Fission product yield evaluation

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Abstract

A new evaluation has been made of the independent and cumulative yields of fission products for a selection of fissioning systems, including fission of nuclides important for reactor design and operation, and for fuel and waste management. The evaluation, which has been given the reference name UKFY3, used a new database of measurements and is considered complete up to early 1993. This database considerably extends and updates the database used for the previous UKFY2 evaluation.

The measurement database was analysed to produce a “best estimate” set of fission product yields. Careful study has been made of experimental uncertainties and discrepancies in the data. As some discrepancies could not be resolved the normalised residual technique was used to down-weight discrepant values. Relative and ratio-of-ratio measurements were included in the analysis by an iterative procedure. The measured data, results of the analysis and discrepancies in the data are shown in extensive tables included as appendices to this thesis.

The “best estimates” of fission product yields generated by the analysis were then studied to improve the understanding of the systematics of the yield distribution in mass, charge and isomeric state. Models describing these distributions were investigated and fitted. The effects of the fissioning nucleus mass and charge were examined, as well as the effect of neutron energy on the distributions from neutron-induced fission.

The results of these studies were then combined with the “best estimates” to generate complete independent and cumulative yields sets for a list of fissioning systems considered important for applications. This set consists of the neutron-induced fission of ^{232}Th, ^{233,234,235,236,238}U, ^{237,238}Np, ^{238,239,240,241,242}Pu, ^{241,242m,243}Am, and ^{243,244,245}Cm, plus the spontaneous fission of ^{242,244}Cm and ^{252}Cf. These complete yield sets were subsequently adjusted to fit the physical constraints of the fissioning process. The new adjusted library produced by the analysis of the UKFY3 database, provisionally called UKFY3.0 has been produced as a computer file in the ENDF-6 format.

The new UKFY3.0 file and the UKFY2 file, which has been revised for use in JEF2.2 during this work, were then tested against integral experimental results for delayed neutron and decay heat production respectively.

Finally, results of this work are summarized, remaining problems discussed and areas for future work high-lighted.

A Appendices

1. Introduction

1.1 Requirement for fission product yield data

In this first chapter I shall address the importance of fission products and their quantification. It is also necessary to describe the nomenclature used in the study of fission product yields and their evaluation.

The main need for fission product yield data comes from any type of modelling associated with situations where actinides are being, or have been, fissioned. The primary uses of these data are within the nuclear industry for nuclear reactor and fuel cycle calculations, although these data can be used in the study of naturally occurring geological formations such as the Oklo "natural" reactors[1.1]. At Oklo, many millions of years ago, the uranium rich rock was shattered by earthquakes. This allowed water to percolate through the rock which formed regions where self-sustaining fission reactions were started. These reactions later ceased when the ^{235}U content of the rock was depleted by the nuclear reactions.

In the nuclear industry fission product yields are used in many different reactor and spent fuel calculations, including those on decay heat, shielding, dosimetry, burn-up, fuel handling, waste disposal and safety. In such calculations the fission product yields that are significant to the individual task are required. The number may vary from a single yield for a destructive burnup assay to around a thousand yields for decay heat calculations. If more than one fissioning system is present then the yields will be required for each of these. The number of yields needed to be considered will therefore depend upon the task and its desired level of modelling accuracy.

All such fission product calculations are ultimately calculations of nuclide inventory. These inventories are usually calculated by starting with the initial inventory of the fuel, typically the uranium content and its isotopic abundances, along with any impurities (e.g. lithium, nitrogen etc.) and other nuclei present (e.g. oxygen in uranium dioxide fuels). Changes to the initial inventory are then modelled during periods of neutron irradiation or

[1.1] Nuclear Engineering International, February 1994, p30 "Gabon's natural reactors", B.Nagy (1993).

cooling. The inventory changes are governed by differential equations which include terms for both destruction and production of each nuclide. The destruction terms are the decay of the nuclide, and neutron reactions which transmute the nuclide (e.g. capture, fission, (n,p), (n,α), (n,2n) etc.). The production terms are decay of direct precursors to the nuclide, the independent fission product yields produced by fission of actinides and the neutron transmutation of other nuclides into this nuclide. Obviously the differential equation governing the change of any one nuclide is linked to those describing changes in all of its precursors. Thus the solution of these equations, without making simplifying assumptions, is not trivial and is usually carried out on computers using numerical solution techniques. The inventories calculated can then be processed using half-lives, branching fractions and average decay energies to calculate the heat output of the irradiated fuel. Similarly the total emission and spectra of α, β, γ and neutron emissions can be calculated using half-lives, branching fractions, (α,n) cross-sections and the characteristic particle spectra of each nuclide present.

Such calculations can describe the chemistry, heating and radiative emission of the fuel as functions of time. These parameters have many uses for the storage and transport of spent fuel, and for chemical or mechanical processing of the fuel. The heat output of the fuel or separated components can be used to calculate the cooling that must be applied to safely store the material. If fuel is stored at too high a temperature the thermal stress may damage the cladding and release volatile fission products. Also at high temperature some fission product compounds and fuel components such as magnesium alloys may combust in air. A tragic example of this occurred at TOMSK-7 in the Soviet Union where concentrated fission product waste was stored as nitrates in solution. The fission product decay heat dried up the solution; the residue was chemically unstable and exploded releasing radio-nuclides into the atmosphere.

The calculated emission and spectra of various radiations are used as source terms in calculations to determine the shielding necessary around fuel while it is either being transported or processed so that workers and members of the public are not exposed to radiation doses above internationally agreed limits.

The fuel chemistry and its variation with time are important in determining the paths that radio-nuclides will take in chemical processing. Also, when radio-nuclides are released into the environment by accidents, like Chernobyl, their chemical behaviour will determine their spread within the ecosystem and their uptake into plants and animals. The effect of release of radio-nuclides into the environment are determined by both their uptake by and excretion by organisms, and the radiation dose to the organism whilst present. An interesting example of this is the cycling of caesium in mountainous pastures and in the arctic tundra. The mosses which grow in these places require trace elements which are in short supply in the soil of these areas. The radio-caesium is chemically similar to the required trace elements and is thus strongly absorbed by the moss. When the moss is eaten the caesium either enters the animal or is excreted and re-absorbed by the moss. Thus the moss fixes the caesium into the environment stopping rain from washing the contamination away.

Calculations of radio-nuclide uptake are used to estimate the radiation dose to the population from both accidents and, also the processing and disposal of nuclear waste. As well as doses to the general population specific groups at greater risk of exposure are studied in detail. An example of this are those who survive on a diet of shellfish picked from the seashore near nuclear installations. Shellfish feed on the small particles of food caught from tidal currents and thus easily absorb many radio-nuclides.

Apart from the safety related calculations described above the nuclide inventories can be used in metrology of spent fuel. The percentage burnup of heavy atoms in the fuel and the cooling time since the irradiation are important parameters for fuel handling which can be determined by examining the fission product inventories. The burnup of fuel can be estimated using the stable nuclide ^{148}Nd which is determined by destructive assay. The precursors of ^{148}Nd are all short lived and have small cross-sections and thus the cumulative yield can be used to determine the number of fissions that has taken place in the fuel. In this technique a further simplification applies as the cumulative yields of ^{148}Nd for both thermal and fast fission of ^{235}U and ^{239}Pu are very similar. Thus, as these are the major isotopes undergoing fission in thermal reactor fuel, it is possible to determine the number of fissions, and thus the loss of heavy elements. This can be calculated simply by dividing the number of the stable ^{148}Nd nuclei present by the cumulative fission yield of 1.68 ± 0.01 per one hundred fissions.

Another method of determining fuel burnup is non-destructive gamma-ray spectrometry. The simplest method involves measuring the ratio of ^{134}Cs to ^{137}Cs which is directly proportional to the burnup. However this method is highly dependent on the initial ^{235}U enrichment of the fuel and on the reactor rating. An improved technique uses the Fox ratio[1.2]. The activities of ^{106}Ru, ^{137}Cs and ^{134}Cs within the fuel are measured by gamma-ray spectrometry, the Fox ratio is defined by the following expression;

$$^{106}\mathrm{Ru} \times {}^{137}\mathrm{Cs} / ({}^{134}\mathrm{Cs})^2 \qquad \text{Eqn (1.1)}$$

where the terms refer to the activity of the nuclides. This ratio is directly proportional to the burnup of the fuel, but has little dependence on the initial ^{235}U enrichment of the fuel or on the reactor rating. However, the short half-life of ^{106}Ru (1.0228 ± 0.0004 years) restricts the use of this ratio to fuel cooled for less than seven years.

Similarly, the cooling time of the fuel can be determined by examining activity ratios such as ^{106}Ru/^{137}Cs and ^{134}Cs/^{154}Eu. These ratios have characteristic values with cooling time and thus by measuring the ratios the cooling time can be estimated. The short lived ^{140}La (half-life of 1.6781 ± 0.0003 days), with no long lived precursors, can similarly be used to detect fuel that has been cooled for very short times. This is used in reprocessing plants to avoid dissolving short-cooled fuel rods whose radio-iodine content could dramatically increase the radiation dose to workers. In reactor experiments the short-lived ^{140}La can also be used to determine the fission rate in a sample as this nuclide quickly forms an equilibrium number density dependent on the fission rate and the decay constant.

In most applications the fission product radiation makes the handling of fuel more difficult. However many fission products are neutron absorbers and thus their presence reduces the neutron multiplication in transport flasks and cooling ponds. This reduces

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[1.2] The fourth International conference on nuclear fuel reprocessing and waste management RECOD94, 24-28th April 1994, London, UK. “Special Instrumentation development at Sellafield” by G.H.Fox, N.Gardner and C.H.Zimmerman.

the risk of criticality accidents. Including the fission products in calculations of neutron multiplication, provided the calculations can be experimentally validated, will allow more fuel to be packed in shipping flasks and cooling ponds. This would reduce the cost of transporting and storing spent nuclear fuel. However, in the UK, it is currently not permitted to take credit for fuel burnup in criticality calculations. However, in Germany, if the burnup of the fuel is confirmed by measurement some credit can be taken for the stable and very long-lived fission products.

All the calculations above are dependent on the nuclear data used. To estimate these data most accurately all available experimental measurements must be taken into account. However, for fission product yields, even the most measured fissioning system, thermal neutron-induced fission of ^{235}U, does not have experimental data for all significant yields. It is thus necessary to generate values using empirical or theoretical models for those yields for which measured data are unavailable.

1.2 The history of UK and international evaluations of fission product yields

The evaluation of yields for computer libraries in the UK was pioneered by E.A.C. Crouch at Harwell[1.3] during the 1960's and 70's. This work led to the production of computer libraries called Crouch 1, 2 and 3. After his retirement in 1981 the work was continued by M.F.James and J.Banai at Winfrith. This led to the production of an interim library, largely based on the Crouch experimental measurement database and was thus known as Crouch4 (as Crouch had previously produced three files); this was then followed by an improved file which was called UKFY1. The UKFY1 file was adopted by the Nuclear Energy Agency in 1986 for the fission product yield sections of the first version of an evaluated nuclear data file called the Joint Evaluated File, or JEF.

M.F.James and this author then produced a new evaluation called UKFY2. This work was funded jointly by British Nuclear Fuels plc, the Central Electricity Generating Board and the United Kingdom Atomic Energy Authority. The resulting file was adopted for inclusion in the preliminary release of the second Joint Evaluated File (JEF-2.1). Following this

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[1.3] E.A.C. Crouch, Atomic and Nuclear Data Tables, 19, 417 (1977) and earlier references therein.

work, in June 1990, I began a studentship sponsored by BNF plc. At the beginning of this period the UKFY2 work was completed and written up as three United Kingdom Atomic Energy Authority reports[1.4][1.5][1.6]. Comments from the UK Chemical Nuclear Data Committee and the JEF committees high-lighted two areas for further study. Firstly, for UKFY2 mass yields were approximated by chain yield. This approximation ignores neutron emission and thus would lead to incorrect calculation of nuclide inventories. Secondly the UKFY2 file had yields for nuclides that were not stable or included in the JEF decay data. This will lead to loss of these yields in calculations. Thus a revised processing technique was used to correct for these problems. Ultimately in 1993 the final JEF2.2 decay data became available and this was used to create a new version of UKFY2 which was submitted to the Nuclear Energy Agency Databank's JEF project in July 1993 and this became part of the JEF2.2 file release later that year. The work reported in this thesis is a continuation of the original UKFY2 work, although carried out in parallel with the final modifications to UKFY2, but leading to a new evaluation UKFY3.

Internationally there exist several other evaluation efforts each generating their own files. These are in China (CENDL, Chinese Evaluated Nuclear Data Library), Japan (JENDL, Japanese Evaluated Nuclear Data Library), Russia (BROND) and the United States of America (ENDF, Evaluated Nuclear Data File). These separate projects have developed in parallel with the work of the UK and there have been detailed communication between the evaluators and intercomparisons of the different datasets over the decades, especially between the U.K. and U.S.A. In the past other groups in France and Austria have also produced evaluations. However only the UK and US evaluations have developed evaluated files completely independently of the other evaluations. In addition

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[1.4] Report AEA-TRS-1015 "A new evaluation of fission product yields and the production of a new library (UKFY2) of independent and cumulative yields. Part I. Methods and outline of the evaluation" by M.F. James, R.W. Mills and D.R.Weaver (1991).

[1.5] Report AEA-TRS-1018 "A new evaluation of fission product yields and the production of a new library (UKFY2) of independent and cumulative yields. Part II. Tables of measured and recommended fission yield" by M.F. James, R.W. Mills and D.R.Weaver (1991).

[1.6]Report AEA-TRS-1019 "A new evaluation of fission product yields and the production of a new library (UKFY2) of independent and cumulative yields. Part III. Tables of fission yields with discrepant or sparse data" by M.F. James, R.W. Mills and D.R.Weaver (1991) to the communication between the evaluators contact has also been maintained with the measurers of fission yield data.

1.3 Brief overview of the physical processes relating to the formation and properties of fission products

The process of fission, the splitting of a heavy nucleus into two or more light nuclei, was first suggested by Meitner and Frisch in 1938 who drew conclusions from the work of Curie and Savitch, and Hahn and Strassmann who had observed barium as a product of the neutron bombardment of uranium[1.7].

It is energetically possible for actinides to split into two lighter fragments and release a relatively large amount of energy, around 200 MeV per fission; however it is first necessary for the nucleus to overcome a potential energy barrier called the fission barrier. This can occur in several ways. Energy to overcome the barrier can come from either transferring sufficient energy to the nucleus from outside, or the internal release of energy due to rearrangement of the nucleus after the absorption of a particle, or even through both of these two effects combined. A third process involves quantum mechanical tunnelling through the barrier, this occurs for both spontaneous and sub-threshold fission.

Once the barrier is overcome the fission process proceeds very rapidly. The nucleus splits into two fragments which are rapidly accelerated apart by Coulomb repulsion. As the fragments are accelerated prompt neutrons are emitted. Around 10^{-14} seconds after passing the fission barrier prompt gamma rays are emitted as the fragments de-excite. After 10^{-10} seconds the fragments are left in states that begin to undergo gamma cascade to longer-lived states which then decay by gamma or particle emission.

Because the precursor actinide has a high neutron to proton ratio, from its position on the line of stability, the main fission products are neutron rich nuclides. These products mostly undergo beta decay towards the line of stability. A small percentage of these beta decaying nuclides leave their daughter nuclei with sufficient energy to throw off a neutron

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[1.7] "Elements of Nuclear Physics", W.E. Burcham first published by Longman in 1979, reprinted 1985. ISBN 0-582-46027-1 before emitting a gamma cascade. As this neutron emission occurs at the same time as the radioactive decay of the fission products which itself is delayed from the fission event this process is called delayed neutron emission. The delayed component of neutron production when averaged per fission is of the order of one percent of the prompt neutron production. Although this is a small component of the total the existence of this delayed fraction allows the design of reactors that reach criticality only because of delayed neutrons and which can thus can be safely controlled with feedback controllers with characteristic cycle times of the order of tens of seconds rather than milliseconds.

At this point it is interesting to note that the half-lives of fission products range from fractions of a millisecond to many millions of years. However the longest lived fission product which emits delayed neutrons in its decay is Rb-91 with a reported half-life of 58.4 ± 0.4 seconds reported in the JEF2.2 decay data file[1.8]. This leads to the interesting observation that delayed neutron emission is dominated by short lived products, most of which are at the neutron rich extremes of the fission product yield distribution.

1.4 Definitions relevant to fission product yields

The nomenclature for fission products yields used in this thesis is that described by James et al[1.4], a report which was produced as part of the work associated with this thesis.

The atomic number and mass number of the fissioning compound nucleus are denoted by Z_f and A_f respectively. For the neutron-induced fission of a nuclide of mass number A_{target}, $A_f = A_{target} + 1$, while for spontaneous fission, A_f is the mass number of the fissioning nuclide.

A fission product nuclide is specified symbolically by the triplet (A,Z,I), where A and Z are respectively the mass number and atomic number, and I indicates the isomeric state (I=0

[1.8] JEF2.2 radioactive decay data file maintained and distributed from the NEA Data-bank, Le Seine St-Germain, 12 boulevard des îles, 92130 Issy-les-Moulineaux, Paris, France.

for the ground state, I=1,2,... for the 1st, 2nd,... excited states). If a fission product has no isomers, or if we are referring to the sum of yields for all its isomers, we use the doublet (A,Z).

The **independent yield** y(A,Z,I) is the number of atoms of (A,Z,I) produced directly from one fission, but after the emission of prompt neutrons (but before any radioactive decay and hence the emission of delayed neutrons). It can be written as the product of 3 factors:

$$y(A, Z, I) = Y(A) \times f(A, Z) \times R(A, Z, I) \qquad \text{Eqn (1.2)}$$

where the **sum yield** or **mass yield** Y(A) is the total of the independent yields (before delayed neutron emission) of all fission products of mass number A; f(A,Z) is the **fractional independent yield** of all isomers of (A,Z); and R(A,Z,I), the i**someric yield ratio**, is the fraction of (A,Z) produced directly as isomer I.

From the definition Eqn (1.2), it follows that:

$$\sum_{Z} f(A, Z) = 1 \qquad \text{for all A} \qquad \text{Eqn (1.3)}$$

and

$$\sum_{I} R(A, Z, I) = 1 \qquad \text{for all (A,Z)} \qquad \text{Eqn (1.4)}$$

so that:

$$Y(A) = \sum_{Z,I} y(A, Z, I) \qquad \text{for all A} \qquad \text{Eqn (1.5)}$$

The usefulness of these formulae derives from the fact that, with the exception of delayed neutron (β^-, n) emission and the few very long-lived alpha decays, all the radioactive decays of fission products are β^- or β^+, or isomeric transitions, and in none of these is the mass number A altered. Thus, to a very good approximation, the fission products can be considered as belonging to distinct decay chains of constant mass.

In a similar way to the sum yield it is possible to define a **charge yield** $g(Z)$ such that:

$$g(Z) = \sum_{A,\,I} y(A, Z, I) \qquad \text{for all Z} \qquad \text{Eqn (1.6)}$$

This has only become useful since mass separators such as LOHENGRIN[1.9] have allowed the rapid determination of the number of fission fragments with a given charge before beta decay can occur. It should be noted that the mass separators measure the yield of a specific mass, ionic charge and energy. To produce fission product yields requires many summations and normalizations of different experimental runs and thus care must be taken in using these data to ensure the yields are representative of typical fission events and not subsets for specific parameters.

The **cumulative yield** c(A,Z,I) of nuclide (A,Z,I) is the total number of atoms of that nuclide produced over all time after one fission. If the nuclide is stable the cumulative yield is the total number of atoms of that nuclide remaining per fission after all precursor decays (ignoring the effects of other nuclear reactions e.g. neutron capture). Similarly, for a nuclide with a much longer half-life than any of its precursors, c(A,Z,I) is very nearly equal to the amount of it produced at a time short compared to its half-life but long compared to those of its precursors. However, for a radioactive nuclide for which this is not the case, some atoms will have decayed before all have been produced, so that at no time will there actually be c(A,Z,I) atoms per fission present. The **chain yield** Ch(A) is equal to the sum of all stable or long-lived cumulative yields for a given mass chain.

An equivalent definition that is more useful is the following: immediately at the end of an “infinite” irradiation at the rate of 1 fission per second, c(A,Z,I) is the rate of decay of (A,Z,I) if that nuclide is radioactive, or its rate of production if it is stable. In the case of a

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[1.9] “Mass and nuclear charge yields for 237Np(2n-th,f) at different fission fragment kinetic energies”, G.Martinez, G.Barreau, A.Sicre, T.P.Doan, P.Audouard, B.Leroux, W.Arafa, R.Brissot,J.P.Bocquet, H.Faust, P.Koczon,M.Mutterer, F.Gonnenwein, M.Asghar, U.Quade, K.Rudolph,D.Engelhardt and E.Piasecki, Nucl. Phys.A, 515, 433 (1990).

radioactive product an equilibrium concentration is formed by such an “infinite” irradiation and thus the production is equal to the decay. As a consequently of this property cumulative yields are useful in computing parameters summed over all time such as total fission product decay energies and delayed neutron emission probabilities.

It should be noted that the chain yield, Ch(A), and the sum or mass yield, Y(A), for a mass chain A may differ by a few per cent because the former applies after, and the latter before, delayed neutron emission.

In practical measurements the number density of a particular (A,Z,I) present or the number of decays of that nuclide will be determined at some time after fission. Thus to determine the independent, cumulative or chain yields it is necessary to correct for the decay into and out of the measured nuclide if any has occurred. The timing of an experiment will thus determine the yields and type of yield that can be measured. To measure the independent yields of short lived nuclides or those which are quickly swamped by precursors it is necessary to make rapid measurements or to be able to correct accurately for the decays.

Fissions can generate two or more fragments, ignoring for the moment the neutrons emitted. If only two fragments are produced then the fission is referred to as a **binary** fission. If three fragments it is termed **ternary** fission. The third, and possibly fourth, fragments are always light compared to the other two. The most common light fragment is a helium nucleus, followed by a triton. Measurements have been made down to extremely low yields, below 1 in 10^{10}, of nuclides up to a mass of 39 a.m.u. These light fragments are sometimes called **light charged particle** emissions.

1.5 Summary of contents

The concern of this work is four fold. Firstly, to extend and improve the experimental database used in the UKFY2 evaluation. Secondly, to study various aspects of fission product yield distributions using a new and expanded database of fission product yield measurements. Thirdly, to generate a new and complete yield dataset, UKFY3.0, using this set of experimental data together with models from the literature or developed during this work. Fourthly, to compare calculational results for decay heat and delayed neutron emission derived from fission product yields and decay data using this new dataset and to compare these results with the other evaluations available.

To generate a complete dataset it is necessary to model the mass, fractional independent and the light charged particle yields, plus the isomeric splitting ratios. It is also necessary to consider how these distributions and the model parameters vary with incident neutron energy based upon the experimental data and to provide an appropriate way to describe these variations.

The experimental data must be analyzed to produce a set of “best estimates” of the yields from the measurements. The measurements will all have their own uncertainties and some may be inconsistent.

Earlier work[1.4] has shown that the chain yield distributions can be modelled effectively by sums of gaussians, fractional independent yields by the A_p and Z_p models developed by A.C.Wahl[1.10], isomeric splitting by the Madland and England model[1.11], and light charged particles by various empirical relationships between yields and compound nucleus mass and charge.

This whole process of collating the measurements, analyzing these published results to determine the “best estimate” recommendations, testing published models and also novel ideas against the analyzed data to determine the “best” models, and then generating a final physically consistent dataset for use in subsequent calculations is referred to by the nuclear data community as “evaluation”.

[1.10] “Nuclear-charge distribution and delayed-neutron yields for thermal-neutron fission of 235U, 233U and 239Pu and for the spontaneous fission of 252Cf”, A.C.Wahl, Atomic and Nuclear Data Tables 39, 1-156 (1988).

[1.11] “The influence of Isomeric states on independent fission product yields”,D.G.Madland and T.R.England, Nucl. Sci. Eng. 64, 859 (1977).

2. Experimental Database

2.1 Introduction

The purpose of Fission Product Yield Evaluation is to generate a set of data that can be used to estimate, together with other nuclear data such as cross-sections and half-lives, the fission product nuclide inventories following fission. These inventories can then be used with decay data to calculate integral properties such as decay heat and radiation emission for applications like transport, reprocessing and waste management.

All evaluations are dependent upon the experimentally measured data and that must be any evaluation's starting point, and its sole factual foundation. To go beyond these experimental data is to rely upon empirical or theoretical models to interpolate or extrapolate the data. Thus the experimental database must contain all relevant measurements over as wide a range of experimental parameters as possible. The literature must be searched for every obtainable item of data or constraint upon data. These data should then be summarized in a standard format to facilitate analysis of the data.

In the collection of fission yield data there are three important considerations. Firstly, the large number of possible fissioning systems (i.e. target nuclide, the cause of fissioning - whether by an incident particle of certain energy and type, or spontaneously). Secondly the large number of fission products produced during fission (around a thousand). And finally, the many thousands of reported measurements.

The many parameters of each measurement and large number of measurements direct the evaluator towards computer storage and analysis of the data.

2.2 Database Format

2.2.1 Initial comments

The format must store all the relevant information that can be obtained from the reference. The database must include for each measurement the nuclide fissioning (the "target nucleus"), the incident particle causing fission together with its energy or a note that fission is spontaneous, the product, the yield type, the yield and its uncertainty, and an identifier for the original reference.

2.2.2 Measurement methods

It should be noted that fission yield measurements can be made by three basic methods.

In the first, the nuclide production and the number of fissions are determined which allows the yield (probability of producing the nuclide per fission) to be determined directly. This is often referred to as an **absolute measurement**.

In the second the yield of the nuclide of interest can be measured relative to that of a “standard” nuclide; this gives rise to the ratio of the nuclide’s yield to the “standard” yield. This technique is referred to as a **relative measurement**. It should be noted that this does not require the determination of the number of fissions but does require a procedure to measure the “standard” and “unknown” nuclides’ number densities present in the irradiated sample.

The third method is the “ratio of ratio” technique; here neither the number of fissions nor the nuclides’ number densities need to be determined. The ratio of activities or, more commonly, the ratio of specific fission product decay gammas for the “standard” and the “unknown” nuclides are determined in two different irradiations. These irradiations can, for example, be for different neutron energies (e.g. thermal and fast) or be for differing sample materials (e.g. thermal fission of ^{235}U and ^{239}Pu). This **“ratio of ratio” measurement** or R-value shows the ratio between the two different ratio measurements.

The properties of ratio of ratio measurements are best illustrated by an simplified example.

First consider the general case of rate of change of the number density of a nuclide, i, in a sample being irradiated with a neutron flux φ. There are five routes of destruction and production of the nuclide i; the decay of the nuclide, the destruction of the nuclide by neutron reactions, the production of the nuclide by decay of precursors, the production by neutron reactions on other nuclides present and the production from fission of fissile materials present.

This can be written as a differential equation, for example from Burstall[2.1],

$$\frac{dN_i}{dt} = -N_i(\lambda_i + \sigma_i\varphi) + \sum_j N_j(\lambda_{ij} + \sigma_{ij}\varphi) + \sum_k N_k \sigma_k^f \varphi Y_k^i \qquad \text{Eqn (2.1)}$$

where N_x is the number density of x, λ_x is decay constant of x, λ_{xy} is the decay constant of decay of y producing x, σ_x is the sum of cross-sections destroying x, σ_{xy} is the cross-section of the reaction on y leading to the production of x, σ_k^f is the fission cross-section of k and Y_x^k is the independent fission yield of x from the fission of nuclide k.

If we consider a nuclide i whose half-life is very much longer than the time-scale of any measurement and whose destruction cross-sections are very small then Eqn (2.1) approximates to:

$$\frac{dN_i}{dt} \approx \sum_j N_j(\lambda_{ij} + \sigma_{ij}\varphi) + \sum_k N_k \sigma_k^f \varphi Y_i^k \qquad \text{Eqn (2.2)}$$

Also if we assume that nuclide i is produced only by fission reactions then:

$$\frac{dN_i}{dt} \approx \sum_j N_j \lambda_{ij} + \sum_k N_k \sigma_k^f \varphi Y_i^k \qquad \text{Eqn (2.3)}$$

Now if the precursors of i, j, and all the precursors of j decay to i very rapidly then Eqn (2.1) will contain no component for the precursor decay and thus if the destruction cross-sections of the precursors are negligible it simplifies to:

$$\frac{dN_i}{dt} \approx \sum_k N_k \sigma_k^f \varphi c_i^k \qquad \text{Eqn (2.4)}$$

[2.1] Report ND-R-328(R) “FISPIN- A computer code for nuclide inventory calculations”, R.F.Burstall (1979).

where c is the cumulative yield as defined in chapter 1. Thus after an irradiation of a duration of $\Delta t_{irradiation}$, assuming none of i (or precursors) present before the irradiation and that negligible change occurs in the fissile nuclides number densities during the irradiation, then;

$$N_i \approx \sum_k N_k \sigma_k^f \varphi c_k^i \Delta t_{irradiation} \qquad \text{Eqn (2.5)}$$

Now if the above approximations apply for both samples and products in a ratio of ratio measurement, and also if each sample contains only one fissile nuclide then the number densities of the products are given by:

$$\begin{aligned} N_x^1 &\approx N_1 \sigma_1^f \varphi_1 c_1^x \Delta t_{irradiation1} \\ N_s^1 &\approx N_1 \sigma_1^f \varphi_1 c_1^s \Delta t_{irradiation1} \\ N_x^2 &\approx N_2 \sigma_2^f \varphi_2 c_2^x \Delta t_{irradiation2} \\ N_s^2 &\approx N_2 \sigma_2^f \varphi_2 c_2^s \Delta t_{irradiation2} \end{aligned} \qquad \text{Eqn (2.6)}$$

Thus the activities per unit volume are:

$$\begin{aligned} A_x^1 &\approx \lambda_x N_1 \sigma_1^f \varphi_1 c_1^x \Delta t_{irradiation1} \\ A_s^1 &\approx \lambda_s N_1 \sigma_1^f \varphi_1 c_1^s \Delta t_{irradiation1} \\ A_x^2 &\approx \lambda_x N_2 \sigma_2^f \varphi_2 c_2^x \Delta t_{irradiation2} \\ A_s^2 &\approx \lambda_s N_2 \sigma_2^f \varphi_2 c_2^s \Delta t_{irradiation2} \end{aligned} \qquad \text{Eqn (2.7)}$$

Now from the definition of R-value:

$$R = \frac{N_x^1}{N_s^1} \Big/ \frac{N_x^2}{N_s^2} \qquad \text{Eqn (2.8)}$$

Thus:

$$R = \frac{N_1 \sigma_1^f \varphi c_1^x \Delta t_{irradiation1}}{N_1 \sigma_1^f \varphi c_1^s \Delta t_{irradiation1}} \Big/ \frac{N_2 \sigma_2^f \varphi c_2^x \Delta t_{irradiation2}}{N_2 \sigma_2^f \varphi c_2^s \Delta t_{irradiation2}} \qquad \text{Eqn (2.9)}$$

This simplifies to:

$$R = \frac{c_1^x}{c_1^s} \Big/ \frac{c_2^x}{c_2^s} = \frac{c_1^x c_2^s}{c_2^x c_1^s} \qquad \text{Eqn (2.10)}$$

From this it can be seen that if the approximations are valid then the R-value is independent of the irradiation conditions, the number of fissions and the number density of the sample, and thus solely dependent upon the fission yields. However if cross-section effects or decay data parameters significantly effect the results then the experimental analysis must involve the solution of the differential equation in Eqn (2.1).

As described above the R-value is usually determined from the activities, or gamma spectrometry of the samples. In this case a different simplification becomes important. As given above the activity per volume is determined by the number density and the decay constant. Also for gamma spectrometry the P_γ, the probability of emitting a gamma of a specific energy is involved, since from Eqn (2.8)

$$R = \frac{\lambda_x P_{\gamma,x} N_x^1}{\lambda_s P_{\gamma,s} N_s^1} x \frac{\lambda_s P_{\gamma,s} N_s^2}{\lambda_x P_{\gamma,x} N_x^2} = \frac{A_{\gamma,x}^1}{A_{\gamma,s}^1} x \frac{A_{\gamma,s}^2}{A_{\gamma,x}^2}, \qquad \text{Eqn (2.11)}$$

where $A_{\gamma,x}^i$ is the gamma activity for a specific energy, of nuclide x after irradiation i.

Now consider the situation when the same measurements are made on the two samples with the same detector in the same geometry and that the self-absorption of the two samples is the same (i.e. the separated fission product is in the same chemical form and of the same thickness). Then, the ratio of the number densities, of the same nuclide in both samples, is directly related to the ratio of counts in the detector, C, thus Eqn (2.8) becomes:

$$R = \frac{C_x^1}{C_s^1} \Big/ \frac{C_x^2}{C_s^2} = \frac{C_s^2 C_x^1}{C_x^2 C_s^1} \qquad \text{Eqn (2.12)}$$

Of data from these three measurement types the absolute values can be used directly; however the relationships in the other two measurements (relative and ratio of ratio) allow calculation of absolute yields if values for the one standard in relative measurements and the three standards in ratio of ratio measurements are available.

2.2.3 Database details

The fission yield databases for both UKFY2 and UKFY3 used four files; these contained the absolute data in a file called FYDB, the relative data in RFYDB, the ratio of ratio data in RVALFYDB and the references with comments in FYREFDB. For UKFY3 the format was extended to allow the inclusion of charged particle and photon induced fission reactions and the new yield type of “charge yield”, but this did not require change in any of the pre-existing UKFY2 database entries. Both the UKFY2 and UKFY3 databases have been released for distribution through the NEA Data Bank in Paris.

The format common to both UKFY2 and UKFY3 files is described below.

For the **FYDB** files the data format can be described by the FORTRAN77 specifier as: (a1,1x,e9.3,4i3,a1,a1),(1x,e9.3,1x,e9.3,i5,a1).

An example of this is:

```
B 0.000E+00 92235 88 35 M 0.342E+00 0.800E+01  920
B 0.000E+00 92235 88 35 N 0.111E+01 0.117E+0222003
B 0.000E+00 92235 88 35 U 0.192E+01 0.521E+0121743N
```

The record is split into two parts: the yield identifier and the yield data sections.

The yield identifier consists of the particle inducing fission and its energy (or spontaneous fission), the “target” nuclide, the fission product and its yield type. The first character and the first floating point number gives the fission inducing particle and energy as shown in Table 2.1 below.

Table 2.1: Fission inducing particle and its energy

Incident particle	Energy	First character	Value of first number
neutron	thermal spectrum	B	0.0
“	fast or fission spectrum	F	0.0
“	Epi-thermal	E	0.0
“	High Energy (~14MeV)	H	0.0
“	monoenergetic or average	S	Energy in eV
none	Spontaneous Fission	I	0.0
Gamma	monoenergetic or average	G	Energy in eV
Proton	monoenergetic or average	P	Energy in eV
Deuteron	monoenergetic or average	D	Energy in eV
Triton	monoenergetic or average	T	Energy in eV
Helium-3	monoenergetic or average	3	Energy in eV
Helium-4 (alpha particle)	monoenergetic or average	A	Energy in eV
Helium-6	monoenergetic or average	6	Energy in eV

These are then followed by four integers in “4I3” format (to use FORTRAN terminology); these give, in order, the target nuclide charge and mass, and the product’s mass and charge. The character following this gives the product’s isomeric state.

It should be noted that the sign of the product charge field for ternary fission products is used as a flag. If negative it denotes that the yield was measured using the number of fission fragments of a given mass and (where loss of energy of the fragment can be determined) charge, counted in a detector. Whereas a positive value denotes that the yield was determined by a radiochemical technique, such as mass or gamma-ray spectrometry.

The last character in the yield identifier field describes the yield type as in Table 2.2.

Table 2.2: Yield type identifier

Yield Type	Identifier
Chain yield	H
Cumulative Yield	U
Independent yield	N
Fractional Cumulative Yield	I
Fractional Independent yield	M
Charge yield	G

The yield data consists of the following items in the given order: (i) the measured yield, (ii) the one standard deviation uncertainty given as a percentage of the yield value, (iii) a five digit integer to give the reference identifier and (iv) for cumulative and chain yields, a character flag to show whether the measurement should be used to estimate the weighted averaged chain yield ('Y' for yes and 'N' for no).

For chain, charge, cumulative and independent measurements the yields are given as percentage per fission, i.e. yield per 100 fissions, while for fractional yields the values are given as ratios.

For the **RFYDB** files the FORTRAN77 data format specifier is as follows: 2(a1,1x,e9.3,4i3,a1,a1),(1x,e9.3,1x,e9.3,i5,a1). This corresponds to 2 yield identifiers and a yield data section. The first identifier is for the "unknown" and the second for the "standard". The yield data section gives the ratio of the "unknown" to the "standard". Both of the identifiers have fields as described for FYDB as does the yield section apart from the first value which is the measured ratio.

An example is shown below:

```
B 0.000E+00 92235 88 37 NB 0.000E+00 92235 93 37 N 2.000E-03 1.000E+02 2008
```

For the **RVALFYDB** files the FORTRAN77 data format specifier is as follows: 2(a1,1x,e9.3,4i3,a1,a1),(1x,e9.3,1x,e9.3,i5,a1). This is the same format specifier as the RFYDB file. However, here the first yield identifier contains information on the first irradiation conditions and the "unknown" nuclide. The second identifier contains information on the second irradiation and the "standard" nuclide. The yield data section gives the R-value, the standard deviation as a percentage of the R-value, the reference identifier and, for chain and cumulative yields, whether to include the measurement in the estimation of the chain yield.

If the activity of a nuclide x in the nth sample is given by A_x^n, then the R-value for "unknown" x to "standard" s for the two irradiations is given by:

$$\frac{A_x^1}{A_x^2} \times \frac{A_s^2}{A_s^1} \qquad \text{Eqn (2.13)}$$

If the measurement procedures for the two samples are the same it follows that the detector efficiencies, γ intensities per decay and the number of fissions will be the same. Thus these effects cancel and the activity, A_x^n, can be replaced by the yield, Y_x^n, in the above expression.

An example from the file is shown below:

```
 B 0.000E+00 90229136 55 NB 0.000E+00 92235 99 42 U 2.567E+02 0.200E+02  300
```

2.3 Data sources

The sources of data for an evaluation are any relevant reported experimental results. The data are found by literature searches, studying other compilations and evaluations, or by searching specialist databases.

For UKFY2 and UKFY3 the main source of new data were the CINDA and EXFOR databases maintained by the Nuclear Data Centres' "4 Centre Collaboration". The other sources were obtained via literature searches using the INIS database.

During the production of UKFY3 CINDA and EXFOR were extended to include a conversion of parts of the measurement database generated in 1980 by Meek and Rider[2.2] for their fission product yield evaluation. These data were converted to EXFOR format and added to the EXFOR and CINDA databases by V.McLane of the Brookhaven National Laboratory. These new data increased the UKFY3 database's coverage of early U.S. measurements. The Meek and Rider evaluation became part of the ENDF/B-V evaluated file.

The UK evaluations started with the work of Cunningham and Crouch in the 1960's; this was continued with increasing links to the US evaluation effort (Meek and RIder) until 1981. After this the work was continued by M.F.James and J.Banai, who produced the UKFY1 evaluation, which was adopted for JEF1. Within the current project the UKFY1 experimental database was converted to the new format described above and considerably updated and checked. It was then used to produce UKFY2. Further extension of the database and re-evaluation within the studentship has led to UKFY3. The relative sizes of the recent databases are shown in Table 2.3 below:

Table 2.3: Number of data items in the UK experimental databases

Dataset	Absolute measurements	ratio measurements	ratio of ratio measurements	Total
UKFY1	7448	0	0	7448
UKFY2	10768	684	1506	12958
UKFY3	11887	1352	1471	14710

It should be noted that refined checking procedures for UKFY3 removed many duplicate reports of single measurements which had appeared in different references. This applied particularly for relative and ratio of ratio measurements which previously had been converted to absolute measurements on entry to the database using then current yield values. Thus these repeated measurements could have different values in the database making their discovery more difficult.

[2.2] Lab report from Vallecitos Nuclear Center, U.S.A. "Compilation of Fission Product Yields,1980" by B.F.Rider. General Electric Company Report number NEDO-12154-3(C) (1981)

2.4 Experimental uncertainties

As will be come apparent in the next chapter the experimental uncertainty is a very important parameter in the analysis of data.

Experimentalists often report an uncertainty that is related to the random (‘statistical’) variation between the measurements that are analyzed to produce the value they quote; an example of this would be analysis based on the variation of counts in a detector during several runs. However, in any experiment there are many variations in the measurement system that may be important (i.e. pressure, temperature or even, as observed in high precision particle physics experiments at CERN, the phase of the moon[2.3]). Each experiment will have a large number of system changes which should be considered, although few experiments involve apparatus large enough to be effected by the moon’s tidal forces. A full study of all the uncertainties from the experiment and the data used in the analysis of the measurement must be included for the quoted uncertainty on the published result to be of practical use.

Both Crouch[1.3] and Rider[2.2] and [2.4] developed a list of minimum uncertainties that could be expected from different techniques, no result was allowed to be more accurate than these limits. Rider’s criteria are give in Table 2.4.

Table 2.4: Rider’s Guidelines for uncertainties

Method	Minimum uncertainty
mass spectrometric after 1965	0.5%
Ge(Li) and new techniques after 1965	5%
Sodium iodide and measurements 1955-1965	10%
Geiger counter and measurements pre-1955	20%
If no error given	add 10% to appropriate method uncertainty for other methods use 30%
For absolute measurements with only random errors quoted	combine error with 2% systematic error

[2.3] “Events spring surprises as Moon stretches LEP’, David Miller, Physics World, January 1993.
[2.4] Private communication from T.R.England and B.F.Rider, Draft text of Los Alamos report on fission yield evaluation for ENDF/B-VI. (1988)

Crouch used the following, which although less specific kept all uncertainties above 5%.

