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JNDC FISSION PRODUCT GROUP CONSTANTS
— PRELIMINARY VERSION —

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JNDC Fission Product Group Constants

— Preliminary Version —

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A set of group constants was produced from the preliminary version of JNDC evaluated data for the 28 important nuclides, and various tests were performed to confirm the reliability of the set.

The resonance structure was neglected in this preliminary version and the statictical model was applied down to 100 eV. In spite of this rough treatment the error was found to be reasonably small for the lumped cross sections. Various problems concerning the lumped cross sections were examined. The lumped capture cross section increases about 5% during the burn-up from 30 days to 300 days. The release of gaseous FP nuclides might decrease the cross section by 10%. The effect of concentration change due to neutron capture transformation was found to be negligible.

The JNDC group constants were compared with the group constants based on the Cook's evaluation. The one-group JNDC capture cross section is about 25% larger than the Cook's cross section. The difference of 25% in the FP group constants causes the uncertainty of 10% in the reactivity life, of 0.6% in the effective multiplication factor and of 10% in the sodium void coefficient for the large fast reactor.

The JNDC group constants were checked by the use of integral measurements performed at RCN. The reactivity worths of FP mixtures and some separated isotopes were calculated with the JNDC set and compared with the experimental values. The agreements were fairly well.

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ＪＮＤＣ－ＦＰ群定数（中間報告）

日本原子力研究所シグマ研究委員会
菊池康之・長谷川明・田坂完二
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シグマ研究委員会（ＪＮＤＣ）で評価された重要ＦＰ２８核種のデータを使って群定数を作成し，その適用性に関して種々の試験を行った。この評価値は予備的なもので，共鳴構造を無視して１００eV以上を統計モデルで計算している。しかしランプ化された状態では，これに起因する誤差は十分小さくなる事が確められた。さらにランプ化に伴う諸問題が検討された。３０日から３００日の燃焼中に，ＦＰの捕獲断面積は５％増大する。一方燃焼に伴いＦＰガスが燃料から放出されると，断面積は約１０％低下する。中性子捕獲によるβ－チェイン間の移行の効果は無視しうる。

このＪＮＤＣの捕獲断面積評価値は，以前公刊されたCookの評価値より約２５％大きい。ＦＰ炉定数の２５％の差は，燃焼寿命に１０％，実効増倍率に0.6％，Naボイド係数に１０％の影響を与える。

一方，オランダのPetten研究所で，ＦＰ混合物及びFP同位体のサンプル反応度が測定された。そこでＪＮＤＣ群定数を用いてこれを解析したところ，かなり良好な一致が見られた。

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1. Introduction

Japanese Nuclear Data Committee has been evaluating cross sections of fission product nuclides in the energy range important for fast reactors since 1970. At the first stage 28 nuclides were selected as important nuclides considering their large macroscopic cross sections in the equilibrium core of fast reactors, and the main efforts have been so far devoted to evaluation of these important nuclides. The preliminary version of this work was already published[1]. This prelimanary version is based on simple model calculations and has some drawbacks. The revision work is now in progress and will be completed early in 1975.

We produced a set of group constants of JAERI-Fast set type[2] with this preliminary version, and performed various tests for their applicability. The results are reported here. Some results are fed back on the above mentioned revision work. On the other hand, we have the group constants of 192 FP nuclides based on the evaluation by Cook[3),4)]. These two sets of group constants were compared with each other.

The resonance structure was ignored in this preliminary version, and the statistical model was applied down to 100 eV. The error of the FP group constants caused by neglecting the resonance structure is discussed in section 4.

The group constants of FP nuclides are generally lumped to those of a pseudo nuclide by using the concentration of each nuclide as a weight. Thus the lumped group constants depend not only on the nuclear data of the individual nuclide

but also on the concentration of each nuclide. The approximations adopted in calculating the concentrations are discussed in section 5.

The uncertainty of the evaluated FP cross sections is considerably large, since most of FP nuclides are radioactive and the experimental data are scarce. The data evaluated by JNDC are fairly different from those by Cook. The difference of the lumped capture cross section is more than 25% between those generated from JNDC data and Cook's data, when collapsed to one group with neutron spectrum of a typical fast reactor. The effects of this difference were examined on k_{eff}, burn-up life, reactivity worth and sodium void coefficient. The detailed discusion was given in Ref. 5, and only the results are described in section 6.

The choice of 28 important nuclides were based on the fact that these nuclides take more than 80% of total capture by fission products. The contribution of each nuclide to the total capture is discussed in section 7, and the secondly important nuclides are selected.

The JNDC group constants were checked with the integral measurements performed at STEK facility in RCN, Petten, the Netherlands.[6,7,8,9] The reactivity worths were calculated with the JNDC group constants for three FP mixtures and for some separated isotopes. The results are compared with the experimental values in Section 8.

2. Preliminary Version of JNDC FP Evaluated Data[1)]

At the first stage of evaluation, the following 28 nuclides were selected as the most important nuclides;

Sr-90,	Zr-93,	Mo-95,	Mo-97,	Tc-99,
Ru-101,	Ru-102,	Rh-103,	Ru-104,	Pd-105,
Ru-106,	Pd-107,	Ag-109,	I-129,	Xe-131,
Cs-133,	Cs-135,	Cs-137,	Nd-143,	Ce-144,
Nd-144,	Nd-145,	Pm-147,	Sm-147,	Sm-149,
Sm-151,	Eu-153,	Eu-155.		

These nuclides were selected, with a preliminary study, so as to cover 80% of total capture by FP nuclides in the equilibrium core of a typical fast reactor.

The reaction types evaluated are the total, elastic scattering, inelastic scattering and radiative capture cross sections and the angular distribution of elastic scattering. The energy range is limited between 100 eV and 15 MeV. No evaluation of the resolved resonance parameters was performed for the preliminary version. The spherical optical model and the statistical model were applied to the full energy range. It may sound rather rough, but the error due to the statistical fluctuation is reasonably small for the lumped capture cross section as discussed in section 4. More sophisticated models are adopted and the resonance structure is taken into account in the evaluation of the revised version.

3. Production of Group Constants

The group constants of JAERI-Fast set type were produced with the PROF-GROUCH-G[10] code. The same assumptions are adopted as in the production of the FP group constants from the Cook's evaluated data.

The weighting flux is assumed to be 1/E spectrum below 1 MeV and to be fission spectrum above 1 MeV. The fission spectrum is assumed as:

$$\phi(E) = A_0 \exp(-E/A_1) \sinh\sqrt{A_2 E},$$

where A_0, A_1 and A_2 are 4.84×10^{-7}, 1×10^{6} eV and 2×10^{-6} eV^{-1} respectively, and energy is in eV unit. The angular distribution of elastic scattering was not processed, and the isotropic scattering in the center of mass system was assumed. As for the inelastic scattering matrix, the energy distribution was determined with the evaporation model as*:

$$F(E)\,dE = \frac{E}{T^2} \exp(-E/T)\,dE.$$

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* The energy distributions in the inelastic scattering were evaluated by JNDC and are given in Ref. 2. In the present work, however, these values were not used. We used the evaporation model with which the Cook's data were processed.

The same nuclear temperature (T) was taken for all the nuclides and was determined to be 0.638 MeV with averaging the values recommended by Gilbert and Cameron[11].

JNDC did not provide the data below 100 eV. Then the Cook's data are adopted in this energy range.

The group constants of an individual FP nuclide are generally lumped to those of a few pseudo FP nuclides by using the concentration of each nuclide as the weighting factor. The concentrations were calculated with the FP-S code[12] which solves the beta-decay chain with Bateman's equation. The transfer from one beta-decay chain to another chain by neutron capture is neglected in this code. The fission yield data were taken from the compilation by Meek and Rider[13]. As the number of nuclides evaluated by JNDC is not enough for production of the lumped cross section, the Cook's group constants are supplementarily used for the other 164 nuclides. In the following discussion, "the JNDC lumped group constants" means the constants lumped with the JNDC group constants for 28 nuclides and the Cook's constants for 164 nuclides.

Three types of the lumped group constants were produced. They correspond to the fission products due to ^{235}U fission with thermal neutrons, to ^{239}Pu fission with thermal neutrons and to ^{238}U fission with fission spectrum neutrons. The lumped group constants varies in the course of burn-up because of the change of the concentration of each nuclide. Therefore we calculated them for burn-up of 1, 30, 60, 180, 360 and 720 days.

The multi-group cross sections of the 28 nuclides are tabulated in Appendix 1, the JNDC lumped group constants for burn-up of 360 days in Appendix 2 and the inelastic scattering matrices in Appendix 3.

4. Statistical Error of Lumped Group Cross Section

In evaluating the 28 important nuclides, the statistical model was applied down to 100 eV. It may sound rather rough, as the resonance structure cannot be neglected in the energy range below a few keV. Then it is necessary to estimate the uncertanity of the group cross sections caused by neglecting the resonance structure.

The expectation and the variance are expressed as Eqs.(1) and (2) for the cross section of reaction x averaged over energy range ΔE,

$$\bar{\sigma}_x = \frac{2\pi^2 \lambda^2}{\Delta E} \sum_{J\pi} g_J \langle N_{J\pi} \rangle \left\langle \frac{\Gamma_n \Gamma_x}{\Gamma} \right\rangle \tag{1}$$

$$\mathrm{Var}(\sigma_x) = \left(\frac{2\pi^2 \lambda^2}{\Delta E}\right)^2 \sum_{J\pi} g_J^2 \left[\langle N_{J\pi} \rangle \left\{ \left\langle \frac{\Gamma_n^2 \Gamma_x^2}{\Gamma^2} \right\rangle - \left\langle \frac{\Gamma_n \Gamma_x}{\Gamma} \right\rangle^2 \right\} + \left\langle \frac{\Gamma_n \Gamma_x}{\Gamma} \right\rangle^2 \left\{ \langle N_{J\pi} \rangle^2 - \langle N_{J\pi} \rangle^2 \right\} \right] \tag{2}$$

where $J\Pi$ is the spin-parity, $N_{J\Pi}$ the number of levels of $J\Pi$ state in ΔE, and the other notations are of common usage. The bracket $\langle\ \rangle$ denotes the mean value over the statistical distribution.

If $N_{J\Pi}$ is large enough, $N_{J\Pi}/\Delta E$ is approximately put as $1/D_{J\Pi}$, where $D_{J\Pi}$ is the average level spacing of $J\Pi$ state. The variance can be expressed analytically in this case. It is difficult, however, to obtain the variance analytically, if the fluctuation of $N_{J\Pi}$ must be considered. In the present case, $N_{J\Pi}$ is not large enough for the lower energy group of JAERI-Fast set. For example, the 17th group of 25 group structure covers the energy range from 100 to 215 eV, and the

mean level spacing is more than a few keV for some FP nuclides. Hence the Monte Carlo method was used for the nuclides with large level spacing.

The statistical fluctuation of the average cross section is independent for each nuclide. Hence the expectation and the variance of the lumped cross section are given as

$$\sigma_x^{lump} = \sum_i y_i \, \sigma_x^i \tag{3}$$

$$\mathrm{Var}(\sigma_x^{lump}) = \sum_i (y_i)^2 \, \mathrm{Var}(\sigma_x^i), \tag{4}$$

where the suffix i represents the nuclide and y_i the concentration. As y_i is much smaller than unity, the variance decreases by lumping.

The expectations and the variances were calculated for the 28 nuclides. They are given in Table 1 as the ratio of standard deviation to expectation for some nuclides as well as those of the lumped cross sections. The ratio reaches a factor of 10 at the 17th group (100 eV-215 eV) for Sr-90. After lumping, however, the ratio is about 10% for capture and 70% for elastic scattering. It can be concluded that the uncertainty caused by neglecting the resonance structure is reasonably small for the lumped capture cross section considering the uncertainty of the experimental data of the resonance parameters themselves.

5. Problems Concerning Lumping

As mentioned in the previous section, the errors become small with lumping. The lumped cross section has, however, another source of errors, i.e., the errors caused by the uncertainty of the concentration of each nuclide. This problem is discussed in this section.

5.1 Errors due to Uncertainty of Fission Yield

The concentration of each FP nuclide depends directly on its fission yield data whose uncertainties are yet fairly large. JNDC did not evaluate the yield data, but used the evaluation by Meek and Rider. Meek and Rider evaluated the fission yield data twice[13,14], and these two versions are fairly different from each other. Here we examine the effect of the uncertainties of the yield, by comparing the results calculated with the old and new versions.

The difference of the cross sections are shown in Table 2 for various burn-up stages. The effect on the capture cross section is predominant (2% for thermal fission of ^{239}Pu, 1% for thermal fission of ^{235}U and 1% for fast fission of ^{238}U). The effects on the other cross sections are small.

It should be noted, however, that both of these two yield data were evaluated by the same evaluators. Hence the discrepancies among the other evaluations might be larger and therefore the uncertainty of the lumped cross sections is expected to be a little larger.

5.2 Burn-up Dependence of Lumped Cross Section

The lumped cross section varies through burn-up accompanied with the change of the concentration of each nuclide, as the microscopic cross sections of isobars are different. This makes the treatment of the FP group constants difficult. The burn-up dependence is caused mainly by several beta-decay chains. The change of the lumped capture cross section is about 5% for burn up from 30 days to 300 days. Hence the problem of time dependence may not be severe, considering the errors from other origins.

5.3 FP Gas Release from Fuel

In the calculation of concentration it is assumed that all the FP nuclides stay in the fuel. Some of gaseous fission products are, however, released to the prenum in the power reactor. This reduces the number densities of FP nuclides and thus affects the lumped cross sections.

It is not easy to estimate the amount of released FP nuclides, as this behavior is not a simple diffusion. We simply assumed that 100% of the rare gas nuclei and 50% of halogen and alkali metal nuclei were lost from the core. The detailed discussion is given in Ref. 5. With this assumption, the lumped capture cross sections are reduced by about 10%.

5.4 Effect of Concentration Change due to Neutron Capture

As described in section 3, the transfer from one beta-decay chain to another is neglected in calculating the concentration of each FP nuclide. It was tested by Tasaka whether this assumption is valid or not under irradiation by high neutron flux.

The FP-S code[12] was modified so as to treat the capture reaction during burn-up for 63 FP nuclides, which provide more than 90% of total capture. The calculation was performed for a typical 1000 MWe commercial fast reactor with using the Cook's group constants. The changes of the lumped one group capture cross section are tabulated in Table 3 for various flux and for various burn-up time.

The lumped capture cross section decreases, if the capture transformation is taken into account. This is reasonable, because odd-A nuclides with large capture cross section mainly capture neutrons and then change to even-A nuclides whose capture cross section is much smaller. The effect is, however, small (less than 1% under most of reasonable conditions). More than 60% of the change is caused by the neutron capture by Ru-101. It was found that the change of the lumped one-group capture cross section could be approximately expressed in this case as

$$\frac{\sigma_c(\phi)-\sigma_c(0)}{\sigma_c(0)} = -2.0 \times 10^{-25} \times \int \phi \, dt, \qquad (5)$$

where $\sigma_c(\phi)$ is calculated with taking account of capture transformation under irradiation by flux ϕ and $\sigma_c(0)$ with neglecting it.

As a conclusion, the effect of concentration change due to neutron capture is negligible.

6. Effects of Uncertainties of FP Group Constants on Fast Reactor Calculations

The most portion of uncertainty of the lumped group constants is attributed to that of cross section of the individual nuclide, though we discussed various other origins in the previous section. To understand the disagreements among various evaluated data, the JNDC and the Cook's capture cross sections are lumped with the same concentrations and they are compared in Fig. 1. The JNDC capture cross section is 25% larger than the Cook's cross section when collapsed to one group with the spectrum of a typical fast reactor.

The effects of the uncertainties of FP group constants were examined by comparing various reactor characteristics calculated with the two sets for two typical fast reactors; a 300 MW (e) prototype reactor and a 1500 MW (e) commercial reactor. The detailed discussion is given in Ref. 5, and only the results are briefly described here.

6.1 Burn-up Characteristics

The reactivity life calculated with the JNDC constants is 10% shorter than that with the Cook's constants for both reactors. Neither breeding ratio nor peaking factor is much affected.

6.2 Criticality of Equilibrium Core

The effective multiplication factor calculated with the JNDC constants is 0.6% less reactive. In order to compensate this difference, the outer core volume must be increased by 3.5% or the Pu enrichment of fuels by 1.4%.

6.3 Sodium void coefficient

The sodium void coefficient calculated with the JNDC constants is 11% larger for the 1500 MW (e) reactor when all the amount of sodium are removed from the core.

7. Selection of the Secondly Important Nuclides

The contribution of the 28 nuclides to the total capture was calculated in order to confirm that these 28 nuclides are really important. The results are given in Tables 4.1 to 4.3 for burn up of 360 days. The contributions of the 28 important nuclides, which bear a mark *, are calculated with the JNDC constants and the contributions of the other nuclides with the Cook's constants.

It is verified that the 28 nuclides provide more than 80% of total capture for any type of fission, though some of the 28 nuclides was found not very important for capture contribution. The secondly important nuclides are chosen from these tables as follows:

Br-81,	Kr-83,	Rb-85,	Rb-87
Zr-91,	Zr-92,	Zr-94,	Zr-95
Zr-96,	Nb-95,	Mo-98,	Mo-100
Ru-103,	Pd-106,	Pd-108,	I-127
Xe-132,	Xe-134,	Ba-140,	La-139
Ce-140,	Ce-141,	Ce-142,	Pr-141
Pr-143,	Nd-146,	Nd-147,	Nd-143
Sm-150,	Sm-152.		

The evaluation for these nuclides are now under preparation. Adding these 30 nuclides to the 28 nuclides, more than 95% of total capture are covered.

8. Test of FP Group Constants with Integral Data

There remains considerable ambiguity in the evaluated FP cross sections, since most of FP nuclides are radioactive and therefore the experimental data are scarce. Hence it is not easy to say which set of evaluated data is most reliable, in spite of the fact that the difference between the JNDC and the Cook's constants is more than 25%.

On the other hand, the central reactivity worths of the FP mixtures and of some FP isotopes were measured at four different STEK cores in Petten, the Netherlands. The detailed descriptions of the experiments are given in Ref. 6 and 7.* The preliminary results of the experiments were already published.[6,7,8,9] Hence it seems very helpful to perform the benchmark test using various FP group constants, in order to select a better data set.

8.1 Mixture of Fission Products

The central reactivity worths were measured at 4 STEK cores for two irradiated FP mixture samples; HFR-101 (with a burn-up of 60% FIMA) and HFR-102 (with 30% FIMA), and a mock-up sample (KFK-sample). The experimental values were reported in Ref. 6 and 7 with the calculated ones with the RCN-set[15].

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* The fluxes and the adjoint fluxes of STEK cores are still noted to be preliminary.

The reactivity worths due to capture were calculated with the JNDC constants set and the Cook's set, using the number densities and the normalized product of flux and adjoint flux given in Ref. 7.

The calculated results are compared in Table 5 with the experimental values. The ratios of calculated value to experimental one are illustrated in Fig. 2. The followings can be pointed out from this comparison:

1) The JNDC set overestimates the reactivities by 10% for the HFR-101 sample, while the RCN and the Cook's sets underestimate them by 10%.
2) The results with the JNDC set agree very well with the experimental values of the HFR-102 sample, while the RCN and the Cook's sets give 20% of underestimation.
3) The results with the JNDC and the Cook's sets depend on the core for the KFK-sample, while the results with the RCN set do not.
4) The Cook's set always underestimates the reactivity.

It may be said from the above observations that the capture cross sections of the Cook's set are too small. But it is not clear why one set gives good results for a sample and it does not for another sample, and why such a strong core dependence appears when calculated with the JNDC and the Cook's sets for the KFK sample. It is difficult to say which set is most reliable from the integral measurements of fission product mixtures.

8.2 Pseudo FP Nuclides

Some integral quantities of pseudo-fission product mixtures were calculated by RCN for SNR-300 with different cross section sets and are given in Ref. 7. Hence the same quantities were calculated with the JNDC set and the Cook's set and are compared with the values calculated by RCN in Table 6. The concentrations for these pseudo-fission product mixtures are given in Ref. 7 with the flux and the adjoint flux of SNR-300. The Cook's set and the Australian set in Table 6 are based on the same evaluated data and the difference between them might be caused by the different weighting flux used in producing the group cross sections.

It is evident from these comparisons that the JNDC set has larger capture cross section than the other sets. It should be noted, however, that the capture cross section of the revised JNDC set will be a little lower, because the Porter-Thomas fluctuation will be taken into account.

8.3 Reactivity Worths of FP isotopes

It is rather difficult to discuss the reliability of the cross section set from the integral data of the mixture, as the mixture is composed of so many isotopes. Hence the integral data for the separated isotopes seems more helpful.

The reactivity worths of 57 isotope samples were also measured at STEK cores, and the preliminary results were already published in Refs. 8 and 9. The correction of self-shielding effect is difficult in these experiments, and the results in Refs. 8 and 9 are noted to be preliminary. It is,

however, worthwhile to check our set with these integral data*. The results reported in Refs. 8 and 9 are the total reactivity worths. The flux and the adjoint flux are independently required in order to calculate the reactivity worths due to elastic and inelastic scattering. They were informed as a private communication[16] but must be considered as preliminary ones.

The calculated reactivities with the JNDC set are compared with the experimental data in Table 7. The result with the Cook's set are given in Appendix 4. The followings can be said from Table 7:

1) The calculated values with the JNDC set are a little larger than the experimental ones for
   Mo-95, Mo-97, Ru-101, Cs-133, Nd-143, Nd-145, Pm-147, Sm-147, Eu-153 (category 1).
2) The calculated values are a little smaller for
   Tc-99, Rh-103, Pd-105, Pd-107, Ag-109, Sm-149 (category 2).

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* The reactivity worths for other nuclides were also measured. The calculation was also performed for B and ^{235}U using the JAERI-Fast set, in order to confirm that there are no systematic errors in the measurements at STEK. The calculated results agree very well with the experimental ones for these cases.

3) The calculated values are much larger than the experimental ones for

Ru-102, Ru-104, I-129, Nd-144 (category 3).

4) The calculated values are much smaller for

Sm-151 (category 4).

5) The core dependence of the calculated values does not agree at all with the experimental ones for

Zr-93, Cs-135 (category 5).

It can be said that the agreement is satisfactory for the nuclides of categories 1 and 2. The tendency of these slight disagreements is taken into account in the revision work for these nuclides so as to improve the agreement.

The disagreement for the nuclides of category 3 may be partly explained with our rough treatment of inelastic scattering. The adjoint flux of STEK decreases with increasing energy. Hence the contribution of the inelastic scattering is fairly large; the reactivity ($\Delta\rho/\rho$) due to inelastic scattering is from 0.02 to 0.08. Our inelastic scattering matrix is calculated, however, rather roughly using the simple evaporation model as described in section 3. This might cause considerable errors for the nuclides of category 3, whose capture component is relatively small. But the results calculated with the Cook's constants are also larger except for I-129.

As for Sm-151, the JNDC evaluated curve is much lower than the other evaluated data. The results with the Cook's set is, however, much smaller than the experimental values.

The disagreement of the core dependence for the nuclides of category 5 is not understandable. As a conclusion, the disagreement for the nuclides of categories 3, 4 and 5 seems too large to be explained as due to the error of the nuclear data.

It should be noted that these comparisons were performed with the preliminary experimental data and that the fluxes and the adjoint fluxes used in calculation were also preliminary. The tendency will be changed, if the flux and the adjoint fluxes are changed. Therefore it seems dangerous to make any adjustment of the group constants with these comparisons.

9. Conclusion

A set of group constants was generated based on the preliminary version of JNDC evaluated data for the 28 important FP nuclides, and various tests were performed to confirm their reliability. The followings can be pointed out as conclusions.

The errors caused by neglecting the resonance structure are proved to be reasonably small for the lumped cross sections, though they are very large for the cross sections of the individual nuclides at the low energy groups.

The assumptions adopted in calculating the concentrations of FP nuclides are examined. The change of the lumped cross section is about 5% during the burn-up from 30 days to 300 days. The release of gaseus FP nuclides might decrease the lumped capture cross section by 10%. The effect of concentration change due to neutron capture transformation is very weak in the normal condition of fast reactors.

The one-group JNDC capture cross section is about 25% larger than the Cook's cross section. The uncentainty of 25% in the FP group constants causes the uncertainty of 10% in the reactivity life, of 0.6% in the effective multiplication factor and of 10% in the sodium void coefficient for the large fast reactor.

The JNDC group constants and the Cook's constants were checked by the integral measurements performed at RCN. It is difficult to say which set is more reliable from the integral check of the FP mixtures, as the number of composed nuclides are so large. As for the integral check for the

separated isotopes, the JNDC set gives fairly good agreement for most of nuclides. For some nuclides, however, the calculated results do not agree at all with the measured ones. This point should be further investigated.

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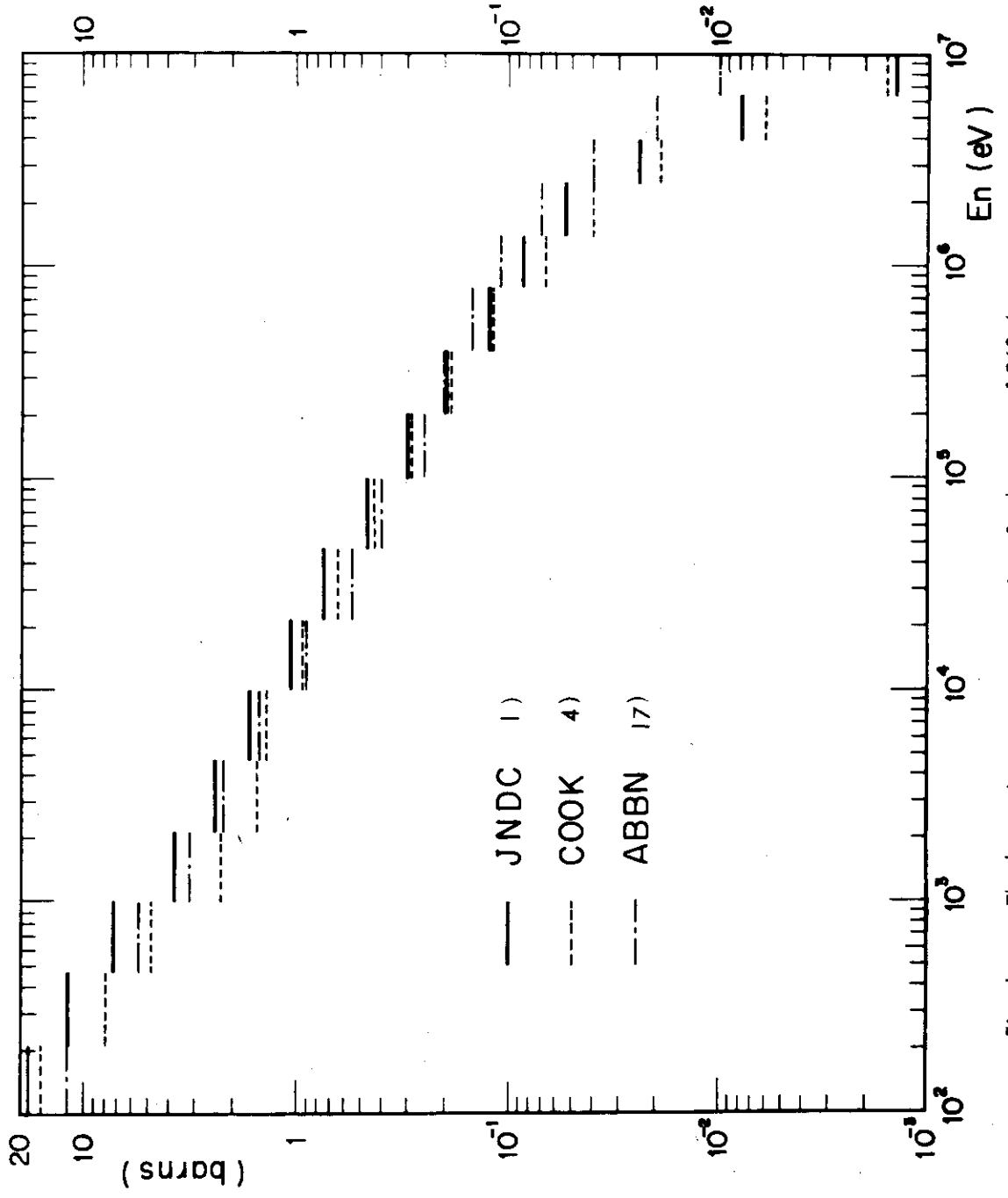

Fig. 1. The lumped capture cross sections for burn-up of 360 days

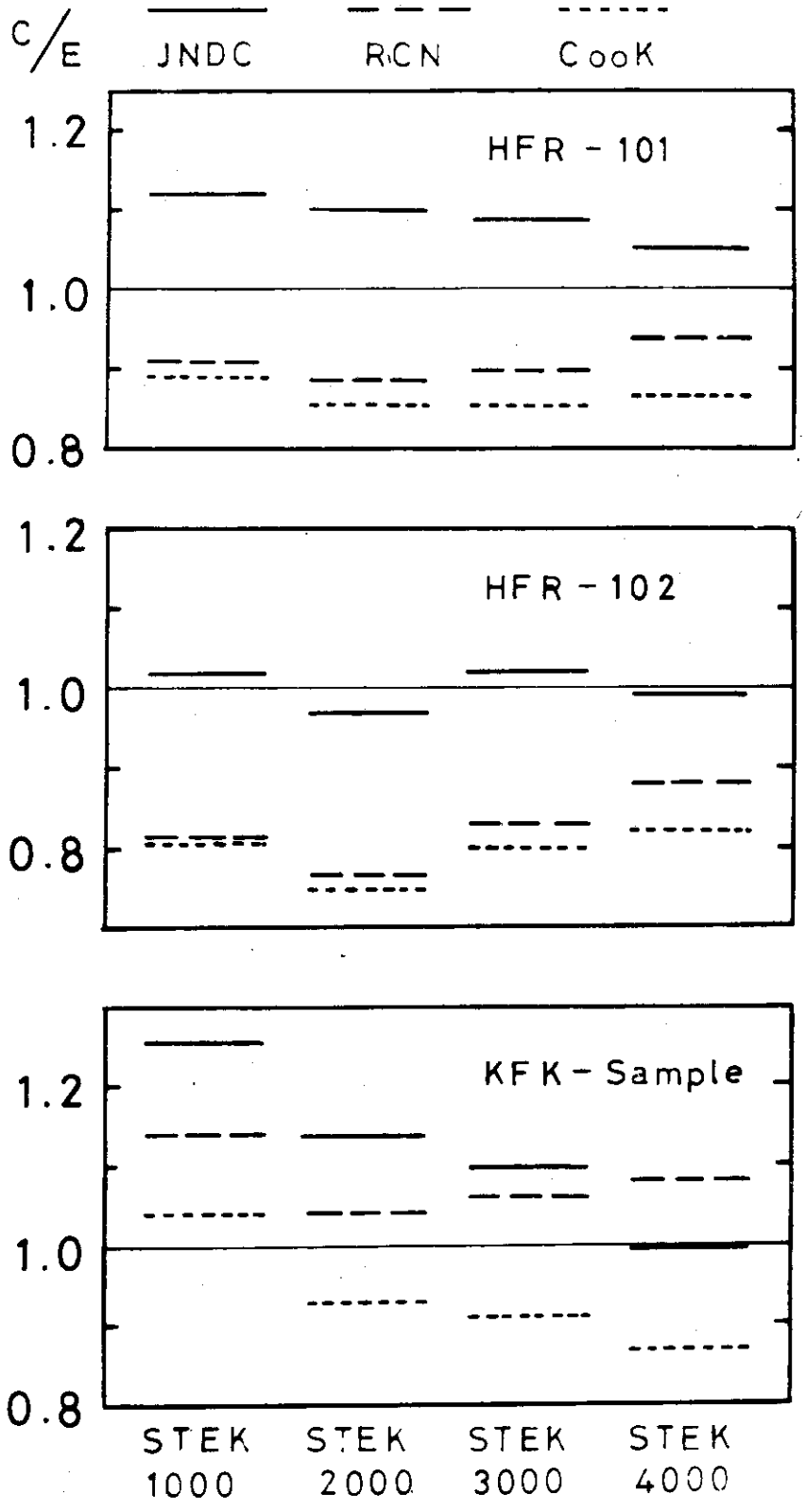

Fig. 2 The ratio of the calculated volue to the experimental one for the reactivity worth of FP samples in various STEK cores.

Table 1. Group Cross Sections and Standard Deviations of ^{90}Sr, ^{95}Mo, ^{137}Cs and ^{140}Ce and Those of the Lumped Group Constants

Energy Range (keV)		^{90}Sr		^{95}Mo		^{137}Cs		^{144}Ce		Lump	
		$\bar{\sigma}$ (b)	$\Delta\sigma/\bar{\sigma}^*$	$\bar{\sigma}$ (b)	$\Delta\sigma/\bar{\sigma}^*$	$\bar{\sigma}$ (b)	$\Delta\sigma/\bar{\sigma}^*$	$\bar{\sigma}$ (b)	$\Delta\sigma/\bar{\sigma}^*$	$\bar{\sigma}$ (b)	$\Delta\sigma/\bar{\sigma}^*$
10 - 4.65	σ_c	0.076	0.63	1.10	0.075	0.093	0.18	0.185	0.18	1.43	0.004
	σ_s	9.20	0.78	7.66	0.066	13.45	0.42	19.00	0.46	9.60	0.050
4.65 - 2.15	σ_c	0.127	1.10	1.54	0.133	0.148	0.30	0.249	0.28	2.04	0.009
	σ_s	9.91	1.50	7.78	0.124	17.49	0.73	25.67	0.76	11.3	0.091
2.15 - 1.0	σ_c	0.206	1.70	2.33	0.231	0.243	0.60	0.396	0.51	3.33	0.020
	σ_s	11.55	2.78	8.26	0.262	24.48	1.30	37.05	1.25	14.0	0.176
1.0 - 0.465	σ_c	0.299	2.94	3.89	0.421	0.455	1.08	0.803	0.97	5.96	0.034
	σ_s	14.08	4.53	8.86	0.525	35.36	2.02	54.62	1.90	17.9	0.293
0.465 - 0.215	σ_c	0.411	4.28	5.97	0.761	0.784	1.83	1.46	1.62	9.52	0.058
	σ_s	17.18	8.79	9.32	0.902	48.17	2.99	75.28	3.03	22.0	0.518
0.215 - 0.1	σ_c	0.690	7.16	9.96	1.25	0.162	2.70	3.08	2.84	16.0	0.095
	σ_s	22.78	10.4	9.89	1.46	69.84	3.80	110.1	4.29	28.0	0.683

* Standard deviations are given as ratios to the group cross sections.

