70609740	0.15483849	0.41296182	-0.42053945	0.79221613E-01
575	0.93418394	-0.36636774	0.11602852	1.5552699	-0.16340425	0.15801467
576	0.88163178	-0.94325280E-01	0.85900052E-01	2.9651585	0.18218840	0.25088355
577	0.84276309	0.75550442E-01	0.66560560E-01	4.7371324	0.63567198	0.36333760
578	16.141903	5.0901638	1.0989024	158.77123	50.425092	11.101634
579	13.556747	7.2562665	0.62634256	95.964547	67.752981	2.8553282
580	11.949887	7.3838847	0.45374252	52.400224	62.993897	-1.0110467
581	10.724078	6.4831655	0.42116732	22.432951	51.763986	-2.9101053
582	9.7425312	5.1121171	0.45947072	4.8452346	40.486964	-3.5367435
583	8.8440281	3.6565409	0.51423092	-5.9843755	30.999542	-3.6641967
584	7.9949579	2.2732239	0.56651612	-12.613293	23.356155	-3.5569767
585	7.1921401	1.0354804	0.60874219	-16.467544	17.295612	-3.3318792
586	6.4394522	-0.23052458E-01	0.63798836	-18.450768	12.526682	-3.0500797
587	5.6052873	-1.0343830	0.65406887	-18.970425	8.2365351	-2.6731182
588	4.7418459	-1.9222679	0.65380747	-18.155932	4.5953335	-2.2228016
589	3.9864819	-2.5186853	0.63515378	-16.008350	2.2103239	-1.7683392

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590 3.3367787 -2.8372739 0.59949203 -13.303625 0.72535552 -1.3514847
 591 2.7879978 -2.9201024 0.55077458 -10.540766 -0.14187338 -0.99327550
 592 2.3326040 -2.8190109 0.49359160 -8.0122220 -0.60367442 -0.70086500
 593 1.9611176 -2.5848567 0.43217745 -5.8577332 -0.81179083 -0.47215479
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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102) 17.8768 JUL 3,1994 CP= 753.300

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
 TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXV
594	1.6631656	-2.2620600	0.36997679	-4.1071171	-0.86818991	-0.29916625
595	1.4283379	-1.8867651	0.30955679	-2.7140851	-0.83542944	-0.17052682
596	1.2467445	-1.4874360	0.25272998	-1.5825005	-0.74585874	-0.73282310E-01
597	1.1092792	-1.0870276	0.20079609	-0.58660505	-0.60946977	0.57931670E-02
598	1.0076423	-0.70609740	0.15483848	0.41296182	-0.42053944	0.79221620E-01
599	0.93418394	-0.36636774	0.11602852	1.5552699	-0.16340425	0.15801465
600	0.88163178	-0.94325281E-01	0.85900049E-01	2.9651585	0.18218840	0.25088354
601	0.84276309	0.75550442E-01	0.66560561E-01	4.7371324	0.63567198	0.36333762

MINIMUMS
 ELEMENT 217 591 577 587 186 175
 VALUE 0.84276309 -2.9201024 0.66560560E-01 -18.970425 -0.86818992 -3.6641987

MAXIMUMS
 ELEMENT 578 172 170 170 579 578
 VALUE 16.141903 7.3838847 1.0989026 158.77123 67.752981 11.101634

USE LOAD STEP 3 ITERATION 1 SECTION 1 FOR LOAD CASE 1

***WARNING *** CP= 757.200 TIME= 17.87789
 DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
 TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 757.200 TIME= 17.87789
 DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
 TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 757.200 TIME= 17.87789
 DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
 TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 757.200 TIME= 17.87789
 DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
 MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 757.200 TIME= 17.87789
 DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
 MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 757.200 TIME= 17.87789
 DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
 MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***

LOAD STEP 3. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 3 ITERATION= 1 SECTION= 1
 TIME= 0.000000E+00 LOAD CASE= 1
 TITLE= SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

PRINT ELEMENT STRESS ITEMS PER ELEMENT

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.8779 JUL 3,1994 CP= 757.370

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
170	0.65355361	0.45904369	-0.40818361E-01	47.303430	13.940864	4.0718321
171	0.53700341	0.85328268	-0.81205306E-01	27.687138	16.664915	2.1882118
172	0.53581111	1.0232760	-0.98676897E-01	16.885467	13.803094	1.2891138
173	0.55321923	1.0695273	-0.10360728	9.9910241	10.380626	0.72874290
174	0.55708766	1.0188879	-0.98798614E-01	6.0819069	7.7840615	0.42474992
175	0.54537426	0.92078205	-0.89255591E-01	3.5648955	5.8737636	0.23286780
176	0.52197051	0.79985637	-0.77452924E-01	1.8487788	4.4432272	0.10401521
177	0.49076317	0.67114640	-0.64890397E-01	0.65240578	3.3527852	0.15637451E-01
178	0.45490150	0.54445760	-0.52539414E-01	-0.18224860	2.5100362	-0.44760977E-01
179	0.40900214	0.40313735	-0.38789444E-01	-0.80595086	1.7572917	-0.87774823E-01
180	0.35538840	0.25601590	-0.24513667E-01	-1.2306440	1.1102001	-0.11506810
181	0.30332372	0.13013244	-0.12389219E-01	-1.3726865	0.66670794	-0.12094722
182	0.25482487	0.31617484E-01	-0.29868319E-02	-1.3367255	0.36996201	-0.11374966
183	0.21128430	-0.38901088E-01	0.36647839E-02	-1.1986937	0.17820140	-0.99487600E-01
184	0.17341637	-0.83927474E-01	0.78402772E-02	-1.0124134	0.59905694E-01	-0.82344821E-01
185	0.14138267	-0.10750463	0.99583801E-02	-0.81383248	-0.83391473E-02	-0.65036997E-01
186	0.11495284	-0.11417097	0.10478340E-01	-0.62471649	-0.43508504E-01	-0.49129809E-01
187	0.93649865E-01	-0.10832992	0.98382212E-02	-0.45591471	-0.57474336E-01	-0.35321693E-01
188	0.76863826E-01	-0.93930428E-01	0.84244596E-02	-0.31021981	-0.58121646E-01	-0.23689989E-01
189	0.63931990E-01	-0.74375162E-01	0.65637771E-02	-0.18481102	-0.50291900E-01	-0.13898544E-01
190	0.54188843E-01	-0.52587274E-01	0.45301856E-02	-0.73309117E-01	-0.36581180E-01	-0.53690998E-02
191	0.46991858E-01	-0.31177691E-01	0.25608875E-02	0.32481814E-01	-0.18019588E-01	0.25774628E-02
192	0.41729250E-01	-0.12663978E-01	0.87632639E-03	0.14098119	0.53407162E-02	0.10597602E-01
193	0.37816136E-01	0.30459543E-03	-0.29957337E-03	0.25897157	0.34036523E-01	0.19208907E-01
194	0.63053682	0.48206048	0.74922356E-01	47.536127	13.704003	2.8017443
195	0.51796762	0.87231846	0.14536699E-01	28.097265	16.254022	0.10506176
196	0.51660147	1.0424856	-0.20238137E-02	17.255967	13.429307	-0.59164831
197	0.53321957	1.0895269	-0.29147732E-02	10.283081	10.086646	-0.74756817
198	0.53685794	1.0391176	0.31360161E-02	6.3085791	7.5573287	-0.71757450
199	0.52551928	0.94063704	0.10891490E-01	3.7413196	5.6980777	-0.65550035
200	0.50293867	0.81888821	0.18656519E-01	1.9864578	4.3063724	-0.59019347
201	0.47285324	0.68905633	0.25677756E-01	0.75990233	3.2459313	-0.52787492
202	0.43829310	0.56106600	0.31577966E-01	-0.98635455E-01	2.4262972	-0.46951851
203	0.39406963	0.41806986	0.37002935E-01	-0.74392771	1.6950969	-0.40406442
204	0.34244091	0.26896338	0.41471758E-01	-1.1880802	1.0673727	-0.33453758
205	0.29230109	0.14115507	0.44056979E-01	-1.3442801	0.63767019	-0.27002100
206	0.24559515	0.40847203E-01	0.44540711E-01	-1.3184091	0.35079879	-0.21215376
207	0.20366528	-0.31282064E-01	0.43145678E-01	-1.1874353	0.16599537	-0.16198346
208	0.16719966	-0.77710757E-01	0.40282208E-01	-1.0059733	0.52514260E-01	-0.11987766
209	0.13635365	-0.10247561	0.36407943E-01	-0.81058545	-0.12473568E-01	-0.85621341E-01
210	0.11090493	-0.11012306	0.31951255E-01	-0.62350693	-0.45502759E-01	-0.58546305E-01
211	0.90393549E-01	-0.10507361	0.27274473E-01	-0.45593905	-0.58117892E-01	-0.37674447E-01
212	0.74231559E-01	-0.91298161E-01	0.22663159E-01	-0.31093170	-0.57966010E-01	-0.21853626E-01
213	0.61780171E-01	-0.72223343E-01	0.18332071E-01	-0.18584561	-0.49720768E-01	-0.98750654E-02

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SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102)

17.8780 JUL 3,1994 CP= 757.420

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
214	0.52397952E-01	-0.50796383E-01	0.14440904E-01	-0.74423562E-01	-0.35864655E-01	-0.56954324E-03
215	0.45465629E-01	-0.29651463E-01	0.11114558E-01	0.31454451E-01	-0.17355411E-01	0.71148955E-02
216	0.40393654E-01	-0.11328382E-01	0.84635389E-02	0.14013770	0.58016973E-02	0.14036861E-01
217	0.36618875E-01	0.15018565E-02	0.66005619E-02	0.25826971	0.34344970E-01	0.20687123E-01
554	-0.65355361	-0.45904369	0.40818361E-01	-47.303430	-13.940864	-4.0718321
555	-0.53700341	-0.85328268	0.81205307E-01	-27.687138	-16.664915	-2.1882118
556	-0.53581111	-1.0232760	0.98676897E-01	-16.885467	-13.803094	-1.2891138
557	-0.55321923	-1.0695273	0.10360728	-9.9910241	-10.380626	-0.72874290

F A# 4-25

558	-0.55708766	-1.0188879	0.98798614E-01	-6.0819069	-7.7840615	-0.42474992
559	-0.54537426	-0.92078205	0.89255591E-01	-3.5648955	-5.8737636	-0.23286780
560	-0.52197051	-0.79985637	0.77452924E-01	-1.8487788	-4.4432272	-0.10401521
561	-0.49076317	-0.67114640	0.64890397E-01	-0.65240578	-3.3527852	-0.15637451E-01
562	-0.45490150	-0.54445760	0.52539414E-01	0.18224860	-2.5100362	0.44760977E-01
563	-0.40900214	-0.40313735	0.38789444E-01	0.80595086	-1.7572917	0.87774823E-01
564	-0.35538840	-0.25601590	0.24513667E-01	1.2306440	-1.1102001	0.11506810
565	-0.30332372	-0.13013244	0.12389219E-01	1.3726865	-0.66670794	0.12094722
566	-0.25482487	-0.31617484E-01	0.29868319E-02	1.3367255	-0.36996201	0.11374966
567	-0.21128430	0.38901088E-01	-0.36647838E-02	1.1986937	-0.17820140	0.99487600E-01
568	-0.17341637	0.83927474E-01	-0.78402772E-02	1.0124134	-0.59905694E-01	0.82344821E-01
569	-0.14138267	0.10750463	-0.99583801E-02	0.81383248	0.83391474E-02	0.65036997E-01
570	-0.11495284	0.11417097	-0.10478340E-01	0.62471649	0.43508504E-01	0.49129809E-01
571	-0.93649865E-01	0.10832992	-0.98382212E-02	0.45591471	0.57474336E-01	0.35321693E-01
572	-0.76863826E-01	0.93930428E-01	-0.84244596E-02	0.31021981	0.58121646E-01	0.23689989E-01
573	-0.63931990E-01	0.74375162E-01	-0.65637771E-02	0.18481102	0.50291900E-01	0.13898544E-01
574	-0.54188843E-01	0.52587274E-01	-0.45301856E-02	0.73309117E-01	0.36581180E-01	0.53690998E-02
575	-0.46991858E-01	0.31177691E-01	-0.25608875E-02	-0.32481814E-01	0.18019588E-01	-0.25774628E-02
576	-0.41729250E-01	0.12663978E-01	-0.87632639E-03	-0.14098119	-0.53407162E-02	-0.10597602E-01
577	-0.37816136E-01	-0.30459543E-03	0.29957337E-03	-0.25897157	-0.34036523E-01	-0.19208907E-01
578	-0.63053682	-0.48206048	-0.74922356E-01	-47.536127	-13.704003	-2.8017443
579	-0.51796762	-0.87231846	-0.14536699E-01	-28.097265	-16.254022	-0.10506176
580	-0.51660147	-1.0424856	0.20238138E-02	-17.255967	-13.429307	0.59164831
581	-0.53321957	-1.0895269	0.29147732E-02	-10.283081	-10.086646	0.74756817
582	-0.53685794	-1.0391176	-0.31360161E-02	-6.3085791	-7.5573287	0.71757450
583	-0.52551928	-0.94063704	-0.10891490E-01	-3.7413196	-5.6980777	0.65550035
584	-0.50293867	-0.81888821	-0.18656519E-01	-1.9864578	-4.3063724	0.59019347
585	-0.47285324	-0.68905633	-0.25677756E-01	-0.75990233	-3.2459313	0.52787492
586	-0.43829310	-0.56106600	-0.31577966E-01	0.98635455E-01	-2.4262972	0.46951851
587	-0.39406963	-0.41806986	-0.37002935E-01	0.74392771	-1.6950969	0.40406442
588	-0.34244091	-0.26896338	-0.41471758E-01	1.1880802	-1.0673727	0.33453758
589	-0.29230109	-0.14115507	-0.44056979E-01	1.3442801	-0.63767019	0.27002100
590	-0.24559515	-0.40847203E-01	-0.44540711E-01	1.3184091	-0.35079879	0.21215376
591	-0.20366528	0.31282064E-01	-0.43145678E-01	1.1874353	-0.16599537	0.16198346
592	-0.16719966	0.77710757E-01	-0.40282208E-01	1.0059733	-0.52514260E-01	0.11987766
593	-0.13635365	0.10247561	-0.36407943E-01	0.81058545	0.12473568E-01	0.85621341E-01

ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 95 38172-PC/F1-4.4A MAY 1, 1990

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 FOR SUPPORT CALL NEAL WATTS PHONE 510 743-7777 TWX

SY-101 DOME (LOADS AT DOME/PEN. TOP SURFACE FOR AY-102) 17.8780 JUL 3, 1994 CP= 757.480

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
 TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAXY
594	-0.11090493	0.11012306	-0.31951255E-01	0.62350693	0.45502759E-01	0.58546305E-01
595	-0.90393549E-01	0.10507361	-0.27274473E-01	0.45593905	0.58117892E-01	0.37674447E-01
596	-0.74231559E-01	0.91298161E-01	-0.22663159E-01	0.31093170	0.57966010E-01	0.21853626E-01
597	-0.61780171E-01	0.72223343E-01	-0.18332071E-01	0.18584561	0.49720768E-01	0.98750654E-02
598	-0.52397952E-01	0.50796383E-01	-0.14440904E-01	0.74423562E-01	0.35864655E-01	0.56954323E-03
599	-0.45465629E-01	0.29651463E-01	-0.11114558E-01	-0.31454451E-01	0.17355411E-01	-0.71148955E-02
600	-0.40393654E-01	0.11328382E-01	-0.84635389E-02	-0.14013770	-0.58016973E-02	-0.14036861E-01
601	-0.36618875E-01	-0.15018565E-02	-0.66005619E-02	-0.25826971	-0.34344970E-01	-0.20687123E-01

MINIMUMS

ELEMENT	554	581	173	578	555	554
VALUE	-0.65355361	-1.0895269	-0.10360728	-47.536127	-16.664915	-4.0718321

MAXIMUMS

ELEMENT	170	197	557	194	171	170
VALUE	0.65355361	1.0895269	0.10360728	47.536127	16.664915	4.0718321

***** ROUTINE COMPLETED ***** CP = 757.530

'EOF ENCOUNTERED ON FILE18

PREP7 AFWRITE OR SFWRITE WARNING MESSAGES = 0
 NUMBER OF SOLUTION PHASE WARNING MESSAGES = 0

(24) / 5,

WHC-SD-W320-ANAL-003
Rev. 0

***** RUN COMPLETED ***** CP= 757.6400 TIME= 17.8780

F A# 4-27

Calculation Sheet

Project	Westinghouse Hanford Company Structural Analysis Engineering Support	Prepared By:	<i>[Signature]</i>	Date	7/8/94
Subject	Mounting Ring Allowable Loads for the 241-AY-102 Pump Pit and Sluicing Pits	Reviewed By:	<i>[Signature]</i>	Date	7/8/94
System		Job No.	90005	File No.	90005.9.9
Client Calc. No.		Sheet No.	26 TOTAL	Rev. No.	0

ATTACHMENT 5

3-D AY102 TANK DOME MODEL - UNIT LOADS APPLIED
AT SLUICING PIT FLANGE LOCATION

ADVENT Engineering Services, Inc.

PROJECT: XY-102 ALLOWABLE LOADS ON MOUNTING RING	
CLIENT: WHC	FILE NO.(S): 9005.9.9
INPUT FILE NAME: DOME2.INP	OUTPUT FILE NAME: DOME2.OUT
RUN DESCRIPTION: INITIAL VERTICAL AND HORIZONTAL LOADS AND HORIZONTAL MOMENT	
MODEL DESCRIPTION: XY TANK DOME WITH LOAD APPLIED 42" ABOVE DOME APEx.	
PROGRAM: ANSYS-PC	VERSION 4.4A
PREPARED BY:	
REVIEWED BY: <i>Albert Diaz</i>	
APPROVED BY: <i>Albert Diaz</i>	
DESIGN VERIFIED: [] YES, [X] NOT REQUIRED	
REMARKS:	

51\forms\stamp

GENERAL REMARKS

THE GENERAL CONFIGURATION, MAGNITUDES OF 3 SEPARATELY APPLIED LOADS, MODEL GEOMETRY AND BOUNDARY CONDITIONS, MODELING PROPERTIES, AND COORDINATE SYSTEMS ARE UNCHANGED FROM ATTACHMENT #3.

THE STRESS RESULTANTS IN THIS ATTACHMENT RESULT FROM INDEPENDENT LOADS APPLIED AT A HEIGHT OF 40 INCHES ABOVE THE DOME APEX. THIS CORRESPONDS TO THE VERTICAL DISTANCE FROM THE SLUICING PIT FLANGE SURFACE TO THE INTERSECTION OF THE RISER ϕ WITH THE DOME MIDSURFACE. THUS THESE RESULTS ARE A DIRECT AFFECT OF INDEPENDENT LOADS APPLIED AT THE SLUICING PIT MOUNTING RING FLANGE.

PLEASE NOTE THE STRESS RESULTANTS ARE IN UNITS OF LBS/IN AND IN-LBS/IN. TABLES 7.3 AND 8.3 ARE EXPRESSED IN UNITS OF LBS/FT AND IN-LBS/FT (CONVERSION FACTOR IS 12 IN/FT).

ATTACHMENT 3 ILLUSTRATES MODEL GEOMETRY, NODE AND ELEMENT NUMBERS, ALL OF WHICH ARE UNCHANGED.

THE GROUND RULES OF THIS EFFORT PRECLUDED DEVELOPMENT ADDITIONAL COMPUTER MODELS. CONSEQUENTLY LOADS ARE APPLIED ABOVE THE DOME APEX. IT IS JUDGED THESE RESULT IN CONSERVATIVE RESULTS BECAUSE THE DOME IS SLIGHTLY THICKER AT THE SLUICING PIT PENETRATION.

```

/prep7
/output,dome2,out
c***
/title,SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)
kan,0
c***
/com shell elements
et,1,63      **** 3-D shell
et,2,21
/com concrete material mat,1
ex,1,3.2e6
dens,1,.000225
nuxy,1,.15
c***
r,1,15.
c***
local,11,2,0.,0.,-589.24
c***
c*** NODE 9000 LOCATED AT SLUICING PIT RISER FLANGE INTERFACE
c***
n,9000,1300.,0.,90.
n,1,1260,0.,88.995753
n,2,1260,0.,88.541616
n,3,1260,0.,88.087663
n,10,1260,0.,82.75
fill,10,3
local,12,2,49.68,0.,-224.2
n,25,891.6,0.,60.33
fill,25,10
csys,11
NGEN,33,26,1,25,1,0.,11.25,0.,1
type,1  Sreal,1  Smat,1
e,1,2,28,27
egen,24,1,1,1,1
type,2
s,9000,9000
/vup,,z
/view,,1,1,1
EGEN,32,26,1,24,1
NUMMRG,NODE
NSEL,2,88.995753
NASEL,NODE,9000
CERIG,9000,ALL
NALL
/com boundary conditions
NSEL,NODE,25,831,26
d,all,all,0.  Snull
f,9000,fy,1000.
lwrite
f,9000,fy,0.
f,9000,fz,1000.
lwrite
f,9000,fz,0.
f,9000,mx,10000.
lwrite
afwrite
fini
/output,sol2,out
/input,27
fini
/OUTPUT,DMPOST2,OUT
/post1
global,0
store,stress
stress,tx,63,1
stress,ty,63,2
stress,txy,63,3
stress,mx,63,6
stress,my,63,7
stress,mxy,63,8
set,1,1
nset,x,0
enode
prstrs,tx,ty,txy,mx,my,mxy
set,2,1
enode

```

INDEPENDENTLY APPLIED LOADS &

GENERAL CONFIGURATION

LOAD CASE #1 : $F_z = 1000 \text{ lb}$

LOAD CASE #2 : $F_y = 1000 \text{ lb}$

LOAD CASE #3 : $M_x = 10^4 \text{ lb-in}$

** Merges the coincident nodes

LOADS ARE APPLIED AT A POINT
40." ABOVE DOME MIDSURFACE AT APEX

'ANSYS' INPUT FILE (2 PAGES)

```
prstrs,tx,ty,txy,mx,my,mxy  
set,3,1  
prstrs,tx,ty,txy,mx,my,mxy  
fini  
/eof
```

④/5

C***

NEW TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

ANALYSIS TYPE= 0 (STATIC ANALYSIS)

C***

shell elements

ELEMENT TYPE 1 USES STIF 63
KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0
INOPR= 0 NUMBER OF NODES= 4

QUAD. FLAT SHELL

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE

ELEMENT TYPE 2 USES STIF 21
KEYOPT(1-9)= 0 0 0 0 0 0 0 0 0
INOPR= 0 NUMBER OF NODES= 1

GENERAL MASS

CURRENT NODAL DOF SET IS UX UY UZ ROTX ROTY ROTZ
THREE-DIMENSIONAL STRUCTURE
concrete material mat,1

MATERIAL 1 COEFFICIENTS OF EX VS. TEMP EQUATION
CO = 3200000.

PROPERTY TABLE EX MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.32000E+07 9999.0 0.32000E+07

MATERIAL 1 COEFFICIENTS OF DENS VS. TEMP EQUATION
CO = 0.2250000E-03

PROPERTY TABLE DENS MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.22500E-03 9999.0 0.22500E-03

MATERIAL 1 COEFFICIENTS OF NUXY VS. TEMP EQUATION
CO = 0.1500000

PROPERTY TABLE NUXY MAT= 1 NUM. POINTS= 2
TEMPERATURE DATA TEMPERATURE DATA
-9999.0 0.15000 9999.0 0.15000

C***

REAL CONSTANT SET 1 ITEMS 1 TO 6
15.000 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

C***

COORDINATE SYSTEM 11 DEFINITION. TYPE= 2 (SPHERICAL)
XC,YC,ZC= 0.00000E+00 0.00000E+00 -589.24
ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (SPHERICAL)

C***

C*** NODE 9000 LOCATED AT SLUICING PIT RISER FLANGE INTERFACE

C***

'ANSYS' RUN PHASE
(13 PAGES)

F A#5-6

NODE 9000 KCS=11 X,Y,Z= 1300.0 0.00000E+00 90.000
 NODE 1 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.996
 NODE 2 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.542
 NODE 3 KCS=11 X,Y,Z= 1260.0 0.00000E+00 88.088
 NODE 10 KCS=11 X,Y,Z= 1260.0 0.00000E+00 82.750
 FILL 6 POINTS BETWEEN NODE 10 AND NODE 3
 START WITH NODE 9 AND INCREMENT BY -1
 COORDINATE SYSTEM 12 DEFINITION. TYPE= 2 (SPHERICAL)
 XC,YC,ZC= 49.680 0.00000E+00 -224.20
 ANGLES= 0.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 1.00 0.00 0.00 0.00 1.00 0.00 0.00 0.00 1.00
 ACTIVE COORDINATE SYSTEM SET TO 12 (SPHERICAL)
 NODE 25 KCS=12 X,Y,Z= 891.60 0.00000E+00 60.330
 FILL 14 POINTS BETWEEN NODE 25 AND NODE 10
 START WITH NODE 24 AND INCREMENT BY -1
 ACTIVE COORDINATE SYSTEM SET TO 11 (SPHERICAL)
 GENERATE 33 TOTAL SETS OF NODES WITH INCREMENT 26
 SET IS SELECTED NODES IN RANGE 1 TO 25 IN STEPS OF 1
 GEOMETRY INCREMENTS ARE 0.00000E+00 11.250 0.00000E+00
 ELEMENT TYPE SET TO 1
 REAL CONSTANT NUMBER= 1
 MATERIAL NUMBER SET TO 1
 ELEMENT 1 1 2 28 27
 GENERATE 24 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 1
 SET IS SELECTED ELEMENTS IN RANGE 1 TO 1 IN STEPS OF 1
 NUMBER OF ELEMENTS= 24
 ELEMENT TYPE SET TO 2
 ELEMENT 25 9000
 VIEW UP DIRECTION FOR WINDOW 1 IS GCS Z AXIS
 VIEW POINT FOR WINDOW 1 1.0000 1.0000 1.0000
 GENERATE 32 TOTAL SETS OF ELEMENTS WITH NODE INCREMENT OF 26
 SET IS SELECTED ELEMENTS IN RANGE 1 TO 24 IN STEPS OF 1
 NUMBER OF ELEMENTS= 769
 MERGE COINCIDENT NODES WITHIN TOLERANCE OF 0.10000E-03
 NODE 1 USED FOR NODES 1 833
 NODE 2 USED FOR NODES 2 834
 NODE 3 USED FOR NODES 3 835
 NODE 4 USED FOR NODES 4 836
 NODE 5 USED FOR NODES 5 837
 NODE 6 USED FOR NODES 6 838
 NODE 7 USED FOR NODES 7 839
 NODE 8 USED FOR NODES 8 840
 NODE 9 USED FOR NODES 9 841
 NODE 10 USED FOR NODES 10 842
 NODE 11 USED FOR NODES 11 843
 NODE 12 USED FOR NODES 12 844
 NODE 13 USED FOR NODES 13 845
 NODE 14 USED FOR NODES 14 846
 NODE 15 USED FOR NODES 15 847
 NODE 16 USED FOR NODES 16 848
 NODE 17 USED FOR NODES 17 849
 NODE 18 USED FOR NODES 18 850
 NODE 19 USED FOR NODES 19 851
 NODE 20 USED FOR NODES 20 852

