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Flow correlations for brine flashing through round and square submerged orifices
by Ralph Coolidge Huntsinger

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in Chemical Engineering
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Abstract:
The flow properties of salt water flashing through submerged round and square orifices are investigated in this thesis. New correlations that will satisfactorily represent the flow of brine flashing through submerged orifices are presented. The correlations are developed for a stage pressure range of 7.0 psia to 22.2 psia and for brine concentrations ranging from fresh water to 3.4 times the concentration of normal sea water. Four sizes of round sharp edged orifices and three sizes of square sharp edged orifices were used.

The investigation was carried out in a two-stage single-effect flash evaporation saline water conversion pilot plant. The correlations are based on the fluid properties evaluated at the high and low pressure stage conditions. .The best correlations for the high pressure stage conditions and the low pressure stage conditions respectively are as follows: (Q(ΔP)^2 gc^1/2)/(μ^2 λ^3/2) = 37.83((DΔP gc^1/2)/(μλ^1/2))^1.826 ((ρλ/ΔP))^-0.7434 (Q(ΔP)^2 gc^1/2)/(μ^2 λ^3/2) = 33.05((DΔP gc^1/2)/(μλ^1/2))^1.830 ((ρλ/ΔP))^-0.7349 The exponents were determined by performing a multiple linear regression analysis on the logarithms of the dimensionless groups for 93 experimental points. The multiple correlation coefficient for the regression analysis is 0.9952 for the upstream stage conditions and 0.9949 for the downstream stage conditions.

FLOW CORRELATIONS FOR BRINE FLASHING THROUGH ROUND AND SQUARE SUBMERGED ORIFICES

by

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ABSTRACT

The flow properties of salt water flashing through submerged round and square orifices are investigated in this thesis. New correlations that will satisfactorily represent the flow of brine flashing through submerged orifices are presented. The correlations are developed for a stage pressure range of 7.0 psia to 22.2 psia and for brine concentrations ranging from fresh water to 3.4 times the concentration of normal sea water. Four sizes of round sharp edged orifices and three sizes of square sharp edged orifices were used.

The investigation was carried out in a two-stage single-effect flash evaporation saline water conversion pilot plant. The correlations are based on the fluid properties evaluated at the high and low pressure stage conditions. The best correlations for the high pressure stage conditions and the low pressure stage conditions respectively are as follows:

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = 37.83 \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{1.826} \left(\frac{\rho \lambda}{\Delta P} \right)^{-0.7434}$$

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = 33.05 \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{1.830} \left(\frac{\rho \lambda}{\Delta P} \right)^{-0.7349}$$

The exponents were determined by performing a multiple linear regression analysis on the logarithms of the dimensionless groups for 93 experimental points. The multiple correlation coefficient for the regression analysis is 0.9952 for the upstream stage conditions and 0.9949 for the downstream stage conditions.

INTRODUCTION

Several investigations have been made on the flow characteristics of two phase flow of various liquids and gases through orifices, short tubes and abrupt expansions in general.

The purpose of this thesis is to specifically investigate the flow of flashing salt water of various concentrations through submerged round and square sharp edged orifices and to obtain a new set of correlations that will satisfactorily represent the two phase flow of salt water in terms of the physical conditions of the flashing.

The reason for the interest in the flow of flashing salt water through orifices is to obtain design correlations that can be used in the design of large multi-stage flash evaporation saline water conversion plants. It is desired to obtain a correlation that does not require a knowledge of the quality of the fluid to satisfactorily predict the two-phase flow of flashing brine through orifices.

Pasqua (22) investigated the metastable flow of freon-12 through short tubes. Experimental data as well as photographs show that saturated and subcooled liquid freon-12 flowing through short tubes is not in a stable equilibrium state. The following correction factor for the standard orifice equation was developed:

$$G = C_e C \sqrt{2g_c \quad (P_s - P_x)}$$

$$C_e = \left[\frac{1}{\dfrac{0.37(L/D)^{.2} - P_x/P_s}{C_v^2 \quad 1 - .37(L/D)^{.2}} + 1} \right]^{0.5}$$

G = mass flow rate of fluid (mass per unit area per unit time)

C_e = coefficient of contraction

C_v = coefficient of velocity of an orifice

L = length of tube

D = diameter of tube

P_s = saturation pressure of the liquid

ρ = density of fluid (mass per unit volume)

P_x = discharge pressure (force per unit area)

C = standard coefficient of discharge

Isbin, Moy and DaCruz (13) developed a method of measuring the critical flow behavior of steam-water mixtures for flow in pipes and annular spaces.

The homogeneous flow model for evaluating critical discharges for low qualities was demonstrated to be inadequate. The flow is correlated on the basis of quality.

An approximation of the Martinelli (17) correlation of R_g was obtained by Isbin, Moy and DaCruz for the steam-water system as follows:

$$R_g = a X + b$$

$$X^2 = \left(\frac{1 - x}{x}\right)^{1.8} \left(\frac{\nu_f}{\nu_g}\right) \left(\frac{\mu_f}{\mu_g}\right)^{0.2}$$

a and b = constants to be determined for each range

X = quality

ν = specific volume (volume per unit mass)

μ = viscosity

subscripts:

f = fluid

g = gas

Min, fauske and Petrick (19) have studies the effect of shape of flow passages on two-phase critical flow. Saturated and subcooled freon-11 was discharged into a vacuum through short tubes and orifices. The different geometric shapes of sharp edged orifices used were: circle, triangle, square, eye-shape, W shape and rectangular.

A modified cavitation number was defined which was plotted on a log log plot against the Reynolds number. The cavitation number was defined as follows:

$$C_a' = \frac{\Delta P \, L}{\left(\frac{\rho_i \, U^2}{2 g_c} \right) D}$$

U = velocity

ρ_i = initial density

ΔP = pressure difference

L = length of tube or orifice

D = diameter of tube or orifice

Bailey (3) investigated the metastable flow of saturated water. Short tubes, nozzles and orifices were studied in this investigation. A correction coefficient was developed for the general orifice equation as follows:

$$G = C_e C \sqrt{2g_c(P_o - P_x)/V}$$

$$C_e = 1.0 - 17200\, K(L/D)\, V^{-0.5}\, P_o^{-0.435}\, Z$$

$$K = 3.52(10^6)(D/L)P_c^{0.935}\left[(P_o - P_c)\, V\right]^{1/2}/(P_s - P_c)$$

G = mass flow rate

C_e = correction coefficient

C = standard coefficient of discharge

K = coefficient of evaporation ($time^{-1}$)

L = length of orifice

D = diameter of orifice

V = specific volume of liquid

P_o = initial pressure

Z = graphical factor (function of P_o, P_s and P_x)

P_s = saturation pressure

P_x = exit pressure

P_c = critical pressure of the liquid

Sudden contraction pressure losses in two-phase flow were investigated by Geiger and Rohrer (10). The separated flow model was compared with the fog flow model.

The fog flow model was the best predictor for their experimental data. The following correlation was developed for the 200 to 500 psia pressure range:

$$P_c = \frac{G_3^2}{2g_c}\left[1 - \sigma^2 + \bar{K}_{TP_c}\right]$$

$$\bar{K}_{TP_c} = (\sigma^2 - 1) + \frac{2x^2\bar{\rho}}{g}\left[\frac{\alpha_{3g}}{R_3} - \frac{\alpha_{2g}}{R_2 C_c}\right]$$

$$+ \frac{2(1-x)^2\bar{\rho}}{\rho_f}\left[\frac{\alpha_{3_f}}{(1-R_3)} - \frac{\alpha_{2_f}}{(1-R_2)C_c}\right]$$

$$+ \frac{x^3\bar{\rho}^2}{\rho_g^2}\left[\frac{\beta_{2g}}{R_2^2 C_c^2} - \frac{\beta_{1g}\sigma^2}{R_1^2}\right]$$

$$+ \frac{(1-x)\bar{\rho}^2}{\rho_f^2}\left[\frac{\beta_{2_f}}{(1-R_2)^2 C_c^2} - \frac{\beta_{1_f}\sigma^2}{(1-R_1)^2}\right]$$

X = mixture quality, mass of vapor to mass of mixture flowing

σ = area contraction ratio A_3/A_1

R = vapor volume fraction

α = momentum correction factor

β = kinetic energy correction factor

f = liquid phase subscript

g = vapor phase subscript

C_c = contraction coefficient of vena contracta

ρ = density, mass per unit volume

$\bar{\rho}$ = density of homogeneous two-phase fluid

subscript 1 = upstream of area change

subscript 2 = at vena contracta

subscript 3 = downstream of area change

The test range for the correlation is given in the following table:

σ	$G(LB/HR\text{-}FT^2) \times 10^6$ Min	Max	X Max
0.398	0.520	1.824	0.265
0.253	0.902	2.850	0.245
0.144	1.560	4.820	0.160

Murdock (21) investigated the measurement of two-phase flow with orifices. Some of the two-phase systems studied were: natural gas - water, natural gas - salt water, air - water, and steam-water.

The range of the ratio of orifice diameter to internal pipe diameter for this work was from 0.26 to 0.50. The following correlation was developed:

$$\sqrt{\frac{\Delta P_{TP}}{\Delta P_G}} = 1.26 \sqrt{\frac{\Delta P_L}{\Delta P_G}} + 1.0$$

ΔP_{TP} = pressure drop for two-phase flow

ΔP_G = pressure drop for gas flow only

ΔP_L = pressure drop for liquid flow only

This correlation fits Murdock's results very well, but the quality of the flow must be known to compute ΔP_L and ΔP_G. Murdock combined his correlation with the American Society of Mechanical Engineers' standard flow equation to give the following correlation for two-phase flow:

$$W = \frac{359\, K_G Y_G F_a d^2 \sqrt{h_{wTP} \rho_v}}{(1 - y) + 1.26\, y \frac{K_G Y_G}{K_L} \sqrt{\frac{\rho_v}{\rho_L}}}$$

W = weight rate of flow (lb/hr)

$K_G Y_G$ = product of flow coefficient and net expansion factor for gas flow through an orifice

K_L = flow coefficient for liquid flow through an orifice ($Y_L = 1$)

F_a = factor to account for the thermal expansion of the orifice

h_{wTP} = effective differential head produced by two-phase flow through the orifice, in inches of water

y = liquid weight fraction

d = orifice diameter, in inches

ρ_v = density of the vapor

ρ_L = density of the liquid

The flow of steam - water mixtures in a heated annulus and through orifices was studied by Hoopes (12). A homogeneous two-phase mixture is assumed in developing the flow model. The following correlation is based on vena contracta conditions:

$$\frac{\Delta P_{oTP}}{\Delta P_{of}} = \frac{(1 - x)^2}{R_f} + \frac{\nu_g x^2}{\nu_f R_g}$$

R = fraction of cross-section occupied by a phase

X = quality (Wg/W)

W = weight rate of flow, mass per unit time

g = gas phase subscript

f = liquid phase subscript

ν = specific volume, volume per unit weight

ΔP_{oTP} = two-phase orifice pressure drop based on W

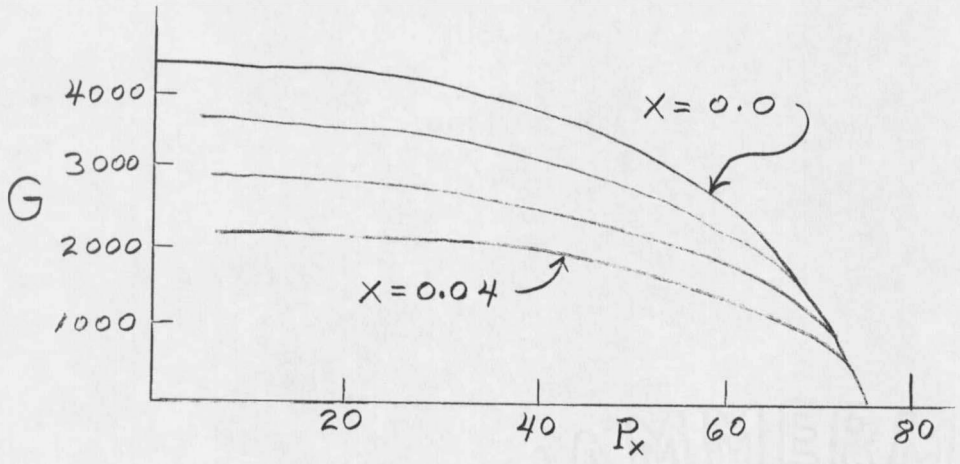
ΔP_{of} = orifice pressure drop if W lb/sec of liquid were flowing

$R_g = (1 - R_f)$

The flow of saturated water through throttling orifices was investigated by Benjamin and Miller (4). The results were presented in graphical form and required that the quality be known to predict the mass flow rate for a given pressure difference. The downstream pressure was

lower than the saturation pressure of water at all times.

A typical graphical result is as follows for an initial pressure of 75 psia:



G = mass flow rate (lb/hr-ft^2)

P_X = back pressure (psia)

X = quality (lb steam/lb water)

Their results showed that the flow of a two-phase mixture was less than a single liquid phase at all times for the same conditions.

Geiger (11) has measured the two-phase flow pressure drop at a sudden contraction in water at 200 and 600 psia. The data can be correlated by a homogeneous model. The correlation is as follows:

$$\Delta P = \left(1 + x \frac{\nu_{fg}}{\nu_L}\right)^{-1} \rho_L \frac{V^2}{2g_c} \left(1 - \sigma^2 + K\right)$$

$$K = \left(\frac{1}{C_c} - 1\right)^2$$

C_c = contraction coefficient

X = quality in weight per cent

ν_L = specific volume of liquid

ν_{fg} = specific volume change during evaporation

V = fluid velocity

σ = area ratio, area of the contraction to the area of the main pipe

ρ_L = density of the liquid

g_c = conversion constant (32.2 ft/sec^2)

ΔP = pressure drop due to contraction

The flow of saturated boiler water through knife-edge orifices in series was investigated by Monroe (20). Dimensional analysis was applied without success. An acceptable fit of the experimental results was obtained with a correlation that had the units of the acceleration of gravity on each side of the equation.

The following two groups were plotted on a log log plot to obtain the empirical constants for the correlation:

$$\frac{N^{3/4}\, G\, \mu}{(P_1 - P_2)^2} \qquad \text{and} \qquad \frac{(P_1 - P_2)\, T^2 \rho}{\mu^2} \quad (10^{-9})$$

The resulting equation was then solved to give the following equation:

$$G = \frac{25300\, (P_1 - P_2)^{0.8}\, \mu^{1.4}}{N^{3/4}\, (T/1000)^{2.4}\, \rho^{1.2}}$$

G = mass flow rate, mass per unit area per unit time

N = number of orifices in series

μ = upstream viscosity

$(P_1 - P_2)$ = pressure drop across orifices

T = upstream temperature, absolute scale

ρ = upstream density

The number of orifices in series investigated in this work was five.

Even though this equation is not applicable to a single orifice it is of interest in this thesis because the final correlation does not involve the quality of the two-phase flow.

The flow varies as the 0.8 power of the pressure drop, not as the 0.5 power which would relate to the standard orifice equation. Monroe's work shows that it is possible to satisfactorily correlate the flow of

flashing liquid through orifices without a knowledge of the quality of the flow in the orifices.

Flow correlations for the flow of flashing salt water of various concentrations through submerged square and round orifices in a single-effect two-stage flash evaporation saline water conversion pilot plant are developed in this thesis. The final correlations presented do not use the quality of the flow in the orifice as a parameter to predict the total flow of flashing salt water. Two sets of correlations are presented. One set in terms of the downstream stage conditions and one set in terms of the upstream stage conditions.

THEORY

The technique of dimensional analysis was performed on the several variables in the flow system. The variables considered are Q, D, ρ, Δt, ΔP, μ, λ and C_p. The symbols are defined at the end of this section.

The entire theory of dimensional analysis can be summarized in Buckingham's theorem which is stated as follows, "If an equation is dimensionally homogeneous, it can be reduced to a relationship among a complete set of dimensionless products." This theorem is, by no means, self-evident. An algebraic proof of the theorem is given in Chapter 4 of Langhaar (15).

The number of dimensionless products in a complete set is equal to the total number of variables minus the rank of their dimensional matrix. The variables in this analysis have the following dimensional matrix in the M, L, θ, t system. The symbols are defined at the end of this section.

	Q	D	ρ	Δt	ΔP	μ	λ	C_p
M	0	0	1	0	1	1	0	0
L	3	1	-3	0	-1	-1	2	2
θ	-1	0	0	0	-2	-1	-2	-2
t	0	0	0	1	0	0	0	-1
	k_1	k_2	k_3	k_4	k_5	k_6	k_7	k_8

The determinant at the right side of the matrix is evaluated. The determinant is:

$$\begin{vmatrix} 1 & 1 & 0 & 0 \\ -1 & -1 & 2 & 2 \\ -2 & -1 & -2 & -2 \\ 0 & 0 & 0 & -1 \end{vmatrix} = +2$$

Since this determinant is not zero, the rank of the matrix is four. There is no theoretical reason for picking the determinant at the right side of the matrix; if the matrix contains any fourth order nonzero determinant, its rank is four. The number of dimensionless products in a complete set for this analysis is $8 - 4 = 4$.

The following are the homogeneous linear algebraic equations whose coefficients are the numbers in the rows of the dimensional matrix:

$$k_3 + k_5 + k_6 = 0$$

$$3k_1 + k_2 - 3k_3 - k_5 - k_6 + 2k_7 + 2k_8 = 0$$

$$- k_1 - 2k_5 - k_6 - 2k_7 - 2k_8 = 0$$

$$k_4 - k_8 = 0$$

The equations are solved generally for k_5, k_6, k_7 and k_8. The result is:

$$k_5 = 2k_1 + k_2 - k_3$$

$k_6 = -2k_1 - k_2$

$k_7 = -3/2k_1 - 1/2k_2 + k_3 - k_4$

$k_8 = k_4$

The fifth, sixth, seventh and eighth columns in the matrix of solutions are the coefficients in the equations for k_5, k_6, k_7, k_8. The first four columns of the matrix of solutions consist of zeros, except for ones on the principal diagonal. The following is, then, the final matrix of solutions:

	Q	D	ρ	Δt	ΔP	μ	λ	C_p
π_1	1	0	0	0	2	-2	-3/2	0
π_2	0	1	0	0	1	-1	-1/2	0
π_3	0	0	1	0	-1	0	1	0
π_4	0	0	0	1	0	0	-1	1

The following four dimensionless groups are obtained:

$$\pi_1 = \frac{Q(\Delta P)^2}{\mu^2 \lambda^{3/2}}$$

$$\pi_2 = \frac{D \Delta P}{\mu \lambda^{1/2}}$$

$$\pi_3 = \frac{\rho \lambda}{\Delta P}$$

$$\Pi_4 = \frac{\Delta t \, C_p}{\lambda}$$

The units of force are converted from poundals to pounds using the conversion factor of g_c poundals in one pound ($g_c = 32.174$). The four dimensionless groups in the pound-force pound - mass system are as follows:

$$\Pi_1 = \frac{Q \, (\Delta P)^2 \, g_c^{1/2}}{\mu^2 \, \lambda^{3/2}}$$

$$\Pi_2 = \frac{D \, \Delta P \, g_c^{1/2}}{\mu \, \lambda^{1/2}}$$

$$\Pi_3 = \frac{\rho \lambda}{\Delta P}$$

$$\Pi_4 = \frac{\Delta t \, C_p}{\lambda}$$

Since the four groups form a complete set, the following relationship is true from Buckingham's theorem:

$$\Pi_1 = \phi \, (\Pi_2, \Pi_3, \Pi_4)$$

A logarithmic expression has been tried with good success. The following is the form of the correlation:

$$\ln \Pi_1 = \beta_1 + \beta_2 \ln \Pi_2 + \beta_3 \ln \Pi_3 + \beta_4 \ln \Pi_4$$

This same expression can also be given in the following equivalent form:

$$\pi_1 = e^{\beta_1} (\pi_2)^{\beta_2} (\pi_3)^{\beta_3} (\pi_4)^{\beta_4}$$

The β values are determined by performing a multiple linear regression analysis on the experimental data.

A second dimensional analysis was performed on the several variables with the additional restriction that the flow rate be proportional to the square root of the pressure drop as it is in the standard orifice equation. The variable K is defined as follows:

$$Q = K(\Delta P)^{1/2}$$

$$K = Q/(\Delta P)^{1/2}$$

$$K = \phi(D, \rho, \Delta t, \mu, \lambda, C_p)$$

The resulting dimensional matrix is:

	K	D	Δt	ρ	μ	λ	C_p
M	-1/2	0	0	1	1	0	0
L	7/2	1	0	-3	-1	2	2
θ	0	0	0	0	-1	-2	-2
t	0	0	1	0	0	0	-1
	k_1	k_2	k_3	k_4	k_5	k_6	k_7

The determinant at the right side of the matrix is:

$$\begin{vmatrix} 1 & 1 & 0 & 0 \\ -3 & -1 & 2 & 2 \\ 0 & -1 & -2 & -2 \\ 0 & 0 & 0 & 1 \end{vmatrix} = +2$$

As this determinant is not zero, the rank of the matrix is four. The number of dimensionless products in a complete set for this analysis is $7 - 4 = 3$.

The following are the homogeneous linear algebraic equations whose coefficients are the numbers in the rows of the dimensional matrix:

$$-1/2\, k_1 + k_4 + k_5 = 0$$

$$7/2\, k_1 + k_2 - 3k_4 - k_5 + 2k_6 + 2k_7 = 0$$

$$-k_5 - 2k_6 - 2k_7 = 0$$

$$k_3 - k_7 = 0$$

The equations are solved generally for k_4, k_5, k_6 and k_7. The result is:

$k_4 = (5/2)\ k_1 + k_2$

$k_5 = -2k_1 - k_2$

$k_6 = k_1 + (1/2)\ k_2 - k_3$

$k_7 = k_3$

The following is the final matrix of solutions:

	K	D	Δt	ρ	μ	λ	c_p
π_1	1	0	0	5/2	-2	1	0
π_2	1	1	0	1	-1	1/2	0
π_3	0	0	1	0	0	-1	1

The following three dimensionless groups are obtained:

$$\pi_1 = \frac{K \rho^{5/2}}{\mu^2} = \frac{Q \rho^{5/2} \lambda}{(\Delta P)^{1/2} \mu^2}$$

$$\pi_2 = \frac{D \rho \lambda^{1/2}}{\mu}$$

$$\pi_3 = \frac{\Delta t\ c_p}{\lambda}$$

The three dimensionless groups in the pound-force pound-mass system are:

$$\pi_1 = \frac{Q \rho^{5/2} \lambda g_c^{1/2}}{(\Delta P)^{1/2} \mu^2}$$

$$\pi_2 = \frac{D \rho \lambda^{1/2} g_c^{1/2}}{\mu}$$

$$\pi_3 = \frac{\Delta t C_p}{\lambda}$$

Since the three groups form a complete set, the following relationship is true from Buckingham's theorem:

$$\pi_1 = \phi (\pi_2, \pi_3)$$

A logarithmic expression was used as follows:

$$\ln \pi_1 = \beta_1 + \beta_2 \ln \pi_2 + \beta_3 \ln \pi_3$$

This expression can be written in the equivalent form as follows:

$$\pi_1 = e^{\beta_1} (\pi_2)^{\beta_2} (\pi_3)^{\beta_3}$$

The expression contains three empirical constants which were determined by a multiple linear regression analysis on the experimental data.

Multiple regression is used to develop a quantitative equation relating a dependent variable with several independent variables. In multiple linear regression, any number of independent variables may be

considered, but here the method will be demonstrated using only three. If we assume that our dependent variable is a linear function of each of the three independent variables, we postulate a model for multiple linear regression, as described by Anderson (2):

$$Y = b_1 + b_2X_2 + b_3X_3 + b_4X_4$$

where Y is the dependent variable; X_2, X_3 and X_4 are independent variables; and b_1, b_2, b_3 and b_4 are unknown population parameters. Using the available experimental data, we estimate these parameters and obtain:

$$Y_p = \beta_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$$

where β_1, β_2, β_3 and β_4 are estimates of the population parameters; and Y_p is the value of the dependent variable predicted from specific values of X_2, X_3, and X_4 using the estimates β_1, β_2, β_3 and β_4.

We estimate β_1, β_2, β_3, and β_4 by using the method of least squares. The sum of squared errors between the observed value Y and the predicted value Y_p is minimized by taking the partial derivative with respect to each parameter and setting each result equal to zero.

The error is:

$$E = Y - Y_p = Y - \beta_1 - \beta_2X_2 - \beta_3X_3 - \beta_4X_4$$

Squaring E, summing over all sets of data, and taking the partial derivative with respect to β_1 gives:

$$\frac{\partial \left[\sum E^2\right]}{\partial \beta_1} = \frac{\sum \left[\partial (Y - \beta_1 - \beta_2 X_2 - \beta_3 X_3 - \beta_4 X_4)^2\right]}{\partial \beta_1}$$

$$= -2 \sum (Y - \beta_1 - \beta_2 X_2 - \beta_3 X_3 - \beta_4 X_4)$$

$$= -2 \left[\sum Y - n\beta_1 - \beta_2 \sum X_2 - \beta_3 \sum X_3 - \beta_4 \sum X_4\right]$$

Setting the derivative equal to zero gives the minimum sum of squared errors, and we get the following:

$$n\beta_1 + \beta_2 \sum X_2 + \beta_3 \sum X_3 + \beta_4 \sum X_4 = \sum Y$$

Similarly, taking the partial derivatives with respect to β_2, β_3, and β_4 and setting each result equal to zero, yields three more equations:

$$\beta_1 \sum X_2 + \beta_2 \sum (X_2)^2 + \beta_3 \sum X_2 X_3 + \beta_4 \sum X_2 X_4 = \sum X_2 Y$$

$$\beta_1 \sum X_3 + \beta_2 \sum X_2 X_3 + \beta_3 \sum (X_3)^2 + \beta_4 \sum X_3 X_4 = \sum X_3 Y$$

$$\beta_1 \sum X_4 + \beta_2 \sum X_2 X_4 + \beta_3 \sum X_3 X_4 + \beta_4 \sum (X_4)^2 = \sum X_4 Y$$

The four equations may be solved simultaneously for β_1, β_2, β_3, and β_4, after the summations are evaluated from the data.

A bivariate correlation coefficient r may be calculated for any two variables that are selected from a bivariate normal population. It has a value of zero if there is no relationship between the variables; and it has a value of +1.0 or -1.0 if there is respectively a perfect positive or perfect inverse relationship (that is, given the value of one variable, we could determine the value of the other exactly). It is used as a measure of the degree of relationship between two variables. The bivariate correlation coefficient is defined as follows:

$$r_{23} = \frac{n \sum X_2 X_3 - \left(\sum X_2\right)\left(\sum X_3\right)}{\sqrt{\left[n \sum (X_2)^2 - \left(\sum X_2\right)^2\right]\left[n \sum (X_3)^2 - \left(\sum X_3\right)^2\right]}}$$

The multiple correlation coefficient, R, combines the effects of all the relationships among the dependent and independent variables, and yields a single numerical measure of the overall relationship. The multiple correlation coefficient varies from zero for no correlation to 1.0 for perfect correlation. As stated by Anderson (2), typical experimental data rarely yield coefficients above 0.94, and even 0.8 may be considered good in some applications.

The square of the multiple correlation coefficient, R^2, may be considered as the fraction of the variability in Y attributed to its

dependence on the various X's; and $(1-R^2)$ is the fraction attributed to experimental error, random fluctuations, and deviations from the assumed linearity.

The square of the multiple correlation coefficient is defined for the three independent variables of this example as follows:

$$R^2 = \frac{\beta_1 \sum Y + \beta_2 \sum X_2 Y + \beta_3 \sum X_3 Y + \beta_4 \sum X_4 Y - (\sum Y)^2/n}{\sum Y^2 - (\sum Y)^2/n}$$

The standard error of estimate of the multiple regression is defined as follows:

$$\sigma = \sqrt{\frac{\sum (Y - \beta_1 - \beta_2 X_2 - \beta_3 X_3 - \cdots - \beta_{m+1} X_{m+1})^2}{n - m - 1}}$$

where m equals the number of independent variables.

can also be written in the following equivalent form:

$$\sigma = \sqrt{\frac{\sum Y^2 - (\sum Y)^2/n - \sum_{j=2}^{m+1} \beta_j (\sum X_j Y - (\sum X_j \sum Y)/n)}{n - m - 1}}$$

The standard error of estimate is used as a measure of the accuracy with which the regression equation can predict the dependent variable. The standard error of estimate is used also with the t statistic to obtain a confidence limit for the regression equation.

For a large sample that follows a normal distribution, 68.26% of all the experimental points will be found within plus or minus one standard error of estimate of the regression line. The confidence interval of the predicted observation is:

$$Y \pm t_{(\alpha/2)} \sigma$$

where α is the confidence limit desired and t is the corresponding value of the t statistic for (n - m - 1) degrees of freedom. As an example, for 90 degrees of freedom and a 90% confidence limit, the value of t is 1.68.

A computer program has been written to perform the multiple linear regression analysis and to compute the additional desired statistics.

Definition of symbols used: The units given in parenthesis are those used in the engineering pound-force pound-mass system and are the units used in the calculations in this investigation.

Q = flow rate through the submerged orifice (ft^3/hr)

D = diameter of a circle with the same area as the orifice (ft)

ρ = density of the liquid (lb/ft^3)

Δt = temperature difference between liquid in upstream and downstream stages (°F)

ΔP = pressure difference between upstream and downstream stages (lb/ft^2)

μ = dynamic viscosity of the liquid (lb/(ft-hr))

λ = latent heat of vaporization of pure water at the stage temperature (ft-lb)/lb

C_p = heat capacity of the liquid (ft-lb)/(lb-°F)

m = mass

L = length

θ = time

t = temperature

n = number of experimental observations

m = number of independent variables

e = natural logarithm base (2.7182818)

ln = natural logarithm

π_i = dimensionless groups

DESIGN AND CONSTRUCTION OF APPARATUS

The process flow diagram of a two-stage single-effect flash evaporation saline water conversion process is given in Figure 1. Starting at the main brine pump the brine is pumped into the heat exchanger tubes in stage two and then passes into stage one and then into the steam heat exchanger. At this point energy is added to the brine stream and it flashes as it passes through valve A going into stage one. The brine in the heat exchanger tubes in stage one is cooler than the flashing vapor so the vapor condenses and drops into the distilled water catch tray in stage one. The brine then flashes through a submerged orifice into stage two. The resulting vapor condenses on the stage two heat exchanger tubes and drops into the distilled water catch tray. The brine leaves stage two and passes through a cold water heat exchanger where energy is extracted. Some of the concentrated brine is taken off and some fresh feed added at this point. The resulting stream goes to the main brine pump.

The brine flow is controlled at valve B and the steam to the heat exchanger is controlled by valve D. A small vapor bleed to vacuum to get rid of non-condensible gases is controlled by valves C and C^1. The flow of cold water to the cold water heat exchanger is controlled be valve E.

A general diagram of the two-stage single-effect flash evaporation saline water conversion pilot plant used in this research is given in Figure 2. The main body of the apparatus was constructed of 1/4-inch

mild steel plate. The area of the condenser tubing in the first stage was 45 square feet and the condenser tubing area in the second stage was 38 ft^2. The steam heat exchanger was a double pass shell and tube type with a heat transfer area of 76 square feet.

The main brine pump was a 7-1/2 HP centrifical type with a rotation speed of 3300 RPM. A measuring orifice was inserted in the flow line between the pump and the stage two condenser tubing. A mercury manometer was connected to pressure taps on either side of the metering orifice.

A condensate measuring tank was connected to the distilled water catch trays and a small pump was installed to return the distilled water to the suction side of the main brine pump to obtain a steady state concentration during operation.

The overall dimensions of the first stage were as follows: length 66-1/2 inches, height 40-1/2 inches, width 20 inches. The overall dimensions of the second stage were: length 48 inches, height 40-1/2 inches, width 20 inches. A dimensioned scale drawing of the main body of the apparatus is given in Figure 3.

Taps with rubber septums were located 19 inches in front and in back of the submerged orifices dividing stage one from stage two to allow the brine solution to be sampled with a hypodermic needle.

Pressure taps located 22 inches in front and in back of the submerged orifices and 20 inches up on the sides were connected to a mercury manometer to measure the pressure differential between the two stages.

Thermowells were made from 6-inch lengths of 1/16-inch diameter copper tubing sealed at one end and mounted through Swagelok brass fittings. Figure 4 shows the thermocouple locations on the apparatus. Thermocouple RCD was connected to a continuous recorder. All thermocouples were Iron-Constantan couples.

Figure 5 shows the locations in the plates and the dimensions of the round and square orifices. The plates were placed between the stages with rubber gaskets and sealed with Permatex liquid gasket. The largest round orifice and the largest square orifice have approximately the same area.

The temperature difference between the two stages was obtained from an Iron-Constantan thermopile of 5 thermocouples placed in opposition across the two stages. The thermowells were located at points A and A' on Figure 4. The output voltage from the thermopile was measured on a vacuum tube voltmeter.

All thermocouples were calibrated at several temperature levels against a precision thermometer and an ice bath.

PROCEDURES

Flow runs were set up to try to cover as wide a range of pressure and temperature conditions as would be possible with the existing apparatus. The stage pressure range varied from about 7.0 psia to around 22.2 psia. Brine concentrations varied from fresh water to approximately 3.4 times the concentration of sea water. Experimental runs were made for 4 round orifice sizes and 3 square orifice sizes with various concentrations of salt water and with fresh water. The approximate range of the Reynolds number for the brine flowing through the submerged orifices was from 90,000 to 400,000.

A synthetic salt water with twice the salinity of sea water was prepared from commercial chemicals and city water. The following is the recipe used to prepare a brine of twice the concentration of sea water:

Chemical	Weight in Pounds
$MgSO_4$	10.65
$MgCl_2$	7.90
KCl	2.38
NaCl	89.00

The chemicals were dissolved in enough water to make 25 cubic feet of solution. This mix gives a chlorisity, as defined in the Saline Water Engineering Data Book (22), of 39.4 for twice sea water. The chlorisity of normal sea water is given as 19.862. The concentration of the salt water was varied by either diluting with city water or by allowing the

apparatus to concentrate the brine by not recombining the product distilled water stream with the main brine stream. The salt water was mixed and stored in an epoxy lined tank to prevent corrosion. A valve combination allowed one to fill the apparatus from the brine storage tank and restore in the tank after a series of runs.

The metering orifice was calibrated with fresh water by running the water through the orifice and into a measuring drum with a quick opening valve. The time for a measured volume of water to run into the drum was measured with a stopwatch for various manometer readings. The orifice was calibrated for flow rates from 22 to 260 cubic feet of water per hour.

Pressure gages mounted on the side of each stage were calibrated with a dead weight calibration instrument.

The concentration of the brine at each stage was obtained by a chemical analysis of a brine sample extracted from each stage. The total chloride in a 4-ml sample was obtained using the Mohr method of silver nitrate titration.

The submerged orifices were checked for abnormalities by running cold water through the apparatus and plotting the square root of the metering orifice manometer reading vs. the square root of the pressure differential between the stages for steady state flow. The results can be seen in Figures 6 and 7 in the appendix for a round orifice with a

0.75 inch diameter and a square orifice with a 0.65 inch edge length.

The method of operation of the apparatus is quite straightforward. Brine was pumped through the apparatus with the main brine pump. (See Figure 2). The steam flow rate was controlled by an automatic control valve which was referred to the temperature reading at thermocouple CTL1. (See Figure 4).

The level of brine in the apparatus was between 10 to 14 inches. The level of the brine was kept as nearly equal as possible in the two stages during a run. The brine velocity in the apparatus was very slow compared to the flow through the submerged orifice.

The apparatus was operated until a steady state condition was reached and then measurements were taken for the conditions of the run. Thermocouple RCD was attached to a continuous recorder and steady state was not assumed until temperature RCD along with the brine level in the stages and the metering orifice manometer had been constant for a period of 20 or more minutes. The brine levels were observed through sight glasses attached to the two stages.

DISCUSSION OF RESULTS

A listing of the computer program that was written to process the raw data is given on page 55 in the appendix. Following the computer program are the subroutines required by the main line program. The program was written by the author. On page 64 in the appendix are the tables of data for density, viscosity, latent heat of vaporization, heat capacity, millivolts vs. temperature, and flow rate vs. metering orifice reading used by the computer program. The tables were all obtained from the Saline Water Conversion Engineering Data Book (22) except for the flow table which was obtained from direct measurement.

The intermediate data in a form suitable for multiple regression analysis is given in Tables III, IV, V, VI in the appendix. The form of the output is described on page 84 in the appendix.

Two separate multiple linear regression computer programs are used in the analysis of the data in this thesis. The first program was written by Ingram (14) and uses the standard matrix inversion method for the analysis. This program gives all the bivariate correlation coefficients as part of the standard output. The program also gives a t test on each regression coefficient to test for its significance. The disadvantage of this program lies in the matrix inversion method of analysis. If two of the independent variables are proportional or at least close to proportional, one row in the matrix becomes a linear combination of another row and the matrix becomes singular (i.e., its determinant becomes zero and the analysis cannot be performed). A listing is found on page 69.

A second program was written by the author using the methods described in Borko (5) to overcome the problem of the singular matrix. This computer program extracts the error sum of squares for each variable as it computes the regression matrix. The method uses a matrix transpose instead of the matrix inverse and enables one to compute regression coefficients for independent variables that are somewhat proportional. A listing is found on page 79.

The output from the multiple regression program written by Ingram (14) is fairly obvious. Y is the dependent variable. The B values are the regression coefficients for the variables. SB is the standard error of estimate for the regression coefficient. T is the value of the t statistic for the regression coefficient. If $|T| > 1.68$ the regression coefficient is significant at the 90% level. PAR R is the partial correlation coefficient for the regression coefficient.

DF is the degrees of freedom. SS is the sum of squares. MS is the mean square. F is the F statistic for the total regression equation. The other terms are defined in the theory section of this thesis. Variable one is a dummy variable in this program and equals V(2) + V(3).

The output of the author's program is not as obvious although quite straightforward. The output on page 301 is labeled and the rest of the output follows a similar form. V(1) = 1.0 in this analysis and the regression coefficient of V(1) is the β_1, referred to in the theory section. Following the regression coefficients is the regression matrix

as described in Borko (5). Sigma is the standard error of estimate for the regression equation.

Two approaches were tried to fit the round and the square orifices to the same regression equation. The first method tried was to make the characteristic length in the dimensionless groups equal to four times the hydraulic radius. This was not very satisfactory. The second method was to make the characteristic length equal to the diameter of a circle with an equivalent area. This approach was very successful and the final correlations are based on this premise.

A regression analysis was performed on the general correlation including all groups. The value of the t statistic for the β values corresponding to V(8), V(9), and V(11) are respectively 19.82, -4.74, and -0.51 for the conditions of stage I and 19.20, -4.79, and -0.69 for the conditions of stage II. V(8), V(9) and V(11) are defined on page 85. The absolute value of the t statistic is less than 1.68 for V(11) in both cases so we can assume that $\beta_{11} = 0$ at the 90% confidence level. The regression analysis was rerun not including V(11).

As can be seen from the regression analysis in the dimensionless group $\Delta t\, C_p/\lambda$ did not make a significant contribution to the regression equation when all groups were included in the analysis.

The results for the general regression equation are given in Tables I and II for various combinations of groups. The general regression equation is as follows:

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = e^{\beta_1} \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{\beta_8} \left(\frac{\rho \lambda}{\Delta P} \right)^{\beta_9} \left(\frac{\Delta t C_p}{\lambda} \right)^{\beta_{11}}$$

The zeros in Tables A and B signify that the variable was not used in that particular regression analysis. Table I is for stage one conditions (the upstream stage) and Table II is for stage two conditions (the downstream stage).

TABLE I

STAGE ONE RESULTS

β_1	β_8	β_9	β_{11}	R	σ	e^{β_1}
3.633	1.826	-0.7434	0	0.9952	0.1286	37.83
-8.855	2.402	0	0	0.9887	0.1964	1.427×10^{-4}
-4.798	2.188	0	0.5707	0.9940	0.1439	8.246×10^{-3}

TABLE II

STAGE TWO RESULTS

β_1	β_8	β_9	β_{11}	R	σ	e^{β_1}
3.498	1.830	-0.7349	0	0.9949	0.1280	33.05
-8.879	2.409	0	0	0.9877	0.1977	1.393×10^{-4}
-4.786	2.174	0	0.5788	0.9936	0.1432	8.346×10^{-3}

The best correlations are those with the largest value of the multiple correlation coefficient. As can be seen from Tables I and II the main correlations resulting from this work are as follows:

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = 37.83 \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{1.826} \left(\frac{\rho \lambda}{\Delta P} \right)^{-0.7434}$$

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = 33.05 \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{1.830} \left(\frac{\rho \lambda}{\Delta P} \right)^{-0.7349}$$

The 90% confidence interval is equal to

$$\left(\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} \right) e^{\pm 1.68 \sigma}$$

The 90% confidence interval for the mean value of

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}}$$

for the conditions of the upstream stage expressed as a percentage is ± 2.8187% and for the conditions of the downstream stage it is ± 2.8811%.

The multiple correlation coefficient for the second dimensional analysis that assumed Q proportional to $(\Delta P)^{1/2}$ was equal to 0.9580

which is good but which does not compare too well with a value of $R = 0.9949$ for the first analysis. The regression coefficients for the second analysis can be obtained from Tables X and XI in the appendix.

An attempt was made to fit the standard orifice equation by obtaining the β values on the following equations:

$$Q = e^{\beta_1} (\Delta P)^{\beta_{24}} (D)^{\beta_{23}}$$

$$Q = e^{\beta_1} (\Delta P)^{\beta_{24}} (D)^{\beta_{23}} (\rho)^{\beta_{28}}$$

The multiple correlation coefficient was equal to 0.8589 for the first equation and 0.8603 for the second equation.

A statistical factor analysis using the principal axis method and the varimax rotation method as described in Borko (5) was performed on the data. Results were obtained that were superior to the standard orifice equation but not nearly as good as the method of dimensional analysis. The combination of variables suggested by factor analysis was as follows:

$$Q = \beta_1 + \beta_{14} (D) + \beta_{15} (\Delta P) + \beta_{31} (\text{conc}) + \beta_{17} (\lambda)$$

$$Q = \beta_1 + \beta_{14} (D) + \beta_{15} (\Delta P) + \beta_{21} (C_p) + \beta_{17} (\lambda)$$

Both equations had multiple correlation coefficients of 0.9020 which is fair.

The percent error for each experimental point for the main correlation for the downstream stage conditions is given in Table VII. The average relative error for 93 experimental points is 0.0136.

The standard orifice equation is compared to the main correlation in Table VIII by computing a value of Q from the orifice equation and a value of Q from the main correlation. A relative error was calculated based on the Q value for the main correlation. A value of the Reynolds number for the flow conditions at each experimental point is also given in Table VIII. As was expected, the standard orifice equation does not compare too well for square orifices. Round orifices give a fair comparison.

The results of the regression analysis are given graphically in Figures 8, 9, 10, 11, 12, and 13. The logarithm of the actual value of the dependent dimensionless group is plotted on the vertical axis and the corresponding predicted value from the correlation is plotted on the horizontal axis for all 93 experimental points.

Table IX gives the results of the multiple regression analysis for the downstream stage with D equal to four times the hydraulic radius. Tables X and XI give the results of the multiple regression analysis for the upstream stage and the downstream stage with D equal to the diameter of a circle with an equivalent area.

The correlations developed in this thesis should be able to be used for orifice design in the design of large multi-stage flash evaporation saline water conversion plants. The author recommends that the correlations with the highest multiple correlation coefficients be used for design purposes.

The following are the design correlations recommended by the author for the upstream and downstream stages respectively:

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = 37.83 \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{1.826} \left(\frac{\rho \lambda}{\Delta P} \right)^{-0.7434}$$

$$\frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}} = 33.05 \left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}} \right)^{1.830} \left(\frac{\rho \lambda}{\Delta P} \right)^{-0.7349}$$

The Reynolds number range of brine flashing through a submerged orifice covered by these correlations is from 90,000 to 400,000. The brine concentration range is from fresh water to 3.4 times the salinity of sea water and the stage pressure range covered is from about 7 psia to approximately 22.2 psia.

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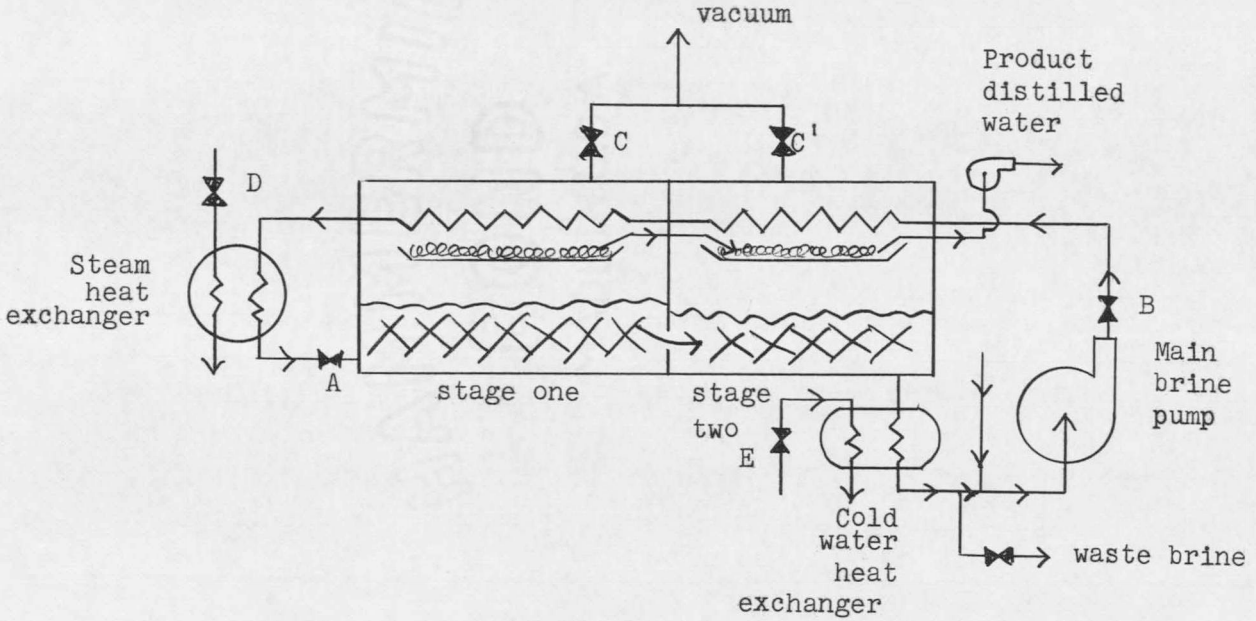


Figure 1. Two-stage single-effect flash evaporation saline water conversion process flow diagram

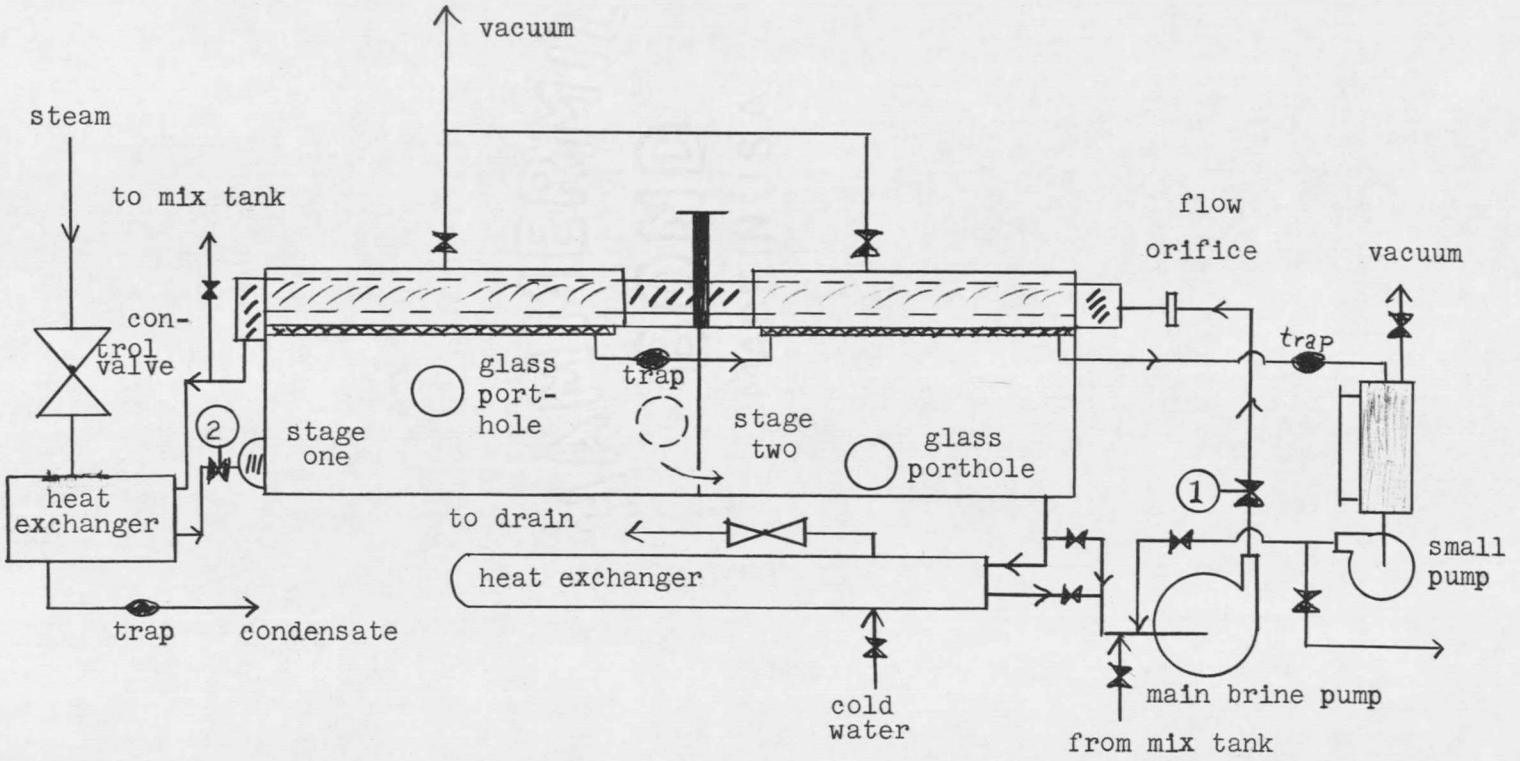


Figure 2. Two-stage flash evaporation saline water conversion pilot plant

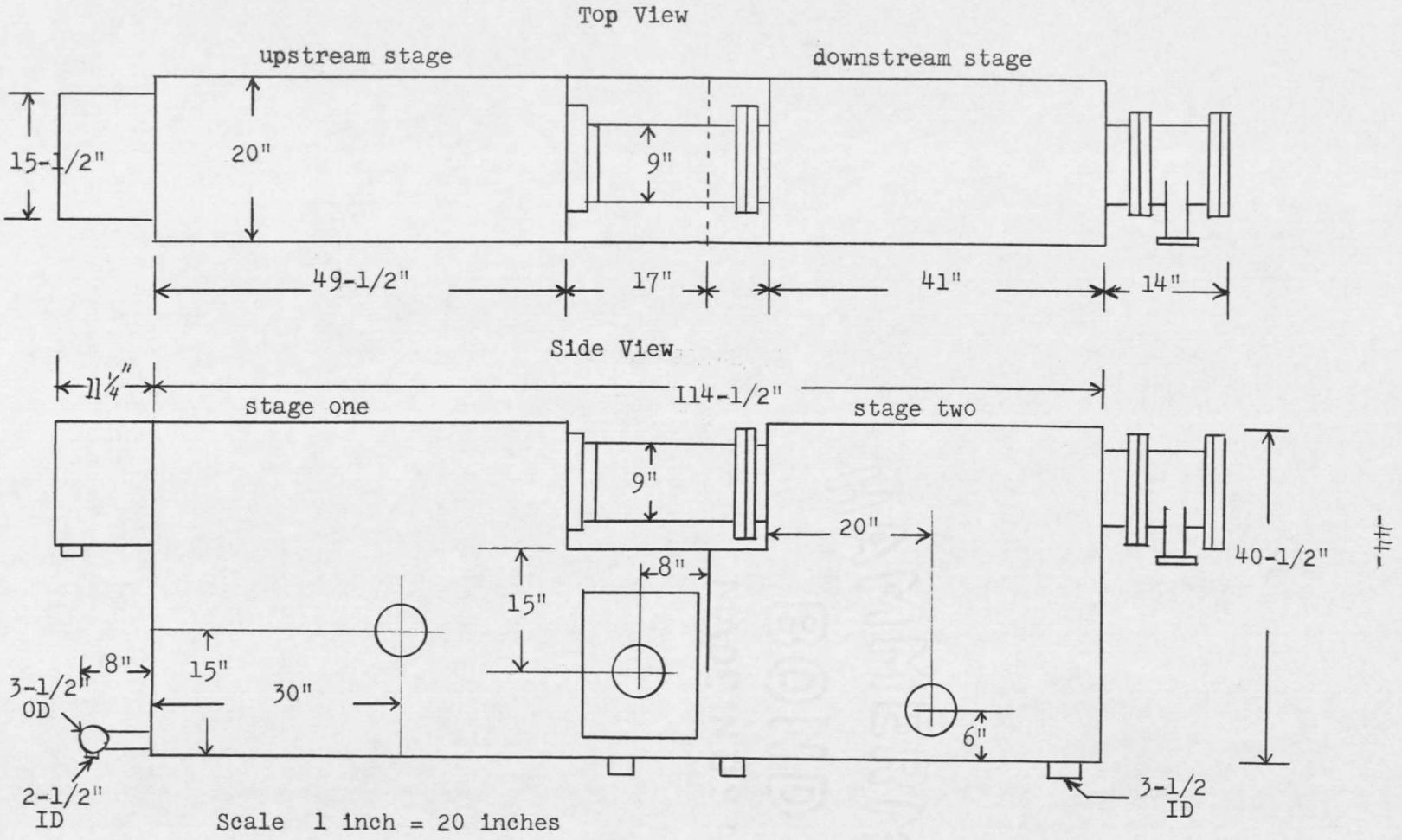


Figure 3. Dimensioned scale drawing of main body of apparatus

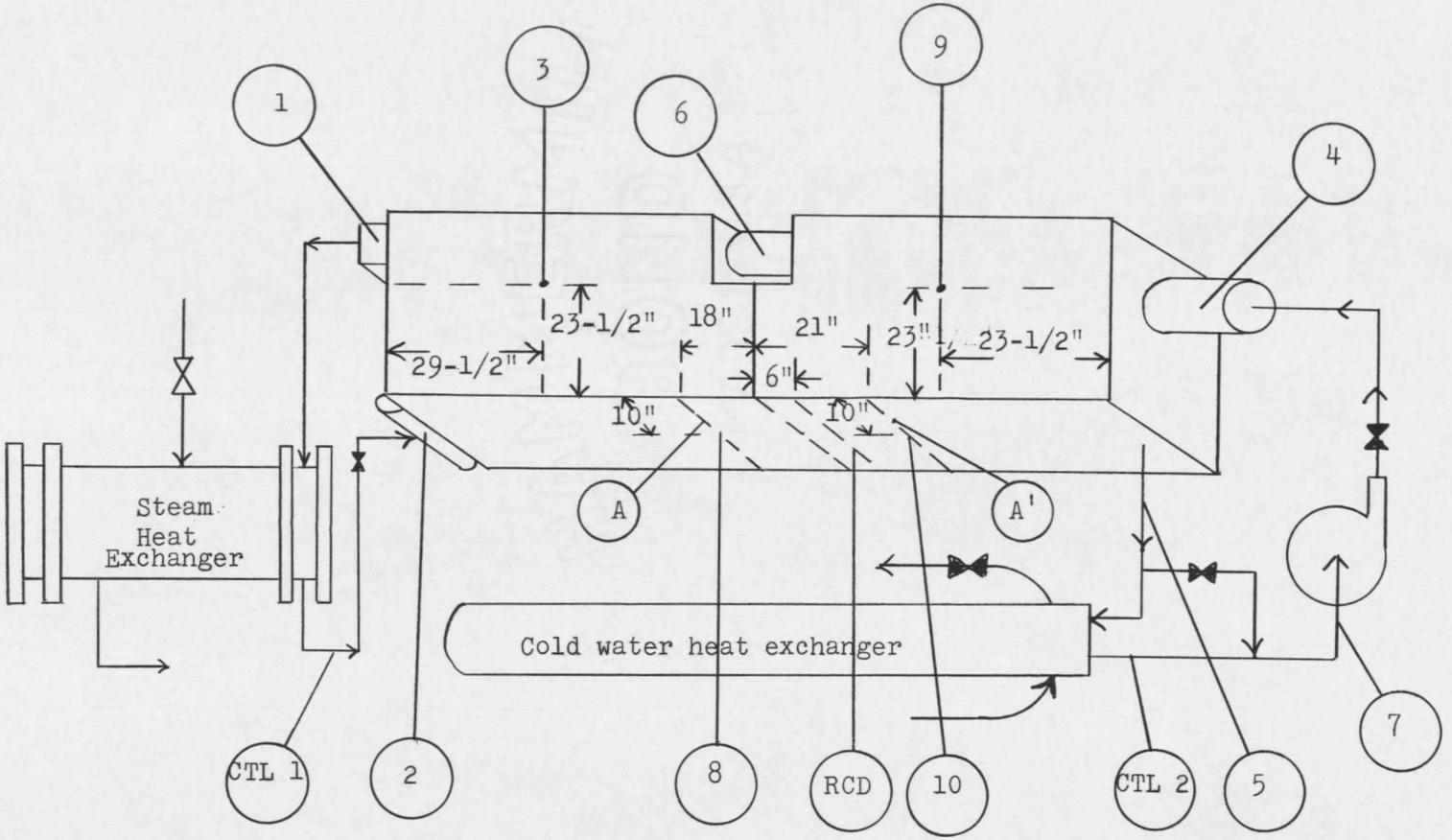


Figure 4. Thermowell locations

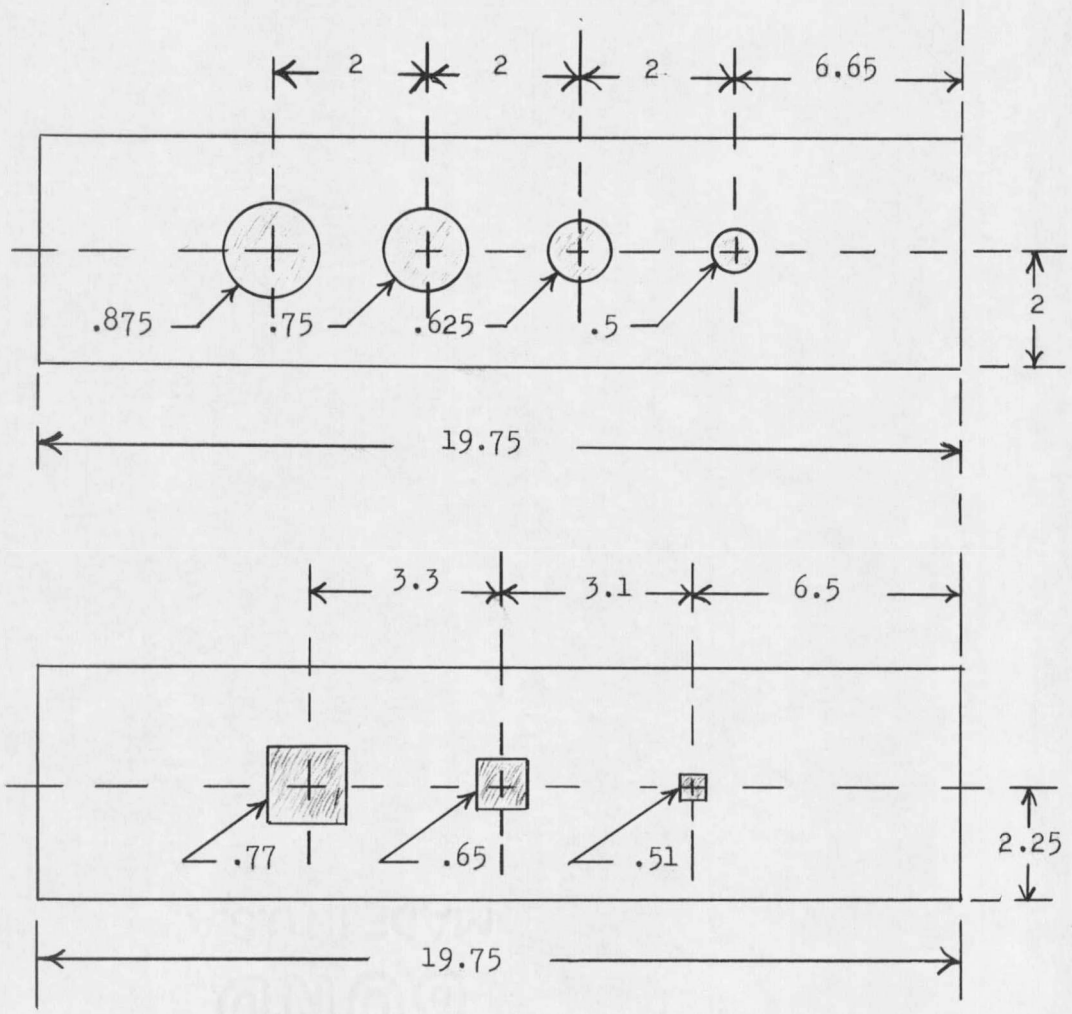


Figure 5. Dimensions of sharp edged submerged orifices
(All dimensions are in inches)

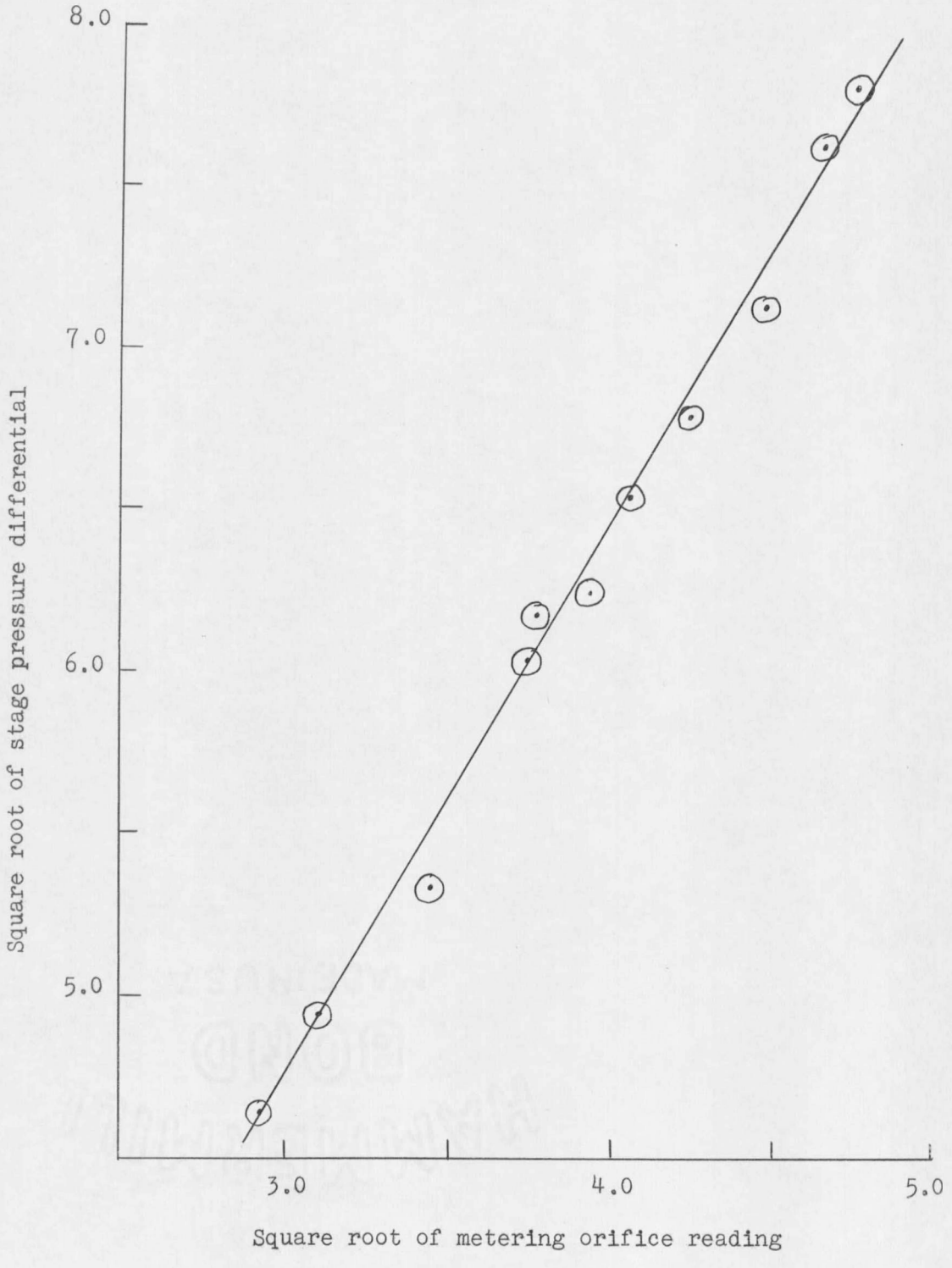


Figure 6. Cold water flow test for round orifice. Diameter = 0.75"