Table 2. Effect of Yield Data on Lumped Cross Sections, Collapsed with Flux of 1500 MW (e) Fast Reactor

^{239}Pu (Thermal Neutron Fission)

Burn - Up (days)	Relative Error* (%)			
	Total	Elastic	Inelastic	Capture
1	-0.016	-0.11	1.1	1.7
30	0.033	-0.066	0.85	1.9
720	0.069	-0.028	0.78	2.0

^{235}U (Thermal Neutron Fission)

Burn - Up (days)	Relative Error* (%)			
	Total	Elastic	Inelastic	Capture
1	0.059	0.027	0.30	1.1
30	0.070	0.037	0.32	0.92
720	0.065	0.029	0.32	0.97

^{238}U (Fission - Spectrum Neutron Fission)

Burn - Up (days)	Relative Error* (%)			
	Total	Elastic	Inelastic	Capture
1	0.002	-0.016	0.27	0.44
30	0.15	0.12	0.34	0.86
720	0.18	0.13	0.25	0.38

* $(\sigma_N - \sigma_0) / \sigma_0$

σ_N : calculated with the new version

σ_0 : calculated with the old version

Table 3. Change of Capture Cross Section Caused by Neutron Capture Transformation

Tr day	$\tilde{\sigma}_{c(0)}$ barn	$-(\tilde{\sigma}_c(\phi) - \tilde{\sigma}_c(0)) / \tilde{\sigma}_c(0)$		
		$\phi = 10^{14}$	$\phi = 10^{15}$	$\phi = 10^{16}$
1	0.3912	4.844×10^{-6}	1.824×10^{-5}	1.735×10^{-4}
30	0.3954	5.132×10^{-5}	5.051×10^{-4}	5.584×10^{-3}
60	0.3987	1.021×10^{-4}	1.027×10^{-3}	1.119×10^{-2}
180	0.3986	3.110×10^{-4}	3.150×10^{-3}	3.245×10^{-2}
360	0.4002	6.276×10^{-4}	6.314×10^{-3}	6.013×10^{-2}
720	0.4016	1.276×10^{-3}	1.261×10^{-2}	1.040×10^{-1}

$\tilde{\sigma}_c(\phi)$: with taking account of neutron capture transformation with flux ϕ

$\tilde{\sigma}_c(0)$: without taking account of neutron capture transformation

Table 4.1. Contribution of Each FP Nuclide to Total Capture by FP due to Pu-239 Fission, Collapsed with the Spectrum of a Large Fast Reactor

	NUCLIDE		SIG-G	CONCENTRATION	CONTRIBUTION (%)	CUMULATIVE (%)
1	RU101	*	0.98091E 00	0.60539E-01	0.82798E 01	0.82798E 01
2	CS133	*	0.84690E 00	0.66848E-01	0.79142E 01	0.16192E 02
3	PD105	*	0.10490E 01	0.53673E-01	0.78504E 01	0.24044E 02
4	TC 99	*	0.76618E 00	0.63753E-01	0.68106E 01	0.30853E 02
5	RH103	*	0.81745E 01	0.58825E-01	0.67046E 01	0.37556E 02
6	CS135	*	0.47697E 00	0.72209E-01	0.48022E 01	0.42356E 02
7	PM147	*	0.20220E 01	0.16502E-01	0.46521E 01	0.47012E 02
8	SM149	*	0.25435E 01	0.12365E-01	0.43823E 01	0.51397E 02
9	PD107	*	0.10393E 01	0.30646E-01	0.43537E 01	0.55751E 02
10	XE131	*	0.68023E 00	0.37693E-01	0.35750E 01	0.59326E 02
11	ND143	*	0.58419E 00	0.42062E-01	0.34260E 01	0.62752E 02
12	MO 97	*	0.46050E 00	0.55786E-01	0.31151E 01	0.65867E 02
13	ND145	*	0.71947E 00	0.30202E-01	0.30297E 01	0.68897E 02
14	RU102	*	0.32724E 00	0.61412E-01	0.27838E 01	0.71681E 02
15	AG109	*	0.11291E 01	0.13799E-01	0.21743E 01	0.73853E 02
16	EU153	*	0.36594E 01	0.38187E-02	0.19464E 01	0.75801E 02
17	I 129	*	0.76365E 00	0.16883E-01	0.17976E 01	0.77599E 02
18	MO 95	*	0.40943E 00	0.24901E-01	0.17115E 01	0.79310E 02
19	RU104	*	0.19111E 00	0.60489E-01	0.16118E 01	0.80922E 02
20	SM151	*	0.14631E 01	0.76035E-02	0.15511E 01	0.82473E 02
21	MO 98		0.18406E 00	0.57109E-01	0.14676E 01	0.83941E 02
22	ZR 93	*	0.26177E 00	0.37822E-01	0.13804E 01	0.85321E 02
23	PR141		0.16344E 00	0.52214E-01	0.11899E 01	0.86511E 02
24	MO100		0.12013E 00	0.68879E-01	0.11537E 01	0.87665E 02
25	SM150		0.71649E 00	0.10065E-01	0.49922E 00	0.88664E 02
26	XE132		0.11548E 00	0.51090E-01	0.82201E 00	0.89487E 02
27	RU103		0.50791E 00	0.11072E-01	0.78720E 00	0.90274E 02
28	RU106	*	0.14593E 00	0.30921E-01	0.62916E 00	0.90903E 02
29	SM147	*	0.20086E 01	0.21470E-02	0.60127E 00	0.91505E 02
30	SM152		0.72705E 00	0.57097E-02	0.58469E 00	0.92090E 02
31	ND148		0.23807E 00	0.16625E-01	0.55104E 00	0.92641E 02
32	LA139		0.59267E-01	0.58549E-01	0.47506E 00	0.93117E 02
33	PD108		0.12572E 00	0.25315E-01	0.44373E 00	0.93561E 02
34	EU155	*	0.16504E 01	0.17251E-02	0.39697E 00	0.93958E 02
35	ZR 96		0.56125E-01	0.49403E-01	0.38600E 00	0.94344E 02
36	I 127		0.50068E 00	0.48473E-02	0.37873E 00	0.94723E 02
37	ND146		0.97359E-01	0.24867E-01	0.33755E 00	0.95061E 02
38	CS137	*	0.36153E-01	0.64754E-01	0.32640E 00	0.95387E 02
39	CE144	*	0.91570E-01	0.25156E-01	0.32117E 00	0.95708E 02
40	CE142		0.44993E-01	0.49876E-01	0.31289E 00	0.96021E 02
41	ZR 91		0.10369E 00	0.18780E-01	0.27150E 00	0.96293E 02
42	PD106		0.16017E 00	0.11737E-01	0.26213E 00	0.96555E 02
43	ND144	*	0.13075E 00	0.12631E-01	0.23119E 00	0.96786E 02
44	KR 83		0.45086E 00	0.29287E-02	0.18411E 00	0.96970E 02
45	XE134		0.17995E-01	0.72413E-01	0.18169E 00	0.97152E 02
46	NB 95		0.13645E 00	0.65820E-02	0.17111E 00	0.97323E 02
47	PR143		0.49986E 00	0.23882E-02	0.16645E 00	0.97489E 02
48	ZR 95		0.94345E-01	0.12504E-01	0.16448E 00	0.97654E 02
49	CE140		0.20021E-01	0.51867E-01	0.14479E 00	0.97799E 02
50	CE141		0.13593E 00	0.75424E-02	0.14295E 00	0.97942E 02

	NUCLIDE	SIG-G	CONCENTRATION	CONTRIBUTION	CUMULATIVE
51	BR 81	0.55041E 00	0.18188E-02	0.13953E 00	0.99081E 02
52	SM154	0.30664E 00	0.27209E-02	0.11633E 00	0.98198E 02
53	RB 85	0.16004E 00	0.46637E-02	0.10407E 00	0.98302E 02
54	CD111	0.25579E 00	0.26420E-02	0.94225E-01	0.98396E 02
55	BA140	0.21249E 00	0.28224E-02	0.83621E-01	0.98479E 02
56	SR 90 *	0.28080E-01	0.21008E-01	0.82248E-01	0.98562E 02
57	GD157	0.76605E 00	0.75466E-03	0.80604E-01	0.98642E 02
58	ND147	0.62320E 00	0.86888E-03	0.75496E-01	0.98716E 02
59	ZR 94	0.12294E-01	0.43063E-01	0.73816E-01	0.98792E 02
60	GD155	0.14984E 01	0.34726E-03	0.72550E-01	0.98864E 02
61	TE128	0.53583E-01	0.84587E-02	0.63155E-01	0.98927E 02
62	BA138	0.74635E-02	0.57049E-01	0.59406E-01	0.98987E 02
63	TB159	0.17072E 01	0.22426E-03	0.53382E-01	0.99040E 02
64	GD156	0.47016E 00	0.77703E-03	0.51804E-01	0.99092E 02
65	ZR 92	0.12331E-01	0.29337E-01	0.50439E-01	0.99142E 02
66	PD110	0.48558E-01	0.74071E-02	0.50149E-01	0.99193E 02
67	KR 84	0.72692E-01	0.46942E-02	0.47578E-01	0.99240E 02
68	RB 87	0.33540E-01	0.95129E-02	0.44487E-01	0.99285E 02
69	Y 91	0.53568E-01	0.55591E-02	0.41521E-01	0.99326E 02
70	CD113	0.30307E 00	0.84136E-03	0.35552E-01	0.99362E 02
71	XE136	0.38398E-02	0.65683E-01	0.35165E-01	0.99397E 02
72	I 131	0.18610E 00	0.12577E-02	0.32634E-01	0.99430E 02
73	CD112	0.19966E 00	0.11697E-02	0.32563E-01	0.99462E 02
74	TE130	0.81851E-02	0.26856E-01	0.30649E-01	0.99493E 02
75	MO 99	0.29819E 00	0.72182E-03	0.29004E-01	0.99522E 02
76	KR 85	0.13386E 00	0.14675E-02	0.27390E-01	0.99549E 02
77	SB121	0.44586E 00	0.41391E-03	0.25731E-01	0.99575E 02
78	IN115	0.51910E 00	0.34939E-03	0.25268E-01	0.99600E 02
79	XE133	0.11457E 00	0.14477E-02	0.23125E-01	0.99623E 02
80	SB125	0.16611E 00	0.93867E-03	0.21740E-01	0.99645E 02
81	Y 89	0.11520E-01	0.13264E-01	0.21305E-01	0.99666E 02
82	GD158	0.33078E 00	0.42154E-03	0.20617E-01	0.99687E 02
83	PM149	0.12731E 01	0.11435E-03	0.20298E-01	0.99707E 02
84	SN117	0.32160E 00	0.35499E-03	0.15423E-01	0.99723E 02
85	SB123	0.33590E 00	0.32044E-03	0.15006E-01	0.99738E 02
86	SE 79	0.42312E 00	0.24789E-03	0.14624E-01	0.99752E 02
87	BA136	0.10451E 00	0.95592E-03	0.13930E-01	0.99766E 02
88	TE827	0.28998E 00	0.33117E-03	0.13389E-01	0.99780E 02
89	EU154	0.31571E 01	0.29870E-04	0.13149E-01	0.99793E 02
90	CD114	0.17273E 00	0.54268E-03	0.13069E-01	0.99806E 02
91	EU156	0.18410E 01	0.49358E-04	0.12609E-01	0.99818E 02
92	TE124	0.13360E 00	0.67413E-03	0.12558E-01	0.99831E 02
93	BA137	0.11569E 00	0.74412E-03	0.12003E-01	0.99843E 02
94	RH105	0.26104E 00	0.32390E-03	0.11769E-01	0.99855E 02
95	SN119	0.21750E 00	0.35934E-03	0.10897E-01	0.99866E 02
96	SB124	0.34350E 00	0.20903E-03	0.10011E-01	0.99876E 02
97	SR 88	0.48660E-02	0.13497E-01	0.91572E-02	0.99885E 02
98	TE126	0.76338E-01	0.77680E-03	0.82660E-02	0.99893E 02
99	SM153	0.16997E 01	0.30230E-04	0.71641E-02	0.99900E 02
100	DY161	0.11661E 01	0.43935E-04	0.71432E-02	0.99907E 02

Table 4.2. Contribution of Each FP Nuclide to Total Capture by FP due to U-235 Fission, Collapsed with the Spectrum of a Large Fast Reactor

	NUCLIDE		SIG-G	CONCENTRATION	CONTRIBUTION (%)	CUMULATIVE (%)
1	CS133	*	0.84890E 00	0.65930E-01	0.10043E 02	0.10043E 02
2	RU101	*	0.98091E 00	0.50967E-01	0.89714E 01	0.19015E 02
3	TC 99	*	0.76618E 00	0.60607E-01	0.83329E 01	0.27348E 02
4	PM147	*	0.20220E 01	0.19050E-01	0.69121E 01	0.34260E 02
5	ND143	*	0.58419E 00	0.56330E-01	0.59051E 01	0.40165E 02
6	CS135	*	0.47697E 00	0.67027E-01	0.57370E 01	0.45902E 02
7	ND145	*	0.71947E 00	0.39460E-01	0.50947E 01	0.50997E 02
8	SM149	*	0.25435E 01	0.10603E-01	0.48396E 01	0.55836E 02
9	MO 97	*	0.40050E 00	0.59247E-01	0.42581E 01	0.60094E 02
10	RH103	*	0.81745E 00	0.26112E-01	0.38304E 01	0.63925E 02
11	XE131	*	0.68023E 00	0.28512E-01	0.32729E 01	0.67198E 02
12	ZR 93	*	0.20177E 00	0.63962E-01	0.30046E 01	0.70202E 02
13	MO 95	*	0.40943E 00	0.40151E-01	0.29500E 01	0.73152E 02
14	RU102	*	0.32724E 00	0.42060E-01	0.24699E 01	0.75622E 02
15	MO 98		0.18406E 00	0.57863E-01	0.19118E 01	0.77534E 02
16	PD105	*	0.10490E 01	0.94008E-02	0.17697E 01	0.79304E 02
17	PR141		0.16344E 00	0.50853E-01	0.14906E 01	0.80795E 02
18	MO100		0.12013E 00	0.62833E-01	0.13549E 01	0.82149E 02
19	I 129	*	0.76363E 00	0.85160E-02	0.11670E 01	0.83316E 02
20	SM151	*	0.14631E 01	0.41862E-02	0.10991E 01	0.84415E 02
21	EU153	*	0.36594E 01	0.16228E-02	0.10627E 01	0.85481E 02
22	SM147	*	0.20086E 01	0.24785E-02	0.69356E 00	0.86374E 02
23	ZR 91		0.10369E 00	0.45608E-01	0.84803E 00	0.87223E 02
24	XE132		0.11548E 00	0.40703E-01	0.84349E 00	0.88066E 02
25	SM150		0.73649E 00	0.64933E-02	0.83487E 00	0.88901E 02
26	ND148		0.23807E 00	0.16694E-01	0.72173E 00	0.89623E 02
27	LA139		0.58267E-01	0.65829E-01	0.68831E 00	0.90311E 02
28	ZR 96		0.56125E-01	0.62790E-01	0.63240E 00	0.90944E 02
29	RU104	*	0.14111E 00	0.18316E-01	0.62815E 00	0.91572E 02
30	CE144	*	0.91570E-01	0.36204E-01	0.59491E 00	0.92167E 02
31	ND146		0.97358E-01	0.29963E-01	0.52349E 00	0.92690E 02
32	CE142		0.44993E-01	0.59520E-01	0.48056E 00	0.93171E 02
33	RU103		0.50991E 00	0.49150E-02	0.44974E 00	0.93620E 02
34	KR 83		0.45086E 00	0.53493E-02	0.43279E 00	0.94053E 02
35	ND144	*	0.13075E 00	0.18241E-01	0.42800E 00	0.94481E 02
36	CS137	*	0.30153E-01	0.61520E-01	0.39912E 00	0.94880E 02
37	PD107	*	0.10393E 01	0.19111E-02	0.35640E 00	0.95237E 02
38	SM152		0.72705E 00	0.26469E-02	0.34553E 00	0.95582E 02
39	RB 85		0.15004E 00	0.10388E-01	0.29853E 00	0.95880E 02
40	SR 90	*	0.25083E-01	0.58586E-01	0.29521E 00	0.96175E 02
41	NB 95		0.18645E 00	0.87180E-02	0.29169E 00	0.96467E 02
42	PR143		0.49986E 00	0.32248E-02	0.28926E 00	0.96757E 02
43	ZR 95		0.94345E-01	0.16562E-01	0.28040E 00	0.97037E 02
44	XE134		0.17995E-01	0.71876E-01	0.23211E 00	0.97269E 02
45	CE140		0.20021E-01	0.59011E-01	0.21381E 00	0.97483E 02
46	BR 81		0.55041E 00	0.19652E-02	0.19410E 00	0.97677E 02
47	CE141		0.13593E 00	0.77896E-02	0.19001E 00	0.97867E 02
48	RB 87		0.33540E-01	0.25532E-01	0.15367E 00	0.98021E 02
49	ZR 94		0.12294E-01	0.64483E-01	0.14226E 00	0.98163E 02
50	ZR 92		0.12331E-01	0.59872E-01	0.13246E 00	0.98295E 02

	NUCLIDE	SIG-G	CONCENTRATION	CONTRIBUTION	CUMULATIVE
51	KR 84	0.72692E-01	0.99724E-02	0.13009E 00	0.98425E 02
52	Y 91	0.53568E-01	0.13422E-01	0.12902E 00	0.98555E 02
53	BA140	0.21249E 00	0.32291E-02	0.12313E 00	0.98676E 02
54	I 127	0.56068E 00	0.12013E-02	0.12057E 00	0.98799E 02
55	ND147	0.62320E 00	0.10031E-02	0.11218E 00	0.98911E 02
56	BA138	0.74685E-02	0.67418E-01	0.90355E-01	0.99001E 02
57	EU155 *	0.16504E 01	0.27692E-03	0.82014E-01	0.99083E 02
58	Y 89	0.11520E-01	0.38151E-01	0.78856E-01	0.99162E 02
59	RU106 *	0.14593E 00	0.28344E-02	0.74225E-01	0.99236E 02
60	KR 85	0.13386E 00	0.29648E-02	0.71217E-01	0.99307E 02
61	AG109 *	0.11291E 01	0.27339E-03	0.55393E-01	0.99363E 02
62	XE136	0.38398E-02	0.61167E-01	0.42147E-01	0.99405E 02
63	SE 79	0.42312E 00	0.55036E-03	0.41788E-01	0.99447E 02
64	SM154	0.30664E 00	0.71020E-03	0.39079E-01	0.99486E 02
65	TE128	0.53583E-01	0.40230E-02	0.38683E-01	0.99524E 02
66	MO 99	0.28819E 00	0.68619E-03	0.35467E-01	0.99560E 02
67	SR 88	0.48660E-02	0.36460E-01	0.31837E-01	0.99592E 02
68	PD106	0.10017E 00	0.10720E-02	0.30813E-01	0.99623E 02
69	I 131	0.18610E 00	0.89418E-03	0.29802E-01	0.99652E 02
70	TE130	0.81851E-02	0.20029E-01	0.29419E-01	0.99682E 02
71	XE133	0.11457E 00	0.14277E-02	0.29351E-01	0.99711E 02
72	PM149	0.12731E 01	0.98127E-04	0.22417E-01	0.99734E 02
73	SR 89	0.11568E-01	0.99419E-02	0.21174E-01	0.99755E 02
74	KR 86	0.53949E-02	0.19361E-01	0.18753E-01	0.99774E 02
75	PD108	0.12572E 00	0.70407E-03	0.15864E-01	0.99789E 02
76	BA137	0.11569E 00	0.72005E-03	0.14949E-01	0.99804E 02
77	GD155	0.14984E 01	0.55591E-04	0.14948E-01	0.99819E 02
78	SB121	0.44586E 00	0.17728E-03	0.14104E-01	0.99834E 02
79	GD156	0.47616E 00	0.12511E-03	0.10705E-01	0.99844E 02
80	IN115	0.51910E 00	0.99161E-04	0.92371E-02	0.99854E 02
81	SN117	0.31160E 00	0.16068E-03	0.89927E-02	0.99863E 02
82	GD157	0.76605E 00	0.64041E-04	0.88035E-02	0.99871E 02
83	TE827	0.28998E 00	0.16782E-03	0.87327E-02	0.99880E 02
84	CE143	0.14604E 00	0.32641E-03	0.86713E-02	0.99889E 02
85	SB123	0.33590E 00	0.13589E-03	0.81909E-02	0.99897E 02
86	CD111	0.25579E 00	0.17665E-03	0.81067E-02	0.99905E 02
87	SE 80	0.45578E-01	0.94044E-03	0.77411E-02	0.99913E 02
88	CD113	0.30307E 00	0.12790E-03	0.69557E-02	0.99920E 02
89	SB125	0.16011E 00	0.21606E-03	0.64404E-02	0.99926E 02
90	SE 82	0.11770E-01	0.24339E-02	0.51409E-02	0.99931E 02
91	SN119	0.21750E 00	0.12608E-03	0.49203E-02	0.99936E 02
92	PM151	0.12398E 01	0.13871E-04	0.46350E-02	0.99941E 02
93	SE 77	0.26034E 00	0.91073E-04	0.45815E-02	0.99945E 02
94	CD112	0.19966E 00	0.12723E-03	0.45585E-02	0.99950E 02
95	CD114	0.17273E 00	0.12935E-03	0.40092E-02	0.99954E 02
96	SM153	0.16997E 01	0.11869E-04	0.36202E-02	0.99958E 02
97	TB159	0.17072E 01	0.10877E-04	0.33324E-02	0.99961E 02
98	SE 78	0.84914E-01	0.20327E-03	0.30974E-02	0.99964E 02
99	SN118	0.11127E 00	0.14753E-03	0.29457E-02	0.99967E 02
100	GD158	0.35078E 00	0.42776E-04	0.26947E-02	0.99970E 02

Table 4.3. Contribution of Each FP Nuclide to Total Capture by FP due to U-238 Fission, Collapsed with the Spectrum of a Large Fast Reactor

	NUCLIDE		SIG-G	CONCENTRATION	CONTRIBUTION (%)	CUMULATIVE (%)
1	RU101	*	0.98091E 00	0.63698E-01	0.90662E 01	0.90662E 01
2	CS133	*	0.84890E 00	0.63044E-01	0.77655E 01	0.16832E 02
3	TC 99	*	0.76618E 00	0.63436E-01	0.70524E 01	0.23884E 02
4	SM149	*	0.25435E 01	0.18243E-01	0.67329E 01	0.30617E 02
5	RH103	*	0.81745E 00	0.53759E-01	0.63765E 01	0.36993E 02
6	PM147	*	0.20220E 01	0.21666E-01	0.63564E 01	0.43350E 02
7	PD105	*	0.10490E 01	0.32052E-01	0.48787E 01	0.48229E 02
8	CS135	*	0.47697E 00	0.66467E-01	0.46001E 01	0.52829E 02
9	ND145	*	0.71947E 00	0.37274E-01	0.38912E 01	0.56720E 02
10	ND143	*	0.58419E 00	0.42554E-01	0.36071E 01	0.60327E 02
11	XE131	*	0.68023E 00	0.35405E-01	0.34945E 01	0.63821E 02
12	MO 97	*	0.40050E 00	0.59384E-01	0.34510E 01	0.67272E 02
13	RU102	*	0.32724E 00	0.63699E-01	0.30246E 01	0.70297E 02
14	EU153	*	0.36594E 01	0.40438E-02	0.21472E 01	0.72444E 02
15	MO 95	*	0.40943E 00	0.34045E-01	0.20225E 01	0.74467E 02
16	PD107	*	0.10393E 01	0.13054E-01	0.19685E 01	0.76435E 02
17	SM151	*	0.14631E 01	0.91603E-02	0.19447E 01	0.78380E 02
18	ZR 93	*	0.26177E 00	0.48139E-01	0.18265E 01	0.80208E 02
19	MO 98		0.18406E 00	0.60200E-01	0.16077E 01	0.81816E 02
20	SM150		0.71649E 00	0.12839E-01	0.13348E 01	0.83151E 02
21	RU104	*	0.19111E 00	0.45044E-01	0.12491E 01	0.84400E 02
22	PR141		0.16344E 00	0.47161E-01	0.11189E 01	0.85519E 02
23	MO100		0.12013E 00	0.63643E-01	0.11094E 01	0.86628E 02
24	XE132		0.11548E 00	0.52526E-01	0.88013E 00	0.87508E 02
25	SM147	*	0.20086E 01	0.28914E-02	0.84263E 00	0.88351E 02
26	I 127		0.56068E 00	0.99055E-02	0.80566E 00	0.89157E 02
27	RU103		0.50991E 00	0.10119E-01	0.74866E 00	0.89906E 02
28	ND148		0.23807E 00	0.21135E-01	0.73007E 00	0.90636E 02
29	I 129	*	0.76365E 00	0.63306E-02	0.70146E 00	0.91337E 02
30	SM152		0.72705E 00	0.58379E-02	0.61587E 00	0.91953E 02
31	ZR 91		0.10369E 00	0.34477E-01	0.51871E 00	0.92472E 02
32	ND146		0.97358E-01	0.33827E-01	0.47766E 00	0.92950E 02
33	LA139		0.58267E-01	0.53105E-01	0.44898E 00	0.93399E 02
34	ZR 96		0.56125E-01	0.54687E-01	0.44699E 00	0.93846E 02
35	AG109	*	0.11291E 01	0.26931E-02	0.44121E 00	0.94287E 02
36	RU106	*	0.14593E 00	0.20545E-01	0.43503E 00	0.94722E 02
37	CE144	*	0.91570E-01	0.30192E-01	0.40115E 00	0.95123E 02
38	CS137	*	0.36153E-01	0.58777E-01	0.30853E 00	0.95431E 02
39	CE142		0.44993E-01	0.46917E-01	0.30630E 00	0.95736E 02
40	ND144	*	0.13075E 00	0.15181E-01	0.28805E 00	0.96026E 02
41	EU155	*	0.16504E 01	0.11567E-02	0.27701E 00	0.96303E 02
42	KR 83		0.45086E 00	0.41192E-02	0.26948E 00	0.96572E 02
43	NB 95		0.18645E 00	0.74748E-02	0.20223E 00	0.96774E 02
44	XE134		0.17995E-01	0.75211E-01	0.19639E 00	0.96971E 02
45	ZR 95		0.94345E-01	0.14205E-01	0.19447E 00	0.97165E 02
46	PD106		0.16017E 00	0.77750E-02	0.18070E 00	0.97346E 02
47	PR143		0.49936E 00	0.24675E-02	0.17896E 00	0.97525E 02
48	CE140		0.20021E-01	0.55951E-01	0.16254E 00	0.97687E 02
49	RB 85		0.16004E 00	0.63316E-02	0.14703E 00	0.97834E 02
50	CE141		0.13593E 00	0.72302E-02	0.14260E 00	0.97977E 02

	NUCLIDE	SIG-G	CONCENTRATION	CONTRIBUTION	CUMULATIVE
51	SR 90 *	0.28080E-01	0.32387E-01	0.13196E 00	0.98109E 02
52	BR 81	0.55041E 00	0.15884E-02	0.12686E 00	0.98236E 02
53	PD108	0.12572E 00	0.64052E-02	0.11684E 00	0.98353E 02
54	SM154	0.30664E 00	0.24456E-02	0.10861E 00	0.98461E 02
55	ND147	0.62320E 00	0.11399E-02	0.10308E 00	0.98565E 02
56	BA140	0.21249E 00	0.30470E-02	0.93947E-01	0.98658E 02
57	ZR 94	0.12294E-01	0.51354E-01	0.91608E-01	0.98750E 02
58	KR 84	0.72692E-01	0.84880E-02	0.89529E-01	0.98840E 02
59	Y 91	0.53568E-01	0.10455E-01	0.81265E-01	0.98921E 02
60	ZR 92	0.12331E-01	0.39052E-01	0.69874E-01	0.98991E 02
61	RB 87	0.33540E-01	0.14145E-01	0.68839E-01	0.99060E 02
62	BA138	0.74685E-02	0.59120E-01	0.64067E-01	0.99124E 02
63	GD155	0.14984E 01	0.23213E-03	0.50469E-01	0.99174E 02
64	GD156	0.47816E 00	0.70141E-03	0.48665E-01	0.99223E 02
65	GD157	0.76605E 00	0.37782E-03	0.41996E-01	0.99265E 02
66	Y 89	0.11520E-01	0.23696E-01	0.39943E-01	0.99305E 02
67	IN115	0.51910E 00	0.50109E-03	0.37743E-01	0.99342E 02
68	XE136	0.38398E-02	0.67472E-01	0.37592E-01	0.99380E 02
69	CD111	0.25579E 00	0.99728E-03	0.37014E-01	0.99417E 02
70	KR 85	0.13386E 00	0.18056E-02	0.35070E-01	0.99452E 02
71	I 131	0.18610E 00	0.11800E-02	0.31866E-01	0.99484E 02
72	PM149	0.12731E 01	0.16856E-03	0.31137E-01	0.99515E 02
73	TE827	0.28998E 00	0.73696E-03	0.31092E-01	0.99546E 02
74	MO 99	0.28619E 00	0.71825E-03	0.30054E-01	0.99576E 02
75	CD112	0.19966E 00	0.86221E-03	0.25529E-01	0.99602E 02
76	SE 79	0.42312E 00	0.41050E-03	0.25203E-01	0.99627E 02
77	SB121	0.44586E 00	0.37408E-03	0.24201E-01	0.99651E 02
78	TE128	0.53583E-01	0.30948E-02	0.24061E-01	0.99675E 02
79	CD113	0.30307E 00	0.54577E-03	0.24060E-01	0.99699E 02
80	SB125	0.16611E 00	0.96232E-03	0.23195E-01	0.99722E 02
81	XE133	0.11457E 00	0.13651E-02	0.22694E-01	0.99745E 02
82	TB159	0.17072E 01	0.87231E-04	0.21609E-01	0.99767E 02
83	SN117	0.31160E 00	0.40075E-03	0.18119E-01	0.99785E 02
84	TE130	0.81851E-02	0.14675E-01	0.17429E-01	0.99802E 02
85	EU156	0.18410E 01	0.44934E-04	0.12003E-01	0.99814E 02
86	SR 88	0.48660E-02	0.16757E-01	0.11831E-01	0.99826E 02
87	SN119	0.21750E 00	0.36926E-03	0.11653E-01	0.99838E 02
88	SB123	0.33590E 00	0.23811E-03	0.11606E-01	0.99849E 02
89	BA137	0.11569E 00	0.67267E-03	0.11292E-01	0.99861E 02
90	SR 89	0.11868E-01	0.62271E-02	0.10724E-01	0.99871E 02
91	KR 86	0.53949E-02	0.13626E-01	0.10607E-01	0.99882E 02
92	CD114	0.17273E 00	0.42010E-03	0.10529E-01	0.99893E 02
93	PD110	0.48558E-01	0.14170E-02	0.99842E-02	0.99903E 02
94	GD158	0.35078E 00	0.17386E-03	0.88472E-02	0.99911E 02
95	PM151	0.12998E 01	0.43507E-04	0.82056E-02	0.99920E 02
96	SM153	0.16997E 01	0.32050E-04	0.79044E-02	0.99928E 02
97	RH105	0.26104E 00	0.19019E-03	0.72038E-02	0.99935E 02
98	SN118	0.11127E 00	0.36875E-03	0.59534E-02	0.99941E 02
99	SE 80	0.45578E-01	0.88167E-03	0.58306E-02	0.99947E 02
100	CE143	0.14804E 00	0.25126E-03	0.53972E-02	0.99952E 02

Table 5. Comparison of Sample Reactivity Worth for Mixture

Core	Sample	Exp.	RCN		Cook		JNDC	
			Value	C/E	Value	C/E	Value	C/E
STEK 1000	HFR-101	0.280	0.254	0.907	0.250	0.892	0.313	1.118
	HFR-102	0.320	0.261	0.813	0.259	0.807	0.327	1.019
	KFK	0.267	0.304	1.138	0.2785	1.043	0.3353	1.256
STEK 2000	HFR-101	0.341	0.302	0.886	0.292	0.856	0.375	1.100
	HFR-102	0.407	0.311	0.764	0.304	0.747	0.393	0.966
	KFK	0.350	0.364	1.04	0.3253	0.929	0.3984	1.138
STEK 3000	HFR-101	0.401	0.360	0.898	0.343	0.855	0.436	1.087
	HFR-102	0.451	0.374	0.829	0.361	0.800	0.460	1.020
	KFK	0.434	0.460	1.06	0.3940	0.908	0.4762	1.097
STEK 4000	HFR-101	0.495	0.465	0.939	0.429	0.867	0.520	1.050
	HFR-102	0.560	0.492	0.878	0.460	0.821	0.555	0.991
	KFK	0.631	0.679	1.08	0.5486	0.869	0.6296	0.998

Table 6. Calculated Integral Quantities of Pseudo FP Mixtures in SNR-300 for Different cross Section Sets

mixture	capture rate per fission per sec ($\times 10^{9}$)						
	RCN-I *	ABBN *	UKNDL *	Australian *	Benzi et al. *	Cook * *	JNDC * *
^{235}U	1.96 ± 9%	2.19	2.08	1.95	1.94	1.98	2.40
^{238}U	2.43 ± 10%	-	2.66	2.38	2.42	2.42	2.90
^{239}Pu	2.65 ± 10%	2.64	2.89	2.47	2.57	2.50	3.09
^{241}Pu	2.84 ± 10%	-	3.06	2.49	2.70	2.52	3.23

mixture	negative reactivity due to capture (arbitrary units)						
	RCN-I *	ABBN *	UKNDL *	Australian *	Benzi et al. *	Cook * *	JNDC * *
^{235}U	0.905 ± 9%	1.02	0.973	0.898	0.898	0.912	1.11
^{238}U	1.12 ± 9%	-	1.24	1.09	1.12	1.11	1.35
^{239}Pu	1.22 ± 10%	1.23	1.35	1.13	1.19	1.15	1.43
^{241}Pu	1.31 ± 10%	-	1.43	1.14	1.25	1.16	1.49

* Taken from Ref. 7.

* * Presently calculated

Table 7. Comparison between the Measured and Calculated Reactivity Worths with the JNDC Set. (The * marks denote the nuclides where disagreement is larger than the quoted experimental error.)

NUCLIDE = ZR 93

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.240000	0.388889	-0.500051	0.926019	
2	STEK3000	-0.305000	0.124590	-0.522749	1.713930	* 6
3	STEK2000	-0.242000	0.190083	-0.488543	2.018771	* 6
4	STEK1000	-0.400000	0.525000	-0.388440	0.971100	

NUCLIDE = MO 95

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.894000	0.077810	-1.368169	1.531425	*13
2	STEK3000	-0.556000	0.093525	-1.032108	1.856310	*10
3	STEK2000	-0.607000	0.153213	-0.779747	1.284592	* 2
4	STEK1000	-0.495000	0.086869	-0.606003	1.224249	* 3

NUCLIDE = MO 97

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.260000	0.114286	-0.748552	1.336700	* 3
2	STEK3000	-0.472000	0.067797	-0.763793	1.618206	*10
3	STEK2000	-0.680000	0.235294	-0.711070	1.045691	
4	STEK1000	-0.441000	0.047619	-0.577006	1.308404	* 7

NUCLIDE = TC 99

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.470000	0.068027	-1.370940	0.932612	
2	STEK3000	-1.300000	0.076923	-1.223746	0.941343	
3	STEK2000	-1.300000	0.115385	-1.174569	0.903510	
4	STEK1000	-1.260000	0.126984	-1.045057	0.829410	* 2

NUCLIDE = RU101

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.190000	0.075630	-1.491715	1.219928	* 3
2	STEK3000	-1.420000	0.062500	-1.437392	1.283386	* 5
3	STEK2000	-1.190000	0.067227	-1.392972	1.170565	* 3
4	STEK1000	-1.170000	0.094017	-1.255698	1.073246	

NUCLIDE = RU102

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.198000	0.222222	-0.398929	2.014792	* 5
2	STEK3000	-0.235000	0.463830	-0.444424	1.891167	* 4
3	STEK2000	-0.210000	0.438095	-0.449874	2.142259	* 5
4	STEK1000	-0.110000	0.181818	-0.394783	3.588936	*15

NUCLIDE = RU104

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.155000	0.335484	-0.272175	1.755966	* 3
2	STEK3000	-0.140000	0.214286	-0.286724	2.048031	* 5
3	STEK2000	-0.140000	0.214286	-0.274765	1.962611	* 5
4	STEK1000	-0.085000	0.317647	-0.211962	2.493675	* 5

NUCLIDE = RH103

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.650000	0.037736	-2.427483	0.916024	* 3
2	STEK3000	-1.370000	0.036496	-1.306863	0.953914	* 2
3	STEK2000	-1.190000	0.025210	-1.156648	0.971973	* 2
4	STEK1000	-1.050000	0.028571	-1.047766	0.997874	

NUCLIDE = PD105

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.635000	0.055657	-1.415222	0.865579	* 3
2	STEK3000	-2.110000	0.099526	-1.426328	0.675985	* 4
3	STEK2000	-1.510000	0.068323	-1.403718	0.929874	* 2
4	STEK1000	-1.375000	0.046545	-1.284780	0.934385	* 2

NUCLIDE = PD107

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.980000	0.181818	-1.351396	0.682423	* 2
2	STEK3000	-1.900000	0.578947	-1.361724	0.716697	
3	STEK2000	-2.030000	0.487511	-1.360641	0.670966	* 2
4	STEK1000	-1.440000	0.187500	-1.245967	0.865269	

NUCLIDE = AG109

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.910000	0.067729	-3.873999	1.343426	* 9
2	STEK3000	-3.000000	0.133333	-2.009893	0.669964	* 3
3	STEK2000	-1.[illegible]00000	0.277776	-1.504376	0.835766	
4	STEK1000	-1.400000	0.142857	-1.351251	0.965180	

NUCLIDE = I 129

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.540000	0.240741	-1.186712	2.197615	* 5
2	STEK3000	-0.630000	0.265714	-1.210293	1.921101	* 4
3	STEK2000	-0.700000	0.271429	-1.105263	1.578947	* 3
4	STEK1000	-0.210000	0.333333	-0.879481	4.188004	*10

NUCLIDE = CS133

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.660000	0.060241	-1.952212	1.176031	* 3
2	STEK3000	-1.100000	0.054545	-1.527682	1.388802	* 8
3	STEK2000	-0.750000	0.053136	-1.250063	1.315856	* 6
4	STEK1000	-0.134000	0.029973	-0.967834	1.318575	*11

NUCLIDE = CS135

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.930000	0.655914	-0.767943	-0.825745	-
2	STEK3000	0.120000	5.333333	-0.768098	-6.400815	-
3	STEK2000	-0.240000	2.416667	-0.678636	2.827651	
4	STEK1000	-0.880000	0.818182	-0.516653	0.587105	

NUCLIDE = ND143

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.900000	0.137500	-1.074767	1.343458	* 3
2	STEK3000	-0.685000	0.131387	-1.003889	1.465531	* 4
3	STEK2000	-0.580000	0.206897	-0.834322	1.438487	* 3
4	STEK1000	-0.351000	0.099715	-0.633165	1.803718	* 9

NUCLIDE = ND144

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.095000	0.315789	-0.134861	1.419592	* 2
2	STEK3000	-0.051000	0.274510	-0.131044	2.569499	* 6
3	STEK2000	-0.039000	0.358974	-0.117235	3.006021	* 6
4	STEK1000	-0.020000	0.400000	-0.084699	4.234958	* 9

NUCLIDE = ND145

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.650000	0.200000	-1.761296	1.067573	
2	STEK3000	-0.850000	0.117647	-1.075755	1.265535	* 6
3	STEK2000	-0.830000	0.120482	-1.049736	1.264745	* 3
4	STEK1000	-0.645000	0.133333	-0.769869	1.193627	* 2

NUCLIDE = PM147

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-4.300000	0.145833	-6.352480	1.323433	* 3
2	STEK3000	-3.380000	0.150888	-4.045434	1.196874	* 2
3	STEK2000	-4.000000	0.200000	-2.967215	0.741804	* 2
4	STEK1000	-2.000000	0.100000	-2.249810	1.124905	* 2

NUCLIDE = SM147

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-3.750000	0.106667	-4.752154	1.267241	* 3
2	STEK3000	-2.650000	0.105660	-3.847010	1.451702	* 5
3	STEK2000	-2.270000	0.074890	-2.992118	1.318114	* 5
4	STEK1000	-1.800000	0.072222	-2.246275	1.247931	* 4

NUCLIDE = SM149

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-7.110000	0.062982	-7.944082	1.117311	* 2
2	STEK3000	-5.290000	0.085868	-4.908987	0.878173	* 2
3	STEK2000	-5.010000	0.095808	-3.728686	0.744249	* 3
4	STEK1000	-3.720000	0.080645	-2.837236	0.762698	* 3

NUCLIDE = SM151

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-18.400000	0.347561	-4.149645	0.225027	* 3
2	STEK3000	-10.400000	0.413462	-2.061343	0.200129	* 2
3	STEK2000	-4.400000	0.522727	-1.519682	0.345382	* 2
4	STEK1000	-6.200000	0.483871	-1.319382	0.212804	* 2

NUCLIDE = EU153

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-6.440000	0.066775	-7.007045	1.141212	* 3
2	STEK3000	-5.050000	0.095050	-5.808222	1.150143	* 2
3	STEK2000	-4.440000	0.094595	-4.929917	1.110342	* 2
4	STEK1000	-3.410000	0.070381	-3.897133	1.142854	* 3

* END OF FORTRAN *

Appendix 1. Group Cross Sections of 28 Nuclides

=== NUCLIDE SR- 90 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.30456E 00	2.64478E 00	1.724e7E 00	9.24519E-03
2	4.23078E 00	2.44864E 00	1.78092E 00	2.07629E-04
3	4.01139E 00	2.23458E 00	1.80815E 00	4.13667E-04
4	3.77568E 00	2.06014E 00	1.83289E 00	7.18032E-04
5	3.77094E 00	2.04597E 00	1.91420E 00	1.24737E-03
6	3.91460E 00	2.19503E 00	1.83579E 00	2.23302E-03
7	4.25578E 00	2.66271E 00	1.60194E 00	4.14663E-03
8	3.81483E 00	2.40070E 00	1.41225E 00	4.19830E-03
9	3.47625E 00	2.25118E 00	1.22103E 00	5.66177E-03
10	4.19155E 00	5.58154E 00	5.74682E-01	5.83874E-03
11	7.93278E 00	7.92131E 00	0.0	1.12783E-02
12	7.47981E 00	7.46861E 00	0.0	1.12000E-02
13	7.92279E 00	7.91137E 00	0.0	1.14222E-02
14	8.27039E 00	8.25864E 00	0.0	1.17521E-02
15	8.44330E 00	8.43147E 00	0.0	1.18284E-02
16	8.62301E 00	8.61135E 00	0.0	1.16667E-02
17	8.66327E 00	8.65181E 00	0.0	1.14571E-02
18	8.64802E 00	8.63675E 00	0.0	1.12667E-02
19	8.63831E 00	8.62717E 00	0.0	1.11455E-02
20	8.58780E 00	8.57639E 00	0.0	1.14073E-02
21	8.51544E 00	8.50356E 00	0.0	1.18816E-02
22	8.46255E 00	8.45014E 00	0.0	1.24046E-02
23	8.43881E 00	8.42325E 00	0.0	1.54496E-02
24	8.42629E 00	8.40753E 00	0.0	1.87573E-02
25	8.41660E 00	8.39537E 00	0.0	2.12275E-02
26	8.44396E 00	8.41869E 00	0.0	2.51553E-02
27	8.54526E 00	8.51176E 00	0.0	3.32720E-02
28	8.62500E 00	8.58509E 00	0.0	3.99052E-02
29	8.87556E 00	8.81897E 00	0.0	5.56415E-02
30	9.21441E 00	9.13591E 00	0.0	7.78862E-02
31	9.47356E 00	9.37830E 00	0.0	9.95589E-02
32	9.67477E 00	9.56651E 00	0.0	1.08269E-01
33	9.86233E 00	9.74258E 00	0.0	1.19743E-01
34	1.05278E 01	1.03756E 01	0.0	1.51042E-01
35	1.11713E 01	1.09883E 01	0.0	1.83085E-01
36	1.16637E 01	1.14570E 01	0.0	2.06699E-01
37	1.20433E 01	1.18163E 01	0.0	2.24908E-01
38	1.30723E 01	1.28134E 01	0.0	2.58967E-01
39	1.44324E 01	1.41321E 01	0.0	3.00390E-01
40	1.54727E 01	1.51406E 01	0.0	3.32132E-01
41	1.62804E 01	1.59237E 01	0.0	3.56778E-01
42	1.70091E 01	1.66974E 01	0.0	3.81744E-01
43	1.92900E 01	1.87945E 01	0.0	4.91430E-01
44	2.14760E 01	2.08684E 01	0.0	6.07118E-01
45	2.37483E 01	2.29458E 01	0.0	6.92511E-01
46	2.44378E 01	2.36794E 01	0.0	7.58356E-01
47	5.48095E 00	5.46944E 00	0.0	1.14870E-02
48	5.48293E 00	5.46940E 00	0.0	1.33354E-02
49	5.48517E 00	5.46939E 00	0.0	1.57831E-02
50	5.48766E 00	5.46930E 00	0.0	1.83342E-02
51	5.49051E 00	5.46930E 00	0.0	2.12272E-02
52	5.49376E 00	5.46928E 00	0.0	2.44695E-02
53	5.49738E 00	5.46922E 00	0.0	2.81391E-02
54	5.50146E 00	5.46930E 00	0.0	3.22046E-02
55	5.50577E 00	5.46927E 00	0.0	3.65286E-02
56	5.51097E 00	5.46917E 00	0.0	4.18224E-02
57	5.51706E 00	5.46915E 00	0.0	4.78075E-02
58	5.52365E 00	5.46917E 00	0.0	5.44176E-02
59	5.53127E 00	5.46915E 00	0.0	6.21298E-02
60	5.53974E 00	5.46916E 00	0.0	7.05790E-02
61	5.54987E 00	5.46914E 00	0.0	8.07235E-02
62	5.56077E 00	5.46914E 00	0.0	9.16169E-02
63	5.57363E 00	5.46920E 00	0.0	1.04460E-01
64	5.58752E 00	5.46911E 00	0.0	1.18394E-01
65	5.60392E 00	5.46914E 00	0.0	1.34790E-01
66	5.62249E 00	5.46915E 00	0.0	1.53365E-01
67	5.64310E 00	5.46913E 00	0.0	1.73963E-01
68	5.66706E 00	5.46914E 00	0.0	1.97913E-01
69	5.69350E 00	5.46910E 00	0.0	2.24372E-01
70	5.72552E 00	5.46914E 00	0.0	2.56380E-01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.26508E 00	2.49493E 00	1.76995E 00	1.82269E-04
2	3.81189E 00	2.08745E 00	1.82905E 00	6.10875E-04
3	3.84467E 00	2.12186E 00	1.87699E 00	1.73926E-03
4	4.54544E 00	3.04587E 00	1.50365E 00	4.17193E-03
5	5.49905E 00	4.94120E 00	8.85653E-01	4.79286E-03
6	7.43601E 00	7.42471E 00	0.0	1.12986E-02
7	8.46272E 00	8.45098E 00	0.0	1.17412E-02
8	8.64802E 00	8.63675E 00	0.0	1.12667E-02
9	8.50703E 00	8.49504E 00	0.0	1.19908E-02
10	8.42361E 00	8.40417E 00	0.0	1.85212E-02
11	8.56000E 00	8.52535E 00	0.0	3.27503E-02
12	9.28216E 00	9.19928E 00	0.0	7.61042E-02
13	1.00466E 01	9.91277E 00	0.0	1.26838E-01
14	1.17649E 01	1.15533E 01	0.0	2.05888E-01
15	1.43803E 01	1.40815E 01	0.0	2.98799E-01
16	1.75958E 01	1.71816E 01	0.0	4.10825E-01
17	2.30909E 01	2.27822E 01	0.0	6.89577E-01
18	5.48300E 00	5.46943E 00	0.0	1.35858E-02
19	5.49065E 00	5.46929E 00	0.0	2.13490E-02
20	5.50152E 00	5.46927E 00	0.0	3.22722E-02
21	5.51718E 00	5.46916E 00	0.0	4.80328E-02
22	5.54031E 00	5.46915E 00	0.0	7.11548E-02
23	5.57391E 00	5.46915E 00	0.0	1.04756E-01
24	5.62302E 00	5.46914E 00	0.0	1.53886E-01
25	5.69539E 00	5.46913E 00	0.0	2.26255E-01