NODE 21 USED FOR NODES 21 853
 NODE 22 USED FOR NODES 22 854
 NODE 23 USED FOR NODES 23 855
 NODE 24 USED FOR NODES 24 856
 NODE 25 USED FOR NODES 25 857

NSEL FOR LABEL= Z BETWEEN 88.996 AND 88.996 KABS= 0.
 TOLERANCE= 0.444979

32 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

NASE FOR LABEL= NODE FROM 9000 TO 9000 BY 1

33 NODES (OF 801 DEFINED) SELECTED BY NASE COMMAND.

MASTER NODE= 9000 SLAVE NODE= 1 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 1 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 2 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 3 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 4 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 5 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 6 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 27 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 7 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 8 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 9 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 10 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 11 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 12 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 53 PARTIAL KEY= 0 3-D SPACE
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 CONSTRAINT EQUATION NO. 14 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 15 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 16 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 17 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 18 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 79 PARTIAL KEY= 0 3-D SPACE
 CONSTRAINT EQUATION NO. 19 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 20 HAS 4 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 21 HAS 4 TERMS. CONSTANT= 0.0000000E+00
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 CONSTRAINT EQUATION NO. 23 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 CONSTRAINT EQUATION NO. 24 HAS 2 TERMS. CONSTANT= 0.0000000E+00
 MASTER NODE= 9000 SLAVE NODE= 105 PARTIAL KEY= 0 3-D SPACE
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CONSTRAINT EQUATION NO. 27 HAS 4 TERMS. CONSTANT= 0.0000000E+00
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CONSTRAINT EQUATION NO. 29 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 30 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 131 PARTIAL KEY= 0 3-D SPACE
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CONSTRAINT EQUATION NO. 35 HAS 2 TERMS. CONSTANT= 0.0000000E+00
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CONSTRAINT EQUATION NO. 59 HAS 2 TERMS. CONSTANT= 0.0000000E+00

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MASTER NODE= 9000 SLAVE NODE= 261 PARTIAL KEY= 0 3-D SPACE
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CONSTRAINT EQUATION NO. 114 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 495 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 115 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 116 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 117 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 118 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 119 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 120 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 521 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 121 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 122 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 123 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 124 HAS 2 TERMS. CONSTANT= 0.0000000E+00

CONSTRAINT EQUATION NO. 125 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 126 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 547 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 127 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 128 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 129 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 130 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 131 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 132 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 573 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 133 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 134 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 135 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 136 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 137 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 138 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 599 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 139 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 140 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 141 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 142 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 143 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 144 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 625 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 145 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 146 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 147 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 148 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 149 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 150 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 651 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 151 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 152 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 153 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 154 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 155 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 156 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 677 PARTIAL KEY= 0 3-D SPACE

CONSTRAINT EQUATION NO. 157 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 158 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 159 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 160 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 161 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 162 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 703 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 163 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 164 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 165 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 166 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 167 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 168 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 729 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 169 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 170 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 171 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 172 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 173 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 174 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 755 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 175 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 176 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 177 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 178 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 179 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 180 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 781 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 181 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 182 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 183 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 184 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 185 HAS 2 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 186 HAS 2 TERMS. CONSTANT= 0.0000000E+00
MASTER NODE= 9000 SLAVE NODE= 807 PARTIAL KEY= 0 3-D SPACE
CONSTRAINT EQUATION NO. 187 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 188 HAS 4 TERMS. CONSTANT= 0.0000000E+00
CONSTRAINT EQUATION NO. 189 HAS 4 TERMS. CONSTANT= 0.0000000E+00

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WHC-SD-W320-ANAL-003
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CONSTRAINT EQUATION NO. 190 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 191 HAS 2 TERMS. CONSTANT= 0.000000E+00
CONSTRAINT EQUATION NO. 192 HAS 2 TERMS. CONSTANT= 0.000000E+00

801 NODES (OF 801 DEFINED) SELECTED BY NALL COMMAND.
boundary conditions

NSEL FOR LABEL= NODE FROM 25 TO 831 BY 26

32 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

SPECIFIED DISP ALL FOR ALL SELECTED NODES
VALUES= 0.00000E+00 0.00000E+00 ADDITIONAL DOFS=

801 NODES (OF 801 DEFINED) SELECTED BY NALL COMMAND.

SPECIFIED FORCE FY FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 1000.0 0.00000E+00

LOAD STEP 1 WRITTEN ON FILE23

SPECIFIED FORCE FY FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 0.00000E+00 0.00000E+00

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 1000.0 0.00000E+00

LOAD STEP 2 WRITTEN ON FILE23

SPECIFIED FORCE FZ FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 0.00000E+00 0.00000E+00

SPECIFIED FORCE MX FOR SELECTED NODES IN RANGE 9000 TO 9000 BY 1
VALUES= 10000. 0.00000E+00

LOAD STEP 3 WRITTEN ON FILE23

*** NOTE ***
DATA CHECKED - NO FATAL ERRORS FOUND.
CHECK OUTPUT FOR POSSIBLE WARNING MESSAGES.

LOADS DATA READ FROM FILE23

*** PREP7 GLOBAL STATUS ***

TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)
ANALYSIS TYPE= 0
NUMBER OF ELEMENT TYPES= 2
769 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 769
801 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 9000
MAXIMUM LINEAR PROPERTY NUMBER= 1
MAXIMUM REAL CONSTANT SET NUMBER= 1
ACTIVE COORDINATE SYSTEM= 11 (SPHERICAL)
MAXIMUM CONSTRAINT EQUATION NUMBER= 192
NUMBER OF IMPOSED DISPLACEMENTS= 192
NUMBER OF NODAL FORCES= 3