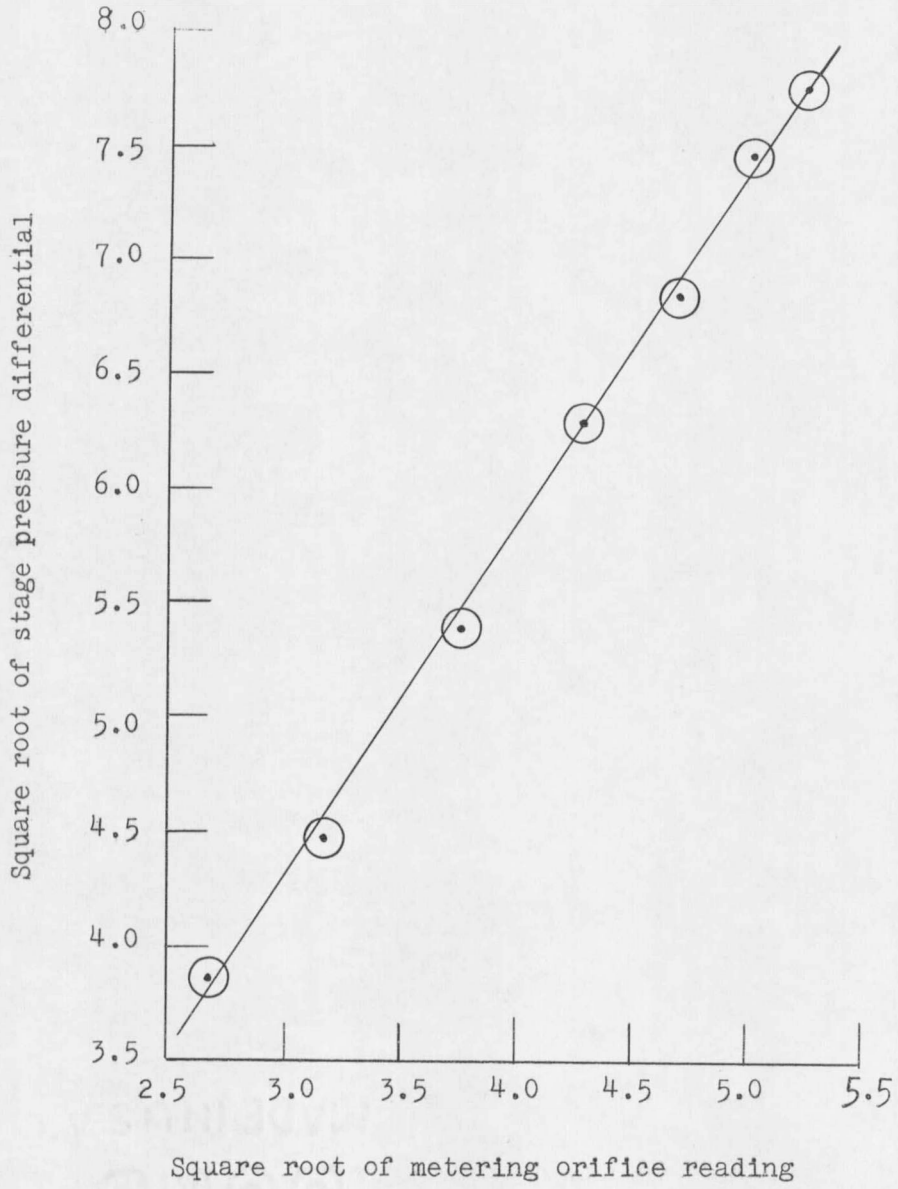


Figure 7. Cold water flow test for square orifice. Edge length = 0.65"

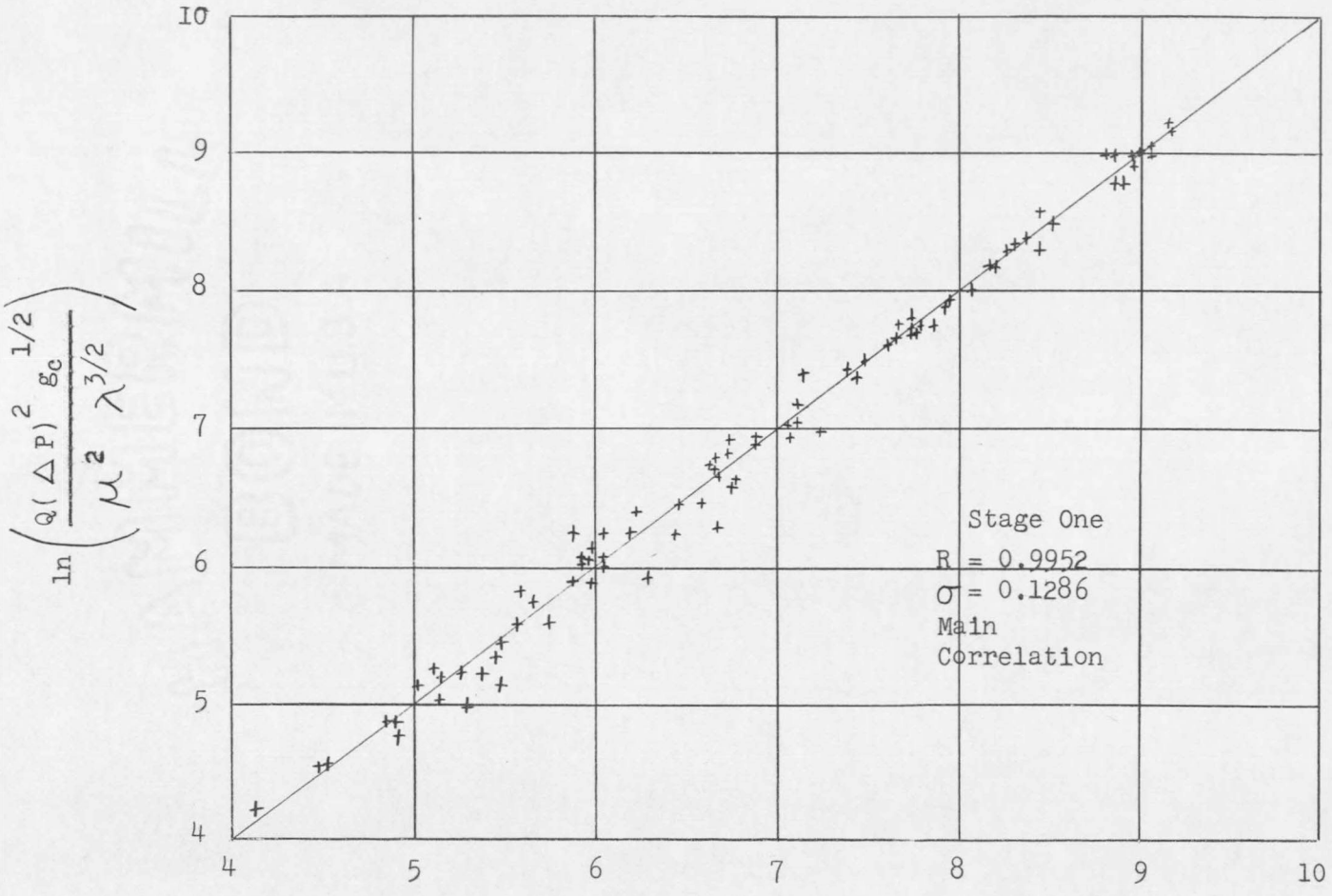


Figure 8. Graph of results for stage one conditions

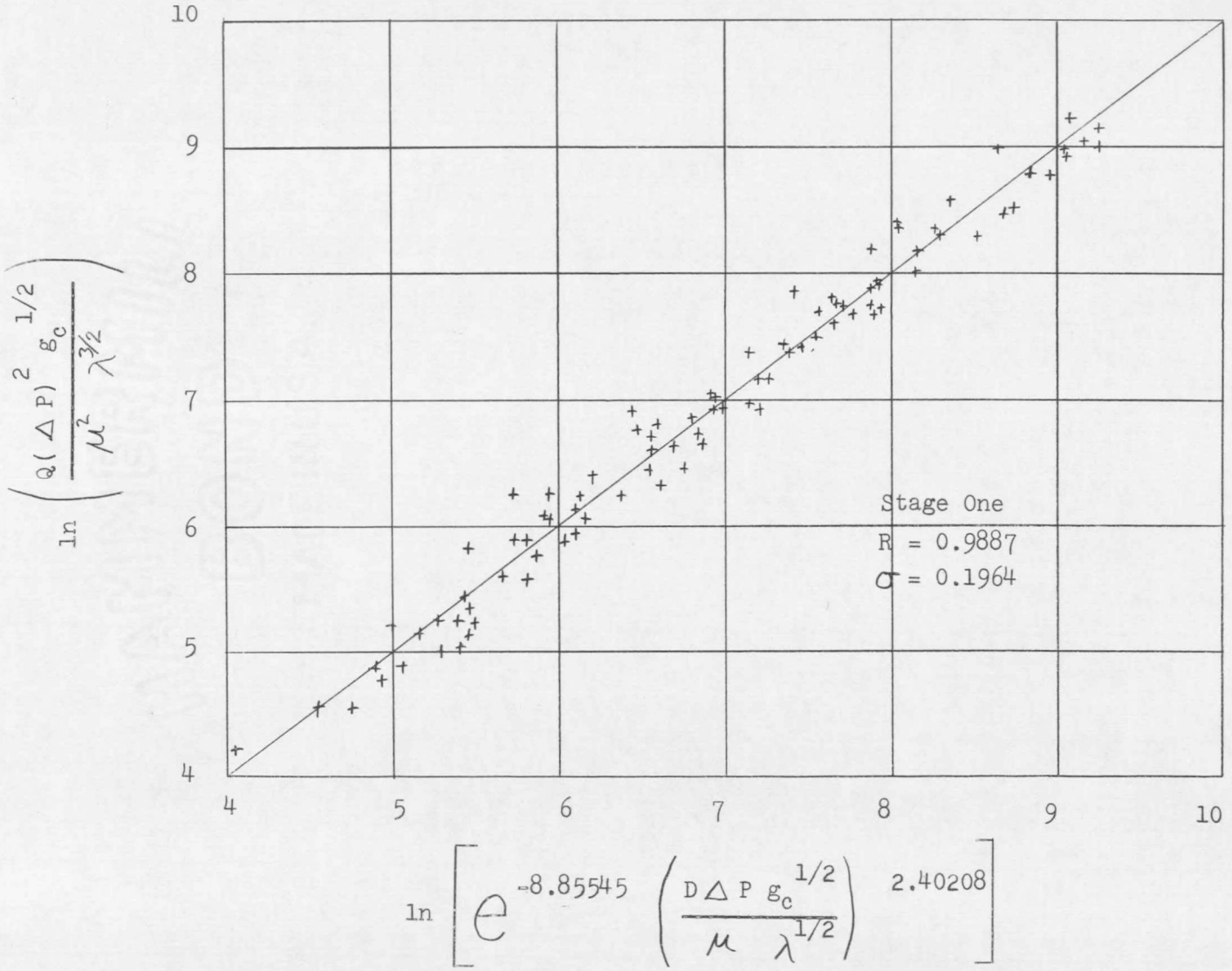


Figure 9. Graph of results for stage one conditions

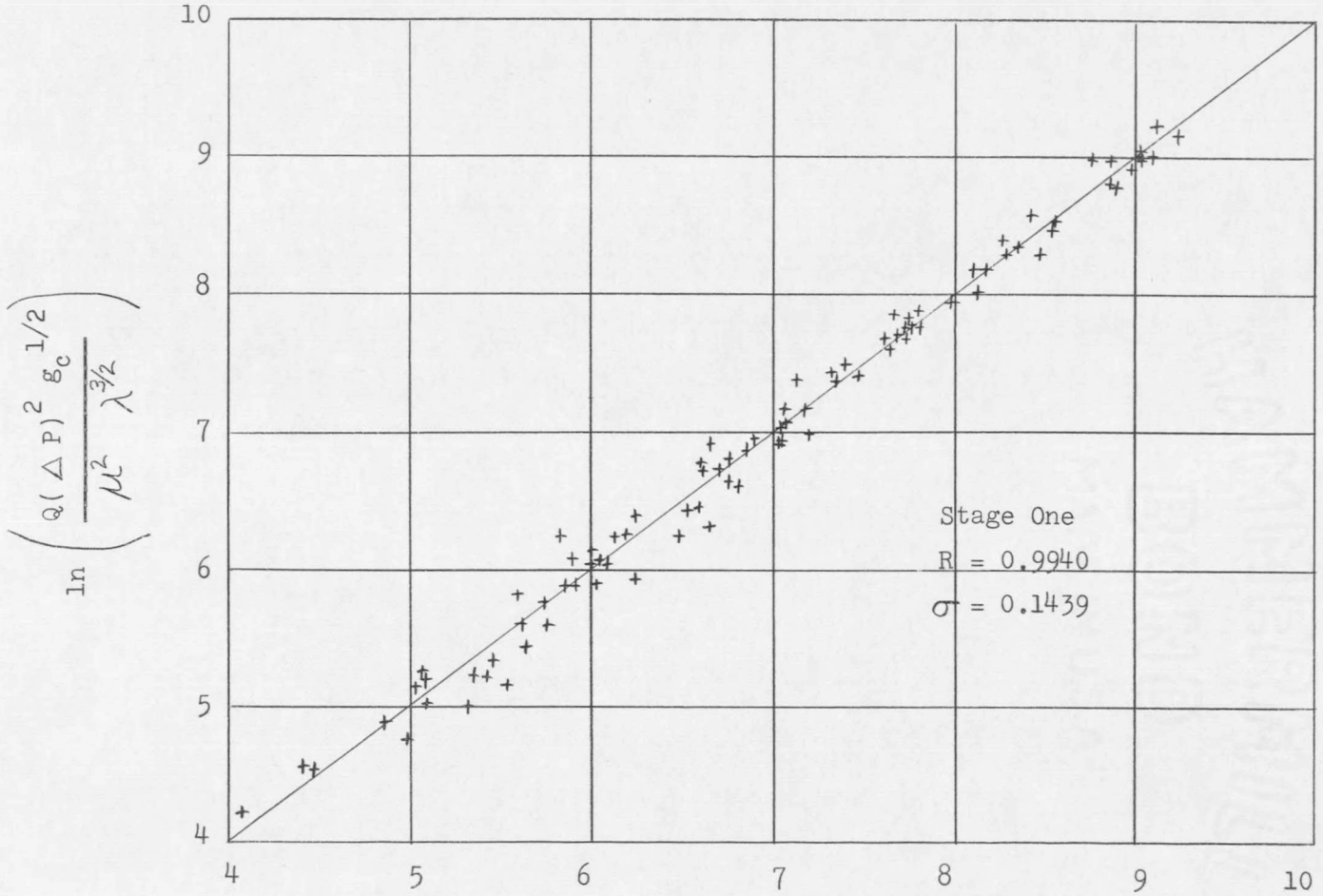


Figure 10. Graph of results for stage one conditions

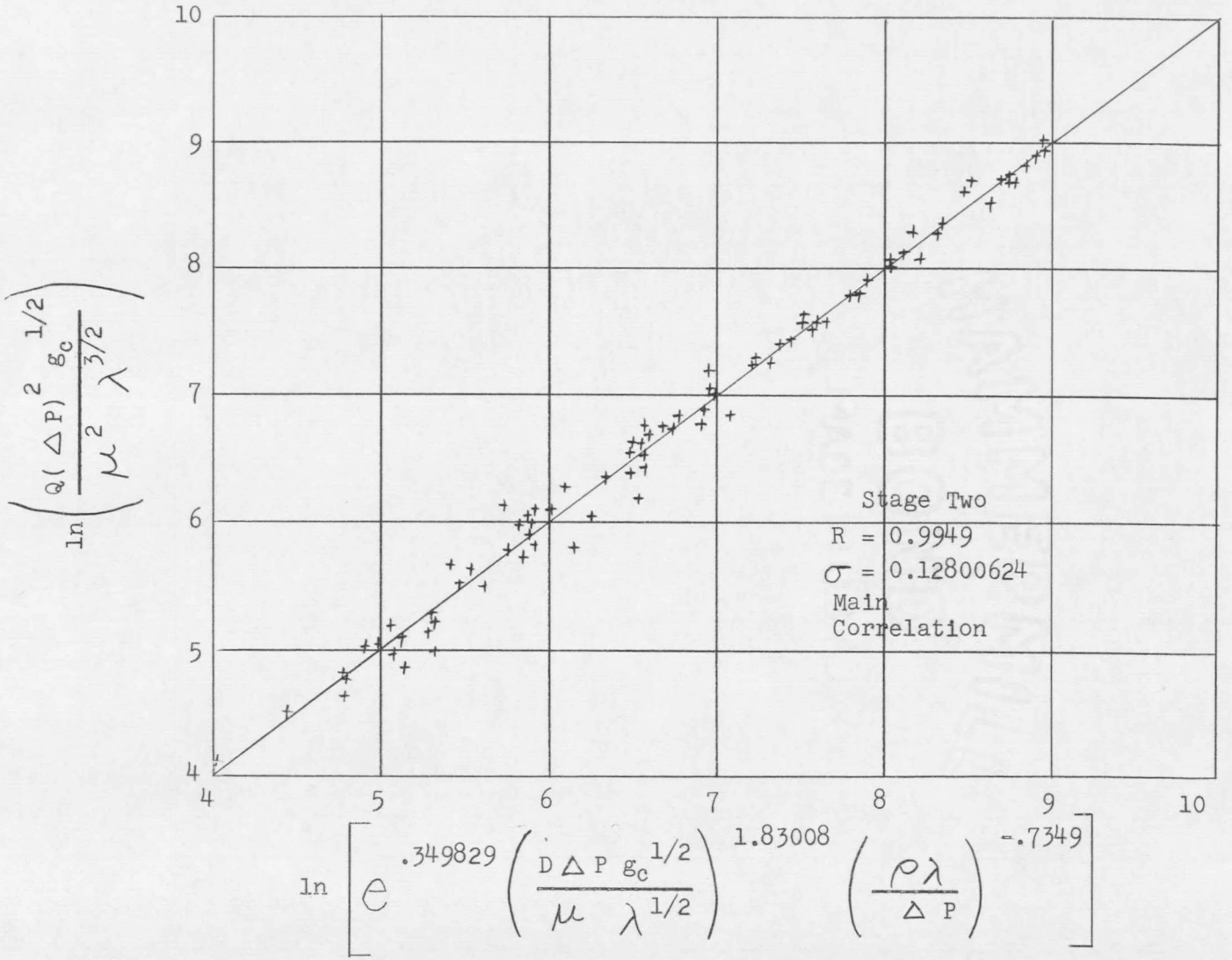


Figure 11. Graph of results for stage two conditions

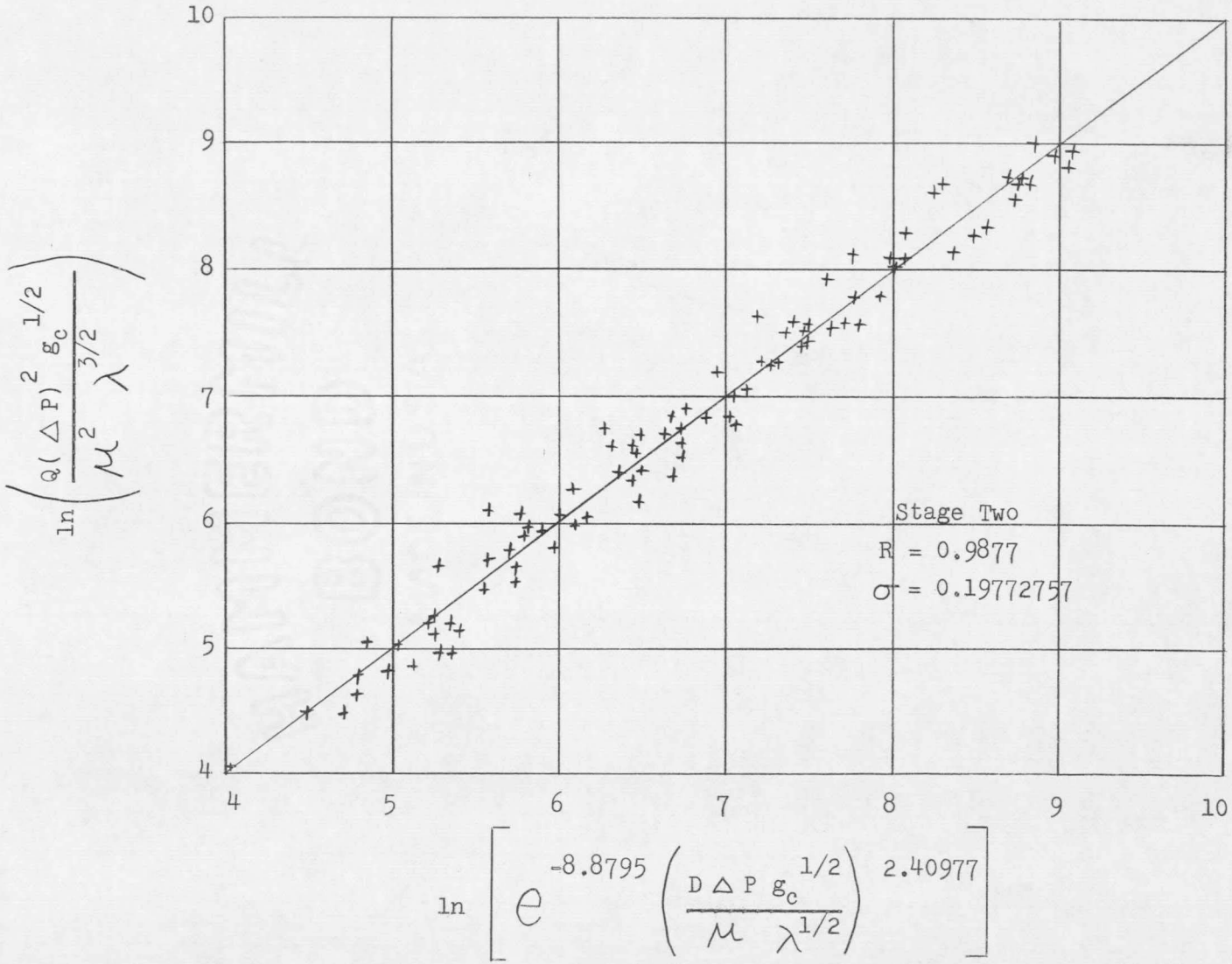


Figure 12. Graph of results for stage two conditions

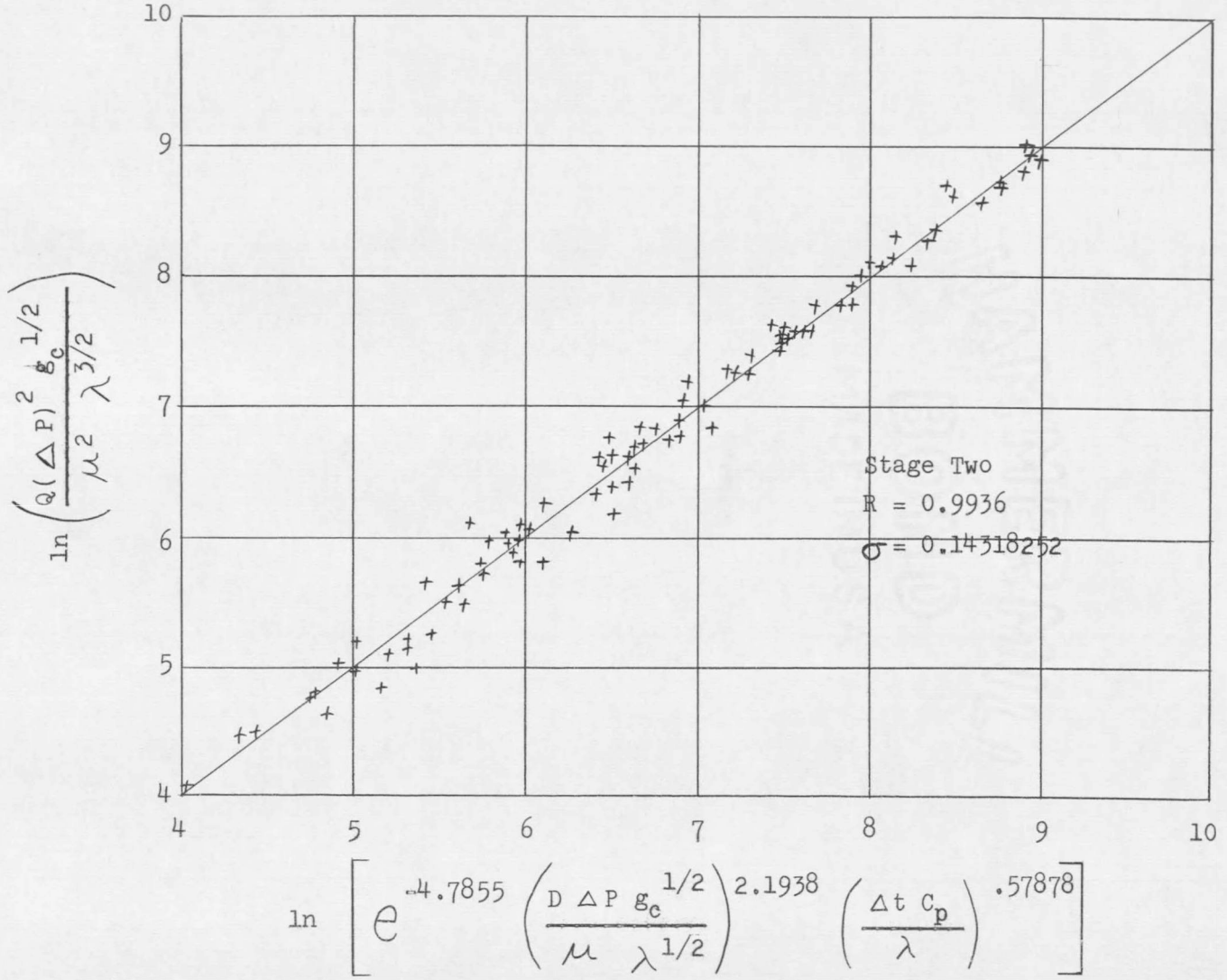


Figure 13. Graph of results for stage two conditions

LISTING OF COMPUTER PROGRAM AND SUBROUTINES

TO COMPUTE INTERMEDIATE RESULTS

```
** R.C.HUNTSINGER
C       SALINE PROGRAM          R.C.HUNTSINGER
        DIMENSION               V(30),QQ(25),HFLO(25),YMV(25),
        TMV(25),RO(25),
       1TRO(25),VISCOS(25),TVISC(25),HTLATE(25),TLATE(25)
        ,XCSUBP(25),
       2TCSUBP(25),TT(10),T(10),ALPHA(2)
        DIMENSION RRHO(15,5),RHOCON(9),VVISC(15,5),VISCON
        (9),XCP(15,9),
       1CPCON(9),RC(9)
        COMMON                  V,QQ,HFLO,YMV,TMV,RO,TRO,VISCOS
        ,TVISC,HTLATE,
       1TLATE,XCSUBP,TCSUBP
        COMMON RRHO,RHOCON,VVISC,VISCON,XCP,CPCON
        CALL DIANE
        DO 700 I=1,9
  700   CPCON(I)=CPCON(I)/3.4483
        DO 701 I=1,5
  701   VISCON(I)=VISCON(I)/3.4483
        GSUBC=32.174*3600.0*3600.0
  971   READ 9,ALPHA(1),(TT(I),I=1,5)
  9     FORMAT(4X,A4,2X,5F10.3)
        READ 2,ALPHA(2),(TT(I),I=6,10)
  2     FORMAT(A4,6X,5F10.3)
        READ 11,CTL1,PRS1,RCD,CTL2,PRS2,XNORM
        READ 11,TPR,XMV,ST1,ST2,SP,XML
        READ 11,DIA,DHFLO,DHSTG,DHWTR1,DHWTR2,PATM
   11   FORMAT(10X,6F10.3)
        CONC=35.457*XML*XNORM/(2.0*19.862)
        DO 7 K=1,10
        TT(K)=ABSF(TT(K))
  7     T(K)=1.8*TT(K)+32.0
        RCD=1.8*RCD+32.0
        IF(ST1)20,21,21
   20   ST1=ST1*14.7/29.92
   21   IF(ST2)22,23,23
   22   ST2=ST2*14.7/29.92
   23   CONTINUE
        CALL DELTMV(DELT,TMV,YMV,T(10),XMV,21)
        D=DIA/12.0
        IF(SENSE SWITCH 1) 777,778
  777   CONTINUE
        D=D*SQRTF(4./3.14159)
```

```
778   CONTINUE
      CALL TERPOL(Q,HFLO,QQ,SQRTF(DHFLO/5.0),13)
      PSI =DHSTG*14.7/(29.92*5.0)
      DELP=PSI *144.0
      DHWTR=(DHWTR1-DHWTR2)/(5.0*12.0)
      PATM=PATM*14.7/29.92
      DO 819 I=1,13
      DO 820 J=1,5
 820  RC(J)=RRHO(I,J)
 819  CALL TERP (RO(I),RHOCON,RC,CONC,5)
      CALL TERPOL(RHO,TRO,RO,T(10),13)
      DO 817 I=1,13
      DO 818 J=1,5
 818  RC(J)=VVISC(I,J)
 817  CALL TERP (VISCOS(I),VISCON,RC,CONC,5)
      CALL TERPOL(VISC,TVISC,VISCOS,T(10),13)
      CALL TERPOL(XLAM,TLATE,HTLATE,T(10),25)
      XLAM=XLAM*777.9
      DO 815 I=1,15
      DO 816 J=1,9
 816  RC(J)=XCP(I,J)
 815  CALL TERP (XCSUBP(I),CPCON,RC,CONC,9)
      CALL TERPOL(CSUBP,TCSUBP,XCSUBP,T(10),15)
      CSUBP=CSUBP*777.9
      PI1=(D*DELP*SQRTF(GSUBC))/(VISC*SQRTF(XLAM))
      PI2=(RHO*XLAM)/DELP
      PI3=(D*RHO*SQRTF(XLAM)*SQRTF(GSUBC))/VISC
      PI4=(DELT*CSUBP)/XLAM
      PI5=(Q*(RHO**2.5)*XLAM*SQRTF(GSUBC))/(SQRTF(DELP)
      *(VISC**2))
      PI6=(Q*(DELP**2)*SQRTF(GSUBC))/((VISC**2)*(XLAM**
      1.5))
      EQUIVALENCE(PI1,V(1)),(PI2,V(2)),(PI3,V(3)),(PI4,
      V(4)),(PI5,V(5))
     1,(PI6,V(6))
      PI1LN=LOGF(PI1)
      PI2LN=LOGF(PI2)
      PI3LN=LOGF(PI3)
      PI4LN=LOGF(PI4)
      PI5LN=LOGF(PI5)
      PI6LN=LOGF(PI6)
      EQUIVALENCE(PI1LN,V(7)),(PI2LN,V(8)),(PI3LN,V(9))
      ,(PI4LN,V(10)),
```

```
     1(PI5LN,V(11)),(PI6LN,V(12))
      EQUIVALENCE(V(13),D),(V(14),DELP),(V(15),VISC),(V
      (16),XLAM),
     1(V(17),Q),(V(18),RHO),(V(19),DELT),(V(20),CSUBP)
      V(21)=T(10)
      DL=LOGF(D)
      DELPL=LOGF(DELP)
      VISCL=LOGF(VISC)
      XLAML=LOGF(XLAM)
      QL=LOGF(Q)
      RHOL=LOGF(RHO)
      T10L=CONC
      DELTL=LOGF(DELT)
      CSUBPL=LOGF(CSUBP)
      TX=T(10)+DELT
      DT810=T(8)-T(10)
      PST1=ST1+PATM
      PST2=ST2+PATM
      EQUIVALENCE(V(22),DL),(V(23),DELPL),(V(24),VISCL)
      ,(V(25),XLAML),
     1(QL,V(26)),(V(27),RHOL),(V(28),DELTL),(V(29),CSUB
      PL),(V(30),T10L)
17    FORMAT(9H RUN NO. ,A4,6H DATE ,A4)
      PRINT 17,ALPHA(1),ALPHA(2)
      PRINT 85
85    FORMAT(22H     T(1) THROUGH T(10))
      PRINT 41,(T(I),I=1,10)
  41  FORMAT(1H ,2X,E14.7,2X,E14.7,2X,E14.7)
  89  FORMAT(1HO,24H CTL1,PRS1,RCD,CTL2,PRS2)
      PRINT 89
      PRINT 41,CTL1,PRS1,RCD,CTL2,PRS2
88    FORMAT(20HO TPR,XMV,ST1,ST2,SP)
      PRINT 88
      PRINT 41,TPR,XMV,ST1,ST2,SP
87    FORMAT(28HO DIA,DHFLO,DHSTG,DHWTR,PATM)
      PRINT 87
      PRINT 41,DIA,DHFLO,DHSTG,DHWTR,PATM
86    FORMAT(22HO     V(2) THROUGH V(31))
      PRINT 86
      PRINT 41,(V(K),K=1,30)
      PRINT 118
118   FORMAT(47HOPST1, PST2, DELT, T(8), T(10), DT810,
      TX, DELP)
```

```
      READ 805,(RHOCON(I),I=1,5)
18    FORMAT(1H ,4(E11.4,2X))
2003  FORMAT (8HOCONC = ,E14.7)
      PRINT 2003, CONC
1001  FORMAT(1H1)
      PRINT 1001
      PUNCH 943,V(1),V(2),V(3),V(4),V(5),ALPHA(1)
      PUNCH 943,V(6),V(7),V(8),V(9),V(10),ALPHA(2)
943   FORMAT(5E14.7,4X,A4)
      PUNCH 942,(V(K),K=11,30)
942   FORMAT(5E14.7)
      GO TO 971
      END
```

```
      SUBROUTINE DIANE
      DIMENSION           V(30),QQ(25),HFLO(25),YMV(25),
      TMV(25),RO(25),
     1TRO(25),VISCOS(25),TVISC(25),HTLATE(25),TLATE(25)
      ,XCSUBP(25),
     2TCSUBP(25)
      DIMENSION RRHO(15,5),RHOCON(9),VVISC(15,5),VISCON
      (9),XCP(15,9),
     1CPCON(9)
      COMMON              V,QQ,HFLO,YMV,TMV,RO,TRO,VISCOS
      ,TVISC,HTLATE,
     1TLATE,XCSUBP,TCSUBP
      COMMON RRHO,RHOCON,VVISC,VISCON,XCP,CPCON
  101 FORMAT(F10.3,F10.3)
  803 FORMAT(6F10.0)
      DO 806 I=1,13
  806 READ 803,TRO(I),(RRHO(I,J),J=1,5)
      READ 805,(RHOCON(I),I=1,5)
      DO 804 I=1,13
  804 READ 803, TVISC(I),(VVISC(I,J),J=1,5)
  805 FORMAT(10X,5F10.0)
      READ 805,(VISCON(I),I=1,5)
      READ 101,(TLATE(I),HTLATE(I),I=1,25)
  800 FORMAT(10F7.0)
      DO 801  I=1,15
  801 READ 800, TCSUBP(I),(XCP(I,J),J=1,9)
  802 FORMAT(7X,9F7.0)
      READ 802,(CPCON(I),I=1,9)
      READ 101,(TMV(I),YMV(I),I=1,21)
      READ 111,(QQ(I),HFLO(I),I=1,13)
  111 FORMAT(16X,E14.7,2X,E14.7)
      RETURN
      END
```

```
      SUBROUTINE DELTMV (A,B,C,D,E,I)
      DIMENSION B(25),C(25)
      IF(D-B(1))18,19,19
19    IF(D-B(I)) 20,20,21
   20 N=0
   22 N=N+1
      IF(D-B(N+1))23,23,22
   23 A=(E/5.0)/((C(N+1)-C(N))/10.0)
      RETURN
18    A=(E/5.0)/((C(2)-C(1))/10.0)
      PRINT 5,D
    5 FORMAT(44HERROR IN DELTMV,ARGUMENT TOO SMALL FOR
      TABLE,E12.6)
      RETURN
   21 A=(E/5.0)/((C(I)-C(I-1))/10.0)
      PRINT 6,D
    6 FORMAT(44HERROR IN DELTMV,ARGUMENT TOO LARGE FOR
      TABLE,E12.6)
      RETURN
      END
```

```
C       TABLE INTERPOLATION PROGRAM BY R. C. HUNTSINGER
        SUBROUTINE TERP    (A,B,C,D,I)
        DIMENSION B(25),C(25)
        IF(D-B(1))18,191,19
 19     IF(D-B(I)) 20,33,21
   20   IF(D-B(2))26,27,27
   26   N=2
        GO TO 23
 41     IF(N-I+1) 23,29,29
   29   N=N-1
        GO TO 23
   27   N=0
   22   N=N+1
        IF(D-B(N+1))41,25,22
   23   A= C(N-1)*(D-B(N))*(D-B(N+1))*(D-B(N+2))/((B(N-1)
        -B(N))*(B(N-1)-B(
       1N+1))*(B(N-1)-B(N+2))) + C(N)*(D-B(N-1))*(D-B(N+1
        ))*(D-B(N+2))/((
       2B(N)-B(N-1))*(B(N)-B(N+1))*(B(N)-B(N+2)))+ C(N+1)
        *(D-B(N-1))*(D-B(
       3N))*(D-B(N+2))/((B(N+1)-B(N-1))*(B(N+1)-B(N))*(B(
        N+1)-B(N+2)))
        A=A+C(N+2)*(D-B(N-1))*(D-B(N))*(D-B(N+1))/((B(N+2
        )-B(N-1))*(B(N+2
       1)-B(N))*(B(N+2)-B(N+1)))
        RETURN
   18   A=C(1)
        PRINT 5,D
    5   FORMAT(45H ERROR IN TERP   ,ARGUMENT TOO SMALL FOR
         TABLE,E12.6)
        RETURN
 21     A=C(I)
        PRINT 6,D
    6   FORMAT(45H ERROR IN TERP   ,ARGUMENT TOO LARGE FOR
         TABLE,E12.6)
        RETURN
   25   A=C(N+1)
        RETURN
 33     A=C(I)
        RETURN
 191    A=C(1)
        RETURN
        END
```

```
C       TABLE INTERPOLATION PROGRAM BY R. C. HUNTSINGER
        SUBROUTINE TERPOL (A,B,C,D,I)
        DIMENSION B(25),C(25)
        IF(D-B(1))18,191,19
 19     IF(D-B(I)) 20,33,21
   20   IF(D-B(2))26,27,27
   26   N=2
        GO TO 23
 41     IF(N-I+1) 23,29,29
   29   N=N-1
        GO TO 23
   27   N=0
   22   N=N+1
        IF(D-B(N+1))41,25,22
   23   A= C(N-1)*(D-B(N))*(D-B(N+1))*(D-B(N+2))/((B(N-1)
        -B(N))*(B(N-1)-B(
       1N+1))*(B(N-1)-B(N+2))) + C(N)*(D-B(N-1))*(D-B(N+1
        ))*(D-B(N+2))/((
       2B(N)-B(N-1))*(B(N)-B(N+1))*(B(N)-B(N+2)))+ C(N+1)
        *(D-B(N-1))*(D-B(
       3N))*(D-B(N+2))/((B(N+1)-B(N-1))*(B(N+1)-B(N))*(B(
        N+1)-B(N+2)))
        A=A+C(N+2)*(D-B(N-1))*(D-B(N))*(D-B(N+1))/((B(N+2
        )-B(N-1))*(B(N+2
       1)-B(N))*(B(N+2)-B(N+1)))
        RETURN
   18   A=C(1)
        PRINT 5,D
    5   FORMAT(45H ERROR IN TERPOL,ARGUMENT TOO SMALL FOR
         TABLE,E12.6)
        RETURN
 21     A=C(I)
        TYPE 6,D
    6   FORMAT(45H ERROR IN TERPOL,ARGUMENT TOO LARGE FOR
         TABLE,E12.6)
        RETURN
   25   A=C(N+1)
        RETURN
 33     A=C(I)
        RETURN
 191    A=C(1)
        RETURN
        END
```

TABLES OF DATA FOR DENSITY, VISCOSITY, LATENT HEAT OF VAPORIZATION, HEAT CAPACITY, MILLIVOLTS vs. TEMPERATURE AND FLOW RATE vs. METERING ORIFICE READING USED BY THE COMPUTER PROGRAM

60.0	62.38	64.02	65.78	67.38	69
.14	DENSITY				
80.0	62.25	63.85	65.51	67.15	68
.88	TABLES				
100.0	62.04	63.62	65.25	66.86	68
.58	OSW 11.60				
120.0	61.76	63.35	64.94	66.52	68
.24	SEA WATER				
140.0	61.42	63.02	64.58	66.13	67
.86	UNITS ARE				
160.0	61.02	62.66	64.16	65.71	67
.44	LB/(FT**3)				
180.0	60.62	62.28	63.71	65.25	66
.99	TEMP DEGF				
200.0	60.15	61.82	63.22	64.77	66
.50		RO			
220.0	59.65	61.35	62.69	64.27	66
.01		RO			
240.0	59.10	60.81	62.15	63.75	65
.48		RO			
260.0	58.52	60.25	61.59	63.21	64
.95		RO			
280.0	57.92	59.66	61.01	62.66	64
.39		RO			
300.0	57.31	59.05	60.42	62.09	63
.83		RO			
X SEA H20	0.0	1.0	2.0	3.0	4
.0		RO			
50.0	3.18	3.35	3.67	4.20	4
.89	VISCOSITY				
70.0	2.34	2.51	2.76	3.18	3
.73	TABLE				
90.0	1.83	1.96	2.18	2.50	2
.90	OSW 12.90				
110.0	1.48	1.60	1.78	1.98	2
.26	NACL SOLN				
130.0	1.23	1.35	1.50	1.64	1
.86	UNITS ARE				
150.0	1.04	1.16	1.29	1.45	1
.62	LB/(FT-HR)				
170.0	0.87	1.00	1.13	1.28	1
.42	TEMP DEGF				
180.0	0.81	0.93	1.06	1.20	1

.34		MU				
190.0	0.74		0.86	0.99	1.12	1
.26		MU				
200.0	0.70		0.82	0.93	1.05	1
.18		MU				
210.0	0.64		0.77	0.88	0.99	1
.12		MU				
220.0	0.58		0.72	0.83	0.94	1
.06		MU				
230.0	0.53		0.68	0.77	0.88	1
.00		MU				
.	0.0		5.0	10.0	15.0	20

.0	SALT PCENT
60.0	1059.9
70.0	1054.3
80.0	1048.6
90.0	1042.9
100.0	1037.2
110.0	1031.6
120.0	1025.8
130.0	1020.0
140.0	1014.1
150.0	1008.2
160.0	1002.3
170.0	996.3
180.0	990.2
190.0	984.1
200.0	977.9
210.0	971.6
220.0	965.2
230.0	958.8
240.0	952.2
250.0	945.5
260.0	938.7
270.0	931.8
280.0	924.7
290.0	917.5
300.0	910.1

50.0	1.0014	0.988	0.962	0.936	0.914	0.895	0.876
	0.859	0.844	CP				
70.0	0.999	0.987	0.962	0.938	0.917	0.898	0.880
	0.863	0.848	CP				
90.0	0.998	0.987	0.964	0.941	0.920	0.901	0.883

	0.868	0.852	CP				
110.0	0.9975	0.988	0.965	0.943	0.923	0.904	0.886
	0.872	0.855	CP				
130.0	0.998	0.988	0.966	0.945	0.926	0.907	0.890
	0.875	0.860	CP				
150.0	0.999	0.990	0.968	0.947	0.928	0.910	0.893
	0.878	0.864	CP				
170.0	1.001	0.991	0.970	0.950	0.931	0.914	0.897
	0.882	0.869	CP				
180.0	1.002	0.992	0.971	0.951	0.933	0.916	0.899
	0.885	0.872	CP				
190.0	1.003	0.993	0.972	0.952	0.934	0.918	0.901
	0.887	0.874	CP				
200.0	1.004	0.995	0.974	0.954	0.936	0.919	0.903
	0.889	0.876	CP				
210.0	1.006	0.996	0.975	0.956	0.938	0.921	0.905
	0.891	0.879	CP				
220.0	1.008	0.998	0.977	0.957	0.939	0.923	0.907
	0.893	0.882	CP				
230.0	1.009	0.999	0.979	0.959	0.941	0.925	0.909
	0.896	0.884	CP				
240.0	1.011	1.001	0.980	0.961	0.943	0.927	0.912
	0.898	0.887	CP				
250.0	1.013	1.003	0.982	0.963	0.945	0.930	0.914
	0.900	0.890	CP				

OSW1220	0.0	1.0	3.0	5.0	7.0	9.0	11.0
	13.0	15.0	CP				
100.0		1.94					
110.0		2.23					
120.0		2.52					
130.0		2.82					
140.0		3.11					
150.0		3.41					
160.0		3.71					
170.0		4.01					
180.0		4.31					
190.0		4.61					
200.0		4.91					
210.0		5.21					
220.0		5.51					
230.0		5.81					
240.0		6.11					
250.0		6.42					

260.0	6.72
270.0	7.03
280.0	7.33
290.0	7.64
300.0	7.94

0.0000000E-99	2.0339650E-01
2.2000000E+01	4.2301194E-01
4.4000000E+01	6.4262738E-01
6.6000000E+01	8.6224282E-01
8.8000000E+01	1.0818582E+00
1.1000000E+02	1.3014737E+00
1.3200000E+02	1.5210891E+00
1.5400000E+02	1.7407045E+00
1.7600000E+02	1.9603200E+00
1.9800000E+02	2.1799354E+00
2.2000000E+02	2.3995509E+00
2.4200000E+02	2.6191663E+00
2.6400000E+02	2.8387817E+00

ONE PASS MULTIPLE REGRESSION COMPUTER PROGRAM

BY INGRAM (14).

```
C       ONE-PASS MULTIPLE REGRESSION, ALLOWING UP TO 30 V
        ARIABLES, ANY ONE
C         OF WHICH CAN BE REGARDED AS THE DEPENDENT VARIA
        BLE, WITH ANY
C         SUB-SET OF THE REMAINING ONES USED AS THE INDEP
        ENDENT VARIABLES
        DIMENSION V(30),SV(30),SSV(30,30),R(30,30),PROB(3
        ),C(30),STD(30),
       1  VBAR(30),SS(30),IU(29)
        COMMON NR,NC,R,NV,V
        EQUIVALENCE (SS,SSV),(V,VBAR),(C,STD),(SV,R)
  100   FORMAT(I1)
        READ 100,SSW1
        IF(SSW1)2,2,20
    1   FORMAT(3A4,I2,I5,60X,I1)
    2   READ 1,PROB,NV,NOBS,IPCH
        IF(NOBS)51,51,3
    3   DO 4 I=1,NV
        SV(I)=0.
        DO 4 J=I,NV
    4   SSV(I,J)=0.
        NC=0
        DO 9 K=1,NOBS
        CALL RDOPMR
        IF(NC)5,5,7
    5   DO 6 I=1,NV
    6   C(I)=V(I)
        NC=1
    7   DO 8 I=1,NV
        V(I)=V(I)-C(I)
    8   SV(I)=SV(I)+V(I)
        DO 9 I=1,NV
        DO 9 J=I,NV
    9   SSV(I,J)=SSV(I,J)+V(I)*V(J)
C       ALL DATA READ, RAW SUMS COMPLETE
   10   FORMAT(3A4)
   99   FORMAT(26H MULTIPLE REGRESSION WITH I2,14H VARIAB
        LES, N=I5,I1/)
        IF(IPCH)54,54,53
   53   PUNCH 10,PROB
        PUNCH 99,NV,NOBS
   11   FORMAT(2X1HI,8X4HMEAN,7X13HST. DEVIATION,5X8HVARI
        ANCE,3X14HSUM OF
```

```
     1SQUARES)
      PUNCH 11
   54 PRINT 55,PROB,NV,NOBS
   55 FORMAT(1H ,3A4/1H0,25HMULTIPLE REGRESSION WITH I2
     ,14H VARIABLES, N
     1=I5,I1)
      PRINT 56
   56 FORMAT(1H0,2X1HI,8X4HMEAN,7X13HST. DEVIATION,5X8H
     VARIANCE,3X14HSUM
     1 OF SQUARES)
      FN=NOBS
      RN=1./FN
      FN1=NOBS-1
      RN1=1./FN1
   12 FORMAT(I3,2X4E15.8)
      DO 57 I=1,NV
      SS(I)=SSV(I,I)-SV(I)*SV(I)*RN
      VBAR(I)=SV(I)*RN+C(I)
      VAR=SS(I)*RN1
      STD(I)=SQRTF(VAR)
      IF(IPCH)57,57,13
   13 PUNCH 12,I,VBAR(I),STD(I),VAR,SS(I)
   57 PRINT 58,I,VBAR(I),STD(I),VAR,SS(I)
   58 FORMAT(1H ,I3,2X4E15.8)
C     COMPUTE CORRELATIONS AND STORE IN SSV ARRAY
   14 FORMAT(8H I   J   K,4X53HCORRELATIONS OF VARIABLE I
      WITH VARIABLES J
     1 THROUGH K)
      IF(IPCH)60,60,59
   59 PUNCH 14
   60 PRINT 61
   61 FORMAT(1H ,8H I   J   K,4X53HCORRELATIONS OF VARIAB
     LE I WITH VARIABL
     1ES J THROUGH K)
   15 FORMAT(I2,2I3,8F9.6)
      NR=NV-1
      DO 19 I=1,NR
      IP=I+1
      DO 16 J=IP,NV
      SCP=SSV(I,J)-SV(I)*SV(J)*RN
   16 SSV(I,J)=SCP/SQRTF(SS(I)*SS(J))
      KS=IP
      DO 19 K=IP,NV,8
```

```
      KL=KS+7
      IF(KL-NV)18,18,17
   17 KL=NV
   18 IF(IPCH)62,62,81
   81 PUNCH 15,I,KS,KL,(SSV(I,J),J=KS,KL)
   62 PRINT 63,I,KS,KL,(SSV(I,J),J=KS,KL)
   63 FORMAT(1H ,I2,2I3,8F9.6)
   19 KS=KL+1
      GO TO 27
C     READ MEANS, STANDARD DEVIATIONS AND CORRELATIONS
      IF SS1 ON
   20 READ 10,PROB
      READ 99,NV,NOBS,IPCH
      IF(NOBS)51,51,52
   52 READ 11
      DO 21 I=1,NV
   21 READ 12,J,VBAR(J),STD(J),VAR,SS(J)
      READ 14
      NR=NV-1
      DO 25 I=1,NR
      IP=I+1
      DO 24 K=IP,NV,8
      READ 15,J,KS,KL,(SSV(J,L),L=KS,KL)
      IF(J-I)23,24,23
   22 FORMAT(1H ,65HCORRELATION CARDS OUT OF ORDER,PROB
     LEM IGNORED,PROGR
     1AM TERMINATED)
   23 PRINT 22
      GO TO 51
   24 CONTINUE
   25 CONTINUE
      EN=NOBS
C     READ DELETE CARDS
   26 FORMAT(A1,3I2)
   27 READ 26,LAST,NX,IY,IU
      IF(NX)51,51,275
  275 IF(NX+1-NV)33,30,29
   28 FORMAT(1H ,3HNX=I2,23HTOO BIG-PROBLEM IGNORED)
   29 PRINT 28,NX
      GO TO 27
   30 J=1
      DO 32 I=1,NV
      IF(I-IY)31,32,31
```

```
   31 IU(J)=I
      J=J+1
   32 CONTINUE
   33 DO 38 J=1,NX
      IF(IU(J)-IY)34,36,37
   34 IR=IU(J)
      R(1,J+1)=SSV(IR,IY)
      R(J+1,1)=SSV(IR,IY)
      GO TO 38
   35 FORMAT(1H ,18HDEPENDENT VARIABLE I3,18H SAME AS I
      ND. VAR.I3,16H-PR
     1OBLEM IGNORED)
   36 PRINT 35,IY,J
      GO TO 27
   37 IC=IU(J)
      R(1,J+1)=SSV(IY,IC)
      R(J+1,1)=SSV(IY,IC)
   38 CONTINUE
      R(1,1)=1.
      K=NX-1
      DO 39 I=1,K
      IR=IU(I)
      IP=I+1
      R(IP,IP)=1.
      IF(NX-1)399,399,398
  398 DO 39 J=IP,NX
      IC=IU(J)
      R(IP,J+1)=SSV(IR,IC)
      R(J+1,IP)=SSV(IR,IC)
   39 CONTINUE
  399 NR=NX+1
      NC=NR
      R(NR,NR)=1.
      CALL IV3030
      IF(R(1,1))40,40,41
   40 I=1
      GO TO 44
   41 R1=R(1,1)
      CSQ=1.-1./R1
      CM=SQRTF(CSQ)
      D=NOBS-NX-1
      SE=STD(IY)*SQRTF((FN-1.)/(D*R1))
      IF(IPCH)65,65,64
```

```
42 FORMAT( 5HY=VAR I2,3X1HI,8X1HB,15X2HSB,13X1HT,7X5
   HPAR R)
64 PUNCH 42,IY
65 PRINT 66,IY
66 FORMAT(1H ,5HY=VAR I2,3X1HI,8X1HB,15X2HSB,13X1HT,
   7X5HPAR R)
   BN=VBAR(IY)
   BC=-STD(IY)/R1
   DO 47 I=2,NR
   J=IU(I-1)
   B=BC*R(1,I)/STD(J)
   IF(R(I,I))44,44,45
43 FORMAT(1H ,17HDIAGONAL ELEMENT I2,37HIS NEGATIVE
   OR ZERO. PROBLEM
  1IGNORED.)
44 PRINT 43,I
   GO TO 27
45 RP=-R(1,I)/SQRTF(R(I,I)*R1)
   SB=B*SQRTF((1.-RP*RP)/D)/RP
   T=B/SB
   IF(IPCH)71,71,70
46 FORMAT(9XI2,2E16.8,F10.2,F10.4)
70 PUNCH 46,J,B,SB,T,RP
71 PRINT 72,J,B,SB,T,RP
72 FORMAT(1H ,9XI2,2E16.8,F10.2,F10.4)
47 BN=BN-B*VBAR(J)
   J=0
   IF(IPCH)74,74,73
73 PUNCH 46,J,BN
48 FORMAT( 9X11HMULTIPLE R=F6.4,11H, R SQUARE=F6.4,3
   X16HST ERROR OF E
  1ST=E14.8)
   PUNCH 48,CM,CSQ,SE
49 FORMAT(2X6HSOURCE,6X2HDF,8X2HSS,14X2HMS,13X1HF)
   PUNCH 49
74 PRINT 72,J,BN
   PRINT 75,CM,CSQ,SE
   PRINT 76
75 FORMAT(1H ,9X11HMULTIPLE R=F6.4,11H, R SQUARE=F6.
   4,3X16HST ERROR O
  1F EST=E14.8)
76 FORMAT(1H ,2X6HSOURCE,6X2HDF,8X2HSS,14X2HMS,13X1H
   F)
```

```
50 FORMAT(2A4,A2,I6,2E16.8,F10.2)
80 FORMAT(1H ,2A4,A2,I6,2E16.8,F10.2)
   S=.446445
   O=.63560059
   VA=.4547
   SSR=CSQ*SS(IY)
   XN=NX
   RMS=SSR/XN
   SSA=SS(IY)-SSR
   AMS=SSA/D
   FR=RMS/AMS
   IF(IPCH)91,91,90
90 PUNCH 50,S,O,VA,NX,SSR,RMS,FR
91 PRINT 80,S,O,VA,NX,SSR,RMS,FR
   K=NOBS-1-NX
   S=.41425664
   O=.63000059
   IF(IPCH)93,93,92
92 PUNCH 50,S,O,VA,K,SSA,AMS
93 PRINT 80,S,O,VA,K,SSA,AMS
   S=0.
   O=.63566341
   VA=.53
   K=NOBS-1
   IF(IPCH)79,79,78
78 PUNCH 50,S,O,VA,K,SS(IY)
79 PRINT 80,S,O,VA,K,SS(IY)
   IF(LAST-14000)27,2,2
51 CALL EXIT
   END
```

```
C                          SUBROUTINE IV3030
C
C
C
C                    DO NOT CHANGE THIS DECK IN ANY WAY
C
C
C       IF YOU MUST CHANGE SOME PART OF THIS PROGRAM DUPL
        ICATE THE DECK AN
C       MODIFY THE DUPLICATED DECK.
C
C
C       PURPOSE  GIVEN MATRICES X AND Y,THIS PROGRAM WILL
         COMPUTE Z (THE I
C                OF X) AND ZY.
C
C       METHOD   THE PROGRAM PIVOTS ON THE LARGEST ELEMEN
        T IN ABSOLUTE 5AL
C                A COLUMN. THE INVERSE OF X REPLACES X.
C
C       USING THE PROGRAM  LET A BE THE N BY M MATRIX COM
        POSED OF THE BLOC
C                AND Y , THAT IS A=(X,Y).  THE VALUES OF
        N, M, AND A MUST
C                STORED IN COMMON PRIOR TO CALLING THE PR
        OGRAM - SEE THE C
C                STATEMENT IN THE PROGRAM. THE A ARRAY IS
         REPLACED BY (Z,Z
C                WHERE Z IS THE INVERSE OF X.  IF THE MAT
        RIX IS SINGULAR T
C                FOLLOWING MESSAGE IS TYPED   MATRIX IS S
        INGULAR   .  THE C
C                THEN HALTS IN THE MANUAL MODE.  IF THE S
        TART KEY IS PUSHE
C                SUBROUTINE RETURNS CONTROL TO THE CALLIN
        G PROGRAM.
C
C
        SUBROUTINE IV3030
        DIMENSION A(30,30),INT(30)
        COMMON N,M,A
        DO 1 I=1,N
      1 INT(I)=I
        IW=1
```

```
     2 IF(IW-N) 101,5,101
C      FIND THE LEAST I GREATER THAN OR EQUAL TO IW SUCH
        THAT A(I,IW)
C      IS GREATER THAN OR EQUAL TO A(J,IW) FOR ALL J GRE
       ATER THAN
C      OR EQUAL TO IW.
   101 I=IW
       K=IW+1
       DO 4 J=K,N
       IF(ABSF(A(J,IW))-ABSF(A(I,IW))) 4,4,3
     3 I=J
     4 CONTINUE
       IF(I-IW) 7,5,7
C      INTERCHANGE  ROWS
     7 DO 8 J=1,M
       Z=A(IW,J)
       A(IW,J)=A(I,J)
     8 A(I,J)=Z
       K=INT(IW)
       INT(IW)=INT(I)
       INT(I)=K
     5 IF(A(IW,IW)) 9,6,9
     6 TYPE 202
   202 FORMAT (18HMATRIX IS SINGULAR)
       PAUSE
       RETURN
     9 Z=1.0/A(IW,IW)
       IF(IW-1) 13,13,10
    10 K=IW-1
       DO 11 I=1,K
    11 A(IW,I)=A(IW,I)*Z
       IF(N-IW)12,12,13
    12 IF(M-N)15,15,13
    13 K=IW+1
       DO 14 I=K,M
    14 A(IW,I)=A(IW,I)*Z
    15 IF(IW-N)16,23,23
    16 DO 22 I=K,N
       W=A(I,IW)
       IF(W) 17,22,17
    17 IF(IW-1)20,20,18
    18 JJ=IW-1
       DO 19 J=1,JJ
```

```
   19 A(I,J)=A(I,J)-W*A(IW,J)
   20 JJ=IW+1
      DO 21 J=JJ,M
   21 A(I,J)=A(I,J)-W*A(IW,J)
      A(I,IW)= -W*Z
   22 CONTINUE
   23 A(IW,IW)=Z
      IF (N-IW) 25,25,24
   24 IW=IW+1
      GO TO 2
C     BEGIN WORK ON UPPER OF DIAGONAL ELEMENTS
   25 DO 32 IW=2,N
      K=IW-1
      DO 32 I=1,K
      W=A(I,IW)
      IF(W) 26,32,26
   26 DO 27 J=1,K
   27 A(I,J)=A(I,J)-W*A(IW,J)
      IF (N-IW) 29,28,29
   28 IF(M-N)29,31,29
   29 L=IW+1
      DO 30 J=L,M
   30 A(I,J)=A(I,J)-W*A(IW,J)
   31 A(I,IW)=-W*A(IW,IW)
   32 CONTINUE
C     IF ROWS WERE INTERCHANGED INTERCHANGE THE COLUMNS
      JJ=N-1
      DO 37 I=1,JJ
      IF(INT(I)-I) 33,37,33
C     FIND A J GREATER THAN I SO THAT INT(J)=I
   33 DO 34 J=I,N
      IF(INT(J)-I) 34,35,34
   34 CONTINUE
C     INTERCHANGE THE ITH AND JTH COLUMNS
   35 DO 36 K=1,N
      Z=A(K,I)
      A(K,I)=A(K,J)
   36 A(K,J)=Z
      INT(J)=INT(I)
   37 CONTINUE
      RETURN
      END
```

MULTIPLE LINEAR REGRESSION ANALYSIS PROGRAM

(NON-MATRIX INVERSION TYPE)

```
**  R.C.HUNTSINGER
C       LEAST SQ - MULTIPLE REGRESSION
        DIMENSION NEW(33),XX(33,33),V(33),R(33,33 ),
             NU(33),XSUM(3
       13),XMEAN(33),XSIGMA(33),VARIAN(33),RCO (32,33)
        COMMON NV,V
  999   CONTINUE
        III=-1
        READ 1, NV,NOBS
        MAX=NV
        DO 171 II=1,NV
        DO 171 JJ=II,NV
  171   XX(II,JJ)=0.0
        DO 172 JJ=1,NV
  172   XSUM(JJ)=0.0
      1 FORMAT(2I4)
        DO 7 K=1,NOBS
        CALL READX
        DO 131 IR=1,NV
  131   XSUM(IR)=XSUM(IR)+V(IR)
        DO 132 II=1,NV
        DO 132 JJ=II,NV
  132   XX(II,JJ)=XX(II,JJ)+V(II)*V(JJ)
  7     CONTINUE
        DO 834 II=1,NV
        DO 834 JJ=II,NV
  834   XX(JJ,II)=XX(II,JJ)
     60 FORMAT(40I2)
        PRINT 451
  451   FORMAT(52H  MULTIPLE LINEAR REGRESSION - R.C.HUNT
        SINGER , P.E.,/)
        RNOBS=NOBS
        PRINT 450,NOBS
  450   FORMAT(27H  NUMBER OF OBSERVATIONS = ,I4,//)
        PRINT 402
  402   FORMAT(46H       MEAN            STD DEVIATION    V
        ARIANCE,//)
        DO 401 ID=2,NV
        XMEAN(ID)=XSUM(ID)/RNOBS
        VARIAN(ID)=(XX(ID,ID)-(XSUM(ID)**2)/RNOBS)/(RNOBS
        -1.0)
        XSIGMA(ID)=SQRTF(VARIAN(ID))
  401   PRINT 403,XMEAN(ID),XSIGMA(ID),VARIAN(ID),ID
```

```
403   FORMAT(3X,E14.7,3X,E14.7,3X,E14.7,5X,I4,/)
      IF(SENSE SWITCH 3)430,431
431   IF(SENSE SWITCH 4) 430,439
430   NNV=NV-1
      DO 410 IX=2,NNV
      IXX=IX+1
      DO 410 IY=IXX,NV
410   RCO (IX,IY)=(RNOBS*XX(IX,IY)-XSUM(IX)*XSUM(IY))/S
      QRTF((RNOBS*XX(
     1IX,IX)-XSUM(IX)**2)*(RNOBS*XX(IY,IY)-XSUM(IY)**2)
      )
      DO 411 IX=2,NNV
      IXX=IX+1
      DO 411 IY=IXX,NV
      IF(SENSE SWITCH 3)491,492
 491  PRINT 412,IX,IY,RCO (IX,IY)
492   IF(SENSE SWITCH 4)493,411
482   FORMAT(I4,I4,F17.5)
493   CONTINUE
      I1=IX-1
      I2=IY-1
      PUNCH 482,I1,I2,RCO (IX,IY)
412   FORMAT(4X,I4,4X,I4,4X,F15.8)
411   CONTINUE
439   CONTINUE
  50  CONTINUE
  90  FORMAT(80H
  901                                                    )
      READ 90
      PRINT 90
      PRINT 201
      READ 60,KONT,(NU(JA),JA=1,33)
      NEW(1)=1
      NEW(2)=NU(KONT)
      DO 705 IX=3,33
 705  NEW(IX)=0
      III=III*(-1)
      GO TO 531
 888  DO 706 IX=1,33
 706  NEW(IX)=NU(IX)
      III=III*(-1)
      GO TO 531
 531  KOUNT=0
```

```
      DO 66 I=1,33
      IF(NEW(I))63,63,61
   61 KOUNT = KOUNT + 1
      IF(NEW(I)-MAX) 66,66,62
   62 PAUSE
      GO TO 50
   63 IP1=I+1
      DO 65 J=IP1,33
   65 NEW(J-1)=NEW(J)
      NEW(33)=0
   66 CONTINUE
      IF(KOUNT)67,999,67
   67 IF(KOUNT-MAX)69,69,68
   68 PRINT 70
   70 FORMAT(30HOCARD ERROR, PROBLEM IGNORED
      /)
      GO TO 50
   69 DO 74 I=1,KOUNT
      DO 72 K=1,KOUNT
      IN=NEW(I)
      KN=NEW(K)
   72 R(I,K)=XX(IN,KN)
   74 CONTINUE
      M=KOUNT
      KSTOP = M-1
      DO 19 I=1,KSTOP
      PRINT 100, NEW(I),R(I,I)
  100 FORMAT(1H ,I4,4X,E14.7)
      IF(R(I,I))19,19,8
    8 IPL1= I+1
      DO 101 J=IPL1, M
  101 R(I,J)=R(I,J)/R(I,I)
      R(I,I)=R(I,I)**.5
      DO 18 J=1,M
      IF(I-J)14,18,14
   14 DO 15 K=IPL1, M
   15 R(J,K)=R(J,K)-(R(J,I)*R(I,K))
      IF(I-J) 17,18,18
   17 R(J,I)=R(J,I)/R(I,I)
   18 CONTINUE
   19 CONTINUE
   13 FORMAT(4X,I4,2X,E14.7,/)
  200 FORMAT(1H ,10E12.6)
```

```
  201 FORMAT(1H ,I4,(1H ,10E12.6)   )
      PRINT 100, NEW(M),R(M,M)
      IF(III)28,28,27
   27 TSS=R(M,M)
      GO TO 888
   28 RSQ=(TSS-R(M,M))/TSS
      RCOR=SQRTF(RSQ)
      PRINT 87,RSQ,RCOR
   87 FORMAT(7H R**2= ,E13.7,4H R= ,E13.7)
      R(M,M)=R(M,M)**.5
      PRINT 201
      DO 80 K=1,M
      PRINT 13,NEW(K),R(K,M)
      IF(K-M) 79,80,79
   79 CONTINUE
  212 CONTINUE
   80 CONTINUE
   47 FORMAT(1H ,3E14.7)
      DO 77 LY=1,M
      PRINT 47,(R(LX,LY),LX=1,M)
   77 CONTINUE
      XNOBS=NOBS
      DV=M-1
      NY=NEW(M)
      BSUM=0.0
      DO 432 IE=1,KSTOP
      NL=NEW(IE)
  432 BSUM=BSUM+R(IE,M)*(XX(NL,NY)-(XSUM(NL)*XSUM(NY)/X
      NOBS))
      SIGMA=SQRTF(( XX(NY,NY)-(XSUM(NY)**2)/XNOBS-BSUM)
      /(XNOBS-DV-1.))
      PRINT 433 ,SIGMA
  433 FORMAT  (/,9H SIGMA = ,E14.7,///)
 1011 FORMAT(//,52H ----------------------------------
      ----------------)
      PRINT 1011
   88 CONTINUE
      GO TO 50
      END
```

DESCRIPTION OF THE INTERMEDIATE DATA OUTPUT FORMAT AND

DEFINITIONS OF SYMBOLS USED

The symbols in the top section of each data group are defined as follows:

T(1) through T(10), CTL1 & CTL2, and = temperatures at the thermowell locations indicated in Figure 4 (°F)

PRS1 and PRS2 = pressures on the automatic control valve diaphrams (psig)

NORM = normality of Silver Nitrate used in the chloride titrations.