*** NUCLIDE ZR- 93 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.37425E 00	2.64340E 00	1.73085E 00	2.23693E-04
2	4.22115E 00	2.42305E 00	1.79780E 00	5.59659E-04
3	4.00474E 00	2.22388E 00	1.78086E 00	1.37744E-03
4	3.77846E 00	2.11793E 00	1.65999E 00	2.47720E-03
5	3.80442E 00	2.21862E 00	1.58013E 00	1.44319E-02
6	3.90303E 00	2.48685E 00	1.70107E 00	4.67105E-02
7	4.40544E 00	3.05921E 00	1.30387E 00	6.46724E-02
8	5.03267E 00	4.00335E 00	9.71672E-01	5.22124E-02
9	5.74483E 00	4.93356E 00	7.53872E-01	5.75960E-02
10	6.49103E 00	5.69775E 00	7.91405E-01	5.26210E-02
11	7.25323E 00	6.43072E 00	7.72693E-01	4.98144E-02
12	7.81457E 00	7.00935E 00	7.56765E-01	4.54400E-02
13	8.27316E 00	7.58621E 00	6.93701E-01	4.77533E-02
14	8.64728E 00	8.23242E 00	3.70955E-01	4.85127E-02
15	8.86894E 00	8.70043E 00	1.87370E-02	5.09366E-02
16	9.00584E 00	8.91760E 00	0.0	5.46111E-02
17	9.02454E 00	8.96616E 00	0.0	6.29327E-02
18	8.98868E 00	8.91678E 00	0.0	7.31000E-02
19	8.96431E 00	8.88503E 00	0.0	7.92816E-02
20	8.87154E 00	8.77673E 00	0.0	9.53905E-02
21	8.74809E 00	8.62750E 00	0.0	1.20289E-01
22	8.65344E 00	8.51345E 00	0.0	1.40341E-01
23	8.56193E 00	8.36913E 00	0.0	1.90470E-01
24	8.48810E 00	8.24465E 00	0.0	2.43446E-01
25	8.43696E 00	8.14853E 00	0.0	2.87639E-01
26	8.41145E 00	8.07861E 00	0.0	3.31429E-01
27	8.44977E 00	8.03039E 00	0.0	4.19478E-01
28	8.48813E 00	7.99434E 00	0.0	4.86786E-01
29	8.66129E 00	8.05735E 00	0.0	5.98765E-01
30	8.90045E 00	8.17622E 00	0.0	7.44225E-01
31	9.11868E 00	8.26714E 00	0.0	8.51042E-01
32	9.27250E 00	8.33719E 00	0.0	9.34869E-01
33	9.41936E 00	8.40678E 00	0.0	1.01105E 00
34	9.98163E 00	8.72712E 00	0.0	1.24596E 00
35	1.05280E 01	9.03928E 00	0.0	1.48877E 00
36	1.09461E 01	9.27807E 00	0.0	1.66799E 00
37	1.12684E 01	9.46219E 00	0.0	1.80618E 00
38	1.21612E 01	9.85839E 00	0.0	2.27761E 00
39	1.33457E 01	1.03598E 01	0.0	2.96666E 00
40	1.42510E 01	1.07431E 01	0.0	3.50844E 00
41	1.49549E 01	1.10417E 01	0.0	3.91417E 00
42	1.55904E 01	1.12849E 01	0.0	4.30043E 00
43	1.79909E 01	1.19181E 01	0.0	5.72077E 00
44	1.95092E 01	1.23059E 01	0.0	7.20329E 00
45	2.09767E 01	1.26741E 01	0.0	8.29759E 00
46	2.21082E 01	1.29608E 01	0.0	9.14138E 00
47	2.99322E 00	6.27076E 00	0.0	7.22416E-01
48	5.87312E 00	5.70709E 00	0.0	1.65953E-01
49	5.74707E 00	5.64276E 00	0.0	1.04309E-01
50	5.70697E 00	5.62034E 00	0.0	8.64334E-02
51	5.69166E 00	5.61009E 00	0.0	8.15709E-02
52	5.68690E 00	5.60476E 00	0.0	8.26196E-02
53	5.68760E 00	5.60066E 00	0.0	8.71958E-02
54	5.69253E 00	5.59837E 00	0.0	9.42006E-02
55	5.69955E 00	5.59674E 00	0.0	1.02779E-01
56	5.70973E 00	5.59528E 00	0.0	1.14166E-01
57	5.72267E 00	5.59472E 00	0.0	1.29960E-01
58	5.74753E 00	5.59415E 00	0.0	1.59395E-01
59	5.75523E 00	5.59364E 00	0.0	1.61521E-01
60	5.77530E 00	5.59315E 00	0.0	1.81953E-01
61	5.79981E 00	5.59312E 00	0.0	2.06679E-01
62	5.82633E 00	5.59288E 00	0.0	2.33430E-01
63	5.85790E 00	5.59273E 00	0.0	2.65137E-01
64	5.89237E 00	5.59265E 00	0.0	2.99694E-01
65	5.93299E 00	5.59256E 00	0.0	3.40409E-01
66	5.97913E 00	5.59251E 00	0.0	3.86622E-01
67	6.03052E 00	5.59250E 00	0.0	4.38010E-01
68	6.09027E 00	5.59241E 00	0.0	4.97839E-01
69	6.15636E 00	5.59236E 00	0.0	5.63980E-01
70	6.23641E 00	5.59234E 00	0.0	6.44051E-01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.25792E 00	2.47351E 00	1.78387E 00	4.85531E-04
2	3.81927E 00	2.13457E 00	1.84097E 00	2.34480E-03
3	3.90375E 00	2.35697E 00	1.80699E 00	2.98382E-02
4	4.73057E 00	3.54591E 00	1.13166E 00	6.33982E-02
5	6.13405E 00	5.33173E 00	7.47399E-01	5.50024E-02
6	7.77092E 00	6.99794E 00	7.25935E-01	4.86814E-02
7	8.83208E 00	8.01600E 00	1.55917E-01	5.14471E-02
8	8.98968E 00	8.91656E 00	0.0	7.10376E-02
9	8.73260E 00	8.60877E 00	0.0	1.18803E-01
10	8.47231E 00	8.21804E 00	0.0	2.38853E-01
11	8.45605E 00	8.02455E 00	0.0	4.12562E-01
12	8.9722RE 00	8.20006E 00	0.0	7.32275E-01
13	9.57325E 00	8.49931E 00	0.0	1.06678E 00
14	1.10320E 01	9.32717E 00	0.0	1.66183E 00
15	1.33003E 01	1.04600E 01	0.0	2.91636E 00
16	1.61060E 01	1.14031E 01	0.0	4.65127E 00
17	2.12785E 01	1.27558E 01	0.0	8.25998E 00
18	6.20794E 00	5.87528E 00	0.0	3.32611E-01
19	5.69514E 00	5.61141E 00	0.0	8.35295E-02
20	5.69327E 00	5.59860E 00	0.0	9.46937E-02
21	5.72320E 00	5.59482E 00	0.0	1.28393E-01
22	5.77681E 00	5.59339E 00	0.0	1.83410E-01
23	5.85871E 00	5.59276E 00	0.0	2.65920E-01
24	5.98050E 00	5.59259E 00	0.0	3.87964E-01
25	6.16110E 00	5.59237E 00	0.0	5.68705E-01

=== NUCLIDE NO= 95 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	3.37657E 00	2.63946E 00	1.73645E 00	6.02503E-04
2	4.21148E 00	2.40216E 00	1.80700E 00	1.46674E-03
3	3.90778E 00	2.17941E 00	1.84834E 00	2.94627E-03
4	3.78070E 00	2.03267E 00	1.84924E 00	5.00153E-03
5	3.83509E 00	2.08224E 00	1.80480E 00	7.45725E-03
6	3.86116E 00	2.27439E 00	1.66937E 00	1.01151E-02
7	4.51710E 00	2.70502E 00	1.79708E 00	1.48090E-02
8	5.16435E 00	3.37905E 00	1.76195E 00	3.04856E-02
9	5.90168E 00	4.23235E 00	1.62577E 00	4.59313E-02
10	6.65936E 00	5.36047E 00	1.22566E 00	7.34938E-02
11	7.42082E 00	6.48119E 00	8.45418E-01	9.68213E-02
12	7.98443E 00	7.03216E 00	8.58192E-01	9.40985E-02
13	8.44544E 00	7.52290E 00	8.30579E-01	9.20111E-02
14	8.81562E 00	8.04010E 00	6.87908E-01	9.45394E-02
15	8.05645E 00	8.52117E 00	4.21633E-01	1.02510E-01
16	9.14562E 00	8.95771E 00	1.89884E-01	1.14956E-01
17	9.21889E 00	9.05490E 00	0.0	1.34284E-01
18	9.17291E 00	9.01958E 00	0.0	1.53393E-01
19	9.14965E 00	8.97820E 00	0.0	1.65455E-01
20	9.03498E 00	8.84398E 00	0.0	1.90997E-01
21	8.88416E 00	8.66075E 00	0.0	2.23410E-01
22	8.76930E 00	8.51765E 00	0.0	2.51445E-01
23	8.64123E 00	8.30510E 00	0.0	3.33183E-01
24	8.53979E 00	8.11539E 00	0.0	4.14401E-01
25	8.45066E 00	7.96860E 00	0.0	4.82056E-01
26	8.40507E 00	7.84707E 00	0.0	5.58007E-01
27	8.40773E 00	7.72492E 00	0.0	6.82817E-01
28	8.41167E 00	7.63228E 00	0.0	7.79389E-01
29	8.55300E 00	7.61840E 00	0.0	9.27960E-01
30	8.76982E 00	7.65267E 00	0.0	1.11614E 00
31	8.99387E 00	7.67887E 00	0.0	1.25499E 00
32	9.04202E 00	7.69022E 00	0.0	1.36280E 00
33	9.14670E 00	7.72545E 00	0.0	1.46125E 00
34	9.69496E 00	7.90994E 00	0.0	1.77369E 00
35	1.01908E 01	8.09429E 00	0.0	2.09648E 00
36	1.05700E 01	8.23531E 00	0.0	2.33474E 00
37	1.08625E 01	8.34405E 00	0.0	2.51845E 00
38	1.16853E 01	8.55085E 00	0.0	3.10425E 00
39	1.27811E 01	8.80470E 00	0.0	3.97642E 00
40	1.36187E 01	8.99854E 00	0.0	4.61989E 00
41	1.42691E 01	9.14958E 00	0.0	5.11952E 00
42	1.48572E 01	9.27317E 00	0.0	5.58408E 00
43	1.47165E 01	9.49837E 00	0.0	7.16064E 00
44	1.44998E 01	9.70236E 00	0.0	8.79745E 00
45	1.44640E 01	9.85841E 00	0.0	1.00056E 01
46	2.09159E 01	9.97874E 00	0.0	1.09372E 01
47	5.93471E 00	5.80065E 00	0.0	1.33894E-01
48	7.53345E 00	6.60443E 00	0.0	9.18639E-01
49	9.27901E 01	4.76481E 01	0.0	4.51404E 01
50	6.00627E 02	2.90873E 02	0.0	3.09752E 02
51	8.17586E 00	7.16465E 00	0.0	2.01398E 00
52	7.13405E 00	6.20983E 00	0.0	9.24217E-01
53	6.69863E 00	5.98810E 00	0.0	7.10701E-01
54	6.56674E 00	5.89877E 00	0.0	6.67973E-01
55	6.54118E 00	5.85354E 00	0.0	6.87687E-01
56	6.57339E 00	5.82468E 00	0.0	7.44899E-01
57	6.64692E 00	5.80673E 00	0.0	8.40181E-01
58	6.74623E 00	5.79826E 00	0.0	9.50980E-01
59	6.87963E 00	5.78719E 00	0.0	1.08545E 00
60	7.02044E 00	5.78152E 00	0.0	1.23492E 00
61	7.20224E 00	5.77705E 00	0.0	1.42519E 00
62	7.40048E 00	5.77405E 00	0.0	1.62643E 00
63	7.63575E 00	5.77171E 00	0.0	1.86405E 00
64	7.89196E 00	5.76949E 00	0.0	2.12147E 00
65	8.19326E 00	5.76867E 00	0.0	2.42459E 00
66	8.53443E 00	5.76769E 00	0.0	2.76673E 00
67	8.91289E 00	5.76641E 00	0.0	3.14549E 00
68	9.35247E 00	5.76633E 00	0.0	3.58614E 00
69	9.83781E 00	5.76587E 00	0.0	4.07190E 00
70	1.04238E 01	5.76560E 00	0.0	4.65871E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.25033E 00	2.45662E 00	1.79230E 00	1.27635E-03
2	3.81416E 00	2.05619E 00	1.84803E 00	4.25801E-03
3	3.65204E 00	2.18139E 00	1.88859E 00	8.79911E-03
4	4.85571E 00	3.05491E 00	1.77882E 00	2.29821E-02
5	6.79468E 00	4.82047E 00	1.41824E 00	5.99865E-02
6	7.94097E 00	7.00237E 00	8.44980E-01	9.43492E-02
7	9.02125E 00	8.51349E 00	4.22237E-01	1.03589E-01
8	9.17291E 00	9.01955E 00	0.0	1.49289E-01
9	8.86521E 00	8.63670E 00	0.0	2.22708E-01
10	8.41082E 00	8.07484E 00	0.0	4.12315E-01
11	8.60920E 00	7.70920E 00	0.0	6.72822E-01
12	8.81197E 00	7.65952E 00	0.0	1.10069E 00
13	9.32807E 00	7.78213E 00	0.0	1.53642E 00
14	1.06480E 01	8.26431E 00	0.0	2.32655E 00
15	1.27391E 01	8.85546E 00	0.0	3.89081E 00
16	1.53371E 01	9.31654E 00	0.0	5.97244E 00
17	2.01446E 01	9.89058E 00	0.0	9.96409E 00
18	3.49443E 01	1.97907E 01	0.0	1.51529E 01
19	2.04331E 02	1.00785E 02	0.0	1.03545E 02
20	6.60273E 00	5.91382E 00	0.0	6.88911E-01
21	6.65482E 00	5.80900E 00	0.0	8.45817E-01
22	7.03196E 00	5.78191E 00	0.0	1.25005E 00
23	7.64149E 00	5.77193E 00	0.0	1.86957E 00
24	8.54404E 00	5.76777E 00	0.0	2.77628E 00
25	9.87198E 00	5.76594E 00	0.0	4.10620E 00

*** NUCLIDE NO= 47 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.37907E 00	2.63356E 00	1.74522E 00	2.68453E-04
2	4.20012E 00	2.38144E 00	1.81778E 00	7.65725E-04
3	3.99690E 00	2.14487E 00	1.85677E 00	1.77635E-03
4	3.78818E 00	1.97540E 00	1.83430E 00	3.33609E-03
5	3.86416E 00	2.05433E 00	1.84834E 00	5.44202E-03
6	4.12500E 00	2.30127E 00	1.82839E 00	7.87572E-03
7	4.62462E 00	2.78412E 00	1.82421E 00	1.21936E-02
8	5.30080E 00	3.50980E 00	1.78217E 00	2.61917E-02
9	6.05487E 00	4.32871E 00	1.66208E 00	4.57427E-02
10	6.81118E 00	5.25953E 00	1.48811E 00	6.38464E-02
11	7.55886E 00	6.68833E 00	8.80196E-01	8.20869E-02
12	8.11324E 00	7.76815E 00	2.56510E-01	9.49954E-02
13	8.56172E 00	8.45131E 00	2.93924E-03	9.46956E-02
14	8.93471E 00	8.83975E 00	0.0	9.49592E-02
15	9.17806E 00	9.07960E 00	0.0	9.84590E-02
16	9.32406E 00	9.21882E 00	0.0	1.05244E-01
17	9.34803E 00	9.23084E 00	0.0	1.17143E-01
18	9.30234E 00	9.17301E 00	0.0	1.29339E-01
19	9.27326E 00	9.13617E 00	0.0	1.37041E-01
20	9.15479E 00	8.98741E 00	0.0	1.64884E-01
21	8.98619E 00	8.77910E 00	0.0	2.07058E-01
22	8.85765E 00	8.61695E 00	0.0	2.41057E-01
23	8.70004E 00	8.43785E 00	0.0	2.73255E-01
24	8.56481E 00	8.15727E 00	0.0	4.07538E-01
25	8.46617E 00	7.99866E 00	0.0	4.70481E-01
26	8.39268E 00	7.84652E 00	0.0	5.46161E-01
27	8.34481E 00	7.69344E 00	0.0	6.71365E-01
28	8.34524E 00	7.57696E 00	0.0	7.68262E-01
29	8.45340E 00	7.50584E 00	0.0	9.38566E-01
30	8.69213E 00	7.44604E 00	0.0	1.16610E 00
31	8.76882E 00	7.43560E 00	0.0	1.33323E 00
32	8.87496E 00	7.41196E 00	0.0	1.46360E 00
33	8.98086E 00	7.40288E 00	0.0	1.57748E 00
34	9.44464E 00	7.53387E 00	0.0	1.91077E 00
35	9.89887E 00	7.67112E 00	0.0	2.22774E 00
36	1.02463E 01	7.77611E 00	0.0	2.47022E 00
37	1.05143E 01	7.85707E 00	0.0	2.65718E 00
38	1.12816E 01	8.01200E 00	0.0	3.23407E 00
39	1.23050E 01	8.20250E 00	0.0	4.16246E 00
40	1.30876E 01	8.34819E 00	0.0	4.73946E 00
41	1.36054E 01	8.44131E 00	0.0	5.23405E 00
42	1.42448E 01	8.55176E 00	0.0	5.69306E 00
43	1.59792E 01	8.69278E 00	0.0	7.26014E 00
44	1.76428E 01	8.74728E 00	0.0	8.34549E 00
45	1.89153E 01	8.88487E 00	0.0	1.00305E 01
46	1.98456E 01	8.99701E 00	0.0	1.09542E 01
47	8.15618E 00	5.92235E 00	0.0	2.23999E 00
48	3.29920E 01	7.80930E 00	0.0	2.46795E 01
49	5.83168E 00	5.74004E 00	0.0	9.16960E-02
50	5.77401E 00	5.73548E 00	0.0	3.75062E-02
51	5.76535E 00	5.73465E 00	0.0	3.06751E-02
52	5.76645E 00	5.73436E 00	0.0	3.20956E-02
53	5.77169E 00	5.73416E 00	0.0	3.75457E-02
54	5.78000E 00	5.73408E 00	0.0	4.59537E-02
55	5.79051E 00	5.73400E 00	0.0	5.64971E-02
56	5.80482E 00	5.73393E 00	0.0	7.08702E-02
57	5.82247E 00	5.73390E 00	0.0	8.85460E-02
58	5.84542E 00	5.73390E 00	0.0	1.08541E-01
59	5.86579E 00	5.73390E 00	0.0	1.31903E-01
60	5.84185E 00	5.73390E 00	0.0	1.57969E-01
61	5.92292E 00	5.73390E 00	0.0	1.89051E-01
62	5.95596E 00	5.73382E 00	0.0	2.22130E-01
63	5.99453E 00	5.73386E 00	0.0	2.60684E-01
64	6.03586E 00	5.73381E 00	0.0	3.02039E-01
65	6.08389E 00	5.73380E 00	0.0	3.50082E-01
66	6.13775E 00	5.73385E 00	0.0	4.03927E-01
67	6.19702E 00	5.73387E 00	0.0	4.63179E-01
68	6.26535E 00	5.73380E 00	0.0	5.31582E-01
69	6.34041E 00	5.73380E 00	0.0	6.06615E-01
70	6.43078E 00	5.73384E 00	0.0	6.96942E-01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.24134E 00	2.43831E 00	1.80230E 00	6.55543E-04
2	3.81511E 00	2.00220E 00	1.85479E 00	2.78238E-03
3	3.99926E 00	2.18569E 00	1.88962E 00	6.68414E-03
4	4.98032E 00	3.15967E 00	1.80239E 00	1.94096E-02
5	6.44694E 00	4.81375E 00	1.58153E 00	5.51400E-02
6	8.06778E 00	7.61984E 00	4.62933E-01	9.04716E-02
7	9.14632E 00	9.04657E 00	0.0	9.97471E-02
8	9.30234E 00	9.17301E 00	0.0	1.26745E-01
9	8.96486E 00	8.75174E 00	0.0	2.04390E-01
10	8.53590E 00	8.11097E 00	0.0	4.01521E-01
11	8.36214E 00	7.67352E 00	0.0	6.61346E-01
12	8.66787E 00	7.45808E 00	0.0	1.14749E 00
13	9.11207E 00	7.45093E 00	0.0	1.65142E 00
14	1.03174E 01	7.79770E 00	0.0	2.46188E 00
15	1.22657E 01	6.24059E 00	0.0	4.03153E 00
16	1.46922E 01	8.57174E 00	0.0	6.07327E 00
17	1.91389E 01	8.89672E 00	0.0	9.98973E 00
18	1.55560E 01	6.49549E 00	0.0	9.05820E 00
19	5.76825E 00	5.73483E 00	0.0	3.34092E-02
20	5.78070E 00	5.73408E 00	0.0	4.66254E-02
21	5.82309E 00	5.73391E 00	0.0	8.91842E-02
22	5.89355E 00	5.73390E 00	0.0	1.59674E-01
23	5.99525E 00	5.73383E 00	0.0	2.61413E-01
24	6.13911E 00	5.73384E 00	0.0	4.05287E-01
25	6.34561E 00	5.73381E 00	0.0	6.11794E-01

=== NUCLIDE TC- 99 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.38493E 00	2.62712E 00	1.75736E 00	4.43370E-04
2	4.19450E 00	2.36245E 00	1.83054E 00	1.36245E-03
3	3.98925E 00	2.11817E 00	1.87153E 00	3.28387E-03
4	3.79333E 00	1.93815E 00	1.85309E 00	6.30205E-03
5	3.89589E 00	2.03502E 00	1.89416E 00	1.06993E-02
6	4.18628E 00	2.31406E 00	1.86452E 00	1.61397E-02
7	4.71871E 00	2.88061E 00	1.79000E 00	2.69989E-02
8	5.42819E 00	3.80397E 00	1.55758E 00	6.19474E-02
9	6.16074E 00	4.79867E 00	1.21172E 00	1.59287E-01
10	6.90416E 00	5.59849E 00	1.14142E 00	1.68654E-01
11	7.69786E 00	6.37433E 00	1.09698E 00	1.69197E-01
12	8.15096E 00	6.85581E 00	1.14097E 00	1.60492E-01
13	8.59091E 00	7.24559E 00	1.18210E 00	1.69222E-01
14	8.94451E 00	7.61340E 00	1.15698E 00	1.74127E-01
15	9.18110E 00	7.98244E 00	1.00647E 00	1.97206E-01
16	9.32606E 00	8.37456E 00	7.77396E-01	2.31222E-01
17	9.35429E 00	8.61889E 00	3.42296E-01	2.97950E-01
18	9.31149E 00	8.73374E 00	1.81123E-02	3.75000E-01
19	9.28421E 00	8.80683E 00	0.0	4.23273E-01
20	9.16288E 00	8.64439E 00	0.0	5.09337E-01
21	8.99097E 00	8.36403E 00	0.0	6.26934E-01
22	8.85852E 00	8.14033E 00	0.0	7.18190E-01
23	8.68857E 00	7.78910E 00	0.0	8.91447E-01
24	8.53720E 00	7.47305E 00	0.0	1.06415E 00
25	8.42162E 00	7.22850E 00	0.0	1.19312E 00
26	8.34203E 00	7.02207E 00	0.0	1.31997E 00
27	8.29561E 00	6.80633E 00	0.0	1.48928E 00
28	8.26174E 00	6.64239E 00	0.0	1.61935E 00
29	8.24840E 00	6.54305E 00	0.0	1.80535E 00
30	8.50254E 00	6.48826E 00	0.0	2.01428E 00
31	8.62043E 00	6.44636E 00	0.0	2.17407E 00
32	8.71196E 00	6.41982E 00	0.0	2.29814E 00
33	8.80532E 00	6.39154E 00	0.0	2.41378E 00
34	8.89796E 00	6.41477E 00	0.0	2.48418E 00
35	8.66292E 00	6.44183E 00	0.0	3.22104E 00
36	8.98801E 00	6.46330E 00	0.0	3.52471E 00
37	1.03387E 01	6.47085E 00	0.0	3.75862E 00
38	1.09658E 01	6.50490E 00	0.0	4.42637E 00
39	1.19375E 01	6.53362E 00	0.0	5.40391E 00
40	1.28807E 01	6.55558E 00	0.0	6.12511E 00
41	1.33577E 01	6.57263E 00	0.0	6.69510E 00
42	1.37805E 01	6.58497E 00	0.0	7.19551E 00
43	1.39451E 01	6.58400E 00	0.0	6.80288E 00
44	1.40427E 01	6.58017E 00	0.0	1.06625E 01
45	1.82648E 01	6.57724E 00	0.0	1.16875E 01
46	1.92071E 01	6.57498E 00	0.0	1.22321E 01
47	5.87409E 00	5.81539E 00	0.0	6.25729E-02
48	6.61761E 00	5.82120E 00	0.0	7.95251E-01
49	1.26833E 01	5.87714E 00	0.0	6.80580E 00
50	1.11471E 01	5.83654E 00	0.0	5.31005E 00
51	6.29776E 00	5.81815E 00	0.0	4.09511E-01
52	2.33127E 01	6.09004E 00	0.0	1.72167E 01
53	7.24438E 01	6.86473E 00	0.0	6.55751E 01
54	7.20482E 00	5.82970E 00	0.0	1.37512E 00
55	7.12137E 00	5.82577E 00	0.0	1.29558E 00
56	9.56494E 00	5.84710E 00	0.0	3.71758E 00
57	1.21917E 02	6.73491E 00	0.0	1.15170E 02
58	4.10315E 02	8.91293E 00	0.0	4.01403E 02
59	2.73127E 01	5.95445E 00	0.0	2.13550E 01
60	1.43736E 01	5.86133E 00	0.0	8.51250E 00
61	1.14668E 01	5.86059E 00	0.0	5.80653E 00
62	1.07675E 01	5.83303E 00	0.0	4.96478E 00
63	1.04877E 01	5.82869E 00	0.0	4.65908E 00
64	1.04792E 01	5.82629E 00	0.0	4.65312E 00
65	1.06510E 01	5.82495E 00	0.0	4.82630E 00
66	1.09816E 01	5.82425E 00	0.0	5.13751E 00
67	1.13783E 01	5.82335E 00	0.0	5.55521E 00
68	1.19173E 01	5.82319E 00	0.0	6.09433E 00
69	1.25506E 01	5.82305E 00	0.0	6.72773E 00
70	1.33476E 01	5.82222E 00	0.0	7.52560E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23758E 00	2.42170E 00	1.81458E 00	1.16032E-03
2	3.82364E 00	1.96655E 00	1.86390E 00	5.23060E-03
3	4.04537E 00	2.18044E 00	1.89032E 00	1.34557E-02
4	5.08700E 00	3.36580E 00	1.66937E 00	4.45004E-02
5	6.55256E 00	5.21589E 00	1.17529E 00	1.64128E-01
6	8.11415E 00	6.81684E 00	1.13923E 00	1.61952E-01
7	9.15136E 00	7.99784E 00	9.71384E-01	1.99694E-01
8	9.32063E 00	8.73374E 00	1.41259E-01	3.56162E-01
9	8.96890E 00	8.32622E 00	0.0	6.18306E-01
10	8.50527E 00	7.40549E 00	0.0	1.05182E 00
11	8.29042E 00	6.77837E 00	0.0	1.48134E 00
12	8.53336E 00	6.47730E 00	0.0	2.00627E 00
13	8.92925E 00	6.40554E 00	0.0	2.51161E 00
14	1.00549E 01	6.46772E 00	0.0	3.51427E 00
15	1.19003E 01	6.53936E 00	0.0	5.32360E 00
16	1.42112E 01	6.58115E 00	0.0	7.58114E 00
17	1.95161E 01	6.57664E 00	0.0	1.16454E 01
18	4.36770E 00	5.83764E 00	0.0	2.52454E 00
19	1.35305E 01	5.91454E 00	0.0	7.61381E 00
20	2.91491E 01	6.17701E 00	0.0	2.29702E 01
21	1.78938E 02	7.15234E 00	0.0	1.71784E 02
22	1.77443E 01	5.88596E 00	0.0	1.18784E 01
23	1.05896E 01	5.82942E 00	0.0	4.76037E 00
24	1.09941E 01	5.82418E 00	0.0	5.17008E 00
25	1.26060E 01	5.82282E 00	0.0	6.78334E 00

*** NUCLIDE RU-101 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.39083E 00	2.61857E 00	1.77114E 00	9.44598E-04
2	4.18875E 00	2.34185E 00	1.84342E 00	3.05190E-03
3	3.98937E 00	2.10509E 00	1.88612E 00	7.55705E-03
4	3.80571E 00	1.95437E 00	1.87247E 00	1.46546E-02
5	3.92726E 00	2.08343E 00	1.89021E 00	2.36075E-02
6	4.23949E 00	2.37743E 00	1.87584E 00	3.21597E-02
7	4.80546E 00	2.90765E 00	1.85925E 00	3.86101E-02
8	5.53317E 00	3.60131E 00	1.85359E 00	4.65242E-02
9	6.26790E 00	4.27608E 00	1.98059E 00	6.12056E-02
10	6.97879E 00	4.89474E 00	1.99999E 00	8.46461E-02
11	7.66231E 00	5.49943E 00	2.06163E 00	1.04644E-01
12	8.15144E 00	5.98350E 00	2.04779E 00	1.47964E-01
13	8.55480E 00	6.52169E 00	1.86626E 00	1.76642E-01
14	8.88666E 00	7.30224E 00	1.36028E 00	2.58274E-01
15	9.11649E 00	7.90975E 00	8.66365E-01	3.46381E-01
16	9.25506E 00	8.16169E 00	7.05829E-01	3.91556E-01
17	9.28207E 00	8.32880E 00	4.03682E-01	4.93653E-01
18	9.24502E 00	8.41921E 00	6.53845E-02	6.19667E-01
19	9.22032E 00	8.47674E 00	0.0	6.85636E-01
20	9.10157E 00	8.28491E 00	0.0	8.08912E-01
21	8.93217E 00	7.96059E 00	0.0	9.71581E-01
22	8.80125E 00	7.70641E 00	0.0	1.09484E 00
23	8.62494E 00	7.33286E 00	0.0	1.29208E 00
24	8.47665E 00	7.00053E 00	0.0	1.47012E 00
25	8.35127E 00	6.74338E 00	0.0	1.60788E 00
26	8.26660E 00	6.53442E 00	0.0	1.73168E 00
27	8.21198E 00	6.33469E 00	0.0	1.87634E 00
28	8.17014E 00	6.18319E 00	0.0	1.98694E 00
29	8.24548E 00	6.04294E 00	0.0	2.14254E 00
30	8.38841E 00	6.04470E 00	0.0	2.34171E 00
31	8.49619E 00	6.03781E 00	0.0	2.48639E 00
32	8.57788E 00	5.97916E 00	0.0	2.59872E 00
33	8.66449E 00	5.95461E 00	0.0	2.70588E 00
34	9.00027E 00	5.95322E 00	0.0	3.11706E 00
35	9.48941E 00	5.97269E 00	0.0	3.51672E 00
36	9.80538E 00	5.97498E 00	0.0	3.82245E 00
37	1.00437E 01	5.98552E 00	0.0	4.05819E 00
38	1.07491E 01	5.99366E 00	0.0	4.72119E 00
39	1.16928E 01	6.00287E 00	0.0	5.68995E 00
40	1.24146E 01	6.00991E 00	0.0	6.40946E 00
41	1.29750E 01	6.01537E 00	0.0	6.95963E 00
42	1.34829E 01	6.01945E 00	0.0	7.44999E 00
43	1.51033E 01	6.03113E 00	0.0	9.08221E 00
44	1.66537E 01	6.02193E 00	0.0	1.06998E 01
45	1.78435E 01	6.02255E 00	0.0	1.18259E 01
46	1.87659E 01	6.02302E 00	0.0	1.27429E 01
47	1.45143E 01	6.34595E 00	0.0	8.16690E 00
48	5.56745E 01	9.59804E 00	0.0	4.66754E 01
49	1.69829E 01	6.26872E 00	0.0	1.05739E 01
50	5.13685E 01	8.23490E 00	0.0	4.31439E 01
51	6.25637E 00	5.90432E 00	0.0	3.52040E-01
52	6.34268E 00	5.90258E 00	0.0	4.40047E-01
53	3.60096E 01	6.58591E 00	0.0	2.94172E 01
54	1.04575E 02	8.16055E 00	0.0	9.64059E 01
55	7.30268E 00	5.91736E 00	0.0	1.38529E 00
56	6.45123E 00	5.89863E 00	0.0	5.5564EE-01
57	6.32116E 00	5.89518E 00	0.0	4.25995E-01
58	6.29642E 00	5.89391E 00	0.0	4.03526E-01
59	6.30817E 00	5.89320E 00	0.0	4.14947E-01
60	6.33969E 00	5.89261E 00	0.0	4.46902E-01
61	6.38884E 00	5.89252E 00	0.0	4.96296E-01
62	6.44748E 00	5.89232E 00	0.0	5.55634E-01
63	6.52184E 00	5.89225E 00	0.0	6.29596E-01
64	6.60449E 00	5.89213E 00	0.0	7.13359E-01
65	6.70320E 00	5.89204E 00	0.0	8.11147E-01
66	6.81603E 00	5.89200E 00	0.0	9.24012E-01
67	6.94181E 00	5.89200E 00	0.0	1.04980E 00
68	7.08829E 00	5.89191E 00	0.0	1.19639E 00
69	7.25029E 00	5.89190E 00	0.0	1.35839E 00
70	7.44620E 00	5.89194E 00	0.0	1.55427E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23369E 00	2.40342E 00	1.82734E 00	2.58709E-03
2	3.83420E 00	1.97847E 00	1.87402E 00	1.21413E-02
3	4.08916E 00	2.23633E 00	1.88365E 00	2.71765E-02
4	5.18322E 00	3.26774E 00	1.87276E 00	4.27159E-02
5	6.63713E 00	4.59844E 00	1.96659E 00	7.33973E-02
6	8.11321E 00	5.99184E 00	1.99070E 00	1.39957E-01
7	9.08541E 00	7.78860E 00	9.94244E-01	3.26125E-01
8	9.25169E 00	8.41921E 00	1.88569E-01	5.83589E-01
9	8.91030E 00	7.91785E 00	0.0	9.58679E-01
10	8.43767E 00	6.92949E 00	0.0	1.46537E 00
11	8.20461E 00	6.30913E 00	0.0	1.89549E 00
12	8.41459E 00	6.03505E 00	0.0	2.33446E 00
13	8.78447E 00	5.96600E 00	0.0	2.80631E 00
14	9.86674E 00	5.98143E 00	0.0	3.81194E 00
15	1.16566E 01	6.00471E 00	0.0	5.61036E 00
16	1.39025E 01	6.01889E 00	0.0	7.83610E 00
17	1.80931E 01	6.02267E 00	0.0	1.17851E 01
18	2.90825E 01	7.41125E 00	0.0	2.16702E 01
19	2.12220E 01	6.67045E 00	0.0	1.45500E 01
20	4.91075E 01	6.88388E 00	0.0	4.22088E 01
21	6.35676E 00	5.89593E 00	0.0	4.60865E-01
22	6.34561E 00	5.89284E 00	0.0	4.52753E-01
23	6.52438E 00	5.89221E 00	0.0	6.32137E-01
24	6.81941E 00	5.89201E 00	0.0	9.27385E-01
25	7.26180E 00	5.89192E 00	0.0	1.36988E 00