ANALYSIS DATA WRITTEN ON FILE27

ALL CURRENT PREP7 DATA WRITTEN TO FILE16 NAME= FILE16.DAT
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 12.080
```

E AHS-14

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***** INPUT SWITCHED FROM FILE18 TO FILE27 NAME=FILE27.DAT

NEW TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

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SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.7023 JUL 1,1994 CP= 12.250

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ERRORS ENCOUNTERED IN EITHER THE DOCUMENTATION OR THE
RESULTS SHOULD BE IMMEDIATELY BROUGHT TO OUR ATTENTION.

***** ANALYSIS OPTIONS *****

VALUE
ANALYSIS TYPE 0
REFERENCE TEMPERATURE 0.00

***** ELEMENT TYPES *****

TYPE	STIF	DESCRIPTION	KEY OPTIONS									NJ	INOTPR
			1	2	3	4	5	6	7	8	9		

NUMBER OF ELEMENT TYPES= 2

***** TABLE OF ELEMENT REAL CONSTANTS *****

NO.

NUMBER OF REAL CONSTANT SETS= 1

***** ELEMENT DEFINITIONS *****

ELEMENT	NODES	MAT	TYPE	ELEMENT REAL CONSTANTS
---------	-------	-----	------	------------------------

SWITCHED TO FIXED FORMAT INPUT

INTEGER STORAGE REQUIREMENTS FOR ELEMENT INPUT CP= 13.570 TIME= 14.70270
FIXED DATA = 1038 TEMPORARY DATA = 18000 TOTAL= 19038
FIXED AVAIL= 2251500 TEMPORARY AVAIL= 2251500 TOTAL AVAIL= 2251500
MAXIMUM NODE NUMBER FOR AVAILABLE AUXILIARY MEMORY SIZE= 1125230
NUMBER OF ELEMENTS = 769 MAXIMUM NODE NUMBER USED = 9000

***** NODE DEFINITIONS *****

F A H 5-15

F A#5-16

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RANGE OF ELEMENT MAXIMUM STIFFNESS IN GLOBAL COORDINATES

MAXIMUM= 0.476117E+10 AT ELEMENT 409.
MINIMUM= 0.176735E+10 AT ELEMENT 679.

INTEGER STORAGE REQUIREMENTS FOR ELEMENT FORMULATION CP= 49.270 TIME= 14.71261
FIXED DATA = 22424 TEMPORARY DATA = 0 TOTAL= 22424
FIXED AVAIL= 2251500 TEMPORARY AVAIL= 2251500 TOTAL AVAIL= 2251500

*** ELEMENT STIFFNESS FORMULATION TIMES

TYPE	NUMBER	STIF	TOTAL CP	AVE CP
1	768	63	9.920	0.013
2	1	21	0.000	0.000

TIME AT END OF ELEMENT STIFFNESS FORMULATION CP= 49.270

MAXIMUM IN-CORE WAVE FRONT ALLOWED FOR REQUESTED MEMORY SIZE= 1491.

INTEGER STORAGE REQUIREMENTS FOR WAVE FRONT MATRIX SOLUTION CP= 179.390 TIME= 14.74876
FIXED DATA = 22424 TEMPORARY DATA = 96100 TOTAL= 118524
FIXED AVAIL= 2251500 TEMPORARY AVAIL= 2251500 TOTAL AVAIL= 2251500

MAXIMUM IN-CORE WAVE FRONT= 308.

MATRIX SOLUTION TIMES
READ IN ELEMENT STIFFNESSES CP= 14.100

NODAL COORD. TRANSFORMATION CP= 0.000
MATRIX TRIANGULARIZATION CP= 115.590

TIME AT END OF MATRIX TRIANGULARIZATION CP= 179.390
EQUATION SOLVER MAXIMUM PIVOT= 0.13715E+12 AT NODE 9000. ROTZ
EQUATION SOLVER MINIMUM PIVOT= 0.22843E+06 AT NODE 2. ROTZ

INTEGER STORAGE REQUIREMENTS FOR BACK SUBSTITUTION CP= 215.250 TIME= 14.75872
FIXED DATA = 22424 TEMPORARY DATA = 108014 TOTAL= 130438
FIXED AVAIL= 2251500 TEMPORARY AVAIL= 2251500 TOTAL AVAIL= 2251500

*** ELEM. STRESS CALC. TIMES
TYPE NUMBER STIF TOTAL CP AVE CP
1 768 63 5.680 0.007

*** NODAL FORCE CALC. TIMES
TYPE NUMBER STIF TOTAL CP AVE CP
1 768 63 0.480 0.001

*** LOAD STEP 1 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 1

INTEGER STORAGE REQUIREMENTS FOR STRESS AND FORCE CALCULATIONS CP= 251.010 TIME= 14.76865
FIXED DATA = 22424 TEMPORARY DATA = 324000 TOTAL= 346424
FIXED AVAIL= 2251500 TEMPORARY AVAIL= 2251500 TOTAL AVAIL= 2251500

*** STORAGE REQUIREMENT SUMMARY
MAXIMUM FIXED MEMORY USED = 22424
MAXIMUM TEMPORARY MEMORY USED= 324000
MAXIMUM TOTAL MEMORY USED = 346424
MAXIMUM TEMPORARY AVAILABLE = 2229076

*** PROBLEM STATISTICS
NO. OF ACTIVE DEGREES OF FREEDOM = 4614
R.M.S. WAVEFRONT SIZE = 297.5

*** ANSYS BINARY FILE STATISTICS

F A# 5-17

BUFFER SIZE USED= 2048
POST DATA WRITTEN ON FILE12
RESTART DATA WRITTEN ON FILE03 (5884344 BYTES)
TRIANGULARIZED MATRIX WRITTEN ON FILE11 (11466412 BYTES)

*** LOAD STEP 2 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 2

*** LOAD STEP 3 ITER 1 COMPLETED. TIME= 0.000000E+00 TIME INC= 0.000000E+00 NEW TRIANG MATRIX CUM. ITER.= 3

***** END OF INPUT ENCOUNTERED ON FILE27. FILE27 REWOUND

***** INPUT FILE SWITCHED FROM FILE27 TO FILE18

***** ROUTINE COMPLETED ***** CP = 715.570

(17)2

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SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.8978 JUL 1,1994 CP= 715.900

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE NODAL COORDINATES FOR DISPLACEMENTS AND FORCES --
USE ELEMENT COORDINATES FOR COMPONENT STRESSES
STORE STRESSES

STORE TX FOR ELEMENT TYPE STIF 63 FROM ITEM 1
STORE TY FOR ELEMENT TYPE STIF 63 FROM ITEM 2
STORE TXY FOR ELEMENT TYPE STIF 63 FROM ITEM 3
STORE MX FOR ELEMENT TYPE STIF 63 FROM ITEM 6
STORE MY FOR ELEMENT TYPE STIF 63 FROM ITEM 7
STORE MXY FOR ELEMENT TYPE STIF 63 FROM ITEM 8
USE LOAD STEP 1 ITERATION 1 SECTION 1 FOR LOAD CASE 1

GEOMETRY STORED FOR 801 NODES 769 ELEMENTS
TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

***WARNING *** CP= 720.790 TIME= 14.89915
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 720.790 TIME= 14.89915
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 720.840 TIME= 14.89916
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 720.840 TIME= 14.89916
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 720.840 TIME= 14.89916
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 720.840 TIME= 14.89916
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***
LOAD STEP 1. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 1 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

NSEL FOR LABEL= X BETWEEN 0.00000E+00 AND 0.00000E+00 KABS= 0.
TOLERANCE= 0.100000E-05

50 NODES (OF 801 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

OUTPUT QUANTITIES ARE STRESS RESULTANTS FOR
96 ELEMENTS ON EITHER SIDE OF INTERSECTION OF
GLOBAL Y-Z PLANE WITH DOME. THESE ELEMENTS HAVE
LARGEST STRESS RESULTANTS FROM TY & MX LOAD CASES.
RESULTS FOR TZ LOAD ARE AXISYMMETRIC.

SELECTED ANSYS OUTPUT FOR 3 DEFINED LOAD CASES
(4 PAGES)

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96 ELEMENTS (OF 769 DEFINED) SELECTED FROM 50 SELECTED NODES BY ENOD COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

*** NOTE ***

SHELL STRESSES SET TO TOP FOR ERROR CALCULATIONS

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SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.8993 JUL 1,1994 CP= 721.340

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAXY
170	-9.0818203	-1.8965966	-0.98510492	-187.03921	-55.105865	-16.121832
171	-7.7303257	-2.3364678	-0.62461428	-108.34909	-65.534647	-8.5719991
172	-6.4794830	-2.7891534	-0.35348120	-64.998300	-53.845598	-4.9627943
173	-5.5174828	-2.9504046	-0.18142029	-37.398460	-40.021181	-2.7200092
174	-4.8424547	-2.7752308	-0.10500101	-21.892892	-29.613125	-1.5149189
175	-4.3102044	-2.4121555	-0.78225483E-01	-12.038185	-22.012151	-0.76478103
176	-3.8592226	-1.9571688	-0.78224626E-01	-5.4223921	-16.365255	-0.26942854
177	-3.4617555	-1.4723922	-0.92187462E-01	-0.88813148	-12.096296	0.64014520E-01
178	-3.1046766	-0.99852914	-0.11240472	2.2196699	-8.8238626	0.28737272
179	-2.7199830	-0.47823650	-0.13853293	4.4897172	-5.9258049	0.44221688
180	-2.3264956	0.47842322E-01	-0.16713457	5.9313285	-3.4648387	0.53119228
181	-1.9824319	0.47571821	-0.19063053	6.2336359	-1.8199021	0.53403077
182	-1.6847228	0.78456739	-0.20573171	5.8652931	-0.75379891	0.48816361
183	-1.4311947	0.97543527	-0.21178844	5.1492269	-0.92495111E-01	0.41908458
184	-1.2191229	1.0609635	-0.20955973	4.3009326	0.29319457	0.34340898
185	-1.0450481	1.0588068	-0.20044857	3.4520698	0.49645122	0.27090311
186	-0.90499743	0.98764314	-0.18604422	2.6691163	0.58173637	0.20609957
187	-0.79477254	0.86511155	-0.16788234	1.9686922	0.59070903	0.14963114
188	-0.71017782	0.70719324	-0.14736142	1.3303552	0.54716432	0.99342988E-01
189	-0.64714870	0.52866057	-0.12576827	0.70743227	0.46122000	0.51226033E-01
190	-0.60177878	0.34428012	-0.10437573	0.36575181E-01	0.33295678	0.22624240E-03
191	-0.57026259	0.17049777	-0.84580659E-01	-0.75306306	0.15574419	-0.59002604E-01
192	-0.54877851	0.27343744E-01	-0.68058544E-01	-1.7290729	-0.80546612E-01	-0.13126996
193	-0.53334269	-0.59749287E-01	-0.56871613E-01	-2.9452763	-0.38804413	-0.22032448
194	-9.1853738	-1.7930438	-0.46438818	-187.96270	-54.162052	-11.065722
195	-7.7641408	-2.3026528	-0.45454301	-109.96811	-63.911064	-0.34304683
196	-6.4744187	-2.7942176	-0.37896454	-66.450410	-52.379116	-2.4133963
197	-5.4893862	-2.9785009	-0.32287937	-38.532441	-38.879100	-3.0137152
198	-4.8042179	-2.8134673	-0.29767052	-22.763828	-28.741935	-2.8742390
199	-4.2682647	-2.4540950	-0.28976599	-12.708184	-21.345226	-2.6086388
200	-3.8172628	-1.9991284	-0.29011798	-5.9384463	-15.852630	-2.3325979
201	-3.4219762	-1.5121715	-0.29334599	-1.2850915	-11.702011	-2.0714902
202	-3.0683730	-1.0348326	-0.29627294	1.9161772	-8.5201845	1.8296560
203	-2.6887653	-0.50945413	-0.29698315	4.2700763	-5.7057471	1.5626152
204	-2.3016273	0.22974018E-01	-0.29387299	5.7866524	-3.3194414	1.2783020
205	-1.9638549	0.45714125	-0.28576186	6.1427285	-1.7268407	1.0135403
206	-1.6719849	0.77182942	-0.27132448	5.8119201	-0.69748271	0.77867849
207	-1.4235936	0.96783412	-0.25117654	5.1214402	-0.61454940E-01	0.57871644
208	-1.2158319	1.0576725	-0.22673371	4.2900753	0.30723521	0.41449792
209	-1.0452091	1.0589678	-0.19960152	3.4520064	0.49939048	0.28381650
210	-0.90778306	0.99042876	-0.17126725	2.6755959	0.57772441	0.18228610
211	-0.79942340	0.86976241	-0.14297878	1.9788289	0.58264733	0.10409200
212	-0.71602274	0.71303816	-0.11574449	1.3422082	0.53710121	0.42632402E-01
213	-0.653261401	0.53512589	-0.90409387E-01	0.71967028	0.45066163	-0.89347796E-02

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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.8993 JUL 1,1994 CP= 721.390

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAXY
------	----	----	-----	----	----	------

17/85

214	-0.60839267	0.35089402	-0.67774672E-01	0.48209777E-01	0.32310673	-0.57206651E-01
215	-0.57665863	0.17689382	-0.48734307E-01	-0.74288310	0.14768653	-0.10806469
216	-0.55470337	0.33268618E-01	-0.34400698E-01	-1.7207491	-0.85815641E-01	-0.16597840
217	-0.53866015	-0.54431806E-01	-0.26225560E-01	-2.9414046	-0.39159142	-0.23308471
554	9.0818221	1.8965944	0.98509580	187.03920	55.105865	16.121833
555	7.7303270	2.3364660	0.62460777	108.34909	65.534646	8.5720008
556	6.4794840	2.7891519	0.35347582	64.998299	53.845597	4.9627956
557	5.5174835	2.9504034	0.18141608	37.398460	40.021180	2.7200100
558	4.8424552	2.7752299	0.10499775	21.892892	29.613124	1.5149193
559	4.3102047	2.4121548	0.78222954E-01	12.038185	22.012151	0.76478117
560	3.8592228	1.9571683	0.78222642E-01	5.4223924	16.365255	0.26942850
561	3.4617557	1.4723919	0.92185888E-01	0.88813191	12.096296	-0.64014683E-01
562	3.1046767	0.99852887	0.11240346	-2.2196694	8.8238624	-0.28737296
563	2.7199830	0.47823632	0.13853194	-4.4897167	5.9258048	-0.44221718
564	2.3264956	-0.47842431E-01	0.16713383	-5.9313281	3.4648386	-0.53119262
565	1.9824319	-0.47571827	0.19062996	-6.2336355	1.8199020	-0.53403111
566	1.6847228	-0.78456741	0.20573128	-5.8652928	0.75379887	-0.48816394
567	1.4311948	-0.97543527	0.21178810	-5.1492266	0.92495090E-01	-0.41908488
568	1.2191229	-1.0609635	0.20955947	-4.3009324	-0.29319458	-0.34340926
569	1.0450481	-1.0588067	0.20044837	-3.4520696	-0.49645123	-0.27090335
570	0.90499742	-0.98764312	0.18604406	-2.6691162	-0.58173637	-0.20609978
571	0.79477254	-0.86511153	0.16788221	-1.9686921	-0.59070904	-0.14963133
572	0.71017781	-0.70719323	0.14736132	-1.3303551	-0.54716433	-0.99343148E-01
573	0.64714869	-0.52866056	0.12576818	-0.70743224	-0.46122000	-0.51226170E-01
574	0.60177877	-0.34428012	0.10437565	-0.36575176E-01	-0.33295679	-0.22635821E-03
575	0.57026258	-0.17049778	0.84580596E-01	0.75306304	-0.15574420	0.59002511E-01
576	0.54877850	-0.27343752E-01	0.68058488E-01	1.7290729	0.80546598E-01	0.13126990
577	0.53334268	0.59749276E-01	0.56871560E-01	2.9452761	0.38804410	0.22032445
578	9.1853731	1.7930426	0.46437895	187.96270	54.162051	11.065723
579	7.7641402	2.3026528	0.45453615	109.96811	63.911064	0.34304856
580	6.4744188	2.7942174	0.37895886	66.450409	52.379115	-2.4133950
581	5.4893867	2.9785006	0.32287498	38.532440	38.879099	-3.0137144
582	4.8042185	2.8134669	0.29766718	22.763828	28.741934	-2.8742387
583	4.2682652	2.4540946	0.28976343	12.708184	21.345226	-2.6086387
584	3.8172633	1.9991280	0.29011599	5.9384463	15.852629	-2.3325980
585	3.4219765	1.5121712	0.29334443	1.2850916	11.702010	-2.0714903
586	3.0683733	1.0348324	0.29627169	-1.9161771	8.5201839	-1.8296562
587	2.6887655	0.50945393	0.29698219	-4.2700761	5.7057466	-1.5626155
588	2.3016274	-0.22974174E-01	0.29387227	-5.7866522	3.3194410	-1.2783023
589	1.9638550	-0.45714136	0.28576131	-6.1427283	1.7268403	-1.0135407
590	1.6719849	-0.77182950	0.27132406	-5.8119199	0.69748247	-0.77867880
591	1.4235937	-0.96783418	0.25117622	-5.1214400	0.61454749E-01	-0.57871673
592	1.2158319	-1.0576726	0.22673345	-4.2900751	-0.30723535	-0.41449817
593	1.0452091	-1.0589678	0.19960133	-3.4520063	-0.49939060	-0.28381673

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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.8993 JUL 1,1994 CP= 721.450

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 1 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
594	0.90778308	-0.99042878	0.17126710	-2.6755958	-0.57772450	-0.18228630
595	0.79942342	-0.86976243	0.14297866	-1.9788288	-0.58264740	-0.10409217
596	0.71602275	-0.71303817	0.11574439	-1.3422082	-0.53710127	-0.42632549E-01
597	0.65361403	-0.53512590	0.90409304E-01	-0.71967022	-0.45066167	0.89346539E-02
598	0.60839268	-0.35089403	0.67774601E-01	-0.48209730E-01	0.32310676	0.57206547E-01
599	0.57665865	-0.17689383	0.48734244E-01	0.74288314	-0.14768655	0.10806461
600	0.55470339	-0.33268625E-01	0.34400642E-01	1.7207491	0.85815632E-01	0.16597835
601	0.53866017	0.54431799E-01	0.26225507E-01	2.9414047	0.39159142	0.23308470

MINIMUMS	194	197	170	194	171	170
ELEMENT	194	197	170	194	171	170
VALUE	-9.1853738	-2.9785009	-0.98510492	-187.96270	-65.534647	-16.121832

MAXIMUMS	578	581	554	578	555	554
ELEMENT	578	581	554	578	555	554
VALUE	9.1853731	2.9785006	0.98509580	187.96270	65.534646	16.121833

USE LOAD STEP 2 ITERATION 1 SECTION 1 FOR LOAD CASE 1