Table 2.5: Crouch's Guidelines for uncertainties

Method	minimum uncertainty
No uncertainty data, mass spectrometric	10%
No uncertainty data, other	15%
All results	5%

In both the UKFY2 and UKFY3 evaluations Crouch's 5% minimum was relaxed to 1%, as it was observed that the difference between measurements were often less than 1% and it was felt that the best modern experiments could give results with accuracies better than 5%. Thus a 5% limit was no longer felt to be justifiable. In a study of analysis techniques by James et al[2.5],described in chapter 3, it was observed that applying this new criteria to the database did not increase the discrepancies in the file and thus this 1% criterion was considered to be justifiable.

In a few cases new data were highly discrepant with old data. If these differences could not be resolved from the published reference the uncertainty on the new data were increased so that their weight in the analysis was no greater than any of the already present data. When this down-weighting was necessary this was noted in the database. The philosophy of this evaluation was to include all published data. However it should be emphasized that one set of data was removed from the database. This set of measurements of the tritium yield in a reactor showed differences of many orders of magnitude for almost identical samples and irradiations. As the technique employed in the measurements should have been accurate to 5% and the authors could not explain the differences in their work it was felt necessary to exclude this data from the database.

[2.5] M.F.James, R.W.Mills and D.R.Weaver "The use of the normalized residual in averaging experimental data and in treating outliers", Nuclear Instruments and Methods in Physics Research A313, 277 (1992).

2.5 The use of cumulative yields in the estimation of chain yields

Initially a definition was adopted that a cumulative yield was assumed equal to the chain yield if the fractional independent yield of the nuclide was less than 0.01 and the fractional cumulative yield was greater than 0.99. However, this was difficult to implement due to the experimental errors on the data. Thus cumulative yields of neutron rich nuclei within 2 atomic mass units of stable were flagged as appropriate for being used in the calculation of chain yields. The data were then scanned for discrepancies and any cases where the weighted mean cumulative yield was significantly different from its neighbours in the chain yield calculation had these yields flagged as "not to be included in the chain yield analysis". Alternatively if precursors in the chain could not be distinguished from the chain yield they were flagged as "to be included in the chain yield analysis".

2.6 Procedure for data entry and checking

The data for UKFY2 and UKFY3 came from two main sources: paper-based and computer readable.

For UKFY2 the Crouch (1981) database which had been computer based and had formed the main source for UKFY1 was converted into the new format, by a subsidiary computer program, and also checked extensively against the original papers. New references used by Banai and James in the production of UKFY1 were then inserted by hand. Next, EXFOR data was converted using a computer program that read the EXFOR data (extracted by the NEA Data Bank in 1988) and, by using user commands for each data section of each entry, converted this into the new format. Finally, the results of a literature search and new references from the evaluations of Rider and England (1988) and Wahl (1988) were added by hand.

After the data had been entered into the database a considerable amount of checking was undertaken before the evaluation process was undertaken. This included checking the range of Z and A for target and product, checking the format, checking the yield value and the accuracy, and checking for duplicated measurements (where a single measurement was reported in more than one reference). The data were then put through the initial stages of the evaluation process (as described in the next chapter) and any major discrepancies examined to discover if typing or conversion errors had occurred; if this was the case the data were corrected and the analysis repeated.

For UKFY3 updated EXFOR database searches and an extensive literature search were employed in order to extend the database. In addition, the searches were extended to include charged particle and photon induced fission. All changes to the preliminary UKFY3 database were noted in a separate journal to allow a quality assurance audit trail. The last EXFOR search for UKFY3 was dated October 1992, and it is also known that up to June 1993 no further data were added to the EXFOR database at the Data Centres. The last entries and corrections were made to the UKFY3 database on the 29th March 1993.

In addition, the process of checking of the database was extended from that applied to UKFY2. The major extension was an improved search for duplicated measurements; this often occurred where a single experiment had been re-reported after a small correction. Unless the duplicates are removed this re-reporting effectively gives excessive weight to particular measurements in the analysis. This procedure removed a number of duplicated results from the database; thus the number of ratio of ratio measurements actually falls from 1506 to 1470 between UKFY2 and UKFY3, although this list now includes many new results.

2.7 Description of references to experimental data

The UKFY3 references in appendix 5 are given in a variety of formats; however, where possible, the CINDA/EXFOR format was used. In contrast the UKFY2 references did not use this unified system. The CINDA/EXFOR system gives the journal, proceedings or report as a standard set of abbreviations, which can be found in table 3 of the CINDA93 book published by the IAEA[2.6]. Examples of this include “PR/C”, “JIN” and “NSE” which are the codes for “Physics Review part C”, “Journal of Inorganic Nuclear Chemistry” and

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[2.6]CINDA93: The index to literature and computer files on microscopic neutron data” published on behalf of the US National Nuclear Data Centre, the Russian Nuclear Data Centre, the Nuclear Energy Data Bank and the International Atomic Energy Agency Nuclear Data Centre ISBN 92-0-102293-X.(August 1993)

“Nuclear Science and Engineering” respectively. The conference proceedings are abbreviated by the place and year such as “91Juelich” describing “The International Conference on Nuclear Data for Science and Technology, Jülich, Germany, 13-17 May 1991”.

The references in appendix 5 are given in chronologically ordered sections. The first being the 1981 Crouch references; these are followed by the Banai and James references (1986), those of James and Mills (1988), James and Mills (October 1992), the EXFOR references and finally a set of warnings. The warnings are given reference numbers of 90000 and above. These warn that either the data (although in the database) should not be used, the data are derived from a calculation or that extensive corrections were made to the data to make it of practical use.

3. Analysis Of Data

3.1 Introduction

Fission product yield evaluation has been defined above as a set of procedures. One of the steps required early in the process is the analysis of experimental data measurements to produce a set of “best estimate” recommended values. In all areas of practical, quantitative application of science it is necessary to provide scientists and engineers with physical or chemical constants to be used in calculations. These constants are usually obtained by the user community from standard references, such as the CRC Handbook of Chemistry and Physics, generally known as the “Rubber Bible”[3.1], whose production involves the analysis of experimental measurements resulting in a recommended set of “best estimates”. These “best estimates” can then be combined with theoretical models, interpolation and extrapolation, depending upon currently accepted wisdom, to produce a complete set of data for the respective application.

Before describing the techniques used in the analysis of the UKFY3 experimental measurement database, and how these developed from those of UKFY2, it is useful to consider the fundamental basis of this type of analysis. Where a physical quantity x has been measured n times giving a set of results $(x_1, x_2, \ldots, x_n)$ and each measurement has an experimental standard deviation $(\sigma_1, \sigma_2, \ldots, \sigma_n)$, what is required for practical use of these data is the “best estimate” of the parameter which can be defined as $\bar{x}$.

Measurements may vary widely in accuracy. Consider the commonly used statistic χ^2 defined [3.2] as

$$\chi^2 = \sum_{i=1}^{n} \frac{(x_i - \bar{x})^2}{\sigma_i^2} \qquad \text{Eqn (3.1)}$$

[3.1] “CRC Handbook of Chemistry and Physics, 74th Edition” edited by D.R.Lide, CRC Press, ISBN-0-8493-0474-1 (1993)

[3.2] “Data Reduction and Error Analysis for the Physical Sciences” P.R.Bevington, McGraw-Hill Book Company (1969) Library of Congress catalog card number 69-16942

At a minimum χ^2 the partial differential with respect to $\bar{x}$ must be zero.

$$\frac{d\chi^2}{d\bar{x}} = 0 \qquad \text{Eqn (3.2)}$$

This gives;

$$\sum_{i=1}^{n} \frac{2}{\sigma_i}(\bar{x} - x_i) = 0 \qquad \text{Eqn (3.3)}$$

Thus, separating the “best value” and measurement terms, gives:

$$\bar{x} \sum \frac{1}{\sigma_i^2} = \sum \frac{x_i}{\sigma_i^2} \qquad \text{Eqn (3.4)}$$

If we define a weighting term for each measurement, w_i, with a value

$$w_i = \frac{1}{\sigma_i^2} \qquad \text{Eqn (3.5)}$$

Then $\bar{x}$ can be expressed as:

$$\bar{x} = \frac{\sum w_i x_i}{\sum w_i} \qquad \text{Eqn (3.6)}$$

This is called the inverse variance weighted mean or, more commonly, the weighted mean, and it has the property that measurements with larger uncertainties are given less weight than those with smaller uncertainties.

To define any physical property, such as the parameter $\bar{x}$, in a meaningful way it is necessary to give an estimate of its uncertainty. The first method is to consider the mean as a function of the measurements, and thus making the standard statistical assumptions (each measurement is unbiased, the measurements are independent and uncorrelated and the standard deviations are known accurately) the random errors can be propagated to give an estimate of the standard deviation of the mean. This is often called the “internal” standard deviation.

From Eqn (3.6) $\bar{x}$ is calculated as

$$\bar{x} = \frac{w_1 x_1}{\sum w_i} + \frac{w_2 x_2}{\sum w_i} + \ldots + \frac{w_n x_n}{\sum w_i} \qquad \text{Eqn (3.7)}$$

Thus adding the errors in quadrature gives the variance of the mean, $\sigma_{\bar{x}}^2$,

$$\sigma_{\bar{x}}^2 = \sum_{i=1}^{n} \frac{w_i}{\sum_j w_j} \sigma_i^2 \qquad \text{Eqn (3.8)}$$

and because of the definition of w_i, this simplifies to

$$\sigma_{\bar{x}}^2 = \frac{1}{\sum w_i} \qquad \text{Eqn (3.9)}$$

This considers only the quoted experimental standard deviations, ignoring discrepancies in the data. As this is a least-squares fitting of the data, the technique of Birge can be applied[3.2]. This states that the observed and predicted spread of the observations (variances) about the mean should be equal. Thus χ^2 per degree of freedom will, on average, be 1.0. Thus

$$\frac{\chi^2}{(n-1)} = 1 = \frac{\sigma_{observed}^2}{\sigma_{predicted}^2} \qquad \text{Eqn (3.10)}$$

which expands to

$$\frac{\sum w_i (x_i - \bar{x})^2}{(n-1)} = 1 = \frac{\sigma_{observed}^2}{\sigma_{predicted}^2} \qquad \text{Eqn (3.11)}$$

and then

$$\frac{\sum w_i (x_i - \bar{x})^2}{(n-1)\sum w_i} = \sigma^2_{observed} \qquad \text{Eqn (3.12)}$$

Thus the observed or external standard deviation is given by:

$$\sigma_{external} = \sqrt{\frac{\sum w_i (x_i - \bar{x})^2}{(n-1)\sum w_i}} \qquad \text{Eqn (3.13)}$$

If χ^2 per degree of freedom is less than or equal to one, then the internal estimate of standard deviation is the larger and should be used. But if it is greater than one the external estimate of standard deviation should be used. It should be noted that

$$\sigma_{external} = \sigma_{internal}\sqrt{\frac{\chi^2}{(n-1)}} \qquad \text{Eqn (3.14)}$$

The $\sqrt{\frac{\chi^2}{(n-1)}}$ term is referred to as the Birge factor and gives a guide to the "goodness of fit" of the data. It clearly relates to the standard statistical χ^2 test where the probability of a set of measurements having a certain χ^2 value can be derived from mathematical tables, for example in the Handbook of Chemistry and Physics[3.1]. If the probability of a set of data having a χ^2 value is very small then the experimental data may contain erroneous entries and, by finding the entry with the largest contribution to χ^2, it is possible to find the most discrepant data point.

3.2 Techniques for removing or down-weighting discrepancies

When any discrepancy is found the first attempt to resolve the problem must be to look at the original data reference. It may be that the data was incorrectly entered into the analysis, the experiment was incorrectly published or the technique used contained a bias that was not corrected for by the experimentalist. However, in most cases, a paper in a peer reviewed journal is unlikely to contain easily identifiable errors.

If this direct approach to resolve the discrepancy fails then the reported data must be the guide to the evaluator. There are three approaches to solving the problem. Firstly, the evaluator can ignore the problem, and rely on the fact that the discrepancy will increase the external estimate of error on the weighted mean. This however leaves a suspiciously large and possibly unjustifiably estimate of error, particularly if the discrepant datum is upsetting an otherwise reliable and accurate data set. This is clearly unreasonable when an evaluator's purpose is to produce the best estimate with the smallest justifiable uncertainty. Secondly, removing the discrepant datum from the analysis will remove the problem, however this may mask the fact that a measurement method or its implementation was wrong, or even that the apparently discrepant measurement was correct and the other measurements wrong. The third technique is to adjust the discrepant measurement. This can be either be by adjusting the measured value or its uncertainty. If no reason or theory for a bias can be found the value cannot justifiably be altered thus the uncertainty is the only parameter that can be adjusted. This adjustment should only occur **within the analysis** not by adjusting the database as that would lead to inconsistencies in any further or repeated analyses if these were subsequently carried out with the altered measurement database.

There are many techniques for adjusting the uncertainty to decreasing the weight of a data point in the analysis. Rajput and MacMahon[3.3] have recently summarized several techniques and developed a new method. One of the techniques studied in their work was developed for use in the UKFY2 evaluation[2.5] and is based upon the properties of the "normalized residual", r_i, defined by

$$r_i = \sqrt{\frac{w_i W}{W - w_i}}(x_i - \bar{x}) \qquad \text{Eqn (3.15)}$$

where W is the sum of the individual weights defined by $W = \sum_{i=1}^{i=n} w_i$.

This parameter allows the quantification of discrepancy of a measurement to the total dataset, the measurement i with the largest value of $|r_i|$ being the most discrepant. The

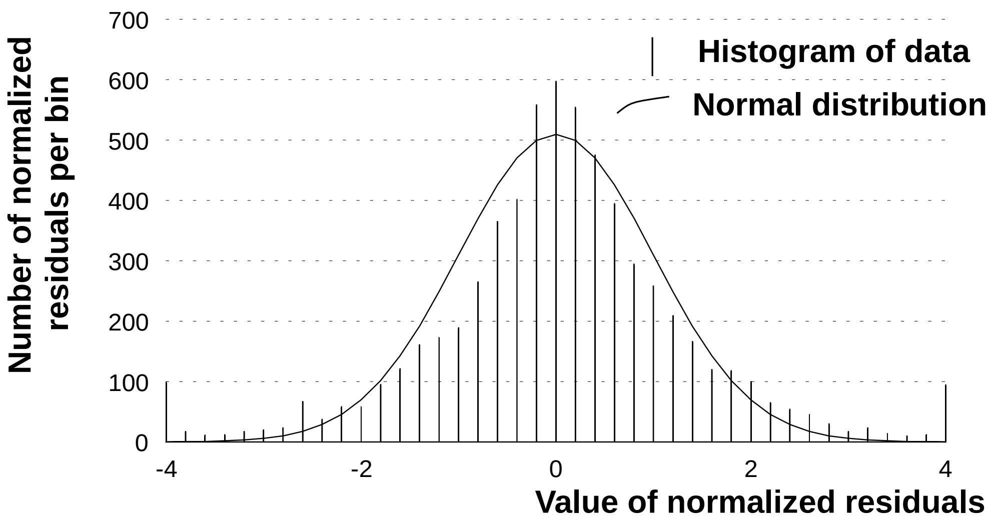
[3.3] "Techniques for evaluating discrepant data", M.U. Rajput and T.D.MacMahon, Nucl. Inst. and Methods in Physics Research A312 (1992) p289-295.

removal of this measurement from the set will cause the largest reduction in χ^2.

The normalized residual is normally distributed about zero and thus it is possible to define a maximum value beyond which it is unreasonable for a measurement consistent with the other data to exist. The most discrepant value can then have its uncertainty increased such that $|r_i|$ is equal to this maximum value. In this work 2.5 was chosen as the maximum value, a choice which appeared consistent with statistical tests of the total data set. In practice the data set, now including the revised uncertainty, is then reanalyzed and the procedure repeated if any further points are found now to have normalized residuals beyond the 2.5 limit.

In previous work towards UKFY2[2.5] the distribution of normalized residuals were plotted for the UKFY2 database and shown to be distributed as predicted by theory with a small number of large discrepancies.

Figure 3.1: Normalized residuals for all fission yield data in UKFY2 compared to expected normal distribution.



The work of Rajput and MacMahon[3.3] showed that the above procedure gave results similar to other methods when applied to analysis of half-life measurements. None of the techniques studied by Rajput and MacMahon gave significantly better or worse results than the normalized residual technique and thus it was decided to use this technique for the analysis of the UKFY3 database.

3.3 Procedure for the analysis of the UKFY3 experimental database

For the UKFY3 evaluation each product and yield type (chain, cumulative, fractional cumulative, fractional independent and independent yields) were analyzed for all measurements. The technique that has evolved for the analysis of UKFY3 can be traced back to the first UK evaluation where computers were used for analysis.

In 1973 Crouch[3.4] described his technique of analysis as consisting of producing inverse variance weighted averages of repeated yield measurements; the uncertainty upon the resulting recommended yields being estimated by two methods. The first was through error propagation of the assessed measurement uncertainties in the averaging process, in other words the "internal" estimate of standard deviation of the weighted mean referred to above. The second technique is based upon the variation of the data from the simple mean, similar to the "external" standard deviation. The recommended uncertainty being the higher of the two estimates.

If the errors are normally distributed and the data are well represented by the sample available to be averaged then these two uncertainty estimates will be the same. If however, the errors are not normally distributed or the data is discrepant, the external value will differ. If a measured value is erroneous or its estimate of uncertainty is too small the external value will be larger. Alternatively, if the quoted uncertainties are too large or the data is highly correlated, for example a single measurement has been reported several times, the external value will be smaller. A χ^2 test was used to check the data for discrepancies.

Crouch converted relative and "ratio of ratio" data into absolute values on entry of the data to his database and updated this with new standard values on an "adhoc" basis when significant changes were made to the standard yields used.

In the evaluations of Crouch, 1977[3.5] and in James and Banai's work, 1986 (UKFY1,

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[3.4] "Fission product chain yields from experiments in reactors and accelerators producing fast neutrons with energies up to 14 MeV", E.A.C. Crouch, AERE-R7394 (1973).
[3.5] "Fission product yields from neutron-induced fission", E.A.C.Crouch, Atomic Data and Nuclear Data Tables, vol.19, no. 5 (1977).

which become part of JEF1) the same procedures were used.

However, with the UKFY2 evaluation of James, Mills and Weaver[1.4] the database file was converted into a form where the 3 data types (absolute, relative and “ratio of ratio”) were placed in separate files. This allowed a recursive evaluation procedure to be used. Initially, estimates of the standards were produced using only the absolute data; these were then used to convert the relative and “ratio of ratio” measurements to absolute values which were only then merged with the absolute values and the set reanalyzed. This second set of data was then used to reconvert the relative and “ratio of ratio” measurements to absolute values before a final merging and analysis were performed.

The UKFY2 and UKFY3 analysis, unlike earlier UK evaluation, used the method described above of renormalizing the assessed uncertainties of individual measurements[2.5] during the analysis procedure.

The effects of further iteration of the analysis were not studied for the UKFY2 analysis due to time constraints. However, for UKFY3 the effect of further steps of the recursive analysis of relative and “ratio of ratio” measurements were studied. The results of these studies are described below in section 3.3.2.

The basic analysis procedure, as justified above, has been described in James, Mills and Weaver[1.4] and is as follows.

For a set of n measurements of value x_i and assessed standard deviation σ_i the mean $\bar{x}$ is defined as:

$$\bar{x} = \sum_{i=1}^{i=n} \frac{w_i x_i}{W} \qquad \text{Eqn (3.16)}$$

where W is the sum of the individual weights

$$W = \sum_{i=1}^{i=n} w_i \qquad \text{Eqn (3.17)}$$

and the ith weight is:

$$w_i = \frac{1}{\sigma_i^2} \qquad \text{Eqn (3.18)}$$

The internal and external standard deviations are, respectively:

$$\sigma_{int} = \frac{1}{\sqrt{W}} \qquad \text{Eqn (3.19)}$$

and

$$\sigma_{ext} = \sqrt{\sum_{i=1}^{i=n} w_i \frac{(x_i - \bar{x})^2}{W(n-1)}} \qquad \text{Eqn (3.20)}$$

A useful test of the consistency of the data is the χ^2 test:

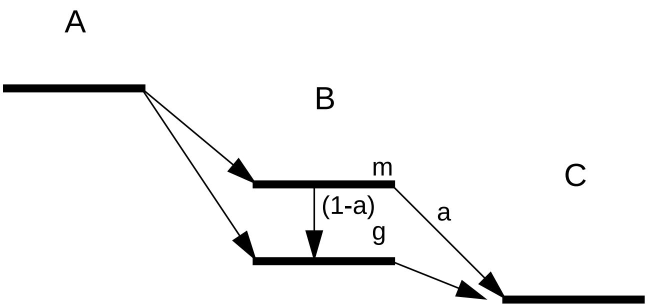
$$\chi^2 = \sum_{i=1}^{i=n} w_i (x_i - \bar{x})^2 \qquad \text{Eqn (3.21)}$$

For cumulative, independent, fractional cumulative and fractional independent yields this procedure is applied simply for each data subset of the same incident neutron energy (or spontaneous fission), target actinide and product nuclide.

3.3.1 Procedure for chain yields

For chain yields it is necessary firstly to determine which cumulative yields at the end of the decay chain are equivalent to the chain yield to decide which measurements to include in the averaging process. This was carried out using the procedure described in section 2.5.

In addition, some chains have isomeric states in the nuclides near the end of the chain, as shown in the figure below. In UKFY2 and UKFY3, where the fractional independent values were small, the cumulative yields of the isomeric states could be used with the decay data to supplement the data used to determine the chain yield[1.4].



Typical Decay Scheme at the end of a decay chain

The figure shows a nuclide A which decays to both the ground and metastable states of nuclide B. These two states of nuclide B both decay to nuclide C.

Nuclide C is either stable, or its cumulative yield can be assumed to be equal to the chain yield Y. Nuclide B has two isomers: a ground state, g, with cumulative yield G and an metastable state, m, with cumulative yield M. A fraction a of the metastable state decays are by β^- emission to C, the remainder decaying by internal transition to the ground state. Measurements of M, G and Y were first analyzed separately to produce means and standard deviations as described above. The means were then adjusted by least-squares to fit the condition:

$$Y = G + aM \qquad \text{Eqn (3.22)}$$

which holds if the independent yield of C is negligible.

If the unadjusted means and standard deviations are indicated by bars, then the adjusted chain yield, Y, is given by:

$$Y = \bar{Y} - (\bar{Y} - \bar{G} - a\bar{M})\bar{\sigma}_Y^2/D \qquad \text{Eqn (3.23)}$$

with the adjusted standard deviation of Y, σ_Y, given by:

$$\sigma_Y^2 = \bar{\sigma}_Y^2(\bar{\sigma}_G^2 + a^2\bar{\sigma}_M^2)/D \qquad \text{Eqn (3.24)}$$

where

$$D = \bar{\sigma}_Y^2 + \bar{\sigma}_G^2 + a^2\bar{\sigma}_M^2 \qquad \text{Eqn (3.25)}$$

and, where $\bar{\sigma}_Y$, $\bar{\sigma}_G$ and $\bar{\sigma}_M$ are the unadjusted standard deviations of Y, G and M respectively. This analysis ignores any uncertainty in the branching fraction, a.

The value of χ^2 for the fit to Eqn (3.22) is:

$$\chi^2 = (\bar{Y} - \bar{G} - a\bar{M})^2/D \qquad \text{Eqn (3.26)}$$

with 1 degree of freedom. If χ^2 >1, then σ_Y is multiplied by the Birge factor $R_B = \sqrt{\chi^2}$.

3.3.2 Recursive iteration of the data analysis

The procedure mentioned above can be considered as a operator A acting upon an experimental dataset of absolute measurements producing weighted means and estimates of the standard deviation of the means. Thus the first estimate of recommended yields and standard deviations, r_0, can be calculated from the set of data containing the absolute measurements (I shall call this set a). This analysis can be represented by an operator, A.

Thus

$$r_0 = A[a] \qquad \text{Eqn (3.27)}$$

The relative and ratio of ratio measurements set (defined as f) can then be converted to absolute values if the appropriate absolute measurements exist in the recommended yields. This conversion of set f to absolute yields can be considered to be an operator C to generate a corresponding set of absolute measurement values b i.e.

$$b = C(f, r_0) \qquad \text{Eqn (3.28)}$$

Thus, combining a and b and then reanalyzing gives a revised set of recommended yields r_1 i.e.

$$r_1 = A[a + C(f, r_0)] \qquad \text{Eqn (3.29)}$$

This can then be easily iterated

$$r_n = A[a + C(f, r_{n-1})] \qquad \text{Eqn (3.30)}$$

In the trivial case where a yield in r is not a function of any measurements in f, i.e. it is a standard or has only been measured absolutely, then

$$r_n(\text{standard}) = A[a] = r_0(\text{standard}) \qquad \text{Eqn (3.31)}$$

as A[A[a]] must equal A[a].

If we consider a secondary standard which has been both measured absolutely and is related to a standard via f then

$$r_n\begin{pmatrix}\text{secondary}\\ \text{standard}\end{pmatrix} = A[a + C(f, A[a])] = r_1\begin{pmatrix}\text{secondary}\\ \text{standard}\end{pmatrix} \qquad \text{Eqn (3.32)}$$

Now if a third level standard is related to a second level standard it follows that

$$\begin{aligned} r_n\begin{pmatrix}\text{third-level}\\ \text{standard}\end{pmatrix} &= A[a + C(f, A[a + C(f, A[a])])] \\ &= r_2\begin{pmatrix}\text{third-level}\\ \text{standard}\end{pmatrix} \end{aligned} \qquad \text{Eqn (3.33)}$$

Thus it can be seen that, applying the analysis iteratively, the recommended yields will become constant depending upon the maximum number of levels from which a yield is related to an absolute measured “standard”. It should be noted that this analysis method only includes each measurement in sets a and f once at each step of the iteration and thus does not excessively weight the ratio data. Care was taken in UKFY3 to avoid ambiguous cases where “standards” of level n by one path are a function of standards of level n+1 or greater by another, which would add extra terms to the above equations and would excessively weight the data in f. This was avoided by simply inverting the ratios of these cases. An example of this was an experiment in which yields were measured relative to barium-140 (a secondary standard) including a measurement of molybdenum-99 (which is normally a primary standard). In this case the measurement of the 99/140 ratio was converted to 140/99 in the database. In UKFY3 the analysis stabilized for all measured yields at n=5. Fractional independent yields stabilized at a level n=4.

There are 325 standards, of which 41 are used ten or more times (140 of them are used only for one relative measurement and 52 for only two). The top six are shown in Table 3.1.

Table 3.1: Commonly used standards in UKFY3 database

System	standard	yield type	number of measurements relative to standard	value of n at which standard stabilizes
U235T	Mo99	Cumulative	1119	0
U235T	Ba140	Cumulative	240	2
Pu239T	Mo99	Cumulative	143	3
U235T	He4	Cumulative	59	0
Cf252S	Ba140	Cumulative	37	3
U235T	H3	Cumulative	29	1
		Total this subset	1627	
		All standards	2906	

Now if we consider the chain yield data, which is the set with most ratio data, there are 537 yields which do change from their value at n=0 before converging (to 1 part in 10000) at n=5 out of a total of 2333 yields with measured data. Table 3.2 shows the change in the yields as a fraction of the initial (n=0) standard deviation. 83% of these yields change by less than one initial standard deviation and 95% change by less than two. Of these,107 are based only on one measurement and thus directly dependent upon the experimental estimate of the standard deviation without any independent (external) validation. If these are removed from the analysis then 85% are within one and 96% within two initial standard deviations.

Table 3.2: Changes between initial absolute yield and final converged value as a fraction of the initial standard deviation.

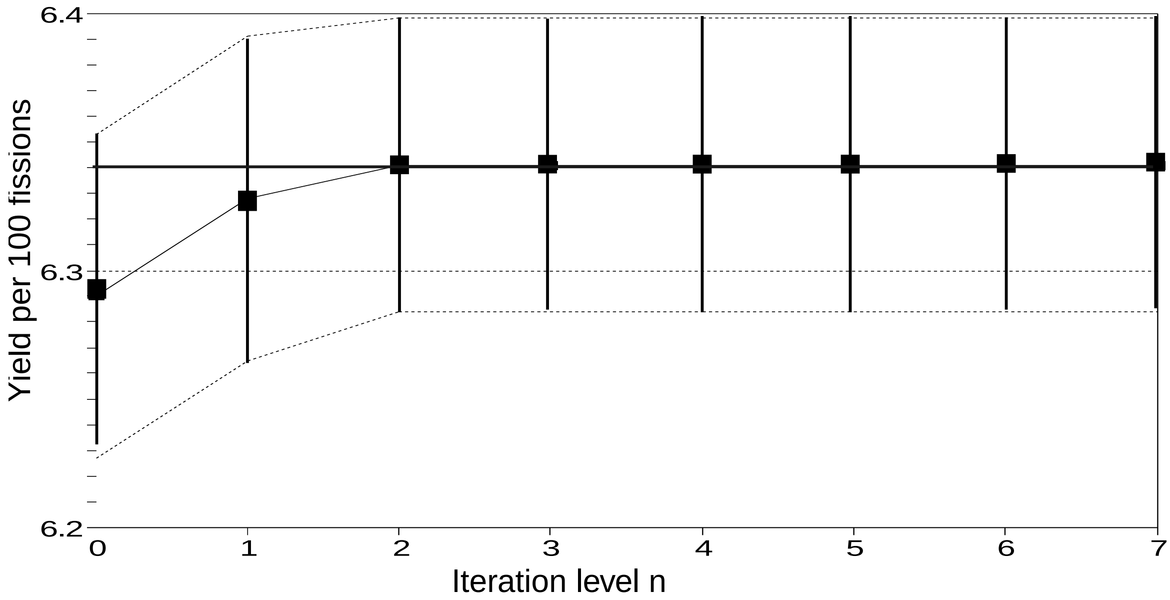
change/sd upper group boundary	For all yields			Ignoring yields with only one measurement		
	number above boundary	number in bin	fraction of total greater than boundary	number above boundary	number in bin	fraction of total above boundary
0.0	537	-	1.0000	430	-	1.0000
0.001	521	26	0.9702	416	14	0.9674
0.01	513	8	0.9553	410	6	0.9535
0.1	391	122	0.7281	306	104	0.7116
1.0	90	301	0.1676	62	244	0.1442
2.0	24	66	0.0447	15	47	0.0349
3.0	12	12	0.0223	8	7	0.0186
4.0	3	9	0.0056	2	6	0.0047
5.0	0	3	0.0000	0	2	0.0000

As an example of the recursion technique the commonly used third level standard of U235T* mass140 and a sixth level "standard" Cf252S mass 132 are shown in Figure 3.2.

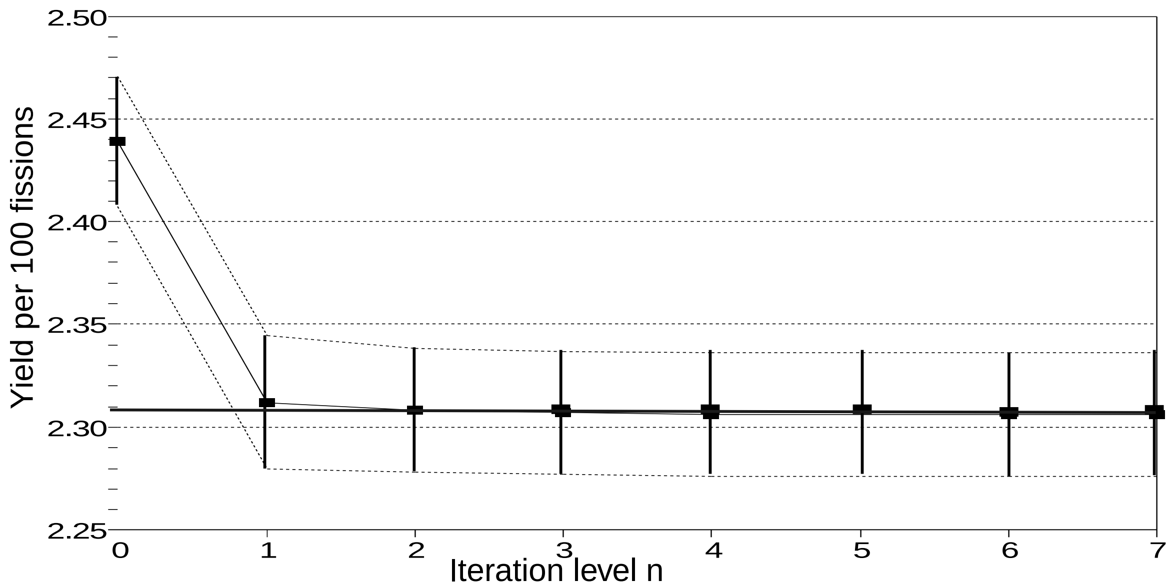
It is interesting to note that the U235T mass 140 is based upon 27 absolute and 3 relative measurements, and the Cf252S mass 132 is based upon 8 absolute and 6 relative. In the Cf252S example the initial absolute estimate is extremely different from the final; over four initial standard deviations. However at n=1, where relative data has first been introduced the mean and standard deviation are very close to the final values.

* The nomenclature describing the fissioning system is the element, mass and neutron energy. Where the neutron energy is defined as: T=thermal, F=fast, H= high energy (14 MeV) and S specifies the results of spontaneous fission.

Figure 3.2: Changes for U235T mass 140 and Cf252S mass 132 with iteration level n



U235T chain yield for mass 140



Cf252S chain yield for mass 132

The points and bars represent the recommended yield and one standard deviation error at each iteration step.

The program that implemented the operators A and C is called ANALYSE, and this produced for each yield type: a set of recommended yields for use in subsequent programs; tables of the experimental data with recommended yields; and tables summarizing discrepancies as well as sparse data. The tables of chain and fractional independent yields for UKFY2 were published in two reports[1.5][1.6],and those for UKFY3 are found in appendices A1 to A5 of this thesis. Crouch for his 1977 evaluation produced similar tables[1.3] based upon absolute data.

4 Chain Yields

4.1 Introduction

The techniques of analysis described in chapter 3 were applied to the UKFY3 measurement database to provide a “best estimate” set of the fission product yields and their uncertainties. This dataset covers a wide range of fissile nuclei from ^{227}Th to ^{257}Fm. However the completeness of the coverage varies considerably between different fissioning systems and yield types.

Because they relate to nuclides which are more easily identified and measured, the long-lived cumulative and chain yields measurements are more numerous and cover a wider range of fissioning systems and product masses than the other yield types. Also these nuclides are stable or have relatively long half-lives and the largest possible yields for their mass chain and this means that greater measurement precision can be achieved. Thus these yields give the most accurate insight into the production of fission products.

Even so, only for a limited set of fissioning systems are the chain yield distributions well defined. The thermal neutron fission of ^{235}U has a complete set of measurements of chain yields between masses 72 and 161. This represents all chain yields with a probability above 10^{-6} per fission. However, in other important systems gaps are common, especially in the valley region and at the wings of the distribution. In many of the remaining systems, especially the higher actinides, large regions exist where no measurements are available. At the extreme some fissioning systems have no measurements at all.

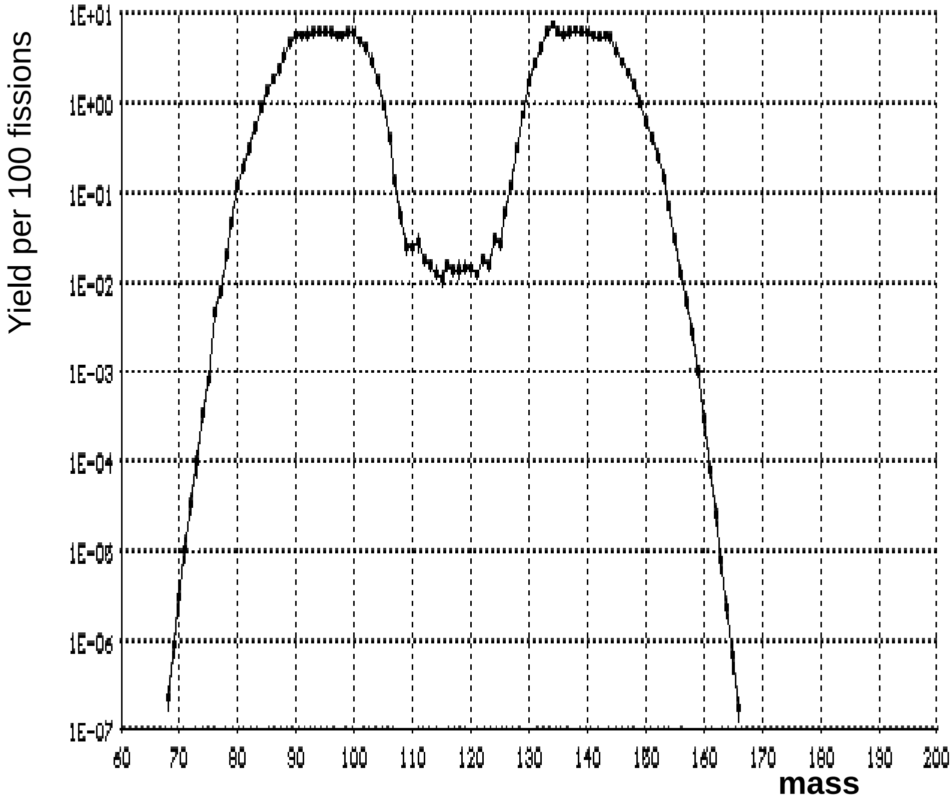
These long-lived cumulative yields are important for fuel handling and waste management applications. The nuclide inventory and its associated radiations before removal from the reactor are important for the studies of reactor operation, and accident scenarios where the fission products are released from the fuel matrix.

The need to produce complete chain yield distributions for practical applications has led to the development of empirical models and to attempts to understand the underlying principles of the processes giving rise to these distributions.

4.2 Modelling of chain yields

The observed chain yield distributions of most nuclides show a common set of features. The distribution consists of pair of peaks with a valley between them. The distribution is approximately symmetrical about the centre of the valley. This central mass is approximately the mean mass of the distribution. Figure 4.1 shows the mass yield curve for the thermal neutron fission of ^{235}U. This graph is taken from the JEF-PC program[4.1] which is based upon the JEF2.2 evaluated file.

Figure 4.1: The mass distribution of fission products produced in the thermal neutron fission of ^{235}U.



The chain yield curves show trends with excitation energy and compound nucleus mass. It is observed that as the compound nucleus mass increases the light mass peak moves upwards but the heavy mass peak does not change position significantly. For some very massive compound nuclei the two peaks essentially merge into a single peak. An

[4.1]"JEF-PC: A program for displaying data from the Joint Evaluated File (JEF)", OECD Nuclear Energy Agency, Le Seine St-Germain,12 boulevard des Îles, 93130 Issy-les-Moulineaux, France. This program was jointly produced with the University of Birmingham, U.K. and CSNSM, Orsay, France.

example of this is the neutron fission of ^{257}Fm.

Colby et al[4.2], employing alpha particle induced fission of ^{238}U with alpha particle energies of up to 40 MeV, showed that the peaks did not significantly alter position laterally with increased excitation energy.

On the other hand the yields in the valley region do increase with increasing excitation energy; however, despite the valley becoming less pronounced with increasing energy, Colby et al showed that a valley is still observed for 40 MeV helium-ion induced fission of ^{238}U.

It was realized[4.3] that the chain yield distribution could be fitted empirically by the summation of a set of Gaussians if the small fluctuations on the distribution, believed to be shell effects, were ignored.

Attempts to model chain yields (and the closely related mass yields) from basic nuclear theory have been qualitatively successful. Turkevich and Niday[4.4] considered the mass distribution of thorium as a result of multiple routes or "channels" from the excited nucleus to the point of scission i.e. breaking apart into fission fragments. However, quantitative attempts to explain the widths of the distributions by Whetstone[4.5] and Karamyan et al [4.6] could not explain the large widths observed experimentally without employing the concept of the neck between the two fragments rupturing at a random point along its length. Griffin and Kan[4.7] proposed that this random neck rupture could arise from the hydrodynamic instability known as the Rayleigh instability where a small dent in a liquid drop or stream caused by fluctuations in the liquid surface could deepen and cause cleaving of the liquid. Brosa et al[4.8] used these ideas to determine some of

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[4.2] Phys. Rev. 121, 1415. L.J. Colby, M.L. Shoaf and J.W. Cobble (1961)
[4.3] Proc. Panel on Fission Product Nuclear Data, Bologna. Report IAEA-169, volume 2, p163-200. A.R.Musgrove, J.L. Cook and G.D. Trimble (1973)
[4.4] Phys. Rev. 84, 52. A.Turkevich and J.B. Niday (1951)
[4.5] Phys. Rev. 114, 581. S.L. Whetstone (1959)
[4.6] Sov. J. Nucl. Phys. 11, 546. S.A. Karamyan, Yu. Ts. Oganesyan and B.I. Pustylnik (1970)
[4.7] Rev. Mod. Phys. 48, 467. J.J. Griffin and K.K. Kan (1976)
[4.8] Physics Reports (Review section of Physics Letters) 197, no. 4, 167. U.Brosa, S. Grossmann and A. Müller (1990)

the parameters of the mass distribution of fission fragments from several fissioning systems with quantitative success within the uncertainties of the basic nuclear parameters.

4.2.1 The Brosa model of multi-channel fission with random neck rupture

Brosa et al[4.8] suggested a theory based upon the liquid drop model to explain the mass distribution from the fission of the excited compound nucleus resulting from low energy neutron absorption by a fissile nucleus. It should be noted that their work derived the fragment mass at scission of the two proto-fragments, i.e. before any prompt or delayed neutron emission. Thus $\bar{\nu}_p(A)$ and (to a smaller extent) delayed neutron emission must be considered in order to produce chain yield distributions from their work.