=== NUCLIDE RU-102 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	6.39448E 00	2.61481E 00	1.77835E 00	1.15425E-03
2	6.18748E 00	2.33267E 00	1.84471E 00	4.38913E-03
3	3.99133E 00	2.09161E 00	1.89327E 00	1.29350E-02
4	3.81435E 00	1.93355E 00	1.87827E 00	2.59542E-02
5	3.94325E 00	2.06288E 00	1.88492E 00	4.46191E-02
6	3.24412E 00	2.37144E 00	1.86172E 00	6.90184E-02
7	4.89379E 00	2.94687E 00	1.79206E 00	8.90827E-02
8	5.57237E 00	3.77703E 00	1.70836E 00	9.07457E-02
9	6.30398E 00	4.62835E 00	1.58681E 00	8.94054E-02
10	7.00075E 00	5.51937E 00	1.39637E 00	9.22351E-02
11	7.66701E 00	6.34678E 00	1.23205E 00	8.91965E-02
12	8.14218E 00	7.34538E 00	6.98021E-01	1.15769E-01
13	8.52495E 00	8.26121E 00	2.99255E-02	1.56554E-01
14	8.84829E 00	8.68339E 00	0.0	1.64901E-01
15	8.98270E 00	8.90367E 00	0.0	1.58030E-01
16	9.19242E 00	9.03830E 00	0.0	1.61111E-01
17	9.22260E 00	9.04974E 00	0.0	1.72857E-01
18	9.18633E 00	8.99899E 00	0.0	1.87333E-01
19	9.14325E 00	8.96670E 00	0.0	1.96549E-01
20	9.04691E 00	8.83026E 00	0.0	2.16444E-01
21	8.88068E 00	8.63835E 00	0.0	2.42337E-01
22	8.75210E 00	8.48833E 00	0.0	2.63770E-01
23	8.57707E 00	8.25964E 00	0.0	3.17428E-01
24	8.42356E 00	8.05487E 00	0.0	3.68690E-01
25	8.30478E 00	7.89643E 00	0.0	4.08356E-01
26	8.22006E 00	7.76401E 00	0.0	4.56076E-01
27	8.16340E 00	7.62834E 00	0.0	5.35062E-01
28	8.12154E 00	7.52534E 00	0.0	5.96192E-01
29	8.19474E 00	7.58926E 00	0.0	6.85479E-01
30	8.32292E 00	7.74636E 00	0.0	7.86556E-01
31	8.48860E 00	7.57474E 00	0.0	8.63860E-01
32	8.62065E 00	7.58677E 00	0.0	9.29832E-01
33	8.60581E 00	7.62941E 00	0.0	9.76399E-01
34	9.01735E 00	7.89763E 00	0.0	1.11951E 00
35	9.42243E 00	8.16731E 00	0.0	1.25512E 00
36	9.73230E 00	8.37345E 00	0.0	1.35886E 00
37	9.97124E 00	8.53240E 00	0.0	1.43885E 00
38	1.06708E 01	8.90068E 00	0.0	1.75901E 00
39	1.10071E 01	9.37414E 00	0.0	2.29300E 00
40	1.23232E 01	9.73608E 00	0.0	2.58712E 00
41	1.28792E 01	1.00171E 01	0.0	2.86208E 00
42	1.33832E 01	1.02549E 01	0.0	3.12825E 00
43	1.40914E 01	1.07941E 01	0.0	4.15935E 00
44	1.45350E 01	1.12959E 01	0.0	5.23910E 00
45	1.77158E 01	1.16798E 01	0.0	6.09611E 00
46	1.86264E 01	1.19757E 01	0.0	6.65066E 00
47	5.98806E 00	5.92938E 00	0.0	5.74317E-03
48	5.93900E 00	5.92418E 00	0.0	9.80387E-03
49	5.94103E 00	5.92899E 00	0.0	1.20807E-02
50	5.94412E 00	5.92890E 00	0.0	1.52624E-02
51	5.94829E 00	5.92886E 00	0.0	1.94410E-02
52	5.95342E 00	5.92890E 00	0.0	2.46035E-02
53	5.95961E 00	5.92888E 00	0.0	3.08142E-02
54	5.96667E 00	5.92880E 00	0.0	3.74296E-02
55	5.97437E 00	5.92880E 00	0.0	4.54224E-02
56	5.98379E 00	5.92876E 00	0.0	5.50815E-02
57	5.99462E 00	5.92876E 00	0.0	6.59227E-02
58	6.00630E 00	5.92876E 00	0.0	7.75857E-02
59	6.01958E 00	5.92875E 00	0.0	9.08745E-02
60	6.03414E 00	5.92870E 00	0.0	1.05470E-01
61	6.05148E 00	5.92878E 00	0.0	1.22760E-01
62	6.06984E 00	5.92874E 00	0.0	1.41150E-01
63	6.09134E 00	5.92870E 00	0.0	1.62676E-01
64	6.11457E 00	5.92879E 00	0.0	1.85867E-01
65	6.14168E 00	5.92877E 00	0.0	2.12970E-01
66	6.17221E 00	5.92875E 00	0.0	2.43504E-01
67	6.20595E 00	5.92873E 00	0.0	2.77261E-01
68	6.24510E 00	5.92876E 00	0.0	3.16410E-01
69	6.28825E 00	5.92872E 00	0.0	3.59546E-01
70	6.34029E 00	5.92870E 00	0.0	4.11621E-01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23317E 00	2.39529E 00	1.83367E 00	3.67156E-03
2	3.84184E 00	1.95875E 00	1.88000E 00	2.08353E-02
3	4.10964E 00	2.22291E 00	1.87619E 00	5.71477E-02
4	5.21167E 00	3.37816E 00	1.74869E 00	8.9932aE-02
5	6.66529E 00	5.08916E 00	1.48806E 00	9.08483E-02
6	6.10297E 00	7.29960E 00	6.64979E-01	1.20797E-01
7	9.03662E 00	8.87474E 00	0.0	1.61882E-01
8	9.18633E 00	8.99899E 00	0.0	1.84260E-01
9	8.85919E 00	8.61305E 00	0.0	2.41525E-01
10	8.39075E 00	8.01116E 00	0.0	3.67322E-01
11	8.15676E 00	7.61081E 00	0.0	5.31528E-01
12	8.36055E 00	7.55378E 00	0.0	7.82681E-01
13	8.72472E 00	7.71349E 00	0.0	1.01130E 00
14	9.79603E 00	8.41584E 00	0.0	1.35529E 00
15	1.15712E 01	9.46877E 00	0.0	2.19356E 00
16	1.37996E 01	1.03751E 01	0.0	3.38692E 00
17	1.79587E 01	1.17587E 01	0.0	6.00872E 00
18	5.93935E 00	5.92919E 00	0.0	1.02257E-02
19	5.94862E 00	5.92890E 00	0.0	1.97764E-02
20	5.96685E 00	5.92883E 00	0.0	3.80895E-02
21	5.99482E 00	5.92876E 00	0.0	6.61087E-02
22	6.03508E 00	5.92874E 00	0.0	1.06387E-01
23	6.09180E 00	5.92874E 00	0.0	1.63118E-01
24	6.17303E 00	5.92875E 00	0.0	2.44327E-01
25	6.29127E 00	5.92874E 00	0.0	3.62580E-01

=== NUCLIDE RU-104 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.60348E 00	2.60502E 00	1.99811E 00	2.99999E-04
2	4.18332E 00	2.31586E 00	1.86583E 00	1.46003E-03
3	3.99672E 00	2.10060E 00	1.91160E 00	4.14326E-03
4	3.84025E 00	2.00413E 00	1.83584E 00	8.90244E-03
5	3.98626E 00	2.19114E 00	1.89075E 00	1.40044E-02
6	4.32544E 00	2.53408E 00	1.83691E 00	1.81337E-02
7	4.92944E 00	3.12165E 00	1.78795E 00	1.98380E-02
8	5.67597E 00	3.87636E 00	1.77958E 00	1.99682E-02
9	6.38642E 00	4.72479E 00	1.64073E 00	2.11974E-02
10	7.04024E 00	5.36951E 00	1.44583E 00	2.50136E-02
11	7.66822E 00	6.24847E 00	1.37534E 00	2.44004E-02
12	8.07320E 00	6.79322E 00	1.25556E 00	2.44015E-02
13	8.41659E 00	7.61484E 00	7.95038E-01	3.04203E-02
14	8.68789E 00	8.40999E 00	9.17722E-02	5.28807E-02
15	8.88398E 00	8.81015E 00	0.0	7.03231E-02
16	9.00158E 00	8.93545E 00	0.0	6.61222E-02
17	9.02926E 00	8.95639E 00	0.0	6.66714E-02
18	8.98957E 00	8.91974E 00	0.0	6.98333E-02
19	8.96813E 00	8.89629E 00	0.0	7.18458E-02
20	8.85982E 00	8.77636E 00	0.0	8.28435E-02
21	8.70504E 00	8.60482E 00	0.0	1.00217E-01
22	8.58517E 00	8.47054E 00	0.0	1.14633E-01
23	8.41977E 00	8.26270E 00	0.0	1.55582E-01
24	8.27434E 00	8.07614E 00	0.0	1.98200E-01
25	8.16160E 00	7.93177E 00	0.0	2.30028E-01
26	8.08195E 00	7.81013E 00	0.0	2.70787E-01
27	8.02948E 00	7.68345E 00	0.0	3.46032E-01
28	7.99078E 00	7.58720E 00	0.0	4.03585E-01
29	8.06664E 00	7.57461E 00	0.0	4.88296E-01
30	8.20700E 00	7.61305E 00	0.0	5.99352E-01
31	8.31435E 00	7.64244E 00	0.0	6.71903E-01
32	8.39770E 00	7.66527E 00	0.0	7.32428E-01
33	8.48387E 00	7.70038E 00	0.0	7.83488E-01
34	8.58653E 00	7.99937E 00	0.0	8.47161E-01
35	9.30253E 00	8.29980E 00	0.0	1.00273E 00
36	9.61911E 00	8.59993E 00	0.0	1.08348E 00
37	9.85259E 00	8.70684E 00	0.0	1.14575E 00
38	1.05529E 01	9.15607E 00	0.0	1.38398E 00
39	1.14699E 01	9.74298E 00	0.0	1.74690E 00
40	1.22065E 01	1.01918E 01	0.0	2.01365E 00
41	1.27629E 01	1.05404E 01	0.0	2.22255E 00
42	1.32967E 01	1.08342E 01	0.0	2.42809E 00
43	1.38762E 01	1.15717E 01	0.0	3.27335E 00
44	1.44305E 01	1.22588E 01	0.0	4.16172E 00
45	1.46019E 01	1.27844E 01	0.0	4.81746E 00
46	1.45128E 01	1.31847E 01	0.0	5.33308E 00
47	6.01743E 00	6.01057E 00	0.0	6.87960E-03
48	6.01787E 00	6.01016E 00	0.0	7.77570E-03
49	6.01861E 00	6.00978E 00	0.0	8.85740E-03
50	6.01967E 00	6.00957E 00	0.0	1.01520E-02
51	6.02105E 00	6.00938E 00	0.0	1.16728E-02
52	6.02265E 00	6.00928E 00	0.0	1.34268E-02
53	6.02457E 00	6.00918E 00	0.0	1.54214E-02
54	6.02675E 00	6.00908E 00	0.0	1.76460E-02
55	6.02904E 00	6.00900E 00	0.0	2.00211E-02
56	6.03195E 00	6.00904E 00	0.0	2.29426E-02
57	6.03528E 00	6.00900E 00	0.0	2.63098E-02
58	6.03890E 00	6.00900E 00	0.0	2.99134E-02
59	6.04311E 00	6.00900E 00	0.0	3.41370E-02
60	6.04770E 00	6.00892E 00	0.0	3.87873E-02
61	6.05324E 00	6.00894E 00	0.0	4.43087E-02
62	6.05924E 00	6.00890E 00	0.0	5.03371E-02
63	6.06637E 00	6.00893E 00	0.0	5.74435E-02
64	6.07399E 00	6.00894E 00	0.0	6.50931E-02
65	6.08297E 00	6.00890E 00	0.0	7.40973E-02
66	6.09319E 00	6.00894E 00	0.0	8.43926E-02
67	6.10449E 00	6.00890E 00	0.0	9.56243E-02
68	6.11771E 00	6.00890E 00	0.0	1.08805E-01
69	6.13222E 00	6.00890E 00	0.0	1.23342E-01
70	6.14989E 00	6.00890E 00	0.0	1.40980E-01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23108E 00	2.37956E 00	1.85018E 00	1.15792E-03
2	3.86468E 00	2.02446E 00	1.89766E 00	7.22444E-03
3	4.16218E 00	2.36940E 00	1.86372E 00	1.61171E-02
4	5.31697E 00	3.51352E 00	1.78361E 00	1.99048E-02
5	6.72718E 00	5.16504E 00	1.53915E 00	2.31857E-02
6	8.03893E 00	6.87229E 00	1.14887E 00	2.63341E-02
7	8.85791E 00	8.71521E 00	1.37476E-02	6.23412E-02
8	8.98957E 00	8.91974E 00	0.0	6.98333E-02
9	8.68498E 00	8.58215E 00	0.0	9.92480E-02
10	8.24324E 00	8.03625E 00	0.0	1.95158E-01
11	8.02337E 00	7.66704E 00	0.0	3.40134E-01
12	8.23507E 00	7.62073E 00	0.0	5.85272E-01
13	8.60289E 00	7.79432E 00	0.0	8.08571E-01
14	9.67698E 00	8.57689E 00	0.0	1.08071E 00
15	1.14539E 01	9.86033E 00	0.0	1.71708E 00
16	1.36838E 01	1.10099E 01	0.0	2.64365E 00
17	1.78448E 01	1.28925E 01	0.0	4.79492E 00
18	6.01797E 00	6.01017E 00	0.0	7.83007E-03
19	6.02113E 00	6.00941E 00	0.0	1.17533E-02
20	6.02678E 00	6.00908E 00	0.0	1.76860E-02
21	6.03535E 00	6.00901E 00	0.0	2.63614E-02
22	6.04802E 00	6.00895E 00	0.0	3.90836E-02
23	6.06630E 00	6.00893E 00	0.0	5.75873E-02
24	6.09347E 00	6.00891E 00	0.0	8.45870E-02
25	6.13329E 00	6.00890E 00	0.0	1.24394E-01

=== NUCLIDE PU-106 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.41263E 00	2.59676E 00	1.81771E 00	1.49911E-04
2	4.18072E 00	2.29039E 00	1.88059E 00	8.18453E-04
3	4.00428E 00	2.08542E 00	1.92885E 00	2.82293E-03
4	3.87088E 00	1.99711E 00	1.81577E 00	6.54589E-03
5	4.03047E 00	2.20209E 00	1.82840E 00	1.14747E-02
6	4.38065E 00	2.57710E 00	1.83522E 00	1.67316E-02
7	5.00324E 00	3.21512E 00	1.74541E 00	2.30229E-02
8	5.75197E 00	4.04852E 00	1.64213E 00	2.15826E-02
9	6.44225E 00	4.79633E 00	1.62911E 00	1.67704E-02
10	7.05317E 00	5.54034E 00	1.49705E 00	1.57603E-02
11	7.60221E 00	6.18410E 00	1.40274E 00	1.66800E-02
12	7.97435E 00	6.56618E 00	1.39684E 00	1.58946E-02
13	8.27752E 00	6.98427E 00	1.27173E 00	1.65222E-02
14	8.61751E 00	7.71099E 00	8.98731E-01	2.16077E-02
15	8.87660E 00	8.34677E 00	1.46340E-01	3.19444E-02
16	8.77758E 00	8.66610E 00	0.0	4.66498E-02
17	8.79274E 00	8.73400E 00	0.0	5.37429E-02
18	8.76034E 00	8.70529E 00	0.0	5.47333E-02
19	8.74921E 00	8.68884E 00	0.0	5.53936E-02
20	8.61494E 00	8.57715E 00	0.0	6.23887E-02
21	8.49876E 00	8.46446E 00	0.0	7.39025E-02
22	8.38944E 00	8.30558E 00	0.0	8.36047E-02
23	8.23993E 00	8.12339E 00	0.0	1.13167E-01
24	8.10803E 00	7.96362E 00	0.0	1.46113E-01
25	8.00620E 00	7.85848E 00	0.0	1.67224E-01
26	7.93609E 00	7.73724E 00	0.0	1.93035E-01
27	7.88519E 00	7.63834E 00	0.0	2.15057E-01
28	7.86535E 00	7.56383E 00	0.0	2.01524E-01
29	7.95925E 00	7.57972E 00	0.0	3.79221E-01
30	8.10632E 00	7.63645E 00	0.0	4.67877E-01
31	8.22063E 00	7.68355E 00	0.0	5.36975E-01
32	8.31094E 00	7.72003E 00	0.0	5.90526E-01
33	8.40284E 00	7.76721E 00	0.0	6.35476E-01
34	8.82883E 00	8.09823E 00	0.0	7.29602E-01
35	9.24709E 00	8.49037E 00	0.0	8.16425E-01
36	9.56705E 00	8.68421E 00	0.0	8.82842E-01
37	9.81377E 00	8.87971E 00	0.0	9.34055E-01
38	1.04303E 01	9.40143E 00	0.0	1.11897E 00
39	1.14880E 01	1.00942E 01	0.0	1.39877E 00
40	1.22205E 01	1.06133E 01	0.0	1.60520E 00
41	1.27492E 01	1.10207E 01	0.0	1.76548E 00
42	1.33045E 01	1.13780E 01	0.0	1.92645E 00
43	1.40459E 01	1.23024E 01	0.0	2.61784E 00
44	1.65912E 01	1.31749E 01	0.0	3.34430E 00
45	1.77626E 01	1.38423E 01	0.0	3.88396E 00
46	1.86554E 01	1.43569E 01	0.0	4.26854E 00
47	6.08792E 00	6.04530E 00	0.0	2.10306E-03
48	6.08773E 00	6.08529E 00	0.0	2.44246E-03
49	6.08805E 00	6.08520E 00	0.0	2.82009E-03
50	6.08845E 00	6.08519E 00	0.0	3.25048E-03
51	6.08888E 00	6.08510E 00	0.0	3.74036E-03
52	6.08942E 00	6.08510E 00	0.0	4.29198E-03
53	6.09003E 00	6.08508E 00	0.0	4.91954E-03
54	6.09069E 00	6.08502E 00	0.0	5.61372E-03
55	6.09145E 00	6.08507E 00	0.0	6.35723E-03
56	6.09232E 00	6.08504E 00	0.0	7.22899E-03
57	6.09340E 00	6.08504E 00	0.0	8.31905E-03
58	6.09452E 00	6.08500E 00	0.0	9.45681E-03
59	6.09582E 00	6.08500E 00	0.0	1.07884E-02
60	6.09728E 00	6.08500E 00	0.0	1.22286E-02
61	6.09905E 00	6.08504E 00	0.0	1.39717E-02
62	6.10089E 00	6.08504E 00	0.0	1.59493E-02
63	6.10311E 00	6.08500E 00	0.0	1.80710E-02
64	6.10550E 00	6.08500E 00	0.0	2.04715E-02
65	6.10830E 00	6.08500E 00	0.0	2.33970E-02
66	6.11152E 00	6.08500E 00	0.0	2.65016E-02
67	6.11510E 00	6.08500E 00	0.0	3.00606E-02
68	6.11921E 00	6.08500E 00	0.0	3.41930E-02
69	6.12392E 00	6.08500E 00	0.0	3.87828E-02
70	6.12931E 00	6.08500E 00	0.0	4.42912E-02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23034E 00	2.36384E 00	1.86565E 00	6.70164E-04
2	3.89188E 00	2.01204E 00	1.91714E 00	5.21870E-03
3	4.91210E 00	2.34710E 00	1.86527E 00	1.41585E-02
4	5.38932E 00	3.64812E 00	1.71266E 00	2.23747E-02
5	6.76065E 00	5.18412E 00	1.56030E 00	1.62434E-02
6	7.94678E 00	6.57224E 00	1.35852E 00	1.63606E-02
7	8.65386E 00	8.23734E 00	3.41799E-01	3.28068E-02
8	8.76003E 00	8.70529E 00	0.0	5.47333E-02
9	8.48049E 00	8.40481E 00	0.0	7.33089E-02
10	8.07990E 00	7.92940E 00	0.0	1.41904E-01
11	7.89061E 00	7.62592E 00	0.0	2.52070E-01
12	8.13473E 00	7.64879E 00	0.0	4.60183E-01
13	8.52493E 00	7.86940E 00	0.0	6.55522E-01
14	9.63265E 00	8.73635E 00	0.0	8.80560E-01
15	1.14513E 01	1.02268E 01	0.0	1.37578E 00
16	1.37293E 01	1.15992E 01	0.0	2.10481E 00
17	1.79740E 01	1.39799E 01	0.0	3.86548E 00
18	6.08773E 00	6.08576E 00	0.0	2.45258E-03
19	6.08892E 00	6.08519E 00	0.0	3.76184E-03
20	6.09072E 00	6.08506E 00	0.0	5.67700E-03
21	6.09340E 00	6.08503E 00	0.0	8.33973E-03
22	6.09738E 00	6.08501E 00	0.0	1.23247E-02
23	6.10316E 00	6.08501E 00	0.0	1.81189E-02
24	6.11161E 00	6.08500E 00	0.0	2.65932E-02
25	6.12412E 00	6.08500E 00	0.0	3.90881E-02

=== MOD1 10F MAT103 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.79654E 00	2.61026E 00	2.74832E 00	6.15947E-04
2	4.18406E 00	2.32561E 00	1.85837E 00	2.07005E-03
3	3.94464E 00	2.08738E 00	1.90270E 00	5.49862E-03
4	3.89761E 00	1.93370E 00	1.86704E 00	1.10435E-02
5	3.96540E 00	2.07414E 00	1.84031E 00	1.86071E-02
6	4.24606E 00	2.33954E 00	1.89274E 00	2.66487E-02
7	4.93226E 00	2.93127E 00	1.87582E 00	3.69896E-02
8	5.63194E 00	3.74161E 00	1.88422E 00	4.61361E-02
9	6.36746E 00	4.50079E 00	1.79097E 00	5.56011E-02
10	7.02992E 00	5.23212E 00	1.71650E 00	7.34127E-02
11	7.65932E 00	5.87743E 00	1.69570E 00	8.66497E-02
12	8.10493E 00	6.35317E 00	1.65306E 00	1.05534E-01
13	8.47698E 00	6.98862E 00	1.35835E 00	1.44363E-01
14	8.74740E 00	7.04119E 00	6.49009E-01	2.21814E-01
15	8.97724E 00	8.59294E 00	3.91604E-02	2.96052E-01
16	9.10334E 00	8.71173E 00	5.64850E-02	3.34775E-01
17	9.12762E 00	8.67824E 00	3.69004E-02	4.10341E-01
18	9.09291E 00	8.57491E 00	3.37901E-02	4.95667E-01
19	9.07083E 00	8.50802E 00	1.55529E-02	5.47544E-01
20	9.06363E 00	8.29631E 00	1.01736E-02	6.44947E-01
21	8.79739E 00	8.00833E 00	6.56457E-03	7.47593E-01
22	8.67283E 00	7.78331E 00	3.75249E-04	8.35679E-01
23	8.50704E 00	7.44379E 00	5.67553E-04	1.05560E 00
24	8.35129E 00	7.14034E 00	0.0	1.20496E 00
25	8.23493E 00	6.90553E 00	0.0	1.32893E 00
26	8.15184E 00	6.71234E 00	0.0	1.43992E 00
27	8.03614E 00	6.52072E 00	0.0	1.55543E 00
28	8.05496E 00	6.37548E 00	0.0	1.67948E 00
29	8.13806E 00	6.30197E 00	0.0	1.83608E 00
30	8.26505E 00	6.27581E 00	0.0	1.98488E 00
31	8.37044E 00	6.25530E 00	0.0	2.11508E 00
32	8.45259E 00	6.24027E 00	0.0	2.21232E 00
33	8.53734E 00	6.23155E 00	0.0	2.30584E 00
34	8.94715E 00	6.27322E 00	0.0	2.67391E 00
35	9.35044E 00	6.31821E 00	0.0	3.03225E 00
36	9.65867E 00	6.35263E 00	0.0	3.30534E 00
37	9.89686E 00	6.37417E 00	0.0	3.51769E 00
38	1.05938E 01	6.41027E 00	0.0	4.14188E 00
39	1.16261E 01	6.46520E 00	0.0	5.06086E 00
40	1.22592E 01	6.50033E 00	0.0	5.73888E 00
41	1.27924E 01	6.52761E 00	0.0	6.26533E 00
42	1.32998E 01	6.54971E 00	0.0	6.74515E 00
43	1.38867E 01	6.58623E 00	0.0	8.26572E 00
44	1.64342E 01	6.61883E 00	0.0	9.71537E 00
45	1.76104E 01	6.64378E 00	0.0	1.09664E 01
46	1.85173E 01	6.66301E 00	0.0	1.18594E 01
47	2.61948E 00	6.08142E 00	0.0	2.82784E 00
48	6.45800E 00	5.97405E 00	0.0	4.83890E-01
49	6.35653E 00	5.97328E 00	0.0	3.82669E-01
50	6.41514E 00	5.98325E 00	0.0	2.63258E 00
51	6.16105E 00	5.97027E 00	0.0	1.90786E-01
52	6.04317E 00	5.97006E 00	0.0	7.31882E-02
53	6.02553E 00	5.96932E 00	0.0	1.03598E-01
54	6.12711E 00	5.97005E 00	0.0	1.57059E-01
55	6.20449E 00	5.97033E 00	0.0	2.34176E-01
56	6.35034E 00	5.97108E 00	0.0	3.76288E-01
57	6.53742E 00	5.97265E 00	0.0	6.44757E-01
58	7.20081E 00	5.97569E 00	0.0	1.23409E 00
59	8.56361E 00	5.98253E 00	0.0	2.58104E 00
60	9.19859E 00	5.99832E 00	0.0	3.19744E 00
61	9.40390E 00	6.04934E 00	0.0	1.80447E 01
62	9.22631E 01	6.27061E 00	0.0	7.60127E 01
63	1.28813E 03	1.03331E 01	0.0	1.27480E 03
64	5.05460E 03	1.25425E 01	0.0	2.99207E 03
65	2.85572E 02	6.75503E 00	0.0	2.79217E 02
66	1.39886E 02	6.26582E 00	0.0	1.26600E 02
67	9.75040E 01	6.16465E 00	0.0	9.33851E 01
68	8.30747E 01	6.11233E 00	0.0	7.67621E 01
69	7.73056E 01	6.08582E 00	0.0	7.12213E 01
70	7.41741E 01	6.06884E 00	0.0	7.01055E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23278E 00	2.38861E 00	1.84214E 00	1.74957E-03
2	3.85361E 00	1.95824E 00	1.88884E 00	9.05576E-03
3	4.13688E 00	2.23737E 00	1.89178E 00	2.26887E-02
4	4.31131E 00	3.38405E 00	1.85897E 00	4.14519E-02
5	6.69774E 00	4.88184E 00	1.75244E 00	6.55437E-02
6	8.07211E 00	6.39599E 00	1.57199E 00	1.11573E-01
7	8.94940E 00	8.40654E 00	2.84329E-01	2.81746E-01
8	9.09241E 00	8.57421E 00	2.70162E-02	4.74993E-01
9	8.78585E 00	7.97042E 00	6.35694E-03	7.71936E-01
10	8.34020E 00	7.07547E 00	1.88303E-04	1.20558E 00
11	8.08961E 00	6.49611E 00	0.0	1.56892E 00
12	8.29516E 00	6.27054E 00	0.0	1.98356E 00
13	8.65574E 00	6.24844E 00	0.0	2.39641E 00
14	9.72241E 00	6.35971E 00	0.0	3.29691E 00
15	1.14903E 01	6.47439E 00	0.0	4.98536E 00
16	1.37097E 01	6.55616E 00	0.0	7.10751E 00
17	1.78522E 01	6.64891E 00	0.0	1.09270E 01
18	2.25119E 00	6.01322E 00	0.0	1.23766E 00
19	6.86811E 00	5.97417E 00	0.0	8.93864E-01
20	6.13544E 00	5.97010E 00	0.0	1.65346E-01
21	6.72891E 00	5.97312E 00	0.0	7.55783E-01
22	1.48852E 01	6.01004E 00	0.0	8.87500E 00
23	1.13496E 03	9.69371E 00	0.0	1.12527E 03
24	1.73736E 02	6.90383E 00	0.0	1.67332E 02
25	7.87762E 01	6.04896E 00	0.0	7.26874E 01

*** NUCLIDE PD-105 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.408088E 00	2.60041E 00	1.80677E 00	7.87673E-04
2	4.182488E 00	2.30701E 00	1.87249E 00	2.93739E-03
3	4.000066E 00	2.07642E 00	1.91924E 00	8.10788E-03
4	3.85392E 00	1.94500E 00	1.90453E 00	1.66536E-02
5	4.00596E 00	2.12273E 00	1.89323E 00	2.78601E-02
6	4.36031E 00	2.47741E 00	1.86179E 00	3.90855E-02
7	4.96166E 00	3.07634E 00	1.83397E 00	5.10598E-02
8	5.71086E 00	3.81440E 00	1.83205E 00	6.44091E-02
9	6.41220E 00	4.48071E 00	1.84983E 00	8.16706E-02
10	7.04702E 00	5.05069E 00	1.90127E 00	9.53004E-02
11	7.62624E 00	5.58188E 00	1.92951E 00	1.18875E-01
12	8.02898E 00	6.00460E 00	1.87187E 00	1.57821E-01
13	8.34908E 00	6.55783E 00	1.59455E 00	2.15255E-01
14	8.61128E 00	7.55977E 00	7.83641E-01	3.19788E-01
15	8.79415E 00	8.28817E 00	3.54986E-02	4.29119E-01
16	8.90566E 00	8.39100E 00	0.0	4.94778E-01
17	8.92465E 00	8.32508E 00	0.0	5.94686E-01
18	8.89150E 00	8.18717E 00	0.0	7.04339E-01
19	8.87041E 00	8.09941E 00	0.0	7.71000E-01
20	8.76598E 00	7.86397E 00	0.0	8.96019E-01
21	8.61699E 00	7.55134E 00	0.0	1.06565E 00
22	8.50161E 00	7.30803E 00	0.0	1.19358E 00
23	8.34251E 00	6.95457E 00	0.0	1.38895E 00
24	8.20264E 00	6.63873E 00	0.0	1.56391E 00
25	8.09441E 00	6.39511E 00	0.0	1.69930E 00
26	8.01835E 00	6.20063E 00	0.0	1.81772E 00
27	7.97019E 00	6.02023E 00	0.0	1.94994E 00
28	7.93678E 00	5.88404E 00	0.0	2.05074E 00
29	8.01448E 00	5.80193E 00	0.0	2.21254E 00
30	8.15879E 00	5.75708E 00	0.0	2.40171E 00
31	8.26916E 00	5.72978E 00	0.0	2.53639E 00
32	8.38486E 00	5.69614E 00	0.0	2.65872E 00
33	8.44399E 00	5.67695E 00	0.0	2.76604E 00
34	8.85972E 00	5.67978E 00	0.0	3.17994E 00
35	9.26946E 00	5.68711E 00	0.0	3.58235E 00
36	9.58291E 00	5.69272E 00	0.0	3.89019E 00
37	9.82460E 00	5.69705E 00	0.0	4.12756E 00
38	1.05396E 01	5.70236E 00	0.0	4.79292E 00
39	1.14726E 01	5.70797E 00	0.0	5.76460E 00
40	1.21938E 01	5.71227E 00	0.0	6.48149E 00
41	1.27537E 01	5.71560E 00	0.0	7.03812E 00
42	1.32612E 01	5.71763E 00	0.0	7.54355E 00
43	1.48793E 01	5.71132E 00	0.0	9.16797E 00
44	1.64324E 01	5.70435E 00	0.0	1.07280E 01
45	1.76204E 01	5.69902E 00	0.0	1.19214E 01
46	1.85365E 01	5.69490E 00	0.0	1.28416E 01
47	2.74047E 01	8.03708E 00	0.0	1.93677E 01
48	2.74151E 01	7.74466E 00	0.0	1.96701E 01
49	2.58557E 01	6.93888E 00	0.0	1.89155E 01
50	8.11614E 00	6.05323E 00	0.0	2.06290E 00
51	1.57585E 01	6.20051E 00	0.0	9.55596E 00
52	4.18826E 01	6.75988E 00	0.0	3.50784E 01
53	7.69685E 00	6.07337E 00	0.0	1.55918E 00
54	3.85259E 01	6.54789E 00	0.0	3.19716E 01
55	9.54444E 01	7.39937E 00	0.0	8.80389E 01
56	7.06629E 00	6.05639E 00	0.0	1.00987E 00
57	6.54411E 00	6.04977E 00	0.0	4.94355E-01
58	6.44226E 00	6.04804E 00	0.0	3.94209E-01
59	6.42253E 00	6.04733E 00	0.0	3.75217E-01
60	6.44295E 00	6.04689E 00	0.0	3.96066E-01
61	6.49874E 00	6.04658E 00	0.0	4.52135E-01
62	6.58412E 00	6.04642E 00	0.0	5.37682E-01
63	6.71012E 00	6.04637E 00	0.0	6.63733E-01
64	6.87117E 00	6.04625E 00	0.0	8.24907E-01
65	7.08408E 00	6.04620E 00	0.0	1.03789E 00
66	7.34714E 00	6.04615E 00	0.0	1.30099E 00
67	7.65604E 00	6.04617E 00	0.0	1.60987E 00
68	8.02790E 00	6.04611E 00	0.0	1.98179E 00
69	8.44573E 00	6.04606E 00	0.0	2.39967E 00
70	8.93342E 00	6.04604E 00	0.0	2.90738E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23143E 00	2.37148E 00	1.85714E 00	2.45335E-03
2	3.87690E 00	1.96625E 00	1.90619E 00	1.38172E-02
3	4.18456E 00	2.30711E 00	1.87726E 00	3.35912E-02
4	5.35057E 00	3.45944E 00	1.83266E 00	5.79927E-02
5	6.74137E 00	4.77777E 00	1.87650E 00	8.87798E-02
6	7.99354E 00	6.03877E 00	1.80240E 00	1.62947E-01
7	8.76711E 00	8.06872E 00	2.99206E-01	4.10310E-01
8	8.89150E 00	8.18717E 00	0.0	6.77767E-01
9	8.59769E 00	7.51044E 00	0.0	1.05200E 00
10	8.17274E 00	6.57142E 00	0.0	1.55924E 00
11	7.96465E 00	5.99738E 00	0.0	1.96727E 00
12	8.18765E 00	5.74811E 00	0.0	2.39446E 00
13	8.56287E 00	5.68334E 00	0.0	2.86729E 00
14	9.64737E 00	5.69387E 00	0.0	3.87961E 00
15	1.14964E 01	5.70910E 00	0.0	5.68478E 00
16	1.36801E 01	5.71487E 00	0.0	7.91752E 00
17	1.78647E 01	5.69792E 00	0.0	1.18804E 01
18	2.69012E 01	7.57817E 00	0.0	1.93225E 01
19	2.19305E 01	6.33835E 00	0.0	1.55900E 01
20	4.70946E 01	6.67192E 00	0.0	4.04190E 01
21	6.68621E 00	6.05143E 00	0.0	6.34770E-01
22	6.45476E 00	6.04693E 00	0.0	4.07824E-01
23	6.72112E 00	6.04635E 00	0.0	6.74761E-01
24	7.36016E 00	6.04617E 00	0.0	1.31399E 00
25	8.47621E 00	6.04607E 00	0.0	2.43014E 00

=== NUCLIDE PU-107 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.41963E 00	2.59093E 00	1.82815E 00	4.75910E-04
2	4.19260E 00	2.29206E 00	1.88815E 00	2.06417E-03
3	4.01155E 00	2.07295E 00	1.93719E 00	6.32744E-03
4	3.80079E 00	1.96823E 00	1.82738E 00	1.43124E-02
5	4.05244E 00	2.18316E 00	1.80265E 00	2.46097E-02
6	4.40982E 00	2.57177E 00	1.84173E 00	3.55389E-02
7	5.03307E 00	3.19476E 00	1.79110E 00	4.69556E-02
8	5.79595E 00	3.94027E 00	1.78087E 00	5.68118E-02
9	6.46201E 00	4.59417E 00	1.80431E 00	6.35405E-02
10	7.05125E 00	5.10946E 00	1.86979E 00	7.15074E-02
11	7.47330E 00	5.51441E 00	1.96434E 00	8.31568E-02
12	7.93119E 00	5.81405E 00	1.99037E 00	1.20474E-01
13	8.19448E 00	6.33372E 00	1.69400E 00	1.46249E-01
14	8.41429E 00	7.19997E 00	9.57627E-01	3.04835E-01
15	8.54888E 00	7.77147E 00	3.75850E-01	4.21142E-01
16	8.65703E 00	7.87576E 00	3.02283E-01	4.85556E-01
17	8.67055E 00	7.88509E 00	1.87037E-01	5.84473E-01
18	8.64789E 00	7.84574E 00	5.79613E-02	7.01000E-01
19	8.61730E 00	7.82070E 00	7.80263E-04	7.71546E-01
20	8.59559E 00	7.62188E 00	0.0	8.95120E-01
21	8.38873E 00	7.32890E 00	0.0	1.05984E 00
22	8.28521E 00	7.10104E 00	0.0	1.18417E 00
23	8.14469E 00	6.76884E 00	0.0	1.37581E 00
24	8.03144E 00	6.47373E 00	0.0	1.54770E 00
25	7.92610E 00	6.24539E 00	0.0	1.68071E 00
26	7.88206E 00	6.08293E 00	0.0	1.79913E 00
27	7.82875E 00	5.89333E 00	0.0	1.93543E 00
28	7.80472E 00	5.76524E 00	0.0	2.03948E 00
29	7.80911E 00	5.69291E 00	0.0	2.11629E 00
30	8.05926E 00	5.65924E 00	0.0	2.40102E 00
31	8.18174E 00	5.63173E 00	0.0	2.55001E 00
32	8.27684E 00	5.61115E 00	0.0	2.66569E 00
33	8.37294E 00	5.59444E 00	0.0	2.77650E 00
34	8.80785E 00	5.60066E 00	0.0	3.20719E 00
35	9.23453E 00	5.60838E 00	0.0	3.62615E 00
36	9.56093E 00	5.61430E 00	0.0	3.94663E 00
37	9.81261E 00	5.61886E 00	0.0	4.19376E 00
38	1.05402E 01	5.62287E 00	0.0	4.88190E 00
39	1.15121E 01	5.62634E 00	0.0	5.88578E 00
40	1.23554E 01	5.62899E 00	0.0	6.72642E 00
41	1.29325E 01	5.63105E 00	0.0	7.29148E 00
42	1.33553E 01	5.63107E 00	0.0	7.75421E 00
43	1.50126E 01	5.60736E 00	0.0	9.41129E 00
44	1.64194E 01	5.58288E 00	0.0	1.10819E 01
45	1.78359E 01	5.56416E 00	0.0	1.22717E 01
46	1.87774E 01	5.54072E 00	0.0	1.33277E 01
47	1.73974E 01	6.53866E 00	0.0	1.07985E 01
48	1.52396E 01	6.41600E 00	0.0	8.63351E 00
49	1.42938E 01	6.49782E 00	0.0	1.27963E 01
50	1.28615E 01	6.54137E 00	0.0	1.61188E 01
51	1.34903E 01	6.27015E 00	0.0	7.27702E 00
52	1.83098E 01	6.76134E 00	0.0	1.14402E 01
53	6.95758E 00	6.13513E 00	0.0	8.22448E-01
54	6.73649E 00	6.12922E 00	0.0	6.07116E-01
55	6.73576E 01	6.90136E 00	0.0	6.04451E 01
56	8.90524E 01	7.29441E 00	0.0	8.17552E 01
57	8.04393E 00	6.14056E 00	0.0	1.90331E 00
58	6.97127E 00	6.12720E 00	0.0	8.44052E-01
59	6.80151E 00	6.12447E 00	0.0	6.77007E-01
60	6.79144E 00	6.12332E 00	0.0	6.68105E-01
61	6.85307E 00	6.12276E 00	0.0	7.30367E-01
62	6.95461E 00	6.12239E 00	0.0	8.32243E-01
63	7.06648E 00	6.12217E 00	0.0	9.44313E-01
64	7.26275E 00	6.12201E 00	0.0	1.14074E 00
65	7.66624E 00	6.12193E 00	0.0	1.54431E 00
66	7.70091E 00	6.12185E 00	0.0	1.57906E 00
67	7.96275E 00	6.12180E 00	0.0	1.84095E 00
68	8.26689E 00	6.12175E 00	0.0	2.14515E 00
69	8.60038E 00	6.12170E 00	0.0	2.47868E 00
70	9.00076E 00	6.12170E 00	0.0	2.87906E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23302E 00	2.35732E 00	1.87373E 00	1.69977E-03
2	3.90990E 00	1.98550E 00	1.92830E 00	1.14801E-02
3	4.23975E 00	2.38544E 00	1.87143E 00	3.02148E-02
4	5.42286E 00	3.58177E 00	1.78890E 00	5.20752E-02
5	6.76911E 00	4.86300E 00	1.83842E 00	6.76909E-02
6	7.88998E 00	5.87941E 00	1.88794E 00	1.30544E-01
7	8.54352E 00	7.60574E 00	5.65660E-01	3.98417E-01
8	8.64264E 00	7.69574E 00	9.69574E-02	6.72888E-01
9	8.37143E 00	7.29061E 00	0.0	1.04661E 00
10	7.99510E 00	6.41065E 00	0.0	1.54312E 00
11	7.82519E 00	5.87182E 00	0.0	1.95337E 00
12	8.09128E 00	5.69131E 00	0.0	2.39355E 00
13	8.49689E 00	5.60205E 00	0.0	2.88209E 00
14	9.62805E 00	5.61551E 00	0.0	3.93562E 00
15	1.14749E 01	5.62703E 00	0.0	5.80331E 00
16	1.37856E 01	5.62283E 00	0.0	8.11321E 00
17	1.80870E 01	5.56031E 00	0.0	1.22291E 01
18	1.72759E 01	6.48408E 00	0.0	1.07919E 01
19	2.48381E 01	6.52342E 00	0.0	1.83117E 01
20	2.68985E 01	6.38707E 00	0.0	2.05077E 01
21	3.42861E 01	6.52406E 00	0.0	3.17609E 01
22	6.81531E 00	6.12352E 00	0.0	6.91795E-01
23	7.10346E 00	6.12719E 00	0.0	9.81675E-01
24	7.70802E 00	6.12186E 00	0.0	1.58616E 00
25	8.62310E 00	6.12172E 00	0.0	2.50138E 00