XMV = reading in millivolts on a vacuum tube voltmeter measuring the voltage drop across the thermopile used to obtain the temperature difference between the two stages.

TPR = total back pressure on the main brine pump (psig).

ST1 and ST2 = pressures of stage one and stage two respectively (psig).

SP = set point on automatic controller on the steam control valve (°F).

XML = milliliters of $AgNO_3$ used to titrate 2 cc of brine

DIA = submerged orifice diameter if round or orifice edge length of square (inches).

DHFLO = metering orifice manometer reading (inches times 5).

DHSTG = stage pressure differential manometer reading (inches times 5).

DHWTR = difference in depth of brine between stage one and stage two (inches).

Variables V(2) through V(31) are defined in terms of the symbols defined at the end of the theory section as follows:

$$V(2) = \frac{D \triangle P \, g_c^{1/2}}{\mu \lambda^{1/2}}$$

$$V(3) = \frac{\rho \lambda}{\triangle P}$$

$$V(4) = \frac{D \rho \lambda^{1/2} g_c^{1/2}}{\mu}$$

$$V(5) = \frac{\Delta t C_p}{\lambda}$$

$$V(6) = \frac{Q \rho^{5/2} \lambda g_c^{1/2}}{(\Delta P)^{1/2} \mu^2}$$

$$V(7) = \frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}}$$

$$V(8) = \ln\left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}}\right)$$

$$V(9) = \ln\left(\frac{\rho \lambda}{\Delta P}\right)$$

$$V(10) = \ln \frac{D \rho \lambda^{1/2} g_c^{1/2}}{\mu}$$

$$V(11) = \ln\left(\frac{\Delta t\, C_p}{\lambda}\right)$$

$$V(12) = \ln\left(\frac{Q\, \rho^{5/2}\, \lambda\, g_c^{1/2}}{(\Delta P)^{1/2}\, \mu^2}\right)$$

$$V(13) = \ln\left(\frac{Q(\Delta P)^2\, g_c^{1/2}}{\mu^2\, \lambda^{3/2}}\right)$$

V(14) = length of diameter or edge of orifice in feet

V(15) = ΔP = DELP

V(16) = μ = VISC

V(17) = λ = XLAM

V(18) = Q

V(19) = ρ = RHO

V(20) = Δt = DELT

V(21) = C_p = CSUBP

V(22) = T(10) in °F

V(23) = ln V(14)

V(24) = ln (Δ P)

V(25) = ln (μ)

V(26) = ln (λ)

V(27) = ln (Q)

V(28) = ln (ρ)

V(29) = ln (Δ t)

V(30) = ln (C_p)

V(31) = brine concentration in the stage (sea water = 1.0)

= conc

PST1 and PST2 = pressure in stages one and two in psia

DELT = V(20) = Δ t

T(8) and T(10) = as previously defined (°F)

DT 8 10 = T(8) - T(10) °F

TX = T(10) + DELT

DELP = Δ P in psi

CONC = V(31)

PATM = atmospheric pressure (psi)

For a few runs the values of ST1 and PATM were not obtained. The values are listed as a minus zero for those cases and the values of PST1 and PST2 have no meaning.

TABLE III. INTERMEDIATE DATA FOR SQUARE ORIFICES

FOR STAGE ONE CONDITIONS

```
RUN NO.  SA2 DATE 6-6
   T(1) THROUGH T(10)
   1.7960000E+02    1.9400000E+02    1.9310000E+02
   1.5980000E+02    1.8500000E+02    1.6880000E+02
   1.5800000E+02    1.9220000E+02    1.8500000E+02
   1.8500000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02    6.2000000E+00    1.8716000E+02
   1.5700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02    1.2200000E+00   -1.9652406E+00
  -3.4883021E+00    2.0600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01    1.1200000E+01    1.8500000E+01
  -1.1666666E-01    1.2096056E+01

   V(2) THROUGH V(31)
   5.1441738E+02    1.7604659E+05    9.0561425E+07
   8.3080474E-03    6.6859585E+15    5.1415597E+02
   6.2430349E+00    1.2078503E+01    1.8321538E+01
  -4.7905306E+00    3.6438785E+01    6.2425266E+00
   6.1120560E-02    2.6177004E+02    7.2659408E-01
   7.6402848E+05    1.2955310E+02    6.0316762E+01
   8.1333333E+00    7.8044077E+02    1.8500000E+02
  -2.7949069E+00    5.5674664E+00   -3.1938730E-01
   1.3546360E+01    4.8640908E+00    4.0996100E+00
   2.0959708E+00    6.6598588E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0130E+01   8.6077E+00   8.1333E+00   1.9220E+02
1.8500E+02   7.2000E+00   1.9313E+02   1.8178E+00

CONC. =  0.0000000E-99
```

```
RUN NO.  SA3 DATE 6-6
   T(1) THROUGH T(10)
   1.9490000E+02   2.0750000E+02   2.0660000E+02
   1.7240000E+02   1.9580000E+02   1.8140000E+02
   1.7240000E+02   2.0480000E+02   1.9580000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2200000E+02   6.6000000E+00   1.9850000E+02
   1.7000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.4200000E+00   1.4000000E+00
  -1.1300133E+00   2.2100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.2000000E+01   2.6400000E+01
  -1.0000000E-01   1.2091143E+01

   V(2) THROUGH V(31)
   7.9963063E+02   1.2181657E+05   9.7408266E+07
   9.7619328E-03   6.7217220E+15   1.2978219E+03
   6.6841499E+00   1.1710271E+01   1.8394421E+01
  -4.6292648E+00   3.6444120E+01   7.1684426E+00
   6.1120560E-02   3.7355293E+02   6.6962432E-01
   7.5813698E+05   1.3481534E+02   6.0022055E+01
   9.4666666E+00   7.8178335E+02   1.9580000E+02
  -2.7949069E+00   5.9230597E+00  -4.0103843E-01
   1.3538619E+01   4.9039059E+00   4.0947120E+00
   2.2477768E+00   6.6615776E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3491E+01   1.0961E+01   9.4666E+00   2.0480E+02
1.9580E+02   9.0000E+00   2.0526E+02   2.5941E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA4 DATE 6-6
   T(1) THROUGH T(10)
    2.0660000E+02    2.1920000E+02    2.1740000E+02
    1.8320000E+02    2.0660000E+02    1.9310000E+02
    1.8320000E+02    2.1632000E+02    2.0660000E+02
    2.0660000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.3500000E+02    7.0000000E+00    2.0840000E+02
    1.8000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
    1.2000000E+02    1.6100000E+00    4.5000000E+00
    1.3000000E+00    2.3300000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    6.5000000E-01    1.3200000E+01    3.4800000E+01
   -1.6666666E-01    1.2076403E+01

   V(2) THROUGH V(31)
    1.1900915E+03    9.1221252E+04    1.0856163E+08
    1.1184155E-02    7.6611750E+15    3.0482849E+03
    7.0817854E+00    1.1421043E+01    1.8502828E+01
   -4.4932572E+00    3.6574941E+01    8.0223343E+00
    6.1120560E-02    4.9241069E+02    5.9543505E-01
    7.5215983E+05    1.4239001E+02    5.9719117E+01
    1.0733333E+01    7.8375214E+02    2.0660000E+02
   -2.7949069E+00    6.1993131E+00   -5.1846296E-01
    1.3530704E+01    4.9585698E+00    4.0896521E+00
    2.3733541E+00    6.6640928E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6576E+01   1.3376E+01   1.0733E+01   2.1632E+02
2.0660E+02   9.7200E+00   2.1733E+02   3.4195E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA5 DATE 6-6
   T(1) THROUGH T(10)
   2.1740000E+02   2.3000000E+02   2.2910000E+02
   1.9400000E+02   2.1740000E+02   2.0480000E+02
   1.9580000E+02   2.2748000E+02   2.1740000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02   7.4000000E+00   2.1956000E+02
   1.9200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.6700000E+00   8.7000000E+00
   4.8000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.5400000E+01   4.3700000E+01
  -1.6666666E-01   1.2076403E+01

   V(2) THROUGH V(31)
   1.6653562E+03   7.1743947E+04   1.1947922E+08
   1.1702816E-02   9.0166712E+15   6.5400900E+03
   7.4177943E+00   1.1180858E+01   1.8598653E+01
  -4.4479257E+00   3.6737851E+01   8.7857062E+00
   6.1120560E-02   6.1834331E+02   5.3632093E-01
   7.4658665E+05   1.5543133E+02   5.9420283E+01
   1.1133333E+01   7.8477546E+02   2.1740000E+02
  -2.7949069E+00   6.4270438E+00  -6.2302254E-01
   1.3523266E+01   5.0462040E+00   4.0846356E+00
   2.4099435E+00   6.6653976E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0776E+01   1.6876E+01   1.1133E+01   2.2748E+02
2.1740E+02   1.0080E+01   2.2853E+02   4.2940E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB1 DATE 6-7
   T(1) THROUGH T(10)
   1.7600000E+02    1.9760000E+02    1.9580000E+02
   1.6700000E+02    1.9040000E+02    1.7420000E+02
   1.6700000E+02    1.9580000E+02    1.8968000E+02
   1.8914000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02    6.0000000E+00    1.9040000E+02
   1.6400000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02    8.5500000E-01   -1.6704545E+00
  -2.6530748E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    1.0500000E+01    1.3500000E+01
   1.6666666E-02    1.2071490E+01

   V(2) THROUGH V(31)
   4.4901280E+02    2.4082566E+05    1.0813380E+08
   5.8296179E-03    7.6569617E+15    2.6902942E+02
   6.1070513E+00    1.2391828E+01    1.8498879E+01
  -5.1448038E+00    3.6574391E+01    5.5948207E+00
   7.2404356E-02    1.9102138E+02    7.1998234E-01
   7.6320679E+05    1.2479226E+02    6.0275735E+01
   5.7000000E+00    7.8056212E+02    1.8914000E+02
  -2.6254888E+00    5.2523853E+00   -3.2852859E-01
   1.3545284E+01    4.8266504E+00    4.0989296E+00
   1.7404661E+00    6.6600143E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0401E+01   9.4184E+00   5.7000E+00   1.9580E+02
1.8914E+02   6.6600E+00   1.9484E+02   1.3265E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB2 DATE 6-7
   T(1) THROUGH T(10)
   1.9400000E+02    2.0480000E+02    2.0390000E+02
   1.7600000E+02    1.9580000E+02    1.8320000E+02
   1.7600000E+02    2.0300000E+02    1.9724000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1300000E+02    6.5000000E+00    1.9760000E+02
   1.7300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1700000E+02    1.1000000E+00    5.0000000E-01
  -1.3756684E+00    2.1200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    1.7200000E+01    1.9600000E+01
  -8.3333333E-02    1.2066577E+01

   V(2) THROUGH V(31)
   6.8961406E+02    1.6444806E+05    1.1340570E+08
   7.5484587E-03    9.2495363E+15    8.4342942E+02
   6.5361321E+00    1.2010350E+01    1.8546482E+01
  -4.8864118E+00    3.6763349E+01    6.7374762E+00
   7.2404356E-02    2.7733475E+02    6.8240964E-01
   7.5918115E+05    1.6542187E+02    6.0074152E+01
   7.3333333E+00    7.8145196E+02    1.9580000E+02
  -2.6254888E+00    5.6252252E+00   -3.8212515E-01
   1.3539995E+01    5.1084990E+00    4.0955796E+00
   1.9924301E+00    6.6611536E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.2566E+01   1.0690E+01   7.3333E+00   2.0300E+02
1.9580E+02   7.2000E+00   2.0313E+02   1.9259E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB3 DATE 6-7
   T(1) THROUGH T(10)
   2.0570000E+02    2.1740000E+02    2.1740000E+02
   1.9040000E+02    2.0750000E+02    1.9580000E+02
   1.8860000E+02    2.1560000E+02    2.0750000E+02
   2.0660000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2600000E+02    6.9000000E+00    2.0876000E+02
   1.8500000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1500000E+02    1.2500000E+00    4.0000000E+00
   1.6000000E+00    2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    2.2500000E+01    2.6900000E+01
  -1.6666666E-02    1.2071490E+01

   V(2) THROUGH V(31)
   1.0632815E+03    1.1832057E+05    1.2580807E+08
   8.6654787E-03    1.1257804E+16    2.3377804E+03
   6.9691151E+00    1.1681152E+01    1.8650268E+01
  -4.7484081E+00    3.6959837E+01    7.7569572E+00
   7.2404356E-02    3.8062779E+02    6.0977792E-01
   7.5335639E+05    1.9212823E+02    5.9780603E+01
   8.3333333E+00    7.8338326E+02    2.0660000E+02
  -2.6254888E+00    5.9418219E+00   -4.9466045E-01
   1.3532293E+01    5.2581630E+00    4.0906812E+00
   2.1202635E+00    6.6636220E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6071E+01   1.3671E+01   8.3333E+00   2.1560E+02
2.0660E+02   9.0000E+00   2.1493E+02   2.6432E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB4 DATE 6-7
   T(1) THROUGH T(10)
   2.1740000E+02   2.2820000E+02   2.2730000E+02
   2.0030000E+02   2.1920000E+02   2.0660000E+02
   2.0030000E+02   2.2568000E+02   2.1920000E+02
   2.1830000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3900000E+02   7.2000000E+00   2.1974000E+02
   1.9600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1500000E+02   1.3100000E+00   8.0000000E+00
   4.9000000E+00   2.3700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   2.4500000E+01   3.4200000E+01
  -1.0000000E-01   1.2066577E+01

   V(2) THROUGH V(31)
   1.5236246E+03   9.1828192E+04   1.3991169E+08
   9.1694824E-03   1.2907794E+16   5.0514065E+03
   7.3288473E+00   1.1427674E+01   1.8756521E+01
  -4.6918744E+00   3.7096607E+01   8.5274219E+00
   7.2404356E-02   4.8392084E+02   5.4319766E-01
   7.4733669E+05   2.0137178E+02   5.9461253E+01
   8.7333333E+00   7.8465925E+02   2.1830000E+02
  -2.6254888E+00   6.1819213E+00  -6.1028200E-01
   1.3524271E+01   5.3051528E+00   4.0853248E+00
   2.1671471E+00   6.6652495E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0066E+01   1.6966E+01   8.7333E+00   2.2568E+02
2.1830E+02   7.3800E+00   2.2703E+02   3.3605E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB5 DATE 6-7
   T(1) THROUGH T(10)
   2.1830000E+02    2.2820000E+02    2.2640000E+02
   2.0480000E+02    2.1920000E+02    2.0930000E+02
   2.0480000E+02    2.2460000E+02    2.1920000E+02
   2.1920000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02    6.7000000E+00    2.2028000E+02
   2.0100000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1700000E+02    1.1700000E+00    8.0000000E+00
   5.1000000E+00    2.3600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    2.2800000E+01    3.1100000E+01
  -1.0000000E-01    1.2066577E+01

   V(2) THROUGH V(31)
   1.3851016E+03    1.0098527E+05    1.3987487E+08
   8.1893300E-03    1.3002657E+16    4.0122464E+03
   7.2335287E+00    1.1522729E+01    1.8756258E+01
  -4.8049231E+00    3.7103930E+01    8.2971065E+00
   7.2404356E-02    4.4005667E+02    5.4335500E-01
   7.4735334E+05    1.9354021E+02    5.9462163E+01
   7.8000000E+00    7.8465683E+02    2.1920000E+02
  -2.6254888E+00    6.0869035E+00   -6.0999239E-01
   1.3524293E+01    5.2654852E+00    4.0853401E+00
   2.0541237E+00    6.6652464E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0066E+01   1.7166E+01   7.8000E+00   2.2460E+02
2.1920E+02   5.4000E+00   2.2700E+02   3.0559E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SC1 DATE 6-8
   T(1) THROUGH T(10)
   1.6790000E+02    1.9850000E+02    1.9760000E+02
   1.5440000E+02    1.8680000E+02    1.6700000E+02
   1.4900000E+02    1.9580000E+02    1.8770000E+02
   1.8860000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02    5.4000000E+00    1.8752000E+02
   1.5000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02    1.2800000E+00   -1.4739304E+00
  -2.9969919E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    4.4000000E+00    2.0200000E+01
   6.6666666E-02    1.2105882E+01

   V(2) THROUGH V(31)
   4.5074272E+02    1.6056595E+05    7.2373929E+07
   8.7420964E-03    3.7679407E+15    3.6472960E+02
   6.1108967E+00    1.1986460E+01    1.8097356E+01
  -4.7396052E+00    3.5865305E+01    5.8991562E+00
   4.7956133E-02    2.8582459E+02    7.1131897E-01
   7.6209882E+05    7.3597319E+01    6.0220140E+01
   8.5333333E+00    7.8074314E+02    1.8860000E+02
  -3.0374685E+00    5.6553783E+00   -3.4063432E-01
   1.3543831E+01    4.2986085E+00    4.0980068E+00
   2.1439800E+00    6.6602462E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0631E+01   9.1088E+00   8.5333E+00   1.9580E+02
1.8860E+02   7.2000E+00   1.9713E+02   1.9848E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SC2 DATE 6-8
   T(1) THROUGH T(10)
   1.8140000E+02   2.0840000E+02   2.0660000E+02
   1.6520000E+02   1.9760000E+02   1.7960000E+02
   1.6160000E+02   2.0660000E+02   1.9670000E+02
   1.9580000E+02

 CTL1,PRS1,RGD,CTL2,PRS2
   2.1200000E+02   6.0000000E+00   1.9760000E+02
   1.6200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02   1.5000000E+00   1.4000000E+00
  -1.3756684E+00   2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   5.7000000E+00   2.8400000E+01
  -8.3333333E-02   1.2100969E+01

   V(2) THROUGH V(31)
   6.7836343E+02   1.1317420E+05   7.6773241E+07
   1.0316591E-02   4.1993415E+15   9.7456962E+02
   6.5196831E+00   1.1636683E+01   1.8156366E+01
  -4.5740019E+00   3.5973704E+01   6.8819959E+00
   4.7956133E-02   4.0185240E+02   6.6635304E-01
   7.5787545E+05   8.6582485E+01   6.0008973E+01
   1.0000000E+01   7.8186915E+02   1.9580000E+02
  -3.0374685E+00   5.9960848E+00  -4.0593565E-01
   1.3538274E+01   4.4610975E+00   4.0944941E+00
   2.3025850E+00   6.6616874E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3500E+01   1.0725E+01   1.0000E+01   2.0660E+02
1.9580E+02   1.0800E+01   2.0580E+02   2.7906E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SC3 DATE 6-8
   T(1) THROUGH T(10)
   2.0120000E+02   2.1290000E+02   2.1200000E+02
   1.7060000E+02   1.9940000E+02   1.8320000E+02
   1.6880000E+02   2.1020000E+02   1.9850000E+02
   1.9850000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2700000E+02   6.2000000E+00   2.0030000E+02
   1.6600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02   1.8900000E+00   3.7000000E+00
  -7.8609625E-01   2.2600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   8.5000000E+00   3.8200000E+01
  -1.1666666E-01   1.2100969E+01

   V(2) THROUGH V(31)
   9.6185140E+02   8.3666150E+04   8.0474402E+07
   1.3058616E-02   5.0597115E+15   2.4989164E+03
   6.8688599E+00   1.1334589E+01   1.8203449E+01
  -4.3383071E+00   3.6160085E+01   7.8236124E+00
   4.7956133E-02   5.4051978E+02   6.3321887E-01
   7.5526237E+05   1.1023708E+02   5.9877483E+01
   1.2600000E+01   7.8275254E+02   1.9850000E+02
  -3.0374685E+00   6.2925312E+00  -4.5693914E-01
   1.3534820E+01   4.7026333E+00   4.0923005E+00
   2.5336968E+00   6.6628166E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5800E+01   1.1314E+01   1.2600E+01   2.1020E+02
1.9850E+02   1.1700E+01   2.1110E+02   3.7536E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SD1 DATE 6-9
   T(1) THROUGH T(10)
   1.9040000E+02    2.1920000E+02    2.1740000E+02
   1.7600000E+02    2.0570000E+02    1.8770000E+02
   1.7420000E+02    2.1632000E+02    2.0570000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2400000E+02    6.9000000E+00    2.0570000E+02
   1.7300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2500000E+02    1.6700000E+00    4.2000000E+00
   1.0000000E+00    2.2400000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    6.8000000E+00    3.7500000E+01
  -6.6666666E-02    1.2061664E+01

   V(2) THROUGH V(31)
   9.9187813E+02    8.4782911E+04    8.4094310E+07
   1.1587064E-02    4.8739410E+15    2.3286800E+03
   6.8996002E+00    1.1347849E+01    1.8247449E+01
  -4.4578659E+00    3.6122679E+01    7.7530568E+00
   4.7956133E-02    5.3061497E+02    6.0375925E-01
   7.5285807E+05    9.6447970E+01    5.9755064E+01
   1.1133333E+01    7.8354031E+02    2.0480000E+02
  -3.0374685E+00    6.2740366E+00   -5.0457975E-01
   1.3531632E+01    4.5690036E+00    4.0902539E+00
   2.4099435E+00    6.6638225E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6261E+01   1.3061E+01   1.1133E+01   2.1632E+02
2.0480E+02   1.1520E+01   2.1593E+02   3.6848E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SD2 DATE 6-9
   T(1) THROUGH T(10)
   2.0660000E+02    2.2370000E+02    2.2370000E+02
   1.8140000E+02    2.1020000E+02    1.9400000E+02
   1.8140000E+02    2.2280000E+02    2.1020000E+02
   2.1020000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3600000E+02    6.6000000E+00    2.1020000E+02
   1.7700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2500000E+02    1.9200000E+00    6.5000000E+00
   2.3000000E+00    2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    1.1000000E+01    4.5800000E+01
  -1.1666666E-01    1.2051838E+01

   V(2) THROUGH V(31)
   1.3010158E+03    6.8880416E+04    8.9614509E+07
   1.3398281E-02    6.6471787E+15    5.3382485E+03
   7.1709006E+00    1.1140127E+01    1.8311027E+01
  -4.3126288E+00    3.6432968E+01    8.5826528E+00
   4.7956133E-02    6.4805774E+02    5.6349500E-01
   7.4934259E+05    1.2820842E+02    5.9570199E+01
   1.2800000E+01    7.8436746E+02    2.1020000E+02
  -3.0374685E+00    6.4739797E+00   -5.7359681E-01
   1.3526951E+01    4.8536572E+00    4.0871554E+00
   2.5494451E+00    6.6648776E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8551E+01   1.4351E+01   1.2800E+01   2.2280E+02
2.1020E+02   1.2600E+01   2.2300E+02   4.5004E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SD3 DATE 6-9
   T(1) THROUGH T(10)
   2.1830000E+02   2.3360000E+02   2.3360000E+02
   1.9040000E+02   2.1920000E+02   2.0300000E+02
   1.9040000E+02   2.3090000E+02   2.1920000E+02
   2.1920000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02   6.8000000E+00   2.1848000E+02
   1.8700000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   2.0700000E+00   1.0100000E+01
   4.9000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   1.2000000E+01   5.7800000E+01
  -1.6666666E-01   1.2051838E+01

   V(2) THROUGH V(31)
   1.7515342E+03   5.3965681E+04   9.4522733E+07
   1.4560125E-02   6.9063186E+15   1.0208284E+04
   7.4682473E+00   1.0896103E+01   1.8364350E+01
  -4.2294686E+00   3.6471213E+01   9.2309548E+00
   4.7956133E-02   8.1785453E+02   5.3000000E-01
   7.4432307E+05   1.3481534E+02   5.9296936E+01
   1.3800000E+01   7.8532155E+02   2.1920000E+02
  -3.0374685E+00   6.7066844E+00  -6.3487827E-01
   1.3520230E+01   4.9039059E+00   4.0825576E+00
   2.6246685E+00   6.6660932E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.2151E+01   1.6951E+01   1.3800E+01   2.3090E+02
2.1920E+02   1.1700E+01   2.3300E+02   5.6795E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA1 DATE 6-6
   T(1) THROUGH T(10)
   1.7060000E+02   1.9220000E+02   1.8860000E+02
   1.6520000E+02   1.8320000E+02   1.6880000E+02
   1.6340000E+02   1.8860000E+02   1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9700000E+02   5.2000000E+00   1.8410000E+02
   1.6100000E+02   6.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   8.7400000E-01  -2.9969919E+00
  -3.9304812E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   6.9000000E+00   1.2700000E+01
  -1.0000000E-01   1.2096056E+01

   V(2) THROUGH V(31)
   3.4344875E+02   2.5752110E+05   8.8445299E+07
   5.9343960E-03   5.7855302E+15   1.7191414E+02
   5.8390379E+00   1.2458856E+01   1.8297894E+01
  -5.1269900E+00   3.6294136E+01   5.1469951E+00
   6.1120560E-02   1.7970160E+02   7.4613815E-01
   7.6599540E+05   9.7303830E+01   6.0414141E+01
   5.8266666E+00   7.8015793E+02   1.8320000E+02
  -2.7949069E+00   5.1912976E+00  -2.9284450E-01
   1.3548931E+01   4.5778383E+00   4.1012232E+00
   1.7624450E+00   6.6594963E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.0990E+00   8.1655E+00   5.8266E+00   1.8860E+02
1.8320E+02   5.4000E+00   1.8902E+02   1.2479E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SE1 DATE 6-10
   T(1) THROUGH T(10)
   1.5980000E+02   1.9580000E+02   1.9220000E+02
   1.5260000E+02   1.8320000E+02   1.6250000E+02
   1.4900000E+02   1.9220000E+02   1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9800000E+02   5.4000000E+00   1.8320000E+02
   1.4600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2900000E+02   1.3000000E+00  -2.5548128E+00
  -3.9304812E+00   1.9700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   4.3000000E+00   1.8400000E+01
  -1.6666666E-02   1.2022359E+01

   V(2) THROUGH V(31)
   3.2209309E+02   1.8658154E+05   6.0096631E+07
   8.2273840E-03   2.7551229E+15   1.8321874E+02
   5.7748406E+00   1.2136623E+01   1.7911464E+01
  -4.8002871E+00   3.5552238E+01   5.2106807E+00
   4.7956133E-02   2.6035506E+02   9.0522403E-01
   7.6463703E+05   7.2523310E+01   6.3530077E+01
   8.6666666E+00   7.2588030E+02   1.8320000E+02
  -3.0374685E+00   5.5620463E+00  -9.9572816E-02
   1.3547156E+01   4.2839080E+00   4.1515134E+00
   2.1594842E+00   6.5873851E+00   2.0719726E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.4675E+00   8.0918E+00   8.6666E+00   1.9220E+02
1.8320E+02   9.0000E+00   1.9186E+02   1.8080E+00

CONC =  2.0719726E+00
```

```
RUN NO.  SE2 DATE 6-10
   T(1) THROUGH T(10)
   1.7780000E+02    2.0480000E+02    2.0120000E+02
   1.5980000E+02    1.9220000E+02    1.6970000E+02
   1.5620000E+02    2.0210000E+02    1.9220000E+02
   1.9220000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02    5.4000000E+00    1.9310000E+02
   1.5600000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3000000E+02    1.5100000E+00   -2.9478609E-01
  -2.5056818E+00    2.1100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    9.0000000E+00    2.3500000E+01
  -1.3333333E-01    1.2027272E+01

   V(2) THROUGH V(31)
   4.3364352E+02    1.4477002E+05    6.2778583E+07
   9.6192069E-03    4.1775379E+15    5.2387117E+02
   6.0722228E+00    1.1882901E+01    1.7955124E+01
  -4.6439934E+00    3.5968498E+01    6.2612457E+00
   4.7956133E-02    3.3251870E+02    8.6156625E-01
   7.5960425E+05    1.1402373E+02    6.3373451E+01
   1.0066666E+01    7.2584017E+02    1.9220000E+02
  -3.0374685E+00    5.8066961E+00   -1.4900332E-01
   1.3540552E+01    4.7364065E+00    4.1490450E+00
   2.3092295E+00    6.5873298E+00    2.1431473E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1732E+01   9.5215E+00   1.0066E+01   2.0210E+02
1.9220E+02   9.9000E+00   2.0226E+02   2.3091E+00

CONC =  2.1431473E+00
```

```
RUN NO.  SE3 DATE 6-10
   T(1) THROUGH T(10)
   1.9220000E+02   2.1020000E+02   2.0840000E+02
   1.7060000E+02   1.9760000E+02   1.7960000E+02
   1.6700000E+02   2.0840000E+02   1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2300000E+02   5.4000000E+00   1.9940000E+02
   1.5800000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3100000E+02   1.7600000E+00   1.5000000E+00
  -1.4739304E+00   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   7.5000000E+00   3.1000000E+01
  -6.6666666E-02   1.2037098E+01

   V(2) THROUGH V(31)
   5.9082385E+02   1.0923607E+05   6.4539275E+07
   1.1237297E-02   3.4492238E+15   8.7459449E+02
   6.3815179E+00   1.1601266E+01   1.7982784E+01
  -4.4885169E+00   3.5776925E+01   6.7737603E+00
   4.7956133E-02   4.3864169E+02   8.3608589E-01
   7.5613669E+05   1.0231367E+02   6.3368829E+01
   1.1733333E+01   7.2417047E+02   1.9760000E+02
  -3.0374685E+00   6.0836828E+00  -1.7902392E-01
   1.3535977E+01   4.6280432E+00   4.1489720E+00
   2.4624337E+00   6.5850268E+00   2.2627892E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3537E+01   1.0563E+01   1.1733E+01   2.0840E+02
1.9760E+02   1.0800E+01   2.0933E+02   3.0461E+00

CONC =  2.2627892E+00
```

```
RUN NO.  SE4 DATE 6-10
   T(1) THROUGH T(10)
   2.0660000E+02   2.2280000E+02   2.2100000E+02
   1.7600000E+02   2.0840000E+02   1.9040000E+02
   1.7420000E+02   2.2100000E+02   2.0750000E+02
   2.0750000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3600000E+02   6.6000000E+00   2.0930000E+02
   1.7400000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3000000E+02   2.0700000E+00   5.1000000E+00
   1.1000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   7.7000000E+00   4.5000000E+01
   0.0000000E-99   1.2027272E+01

   V(2) THROUGH V(31)
   9.2936895E+02   7.4227983E+04   6.8985181E+07
   1.3359020E-02   3.3131820E+15   2.2071241E+03
   6.8345058E+00   1.1214896E+01   1.8049402E+01
  -4.3155634E+00   3.5736685E+01   7.6994456E+00
   4.7956133E-02   6.3673796E+02   7.7461789E-01
   7.5018514E+05   1.0393877E+02   6.3002815E+01
   1.3800000E+01   7.2621304E+02   2.0750000E+02
  -3.0374685E+00   6.4563582E+00  -2.5538541E-01
   1.3528075E+01   4.6438019E+00   4.1431794E+00
   2.6246685E+00   6.5878434E+00   2.2314238E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7127E+01   1.3127E+01   1.3800E+01   2.2100E+02
2.0750E+02   1.3500E+01   2.2130E+02   4.4217E+00

CONC =  2.2314238E+00
```

```
RUN NO.  SF1 DATE 6-11
   T(1) THROUGH T(10)
   1.8140000E+02   1.9940000E+02   1.9580000E+02
   1.7960000E+02   1.9220000E+02   1.8140000E+02
   1.7780000E+02   1.9670000E+02   1.9040000E+02
   1.9130000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02   5.2000000E+00   1.9220000E+02
   1.7400000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2600000E+02   8.1500000E-01  -1.7195855E+00
  -2.6039438E+00   2.0100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   9.3000000E+00   1.2000000E+01
   0.0000000E-99   1.2066577E+01

   V(2) THROUGH V(31)
   3.2849447E+02   2.8412734E+05   9.3334268E+07
   5.1925149E-03   5.7752271E+15   1.3421071E+02
   5.7945200E+00   1.2557177E+01   1.8351697E+01
  -5.2605371E+00   3.6292353E+01   4.8994110E+00
   7.2404356E-02   1.6979677E+02   8.7530665E-01
   7.6229244E+05   1.1624536E+02   6.3287925E+01
   5.4333333E+00   7.2850583E+02   1.9130000E+02
  -2.6254888E+00   5.1346022E+00  -1.3318099E-01
   1.3544085E+01   4.7557031E+00   4.1476945E+00
   1.6925528E+00   6.5909956E+00   1.9894622E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0346E+01   9.4626E+00   5.4333E+00   1.9670E+02
1.9130E+02   5.4000E+00   1.9673E+02   1.1791E+00

CONC =  1.9894622E+00
```

```
RUN NO.  SF2 DATE 6-11
   T(1) THROUGH T(10)
   1.8680000E+02    2.0480000E+02    2.0120000E+02
   1.7420000E+02    1.9580000E+02    1.8140000E+02
   1.7420000E+02    2.0210000E+02    1.9580000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02    6.2000000E+00    1.9670000E+02
   1.7100000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02    1.0800000E+00   -9.8262032E-02
  -1.9161096E+00    2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    1.7700000E+01    1.8000000E+01
   3.3333333E-02    1.2071490E+01

   V(2) THROUGH V(31)
   5.1091967E+02    1.8814604E+05    9.6127518E+07
   6.9205246E-03    7.2234204E+15    4.7044160E+02
   6.2362123E+00    1.2144973E+01    1.8381186E+01
  -4.9732637E+00    3.6516104E+01    6.1536718E+00
   7.2404356E-02    2.5469517E+02    8.4585597E-01
   7.5924634E+05    1.6810307E+02    6.3115075E+01
   7.2000000E+00    7.2977543E+02    1.9580000E+02
  -2.6254888E+00    5.5400674E+00   -1.6740617E-01
   1.3540081E+01    5.1245773E+00    4.1449596E+00
   1.9740810E+00    6.5927368E+00    1.9805006E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1973E+01   1.0155E+01   7.2000E+00   2.0210E+02
1.9580E+02   6.3000E+00   2.0300E+02   1.7687E+00

CONC =  1.9805006E+00
```

```
RUN NO.  SF3 DATE 6-11
   T(1) THROUGH T(10)
   2.0120000E+02   2.1560000E+02   2.1200000E+02
   1.8500000E+02   2.0480000E+02   1.9220000E+02
   1.8500000E+02   2.1200000E+02   2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3300000E+02   6.7000000E+00   2.0570000E+02
   1.8200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.2500000E+00   2.5000000E+00
   4.0000000E-01   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   2.0200000E+01   2.4400000E+01
  -3.3333333E-02   1.2071490E+01

   V(2) THROUGH V(31)
   7.3557960E+02   1.3742501E+05   1.0108704E+08
   8.0669028E-03   7.3739058E+15   1.0532549E+03
   6.6006587E+00   1.1830833E+01   1.8431492E+01
  -4.8199856E+00   3.6536723E+01   6.9596405E+00
   7.2404356E-02   3.4525346E+02   7.9904220E-01
   7.5425238E+05   1.8097420E+02   6.2905289E+01
   8.3333333E+00   7.3013769E+02   2.0480000E+02
  -2.6254888E+00   5.8442788E+00  -2.2434151E-01
   1.3533482E+01   5.1983544E+00   4.1416302E+00
   2.1202635E+00   6.5932331E+00   2.0208276E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.4571E+01   1.2471E+01   8.3333E+00   2.1200E+02
2.0480E+02   7.2000E+00   2.1313E+02   2.3975E+00

CONC =  2.0208276E+00
```

```
RUN NO.  SF4 DATE 6-11
   T(1) THROUGH T(10)
   2.1380000E+02   2.2820000E+02   2.2550000E+02
   1.9760000E+02   2.1740000E+02   2.0480000E+02
   1.9850000E+02   2.2550000E+02   2.1740000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02   7.2000000E+00   2.1920000E+02
   1.9400000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.2900000E+00   6.8000000E+00
   3.9000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   2.3300000E+01   3.1000000E+01
  -3.3333333E-02   1.2076403E+01

   V(2) THROUGH V(31)
   1.0151796E+03   1.0674031E+05   1.0836058E+08
   8.4044207E-03   8.1168869E+15   2.1805622E+03
   6.9228208E+00   1.1578154E+01   1.8500974E+01
  -4.7789974E+00   3.6632723E+01   7.6873380E+00
   7.2404356E-02   4.3864169E+02   7.3871840E-01
   7.4785190E+05   1.9587307E+02   6.2606984E+01
   8.6000000E+00   7.3084442E+02   2.1740000E+02
  -2.6254888E+00   6.0836828E+00  -3.0283848E-01
   1.3524960E+01   5.2774668E+00   4.1368768E+00
   2.1517622E+00   6.5942006E+00   2.0521930E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8876E+01   1.5976E+01   8.6000E+00   2.2550E+02
2.1740E+02   8.1000E+00   2.2600E+02   3.0461E+00

CONC =  2.0521930E+00
```

```
RUN NO.  SG1 DATE 6-12
  T(1) THROUGH T(10)
   1.7240000E+02   1.9580000E+02   1.9220000E+02
   1.6520000E+02   1.8500000E+02   1.6700000E+02
   1.6070000E+02   1.9400000E+02   1.8500000E+02
   1.8500000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0400000E+02   6.2000000E+00   1.8680000E+02
   1.6100000E+02   8.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.2000000E+00  -2.4565508E+00
  -3.8322192E+00   2.0300000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   6.4000000E+00   1.7400000E+01
  -1.6666666E-01   1.2164839E+01

   V(2) THROUGH V(31)
   3.8933667E+02   1.9725888E+05   7.6800117E+07
   7.5923957E-03   3.6520353E+15   2.1132163E+02
   5.9644444E+00   1.2192272E+01   1.8156716E+01
  -4.8806080E+00   3.5834061E+01   5.3533812E+00
   6.1120560E-02   2.4620533E+02   9.0290372E-01
   7.6409266E+05   9.2959928E+01   6.3560601E+01
   8.0000000E+00   7.2516174E+02   1.8500000E+02
  -2.7949069E+00   5.5061658E+00  -1.0213935E-01
   1.3546444E+01   4.5321685E+00   4.1519937E+00
   2.0794415E+00   6.5863947E+00   2.1115141E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.7082E+00   8.3326E+00   8.0000E+00   1.9400E+02
1.8500E+02   9.0000E+00   1.9300E+02   1.7097E+00

CONC =  2.1115141E+00
```

```
RUN NO.  SG2 DATE 6-12
   T(1) THROUGH T(10)
   1.8140000E+02   2.0300000E+02   2.0120000E+02
   1.6700000E+02   1.9040000E+02   1.7240000E+02
   1.6520000E+02   1.9940000E+02   1.9130000E+02
   1.9040000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1700000E+02   6.5000000E+00   1.9220000E+02
   1.6300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.4400000E+00  -8.8435828E-01
  -2.7022058E+00   2.1400000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.3200000E+01   2.3000000E+01
  -1.5000000E-01   1.2189405E+01

   V(2) THROUGH V(31)
   5.3108654E+02   1.4846804E+05   7.8849378E+07
   9.1387149E-03   5.1268835E+15   6.0363139E+02
   6.2749249E+00   1.1908124E+01   1.8183049E+01
  -4.6952355E+00   3.6173274E+01   6.4029637E+00
   6.1120560E-02   3.2544384E+02   8.7688769E-01
   7.6070841E+05   1.4239001E+02   6.3517124E+01
   9.6000000E+00   7.2415597E+02   1.9040000E+02
  -2.7949069E+00   5.7851899E+00  -1.3137635E-01
   1.3542005E+01   4.9585698E+00   4.1513095E+00
   2.2617631E+00   6.5850067E+00   2.2000584E+00

PST1, PST2, DELT, T(8.), T(10.), DT810, TX, DELP
 1.1305E+01   9.4872E+00   9.6000E+00   1.9940E+02
1.9040E+02   9.0000E+00   2.0000E+02   2.2600E+00

CONC =  2.2000584E+00
```

```
RUN NO.  SG3 DATE 6-12
   T(1) THROUGH T(10)
   2.0390000E+02    2.2100000E+02    2.1920000E+02
   1.8500000E+02    2.0840000E+02    1.9310000E+02
   1.8410000E+02    2.1830000E+02    2.0840000E+02
   2.0840000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3100000E+02    7.0000000E+00    2.1074000E+02
   1.8100000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02    1.5200000E+00    4.2000000E+00
   1.3000000E+00    2.3000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01    1.5200000E+01    3.3000000E+01
  -5.0000000E-02    1.2199231E+01

   V(2) THROUGH V(31)
   8.5267141E+02    1.0152425E+05    8.6566827E+07
   9.7869135E-03    5.5706072E+15    1.6962069E+03
   6.7483742E+00    1.1528052E+01    1.8276427E+01
  -4.6267091E+00    3.6256280E+01    7.4361498E+00
   6.1120560E-02    4.6694116E+02    7.8838917E-01
   7.5156108E+05    1.5428600E+02    6.3076516E+01
   1.0133333E+01    7.2586812E+02    2.0840000E+02
  -2.7949069E+00    6.1462032E+00   -2.3776343E-01
   1.3529907E+01    5.0388080E+00    4.1443485E+00
   2.3158302E+00    6.5873683E+00    2.2314238E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6399E+01   1.3499E+01   1.0133E+01   2.1830E+02
2.0840E+02   9.9000E+00   2.1853E+02   3.2426E+00

CONC =  2.2314238E+00
```

```
RUN NO.  SG4 DATE 6-12
   T(1) THROUGH T(10)
   2.1740000E+02    2.3180000E+02    2.3000000E+02
   1.9580000E+02    2.2010000E+02    2.0480000E+02
   1.9580000E+02    2.3000000E+02    2.2010000E+02
   2.2010000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4400000E+02    7.3000000E+00    2.2190000E+02
   1.9200000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2600000E+02    1.6400000E+00    8.4000000E+00
   4.7000000E+00    2.4200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01    1.6900000E+01    4.2900000E+01
  -1.0000000E-01    1.2204144E+01

   V(2) THROUGH V(31)
   1.1942359E+03    7.7166668E+04    9.2155208E+07
   1.0654080E-02    5.8674712E+15    3.5471303E+03
   7.0852618E+00    1.1253722E+01    1.8338984E+01
  -4.5418123E+00    3.6308200E+01    8.1738941E+00
   6.1120560E-02    6.0702351E+02    7.3482619E-01
   7.4532581E+05    1.6379443E+02    6.2847659E+01
   1.0933333E+01    7.2628918E+02    2.2010000E+02
  -2.7949069E+00    6.4085675E+00   -3.0812128E-01
   1.3521576E+01    5.0986121E+00    4.1407136E+00
   2.3918161E+00    6.5879482E+00    2.2986354E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0604E+01   1.6904E+01   1.0933E+01   2.3000E+02
2.2010E+02   9.9000E+00   2.3103E+02   4.2154E+00

CONC =  2.2986354E+00
```

