

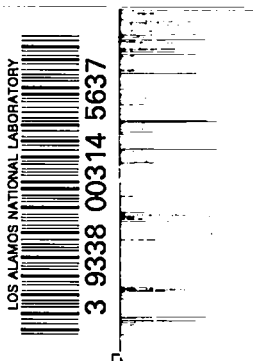
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XEKE - A Two-Group, Two-Dimensional,
Multiregional Computer Code for
Examining Flux Stability in
Nuclear Reactors with ¹³⁵Xenon



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XEKE - A Two-Group, Two-Dimensional,
Multiregional Computer Code for
Examining Flux Stability in
Nuclear Reactors with $^{135}\text{Xenon}$

by

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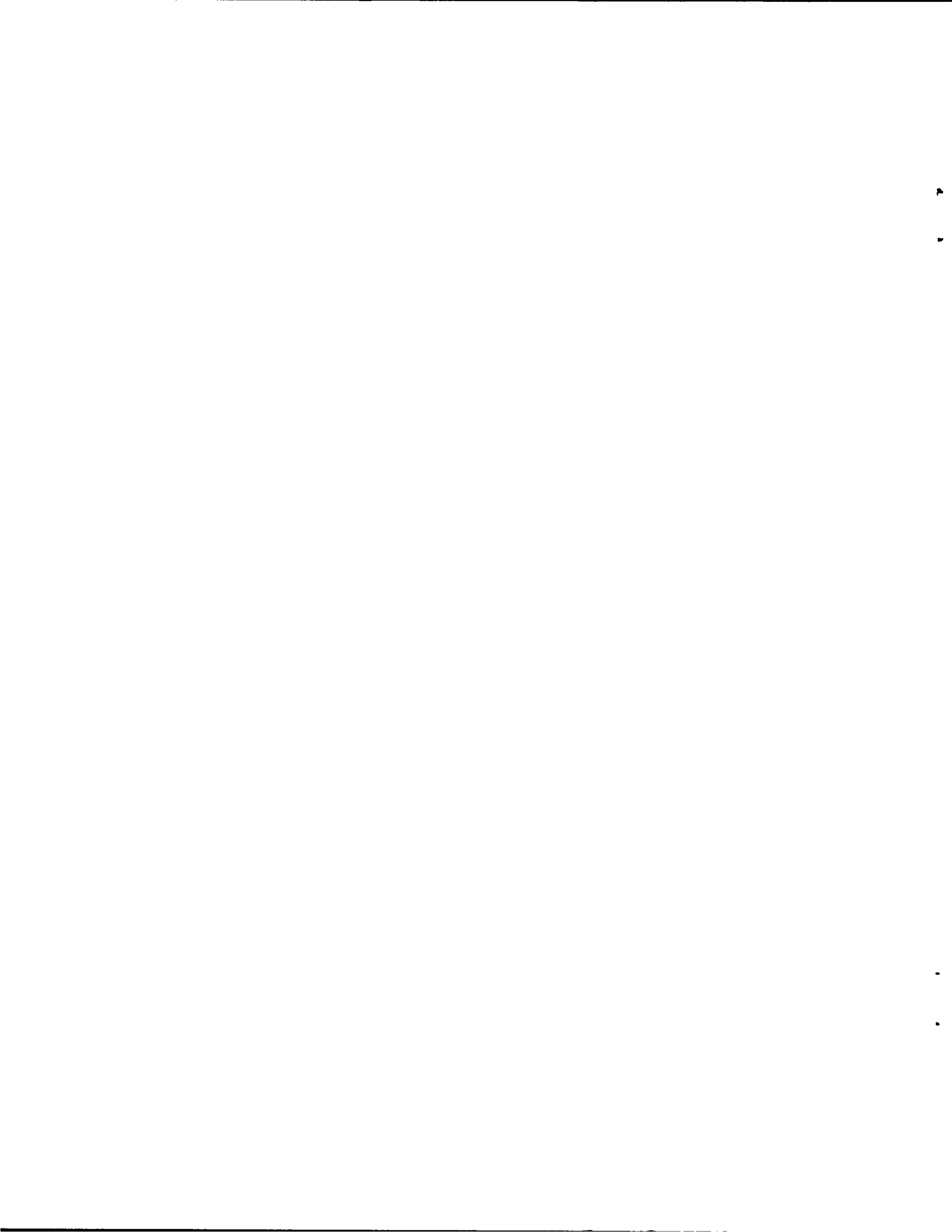


ABSTRACT

XEKE is a FORTRAN IV coded digital computer program for examining the stability of the time behavior of the neutron flux spacial distribution in a reactor core under the influence of ^{135}Xe . The program employs two-energy-group diffusion type nonlinear kinetic equations to describe the neutron flux and simulates the two-dimensional radial-axial time behavior in multiregion reactor cores with cylindrical geometry and any two-dimensional time behavior in multiregion cores with rectangular geometry.

ACKNOWLEDGMENTS

In attempting to acknowledge those concerned, I am aware of the many individuals who have contributed directly and indirectly to this report. Suffice it to say, I am grateful to all. In particular, I wish to express appreciation to the Associated Rocky Mountain Universities (ARMU) for financial support and to N. C. Kaufman, who conceived and produced the technique of employing cadmium ratio measurements to experimentally corroborate the results of program XEKE.

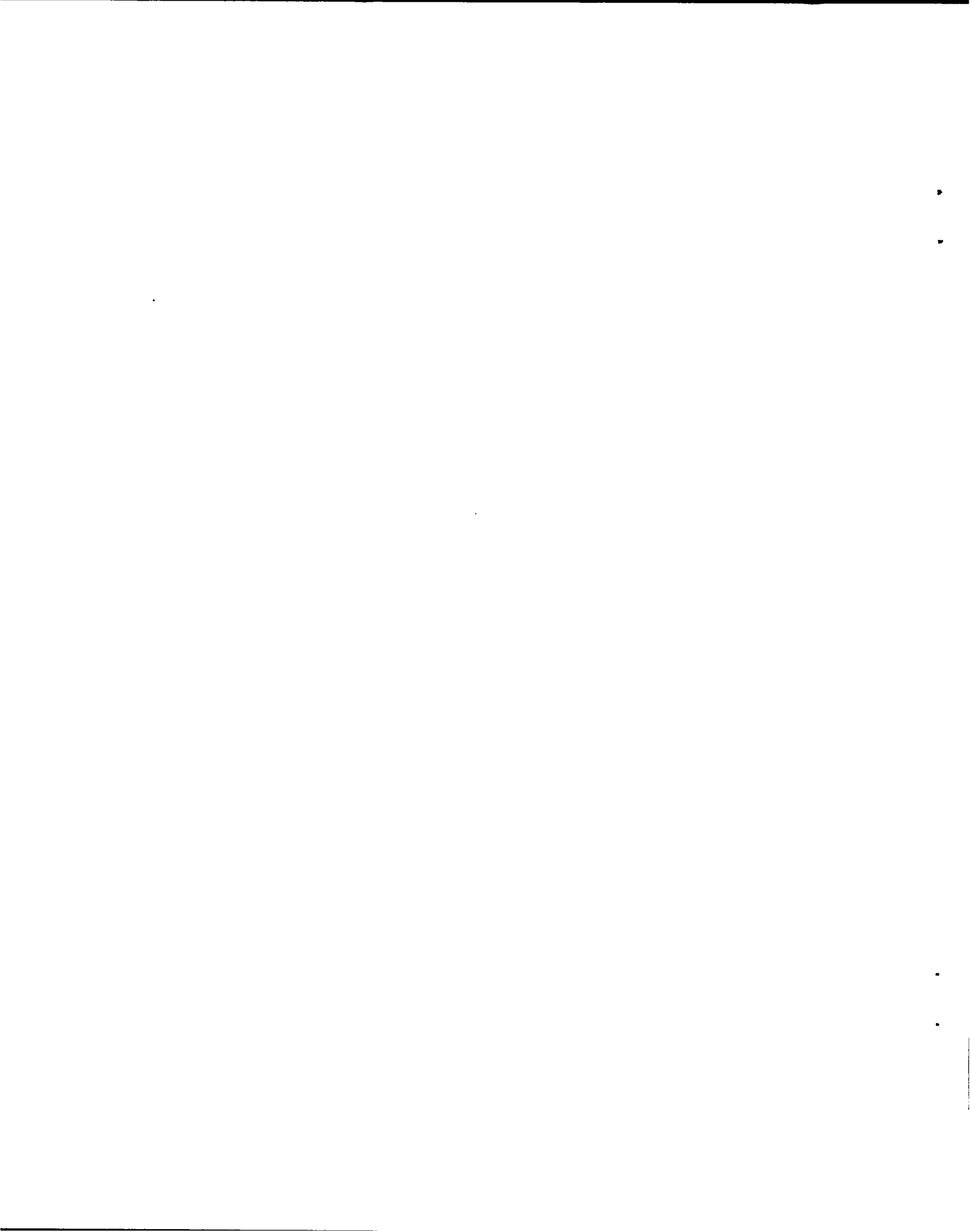


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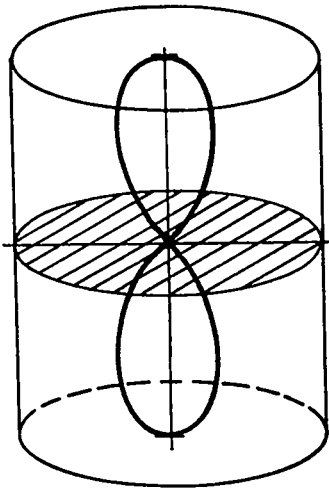
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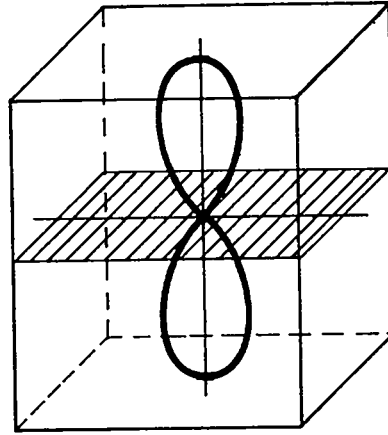
I. INTRODUCTION

This report is a revision of the author's report entitled *XKINEQ - A Two Group, Two Dimensional, Multiregion Computer Code for Examining Flux Stability in Nuclear Reactors in the Presence of Xenon-135*, IDO-17127, dated January 1966. The author, while imposing program XKINEQ to examine various reactor systems, found it possible to significantly improve the original program. By direct solution, the xenon and iodine equations were analytically integrated in time and solved at each mesh point, which permitted the elimination of two subroutines contained in program XKINEQ which were employed to integrate in time the xenon and iodine equations. This action improved the accuracy of the simulation, permitted larger time steps, and greatly reduced the computer time required for simulation. (Actual running time is decreased to about one tenth.) Other improvements were an increase in the number of mesh points which could be examined within the same memory storage requirements.

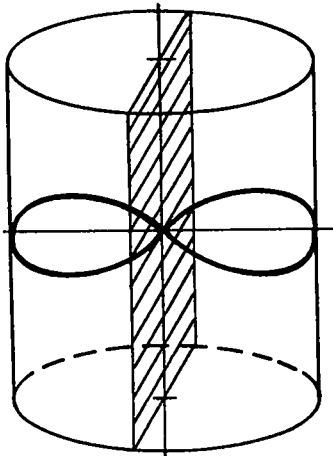
Thus the FORTRAN IV coded, digital computer program bearing the name XEKE (pronounced Zeek and denoting an abbreviation for xenon kinetic equations) is an extensively revised and optimized version of the original program XKINEQ. Program XEKE permits a two-dimensional, two-group, multi-regional investigation of the stability of the neutron flux distribution in time. Specifically as XEKE is coded in this report it may be employed directly to examine the stability of the neutron flux against first harmonic axial oscillatory instabilities in cores with cylindrical geometry or first harmonic oscillatory instabilities in rectangular cores. In Fig. 1, schematics (A) and (B) typify an instability that may be examined by program XEKE. With slight modifications of the boundary conditions



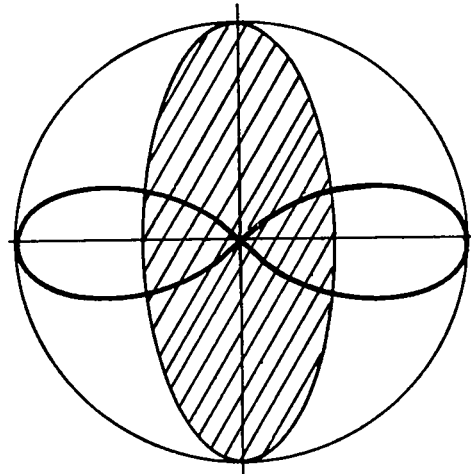
(A)



(B)



(C)



(D)

Note: Figure eight lines typify extreme values for the oscillation of the normalized flux. Shaded plane areas represent nodal surfaces for the oscillating flux.

Fig. 1 Some Simple First Harmonic Flux Oscillations Capable of Simulation by Program XEKE.

and spacial differencing operators, program XEKE may be employed to investigate first harmonic radial oscillatory instabilities in cylindrical or spherical cores. Schematics (C) and (D) typify radial oscillatory instability modes. For background information on the effects induced in nuclear reactors by ^{135}Xe , see the author's report entitled, *Xenon-135 Induced Instabilities of the Neutron Flux in Nuclear Reactors*, IDO-16985, dated October 1964. Also see the list of references in IDO-16985 for other literature related to xenon induced instabilities.

II. XENON KINETIC EQUATIONS

To simulate the behavior of a reactor core under the influence of ^{135}Xe , we will assume that the neutron flux is adequately described by diffusion theory using two discrete energy groups. The time and space behavior of the neutron flux, ^{135}Xe , and ^{135}I is then assumed to be governed by the following system of equations:

$$\frac{1}{v_1} \frac{\partial \phi_1}{\partial t} = D_1 \nabla^2 \phi_1 - \Sigma_{a1} \phi_1 - \sigma_x X \phi_1 + \Sigma_s \phi_2 + S_1 \phi_1 \quad (1.1)$$

$$\frac{1}{v_2} \frac{\partial \phi_2}{\partial t} = D_2 \nabla^2 \phi_2 - \Sigma_{a2} \phi_2 - \eta \sigma_x X \phi_2 + \nu \Sigma_f \phi_1 + S_2 \phi_2 \quad (1.2)$$

$$\frac{\partial X}{\partial t} = \bar{\gamma}_x \Sigma_f (\phi_1 + \epsilon_x \phi_2) + \lambda_i I - \sigma_x X (\phi_1 + \eta \phi_2) - \lambda_x X \quad (1.3)$$

$$\frac{\partial I}{\partial t} = \bar{\gamma}_i \Sigma_f (\phi_1 + \epsilon_i \phi_2) - \lambda_i I \quad (1.4)$$

where

$\phi_1(\bar{r}, t)$ = thermal neutron flux [neutron/(cm²)(sec)]

$\phi_2(\bar{r}, t)$ = fast neutron flux [neutron/(cm²)(sec)]

$X(\bar{r}, t)$ = ^{135}Xe concentration ($^{135}\text{Xe}/\text{cm}^3$)

$I(\bar{r}, t)$ = ^{135}I concentration ($^{135}\text{I}/\text{cm}^3$)

r = generalized independent space variable (cm)

t = independent time variable (sec).

- ∇^2 = Laplacian operator ($1/\text{cm}^2$)
 D_1, D_2 = thermal and fast diffusion coefficients (cm)
 Σ_{a1}, Σ_{a2} = effective thermal and fast macroscopic removal cross sections [excluding xenon, but incorporating any thermal or fast neutron yields from fission, respectively, as appropriate ($1/\text{cm}$)]
 ν = average fast neutron yield per thermal induced fission
 Σ_f = macroscopic thermal fission cross section ($1/\text{cm}$)
 Σ_s = effective macroscopic slowing down cross section ($1/\text{cm}$)
 σ_x = microscopic thermal absorption cross section for xenon (cm^2)
 v_1, v_2 = average thermal and fast neutron velocities (cm/sec)
 η = fraction of fast to thermal neutrons absorbed by xenon
 ϵ_i = fraction of iodine production from fast fission
 ϵ_x = fraction of xenon production from fast fission
 λ_x, λ_i = xenon and iodine decay constants (1/sec)
 $\bar{\gamma}_x, \bar{\gamma}_i$ = prompt xenon and iodine yields from thermal fission
 S_1, S_2 = any time constant source (or sink) of thermal and fast flux [neutron/ $(\text{cm}^3)(\text{sec})$].

Now at equilibrium, Eqs. (1) assume the following form

$$D_1 \nabla^2 \phi_{10} - \Sigma_{a1} \phi_{10} - \sigma_x X_o \phi_{10} + \Sigma_s \phi_{20} + S_1 \phi_{10} = 0 \quad (2.1)$$

$$D_2 \nabla^2 \phi_{20} - \Sigma_{a2} \phi_{20} - \eta \sigma_x X_o \phi_{20} + \nu \Sigma_f \phi_{10} + S_2 \phi_{20} = 0 \quad (2.2)$$

$$X_o = \frac{\bar{\gamma}_x \Sigma_f [\phi_{10} + (\gamma_x \epsilon_x + \gamma_i \epsilon_i) \phi_{20}]}{\sigma_x (\phi_{10} + \eta \phi_{20}) + \lambda_x} \quad (2.3)$$

$$I_o = \frac{\bar{\gamma}_i \Sigma_f (\phi_{10} + \epsilon_i \phi_{20})}{\lambda_i} \quad (2.4)$$

and the thermal and fast stationary fluxes are the spacial solution of the following equations:

$$D_1 \nabla^2 \lambda_{10} - \Sigma_{a1} \lambda_{10} - \bar{\gamma} \Sigma_f \left[\frac{\lambda_{10} + (\gamma_x \epsilon_x + \gamma_i \epsilon_i) \lambda_{20}}{\lambda_{10} + \eta \lambda_{20} + \lambda_x} \right] \lambda_{10} + \Sigma_s \lambda_{20} + S_1 \lambda_{10} = 0 \quad (3.1)$$

$$D_2 \nabla^2 \lambda_{20} - \Sigma_{a2} \lambda_{20} - \eta \bar{\gamma} \Sigma_f \left[\frac{\lambda_{10} + (\gamma_x \epsilon_x + \gamma_i \epsilon_i) \lambda_{20}}{\lambda_{10} + \eta \lambda_{20} + \lambda_x} \right] \lambda_{20} + \nu \Sigma_f \lambda_{10} + S_2 \lambda_{20} = 0, \quad (3.2)$$

where

$$\bar{\gamma} = \bar{\gamma}_x + \bar{\gamma}_i$$

$$\gamma_x = \bar{\gamma}_x / \bar{\gamma}$$

$$\gamma_i = \bar{\gamma}_i / \bar{\gamma}$$

$$\lambda_{10}(\bar{r}) = \sigma_x \phi_{10}(\bar{r})$$

$$\lambda_{20}(\bar{r}) = \sigma_x \phi_{20}(\bar{r}).$$

If equilibrium units for the dependent variables are defined as follows:

$$\phi_1(\bar{r}, t) = \phi_{10}(\bar{r}) \phi_1(\bar{r}, t) \quad (4.1)$$

$$\phi_2(\bar{r}, t) = \phi_{20}(\bar{r}) \phi_2(\bar{r}, t) \quad (4.2)$$

$$X(\bar{r}, t) = X_0(\bar{r}) x(\bar{r}, t) \quad (4.3)$$

$$I(\bar{r}, t) = I_0(\bar{r}) i(\bar{r}, t), \quad (4.4)$$

and Eqs. (4) are substituted into Eqs. (1), there result

$$\frac{1}{v_1} \frac{\partial \phi_1}{\partial t} = D_1 \nabla^2 \phi_1 + 2D_1 \frac{\nabla \lambda_{10}}{\lambda_{10}} \cdot \nabla \phi_1 + \bar{\gamma} \Sigma_f M_{12} (1-x) \phi_1 + \Sigma_s \frac{1}{\omega_{12}} (\phi_2 - \phi_1) \quad (5.1)$$

$$\frac{1}{v_2} \frac{\partial \phi_2}{\partial t} = D_2 \nabla^2 \phi_2 + 2D_2 \frac{\nabla \lambda_{20}}{\lambda_{20}} \cdot \nabla \phi_2 + \bar{\gamma} \Sigma_f \eta M_{12} (1-x) \phi_2 + \nu \Sigma_f \omega_{12} (\phi_1 - \phi_2) \quad (5.2)$$

$$\frac{\partial x}{\partial t} = \frac{\gamma_x}{M_{12}} (\lambda_{10}\phi_1 + \epsilon_x \lambda_{20}\phi_2) + \frac{\gamma_i}{M_{12}} (\lambda_{10} + \epsilon_i \lambda_{20})i - (\lambda_{10}\phi_1 + \eta\lambda_{20}\phi_2 + \lambda_x)x \quad (5.3)$$

$$\frac{\partial i}{\partial t} = \frac{\lambda_i}{\lambda_{10} + \epsilon_i \lambda_{20}} (\lambda_{10}\phi_1 + \epsilon_i \lambda_{20}\phi_2) - \lambda_i i, \quad (5.4)$$

where

$$M_{12} = \frac{\lambda_{10} + (\gamma_x \epsilon_x + \gamma_i \epsilon_i) \lambda_{20}}{\lambda_{10} + \eta \lambda_{20} + \lambda_x}$$

$$\omega_{12} = \lambda_{10} / \lambda_{20} \cdot$$

Equations (5) with both flux time derivatives set equal to zero are the basic kinetic equations simulated by computer program XEKE.

Before pursuing our analysis further, it seems appropriate to make some comments on the motivation for employing the particular set of kinetic equations given by Eqs. (1) and, in particular, for employing two-group diffusion theory and the transformations given by Eqs. (4). Two-group diffusion theory was used in formulating Eqs. (5) because various multigroup investigations (see IDO-16985), both analytical and computer simulated, have indicated that using one-group diffusion theory to examine realistic reactor systems can lead to significant error in appraising stability against xenon. Furthermore, results indicate that, in general, stability criteria resulting from one-group diffusion theory permit much too liberal requirements for stability. The usual argument made for the use of one-group diffusion theory is that xenon is a significant absorber of neutrons only at thermal energies, and therefore one-group theory should suffice. However, we must not only consider the influence of the factor which leads to instability (namely, the presence of xenon with its time delay in appearance and its enormous absorption cross section which is significant chiefly at thermal energies), but also the factors which tend to stabilize the flux response (namely, the neutron

leakage, the delayed neutrons, and negative temperature feedback). The stabilizing effect of delayed neutrons upon spacial instability, especially upon spacial oscillations, is negligible. Negative temperature feedback, if sufficiently large and correctly distributed, can produce a significant stabilizing influence upon the flux. However, one of the most significant stabilizing factors is the neutron leakage, and it is important to know its time and spacial behavior in ascertaining the stability of a system.

Apparently, one-group diffusion theory is inadequate in predicting stability in realistic reactor systems because it fails to properly describe the space and time behavior of the neutron leakage. Indeed, the greatest leakage suffered in most thermal reactor systems is in the higher energy groups. Furthermore, in nonhomogeneous, reflected, systems the spacial distributions of the thermal and higher energy flux generally are considerably different.

Thus, to effectively examine stability of a realistic reactor system, we should account for the energy distribution of the neutron leakage. However, reactor systems often have complicated core geometries, and the problem of rendering adequate one- and two-dimensional analyses of a system and still accounting for effects attributable to the remaining dimensions is difficult. To demonstrate that Eqs. (5) considerably alleviate this problem, let us assume in Eqs. (1) that the leakage terms may be described as follows:

$$D_1 \nabla^2 \phi_1 = D_1 \nabla^2 \phi_1 \text{ (investigation dimensions)} \pm B_1^2 \phi_1 \text{ (other dimension)}$$

$$D_2 \nabla^2 \phi_2 = D_1 \nabla^2 \phi_2 \text{ (investigation dimensions)} \pm B_2^2 \phi_2 \text{ (other dimension)}$$

where the B^2 terms may be space dependent but must be assumed constant in time. The \pm sign indicates that the leakage may be positive or negative as appropriate.

Now if the terms containing B^2 are grouped with the respective S terms in each flux equation [Eqs. (1.1) and (1.2)], the resulting transformed kinetic equations are Eqs. (5). [That is, Eqs. (4) are imposed

upon Eqs. (1) and Eqs. (2) with the appropriate equilibrium leakage terms subtracted from the resulting equations to give Eqs. (5).] Thus, we observed that by imposing the transformations given by Eqs. (4), any terms which can be reasonably grouped and expressed as equivalent S type terms in Eqs. (1) are eliminated and their effects upon the system are reflected through the resulting equilibrium flux distributions.

Admittedly, we have introduced space dependent terms due to the appearance of the fast and thermal flux equilibrium distributions into Eqs. (5), but we have succeeded in eliminating the unknown time independent leakage terms in the dimension not under investigation and also in eliminating the effective removal cross sections which are difficult to accurately calculate and more difficult to experimentally determine. Furthermore, the dependent variables in Eqs. (5) are dimensionless, assuming a value of unity when equilibrium conditions are met. Thus, supplying input data for program XEKE is easy, and it is very simple to impose any arbitrary perturbation desired as initial conditions for the dependent variables. (See the sample simulation by XEKE in this report.) Finally, although Eqs. (5) are more difficult, in general, to examine analytically, they pose no real additional burden for computer simulation.

Fortunately, many techniques exist and are available for obtaining the required equilibrium flux distributions. For instance, specialized, sophisticated computer codes (e.g., ANGLE, CURE, EQUIPOSE, TRIXY, PDQ, and TURBO) can be used. More important, we can, for adequately "mocked up" critical facilities, obtain experimental flux distributions which are often more accurate than data obtained from computer codes. Alternatively, we could, in principle, somewhat arbitrarily define the fast and thermal equilibrium flux distributions over the reactor core to yield a desirable space and time behavior for the neutron flux. Then, with these equilibrium flux distributions specified, the necessary removal cross sections could be determined directly from Eqs. (3) which would define the absorption loading for the core.

To justify the approximation that the fast and thermal flux time derivatives in Eqs. (5) may be set to zero and that the inclusion of delayed neutrons is not necessary, we add Eqs. (1) together to give the following time derivative term.

$$\frac{\partial}{\partial t} \left(\frac{\phi_1}{v_1} + \frac{\phi_2}{v_2} + X + I \right) \quad (6)$$

Imposing Eqs. (4) upon Expression (6), we obtain

$$\frac{\partial}{\partial t} \left(\frac{\phi_{10}}{v_1} \phi_1 + \frac{\phi_{20}}{v_2} \phi_2 + X_o x + I_o i \right) . \quad (7)$$

To determine an order of magnitude value for each of the terms in Expression (7), let

$$\phi_1 \approx \phi_2 \approx x \approx i \approx 1 .$$

Then, imposing the stationary values given by Eqs. (2.3) and (2.4), it can be shown that the fast and thermal flux terms in Expression (7) are negligible compared to the xenon and iodine terms if

$$\ell_o \ll \frac{\bar{\gamma}_i}{v\lambda_i} *$$

where ℓ_o is the effective thermal neutron lifetime including delayed neutrons. For typical reactor systems, we find that

$$\frac{\bar{\gamma}_i}{v\lambda_i} \approx \frac{(0.06)}{(2.5)(3 \times 10^{-5})} \approx 800 \text{ (sec)}$$

which is greater than any effective neutron lifetime encountered in present nuclear reactor systems. Thus, we can safely assume that the fast

*It is interesting to observe that because this expression is satisfied, the fundamental flux distribution in high flux thermal reactors is generally unstable in the presence of ^{135}Xe . (See page 187, IDO-16985.)

and thermal flux terms in Expression (7) are negligible and the flux time derivatives in Eqs. (5) may be set to zero.

The main reason for neglecting the flux time derivatives in Eqs. (5) is that their presence severely restricts the time step size (typically less than one second) that may be employed and still maintain convergence of the computer simulation. Since we wish to simulate the reactor model over a period of hours, we must in practice delete the flux time derivatives. However, we should be cognizant that with these derivatives deleted and with the rather coarse spacial mesh imposed upon XEKE by the computer storage capacity, certain incompatible initial perturbations in the dependent variables will lead to incorrect simulation of the system response. Usually the programmer will be aware of this situation since, typically, the simulated response will change very rapidly over each time step and may even produce negative (nonphysical) dependent variable values. If the thermal flux exceeds a certain upper limit value supplied as input data or becomes negative, XEKE will indicate that the flux limits have been exceeded and will cease simulation of that problem. The sample problem simulation in this report gives a typical initial perturbation scheme which may be employed for examining stability.

III. SPACIAL DIFFERENCING

To permit digital computer simulation of Eqs. (5), the spacial differential operators must be converted to spacial differencing operators. We will employ the central differencing scheme with uniform spacing to effect this conversion. Thus we find that

$$\left. \frac{\partial f}{\partial s} \right|_{s \rightarrow i} \longrightarrow \frac{1}{h} [f(i + \frac{1}{2}) - f(i - \frac{1}{2})] \quad (8.1)$$

$$\left. \frac{\partial^2 f}{\partial s^2} \right|_{s \rightarrow i} \longrightarrow \frac{1}{h^2} [f(i + 1) - 2f(i) + f(i - 1)] \quad (8.2)$$

where the arrow denotes replacement. Since "f" is not tabulated at the mesh points $i + \frac{1}{2}$ and $i - \frac{1}{2}$, the average value of f at these points is used. This value is given by

$$\begin{aligned} \langle f(i + \frac{1}{2}) \rangle &= \frac{1}{2} [f(i + 1) + f(i)] \\ \langle f(i - \frac{1}{2}) \rangle &= \frac{1}{2} [f(i) + f(i - 1)] . \end{aligned}$$

Thus, Expression (8.1) becomes

$$\left. \frac{\partial f}{\partial s} \right|_{s \rightarrow i} \longrightarrow \frac{1}{2h} [f(i + 1) - f(i - 1)] .$$

The Laplacian operator which occurs in Eqs. (5.1) and (5.2) may be written as

$$\nabla^2 = \frac{\partial^2}{\partial r^2} + \frac{m}{r} \frac{\partial}{\partial r} + \frac{\partial^2}{\partial z^2} , \quad (9)$$

where $m = 1$ for cylindrical geometry and $m = 0$ for rectangular geometry. Thus, Eq. (5.1) for the thermal flux may be written in difference notation as follows:

$$\begin{aligned}
& \frac{1}{h_r^2} [\phi_1(i+1,j) - 2\phi_1(i,j) + \phi_1(i-1,j)] + \frac{m}{2h_r r_i} [\phi_1(i+1,j) - \phi_1(i-1,j)] \\
& + \frac{1}{h_z^2} [\phi_1(i,j+1) - 2\phi_1(i,j) + \phi_1(i,j-1)] \\
& + \left[\frac{\lambda_{10}(i+1,j) - \lambda_{10}(i-1,j)}{2h_r^2 \lambda_{10}(i,j)} \right] [\phi_1(i+1,j) - \phi_1(i-1,j)] \\
& + \left[\frac{\lambda_{10}(i,j+1) - \lambda_{10}(i,j-1)}{2h_z^2 \lambda_{10}(i,j)} \right] [\phi_1(i,j+1) - \phi_1(i,j-1)] \\
& + \left(\frac{\bar{\gamma} \Sigma_f^M}{D_1} \right) (i,j) [1 - \kappa(i,j)] \phi_1(i,j) \\
& + \left(\frac{\Sigma_s}{D_1 \omega_{12}} \right) (i,j) [\phi_2(i,j) - \phi_1(i,j)] = 0 , \tag{10}
\end{aligned}$$

where i denotes the radial position, j denotes the axial position in cylindrical geometry, and i and j denote any two dimensions of interest for rectangular geometry. Note that the thermal flux time derivative has been set to zero.

A difference equation similar to Eq. (10) also results for the fast flux description. It is significant to observe in Eq. (10) that with the flux time derivatives set to zero, the time behavior of both the fast and thermal flux is governed solely by the xenon's time behavior. Furthermore, since spacial dependence does not occur explicitly in the xenon and iodine equations, (5.3) and (5.4), it is necessary only to solve these equations in time at each position i, j where iodine and xenon exist.

Returning to Eq. (10), if common terms are collected, we obtain

$$\begin{aligned}
& A(i,j) \phi_1(i,j+1) + B(i,j) \phi_1(i,j-1) + C(i,j) \phi_1(i+1,j) \\
& \quad + D(i,j) \phi_1(i-1,j) + E(i,j) \phi_1(i,j) \\
& \quad + F(i,j) \phi_2(i,j) = 0
\end{aligned} \tag{11}$$

where

$$\phi_1(i,j) = ZT(I,J)$$

$$\phi_2(i,j) = ZF(I,J)$$

$$A(i,j) = \left(\frac{h_r}{h_z}\right)^2 \left[1 + \frac{\lambda_{10}(i,j+1) - \lambda_{10}(i,j-1)}{2\lambda_{10}(i,j)} \right] = AT(I,J)$$

$$B(i,j) = \left(\frac{h_r}{h_z}\right)^2 \left[1 - \frac{\lambda_{10}(i,j+1) - \lambda_{10}(i,j-1)}{2\lambda_{10}(i,j)} \right] = BT(I,J)$$

$$C(i,j) = \left[1 + \frac{m}{2i-1+2r_o/h_r} + \frac{\lambda_{10}(i+1,j) - \lambda_{10}(i-1,j)}{2\lambda_{10}(i,j)} \right] = CT(I,J)$$

$$D(i,j) = \left[1 - \frac{m}{2i-1+2r_o/h_r} - \frac{\lambda_{10}(i+1,j) - \lambda_{10}(i-1,j)}{2\lambda_{10}(i,j)} \right] = DTT(I,J)$$

$$E(i,j) = G(i,j) [1 - x(i,j)] - H(i,j) = ETT(I,J)$$

$$F(i,j) = \left(\frac{\Sigma_s}{D_1 \omega_{12}}\right) (i,j) h_r^2 = FTT(I,J)$$

$$G(i,j) = \left(\frac{\bar{\gamma} \Sigma_f M_{12}}{D_1}\right) (i,j) h_r^2 = GTT(I,J)$$

$$H(i,j) = 2 \left[1 + \left(\frac{h_r}{h_z}\right)^2 \right] + F(i,j) = HTT(I,J) .$$

The terms on the far right side of the equality signs are the variable names assigned to these terms by program XEKE. For the description of the fast flux, the pertinent difference equation follows by arguments similar to those imposed in formulating Eq. (11). The resulting equation for the fast flux is

$$\begin{aligned}
&\bar{A}(i,j) \phi_2(i,j+1) + \bar{B}(i,j) \phi_2(i,j-1) + \bar{C}(i,j) \phi_2(i+1,j) \\
&\quad + \bar{D}(i,j) \phi_2(i-1,j) + \bar{E}(i,j) \phi_2(i,j) \\
&\quad + \bar{F}(i,j) \phi_1(i,j) = 0
\end{aligned} \tag{12}$$

where

$$\phi_1(i,j) = ZT(I,J)$$

$$\phi_2(i,j) = ZF(I,J)$$

$$\bar{A}(i,j) = \left(\frac{h_r}{h_z}\right)^2 \left[1 + \frac{\lambda_{20}(i,j+1) - \lambda_{20}(i,j-1)}{2\lambda_{20}(i,j)} \right] = AF(I,J)$$

$$\bar{B}(i,j) = \left(\frac{h_r}{h_z}\right)^2 \left[1 - \frac{\lambda_{20}(i,j+1) - \lambda_{20}(i,j-1)}{2\lambda_{20}(i,j)} \right] = BF(I,J)$$

$$\bar{C}(i,j) = \left[1 + \frac{m}{2i-1+2r_o/h_r} + \frac{\lambda_{20}(i+1,j) - \lambda_{20}(i-1,j)}{2\lambda_{20}(i,j)} \right] = CF(I,J)$$

$$\bar{D}(i,j) = \left[1 - \frac{m}{2i-1+2r_o/h_r} - \frac{\lambda_{20}(i+1,j) - \lambda_{20}(i-1,j)}{2\lambda_{20}(i,j)} \right] = DFF(I,J)$$

$$\bar{E}(i,j) = \bar{G}(i,j) [1 - x(i,j)] - \bar{H}(i,j) = EFF(I,J)$$

$$\bar{F}(i,j) = \left(\frac{\nu \Sigma_f \omega_{12}}{D_2}\right) (i,j) h_r^2 = FFF(I,J)$$

$$\bar{G}(i,j) = \left(\frac{\bar{\gamma}_{f,12}^n M_{12}}{D_2} \right) (i,j) h_r^2 = GFF(I,J)$$

$$\bar{H}(i,j) = 2 \left[1 + \left(\frac{h_r}{h_z} \right)^2 \right] + F(i,j) = HFF(I,J),$$

and again the terms on the far right side of the equality signs are the variable names assigned to these terms by program XEKE.

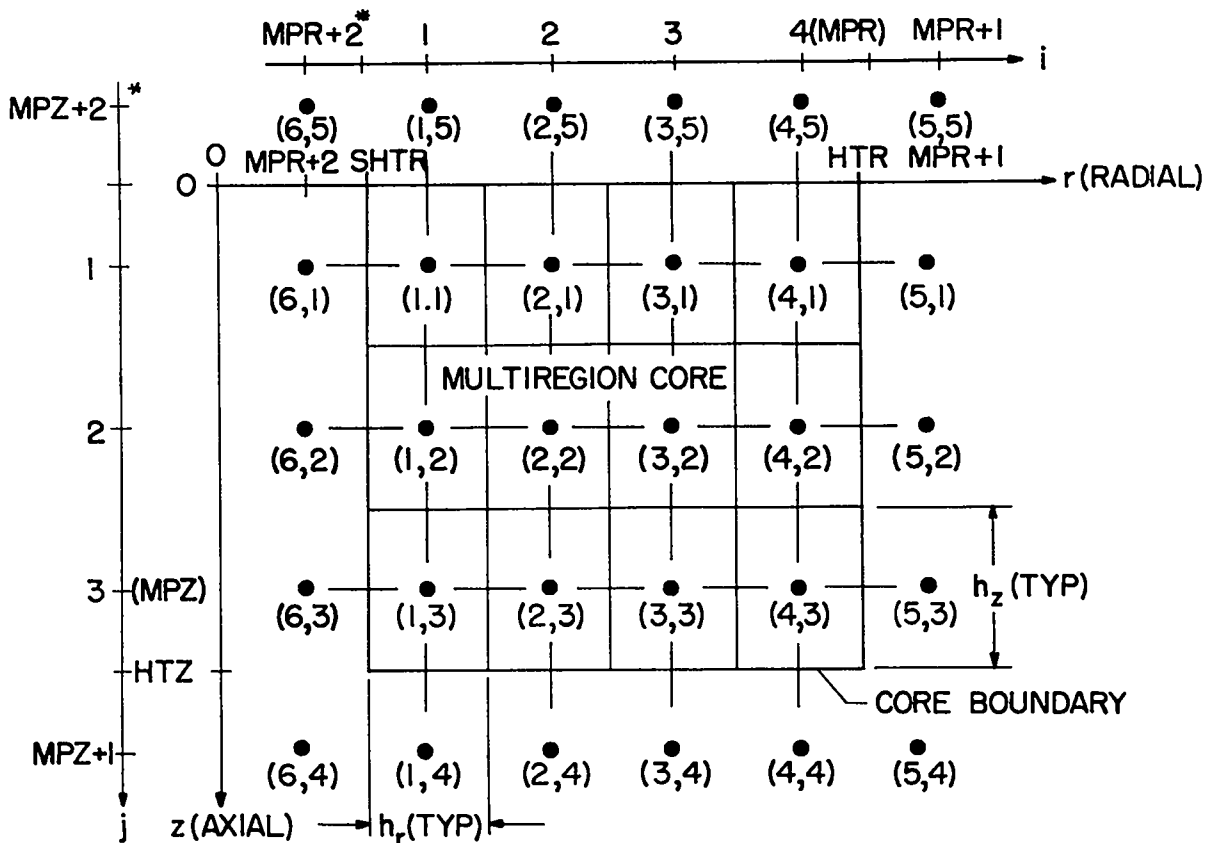
IV. SPACIAL MESH MODEL AND BOUNDARY CONDITIONS

A typical spacial mesh model for a uniform cylindrical multiregion reactor which demonstrates the nature of the spacial mesh model simulated by computer program XEKE is given in Fig. 2. Application of the spacial model to a rectangular reactor is obvious. The region to which each mesh point applies is the rectangular region that encloses that mesh point. The boundaries of the rectangular regions are determined by those lines which equally divide the distance between adjacent mesh points. It is apparent that as many regions of differing properties are possible as there are numbers of mesh points (i.e., the product of MPR and MPZ).

The mesh points that lie outside the reactor core region portrayed by the model in Fig. 2 serve to determine boundary conditions which will be formulated for our model using the notion of albedo. To formulate our boundary conditions, consider a reactor surface interface between two media such that the fraction of the neutron current density leaving the interface to the current density entering is a constant in time. This fraction we shall define for our purposes as the albedo. Then assuming that diffusion theory adequately describes the neutron current density at the boundary, we have

$$\beta = \frac{\phi + 2D\nabla\phi}{\phi - 2D\nabla\phi} \Big|_{\text{boundary (bd)}} , \quad (13)$$

and rearranging, we obtain



LEGEND: $0 \leq r_0 \leq r \leq \text{HTR}$, $1 \leq i \leq 4 = \text{MPR}$
 $0 \leq z \leq \text{HTZ}$, $1 \leq j \leq 3 = \text{MPZ}$
 $h_r = (\text{HTR} - \text{SHTR}) / \text{MPR}$, $h_z = \text{HTZ} / \text{MPZ}$

* ZERO VALUES FOR DIMENSIONAL INDEXING ARE NOT PERMITTED IN FORTRAN.

Fig. 2. Typical Spatial Mesh Point Model for a Multiregion Cylindrical Core for Program XEKE.

$$\left. \frac{\nabla \phi}{\phi} \right|_{bd} = -\frac{1}{2D} \left(\frac{1 - \beta}{1 + \beta} \right) = \alpha . \quad (14)$$

Now if the transformations given by Eqs. (4.1) and (4.2) for the fast and thermal flux are imposed upon Eq. (14), we obtain for the thermal flux

$$\left. \frac{\nabla \phi_1}{\phi_1} \right|_{bd} = \left. \frac{\nabla \phi}{\phi_{10}} \right|_{bd} + \left. \frac{\nabla \phi}{\phi_1} \right|_{bd} = \alpha_1 , \quad (15.1)$$

and for the fast flux

$$\left. \frac{\nabla \phi_2}{\phi_2} \right|_{bd} = \left. \frac{\nabla \phi}{\phi_{20}} \right|_{bd} + \left. \frac{\nabla \phi}{\phi_2} \right|_{bd} = \alpha_2 . \quad (15.2)$$

However, we shall assume that both the albedo and diffusion coefficient are independent of time so that

$$\left. \frac{\nabla \phi_1}{\phi_1} \right|_{bd} = \left. \frac{\nabla \phi_{10}}{\phi_{10}} \right|_{bd} = \alpha_1 ,$$

and

$$\left. \frac{\nabla \phi_2}{\phi_2} \right|_{bd} = \left. \frac{\nabla \phi_{20}}{\phi_{20}} \right|_{bd} = \alpha_2 .$$

Therefore, Eqs. (15.1) and (15.2) produce the boundary conditions that

$$\left. \nabla \phi_1 \right|_{bd} = \left. \nabla \phi_2 \right|_{bd} = 0 . \quad (16)$$

Equation (16) will be imposed at all pertinent boundaries except at the boundary $SHTR \leq r \leq HTR$ and $z = HTZ$ where it will be assumed that a flux node exists if axial instability occurs due to xenon. At that boundary it will be assumed that for all time

$$\phi_1(r, HTZ, t) = \phi_{10}(r, HTZ) \quad (17.1)$$

and

$$\phi_2(r, HTZ, t) = \phi_{20}(r, HTZ) , \quad (17.2)$$

and thus we obtain from Eq. (17) that

$$\phi_1(r, HTZ, t) = \phi_2(r, HTZ, t) = 1 \quad (18)$$

for all time.

Let us now examine Eqs. (11) and (12) at the boundaries which are portrayed in Fig. 2 and given mathematically in Eqs. (16) and (18).

For the mesh point $i = 1, j = 1$, Eq. (11) becomes

$$\begin{aligned} A(1,1) ZT(1,2) + B(1,1) ZT(1,0) + C(1,1) ZT(2,1) + D(1,1) ZT(0,1) \\ + E(1,1) ZT(1,1) + F(1,1) ZF(1,1) = 0. \end{aligned} \quad (11.1)$$

But from Eq. (16), where we imposed the condition that

$$\left. \nabla \phi \right|_{bd} = 0$$

we find that

$$ZT(1,0) = ZT(0,1) = ZT(1,1) ,$$

so Eq. (11.1) becomes

$$\begin{aligned} A(1,1) ZT(1,2) + C(1,1) ZT(2,1) + [B(1,1) + D(1,1) + E(1,1)] ZT(1,1) \\ + F(1,1) ZF(1,1) = 0. \end{aligned} \quad (11.2)$$

Furthermore it is easy to show that for those mesh points such that $1 < i < MPR$ and $j = 1$, Eq. (11) assumes the form

$$\begin{aligned} A(i,1) ZT(i,2) + C(i,1) ZT(i+1,1) + D(i,1) ZT(i-1,1) \\ + [B(i,1) + E(i,1)] ZT(i,1) + F(i,1) ZF(i,1) = 0 , \end{aligned} \quad (11.3)$$

and for $i = MPR$ and $j = 1$

$$\begin{aligned} A(MPR,1) ZT(MPR,2) + D(MPR,1) ZT(MPR-1,1) \\ + [B(MPR,1) + C(MPR,1) + E(MPR,1)] ZT(MPR,1) \\ + F(MPR,1) ZF(MPR,1) = 0. \end{aligned} \quad (11.4)$$

Similarly for $i = 1$ and $1 < j < MPZ$ we obtain

$$A(1,j) ZT(1,j+1) + B(1,j) ZT(1,j-1) + C(1,j) ZT(2,j) \\ + [D(1,j) + E(1,j)] ZT(1,j) + F(1,j) ZF(1,j) = 0$$

and for $i = MPR$ and $1 < j < MPZ$ (11.5)

$$A(MPR,j) ZT(MPR,j+1) + B(MPR,j) ZT(MPR,j-1) + D(MPR,j) ZT(MPR-1,j) \\ + [C(MPR,j) + E(MPR,j)] ZT(MPR,j) \\ + F(MPR,j) ZF(MPR,j) = 0. \quad (11.6)$$

However, for the mesh point $i = 1$ and $j = MPZ$ we impose the condition from Eq. (18) that

$$\phi_1(r, HTZ, t) = 1,$$

and thus Eq. (11) becomes

$$B(1,MPZ) ZT(1,MPZ-1) + C(1,MPZ) ZT(2,MPZ) \\ + [D(1,MPZ) + E(1,MPZ)] ZT(1,MPZ) \\ + F(1,MPZ) ZF(1,MPZ) = -A(1,MPZ). \quad (11.7)$$

Similarly for $1 < i < MPR$ and $j = MPZ$ we obtain from Eq. (11)

$$B(i,MPZ) ZT(i,MPZ-1) + C(i,MPZ) ZT(i+1,MPZ) + D(i,MPZ) ZT(i-1,MPZ) \\ + E(i,MPZ) ZT(i,MPZ) + F(i,MPZ) ZF(i,MPZ) = -A(i,MPZ),$$

and finally for the mesh point $i = MPR$ and $j = MPZ$ we find using Eq. (18) in Eq. (11) that

$$B(MPR,MPZ) ZT(MPR,MPZ-1) + D(MPR,MPZ) ZT(MPR-1,MPZ) \\ + [C(MPR,MPZ) + E(MPR,MPZ)] ZT(MPR,MPZ) \\ + F(MPR,MPZ) ZF(MPR,MPZ) = -A(MPR,MPZ). \quad (11.8)$$

Formulation of Eq. (12) for the fast flux at the boundary mesh points which was accomplished in the preceding formulation for the thermal flux, follows the same procedure as that imposed on the thermal flux. Equations (16) and (18) are simply imposed at the appropriate mesh points, and the equations for the fast flux at these points are easily obtained.

V. MATRIX FORMULATION AND SOLUTION TECHNIQUE

If Eqs. (11) and (12) are now arranged into an equivalent matrix equation using the boundary conditions stated previously, we have

$$M \phi = N$$

where M is the coefficient matrix, ϕ is the flux column vector, and N is a column vector. For example, if we have $1 \leq i \leq 3$ and $1 \leq j \leq 2$, then our matrix equation assumes the form given in Fig. 3.

Note that the coefficient matrix M is essentially a pent-diagonal matrix with two "outriggers" whose positions are governed by the number of radial mesh points; i.e., the B's begin at the matrix position $[2(\text{MPR}) + 1, 1]$ and the A's begin at the matrix position $[1, 2(\text{MPR}) + 1]$. The particular arrangement of the flux components of the column vector ϕ was selected since the coefficient matrix M which results has a reasonable, orderly disposition of elements. Also, the column vector N is nonzero only toward the end or bottom of the vector; i.e., $(N_{i,j}) = 0$ for $1 \leq i \leq \text{MPR}$ and $1 \leq j \leq \text{MPZ} - 1$. This arrangement scheme considerably reduces arithmetic operations in upper triangularizing the coefficient matrix and backward solving to obtain the solution vector ϕ which is the solution method employed in program XEKE. Many techniques and schemes exist for solving matrix equations. The method employed in program XEKE is essentially a modified Gaussian reduction scheme. Specifically, it is given the name Banachiewicz-Cholesky-Crout by Korn and Korn in the *Mathematical Handbook for Scientists and Engineers*, McGraw-Hill, New York (1961). Of course using any form of a Gaussian reduction scheme on a general, large, "dense" matrix would be lengthy and time consuming. We would be

$$\begin{bmatrix}
 (B_{11}+D_{11}+E_{11}) & F_{11} & C_{11} & 0 & 0 & 0 & A_{11} & 0 & 0 & 0 & 0 & 0 & ZT_{11} & 0 \\
 \bar{F}_{11} & (\bar{B}_{11}+\bar{D}_{11}+\bar{E}_{11}) & 0 & \bar{C}_{11} & 0 & 0 & 0 & \bar{A}_{11} & 0 & 0 & 0 & 0 & ZF_{11} & 0 \\
 D_{21} & 0 & (B_{21}+E_{21}) & F_{21} & C_{21} & 0 & 0 & 0 & A_{21} & 0 & 0 & 0 & ZT_{21} & 0 \\
 0 & \bar{D}_{21} & \bar{F}_{21} & (\bar{B}_{21}+\bar{E}_{21}) & 0 & \bar{C}_{21} & 0 & 0 & 0 & \bar{A}_{21} & 0 & 0 & ZF_{21} & 0 \\
 0 & 0 & D_{31} & 0 & (B_{31}+E_{31}+C_{31}) & F_{31} & 0 & 0 & 0 & 0 & A_{31} & 0 & ZT_{31} & 0 \\
 0 & 0 & 0 & \bar{D}_{31} & \bar{F}_{31} & (\bar{B}_{31}+\bar{E}_{31}+\bar{C}_{31}) & 0 & 0 & 0 & 0 & 0 & \bar{A}_{31} & ZF_{31} & 0 \\
 B_{12} & 0 & 0 & 0 & 0 & 0 & (D_{12}+E_{12}) & F_{12} & C_{12} & 0 & 0 & 0 & ZT_{12} & -A_{12} \\
 0 & \bar{B}_{12} & 0 & 0 & 0 & 0 & \bar{D}_{12} & \bar{F}_{12} & (\bar{D}_{12}+\bar{E}_{12}) & 0 & \bar{C}_{12} & 0 & ZF_{12} & -\bar{A}_{12} \\
 0 & 0 & B_{22} & 0 & 0 & 0 & 0 & 0 & E_{22} & F_{22} & C_{22} & 0 & ZT_{22} & -A_{22} \\
 0 & 0 & 0 & \bar{B}_{22} & 0 & 0 & 0 & 0 & \bar{F}_{22} & \bar{E}_{22} & 0 & \bar{C}_{22} & ZF_{22} & -\bar{A}_{22} \\
 0 & 0 & 0 & 0 & B_{32} & 0 & 0 & 0 & 0 & 0 & (C_{32}+E_{32}) & F_{32} & ZT_{32} & -A_{32} \\
 0 & 0 & 0 & 0 & 0 & \bar{B}_{32} & 0 & 0 & 0 & 0 & \bar{F}_{32} & (\bar{C}_{32}+\bar{E}_{32}) & ZF_{32} & -\bar{A}_{32}
 \end{bmatrix}$$

Fig. 3. Typical Matrix Equation Solved by Program XEKE.

well advised to use some appropriate iteration scheme with fast convergence if available. However, coefficient matrix M is not "dense," and by taking advantage of the many zero terms, it is possible to specialize the Banachiewicz-Cholesky-Crout method for the particular form of coefficient matrix M and obtain a reasonable scheme which permits the flux column vector to be found without requiring excessive computer time or introducing significant roundoff error.