*** NUCLIDE AG-109 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.22929E 00	2.57617E 00	1.65255E 00	8.41016E-04
2	4.17576E 00	2.27064E 00	1.90488E 00	3.64142E-02
3	4.02239E 00	2.05506E 00	1.95610E 00	1.15386E-02
4	3.93540E 00	1.95702E 00	1.95524E 00	2.62822E-02
5	4.11692E 00	2.16933E 00	1.94712E 00	4.56183E-02
6	4.47646E 00	2.55498E 00	1.86627E 00	6.61931E-02
7	5.10594E 00	3.18634E 00	1.81707E 00	8.74741E-02
8	5.85155E 00	3.98529E 00	1.76130E 00	1.05984E-01
9	6.50138E 00	4.66129E 00	1.72330E 00	1.17421E-01
10	7.03876E 00	5.23354E 00	1.65666E 00	1.48778E-01
11	7.49009E 00	5.80317E 00	1.48719E 00	2.03646E-01
12	7.78406E 00	6.16500E 00	1.36547E 00	2.35600E-01
13	8.00382E 00	6.66620E 00	1.04533E 00	3.07675E-01
14	8.17918E 00	7.29328E 00	4.84216E-01	4.24231E-01
15	8.29354E 00	7.67226E 00	8.96879E-02	5.32157E-01
16	8.36043E 00	7.75670E 00	5.67862E-02	5.47778E-01
17	8.36243E 00	7.61382E 00	3.61469E-02	7.07630E-01
18	8.33025E 00	7.47437E 00	2.34651E-02	8.32000E-01
19	8.30860E 00	7.38563E 00	1.55037E-02	9.07636E-01
20	8.29030E 00	7.18000E 00	2.79048E-03	1.09889E 00
21	8.11090E 00	6.91395E 00	0.0	1.19263E 00
22	8.02215E 00	6.70842E 00	0.0	1.31294E 00
23	7.90698E 00	6.43227E 00	0.0	1.47441E 00
24	7.80495E 00	6.19134E 00	0.0	1.61561E 00
25	7.79956E 00	6.00468E 00	0.0	1.79487E 00
26	7.68293E 00	5.86385E 00	0.0	1.81908E 00
27	7.67247E 00	5.75090E 00	0.0	1.92157E 00
28	7.66598E 00	5.66637E 00	0.0	1.99961E 00
29	7.78506E 00	5.63221E 00	0.0	2.15254E 00
30	7.97277E 00	5.63106E 00	0.0	2.34171E 00
31	8.11634E 00	5.62995E 00	0.0	2.48639E 00
32	8.22781E 00	5.62910E 00	0.0	2.59872E 00
33	8.33794E 00	5.63005E 00	0.0	2.70789E 00
34	8.80722E 00	5.65564E 00	0.0	3.15157E 00
35	9.26614E 00	5.68143E 00	0.0	3.58431E 00
36	9.61720E 00	5.70186E 00	0.0	3.91534E 00
37	9.88790E 00	5.71731E 00	0.0	4.17059E 00
38	1.06600E 01	5.73886E 00	0.0	4.88439E 00
39	1.16891E 01	5.76286E 00	0.0	5.95626E 00
40	1.24762E 01	5.78121E 00	0.0	6.64497E 00
41	1.30873E 01	5.79545E 00	0.0	7.29184E 00
42	1.36404E 01	5.80657E 00	0.0	7.83382E 00
43	1.53345E 01	5.81865E 00	0.0	9.51506E 00
44	1.70775E 01	5.82858E 00	0.0	1.12490E 01
45	1.83650E 01	5.83617E 00	0.0	1.25288E 01
46	1.93577E 01	5.84202E 00	0.0	1.35157E 01
47	2.10180E 01	7.65621E 00	0.0	1.33618E 01
48	7.11084E 01	1.82178E 01	0.0	5.28906E 01
49	4.79836E 01	1.33719E 01	0.0	3.46115E 01
50	5.14023E 01	8.08099E 00	0.0	4.33214E 01
51	8.62288E 01	1.04742E 01	0.0	7.57490E 01
52	7.81444E 00	6.31105E 00	0.0	1.50330E 00
53	7.07468E 00	6.30099E 00	0.0	7.73721E-01
54	7.85404E 00	6.39975E 00	0.0	1.45419E 00
55	9.96331E 00	6.63443E 00	0.0	3.32865E 00
56	1.85736E 01	7.50406E 00	0.0	1.10696E 01
57	1.17159E 02	1.65407E 01	0.0	1.00656E 02
58	5.21616E 03	4.49901E 02	0.0	4.76626E 03
59	3.08823E 02	3.02191E 01	0.0	2.78607E 02
60	6.48455E 01	1.02003E 01	0.0	5.46447E 01
61	4.06374E 01	8.24915E 00	0.0	3.23882E 01
62	3.32956E 01	7.61840E 00	0.0	2.56771E 01
63	3.02427E 01	7.30052E 00	0.0	2.29421E 01
64	2.93056E 01	7.13085E 00	0.0	2.21778E 01
65	2.94641E 01	7.02194E 00	0.0	2.24420E 01
66	3.04117E 01	6.95033E 00	0.0	2.34613E 01
67	3.19355E 01	6.90204E 00	0.0	2.50336E 01
68	3.40499E 01	6.86725E 00	0.0	2.71826E 01
69	3.66226E 01	6.84292E 00	0.0	2.97796E 01
70	3.99309E 01	6.82345E 00	0.0	3.31072E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.23235E 00	2.33704E 00	1.89180E 00	3.02481E-03
2	3.94950E 00	1.97330E 00	1.95483E 00	2.10263E-02
3	4.30325E 00	2.37099E 00	1.89052E 00	5.61225E-02
4	5.49300E 00	3.60048E 00	1.78810E 00	9.73307E-02
5	6.70179E 00	4.95950E 00	1.68862E 00	1.33746E-01
6	7.75441E 00	6.20915E 00	1.30438E 00	2.47469E-01
7	8.27719E 00	7.55098E 00	2.24001E-01	5.14641E-01
8	8.33634E 00	7.47437E 00	2.66332E-02	8.01859E-01
9	8.10767E 00	6.67963E 00	9.38314E-04	1.18459E 00
10	7.78557E 00	6.13977E 00	0.0	1.61184E 00
11	7.67197E 00	5.73703E 00	0.0	1.93494E 00
12	8.01031E 00	5.63077E 00	0.0	2.33446E 00
13	8.46987E 00	5.63867E 00	0.0	2.81805E 00
14	9.68939E 00	5.70598E 00	0.0	3.90396E 00
15	1.16497E 01	5.76765E 00	0.0	5.84066E 00
16	1.40937E 01	5.80763E 00	0.0	8.23490E 00
17	1.86297E 01	5.83773E 00	0.0	1.24848E 01
18	4.67141E 01	1.31118E 01	0.0	3.36021E 01
19	4.85665E 01	8.29446E 00	0.0	4.02702E 01
20	8.29203E 00	6.44443E 00	0.0	1.84756E 00
21	1.75865E 03	1.55830E 02	0.0	1.60285E 03
22	1.37715E 02	1.61913E 01	0.0	1.21525E 02
23	3.09634E 01	7.35147E 00	0.0	2.36119E 01
24	3.05936E 01	6.95854E 00	0.0	2.36351E 01
25	3.68710E 01	6.84451E 00	0.0	3.00264E 01

=== NUCLIDE I -129 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.61831E 00	2.45537E 00	2.06279E 00	1.23854E-04
2	4.27453E 00	2.19124E 00	2.08269E 00	5.24131E-04
3	4.27563E 00	2.16162E 00	2.11210E 00	1.76795E-03
4	4.47982E 00	2.38355E 00	2.19078E 00	4.25844E-03
5	5.04283E 00	2.80668E 00	2.21670E 00	8.11119E-03
6	5.51665E 00	3.37636E 00	2.15445E 00	1.30227E-02
7	6.02904E 00	3.90034E 00	2.01732E 00	2.11104E-02
8	6.46339E 00	4.56754E 00	1.85910E 00	3.66738E-02
9	6.64873E 00	4.96853E 00	1.63948E 00	6.38688E-02
10	6.61905E 00	5.15963E 00	1.37589E 00	6.5477AE-02
11	6.45538E 00	5.37541E 00	9.51676E-01	1.38037E-01
12	6.38363E 00	5.32671E 00	8.14690E-01	1.40892E-01
13	6.13440E 00	5.22418E 00	7.54155E-01	1.45933E-01
14	5.90173E 00	5.14660E 00	6.90544E-01	1.58592E-01
15	5.90827E 00	5.09759E 00	6.43534E-01	1.66455E-01
16	5.86161E 00	5.06035E 00	6.21593E-01	1.76667E-01
17	5.87627E 00	5.06517E 00	6.03244E-01	2.07857E-01
18	5.90017E 00	5.09191E 00	5.90330E-01	2.38833E-01
19	5.94811E 00	5.10827E 00	5.82112E-01	2.55727E-01
20	6.05473E 00	5.19073E 00	5.54958E-01	3.04554E-01
21	6.20314E 00	5.30832E 00	5.17798E-01	3.77030E-01
22	6.33637E 00	5.41067E 00	4.79507E-01	4.33138E-01
23	6.62642E 00	5.72889E 00	2.86682E-01	5.66259E-01
24	6.91146E 00	6.03870E 00	8.45363E-02	6.89706E-01
25	7.13346E 00	6.27842E 00	0.0	7.86376E-01
26	7.41466E 00	6.51974E 00	0.0	9.91662E-01
27	7.90175E 00	6.85162E 00	0.0	1.05012E 00
28	8.27924E 00	7.10686E 00	0.0	1.17998E 00
29	9.06235E 00	7.58811E 00	0.0	1.45987E 00
30	1.00442E 01	8.17756E 00	0.0	1.86669E 00
31	1.07952E 01	8.62837E 00	0.0	2.16683E 00
32	1.13478E 01	8.97840E 00	0.0	2.39988E 00
33	1.19056E 01	9.27781E 00	0.0	2.62774E 00
34	1.25724E 01	1.00017E 01	0.0	3.53720E 00
35	1.31712E 01	1.06709E 01	0.0	4.46127E 00
36	1.63942E 01	1.11987E 01	0.0	5.19550E 00
37	1.73372E 01	1.15987E 01	0.0	5.73852E 00
38	1.97881E 01	1.22843E 01	0.0	7.45543E 00
39	2.30298E 01	1.31026E 01	0.0	9.85988E 00
40	2.55015E 01	1.37574E 01	0.0	1.17740E 01
41	2.74206E 01	1.42191E 01	0.0	1.32075E 01
42	2.91475E 01	1.46112E 01	0.0	1.45364E 01
43	3.44960E 01	1.53365E 01	0.0	1.89972E 01
44	3.96181E 01	1.59934E 01	0.0	2.36247E 01
45	4.33364E 01	1.64960E 01	0.0	2.70405E 01
46	4.65577E 01	1.68835E 01	0.0	2.96742E 01
47	9.45022E 00	7.13939E 00	0.0	2.31648E 00
48	2.50707E 01	9.01928E 00	0.0	1.60485E 01
49	6.98347E 00	6.93646E 00	0.0	4.70974E-02
50	6.98162E 00	6.93452E 00	0.0	4.71446E-02
51	7.00181E 00	6.93397E 00	0.0	6.78849E-02
52	7.03761E 00	6.93378E 00	0.0	1.03906E-01
53	7.09342E 00	6.93365E 00	0.0	1.59807E-01
54	7.17320E 00	6.93350E 00	0.0	2.39711E-01
55	7.27645E 00	6.93350E 00	0.0	3.43009E-01
56	7.42440E 00	6.93343E 00	0.0	4.93000E-01
57	7.62451E 00	6.93344E 00	0.0	6.91122E-01
58	7.86139E 00	6.93340E 00	0.0	9.28015E-01
59	8.15239E 00	6.93336E 00	0.0	1.21903E 00
60	8.48848E 00	6.93336E 00	0.0	1.55512E 00
61	8.89898E 00	6.93334E 00	0.0	1.96564E 00
62	9.34189E 00	6.93338E 00	0.0	2.40851E 00
63	9.86121E 00	6.93343E 00	0.0	2.92773E 00
64	1.04182E 01	6.93319E 00	0.0	3.48477E 00
65	1.10435E 01	6.93332E 00	0.0	4.12994E 00
66	1.17829E 01	6.93349E 00	0.0	4.84925E 00
67	1.25696E 01	6.93322E 00	0.0	5.63621E 00
68	1.34722E 01	6.93330E 00	0.0	6.53872E 00
69	1.44580E 01	6.93342E 00	0.0	7.52434E 00
70	1.54376E 01	6.93311E 00	0.0	8.70431E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.32472E 00	2.24495E 00	2.07927E 00	4.37635E-04
2	4.53502E 00	2.35178E 00	2.17913E 00	3.37060E-03
3	5.29166E 00	3.09891E 00	2.18552E 00	1.06145E-02
4	6.25452E 00	4.28994E 00	1.93520E 00	2.91724E-02
5	6.63334E 00	5.05854E 00	1.50033E 00	7.51717E-02
6	6.29090E 00	5.31014E 00	8.42092E-01	1.38596E-01
7	5.92182E 00	5.10107E 00	6.52756E-01	1.67176E-01
8	5.92017E 00	5.09151E 00	5.90330E-01	2.31863E-01
9	6.22492E 00	5.32702E 00	5.10062E-01	3.72323E-01
10	6.91190E 00	6.10492E 00	1.22714E-01	6.80464E-01
11	7.96918E 00	6.89641E 00	0.0	1.04289E 00
12	1.00066E 01	8.29543E 00	0.0	1.82675E 00
13	1.23358E 01	9.44480E 00	0.0	2.85783E 00
14	1.63521E 01	1.13054E 01	0.0	5.17130E 00
15	2.29059E 01	1.32655E 01	0.0	9.68218E 00
16	3.03614E 01	1.47508E 01	0.0	1.56311E 01
17	4.34018E 01	1.65993E 01	0.0	2.69231E 01
18	1.38796E 01	7.70098E 00	0.0	6.17722E 00
19	7.00705E 00	6.93409E 00	0.0	7.30032E-02
20	7.18064E 00	6.93355E 00	0.0	2.47129E-01
21	7.63571E 00	6.93342E 00	0.0	7.02323E-01
22	8.51371E 00	6.93339E 00	0.0	1.58035E 00
23	9.87103E 00	6.93393E 00	0.0	2.93761E 00
24	1.17995E 01	6.93339E 00	0.0	4.86591E 00
25	1.45238E 01	6.93327E 00	0.0	7.59036E 00

=== NUCLIDE XE-131 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51777E 00	2.44513E 00	2.07240E 00	2.00548E-04
2	4.29129E 00	2.19347E 00	2.09692E 00	7.78805E-04
3	4.31288E 00	2.19552E 00	2.12467E 00	2.49151E-03
4	4.44399E 00	2.43862E 00	2.19918E 00	5.86428E-03
5	5.13796E 00	2.87568E 00	2.23559E 00	1.06871E-02
6	5.69239E 00	3.44712E 00	2.19298E 00	1.59849E-02
7	6.14211E 00	4.04168E 00	2.07859E 00	2.17256E-02
8	6.54804E 00	4.56209E 00	1.95756E 00	2.83887E-02
9	6.68911E 00	4.84961E 00	1.80438E 00	3.51217E-02
10	6.60729E 00	4.94126E 00	1.62298E 00	4.30513E-02
11	6.39156E 00	4.91484E 00	1.42102E 00	5.55202E-02
12	6.18974E 00	4.87452E 00	1.23897E 00	6.99941E-02
13	6.00159E 00	4.88776E 00	1.02659E 00	9.06602E-02
14	5.86133E 00	5.01964E 00	7.26517E-01	1.24653E-01
15	5.74984E 00	5.12408E 00	4.88438E-01	1.57269E-01
16	5.72810E 00	5.10988E 00	4.47549E-01	1.75667E-01
17	5.75834E 00	5.18674E 00	3.71089E-01	2.04972E-01
18	5.82213E 00	5.29786E 00	2.93266E-01	2.37667E-01
19	5.86915E 00	5.36857E 00	2.43040E-01	2.57545E-01
20	5.90309E 00	5.53658E 00	8.98247E-02	3.00997E-01
21	6.19544E 00	5.75500E 00	0.0	3.63049E-01
22	6.36041E 00	5.92723E 00	0.0	4.09376E-01
23	6.71494E 00	6.21435E 00	0.0	5.01589E-01
24	7.06036E 00	6.47313E 00	0.0	5.87231E-01
25	7.39765E 00	6.67415E 00	0.0	6.53499E-01
26	7.66229E 00	6.93002E 00	0.0	7.32273E-01
27	8.23499E 00	7.37369E 00	0.0	8.61299E-01
28	8.67867E 00	7.71754E 00	0.0	9.61122E-01
29	9.58653E 00	8.36705E 00	0.0	1.20708E 00
30	1.07212E 01	9.16295E 00	0.0	1.55820E 00
31	1.15890E 01	9.77164E 00	0.0	1.81741E 00
32	1.22629E 01	1.02443E 01	0.0	2.01860E 00
33	1.28713E 01	1.06539E 01	0.0	2.21745E 00
34	1.47831E 01	1.17174E 01	0.0	3.03559E 00
35	1.66161E 01	1.27507E 01	0.0	3.89540E 00
36	1.80183E 01	1.34882E 01	0.0	4.53005E 00
37	1.90099E 01	1.40800E 01	0.0	5.01941E 00
38	2.19141E 01	1.52061E 01	0.0	6.66753E 00
39	2.56030E 01	1.65866E 01	0.0	8.95526E 00
40	2.84348E 01	1.76440E 01	0.0	1.07888E 01
41	3.06589E 01	1.84670E 01	0.0	1.21919E 01
42	3.26030E 01	1.91467E 01	0.0	1.34563E 01
43	3.87131E 01	2.04809E 01	0.0	1.80638E 01
44	4.45642E 01	2.17015E 01	0.0	2.28627E 01
45	4.90401E 01	2.26352E 01	0.0	2.64049E 01
46	5.24915E 01	2.33552E 01	0.0	2.91362E 01
47	5.52337E 01	2.51338E 00	0.0	1.17205E 01
48	1.95952E 01	8.77856E 00	0.0	1.08154E 01
49	1.45093E 01	9.06913E 00	0.0	5.44299E 00
50	5.35446E 01	1.52403E 01	0.0	3.83005E 01
51	1.55972E 01	1.39395E 01	0.0	1.65798E 00
52	3.70937E 01	3.08992E 01	0.0	6.19464E 00
53	2.15505E 03	1.63435E 03	0.0	5.20708E 02
54	7.51438E 03	5.68177E 03	0.0	1.83260E 03
55	1.54349E 03	1.14869E 03	0.0	3.94759E 02
56	1.15055E 02	8.37969E 01	0.0	3.12581E 01
57	6.07622E 01	4.32232E 01	0.0	1.75389E 01
58	4.52327E 01	3.12962E 01	0.0	1.39365E 01
59	3.84835E 01	2.57113E 01	0.0	1.27722E 01
60	3.53308E 01	2.26507E 01	0.0	1.26801E 01
61	3.39827E 01	2.06931E 01	0.0	1.32896E 01
62	3.37244E 01	1.94915E 01	0.0	1.42328E 01
63	3.42626E 01	1.86325E 01	0.0	1.56301E 01
64	3.53555E 01	1.80552E 01	0.0	1.73004E 01
65	3.69901E 01	1.76211E 01	0.0	1.93691E 01
66	3.90947E 01	1.73049E 01	0.0	2.17838E 01
67	4.16027E 01	1.70736E 01	0.0	2.45295E 01
68	4.46515E 01	1.68961E 01	0.0	2.77554E 01
69	4.81126E 01	1.67651E 01	0.0	3.13475E 01
70	5.23768E 01	1.66599E 01	0.0	3.57169E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.33772E 00	2.24423E 00	2.09274E 00	6.52339E-04
2	4.59595E 00	2.40214E 00	2.18815E 00	4.66191E-03
3	5.39778E 00	3.16884E 00	2.21460E 00	1.33881E-02
4	6.35284E 00	4.31183E 00	2.01576E 00	2.51867E-02
5	6.64650E 00	4.89740E 00	1.70984E 00	3.92548E-02
6	6.19622E 00	4.89259E 00	1.23389F 00	7.16786E-02
7	5.78733E 00	5.08184E 00	5.57404E-01	1.52389E-01
8	5.81605E 00	5.29786E 00	3.12053E-01	2.31034E-01
9	6.19410E 00	5.78425E 00	3.02050E-02	3.57554E-01
10	7.13421E 00	6.52867E 00	0.0	5.80896E-01
11	8.31418E 00	7.43512E 00	0.0	8.55512E-01
12	1.06777E 01	9.13243E 00	0.0	1.52381E 00
13	1.33637E 01	1.09077E 01	0.0	2.42614E 00
14	1.79701E 01	1.36460E 01	0.0	4.50824E 00
15	2.52943E 01	1.65356E 01	0.0	8.78503E 00
16	3.39894E 01	1.94184E 01	0.0	1.45828E 01
17	4.88863E 01	2.28272E 01	0.0	2.62832E 01
18	1.81332E 01	8.78193E 00	0.0	9.34947E 00
19	3.53115E 01	2.00109E 01	0.0	1.52995E 01
20	3.72175E 03	2.80963E 03	0.0	9.12100E 02
21	7.39143E 01	5.29462E 01	0.0	2.09679E 01
22	3.59144E 01	2.30140E 01	0.0	1.29004E 01
23	3.44443E 01	1.87307E 01	0.0	1.57136E 01
24	3.92109E 01	1.73352E 01	0.0	2.18758E 01
25	4.83846E 01	1.67735E 01	0.0	3.16111E 01

*** NUCLIDE CS-133 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	2.51700E 00	2.42955E 00	2.08750E 00	1.33832E-04
2	4.33325E 00	2.19706E 00	2.11556E 00	5.29935E-04
3	4.36059E 00	2.21730E 00	2.14169E 00	1.67197E-03
4	4.72215E 00	2.50414E 00	2.20986E 00	3.95462E-03
5	5.24702E 00	3.06662E 00	2.25390E 00	7.91358E-03
6	5.76573E 00	3.73428E 00	2.13852E 00	1.13857E-02
7	6.27372E 00	4.29748E 00	1.95918E 00	1.69184E-02
8	6.69121E 00	4.76338E 00	1.86255E 00	2.55464E-02
9	6.76513E 00	5.00607E 00	1.70268E 00	3.63723E-02
10	6.66605E 00	5.07735E 00	1.67646E 00	5.29320E-02
11	6.33018E 00	5.04051E 00	1.20713E 00	8.23559E-02
12	6.08449E 00	4.98417E 00	9.83982E-01	1.15782E-01
13	5.88322E 00	4.91008E 00	8.76690E-01	1.44556E-01
14	5.75341E 00	4.82124E 00	7.40437E-01	1.60606E-01
15	5.63369E 00	4.77879E 00	6.79606E-01	1.75291E-01
16	5.60014E 00	4.79097E 00	6.16258E-01	1.92889E-01
17	5.65589E 00	4.92149E 00	5.11815E-01	2.30278E-01
18	5.75589E 00	5.08851E 00	3.94526E-01	2.75333E-01
19	5.81732E 00	5.19480E 00	3.19799E-01	3.09727E-01
20	5.90076E 00	5.41697E 00	1.11510E-01	3.53144E-01
21	6.23785E 00	5.69839E 00	0.0	4.37406E-01
22	6.43585E 00	5.91954E 00	0.0	4.97696E-01
23	6.88448E 00	6.27499E 00	0.0	6.09486E-01
24	7.30668E 00	6.58605E 00	0.0	7.12622E-01
25	7.63691E 00	6.84448E 00	0.0	7.95285E-01
26	8.04971E 00	7.15135E 00	0.0	8.91355E-01
27	8.73004E 00	7.67076E 00	0.0	1.05928E 00
28	9.26236E 00	8.07302E 00	0.0	1.18935E 00
29	1.03388E 01	8.80431E 00	0.0	1.51783E 00
30	1.14804E 01	9.69134E 00	0.0	1.97625E 00
31	1.27064E 01	1.03697E 01	0.0	2.33669E 00
32	1.35031E 01	1.08965E 01	0.0	2.66662E 00
33	1.42215E 01	1.13495E 01	0.0	2.87193E 00
34	1.44657E 01	1.24795E 01	0.0	3.94654E 00
35	1.86163E 01	1.35415E 01	0.0	5.07486E 00
36	2.02615E 01	1.43538E 01	0.0	5.90770E 00
37	2.15300E 01	1.49802E 01	0.0	6.54989E 00
38	2.44482E 01	1.61244E 01	0.0	8.52466E 00
39	2.91527E 01	1.75142E 01	0.0	1.16559E 01
40	3.24613E 01	1.85771E 01	0.0	1.38842E 01
41	3.50302E 01	1.94024E 01	0.0	1.56278E 01
42	3.73415E 01	2.00822E 01	0.0	1.77592E 01
43	4.44928E 01	2.13677E 01	0.0	2.29187E 01
44	5.13410E 01	2.25380E 01	0.0	2.88030E 01
45	5.65797E 01	2.34932E 01	0.0	3.31468E 01
46	6.06191E 01	2.41235E 01	0.0	3.64956E 01
47	9.28413E 01	9.81151E 00	0.0	2.30264E 01
48	9.39960E 00	7.40243E 00	0.0	1.98882E 00
49	3.07857E 01	1.02892E 01	0.0	2.04960E 01
50	4.83000E 01	1.23937E 01	0.0	3.59024E 01
51	1.56878E 01	7.54053E 00	0.0	8.16190E 00
52	5.84421E 01	9.73377E 00	0.0	4.87081E 01
53	4.98793E 01	9.28163E 00	0.0	4.06939E 01
54	7.99429E 00	7.12104E 00	0.0	8.07229E-01
55	9.49861E 00	7.14664E 00	0.0	1.35189E 00
56	1.20901E 01	7.30296E 00	0.0	4.78722E 00
57	3.80777E 02	2.15129E 01	0.0	3.58465E 02
58	8.07559E 02	3.81636E 01	0.0	7.69207E 02
59	9.37227E 01	7.61620E 00	0.0	1.61063E 01
60	1.50962E 01	7.29448E 00	0.0	7.80172E 00
61	1.30625E 01	7.21932E 00	0.0	5.85035E 00
62	1.28802E 01	7.17946E 00	0.0	5.30078E 00
63	1.23919E 01	7.16171E 00	0.0	5.23014E 00
64	1.23773E 01	7.15164E 00	0.0	5.42949E 00
65	1.29517E 01	7.14456E 00	0.0	5.80692E 00
66	1.34761E 01	7.14022E 00	0.0	6.33567E 00
67	1.41200E 01	7.13709E 00	0.0	6.98267E 00
68	1.49135E 01	7.13468E 00	0.0	7.77859E 00
69	1.58217E 01	7.13341E 00	0.0	8.68809E 00
70	1.69449E 01	7.13167E 00	0.0	9.81291E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.35466E 00	2.24345E 00	2.11071E 00	4.38026E-04
2	4.66946E 00	2.40245E 00	2.19888E 00	3.12157E-03
3	5.51868E 00	3.40964E 00	2.19668E 00	9.38938E-03
4	6.46968E 00	4.53932E 00	1.90903E 00	2.12447E-02
5	6.67267E 00	5.04324E 00	1.58479E 00	4.45925E-02
6	6.10387E 00	4.97950E 00	1.00979E 00	1.13587E-01
7	5.65307E 00	4.79835E 00	6.77549E-01	1.76647E-01
8	5.73860E 00	5.08851E 00	4.23129E-01	2.64417E-01
9	6.23685E 00	5.73584E 00	3.74967E-02	4.31519E-01
10	7.39916E 00	6.66469E 00	0.0	7.04993E-01
11	8.82498E 00	7.74250E 00	0.0	1.05180E 00
12	1.16289E 01	9.65733E 00	0.0	1.94278E 00
13	1.47325E 01	1.16149E 01	0.0	3.14489E 00
14	2.02049E 01	1.45208E 01	0.0	5.83981E 00
15	2.47843E 01	1.74609E 01	0.0	1.13397E 01
16	3.89639E 01	2.03370E 01	0.0	1.86314E 01
17	5.63997E 01	2.36179E 01	0.0	3.29972E 01
18	2.42973E 01	9.16003E 00	0.0	1.51352E 01
19	4.06935E 01	9.87832E 00	0.0	3.08180E 01
20	2.22468E 01	7.82364E 00	0.0	1.44214E 01
21	3.97192E 02	2.23161E 01	0.0	3.74882E 02
22	1.72806E 01	7.37384E 00	0.0	9.90669E 00
23	1.24834E 01	7.16436E 00	0.0	5.31898E 00
24	1.35113E 01	7.19065E 00	0.0	6.37042E 00
25	1.58945E 01	7.19394E 00	0.0	8.76100E 00

=== NUCLIDE CS-135 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51138E 00	2.41859E 00	2.092694E 00	8.17350E-05
2	4.32557E 00	2.20013E 00	2.12517E 00	2.83709E-04
3	4.39526E 00	2.24920E 00	2.15138E 00	6.42156E-04
4	4.78303E 00	2.56737E 00	2.21426E 00	1.34977E-03
5	5.33166E 00	3.05912E 00	2.26484E 00	2.90695E-03
6	5.86552E 00	3.68795E 00	2.20870E 00	5.68045E-03
7	6.37805E 00	4.42867E 00	1.94604E 00	1.48725E-02
8	6.73489E 00	5.12316E 00	1.57534E 00	3.77637E-02
9	6.79359E 00	5.39457E 00	1.36563E 00	4.34900E-02
10	6.60958E 00	5.46071E 00	1.09883E 00	5.01132E-02
11	6.28666E 00	5.51340E 00	7.06162E-01	6.84729E-02
12	6.00055E 00	5.43087E 00	5.25416E-01	7.32477E-02
13	5.78572E 00	5.28483E 00	4.99950E-01	7.89000E-02
14	5.61751E 00	5.12711E 00	3.06571E-01	8.84887E-02
15	5.53004E 00	5.24475E 00	1.33453E-01	1.00459E-01
16	5.60532E 00	5.33901E 00	0.0	1.14378E-01
17	5.58782E 00	5.45468E 00	0.0	1.33149E-01
18	5.71104E 00	5.56038E 00	0.0	1.56667E-01
19	5.78946E 00	5.62764E 00	0.0	1.61818E-01
20	6.00065E 00	5.83689E 00	0.0	1.86535E-01
21	6.29145E 00	6.07009E 00	0.0	2.21384E-01
22	6.52620E 00	6.27715E 00	0.0	2.48054E-01
23	7.08445E 00	6.73498E 00	0.0	3.11267E-01
24	7.58127E 00	7.16671E 00	0.0	3.74559E-01
25	7.99360E 00	7.57078E 00	0.0	4.21825E-01
26	8.39074E 00	7.91959E 00	0.0	4.78150E-01
27	8.17905E 00	8.60844E 00	0.0	5.70605E-01
28	8.78947E 00	8.14733E 00	0.0	6.42140E-01
29	1.10154E 01	1.01955E 01	0.0	8.11504E-01
30	1.25409E 01	1.14894E 01	0.0	1.05150E 00
31	1.37076E 01	1.24791E 01	0.0	1.23856E 00
32	1.44135E 01	1.32475E 01	0.0	1.36604E 00
33	1.54398E 01	1.39246E 01	0.0	1.50516E 00
34	1.78715E 01	1.58344E 01	0.0	2.11461E 00
35	2.04067E 01	1.76494E 01	0.0	2.73967E 00
36	2.22696E 01	1.90378E 01	0.0	3.23173E 00
37	2.37060E 01	2.01084E 01	0.0	3.59753E 00
38	2.72548E 01	2.24391E 01	0.0	4.91058E 00
39	3.23248E 01	2.59433E 01	0.0	6.38705E 00
40	3.60654E 01	2.76526E 01	0.0	8.41284E 00
41	3.80698E 01	2.90068E 01	0.0	9.56298E 00
42	4.15826E 01	3.09631E 01	0.0	1.06795E 01
43	4.96449E 01	3.44629E 01	0.0	1.50417E 01
44	5.74044E 01	3.77923E 01	0.0	1.96866E 01
45	6.33248E 01	4.03392E 01	0.0	2.29856E 01
46	6.78900E 01	4.23031E 01	0.0	2.55869E 01
47	7.17827E 00	7.15921E 00	0.0	2.51207E-02
48	7.18624E 00	7.15203E 00	0.0	3.41470E-02
49	7.19874E 00	7.15136E 00	0.0	4.74151E-02
50	7.23710E 00	7.15095E 00	0.0	6.61938E-02
51	7.25207E 00	7.15058E 00	0.0	9.14771E-02
52	7.27429E 00	7.15046E 00	0.0	1.23451E-01
53	7.31436E 00	7.15028E 00	0.0	1.64131E-01
54	7.36191E 00	7.15018E 00	0.0	2.11766E-01
55	7.41443E 00	7.15007E 00	0.0	2.64376E-01
56	7.44018E 00	7.15000E 00	0.0	3.30215E-01
57	7.55440E 00	7.14995E 00	0.0	4.04475E-01
58	7.63870E 00	7.14990E 00	0.0	4.88805E-01
59	7.73278E 00	7.14985E 00	0.0	5.89917E-01
60	7.83591E 00	7.14984E 00	0.0	6.86080E-01
61	7.95748E 00	7.14980E 00	0.0	8.07659E-01
62	8.08671E 00	7.14980E 00	0.0	9.36918E-01
63	8.23727E 00	7.14980E 00	0.0	1.08747E 00
64	8.39889E 00	7.14980E 00	0.0	1.24909E 00
65	8.58706E 00	7.14980E 00	0.0	1.43726E 00
66	8.78867E 00	7.14976E 00	0.0	1.64890E 00
67	9.03207E 00	7.14980E 00	0.0	1.89227E 00
68	9.30202E 00	7.14980E 00	0.0	2.16222E 00
69	9.59906E 00	7.14976E 00	0.0	2.44930E 00
70	9.95731E 00	7.14970E 00	0.0	2.80767E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.36292E 00	2.24325E 00	2.11943E 00	2.08040E-04
2	4.72634E 00	2.44887E 00	2.20487E 00	1.12293E-03
3	5.61240E 00	3.38170E 00	2.23758E 00	4.31673E-03
4	6.56330E 00	4.78842E 00	1.74857E 00	2.67807E-02
5	6.69813E 00	5.42432E 00	1.22715E 00	4.69456E-02
6	6.03247E 00	5.40522E 00	5.54477E-01	7.34376E-02
7	5.55374E 00	5.27497E 00	1.52852E-01	1.00574E-01
8	5.71104E 00	5.56038E 00	0.0	1.46946E-01
9	6.33250E 00	6.10697E 00	0.0	2.19026E-01
10	7.44662E 00	7.25901E 00	0.0	3.70040E-01
11	9.14389E 00	8.70454E 00	0.0	5.66461E-01
12	1.24825E 01	1.14398E 01	0.0	1.02794E 00
13	1.60079E 01	1.43970E 01	0.0	1.66314E 00
14	2.22056E 01	1.89901E 01	0.0	3.19306E 00
15	3.19083E 01	2.52800E 01	0.0	6.71952E 00
16	4.34161E 01	3.17176E 01	0.0	1.17765E 01
17	6.31219E 01	4.08639E 01	0.0	2.27106E 01
18	7.18767E 00	7.15220E 00	0.0	3.54872E-02
19	7.24453E 00	7.15044E 00	0.0	9.38853E-02
20	7.36335E 00	7.15018E 00	0.0	2.13205E-01
21	7.55781E 00	7.14995E 00	0.0	4.07878E-01
22	7.84219E 00	7.14983E 00	0.0	6.92349E-01
23	8.24017E 00	7.14980E 00	0.0	1.09037E 00
24	8.80419E 00	7.14979E 00	0.0	1.65440E 00
25	9.61984E 00	7.14975E 00	0.0	2.47010E 00

=== NUCLIDE CS-137 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51111E 00	2.41052E 00	2.10057E 00	2.93221E-05
2	4.34428E 00	2.20799E 00	2.13672E 00	6.45269E-05
3	4.43674E 00	2.27451E 00	2.16210E 00	1.43529E-04
4	4.45607E 00	2.63025E 00	2.21932E 00	2.84707E-04
5	5.41880E 00	3.21479E 00	2.27314E 00	6.46824E-04
6	5.96635E 00	4.05726E 00	2.08797E 00	1.54854E-03
7	6.44989E 00	5.09110E 00	1.39864E 00	6.75533E-03
8	6.83960E 00	5.80577E 00	1.00884E 00	9.23298E-03
9	6.85209E 00	6.04780E 00	7.96419E-01	7.87298E-03
10	6.69929E 00	6.06729E 00	5.64954E-01	7.04518E-03
11	6.26933E 00	5.88426E 00	3.72575E-01	6.48917E-03
12	5.95819E 00	5.70950E 00	2.45113E-01	6.28861E-03
13	5.72023E 00	5.63314E 00	3.25356E-02	6.34556E-03
14	5.54512E 00	5.53655E 00	0.0	6.56690E-03
15	5.44136E 00	5.43444E 00	0.0	6.92607E-03
16	5.44825E 00	5.44080E 00	0.0	7.44667E-03
17	5.54119E 00	5.55238E 00	0.0	8.72251E-03
18	5.71825E 00	5.70790E 00	0.0	1.03533E-02
19	5.81820E 00	5.80687E 00	0.0	1.13327E-02
20	6.07752E 00	6.06416E 00	0.0	1.33703E-02
21	6.41997E 00	6.40403E 00	0.0	1.55337E-02
22	6.80954E 00	6.78154E 00	0.0	1.80388E-02
23	7.31147E 00	7.28871E 00	0.0	2.26913E-02
24	7.88780E 00	7.86060E 00	0.0	2.75030E-02
25	8.33375E 00	8.30311E 00	0.0	3.06471E-02
26	8.87791E 00	8.84212E 00	0.0	3.56539E-02
27	9.7865AE 00	9.74383E 00	0.0	4.52472E-02
28	1.09954E 01	1.08419E 01	0.0	5.34860E-02
29	1.19049E 01	1.18333E 01	0.0	7.07367E-02
30	1.35563E 01	1.35614E 01	0.0	9.42269E-02
31	1.49957E 01	1.48830E 01	0.0	1.12697E-01
32	1.60358E 01	1.59092E 01	0.0	1.26529E-01
33	1.69723E 01	1.68333E 01	0.0	1.38993E-01
34	1.98807E 01	1.97029E 01	0.0	1.76477E-01
35	2.26666E 01	2.24516E 01	0.0	2.15039E-01
36	2.47977E 01	2.45542E 01	0.0	2.43504E-01
37	2.64410E 01	2.61756E 01	0.0	2.65452E-01
38	3.04966E 01	3.01511E 01	0.0	3.45442E-01
39	3.62894E 01	3.58228E 01	0.0	4.63321E-01
40	4.05633E 01	4.00073E 01	0.0	5.56005E-01
41	4.38817E 01	4.32563E 01	0.0	6.25416E-01
42	4.68668E 01	4.61697E 01	0.0	6.97098E-01
43	5.60960E 01	5.50565E 01	0.0	1.03723E 00
44	6.49334E 01	6.35571E 01	0.0	1.36871E 00
45	7.14938E 01	7.00599E 01	0.0	1.63395E 00
46	7.69066E 01	7.50740E 01	0.0	1.83262E 00
47	7.22081E 00	7.21928E 00	0.0	1.55883E-03
48	7.22092E 00	7.21910E 00	0.0	1.81209E-03
49	7.22113E 00	7.21910E 00	0.0	2.09440E-03
50	7.22144E 00	7.21909E 00	0.0	2.41841E-03
51	7.22177E 00	7.21900E 00	0.0	2.78724E-03
52	7.22218E 00	7.21900E 00	0.0	3.20346E-03
53	7.22261E 00	7.21900E 00	0.0	3.67558E-03
54	7.22314E 00	7.21900E 00	0.0	4.19811E-03
55	7.22370E 00	7.21897E 00	0.0	4.75777E-03
56	7.22435E 00	7.21893E 00	0.0	5.44558E-03
57	7.22512E 00	7.21891E 00	0.0	6.23064E-03
58	7.22594E 00	7.21894E 00	0.0	7.09005E-03
59	7.22694E 00	7.21890E 00	0.0	8.07517E-03
60	7.22806E 00	7.21890E 00	0.0	9.18865E-03
61	7.22935E 00	7.21890E 00	0.0	1.04837E-02
62	7.23077E 00	7.21890E 00	0.0	1.19004E-02
63	7.23243E 00	7.21890E 00	0.0	1.35593E-02
64	7.23423E 00	7.21890E 00	0.0	1.53693E-02
65	7.23638E 00	7.21890E 00	0.0	1.74922E-02
66	7.23877E 00	7.21890E 00	0.0	1.98960E-02
67	7.24147E 00	7.21890E 00	0.0	2.26700E-02
68	7.24454E 00	7.21890E 00	0.0	2.58716E-02
69	7.24794E 00	7.21890E 00	0.0	2.91034E-02
70	7.25212E 00	7.21890E 00	0.0	3.33547E-02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.37733E 00	2.24745E 00	2.12982E 00	5.67445E-05
2	4.78944E 00	2.50022E 00	2.21098E 00	2.33944E-04
3	5.70679E 00	3.64756E 00	2.15627E 00	1.10165E-03
4	6.65314E 00	5.46200E 00	1.19670E 00	8.03983E-03
5	6.73599E 00	6.05799E 00	6.71260E-01	7.44151E-03
6	5.98607E 00	5.74447E 00	2.20775E-01	6.37202E-03
7	5.48541E 00	5.47842E 00	0.0	6.99118E-03
8	5.71825E 00	5.70790E 00	0.0	9.96305E-03
9	6.46877E 00	6.45246E 00	0.0	1.57508E-02
10	7.87243E 00	7.84533E 00	0.0	2.68738E-02
11	9.74888E 00	9.70354E 00	0.0	4.49621E-02
12	1.35891E 01	1.34951E 01	0.0	9.25122E-02
13	1.76331E 01	1.74853E 01	0.0	1.47829E-01
14	2.47245E 01	2.44820E 01	0.0	2.42526E-01
15	3.58135E 01	3.53569E 01	0.0	4.56716E-01
16	4.89600E 01	4.81744E 01	0.0	7.83702E-01
17	7.14615E 01	6.98364E 01	0.0	1.61295E 00
18	7.22095E 00	7.21918F 00	0.0	1.81977E-03
19	7.22179E 00	7.21903E 00	0.0	2.80372E-03
20	7.22315E 00	7.21899F 00	0.0	4.20810E-03
21	7.22515E 00	7.21893E 00	0.0	6.24898E-03
22	7.22812E 00	7.21890E 00	0.0	9.24387E-03
23	7.23247E 00	7.21890E 00	0.0	1.36009E-02
24	7.23885E 00	7.21890F 00	0.0	1.99662E-02
25	7.24820E 00	7.21890E 00	0.0	2.93476E-02