TABLE IV. INTERMEDIATE DATA FOR ROUND ORIFICES FOR STAGE ONE CONDITIONS

```
RUN NO.  X1  DATE 3-7
   T(1) THROUGH T(10)
   1.8140000E+02   2.0570000E+02   2.0480000E+02
   1.7780000E+02   1.9580000E+02   1.8140000E+02
   1.7240000E+02   1.7600000E+02   1.9580000E+02
   1.9220000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0900000E+02   6.1000000E+00  -1.5340000E+02
   1.7400000E+02   7.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.3600000E+00  -0.0000000E-99
  -1.8669786E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   9.0000000E+00   2.7000000E+01
  -1.0833333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   6.7242305E+02   1.1961039E+05   8.0428787E+07
   9.3182343E-03   5.3026649E+15   1.0716981E+03
   6.5108876E+00   1.1691994E+01   1.8202882E+01
  -4.6757821E+00   3.6206985E+01   6.9769996E+00
   5.2083333E-02   3.8204277E+02   6.9309077E-01
   7.6009187E+05   1.1446494E+02   6.0119427E+01
   9.0666666E+00   7.8118172E+02   1.9220000E+02
  -2.9549102E+00   5.9455325E+00  -3.6659430E-01
   1.3541194E+01   4.7402685E+00   4.0963330E+00
   2.2046046E+00   6.6608078E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -1.8669E+00   9.0666E+00   1.7600E+02
1.9220E+02  -1.6200E+01   2.0126E+02   2.6530E+00

CONC =  0.0000000E-99
```

```
RUN NO.  X2  DATE 3-7
   T(1) THROUGH T(10)
   1.6880000E+02   2.0480000E+02   2.0444000E+02
   1.6070000E+02   1.9220000E+02   1.7060000E+02
   1.5080000E+02   1.7420000E+02   1.9220000E+02
   1.9040000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0800000E+02   6.9000000E+00  -1.5160000E+02
   1.5500000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.5900000E+00  -0.0000000E-99
  -2.4565508E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   5.4000000E+00   3.1500000E+01
  -1.0833333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   7.8275593E+02   1.0255172E+05   8.0272970E+07
   1.0891738E-02   3.6342674E+15   1.0790965E+03
   6.6628209E+00   1.1538122E+01   1.8200943E+01
  -4.5197507E+00   3.5829183E+01   6.9838793E+00
   5.2083333E-02   4.4571657E+02   6.9457000E-01
   7.6022183E+05   8.5060851E+01   6.0125879E+01
   1.0600000E+01   7.8114500E+02   1.9040000E+02
  -2.9549102E+00   6.0996832E+00  -3.6446232E-01
   1.3541365E+01   4.4433668E+00   4.0964403E+00
   2.3608540E+00   6.6607607E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -2.4565E+00   1.0600E+01   1.7420E+02
1.9040E+02  -1.6200E+01   2.0100E+02   3.0952E+00

CONC =  0.0000000E-99
```

```
RUN NO.  X3  DATE 3-7
   T(1) THROUGH T(10)
   1.7780000E+02   2.0030000E+02   1.9940000E+02
   1.6880000E+02   1.9004000E+02   1.7420000E+02
   1.6088000E+02   1.7510000E+02   1.8860000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02   7.0000000E+00  -1.4440000E+02
   1.6300000E+02   7.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.4150000E+00  -0.0000000E-99
  -2.8495989E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   3.7000000E+00   2.6000000E+01
  -8.6666666E-02   0.0000000E-99

   V(2) THROUGH V(31)
   6.2691569E+02   1.2486399E+05   7.8279195E+07
   9.6576820E-03   3.0285740E+15   5.4972514E+02
   6.4408120E+00   1.1734980E+01   1.8175792E+01
  -4.6400016E+00   3.5646868E+01   6.3094184E+00
   5.2083333E-02   3.6789304E+02   7.1472101E-01
   7.6253414E+05   6.7656440E+01   6.0242017E+01
   9.4333333E+00   7.8066916E+02   1.8680000E+02
  -2.9549102E+00   5.9077922E+00  -3.3586300E-01
   1.3544402E+01   4.2144425E+00   4.0983700E+00
   2.2442495E+00   6.6601514E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -2.8495E+00   9.4333E+00   1.7510E+02
1.8680E+02  -1.1700E+01   1.9623E+02   2.5548E+00

CONC =  0.0000000E-99
```

```
RUN NO.  X4  DATE 3-7
   T(1) THROUGH T(10)
   1.6700000E+02    1.9580000E+02    1.9400000E+02
   1.5080000E+02    1.8320000E+02    1.6160000E+02
   1.4540000E+02    1.6880000E+02    1.8374000E+02
   1.8140000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1500000E+02    6.8000000E+00   -1.3900000E+02
   1.4600000E+02    1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1950000E+02    1.6450000E+00   -0.0000000E-99
  -3.9304812E+00   -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    5.6000000E+00    2.7500000E+01
  -1.7500000E-01    0.0000000E-99

   V(2) THROUGH V(31)
   6.4869364E+02    1.1852446E+05    7.6886061E+07
   1.1196097E-02    3.6524315E+15    7.5520119E+02
   6.4749605E+00    1.1682874E+01    1.8157835E+01
  -4.4921900E+00    3.5834169E+01    6.6269841E+00
   5.2083333E-02    3.8911763E+02    7.2968528E-01
   7.6439690E+05    8.6915082E+01    6.0335092E+01
   1.0966666E+01    7.8038873E+02    1.8140000E+02
  -2.9549102E+00    5.9638816E+00   -3.1514195E-01
   1.3546842E+01    4.4649315E+00    4.0999138E+00
   2.3948603E+00    6.6597921E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -3.9304E+00   1.0966E+01   1.6880E+02
1.8140E+02  -1.2600E+01   1.9236E+02   2.7022E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Y1  DATE 3-9
   T(1) THROUGH T(10)
   1.6970000E+02   1.9364000E+02   1.9220000E+02
   1.6304000E+02   1.8140000E+02   1.6808000E+02
   1.5908000E+02   1.6610000E+02   1.8140000E+02
   1.7960000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02   5.5000000E+00  -1.4980000E+02
   1.6000000E+02   7.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02   1.5300000E+00  -0.0000000E-99
  -4.3235294E+00   2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   4.6000000E+00   2.4500000E+01
  -2.4166666E-01   0.0000000E-99

   V(2) THROUGH V(31)
   5.6846154E+02   1.3338614E+05   7.5824892E+07
   1.0394392E-02   3.3478210E+15   5.1521179E+02
   6.3429336E+00   1.1801003E+01   1.8143937E+01
  -4.5664888E+00   3.5747086E+01   6.2445780E+00
   5.2083333E-02   3.4666843E+02   7.4123927E-01
   7.6562676E+05   7.7276002E+01   6.0395963E+01
   1.0200000E+01   7.8021814E+02   1.7960000E+02
  -2.9549102E+00   5.8483687E+00  -2.9943180E-01
   1.3548450E+01   4.3473834E+00   4.1009222E+00
   2.3223877E+00   6.6595735E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.3235E+00   1.0200E+01   1.6610E+02
1.7960E+02  -1.3500E+01   1.8980E+02   2.4074E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Y2  DATE 3-9
   T(1) THROUGH T(10)
   1.6610000E+02    1.9040000E+02    1.8860000E+02
   1.6160000E+02    1.8050000E+02    1.6700000E+02
   1.5440000E+02    1.6520000E+02    1.8140000E+02
   1.7780000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9500000E+02    5.6000000E+00    1.8950000E+02
   1.5500000E+02    5.9000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1700000E+02    1.1500000E+00   -0.0000000E-99
  -4.4217914E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    3.0000000E+00    1.4000000E+01
  -1.7500000E-01    0.0000000E-99

   V(2) THROUGH V(31)
   3.1211299E+02    2.3444476E+05    7.3173262E+07
   7.7884403E-03    3.1692270E+15    1.1908393E+02
   5.7433652E+00    1.2364975E+01    1.8108340E+01
  -4.8551146E+00    3.5692264E+01    4.7798285E+00
   5.2083333E-02    1.9809624E+02    7.7041713E-01
   7.6768741E+05    5.9329870E+01    6.0496795E+01
   7.6666666E+00    7.7988100E+02    1.7780000E+02
  -2.9549102E+00    5.2887529E+00   -2.6082318E-01
   1.3551137E+01    4.0831128E+00    4.1025903E+00
   2.0368819E+00    6.6591413E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.4217E+00   7.6666E+00   1.6520E+02
1.7780E+02  -1.2600E+01   1.8546E+02   1.3756E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Y3  DATE 3-9
   T(1) THROUGH T(10)
   1.5260000E+02   1.8500000E+02   1.8428000E+02
   1.4180000E+02   1.7330000E+02   1.5170000E+02
   1.3460000E+02   1.5890000E+02   1.7348000E+02
   1.7240000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9600000E+02   6.9000000E+00   1.8680000E+02
   1.4600000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02   1.6000000E+00  -0.0000000E-99
  -5.5026737E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   4.5000000E+00   1.7700000E+01
  -3.3333333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   3.8563481E+02   1.8587916E+05   7.1681481E+07
   1.0817467E-02   3.4780920E+15   2.3348820E+02
   5.9548908E+00   1.2132852E+01   1.8087742E+01
  -4.5265931E+00   3.5785260E+01   5.4531315E+00
   5.2083333E-02   2.5045025E+02   7.8774427E-01
   7.6882494E+05   7.6256753E+01   6.0551475E+01
   1.0666666E+01   7.7969430E+02   1.7240000E+02
  -2.9549102E+00   5.5232602E+00  -2.3858177E-01
   1.3552618E+01   4.3341059E+00   4.1034938E+00
   2.3671235E+00   6.6589019E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -5.5026E+00   1.0666E+01   1.5890E+02
1.7240E+02  -1.3500E+01   1.8306E+02   1.7392E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Z1  DATE 3-14
   T(1) THROUGH T(10)
   1.7240000E+02    1.9040000E+02    1.8860000E+02
   1.6340000E+02    1.8050000E+02    1.6880000E+02
   1.5890000E+02    1.6700000E+02    1.7960000E+02
   1.7780000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9500000E+02    5.7000000E+00    1.8860000E+02
   1.5900000E+02    6.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02    1.2700000E+00   -0.0000000E-99
  -4.6183155E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    2.7000000E+00    1.7300000E+01
  -3.0000000E-01    0.0000000E-99

   V(2) THROUGH V(31)
   3.8862857E+02    1.8957251E+05    7.3673297E+07
   8.6060898E-03    2.7013978E+15    1.7264372E+02
   5.9626240E+00    1.2152526E+01    1.8115150E+01
  -4.7552852E+00    3.5532545E+01    5.1512300E+00
   5.2083333E-02    2.4479036E+02    7.6476597E-01
   7.6730772E+05    5.5464904E+01    6.0478376E+01
   8.4666666E+00    7.7994323E+02    1.7780000E+02
  -2.9549102E+00    5.5004021E+00   -2.6818541E-01
   1.3550643E+01    4.0157504E+00    4.1022858E+00
   2.1361368E+00    6.6592211E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.6183E+00   8.4666E+00   1.6700E+02
1.7780E+02  -1.0800E+01   1.8626E+02   1.6999E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Z2  DATE 3-14
   T(1) THROUGH T(10)
   1.6880000E+02   1.9130000E+02   1.8950000E+02
   1.6340000E+02   1.8140000E+02   1.6790000E+02
   1.5980000E+02   1.6700000E+02   1.8140000E+02
   1.7960000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9600000E+02   5.7000000E+00   1.9040000E+02
   1.5700000E+02   4.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02   1.1700000E+00  -0.0000000E-99
  -4.4217914E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   2.7000000E+00   1.5900000E+01
   1.0000000E-01   0.0000000E-99

   V(2) THROUGH V(31)
   3.6100307E+02   2.0603026E+05   7.4377564E+07
   7.9349086E-03   2.8713264E+15   1.4902381E+02
   5.8888864E+00   1.2235778E+01   1.8124664E+01
  -4.8364834E+00   3.5593550E+01   5.0041060E+00
   5.2083333E-02   2.2498074E+02   7.5693014E-01
   7.6676941E+05   5.5464904E+01   6.0452128E+01
   7.8000000E+00   7.8003144E+02   1.7960000E+02
  -2.9549102E+00   5.4160148E+00  -2.7848431E-01
   1.3549941E+01   4.0157504E+00   4.1018517E+00
   2.0541237E+00   6.6593342E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.4217E+00   7.8000E+00   1.6700E+02
1.7960E+02  -1.2600E+01   1.8740E+02   1.5623E+00

CONC =  0.0000000E-99
```

```
RUN NO.  K1  DATE 3-17
   T(1) THROUGH T(10)
   1.8410000E+02    2.0120000E+02    2.0048000E+02
   1.7600000E+02    1.9184000E+02    1.8212000E+02
   1.7420000E+02    1.7276000E+02    1.9130000E+02
   1.8896000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02    6.4000000E+00    1.9940000E+02
   1.7400000E+02    6.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02    1.2850000E+00   -0.0000000E-99
  -2.7022058E+00    2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    9.6000000E+00    2.0900000E+01
  -5.8333333E-02    0.0000000E-99

   V(2) THROUGH V(31)
   6.0915799E+02    1.5512469E+05    9.4495445E+07
   8.7788157E-03    5.9979697E+15    6.3285278E+02
   6.4120776E+00    1.1951984E+01    1.8364062E+01
  -4.7354137E+00    3.6330197E+01    6.4502378E+00
   6.2500000E-02    2.9572940E+02    7.0981990E-01
   7.6190847E+05    1.1874315E+02    6.0210556E+01
   8.5666666E+00    7.8077675E+02    1.8896000E+02
  -2.7725887E+00    5.6894448E+00   -3.4274400E-01
   1.3543581E+01    4.7769627E+00    4.0978476E+00
   2.1478786E+00    6.6602892E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -2.7022E+00   8.5666E+00   1.7276E+02
1.8896E+02  -1.6200E+01   1.9752E+02   2.0536E+00

CONC =  0.0000000E-99
```

```
RUN NO.  K2  DATE 3-17
   T(1) THROUGH T(10)
   1.7240000E+02   1.9760000E+02   1.9580000E+02
   1.9490000E+02   1.8410000E+02   1.6808000E+02
   1.5728000E+02   1.8356000E+02   1.8428000E+02
   1.8248000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0800000E+02   7.6000000E+00   1.9580000E+02
   1.5500000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1300000E+02   1.6900000E+00  -0.0000000E-99
  -3.7830882E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.3000000E+01   2.5100000E+01
  -2.2666666E-01   0.0000000E-99

   V(2) THROUGH V(31)
   7.1620572E+02   1.2967372E+05   9.2873065E+07
   1.1513760E-02   6.2735210E+15   1.0360522E+03
   6.5739674E+00   1.1772776E+01   1.8346744E+01
  -4.4642124E+00   3.6375114E+01   6.9431728E+00
   6.2500000E-02   3.5515828E+02   7.2418288E-01
   7.6373350E+05   1.4079652E+02   6.0302054E+01
   1.1266666E+01   7.8048332E+02   1.8248000E+02
  -2.7725887E+00   5.8725635E+00  -3.2271132E-01
   1.3545974E+01   4.9473157E+00   4.0993661E+00
   2.4218484E+00   6.6599133E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -3.7830E+00   1.1266E+01   1.8356E+02
1.8248E+02   1.0800E+00   1.9374E+02   2.4663E+00

CONC =  0.0000000E-99
```

```
RUN NO.  J1  DATE 3-18
   T(1) THROUGH T(10)
   2.0840000E+02   2.1920000E+02   2.1920000E+02
   2.0300000E+02   2.1110000E+02   2.0534000E+02
   2.0300000E+02   2.1020000E+02   2.1020000E+02
   2.0876000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2600000E+02   6.1000000E+00   2.1740000E+02
   2.0000000E+02   5.7000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.0400000E+00   3.6000000E+00
   1.2000000E+00   2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.2100000E+01   2.3900000E+01
  -2.5333333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   8.2184919E+02   1.3306237E+05   1.0935720E+08
   7.2144072E-03   8.5255880E+15   1.3200395E+03
   6.7115569E+00   1.1798573E+01   1.8510130E+01
  -4.9316752E+00   3.6681848E+01   7.1854169E+00
   6.2500000E-02   3.3817860E+02   6.0519868E-01
   7.5297763E+05   1.3527210E+02   5.9761204E+01
   6.9333333E+00   7.8350298E+02   2.0876000E+02
  -2.7725887E+00   5.8235741E+00  -5.0219847E-01
   1.3531790E+01   4.9072883E+00   4.0903566E+00
   1.9363406E+00   6.6637748E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 3.6000E+00   1.2000E+00   6.9333E+00   2.1020E+02
2.0876E+02   1.4400E+00   2.1569E+02   2.3484E+00

CONC =  0.0000000E-99
```

```
RUN NO.  J2  DATE 3-18
   T(1) THROUGH T(10)
   1.9364000E+02   2.0840000E+02   2.0768000E+02
   1.6970000E+02   1.9760000E+02   1.7960000E+02
   1.6880000E+02   1.9724000E+02   1.9724000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2700000E+02   8.5000000E+00   2.0840000E+02
   1.6600000E+02   1.5500000E+01

 TPR,XMV,ST1,ST2,SP
   1.1500000E+02   1.5500000E+00  -0.0000000E-99
  -1.4739304E+00   2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.3700000E+01   2.8600000E+01
  -3.4666666E-01   1.1987967E+01

   V(2) THROUGH V(31)
   8.9317283E+02   1.1234316E+05   1.0034186E+08
   1.0663516E-02   7.0457167E+15   1.6655555E+03
   6.7947801E+00   1.1629313E+01   1.8424093E+01
  -4.5409270E+00   3.6491196E+01   7.4179139E+00
   6.2500000E-02   4.0468235E+02   6.6429618E-01
   7.5771178E+05   1.4496225E+02   6.0000777E+01
   1.0333333E+01   7.8192314E+02   1.9580000E+02
  -2.7725887E+00   6.0031024E+00  -4.0902717E-01
   1.3538058E+01   4.9764733E+00   4.0943575E+00
   2.3353748E+00   6.6617564E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1987E+01   1.0514E+01   1.0333E+01   1.9724E+02
1.9580E+02   1.4400E+00   2.0613E+02   2.8102E+00

CONC =  0.0000000E-99
```

```
RUN NO.  N1  DATE 4-4
   T(1) THROUGH T(10)
   1.9760000E+02   2.1380000E+02   2.1290000E+02
   1.9130000E+02   2.0498000E+02   1.9580000E+02
   1.9040000E+02   2.1200000E+02   2.0570000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2200000E+02   2.0000000E+01   2.0750000E+02
   1.8700000E+02   6.5000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.1200000E+00   2.5000000E+00
   5.0000000E-01   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   8.7000000E+00   2.4100000E+01
   3.3333333E-03   1.2184491E+01

   V(2) THROUGH V(31)
   8.0022980E+02   1.3244945E+05   1.0599000E+08
   7.7463119E-03   6.6241476E+15   1.0375408E+03
   6.6848989E+00   1.1793956E+01   1.8478855E+01
  -4.8605384E+00   3.6429498E+01   6.9446085E+00
   6.2500000E-02   3.4100854E+02   6.2604166E-01
   7.5468310E+05   1.1227234E+02   5.9848161E+01
   7.4666666E+00   7.8294787E+02   2.0480000E+02
  -2.7725887E+00   5.8319075E+00  -4.6833835E-01
   1.3534053E+01   4.7209275E+00   4.0918107E+00
   2.0104486E+00   6.6630661E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.4684E+01   1.2684E+01   7.4666E+00   2.1200E+02
2.0480E+02   7.2000E+00   2.1226E+02   2.3681E+00

CONC =  0.0000000E-99
```

```
RUN NO.  N2  DATE 4-4
   T(1) THROUGH T(10)
   1.7510000E+02   1.8860000E+02   1.8716000E+02
   1.5152000E+02   1.7960000E+02   1.5800000E+02
   1.4720000E+02   1.8680000E+02   1.8050000E+02
   1.7924000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9300000E+02   2.0000000E+01   1.8320000E+02
   1.4600000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.0900000E+02   1.0600000E+00  -3.4391711E+00
  -4.9131016E+00   0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   6.3000000E+00   1.4000000E+01
  -7.0000000E-02   1.2174665E+01

   V(2) THROUGH V(31)
   3.7753950E+02   2.3424813E+05   8.8437923E+07
   7.1832404E-03   5.0470345E+15   1.9004067E+02
   5.9336752E+00   1.2364136E+01   1.8297811E+01
  -4.9360046E+00   3.6157577E+01   5.2472381E+00
   6.2500000E-02   1.9809624E+02   7.6448580E-01
   7.6728882E+05   9.3157078E+01   6.0477455E+01
   7.0666666E+00   7.7994626E+02   1.7924000E+02
  -2.7725887E+00   5.2887529E+00  -2.6855182E-01
   1.3550618E+01   4.5342870E+00   4.1022706E+00
   1.9553888E+00   6.6592250E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.7354E+00   7.2615E+00   7.0666E+00   1.8680E+02
1.7924E+02   7.5600E+00   1.8630E+02   1.3756E+00

CONC =  0.0000000E-99
```

```
RUN NO.  P1  DATE 4-17
   T(1) THROUGH T(10)
    2.1740000E+02    2.3090000E+02    2.3090000E+02
    2.0588000E+02    2.1920000E+02    2.1020000E+02
    2.0588000E+02    2.2820000E+02    2.1920000E+02
    2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.4200000E+02    6.1000000E+00    2.1920000E+02
    2.0200000E+02    6.5000000E+00

 TPR,XMV,ST1,ST2,SP
    1.1600000E+02    1.6800000E+00    8.8000000E+00
    4.9000000E+00    2.4000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    7.5000000E-01    1.8600000E+01    4.4600000E+01
   -2.0000000E-01    1.2046925E+01

   V(2) THROUGH V(31)
    1.7390132E+03    7.0290896E+04    1.2223679E+08
    1.1773501E-02    9.8604372E+15    7.5274650E+03
    7.4610731E+00    1.1160397E+01    1.8621470E+01
   -4.4419039E+00    3.6827306E+01    8.9263136E+00
    6.2500000E-02    6.3107807E+02    5.3602474E-01
    7.4655325E+05    1.7154903E+02    5.9418459E+01
    1.1200000E+01    7.8478091E+02    2.1740000E+02
   -2.7725887E+00    6.4474295E+00   -6.2357496E-01
    1.3523222E+01    5.1448691E+00    4.0846049E+00
    2.4159137E+00    6.6654045E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0846E+01   1.6946E+01   1.1200E+01   2.2820E+02
2.1740E+02   1.0800E+01   2.2860E+02   4.3824E+00

CONC =  0.0000000E-99
```

```
RUN NO.  P2  DATE 4-17
   T(1) THROUGH T(10)
   2.1380000E+02    2.2640000E+02    2.2640000E+02
   1.9040000E+02    2.1380000E+02    2.0048000E+02
   1.9094000E+02    2.2460000E+02    2.1380000E+02
   2.1200000E+02

 CTL1, PRS1, RCD, CTL2, PRS2
   2.4200000E+02    7.0000000E+00    2.1380000E+02
   1.8700000E+02    1.0000000E+01

 TPR, XMV, ST1, ST2, SP
   1.1400000E+02    1.9100000E+00    7.0000000E+00
   2.8000000E+00    2.4000000E+02

 DIA, DHFLO, DHSTG, DHWTR, PATM
   7.5000000E-01    2.0900000E+01    4.5900000E+01
  -1.5000000E-01    1.2046925E+01

   V(2) THROUGH V(31)
   1.7279196E+03    6.8597718E+04    1.1853133E+08
   1.3345959E-02    9.7477868E+15    7.9091945E+03
   7.4546734E+00    1.1136014E+01    1.8590687E+01
  -4.3165416E+00    3.6815816E+01    8.9757812E+00
   6.2500000E-02    6.4947271E+02    5.5447469E-01
   7.4848200E+05    1.8280609E+02    5.9523604E+01
   1.2733333E+01    7.8449301E+02    2.1200000E+02
  -2.7725887E+00    6.4761608E+00   -5.8973411E-01
   1.3525802E+01    5.2084259E+00    4.0863729E+00
   2.5442232E+00    6.6650376E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
  1.9046E+01   1.4846E+01   1.2733E+01   2.2460E+02
2.1200E+02   1.2600E+01   2.2473E+02   4.5102E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Q1   DATE 4-18
    T(1) THROUGH T(10)
    2.2100000E+02    2.3540000E+02    2.3540000E+02
    2.1020000E+02    2.2460000E+02    2.1524000E+02
    2.0930000E+02    2.3360000E+02    2.2496000E+02
    2.2460000E+02

 CTL1, PRS1, RCD, CTL2, PRS2
    2.4600000E+02    6.6000000E+00    2.2640000E+02
    2.0500000E+02    7.0000000E+00

 TPR, XMV, ST1, ST2, SP
    1.1800000E+02    1.5400000E+00    1.0900000E+01
    7.0000000E+00    2.4500000E+02

 DIA, DHFLO, DHSTG, DHWTR, PATM
    7.5000000E-01    2.0100000E+01    4.6000000E+01
    5.8333333E-02    1.1997794E+01

    V(2) THROUGH V(31)
    1.8178738E+03    6.7662388E+04    1.2300168E+08
    1.0850081E-02    1.0241079E+16    8.5995899E+03
    7.5054228E+00    1.1122285E+01    1.8627708E+01
   -4.5235827E+00    3.6865183E+01    9.0594697E+00
    6.2500000E-02    6.5088768E+02    5.3000000E-01
    7.4336645E+05    1.7896435E+02    5.9244826E+01
    1.0266666E+01    7.8560914E+02    2.2460000E+02
   -2.7725887E+00    6.4783370E+00   -6.3487827E-01
    1.3518944E+01    5.1871866E+00    4.0816784E+00
    2.3289023E+00    6.6664593E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.2897E+01   1.8997E+01   1.0266E+01   2.3360E+02
2.2460E+02    9.0000E+00   2.3486E+02   4.5200E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Q2  DATE 4-18
   T(1) THROUGH T(10)
   2.1380000E+02    2.3000000E+02    2.3000000E+02
   1.9148000E+02    2.1560000E+02    2.0084000E+02
   1.9040000E+02    2.2640000E+02    2.1668000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4600000E+02    7.8000000E+00    2.1848000E+02
   1.8700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02    1.9300000E+00    8.3000000E+00
   3.8000000E+00    2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    2.1200000E+01    4.8500000E+01
  -1.7000000E-01    1.1997794E+01

   V(2) THROUGH V(31)
   1.8889043E+03    6.4648391E+04    1.2211462E+08
   1.3524113E-02    1.0134540E+16    9.5369780E+03
   7.5437522E+00    1.1076718E+01    1.8620470E+01
  -4.3032810E+00    3.6854725E+01    9.1629319E+00
   6.2500000E-02    6.8626202E+02    5.3661798E-01
   7.4662003E+05    1.8422775E+02    5.9422108E+01
   1.2866666E+01    7.8477010E+02    2.1560000E+02
  -2.7725887E+00    6.5312595E+00   -6.2246883E-01
   1.3523311E+01    5.2161727E+00    4.0846663E+00
   2.5546399E+00    6.6653908E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0297E+01   1.5797E+01   1.2866E+01   2.2640E+02
2.1560E+02   1.0800E+01   2.2846E+02   4.7657E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R1   DATE 4-20
   T(1) THROUGH T(10)
   1.8320000E+02    1.9940000E+02    1.9760000E+02
   1.7780000E+02    1.9040000E+02    1.8140000E+02
   1.7780000E+02    1.9580000E+02    1.9040000E+02
   1.8932000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02    5.5000000E+00    1.9130000E+02
   1.7400000E+02    6.5000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1200000E+02    1.0200000E+00   -1.4739304E+00
  -2.7022058E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    1.2600000E+01    1.9800000E+01
  -2.5000000E-02    1.2012533E+01

   V(2) THROUGH V(31)
   6.6796549E+02    1.6398210E+05    1.0953439E+08
   6.9611403E-03    7.0904429E+15    6.5115251E+02
   6.5042365E+00    1.2007512E+01    1.8511749E+01
  -4.9674119E+00    3.6497524E+01    6.4787438E+00
   7.2916666E-02    2.8016470E+02    7.1514799E-01
   7.6258898E+05    1.3836562E+02    6.0244770E+01
   6.8000000E+00    7.8066014E+02    1.8932000E+02
  -2.6184380E+00    5.6353776E+00   -3.3526577E-01
   1.3544474E+01    4.9298996E+00    4.0984157E+00
   1.9169226E+00    6.6601398E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0538E+01   9.3103E+00   6.8000E+00   1.9580E+02
1.8932E+02   6.4800E+00   1.9612E+02   1.9455E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R2  DATE 4-20
   T(1) THROUGH T(10)...
   1.7420000E+02    1.9760000E+02    1.9580000E+02
   1.6340000E+02    1.8680000E+02    1.6880000E+02
   1.6340000E+02    1.9400000E+02    1.8680000E+02
   1.8644000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02    6.6000000E+00    1.8860000E+02
   1.6000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1300000E+02    1.1600000E+00   -1.9652406E+00
  -3.3409090E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    1.5200000E+01    2.0800000E+01
  -3.0000000E-02    1.2012533E+01

   V(2) THROUGH V(31)
   6.9410350E+02    1.5641256E+05    1.0856650E+08
   7.9053705E-03    7.5446765E+15    7.7976159E+02
   6.5426210E+00    1.1960252E+01    1.8502873E+01
  -4.8402129E+00    3.6559618E+01    6.6589882E+00
   7.2916666E-02    2.9431442E+02    7.2253124E-01
   7.6352798E+05    1.5354447E+02    6.0291795E+01
   7.7333333E+00    7.8051358E+02    1.8644000E+02
  -2.6184380E+00    5.6846486E+00   -3.2499461E-01
   1.3545705E+01    5.0339902E+00    4.0991960E+00
   2.0455399E+00    6.6599521E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0047E+01   8.6716E+00   7.7333E+00   1.9400E+02
1.8644E+02   7.5600E+00   1.9417E+02   2.0438E+00

CONC =  0.0000000E-99
```

```
RUN NO.  S1  DATE 4-22
   T(1) THROUGH T(10)
   1.7960000E+02   1.9580000E+02   1.9400000E+02
   1.7780000E+02   1.8860000E+02   1.8140000E+02
   1.7600000E+02   1.9220000E+02   1.8860000E+02
   1.8860000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9700000E+02   4.2000000E+00   1.9040000E+02
   1.7400000E+02   6.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.0700000E+02   6.4300000E-01  -2.7022058E+00
  -3.2917780E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   7.2000000E+00   1.1500000E+01
  -1.6666666E-01   1.2140274E+01

   V(2) THROUGH V(31)
   3.8094266E+02   2.8327707E+05   1.0791232E+08
   4.3779750E-03   6.5758073E+15   1.5396478E+02
   5.9426488E+00   1.2554180E+01   1.8496829E+01
  -5.4311689E+00   3.6422173E+01   5.0367238E+00
   7.2916666E-02   1.6272191E+02   7.2757835E-01
   7.6414703E+05   1.0069287E+02   6.0322667E+01
   4.2866666E+00   7.8042381E+02   1.8860000E+02
  -2.6184380E+00   5.0920426E+00  -3.1803358E-01
   1.3546515E+01   4.6120749E+00   4.0997079E+00
   1.4555094E+00   6.6598371E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.4380E+00   8.8484E+00   4.2866E+00   1.9220E+02
1.8860E+02   3.6000E+00   1.9288E+02   1.1300E+00

CONC =  0.0000000E-99
```

```
RUN NO.  S2  DATE 4-22
   T(1) THROUGH T(10)
   1.6700000E+02   1.9040000E+02   1.8860000E+02
   1.5800000E+02   1.8140000E+02   1.6340000E+02
   1.5800000E+02   1.8680000E+02   1.8140000E+02
   1.8104000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9700000E+02   6.1000000E+00   1.8320000E+02
   1.5500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1100000E+02   9.6000000E-01  -3.0461229E+00
  -4.4217914E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.3500000E+01   1.4500000E+01
   4.1666666E-02   1.2140274E+01

   V(2) THROUGH V(31)
   4.6107488E+02   2.2591377E+05   1.0416316E+08
   6.5108813E-03   7.7995873E+15   3.2152566E+02
   6.1335604E+00   1.2327908E+01   1.8461469E+01
  -5.0342804E+00   3.6592847E+01   5.7730773E+00
   7.2916666E-02   2.0517111E+02   7.5665783E-01
   7.6675043E+05   1.4378312E+02   6.0451197E+01
   6.4000000E+00   7.8003455E+02   1.8104000E+02
  -2.6184380E+00   5.3238443E+00  -2.7884413E-01
   1.3549916E+01   4.9683060E+00   4.1018363E+00
   1.8562979E+00   6.6593382E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.0941E+00   7.7184E+00   6.4000E+00   1.8680E+02
1.8104E+02   5.7600E+00   1.8744E+02   1.4247E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R3   DATE 4-21
    T(1) THROUGH T(10)
    1.9940000E+02    2.1560000E+02    2.1560000E+02
    1.8860000E+02    2.0660000E+02    1.9580000E+02
    1.9130000E+02    2.1200000E+02    2.0660000E+02
    2.0534000E+02

  CTL1,PRS1,RCD,CTL2,PRS2
    2.2400000E+02    6.3000000E+00    2.0660000E+02
    1.8700000E+02    7.0000000E+00

  TPR,XMV,ST1,ST2,SP
    1.1400000E+02    1.1100000E+00    3.0000000E+00
    9.0000000E-01    2.2200000E+02

  DIA,DHFLO,DHSTG,DHWTR,PATM
    8.7500000E-01    2.0200000E+01    2.8000000E+01
    1.3333333E-02    1.2091143E+01

    V(2) THROUGH V(31)
    1.0899070E+03    1.1394289E+05    1.2418715E+08
    7.6803127E-03    9.9063562E+15    2.2604582E+03
    6.9938476E+00    1.1643452E+01    1.8637300E+01
   -4.8690950E+00    3.6831952E+01    7.7233228E+00
    7.2916666E-02    3.9619249E+02    6.2313760E-01
    7.5444794E+05    1.7944868E+02    5.9836228E+01
    7.4000000E+00    7.8302651E+02    2.0534000E+02
   -2.6184380E+00    5.9819001E+00   -4.7298791E-01
    1.3533741E+01    5.1898892E+00    4.0916112E+00
    2.0014800E+00    6.6631665E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5091E+01   1.2991E+01   7.4000E+00   2.1200E+02
2.0534E+02   6.6600E+00   2.1274E+02   2.7513E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R4  DATE 4-21
   T(1) THROUGH T(10)
   2.0480000E+02    2.2010000E+02    2.1920000E+02
   1.8680000E+02    2.1020000E+02    1.9580000E+02
   1.8680000E+02    2.1920000E+02    2.1020000E+02
   2.0840000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3100000E+02    7.4000000E+00    2.1020000E+02
   1.7400000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1100000E+02    1.4200000E+00    4.9000000E+00
   1.8000000E+00    2.3000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    2.5600000E+01    3.6300000E+01
  -1.0833333E-01    1.2091143E+01

   V(2) THROUGH V(31)
   1.4890747E+03    8.7400713E+04    1.3014619E+08
   9.8687591E-03    1.0852215E+16    4.8054206E+03
   7.3059102E+00    1.1378258E+01    1.8684168E+01
  -4.6183811E+00    3.6923145E+01    8.4774998E+00
   7.2916666E-02    5.1363528E+02    5.9230025E-01
   7.5189379E+05    2.0402578E+02    5.9705361E+01
   9.4666666E+00    7.8383016E+02    2.0840000E+02
  -2.6184380E+00    6.2415134E+00   -5.2374159E-01
   1.3530350E+01    5.3182463E+00    4.0894218E+00
   2.2477768E+00    6.6641923E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6991E+01   1.3891E+01   9.4666E+00   2.1920E+02
2.0840E+02   1.0800E+01   2.1786E+02   3.5669E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R5  DATE 4-21
   T(1) THROUGH T(10)
   2.1560000E+02    2.2820000E+02    2.2820000E+02
   1.9400000E+02    2.1920000E+02    2.0480000E+02
   1.9760000E+02    2.2640000E+02    2.1920000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02    7.7000000E+00    2.1920000E+02
   1.9300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1000000E+02    1.5100000E+00    7.8000000E+00
   4.2000000E+00    2.4000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    2.8700000E+01    4.1900000E+01
  -6.6666666E-02    1.2091143E+01

   V(2) THROUGH V(31)
   1.8871869E+03    7.4916251E+04    1.4138096E+08
   1.0572904E-02    1.2649054E+16    8.2341485E+03
   7.5428425E+00    1.1224126E+01    1.8766968E+01
  -4.5494607E+00    3.7076358E+01    9.0160452E+00
   7.2916666E-02    5.9287379E+02    5.4117022E-01
   7.4712028E+05    2.1696627E+02    5.9449440E+01
   1.0066666E+01    7.8469192E+02    2.1740000E+02
  -2.6184380E+00    6.3849815E+00   -6.1402140E-01
   1.3523981E+01    5.3797419E+00    4.0851262E+00
   2.3092295E+00    6.6652911E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9891E+01   1.6291E+01   1.0066E+01   2.2640E+02
2.1740E+02   9.0000E+00   2.2746E+02   4.1171E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T1  DATE 4-27
   T(1) THROUGH T(10)
   2.1200000E+02   2.2820000E+02   2.2820000E+02
   1.8860000E+02   2.1200000E+02   1.9940000E+02
   1.8770000E+02   2.2640000E+02   2.1200000E+02
   2.1200000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02   5.5000000E+00   2.1380000E+02
   1.7500000E+02   6.4000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02   2.2800000E+00   7.7000000E+00
   2.6000000E+00   2.3900000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   9.5000000E+00   5.6700000E+01
  -1.5000000E-01   1.2125534E+01

   V(2) THROUGH V(31)
   1.4558282E+03   5.5378037E+04   8.0620906E+07
   1.5961130E-02   5.8914906E+15   8.1636083E+03
   7.2833302E+00   1.0921938E+01   1.8205268E+01
  -4.1375988E+00   3.6312285E+01   9.0074415E+00
   4.1666666E-02   8.0228983E+02   5.4241407E-01
   7.4725346E+05   1.1803959E+02   5.9456716E+01
   1.5200000E+01   7.8467177E+02   2.1200000E+02
  -3.1780538E+00   6.6874699E+00  -6.1172560E-01
   1.3524159E+01   4.7710200E+00   4.0852485E+00
   2.7212954E+00   6.6652655E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9825E+01   1.4725E+01   1.5200E+01   2.2640E+02
2.1200E+02   1.4400E+01   2.2720E+02   5.5714E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T2  DATE 4-27
   T(1) THROUGH T(10)
    2.0570000E+02    2.2388000E+02    2.2388000E+02
    1.7240000E+02    2.0516000E+02    1.8680000E+02
    1.7150000E+02    2.2190000E+02    2.0570000E+02
    2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.4200000E+02    6.4000000E+00    2.0660000E+02
    1.6700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
    1.2200000E+02    2.6700000E+00    6.2000000E+00
    6.0000000E-01    2.3900000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    5.0000000E-01    8.9000000E+00    5.9500000E+01
   -1.3333333E-01    1.2125534E+01

   V(2) THROUGH V(31)
    1.4627691E+03    5.3044118E+04    7.7591299E+07
    1.8626341E-02    5.1383118E+15    7.9291719E+03
    7.2880865E+00    1.0878879E+01    1.8166965E+01
   -3.9831785E+00    3.6175500E+01    8.9783038E+00
    4.1666666E-02    8.4190908E+02    5.6563395E-01
    7.4954095E+05    1.1373818E+02    5.9580901E+01
    1.7800000E+01    7.8433743E+02    2.0480000E+02
   -3.1780538E+00    6.7356720E+00   -5.6980814E-01
    1.3527216E+01    4.7338991E+00    4.0873350E+00
    2.8791984E+00    6.6648393E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8325E+01   1.2725E+01   1.7800E+01   2.2190E+02
2.0480E+02   1.7100E+01   2.2260E+02   5.8465E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T3  DATE 4-27
   T(1) THROUGH T(10)
   1.7420000E+02   2.0120000E+02   1.9940000E+02
   1.6520000E+02   1.8860000E+02   1.7420000E+02
   1.5800000E+02   1.9778000E+02   1.8860000E+02
   1.8860000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02   4.6000000E+00   1.9058000E+02
   1.6000000E+02   6.2000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.5500000E+00  -9.3348930E-01
  -2.9478609E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   2.0000000E+00   2.6000000E+01
  -5.8333333E-02   1.2120621E+01

   V(2) THROUGH V(31)
   5.0936087E+02   1.2451363E+05   6.3422371E+07
   1.0600462E-02   2.0883462E+15   3.8173370E+02
   6.2331567E+00   1.1732170E+01   1.7965327E+01
  -4.5468576E+00   3.5275148E+01   5.9447232E+00
   4.1666666E-02   3.6789304E+02   7.0434071E-01
   7.6122649E+05   4.5509143E+01   6.0176175E+01
   1.0333333E+01   7.8090518E+02   1.8860000E+02
  -3.1780538E+00   5.9077922E+00  -3.5049307E-01
   1.3542686E+01   3.8179132E+00   4.0972765E+00
   2.3353748E+00   6.6604537E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1187E+01   9.1727E+00   1.0333E+01   1.9778E+02
1.8860E+02   9.1800E+00   1.9893E+02   2.5548E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T4  DATE 4-27
   T(1) THROUGH T(10)
   1.7420000E+02   2.0120000E+02   2.0030000E+02
   1.4990000E+02   1.8590000E+02   1.6520000E+02
   1.4270000E+02   1.9940000E+02   1.8680000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02   5.0000000E+00   1.8896000E+02
   1.4200000E+02   1.6200000E+01

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   2.0400000E+00  -9.8262032E-01
  -3.4391711E+00   2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   3.1000000E+00   3.1000000E+01
   0.0000000E-99   1.2120621E+01

   V(2) THROUGH V(31)
   6.1324985E+02   1.0427093E+05   6.3944129E+07
   1.3967490E-02   2.5869552E+15   7.3685462E+02
   6.4187724E+00   1.1554747E+01   1.7973520E+01
  -4.2710227E+00   3.5489257E+01   6.6023906E+00
   4.1666666E-02   4.3864169E+02   6.9785088E-01
   7.6051386E+05   6.0574851E+01   6.0140360E+01
   1.3600000E+01   7.8106403E+02   1.8680000E+02
  -3.1780538E+00   6.0836828E+00  -3.5974983E-01
   1.3541749E+01   4.1038798E+00   4.0966811E+00
   2.6100697E+00   6.6606571E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1138E+01   8.6814E+00   1.3600E+01   1.9940E+02
1.8680E+02   1.2600E+01   2.0040E+02   3.0461E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AF1 DATE 6-1
   T(1) THROUGH T(10)
   2.0120000E+02    2.1380000E+02    2.1380000E+02
   1.8680000E+02    2.0300000E+02    1.9310000E+02
   1.8680000E+02    2.1020000E+02    2.0300000E+02
   2.0300000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02    5.7000000E+00    2.0840000E+02
   1.8300000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02    1.4200000E+00    2.9000000E+00
   3.0000000E-01    2.2400000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    1.1000000E+01    2.8200000E+01
  -5.0000000E-02    1.2076403E+01

   V(2) THROUGH V(31)
   7.8189187E+02    1.1316817E+05    8.8485272E+07
   9.8229273E-03    7.0193583E+15    1.6292481E+03
   6.6617164E+00    1.1636630E+01    1.8298346E+01
  -4.6230361E+00    3.6487448E+01    7.3958739E+00
   5.2083333E-02    3.9902245E+02    6.2481393E-01
   7.5458369E+05    1.2823293E+02    5.9843121E+01
   9.4666666E+00    7.8298108E+02    2.0300000E+02
  -2.9549102E+00    5.9890176E+00   -4.7030138E-01
   1.3533921E+01    4.8538483E+00    4.0917264E+00
   2.2477768E+00    6.6631085E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.4976E+01   1.2376E+01   9.4666E+00   2.1020E+02
2.0300E+02   7.2000E+00   2.1246E+02   2.7709E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AF2 DATE 6-1
   T(1) THROUGH T(10)
   2.0660000E+02    2.1920000E+02    2.1884000E+02
   1.7960000E+02    2.0480000E+02    1.9040000E+02
   1.7960000E+02    2.1740000E+02    2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02    7.0000000E+00    2.1020000E+02
   1.7600000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    1.9600000E+00    5.0000000E+00
   1.0000000E+00    2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    1.1400000E+01    4.2700000E+01
  -1.6666666E-02    1.2076403E+01

   V(2) THROUGH V(31)
   1.2511509E+03    7.4300840E+04    9.2961562E+07
   1.3621665E-02    6.4163133E+15    4.2638481E+03
   7.1318191E+00    1.1215877E+01    1.8347696E+01
  -4.2960937E+00    3.6397620E+01    8.3579273E+00
   5.2083333E-02    6.0419357E+02    5.9230025E-01
   7.5189379E+05    1.3083166E+02    5.9705361E+01
   1.3066666E+01    7.8383016E+02    2.0480000E+02
  -2.9549102E+00    6.4038946E+00   -5.2374159E-01
   1.3530350E+01    4.8739114E+00    4.0894218E+00
   2.5700644E+00    6.6641923E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7076E+01   1.3076E+01   1.3066E+01   2.1740E+02
2.0480E+02   1.2600E+01   2.1786E+02   4.1957E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AF3 DATE 6-1
   T(1) THROUGH T(10)
   2.1740000E+02   2.3000000E+02   2.3000000E+02
   1.9040000E+02   2.1560000E+02   1.9940000E+02
   1.8860000E+02   2.2748000E+02   2.1560000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02   7.2000000E+00   2.1920000E+02
   1.8500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02   2.0600000E+00   8.3000000E+00
   3.6000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   1.2400000E+01   5.1600000E+01
  -8.3333333E-02   1.2076403E+01

   V(2) THROUGH V(31)
   1.6871216E+03   6.0704814E+04   1.0241640E+08
   1.4444797E-02   7.4067059E+15   8.1577055E+03
   7.4307791E+00   1.1013778E+01   1.8444557E+01
  -4.2374209E+00   3.6541162E+01   9.0067182E+00
   5.2083333E-02   7.3012619E+02   5.3282170E-01
   7.4618546E+05   1.3713573E+02   5.9398337E+01
   1.3733333E+01   7.8484213E+02   2.1560000E+02
  -2.9549102E+00   6.5932173E+00  -6.2956843E-01
   1.3522729E+01   4.9209711E+00   4.0842662E+00
   2.6198259E+00   6.6654825E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0376E+01   1.5676E+01   1.3733E+01   2.2748E+02
2.1560E+02   1.1880E+01   2.2933E+02   5.0703E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AA1 DATE 5-7
   T(1) THROUGH T(10)
   1.8230000E+02   2.0030000E+02   1.9940000E+02
   1.7780000E+02   1.9400000E+02   1.8050000E+02
   1.7456000E+02   1.9850000E+02   1.9400000E+02
   1.9400000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02   5.7000000E+00   1.9760000E+02
   1.7200000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   6.5000000E-01  -1.4739304E+00
  -2.4074197E+00   2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   8.0000000E+00   9.6000000E+00
  -5.0000000E-02   1.2110795E+01

   V(2) THROUGH V(31)
   2.8951165E+02   3.4780578E+05   1.0069382E+08
   4.2702951E-03   6.7534649E+15   9.4664068E+01
   5.6681955E+00   1.2759399E+01   1.8427594E+01
  -5.4560723E+00   3.6448832E+01   4.5503345E+00
   7.2916666E-02   1.3583743E+02   8.0056252E-01
   7.6151758E+05   1.0700432E+02   6.2040648E+01
   4.3333333E+00   7.5043958E+02   1.9400000E+02
  -2.6184380E+00   4.9114588E+00  -2.2244064E-01
   1.3543068E+01   4.6728692E+00   4.1277897E+00
   1.4663370E+00   6.6206591E+00   1.1246734E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0636E+01   9.7033E+00   4.3333E+00   1.9850E+02
1.9400E+02   4.5000E+00   1.9833E+02   9.4331E-01

CONC =  1.1246734E+00
```

```
RUN NO.  AA2 DATE 5-7
   T(1) THROUGH T(10)
   1.8896000E+02   2.0480000E+02   2.0300000E+02
   1.7420000E+02   1.9580000E+02   1.7960000E+02
   1.7330000E+02   2.0120000E+02   1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02   7.0000000E+00   1.9940000E+02
   1.7000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.0600000E+00  -4.9131016E-02
  -1.6704545E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.4900000E+01   1.6600000E+01
  -6.6666666E-02   1.2110795E+01

   V(2) THROUGH V(31)
   5.1903082E+02   1.9997045E+05   1.0379083E+08
   6.9931377E-03   7.7372449E+15   4.3268543E+02
   6.2519632E+00   1.2205924E+01   1.8457888E+01
  -4.9628259E+00   3.6584822E+01   6.0700109E+00
   7.2916666E-02   2.3488555E+02   7.7372554E-01
   7.5843095E+05   1.5186313E+02   6.1930715E+01
   7.0666666E+00   7.5053946E+02   1.9760000E+02
  -2.6184380E+00   5.4590983E+00  -2.5653806E-01
   1.3539007E+01   5.0229796E+00   4.1260162E+00
   1.9553888E+00   6.6207922E+00   1.1515580E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.2061E+01   1.0440E+01   7.0666E+00   2.0120E+02
1.9760E+02   3.6000E+00   2.0466E+02   1.6311E+00

CONC =  1.1515580E+00
```

```
RUN NO.  AA3 DATE 5-7
   T(1) THROUGH T(10)
   2.1200000E+02   2.2460000E+02   2.2370000E+02
   1.9580000E+02   2.1560000E+02   2.0120000E+02
   1.9580000E+02   2.2280000E+02   2.1560000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3400000E+02   8.2000000E+00   2.1830000E+02
   1.9100000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1800000E+02   1.2900000E+00   6.3000000E+00
   3.3000000E+00   2.3200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   2.0200000E+01   2.9800000E+01
  -5.8333333E-02   1.2110795E+01

   V(2) THROUGH V(31)
   1.0702706E+03   1.0916361E+05   1.1683461E+08
   8.6431104E-03   8.6148108E+15   2.1880216E+03
   6.9756667E+00   1.1600603E+01   1.8576269E+01
  -4.7509927E+00   3.6692259E+01   7.6907530E+00
   7.2916666E-02   4.2166202E+02   6.7793043E-01
   7.4874703E+05   1.7944868E+02   6.1476239E+01
   8.6000000E+00   7.5250039E+02   2.1560000E+02
  -2.6184380E+00   6.0442040E+00  -3.8871060E-01
   1.3526156E+01   5.1898892E+00   4.1186507E+00
   2.1517622E+00   6.6234015E+00   1.1694811E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8410E+01   1.5410E+01   8.6000E+00   2.2280E+02
2.1560E+02   7.2000E+00   2.2420E+02   2.9282E+00

CONC =  1.1694811E+00
```

```
RUN NO.  AB1 DATE 5-9
   T(1) THROUGH T(10)
   1.6340000E+02    1.9760000E+02    1.9580000E+02
   1.4720000E+02    1.8320000E+02    1.5980000E+02
   1.4000000E+02    1.9526000E+02    1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02    6.1000000E+00    1.8680000E+02
   1.4100000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02    1.9400000E+00   -1.8669786E+00
  -4.0287433E+00    2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    4.0000000E+00    2.7600000E+01
  -1.6666666E-02    1.2017446E+01

   V(2) THROUGH V(31)
   4.7621141E+02    1.2092993E+05    5.7588214E+07
   1.2773183E-02    2.6442475E+15    5.1995724E+02
   6.1658618E+00    1.1702966E+01    1.7868828E+01
  -4.3604073E+00    3.5511162E+01    6.2537465E+00
   4.1666666E-02    3.9053260E+02    7.9902031E-01
   7.6258252E+05    7.0981299E+01    6.1930454E+01
   1.2933333E+01    7.5313967E+02    1.8320000E+02
  -3.1780538E+00    5.9675114E+00   -2.2436891E-01
   1.3544466E+01    4.2624164E+00    4.1260120E+00
   2.5598079E+00    6.6242506E+00    1.0126541E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0150E+01   7.9887E+00   1.2933E+01   1.9526E+02
1.8320E+02   1.2060E+01   1.9613E+02   2.7120E+00

CONC =  1.0126541E+00
```

```
RUN NO.  AB2 DATE 5-9
   T(1) THROUGH T(10)
    1.9796000E+02   2.1650000E+02   2.1560000E+02
    1.6160000E+02   1.9760000E+02   1.7600000E+02
    1.5800000E+02   2.1470000E+02   1.9670000E+02
    1.9670000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.3600000E+02   6.5000000E+00   2.0084000E+02
    1.5600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
    1.2500000E+02   2.8200000E+00   3.2000000E+00
   -1.7195855E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    5.0000000E-01   7.0000000E+00   5.4200000E+01
   -6.6666666E-02   1.2017446E+01

   V(2) THROUGH V(31)
    1.0624579E+03   6.0418124E+04   6.4191710E+07
    1.8834772E-02   3.2613116E+15   3.6347532E+03
    6.9683402E+00   1.1009044E+01   1.7977384E+01
   -3.9720505E+00   3.5720905E+01   8.1982964E+00
    4.1666666E-02   7.6691550E+02   7.0771873E-01
    7.5307409E+05   9.9060900E+01   6.1528603E+01
    1.8800000E+01   7.5446700E+02   1.9670000E+02
   -3.1780538E+00   6.6423766E+00  -3.4570853E-01
    1.3531918E+01   4.5957348E+00   4.1195021E+00
    2.9338568E+00   6.6260115E+00   1.0485003E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5217E+01   1.0297E+01   1.8800E+01   2.1470E+02
1.9670E+02   1.8000E+01   2.1550E+02   5.3258E+00

CONC =  1.0485003E+00
```

```
RUN NO.  AC1 DATE 5-16
   T(1) THROUGH T(10)
   1.7420000E+02   1.9580000E+02   1.9490000E+02
   1.6790000E+02   1.8860000E+02   1.7240000E+02
   1.6880000E+02   1.9400000E+02   1.8770000E+02
   1.8770000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02   5.2000000E+00   1.9076000E+02
   1.6600000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.0300000E+00  -2.1126336E+00
  -3.2426470E+00   2.0100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   5.4000000E+00   1.5000000E+01
  -1.6666666E-02   1.2017446E+01

   V(2) THROUGH V(31)
   3.9263600E+02   2.2190245E+05   8.7126891E+07
   6.8174793E-03   4.3645697E+15   1.8816415E+02
   5.9728829E+00   1.2309993E+01   1.8282876E+01
  -4.9882654E+00   3.6012296E+01   5.2373147E+00
   6.2500000E-02   2.1224597E+02   7.8963388E-01
   7.6333848E+05   8.5060851E+01   6.1699891E+01
   6.8666666E+00   7.5787055E+02   1.8770000E+02
  -2.7725887E+00   5.3577458E+00  -2.3618588E-01
   1.3545456E+01   4.4433668E+00   4.1222821E+00
   1.9266787E+00   6.6305125E+00   8.3342337E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.9048E+00   8.7747E+00   6.8666E+00   1.9400E+02
1.8770E+02   6.3000E+00   1.9456E+02   1.4739E+00

CONC =  8.3342337E-01
```

```
RUN NO.  AC2 DATE 5-16
   T(1) THROUGH T(10)
   1.7780000E+02    1.9760000E+02    1.9670000E+02
   1.5800000E+02    1.8680000E+02    1.6880000E+02
   1.5620000E+02    1.9580000E+02    1.8680000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02    6.6000000E+00    1.9040000E+02
   1.5600000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02    1.2800000E+00   -1.9161096E+00
  -3.4391711E+00    2.0700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    1.0600000E+01    1.8600000E+01
  -5.0000000E-02    1.2017446E+01

   V(2) THROUGH V(31)
   4.8563838E+02    1.7906981E+05    8.6963178E+07
   8.4592933E-03    5.7684101E+15    4.2510945E+02
   6.1854642E+00    1.2095531E+01    1.8280995E+01
  -4.7724896E+00    3.6291172E+01    6.0523466E+00
   6.2500000E-02    2.6318501E+02    7.9182606E-01
   7.6296875E+05    1.2558649E+02    6.1769886E+01
   8.5333333E+00    7.5634882E+02    1.8680000E+02
  -2.7725887E+00    5.5728572E+00   -2.3341353E-01
   1.3544972E+01    4.8329946E+00    4.1234159E+00
   2.1439800E+00    6.6285026E+00    8.9167337E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0101E+01   8.5782E+00   8.5333E+00   1.9580E+02
1.8680E+02   9.0000E+00   1.9533E+02   1.8276E+00

CONC =  8.9167337E-01
```

```
RUN NO.  AC3 DATE 5-16
   T(1) THROUGH T(10)
   2.0300000E+02    2.1740000E+02    2.1596000E+02
   1.8140000E+02    2.0480000E+02    1.9040000E+02
   1.7960000E+02    2.1560000E+02    2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3200000E+02    6.8000000E+00    2.0876000E+02
   1.7600000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02    1.6000000E+00    3.2000000E+00
   2.0000000E-01    2.3000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    1.4300000E+01    3.2400000E+01
  -2.5000000E-01    1.2017446E+01

   V(2) THROUGH V(31)
   9.6542441E+02    1.0082064E+05    9.7334707E+07
   1.0726806E-02    6.4513176E+15    1.9988279E+03
   6.8725678E+00    1.1521098E+01    1.8393666E+01
  -4.5350094E+00    3.6403060E+01    7.6003162E+00
   6.2500000E-02    4.5845133E+02    6.9837127E-01
   7.5309066E+05    1.4844889E+02    6.1375557E+01
   1.0666666E+01    7.5733675E+02    2.0480000E+02
  -2.7725887E+00    6.1278541E+00   -3.5900441E-01
   1.3531940E+01    5.0002407E+00    4.1170116E+00
   2.3671235E+00    6.6298080E+00    9.4096186E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5217E+01   1.2217E+01   1.0666E+01   2.1560E+02
2.0480E+02   1.0800E+01   2.1546E+02   3.1836E+00

CONC =  9.4096186E-01
```

```
RUN NO.  AD1 DATE 5-30
   T(1) THROUGH T(10)
   1.8410000E+02   2.0120000E+02   1.9760000E+02
   1.7960000E+02   1.9400000E+02   1.8230000E+02
   1.7780000E+02   1.9760000E+02   1.9148000E+02
   1.9310000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02   5.6000000E+00   1.9220000E+02
   1.7400000E+02   6.9000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02   8.4000000E-01  -1.4739304E+00
  -2.5548128E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.3000000E+01   1.3600000E+01
   0.0000000E-99   1.2037098E+01

   V(2) THROUGH V(31)
   3.5994281E+02   2.5372931E+05   9.1328042E+07
   5.2622308E-03   6.2443550E+15   1.9255806E+02
   5.8859451E+00   1.2444023E+01   1.8329968E+01
  -5.2472002E+00   3.6370454E+01   5.2603977E+00
   7.2916666E-02   1.9243635E+02   9.1231782E-01
   7.6133975E+05   1.4079652E+02   6.4132661E+01
   5.6000000E+00   7.1541885E+02   1.9310000E+02
  -2.6184380E+00   5.2597654E+00  -9.1766860E-02
   1.3542834E+01   4.9473157E+00   4.1609537E+00
   1.7227665E+00   6.5728681E+00   2.5809238E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0563E+01   9.4822E+00   5.6000E+00   1.9760E+02
1.9310E+02   4.5000E+00   1.9870E+02   1.3363E+00

CONC =  2.5809238E+00
```

```
RUN NO.  AD5 DATE 5-30
   T(1) THROUGH T(10)
   2.1200000E+02   2.2640000E+02   2.2370000E+02
   1.9760000E+02   2.1740000E+02   2.0300000E+02
   1.9760000E+02   2.2460000E+02   2.1650000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02   7.4000000E+00   2.1740000E+02
   1.9300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.3100000E+00   6.0000000E+00
   3.0000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   2.4000000E+01   3.1200000E+01
  -1.6666666E-02   1.2027272E+01

   V(2) THROUGH V(31)
   9.2559828E+02   1.0909339E+05   1.0097665E+08
   8.2591412E-03   7.0637837E+15   1.7969726E+03
   6.8304403E+00   1.1599959E+01   1.8430399E+01
  -4.7964346E+00   3.6493757E+01   7.4938586E+00
   7.2916666E-02   4.4147165E+02   8.2075537E-01
   7.4868083E+05   1.9703952E+02   6.4328669E+01
   8.7333333E+00   7.0802986E+02   2.1560000E+02
  -2.6184380E+00   6.0901138E+00  -1.9753017E-01
   1.3526068E+01   5.2834043E+00   4.1640053E+00
   2.1671471E+00   6.5624862E+00   3.1006932E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8027E+01   1.5027E+01   8.7333E+00   2.2460E+02
2.1560E+02   9.0000E+00   2.2433E+02   3.0657E+00

CONC =  3.1006932E+00
```

```
RUN NO.  AE1 DATE 5-31
   T(1) THROUGH T(10)
   1.7060000E+02    1.9310000E+02    1.8860000E+02
   1.6700000E+02    1.8500000E+02    1.6700000E+02
   1.6520000E+02    1.9040000E+02    1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9600000E+02    5.0000000E+00    1.8410000E+02
   1.6200000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    8.5000000E-01   -3.1935160E+00
  -4.1761363E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    6.5000000E+00    1.3000000E+01
   0.0000000E-99    1.2037098E+01

   V(2) THROUGH V(31)
   2.6691555E+02    2.7074120E+05    7.2265040E+07
   5.2176180E-03    3.6926641E+15    9.6817738E+01
   5.5869323E+00    1.2508918E+01    1.8095851E+01
  -5.2557143E+00    3.5845124E+01    4.5728302E+00
   6.2500000E-02    1.8394652E+02    1.0048888E+00
   7.6607164E+05    9.4875970E+01    6.5009459E+01
   5.6666666E+00    7.0536517E+02    1.8320000E+02
  -2.7725887E+00    5.2146450E+00    4.8768906E-03
   1.3549030E+01    4.5525704E+00    4.1745327E+00
   1.7346010E+00    6.5587156E+00    2.9814263E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.8435E+00   7.8609E+00   5.6666E+00   1.9040E+02
1.8320E+02   7.2000E+00   1.8886E+02   1.2774E+00

CONC =  2.9814263E+00
```

```
RUN NO.  AE2 DATE 5-31
    T(1) THROUGH T(10)
    1.6700000E+02    1.9220000E+02    1.8860000E+02
    1.5710000E+02    1.8230000E+02    1.6340000E+02
    1.5620000E+02    1.8860000E+02    1.8230000E+02
    1.8230000E+02

  CTL1,PRS1,RCD,CTL2,PRS2
    1.9800000E+02    5.8000000E+00    1.8320000E+02
    1.5200000E+02    1.6000000E+01

  TPR,XMV,ST1,ST2,SP
    1.2700000E+02    1.0700000E+00   -3.3409090E+00
   -4.6674465E+00    1.9600000E+02

  DIA,DHFLO,DHSTG,DHWTR,PATM
    7.5000000E-01    6.8000000E+00    1.5100000E+01
   -1.1666666E-01    1.2037098E+01

    V(2) THROUGH V(31)
    3.0910977E+02    2.3342015E+05    7.2152451E+07
    6.5545012E-03    3.5097915E+15    1.3333245E+02
    5.7336964E+00    1.2360595E+01    1.8094291E+01
   -5.0276032E+00    3.5794333E+01    4.8928456E+00
    6.2500000E-02    2.1366095E+02    1.0080668E+00
    7.6580155E+05    9.7405460E+01    6.5124930E+01
    7.1333333E+00    7.0366083E+02    1.8230000E+02
   -2.7725887E+00    5.3643904E+00    8.0344393E-03
    1.3548678E+01    4.5788822E+00    4.1763074E+00
    1.9647786E+00    6.5562964E+00    3.0605092E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.6961E+00   7.3696E+00   7.1333E+00   1.8860E+02
1.8230E+02   6.3000E+00   1.8943E+02   1.4837E+00

CONC =  3.0605092E+00
```

```
RUN NO.  AE3 DATE 5-31
   T(1) THROUGH T(10)
   1.8500000E+02   2.0300000E+02   2.0120000E+02
   1.6880000E+02   1.9400000E+02   1.7600000E+02
   1.6700000E+02   2.0120000E+02   1.9400000E+02
   1.9400000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1400000E+02   6.2000000E+00   1.9490000E+02
   1.6300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.2900000E+00  -7.3696524E-01
  -2.5548128E+00   2.1200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.2500000E+01   2.1200000E+01
  -1.6666666E-01   1.2027272E+01

   V(2) THROUGH V(31)
   4.6980629E+02   1.6439957E+05   7.7235955E+07
   7.9707501E-03   4.7931911E+15   4.3739472E+02
   6.1523204E+00   1.2010055E+01   1.8162375E+01
  -4.8319766E+00   3.6105972E+01   6.0808360E+00
   6.2500000E-02   2.9997432E+02   9.3508924E-01
   7.5944167E+05   1.3775191E+02   6.4936722E+01
   8.6000000E+00   7.0387440E+02   1.9400000E+02
  -2.7725887E+00   5.7036968E+00  -6.7113308E-02
   1.3540338E+01   4.9254543E+00   4.1734132E+00
   2.1517622E+00   6.5565999E+00   3.1395921E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1290E+01   9.4724E+00   8.6000E+00   2.0120E+02
1.9400E+02   7.2000E+00   2.0260E+02   2.0831E+00

CONC =  3.1395921E+00
```

```
RUN NO.  AE5 DATE 5-31
   T(1) THROUGH T(10)
   2.0840000E+02   2.2460000E+02   2.2100000E+02
   1.8950000E+02   2.1200000E+02   1.9670000E+02
   1.8860000E+02   2.2100000E+02   2.1290000E+02
   2.1200000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3800000E+02   7.0000000E+00   2.1452000E+02
   1.8600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02   1.5400000E+00   5.6000000E+00
   2.2000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.4200000E+01   3.5400000E+01
  -2.0000000E-01   1.2017446E+01

   V(2) THROUGH V(31)
   8.6395050E+02   9.7108685E+04   8.3897098E+07
   9.6123869E-03   4.6962458E+15   1.5981084E+03
   6.7615154E+00   1.1483586E+01   1.8245101E+01
  -4.6447027E+00   3.6085539E+01   7.3765759E+00
   6.2500000E-02   5.0090052E+02   8.5457879E-01
   7.4970615E+05   1.4787294E+02   6.4881143E+01
   1.0266666E+01   7.0192852E+02   2.1200000E+02
  -2.7725887E+00   6.2164075E+00  -1.5714657E-01
   1.3527436E+01   4.9963533E+00   4.1725570E+00
   2.3289023E+00   6.5538315E+00   3.3926573E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7617E+01   1.4217E+01   1.0266E+01   2.2100E+02
2.1200E+02   9.0000E+00   2.2226E+02   3.4784E+00

CONC =  3.3926573E+00
```

```
RUN NO.  AE6 DATE 5-31
   T(1) THROUGH T(10)
   2.1740000E+02   2.3360000E+02   2.3000000E+02
   1.9850000E+02   2.2280000E+02   2.0570000E+02
   1.9850000E+02   2.3000000E+02   2.2280000E+02
   2.2280000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02   7.6000000E+00   2.2388000E+02
   1.9500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02   1.5600000E+00   8.8000000E+00
   4.9000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.7000000E+01   4.1000000E+01
  -1.6666666E-01   1.2017446E+01

   V(2) THROUGH V(31)
   1.0614324E+03   8.2957988E+04   8.8054297E+07
   9.8289986E-03   5.2997402E+15   2.6736812E+03
   6.9673745E+00   1.1326089E+01   1.8293464E+01
  -4.6224182E+00   3.6206434E+01   7.8912115E+00
   6.2500000E-02   5.8013903E+02   8.0858160E-01
   7.4422081E+05   1.6330167E+02   6.4667860E+01
   1.0400000E+01   7.0336013E+02   2.2280000E+02
  -2.7725887E+00   6.3632677E+00  -2.1247367E-01
   1.3520093E+01   5.0955992E+00   4.1692643E+00
   2.3418058E+00   6.5558690E+00   3.4321989E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0817E+01   1.6917E+01   1.0400E+01   2.3000E+02
2.2280E+02   7.2000E+00   2.3320E+02   4.0287E+00

CONC =  3.4321989E+00
```

```
RUN NO.  AG1 DATE 6-2
   T(1) THROUGH T(10)
   1.5980000E+02    1.8680000E+02    1.8320000E+02
   1.5440000E+02    1.7690000E+02    1.5800000E+02
   1.5080000E+02    1.8464000E+02    1.7510000E+02
   1.7600000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9300000E+02    4.8000000E+00    1.8320000E+02
   1.4900000E+02    7.1000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    1.0300000E+00   -3.9304812E+00
  -5.0113636E+00    1.9200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    4.0000000E+00    1.2700000E+01
  -1.3333333E-01    1.2051838E+01

   V(2) THROUGH V(31)
   2.1712824E+02    2.7561815E+05    5.9844484E+07
   6.3867226E-03    2.7475973E+15    6.8894459E+01
   5.3804881E+00    1.2526771E+01    1.7907259E+01
  -5.0535340E+00    3.5549503E+01    4.2325757E+00
   5.2083333E-02    1.7970160E+02    1.0038040E+00
   7.6891961E+05    7.0981299E+01    6.4413786E+01
   6.8666666E+00    7.1517618E+02    1.7600000E+02
  -2.9549102E+00    5.1912976E+00    3.7967851E-03
   1.3552741E+01    4.2624164E+00    4.1653276E+00
   1.9266787E+00    6.5725289E+00    2.5137124E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.1213E+00   7.0404E+00   6.8666E+00   1.8464E+02
1.7600E+02   8.6400E+00   1.8286E+02   1.2479E+00

CONC =  2.5137124E+00
```

```
RUN NO.  AG2 DATE 6-2
   T(1) THROUGH T(10)
   1.7150000E+02   1.9400000E+02   1.9148000E+02
   1.5440000E+02   1.8140000E+02   1.6160000E+02
   1.5260000E+02   1.9220000E+02   1.8140000E+02
   1.8140000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0500000E+02   6.0000000E+00   1.8770000E+02
   1.5000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02   1.5900000E+00  -3.0461229E+00
  -4.4217914E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   8.5000000E+00   2.1300000E+01
  -1.6666666E-01   1.2037098E+01

   V(2) THROUGH V(31)
   3.8753446E+02   1.6297118E+05   6.3156952E+07
   9.9220745E-03   3.6832744E+15   3.4352455E+02
   5.9598047E+00   1.2001328E+01   1.7961133E+01
  -4.6129932E+00   3.5842578E+01   5.8392585E+00
   5.2083333E-02   3.0138929E+02   9.4593603E-01
   7.6457301E+05   1.1078951E+02   6.4242094E+01
   1.0600000E+01   7.1567457E+02   1.8140000E+02
  -2.9549102E+00   5.7084027E+00  -5.5580331E-02
   1.3547072E+01   4.7076320E+00   4.1626586E+00
   2.3608540E+00   6.5732255E+00   2.5450777E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.9909E+00   7.6153E+00   1.0600E+01   1.9220E+02
1.8140E+02   1.0800E+01   1.9200E+02   2.0929E+00

CONC =  2.5450777E+00
```

```
RUN NO.  AG3 DATE 6-2
   T(1) THROUGH T(10)
   1.9580000E+02   2.1290000E+02   2.0930000E+02
   1.7060000E+02   1.9760000E+02   1.7960000E+02
   1.6880000E+02   2.0840000E+02   1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02   6.5000000E+00   2.0300000E+02
   1.6700000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02   1.9500000E+00   1.6000000E+00
  -1.4739304E+00   2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   8.4000000E+00   3.5500000E+01
  -1.6666666E-01   1.2037098E+01

   V(2) THROUGH V(31)
   7.1368931E+02   9.6249104E+04   6.8691956E+07
   1.2301104E-02   3.3457533E+15   1.1641339E+03
   6.5704477E+00   1.1474694E+01   1.8045142E+01
  -4.3980662E+00   3.5746468E+01   7.0597326E+00
   5.2083333E-02   5.0231550E+02   8.6119393E-01
   7.5551032E+05   1.1004158E+02   6.3993061E+01
   1.3000000E+01   7.1489318E+02   1.9760000E+02
  -2.9549102E+00   6.2192284E+00  -1.4943555E-01
   1.3535148E+01   4.7008582E+00   4.1587746E+00
   2.5649493E+00   6.5721331E+00   2.6839814E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3637E+01   1.0563E+01   1.3000E+01   2.0840E+02
1.9760E+02   1.0800E+01   2.1060E+02   3.4883E+00

CONC =  2.6839814E+00
```

```
RUN NO.  AG4 DATE 6-2
   T(1) THROUGH T(10)
   2.0480000E+02   2.2280000E+02   2.1920000E+02
   1.8140000E+02   2.0660000E+02   1.9040000E+02
   1.8140000E+02   2.1920000E+02   2.0660000E+02
   2.0660000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02   7.0000000E+00   2.1200000E+02
   1.7700000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2900000E+02   2.1300000E+00   5.0000000E+00
   8.0000000E-01   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   9.7000000E+00   4.5500000E+01
  -1.6666666E-02   1.2037098E+01

   V(2) THROUGH V(31)
   9.7488278E+02   7.4299769E+04   7.2433563E+07
   1.3554262E-02   3.5598012E+15   2.3656892E+03
   6.8823172E+00   1.1215863E+01   1.8098180E+01
  -4.3010542E+00   3.5808481E+01   7.7688246E+00
   5.2083333E-02   6.4381282E+02   8.1078384E-01
   7.5043284E+05   1.1944305E+02   6.3743405E+01
   1.4200000E+01   7.1630736E+02   2.0660000E+02
  -2.9549102E+00   6.4674080E+00  -2.0975379E-01
   1.3528405E+01   4.7828396E+00   4.1548657E+00
   2.6532419E+00   6.5741093E+00   2.6929430E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7037E+01   1.2837E+01   1.4200E+01   2.1920E+02
2.0660E+02   1.2600E+01   2.2080E+02   4.4709E+00

CONC =  2.6929430E+00
```

```
RUN NO.  AH1 DATE 6-3
   T(1) THROUGH T(10)
   1.6520000E+02   2.0390000E+02   2.0120000E+02
   1.5260000E+02   1.9040000E+02   1.6430000E+02
   1.4900000E+02   2.0120000E+02   1.8950000E+02
   1.9040000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0800000E+02   6.5000000E+00   1.9004000E+02
   1.5000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3000000E+02   1.7000000E+00  -4.9131016E-01
  -2.6530748E+00   2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   3.0000000E+00   2.7400000E+01
  -1.6666666E-01   1.2037098E+01

   V(2) THROUGH V(31)
   4.3559362E+02   1.2441388E+05   5.4193893E+07
   1.0803285E-02   1.9888771E+15   3.6428081E+02
   6.0767097E+00   1.1731369E+01   1.7808078E+01
  -4.5279050E+00   3.5226346E+01   5.8979250E+00
   4.1666666E-02   3.8770266E+02   8.6874628E-01
   7.5986446E+05   5.9329870E+01   6.3479209E+01
   1.1333333E+01   7.2432646E+02   1.9040000E+02
  -3.1780538E+00   5.9602387E+00  -1.4070416E-01
   1.3540895E+01   4.0831128E+00   4.1507124E+00
   2.4277482E+00   6.5852422E+00   2.2045392E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1545E+01   9.3840E+00   1.1333E+01   2.0120E+02
1.9040E+02   1.0800E+01   2.0173E+02   2.6923E+00

CONC =  2.2045392E+00
```

```
RUN NO.  AH2 DATE 6-3
   T(1) THROUGH T(10)
   1.8320000E+02    2.1020000E+02    2.0840000E+02
   1.6160000E+02    1.9670000E+02    1.7420000E+02
   1.5980000E+02    2.0840000E+02    1.9580000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02    5.4000000E+00    1.9670000E+02
   1.5600000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3100000E+02    2.0300000E+00    1.4000000E+00
  -1.7195855E+00    2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    6.2000000E+00    3.5700000E+01
  -1.6666666E-01    1.2042012E+01

   V(2) THROUGH V(31)
   5.8508745E+02    9.5121884E+04    5.5654622E+07
   1.2913568E-02    2.8599096E+15    1.0248299E+03
   6.3717613E+00    1.1462914E+01    1.7834675E+01
  -4.3494767E+00    3.5589566E+01    6.9322819E+00
   4.1666666E-02    5.0514544E+02    8.4477149E-01
   7.5613669E+05    9.2287394E+01    6.3547223E+01
   1.3533333E+01    7.2150911E+02    1.9580000E+02
  -3.1780538E+00    6.2248463E+00   -1.6868911E-01
   1.3535977E+01    4.5249075E+00    4.1517833E+00
   2.6051557E+00    6.5813450E+00    2.3792892E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3442E+01   1.0322E+01   1.3533E+01   2.0840E+02
1.9580E+02   1.2600E+01   2.0933E+02   3.5079E+00

CONC =  2.3792892E+00
```

```
RUN NO.  AH3 DATE 6-3
   T(1) THROUGH T(10)
   1.9850000E+02   2.1920000E+02   2.1740000E+02
   1.6880000E+02   2.0210000E+02   1.8140000E+02
   1.6700000E+02   2.1740000E+02   2.0210000E+02
   2.0210000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02   6.3000000E+00   2.0228000E+02
   1.6400000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3200000E+02   2.4900000E+00   4.2000000E+00
  -4.4217914E-01   2.3600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   7.5000000E+00   5.0500000E+01
  -1.0000000E-01   1.2056751E+01

   V(2) THROUGH V(31)
   8.7709082E+02   6.6592208E+04   5.8407414E+07
   1.5957913E-02   2.9533228E+15   2.5807900E+03
   6.7766105E+00   1.1106342E+01   1.7882953E+01
  -4.1378004E+00   3.5621707E+01   7.8558508E+00
   4.1666666E-02   7.1456149E+02   7.9961456E-01
   7.5147787E+05   1.0309887E+02   6.3320864E+01
   1.6600000E+01   7.2241083E+02   2.0210000E+02
  -3.1780538E+00   6.5716690E+00  -2.2362546E-01
   1.3529797E+01   4.6356884E+00   4.1482148E+00
   2.8094026E+00   6.5825939E+00   2.3927315E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6256E+01   1.1614E+01   1.6600E+01   2.1740E+02
2.0210E+02   1.5300E+01   2.1870E+02   4.9622E+00

CONC =  2.3927315E+00
```

```
RUN NO.  AH4 DATE 6-3
   T(1) THROUGH T(10)
   2.1110000E+02   2.2910000E+02   2.2640000E+02
   1.7600000E+02   2.1020000E+02   1.9040000E+02
   1.7600000E+02   2.2640000E+02   2.1020000E+02
   2.0948000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4600000E+02   6.5000000E+00   2.1164000E+02
   1.7300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3300000E+02   2.6700000E+00   7.4000000E+00
   1.9000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   7.7000000E+00   6.1500000E+01
  -1.0000000E-01   1.2056751E+01

   V(2) THROUGH V(31)
   1.1346994E+03   5.4170712E+04   6.1467477E+07
   1.7242182E-02   3.0037640E+15   4.3979974E+03
   7.0341230E+00   1.0899895E+01   1.7934018E+01
  -4.0603964E+00   3.5638642E+01   8.3889045E+00
   4.1666666E-02   8.7020854E+02   7.5485566E-01
   7.4721347E+05   1.0467622E+02   6.3087484E+01
   1.7800000E+01   7.2379729E+02   2.0948000E+02
  -3.1780538E+00   6.7687328E+00  -2.8122872E-01
   1.3524106E+01   4.6508719E+00   4.1445223E+00
   2.8791984E+00   6.5845113E+00   2.3883044E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9456E+01   1.3956E+01   1.7800E+01   2.2640E+02
2.0948E+02   1.6920E+01   2.2728E+02   6.0431E+00

CONC =  2.3883044E+00
```

```
RUN NO.  U1   DATE 5-4
    T(1) THROUGH T(10)
    1.9220000E+02    2.1020000E+02    2.0840000E+02
    1.8140000E+02    1.9850000E+02    1.8500000E+02
    1.7600000E+02    2.0840000E+02    1.9940000E+02
    1.9940000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.2100000E+02    6.1000000E+00    2.0120000E+02
    1.7900000E+02    6.5000000E+00

 TPR,XMV,ST1,ST2,SP
    1.2300000E+02    1.5300000E+00    1.3000000E+00
   -1.2282754E+00    2.2000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    6.2500000E-01    8.0000000E+00    2.8100000E+01
    0.0000000E-99    1.2159926E+01

    V(2) THROUGH V(31)
    6.1294257E+02    1.1900477E+05    7.2943093E+07
    9.9434403E-03    4.0779004E+15    8.3469242E+02
    6.4182712E+00    1.1686918E+01    1.8105190E+01
   -4.6108422E+00    3.5944358E+01    6.7270632E+00
    5.2083333E-02    3.9760748E+02    7.9346203E-01
    7.5600514E+05    1.0700432E+02    6.2588450E+01
    1.0200000E+01    7.3698942E+02    1.9940000E+02
   -2.9549102E+00    5.9854652E+00   -2.3134958E-01
    1.3535803E+01    4.6728692E+00    4.1365807E+00
    2.3223877E+00    6.6025735E+00    1.7206159E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3459E+01   1.0931E+01   1.0200E+01   2.0840E+02
1.9940E+02   9.0000E+00   2.0960E+02   2.7611E+00

CONC =  1.7206159E+00
```

```
RUN NO.  U2  DATE 5-4
   T(1) THROUGH T(10)
   1.9130000E+02    2.1020000E+02    2.0840000E+02
   1.6970000E+02    1.9760000E+02    1.7870000E+02
   1.6520000E+02    2.0840000E+02    1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02    6.7000000E+00    2.0120000E+02
   1.6500000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    1.8600000E+00    1.4000000E+00
  -1.7195855E+00    2.2300000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    8.0000000E+00    3.3000000E+01
  -8.3333333E-03    1.2159926E+01

   V(2) THROUGH V(31)
   7.1482900E+02    1.0150654E+05    7.2559823E+07
   1.2053195E-02    3.7271987E+15    1.1353965E+03
   6.5720433E+00    1.1527878E+01    1.8099921E+01
  -4.4184255E+00    3.5854433E+01    7.0347372E+00
   5.2083333E-02    4.6694116E+02    7.9911287E-01
   7.5580764E+05    1.0700432E+02    6.2711176E+01
   1.2400000E+01    7.3466914E+02    1.9760000E+02
  -2.9549102E+00    6.1462032E+00   -2.2425307E-01
   1.3535542E+01    4.6728692E+00    4.1385396E+00
   2.5176964E+00    6.5994202E+00    1.8191929E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3559E+01   1.0440E+01   1.2400E+01   2.0840E+02
1.9760E+02   1.0800E+01   2.1000E+02   3.2426E+00

CONC =  1.8191929E+00
```

```
RUN NO.  V1  DATE 5-5
   T(1) THROUGH T(10)
   1.8140000E+02   2.0300000E+02   2.0120000E+02
   1.5980000E+02   1.8950000E+02   1.6790000E+02
   1.5440000E+02   2.0120000E+02   1.8950000E+02
   1.8950000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1600000E+02   7.7000000E+00   1.9220000E+02
   1.5500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.8400000E+00  -4.9131016E-01
  -2.9478609E+00   2.1500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   8.9000000E+00   2.9400000E+01
  -6.6666666E-02   1.2164839E+01

   V(2) THROUGH V(31)
   6.2473640E+02   1.1403228E+05   7.1240118E+07
   1.1980849E-02   4.0369501E+15   9.1935825E+02
   6.4373298E+00   1.1644236E+01   1.8081566E+01
  -4.4244458E+00   3.5934265E+01   6.8236758E+00
   5.2083333E-02   4.1600213E+02   8.1243587E-01
   7.5984820E+05   1.1373818E+02   6.2430463E+01
   1.2266666E+01   7.4214357E+02   1.8950000E+02
  -2.9549102E+00   6.0306903E+00  -2.0771829E-01
   1.3540873E+01   4.7338991E+00   4.1340533E+00
   2.5068855E+00   6.6095427E+00   1.4607312E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1673E+01   9.2169E+00   1.2266E+01   2.0120E+02
1.8950E+02   1.1700E+01   2.0176E+02   2.8889E+00

CONC =  1.4607312E+00
```

```
RUN NO.  V2  DATE 5-5
   T(1) THROUGH T(10)
   2.0516000E+02    2.2190000E+02    2.2010000E+02
   1.7600000E+02    2.0480000E+02    1.8680000E+02
   1.7240000E+02    2.1920000E+02    2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4000000E+02    7.9000000E+00    2.0750000E+02
   1.7000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02    2.5000000E+00    5.0000000E+00
   1.0000000E-02    2.4800000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    1.0200000E+01    5.2000000E+01
  -1.0000000E-01    1.2164839E+01

   V(2) THROUGH V(31)
   1.2608812E+03    6.3182349E+04    7.9665437E+07
   1.6522611E-02    4.0863928E+15    4.0724063E+03
   7.1395661E+00    1.1053780E+01    1.8193346E+01
  -4.1030254E+00    3.5946439E+01    8.3119893E+00
   5.2083333E-02    7.3578608E+02    7.1659014E-01
   7.5010256E+05    1.2288963E+02    6.1976450E+01
   1.6666666E+01    7.4361926E+02    2.0480000E+02
  -2.9549102E+00    6.6009394E+00   -3.3325123E-01
   1.3527965E+01    4.8112866E+00    4.1267544E+00
   2.8134106E+00    6.6115291E+00    1.4904677E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7164E+01   1.2174E+01   1.6666E+01   2.1920E+02
2.0480E+02   1.4400E+01   2.2146E+02   5.1096E+00

CONC =  1.4904677E+00
```

```
RUN NO.  V3  DATE 5-5
   T(1) THROUGH T(10)
   1.7240000E+02   1.9760000E+02   1.9580000E+02
   1.6628000E+02   1.8680000E+02   1.6880000E+02
   1.6160000E+02   1.9508000E+02   1.8680000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02   6.2000000E+00   1.9040000E+02
   1.6100000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.4400000E+00  -1.8178475E+00
  -3.5374331E+00   2.0200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   4.2000000E+00   2.0700000E+01
  -5.8333333E-02   1.2159926E+01

   V(2) THROUGH V(31)
   4.2429332E+02   1.6314648E+05   6.9221965E+07
   9.3074171E-03   2.9262170E+15   2.7218428E+02
   6.0504250E+00   1.2002403E+01   1.8052828E+01
  -4.6769436E+00   3.5612486E+01   5.6064793E+00
   5.2083333E-02   2.9289945E+02   8.4081297E-01
   7.6245362E+05   7.3128937E+01   6.2673342E+01
   9.6000000E+00   7.3921604E+02   1.8680000E+02
  -2.9549102E+00   5.6798293E+00  -1.7338603E-01
   1.3544296E+01   4.2922241E+00   4.1379361E+00
   2.2617631E+00   6.6055902E+00   1.5413851E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0342E+01   8.6224E+00   9.6000E+00   1.9508E+02
1.8680E+02   8.2800E+00   1.9640E+02   2.0340E+00

CONC =  1.5413851E+00
```

```
RUN NO.  V4  DATE 5-5
   T(1) THROUGH T(10)
   1.6880000E+02   1.9670000E+02   1.9472000E+02
   1.5440000E+02   1.8410000E+02   1.6160000E+02
   1.4900000E+02   1.9400000E+02   1.8410000E+02
   1.8410000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02   6.0000000E+00   1.8860000E+02
   1.4900000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.6600000E+00  -2.0143716E+00
  -3.9796122E+00   2.0600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   6.1000000E+00   2.3400000E+01
  -1.1666666E-01   1.2159926E+01

   V(2) THROUGH V(31)
   4.7570600E+02   1.4457576E+05   6.8775561E+07
   1.0709974E-02   3.3976924E+15   4.2750986E+02
   6.1648000E+00   1.1881558E+01   1.8046359E+01
  -4.5365798E+00   3.5761872E+01   6.0579773E+00
   5.2083333E-02   3.3110373E+02   8.4742823E-01
   7.6304918E+05   9.1410678E+01   6.2734587E+01
   1.1066666E+01   7.3845525E+02   1.8410000E+02
  -2.9549102E+00   5.8024317E+00  -1.6554912E-01
   1.3545077E+01   4.5153623E+00   4.1389129E+00
   2.4039375E+00   6.6045605E+00   1.5637889E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0145E+01   8.1803E+00   1.1066E+01   1.9400E+02
1.8410E+02   9.9000E+00   1.9516E+02   2.2993E+00

CONC =  1.5637889E+00
```

```
RUN NO.  WI  DATE 5-6
   T(1) THROUGH T(10)
   1.8410000E+02   2.0300000E+02   2.0030000E+02
   1.7960000E+02   1.9220000E+02   1.8140000E+02
   1.7600000E+02   1.9940000E+02   1.9220000E+02
   1.9220000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02   6.4000000E+00   1.9580000E+02
   1.7400000E+02   6.4000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.2700000E+00  -8.8435828E-01
  -2.7022058E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   7.5000000E+00   1.9600000E+01
  -8.3333333E-02   1.2100969E+01

   V(2) THROUGH V(31)
   4.9460746E+02   1.7138814E+05   8.4769861E+07
   8.2507210E-03   4.4095639E+15   3.6261379E+02
   6.2037644E+00   1.2051686E+01   1.8255450E+01
  -4.7974546E+00   3.6022552E+01   5.8933383E+00
   6.2500000E-02   2.7733475E+02   8.2065785E-01
   7.6038404E+05   1.0309887E+02   6.2510372E+01
   8.4666666E+00   7.4099016E+02   1.9220000E+02
  -2.7725887E+00   5.6252252E+00  -1.9764900E-01
   1.3541578E+01   4.6356884E+00   4.1353324E+00
   2.1361368E+00   6.6079873E+00   1.4993132E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1216E+01   9.3987E+00   8.4666E+00   1.9940E+02
1.9220E+02   7.2000E+00   2.0066E+02   1.9259E+00

CONC =  1.4993132E+00
```

```
RUN NO.  W2  DATE 5-6
   T(1) THROUGH T(10)
   2.0210000E+02   2.1740000E+02   2.1650000E+02
   1.8212000E+02   2.0480000E+02   1.8860000E+02
   1.8050000E+02   2.1560000E+02   2.0336000E+02
   2.0336000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3000000E+02   1.0500000E+01   2.0750000E+02
   1.7600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.9400000E+00   3.8000000E+00
   1.0000000E-01   2.2700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.7400000E+01   3.8900000E+01
  -8.3333333E-02   1.2100969E+01

   V(2) THROUGH V(31)
   1.0833840E+03   8.5068692E+04   9.2162061E+07
   1.2737159E-02   5.9210821E+15   2.8052890E+03
   6.9878447E+00   1.1351214E+01   1.8339059E+01
  -4.3632316E+00   3.6317295E+01   7.9392618E+00
   6.2500000E-02   5.5042459E+02   7.4738718E-01
   7.5267861E+05   1.6539867E+02   6.2209687E+01
   1.2933333E+01   7.4126192E+02   2.0336000E+02
  -2.7725887E+00   6.3106899E+00  -2.9117191E-01
   1.3531393E+01   5.1083587E+00   4.1305107E+00
   2.5598079E+00   6.6083540E+00   1.5656544E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5900E+01   1.2200E+01   1.2933E+01   2.1560E+02
2.0336E+02   1.2240E+01   2.1629E+02   3.8223E+00

CONC =  1.5656544E+00
```

```
RUN NO.  W3  DATE 5-6
   T(1) THROUGH T(10)
   2.1830000E+02   2.3540000E+02   2.3360000E+02
   1.9940000E+02   2.2100000E+02   2.0660000E+02
   1.9940000E+02   2.3360000E+02   2.2100000E+02
   2.2100000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4800000E+02   9.9000000E+00   2.2460000E+02
   1.9500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   2.0400000E+00   1.0100000E+01
   5.1000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   2.0500000E+01   5.3700000E+01
  -6.6666666E-02   1.2100969E+01

   V(2) THROUGH V(31)
   1.5955752E+03   6.0708892E+04   9.6865603E+07
   1.3496842E-02   6.0804313E+15   6.6958229E+03
   7.3749895E+00   1.1013845E+01   1.8388835E+01
  -4.3052995E+00   3.6343852E+01   8.8092391E+00
   6.2500000E-02   7.5984063E+02   7.0485339E-01
   7.4350336E+05   1.8089458E+02   6.2042872E+01
   1.3600000E+01   7.3786389E+02   2.2100000E+02
  -2.7725887E+00   6.6331087E+00  -3.4976545E-01
   1.3519128E+01   5.1979144E+00   4.1278256E+00
   2.6100697E+00   6.6037593E+00   1.8102313E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.2200E+01   1.7200E+01   1.3600E+01   2.3360E+02
2.2100E+02   1.2600E+01   2.3460E+02   5.2766E+00

CONC =  1.8102313E+00
```