Their model considers the compound nucleus to be a liquid drop whose shape is described by five parameters. In a space defined by these shape parameters the potential energy surface can then be calculated using the approach of Strutinsky where the potential energy of the deformed nucleus E_{def} is composed of liquid drop and shell parts:

$$E_{def} = E_{liquiddrop} + E_{shell} \qquad \text{Eqn (4.1)}$$

The E_{def} can be calculated using models for the two components. Brosa et al used the Myers-Swiatecki model[4.9] for the liquid drop component and their own treatment for the shell component. These results suggested that there exist “channels”, minima in the multi-dimensional potential energy surface, in which the nuclear shape would evolve before fission. As the results were 6 dimensional (5 shape parameters and the calculated E_{def}) a multi-dimensional channel searching technique was used. It was found that as the nuclear shape evolved there were points at which a channel divided into two. These were named ‘bifurcation points’. The different channels refer to different paths of evolution of the nucleus shape. This means that there are several possible nuclear shapes through which the nucleus could evolve as it approaches fission.

[4.9] Nucl. Phys. 81, 1. W.D. Myers and W.J. Swiatecki (1966)

Brosa et al found three channels were predicted from the calculations for most fissioning systems. However their investigation of the thermal neutron fission of ^{252}Cf predicted six channels.

When a channel reaches scission it is possible to derive the compound nucleus shape. This can then be used to determine the mass distribution by using the idea of random neck rupture.

Brosa et al describe ordinary fission as proceeding via a series of instabilities in the evolution of the shape of the nucleus. Firstly the fission barriers have to be passed; after this the nucleus develops an indentation in the middle, which with further stretching, becomes a neck between the two proto-fragments. Secondly the neck becomes flat and then thins in the middle. Finally, as the neck thins, random fluctuation in the nuclear material of the neck can produce a small indentation in the surface. This will rapidly deepen, due to Rayleigh instability, until the nucleus is pushed apart by Coulomb repulsion. It should be noted that once past the fission barrier the process, although governed by a potential which consists of liquid drop and shell components, is based upon fluid dynamics.

Each of the channels was shown to give rise to a mass distribution which can be well fitted as the sum of two Gaussian distributions. It should be noted that in this model the Gaussian distribution is used as it gives a good fit to the results of the numerical calculations.

The total mass yield, Y(A), is the sum of the product of the individual channel mass distributions with the probability of the fission proceeding via that particular channel. This can be described by:

$$Y(A) = \sum_{c} P_c Y_c(A)$$

$$Y_c(A) = \frac{1}{\sqrt{2\pi\sigma^2_{A,c}}}\left[e^{-\left(\frac{(A-\bar{A}_c)^2}{2\sigma^2_{A,c}}\right)} + e^{-\left(\frac{(A-A_{cn}+\bar{A}_c)^2}{2\sigma^2_{A,c}}\right)}\right] \qquad \text{Eqn (4.2)}$$

where P_c and $Y_c(A)$ are the probability and yield distribution of channel c. $\sigma_{A,c}$ is the width of the mass distribution of channel c. $\bar{A}_c$ is the average mass of the channel c and A_{cn} is the compound nucleus' mass.

This is directly comparable to the multiple Gaussian model described under section 4.2.2 if for one channel $\bar{A}_c$ equals $\bar{A}_c - A_{cn}$ i.e. $\bar{A}_c$ is half of A_{cn}. The mass distribution of this channel then simplifies into a single Gaussian distribution.

Brosa et al quote an uncertainty on the shape parameters of 0.5 fm, due mostly to the determination of the E_{shell}. This gives rise to an uncertainty of 3 mass units on the average channel mass $\bar{A}_c$ and 25% on the channel width $\sigma_{A,c}$. An important point to note is that the probability of each channel, P_c, is not calculated directly but is obtained by fitting to experimental data.

Thus Brosa et al have shown that it is possible to predict the **shape** of the mass distribution, but in order to determine the distribution completely experimental measurements are required.

It was noted above that, for all but ^{252}Cf, Brosa et al showed that three channels were sufficient to describe the mass distribution; in the special case of ^{252}Cf three of the channels represented 98.2% of the total chain yield distribution. When the uncertainties of the model and fitting are considered the existence of the other three extra channels cannot be definitely proven.

It should be remembered that Brosa et al have developed their theory to describe the mass distribution prior to neutron emission and decay. They then used the mass distribution to determine the neutron emission and kinetic energy of the fragments. The uncertainties on the nuclear shape just before scission give rise to uncertainties of ±5MeV on the total kinetic energy of the fragments and ±1 neutron on $\bar{\nu}_p$ respectively.

4.2.1.1 Energy dependence of Brosa's multi-channel model

It is interesting to note that Brosa et al[4.8] considered the effect of small increases in the incident neutron energy on the results of their work. They noted work by Hambsch et al[4.10] which showed that a small increase in neutron energy (from thermal to 8.77eV) could radically change the fission fragment properties; this work studied the neutron fission of ^{235}U. The total kinetic energy of the fragments around mass 118 was found to alter by 0.5 ± 0.2 MeV when the neutron energy was altered from thermal to 8.77 eV. Brosa et al point out that the extra fractional excitation of the nucleus is too insignificant to account for this effect when using their model. The only parameters which can change sufficiently are the probabilities of following different routes at the bifurcation points. These parameters are not calculated from the model but fitted to experimental data. The differences could therefore only be explained, in their model, by variation of these probabilities with neutron energy.

Hambsch et al also noted changes in the mass yield curve in the resolved energy region. Previous experimental yield studies (see section 4.4.2) have also reported significant changes of the yield distribution in the valley region with variation of neutron energies from thermal to 85 eV for neutron induced fission of ^{235}U. In the Brosa model these changes could also be explained by variation of the P_c parameters.

4.2.2 Empirical Multiple Gaussian representation

The literature shows several mathematical functions which have been used to predict chain yield distributions. All of these are variations on the common theme of the distribution being expressed empirically by the summation of several Gaussian functions.

Musgrove et al[4.3] used the sum of five Gaussian distributions (4 asymmetric and 1 central) to approximate the chain yield distribution for several fissioning systems. The model assumes that the distribution is symmetrical about an average mass ($\bar{A}$).

The average number of neutrons emitted by each fragment is observed to vary with

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[4.10] Nucl. Phys. A491, 56. F.J. Hambsch, H.H. Knitter, C. Budtz-Jørgensen and J.P. Theobald (1989) fragment mass and is not symmetrical about $\bar{A}$.This is described in more detail within chapter 6. Thus the yield distribution will be a slightly shifted away from symmetry after prompt and (to a lesser extent) delayed neutron emission. However this effect is minor compared to the fine structure observed on the distribution.

Also the sum of the magnitudes (N) of all the Gaussians is assumed to equal two. This is a direct result of the fissioning nucleus splitting into two fragments.

Each off-centre Gaussian distribution is reflected about the average mass ($\bar{A}$) of the whole distribution. Thus each pair of off-centre Gaussians has 3 parameters: magnitude (N), width (σ) and position from centre (D). The central Gaussian has only 2 parameters, a width and a magnitude, however the magnitude can be calculated from the total summation of the whole distribution (2.0) minus the asymmetrical Gaussian magnitudes.

Thus there are 7 free parameters used in this model as shown in the equation:

$$
\begin{aligned}
Y(A) = {} & \frac{N_1}{\sigma_1\sqrt{2\pi}}\left[e^{-\left(\frac{(A-\bar{A}-D_1)^2}{2\sigma_1^2}\right)} + e^{-\left(\frac{(A-\bar{A}+D_1)^2}{2\sigma_1^2}\right)}\right] \\
& + \frac{N_2}{\sigma_2\sqrt{2\pi}}\left[e^{-\left(\frac{(A-\bar{A}-D_2)^2}{2\sigma_2^2}\right)} + e^{-\left(\frac{(A-\bar{A}+D_2)^2}{2\sigma_2^2}\right)}\right] \\
& + \frac{N_3}{\sigma_3\sqrt{2\pi}}\, e^{-\left(\frac{(A-\bar{A})^2}{2\sigma_3^2}\right)}
\end{aligned}
\qquad \text{Eqn (4.3)}
$$

with $N_3=2(1-N_1-N_2)$.

They showed that the parametrization could be use to fit smoothed experimental neutron induced chain yield distributions for six nuclides (^{232}Th, $^{233, 235,238}$U and $^{239, 241}$Pu). The model fitted the shape of the curves over several orders of magnitude. They, therefore, considered it to be impractical to quote an average difference between the fit and the experimental data. Instead they employed a fractional difference; the fractional difference for a given mass is defined here as the magnitude of the difference between the yield calculated from the fit and the experimental yield, divided by the experimental yield. They reported the variation in the fractional differences appeared randomly distributed about the experimental data. Thus they quoted the root mean square of the fractional deviation. The fits all had similar r.m.s. fractional deviations of around 0.1. However their investigation of the parameters did not show trends which could be used for accurate interpolation and extrapolation to other fissioning systems.

Later Cook and Rose[4.11] continued Musgrove's work by fitting a simpler three Gaussian model to 42 fissioning systems without smoothing the data. The data were taken mainly from the then current evaluations of Crouch[4.12] and Meek and Rider[4.13]. However, comparison between the experimental points and predictions from the model showed a r.m.s. fractional deviation of around 0.25 for most fissioning systems. The parameters of these fits could be interpolated to different fissioning systems and different incident neutron energies (thermal, fast and 14 MeV), but the large uncertainties in the interpolated parameters produced uncertainties on the calculated chain yields which were much greater than the differences in the chain yield distributions between the fissioning systems.

Dickens[4.14] reported a study using the five Gaussian model. He studied the fast neutron fission of $^{243, 244, 246, 248}$Cm for which data had recently been published. This data set was too sparse to directly fit the model. However by interpolation of some model parameters and fitting the remainder using the sparse experimental data he was able to produce complete yield sets for these fissioning systems.

4.2.2.1 Test of the multiple Gaussian approach.

[4.11] Lab report AAEC/E386 from the Australian Atomic Energy Commission Research Establishment Lucus Heights. "Test of the Three-Gaussian Assumption for Fission Product Mass Yield Curves". J.L. Cook and E.K. Rose (1976)
[4.12] Lab report AERE-R7209 from the UK Atomic Energy Authority Harwell. E.A.C. Crouch (1973).
[4.13] Lab report NEDO-12154-1 from General Electric Co., Vallectos At. Labs U.S.A. M.E.Meek and B.F.Rider (1974).
[4.14] Nucl. Sci. and Eng. 96, 8. J.K. Dickens (1987).

To test the multiple Gaussian summation approach the chain yield distribution from the thermal neutron induced fission of ^{235}U was fitted to Eqn (4.2) with two to ten channels. In each fit one channel was set to be at the centre of the distribution. The experimental data set used was from the analysis of UKFY3 and contained 88 chain yields.

The results of this study is shown in Table 4.1. This shows that no improvement was obtained by using more than three channels. The large χ^2 per degree of freedom presumably derives from the fact that the model is a smooth curve approximation to the yield curve and does not attempt to follow the fine structure on the experimental results.

The accuracy of the fits was examined by studying the fractional differences of the model from the measured data. The r.m.s. of the fractional differences for three or more channels is 0.019. If the fractional differences are normally distributed then 66% of the differences should lie with ±0.019. Whereas in fact 66% of the differences only fall within ±0.075; this shows that the fractional differences are not normally distributed. A third test is to examine the maximum deviation from the model. These results show the distribution is more centrally peaked than would be expected from a normal distribution but with a larger than expected number of extreme differences.

Table 4.1: Fitting of the chain yield distribution from the thermal neutron fission of ^{235}U with UKFY3 data using different numbers of channels.

Number of channels	χ^2	χ^2 per degree of freedom	r.m.s. fractional deviation	66% limit	Maximum deviation
2	101332	1220.9	0.050	0.250	0.939
3	3197.9	40.0	0.019	0.075	0.498
4	3183.3	41.3	0.019	0.075	0.507
5	3178.4	43.0	0.019	0.075	0.501
6	3198.9	45.1	0.019	0.075	0.501
7	3172.8	46.7	0.019	0.075	0.495
8	3165.8	48.7	0.019	0.075	0.498
9	3189.0	51.4	0.019	0.075	0.495
10	3175.7	51.4	0.019	0.075	0.495

From the overall distribution of results from the fitting with differing numbers of channels it can be concluded that for the thermal neutron fission of ^{235}U no improvement is obtained by using more than three channels (which is directly equivalent to the sum of five Gaussian distributions).

4.2.3 Interpolation of chain yields

In addition to fitting the chain yield distributions to mathematical functions, it is possible to fill gaps in the experimental data by interpolation. Two interpolation techniques are possible. The first is direct interpolation of the chain yield distribution with mass. The second is interpolation of the chain yield for an individual mass across different fissioning systems. Both of these techniques were employed in the UKFY2 evaluation. These are discussed below using the UKFY3 data.

4.2.3.1Interpolation of chain yields with chain mass

This form of interpolation is the simplest method of chain yield estimation. The interpolation can be either linear interpolation of chain yield with mass or of the logarithm of the chain yield with mass.

These methods have two problems. Firstly the curve has fine structure which the interpolation cannot follow. But, secondly, the curvature of the distribution on the wings and peaks is negative. Thus any straight line interpolation in these regions will always under-predict the missing yields. Conversely in the valley the curvature is positive and thus the yields would be over-predicted.

For the UKFY2 evaluation gaps of up to two masses had been estimated by linear interpolation of the logarithm of the chain yield with mass. Larger gaps were filled by the five Gaussian model. However, this does not necessarily produce a predicted value which match the experimental values at either end of a gap. Therefore, the predicted five Gaussian yields at each end of the gap were adjusted to the measured values by defining a normalisation factor, which is equal to the measured yield divided by the five Gaussian prediction. The logarithm of the normalisation factor was then assumed to vary linearly with mass across the gap. Thus by normalising the model prediction with the normalisation factor, a smooth curve could be generated. As this renormalisation technique produces a curve with an approximation to the curvature of the chain yield distribution it was adopted to fill **all** gaps in the UKFY3 evaluation.

4.2.3.2 Interpolation of chain yields with compound nucleus mass

This technique is based upon the observation by James[4.15] that the chain yields of mass 85 for many different fissioning systems lie upon a smooth curve when plotted against the mass of the fissioning nuclide. When the plot was made against the compound nucleus mass minus $\bar{\nu}_p$ the agreement was found to be even better.

Figures 4.2 to 4.9 show the results of plotting the data in the UKFY3 database for eight masses. These masses were chosen to be representative of yields in the wings, peaks and valley of the distributions. The masses shown are 85, 99, 106, 112, 115, 125, 140 and 154. For many of the other masses the results were inconclusive; either the uncertainties were too large or there were too few experimental measurements.

It is interesting to note that yields on the wings and peaks show no energy dependence. However in the valley region there is a marked energy dependence. The figures also show the movement of the low mass peak towards higher mass with increasing compound nucleus mass. But that the higher mass peak remains stationary. It is interesting that where the low mass peak moves sufficiently upwards that a yield moves from the valley to the peak then the energy dependence disappears.

During the UKFY2 evaluation a set of functions were generated that approximated the variation of the parameters of the five Gaussian model for thermal and fast neutron induced fission. These parameters were found to be dependent upon the compound nucleus mass. As a comparison the results of these five Gaussian predictions are shown on the figures.

The figures show that interpolation of measured yields is possible, but that the uncertainties of such a prediction are about the same as that produced by the UKFY2 five Gaussian predictions. However, a definite trend away from the UKFY2 predictions occurs in the region of masses 89-100 for $(A_f - \bar{\nu}_p)<232$. For UKFY2 these regions were fitted to straight lines on log Y against $(A_f - \bar{\nu}_p)$ graphs. However, improvements in the UKFY3 database allowed all the required fissioning systems in this region to be fitted to the five Gaussian model and thus these straight line approximations were not needed for this later evaluation.

[4.15] Private communication. M.F.James, UK Atomic Energy Establishment WInfrith (1988).

Figure 4.2: Experimental chain yields for mass 85 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$.

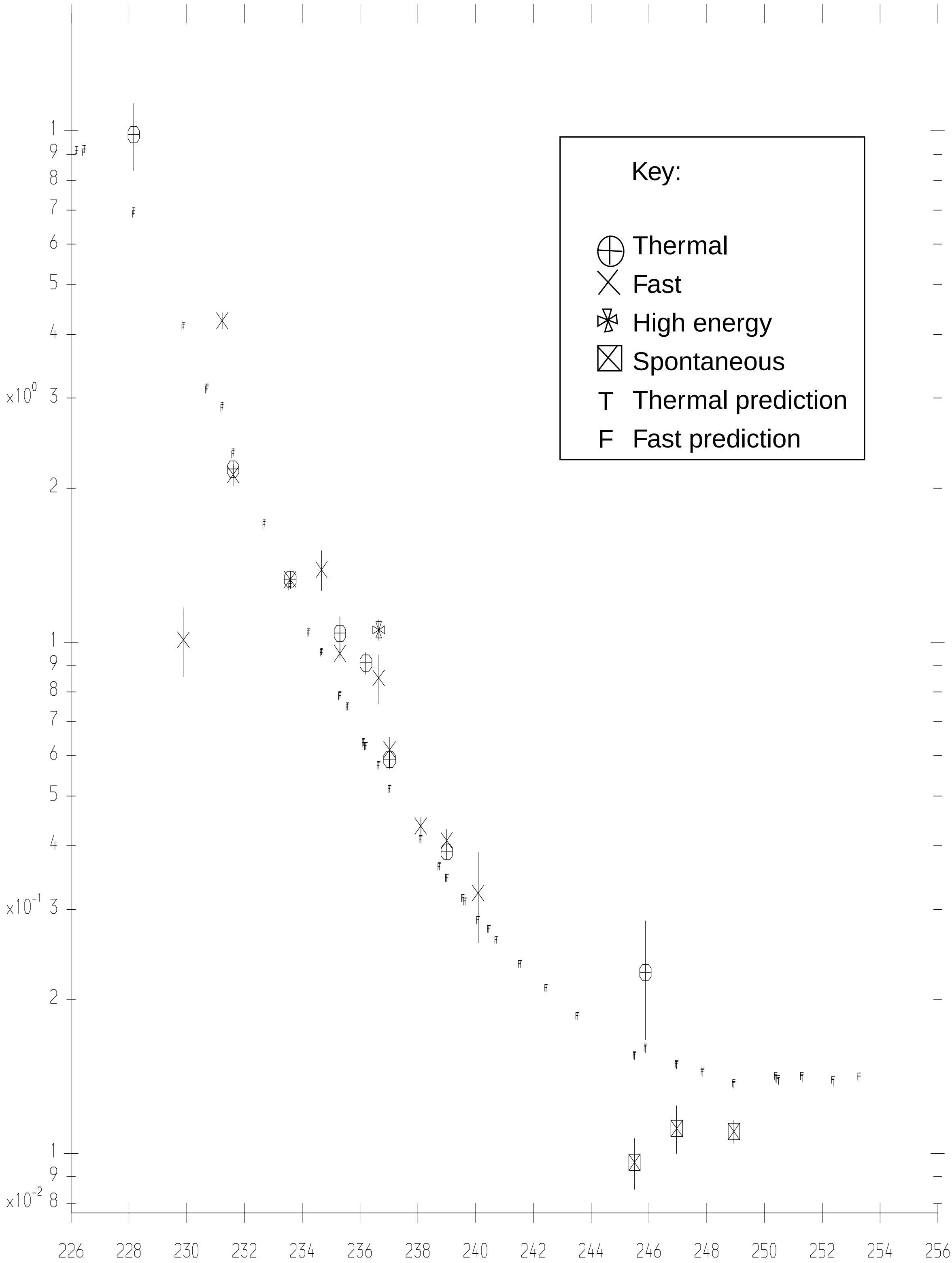


Figure 4.3: Experimental chain yields for mass 99 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$.

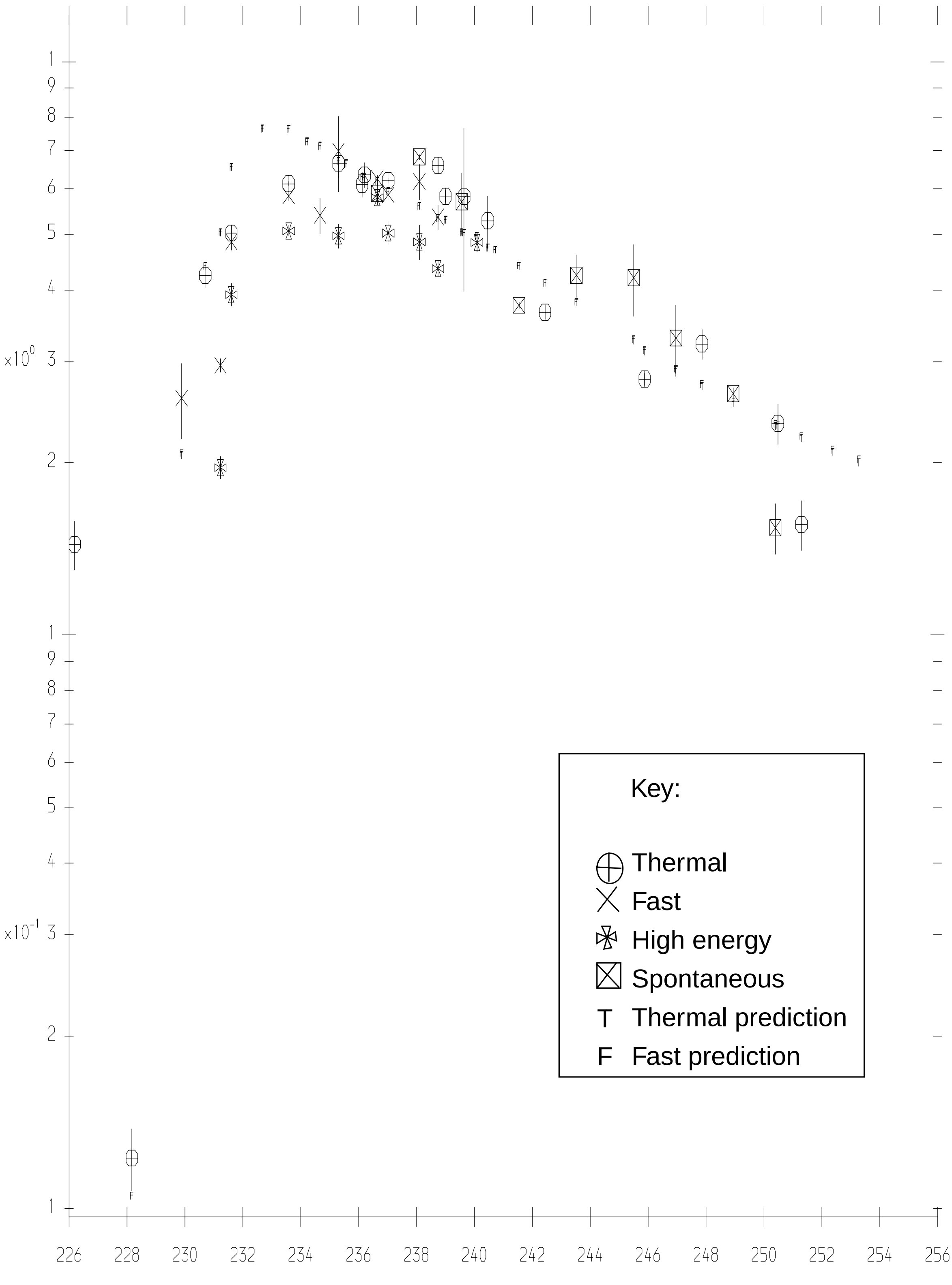


Figure 4.4: Experimental chain yields for mass 106 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$.

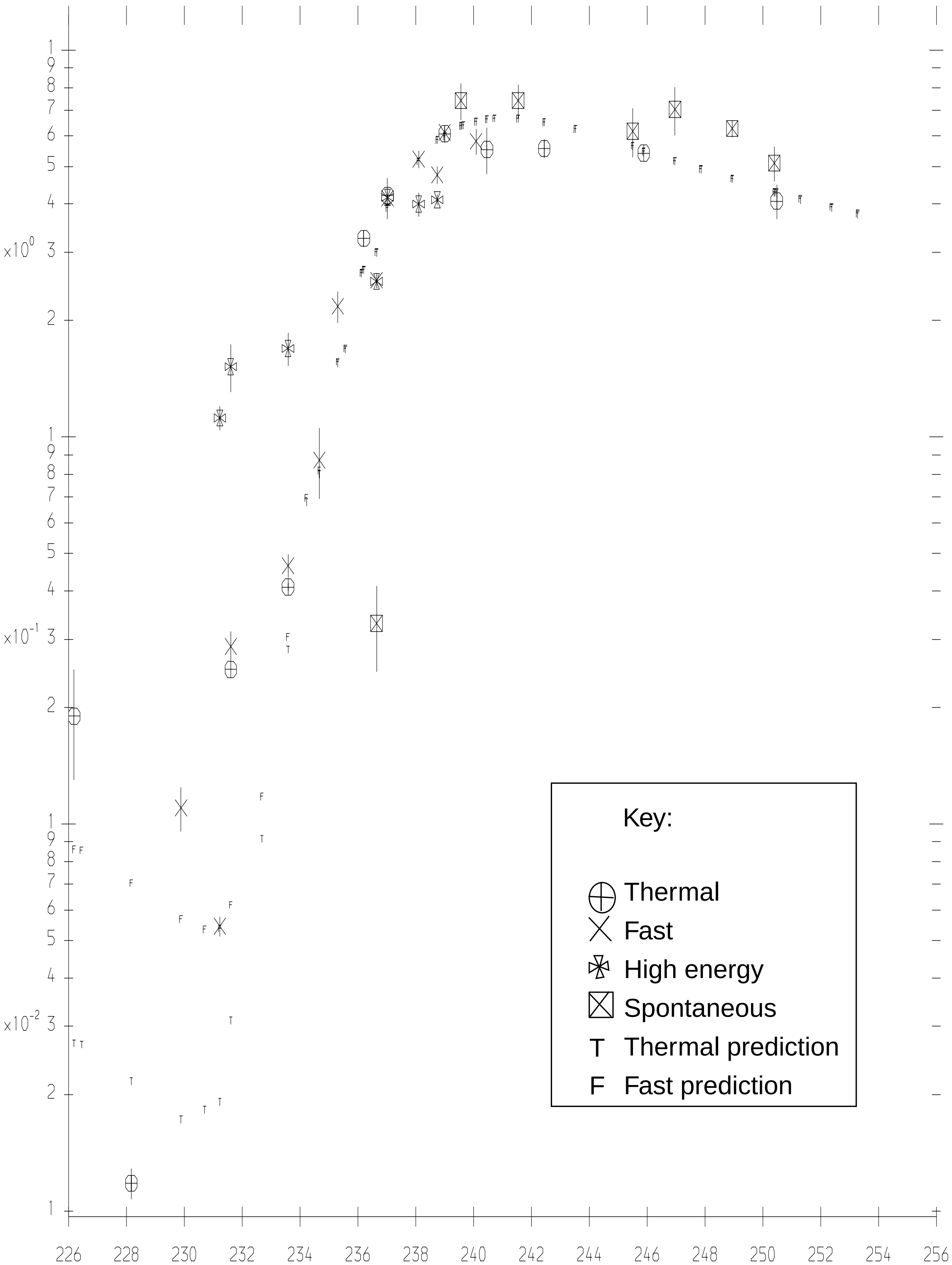


Figure 4.5: Experimental chain yields for mass 112 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$

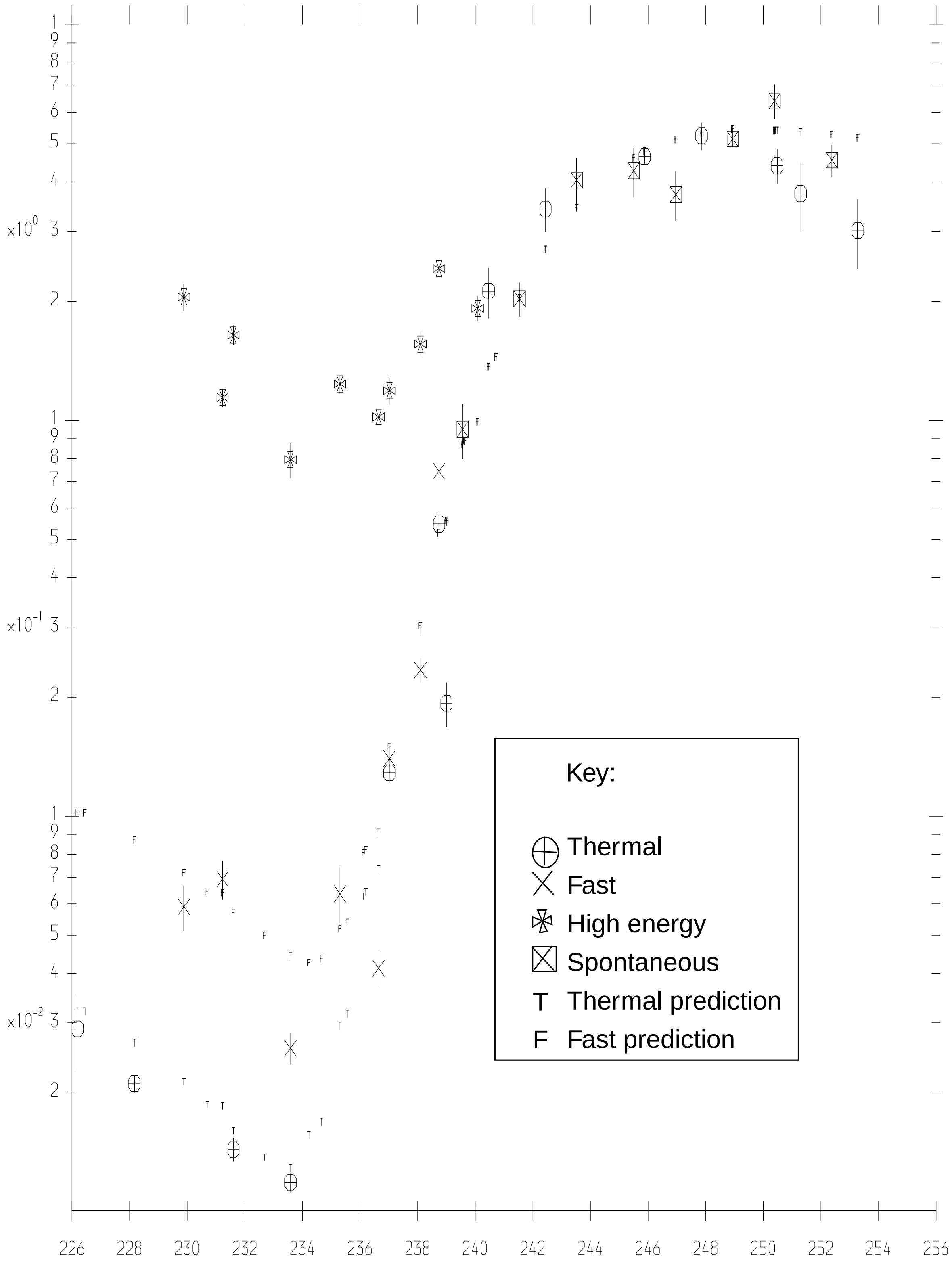


Figure 4.6: Experimental chain yields for mass 115 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$

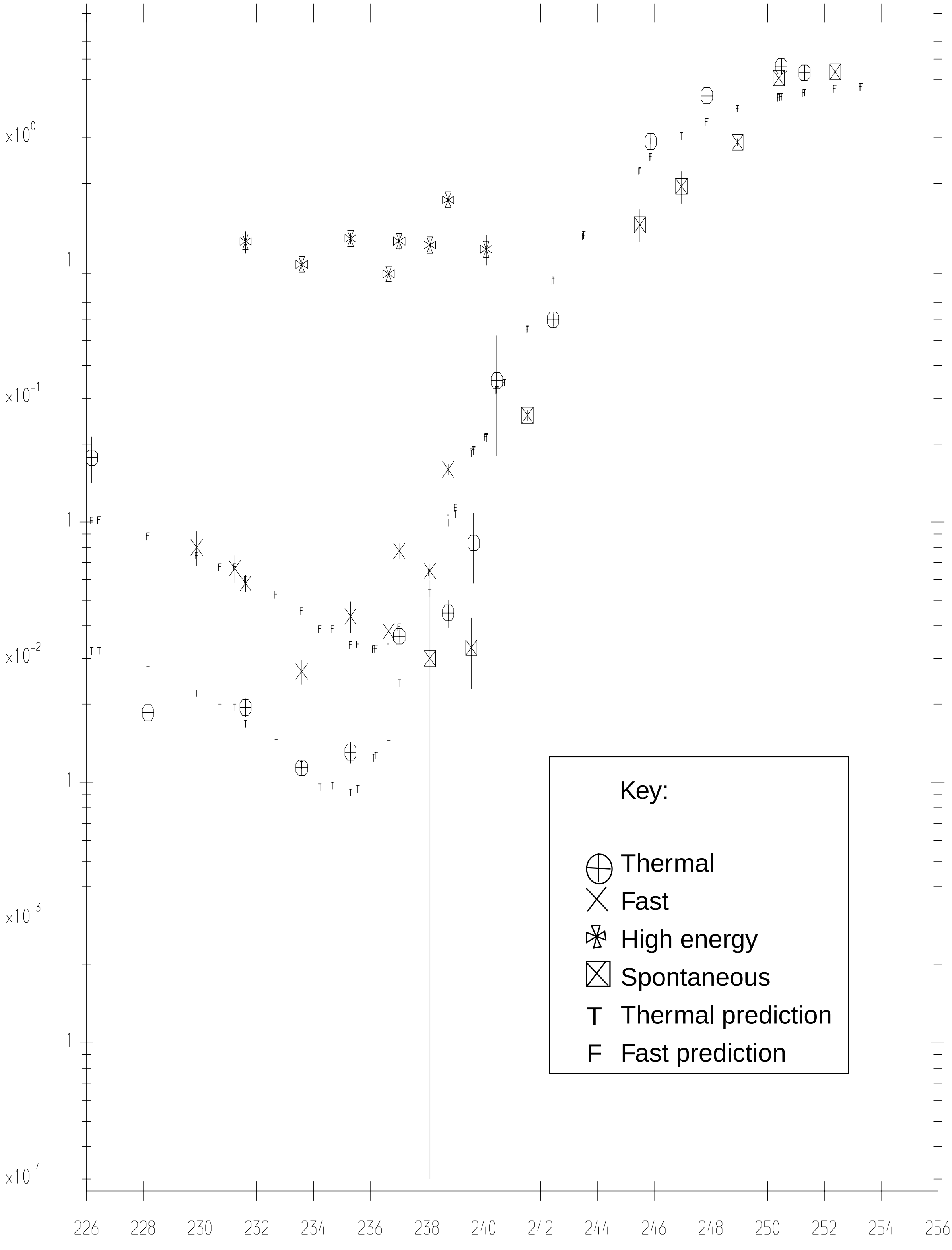


Figure 4.7: Experimental chain yields for mass 125 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$

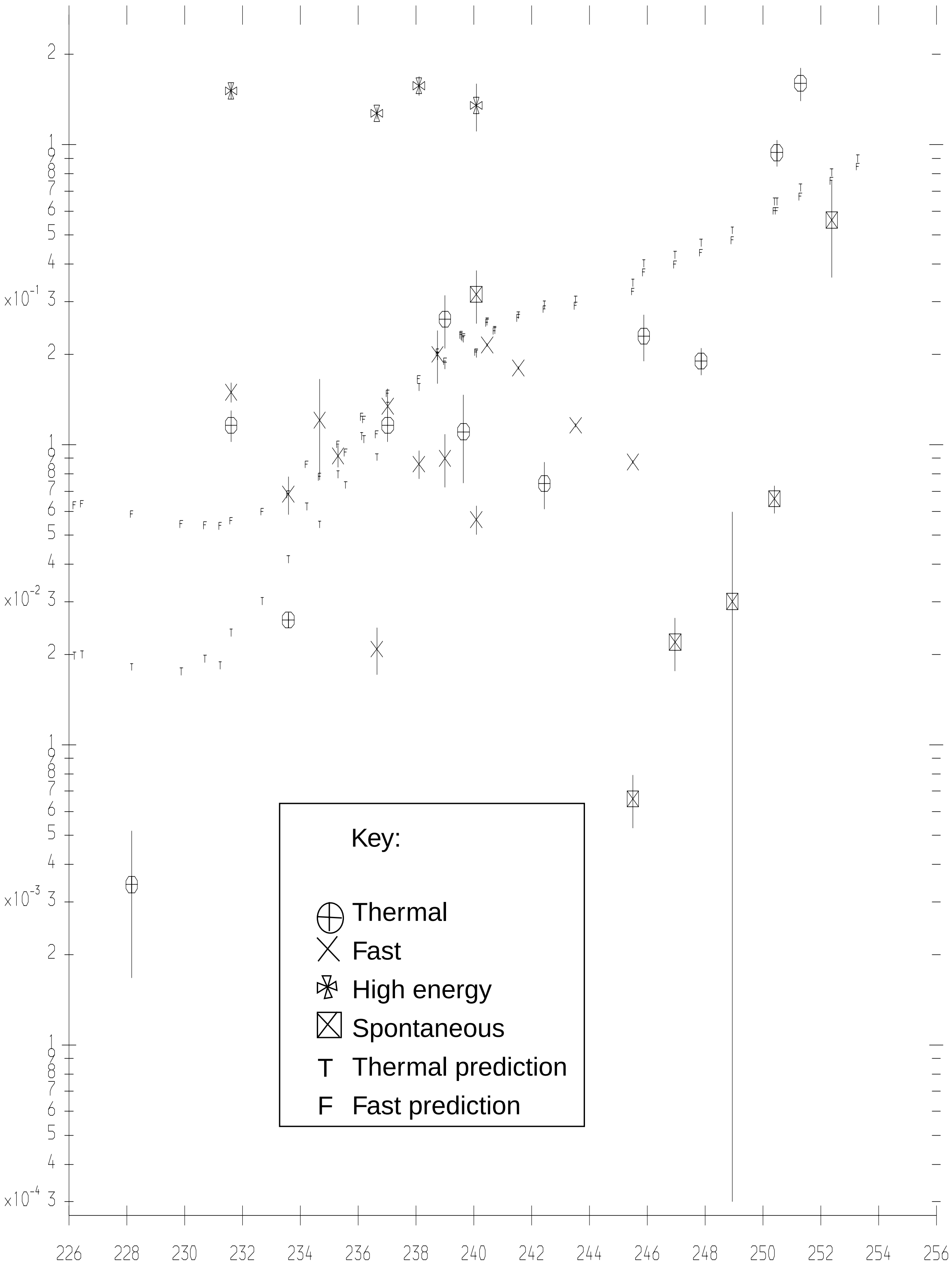


Figure 4.8: Experimental chain yields for mass 140 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$

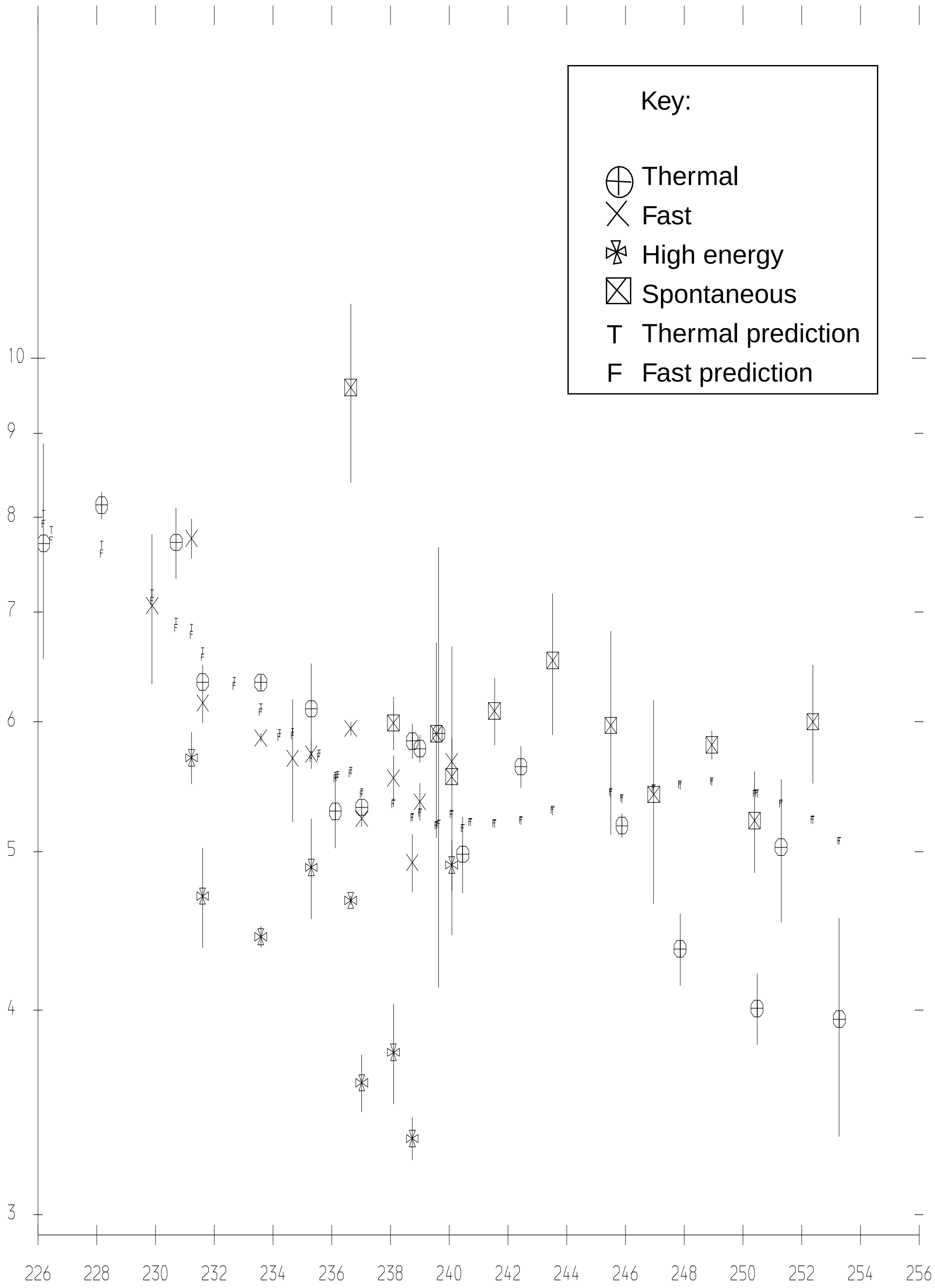
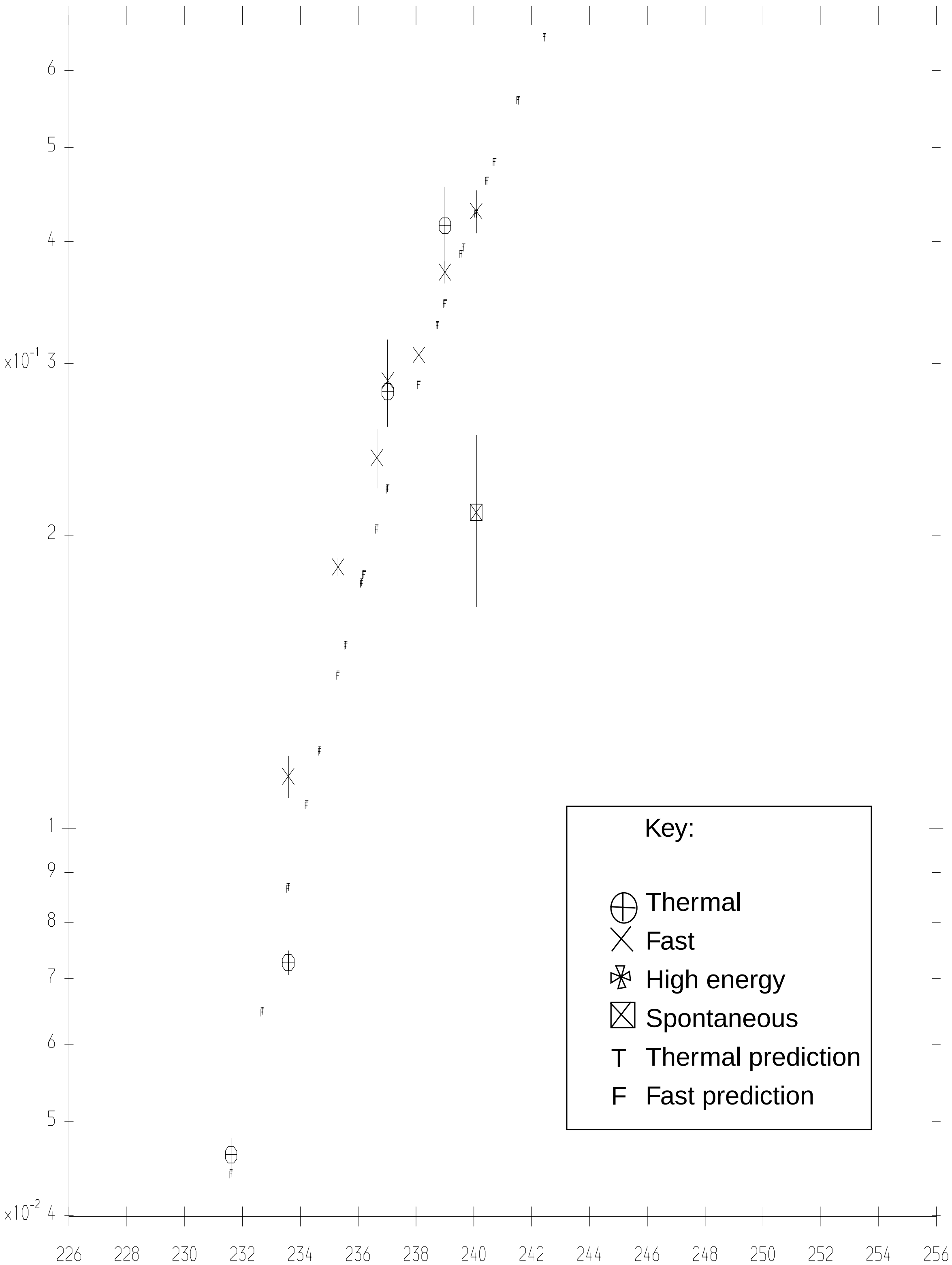


Figure 4.9: Experimental chain yields for mass 154 plotted against compound nucleus mass A_f minus $\bar{\nu}_p$



4.3 Fitting of experimental data to five Gaussian model

The five Gaussian model parameters described by Eqn (4.3) cannot be fitted to experimental data by linear least-squares techniques. Therefore a non-linear least-squares technique is required. In this thesis these model parameters were fitted using a FORTRAN subroutine published by Press et al[4.16]. The subroutine is based upon the method described by Levenberg and Marquardt.