*** NUCLIDE CE-144 ***

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51788E 00	2.38870E 00	2.12913E 00	4.76371E-05
2	4.41968E 00	2.26948E 00	2.16986E 00	2.78392E-04
3	4.59588E 00	2.40163E 00	2.19297E 00	1.15991E-03
4	5.10408E 00	2.86631E 00	2.23454E 00	3.03226E-03
5	5.72694E 00	3.45340E 00	2.28748E 00	5.95575E-03
6	6.30776E 00	4.08691E 00	2.25597E 00	9.26321E-03
7	6.80888E 00	4.62520E 00	2.17140E 00	1.22189E-02
8	7.11300E 00	5.02166E 00	2.07708E 00	1.43523E-02
9	7.07751E 00	5.18665E 00	1.87551E 00	1.53784E-02
10	6.74821E 00	5.15229E 00	1.60000E 00	1.59472E-02
11	6.30497E 00	4.98504E 00	1.29350E 00	1.66305E-02
12	5.91927E 00	4.88595E 00	1.01663E 00	1.69892E-02
13	5.69801E 00	5.20831E 00	4.19181E-01	3.1525AE-02
14	5.65787E 00	5.41497E 00	0.0	4.34972E-02
15	5.81897E 00	5.37415E 00	0.0	4.48134E-02
16	5.67876E 00	5.43133E 00	0.0	4.74333E-02
17	5.74708E 00	5.69452E 00	0.0	5.25571E-02
18	6.07148E 00	6.01391E 00	0.0	5.79667E-02
19	6.57857E 00	6.51716E 00	0.0	6.14091E-02
20	6.75148E 00	6.68632E 00	0.0	6.51582E-02
21	7.36184E 00	7.29259E 00	0.0	6.84528E-02
22	7.85751E 00	7.78531E 00	0.0	7.22059E-02
23	8.90197E 00	8.82035E 00	0.0	8.16240E-02
24	9.88144E 00	9.79073E 00	0.0	9.07407E-02
25	1.06393E 01	1.05415E 01	0.0	9.77950E-02
26	1.15432E 01	1.14456E 01	0.0	1.07564E-01
27	1.30687E 01	1.29431E 01	0.0	1.25573E-01
28	1.42617E 01	1.41021E 01	0.0	1.36555E-01
29	1.44508E 01	1.42908E 01	0.0	1.61095E-01
30	1.42227E 01	1.40368E 01	0.0	1.85941E-01
31	1.46154E 01	1.44104E 01	0.0	2.04993E-01
32	1.53179E 01	1.50982E 01	0.0	2.19697E-01
33	1.64489E 01	1.62147E 01	0.0	2.34133E-01
34	1.85767E 01	1.82827E 01	0.0	2.91852E-01
35	2.41035E 01	2.37510E 01	0.0	3.55410E-01
36	2.75663E 01	2.71692E 01	0.0	3.97110E-01
37	2.93364E 01	2.89048E 01	0.0	4.31576E-01
38	2.68131E 01	2.62257E 01	0.0	5.85776E-01
39	2.60036E 01	2.53744E 01	0.0	8.22264E-01
40	2.31318E 01	2.21243E 01	0.0	1.00497E 00
41	2.85111E 01	2.73658E 01	0.0	1.14529E 00
42	3.33491E 01	3.20417E 01	0.0	1.24737E 00
43	3.82999E 01	3.68374E 01	0.0	1.93348E 00
44	1.02605E 02	9.99892E 01	0.0	2.56743E 00
45	1.13552E 02	1.10432E 02	0.0	3.10010E 00
46	1.21994E 02	1.18485E 02	0.0	3.50867E 00
47	7.80857E 00	7.79490E 00	0.0	1.36637E-02
48	7.78025E 00	7.77340E 00	0.0	1.58260E-02
49	7.77680E 00	7.75849E 00	0.0	1.83150E-02
50	7.76903E 00	7.74780E 00	0.0	2.12293E-02
51	7.76429E 00	7.73969E 00	0.0	2.45833E-02
52	7.76210E 00	7.73371E 00	0.0	2.83769E-02
53	7.76195E 00	7.72921E 00	0.0	3.26918E-02
54	7.76340E 00	7.72585E 00	0.0	3.74856E-02
55	7.76581E 00	7.72316E 00	0.0	4.29935E-02
56	7.76825E 00	7.72043E 00	0.0	4.88375E-02
57	7.77095E 00	7.71894E 00	0.0	5.60339E-02
58	7.77153E 00	7.71773E 00	0.0	6.38309E-02
59	7.77054E 00	7.71679E 00	0.0	7.28027E-02
60	7.79889E 00	7.71617E 00	0.0	8.27963E-02
61	7.81036E 00	7.71567E 00	0.0	9.47208E-02
62	7.82271E 00	7.71513E 00	0.0	1.07524E-01
63	7.83776E 00	7.71508E 00	0.0	1.22680E-01
64	7.85368E 00	7.71467E 00	0.0	1.39038E-01
65	7.87271E 00	7.71442E 00	0.0	1.58314E-01
66	7.89451E 00	7.71435E 00	0.0	1.80157E-01
67	7.91872E 00	7.71435E 00	0.0	2.04415E-01
68	7.94660E 00	7.71410E 00	0.0	2.33518E-01
69	7.97767E 00	7.71400E 00	0.0	2.63644E-01
70	8.01541E 00	7.71412E 00	0.0	3.01328E-01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.43717E 00	2.27453E 00	2.16236E 00	2.27606E-04
2	5.02895E 00	2.69652E 00	2.22832E 00	2.36884E-03
3	6.02740E 00	3.78389E 00	2.27284E 00	7.65218E-03
4	6.96675E 00	4.83100E 00	2.12244E 00	1.32747E-02
5	6.91642E 00	5.16880E 00	1.73197E 00	1.56957E-02
6	5.95152E 00	5.02379E 00	9.19429E-01	2.14635E-02
7	5.45499E 00	5.40953E 00	0.0	4.54647E-02
8	6.07188E 00	6.01391E 00	0.0	5.68182E-02
9	7.33817E 00	7.26931E 00	0.0	6.95411E-02
10	9.45529E 00	9.36480E 00	0.0	9.04974E-02
11	1.30009E 01	1.28761E 01	0.0	1.24783E-01
12	1.91786E 01	1.89948E 01	0.0	1.84989E-01
13	2.59207E 01	2.56716E 01	0.0	2.49072E-01
14	3.74473E 01	3.70517E 01	0.0	3.95573E-01
15	5.54922E 01	5.46239E 01	0.0	8.03324E-01
16	7.67378E 01	7.52777E 01	0.0	1.45636E 00
17	1.13176E 02	1.10073E 02	0.0	3.07903E 00
18	7.79165E 00	7.77572E 00	0.0	1.59174E-02
19	7.76513E 00	7.74038E 00	0.0	2.47360E-02
20	7.76371E 00	7.72609E 00	0.0	3.75685E-02
21	7.77520E 00	7.71904E 00	0.0	5.61754E-02
22	7.79963E 00	7.71621E 00	0.0	8.34392E-02
23	7.83797E 00	7.71494E 00	0.0	1.23001E-01
24	7.89513E 00	7.71437E 00	0.0	1.80781E-01
25	7.97993E 00	7.71407E 00	0.0	2.65869E-01

=== NUCLIDE NO=143 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51337E 00	2.38956E 00	2.12378E 00	4.29912E-05
2	4.40724E 00	2.24251E 00	2.16450E 00	2.03556E-04
3	4.57670E 00	2.38545E 00	2.18634E 00	8.2994AE-04
4	5.07424E 00	2.83454E 00	2.23237E 00	2.10149E-03
5	5.69372E 00	3.38390E 00	2.28653E 00	5.86437E-03
6	6.26498E 00	4.02195E 00	2.25478E 00	1.59325E-02
7	6.77938E 00	4.91834E 00	1.76095E 00	8.05513E-02
8	7.08698E 00	5.95034E 00	9.90050E-01	1.43692E-01
9	7.05488E 00	6.49319E 00	3.99142E-01	1.63995E-01
10	6.74773E 00	6.43355E 00	1.70956E-01	1.93444E-01
11	6.28051E 00	6.12240E 00	1.41327E-01	1.30133E-01
12	5.80002E 00	5.77476E 00	0.0	1.25252E-01
13	5.63639E 00	5.49028E 00	0.0	1.26111E-01
14	5.44159E 00	5.31103E 00	0.0	1.30563E-01
15	5.30461E 00	5.25552E 00	0.0	1.38097E-01
16	5.44303E 00	5.29403E 00	0.0	1.48500E-01
17	5.68921E 00	5.52363E 00	0.0	1.65571E-01
18	5.90063E 00	5.80829E 00	0.0	1.82336E-01
19	6.10945E 00	5.98344E 00	0.0	1.93100E-01
20	6.63639E 00	6.40942E 00	0.0	2.16373E-01
21	7.20067E 00	6.95286E 00	0.0	2.47204E-01
22	7.66735E 00	7.39407E 00	0.0	2.73187E-01
23	8.65360E 00	8.32198E 00	0.0	3.31823E-01
24	9.57934E 00	9.19196E 00	0.0	3.87983E-01
25	1.03055E 01	9.86513E 00	0.0	4.30174E-01
26	1.11400E 01	1.06746E 01	0.0	4.85943E-01
27	1.25950E 01	1.20146E 01	0.0	5.80690E-01
28	1.37056E 01	1.30505E 01	0.0	6.55127E-01
29	1.58987E 01	1.50326E 01	0.0	8.55575E-01
30	1.86164E 01	1.74690E 01	0.0	1.15947E 00
31	2.06949E 01	1.93324E 01	0.0	1.36245E 00
32	2.23087E 01	2.07793E 01	0.0	1.55044E 00
33	2.37601E 01	2.20607E 01	0.0	1.69938E 00
34	2.85449E 01	2.57617E 01	0.0	2.45459E 00
35	3.24376E 01	2.92661E 01	0.0	3.22499E 00
36	3.58220E 01	3.19822E 01	0.0	3.83674E 00
37	3.83545E 01	3.40611E 01	0.0	4.29334E 00
38	4.45035E 01	3.89049E 01	0.0	5.99430E 00
39	5.36023E 01	4.69777E 01	0.0	8.55366E 00
40	6.00751E 01	4.95222E 01	0.0	1.05529E 01
41	6.51785E 01	5.31284E 01	0.0	1.20501E 01
42	6.97643E 01	5.62468E 01	0.0	1.35215E 01
43	8.39487E 01	6.42497E 01	0.0	1.94795E 01
44	9.75264E 01	7.17912E 01	0.0	2.55635E 01
45	1.07913E 02	7.75602E 01	0.0	3.03528E 01
46	1.15922E 02	8.20085E 01	0.0	3.39143E 01
47	7.82672E 00	7.70771E 00	0.0	1.16002E-01
48	1.87431E 01	1.08525E 01	0.0	7.88490E 00
49	1.00331E 02	9.49465E 01	0.0	6.99271E 01
50	7.71476E 00	7.53471E 00	0.0	1.80040E-01
51	7.56936E 00	7.48727E 00	0.0	8.20846E-02
52	7.53793E 00	7.47414E 00	0.0	6.38579E-02
53	7.52663E 00	7.46755E 00	0.0	5.90913E-02
54	7.52339E 00	7.46365E 00	0.0	5.98411E-02
55	7.52517E 00	7.46116E 00	0.0	6.39742E-02
56	7.53307E 00	7.45929E 00	0.0	7.27793E-02
57	7.54615E 00	7.45792E 00	0.0	8.81725E-02
58	7.56687E 00	7.45705E 00	0.0	1.13783E-01
59	7.61157E 00	7.45637E 00	0.0	1.55172E-01
60	7.68168E 00	7.45581E 00	0.0	2.25802E-01
61	7.81149E 00	7.45548E 00	0.0	3.56484E-01
62	8.02757E 00	7.45519E 00	0.0	5.73398E-01
63	8.41486E 00	7.45497E 00	0.0	9.59868E-01
64	9.05059E 00	7.45441E 00	0.0	1.59578E 00
65	1.01521E 01	7.45474E 00	0.0	2.69718E 00
66	1.19720E 01	7.45477E 00	0.0	4.51701E 00
67	1.47994E 01	7.45478E 00	0.0	7.34443E 00
68	1.92958E 01	7.45432E 00	0.0	1.18412E 01
69	2.57971E 01	7.45435E 00	0.0	1.83925E 01
70	3.57306E 01	7.45435E 00	0.0	2.83960E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.42652E 00	2.26931E 00	2.15701E 00	1.68197E-04
2	5.00045E 00	2.67362E 00	2.22578E 00	1.70902E-03
3	5.99437E 00	3.71129E 00	2.27178E 00	1.06832E-02
4	6.93859E 00	5.45944E 00	1.36594E 00	1.16129E-01
5	6.80490E 00	5.46216E 00	2.80850E-01	1.53071E-01
6	5.93791E 00	5.80157E 00	4.83634E-03	1.26874E-01
7	5.42926E 00	5.28950E 00	0.0	1.39765E-01
8	5.99063E 00	5.80829E 00	0.0	1.78775E-01
9	7.17847E 00	6.93175E 00	0.0	2.44720E-01
10	9.55464E 00	9.16874E 00	0.0	3.83273E-01
11	1.25308E 01	1.19560E 01	0.0	5.76752E-01
12	1.83850E 01	1.73756E 01	0.0	1.11877E 00
13	2.47768E 01	2.28767E 01	0.0	1.89580E 00
14	3.57091E 01	3.18896E 01	0.0	3.79179E 00
15	5.27705E 01	4.46449E 01	0.0	8.34859E 00
16	7.29836E 01	5.81470E 01	0.0	1.50348E 01
17	1.07556E 02	7.73619E 01	0.0	2.99764E 01
18	4.18999E 01	1.77340E 01	0.0	2.41616E 01
19	7.60703E 00	7.49860E 00	0.0	1.08446E-01
20	7.52511E 00	7.46414E 00	0.0	6.09633E-02
21	7.54921E 00	7.45808E 00	0.0	9.10806E-02
22	7.70143E 00	7.45584E 00	0.0	2.45904E-01
23	8.49594E 00	7.45499E 00	0.0	1.04047E 00
24	1.22689E 01	7.45476E 00	0.0	4.83389E 00
25	2.69688E 01	7.45434E 00	0.0	1.95142E 01

=== NUCLIDE ID=144 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51788E 00	2.38469E 00	2.12913E 00	5.25830E-05
2	4.41968E 00	2.24946E 00	2.16902E 00	2.96445E-04
3	4.59588E 00	2.40143E 00	2.19297E 00	1.33397E-03
4	5.10408E 00	2.86567E 00	2.23454E 00	3.63398E-03
5	5.75694E 00	3.41687E 00	2.34748E 00	9.48918E-03
6	6.29776E 00	4.04491E 00	2.24933E 00	2.04265E-02
7	6.74746E 00	4.67409E 00	2.10585E 00	3.30347E-02
8	7.11244E 00	5.25896E 00	1.83456E 00	4.08941E-02
9	7.07762E 00	5.52106E 00	1.51139E 00	4.48810E-02
10	6.78817E 00	5.53348E 00	1.14982E 00	4.40010E-02
11	6.29958E 00	5.37785E 00	2.55569E-01	6.33166E-02
12	5.91327E 00	5.84538E 00	0.0	6.78446E-02
13	5.65733E 00	5.56572E 00	0.0	8.22111E-02
14	5.48787E 00	5.39686E 00	0.0	6.10042E-02
15	5.41897E 00	5.35603E 00	0.0	6.29381E-02
16	5.47476E 00	5.41194E 00	0.0	6.68222E-02
17	5.76708E 00	5.67422E 00	0.0	7.28571E-02
18	6.07188E 00	5.99308E 00	0.0	7.88060E-02
19	6.27457E 00	6.19599E 00	0.0	8.25818E-02
20	6.75148E 00	6.66482E 00	0.0	8.66631E-02
21	7.36188E 00	7.27107E 00	0.0	9.07739E-02
22	7.85751E 00	7.76907E 00	0.0	9.44445E-02
23	8.90197E 00	8.79482E 00	0.0	1.07146E-01
24	9.88144E 00	9.76193E 00	0.0	1.19809E-01
25	1.06393E 01	1.05101E 01	0.0	1.28252E-01
26	1.15532E 01	1.14116E 01	0.0	1.41568E-01
27	1.30687E 01	1.29057E 01	0.0	1.62958E-01
28	1.42417E 01	1.40621E 01	0.0	1.79742E-01
29	1.66508E 01	1.62453E 01	0.0	2.06668E-01
30	1.94227E 01	1.91842E 01	0.0	2.38572E-01
31	2.16154E 01	2.13624E 01	0.0	2.62972E-01
32	2.33179E 01	2.30360E 01	0.0	2.81961E-01
33	2.48489E 01	2.45476E 01	0.0	3.01307E-01
34	2.94767E 01	2.91848E 01	0.0	3.58666E-01
35	3.41035E 01	3.36225E 01	0.0	4.80931E-01
36	3.75663E 01	3.70172E 01	0.0	5.49035E-01
37	4.02364E 01	3.96348E 01	0.0	6.01548E-01
38	4.68131E 01	4.59809E 01	0.0	8.29837E-01
39	5.62036E 01	5.50149E 01	0.0	1.17499E 00
40	6.31318E 01	6.16801E 01	0.0	1.45167E 00
41	6.85111E 01	6.69553E 01	0.0	1.65588E 00
42	7.33431E 01	7.14841E 01	0.0	1.86500E 00
43	8.82949E 01	8.54513E 01	0.0	2.80844E 00
44	9.03605E 02	9.87396E 01	0.0	3.77838E 00
45	1.13552E 02	1.09011E 02	0.0	4.54162E 00
46	1.21934E 02	1.16885E 02	0.0	5.10902E 00
47	7.93998E 00	7.89450E 00	0.0	4.48398E-02
48	7.87768E 00	7.82791E 00	0.0	4.97381E-02
49	7.84468E 00	7.78733E 00	0.0	5.73157E-02
50	7.83777E 00	7.76065E 00	0.0	6.71576E-02
51	7.82108E 00	7.74200E 00	0.0	7.90882E-02
52	7.82201E 00	7.72898E 00	0.0	9.30163E-02
53	7.82866E 00	7.71940E 00	0.0	1.09071E-01
54	7.83396E 00	7.71260E 00	0.0	1.28992E-01
55	7.83356E 00	7.70745E 00	0.0	1.46108E-01
56	7.82241E 00	7.70291E 00	0.0	1.69484E-01
57	7.80618E 00	7.69989E 00	0.0	1.96427E-01
58	7.99266E 00	7.69750E 00	0.0	2.25194E-01
59	7.95436E 00	7.69597E 00	0.0	2.58384E-01
60	7.98077E 00	7.69469E 00	0.0	2.95035E-01
61	8.03254E 00	7.69962E 00	0.0	3.38933E-01
62	8.07867E 00	7.69284E 00	0.0	3.85849E-01
63	8.13334E 00	7.69224E 00	0.0	4.41079E-01
64	8.19277E 00	7.69184E 00	0.0	5.00994E-01
65	8.26274E 00	7.69151E 00	0.0	5.71205E-01
66	8.34176E 00	7.69114E 00	0.0	6.50619E-01
67	8.42977E 00	7.69098E 00	0.0	7.38787E-01
68	8.53164E 00	7.69072E 00	0.0	8.40942E-01
69	8.64462E 00	7.69064E 00	0.0	9.53984E-01
70	8.78118E 00	7.69052E 00	0.0	1.09066E 00

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.43717E 00	2.27451E 00	2.16236E 00	2.42708E-04
2	5.02895E 00	2.69604E 00	2.22832E 00	2.81747E-03
3	6.02740E 00	3.74194E 00	2.27486E 00	1.50511E-02
4	6.96087E 00	4.97770E 00	1.95472E 00	3.71132E-02
5	8.91639E 00	5.52753E 00	1.34408E 00	4.48840E-02
6	5.95152E 00	5.79983E 00	8.80808E-02	6.65168E-02
7	5.45499E 00	5.39129E 00	0.0	6.37000E-02
8	6.07188E 00	5.99308E 00	0.0	7.75383E-02
9	7.33817E 00	7.24744E 00	0.0	9.14561E-02
10	9.85529E 00	9.73602E 00	0.0	1.19276E-01
11	1.30009E 01	1.28389E 01	0.0	1.62010E-01
12	1.91786E 01	1.89427E 01	0.0	2.37349E-01
13	2.59207E 01	2.55961E 01	0.0	3.24607E-01
14	3.74473E 01	3.69006E 01	0.0	5.46695E-01
15	5.54322E 01	5.42728E 01	0.0	1.15102E 00
16	7.6737AE 01	7.46210E 01	0.0	2.11143E 00
17	1.13176E 02	1.08660E 02	0.0	4.48163E 00
18	7.88743E 00	7.83694E 00	0.0	5.04479E-02
19	7.82360E 00	7.74384E 00	0.0	7.97758E-02
20	7.84047E 00	7.71318E 00	0.0	1.27309E-01
21	7.85689E 00	7.70012E 00	0.0	1.96784E-01
22	7.99227E 00	7.69476E 00	0.0	2.97517E-01
23	8.13464E 00	7.69231E 00	0.0	4.42332E-01
24	8.34410E 00	7.69121E 00	0.0	6.52878E-01
25	8.65262E 00	7.69063E 00	0.0	9.62004E-01

=== NUCLIDE ND=145 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.51916E 00	2.33443E 00	2.13460E 00	1.09920E-04
2	4.43151E 00	2.25595E 00	2.17504E 00	4.43452E-04
3	4.62016E 00	2.42127E 00	2.14726E 00	1.56134E-03
4	5.14501E 00	2.90134E 00	2.24621E 00	3.65950E-03
5	5.77128E 00	3.45421E 00	2.26828E 00	7.49046E-03
6	6.34270E 00	4.05521E 00	2.29830E 00	1.38466E-02
7	6.98998E 00	4.58154E 00	2.40824E 00	2.77058E-02
8	7.14015E 00	5.07324E 00	2.00793E 00	6.76820E-02
9	7.10951E 00	5.35020E 00	1.44612E 00	1.13312E-01
10	6.79451E 00	5.33933E 00	1.33053E 00	1.24660E-01
11	6.31461E 00	5.09068E 00	1.10290E 00	1.19719E-01
12	6.92368E 00	4.82325E 00	9.82945E-01	1.17442E-01
13	6.63511E 00	4.63417E 00	8.80163E-01	1.20778E-01
14	6.44830E 00	4.54556E 00	7.94165E-01	1.28577E-01
15	6.43907E 00	4.56401E 00	7.36239E-01	1.38776E-01
16	6.51335E 00	4.66279E 00	7.30226E-01	1.50339E-01
17	6.81104E 00	4.97599E 00	6.69195E-01	1.71857E-01
18	6.16718E 00	5.33984E 00	6.33015E-01	1.94333E-01
19	6.39981E 00	5.57137E 00	6.13809E-01	2.08636E-01
20	6.90609E 00	6.20932E 00	3.85406E-01	2.43716E-01
21	7.54440E 00	7.06005E 00	4.74787E-02	2.94115E-01
22	8.10111E 00	7.72965E 00	0.0	3.72882E-01
23	9.22636E 00	8.82249E 00	0.0	4.03869E-01
24	1.09813E 01	9.81202E 00	0.0	4.69251E-01
25	1.10675E 01	1.05777E 01	0.0	5.19849E-01
26	1.20804E 01	1.14926E 01	0.0	5.97840E-01
27	1.37085E 01	1.29979E 01	0.0	7.10624E-01
28	1.49686E 01	1.41627E 01	0.0	8.05895E-01
29	1.73404E 01	1.63655E 01	0.0	1.07114E 00
30	2.05308E 01	1.90657E 01	0.0	1.45441E 00
31	2.28846E 01	2.11308E 01	0.0	1.75373E 00
32	2.47122E 01	2.27343E 01	0.0	1.97789E 00
33	2.69556E 01	2.41507E 01	0.0	2.20492E 00
34	3.14299E 01	2.81915E 01	0.0	3.20159E 00
35	3.69884E 01	3.20996E 01	0.0	4.22391E 00
36	4.00049E 01	3.49762E 01	0.0	5.02869E 00
37	4.28707E 01	3.72437E 01	0.0	5.62699E 00
38	4.99266E 01	4.23118E 01	0.0	7.82916E 00
39	6.00008E 01	4.87719E 01	0.0	1.11372E 01
40	6.78333E 01	5.37126E 01	0.0	1.37207E 01
41	7.32042E 01	5.75487E 01	0.0	1.56555E 01
42	7.83643E 01	6.08457E 01	0.0	1.75486E 01
43	9.44274E 01	6.90314E 01	0.0	2.51174E 01
44	1.09779E 02	7.67204E 01	0.0	3.28404E 01
45	1.21522E 02	8.26023E 01	0.0	3.89200E 01
46	1.30577E 02	8.71376E 01	0.0	4.34397E 01
47	1.18482E 01	1.04425E 01	0.0	1.40561E 00
48	9.94969E 00	9.27074E 00	0.0	6.78840E-01
49	1.47842E 02	1.06370E 02	0.0	4.14679E 01
50	1.01189E 03	7.13651E 02	0.0	2.98221E 02
51	1.72178E 01	1.39336E 01	0.0	3.28379E 00
52	1.07929E 01	9.45938E 00	0.0	1.33320E 00
53	9.68841E 00	8.61621E 00	0.0	1.07220E 00
54	9.40100E 00	8.29773E 00	0.0	1.10427E 00
55	9.60612E 00	8.14224E 00	0.0	1.26388E 00
56	9.69257E 00	8.08839E 00	0.0	1.60419E 00
57	1.09038E 01	8.00660E 00	0.0	2.69700E 00
58	2.35425E 01	8.32405E 00	0.0	1.52155E 01
59	5.03689E 02	2.11153E 01	0.0	4.82557E 02
60	1.56918E 01	8.00900E 00	0.0	7.68256E 00
61	1.32410E 01	7.91856E 00	0.0	5.32279E 00
62	1.32756E 01	7.89421E 00	0.0	5.38168E 00
63	1.32727E 01	7.88021E 00	0.0	5.89268E 00
64	1.44658E 01	7.87159E 00	0.0	6.56498E 00
65	1.53469E 01	7.86549E 00	0.0	7.48157E 00
66	1.66781E 01	7.86071E 00	0.0	8.51747E 00
67	1.79393E 01	7.85744E 00	0.0	9.68195E 00
68	1.88675E 01	7.85540E 00	0.0	1.10929E 01
69	2.04014E 01	7.85333E 00	0.0	1.25482E 01
70	2.22209E 01	7.85189E 00	0.0	1.43692E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.44661E 00	2.27859E 00	2.16759E 00	3.70062E-04
2	5.06479E 00	2.72631E 00	2.23037E 00	2.88749E-03
3	6.07211E 00	3.76274E 00	2.29435E 00	1.05244E-02
4	7.00528E 00	4.83676E 00	2.11967E 00	4.84276E-02
5	6.94615E 00	5.34450E 00	1.48246E 00	1.19220E-01
6	5.96386E 00	4.85350E 00	9.90703E-01	1.19311E-01
7	5.47707E 00	4.59426E 00	7.43340E-01	1.39471E-01
8	6.16718E 00	5.33984E 00	6.33015E-01	1.89561E-01
9	7.52880E 00	7.02017E 00	1.45525E-01	2.90305E-01
10	1.02531E 01	9.78561E 00	0.0	4.67506E-01
11	1.36357E 01	1.29304E 01	0.0	7.00880E-01
12	2.02687E 01	1.88358E 01	0.0	1.42662E 00
13	2.75059E 01	2.50368E 01	0.0	2.46340E 00
14	3.98772E 01	3.48752E 01	0.0	4.96545E 00
15	5.91732E 01	4.83242E 01	0.0	1.08722E 01
16	8.20795E 01	6.27561E 01	0.0	1.94643E 01
17	1.21119E 02	8.38118E 01	0.0	3.84422E 01
18	5.57894E 01	4.14944E 01	0.0	1.42938E 01
19	3.44423E 02	2.44126E 02	0.0	1.00291E 02
20	9.49944E 00	8.35331E 00	0.0	1.14616E 00
21	1.44999E 01	8.12556E 00	0.0	6.37396E 00
22	1.76750E 02	1.23264E 01	0.0	1.64418E 02
23	1.38353E 01	7.88207E 00	0.0	5.95346E 00
24	1.64128E 01	7.86124E 00	0.0	8.55169E 00
25	2.05085E 01	7.85394E 00	0.0	1.26551E 01

=== NUCLIDE PM-147 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	6.654256E 00	2.459686E 00	2.194366E 00	1.683496E-04
2	6.548556E 00	2.344666E 00	2.240006E 00	7.654856E-04
3	6.784286E 00	2.518856E 00	2.252296E 00	2.874156E-03
4	6.293526E 00	3.001036E 00	2.284746E 00	7.328016E-03
5	5.900336E 00	3.597406E 00	2.318996E 00	1.497136E-02
6	6.444526E 00	4.207586E 00	2.287586E 00	2.531006E-02
7	6.990786E 00	4.601746E 00	2.277326E 00	4.152526E-02
8	7.200826E 00	4.800346E 00	2.339016E 00	6.944756E-02
9	7.177896E 00	4.805716E 00	2.356116E 00	1.153906E-01
10	6.916686E 00	4.761946E 00	1.951046E 00	2.036046E-01
11	6.509746E 00	4.770686E 00	1.407566E 00	3.307806E-01
12	6.182996E 00	4.734756E 00	1.075536E 00	3.732696E-01
13	5.945616E 00	4.749306E 00	7.995886E-01	4.011116E-01
14	5.827636E 00	4.736296E 00	6.732276E-01	4.181136E-01
15	5.850856E 00	4.789986E 00	6.332076E-01	4.384726E-01
16	5.979046E 00	4.931876E 00	6.096216E-01	4.555566E-01
17	6.355606E 00	5.306956E 00	5.449386E-01	5.057146E-01
18	6.770586E 00	5.760026E 00	4.712326E-01	5.613336E-01
19	7.069396E 00	6.048336E 00	4.243206E-01	5.967276E-01
20	7.660076E 00	6.682856E 00	6.722146E-02	6.763936E-01
21	8.493756E 00	7.495426E 00	0.0	7.865136E-01
22	9.038006E 00	8.136926E 00	0.0	8.782246E-01
23	1.038156E 01	9.213656E 00	0.0	1.080586E 00
24	1.148306E 01	1.019296E 01	0.0	1.280176E 00
25	1.230796E 01	1.095066E 01	0.0	1.446706E 00
26	1.369036E 01	1.218006E 01	0.0	1.676006E 00
27	1.558976E 01	1.391576E 01	0.0	2.193066E 00
28	1.664206E 01	1.479886E 01	0.0	2.469236E 00
29	1.998706E 01	1.796576E 01	0.0	3.389586E 00
30	2.279556E 01	1.806736E 01	0.0	4.688416E 00
31	2.536666E 01	1.967456E 01	0.0	5.692096E 00
32	2.737706E 01	2.082256E 01	0.0	6.482236E 00
33	2.917176E 01	2.198856E 01	0.0	7.183196E 00
34	3.471666E 01	2.454686E 01	0.0	1.006466E 01
35	4.006446E 01	2.694086E 01	0.0	1.306076E 01
36	4.408476E 01	2.877256E 01	0.0	1.531236E 01
37	4.731566E 01	3.018486E 01	0.0	1.703076E 01
38	5.401766E 01	3.261266E 01	0.0	2.234846E 01
39	6.581236E 01	3.551136E 01	0.0	3.016426E 01
40	7.402416E 01	3.772816E 01	0.0	3.629606E 01
41	8.033246E 01	3.944936E 01	0.0	4.087316E 01
42	8.598696E 01	4.083606E 01	0.0	4.515096E 01
43	1.034876E 02	4.301236E 01	0.0	5.993516E 01
44	1.209436E 02	4.499946E 01	0.0	7.530816E 01
45	1.330606E 02	4.641356E 01	0.0	8.664676E 01
46	1.429446E 02	4.755036E 01	0.0	9.539356E 01
47	1.022586E 02	2.409246E 01	0.0	7.816496E 01
48	1.139696E 02	2.510016E 01	0.0	9.426516E 01
49	1.367426E 02	3.436446E 01	0.0	1.017756E 02
50	1.528006E 02	1.214996E 02	0.0	2.065056E 02
51	6.395696E 01	1.368156E 01	0.0	5.027016E 01
52	2.931796E 01	8.542466E 00	0.0	1.436916E 01
53	8.224916E 01	1.097706E 01	0.0	7.157226E 01
54	6.136546E 01	9.755486E 00	0.0	5.160586E 01
55	1.487176E 01	9.690806E 00	0.0	5.180646E 00
56	3.864766E 01	1.472306E 01	0.0	2.392426E 01
57	1.300636E 03	1.541976E 02	0.0	1.159406E 03
58	8.456796E 03	2.472996E 03	0.0	5.983596E 03
59	2.007176E 02	5.821836E 01	0.0	1.455476E 02
60	6.804386E 01	2.122606E 01	0.0	4.681786E 01
61	4.631146E 01	1.506696E 01	0.0	3.124466E 01
62	3.988116E 01	1.251206E 01	0.0	2.686796E 01
63	3.855706E 01	1.178826E 01	0.0	2.673886E 01
64	6.351256E 01	1.117846E 01	0.0	5.233346E 01
65	5.155496E 01	1.077626E 01	0.0	4.044856E 01
66	4.401416E 01	1.051226E 01	0.0	3.350186E 01
67	4.707406E 01	1.033296E 01	0.0	3.674116E 01
68	5.158386E 01	1.020236E 01	0.0	4.138106E 01
69	5.698886E 01	1.011096E 01	0.0	4.688796E 01
70	4.364916E 01	1.003846E 01	0.0	5.360076E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.596256E 00	2.364346E 00	2.231176E 00	6.337286E-04
2	5.218016E 00	2.824856E 00	2.281286E 00	5.734426E-03
3	6.187456E 00	3.910946E 00	2.304036E 00	2.029066E-02
4	7.066156E 00	4.704816E 00	2.305166E 00	5.584516E-02
5	7.041796E 00	4.782916E 00	2.097206E 00	1.614196E-01
6	6.218516E 00	4.750976E 00	1.100576E 00	3.678226E-01
7	5.830346E 00	4.815146E 00	6.385866E-01	4.365886E-01
8	6.792586E 00	5.663436E 00	4.868816E-01	5.495256E-01
9	8.472106E 00	7.457096E 00	9.260356E-02	7.829156E-01
10	1.145156 01	1.016676 01	0.0	1.275216 00
11	1.520916 01	1.309666 01	0.0	2.096436 00
12	2.249816 01	1.798676 01	0.0	4.588676 00
13	3.042726 01	2.257636 01	0.0	7.908396 00
14	4.394526 01	2.914916 01	0.0	1.513066 01
15	6.500916 01	3.540016 01	0.0	2.961686 01
16	8.995486 01	4.120046 01	0.0	4.873086 01
17	1.326206 02	4.671676 01	0.0	8.625696 01
18	1.193056 02	2.799186 01	0.0	9.131056 01
19	1.378246 02	4.766606 01	0.0	9.015406 01
20	5.289826 01	1.014486 01	0.0	4.275226 01
21	3.229586 03	8.688946 02	0.0	2.360616 03
22	1.048176 02	3.144546 01	0.0	7.337036 01
23	4.729806 01	1.196506 01	0.0	3.533276 01
24	4.744326 01	1.054216 01	0.0	3.690106 01
25	5.739396 01	1.011726 01	0.0	4.727676 01