TABLE V. INTERMEDIATE DATA FOR SQUARE ORIFICES FOR STAGE TWO CONDITIONS

```
RUN NO.  SA2 DATE 6-6
   T(1) THROUGH T(10)
   1.7960000E+02   1.9400000E+02   1.9310000E+02
   1.5980000E+02   1.8500000E+02   1.6880000E+02
   1.5800000E+02   1.9220000E+02   1.8500000E+02
   1.8500000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02   6.2000000E+00   1.8716000E+02
   1.5700000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.2200000E+00  -1.9652406E+00
  -3.4883021E+00   2.0600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.1200000E+01   1.8500000E+01
  -1.1666666E-01   1.2096056E+01

   V(2) THROUGH V(31)
   4.8184433E+02   1.7750024E+05   8.5527486E+07
   8.2597523E-03   5.9727465E+15   4.4996327E+02
   6.1776210E+00   1.2086727E+01   1.8264348E+01
  -4.7963606E+00   3.6325983E+01   6.1091659E+00
   6.1120560E-02   2.6177004E+02   7.7375000E-01
   7.6790888E+05   1.2955310E+02   6.0507499E+01
   8.1333333E+00   7.7984475E+02   1.8500000E+02
  -2.7949069E+00   5.5674664E+00  -2.5650645E-01
   1.3551426E+01   4.8640908E+00   4.1027673E+00
   2.0959708E+00   6.6590948E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0130E+01   8.6077E+00   8.1333E+00   1.9220E+02
1.8500E+02   7.2000E+00   1.9313E+02   1.8178E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA3 DATE 6-6
   T(1) THROUGH T(10)
   1.9490000E+02   2.0750000E+02   2.0660000E+02
   1.7240000E+02   1.9580000E+02   1.8140000E+02
   1.7240000E+02   2.0480000E+02   1.9580000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2200000E+02   6.6000000E+00   1.9850000E+02
   1.7000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.4200000E+00   1.4000000E+00
  -1.1300133E+00   2.2100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.2000000E+01   2.6400000E+01
  -1.0000000E-01   1.2091143E+01

   V(2) THROUGH V(31)
   7.4520864E+02   1.2302734E+05   9.1681037E+07
   9.6887234E-03   5.9659576E+15   1.1237674E+03
   6.6136642E+00   1.1720161E+01   1.8333826E+01
  -4.6367926E+00   3.6324845E+01   7.0244420E+00
   6.1120560E-02   3.7355293E+02   7.1635340E-01
   7.6274355E+05   1.3481534E+02   6.0252527E+01
   9.4666666E+00   7.8063501E+02   1.9580000E+02
  -2.7949069E+00   5.9230597E+00  -3.3358165E-01
   1.3544677E+01   4.9039059E+00   4.0985445E+00
   2.2477768E+00   6.6601077E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3491E+01   1.0961E+01   9.4666E+00   2.0480E+02
1.9580E+02   9.0000E+00   2.0526E+02   2.5941E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA4 DATE 6-6
   T(1) THROUGH T(10)
   2.0660000E+02    2.1920000E+02    2.1740000E+02
   1.8320000E+02    2.0660000E+02    1.9310000E+02
   1.8320000E+02    2.1632000E+02    2.0660000E+02
   2.0660000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3500000E+02    7.0000000E+00    2.0840000E+02
   1.8000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02    1.6100000E+00    4.5000000E+00
   1.3000000E+00    2.3300000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01    1.3200000E+01    3.4800000E+01
  -1.6666666E-01    1.2076403E+01

   V(2) THROUGH V(31)
   1.0676226E+03    9.2282417E+04    9.8522794E+07
   1.1080730E-02    6.3240645E+15    2.4445550E+03
   6.9731895E+00    1.1432608E+01    1.8405798E+01
  -4.5025477E+00    3.6383138E+01    7.8016183E+00
   6.1120560E-02    4.9241069E+02    6.6140232E-01
   7.5748261E+05    1.4239001E+02    5.9989297E+01
   1.0733333E+01    7.8199945E+02    2.0660000E+02
  -2.7949069E+00    6.1993131E+00   -4.1339296E-01
   1.3537755E+01    4.9585698E+00    4.0941661E+00
   2.3733541E+00    6.6618540E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6576E+01   1.3376E+01   1.0733E+01   2.1632E+02
2.0660E+02   9.7200E+00   2.1733E+02   3.4195E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA5 DATE 6-6
   T(1) THROUGH T(10)
   2.1740000E+02   2.3000000E+02   2.2910000E+02
   1.9400000E+02   2.1740000E+02   2.0480000E+02
   1.9580000E+02   2.2748000E+02   2.1740000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02   7.4000000E+00   2.1956000E+02
   1.9200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.6700000E+00   8.7000000E+00
   4.8000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.5400000E+01   4.3700000E+01
  -1.6666666E-01   1.2076403E+01

   V(2) THROUGH V(31)
   1.4954741E+03   7.2637708E+04   1.0862780E+08
   1.1601617E-02   7.4718189E+15   5.2543864E+03
   7.3101985E+00   1.1193239E+01   1.8503437E+01
  -4.4566107E+00   3.6549914E+01   8.5668185E+00
   6.1120560E-02   6.1834331E+02   5.9504204E-01
   7.5212653E+05   1.5543133E+02   5.9717401E+01
   1.1133333E+01   7.8376209E+02   2.1740000E+02
  -2.7949069E+00   6.4270438E+00  -5.1912321E-01
   1.3530659E+01   5.0462040E+00   4.0896234E+00
   2.4099435E+00   6.6641055E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0776E+01   1.6876E+01   1.1133E+01   2.2748E+02
2.1740E+02   1.0080E+01   2.2853E+02   4.2940E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB1 DATE 6-7
   T(1) THROUGH T(10)
    1.7600000E+02    1.9760000E+02    1.9580000E+02
    1.6700000E+02    1.9040000E+02    1.7420000E+02
    1.6700000E+02    1.9580000E+02    1.8968000E+02
    1.8914000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.0100000E+02    6.0000000E+00    1.9040000E+02
    1.6400000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
    1.1900000E+02    8.5500000E-01   -1.6704545E+00
   -2.6530748E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    7.7000000E-01    1.0500000E+01    1.3500000E+01
    1.6666666E-02    1.2071490E+01

   V(2) THROUGH V(31)
    4.3292104E+02    2.4223286E+05    1.0486770E+08
    5.8058621E-03    7.2094996E+15    2.4964537E+02
    6.0705553E+00    1.2397654E+01    1.8468210E+01
   -5.1488871E+00    3.6514175E+01    5.5200413E+00
    7.2404356E-02    1.9102138E+02    7.4540998E-01
    7.6594142E+05    1.2479226E+02    6.0411482E+01
    5.7000000E+00    7.8016672E+02    1.8914000E+02
   -2.6254888E+00    5.2523853E+00   -2.9382090E-01
    1.3548860E+01    4.8266504E+00    4.1011791E+00
    1.7404661E+00    6.6595076E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0401E+01   9.4184E+00   5.7000E+00   1.9580E+02
1.8914E+02   6.6600E+00   1.9484E+02   1.3265E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB2 DATE 6-7
   T(1) THROUGH T(10)
   1.9400000E+02    2.0480000E+02    2.0390000E+02
   1.7600000E+02    1.9580000E+02    1.8320000E+02
   1.7600000E+02    2.0300000E+02    1.9724000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1300000E+02    6.5000000E+00    1.9760000E+02
   1.7300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1700000E+02    1.1000000E+00    5.0000000E-01
  -1.3756684E+00    2.1200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    1.7200000E+01    1.9600000E+01
  -8.3333333E-02    1.2066577E+01

   V(2) THROUGH V(31)
   6.5540141E+02    1.6571030E+05    1.0860677E+08
   7.5053492E-03    8.4958673E+15    7.6003630E+02
   6.4852478E+00    1.2017996E+01    1.8503244E+01
  -4.8921392E+00    3.6678356E+01    6.6333661E+00
   7.2404356E-02    2.7733475E+02    7.1635340E-01
   7.6274355E+05    1.6542187E+02    6.0252527E+01
   7.3333333E+00    7.8063501E+02    1.9580000E+02
  -2.6254888E+00    5.6252252E+00   -3.3358165E-01
   1.3544677E+01    5.1084990E+00    4.0985445E+00
   1.9924301E+00    6.6601077E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.2566E+01   1.0690E+01   7.3333E+00   2.0300E+02
1.9580E+02   7.2000E+00   2.0313E+02   1.9259E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB3 DATE 6-7
   T(1) THROUGH T(10)
   2.0570000E+02    2.1740000E+02    2.1740000E+02
   1.9040000E+02    2.0750000E+02    1.9580000E+02
   1.8860000E+02    2.1560000E+02    2.0750000E+02
   2.0660000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2600000E+02    6.9000000E+00    2.0876000E+02
   1.8500000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1500000E+02    1.2500000E+00    4.0000000E+00
   1.6000000E+00    2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    2.2500000E+01    2.6900000E+01
  -1.6666666E-02    1.2071490E+01

   V(2) THROUGH V(31)
   9.7761568E+02    1.1938394E+05    1.1671161E+08
   8.6030516E-03    9.7055787E+15    1.9708678E+03
   6.8851166E+00    1.1690099E+01    1.8575216E+01
  -4.7556382E+00    3.6811477E+01    7.5862292E+00
   7.2404356E-02    3.8062779E+02    6.6140232E-01
   7.5748261E+05    1.9212823E+02    5.9989297E+01
   8.3333333E+00    7.8199945E+02    2.0660000E+02
  -2.6254888E+00    5.9418219E+00   -4.1339296E-01
   1.3537755E+01    5.2581630E+00    4.0941661E+00
   2.1202635E+00    6.6618540E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6071E+01   1.3671E+01   8.3333E+00   2.1560E+02
2.0660E+02   9.0000E+00   2.1493E+02   2.6432E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB4 DATE 6-7
   T(1) THROUGH T(10)
   2.1740000E+02   2.2820000E+02   2.2730000E+02
   2.0030000E+02   2.1920000E+02   2.0660000E+02
   2.0030000E+02   2.2568000E+02   2.1920000E+02
   2.1830000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3900000E+02   7.2000000E+00   2.1974000E+02
   1.9600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1500000E+02   1.3100000E+00   8.0000000E+00
   4.9000000E+00   2.3700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   2.4500000E+01   3.4200000E+01
  -1.0000000E-01   1.2066577E+01

   V(2) THROUGH V(31)
   1.3992516E+03   9.2723344E+04   1.2974329E+08
   9.1076175E-03   1.1121481E+16   4.2480591E+03
   7.2436928E+00   1.1437375E+01   1.8681068E+01
  -4.6986441E+00   3.6947654E+01   8.3542174E+00
   7.2404356E-02   4.8392084E+02   5.8976963E-01
   7.5167753E+05   2.0137178E+02   5.9694161E+01
   8.7333333E+00   7.8389216E+02   2.1830000E+02
  -2.6254888E+00   6.1819213E+00  -5.2802327E-01
   1.3530062E+01   5.3051528E+00   4.0892342E+00
   2.1671471E+00   6.6642714E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0066E+01   1.6966E+01   8.7333E+00   2.2568E+02
2.1830E+02   7.3800E+00   2.2703E+02   3.3605E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SB5 DATE 6-7
   T(1) THROUGH T(10)
   2.1830000E+02   2.2820000E+02   2.2640000E+02
   2.0480000E+02   2.1920000E+02   2.0930000E+02
   2.0480000E+02   2.2460000E+02   2.1920000E+02
   2.1920000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02   6.7000000E+00   2.2028000E+02
   2.0100000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1700000E+02   1.1700000E+00   8.0000000E+00
   5.1000000E+00   2.3600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   2.2800000E+01   3.1100000E+01
  -1.0000000E-01   1.2066577E+01

   V(2) THROUGH V(31)
   1.2841327E+03   1.0186509E+05   1.3080830E+08
   8.1404443E-03   1.1391586E+16   3.4397059E+03
   7.1578388E+00   1.1531404E+01   1.8689243E+01
  -4.8109105E+00   3.6971651E+01   8.1431412E+00
   7.2404356E-02   4.4005667E+02   5.8456445E-01
   7.5122835E+05   1.9354021E+02   5.9670826E+01
   7.8000000E+00   7.8401701E+02   2.1920000E+02
  -2.6254888E+00   6.0869035E+00  -5.3688823E-01
   1.3529464E+01   5.2654852E+00   4.0888432E+00
   2.0541237E+00   6.6644307E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0066E+01   1.7166E+01   7.8000E+00   2.2460E+02
2.1920E+02   5.4000E+00   2.2700E+02   3.0559E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SC1 DATE 6-8
   T(1) THROUGH T(10)
   1.6790000E+02    1.9850000E+02    1.9760000E+02
   1.5440000E+02    1.8680000E+02    1.6700000E+02
   1.4900000E+02    1.9580000E+02    1.8770000E+02
   1.8860000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02    5.4000000E+00    1.8752000E+02
   1.5000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02    1.2800000E+00   -1.4739304E+00
  -2.9969919E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    4.4000000E+00    2.0200000E+01
   6.6666666E-02    1.2105882E+01

   V(2) THROUGH V(31)
   4.2697163E+02    1.6197658E+05    6.9159402E+07
   8.6884325E-03    3.4464843E+15    3.2639724E+02
   6.0567175E+00    1.1995207E+01    1.8051924E+01
  -4.7457627E+00    3.5776131E+01    5.7881151E+00
   4.7956133E-02    2.8582459E+02    7.4890901E-01
   7.6619859E+05    7.3597319E+01    6.0424140E+01
   8.5333333E+00    7.8012479E+02    1.8860000E+02
  -3.0374685E+00    5.6553783E+00   -2.8913778E-01
   1.3549196E+01    4.2986085E+00    4.1013886E+00
   2.1439800E+00    6.6594538E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0631E+01   9.1088E+00   8.5333E+00   1.9580E+02
1.8860E+02   7.2000E+00   1.9713E+02   1.9848E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SC2 DATE 6-8
   T(1) THROUGH T(10)
   1.8140000E+02    2.0840000E+02    2.0660000E+02
   1.6520000E+02    1.9760000E+02    1.7960000E+02
   1.6160000E+02    2.0660000E+02    1.9670000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02    6.0000000E+00    1.9760000E+02
   1.6200000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02    1.5000000E+00    1.4000000E+00
  -1.3756684E+00    2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    5.7000000E+00    2.8400000E+01
  -8.3333333E-02    1.2100969E+01

   V(2) THROUGH V(31)
   6.2899781E+02    1.1436344E+05    7.1934353E+07
   1.0234567E-02    3.6941431E+15    8.3521063E+02
   6.4441277E+00    1.1647136E+01    1.8091264E+01
  -4.5819843E+00    3.5845525E+01    6.7276839E+00
   4.7956133E-02    4.0185240E+02    7.1635340E-01
   7.6274355E+05    8.6582485E+01    6.0252527E+01
   1.0000000E+01    7.8063501E+02    1.9580000E+02
  -3.0374685E+00    5.9960848E+00   -3.3358165E-01
   1.3544677E+01    4.4610975E+00    4.0985445E+00
   2.3025850E+00    6.6601077E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3500E+01   1.0725E+01   1.0000E+01   2.0660E+02
1.9580E+02   1.0800E+01   2.0580E+02   2.7906E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SC3 DATE 6-8
   T(1) THROUGH T(10)
   2.0120000E+02   2.1290000E+02   2.1200000E+02
   1.7060000E+02   1.9940000E+02   1.8320000E+02
   1.6880000E+02   2.1020000E+02   1.9850000E+02
   1.9850000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2700000E+02   6.2000000E+00   2.0030000E+02
   1.6600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02   1.8900000E+00   3.7000000E+00
  -7.8609625E-01   2.2600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   8.5000000E+00   3.8200000E+01
  -1.1666666E-01   1.2100969E+01

   V(2) THROUGH V(31)
   8.5912518E+02   8.4785853E+04   7.2841661E+07
   1.2921481E-02   4.1561270E+15   1.9855491E+03
   6.7559146E+00   1.1347883E+01   1.8103798E+01
  -4.3488641E+00   3.5963360E+01   7.5936507E+00
   4.7956133E-02   5.4051978E+02   7.0605313E-01
   7.6143675E+05   1.1023708E+02   6.0186787E+01
   1.2600000E+01   7.8086434E+02   1.9850000E+02
  -3.0374685E+00   6.2925312E+00  -3.4806478E-01
   1.3542962E+01   4.7026333E+00   4.0974528E+00
   2.5336968E+00   6.6604014E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5800E+01   1.1314E+01   1.2600E+01   2.1020E+02
1.9850E+02   1.1700E+01   2.1110E+02   3.7536E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SD1 DATE 6-9
   T(1) THROUGH T(10)
   1.9040000E+02   2.1920000E+02   2.1740000E+02
   1.7600000E+02   2.0570000E+02   1.8770000E+02
   1.7420000E+02   2.1632000E+02   2.0570000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2400000E+02   6.9000000E+00   2.0570000E+02
   1.7300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2500000E+02   1.6700000E+00   4.2000000E+00
   1.0000000E+00   2.2400000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   6.8000000E+00   3.7500000E+01
  -6.6666666E-02   1.2061664E+01

   V(2) THROUGH V(31)
   8.8729877E+02   8.5801079E+04   7.6131186E+07
   1.1476031E-02   4.0038880E+15   1.8567387E+03
   6.7881817E+00   1.1359786E+01   1.8147968E+01
  -4.4674946E+00   3.5926042E+01   7.5265768E+00
   4.7956133E-02   5.3061497E+02   6.7246464E-01
   7.5836568E+05   9.6447970E+01   6.0033489E+01
   1.1133333E+01   7.8170914E+02   2.0480000E+02
  -3.0374685E+00   6.2740366E+00  -3.9680574E-01
   1.3538920E+01   4.5690036E+00   4.0949025E+00
   2.4099435E+00   6.6614827E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6261E+01   1.3061E+01   1.1133E+01   2.1632E+02
2.0480E+02   1.1520E+01   2.1593E+02   3.6848E+00

CONC =  0.0000000E-99
```

```
RUN NO.  'SD2 DATE 6-9
   T(1) THROUGH T(10)
   2.0660000E+02    2.2370000E+02    2.2370000E+02
   1.8140000E+02    2.1020000E+02    1.9400000E+02
   1.8140000E+02    2.2280000E+02    2.1020000E+02
   2.1020000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3600000E+02    6.6000000E+00    2.1020000E+02
   1.7700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2500000E+02    1.9200000E+00    6.5000000E+00
   2.3000000E+00    2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01    1.1000000E+01    4.5800000E+01
  -1.1666666E-01    1.2051838E+01

   V(2) THROUGH V(31)
   1.1428611E+03    6.9850172E+04    7.9829043E+07
   1.3255498E-02    5.2893401E+15    4.1018826E+03
   7.0412901E+00    1.1154107E+01    1.8195397E+01
  -4.3233428E+00    3.6204469E+01    8.3192013E+00
   4.7956133E-02    6.4805774E+02    6.3876667E-01
   7.5570853E+05    1.2820842E+02    5.9900006E+01
   1.2800000E+01    7.8260108E+02    2.1020000E+02
  -3.0374685E+00    6.4739797E+00   -4.4821603E-01
   1.3535411E+01    4.8536572E+00    4.0926766E+00
   2.5494451E+00    6.6626230E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8551E+01   1.4351E+01   1.2800E+01   2.2280E+02
2.1020E+02   1.2600E+01   2.2300E+02   4.5004E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SD3 DATE 6-9
   T(1) THROUGH T(10)
    2.1830000E+02    2.3360000E+02    2.3360000E+02
    1.9040000E+02    2.1920000E+02    2.0300000E+02
    1.9040000E+02    2.3090000E+02    2.1920000E+02
    2.1920000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.4700000E+02    6.8000000E+00    2.1848000E+02
    1.8700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
    1.2700000E+02    2.0700000E+00    1.0100000E+01
    4.9000000E+00    2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    5.1000000E-01    1.2000000E+01    5.7800000E+01
   -1.6666666E-01    1.2051838E+01

    V(2) THROUGH V(31)
    1.5807269E+03    5.4809766E+04    8.6639267E+07
    1.4402323E-02    5.8206105E+15    8.2760733E+03
    7.3656400E+00    1.0911623E+01    1.8277263E+01
   -4.2403657E+00    3.6300181E+01    9.0211238E+00
    4.7956133E-02    8.1785453E+02    5.8456445E-01
    7.5122835E+05    1.3481534E+02    5.9670826E+01
    1.3800000E+01    7.8401701E+02    2.1920000E+02
   -3.0374685E+00    6.7066844E+00   -5.3688823E-01
    1.3529464E+01    4.9039059E+00    4.0888432E+00
    2.6246685E+00    6.6644307E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.2151E+01   1.6951E+01   1.3800E+01   2.3090E+02
2.1920E+02   1.1700E+01   2.3300E+02   5.6795E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SA1 DATE 6-6
   T(1) THROUGH T(10)
   1.7060000E+02    1.9220000E+02    1.8860000E+02
   1.6520000E+02    1.8320000E+02    1.6880000E+02
   1.6340000E+02    1.8860000E+02    1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9700000E+02    5.2000000E+00    1.8410000E+02
   1.6100000E+02    6.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    8.7400000E-01   -2.9969919E+00
  -3.9304812E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01    6.9000000E+00    1.2700000E+01
  -1.0000000E-01    1.2096056E+01

   V(2) THROUGH V(31)
   3.2512387E+02    2.5902578E+05    8.4215466E+07
   5.9096056E-03    5.2512115E+15    1.5378092E+02
   5.7842062E+00    1.2464682E+01    1.8248889E+01
  -5.1311761E+00    3.6197235E+01    5.0355289E+00
   6.1120560E-02    1.7970160E+02    7.8677308E-01
   7.6876185E+05    9.7303830E+01    6.0548463E+01
   5.8266666E+00    7.7970472E+02    1.8320000E+02
  -2.7949069E+00    5.1912976E+00   -2.3981540E-01
   1.3552536E+01    4.5778383E+00    4.1034440E+00
   1.7624450E+00    6.6589152E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.0990E+00   8.1655E+00   5.8266E+00   1.8860E+02
1.8320E+02   5.4000E+00   1.8902E+02   1.2479E+00

CONC =  0.0000000E-99
```

```
RUN NO.  SE1 DATE 6-10
   T(1) THROUGH T(10)
   1.5980000E+02   1.9580000E+02   1.9220000E+02
   1.5260000E+02   1.8320000E+02   1.6250000E+02
   1.4900000E+02   1.9220000E+02   1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9800000E+02   5.4000000E+00   1.8320000E+02
   1.4600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2900000E+02   1.3000000E+00  -2.5548128E+00
  -3.9304812E+00   1.9700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   4.3000000E+00   1.8400000E+01
  -1.6666666E-02   1.2022359E+01

   V(2) THROUGH V(31)
   2.9942713E+02   1.8868804E+05   5.6498323E+07
   8.1464471E-03   2.4422018E+15   1.5791417E+02
   5.7018710E+00   1.2147850E+01   1.7849721E+01
  -4.8101733E+00   3.5431676E+01   5.0620516E+00
   4.7956133E-02   2.6035506E+02   9.7113160E-01
   7.6876185E+05   7.2523310E+01   6.3902607E+01
   8.6666666E+00   7.2261668E+02   1.8320000E+02
  -3.0374685E+00   5.5620463E+00  -2.9293286E-02
   1.3552536E+01   4.2839080E+00   4.1573601E+00
   2.1594842E+00   6.5828789E+00   2.1813632E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.4675E+00   8.0918E+00   8.6666E+00   1.9220E+02
1.8320E+02   9.0000E+00   1.9186E+02   1.8080E+00

CONC =  2.1813632E+00
```

```
RUN NO.  SE2 DATE 6-10
   T(1) THROUGH T(10)
   1.7780000E+02   2.0480000E+02   2.0120000E+02
   1.5980000E+02   1.9220000E+02   1.6970000E+02
   1.5620000E+02   2.0210000E+02   1.9220000E+02
   1.9220000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02   5.4000000E+00   1.9310000E+02
   1.5600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3000000E+02   1.5100000E+00  -2.9478609E-01
  -2.5056818E+00   2.1100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   9.0000000E+00   2.3500000E+01
  -1.3333333E-01   1.2027272E+01

   V(2) THROUGH V(31)
   4.0636624E+02   1.4654921E+05   5.9552654E+07
   9.5160456E-03   3.7701916E+15   4.5856965E+02
   6.0072548E+00   1.1895116E+01   1.7902371E+01
  -4.6547758E+00   3.5865902E+01   6.1281121E+00
   4.7956133E-02   3.3251870E+02   9.1646397E-01
   7.6447702E+05   1.1402373E+02   6.3743390E+01
   1.0066666E+01   7.2266213E+02   1.9220000E+02
  -3.0374685E+00   5.8066961E+00  -8.7232522E-02
   1.3546947E+01   4.7364065E+00   4.1548654E+00
   2.3092295E+00   6.5829417E+00   2.2208574E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1732E+01   9.5215E+00   1.0066E+01   2.0210E+02
1.9220E+02   9.9000E+00   2.0226E+02   2.3091E+00

CONC =  2.2208574E+00
```

```
RUN NO.  SE3 DATE 6-10
   T(1) THROUGH T(10)
   1.9220000E+02   2.1020000E+02   2.0840000E+02
   1.7060000E+02   1.9760000E+02   1.7960000E+02
   1.6700000E+02   2.0840000E+02   1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2300000E+02   5.4000000E+00   1.9940000E+02
   1.5800000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3100000E+02   1.7600000E+00   1.5000000E+00
  -1.4739304E+00   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   7.5000000E+00   3.1000000E+01
  -6.6666666E-02   1.2037098E+01

   V(2) THROUGH V(31)
   5.4913241E+02   1.1069845E+05   6.0788104E+07
   1.1111319E-02   3.0687182E+15   7.5266814E+02
   6.3083395E+00   1.1614565E+01   1.7922904E+01
  -4.4997909E+00   3.5660036E+01   6.6236244E+00
   4.7956133E-02   4.3864169E+02   8.9617061E-01
   7.6187300E+05   1.0231367E+02   6.3733662E+01
   1.1733333E+01   7.2148417E+02   1.9760000E+02
  -3.0374685E+00   6.0836828E+00  -1.0962446E-01
   1.3543535E+01   4.6280432E+00   4.1547128E+00
   2.4624337E+00   6.5813104E+00   2.3035196E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3537E+01   1.0563E+01   1.1733E+01   2.0840E+02
1.9760E+02   1.0800E+01   2.0933E+02   3.0461E+00

CONC =  2.3035196E+00
```

```
RUN NO.  SE4 DATE 6-10
   T(1) THROUGH T(10)
   2.0660000E+02   2.2280000E+02   2.2100000E+02
   1.7600000E+02   2.0840000E+02   1.9040000E+02
   1.7420000E+02   2.2100000E+02   2.0750000E+02
   2.0750000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3600000E+02   6.6000000E+00   2.0930000E+02
   1.7400000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3000000E+02   2.0700000E+00   5.1000000E+00
   1.1000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.1000000E-01   7.7000000E+00   4.5000000E+01
   0.0000000E-99   1.2027272E+01

   V(2) THROUGH V(31)
   8.4574886E+02   7.5455765E+04   6.3816625E+07
   1.3182494E-02   2.8456964E+15   1.8195258E+03
   6.7402224E+00   1.1231301E+01   1.7971524E+01
  -4.3288655E+00   3.5584584E+01   7.5063311E+00
   4.7956133E-02   6.3673796E+02   8.4734258E-01
   7.5704014E+05   1.0393877E+02   6.3464998E+01
   1.3800000E+01   7.2316506E+02   2.0750000E+02
  -3.0374685E+00   6.4563582E+00  -1.6565020E-01
   1.3537171E+01   4.6438019E+00   4.1504885E+00
   2.6246685E+00   6.5836374E+00   2.2943349E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7127E+01   1.3127E+01   1.3800E+01   2.2100E+02
2.0750E+02   1.3500E+01   2.2130E+02   4.4217E+00

CONC =  2.2943349E+00
```

```
RUN NO.  SF1 DATE 6-11
   T(1) THROUGH T(10)
   1.8140000E+02   1.9940000E+02   1.9580000E+02
   1.7960000E+02   1.9220000E+02   1.8140000E+02
   1.7780000E+02   1.9670000E+02   1.9040000E+02
   1.9130000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02   5.2000000E+00   1.9220000E+02
   1.7400000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2600000E+02   8.1500000E-01  -1.7195855E+00
  -2.6039438E+00   2.0100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   9.3000000E+00   1.2000000E+01
   0.0000000E-99   1.2066577E+01

   V(2) THROUGH V(31)
   3.1629196E+02   2.8620802E+05   9.0525301E+07
   5.1566940E-03   5.4433601E+15   1.2421199E+02
   5.7566657E+00   1.2564474E+01   1.8321139E+01
  -5.2674596E+00   3.6233172E+01   4.8219897E+00
   7.2404356E-02   1.6979677E+02   9.0751986E-01
   7.6490875E+05   1.1624536E+02   6.3533329E+01
   5.4333333E+00   7.2596328E+02   1.9130000E+02
  -2.6254888E+00   5.1346022E+00  -9.7039826E-02
   1.3547511E+01   4.7557031E+00   4.1515646E+00
   1.6925528E+00   6.5874994E+00   2.0647177E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0346E+01   9.4626E+00   5.4333E+00   1.9670E+02
1.9130E+02   5.4000E+00   1.9673E+02   1.1791E+00

CONC =  2.0647177E+00
```

```
RUN NO.  SF2 DATE 6-11
   T(1) THROUGH T(10)
   1.8680000E+02   2.0480000E+02   2.0120000E+02
   1.7420000E+02   1.9580000E+02   1.8140000E+02
   1.7420000E+02   2.0210000E+02   1.9580000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02   6.2000000E+00   1.9670000E+02
   1.7100000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02   1.0800000E+00  -9.8262032E-02
  -1.9161096E+00   2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   1.7700000E+01   1.8000000E+01
   3.3333333E-02   1.2071490E+01

   V(2) THROUGH V(31)
   4.8435072E+02   1.9018324E+05   9.2115395E+07
   6.8468741E-03   6.6535371E+15   4.2181516E+02
   6.1828092E+00   1.2155743E+01   1.8338552E+01
  -4.9839630E+00   3.6433925E+01   6.0445672E+00
   7.2404356E-02   2.5469517E+02   8.9020734E-01
   7.6274355E+05   1.6810307E+02   6.3505951E+01
   7.2000000E+00   7.2533460E+02   1.9580000E+02
  -2.6254888E+00   5.5400674E+00  -1.1630087E-01
   1.3544677E+01   5.1245773E+00   4.1511336E+00
   1.9740810E+00   6.5866330E+00   2.1216628E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1973E+01   1.0155E+01   7.2000E+00   2.0210E+02
1.9580E+02   6.3000E+00   2.0300E+02   1.7687E+00

CONC =  2.1216628E+00
```

```
RUN NO.  SF3 DATE 6-11
   T(1) THROUGH T(10)
   2.0120000E+02   2.1560000E+02   2.1200000E+02
   1.8500000E+02   2.0480000E+02   1.9220000E+02
   1.8500000E+02   2.1200000E+02   2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2300000E+02   6.7000000E+00   2.0570000E+02
   1.8200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.2500000E+00   2.5000000E+00
   4.0000000E-01   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01   2.0200000E+01   2.4400000E+01
  -3.3333333E-02   1.2071490E+01

   V(2) THROUGH V(31)
   6.9416843E+02   1.3884647E+05   9.6382842E+07
   7.9970803E-03   6.7198478E+15   9.3545581E+02
   6.5427146E+00   1.1841124E+01   1.8383838E+01
  -4.8286787E+00   3.6443841E+01   6.8410339E+00
   7.2404356E-02   3.4525346E+02   8.4441035E-01
   7.5836568E+05   1.8097420E+02   6.3211230E+01
   8.3333333E+00   7.2776537E+02   2.0480000E+02
  -2.6254888E+00   5.8442788E+00  -1.6911670E-01
   1.3538920E+01   5.1983544E+00   4.1464819E+00
   2.1202635E+00   6.5899787E+00   2.0784947E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.4571E+01   1.2471E+01   8.3333E+00   2.1200E+02
2.0480E+02   7.2000E+00   2.1313E+02   2.3975E+00

CONC =  2.0784947E+00
```

```
RUN NO.  SF4 DATE 6-11
   T(1) THROUGH T(10)
   2.1380000E+02    2.2820000E+02    2.2550000E+02
   1.9760000E+02    2.1740000E+02    2.0480000E+02
   1.9850000E+02    2.2550000E+02    2.1740000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02    7.2000000E+00    2.1920000E+02
   1.9400000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    1.2900000E+00    6.8000000E+00
   3.9000000E+00    2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.7000000E-01    2.3300000E+01    3.1000000E+01
  -3.3333333E-02    1.2076403E+01

   V(2) THROUGH V(31)
   9.5220901E+02    1.0791118E+05    1.0275399E+08
   8.3273106E-03    7.3177161E+15    1.9129791E+03
   6.8587845E+00    1.1589063E+01    1.8447848E+01
  -4.7882147E+00    3.6529074E+01    7.5564170E+00
   7.2404356E-02    4.3864169E+02    7.8532942E-01
   7.5212653E+05    1.9587307E+02    6.2934016E+01
   8.6000000E+00    7.2827806E+02    2.1740000E+02
  -2.6254888E+00    6.0836828E+00   -2.4165200E-01
   1.3530659E+01    5.2774668E+00    4.1420868E+00
   2.1517622E+00    6.5906829E+00    2.1170704E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8876E+01   1.5976E+01   8.6000E+00   2.2550E+02
2.1740E+02   8.1000E+00   2.2600E+02   3.0461E+00

CONC =  2.1170704E+00
```

```
RUN NO.  SG1 DATE 6-12
   T(1) THROUGH T(10)
   1.7240000E+02   1.9580000E+02   1.9220000E+02
   1.6520000E+02   1.8500000E+02   1.6700000E+02
   1.6070000E+02   1.9400000E+02   1.8500000E+02
   1.8500000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0400000E+02   6.2000000E+00   1.8680000E+02
   1.6100000E+02   8.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.2000000E+00  -2.4565508E+00
  -3.8322192E+00   2.0300000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   6.4000000E+00   1.7400000E+01
  -1.6666666E-01   1.2164839E+01

   V(2) THROUGH V(31)
   3.6717453E+02   1.9900587E+05   7.3069887E+07
   7.5384157E-03   3.3122322E+15   1.8748072E+02
   5.9058372E+00   1.2201089E+01   1.8106926E+01
  -4.8877432E+00   3.5736398E+01   5.2336760E+00
   6.1120560E-02   2.4620533E+02   9.5501980E-01
   7.6790888E+05   9.2959928E+01   6.3804844E+01
   8.0000000E+00   7.2360206E+02   1.8500000E+02
  -2.7949069E+00   5.5061658E+00  -4.6023203E-02
   1.3551426E+01   4.5321685E+00   4.1558291E+00
   2.0794415E+00   6.5842416E+00   2.1446245E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.7082E+00   8.3326E+00   8.0000E+00   1.9400E+02
1.8500E+02   9.0000E+00   1.9300E+02   1.7097E+00

CONC =  2.1446245E+00
```

```
RUN NO.  SG2 DATE 6-12
   T(1) THROUGH T(10)
   1.8140000E+02   2.0300000E+02   2.0120000E+02
   1.6700000E+02   1.9040000E+02   1.7240000E+02
   1.6520000E+02   1.9940000E+02   1.9130000E+02
   1.9040000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1700000E+02   6.5000000E+00   1.9220000E+02
   1.6300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.4400000E+00  -8.8435828E-01
  -2.7022058E+00   2.1400000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.3200000E+01   2.3000000E+01
  -1.5000000E-01   1.2189405E+01

   V(2) THROUGH V(31)
   4.9914048E+02   1.5016298E+05   7.4952426E+07
   9.0502105E-03   4.6448880E+15   5.3158013E+02
   6.2128875E+00   1.1919476E+01   1.8132364E+01
  -4.7049672E+00   3.6074543E+01   6.2758539E+00
   6.1120560E-02   3.2544384E+02   9.3018298E-01
   7.6533994E+05   1.4239001E+02   6.3853480E+01
   9.6000000E+00   7.2150913E+02   1.9040000E+02
  -2.7949069E+00   5.7851899E+00  -7.2373957E-02
   1.3548075E+01   4.9585698E+00   4.1565910E+00
   2.2617631E+00   6.5813450E+00   2.2647511E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1305E+01   9.4872E+00   9.6000E+00   1.9940E+02
1.9040E+02   9.0000E+00   2.0000E+02   2.2600E+00

CONC =  2.2647511E+00
```

```
RUN NO.  SG3 DATE 6-12
   T(1) THROUGH T(10)
   2.0390000E+02   2.2100000E+02   2.1920000E+02
   1.8500000E+02   2.0840000E+02   1.9310000E+02
   1.8410000E+02   2.1830000E+02   2.0840000E+02
   2.0840000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3100000E+02   7.0000000E+00   2.1074000E+02
   1.8100000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.5200000E+00   4.2000000E+00
   1.3000000E+00   2.3000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.5000000E-01   1.5200000E+01   3.3000000E+01
  -5.0000000E-02   1.2199231E+01

   V(2) THROUGH V(31)
   7.9447780E+02   1.0280711E+05   8.1677971E+07
   9.6860259E-03   4.9737699E+15   1.4676717E+03
   6.6776850E+00   1.1540609E+01   1.8218294E+01
  -4.6370710E+00   3.6142954E+01   7.2914325E+00
   6.1120560E-02   4.6694116E+02   8.4331618E-01
   7.5659697E+05   1.5428600E+02   6.3448411E+01
   1.0133333E+01   7.2319916E+02   2.0840000E+02
  -2.7949069E+00   6.1462032E+00  -1.7041332E-01
   1.3536585E+01   5.0388080E+00   4.1502271E+00
   2.3158302E+00   6.5836846E+00   2.2989272E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6399E+01   1.3499E+01   1.0133E+01   2.1830E+02
2.0840E+02   9.9000E+00   2.1853E+02   3.2426E+00

CONC =  2.2989272E+00
```

```
RUN NO.  SG4 DATE 6-12
   T(1) THROUGH T(10)
   2.1740000E+02   2.3180000E+02   2.3000000E+02
   1.9580000E+02   2.2010000E+02   2.0480000E+02
   1.9580000E+02   2.3000000E+02   2.2010000E+02
   2.2010000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4400000E+02   7.3000000E+00   2.2190000E+02
   1.9200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2600000E+02   1.6400000E+00   8.4000000E+00
   4.7000000E+00   2.4200000E+02

 DIA,DHFLO;DHSTG,DHWTR,PATM
   6.5000000E-01   1.6900000E+01   4.2900000E+01
  -1.0000000E-01   1.2204144E+01

   V(2) THROUGH V(31)
   1.1072169E+03   7.8196070E+04   8.6580010E+07
   1.0534855E-02   5.1944663E+15   3.0379395E+03
   7.0096048E+00   1.1266974E+01   1.8276579E+01
  -4.5530659E+00   3.6186370E+01   8.0189347E+00
   6.1120560E-02   6.0702351E+02   7.8969414E-01
   7.5077955E+05   1.6379443E+02   6.3223423E+01
   1.0933333E+01   7.2341652E+02   2.2010000E+02
  -2.7949069E+00   6.4085675E+00  -2.3610957E-01
   1.3528867E+01   5.0986121E+00   4.1466748E+00
   2.3918161E+00   6.5839851E+00   2.3540354E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0604E+01   1.6904E+01   1.0933E+01   2.3000E+02
2.2010E+02   9.9000E+00   2.3103E+02   4.2154E+00

CONC =  2.3540354E+00
```