F A H 5 - 21

(20) 10

***WARNING *** CP= 725.130 TIME= 14.90035
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 14.90035
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 14.90035
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 14.90035
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 14.90035
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 725.130 TIME= 14.90035
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***
LOAD STEP 2. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

96 ELEMENTS (OF 769 DEFINED) SELECTED FROM 50 SELECTED NODES BY ENOD COMMAND.

PRINT ELEMENT STRESS ITEMS PER ELEMENT

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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102) 14.9005 JUL 1,1994 CP= 725.510

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
170	16.141904	5.0901646	1.0989052	158.77123	50.425091	11.101631
171	13.556748	7.2562671	0.62634478	95.964546	67.752979	2.8553227
172	11.949888	7.3838849	0.45374457	52.400223	62.993895	-1.0110516
173	10.724079	6.4831652	0.42116913	22.432950	51.763984	-2.9101091
174	9.7425326	5.1121166	0.45947224	4.8452329	40.486962	-3.5367464
175	8.8440294	3.6565402	0.51423220	-5.9843771	30.999541	-3.6641989
176	7.9949591	2.2732231	0.56651723	-12.613294	23.356153	-3.5569782
177	7.1921411	1.0354796	0.60874321	-16.467546	17.295611	-3.3318806
178	6.4394531	-0.23053337E-01	0.63798920	-18.450769	12.526681	-3.0500807
179	5.6052881	-1.0343839	0.65406958	-18.970426	8.2365340	-2.6731189
180	4.7418467	-1.9222688	0.65380803	-18.155933	4.5953326	-2.2228020
181	3.9864826	-2.5186861	0.63515426	-16.008351	2.2103231	-1.7683395
182	3.3367792	-2.8372746	0.59949246	-13.303625	0.72535487	-1.3514848
183	2.7879982	-2.9201031	0.55077497	-10.540766	-0.14187393	-0.99327552
184	2.3326044	-2.8190115	0.49359192	-8.0122222	-0.60367490	-0.70086504
185	1.9611180	-2.5848572	0.43217769	-5.8577334	-0.81179124	-0.47215481
186	1.6631659	-2.2620604	0.36997701	-4.1071172	-0.86819028	-0.29916626
187	1.4283383	-1.8867655	0.30955696	-2.7140852	-0.83542976	-0.17052682
188	1.2467449	-1.4874363	0.25273017	-1.5825006	-0.74585902	-0.73282298E-01
189	1.1092795	-1.0870278	0.20079624	-0.58660503	-0.60947000	-0.57932049E-02
190	1.0076426	-0.70609751	0.15483861	0.41296205	-0.42053961	0.79221677E-01

191	0.93418429	-0.36636777	0.11602862	1.5552704	-0.16340432	0.15801475
192	0.88163212	-0.94325253E-01	0.85900144E-01	2.9651596	0.18218846	0.25088366
193	0.84276344	0.75550501E-01	0.66560643E-01	4.7371342	0.63567222	0.36333775
194	16.141905	5.0901643	1.0989049	158.77123	50.425090	11.101631
195	13.556749	7.2562665	0.62634449	95.964544	67.752979	2.8553229
196	11.949889	7.3838844	0.45374419	52.400222	62.993894	-1.0110514
197	10.724079	6.4831649	0.42116874	22.432949	51.763984	-2.9101089
198	9.7425327	5.1121164	0.45947193	4.8452327	40.486962	-3.5367462
199	8.8440294	3.6565401	0.51423194	-5.9843772	30.999541	-3.6641987
200	7.9949591	2.2732230	0.56651699	-12.613294	23.356153	-3.5569782
201	7.1921411	1.0354795	0.60874294	-16.467545	17.295611	-3.3318803
202	6.4394531	-0.23053403E-01	0.63798901	-18.450769	12.526681	-3.0500805
203	5.6052881	-1.0343839	0.65406942	-18.970426	8.2365340	-2.6731187
204	4.7418466	-1.9222688	0.65380792	-18.155933	4.5953326	-2.2228020
205	3.9864825	-2.5186861	0.63515415	-16.008351	2.2103231	-1.7683394
206	3.3367792	-2.8372746	0.59949233	-13.303625	0.72535491	-1.3514848
207	2.7879982	-2.9201031	0.55077483	-10.540766	-0.14187388	-0.99327549
208	2.3326044	-2.8190115	0.49359180	-8.0122222	-0.60367484	-0.70086495
209	1.9611180	-2.5848572	0.43217760	-5.8577334	-0.81179120	-0.47215472
210	1.6631660	-2.2620604	0.36997691	-4.1071172	-0.86819024	-0.29916617
211	1.4283383	-1.8867655	0.30955689	-2.7140852	-0.83542973	-0.17052674
212	1.2467449	-1.4874363	0.25273006	-1.5825006	-0.74585899	-0.73282223E-01
213	1.1092795	-1.0870278	0.20079616	-0.58660504	-0.60946998	0.57932558E-02

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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.9005 JUL 1,1994 CP= 725.510

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAXY
214	1.0076426	-0.70609752	0.15483852	0.41296203	-0.42053959	0.79221714E-01
215	0.93418429	-0.36636778	0.11602856	1.5552704	-0.16340431	0.15801476
216	0.88163213	-0.94325264E-01	0.85900080E-01	2.9651595	0.18218846	0.25088366
217	0.84276344	0.75550491E-01	0.66560590E-01	4.7371341	0.63567221	0.36333776
554	16.141900	5.0901641	1.0989042	158.77123	50.425092	11.101634
555	13.556744	7.2562670	0.62634379	95.964548	67.752981	2.8553279
556	11.949885	7.3838854	0.45374346	52.400225	62.993897	-1.0110468
557	10.724076	6.4831664	0.42116800	22.432953	51.763987	-2.9101053
558	9.7425294	5.1121181	0.45947118	4.8452364	40.486965	-3.5367434
559	8.8440265	3.6565420	0.51423121	-5.9843737	30.999543	-3.6641966
560	7.9949565	2.2732249	0.56651632	-12.613291	23.356156	-3.5569763
561	7.1921388	1.0354815	0.60874236	-16.467543	17.295613	-3.3318791
562	6.4394511	-0.23051422E-01	0.63798842	-18.450767	12.526683	-3.0500795
563	5.6052864	-1.0343820	0.65406887	-18.970424	8.2365358	-2.6731180
564	4.7418451	-1.9222669	0.65380739	-18.155932	4.5953342	-2.2228014
565	3.9864812	-2.5186844	0.63515369	-16.008350	2.2103245	-1.7683391
566	3.3367781	-2.8372730	0.59949195	-13.303624	0.72535612	-1.3514845
567	2.7879972	-2.9201017	0.55077452	-10.540765	-0.14187285	-0.99327534
568	2.3326035	-2.8190102	0.49359152	-8.0122217	-0.60367397	-0.70086493
569	1.9611172	-2.5848561	0.43217734	-5.8577330	-0.81179043	-0.47215474
570	1.6631652	-2.2620595	0.36997670	-4.1071169	-0.86818956	-0.29916622
571	1.4283375	-1.8867647	0.30955668	-2.7140849	-0.83542912	-0.17052680
572	1.2467441	-1.4874357	0.25272993	-1.5825004	-0.74585846	-0.73282296E-01
573	1.1092788	-1.0870274	0.20079603	-0.58660507	-0.60946953	0.57931854E-02
574	1.0076419	-0.70609727	0.15483843	0.41296160	-0.42053928	0.79221625E-01
575	0.93418360	-0.36636769	0.11602847	1.5552693	-0.16340417	0.15801465
576	0.88163143	-0.94325299E-01	0.85900008E-01	2.9651574	0.18218835	0.25088349
577	0.84276274	0.75550392E-01	0.66560521E-01	4.7371307	0.63567176	0.36333748
578	16.141901	5.0901640	1.0989046	158.77123	50.425093	11.101634
579	13.556745	7.2562667	0.62634428	95.964549	67.752982	2.8553278
580	11.949885	7.3838852	0.45374397	52.400226	62.993898	-1.0110470
581	10.724076	6.4831663	0.42116842	22.432954	51.763987	-2.9101055
582	9.7425293	5.1121181	0.45947153	4.8452368	40.486965	-3.5367436
583	8.8440264	3.6565420	0.51423150	-5.9843734	30.999544	-3.6641967
584	7.9949564	2.2732250	0.56651654	-12.613291	23.356156	-3.5569766
585	7.1921388	1.0354815	0.60874250	-16.467543	17.295613	-3.3318791
586	6.4394510	-0.23051368E-01	0.63798859	-18.450766	12.526683	-3.0500796
587	5.6052863	-1.0343819	0.65406903	-18.970424	8.2365360	-2.6731181
588	4.7418451	-1.9222669	0.65380757	-18.155931	4.5953343	-2.2228015
589	3.9864812	-2.5186844	0.63515384	-16.008350	2.2103246	-1.7683392

F A# 5-23

(22/12)

590 3.3367780 -2.8372730 0.59949207 -13.303624 0.72535617 -1.3514847
591 2.7879972 -2.9201016 0.55077461 -10.540765 -0.14187282 -0.99327546
592 2.3326035 -2.8190102 0.49359161 -8.0122217 -0.60367394 -0.70086497
593 1.9611172 -2.5848561 0.43217745 -5.8577330 -0.81179041 -0.47215477
1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.9005 JUL 1,1994 CP= 725.620

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 2 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXV
594	1.6631651	-2.2620595	0.36997679	-4.1071169	-0.86818954	-0.29916623
595	1.4283375	-1.8867647	0.30955679	-2.7140850	-0.83542911	-0.17052681
596	1.2467441	-1.4874357	0.25272999	-1.5825005	-0.74585845	-0.73282302E-01
597	1.1092788	-1.0870274	0.20079610	-0.58660508	-0.60946953	0.57931639E-02
598	1.0076419	-0.70609726	0.15483848	0.41296158	-0.42053927	0.79221599E-01
599	0.93418358	-0.36636768	0.11602853	1.5552693	-0.16340417	0.15801461
600	0.88163142	-0.94325290E-01	0.85900063E-01	2.9651574	0.18218835	0.25088346
601	0.84276273	0.75550400E-01	0.66560575E-01	4.7371307	0.63567175	0.36333749

MINIMUMS
ELEMENT 601 207 577 179 186 175
VALUE 0.84276273 -2.9201031 0.66560521E-01 -18.970426 -0.86819028 -3.6641989

MAXIMUMS
ELEMENT 194 556 170 578 579 554
VALUE 16.141905 7.3838854 1.0989052 158.77123 67.752982 11.101634

USE LOAD STEP 3 ITERATION 1 SECTION 1 FOR LOAD CASE 1

***WARNING *** CP= 729.240 TIME= 14.90149
DATA FOR STRESS LABEL TX HAS NOT BEEN STORED FOR ALL ELEMENTS.
TX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 729.240 TIME= 14.90149
DATA FOR STRESS LABEL TY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 729.240 TIME= 14.90149
DATA FOR STRESS LABEL TXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
TXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 729.240 TIME= 14.90149
DATA FOR STRESS LABEL MX HAS NOT BEEN STORED FOR ALL ELEMENTS.
MX DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 729.240 TIME= 14.90149
DATA FOR STRESS LABEL MY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

***WARNING *** CP= 729.240 TIME= 14.90149
DATA FOR STRESS LABEL MXY HAS NOT BEEN STORED FOR ALL ELEMENTS.
MXY DATA FOR TYPE 2. STIF 21. ELEMENTS WILL BE SET TO ZERO

STRESSES STORED FOR 10 SELECTED ITEMS

NODAL STRESSES AND TEMPS. STORED FOR 768 ELEMENTS

ITERATION SUMMARY INFORMATION STORED

*** NOTE ***

LOAD STEP 3. ITER 1. NODAL FORCES (GROUP 4.) NOT ON FILE12.

FOR LOAD STEP= 3 ITERATION= 1 SECTION= 1
TIME= 0.000000E+00 LOAD CASE= 1
TITLE= SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

PRINT ELEMENT STRESS ITEMS PER ELEMENT

1 ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 4.4 A 1 38280-PC/L1-4.4A MAY 1,1990
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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.9016 JUL 1, 1994 CP= 729.460

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAX
170	0.65355361	0.45904369	-0.40818360E-01	47.303430	13.940864	4.0718321
171	0.53700341	0.85328268	-0.81205306E-01	27.687138	16.664915	2.1882118
172	0.53581111	1.0232760	-0.98676897E-01	16.885467	13.803094	1.2891138
173	0.55321923	1.0695273	-0.10360728	9.9910241	10.380626	0.72874290
174	0.55708766	1.0188879	-0.98798614E-01	6.0819069	7.7840615	0.42474992
175	0.54537426	0.92078205	-0.89255591E-01	3.5648955	5.8737636	0.23286780
176	0.52197051	0.79985637	-0.77452924E-01	1.8487788	4.4432272	0.10401521
177	0.49076317	0.67114640	-0.64890397E-01	0.65240578	3.3527852	0.15637451E-01
178	0.45490150	0.54445760	-0.52539414E-01	-0.18224860	2.5100362	-0.44760977E-01
179	0.40900214	0.40313735	-0.38789444E-01	-0.80595086	1.7572917	-0.87774823E-01
180	0.35538840	0.25601590	-0.24513667E-01	-1.2306440	1.1102001	-0.11506810
181	0.30332372	0.13013244	-0.12389219E-01	-1.3726865	0.66670794	-0.12094722
182	0.25482487	0.31617484E-01	-0.29868319E-02	-1.3367255	0.36996201	-0.11374966
183	0.21128430	-0.38901088E-01	0.36647839E-02	-1.1986937	0.17820140	-0.99487600E-01
184	0.17341637	-0.83927474E-01	0.78402772E-02	-1.0124134	0.59905694E-01	-0.82344821E-01
185	0.14138267	-0.10750463	0.99583801E-02	-0.81383248	-0.83391473E-02	-0.65036997E-01
186	0.11495284	-0.11417097	0.10478340E-01	-0.62471649	-0.43508504E-01	-0.49129809E-01
187	0.93649865E-01	-0.10832992	0.98382212E-02	-0.45591471	-0.57474336E-01	-0.35321693E-01
188	0.76863826E-01	-0.93930428E-01	0.84244596E-02	-0.31021981	-0.58121646E-01	-0.23689989E-01
189	0.63931990E-01	-0.74375162E-01	0.65637771E-02	-0.18481102	-0.50291900E-01	-0.13898544E-01
190	0.54188843E-01	-0.52587274E-01	0.45301856E-02	-0.73309117E-01	-0.36581180E-01	-0.53690998E-02
191	0.46991858E-01	-0.31177691E-01	0.25608875E-02	0.32481814E-01	-0.18019588E-01	0.25774628E-02
192	0.41729250E-01	-0.12663978E-01	0.87632639E-03	0.14098119	0.53407162E-02	0.10597602E-01
193	0.37816136E-01	0.30459543E-03	-0.29957337E-03	0.25897157	0.34036523E-01	0.19208907E-01
194	0.63053682	0.48206048	0.74922356E-01	47.536127	13.704003	2.8017443
195	0.51796762	0.87231846	0.14536699E-01	28.097265	16.254022	0.10506176
196	0.51660147	1.0424856	-0.20238137E-02	17.255967	13.429307	-0.59164831
197	0.53321957	1.0895269	-0.29147732E-02	10.283081	10.086646	-0.74756817
198	0.53685794	1.0391176	0.31360161E-02	6.3085791	7.5573287	-0.71757450
199	0.52551928	0.94063704	0.10891490E-01	3.7413196	5.6980777	-0.65550035
200	0.50293867	0.81888821	0.18656519E-01	1.9864578	4.3063724	-0.59019347
201	0.47285324	0.68905633	0.25677756E-01	0.75990233	3.2459313	-0.52787492
202	0.43829310	0.56106600	0.31577966E-01	-0.98635455E-01	2.4262972	-0.46951851
203	0.39406963	0.41806986	0.37002935E-01	-0.74392771	1.6950969	-0.40406442
204	0.34244091	0.26896338	0.41471758E-01	-1.1880802	1.0673727	-0.33453758
205	0.29230109	0.14115507	0.44056979E-01	-1.3442801	0.63767019	-0.27002100
206	0.24559515	0.40847203E-01	0.44540711E-01	-1.3184091	0.35079879	-0.21215376
207	0.20366528	-0.31282064E-01	0.43145678E-01	-1.1874353	0.16599537	-0.16198346
208	0.16719966	-0.77710757E-01	0.40282208E-01	-1.0059733	0.52514260E-01	-0.11987766
209	0.13635365	-0.10247561	0.36407943E-01	-0.81058545	-0.12473568E-01	-0.85621341E-01
210	0.11090493	-0.11012306	0.31951255E-01	-0.62350693	-0.45502759E-01	-0.58546305E-01
211	0.90393549E-01	-0.10507361	0.27274473E-01	-0.45593905	-0.58117892E-01	-0.37674447E-01
212	0.74231559E-01	-0.91298161E-01	0.22663159E-01	-0.31093170	-0.57966010E-01	-0.21853626E-01
213	0.61780171E-01	-0.72223343E-01	0.18332071E-01	-0.18584561	-0.49720768E-01	-0.98750654E-02

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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.9016 JUL 1, 1994 CP= 729.460

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MAX
214	0.52397952E-01	-0.50796383E-01	0.14440904E-01	-0.74423562E-01	-0.35864655E-01	-0.56954324E-03
215	0.45465629E-01	-0.29651463E-01	0.11114558E-01	0.31454451E-01	-0.17355411E-01	0.71148955E-02
216	0.40393654E-01	-0.11328382E-01	0.84635389E-02	0.14013770	0.58016973E-02	0.14036861E-01
217	0.36618875E-01	0.15018565E-02	0.66005619E-02	0.25826971	0.34344970E-01	0.20687123E-01
554	-0.65355361	-0.45904369	0.40818360E-01	-47.303430	-13.940864	-4.0718321
555	-0.53700341	-0.85328268	-0.81205306E-01	-27.687138	-16.664915	-2.1882118
556	-0.53581111	-1.0232760	-0.98676897E-01	-16.885467	-13.803094	-1.2891138