The Banachiewicz-Cholesky-Crout method consists in taking the matrix system

$$\begin{aligned} c_{11}x_1 + c_{12}x_2 + \dots + c_{1n}x_n &= d_1 \\ c_{21}x_1 + c_{22}x_2 + \dots + c_{2n}x_n &= d_2 \\ \vdots & \\ c_{n1}x_1 + c_{n2}x_2 + \dots + c_{nn}x_n &= d_n \end{aligned}$$

and transforming it to the equivalent upper triangular matrix system

$$\begin{aligned} x_1 + a_{12}x_2 + a_{13}x_3 + \dots + a_{1n}x_n &= b_1 \\ x_2 + a_{23}x_3 + \dots + a_{2n}x_n &= b_2 \\ \vdots & \\ x_n &= b_n \end{aligned}$$

using the following recursion formulas:

$$\begin{aligned} a_{i1} &= c_{i1} \quad (i=1,2,\dots,n) \\ a_{1i} &= c_{1i}/c_{11} \quad (i=2,3,\dots,n) \\ a_{ik} &= c_{ik} - \sum_{j=1}^{k-1} a_{ij}a_{jk} \quad (i \geq k; k=2,3,\dots,n) \end{aligned}$$

$$a_{ki} = \frac{1}{a_{kk}} \left(c_{ki} - \sum_{j=1}^{k-1} a_{kj} a_{ji} \right) \quad (i=2,3,\dots,n; k < i)$$

$$b_1 = d_1 / c_{11}$$

and

$$b_i = \frac{1}{a_{ii}} \left(d_i - \sum_{j=1}^{i-1} a_{ij} b_j \right) \quad (i=2,3,\dots,n) .$$

The solution vector is obtained by backward solving from $x_n, x_{n-1} \dots$ to x_1 by using the following formulas:

$$x_n = b_n$$

$$x_k = b_k - \sum_{j=k+1}^n a_{kj} x_j \quad (k=n-1, n-2, \dots, 1).$$

VI. EXPERIMENTAL CORROBORATION

In IDO-16985 it was found that not only the size and coupling of a reactor core but also the average ratio of the fast-to-thermal equilibrium flux are significant factors in governing stability. Further, it is found that, in general, for typical reactor systems the greater the value of average fast-to-thermal flux the more stable is the response of the system to various perturbations from equilibrium conditions.

A significant fact concerning the fast-to-thermal flux ratio is that some degree of experimental corroboration of the simulation given by XEKE can be made through cadmium ratio measurements of fissile fuel. Of course the same technique could also be used to obtain the equilibrium flux distributions required for program XEKE. To demonstrate the procedure, let us return to Eqs. (1).

The "fast" flux given in Eq. (1) is defined as

$$\phi_2 = \int_{E_m}^{\infty} \phi(E) dE$$

and the "thermal" flux as

$$\phi_1 = \int_0^{E_m} \phi(E) dE ,$$

where E_m is the cutoff energy defining groups one and two. [See Hickman and Leng, "The Calculation of Effective Cutoff Energies in Cadmium, Samarium, and Gadolinium," Nuclear Science and Engineering, Vol. 12, pp 523-531 (April 1962) for a determination of cutoff energies.] The

fast-to-thermal equilibrium flux ratio is $1/\omega_{12}$, where $\omega_{12} = \lambda_{10}/\lambda_{20}$, $\lambda_{10} = \sigma_x \phi_{10}$, and $\lambda_{20} = \sigma_x \phi_{20}$ (σ_x is the thermal absorption cross section of xenon).

Thus, we obtain

$$\frac{1}{\omega_{12}(\bar{r})} = \frac{\lambda_{20}(\bar{r})}{\lambda_{10}(\bar{r})} = \frac{\phi_{20}(\bar{r})}{\phi_{10}(\bar{r})} = \frac{\int_{E_m}^{\infty} \phi_0(\bar{r}, E) dE}{\int_0^{E_m} \phi_0(\bar{r}, E) dE} \quad (19)$$

For our two-group program we may, for example, use two-group constants obtained in each region of interest from computer codes GAM and TEMPEST. In particular, the parameters $\nu\Sigma_{f_1}$ and $\nu\Sigma_{f_2}$ are evaluated as follows:

$$\text{GAM: } \nu\Sigma_{f_2} = \frac{\nu N_f \int_{E_m}^{\infty} \sigma_f(E) \phi(E) dE}{\int_{E_m}^{\infty} \phi(E) dE} \quad (20)$$

$$\text{TEMPEST: } \nu\Sigma_{f_1} = \frac{\nu N_f \int_0^{E_m} \sigma_f(E) \phi(E) dE}{\int_0^{E_m} \phi(E) dE} \quad (21)$$

Now, the experimental fuel cadmium ratio, CR_f , may be defined as follows:

$$CR_f = \frac{\int_0^{E_{Cd}} \sigma_f(E) \phi(E) dE + \int_{E_{Cd}}^{\infty} \sigma_f(E) \phi(E) dE}{\int_{E_{Cd}}^{\infty} \sigma_f(E) \phi(E) dE}$$

$$CR_f = \frac{\text{bare fuel detector activation}}{\text{Cd covered fuel detector activation}}$$

or

$$CR_f - 1 = \frac{\int_0^{E_{Cd}} \sigma_f(E) \phi(E) dE}{\int_{E_{Cd}}^{\infty} \sigma_f(E) \phi(E) dE} \quad (22)$$

where E_{Cd} is the effective cadmium cutoff energy.

We can now rewrite Eqs. (20) and (21) in a slightly different form to obtain an expression in terms of both E_m and E_{Cd} .

Thus, for GAM:

$$v\Sigma_{f_2} = vN_f \left[\frac{\int_{E_m}^{E_{Cd}} \sigma_f(E) \phi(E) dE + \int_{E_{Cd}}^{\infty} \sigma_f(E) \phi(E) dE}{\int_{E_m}^{E_{Cd}} \phi(E) dE + \int_{E_{Cd}}^{\infty} \phi(E) dE} \right] \quad (23)$$

and for TEMPEST:

$$v\Sigma_{f_1} = vN_f \left[\frac{\int_0^{E_{Cd}} \sigma_f(E) \phi(E) dE - \int_{E_m}^{E_{Cd}} \sigma_f(E) \phi(E) dE}{\int_0^{E_{Cd}} \phi(E) dE - \int_{E_m}^{E_{Cd}} \phi(E) dE} \right] \quad (24)$$

Substituting Eqs. (23) and (24) in Eq. (22) we obtain

$$CR_f - 1 = \frac{v\Sigma_{f_1} \left[\int_0^{E_{Cd}} \phi(E) dE - \int_{E_m}^{E_{Cd}} \phi(E) dE \right] + vN_f \int_{E_m}^{E_{Cd}} \sigma_f(E) \phi(E) dE}{v\Sigma_{f_2} \left[\int_{E_{Cd}}^{\infty} \phi(E) dE + \int_{E_m}^{E_{Cd}} \phi(E) dE \right] - vN_f \int_{E_m}^{E_{Cd}} \sigma_f(E) \phi(E) dE} \quad (25)$$

We now consider three cases for the values of E_{Cd} and E_m : (a) $E_m < E_{Cd}$, (b) $E_m = E_{Cd}$, and (c) $E_m > E_{Cd}$.

Case (a) ($E_m < E_{Cd}$). If this condition exists, then each of the integrals in Eq. (25) is positive. Furthermore, we shall now restrict the discussion to thermal or near thermal reactors in order that CR_f be strictly greater than unity (and thus $CR_f - 1 > 0$), and to reactors having a fission spectrum (and thus $CR_f < \infty$). Hence, Eq. (25) can be written as

$$(CR_f - 1) < \frac{\nu\Sigma_{f1}}{\nu\Sigma_{f2}} \left[\frac{\int_0^{E_m} \phi(E) dE}{\int_{E_m}^{\infty} \phi(E) dE} \right]$$

or, using Eq. (19), we obtain

$$\frac{\nu\Sigma_{f2}}{\nu\Sigma_{f1}} (CR_f - 1) < \omega_{12}. \quad (26)$$

Case (b) ($E_m = E_{Cd}$). In this case, the integrals from E_m to E_{Cd} are all zero in Eq. (25), and we can write Eq. (25) as

$$(CR_f - 1) = \frac{\nu\Sigma_{f1}}{\nu\Sigma_{f2}} \left[\frac{\int_0^{E_m} \phi(E) dE}{\int_{E_m}^{\infty} \phi(E) dE} \right]$$

or, again using Eq. (19), we obtain

$$\frac{\nu\Sigma_{f2}}{\nu\Sigma_{f1}} (CR_f - 1) = \omega_{12}. \quad (27)$$

Case (c) ($E_m > E_{Cd}$). In this case, the integrals in Eq. (25) over E_m to E_{Cd} are negative, and without specific information regarding the functions

$\phi(E)$ and $\sigma_f(E)$, the relative magnitudes of the left- and right-hand sides of Eq. (25) are indeterminate.

Therefore, if $E_m \leq E_{Cd}$, we can obtain Eqs. (26) and (27), which can in turn be written as

$$\frac{1}{\omega_{12}} \leq \frac{\nu \Sigma_{f1}}{\nu \Sigma_{f2}} \frac{1}{(CR_f - 1)} \quad (28)$$

A stability criterion resulting from program XEKE is that the fast-to-thermal flux ratio, $1/\omega_{12}$, be equal to or greater than some average value, K , over the core. Thus,

$$K \leq \frac{1}{V} \int_{\text{volume}} \frac{dV}{\omega_{12}} \leq \frac{\nu \Sigma_{f1}}{\nu \Sigma_{f2}} \frac{1}{(CR_f - 1)}, \quad (29)$$

and conservatively our experimental stability criterion becomes:

$$CR_f \leq 1 + \frac{\nu \Sigma_{f1}}{\nu \Sigma_{f2}} \frac{1}{K} \quad (30)$$

where CR_f in Expression (30) is the volume average value found experimentally in the region of interest.

VII. TIME SOLUTION SCHEME FOR THE XENON AND IODINE CONCENTRATIONS

As was stated previously, it is significant to understand that with the flux derivatives set equal to zero in Eqs. (5.1) and (5.2) the time behavior of both the fast and thermal flux is governed solely by the time behavior of the xenon concentration. Furthermore, since the xenon and iodine equations exhibit no spacial operators and thus are not explicitly space dependent (we assume that the fuel, xenon, and iodine are stationary in space), it is only necessary to determine the change in the xenon and iodine concentration over a time step Δt at each spacial mesh position where xenon and iodine exist in the reactor model.

Now Eq. (5.4) may be integrated over the time step Δt to yield

$$i(t + \Delta t) = i(t)e^{-\lambda_i \Delta t} + \frac{\lambda_i e^{-\lambda_i(t+\Delta t)}}{\lambda_{i10} + \epsilon_i \lambda_{i20}} \int_t^{t+\Delta t} (\lambda_{i10} \phi_1 + \epsilon_i \lambda_{i20} \phi_2) e^{\lambda_i \zeta} d\zeta. \quad (31)$$

To evaluate the integral expression in Eq. (31) we impose the mean value theorem for integrals (note that the function $e^{\lambda_i \zeta}$ is nonnegative) which gives

$$\int_t^{t+\Delta t} (\lambda_{i10} \phi_1 + \epsilon_i \lambda_{i20} \phi_2) e^{\lambda_i \zeta} d\zeta = \frac{1}{\lambda_i} (\lambda_{i10} \bar{\phi}_1 + \epsilon_i \lambda_{i20} \bar{\phi}_2) \left[e^{\lambda_i(t+\Delta t)} - e^{\lambda_i t} \right] \quad (32)$$

where $\bar{\phi}_1$ and $\bar{\phi}_2$ are mean values defined by Eq. (32). Equations (31) and (32) may be combined to yield the following expression for the iodine concentration integrated over the time step Δt at each spacial mesh point

$$i(t + \Delta t) = i(t)e^{-\lambda_i \Delta t} + \frac{\lambda_{10}\bar{\phi}_1 + \epsilon_i \lambda_{20}\bar{\phi}_2}{\lambda_{10} + \epsilon_i \lambda_{20}} \left(1 - e^{-\lambda_i \Delta t}\right). \quad (33)$$

To evaluate the terms $\bar{\phi}_1$, and $\bar{\phi}_2$, we shall use the following approximate expressions which are easily evaluated by program XEKE and are reasonably accurate for a sufficiently small time step Δt at each spacial mesh point.

$$\bar{\phi}_1 = \frac{1}{2} [3\phi_1(t) - \phi_1(t - \Delta t)] \quad (34.1)$$

$$\bar{\phi}_2 = \frac{1}{2} [3\phi_2(t) - \phi_2(t - \Delta t)] \quad (34.2)$$

With the time behavior of the iodine concentration now known, the xenon Eq. (5.3) may be integrated using similar arguments imposed in obtaining Eq. (33). Thus we obtain

$$\begin{aligned} x(t + \Delta t) = & x(t)e^{-k\Delta t} + \frac{1}{M_{12}k} \left[\lambda_{10}\bar{\phi}_1 + (\gamma_x \epsilon_x + \gamma_i \epsilon_i) \lambda_{20}\bar{\phi}_2 \right] \left(1 - e^{-k\Delta t}\right) \\ & + \frac{1}{M_{12}(k - \lambda_i)} \left\{ \lambda_{10} [i(t) - \bar{\phi}_1] + \epsilon_i \lambda_{20} [i(t) - \bar{\phi}_2] \right\} \left(e^{-\lambda_i \Delta t} - e^{-k\Delta t} \right) \end{aligned} \quad (35)$$

where

$$k = \lambda_{10}\bar{\phi}_1 + \eta \lambda_{20}\bar{\phi}_2 + \lambda_x$$

and we shall assume that all mean value terms for $\bar{\phi}_1$ and $\bar{\phi}_2$, respectively, are approximately the same and are defined by Eqs. (34.1) and (34.2), respectively, for sufficiently small time steps.

Equations (33), (34), and (35) are the equations employed by program XEKE to simulate the time step change in the xenon and iodine concentrations at each mesh point. With the xenon concentration known at $t + \Delta t$, the resulting fast and thermal flux spacial distribution can be determined at $t + \Delta t$.

VIII. PROGRAM "XEKE"

The main program is XEKE which is coded in FORTRAN IV language. A flow diagram from the procedural logic of XEKE is given in Fig. 4. All pertinent input data enters the system via XEKE, and all output data exits the system via XEKE. Furthermore, XEKE exercises control over the execution of the program. The core capacity of the IBM 7094, for which program XEKE was initially written, dictates limits upon the number of spacial mesh points that may be used. If values of MPZ or MPR greater than 12 are desired, the DIMENSION statement in XEKE as it appears in the FORTRAN Source List, following Fig. 4, must be properly adjusted. However, any adjustment must preserve the limits that

$$\begin{aligned} 2 &\leq \text{MPR} \leq 33 \\ 2 &\leq \text{MPZ} \leq 168 \\ 56 &\leq (\text{MPR}) \left\{ 2[(\text{MPR})(\text{MPZ}) - 1] + 11(\text{MPZ}) \right\} \leq 5052^* . \end{aligned}$$

The sequence in which the punch cards are loaded to execute program XEKE is given in Fig. 5. The control cards (\$ sign) may differ in form with various computer installations.

*When XEKE is run on digital computers with storage capacity other than 32,767 (IBM 7040, 7090, typically) these limits may change.

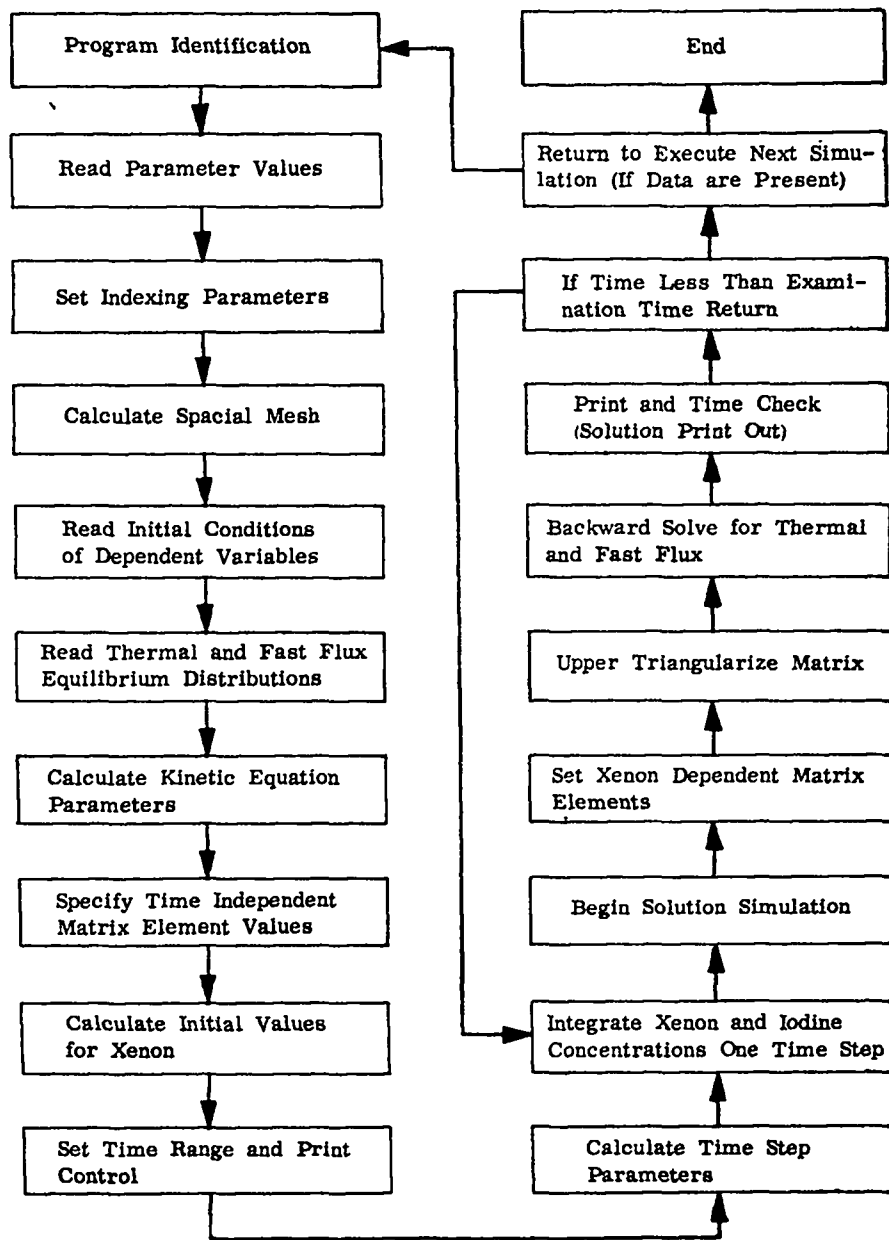


Fig. 4. Flow Diagram for Program XEKE.

```

PROGRAM XEKE (INPUT,OUTPUT,TAPE10=INPUT,TAPE9=OUTPUT)
C
C *****
C SIMULATION OF THE SPACE AND TIME DEPENDENT KINETIC EQUATIONS
C FOR ANALYSIS OF XENON INDUCED FLUX INSTABILITIES IN NUCLEAR REACTORS
C EMPLOYS TWO ENERGY GROUPS OF NEUTRONS (TWO GROUP DIFFUSION THEORY)
C FOR TWO DIMENSIONAL INVESTIGATION OF REACTOR CORES WITH UNIFORM
C CYLINDRICAL GEOMETRY OR RECTANGULAR GEOMETRY
C *****
C
C STORAGE ALLOCATION
000043 DIMENSION GL(7152), GU(7152), CR1(288), X(288), Y(288), C1R(288),
1 B(287), C31(286), C32(287), C33(288), C34(287), C35(286), D(288),
2 ZT(12,12), ZF(12,12), YA(12,12), XAT(12,12), XAF(12,12),
3 AT(12,12), AF(12,12), YB(12,12), DTT(12,12), DFF(12,12),
4 BT(12,12), BF(12,12), XM(12,12), ETT(12,12), EFF(12,12),
5 CT(12,12), CF(12,12), RDERT(12,12), FTT(12,12), FFF(12,12),
6 SF(12,12), FT(12,12), RDERF(12,12), GTT(12,12), GFF(12,12),
7 XA(12,12), XB(12,12), ZDERT(12,12), HTT(12,12), HFF(12,12),
8 XC(12,12), XD(12,12), ZDERF(12,12), RFT(12,12), XE(12,12),
9 ET(14,14), EF(14,14), FMPRS(13), ZTP(12,12), ZFP(12,12)
C
000043 EQUIVALENCE (XAT,GTT),(XAF,GFF),(FT,FFF,EFF),(SF,FTT,ETT),(XM,YA),
1 (ZDERT,BT),(ZDERF,BF),(RDERT,DTT),(RDERF,DFF),(RFT,YB),(AT,ZTP),
2 (AF,ZFP),(X,C33),(D,C1R),(B,CR1)
C *****
C
C PROGRAM IDENTIFICATION
000043 WRITE(9,34)
000046 34 FORMAT(1H1,95HXEKE IS A FORTRAN 4 CODED PROGRAM FOR INVESTIGATING
1FLUX STABILITY IN THE PRESENCE OF XENON-135/1H ,127HUSES 2 GROUP D
2DIFFUSION THEORY AND EXAMINES 2 DIMENSIONS IN UNIFORM CYLINDRICAL G
3EOMETRY OR 2 DIMENSIONS IN RECTANGULAR GEOMETRY/1H ,41H**SEE LASL
4REPORT FOR PERTINENT DETAILS**)
000046 WRITE(9,61)
000051 61 FORMAT(1H ,39HCODED BY GARY M. SANDQUIST IN JULY 1966)
000051 66 READ (10,68) (FMPRS(J),J=1,13)
000062 68 FORMAT(13A6)
000062 WRITE (9,69) (FMPRS(J),J=1,13)
000073 69 FORMAT(1H0,13A6)
C *****
C
C READ PARAMETER VALUES
000073 READ (10,81) MPR,MPZ,HTR,HTZ,XLX,XLI,GX,GI,EX,EI,FN,SHTR,NGEMTY
000130 81 FORMAT(2I10,2F10.6,2E10.6,2F10.6/4F10.6,I10)
000130 WRITE(9,82)MPR,MPZ,HTR,HTZ,SHTR
000145 82 FORMAT(1H0,18HRADIAL MESH POINTS,9X,17HAXIAL MESH POINTS,7X,13HRAD
1IAL LENGTH,16X,12HAXIAL LENGTH,9X,9HHTR START//1H ,I10,I25,2F28.5,
2F20.8)
000145 WRITE(9,92)XLX,XLI,GX,GI,EX,EI,FN
000166 92 FORMAT(1H0,6X,3HXLX,12X,3HCLI,13X,2HGX,14X,2HGI,14X,2HEX,14X,2HEI,
114X,2HFN//1H ,1P2E15.7,1P5E16.7)
000166 READ (10,97) ((SF(J,K),XAT(J,K),FT(J,K),XAF(J,K),J=1,MPR),K=1,MPZ)
000217 97 FORMAT(8E10.5)
000217 WRITE(9,99)((J,K,SF(J,K),XAT(J,K),FT(J,K),XAF(J,K),J=1,MPR),
1 K=1,MPZ)
000253 99 FORMAT(1H0,5H R,Z ,7HSF(R,Z),6X,8HXAT(R,Z),5X,7HFT(R,Z),6X,
1 8HXAF(R,Z),6X,4HR,Z ,7HSF(R,Z),6X,8HXAT(R,Z),5X,7HFT(R,Z),6X,

```

```

2 BHAF(R,Z)/(1H,2I2,1X,1PE11.5,1P3E13.5,14,12,1X,1PE11.5,
3 1P3E13.5)

```

```

*****

```

```

C
C
C
C

```

```

SET INDEXING PARAMETERS

```

```

000253 MPRP2 = MPR * 2
000255 MPRM1 = MPR - 1
000257 MPZP2 = MPZ * 2
000260 MPZM1 = MPZ - 1
000261 MPRD = 2 * MPR
000263 MPRDP1 = MPRD * 1
000264 MPRDP2 = MPRD * 2
000265 MPRDM1 = MPRD - 1
000267 MPRDM2 = MPRD - 2
000271 MPRDD3 = MPRD * (MPRD - 3)
000274 NEQ = MPRD * MPZ
000276 NEQM1 = NEQ - 1
000300 NEQM2 = NEQ - 2
000302 NEQM3 = NEQ - 3
000304 NEQMR = NEQ - MPRD
000306 NEQM1R = NEQMR - 1
000310 NEQM2R = NEQMR - 2
000312 NEQMR1 = NEQMR * 1
000313 NEQMR2 = NEQMR * 2
000314 NEQT = MPRDP1 * NEQM2
000316 NEQTM1 = MPRDP1 * NEQM2 * 1
000321 NEQTM2 = MPRDP1 * NEQM3 * 1
000324 NEQTMR = MPRDP1 * NEQMR * 1

```

```

C
C
C
C

```

```

CALCULATE SPACIAL MESH

```

```

000327 FMPR = MPR
000330 FMPZ = MPZ
000332 HR = HTR/FMPR
000334 HZ = HTZ/FMPZ
000336 HRSQ = HR*HR
000337 HRZSQ = HRSQ/(HZ*HZ)
000342 DRDHR = 2. * SHTR / HR
000344 WRITE(9,109) HR
000351 109 FORMAT(1H0,5X,28HRADIAL MESH SPACE STEP IS **,F12.8)
000351 WRITE(9,119) HZ
000356 119 FORMAT(1H0,5X,27MAXIAL MESH SPACE STEP IS **,F12.8)

```

```

C
C
C
C

```

```

READ INITIAL CONDITIONS DEPENDENT VARIABLES

```

```

000356 102 FORMAT(8F10.6)
000356 READ (10,102) ((ZT(J,K),J=1,MPR),K=1,MPZ)
000375 READ(10,102)((ZF(J,K),J=1,MPR),K=1,MPZ)
000414 READ (10,102) (Y(K),K=2,NEQ,2)
000426 WRITE(9,139)
000431 139 FORMAT(1H0,30X,44HINITIAL CONDITIONS NORMALIZED VARIABLES(R,Z)/
11H,4X,4H R,Z,26X,12HTHERMAL FLUX,13X,9HFAST FLUX,16X,6HIODINE,19X
2,4H R,Z//)
000431 DO 67 K=1,MPZ
000433 DO 67 J=1,MPR
000434 L = MPR*(K-1) + 2*J
000442 67 WRITE(9,140) J,K,ZT(J,K),ZF(J,K),Y(L),J,K
000474 140 FORMAT(1H,4X,2I2,26X,F10.8,15X,F10.8,15X,F10.8,15X,2I2)
*****

```

```

C

```

```

C
C
C      READ THERMAL AND FAST EQUILIBRIUM FLUX DISTRIBUTIONS
000474 200 FORMAT(8E10,5)
000474 READ (10,200) ((ET(J,K),J=1,MPPR2),K=1,MPZP2)
000513 WRITE(9,202)((J,K,ET(J,K),J=1,MPPR2),K=1,MPZP2)
000536 202 FORMAT(1M0,30X,75EQUILIBRIUM VALUES THERMAL FLUX TIMES MICROSCOPI
1C XENON CROSS SECTION(R,Z)//(I3,I2,1X,1PE9.3,7(I4,I2,1X,1PE9.3)))
000536 READ (10,200) ((EF(J,K),J=1,MPPR2),K=1,MPZP2)
000555 WRITE(9,208)((J,K,EF(J,K),J=1,MPPR2),K=1,MPZP2)
000600 208 FORMAT(1M0,30X,71EQUILIBRIUM VALUES FAST FLUX TIMES MICROSCOPIC X
1ENON CROSS SECTION(R,Z)// (I3,I2,1X,1PE9.3,7(I4,I2,1X,1PE9.3)))
*****
C
C
C      CALCULATE KINETIC EQUATION PARAMETERS
000600 IF(NGEMTY,EQ.1) GO TO 57
000602 DO 48 J=1,MPR
000604 DJM1 = 2 * J - 1
000610 48 FMPRS(J)=1./(DJM1+DRDHR)
000615 WRITE(9,49)
000620 49 FORMAT(1M1,33HEXAMINATION VOLUME IS CYLINDRICAL)
000620 GO TO 62
000621 57 DO 58 J=1,MPR
000623 58 FMPRS(J)=0.0
000627 WRITE(9,59)
000632 59 FORMAT(1M1,33HEXAMINATION VOLUME IS RECTANGULAR)
000632 62 DO 717 J=1,MPR
000634 ZDERT(J,1) = (ET(J,2)-ET(J,MPZP2))/(2.*ET(J,1))
000644 717 ZDERF(J,1) = (EF(J,2)-EF(J,MPZP2))/(2.*EF(J,1))
000654 DO 43 K=1,MPZ
000656 DO 43 J=2,MPR
000657 RDERT(J,K) = (ET(J+1,K)-ET(J-1,K))/(2.*ET(J,K))
000672 43 RDERF(J,K) = (EF(J+1,K)-EF(J-1,K))/(2.*EF(J,K))
000706 DO 42 K=2,MPZ
000710 DO 42 J=1,MPR
000711 ZDERT(J,K) = (ET(J,K+1)-ET(J,K-1))/(2.*ET(J,K))
000724 42 ZDERF(J,K) = (EF(J,K+1)-EF(J,K-1))/(2.*EF(J,K))
000740 DO 603 K=1,MPZ
000742 RDERT(1,K) = (ET(2,K)-ET(MPPR2,K))/(2.*ET(1,K))
000755 RDERF(1,K) = (EF(2,K)-EF(MPPR2,K))/(2.*EF(1,K))
000766 DO 603 J=1,MPR
000767 RFT(J,K)=EF(J,K)/ET(J,K)
000776 XM(J,K)=(ET(J,K)+(GX*EX+GI*EI)*EF(J,K))/(ET(J,K)+FN*EF(J,K)+XLX)
001015 XA(J,K) = FN * EF(J,K)
001020 XB(J,K) = ET(J,K) / XM(J,K)
001025 XC(J,K) = RFT(J,K) * (GX*EX + GI*EI)
001033 XD(J,K) = GI * XB(J,K)
001035 XE(J,K) = EI * RFT(J,K)
001040 CT(J,K) = (1.+FMPRS(J) * RDERT(J,K))
001044 CF(J,K) = (1.+FMPRS(J) * RDERF(J,K))
001050 DTT(J,K) = (1.-FMPRS(J) - RDERT(J,K))
001054 DFF(J,K) = (1.-FMPRS(J) - RDERF(J,K))
001060 AT(J,K) = (1. + ZDERT(J,K))*HRZSQ
001064 AF(J,K) = (1. + ZDERF(J,K))*HRZSQ
001067 BT(J,K) = (1. - ZDERT(J,K))*HRZSQ
001073 BF(J,K) = (1. - ZDERF(J,K))*HRZSQ
001076 FTT(J,K) = SF(J,K)*RFT(J,K)*HRSQ
001103 FFF(J,K) = FT(J,K)*HRSQ/RFT(J,K)
001106 GTT(J,K) = XAT(J,K)*XM(J,K)*HRSQ
001113 GFF(J,K) = XAF(J,K)*XM(J,K)*HRSQ
001116 HTT(J,K) = 2.*(1.+HRZSQ) * FTT(J,K)

```

```

001124      603 HFF(J,K) = 2.*(1.+HRZSQ) + FFF(J,K)
          C *****
          C
          C SPECIFY MATRIX ELEMENT VALUES
          C
001137      DO 608 K=1,MPZ
001140      DO 608 J=1,MPRM1
001141      L = MPRD*(K-1) + 2*J - 1
001147      C35(L) = CT(J,K)
001153      C35(L+1) = CF(J,K)
001156      C34(L) = FTT(J,K)
001160      C34(L+1) = 0.0
001161      C31(L) = DTT(J+1,K)
001163      C31(L+1) = DFF(J+1,K)
001165      C32(L) = FFF(J,K)
001167      608 C32(L+1) = 0.0
001174      DO 443 K=1,MPZM1
001176      N = MPRD*K
001200      C34(N-1) = FTT(MPR,K)
001204      C34(N) = 0.0
001205      C31(N-1) = 0.0
001206      C31(N) = 0.0
001207      C32(N) = 0.0
001210      C32(N-1) = FFF(MPR,K)
001212      C35(N) = 0.0
001213      443 C35(N-1) = 0.0
001216      C34(NEQM1) = FTT(MPR,MPZ)
001222      C32(NEQM1) = FFF(MPR,MPZ)
001224      DO 602 K=1,MPZM1
001226      DO 602 J=1,MPR
001227      L = MPRD*(K-1) + 2*J - 1
001235      C1R(L) = AT(J,K)
001241      C1R(L+1) = AF(J,K)
001244      CR1(L) = BT(J,K+1)
001246      602 CR1(L+1) = BF(J,K+1)
001254      DO 609 J=1,MPR
001256      JPRZMR = 2*J + NEQM1R
001262      D(JPRZMR) = -AT(J,MPZ)
001266      609 D(JPRZMR+1) = -AF(J,MPZ)
001273      GL(2) = C32(1)
001274      GL(3) = C31(1)
001276      DO 1 K=1,NEQMR
001277      M = MPHDP1 * K
001301      1 GL(M) = CR1(K)
001305      DO 2 K=1,MPRDM2
001307      KM1 = K - 1
001311      L = MPHDP1 * KM1 + 3
001314      2 GL(L) = C31(K)
          C *****
          C
          C CALCULATE INITIAL CONDITIONS FOR XENON
          C
001321      DO 237 K=2,MPZM1
001322      L = MPRD*(K-1) + 1
001326      N = L + MPRDM2
001330      Y(L) = 1. + (CT(1,K)*ZT(2,K) + (DTT(1,K) - HTT(1,K))*ZT(1,K) + AT(1,K)
          1 *ZT(1,K+1) + BT(1,K) * ZT(1,K-1) + FTT(1,K)*ZF(1,K))/(GTT(1,K) *
          2 ZT(1,K))
001362      DO 238 J=2,MPRM1
001363      M = L + 2*J - 2
001367      238 Y(M) = 1. + (CT(J,K)*ZT(J+1,K) + DTT(J,K)*ZT(J-1,K) - HTT(J,K)*ZT(J,K)
          1 + AT(J,K)*ZT(J,K+1) + BT(J,K) * ZT(J,K-1) + FTT(J,K)*ZF(J,K))/

```

```

      2 (GTT(J,K)*ZT(J,K))
001431 237 Y(N) = 1. + ((CT(MPR,K)-HTT(MPR,K))*ZT(MPR,K) + DTT(MPR,K)*ZT(MPR
1 M1,K) + AT(MPR,K)*ZT(MPR,K+1) + BT(MPR,K) *ZT(MPR,K-1) +
2 FTT(MPR,K)*ZF(MPR,K))/(GTT(MPR,K)*ZT(MPR,K))
001465 DO 239 J=2,MPRM1
001466 Y(2*J-1)=1.+(CT(J,1)*ZT(J+1,1) + DTT(J,1)*ZT(J-1,1)-(HTT(J,1)-BT(J,
1 1))*ZT(J,1) + AT(J,1)*ZT(J,2) + FTT(J,1)*ZF(J,1))/(GTT(J,1)*
2 ZT(J,1))
001512 I = 2*J + NEQM1R
001515 239 Y(I) = 1. + (CT(J,MPZ)*ZT(J+1,MPZ) + DTT(J,MPZ)*ZT(J-1,MPZ)
1 - HTT(J,MPZ)*ZT(J,MPZ) + AT(J,MPZ) + BT(J,MPZ)*ZT(J,MPZM1)
2 + FTT(J,MPZ)*ZF(J,MPZ))/(GTT(J,MPZ)*ZT(J,MPZ))
001556 Y(1) = 1. + (CT(1,1)*ZT(2,1) + (DTT(1,1)-HTT(1,1)+BT(1,1))*ZT(1,1)
1 + AT(1,1)*ZT(1,2) + FTT(1,1)*ZF(1,1))/(GTT(1,1)*ZT(1,1))
001574 Y(MPRD1)= 1. + ((CT(MPR,1)-HTT(MPR,1)+BT(MPR,1))*ZT(MPR,1)+DTT(MPR
1 1)*ZT(MPRM1,1) + AT(MPR,1)*ZT(MPR,2) + FTT(MPR,1)*ZF(MPR,1))/
2 (GTT(MPR,1)*ZT(MPR,1))
001614 Y(NEQM1)=1. + (CT(1,MPZ)*ZT(2,MPZ) + (DTT(1,MPZ)-HTT(1,MPZ))*ZT(1,MP
1 Z) + AT(1,MPZ) + BT(1,MPZ)*ZT(1,MPZM1) + FTT(1,MPZ)*ZF(1,MPZ))/
2 (GTT(1,MPZ)*ZT(1,MPZ))
001643 Y(NEQM1) = 1. + ((CT(MPR,MPZ)-HTT(MPR,MPZ))*ZT(MPR,MPZ) + DTT(MPR
1 ,MPZ)*ZT(MPRM1,MPZ) + AT(MPR,MPZ) + BT(MPR,MPZ)*ZT(MPR,MPZM1)
2 + FTT(MPR,MPZ)*ZF(MPR,MPZ))/(GTT(MPR,MPZ)*ZT(MPR,MPZ))
*****
C
C
C
SET TIME RANGE AND PRINT CONTROL
001673 READ (10,301) TMIN, DT, TMAX, UPLF, NPRT
001710 301 FORMAT(4E10.5,I10)
001710 WRITE(9,303) TMIN,DT,TMAX,UPLF,NPRT
001725 303 FORMAT(1H0,8X,10HTIME START,10X,9HTIME STEP,11X,8HTIME END,12X,
1 10HFLUX LIMIT,18X,13HPRINT CONTROL/(1H ,1P4E20.6,120))
001725 T=TMIN
*****
C
C
C
CALCULATE TIME STEP PARAMETERS
001727 DTXLI = - DT * XLI
001731 EXLI = EXP (DTXLI)
001733 OMEXI = 1. - EXLI
001735 DO 321 J=1,MPR
001736 DO 321 K=1,MPZ
001737 ZTP(J,K) = ZT(J,K)
001744 ZFP(J,K) = ZF(J,K)
001747 YA(J,K) = OMEXI / (1. + EI*RFT(J,K))
001754 321 YB(J,K) = EI * RFT(J,K) * YA(J,K)
001764 GOTO 213
*****
C
C
C
INTEGRATE XENON AND IODINE CONCENTRATIONS
001765 350 T = T + DT
001767 NSTEPS=NSTEPS+1
001771 DO 71 K=1,MPZ
001772 KM1 = K - 1
001774 DO 71 J=1,MPR
001775 ZTC = (3. * ZT(J,K) - ZTP(J,K)) * .5
002004 ZFC = (3. * ZF(J,K) - ZFP(J,K)) * .5
002012 TOTLD = ET(J,K) * ZTC + XA(J,K) * ZFC + XLX
002022 XLDT = - DT * TOTLD
002024 EXLX = EXP(XLDT)
002027 L = MPRD * KM1 + 2*J - 1

```

```

002035      Y(L) = Y(L) * EXLX
1      *XB(J,K) * ( ZTC + XC(J,K) * ZFC ) * (1. - EXLX)/TOTLD
2      *XD(J,K)*( Y(L+1) - ZTC *XE(J,K)*( Y(L+1) - ZFC ))*(EXLI-EXLX)/
3      (TOTLD - XLI)
002072 71 Y(L+1) = Y(L+1)* EXLI + YA(J,K) * ZTC + YB(J,K) * ZFC
*****
C
C
C
C
C
C
C
C
C
C
002107      DO 619 K=1,MPZ
002111      KM1 = K - 1
002113      DO 619 J=1,MPR
002114      L = MPRD * KM1 + 2*J - 1
002122      ETT(J,K) = GTT(J,K)*(1. - Y(L)) - HTT(J,K)
002132 619 EFF(J,K) = GFF(J,K)*( 1. - Y(L)) - HFF(J,K)
002146      C33(1) = ETT(1,1) + DTT(1,1) + BT(1,1)
002151      C33(2) = EFF(1,1) + DFF(1,1) + BF(1,1)
002154      DO 613 J=2,MPRM1
002155      C33(2*J-1) = ETT(J,1) + BT(J,1)
002162 613 C33(2*J) = EFF(J,1) + BF(J,1)
002170      C33(MPRDM1) = ETT(MPR,1) + CT(MPR,1) + BT(MPR,1)
002174      C33(MPRD) = EFF(MPR,1) + CF(MPR,1) + BF(MPR,1)
002200      DO 612 K=2,MPZ
002202      L = MPRD*(K-1)
002205      LPMRD = MPRD * L
002207      C33(L+1) = ETT(1,K) + DTT(1,K)
002214      C33(L+2) = EFF(1,K) + DFF(1,K)
002217      C33(LPMRD-1) = ETT(MPR,K) + CT(MPR,K)
002223      C33(LPMRD) = EFF(MPR,K) + CF(MPR,K)
002226      DO 612 J=2,MPRM1
002230      JDBPL = L + 2 * J
002233      C33(JDBPL-1) = ETT(J,K)
002237 612 C33(JDBPL) = EFF(J,K)
*****
C
C
C
C
C
002246      GL(1) = C33(1)
002247      RGL = 1./C33(1)
002251      GU(2) = C34(1)*RGL
002252      GU(3) = C35(1)*RGL
002254      GU(MPRDP1) = C1R(1)*RGL
002256      L = MPRDP2
002257      GL(L) = C33(2) - GL(2)*GU(2)
002263      RGL = 1./GL(L)
002265      GL(L+1) = C32(2) - GL(3)*GU(2)
002270      GU(L+1) = (C36(2) - GL(2)*GU(3))*RGL
002274      GU(L+2) = C35(2)*RGL
002276      N = L + MPRDM1
002300      GL(N) = - GL(MPRDP1)*GU(2)
002303      GU(N) = - GL(2)*GU(MPRDP1)*RGL
002306      LPD = L + MPRD
002310      GU(LPD) = C1R(2)*RGL
002312      GL(MPRDD3) = 0.
002313      GU(MPRDD3) = 0.
002314      DO 20 K=3,MPRDM2
002316      KM1 = K-1
002320      KM2 = K - 2

```



```

002322      L = MPRDP1 * KM1 * 1
002325      SUMK = 0.
002326      DO 15 J=KM2,KM1
002330      M = MPRD * (J-1) * K
002334      15 SUMK = SUMK + GL(M)*GU(M)
002342      GL(L) = C33(K) - SUMK
002345      RGL = 1./GL(L)
002347      M = MPRD * KM2 * K
002353      GL(L+1) = C32(K) - GL(M+1)*GU(M)
002357      GU(L+1) = (C34(K) - GL(M)*GU(M+1))*RGL
002364      GU(L+2) = C35(K) * RGL
002367      IMK = MPRDP1 - K
002370      DO 10 I=IMK,MPRDM2
002371      N = L + I
002373      SUMK1 = 0.
002374      SUM1K = 0.
002375      DO 5 J=KM2,KM1
002377      M = MPRD * (J-1) * K
002403      MPI = M + I
002405      SUMK1 = SUMK1 + GL(MPI)*GU(M)
002410      5 SUM1K = SUM1K + GL(M)*GU(MPI)
002416      GL(N) = - SUMK1
002420      10 GU(N) = - SUM1K*RGL
002425      N = L + MPRDM1
002427      M = MPRD * KM2 * K
002433      MPI = M + MPRDM1
002434      GL(N) = - GL(MPI)*GU(M)
002437      GU(N) = - GL(M)*GU(MPI)*RGL
002443      LPD = L + MPRD
002445      20 GU(LPD) = C1R(K) * RGL
002452      DO 40 K=MPRDM1,MPRD
002454      KM1 = K-1
002456      KM2 = K - 2
002460      L = MPRDP1 * KM1 * 1
002463      SUMK = 0.
002464      SUMK1 = 0.
002465      SUM1K = 0.
002466      SUMK2 = 0.
002467      SUM2K = 0.
002470      DO 35 J=KM2,KM1
002472      M = MPRD * (J-1) * K
002476      SUMK = SUMK + GL(M)*GU(M)
002501      SUMK1 = SUMK1 + GL(M+1)*GU(M)
002504      SUM1K = SUM1K + GL(M)*GU(M+1)
002507      SUMK2 = SUMK2 + GL(M+2)*GU(M)
002512      35 SUM2K = SUM2K + GL(M)*GU(M+2)
002520      GL(L) = C33(K) - SUMK
002523      RGL = 1./GL(L)
002525      GL(L+1) = C32(K) - SUMK1
002530      GU(L+1) = (C34(K) - SUM1K)*RGL
002533      GL(L+2) = C31(K) - SUMK2
002536      GU(L+2) = (C35(K) - SUM2K)*RGL
002541      DO 30 I=3,MPRDM2
002543      N = L + I
002545      SUMK1 = 0.
002546      SUM1K = 0.
002547      DO 25 J=KM2,KM1
002551      M = MPRD * (J-1) * K
002555      MPI = M + I
002557      SUMK1 = SUMK1 + GL(MPI)*GU(M)
002562      25 SUM1K = SUM1K + GL(M)*GU(MPI)
002570      GL(N) = - SUMK1

```

```

002572      30  GU(N) = - SUM1K*RGL
002577      N = L + MPRDM1
002601      M = MPRD * KM2 + K
002605      MPI = M + MPRDM1
002606      GL(N) = - GL(MPI)*GU(M)
002611      GU(N) = - GL(M)*GU(MPI)*RGL
002615      LPD = L + MPRD
002617      40  GU(LPD) = C1R(K) * RGL
002623      DO 60 K=MPRDP1,NEQMR
002625      KM1 = K-1
002627      L= MPRDP1* KM1 + 1
002631      SUMK = 0.
002632      SUMK1 = 0.
002633      SUM1K = 0.
002634      SUMK2 = 0.
002635      SUM2K = 0.
002636      JL = K - MPRD
002640      DO 55 J=JL,KM1
002641      M = MPRD * (J-1) + K
002645      55  SUMK = SUMK + GL(M)*GU(M)
002653      JLP1 = JL + 1
002655      DO 54 J=JLP1,KM1
002656      M = MPRD * (J-1) + K
002662      SUMK1 = SUMK1 + GL(M+1)*GU(M)
002665      54  SUM1K = SUM1K + GL(M)*GU(M+1)
002673      JLP2 = JL + 2
002675      DO 53 J=JLP2,KM1
002676      M = MPRD * (J-1) + K
002702      SUMK2 = SUMK2 + GL(M+2)*GU(M)
002705      53  SUM2K = SUM2K + GL(M)*GU(M+2)
002713      GL(L) = C33(K) - SUMK
002716      RGL = 1./GL(L)
002720      GL(L+1) = C32(K) - SUMK1
002723      GU(L+1) = (C34(K) - SUM1K)*RGL
002726      GL(L+2) = C31(K) - SUMK2
002731      GU(L+2) = (C35(K) - SUM2K)*RGL
002734      DO 50 I=3,MPRDM1
002736      N = L + I
002740      SUMK1 = 0.
002741      SUM1K = 0.
002742      JLP1 = JL + I
002743      DO 45 J=JLP1,KM1
002744      M = MPRD * (J-1) + K
002750      MPI = M + I
002752      SUMK1 = SUMK1 + GL(MPI)*GU(M)
002755      45  SUM1K = SUM1K + GL(M)*GU(MPI)
002763      GL(N) = -SUMK1
002765      50  GU(N) = - SUM1K*RGL
002772      LPD = L + MPRD
002774      60  GU(LPD) = C1R(K) * RGL
003001      DO 80 K=NEQMR1,NEQM3
003003      KM1 = K-1
003005      L= MPRDP1* KM1 + 1
003007      SUMK = 0.
003010      SUMK1 = 0.
003011      SUM1K = 0.
003012      SUMK2 = 0.
003013      SUM2K = 0.
003014      JL = K - MPRD
003016      DO 75 J=JL,KM1
003017      M = MPRD * (J-1) + K
003023      75  SUMK = SUMK + GL(M)*GU(M)

```

```

003031      JLP1 = JL + 1
003033      DO 74 J=JLP1,KM1
003034      M = MPRD * (J-1) + K
003040      SUMK1 = SUMK1 + GL(M+1)*GU(M)
003043 74 SUM1K = SUM1K + GL(M)*GU(M+1)
003051      JLP2 = JL + 2
003053      DO 73 J=JLP2,KM1
003054      M = MPRD * (J-1) + K
003060      SUMK2 = SUMK2 + GL(M+2)*GU(M)
003063 73 SUM2K = SUM2K + GL(M)*GU(M+2)
003071      GL(L) = C33(K) - SUMK
003074      RGL = 1./GL(L)
003076      GL(L+1) = C32(K) - SUMK1
003101      GU(L+1) = (C34(K) - SUM1K)*RGL
003104      GL(L+2) = C31(K) - SUMK2
003107      GU(L+2) = (C35(K) - SUM2K)*RGL
003112      NEQMK = NEQ - K
003114      DO 80 I=3,NEQMK
003115      N = L + I
003117      SUMK1 = 0.
003120      SUM1K = 0.
003121      JLP1 = JL + I
003122      DO 65 J=JLP1,KM1
003123      M = MPRD * (J-1) + K
003127      MPI = M + I
003131      SUMK1 = SUMK1 + GL(MPI)*GU(M)
003134 65 SUM1K = SUM1K + GL(M)*GU(MPI)
003142      GL(N) = -SUMK1
003144 80 GU(N) = -SUM1K*RGL
003154      B(NEQMR1) = D(NEQMR1)/GL(NEQMR)
003157      DO 89 K=NEQMR2,NEQM3
003161      KM1 = K - 1
003163      L = MPRD1 * KM1 + 1
003165      SUMKB = 0.
003166      DO 88 J=NEQMR1,KM1
003170      M = MPRD * (J-1) + K
003174 88 SUMKB = SUMKB + GL(M)*B(J)
003202 89 B(K) = (D(K) - SUMKB)/GL(L)
003210      SUMK = 0.
003211      SUMKB = 0.
003211      SUMK1 = 0.
003212      SUM1K = 0.
003213      SUMK2 = 0.
003214      SUM2K = 0.
003215      DO 85 J=NEQM2R,NEQM3
003217      M = MPRD * (J-1) + NEQM2
003223 85 SUMK = SUMK + GL(M)*GU(M)
003231      DO 87 J = NEQMR1,NEQM3
003233      M = MPRD * (J-1) + NEQM2
003237 87 SUMKB = SUMKB + GL(M)*B(J)
003245      DO 84 J = NEQM1R,NEQM3
003247      M = MPRD * (J-1) + NEQM2
003253      SUMK1 = SUMK1 + GL(M+1)*GU(M)
003256 84 SUM1K = SUM1K + GL(M)*GU(M+1)
003264      DO 83 J = NEQMR,NEQM3
003266      M = MPRD * (J-1) + NEQM2
003272      SUMK2 = SUMK2 + GL(M+2)*GU(M)
003275 83 SUM2K = SUM2K + GL(M)*GU(M+2)
003303      GL(NEQTM2) = C33(NEQM2) - SUMK
003306      RGL = 1./GL(NEQTM2)
003310      B(NEQM2) = (D(NEQM2) - SUMKB)*RGL
003314      GL(NEQTM2+1) = C32(NEQM2) - SUMK1

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```

003317      GU(NEQTM2+1) = (C34(NEQM2) - SUM1K)*RGL
003322      GL(NEQTM2+2) = C31(NEQM2) - SUMK2
003325      GU(NEQTM2+2) = (C35(NEQM2) - SUM2K)*RGL
003330      SUMK = 0.
003331      SUMKB = 0.
003332      SUMK1 = 0.
003333      SUM1K = 0.
003333      DO 90 J=NEQM1R,NEQM2
003335      M = MPRD * (J-1) + NEQM1
003341     90  SUMK = SUMK + GL(M)*GU(M)
003347      DO 91 J=NEQMR1,NEQM2
003351      M = MPRD * (J-1) + NEQM1
003355     91  SUMKB = SUMKB + GL(M)*B(J)
003363      DO 93 J=NEQMR,NEQM2
003365      M = MPRD * (J-1) + NEQM1
003371      SUMK1 = SUMK1 + GL(M+1)*GU(M)
003374     93  SUM1K = SUM1K + GL(M)*GU(M+1)
003402      GL(NEQTM1) = C33(NEQM1) - SUMK
003405      RGL = 1./GL(NEQTM1)
003407      B(NEQM1) = (D(NEQM1) - SUMKB)*RGL
003413      GL(NEQTM1+1) = C32(NEQM1) - SUMK1
003416      GU(NEQTM1+1) = (C34(NEQM1) -SUM1K)*RGL
003421      SUMK = 0.
003422      SUMKB = 0.
003423      DO 95 J=NEQMR,NEQM1
003425      M = MPRD * (J-1) + NEQ
003431     95  SUMK = SUMK + GL(M)*GU(M)
003437      DO 96 J=NEQMR1,NEQM1
003441      M = MPRD * (J-1) + NEQ
003445     96  SUMKB = SUMKB + GL(M)*B(J)
003453      GL(NEQT) = C33(NEQ) - SUMK
*****
C
C
C
C
C
C
C
C
C
C
C
C
UPPER TRIANGULARIZATION OF MATRIX COMPLETE
*****
C
C
C
C
C
C
C
BEGIN BACKWARD SOLUTION FOR FAST AND THERMAL FLUX
C
C
003456      X(NEQ) = (D(NEQ) - SUMKB)/GL(NEQT)
003462      DO 300 I=1,MPHDM1
003464      M = NEQ - I
003466      MM1 = M - 1
003470      SUMK = 0.
003471      DO 310 J=1,I
003472      JPM= J + M
003474      N = MPRD * MM1 + JPM
003477     310 SUMK = SUMK + GU(N) * X(JPM)
003505     300 X(M) = B(M) - SUMK
003512      DO 320 I=MPRD,NEQM1
003514      M = NEQ - I
003516      MM1 = M - 1
003520      SUMK = 0.
003521      DO 330 J=1,MPRD
003522      JPM = J + M
003524      N = MPRD * MM1 + JPM
003527     330 SUMK = SUMK + GU(N) * X(JPM)
003535     320 X(M) = -SUMK
003541      DO 18 K=1,MPZ
003543      KM1 = K - 1
003545      DO 18 J=1,MPR
003546      ZTP(J,K) = ZT(J,K)

```


The correspondence between program XEKE variables and parameters with those given in Eqs. (5), (11), and (12) is as follows:

MPR is the number of uniform spacial mesh points along the radial dimension under investigation (limits $2 \leq \text{MPR} \leq 33$).