4.3.1 Fitting of the UKFY2 data

In previous work[1.4] the UKFY2 recommended chain yields were fitted to the five Gaussian model. The fissioning systems for which results could be obtained are shown in Table 4.2.

Table 4.2: Parameters of the five Gaussian model fitted for the UKFY2 chain yields.

System	$\bar{A}$	N_1	σ_1	D_1	N_2	σ_2	D_2	σ_3
U233T	115.86	0.7116	4.230	24.63	0.2855	3.048	17.11	13.79
U235T	116.90	0.7158	4.298	24.02	0.2823	2.423	16.63	9.250
Pu239T	118.50	0.7100	5.587	21.34	0.2887	2.630	15.27	2.237
Th229T	114.03	0.7146	3.081	27.80	0.2832	2.335	21.73	11.22
Th232F	115.49	0.7079	3.522	26.45	0.2823	2.472	19.10	11.80
U235F	116.79	0.7081	4.516	23.76	0.2868	2.503	16.42	13.09
U238F	118.02	0.7102	5.031	22.85	0.2852	2.131	15.85	9.525
Th232H	114.65	0.6989	4.451	24.88	0.1164	4.264	18.78	11.17
U233H	115.12	0.5586	5.959	23.12	0.2190	5.243	19.27	11.78
U235H	116.01	0.6241	5.535	23.26	0.1824	3.208	16.00	11.99
U238H	117.42	0.6605	5.962	22.32	0.1921	2.938	15.81	11.80

These eleven systems cover the most important fissioning systems for applications (the neutron fission of ^{235}U, ^{238}U and ^{239}Pu). However the work described in section 8.3 shows that many more systems are required where high accuracy is required, especially for high burnup uranium oxide and mixed oxide fuels.

[4.16] "Numerical Recipes: The art of scientific computing", W.H. Press, B.P. Flannery, S.A. Teuolsky and W.T. Vetterling. Cambridge University Press (1986)

To extend the five Gaussian representation to systems with sparse data, the parameters in Table 4.2 were plotted against fissioning mass and charge, and fitted by linear or quadratic functions of A_f. No systematic trend with Z_f could be detected. The $\bar{A}$ parameter showed a good agreement when approximated as half of the compound nucleus mass A_f. This agreement improved when the average number of prompt neutrons were subtracted from A_f. However the other parameters showed considerable scatter. A different technique was therefore required. For each parameter in turn, with the current best estimate of the functions of A_f defining the other parameters new five Gaussian model fits were made. The fitted parameter was then fitted to a linear or quadratic function of A_f. The process was then repeated for each parameter in turn. After all parameters had been fitted in this manner, the whole process was repeated. After two iterations the refitting procedure failed to produce any improvement in χ^2. The predictions were then tested against measured data and, given that the data was not normally distributed, a guide to the uncertainty was estimated by examining the bounds that enclosed 66% of the distribution of the data about the prediction. This gave an estimate of the uncertainty as ±30% of the prediction.

The parameters developed by this procedure are given by the following functions:

$$\bar{A} = \frac{A_f - \bar{\nu}_p}{2}$$

$$\sigma_1 = 0.2017A_f - 42.906$$

$$\sigma_2 = 0.1125A_f - 24.375$$

$$\sigma_3 = 12.0$$

$$N_1 = 0.0003846A_f + 0.6215 \qquad \text{[fast]}$$

$$N_1 = 0.0010563A_f + 0.4579 \qquad \text{[thermal]}$$

$$N_2 = 0.286$$

$$D_1 = 27.1 - 0.67832(A_f - 230) + 0.013664(A_f - 230)^2$$

$$D_2 = 19.9 - 0.59500(A_f - 230) + 0.001250(A_f - 230)^2$$

Figures 4.2 to 4.9 show experimental data and calculations for thermal and fast neutron fission using these functions. These predictions give good approximations of trends in the chain yield distributions for fast and thermal neutron induced fission. However they differ significantly from many measurements. This is a result of fitting the distributions to smooth functions which cannot follow the fine structure; this fine structure does not follow an easily modelled pattern. Thus the smooth curves cannot be corrected to give a better estimate of the data.

4.3.2 Fitting of the UKFY3 data

Following the UKFY3 analysis the new chain yield data were fitted to the multiple Gaussian model. In section 4.2.2.1 above, a study was made of the approximation of (1+2n) Gaussian distributions to model the UKFY3 chain yield distribution of the thermal neutron induced fission of ^{235}U. In the following this was repeated for all fissioning systems with more than twenty chain yield measurements. To fit the model successfully it is necessary to have data defining the valley region and at least one peak. Of the systems that could be successfully fitted, it was found that using more than five Gaussians did not improve the fits.

The effects of prompt and delayed neutrons on the distributions were also studied for the thermal fission of ^{235}U. The delayed neutron effect was examined by converting the chain yields to mass yields using the technique described by Eqn (8.7), in section 8.5. The prompt neutron effect was examined by shifting each chain yield in the distribution upward by the average number of neutrons, $\bar{\nu}_p(A)$,emitted by a fragment of mass A. The $\bar{\nu}_p(A)$ function used is described in section 6.2. The results of these calculations are shown in Table 4.1.

Table 4.3: Fitting of the chain yield distribution from the thermal neutron fission of ^{235}U with UKFY3 data correcting for prompt and delayed neutron emission.

Correction	χ^2	χ^2 per degree of freedom	r.m.s. fractional deviation	66% limit	Maximum deviation
no correction	3197.9	40.0	0.019	0.075	0.348
delayed neutron correction	3543.5	44.4	0.019	0.25	0.534
$\overline{\nu_p}(A)$ correction	51517.2	644.0	0.057	0.25	2.589
both	52801.6	660.0	0.060	0.25	2.211

These results show that the model best fits the chain yield distribution without correction. It is interesting that these “corrections” make the fits significantly worse. The prompt and delayed neutron emission will smooth the yield distribution, thus reducing the fine structure on the distribution which the model cannot follow. Therefore correcting for these effects will make the fits worse. The simple fitting of the chain yield distribution to the model was thus used for predicting missing yields.

A further attempt to improve the model was made by not allowing the input standard deviations to fall below a minimum uncertainty. The use of the minimum uncertainty instead of the smaller, measured uncertainty reduces the weight given to these individual results. The table below shows the results of using three different cut-offs. The χ^2 values, which are dependent upon the uncertainties, are thus not a useful guide of the accuracy of the calculations. The goodness of fit parameters described above have therefore been used as a means of assessment.

Table 4.4: Fitting of the chain yield distribution from the thermal neutron fission of ^{235}U with UKFY3 data correcting for prompt and delayed neutron emission.

Minimum standard deviation as % of data value	χ^2	χ^2 per degree of freedom	r.m.s. fractional deviation	66% limit	Maximum deviation
0.0	3197.9	40.0	0.019	0.075	0.498
5.0	1149.2	14.4	0.019	0.075	0.498
10.0	287.5	3.6	0.019	0.075	0.498

The results show that the agreement between the fit and the experimental data is not altered by the application of a cut-off between zero and ten percent and thus there appears to be no incentive in using a cut-off during fitting.

The five Gaussian model was thus fitted to the UKFY3 experimental chain yield data with no correction or cut-off. The model was fitted to all fissioning systems with more than twenty data points; forty-seven such systems existed. However many had too few data to define all the parameters of the model. If, for a particular system, no data points existed in either the valley, peaks or wings then some of the parameters were unconstrained and the model could not be successfully fitted. Hence, only twenty-seven systems could be fitted to the model. The fitted parameters of these are shown in Table 4.5. The goodness of fit between the model and the data are shown in Table 4.6. The fit to the thermal neutron induced chain yield distribution for ^{235}U is shown in Figure 4.10.

Figure 4.10: Fit of chain yield distribution for the thermal neutron fission of ^{235}U

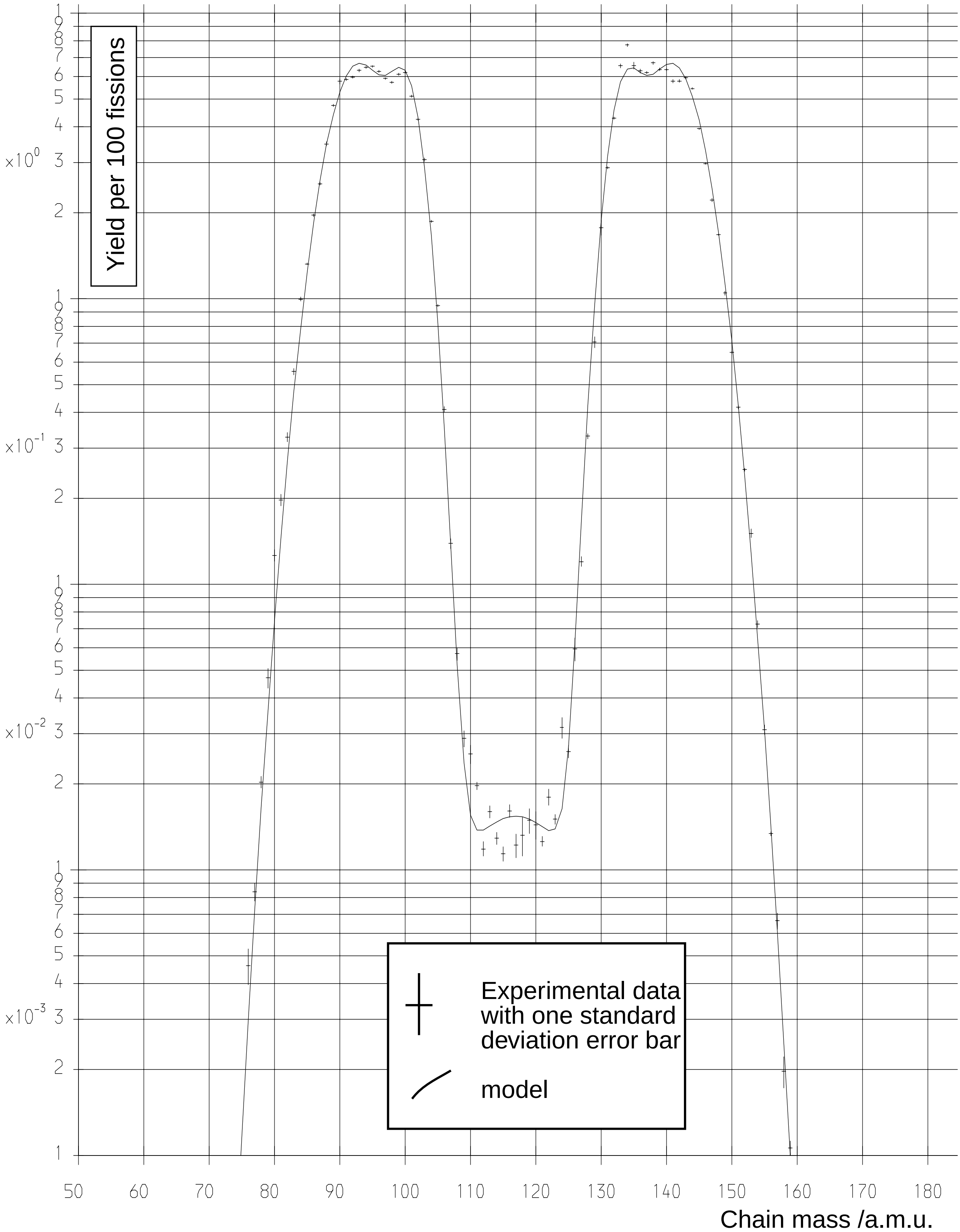


Table 4.5: Parameters of five Gaussian model fitted for UKFY3 data.

System	$\bar{A}$	σ_3	N_3	D_1	σ_1	N_1	D_2	σ_2
U232T	114.95	7.793	0.12348	25.622	3.3131	0.58928	18.165	2.5814
U233T	115.77	12.403	3.5518E-3	25.173	4.0843	0.63013	18.106	2.8934
U235T	116.90	9.2523	1.7926E-3	24.020	4.2980	0.71541	16.63	2.4233
Np237T	117.65	11.999	1.9580E-3	23.021	4.8979	0.71223	16.347	2.2646
Pu238T	118.07	14.013	5.7234E-2	22.344	4.3587	0.52996	15.465	2.5792
Pu239T	118.56	5.0556	2.6530E-3	22.019	5.4481	0.62909	15.529	2.8419
Th232F	115.55	12.583	1.1459E-2	25.777	3.7309	0.76299	18.748	2.3108
U233F	115.73	12.597	1.0323E-2	25.149	4.117	0.60318	18.054	3.2895
U235F	116.90	9.2473	4.8303E-3	24.02	4.2996	0.71242	16.629	2.4223
U236F	117.26	12.357	9.3219E-3	23.506	4.6746	0.69363	16.698	2.6646
U238F	118.25	11.091	2.0110E-3	22.573	5.0631	0.70937	15.923	2.3411
Np237F	117.62	5.0262	3.1789E-3	22.984	5.1300	0.68104	16.316	2.822
Pu239F	118.53	13.11	8.4215E-3	22.054	5.5834	0.59505	15.557	3.0172
Pu240F	118.98	11.908	5.4060E-3	21.687	5.5375	0.64734	15.205	2.7563
Am241F	119.41	18.042	1.0871E-2	21.271	6.1518	0.68763	14.821	3.0097
Th232H	114.63	17.959	0.26599	25.116	4.9097	0.64460	19.822	2.1401
U233H	115.06	8.7537	0.15569	24.879	6.0685	0.23376	20.061	5.7029
U235H	115.78	10.625	0.14799	23.901	5.722	0.43167	18.751	5.3988
U238H	117.29	11.605	0.14141	22.626	5.9625	0.63919	15.935	3.0685
Np237H	117.00	14.988	0.22453	22.93	5.8876	0.53814	16.800	5.0347
Pu239H	117.67	19.364	0.28772	22.256	6.5284	0.47125	14.868	3.7989
Pu240H	117.88	13.295	0.10671	21.765	6.6275	0.54892	14.996	4.4052
Pu242H	118.78	13.091	0.16488	20.819	6.3737	0.67228	14.811	2.3789
Am241H	118.32	12.168	0.26029	21.034	7.6984	0.52527	14.551	4.043

Table 4.6: Goodness of fits of UKFY3 data fitted to five Gaussian model.

System	Number of points	χ^2	χ^2 per degree of freedom	r.m.s. % deviation	third of maximum % deviation	66% limit
U232T	26	250.4	13.9	3.8	17.9	10.

Table 4.6: Goodness of fits of UKFY3 data fitted to five Gaussian model.

System	Number of points	χ^2	χ^2 per degree of freedom	r.m.s. % deviation	third of maximum % deviation	66% limit
U233T	74	6041.4	91.5	3.3	23.4	12.5
U235T	88	3197.9	40.0	1.9	16.6	7.5
Np237T	32	65.9	2.7	3.	21.3	7.5
Pu238T	32	142.3	5.9	3.1	19.9	7.5
Pu239T	78	1623.	23.2	2.1	19.4	7.5
Th232F	50	505.9	12.	3.6	37.8	10.
U233F	60	289.8	5.6	3.	30.8	7.5
U235F	62	2152.4	39.9	2.6	23.3	7.5
U236F	42	152.3	4.5	2.9	17.4	10.
U238F	67	1300.7	22.	5.	57.3	10.
Np237F	60	491.1	9.4	1.6	11.6	5.
Pu239F	65	766.8	13.5	2.3	21.4	7.5
Pu240F	66	672.3	11.6	2.6	30.4	5.
Am241F	45	369.6	10.	7.3	99.6	10.
Th232H	48	412.4	10.3	4.8	45.4	10.
U233H	44	360.	10.	4.2	31.8	10.
U235H	47	1333.	34.2	5.2	34.1	7.5
U238H	68	618.8	10.3	3.1	36.3	5.
Np237H	28	184.5	9.2	8.5	64.6	10.
Pu239H	26	70.2	3.9	3.3	15.6	7.5
Pu240H	47	364.5	9.3	3.8	28.1	10.
Pu242H	37	194.4	6.7	3.9	27.2	10.
Am241H	38	276.6	9.2	1.5	8.7	5.

Figure 4.10 shows that considerable structure exists in the valley and on the peaks of the

distribution. Interestingly, no structure can be seen in regions where the yield is rapidly rising or falling and the model fits the experimental data well in these regions.

A much larger number of fissioning systems have been fitted to the five Gaussian model with the UKFY3 data than was possible with the UKFY2 data. It is thus possible to predict the yield curves of many more systems with greater accuracy than is possible using the generalised five Gaussian parameters developed for UKFY2.

4.3.3 Generation of complete chain yield datasets

It is thus possible using the UKFY3 five Gaussian fits and the five Gaussian parameter functions developed for UKFY2 to produce complete sets of chain yields. However the fine structure in some regions produce considerable variation between the fit and the experimental data. To improve the fit, where experimental data is available, the data is used to normalise the edges of any gap and the log of the normalisation factor is linearly interpolated across the gap. Similarly, for the wings the highest and lowest mass chain yield measurement are used to normalise the yields above and below these yields.

The uncertainties of values based upon these predictions are, however, a problem as the differences between the model and the data are not normally distributed. Thus the r.m.s. percentage difference cannot be quoted as an overall one standard deviation uncertainty. The percentage uncertainty whose ± envelope includes 66% of the experimental data was thus used as some form of estimate of the fractional variation of the fit from the data. These values varied from 5 to 12.5%. It was thus decided to use a value of 15% as an appropriate uncertainty for all the fitted systems. Similar comparisons of the UKFY2 predicted parameter calculations and experimental data showed the 66% envelope to be just less than ±30% and in that case the predictions were assigned an uncertainty of 30%.

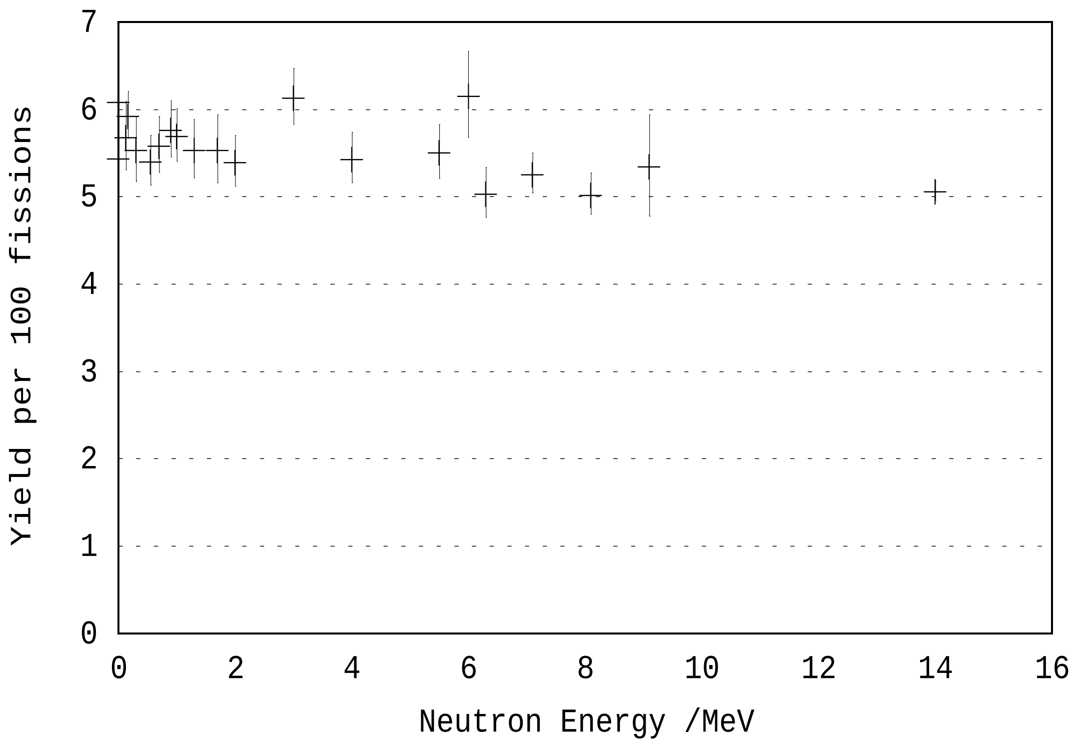
The main fissioning systems could be fitted with the UKFY3 data. Also it was felt unlikely that repeating with the UKFY3 data the fitting of five Gaussian parameters to functions of A_f, as in section 4.3.1, would significantly improve the results. Thus this form of analysis was not repeated and it was decided to use the UKFY2 predicted parameter calculations to fill gaps in fissioning systems that could not be fitted in the UKFY3 analysis.

4.4 Energy dependence of chain yield distributions

4.4.1 General observations

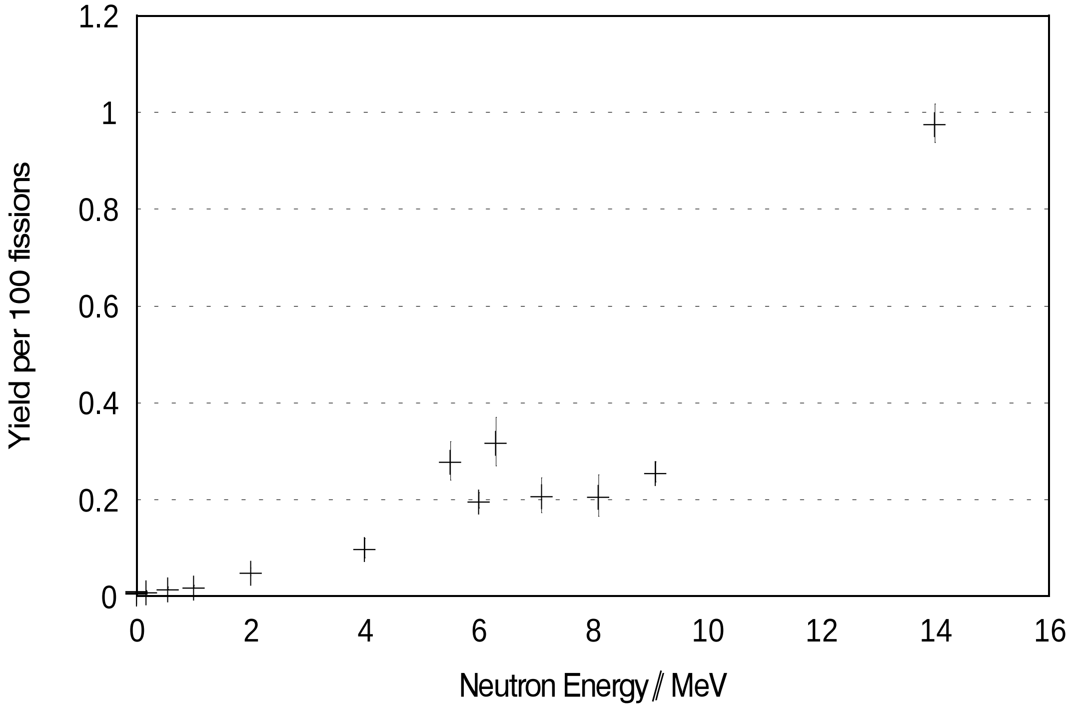
The only mass region where significant dependence of the chain yield on the energy of the incident neutron is in the valley between the high and low mass peaks. The valley yields increase with increasing excitation energy. The sum of all yields being equal to two thus requires the height of peaks to reduce in order to compensate for the increase in the valley region by falling slightly. However due to the large difference in the peak and valley yields even at large excitation energy the peaks are only slightly affected. This slight fall in peak height is just visible in Figure 4.11.

Figure 4.11: Variation of the mass 99 chain yield from ^{235}U with neutron energy



The rise of yields in the valley region is shown in Figure 4.12 where the ^{115}Cd yield is seen to rise significantly with neutron energy.

Figure 4.12: Variation of the mass 115 chain yield from ^{235}U with neutron energy



This filling of the valley with increasing energy is a well known effect. The valley yields change slowly with changes of neutron energy over MeV. However there has been some experimental work which has suggested that in the resolved resonance region the yield distribution can vary considerably over changes of neutron energy of the order of eV.

4.4.2 Investigation of possible energy dependence of fission product yields in the resolved resonance region

4.4.2.1 Experimental data

There have been several experimental studies that suggest the chain yield distribution varies significantly for small changes in neutron energy. The first published work in this area was by the Los Alamos Radiochemistry Group[4.17]. Here two ^{235}U samples were wrapped in different thicknesses of cadmium and, after irradiation, the ratio of activity of various nuclides relative to ^{99}Mo were measured. The different thicknesses of cadmium did not significantly change the measured ratios. These ratios were then divided by the

[4.17] Phys. Rev. 107, 325. Los Alamos Radiochemistry Group (1957) ratios measured for thermal neutron induced fission. These ratio of ratio results are shown in Table 4.7. Of the nuclides measured only ^{115}Cd and ^{112}Pd, yields in the valley, showed significant changes from the thermal neutron case. However, all nuclides in the valley region have lower yields than from thermal fission. It should be noted that Figure 4.12 above shows an increase in yield with increasing energy.

Table 4.7: Ratio of epi-thermal to thermal results for activities of fission products measured relative to ^{99}Mo

Fission product	Ratio of ratio results set 1	set 2
^{97}Zr	1.00 ± 0.10	0.98 ± 0.10
^{109}Pd	0.98± 0.10	1.00 ± 0.10
^{111}Ag	0.89 ± 0.10	0.92 ± 0.10
^{112}Pd	0.85 ± 0.10	0.86 ± 0.10
^{115}Cd	0.84 ± 0.10	0.83 ± 0.10
^{136}Cs	0.98± 0.10	0.96 ± 0.10

Measurements carried out by Nasuhoglu et al [4.18] used a crystal spectrometer to produce monoenergetic neutron beams between 1 and 10 eV. The neutron spectra had an energy spread (full-width at half-maximum) of 0.053eV at 1 eV and 0.15eV at 9eV. The beams were used to irradiate a ^{235}U sample. The activity ratios of ^{111}Ag, ^{115}Cd and ^{127}Sb were measured relative to ^{89}Sr. These ratios were then divided by the activity ratio for thermal neutron induced fission. However these differences were not significant when their experimental uncertainty is considered. These results are shown in Table 4.8.

[4.18]Phys. Rev. 108, 1522. R.Nasuhoglu, G.R.Ringo, L.E.Glendenin and E.P.Steinberg (1957).

Table 4.8: Ratio of monoenergetic to thermal neutron induced fission yields measured relative to ^{89}Sr

Fission Product	Neutron Energy /eV		
	1.1	3.1	9.5
^{111}Ag	1.11 ± 0.20	1.06 ± 0.20	1.00 ± 0.20
^{115}Cd	1.18 ± 0.20	0.73 ± 0.20	0.91 ± 0.20
^{127}Sb	1.10 ± 0.20	no data	no data

There appears to be a slight drop of the $^{115}Cd/^{89}Sr$ yield ratio at 3.1 eV however these results were inconclusive due to the large counting uncertainties. This was a result of the low neutron fluxes and thus low fission rates generated in the experiments.

In the early 1960s an alternative high flux source was used to study these resonance effects. The technique involved using a thin annulus of fissile material attached to a backing disc rotating at high speed. An atomic bomb was detonated around 200 metres from the disc. The neutrons travelled through a tunnel in the rock from the explosion to the rotating disc. The beam being collimated by a slit at the disc.

The neutron time of flight from the explosion to the disc is determined by the neutron velocity and thus the energy of the neutrons. Thus, as the disc rotated, the energy of neutrons reaching the disc was reduced. The gamma pulse from the explosion, travelling at the speed of light, produced a burst of photo-fission on the disc which was used as a time marker. Thus given the distance of the explosion from the disc, the speed of light, the angular rotation of the disc from the gamma fission mark and the rotational speed it was possible to determine the neutron energy that irradiated a position on the annulus.

The beam was cut-off by a shutter after approximately one half revolution of the disc after the explosion so that lower energy neutrons from the explosion did not re-expose parts of the disc during the second and subsequent revolutions.

After the irradiation the annulus was cut into thin radial slices. From the distance around the rim it was possible to determine the neutron energy at the start and end of the slice.

The ^{115}Cd and ^{99}Mo activities were then measured for each slice. Thus a mean activity ratio was obtained for a series of energy regions.

Several experiments of this type were performed during the 1960s. Samples of both ^{235}U and ^{239}Pu were used. The measurements were reported by Cowan et al for ^{235}U [4.19][4.20][4.21] and ^{239}Pu[4.22]. These experiments covered in total a range of neutron energy from 19.33 to 86.3eV for ^{235}U and 15.8 to 204 eV for ^{239}Pu. The result of these measurements are shown in Figure 4.13 and Figure 4.14. The error bars shown are the measurers' estimate of one standard deviation error. The width of the error bars give the neutron energy range which irradiated the measured sample slice.

These results show significant variation from the thermal values. However study of these results by Cowan et al could not determine if properties of the resonances could explain these differences. They tried to associate the ratio to the resonance spin assignments. The ^{239}Pu data showed a correlation with the resonance spin assignments but this was at the level of the uncertainty on the fit. It was not possible to produce a similar correlation for ^{235}U. They suggested that the inability to correlate the ^{235}U data with spin assignment may be due to multiple channels for each spin, each channel having a characteristic yield distribution.

[4.19] Phys. Rev. 122, 1286. G.A.Cowan, A.Turkevich, C.I.Browne and the Los Alamos Radiochemistry Group (1960)
[4.20] Phys. Rev. 130, 2380. G.A.Cowan, B.P.Bayhurst and R.J. Prestwood (1963)
[4.21] Phys. Rev. C 2, 615. G.A.Cowan, B.P.Bayhurst, R.J. Prestwood, J.S. Gilmore and G.W. Knobeloch (1970)
[4.22] Phys. Rev. 144, 979. G.A.Cowan, B.P.Bayhurst, R.J. Prestwood, J.S. Gilmore and G.W. Knobeloch (1965)

Figure 4.13: Ratio of ^{115}Cd to ^{99}Mo activity ratio for ^{235}U relative to the thermal neutron induced value.

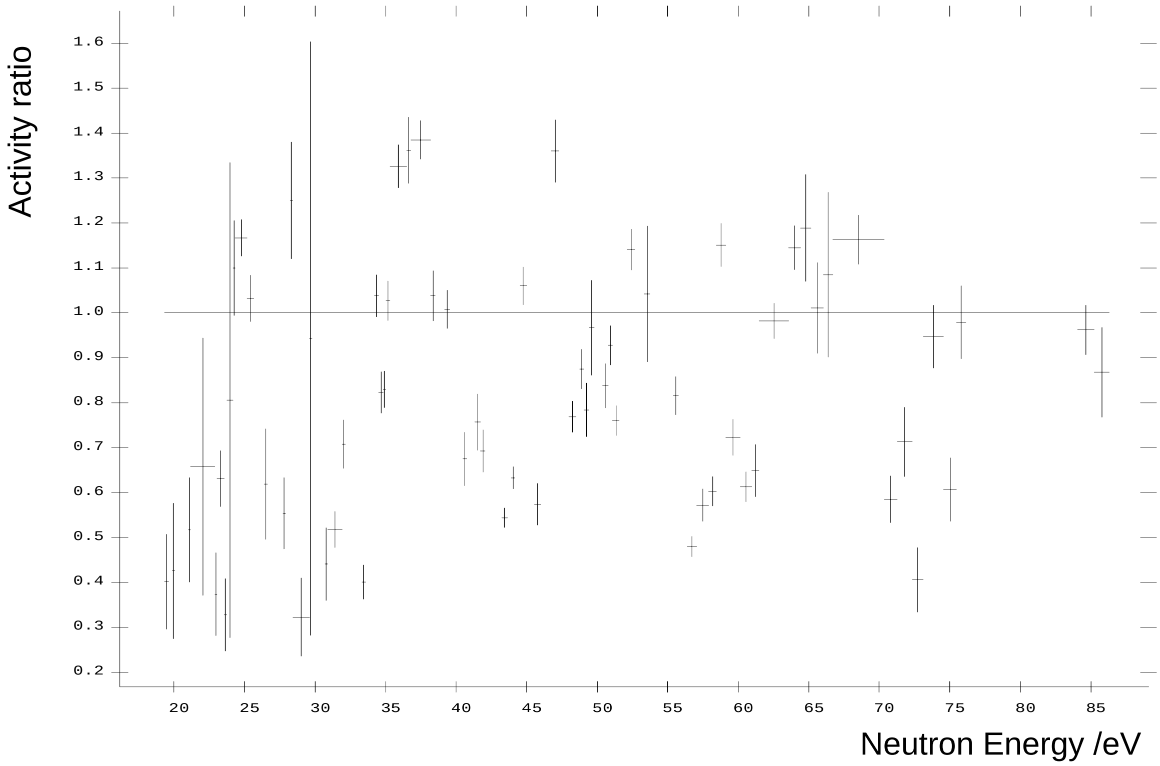
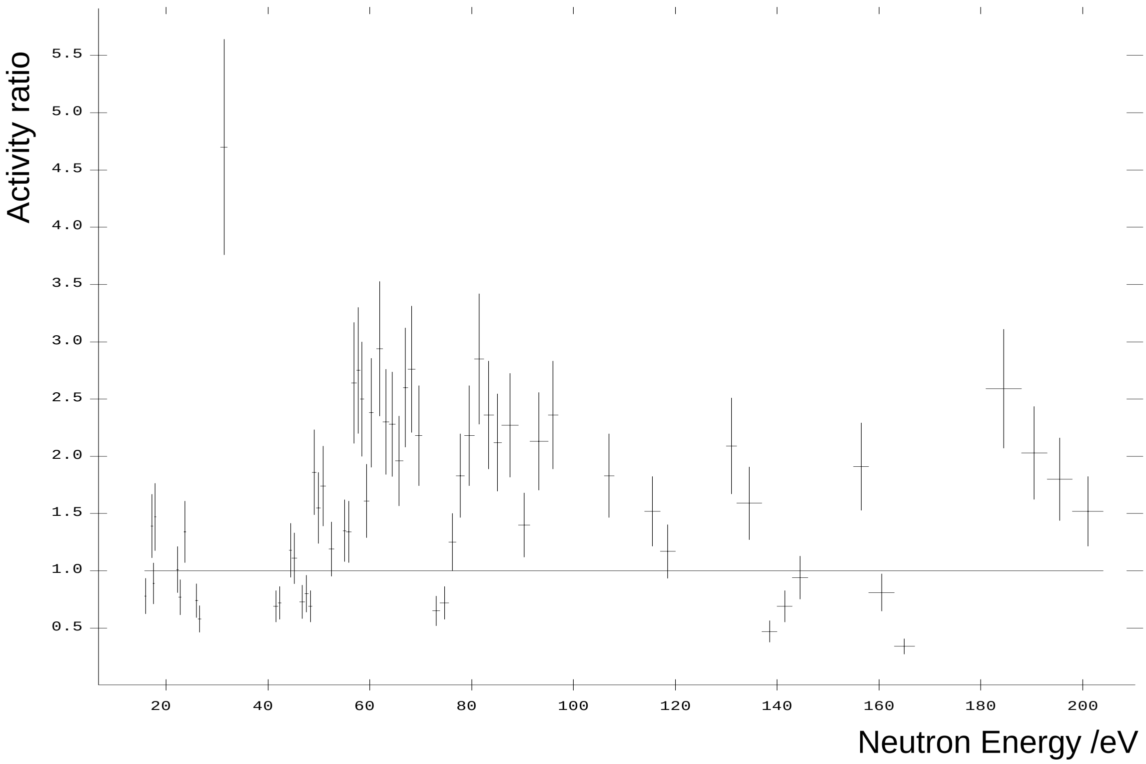


Figure 4.14: Ratio of ^{115}Cd to ^{99}Mo activity ratio for ^{239}Pu relative to the thermal neutron induced value.



4.4.2.2 The Reich-Moore formalism to describe resonance fission

The Reich-Moore formalism[4.23] is used to describe the shape of neutron cross-section resonances in the energy region where resonance shape can be determined. This formalism describes each resonance by the resonance neutron energy, the total angular momentum of the resonance, the neutron width, the capture width and two fission widths. This model considers there to be two possible results of neutron capture: either gamma de-excitation of the nucleus or fission. The work of Farrell[4.24] showed that after a neutron enters the nucleus to form a compound nucleus there are many possible final states resulting in neutron capture but only two resulting in fission. Thus it is possible to model the capture statistically but the fission states must be modelled separately. These fission states are channels through which fission must proceed.

For ^{235}U the neutron absorption can leave a compound nucleus with a spin of 3 or 4. The probability of fission is split into two channels, usually defined as A and B, for each of the two spins. Similarly, for ^{239}Pu, compound nuclei with spins of 0 and 1 can be formed, but the spin 1 state has only one fission channel.

The use of these different routes to fission is similar to that suggested by Cowan, and thus it was decided to test whether the Cowan data was consistent with each of the spins and Reich-Moore channel combinations having different yield distributions. Using the NJOY code version 89[4.25] the resonance parameters files for ^{235}U and ^{239}Pu from both JEF2.2 and ENDF/B-VI were processed to produce a series of partial cross-sections for each spin state and channel. It was necessary to modify the code to write out each of the partial cross-sections before they were combined into a single fission cross-section. These were then condensed to the energy groups defined by the Cowan et al experiments. To condense the cross-sections a constant flux was assumed in each energy region. This is based upon experimental measurements made by Cowan et al which showed the neutron flux was constant in the range of energies where their

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[4.23] Phys. Rev. 111, 929. C.W.Reich and M.S. Moore (1968)
[4.24] Phys. Rev. 165, 1371. J.A. Farrell (1968)
[4.25] Laboratory report from Los Alamos, U.S. Report number LA-UR 89-2057, “Introducing NJOY89” by R.E.MacFarlane (1989)

measurements were made. This resulted in a set of four grouped partial fission cross-sections for ^{235}U (3A, 3B, 4A and 4B) and similarly three partial cross-sections for ^{239}Pu (0A, 0B, 1A).