557	-0.55321923	-1.0695273	-0.10360728	-9.9910241	-10.380626	-0.72874290

558	-0.55708766	-1.0188879	0.98798614E-01	-6.0819069	-7.7840615	-0.42474992
559	-0.54537426	-0.92078205	0.89255591E-01	-3.5648955	-5.8737636	-0.23286780
560	-0.52197051	-0.79985637	0.77452924E-01	-1.8487788	-4.4432272	-0.10401521
561	-0.49076317	-0.67114640	0.64890397E-01	-0.65240578	-3.3527852	-0.15637451E-01
562	-0.45490150	-0.54445760	0.52539414E-01	0.18224860	-2.5100362	0.44760977E-01
563	-0.40900214	-0.40313735	0.38789444E-01	0.80595086	-1.7572917	0.87774823E-01
564	-0.35538840	-0.25601590	0.24513667E-01	1.2306440	-1.1102001	0.11506810
565	-0.30332372	-0.13013244	0.12389219E-01	1.3726865	-0.66670794	0.12094722
566	-0.25482487	-0.31617484E-01	0.29868319E-02	1.3367255	-0.36996201	0.11374966
567	-0.21128430	0.38901088E-01	-0.36647838E-02	1.1986937	-0.17820140	0.99487600E-01
568	-0.17341637	0.83927474E-01	-0.78402772E-02	1.0124134	-0.59905694E-01	0.82344821E-01
569	-0.14138267	0.10750463	-0.99583801E-02	0.81383248	0.83391474E-02	0.65036997E-01
570	-0.11495284	0.11417097	-0.10478340E-01	0.62471649	0.43508504E-01	0.49129809E-01
571	-0.93649865E-01	0.10832992	-0.98382212E-02	0.45591471	0.57474336E-01	0.35321693E-01
572	-0.76863826E-01	0.93930428E-01	-0.84244596E-02	0.31021981	0.58121646E-01	0.23689989E-01
573	-0.63931990E-01	0.74375162E-01	-0.65637771E-02	0.18481102	0.50291900E-01	0.13898544E-01
574	-0.54188843E-01	0.52587274E-01	-0.45301856E-02	0.73309117E-01	0.36581180E-01	0.53690998E-02
575	-0.46991858E-01	0.31177691E-01	-0.25608875E-02	-0.32481814E-01	0.18019588E-01	-0.25774628E-02
576	-0.41729250E-01	0.12663978E-01	-0.87632639E-03	-0.14098119	-0.53407162E-02	-0.10597602E-01
577	-0.37816136E-01	-0.30459543E-03	0.29957337E-03	-0.25897157	-0.34036523E-01	-0.19208907E-01
578	-0.63053682	-0.48206048	-0.74922356E-01	-47.536127	-13.704003	-2.8017443
579	-0.51796762	-0.87231846	-0.14536699E-01	-28.097265	-16.254022	-0.10506176
580	-0.51660147	-1.0424856	0.20238138E-02	-17.255967	-13.429307	0.59164831
581	-0.53321957	-1.0895269	0.29147732E-02	-10.283081	-10.086646	0.74756817
582	-0.53685794	-1.0391176	-0.31360161E-02	-6.3085791	-7.5573287	0.71757450
583	-0.52551928	-0.94063704	-0.10891490E-01	-3.7413196	-5.6980777	0.65550035
584	-0.50293867	-0.81888821	-0.18656519E-01	-1.9864578	-4.3063724	0.59019347
585	-0.47285324	-0.68905633	-0.25677756E-01	-0.75990233	-3.2459313	0.52787492
586	-0.43829310	-0.56106600	-0.31577966E-01	0.98635455E-01	-2.4262972	0.46951851
587	-0.39406963	-0.41806986	-0.37002935E-01	0.74392771	-1.6950969	0.40406442
588	-0.34244091	-0.26896338	-0.41471758E-01	1.1880802	-1.0673727	0.33453758
589	-0.29230109	-0.14115507	-0.44056979E-01	1.3442801	-0.63767019	0.27002100
590	-0.24559515	-0.40847203E-01	-0.44540711E-01	1.3184091	-0.35079879	0.21215376
591	-0.20366528	0.31282064E-01	-0.43145678E-01	1.1874353	-0.16599537	0.16198346
592	-0.16719966	0.77710757E-01	-0.40282208E-01	1.0059733	-0.52514260E-01	0.11987766
593	-0.13635365	0.10247561	-0.36407943E-01	0.81058545	0.12473568E-01	0.85621341E-01

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FOR SUPPORT CALL PHONE TWX

SY-101 DOME (LOAD AT SLUICING PIT FLANGE FOR AY-102)

14.9016 JUL 1, 1994 CP= 729.570

***** POST1 ELEMENT STRESS LISTING *****

LOAD STEP 3 ITERATION= 1 SECTION= 1
TIME= 0.00000E+00 LOAD CASE= 1

ELEM	TX	TY	TXY	MX	MY	MXY
594	-0.11090493	0.11012306	-0.31951255E-01	0.62350693	0.45502759E-01	0.58546305E-01
595	-0.90393549E-01	0.10507361	-0.27274473E-01	0.45593905	0.58117892E-01	0.37674447E-01
596	-0.74231559E-01	0.91298161E-01	-0.22663159E-01	0.31093170	0.57966010E-01	0.21853626E-01
597	-0.61780171E-01	0.72223343E-01	-0.18332071E-01	0.18584561	0.49720768E-01	0.98750654E-02
598	-0.52397952E-01	0.50796383E-01	-0.14440904E-01	0.74423562E-01	0.35864655E-01	0.56954323E-03
599	-0.45465629E-01	0.29651463E-01	-0.11114558E-01	-0.31454451E-01	0.17355411E-01	-0.71148955E-02
600	-0.40393654E-01	0.11328382E-01	-0.84635389E-02	-0.14013770	-0.58016973E-02	-0.14036861E-01
601	-0.36618875E-01	-0.15018565E-02	-0.66005619E-02	-0.25826971	-0.34344970E-01	-0.20687123E-01

MINIMUMS

ELEMENT	554	581	173	578	555	554
VALUE	-0.65355361	-1.0895269	-0.10360728	-47.536127	-16.664915	-4.0718321

MAXIMUMS

ELEMENT	170	197	557	194	171	170
VALUE	0.65355361	1.0895269	0.10360728	47.536127	16.664915	4.0718321

***** ROUTINE COMPLETED ***** CP = 729.570

/EOF ENCOUNTERED ON FILE18

PREP7 AFWRITE OR SFWRITE WARNING MESSAGES = 0
NUMBER OF SOLUTION PHASE WARNING MESSAGES = 0

25/25

WHC-SD-W320-ANAL-003
Rev. 0

***** RUN COMPLETED ***** CP= 729.7900 TIME= 14.9016

F. AH 5-27

APPENDIX G
ACCIDENTAL DROP ANALYSIS AND EVALUATION

INDEPENDENT REVIEW

Document Reviewed Accidental Drop Analysis and Evaluation (Appendix G)

Author R. S. Marlow Report No. WHC-SD-W320-ANAL-003 EDT No. 142759

The subject document has been reviewed by the undersigned. The reviewer reviewed and verified the following items as applicable [EP.4.1].

- Engineering Specification
- Design Input
- Basic Assumption
- Approach/Design Methodology
- Related Information
- Conclusion/Result Interpretation

L. J. Julyk

Reviewer

10/20/84
Date

CHECKLIST FOR INDEPENDENT REVIEW

Document Reviewed Accidental Drop Analysis and Evaluation (Appendix G)

Author R. S. Marlow

Yes No N/A

☒	☐	☐	Problem completely defined.
☒	☐	☐	Necessary assumptions explicitly stated and supported.
☒	☐	☐	Computer codes and data files documented.
☒	☐	☐	Data used in calculations explicitly stated in document.
☒	☐	☐	Data checked for consistency with original source information as applicable.
☒	☐	☐	Mathematical derivations checked including dimensional consistency of results.
☒	☐	☐	Models appropriate and used within range of validity or use outside range of established validity justified.
☒	☐	☐	Hand calculations checked for errors.
☒	☐	☐	Code run streams correct and consistent with analysis documentation.
☒	☐	☐	Code output consistent with input and with results reported in analysis documentation.
☒	☐	☐	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒	☐	☐	Safety margins consistent with good engineering practices.
☒	☐	☐	Conclusions consistent with analytical results and applicable limits.
☒	☐	☐	Results and conclusions address all points required in the problem statement.

MANDATORY

Software QA Log Number 94-055

L. J. Julyk
Reviewer

10/20/94
Date

ENGINEERING ANALYSIS SOFTWARE REPORT FORM

SOFTWARE APPLICATION

ABAQUS 5.2

SOFTWARE LOG #

94-055

ANALYSTS

Randall S. Marlow

EDT # 142759

ANALYST MANAGER

J. B. Truitt

DOCUMENT #

WHC-SD-W320-ANAL-003, Rev. 0

DATE PERFORMED

June 20, 1994

DESCRIPTION OF ANALYSIS:

The analysis is an impact calculation. It is a nonlinear, transient, dynamic calculation of the impact of the tank 241C106 heel jet on the soil surface and the heel jet pit. Important options are *Rigid Surface and *Dynamic. Element type is CAX4R

SIGNATURE OF ANALYST

DATE

10/18/94

SEND TO:

PAT DAVIS
H5-55
G-iv

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	Attachment 2. ABAQUS Input File for Restart	ATTG2-i
	Attachment 3. Dropped Heel Pit Pump	ATTG3-i

FIGURES

1.	Time History of Net Downward Force on Lower Soil Boundary	G-3
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1.0 INTRODUCTION

The 241C106 heel jet consists mainly of steel pipe and a large steel flange welded to one end. The flange supports the jet in the riser in the floor of the central heel pit above the dome of 241C106. The heel jet will be removed as part of the W-320 sluicing operation. This document describes calculations concerning the effects of the impact of the 241C106 heel jet if it were dropped during the removal process. The calculations themselves are in Attachment 1.

2.0 IMPACT CALCULATIONS

Two impacts have been analyzed. In the first calculation, the heel jet impacts the soil after free-falling from a height of 4 ft. In the second calculation, the heel jet impacts the heel pit floor after falling 37 ft back into the riser. The weight of the heel jet is assumed to be 3,000 lb in both calculations. The calculated weight of the jet is approximately 2,500 lb (See Attachment 1 Section 2.0). The extra weight is included to cover the possibility of accumulated waste inside the jet.

The first impact is analyzed in Section 3.0 of Attachment 1. The average force exerted on the soil during the impact is calculated to be approximately 18 tons. This force is not structurally significant. The soil overburden weight on the tank, for example, is many hundreds of tons.

The second impact is analyzed in Section 4.0 of Attachment 1. The impact of the relatively rigid jet with the concrete floor of the pit produces large impulsive forces which are transmitted onto the tank dome by stress waves which travel through the floor of the heel pit and the layer of soil between the heel pit and the tank dome. A finite-element model was constructed to estimate the magnitude and duration of the impulsive loading of the dome. In this model, the heel pit floor is idealized as a circular disk of elastic material. The soil is modeled as a plastic material. The heel jet itself is modeled as a rigid body. At the beginning of the calculation, the heel jet is brought into contact with the heel pit floor. During the simulated impact, stress waves travel through the model and reflect from the bottom of the soil layer which is held fixed. The vertical force on the bottom soil layer is taken to be the vertical force on the dome had it been included in the model. The force is plotted as a function of time in Figure 1.

The force plotted in Figure 1 was applied as a point load to the center of a three-dimensional finite-element model of the tank. The ABAQUS finite-element model is documented extensively in Marlow 1994. The restart file for this analysis is given in Attachment 2. Table 1 lists shell forces and moments in the tank dome near the point of application of the load. Table 2 lists shell forces and moments in the tank dome at a point intermediate between the center of the dome and the haunch. Both tables indicate that the applied impulsive force creates large transverse shear in the dome. The shear is far above what the applicable code allows (Juryk 1993). The number of cracks in the finite-element model indicates that the force causes extensive damage to the dome.

3.0 CONCLUSIONS

The heel jet has no significant effect on the tank when it is dropped from a height of 4 ft onto the soil above the tank. Large impulsive forces are transmitted to the tank when the jet is dropped from a height 37 ft onto the heel pit floor. The heel pit floor itself will certainly be damaged by the impact. Finite-element calculations show that the tank dome is damaged by the impact. The transverse shear in the dome during the application of the impulsive load greatly exceeds that allowed by the applicable code.

4.0 REFERENCES

- Julyk, L. J., et al., 1993, *Tank 241-C-106 Structural Integrity Evaluation for In Situ Conditions*, WHC-SD-W320-ANAL-001, Westinghouse Hanford Company, Richland, Washington.
- Marlow, R.S., 1994, *Structural Analysis and Evaluation in Support of the Long Reach Manipulator Procurement Specification*, WHC-SD-W340-ANAL-001, Westinghouse Hanford Company, Richland, Washington.

Figure 1. Time History of Net Downward Force on Lower Soil Boundary

Table 1. Section Forces and Moments Near Load

Section moments are in units of in-lbf/in.
Section forces are in units of lbf/in.

	Per inch					
Time (s)	SF1	SM1	SF2	SM2	SF4	SF5
6.51E-04	-3443	-179.8	-2217	-569	13.14	15.18
1.58E-03	-798	-238.2	-1941	-444.7	14.73	12.37
2.65E-03	-563.3	139	-2105	-194.8	23.48	13.34
3.19E-03	-1427	2082	-2347	989.4	48.57	26.69
3.75E-03	-2429	2945	-2260	3227	85.58	54.25
4.12E-03	-2542	4137	-2119	3343	96.05	63.77
4.48E-03	-2406	5262	-1608	1818	109.4	40.59
4.90E-03	-3493	8255	-1205	615.5	188.3	68.83
5.09E-03	-4405	1.34E+04	-1158	1302	200.4	104.9
5.43E-03	-5640	1.96E+04	-1139	1457	216.7	89.52
5.66E-03	-5026	1.48E+04	-1475	745.5	340	25.5
6.07E-03	-4932	453.3	-3388	6162	710.4	53.23
6.36E-03	-5273	1.93E+04	-2976	9220	581.3	84.87
6.79E-03	-1.02E+04	4.58E+04	-3879	-3362	59.78	34.24
6.98E-03	-1.05E+04	4.95E+04	-3331	-1.16E+04	15.82	3.936
7.14E-03	-1.06E+04	5.14E+04	-2691	-1.65E+04	82.91	-89.43
7.30E-03	-1.08E+04	5.15E+04	-3081	-1.32E+04	280.3	-265.6
7.46E-03	-9787	4.28E+04	-1730	-1.38E+04	674.3	-557.3
7.62E-03	-1.24E+04	534	-2558	-1.87E+04	1269	-778.3
7.78E-03	-1.45E+04	-3.55E+04	-2120	-1.77E+04	1829	-613.2
7.94E-03	-1.55E+04	-3.33E+04	-1046	-9595	1997	-80.46

Table 2. Section Forces and Moments at Intermediate Point

Section moments are in units of in-lbf/in.
Section forces are in units of lbf/in.

	Per inch					
Time (s)	SF1	SM1	SF2	SM2	SF4	SF5
6.51E-04	-3569	-2915	-3336	-1041	6.148	-0.7656
1.58E-03	-1846	-2537	-3426	-1919	29.68	-3.078
2.65E-03	-632.9	-2084	-3723	-3067	15.09	-13.78
3.19E-03	-565.5	-2347	-3841	1554	33.39	24.41
3.75E-03	-846.8	-1704	-3981	-1.37E+04	-36.35	-108.8
4.12E-03	-1289	-285.3	-4373	-516.4	181.5	6.608
4.48E-03	-1646	-2.12E+04	-4404	1.89E+04	120.5	250.5
4.90E-03	-1382	2589	-8676	-2.06E+04	-82.58	-337.5
5.09E-03	-2995	1.16E+04	-1.01E+04	-3.93E+04	209.8	-420.9
5.43E-03	-6505	3.10E+04	-1.11E+04	2.36E+04	450	318.2
5.66E-03	1613	-9589	-1.16E+04	3.55E+04	-506.5	455.5
6.07E-03	-1.68E+04	-1.15E+05	-2.97E+04	-9.73E+04	-2131	-1829
6.36E-03	-7561	-5.89E+04	-3.06E+04	-1.08E+05	-190	-2170
6.79E-03	-2.22E+04	6.88E+04	-2.84E+04	1.72E+05	3920	3547
6.98E-03	-2.12E+04	7.22E+04	-3.27E+04	1.86E+05	2858	5507
7.14E-03	-1.52E+04	5.16E+04	-1.84E+04	1.09E+05	-220.1	5061
7.30E-03	-2.42E+04	3.33E+04	-2364	1.57E+04	-4496	2195
7.46E-03	-3.38E+04	-3.83E+04	5043	-6.08E+04	-8403	-2688
7.62E-03	-3.67E+04	-4.49E+04	-3.09E+04	-2.37E+05	-1.04E+04	-8533
7.78E-03	-3.52E+04	5.53E+04	-2.88E+04	-1.97E+05	-9336	-1.32E+04
7.94E-03	-3.30E+04	8.50E+04	-2.50E+04	-1.18E+05	-4362	-1.50E+04

ATTACHMENT 1 TO APPENDIX G
IMPACT CALCULATIONS

(1) Drawing _____ (2) Doc. No. _____ (3) Page 1 of _____
 (4) Building _____ (5) Rev. _____ (6) Job No. _____
 (7) Subject Heel Jet Drop
 (8) Originator R.S. Marlow Date 6/20/94
 (9) Checker L. Smith Date 8/8/94

(10)

1.0 Scope