MPZ is the number of uniform spacial mesh points along the axial dimension under investigation (limits $2 \leq \text{MPZ} \leq 168$).

HTR is the length (cm) of the radial dimension under investigation.

HTZ is the length (cm) of the axial dimension under investigation.

SHTR is the radial length (cm) at which the radial length, HTR, under investigation begins (i.e., $0 \leq \text{SHTR} \leq r \leq \text{HTR} + \text{SHTR}$).

NGEMTY is a geometry control variable. If $\text{NGEMTY} = 0$, then the examination geometry is cylindrical. If $\text{NGEMTY} = 1$, then the examination geometry is rectangular.

UPLF is the upper limit control setting for the thermal flux. If at any time the thermal flux is less than zero or equals or exceeds UPLF, that program is terminated.

TMIN is the initial value for the time variable (sec) $\text{TMIN} \leq t$.

$\text{DT} = t_2 - t_1 = \Delta t$ is the uniform incremental time step (sec) over which the xenon and iodine equations are integrated.

TMAX is the final value for the time variable (sec) $\text{TMAX} \geq t$.

NPRT is a print control variable and permits printing of the output data on the dependent variables after a given number (NPRT) of stepwise integrations of the xenon kinetic equations.

$\text{ZT}(J,K) = \phi_1(r,z,t)$ is the thermal flux (dependent variable) for $\text{TMIN} \leq t \leq \text{TMAX}$ and $0 \leq \text{SHTR} \leq r \leq \text{SHTR} + \text{HTR}$ and $0 \leq z \leq \text{HTZ}$ in uniform space steps determined by MPR and MPZ, respectively.

$\text{ZF}(J,K) = \phi_2(r,z,t)$ is the fast flux (dependent variable) for the same range as $\text{ZT}(J,K)$ for the independent variables.

$\text{Y}(2*J - 1) = x(r,z,t)$ is the ^{135}Xe concentration (dependent variable) for the same range as $\text{ZT}(J,K)$ for the independent variables, with $1 \leq J \leq (\text{MPR})(\text{MPZ})$.

$\text{Y}(2*J) = i(r,z,t)$ is the ^{135}I concentration (dependent variable) for the same range as $\text{ZT}(J,K)$ for the independent variables with $1 \leq J \leq (\text{MPR})(\text{MPZ})$.

$$ET(J,K) = \lambda_{10}(r,z) = \sigma_x \phi_{10}(r,z) (\text{sec}^{-1})$$

for

$$0 \leq \text{SHTR} - \frac{\text{HTR}}{2(\text{MPR})} \leq r \leq \text{HTR} + \text{SHTR} + \frac{\text{HTZ}}{2(\text{MPZ})}$$

and

$$- \frac{\text{HTZ}}{2(\text{MPZ})} \leq z \leq \text{HTZ} + \frac{\text{HTR}}{2(\text{MPZ})}$$

with

$$1 \leq J \leq \text{MPR} + 2 \text{ and } 1 \leq K \leq \text{MPZ} + 2 .$$

$EF(J,K) = \lambda_{20}(r,z) = \sigma_x \phi_{20}(r,z) (\text{sec}^{-1})$ for same range as $ET(J,K)$ for the independent variables

$$\text{SF}(J,K) = \left(\frac{\Sigma_s}{D_1} \right) (j,k) (\text{cm}^{-2})$$

$$\text{XAT}(J,K) = \left(\frac{\bar{\gamma} \Sigma_f}{D_1} \right) (j,k) (\text{cm}^{-2})$$

$$\text{FT}(J,K) = \left(\frac{\nu \Sigma_f}{D_2} \right) (j,k) (\text{cm}^{-2})$$

$$\text{XAF}(J,K) = \left(\frac{\bar{\gamma} \eta \Sigma_f}{D_2} \right) (j,k) (\text{cm}^{-2})$$

$$\text{XLX} = \lambda_x (\text{sec}^{-1})$$

$$\text{XLI} = \lambda_i (\text{sec}^{-1})$$

$$\text{GX} = \gamma_x$$

$$\text{GI} = \gamma_i$$

$$\text{EX} = \epsilon_x$$

$$\text{EI} = \epsilon_i$$

$$FN = \eta$$

$$RFT(J,K) = 1/\omega_{12} (j,k)$$

$$XM(J,K) = M_{12} (j,k).$$

The input record format is as follows:

A. Title Card. One title or identification card with any alphameric characters punched in columns 1 through 78 as desired.

B. Parameter Cards. Two cards, the first in eight 10-digit word form and the second in five 10-digit word form.

First Card

Word 1. MPR (fixed point number, right adjusted, column 0 through 10)

Word 2. MPZ (fixed point number, right adjusted, column 11 through 20)

Word 3. HTR ("F" format, column 21 through 30)

Word 4. HTZ ("F" format, column 31 through 40)

Word 5. XLX ("E" format, right adjusted, column 41 through 50)

Word 6. XLI ("E" format, right adjusted, column 51 through 60)

Word 7. GX ("F" format, column 61 through 70)

Word 8. GI ("F" format, column 71 through 80)

Second Card

Word 1. EX ("F" format, column 1 through 10)

Word 2. EI ("F" format, column 11 through 20)

Word 3. FN ("F" format, column 21 through 30)

Word 4. SHTR ("F" format, column 31 through 40)

Word 5. NGEMTY (fixed point number, right adjusted, column 41 through 50)

C. Nuclear Parameter Cards. As many cards as are required to assign the parameters below a value at each mesh point J,K for $1 \leq J \leq MPR$ and $1 \leq K \leq MPZ$ with the J index varying more rapidly on read in. All words are in E format, right adjusted, with eight 10-digit words per card.

- Word 1. SF(J,K) (Column 1 through 10)
- Word 2. XAT(J,K) (Column 11 through 20)
- Word 3. FT(J,K) (Column 21 through 30)
- Word 4. XAF(J,K) (Column 31 through 40)
- Word 5. SF(J + 1,K) (Column 41 through 50)
- Word 6. XAT(J + 1, K) (Column 51 through 60)
- Word 7. FT(J + 1,K) (Column 61 through 70)
- Word 8. XAF(J + 1,K) (Column 71 through 80)

D. Initial Conditions Cards. As many cards as are required to assign the thermal flux, fast flux, and iodine, respectively, their initial values (i.e., values at $t = TMIN$) at each mesh point J,K for $1 \leq J \leq MPR$ and $1 \leq K \leq MPZ$ with the J index varying more rapidly on read in. All words are in F format, with eight 10-digit words per card.

First Card Set

ZT(J,K) at $t = TMIN$ for all J and K

Second Card Set

ZF(J,K) at $t = TMIN$ for all J and K

Third Card Set

Y(2*J) at $t = TMIN$ for all J such that $[1 \leq J \leq (MPR)(MPZ)]$

E. Equilibrium Thermal and Fast Flux Distribution Cards. As many cards as are required to assign the equilibrium thermal and fast flux [in the form ET(J,K) and EF(J,K)] their values at each mesh point, J,K for $1 \leq J \leq MPR + 2$ and $1 \leq K \leq MPZ + 2$ with the J index varying more rapidly on read in. Values of ET and EF at $J = MPR + 1$ and $K = MPZ + 1$ are necessary to determine the gradients of ET and EF at the boundaries where $J = MPR$ or $K = MPZ$. Similarly, the values of ET and EF at $J = MPR + 2$ and $K = MPZ + 2$ are used to determine the gradients of ET and EF at the boundaries where $J = 1^*$ or $K = 1^*$. All words are in "E" format, right adjusted, with eight 10-digit words per card.

*Note that FORTRAN does not permit zero values for the indices J and K.

First Card Set

ET(J,K) for all J and K

Second Card Set

EF(J,K) for all J and K

F. Time and Control Cards. One card with five 10-digit words.

Word 1. TMIN ("E" format, right adjusted, column 1 through 10)

Word 2. DT ("E" format, right adjusted, column 11 through 20)

Word 3. TMAX ("E" format, right adjusted, column 21 through 30)

Word 4. UPLF ("E" format, right adjusted, column 31 through 40)

Word 5. NPRT (fixed point number, right adjusted, column 41 through 50)

IX. SAMPLE SIMULATION BY PROGRAM XEKE

A sample simulation by program XEKE is given on the following pages. Figure 6 depicts the system response in time and space resulting from the sample simulation.

XEKE IS A FORTRAN 4 CODED PROGRAM FOR INVESTIGATING FLUX STABILITY IN THE PRESENCE OF XENON-135
 USES 2 GROUP DIFFUSION THEORY AND EXAMINES 2 DIMENSIONS IN UNIFORM CYLINDRICAL GEOMETRY OR 2 DIMENSIONS IN RECTANGULAR GEOMETRY
 SEE LASL REPORT FOR PERTINENT DETAILS
 CODED BY GARY M. SANDQUIST IN JULY 1966

SAMPLE PROGRAM FOR LASL REPORT BY GARY M. SANDQUIST AUGUST 1966 CDC6600

| RADIAL MESH POINTS | | AXIAL MESH POINTS | | RADIAL LENGTH | | AXIAL LENGTH | | HTR START |
|--------------------|---------------|-------------------|---------------|-----------------|---------------|---------------|-------------|------------|
| B | G | | | 6.47700 | | 60.96000 | | 6.35000000 |
| XLX | XLI | GX | GI | EX | EI | FN | | |
| 2.0930000E-05 | 2.8820000E-05 | 3.1700000E-02 | 9.6830000E-01 | 5.5800000E-02 | 5.5800000E-02 | 1.1000000E-03 | | |
| R,Z SF(R,Z) | XAT(R,Z) | FT(R,Z) | XAF(R,Z) | R,Z SF(R,Z) | XAT(R,Z) | FT(R,Z) | XAF(R,Z) | |
| 1 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 2 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 3 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 4 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 5 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 6 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 7 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 8 1 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 1 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 2 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 3 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 4 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 5 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 6 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 7 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 8 2 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 1 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 2 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 3 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 4 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 5 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 6 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 7 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 8 3 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 1 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 2 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 3 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 4 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 5 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 6 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 7 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 8 4 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 1 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 2 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 3 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 4 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 5 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 6 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 7 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 8 5 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 1 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 2 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 3 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 4 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 5 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 6 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |
| 7 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | 8 6 6.32900E-02 | 2.53800E-02 | 2.13700E-01 | 7.72000E-07 | |

RADIAL MESH SPACE STEP IS ** .80962500

AXIAL MESH SPACE STEP IS ** 10.16000000

| R,Z | INITIAL CONDITIONS NORMALIZED VARIABLES(R,Z) | | | |
|-----|--|------------|------------|-----|
| | TMERHAL FLUX | FAST FLUX | IODINE | R,Z |
| 1 1 | 1.16030000 | 1.15470000 | 1.03560000 | 1 1 |
| 2 1 | 1.16000000 | 1.15470000 | 1.03560000 | 2 1 |
| 3 1 | 1.15970000 | 1.15470000 | 1.03550000 | 3 1 |
| 4 1 | 1.15940000 | 1.15470000 | 1.03550000 | 4 1 |
| 5 1 | 1.15910000 | 1.15470000 | 1.03550000 | 5 1 |
| 6 1 | 1.15880000 | 1.15470000 | 1.03550000 | 6 1 |
| 7 1 | 1.15850000 | 1.15470000 | 1.03560000 | 7 1 |
| 8 1 | 1.16010000 | 1.15480000 | 1.03560000 | 8 1 |
| 1 2 | 1.15690000 | 1.14880000 | 1.03380000 | 1 2 |
| 2 2 | 1.15660000 | 1.14880000 | 1.03370000 | 2 2 |
| 3 2 | 1.15630000 | 1.14880000 | 1.03370000 | 3 2 |
| 4 2 | 1.15600000 | 1.14880000 | 1.03370000 | 4 2 |
| 5 2 | 1.15610000 | 1.14880000 | 1.03370000 | 5 2 |
| 6 2 | 1.15640000 | 1.14890000 | 1.03370000 | 6 2 |
| 7 2 | 1.15670000 | 1.14890000 | 1.03370000 | 7 2 |
| 8 2 | 1.15710000 | 1.14900000 | 1.03380000 | 8 2 |
| 1 3 | 1.14290000 | 1.13460000 | 1.02990000 | 1 3 |
| 2 3 | 1.14260000 | 1.13460000 | 1.02990000 | 2 3 |
| 3 3 | 1.14230000 | 1.13460000 | 1.02990000 | 3 3 |
| 4 3 | 1.14200000 | 1.13460000 | 1.02980000 | 4 3 |
| 5 3 | 1.14220000 | 1.13460000 | 1.02980000 | 5 3 |
| 6 3 | 1.14260000 | 1.13470000 | 1.02990000 | 6 3 |
| 7 3 | 1.14300000 | 1.13470000 | 1.02990000 | 7 3 |
| 8 3 | 1.14330000 | 1.13480000 | 1.03000000 | 8 3 |
| 1 4 | 1.11900000 | 1.11180000 | 1.02440000 | 1 4 |
| 2 4 | 1.11880000 | 1.11180000 | 1.02430000 | 2 4 |
| 3 4 | 1.11860000 | 1.11180000 | 1.02430000 | 3 4 |
| 4 4 | 1.11850000 | 1.11180000 | 1.02430000 | 4 4 |
| 5 4 | 1.11860000 | 1.11180000 | 1.02430000 | 5 4 |
| 6 4 | 1.11890000 | 1.11190000 | 1.02430000 | 6 4 |
| 7 4 | 1.11920000 | 1.11190000 | 1.02440000 | 7 4 |
| 8 4 | 1.11950000 | 1.11190000 | 1.02440000 | 8 4 |
| 1 5 | 1.08640000 | 1.08110000 | 1.01710000 | 1 5 |
| 2 5 | 1.08630000 | 1.08110000 | 1.01710000 | 2 5 |
| 3 5 | 1.08610000 | 1.08110000 | 1.01710000 | 3 5 |
| 4 5 | 1.08610000 | 1.08110000 | 1.01710000 | 4 5 |
| 5 5 | 1.08620000 | 1.08110000 | 1.01710000 | 5 5 |
| 6 5 | 1.08640000 | 1.08120000 | 1.01710000 | 6 5 |
| 7 5 | 1.08660000 | 1.08120000 | 1.01710000 | 7 5 |
| 8 5 | 1.08680000 | 1.08120000 | 1.01710000 | 8 5 |
| 1 6 | 1.04630000 | 1.04360000 | 1.00860000 | 1 6 |
| 2 6 | 1.04620000 | 1.04360000 | 1.00860000 | 2 6 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 1 1 | 1.13157432 | 1.12643492 | .90665701 | 1.04118053 | 1 1 |
| 2 1 | 1.13132010 | 1.12642533 | .91260407 | 1.04116211 | 2 1 |
| 3 1 | 1.13106879 | 1.12641959 | .91363592 | 1.04105604 | 3 1 |
| 4 1 | 1.13083096 | 1.12642262 | .92584463 | 1.04104740 | 4 1 |
| 5 1 | 1.13085024 | 1.12643841 | .92253627 | 1.04104903 | 5 1 |
| 6 1 | 1.13104961 | 1.12646673 | .92280514 | 1.04108239 | 6 1 |
| 7 1 | 1.13132652 | 1.12649876 | .91844183 | 1.04117267 | 7 1 |
| 8 1 | 1.13150746 | 1.12652344 | .91909499 | 1.04118841 | 8 1 |
| 1 2 | 1.12777471 | 1.12101717 | .88923691 | 1.03925419 | 1 2 |
| 2 2 | 1.12757090 | 1.12100861 | .89069128 | 1.03913840 | 2 2 |
| 3 2 | 1.12738469 | 1.12100716 | .89015683 | 1.03912746 | 3 2 |
| 4 2 | 1.12721939 | 1.12101831 | .90115369 | 1.03912000 | 4 2 |
| 5 2 | 1.12733056 | 1.12104594 | .89505443 | 1.03912541 | 5 2 |
| 6 2 | 1.12760104 | 1.12108867 | .89469578 | 1.03914466 | 6 2 |
| 7 2 | 1.12786153 | 1.12113430 | .90005544 | 1.03916252 | 7 2 |
| 8 2 | 1.12815661 | 1.12116959 | .89374885 | 1.04308060 | 8 2 |
| 1 3 | 1.11519106 | 1.10888061 | .89669745 | 1.03487149 | 1 3 |
| 2 3 | 1.11502231 | 1.10887441 | .89633866 | 1.03485147 | 2 3 |
| 3 3 | 1.11488155 | 1.10887648 | .89914210 | 1.03484122 | 3 3 |
| 4 3 | 1.11480113 | 1.10889222 | .89566574 | 1.03474462 | 4 3 |
| 5 3 | 1.11496060 | 1.10872394 | .90219673 | 1.03474781 | 5 3 |
| 6 3 | 1.11528896 | 1.10877083 | .89719453 | 1.03486538 | 6 3 |
| 7 3 | 1.11561321 | 1.10881970 | .89603723 | 1.03488613 | 7 3 |
| 8 3 | 1.11584534 | 1.10885625 | .89793663 | 1.03500423 | 8 3 |
| 1 4 | 1.09513262 | 1.08967317 | .91332287 | 1.02854132 | 1 4 |
| 2 4 | 1.09503216 | 1.08966911 | .91198255 | 1.02843108 | 2 4 |
| 3 4 | 1.09496229 | 1.08967287 | .91205765 | 1.02842408 | 3 4 |
| 4 4 | 1.09497190 | 1.08968873 | .91300838 | 1.02842292 | 4 4 |
| 5 4 | 1.09510884 | 1.08971830 | .91186418 | 1.02842843 | 5 4 |
| 6 4 | 1.09536351 | 1.08975985 | .91148129 | 1.02844705 | 6 4 |
| 7 4 | 1.09561487 | 1.08980239 | .91292322 | 1.02855860 | 7 4 |
| 8 4 | 1.09584820 | 1.08983415 | .91152799 | 1.02857985 | 8 4 |
| 1 5 | 1.06883691 | 1.06485703 | .93645189 | 1.02813202 | 1 5 |
| 2 5 | 1.06874512 | 1.06485421 | .93270379 | 1.02812180 | 2 5 |
| 3 5 | 1.06871407 | 1.06485714 | .93689996 | 1.02811544 | 3 5 |
| 4 5 | 1.06876237 | 1.06486947 | .93360609 | 1.02811633 | 4 5 |
| 5 5 | 1.06887805 | 1.06489184 | .93267086 | 1.02812124 | 5 5 |
| 6 5 | 1.06905080 | 1.06492279 | .93376295 | 1.02813446 | 6 5 |
| 7 5 | 1.06922259 | 1.06495416 | .93495066 | 1.02814628 | 7 5 |
| 8 5 | 1.06937336 | 1.06497751 | .93429385 | 1.02816115 | 8 5 |
| 1 6 | 1.03692668 | 1.03482619 | .96461491 | 1.01025489 | 1 6 |
| 2 6 | 1.03687640 | 1.03482445 | .96479001 | 1.01024846 | 2 6 |
| 3 6 | 1.03683801 | 1.03482568 | .96617018 | 1.01024524 | 3 6 |
| 4 6 | 1.03686141 | 1.03483165 | .96360249 | 1.01024568 | 4 6 |
| 5 6 | 1.03689722 | 1.03484269 | .96559979 | 1.01024705 | 5 6 |
| 6 6 | 1.03699482 | 1.03485838 | .96464334 | 1.01025387 | 6 6 |
| 7 6 | 1.03708861 | 1.03487449 | .96525196 | 1.01026084 | 7 6 |
| 8 6 | 1.03716942 | 1.03488652 | .96485923 | 1.01024772 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION **** 3600.00 SECONDS **** 1.0000 HOURS

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 1 1 | 1.10183043 | 1.09737356 | .91741245 | 1.04490805 | 1 1 |
| 2 1 | 1.10163135 | 1.09736601 | .92152201 | 1.04487493 | 2 1 |
| 3 1 | 1.10143862 | 1.09736230 | .92197017 | 1.04476517 | 3 1 |
| 4 1 | 1.10126087 | 1.09736656 | .93163157 | 1.04475039 | 4 1 |
| 5 1 | 1.10129170 | 1.09738193 | .92883118 | 1.04475393 | 5 1 |
| 6 1 | 1.10147145 | 1.09740803 | .92908267 | 1.04477899 | 6 1 |
| 7 1 | 1.10171151 | 1.09743699 | .92389533 | 1.04489747 | 7 1 |
| 8 1 | 1.10187001 | 1.09745913 | .92623159 | 1.04492649 | 8 1 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 1 2 | 1.09792344 | 1.09260712 | .91185293 | 1.04286120 | 1 2 |
| 2 2 | 1.09780200 | 1.09260189 | .91128339 | 1.04273600 | 2 2 |
| 3 2 | 1.09770913 | 1.09260332 | .90966868 | 1.04271803 | 3 2 |
| 4 2 | 1.09764093 | 1.09261543 | .91615806 | 1.04270826 | 4 2 |
| 5 2 | 1.09776706 | 1.09264062 | .91134194 | 1.04271905 | 5 2 |
| 6 2 | 1.09798758 | 1.09267738 | .91133409 | 1.04273353 | 6 2 |
| 7 2 | 1.09819488 | 1.09271565 | .91511235 | 1.04278541 | 7 2 |
| 8 2 | 1.09840345 | 1.09274466 | .91266814 | 1.04652498 | 8 2 |
| 1 3 | 1.08734560 | 1.08252527 | .92239779 | 1.03811944 | 1 3 |
| 2 3 | 1.08726487 | 1.08252244 | .92102484 | 1.03808726 | 2 3 |
| 3 3 | 1.08722452 | 1.08252699 | .92107349 | 1.03807247 | 3 3 |
| 4 3 | 1.08728095 | 1.08254255 | .91766734 | 1.03798179 | 4 3 |
| 5 3 | 1.08734084 | 1.08257027 | .92088223 | 1.03798955 | 5 3 |
| 6 3 | 1.08744880 | 1.08260893 | .91811270 | 1.03811907 | 6 3 |
| 7 3 | 1.08769310 | 1.08264822 | .91749314 | 1.03815505 | 7 3 |
| 8 3 | 1.08804177 | 1.08268715 | .91974931 | 1.03828493 | 8 3 |
| 1 4 | 1.07154680 | 1.06764319 | .93786436 | 1.03121989 | 1 4 |
| 2 4 | 1.07150793 | 1.06764173 | .93563385 | 1.03110555 | 2 4 |
| 3 4 | 1.07150946 | 1.06764496 | .93417959 | 1.03109005 | 3 4 |
| 4 4 | 1.07158938 | 1.06766165 | .93348082 | 1.03109643 | 4 4 |
| 5 4 | 1.07170544 | 1.06768641 | .93199889 | 1.03110741 | 5 4 |
| 6 4 | 1.07190452 | 1.06771951 | .93210999 | 1.03113962 | 6 4 |
| 7 4 | 1.07209076 | 1.06775260 | .93308004 | 1.03125876 | 7 4 |
| 8 4 | 1.07224189 | 1.06777685 | .93305439 | 1.03129410 | 8 4 |
| 1 5 | 1.05154004 | 1.04872860 | .95506410 | 1.02289005 | 1 5 |
| 2 5 | 1.05152183 | 1.04872763 | .95218449 | 1.02287373 | 2 5 |
| 3 5 | 1.05151894 | 1.04873157 | .95303778 | 1.02286517 | 3 5 |
| 4 5 | 1.05158299 | 1.04874270 | .95042534 | 1.02284805 | 4 5 |
| 5 5 | 1.05164181 | 1.04874114 | .94927165 | 1.02280747 | 5 5 |
| 6 5 | 1.05182904 | 1.04878554 | .95611628 | 1.02218634 | 6 5 |
| 7 5 | 1.05195771 | 1.04880976 | .95880668 | 1.02212879 | 7 5 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 0 5 | 1.05205982 | 1.04882745 | .95124671 | 1.02214580 | 0 5 |
| 1 6 | 1.02760086 | 1.02614666 | .97482677 | 1.01133360 | 1 6 |
| 2 6 | 1.02760018 | 1.02614661 | .97428265 | 1.01132359 | 2 6 |
| 3 6 | 1.02763929 | 1.02614794 | .97436946 | 1.01131912 | 3 6 |
| 4 6 | 1.02766847 | 1.02615358 | .97259279 | 1.01132052 | 4 6 |
| 5 6 | 1.02771245 | 1.02614302 | .97331495 | 1.01132373 | 5 6 |
| 6 6 | 1.02778982 | 1.02617572 | .97292231 | 1.01133576 | 6 6 |
| 7 6 | 1.02780112 | 1.02618846 | .97326725 | 1.01134661 | 7 6 |
| 8 6 | 1.02791729 | 1.02619779 | .97345347 | 1.01135975 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | KENON | IODINE | |
|--|--------------|------------|-----------|-------------|-----|
| ELAPSED KENON TIME SINCE PERTURBATION **** 5400.00 SECONDS **** 1.5000 HOURS | | | | | |
| 1 1 | 1.07307258 | 1.06941596 | .93097945 | 1.04669738 | 1 1 |
| 2 1 | 1.07292953 | 1.06941050 | .93334071 | 1.04669314 | 2 1 |
| 3 1 | 1.07279676 | 1.06940868 | .93301359 | 1.046682037 | 3 1 |
| 4 1 | 1.07267583 | 1.06941375 | .94038284 | 1.046680165 | 4 1 |
| 5 1 | 1.07271745 | 1.06942801 | .93781548 | 1.046680723 | 5 1 |
| 6 1 | 1.07267270 | 1.06945094 | .93813878 | 1.046684184 | 6 1 |
| 7 1 | 1.07307169 | 1.06947589 | .93329979 | 1.046696610 | 7 1 |
| 8 1 | 1.07320072 | 1.06949477 | .93625630 | 1.04700570 | 8 1 |
| 1 2 | 1.06932994 | 1.06543988 | .93503652 | 1.04482798 | 1 2 |
| 2 2 | 1.06927589 | 1.06543738 | .93302870 | 1.044669868 | 2 2 |
| 3 2 | 1.06925658 | 1.06544069 | .93050226 | 1.04467882 | 3 2 |
| 4 2 | 1.06925788 | 1.06545247 | .93375267 | 1.044666793 | 4 2 |
| 5 2 | 1.06934306 | 1.06547394 | .92964900 | 1.044683599 | 5 2 |
| 6 2 | 1.06955604 | 1.06550358 | .92996521 | 1.04472933 | 6 2 |
| 7 2 | 1.06970575 | 1.06553361 | .93271054 | 1.04477118 | 7 2 |
| 8 2 | 1.06983820 | 1.06555591 | .93305092 | 1.044833612 | 8 2 |
| 1 3 | 1.06098574 | 1.05771409 | .94734087 | 1.03985697 | 1 3 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 2 3 | 1.06096653 | 1.05771365 | .94489210 | 1.03981828 | 2 3 |
| 3 3 | 1.06094166 | 1.05771929 | .94331617 | 1.03980243 | 3 3 |
| 4 3 | 1.06108140 | 1.05773318 | .93983360 | 1.03971080 | 4 3 |
| 5 3 | 1.06119752 | 1.05775561 | .94095505 | 1.03973105 | 5 3 |
| 6 3 | 1.06138777 | 1.05778521 | .93960918 | 1.03986757 | 6 3 |
| 7 3 | 1.06155718 | 1.05781451 | .93935181 | 1.03991370 | 7 3 |
| 8 3 | 1.06168571 | 1.05783570 | .94194041 | 1.04004985 | 8 3 |
| 1 4 | 1.04940798 | 1.04688247 | .98999458 | 1.03262991 | 1 4 |
| 2 4 | 1.04941075 | 1.04688275 | .95740624 | 1.03251567 | 2 4 |
| 3 4 | 1.04945446 | 1.04688827 | .95520141 | 1.03250614 | 3 4 |
| 4 4 | 1.04954764 | 1.04690060 | .95359959 | 1.03250904 | 4 4 |
| 5 4 | 1.04965935 | 1.04691967 | .95190012 | 1.03252459 | 5 4 |
| 6 4 | 1.04980222 | 1.04694393 | .95232280 | 1.03256587 | 6 4 |
| 7 4 | 1.04992661 | 1.04696757 | .95294726 | 1.03268820 | 7 4 |
| 8 4 | 1.05001764 | 1.04698456 | .95402537 | 1.03273240 | 8 4 |
| 1 5 | 1.03535682 | 1.03357476 | .97174138 | 1.02311998 | 1 5 |
| 2 5 | 1.03536342 | 1.03357501 | .96938335 | 1.02310060 | 2 5 |
| 3 5 | 1.03539268 | 1.03357905 | .96865849 | 1.02309195 | 3 5 |
| 4 5 | 1.03546569 | 1.03358813 | .96637746 | 1.02309704 | 4 5 |
| 5 5 | 1.03555850 | 1.03360205 | .96511668 | 1.02311004 | 5 5 |
| 6 5 | 1.03565672 | 1.03361960 | .96584860 | 1.02313934 | 6 5 |
| 7 5 | 1.03574193 | 1.03363658 | .96630059 | 1.02316527 | 7 5 |
| 8 5 | 1.03580217 | 1.03364875 | .96732473 | 1.02319642 | 8 5 |
| 1 6 | 1.01895013 | 1.01797656 | .98410425 | 1.01191209 | 1 6 |
| 2 6 | 1.01894845 | 1.01797663 | .98326557 | 1.01190012 | 2 6 |
| 3 6 | 1.01896278 | 1.01797871 | .98272722 | 1.01189559 | 3 6 |
| 4 6 | 1.01900010 | 1.01798344 | .98132250 | 1.01189811 | 4 6 |
| 5 6 | 1.01904251 | 1.01799071 | .98136392 | 1.01190298 | 5 6 |
| 6 6 | 1.01909792 | 1.01800001 | .98128761 | 1.01191856 | 6 6 |
| 7 6 | 1.01914568 | 1.01800908 | .98150994 | 1.01193242 | 7 6 |
| 8 6 | 1.01917956 | 1.01801560 | .98202679 | 1.01194894 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | KENON | IODINE | |
|--|--------------|------------|------------|------------|-----|
| ELAPSED KENON TIME SINCE PERTURBATION **** 7200.00 SECONDS **** 2.0000 HOURS | | | | | |
| 1 1 | 1.04606116 | 1.04325648 | .94628210 | 1.04753872 | 1 1 |
| 2 1 | 1.04597194 | 1.04325304 | .94704131 | 1.04748768 | 2 1 |
| 3 1 | 1.04589684 | 1.04325291 | .94586060 | 1.04737765 | 3 1 |
| 4 1 | 1.04582760 | 1.04325841 | .95119032 | 1.04735693 | 4 1 |
| 5 1 | 1.04587831 | 1.04327106 | .94867315 | 1.04736459 | 5 1 |
| 6 1 | 1.04600623 | 1.04329026 | .94912328 | 1.04740646 | 6 1 |
| 7 1 | 1.04616259 | 1.04331065 | .94573162 | 1.04753401 | 7 1 |
| 8 1 | 1.04625858 | 1.04332586 | .948822570 | 1.04758126 | 8 1 |
| 1 2 | 1.04267248 | 1.04013479 | .95797493 | 1.04531911 | 1 2 |
| 2 2 | 1.04267352 | 1.04013953 | .95495116 | 1.04519022 | 2 2 |
| 3 2 | 1.04271187 | 1.04014399 | .95189258 | 1.04517045 | 3 2 |
| 4 2 | 1.04276233 | 1.04015463 | .95260869 | 1.04518112 | 4 2 |
| 5 2 | 1.04288075 | 1.04017172 | .94888758 | 1.04518092 | 5 2 |
| 6 2 | 1.04300456 | 1.04019378 | .94948833 | 1.04523402 | 6 2 |
| 7 2 | 1.04309658 | 1.04021535 | .95155796 | 1.04528190 | 7 2 |
| 8 2 | 1.04316238 | 1.04023094 | .95390748 | 1.04567622 | 8 2 |
| 1 3 | 1.03661077 | 1.03474188 | .97062482 | 1.04024686 | 1 3 |
| 2 3 | 1.03663707 | 1.03474321 | .96759737 | 1.04026613 | 2 3 |
| 3 3 | 1.03670661 | 1.03474917 | .96506084 | 1.04019161 | 3 3 |
| 4 3 | 1.03681516 | 1.03476069 | .96147388 | 1.04011549 | 4 3 |
| 5 3 | 1.03692411 | 1.03477738 | .96127011 | 1.04013160 | 5 3 |
| 6 3 | 1.03705126 | 1.03479790 | .96084419 | 1.04027062 | 6 3 |
| 7 3 | 1.03715223 | 1.03481747 | .96083727 | 1.04032236 | 7 3 |
| 8 3 | 1.03720576 | 1.03483122 | .96369534 | 1.04045983 | 8 3 |
| 1 4 | 1.02905247 | 1.02774948 | .988017403 | 1.03291500 | 1 4 |
| 2 4 | 1.02906599 | 1.02775099 | .97745907 | 1.03280411 | 2 4 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 3 4 | 1.02915645 | 1.02775625 | .97489805 | 1.03279615 | 3 4 |
| 4 4 | 1.02924890 | 1.02776578 | .97281368 | 1.03280190 | 4 4 |
| 5 4 | 1.02935044 | 1.02777907 | .97099131 | 1.03282888 | 5 4 |
| 6 4 | 1.02943996 | 1.02779480 | .97161297 | 1.03286713 | 6 4 |
| 7 4 | 1.02950752 | 1.02780950 | .97210869 | 1.03290908 | 7 4 |
| 8 4 | 1.02954764 | 1.02781972 | .97376868 | 1.03303737 | 8 4 |
| 1 5 | 1.02051398 | 1.01964146 | .98683857 | 1.02332897 | 1 5 |
| 2 5 | 1.02059014 | 1.01964258 | .98474025 | 1.02330898 | 2 5 |
| 3 5 | 1.02058985 | 1.01964633 | .98332444 | 1.02330150 | 3 5 |
| 4 5 | 1.02066268 | 1.01965312 | .98122941 | 1.02330876 | 4 5 |
| 5 5 | 1.02073678 | 1.01966247 | .97993359 | 1.02332430 | 5 5 |
| 6 5 | 1.02079607 | 1.01967343 | .98061599 | 1.02335699 | 6 5 |
| 7 5 | 1.02084005 | 1.01968359 | .98095862 | 1.02338560 | 7 5 |
| 8 5 | 1.02088634 | 1.01969063 | .98228448 | 1.02341948 | 8 5 |
| 1 6 | 1.01094498 | 1.01046030 | .99248678 | 1.01204677 | 1 6 |
| 2 6 | 1.01095654 | 1.01046087 | .99154541 | 1.01203442 | 2 6 |
| 3 6 | 1.01098236 | 1.01046284 | .99072196 | 1.01203048 | 3 6 |
| 4 6 | 1.01102039 | 1.01046642 | .98950991 | 1.01203413 | 4 6 |
| 5 6 | 1.01105643 | 1.01047137 | .98919414 | 1.01204029 | 5 6 |
| 6 6 | 1.01109026 | 1.01047724 | .98929980 | 1.01205778 | 6 6 |
| 7 6 | 1.01111547 | 1.01048273 | .98946837 | 1.01207315 | 7 6 |
| 8 6 | 1.01112965 | 1.01048654 | .99016250 | 1.01209122 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 9000.00 SECONDS **** 2.5000 HOURS

| | | | | | |
|-----|-------------|------------|------------|------------|-----|
| 1 1 | 1.02132441 | 1.01937536 | .96243679 | 1.04677770 | 1 1 |
| 2 1 | 1.02128494 | 1.01937381 | .96177388 | 1.04672311 | 2 1 |
| 3 1 | 1.02126298 | 1.01937512 | .95974059 | 1.04661617 | 3 1 |
| 4 1 | 1.02123935 | 1.01938073 | .96327716 | 1.04659511 | 4 1 |
| 5 1 | 1.02129705 | 1.01939147 | .96069659 | 1.04660481 | 5 1 |
| 6 1 | 1.02139647 | 1.01940661 | .96130280 | 1.04665163 | 6 1 |
| 7 1 | 1.02151057 | 1.01942221 | .95859612 | 1.04678004 | 7 1 |
| 8 1 | 1.02157245 | 1.01943360 | .96137003 | 1.04683203 | 8 1 |
| 1 2 | 1.01041370 | 1.01713516 | .98081145 | 1.04451865 | 1 2 |
| 2 2 | 1.01045953 | 1.01713670 | .97629035 | 1.04439395 | 2 2 |
| 3 2 | 1.01054250 | 1.01714181 | .97247683 | 1.04437643 | 3 2 |
| 4 2 | 1.01062695 | 1.01715081 | .97171843 | 1.04436987 | 4 2 |
| 5 2 | 1.01073457 | 1.01716326 | .96820010 | 1.04439298 | 5 2 |
| 6 2 | 1.010881021 | 1.01717778 | .96903991 | 1.04444978 | 6 2 |
| 7 2 | 1.010884720 | 1.01719110 | .97066646 | 1.04450003 | 7 2 |
| 8 2 | 1.010885513 | 1.01720026 | .97445381 | 1.04772795 | 8 2 |
| 1 3 | 1.01456834 | 1.01395027 | .99209701 | 1.03946489 | 1 3 |
| 2 3 | 1.01462930 | 1.01395294 | .98877927 | 1.03942569 | 2 3 |
| 3 3 | 1.01474944 | 1.01395876 | .98569408 | 1.03941417 | 3 3 |
| 4 3 | 1.01484738 | 1.01396764 | .98203414 | 1.03934562 | 4 3 |
| 5 3 | 1.01494194 | 1.01397862 | .98100058 | 1.03936468 | 5 3 |
| 6 3 | 1.01501164 | 1.01399053 | .98117292 | 1.03950226 | 6 3 |
| 7 3 | 1.01505136 | 1.01400100 | .98134224 | 1.03955563 | 7 3 |
| 8 3 | 1.01505576 | 1.01400786 | .98439038 | 1.03969011 | 8 3 |
| 1 4 | 1.01072570 | 1.01049641 | .99843543 | 1.03222648 | 1 4 |
| 2 4 | 1.01074283 | 1.01049885 | .99571392 | 1.03212151 | 2 4 |
| 3 4 | 1.01087078 | 1.01050357 | .99301551 | 1.03211622 | 3 4 |
| 4 4 | 1.01096482 | 1.01051026 | .99069973 | 1.03212478 | 4 4 |
| 5 4 | 1.01104421 | 1.01051804 | .98883047 | 1.03214603 | 5 4 |
| 6 4 | 1.01108487 | 1.01052587 | .98957868 | 1.03219367 | 6 4 |
| 7 4 | 1.01110160 | 1.01053241 | .99001656 | 1.03231212 | 7 4 |
| 8 4 | 1.01109846 | 1.01053652 | .99198981 | 1.03236054 | 8 4 |
| 1 5 | 1.00714025 | 1.00710319 | 1.00034980 | 1.02282992 | 1 5 |
| 2 5 | 1.00722202 | 1.00710497 | .99842525 | 1.02281042 | 2 5 |
| 3 5 | 1.00724414 | 1.00710824 | .99873249 | 1.02280495 | 3 5 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 4 5 | 1.00735358 | 1.00711274 | .99477317 | 1.02281418 | 4 5 |
| 5 5 | 1.00740826 | 1.00711780 | .99349263 | 1.02283124 | 5 5 |
| 6 5 | 1.00743158 | 1.00712270 | .9915109 | 1.02284467 | 6 5 |
| 7 5 | 1.00743826 | 1.00712666 | .99444722 | 1.02289349 | 7 5 |
| 8 5 | 1.00743162 | 1.00712987 | .99591887 | 1.02292720 | 8 5 |
| 1 6 | 1.00375000 | 1.00369768 | .99993537 | 1.01179787 | 1 6 |
| 2 6 | 1.00377120 | 1.00369861 | .99898489 | 1.01178627 | 2 6 |
| 3 6 | 1.00380395 | 1.00370034 | .99805508 | 1.01178338 | 3 6 |
| 4 6 | 1.00384057 | 1.00370272 | .99696489 | 1.01178807 | 4 6 |
| 5 6 | 1.00386808 | 1.00378541 | .99640068 | 1.01179588 | 5 6 |
| 6 6 | 1.00388188 | 1.00378805 | .99668365 | 1.01181362 | 6 6 |
| 7 6 | 1.00388455 | 1.00371021 | .99683083 | 1.01182457 | 7 6 |
| 8 6 | 1.00388368 | 1.00371154 | .99760562 | 1.01184661 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 10800.00 SECONDS **** 3.0000 HOURS

| | | | | | |
|-----|-----------|-----------|-------------|------------|-----|
| 1 1 | .99919489 | .99807144 | .97872127 | 1.04488365 | 1 1 |
| 2 1 | .99920082 | .99807158 | .97683462 | 1.04482867 | 2 1 |
| 3 1 | .99922541 | .99807410 | .97400478 | 1.04472661 | 3 1 |
| 4 1 | .99924098 | .99807956 | .97598626 | 1.04470658 | 4 1 |
| 5 1 | .99930388 | .99808819 | .97328048 | 1.04471821 | 5 1 |
| 6 1 | .99937445 | .99809920 | .97485270 | 1.04476779 | 6 1 |
| 7 1 | .99944806 | .99810999 | .97192186 | 1.04488947 | 7 1 |
| 8 1 | .99947652 | .99811757 | .97581974 | 1.04494873 | 8 1 |
| 1 2 | .99683577 | .99648753 | 1.008861431 | 1.04261947 | 1 2 |
| 2 2 | .99691748 | .99669853 | .99644930 | 1.04258206 | 2 2 |
| 3 2 | .99703421 | .99669588 | .99228815 | 1.04248837 | 3 2 |
| 4 2 | .99714113 | .99670289 | .99831888 | 1.04248532 | 4 2 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 5 2 | .99723526 | .99671082 | .98690910 | 1.04251086 | 5 2 |
| 6 2 | .99726549 | .99671813 | .98794023 | 1.04256806 | 6 2 |
| 7 2 | .99725180 | .99672371 | .98927452 | 1.04261742 | 7 2 |
| 8 2 | .99721006 | .99672690 | .99406743 | 1.04568339 | 8 2 |
| 1 3 | .99506802 | .99554511 | 1.01152648 | 1.03769177 | 1 3 |
| 2 3 | .99515544 | .99554878 | 1.00810534 | 1.03785493 | 2 3 |
| 3 3 | .99527639 | .99555421 | 1.00474420 | 1.03764958 | 3 3 |
| 4 3 | .99539722 | .99556040 | 1.00107124 | 1.03758840 | 4 3 |
| 5 3 | .99547380 | .99556599 | .99953748 | 1.03760943 | 5 3 |
| 6 3 | .99549224 | .99556998 | 1.00009624 | 1.03774216 | 6 3 |
| 7 3 | .99547821 | .99557220 | 1.00038989 | 1.03779380 | 7 3 |
| 8 3 | .99543994 | .99557286 | 1.00354315 | 1.03792166 | 8 3 |
| 1 4 | .99457622 | .99527448 | 1.01466787 | 1.03071403 | 1 4 |
| 2 4 | .99465145 | .99527761 | 1.01201829 | 1.03062097 | 2 4 |
| 3 4 | .99475059 | .99528168 | 1.00931854 | 1.03061909 | 3 4 |
| 4 4 | .99484165 | .99528564 | 1.00693222 | 1.03063024 | 4 4 |
| 5 4 | .99489882 | .99528838 | 1.00507859 | 1.03065268 | 5 4 |
| 6 4 | .99489601 | .99528912 | 1.00589631 | 1.03069864 | 6 4 |
| 7 4 | .99480833 | .99528841 | 1.00631551 | 1.03081099 | 7 4 |
| 8 4 | .99482878 | .99528712 | 1.00842983 | 1.03085627 | 8 4 |
| 1 5 | .99545769 | .99606410 | 1.01220368 | 1.02173338 | 1 5 |
| 2 5 | .99551165 | .99606638 | 1.01042778 | 1.02171777 | 2 5 |
| 3 5 | .99554117 | .99606908 | 1.00867078 | 1.02171483 | 3 5 |
| 4 5 | .99564534 | .99607145 | 1.00684037 | 1.02172377 | 4 5 |
| 5 5 | .99564138 | .99607262 | 1.00561246 | 1.02174343 | 5 5 |
| 6 5 | .99567231 | .99607212 | 1.00625314 | 1.02177532 | 6 5 |
| 7 5 | .99564647 | .99607060 | 1.00653149 | 1.02180230 | 7 5 |
| 8 5 | .99561371 | .99606894 | 1.00802829 | 1.02183346 | 8 5 |
| 1 6 | .99742673 | .99774754 | 1.00640340 | 1.01122658 | 1 6 |
| 2 6 | .99745500 | .99774872 | 1.00549392 | 1.01121662 | 2 6 |
| 3 6 | .99749173 | .99775014 | 1.00455540 | 1.01121506 | 3 6 |
| 4 6 | .99752560 | .99775137 | 1.00356407 | 1.01122067 | 4 6 |

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|-----|-----------|-----------|------------|------------|-----|
| 5 6 | .99754393 | .99775198 | 1.00301551 | 1.01122807 | 5 6 |
| 6 6 | .99753984 | .99775171 | 1.00326925 | 1.01124523 | 6 6 |
| 7 6 | .99752650 | .99775089 | 1.00340904 | 1.01125981 | 7 6 |
| 8 6 | .99750921 | .99775001 | 1.00420137 | 1.01127652 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|---|--------------|-----------|------------|------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 12600.00 SECONDS **** 3.5000 HOURS | | | | | |
| 1 1 | .97985122 | .97950047 | .99455103 | 1.04205037 | 1 1 |
| 2 1 | .97988529 | .97950210 | .99164728 | 1.04194775 | 2 1 |
| 3 1 | .97996164 | .97950557 | .98811392 | 1.04190207 | 3 1 |
| 4 1 | .98001004 | .97951069 | .98876911 | 1.04188416 | 4 1 |
| 5 1 | .98007524 | .97951712 | .98591467 | 1.04189756 | 5 1 |
| 6 1 | .98011870 | .97952406 | .98684856 | 1.04194785 | 6 1 |
| 7 1 | .98015450 | .97953020 | .98519957 | 1.04207134 | 7 1 |
| 8 1 | .98015143 | .97953413 | .98862316 | 1.04212471 | 8 1 |
| 1 2 | .97807953 | .97892682 | 1.01937123 | 1.03981443 | 1 2 |
| 2 2 | .97818929 | .97893095 | 1.01496454 | 1.03970751 | 2 2 |
| 3 2 | .97833059 | .97893627 | 1.01053852 | 1.03969845 | 3 2 |
| 4 2 | .97845109 | .97894138 | 1.00779707 | 1.03969928 | 4 2 |
| 5 2 | .97853008 | .97894479 | 1.00448381 | 1.03972637 | 5 2 |
| 6 2 | .97851870 | .97894543 | 1.00565841 | 1.03978108 | 6 2 |
| 7 2 | .97845971 | .97894393 | 1.00679723 | 1.03982675 | 7 2 |
| 8 2 | .97837597 | .97894173 | 1.01225970 | 1.04273546 | 8 2 |
| 1 3 | .97820655 | .97942265 | 1.02868897 | 1.03510659 | 1 3 |
| 2 3 | .97831375 | .97942706 | 1.02529905 | 1.03507832 | 2 3 |
| 3 3 | .97844801 | .97943192 | 1.02185473 | 1.03507587 | 3 3 |
| 4 3 | .97856704 | .97943553 | 1.01824053 | 1.03502170 | 4 3 |
| 5 3 | .97862422 | .97943618 | 1.01643330 | 1.03504372 | 5 3 |
| 6 3 | .97859779 | .97943311 | 1.01723398 | 1.03516881 | 6 3 |
| 7 3 | .97853756 | .97942803 | 1.01761354 | 1.03521592 | 7 3 |
| 8 3 | .97846310 | .97942325 | 1.02078737 | 1.03533420 | 8 3 |
| 1 4 | .98066887 | .98215051 | 1.02874117 | 1.02854085 | 1 4 |
| 2 4 | .98075675 | .98215413 | 1.02622445 | 1.02845320 | 2 4 |
| 3 4 | .98086228 | .98215749 | 1.02361769 | 1.02845519 | 3 4 |
| 4 4 | .98094748 | .98215894 | 1.02127121 | 1.02846862 | 4 4 |
| 5 4 | .98098339 | .98215720 | 1.01948525 | 1.02849124 | 5 4 |
| 6 4 | .98094285 | .98215175 | 1.02033404 | 1.02853300 | 6 4 |
| 7 4 | .98087732 | .98214474 | 1.02074725 | 1.02863716 | 7 4 |
| 8 4 | .98080766 | .98213879 | 1.02288454 | 1.02867667 | 8 4 |
| 1 5 | .98538855 | .98656856 | 1.02232979 | 1.02015318 | 1 5 |
| 2 5 | .98545160 | .98657117 | 1.02070491 | 1.02014177 | 2 5 |
| 3 5 | .98552496 | .98657333 | 1.01900091 | 1.02014168 | 3 5 |
| 4 5 | .98558269 | .98657375 | 1.01731088 | 1.02015404 | 4 5 |
| 5 5 | .98560145 | .98657151 | 1.01616427 | 1.02017188 | 5 5 |
| 6 5 | .98556439 | .98656634 | 1.01678362 | 1.02019998 | 6 5 |
| 7 5 | .98551086 | .98656010 | 1.01705533 | 1.02022342 | 7 5 |
| 8 5 | .98545656 | .98655496 | 1.01851717 | 1.02025013 | 8 5 |
| 1 6 | .99200086 | .99263485 | 1.01186304 | 1.01039312 | 1 6 |
| 2 6 | .99203417 | .99263621 | 1.01102374 | 1.01038547 | 2 6 |
| 3 6 | .99207281 | .99263731 | 1.01013191 | 1.01038542 | 3 6 |
| 4 6 | .99210311 | .99263748 | 1.00923618 | 1.01039177 | 4 6 |
| 5 6 | .99211243 | .99263623 | 1.00868507 | 1.01039914 | 5 6 |
| 6 6 | .99209288 | .99263343 | 1.00895932 | 1.01041450 | 6 6 |
| 7 6 | .99206427 | .99263005 | 1.00909657 | 1.01042719 | 7 6 |
| 8 6 | .99203512 | .99262727 | 1.00986517 | 1.01044151 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|---|--------------|-----------|-------|--------|--|
| ELAPSED XENON TIME SINCE PERTURBATION **** 14400.00 SECONDS **** 4.0000 HOURS | | | | | |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .96335668 | .96371091 | 1.00946046 | 1.03846740 | 1 1 |
| 2 1 | .96343384 | .96371382 | 1.00574737 | 1.03841947 | 2 1 |
| 3 1 | .96354459 | .96371801 | 1.00162799 | 1.03833134 | 3 1 |
| 4 1 | .96360969 | .96372264 | 1.00117505 | 1.03831639 | 4 1 |
| 5 1 | .96367563 | .96372688 | .99817658 | 1.03833134 | 5 1 |
| 6 1 | .96369318 | .96372994 | .99925734 | 1.03838050 | 6 1 |
| 7 1 | .96369447 | .96373169 | .99801253 | 1.03844970 | 7 1 |
| 8 1 | .96366254 | .96373220 | 1.00172891 | 1.03854924 | 8 1 |
| 1 2 | .96214048 | .96388423 | 1.03595943 | 1.03629231 | 1 2 |
| 2 2 | .96231133 | .96388920 | 1.03148643 | 1.03619614 | 2 2 |
| 3 2 | .96244933 | .96389429 | 1.02698053 | 1.03619326 | 3 2 |
| 4 2 | .96254642 | .96389739 | 1.02373469 | 1.03619808 | 4 2 |
| 5 2 | .96264939 | .96389670 | 1.02051678 | 1.03622587 | 5 2 |
| 6 2 | .96261087 | .96389132 | 1.02178825 | 1.03627565 | 6 2 |
| 7 2 | .96251244 | .96388352 | 1.02279247 | 1.03631530 | 7 2 |
| 8 2 | .96239390 | .96387655 | 1.02865693 | 1.03907168 | 8 2 |
| 1 3 | .96399439 | .96619584 | 1.04340717 | 1.03188193 | 1 3 |
| 2 3 | .96411562 | .96620076 | 1.04015300 | 1.03186186 | 2 3 |
| 3 3 | .96425717 | .96620497 | 1.03676933 | 1.03186476 | 3 3 |
| 4 3 | .96437090 | .96620616 | 1.03328790 | 1.03181712 | 4 3 |
| 5 3 | .96440854 | .96620242 | 1.03136817 | 1.03183922 | 5 3 |
| 6 3 | .96434364 | .96619319 | 1.03230857 | 1.03195441 | 6 3 |
| 7 3 | .96424464 | .96618182 | 1.03274407 | 1.03199475 | 7 3 |
| 8 3 | .96414036 | .96617237 | 1.03585797 | 1.03210113 | 8 3 |
| 1 4 | .96899844 | .97112586 | 1.04055849 | 1.02583996 | 1 4 |
| 2 4 | .96909642 | .97112981 | 1.03822526 | 1.02576276 | 2 4 |
| 3 4 | .96920446 | .97113244 | 1.03578192 | 1.02578886 | 3 4 |
| 4 4 | .96928188 | .97113165 | 1.03355510 | 1.02578421 | 4 4 |
| 5 4 | .96929808 | .97112602 | 1.03187995 | 1.02580614 | 5 4 |
| 6 4 | .96924561 | .97111529 | 1.03272749 | 1.02584169 | 6 4 |
| 7 4 | .96914871 | .97110295 | 1.03313826 | 1.02593604 | 7 4 |
| 8 4 | .96903482 | .97109309 | 1.03521284 | 1.02596777 | 8 4 |
| 1 5 | .97496702 | .97861413 | 1.03069072 | 1.01819477 | 1 5 |
| 2 5 | .97703631 | .97861697 | 1.02922953 | 1.01818845 | 2 5 |
| 3 5 | .97711076 | .97861857 | 1.02764744 | 1.01819138 | 3 5 |
| 4 5 | .97710134 | .97861729 | 1.02611526 | 1.01820484 | 4 5 |
| 5 5 | .97710448 | .97861213 | 1.02507188 | 1.01822139 | 5 5 |
| 6 5 | .97710394 | .97860301 | 1.02566208 | 1.01824502 | 6 5 |
| 7 5 | .97702765 | .97859282 | 1.02592936 | 1.01826362 | 7 5 |
| 8 5 | .97495614 | .97858480 | 1.02730778 | 1.01828442 | 8 5 |
| 1 6 | .98747017 | .98835841 | 1.01631240 | 1.00935519 | 1 6 |
| 2 6 | .98750681 | .98835988 | 1.01556183 | 1.00935034 | 2 6 |
| 3 6 | .98754581 | .98836066 | 1.01474805 | 1.00935187 | 3 6 |
| 4 6 | .98757206 | .98835990 | 1.01395142 | 1.00935881 | 4 6 |
| 5 6 | .98757304 | .98835704 | 1.01343402 | 1.00936578 | 5 6 |
| 6 6 | .98754058 | .98835212 | 1.01370928 | 1.00937853 | 6 6 |
| 7 6 | .98749946 | .98834659 | 1.01384442 | 1.00938860 | 7 6 |
| 8 6 | .98740089 | .98834225 | 1.01456160 | 1.00939972 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