TABLE VI. INTERMEDIATE DATA FOR ROUND ORIFICES FOR STAGE TWO CONDITIONS

```
RUN NO.  X1  DATE 3-7
   T(1) THROUGH T(10)
   1.8140000E+02   2.0570000E+02   2.0480000E+02
   1.7780000E+02   1.9580000E+02   1.8140000E+02
   1.7240000E+02   1.7600000E+02   1.9580000E+02
   1.9220000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0900000E+02   6.1000000E+00  -1.5340000E+02
   1.7400000E+02   7.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.3600000E+00  -0.0000000E-99
  -1.8669786E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   9.0000000E+00   2.7000000E+01
  -1.0833333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   6.3626825E+02   1.2073997E+05   7.6823009E+07
   9.2552477E-03   4.8466951E+15   9.5679435E+02
   6.4556202E+00   1.1701394E+01   1.8157014E+01
  -4.6825645E+00   3.6117073E+01   6.8635884E+00
   5.2083333E-02   3.8204277E+02   7.3037059E-01
   7.6447702E+05   1.1446494E+02   6.0339072E+01
   9.0666666E+00   7.8037768E+02   1.9220000E+02
  -2.9549102E+00   5.9455325E+00  -3.1420321E-01
   1.3546947E+01   4.7402685E+00   4.0999798E+00
   2.2046046E+00   6.6597780E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -1.8669E+00   9.0666E+00   1.7600E+02
1.9220E+02  -1.6200E+01   2.0126E+02   2.6530E+00

CONC =  0.0000000E-99
```

```
RUN NO.  X2  DATE 3-7
   T(1) THROUGH T(10)
   1.6880000E+02   2.0480000E+02   2.0444000E+02
   1.6070000E+02   1.9220000E+02   1.7060000E+02
   1.5080000E+02   1.7420000E+02   1.9220000E+02
   1.9040000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0800000E+02   6.9000000E+00  -1.5160000E+02
   1.5500000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.5900000E+00  -0.0000000E-99
  -2.4565508E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   5.4000000E+00   3.1500000E+01
  -1.0833333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   7.3406878E+02   1.0368159E+05   7.6109423E+07
   1.0806638E-02   3.2739912E+15   9.4585369E+02
   6.5986027E+00   1.1549079E+01   1.8147682E+01
  -4.5275947E+00   3.5724786E+01   6.8520878E+00
   5.2083333E-02   4.4571657E+02   7.3815677E-01
   7.6533994E+05   8.5060851E+01   6.0381805E+01
   1.0600000E+01   7.8025960E+02   1.9040000E+02
  -2.9549102E+00   6.0996832E+00  -3.0359904E-01
   1.3548075E+01   4.4433668E+00   4.1006878E+00
   2.3608540E+00   6.6596266E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -2.4565E+00   1.0600E+01   1.7420E+02
1.9040E+02  -1.6200E+01   2.0100E+02   3.0952E+00

CONC =  0.0000000E-99
```

```
RUN NO.  X3  DATE 3-7
   T(1) THROUGH T(10)
   1.7780000E+02   2.0030000E+02   1.9940000E+02
   1.6880000E+02   1.9004000E+02   1.7420000E+02
   1.6088000E+02   1.7510000E+02   1.8860000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02   7.0000000E+00  -1.4440000E+02
   1.6300000E+02   7.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.4150000E+00  -0.0000000E-99
  -2.8495989E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   3.7000000E+00   2.6000000E+01
  -8.6666666E-02   0.0000000E-99

   V(2) THROUGH V(31)
   5.8701407E+02   1.2607131E+05   7.4005636E+07
   9.5923502E-03   2.7119468E+15   4.8055253E+02
   6.3750487E+00   1.1744602E+01   1.8119651E+01
  -4.6467893E+00   3.5536443E+01   6.1749365E+00
   5.2083333E-02   3.6789304E+02   7.6105087E-01
   7.6705459E+05   6.7656440E+01   6.0466048E+01
   9.4333333E+00   7.7998477E+02   1.8680000E+02
  -2.9549102E+00   5.9077922E+00  -2.7305507E-01
   1.3550313E+01   4.2144425E+00   4.1020820E+00
   2.2442495E+00   6.6592743E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -2.8495E+00   9.4333E+00   1.7510E+02
1.8680E+02  -1.1700E+01   1.9623E+02   2.5548E+00

CONC =  0.0000000E-99
```

```
RUN NO.  X4  DATE 3-7
   T(1) THROUGH T(10)
   1.6700000E+02   1.9580000E+02   1.9400000E+02
   1.5080000E+02   1.8320000E+02   1.6160000E+02
   1.4540000E+02   1.6880000E+02   1.8374000E+02
   1.8140000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1500000E+02   6.8000000E+00  -1.3900000E+02
   1.4600000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1950000E+02   1.6450000E+00  -0.0000000E-99
  -3.9304812E+00  -0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   5.6000000E+00   2.7500000E+01
  -1.7500000E-01   0.0000000E-99

   V(2) THROUGH V(31)
   5.8975225E+02   1.1983541E+05   7.0673202E+07
   1.1108458E-02   3.0924878E+15   6.2207897E+02
   6.3797025E+00   1.1693874E+01   1.8073577E+01
  -4.5000484E+00   3.5667752E+01   6.4330670E+00
   5.2083333E-02   3.8911763E+02   7.9988694E-01
   7.6961396E+05   8.6915082E+01   6.0588912E+01
   1.0966666E+01   7.7956462E+02   1.8140000E+02
  -2.9549102E+00   5.9638816E+00  -2.2328488E-01
   1.3553644E+01   4.4649315E+00   4.1041119E+00
   2.3948603E+00   6.6587355E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -3.9304E+00   1.0966E+01   1.6880E+02
1.8140E+02  -1.2600E+01   1.9236E+02   2.7022E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Y1  DATE 3-9
   T(1) THROUGH T(10)
   1.6970000E+02   1.9364000E+02   1.9220000E+02
   1.6304000E+02   1.8140000E+02   1.6808000E+02
   1.5908000E+02   1.6610000E+02   1.8140000E+02
   1.7960000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02   5.5000000E+00  -1.4980000E+02
   1.6000000E+02   7.6000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02   1.5300000E+00  -0.0000000E-99
  -4.3235294E+00   2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   4.6000000E+00   2.4500000E+01
  -2.4166666E-01   0.0000000E-99

   V(2) THROUGH V(31)
   5.1699898E+02   1.3474609E+05   6.9663592E+07
   1.0318589E-02   2.8312917E+15   4.2480976E+02
   6.2480409E+00   1.1811147E+01   1.8059188E+01
  -4.5738082E+00   3.5579509E+01   6.0516414E+00
   5.2083333E-02   3.4666843E+02   8.1245886E-01
   7.7046693E+05   7.7276002E+01   6.0628451E+01
   1.0200000E+01   7.7942468E+02   1.7960000E+02
  -2.9549102E+00   5.8483687E+00  -2.0768999E-01
   1.3554752E+01   4.3473834E+00   4.1047642E+00
   2.3223877E+00   6.6585560E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.3235E+00   1.0200E+01   1.6610E+02
1.7960E+02  -1.3500E+01   1.8980E+02   2.4074E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Y2  DATE 3-9
   T(1) THROUGH T(10)
   1.6610000E+02   1.9040000E+02   1.8860000E+02
   1.6160000E+02   1.8050000E+02   1.6700000E+02
   1.5440000E+02   1.6520000E+02   1.8140000E+02
   1.7780000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9500000E+02   5.6000000E+00   1.8950000E+02
   1.5500000E+02   5.9000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1700000E+02   1.1500000E+00  -0.0000000E-99
  -4.4217914E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   3.0000000E+00   1.4000000E+01
  -1.7500000E-01   0.0000000E-99

   V(2) THROUGH V(31)
   2.9135466E+02   2.3621453E+05   6.8822207E+07
   7.7458008E-03   2.8074546E+15   1.0352544E+02
   5.6745412E+00   1.2372495E+01   1.8047037E+01
  -4.8606044E+00   3.5571054E+01   4.6398173E+00
   5.2083333E-02   1.9809624E+02   8.2336013E-01
   7.7132316E+05   5.9329870E+01   6.0666157E+01
   7.6666666E+00   7.7928466E+02   1.7780000E+02
  -2.9549102E+00   5.2887529E+00  -1.9436158E-01
   1.3555862E+01   4.0831128E+00   4.1053859E+00
   2.0368819E+00   6.6583763E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.4217E+00   7.6666E+00   1.6520E+02
1.7780E+02  -1.2600E+01   1.8546E+02   1.3756E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Y3  DATE 3-9
   T(1) THROUGH T(10)
   1.5260000E+02    1.8500000E+02    1.8428000E+02
   1.4180000E+02    1.7330000E+02    1.5170000E+02
   1.3460000E+02    1.5890000E+02    1.7348000E+02
   1.7240000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9600000E+02    6.9000000E+00    1.8680000E+02
   1.4600000E+02    1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02    1.6000000E+00   -0.0000000E-99
  -5.5026737E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    4.5000000E+00    1.7700000E+01
  -3.3333333E-01    0.0000000E-99

   V(2) THROUGH V(31)
   3.5395326E+02    1.8779820E+05    6.6471789E+07
   1.0735272E-02    2.9964498E+15    1.9605557E+02
   5.8691648E+00    1.2143123E+01    1.8012288E+01
  -4.5342205E+00    3.5636204E+01    5.2783981E+00
   5.2083333E-02    2.5045025E+02    8.5544190E-01
   7.7388704E+05    7.6256753E+01    6.0776451E+01
   1.0666666E+01    7.7886459E+02    1.7240000E+02
  -2.9549102E+00    5.5232602E+00   -1.5613709E-01
   1.3559181E+01    4.3341059E+00    4.1072023E+00
   2.3671235E+00    6.6578372E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -5.5026E+00   1.0666E+01   1.5890E+02
1.7240E+02  -1.3500E+01   1.8306E+02   1.7392E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Z1  DATE 3-14
   T(1) THROUGH T(10)
   1.7240000E+02   1.9040000E+02   1.8860000E+02
   1.6340000E+02   1.8050000E+02   1.6880000E+02
   1.5890000E+02   1.6700000E+02   1.7960000E+02
   1.7780000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9500000E+02   5.7000000E+00   1.8860000E+02
   1.5900000E+02   6.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02   1.2700000E+00  -0.0000000E-99
  -4.6183155E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   2.7000000E+00   1.7300000E+01
  -3.0000000E-01   0.0000000E-99

   V(2) THROUGH V(31)
   3.6003112E+02   1.9115626E+05   6.8822207E+07
   8.5540584E-03   2.3610143E+15   1.4778424E+02
   5.8861904E+00   1.2160846E+01   1.8047037E+01
  -4.7613494E+00   3.5397867E+01   4.9957533E+00
   5.2083333E-02   2.4479036E+02   8.2336013E-01
   7.7132316E+05   5.5464904E+01   6.0666157E+01
   8.4666666E+00   7.7928466E+02   1.7780000E+02
  -2.9549102E+00   5.5004021E+00  -1.9436158E-01
   1.3555862E+01   4.0157504E+00   4.1053859E+00
   2.1361368E+00   6.6583763E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.6183E+00   8.4666E+00   1.6700E+02
1.7780E+02  -1.0800E+01   1.8626E+02   1.6999E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Z2  DATE 3-14
   T(1) THROUGH T(10)
   1.6880000E+02   1.9130000E+02   1.8950000E+02
   1.6340000E+02   1.8140000E+02   1.6790000E+02
   1.5980000E+02   1.6700000E+02   1.8140000E+02
   1.7960000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9600000E+02   5.7000000E+00   1.9040000E+02
   1.5700000E+02   4.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02   1.1700000E+00  -0.0000000E-99
  -4.4217914E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   2.7000000E+00   1.5900000E+01
   1.0000000E-01   0.0000000E-99

   V(2) THROUGH V(31)
   3.3552177E+02   2.0762762E+05   6.9663592E+07
   7.8906858E-03   2.5225672E+15   1.2841927E+02
   5.8156868E+00   1.2243501E+01   1.8059188E+01
  -4.8420722E+00   3.5464053E+01   4.8553004E+00
   5.2083333E-02   2.2498074E+02   8.1245886E-01
   7.7046693E+05   5.5464904E+01   6.0628451E+01
   7.8000000E+00   7.7942468E+02   1.7960000E+02
  -2.9549102E+00   5.4160148E+00  -2.0768999E-01
   1.3554752E+01   4.0157504E+00   4.1047642E+00
   2.0541237E+00   6.6585560E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -4.4217E+00   7.8000E+00   1.6700E+02
1.7960E+02  -1.2600E+01   1.8740E+02   1.5623E+00

CONC =  0.0000000E-99
```

```
RUN NO.  K1  DATE 3-17
   T(1) THROUGH T(10)
   1.8410000E+02    2.0120000E+02    2.0048000E+02
   1.7600000E+02    1.9184000E+02    1.8212000E+02
   1.7420000E+02    1.7276000E+02    1.9130000E+02
   1.8896000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02    6.4000000E+00    1.9940000E+02
   1.7400000E+02    6.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02    1.2850000E+00   -0.0000000E-99
  -2.7022058E+00    2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    9.6000000E+00    2.0900000E+01
  -5.8333333E-02    0.0000000E-99

   V(2) THROUGH V(31)
   5.7761446E+02    1.5649465E+05    9.0393577E+07
   8.7246363E-03    5.4978898E+15    5.6747685E+02
   6.3589066E+00    1.1960777E+01    1.8319683E+01
  -4.7416044E+00    3.6243140E+01    6.3411999E+00
   6.2500000E-02    2.9572940E+02    7.4656801E-01
   7.6602714E+05    1.1874315E+02    6.0415707E+01
   8.5666666E+00    7.8015272E+02    1.8896000E+02
  -2.7725887E+00    5.6894448E+00   -2.9226855E-01
   1.3548972E+01    4.7769627E+00    4.1012491E+00
   2.1478786E+00    6.6594896E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -2.7022E+00   8.5666E+00   1.7276E+02
1.8896E+02  -1.6200E+01   1.9752E+02   2.0536E+00

CONC =  0.0000000E-99
```

```
RUN NO.  K2  DATE 3-17
   T(1) THROUGH T(10)
   1.7240000E+02   1.9760000E+02   1.9580000E+02
   1.9490000E+02   1.8410000E+02   1.6808000E+02
   1.5728000E+02   1.8356000E+02   1.8428000E+02
   1.8248000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0800000E+02   7.6000000E+00   1.9580000E+02
   1.5500000E+02   1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1300000E+02   1.6900000E+00  -0.0000000E-99
  -3.7830882E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.3000000E+01   2.5100000E+01
  -2.2666666E-01   0.0000000E-99

   V(2) THROUGH V(31)
   6.5257159E+02   1.3115415E+05   8.5587477E+07
   1.1421153E-02   5.3394419E+15   8.5712040E+02
   6.4809208E+00   1.1784128E+01   1.8265049E+01
  -4.4722881E+00   3.6213897E+01   6.7535784E+00
   6.2500000E-02   3.5515828E+02   7.9202082E-01
   7.6910280E+05   1.4079652E+02   6.0564706E+01
   1.1266666E+01   7.7964864E+02   1.8248000E+02
  -2.7725887E+00   5.8725635E+00  -2.3316759E-01
   1.3552979E+01   4.9473157E+00   4.1037123E+00
   2.4218484E+00   6.6588433E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 0.0000E-99  -3.7830E+00   1.1266E+01   1.8356E+02
1.8248E+02   1.0800E+00   1.9374E+02   2.4663E+00

CONC =  0.0000000E-99
```

```
RUN NO.  J1  DATE 3-18
   T(1) THROUGH T(10)
   2.0840000E+02   2.1920000E+02   2.1920000E+02
   2.0300000E+02   2.1110000E+02   2.0534000E+02
   2.0300000E+02   2.1020000E+02   2.1020000E+02
   2.0876000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2600000E+02   6.1000000E+00   2.1740000E+02
   2.0000000E+02   5.7000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.0400000E+00   3.6000000E+00
   1.2000000E+00   2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.2100000E+01   2.3900000E+01
  -2.5333333E-01   0.0000000E-99

   V(2) THROUGH V(31)
   7.6599747E+02   1.3406131E+05   1.0269062E+08
   7.1710890E-03   7.5287832E+15   1.1441080E+03
   6.6411788E+00   1.1806052E+01   1.8447231E+01
  -4.9376977E+00   3.6557509E+01   7.0423805E+00
   6.2500000E-02   3.3817860E+02   6.4784694E-01
   7.5641961E+05   1.3527210E+02   5.9935870E+01
   6.9333333E+00   7.8235853E+02   2.0876000E+02
  -2.7725887E+00   5.8235741E+00  -4.3410081E-01
   1.3536351E+01   4.9072883E+00   4.0932751E+00
   1.9363406E+00   6.6623131E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 3.6000E+00   1.2000E+00   6.9333E+00   2.1020E+02
2.0876E+02   1.4400E+00   2.1569E+02   2.3484E+00

CONC =  0.0000000E-99
```

```
RUN NO.  J2  DATE 3-18
   T(1) THROUGH T(10)
   1.9364000E+02   2.0840000E+02   2.0768000E+02
   1.6970000E+02   1.9760000E+02   1.7960000E+02
   1.6880000E+02   1.9724000E+02   1.9724000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2700000E+02   8.5000000E+00   2.0840000E+02
   1.6600000E+02   1.5500000E+01

 TPR,XMV,ST1,ST2,SP
   1.1500000E+02   1.5500000E+00  -0.0000000E-99
  -1.4739304E+00   2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.3700000E+01   2.8600000E+01
  -3.4666666E-01   1.1987967E+01

   V(2) THROUGH V(31)
   8.2552966E+02   1.1356370E+05   9.3750204E+07
   1.0575719E-02   6.1633199E+15   1.4181307E+03
   6.7160251E+00   1.1640119E+01   1.8356144E+01
  -4.5491945E+00   3.6357391E+01   7.2570948E+00
   6.2500000E-02   4.0468235E+02   7.1635340E-01
   7.6274355E+05   1.4496225E+02   6.0252527E+01
   1.0333333E+01   7.8063501E+02   1.9580000E+02
  -2.7725887E+00   6.0031024E+00  -3.3358165E-01
   1.3544677E+01   4.9764733E+00   4.0985445E+00
   2.3353748E+00   6.6601077E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1987E+01   1.0514E+01   1.0333E+01   1.9724E+02
1.9580E+02   1.4400E+00   2.0613E+02   2.8102E+00

CONC =  0.0000000E-99
```

```
RUN NO.  N1  DATE 4-4
   T(1) THROUGH T(10)
   1.9760000E+02   2.1380000E+02   2.1290000E+02
   1.9130000E+02   2.0498000E+02   1.9580000E+02
   1.9040000E+02   2.1200000E+02   2.0570000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2200000E+02   2.0000000E+01   2.0750000E+02
   1.8700000E+02   6.5000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.1200000E+00   2.5000000E+00
   5.0000000E-01   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   8.7000000E+00   2.4100000E+01
   3.3333333E-03   1.2184491E+01

   V(2) THROUGH V(31)
   7.4317566E+02   1.3350790E+05   9.9219831E+07
   7.6965000E-03   5.8139153E+15   8.9269271E+02
   6.6109324E+00   1.1801915E+01   1.8412848E+01
  -4.8669895E+00   3.6299030E+01   6.7942424E+00
   6.2500000E-02   3.4100854E+02   6.7246464E-01
   7.5836568E+05   1.1227234E+02   6.0033489E+01
   7.4666666E+00   7.8170914E+02   2.0480000E+02
  -2.7725887E+00   5.8319075E+00  -3.9680574E-01
   1.3538920E+01   4.7209275E+00   4.0949025E+00
   2.0104486E+00   6.6614827E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.4684E+01   1.2684E+01   7.4666E+00   2.1200E+02
2.0480E+02   7.2000E+00   2.1226E+02   2.3681E+00

CONC =  0.0000000E-99
```

```
RUN NO.  N2  DATE 4-4
   T(1) THROUGH T(10)
   1.7510000E+02    1.8860000E+02    1.8716000E+02
   1.5152000E+02    1.7960000E+02    1.5800000E+02
   1.4720000E+02    1.8680000E+02    1.8050000E+02
   1.7924000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9300000E+02    2.0000000E+01    1.8320000E+02
   1.4600000E+02    1.5000000E+01

 TPR,XMV,ST1,ST2,SP
   1.0900000E+02    1.0600000E+00   -3.4391711E+00
  -4.9131016E+00    0.0000000E-99

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    6.3000000E+00    1.4000000E+01
  -7.0000000E-02    1.2174665E+01

   V(2) THROUGH V(31)
   3.5351678E+02    2.3588757E+05    8.3390214E+07
   7.1469813E-03    4.4932243E+15    1.6626305E+02
   5.8679309E+00    1.2371110E+01    1.8239041E+01
  -4.9410652E+00    3.6041346E+01    5.1135711E+00
   6.2500000E-02    1.9809624E+02    8.1465922E-01
   7.7063814E+05    9.3157078E+01    6.0636036E+01
   7.0666666E+00    7.7939667E+02    1.7924000E+02
  -2.7725887E+00    5.2887529E+00   -2.0498538E-01
   1.3554974E+01    4.5342870E+00    4.1048893E+00
   1.9553888E+00    6.6585201E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.7354E+00   7.2615E+00   7.0666E+00   1.8680E+02
1.7924E+02   7.5600E+00   1.8630E+02   1.3756E+00

CONC =  0.0000000E-99
```

```
RUN NO.  P1  DATE 4-17
   T(1) THROUGH T(10)
   2.1740000E+02   2.3090000E+02   2.3090000E+02
   2.0588000E+02   2.1920000E+02   2.1020000E+02
   2.0588000E+02   2.2820000E+02   2.1920000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02   6.1000000E+00   2.1920000E+02
   2.0200000E+02   6.5000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1600000E+02   1.6800000E+00   8.8000000E+00
   4.9000000E+00   2.4000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.8600000E+01   4.4600000E+01
  -2.0000000E-01   1.2046925E+01

   V(2) THROUGH V(31)
   1.5607200E+03   7.1171924E+04   1.1107944E+08
   1.1671088E-02   8.1629909E+15   6.0405791E+03
   7.3529025E+00   1.1172853E+01   1.8525756E+01
  -4.4506406E+00   3.6638387E+01   8.7062551E+00
   6.2500000E-02   6.3107807E+02   5.9504204E-01
   7.5212653E+05   1.7154903E+02   5.9717401E+01
   1.1200000E+01   7.8376209E+02   2.1740000E+02
  -2.7725887E+00   6.4474295E+00  -5.1912321E-01
   1.3530659E+01   5.1448691E+00   4.0896234E+00
   2.4159137E+00   6.6641055E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0846E+01   1.6946E+01   1.1200E+01   2.2820E+02
2.1740E+02   1.0800E+01   2.2860E+02   4.3824E+00

CONC =  0.0000000E-99
```

```
RUN NO.  P2  DATE 4-17
   T(1) THROUGH T(10)
   2.1380000E+02    2.2640000E+02    2.2640000E+02
   1.9040000E+02    2.1380000E+02    2.0048000E+02
   1.9094000E+02    2.2460000E+02    2.1380000E+02
   2.1200000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02    7.0000000E+00    2.1380000E+02
   1.8700000E+02    1.0000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02    1.9100000E+00    7.0000000E+00
   2.8000000E+00    2.4000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    2.0900000E+01    4.5900000E+01
  -1.5000000E-01    1.2046925E+01

   V(2) THROUGH V(31)
   1.5199776E+03    6.9563199E+04    1.0573450E+08
   1.3207158E-02    7.7781857E+15    6.0943877E+03
   7.3264508E+00    1.1149990E+01    1.8476441E+01
  -4.3269963E+00    3.6590099E+01    8.7151235E+00
   6.2500000E-02    6.4947271E+02    6.2768000E-01
   7.5481566E+05    1.8280609E+02    5.9854880E+01
   1.2733333E+01    7.8290345E+02    2.1200000E+02
  -2.7725887E+00    6.4761608E+00   -4.6572479E-01
   1.3534228E+01    5.2084259E+00    4.0919229E+00
   2.5442232E+00    6.6630093E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9046E+01   1.4846E+01   1.2733E+01   2.2460E+02
2.1200E+02   1.2600E+01   2.2473E+02   4.5102E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Q1  DATE 4-18
   T(1) THROUGH T(10)
   2.2100000E+02   2.3540000E+02   2.3540000E+02
   2.1020000E+02   2.2460000E+02   2.1524000E+02
   2.0930000E+02   2.3360000E+02   2.2496000E+02
   2.2460000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4600000E+02   6.6000000E+00   2.2640000E+02
   2.0500000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1800000E+02   1.5400000E+00   1.0900000E+01
   7.0000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   2.0100000E+01   4.6000000E+01
   5.8333333E-02   1.1997794E+01

   V(2) THROUGH V(31)
   1.7294899E+03   6.8458797E+04   1.1839879E+08
   1.0759533E-02   9.5115349E+15   7.7567161E+03
   7.4555817E+00   1.1133987E+01   1.8589569E+01
  -4.5319631E+00   3.6791281E+01   8.9563143E+00
   6.2500000E-02   6.5088768E+02   5.5515355E-01
   7.4854835E+05   1.7896435E+02   5.9527202E+01
   1.0266666E+01   7.8448360E+02   2.2460000E+02
  -2.7725887E+00   6.4783370E+00  -5.8851053E-01
   1.3525891E+01   5.1871866E+00   4.0864333E+00
   2.3289023E+00   6.6650256E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.2897E+01   1.8997E+01   1.0266E+01   2.3360E+02
2.2460E+02   9.0000E+00   2.3486E+02   4.5200E+00

CONC =  0.0000000E-99
```

```
RUN NO.  Q2  DATE 4-18
   T(1) THROUGH T(10)
   2.1380000E+02   2.3000000E+02   2.3000000E+02
   1.9148000E+02   2.1560000E+02   2.0084000E+02
   1.9040000E+02   2.2640000E+02   2.1668000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4600000E+02   7.8000000E+00   2.1848000E+02
   1.8700000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02   1.9300000E+00   8.3000000E+00
   3.8000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   2.1200000E+01   4.8500000E+01
  -1.7000000E-01   1.1997794E+01

   V(2) THROUGH V(31)
   1.6661741E+03   6.5577624E+04   1.0926373E+08
   1.3387197E-02   8.1370166E+15   7.3888484E+03
   7.4182853E+00   1.1090989E+01   1.8509275E+01
  -4.3134564E+00   3.6635199E+01   8.9077271E+00
   6.2500000E-02   6.8626202E+02   6.0575936E-01
   7.5302423E+05   1.8422775E+02   5.9763593E+01
   1.2866666E+01   7.8348851E+02   2.1560000E+02
  -2.7725887E+00   6.5312595E+00  -5.0127246E-01
   1.3531852E+01   5.2161727E+00   4.0903966E+00
   2.5546399E+00   6.6637563E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0297E+01   1.5797E+01   1.2866E+01   2.2640E+02
2.1560E+02   1.0800E+01   2.2846E+02   4.7657E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R1  DATE 4-20
   T(1) THROUGH T(10)
   1.8320000E+02    1.9940000E+02    1.9760000E+02
   1.7780000E+02    1.9040000E+02    1.8140000E+02
   1.7780000E+02    1.9580000E+02    1.9040000E+02
   1.8932000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02    5.5000000E+00    1.9130000E+02
   1.7400000E+02    6.5000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1200000E+02    1.0200000E+00   -1.4739304E+00
  -2.7022058E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    1.2600000E+01    1.9800000E+01
  -2.5000000E-02    1.2012533E+01

   V(2) THROUGH V(31)
   6.4046703E+02    1.6512870E+05    1.0575950E+08
   6.9271927E-03    6.6190578E+15    5.9736578E+02
   6.4621976E+00    1.2014480E+01    1.8476678E+01
  -4.9723006E+00    3.6428729E+01    6.3925296E+00
   7.2916666E-02    2.8016470E+02    7.4426051E-01
   7.6585561E+05    1.3836562E+02    6.0407256E+01
   6.8000000E+00    7.8018080E+02    1.8932000E+02
  -2.6184380E+00    5.6353776E+00   -2.9536415E-01
   1.3548748E+01    4.9298996E+00    4.1011092E+00
   1.9169226E+00    6.6595256E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0538E+01   9.3103E+00   6.8000E+00   1.9580E+02
1.8932E+02   6.4800E+00   1.9612E+02   1.9455E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R2  DATE 4-20
   T(1) THROUGH T(10)
   1.7420000E+02   1.9760000E+02   1.9580000E+02
   1.6340000E+02   1.8680000E+02   1.6880000E+02
   1.6340000E+02   1.9400000E+02   1.8680000E+02
   1.8644000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02   6.6000000E+00   1.8860000E+02
   1.6000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1300000E+02   1.1600000E+00  -1.9652406E+00
  -3.3409090E+00   2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.5200000E+01   2.0800000E+01
  -3.0000000E-02   1.2012533E+01

   V(2) THROUGH V(31)
   6.5522780E+02   1.5764596E+05   1.0329402E+08
   7.8616585E-03   6.8399945E+15   6.9318435E+02
   6.4849829E+00   1.1968107E+01   1.8453090E+01
  -4.8457576E+00   3.6461563E+01   6.5412959E+00
   7.2916666E-02   2.9431442E+02   7.6355357E-01
   7.6722550E+05   1.5354447E+02   6.0474375E+01
   7.7333333E+00   7.7995668E+02   1.8644000E+02
  -2.6184380E+00   5.6846486E+00  -2.6977199E-01
   1.3550536E+01   5.0339902E+00   4.1022197E+00
   2.0455399E+00   6.6592383E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0047E+01   8.6716E+00   7.7333E+00   1.9400E+02
1.8644E+02   7.5600E+00   1.9417E+02   2.0438E+00

CONC =  0.0000000E-99
```

```
RUN NO.  S1  DATE 4-22
   T(1) THROUGH T(10)
   1.7960000E+02    1.9580000E+02    1.9400000E+02
   1.7780000E+02    1.8860000E+02    1.8140000E+02
   1.7600000E+02    1.9220000E+02    1.8860000E+02
   1.8860000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9700000E+02    4.2000000E+00    1.9040000E+02
   1.7400000E+02    6.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.0700000E+02    6.4300000E-01   -2.7022058E+00
  -3.2917780E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    7.2000000E+00    1.1500000E+01
  -1.6666666E-01    1.2140274E+01

   V(2) THROUGH V(31)
   3.6959672E+02    2.8451540E+05    1.0515596E+08
   4.3645796E-03    6.2494216E+15    1.4473584E+02
   5.9124124E+00    1.2558542E+01    1.8470955E+01
  -5.4342334E+00    3.6371265E+01    4.9749102E+00
   7.2916666E-02    1.6272191E+02    7.4890901E-01
   7.6619859E+05    1.0069287E+02    6.0424140E+01
   4.2866666E+00    7.8012479E+02    1.8860000E+02
  -2.6184380E+00    5.0920426E+00   -2.8913778E-01
   1.3549196E+01    4.6120749E+00    4.1013886E+00
   1.4555094E+00    6.6594538E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.4380E+00   8.8484E+00   4.2866E+00   1.9220E+02
1.8860E+02   3.6000E+00   1.9288E+02   1.1300E+00

CONC =  0.0000000E-99
```

```
RUN NO.  S2  DATE 4-22
   T(1) THROUGH T(10)
   1.6700000E+02   1.9040000E+02   1.8860000E+02
   1.5800000E+02   1.8140000E+02   1.6340000E+02
   1.5800000E+02   1.8680000E+02   1.8140000E+02
   1.8104000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9700000E+02   6.1000000E+00   1.8320000E+02
   1.5500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1100000E+02   9.6000000E-01  -3.0461229E+00
  -4.4217914E+00   1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.3500000E+01   1.4500000E+01
   4.1666666E-02   1.2140274E+01

   V(2) THROUGH V(31)
   4.3387873E+02   2.2735450E+05   9.8644289E+07
   6.4810806E-03   7.0034177E+15   2.8415296E+02
   6.0727650E+00   1.2334265E+01   1.8407030E+01
  -5.0388680E+00   3.6485174E+01   5.6495126E+00
   7.2916666E-02   2.0517111E+02   8.0250009E-01
   7.6978440E+05   1.4378312E+02   6.0596938E+01
   6.4000000E+00   7.7953670E+02   1.8104000E+02
  -2.6184380E+00   5.3238443E+00  -2.2002330E-01
   1.3553865E+01   4.9683060E+00   4.1042443E+00
   1.8562979E+00   6.6586997E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.0941E+00   7.7184E+00   6.4000E+00   1.8680E+02
1.8104E+02   5.7600E+00   1.8744E+02   1.4247E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R3  DATE 4-21
   T(1) THROUGH T(10)
   1.9940000E+02   2.1560000E+02   2.1560000E+02
   1.8860000E+02   2.0660000E+02   1.9580000E+02
   1.9130000E+02   2.1200000E+02   2.0660000E+02
   2.0534000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2400000E+02   6.3000000E+00   2.0660000E+02
   1.8700000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1400000E+02   1.1100000E+00   3.0000000E+00
   9.0000000E-01   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   2.0200000E+01   2.8000000E+01
   1.3333333E-02   1.2091143E+01

   V(2) THROUGH V(31)
   1.0124746E+03   1.1484675E+05   1.1627941E+08
   7.6312831E-03   8.6982724E+15   1.9459747E+03
   6.9201527E+00   1.1651353E+01   1.8571506E+01
  -4.8754992E+00   3.6701900E+01   7.5735182E+00
   7.2916666E-02   3.9619249E+02   6.6917602E-01
   7.5810104E+05   1.7944868E+02   6.0020261E+01
   7.4000000E+00   7.8179510E+02   2.0534000E+02
  -2.6184380E+00   5.9819001E+00  -4.0170814E-01
   1.3538571E+01   5.1898892E+00   4.0946821E+00
   2.0014800E+00   6.6615926E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5091E+01   1.2991E+01   7.4000E+00   2.1200E+02
2.0534E+02   6.6600E+00   2.1274E+02   2.7513E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R4  DATE 4-21
   T(1) THROUGH T(10)
   2.0480000E+02   2.2010000E+02   2.1920000E+02
   1.8680000E+02   2.1020000E+02   1.9580000E+02
   1.8680000E+02   2.1920000E+02   2.1020000E+02
   2.0840000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3100000E+02   7.4000000E+00   2.1020000E+02
   1.7400000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1100000E+02   1.4200000E+00   4.9000000E+00
   1.8000000E+00   2.3000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   2.5600000E+01   3.6300000E+01
  -1.0833333E-01   1.2091143E+01

   V(2) THROUGH V(31)
   1.3524183E+03   8.8300124E+04   1.1941870E+08
   9.7882451E-03   9.1552302E+15   3.9515466E+03
   7.2096496E+00   1.1388496E+01   1.8598146E+01
  -4.6265730E+00   3.6753101E+01   8.2818623E+00
   7.2916666E-02   5.1363528E+02   6.5011966E-01
   7.5659697E+05   2.0402578E+02   5.9944807E+01
   9.4666666E+00   7.8229824E+02   2.0840000E+02
  -2.6184380E+00   6.2415134E+00  -4.3059883E-01
   1.3536585E+01   5.3182463E+00   4.0934242E+00
   2.2477768E+00   6.6622360E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6991E+01   1.3891E+01   9.4666E+00   2.1920E+02
2.0840E+02   1.0800E+01   2.1786E+02   3.5669E+00

CONC =  0.0000000E-99
```

```
RUN NO.  R5  DATE 4-21
   T(1) THROUGH T(10)
   2.1560000E+02    2.2820000E+02    2.2820000E+02
   1.9400000E+02    2.1920000E+02    2.0480000E+02
   1.9760000E+02    2.2640000E+02    2.1920000E+02
   2.1740000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02    7.7000000E+00    2.1920000E+02
   1.9300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1000000E+02    1.5100000E+00    7.8000000E+00
   4.2000000E+00    2.4000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    2.8700000E+01    4.1900000E+01
  -6.6666666E-02    1.2091143E+01

   V(2) THROUGH V(31)
   1.7106098E+03    7.5758182E+04    1.2959268E+08
   1.0490084E-02    1.0651571E+16    6.7428090E+03
   7.4446051E+00    1.1235301E+01    1.8679906E+01
  -4.5573248E+00    3.6904483E+01    8.8162318E+00
   7.2916666E-02    5.9287379E+02    5.9504204E-01
   7.5212653E+05    2.1696627E+02    5.9717401E+01
   1.0066666E+01    7.8376209E+02    2.1740000E+02
  -2.6184380E+00    6.3849815E+00   -5.1912321E-01
   1.3530659E+01    5.3797419E+00    4.0896234E+00
   2.3092295E+00    6.6641055E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9891E+01   1.6291E+01   1.0066E+01   2.2640E+02
2.1740E+02   9.0000E+00   2.2746E+02   4.1171E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T1  DATE 4-27
   T(1) THROUGH T(10)
   2.1200000E+02    2.2820000E+02    2.2820000E+02
   1.8860000E+02    2.1200000E+02    1.9940000E+02
   1.8770000E+02    2.2640000E+02    2.1200000E+02
   2.1200000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02    5.5000000E+00    2.1380000E+02
   1.7500000E+02    6.4000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02    2.2800000E+00    7.7000000E+00
   2.6000000E+00    2.3900000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    9.5000000E+00    5.6700000E+01
  -1.5000000E-01    1.2125534E+01

   V(2) THROUGH V(31)
   1.2517462E+03    5.6313065E+04    7.0489668E+07
   1.5765613E-02    4.5188727E+15    6.0049290E+03
   7.1322948E+00    1.0938681E+01    1.8070976E+01
  -4.1499241E+00    3.6047038E+01    8.7003359E+00
   4.1666666E-02    8.0228983E+02    6.2768000E-01
   7.5481566E+05   -1.1803959E+02   -5.9854880E+01
   1.5200000E+01    7.8290345E+02    2.1200000E+02
  -3.1780538E+00    6.6874699E+00   -4.6572479E-01
   1.3534228E+01    4.7710200E+00    4.0919229E+00
   2.7212954E+00    6.6630093E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9825E+01   1.4725E+01   1.5200E+01   2.2640E+02
2.1200E+02   1.4400E+01   2.2720E+02   5.5714E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T2  DATE 4-27
   T(1) THROUGH T(10)
   2.0570000E+02   2.2388000E+02   2.2388000E+02
   1.7240000E+02   2.0516000E+02   1.8680000E+02
   1.7150000E+02   2.2190000E+02   2.0570000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4200000E+02   6.4000000E+00   2.0660000E+02
   1.6700000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   2.6700000E+00   6.2000000E+00
   6.0000000E-01   2.3900000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   8.9000000E+00   5.9500000E+01
  -1.3333333E-01   1.2125534E+01

   V(2) THROUGH V(31)
   1.2232075E+03   5.4076310E+04   6.6146553E+07
   1.8347905E-02   3.7484546E+15   5.5123321E+03
   7.1092317E+00   1.0898151E+01   1.8007383E+01
  -3.9982398E+00   3.5860120E+01   8.6147430E+00
   4.1666666E-02   8.4190908E+02   6.7246464E-01
   7.5836568E+05   1.1373818E+02   6.0033489E+01
   1.7800000E+01   7.8170914E+02   2.0480000E+02
  -3.1780538E+00   6.7356720E+00  -3.9680574E-01
   1.3538920E+01   4.7338991E+00   4.0949025E+00
   2.8791984E+00   6.6614827E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8325E+01   1.2725E+01   1.7800E+01   2.2190E+02
2.0480E+02   1.7100E+01   2.2260E+02   5.8465E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T3  DATE 4-27
   T(1) THROUGH T(10)
   1.7420000E+02    2.0120000E+02    1.9940000E+02
   1.6520000E+02    1.8860000E+02    1.7420000E+02
   1.5800000E+02    1.9778000E+02    1.8860000E+02
   1.8860000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02    4.6000000E+00    1.9058000E+02
   1.6000000E+02    6.2000000E+00

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02    1.5500000E+00   -9.3348930E-01
  -2.9478609E+00    2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    2.0000000E+00    2.6000000E+01
  -5.8333333E-02    1.2120621E+01

   V(2) THROUGH V(31)
   4.7749143E+02    1.2584334E+05    6.0089118E+07
   1.0521148E-02    1.8784602E+15    3.3436984E+02
   6.1685462E+00    1.1742793E+01    1.7911339E+01
  -4.5543679E+00    3.5169228E+01    5.8122476E+00
   4.1666666E-02    3.6789304E+02    7.4890901E-01
   7.6619859E+05    4.5509143E+01    6.0424140E+01
   1.0333333E+01    7.8012479E+02    1.8860000E+02
  -3.1780538E+00    5.9077922E+00   -2.8913778E-01
   1.3549196E+01    3.8179132E+00    4.1013886E+00
   2.3353748E+00    6.6594538E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1187E+01   9.1727E+00   1.0333E+01   1.9778E+02
1.8860E+02   9.1800E+00   1.9893E+02   2.5548E+00

CONC =  0.0000000E-99
```

```
RUN NO.  T4  DATE 4-27
   T(1) THROUGH T(10)
   1.7420000E+02    2.0120000E+02    2.0030000E+02
   1.4990000E+02    1.8590000E+02    1.6520000E+02
   1.4270000E+02    1.9940000E+02    1.8680000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0700000E+02    5.0000000E+00    1.8896000E+02
   1.4200000E+02    1.6200000E+01

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02    2.0400000E+00   -9.8262032E-01
  -3.4391711E+00    2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    3.1000000E+00    3.1000000E+01
   0.0000000E-99    1.2120621E+01

   V(2) THROUGH V(31)
   5.5992109E+02    1.0573723E+05    5.9204508E+07
   1.3829253E-02    2.2236695E+15    6.1164686E+02
   6.3277958E+00    1.1568712E+01    1.7896508E+01
  -4.2809691E+00    3.5337935E+01    6.4161550E+00
   4.1666666E-02    4.3864169E+02    7.6105087E-01
   7.6705459E+05    6.0574851E+01    6.0466048E+01
   1.3600000E+01    7.7998477E+02    1.8680000E+02
  -3.1780538E+00    6.0836828E+00   -2.7305507E-01
   1.3550313E+01    4.1038798E+00    4.1020820E+00
   2.6100697E+00    6.6592743E+00    0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1138E+01   8.6814E+00   1.3600E+01   1.9940E+02
1.8680E+02   1.2600E+01   2.0040E+02   3.0461E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AF1 DATE 6-1
   T(1) THROUGH T(10)
   2.0120000E+02   2.1380000E+02   2.1380000E+02
   1.8680000E+02   2.0300000E+02   1.9310000E+02
   1.8680000E+02   2.1020000E+02   2.0300000E+02
   2.0300000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02   5.7000000E+00   2.0840000E+02
   1.8300000E+02   7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02   1.4200000E+00   2.9000000E+00
   3.0000000E-01   2.2400000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   1.1000000E+01   2.8200000E+01
  -5.0000000E-02   1.2076403E+01

   V(2) THROUGH V(31)
   7.1288299E+02   1.1431323E+05   8.1491959E+07
   9.7432891E-03   5.9653136E+15   1.3501833E+03
   6.5693172E+00   1.1646697E+01   1.8216014E+01
  -4.6311765E+00   3.6324738E+01   7.2079956E+00
   5.2083333E-02   3.9902245E+02   6.8319000E-01
   7.5924634E+05   1.2823293E+02   6.0077402E+01
   9.4666666E+00   7.8143205E+02   2.0300000E+02
  -2.9549102E+00   5.9890176E+00  -3.8098227E-01
   1.3540081E+01   4.8538483E+00   4.0956337E+00
   2.2477768E+00   6.6611281E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.4976E+01   1.2376E+01   9.4666E+00   2.1020E+02
2.0300E+02   7.2000E+00   2.1246E+02   2.7709E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AF2 DATE 6-1
   T(1) THROUGH T(10)
   2.0660000E+02   2.1920000E+02   2.1884000E+02
   1.7960000E+02   2.0480000E+02   1.9040000E+02
   1.7960000E+02   2.1740000E+02   2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02   7.0000000E+00   2.1020000E+02
   1.7600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02   1.9600000E+00   5.0000000E+00
   1.0000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   1.1400000E+01   4.2700000E+01
  -1.6666666E-02   1.2076403E+01

   V(2) THROUGH V(31)
   1.0972891E+03   7.5352236E+04   8.2683189E+07
   1.3468874E-02   5.0898310E+15   3.2656060E+03
   7.0005979E+00   1.1229928E+01   1.8230526E+01
  -4.3073738E+00   3.6166021E+01   8.0912006E+00
   5.2083333E-02   6.0419357E+02   6.7246464E-01
   7.5836568E+05   1.3083166E+02   6.0033489E+01
   1.3066666E+01   7.8170914E+02   2.0480000E+02
  -2.9549102E+00   6.4038946E+00  -3.9680574E-01
   1.3538920E+01   4.8739114E+00   4.0949025E+00
   2.5700644E+00   6.6614827E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7076E+01   1.3076E+01   1.3066E+01   2.1740E+02
2.0480E+02   1.2600E+01   2.1786E+02   4.1957E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AF3 DATE 6-1
   T(1) THROUGH T(10)
   2.1740000E+02   2.3000000E+02   2.3000000E+02
   1.9040000E+02   2.1560000E+02   1.9940000E+02
   1.8860000E+02   2.2748000E+02   2.1560000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02   7.2000000E+00   2.1920000E+02
   1.8500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02   2.0600000E+00   8.3000000E+00
   3.6000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   1.2400000E+01   5.1600000E+01
  -8.3333333E-02   1.2076403E+01

   V(2) THROUGH V(31)
   1.4772265E+03   6.1637883E+04   9.1053113E+07
   1.4288926E-02   5.8722807E+15   6.2257009E+03
   7.2979216E+00   1.1029031E+01   1.8326953E+01
  -4.2482704E+00   3.6309019E+01   8.7364413E+00
   5.2083333E-02   7.3012619E+02   6.0575936E-01
   7.5302423E+05   1.3713573E+02   5.9763593E+01
   1.3733333E+01   7.8348851E+02   2.1560000E+02
  -2.9549102E+00   6.5932173E+00  -5.0127246E-01
   1.3531852E+01   4.9209711E+00   4.0903966E+00
   2.6198259E+00   6.6637563E+00   0.0000000E-99

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0376E+01   1.5676E+01   1.3733E+01   2.2748E+02
2.1560E+02   1.1880E+01   2.2933E+02   5.0703E+00

CONC =  0.0000000E-99
```

```
RUN NO.  AA1 DATE 5-7
   T(1) THROUGH T(10)
   1.8230000E+02    2.0030000E+02    1.9940000E+02
   1.7780000E+02    1.9400000E+02    1.8050000E+02
   1.7456000E+02    1.9850000E+02    1.9400000E+02
   1.9400000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0100000E+02    5.7000000E+00    1.9760000E+02
   1.7200000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    6.5000000E-01   -1.4739304E+00
  -2.4074197E+00    2.0000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    8.0000000E+00    9.6000000E+00
  -5.0000000E-02    1.2110795E+01

   V(2) THROUGH V(31)
   2.8342356E+02    3.4943954E+05    9.9039403E+07
   4.2527908E-03    6.5397071E+15    9.0600100E+01
   5.6469424E+00    1.2764085E+01    1.8411028E+01
  -5.4601798E+00    3.6416668E+01    4.5064553E+00
   7.2916666E-02    1.3583743E+02    8.1663703E-01
   7.6361153E+05    1.0700432E+02    6.2161150E+01
   4.3333333E+00    7.4941851E+02    1.9400000E+02
  -2.6184380E+00    4.9114588E+00   -2.0256055E-01
   1.3545814E+01    4.6728692E+00    4.1297302E+00
   1.4663370E+00    6.6192975E+00    1.1366474E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0636E+01   9.7033E+00   4.3333E+00   1.9850E+02
1.9400E+02   4.5000E+00   1.9833E+02   9.4331E-01

CONC =  1.1366474E+00
```

```
RUN NO.  AA2 DATE 5-7
   T(1) THROUGH T(10)
   1.8896000E+02   2.0480000E+02   2.0300000E+02
   1.7420000E+02   1.9580000E+02   1.7960000E+02
   1.7330000E+02   2.0120000E+02   1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02   7.0000000E+00   1.9940000E+02
   1.7000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.0600000E+00  -4.9131016E-02
  -1.6704545E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.4900000E+01   1.6600000E+01
  -6.6666666E-02   1.2110795E+01

   V(2) THROUGH V(31)
   5.0089502E+02   2.0110693E+05   1.0073345E+08
   6.9694580E-03   7.2922811E+15   4.0206493E+02
   6.2163965E+00   1.2211592E+01   1.8427988E+01
  -4.9662178E+00   3.6525592E+01   5.9966135E+00
   7.2916666E-02   2.3488555E+02   7.9992654E-01
   7.6187300E+05   1.5186313E+02   6.2001295E+01
   7.0666666E+00   7.5139274E+02   1.9760000E+02
  -2.6184380E+00   5.4590983E+00  -2.2323537E-01
   1.3543535E+01   5.0229796E+00   4.1271552E+00
   1.9553888E+00   6.6219284E+00   1.0852262E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.2061E+01   1.0440E+01   7.0666E+00   2.0120E+02
1.9760E+02   3.6000E+00   2.0466E+02   1.6311E+00

CONC =  1.0852262E+00
```

```
RUN NO.  AA3 DATE 5-7
   T(1) THROUGH T(10)
   2.1200000E+02    2.2460000E+02    2.2370000E+02
   1.9580000E+02    2.1560000E+02    2.0120000E+02
   1.9580000E+02    2.2280000E+02    2.1560000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3400000E+02    8.2000000E+00    2.1830000E+02
   1.9100000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1800000E+02    1.2900000E+00    6.3000000E+00
   3.3000000E+00    2.3200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    2.0200000E+01    2.9800000E+01
  -5.8333333E-02    1.2110795E+01

   V(2) THROUGH V(31)
   1.0173950E+03    1.0998923E+05    1.1190250E+08
   8.6030409E-03    7.9100918E+15    1.9715458E+03
   6.9250007E+00    1.1608137E+01    1.8533138E+01
  -4.7556395E+00    3.6606915E+01    7.5865731E+00
   7.2916666E-02    4.2166202E+02    7.1113521E-01
   7.5302423E+05    1.7944868E+02    6.1589364E+01
   8.6000000E+00    7.5329051E+02    2.1560000E+02
  -2.6184380E+00    6.0442040E+00   -3.4089269E-01
   1.3531852E+01    5.1898892E+00    4.1204891E+00
   2.1517622E+00    6.6244509E+00    1.0934476E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8410E+01   1.5410E+01   8.6000E+00   2.2280E+02
2.1560E+02   7.2000E+00   2.2420E+02   2.9282E+00

CONC =  1.0934476E+00
```

```
RUN NO.  AB1 DATE 5-9
   T(1) THROUGH T(10)
   1.6340000E+02    1.9760000E+02    1.9580000E+02
   1.4720000E+02    1.8320000E+02    1.5980000E+02
   1.4000000E+02    1.9526000E+02    1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02    6.1000000E+00    1.8680000E+02
   1.4100000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02    1.9400000E+00   -1.8669786E+00
  -4.0287433E+00    2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    4.0000000E+00    2.7600000E+01
  -1.6666666E-02    1.2017446E+01

   V(2) THROUGH V(31)
   4.3947372E+02    1.2227575E+05    5.3736979E+07
   1.2679824E-02    2.3058552E+15    4.4104378E+02
   6.0855779E+00    1.1714034E+01    1.7799611E+01
  -4.3677432E+00    3.5374228E+01    6.0891441E+00
   4.1666666E-02    3.9053260E+02    8.6232746E-01
   7.6876185E+05    7.0981299E+01    6.2116334E+01
   1.2933333E+01    7.5369323E+02    1.8320000E+02
  -3.1780538E+00    5.9675114E+00   -1.4812019E-01
   1.3552536E+01    4.2624164E+00    4.1290089E+00
   2.5598079E+00    6.6249854E+00    9.3724086E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0150E+01   7.9887E+00   1.2933E+01   1.9526E+02
1.8320E+02   1.2060E+01   1.9613E+02   2.7120E+00

CONC =  9.3724086E-01
```

```
RUN NO.  AB2 DATE 5-9
   T(1) THROUGH T(10)
   1.9796000E+02   2.1650000E+02   2.1560000E+02
   1.6160000E+02   1.9760000E+02   1.7600000E+02
   1.5800000E+02   2.1470000E+02   1.9670000E+02
   1.9670000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3600000E+02   6.5000000E+00   2.0084000E+02
   1.5600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2500000E+02   2.8200000E+00   3.2000000E+00
  -1.7195855E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   7.0000000E+00   5.4200000E+01
  -6.6666666E-02   1.2017446E+01

   V(2) THROUGH V(31)
   9.3336407E+02   6.1609505E+04   5.7504098E+07
   1.8546170E-02   2.6267921E+15   2.7880913E+03
   6.8387953E+00   1.1028571E+01   1.7867366E+01
  -3.9874919E+00   3.5504539E+01   7.9331125E+00
   4.1666666E-02   7.6691550E+02   8.0070912E-01
   7.6230862E+05   9.9060900E+01   6.1981833E+01
   1.8800000E+01   7.5201631E+02   1.9670000E+02
  -3.1780538E+00   6.6423766E+00  -2.2225754E-01
   1.3544106E+01   4.5957348E+00   4.1268413E+00
   2.9338568E+00   6.6227580E+00   1.0570379E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5217E+01   1.0297E+01   1.8800E+01   2.1470E+02
1.9670E+02   1.8000E+01   2.1550E+02   5.3258E+00

CONC =  1.0570379E+00
```

```
RUN NO.  AC1 DATE 5-16
   T(1) THROUGH T(10)
   1.7420000E+02    1.9580000E+02    1.9490000E+02
   1.6790000E+02    1.8860000E+02    1.7240000E+02
   1.6880000E+02    1.9400000E+02    1.8770000E+02
   1.8770000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02    5.2000000E+00    1.9076000E+02
   1.6600000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02    1.0300000E+00   -2.1126336E+00
  -3.2426470E+00    2.0100000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    5.4000000E+00    1.5000000E+01
  -1.6666666E-02    1.2017446E+01

   V(2) THROUGH V(31)
   3.7686018E+02    2.2338152E+05    8.4183601E+07
   6.7820675E-03    4.0794464E+15    1.7297513E+02
   5.9318742E+00    1.2316636E+01    1.8248510E+01
  -4.9934732E+00    3.5944737E+01    5.1531478E+00
   6.2500000E-02    2.1224597E+02    8.2092261E-01
   7.6662682E+05    8.5060851E+01    6.1844730E+01
   6.8666666E+00    7.5718180E+02    1.8770000E+02
  -2.7725887E+00    5.3577458E+00   -1.9732643E-01
   1.3549755E+01    4.4433668E+00    4.1246268E+00
   1.9266787E+00    6.6296033E+00    8.2440111E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 9.9048E+00   8.7747E+00   6.8666E+00   1.9400E+02
1.8770E+02   6.3000E+00   1.9456E+02   1.4739E+00

CONC =  8.2440111E-01
```

```
RUN NO.  AC2 DATE 5-16
   T(1) THROUGH T(10)
   1.7780000E+02   1.9760000E+02   1.9670000E+02
   1.5800000E+02   1.8680000E+02   1.6880000E+02
   1.5620000E+02   1.9580000E+02   1.8680000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02   6.6000000E+00   1.9040000E+02
   1.5600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02   1.2800000E+00  -1.9161096E+00
  -3.4391711E+00   2.0700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.0600000E+01   1.8600000E+01
  -5.0000000E-02   1.2017446E+01

   V(2) THROUGH V(31)
   4.6288652E+02   1.8038764E+05   8.3499005E+07
   8.4169138E-03   5.3232958E+15   3.8518041E+02
   6.1374819E+00   1.2102863E+01   1.8240345E+01
  -4.7775120E+00   3.6210869E+01   5.9537118E+00
   6.2500000E-02   2.6318501E+02   8.2853051E-01
   7.6705459E+05   1.2558649E+02   6.1893019E+01
   8.5333333E+00   7.5658974E+02   1.8680000E+02
  -2.7725887E+00   5.5728572E+00  -1.8810161E-01
   1.3550313E+01   4.8329946E+00   4.1254073E+00
   2.1439800E+00   6.6288211E+00   8.4269461E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0101E+01   8.5782E+00   8.5333E+00   1.9580E+02
1.8680E+02   9.0000E+00   1.9533E+02   1.8276E+00

CONC =  8.4269461E-01
```

```
RUN NO.  AC3 DATE 5-16
   T(1) THROUGH T(10)
   2.0300000E+02    2.1740000E+02    2.1596000E+02
   1.8140000E+02    2.0480000E+02    1.9040000E+02
   1.7960000E+02    2.1560000E+02    2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3200000E+02    6.8000000E+00    2.0876000E+02
   1.7600000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02    1.6000000E+00    3.2000000E+00
   2.0000000E-01    2.3000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    1.4300000E+01    3.2400000E+01
  -2.5000000E-01    1.2017446E+01

   V(2) THROUGH V(31)
   8.8917552E+02    1.0192972E+05    9.0633408E+07
   1.0636535E-02    5.6046648E+15    1.6896555E+03
   6.7902946E+00    1.1532038E+01    1.8322333E+01
  -4.5434605E+00    3.6262375E+01    7.4322799E+00
   6.2500000E-02    4.5845133E+02    7.5561651E-01
   7.5836568E+05    1.4844889E+02    6.1619108E+01
   1.0666666E+01    7.5622350E+02    2.0480000E+02
  -2.7725887E+00    6.1278541E+00   -2.8022129E-01
   1.3538920E+01    5.0002407E+00    4.1209720E+00
   2.3671235E+00    6.6283369E+00    9.3762360E-01

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5217E+01   1.2217E+01   1.0666E+01   2.1560E+02
2.0480E+02   1.0800E+01   2.1546E+02   3.1836E+00

CONC =  9.3762360E-01
```

```
RUN NO.  AD1 DATE 5-30
   T(1) THROUGH T(10)
   1.8410000E+02   2.0120000E+02   1.9760000E+02
   1.7960000E+02   1.9400000E+02   1.8230000E+02
   1.7780000E+02   1.9760000E+02   1.9148000E+02
   1.9310000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02   5.6000000E+00   1.9220000E+02
   1.7400000E+02   6.9000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2400000E+02   8.4000000E-01  -1.4739304E+00
  -2.5548128E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01   1.3000000E+01   1.3600000E+01
   0.0000000E-99   1.2037098E+01

   V(2) THROUGH V(31)
   3.5043018E+02   2.5465856E+05   8.9240048E+07
   5.2538391E-03   5.9624189E+15   1.8219122E+02
   5.8591614E+00   1.2447678E+01   1.8306840E+01
  -5.2487962E+00   3.6324252E+01   5.2050567E+00
   7.2916666E-02   1.9243635E+02   9.3542305E-01
   7.6404458E+05   1.4079652E+02   6.4139668E+01
   5.6000000E+00   7.1681560E+02   1.9310000E+02
  -2.6184380E+00   5.2597654E+00  -6.6756389E-02
   1.3546381E+01   4.9473157E+00   4.1610630E+00
   1.7227665E+00   6.5748186E+00   2.4962016E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0563E+01   9.4822E+00   5.6000E+00   1.9760E+02
1.9310E+02   4.5000E+00   1.9870E+02   1.3363E+00

CONC =  2.4962016E+00
```

```
RUN NO.  AD5 DATE 5-30
   T(1) THROUGH T(10)
   2.1200000E+02    2.2640000E+02    2.2370000E+02
   1.9760000E+02    2.1740000E+02    2.0300000E+02
   1.9760000E+02    2.2460000E+02    2.1650000E+02
   2.1560000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02    7.4000000E+00    2.1740000E+02
   1.9300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    1.3100000E+00    6.0000000E+00
   3.0000000E+00    2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   8.7500000E-01    2.4000000E+01    3.1200000E+01
  -1.6666666E-02    1.2027272E+01

   V(2) THROUGH V(31)
   8.8253850E+02    1.0975011E+05    9.6858704E+07
   8.2266776E-03    6.5000983E+15    1.6289509E+03
   6.7828024E+00    1.1605961E+01    1.8388763E+01
  -4.8003730E+00    3.6410593E+01    7.3956914E+00
   7.2916666E-02    4.4147165E+02    8.5831459E-01
   7.5302423E+05    1.9703952E+02    6.4342639E+01
   8.7333333E+00    7.0933828E+02    2.1560000E+02
  -2.6184380E+00    6.0901138E+00   -1.5278458E-01
   1.3531852E+01    5.2834043E+00    4.1642225E+00
   2.1671471E+00    6.5643325E+00    2.9765124E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.8027E+01   1.5027E+01   8.7333E+00   2.2460E+02
2.1560E+02   9.0000E+00   2.2433E+02   3.0657E+00

CONC =  2.9765124E+00
```

```
RUN NO.  AE1 DATE 5-31
   T(1) THROUGH T(10)
   1.7060000E+02    1.9310000E+02    1.8860000E+02
   1.6700000E+02    1.8500000E+02    1.6700000E+02
   1.6520000E+02    1.9040000E+02    1.8320000E+02
   1.8320000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9600000E+02    5.0000000E+00    1.8410000E+02
   1.6200000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    8.5000000E-01   -3.1935160E+00
  -4.1761363E+00    1.9500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    6.5000000E+00    1.3000000E+01
   0.0000000E-99    1.2037098E+01

   V(2) THROUGH V(31)
   2.5803437E+02    2.7174511E+05    7.0119583E+07
   5.2054843E-03    3.4769977E+15    9.0323504E+01
   5.5530927E+00    1.2512619E+01    1.8065712E+01
  -5.2580425E+00    3.5784945E+01    4.5033977E+00
   6.2500000E-02    1.8394652E+02    1.0376553E+00
   7.6876185E+05    9.4875970E+01    6.5022177E+01
   5.6666666E+00    7.0619610E+02    1.8320000E+02
  -2.7725887E+00    5.2146450E+00    3.6963650E-02
   1.3552536E+01    4.5525704E+00    4.1747283E+00
   1.7346010E+00    6.5598929E+00    2.9057484E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.8435E+00   7.8609E+00   5.6666E+00   1.9040E+02
1.8320E+02   7.2000E+00   1.8886E+02   1.2774E+00

CONC =  2.9057484E+00
```

```
RUN NO.  AE2 DATE 5-31
   T(1) THROUGH T(10)
   1.6700000E+02   1.9220000E+02   1.8860000E+02
   1.5710000E+02   1.8230000E+02   1.6340000E+02
   1.5620000E+02   1.8860000E+02   1.8230000E+02
   1.8230000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9800000E+02   5.8000000E+00   1.8320000E+02
   1.5200000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02   1.0700000E+00  -3.3409090E+00
  -4.6674465E+00   1.9600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   6.8000000E+00   1.5100000E+01
  -1.1666666E-01   1.2037098E+01

   V(2) THROUGH V(31)
   2.9407246E+02   2.3498497E+05   6.9102613E+07
   6.5179281E-03   3.2230038E+15   1.2040962E+02
   5.6838262E+00   1.2367276E+01   1.8051103E+01
  -5.0331987E+00   3.5709090E+01   4.7908994E+00
   6.2500000E-02   2.1366095E+02   1.0572789E+00
   7.6918798E+05   9.7405460E+01   6.5272880E+01
   7.1333333E+00   7.0282880E+02   1.8230000E+02
  -2.7725887E+00   5.3643904E+00   5.5698534E-02
   1.3553090E+01   4.5788822E+00   4.1785766E+00
   1.9647786E+00   6.5551133E+00   3.0472764E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.6961E+00   7.3696E+00   7.1333E+00   1.8860E+02
1.8230E+02   6.3000E+00   1.8943E+02   1.4837E+00

CONC =  3.0472764E+00
```

```
RUN NO.  AE3 DATE 5-31
   T(1) THROUGH T(10)
   1.8500000E+02    2.0300000E+02    2.0120000E+02
   1.6880000E+02    1.9400000E+02    1.7600000E+02
   1.6700000E+02    2.0120000E+02    1.9400000E+02
   1.9400000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1400000E+02    6.2000000E+00    1.9490000E+02
   1.6300000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2700000E+02    1.2900000E+00   -7.3696524E-01
  -2.5548128E+00    2.1200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    1.2500000E+01    2.1200000E+01
  -1.6666666E-01    1.2027272E+01

   V(2) THROUGH V(31)
   4.4638350E+02    1.6565000E+05    7.3943429E+07
   7.9233055E-03    4.3978582E+15    3.9378838E+02
   6.1011784E+00    1.2017632E+01    1.8118810E+01
  -4.8379467E+00    3.6019894E+01    5.9758136E+00
   6.2500000E-02    2.9997432E+02    9.8146480E-01
   7.6361153E+05    1.3775191E+02    6.5073335E+01
   8.6000000E+00    7.0352646E+02    1.9400000E+02
  -2.7725887E+00    5.7036968E+00   -1.8709126E-02
   1.3545814E+01    4.9254543E+00    4.1755148E+00
   2.1517622E+00    6.5561054E+00    3.0959268E+00

PSTI, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1290E+01   9.4724E+00   8.6000E+00   2.0120E+02
1.9400E+02   7.2000E+00   2.0260E+02   2.0831E+00

CONC =  3.0959268E+00
```

```
RUN NO.  AE4 DATE 5-31
   T(1) THROUGH T(10)
   1.9850000E+02    2.1290000E+02    2.1020000E+02
   1.7960000E+02    2.0210000E+02    1.8680000E+02
   1.7780000E+02    2.1020000E+02    2.0120000E+02
   2.0120000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02    6.4000000E+00    2.0408000E+02
   1.7400000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2600000E+02    1.4400000E+00    1.5000000E+00
  -8.8435828E-01    2.2300000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    1.3400000E+01    2.6600000E+01
  -1.3333333E-01    1.2027272E+01

   V(2) THROUGH V(31)
   5.8284881E+02    1.3132681E+05    7.6543678E+07
   8.8780395E-03    4.3717094E+15    6.9946897E+02
   6.3679278E+00    1.1785444E+01    1.8153372E+01
  -4.7241745E+00    3.6013930E+01    6.5503214E+00
   6.2500000E-02    3.7638288E+02    9.4529345E-01
   7.6012438E+05    1.4319029E+02    6.5027735E+01
   9.6000000E+00    7.0295983E+02    2.0120000E+02
  -2.7725887E+00    5.9306069E+00   -5.6259868E-02
   1.3541237E+01    4.9641744E+00    4.1748138E+00
   2.2617631E+00    6.5552997E+00    3.1737672E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3527E+01   1.1142E+01   9.6000E+00   2.1020E+02
2.0120E+02   9.0000E+00   2.1080E+02   2.6137E+00

CONC =  3.1737672E+00
```

```
RUN NO.  AE5 DATE 5-31
   T(1) THROUGH T(10)
   2.0840000E+02   2.2460000E+02   2.2100000E+02
   1.8950000E+02   2.1200000E+02   1.9670000E+02
   1.8860000E+02   2.2100000E+02   2.1290000E+02
   2.1200000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3800000E+02   7.0000000E+00   2.1452000E+02
   1.8600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02   1.5400000E+00   5.6000000E+00
   2.2000000E+00   2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.4200000E+01   3.5400000E+01
  -2.0000000E-01   1.2017446E+01

   V(2) THROUGH V(31)
   8.1553119E+02   9.8000267E+04   7.9922273E+07
   9.5410433E-03   4.2668005E+15   1.4191715E+03
   6.7038396E+00   1.1492725E+01   1.8196565E+01
  -4.6521524E+00   3.5989640E+01   7.2578285E+00
   6.2500000E-02   5.0090052E+02   9.0224708E-01
   7.5481566E+05   1.4787294E+02   6.5033608E+01
   1.0266666E+01   7.0146715E+02   2.1200000E+02
  -2.7725887E+00   6.2164075E+00  -1.0286686E-01
   1.3534228E+01   4.9963533E+00   4.1749041E+00
   2.3289023E+00   6.5531740E+00   3.3329863E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7617E+01   1.4217E+01   1.0266E+01   2.2100E+02
2.1200E+02   9.0000E+00   2.2226E+02   3.4784E+00

CONC =  3.3329863E+00
```

```
RUN NO.  AE6 DATE 5-31
   T(1) THROUGH T(10)
   2.1740000E+02    2.3360000E+02    2.3000000E+02
   1.9850000E+02    2.2280000E+02    2.0570000E+02
   1.9850000E+02    2.3000000E+02    2.2280000E+02
   2.2280000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4700000E+02    7.6000000E+00    2.2388000E+02
   1.9500000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    1.5600000E+00    8.8000000E+00
   4.9000000E+00    2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    1.7000000E+01    4.1000000E+01
  -1.6666666E-01    1.2017446E+01

   V(2) THROUGH V(31)
   1.0033368E+03    8.3822772E+04    8.4102470E+07
   9.7390862E-03    4.8428932E+15    2.3806793E+03
   6.9110865E+00    1.1336459E+01    1.8247546E+01
  -4.6316079E+00    3.6116288E+01    7.7751411E+00
   6.2500000E-02    5.8013903E+02    8.5241566E-01
   7.4944177E+05    1.6330167E+02    6.4886779E+01
   1.0400000E+01    7.0181520E+02    2.2280000E+02
  -2.7725887E+00    6.3632677E+00   -1.5968100E-01
   1.3527083E+01    5.0955992E+00    4.1726438E+00
   2.3418058E+00    6.5536701E+00    3.4037503E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.0817E+01   1.6917E+01   1.0400E+01   2.3000E+02
2.2280E+02   7.2000E+00   2.3320E+02   4.0287E+00

CONC =  3.4037503E+00
```

```
RUN NO.  AG1 DATE 6-2
   T(1) THROUGH T(10)
   1.5980000E+02    1.8680000E+02    1.8320000E+02
   1.5440000E+02    1.7690000E+02    1.5800000E+02
   1.5080000E+02    1.8464000E+02    1.7510000E+02
   1.7600000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   1.9300000E+02    4.8000000E+00    1.8320000E+02
   1.4900000E+02    7.1000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    1.0300000E+00   -3.9304812E+00
  -5.0113636E+00    1.9200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    4.0000000E+00    1.2700000E+01
  -1.3333333E-01    1.2051838E+01

   V(2) THROUGH V(31)
   2.0684467E+02    2.7744461E+05    5.7387940E+07
   6.3514680E-03    2.5296567E+15    6.2390973E+01
   5.3319681E+00    1.2533376E+01    1.7865344E+01
  -5.0590693E+00    3.5466859E+01    4.1334206E+00
   5.2083333E-02    1.7970160E+02    1.0514833E+00
   7.7217901E+05    7.0981299E+01    6.4566947E+01
   6.8666666E+00    7.1424326E+02    1.7600000E+02
  -2.9549102E+00    5.1912976E+00    5.0201836E-02
   1.3556971E+01    4.2624164E+00    4.1677026E+00
   1.9266787E+00    6.5712236E+00    2.5077410E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.1213E+00   7.0404E+00   6.8666E+00   1.8464E+02
1.7600E+02   8.6400E+00   1.8286E+02   1.2479E+00

CONC =  2.5077410E+00
```

```
RUN NO.  AG2 DATE 6-2
   T(1) THROUGH T(10)
   1.7150000E+02    1.9400000E+02    1.9148000E+02
   1.5440000E+02    1.8140000E+02    1.6160000E+02
   1.5260000E+02    1.9220000E+02    1.8140000E+02
   1.8140000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0500000E+02    6.0000000E+00    1.8770000E+02
   1.5000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    1.5900000E+00   -3.0461229E+00
  -4.4217914E+00    2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    8.5000000E+00    2.1300000E+01
  -1.6666666E-01    1.2037098E+01

   V(2) THROUGH V(31)
   3.5842627E+02    1.6479182E+05    5.9065722E+07
   9.8299612E-03    3.2288521E+15    2.9289334E+02
   5.8817229E+00    1.2012438E+01    1.7894161E+01
  -4.6223202E+00    3.5710903E+01    5.6798085E+00
   5.2083333E-02    3.0138929E+02    1.0194015E+00
   7.6961396E+05    1.1078951E+02    6.4534292E+01
   1.0600000E+01    7.1370523E+02    1.8140000E+02
  -2.9549102E+00    5.7084027E+00    1.9215692E-02
   1.3553644E+01    4.7076320E+00    4.1671967E+00
   2.3608540E+00    6.5704700E+00    2.5692513E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 8.9909E+00   7.6153E+00   1.0600E+01   1.9220E+02
1.8140E+02   1.0800E+01   1.9200E+02   2.0929E+00

CONC =  2.5692513E+00
```

```
RUN NO.  AG3 DATE 6-2
   T(1) THROUGH T(10)
   1.9580000E+02    2.1290000E+02    2.0930000E+02
   1.7060000E+02    1.9760000E+02    1.7960000E+02
   1.6880000E+02    2.0840000E+02    1.9760000E+02
   1.9760000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02    6.5000000E+00    2.0300000E+02
   1.6700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2800000E+02    1.9500000E+00    1.6000000E+00
  -1.4739304E+00    2.2500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    8.4000000E+00    3.5500000E+01
  -1.6666666E-01    1.2037098E+01

   V(2) THROUGH V(31)
   6.6005172E+02    9.7589152E+04    6.4413887E+07
   1.2161623E-02    2.9500046E+15    9.9156054E+02
   6.4923181E+00    1.1488521E+01    1.7980839E+01
  -4.4094699E+00    3.5620583E+01    6.8992800E+00
   5.2083333E-02    5.0231550E+02    9.2728044E-01
   7.6187300E+05    1.1004158E+02    6.4342147E+01
   1.3000000E+01    7.1273940E+02    1.9760000E+02
  -2.9549102E+00    6.2192284E+00   -7.5499232E-02
   1.3543535E+01    4.7008582E+00    4.1642148E+00
   2.5649493E+00    6.5691158E+00    2.6970043E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3637E+01   1.0563E+01   1.3000E+01   2.0840E+02
1.9760E+02   1.0800E+01   2.1060E+02   3.4883E+00

CONC =  2.6970043E+00
```

```
RUN NO.  AG4 DATE 6-2
   T(1) THROUGH T(10)
   2.0480000E+02    2.2280000E+02    2.1920000E+02
   1.8140000E+02    2.0660000E+02    1.9040000E+02
   1.8140000E+02    2.1920000E+02    2.0660000E+02
   2.0660000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02    7.0000000E+00    2.1200000E+02
   1.7700000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2900000E+02    2.1300000E+00    5.0000000E+00
   8.0000000E-01    2.3500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    9.7000000E+00    4.5500000E+01
  -1.6666666E-02    1.2037098E+01

   V(2) THROUGH V(31)
   8.9161847E+02    7.5458498E+04    6.7280190E+07
   1.3378907E-02    3.0807057E+15    1.9696127E+03
   6.7930383E+00    1.1231338E+01    1.8024376E+01
  -4.3140759E+00    3.5663935E+01    7.5855922E+00
   5.2083333E-02    6.4381282E+02    8.8236447E-01
   7.5748261E+05    1.1944305E+02    6.4135003E+01
   1.4200000E+01    7.1368241E+02    2.0660000E+02
  -2.9549102E+00    6.4674080E+00   -1.2515007E-01
   1.3537755E+01    4.7828396E+00    4.1609902E+00
   2.6532419E+00    6.5704380E+00    2.7088331E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7037E+01   1.2837E+01   1.4200E+01   2.1920E+02
2.0660E+02   1.2600E+01   2.2080E+02   4.4709E+00

CONC =  2.7088331E+00
```

```
RUN NO.  AH1 DATE 6-3
   T(1) THROUGH T(10)
    1.6520000E+02    2.0390000E+02    2.0120000E+02
    1.5260000E+02    1.9040000E+02    1.6430000E+02
    1.4900000E+02    2.0120000E+02    1.8950000E+02
    1.9040000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
    2.0800000E+02    6.5000000E+00    1.9004000E+02
    1.5000000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
    1.3000000E+02    1.7000000E+00   -4.9131016E-01
   -2.6530748E+00    2.1000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
    5.0000000E-01    3.0000000E+00    2.7400000E+01
   -1.6666666E-01    1.2037098E+01

   V(2) THROUGH V(31)
    4.0665911E+02    1.2595134E+05    5.1219262E+07
    1.0694759E-02    1.7810717E+15    3.1635534E+02
    6.0079752E+00    1.1743650E+01    1.7751626E+01
   -4.5380014E+00    3.5115991E+01    5.7568660E+00
    4.1666666E-02    3.8770266E+02    9.2722437E-01
    7.6533994E+05    5.9329870E+01    6.3803900E+01
    1.1333333E+01    7.2221710E+02    1.9040000E+02
   -3.1780538E+00    5.9602387E+00   -7.5559701E-02
    1.3548075E+01    4.0831128E+00    4.1558143E+00
    2.4277482E+00    6.5823257E+00    2.2317317E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1545E+01   9.3840E+00   1.1333E+01   2.0120E+02
1.9040E+02   1.0800E+01   2.0173E+02   2.6923E+00

CONC =  2.2317317E+00
```

```
RUN NO.  AH2 DATE 6-3
   T(1) THROUGH T(10)
   1.8320000E+02   2.1020000E+02   2.0840000E+02
   1.6160000E+02   1.9670000E+02   1.7420000E+02
   1.5980000E+02   2.0840000E+02   1.9580000E+02
   1.9580000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2500000E+02   5.4000000E+00   1.9670000E+02
   1.5600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3100000E+02   2.0300000E+00   1.4000000E+00
  -1.7195855E+00   2.2200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   6.2000000E+00   3.5700000E+01
  -1.6666666E-01   1.2042012E+01

   V(2) THROUGH V(31)
   5.4131008E+02   9.6418033E+04   5.2192052E+07
   1.2777779E-02   2.5212060E+15   8.7339993E+02
   6.2939922E+00   1.1476448E+01   1.7770440E+01
  -4.3600476E+00   3.5463513E+01   6.7723935E+00
   4.1666666E-02   5.0514544E+02   9.0912751E-01
   7.6274355E+05   9.2287394E+01   6.3855185E+01
   1.3533333E+01   7.2016027E+02   1.9580000E+02
  -3.1780538E+00   6.2248463E+00  -9.5269917E-02
   1.3544677E+01   4.5249075E+00   4.1566177E+00
   2.6051557E+00   6.5794737E+00   2.3539643E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3442E+01   1.0322E+01   1.3533E+01   2.0840E+02
1.9580E+02   1.2600E+01   2.0933E+02   3.5079E+00

CONC =  2.3539643E+00
```

```
RUN NO.  AH3 DATE 6-3
   T(1) THROUGH T(10)
   1.9850000E+02    2.1920000E+02    2.1740000E+02
   1.6880000E+02    2.0210000E+02    1.8140000E+02
   1.6700000E+02    2.1740000E+02    2.0210000E+02
   2.0210000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3700000E+02    6.3000000E+00    2.0228000E+02
   1.6400000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3200000E+02    2.4900000E+00    4.2000000E+00
  -4.4217914E-01    2.3600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01    7.5000000E+00    5.0500000E+01
  -1.0000000E-01    1.2056751E+01

   V(2) THROUGH V(31)
   7.8817861E+02    6.7869753E+04    5.3493486E+07
   1.5707458E-02    2.4873929E+15    2.0727865E+03
   6.6697247E+00    1.1125345E+01    1.7795070E+01
  -4.1536196E+00    3.5450011E+01    7.6366491E+00
   4.1666666E-02    7.1456149E+02    8.8499692E-01
   7.5968562E+05    1.0309887E+02    6.3838397E+01
   1.6600000E+01    7.1883920E+02    2.0210000E+02
  -3.1780538E+00    6.5716690E+00   -1.2217111E-01
   1.3540659E+01    4.6356884E+00    4.1563548E+00
   2.8094026E+00    6.5776376E+00    2.4466246E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.6256E+01   1.1614E+01   1.6600E+01   2.1740E+02
2.0210E+02   1.5300E+01   2.1870E+02   4.9622E+00

CONC =  2.4466246E+00
```

```
RUN NO.  AH4 DATE 6-3
   T(1) THROUGH T(10)
   2.1110000E+02   2.2910000E+02   2.2640000E+02
   1.7600000E+02   2.1020000E+02   1.9040000E+02
   1.7600000E+02   2.2640000E+02   2.1020000E+02
   2.0948000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4600000E+02   6.5000000E+00   2.1164000E+02
   1.7300000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.3300000E+02   2.6700000E+00   7.4000000E+00
   1.9000000E+00   2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   5.0000000E-01   7.7000000E+00   6.1500000E+01
  -1.0000000E-01   1.2056751E+01

   V(2) THROUGH V(31)
   1.0007754E+03   5.5331611E+04   5.5374516E+07
   1.6938396E-02   2.4493017E+15   3.4010273E+03
   6.9085303E+00   1.0921099E+01   1.7829630E+01
  -4.0781722E+00   3.5434579E+01   8.1318328E+00
   4.1666666E-02   8.7020854E+02   8.5084624E-01
   7.5606435E+05   1.0467622E+02   6.3685110E+01
   1.7800000E+01   7.1946731E+02   2.0948000E+02
  -3.1780538E+00   6.7687328E+00  -1.6152384E-01
   1.3535881E+01   4.6508719E+00   4.1539507E+00
   2.8791984E+00   6.5785110E+00   2.4706809E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.9456E+01   1.3956E+01   1.7800E+01   2.2640E+02
2.0948E+02   1.6920E+01   2.2728E+02   6.0431E+00

CONC =  2.4706809E+00
```

```
RUN NO.  UI  DATE 5-4
   T(1) THROUGH T(10)
   1.9220000E+02   2.1020000E+02   2.0840000E+02
   1.8140000E+02   1.9850000E+02   1.8500000E+02
   1.7600000E+02   2.0840000E+02   1.9940000E+02
   1.9940000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.2100000E+02   6.1000000E+00   2.0120000E+02
   1.7900000E+02   6.5000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2300000E+02   1.5300000E+00   1.3000000E+00
  -1.2282754E+00   2.2000000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   8.0000000E+00   2.8100000E+01
   0.0000000E-99   1.2159926E+01

   V(2) THROUGH V(31)
   5.8115653E+02   1.1997543E+05   6.9724507E+07
   9.8943375E-03   3.7288365E+15   7.4789923E+02
   6.3650201E+00   1.1695042E+01   1.8060062E+01
  -4.6157926E+00   3.5854872E+01   6.6172682E+00
   5.2083333E-02   3.9760748E+02   8.3410911E-01
   7.6099996E+05   1.0700432E+02   6.2684800E+01
   1.0200000E+01   7.3819515E+02   1.9940000E+02
  -2.9549102E+00   5.9854652E+00  -1.8139105E-01
   1.3542388E+01   4.6728692E+00   4.1381189E+00
   2.3223877E+00   6.6042082E+00   1.6031751E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.3459E+01   1.0931E+01   1.0200E+01   2.0840E+02
1.9940E+02   9.0000E+00   2.0960E+02   2.7611E+00

CONC =  1.6031751E+00
```

```
RUN NO.  V1  DATE 5-5
   T(1) THROUGH T(10)
   1.8140000E+02   2.0300000E+02   2.0120000E+02
   1.5980000E+02   1.8950000E+02   1.6790000E+02
   1.5440000E+02   2.0120000E+02   1.8950000E+02
   1.8950000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1600000E+02   7.7000000E+00   1.9220000E+02
   1.5500000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.8400000E+00  -4.9131016E-01
  -2.9478609E+00   2.1500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   8.9000000E+00   2.9400000E+01
  -6.6666666E-02   1.2164839E+01

   V(2) THROUGH V(31)
   5.8968709E+02   1.1527230E+05   6.7974588E+07
   1.1888817E-02   3.6809501E+15   8.1592161E+02
   6.3795920E+00   1.1655052E+01   1.8034644E+01
  -4.4321570E+00   3.5841947E+01   6.7043182E+00
   5.2083333E-02   4.1600213E+02   8.5739033E-01
   7.6576980E+05   1.1373818E+02   6.2621332E+01
   1.2266666E+01   7.4218188E+02   1.8950000E+02
  -2.9549102E+00   6.0306903E+00  -1.5386200E-01
   1.3548636E+01   4.7338991E+00   4.1371059E+00
   2.5068855E+00   6.6095943E+00   1.3853077E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1673E+01   9.2169E+00   1.2266E+01   2.0120E+02
1.8950E+02   1.1700E+01   2.0176E+02   2.8889E+00

CONC =  1.3853077E+00
```

```
RUN NO.  V2  DATE 5-5
   T(1) THROUGH T(10)
   2.0516000E+02   2.2190000E+02   2.2010000E+02
   1.7600000E+02   2.0480000E+02   1.8680000E+02
   1.7240000E+02   2.1920000E+02   2.0480000E+02
   2.0480000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4000000E+02   7.9000000E+00   2.0750000E+02
   1.7000000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   2.5000000E+00   5.0000000E+00
   1.0000000E-02   2.4800000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01   1.0200000E+01   5.2000000E+01
  -1.0000000E-01   1.2164839E+01

   V(2) THROUGH V(31)
   1.1301495E+03   6.4227633E+04   7.2586830E+07
   1.6337772E-02   3.4017303E+15   3.2538370E+03
   7.0301052E+00   1.1070188E+01   1.8100294E+01
  -4.1142755E+00   3.5763060E+01   8.0875901E+00
   5.2083333E-02   7.3578608E+02   7.9511527E-01
   7.5836568E+05   1.2288963E+02   6.2315319E+01
   1.6666666E+01   7.4340044E+02   2.0480000E+02
  -2.9549102E+00   6.6009394E+00  -2.2926817E-01
   1.3538920E+01   4.8112866E+00   4.1322072E+00
   2.8134106E+00   6.6112348E+00   1.4305255E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.7164E+01   1.2174E+01   1.6666E+01   2.1920E+02
2.0480E+02   1.4400E+01   2.2146E+02   5.1096E+00

CONC =  1.4305255E+00
```

```
RUN NO.  V3  DATE 5-5
   T(1) THROUGH T(10)
   1.7240000E+02    1.9760000E+02    1.9580000E+02
   1.6628000E+02    1.8680000E+02    1.6880000E+02
   1.6160000E+02    1.9508000E+02    1.8680000E+02
   1.8680000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0200000E+02    6.2000000E+00    1.9040000E+02
   1.6100000E+02    7.0000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2200000E+02    1.4400000E+00   -1.8178475E+00
  -3.5374331E+00    2.0200000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    4.2000000E+00    2.0700000E+01
  -5.8333333E-02    1.2159926E+01

   V(2) THROUGH V(31)
   4.0053571E+02    1.6471081E+05    6.5972564E+07
   9.2380215E-03    2.6626314E+15    2.4182794E+02
   5.9928029E+00    1.2011946E+01    1.8004749E+01
  -4.6844275E+00    3.5518091E+01    5.4882264E+00
   5.2083333E-02    2.9289945E+02    8.8801016E-01
   7.6705459E+05    7.3128937E+01    6.2894753E+01
   9.6000000E+00    7.3813196E+02    1.8680000E+02
  -2.9549102E+00    5.6798293E+00   -1.1877209E-01
   1.3550313E+01    4.2922241E+00    4.1414627E+00
   2.2617631E+00    6.6041226E+00    1.5346952E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0342E+01   8.6224E+00   9.6000E+00   1.9508E+02
1.8680E+02   8.2800E+00   1.9640E+02   2.0340E+00

CONC =  1.5346952E+00
```

```
RUN NO.  V4  DATE 5-5
   T(1) THROUGH T(10)
   1.6880000E+02    1.9670000E+02    1.9472000E+02
   1.5440000E+02    1.8410000E+02    1.6160000E+02
   1.4900000E+02    1.9400000E+02    1.8410000E+02
   1.8410000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.1200000E+02    6.0000000E+00    1.8860000E+02
   1.4900000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02    1.6600000E+00   -2.0143716E+00
  -3.9796122E+00    2.0600000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   6.2500000E-01    6.1000000E+00    2.3400000E+01
  -1.1666666E-01    1.2159926E+01

   V(2) THROUGH V(31)
   4.4179639E+02    1.4618182E+05    6.4582602E+07
   1.0619260E-02    3.0022488E+15    3.6746331E+02
   6.0908491E+00    1.1892606E+01    1.7983455E+01
  -4.5450859E+00    3.5638138E+01    5.9066234E+00
   5.2083333E-02    3.3110373E+02    9.0932729E-01
   7.6833548E+05    9.1410678E+01    6.2995071E+01
   1.1066666E+01    7.3727308E+02    1.8410000E+02
  -2.9549102E+00    5.8024317E+00   -9.5050192E-02
   1.3551981E+01    4.5153623E+00    4.1430564E+00
   2.4039375E+00    6.6029583E+00    1.5612317E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.0145E+01   8.1803E+00   1.1066E+01   1.9400E+02
1.8410E+02   9.9000E+00   1.9516E+02   2.2993E+00

CONC =  1.5612317E+00
```

```
RUN NO.  W1  DATE 5-6
   T(1) THROUGH T(10)
   1.8410000E+02   2.0300000E+02   2.0030000E+02
   1.7960000E+02   1.9220000E+02   1.8140000E+02
   1.7600000E+02   1.9940000E+02   1.9220000E+02
   1.9220000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.0600000E+02   6.4000000E+00   1.9580000E+02
   1.7400000E+02   6.4000000E+00

 TPR,XMV,ST1,ST2,SP
   1.2100000E+02   1.2700000E+00  -8.8435828E-01
  -2.7022058E+00   2.0500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   7.5000000E+00   1.9600000E+01
  -8.3333333E-02   1.2100969E+01

   V(2) THROUGH V(31)
   4.7756571E+02   1.7258291E+05   8.2419684E+07
   8.2130572E-03   4.1717396E+15   3.3715013E+02
   6.1687017E+00   1.2058633E+01   1.8227334E+01
  -4.8020300E+00   3.5967109E+01   5.8205283E+00
   6.2500000E-02   2.7733475E+02   8.4766439E-01
   7.6447702E+05   1.0309887E+02   6.2609128E+01
   8.4666666E+00   7.4157798E+02   1.9220000E+02
  -2.7725887E+00   5.6252252E+00  -1.6527048E-01
   1.3546947E+01   4.6356884E+00   4.1369110E+00
   2.1361368E+00   6.6087803E+00   1.4223041E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.1216E+01   9.3987E+00   8.4666E+00   1.9940E+02
1.9220E+02   7.2000E+00   2.0066E+02   1.9259E+00

CONC =  1.4223041E+00
```

```
RUN NO.  W2  DATE 5-6
   T(1) THROUGH T(10)
   2.0210000E+02   2.1740000E+02   2.1650000E+02
   1.8212000E+02   2.0480000E+02   1.8860000E+02
   1.8050000E+02   2.1560000E+02   2.0336000E+02
   2.0336000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.3000000E+02   1.0500000E+01   2.0750000E+02
   1.7600000E+02   1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.1900000E+02   1.9400000E+00   3.8000000E+00
   1.0000000E-01   2.2700000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01   1.7400000E+01   3.8900000E+01
  -8.3333333E-02   1.2100969E+01

   V(2) THROUGH V(31)
   1.0009923E+03   8.6062866E+04   8.6148272E+07
   1.2644803E-02   5.1817525E+15   2.3847243E+03
   6.9087470E+00   1.1362833E+01   1.8271580E+01
  -4.3705089E+00   3.6183919E+01   7.7768388E+00
   6.2500000E-02   5.5042459E+02   8.0549169E-01
   7.5907038E+05   1.6539867E+02   6.2406754E+01
   1.2933333E+01   7.4213628E+02   2.0336000E+02
  -2.7725887E+00   6.3106899E+00  -2.1630239E-01
   1.3539849E+01   5.1083587E+00   4.1336735E+00
   2.5598079E+00   6.6095328E+00   1.4716325E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 1.5900E+01   1.2200E+01   1.2933E+01   2.1560E+02
2.0336E+02   1.2240E+01   2.1629E+02   3.8223E+00

CONC =  1.4716325E+00
```

```
RUN NO.  W3  DATE 5-6
   T(1) THROUGH T(10)
   2.1830000E+02    2.3540000E+02    2.3360000E+02
   1.9940000E+02    2.2100000E+02    2.0660000E+02
   1.9940000E+02    2.3360000E+02    2.2100000E+02
   2.2100000E+02

 CTL1,PRS1,RCD,CTL2,PRS2
   2.4800000E+02    9.9000000E+00    2.2460000E+02
   1.9500000E+02    1.6000000E+01

 TPR,XMV,ST1,ST2,SP
   1.2000000E+02    2.0400000E+00    1.0100000E+01
   5.1000000E+00    2.4500000E+02

 DIA,DHFLO,DHSTG,DHWTR,PATM
   7.5000000E-01    2.0500000E+01    5.3700000E+01
  -6.6666666E-02    1.2100969E+01

   V(2) THROUGH V(31)
   1.5065856E+03    6.1609082E+04    9.2819354E+07
   1.3341070E-02    5.5986391E+15    5.9425301E+03
   7.3176011E+00    1.1028564E+01    1.8346165E+01
  -4.3169080E+00    3.6261299E+01    8.6898902E+00
   6.2500000E-02    7.5984063E+02    7.4308154E-01
   7.5033379E+05    1.8089458E+02    6.2389679E+01
   1.3600000E+01    7.3604828E+02    2.2100000E+02
  -2.7725887E+00    6.6331087E+00   -2.9694949E-01
   1.3528273E+01    5.1979144E+00    4.1333998E+00
   2.6100697E+00    6.6012957E+00    1.7956376E+00

PST1, PST2, DELT, T(8), T(10), DT810, TX, DELP
 2.2200E+01   1.7200E+01   1.3600E+01   2.3360E+02
2.2100E+02   1.2600E+01   2.3460E+02   5.2766E+00

CONC =  1.7956376E+00
```