=== NUCLIDE SM-147 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.61283E 00	2.41757E 00	2.19436E 00	2.42832E-04
2	4.58685E 00	2.34481E 00	2.23869E 00	1.14231E-03
3	4.82438E 00	2.56557E 00	2.25917E 00	4.25854E-03
4	5.37844E 00	3.09008E 00	2.27699E 00	1.07771E-02
5	5.99249E 00	3.67976E 00	2.30926E 00	2.21919E-02
6	6.59186E 00	4.18467E 00	2.41676E 00	3.76690E-02
7	6.93365E 00	4.58599E 00	2.30864E 00	6.43470E-02
8	7.20099E 00	4.83076E 00	2.25491E 00	1.15109E-01
9	7.16491E 00	4.94373E 00	2.01856E 00	1.92778E-01
10	6.88638E 00	5.01408E 00	1.80183E 00	2.70547E-01
11	6.48369E 00	4.99699E 00	1.74506E 00	3.44234E-01
12	6.16586E 00	4.86704E 00	9.35037E-01	3.66785E-01
13	5.94405E 00	4.76926E 00	8.12238E-01	3.68556E-01
14	5.86195E 00	4.76683E 00	7.10874E-01	3.83666E-01
15	5.92782E 00	4.88263E 00	6.40939E-01	4.06254E-01
16	6.10800E 00	5.08633E 00	5.92673E-01	4.29000E-01
17	6.57628E 00	5.68767E 00	3.80052E-01	4.88143E-01
18	7.09886E 00	6.36759E 00	9.17746E-02	5.44333E-01
19	7.43821E 00	6.80344E 00	0.0	5.82636E-01
20	8.14216E 00	7.49443E 00	0.0	6.46725E-01
21	9.03681E 00	8.30624E 00	0.0	7.28570E-01
22	9.75661E 00	8.95983E 00	0.0	7.96777E-01
23	1.12312E 01	1.02403E 01	0.0	9.80040E-01
24	1.26088E 01	1.14904E 01	0.0	1.17837E 00
25	1.36748E 01	1.23513E 01	0.0	1.32349E 00
26	1.49469E 01	1.34043E 01	0.0	1.53864E 00
27	1.70377E 01	1.50686E 01	0.0	1.96917E 00
28	1.88555E 01	1.63547E 01	0.0	2.30083E 00
29	2.16773E 01	1.85894E 01	0.0	3.17739E 00
30	2.57336E 01	2.12659E 01	0.0	4.46996E 00
31	2.87263E 01	2.33128E 01	0.0	5.41353E 00
32	3.10500E 01	2.49021E 01	0.0	6.14788E 00
33	3.31377E 01	2.62706E 01	0.0	6.86705E 00
34	3.95400E 01	2.97040E 01	0.0	9.74984E 00
35	4.57073E 01	3.29324E 01	0.0	1.26918E 01
36	5.00098E 01	3.54021E 01	0.0	1.56077E 01
37	5.40338E 01	3.73064E 01	0.0	1.67295E 01
38	6.29530E 01	4.07899E 01	0.0	2.22632E 01
39	7.56818E 01	4.50224E 01	0.0	3.06329E 01
40	8.50728E 01	4.82594E 01	0.0	3.68134E 01
41	9.23644E 01	5.07728E 01	0.0	4.15917E 01
42	9.89221E 01	5.24885E 01	0.0	4.69337E 01
43	1.19179E 02	5.06715E 01	0.0	6.77197E 01
44	1.38575E 02	4.84029E 01	0.0	8.95552E 01
45	1.53412E 02	4.66674E 01	0.0	1.06744E 02
46	1.64452E 02	4.53392E 01	0.0	1.19229E 02
47	2.47068E 02	1.77140E 02	0.0	6.99245E 01
48	2.24660E 01	4.09949E 01	0.0	4.13709E 01
49	1.95419E 02	9.20596E 01	0.0	1.03350E 02
50	5.54069E 02	3.62565E 02	0.0	1.91490E 02
51	3.22556E 02	1.04127E 02	0.0	2.18428E 02
52	3.57870E 02	2.00402E 02	0.0	1.57451E 02
53	1.29896E 03	7.60238E 02	0.0	4.68132E 02
54	3.68907E 01	2.49594E 01	0.0	1.19310E 01
55	1.14407E 01	9.64206E 00	0.0	1.79867E 00
56	9.80553E 00	8.62172E 00	0.0	1.18385E 00
57	9.51661E 00	8.30220E 00	0.0	1.21441E 00
58	1.03092E 01	8.17468E 00	0.0	2.13458E 00
59	1.53259E 02	1.02724E 01	0.0	1.42977E 02
60	4.15459E 02	1.41066E 01	0.0	4.01347E 02
61	1.62501E 01	8.07530E 00	0.0	8.17428E 00
62	1.22042E 01	7.99204E 00	0.0	4.21244E 00
63	1.14923E 01	7.96103E 00	0.0	3.53140E 00
64	1.13531E 01	7.94342E 00	0.0	3.60867E 00
65	1.20050E 01	7.93180E 00	0.0	4.07321E 00
66	1.27928E 01	7.92318E 00	0.0	4.86956E 00
67	1.38931E 01	7.91731E 00	0.0	5.97568E 00
68	1.53916E 01	7.91287E 00	0.0	7.47865E 00
69	1.72367E 01	7.90976E 00	0.0	9.32684E 00
70	1.96459E 01	7.90668E 00	0.0	1.17791E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.58796E 00	2.35665E 00	2.23020E 00	9.44343E-04
2	5.29675E 00	2.89845E 00	2.27422E 00	8.44516E-03
3	5.27154E 00	3.91680E 00	2.31382E 00	3.00801E-02
4	7.69502E 00	4.71302E 00	2.28077E 00	9.06428E-02
5	7.01569E 00	4.98054E 00	1.80251E 00	2.33136E-01
6	6.20169E 00	4.87777E 00	9.67202E-01	3.57599E-01
7	5.87139E 00	4.91750E 00	6.47715E-01	4.06176E-01
8	7.01020E 00	6.22217E 00	1.87321E-01	5.31554E-01
9	6.99918E 00	8.27262E 00	0.0	7.26564E-01
10	1.55720E 01	1.13987E 01	0.0	1.16450E 00
11	1.69440E 01	1.49934E 01	0.0	1.93554E 00
12	2.54004E 01	2.11642E 01	0.0	4.33238E 00
13	3.45914E 01	2.70772E 01	0.0	7.59723E 00
14	5.02482E 01	3.59099E 01	0.0	1.48257E 01
15	7.46361E 01	4.46601E 01	0.0	2.98406E 01
16	1.03515E 02	5.13798E 01	0.0	5.19561E 01
17	1.52902E 02	4.63105E 01	0.0	1.05393E 02
18	1.74799E 02	1.03474E 02	0.0	7.13219E 01
19	4.10632E 02	2.21560E 02	0.0	1.89061E 02
20	4.29702E 02	2.67500E 02	0.0	1.62205E 02
21	3.87408E 00	8.36774E 00	0.0	1.50636E 00
22	1.95553E 02	1.08267E 01	0.0	1.84719E 02
23	1.17530E 01	7.96565E 00	0.0	3.78751E 00
24	1.28894E 01	7.92415E 00	0.0	4.96519E 00
25	1.74270E 01	7.90977E 00	0.0	9.51713E 00

=== NUCLIDE SM-149 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.65774E 00	2.45088E 00	2.20668E 00	2.09132E-04
2	4.67364E 00	2.36097E 00	2.25129E 00	1.16522E-03
3	4.88005E 00	2.56178E 00	2.27289E 00	4.84959E-03
4	5.37432E 00	3.07655E 00	2.29079E 00	1.31247E-02
5	5.98960E 00	3.65199E 00	2.32273E 00	2.79741E-02
6	6.59754E 00	4.15127E 00	2.34147E 00	4.73690E-02
7	6.98145E 00	4.53083E 00	2.37588E 00	7.46663E-02
8	7.29946E 00	4.85610E 00	2.43192E 00	1.11436E-01
9	7.50437E 00	4.64131E 00	2.40859E 00	1.54367E-01
10	6.94124E 00	4.48271E 00	2.23732E 00	2.21201E-01
11	6.53834E 00	4.33630E 00	1.99821E 00	3.03830E-01
12	6.21827E 00	4.27565E 00	1.58329E 00	3.59369E-01
13	5.94733E 00	4.22414E 00	1.37105E 00	3.93111E-01
14	5.84426E 00	4.27760E 00	1.19319E 00	4.29994E-01
15	5.99317E 00	4.46616E 00	1.00452E 00	4.78328E-01
16	6.11116E 00	4.73750E 00	8.63553E-01	5.30111E-01
17	6.59528E 00	5.15111E 00	8.16884E-01	5.87286E-01
18	7.05789E 00	5.55409E 00	8.66079E-01	6.35667E-01
19	7.37763E 00	5.81380E 00	8.97385E-01	6.66455E-01
20	8.05372E 00	6.33232E 00	9.70689E-01	7.56722E-01
21	8.91225E 00	6.98355E 00	1.06572E 00	8.63990E-01
22	9.60659E 00	7.52997E 00	1.11234E 00	9.62333E-01
23	1.10368E 01	8.94400E 00	7.70254E-01	1.28241E 00
24	1.23633E 01	1.02992E 01	3.80713E-01	1.61491E 00
25	1.33621E 01	1.13478E 01	8.32226E-02	1.87021E 00
26	1.46065E 01	1.23875E 01	0.0	2.20259E 00
27	1.56213E 01	1.37899E 01	0.0	2.83134E 00
28	1.81802E 01	1.48677E 01	0.0	3.31258E 00
29	2.10924E 01	1.66422E 01	0.0	4.51530E 00
30	2.50018E 01	1.87336E 01	0.0	6.22091E 00
31	3.78860E 01	2.03330E 01	0.0	7.55297E 00
32	3.01255E 01	2.15749E 01	0.0	8.55055E 00
33	3.21376E 01	2.26275E 01	0.0	9.51012E 00
34	3.83275E 01	2.50377E 01	0.0	1.31560E 01
35	4.43524E 01	2.72830E 01	0.0	1.66694E 01
36	4.87848E 01	2.90005E 01	0.0	1.97843E 01
37	5.25796E 01	3.03549E 01	0.0	2.19547E 01
38	6.08745E 01	3.23806E 01	0.0	2.86809E 01
39	7.31432E 01	3.47577E 01	0.0	3.81194E 01
40	8.21949E 01	3.65756E 01	0.0	4.56193E 01
41	8.92230E 01	3.79872E 01	0.0	5.12358E 01
42	9.55435E 01	3.88127E 01	0.0	5.66307E 01
43	1.15065E 02	3.72790E 01	0.0	7.70371E 01
44	1.33756E 02	3.53808E 01	0.0	9.83751E 01
45	1.48054E 02	3.39287E 01	0.0	1.14125E 02
46	1.59079E 02	3.28091E 01	0.0	1.26270E 02
47	1.67245E 02	1.12958E 02	0.0	4.42894E 01
48	2.10049E 02	1.44207E 02	0.0	7.48381E 01
49	2.72109E 02	1.20378E 02	0.0	1.51730E 02
50	3.33445E 02	1.12055E 02	0.0	2.20387E 02
51	1.44501E 02	2.36375E 01	0.0	1.20860E 02
52	1.78391E 02	2.90267E 01	0.0	1.49361E 02
53	8.37317E 01	1.29043E 01	0.0	7.08220E 01
54	2.70323E 02	2.49288E 01	0.0	2.45397E 02
55	9.08430E 01	1.09716E 01	0.0	7.98712E 01
56	7.61850E 02	7.85061E 01	0.0	6.83344E 02
57	1.67278E 02	9.76449E 00	0.0	1.57507E 02
58	6.36325E 02	2.53557E 01	0.0	6.10797E 02
59	1.88418E 02	1.15621E 01	0.0	1.73856E 02
60	8.83864E 01	7.98812E 00	0.0	8.03581E 01
61	1.33399E 02	8.03766E 00	0.0	1.25357E 02
62	2.09396E 02	8.25416E 00	0.0	1.94139E 02
63	3.24965E 02	8.93620E 00	0.0	3.18029E 02
64	8.09664E 02	1.39664E 01	0.0	7.95693E 02
65	7.44837E 03	9.19491E 01	0.0	7.35632E 03
66	1.64806E 03	1.95046E 01	0.0	1.62853E 03
67	1.35510E 03	1.42768E 01	0.0	1.33779E 03
68	1.82836E 03	1.75531E 01	0.0	1.81079E 03
69	2.79496E 03	2.57450E 01	0.0	2.76923E 03
70	5.14806E 03	4.72117E 01	0.0	5.13084E 03

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.61870E 00	2.37503E 00	2.24256E 00	9.39196E-04
2	5.29578E 00	2.88447E 00	2.28800E 00	1.02104E-02
3	6.27308E 00	3.88634E 00	2.33292E 00	3.78336E-02
4	7.11537E 00	4.61660E 00	2.40499E 00	9.34798E-02
5	7.06727E 00	4.55871E 00	2.31938E 00	1.89008E-01
6	6.25365E 00	4.27974E 00	1.62294E 00	3.50974E-01
7	5.98414E 00	4.90047E 00	1.02206E 00	4.80294E-01
8	7.05783E 00	5.55609E 00	8.66079E-01	6.29395E-01
9	8.87803E 00	6.96398E 00	1.05214E 00	8.61279E-01
10	1.22973E 01	1.02630E 01	4.10851E-01	1.59489E 00
11	1.65910E 01	1.37243E 01	0.0	2.78217E 00
12	2.46806E 01	1.86534E 01	0.0	6.09725E 00
13	3.35387E 01	2.31678E 01	0.0	1.04196E 01
14	4.86290E 01	2.93537E 01	0.0	1.95548E 01
15	7.21353E 01	3.52330E 01	0.0	3.74232E 01
16	9.99692E 01	3.80845E 01	0.0	6.17145E 01
17	1.47563E 02	3.36301E 01	0.0	1.13584E 02
18	2.19717E 02	1.25879E 02	0.0	8.98370E 01
19	2.18072E 02	5.47155E 01	0.0	1.63354E 02
20	1.47731E 02	1.62329E 01	0.0	1.31487E 02
21	5.21167E 02	3.79941E 01	0.0	4.83175E 02
22	1.35219E 02	9.19016E 00	0.0	1.26028E 02
23	4.45433E 02	1.03789E 01	0.0	4.35051E 02
24	3.50093E 03	4.21434E 01	0.0	3.45873E 03
25	3.26471E 03	3.01773E 01	0.0	3.23452E 03

=== NUCLIDE SM-151 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.70198E 00	2.48200E 00	2.21947E 00	4.21498E-04
2	4.64436E 00	2.37509E 00	2.26457E 00	2.44279E-03
3	4.85765E 00	2.55733E 00	2.26704E 00	1.10720E-02
4	5.39264E 00	3.04242E 00	2.30422E 00	3.47956E-02
5	5.99839E 00	3.59860E 00	2.33588E 00	7.11618E-02
6	6.54402E 00	4.07451E 00	2.35809E 00	1.14561E-01
7	7.01092E 00	4.44219E 00	2.40190E 00	1.65671E-01
8	7.28417E 00	4.57956E 00	2.49506E 00	2.08546E-01
9	7.25816E 00	4.46060E 00	2.57053E 00	2.22042E-01
10	7.00025E 00	4.19875E 00	2.56917E 00	2.33328E-01
11	6.59655E 00	3.88570E 00	2.47301E 00	2.37841E-01
12	6.26880E 00	3.65464E 00	2.36073E 00	2.51431E-01
13	6.03644E 00	3.48984E 00	2.27138E 00	2.76222E-01
14	5.93558E 00	3.39385E 00	2.22062E 00	3.20944E-01
15	5.97778E 00	3.36312E 00	2.22358E 00	3.86419E-01
16	6.13041E 00	3.36864E 00	2.27856E 00	4.85000E-01
17	6.44081E 00	3.54118E 00	2.33770E 00	6.76400E-01
18	7.05542E 00	3.76796E 00	2.39013E 00	8.99333E-01
19	7.88861E 00	3.91228E 00	2.82154E 00	1.02936E 00
20	7.99861E 00	4.48178E 00	2.26467E 00	1.24670E 00
21	8.83892E 00	5.35587E 00	1.99014E 00	1.55942E 00
22	9.54680E 00	6.01130E 00	1.79946E 00	1.73604E 00
23	1.09394E 01	6.95368E 00	2.03684E 00	1.94895E 00
24	1.22409E 01	7.78872E 00	2.32825E 00	2.12391E 00
25	1.32479E 01	8.43485E 00	2.55376E 00	2.25930E 00
26	1.44500E 01	9.27044E 00	2.79377E 00	2.38576E 00
27	1.66261E 01	1.07371E 01	3.14616E 00	2.56784E 00
28	1.79552E 01	1.18742E 01	3.41780E 00	2.66314E 00
29	2.08116E 01	1.49720E 01	2.70600E 00	2.93680E 00
30	2.44460E 01	1.93526E 01	1.34324E 00	3.28690E 00
31	2.76315E 01	2.27970E 01	3.09326E-01	3.55465E 00
32	2.96716E 01	2.53765E 01	0.0	3.76955E 00
33	3.16452E 01	2.75925E 01	0.0	3.95579E 00
34	3.77168E 01	3.30823E 01	0.0	4.63455E 00
35	4.35284E 01	3.82379E 01	0.0	5.29055E 00
36	4.78741E 01	4.21818E 01	0.0	5.78236E 00
37	5.14021E 01	4.52224E 01	0.0	6.17930E 00
38	5.98334E 01	5.26285E 01	0.0	7.20491E 00
39	7.18687E 01	6.31799E 01	0.0	8.68877E 00
40	8.07481E 01	7.09646E 01	0.0	9.78354E 00
41	8.76626E 01	7.70090E 01	0.0	1.06336E 01
42	9.38427E 01	8.24419E 01	0.0	1.14013E 01
43	1.12992E 02	9.91755E 01	0.0	1.38141E 01
44	1.31326E 02	1.15193E 02	0.0	1.61313E 01
45	1.45351E 02	1.27449E 02	0.0	1.79025E 01
46	1.56166E 02	1.36898E 02	0.0	1.92681E 01
47	7.09632E 01	8.66160E 00	0.0	6.22818E 01
48	7.98440E 01	8.66682E 00	0.0	7.11774E 01
49	8.97729E 01	8.67164E 00	0.0	8.11016E 01
50	1.01198E 02	8.67484E 00	0.0	9.25235E 01
51	1.16329E 02	8.67830E 00	0.0	1.05649E 02
52	1.29321E 02	8.67830E 00	0.0	1.20541E 02
53	1.44229E 02	8.68056E 00	0.0	1.37547E 02
54	1.65921E 02	8.68830E 00	0.0	1.56591E 02
55	1.85632E 02	8.68833E 00	0.0	1.76942E 02
56	2.05450E 02	8.66600E 00	0.0	1.96783E 02
57	1.10610E 03	7.74010E 01	0.0	1.02669E 03
58	7.04745E 01	1.18511E 01	0.0	5.86234E 01
59	3.12304E 02	1.11188E 01	0.0	3.01177E 02
60	2.47816E 01	7.96159E 00	0.0	1.68201E 01
61	2.30750E 02	9.68992E 00	0.0	2.21055E 02
62	1.35127E 03	1.70584E 01	0.0	1.33420E 03
63	3.74283E 02	9.90090E 00	0.0	3.64382E 02
64	2.99464E 03	3.20361E 01	0.0	2.90262E 03
65	3.87368E 02	1.02792E 01	0.0	3.77087E 02
66	1.65491E 02	8.27220E 00	0.0	1.57215E 02
67	1.87172E 02	8.02426E 00	0.0	1.79149E 02
68	2.69843E 02	7.93351E 00	0.0	2.61910E 02
69	8.14333E 02	7.89330E 00	0.0	4.06445E 02
70	6.68552E 02	7.86871E 00	0.0	6.60688E 02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.65164E 00	2.39357E 00	2.25567E 00	2.03707E-03
2	5.30471E 00	2.86519E 00	2.30153E 00	2.60407E-02
3	6.28585E 00	3.82394E 00	2.34780E 00	9.42397E-02
4	7.15224E 00	4.51348E 00	2.45027E 00	1.87945E-01
5	7.12379E 00	4.32414E 00	2.56985E 00	2.29792E-01
6	6.30569E 00	3.68100E 00	2.37022E 00	2.54473E-01
7	6.01751E 00	3.37605E 00	2.24235E 00	3.95657E-01
8	6.45953E 00	3.76796E 00	2.38061E 00	8.37427E-01
9	8.80770E 00	5.28426E 00	2.01360E 00	1.50450E 00
10	1.22062E 01	7.76644E 00	2.32047E 00	2.11924E 00
11	1.63376E 01	1.06722E 01	3.12988E 00	2.56375E 00
12	2.43092E 01	1.90339E 01	1.46179E 00	3.27348E 00
13	3.30196E 01	2.87143E 01	0.0	4.11704E 00
14	4.78214E 01	4.20462E 01	0.0	5.77512E 00
15	7.08800E 01	6.23131E 01	0.0	8.56687E 00
16	9.81840E 01	8.62313E 01	0.0	1.19527E 01
17	1.44869E 02	1.27028E 02	0.0	1.78416E 01
18	8.01162E 01	8.66665E 00	0.0	7.14998E 01
19	1.14940E 02	8.67715E 00	0.0	1.06262E 02
20	1.65607E 02	8.68570E 00	0.0	1.56920E 02
21	4.62302E 02	3.27501E 01	0.0	4.29549E 02
22	1.88762E 02	9.58459E 00	0.0	1.79174E 02
23	1.55591E 03	1.96811E 01	0.0	1.53623E 03
24	2.47202E 02	8.86545E 00	0.0	2.38333E 02
25	4.51071E 02	7.89844E 00	0.0	4.43175E 02

=== NUCLIDE EU-153 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.70698E 00	2.47402E 00	2.23284E 00	8.91554E-05
2	4.67355E 00	2.39572E 00	2.27688E 00	7.72593E-04
3	4.91497E 00	2.61064E 00	2.29850E 00	5.16901E-03
4	5.44261E 00	3.13594E 00	2.30937E 00	1.61743E-02
5	6.08471E 00	3.70512E 00	2.33917E 00	4.29200E-02
6	6.62187E 00	4.17175E 00	2.36841E 00	8.53899E-02
7	7.06353E 00	4.58099E 00	2.42139E 00	1.58848E-01
8	7.31070E 00	4.53712E 00	2.50125E 00	2.71876E-01
9	7.27469E 00	4.36576E 00	2.53960E 00	3.89265E-01
10	7.01993E 00	4.04146E 00	2.49804E 00	4.80427E-01
11	6.63027E 00	3.74765E 00	2.36884E 00	5.19706E-01
12	6.31393E 00	3.56816E 00	2.25333E 00	5.19446E-01
13	6.09811E 00	3.42493E 00	2.16361E 00	5.09556E-01
14	6.02064E 00	3.39135E 00	2.10538E 00	5.23609E-01
15	6.09346E 00	3.46010E 00	2.06568E 00	5.71731E-01
16	6.29097E 00	3.61135E 00	2.02517E 00	6.54444E-01
17	6.75851E 00	4.21834E 00	1.73749E 00	8.09113E-01
18	7.36610E 00	5.03008E 00	1.33519E 00	9.59333E-01
19	7.69469E 00	5.52362E 00	1.08158E 00	1.09841E 00
20	8.40951E 00	6.38902E 00	1.25532E-01	1.28083E 00
21	9.34471E 00	7.54287E 00	0.0	1.46824E 00
22	1.01452E 01	8.40091E 00	0.0	1.68162E 00
23	1.14933E 01	9.32293E 00	0.0	2.15336E 00
24	1.31389E 01	1.04990E 01	0.0	2.63948E 00
25	1.45576E 01	1.12542E 01	0.0	3.00338E 00
26	1.55911E 01	1.20718E 01	0.0	3.50581E 00
27	1.77808E 01	1.32944E 01	0.0	4.48635E 00
28	1.94750E 01	1.42375E 01	0.0	5.23747E 00
29	2.06344E 01	1.56684E 01	0.0	7.00943E 00
30	2.68738E 01	1.73102E 01	0.0	9.48476E 00
31	3.00016E 01	1.85658E 01	0.0	1.14358E 01
32	3.26301E 01	1.95408E 01	0.0	1.28894E 01
33	3.46118E 01	2.03519E 01	0.0	1.45599E 01
34	3.63189E 01	2.19992E 01	0.0	1.91414E 01
35	4.77386E 01	2.35126E 01	0.0	2.42259E 01
36	5.24494E 01	2.46794E 01	0.0	2.76790E 01
37	5.64360E 01	2.55631E 01	0.0	3.08729E 01
38	6.57470E 01	2.66260E 01	0.0	3.91615E 01
39	7.90375E 01	2.77300E 01	0.0	5.09774E 01
40	8.88430E 01	2.85743E 01	0.0	6.02686E 01
41	9.64564E 01	2.92299E 01	0.0	6.72265E 01
42	1.03303E 02	2.93432E 01	0.0	7.39594E 01
43	1.24439E 02	2.36918E 01	0.0	1.00011E 02
44	1.44676E 02	1.75581E 01	0.0	1.27291E 02
45	1.60156E 02	1.28572E 01	0.0	1.47427E 02
46	1.72093E 02	9.24096E 00	0.0	1.62953E 02
47	5.39827E 01	8.56269E 00	0.0	4.56203E 01
48	6.05066E 01	8.56773E 00	0.0	5.19392E 01
49	6.77842E 01	8.57174E 00	0.0	5.92128E 01
50	7.65073E 01	8.57817E 00	0.0	6.79295E 01
51	8.85004E 01	8.60349E 00	0.0	7.98974E 01
52	9.86211E 01	8.59985E 00	0.0	9.00251E 01
53	1.05542E 02	8.54864E 00	0.0	9.67904E 01
54	1.58701E 02	1.03240E 01	0.0	1.48375E 02
55	2.27569E 02	1.40878E 01	0.0	2.13478E 02
56	3.79370E 02	2.11902E 01	0.0	3.58169E 02
57	1.15588E 02	8.55760E 00	0.0	1.07026E 02
58	8.69642E 01	8.23369E 00	0.0	7.87271E 01
59	5.84211E 02	1.40503E 01	0.0	5.70154E 02
60	6.84955E 02	1.44765E 01	0.0	6.70472E 02
61	1.35675E 03	2.39808E 01	0.0	1.33275E 03
62	2.09513E 02	8.70334E 00	0.0	2.00806E 02
63	7.23779E 01	8.02142E 00	0.0	6.43542E 01
64	3.79203E 01	7.91188E 00	0.0	2.94087E 01
65	3.81366E 01	7.87413E 00	0.0	3.03528E 01
66	5.27184E 01	7.85656E 00	0.0	4.48619E 01
67	1.65198E 02	7.85696E 00	0.0	1.54344E 02
68	2.90567E 02	7.85931E 00	0.0	2.12718E 02
69	1.15510E 02	7.89645E 00	0.0	1.04677E 02
70	1.08742E 02	7.82728E 00	0.0	1.00919E 02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.67596E 00	2.40717E 00	2.26804E 00	6.22268E-04
2	5.38114E 00	2.94409E 00	2.30759E 00	1.22658E-02
3	6.36793E 00	3.95155E 00	2.35464E 00	6.45185E-02
4	7.19183E 00	4.51011E 00	2.46286E 00	2.17394E-01
5	7.14192E 00	4.18713E 00	2.51797E 00	4.36511E-01
6	6.35282E 00	3.57648E 00	2.26400E 00	5.11600E-01
7	6.13344E 00	3.49209E 00	2.06638E 00	5.80665E-01
8	7.21644E 00	4.83340E 00	1.43238E 00	9.45668E-01
9	9.38868E 00	7.48483E 00	1.09463E-01	1.49202E 00
10	1.31004E 01	1.04729E 01	0.0	2.60523E 00
11	1.76826E 01	1.32385E 01	0.0	4.40987E 00
12	2.65255E 01	1.72472E 01	0.0	9.31456E 00
13	3.61296E 01	2.06954E 01	0.0	1.54536E 01
14	5.24806E 01	2.49045E 01	0.0	2.78500E 01
15	7.79457E 01	2.79507E 01	0.0	5.01152E 01
16	1.08094E 02	2.74524E 01	0.0	8.04928E 01
17	1.59624E 02	1.32231E 01	0.0	1.46735E 02
18	6.07061E 01	8.56735E 00	0.0	5.21391E 01
19	8.79010E 01	8.59258E 00	0.0	7.93087E 01
20	1.63724E 02	1.09805E 01	0.0	1.52741E 02
21	1.94861E 02	1.26974E 01	0.0	1.82156E 02
22	8.75235E 02	1.75002E 01	0.0	8.57726E 02
23	1.07045E 02	8.21536E 00	0.0	9.88278E 01
24	8.37709E 01	7.86260E 00	0.0	7.59093E 01
25	1.47101E 02	7.83899E 00	0.0	1.39266E 02

=== NUCLIDE EU-155 ===

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.756031E 00	2.504505E 00	2.245736E 00	6.146756E-03
2	4.702731E 00	2.411778E 00	2.289996E 00	4.496485E-04
3	4.931956E 00	2.613630E 00	2.312436E 00	2.856616E-03
4	5.449966E 00	3.137966E 00	2.922556E 00	8.839087E-03
5	6.096419E 00	3.721536E 00	2.352216E 00	2.332556E-02
6	6.639057E 00	4.213196E 00	2.398216E 00	4.734376E-02
7	7.094406E 00	4.576496E 00	2.610416E 00	1.053506E-01
8	7.355446E 00	4.749866E 00	2.520796E 00	2.831796E-01
9	7.328696E 00	4.612746E 00	2.241336E 00	4.734726E-01
10	7.078016E 00	4.427466E 00	2.509256E 00	4.412716E-01
11	6.686806E 00	4.199116E 00	2.098356E 00	3.952076E-01
12	6.396596E 00	3.989916E 00	1.997636E 00	3.784316E-01
13	6.143206E 00	3.839376E 00	1.908616E 00	3.952226E-01
14	6.056766E 00	3.858016E 00	1.738726E 00	4.578216E-01
15	6.132486E 00	4.036836E 00	1.529026E 00	5.572026E-01
16	6.306856E 00	4.298076E 00	1.341326E 00	6.648896E-01
17	6.726736E 00	4.710386E 00	1.168336E 00	9.034766E-01
18	7.335496E 00	5.119056E 00	1.025046E 00	1.191336E 00
19	7.676826E 00	5.379126E 00	9.791676E-01	1.364916E 00
20	8.410226E 00	6.160866E 00	4.676476E-01	1.557966E 00
21	9.325296E 00	7.217056E 00	3.078946E-03	1.801266E 00
22	1.008066E 01	8.051426E 00	0.0	1.971586E 00
23	1.146016E 01	9.460346E 00	0.0	2.141276E 00
24	1.302226E 01	1.074286E 01	0.0	2.279406E 00
25	1.412156E 01	1.173526E 01	0.0	2.386296E 00
26	1.544196E 01	1.293606E 01	0.0	2.498896E 00
27	1.758386E 01	1.494206E 01	0.0	2.641876E 00
28	1.954886E 01	1.669326E 01	0.0	2.795686E 00
29	2.234406E 01	1.933316E 01	0.0	3.034116E 00
30	2.552076E 01	2.232526E 01	0.0	3.294516E 00
31	2.993486E 01	2.592296E 01	0.0	3.671906E 00
32	3.498176E 01	2.809526E 01	0.0	3.886506E 00
33	3.912596E 01	3.009776E 01	0.0	4.088216E 00
34	4.071836E 01	3.589346E 01	0.0	4.824966E 00
35	4.703826E 01	4.148936E 01	0.0	5.538836E 00
36	5.185506E 01	4.577016E 01	0.0	6.084926E 00
37	5.557696E 01	4.907096E 01	0.0	6.506006E 00
38	6.472906E 01	5.710476E 01	0.0	7.634296E 00
39	7.779276E 01	6.854996E 01	0.0	9.267786E 00
40	8.743096E 01	7.699406E 01	0.0	1.043696E 01
41	9.491436E 01	8.355656E 01	0.0	1.136406E 01
42	1.016446E 02	8.944336E 01	0.0	1.220046E 01
43	1.224176E 02	1.075996E 02	0.0	1.441746E 01
44	1.423056E 02	1.249806E 02	0.0	1.732566E 01
45	1.575206E 02	1.387756E 02	0.0	1.932446E 01
46	1.692516E 02	1.485276E 02	0.0	2.072386E 01
47	5.412886E 01	8.587146E 00	0.0	4.554156E 01
48	6.065386E 01	8.590426E 00	0.0	5.206346E 01
49	6.769346E 01	8.594346E 00	0.0	5.909916E 01
50	7.440016E 01	8.598216E 00	0.0	6.578016E 01
51	8.678026E 01	8.608336E 00	0.0	7.817196E 01
52	9.765026E 01	8.612126E 00	0.0	8.903766E 01
53	1.076106E 02	8.589796E 00	0.0	9.901766E 01
54	1.262476E 02	8.627106E 00	0.0	1.176176E 02
55	1.413686E 02	8.633256E 00	0.0	1.327336E 02
56	1.441666E 02	8.571376E 00	0.0	1.355916E 02
57	1.742286E 02	8.605146E 00	0.0	1.636216E 02
58	2.204296E 02	8.695546E 00	0.0	2.117316E 02
59	2.766386E 02	8.649746E 00	0.0	2.677986E 02
60	3.171206E 02	8.787836E 00	0.0	3.083196E 02
61	1.220536E 02	8.141806E 00	0.0	1.139076E 02
62	5.379496E 02	9.140926E 00	0.0	5.288206E 02
63	9.673556E 01	7.992076E 00	0.0	7.874486E 01
64	4.504936E 02	8.618896E 00	0.0	4.418746E 02
65	1.210406E 03	9.853856E 00	0.0	1.200576E 03
66	2.118586E 02	8.107106E 00	0.0	2.104816E 02
67	1.326496E 02	7.941596E 00	0.0	1.267116E 02
68	1.369406E 02	7.903666E 00	0.0	1.290406E 02
69	1.728656E 02	7.882436E 00	0.0	1.669876E 02
70	2.454216E 02	7.877756E 00	0.0	2.375476E 02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	4.707866E 00	2.426416E 00	2.281026E 00	3.642406E-04
2	5.389996E 00	2.947376E 00	2.320876E 00	6.714956E-03
3	6.381676E 00	3.952096E 00	2.367996E 00	3.556076E-02
4	7.229916E 00	4.666506E 00	2.364006E 00	1.975016E-01
5	7.198716E 00	4.516246E 00	2.224706E 00	4.572076E-01
6	6.403496E 00	4.010346E 00	2.003256E 00	3.895676E-01
7	6.158046E 00	4.070826E 00	1.545766E 00	5.568566E-01
8	7.237686E 00	5.032296E 00	1.060266E 00	1.118186E 00
9	9.303146E 00	7.168526E 00	1.582866E-01	1.788436E 00
10	1.298436E 01	1.070866E 01	0.0	2.308936E 00
11	1.748746E 01	1.482526E 01	0.0	2.661846E 00
12	2.617846E 01	2.281376E 01	0.0	3.381656E 00
13	3.561786E 01	3.135236E 01	0.0	4.265466E 00
14	5.168916E 01	4.562306E 01	0.0	6.066166E 00
15	7.671956E 01	6.760976E 01	0.0	9.109826E 00
16	1.068526E 02	9.395556E 01	0.0	1.279686E 01
17	1.569976E 02	1.378186E 02	0.0	1.917846E 01
18	6.085366E 01	8.590616E 00	0.0	5.226306E 01
19	8.696406E 01	8.606256E 00	0.0	7.835766E 01
20	1.249996E 02	8.619246E 00	0.0	1.163756E 02
21	1.806516E 02	8.623536E 00	0.0	1.720256E 02
22	2.354186E 02	8.526756E 00	0.0	2.168876E 02
23	3.601576E 02	8.588676E 00	0.0	3.515726E 02
24	5.237886E 02	8.639966E 00	0.0	5.151606E 02
25	1.851136E 02	7.887916E 00	0.0	1.772296E 02

* END OF FORTRAN *

Appendix 2. Lumped Group Cross Sections at Burn-up of 360 Days

=== LUMPED GROUP CONSTANTS ===

FISSION PRODUCTS OF Pu-239 BURN-UP 360 DAYS

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	8.84100E 00	4.85830E 00	3.98050E 00	5.43690E-04
2	8.50040E 00	4.33600E 00	4.11090E 00	1.72530E-03
3	8.38100E 00	4.26900E 00	4.11310E 00	4.55790E-03
4	8.70470E 00	4.52620E 00	4.16800E 00	9.77080E-03
5	9.50940E 00	5.30450E 00	4.19250E 00	1.82360E-02
6	1.03090E 01	6.31780E 00	3.98750E 00	2.97590E-02
7	1.19180E 01	7.59450E 00	3.49080E 00	4.52170E-02
8	1.21350E 01	8.99140E 00	2.79660E 00	6.18760E-02
9	1.28730E 01	1.02210E 01	2.38340E 00	7.87220E-02
10	1.34450E 01	1.13110E 01	1.83470E 00	9.07110E-02
11	1.37600E 01	1.20520E 01	1.41250E 00	1.06040E-01
12	1.39790E 01	1.25970E 01	1.20010E 00	1.22240E-01
13	1.42890E 01	1.31850E 01	7.80310E-01	1.42720E-01
14	1.47080E 01	1.38600E 01	5.20330E-01	1.70990E-01
15	1.51110E 01	1.44450E 01	3.13150E-01	2.00770E-01
16	1.55020E 01	1.49090E 01	2.43410E-01	2.21590E-01
17	1.59810E 01	1.54440E 01	1.78130E-01	2.63410E-01
18	1.64430E 01	1.59450E 01	1.17950E-01	3.08520E-01
19	1.68220E 01	1.63590E 01	1.02060E-01	3.37130E-01
20	1.70530E 01	1.65770E 01	6.47858E-02	3.91600E-01
21	1.72070E 01	1.66820E 01	3.88370E-02	4.67480E-01
22	1.74060E 01	1.68360E 01	3.57140E-02	5.29880E-01
23	1.77010E 01	1.70270E 01	2.98620E-02	6.41170E-01
24	1.80390E 01	1.72540E 01	2.38310E-02	7.50260E-01
25	1.83350E 01	1.77730E 01	2.04460E-02	8.39920E-01
26	1.91400E 01	1.81800E 01	2.12420E-02	9.37800E-01
27	1.98830E 01	1.87780E 01	2.39220E-02	1.07990E 00
28	2.06440E 01	1.94200E 01	2.59870E-02	1.19730E 00
29	2.10060E 01	2.04740E 01	2.05750E-02	1.41080E 00
30	2.42600E 01	2.25470E 01	1.02130E-02	1.69150E 00
31	2.51420E 01	2.32300E 01	2.36190E-03	1.90080E 00
32	2.45430E 01	2.24720E 01	0.0	2.06300E 00
33	2.55360E 01	2.31560E 01	0.0	2.37920E 00
34	2.78210E 01	2.49790E 01	0.0	2.82720E 00
35	2.97650E 01	2.64220E 01	0.0	3.33890E 00
36	3.89390E 01	2.51370E 01	0.0	3.80280E 00
37	2.88040E 01	2.46760E 01	0.0	4.12780E 00
38	3.66590E 01	3.07750E 01	0.0	5.89170E 00
39	5.53100E 01	4.78900E 01	0.0	7.36060E 00
40	4.22090E 01	3.35580E 01	0.0	8.65200E 00
41	4.76800E 01	3.72740E 01	0.0	1.04060E 01
42	5.19900E 01	4.04270E 01	0.0	1.15830E 01
43	6.50350E 01	5.05720E 01	0.0	1.43680E 01
44	5.14400E 01	3.53790E 01	0.0	1.60360E 01
45	5.44400E 01	3.60850E 01	0.0	1.83560E 01
46	5.76600E 01	3.74690E 01	0.0	2.01940E 01
47	3.61790E 01	2.31300E 01	0.0	1.30490E 01
48	3.22440E 01	1.79520E 01	0.0	1.42910E 01
49	3.89960E 01	2.23220E 01	0.0	1.66730E 01
50	9.55370E 01	5.23260E 01	0.0	4.32100E 01
51	4.73210E 01	2.49040E 01	0.0	2.24150E 01
52	3.31930E 01	1.71010E 01	0.0	1.60910E 01
53	1.18430E 02	7.98060E 01	0.0	3.86270E 01
54	3.13210E 02	2.27730E 02	0.0	8.44830E 01
55	8.29200E 01	5.69590E 01	0.0	2.59600E 01
56	1.02330E 02	5.95050E 01	0.0	4.28280E 01
57	1.07560E 02	3.52950E 01	0.0	7.22650E 01
58	2.46290E 02	5.80180E 01	0.0	1.88270E 02
59	4.40370E 01	1.55130E 01	0.0	2.85230E 01
60	2.40930E 01	1.42230E 01	0.0	9.87050E 00
61	2.80430E 01	1.40640E 01	0.0	1.39800E 01
62	3.66610E 01	1.40020E 01	0.0	2.26580E 01
63	1.04110E 02	1.43340E 01	0.0	8.97770E 01
64	1.72990E 02	1.46200E 01	0.0	1.58380E 02
65	1.33820E 02	1.52380E 01	0.0	1.18580E 02
66	5.86080E 01	1.81050E 01	0.0	4.05020E 01
67	8.62780E 01	3.36630E 01	0.0	5.26120E 01
68	6.17460E 01	1.64280E 01	0.0	4.53170E 01
69	8.73670E 01	1.88220E 01	0.0	6.85460E 01
70	1.53550E 02	2.40870E 01	0.0	1.29460E 02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	8.56140E 00	4.46970E 00	4.08440E 00	1.46560E-03
2	8.60250E 00	4.41790E 00	4.15070E 00	7.92090E-03
3	9.93240E 00	5.82620E 00	4.08910E 00	2.41060E-02
4	1.17020E 01	8.32910E 00	3.13010E 00	5.38510E-02
5	1.31790E 01	1.07950E 01	2.09820E 00	8.49420E-02
6	1.40140E 01	1.26160E 01	1.13820E 00	1.23300E-01
7	1.52100E 01	1.44990E 01	7.66080E-01	1.97690E-01
8	1.64990E 01	1.59870E 01	1.38550E-01	2.98380E-01
9	1.72180E 01	1.66870E 01	4.63990E-02	4.63240E-01
10	1.81350E 01	1.73420E 01	2.47970E-02	7.46550E-01
11	1.99530E 01	1.88450E 01	2.37990E-02	1.07820E 00
12	2.39520E 01	2.22400E 01	1.11150E-02	1.67060E 00
13	2.59770E 01	2.35510E 01	0.0	2.42530E 00
14	2.92770E 01	2.55100E 01	0.0	3.76420E 00
15	4.48010E 01	3.75350E 01	0.0	7.30920E 00
16	5.49350E 01	4.28030E 01	0.0	1.21260E 01
17	5.48440E 01	3.65350E 01	0.0	1.82640E 01
18	3.57780E 01	2.11240E 01	0.0	1.46530E 01
19	5.85740E 01	3.13810E 01	0.0	2.71920E 01
20	1.70620E 02	1.21080E 02	0.0	4.95550E 01
21	1.51400E 02	5.09090E 01	0.0	1.00490E 02
22	3.20240E 01	1.45980E 01	0.0	1.74270E 01
23	1.04250E 02	1.43170E 01	0.0	8.99310E 01
24	9.29900E 01	2.22550E 01	0.0	7.07330E 01
25	1.00910E 02	1.97810E 01	0.0	8.11280E 01