XENON

IODINE

ELAPSED XENON TIME SINCE PERTURBATION ****

16200.00 SECONDS ****

4.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .94969128 | .95067376 | 1.02308754 | 1.03431540 | 1 1 |
| 2 1 | .94979574 | .95067772 | 1.01876876 | 1.03427405 | 2 1 |
| 3 1 | .94992438 | .95068244 | 1.01419519 | 1.03419435 | 3 1 |
| 4 1 | .95004044 | .95068845 | 1.01284113 | 1.03418297 | 4 1 |
| 5 1 | .95008535 | .95068856 | 1.00997230 | 1.03419921 | 5 1 |
| 6 1 | .95007984 | .95068799 | 1.01092878 | 1.03424562 | 6 1 |
| 7 1 | .95008948 | .95068572 | 1.01082078 | 1.03435708 | 7 1 |
| 8 1 | .94999184 | .95068311 | 1.01397540 | 1.03440277 | 8 1 |
| 1 2 | .94909843 | .95151975 | 1.05015776 | 1.03222967 | 1 2 |

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|-----|-----------|-----------|------------|------------|-----|
| 2 2 | .94924413 | .95152532 | 1.04576598 | 1.03214635 | 2 2 |
| 3 2 | .94841204 | .95153000 | 1.04131402 | 1.03214969 | 3 2 |
| 4 2 | .94954817 | .95153116 | 1.03780207 | 1.03215860 | 4 2 |
| 5 2 | .94950683 | .95152678 | 1.03470852 | 1.03218611 | 5 2 |
| 6 2 | .94950594 | .95151608 | 1.03603049 | 1.03222896 | 6 2 |
| 7 2 | .94937414 | .95150280 | 1.03693704 | 1.03226073 | 7 2 |
| 8 2 | .94922753 | .95149174 | 1.04298634 | 1.03488992 | 8 2 |
| 1 3 | .95237890 | .95521698 | 1.05556773 | 1.02818058 | 1 3 |
| 2 3 | .95250913 | .95522221 | 1.05263332 | 1.02816975 | 2 3 |
| 3 3 | .95264297 | .95522571 | 1.04932135 | 1.02817817 | 3 3 |
| 4 3 | .95275872 | .95522471 | 1.04604298 | 1.02813652 | 4 3 |
| 5 3 | .95277749 | .95521716 | 1.04412800 | 1.02815786 | 5 3 |
| 6 3 | .95264041 | .95520270 | 1.04513335 | 1.02826142 | 6 3 |
| 7 3 | .95254980 | .95518605 | 1.04464837 | 1.02829329 | 7 3 |
| 8 3 | .95242186 | .95517270 | 1.04858048 | 1.02838406 | 8 3 |
| 1 4 | .95951458 | .96215359 | 1.05007587 | 1.02275161 | 1 4 |
| 2 4 | .95961818 | .96215772 | 1.04796795 | 1.02268551 | 2 4 |
| 3 4 | .95972544 | .96215964 | 1.04574207 | 1.02269578 | 3 4 |
| 4 4 | .95979380 | .96215689 | 1.04369413 | 1.02271265 | 4 4 |
| 5 4 | .95979213 | .96214797 | 1.04216479 | 1.02273317 | 5 4 |
| 6 4 | .95969344 | .96213287 | 1.04298441 | 1.02276097 | 6 4 |
| 7 4 | .95957146 | .96211617 | 1.04339660 | 1.02284435 | 7 4 |
| 8 4 | .95945884 | .96210312 | 1.04533810 | 1.02286461 | 8 4 |
| 1 5 | .97015103 | .97210350 | 1.03729189 | 1.01595793 | 1 5 |
| 2 5 | .97022400 | .97210647 | 1.03608788 | 1.01595729 | 2 5 |
| 3 5 | .97029733 | .97210754 | 1.03459063 | 1.01596326 | 3 5 |
| 4 5 | .97034632 | .97210480 | 1.03323267 | 1.01597752 | 4 5 |
| 5 5 | .97032972 | .97210721 | 1.03238860 | 1.01599260 | 5 5 |
| 6 5 | .97028017 | .97210488 | 1.03286057 | 1.01601827 | 6 5 |
| 7 5 | .97015892 | .97213151 | 1.03312110 | 1.01602307 | 7 5 |

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|-----|-----------|-----------|------------|------------|-----|
| 8 5 | .97007129 | .97212116 | 1.03438150 | 1.01603692 | 8 5 |
| 1 6 | .98381173 | .98489766 | 1.01977462 | 1.00816694 | 1 6 |
| 2 6 | .98385026 | .98489918 | 1.01912174 | 1.00816519 | 2 6 |
| 3 6 | .98384843 | .98489966 | 1.01840610 | 1.00816031 | 3 6 |
| 4 6 | .98391041 | .98489809 | 1.01771308 | 1.00817566 | 4 6 |
| 5 6 | .98390396 | .98489395 | 1.01725032 | 1.00818193 | 5 6 |
| 6 6 | .98386110 | .98488727 | 1.01751370 | 1.00819146 | 6 6 |
| 7 6 | .98381019 | .98488002 | 1.01764515 | 1.00819840 | 7 6 |
| 8 6 | .98376449 | .98487442 | 1.01829263 | 1.00820576 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------------------|------------|--------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 18000.00 SECONDS **** | | 5.0000 HOURS | |
| 1 1 | .93877659 | .94030563 | 1.03516099 | 1.02976314 | 1 1 |
| 2 1 | .93890273 | .94031044 | 1.03043207 | 1.02972983 | 2 1 |
| 3 1 | .93905301 | .94031547 | 1.02554297 | 1.02965916 | 3 1 |
| 4 1 | .93916468 | .94031879 | 1.02348283 | 1.02965175 | 4 1 |
| 5 1 | .93922702 | .94031889 | 1.02028405 | 1.02966900 | 5 1 |
| 6 1 | .93914916 | .94031501 | 1.02158718 | 1.02971130 | 6 1 |
| 7 1 | .93914256 | .94030910 | 1.02095760 | 1.02981460 | 7 1 |
| 8 1 | .93906269 | .94030370 | 1.02508109 | 1.02985400 | 8 1 |
| 1 2 | .93874037 | .94174347 | 1.06182899 | 1.02779220 | 1 2 |
| 2 2 | .93889533 | .94174941 | 1.05764385 | 1.02772257 | 2 2 |
| 3 2 | .93906725 | .94175357 | 1.05336522 | 1.02773229 | 3 2 |
| 4 2 | .93914195 | .94175291 | 1.04977999 | 1.02774463 | 4 2 |
| 5 2 | .93922246 | .94174522 | 1.04684399 | 1.02777154 | 5 2 |
| 6 2 | .93911412 | .94173000 | 1.04817905 | 1.02780590 | 6 2 |
| 7 2 | .93895505 | .94171209 | 1.04900898 | 1.02782836 | 7 2 |
| 8 2 | .93878662 | .94169760 | 1.05506488 | 1.03029572 | 8 2 |
| 1 3 | .94326293 | .94659558 | 1.06512593 | 1.02415296 | 1 3 |
| 2 3 | .94339769 | .94660094 | 1.06237868 | 1.02415221 | 2 3 |

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|-----|-----------|-----------|------------|------------|-----|
| 3 3 | .94353961 | .94660370 | 1.05942492 | 1.02416612 | 3 3 |
| 4 3 | .94363534 | .94660077 | 1.05641231 | 1.02412984 | 4 3 |
| 5 3 | .94363644 | .94658999 | 1.05458874 | 1.02414973 | 5 3 |
| 6 3 | .94351323 | .94657124 | 1.05560285 | 1.02424041 | 6 3 |
| 7 3 | .94335788 | .94655029 | 1.05608095 | 1.02426259 | 7 3 |
| 8 3 | .94321209 | .94653381 | 1.05886197 | 1.02434059 | 8 3 |
| 1 4 | .95214788 | .95515235 | 1.05730629 | 1.01940163 | 1 4 |
| 2 4 | .95223378 | .95515653 | 1.05545645 | 1.01934692 | 2 4 |
| 3 4 | .95234758 | .95515777 | 1.05348886 | 1.01936126 | 3 4 |
| 4 4 | .95239606 | .95515334 | 1.05166346 | 1.01937925 | 4 4 |
| 5 4 | .95237856 | .95514174 | 1.05030714 | 1.01939776 | 5 4 |
| 6 4 | .95225920 | .95512314 | 1.05107747 | 1.01941673 | 6 4 |
| 7 4 | .95211810 | .95510301 | 1.05147344 | 1.01948838 | 7 4 |
| 8 4 | .95199185 | .95508747 | 1.05324549 | 1.01950059 | 8 4 |
| 1 5 | .96487242 | .96715444 | 1.04217655 | 1.01353464 | 1 5 |
| 2 5 | .96494675 | .96715744 | 1.04108263 | 1.01353999 | 2 5 |
| 3 5 | .96501716 | .96715801 | 1.03985635 | 1.01354892 | 3 5 |
| 4 5 | .96505240 | .96715406 | 1.03868801 | 1.01356368 | 4 5 |
| 5 5 | .96502999 | .96714453 | 1.03784238 | 1.01357685 | 5 5 |
| 6 5 | .96493573 | .96712970 | 1.03839717 | 1.01358780 | 6 5 |
| 7 5 | .96482811 | .96711387 | 1.03864691 | 1.01359416 | 7 5 |
| 8 5 | .96473415 | .96710174 | 1.03978466 | 1.01360038 | 8 5 |
| 1 6 | .98098786 | .98221821 | 1.02229399 | 1.00687825 | 1 6 |
| 2 6 | .98102701 | .98221974 | 1.02174503 | 1.00687977 | 2 6 |
| 3 6 | .98100344 | .98221993 | 1.02113657 | 1.00688442 | 3 6 |
| 4 6 | .98100110 | .98221771 | 1.02055017 | 1.00689202 | 4 6 |
| 5 6 | .98100826 | .98221252 | 1.02015348 | 1.00689734 | 5 6 |
| 6 6 | .98101745 | .98220450 | 1.02039634 | 1.00690326 | 6 6 |
| 7 6 | .98095932 | .98219393 | 1.02052184 | 1.00690671 | 7 6 |
| 8 6 | .98090861 | .98218938 | 1.02108806 | 1.00690993 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------------------|------------|--------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 18000.00 SECONDS **** | | 5.0000 HOURS | |
| 1 1 | .93049401 | .93248577 | 1.04548956 | 1.02496569 | 1 1 |
| 2 1 | .93063648 | .93249122 | 1.04053467 | 1.02494151 | 2 1 |
| 3 1 | .93080245 | .93249640 | 1.03546959 | 1.02488021 | 3 1 |
| 4 1 | .93092480 | .93249898 | 1.03288556 | 1.02487697 | 4 1 |
| 5 1 | .93096325 | .93249719 | 1.02965299 | 1.02489495 | 5 1 |
| 6 1 | .93094634 | .93249036 | 1.03102371 | 1.02493201 | 6 1 |
| 7 1 | .93085663 | .93248126 | 1.03062162 | 1.02502624 | 7 1 |
| 8 1 | .93075809 | .93247343 | 1.03483589 | 1.02505800 | 8 1 |
| 1 2 | .93097710 | .93443127 | 1.07091490 | 1.02313121 | 1 2 |
| 2 2 | .93113633 | .93443737 | 1.06704098 | 1.02307563 | 2 2 |
| 3 2 | .93130716 | .93444094 | 1.06303949 | 1.02309167 | 3 2 |
| 4 2 | .93142486 | .93443859 | 1.05953733 | 1.02310727 | 4 2 |
| 5 2 | .93143949 | .93442808 | 1.05680145 | 1.02313274 | 5 2 |
| 6 2 | .93130882 | .93440908 | 1.05810978 | 1.02315746 | 6 2 |
| 7 2 | .93112841 | .93438738 | 1.05887368 | 1.02316962 | 7 2 |
| 8 2 | .93094402 | .93437011 | 1.06476956 | 1.02550065 | 8 2 |
| 1 3 | .93651856 | .94021166 | 1.07210369 | 1.01993674 | 1 3 |
| 2 3 | .93665391 | .94021702 | 1.06969576 | 1.01994623 | 2 3 |
| 3 3 | .93679036 | .94021904 | 1.06706644 | 1.01996542 | 3 3 |
| 4 3 | .93687457 | .94021443 | 1.06437225 | 1.01993390 | 4 3 |
| 5 3 | .93685952 | .94020101 | 1.06270402 | 1.01995173 | 5 3 |
| 6 3 | .93671600 | .94017886 | 1.06368399 | 1.02002875 | 6 3 |
| 7 3 | .93654235 | .94015457 | 1.06415582 | 1.02004045 | 7 3 |
| 8 3 | .93638419 | .94013568 | 1.06668246 | 1.02010303 | 8 3 |
| 1 4 | .94672499 | .95001491 | 1.06231643 | 1.01590443 | 1 4 |
| 2 4 | .94684026 | .95002104 | 1.06074802 | 1.01586108 | 2 4 |
| 3 4 | .94692831 | .95002163 | 1.05906764 | 1.01587928 | 3 4 |

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|-----|-----------|-----------|------------|------------|-----|
| 4 4 | .94697644 | .95001502 | 1.05749550 | 1.01589798 | 4 4 |
| 5 4 | .94694524 | .95000212 | 1.05633185 | 1.01591401 | 5 4 |
| 6 4 | .94681044 | .94998088 | 1.05703513 | 1.01592348 | 6 4 |
| 7 4 | .94665585 | .94995818 | 1.05741471 | 1.01598303 | 7 4 |
| 8 4 | .94652088 | .94994082 | 1.05897544 | 1.01598444 | 8 4 |
| 1 5 | .96104474 | .96350734 | 1.04542853 | 1.01100838 | 1 5 |
| 2 5 | .96111840 | .96351029 | 1.04453090 | 1.01101978 | 2 5 |
| 3 5 | .96118443 | .96351041 | 1.04351021 | 1.01103151 | 3 5 |
| 4 5 | .96121195 | .96350548 | 1.04253578 | 1.01104648 | 4 5 |
| 5 5 | .96117969 | .96349449 | 1.04187871 | 1.01105741 | 5 5 |
| 6 5 | .96107483 | .96347781 | 1.04232886 | 1.01106119 | 6 5 |
| 7 5 | .96095811 | .96346021 | 1.04256320 | 1.01106876 | 7 5 |
| 8 5 | .96085830 | .96344682 | 1.04352188 | 1.01105992 | 8 5 |
| 1 6 | .97895084 | .98027610 | 1.02393120 | 1.00553434 | 1 6 |
| 2 6 | .97898934 | .98027760 | 1.02348777 | 1.00553916 | 2 6 |
| 3 6 | .97902330 | .98027754 | 1.02299938 | 1.00554526 | 3 6 |
| 4 6 | .97903674 | .98027480 | 1.02291133 | 1.00555295 | 4 6 |
| 5 6 | .97901862 | .98026883 | 1.02218598 | 1.00555713 | 5 6 |
| 6 6 | .97896215 | .98025984 | 1.02240260 | 1.00555920 | 6 6 |
| 7 6 | .97889919 | .98025033 | 1.02251974 | 1.00555898 | 7 6 |
| 8 6 | .97884540 | .98024311 | 1.02299820 | 1.00555789 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 21600.00 SECONDS **** 6.0000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .92469758 | .92706802 | 1.05395265 | 1.02006353 | 1 1 |
| 2 1 | .92480132 | .92707392 | 1.04494193 | 1.02004917 | 2 1 |
| 3 1 | .92502740 | .92707910 | 1.04363650 | 1.01999735 | 3 1 |
| 4 1 | .92515595 | .92708089 | 1.04089706 | 1.01999834 | 4 1 |
| 5 1 | .92520936 | .92707740 | 1.03768260 | 1.02001675 | 5 1 |
| 6 1 | .92514601 | .92706798 | 1.03908952 | 1.02004767 | 6 1 |
| 7 1 | .92504712 | .92705614 | 1.03887821 | 1.02013211 | 7 1 |
| 8 1 | .92493351 | .92704625 | 1.04309336 | 1.02015528 | 8 1 |
| 1 2 | .92565497 | .92943577 | 1.07742807 | 1.01838321 | 1 2 |
| 2 2 | .92581482 | .92944187 | 1.07394997 | 1.01834169 | 2 2 |
| 3 2 | .92597935 | .92944477 | 1.07831274 | 1.01836376 | 3 2 |
| 4 2 | .92608720 | .92944092 | 1.06701928 | 1.01838218 | 4 2 |
| 5 2 | .92608712 | .92942805 | 1.06452279 | 1.01840567 | 5 2 |
| 6 2 | .92593853 | .92940602 | 1.06577073 | 1.01841997 | 6 2 |
| 7 2 | .92574252 | .92938135 | 1.06647252 | 1.01842122 | 7 2 |
| 8 2 | .92554758 | .92936195 | 1.07212869 | 1.02062159 | 8 2 |
| 1 3 | .93199694 | .93592523 | 1.07658392 | 1.01565537 | 1 3 |
| 2 3 | .93212943 | .93593042 | 1.07455278 | 1.01567508 | 2 3 |
| 3 3 | .93229747 | .93593172 | 1.07229611 | 1.01569915 | 3 3 |
| 4 3 | .93234910 | .93592569 | 1.06996132 | 1.01567175 | 4 3 |
| 5 3 | .93229964 | .93591021 | 1.06849449 | 1.01568703 | 5 3 |
| 6 3 | .93214130 | .93588552 | 1.06940757 | 1.01575001 | 6 3 |
| 7 3 | .93195540 | .93585881 | 1.06985847 | 1.01575085 | 7 3 |
| 8 3 | .93178994 | .93583821 | 1.07208647 | 1.01579782 | 8 3 |
| 1 4 | .94317538 | .94662378 | 1.06522812 | 1.01236258 | 1 4 |
| 2 4 | .94327750 | .94662975 | 1.06394684 | 1.01233031 | 2 4 |
| 3 4 | .94338793 | .94662975 | 1.06257150 | 1.01235204 | 3 4 |
| 4 4 | .94340556 | .94662284 | 1.06127199 | 1.01237187 | 4 4 |
| 5 4 | .94336283 | .94660759 | 1.06031340 | 1.01238625 | 5 4 |
| 6 4 | .94321754 | .94658450 | 1.06093600 | 1.01238392 | 6 4 |
| 7 4 | .94305467 | .94656007 | 1.06129269 | 1.01243132 | 7 4 |
| 8 4 | .94291486 | .94654149 | 1.06261739 | 1.01242188 | 8 4 |
| 1 5 | .95856912 | .96113077 | 1.04715761 | 1.00845378 | 1 5 |
| 2 5 | .95864036 | .96113361 | 1.04645807 | 1.00847111 | 2 5 |
| 3 5 | .95870086 | .96113332 | 1.04566898 | 1.00848539 | 3 5 |
| 4 5 | .95872087 | .96112765 | 1.04487340 | 1.00850032 | 4 5 |

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|-----|-----------|-----------|------------|------------|-----|
| 5 5 | .95868068 | .96111562 | 1.04435475 | 1.00850876 | 5 5 |
| 6 5 | .95869903 | .96109773 | 1.04474445 | 1.00850523 | 6 5 |
| 7 5 | .95844716 | .96107899 | 1.04495897 | 1.00849793 | 7 5 |
| 8 5 | .95834466 | .96106482 | 1.04574908 | 1.00848818 | 8 5 |
| 1 6 | .97764524 | .97902089 | 1.02475883 | 1.00417563 | 1 6 |
| 2 6 | .97764259 | .97902232 | 1.02441965 | 1.00418366 | 2 6 |
| 3 6 | .97771354 | .97902205 | 1.02403286 | 1.00419187 | 3 6 |
| 4 6 | .97772294 | .97901892 | 1.02365950 | 1.00419871 | 4 6 |
| 5 6 | .97774064 | .97901242 | 1.02340665 | 1.00420744 | 5 6 |
| 6 6 | .97764065 | .97900279 | 1.02359342 | 1.00419977 | 6 6 |
| 7 6 | .97757505 | .97899270 | 1.02370010 | 1.00419585 | 7 6 |
| 8 6 | .97751993 | .97898508 | 1.02408806 | 1.00419843 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 23400.00 SECONDS **** 6.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .92122252 | .92388875 | 1.06049212 | 1.01518212 | 1 1 |
| 2 1 | .92138282 | .92389491 | 1.05557940 | 1.01517795 | 2 1 |
| 3 1 | .92156382 | .92389995 | 1.05056154 | 1.01513551 | 3 1 |
| 4 1 | .92164450 | .92390097 | 1.04742056 | 1.01514862 | 4 1 |
| 5 1 | .92174194 | .92389595 | 1.04427761 | 1.01515917 | 5 1 |
| 6 1 | .92184478 | .92388434 | 1.04068928 | 1.01518338 | 6 1 |
| 7 1 | .92195056 | .92387022 | 1.04561345 | 1.01525747 | 7 1 |
| 8 1 | .92214254 | .92385863 | 1.04976374 | 1.01527140 | 8 1 |
| 1 2 | .92268358 | .92385371 | 1.08144414 | 1.01366972 | 1 2 |
| 2 2 | .92275867 | .92385964 | 1.07842674 | 1.01364191 | 2 2 |
| 3 2 | .92291486 | .92386184 | 1.07522334 | 1.01366958 | 3 2 |
| 4 2 | .92310333 | .92386467 | 1.07223733 | 1.01369030 | 4 2 |
| 5 2 | .92299636 | .92386198 | 1.07081497 | 1.01371136 | 5 2 |

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|-----|-----------|-----------|------------|------------|-----|
| 6 2 | .92283470 | .92655758 | 1.07117345 | 1.01371482 | 6 2 |
| 7 2 | .92264854 | .92653074 | 1.07181303 | 1.01370490 | 7 2 |
| 8 2 | .92242806 | .92650982 | 1.07711377 | 1.01578037 | 8 2 |
| 1 3 | .92953485 | .93358246 | 1.07870295 | 1.01141840 | 1 3 |
| 2 3 | .92966150 | .93358738 | 1.07707176 | 1.01144793 | 2 3 |
| 3 3 | .92977871 | .93358799 | 1.07521933 | 1.01147641 | 3 3 |
| 4 3 | .92983712 | .93358082 | 1.07327244 | 1.01145250 | 4 3 |
| 5 3 | .92979514 | .93356383 | 1.07203832 | 1.01146487 | 5 3 |
| 6 3 | .92962716 | .93353742 | 1.07285993 | 1.01151379 | 6 3 |
| 7 3 | .92943461 | .93350913 | 1.07327770 | 1.01150374 | 7 3 |
| 8 3 | .92926648 | .93348747 | 1.07517439 | 1.01153530 | 8 3 |
| 1 4 | .94133693 | .94484632 | 1.06617016 | 1.00886671 | 1 4 |
| 2 4 | .94143373 | .94485005 | 1.06519646 | 1.00884497 | 2 4 |
| 3 4 | .94151511 | .94484953 | 1.06413362 | 1.00886983 | 3 4 |
| 4 4 | .94154234 | .94484179 | 1.06311592 | 1.00888883 | 4 4 |
| 5 4 | .94149026 | .94482551 | 1.06236786 | 1.00889895 | 5 4 |
| 6 4 | .94133905 | .94480132 | 1.06289991 | 1.00888881 | 6 4 |
| 7 4 | .94117268 | .94477592 | 1.06322778 | 1.00892431 | 7 4 |
| 8 4 | .94103213 | .94475671 | 1.06430165 | 1.00890406 | 8 4 |
| 1 5 | .95733828 | .95992528 | 1.04749675 | 1.00593665 | 1 5 |
| 2 5 | .95740562 | .95992795 | 1.04699207 | 1.00595960 | 2 5 |
| 3 5 | .95745972 | .95992732 | 1.04639332 | 1.00597614 | 3 5 |
| 4 5 | .95747256 | .95992113 | 1.04581466 | 1.00599078 | 4 5 |
| 5 5 | .95742633 | .95990848 | 1.04543249 | 1.00599664 | 5 5 |
| 6 5 | .95731140 | .95988993 | 1.04575781 | 1.00598583 | 6 5 |
| 7 5 | .95718795 | .95987065 | 1.04594873 | 1.00597179 | 7 5 |
| 8 5 | .95708559 | .95985612 | 1.04656689 | 1.00595423 | 8 5 |
| 1 6 | .97701229 | .97839780 | 1.02485748 | 1.00283763 | 1 6 |
| 2 6 | .97704752 | .97839914 | 1.02461830 | 1.00284871 | 2 6 |
| 3 6 | .97707505 | .97839868 | 1.02433915 | 1.00285728 | 3 6 |
| 4 6 | .97708069 | .97839528 | 1.02406764 | 1.00286474 | 4 6 |
| 5 6 | .97705528 | .97838848 | 1.02388563 | 1.00286639 | 5 6 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 6 6 | .97694370 | .97837855 | 1.02404050 | 1.00286060 | 6 6 |
| 7 6 | .97692743 | .97836819 | 1.02413495 | 1.00285305 | 7 6 |
| 8 6 | .97687253 | .97834041 | 1.02443274 | 1.00284342 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|---|--------------|-----------|------------|------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 25200.00 SECONDS **** 7.0000 HOURS | | | | | |
| 1 1 | .91989066 | .92277191 | 1.06510500 | 1.01043191 | 1 1 |
| 2 1 | .92005314 | .92277817 | 1.06042599 | 1.01043800 | 2 1 |
| 3 1 | .92023430 | .92278294 | 1.05561274 | 1.01040463 | 3 1 |
| 4 1 | .92036343 | .92278318 | 1.05240863 | 1.01041367 | 4 1 |
| 5 1 | .92040414 | .92277683 | 1.04938942 | 1.01043207 | 5 1 |
| 6 1 | .92031584 | .92276343 | 1.05077548 | 1.01044896 | 6 1 |
| 7 1 | .92019006 | .92274749 | 1.05080866 | 1.01051263 | 7 1 |
| 8 1 | .92005698 | .92273457 | 1.05480766 | 1.01051696 | 8 1 |
| 1 2 | .92164029 | .92573046 | 1.08309357 | 1.00909726 | 1 2 |
| 2 2 | .92178777 | .92573610 | 1.08058228 | 1.00908254 | 2 2 |
| 3 2 | .92193149 | .92573759 | 1.07786427 | 1.00911523 | 3 2 |
| 4 2 | .92201351 | .92573129 | 1.07526022 | 1.00913771 | 4 2 |
| 5 2 | .92198680 | .92571509 | 1.07334009 | 1.00915596 | 5 2 |
| 6 2 | .92181659 | .92568919 | 1.07438493 | 1.00914851 | 6 2 |
| 7 2 | .92160542 | .92566094 | 1.07496005 | 1.00912748 | 7 2 |
| 8 2 | .92140398 | .92563908 | 1.07983153 | 1.01108388 | 8 2 |
| 1 3 | .92895886 | .93301987 | 1.07864203 | 1.00732146 | 1 3 |
| 2 3 | .92907715 | .93302443 | 1.07742016 | 1.00736019 | 2 3 |
| 3 3 | .92914166 | .93302439 | 1.07598813 | 1.00739250 | 3 3 |
| 4 3 | .92922654 | .93301634 | 1.07444490 | 1.00737147 | 4 3 |
| 5 3 | .92917408 | .93299836 | 1.07346222 | 1.00738067 | 5 3 |
| 6 3 | .92900125 | .93297100 | 1.07417470 | 1.00741584 | 6 3 |
| 7 3 | .92880719 | .93294195 | 1.07454951 | 1.00739917 | 7 3 |
| 8 3 | .92864061 | .93291982 | 1.07609405 | 1.00741188 | 8 3 |
| 1 4 | .94105942 | .94453818 | 1.06535026 | 1.00549560 | 1 4 |
| 2 4 | .94114911 | .94454161 | 1.06467188 | 1.00548369 | 2 4 |
| 3 4 | .94122035 | .94454061 | 1.06391946 | 1.00551121 | 3 4 |
| 4 4 | .94123754 | .94453232 | 1.06318364 | 1.00552984 | 4 4 |
| 5 4 | .94117826 | .94449089 | 1.06264521 | 1.00553676 | 5 4 |
| 6 4 | .94102533 | .94446522 | 1.06308039 | 1.00551712 | 6 4 |
| 7 4 | .94085979 | .94444522 | 1.06337442 | 1.00554123 | 7 4 |
| 8 4 | .94072195 | .94444589 | 1.06419164 | 1.00551073 | 8 4 |
| 1 5 | .95724926 | .95978599 | 1.04659494 | 1.00351397 | 1 5 |
| 2 5 | .95730149 | .95978844 | 1.04627738 | 1.00354210 | 2 5 |
| 3 5 | .95734856 | .95978751 | 1.04588223 | 1.00356055 | 3 5 |
| 4 5 | .95735471 | .95978100 | 1.04549368 | 1.00357470 | 4 5 |
| 5 5 | .95730422 | .95976811 | 1.04524271 | 1.00357792 | 5 5 |
| 6 5 | .95714918 | .95974944 | 1.04550166 | 1.00356014 | 6 5 |
| 7 5 | .95706735 | .95973014 | 1.04566600 | 1.00353969 | 7 5 |
| 8 5 | .95696763 | .95971565 | 1.04611336 | 1.00351475 | 8 5 |
| 1 6 | .97694938 | .97834914 | 1.02431255 | 1.00155108 | 1 6 |
| 2 6 | .97702186 | .97835036 | 1.02416786 | 1.00156496 | 2 6 |
| 3 6 | .97704571 | .97834976 | 1.02399049 | 1.00157450 | 3 6 |
| 4 6 | .97704791 | .97834621 | 1.02381519 | 1.00158168 | 4 6 |
| 5 6 | .97702040 | .97833930 | 1.02370040 | 1.00158196 | 5 6 |
| 6 6 | .97695897 | .97832935 | 1.02382257 | 1.00157248 | 6 6 |
| 7 6 | .97689378 | .97831902 | 1.02390345 | 1.00156149 | 7 6 |
| 8 6 | .97684043 | .97831129 | 1.02411369 | 1.00154789 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|---|--------------|-----------|------------|------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 27000.00 SECONDS **** 7.5000 HOURS | | | | | |
| 1 1 | .92051353 | .92353194 | 1.06783672 | 1.00590853 | 1 1 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 2 1 | .92067419 | .92353814 | 1.06350753 | 1.00592467 | 2 1 |
| 3 1 | .92089118 | .92354254 | 1.05900259 | 1.00589992 | 3 1 |
| 4 1 | .92097550 | .92354203 | 1.05585756 | 1.00591258 | 4 1 |
| 5 1 | .92100890 | .92353457 | 1.05301108 | 1.00593054 | 5 1 |
| 6 1 | .92091210 | .92351976 | 1.05434314 | 1.00593997 | 6 1 |
| 7 1 | .92077838 | .92350246 | 1.05445494 | 1.00599310 | 7 1 |
| 8 1 | .92064068 | .92348859 | 1.05823044 | 1.00598775 | 8 1 |
| 1 2 | .92257372 | .92666283 | 1.08255330 | 1.00475767 | 1 2 |
| 2 2 | .92271083 | .92666805 | 1.08057458 | 1.00475516 | 2 2 |
| 3 2 | .92284964 | .92666884 | 1.07837547 | 1.00479220 | 3 2 |
| 4 2 | .92290678 | .92666162 | 1.07620567 | 1.00481588 | 4 2 |
| 5 2 | .92280869 | .92664444 | 1.07460778 | 1.00483104 | 5 2 |
| 6 2 | .92264917 | .92661763 | 1.07552002 | 1.00481284 | 6 2 |
| 7 2 | .92248274 | .92658849 | 1.07602756 | 1.00478108 | 7 2 |
| 8 2 | .92228454 | .92656644 | 1.08001634 | 1.00662431 | 8 2 |
| 1 3 | .93004785 | .93406666 | 1.07461837 | 1.00344653 | 1 3 |
| 2 3 | .93019572 | .93407079 | 1.07580233 | 1.00349362 | 2 3 |
| 3 3 | .93028614 | .93407015 | 1.07479263 | 1.00352913 | 3 3 |
| 4 3 | .93031761 | .93406148 | 1.07365642 | 1.00351039 | 4 3 |
| 5 3 | .93025666 | .93404302 | 1.07293299 | 1.00351626 | 5 3 |
| 6 3 | .93008344 | .93401542 | 1.07352471 | 1.00353827 | 6 3 |
| 7 3 | .92989253 | .93398634 | 1.07384904 | 1.00350755 | 7 3 |
| 8 3 | .92973123 | .93396430 | 1.07503216 | 1.00351027 | 8 3 |
| 1 4 | .94218672 | .94555531 | 1.06296684 | 1.00231648 | 1 4 |
| 2 4 | .94226784 | .94555839 | 1.06257174 | 1.00231351 | 2 4 |
| 3 4 | .94232823 | .94555699 | 1.06211920 | 1.00234320 | 3 4 |
| 4 4 | .94234592 | .94554839 | 1.06165723 | 1.00236114 | 4 4 |
| 5 4 | .94227154 | .94553149 | 1.06132164 | 1.00236485 | 5 4 |
| 6 4 | .94212070 | .94550708 | 1.06165718 | 1.00233626 | 6 4 |
| 7 4 | .94195984 | .94548177 | 1.06191352 | 1.00234968 | 7 4 |
| 8 4 | .94182774 | .94546280 | 1.06247626 | 1.00230968 | 8 4 |
| 1 5 | .95015514 | .96060412 | 1.04461162 | 1.00123419 | 1 5 |
| 2 5 | .95021129 | .96060632 | 1.04446961 | 1.00126693 | 2 5 |
| 3 5 | .95025093 | .96060514 | 1.04426657 | 1.00128695 | 3 5 |
| 4 5 | .95025096 | .96059852 | 1.04405741 | 1.00130041 | 4 5 |
| 5 5 | .95019791 | .96058572 | 1.04392961 | 1.00130104 | 5 5 |
| 6 5 | .95004558 | .96056740 | 1.04412202 | 1.00127676 | 6 5 |
| 7 5 | .95796818 | .96054854 | 1.04425771 | 1.00125037 | 7 5 |
| 8 5 | .95787326 | .96053445 | 1.04454037 | 1.00121864 | 8 5 |
| 1 6 | .97751214 | .97881525 | 1.02321168 | 1.00034203 | 1 6 |
| 2 6 | .97754138 | .97881634 | 1.02315436 | 1.00035839 | 2 6 |
| 3 6 | .97756138 | .97881561 | 1.02307143 | 1.00036872 | 3 6 |
| 4 6 | .97756049 | .97881203 | 1.02298528 | 1.00037553 | 4 6 |
| 5 6 | .97753183 | .97880520 | 1.02293274 | 1.00037449 | 5 6 |
| 6 6 | .97747207 | .97879547 | 1.02302236 | 1.00036156 | 6 6 |
| 7 6 | .97740946 | .97878543 | 1.02308880 | 1.00034740 | 7 6 |
| 8 6 | .97735885 | .97877794 | 1.02321594 | 1.00033617 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION **** 28800.00 SECONDS **** 8.0000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .92284415 | .92597540 | 1.06877481 | 1.00169308 | 1 1 |
| 2 1 | .92304936 | .92598141 | 1.06489007 | 1.00171880 | 2 1 |
| 3 1 | .92321829 | .92598536 | 1.06078279 | 1.00170209 | 3 1 |
| 4 1 | .92334493 | .92598614 | 1.05780223 | 1.00171796 | 4 1 |
| 5 1 | .92336064 | .92597576 | 1.05517248 | 1.00173523 | 5 1 |
| 6 1 | .92325791 | .92595995 | 1.05642484 | 1.00173715 | 6 1 |
| 7 1 | .92311975 | .92594174 | 1.05658898 | 1.00177993 | 7 1 |
| 8 1 | .92298064 | .92592726 | 1.06007673 | 1.00176504 | 8 1 |
| 1 2 | .92520456 | .92920046 | 1.08003824 | 1.00072838 | 1 2 |
| 2 2 | .92532889 | .92920518 | 1.07860051 | 1.00073700 | 2 2 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 3 2 | .92544084 | .92920527 | 1.07693614 | 1.00077764 | 3 2 |
| 4 2 | .92549242 | .92919734 | 1.07523244 | 1.00080197 | 4 2 |
| 5 2 | .92544445 | .92917961 | 1.07396806 | 1.00081384 | 5 2 |
| 6 2 | .92528962 | .92915255 | 1.07473397 | 1.00078539 | 6 2 |
| 7 2 | .92506239 | .92912360 | 1.07517094 | 1.00074346 | 7 2 |
| 8 2 | .92487112 | .92910146 | 1.07904254 | 1.00247941 | 8 2 |
| 1 3 | .93273443 | .93654615 | 1.07287628 | .99986231 | 1 3 |
| 2 3 | .93283026 | .93654978 | 1.07245096 | .99991678 | 2 3 |
| 3 3 | .93290567 | .93654861 | 1.07185270 | .99995479 | 3 3 |
| 4 3 | .93292409 | .93653956 | 1.07111519 | .99993788 | 4 3 |
| 5 3 | .93285677 | .93652108 | 1.07064934 | .99994029 | 5 3 |
| 6 3 | .93268719 | .93649391 | 1.07111404 | .99994997 | 6 3 |
| 7 3 | .93250359 | .93646547 | 1.07138267 | .99996997 | 7 3 |
| 8 3 | .93235087 | .93644402 | 1.07220603 | .99989981 | 8 3 |
| 1 4 | .94455810 | .94774728 | 1.05924154 | .99938532 | 1 4 |
| 2 4 | .94462957 | .94774996 | 1.05911118 | .99939032 | 2 4 |
| 3 4 | .94467870 | .94774823 | 1.05894054 | .99942164 | 3 4 |
| 4 4 | .94461760 | .94773955 | 1.05873750 | .99943868 | 4 4 |
| 5 4 | .94461813 | .94772298 | 1.05859359 | .99943920 | 5 4 |
| 6 4 | .94448478 | .94769533 | 1.05882920 | .99940239 | 6 4 |
| 7 4 | .94431198 | .94767496 | 1.05904523 | .99940682 | 7 4 |
| 8 4 | .94418821 | .94765675 | 1.05930270 | .99935746 | 8 4 |
| 1 5 | .95986113 | .96224804 | 1.04171188 | .99913745 | 1 5 |
| 2 5 | .96081845 | .96224996 | 1.04173871 | .99917414 | 2 5 |
| 3 5 | .96084748 | .96224886 | 1.04178464 | .99919536 | 3 5 |
| 4 5 | .96086283 | .96224283 | 1.04168808 | .99920880 | 4 5 |
| 5 5 | .96088888 | .96224463 | 1.04164399 | .99920613 | 5 5 |
| 6 5 | .96090888 | .96223286 | 1.04177333 | .99917893 | 6 5 |
| 7 5 | .96077838 | .96221467 | 1.04187923 | .99914424 | 7 5 |
| 8 5 | .95986288 | .96228666 | 1.04200678 | .99918647 | 8 5 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 1 6 | .97851481 | .97973504 | 1.02164284 | .99923198 | 1 6 |
| 2 6 | .97854045 | .97973599 | 1.02166472 | .99925048 | 2 6 |
| 3 6 | .97855634 | .97973510 | 1.02166768 | .99926141 | 3 6 |
| 4 6 | .97855293 | .97973164 | 1.02166254 | .99926776 | 4 6 |
| 5 6 | .97852396 | .97972507 | 1.02166634 | .99926547 | 5 6 |
| 6 6 | .97846721 | .97971578 | 1.02172438 | .99924943 | 6 6 |
| 7 6 | .97840848 | .97970624 | 1.02177594 | .99923243 | 7 6 |
| 8 6 | .97836156 | .97969915 | 1.02182580 | .99921198 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION **** 30600.00 SECONDS **** 8.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 1 1 | .92682778 | .92990181 | 1.06804290 | .99785247 | 1 1 |
| 2 1 | .92697432 | .92990750 | 1.06467877 | .99788709 | 2 1 |
| 3 1 | .92713177 | .92991092 | 1.06103919 | .99787770 | 3 1 |
| 4 1 | .92723829 | .92990904 | 1.05831120 | .99789634 | 4 1 |
| 5 1 | .92725609 | .92989998 | 1.05593571 | .99791268 | 5 1 |
| 6 1 | .92714996 | .92988354 | 1.05708618 | .99790722 | 6 1 |
| 7 1 | .92701064 | .92986486 | 1.05728000 | .99794000 | 7 1 |
| 8 1 | .92687314 | .92985010 | 1.06042553 | .99791594 | 8 1 |
| 1 2 | .92932664 | .93314668 | 1.07579282 | .99707282 | 1 2 |
| 2 2 | .92943631 | .93315081 | 1.07488774 | .99709133 | 2 2 |
| 3 2 | .92954002 | .93315026 | 1.07375717 | .99713477 | 3 2 |
| 4 2 | .92956581 | .93314183 | 1.07253276 | .99715920 | 4 2 |
| 5 2 | .92950959 | .93312397 | 1.07160415 | .99716769 | 5 2 |
| 6 2 | .92933816 | .93309725 | 1.07221526 | .99712964 | 6 2 |
| 7 2 | .92914908 | .93306890 | 1.07257939 | .99707838 | 7 2 |
| 8 2 | .92895806 | .93304735 | 1.07591697 | .99871294 | 8 2 |
| 1 3 | .93670577 | .94027650 | 1.06767853 | .99662462 | 1 3 |
| 2 3 | .93678836 | .94027960 | 1.06761874 | .99668532 | 2 3 |
| 3 3 | .93684827 | .94027796 | 1.06740980 | .99672514 | 3 3 |

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|-----|-----------|-----------|------------|-----------|-----|
| 4 3 | .93685432 | .94026879 | 1.06705220 | .99670938 | 4 3 |
| 5 3 | .93678270 | .94025072 | 1.06683411 | .99670854 | 5 3 |
| 6 3 | .93664038 | .94022455 | 1.06717029 | .99670693 | 6 3 |
| 7 3 | .93644773 | .94019736 | 1.06738012 | .99665861 | 7 3 |
| 8 3 | .93630640 | .94017695 | 1.06785546 | .99663689 | 8 3 |
| 1 4 | .94800907 | .95095996 | 1.05440435 | .99674723 | 1 4 |
| 2 4 | .94807011 | .95096222 | 1.05451451 | .99675912 | 2 4 |
| 3 4 | .94810789 | .95096024 | 1.05460210 | .99679153 | 3 4 |
| 4 4 | .94809887 | .95095171 | 1.05463734 | .99680743 | 4 4 |
| 5 4 | .94803022 | .95093582 | 1.05466926 | .99680492 | 5 4 |
| 6 4 | .94789331 | .95091343 | 1.05480800 | .99676080 | 6 4 |
| 7 4 | .94775147 | .95089048 | 1.05498237 | .99675566 | 7 4 |
| 8 4 | .94764821 | .95087340 | 1.05506974 | .99669965 | 8 4 |
| 1 5 | .96255023 | .96466388 | 1.03806237 | .99725589 | 1 5 |
| 2 5 | .96259222 | .96466550 | 1.03822497 | .99729586 | 2 5 |
| 3 5 | .96261663 | .96466400 | 1.03835791 | .99731787 | 3 5 |
| 4 5 | .96260640 | .96465765 | 1.03846300 | .99732955 | 4 5 |
| 5 5 | .96255282 | .96464590 | 1.03854911 | .99732534 | 5 5 |
| 6 5 | .96245298 | .96462944 | 1.03861431 | .99729000 | 6 5 |
| 7 5 | .96235129 | .96461267 | 1.03869014 | .99725368 | 7 5 |
| 8 5 | .96227111 | .96460021 | 1.03867485 | .99721071 | 8 5 |
| 1 6 | .97993072 | .98104461 | 1.01969282 | .99823810 | 1 6 |
| 2 6 | .97995250 | .98104470 | 1.01978501 | .99825835 | 2 6 |
| 3 6 | .97996449 | .98104634 | 1.01986445 | .99826967 | 3 6 |
| 4 6 | .97995876 | .98104294 | 1.01993142 | .99827552 | 4 6 |
| 5 6 | .97993025 | .98103675 | 1.01998810 | .99827204 | 5 6 |
| 6 6 | .97987762 | .98102809 | 1.02011315 | .99825331 | 6 6 |
| 7 6 | .97982383 | .98101925 | 1.02049777 | .99823388 | 7 6 |
| 8 6 | .97978139 | .98101268 | 1.02002922 | .99821068 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION **** 32400.00 SECONDS **** 9.0000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 1 1 | .93210250 | .93510414 | 1.06579485 | .99443974 | 1 1 |
| 2 1 | .93223758 | .93510940 | 1.06300347 | .99448243 | 2 1 |
| 3 1 | .93234063 | .93511224 | 1.05988688 | .99447955 | 3 1 |
| 4 1 | .93247500 | .93510976 | 1.05748216 | .99450045 | 4 1 |
| 5 1 | .93244485 | .93510023 | 1.05539136 | .99451564 | 5 1 |
| 6 1 | .93237773 | .93508354 | 1.05642128 | .99450310 | 6 1 |
| 7 1 | .93224035 | .93506480 | 1.05662556 | .99452639 | 7 1 |
| 8 1 | .93210725 | .93505010 | 1.05938534 | .99449374 | 8 1 |
| 1 2 | .93472746 | .93829902 | 1.07008261 | .99384079 | 1 2 |
| 2 2 | .93482107 | .93830251 | 1.06968676 | .99386783 | 2 2 |
| 3 2 | .93489570 | .93830136 | 1.06907366 | .99391324 | 3 2 |
| 4 2 | .93491591 | .93829264 | 1.06832489 | .99393726 | 4 2 |
| 5 2 | .93485315 | .93827504 | 1.06772555 | .99394234 | 5 2 |
| 6 2 | .93468850 | .93824921 | 1.06817845 | .99389557 | 6 2 |
| 7 2 | .93450112 | .93822204 | 1.06846863 | .99383598 | 7 2 |
| 8 2 | .93433319 | .93820150 | 1.07127146 | .99374499 | 8 2 |
| 1 3 | .94184419 | .94507140 | 1.06129820 | .99377672 | 1 3 |
| 2 3 | .94187276 | .94507393 | 1.06157041 | .99384246 | 2 3 |
| 3 3 | .94191711 | .94507191 | 1.06171930 | .99388337 | 3 3 |
| 4 3 | .94191171 | .94506283 | 1.06171375 | .99386840 | 4 3 |
| 5 3 | .94183783 | .94504556 | 1.06172679 | .99386434 | 5 3 |
| 6 3 | .94168595 | .94502092 | 1.06193711 | .99385264 | 6 3 |
| 7 3 | .94152735 | .94499551 | 1.06208711 | .99379713 | 7 3 |
| 8 3 | .94139974 | .94497652 | 1.06223498 | .99376531 | 8 3 |
| 1 4 | .95237205 | .95503621 | 1.04868753 | .99443681 | 1 4 |
| 2 4 | .95242218 | .95503804 | 1.04901016 | .99445446 | 2 4 |
| 3 4 | .95244878 | .95503587 | 1.04932738 | .99448745 | 3 4 |
| 4 4 | .95243281 | .95502767 | 1.04957577 | .99450202 | 4 4 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 5 4 | .95236476 | .95501278 | 1.04976663 | .99449668 | 5 4 |
| 6 4 | .95223881 | .95499207 | 1.04981177 | .99444629 | 6 4 |
| 7 4 | .95211031 | .95497096 | 1.04994434 | .99443352 | 7 4 |
| 8 4 | .95200933 | .95495532 | 1.04982166 | .99437128 | 8 4 |
| 1 5 | .96574381 | .96767601 | 1.03382791 | .99561394 | 1 5 |
| 2 5 | .96581816 | .96767732 | 1.03411555 | .99565642 | 2 5 |
| 3 5 | .96583510 | .96767574 | 1.03438755 | .99567886 | 3 5 |
| 4 5 | .96582083 | .96766973 | 1.03462312 | .99568949 | 4 5 |
| 5 5 | .96576899 | .96765887 | 1.03479710 | .99568317 | 5 5 |
| 6 5 | .96567820 | .96764381 | 1.03480435 | .99564347 | 6 5 |
| 7 5 | .96554702 | .96762855 | 1.03485063 | .99560332 | 7 5 |
| 8 5 | .96551814 | .96761725 | 1.03470726 | .99555608 | 8 5 |
| 1 6 | .98169255 | .98288648 | 1.01744610 | .99737336 | 1 6 |
| 2 6 | .98171030 | .98288712 | 1.01759925 | .99739496 | 2 6 |
| 3 6 | .98171869 | .98288622 | 1.01774522 | .99740649 | 3 6 |
| 4 6 | .98171082 | .98288304 | 1.01797492 | .99741179 | 4 6 |
| 5 6 | .98168366 | .98287734 | 1.01797164 | .99740728 | 5 6 |
| 6 6 | .98164385 | .98286947 | 1.01799182 | .99738625 | 6 6 |
| 7 6 | .98158788 | .98286146 | 1.01799380 | .99736482 | 7 6 |
| 8 6 | .98155050 | .98285535 | 1.01791048 | .99733937 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|---|--------------|-----------|------------|-----------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 36200.00 SECONDS **** 9.5000 HOURS | | | | | |
| 1 1 | .93849980 | .94136949 | 1.06220891 | .99149448 | 1 1 |
| 2 1 | .93862167 | .94137423 | 1.06002242 | .99154424 | 2 1 |
| 3 1 | .93874731 | .94137645 | 1.05746543 | .99154700 | 3 1 |
| 4 1 | .93882792 | .94137345 | 1.05543730 | .99156963 | 4 1 |
| 5 1 | .93884997 | .94136366 | 1.05365359 | .99158349 | 5 1 |
| 6 1 | .93872415 | .94134708 | 1.05454846 | .99156430 | 6 1 |
| 7 1 | .93859156 | .94132867 | 1.05474724 | .99157874 | 7 1 |
| 8 1 | .93846540 | .94131433 | 1.05708941 | .99153826 | 8 1 |
| 1 2 | .94114885 | .94444991 | 1.06318604 | .99106885 | 1 2 |
| 2 2 | .94126548 | .94445274 | 1.06326304 | .99110300 | 2 2 |
| 3 2 | .94132073 | .94445105 | 1.06313743 | .99114954 | 3 2 |
| 4 2 | .94132595 | .94444225 | 1.06284584 | .99117268 | 4 2 |
| 5 2 | .94132843 | .94442526 | 1.06256111 | .99117439 | 5 2 |
| 6 2 | .94110359 | .94440083 | 1.06285714 | .99111993 | 6 2 |
| 7 2 | .94093096 | .94437534 | 1.06307368 | .99105316 | 7 2 |
| 8 2 | .94077848 | .94435618 | 1.06335542 | .99250239 | 8 2 |
| 1 3 | .94762797 | .95074072 | 1.05401182 | .99134983 | 1 3 |
| 2 3 | .94788213 | .95074267 | 1.05457530 | .99141932 | 2 3 |
| 3 3 | .94791123 | .95074035 | 1.05504307 | .99146064 | 3 3 |
| 4 3 | .94789552 | .95073157 | 1.05535433 | .99144688 | 4 3 |
| 5 3 | .94782132 | .95071543 | 1.05557642 | .99143899 | 5 3 |
| 6 3 | .94764259 | .95069278 | 1.05566711 | .99141852 | 6 3 |
| 7 3 | .94754061 | .95066959 | 1.05575812 | .99135704 | 7 3 |
| 8 3 | .94742855 | .95065234 | 1.05560649 | .99131671 | 8 3 |
| 1 4 | .95747704 | .95981646 | 1.04232020 | .99247855 | 1 4 |
| 2 4 | .95751608 | .95981785 | 1.04282437 | .99250082 | 2 4 |
| 3 4 | .95751190 | .95981557 | 1.04333938 | .99253385 | 3 4 |
| 4 4 | .95751004 | .95980787 | 1.04377255 | .99254698 | 4 4 |
| 5 4 | .95744421 | .95979426 | 1.04409713 | .99253907 | 5 4 |
| 6 4 | .95733129 | .95977557 | 1.04405992 | .99248353 | 6 4 |
| 7 4 | .95721804 | .95975665 | 1.04415166 | .99246432 | 7 4 |
| 8 4 | .95714065 | .95974269 | 1.04384274 | .99239717 | 8 4 |
| 1 5 | .96954212 | .97118754 | 1.02916869 | .99422865 | 1 5 |
| 2 5 | .96956872 | .97118854 | 1.02956158 | .99427288 | 2 5 |
| 3 5 | .96957850 | .97118692 | 1.02995147 | .99429539 | 3 5 |
| 4 5 | .96956094 | .97118137 | 1.03029792 | .99430492 | 4 5 |
| 5 5 | .96951194 | .97117158 | 1.03054596 | .99429672 | 5 5 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 6 5 | .96944161 | .97115817 | 1.03050045 | .99425353 | 6 5 |
| 7 5 | .96935220 | .97114465 | 1.03051842 | .99421039 | 7 5 |
| 8 5 | .96929149 | .97113468 | 1.03026328 | .99415985 | 8 5 |
| 1 6 | .98373262 | .98459190 | 1.01498403 | .99664675 | 1 6 |
| 2 6 | .98374430 | .98459238 | 1.01518851 | .99664927 | 2 6 |
| 3 6 | .98375104 | .98459148 | 1.01539076 | .99668083 | 3 6 |
| 4 6 | .98374162 | .98458856 | 1.01557355 | .99668556 | 4 6 |
| 5 6 | .98371598 | .98458346 | 1.01570834 | .99668013 | 5 6 |
| 6 6 | .98367410 | .98457649 | 1.01568115 | .99665730 | 6 6 |
| 7 6 | .98362255 | .98456944 | 1.01568911 | .99663431 | 7 6 |
| 8 6 | .98360073 | .98456426 | 1.01555118 | .99660715 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------|------------|-----------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 36000.00 SECONDS **** 10.0000 HOURS | | | | | |
| 1 1 | .94574555 | .94848008 | 1.05748192 | .98904319 | 1 1 |
| 2 1 | .94590111 | .94848422 | 1.05591239 | .98909889 | 2 1 |
| 3 1 | .94600869 | .94848580 | 1.05393483 | .98910638 | 3 1 |
| 4 1 | .94607438 | .94848236 | 1.05231880 | .98913018 | 4 1 |
| 5 1 | .94606895 | .94847253 | 1.05085431 | .98914255 | 5 1 |
| 6 1 | .94594657 | .94845639 | 1.05060589 | .98911728 | 6 1 |
| 7 1 | .94584133 | .94843868 | 1.05178633 | .98912369 | 7 1 |
| 8 1 | .94572438 | .94842498 | 1.05369099 | .98907422 | 8 1 |
| 1 2 | .94848888 | .95138774 | 1.05538866 | .98878877 | 1 2 |
| 2 2 | .94845726 | .95138990 | 1.05588843 | .98882052 | 2 2 |
| 3 2 | .94844322 | .95138774 | 1.05628875 | .98886740 | 3 2 |
| 4 2 | .94837486 | .95137906 | 1.05634424 | .98888923 | 4 2 |
| 5 2 | .94830483 | .95136382 | 1.05635222 | .98888770 | 5 2 |
| 6 2 | .94826163 | .95134041 | 1.05649787 | .98882671 | 6 2 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 7 2 | .94820629 | .95131704 | 1.05664175 | .98875401 | 7 2 |
| 8 2 | .94807114 | .95129958 | 1.05842862 | .99011910 | 8 2 |
| 1 3 | .95457241 | .95709155 | 1.04608855 | .98936347 | 1 3 |
| 2 3 | .95461213 | .95709293 | 1.04690049 | .98943545 | 2 3 |
| 3 3 | .95462665 | .95709040 | 1.04764276 | .98947651 | 3 3 |
| 4 3 | .95460195 | .95708211 | 1.04822999 | .98946201 | 4 3 |
| 5 3 | .95452927 | .95706739 | 1.04863488 | .98945216 | 5 3 |
| 6 3 | .95440590 | .95704710 | 1.04861516 | .98942433 | 6 3 |
| 7 3 | .95424253 | .95702650 | 1.04864967 | .98935618 | 7 3 |
| 8 3 | .95414739 | .95701126 | 1.04823237 | .98931100 | 8 3 |
| 1 4 | .96315263 | .96513965 | 1.03552371 | .99088723 | 1 4 |
| 2 4 | .96314066 | .96514061 | 1.03617687 | .99091297 | 2 4 |
| 3 4 | .96314633 | .96513828 | 1.03685583 | .99094558 | 3 4 |
| 4 4 | .96315969 | .96513123 | 1.03744332 | .99095717 | 4 4 |
| 5 4 | .96309752 | .96511911 | 1.03788093 | .99094700 | 5 4 |
| 6 4 | .96299924 | .96510273 | 1.03776821 | .99088750 | 6 4 |
| 7 4 | .96290263 | .96508626 | 1.03782109 | .99086309 | 7 4 |
| 8 4 | .96282975 | .96507418 | 1.03735238 | .99079235 | 8 4 |
| 1 5 | .97370004 | .97508103 | 1.02423788 | .99311003 | 1 5 |
| 2 5 | .97371895 | .97508173 | 1.02471579 | .99315524 | 2 5 |
| 3 5 | .97374200 | .97508011 | 1.02520178 | .99317748 | 3 5 |
| 4 5 | .97370189 | .97507512 | 1.02563894 | .99318587 | 4 5 |
| 5 5 | .97365675 | .97506654 | 1.02594691 | .99317608 | 5 5 |
| 6 5 | .97354788 | .97505495 | 1.02585461 | .99313030 | 6 5 |
| 7 5 | .97352113 | .97504334 | 1.02584412 | .99308502 | 7 5 |
| 8 5 | .97347115 | .97503483 | 1.02549656 | .99303217 | 8 5 |
| 1 6 | .98598332 | .98669919 | 1.01238406 | .99606343 | 1 6 |
| 2 6 | .98594297 | .98669951 | 1.01263017 | .99608648 | 2 6 |
| 3 6 | .98599427 | .98669863 | 1.01287837 | .99609788 | 3 6 |
| 4 6 | .98598368 | .98669603 | 1.01310451 | .99610203 | 4 6 |
| 5 6 | .98596024 | .98669159 | 1.01326639 | .99609584 | 5 6 |
| 6 6 | .98592461 | .98668562 | 1.01321867 | .99607169 | 6 6 |