TABLE VII. STAGE TWO CONDITIONS

$$Y = \frac{Q(\Delta P)^2 g_c^{1/2}}{\mu^2 \lambda^{3/2}}$$

$$X = e^{3.478\left(\frac{D \Delta P g_c^{1/2}}{\mu \lambda^{1/2}}\right)^{1.831}\left(\frac{\rho \lambda}{\Delta P}\right)^{-7.338}}$$

Percent error for each experimental point from the main correlation

Y = 9.5679435E+02 X = 8.2315621E+02

PERCENT ERROR = 1.3967279E+01

Y = 9.4585369E+02 X = 1.1959893E+03

PERCENT ERROR = 2.6445496E+01

Y = 4.8055253E+02 X = 6.8807923E+02

PERCENT ERROR = 4.3185018E+01

Y = 6.2207897E+02 X = 7.2028718E+02

PERCENT ERROR = 1.5787096E+01

Y = 4.2480976E+02 X = 5.1931363E+02

PERCENT ERROR = 2.2246162E+01

Y = 1.0352544E+02 X = 1.2035611E+02

PERCENT ERROR = 1.6257520E+01

Y = 1.9605557E+02 X = 2.0339359E+02

PERCENT ERROR = 3.7428265E+00

Y = 1.4778424E+02 X = 2.0712324E+02

PERCENT ERROR = 4.0152454E+01

Y = 1.2841927E+02 X = 1.7132511E+02

PERCENT ERROR = 3.3410749E+01

Y = 5.6747685E+02 X = 5.7004767E+02

PERCENT ERROR = 4.5302640E-01

Y = 8.5712040E+02 X = 8.1140312E+02

PERCENT ERROR = 5.3338224E+00

Y = 1.1441080E+03 X = 1.0707643E+03

PERCENT ERROR = 6.4105573E+00

Y = 1.4181307E+03 X = 1.3870562E+03

PERCENT ERROR = 2.1912296E+00

Y = 8.9269271E+02 X = 1.0161527E+03

PERCENT ERROR = 1.3830067E+01

Y = 1.6626305E+02 X = 1.7167291E+02

PERCENT ERROR = 3.2537957E+00

Y = 6.0405791E+03 X = 6.2729875E+03

PERCENT ERROR = 3.8474523E+00

Y = 6.0943877E+03 X = 6.0775017E+03

PERCENT ERROR = 2.7707459E-01

Y = 7.7567161E+03 X = 7.7896094E+03

PERCENT ERROR = 4.2406218E-01

Y = 7.3888484E+03 X = 7.5085901E+03

PERCENT ERROR = 1.6205732E+00

Y = 5.9736578E+02 X = 6.6212343E+02

PERCENT ERROR = 1.0840535E+01

Y = 6.9318435E+02 X = 7.1422711E+02

PERCENT ERROR = 3.0356657E+00

Y = 1.4473584E+02 X = 1.6230966E+02

PERCENT ERROR = 1.2141996E+01

Y = 2.8415296E+02 X = 2.5664710E+02

PERCENT ERROR = 9.6799484E+00

Y = 1.9459747E+03 X = 1.9991492E+03

PERCENT ERROR = 2.7325380E+00

Y = 3.9515466E+03 X = 4.1193925E+03

PERCENT ERROR = 4.2476001E+00

Y = 6.7428090E+03 X = 7.0876066E+03

PERCENT ERROR = 5.1135602E+00

Y = 6.0049290E+03 X = 4.9735144E+03

PERCENT ERROR = 1.7176133E+01

Y = 5.5123321E+03 X = 4.9117815E+03

PERCENT ERROR = 1.0894673E+01

Y = 3.3436984E+02 X = 4.7205806E+02

PERCENT ERROR = 4.1178420E+01

Y = 6.1164686E+02 X = 7.1798163E+02

PERCENT ERROR = 1.7384994E+01

Y = 1.3499252E+03 X = 1.0551866E+03

PERCENT ERROR = 2.1833698E+01

Y = 3.2669579E+03 X = 3.1558652E+03

PERCENT ERROR = 3.4004937E+00

Y = 6.2368198E+03 X = 6.3035421E+03

PERCENT ERROR = 1.0698128E+00

Y = 5.9425301E+03 X = 6.5370678E+03

PERCENT ERROR = 1.0004790E+01

Y = 3.6746331E+02 X = 3.6683017E+02

PERCENT ERROR = 1.7230019E-01

Y = 9.0600100E+01 X = 8.5847717E+01

PERCENT ERROR = 5.2454500E+00

Y = 2.7880913E+03 X = 2.7202824E+03

PERCENT ERROR = 2.4320903E+00

Y = 1.6896555E+03 X = 1.7202828E+03

PERCENT ERROR = 1.8126357E+00

Y = 1.7297513E+02 X = 2.0086840E+02

PERCENT ERROR = 1.6125595E+01

Y = 2.4182794E+02 X = 2.8084277E+02

PERCENT ERROR = 1.6133301E+01

Y = 7.4789923E+02 X = 7.0057890E+02

PERCENT ERROR = 6.3270997E+00

Y = 3.3715013E+02 X = 3.7451355E+02

PERCENT ERROR = 1.1082131E+01

Y = 2.3847243E+03 X = 2.4194705E+03

PERCENT ERROR = 1.4570321E+00

Y = 1.9715458E+03 X = 2.0819619E+03

PERCENT ERROR = 5.6004836E+00

Y = 4.0206493E+02 X = 3.6530148E+02

PERCENT ERROR = 9.1436599E+00

Y = 8.1592161E+02 X = 7.4095063E+02

PERCENT ERROR = 9.1885028E+00

Y = 3.2538370E+03 X = 3.7453224E+03

PERCENT ERROR = 1.5104794E+01

Y = 4.4104378E+02 X = 4.1417185E+02

PERCENT ERROR = 6.0928033E+00

Y = 3.8518041E+02 X = 3.4240868E+02

PERCENT ERROR = 1.1104336E+01

Y = 1.8265152E+02 X = 1.5970813E+02

PERCENT ERROR = 1.2561291E+01

Y = 1.6459636E+03 X = 1.6072517E+03

PERCENT ERROR = 2.3519292E+00

Y = 8.9339077E+01 X = 8.6942588E+01

PERCENT ERROR = 2.6824644E+00

Y = 1.1922600E+02 X = 1.2288967E+02

PERCENT ERROR = 3.0728783E+00

Y = 3.9454187E+02 X = 3.4106429E+02

PERCENT ERROR = 1.3554348E+01

Y = 7.0156052E+02 X = 6.5911366E+02

PERCENT ERROR = 6.0503490E+00

Y = 1.4246409E+03 X = 1.5113854E+03

PERCENT ERROR = 6.0888677E+00

Y = 2.3957947E+03 X = 2.4773407E+03

PERCENT ERROR = 3.4037140E+00

Y = 6.0846436E+01 X = 5.7117599E+01

PERCENT ERROR = 6.1282751E+00

Y = 2.9143290E+02 X = 2.2907122E+02

PERCENT ERROR = 2.1398297E+01

Y = 9.8637860E+02 X = 1.0292102E+03

PERCENT ERROR = 4.3423083E+00

Y = 1.9648218E+03 X = 2.1557996E+03

PERCENT ERROR = 9.7198534E+00

Y = 3.0510544E+02 X = 3.5158411E+02

PERCENT ERROR = 1.5233641E+01

Y = 8.6287242E+02 X = 7.2216092E+02

PERCENT ERROR = 1.6307335E+01

Y = 2.0570002E+03 X = 1.8591822E+03

PERCENT ERROR = 9.6168196E+00

Y = 3.3770669E+03 X = 3.3444080E+03

PERCENT ERROR = 9.6707885E-01

Y = 1.5378092E+02 X = 1.3749932E+02

PERCENT ERROR = 1.0587529E+01

Y = 4.4996327E+02 X = 3.7291294E+02

PERCENT ERROR = 1.7123693E+01

Y = 1.1237674E+03 X = 1.0843890E+03

PERCENT ERROR = 3.5041415E+00

Y = 2.4445550E+03 X = 2.5866166E+03

PERCENT ERROR = 5.8113480E+00

Y = 5.2543864E+03 X = 5.7150195E+03

PERCENT ERROR = 8.7666392E+00

Y = 2.4964537E+02 X = 2.4399335E+02

PERCENT ERROR = 2.2640195E+00

Y = 7.6003630E+02 X = 6.8888820E+02

PERCENT ERROR = 9.3611449E+00

Y = 1.9708678E+03 X = 1.8223661E+03

PERCENT ERROR = 7.5348382E+00

Y = 4.2480591E+03 X = 4.2298888E+03

PERCENT ERROR = 4.2773180E-01

Y = 3.4397059E+03 X = 3.3735638E+03

PERCENT ERROR = 1.9228998E+00

Y = 3.2639724E+02 X = 3.1961367E+02

PERCENT ERROR = 2.0783172E+00

Y = 8.3521063E+02 X = 8.3875193E+02

PERCENT ERROR = 4.2400082E-01

Y = 1.9855491E+03 X = 1.8490365E+03

PERCENT ERROR = 6.8753071E+00

Y = 1.8567387E+03 X = 1.9445210E+03

PERCENT ERROR = 4.7277681E+00

Y = 4.1018826E+03 X = 3.5945209E+03

PERCENT ERROR = 1.2368996E+01

Y = 8.2760733E+03 X = 7.7777237E+03

PERCENT ERROR = 6.0215706E+00

Y = 1.5791417E+02 X = 1.4920795E+02

PERCENT ERROR = 5.5132607E+00

Y = 4.5856965E+02 X = 3.1418626E+02

PERCENT ERROR = 3.1485596E+01

Y = 7.5266814E+02 X = 6.6992850E+02

PERCENT ERROR = 1.0992844E+01

Y = 1.8195258E+03 X = 1.9571253E+03

PERCENT ERROR = 7.5623824E+00

Y = 1.2421199E+02 X = 1.2150592E+02

PERCENT ERROR = 2.1785900E+00

Y = 4.2181516E+02 X = 3.5788152E+02

PERCENT ERROR = 1.5156790E+01

Y = 9.3545581E+02 X = 8.7139379E+02

PERCENT ERROR = 6.8482144E+00

```
Y =  1.9129791E+03 X =  1.8702212E+03
 PERCENT ERROR =  2.2351472E+00
Y =  1.8748072E+02 X =  2.0846288E+02
 PERCENT ERROR =  1.1191636E+01
Y =  5.3158013E+02 X =  4.4973026E+02
 PERCENT ERROR =  1.5397466E+01
Y =  1.4676717E+03 X =  1.3909649E+03
 PERCENT ERROR =  5.2264276E+00
Y =  3.0379395E+03 X =  3.1223025E+03
 PERCENT ERROR =  2.7769809E+00
SUM OF SQUARES OF RELATIVE ERROR =  1.6012690E+00
 AVE.RELATIVE ERROR PER POINT
   1.3606586E-02
```

TABLE VIII. SQUARE ORIFICES STAGE TWO CONDITIONS

COMPARISON OF THE MAIN CORRELATION

TO THE ORIFICE EQUATION

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

6.9739110E+01 8.9040664E+01 1.3824565E+05

DIFFERENCE - RELATIVE ERROR

-1.9301554E+01 2.7676800E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

8.6064999E+01 1.0750269E+02 1.8703559E+05

DIFFERENCE - RELATIVE ERROR

-2.1437700E+01 2.4908732E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.0427887E+02 1.2869226E+02 2.0934142E+05

DIFFERENCE - RELATIVE ERROR

-2.4413390E+01 2.3411636E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.2077029E+02 1.4807810E+02 2.3842703E+05

DIFFERENCE - RELATIVE ERROR

-2.7307810E+01 2.2611364E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.3551351E+02 1.6631383E+02 2.8797828E+05

DIFFERENCE - RELATIVE ERROR

-3.0800320E+01 2.2728597E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

9.7766691E+01 1.2897334E+02 1.5761679E+05

```
 DIFFERENCE  -  RELATIVE ERROR
-3.1206650E+01   3.1919511E-01
Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.
 1.2018650E+02   1.5560847E+02   2.1683601E+05
 DIFFERENCE  -  RELATIVE ERROR
-3.5421970E+01   2.9472503E-01
Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.
 1.4240251E+02   1.8269728E+02   2.7157499E+05
 DIFFERENCE  -  RELATIVE ERROR
-4.0294770E+01   2.8296390E-01
Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.
 1.6072571E+02   2.0650946E+02   3.1764249E+05
 DIFFERENCE  -  RELATIVE ERROR
-4.5783750E+01   2.8485641E-01
Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.
 1.5215535E+02   1.9696633E+02   3.0788703E+05
 DIFFERENCE  -  RELATIVE ERROR
-4.4810980E+01   2.9450808E-01
Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.
 5.7768252E+01   6.9202563E+01   1.3971869E+05
 DIFFERENCE  -  RELATIVE ERROR
-1.1434311E+01   1.9793416E-01
```

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

6.9697293E+01 8.2171892E+01 1.7135195E+05

DIFFERENCE - RELATIVE ERROR

-1.2474599E+01 1.7898254E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

8.2288918E+01 9.5352668E+01 2.2110704E+05

DIFFERENCE - RELATIVE ERROR

-1.3063750E+01 1.5875466E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

8.0966114E+01 9.4595525E+01 2.0259481E+05

DIFFERENCE - RELATIVE ERROR

-1.3629411E+01 1.6833475E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

9.0058082E+01 1.0465766E+02 2.8288652E+05

DIFFERENCE - RELATIVE ERROR

-1.4599580E+01 1.6211293E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.0155840E+02 1.1779711E+02 3.2380239E+05

DIFFERENCE - RELATIVE ERROR

-1.6238710E+01 1.5989529E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

5.4928388E+01 6.4224591E+01 1.1228692E+05

DIFFERENCE - RELATIVE ERROR

-9.2962030E+00 1.6924223E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

6.2621791E+01 7.2672163E+01 1.8660621E+05

DIFFERENCE - RELATIVE ERROR

-1.0050372E+01 1.6049320E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

7.2997327E+01 8.3473410E+01 1.7120755E+05

DIFFERENCE - RELATIVE ERROR

-1.0476083E+01 1.4351324E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

8.9616160E+01 1.0078383E+02 1.8317403E+05

DIFFERENCE - RELATIVE ERROR

-1.1167670E+01 1.2461669E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

9.1150262E+01 1.1857212E+02 1.2682698E+05

DIFFERENCE - RELATIVE ERROR

-2.7421860E+01 3.0084236E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.1432495E+02 1.4525191E+02 1.8689145E+05

DIFFERENCE - RELATIVE ERROR

-3.0926960E+01 2.7051802E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.3513138E+02 1.6950816E+02 2.1112899E+05

DIFFERENCE - RELATIVE ERROR

-3.4376780E+01 2.5439524E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.5349910E+02 1.9148332E+02 2.4462387E+05

DIFFERENCE - RELATIVE ERROR

-3.7984220E+01 2.4745565E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

8.2854532E+01 1.0152801E+02 1.1465816E+05

DIFFERENCE - RELATIVE ERROR

-1.8673480E+01 2.2537668E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

9.6563113E+01 1.1668357E+02 1.8045279E+05

DIFFERENCE - RELATIVE ERROR

-2.0120460E+01 2.0836590E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.1720931E+02 1.4021184E+02 2.1430127E+05

DIFFERENCE - RELATIVE ERROR

-2.3002530E+01 1.9625173E-01

Q CORRELATION - Q ORIFICE EQUATION - REYNOLDS NO.

1.3494094E+02 1.6015029E+02 2.4209516E+05

DIFFERENCE	-	RELATIVE ERROR
-2.5209350E+01		1.8681765E-01

TABLE IX. STAGE TWO CONDITIONS

D = 4 TIMES HYDRAULIC RADIUS

RESULTS OF REGRESSION ANALYSIS

R.C.HUNTSINGER , PROGRAM BY G.INGRAM

MULTIPLE REGRESSION WITH 30 VARIABLES, N= 93

I	MEAN	ST. DEVIATION	VARIANCE	SUM OF SQUARES
1	.13729417E+06	.64063716E+05	.41041598E+10	.37758271E+12
2	.72612726E+03	.38022872E+03	.14457388E+06	.13300798E+08
3	.13654149E+06	.64365466E+05	.41429133E+10	.38114804E+12
4	.80525628E+08	.18708130E+08	.34999414E+15	.32199462E+17
5	.99918480E-02	.29948840E-02	.89693302E-05	.82517840E-03
6	.50874587E+16	.22351304E+16	.49958080E+31	.45961435E+33
7	.17439261E+04	.20373290E+04	.41507096E+07	.38186530E+09
8	.64568614E+01	.51640001E+00	.26666898E+00	.24533547E+02
9	.11720886E+02	.45601742E+00	.20795189E+00	.19131575E+02
10	.18177748E+02	.23066499E+00	.53206340E-01	.48949834E+01
11	-.46507322E+01	.30450014E+00	.92720340E-01	.85302715E+01
12	.36069922E+02	.44472990E+00	.19778469E+00	.18196192E+02
13	.67677063E+01	.12602458E+01	.15882195E+01	.14611620E+03
14	.56456090E-01	.99857614E-02	.99715432E-04	.91738200E-02
15	.41950151E+03	.18149333E+03	.32939829E+05	.30304644E+07
16	.78762048E+00	.11748243E+00	.13802123E-01	.12697954E+01
17	.76169303E+06	.63654808E+04	.40519347E+08	.37277800E+10
18	.12471577E+03	.40483699E+02	.16389299E+04	.15078156E+06
19	.61716399E+02	.17833162E+01	.31802167E+01	.29257995E+03
20	.10064659E+02	.29909200E+01	.89456025E+01	.82299545E+03
21	.75589648E+03	.29243443E+02	.85517900E+03	.78676470E+05
22	.19783612E+03	.13107018E+02	.17179393E+03	.15805042E+05
23	-.28902368E+01	.18111668E+00	.32803255E-01	.30178996E+01
24	.59445178E+01	.44434483E+00	.19744233E+00	.18164695E+02
25	-.24994430E+00	.15144867E+00	.22936702E-01	.21101767E+01
26	.13543264E+02	.83658574E-02	.69987571E-04	.64388567E-02
27	.47694089E+01	.34854757E+00	.12148541E+00	.11176658E+02
28	.41221402E+01	.28706128E-01	.82404183E-03	.75811850E-01
29	.22653784E+01	.30020447E+00	.90122727E-01	.82912911E+01
30	.66271537E+01	.39095887E-01	.15284884E-02	.14062094E+00

I	J	K	CORRELATIONS OF VARIABLE I WITH VARIABLES J THROUGH K							
1	2	9	-.766686	.999992	-.030178	-.820782	-.101287	-.672564	-.858282	.969129
1	10	17	-.005535	-.880905	-.068614	-.900908	.352244	-.887755	.489053	.684012
1	18	25	-.352147	.211003	-.798419	-.127343	-.684843	.354178	-.967990	.491147
1	26	30	.683634	-.337906	.212481	-.858002	-.126372			
2	3	10	-.769125	.529630	.574235	.541652	.949500	.965451	-.839428	.501878
2	11	18	.581999	.507428	.938431	.100119	.826832	-.729884	-.850959	.653828
2	19	26	-.412241	.512759	.312017	.849490	.094791	.818616	-.753269	-.851545
2	27	30	.620601	-.415325	.526210	.310118				
3	4	11	-.033199	-.820342	-.104246	-.675191	-.860111	.969695	-.008511	-.880253
3	12	19	-.071516	-.902443	.350129	-.888600	.491303	.686098	-.354563	.212585
3	20	27	-.797700	-.128687	-.686916	.352083	-.968428	.493534	.685726	-.340191
3	28	30	.214075	-.857108	-.127709					
4	5	12	-.306217	.920867	.409614	.488269	-.051014	.992254	-.295360	.905397
4	13	20	.365655	.831572	.005863	-.620669	-.477383	.769489	-.479849	-.378731
4	21	28	.431002	.475977	.823955	.012226	-.630432	-.477936	.725860	-.481870
4	29	30	-.368845	.429546						
5	6	13	-.257577	.585802	.622282	-.869597	-.326035	.979027	-.279870	.687890
5	14	21	-.611554	.889410	-.278906	-.377535	-.020343	-.129585	.990615	.079935
5	22	29	.378468	-.617404	.876985	-.276709	-.377146	-.002878	-.129323	.971997
5	30	30	.080846							
6	7	14	.459292	.506744	-.116789	.903581	-.240920	.972315	.448771	.696120
6	15	22	.064394	-.638607	-.563911	.863557	-.453953	-.327103	.389767	.563033
6	23	30	.686928	.079744	-.656817	-.564234	.828196	-.456475	-.310647	.388201
7	8	15	.865045	-.786190	.382341	.569008	.429132	.862639	-.024434	.820977
7	16	23	-.680970	-.783659	.539466	-.391988	.522573	.297951	.781343	-.030761

```
 7 24 30  .766523 -.715742 -.784602  .514408 -.395459  .516746  .295936
 8  9 16 -.894771  .469811  .643715  .485305  .980688  .067766  .849920 -.734288
 8 17 24 -.862118  .656334 -.407777  .566071  .306684  .861969  .061466  .875546
 8 25 30 -.743598 -.862143  .636258 -.410169  .589165  .305120
 9 10 17 -.026195 -.888675 -.089480 -.936197  .351249 -.970979  .522401  .744113
 9 18 25 -.358675  .219523 -.843243 -.128149 -.744610  .357486 -.997968  .529900
 9 26 30  .743881 -.353219  .221277 -.864105 -.127133
10 11 18 -.315769  .909574  .344678  .846120 -.016842 -.611114 -.458974  .760276
10 19 26 -.478918 -.399777  .433240  .457659  .844346 -.012828 -.617132 -.459488
10 27 30  .726117 -.480806 -.389319  .431748
11 12 19 -.268854  .709037 -.614618  .867463 -.293606 -.386595  .008580 -.143302
11 20 27  .968714  .093199  .387189 -.614167  .895495 -.291357 -.386348  .013324
11 28 30 -.143197  .991322  .093839
12 13 20  .433837  .723370  .046452 -.609660 -.552840  .873241 -.424689 -.347984
12 21 28  .362361  .552509  .718857  .053838 -.621853 -.552934  .871043 -.426949
12 29 30 -.335108  .360887
13 14 21 -.062475  .894760 -.687718 -.868232  .632624 -.348454  .640013  .243800
13 22 29  .868565 -.069710  .921782 -.698804 -.868056  .626913 -.350838  .663430
13 30 30  .242361
14 15 22 -.363739 -.108473 -.144144  .627819 -.046743 -.627337  .037447  .143205
14 23 30  .996183 -.366269 -.110366 -.144513  .606868 -.047567 -.632205  .036585
15 16 23 -.459113 -.730376  .312433 -.152346  .870329  .061666  .730588 -.373359
15 24 30  .972784 -.470219 -.730270  .319964 -.154072  .851610  .060781
16 17 24  .571667 -.443185  .886983 -.159215 -.824446 -.571091 -.099360 -.467973
16 25 30  .996094  .571874 -.407175  .888255 -.174598 -.823709
17 18 25 -.730725  .132797 -.351679 -.011375 -.999954 -.134784 -.736060  .591213
17 26 30  .999991 -.712761  .135794 -.363021 -.009520
18 19 26 -.129883 -.047572  .042397  .730447  .622095  .345788 -.459253 -.730792
18 27 30  .980315 -.132352 -.016969  .040758
19 20 27  .001137 -.991882 -.131811 -.042131 -.158182  .872247  .133187 -.093790
19 28 30  .999948 -.012467 -.991885
20 21 28 -.048996  .352813 -.632701  .858884 -.157161 -.351210 -.025011  .001579
20 29 30  .979031 -.047936
21 22 29  .010305  .034039  .067228 -.807433 -.011804  .007993 -.991671 -.036017
21 30 30  .999930
22 23 30  .133657  .736637 -.590366 -.999908  .713232 -.134791  .363762  .008474
23 24 30 -.372201 -.101980 -.135235  .603454 -.043007 -.631035  .033104
24 25 30 -.476209 -.735796  .342869 -.159922  .879180  .066228
25 26 30  .591533 -.422161  .874168 -.174049 -.806206
26 27 30 -.712517  .136191 -.362715 -.009939
27 28 30 -.096196 -.007183  .006474
28 29 30 -.012318 -.991561
29 30 30 -.035326


Y=VAR 7   I        B                SB               T        PAR R
          2   .58570688E+01   .22882704E+00      25.59      .9382
          3   .12695722E-01   .19351718E-02       6.56      .5709
          5   .19533000E+06   .32466884E+05       6.01      .5376
          0  -.61942515E+04
         MULTIPLE R= .9671, R SQUARE= .9352   ST ERROR OF EST= .52689223E+03
  SOURCE       DF         SS               MS              F
DUE TO REG     3   .35715754E+09   .11905251E+09    428.83
ABOUT  REG    89   .24707760E+08   .27761528E+06
   TOTAL      92   .38186530E+09


Y=VAR13   I        B                SB               T        PAR R
```

```
          8   .14716797E+01   .11807506E+00      12.46      .7973
          9  -.14653292E+01   .22315209E+00      -6.56     -.5712
         11  -.62224480E+00   .19499753E+00      -3.19     -.3204
          0   .11546338E+02
        MULTIPLE R= .9905, R SQUARE= .9811   ST ERROR OF EST= .17574450E+00
  SOURCE       DF         SS                MS                F
DUE TO REG      3   .14336734E+03   .47789113E+02   1547.27
ABOUT  REG     89   .27488600E+01   .30886067E-01
    TOTAL      92   .14611620E+03


Y=VAR13   I         B               SB              T       PAR R
          8   .17503733E+01   .83416578E-01      20.98      .9112
          9  -.81370119E+00   .94462018E-01      -8.61     -.6722
          0   .50030878E+01
        MULTIPLE R= .9894, R SQUARE= .9790   ST ERROR OF EST= .18449242E+00
  SOURCE       DF         SS                MS                F
DUE TO REG      2   .14305283E+03   .71526415E+02   2101.40
ABOUT  REG     90   .30633700E+01   .34037444E-01
    TOTAL      92   .14611620E+03


Y=VAR13   I         B               SB              T       PAR R
          8   .21847433E+01   .56176060E-01      38.89      .9715
         11   .54949179E+00   .95268648E-01       5.76      .5195
          0  -.47833389E+01
        MULTIPLE R= .9859, R SQUARE= .9720   ST ERROR OF EST= .21293308E+00
  SOURCE       DF         SS                MS                F
DUE TO REG      2   .14203556E+03   .71017780E+02   1566.32
ABOUT  REG     90   .40806400E+01   .45340444E-01
    TOTAL      92   .14611620E+03


Y=VAR13   I         B               SB              T       PAR R
          8   .23933156E+01   .50034182E-01      47.83      .9806
          0  -.86856010E+01
        MULTIPLE R= .9806, R SQUARE= .9617   ST ERROR OF EST= .24782608E+00
  SOURCE       DF         SS                MS                F
DUE TO REG      1   .14052718E+03   .14052718E+03   2288.05
ABOUT  REG     91   .55890200E+01   .61417802E-01
    TOTAL      92   .14611620E+03


Y=VAR 6   I         B               SB              T       PAR R
          4   .11100481E+09   .51465620E+07      21.56      .9153
          5   .20100842E+17   .32149010E+17        .62      .0657
          0  -.40521178E+16
        MULTIPLE R= .9212, R SQUARE= .8486   ST ERROR OF EST= .87914598E+15
  SOURCE       DF         SS                MS                F
DUE TO REG      2   .39005355E+33   .19502677E+33    252.33
ABOUT  REG     90   .69560800E+32   .77289777E+30
    TOTAL      92   .45961435E+33


Y=VAR12   I         B               SB              T       PAR R



         10   .17661077E+01   .88908671E-01      19.86      .9023
         11   .29788137E-01   .67350106E-01        .44      .0465
          0   .41045986E+01
        MULTIPLE R= .9097, R SQUARE= .8277   ST ERROR OF EST= .18664263E+00
  SOURCE       DF         SS                MS                F
DUE TO REG      2   .15060999E+02   .75304995E+01    216.17
ABOUT  REG     90   .31351930E+01   .34835477E-01
    TOTAL      92   .18196192E+02


Y=VAR12   I         B               SB              T       PAR R
         10   .17536907E+01   .83986071E-01      20.88      .9095
          0   .41917750E+01
        MULTIPLE R= .9095, R SQUARE= .8273   ST ERROR OF EST= .18581590E+00
  SOURCE       DF         SS                MS                F
DUE TO REG      1   .15054186E+02   .15054186E+02    436.00
ABOUT  REG     91   .31420060E+01   .34527538E-01
    TOTAL      92   .18196192E+02
```

MULTIPLE LINEAR REGRESSION - R.C.HUNTSINGER , P.E.

NUMBER OF OBSERVATIONS = 93

MEAN	STD DEVIATION	VARIANCE	
7.2612684E+02	3.8022927E+02	1.4457430E+05	2
1.3654137E+05	6.4365565E+04	4.1429260E+09	3
8.0525588E+07	1.8708179E+07	3.4999597E+14	4
9.9918433E-03	2.9948923E-03	8.9693804E-06	5
5.0874548E+15	2.2351320E+15	4.9958152E+30	6
1.7439238E+03	2.0373309E+03	4.1507176E+06	7
6.4568574E+00	5.1641005E-01	2.6667934E-01	8
1.1720877E+01	4.5610590E-01	2.0803260E-01	9
1.8177723E+01	2.3174667E-01	5.3706521E-02	10
-4.6507280E+00	3.0452207E-01	9.2733695E-02	11
3.6069882E+01	4.4684886E-01	1.9967391E-01	12
6.7677021E+00	1.2602522E+00	1.5882358E+00	13
5.6456048E-02	9.9858921E-03	9.9718043E-05	14
4.1950113E+02	1.8149358E+02	3.2939923E+04	15
7.8762012E-01	1.1748353E-01	1.3802380E-02	16
7.6169253E+05	6.3912303E+03	4.0847826E+07	17
1.2471568E+02	4.0483744E+01	1.6389336E+03	18
6.1716359E+01	1.7836211E+00	3.1813043E+00	19

1.0064656E+01	2.9909228E+00	8.9456195E+00	20
7.5589612E+02	2.9245958E+01	8.5532608E+02	21
1.9783612E+02	1.3105839E+01	1.7176304E+02	22
-2.8902337E+00	1.8115150E-01	3.2815869E-02	23
5.9445131E+00	4.4436690E-01	1.9746195E-01	24
-2.4994400E-01	1.5144909E-01	2.2936827E-02	25
1.3543249E+01	1.6151456E-02	2.6086956E-04	26
4.7694045E+00	3.4856226E-01	1.2149565E-01	27
4.1221366E+00	2.8854959E-02	8.3260869E-04	28
2.2653758E+00	3.0021930E-01	9.0131630E-02	29
6.6271494E+00	3.9342419E-02	1.5478260E-03	30
9.7829216E-01	1.1484048E+00	1.3188338E+00	31

50203050107

1	9.3000000E+01	Number of observations
7	3.8186603E+08	Total sum of squares
2	6.2336033E+07	Error sum of squares
3	1.2153058E+12	Error sum of squares
5	9.7027070E-04	Error sum of squares
1	6.9002970E-01	Error sum of squares
7	2.4711947E+07	Total error sum of sq. for regression

R**2= .9352863E+00 R= .9671020E+00

2	5.8569378E+00	Regression coefficient
3	1.2694160E-02	Regression coefficient
5	1.9530741E+05	Regression coefficient

```
      1   -6.1937147E+03    Regression constant ( β1)

      7    4.9711103E+03    Sq. root of total error sum of squares

 7.8953163E+03 9.4852173E+05 9.3081357E-02
 8.5531465E+00 2.3486800E+04
 1.2013724E+02 1.1024086E+06 2.1808501E-02
 4.1595330E+00-7.5094361E+03
 9.4128130E-06 1.9782576E-08 3.1149169E-02
 1.3608725E+00-2.3451893E+03
 2.1879045E-04 2.9088502E-06 4.3688869E+01
 8.3068026E-01-5.1450104E+03
 5.8569378E+00 1.2694160E-02 1.9530741E+05
-6.1937147E+03 4.9711103E+03

SIGMA =  5.2992183E+02
```

```
50809110113

   1      9.3000000E+01
  13      1.4611770E+02
   8      3.9017981E+03
   9      1.6929500E+02
  11      2.2675760E+00
   1      4.7611060E-03
  13      2.7488358E+00
R**2=   .9811875E+00 R=   .9905491E+00

      8    1.4763357E+00

      9   -1.4577190E+00

     11   -6.1781657E-01

      1    1.1447663E+01

     13    1.6579612E+00
```

```
 6.2464369E+01 1.1236587E+02-4.4559704E+01
 9.6132843E+00 6.5999871E+01
 1.7988792E+00 1.3011340E+01-5.6762024E+00
 7.5600975E-01-6.8053943E+00
 7.1398760E-02-4.3624974E-01 1.5058472E+00
 9.2019827E-02 1.2336178E-01
 4.5013305E-02 8.4768644E-02 6.1121303E-02
 6.9000770E-02 7.9088484E-01
 1.4763357E+00-1.4577190E+00-6.1781657E-01
 1.1447663E+01 1.6579612E+00

SIGMA =   1.7673972E-01
```

```
3080113

   1      9.3000000E+01
  13      1.4611770E+02
   8      3.9017981E+03
   1      5.8478700E-01
  13      5.5885250E+00
R**2=   .9617532E+00 R=   .9806902E+00

       8    2.3932829E+00

       1   -8.6853845E+00

      13    2.3640060E+00

 6.2464369E+01 9.6132843E+00 6.5999871E+01
 1.5390025E-01 7.6471367E-01-6.6417931E+00
 2.3932829E+00-8.6853845E+00 2.3640060E+00

SIGMA =   2.4918801E-01
```

```
404050106

   1      9.3000000E+01
   6      4.5961490E+32
   4      6.3524607E+17
   5      1.6637490E-03
   1      2.1188278E+00
   6      6.9561140E+31
R**2=   .8486534E+00 R=   .9212238E+00

       4    1.1100438E+08

       5    2.0098570E+16

       1   -4.0520602E+15

       6    8.3403284E+15

 7.9702292E+08 9.1903625E-02 9.3960656E+00
 5.2246824E+16
 1.1530853E-10 4.0789083E-02 1.6109636E+00
-5.7079120E+15
 7.2348350E-09 3.9494977E+01 1.4556193E+00
-5.8982455E+15
 1.1100438E+08 2.0098570E+16-4.0520602E+15
 8.3403284E+15

SIGMA =  8.8407375E+14
```

```
410110112

   1      9.3000000E+01
  12      1.8370000E+01
```

```
   10       3.0734896E+04
   11       7.8040000E+00
    1       1.4706364E-02
   12       3.0707508E+00
R**2=    .8328388E+00  R=    .9126000E+00

      10    1.7723278E+00

      11    3.2808500E-02

       1    4.0055829E+00

      12    1.7523557E+00

 1.7531362E+02-4.4858129E+01 9.6428805E+00
 3.4786714E+02
-2.5587335E-01 2.7935639E+00 1.5542869E-02
 1.5392524E-01
 5.6427506E-02 5.5650948E-03 1.2126980E-01
 4.8492707E-01
 1.7723278E+00 3.2808500E-02 4.0055829E+00
 1.7523557E+00

SIGMA =   1.8587164E-01
```

```
423240127

    1       9.3000000E+01
   27       1.1177500E+01
   23       7.7989001E+02
   24       1.9583000E+01
    1       2.8770085E-01
   27       2.9327070E+00
R**2=    .7376240E+00  R=    .8588504E+00

      23    1.6323863E+00
```

```
      24    5.1671365E-01

       1    6.4157717E+00

      27    1.7125147E+00

 2.7926509E+01-5.7314457E+01-9.6249674E+00
-4.5779896E+01
-2.0523313E+00 4.4252682E+00 2.6891477E-01
 4.0118924E+00
-2.1993730E-01 6.0768013E-02 5.3637753E-01
 3.4412571E+00
 1.6323863E+00 5.1671365E-01 6.4157717E+00
 1.7125147E+00

SIGMA =   1.8153418E-01
```

```
52324280127

    1       9.3000000E+01
   27       1.1177500E+01
   23       7.7989001E+02
   24       1.9583000E+01
   28       5.0163072E+00
    1       4.2236300E-03
   27       2.9057260E+00
R**2=   .7400379E+00 R=   .8602545E+00

      23    1.6440353E+00

      24    5.2469125E-01

      28    6.0511320E-01

       1    3.9076576E+00

      27    1.7046189E+00
```

```
 2.7926509E+01-5.7314457E+01-3.9676212E+01
-9.6249674E+00-4.5779896E+01
-2.0523313E+00 4.4252682E+00 1.0562523E+00
 2.6891477E-01 4.0118924E+00
-9.3086190E-01 2.3869172E-01 2.2397113E+00
 5.3242670E-01 3.4358173E+00
 1.3474800E-03 4.0261410E-03 2.3772032E-01
 6.4989464E-02 2.5386268E-01
 1.6440353E+00 5.2469125E-01 6.0511320E-01
 3.9076576E+00 1.7046189E+00

SIGMA =  1.8172015E-01
```

```
6011415211718

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  15      2.6295433E+06
  21      7.8066033E+04
  17      1.0357304E+09
  18      2.8080587E+04
R**2=   .8137670E+00 R=   .9020903E+00

      1   2.5964871E+03

     14   2.4252870E+03

     15   2.9794660E-02

     21   8.5194110E-03

     17  -3.4497282E-03

     18   1.6757256E+02
```

```
 9.6436503E+00 5.4444244E-01 4.0455226E+03
 7.2895986E+03 7.3454971E+06 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
 1.0516670E+01-8.7741587E+03 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
 2.2679676E+01-5.1287261E+04 2.2543668E+02
 7.3861026E+02 2.0225797E+02 1.3986100E-02
 2.7940294E+02 3.8562686E+03-1.0924641E+01
 7.8174226E+05-3.0348507E+05-3.1821232E+01
 1.3801989E+01 3.2182753E+04-1.1103363E+02
 2.5964871E+03 2.4252870E+03 2.9794660E-02
 8.5194110E-03-3.4497282E-03 1.6757256E+02

SIGMA =  1.7964700E+01
```

```
6011420192618

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  20      4.9911929E+02
  19      2.9165296E+02
  26      2.1702056E-02
  18      5.3925973E+04
R**2=   .6423580E+00 R=  .8014724E+00

      1   7.3676412E+03

     14   3.7110887E+03

     20   6.5933865E+00

     19  -1.4686059E+00

     26  -5.4847715E+02
```

```
      18    2.3221960E+02

 9.6436503E+00 5.4444244E-01 9.7060039E+01
 5.9517104E+02 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-1.7996651E+01
-7.9775520E-01-1.0638824E-02 2.4378902E+02
 2.0672340E+01-1.8789280E+02 2.2340976E+01
-6.1684359E-01-4.4557711E-02 1.7266236E+02
 6.2757557E+01-1.3518619E+01-2.7620495E-02
 1.7077849E+01 1.3995770E-02-3.2854342E+01
 1.3538683E+01-4.7461357E-01-1.9727693E-03
 8.2984623E-04 1.4731618E-01-8.0830136E+01
 7.3676412E+03 3.7110887E+03 6.5933865E+00
-1.4686059E+00-5.4847715E+02 2.3221960E+02

SIGMA =   2.4894838E+01
```

```
6011415312618

    1      9.3000000E+01
   18      1.5078200E+05
    1      9.3000000E+01
   14      9.1740500E-03
   15      2.6295433E+06
   31      1.2113125E+02
   26      1.9409027E-02
   18      3.9069023E+04
R**2=   .7408906E+00 R=   .8607500E+00

      1    3.3314674E+03

     14    3.3717181E+03

     15    1.2878773E-01

     31    1.1209750E+00
```

```
     26   -2.5490406E+02

     18    1.9765883E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 9.4343083E+00 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
-2.8321927E-01-1.0638824E-02 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
-3.4821495E-01-6.6648571E-02 2.2543668E+02
 1.3154557E+00-4.3765204E+00-2.1473721E-04
 1.1005963E+01-6.0441000E-03 1.3877763E+01
 1.3582806E+01-3.8493487E-01-4.1213707E-05
-5.4909347E-04 1.3931628E-01-3.5634116E+01
 3.3314674E+03 3.3717181E+03 1.2878773E-01
 1.1209750E+00-2.5490406E+02 1.9765883E+02

SIGMA =  2.1190327E+01
```

```
6011415311718

    1      9.3000000E+01
   18      1.5078200E+05
    1      9.3000000E+01
   14      9.1740500E-03
   15      2.6295433E+06
   31      1.2113125E+02
   17      1.0282303E+09
   18      2.8080295E+04
R**2=   .8137689E+00 R=   .9020914E+00

     1    2.6048864E+03

    14    2.4253473E+03

    15    2.9793580E-02
```

```
      31   -2.2256530E-01

      17   -3.4520189E-03

      18    1.6757172E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 9.4343083E+00 7.3454971E+06 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
-2.8321927E-01-8.7741587E+03 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
-3.4821495E-01-5.1287261E+04 2.2543668E+02
 1.3154557E+00-4.3765204E+00-2.1473721E-04
 1.1005963E+01-4.7297992E+03 1.3877763E+01
 7.9250186E+05-3.0257432E+05-3.1720480E+01
-4.2975039E+02 3.2066014E+04-1.1070467E+02
 2.6048864E+03 2.4253473E+03 2.9793580E-02
-2.2256530E-01-3.4520189E-03 1.6757172E+02

SIGMA =  1.7964604E+01
```

```
6011415192618

    1      9.3000000E+01
   18      1.5078200E+05
    1      9.3000000E+01
   14      9.1740500E-03
   15      2.6295433E+06
   19      2.8237167E+02
   26      1.9432442E-02
   18      3.9212401E+04
R**2=   .7399397E+00 R=   .8601975E+00

       1    3.3811372E+03

      14    3.3688103E+03
```

```
      15    1.2870242E-01

      19    1.7471024E-01

      26   -2.5927195E+02

      18    1.9802118E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 5.9517104E+02 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
-7.9775520E-01-1.0638824E-02 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
-3.1083336E+00-6.6648571E-02 2.2543668E+02
 6.3706129E+01-2.1001044E+01-1.9168846E-03
 1.6803916E+01 3.5314905E-03 1.9709578E+00
 1.3568009E+01-3.7789166E-01-4.0672269E-05
 2.2094635E-04 1.3940030E-01-3.6266763E+01
 3.3811372E+03 3.3688103E+03 1.2870242E-01
 1.7471024E-01-2.5927195E+02 1.9802118E+02

SIGMA =   2.1229160E+01
```

```
6011420212618

    1       9.3000000E+01
   18       1.5078200E+05
    1       9.3000000E+01
   14       9.1740500E-03
   20       4.9911929E+02
   21       7.8496325E+04
   26       2.1898535E-02
   18       5.4361810E+04
R**2=   .6394675E+00 R=   .7996671E+00

       1    7.4673774E+03
```

```
      14    3.7211382E+03

      20    6.6205040E+00

      21    4.9251628E-02

      26   -5.6534475E+02

      18    2.3315617E+02

 9.6436503E+00 5.4444244E-01 9.7060039E+01
 7.2895986E+03 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-1.7996651E+01
 1.0516670E+01-1.0638824E-02 2.4378902E+02
 2.0672340E+01-1.8789280E+02 2.2340976E+01
-9.1681576E+00-4.4557711E-02 1.7266236E+02
 7.5818276E+02 3.2673860E+01-4.1047331E-01
 2.8017194E+02 1.3323036E-03 1.3005691E+01
 1.3586968E+01-4.8599548E-01-1.9936355E-03
 5.0052919E-06 1.4798154E-01-8.3736363E+01
 7.4673774E+03 3.7211382E+03 6.6205040E+00
 4.9251628E-02-5.6534475E+02 2.3315617E+02

SIGMA =  2.4995226E+01
```