If each of these routes give rise to a different fission yield distribution then the combined distribution is the weighted mean of each distribution. The distributions being weighted by the partial cross-sections.The mean ^{115}Cd to ^{99}Mo activity ratio, $\overline{R}$, in any energy region would thus be given by:

$$\overline{R} = \frac{\sum_i \sigma_i R_i}{\sum_i \sigma_i} \qquad \text{Eqn (4.4)}$$

where σ_i is the partial cross-section for each of the i routes in the energy region.

4.4.2.3 Fitting of the Reich-Moore channels to the resonance yield data

The experimental values of $\overline{R}$ were fitted to Eqn (4.4) using the σ_i values produced by the NJOY code to produce values of R_i.

The results of this fitting for the two ^{235}U evaluated files are shown in Table 4.9. These results show that the R_i values are not significantly different for the different partial cross-sections. Also the different evaluated files do not produce significantly different results. However, this is a result of the same resonance parameter analysis being used by both files. That analysis was based upon the work by Derrien et al [4.26], with minor changes introduced to the JEF2.2 file in order to be consistent with some more recent measurements.

[4.26] International conference Nuclear Data for Science and Technology, May 30Jjune 3, 1988, Mito, Japan. H.Derrien, G. de Saussure, N.M.Larson, L.C. Leal and R.B.Perez "R-Matrix Analyses of the ^{235}U and ^{239}Pu neutron Cross Sections", p 83-86. (1988)

Table 4.9: Fitted activity ratios for each of the partial cross-section for ^{235}U

U235	χ^2 per degrees of freedom	^{115}Cd to ^{99}Mo activity ratio, R_i for each route			
		3A	4A	3B	4B
JEF2.2	26.42	0.87 ± 0.10	0.86 ± 0.15	0.84 ± 0.14	0.51 ± 0.24
ENDF/B-VI	26.18	0.86 ± 0.10	0.92 ± 0.15	0.84 ± 0.14	0.48 ± 0.26

The large χ^2 per degrees of freedom shows that a poor fit is obtained. Attempts to use different initial estimates of the R_i values did not alter the results. A plot of measured against calculated results of this fit, shown in Figure 4.15, shows a poor fit.

Using similar techniques, the ^{239}Pu results are shown in Table 4.10. These results do show a significant change in R_i for the channel A of the low spin state. However, the large χ^2 per degrees of freedom and the scatter plot shown in Figure 4.16 show overall a relatively poor fit to the data. As with ^{235}U the JEF2.2 resonance parameters are taken from ENDF/B-VI with modifications to allow for new experiments.

Table 4.10: Fitted activity ratios for each of the partial cross-section for ^{239}Pu

PU239	χ^2 per degrees of freedom	^{115}Cd to ^{99}Mo activity ratio, R_i for each route		
		0A	1A	0B
JEF2.2	5.93	1.42± 0.12	0.74± 0.12	0.64 ± 0.36
ENDF/B-VI	5.92	1.43± 0.12	0.874 ± 0.12	0.65 ± 0.36

The scatter plots appear to have some structure which suggests that a real effects may be being masked by discrepant data. The A and B channel widths are determined by the SAMMY code. This code fits all available experimental cross-section data to produce a best estimate of the cross-sections, not the resonance parameters. The resonance parameter widths used to produce the cross-section may not be accurately determined for each resonance. Thus some of the partial cross-sections used in the fitting may not have any physical justification. This may introduce unnecessary discrepancies into the fitting. However due to the nature of the determination of the resonance parameters and the group partial cross-sections it is not possible to fit a selected set of the experimental data for which the channel widths are most accurately determined.

More recently, work by Hambsch[4.10] has shown similar effects to that produced by Cowan et al. The Hambsch work used a high flux reactor and a fission product mass separator to study these effects. Although this new work cannot be directly compared with the Cowan work the measurement of changes in fragment yields and their kinetic energy suggests that a real physical phenomena is being observed.

The uncertainties and inconsistencies in the fission yields in the resolved resonance region demonstrates that is an area where both experimental and theoretical work is still required before any clear picture can be obtained of the systematics.

Figure 4.15: Scatter plot of experimental and fitted activity ratios for ^{235}U.

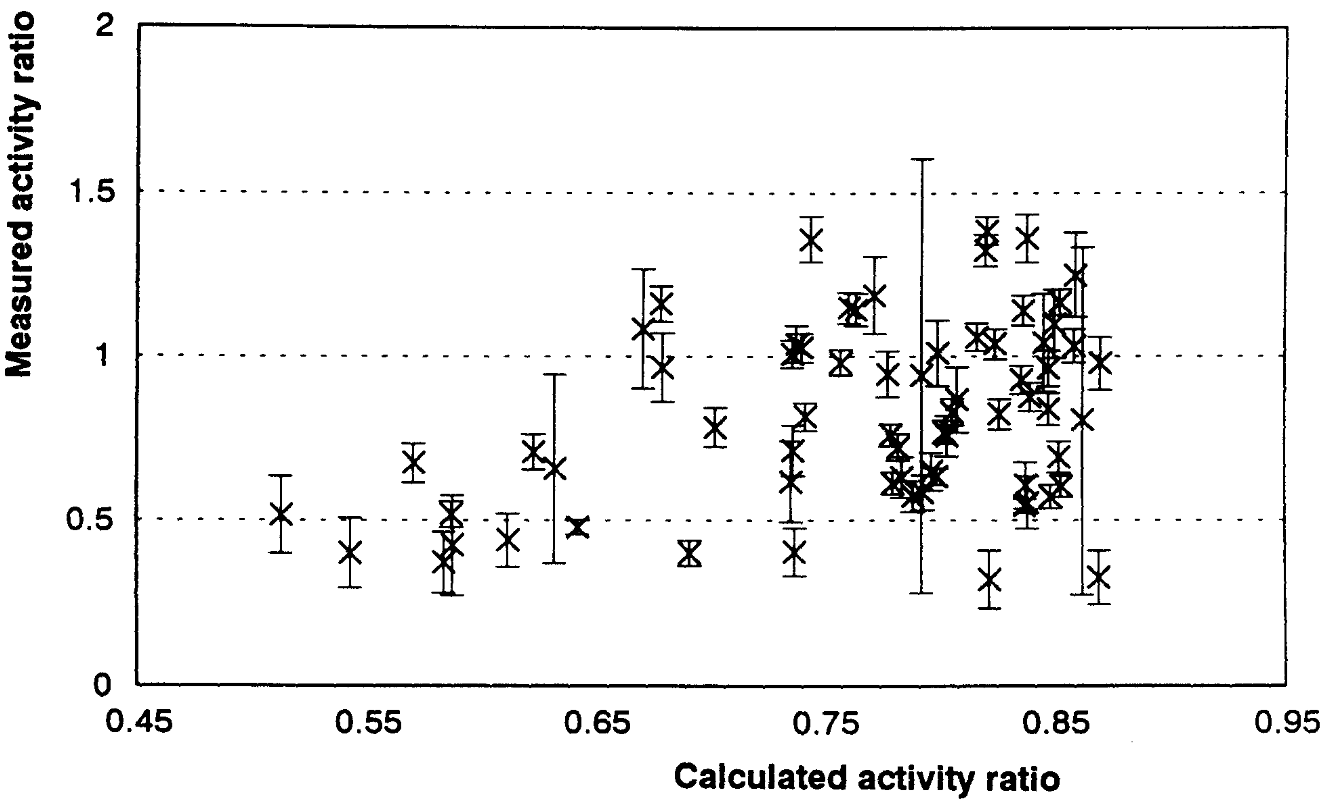
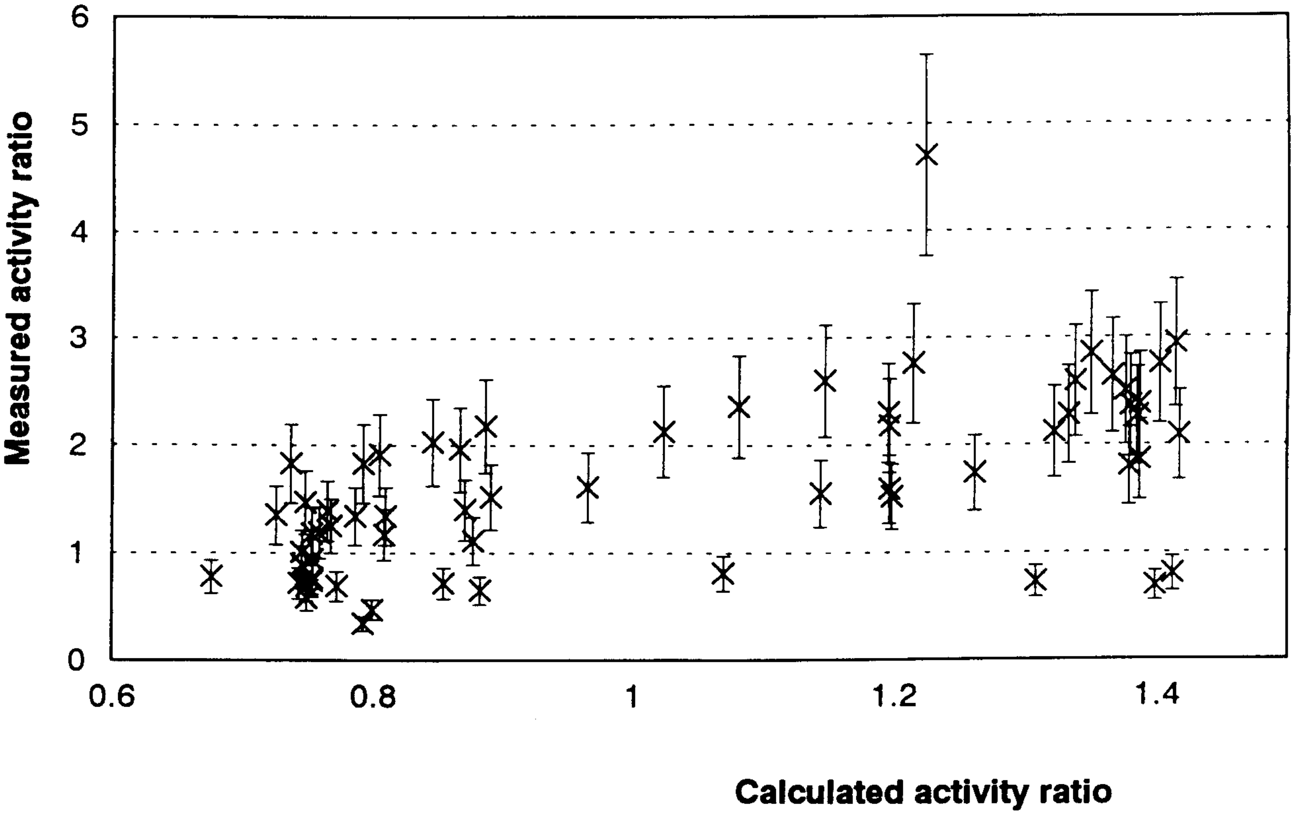


Figure 4.16: Scatter plot of experimental and fitted activity ratios for ^{239}Pu.



5. Light Charged Particle Fission Product Yields

5.1 Introduction

During fission there is a probability of producing a light charged particle, for example an alpha particle or a triton, as well as the two main fragments and neutrons. This emission occurs in less than one in a hundred fissions. The process is sometimes called ternary fission as a third fragment is produced.

Since the discovery, in 1946, of the emission of light charged particles during fission this process has been extensively studied and reviewed[5.1] [5.2]. From measurements of the angular distribution of the particles to the light fragment direction by several groups including Guet et al[5.3] it was observed that the alpha particles were peaked at 81.3° ± 0.5° with a full width half maximum of 18.5° ± 0.8°. Guet et al noted that their measurements agreed well with other measurements for ^{235}U and measurements of the spontaneous fission of ^{252}Cf, which is a surprising result given the different fission mode and very different nucleus. The experimental evidence suggests that the particles are formed between the two main fragments very close in time to the scission of the compound nucleus and before the fragments have separated significantly by Coulombic repulsion. Thus the alpha particles are repelled by the fragments away from the axis upon which the fission products are being accelerated.

Most experimental studies of ternary fission are concerned with determining properties of the compound nucleus at scission by studying the light charged particle. These measurements, however, cannot usually be used to determine yields. On the other hand the yields of these ternary particles are important in reactors, giving rise mainly to hydrogen and helium isotopes. The tritium, ^{3}H, produced from fission is a β emitter with a half-life of 12.33 ± 0.06 years[1.8] which, if it comes into contact, can be easily absorbed

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[5.1] "Nuclear Fission" by R.Vandenbosch and J.R. Huizenga, Academic Press, ISBN 0-12-710850-5 (1973)
[5.2] "The Nuclear Fission Process" by C.Wagemans, CRC Press (1992)
[5.3] Nuclear Physics A314 1-26 "A detailed investigation of the thermal neutron fission of ^{235}U" byC.Guet, C.Signarbieux, P.Perrin, H.Nifenecker, M.Asghar, F.Caïtucolli and B.Leroux (1979)

by living tissue. The tritium fission yield is thus important for calculations concerned with handling and reprocessing of irradiated fuels, and for modelling of accident scenarios. These requirement have led to many measurements of such yields, primarily of ^{4}He and ^{3}H. The ^{4}He is not of itself significant but is used as a standard yield for tritium measurements.

The measurements can be of two types: radiochemical measurements of a sample after irradiation or measurements of the number and parameters (energy, nuclear charge or mass) of the long ranged emitted particles. It should be noted that the second type of measurement can be achieved by several techniques. One of these is to measure the particle kinetic energy as the coulombic repulsion is different for hydrogen (1 proton) and helium (2 protons) as the acceleration depends on the charge to mass ratio. The energy distributions of the different particles considerably overlap. Thus the considerably larger alpha peak has to be modelled and then subtracted to estimate the other particles. However work by D'Hondt et al [5.4] and Caïtucoli et al [5.5] showed that the low energy tail of the alpha particle spectrum deviated significantly from a previously assumed Gaussian distribution. This means that measurements made of low probability yields where the alpha spectrum tail has been assumed to be Gaussian, and has been subtracted are invalid; this covers for example, many measurements involving tritium.

An improved technique uses two detectors, one being very thin and absorbing only part of the particle's energy and the other absorbing the remaining energy. From the energy loss in the thin detector and the total energy the charge of the particle can be determined. This technique usually plots the energy loss against total energy; areas can then be defined where the particles charge and mass are uniquely defined. Thus the yield for a given mass and charge can be determined. This technique can measure yields of tritium and other nuclides relative to the alpha yield.

[5.4]"Study of alpha particles produced in thermal neutron induced reactions on ^{235}U" P.D'Hondt,A.De Clerq, A. Deruytter, C.Wagemans, M.Asghar and A.Emsallem, Nucl. Phys. A303 (1978)

[5.5] "Investigation of the low energy part of the alpha spectrum", F.Caïtucolli, B.Leroux, G.Barreau, N.Cârjan, T.Benfoughal, T.Doan. F. El Hage, A.Sicre, M.Asghar, P.Perrin and G. Siegert, Z.Phys. A298, (1980).

Several models have been used to explain some of the properties of the ternary particles. Halpern[5.6] suggested that the particle is produced by a sudden snap back of the stubs of the scissioned neck directly following scission. Cârjan[5.7] considered the alphas to be produced from the alpha decay of the compound nucleus as it approached scission. Other authors, including Rubchenya and Yavshits[5.8] have extended the work of Brosa and Grossman described in chapter 4 to consider the ternary emission as a simultaneous splitting of the neck at two points giving rise to the ternary particles. Although these models can estimate the energies and angular distribution of the ternary particles they cannot determine the probability of emission required for applications.

The evaluation of ternary yields thus relies upon the analysis of measurements from which empirical models can be used to extend the measurements to other fissioning systems.

Evaluations of ternary yields have been produced in the recent UK evaluations[1.4], [1.5] and the work of Madland and Stewart[5.9]. The results for alpha yields are shown in Table 5.1 for the four main thermal neutron reactor fissile fuel nuclides. The alpha yields are typically measured by identification of particles directly resulting from fission due to the difficulties of measuring helium because many other routes of production exist and the nuclide does not undergo radioactive decay.

[5.6]Proc. IAEA Symp. Phys. Chem. Fission, Salzburg, p369 (1965)
[5.7] "Sur l'origine des alphas de scission", N.Cârjan. J. Phys. (Paris) 37, 1279 (1976).
[5.8] "Dynamic treatment of ternary fission" V.Rubchenya and S.Yavshits Z.Phys. A329, 217 (1988).
[5.9] "Light ternary fission products: probabilities and charge distributions", D.G.Madland and L.Stewart, Report LA-6783-MS (also ENDF-247) (1977)

Table 5.1: The thermal neutron fission yields of Helium-4 from recent evaluations[a]

Nuclide	UKFY3 (1993)	UKFY2 (1990)	UKFY1 (1986)	ENDF-247 (1977)
U233	0.2065 (4.1%) [9]	0.2397 (1.4%) [7]	0.2072	0.2268 (3.9%)
U235	0.1699 (3.6%) [12]	0.1882 (1.6%) [13]	0.1680	0.1950 (9.2%)
Pu239	0.2080 (3.3%) [8]	0.2232 (1.1%) [8]	0.2148	0.2326[b] (4.6%)
Pu241	0.2015 (10.0%) [2]	0.1938 (11.0%) [2]	0.1860	2.273[c] (6.4%)

a. Estimate of standard deviation given in () and number of analyzed experimental measurements in [].
b. Estimate of total light charged particle emission, not only alpha particle yield.
c. Estimate of total light charged particle emission, not only alpha particle yield.

The tritium fission yields corresponding with the set given in Table 5.1 are shown in Table 5.2. It should be noted that tritium yields can be measured radiochemically by the tritium gas produced in an irradiated sample or by the identification of particles resulting from directly from fission.

Table 5.2: The thermal neutron fission yields of Tritium from recent evaluations[a]

Nuclide	UKFY3 (1993)	UKFY2 (1990)	UKFY1 (1986)	ENDF-247 (1977)
U233	0.009691 (24.3%) [4]	0.01006 (6.9%) [3]	0.01030	0.01043 (20%)
U235	0.009314 (3.8%) [15]	0.01004 (2.0%) [14]	0.01084	0.01219 (25%)
Pu239	0.01442 (5.3%) [5]	0.01471 (2.2%) [5]	0.01479	no value reported
Pu241	0.01410 (10.0%) [1]	0.01410 (4.3%) [1]	0.01410	no value reported

a. One standard deviation given in () and number of experimental measurements in [].

To fill the gaps in the measured yields it is necessary to understand how the ternary yields vary for different fissioning systems and different incident neutron energies.

5.2 Effects of incident neutron energy on the light charged particle yields

The recommended UKFY3 yields for the three systems with most information on the variation of yields with neutron energy are shown in Table 5.3 and Table 5.4for alpha and tritium yields respectively.

Table 5.3: Alpha yields from UKFY3

Nuclide	Thermal	Fast (~0.6 MeV)	High (14MeV)
U233	0.2065 ± 4.1%	0.2003 ± 10.8%	0.1980 ± 10.6%
U235	0.1699 ± 3.6%	0.1980 ± 8.6%	0.1667 ± 5.3%
Pu239	0.2080 ± 3.3%	0.2029 ± 8.7%	no measured data

Table 5.4: Tritium yields from UKFY3

Nuclide	Thermal	Fast (~0.6 MeV)	High (14MeV)
U233	0.009691 ± 14.3%	no measured data	0.02480 ± 22.6%
U235	0.009314 ± 3.8%	0.01352 ± 11.7%	0.01742 ± 20.7%
Pu239	0.01442 ± 5.3%	0.01413 ± 15.9%	no measured data

These results for alpha yields suggest that (within the experimental uncertainty) only the yield for ^{235}U between thermal and fast varies significantly. Similarly for tritium, only ^{235}U between thermal and fast shows significant differences. The ^{235}U ternary yield data for fast neutron induced fission contains discrepant data and thus these results are suspect.

Thus it is useful to consider the experiments which measure the relative yields of ternary particles at monoenergetic neutron energies to the yield at thermal energies. Absolute yield measurements were not converted to ratio data for this analysis as this could introduce experimental biases into the results. These results were extracted from the UKFY3 RFYDB file. Figure 5.1 shows measurements of the alpha yield for ^{235}U and ^{239}Pu against energy relative to the thermal yield.

Figure 5.1 Alpha yield as a function of energy for ^{235}U and ^{239}Pu.

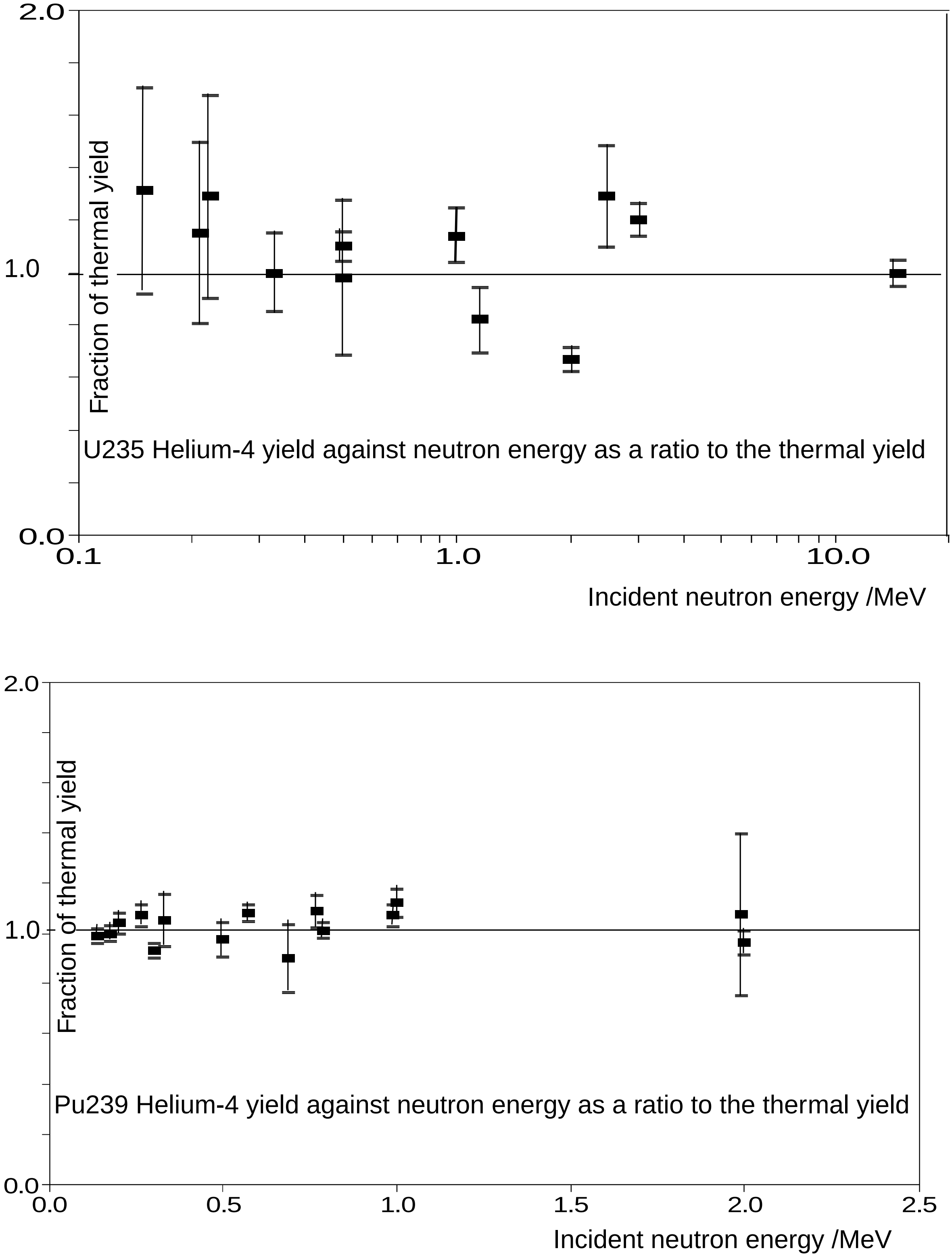
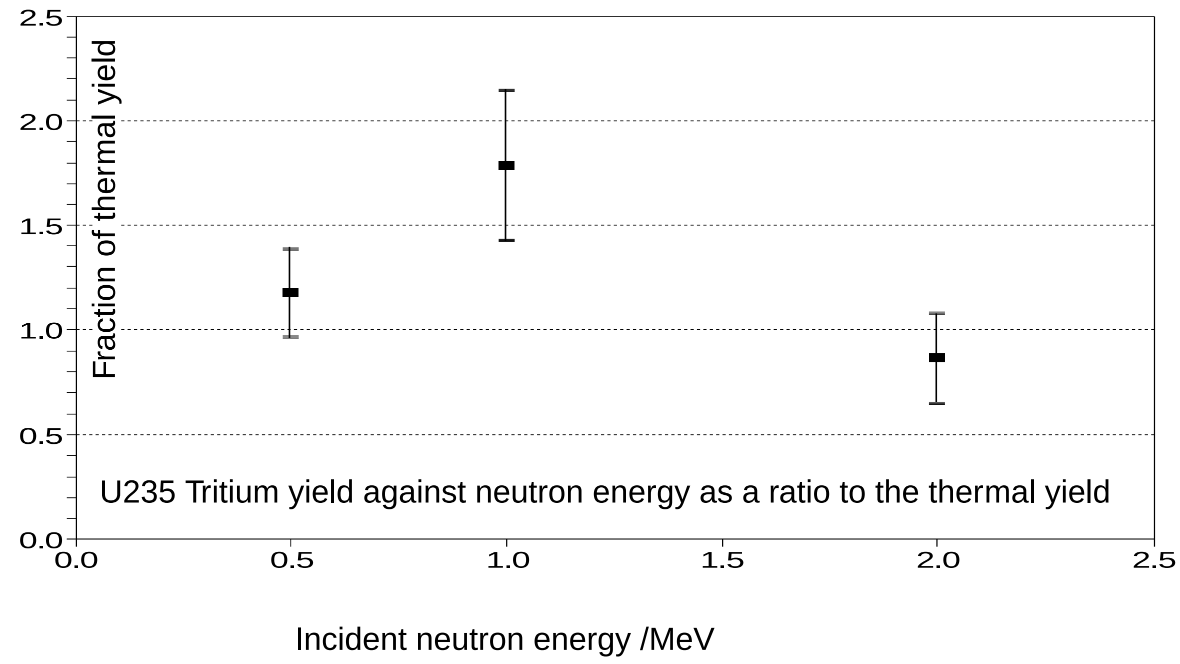
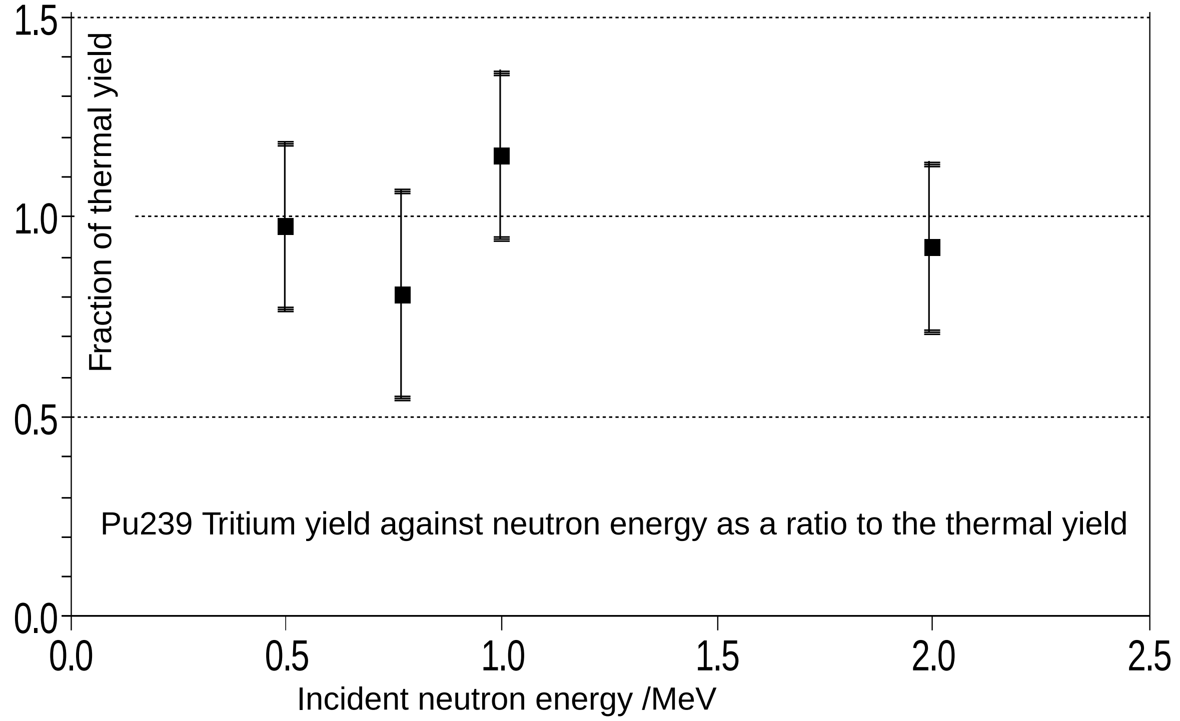


Figure 5.2 Tritium yields as a function of energy





For ^{235}U between 0 and 1 MeV, and at 14MeV there is no significant differences from the thermal value. However in the region from 1 to 3 MeV the data suggest some possible structure. Only one of these datum significantly varies from the thermal value by more than two standard deviations. Until this difference is confirmed by further measurement it is difficult to exclude an assumption that the data does not vary with energy. It should be noted that between 4 and 14 MeV there is no data. Thus more measurements are needed to determining the yield variation in the region from 2 to 14 MeV.

The ^{239}Pu data, although confined to neutron energies between thermal and 2 MeV and also at 14 MeV show excellent agreement with the thermal yield value.

From the results in Figure 5.1 it can be concluded that there is little evidence that the alpha yield varies significantly with energy between 0 and 14 MeV.

Figure 5.2 shows a similar comparison for tritium yields. However when measurements that used a Gaussian substraction method to determine the tritium yield were removed only the work of Ouasti[5.10] remains. Ouasti used the improved particle identification technique. These results show no significant variation between 0 and 2 MeV, which is the most important region for yields in fission reactors. Thus it can be hypothesized that the ternary yields are energy independent between thermal and 14 MeV. It should be remembered that as second chance fission or higher modes become important the fissioning compound nucleus will change and this will alter the yields.

5.3 Modelling light charged particle yields

There have been several attempts to model the light charged particle yields using empirical methods. These techniques are based upon the experimental data and functions of parameters of the compound, or target, nucleus. In the past, several models have been suggested for the alpha yields, primarily through fitting the measured yields to functions of the compound nucleus mass A and charge Z.

Nobles[5.11] suggested the total ternary yield (alphas, tritons etc.)varied to approximately

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[5.10] R.Ouasti, Thesis, University of Bordeaux CENBG 8801, 2228.

$\pm$30% as:

$$Y = 0.561\frac{Z^2}{A} - 18.299 \qquad \text{Eqn (3.1)}$$

The Z^2/A term is the fissility parameter related to the "surface tension" like term in liquid drop model[5.1].

Halpern[5.12] tried to model the total ternary yield using an expression of the form:

$$Y = m(A + \beta Z) \qquad \text{Eqn (3.2)}$$

He found that β equal to -4 and m= 0.125 gave a best fit.

For UKFY2[1.4] both fits to 4Z-A and Z^2/A were tried. It was found that the alpha yields fitted, to $\pm$20%, using the expression $Y(^4He)=0.0647\ Z^2/A - 2.1292$. The tritium yields were shown to fit best as a constant ratio to the alpha yield as $Y(^3H)=0.06554\ Y(^4He)$ to $\pm$25%.

The following work is based upon the new results from the analysis of the UKFY3 database. The ternary yield results from Appendix A.2 are summarized in Table 5.5.

From the UKFY3 recommended data it can be seen that many alpha and triton yields have been measured. However very few of these have more than two independent measurements. Also not all significant systems have both alpha and triton yields. Thus it is necessary to model the yields and then extrapolate and interpolate on the basis of the modelling to estimate the yields for the other fissioning systems.

[5.11] "Long range particles from nuclear fission" R.A.Nobles. Phys. Rev. 126, 1508 (1962)
[5.12] "Three fragment fission", I.Halpern in Annual review of Nuclear Science Vol. 21 E.Segre, editor (1971)

Table 5.5: Recommended measured UKFY3 light charged particle yields

Neutron Energy	System	Mass	yield per 100 fissions	Standard deviation (%)	number of measurements
Thermal	U233	1	6.542E-03	40.2	1
Thermal	U235	1	1.711E-03	10.8	3
Thermal	Pu239	1	4.080E-03	10.0	1
Fast	U235	1	1.174E-02	51.1	1
High	U233	1	9.018E-03	41.4	1
High	U235	1	6.335E-03	40.4	1
High	U238	1	2.001E-03	100.5	1
High	Np237	1	1.902E-02	41.4	1
Spontaneous	Cf252	1	6.086E-03	23.4	2
Spontaneous	Cf250	1	9.000E-03	25.0	1
Spontaneous	Fm256	1	7.000E-03	30.0	1
Spontaneous	Cm244	1	1.221E-02	41.0	1
Thermal	U233	2	8.466E-04	15.6	1
Thermal	U235	2	8.400E-04	17.9	2
Thermal	Pu239	2	1.347E-03	14.2	2
Spontaneous	Cf252	2	1.500E-03	20.0	1
Thermal	U233	3	9.691E-03	14.3	4
Thermal	U235	3	9.314E-03	3.8	15
Thermal	Pu239	3	1.442E-02	5.3	5
Thermal	Pu241	3	1.410E-02	10.0	1
Fast	U235	3	1.352E-02	11.7	4
Fast	Pu239	3	1.413E-02	15.9	1
High	U233	3	2.480E-02	22.6	1
High	U235	3	1.742E-02	20.7	1
High	U238	3	6.499E-03	22.1	1
High	Np237	3	3.329E-02	22.6	1
Spontaneous	Cf252	3	2.244E-02	3.9	8
Spontaneous	Cf250	3	2.700E-02	20.0	1

Table 5.5: Recommended measured UKFY3 light charged particle yields

Neutron Energy	System	Mass	yield per 100 fissions	Standard deviation (%)	number of measurements
Spontaneous	Fm256	3	3.900E-02	15.0	1
Spontaneous	Cm244	3	2.197E-02	22.0	1
Thermal	U233	4	2.065E-01	4.1	9
Thermal	U235	4	1.699E-01	3.6	12
Thermal	Pu239	4	2.080E-01	3.3	8
Thermal	Pu241	4	2.015E-01	10.0	2
Fast	U233	4	2.003E-01	10.8	1
Fast	U235	4	1.980E-01	8.6	4
Fast	Pu239	4	2.029E-01	8.7	2
High	Th232	4	7.181E-02	36.4	2
High	U233	4	1.957E-01	10.6	1
High	U235	4	1.667E-01	5.3	3
High	U238	4	8.226E-02	9.5	4
High	Np237	4	2.010E-01	10.6	1
Spontaneous	Pu240	4	3.190E-01	10.0	1
Spontaneous	Pu242	4	2.740E-01	10.0	1
Spontaneous	Cf252	4	3.102E-01	6.3	4
Spontaneous	Cf250	4	3.980E-01	10.0	1
Spontaneous	Fm256	4	4.742E-01	8.3	2
Spontaneous	Fm257	4	3.994E-01	7.1	2
Spontaneous	Cm244	4	2.849E-01	9.1	3
Spontaneous	Cm242	4	3.601E-01	12.1	2
Thermal	U233	6	2.153E-03	19.0	3
Thermal	U235	6	2.668E-03	6.9	5
Thermal	Pu239	6	4.098E-03	6.8	3
Spontaneous	Cf252	6	5.304E-03	8.7	4
Thermal	U233	7	7.640E-05	15.6	1
Thermal	U235	7	6.890E-05	40.0	1

Table 5.5: Recommended measured UKFY3 light charged particle yields

Neutron Energy	System	Mass	yield per 100 fissions	Standard deviation (%)	number of measurements
Thermal	Pu239	7	1.400E-04	10.0	1
Thermal	U233	8	3.717E-05	15.6	1
Thermal	U235	8	7.292E-05	16.2	3
Thermal	Pu239	8	6.870E-05	10.0	1
Spontaneous	Cf252	8	1.530E-04	14.5	2
Thermal	U233	9	7.434E-05	15.6	1
Thermal	U235	9	4.071E-05	7.0	5
Thermal	Pu239	9	1.140E-04	10.0	1
Thermal	U233	10	8.880E-04	15.6	1
Thermal	U235	10	5.201E-04	4.9	6
Thermal	Pu239	10	1.050E-03	10.0	1
Thermal	Pu239	11	7.520E-05	10.0	1
Thermal	U235	12	1.261E-05	23.9	2
Thermal	Pu239	12	4.730E-05	22.7	1
Thermal	U235	13	3.360E-06	40.0	1
Thermal	Pu239	13	2.790E-05	30.8	1
Thermal	U235	14	1.578E-04	15.4	2
Thermal	Pu239	14	3.010E-04	10.0	1
Thermal	U235	15	2.528E-05	12.8	3
Thermal	Pu239	15	7.520E-05	37.1	1
Thermal	Pu239	16	7.520E-05	45.7	1
Thermal	U235	17	2.379E-06	30.2	1
Thermal	U235	18	9.531E-07	39.0	3
Thermal	U235	20	5.551E-08	195.2	3
Thermal	Pu239	20	1.720E-05	50.0	1
Thermal	U235	21	2.146E-04	20.3	1

For UKFY3 many variations of functions based upon Z and A were fitted ($mZ^2/A + c$, $mZ + c$, $mA + c$, $m(3Z-A) + c$, $m(4Z-A)+c$, $m(5Z-A) + c$, $m(5Z-2A) +c$, $m(6Z-A)+c$, $m(7Z-A)+c$,

Table 5.6: Fit of light charged particle yields to mA+uZ+c and minimized χ^2

Mass	No. of yields	m	u	c	compound or target nucleus A and Z	%ssd[a]	max fd[b]	χ^2	maximum $\frac{y_i - y_{calc}}{\sigma_i}$	Birge factor
1	12	-7.34248E-04	2.65548E-03	-6.92273E-02	T	18.1	1.204	17.84	2.04	1.408
1	12	-1.25635E-03	3.62711E-03	-3.85114E-02	C	13.2	0.849	11.51	1.68	1.131
2	4	-3.33654E-05	2.24928E-04	-1.19789E-02	T	5.5	0.141	1.470	1.00	1.212
2	4	-3.04722E-05	2.10178E-04	-1.13758E-02	C	5.5	0.143	1.480	1.00	1.217
3	14	-8.01834E-04	4.34694E-03	-0.201201	T	7.9	0.633	31.36	2.80	1.689
3	14	-1.20919E-03	5.16755E-03	-0.183667	C	7.1	0.552	28.84	2.63	1.620
4	20	-2.07685E-02	7.97179E-02	-2.27349	T	3.1	0.292	58.44	-4.02	1.854
4	20	-1.87692E-02	7.52467E-02	-2.39449	C	4.5	-0.54	115.4	-5.73	2.606

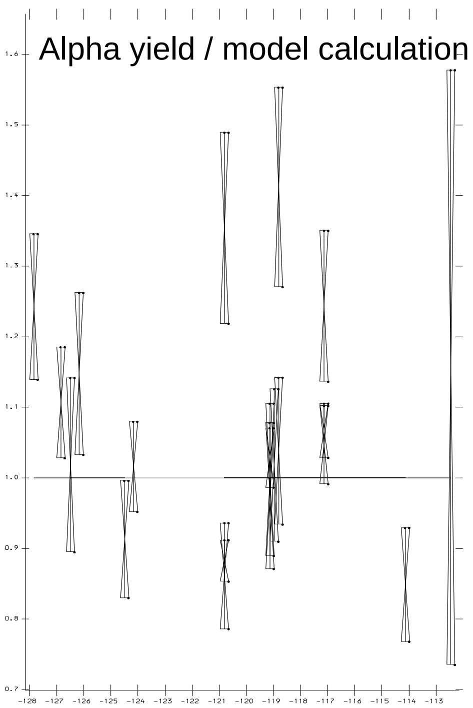
a. %SSD is defined as $100\sqrt{\frac{1}{n(n-1)}\sum\frac{(y_i - y_{calc})^2}{y_i^2}}$

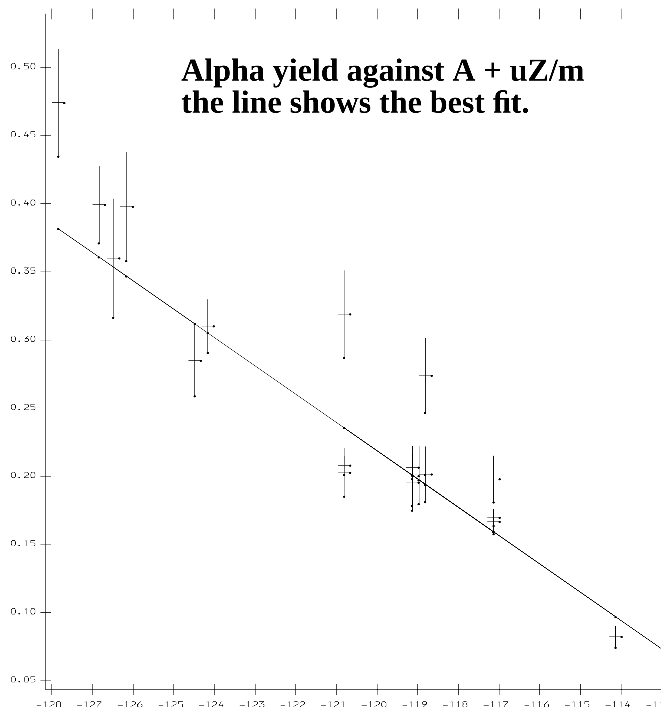
b. MAXFD is defined as the maximum $\frac{y_i - y_{calc}}{y_i}$

m(7Z-2A) +c, mA+uZ+c and mA+uZ). Also the effect of fitting to the target nucleus mass and charge, rather than the compound nucleus was tried. The best fit with a minimum χ^2 was found in all cases to be the function Y=mA+uZ+c. This was the case where there was sufficient data to fit this function which there were for masses one to four. As the energy dependence was shown above to be minimal all the data were merged; fitting the separate energies did not give any better fit. These results for masses one to four are summarized in Table 5.6

Table 5.7 shows the mass four yields are best fitted by using the target nucleus parameters and the calculated yields have an estimated percentage uncertainty (%SSD) of 3.1%. This should be multiplied by the Birge factor to give a standard deviation of 5.8% of the calculated value. The fit is shown in Figure 5.3 along with a plot of the experimental yields divided by the model calculation.