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|-----|-----------|-----------|------------|-----------|-----|
| 7 6 | .98588993 | .98667962 | 1.01321351 | .99604761 | 7 6 |
| 8 6 | .98586393 | .98667522 | 1.01302944 | .99601927 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------|------------------|-----------|---------------|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | | 37800.00 SECONDS | **** | 10.5000 HOURS |
| 1 1 | .95376164 | .95621490 | 1.05182351 | .98709967 | 1 1 |
| 2 1 | .95385011 | .95621839 | 1.05086427 | .98716012 | 2 1 |
| 3 1 | .95394771 | .95621933 | 1.04946665 | .98717139 | 3 1 |
| 4 1 | .95398777 | .95621555 | 1.04828451 | .98719580 | 4 1 |
| 5 1 | .95397534 | .95620588 | 1.04714885 | .98720658 | 5 1 |
| 6 1 | .95387836 | .95619049 | 1.04774718 | .98717590 | 6 1 |
| 7 1 | .95376274 | .95617381 | 1.04789933 | .98717512 | 7 1 |
| 8 1 | .95365691 | .95616099 | 1.04935858 | .98712168 | 8 1 |
| 1 2 | .95634942 | .95889856 | 1.04696553 | .98698792 | 1 2 |
| 2 2 | .95644123 | .95890001 | 1.04783886 | .98703180 | 2 2 |
| 3 2 | .95645879 | .95889747 | 1.04855434 | .98707822 | 3 2 |
| 4 2 | .95644719 | .95888910 | 1.04907350 | .98709639 | 4 2 |
| 5 2 | .95636555 | .95887429 | 1.04934614 | .98709381 | 5 2 |
| 6 2 | .95624780 | .95885387 | 1.04934931 | .98702755 | 6 2 |
| 7 2 | .95610175 | .95883299 | 1.04962540 | .98695022 | 7 2 |
| 8 2 | .95598524 | .95881749 | 1.05075407 | .98683672 | 8 2 |
| 1 3 | .96183156 | .96392982 | 1.03779194 | .98782600 | 1 3 |
| 2 3 | .96185716 | .96393064 | 1.03880458 | .98789919 | 2 3 |
| 3 3 | .96185805 | .96392797 | 1.03977353 | .98793939 | 3 3 |
| 4 3 | .96185574 | .96392033 | 1.04059209 | .98792484 | 4 3 |
| 5 3 | .96175632 | .96390728 | 1.04115073 | .98791238 | 5 3 |
| 6 3 | .96165003 | .96388965 | 1.04103212 | .98787865 | 6 3 |
| 7 3 | .96154669 | .96387191 | 1.04101406 | .98780917 | 7 3 |
| 8 3 | .96144931 | .96385889 | 1.04036915 | .98775681 | 8 3 |
| 1 4 | .96922739 | .97084453 | 1.02850762 | .98966840 | 1 4 |
| 2 4 | .96924473 | .97084508 | 1.02927676 | .98969649 | 2 4 |
| 3 4 | .96924106 | .97084277 | 1.03008500 | .98972824 | 3 4 |
| 4 4 | .96921074 | .97083649 | 1.03079540 | .98973824 | 4 4 |
| 5 4 | .96915349 | .97082604 | 1.03132266 | .98972615 | 5 4 |
| 6 4 | .96907099 | .97081216 | 1.03114445 | .98966389 | 6 4 |
| 7 4 | .96899194 | .97079833 | 1.03116127 | .98963554 | 7 4 |
| 8 4 | .96894408 | .97078825 | 1.03056084 | .98956257 | 8 4 |
| 1 5 | .97813305 | .97923937 | 1.01917967 | .99226138 | 1 5 |
| 2 5 | .97814449 | .97923977 | 1.01972244 | .99230683 | 2 5 |
| 3 5 | .97814135 | .97923820 | 1.02026270 | .99232849 | 3 5 |
| 4 5 | .97811944 | .97923384 | 1.02079033 | .99233574 | 4 5 |
| 5 5 | .97807692 | .97922458 | 1.02114415 | .99232465 | 5 5 |
| 6 5 | .97802221 | .97921694 | 1.02101161 | .99227717 | 6 5 |
| 7 5 | .97798665 | .97920736 | 1.02097902 | .99223061 | 7 5 |
| 8 5 | .97792969 | .97920038 | 1.02055292 | .99217645 | 8 5 |
| 1 6 | .98837758 | .98894524 | 1.00971917 | .99562498 | 1 6 |
| 2 6 | .98834330 | .98894541 | 1.00999728 | .99564617 | 2 6 |
| 3 6 | .98834145 | .98894457 | 1.01028115 | .99565926 | 3 6 |
| 4 6 | .98837005 | .98894232 | 1.01054102 | .99566282 | 4 6 |
| 5 6 | .98834920 | .98893861 | 1.01072513 | .99565602 | 5 6 |
| 6 6 | .98832013 | .98893368 | 1.01065795 | .99563104 | 6 6 |
| 7 6 | .98829259 | .98892878 | 1.01064077 | .99560633 | 7 6 |
| 8 6 | .98827253 | .98892521 | 1.01041921 | .99557735 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------|------------------|-----------|---------------|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | | 39600.00 SECONDS | **** | 11.0000 HOURS |
| 1 1 | .96216641 | .96435212 | 1.04545033 | .98566557 | 1 1 |
| 2 1 | .96224890 | .96435491 | 1.04507769 | .98572954 | 2 1 |

| | | | | | |
|-----|-----------|-----------|-------------|-----------|-----|
| 3 1 | .96230580 | .96435523 | 1.04424713 | .98574363 | 3 1 |
| 4 1 | .96233995 | .96435120 | 1.04350286 | .98576813 | 4 1 |
| 5 1 | .96232117 | .96434188 | 1.04269166 | .98577722 | 5 1 |
| 6 1 | .96224131 | .96432753 | 1.04313695 | .98574188 | 6 1 |
| 7 1 | .96212723 | .96431216 | 1.04325361 | .98573487 | 7 1 |
| 8 1 | .96204410 | .96430044 | 1.04427109 | .98567655 | 8 1 |
| 1 2 | .96469703 | .96676828 | 1.03819437 | .98568990 | 1 2 |
| 2 2 | .96472189 | .96676906 | 1.03937753 | .98573643 | 2 2 |
| 3 2 | .96472202 | .96676623 | 1.04043063 | .98578169 | 3 2 |
| 4 2 | .96464917 | .96675833 | 1.04128518 | .98579989 | 4 2 |
| 5 2 | .96461812 | .96674500 | 1.04178961 | .98579252 | 5 2 |
| 6 2 | .96450674 | .96672707 | 1.04166378 | .98572227 | 6 2 |
| 7 2 | .96439142 | .96670895 | 1.04167592 | .98564171 | 7 2 |
| 8 2 | .96429451 | .96669561 | 1.04259137 | .98685495 | 8 2 |
| 1 3 | .96940046 | .97106236 | 1.02936664 | .98673514 | 1 3 |
| 2 3 | .96941256 | .97106266 | 1.03053224 | .98680833 | 2 3 |
| 3 3 | .96940104 | .97105993 | 1.03167868 | .98684711 | 3 3 |
| 4 3 | .96938276 | .97105309 | 1.03268174 | .98683198 | 4 3 |
| 5 3 | .96929799 | .97104188 | 1.03336348 | .98681759 | 5 3 |
| 6 3 | .96920996 | .97102711 | 1.03315924 | .98677943 | 6 3 |
| 7 3 | .96912750 | .97101244 | 1.03309369 | .98678797 | 7 3 |
| 8 3 | .96908828 | .97100176 | 1.03226186 | .98665209 | 8 3 |
| 1 4 | .97553174 | .97677146 | 1.02146641 | .98881886 | 1 4 |
| 2 4 | .97553892 | .97677161 | 1.02231902 | .98884824 | 2 4 |
| 3 4 | .97552686 | .97676938 | 1.02322211 | .98887872 | 3 4 |
| 4 4 | .97549401 | .97676395 | 1.02402404 | .98888712 | 4 4 |
| 5 4 | .97544269 | .97675529 | 1.02461764 | .98887348 | 5 4 |
| 6 4 | .97537667 | .97674404 | 1.02438669 | .98880968 | 6 4 |
| 7 4 | .97531562 | .97673297 | 1.02463895 | .98877859 | 7 4 |
| 8 4 | .97527290 | .97672497 | 1.02366550 | .98870471 | 8 4 |
| 1 5 | .98271852 | .98354706 | 1.01412754 | .99167970 | 1 5 |
| 2 5 | .98272287 | .98354718 | 1.01417151 | .99172469 | 2 5 |
| 3 5 | .98271417 | .98354570 | 1.01532868 | .99175459 | 3 5 |
| 4 5 | .98269117 | .98354203 | 1.01588498 | .99175161 | 4 5 |
| 5 5 | .98268588 | .98353615 | 1.01627292 | .99173953 | 5 5 |
| 6 5 | .98264169 | .98352852 | 1.016410704 | .99169124 | 6 5 |
| 7 5 | .98257150 | .98352103 | 1.01605311 | .99164425 | 7 5 |
| 8 5 | .98254355 | .98351562 | 1.01558400 | .99158973 | 8 5 |
| 1 6 | .99084958 | .99126799 | 1.00705730 | .99532961 | 1 6 |
| 2 6 | .99085158 | .99126802 | 1.00735800 | .99535256 | 2 6 |
| 3 6 | .99084485 | .99126724 | 1.00766749 | .99536318 | 3 6 |
| 4 6 | .99083699 | .99126536 | 1.00795168 | .99536617 | 4 6 |
| 5 6 | .99081701 | .99126239 | 1.00815137 | .99535893 | 5 6 |
| 6 6 | .99079466 | .99125855 | 1.00806794 | .99533359 | 6 6 |
| 7 6 | .99077431 | .99125477 | 1.00804006 | .99530869 | 7 6 |
| 8 6 | .99076017 | .99125204 | 1.00778962 | .99527960 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 41400.00 SECONDS ***** 11.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 1 1 | .97078795 | .97267223 | 1.03858027 | .98473102 | 1 1 |
| 2 1 | .97084006 | .97267431 | 1.03875568 | .98479724 | 2 1 |
| 3 1 | .97088610 | .97267404 | 1.03884424 | .98481324 | 3 1 |
| 4 1 | .97090451 | .97266985 | 1.03814872 | .98483730 | 4 1 |
| 5 1 | .97088016 | .97266106 | 1.03765169 | .98484466 | 5 1 |
| 6 1 | .97079891 | .97264798 | 1.03794838 | .98489548 | 6 1 |
| 7 1 | .97070791 | .97263417 | 1.03802288 | .98479323 | 7 1 |
| 8 1 | .97062868 | .97262375 | 1.03861298 | .98473118 | 8 1 |
| 1 2 | .97315788 | .97478598 | 1.02932947 | .98487514 | 1 2 |
| 2 2 | .97316662 | .97478613 | 1.03075871 | .98492293 | 2 2 |
| 3 2 | .97315080 | .97478310 | 1.03208761 | .98496637 | 3 2 |
| 4 2 | .97318843 | .97477581 | 1.03322283 | .98498237 | 4 2 |
| 5 2 | .97303959 | .97476416 | 1.03392272 | .98497251 | 5 2 |
| 6 2 | .97294583 | .97474894 | 1.03368311 | .98489961 | 6 2 |
| 7 2 | .97285211 | .97473379 | 1.03363711 | .98481716 | 7 2 |
| 8 2 | .97277508 | .97472278 | 1.03419037 | .98596238 | 8 2 |
| 1 3 | .97707817 | .97829977 | 1.02103793 | .98607867 | 1 3 |
| 2 3 | .97707768 | .97829959 | 1.02230951 | .98615071 | 2 3 |
| 3 3 | .97705518 | .97829688 | 1.02358384 | .98618757 | 3 3 |
| 4 3 | .97701242 | .97829094 | 1.02472482 | .98617188 | 4 3 |
| 5 3 | .97695364 | .97828171 | 1.02549858 | .98615579 | 5 3 |
| 6 3 | .97688454 | .97826993 | 1.02522309 | .98611465 | 6 3 |
| 7 3 | .97684325 | .97825843 | 1.02511598 | .98604250 | 7 3 |
| 8 3 | .97678208 | .97825016 | 1.02413982 | .98598473 | 8 3 |
| 1 4 | .98190836 | .98276457 | 1.01454771 | .98832724 | 1 4 |
| 2 4 | .98189811 | .98276436 | 1.01568160 | .98835692 | 2 4 |
| 3 4 | .98187872 | .98276226 | 1.01664628 | .98838579 | 3 4 |
| 4 4 | .98184441 | .98275776 | 1.01730925 | .98839263 | 4 4 |
| 5 4 | .98179885 | .98275094 | 1.01794668 | .98837781 | 5 4 |
| 6 4 | .98175885 | .98274238 | 1.01767005 | .98831362 | 6 4 |
| 7 4 | .98170746 | .98273418 | 1.01762575 | .98828099 | 7 4 |
| 8 4 | .98167964 | .98272820 | 1.01684773 | .98820746 | 8 4 |
| 1 5 | .98732742 | .98789179 | 1.00928287 | .99135615 | 1 5 |
| 2 5 | .98733519 | .98789166 | 1.00981725 | .99140003 | 2 5 |
| 3 5 | .98732162 | .98789029 | 1.01046286 | .99141972 | 3 5 |
| 4 5 | .98729821 | .98788733 | 1.01165274 | .99142476 | 4 5 |
| 5 5 | .98726859 | .98788286 | 1.01145779 | .99141208 | 5 5 |
| 6 5 | .98723694 | .98787726 | 1.01126562 | .99136379 | 6 5 |
| 7 5 | .98720996 | .98787187 | 1.01119368 | .99131711 | 7 5 |
| 8 5 | .98719278 | .98786863 | 1.01066766 | .99126315 | 8 5 |
| 1 6 | .99333548 | .99368719 | 1.00466874 | .99517238 | 1 6 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 2 6 | .9933J401 | .99360709 | 1.00477496 | .99519474 | 2 6 |
| 3 6 | .99332681 | .99380638 | 1.00510038 | .99520478 | 3 6 |
| 4 6 | .99331482 | .99380490 | 1.00539983 | .99520722 | 4 6 |
| 5 6 | .99329991 | .99380268 | 1.00560876 | .99519970 | 5 6 |
| 6 6 | .99328427 | .99359992 | 1.00551239 | .99517445 | 6 6 |
| 7 6 | .99327099 | .99359726 | 1.00547528 | .99514979 | 7 6 |
| 8 6 | .99326263 | .99359537 | 1.00520442 | .99512106 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------|------------|-----------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 43200.00 SECONDS **** 12.0000 HOURS | | | | | |
| 1 1 | .97939814 | .98096201 | 1.03142700 | .98427538 | 1 1 |
| 2 1 | .97943198 | .98096339 | 1.03209945 | .98434260 | 2 1 |
| 3 1 | .97945754 | .98096257 | 1.03230682 | .98435962 | 3 1 |
| 4 1 | .97946080 | .98095833 | 1.03239859 | .98438277 | 4 1 |
| 5 1 | .97943177 | .98095022 | 1.03219904 | .98438839 | 5 1 |
| 6 1 | .97938033 | .98093861 | 1.03234864 | .98434624 | 6 1 |
| 7 1 | .97928356 | .98092656 | 1.03238259 | .98432978 | 7 1 |
| 8 1 | .97921901 | .98091756 | 1.03256945 | .98426518 | 8 1 |
| 1 2 | .98156598 | .98274759 | 1.02060630 | .98452174 | 1 2 |
| 2 2 | .98155978 | .98274716 | 1.02221724 | .98456948 | 2 2 |
| 3 2 | .98152981 | .98274402 | 1.02375828 | .98461053 | 3 2 |
| 4 2 | .98147977 | .98273747 | 1.02511634 | .98462418 | 4 2 |
| 5 2 | .98141465 | .98272763 | 1.02597332 | .98461217 | 5 2 |
| 6 2 | .98133925 | .98271527 | 1.02563695 | .98453794 | 6 2 |
| 7 2 | .98126742 | .98270321 | 1.02553960 | .98445493 | 7 2 |
| 8 2 | .98121012 | .98269453 | 1.02578556 | .98453689 | 8 2 |
| 1 3 | .98467134 | .98549975 | 1.01360724 | .98583516 | 1 3 |
| 2 3 | .98465938 | .98545913 | 1.01434003 | .98590499 | 2 3 |
| 3 3 | .98462748 | .98545652 | 1.01564922 | .98593953 | 3 3 |
| 4 3 | .98458180 | .98545154 | 1.01692776 | .98592318 | 4 3 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 5 3 | .98453004 | .98544436 | 1.01776306 | .98590580 | 5 3 |
| 6 3 | .98448002 | .98543562 | 1.01743121 | .98586309 | 6 3 |
| 7 3 | .98443964 | .98542730 | 1.01728910 | .98579150 | 7 3 |
| 8 3 | .98441602 | .98542146 | 1.01620849 | .98573336 | 8 3 |
| 1 4 | .98817500 | .98867456 | 1.00799508 | .98817476 | 1 4 |
| 2 4 | .98816423 | .98867403 | 1.00892306 | .98820381 | 2 4 |
| 3 4 | .98813866 | .98867210 | 1.00991803 | .98823077 | 3 4 |
| 4 4 | .98810392 | .98866856 | 1.01081321 | .98823611 | 4 4 |
| 5 4 | .98806667 | .98866360 | 1.01147294 | .98822050 | 5 4 |
| 6 4 | .98803391 | .98865771 | 1.01116398 | .98815703 | 6 4 |
| 7 4 | .98800833 | .98865220 | 1.01109545 | .98812396 | 7 4 |
| 8 4 | .98799482 | .98864837 | 1.01027032 | .98805196 | 8 4 |
| 1 5 | .99187625 | .99216630 | 1.00451358 | .99127656 | 1 5 |
| 2 5 | .99186805 | .99216594 | 1.00513681 | .99131873 | 2 5 |
| 3 5 | .99185038 | .99216471 | 1.00579563 | .99133710 | 3 5 |
| 4 5 | .99182717 | .99216248 | 1.00639923 | .99134112 | 4 5 |
| 5 5 | .99180348 | .99215941 | 1.00681116 | .99132798 | 5 5 |
| 6 5 | .99178410 | .99215581 | 1.00659975 | .99128063 | 6 5 |
| 7 5 | .99176989 | .99215247 | 1.00651247 | .99123504 | 7 5 |
| 8 5 | .99176298 | .99215016 | 1.00596255 | .99118247 | 8 5 |
| 1 6 | .99577472 | .99590546 | 1.00198559 | .99514552 | 1 6 |
| 2 6 | .99577011 | .99590525 | 1.00230472 | .99516697 | 2 6 |
| 3 6 | .99576080 | .99590462 | 1.00263687 | .99517632 | 3 6 |
| 4 6 | .99574897 | .99590353 | 1.00294299 | .99517824 | 4 6 |
| 5 6 | .99573724 | .99590206 | 1.00315519 | .99517060 | 5 6 |
| 6 6 | .99572812 | .99590036 | 1.00304921 | .99514586 | 6 6 |
| 7 6 | .99572166 | .99589879 | 1.00300438 | .99512184 | 7 6 |
| 8 6 | .99571878 | .99589772 | 1.00272134 | .99509392 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-----------|------------|-----------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** 45000.00 SECONDS **** 12.5000 HOURS | | | | | |
| 1 1 | .98778740 | .98901904 | 1.02419471 | .98426822 | 1 1 |
| 2 1 | .98780354 | .98901973 | 1.02530338 | .98433524 | 2 1 |
| 3 1 | .98780954 | .98901843 | 1.02595899 | .98435246 | 3 1 |
| 4 1 | .98779861 | .98901423 | 1.02642805 | .98437427 | 4 1 |
| 5 1 | .98776589 | .98900694 | 1.02650062 | .98437818 | 5 1 |
| 6 1 | .98770518 | .98899695 | 1.02651449 | .98433394 | 6 1 |
| 7 1 | .98764334 | .98898680 | 1.02650557 | .98431430 | 7 1 |
| 8 1 | .98759387 | .98897932 | 1.02632171 | .98424831 | 8 1 |
| 1 2 | .98971697 | .99046024 | 1.01223513 | .98459848 | 1 2 |
| 2 2 | .98969732 | .99045929 | 1.01396489 | .98464498 | 2 2 |
| 3 2 | .98965520 | .99045612 | 1.01565476 | .98468315 | 3 2 |
| 4 2 | .98959945 | .99045042 | 1.01717697 | .98469434 | 4 2 |
| 5 2 | .98953935 | .99044248 | 1.01815200 | .98468056 | 5 2 |
| 6 2 | .98948256 | .99043303 | 1.01773702 | .98460626 | 6 2 |
| 7 2 | .98944234 | .99042408 | 1.01759578 | .98452399 | 7 2 |
| 8 2 | .98939414 | .99041779 | 1.01759110 | .98454742 | 8 2 |
| 1 3 | .99199822 | .99237087 | 1.00544947 | .98597497 | 1 3 |
| 2 3 | .99197614 | .99236987 | 1.00680193 | .98604165 | 2 3 |
| 3 3 | .99193652 | .99236741 | 1.00819281 | .98607353 | 3 3 |
| 4 3 | .99188940 | .99236346 | 1.00947404 | .98605648 | 4 3 |
| 5 3 | .99184544 | .99235833 | 1.01034189 | .98603822 | 5 3 |
| 6 3 | .99181415 | .99235259 | 1.00996862 | .98599524 | 6 3 |
| 7 3 | .99179392 | .99234740 | 1.00979837 | .98592538 | 7 3 |
| 8 3 | .99178693 | .99234391 | 1.00865406 | .98586828 | 8 3 |
| 1 4 | .99420774 | .99436165 | 1.00185634 | .98833590 | 1 4 |
| 2 4 | .99418946 | .99436085 | 1.00278084 | .98836352 | 2 4 |
| 3 4 | .99415892 | .99435912 | 1.00377732 | .98838834 | 3 4 |
| 4 4 | .99412469 | .99435655 | 1.00467807 | .98839227 | 4 4 |
| 5 4 | .99409510 | .99435341 | 1.00534052 | .98837625 | 5 4 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 6 4 | .99407829 | .99435012 | 1.00501004 | .98831452 | 6 4 |
| 7 4 | .99406936 | .99434727 | 1.00492181 | .98828020 | 7 4 |
| 8 4 | .99406926 | .99434543 | 1.00467541 | .98821263 | 8 4 |
| 1 5 | .99622927 | .99627054 | 1.00015315 | .99142201 | 1 5 |
| 2 5 | .99621582 | .99626997 | 1.00076913 | .99144196 | 2 5 |
| 3 5 | .99619484 | .99626890 | 1.00142349 | .99147885 | 3 5 |
| 4 5 | .99617241 | .99626740 | 1.00202432 | .99148191 | 4 5 |
| 5 5 | .99615474 | .99626568 | 1.00243200 | .99146869 | 5 5 |
| 6 5 | .99614707 | .99626399 | 1.00220820 | .99142293 | 6 5 |
| 7 5 | .99614490 | .99626261 | 1.00210919 | .99137909 | 7 5 |
| 8 5 | .99614758 | .99626176 | 1.00155092 | .99132467 | 8 5 |
| 1 6 | .99811089 | .99810936 | .99948115 | .99523872 | 1 6 |
| 2 6 | .99810351 | .99810905 | .99999714 | .99525899 | 2 6 |
| 3 6 | .99809249 | .99810851 | 1.00032744 | .99526757 | 3 6 |
| 4 6 | .99808111 | .99810780 | 1.00043222 | .99526901 | 4 6 |
| 5 6 | .99807257 | .99810705 | 1.00084218 | .99526140 | 5 6 |
| 6 6 | .99806965 | .99810636 | 1.00072986 | .99523756 | 6 6 |
| 7 6 | .99806960 | .99810583 | 1.00047895 | .99521452 | 7 6 |
| 8 6 | .99807183 | .99810553 | 1.00039150 | .99518782 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION *** 46800.00 SECONDS *** 13.8000 HOURS

| | | | | | |
|-----|------------|------------|------------|-----------|-----|
| 1 1 | .99575979 | .99665657 | 1.01707333 | .98467044 | 1 1 |
| 2 1 | .99575926 | .99665662 | 1.01455034 | .98473616 | 2 1 |
| 3 1 | .99574708 | .99665489 | 1.01959570 | .98475282 | 3 1 |
| 4 1 | .99572328 | .99665083 | 1.02039747 | .98477293 | 4 1 |
| 5 1 | .99564791 | .99664446 | 1.02071798 | .98477520 | 5 1 |
| 6 1 | .99563849 | .99663620 | 1.02060807 | .98472974 | 6 1 |
| 7 1 | .99559190 | .99662803 | 1.02055773 | .98470793 | 7 1 |
| 8 1 | .99555747 | .99662214 | 1.02004255 | .98464170 | 8 1 |
| 1 2 | .99742303 | .99774685 | 1.00439761 | .98506592 | 1 2 |
| 2 2 | .99734164 | .99774544 | 1.00618667 | .98511009 | 2 2 |
| 3 2 | .99733956 | .99774233 | 1.00796441 | .98514503 | 3 2 |
| 4 2 | .99728006 | .99773754 | 1.00959320 | .98515376 | 4 2 |
| 5 2 | .99724608 | .99773154 | 1.01064783 | .98513859 | 5 2 |
| 6 2 | .99718762 | .99772499 | 1.01017281 | .98506542 | 6 2 |
| 7 2 | .99715822 | .99771910 | 1.00999560 | .98498505 | 7 2 |
| 8 2 | .99714807 | .99771513 | 1.00979675 | .98495436 | 8 2 |
| 1 3 | .99889297 | .99887862 | .99851110 | .98646128 | 1 3 |
| 2 3 | .99886223 | .99887530 | .99848459 | .98652400 | 2 3 |
| 3 3 | .99881664 | .99887305 | 1.00123198 | .98655296 | 3 3 |
| 4 3 | .99876949 | .99887013 | 1.00252159 | .98653524 | 4 3 |
| 5 3 | .99873382 | .99886701 | 1.00339517 | .98651651 | 5 3 |
| 6 3 | .99872046 | .99886416 | 1.00299497 | .98647447 | 6 3 |
| 7 3 | .99871915 | .99886197 | 1.00280355 | .98640738 | 7 3 |
| 8 3 | .99872751 | .99886072 | 1.00163292 | .98635258 | 8 3 |
| 1 4 | .99986427 | .99949882 | .99627242 | .98877945 | 1 4 |
| 2 4 | .99983962 | .99949778 | .99714974 | .98880495 | 2 4 |
| 3 4 | .99980534 | .99949629 | .99814204 | .98882747 | 3 4 |
| 4 4 | .99977244 | .99949467 | .99902443 | .98883010 | 4 4 |
| 5 4 | .99975064 | .99949328 | .99967194 | .98881402 | 5 4 |
| 6 4 | .99974884 | .99949244 | .99933031 | .98875494 | 6 4 |
| 7 4 | .99975533 | .99949219 | .99922493 | .98872393 | 7 4 |
| 8 4 | .99976749 | .99949212 | .99938294 | .98865808 | 8 4 |
| 1 5 | 1.00030086 | 1.00011384 | .99819971 | .99174956 | 1 5 |
| 2 5 | 1.00024295 | 1.00011311 | .99879402 | .99180682 | 2 5 |
| 3 5 | 1.00025946 | 1.00011228 | .99874280 | .99182211 | 3 5 |
| 4 5 | 1.00023831 | 1.00011140 | .99881130 | .99182430 | 4 5 |
| 5 5 | 1.00024660 | 1.00011897 | .99880475 | .99181127 | 5 5 |
| 6 5 | 1.00024982 | 1.00011187 | .99817509 | .99176775 | 6 5 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 7 5 | 1.00023871 | 1.00011152 | .99806766 | .99172624 | 7 5 |
| 8 5 | 1.00025006 | 1.00011202 | .99751558 | .99167864 | 8 5 |
| 1 6 | 1.00029318 | 1.00017056 | .99758936 | .99543956 | 1 6 |
| 2 6 | 1.00024337 | 1.00017816 | .99789492 | .99545841 | 2 6 |
| 3 6 | 1.00027106 | 1.00016972 | .99821546 | .99546616 | 3 6 |
| 4 6 | 1.00026035 | 1.00016938 | .99851157 | .99546717 | 4 6 |
| 5 6 | 1.00025496 | 1.00016931 | .99871427 | .995465971 | 5 6 |
| 6 6 | 1.00025779 | 1.00016956 | .99895880 | .99543712 | 6 6 |
| 7 6 | 1.00023631 | 1.00017000 | .99854343 | .99541503 | 7 6 |
| 8 6 | 1.00027046 | 1.00017041 | .99825884 | .99539024 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION *** 48600.00 SECONDS *** 13.8000 HOURS

| | | | | | |
|-----|------------|------------|------------|-----------|-----|
| 1 1 | 1.00314019 | 1.00370838 | 1.01023441 | .98543576 | 1 1 |
| 2 1 | 1.00312440 | 1.00370784 | 1.01208752 | .98549911 | 2 1 |
| 3 1 | 1.00309583 | 1.00370576 | 1.01337864 | .98551456 | 3 1 |
| 4 1 | 1.00306875 | 1.00370193 | 1.01446806 | .98553266 | 4 1 |
| 5 1 | 1.00302378 | 1.00369655 | 1.01580241 | .98553339 | 5 1 |
| 6 1 | 1.00298593 | 1.00369007 | 1.01478288 | .98548757 | 6 1 |
| 7 1 | 1.00295444 | 1.00368392 | 1.01446406 | .98546454 | 7 1 |
| 8 1 | 1.00293466 | 1.00367961 | 1.01389225 | .98539915 | 8 1 |
| 1 2 | 1.00431778 | 1.00445071 | .99724449 | .98587784 | 1 2 |
| 2 2 | 1.00447833 | 1.00444893 | .99903815 | .98591879 | 2 2 |
| 3 2 | 1.00441678 | 1.00444595 | 1.00084876 | .98595020 | 3 2 |
| 4 2 | 1.00438841 | 1.00444211 | 1.00282762 | .98595650 | 4 2 |
| 5 2 | 1.00438839 | 1.00443803 | 1.00362490 | .98594035 | 5 2 |
| 6 2 | 1.00428788 | 1.00443428 | 1.00319825 | .98588940 | 6 2 |
| 7 2 | 1.00427788 | 1.00443133 | 1.00290319 | .98579291 | 7 2 |

| | | | | | |
|-----|------------|------------|------------|-----------|-----|
| 8 2 | 1.00427414 | 1.00442957 | 1.00256471 | .98671128 | 8 2 |
| 1 3 | 1.00520983 | 1.00483934 | .99230908 | .98725141 | 1 3 |
| 2 3 | 1.00517201 | 1.00483776 | .99359324 | .98730950 | 2 3 |
| 3 3 | 1.00512218 | 1.00483576 | .99493874 | .98733537 | 3 3 |
| 4 3 | 1.00507627 | 1.00483386 | .99620089 | .98731703 | 4 3 |
| 5 3 | 1.00504912 | 1.00483266 | .99765614 | .98729823 | 5 3 |
| 6 3 | 1.00505246 | 1.00483252 | .99864270 | .98725819 | 6 3 |
| 7 3 | 1.00506845 | 1.00483312 | .999643691 | .98719478 | 7 3 |
| 8 3 | 1.00509058 | 1.00483395 | .99527399 | .98714340 | 8 3 |
| 1 4 | 1.00502729 | 1.00457491 | .99133169 | .98946952 | 1 4 |
| 2 4 | 1.00499746 | 1.00457368 | .99218144 | .98949232 | 2 4 |
| 3 4 | 1.00496064 | 1.00457245 | .99310713 | .98951242 | 3 4 |
| 4 4 | 1.00494986 | 1.00457173 | .99395023 | .98951389 | 4 4 |
| 5 4 | 1.00491569 | 1.00457198 | .99456742 | .98949808 | 5 4 |
| 6 4 | 1.00492763 | 1.00457339 | .99424221 | .98944245 | 6 4 |
| 7 4 | 1.00494803 | 1.00457534 | .99411016 | .98941370 | 7 4 |
| 8 4 | 1.00497106 | 1.00457706 | .99328973 | .98935220 | 8 4 |
| 1 5 | 1.00490778 | 1.00361716 | .99271540 | .99229286 | 1 5 |
| 2 5 | 1.00398624 | 1.00361629 | .99327548 | .99232713 | 2 5 |
| 3 5 | 1.00396106 | 1.00361557 | .99387525 | .99234074 | 3 5 |
| 4 5 | 1.00394161 | 1.00361542 | .99442795 | .99234217 | 4 5 |
| 5 5 | 1.00393564 | 1.00361618 | .99479853 | .99232957 | 5 5 |
| 6 5 | 1.00394874 | 1.00361791 | .99456910 | .99228885 | 6 5 |
| 7 5 | 1.00396752 | 1.00362001 | .99445648 | .99225016 | 7 5 |
| 8 5 | 1.00394651 | 1.00362173 | .99392361 | .99220594 | 8 5 |
| 1 6 | 1.00227714 | 1.00204699 | .99574428 | .99573383 | 1 6 |
| 2 6 | 1.00226550 | 1.00204653 | .99603286 | .99575109 | 2 6 |
| 3 6 | 1.00225230 | 1.00204618 | .99633662 | .99575795 | 3 6 |
| 4 6 | 1.00224249 | 1.00204620 | .99661751 | .99575858 | 4 6 |
| 5 6 | 1.00224011 | 1.00204674 | .99680853 | .99575142 | 5 6 |
| 6 6 | 1.00224814 | 1.00204785 | .99669289 | .99573035 | 6 6 |
| 7 6 | 1.00225918 | 1.00204916 | .99663469 | .99571016 | 7 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE |
|--|--------------|------------|-----------|-----------|
| 8 6 | 1.00227010 | 1.00205021 | .99635960 | .99568689 |
| ELAPSED XENON TIME SINCE PERTURBATION **** 50400.00 SECONDS **** 14.0000 HOURS | | | | |

| | | | | | |
|-----|------------|------------|-------------|-----------|-----|
| 1 1 | 1.00977911 | 1.01003331 | 1.00382764 | .98651202 | 1 1 |
| 2 1 | 1.00974977 | 1.01003223 | 1.00582291 | .98657213 | 2 1 |
| 3 1 | 1.00970695 | 1.01002989 | 1.00745266 | .98658580 | 3 1 |
| 4 1 | 1.00966241 | 1.01002636 | 1.00877826 | .98660167 | 4 1 |
| 5 1 | 1.00962488 | 1.01002202 | 1.00949168 | .98660098 | 5 1 |
| 6 1 | 1.00959853 | 1.01001733 | 1.009917835 | .98655560 | 6 1 |
| 7 1 | 1.00958166 | 1.01001318 | 1.00905519 | .98653226 | 7 1 |
| 8 1 | 1.00957571 | 1.01001042 | 1.00801496 | .98646871 | 8 1 |
| 1 2 | 1.01088068 | 1.01043969 | .99089433 | .98698273 | 1 2 |
| 2 2 | 1.01081160 | 1.01043761 | .99264381 | .98701970 | 2 2 |
| 3 2 | 1.01074644 | 1.01043483 | .99443160 | .98704740 | 3 2 |
| 4 2 | 1.01068504 | 1.01043196 | .99611365 | .98705138 | 4 2 |
| 5 2 | 1.01064556 | 1.01042972 | .99721988 | .98703484 | 5 2 |
| 6 2 | 1.01064121 | 1.01042861 | .99667930 | .98696690 | 6 2 |
| 7 2 | 1.01064916 | 1.01042840 | .99645428 | .98689341 | 7 2 |
| 8 2 | 1.01066046 | 1.01042869 | .99602753 | .98776641 | 8 2 |
| 1 3 | 1.01082692 | 1.01014384 | .98693069 | .98829816 | 1 3 |
| 2 3 | 1.01078365 | 1.01014207 | .98813655 | .98835111 | 2 3 |
| 3 3 | 1.01073128 | 1.01014034 | .98941044 | .98837380 | 3 3 |
| 4 3 | 1.01068772 | 1.01013943 | .99061404 | .98835492 | 4 3 |
| 5 3 | 1.01066906 | 1.01014000 | .99143004 | .98833642 | 5 3 |
| 6 3 | 1.01068753 | 1.01014233 | .99101590 | .98829931 | 6 3 |
| 7 3 | 1.01071885 | 1.01014546 | .99080225 | .98824035 | 7 3 |
| 8 3 | 1.01075293 | 1.01014816 | .98967710 | .98819330 | 8 3 |
| 1 4 | 1.00954937 | 1.00889746 | .98709879 | .99036666 | 1 4 |
| 2 4 | 1.00956560 | 1.00889610 | .98788388 | .99038432 | 2 4 |
| 3 4 | 1.00952743 | 1.00889512 | .98874412 | .99040395 | 3 4 |
| 4 4 | 1.00949935 | 1.00889525 | .98953023 | .99040441 | 4 4 |
| 5 4 | 1.00949253 | 1.00889698 | .99010410 | .99038918 | 5 4 |
| 6 4 | 1.00951667 | 1.00890041 | .98974799 | .99033765 | 6 4 |
| 7 4 | 1.00954921 | 1.00890441 | .98964753 | .99031161 | 7 4 |
| 8 4 | 1.00958155 | 1.00890763 | .98886901 | .99025531 | 8 4 |
| 1 5 | 1.00728124 | 1.00671503 | .98474600 | .99296327 | 1 5 |
| 2 5 | 1.00725694 | 1.00671406 | .99026128 | .99299427 | 2 5 |
| 3 5 | 1.00724086 | 1.00671351 | .99081505 | .99300614 | 3 5 |
| 4 5 | 1.00721346 | 1.00671397 | .99132616 | .99300691 | 4 5 |
| 5 5 | 1.00721287 | 1.00671579 | .99166659 | .99299498 | 5 5 |
| 6 5 | 1.00723465 | 1.00671897 | .99144290 | .99295750 | 6 5 |
| 7 5 | 1.00726197 | 1.00672252 | .99132815 | .99292204 | 7 5 |
| 8 5 | 1.00728746 | 1.00672531 | .99082585 | .99288163 | 8 5 |
| 1 6 | 1.00402654 | 1.00370390 | .99417169 | .99610666 | 1 6 |
| 2 6 | 1.00401345 | 1.00370339 | .99443766 | .99612159 | 2 6 |
| 3 6 | 1.00399978 | 1.00370314 | .99471854 | .99612755 | 3 6 |
| 4 6 | 1.00399104 | 1.00370347 | .99497853 | .99612785 | 4 6 |
| 5 6 | 1.00399147 | 1.00370457 | .99515406 | .99612109 | 5 6 |
| 6 6 | 1.00400405 | 1.00370643 | .99504102 | .99610179 | 6 6 |
| 7 6 | 1.00401960 | 1.00370850 | .99498155 | .99608336 | 7 6 |
| 8 6 | 1.00403395 | 1.00371012 | .99472186 | .99606218 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE |
|--|--------------|------------|------------|-----------|
| 8 6 | 1.00227010 | 1.00205021 | .99635960 | .99568689 |
| ELAPSED XENON TIME SINCE PERTURBATION **** 52200.00 SECONDS **** 14.5000 HOURS | | | | |
| 1 1 | 1.01555673 | 1.01551902 | .99797829 | .98784310 |
| 2 1 | 1.01551582 | 1.01551748 | 1.00012251 | .98789919 |
| 3 1 | 1.01546112 | 1.01551496 | 1.00194293 | .98791064 |

| | | | | | |
|-----|------------|------------|------------|-----------|-----|
| 4 1 | 1.01540906 | 1.01551179 | 1.00345088 | .98792412 | 4 1 |
| 5 1 | 1.01537198 | 1.01550850 | 1.00430710 | .98792214 | 5 1 |
| 6 1 | 1.01535675 | 1.01550555 | 1.00391684 | .98787798 | 6 1 |
| 7 1 | 1.01535361 | 1.01550331 | 1.00376437 | .98785514 | 7 1 |
| 8 1 | 1.01536041 | 1.01550205 | 1.00253584 | .98779431 | 8 1 |
| 1 2 | 1.01634093 | 1.01560970 | .98543320 | .98832542 | 1 2 |
| 2 2 | 1.01628603 | 1.01560740 | .98709642 | .98835785 | 2 2 |
| 3 2 | 1.01621773 | 1.01560486 | .98881792 | .98838176 | 3 2 |
| 4 2 | 1.01618790 | 1.01560294 | .99045621 | .98838357 | 4 2 |
| 5 2 | 1.01616269 | 1.01560243 | .99154047 | .98836641 | 5 2 |
| 6 2 | 1.01613692 | 1.01560373 | .99099247 | .98830290 | 6 2 |
| 7 2 | 1.01616065 | 1.01560600 | .99075522 | .98823410 | 7 2 |
| 8 2 | 1.01618479 | 1.01560814 | .99028697 | .98986428 | 8 2 |
| 1 3 | 1.01564935 | 1.01470031 | .98243390 | .98955134 | 1 3 |
| 2 3 | 1.01560226 | 1.01469841 | .98353887 | .98959877 | 2 3 |
| 3 3 | 1.01554896 | 1.01469698 | .98471559 | .98961827 | 3 3 |
| 4 3 | 1.01550870 | 1.01469699 | .98583458 | .98959898 | 4 3 |
| 5 3 | 1.01849826 | 1.01469916 | .98659375 | .98958111 | 5 3 |
| 6 3 | 1.01552999 | 1.01470367 | .98619012 | .98954789 | 6 3 |
| 7 3 | 1.01557442 | 1.01470901 | .98597462 | .98949379 | 7 3 |
| 8 3 | 1.01561845 | 1.01471333 | .98491298 | .98945180 | 8 3 |
| 1 4 | 1.01350546 | 1.01259502 | .98361500 | .99142915 | 1 4 |
| 2 4 | 1.01346898 | 1.01259357 | .98432178 | .99144535 | 2 4 |
| 3 4 | 1.01343057 | 1.01259286 | .98510133 | .99146851 | 3 4 |
| 4 4 | 1.01340567 | 1.01259378 | .98581602 | .99148011 | 4 4 |
| 5 4 | 1.01340570 | 1.01259678 | .98633607 | .99144572 | 5 4 |
| 6 4 | 1.01344033 | 1.01260194 | .98601468 | .99139882 | 6 4 |
| 7 4 | 1.01344306 | 1.01260771 | .98589177 | .99137439 | 7 4 |
| 8 4 | 1.01352302 | 1.01261221 | .98517054 | .99132538 | 8 4 |
| 1 5 | 1.01006858 | 1.00938714 | .98732095 | .99375047 | 1 5 |
| 2 5 | 1.01004239 | 1.00935610 | .98778290 | .99377801 | 2 5 |
| 3 5 | 1.01001614 | 1.00938574 | .98821109 | .99378816 | 3 5 |
| 4 5 | 1.01000104 | 1.00935673 | .98874162 | .99378838 | 4 5 |
| 5 5 | 1.01000848 | 1.00935946 | .98896405 | .99377728 | 5 5 |
| 6 5 | 1.01003453 | 1.00934388 | .98888398 | .99374339 | 6 5 |
| 7 5 | 1.01000693 | 1.00936867 | .98871894 | .99371147 | 7 5 |
| 8 5 | 1.01009968 | 1.00937236 | .98825477 | .99367519 | 8 5 |
| 1 6 | 1.00581349 | 1.00511466 | .99288883 | .99653995 | 1 6 |
| 2 6 | 1.00549941 | 1.00511412 | .99312763 | .99655365 | 2 6 |
| 3 6 | 1.00548566 | 1.00511397 | .99338046 | .99655872 | 3 6 |
| 4 6 | 1.00547811 | 1.00511459 | .99361480 | .99655875 | 4 6 |
| 5 6 | 1.00546111 | 1.00511616 | .99377171 | .99655248 | 5 6 |
| 6 6 | 1.00549752 | 1.00511867 | .99366377 | .99653512 | 6 6 |
| 7 6 | 1.00551680 | 1.00512138 | .99360450 | .99651868 | 7 6 |
| 8 6 | 1.00553393 | 1.00512347 | .99336528 | .99649968 | 8 6 |

| MESH POINT(N,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|---------------------------------|------------------|------------|---------------|-----------|-----|
| ELAPSED TIME SINCE PERTURBATION | 54000.00 SECONDS | | 15.0000 HOURS | | |
| 1 1 | 1.02034584 | 1.02008467 | .99278557 | .98937057 | 1 1 |
| 2 1 | 1.02033553 | 1.02008277 | .99500849 | .98942283 | 2 1 |
| 3 1 | 1.02027148 | 1.02008014 | .99695281 | .98943091 | 3 1 |
| 4 1 | 1.02021392 | 1.02007738 | .99858881 | .98944192 | 4 1 |
| 5 1 | 1.02017819 | 1.02007513 | .99955120 | .98943885 | 5 1 |
| 6 1 | 1.02017344 | 1.02007383 | .99910138 | .98939653 | 6 1 |
| 7 1 | 1.02016283 | 1.02007339 | .99892524 | .98937492 | 7 1 |
| 8 1 | 1.02020102 | 1.02007350 | .99755879 | .98931758 | 8 1 |
| 1 2 | 1.02087984 | 1.01988704 | .98091544 | .98984886 | 1 2 |
| 2 2 | 1.02082114 | 1.01988461 | .98245741 | .98987634 | 2 2 |
| 3 2 | 1.02079180 | 1.01988236 | .98407399 | .98989648 | 3 2 |
| 4 2 | 1.02069500 | 1.01988135 | .98562945 | .98989630 | 4 2 |