--- LUMPED GROUP CONSTANTS ---

FISSION PRODUCTS OF U-235 BURN-UP 360 DAYS

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	8.81160E 00	4.84320E 00	3.96620E 00	4.39460E-04
2	8.49690E 00	4.40030E 00	4.09360E 00	1.30400E-03
3	8.39500E 00	4.28120E 00	4.07700E 00	3.27160E-03
4	8.68320E 00	4.53780E 00	4.14020E 00	6.91590E-03
5	9.47600E 00	5.30670E 00	4.17330E 00	1.34770E-02
6	1.02400E 01	6.30090E 00	3.93900E 00	2.33640E-02
7	1.10900E 01	7.58850E 00	3.35760E 00	3.78490E-02
8	1.19700E 01	9.00400E 00	2.53710E 00	5.36190E-02
9	1.26900E 01	1.02860E 01	2.09270E 00	6.86870E-02
10	1.32670E 01	1.14560E 01	1.51310E 00	7.66460E-02
11	1.36070E 01	1.22530E 01	1.06780E 00	9.12250E-02
12	1.38440E 01	1.28240E 01	8.75480E-01	1.02540E-01
13	1.42000E 01	1.33850E 01	5.28270E-01	1.15140E-01
14	1.46400E 01	1.39740E 01	3.87390E-01	1.28970E-01
15	1.50720E 01	1.44170E 01	2.69050E-01	1.46230E-01
16	1.55010E 01	1.50160E 01	2.07140E-01	1.61060E-01
17	1.60480E 01	1.56200E 01	1.49930E-01	1.87730E-01
18	1.65820E 01	1.61990E 01	9.93890E-02	2.17880E-01
19	1.70190E 01	1.66750E 01	8.69130E-02	2.37120E-01
20	1.72760E 01	1.69320E 01	5.16480E-02	2.74840E-01
21	1.74280E 01	1.70560E 01	2.60650E-02	3.28220E-01
22	1.76420E 01	1.72430E 01	2.34890E-02	3.72750E-01
23	1.78890E 01	1.74120E 01	1.91380E-02	4.55950E-01
24	1.81560E 01	1.76010E 01	1.45000E-02	5.39000E-01
25	1.89060E 01	1.82840E 01	1.15730E-02	6.08440E-01
26	1.94190E 01	1.87200E 01	1.16950E-02	6.86990E-01
27	2.01630E 01	1.93440E 01	1.31710E-02	8.05370E-01
28	2.09070E 01	1.99880E 01	1.43080E-02	9.03340E-01
29	2.22410E 01	2.11400E 01	1.13280E-02	1.08840E 00
30	2.53510E 01	2.39990E 01	5.62310E-03	1.33760E 00
31	2.60060E 01	2.44860E 01	1.29490E-03	1.51200E 00
32	2.44630E 01	2.32050E 01	0.0	1.65260E 00
33	2.58390E 01	2.48980E 01	0.0	1.94110E 00
34	2.86510E 01	2.63040E 01	0.0	2.33270E 00
35	3.03790E 01	2.76020E 01	0.0	2.77130E 00
36	2.93940E 01	2.62210E 01	0.0	3.17320E 00
37	2.85360E 01	2.51010E 01	0.0	3.43540E 00
38	3.57070E 01	3.07610E 01	0.0	5.05270E 00
39	3.75050E 01	3.09910E 01	0.0	6.44470E 00
40	4.29180E 01	3.52560E 01	0.0	7.66210E 00
41	4.77620E 01	3.85320E 01	0.0	9.23910E 00
42	5.30480E 01	4.23910E 01	0.0	1.06560E 01
43	6.44100E 01	5.15430E 01	0.0	1.27740E 01
44	5.11340E 01	3.69130E 01	0.0	1.41910E 01
45	5.45360E 01	3.79700E 01	0.0	1.66560E 01
46	5.71080E 01	3.93620E 01	0.0	1.77480E 01
47	2.49810E 01	1.75650E 01	0.0	7.41530E 00
48	2.92980E 01	1.72900E 01	0.0	1.20060E 01
49	3.88830E 01	2.33010E 01	0.0	1.55800E 01
50	1.00640E 02	5.90640E 01	0.0	4.16760E 01
51	2.11620E 01	1.48990E 01	0.0	6.26340E 00
52	2.81780E 01	1.62710E 01	0.0	1.16060E 01
53	9.11210E 01	6.11950E 01	0.0	2.99260E 01
54	2.25470E 02	1.65640E 02	0.0	5.98360E 01
55	5.82960E 01	4.39460E 01	0.0	1.42990E 01
56	6.18880E 01	3.62740E 01	0.0	2.56140E 01
57	9.04930E 01	2.58790E 01	0.0	6.46130E 01
58	2.60990E 02	6.33560E 01	0.0	1.97630E 02
59	4.47920E 01	1.52490E 01	0.0	2.95530E 01
60	2.04570E 01	1.38380E 01	0.0	6.61940E 00
61	2.14530E 01	1.36670E 01	0.0	7.78610E 00
62	2.65100E 01	1.36270E 01	0.0	1.28820E 01
63	5.60390E 01	1.37570E 01	0.0	4.22780E 01
64	9.19630E 01	1.39870E 01	0.0	7.79760E 01
65	1.06230E 02	1.47280E 01	0.0	9.15030E 01
66	4.19920E 01	1.48550E 01	0.0	2.71370E 01
67	4.59040E 01	1.79820E 01	0.0	2.75220E 01
68	4.84560E 01	1.59110E 01	0.0	3.25460E 01
69	6.71510E 01	1.80970E 01	0.0	4.90530E 01
70	1.12270E 02	2.28790E 01	0.0	8.93970E 01

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	8.55200E 00	4.47650E 00	4.07340E 00	1.11450E-03
2	8.58300E 00	4.43110E 00	4.12050E 00	5.62250E-03
3	9.88230E 00	5.61680E 00	4.05530E 00	1.85130E-02
4	1.15560E 01	8.33480E 00	2.93150E 00	4.60190E-02
5	1.30010E 01	1.09030E 01	1.79120E 00	7.37550E-02
6	1.39050E 01	1.28310E 01	8.30000E-01	1.02740E-01
7	1.51950E 01	1.46200E 01	2.91890E-01	1.45550E-01
8	1.66530E 01	1.62570E 01	1.16810E-01	2.11280E-01
9	1.74500E 01	1.70740E 01	3.37630E-02	3.25510E-01
10	1.83360E 01	1.77690E 01	1.51150E-02	5.36100E-01
11	2.02300E 01	1.94100E 01	1.31030E-02	8.02090E-01
12	2.47150E 01	2.33730E 01	6.11940E-03	1.31450E 00
13	2.67960E 01	2.48200E 01	0.0	1.97740E 00
14	2.95400E 01	2.64100E 01	0.0	3.13220E 00
15	4.54780E 01	3.91230E 01	0.0	6.39600E 00
16	5.51030E 01	4.42070E 01	0.0	1.08990E 01
17	5.43780E 01	3.83270E 01	0.0	1.60380E 01
18	3.09890E 01	1.93530E 01	0.0	1.16350E 01
19	4.98140E 01	2.99780E 01	0.0	1.98350E 01
20	1.24570E 02	8.99680E 01	0.0	3.46030E 01
21	1.36900E 02	4.16890E 01	0.0	9.52080E 01
22	2.88610E 01	1.42460E 01	0.0	1.46150E 01
23	5.80160E 01	1.37900E 01	0.0	4.42270E 01
24	6.47440E 01	1.58400E 01	0.0	4.89030E 01
25	7.59780E 01	1.89640E 01	0.0	5.70140E 01

=== LUMPED GROUP CONSTANTS ===

FISSION PRODUCTS OF U-238 BURN-UP 360 DAYS

70 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	8.83210E 00	4.85590E 00	3.97410E 00	5.30450E-04
2	8.50650E 00	4.39930E 00	4.10390E 00	1.65030E-03
3	8.38460E 00	4.28530E 00	4.10080E 00	4.33030E-03
4	8.70750E 00	4.54280E 00	4.15570E 00	9.30520E-03
5	8.50480E 00	5.31910E 00	4.18370E 00	1.76070E-02
6	1.02880E 01	6.31320E 00	3.97260E 00	2.91850E-02
7	1.11750E 01	7.58440E 00	3.45230E 00	4.44440E-02
8	1.20780E 01	8.97650E 00	2.71720E 00	6.16370E-02
9	1.2a110E 01	1.02200E 01	2.30260E 00	7.86010E-02
10	1.33900E 01	1.13400E 01	1.74970E 00	9.10030E-02
11	1.3722UE 01	1.21080E 01	1.41900E 00	1.06240E-01
12	1.39620E 01	1.26750E 01	1.10610E 00	1.21400E-01
13	1.42900E 01	1.32670E 01	7.08180E-01	1.39670E-01
14	1.47280E 01	1.39220E 01	4.90670E-01	1.63280E-01
15	1.5152UE 01	1.45020E 01	3.15610E-01	1.88530E-01
16	1.55670E 01	1.49890E 01	2.47390E-01	2.09190E-01
17	1.60830E 01	1.55620E 01	1.82850E-01	2.44610E-01
18	1.65840E 01	1.61030E 01	1.24280E-01	2.86870E-01
19	1.69940E 01	1.65490E 01	1.09470E-01	3.13170E-01
20	1.72410E 01	1.67A80E 01	7.04860E-02	3.63390E-01
21	1.74020E 01	1.69060E 01	4.31560E-02	4.33470E-01
22	1.76120E 01	1.70760E 01	4.00860E-02	4.91570E-01
23	1.79050E 01	1.72710E 01	3.45980E-02	5.97160E-01
24	1.82270E 01	1.74950E 01	2.88200E-02	7.01310E-01
25	1.88940E 01	1.80800E 01	2.49100E-02	7.87240E-01
26	1.94130E 01	1.85040E 01	2.55900E-02	8.82640E-01
27	2.01770E 01	1.91230E 01	2.88180E-02	1.02440E 00
28	2.09510E 01	1.97770E 01	3.13060E-02	1.14180E 00
29	2.22770E 01	2.08900E 01	2.47860E-02	1.35970E 00
30	2.49380E 01	2.32640E 01	1.23040E-02	1.64920E 00
31	2.57780E 01	2.39030E 01	2.83340E-03	1.86060E 00
32	2.71130E 01	2.30870E 01	0.0	2.01990E 00
33	2.69620E 01	2.40300E 01	0.0	2.33090E 00
34	2.88430E 01	2.60250E 01	0.0	2.80330E 00
35	3.08360E 01	2.75020E 01	0.0	3.32750E 00
36	2.98330E 01	2.60380E 01	0.0	3.79540E 00
37	2.99770E 01	2.52520E 01	0.0	4.12600E 00
38	3.70890E 01	3.10510E 01	0.0	6.03970E 00
39	5.83490E 01	5.07880E 01	0.0	7.59960E 00
40	4.37460E 01	3.48710E 01	0.0	8.87440E 00
41	4.82750E 01	3.77260E 01	0.0	1.05480E 01
42	5.54490E 01	4.34470E 01	0.0	1.20010E 01
43	6.52350E 01	5.05180E 01	0.0	1.44150E 01
44	5.33360E 01	3.65680E 01	0.0	1.67430E 01
45	5.62930E 01	3.73A50E 01	0.0	1.89090E 01
46	5.92660E 01	3.85A90E 01	0.0	2.06810E 01
47	3.16260E 01	2.07730E 01	0.0	1.08530E 01
48	3.40400E 01	1.90090E 01	0.0	1.50300E 01
49	4.27310E 01	2.42920E 01	0.0	1.84380E 01
50	1.07320E 02	5.93130E 01	0.0	4.80040E 01
51	3.08830E 01	1.77110E 01	0.0	1.31310E 01
52	3.39820E 01	1.75700E 01	0.0	1.64110E 01
53	1.16960E 02	7.74120E 01	0.0	3.95460E 01
54	2.96290E 02	2.14760E 02	0.0	8.15290E 01
55	7.70720E 01	5.42A90E 01	0.0	2.27810E 01
56	1.06500E 02	6.03040E 01	0.0	4.61940E 01
57	1.15660E 02	3.62110E 01	0.0	7.92460E 01
58	2.88670E 02	7.05930E 01	0.0	2.18430E 02
59	4.97110E 01	1.58030E 01	0.0	3.39080E 01
60	2.45730E 01	1.42160E 01	0.0	1.03570E 01
61	2.87570E 01	1.40210E 01	0.0	1.47350E 01
62	3.89510E 01	1.39580E 01	0.0	2.49730E 01
63	1.01210E 02	1.43090E 01	0.0	8.68980E 01
64	1.71940E 02	1.45610E 01	0.0	1.56670E 02
65	1.75180E 02	1.55A50E 01	0.0	1.59600E 02
66	6.34840E 01	1.65110E 01	0.0	4.69720E 01
67	7.65320E 01	2.56870E 01	0.0	5.08440E 01
68	6.86670E 01	1.58710E 01	0.0	5.28270E 01
69	9.67340E 01	1.78780E 01	0.0	7.89080E 01
70	1.67400E 02	2.21630E 01	0.0	1.45230E 02

25 GROUP STRUCTURE

GROUP	TOTAL	ELASTIC	INELASTIC	CAPTURE
1	8.56440E 00	4.47960E 00	4.08270E 00	1.40440E-03
2	8.60690E 00	4.43430E 00	4.13830E 00	7.54000E-03
3	9.92080E 00	5.82820E 00	4.07740E 00	2.35030E-02
4	1.16520E 01	8.31530E 00	3.07040E 00	5.35480E-02
5	1.51220E 01	1.08110E 01	2.01490E 00	8.50360E-02
6	1.40000E 01	1.26900E 01	1.05150E 00	1.22110E-01
7	1.52570E 01	1.45730E 01	9.57230E-01	1.86470E-01
8	1.66410E 01	1.61470E 01	1.44540E-01	2.77680E-01
9	1.74160E 01	1.69140E 01	5.12870E-02	4.29750E-01
10	1.83570E 01	1.76090E 01	2.95560E-02	6.97690E-01
11	2.02450E 01	1.91890E 01	2.86700E-02	1.02170E 00
12	2.45060E 01	2.28380E 01	1.33900E-02	1.62590E 00
13	2.67850E 01	2.43960E 01	0.0	2.38690E 00
14	3.01260E 01	2.63710E 01	0.0	3.75670E 00
15	4.64700E 01	3.90340E 01	0.0	7.48180E 00
16	5.63560E 01	4.39480E 01	0.0	1.24020E 01
17	5.66250E 01	3.77460E 01	0.0	1.88500E 01
18	3.60770E 01	2.13330E 01	0.0	1.47430E 01
19	5.72070E 01	3.14370E 01	0.0	2.57700E 01
20	1.62920E 02	1.15080E 02	0.0	4.78910E 01
21	1.69470E 02	5.55970E 01	0.0	1.13870E 02
22	3.43050E 01	1.46780E 01	0.0	1.96270E 01
23	1.03470E 02	1.42740E 01	0.0	8.91990E 01
24	1.05330E 02	1.92160E 01	0.0	8.61100E 01
25	1.10970E 02	1.86230E 01	0.0	9.23450E 01

* END OF FORTRAN *

Appendix 3. Inelastic Matrices of Pseudo FP Nuclide

TABLE OF INELASTIC MATRIX FOR PSEUDO FP NUCLIDE

25 GROUP STRUCTURE

GROUP	SIGIN(I,I+K) AT K EQUAL TO									
I	0	1	2	3	4	5	6	7	8	9
1	0.0	0.013	0.084	0.258	0.287	0.226	0.091	0.029	0.009	0.002
2	0.003	0.085	0.261	0.291	0.229	0.092	0.029	0.009	0.002	0.0
3	0.040	0.275	0.306	0.241	0.097	0.031	0.009	0.002	0.0	0.0
4	0.186	0.363	0.285	0.115	0.037	0.011	0.002	0.001	0.0	0.0
5	0.302	0.442	0.178	0.057	0.017	0.004	0.001	0.0	0.0	0.0
6	0.472	0.366	0.117	0.034	0.008	0.002	0.0	0.0	0.0	0.0
7	0.536	0.335	0.099	0.023	0.005	0.001	0.0	0.0	0.0	0.0
8	0.568	0.333	0.077	0.017	0.004	0.001	0.0	0.0	0.0	0.0
9	0.628	0.290	0.064	0.014	0.003	0.001	0.0	0.0	0.0	0.0
10	0.640	0.281	0.062	0.013	0.003	0.001	0.0	0.0	0.0	0.0
11	0.640	0.282	0.061	0.013	0.003	0.001	0.0	0.0	0.0	0.0
12	0.453	0.030	0.007	0.001	0.0	0.0	0.0	0.0	0.0	0.0

TABLE OF INELASTIC MATRIX FOR PSEUDO FP NUCLIDE

70 GROUP STRUCTURE

GROUP I	SIGIN(I,I+K) AT K EQUAL TO 0	1	2	3	4	5	6	7	8	9	10	11
	12	13	14	15	16	17	18	19	20	21	22	23
1	0.0	0.0	0.003	0.011	0.032	0.052	0.105	0.153	0.130	0.157	0.097	0.074
	0.055	0.045	0.027	0.019	0.016	0.008	0.005	0.004	0.003	0.002	0.001	0.001
2	0.0	0.003	0.011	0.032	0.052	0.105	0.154	0.130	0.158	0.097	0.074	0.055
	0.045	0.027	0.019	0.016	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.0
3	0.001	0.011	0.032	0.052	0.105	0.154	0.130	0.158	0.097	0.074	0.055	0.045
	0.027	0.019	0.016	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.0	0.0
4	0.004	0.032	0.053	0.106	0.155	0.131	0.159	0.098	0.075	0.055	0.045	0.027
	0.020	0.016	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.0	0.0	0.0
5	0.015	0.054	0.108	0.158	0.134	0.163	0.100	0.077	0.056	0.046	0.027	0.020
	0.017	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.0	0.0	0.0	0.0
6	0.031	0.112	0.165	0.139	0.169	0.104	0.060	0.059	0.048	0.029	0.021	0.018
	0.009	0.005	0.005	0.003	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0
7	0.071	0.179	0.151	0.183	0.113	0.087	0.063	0.052	0.031	0.023	0.019	0.009
	0.005	0.005	0.003	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0
8	0.118	0.178	0.216	0.133	0.102	0.075	0.062	0.036	0.027	0.022	0.011	0.006
	0.006	0.004	0.002	0.001	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0
9	0.120	0.269	0.166	0.127	0.093	0.077	0.045	0.033	0.028	0.014	0.008	0.007
	0.005	0.003	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.190	0.221	0.169	0.124	0.102	0.060	0.044	0.037	0.018	0.010	0.010	0.006
	0.004	0.002	0.001	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.163	0.239	0.176	0.145	0.086	0.063	0.053	0.026	0.015	0.014	0.009	0.005
	0.003	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.171	0.244	0.201	0.119	0.087	0.073	0.036	0.020	0.019	0.012	0.007	0.004
	0.003	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.176	0.283	0.167	0.122	0.103	0.051	0.029	0.027	0.017	0.010	0.006	0.004
	0.002	0.001	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.210	0.244	0.178	0.150	0.074	0.042	0.040	0.024	0.015	0.009	0.006	0.003
	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.185	0.266	0.224	0.110	0.062	0.059	0.036	0.022	0.014	0.008	0.005	0.003
	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.197	0.328	0.162	0.091	0.066	0.053	0.032	0.020	0.012	0.007	0.004	0.003
	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.258	0.252	0.143	0.135	0.083	0.050	0.031	0.019	0.012	0.007	0.004	0.003
	0.002	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.205	0.231	0.219	0.135	0.081	0.051	0.031	0.019	0.011	0.007	0.004	0.002
	0.001	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.170	0.322	0.198	0.120	0.075	0.046	0.027	0.017	0.010	0.006	0.004	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.241	0.296	0.179	0.112	0.068	0.041	0.025	0.015	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.242	0.293	0.183	0.112	0.067	0.041	0.024	0.015	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.239	0.300	0.184	0.110	0.067	0.039	0.024	0.015	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.245	0.301	0.181	0.110	0.065	0.039	0.024	0.014	0.008	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.248	0.299	0.181	0.107	0.065	0.040	0.024	0.014	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.248	0.302	0.178	0.109	0.066	0.040	0.023	0.014	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.250	0.295	0.181	0.110	0.066	0.039	0.024	0.014	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.244	0.300	0.183	0.109	0.065	0.040	0.024	0.014	0.009	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.247	0.302	0.181	0.107	0.065	0.039	0.024	0.014	0.008	0.005	0.003	0.002
	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.210	0.113	0.066	0.041	0.025	0.015	0.009	0.005	0.003	0.002	0.001	0.001
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix 4. Comparison between the Measured and Calculated Reactivity Worths with the Cook's Set. (The * marks denote the nuclide where disagreement is larger than the quoted experimental error)

NUCLIDE = ZR 90

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.012000	0.250000	0.009703	0.808587	
2	STEK3000	0.015000	0.200000	0.016443	1.096223	
3	STEK2000	0.018000	0.166667	0.019957	1.108736	
4	STEK1000	0.031000	0.193548	0.027597	0.890235	

NUCLIDE = ZR 91

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.101000	0.089109	-0.234687	2.323629	*15
2	STEK3000	-0.210000	0.052381	-0.238625	1.136309	* 3
3	STEK2000	-0.105000	0.085714	-0.209705	1.997188	*12
4	STEK1000	-0.085000	0.176471	-0.144304	1.697699	* 4

NUCLIDE = ZR 92

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.013000	0.538462	0.007504	0.577204	
2	STEK3000	0.027000	0.148148	0.016264	0.602362	* 3
3	STEK2000	0.041000	0.170732	0.019329	0.471439	* 4
4	STEK1000	0.057500	0.133913	0.033311	0.579325	* 4

NUCLIDE = ZR 93

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.340000	0.388889	-0.565365	1.046972	
2	STEK3000	-0.305000	0.124590	-0.464143	1.521779	* 5
3	STEK2000	-0.242000	0.190083	-0.317614	1.312453	* 2
4	STEK1000	-0.400000	0.525000	-0.184450	0.461125	* 2

NUCLIDE = ZR 94

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.043000	0.395349	0.008050	-0.187207	-
2	STEK3000	-0.007000	2.428571	0.016759	-2.394085	-
3	STEK2000	-0.006000	3.666667	0.019571	-3.261820	-
4	STEK1000	-0.010000	5.000000	0.033532	-3.353173	-

NUCLIDE = ZR 96

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.048000	0.166667	-0.134963	2.811725	*11
2	STEK3000	-0.027000	0.259259	-0.118906	4.403915	*14
3	STEK2000	-0.010000	1.000000	-0.086918	8.691765	* 8
4	STEK1000	0.024000	0.583333	-0.033739	-1.405782	-

NUCLIDE = MO 95

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.894000	0.077810	-1.072315	1.545122	* 8
2	STEK3000	-0.556000	0.093525	-0.752229	1.352930	* 4
3	STEK2000	-0.507000	0.153213	-0.553325	0.911573	
4	STEK1000	-0.495000	0.086869	-0.445824	0.900655	* 2

NUCLIDE = MO 96

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.084000	0.321429	-0.516792	6.152281	*17
2	STEK3000	-0.037000	0.459459	-0.397408	10.740746	*22
3	STEK2000	-0.055000	0.254545	-0.241721	4.394922	*14
4	STEK1000	-0.032000	0.468750	-0.137323	4.291342	* 8

NUCLIDE = MO 97

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.260000	0.114286	-0.395772	0.706736	* 3
2	STEK3000	-0.172000	0.087797	-0.427033	0.904731	* 2
3	STEK2000	-0.680000	0.235294	-0.431508	0.634571	* 2
4	STEK1000	-0.441000	0.047619	-0.375965	0.852527	* 4

NUCLIDE = MO 98

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.054000	0.074074	-0.255469	4.730905	*51
2	STEK3000	-0.048500	0.061856	-0.298248	6.149443	*64
3	STEK2000	-0.037000	0.108108	-0.308310	8.332709	*68
4	STEK1000	-0.003000	1.333333	-0.252803	84.267700	*63

NUCLIDE = MO100

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.048000	0.104167	-0.194742	4.057121	*30
2	STEK3000	-0.041000	0.121951	-0.202682	4.943457	*33
3	STEK2000	-0.037000	0.135135	-0.188695	5.099853	*31
4	STEK1000	-0.012000	0.583333	-0.134688	11.224037	*18

NUCLIDE = TC 99

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.470000	0.068027	-1.147226	0.780426	* 4
2	STEK3000	-1.300000	0.076923	-0.912972	0.702286	* 4
3	STEK2000	-1.300000	0.115385	-0.808383	0.621833	* 4
4	STEK1000	-1.260000	0.126984	-0.669895	0.547536	* 4

NUCLIDE = RU101

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.190000	0.075630	-1.482376	1.245694	* 4
2	STEK3000	-1.120000	0.062500	-1.631014	1.456262	* 8
3	STEK2000	-1.190000	0.067227	-1.774948	1.491553	* 8
4	STEK1000	-1.170000	0.094017	-1.839799	1.572478	* 7

NUCLIDE = RU102

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.498000	0.222222	-0.366152	1.849252	* 4
2	STEK3000	-0.435000	0.263830	-0.430782	1.833116	* 4
3	STEK2000	-0.410000	0.238095	-0.456517	2.173891	* 5
4	STEK1000	-0.410000	0.181818	-0.398108	3.619160	*15

NUCLIDE = RU104

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.455000	0.335484	-0.191695	1.236742	
2	STEK3000	-0.440000	0.214286	-0.222980	1.592713	* 3
3	STEK2000	-0.440000	0.214286	-0.232241	1.658867	* 4
4	STEK1000	-0.485000	0.317647	-0.177753	2.091206	* 4

NUCLIDE = RH103

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.650000	0.037736	-2.212817	0.835025	* 5
2	STEK3000	-1.970000	0.036496	-1.029720	0.751620	* 7
3	STEK2000	-1.190000	0.025210	-0.838001	0.704203	*12
4	STEK1000	-1.050000	0.028571	-0.749822	0.714116	*11

NUCLIDE = PD104

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.165000	0.406061	-0.652745	3.956032	* 8
2	STEK3000	-0.125000	0.333333	-0.697344	3.099307	* 7
3	STEK2000	-0.465000	0.329823	-0.670357	2.529648	* 5
4	STEK1000	-0.450000	0.480000	-0.573567	2.294269	* 3

NUCLIDE = PD105

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.635000	0.055657	-0.837963	0.512516	* 9
2	STEK3000	-2.110000	0.049526	-0.735754	0.348699	* 7
3	STEK2000	-1.610000	0.068323	-0.665521	0.413367	* 9
4	STEK1000	-1.375000	0.046545	-0.596310	0.433680	*13

NUCLIDE = PD106

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.153000	0.111111	-0.244794	1.599958	* 6
2	STEK3000	-0.167000	0.107784	-0.259274	1.552537	* 6
3	STEK2000	-0.206000	0.082524	-0.242688	1.178097	* 3
4	STEK1000	-0.488000	0.148936	-0.180916	0.962331	

NUCLIDE = PD107

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.960000	0.181818	-0.777654	0.392754	* 4
2	STEK3000	-1.700000	0.176947	-0.700117	0.368483	* 2
3	STEK2000	-2.330000	0.429511	-0.650949	0.279377	* 3
4	STEK1000	-1.440000	0.187500	-0.584642	0.406001	* 4

NUCLIDE = PD108

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.530000	0.188679	-1.508236	2.845731	*10
2	STEK3000	-0.400000	0.125000	-0.756903	1.892258	* 8
3	STEK2000	-0.370000	0.162162	-0.300286	0.811583	* 2
4	STEK1000	-0.185000	0.378378	-0.161145	0.871052	

NUCLIDE = PD110

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.084000	0.321429	-0.025253	0.300637	* 3
2	STEK3000	-0.065000	0.630769	-0.025398	0.390740	
3	STEK2000	0.004000	20.750000	-0.028709	-7.177372	-
4	STEK1000	-0.158000	0.354430	-0.008559	0.054170	* 3

NUCLIDE = AG109

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.510000	0.087729	-3.661691	1.458841	* 7
2	STEK3000	-3.000000	0.133333	-1.661098	0.553699	* 4
3	STEK2000	-1.800000	0.277778	-1.032567	0.573648	* 2
4	STEK1000	-1.400000	0.142857	-0.822830	0.587736	* 3

NUCLIDE = CD111

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.680000	0.191382	-0.556604	0.632505	* 2
2	STEK3000	-0.960000	0.166667	-0.460190	0.479365	* 4
3	STEK2000	-1.120000	0.232143	-0.367587	0.328203	* 3
4	STEK1000	-1.060000	0.169811	-0.280562	0.264681	* 5

NUCLIDE = TE128

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.011000	0.454545	-0.044832	4.075591	* 7
2	STEK3000	-0.004000	1.250000	-0.053767	13.441782	*10
3	STEK2000	-0.008000	0.625000	-0.062938	7.867272	*11
4	STEK1000	0.008000	0.625000	-0.044845	-5.605684	-

NUCLIDE = TE130

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.005000	1.800000	0.011326	2.265266	
2	STEK3000	0.010000	0.800000	0.020033	2.003264	* 2
3	STEK2000	0.026000	0.307692	0.023103	0.888572	
4	STEK1000	0.020000	0.350000	0.033869	1.693455	* 2

NUCLIDE = I 127

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.650000	0.666667	-1.330803	0.806547	* 3
2	STEK3000	-1.380000	0.094203	-0.985818	0.714361	* 4
3	STEK2000	-1.200000	0.091667	-0.729418	0.607848	* 5
4	STEK1000	-0.930000	0.118280	-0.588724	0.633037	* 4

NUCLIDE = I 129

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.540000	0.240741	-0.363183	0.672560	* 2
2	STEK3000	-0.630000	0.285714	-0.353183	0.560608	* 2
3	STEK2000	-0.700000	0.271429	-0.324413	0.463447	* 2
4	STEK1000	-0.210000	0.333333	-0.267130	1.272048	

NUCLIDE = CS133

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.060000	0.060241	-1.270191	0.765175	* 4
2	STEK3000	-1.400000	0.054545	-0.819848	0.745316	* 5
3	STEK2000	-0.950000	0.063158	-0.606706	0.638638	* 6
4	STEK1000	-0.134000	0.029973	-0.465880	0.634713	*13

NUCLIDE = CS135

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.730000	0.655914	-0.898094	-0.965697	-
2	STEK3000	0.220000	5.333333	-0.718075	-5.983945	-
3	STEK2000	-0.240000	2.416667	-0.459998	1.916660	
4	STEK1000	-0.680000	0.618182	-0.263112	0.298991	

NUCLIDE = LA139

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.037300	0.029491	-0.130240	3.491689	*5
2	STEK3000	-0.025700	0.042802	-0.086033	3.347574	*5
3	STEK2000	-0.014900	0.067114	-0.049780	3.340939	*5
4	STEK1000	-0.001000	2.000000	-0.010902	10.902008	* 5

NUCLIDE = CE140

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.005000	0.400000	-0.001880	-0.375944	-
2	STEK3000	0.009000	0.222222	-0.000264	-0.029349	-
3	STEK2000	0.015700	0.127389	-0.000536	-0.034161	-
4	STEK1000	0.020100	0.134328	0.004349	0.216393	* 6

NUCLIDE = CE142

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	0.0	0.0	-0.021569	0.0	* 0
2	STEK3000	0.009500	0.421053	-0.019784	-2.082510	-
3	STEK2000	0.013300	0.353383	-0.019819	-1.490159	-
4	STEK1000	0.044800	0.147321	-0.002874	-0.064152	-

NUCLIDE = PR141

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.181000	0.143646	-0.261175	1.442954	* 4
2	STEK3000	-0.156000	0.115385	-0.248580	1.593459	* 6
3	STEK2000	-0.133000	0.135338	-0.207707	1.561703	* 5
4	STEK1000	-0.083000	0.108434	-0.129693	1.562572	* 6

NUCLIDE = ND142

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.011000	0.636364	-0.067978	6.179817	* 9
2	STEK3000	-0.002000	3.000000	-0.073518	36.758794	*12
3	STEK2000	-0.011000	0.727273	-0.077847	7.076978	* 9
4	STEK1000	0.028000	0.857143	-0.065710	-2.346782	-

NUCLIDE = ND143

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.800000	0.137500	-0.958215	1.197769	* 2
2	STEK3000	-0.685000	0.131387	-0.879656	1.284170	* 3
3	STEK2000	-0.580000	0.206897	-0.717756	1.237511	* 2
4	STEK1000	-0.351000	0.099715	-0.526429	1.499798	* 6

NUCLIDE = ND144

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.095000	0.315789	-0.139108	1.464290	* 2
2	STEK3000	-0.051000	0.274510	-0.146920	2.880790	* 7
3	STEK2000	-0.039000	0.358974	-0.140022	3.590305	* 8
4	STEK1000	-0.020000	0.400000	-0.105859	5.292948	*11

NUCLIDE = ND145

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-1.650000	0.200000	-1.350689	0.818600	
2	STEK3000	-0.850000	0.117647	-0.926298	1.089410	
3	STEK2000	-0.830000	0.120482	-0.634918	0.764962	* 2
4	STEK1000	-0.645000	0.139535	-0.434528	0.673686	* 3

NUCLIDE = ND146

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.052000	0.326923	-0.043148	0.829766	
2	STEK3000	-0.062000	0.306452	-0.049031	0.790826	
3	STEK2000	-0.036000	0.416667	-0.055250	1.534725	* 2
4	STEK1000	-0.006000	1.666667	-0.039929	6.654860	* 4

NUCLIDE = ND146

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.766000	0.180723	-0.299029	1.801376	* 5
2	STEK3000	-0.138000	0.144928	-0.321811	2.331965	*10
3	STEK2000	-0.104000	0.269615	-0.298716	2.872271	* 8
4	STEK1000	-0.060000	0.150000	-0.204047	3.400778	*17

NUCLIDE = ND150

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.425000	0.288889	-0.049306	0.219137	* 3
2	STEK3000	-0.168000	0.297619	-0.056478	0.336180	* 3
3	STEK2000	-0.217000	0.290323	-0.064111	0.295443	* 3
4	STEK1000	-0.055000	0.181818	-0.047033	0.855143	

NUCLIDE = PM147

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-4.900000	0.145833	-5.143740	1.071613	
2	STEK3000	-3.380000	0.150888	-2.818546	0.833889	* 2
3	STEK2000	-4.100000	0.200000	-1.887568	0.471892	* 3
4	STEK1000	-2.700000	0.100000	-1.439215	0.719608	* 3

NUCLIDE = SM147

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-3.750000	0.106667	-3.392468	0.904658	
2	STEK3000	-2.650000	0.105660	-2.548519	0.961705	
3	STEK2000	-2.270000	0.074890	-1.935522	0.852653	* 2
4	STEK1000	-1.600000	0.072222	-1.503846	0.939470	* 3

NUCLIDE = SM148

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.770000	0.207792	-0.290157	0.376828	* 3
2	STEK3000	-0.447000	0.217002	-0.282091	0.631076	* 2
3	STEK2000	-0.386000	0.251295	-0.249175	0.645532	* 2
4	STEK1000	-0.205300	0.321951	-0.201443	0.982651	

NUCLIDE = SM149

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-7.110000	0.082982	-5.913750	0.831751	* 3
2	STEK3000	-5.090000	0.085868	-2.949797	0.579692	* 6
3	STEK2000	-5.010000	0.095808	-2.113236	0.421804	* 7
4	STEK1000	-3.720000	0.080645	-1.703453	0.457918	* 7

NUCLIDE = SM150

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.970000	0.144330	-2.280091	2.350609	*10
2	STEK3000	-0.750000	0.160000	-1.671230	2.228306	* 8
3	STEK2000	-0.650000	0.169231	-1.141745	1.756530	* 5
4	STEK1000	-0.484000	0.171488	-0.783822	1.619466	* 4

NUCLIDE = SM151

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-16.900000	0.347561	-5.635077	0.343602	* 2
2	STEK3000	-10.400000	0.413462	-3.764083	0.361931	* 2
3	STEK2000	-4.400000	0.522727	-3.216734	0.731076	
4	STEK1000	-6.200000	0.483871	-2.829216	0.456325	* 2

NUCLIDE = SM152

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.910000	0.203980	-3.998152	1.989130	* 5
2	STEK3000	-1.170000	0.205128	-2.017326	1.724210	* 4
3	STEK2000	-0.940000	0.191489	-1.166744	1.241217	* 2
4	STEK1000	-0.600000	0.216667	-0.787927	1.313212	* 2

NUCLIDE = SM154

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.400000	0.225000	-0.457685	1.144212	
2	STEK3000	-0.256000	0.183594	-0.403006	1.574244	* 4
3	STEK2000	-0.497000	0.121827	-0.330614	1.078244	* 6
4	STEK1000	-0.192000	0.244792	-0.250703	1.305743	* 2

NUCLIDE = EU153

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-6.440000	0.066775	-3.855710	0.627966	* 6
2	STEK3000	-5.050000	0.094509	-2.732749	0.541138	* 5
3	STEK2000	-4.140000	0.094549	-2.355217	0.530454	* 5
4	STEK1000	-3.100000	0.070361	-2.072469	0.607768	* 6

NUCLIDE = GD156

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-0.290000	0.235593	-1.152524	1.953431	* 8
2	STEK3000	-0.920000	0.112905	-0.927706	1.496299	* 5
3	STEK2000	-0.970000	0.140351	-0.680852	1.144478	* 2
4	STEK1000	-0.720000	0.222222	-0.469627	0.652260	* 2

NUCLIDE = GD157

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.950000	0.030508	-5.315302	1.801797	*27
2	STEK3000	-2.260000	0.033898	-1.838483	0.779018	* 7
3	STEK2000	-2.150000	0.041860	-1.049825	0.488291	*13
4	STEK1000	-1.760000	0.046591	-0.788201	0.447842	* 6

NUCLIDE = TB159

	CORE NO	EXP V	REL ERR	CALCULATED	C/E	NOTE
1	STEK4000	-2.530000	0.017857	-2.207616	0.768432	*12
2	STEK3000	-2.490000	0.016064	-1.915675	0.769347	*15
3	STEK2000	-2.290000	0.026201	-1.736162	0.758149	*10
4	STEK1000	-1.760000	0.035714	-1.535690	0.783515	* 7

* END OF FORTRAN *