Figure 5.3 Fit of alpha yields to mA+uZ+c.





The fits shown in Figure 5.3 can be used to predict all the unmeasured alpha fission yields required for the UKFY3 evaluation. However the fits for masses 1, 2 and 3 when extrapolated all predict some negative yields for fissioning systems that are required for UKFY3. Thus the ratios of the other ternary yields to the alpha yields were investigated. Table 5.7 shows the recommended yields from Table 5.5, for masses in the range of one to ten, divided by the respective recommended alpha particle yield.

For each light charged particle mass the ratios of each yield to the alpha fission yield appear similar, independent of the fissioning system, thus a χ^2 fit to a constant ratio was tried, which is effectively a weighted mean of the ratios. The same procedures as employed with the experimental data analysis were applied. The weighted mean and the internal and external standard deviations were calculated. Table 5.8 gives these parameters for each mass from one to ten. The maximum of the internal and external standard deviation was accepted as the recommended error quoted in the table as a percentage. The maximum difference between the experimental and calculated yields expressed as a multiple of the experimental standard deviation, $(y_i - y_{calc})/\sigma_i$, is also shown.

The experimental yield data for masses 1, 2 and 3 are shown in Figures 5.4, 5.5 and 5.6.

These figures and Table 5.8 show that it can be assumed that the hydrogen yields are a constant fraction of the alpha yield, and independent of mass and charge of the fissioned nuclide.

To conclude: for the UKFY3 evaluation the recommended data from the analysis summarized in appendix A.1 were adopted.

The missing ^4He yields were calculated from the Y=mA+uZ+c formula with a 5.8% standard deviation. The missing ^1H, ^2H and ^3H yields were then calculated using the ^4He yields and ratios given in Table 5.8 with the fractional standard deviations calculated by quadrature.

Table 5.7: Recommended UKFY3 light charged particle yields relative to the α yield

Neutron Energy	System	Mass	yield per 100 alpha particles	Standard deviation (%)
Thermal	U233	1	3.16804	40.4085
Thermal	U235	1	1.00706	11.3842
Thermal	Pu239	1	1.96154	10.53043
Fast	U235	1	5.92929	51.8186
High	U233	1	4.60807	42.7355
High	U235	1	3.80024	40.7462
High	U238	1	2.43253	100.9480
High	Np237	1	9.46269	42.7355
Spontaneous	Cf252	1	1.96196	24.2332
Spontaneous	Cf250	1	2.26131	26.9258
Spontaneous	Fm256	1	1.47617	31.1270
Spontaneous	Cm244	1	4.28571	41.9977
Thermal	U233	2	0.409976	16.1298
Thermal	U235	2	0.494408	18.2584
Thermal	Pu239	2	0.647596	14.5784
Spontaneous	Cf252	2	0.483559	20.9688
Thermal	U233	3	4.69298	14.8762
Thermal	U235	3	5.48205	5.23450
Thermal	Pu239	3	6.93269	6.24340
Thermal	Pu241	3	6.99752	14.1421
Fast	U235	3	6.82828	14.5207
Fast	Pu239	3	6.96402	18.1246
High	U233	3	12.6725	24.9624
High	U235	3	10.4499	21.3677
High	U238	3	7.90056	24.0554

Table 5.7: Recommended UKFY3 light charged particle yields relative to the α yield

Neutron Energy	System	Mass	yield per 100 alpha particles	Standard deviation (%)
High	Np237	3	16.5622	24.9624
Spontaneous	Cf252	3	7.23404	7.40945
Spontaneous	Cf250	3	6.78392	22.3607
Spontaneous	Fm256	3	8.22438	17.1432
Spontaneous	Cm244	3	7.71148	23.8078
Thermal	U233	6	1.04262	19.4373
Thermal	U235	6	1.57034	7.78267
Thermal	Pu239	6	1.97019	7.55844
Spontaneous	Cf252	6	1.70986	10.7415
Thermal	U233	7	3.69976E-02	16.1298
Thermal	U235	7	4.05533E-02	40.1617
Thermal	Pu239	7	6.73077E-02	10.53043
Thermal	U233	8	1.80000E-02	16.1298
Thermal	U235	8	4.29194E-02	16.5952
Thermal	Pu239	8	3.30288E-02	10.53043
Spontaneous	Cf252	8	4.93230E-02	15.8095
Thermal	U233	9	3.60000E-02	16.1298
Thermal	U235	9	2.39612E-02	7.87147
Thermal	Pu239	9	5.48077E-02	10.53043
Thermal	U233	10	4.30024E-01	16.1298
Thermal	U235	10	3.06121E-01	6.08030
Thermal	Pu239	10	5.04808E-01	10.53043

Table 5.8: Weighted means of ratio to α yields

mass	weighted mean	internal sd	external sd	recommended % error from mean	max diff/expt error
1	1.58184E-02	1.98492E-03	2.53297E-03	16.0	-2.018
2	4.83424E-03	6.92095E-04	4.39668E-04	14.3	0.896
3	6.89694E-02	5.49694E-03	5.20911E-03	8.0	1.934
4	1.00000	6.43791E-02	0.	6.4	0.
6	1.39646E-02	2.03853E-03	2.06317E-03	14.8	-1.200
7	4.33226E-04	8.18369E-05	8.13437E-05	18.9	1.260
8	2.61057E-04	4.01731E-05	6.46611E-05	24.8	1.664
9	3.08327E-04	5.30162E-05	7.18898E-05	23.3	1.547
10	3.78596E-03	6.32407E-04	5.76288E-04	16.7	0.884

Figure 5.4: Ratio of ^{1}H yield to ^{4}He yield

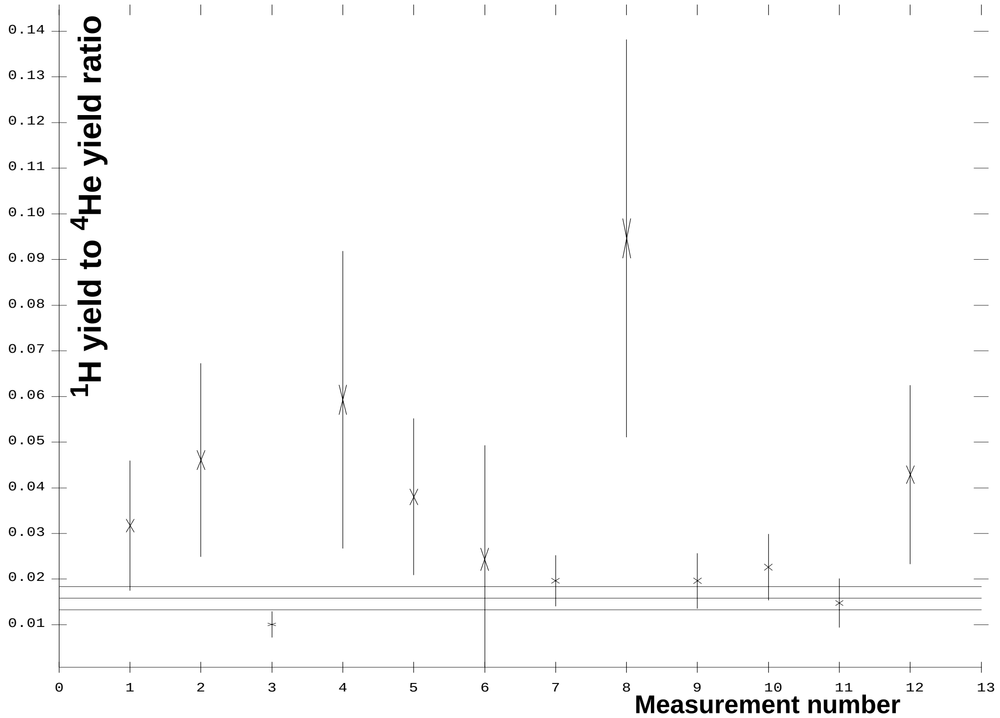


Figure 5.5: Ratio of ^{2}H yield to ^{4}He yield

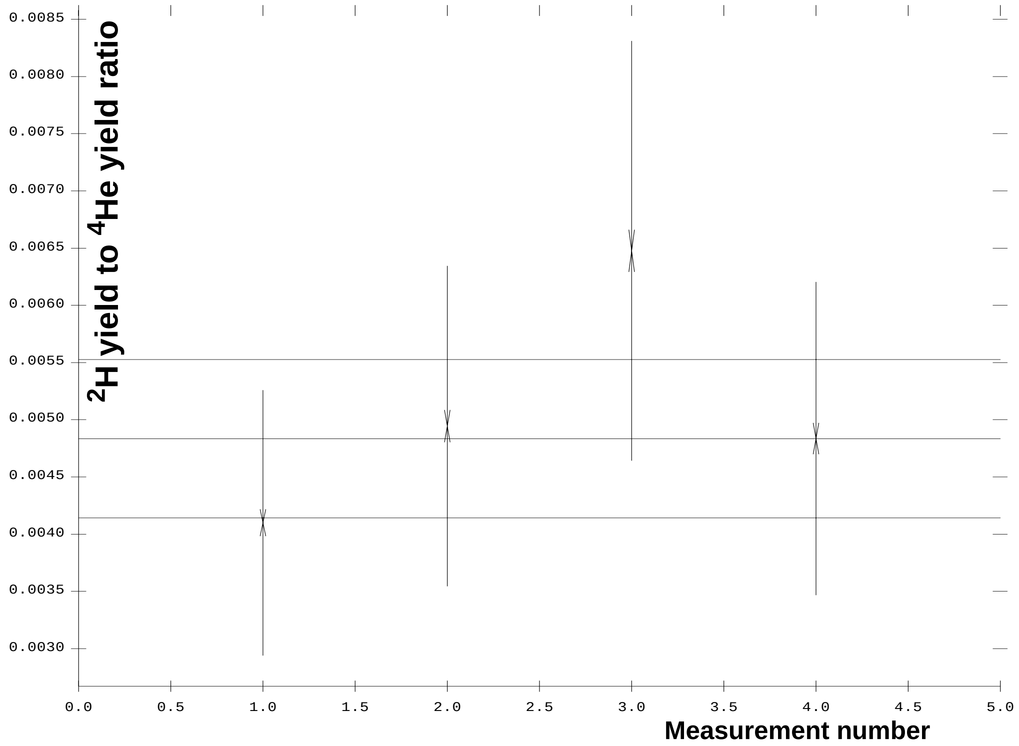
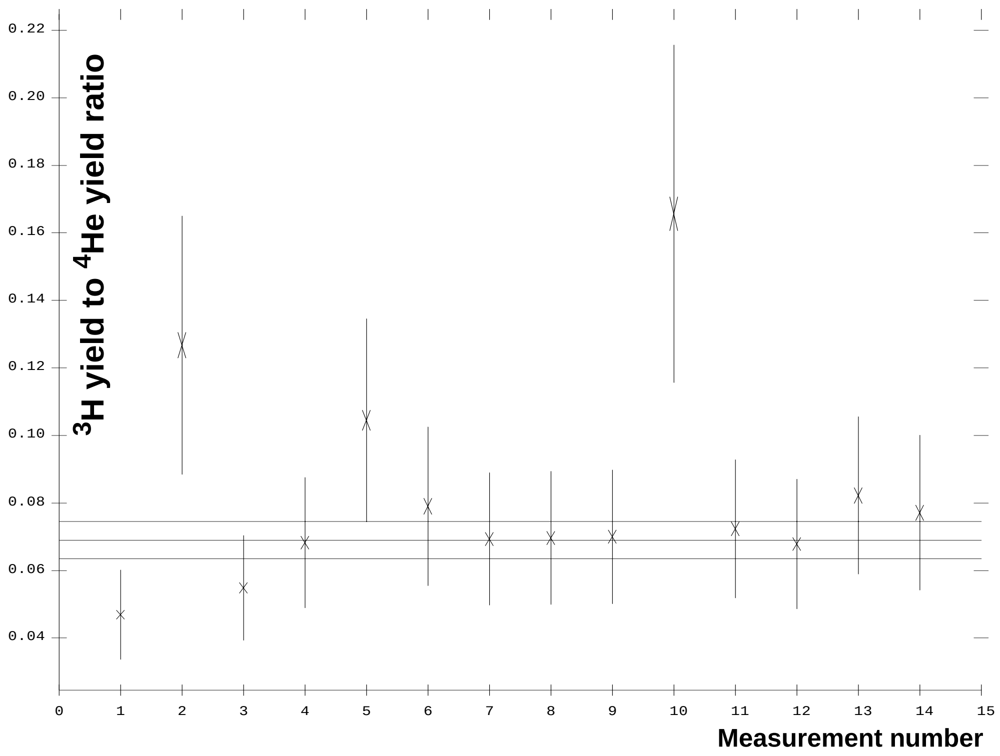


Figure 5.6: Ratio of ^{3}H yield to ^{4}He yield



6. FRACTIONAL INDEPENDENT YIELDS

6.1 Introduction

In the proceeding chapters chain and ternary yields have been discussed. In considering these cases the charge distribution of the fragments has been of minimal interest. However, this distribution can be very important practically as isobars, different products with the same mass but varying nuclear charge, can have considerably different properties. The half-lives may ranging from milli-seconds to many millions of years. Also the decay modes, emitted radiation and energy released per decay can be very different. The charge distribution and the chain yields are significant in determining the distribution of yield in (A,Z) space and thus the yield of each nuclide generated. Clearly these yields are an important component in any calculation of the source terms for determination of properties such as the chemical inventory of irradiated fuel, its decay heat or radiation emission.

The different chemistry of the products will determine their mobility and chemical behaviour, and thus this information is important in any shielding or radio-toxicity calculation. For example if we consider ^{85}Kr which is a beta emitter with a 10.72 year half-life. This is a major fission product which due to its chemistry, being an inert gas, is released from any chemical or mechanical processing of spent fuel. However, because it is inert it does not become absorbed into the food chain and thus gives a low dose to the population. On the other hand ^{129}I, another short-range beta emitting product with a similar yield to krypton-85, has a much lower activity as it has a half-life of 15.69 million years; it is also easily absorbed into biological material. Thus it is of far greater importance in assessing the collective population dose from the reprocessing of spent reactor fuel.

The chemistry of fission products will also determine their diffusion within the irradiated fuel matrix. The fission products generated in the fuel can affect the fuel matrix directly causing, along with neutron damage, fuel swelling and cracking. The shielding and containment of fission products in fuel and reactor pressure vessels will depend upon how easily radioactive fission products can escape through the fuel cladding, especially if the fuel is damaged. In calculations of radioactive release from reactor accidents the mobility of fission products, especially as a function of temperature, is of great importance.

In the case of reprocessing where the fuel is sheared and reprocessed (for example in the PUREX process) the fission product chemistry will determine what fraction of each product will end up in each chemical process stream, whether in the gaseous or liquid waste streams or as a contaminant in one of the product streams (typically uranium or plutonium).

6.2 Semi-empirical models of charge distribution

As discussed in chapter 4 there is no theoretical nuclear model which can be used to calculate the mass distribution from fission with any degree of success without empirical determination of some parameters. The most promising models based upon the work of Brosa, Grossman and Müller[6.1] do not determine the charge of the fragments. Thus an empirical approach is required.

The first semi-empirical models to consider the charge distribution of fission product fragments were based upon the “unchanged charge distribution”. This is based upon the assumption that the charge distribution of the compound nucleus has insufficient time to respond to the changes in the nucleus and thus the charge-to-mass ratio of the products will be the same as the pre-scission compound nucleus. Thus the most probable charge of the post scission but pre-prompt neutron emission fragment of mass A, called $Z_p(A)$, is given by

$$Z_p(A) = \frac{Z_f}{A_f} .A \qquad \text{Eqn (6.1)}$$

Models based upon this assumption, including those with improvements are called Z_p

[6.1] Physics reports (Review Section of Physics Letters) 197, No. 4, p162-262. “Nuclear Scission”, U.Brosa, S.Grossman and A. Müller (1990).

models. These models have been developed by A.C.Wahl. In early work in this area Wahl et al[6.2] used $Z_p(A)$ as the maximum of a lumped Gaussian distribution of yield over Z for a given A with a width (charge variation), σ. The Gaussian is normalized to one for each mass chain; the expected value of the yield for a particular A and Z is given by integrating the Gaussian between Z-0.5 and Z+0.5 as follows:

$$FI(A, Z) = \int_{Z-0.5}^{Z+0.5} \frac{1}{\sqrt{2\pi\sigma^2}} e^{-0.5\left(\frac{Z - Z_p(A)}{\sigma}\right)^2} dZ \qquad \text{Eqn (6.2)}$$

As more experimental data became available and the width and $Z_p(A)$ were fitted for individual mass chains it led to the observation of two phenomena. Firstly, if this simple model is used the width appeared to have an oscillatory nature with a cycle of 2 mass units. This was subsequently explained by Wahl as the preferential production of even-even nuclides compared to odd-odd. This is called the odd-even effect.

For any mass chain the mass number is the sum of protons and neutrons; thus there are two possible combinations of even and odd protons and neutrons for both even and odd mass chains. These are shown in Table 6.1. Thus, for each mass, there are two parameters that are needed to define the odd-even effect; these are the probabilities of producing the different even and odd combinations. It should be noted that these odd-even multiplicative factors will alter the summation for the total from 1.0; thus it is necessary to multiply the yields by a factor so that the yields are re-normalised to 1.0.

Table 6.1: Possible combinations of protons and neutrons for even and odd mass nuclides.

mass	number of protons	number of neutrons
even	even odd	even odd
odd	even odd	odd even

[6.2] Phys. Rev. 126, 1112. A.C.Wahl et al (1962).

The second observed phenomenon was that the measured $Z_p(A)$, the average charge for a mass chain, was higher than the unchanged charge distribution calculation for the light fragments and lower for the heavy fragments. Also, this difference varied smoothly with mass number. It should be noted that because of charge conservation during fission the effects on the low mass peak mirror the effects on the high mass peak.

These features are described by Wahl's latest Z_p model[6.4]. Wahl developed a parameterization to model the above effects and the variation of charge distribution around symmetry[6.3]. He used this later in an extensive study of charge distribution for ^{235}U, ^{233}U, ^{239}Pu and ^{252}Cf.[6.4].

In Wahl's latest Z_p model the distribution is modelled as the difference between two error functions. As the integral of a normal distribution $f(t)$ can be shown[3.1] to be

$$\int_0^x f(t) = \frac{1}{2}\mathrm{erf}\left(\frac{x}{\sqrt{2}}\right) \qquad \text{Eqn (6.3)}$$

then the integral of a normal distribution between z+0.5 and z-0.5, as in Eqn (6.2), will be:-

$$\frac{1}{2}\left(\mathrm{erf}\left(\frac{z+0.5}{\sqrt{2.}}\right) - \mathrm{erf}\left(\frac{z-0.5}{\sqrt{2}}\right)\right) \qquad \text{Eqn (6.4)}$$

Thus Wahl's Zp model of fractional independent yield, FI, can be described by:

$$FI(A, Z) = \frac{1}{2}F(A, Z)N(A)(\mathrm{erf}(V) - \mathrm{erf}(W)) \qquad \text{Eqn (6.5)}$$

where F(A,Z) describes the odd-even effect and N(A) normalizes to 1 the summation of all the elements of each mass A to 1.0 for each mass chain.

[6.3] J. Radioanal. Chem. 55, 111. A.C.Wahl (1980).
[6.4] Atomic and Nuclear Data Tables 39, 1-156. "Nuclear charge distribution and delayed neutron yields for thermal neutron induced fission of ^{235}U, 233U, 239Pu and for spontaneous fission of 252Cf", A.C.Wahl (1988).

The V and W are defined by;

$$V = \frac{Z(A) - Z_p(A) + 0.5}{\sigma_z(A)\sqrt{2}} \quad , \qquad \text{Eqn (6.6)}$$

$$W = \frac{Z(A) - Z_p(A) - 0.5}{\sigma_z(A)\sqrt{2}} \quad , \qquad \text{Eqn (6.7)}$$

The similarity of Eqn (6.2) with Eqn (6.5) using Eqn (6.4) thus becomes apparent.

The Z_p model is extended from the simple formation of Eqn (6.1) to allow for variation with a correction term ΔZ which, for the high mass peak, is defined as;

$$Z_p(A_H) = A'_H \frac{Z_f}{A_f} + \Delta Z(A'_H) \quad , \qquad \text{Eqn (6.8)}$$

Similarly for the low mass peak;

$$Z_p(A_L) = A'_L \frac{Z_f}{A_f} + \Delta Z(A'_{Hc}) \qquad A'_{Hc} = A_f - A'_L \qquad \text{Eqn (6.9)}$$

Where A' is defined as the fragment mass after prompt neutron emission and A is the initial fragment mass, where

$$A' = A - \nu(A) \; , \qquad \text{Eqn (6.10)}$$

The $\nu(A)$ function is the average neutron emission from a fragment of mass A. Wahl calculates this from the chain yield distribution by a modification of the summation method of Terrell[6.5]. If we define the symmetrical mass as half the compound nucleus mass, the sum of the chain yields $S_L(A_1)$ from $A_1$to the symmetrical mass, S(A), can be

[6.5] Phys. Rev. 127, 880. J.Terrell (1962) calculated for the low mass peak as

$$S_L(A_1) = \sum_{A = A_1}^{\text{symmetry}} Y(A) \qquad \text{Eqn (6.11)}$$

and similarly for the high mass peak $S_H(A_f\text{-}A_1)$

$$S_H(A_f - A_1) = \sum_{A = A_f - A_1}^{\text{symmetry}} Y(A) \qquad \text{Eqn (6.12)}$$

Then the difference between $S_H(A_1)$ and $S_L(A_1)$ gives the average neutron emission for each mass split. From the conservation of mass the complementary masses and mass of emitted neutrons will equal the compound nucleus mass i.e.

$$A_L + A_H + \bar{\nu}_p = A_f \qquad \text{Eqn (6.13)}$$

Figure 6.1 shows the $S_H(A_1)$ and $S_L(A_1)$ calculated from the UKFY3 chain yields for ^{235}U thermal neutron induced fission. From this graph the mass differences between the two mass peaks, the neutron loss, can be generated.

Wahl then assumes that symmetrical fission produces four neutrons; a value consistent with the difference between the observed fragment kinetic energy and calculations assuming no neutron emission[6.6]. If we consider the ratio, R_H, of neutron emission from the high mass peak to the total; at symmetry this must equal R_L and as $R_H + R_L = 1$ then $R_H = 0.5$. Using this and the results from Figure 6.1 it is possible to estimate the $\nu(A)$ function. The calculation of $\nu(A)$ for ^{235}U thermal neutron induced fission by Wahl [6.4] is shown in Figure 6.2.

[6.6] Z.Phys. A 309, 253. D.Belhafaf et al (1983).

Figure 6.1: S_H and S_L calculated from the ^{235}U thermal neutron induced fission.

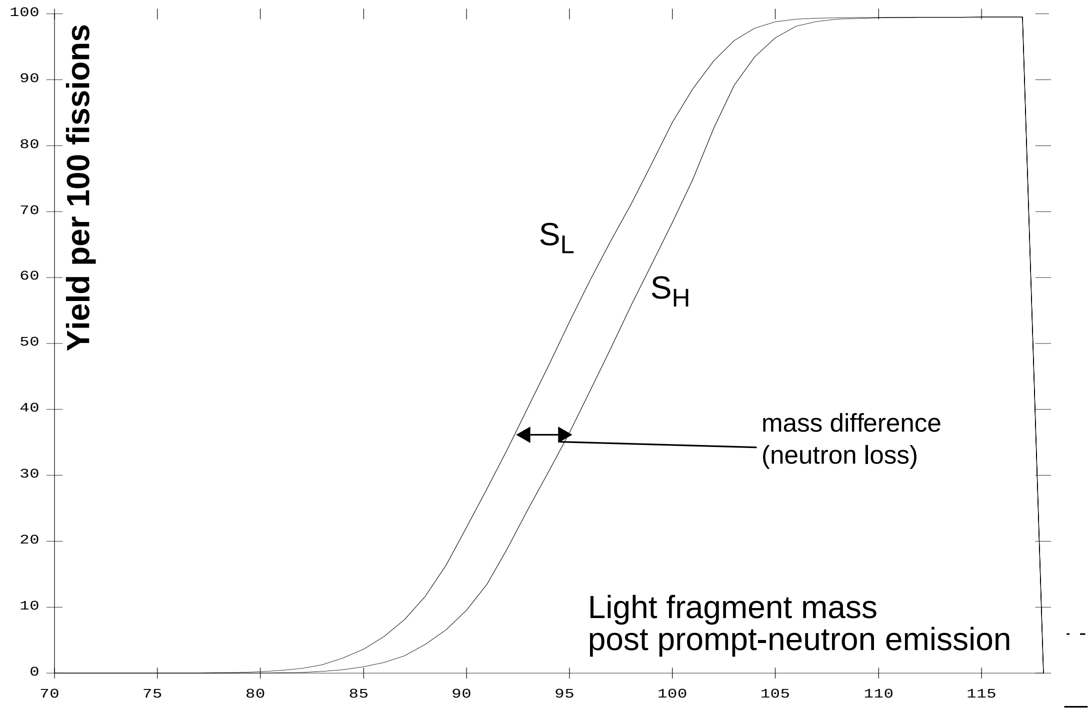
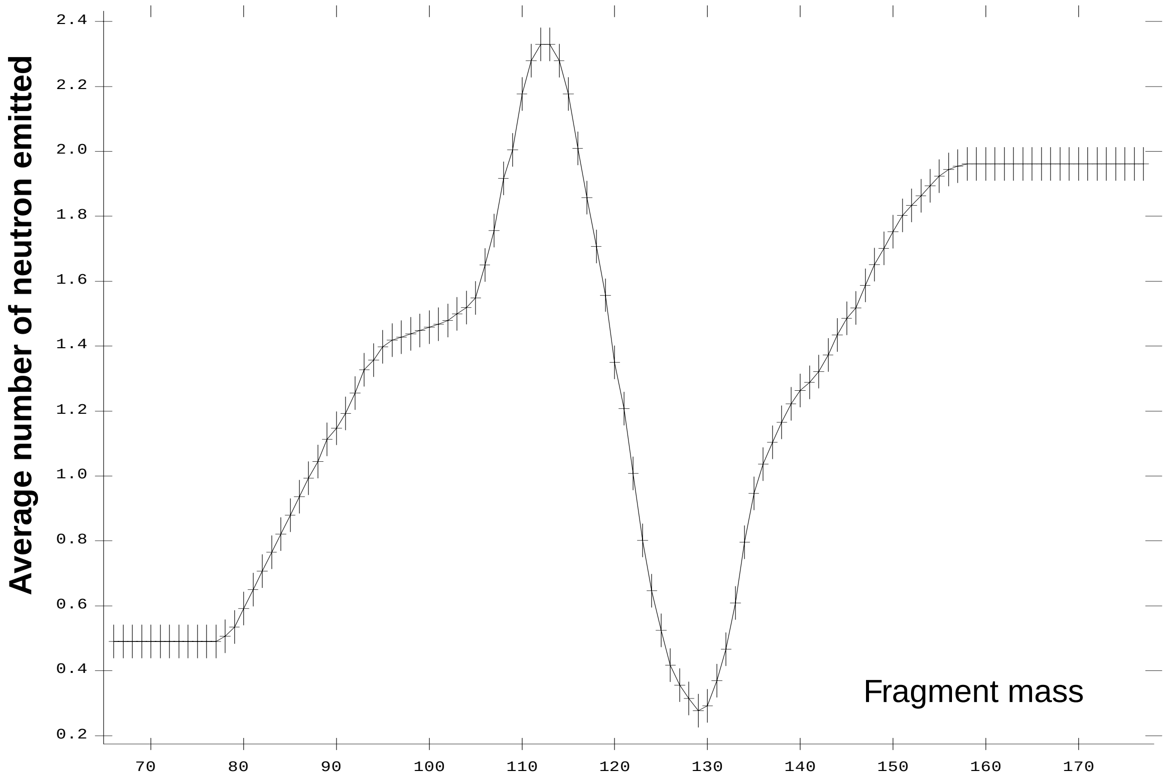


Figure 6.2: $\nu(A)$ for ^{235}U thermal neutron induced fission



Wahl's method can be used to determine the $\nu(A)$ function for any fissioning system where the chain yield distribution has either been measured or can be estimated.

The odd-even effect term, F(A,Z), is modelled by Wahl as a function of two parameters $\bar{\bar{F}}_Z$ and $\bar{\bar{F}}_n$. If the nuclear charge is even the proton term, $\bar{\bar{F}}_Z$, is used else the reciprocal $1/\bar{\bar{F}}_Z$ is used. Similarly with the neutron term $\bar{\bar{F}}_n$. Table 6.2, below, gives the F(A,Z) function for even and odd numbers of neutrons and protons.

Table 6.2: F(A) as a function of $\bar{\bar{F}}_Z$ and $\bar{\bar{F}}_n$

F(A,Z)	proton number Z	neutron number N
$\bar{\bar{F}}_Z\bar{\bar{F}}_n$	even	even
$\dfrac{\bar{\bar{F}}_Z}{\bar{\bar{F}}_n}$	even	odd
$\dfrac{\bar{\bar{F}}_n}{\bar{\bar{F}}_Z}$	odd	even
$\dfrac{1}{\bar{\bar{F}}_Z\bar{\bar{F}}_n}$	odd	odd

The ΔZ function of the model is approximated by a straight line function defined by the value of ΔZ at the post-prompt neutron emission mass 140 with a slope $\dfrac{\delta\Delta Z}{\delta A'_H}$.

i.e. $$\Delta Z(A'_H) = \Delta Z(A'=140) + \frac{\delta\Delta Z}{\delta A'_H}[A'_H - 140] \qquad \text{Eqn (6.14)}$$

Near symmetry Wahl[6.7] found the ΔZ, width and odd-even effect varied from the above equations. The model showing the approximation of the observed ΔZ for the high mass

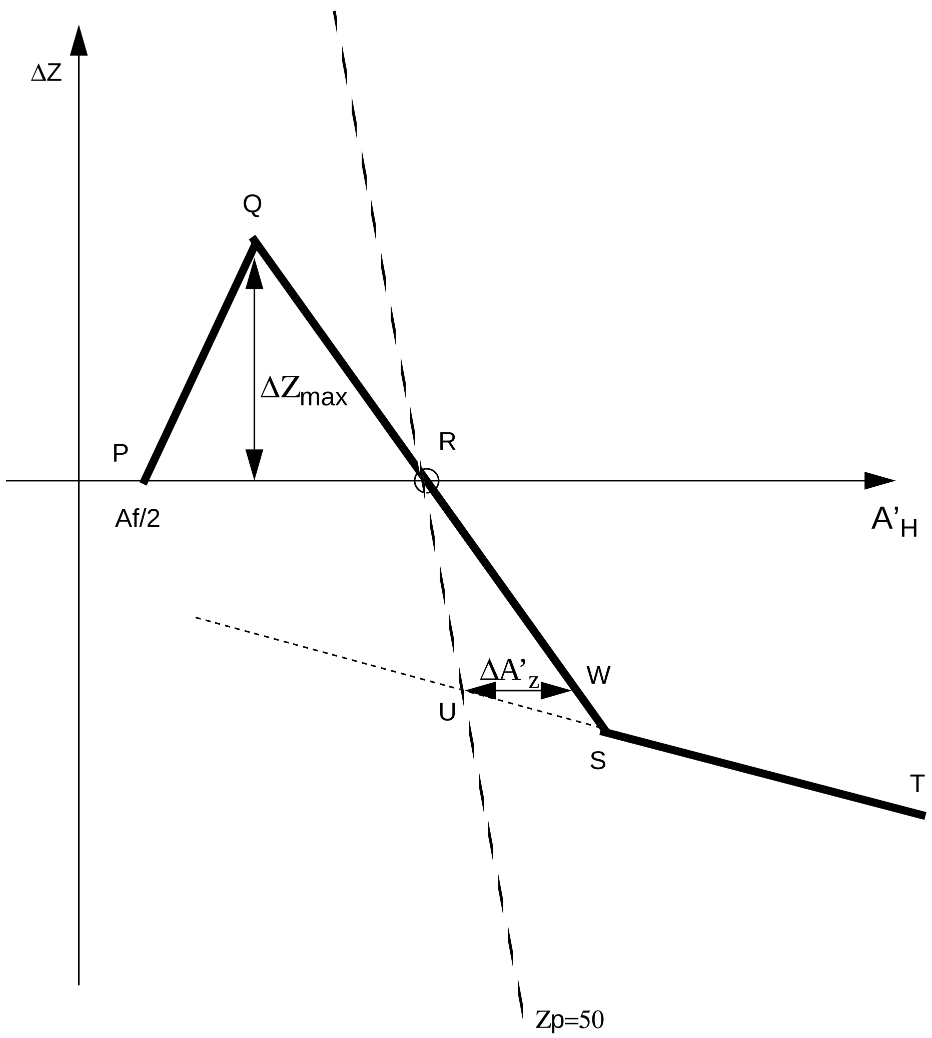
[6.7] Phys. Rev. C, 32, 184. A.C.Wahl (1985).

peak is shown in Figure 6.3.

The model based upon Wahl's analysis of his experimental database showed the ΔZ function to be described by two straight lines, PQ and QS, in the region near symmetrical fission (i.e. $A_f/2$), and one straight line outside of this region, ST.

The $\Delta Z(A_H)$ must, due to charge conservation, be equal to $-\Delta Z(A_{H_C})$. Thus at the joining of these two regions the ΔZ must equal zero. Therefore the ΔZ at $A_f/2$, point P, must be zero. Point R is defined from the empirical observation that where Z_p=50 the function ΔZ is indistinguishable from zero. These are the fixed points from which the other points are defined.

Figure 6.3: Variation of ΔZ near symmetry



Starting at the most asymmetric fission region, i.e. A'_H is at its highest value, the ΔZ is described by defined by Eqn (6.8). The line QR is defined by the value of ΔZ_{max} and $\Delta A'_Z$. $\Delta A'_Z$ is the change in mass from the intersection of the Zp=50 function and Eqn (6.8), and line QS. The point S is defined as intersection of Eqn (6.8) with the line obtained by extending from QR.

Wahl observed that the charge distribution width falls from $\overline{\sigma_Z}$ between Q and S, he defined the reduced width as $\overline{\sigma_{50}}$. Also Wahl's modelling showed F(A,Z) to be approximately equal to 1.0, i.e. no odd-even effect, from P to S.

The ΔZ function is defined by the points P and R where ΔZ equals zero, and the $\Delta Zmax$ and $\Delta A'z$ parameters combined with Eqn (6.8). As referred to above in the section on the mass yields due to complementary element charge conservation these effects are mirrored below symmetry. This is based upon the conservation of charge, before beta decay, in the splitting of the compound nucleus i.e. the charge in all the fragments must equal that of the compound nucleus.

6.3 Fitting the UKFY3 database to the Zp model

The UKFY3 fractional independent yields were fitted to the Wahl Z_p model using Fortran routines from the NAG library[6.8]. The method of fitting used are that of Gill and Murray[6.9].

From an initial guess of the 8 parameters $x^{(1)} = \left[x_1\ x_2\ \ldots x_8\right]$ of FI(A,Z) from Eqn (6.5) the fractional independent yields of the measured data is calculated and then the residuals are generated. By perturbing the elements of x, a direction or gradient matrix, p, with elements $\left[\frac{\partial R}{\partial x_1} \cdots \frac{\partial R}{\partial x_8}\right]$ is generated which contains the sensitivities of R, the sum of difference squared to changes in x at $x^{(1)}$. From this an improved estimate, $x^{(2)}$, is

[6.8] Numerical Algorithms Group library mark 15, NAG Ltd., Wilkinson House, Jordan Hill Road, Oxford, United Kingdom, OX2 8DR.

[6.9] J. Numer. Anal., 15, pp. 977-992. “Algorithms for the solution of the nonlinear least-squares Problem”, P.E.Gill and W.Murray. (1978).

generated by minimizing $R(x^{(1)}+\alpha p)$ with respect to α. Then, by iteration, improved estimates of x are determined using $x^{(k+1)}=x^{(k)}+\alpha^{(\kappa)}p^{(k)}$.

The $\nu(A)$ function used was taken from the ^{235}U thermal values reported by Wahl[6.4].

For UKFY2[1.4] the use of the Z_p model had incorrectly assumed that the $\Delta A'_z$ parameter was the mass difference between R and S[6.10], rather than as reported by Wahl the distance between R and W. Fortunately, when the model was corrected, the difference in the χ^2 values of the fits between the erroneous and corrected models did not change above the second decimal place.

In the UKFY2 analysis fractional independent yield data with low values were mostly discrepant. Thus a lower limit was set to remove these from the fit. For the UKFY3 the χ^2 value from least-squares fits was found to be sensitive to the lowest fractional independent value used in the fit.

However it was noticed whilst looking at the residuals of the fits that occasionally the same mass and charge yields were given twice in the data set; this occurred where both the total and the sum of isomer yields (ground, first metastable etc.) were available. Several of these repeated yields differed considerably, adding significantly to the total χ^2. Thus the following procedure was defined: where a yield was repeated a first fit was used to determine the more discrepant of then two yield; this one was then rejected, and a second fit produced using the remaining single measurement. This was done even though, in general, it was felt that removing experimental data just because it did not fit a model was never really justified. However, using the model to reject the most discrepant of **repeated** measurements was felt justifiable as these usually produce large discrepancies in the data and have large statistical uncertainties. Such a procedure should, however, only be used with great caution. The results of fitting the UKFY3 data by both methods is shown in Table 6.3.

[6.10] Private communication from A.C.Wahl (1993).

Table 6.3 Fitting to U235T using the UKFY2 routine and the new UKFY3 routine

Minimum fractional independent yield	number of measured yields after discrepant point removal	number of measured yields in database before discrepant point removal	χ^2 for UKFY2 model on UKFY3 data	No. of points differing by factor of two from model	Revised model χ^2	No. of points differing by factor of two from model
0.5	48	54	1.90	0	1.54	0
0.2	118	118	2.36	1	1.98	0
0.1	133	149	2.48	5	2.24	2
0.05	162	184	2.88	6	2.55	3
0.02	179	211	3.01	8	2.54	4
0.01	191	231	3.31	13	2.59	6
0.005	198	241	3.39	17	2.66	6
0.001	205	253	5.52	17	2.69	7
0.0	210	275	11.19	58	2.75	7

Having shown the new method gives a much better fit following removal of discrepant data, the new parameters were compared with previously published parameters. These are given in Table 6.4.

These results show no significant differences in the parameters between the UKFY3 results and Wahl fits, greater than three standard deviations. But the UK fits have larger uncertainties, especially for parameters determining the ΔZ in the mass region near symmetry. The results show the uncertainties of the different UK fits to be similar, this is probably due to the fact that the UKFY3 database was developed from UKFY2. Wahl's experimental database is independent of the UK file, although both are obviously based on those results published in the open literature. But the two files are processed differently and adjustments to the experimental data due to improved standard yield data, or corrected decay data etc., will be different. Also the two files will not necessarily contain all the results analysed in the other.

Table 6.4 Fits for thermal neutron induced fission of U235 from this and previous works.

Parameter	Wahl (1988)	UKFY2 (1990)	UKFY3 (UKFY2 method) (1994)	UKFY3 (Wahl model) (1994)
$\Delta Z(A'=140)$	-0.511 ± 0.005	-0.523 ± 0.012	-0.5173 ± 0.013	-0.5329 ± 0.009
$\frac{\delta \Delta Z}{\delta A'_H}$	-0.008 ± 0.001	-0.008 ± 0.002	-0.0063 ± 0.0014	-0.0066 ± 0.0009
$\overline{\sigma_z}$	0.531 ± 0.004	0.5460 ± 0.0112	0.5334 ± 0.011	0.5368 ± 0.0042
$\overline{\sigma_{50}}$	0.33 ± 0.02	0.35 ± 0.02	0.3538 ± 0.021	0.3449 ± 0.023
$\overline{F_z}$	1.27 ± 0.01	1.2776 ± 0.026	1.269 ± 0.026	1.294 ± 0.024
$\overline{F_N}$	1.07 ± 0.01	1.077 ± 0.022	1.079 ± 0.022	1.077 ± 0.020
$\Delta A'_z$	0.9 ± 0.2	0.941 ± 0.260	0.998 ± 0.25	0.7 ± 0.43
ΔZ_{max}	0.7 ± 0.1	0.69 ± 0.24	0.695 ± 0.23	0.6614 ± 0.64
reduced[a] χ^2	1.9	2.61	2.88	2.69
minimum fiy	-	0.05	0.05	-
number of measurements	258[b]	145	162	210

a. Reduced χ^2 is defined as $\left(\frac{1}{n}\sum\frac{(y_i - y_{calc})^2}{\sigma_i}\right)^{\frac{1}{2}}$

b. Including 21 measurement which are limits

The UKFY3 fitting routine was then applied to the other fissioning systems with more than 30 experimentally measured yields; the corresponding $\nu(A)$ function was estimated by multiplying the ^{235}U thermal neutron fission values by the ratio of the system's $\bar{\nu}_p$ value over the ^{235}U thermal neutron fission value. This approximation has been shown during the fitting procedure for UKFY2 to have little effect on χ^2.