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 5 2 | 1.02067131 | 1.01988240 | .98666492 | .98987948 | 5 2 |
| 6 2 | 1.02069512 | 1.01988585 | .98612447 | .98982048 | 6 2 |
| 7 2 | 1.02073231 | 1.01989030 | .98588217 | .98975698 | 7 2 |
| 8 2 | 1.02076711 | 1.01989405 | .98541397 | .99054748 | 8 2 |
| 1 3 | 1.01961132 | 1.01844631 | .97884865 | .99095930 | 1 3 |
| 2 3 | 1.01956209 | 1.01844435 | .97983524 | .99100100 | 2 3 |
| 3 3 | 1.01950926 | 1.01844323 | .98089459 | .99101735 | 3 3 |
| 4 3 | 1.01947305 | 1.01844407 | .98198808 | .99099780 | 4 3 |
| 5 3 | 1.01947034 | 1.01844763 | .98259629 | .99098086 | 5 3 |
| 6 3 | 1.01951325 | 1.01845401 | .98221284 | .99095179 | 6 3 |
| 7 3 | 1.01958839 | 1.01846120 | .98200094 | .99090331 | 7 3 |
| 8 3 | 1.01962828 | 1.01846589 | .98182482 | .99086691 | 8 3 |
| 1 4 | 1.01869441 | 1.01561866 | .98089901 | .99261421 | 1 4 |
| 2 4 | 1.01865643 | 1.01561719 | .98151715 | .99262675 | 2 4 |
| 3 4 | 1.01861879 | 1.01561673 | .98220442 | .99263951 | 3 4 |
| 4 4 | 1.01859743 | 1.01561830 | .98283660 | .99263848 | 4 4 |
| 5 4 | 1.01860368 | 1.01562243 | .98329479 | .99262507 | 5 4 |
| 6 4 | 1.01864691 | 1.01562905 | .98299452 | .99256317 | 6 4 |
| 7 4 | 1.01869777 | 1.01563624 | .98287282 | .99256453 | 7 4 |
| 8 4 | 1.01874361 | 1.01564178 | .98222124 | .99231933 | 8 4 |
| 1 5 | 1.01233434 | 1.01150942 | .98545355 | .99462347 | 1 5 |
| 2 5 | 1.01230711 | 1.01150835 | .98585574 | .99464748 | 2 5 |
| 3 5 | 1.01228141 | 1.01150816 | .98629182 | .99465594 | 3 5 |
| 4 5 | 1.01226881 | 1.01150962 | .98669408 | .99465572 | 4 5 |
| 5 5 | 1.01227751 | 1.01151311 | .98695810 | .99464561 | 5 5 |
| 6 5 | 1.01231258 | 1.01151853 | .98679982 | .99461856 | 6 5 |
| 7 5 | 1.01235253 | 1.01152432 | .98664988 | .99458736 | 7 5 |
| 8 5 | 1.01238728 | 1.01152874 | .98623649 | .99455542 | 8 5 |
| 1 6 | 1.00671936 | 1.00682136 | .99198433 | .99781886 | 1 6 |
| 2 6 | 1.00678473 | 1.00682680 | .99211213 | .99783869 | 2 6 |

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 3 6 | 1.00669127 | 1.00626075 | .99233312 | .99703488 | 3 6 |
| 4 6 | 1.00668502 | 1.00626160 | .99253809 | .99703470 | 4 6 |
| 5 6 | 1.00669027 | 1.00626357 | .99267394 | .99702900 | 5 6 |
| 6 6 | 1.00670977 | 1.00626660 | .99257328 | .99701370 | 6 6 |
| 7 6 | 1.00673195 | 1.00626983 | .99251555 | .99699920 | 7 6 |
| 8 6 | 1.00675117 | 1.00627229 | .99230096 | .99698263 | 8 6 |

| MESH POINT (R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|------------------|-----------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 55800.00 SECONDS | | **** | |
| | | | | 15.9000 HOURS | |
| 1 1 | 1.02421347 | 1.02368234 | .98832188 | .99103549 | 1 1 |
| 2 1 | 1.02415598 | 1.02368015 | .99055770 | .99108186 | 2 1 |
| 3 1 | 1.02408517 | 1.02367750 | .99256253 | .99108796 | 3 1 |
| 4 1 | 1.02402414 | 1.02367518 | .99427355 | .99109648 | 4 1 |
| 5 1 | 1.02399055 | 1.02367393 | .99530624 | .99109249 | 5 1 |
| 6 1 | 1.02399541 | 1.02367416 | .99481415 | .99105259 | 6 1 |
| 7 1 | 1.02401587 | 1.02367535 | .99462033 | .99103281 | 7 1 |
| 8 1 | 1.02404387 | 1.02367669 | .99316516 | .99097961 | 8 1 |
| 1 2 | 1.02443215 | 1.02322963 | .97736522 | .99149580 | 1 2 |
| 2 2 | 1.02437159 | 1.02322714 | .97875810 | .99151810 | 2 2 |
| 3 2 | 1.02430317 | 1.02322521 | .98023825 | .99153456 | 3 2 |
| 4 2 | 1.02425060 | 1.02322503 | .98167831 | .99153263 | 4 2 |
| 5 2 | 1.02423466 | 1.02322747 | .98264242 | .99151627 | 5 2 |
| 6 2 | 1.02426964 | 1.02323276 | .98212271 | .99146250 | 6 2 |
| 7 2 | 1.02431782 | 1.02323904 | .98188191 | .99140475 | 7 2 |
| 8 2 | 1.02436101 | 1.02324413 | .98144946 | .99215836 | 8 2 |
| 1 3 | 1.02267698 | 1.02134788 | .97617856 | .99247044 | 1 3 |
| 2 3 | 1.02264894 | 1.02134571 | .97703420 | .99250636 | 2 3 |
| 3 3 | 1.02257609 | 1.02134490 | .97796126 | .99251949 | 3 3 |
| 4 3 | 1.02254451 | 1.02134646 | .97885343 | .99250002 | 4 3 |
| 5 3 | 1.02254886 | 1.02135119 | .97945998 | .99248426 | 5 3 |

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 6 3 | 1.02260074 | 1.02135908 | .97910485 | .99245979 | 6 3 |
| 7 3 | 1.02266409 | 1.02114776 | .97890127 | .99241720 | 7 3 |
| 8 3 | 1.02272171 | 1.02137453 | .97802573 | .99238673 | 8 3 |
| 1 4 | 1.01913964 | 1.01794266 | .97894830 | .99387931 | 1 4 |
| 2 4 | 1.01910129 | 1.01794117 | .97947081 | .99388811 | 2 4 |
| 3 4 | 1.01906534 | 1.01794096 | .98005765 | .99389856 | 3 4 |
| 4 4 | 1.01908774 | 1.01794309 | .98059943 | .99389691 | 4 4 |
| 5 4 | 1.01905945 | 1.01794810 | .98099012 | .99388483 | 5 4 |
| 6 4 | 1.01910933 | 1.01795587 | .98071627 | .99388414 | 6 4 |
| 7 4 | 1.01916622 | 1.01796416 | .98059894 | .99383352 | 7 4 |
| 8 4 | 1.01921617 | 1.01797051 | .98002633 | .99379430 | 8 4 |
| 1 5 | 1.01408068 | 1.01315444 | .98414173 | .99555156 | 1 5 |
| 2 5 | 1.01403322 | 1.01315336 | .98447979 | .99557204 | 2 5 |
| 3 5 | 1.01400869 | 1.01315333 | .98484708 | .99557888 | 3 5 |
| 4 5 | 1.01399867 | 1.01315517 | .98518782 | .99557832 | 4 5 |
| 5 5 | 1.01401112 | 1.01315927 | .98540843 | .99556932 | 5 5 |
| 6 5 | 1.01405066 | 1.01316546 | .98522836 | .99554323 | 6 5 |
| 7 5 | 1.01409461 | 1.01317200 | .98512318 | .99551885 | 7 5 |
| 8 5 | 1.01414208 | 1.01317696 | .98476237 | .99549135 | 8 5 |
| 1 6 | 1.00763494 | 1.00713496 | .99121839 | .99752639 | 1 6 |
| 2 6 | 1.00762020 | 1.00713440 | .99139275 | .99753627 | 2 6 |
| 3 6 | 1.00760736 | 1.00713443 | .99157893 | .99753962 | 3 6 |
| 4 6 | 1.00760244 | 1.00713549 | .99175182 | .99753927 | 4 6 |
| 5 6 | 1.00760963 | 1.00713776 | .99186491 | .99753420 | 5 6 |
| 6 6 | 1.00763144 | 1.00714119 | .99177333 | .99752102 | 6 6 |
| 7 6 | 1.00765568 | 1.00714480 | .99171835 | .99750858 | 7 6 |
| 8 6 | 1.00767631 | 1.00714754 | .99153162 | .99749443 | 8 6 |

| MESH POINT (R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|------------------|-----------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 57600.00 SECONDS | | **** | |
| | | | | 16.0000 HOURS | |
| 1 1 | 1.02702084 | 1.02629689 | .98463304 | .99278020 | 1 1 |
| 2 1 | 1.02695842 | 1.02629449 | .98682241 | .99282118 | 2 1 |
| 3 1 | 1.02688340 | 1.02629190 | .98882877 | .99286237 | 3 1 |
| 4 1 | 1.02682084 | 1.02629003 | .99056455 | .99283304 | 4 1 |
| 5 1 | 1.02679008 | 1.02628970 | .99163334 | .99282573 | 5 1 |
| 6 1 | 1.02680345 | 1.02629130 | .99111573 | .99277872 | 6 1 |
| 7 1 | 1.02683335 | 1.02629393 | .99091030 | .99277128 | 7 1 |
| 8 1 | 1.02688944 | 1.02629635 | .98941311 | .99272248 | 8 1 |
| 1 2 | 1.02690580 | 1.02562668 | .97477864 | .99321051 | 1 2 |
| 2 2 | 1.02692518 | 1.02562419 | .97600171 | .99322755 | 2 2 |
| 3 2 | 1.02685941 | 1.02562260 | .97732108 | .99324051 | 3 2 |
| 4 2 | 1.02681204 | 1.02562318 | .97861984 | .99323707 | 4 2 |
| 5 2 | 1.02680346 | 1.02562679 | .97949442 | .99322145 | 5 2 |
| 6 2 | 1.02684747 | 1.02563358 | .97900664 | .99317326 | 6 2 |
| 7 2 | 1.02690407 | 1.02564134 | .97877313 | .99312153 | 7 2 |
| 8 2 | 1.02695336 | 1.02564749 | .97840604 | .99308075 | 8 2 |
| 1 3 | 1.02484007 | 1.02339810 | .97440325 | .99403483 | 1 3 |
| 2 3 | 1.02479069 | 1.02339617 | .97512005 | .99406500 | 2 3 |
| 3 3 | 1.02474289 | 1.02339566 | .97590489 | .99407548 | 3 3 |
| 4 3 | 1.02471633 | 1.02339784 | .97666481 | .99405587 | 4 3 |
| 5 3 | 1.02472692 | 1.02340349 | .97718230 | .99404148 | 5 3 |
| 6 3 | 1.02478550 | 1.02341253 | .97686193 | .99402195 | 6 3 |
| 7 3 | 1.02485458 | 1.02342233 | .97667074 | .99398526 | 7 3 |
| 8 3 | 1.02491583 | 1.02342988 | .97590877 | .99396089 | 8 3 |
| 1 4 | 1.02083870 | 1.01956398 | .97774084 | .99518332 | 1 4 |
| 2 4 | 1.02080103 | 1.01956252 | .97816380 | .99518842 | 2 4 |
| 3 4 | 1.02076755 | 1.01956254 | .97864541 | .99519670 | 3 4 |
| 4 4 | 1.02075380 | 1.01956513 | .97909199 | .99519468 | 4 4 |
| 5 4 | 1.02077014 | 1.01957081 | .97941183 | .99518396 | 5 4 |
| 6 4 | 1.02082472 | 1.01957939 | .97916846 | .99515258 | 6 4 |

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 7 4 | 1.02080553 | 1.01958847 | .97905824 | .99514207 | 7 4 |
| 8 4 | 1.02094789 | 1.01959537 | .97857101 | .99510885 | 8 4 |
| 1 5 | 1.01524709 | 1.01429110 | .98336909 | .99650510 | 1 5 |
| 2 5 | 1.01522013 | 1.01429004 | .98364064 | .99652212 | 2 5 |
| 3 5 | 1.01519730 | 1.01429016 | .98393704 | .99652744 | 3 5 |
| 4 5 | 1.01518990 | 1.01429231 | .98421265 | .99652665 | 4 5 |
| 5 5 | 1.01520541 | 1.01429684 | .98438822 | .99651883 | 5 5 |
| 6 5 | 1.01524797 | 1.01430357 | .98422900 | .99649674 | 6 5 |
| 7 5 | 1.01529440 | 1.01431062 | .98413128 | .99647618 | 7 5 |
| 8 5 | 1.01533335 | 1.01431594 | .98382797 | .99645311 | 8 5 |
| 1 6 | 1.00826025 | 1.00773518 | .99082322 | .99804439 | 1 6 |
| 2 6 | 1.00824581 | 1.00773464 | .99096266 | .99805453 | 2 6 |
| 3 6 | 1.00823386 | 1.00773474 | .99111229 | .99805710 | 3 6 |
| 4 6 | 1.00823030 | 1.00773595 | .99125144 | .99805664 | 4 6 |
| 5 6 | 1.00823906 | 1.00773845 | .99134079 | .99805223 | 5 6 |
| 6 6 | 1.00826241 | 1.00774215 | .99125974 | .99804119 | 6 6 |
| 7 6 | 1.00828791 | 1.00774602 | .99120854 | .99803081 | 7 6 |
| 8 6 | 1.00830929 | 1.00774894 | .99105189 | .99801905 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

XENON

IODINE

ELAPSED XENON TIME SINCE PERTURBATION **** 59400.00 SECONDS **** 16.5880 HOURS

| | | | | | |
|-----|------------|------------|------------|-----------|-----|
| 1 1 | 1.02882190 | 1.02794438 | .98173939 | .99454989 | 1 1 |
| 2 1 | 1.02875673 | 1.02794188 | .98383013 | .99458533 | 2 1 |
| 3 1 | 1.02867995 | 1.02793939 | .98578501 | .99458559 | 3 1 |
| 4 1 | 1.02861768 | 1.02793798 | .98749931 | .99458935 | 4 1 |
| 5 1 | 1.02859024 | 1.02793850 | .98857247 | .99458407 | 5 1 |
| 6 1 | 1.02861092 | 1.02794128 | .98804511 | .99455032 | 6 1 |
| 7 1 | 1.02864850 | 1.02794512 | .98783403 | .99453558 | 7 1 |
| 8 1 | 1.02869088 | 1.02794865 | .98633796 | .99449194 | 8 1 |
| 1 2 | 1.02856016 | 1.02709706 | .97312675 | .99494026 | 1 2 |
| 2 2 | 1.02843949 | 1.02709466 | .97416804 | .99495213 | 2 2 |
| 3 2 | 1.02839804 | 1.02709341 | .97530721 | .99496181 | 3 2 |
| 4 2 | 1.02839804 | 1.02709464 | .97644536 | .99495713 | 4 2 |
| 5 2 | 1.02839624 | 1.02709920 | .97721664 | .99494249 | 5 2 |
| 6 2 | 1.02844707 | 1.02710714 | .97676994 | .99490087 | 6 2 |
| 7 2 | 1.02850954 | 1.02711600 | .97654868 | .99485449 | 7 2 |
| 8 2 | 1.02856270 | 1.02712293 | .97627040 | .99541150 | 8 2 |
| 1 3 | 1.02612218 | 1.02461759 | .97348102 | .99560533 | 1 3 |
| 2 3 | 1.02607473 | 1.02461575 | .97405539 | .99562996 | 2 3 |
| 3 3 | 1.02603094 | 1.02461552 | .97469276 | .99563782 | 3 3 |
| 4 3 | 1.02600959 | 1.02461819 | .97531410 | .99561842 | 4 3 |
| 5 3 | 1.02602551 | 1.02462452 | .97573824 | .99560555 | 5 3 |
| 6 3 | 1.02608854 | 1.02463436 | .97545749 | .99559104 | 6 3 |
| 7 3 | 1.02610092 | 1.02464409 | .97528198 | .99556025 | 7 3 |
| 8 3 | 1.02622380 | 1.02465296 | .97464153 | .99554195 | 8 3 |
| 1 4 | 1.02181183 | 1.02050109 | .97723726 | .99648766 | 1 4 |
| 2 4 | 1.02177578 | 1.02049971 | .97755961 | .99648919 | 2 4 |
| 3 4 | 1.02174542 | 1.02049993 | .97793429 | .99649548 | 3 4 |
| 4 4 | 1.02173552 | 1.02050286 | .97828376 | .99649322 | 4 4 |
| 5 4 | 1.02175559 | 1.02050099 | .97853153 | .99648396 | 5 4 |
| 6 4 | 1.02181294 | 1.02051809 | .97832155 | .99645785 | 6 4 |
| 7 4 | 1.02187568 | 1.02052763 | .97822070 | .99645143 | 7 4 |
| 8 4 | 1.02192881 | 1.02053484 | .97782245 | .99642408 | 8 4 |
| 1 5 | 1.01590925 | 1.01493367 | .983310631 | .99745632 | 1 5 |
| 2 5 | 1.01588348 | 1.01493267 | .98331089 | .99747003 | 2 5 |
| 3 5 | 1.01586279 | 1.01493292 | .98335856 | .99747396 | 3 5 |
| 4 5 | 1.01585796 | 1.01493528 | .98374512 | .99747303 | 4 5 |
| 5 5 | 1.01587583 | 1.01494009 | .98387534 | .99746644 | 5 5 |
| 6 5 | 1.01592000 | 1.01494713 | .98373885 | .99744829 | 6 5 |
| 7 5 | 1.01596745 | 1.01495445 | .98365013 | .99743147 | 7 5 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

XENON

IODINE

ELAPSED XENON TIME SINCE PERTURBATION **** 61200.00 SECONDS **** 17.0000 HOURS

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 1 1 | 1.02966040 | 1.02866927 | .97963754 | .99629481 | 1 1 |
| 2 1 | 1.02959453 | 1.02866673 | .98158546 | .99632391 | 2 1 |
| 3 1 | 1.02951824 | 1.02866441 | .98344267 | .99632132 | 3 1 |
| 4 1 | 1.02945791 | 1.02866345 | .98509421 | .99632291 | 4 1 |
| 5 1 | 1.02943422 | 1.02866470 | .98614313 | .99631727 | 5 1 |
| 6 1 | 1.02946883 | 1.02866847 | .98562050 | .99628703 | 6 1 |
| 7 1 | 1.02950427 | 1.02867329 | .98540939 | .99627525 | 7 1 |
| 8 1 | 1.02955115 | 1.02867734 | .98395315 | .99623676 | 8 1 |
| 1 2 | 1.02920301 | 1.02768647 | .97235875 | .99663672 | 1 2 |
| 2 2 | 1.02914697 | 1.02768420 | .97320457 | .99664361 | 2 2 |
| 3 2 | 1.02909079 | 1.02768329 | .97415868 | .99665032 | 3 2 |
| 4 2 | 1.02905568 | 1.02768567 | .97512326 | .99664465 | 4 2 |
| 5 2 | 1.02905994 | 1.02769034 | .97578168 | .99663118 | 5 2 |
| 6 2 | 1.02911541 | 1.02769989 | .97638313 | .99659457 | 6 2 |
| 7 2 | 1.02916128 | 1.02770870 | .97617824 | .99655511 | 7 2 |
| 8 2 | 1.02923621 | 1.02771813 | .97580622 | .99652182 | 8 2 |

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 1 3 | 1.02657000 | 1.02504982 | .97335198 | .99713898 | 1 3 |
| 2 3 | 1.02652553 | 1.02504811 | .97378421 | .99715837 | 2 3 |
| 3 3 | 1.02648652 | 1.02504814 | .97427310 | .99716386 | 3 3 |
| 4 3 | 1.02647043 | 1.02505119 | .97475376 | .99714483 | 4 3 |
| 5 3 | 1.02649071 | 1.02505795 | .97508109 | .99713358 | 5 3 |
| 6 3 | 1.02655603 | 1.02506823 | .97484527 | .99712404 | 6 3 |
| 7 3 | 1.02662942 | 1.02507914 | .97468801 | .99709899 | 7 3 |
| 8 3 | 1.02669206 | 1.02508745 | .97417312 | .99708657 | 8 3 |
| 1 4 | 1.02209961 | 1.02079169 | .97738329 | .99775720 | 1 4 |
| 2 4 | 1.02206599 | 1.02079042 | .97760661 | .99775539 | 2 4 |
| 3 4 | 1.02203925 | 1.02079082 | .97787550 | .99775990 | 3 4 |
| 4 4 | 1.02203307 | 1.02079197 | .97812855 | .99775754 | 4 4 |
| 5 4 | 1.02205597 | 1.02080034 | .97830499 | .99774977 | 5 4 |
| 6 4 | 1.02211429 | 1.02080966 | .97813015 | .99772877 | 6 4 |
| 7 4 | 1.02217700 | 1.02081934 | .97804047 | .99772630 | 7 4 |
| 8 4 | 1.02222948 | 1.02082666 | .97773223 | .99770458 | 8 4 |
| 1 5 | 1.01607743 | 1.01511020 | .98331294 | .99838003 | 1 5 |
| 2 5 | 1.01605340 | 1.01510927 | .98345182 | .99839064 | 2 5 |
| 3 5 | 1.01603520 | 1.01510963 | .98360584 | .99839331 | 3 5 |
| 4 5 | 1.01603282 | 1.01511212 | .98375024 | .99839234 | 4 5 |
| 5 5 | 1.01605237 | 1.01511705 | .98383597 | .99838698 | 5 5 |
| 6 5 | 1.01609683 | 1.01512418 | .98372333 | .99837242 | 6 5 |
| 7 5 | 1.01614393 | 1.01513156 | .98364480 | .99835938 | 7 5 |
| 8 5 | 1.01618243 | 1.01513709 | .98346104 | .99834472 | 8 5 |
| 1 6 | 1.00868269 | 1.00819455 | .99083825 | .99906642 | 1 6 |
| 2 6 | 1.00866984 | 1.00819407 | .99090753 | .99907119 | 2 6 |
| 3 6 | 1.00866034 | 1.00819431 | .99098325 | .99907239 | 3 6 |
| 4 6 | 1.00865939 | 1.00819569 | .99105403 | .99907186 | 4 6 |
| 5 6 | 1.00867020 | 1.00819838 | .99109572 | .99906881 | 5 6 |
| 6 6 | 1.00869441 | 1.00816225 | .99103842 | .99906188 | 6 6 |
| 7 6 | 1.00872014 | 1.00816628 | .99099716 | .99905543 | 7 6 |
| 8 6 | 1.00874118 | 1.00816929 | .99090353 | .99904821 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION *** 63000.00 SECONDS *** 17.5000 HOURS

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 1 1 | 1.02960585 | 1.02854036 | .97830283 | .99796750 | 1 1 |
| 2 1 | 1.02954114 | 1.02853786 | .98007211 | .99799198 | 2 1 |
| 3 1 | 1.02946737 | 1.02853575 | .98179282 | .99798670 | 3 1 |
| 4 1 | 1.02941037 | 1.02853521 | .98334600 | .99798632 | 4 1 |
| 5 1 | 1.02939065 | 1.02853709 | .98434568 | .99798049 | 5 1 |
| 6 1 | 1.02942186 | 1.02854163 | .98384063 | .99795390 | 6 1 |
| 7 1 | 1.02946935 | 1.02854720 | .98363466 | .99794522 | 7 1 |
| 8 1 | 1.02951896 | 1.02855178 | .98225194 | .99791195 | 8 1 |
| 1 2 | 1.02898644 | 1.02746353 | .97240553 | .99825699 | 1 2 |
| 2 2 | 1.02893461 | 1.02746143 | .97305992 | .99825923 | 2 2 |
| 3 2 | 1.02888466 | 1.02746084 | .97381817 | .99826329 | 3 2 |
| 4 2 | 1.02885626 | 1.02746305 | .97460214 | .99825690 | 4 2 |
| 5 2 | 1.02886581 | 1.02746882 | .97514216 | .99824474 | 5 2 |
| 6 2 | 1.02892382 | 1.02747805 | .97479682 | .99821385 | 6 2 |
| 7 2 | 1.02899079 | 1.02748804 | .97461154 | .99818033 | 7 2 |
| 8 2 | 1.02904554 | 1.02749572 | .97455751 | .99808840 | 8 2 |
| 1 3 | 1.02625147 | 1.02475860 | .97394121 | .99859783 | 1 3 |
| 2 3 | 1.02621089 | 1.02475706 | .97423508 | .99861236 | 2 3 |
| 3 3 | 1.02617722 | 1.02475733 | .97457829 | .99861577 | 3 3 |
| 4 3 | 1.02616627 | 1.02476082 | .97491992 | .99859728 | 4 3 |
| 5 3 | 1.02614990 | 1.02476759 | .97515557 | .99858749 | 5 3 |
| 6 3 | 1.02625551 | 1.02477799 | .97492255 | .99858292 | 6 3 |
| 7 3 | 1.02632782 | 1.02478894 | .97482537 | .99856333 | 7 3 |
| 8 3 | 1.02638855 | 1.02479724 | .97443642 | .99855648 | 8 3 |
| 1 4 | 1.02175984 | 1.02048979 | .97811250 | .99896107 | 1 4 |
| 2 4 | 1.02172932 | 1.02048864 | .97824068 | .99895621 | 2 4 |
| 3 4 | 1.02170656 | 1.02048919 | .97840746 | .99895915 | 3 4 |
| 4 4 | 1.02170390 | 1.02049247 | .97856716 | .99895682 | 4 4 |
| 5 4 | 1.02172873 | 1.02049888 | .97867471 | .99895055 | 5 4 |
| 6 4 | 1.02178635 | 1.02050814 | .97853574 | .99893438 | 6 4 |
| 7 4 | 1.02184749 | 1.02051773 | .97845853 | .99893562 | 7 4 |
| 8 4 | 1.02184763 | 1.02052492 | .97823896 | .99891918 | 8 4 |
| 1 5 | 1.01579415 | 1.01486037 | .98393935 | .99925410 | 1 5 |
| 2 5 | 1.01577235 | 1.01485953 | .98401539 | .99926186 | 2 5 |
| 3 5 | 1.01575688 | 1.01485998 | .98410156 | .99926344 | 3 5 |
| 4 5 | 1.01575678 | 1.01486252 | .98418328 | .99926250 | 4 5 |
| 5 5 | 1.01577732 | 1.01486743 | .98422647 | .99925835 | 5 5 |
| 6 5 | 1.01582085 | 1.01487445 | .98413808 | .99924756 | 6 5 |
| 7 5 | 1.01586640 | 1.01488168 | .98407056 | .99923767 | 7 5 |
| 8 5 | 1.01590319 | 1.01488708 | .98394555 | .99922684 | 8 5 |
| 1 6 | 1.00851932 | 1.00801049 | .99120002 | .99954106 | 1 6 |
| 2 6 | 1.00850767 | 1.00801006 | .99123597 | .99954435 | 2 6 |
| 3 6 | 1.00849961 | 1.00801034 | .99127635 | .99954498 | 3 6 |
| 4 6 | 1.00849984 | 1.00801174 | .99131434 | .99954448 | 4 6 |
| 5 6 | 1.00851113 | 1.00801441 | .99133339 | .99954209 | 5 6 |
| 6 6 | 1.00853479 | 1.00801822 | .99128856 | .99953706 | 6 6 |
| 7 6 | 1.00855962 | 1.00802215 | .99125306 | .99953239 | 7 6 |
| 8 6 | 1.00857969 | 1.00802509 | .99119054 | .99952723 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION *** 64800.00 SECONDS *** 18.0000 HOURS

| | | | | | |
|-----|------------|------------|-----------|-----------|-----|
| 1 1 | 1.02874857 | 1.02764614 | .97769217 | .99953161 | 1 1 |
| 2 1 | 1.02868668 | 1.02764374 | .97925544 | .99955091 | 2 1 |
| 3 1 | 1.02861716 | 1.02764188 | .98080850 | .99954316 | 3 1 |
| 4 1 | 1.02856469 | 1.02764173 | .98223379 | .99954104 | 4 1 |

| | | | | | |
|--|------------|------------|-----------|------------|-----|
| 5 1 | 1.02854903 | 1.02764411 | .98316312 | .99953518 | 5 1 |
| 6 1 | 1.02858348 | 1.02764921 | .98268674 | .99951231 | 6 1 |
| 7 1 | 1.02861328 | 1.02765529 | .98249050 | .99950474 | 7 1 |
| 8 1 | 1.02864396 | 1.02766021 | .98120952 | .99947863 | 8 1 |
| 1 2 | 1.02800201 | 1.02651516 | .97318343 | .99976444 | 1 2 |
| 2 2 | 1.02795535 | 1.02651328 | .97364752 | .99976248 | 2 2 |
| 3 2 | 1.02791238 | 1.02651299 | .97421257 | .99976423 | 3 2 |
| 4 2 | 1.02789068 | 1.02651553 | .97481430 | .99975738 | 4 2 |
| 5 2 | 1.02790462 | 1.02652157 | .97523405 | .99974663 | 5 2 |
| 6 2 | 1.02796322 | 1.02653096 | .97494587 | .99972122 | 6 2 |
| 7 2 | 1.02802919 | 1.02654102 | .97478177 | .99969336 | 7 2 |
| 8 2 | 1.02808206 | 1.02654869 | .97485218 | 1.00029422 | 8 2 |
| 1 3 | 1.02525150 | 1.02382378 | .97516223 | .99994968 | 1 3 |
| 2 3 | 1.02521550 | 1.02382243 | .97532451 | .99995981 | 2 3 |
| 3 3 | 1.02518752 | 1.02382290 | .97552814 | .99996145 | 3 3 |
| 4 3 | 1.02518149 | 1.02382632 | .97573574 | .99994362 | 4 3 |
| 5 3 | 1.02520748 | 1.02383329 | .97588110 | .99993569 | 5 3 |
| 6 3 | 1.02527156 | 1.02384351 | .97573338 | .99993540 | 6 3 |
| 7 3 | 1.02534094 | 1.02385421 | .97561744 | .99992088 | 7 3 |
| 8 3 | 1.02539830 | 1.02386226 | .97531655 | .99991917 | 8 3 |
| 1 4 | 1.02086395 | 1.01966231 | .97934913 | 1.00007315 | 1 4 |
| 2 4 | 1.02083705 | 1.01966131 | .97938808 | 1.00006560 | 2 4 |
| 3 4 | 1.02081849 | 1.01966198 | .97945861 | 1.00006721 | 3 4 |
| 4 4 | 1.02081906 | 1.01966528 | .97953008 | 1.00006500 | 4 4 |
| 5 4 | 1.02084495 | 1.01967156 | .97957271 | 1.00006019 | 5 4 |
| 6 4 | 1.02090039 | 1.01968051 | .97946934 | 1.00004851 | 6 4 |
| 7 4 | 1.02095841 | 1.01968974 | .97940546 | 1.00005314 | 7 4 |
| 8 4 | 1.02100554 | 1.01969663 | .97927114 | 1.00004155 | 8 4 |
| 1 5 | 1.01511165 | 1.01423307 | .98492889 | 1.00005989 | 1 5 |
| 2 5 | 1.01509244 | 1.01423234 | .98494633 | 1.00006610 | 2 5 |
| 3 5 | 1.01507986 | 1.01423287 | .98496897 | 1.00006575 | 3 5 |
| 4 5 | 1.01508183 | 1.01423538 | .98499198 | 1.00006491 | 4 5 |
| 5 5 | 1.01510272 | 1.01424014 | .98499562 | 1.00006192 | 5 5 |
| 6 5 | 1.01514426 | 1.01424688 | .98493103 | 1.00005442 | 6 5 |
| 7 5 | 1.01518719 | 1.01425378 | .98487497 | 1.00004759 | 7 5 |
| 8 5 | 1.01522146 | 1.01425892 | .98488016 | 1.00004825 | 8 5 |
| 1 6 | 1.00814211 | 1.00766420 | .99175804 | .99997824 | 1 6 |
| 2 6 | 1.00813185 | 1.00766383 | .99176290 | .99998019 | 2 6 |
| 3 6 | 1.00812533 | 1.00766415 | .99177018 | .99998035 | 3 6 |
| 4 6 | 1.00812662 | 1.00766553 | .99177744 | .99997991 | 4 6 |
| 5 6 | 1.00813805 | 1.00766811 | .99177538 | .99997816 | 5 6 |
| 6 6 | 1.00814058 | 1.00767175 | .99174292 | .99997486 | 6 6 |
| 7 6 | 1.00814395 | 1.00767550 | .99171344 | .99997183 | 7 6 |
| 8 6 | 1.00820261 | 1.00767828 | .99168067 | .99996855 | 8 6 |
| MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE | | | | | |
| ELAPSED XENON TIME SINCE PERTURBATION **** 66600.00 SECONDS **** 18.5000 HOURS | | | | | |
| 1 1 | 1.02719444 | 1.02608961 | .97774720 | 1.00095450 | 1 1 |
| 2 1 | 1.02713676 | 1.02608736 | .97908533 | 1.00096898 | 2 1 |
| 3 1 | 1.02707293 | 1.02608577 | .98044726 | 1.00095904 | 3 1 |
| 4 1 | 1.02702592 | 1.02608597 | .98172144 | 1.00095543 | 4 1 |
| 5 1 | 1.02701429 | 1.02608873 | .98256337 | 1.00094747 | 5 1 |
| 6 1 | 1.02705067 | 1.02609419 | .98212486 | 1.00091047 | 6 1 |
| 7 1 | 1.02710114 | 1.02610055 | .98194227 | 1.00092860 | 7 1 |
| 8 1 | 1.02715139 | 1.02610565 | .98078565 | 1.00090483 | 8 1 |
| 1 2 | 1.02635552 | 1.02494175 | .97459793 | 1.00112932 | 1 2 |
| 2 2 | 1.02631475 | 1.02494011 | .97487928 | 1.00112359 | 2 2 |
| 3 2 | 1.02627919 | 1.02494009 | .97525460 | 1.00112341 | 3 2 |
| 4 2 | 1.02624402 | 1.02494285 | .97567930 | 1.00111634 | 4 2 |
| 5 2 | 1.02628144 | 1.02494894 | .97598023 | 1.00118784 | 5 2 |
| | | | | | |
| 6 2 | 1.02633890 | 1.02495823 | .97574896 | 1.00108679 | 6 2 |
| 7 2 | 1.02640202 | 1.02496806 | .97560922 | 1.00106419 | 7 2 |
| 8 2 | 1.02645153 | 1.02497551 | .97580571 | 1.00103906 | 8 2 |
| 1 3 | 1.02366721 | 1.02233679 | .97692037 | 1.00116848 | 1 3 |
| 2 3 | 1.02363629 | 1.02233564 | .97696035 | 1.00117474 | 2 3 |
| 3 3 | 1.02361417 | 1.02233627 | .97703338 | 1.00117491 | 3 3 |
| 4 3 | 1.02361270 | 1.02233972 | .97711480 | 1.00115786 | 4 3 |
| 5 3 | 1.02364011 | 1.02234450 | .97717511 | 1.00115156 | 5 3 |
| 6 3 | 1.02370107 | 1.02235429 | .97770728 | 1.00115534 | 6 3 |
| 7 3 | 1.02376594 | 1.02236445 | .97697784 | 1.00114544 | 7 3 |
| 8 3 | 1.02381873 | 1.02237408 | .97682959 | 1.00114834 | 8 3 |
| 1 4 | 1.01949314 | 1.01838549 | .98101103 | 1.00107247 | 1 4 |
| 2 4 | 1.01947021 | 1.01838465 | .98096833 | 1.00106261 | 2 4 |
| 3 4 | 1.01945592 | 1.01838540 | .98095035 | 1.00106313 | 3 4 |
| 4 4 | 1.01945940 | 1.01838863 | .98094041 | 1.00109114 | 4 4 |
| 5 4 | 1.01948555 | 1.01839463 | .98092333 | 1.00105772 | 5 4 |
| 6 4 | 1.01953755 | 1.01840307 | .98085446 | 1.00105010 | 6 4 |
| 7 4 | 1.01959119 | 1.01841172 | .98080433 | 1.00105774 | 7 4 |
| 8 4 | 1.01963417 | 1.01841815 | .98075002 | 1.00105048 | 8 4 |
| 1 5 | 1.01488912 | 1.01328382 | .98622018 | 1.00078248 | 1 5 |
| 2 5 | 1.01487276 | 1.01328321 | .98618439 | 1.00078546 | 2 5 |
| 3 5 | 1.01486312 | 1.01328378 | .98614908 | 1.00078535 | 3 5 |
| 4 5 | 1.01488689 | 1.01328621 | .98611829 | 1.00078468 | 4 5 |
| 5 5 | 1.01488754 | 1.01328870 | .98608580 | 1.00078277 | 5 5 |
| 6 5 | 1.01481249 | 1.01329700 | .98606455 | 1.00077822 | 6 5 |
| 7 5 | 1.01481862 | 1.01330343 | .98608088 | 1.00077413 | 7 5 |
| 8 5 | 1.01481987 | 1.01330819 | .98609351 | 1.00076989 | 8 5 |
| 1 6 | 1.00758299 | 1.00714563 | .99247854 | 1.00037001 | 1 6 |
| 2 6 | 1.00757426 | 1.00714532 | .99245522 | 1.00037088 | 2 6 |
| 3 6 | 1.00758929 | 1.00714586 | .99242337 | 1.00037657 | 3 6 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 4 6 | 1.00757151 | 1.00714699 | .99241150 | 1.00037022 | 4 6 |
| 5 6 | 1.00758278 | 1.00714942 | .99239041 | 1.00036907 | 5 6 |
| 6 6 | 1.00760370 | 1.00715282 | .99236989 | 1.00036733 | 6 6 |
| 7 6 | 1.00762512 | 1.00715630 | .99234653 | 1.00036576 | 7 6 |
| 8 6 | 1.00764203 | 1.00715888 | .99234145 | 1.00036413 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|------------------|------------|-----------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | 68400.00 SECONDS | | | 19.0000 HOURS | |
| 1 1 | 1.02505947 | 1.02398309 | .97839756 | 1.00221156 | 1 1 |
| 2 1 | 1.02500709 | 1.02398104 | .97949930 | 1.00222163 | 2 1 |
| 3 1 | 1.02495008 | 1.02397973 | .98065410 | 1.00220982 | 3 1 |
| 4 1 | 1.02490919 | 1.02398024 | .98176018 | 1.00220498 | 4 1 |
| 5 1 | 1.02490146 | 1.02398326 | .98250176 | 1.00219949 | 5 1 |
| 6 1 | 1.02493854 | 1.02398888 | .98210836 | 1.00218380 | 6 1 |
| 7 1 | 1.02498822 | 1.02399532 | .98194264 | 1.00218425 | 7 1 |
| 8 1 | 1.02504869 | 1.02400043 | .98092736 | 1.00216576 | 8 1 |
| 1 2 | 1.02416175 | 1.02285209 | .97654731 | 1.00232876 | 1 2 |
| 2 2 | 1.02412735 | 1.02285071 | .97865726 | 1.00231982 | 2 2 |
| 3 2 | 1.02409936 | 1.02285094 | .97685645 | 1.00231809 | 3 2 |
| 4 2 | 1.02409042 | 1.02285381 | .97710753 | 1.00231101 | 4 2 |
| 5 2 | 1.02411044 | 1.02285980 | .97729394 | 1.00230317 | 5 2 |
| 6 2 | 1.02416520 | 1.02286871 | .97712014 | 1.00228766 | 6 2 |
| 7 2 | 1.02422393 | 1.02287805 | .97700477 | 1.00226986 | 7 2 |
| 8 2 | 1.02426886 | 1.02288509 | .97732474 | 1.00228197 | 8 2 |
| 1 3 | 1.02160325 | 1.02039621 | .97911605 | 1.00223455 | 1 3 |
| 2 3 | 1.02157773 | 1.02039528 | .97904511 | 1.00223748 | 2 3 |
| 3 3 | 1.02156144 | 1.02039604 | .97899878 | 1.00223649 | 3 3 |
| 4 3 | 1.02156413 | 1.02039943 | .97896423 | 1.00222033 | 4 3 |
| 5 3 | 1.02159206 | 1.02040584 | .97894640 | 1.00221559 | 5 3 |
| 6 3 | 1.02164858 | 1.02041498 | .97888620 | 1.00222297 | 6 3 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 7 3 | 1.02170765 | 1.02042439 | .97881369 | 1.00221716 | 7 3 |
| 8 3 | 1.02175491 | 1.02043143 | .97877503 | 1.00222408 | 8 3 |
| 1 4 | 1.01773451 | 1.01674120 | .98301248 | 1.00194330 | 1 4 |
| 2 4 | 1.01771578 | 1.01674052 | .98289707 | 1.00193155 | 2 4 |
| 3 4 | 1.01770572 | 1.01674134 | .98279977 | 1.00193121 | 3 4 |
| 4 4 | 1.01771171 | 1.01674441 | .98271668 | 1.00192952 | 4 4 |
| 5 4 | 1.01773741 | 1.01674999 | .98264611 | 1.00192739 | 5 4 |
| 6 4 | 1.01778491 | 1.01675774 | .98260984 | 1.00192336 | 6 4 |
| 7 4 | 1.01784318 | 1.01676565 | .98257350 | 1.00193359 | 7 4 |
| 8 4 | 1.01787127 | 1.01677150 | .98259247 | 1.00193010 | 8 4 |
| 1 5 | 1.01276989 | 1.01207210 | .98774928 | 1.00141075 | 1 5 |
| 2 5 | 1.01277452 | 1.01207160 | .98766651 | 1.00141185 | 2 5 |
| 3 5 | 1.01276978 | 1.01207220 | .98757985 | 1.00141115 | 3 5 |
| 4 5 | 1.01277504 | 1.01207449 | .98750134 | 1.00141068 | 4 5 |
| 5 5 | 1.01279498 | 1.01207863 | .98743711 | 1.00140976 | 5 5 |
| 6 5 | 1.01283000 | 1.01208437 | .98741763 | 1.00140779 | 6 5 |
| 7 5 | 1.01286523 | 1.01209019 | .98738458 | 1.00140609 | 7 5 |
| 8 5 | 1.01289262 | 1.01209449 | .98741547 | 1.00140454 | 8 5 |
| 1 6 | 1.00687408 | 1.00646685 | .99332625 | 1.00071048 | 1 6 |
| 2 6 | 1.00686894 | 1.00646660 | .99327817 | 1.00071029 | 2 6 |
| 3 6 | 1.00686552 | 1.00646695 | .99322873 | 1.00070976 | 3 6 |
| 4 6 | 1.00686853 | 1.00646819 | .99318314 | 1.00070953 | 4 6 |
| 5 6 | 1.00687935 | 1.00649043 | .99314518 | 1.00070891 | 5 6 |
| 6 6 | 1.00689827 | 1.00649352 | .99313590 | 1.00070853 | 6 6 |
| 7 6 | 1.00691739 | 1.00649666 | .99311858 | 1.00070822 | 7 6 |
| 8 6 | 1.00693227 | 1.00649899 | .99313857 | 1.00070803 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|------------------|------------|-----------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | 70200.00 SECONDS | | | 19.5000 HOURS | |
| 1 1 | 1.02246448 | 1.02144329 | .97956417 | 1.00328534 | 1 1 |
| 2 1 | 1.02241828 | 1.02144147 | .98042555 | 1.00329150 | 2 1 |
| 3 1 | 1.02236889 | 1.02144045 | .98136430 | 1.00327815 | 3 1 |
| 4 1 | 1.02233456 | 1.02144122 | .98229136 | 1.00327236 | 4 1 |
| 5 1 | 1.02233049 | 1.02144438 | .98292362 | 1.00326722 | 5 1 |
| 6 1 | 1.02236717 | 1.02144999 | .98258065 | 1.00325485 | 6 1 |
| 7 1 | 1.02241477 | 1.02145632 | .98243427 | 1.00325801 | 7 1 |
| 8 1 | 1.02246033 | 1.02146130 | .98157185 | 1.00324389 | 8 1 |
| 1 2 | 1.02153946 | 1.02035872 | .97892610 | 1.00334696 | 1 2 |
| 2 2 | 1.02151170 | 1.02035760 | .97887905 | 1.00333538 | 2 2 |
| 3 2 | 1.02149123 | 1.02035803 | .97891318 | 1.00333247 | 3 2 |
| 4 2 | 1.02148808 | 1.02036092 | .97900359 | 1.00332556 | 4 2 |
| 5 2 | 1.02150982 | 1.02036665 | .97908227 | 1.00331917 | 5 2 |
| 6 2 | 1.02156062 | 1.02037497 | .97896425 | 1.00330791 | 6 2 |
| 7 2 | 1.02161369 | 1.02038362 | .97887337 | 1.00329436 | 7 2 |
| 8 2 | 1.02165310 | 1.02039010 | .97931056 | 1.003282025 | 8 2 |
| 1 3 | 1.01916736 | 1.01810361 | .98164795 | 1.00313448 | 1 3 |
| 2 3 | 1.01914736 | 1.01810291 | .98167908 | 1.00313465 | 2 3 |
| 3 3 | 1.01913679 | 1.01810376 | .98132648 | 1.00313281 | 3 3 |
| 4 3 | 1.01914311 | 1.01810699 | .98118805 | 1.00311762 | 4 3 |
| 5 3 | 1.01917076 | 1.01811292 | .98110022 | 1.00311432 | 5 3 |
| 6 3 | 1.01922177 | 1.01812121 | .98108026 | 1.00312478 | 6 3 |
| 7 3 | 1.01927405 | 1.01812971 | .98102883 | 1.00312251 | 7 3 |
| 8 3 | 1.01931507 | 1.01813662 | .98108987 | 1.00313280 | 8 3 |
| 1 4 | 1.01567745 | 1.01481354 | .98526691 | 1.00267509 | 1 4 |
| 2 4 | 1.01566299 | 1.01481383 | .98508873 | 1.00266189 | 2 4 |
| 3 4 | 1.01565701 | 1.01481388 | .98492243 | 1.00266693 | 3 4 |
| 4 4 | 1.01566510 | 1.01481674 | .98477550 | 1.00265999 | 4 4 |
| 5 4 | 1.01568970 | 1.01482179 | .98465844 | 1.00265863 | 5 4 |
| 6 4 | 1.01573190 | 1.01482872 | .98465226 | 1.00265767 | 6 4 |
| 7 4 | 1.01577405 | 1.01483574 | .98462938 | 1.00267002 | 7 4 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 8 4 | 1.01580674 | 1.01484091 | .98471369 | 1.00266973 | 8 4 |
| 1 5 | 1.01127880 | 1.01065889 | .98943181 | 1.00193735 | 1 5 |
| 2 5 | 1.01126849 | 1.01065851 | .98932898 | 1.00193690 | 2 5 |
| 3 5 | 1.01126454 | 1.01065913 | .98919829 | 1.00193578 | 3 5 |
| 4 5 | 1.01127109 | 1.01066123 | .98907878 | 1.00193554 | 4 5 |
| 5 5 | 1.01128977 | 1.01066493 | .98898750 | 1.00193551 | 5 5 |
| 6 5 | 1.01132059 | 1.01067002 | .98898799 | 1.00193574 | 6 5 |
| 7 5 | 1.01135112 | 1.01067514 | .98895891 | 1.00193604 | 7 5 |
| 8 5 | 1.01137446 | 1.01067891 | .98893863 | 1.00193673 | 8 5 |
| 1 6 | 1.00605633 | 1.00572069 | .99426567 | 1.00099576 | 1 6 |
| 2 6 | 1.00605084 | 1.00572059 | .99419662 | 1.00099479 | 2 6 |
| 3 6 | 1.00604887 | 1.00572086 | .99412452 | 1.00099404 | 3 6 |
| 4 6 | 1.00605251 | 1.00572200 | .99405777 | 1.00099394 | 4 6 |
| 5 6 | 1.00606264 | 1.00572399 | .99400561 | 1.00099381 | 5 6 |
| 6 6 | 1.00607927 | 1.00572572 | .99400663 | 1.00099458 | 6 6 |
| 7 6 | 1.00609580 | 1.00572949 | .99399511 | 1.00099532 | 7 6 |
| 8 6 | 1.00610847 | 1.00573152 | .99403709 | 1.00099632 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 72000.00 SECONDS **** 20.0000 HOURS