This document contains calculations pertinent to the analysis of the effects of a drop of the 241C106 heel jet onto the soil above tank 241C106 and onto the floor of the heel pit.

2.0 Weight of the Heel Jet

This section contains the calculation of the weight of the 241C106 heel jet [1]. The weight per unit length of each type of pipe comprising the heel jet is taken from reference [2].

Estimated Total Length of 2-SCH. 40 Pipe:

$$\begin{aligned}
 &= 8(12) + 4(\pi) \left(\frac{9.625 + 4.875}{2} \right) + 160 \\
 &= 347 \text{ in.}
 \end{aligned}$$

DESIGN CALCULATION

WHC-SD-W320-ANAL-003

Rev. 0

(1) Drawing _____ (2) Doc. No. _____ (3) Page 2 of _____
 (4) Building _____ (5) Rev. _____ (6) Job No. _____
 (7) Subject _____
 (8) Originator [Signature] Date 6/20/94
 (9) Checker A. Sedik Date 8/5/94

(10)

Estimated Total Length of 3-SCH.40 Pipe :

$$= 8(12) + 20.5 + 10 + 113.6875 + 10 + 16 + 10 + 5.625$$

$$= 282 \text{ in}$$

Estimated Total Length of 10-SCH.40 Pipe :

$$= 372 \text{ in}$$

Estimated Weight of Flange :

$$= \frac{\pi}{4} (36)^2 (3) (0.284) = 867 \text{ lbf}$$

Estimated weight of heel jet :

$$= 3.65 \left(\frac{347}{12} \right) + 7.58 \left(\frac{282}{12} \right) + 40.48 \left(\frac{372}{12} \right) + 867$$

$$= 2,400 \text{ lbf}$$

Use 3,000 lbf.

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 (4) Building _____ (5) Rev. _____ (6) Job No. _____
 (7) Subject _____
 (8) Originator [Signature] Date 6/20/94
 (9) Checker [Signature] Date 8/8/94

(10)

3.0 Heel Jet Drop onto Soil

This section contains the calculation of the depth of penetration of the heel jet when dropped onto soil. The average impact force is calculated using the depth of penetration. The main reference for this section is [4]. The drop height is specified in [3]. The frontal impact area is assumed to be that of a 3-SCH.40 Pipe viewed on end [3].

The drop height is 4 ft. The impact speed is therefore $\sqrt{2(32.2)(4)} = 16 \text{ ft/s}$.

Penetration Depth [4] =

$$= 0.53(6)(0.56)\left(\frac{3000}{2.228}\right)^{1/2} \ln(1 + 2 \times 10^{-5}(16)^2)$$

$$= 0.33 \text{ ft.}$$

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 (4) Building _____ (5) Rev. _____ (6) Job No. _____
 (7) Subject _____
 (8) Originator [Signature] Date 6/20/94
 (9) Checker [Signature] Date 8/8/94

(10)

The Kinetic energy of the heel jet immediately before impact is $3000(4) = 12,000 \text{ ft-lbf}$. The average impact force is therefore

$$\frac{12,000}{0.33} = 36,000 \text{ lbf} = 18 \text{ tons}$$

4.0 Heel Jet Drop onto the Heel Pit

This section contains a description of a numerical simulation of an impact of the heel jet with the floor of the heel pit. The event simulated is the contact of the heel jet flange with the pit floor. The drop height is taken to be 37 ft. The speed of impact is therefore $\sqrt{2(32.2)(37)} = 49 \text{ ft/s}$.

4.1 The Model

The impact is modeled with the finite-element code ABAQUS 5.2. The finite-element model is axisymmetric. The

(1) Drawing _____ (2) Doc. No. _____ (3) Page 5 of _____
(4) Building _____ (5) Rev. _____ (6) Job No. _____
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(9) Checker [Signature] Date 8/8/94

(10)

actual heel pit is not axisymmetric. However, this model is intended to give predictions of the magnitude of the stress pulse which reaches the tank. An axisymmetric model is sufficient for this purpose.

The heel jet is modeled as a rigid disk with mass $3000/386.4 = 7.8 \text{ lb-ft}^{-2} \text{ s}^2/\text{in}$ lumped at one node. The rigid disk is constrained to travel in the vertical direction. Rotation of the disk is not allowed.

The floor of the heel pit is modeled as an elastic layer 24 in. thick with $E = 3.2 \times 10^6 \text{ lb-ft}/\text{in}^2$, $\nu = 0.15$. A concrete constitutive model is not used so that the analysis may continue past the point in time when the compressional wave reflects from the bottom of the concrete layer.

(1) Drawing _____ (2) Doc. No. _____ (3) Page 6 of _____
(4) Building _____ (5) Rev. _____ (6) Job No. _____
(7) Subject _____
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(9) Checker [Signature] Date 8/8/94

(10)

The soil between the heel pit and tank is modeled as a layer of plastic material 12 in. thick. The constitutive model used is the Drucker-Prager model. The model parameters are taken from [5]. The finite-element mesh is shown in Figure 4.1.1. The ABAQUS input files are on pages 12-16. The heel pit is shown in [6].

4.2 Results

Figure 4.2.1 shows the force on the heel jet as a function of time. (The force would most likely cause the weld at the flange to fail.) Figure 4.2.2 shows the time history of the net downward force on the bottom of the soil layer.

The maximum dynamic load on the tank is assumed to be approximately equal to the peak load of 1,890,000 lb.

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 (9) Checker [Signature] Date 8/8/94

- (10) Figures 4.2.3 through 4.2.7 show contours of stress in the soil immediately preceding the arrival of the stress wave at the soil boundary.

The longitudinal wave speed in the first layer is

$$(C_L)_1 = \left[\frac{\frac{3.2 \times 10^6 (0.15)}{(1.15)(0.7)} + \frac{3.2 \times 10^6}{1.15}}{2.25 \times 10^{-4}} \right]^{1/2}$$

$$= 122,545 \text{ in/s}^*$$

The longitudinal wave speed in the second layer is not known precisely. However, it is approximately

$$(C_L)_2 = \left[\frac{\frac{3000 (0.35)}{(1.35)(0.3)} + \frac{3000}{1.35}}{1.647 \times 10^{-4}} \right]^{1/2}$$

$$= 5407 \text{ in/s}$$

The stress wave therefore arrives at the tank in approximately $\frac{24}{122,545} + \frac{12}{5407} = 2.4 \text{ ms}$.

* See [7].
ATTG1-7

(1) Drawing _____ (2) Doc. No. _____ (3) Page 8 of _____
 (4) Building _____ (5) Rev. _____ (6) Job No. _____
 (7) Subject _____
 (8) Originator [Signature] Date 6/20/94
 (9) Checker [Signature] Date 6/8/94

(10)

4.3 Comparison Calculation

Assume the heel jet fractures the pump floor at the instant of impact:

The weight of the annulus is

$$\frac{\pi (18^2 - 13^2) (24)}{12^3} \cdot 150 = 1000 \text{ lbf (approx.)}$$

Treat the impact as a plastic impact of a body with speed 586 in/s and weight 3000 lbf with a body at rest with weight 1000 lbf.

(1) Drawing _____ (2) Doc. No. _____ (3) Page 9 of _____
 (4) Building _____ (5) Rev. _____ (6) Job No. _____
 (7) Subject _____
 (8) Originator J. J. M. M. Date 6/20/94
 (9) Checker A. J. J. Date 8/8/94

(10)

Momentum is conserved, i.e.

$$\left(\frac{3000}{g}\right)(586) = \left(\frac{3000+1000}{g}\right)V$$

where g is the gravitational constant and V is the speed of the two bodies after impact. Now.

$$V = \frac{3000}{4000} \frac{(586)}{12} = 37 \text{ ft/s}$$

The contact area is $\pi(18^2 - 13^2) = 487 \text{ in}^2$.

The depth of penetration ([4]) is then

$$D = 0.53(6)(0.56) \left(\frac{3000}{487}\right)^{1/2} \ln(1 + 2 \times 10^{-5} (37)^2) \\ = 0.12 \text{ ft}$$

The kinetic energy of the impact is

$$\frac{1}{2} \left(\frac{4000}{32.2}\right) (37)^2 = 85,031 \text{ ft-lb}$$

The average impact force is approximately

$$\frac{85,031}{0.12} = 709,000 \text{ lb}$$

(1) Drawing _____ (2) Doc. No. _____ (3) Page 10 of _____
(4) Building _____ (5) Rev. _____ (6) Job No. _____
(7) Subject _____
(8) Originator [Signature] Date 6/20/94
(9) Checker [Signature] Date 8/8/94

(10)

4.4 Comments

Table 4.4.1 lists the force on the bottom of the soil layer as a function of time. The average downward force over the interval $0.001353 \leq t \leq 0.006421$ is approximately 1,300,000 lbf. The comparison calculation in Section 4.3 gave an average force of 709,000 lbf. The peak load from the finite-element analysis is approximately 1,000 tons. The impact loads on the heel jet, heel pit, and tank dome are large enough to damage these components.

(1) Drawing _____ (2) Doc. No. _____ (3) Page 11 of _____
(4) Building _____ (5) Rev. _____ (6) Job No. _____
(7) Subject _____
(8) Originator [Signature] Date 6/20/94
(9) Checker A. Andrik Date 6/8/94

(10)

5.0 References

- [1] Drawing H-Z-41297, The Kellex Corp., Richland, WA., 1950.
- [2] Flow of Fluids through Valves, Fittings, and Pipe, Technical Paper No. 410, Crane Corp., Joliet, IL, 1988.
- [3] cc Mail from D.A. Wallace to AD. Dyrness dated 4/12/94 12:05 PM (See Attachment 3).
- [4] Baker, W.E., "Impact Effects of Industrial Missiles", PVP-vol. 82,
- [5] Julyk, L.J., et al., "Tank 241-C-106 Structural Integrity Evaluation for In Situ Conditions", WHC-SD-W320-ANAL-001 Rev. 0, Westinghouse Hanford, Richland, WA, 1993.
- [6] Drawing H-Z-41345, The Kellex Corp., Richland, WA., 1950.
- [7] Achenbach, J.D., Wave Propagation in Elastic Solids, North-Holland, Amsterdam, Netherlands, 1984.

ANALYTICAL CALCULATIONS

Page 12 of

Subject Heel Jet Drop
Originator RS Marlow ~~Charles~~ Date 9/27/94
Checker Jgalyk Date 10/19/94

*CONTROLS, ANALYSIS=DISCONTINUOUS

*NODE

1,13,0,0,0

55,54,0,0,0

123,175,0,0,0

6151,13,0,36,0

6205,54,0,36,0

6273,175,36,0

9000,0,0,36,0

*NSET, NSET=RIGID

9000

*NGEN

1,55

55,123

6151,6205

6205,6273

*NSET, NSET=BOT, GENERATE

1,123

*NSET, NSET=TOP, GENERATE

6151,6273

*NFILL

BOT, TOP, 50, 123

*ELEMENT, TYPE=CAX4R

1,1,2,125,124

*ELGEN

1,122,1,1,50,123,122

*ELSET, ELSET=SOIL, GENERATE

1,2074

2137,2196

2259,2318

2381,2440

2503,2562

2625,2684

2747,2806

2869,2928

2991,3050

3113,3172

3235,3294

3357,3416

3479,3538

3601,3660

3723,3782

ATTG1-12

ANALYTICAL CALCULATIONS

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Subject Heel Jet Drop
Originator RS Marlow Chad Marlow Date 9/27/94
Checker Sjodyk Date 10/19/94

3845,3904
3967,4026
4089,4148
4211,4270
4333,4392
4455,4514
4577,4636
4699,4758
4821,4880
4943,5002
5065,5124
5187,5246
5309,5368
5431,5490
5553,5612
5675,5734
5797,5856
5919,5978
6041,6100
*ELSET,ELSET=CONC,GENERATE
2075,2136
2197,2258
2319,2380
2441,2502
2563,2624
2685,2746
2807,2868
2929,2990
3051,3112
3173,3234
3295,3356
3417,3478
3539,3600
3661,3722
3783,3844
3905,3966
4027,4088
4149,4210
4271,4332
4393,4454
4515,4576
4637,4698

ATTG1-13

BD-6400-060.1 (07/93)

ANALYTICAL CALCULATIONS

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Subject Heel Jet Drop
Originator RS Marlow Date 9/24/94
Checker [Signature] Date 10/19/94

4759,4820
4881,4942
5003,5064
5125,5186
5247,5308
5369,5430
5491,5552
5613,5674
5735,5796
5857,5918
5979,6040
*ELEMENT,TYPE=IRS21A
7001,6151,6152,9000
*ELGEN,ELSET=CONT
7001,122,1,1
*ELEMENT,TYPE=MASS,ELSET=RIGID
9000,9000
*NSET,NSET=RIGHT,GENERATE
123,6273,123
*BOUNDARY
BOT,2,2,0.0
RIGHT,1,1,0.0
9000,1,1,0.0
9000,3,6,0.0
*RIGID SURFACE,TYPE=SEGMENTS,ELSET=CONT
START,0.0,36.0
LINE,0.0,40.0
LINE,18.0,40.0
LINE,18.0,36.0
LINE,0.0,36.0
*MATERIAL,NAME=CONC
*ELASTIC
3.2E+06,0.15
*DENSITY
2.25E-04
*MATERIAL,NAME=SOIL
*DENSITY
1.647E-04
*ELASTIC
3000.0,0.35
*DRUCKER PRAGER
35.2,1.,35.2

ATTG1-14

ANALYTICAL CALCULATIONS

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Subject Heel Jet Drop
 Originator RS Marlow [Signature] Date 9/27/94
 Checker [Signature] Date 10/19/94

*YIELD
 37.3,0.0
 *SOLID SECTION,ELSET=SOIL,MATERIAL=SOIL
 *SOLID SECTION,ELSET=CONC,MATERIAL=CONC
 *INTERFACE,ELSET=CONT
 *MASS,ELSET=RIGID
 7.8
 *INITIAL CONDITIONS,TYPE=VELOCITY
 9000,2,-586.
 *RESTART,WRITE,FREQ=5
 *STEP,INC=9999,NLGEOM
 *DYNAMIC,HAFTOL=100000.,ALPHA=-.333
 1.E-06,0.04
 *ELPRINT,FREQ=0
 *NODEPRINT,FREQ=0
 *ELFILE,FREQ=10
 S,E
 *NODEFILE,NSET=RIGID,FREQ=3
 U,V,A
 *NODEFILE,NSET=BOT,FREQ=3
 RF
 *END STEP

ATTG1-15

BD-6400-060.1 (07/93)

ANALYTICAL CALCULATIONS

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Subject Heel Jet Drop
Originator R.S. Marlow [Signature] Date 9/27/94
Checker [Signature] Date 10/19/94

Figure 4.1.1.1. Finite-Element Mesh

JETFORC.XLC

Figure 4.2.1 Force on Heel Jet

ATTG1-17

FHIS.XLC

Figure 4.2.2 Time History of Net Downward Force on Lower Soil Boundary

PRESS VALUE

	-4.04E+01
	-2.47E+01
	-9.08E+00
	+6.59E+00
	+2.22E+01
	+3.79E+01
	+5.36E+01
	+6.93E+01
	+8.49E+01
	+1.00E+02
	+1.16E+02
	+1.32E+02
	+1.47E+02
	+1.63E+02

Figure 4.2.3. Pressure Contours

ATTG1-19

DISPLACEMENT MAGNIFICATION FACTOR = 1.00
 TIME COMPLETED IN THIS STEP 2.324E-03 TOTAL ACCUMULATED TIME 2.324E-03
 ABAQUS VERSION: 5.2-1 DATE: 11-JUL-94 TIME: 11:09:56 STEP 1 INCREMENT 85

s11
 1E+02
 -1.23E+02
 -1.11E+02
 -9.85E+01
 -8.59E+01
 -7.32E+01
 -6.06E+01
 -4.80E+01
 -3.53E+01
 -2.27E+01
 -1.01E+01
 +2.52E+00
 +1.51E+01
 +2.78E+01
 +4.04E+01

Figure 4.2.4. Lateral Normal Stress Contours

ATTG1-20

DISPLACEMENT MAGNIFICATION FACTOR = 1.00
 TIME COMPLETED IN THIS STEP 2.324E-03 TOTAL ACCUMULATED TIME 2.324E-03
 ABAQUS VERSION: 5.2-1 DATE: 11-JUL-94 TIME: 11:09:56 STEP 1 INCREMENT 85

522 VALUE

-2.40E+02
-2.18E+02
-1.97E+02
-1.75E+02
-1.54E+02
-1.32E+02
-1.10E+02
-8.91E+01
-6.75E+01
-4.59E+01
-2.43E+01
-2.77E+00
+1.88E+01
+4.04E+01

Figure 4.2.5. Vertical Normal Stress Contours

DISPLACEMENT MAGNIFICATION FACTOR = 1.00
 TIME COMPLETED IN THIS STEP 2.324E-03 TOTAL ACCUMULATED TIME 2.324E-03
 ABAQUS VERSION: 5.2-1 DATE: 11-JUL-94 TIME: 11:09:56 STEP 1 INCREMENT 85

533

VALUE
-1.26E+02
-1.13E+02
-1.01E+02
-8.81E+01
-7.53E+01
-6.24E+01
-4.95E+01
-3.67E+01
-2.38E+01
-1.10E+01
+1.85E+00
+1.47E+01
+2.75E+01
+4.04E+01

Figure 4.2.6. Hoop Stress Contours

ATT61-22

DISPLACEMENT MAGNIFICATION FACTOR = 1.00
 TIME COMPLETED IN THIS STEP 2.324E-03 TOTAL ACCUMULATED TIME 2.324E-03
 ABAQUS VERSION: 5.2-1 DATE: 11-JUL-94 TIME: 11:09:56 STEP 1 INCREMENT 85

512 VALUE
-4.33E+01
-3.73E+01
-3.12E+01
-2.52E+01
-1.91E+01
-1.30E+01
-7.03E+00
-9.74E-01
+5.08E+00
+1.11E+01
+1.72E+01
+2.32E+01
+2.93E+01
+3.53E+01

Figure 4.2.7. Shear Stress Contours

DISPLACEMENT MAGNIFICATION FACTOR = 1.00
TIME COMPLETED IN THIS STEP 2.324E-03 TOTAL ACCUMULATED TIME 2.324E-03
ABAQUS VERSION: 5.2-1 DATE: 11-JUL-94 TIME: 11:09:56 STEP 1 INCREMENT 85

FHIS.XLS

	Table 4.4.1	
Time (s)	Force (lbf)	F(t) * dt
0.001353	1.85E+00	
0.001642	2.50E+02	0.036324
0.001898	5.59E+03	0.747153
0.002218	9.78E+04	16.53839
0.002538	6.52E+05	119.9163
0.002944	1.89E+06	517.5621
0.003444	1.78E+06	918.4104
0.004238	1.74E+06	1397.519
0.005214	1.84E+06	1746.822
0.006021	1.31E+06	1270.859
0.006421	1.13E+06	488.2135
	Ave. Force =	1277869

ATTACHMENT 2 TO APPENDIX G
ABAQUS INPUT FILE FOR RESTART