TABLE X. STAGE ONE CONDITIONS

D = DIAMETER OF CIRCLE
WITH EQUIVALENT AREA

RESULTS OF REGRESSION ANALYSIS

R.C.HUNTSINGER , PROGRAM BY G.INGRAM

MULTIPLE REGRESSION WITH 30 VARIABLES, N= 93

I	MEAN	ST. DEVIATION	VARIANCE	SUM OF SQUARES
1	.13580139E+06	.63922190E+05	.40860464E+10	.37591628E+12
2	.82035610E+03	.44066846E+03	.19418870E+06	.17865361E+08
3	.13498103E+06	.64263116E+05	.41297482E+10	.37993685E+12
4	.89020659E+08	.20846744E+08	.43458677E+15	.39981984E+17
5	.10113804E-01	.30545819E-02	.93304706E-05	.85840332E-03
6	.57758266E+16	.25806845E+16	.66599328E+31	.61271383E+33
7	.21322655E+04	.25636051E+04	.65720714E+07	.60463059E+09
8	.65701163E+01	.53475694E+00	.28596499E+00	.26308780E+02
9	.11707693E+02	.45934433E+00	.21099722E+00	.19411745E+02
10	.18277809E+02	.23135605E+00	.53525623E-01	.49243575E+01
11	-.46394667E+01	.30776528E+00	.94719472E-01	.87141916E+01
12	.36195735E+02	.44498949E+00	.19801565E+00	.18217441E+02
13	.69265012E+01	.12991525E+01	.16877973E+01	.15527736E+03
14	.58400918E-01	.10152158E-01	.10306632E-03	.94821020E-02
15	.42047526E+03	.18150240E+03	.32943124E+05	.30307675E+07
16	.73353680E+00	.11893306E+00	.14145075E-01	.13013470E+01
17	.75677882E+06	.71001611E+04	.50412288E+08	.46379306E+10
18	.12437963E+03	.40315359E+02	.16253282E+04	.14953020E+06
19	.61445313E+02	.17550195E+01	.30800935E+01	.28336861E+03
20	.10094767E+02	.30002699E+01	.90016200E+01	.82814906E+03
21	.75740692E+03	.28604567E+02	.81822128E+03	.75276360E+05
22	.19779741E+03	.13102290E+02	.17167001E+03	.15793642E+05
23	-.28558326E+01	.17805912E+00	.31705051E-01	.29168648E+01
24	.59468359E+01	.44483356E+00	.19787690E+00	.18204676E+02
25	-.32323591E+00	.16578104E+00	.27483355E-01	.25284688E+01
26	.13536783E+02	.93904752E-02	.88181026E-04	.81126546E-02
27	.47672620E+01	.34626261E+00	.11989780E+00	.11030598E+02
28	.41177474E+01	.28377960E-01	.80530867E-03	.74088400E-01
29	.22681304E+01	.30134188E+00	.90806934E-01	.83542381E+01
30	.66291855E+01	.38151828E-01	.14555620E-02	.13391171E+00

I	J	K	CORRELATIONS OF VARIABLE I WITH VARIABLES J THROUGH K							
1	2	9	-.772269	.999990	-.104519	-.821921	-.174014	-.665701	-.866068	.968794
1	10	17	-.078345	-.882480	-.138864	-.903912	.359864	-.887624	.565210	.784212
1	18	25	-.346734	.249476	-.800284	-.138482	-.681932	.361871	-.967854	.563136
1	26	30	.783572	-.333558	.250826	-.859433	-.137748			
2	3	10	-.775029	.575278	.584052	.617718	.949654	.965943	-.847850	.549325
2	11	18	.591031	.581598	.948652	.059380	.837517	-.785986	-.889001	.650218
2	19	26	-.458793	.520146	.337172	.858826	.055556	.827231	-.811283	-.889671
2	27	30	.620803	-.462357	.533482	.335086				
3	4	11	-.107909	-.821565	-.177327	-.668681	-.868097	.969468	-.081696	-.881851
3	12	19	-.142115	-.905621	.357548	-.888658	.567601	.786148	-.349353	.251299
3	20	27	-.799605	-.140060	-.684204	.359570	-.968392	.565711	.785516	-.336046
3	28	30	.252666	-.858532	-.139315					
4	5	12	-.250867	.968271	.454506	.536783	-.125483	.991580	-.233765	.950880
4	13	20	.436617	.785153	.075960	-.640087	-.432316	.818541	-.529638	-.329985
4	21	28	.478768	.551173	.778438	.086498	-.651049	-.432696	.774903	-.532096
4	29	30	-.312622	.476990						
5	6	13	-.170936	.604865	.630654	-.871002	-.271631	.978797	-.192713	.703897
5	14	21	-.660514	.889374	-.384066	-.550040	-.021195	-.163141	.991173	.080661
5	22	29	.379292	-.668787	.877414	-.382707	-.549780	-.002229	-.162943	.972185
5	30	30	.081700							
6	7	14	.513479	.577266	-.195548	.946045	-.153788	.971336	.505556	.716504
6	15	22	.146151	-.644034	-.492484	.868518	-.497309	-.245776	.435645	.598559
6	23	30	.704087	.159608	-.663620	-.492689	.831234	-.500334	-.227324	.433664
7	8	15	.860377	-.784842	.430417	.581041	.482567	.859036	-.053144	.826982
7	16	23	-.721040	-.805751	.515539	-.427526	.540381	.315751	.761368	-.058065

```
 7 24 30  .765874 -.759775 -.806987  .494905 -.431618  .528588  .313499
 8  9 16 -.902623  .519294  .653466  .557360  .988765  .034373  .858285 -.789152
 8 17 24 -.908488  .655300 -.450833  .573323  .326958  .869581  .028663  .883968
 8 25 30 -.797251 -.908449  .638202 -.453366  .597884  .325429
 9 10 17 -.100883 -.890046 -.167365 -.941257  .364472 -.971392  .601071  .849773
 9 18 25 -.355326  .257806 -.844895 -.137310 -.743031  .370304 -.998124  .607020
 9 26 30  .849545 -.351198  .259624 -.865275 -.136400
10 11 18 -.256712  .955989  .416622  .803090  .055198 -.630655 -.412704  .809183
10 19 26 -.530197 -.352310  .483110  .534705  .801472  .061487 -.637562 -.413068
10 27 30  .777856 -.532442 -.336003  .481382
11 12 19 -.184386  .723582 -.656470  .867407 -.397271 -.552945  .006738 -.178220
11 20 27  .969602  .095837  .387567 -.657353  .896053 -.393917 -.552634  .012887
11 28 30 -.178076  .991852  .096697
12 13 20  .490462  .749603  .129239 -.615025 -.480205  .880583 -.469810 -.266276
12 21 28  .410753  .589966  .744428  .132543 -.629053 -.480292  .877744 -.472491
12 29 30 -.255058  .408945
13 14 21 -.065412  .902910 -.741966 -.915622  .615704 -.388803  .655622  .262065
13 22 29  .858865 -.072339  .927672 -.752029 -.915450  .611083 -.391329  .677480
13 30 30  .260641
14 15 22 -.382985 -.057661 -.034909  .692703 -.044996 -.679788  .046380  .193863
14 23 30  .996362 -.380023 -.059429 -.035113  .672653 -.045783 -.677322  .045533
15 16 23 -.543564 -.845164  .313054 -.192249  .869331  .071207  .731443 -.392324
15 24 30  .972845 -.555596 -.845351  .321686 -.194194  .850652  .070315
16 17 24  .587674 -.423175  .887573 -.270037 -.814883 -.585324 -.049891 -.551554
16 25 30  .995356  .587806 -.389660  .889036 -.284359 -.814040
17 18 25 -.651644  .154073 -.527108 -.013528 -.980947 -.024946 -.846375  .604332
17 26 30  .999991 -.641366  .156881 -.532047 -.012027
18 19 26 -.143928 -.049498  .055237  .729356  .683669  .343813 -.438491 -.651617
18 27 30  .980319 -.146530 -.020199  .053512
19 20 27 -.037097 -.989096 -.160702 -.041648 -.199166  .870723  .154347 -.106998
19 28 30  .999939 -.051975 -.989160
20 21 28 -.043981  .352150 -.687873  .858997 -.268345 -.526773 -.025589 -.036656
20 29 30  .979267 -.042755
21 22 29  .024363  .044815  .078411 -.795738 -.013833  .019266 -.988891 -.029148
21 30 30  .999925
22 23 30  .184567  .736107 -.603807 -.980977  .713014 -.163875  .362416  .022456
23 24 30 -.385630 -.052428 -.025225  .668172 -.042533 -.677704  .043853
24 25 30 -.558366 -.846121  .342134 -.200981  .878974  .077507
25 26 30  .604590 -.404785  .872995 -.282909 -.794307
26 27 30 -.641126  .157166 -.531692 -.012319
27 28 30 -.109523 -.009054  .017677
28 29 30 -.051782 -.988830
29 30 30 -.028231


Y=VAR 7   I        B              SB             T       PAR R
          2   .65561156E+01   .21402083E+00     30.63     .9557
          3   .19750905E-01   .20895334E-02      9.45     .7077
          5   .29661773E+06   .34223222E+05      8.66     .6765
          0  -.89120149E+04
         MULTIPLE R= .9761, R SQUARE= .9529   ST ERROR OF EST= .56550164E+03
  SOURCE        DF          SS             MS             F
DUE TO REG      3   .57616911E+09   .19205637E+09     600.56
ABOUT  REG     89   .28461480E+08   .31979191E+06
    TOTAL      92   .60463059E+09


Y=VAR13   I        B              SB             T       PAR R
```

```
          8   .17890450E+01   .90248972E-01     19.82     .9029
          9  -.82803270E+00   .17445734E+00     -4.74    -.4494
         11  -.76879468E-01   .14806081E+00      -.51    -.0549
          0   .45099409E+01
        MULTIPLE R= .9952, R SQUARE= .9905   ST ERROR OF EST= .12856059E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      3   .15380638E+03   .51268793E+02   3101.96
ABOUT  REG     89   .14709800E+01   .16527865E-01
    TOTAL      92   .15527736E+03


Y=VAR13   I        B               SB             T       PAR R
          8   .18248466E+01   .57994302E-01     31.46     .9574
          9  -.74456571E+00   .67515520E-01    -11.02    -.7580
          0   .36541937E+01
        MULTIPLE R= .9952, R SQUARE= .9904   ST ERROR OF EST= .12803787E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .15380193E+03   .76900965E+02   4690.89
ABOUT  REG     90   .14754300E+01   .16393666E-01
    TOTAL      92   .15527736E+03


Y=VAR13   I        B               SB             T       PAR R
          8   .21875241E+01   .36860130E-01     59.34     .9874
         11   .57064032E+00   .64046298E-01      8.90     .6845
          0  -.47983193E+01
        MULTIPLE R= .9940, R SQUARE= .9881   ST ERROR OF EST= .14311262E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .15343406E+03   .76717030E+02   3745.74
ABOUT  REG     90   .18433000E+01   .20481111E-01
    TOTAL      92   .15527736E+03


Y=VAR13   I        B               SB             T       PAR R
          8   .24021335E+01   .38066588E-01     63.10     .9887
          0  -.88557950E+01
        MULTIPLE R= .9887, R SQUARE= .9776   ST ERROR OF EST= .19525150E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      1   .15180815E+03   .15180815E+03   3982.04
ABOUT  REG     91   .34692100E+01   .38123186E-01
    TOTAL      92   .15527736E+03


Y=VAR 6   I        B               SB             T       PAR R
          4   .12225058E+09   .32161432E+07     38.01     .9702
          5   .64889476E+17   .21949360E+17      2.95     .2975
          0  -.57632804E+16
        MULTIPLE R= .9711, R SQUARE= .9430   ST ERROR OF EST= .62251896E+15
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .57783619E+33   .28891809E+33    745.53
ABOUT  REG     90   .34877640E+32   .38752933E+30
    TOTAL      92   .61271383E+33


Y=VAR12   I        B               SB             T       PAR R




         10   .18710071E+01   .60105276E-01     31.12     .9565
         11   .94465077E-01   .45182929E-01      2.09     .2152
          0   .24360925E+01
        MULTIPLE R= .9580, R SQUARE= .9179   ST ERROR OF EST= .12890932E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .16721856E+02   .83609280E+01    503.13
ABOUT  REG     90   .14955850E+01   .16617611E-01
    TOTAL      92   .18217441E+02


Y=VAR12   I        B               SB             T       PAR R
         10   .18387476E+01   .59157266E-01     31.08     .9559
          0   .25874580E+01
        MULTIPLE R= .9559, R SQUARE= .9139   ST ERROR OF EST= .13127535E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      1   .16649218E+02   .16649218E+02    966.11
ABOUT  REG     91   .15682230E+01   .17233219E-01
    TOTAL      92   .18217441E+02
```

MULTIPLE LINEAR REGRESSION - R.C.HUNTSINGER , P.E.

NUMBER OF OBSERVATIONS = 93

MEAN	STD DEVIATION	VARIANCE	
8.2035567E+02	4.4066916E+02	1.9418931E+05	2
1.3498092E+05	6.4263138E+04	4.1297510E+09	3
8.9020616E+07	2.0846832E+07	4.3459043E+14	4
1.0113800E-02	3.0545849E-03	9.3304891E-06	5
5.7758230E+15	2.5806853E+15	6.6599369E+30	6
2.1322625E+03	2.5636069E+03	6.5720804E+06	7
6.5701124E+00	5.3476630E-01	2.8597500E-01	8
1.1707684E+01	4.5943016E-01	2.1107608E-01	9
1.8277784E+01	2.3254265E-01	5.4076086E-02	10
-4.6394627E+00	3.0777956E-01	9.4728260E-02	11
3.6195698E+01	4.4660555E-01	1.9945652E-01	12
6.9264970E+00	1.2991594E+00	1.6878152E+00	13
5.6344040E-02	9.9757804E-03	9.9516195E-05	14
4.2047489E+02	1.8150269E+02	3.2943228E+04	15
7.3353637E-01	1.1893416E-01	1.4145336E-02	16
7.5677837E+05	7.1170340E+03	5.0652173E+07	17
1.2437954E+02	4.0315439E+01	1.6253347E+03	18
6.1445269E+01	1.7555192E+00	3.0818478E+00	19

1.0094764E+01	3.0002735E+00	9.0016413E+00	20
7.5740651E+02	2.8608299E+01	8.1843478E+02	21
1.9779741E+02	1.3101070E+01	1.7163804E+02	22
-2.8558284E+00	1.7811116E-01	3.1723586E-02	23
5.9468313E+00	4.4485707E-01	1.9789782E-01	24
-3.2323558E-01	1.6578128E-01	2.7483434E-02	25
1.3536767E+01	1.5463842E-02	2.3913043E-04	26
4.7672575E+00	3.4628147E-01	1.1991086E-01	27
4.1177438E+00	2.8532970E-02	8.1413043E-04	28
2.2681277E+00	3.0135689E-01	9.0815978E-02	29
6.6291809E+00	3.8434020E-02	1.4771739E-03	30
9.6480450E-01	1.1273067E+00	1.2708204E+00	31

50203050107

1	9.3000000E+01
7	6.0463140E+08
2	8.0452876E+07
3	1.2224501E+12
5	9.9569560E-04
1	7.0288340E-01
7	2.8466499E+07

R**2= .9529192E+00 R= .9761758E+00

2	6.5559938E+00
3	1.9749593E-02
5	2.9660287E+05

```
      1   -8.9115847E+03

      7    5.3353992E+03

 8.9695518E+03 9.2300230E+05 9.4089506E-02
 8.5057848E+00 2.9140451E+04
 1.0290392E+02 1.1056445E+06 2.2863723E-02
 4.2530578E+00-9.2839986E+03
 8.3619180E-06 2.0679077E-08 3.1554647E-02
 1.3639154E+00-2.7954510E+03
 1.9102251E-04 2.9528453E-06 4.3223902E+01
 8.3838142E-01-7.4713249E+03
 6.5559938E+00 1.9749593E-02 2.9660287E+05
-8.9115847E+03 5.3353992E+03

SIGMA =  5.6875601E+02
```

```
50809110113

    1      9.3000000E+01
   13      1.5527900E+02
    8      4.0407828E+03
    9      1.7451900E+02
   11      2.2979590E+00
    1      4.1239930E-03
   13      1.4673693E+00
R**2=   .9905501E+00 R=   .9952638E+00

      8    1.7891364E+00

      9   -8.2878067E-01

     11   -7.8280060E-02

      1    4.5115959E+00

     13    1.2113501E+00
```

```
 6.3567147E+01 1.1221586E+02-4.4439828E+01
 9.6122051E+00 6.7573112E+01
 1.7653120E+00 1.3210563E+01-5.7713210E+00
 7.7006559E-01-7.0226605E+00
 7.2114280E-02-4.3687163E-01 1.5159020E+00
 9.1645106E-02 2.9485943E-01
 4.3948959E-02 8.4708158E-02 6.0466135E-02
 6.4218323E-02 2.9095384E-01
 1.7891364E+00-8.2878067E-01-7.8280060E-02
 4.5115959E+00 1.2113501E+00

SIGMA =  1.2913347E-01
```

```
401080913

   1      9.3000000E+01
  13      1.5527900E+02
   1      9.3000000E+01
   8      2.6309700E+01
   9      3.6132760E+00
  13      1.4718689E+00
R**2=   .9905211E+00 R=   .9952493E+00

       1    3.6327600E+00

       8    1.8259505E+00

       9   -7.4335478E-01

      13    1.2132060E+00

 9.6436503E+00 6.3359873E+01 1.1290483E+02
 6.6796722E+01
 6.5701124E+00 5.1292979E+00-3.9756903E+00
 1.2321120E+01
 1.6800016E+01-7.7507535E-01 1.9008618E+00
```

```
-1.4133831E+00
 3.6327600E+00 1.8259505E+00-7.4335478E-01
 1.2132060E+00

SIGMA =   1.2857909E-01
```

```
401081113

    1      9.3000000E+01
   13      1.5527900E+02
    1      9.3000000E+01
    8      2.6309700E+01
   11      4.9946482E+00
   13      1.8420050E+00
R**2=   .9881374E+00 R=   .9940510E+00

       1  -4.7975785E+00

       8   2.1874842E+00

      11   5.7074310E-01

      13   1.3572048E+00

 9.6436503E+00 6.3359873E+01-4.4741361E+01
 6.6796722E+01
 6.5701124E+00 5.1292979E+00 1.9288214E+00
 1.2321120E+01
-7.1100878E+00 3.7604001E-01 2.2348708E+00
 1.2755372E+00
-4.7975785E+00 2.1874842E+00 5.7074310E-01
 1.3572048E+00

SIGMA =   1.4386518E-01
```

3080113

```
   1      9.3000000E+01
  13      1.5527900E+02
   8      4.0407828E+03
   1      6.0553100E-01
  13      3.4709590E+00
R**2=   .9776470E+00 R=   .9887603E+00

       8    2.4020818E+00

       1   -8.8554508E+00

      13    1.8630509E+00

 6.3567147E+01 9.6122051E+00 6.7573112E+01
 1.5121338E-01 7.7815873E-01-6.8909462E+00
 2.4020818E+00-8.8554508E+00 1.8630509E+00

SIGMA =   1.9637379E-01
```

404050106

```
   1      9.3000000E+01
   6      6.1271410E+32
   4      7.7697663E+17
   5      1.6619020E-03
   1      2.3163355E+00
   6      3.4879610E+31
R**2=   .9430735E+00 R=   .9711197E+00

       4    1.2224969E+08
```

```
       5    6.4885110E+16

       1   -5.7631547E+15

       6    5.9058926E+15

 8.8146248E+08 9.3324074E-02 9.3922515E+00
 5.9684936E+16
 1.0587405E-10 4.0766435E-02 1.5714143E+00
-6.4111541E+15
 6.5741960E-09 3.8546761E+01 1.5219512E+00
-8.7712358E+15
 1.2224969E+08 6.4885110E+16-5.7631547E+15
 5.9058926E+15

SIGMA =  6.2602364E+14
```

```
410110112

    1      9.3000000E+01
   12      1.8350000E+01
   10      3.1074175E+04
   11      8.1751000E+00
    1      1.4822727E-02
   12      1.3884499E+00
R**2=   .9243352E+00 R=   .9614235E+00

      10    1.8751614E+00

      11    9.6875260E-02

       1    2.3713522E+00

      12    1.1783250E+00

 1.7627865E+02-4.4747401E+01 9.6428807E+00
 3.4908279E+02
```

```
-2.5384459E-01 2.8592129E+00 8.2610147E-03
 2.9658511E-01
 5.5436198E-02 2.8904845E-03 1.2174862E-01
 2.8952172E-01
 1.8751614E+00 9.6875260E-02 2.3713522E+00
 1.1783250E+00

SIGMA =  1.2498323E-01
```

```
423240127

   1      9.3000000E+01
  27      1.1031800E+01
  23      7.6140391E+02
  24      1.9140000E+01
   1      2.8866292E-01
  27      1.4540660E+00
R**2=   .8681932E+00 R=   .9317688E+00

      23    1.8261884E+00

      24    5.4836354E-01

       1    6.7215134E+00

      27    1.2058465E+00

 2.7593545E+01-5.7341033E+01-9.6251514E+00
-4.5748286E+01
-2.0780591E+00 4.3749281E+00 2.6042713E-01
 4.1495081E+00
-2.2512006E-01 5.9526123E-02 5.3727360E-01
 3.6113159E+00
 1.8261884E+00 5.4836354E-01 6.7215134E+00
 1.2058465E+00

SIGMA =  1.2782550E-01
```

52324280127

```
   1       9.3000000E+01
  27       1.1031800E+01
  23       7.6140391E+02
  24       1.9140000E+01
  28       5.0393743E+00
   1       4.0452300E-03
  27       1.3872023E+00
R**2=   .8742542E+00 R=   .9350156E+00

      23    1.8486885E+00

      24    5.6426480E-01

      28    9.7384030E-01

       1    2.6811825E+00

      27    1.1777955E+00

 2.7593545E+01-5.7341033E+01-3.9634689E+01
-9.6251514E+00-4.5748286E+01
-2.0780591E+00 4.3749281E+00 1.0090222E+00
 2.6042713E-01 4.1495081E+00
-9.5709690E-01 2.3063740E-01 2.2448550E+00
 5.3349695E-01 3.6165164E+00
 2.3360200E-03 4.7146610E-03 2.3765210E-01
 6.3602124E-02 1.7095498E-01
 1.8486885E+00 5.6426480E-01 9.7384030E-01
 2.6811825E+00 1.1777955E+00

SIGMA =  1.2555454E-01
```

```
60114152117 18

    1      9.3000000E+01
   18      1.4953080E+05
    1      9.3000000E+01
   14      9.1554800E-03
   15      2.6298729E+06
   21      7.4565267E+04
   17      8.2487813E+08
   18      2.7271278E+04
R**2=   .8176210E+00 R=   .9042240E+00

       1    2.9696096E+03

      14    2.4445736E+03

      15   -1.3406760E-02

      21    3.9627362E-02

      17   -3.9738769E-03

      18    1.6514014E+02

 9.6436503E+00 5.4336227E-01 4.0549132E+03
 7.3041642E+03 7.2981067E+06 1.1994729E+03
 5.6344040E-02 9.5684275E-02-6.3316987E+02
 1.0268144E+01 1.1600652E+02 2.4234149E+02
 7.9331933E+02-6.6172827E+03 1.6216882E+03
 2.4985986E+01-6.1735387E+04 2.2457703E+02
 7.3913710E+02 2.0926782E+02 1.5407390E-02
 2.7306640E+02 4.7802593E+03-8.1774077E+00
 7.7397138E+05-2.5436163E+05-3.8338307E+01
 1.7505847E+01 2.8720688E+04-1.1415029E+02
 2.9696096E+03 2.4445736E+03-1.3406760E-02
 3.9627362E-02-3.9738769E-03 1.6514014E+02

SIGMA =   1.7703921E+01
```

```
6011420192618

   1      9.3000000E+01
  18      1.4953080E+05
   1      9.3000000E+01
  14      9.1554800E-03
  20      5.0093997E+02
  19      2.8198016E+02
  26      1.8163948E-02
  18      5.2118784E+04
R**2=   .6514512E+00 R=  .8071252E+00

      1   8.9118722E+03

     14   3.6289671E+03

     20   5.7993797E+00

     19  -1.6076474E+00

     26  -6.6128966E+02

     18   2.2829530E+02

 9.6436503E+00 5.4336227E-01 9.7350386E+01
 5.9255675E+02 1.3054386E+02 1.1994729E+03
 5.6344040E-02 9.5684275E-02-1.8088980E+01
-4.4573677E-01 1.0346527E-03 2.4234149E+02
 2.0746521E+01-1.8904852E+02 2.2381687E+01
-1.1623752E+00-5.9927752E-02 1.7125108E+02
 6.2785237E+01-1.4476876E+01-5.1936211E-02
 1.6792263E+01 1.5650062E-02-3.7469268E+01
 1.3532420E+01-4.8080050E-01-2.6254323E-03
 9.4296708E-04 1.3477370E-01-8.9218653E+01
 8.9118722E+03 3.6289671E+03 5.7993797E+00
-1.6076474E+00-6.6128966E+02 2.2829530E+02
```

```
SIGMA =  2.4473724E+01
```

```
6011415312618

   1      9.3000000E+01
  18      1.4953080E+05
   1      9.3000000E+01
  14      9.1554800E-03
  15      2.6298729E+06
  31      1.1669315E+02
  26      1.5403630E-02
  18      3.8861518E+04
R**2=   .7401103E+00 R=   .8602966E+00

      1   3.9351764E+03

     14   3.3576885E+03

     15   1.2370835E-01

     31   8.1823690E-01

     26  -2.9939117E+02

     18   1.9713317E+02

 9.6436503E+00 5.4336227E-01 4.0549132E+03
 9.3042381E+00 1.3054386E+02 1.1994729E+03
 5.6344040E-02 9.5684275E-02-6.3316987E+02
-3.5260966E-01 1.0346527E-03 2.4234149E+02
 7.9331933E+02-6.6172827E+03 1.6216882E+03
-3.1305883E-01-8.0912526E-02 2.2457703E+02
 1.3255871E+00-4.9625830E+00-1.9304525E-04
 1.0802460E+01-7.1063056E-03 1.0963161E+01
 1.3576579E+01-3.2218113E-01-5.0005647E-05
-6.5682348E-04 1.2411136E-01-3.7264727E+01
 3.9351764E+03 3.3576885E+03 1.2370835E-01
```

```
 8.1823690E-01-2.9939117E+02 1.9713317E+02

SIGMA =  2.1133829E+01
```

```
60114153117 18

    1      9.3000000E+01
   18      1.4953080E+05
    1      9.3000000E+01
   14      9.1554800E-03
   15      2.6298729E+06
   31      1.1669315E+02
   17      8.1749949E+08
   18      2.7269762E+04
R**2=   .8176311E+00 R=   .9042295E+00

       1    3.0080619E+03

      14    2.4453493E+03

      15   -1.3370010E-02

      31   -1.0127438E+00

      17   -3.9838142E-03

      18    1.6513552E+02

 9.6436503E+00 5.4336227E-01 4.0549132E+03
 9.3042381E+00 7.2981067E+06 1.1994729E+03
 5.6344040E-02 9.5684275E-02-6.3316987E+02
-3.5260966E-01 1.1600652E+02 2.4234149E+02
 7.9331933E+02-6.6172827E+03 1.6216882E+03
-3.1305883E-01-6.1735387E+04 2.2457703E+02
 1.3255871E+00-4.9625830E+00-1.9304525E-04
 1.0802460E+01-5.4981852E+03 1.0963161E+01
 7.8758527E+05-2.5322400E+05-3.8166841E+01
```

```
-5.0896647E+02 2.8591935E+04-1.1392333E+02
 3.0080619E+03 2.4453493E+03-1.3370010E-02
-1.0127438E+00-3.9838142E-03 1.6513552E+02

SIGMA =  1.7703418E+01
```

```
6011415192618

   1      9.3000000E+01
  18      1.4953080E+05
   1      9.3000000E+01
  14      9.1554800E-03
  15      2.6298729E+06
  19      2.7002698E+02
  26      1.5448461E-02
  18      3.8939279E+04
R**2=   .7395903E+00 R=   .8599943E+00

      1   3.9910756E+03

     14   3.3525543E+03

     15   1.2337290E-01

     19   1.1853521E-02

     26  -3.0348427E+02

     18   1.9733030E+02

 9.6436503E+00 5.4336227E-01 4.0549132E+03
 5.9255675E+02 1.3054386E+02 1.1994729E+03
 5.6344040E-02 9.5684275E-02-6.3316987E+02
-4.4573677E-01 1.0346527E-03 2.4234149E+02
 7.9331933E+02-6.6172827E+03 1.6216882E+03
-3.6475119E+00-8.0912526E-02 2.2457703E+02
 6.3492080E+01-1.9542046E+01-2.2492064E-03
```

```
 1.6432496E+01 2.2718283E-03-5.5452196E-01
 1.3566202E+01-3.1599526E-01-4.9542042E-05
 1.4974581E-04 1.2429184E-01-3.7825479E+01
 3.9910756E+03 3.3525543E+03 1.2337290E-01
 1.1853521E-02-3.0348427E+02 1.9733030E+02

SIGMA =  2.1154948E+01
```

```
6011420212618

   1      9.3000000E+01
  18      1.4953080E+05
   1      9.3000000E+01
  14      9.1554800E-03
  20      5.0093997E+02
  21      7.5137613E+04
  26      1.8410249E-02
  18      5.2528455E+04
R**2=   .6487115E+00 R=   .8054262E+00

      1    9.0889549E+03

     14    3.6373416E+03

     20    5.8393486E+00

     21    6.4658968E-02

     26   -6.8535102E+02

     18    2.2919083E+02

 9.6436503E+00 5.4336227E-01 9.7350386E+01
 7.3041642E+03 1.3054386E+02 1.1994729E+03
 5.6344040E-02 9.5684275E-02-1.8088980E+01
 1.0268144E+01 1.0346527E-03 2.4234149E+02
 2.0746521E+01-1.8904852E+02 2.2381687E+01
```

```
-7.2076707E+00-5.9927752E-02 1.7125108E+02
 7.5804158E+02 4.6428940E+01-3.2205403E-01
 2.7411233E+02 1.1579561E-03 1.6827771E+01
 1.3588017E+01-4.9467268E-01-2.6728736E-03
 4.7595246E-06 1.3568438E-01-9.3154355E+01
 9.0889549E+03 3.6373416E+03 5.8393486E+00
 6.4658968E-02-6.8535102E+02 2.2919083E+02

SIGMA =  2.4569699E+01
```

TABLE XI. STAGE TWO CONDITIONS

D = DIAMETER OF CIRCLE
WITH AN EQUIVALENT AREA

RESULTS OF REGRESSION ANALYSIS

R.C.HUNTSINGER , PROGRAM BY G.INGRAM

MULTIPLE REGRESSION WITH 30 VARIABLES, N= 93

I	MEAN	ST. DEVIATION	VARIANCE	SUM OF SQUARES
1	.13729417E+06	.64063716E+05	.41041598E+10	.37758271E+12
2	.75268208E+03	.39104210E+03	.15291393E+06	.14068082E+08
3	.13654149E+06	.64365466E+05	.41429133E+10	.38114804E+12
4	.83528465E+08	.19459266E+08	.37866304E+15	.34837001E+17
5	.99918480E-02	.29948840E-02	.89693302E-05	.82517840E-03
6	.50874587E+16	.22351304E+16	.49958080E+31	.45961435E+33
7	.17439261E+04	.20373290E+04	.41507096E+07	.38186530E+09
8	.64932261E+01	.51656702E+00	.26684149E+00	.24549418E+02
9	.11720886E+02	.45601742E+00	.20795189E+00	.19131575E+02
10	.18214112E+02	.23200408E+00	.53825894E-01	.49519824E+01
11	-.46507322E+01	.30450014E+00	.92720340E-01	.85302715E+01
12	.36069922E+02	.44472990E+00	.19778469E+00	.18196192E+02
13	.67677063E+01	.12602458E+01	.15882195E+01	.14611620E+03
14	.58512925E-01	.10139154E-01	.10280245E-03	.94578260E-02
15	.41950151E+03	.18149333E+03	.32939829E+05	.30304644E+07
16	.78762048E+00	.11748243E+00	.13802123E-01	.12697954E+01
17	.76169303E+06	.63654808E+04	.40519347E+08	.37277800E+10
18	.12471577E+03	.40483699E+02	.16389299E+04	.15078156E+06
19	.61716399E+02	.17833162E+01	.31802167E+01	.29257995E+03
20	.10064659E+02	.29909200E+01	.89456025E+01	.82299545E+03
21	.75589648E+03	.29243443E+02	.85517900E+03	.78676470E+05
22	.19783612E+03	.13107018E+02	.17179393E+03	.15805042E+05
23	-.28538722E+01	.17796007E+00	.31669787E-01	.29136205E+01
24	.59445178E+01	.44434483E+00	.19744233E+00	.18164695E+02
25	-.24994430E+00	.15144867E+00	.22936702E-01	.21101767E+01
26	.13543264E+02	.83658574E-02	.69987571E-04	.64388567E-02
27	.47694089E+01	.34854757E+00	.12148541E+00	.11176658E+02
28	.41221402E+01	.28706128E-01	.82404183E-03	.75811850E-01
29	.22653784E+01	.30020447E+00	.90122727E-01	.82912911E+01
30	.66271537E+01	.39095887E-01	.15284884E-02	.14062094E+00

I	J	K	CORRELATIONS OF VARIABLE I WITH VARIABLES J THROUGH K							
1	2	9	-.770414	.999992	-.033761	-.820782	-.101287	-.672564	-.859188	.969129
1	10	17	-.008139	-.880905	-.068614	-.900908	.354921	-.887755	.489053	.684012
1	18	25	-.352147	.211003	-.798419	-.127343	-.684843	.357024	-.967990	.491147
1	26	30	.683634	-.337906	.212481	-.858002	-.126372			
2	3	10	-.772877	.526730	.560924	.565200	.951440	.967149	-.840957	.500452
2	11	18	.572453	.530537	.947969	.088180	.824051	-.747711	-.871271	.669327
2	19	26	-.423121	.497642	.319492	.869795	.084686	.819096	-.772008	-.871851
2	27	30	.636849	-.426267	.514992	.317564				
3	4	11	-.036803	-.820342	-.104246	-.675191	-.861036	.969695	-.011141	-.880253
3	12	19	-.071516	-.902443	.352722	-.888600	.491303	.686098	-.354563	.212585
3	20	27	-.797700	-.128687	-.686916	.354836	-.968428	.493534	.685726	-.340191
3	28	30	.214075	-.857108	-.127709					
4	5	12	-.331504	.968120	.406587	.489186	-.049453	.991991	-.314633	.951188
4	13	20	.380402	.833486	-.002840	-.645734	-.512572	.804959	-.491453	-.405913
4	21	28	.435624	.511324	.826224	.009211	-.656484	-.513046	.762964	-.493500
4	29	30	-.389979	.434207						
5	6	13	-.257577	.585802	.608506	-.869597	-.354379	.979027	-.279870	.687890
5	14	21	-.659410	.889410	-.278906	-.377535	-.020343	-.129585	.990615	.079935
5	22	29	.378468	-.667760	.876985	-.276709	-.377146	-.002878	-.129323	.971997
5	30	30	.080846							
6	7	14	.459292	.528478	-.116789	.947122	-.240920	.972315	.448771	.776091
6	15	22	.064394	-.638607	-.563911	.863557	-.453953	-.327103	.389767	.563033
6	23	30	.762676	.079744	-.656817	-.564234	.828196	-.456475	-.310647	.388201
7	8	15	.865332	-.786190	.381396	.569008	.429132	.862639	-.025972	.820977
7	16	23	-.680970	-.783659	.539466	-.391988	.522573	.297951	.781343	-.029661

```
 7 24 30  .766523 -.715742 -.784602  .514408 -.395459  .516746  .295936
 8  9 16 -.893533  .470253  .632976  .508492  .987750  .063092  .845440 -.746569
 8 17 24 -.878889  .673826 -.413629  .551229  .309236  .878837  .057310  .873582
 8 25 30 -.756166 -.878869  .655277 -.416021  .577469  .307704
 9 10 17 -.023931 -.888675 -.089480 -.936197  .360665 -.970979  .522401  .744113
 9 18 25 -.358675  .219523 -.843243 -.128149 -.744610  .366581 -.997968  .529900
 9 26 30  .743881 -.353219  .221277 -.864105 -.127133
10 11 18 -.337395  .956299  .359119  .849387 -.026108 -.635459 -.494288  .795308
10 19 26 -.489477 -.430107  .436642  .493194  .848140 -.016496 -.642086 -.494698
10 27 30  .764729 -.491355 -.412689  .435229
11 12 19 -.268854  .709037 -.654629  .867463 -.293606 -.386595  .008580 -.143302
11 20 27  .968714  .093199  .387189 -.655631  .895495 -.291357 -.386348  .013324
11 28 30 -.143197  .991322  .093839
12 13 20  .433837  .803899  .046452 -.609660 -.552840  .873241 -.424689 -.347984
12 21 28  .362361  .552509  .799367  .053838 -.621853 -.552934  .871043 -.426949
12 29 30 -.335108  .360887
13 14 21 -.042576  .894760 -.687718 -.868232  .632624 -.348454  .640013  .243800
13 22 29  .868565 -.049526  .921782 -.698804 -.868056  .626913 -.350838  .663430
13 30 30  .242361
14 15 22 -.382769 -.145378 -.195740  .693299 -.063652 -.678183  .044213  .195047
14 23 30  .996357 -.377993 -.148031 -.195989  .674124 -.064440 -.675121  .043486
15 16 23 -.459113 -.730376  .312433 -.152346  .870329  .061666  .730588 -.392189
15 24 30  .972784 -.470219 -.730270  .319964 -.154072  .851610  .060781
16 17 24  .571667 -.443185  .886983 -.159215 -.824446 -.571091 -.137459 -.467973
16 25 30  .996094  .571874 -.407175  .888255 -.174598 -.823709
17 18 25 -.730725  .132797 -.351679 -.011375 -.999954 -.186667 -.736060  .591213
17 26 30  .999991 -.712761  .135794 -.363021 -.009520
18 19 26 -.129883 -.047572  .042397  .730447  .684521  .345788 -.459253 -.730792
18 27 30  .980315 -.132352 -.016969  .040758
19 20 27  .001137 -.991882 -.131811 -.060247 -.158182  .872247  .133187 -.093790
19 28 30  .999948 -.012467 -.991885
20 21 28 -.048996  .352813 -.686472  .858884 -.157161 -.351210 -.025011  .001579
20 29 30  .979031 -.047936
21 22 29  .010305  .042337  .067228 -.807433 -.011804  .007993 -.991671 -.036017
21 30 30  .999930
22 23 30  .185799  .736637 -.590366 -.999908  .713232 -.134791  .363762  .008474
23 24 30 -.383681 -.140965 -.186994  .669960 -.061140 -.675625  .041478
24 25 30 -.476209 -.735796  .342869 -.159922  .879180  .066228
25 26 30  .591533 -.422161  .874168 -.174049 -.806206
26 27 30 -.712517  .136191 -.362715 -.009939
27 28 30 -.096196 -.007183  .006474
28 29 30 -.012318 -.991561
29 30 30 -.035326


Y=VAR 7   I        B              SB             T       PAR R
          2   .58898714E+01   .19319567E+00      30.48     .9553
          3   .15379511E-01   .16991405E-02       9.05     .6923
          5   .23828059E+06   .27990506E+05       8.51     .6699
          0  -.71700792E+04
         MULTIPLE R= .9760, R SQUARE= .9527   ST ERROR OF EST= .45038995E+03
  SOURCE        DF        SS             MS            F
DUE TO REG      3   .36381158E+09   .12127052E+09     597.83
ABOUT  REG     89   .18053720E+08   .20285078E+06
    TOTAL      92   .38186530E+09


Y=VAR13   I        B              SB             T       PAR R
```

```
          8   .17798198E+01    .92662519E-01      19.20      .8975
          9  -.84909949E+00    .17721993E+00      -4.79     -.4528
         11  -.10671058E+00    .15392645E+00       -.69     -.0732
          0   .46668500E+01
        MULTIPLE R= .9949, R SQUARE= .9899   ST ERROR OF EST= .12837721E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      3   .14464942E+03    .48216473E+02    2925.63
ABOUT  REG     89   .14667800E+01    .16480674E-01
    TOTAL      92   .14611620E+03


Y=VAR13   I        B                SB              T       PAR R
          8   .18300814E+01    .57539545E-01      31.80      .9582
          9  -.73490363E+00    .65179627E-01     -11.27     -.7651
          0   .34982956E+01
        MULTIPLE R= .9949, R SQUARE= .9899   ST ERROR OF EST= .12800624E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .14464150E+03    .72320750E+02    4413.68
ABOUT  REG     90   .14747000E+01    .16385555E-01
    TOTAL      92   .14611620E+03


Y=VAR13   I        B                SB              T       PAR R
          8   .21938165E+01    .37327822E-01      58.77      .9872
         11   .57878173E+00    .63324453E-01       9.13      .6938
          0  -.47854812E+01
        MULTIPLE R= .9936, R SQUARE= .9873   ST ERROR OF EST= .14318252E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .14427110E+03    .72135550E+02    3518.61
ABOUT  REG     90   .18451000E+01    .20501111E-01
    TOTAL      92   .14611620E+03


Y=VAR13   I        B                SB              T       PAR R
          8   .24097713E+01    .39906771E-01      60.38      .9877
          0  -.88794830E+01
        MULTIPLE R= .9877, R SQUARE= .9756   ST ERROR OF EST= .19772757E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      1   .14255846E+03    .14255846E+03    3646.36
ABOUT  REG     91   .35577400E+01    .39096043E-01
    TOTAL      92   .14611620E+03


Y=VAR 6   I        B                SB              T       PAR R
          4   .11391064E+09    .30968325E+07      36.78      .9683
          5   .53123409E+17    .20121688E+17       2.64      .2681
          0  -.49581232E+16
        MULTIPLE R= .9704, R SQUARE= .9417   ST ERROR OF EST= .54532943E+15
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .43284981E+33    .21642490E+33     727.76
ABOUT  REG     90   .26764540E+32    .29738377E+30
    TOTAL      92   .45961435E+33


Y=VAR12   I        B                SB              T       PAR R
         10   .18723995E+01    .61549388E-01      30.42      .9546
         11   .88665637E-01    .46895596E-01       1.89      .1954
          0   .23781881E+01
        MULTIPLE R= .9580, R SQUARE= .9177   ST ERROR OF EST= .12893492E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      2   .16700013E+02    .83500065E+01     502.27
ABOUT  REG     90   .14961790E+01    .16624211E-01
    TOTAL      92   .18196192E+02


Y=VAR12   I        B                SB              T       PAR R
         10   .18331362E+01    .58754264E-01      31.20      .9562
          0   .26809740E+01
        MULTIPLE R= .9562, R SQUARE= .9145   ST ERROR OF EST= .13074624E+00
  SOURCE       DF        SS                MS              F
DUE TO REG      1   .16640584E+02    .16640584E+02     973.44
ABOUT  REG     91   .15556080E+01    .17094593E-01
    TOTAL      92   .18196192E+02
```

MULTIPLE LINEAR REGRESSION - R.C.HUNTSINGER , P.E.

NUMBER OF OBSERVATIONS = 93

MEAN	STD DEVIATION	VARIANCE	
7.5268166E+02	3.9104264E+02	1.5291435E+05	2
1.3654137E+05	6.4365565E+04	4.1429260E+09	3
8.3528423E+07	1.9459344E+07	3.7866608E+14	4
9.9918433E-03	2.9948923E-03	8.9693804E-06	5
5.0874548E+15	2.2351320E+15	4.9958152E+30	6
1.7439238E+03	2.0373309E+03	4.1507176E+06	7
6.4932219E+00	5.1658051E-01	2.6685543E-01	8
1.1720877E+01	4.5610590E-01	2.0803260E-01	9
1.8214088E+01	2.3310288E-01	5.4336956E-02	10
-4.6507280E+00	3.0452207E-01	9.2733695E-02	11
3.6069882E+01	4.4684886E-01	1.9967391E-01	12
6.7677021E+00	1.2602522E+00	1.5882358E+00	13
5.6456048E-02	9.9858921E-03	9.9718043E-05	14
4.1950113E+02	1.8149358E+02	3.2939923E+04	15
7.8762012E-01	1.1748353E-01	1.3802380E-02	16
7.6169253E+05	6.3912303E+03	4.0847826E+07	17
1.2471568E+02	4.0483744E+01	1.6389336E+03	18
6.1716359E+01	1.7836211E+00	3.1813043E+00	19

1.0064656E+01	2.9909228E+00	8.9456195E+00	20
7.5589612E+02	2.9245958E+01	8.5532608E+02	21
1.9783612E+02	1.3105839E+01	1.7176304E+02	22
-2.8538678E+00	1.7801532E-01	3.1689456E-02	23
5.9445131E+00	4.4436690E-01	1.9746195E-01	24
-2.4994400E-01	1.5144909E-01	2.2936827E-02	25
1.3543249E+01	1.6151456E-02	2.6086956E-04	26
4.7694045E+00	3.4856226E-01	1.2149565E-01	27
4.1221366E+00	2.8854959E-02	8.3260869E-04	28
2.2653758E+00	3.0021930E-01	9.0131630E-02	29
6.6271494E+00	3.9342419E-02	1.5478260E-03	30
9.7829216E-01	1.1484048E+00	1.3188338E+00	31

50203050107

1	9.3000000E+01
7	3.8186603E+08
2	6.6755382E+07
3	1.2110414E+12
5	9.8872060E-04
1	6.5046150E-01
7	1.8058555E+07

R**2= .9527097E+00 R= .9760685E+00

2	5.8897167E+00
3	1.5377651E-02
5	2.3825404E+05

```
       1   -7.1694403E+03

       7    4.2495356E+03

 8.1703946E+03 9.5076713E+05 9.3001541E-02
 8.5674436E+00 2.3476114E+04
 1.1636728E+02 1.1004722E+06 2.1725937E-02
 4.1370504E+00-7.5613332E+03
 9.0853790E-06 1.9742339E-08 3.1443930E-02
 1.3540079E+00-2.2158225E+03
 2.1990676E-04 2.9092094E-06 4.3060982E+01
 8.0651193E-01-5.7822652E+03
 5.8897167E+00 1.5377651E-02 2.3825404E+05
-7.1694403E+03 4.2495356E+03

SIGMA =   4.5300222E+02
```

```
508091101 13

    1       9.3000000E+01
   13       1.4611770E+02
    8       3.9456102E+03
    9       1.6799600E+02
   11       2.2869320E+00
    1       4.0755940E-03
   13       1.4642224E+00
R**2=   .9899791E+00 R=   .9949769E+00

       8    1.7808066E+00

       9   -8.4794458E-01

      11   -1.0652946E-01

       1    4.6477453E+00

      13    1.2100505E+00
```

```
 6.2814089E+01 1.1237165E+02-4.4564438E+01
 9.6136018E+00 6.6003824E+01
 1.7889559E+00 1.2961325E+01-5.6371860E+00
 7.5189072E-01-6.8953675E+00
 6.8591170E-02-4.3492226E-01 1.5122605E+00
 9.6236594E-02 2.8635939E-01
 4.4905867E-02 8.5686108E-02 6.3633899E-02
 6.3840384E-02 2.9643369E-01
 1.7808066E+00-8.4794458E-01-1.0652946E-01
 4.6477453E+00 1.2100505E+00

SIGMA =   1.2899788E-01
```

```
401080913

   1      9.3000000E+01
  13      1.4611770E+02
   1      9.3000000E+01
   8      2.4550700E+01
   9      3.8741350E+00
  13      1.4717803E+00
R**2=   .9899274E+00 R=   .9949509E+00

       1    3.4784720E+00

       8    1.8311155E+00

       9   -7.3378547E-01

      13    1.2131695E+00

 9.6436503E+00 6.2618367E+01 1.1303205E+02
 6.5265359E+01
 6.4932219E+00 4.9548658E+00-3.9070482E+00
 1.1939839E+01
 1.6840907E+01-7.8851926E-01 1.9682822E+00
```

```
-1.4444397E+00
 3.4784720E+00 1.8311155E+00-7.3378547E-01
 1.2131695E+00

SIGMA =  1.2858346E-01
```

```
401081113

   1      9.3000000E+01
  13      1.4611770E+02
   1      9.3000000E+01
   8      2.4550700E+01
  11      5.1146495E+00
  13      1.8435368E+00
R**2=   .9873832E+00 R=   .9936716E+00

       1  -4.7840003E+00

       8   2.1937285E+00

      11   5.7897652E-01

      13   1.3577690E+00

 9.6436503E+00 6.2618367E+01-4.4849999E+01
 6.5265359E+01
 6.4932219E+00 4.9548658E+00 1.8484456E+00
 1.1939839E+01
-7.0730670E+00 3.7305657E-01 2.2615589E+00
 1.3093455E+00
-4.7840003E+00 2.1937285E+00 5.7897652E-01
 1.3577690E+00

SIGMA =  1.4391632E-01
```

3080113

```
   1      9.3000000E+01
  13      1.4611770E+02
   8      3.9456102E+03
   1      5.7867600E-01
  13      3.5590480E+00
R**2=   .9756426E+00 R=   .9877462E+00

       8    2.4097019E+00

       1   -8.8790272E+00

      13    1.8865438E+00

 6.2814089E+01 9.6136018E+00 6.6003824E+01
 1.5304847E-01 7.6070756E-01-6.7543432E+00
 2.4097019E+00-8.8790272E+00 1.8865438E+00

SIGMA =   1.9885393E-01
```

404050106

```
   1      9.3000000E+01
   6      4.5961490E+32
   4      6.8369804E+17
   5      1.6972210E-03
   1      2.0507768E+00
   6      2.6766180E+31
R**2=   .9417638E+00 R=   .9704452E+00

       4    1.1390982E+08
```

```
       5    5.3119730E+16

       1   -4.9580168E+15

       6    5.1735991E+15

 8.2686003E+08 9.1721334E-02 9.3947501E+00
 5.2480436E+16
 1.1092719E-10 4.1197343E-02 1.6395018E+00
-5.9402860E+15
 6.9474570E-09 3.9796314E+01 1.4320533E+00
-7.1001246E+15
 1.1390982E+08 5.3119730E+16-4.9580168E+15
 5.1735991E+15

SIGMA =   5.4840227E+14
```

```
410110112

    1       9.3000000E+01
   12       1.8370000E+01
   10       3.0858028E+04
   11       7.7308000E+00
    1       1.4728290E-02
   12       1.4335380E+00
R**2=   .9219630E+00 R=   .9601890E+00

      10    1.8766747E+00

      11    9.1323880E-02

       1    2.3126887E+00

      12    1.1973044E+00

 1.7566451E+02-4.4858927E+01 9.6428709E+00
 3.4786949E+02
```

```
-2.5536698E-01  2.7804314E+00  1.8349670E-02
 2.9671654E-01
 5.6578976E-02  6.5995757E-03  1.2136017E-01
 2.7978990E-01
 1.8766747E+00  9.1323880E-02  2.3126887E+00
 1.1973044E+00

SIGMA =   1.2725838E-01
```

```
423240127

    1      9.3000000E+01
   27      1.1177500E+01
   23      7.6035966E+02
   24      1.9168000E+01
    1      2.8819545E-01
   27      1.4535390E+00
R**2=   .8699584E+00  R=   .9327156E+00

      23    1.8391580E+00

      24    5.5173225E-01

       1    6.7383392E+00

      27    1.2056280E+00

 2.7574617E+01-5.7318079E+01-9.6251458E+00
-4.5767638E+01
-2.0786532E+00  4.3781273E+00  2.6152277E-01
 4.1777451E+00
-2.2489307E-01  5.9733409E-02  5.3683840E-01
 3.6174092E+00
 1.8391580E+00  5.5173225E-01  6.7383392E+00
 1.2056280E+00

SIGMA =   1.2779947E-01
```

52324280127

```
   1      9.3000000E+01
  27      1.1177500E+01
  23      7.6035966E+02
  24      1.9168000E+01
  28      5.0057442E+00
   1      4.2132200E-03
  27      1.3837751E+00
R**2=   .8761999E+00 R=   .9360555E+00

      23    1.8623471E+00

      24    5.6531658E-01

      28    9.7626210E-01

       1    2.6994792E+00

      27    1.1763396E+00

 2.7574617E+01-5.7318079E+01-3.9677269E+01
-9.6251458E+00-4.5767638E+01
-2.0786532E+00 4.3781273E+00 1.0210073E+00
 2.6152277E-01 4.1777451E+00
-9.5415010E-01 2.3320638E-01 2.2373519E+00
 5.3289936E-01 3.6228064E+00
 2.3697400E-03 4.1874980E-03 2.3818350E-01
 6.4909323E-02 1.7516127E-01
 1.8623471E+00 5.6531658E-01 9.7626210E-01
 2.6994792E+00 1.1763396E+00

SIGMA =   1.2539877E-01
```

```
6011415211718

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  15      2.6295433E+06
  21      7.8066033E+04
  17      1.0357304E+09
  18      2.8080587E+04
R**2=   .8137670E+00 R=   .9020903E+00

       1    2.5964871E+03

      14    2.4252870E+03

      15    2.9794660E-02

      21    8.5194110E-03

      17   -3.4497282E-03

      18    1.6757256E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 7.2895986E+03 7.3454971E+06 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
 1.0516670E+01-8.7741587E+03 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
 2.2679676E+01-5.1287261E+04 2.2543668E+02
 7.3861026E+02 2.0225797E+02 1.3986100E-02
 2.7940294E+02 3.8562686E+03-1.0924641E+01
 7.8174226E+05-3.0348507E+05-3.1821232E+01
 1.3801989E+01 3.2182753E+04-1.1103363E+02
 2.5964871E+03 2.4252870E+03 2.9794660E-02
 8.5194110E-03-3.4497282E-03 1.6757256E+02

SIGMA =   1.7964700E+01
```

```
6011420192618

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  20      4.9911929E+02
  19      2.9165296E+02
  26      2.1702056E-02
  18      5.3925973E+04
R**2=   .6423580E+00 R=   .8014724E+00

      1    7.3676412E+03

     14    3.7110887E+03

     20    6.5933865E+00

     19   -1.4686059E+00

     26   -5.4847715E+02

     18    2.3221960E+02

 9.6436503E+00 5.4444244E-01 9.7060039E+01
 5.9517104E+02 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-1.7996651E+01
-7.9775520E-01-1.0638824E-02 2.4378902E+02
 2.0672340E+01-1.8789280E+02 2.2340976E+01
-6.1684359E-01-4.4557711E-02 1.7266236E+02
 6.2757557E+01-1.3518619E+01-2.7620495E-02
 1.7077849E+01 1.3995770E-02-3.2854342E+01
 1.3538683E+01-4.7461357E-01-1.9727693E-03
 8.2984623E-04 1.4731618E-01-8.0830136E+01
 7.3676412E+03 3.7110887E+03 6.5933865E+00
-1.4686059E+00-5.4847715E+02 2.3221960E+02
```

```
SIGMA =   2.4894838E+01
```

```
6011415312618

    1      9.3000000E+01
   18      1.5078200E+05
    1      9.3000000E+01
   14      9.1740500E-03
   15      2.6295433E+06
   31      1.2113125E+02
   26      1.9409027E-02
   18      3.9069023E+04
R**2=   .7408906E+00 R=   .8607500E+00

       1    3.3314674E+03

      14    3.3717181E+03

      15    1.2878773E-01

      31    1.1209750E+00

      26   -2.5490406E+02

      18    1.9765883E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 9.4343083E+00 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
-2.8321927E-01-1.0638824E-02 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
-3.4821495E-01-6.6648571E-02 2.2543668E+02
 1.3154557E+00-4.3765204E+00-2.1473721E-04
 1.1005963E+01-6.0441000E-03 1.3877763E+01
 1.3582806E+01-3.8493487E-01-4.1213707E-05
-5.4909347E-04 1.3931628E-01-3.5634116E+01
 3.3314674E+03 3.3717181E+03 1.2878773E-01
```

```
 1.1209750E+00-2.5490406E+02 1.9765883E+02

SIGMA =  2.1190327E+01
```

```
6011415311718

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  15      2.6295433E+06
  31      1.2113125E+02
  17      1.0282303E+09
  18      2.8080295E+04
R**2=   .8137689E+00 R=   .9020914E+00

      1    2.6048864E+03

     14    2.4253473E+03

     15    2.9793580E-02

     31   -2.2256530E-01

     17   -3.4520189E-03

     18    1.6757172E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 9.4343083E+00 7.3454971E+06 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
-2.8321927E-01-8.7741587E+03 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
-3.4821495E-01-5.1287261E+04 2.2543668E+02
 1.3154557E+00-4.3765204E+00-2.1473721E-04
 1.1005963E+01-4.7297992E+03 1.3877763E+01
 7.9250186E+05-3.0257432E+05-3.1720480E+01
```

```
-4.2975039E+02 3.2066014E+04-1.1070467E+02
 2.6048864E+03 2.4253473E+03 2.9793580E-02
-2.2256530E-01-3.4520189E-03 1.6757172E+02

SIGMA =   1.7964604E+01
```

```
6011415192618

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  15      2.6295433E+06
  19      2.8237167E+02
  26      1.9432442E-02
  18      3.9212401E+04
R**2=   .7399397E+00 R=   .8601975E+00

       1   3.3811372E+03

      14   3.3688103E+03

      15   1.2870242E-01

      19   1.7471024E-01

      26  -2.5927195E+02

      18   1.9802118E+02

 9.6436503E+00 5.4444244E-01 4.0455226E+03
 5.9517104E+02 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-6.3319065E+02
-7.9775520E-01-1.0638824E-02 2.4378902E+02
 7.9272009E+02-6.6107880E+03 1.6215860E+03
-3.1083336E+00-6.6648571E-02 2.2543668E+02
 6.3706129E+01-2.1001044E+01-1.9168846E-03
```

```
 1.6803916E+01 3.5314905E-03 1.9709578E+00
 1.3568009E+01-3.7789166E-01-4.0672269E-05
 2.2094635E-04 1.3940030E-01-3.6266763E+01
 3.3811372E+03 3.3688103E+03 1.2870242E-01
 1.7471024E-01-2.5927195E+02 1.9802118E+02

SIGMA =  2.1229160E+01
```

```
6011420212618

   1      9.3000000E+01
  18      1.5078200E+05
   1      9.3000000E+01
  14      9.1740500E-03
  20      4.9911929E+02
  21      7.8496325E+04
  26      2.1898535E-02
  18      5.4361810E+04
R**2=   .6394675E+00 R=   .7996671E+00

      1   7.4673774E+03

     14   3.7211382E+03

     20   6.6205040E+00

     21   4.9251628E-02

     26  -5.6534475E+02

     18   2.3315617E+02

 9.6436503E+00 5.4444244E-01 9.7060039E+01
 7.2895986E+03 1.3060637E+02 1.2027145E+03
 5.6456048E-02 9.5781262E-02-1.7996651E+01
 1.0516670E+01-1.0638824E-02 2.4378902E+02
 2.0672340E+01-1.8789280E+02 2.2340976E+01
```

```
-9.1681576E+00-4.4557711E-02 1.7266236E+02
 7.5818276E+02 3.2673860E+01-4.1047331E-01
 2.8017194E+02 1.3323036E-03 1.3005691E+01
 1.3586968E+01-4.8599548E-01-1.9936355E-03
 5.0052919E-06 1.4798154E-01-8.3736363E+01
 7.4673774E+03 3.7211382E+03 6.6205040E+00
 4.9251628E-02-5.6534475E+02 2.3315617E+02

SIGMA =  2.4995226E+01
```

LITERATURE CONSULTED

1. Alder, H. L., and E. B. Roessler, "Introduction to Probability and Statistics," second edition, W. H. Freeman and Co., San Francisco, (1962).

2. Anderson, L. B., "Multiple Regression Techniques Correlate Experimental Data," Chemical Engineering, 70, no. 12, p. 223, (1963).

3. Bailey, J. F., "Mestastable Flow of Saturated Water", Trans. A.S.M.E., 73, p. 1109-16, (1951).

4. Benjamin, M. W., and J. G. Miller, "The Flow of Saturated Water Through Throttling Orifices", Trans. A.S.M.E., 63, p. 419-426, (1941).

5. Borko, H., editor, "Computer Applications in the Behavioral Sciences", Prentice-Hall, Inc., Englewood Cliffs, N. J., (1962).

6. Burnell, J. G., "Flow of Boiling Water Through Nozzles, Orifices and Pipes", Engineering, 164, p. 572-576, (1947).

7. Downie, N. M., and R. W. Heath, "Basic Statistical Methods", Harper and Row Inc., New York, (1959).

8. Edwards, A. L., "Experimental Design in Psychological Research", Holt, Rinehart and Winston, New York, (1964).

9. Fruchter, B., "Introduction to Factor Analysis", Van Nostrand & Co., Princeton, N. J., (1954).

10. Geiger, G. E., and W. M. Rohrer, "Sudden Contraction Losses in Two-Phase Flow", Trans. A.S.M.E., Series C, 88, p. 1-9, (1966).

11. Geiger, G. E., "Sudden Contraction Losses in Single- and Two-Phase Flow", Ph.D. Thesis, University of Pittsburgh (1964).

12. Hoopes, J. W., Jr., "Flow of Steam-Water Mixtures in a Heated Annulus and Through Orifices", A.I.Ch.E. J., 3, p. 268-275, (1957).

13. Isbin, H. S., J. E. Moy, & A. J. R. DaCruz, "Two-Phase, Steam-Water Critical Flow", A.I.Ch.E. J., 3, p. 361-5.

14. Ingram, G., "One Pass Multiple Linear Regression Program", Montana State University Computer Center, Bozeman, Mont., (1964).

15. Langhaar, H. L., "Dimensional Analysis and Theory of Models", John Wiley & Sons, Inc., New York (1951).

16. Li, J. C. R., "The Multiple Regression and Its Ramifications, Statistical Inference, II", Edwards Brothers, Inc., Ann Arbor, Mich., (1964).

17. Martinelli, R. O., and R. W. Lockhard, Chemical Engineering Progress, 45, no. 1, p. 39, (1949).

18. McCracken, D. D., "A Guide to Fortran IV Programming", John Wiley & Sons, New York, (1965).

19. Min, T. C., H. D. Fauske, and M. Petrick, "Effect of Flow Passages on Two-Phase Critical Flow", I. & E.C. Fundamentals, 5, no. 1, p. 50, (1966).

20. Monroe, E. S., Jr., "Flow of Saturated Boiler Water Through Knife-Edge Orifices in Series", Trans. A.S.M.E., 78, p. 373-377, (1956).

21. Murdock, J. W., "Two-Phase Flow Measurement With Orifices", Trans. A.S.M.E., Series D, Journal of Basic Engineering, 84, p. 419-433, (1962).

22. Office of Saline Water, U. S. Department of Interior, "Saline Water Conversion Engineering Data Book", U. S. Government Printing Office, Washington, D. C., (1964).

23. Pasqua, P. R., "Metastable Flow of Freon-12", Refrigerating Engineering, 61, p. 1084A, (1953).

24. Snedecor, G. W., and W. C. Cochran, "Statistical Methods", fifth edition, Iowa State College Press, Ames, Iowa, (1956).

25. Tong, L. S., "Boiling Heat Transfer and Two-Phase Flow", John Wileu & Sons, Inc., New York, (1965).

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