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 1 1 | 1.01953060 | 1.01858679 | .98116242 | 1.00416537 | 1 1 |
| 2 1 | 1.01949116 | 1.01858523 | .98178606 | 1.00416813 | 2 1 |
| 3 1 | 1.01944990 | 1.01858450 | .98250637 | 1.00415361 | 3 1 |
| 4 1 | 1.01942233 | 1.01858547 | .98324920 | 1.00414713 | 4 1 |
| 5 1 | 1.01942162 | 1.01858867 | .98376695 | 1.00414243 | 5 1 |
| 6 1 | 1.01945692 | 1.01859412 | .98437787 | 1.00413313 | 6 1 |
| 7 1 | 1.01950136 | 1.01860017 | .98493525 | 1.00413871 | 7 1 |
| 8 1 | 1.01954307 | 1.01860489 | .98546936 | 1.00412841 | 8 1 |
| 1 2 | 1.01860694 | 1.01757362 | .98162827 | 1.00417481 | 1 2 |
| 2 2 | 1.01858587 | 1.01757278 | .98144105 | 1.00416118 | 2 2 |
| 3 2 | 1.01857267 | 1.01757338 | .98132595 | 1.00415744 | 3 2 |
| 4 2 | 1.01857475 | 1.01757619 | .98126954 | 1.00415099 | 4 2 |
| 5 2 | 1.01859740 | 1.01758152 | .98124930 | 1.00414586 | 5 2 |
| 6 2 | 1.01864321 | 1.01758909 | .98118416 | 1.00413833 | 6 2 |
| 7 2 | 1.01868967 | 1.01759688 | .98111727 | 1.00412850 | 7 2 |
| 8 2 | 1.01872289 | 1.01760267 | .98106623 | 1.00413110 | 8 2 |
| 1 3 | 1.01646637 | 1.01555975 | .98441587 | 1.00386099 | 1 3 |
| 2 3 | 1.01645187 | 1.01555926 | .98416321 | 1.00385888 | 2 3 |
| 3 3 | 1.01644669 | 1.01556018 | .98391880 | 1.00385646 | 3 3 |
| 4 3 | 1.01645612 | 1.01556319 | .98368998 | 1.00384230 | 4 3 |
| 5 3 | 1.01644828 | 1.01556851 | .98354125 | 1.00384032 | 5 3 |
| 6 3 | 1.01652749 | 1.01557583 | .98355811 | 1.00385331 | 6 3 |
| 7 3 | 1.01657227 | 1.01558327 | .98352673 | 1.00385399 | 7 3 |
| 8 3 | 1.01660660 | 1.01558877 | .98367606 | 1.00386699 | 8 3 |
| 1 4 | 1.01341032 | 1.01268876 | .98768941 | 1.00326227 | 1 4 |
| 2 4 | 1.01340010 | 1.01268854 | .98745905 | 1.00324805 | 2 4 |
| 3 4 | 1.01339794 | 1.01268627 | .98723491 | 1.00324668 | 3 4 |
| 4 4 | 1.01340771 | 1.01268886 | .98703414 | 1.00324573 | 4 4 |
| 5 4 | 1.01343067 | 1.01269330 | .98687808 | 1.00324581 | 5 4 |
| 6 4 | 1.01346699 | 1.01269930 | .98689897 | 1.00324740 | 6 4 |
| 7 4 | 1.01350253 | 1.01270533 | .98688898 | 1.00326140 | 7 4 |
| 8 4 | 1.01352949 | 1.01270976 | .98702973 | 1.00326370 | 8 4 |
| 1 5 | 1.00961990 | 1.00910447 | .99126490 | 1.00235848 | 1 5 |
| 2 5 | 1.00961261 | 1.00910421 | .99110933 | 1.00235684 | 2 5 |
| 3 5 | 1.00961128 | 1.00910482 | .99094241 | 1.00235544 | 3 5 |
| 4 5 | 1.00961877 | 1.00910669 | .99078905 | 1.00235546 | 4 5 |
| 5 5 | 1.00963588 | 1.00910992 | .99067571 | 1.00235619 | 5 5 |
| 6 5 | 1.00966212 | 1.00911427 | .99069401 | 1.00235821 | 6 5 |
| 7 5 | 1.00968761 | 1.00911863 | .99068223 | 1.00236015 | 7 5 |
| 8 5 | 1.00970669 | 1.00912183 | .99079059 | 1.00236264 | 8 5 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 1 6 | 1.00515820 | 1.00487962 | .99526218 | 1.00122391 | 1 6 |
| 2 6 | 1.00515434 | 1.00487949 | .99517616 | 1.00122233 | 2 6 |
| 3 6 | 1.00515373 | 1.00487983 | .99508560 | 1.00122145 | 3 6 |
| 4 6 | 1.00515784 | 1.00488085 | .99500155 | 1.00122149 | 4 6 |
| 5 6 | 1.00516709 | 1.00488258 | .99493795 | 1.00122177 | 5 6 |
| 6 6 | 1.00518122 | 1.00488492 | .99494812 | 1.00122347 | 6 6 |
| 7 6 | 1.00519500 | 1.00488726 | .99494205 | 1.00122507 | 7 6 |
| 8 6 | 1.00520534 | 1.00488898 | .99500264 | 1.00122702 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 73800.00 SECONDS **** 20.0000 HOURS

| | | | | | |
|-----|------------|-------------|-----------|------------|-----|
| 1 1 | 1.01637510 | 1.01552624 | .98310507 | 1.00484767 | 1 1 |
| 2 1 | 1.01634275 | 1.01552496 | .98349941 | 1.00484758 | 2 1 |
| 3 1 | 1.01630985 | 1.01552449 | .98400479 | 1.00483225 | 3 1 |
| 4 1 | 1.01628905 | 1.01552562 | .98456339 | 1.00482534 | 4 1 |
| 5 1 | 1.01629133 | 1.01552877 | .98486497 | 1.00482113 | 5 1 |
| 6 1 | 1.01632443 | 1.01553392 | .98473149 | 1.00481460 | 6 1 |
| 7 1 | 1.01636082 | 1.01553956 | .98462836 | 1.00482230 | 7 1 |
| 8 1 | 1.01640197 | 1.01554391 | .98488589 | 1.00481548 | 8 1 |
| 1 2 | 1.01547810 | 1.01448465 | .98485804 | 1.00480946 | 1 2 |
| 2 2 | 1.01546358 | 1.01448407 | .98424132 | 1.00479436 | 2 2 |
| 3 2 | 1.01545724 | 1.014480481 | .98399491 | 1.00479811 | 3 2 |
| 4 2 | 1.01546394 | 1.014480749 | .98380784 | 1.00478487 | 4 2 |
| 5 2 | 1.01548676 | 1.014481230 | .98369905 | 1.00478831 | 5 2 |
| 6 2 | 1.01552481 | 1.014481899 | .98368285 | 1.00477594 | 6 2 |
| 7 2 | 1.01556599 | 1.014482579 | .98363899 | 1.00476922 | 7 2 |
| 8 2 | 1.01559259 | 1.014483088 | .98428884 | 1.00476425 | 8 2 |
| 1 3 | 1.01368279 | 1.01286136 | .98732333 | 1.00441200 | 1 3 |

| | | | | | |
|-----|------------|------------|-----------|------------|-----|
| 2 3 | 1.01354362 | 1.01286107 | .98700174 | 1.00440835 | 2 3 |
| 3 3 | 1.01354343 | 1.01286203 | .98668084 | 1.00440562 | 3 3 |
| 4 3 | 1.01360540 | 1.01286475 | .98637609 | 1.00439253 | 4 3 |
| 5 3 | 1.01363047 | 1.01286939 | .98617617 | 1.00439172 | 5 3 |
| 6 3 | 1.01366834 | 1.01287565 | .98622588 | 1.00440667 | 6 3 |
| 7 3 | 1.01370521 | 1.01288194 | .98621310 | 1.00440971 | 7 3 |
| 8 3 | 1.01373262 | 1.01288656 | .98643822 | 1.00442476 | 8 3 |
| 1 4 | 1.01101774 | 1.01043758 | .99019891 | 1.00370385 | 1 4 |
| 2 4 | 1.01101160 | 1.01043739 | .98992732 | 1.00368903 | 2 4 |
| 3 4 | 1.01101293 | 1.01043823 | .98956584 | 1.00368744 | 3 4 |
| 4 4 | 1.01104296 | 1.01044051 | .98941270 | 1.00368691 | 4 4 |
| 5 4 | 1.01104485 | 1.01044429 | .98922544 | 1.00368787 | 5 4 |
| 6 4 | 1.01107492 | 1.01044930 | .98926998 | 1.00369148 | 6 4 |
| 7 4 | 1.01110358 | 1.01045429 | .98927181 | 1.00370667 | 7 4 |
| 8 4 | 1.01112468 | 1.01045793 | .98945976 | 1.00371096 | 8 4 |
| 1 5 | 1.00787443 | 1.00748651 | .99312890 | 1.00267367 | 1 5 |
| 2 5 | 1.00787003 | 1.00748636 | .99294804 | 1.00267117 | 2 5 |
| 3 5 | 1.00787109 | 1.00748695 | .99275290 | 1.00266992 | 3 5 |
| 4 5 | 1.00787923 | 1.00748858 | .99257307 | 1.00266992 | 4 5 |
| 5 5 | 1.00789447 | 1.00747128 | .99244276 | 1.00267271 | 5 5 |
| 6 5 | 1.00791596 | 1.00747487 | .99247648 | 1.00267471 | 6 5 |
| 7 5 | 1.00793620 | 1.00747843 | .99247412 | 1.00267789 | 7 5 |
| 8 5 | 1.00795096 | 1.00748102 | .99261160 | 1.00268176 | 8 5 |
| 1 6 | 1.00421466 | 1.00399465 | .99626303 | 1.00139474 | 1 6 |
| 2 6 | 1.00421234 | 1.00399456 | .99618412 | 1.00139273 | 2 6 |
| 3 6 | 1.00421298 | 1.00399491 | .99607940 | 1.00139180 | 3 6 |
| 4 6 | 1.00421740 | 1.00399578 | .99599208 | 1.00139198 | 4 6 |
| 5 6 | 1.00422561 | 1.00399723 | .99590977 | 1.00139246 | 5 6 |
| 6 6 | 1.00423713 | 1.00399915 | .99592784 | 1.00139503 | 6 6 |
| 7 6 | 1.00424808 | 1.00400106 | .99592674 | 1.00139727 | 7 6 |
| 8 6 | 1.00425606 | 1.00400245 | .99600239 | 1.00139994 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

KENON

IODINE

| ELAPSED KENON TIME SINCE PERTURBATION **** | | 75600.00 SECONDS | | **** | | 21.0000 HOURS | |
|--|------------|------------------|-----------|------------|-----|---------------|--|
| 1 1 | 1.01310811 | 1.01236720 | .98530497 | 1.00533414 | 1 1 | | |
| 2 1 | 1.01308296 | 1.01236619 | .98548342 | 1.00533177 | 2 1 | | |
| 3 1 | 1.01305841 | 1.01236598 | .98578253 | 1.00531599 | 3 1 | | |
| 4 1 | 1.01304419 | 1.01236721 | .98616160 | 1.00530886 | 4 1 | | |
| 5 1 | 1.01304907 | 1.01237023 | .98644852 | 1.00530520 | 5 1 | | |
| 6 1 | 1.01307930 | 1.01237496 | .98627074 | 1.00530110 | 6 1 | | |
| 7 1 | 1.01311498 | 1.01238008 | .98619015 | 1.00531056 | 7 1 | | |
| 8 1 | 1.01314703 | 1.01238400 | .98580570 | 1.00530669 | 8 1 | | |
| 1 2 | 1.01225943 | 1.01155250 | .98759253 | 1.00523369 | 1 2 | | |
| 2 2 | 1.01225117 | 1.01155225 | .98718206 | 1.00523766 | 2 2 | | |
| 3 2 | 1.01225113 | 1.01155309 | .98682377 | 1.00523322 | 3 2 | | |
| 4 2 | 1.01226177 | 1.01155556 | .98652383 | 1.00522778 | 4 2 | | |
| 5 2 | 1.01228412 | 1.01155979 | .98633804 | 1.00522510 | 5 2 | | |
| 6 2 | 1.01231787 | 1.01156550 | .98636601 | 1.00522341 | 6 2 | | |
| 7 2 | 1.01234938 | 1.01157123 | .98634349 | 1.00521922 | 7 2 | | |
| 8 2 | 1.01236918 | 1.01157541 | .98706701 | 1.00526770 | 8 2 | | |
| 1 3 | 1.01067212 | 1.01009855 | .99027977 | 1.00479101 | 1 3 | | |
| 2 3 | 1.01066796 | 1.01009846 | .98990440 | 1.00478625 | 2 3 | | |
| 3 3 | 1.01067225 | 1.01009942 | .98952279 | 1.00478345 | 3 3 | | |
| 4 3 | 1.01068621 | 1.01010182 | .98915707 | 1.00477145 | 4 3 | | |
| 5 3 | 1.01070920 | 1.01010573 | .98891603 | 1.00477164 | 5 3 | | |
| 6 3 | 1.01073993 | 1.01011087 | .98899414 | 1.00478799 | 6 3 | | |
| 7 3 | 1.01076873 | 1.01011596 | .98899822 | 1.00479282 | 7 3 | | |
| 8 3 | 1.01078921 | 1.01011967 | .98928596 | 1.00480296 | 8 3 | | |
| 1 4 | 1.00857831 | 1.00814315 | .99272008 | 1.00400293 | 1 4 | | |
| 2 4 | 1.00857599 | 1.00814311 | .99241824 | 1.00399791 | 2 4 | | |
| 3 4 | 1.00858043 | 1.00814391 | .99211303 | 1.00398628 | 3 4 | | |
| 4 4 | 1.00859230 | 1.00814585 | .99183609 | 1.00398617 | 4 4 | | |
| 5 4 | 1.00861078 | 1.00814893 | .99162546 | 1.00398786 | 5 4 | | |
| 6 4 | 1.00863446 | 1.00815293 | .99168998 | 1.00399298 | 6 4 | | |
| 7 4 | 1.00865619 | 1.00815685 | .99170258 | 1.00400888 | 7 4 | | |
| 8 4 | 1.00867148 | 1.00815968 | .99192793 | 1.00401461 | 8 4 | | |
| 1 5 | 1.00609916 | 1.00579855 | .99498874 | 1.00288540 | 1 5 | | |
| 2 5 | 1.00609749 | 1.00579852 | .99479003 | 1.00288235 | 2 5 | | |
| 3 5 | 1.00610065 | 1.00579907 | .99457465 | 1.00288081 | 3 5 | | |
| 4 5 | 1.00610916 | 1.00580042 | .99437570 | 1.00288136 | 4 5 | | |
| 5 5 | 1.00612232 | 1.00580259 | .99423348 | 1.00288324 | 5 5 | | |
| 6 5 | 1.00613888 | 1.00580539 | .99428005 | 1.00288768 | 6 5 | | |
| 7 5 | 1.00615398 | 1.00580814 | .99428608 | 1.00289175 | 7 5 | | |
| 8 5 | 1.00616448 | 1.00581013 | .99444602 | 1.00289657 | 8 5 | | |
| 1 6 | 1.00325624 | 1.00309458 | .99729817 | 1.00150966 | 1 6 | | |
| 2 6 | 1.00325537 | 1.00309457 | .99719039 | 1.00150740 | 2 6 | | |
| 3 6 | 1.00325711 | 1.00309487 | .99707576 | 1.00150646 | 3 6 | | |
| 4 6 | 1.00326169 | 1.00309560 | .99696901 | 1.00150679 | 4 6 | | |
| 5 6 | 1.00326876 | 1.00309675 | .99689089 | 1.00150769 | 5 6 | | |
| 6 6 | 1.00327763 | 1.00309825 | .99691549 | 1.00151063 | 6 6 | | |
| 7 6 | 1.00328575 | 1.00309972 | .99691882 | 1.00151332 | 7 6 | | |
| 8 6 | 1.00329141 | 1.00310078 | .99700591 | 1.00151648 | 8 6 | | |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

KENON

IODINE

| ELAPSED KENON TIME SINCE PERTURBATION **** | | 77400.00 SECONDS | | **** | | 21.5000 HOURS | |
|--|------------|------------------|-----------|------------|-----|---------------|--|
| 1 1 | 1.00983014 | 1.00920578 | .98767735 | 1.00563188 | 1 1 | | |
| 2 1 | 1.00981211 | 1.00920504 | .98765742 | 1.00562775 | 2 1 | | |
| 3 1 | 1.00979567 | 1.00920506 | .98776333 | 1.00561182 | 3 1 | | |
| 4 1 | 1.00978770 | 1.00920636 | .98797163 | 1.00560473 | 4 1 | | |
| 5 1 | 1.00974475 | 1.00920917 | .98814819 | 1.00560163 | 5 1 | | |
| 6 1 | 1.00982159 | 1.00921341 | .98802479 | 1.00559962 | 6 1 | | |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE |
|--|--------------|------------|-----------|------------|
| 7 1 | 1.00985210 | 1.00921792 | .98796652 | 1.00561048 |
| 8 1 | 1.00987874 | 1.00922134 | .98773359 | 1.00560905 |
| 1 2 | 1.00904761 | 1.00850887 | .99066360 | 1.00551517 |
| 2 2 | 1.00904520 | 1.00850878 | .99817182 | 1.00549875 |
| 3 2 | 1.00905081 | 1.00850968 | .98972193 | 1.00549437 |
| 4 2 | 1.00906469 | 1.00851191 | .98932793 | 1.00548963 |
| 5 2 | 1.00904597 | 1.00851549 | .98907750 | 1.00548806 |
| 6 2 | 1.00911314 | 1.00852017 | .98914427 | 1.00548832 |
| 7 2 | 1.00913686 | 1.00852477 | .98914130 | 1.00548608 |
| 8 2 | 1.00914988 | 1.00852809 | .98993215 | 1.00592288 |
| 1 3 | 1.00776072 | 1.00735292 | .99320235 | 1.00500550 |
| 2 3 | 1.00776118 | 1.00735300 | .99278829 | 1.00500611 |
| 3 3 | 1.00776939 | 1.00735394 | .99236176 | 1.00499746 |
| 4 3 | 1.00778476 | 1.00735599 | .99195015 | 1.00498655 |
| 5 3 | 1.00780529 | 1.00735913 | .99167811 | 1.00498758 |
| 6 3 | 1.00782881 | 1.00736313 | .99177990 | 1.00500479 |
| 7 3 | 1.00784962 | 1.00736702 | .99179888 | 1.00501084 |
| 8 3 | 1.00786334 | 1.00736981 | .99213571 | 1.00502407 |
| 1 4 | 1.00618296 | 1.00586942 | .99518681 | 1.00416619 |
| 2 4 | 1.00618413 | 1.00586951 | .99486344 | 1.00415132 |
| 3 4 | 1.00617125 | 1.00587026 | .99453492 | 1.00414981 |
| 4 4 | 1.00618356 | 1.00587184 | .99423559 | 1.00415012 |
| 5 4 | 1.00619940 | 1.00587422 | .99400929 | 1.00415239 |
| 6 4 | 1.00621673 | 1.00587719 | .99408995 | 1.00415852 |
| 7 4 | 1.00623167 | 1.00588006 | .99411202 | 1.00417471 |
| 8 4 | 1.00624134 | 1.00588209 | .99438506 | 1.00418133 |
| 1 5 | 1.00434526 | 1.00414889 | .99679511 | 1.00299872 |
| 2 5 | 1.00434607 | 1.00414895 | .99658570 | 1.00299548 |
| 3 5 | 1.00435104 | 1.00414945 | .99635782 | 1.00299396 |
| 4 5 | 1.00435966 | 1.00415053 | .99614692 | 1.00299477 |
| 5 5 | 1.00437062 | 1.00415215 | .99599768 | 1.00299703 |
| 6 5 | 1.00438237 | 1.00415418 | .99605444 | 1.00308212 |
| 7 5 | 1.00439242 | 1.00415613 | .99606773 | 1.00308673 |
| 8 5 | 1.00439881 | 1.00415752 | .99624354 | 1.00301211 |
| 1 6 | 1.00231044 | 1.00220535 | .99828085 | 1.00157145 |
| 2 6 | 1.00231089 | 1.00220539 | .99816805 | 1.00154908 |
| 3 6 | 1.00231357 | 1.00220566 | .99804762 | 1.00156821 |
| 4 6 | 1.00231817 | 1.00220624 | .99793531 | 1.00154867 |
| 5 6 | 1.00232402 | 1.00220710 | .99785396 | 1.00156978 |
| 6 6 | 1.00233029 | 1.00220817 | .99788371 | 1.00157304 |
| 7 6 | 1.00233567 | 1.00220921 | .99789086 | 1.00157600 |
| 8 6 | 1.00233909 | 1.00220994 | .99798582 | 1.00157943 |
| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE |
| ELAPSED XENON TIME SINCE PERTURBATION **** 79200.00 SECONDS **** 22.0000 HOURS | | | | |
| 1 1 | 1.00663032 | 1.00612699 | .99014186 | 1.00575231 |
| 2 1 | 1.00661911 | 1.00612652 | .98994431 | 1.00574695 |
| 3 1 | 1.00661036 | 1.00612675 | .98987368 | 1.00573121 |
| 4 1 | 1.00660817 | 1.00612806 | .98992341 | 1.00574232 |
| 5 1 | 1.00661697 | 1.00613061 | .98999629 | 1.00572180 |
| 6 1 | 1.00664006 | 1.00613430 | .98992469 | 1.00572150 |
| 7 1 | 1.00666512 | 1.00613814 | .98988798 | 1.00573340 |
| 8 1 | 1.00668622 | 1.00614101 | .98979687 | 1.00573391 |
| 1 2 | 1.00592794 | 1.00555416 | .99367979 | 1.00560572 |
| 2 2 | 1.00593082 | 1.00555427 | .99312718 | 1.00558939 |
| 3 2 | 1.00594135 | 1.00555520 | .99260627 | 1.00558532 |
| 4 2 | 1.00595776 | 1.00555715 | .99213756 | 1.00558131 |
| 5 2 | 1.00597752 | 1.00556006 | .99183522 | 1.00558064 |
| 6 2 | 1.00599802 | 1.00556368 | .99193497 | 1.00558240 |
| 7 2 | 1.00601404 | 1.00556716 | .99194937 | 1.00558155 |
| 8 2 | 1.00602048 | 1.00556961 | .99279170 | 1.00599746 |
| 1 3 | 1.00494448 | 1.00469612 | .99801743 | 1.00506669 |
| 2 3 | 1.00494907 | 1.00469635 | .99557931 | 1.00506113 |
| 3 3 | 1.00496058 | 1.00469726 | .99512329 | 1.00505879 |
| 4 3 | 1.00497683 | 1.00469893 | .99468061 | 1.00504895 |
| 5 3 | 1.00499462 | 1.00470131 | .99438752 | 1.00505065 |
| 6 3 | 1.00501105 | 1.00470418 | .99450812 | 1.00506821 |
| 7 3 | 1.00502418 | 1.00470689 | .99453978 | 1.00507498 |
| 8 3 | 1.00503144 | 1.00470878 | .99491231 | 1.00509241 |
| 1 4 | 1.00383378 | 1.00367505 | .99753341 | 1.00420327 |
| 2 4 | 1.00383806 | 1.00367526 | .99720272 | 1.00418887 |
| 3 4 | 1.00384739 | 1.00367594 | .99686180 | 1.00418762 |
| 4 4 | 1.00385978 | 1.00367717 | .99655007 | 1.00418832 |
| 5 4 | 1.00387285 | 1.00367885 | .99631548 | 1.00419102 |
| 6 4 | 1.00388402 | 1.00368083 | .99640841 | 1.00419770 |
| 7 4 | 1.00389247 | 1.00368267 | .99643852 | 1.00421378 |
| 8 4 | 1.00389686 | 1.00368394 | .99670975 | 1.00422088 |
| 1 5 | 1.00265744 | 1.00255975 | .99850523 | 1.00302077 |
| 2 5 | 1.00266046 | 1.00255989 | .99829185 | 1.00301746 |
| 3 5 | 1.00266492 | 1.00256034 | .99805688 | 1.00301628 |
| 4 5 | 1.00267540 | 1.00256114 | .99784271 | 1.00301726 |
| 5 5 | 1.00268418 | 1.00256224 | .99769163 | 1.00301978 |
| 6 5 | 1.00269123 | 1.00256352 | .99775536 | 1.00302518 |
| 7 5 | 1.00269649 | 1.00256470 | .99777469 | 1.00303862 |
| 8 5 | 1.00269904 | 1.00256551 | .99796001 | 1.00303561 |
| 1 6 | 1.00140126 | 1.00134963 | .99920887 | 1.00158463 |
| 2 6 | 1.00140289 | 1.00134971 | .99909383 | 1.00158169 |
| 3 6 | 1.00140433 | 1.00134995 | .99897143 | 1.00158093 |
| 4 6 | 1.00141083 | 1.00135037 | .99889714 | 1.00158151 |
| 5 6 | 1.00141544 | 1.00135095 | .99877583 | 1.00158277 |
| 7 1 | | | | 7 1 |
| 8 1 | | | | 8 1 |
| 1 2 | | | | 1 2 |
| 2 2 | | | | 2 2 |
| 3 2 | | | | 3 2 |
| 4 2 | | | | 4 2 |
| 5 2 | | | | 5 2 |
| 6 2 | | | | 6 2 |
| 7 2 | | | | 7 2 |
| 8 2 | | | | 8 2 |
| 1 3 | | | | 1 3 |
| 2 3 | | | | 2 3 |
| 3 3 | | | | 3 3 |
| 4 3 | | | | 4 3 |
| 5 3 | | | | 5 3 |
| 6 3 | | | | 6 3 |
| 7 3 | | | | 7 3 |
| 8 3 | | | | 8 3 |
| 1 4 | | | | 1 4 |
| 2 4 | | | | 2 4 |
| 3 4 | | | | 3 4 |
| 4 4 | | | | 4 4 |
| 5 4 | | | | 5 4 |
| 6 4 | | | | 6 4 |
| 7 4 | | | | 7 4 |
| 8 4 | | | | 8 4 |
| 1 5 | | | | 1 5 |
| 2 5 | | | | 2 5 |
| 3 5 | | | | 3 5 |
| 4 5 | | | | 4 5 |
| 5 5 | | | | 5 5 |
| 6 5 | | | | 6 5 |
| 7 5 | | | | 7 5 |
| 8 5 | | | | 8 5 |
| 1 6 | | | | 1 6 |
| 2 6 | | | | 2 6 |
| 3 6 | | | | 3 6 |
| 4 6 | | | | 4 6 |
| 5 6 | | | | 5 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|------------|------------|------------|-----|
| 6 6 | 1.00141921 | 1.00135162 | .99880856 | 1.00158616 | 6 6 |
| 7 6 | 1.00142199 | 1.00135224 | .99881087 | 1.00158922 | 7 6 |
| 8 6 | 1.00142333 | 1.00135266 | .99881630 | 1.00159273 | 8 6 |
| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
| ELAPSED XENON TIME SINCE PERTURBATION **** 81000.00 SECONDS **** 22.5000 HOURS | | | | | |
| 1 1 | 1.00350523 | 1.00320372 | .99262417 | 1.00571044 | 1 1 |
| 2 1 | 1.00358044 | 1.00320350 | .99227215 | 1.00570433 | 2 1 |
| 3 1 | 1.00357079 | 1.00320390 | .99204445 | 1.00568904 | 3 1 |
| 4 1 | 1.00358183 | 1.00320519 | .99195056 | 1.00568234 | 4 1 |
| 5 1 | 1.00359195 | 1.00320744 | .99192843 | 1.00568058 | 5 1 |
| 6 1 | 1.00361106 | 1.00321053 | .99190499 | 1.00568164 | 6 1 |
| 7 1 | 1.00363058 | 1.00321367 | .99188863 | 1.00569422 | 7 1 |
| 8 1 | 1.00364616 | 1.00321599 | .99192699 | 1.00569618 | 8 1 |
| 1 2 | 1.00297329 | 1.00275729 | .99656747 | 1.00554050 | 1 2 |
| 2 2 | 1.00290085 | 1.00275759 | .99597407 | 1.00552468 | 2 2 |
| 3 2 | 1.00299551 | 1.00275853 | .99540253 | 1.00552111 | 3 2 |
| 4 2 | 1.00301376 | 1.00276017 | .99487843 | 1.00551786 | 4 2 |
| 5 2 | 1.00303160 | 1.00276239 | .99453700 | 1.00551796 | 5 2 |
| 6 2 | 1.00304554 | 1.00276497 | .99466366 | 1.00552069 | 6 2 |
| 7 2 | 1.00305415 | 1.00276733 | .99469304 | 1.00552072 | 7 2 |
| 8 2 | 1.00305439 | 1.00276894 | .99557070 | 1.00551636 | 8 2 |
| 1 3 | 1.00220791 | 1.00218913 | .99866160 | 1.00498872 | 1 3 |
| 2 3 | 1.00229608 | 1.00218951 | .99821327 | 1.00498337 | 2 3 |
| 3 3 | 1.00231026 | 1.00219035 | .99774249 | 1.00498150 | 3 3 |
| 4 3 | 1.00232689 | 1.00219165 | .99728294 | 1.00497269 | 4 3 |
| 5 3 | 1.00234176 | 1.00219328 | .99697833 | 1.00497490 | 5 3 |
| 6 3 | 1.00235141 | 1.00219506 | .99711285 | 1.00499234 | 6 3 |
| 7 3 | 1.00235725 | 1.00219663 | .99715496 | 1.00499935 | 7 3 |
| 8 3 | 1.00235899 | 1.00219768 | .99755010 | 1.00501648 | 8 3 |
| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
| ELAPSED XENON TIME SINCE PERTURBATION **** 82800.00 SECONDS **** 23.0000 HOURS | | | | | |
| 1 4 | 1.00164339 | 1.00160982 | .99971530 | 1.00412615 | 1 4 |
| 2 4 | 1.00165036 | 1.00161013 | .99938479 | 1.00411252 | 2 4 |
| 3 4 | 1.00166143 | 1.00161073 | .99904167 | 1.00411162 | 3 4 |
| 4 4 | 1.00167357 | 1.00161160 | .99872690 | 1.00411269 | 4 4 |
| 5 4 | 1.00168380 | 1.00161262 | .99849089 | 1.00411567 | 5 4 |
| 6 4 | 1.00168916 | 1.00161365 | .99859230 | 1.00412248 | 6 4 |
| 7 4 | 1.00169158 | 1.00161452 | .99862895 | 1.00413810 | 7 4 |
| 8 4 | 1.00169111 | 1.00161507 | .99890932 | 1.00414508 | 8 4 |
| 1 5 | 1.00107349 | 1.00106688 | 1.00008338 | 1.00296042 | 1 5 |
| 2 5 | 1.00107840 | 1.00106709 | .99987219 | 1.00295732 | 2 5 |
| 3 5 | 1.00108603 | 1.00106748 | .99964068 | 1.00295634 | 3 5 |
| 4 5 | 1.00109417 | 1.00106802 | .99942565 | 1.00295761 | 4 5 |
| 5 5 | 1.00110060 | 1.00106861 | .99927575 | 1.00296028 | 5 5 |
| 6 5 | 1.00110341 | 1.00106918 | .99934505 | 1.00296568 | 6 5 |
| 7 5 | 1.00110424 | 1.00106964 | .99936919 | 1.00297048 | 7 5 |
| 8 5 | 1.00110328 | 1.00106992 | .99955804 | 1.00297595 | 8 5 |
| 1 6 | 1.00054898 | 1.00054658 | 1.00006080 | 1.00155221 | 1 6 |
| 2 6 | 1.00055160 | 1.00054669 | .99994837 | 1.00155001 | 2 6 |
| 3 6 | 1.00055564 | 1.00054690 | .99982749 | 1.00154940 | 3 6 |
| 4 6 | 1.00055993 | 1.00054718 | .99971448 | 1.00155010 | 4 6 |
| 5 6 | 1.00056331 | 1.00054748 | .99963386 | 1.00155144 | 5 6 |
| 6 6 | 1.00056475 | 1.00054777 | .99966982 | 1.00155480 | 6 6 |
| 7 6 | 1.00056512 | 1.00054800 | .99968265 | 1.00155781 | 7 6 |
| 8 6 | 1.00056456 | 1.00054814 | .99978337 | 1.00156123 | 8 6 |
| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
| ELAPSED XENON TIME SINCE PERTURBATION **** 82800.00 SECONDS **** 23.0000 HOURS | | | | | |
| 1 1 | 1.00075848 | 1.00049625 | .99505724 | 1.00552397 | 1 1 |
| 2 1 | 1.00075956 | 1.00049627 | .99457550 | 1.00551757 | 2 1 |
| 3 1 | 1.00076432 | 1.00049682 | .99421222 | 1.00550298 | 3 1 |
| 4 1 | 1.00077195 | 1.00049806 | .99399179 | 1.00549699 | 4 1 |
| 5 1 | 1.00078297 | 1.00049998 | .99388485 | 1.00549558 | 5 1 |
| 6 1 | 1.00079802 | 1.00050245 | .99390507 | 1.00549764 | 6 1 |
| 7 1 | 1.00081206 | 1.00050488 | .99390747 | 1.00551055 | 7 1 |
| 8 1 | 1.00082228 | 1.00050663 | .99406094 | 1.00551351 | 8 1 |
| 1 2 | 1.00024371 | 1.00017499 | .99926379 | 1.00533719 | 1 2 |
| 2 2 | 1.00025528 | 1.00017544 | .99864878 | 1.00532225 | 2 2 |
| 3 2 | 1.00027328 | 1.00017635 | .99804631 | 1.00531933 | 3 2 |
| 4 2 | 1.00029268 | 1.00017767 | .99748568 | 1.00531688 | 4 2 |
| 5 2 | 1.00030832 | 1.00017922 | .99711769 | 1.00531756 | 5 2 |
| 6 2 | 1.00031598 | 1.00018079 | .99726511 | 1.00532081 | 6 2 |
| 7 2 | 1.00031763 | 1.00018209 | .99730696 | 1.00532126 | 7 2 |
| 8 2 | 1.00031217 | 1.00018289 | .99820391 | 1.00569716 | 8 2 |
| 1 3 | .99984385 | .99985194 | 1.00108228 | 1.00478794 | 1 3 |
| 2 3 | .99985503 | .99988242 | 1.00063657 | 1.00478313 | 2 3 |
| 3 3 | .99987124 | .99988319 | 1.00016474 | 1.00478183 | 3 3 |
| 4 3 | .99988777 | .99988411 | .999970163 | 1.00477401 | 4 3 |
| 5 3 | .99989964 | .99988503 | .99993442 | 1.00477657 | 5 3 |
| 6 3 | .99990296 | .99988579 | .999953808 | 1.00479346 | 6 3 |
| 7 3 | .99990213 | .99988631 | .999958834 | 1.00480031 | 7 3 |
| 8 3 | .99984809 | .99988656 | .99999368 | 1.00481667 | 8 3 |
| 1 4 | .99983467 | .99971432 | 1.00168954 | 1.00394861 | 1 4 |
| 2 4 | .99984386 | .99971470 | 1.00136778 | 1.00393597 | 2 4 |
| 3 4 | .99985621 | .99971522 | 1.00103173 | 1.00393550 | 3 4 |
| 4 4 | .99986780 | .99971575 | 1.00072247 | 1.00393691 | 4 4 |
| 5 4 | .99987522 | .99971614 | 1.00049129 | 1.00394003 | 5 4 |
| 6 4 | .99987523 | .99971630 | 1.00059754 | 1.00394662 | 6 4 |
| 7 4 | .99987217 | .99971628 | 1.00063921 | 1.00396145 | 7 4 |
| 8 4 | .99986736 | .99971616 | 1.00092030 | 1.00496801 | 8 4 |
| 1 5 | .99982407 | .99969934 | 1.00150111 | 1.00282777 | 1 5 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 2 5 | .99963055 | .99969961 | 1.00129761 | 1.00282507 | 2 5 |
| 3 5 | .99963902 | .99969994 | 1.00107364 | 1.00282441 | 3 5 |
| 4 5 | .99964664 | .99970022 | 1.00086525 | 1.00282588 | 4 5 |
| 5 5 | .99965088 | .99970035 | 1.00072088 | 1.00282858 | 5 5 |
| 6 5 | .99964975 | .99970028 | 1.00079272 | 1.00283373 | 6 5 |
| 7 5 | .99964658 | .99970008 | 1.00082042 | 1.00283823 | 7 5 |
| 8 5 | .99964250 | .99969987 | 1.00100735 | 1.00284332 | 8 5 |
| 1 6 | .99976999 | .99981176 | 1.00082412 | 1.00148168 | 1 6 |
| 2 6 | .99977344 | .99981190 | 1.00071636 | 1.00147953 | 2 6 |
| 3 6 | .99977790 | .99981207 | 1.00060008 | 1.00147910 | 3 6 |
| 4 6 | .99978189 | .99981221 | 1.00049122 | 1.00147990 | 4 6 |
| 5 6 | .99978408 | .99981226 | 1.00041406 | 1.00148125 | 5 6 |
| 6 6 | .99978339 | .99981220 | 1.00045120 | 1.00148445 | 6 6 |
| 7 6 | .99978161 | .99981208 | 1.00046588 | 1.00148728 | 7 6 |
| 8 6 | .99977936 | .99981195 | 1.00056503 | 1.00149046 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 84600.00 SECONDS **** 23.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .99820060 | .99805231 | .99738231 | 1.00521257 | 1 1 |
| 2 1 | .99820691 | .99805253 | .99679638 | 1.00520626 | 2 1 |
| 3 1 | .99821729 | .99805320 | .99632033 | 1.00519257 | 3 1 |
| 4 1 | .99822884 | .99805436 | .99599189 | 1.00518721 | 4 1 |
| 5 1 | .99824039 | .99805593 | .99581148 | 1.00518631 | 5 1 |
| 6 1 | .99825139 | .99805778 | .99587023 | 1.00518905 | 6 1 |
| 7 1 | .99826014 | .99805951 | .99588946 | 1.00520198 | 7 1 |
| 8 1 | .99828529 | .99806071 | .99614220 | 1.00520550 | 8 1 |
| 1 2 | .99788449 | .99785181 | 1.00171720 | 1.00501522 | 1 2 |
| 2 2 | .99780136 | .99785239 | 1.00109849 | 1.00500148 | 2 2 |
| 3 2 | .99782187 | .99785326 | 1.00048839 | 1.00499932 | 3 2 |
| 4 2 | .99784181 | .99785425 | .99990450 | 1.00499764 | 4 2 |
| 5 2 | .99785505 | .99785515 | .99952195 | 1.00499878 | 5 2 |
| 6 2 | .99785682 | .99785577 | .99968408 | 1.00500211 | 6 2 |
| 7 2 | .99785211 | .99785608 | .99973580 | 1.00500257 | 7 2 |
| 8 2 | .99784155 | .99785613 | 1.00063657 | 1.00503929 | 8 2 |
| 1 3 | .99765352 | .99781354 | 1.00323807 | 1.00448217 | 1 3 |
| 2 3 | .99768711 | .99781411 | 1.00280453 | 1.00447819 | 2 3 |
| 3 3 | .99768472 | .99781478 | 1.00234468 | 1.00447754 | 3 3 |
| 4 3 | .99770074 | .99781535 | 1.00189156 | 1.00447064 | 4 3 |
| 5 3 | .99770961 | .99781561 | 1.00158990 | 1.00447340 | 5 3 |
| 6 3 | .99770716 | .99781543 | 1.00173815 | 1.00448939 | 6 3 |
| 7 3 | .99770037 | .99781498 | 1.00179427 | 1.00449571 | 7 3 |
| 8 3 | .99769161 | .99781451 | 1.00219831 | 1.00451092 | 8 3 |
| 1 4 | .99784081 | .99802005 | 1.00342484 | 1.00368559 | 1 4 |
| 2 4 | .99785176 | .99802050 | 1.00311937 | 1.00367414 | 2 4 |
| 3 4 | .99786493 | .99802092 | 1.00279859 | 1.00367416 | 3 4 |
| 4 4 | .99787573 | .99802113 | 1.00250240 | 1.00367585 | 4 4 |
| 5 4 | .99788044 | .99802095 | 1.00228160 | 1.00367899 | 5 4 |
| 6 4 | .99787565 | .99802032 | 1.00238927 | 1.00368503 | 6 4 |
| 7 4 | .99786775 | .99801950 | 1.00243444 | 1.00369882 | 7 4 |
| 8 4 | .99785916 | .99801879 | 1.00270866 | 1.00370463 | 8 4 |
| 1 5 | .99833284 | .99847960 | 1.00273728 | 1.00263375 | 1 5 |
| 2 5 | .99834055 | .99847992 | 1.00254618 | 1.00263160 | 2 5 |
| 3 5 | .99834955 | .99848018 | 1.00233497 | 1.00263131 | 3 5 |
| 4 5 | .99835650 | .99848022 | 1.00213807 | 1.00263293 | 4 5 |
| 5 5 | .99835867 | .99847993 | 1.00200245 | 1.00263558 | 5 5 |
| 6 5 | .99835402 | .99847928 | 1.00207457 | 1.00264025 | 6 5 |
| 7 5 | .99834736 | .99847850 | 1.00210444 | 1.00264425 | 7 5 |
| 8 5 | .99834059 | .99847785 | 1.00228478 | 1.00264872 | 8 5 |
| 1 6 | .99907692 | .99915715 | 1.00148713 | 1.00137777 | 1 6 |
| 2 6 | .99908102 | .99915732 | 1.00138646 | 1.00137614 | 2 6 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 3 6 | .99908575 | .99915745 | 1.00127740 | 1.00137590 | 3 6 |
| 4 6 | .99908935 | .99915746 | 1.00117516 | 1.00137678 | 4 6 |
| 5 6 | .99909042 | .99915729 | 1.00110314 | 1.00137811 | 5 6 |
| 6 6 | .99908784 | .99915692 | 1.00114029 | 1.00138102 | 6 6 |
| 7 6 | .99908418 | .99915648 | 1.00115619 | 1.00138356 | 7 6 |
| 8 6 | .99908048 | .99915612 | 1.00125125 | 1.00138638 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
 ELAPSED XENON TIME SINCE PERTURBATION **** 86400.00 SECONDS **** 24.0000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .99594942 | .99590736 | .99954945 | 1.00479706 | 1 1 |
| 2 1 | .99596028 | .99590776 | .99888498 | 1.00479120 | 2 1 |
| 3 1 | .99597543 | .99590852 | .99831955 | 1.00477858 | 3 1 |
| 4 1 | .99599020 | .99590958 | .99790253 | 1.00477392 | 4 1 |
| 5 1 | .99600190 | .99591080 | .99766070 | 1.00477349 | 5 1 |
| 6 1 | .99600899 | .99591204 | .99775239 | 1.00477668 | 6 1 |
| 7 1 | .99601277 | .99591309 | .99778638 | 1.00478926 | 7 1 |
| 8 1 | .99601323 | .99591377 | .99812154 | 1.00479296 | 8 1 |
| 1 2 | .99563650 | .99582059 | 1.00388760 | 1.00459510 | 1 2 |
| 2 2 | .99565394 | .99582127 | 1.00328153 | 1.00458279 | 2 2 |
| 3 2 | .99567619 | .99582208 | 1.00267155 | 1.00458148 | 3 2 |
| 4 2 | .99569408 | .99582275 | 1.00209052 | 1.00458053 | 4 2 |
| 5 2 | .99570681 | .99582383 | 1.00170463 | 1.00458198 | 5 2 |
| 6 2 | .99570320 | .99582278 | 1.00187561 | 1.00458504 | 6 2 |
| 7 2 | .99569283 | .99582218 | 1.00193463 | 1.00458514 | 7 2 |
| 8 2 | .99567783 | .99582156 | 1.00202468 | 1.00492326 | 8 2 |
| 1 3 | .99574692 | .99601234 | 1.00509888 | 1.00409813 | 1 3 |
| 2 3 | .99576233 | .99601298 | 1.00469137 | 1.00408717 | 2 3 |
| 3 3 | .99578073 | .99601356 | 1.00425329 | 1.00408724 | 3 3 |
| 4 3 | .99579389 | .99601379 | 1.00381816 | 1.00408119 | 4 3 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 5 3 | .99580183 | .99601344 | 1.00352928 | 1.00408401 | 5 3 |
| 6 3 | .99579426 | .99601242 | 1.00367788 | 1.00409880 | 6 3 |
| 7 3 | .99578230 | .99601112 | 1.00373764 | 1.00410429 | 7 3 |
| 8 3 | .99576951 | .99601003 | 1.00413002 | 1.00411804 | 8 3 |
| 1 4 | .99628571 | .99654974 | 1.00489947 | 1.00335270 | 1 4 |
| 2 4 | .99629795 | .99655024 | 1.00461667 | 1.00334257 | 2 4 |
| 3 4 | .99631151 | .99655057 | 1.00431816 | 1.00334311 | 3 4 |
| 4 4 | .99632132 | .99655048 | 1.00404154 | 1.00334505 | 4 4 |
| 5 4 | .99632347 | .99654980 | 1.00383585 | 1.00334810 | 5 4 |
| 6 4 | .99631450 | .99654848 | 1.00394183 | 1.00335333 | 6 4 |
| 7 4 | .99630246 | .99654696 | 1.00398905 | 1.00336587 | 7 4 |
| 8 4 | .99629071 | .99654574 | 1.00424970 | 1.00337067 | 8 4 |
| 1 5 | .99721663 | .99742374 | 1.00377778 | 1.00238974 | 1 5 |
| 2 5 | .99722525 | .99742410 | 1.00360299 | 1.00238827 | 2 5 |
| 3 5 | .99723449 | .99742429 | 1.00340888 | 1.00238830 | 3 5 |
| 4 5 | .99724066 | .99742412 | 1.00322753 | 1.00239011 | 4 5 |
| 5 5 | .99724090 | .99742346 | 1.00310334 | 1.00239262 | 5 5 |
| 6 5 | .99723323 | .99742230 | 1.00317370 | 1.00239662 | 6 5 |
| 7 5 | .99722362 | .99742101 | 1.00320500 | 1.00239996 | 7 5 |
| 8 5 | .99721461 | .99742000 | 1.00337416 | 1.00240363 | 8 5 |
| 1 6 | .99847872 | .99859131 | 1.00204279 | 1.00124723 | 1 6 |
| 2 6 | .99848329 | .99859149 | 1.00195116 | 1.00124599 | 2 6 |
| 3 6 | .99848813 | .99859158 | 1.00185151 | 1.00124596 | 3 6 |
| 4 6 | .99849130 | .99859148 | 1.00175792 | 1.00124490 | 4 6 |
| 5 6 | .99849133 | .99859111 | 1.00169238 | 1.00124815 | 5 6 |
| 6 6 | .99848714 | .99859047 | 1.00172852 | 1.00125068 | 6 6 |
| 7 6 | .99848169 | .99858976 | 1.00174505 | 1.00125284 | 7 6 |
| 8 6 | .99847698 | .99858921 | 1.00183387 | 1.00125520 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

XENON

IODINE

ELAPSED XENON TIME SINCE PERTURBATION *** 88200.00 SECONDS *** 24.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .99403074 | .99408529 | 1.00151794 | 1.00429882 | 1 1 |
| 2 1 | .99404539 | .99408583 | 1.00080004 | 1.00429368 | 2 1 |
| 3 1 | .99406444 | .99408665 | 1.00016858 | 1.00428226 | 3 1 |
| 4 1 | .99408171 | .99408759 | .99968269 | 1.00427836 | 4 1 |
| 5 1 | .99409326 | .99408846 | .99939187 | 1.00427835 | 5 1 |
| 6 1 | .99409664 | .99408913 | .99951062 | 1.00428155 | 6 1 |
| 7 1 | .99409585 | .99408955 | .99955691 | 1.00429368 | 7 1 |
| 8 1 | .99409209 | .99408973 | .99959574 | 1.00429723 | 8 1 |
| 1 2 | .99381688 | .99410304 | 1.00574627 | 1.00409769 | 1 2 |
| 2 2 | .99383619 | .99410379 | 1.00516731 | 1.00408700 | 2 2 |
| 3 2 | .99385942 | .99410452 | 1.00457755 | 1.00408659 | 3 2 |
| 4 2 | .99387875 | .99410488 | 1.00400986 | 1.00408632 | 4 2 |
| 5 2 | .99388692 | .99410461 | 1.00363087 | 1.00408796 | 5 2 |
| 6 2 | .99387853 | .99410357 | 1.00380520 | 1.00409043 | 6 2 |
| 7 2 | .99386328 | .99410217 | 1.00386902 | 1.00408989 | 7 2 |
| 8 2 | .99384457 | .99410096 | 1.00473493 | 1.00409988 | 8 2 |
| 1 3 | .99414347 | .99449679 | 1.00664457 | 1.00363079 | 1 3 |
| 2 3 | .99416009 | .99449746 | 1.00627000 | 1.00362902 | 2 3 |
| 3 3 | .99417874 | .99449794 | 1.00586365 | 1.00362980 | 3 3 |
| 4 3 | .99419272 | .99449787 | 1.00545719 | 1.00362454 | 4 3 |
| 5 3 | .99419589 | .99449698 | 1.00518731 | 1.00362730 | 5 3 |
| 6 3 | .99418391 | .99449524 | 1.00533240 | 1.00364064 | 6 3 |
| 7 3 | .99418761 | .99449320 | 1.00539373 | 1.00364506 | 7 3 |
| 8 3 | .99415155 | .99449157 | 1.00576534 | 1.00365711 | 8 3 |
| 1 4 | .99498448 | .99531787 | 1.00610080 | 1.00296572 | 1 4 |
| 2 4 | .99499755 | .99531839 | 1.00584583 | 1.00295701 | 2 4 |
| 3 4 | .99501112 | .99531863 | 1.00557531 | 1.00295809 | 3 4 |
| 4 4 | .99501978 | .99531828 | 1.00532364 | 1.00296022 | 4 4 |
| 5 4 | .99501958 | .99531716 | 1.00513693 | 1.00296307 | 5 4 |
| 6 4 | .99500708 | .99531525 | 1.00528466 | 1.00296730 | 6 4 |
| 7 4 | .99499164 | .99531314 | 1.00528635 | 1.00297842 | 7 4 |
| 8 4 | .99497735 | .99531149 | 1.00552776 | 1.00298202 | 8 4 |
| 1 5 | .99628595 | .99654186 | 1.00461519 | 1.00210724 | 1 5 |
| 2 5 | .99629515 | .99654223 | 1.00445979 | 1.00210652 | 2 5 |
| 3 5 | .99630436 | .99654236 | 1.00428622 | 1.00210701 | 3 5 |
| 4 5 | .99630967 | .99654200 | 1.00412366 | 1.00210886 | 4 5 |
| 5 5 | .99630818 | .99654102 | 1.00401299 | 1.00211115 | 5 5 |
| 6 5 | .99629800 | .99653945 | 1.00407982 | 1.00211434 | 6 5 |
| 7 5 | .99628598 | .99653774 | 1.00411130 | 1.00211690 | 7 5 |
| 8 5 | .99627521 | .99653642 | 1.00426602 | 1.00211964 | 8 5 |
| 1 6 | .99798090 | .99811954 | 1.00248768 | 1.00109608 | 1 6 |
| 2 6 | .99798578 | .99811973 | 1.00240665 | 1.00109526 | 2 6 |
| 3 6 | .99799058 | .99811979 | 1.00231803 | 1.00109544 | 3 6 |
| 4 6 | .99799329 | .99811958 | 1.00223468 | 1.00109643 | 4 6 |
| 5 6 | .99799239 | .99811904 | 1.00217867 | 1.00109757 | 5 6 |
| 6 6 | .99798685 | .99811818 | 1.00221091 | 1.00109964 | 6 6 |
| 7 6 | .99798032 | .99811725 | 1.00222751 | 1.00110135 | 7 6 |
| 8 6 | .99797447 | .99811653 | 1.00230834 | 1.00110319 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