```
*RESTART,READ,STEP=2,INC=10,WRITE,FREQ=5
*NSET,NSET=ONEN
320
*AMPLITUDE,NAME=POP,TIME=D
0,1.85E+00,0.000289,2.50E+02,0.000545,5.59E+03,0.000865,9.78E+04
0.001185,6.52E+05,0.001591,1.89E+06,0.002091,1.78E+06,0.002885,1.74E+06
0.003862,1.84E+06,0.004668,1.31E+06,0.005068,1.13E+06,0.0076,0.
*STEP,INC=9999,CYC=5
*DYNAMIC,PTOL=100.,MTOL=1200.,HAFTOL=5E+06,ALPHA=-0.333
2E-04,0.01
*CLOAD,AMP=POP
320,3,-0.5
*NODEFILE,NSET=ONEN
U,V,A
*END STEP
```

ATTACHMENT 3 TO APPENDIX G
DROPPED HEEL PIT PUMP

2] From: ^ ADVENT Engineering Services at ~ DOE_HANFORD_1 6/7/94 8:59AM (1366 bytes: 20 ln)
To: Randall S Marlow at ~ WHC208
Subject: Dropped Heel Pit Pump

Forwarded

From: David A Wallace at ~ WHC208 4/12/94 12:05PM (1138 bytes: 20 ln)
To: ADVENT Engineering Services at ~ DOE_HANFORD_1
Cc: John C Conner at ~ WHC150, Gina A Symons at ~ WHC82, David A Wallace, James B (Jim) Truitt at ~ WHC74
Subject: Dropped Heel Pit Pump

Message Contents

To Albert Dyrness at Advent Engineering

Your analysis for this riser (26" reducing to 12") should be relative to the following information.

The heel pit pump could be dropped INTO the tank at any time during removal.

The pump would be elevated above ground a maximum of 4 feet at any place over the dome. At some point outside the tank projection, the pump will be lifted to 65 feet to be put in the container.

The pump may be analyzed with the following parameters:

Weight - 1500 LB

Shape - 10 inch diameter device which is 37 feet long. The upper end has a 28 inch diameter flange.

DA Wallace

ATT63-1

END. DATE
12-26-94