The three fissioning systems of ^{235}U thermal, fast and 14MeV (high energy) neutron induced fission were fitted, the results being shown in Table 6.5. An attempt to fit all the parameters of the model failed for all but the thermal neutron fission of ^{235}U. The parameters which did not converge in the other systems were fixed to the ^{235}U values and the fitting procedure repeated. The parameters where the values from the thermal neutron fission of ^{235}U were used are shown in the following table in brackets. It should be noted that these parameters are those defined around symmetry which have low yields and are thus are difficult to measure.

Table 6.5 Parameters from fitting ^{235}U at thermal, fast and High energies.

Parameter	U235T	U235F	U235H
$\Delta Z(A'=140)$	-0.5329 ± 0.009	-0.418 ± 0.1	-0.229 ± 0.1
$\frac{\delta \Delta Z}{\delta A'_H}$	-0.0066 ± 0.001	-0.022 ± 0.001	-0.010 ± 0.001
$\overline{\sigma_z}$	0.5368 ± 0.0042	0.503 ± 0.002	0.620 ± 0.009
$\overline{\sigma_{50}}$ [a]	0.3449 ± 0.023	(0.3449)	0.169 ± 0.05
$\overline{F_z}$	1.294 ± 0.024	1.046 ± 0.02	1.05 ± 0.02
$\overline{\overline{F_N}}$	1.077 ± 0.02	1.046 ± 0.02	1.06 ± 0.02
$\Delta A'_z$ [a]	0.7 ± 0.43	(0.7)	(0.7)
ΔZ_{max} [a]	0.6614 ± 0.64	(0.6614)	(0.6614)
reduced χ^2	2.69	2.02	2.29
minimum fiy	-	0.05	-
number of measurements	210	48	30

a. values in brackets could not be fitted directly and the U235 thermal neutron induced fission results were used with these values kept constant during the fit.

Of the other systems, only ^{229}Th, ^{233}U and ^{239}Pu for thermal neutron induced fission were fitted successfully. These results are shown in Table 6.6.

Table 6.6 Parameters from fitting U233, Pu239 and Th229 yields for thermal neutron fission.

Parameter	U233T	Pu239T	Th229T
$\Delta Z(A'=140)$	-0.573 ± 0.01	-0.493 ± 0.05	-0.713 ± 0.01
$\frac{\delta \Delta Z}{\delta A'_H}$	-0.014 ± 0.003	-0.013 ± 0.002	-0.011 ± 0.001
$\overline{\sigma_z}$	0.571 ± 0.004	0.566 ± 0.002	0.522 ± 0.0002
$\overline{\sigma_{50}}$ [a]	0.47 ± 0.07	0.556 ± 0.004	(0.3449)
$\overline{F_z}$	1.259 ± 0.02	1.149 ± 0.02	1.60 ± 0.02
$\overline{F_N}$	1.054 ± 0.02	1.051 ± 0.02	1.070 ± 0.02
$\Delta A'_z$ [a]	(0.7)	(0.7)	(0.7)
ΔZ_{max} [a]	(0.6614)	(0.6614)	(0.6614)
reduced χ^2	3.16	2.13	1.67
minimum fiy	0.05	0.05	0.05
number of measurements	100	85	48

a. values in brackets could not be fitted directly and the U235 thermal neutron induced fission results were used with these values kept constant during the fit.

Thus six systems have been successfully fitted using the experimental data in the UKFY3 database. However to extend these fits to encompass the 39 systems required for applications it is necessary to interpolate and extrapolate these parameters to derive values appropriate to the other cases.

From the results $\frac{\delta \Delta Z}{\delta A'_H}$, $\overline{\sigma_z}$, $\overline{\sigma_{50}}$, $\overline{F_N}$, $\Delta A'_z$ and ΔZ_{max} did not show significant variation or could only be to be fitted for one system, and thus weighted means of -0.01, 0.5, 0.4, 1.06, 0.7 and 0.6614 respectively are recommended. The $\overline{F_z}$ parameter for fast and high energy neutron induced fission of ^{235}U appears to be constant at 1.05, but for thermal fission shows variation with nuclear charge, which can be approximated by a straight line

$$\overline{F_z} = 1.29 - 0.07(Z_f - 92) \qquad \overline{F_z} \geq 1.0 \qquad \text{Eqn (6.15)}$$

In a similar fashion $\Delta Z(A'=140)$ shows variation with nuclear charge, which can be approximated for different neutron energies by the following:

$$\Delta Z(A'=140) = -0.55 + 0.03(Z_f - 92) \qquad \text{For Thermal} \qquad \text{Eqn (6.16)}$$

$$\Delta Z(A'=140) = -0.42 + 0.03(Z_f - 92) \qquad \text{For Fast} \qquad \text{Eqn (6.17)}$$

$$\Delta Z(A'=140) = -0.23 + 0.03(Z_f - 92) \qquad \text{For High Energy} \qquad \text{Eqn (6.18)}$$

$$\Delta Z(A'=140) = -0.55 + 0.03(Z_f - 92) \qquad \text{For Spontaneous} \qquad \text{Eqn (6.19)}$$

It should be noted that the energy and nuclear charge dependencies are assumed independent of each other as only one fission nuclide (^{235}U) has been measured at more than one neutron energy.

Thus, it is possible using the above parameters to estimate the charge distribution parameters for any fissioning system. It should be noted, however, that interpolated or extrapolated values will be less accurate than fitted values.

As only six systems have been actually fitted and the remainder rely on extrapolation or interpolated results it is useful to have a test of the cases using interpolated or extrapolated data to justify the parameters. One test that is highly sensitive to the charge distribution is a summation calculation of the total delayed neutron per fission. This process involves the calculation of $\overline{\nu_d}$ by summing the expected delayed neutron yield based on the P_n value for individual precursors for which the yield is based on the parameters. The results of calculations using these parameters are discussed in chapter 10.

6.4 Other independent yield models

The only other model that is currently used to describe independent yields is the Wahl A_p' model[6.4]. This is similar to the Z_p model but with a Gaussian distribution over product mass rather than charge. The A_p' model consists of 15 parameters but in Wahl's work this model gave a slightly worse reduced χ^2 for the thermal neutron induced yield of ^{235}U. Wahl also used the number of model calculations within one standard deviation of the experimental results to test the fit. This showed a slight improvement for the A_p' model for this one fissioning system. However for all the other fitted systems the Z_p model showed improvements for both statistics. Due to time constraints this model was therefore not studied.

However recent work by Wahl[6.11] has shown that the A_p' model can describe some unusual features recently observed experimentally at extreme asymmetric masses. These experiments show that the charge distribution appears to have two separate peaks for very asymmetric masses. When this new experimental data is published it will be interesting to examine the A_p' model to see if it then gives an improvement in the region of extreme asymmetric masses.

6.5 Discussion

At this point it is interesting to discuss the trends found for the Z_p model and to compare these with those developed by Wahl. It is also possible to speculate as to the cause of these charge distribution phenomena.

Wahl[6.12] used an extrapolation technique based upon the function:

$$P = \alpha + \beta(Z_F - 92) + \gamma(A_{F-236}) + \delta(\bar{\nu}_p - 2.42) \qquad \text{Eqn (6.20)}$$

where P is the parameter function being extrapolated. The α term being constant, the β

[6.11] Private communication from A.C.Wahl. (1994).
[6.12] "Nuclear mass and charge distributions from fission" by A.C.Wahl, presented at the "50 years with nuclear fission" meeting at Gaithersburg, U.S.A on the 25-28 April 1989.

being charge dependent, the γ being mass dependent and the δ being related to $\overline{\nu_p}$ which is related to the incident neutron energy (and thus the compound nucleus excitation).

Wahl demonstrated trends in three parameters of the Zp model as shown in Table 6.7

Table 6.7 Wahl fitting of Zp parameters to Eqn (6.20)

Parameter	α	β	γ	δ
$\bar{\sigma}_Z$	0.534 ± 0.004	0.016 ± 0.006	-0.007 ± 0.003	0.051 ± 0.015
$\Delta Z(A'=140)$	-0.506 ± 0.012	-0.062 ± 0.020	0.019 ± 0.009	0.068 ± 0.038
$\bar{F}_Z$	-1.269 ± 0.013	-0.016 ± 0.012	~0.0	-0.143 ± 0.039

Within the parameter uncertainties; the UKFY3 fitting could not determine any mass dependence of the parameters whereas Wahl found minor effects.

Wahl found a trend for $\bar{\sigma}_Z$ whereas the few systems fitted in this analysis did not show a consistent trend in mass, charge or energy for this parameter.

Like Wahl the $\bar{F}_Z$ function was found to decrease with increasing excitation energy and increasing nuclear charge. However the $\Delta Z(A'=140)$ function of Wahl decreased with increasing charge and increased with increasing energy. These are the opposite to the effect seen in the UKFY3 fitting.

These effects, however, are of the order of the uncertainties of the parameters and, considering the small range of mass and charge over which fitting was possible for UKFY3, these differences are therefore not unreasonable. It would be useful in future work to seek to extend the range of mass and charge, the most likely candidate system being ^{252}Cf spontaneous fission. This system having a significant number of measurements, but insufficient to produce a reasonable fit. This system would significantly increase the mass and charge ranges of the nuclei undergoing fission allowing more careful studies of these effects on the Z_p parameters.

Any theoretical model that attempts to explain the charge distribution must explain the trends modelled by the Wahl Z_p model. Thus, if we consider the main terms individually, it is interesting to make qualitative comments on current theories.

The width in the charge distribution could be viewed as a consequence of random neck rupture. Using the Brosa model the neck region where rupture can occur will have a certain mass. If the charge to mass ratio in the neck is similar to that in the overall compound nucleus then the symmetrical channel which has a greater mass width will have a greater charge width. However this disagrees with the results of Wahl and this work where the symmetrical splitting has a smaller width than the asymmetrical. The charge width, using the unchanged charge distribution, could also be calculated as the width of the mass distribution multiplied by the charge to mass ratio for ^{235}U neutron induced fission. This would suggest a charge width of 2.6, which is a factor of five larger than that observed experimentally. This suggests that the neck must be relatively deficient in protons compared to the two fragments.

Turning to the deviation from the Wahl (1988) Z_p model parameter ΔZ. If the charge to mass ratios of the fragments are the same as the compound nucleus, then ΔZ must be zero. However this is not seen except at $A_f/2$ and at Z_p=50 (the shell model 50 proton shell closure).

Some of these effects can be explained qualitatively using the following simple model. If the fissioning nucleus is modelled as two conducting spheres joined by a thin wire with the charge as a solely surface charge. Then the charge, if free to distribute between the fragments, can be approximated as being distributed between the two spheres in ratio to the surface area[6.13], if neck effects are ignored.

As the total mass is proportional to the radius of the nucleus then the total mass of the fissioning nucleus A_f is equal to the volumes of the two fragments (assuming the neck

[6.13] "The Feynman lectures on Physics, Volume II", R.P.Feynman, R.B. Leighton and M.Sands (1966).

has insignificant volume)

$$\alpha\left(\frac{4}{3}\pi\, r_h^3 + \frac{4}{3}\pi\, r_l^3\right) \qquad \text{Eqn (6.21)}$$

where α is the density, r_h is the radius of the heavy fragment and r_l is the radius of the light fragment.

As the mass of the light fragment is given by

$$A_l = \alpha\frac{4}{3}\pi r_l^3 \qquad \text{Eqn (6.22)}$$

thus the radius of the light fragment is:

$$r_l = \sqrt[3]{\frac{3A_l}{4\pi\alpha}} \qquad \text{Eqn (6.23)}$$

The charge on the light fragment is given by

$$Z_l = \beta 4\pi r_l^2 \qquad \text{Eqn (6.24)}$$

where β is the charge density of the surface of the spheres.

Thus

$$Z_l = \beta(4\pi)\left(\frac{3A_l}{4\pi\alpha}\right)^{\frac{2}{3}} \qquad \text{Eqn (6.25)}$$

Hence the ratio of the light to the heavy fragment charges is given by

$$\frac{Z_l}{Z_h} = \frac{\beta(4\pi)\left(\frac{3A_l}{4\pi\alpha}\right)^{\frac{2}{3}}}{\beta(4\pi)\left(\frac{3A_h}{4\pi\alpha}\right)^{\frac{2}{3}}} = \left(\frac{A_l}{A_h}\right)^{\frac{2}{3}} \qquad \text{Eqn (6.26)}$$

Thus, as charge is conserved, $Z_f = Z_l + Z_h$;

$$\frac{Z_f - Z_h}{Z_h} = \left(\frac{A_l}{A_h}\right)^{\frac{2}{3}} \qquad \text{Eqn (6.27)}$$

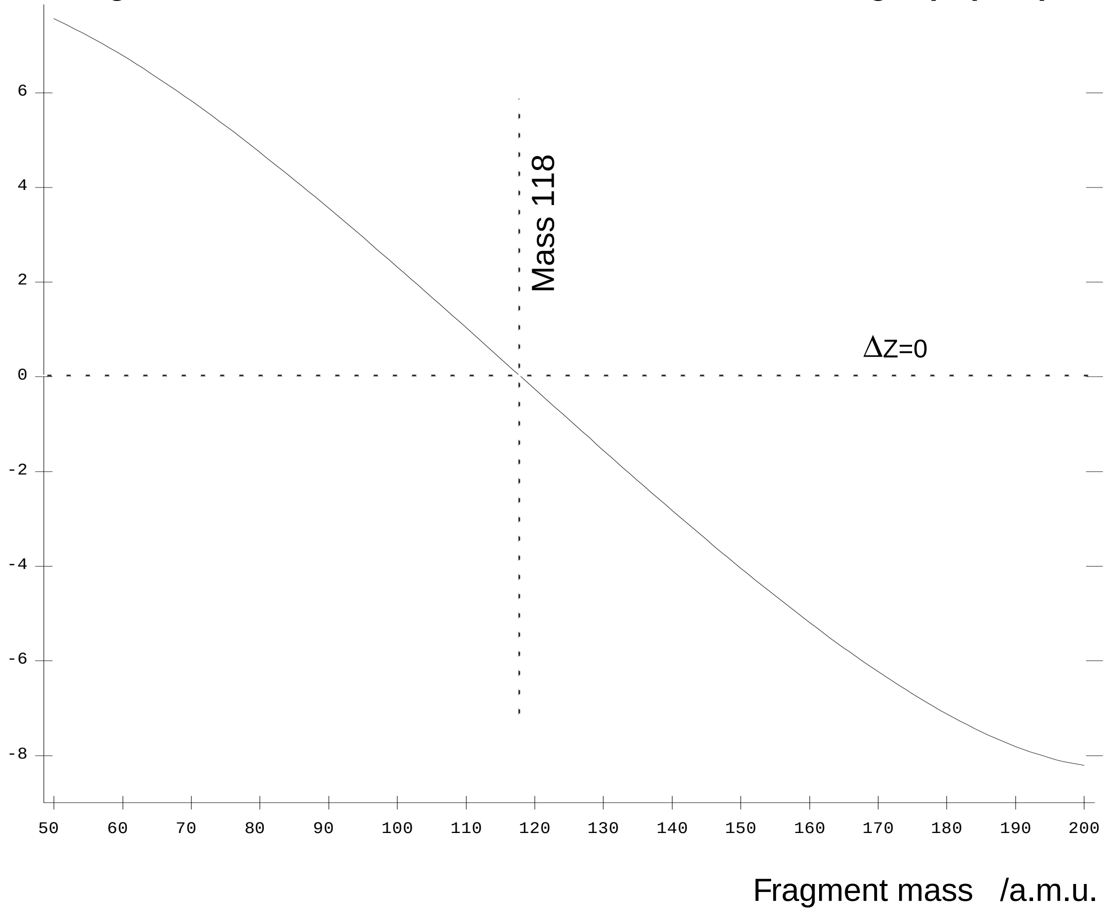
Which simplifies to

$$Z_h = \frac{Z_f}{\left(\frac{A_l}{A_h}\right)^{\frac{2}{3}} + 1} \qquad \text{Eqn (6.28)}$$

Thus, for a given mass splitting, the charge can be calculated and hence the mass to charge ratio together with its deviation from the unchanged charge distribution can be determined.

If we consider the thermal neutron fission yields of ^{235}U with the mass split of 96 and 140, Eqn (6.28) give a Z_h of 51.75 and Z_l of 40.25. This gives the ΔZ at mass 140 to be -2.82. As mass is also conserved before the post-scission prompt neutron emission, the ΔZ can be calculated for different mass splits.

Figure 6.4: Calculation of ΔZ for fission of ^{235}U using Eqn (6.28)



This simple model has several interesting features. Firstly the heavy fragment is charge deficient compared to the compound nucleus as shown by experiment. Secondly the data form an almost straight line, as has been shown by Wahl to apply in the asymmetrical region. However the simple model gives a calculated ΔZ which is a factor of six too large and the slope of the ΔZ line is sixteen times the value from experiment.

If on the other hand surface charge is not the total nuclear charge but just a fraction, then the ΔZ will be reduced by this factor. Thus if only a sixth of the charge were mobile and near the surface of the nucleus, modelled as a liquid drop, the effect would now be near the experimental value. However the slope would still be over-estimated by around 50%; this could be explained by the abrupt changes in ΔZ near symmetry shown in Figure 6.3 which appear to be a result of nuclear shell effects.

This model of a conducting sphere has many differences from a real compound nucleus which consists of a finite number of particles. The coulomb force is dominated by the strong nuclear forces and thus only a small fraction of the charge is on the surface.

The odd-even effect also appears to be directly related to the influence of shell effects on the binding of the proto-fragments. However these odd-even effects, related to the formation of proto-fragments which then fission, have yet to be completely explained by nuclear theory.

7 Independent Yield Isomeric Splitting

7.1 Introduction

In the previous chapters the mass and charge distributions of fission product yields have been examined. To complete the determination of independent yields it is necessary to consider the isomeric states of the product nuclei. The formation of the isomeric state, I, is described in this work by the fraction of the total independent yield of (A,Z) that is formed as the isomer, I. Alternatively the ratio of the independent yields for the metastable and ground states can be used, but this is not useful when more than one isomer of the nuclide exists.

Initially it is necessary to describe and define the isomeric states. Each nucleus of mass A and charge Z will have a set of possible states each with a defining set of quantum numbers as described, for example, by the "Shell Model"[7.1]. Each of these states will have a characteristic energy level. The state with the lowest energy level is called the ground state (from the German "grund" meaning fundamental). The excited states, with more internal energy than the ground state, can undergo transitions towards the ground state by emitting photons, or to a state of another nuclide by emitting particles.

If there is insufficient energy for an excited nucleus to emit particles directly, i.e. it is in a bound state, then either a particle can quantum-mechanically tunnel from the nucleus (alpha decay) or a photon can be emitted. Emitted photons will carry away from the nucleus excitation energy and angular momentum but not mass. The photon must carry away integral units of angular momentum, so a nucleus can lose excitation energy by emitting a photon if the transition occurs between states which differ by whole units of angular momentum. The probability of such a single transition between two states decreases with increasing difference in angular momentum and decreasing energy difference between the states[1.7].

Consider fission fragments immediately after fission. The highly excited fragments which

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[7.1]"Quantum physics of atoms, molecules, solids, nuclei and particles", R.Eisberg and R.Resnick, John Wiley and Sons (1974) ISBN 0-471-23464-8 have too many neutrons for stability, high internal energy and high angular momentum will first evaporate off prompt neutrons, each taking ~8 MeV in binding energy. When the fragments have insufficient energy to emit further neutrons the excited nuclei will undergo a cascade of rapid gamma decays towards the ground state. These transitions will occur preferentially between states that differ by one unit of angular momentum until either the nucleus obtains the ground state configuration or only the slower higher order angular momentum transitions with low excitation energy differences are possible.

The excited nuclei can either decay rapidly to the ground state or become “trapped” in states where transitions to lower states have low energy and high angular momentum differences. There is a wide range of state lifetimes from picoseconds to millions of years, but no clear dividing line between “rapid” and “slow” transitions. However, by convention and taking account of the practicalities of measuring decay properties of these states, states with half-lives greater than 1 millisecond are considered as separate identities and are called isomers, or metastable (near stable states).

These metastable states can either undergo slow gamma transitions towards the ground state, or decay by particle emission or electron capture to excited states of other nuclei. If the different possible decay modes have similar probabilities of decay per unit time there is competition between these modes, governed by the rates of internal state transition and quantum mechanical phenomena such as particle interaction.

The different isomers of a nucleus can have considerably different decay properties i.e. decay modes, average decay energies, branching ratios, photon (or particle) emissions and half-lives. The decay data from the JEF2.2 file[1.8] show isomeric states can vary in half-life from 1.01 ms (^{184m}Pt) to 3.0 million years (^{210m}Bi).

There can be also more than one metastable state for a nucleus. Where two metastable states exist, they are usually called the first and second metastable states, and are denoted by m and n respectively. The state numbering is in ascending order of excitation energy from the ground state. This ordering is sometimes difficult to determine where lack of experimental data has not allowed a full determination of the level structure. The JEF2.2 file includes 471 first excited states and 34 second excited states, many of these isomeric nuclei being within the fission product region.

Isomeric states and their relative yields from nuclear reactions are very important for calculations of nuclide inventory, decay heat and emitted radiations. For integral properties of fission products the individual isomeric splits are not directly important except where only a few fission products contribute to the total result. This may be at long times or, more importantly, for isomers at short times where the integral property is dominated by a few individual nuclides due to their activities. An example of this is the beta decay heat between 10 and 10000 seconds where James[7.2] whilst studying the effect of decay branching ratios on decay heat calculations for fission bursts showed that for the total decay heat output in this time region the dominant factor was the decay branching of one fission product, ^{134}I.

Another example of isomeric splitting comes from studies of minor actinide “incineration”. A ground and metastable state of ^{242}Am both exist and which are formed by neutron capture from ^{241}Am[7.3]. The capture reaction, to both states, has a 2200m/s cross-section of 630.7 barns, for the production of both states. The metastable state decays 99.5% by internal transition to the ground state with a half-life of 141 years. The ground state then decays much faster with a half-life of 16 hours with 82.7% going to ^{242}Cm and 17.3% to ^{242}Pu. These nuclides and their daughters contribute to the long and short lived components of spontaneous fission and, depending upon chemical composition, (α,n) reactions. A significant fraction of the neutron emission from the “incinerated” minor actinides after irradiation will depend upon the ratio of the ^{241}Am capture reaction to the metastable state. A higher branching to ^{242m}Am will “hold-up” the production of the neutron emitters reducing neutron emission in the short term (under a hundred years) but increasing the emission at longer times. This isomeric splitting ratio will thus directly affect the shielding and handling precautions involved in actinide incineration. These safety precautions will directly affect the cost of such procedures and

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[7.2] “The calculation of sensitivities of nuclear inventories and decay power”, M.F. James.NEACRP-302 ‘L’ p289-301 (1987)

[7.3] “Some remarks about the ^{241}Am capture cross-sections and branching ratios”, S.Cathalau, R.Soule and A. Benslimane. Private communication (1994).

may determine if this route is a viable method of disposing of actinide waste from the nuclear industry.

7.2 Experimental isomeric splitting data in the UKFY3 database

There exist few experimental data on the independent yields to different isomeric states, but there are a large number of fission products with isomeric states. The JEF2.2 file contains 388 fission product nuclides with two isomers and 21 with three. Thus some model is necessary to produce a complete set of R(A,Z,I) so that independent yield sets can be calculated.

The UKFY3 database contains independent yields for 81 nuclides where at least one metastable state yield as well as the ground state yield has been measured. As discussed in the previous chapter the fractional independent yield analysis has shown a large proportion of discrepant data, especially for yields of isomeric states. Some of these discrepancies may depend upon the identification of the isomeric states. However checks of the data from the measurement as entered into the database and further subsequent checking has failed to clear up such errors. It should be born in mind that some references do not describe the measurements with sufficient detail to be able to see the effect on their analyses of using the latest state designations. Apart from incorrectly identified states, differences can come either from the experimental procedures or the nuclear data used during the course of the measurement (such as branching ratios, half-lives and P_γ's).

In the UKFY3 database only 17 of the 81 nuclides with multiple isomers have more than one experimental measurement of each state. These multiple measurements allow an external standard deviation to be calculated to act as a check of the data. The ratio of the independent yield of the higher isomer to the total independent yield of the isomer and ground state of a nuclide calculated for these 17 nuclides from UKFY3 are shown in Table 7.1

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Table 7.1: Isomeric splitting from the analysed UKFY3 database

System	nuclide	metastable/ Total	Standard deviation
U233T	131-Te-52	0.6755	0.0922
U233T	132-I-53	0.4143	0.0583
U233T	133-Te-52	0.6549	0.1841
U233T	135-Xe-54	0.5866	0.1141
U233T	148-Pm-61	0.7773	0.0907
U235T	128-Sn-50	0.1991	0.1128
U235T	128-Sb-51	0.5606	0.1280
U235T	130-Sb-51	0.5011	0.1202
U235T	131-Te-52	0.6796	0.0900
U235T	132-Sb-51	0.4404	0.0898
U235T	132-I-53	0.3855	0.0629
U235T	133-Te-52	0.6515	0.0966
U235T	134-I-53	0.2922	0.0219
U235T	135-Xe-54	0.6434	0.0579
U235T	136-I-53	0.8026	0.1735
U235T	148-Pm-61	0.0005	0.0008
Pu239T	135-Cs-54	0.6055	0.0658

In the experimental database there also exist direct measurements of the fractional independent yield of metastable relative to the total nuclide yield. These are shown in Table 7.2, the measurement reference numbers are those given in appendix A.5.

Table 7.2 Direct measurements of isomeric splitting ratios

Fissioning nuclide	mode of fission	Product	M/(G+M)	% error	Reference number
Th232	Thermal neutron	134-I-53	0.4700	10.0	2114
Th232	25MeV γ	134-I-53	0.5700	15.0	2083
Th232	Thermal neutron	136-I-53	0.7100	10.0	2114
U233	Thermal neutron	132-I-53	0.2920	30.0	2064
U233	Thermal neutron	134-I-53	0.4920	7.0	2064
U233	Thermal neutron	138-Cs-55	0.5294	3.5	2006
U235	Thermal neutron	90-Rb-37	0.8969	5.0	12945
U235	Thermal neutron	95-Nb-41	0.7519	2.3	2037
U235	Thermal neutron	132-Sb-51	0.1942	34.8	20878
U235	Thermal neutron	132-I-53	0.4460	10.0	2064
U235	Thermal neutron	132-I-53	0.7319	6.8	2037
U235	Thermal neutron	133-Xe-54	0.2593	124.8	30666
U235	25MeV γ	134-I-53	0.5300	10.0	2083
U235	Thermal neutron	134-I-53	0.4120	10.0	2064
U235	Thermal neutron	135-Xe-54	0.6428	2.0	20848
U235	Thermal neutron	135-Xe-54	0.6897	7.2	30666
U238	25MeV γ	134-I-53	0.5200	15.0	2083
Pu239	Thermal neutron	132-Sb-51	0.7519	3.0	20878
Pu239	Thermal neutron	132-I-53	0.4030	10.0	2064
Pu239	Thermal neutron	134-I-53	0.3940	12.0	2064
Pu239	Thermal neutron	135-Xe-54	0.6552	4.1	20848
Pu239	Thermal neutron	138-Cs-55	0.1687	42.2	2006
Pu239	Thermal neutron	138-Cs-55	0.6875	3.8	20848
Pu241	Thermal neutron	132-Sb-51	0.2260	20.0	2075
Pu241	31MeV α	132-Sb-51	0.4630	10.0	2075
Pu241	38MeV α	132-Sb-51	0.4390	20.0	2075
Pu241	Thermal neutron	132-I-53	0.4500	10.0	2064
Pu241	Thermal neutron	134-I-53	0.3620	10.0	2064
Pu241	Thermal neutron	138-Cs-55	0.3500	23.4	2006
Cm245	Thermal neutron	132-I-53	0.4820	10.0	2064
Cm245	Thermal neutron	134-I-53	0.3620	17.6	2064
Cf249	Thermal neutron	132-Sb-51	0.6780	5.2	20878
Cf252	Spontaneous	90-Rb-37	0.7778	3.2	21579
Cf252	Spontaneous	132-I-53	0.5250	10.0	2064
Cf252	Spontaneous	133-Te-52	0.7778	30.0	2073
Cf252	Spontaneous	134-I-53	0.5490	12.0	2064
Cf252	Spontaneous	138-Cs-55	0.5652	9.8	21579

It should be noted that the yields in this table do include discrepant data.

The experimental isomeric splitting data in these two tables can be used to test predictive models.

7.3 Madland and England (M&E) model

The only basic model that currently exists which aims to predict the splitting of the independent yields between isomers without detailed information on nuclear structure is that developed by Madland and England[7.4][7.5].

To calculate the isomeric ratios precisely would require calculations of the nuclear cascade from the initial fission fragments to the long lived isomeric states[7.5]. This would require a complete knowledge of the fission fragments, their neutron and gamma emission probabilities and a complete description of the isomeric states of the final nuclides. Although it would be possible to complete such calculations for a few nuclides if reasonable assumptions were made about the fission fragment properties, for most fission product nuclides too few level data exist.

Madland and England therefore developed an approach based upon a statistical model calculation of the fission fragments' average angular momentum. They assumed that R(A,Z,I) is determined by integrals over the distribution P(J) of levels of spin J in the fragment.

The statistical model [7.6][7.7] predicts

$$P(J) = \text{constant } x(2J+1)e^{\left[-\frac{\left(J+\frac{1}{2}\right)^2}{<J^2>}\right]} \qquad \text{Eqn (7.1)}$$

where $J_{rms} = (<J^2>)^{1/2}$ characterizes the angular momentum of the initial fragment.

[7.4] "The influence of isomeric states on independent fission yield production", D.G.Madland and T.R.England. Nuclear Science and Engineering, 64, 859-865 (1977)
[7.5]"Distribution of independent fission product yields to isomeric splitting", D.G.Madland and T.R.England. LA-6595-MS. (1976)
[7.6] H.A.Bethe, Rev. Mod. Phys., 9, 84 (1937).
[7.7] C.Bloch, Phys. Rev., 93, 1094 (1954).

Two further assumptions are needed for the calculation of the isomeric splitting. Firstly, that the parameter J_{rms} is assumed to be constant for all fragment masses in the neutron induced fission of all actinide systems, but to vary with incident energy. Secondly, the branch mechanism is that fragments with J values near to that of the isomeric state value, J_m, gamma decay to the isomeric state and similarly for those near the ground state. The fragments exactly between J_g and J_m divide equally between the two states. The mechanism is dependent on the observation that transitions between states with the smaller ΔJ are always strongest. Madland and England also noted that their model ignores neutron emission from the fragments and quantum mechanical selection rules for transitions.

Thus if $J_m > J_g$ then

$$\frac{y(A, Z, m)}{y(A, Z, g) + y(A, Z, m)} = \frac{\int_{J_c}^{\infty} P(J)dJ}{\int_{0 \text{ or } 1/2}^{\infty} P(J)dJ} \qquad \text{Eqn (7.2)}$$

or conversely if $J_m < J_g$

$$\frac{y(A, Z, g)}{y(A, Z, g) + y(A, Z, m)} = \frac{\int_{J_c}^{\infty} P(J)dJ}{\int_{0 \text{ or } 1/2}^{\infty} P(J)dJ} \qquad \text{Eqn (7.3)}$$

The isomeric splitting ratio R(A,Z,I) can thus be calculated. The ratio will depend upon whether $J_m < J_g$ or $J_m > J_g$, the fission product mass is odd or even, and $|J_m-J_g|$ is odd or even.

J_c is determined such that fragments exactly between the states divide equally between both. If A is even then the lower limit of the integral is 0 or if odd then 1/2. Also if $|J_m-J_g|$ is odd then J_c=1/2 (Jm+Jg+1) or conversely if $|J_m-J_g|$ is even then J_c=1/2 (Jm+Jg+2).

Thus eight separate cases must be considered to determine R(A,Z,m) either directly from Eqn (7.2) if $J_m > J_g$, or as 1 - R(A,Z,g) from Eqn (7.3) if $J_m < J_g$. Madland and England[7.5][7.4] derive eight formulae to calculate the ratio, r(A,Z) = y(A,Z,m)/y(A,Z,g).

These formulae, converting to R(A,Z,m), are given in Table 7.3

Table 7.3: Formulae to calculate R(A,Z,m)

$J_m > J_g$	A	$\lvert J_m - J_g \rvert$	Formulae to calculate R(A,Z,m)
yes	odd	even	F_1
yes	odd	odd	F_2
yes	even	even	F_3
yes	even	odd	F_4
no	odd	even	$1-F_1$
no	odd	odd	$1-F_2$
no	even	even	$1-F_3$
no	even	odd	$1-F_4$

where the functions F_1, F_2, F_3 and F_4 are given by:

$$F_1 = e^{\left(\frac{1}{<J^2>}\right)} \left(e^{-\frac{1}{<J^2>}\frac{J_m + j_g + 3^2}{2}} + \frac{1}{<J^2>}\frac{J_m + J_g + 1}{2} e^{-\frac{1}{<J^2>}\frac{J_m + j_g + 1^2}{2}} \right) \qquad \text{Eqn (7.4)}$$

$$F_2 = e^{\left(\frac{1}{<J^2>}\right)} \left\{ e^{-\left(\frac{1}{<J^2>}\right)\left(\frac{J_m + j_g + 2}{2}\right)^2} \right\} \qquad \text{Eqn (7.5)}$$

$$F_3 = e^{-\left(\frac{1}{<J^2>}\right)\left(\frac{J_m + j_g + 2}{2}\right)\left(\frac{J_m + j_g + 4}{2}\right)} + \frac{1}{<J^2>}\left(\frac{J_m + J_g + 1}{2}\right)e^{-\left(\frac{1}{<J^2>}\right)\left(\frac{J_m + j_g}{2}\right)\left(\frac{J_m + j_g + 2}{2}\right)} \qquad \text{Eqn (7.6)}$$

$$F_4 = e^{\left(\frac{1}{<J^2>}\right)}\left\{ e^{-\left(\frac{1}{<J^2>}\right)\left(\frac{J_m + j_g + 1}{2}\right)\left(\frac{J_m + J_g + 3}{2}\right)} \right\} \qquad \text{Eqn (7.7)}$$

Madland and England determined the J_{rms} by examining ten experiments where thermal neutron induced fission yield measurements had been made for several systems with the metastable state having a spin of 11/2 and the ground state 3/2. As these should all give the same result from their formulae the measured r(A,Z) values were averaged and the J_{rms} value calculated that would give the empirical result. This produced a value of J_{rms}=7.5 $\pm$ 0.5 for thermal fission.

Trends in the ^{133}Xe isomeric splitting with neutron energy described in the work of Wolfsberg[7.8] were interpreted as showing that J_{rms} is proportional to the square root of the neutron kinetic energy and binding energy and thus J_{rms} was determined as 7.5, 7.5, 8.0, 9.0 and 10.0 for neutron energies of 0.0, 0.5, 2.0, 10.0 and 14.0 MeV respectively.

Madland and England used their method and information on the spins of fission product isomers to calculate the R(A,Z) values for a range of nuclides at different incident neutron energies. These results are published in their Los Alamos report[7.5].

[7.8] “Estimated values of fractional yields from low energy fission and a compilation of measured fraction yields”, Laboratory report LA-5553-MS, Los Alamos Laboratories. D.G.Madland and T.R.England (1974)

7.4 The application of the Madland and England model for UKFY2 and UKFY3

The Madland and England formulae were used with the spin values of the isomers from the JEF2.2 decay data file to calculate the R(A,Z,m) values for all fission products at thermal, fast and 14MeV neutron energies with J_{rms} values of 7.5, 8.0 and 10.0 respectively[1.4].

As described above JEF2.2 includes 21 nuclides with three isomeric states. These were simply calculated by considering the high, medium and low isomer spin values in pairs. The R(A,Z,high) was calculated using a small extension to the M&E model.

As from the definitions the R(A,Z,I) the triplet's high spin ratio is

$$R(A, Z, high) = \frac{y(A, Z, high)}{y(A, Z, low) + y(A, Z, medium) + y(A, Z, high)} \qquad \text{Eqn (7.8)}$$

which will be the same as the doublet

$$R(A, Z, high) = \frac{y(A, Z, high)}{y(A, Z, medium) + y(A, Z, high)} \qquad \text{Eqn (7.9)}$$

Thus using M&E to calculate the split between the high and medium state gives the value of R(A,Z,high). Similarly the R(A,Z,low) split can be calculated using the medium and low state spins. Finally as the sum of the three splits is unity the R(A,Z,medium) split is calculated as 1 - (R(A,Z,high)+R(A,Z,low)).

Where the spins of one, or more, of the states were unknown the split was assumed to be 50/50. Similarly where two of the three states had unknown spins 33.3/33.3/33.3 was assumed. It should be noted that if only one of a triplet of states has an unknown spin then it may still be possible to determine a result using the model provided the middle spin is known. In which case one of the R(A,Z,I) values can be determined, but the other two are estimated by splitting the remaining yield.

7.5 Extension of the Madland and England model by Rudstam

Rudstam[7.9] has recently developed the M&E model by explicitly treating some of the assumptions in detail. In the M&E model it is assumed that fragments with a J nearer to a particular state will feed that state. Rudstam assumes that the probability of a transition that will decrease the excited nucleus spin by one unit of angular momentum is proportional to the density of nuclear states of spin (J-1), and similarly that the probability that the spin will increase is proportional to the density of spin states (J+1). Only transitions of one are assumed due to their much greater probability compared to higher order transitions.

The ratio of the number of nuclear states of spin (J-1) to those of spin (J+1) is denoted by Z(J), defined as

$$Z(J) = \frac{2J-1}{2J+3} e^{\frac{(4J+2)}{J_{nuc}^2}} \qquad \text{Eqn (7.10)}$$

where J_{nuc} is a constant for each nuclide.

The relative probability of decreasing the spin state is Z/(1+Z) and as the sum of probabilities for increasing and decreasing must sum to 1 the probability of increasing is 1/(1+Z). However this will lead to erroneous results if the excitation of the state and the fragment excitation are not taken into account. Rudstam quotes the example of ^{131}In which has an isomeric state 4 MeV above the ground state. Thus, as few fragments will have sufficient energy to populate this state, its yield will be greatly reduced from that which would be predicted.

The energy effect is modelled by Rudstam by considering all energies as being equally likely, if the energy is below the maximum fragment energy, E_{max}. This maximum is assumed by Rudstam to be equal to the neutron separation energy, which he approximates to 50 keV, as more excitation will lead to neutron emission. The ground

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[7.9] G. Rudstam. Proceedings of a Specialists' meeting on fission product nuclear data, Tokai, Japan, 25-27th May 1992. NEA/NSC, DOC(92)9 p.27 (1992).

state will always be fed if the fragment excitation is below the isomer's excitation E_x. This will happen with a probability of E_x/E_{max}.

If the spin of the low spin isomer is J_{low}, and J_{low}=J-1, this isomer can be reached by the emission of 1, 3, 5, 7,... gamma rays. The probability of this is proportional to:

$$\frac{Z(J)}{1+Z(J)}[1+S2+S4+...] \qquad \text{Eqn (7.11)}$$

where the S2 term has the form $Z/(1+Z)^2$and the S4 term $(Z/(1+Z)^2)^2$ etc. These terms will reduce rapidly due to limitations of the available energy.

Similarly if J_{low}=J-2 the probability is given by

$$\frac{Z(J)}{1+Z(J)}x\frac{Z(J-1)}{1+Z(J-1)}[1+S2+S4+...] \qquad \text{Eqn (7.12)}$$

Similar relations are valid for the high spin isomer but with the Z/(1+Z) term replaced by 1/(1+Z).

Now as S2 and S4 are small terms these can be neglected. Thus R(A,Z,I) can be calculated using the following assumptions. Firstly that if the low-spin isomer is the ground state all P(J) for J smaller than or equal to J_{low} will are assumed to feed the low-spin isomer. Secondly, in the spin range $J_{low} < J < J_{high}$ the probabilities are calculated using the functions above. Since in all cases one of the isomers must be reached the sum of the probabilities to both the high and low spin isomers must equal unity. Finally for J> J_{high} the high spin isomer is assumed to be fed unless the available energy is smaller than E_x.

The R(A,Z,low) is thus given by

$$\sum_{J \le J_{low}} P(J) + \frac{E_x}{E_{max}} \sum_{J \ge J_{low}} P(J) + \frac{E_{max} - E_x}{E_{max}} \sum_{k = j_{low}+1}^{J_{high}-1} P(k) + N(k) \prod_{m = J_{low}+1}^{k} \frac{Z(m)}{1 + Z(m)} \qquad \text{Eqn (7.13)}$$

where N(k) is given by

$$N(k) = \frac{1}{\left(\prod_{m = J_{low}+1}^{k} \frac{Z(m)}{1 + Z(m)} + \prod_{m = k}^{J_{high}-1} \frac{1}{1 + Z(m)} \right)} \qquad \text{Eqn (7.14)}$$

Similarly if the high spin state is the ground state R(A,Z,high) is given by

$$\sum_{J \ge J_{high}} P(J) + \frac{E_x}{E_{max}} \sum_{J \le J_{high}-1} P(J) + \frac{E_{max} - E_x}{E_{max}} \sum_{k = j_{low}+1}^{J_{high}-1} P(k) + N(k) \prod_{m = J_{low}+1}^{k} \frac{Z(m)}{1 + Z(m)} \qquad \text{Eqn (7.15)}$$

Rudstam notes that this modified model leaves two parameters J_{rms} and J_{nuc} that need to be determined.

From a database of experimental measurements for the isomeric splitting from thermal neutron induced fission of ^{235}U he fitted the two parameters for even mass nuclides and odd-mass nuclides. The fitting used a least-squares minimization. The resulting J_{rms} values were very similar, 6.5 and 6.0 respectively, so he took the mean 6.25. The J_{nuc} for odd mass nuclides was determined to be 6.0 but 2.0 for even mass nuclides.

It should be noted that J_{rms} and J_{nuc} may be system and neutron energy dependent and thus these parameters cannot be extended to other systems without more study which would require further measurements. Note that in M&E J_{rms} was extended on very little evidence.

Rudstam[7.10] is currently analysing new experimental results for fast fission of ^{238}U which will allow further study of the model and an examination of the variation of the parameters to be made.