XENON

IODINE

ELAPSED XENON TIME SINCE PERTURBATION *** 90000.00 SECONDS *** 25.0000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .99245918 | .99259919 | 1.00325630 | 1.00373908 | 1 1 |
| 2 1 | .99247678 | .99259986 | 1.00250897 | 1.00373491 | 2 1 |
| 3 1 | .99249885 | .99246071 | 1.00183423 | 1.00372476 | 3 1 |
| 4 1 | .99251792 | .99246151 | 1.00129897 | 1.00372165 | 4 1 |
| 5 1 | .99252903 | .99246205 | 1.00097158 | 1.00372201 | 5 1 |
| 6 1 | .99252900 | .99246218 | 1.00111143 | 1.00372506 | 6 1 |
| 7 1 | .99252412 | .99246201 | 1.00116771 | 1.00373644 | 7 1 |
| 8 1 | .99251666 | .99246175 | 1.00161646 | 1.00373955 | 8 1 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 2 | .99233993 | .99271056 | 1.00727543 | 1.00354371 | 1 2 |
| 2 2 | .99236042 | .99271136 | 1.00673600 | 1.00353476 | 2 2 |
| 3 2 | .99238392 | .99271200 | 1.00617987 | 1.00353525 | 3 2 |
| 4 2 | .99240224 | .99271208 | 1.00563892 | 1.00353561 | 4 2 |
| 5 2 | .99240787 | .99271130 | 1.00527592 | 1.00353731 | 5 2 |
| 6 2 | .99239537 | .99270958 | 1.00544855 | 1.00353894 | 6 2 |
| 7 2 | .99237605 | .99270749 | 1.00551479 | 1.00353751 | 7 2 |
| 8 2 | .99235438 | .99270577 | 1.00634467 | 1.00384020 | 8 2 |
| 1 3 | .99285278 | .99327606 | 1.00786644 | 1.00312287 | 1 3 |
| 2 3 | .99287007 | .99327675 | 1.00753143 | 1.00312239 | 2 3 |
| 3 3 | .99288845 | .99327712 | 1.00716445 | 1.00312390 | 3 3 |
| 4 3 | .99290102 | .99327677 | 1.00679432 | 1.00311934 | 4 3 |
| 5 3 | .99290160 | .99327544 | 1.00654860 | 1.00312193 | 5 3 |
| 6 3 | .99288597 | .99327308 | 1.00668677 | 1.00313363 | 6 3 |
| 7 3 | .99286619 | .99327044 | 1.00674775 | 1.00313682 | 7 3 |
| 8 3 | .99284759 | .99326836 | 1.00709091 | 1.00314698 | 8 3 |
| 1 4 | .99394414 | .99433126 | 1.00702466 | 1.00254019 | 1 4 |
| 2 4 | .99395763 | .99433180 | 1.00680145 | 1.00253294 | 2 4 |
| 3 4 | .99397084 | .99433195 | 1.00656338 | 1.00253455 | 3 4 |
| 4 4 | .99397825 | .99433138 | 1.00634081 | 1.00253682 | 4 4 |
| 5 4 | .99397593 | .99432989 | 1.00617610 | 1.00253941 | 5 4 |
| 6 4 | .99396059 | .99432750 | 1.00627082 | 1.00254247 | 6 4 |
| 7 4 | .99394249 | .99432492 | 1.00631810 | 1.00255208 | 7 4 |
| 8 4 | .99392629 | .99432293 | 1.00653568 | 1.00255431 | 8 4 |
| 1 5 | .99554541 | .99583851 | 1.00524819 | 1.00179754 | 1 5 |
| 2 5 | .99554490 | .99583889 | 1.00511443 | 1.00179761 | 2 5 |
| 3 5 | .99556385 | .99583896 | 1.00496395 | 1.00179849 | 3 5 |
| 4 5 | .99556824 | .99583844 | 1.00482259 | 1.00180039 | 4 5 |
| 5 5 | .99556524 | .99583721 | 1.00472699 | 1.00180241 | 5 5 |
| 6 5 | .99555307 | .99583529 | 1.00478878 | 1.00180478 | 6 5 |
| 7 5 | .99553921 | .99583325 | 1.00481950 | 1.00180638 | 7 5 |
| 8 5 | .99552712 | .99583169 | 1.00495703 | 1.00180810 | 8 5 |
| 1 6 | .99754582 | .99774419 | 1.00282164 | 1.00093040 | 1 6 |
| 2 6 | .99753084 | .99774438 | 1.00275227 | 1.00093002 | 2 6 |
| 3 6 | .99753549 | .99774441 | 1.00267592 | 1.00093041 | 3 6 |
| 4 6 | .99753771 | .99774412 | 1.00260395 | 1.00093143 | 4 6 |
| 5 6 | .99753600 | .99774344 | 1.00255421 | 1.00093243 | 5 6 |
| 6 6 | .99753941 | .99774241 | 1.00258579 | 1.00093398 | 6 6 |
| 7 6 | .99754189 | .99774130 | 1.00260197 | 1.00093521 | 7 6 |
| 8 6 | .99757535 | .99774045 | 1.00267345 | 1.00093647 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|------------------|-----------|------------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | 91800.00 SECONDS | | **** | 25.5000 HOURS | |
| 1 1 | .99124884 | .99145238 | 1.00474214 | 1.00313849 | 1 1 |
| 2 1 | .99125880 | .99145314 | 1.00398778 | 1.00313545 | 2 1 |
| 3 1 | .99128302 | .99145400 | 1.00329138 | 1.00312664 | 3 1 |
| 4 1 | .99130322 | .99145467 | 1.00272557 | 1.00312432 | 4 1 |
| 5 1 | .99131364 | .99145488 | 1.00237374 | 1.00312498 | 5 1 |
| 6 1 | .99131053 | .99145453 | 1.00252880 | 1.00312767 | 6 1 |
| 7 1 | .99130210 | .99145384 | 1.00259266 | 1.00313814 | 7 1 |
| 8 1 | .99129150 | .99145318 | 1.00307294 | 1.00314055 | 8 1 |
| 1 2 | .99120804 | .99164525 | 1.00846759 | 1.00295315 | 1 2 |
| 2 2 | .99122906 | .99164607 | 1.00797791 | 1.00294601 | 2 2 |
| 3 2 | .99125220 | .99164660 | 1.00746671 | 1.00294739 | 3 2 |
| 4 2 | .99124913 | .99164641 | 1.00696395 | 1.00294829 | 4 2 |
| 5 2 | .99127232 | .99164521 | 1.00662474 | 1.00294995 | 5 2 |
| 6 2 | .99125640 | .99164291 | 1.00679115 | 1.00295054 | 6 2 |
| 7 2 | .99123385 | .99164026 | 1.00685760 | 1.00294806 | 7 2 |
| 8 2 | .99120997 | .99163812 | 1.00764119 | 1.00323398 | 8 2 |
| 1 3 | .99187563 | .99235098 | 1.00876436 | 1.00258442 | 1 3 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 2 3 | .99189308 | .99235167 | 1.00847405 | 1.00258528 | 2 3 |
| 3 3 | .99191073 | .99235194 | 1.00815232 | 1.00258748 | 3 3 |
| 4 3 | .99192170 | .99235135 | 1.00782453 | 1.00258353 | 4 3 |
| 5 3 | .99191995 | .99234963 | 1.00760698 | 1.00258587 | 5 3 |
| 6 3 | .99190143 | .99234679 | 1.00773534 | 1.00259582 | 6 3 |
| 7 3 | .99187902 | .99234367 | 1.00779425 | 1.00259765 | 7 3 |
| 8 3 | .99185862 | .99234124 | 1.00810274 | 1.00260583 | 8 3 |
| 1 4 | .99316443 | .99358990 | 1.00767462 | 1.00209102 | 1 4 |
| 2 4 | .99317795 | .99359043 | 1.00748588 | 1.00208524 | 2 4 |
| 3 4 | .99314049 | .99359050 | 1.00728138 | 1.00208735 | 3 4 |
| 4 4 | .99314647 | .99358974 | 1.00704293 | 1.00208972 | 4 4 |
| 5 4 | .99319241 | .99358796 | 1.00695234 | 1.00209197 | 5 4 |
| 6 4 | .99317491 | .99358520 | 1.00703831 | 1.00209378 | 6 4 |
| 7 4 | .99315489 | .99358226 | 1.00708386 | 1.00210180 | 7 4 |
| 8 4 | .99313740 | .99358001 | 1.00727407 | 1.00210263 | 8 4 |
| 1 5 | .99494438 | .99531330 | 1.00568098 | 1.00147143 | 1 5 |
| 2 5 | .99500388 | .99531368 | 1.00557030 | 1.00147231 | 2 5 |
| 3 5 | .99501235 | .99531369 | 1.00544458 | 1.00147356 | 3 5 |
| 4 5 | .99501581 | .99531304 | 1.00532804 | 1.00147549 | 4 5 |
| 5 5 | .99501152 | .99531141 | 1.00524648 | 1.00147728 | 5 5 |
| 6 5 | .99499788 | .99530944 | 1.00530202 | 1.00147852 | 6 5 |
| 7 5 | .99498273 | .99530715 | 1.00533115 | 1.00147928 | 7 5 |
| 8 5 | .99496979 | .99530542 | 1.00544951 | 1.00147992 | 8 5 |
| 1 6 | .99729299 | .99746492 | 1.00304744 | 1.00075682 | 1 6 |
| 2 6 | .99729801 | .99746511 | 1.00299039 | 1.00075610 | 2 6 |
| 3 6 | .99730240 | .99746510 | 1.00292700 | 1.00075688 | 3 6 |
| 4 6 | .99730412 | .99746475 | 1.00286719 | 1.00075771 | 4 6 |
| 5 6 | .99730173 | .99746387 | 1.00282615 | 1.00075854 | 5 6 |
| 6 6 | .99729437 | .99746280 | 1.00285448 | 1.00075937 | 6 6 |
| 7 6 | .99728617 | .99746156 | 1.00286982 | 1.00076027 | 7 6 |
| 8 6 | .99727917 | .99746082 | 1.00293180 | 1.00076093 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|------------------|------------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 93600.00 SECONDS | **** | 26.0000 HOURS | |
| 1 1 | .99036514 | .99063944 | 1.00596180 | 1.00251660 | 1 1 |
| 2 1 | .99038664 | .99064026 | 1.00522081 | 1.00251481 | 2 1 |
| 3 1 | .99041217 | .99064111 | 1.00452281 | 1.00250734 | 3 1 |
| 4 1 | .99043287 | .99064163 | 1.00394420 | 1.00250580 | 4 1 |
| 5 1 | .99044241 | .99064155 | 1.00357950 | 1.00250670 | 5 1 |
| 6 1 | .99043661 | .99064076 | 1.00374405 | 1.00250887 | 6 1 |
| 7 1 | .99042519 | .99063963 | 1.00381313 | 1.00251827 | 7 1 |
| 8 1 | .99041204 | .99063863 | 1.00430913 | 1.00251982 | 8 1 |
| 1 2 | .99041485 | .99069084 | 1.00932475 | 1.00234489 | 1 2 |
| 2 2 | .99043581 | .99090165 | 1.00889281 | 1.00233957 | 2 2 |
| 3 2 | .99045802 | .99090208 | 1.00843559 | 1.00234179 | 3 2 |
| 4 2 | .99047324 | .99090166 | 1.00798039 | 1.00234316 | 4 2 |
| 5 2 | .99047413 | .99090009 | 1.00767143 | 1.00234469 | 5 2 |
| 6 2 | .99045550 | .99089734 | 1.00782770 | 1.00234411 | 6 2 |
| 7 2 | .99043057 | .99089423 | 1.00789237 | 1.00234045 | 7 2 |
| 8 2 | .99040522 | .99089177 | 1.00862118 | 1.00261028 | 8 2 |
| 1 3 | .99120494 | .99171496 | 1.00934688 | 1.00203241 | 1 3 |
| 2 3 | .99122207 | .99171563 | 1.00910471 | 1.00203460 | 2 3 |
| 3 3 | .99123862 | .99171580 | 1.00883237 | 1.00203745 | 3 3 |
| 4 3 | .99124786 | .99171502 | 1.00855124 | 1.00203403 | 4 3 |
| 5 3 | .99124404 | .99171300 | 1.00836478 | 1.00203603 | 5 3 |
| 6 3 | .99122340 | .99170979 | 1.00848097 | 1.00204417 | 6 3 |
| 7 3 | .99119921 | .99170632 | 1.00853631 | 1.00204457 | 7 3 |
| 8 3 | .99117771 | .99170364 | 1.00880541 | 1.00205073 | 8 3 |
| 1 4 | .99263862 | .99308765 | 1.00806101 | 1.00163219 | 1 4 |
| 2 4 | .99265182 | .99308816 | 1.00790827 | 1.00162785 | 2 4 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 3 4 | .99266344 | .99308815 | 1.00774324 | 1.00163043 | 3 4 |
| 4 4 | .99266817 | .99308724 | 1.00758677 | 1.00163284 | 4 4 |
| 5 4 | .99266246 | .99308524 | 1.00747161 | 1.00163471 | 5 4 |
| 6 4 | .99264347 | .99308223 | 1.00754730 | 1.00163521 | 6 4 |
| 7 4 | .99262223 | .99307904 | 1.00759014 | 1.00164164 | 7 4 |
| 8 4 | .99260403 | .99307661 | 1.00775052 | 1.00164102 | 8 4 |
| 1 5 | .99462755 | .99496142 | 1.00592251 | 1.00113904 | 1 5 |
| 2 5 | .99463681 | .99496179 | 1.00583559 | 1.00114072 | 2 5 |
| 3 5 | .99464464 | .99496175 | 1.00573551 | 1.00114231 | 3 5 |
| 4 5 | .99464716 | .99496100 | 1.00564062 | 1.00114423 | 4 5 |
| 5 5 | .99464183 | .99495943 | 1.00557756 | 1.00114560 | 5 5 |
| 6 5 | .99462723 | .99495709 | 1.00562593 | 1.00114592 | 6 5 |
| 7 5 | .99461131 | .99495464 | 1.00565277 | 1.00114575 | 7 5 |
| 8 5 | .99459793 | .99495279 | 1.00575066 | 1.00114530 | 8 5 |
| 1 6 | .99709942 | .99727904 | 1.00317034 | 1.00057838 | 1 6 |
| 2 6 | .99710431 | .99727922 | 1.00312587 | 1.00057891 | 2 6 |
| 3 6 | .99710836 | .99727919 | 1.00307590 | 1.00057968 | 3 6 |
| 4 6 | .99710958 | .99727878 | 1.00302846 | 1.00058069 | 4 6 |
| 5 6 | .99710665 | .99727792 | 1.00299630 | 1.00058135 | 5 6 |
| 6 6 | .99709879 | .99727667 | 1.00302092 | 1.00058182 | 6 6 |
| 7 6 | .99709019 | .99727535 | 1.00303506 | 1.00058201 | 7 6 |
| 8 6 | .99708298 | .99727435 | 1.00308534 | 1.00058206 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|------------------|------------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 95400.00 SECONDS | **** | 26.5000 HOURS | |
| 1 1 | .98982518 | .99014729 | 1.00690979 | 1.00189149 | 1 1 |
| 2 1 | .98984752 | .99014815 | 1.00620024 | 1.00189103 | 2 1 |
| 3 1 | .98987358 | .99014895 | 1.00551880 | 1.00188488 | 3 1 |
| 4 1 | .98989420 | .99014933 | 1.00494372 | 1.00188409 | 4 1 |
| 5 1 | .98990269 | .99014899 | 1.00457689 | 1.00188518 | 5 1 |
| 6 1 | .98989461 | .99014783 | 1.00474556 | 1.00188669 | 6 1 |
| 7 1 | .98988078 | .99014632 | 1.00481760 | 1.00189492 | 7 1 |
| 8 1 | .98986567 | .99014504 | 1.00531466 | 1.00189546 | 8 1 |
| 1 2 | .98994631 | .99046385 | 1.00985740 | 1.00173635 | 1 2 |
| 2 2 | .98995667 | .99046464 | 1.00948891 | 1.00173281 | 2 2 |
| 3 2 | .98998747 | .99046496 | 1.00909247 | 1.00173581 | 3 2 |
| 4 2 | .99000075 | .99046434 | 1.00869207 | 1.00173757 | 4 2 |
| 5 2 | .98999952 | .99046248 | 1.00841843 | 1.00173888 | 5 2 |
| 6 2 | .98997890 | .99045938 | 1.00856128 | 1.00173704 | 6 2 |
| 7 2 | .98995241 | .99045594 | 1.00862243 | 1.00173214 | 7 2 |
| 8 2 | .98992628 | .99045325 | 1.00928983 | 1.00198456 | 8 2 |
| 1 3 | .99082681 | .99135498 | 1.00942991 | 1.00148239 | 1 3 |
| 2 3 | .99084321 | .99135562 | 1.00943773 | 1.00148588 | 2 3 |
| 3 3 | .99085833 | .99135549 | 1.00921719 | 1.00148932 | 3 3 |
| 4 3 | .99086578 | .99135474 | 1.00898543 | 1.00148634 | 4 3 |
| 5 3 | .99086020 | .99135251 | 1.00883188 | 1.00148796 | 5 3 |
| 6 3 | .99083818 | .99134906 | 1.00893406 | 1.00149426 | 6 3 |
| 7 3 | .99081300 | .99134536 | 1.00898459 | 1.00149323 | 7 3 |
| 8 3 | .99079107 | .99134253 | 1.00921106 | 1.00149738 | 8 3 |
| 1 4 | .99235444 | .99281311 | 1.00820001 | 1.00117651 | 1 4 |
| 2 4 | .99236700 | .99281359 | 1.00808370 | 1.00117355 | 2 4 |
| 3 4 | .99237749 | .99281351 | 1.00795686 | 1.00117654 | 3 4 |
| 4 4 | .99238088 | .99281249 | 1.00783516 | 1.00117894 | 4 4 |
| 5 4 | .99237392 | .99281035 | 1.00774592 | 1.00118040 | 5 4 |
| 6 4 | .99235408 | .99280718 | 1.00781022 | 1.00117959 | 6 4 |
| 7 4 | .99233229 | .99280385 | 1.00784955 | 1.00118446 | 7 4 |
| 8 4 | .99231393 | .99280133 | 1.00797868 | 1.00118240 | 8 4 |
| 1 5 | .99443561 | .99477430 | 1.00594578 | 1.00080959 | 1 5 |
| 2 5 | .99444441 | .99477465 | 1.00592261 | 1.00081203 | 2 5 |
| 3 5 | .99445145 | .99477456 | 1.00584826 | 1.00081393 | 3 5 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 4 5 | .99445307 | .99477375 | 1.00577715 | 1.00081582 | 4 5 |
| 5 5 | .99444695 | .99477209 | 1.00573059 | 1.00081684 | 5 5 |
| 6 5 | .99443185 | .99476965 | 1.00577115 | 1.00081616 | 6 5 |
| 7 5 | .99441566 | .99476712 | 1.00579513 | 1.00081507 | 7 5 |
| 8 5 | .99440225 | .99476522 | 1.00587195 | 1.00081356 | 8 5 |
| 1 6 | .99699999 | .99718181 | 1.00319768 | 1.00040246 | 1 6 |
| 2 6 | .99700463 | .99718198 | 1.00316571 | 1.00040342 | 2 6 |
| 3 6 | .99700826 | .99718192 | 1.00312905 | 1.00040434 | 3 6 |
| 4 6 | .99700901 | .99718148 | 1.00309402 | 1.00040534 | 4 6 |
| 5 6 | .99700566 | .99718058 | 1.00307064 | 1.00040581 | 5 6 |
| 6 6 | .99699756 | .99717928 | 1.00309125 | 1.00040573 | 6 6 |
| 7 6 | .99698884 | .99717792 | 1.00310391 | 1.00040541 | 7 6 |
| 8 6 | .99698161 | .99717690 | 1.00314305 | 1.00040487 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE

| ELAPSED XENON TIME SINCE PERTURBATION **** | 97200.00 SECONDS | **** | 27.8888 HOURS | | |
|--|------------------|-----------|---------------|------------|-----|
| 1 1 | .98959928 | .98995633 | 1.00758812 | 1.00127954 | 1 1 |
| 2 1 | .98962180 | .98995720 | 1.00692553 | 1.00128042 | 2 1 |
| 3 1 | .98964767 | .98995795 | 1.00627662 | 1.00127556 | 3 1 |
| 4 1 | .98966769 | .98995820 | 1.00571971 | 1.00127646 | 4 1 |
| 5 1 | .98967502 | .98995763 | 1.00536051 | 1.00127668 | 5 1 |
| 6 1 | .98968509 | .98995617 | 1.00552935 | 1.00127743 | 6 1 |
| 7 1 | .98969445 | .98995435 | 1.00560122 | 1.00128443 | 7 1 |
| 8 1 | .98963294 | .98995284 | 1.00608610 | 1.00128388 | 8 1 |
| 1 2 | .98974187 | .99031464 | 1.01008341 | 1.00114318 | 1 2 |
| 2 2 | .98980117 | .99031539 | 1.00978188 | 1.00114134 | 2 2 |
| 3 2 | .98982014 | .99031560 | 1.00945077 | 1.00114504 | 3 2 |
| 4 2 | .98983133 | .99031481 | 1.00911032 | 1.00114709 | 4 2 |
| 5 2 | .98982819 | .99031274 | 1.00887566 | 1.00114813 | 5 2 |
| 6 2 | .98980927 | .99030940 | 1.00900248 | 1.00114499 | 6 2 |
| 7 2 | .98977900 | .99030575 | 1.00905864 | 1.00113885 | 7 2 |
| 8 2 | .98975277 | .99030291 | 1.00965985 | 1.00113856 | 8 2 |
| 1 3 | .99072159 | .99125256 | 1.00963558 | 1.00094834 | 1 3 |
| 2 3 | .99073690 | .99125315 | 1.00949371 | 1.00095304 | 2 3 |
| 3 3 | .99075034 | .99125314 | 1.00932581 | 1.00095699 | 3 3 |
| 4 3 | .99075598 | .99125207 | 1.00914454 | 1.00095437 | 4 3 |
| 5 3 | .99074895 | .99124970 | 1.00902470 | 1.00095557 | 5 3 |
| 6 3 | .99072625 | .99124611 | 1.00911160 | 1.00096088 | 6 3 |
| 7 3 | .99070083 | .99124230 | 1.00915632 | 1.00095765 | 7 3 |
| 8 3 | .99067908 | .99123940 | 1.00933836 | 1.00095985 | 8 3 |
| 1 4 | .99229491 | .99275046 | 1.00811260 | 1.00073539 | 1 4 |
| 2 4 | .99230657 | .99275090 | 1.00803215 | 1.00073372 | 2 4 |
| 3 4 | .99231576 | .99275076 | 1.00794311 | 1.00073707 | 3 4 |
| 4 4 | .99231784 | .99274967 | 1.00785597 | 1.00073942 | 4 4 |
| 5 4 | .99230995 | .99274745 | 1.00779242 | 1.00074045 | 5 4 |
| 6 4 | .99229866 | .99274422 | 1.00784466 | 1.00073837 | 6 4 |
| 7 4 | .99226815 | .99274085 | 1.00787982 | 1.00074173 | 7 4 |
| 8 4 | .99225010 | .99273831 | 1.00797726 | 1.00073830 | 8 4 |
| 1 5 | .99440590 | .99474017 | 1.00588705 | 1.00049132 | 1 5 |
| 2 5 | .99441406 | .99474049 | 1.00584700 | 1.00049447 | 2 5 |
| 3 5 | .99442021 | .99474036 | 1.00579778 | 1.00049664 | 3 5 |
| 4 5 | .99442097 | .99473951 | 1.00574997 | 1.00049845 | 4 5 |
| 5 5 | .99441429 | .99473781 | 1.00571945 | 1.00049911 | 5 5 |
| 6 5 | .99439915 | .99473536 | 1.00575183 | 1.00049748 | 6 5 |
| 7 5 | .99438313 | .99473282 | 1.00577254 | 1.00049551 | 7 5 |
| 8 5 | .99437003 | .99473091 | 1.00582827 | 1.00049299 | 8 5 |
| 1 6 | .99698775 | .99716681 | 1.00313849 | 1.00023267 | 1 6 |
| 2 6 | .99699205 | .99716697 | 1.00311861 | 1.00023482 | 2 6 |
| 3 6 | .99699521 | .99716689 | 1.00309488 | 1.00023589 | 3 6 |
| 4 6 | .99699552 | .99716643 | 1.00307190 | 1.00023684 | 4 6 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 5 6 | .99699189 | .99716552 | 1.00305702 | 1.00023632 | 5 6 |
| 6 6 | .99698378 | .99716420 | 1.00307345 | 1.00023573 | 6 6 |
| 7 6 | .99697517 | .99716284 | 1.00308440 | 1.00023491 | 7 6 |
| 8 6 | .99696813 | .99716183 | 1.00311247 | 1.00023382 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE

| ELAPSED XENON TIME SINCE PERTURBATION **** | 99000.00 SECONDS | **** | 27.5000 HOURS | | |
|--|------------------|-----------|---------------|------------|-----|
| 1 1 | .98966207 | .99004160 | 1.00800552 | 1.00069913 | 1 1 |
| 2 1 | .98968418 | .99004246 | 1.00740269 | 1.00069732 | 2 1 |
| 3 1 | .98970922 | .99004315 | 1.00679991 | 1.00069367 | 3 1 |
| 4 1 | .98972818 | .99004325 | 1.00627391 | 1.00069421 | 4 1 |
| 5 1 | .98973427 | .99004249 | 1.00593093 | 1.00069549 | 5 1 |
| 6 1 | .98972292 | .99004080 | 1.00609350 | 1.00069543 | 6 1 |
| 7 1 | .98970605 | .99003875 | 1.00616528 | 1.00078118 | 7 1 |
| 8 1 | .98968871 | .99003708 | 1.00624335 | 1.00069949 | 8 1 |
| 1 2 | .98989561 | .99042851 | 1.01002684 | 1.00057907 | 1 2 |
| 2 2 | .98991344 | .99042919 | 1.00979368 | 1.00057682 | 2 2 |
| 3 2 | .98993029 | .99042931 | 1.00953033 | 1.00058012 | 3 2 |
| 4 2 | .98993927 | .99042838 | 1.00925291 | 1.00058538 | 4 2 |
| 5 2 | .98993449 | .99042616 | 1.00905952 | 1.00058610 | 5 2 |
| 6 2 | .98991193 | .99042249 | 1.00916839 | 1.00058168 | 6 2 |
| 7 2 | .98988459 | .99041894 | 1.00921834 | 1.00057431 | 7 2 |
| 8 2 | .98985886 | .99041605 | 1.00975046 | 1.00080804 | 8 2 |
| 1 3 | .99086491 | .99138479 | 1.00939184 | 1.00044239 | 1 3 |
| 2 3 | .99087885 | .99138532 | 1.00929844 | 1.00044620 | 2 3 |
| 3 3 | .99089043 | .99138523 | 1.00918252 | 1.00045257 | 3 3 |
| 4 3 | .99089428 | .99138408 | 1.00905149 | 1.00045024 | 4 3 |
| 5 3 | .99088613 | .99138165 | 1.00896515 | 1.00045100 | 5 3 |
| 6 3 | .990886340 | .99137803 | 1.008963400 | 1.00045378 | 6 3 |

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 7 3 | .99083842 | .99137422 | 1.00907417 | 1.00045002 | 7 3 |
| 8 3 | .99081738 | .99137133 | 1.00921131 | 1.00045039 | 8 3 |
| 1 4 | .99243924 | .99288026 | 1.00782350 | 1.00031875 | 1 4 |
| 2 4 | .99244980 | .99288066 | 1.00777745 | 1.00031825 | 2 4 |
| 3 4 | .99245759 | .99288047 | 1.00772489 | 1.00032189 | 3 4 |
| 4 4 | .99245846 | .99287934 | 1.00767121 | 1.00032416 | 4 4 |
| 5 4 | .99244900 | .99287711 | 1.00763246 | 1.00032475 | 5 4 |
| 6 4 | .99243010 | .99287391 | 1.00767234 | 1.00032147 | 6 4 |
| 7 4 | .99240901 | .99287059 | 1.00770286 | 1.00032342 | 7 4 |
| 8 4 | .99239173 | .99286810 | 1.00776903 | 1.00031872 | 8 4 |
| 1 5 | .99452304 | .99484469 | 1.00564511 | 1.00019134 | 1 5 |
| 2 5 | .99453042 | .99484498 | 1.00562699 | 1.00019512 | 2 5 |
| 3 5 | .99453561 | .99484482 | 1.00560172 | 1.00019751 | 3 5 |
| 4 5 | .99453558 | .99484395 | 1.00557614 | 1.00019923 | 4 5 |
| 5 5 | .99452857 | .99484227 | 1.00556084 | 1.00019954 | 5 5 |
| 6 5 | .99451378 | .99483986 | 1.00558493 | 1.00019702 | 6 5 |
| 7 5 | .99449834 | .99483738 | 1.00560206 | 1.00019423 | 7 5 |
| 8 5 | .99448586 | .99483552 | 1.00563727 | 1.00019078 | 8 5 |
| 1 6 | .99705434 | .99722624 | 1.00300305 | 1.00007283 | 1 6 |
| 2 6 | .99705822 | .99722639 | 1.00299458 | 1.00007453 | 2 6 |
| 3 6 | .99706088 | .99722629 | 1.00298310 | 1.00007571 | 3 6 |
| 4 6 | .99706077 | .99722582 | 1.00297157 | 1.00007662 | 4 6 |
| 5 6 | .99705699 | .99722492 | 1.00296469 | 1.00007671 | 5 6 |
| 6 6 | .99704909 | .99722363 | 1.00297691 | 1.00007563 | 6 6 |
| 7 6 | .99704081 | .99722231 | 1.00298599 | 1.00007436 | 7 6 |
| 8 6 | .99703411 | .99722132 | 1.00300334 | 1.00007275 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION **** 100800.00 SECONDS **** 20.0000 HOURS

| | | | | | |
|-----|-----------|-----------|-------------|------------|-----|
| 1 1 | .98998367 | .99037384 | 1.00817654 | 1.00015050 | 1 1 |
| 2 1 | .99000484 | .99037467 | 1.00764349 | 1.00015396 | 2 1 |
| 3 1 | .99002848 | .99037527 | 1.00709794 | 1.00015143 | 3 1 |
| 4 1 | .99004600 | .99037526 | 1.00661355 | 1.00015252 | 4 1 |
| 5 1 | .99005081 | .99037434 | 1.00629415 | 1.00015383 | 5 1 |
| 6 1 | .99003847 | .99037248 | 1.00644759 | 1.00015292 | 6 1 |
| 7 1 | .99002090 | .99037027 | 1.00651654 | 1.00015742 | 7 1 |
| 8 1 | .99000327 | .99036850 | 1.006494392 | 1.00015459 | 8 1 |
| 1 2 | .99025736 | .99077675 | 1.00971673 | 1.00005564 | 1 2 |
| 2 2 | .99027341 | .99077736 | 1.00955144 | 1.00005683 | 2 2 |
| 3 2 | .99028789 | .99077738 | 1.00935622 | 1.00006163 | 3 2 |
| 4 2 | .99029465 | .99077635 | 1.00914297 | 1.00006402 | 4 2 |
| 5 2 | .99028848 | .99077406 | 1.00899188 | 1.00006437 | 5 2 |
| 6 2 | .99026589 | .99077055 | 1.00908151 | 1.00005873 | 6 2 |
| 7 2 | .99023916 | .99076680 | 1.00912434 | 1.00005021 | 7 2 |
| 8 2 | .99021445 | .99076393 | 1.00958621 | 1.00026271 | 8 2 |
| 1 3 | .99122873 | .99172526 | 1.00892726 | .99997478 | 1 3 |
| 2 3 | .99124107 | .99172572 | 1.00888168 | .99998156 | 2 3 |
| 3 3 | .99125066 | .99172556 | 1.00881577 | .99998624 | 3 3 |
| 4 3 | .99125281 | .99172437 | 1.00873338 | .99998414 | 4 3 |
| 5 3 | .99124386 | .99172194 | 1.00867952 | .99998446 | 5 3 |
| 6 3 | .99122168 | .99171839 | 1.00873405 | .99998563 | 6 3 |
| 7 3 | .99119774 | .99171467 | 1.00876517 | .99998065 | 7 3 |
| 8 3 | .99117788 | .99171187 | 1.00885820 | .99997934 | 8 3 |
| 1 4 | .99276373 | .99318030 | 1.00736020 | .99993488 | 1 4 |
| 2 4 | .99277301 | .99318065 | 1.00734432 | .99993543 | 2 4 |
| 3 4 | .99277933 | .99318042 | 1.00732807 | .99993929 | 3 4 |
| 4 4 | .99277908 | .99317928 | 1.00730597 | .99994144 | 4 4 |
| 5 4 | .99277016 | .99317710 | 1.00729057 | .99994160 | 5 4 |
| 6 4 | .99275113 | .99317401 | 1.00731816 | .99993722 | 6 4 |
| 7 4 | .99273115 | .99317082 | 1.00734373 | .99993788 | 7 4 |
| 8 4 | .99271500 | .99316843 | 1.00737986 | .99993203 | 8 4 |
| 1 5 | .99476959 | .99507156 | 1.00528048 | .99991558 | 1 5 |
| 2 5 | .99477606 | .99507181 | 1.00528266 | .99991991 | 2 5 |
| 3 5 | .99478025 | .99507163 | 1.00527964 | .99992246 | 3 5 |
| 4 5 | .99477951 | .99507076 | 1.00527476 | .99992408 | 4 5 |
| 5 5 | .99477239 | .99506913 | 1.00527355 | .99992405 | 5 5 |
| 6 5 | .99475831 | .99506683 | 1.00528947 | .99992072 | 6 5 |
| 7 5 | .99474378 | .99506446 | 1.00530285 | .99991720 | 7 5 |
| 8 5 | .99473219 | .99506270 | 1.00531858 | .99991292 | 8 5 |
| 1 6 | .99719028 | .99735125 | 1.00280252 | .99992611 | 1 6 |
| 2 6 | .99719368 | .99735137 | 1.00280456 | .99992811 | 2 6 |
| 3 6 | .99719581 | .99735126 | 1.00280441 | .99992938 | 3 6 |
| 4 6 | .99719534 | .99735080 | 1.00280348 | .99993023 | 4 6 |
| 5 6 | .99719152 | .99734993 | 1.00280396 | .99993015 | 5 6 |
| 6 6 | .99718401 | .99734871 | 1.00281203 | .99992862 | 6 6 |
| 7 6 | .99717624 | .99734745 | 1.00281917 | .99992695 | 7 6 |
| 8 6 | .99717003 | .99734651 | 1.00282639 | .99992488 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX FAST FLUX XENON IODINE
ELAPSED XENON TIME SINCE PERTURBATION **** 102600.00 SECONDS **** 20.5000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|------------|-----|
| 1 1 | .99053073 | .99092059 | 1.00812067 | .99985573 | 1 1 |
| 2 1 | .99055050 | .99092136 | 1.00766462 | .99986034 | 2 1 |
| 3 1 | .99057228 | .99092188 | 1.00718485 | .999865883 | 3 1 |
| 4 1 | .99058805 | .99092176 | 1.00675066 | .99986040 | 4 1 |
| 5 1 | .99059158 | .99092073 | 1.00646086 | .99986168 | 5 1 |
| 6 1 | .99057866 | .99091875 | 1.00660192 | .99985993 | 6 1 |
| 7 1 | .99056092 | .99091647 | 1.00666658 | .99986321 | 7 1 |
| 8 1 | .99054345 | .99091465 | 1.00705223 | .99985928 | 8 1 |
| 1 2 | .99083381 | .99132772 | 1.00918587 | .99958231 | 1 2 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 2 2 | .99084785 | .99132825 | 1.00908617 | .99958479 | 2 2 |
| 3 2 | .99085981 | .99132818 | 1.00895765 | .99958996 | 3 2 |
| 4 2 | .99086438 | .99132709 | 1.00880791 | .99959241 | 4 2 |
| 5 2 | .99085710 | .99132678 | 1.00869892 | .99959238 | 5 2 |
| 6 2 | .99083504 | .99132133 | 1.00876868 | .99958559 | 6 2 |
| 7 2 | .99080949 | .99131767 | 1.00880376 | .99957603 | 7 2 |
| 8 2 | .99078627 | .99131489 | 1.00919588 | .99977603 | 8 2 |
| 1 3 | .99178233 | .99224503 | 1.00827784 | .99955374 | 1 3 |
| 2 3 | .99179291 | .99224543 | 1.00827599 | .99956135 | 2 3 |
| 3 3 | .99180046 | .99224521 | 1.00825699 | .99956629 | 3 3 |
| 4 3 | .99180102 | .99224400 | 1.00822052 | .99956432 | 4 3 |
| 5 3 | .99179156 | .99224165 | 1.00819734 | .99956420 | 5 3 |
| 6 3 | .99177046 | .99223824 | 1.00823575 | .99956391 | 6 3 |
| 7 3 | .99174807 | .99223471 | 1.00825957 | .99955782 | 7 3 |
| 8 3 | .99172980 | .99223206 | 1.00831033 | .99955501 | 8 3 |
| 1 4 | .99324254 | .99362633 | 1.00673192 | .99955043 | 1 4 |
| 2 4 | .99325043 | .99362662 | 1.00676736 | .99955188 | 2 4 |
| 3 4 | .99325527 | .99362636 | 1.00678056 | .99955950 | 3 4 |
| 4 4 | .99325400 | .99362525 | 1.00678752 | .99959790 | 4 4 |
| 5 4 | .99324499 | .99362317 | 1.00679355 | .99959766 | 5 4 |
| 6 4 | .99322715 | .99362025 | 1.00680923 | .99959230 | 6 4 |
| 7 4 | .99320869 | .99361726 | 1.00682970 | .99959181 | 7 4 |
| 8 4 | .99319397 | .99361504 | 1.00683770 | .99958496 | 8 4 |
| 1 5 | .99512663 | .99540304 | 1.00481478 | .99966678 | 1 5 |
| 2 5 | .99513211 | .99540325 | 1.00483525 | .99967357 | 2 5 |
| 3 5 | .99514529 | .99540305 | 1.00485238 | .99967623 | 3 5 |
| 4 5 | .99513393 | .99540222 | 1.00486628 | .99967773 | 4 5 |
| 5 5 | .99512689 | .99540068 | 1.00487777 | .99967737 | 5 5 |
| 6 5 | .99511381 | .99539852 | 1.00488585 | .99967334 | 6 5 |
| 7 5 | .99510049 | .99539633 | 1.00489544 | .99966918 | 7 5 |
| 8 5 | .99509000 | .99539470 | 1.00489312 | .99966418 | 8 5 |
| 1 6 | .99738531 | .99753223 | 1.00254856 | .99979503 | 1 6 |
| 2 6 | .99738819 | .99753233 | 1.00256005 | .99979729 | 2 6 |
| 3 6 | .99738980 | .99753222 | 1.00257011 | .99979862 | 3 6 |
| 4 6 | .99738901 | .99753177 | 1.00257874 | .99979940 | 4 6 |
| 5 6 | .99738525 | .99753096 | 1.00258582 | .99979916 | 5 6 |
| 6 6 | .99737830 | .99752982 | 1.00258992 | .99979724 | 6 6 |
| 7 6 | .99737119 | .99752865 | 1.00259509 | .99979522 | 7 6 |
| 8 6 | .99736559 | .99752779 | 1.00259297 | .99979276 | 8 6 |

MESH POINT(R,Z) THERMAL FLUX

FAST FLUX

XENON

IODINE

ELAPSED XENON TIME SINCE PERTURBATION **** 104400.00 SECONDS **** 29.0000 HOURS

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 1 1 | .99126759 | .99164724 | 1.00786131 | .99921860 | 1 1 |
| 2 1 | .99128560 | .99164795 | 1.00748680 | .99922426 | 2 1 |
| 3 1 | .99130514 | .99164837 | 1.00707883 | .99922364 | 3 1 |
| 4 1 | .99131891 | .99164815 | 1.00670128 | .99922560 | 4 1 |
| 5 1 | .99132120 | .99164704 | 1.00644576 | .99922682 | 5 1 |
| 6 1 | .99130808 | .99164502 | 1.00657184 | .99922425 | 6 1 |
| 7 1 | .99129063 | .99164272 | 1.00663096 | .99922637 | 7 1 |
| 8 1 | .99127377 | .99164090 | 1.00696872 | .99922141 | 8 1 |
| 1 2 | .99158959 | .99204782 | 1.00846957 | .99916634 | 1 2 |
| 2 2 | .99160144 | .99204827 | 1.00843167 | .99916990 | 2 2 |
| 3 2 | .99161081 | .99204811 | 1.00836679 | .99917534 | 3 2 |
| 4 2 | .99161328 | .99204699 | 1.00827831 | .99917777 | 4 2 |
| 5 2 | .99160516 | .99204473 | 1.00821013 | .99917736 | 5 2 |
| 6 2 | .99158412 | .99204142 | 1.00825997 | .99916954 | 6 2 |
| 7 2 | .99156027 | .99203793 | 1.00828693 | .99915907 | 7 2 |
| 8 2 | .99153892 | .99203530 | 1.00861129 | .99934729 | 8 2 |
| 1 3 | .99249327 | .99291355 | 1.00747789 | .99918556 | 1 3 |
| 2 3 | .99250198 | .99291387 | 1.00751562 | .99919382 | 2 3 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 3 3 | .99250751 | .99291360 | 1.00753948 | .99919890 | 3 3 |
| 4 3 | .99250661 | .99291242 | 1.00754528 | .99919703 | 4 3 |
| 5 3 | .99249695 | .99291019 | 1.00755036 | .99919648 | 5 3 |
| 6 3 | .99247735 | .99290700 | 1.00757323 | .99919489 | 6 3 |
| 7 3 | .99245695 | .99290373 | 1.00758973 | .99918787 | 7 3 |
| 8 3 | .99244058 | .99290128 | 1.00760183 | .99918375 | 8 3 |
| 1 4 | .99384853 | .99419287 | 1.00602873 | .99929041 | 1 4 |
| 2 4 | .99384497 | .99419310 | 1.00607016 | .99929261 | 2 4 |
| 3 4 | .99382834 | .99419282 | 1.00611140 | .99929671 | 3 4 |
| 4 4 | .99382620 | .99419175 | 1.00614437 | .99929853 | 4 4 |
| 5 4 | .99384733 | .99418982 | 1.00616955 | .99929792 | 5 4 |
| 6 4 | .99383102 | .99418714 | 1.00617398 | .99929173 | 6 4 |
| 7 4 | .99381441 | .99418441 | 1.00618936 | .99929824 | 7 4 |
| 8 4 | .99380137 | .99418238 | 1.00617167 | .99928256 | 8 4 |
| 1 5 | .99557432 | .99582054 | 1.00427004 | .99945448 | 1 5 |
| 2 5 | .99557878 | .99582071 | 1.00430652 | .99945961 | 2 5 |
| 3 5 | .99558097 | .99582050 | 1.00434139 | .99946234 | 3 5 |
| 4 5 | .99557908 | .99581972 | 1.00437186 | .99946370 | 4 5 |
| 5 5 | .99557230 | .99581830 | 1.00439448 | .99946306 | 5 5 |
| 6 5 | .99556046 | .99581634 | 1.00439520 | .99945842 | 6 5 |
| 7 5 | .99554858 | .99581435 | 1.00440105 | .99945373 | 7 5 |
| 8 5 | .99553935 | .99581288 | 1.00438247 | .99944815 | 8 5 |
| 1 6 | .99762873 | .99775914 | 1.00225303 | .99968149 | 1 6 |
| 2 6 | .99763105 | .99775923 | 1.00227276 | .99968395 | 2 6 |
| 3 6 | .99763215 | .99775911 | 1.00229177 | .99968531 | 3 6 |
| 4 6 | .99763110 | .99775869 | 1.00230878 | .99968602 | 4 6 |
| 5 6 | .99762749 | .99775794 | 1.00232161 | .99968562 | 5 6 |
| 6 6 | .99761222 | .99775691 | 1.00232199 | .99968338 | 6 6 |
| 7 6 | .99761498 | .99775585 | 1.00232522 | .99968107 | 7 6 |
| 8 6 | .99760999 | .99775508 | 1.00231471 | .99967828 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-------------------|------------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 106200.00 SECONDS | **** | 29.5000 HOURS | |
| 1 1 | .99215730 | .99251802 | 1.00742486 | .99884471 | 1 1 |
| 2 1 | .99217325 | .99251865 | 1.00713385 | .99885127 | 2 1 |
| 3 1 | .99219025 | .99251898 | 1.00680125 | .99885141 | 3 1 |
| 4 1 | .99220186 | .99251888 | 1.00648470 | .99885369 | 4 1 |
| 5 1 | .99220296 | .99251753 | 1.00626678 | .99885480 | 5 1 |
| 6 1 | .99219000 | .99251551 | 1.00637592 | .99885146 | 6 1 |
| 7 1 | .99217324 | .99251325 | 1.00642855 | .99885252 | 7 1 |
| 8 1 | .99215739 | .99251148 | 1.00671409 | .99884661 | 8 1 |
| 1 2 | .99244823 | .99290247 | 1.00760450 | .99881280 | 1 2 |
| 2 2 | .99249780 | .99290283 | 1.00762337 | .99881725 | 2 2 |
| 3 2 | .99250459 | .99290261 | 1.00761767 | .99882285 | 3 2 |
| 4 2 | .99250508 | .99290148 | 1.00758680 | .99882519 | 4 2 |
| 5 2 | .99249640 | .99289932 | 1.00755720 | .99882440 | 5 2 |
| 6 2 | .99247681 | .99289621 | 1.00758759 | .99881570 | 6 2 |
| 7 2 | .99245504 | .99289298 | 1.00760634 | .99880446 | 7 2 |
| 8 2 | .99243587 | .99249054 | 1.00786623 | .99898165 | 8 2 |
| 1 3 | .99332831 | .99369946 | 1.00656295 | .99887452 | 1 3 |
| 2 3 | .99333511 | .99369971 | 1.00663549 | .99888327 | 2 3 |
| 3 3 | .99333866 | .99369941 | 1.00669742 | .99888841 | 3 3 |
| 4 3 | .99333647 | .99369828 | 1.00674108 | .99888657 | 4 3 |
| 5 3 | .99332687 | .99369621 | 1.00677148 | .99888564 | 5 3 |
| 6 3 | .99330915 | .99369331 | 1.00677976 | .99888292 | 6 3 |
| 7 3 | .99329106 | .99369035 | 1.00678910 | .99887513 | 7 3 |
| 8 3 | .99327683 | .99368815 | 1.00676451 | .99886993 | 8 3 |
| 1 4 | .99459400 | .99485385 | 1.00522067 | .99903818 | 1 4 |
| 2 4 | .99455896 | .99485403 | 1.00528440 | .99904488 | 2 4 |
| 3 4 | .99450093 | .99485373 | 1.00534988 | .99904509 | 3 4 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 4 4 | .99455804 | .99485274 | 1.00540545 | .99904673 | 4 4 |
| 5 4 | .99454954 | .99485099 | 1.00544720 | .99904578 | 5 4 |
| 6 4 | .99453504 | .99484859 | 1.00544129 | .99903891 | 6 4 |
| 7 4 | .99452052 | .99484616 | 1.00545170 | .99903658 | 7 4 |
| 8 4 | .99450933 | .99484437 | 1.00541121 | .99902826 | 8 4 |
| 1 5 | .99609252 | .99630513 | 1.00366812 | .99927502 | 1 5 |
| 2 5 | .99609594 | .99630526 | 1.00371813 | .99928039 | 2 5 |
| 3 5 | .99609717 | .99630505 | 1.00376810 | .99928314 | 3 5 |
| 4 5 | .99609486 | .99630433 | 1.00381272 | .99928436 | 4 5 |
| 5 5 | .99608849 | .99630306 | 1.00384476 | .99928346 | 5 5 |
| 6 5 | .99607808 | .99630132 | 1.00383878 | .99927835 | 6 5 |
| 7 5 | .99606780 | .99629957 | 1.00384104 | .99927324 | 7 5 |
| 8 5 | .99605995 | .99629828 | 1.00380822 | .99926721 | 8 5 |
| 1 6 | .99790963 | .99802176 | 1.00192764 | .99958672 | 1 6 |
| 2 6 | .99791141 | .99802182 | 1.00195431 | .99958932 | 2 6 |
| 3 6 | .99791200 | .99802171 | 1.00198089 | .99959069 | 3 6 |
| 4 6 | .99791075 | .99802132 | 1.00200503 | .99959132 | 4 6 |
| 5 6 | .99790737 | .99802066 | 1.00202269 | .99959080 | 5 6 |
| 6 6 | .99790188 | .99801974 | 1.00201949 | .99958829 | 6 6 |
| 7 6 | .99789644 | .99801882 | 1.00202105 | .99958575 | 7 6 |
| 8 6 | .99789228 | .99801814 | 1.00200323 | .99958271 | 8 6 |

| MESH POINT(R,Z) | THERMAL FLUX | FAST FLUX | XENON | IODINE | |
|--|--------------|-------------------|------------|---------------|-----|
| ELAPSED XENON TIME SINCE PERTURBATION **** | | 108000.00 SECONDS | **** | 30.0000 HOURS | |
| 1 1 | .99316256 | .99349695 | 1.00683973 | .99853749 | 1 1 |
| 2 1 | .99317623 | .99349749 | 1.00663181 | .99854481 | 2 1 |
| 3 1 | .99319051 | .99349773 | 1.00637586 | .99854558 | 3 1 |
| 4 1 | .99319987 | .99349736 | 1.00612264 | .99854807 | 4 1 |
| 5 1 | .99319987 | .99349619 | 1.00594435 | .99854906 | 5 1 |
| 6 1 | .99318738 | .99349424 | 1.00603523 | .99854502 | 6 1 |
| 7 1 | .99317171 | .99349207 | 1.00608066 | .99854511 | 7 1 |
| 8 1 | .99315713 | .99349039 | 1.00631145 | .99853838 | 8 1 |
| 1 2 | .99349315 | .99385700 | 1.00662766 | .99852469 | 1 2 |
| 2 2 | .99350040 | .99385726 | 1.00669723 | .99852985 | 2 2 |
| 3 2 | .99350468 | .99385698 | 1.00674513 | .99853549 | 3 2 |
| 4 2 | .99350336 | .99385588 | 1.00676703 | .99853769 | 4 2 |
| 5 2 | .99349440 | .99385386 | 1.00677300 | .99853654 | 5 2 |
| 6 2 | .99347658 | .99385102 | 1.00678489 | .99852711 | 6 2 |
| 7 2 | .99345724 | .99384809 | 1.00679555 | .99851526 | 7 2 |
| 8 2 | .99344046 | .99384590 | 1.00699540 | .99868213 | 8 2 |
| 1 3 | .99425425 | .99457148 | 1.00556806 | .99862307 | 1 3 |
| 2 3 | .99425915 | .99457165 | 1.00567017 | .99863213 | 2 3 |
| 3 3 | .99426082 | .99457132 | 1.00576484 | .99863724 | 3 3 |
| 4 3 | .99425752 | .99457026 | 1.00584140 | .99863541 | 4 3 |
| 5 3 | .99424823 | .99456840 | 1.00589379 | .99863412 | 5 3 |
| 6 3 | .99423265 | .99456583 | 1.00588872 | .99863048 | 6 3 |
| 7 3 | .99421713 | .99456323 | 1.00589126 | .99862209 | 7 3 |
| 8 3 | .99420519 | .99456131 | 1.00583494 | .99861603 | 8 3 |
| 1 4 | .99531339 | .99558335 | 1.00435701 | .99883559 | 1 4 |
| 2 4 | .99531490 | .99558347 | 1.00443914 | .99883883 | 2 4 |
| 3 4 | .99533554 | .99558317 | 1.00452479 | .99884289 | 3 4 |
| 4 4 | .99533207 | .99558227 | 1.00459928 | .99884433 | 4 4 |
| 5 4 | .99532411 | .99558073 | 1.00465486 | .99884309 | 5 4 |
| 6 4 | .99531162 | .99557865 | 1.00463969 | .99883571 | 6 4 |
| 7 4 | .99529937 | .99557656 | 1.00464537 | .99883271 | 7 4 |
| 8 4 | .99529014 | .99557502 | 1.00458530 | .99882392 | 8 4 |
| 1 5 | .99666121 | .99683798 | 1.00303017 | .99913165 | 1 5 |
| 2 5 | .99666359 | .99683607 | 1.00309115 | .99913717 | 2 5 |
| 3 5 | .99666393 | .99683786 | 1.00315345 | .99913989 | 3 5 |
| 4 5 | .99666130 | .99683721 | 1.00320967 | .99914096 | 4 5 |

| | | | | | |
|-----|-----------|-----------|------------|-----------|-----|
| 5 5 | .9966554b | .99663611 | 1.00324936 | .99913985 | 5 5 |
| 6 5 | .99664662 | .99663462 | 1.00323742 | .99913438 | 6 5 |
| 7 5 | .99663806 | .99663314 | 1.00323633 | .99912897 | 7 5 |
| 8 5 | .99663166 | .99663204 | 1.00319145 | .99912261 | 8 5 |
| 1 6 | .99821725 | .99830995 | 1.00158371 | .99951137 | 1 6 |
| 2 6 | .99821848 | .99830999 | 1.00161696 | .99951485 | 2 6 |
| 3 6 | .99821861 | .99830987 | 1.00164870 | .99951541 | 3 6 |
| 4 6 | .99821720 | .99830953 | 1.00167864 | .99951597 | 4 6 |
| 5 6 | .99821412 | .99830896 | 1.00170019 | .99951533 | 5 6 |
| 6 6 | .99820948 | .99830818 | 1.00169418 | .99951263 | 6 6 |
| 7 6 | .99820497 | .99830740 | 1.00169380 | .99950992 | 7 6 |
| 8 6 | .99820160 | .99830683 | 1.00168982 | .99950670 | 8 6 |

DMPX.

P 055056 A0 054742 B0 000000
RA 020600 A1 056477 B1 000006
FL 114000 A2 000001 B2 111767
EM 070000 A3 000006 B3 003764
A4 000001 B4 000006
A5 054837 B5 000081
A6 000001 B6 000081
A7 000001 B7 056405

X0 77777 77777 77770 00000
X1 17252 42025 24000 00000
X2 00000 00000 00000 00000
X3 00000 00000 00000 00000
X4 00000 00000 00000 00000
X5 00000 00000 00001 07756
X6 01022 40000 00000 00000
X7 03111 70000 00001 07756

13.18.58. GMSA017. READ.
13.19.37. GMSA017. PP 038 SEC.
13.25.25. GMSA017. S 002JOB.G M SANDQUIST XEKE K03
13.25.25. GMSA017. 114000
13.25.26. GMSA017. RUN(3)
13.25.37. GMSA017. UNUSED JOB SPACE - 000500
13.25.41. GMSA017. XEKE.
13.26.43. GMSA017. BCD INPUT**ENDFILE INPUT
13.26.44. GMSA017. CP 058.082 SEC.
13.26.44. GMSA017. PP 022.329 SEC.
09/07/66. VERSION 31 01.08.08 8/30/66

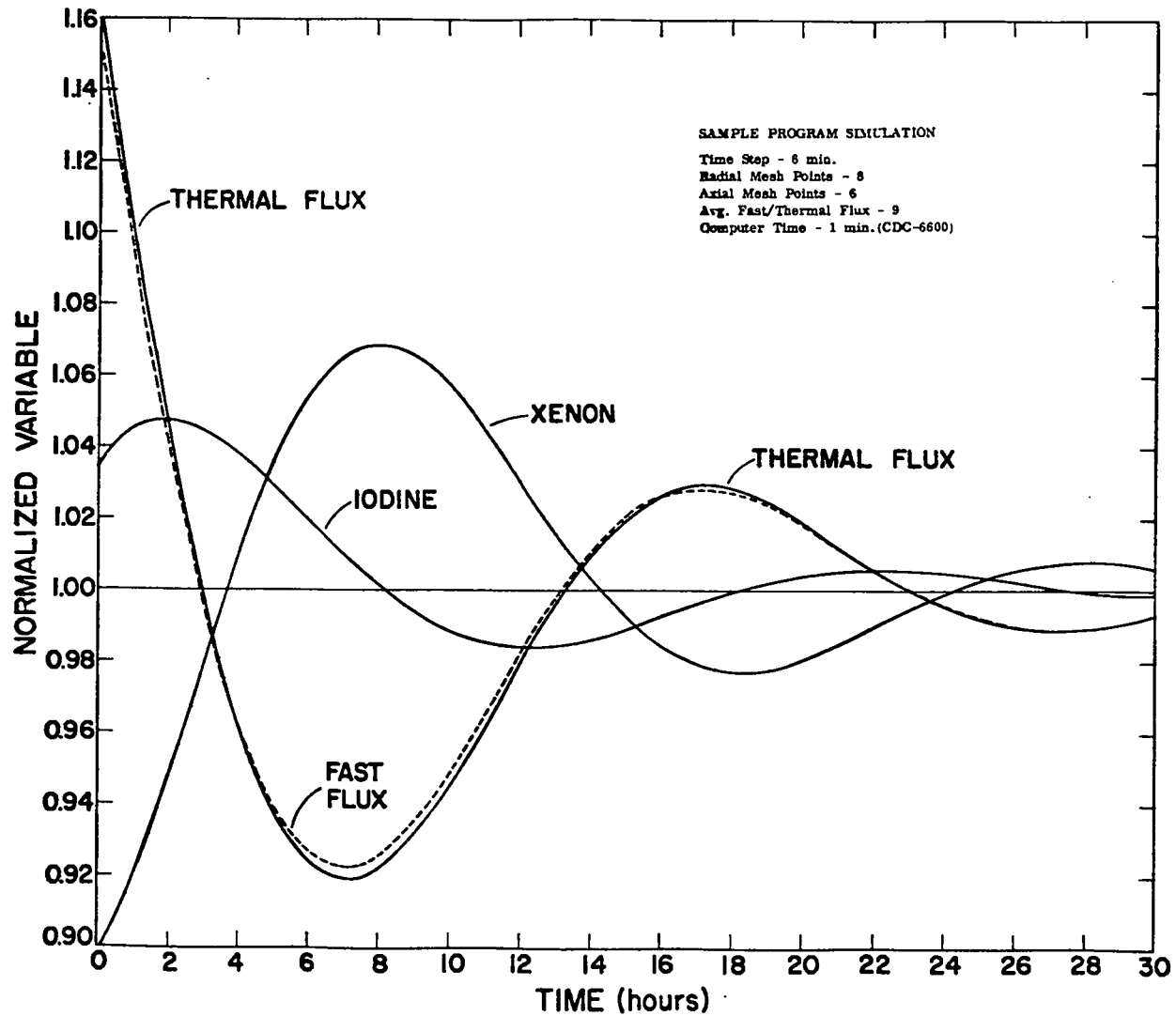


Fig. 6. Plot of System Response From a Sample Simulation by Program XEKE.