7.6 Comparison of the models with experimental data

The Madland and England model and the modifications to this by Rudstam have been described. Three sets of calculations of isomeric splitting have been mentioned; the original Madland and England calculations of 1976[7.5], calculations using the M&E model and JEF2.2 spin assignments[1.4], and the new method of Rudstam[7.9].

The UKFY3 experimental yields for isomeric splitting shown in Table 7.1 and Table 7.2 for thermal neutron fission of ^{235}U were used to test these three sets of calculations. These were used for the comparison as this system had a significant number of measurements and Rudstam's results are only available for this fissioning system. It should be noted that the experimental data are inconsistent for some of these nuclides.

Table 7.4 shows the results of the comparison. The measured yields, the three sets of calculations and the ratios of calculated over experiment for these three sets are shown. As can be easily seen from the table none of the calculations fit the data particularly well.

To test the goodness of fit a χ^2 test was used which had the usual form

$$\chi^2 = \sum \frac{(x_{calculated} - x_{measured})^2}{\sigma_x^2} \qquad \text{Eqn (7.16)}$$

where σ^2 is the estimated measurement standard deviation

[7.10] Private communication from G. Rudstam, Studsvik, Sweden (1993)

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Table 7.4: Comparison of thermal neutron fission of ^{235}U measurements with calculations.

Nuclide	Experiment: and UKFY3 evaluated results (E)	C1 Madland and England [7.5] (C1)	M&E model with JEF2.2 spins [1.4] (C2)	C3 Rudstam [7.9] (C3)	C1/E	C2/E	C3/E
Rb90	0.8969 ± 0.0448	0.8079	0.808	0.659	0.901 ±0.045	0.901 ±0.045	0.735±0.037
Nb95	0.7519 ± 0.0170	0.1877	0.188	-	0.250 ±0.006	0.250 ±0.006	
Sn128	0.1991 ± 0.1128	-	0.701	0.209		3.52± 1.99	1.05 ±0.59
Sb128	0.5606 ± 0.1280	0.6305	0.630	0.192	1.12 ±0.26	1.12 ±0.26	0.343±0.078
Sb130	0.5011 ± 0.1202	0.6305	0.576	0.190	1.26± 0.30	1.15 ± 0.28	0.38 ±0.09
Te131	0.6796 ± 0.0900	0.7103	0.517	-	1.05 ±0.14	0.76 ±0.10	
Sb132	0.4404 ± 0.0898 0.1942 ± 0.0675	-	0.576	0.190		1.31 ±0.27 2.97 ±1.03	0.431±0.088 0.98 ±0.34
I132	0.3855 ± 0.0629 0.4460 ± 0.0446 0.7319 ± 0.0495	-	0.643	-		1.67±0.27 1.44±0.14 0.879±0.059	
Te133	0.6515 ± 0.0966	0.7103	0.707	0.590	1.09±0.16	1.09±0.16	0.91±0.13
Xe133	0.2593 ± 0.3236	0.7103	0.707	0.603	2.7±3.4	2.7±3.4	2.3±2.9
I134	0.2922 ± 0.0219 0.5300 ± 0.0530 0.4120 ± 0.0412	0.4243	0.424	0.183	1.45±0.11 0.80±0.08 1.03 ± 0.10	1.45±0.11 0.80 ±0.08 1.03 ±0.10	0.626±0.05 0.345±0.035 0.444±0.044
Xe135	0.6434 ± 0.0579 0.6428 ± 0.0130 0.6897 ± 0.0496	0.7103	0.707	0.575	1.104±0.099 1.105±0.022 1.030±0.074	1.099±0.099 1.100±0.022 1.025±0.074	0.894±0.080 0.895±0.018 0.834±0.060
I136	0.8026 ± 0.1735	-	0.643	0.391		0.80 ±0.17	0.49 ±0.11
Pm148	0.0005 ± 0.0008	0.7008	0.701	0.388	1402 ±2243	1402 ± 2243	776 ± 1242
reduced χ^2					54819	36571	14671
reducedχ^2 (ignoring the Pm148 measurement)					90.63	63.54	12.71

As two of the sets do not have available values for all of the listed isomers the reduced χ^2 is used to allow the comparison to be made. The reduced χ^2 is defined in this case as χ^2 divided by the number of measurements.

As the ^{148}Pm result is poorly modelled by all the calculations and contributes most of the χ^2 for all sets of calculations I have also calculated χ^2 without this measurement to better judge the differences. The ^{148}Pm yield which has a very small value is still over predicted by Rudstam's calculation by three orders of magnitude, as he noted in his paper[7.9].

Although the Rudstam results give a considerable reduction of reduced χ^2 the values are still too high to be more than a guide to the value.

7.7 Conclusion and recommendations for the UKFY3 evaluated file

Table 7.4 shows that the results of Rudstam[7.9] gives a considerable improvement over the one parameter model but still does not fit the data particularly well. Rudstam suggests using experimental data, where it is available, as this will be better than any modelling.

The improvement between the Madland and England values and the calculations in this work are due solely to improvements in the determination of the spins of the isomeric states by more recent decay data measurements.

As the calculations using the Madland and England model and the spin information in the JEF2.2 decay data file can be used to predict the splitting for all the nuclides in all fissioning systems it was decided to use these for calculating UKFY3. There were two alternative methods that were considered. Firstly, use of Rudstam's modifications to the model, however this requires his two parameters to be determined for each fissioning system and currently this has been done only for the thermal neutron fission of ^{235}U. The second alternative is to use the experimental data that exists; however these data contain many discrepancies. Due to time constraints it was not possible to review the experimental data in detail. Thus it was decided that the Madland and England model would be used for UKFY3.

8 Production of UKFY3

8.1 Introduction

In the previous chapters the experimental fission yield data of UKFY3 has been analyzed and modelled. This chapter describes the production of a complete evaluated file from this data. This procedure consisted of three steps. First the experimental data was statistically analyzed. Second the experimental data and models developed from this data were used to produce complete sets of chain and fractional independent yields. Thirdly these data were processed into an adjusted fission product yield file in ENDF-6 format[8.1]; by being combined, adjusted for physical constraints and then formatted.

The production of UKFY3.0 involved many FORTRAN programmes (23972 lines of source code) that were written during this project. The details of the running of computer codes are given in Appendix A.6.

8.2 Analysis of the data

The experimental data detailed in chapter 2 were processed by the methods described in chapter 3. This procedure was implemented in a code called ANALYSE. This code was used to analyse the data repeatedly for ten iterations, as described in section 3.3.2.

The analysis was checked for convergence by comparing the output files containing the recommended data at each iteration. For UKFY3 the analysis converged at the fifth cycle. The tabulated results of the analysis were then formatted for the appendices using the FOUTPUT code.

8.3 Production of complete data sets of chain and fractional independent yields for UKFY3.0

The analysed data were then combined with model estimates to produce complete 'unadjusted' independent yield sets for the same 39 fissioning systems as used for the UKFY2 evaluation. They were chosen based upon FISPIN calculations performed by

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[8.1] Report BNL-NCS-44945 "ENDF-102 Data formats and procedures for the evaluated nuclear data file ENDF-6", July 1990, edited by P.F.Rose and C.L.Dunford.

M.F. James[8.2] which estimated the fractional fission rates of actinides during and following typical irradiations. Those chosen are shown in Table 8.1[1.4] and are the nuclides which contributed greater that 0.1% at any time for typical fuels (uranium metal, uranium dioxide and mixed oxide fuels) and for ratings and irradiations for each fuel type that could be achievable in the near future.

Table 8.1 Fissioning systems[a] included in UKFY3.0

Maximum fractional fission rate						Spontaneous fission	
>10%		1-10%		0.1-1%			
nuclides: 5		2		12		3	
U233	TFH	Pu240	F	Th232	FH	Cf252	S
U235	TFH	Cm245	TF	U234	F	Cm242	S
U238	FH			U236	F	Cm244	S
Pu239	TF			Np237	TF		
Pu241	TF			Np238	TF		
				Pu238	TF		
				Pu242	F		
				Am241	TF		
				Am242m	TF		
				Am243	TF		
				Cm243	TF		
				Cm244	TF		

a. The modes by which fission is possible are signified by the following:
T-Thermal neutrons, F- Fast neutrons, H- 14 MeV neutrons and S- Spontaneous fission

The chain yield files were produced by MKCHAIN code. This code reads the recommended chain yield data produced in the analysis for each of the required systems and then uses the five gaussian model described in chapter 4 to fill the gaps in the experimental data. Where fitting to this model had been possible the fitted values were used to fill gaps, otherwise the UKFY2 extrapolated model parameters were used. The model data in the gaps were forced to agree with the experimental data at the edges of the gaps by a re-normalization factor. This re-normalization factor was linearly interpolated across the gap. The wings of the distribution were re-normalized using the last experimental data points. The program produced a complete file of the chain yields and uncertainties for each fissioning system and also produced a graphs of the chain

[8.2] Private communication from M.F.James, Winfrith, U.K. (1989).

yields against product mass. An example of the graphical output is shown in Figure 8.1.

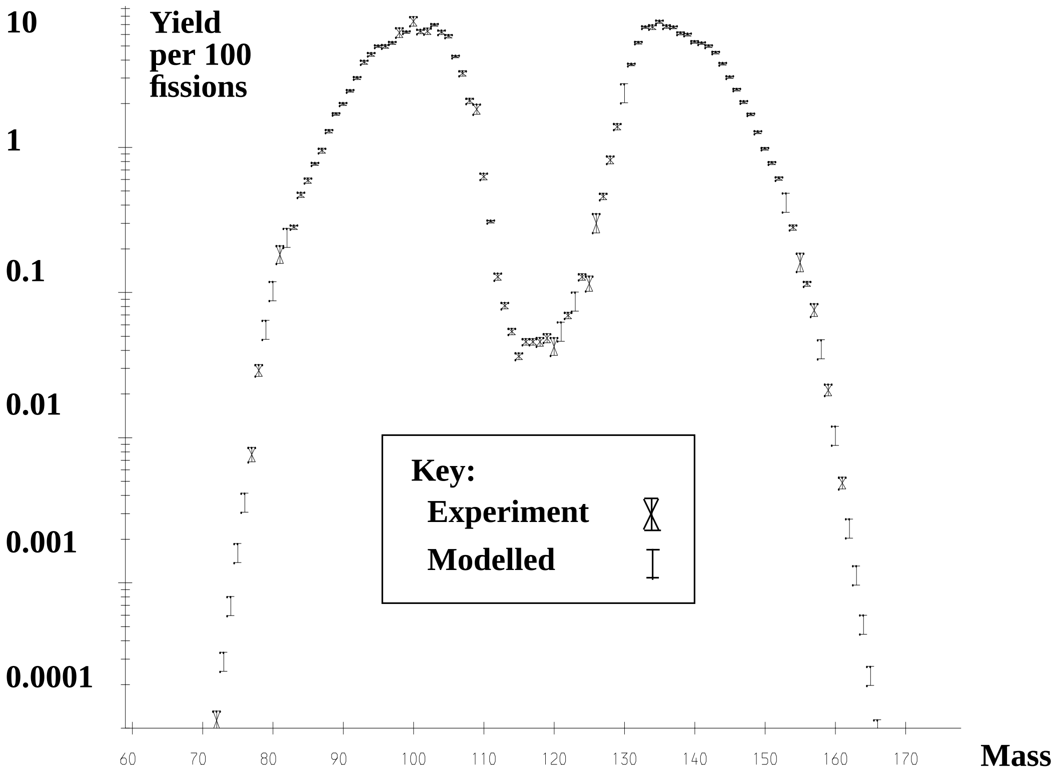

Figure 8.1: Complete chain yield distribution for plutonium-239 fissioned by thermal neutrons, one standard deviation error bars plotted.

For the fractional independent yields a similar procedure using the Wahl Z_p model was used. However due to the large amount of discrepant fractional independent yield data only the model data were used. This was calculated using the same procedures as in the fitting routines described in chapter 6. The fitted parameters or, in their absence, interpolated or extrapolated parameters were used to produce complete fractional independent yield sets by the MKFIND code.

8.4 Calculation of chain and cumulative yields

Given a set of independent yields, in order to generate the cumulative yields it is necessary to follow the fission product decays as all the products and their daughters decay to stability. By definition, the cumulative yield of a nuclide (A,Z,I) is the sum of its own independent yield y(A,Z,I) and the yields of other nuclei decaying to the required nuclide.

Thus, the cumulative yield c(A,Z,I) is given by

$$c(A, Z, I) = y(A, Z, I) + \sum_{(A', Z', I')} b(A', Z', I' \rightarrow A, Z, I)c(A', Z', I') \qquad \text{Eqn (8.1)}$$

where $b(A', Z', I' \rightarrow A, Z, I)$ is the fraction of the precursor nuclide (A',Z',I') that decays to (A,Z,I).

If fission products decay simply by β decay, i.e. there is no transition between mass chains, then for each chain only decay and branching within that mass chain would need to be considered. In practice, however, delayed neutron emission and α decay does occur for the fission products which results in the mass and chain yields changing. Thus, to calculate a chain yield, the branching from higher mass chains needs to be considered. In addition, the existence of isomeric states of fission product nuclides add a further complication as the decay chain can split producing multiple paths of decay.

Provided the cumulative yields of the direct precursors (A',Z',I') have been previously calculated and the decay branching fractions are known the c(A,Z,I) can be calculated using Eqn (8.1). Thus, if the fission products are numbered in such a way that no nuclide later in the list decays to one earlier in the sequence then all yields can be calculated by applying Eqn (8.1) in ascending order up the list.

The ordering of the fission products for such calculations must obey certain constraints. Firstly, as no decay process occurs which leads to gain in mass number, the fission products must be ordered in descending mass order. Secondly, within each mass, the β^- decaying nuclides must be ordered by increasing Z. Similarly the EC/β^+ nuclides must be ordered by decreasing Z; both sets therefore have the stable nuclides last. Finally, as isomeric transitions descend in energy the states of an isotope (A,Z) must be in order of descending energy levels. These conditions lead to a simple prescription for ordering the fission products.

However, it must be noted that a few nuclides exist that decay by both β^- and EC/β^+ modes. The daughters of such nuclides can then possibly undergo the other form of β

decay. A typical example of this problem is a parent nuclide with both ground and metastable states, with the ground state being stable. If the metastable to ground state transition is forbidden by quantum mechanical selection rules and the metastable state beta decays either way then one, or both, of the daughters can subsequently β decay to the stable ground state of the parent. In such a case the list of fission products cannot be ordered simply by their decay mode. Thus, for this evaluation the initial ordering of nuclides from JEF2.2 was checked to ensure that no decays occurred in the wrong direction in the list. In special cases the list was manually edited.

The chain yields can then be calculated simply by summing the resultant cumulative yields of all stable nuclides within each mass chain (this allows for cases where there are several stable nuclei in a particular mass chain). It must be noted, however, that several fission products exist that α decay; these have half-lives of greater than one million years. If this type of decay is incorporated into the calculation it will subtract the appropriate branching from the chain yield for the parent mass and add to the mass chain four masses below. In practice, however, no yield measurement will observed this transfer of yield due to the human time-scales of the experiment. The JEF2.2 file [1.8],[4.1] contains 36 fission products with half-lives greater than one thousand years, fifteen greater than 10^{10} years. Of the fission products with half-lives greater than one hour just eight decay to different mass chains, in all cases by α emission. These are listed in Table 8.2.

Table 8.2: Fission product nuclides with half-lives greater than a one hour which α decay.

Nuclide	Half-life /years
58-Ce-142	4.99658E+16
60-Nd-144	2.09858E+15
62-Sm-146	1.03002E+08
62-Sm-147	1.05927E+11
62-Sm-148	6.97138E+15
62-Sm-149	2.00003E+15
64-Gd-150	1.79003E+06
64-Gd-152	1.07926E+14

Thus the decision has been taken, in view of the very long half-lives that the alpha branches of these nuclides should be ignored in the calculation of cumulative and chain yields as it would otherwise interfere with the process of adjustment of yields which is described below. It should be noted that in the very long term cumulative yields of these few nuclides and their daughters will be erroneous. For calculation of these systems the independent yields must be used plus the solution of the full radioactive decay equations. These calculations are usually carried out by a computer code such as FISPIN or ORIGEN[2.1]. These nuclides are not regarded as a problem given the small number of cases.

8.5 Adjustment of the fission yield files

The adjustment of the fission product yields consists of two stages. The first is related to the definition of mass and chain yields, while the second relates to the physical laws governing fission.

8.5.1 Adjustment of measured chain yields to mass yields

The yield of any nuclide, from Eqn (1.2), is given as:

$$y(A, Z, I) = Y(A) \times f(A, Z) \times R(A, Z, I) \qquad \text{Eqn (8.2)}$$

However the chain yield, Ch(A), has been determined in the process just described, not Y(A). If Y(A) is approximated as being equal to Ch(A) then calculation of yields down the chain by following through the branching fractions of the decay of fission products, as described above, will lead to values which differ from the experimental set.[8.3] This is because some fission product decays, primarily delayed neutron emission, transfer some of the yield to lower mass chains. Thus a set of Y(A) needs to be produced which will give rise to the Ch(A) set when the decays are followed.

The procedure developed in 1993 for the final version of UKFY2 defined a correction term, α(A), where

$$Y(A) = \alpha(A)Ch(A) \qquad \text{Eqn (8.3)}$$

If we consider a mass chain a, the nuclides with independent yields y(a,Z,I) decay towards stability. As decay occurs some of the mass yield Y(a) may be lost to lower mass chains and some added to this mass chain from the chains above. Directly after fission the sum of yields for the mass chain is Y(a); by subtracting the loss from the chain, out(a), and adding the gain to the chain, in(a), the chain yield Ch(a) is obtained. Thus,

$$Y(a) - out(a) + in(a) = Ch(a) \qquad \text{Eqn (8.4)}$$

Given an initial Y(a) the cumulative yields can be calculated by following through the decays with their respective branching ratios. The resulting estimate of the chain yield Ch'(a) for the Y(a) values, can thus be calculated along with out(a) and in(a).

[8.3] Private communication Jean Blachot, CEN Grenoble and Alan Tobias NE Berkley.

Thus if Y(a) is estimated using an initial guess, α_0, of the value of α, then

$$\alpha_0 Ch(a) - out(a) + in(a) = Ch'(a) \qquad \text{Eqn (8.5)}$$

Thus an improved estimated α value, α_1, is required such that Ch'(a) is equal to Ch(a):

$$\alpha_1 Ch(a) - out(a) + in(a) = Ch(a) \qquad \text{Eqn (8.6)}$$

Thus rearranging Eqn (8.5) and Eqn (8.6) and then dividing these gives:

$$\alpha_1 = \alpha_0 \left(\frac{Ch(a) - in(a) + out(a)}{Ch'(a) - in(a) + out(a)} \right) \qquad \text{Eqn (8.7)}$$

The vector α(A) can thus be calculated. However, in practice, the in(A) and out(A) will change with improved knowledge of Y(A) i.e. of α(A). Thus it is necessary to iterate until the α(A) converge. Following convergence, Y(A) and thus the independent yields y(A,Z,I) can be calculated which are consistent with the measured chain yields.

8.5.2 Adjustment relating to physical laws

The second phase of the adjustment procedure is a least-square fit of the evaluated yields to physical constraints which apply to the independent yields. These are defined by the physical laws governing the fission process during the period after prompt neutron emission but before any of the fission products can decay (β^-, β^-,n, β^+, α etc.).

The first constraint is for fission events that do not include light charged particle emission; in which case:

$$\sum_A Y(A) = 2.0 \qquad \text{Eqn (8.8)}$$

The second, and related constraint, is that the sum of the yields of the heavy mass peak must equal one, there being both a heavy and a light fragment produced in any fission event. This can be described by the equation;

$$\sum_{A > \frac{A_f}{2}} Y(A) = 1 \qquad \text{Eqn (8.9)}$$

The third constraint is the conservation of mass. When the mass of all the products, both fission products and neutrons, are summed before and after prompt neutron emission for fission events not involving emission of a light charged particle

$$\sum_{A} AY(A) = A_f - \overline{\nu_p} \qquad \text{Eqn (8.10)}$$

where $\overline{\nu_p}$ is the average number of prompt neutrons emitted after fission. For the general case this becomes

$$\sum_{A} AY(A) = A_f - \overline{\nu_p} - A_{LCP} \qquad \text{Eqn (8.11)}$$

where A_{LCP} is the total mass carried away by light charge particle emission.

The fourth constraint is similar, being based on the sum of charge of the products before any radioactive decay

$$\sum_{ZA} Z \; f(A, Z) \; Y(A) = Z_f - Z_{LCP} \qquad \text{Eqn (8.12)}$$

where Z_f is the charge of the compound nucleus and Z_{LCP} is the total charge carried away by light charge particle emission. It should be noted that for fission induced by charge-less particles, such as neutrons and photons, the compound nucleus charge is the target-nucleus charge.

These four constraints apply to the overall distribution of mass, charge and yield. However, constraints also apply to individual yields; for example, for any individual fission event the fragments must carry away charge equal to the charge of the compound nucleus. Thus, summing over the mass of the "complementary" elements Z_1 and Z_2 which are produced in one fission event must obey the condition

$$Z_1 + Z_2 = Z_f \qquad \text{Eqn (8.13)}$$

and must thus have equal yields. This gives by extension:

$$\sum_A f(A, Z)Y(A) = \sum_A f(A, Z_f - Z)Y(A) \qquad \text{for all } Z < \frac{Z_f}{2} \qquad \text{Eqn (8.14)}$$

The method of adjustment and the FORTRAN subroutine used in the UKFY2 and UKFY3 evaluation was developed by James[8.4]. The method is described in detail by James[1.4]. Firstly the procedure minimizes the four global constraints. Then the set of complementary element constraints are minimized beginning with the pair with the largest combined yield and then in decreasing order. The number of constraints to apply is determined by the reduced χ^2. The constraints are successively applied until this value is around one or the reduced χ^2 is a minimum. It should also be noted that no yields were allowed to be adjusted below zero; if any yield goes below zero the subroutine halts the programme with an error.

In forcing the yields to fit the constraints, the reduced χ^2 parameter provides an overall measure of the success of the adjustment when compared with the initial yields and uncertainties. A reduced χ^2 of one shows the adjustment is just consistent with the initial set of uncertainties. The independent yield uncertainties are a function of the chain yield and the fractional independent yields uncertainties. The chain yields uncertainties are either derived from the analysis of experimental results or are estimated if modelled values are used. Chain yields of systems which could be fitted were found, on average, to have residuals less than 15% of the measured yield and thus an uncertainty of 15% was assumed. If the system could not be fitted then the values based upon model parameters were used. Studies of yields generated using these extrapolated parameters and measured yields showed a 30% estimate of uncertainty was justified. The fractional

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[8.4] Private communication, M.F.James, Winfrith, U.K. (1989)

independent yield modelling was assumed to have an uncertainty of 30%, so that adjustments could be made of up to three standard deviations before sending yields negative. Thus the reduced χ^2 can be used to test the estimated uncertainty of the data, and this was used to adjust the uncertainties of the adjusted data by the method of Birge [3.2]. In addition the least-squares fit process produces a covariance matrix that can subsequently be used to calculate uncertainties of derived parameters such as the cumulative yields.

Table 8.3 shows the final UKFY3.0 mismatches output by the FITFYS code for the constraints after adjustment of the yields from thermal neutron induced fission of ^{235}U. Each of the constraints are defined such that they should equal zero. The results of the FITFYS show the constraints are well fitted. The χ^2 value in this fit is very low which could mean the quoted uncertainties are approximately five times too large, which is unlikely considering the uncertainties on the experimental data and the Z_p model fits.

The $\bar{\nu}_p$ values used for the UKFY2 and UKFY3.0 evaluations are given in Table 8.4. These values are taken in preferred order from E.J.Axton[8.5], JEF1[8.6] and S.F.Mughabghab[8.7]. As in some cases only the $\bar{\nu}$ were determined the delayed $\overline{\nu_d}$ values taken from R.J.Tuttle[8.8] were used to convert total to prompt.

[8.5] E.J.Axton. Report GE/PH/01/86 from Geel, Belgium (1986).
[8.6] Joint evaluated file version 1, available from the NEA Data Bank.
[8.7] "Neutron Cross-sections Part B Z=61-100", S.F.Mughabghab, Academic Press, New York (1984).
[8.8] R.J.Tuttle, Nuclear Science and Engineering, 56, 37 (1975).

Table 8.3: Final mismatches for the UKFY3 adjustment of yields from the thermal neutron fission of ^{235}U

Constraint number	Constraint		Value of fitted constraint
1	$\sum_{A} Y(A) - 2$		-3.962E-15
2	$\sum_{A > \frac{A_f}{2}} Y(A) - 1$		-4.851E-15
3	$\sum_{A} A\ Y(A) - A_f + \overline{\nu_p} + A_{LCP}$		-2.010E-05 +/- 3.0E-04 $\bar{\nu}_p$ calculation: CALC = 2.41688 +/- 0.00030 EXPT = 2.41690 +/- 0.00360
4	$\sum_{ZA} (Z.f(A,Z)Y(A)) - Z_f + Z_{LCP}$		-4.016E-07
COMPLEMENTARY ELEMENTS. CONSTRAINTS:8 pairs fitted. Sum of fitted yields = 1.886			
Constraint number	Element pairs	Sum of complementary element yields	SUM OF EL. YIELDS HEAVY YIELD-LIGHT YIELD
5	Z= 54& 38	3.965E-01	-4.086E-16
6	Z= 52& 40	3.620E-01	-1.422E-16
7	Z= 56& 36	3.129E-01	1.170E-16
8	Z= 53& 39	2.375E-01	3.528E-16
9	Z= 55& 37	2.288E-01	4.656E-16
10	Z= 51& 41	1.483E-01	1.667E-19
11	Z= 57& 35	1.140E-01	9.696E-17
12	Z= 58& 34	8.565E-02	-8.777E-17
*CHI-SQ=6.588E-01 FOR 12 D.O.F., REDUCED CHI-SQ =5.490E-02 BIRGE FACTOR RB=2.343E-01			

Table 8.4: $\bar{\nu}_p$ values used for UKFY2 and UKFY3

Nuclide	Thermal	Fast	High	Spontaneous
^{232}Th		2.269± 0.01	4.008± 0.02	
^{233}U	2.4884±0.004	2.5153± 0.01	4.2959±0.02	
^{234}U		2.7464± 0.05		
^{235}U	2.4169± 0.036	2.4648± 0.01	4.3844± 0.02	
^{236}U		2.6869±0.05		
^{238}U		2.7355± 0.007	4.4280±0.012	
^{237}Np	2.5218±0.05	2.600± 0.07		
^{238}Np	2.772±0.05	2.846±0.05		
^{238}Pu	2.8909±0.02	2.965±0.05		
^{239}Pu	2.876±0.0051	2.9443± 0.015		
^{240}Pu		3.2268± 0.01		
^{241}Pu	2.9307± 0.006	3.0025± 0.015		
^{242}Pu		3.219± 0.015		
^{241}Am	3.213± 0.032	3.255± 0.07		
^{242m}Am	3.260±0.024	3.302± 0.07		
^{243}Am	3.214± 0.038	3.256±0.07		
^{242}Cm				2.532±0.012
^{243}Cm	3.430±0.047	3.475±0.08		
^{244}Cm	3.48±0.08	3.526±0.08		2.69±0.01
^{245}Cm	3.711±0.06	3.756±0.08		
^{252}Cf				3.7590±0.0048

8.6 Production of the UKFY3.0 file

The production of the UKFY3.0 file consisted of taking the analysed data with gaps filled by models and adjusting the independent yield to fit the constraints. To determine the number of constraints to apply the code FITFYS_SCAN was run.This produced a list of the reduced χ^2 and mismatches at each step of the adjustment as 25 constraints were applied one after the other. The number of constraints to apply were chosen to be such that the reduced χ^2 was not significantly greater than one but the largest possible number of constraints applied.

Table 8.5: Number of constraints applied in the adjustment of UKFY3

Nuclide	Thermal neutron induced fission		Fast neutron induced fission		High energy (14 MeV) neutron induced fission		Spontaneous fission	
	No.	reduced χ^2	No.	reduced χ^2	No.	reduced χ^2	No.	reduced χ^2
^{232}Th			9	4.742	11	4.633		
^{233}U	15	1.095	12	0.8952				
^{234}U			12	1.173				
^{235}U	12	0.0549	12	1.118	12	1.462		
^{236}U			11	0.2868				
^{238}U			11	2.963	11	4.982		
^{237}Np	11	5.164	13	2.212				
^{238}Np	11	2.843	13	3.087				
^{238}Pu	7	1.741	17	4.330				
^{239}Pu	14	0.9654	11	3.067				
^{240}Pu			10	1.276				
^{241}Pu	10	3.090	13	2.72				
^{242}Pu			12	2.033				
^{241}Am	8	1.455	13	3.863				
^{242m}Am	13	2.606	13	2.433				
^{243}Am	13	3.183	13	2.659				
^{242}Cm							15	3.068
^{243}Cm	12	3.313	13	2.396				
^{244}Cm	13	2.577	13	3.434			14	4.729
^{245}Cm	14	6.026	13	1.788				
^{252}Cf							17	1.348

It should be noted that the better the consistency of the data due to good modelling and well defined measured data, the lower the reduced χ^2. Thus a small value suggests the modelling and the estimates of uncertainties are good. A large value, especially when applying the global constraints, suggests that the modelling or data is unrealistic.

Table 8.4 shows the number of constraints that it was decided to apply for the production of the UKFY3 evaluated file and the resultant reduced χ^2. It should be noted that the system with the best defined and modelled data is the ^{235}U thermal neutron induced fission yield set. This has the minimum reduced χ^2 value of all the systems, however this value is surprisingly low.

The code FITFYS was then run using the selected number of constraints given in Table 8.5. This code produces complete sets of adjusted independent yields.

To produce the complete sets of independent and cumulative yields the code DECAY_PROG was used. This reads in the adjusted independent yields with the isomeric splitting ratios and JEF2.2 decay data to produce the cumulative yields.

This code produces ENDF-6 formatted data sections which include the adjusted independent and cumulative yields with their associated uncertainties. To generate the cumulative yield uncertainties the code uses the covariance matrix from the least-squares fit to produced the uncertainties on the cumulative yields using a matrix technique developed by M.F.James[1.4].

8.6.1 Calculation of cumulative yields and their uncertainties

If the fission products are numbered by the ordering described above then Eqn (8.1) can be rewritten as:

$$c_i = y_i + \sum_j b_{j \to i} c_j \qquad \text{Eqn (8.15)}$$

or in a matrix form

$$c = y + \bar{b}c \qquad \text{Eqn (8.16)}$$

This can be rearranged to give

$$(1 - \bar{b})c = y \qquad \text{Eqn (8.17)}$$

or

$$c = Qy \qquad \text{Eqn (8.18)}$$

where

$$Q = (1 - \bar{b})^{-1} \qquad \text{Eqn (8.19)}$$

Then if a change δy in y produces a change δc in c,

$$<\delta c \delta \bar{c}> = Q<\delta y \delta \bar{y}>\bar{Q} \qquad \text{Eqn (8.20)}$$

The variance of c_i is thus given by

$$<\delta c_i^2> = \sum_{j,k} Q_{i,j} Q_{i,k} <\delta y_j \delta y_k> \qquad \text{Eqn (8.21)}$$

The covariance terms are calculated in the DECAY_PROG code by calling the FITFYS routine as a subroutine. The Q matrix therefore needs to be determined to calculate the variances on the cumulative yields. The Q matrix is calculated from the decay data; its definition in Eqn (8.19) implies that it is a lower triangular matrix with $Q_{ij} = 0$ if j>i, diagonal terms Q_{ii}=1 and, for j<i,

$$Q_{ij} = \sum_{k=j+1} b_{j \to k} Q_{ik} \qquad \text{Eqn (8.22)}$$

If, for a given value of i, Q_{ij} is calculated successively for j=i-1, i-2,...,1, the values of Q_{ik} on the right had side of Eqn (8.22) will always be known.

Since the entire independent yield of nuclide i contributes to its cumulative yield, $Q_{i,i}$ =1. Also, if none of nuclide j decays through i, then $Q_{i,j}$ is equal to zero; thus, in the specified ordering, such that no nuclide decays to a nuclide lower in the list, $Q_{i,j}$ is zero if j>i.

The Q matrix was calculated using the JEF2.2 decay data by the code MAKEP.

The final step in the production of the library was formatting of the data from separate ENDF-6 data structures produced by the DECAY_PROG code into a single complete ENDF-6 library. This was done by the MKUKFY3 code. The resultant library was checked to ensure that it obeyed the appropriate ENDF-6 conventions and physical constraints by using the ENDF-6 checking, listing and plotting codes PSYCHE, LISTEF, PLOTEF and CHECKR[8.9].

[8.9] ENDF/B-6 utility codes received from the NEA Data Bank.

9 Testing and Benchmarking of Evaluated Files.

9.1 Introduction

In the previous chapter the production of the UKFY3.0 evaluated file was described. The confidence which can be held in the validity of this, or any other evaluated nuclear data file, depends upon the tests that are applied to the data. These tests can be of two types. The first type are tests of internal consistency which are based upon the intrinsic physics or the empirical data on which the evaluation is based. The second type is where the data is used to model a phenomenon based upon a real situation and the results of these calculations are compared with experimental measurements. The first type can be referred to as internal tests and the second as external tests.

It should be noted that in any test care must be taken as to what parameter or procedure is being tested. An example of this problem is in confirming the conservation of charge for independent yields in the file. A close agreement between (i) the sum over all yields of the product of the independent yield and the fission product charge with (ii) the charge of the compound nucleus can be used to test fission product evaluations. However, as in all the other current evaluations of fission yields, charge conservation is forced by adjustment: therefore the only conclusion that can be drawn is that the processing codes are operating successfully. It is not possible to draw any conclusions from this test on the validity of the data.

The range of internal tests are limited to the physical laws that apply and comparisons of the experimental yields input to the evaluation with the adjusted outputs.

The range of external tests that can be applied is as large as the range of applications for fission product yields. However these tests will inevitably involve a wide range of other nuclear data. For example to calculate the fission product inventory within a spent fuel rod it is necessary to know both initial composition of the rod, the rod's irradiation history and the relevant nuclear data (the actinide cross-sections, fission products yields, fission product cross-sections and half-lives of the materials present). Any discrepancy between calculation and measurement could result from each of the different types of nuclear data, or from the approximations inherent in the computer model and code used to calculate the inventory. Also, parameters such as decay heat, photon and particle emission subsequently derived from the calculated inventory will thus be dependent both upon the many types of data used both to calculate the inventories and the data used to calculate the property in question such as half-lives, P_γ, P_n, average energy per decay etc.

These external tests of validity for a specific application are often called benchmarks. In safety related calculations a series of benchmarks are used to justify to the legally appointed regulators that a procedure is safe. An example of this is criticality safety calculation for the transport of spent nuclear fuel.

An important point to high-light for any testing is the consistency of all the files used. A simple example of data consistency would be the measurement of a fission yield by a characteristic gamma-ray emission. If the P_γ is over-estimated then the yield derived from the measurement will be under-estimated. However if the small yield is used with the large P_γ then a further estimation of gamma emission will approximate to that measured experimentally. This is a case of correlation between the measured yield and the P_γ that cancels out when re-calculating the measured gamma emission.

An important example of consistency related to fission yield evaluation is the decay data set used within the evaluation procedure. If the decay data set used with the yields for inventory calculations has different P_n values from that used in the generation of the yield file then the internal consistency of the independent yields with the experimental chain yields will be lost and those long lived-fission products which have delayed neutron emitting precursors will be incorrectly calculated. This is even though these long-lived radio-nuclides are the most accurately measured.

Also, if the decay data set does not contain all the fission products in the yield set then the inventory calculations cannot estimate the spent fuel inventory correctly. The JEF2.2 and UKFY3 files are adjusted so that when used with the JEF2.2 decay data file they will reproduce the measured chain yields.

9.2 Internal consistency of the evaluated files

The first test of the file is that the evaluated file agrees with the experimental data that is input to the evaluation and, for well known yields, with previous evaluations. This is especially important for the yields of “standard” nuclides used in the measurement of other yields, and for nuclides that are of special interest for applications purposes. The comparison below considers a set of yields that includes the measurement standards ^{99}Mo and ^{140}Ba, along with a short list of nuclides important for applications: ^{3}H, ^{140}La, ^{148}Nd, ^{85}Kr, ^{106}Ru, ^{134}Cs, ^{137}Cs and ^{129}I.

^{3}H, ^{85}Kr and ^{129}I are radio-nuclides which are the most important releases to the environment from spent fuel reprocessing. These yields are thus important for estimating the radiation dose uptake to the populace from future reprocessing.

^{140}La, which has virtually the same yield as the ^{140}Ba, is short-lived with a half-life of 1.68 days and is fed by the ^{140}Ba decay with a half-life 12.7 days. This nuclide is important in that it emits a high energy gamma-ray of 1.6 MeV which is easy to detect from a fuel rod. It is used to verify that fuel rods about to be reprocessed have been sufficiently cooled that they do not contain the short-lived, highly active and volatile iodines, the presence of which could increase employee radiation dose uptake. A second use of this nuclide is in reactor experiments. As the equilibrium level of ^{140}La, and thus the 1.6 MeV gamma-ray emission, is related to the average neutron flux it allows estimate of a reactor’s neutron flux to be made during experiments.

^{148}Nd is chosen as it is used for destructive burnup assay while the ^{106}Ru, ^{134}Cs and ^{137}Cs are commonly used for non-destructive gamma-ray spectrometry burnup assay. It should be noted that ^{134}Cs is mostly formed by neutron capture of other fission products and thus the fission yield of this nuclide is less important in the calculations.

The cumulative yields of these nuclides are compared for the three main fissioning systems in current reactors; the thermal neutron fission of ^{235}U and ^{239}Pu, and the fast neutron fission of ^{238}U. These yields are shown in Table 9.1, Table 9.2 and Table 9.3 respectively. The comparison is made between the best estimate of the value based on the experimental results used in the UKFY2 and UKFY3 evaluations, and the value in the JEF2.2, UKFY3 and ENDF/B-VI evaluated files. A “-” in the tables signifies that no experimental, or calculated, value is available from the respective source.

Table 9.1: Different estimates of cumulative yields, per 100 fissions, for the thermal fission of ^{235}U.

Nuclide	UKFY2 Evaluation	UKFY3 Evaluation	JEF2.2 File	UKFY3.0 File	ENDF/B-VI File
^{3}H x10^{2}	1.004± 0.02	0.931± 0.04	1.004± 0.03	0.931± 0.05	-
^{85}Kr	1.327± 0.012	1.327± 0.012	1.327± 0.033	1.329± 0.061	1.319± 0.005
^{99}Mo	6.161± 0.049	6.126± 0.055	6.177± 0.066	6.160± 0.050	6.109± 0.061
^{106}Ru	0.407± 0.009	0.409±0.009	0.407± 0.015	0.4092± 0.018	0.402± 0.005
^{129}I	0.779± 0.032	0.707± 0.032	0.782± 0.031	0.708± 0.032	0.543± 0.005
^{134g}Cs^{a} x10^{5}	1.66± 0.27	1.66± 0.27	2.031± 0.76	1.210±0.66	0.771±0.49
^{137}Cs	6.236± 0.062	6.211± 0.056	6.244± 0.539	6.246± 0.247	6.188± 0.031
^{140}Ba^{b}	6.268± 0.063	6.341± 0.057	6.277± 0.075	6.375± 0.025	6.220± 0.031
^{148}Nd	1.674± 0.015	1.680± 0.010	1.675± 0.017	1.680± 0.067	1.674± 0.006

a. shielded nuclide, only independent yield measured
b. cumulative yield of barium and lanthanum mass 140 are indistinguishable within uncertainty.

Table 9.2: Different estimates of cumulative yields, per 100 fissions, for the thermal fission of ^{239}Pu.

Nuclide	UKFY2 Evaluation	UKFY3 Evaluation	UKFY2 File	UKFY3.0 File	ENDF/B-VI File
^{3}H x10^{2}	1.471± 0.037	1.442± 0.076	1.471± 0.056	1.442± 0.114	-
^{85}Kr	0.566± 0.011	0.59± 0.24	0.568± 0.013	0.593± 0.025	0.574± 0.002
^{99}Mo	6.183± 0.049	6.205± 0.050	6.179± 0.36	6.181± 0.374	6.212± 0.087
^{106}Ru	4.199 ± 0.067	4.209± 0.076	4.184± 0.069	4.184± 0.085	4.350± 0.087
^{129}I	1.388 ± 0.068	1.388± 0.068	1.403± 0.067	1.411± 0.067	1.371± 0.056
^{134g}Cs^{a} x10^{5}	-	-	56± 15	68± 25	67± 43
^{137}Cs	6.506± 0.012	6.700± 0.074	6.509± 0.523	6.724± 0.539	6.607± 0.033
^{140}Ba^{b}	5.296± 0.053	5.320± 0.053	5.285± 0.053	5.319± 0.104	5.354± 0.075
^{148}Nd	1.694 ± 0.025	1.684± 0.015	1.689± 0.025	1.679± 0.033	1.642± 0.008

a. shielded nuclide, only independent yield measured
b. cumulative yield of barium and lanthanum mass 140 are indistinguishable within uncertainty.

Table 9.3: Different estimates of cumulative yields, per 100 fissions, for the fast fission of ^{238}U.

Nuclide	UKFY2 Evaluation	UKFY3 Evaluation	UKFY2 File	UKFY3.0 File	ENDF/B-VI File
^{3}H x10^{2}	no value[a]	no value[a]	16.2± 6.3	1.03± 0.32	-
^{85}Kr	0.814 ± 0.124	0.850± 0.094	0.92± 0.14	0.91± 0.18	0.743± 0.007
^{99}Mo	6.242 ± 0.087	6.253± 0.087	6.23± 0.62	6.20± 0.71	6.168± 0.086
^{106}Ru	2.573 ± 0.167	2.542± 0.104	2.55± 0.27	2.48+0.37	2.490± 0.035
^{129}I	0.619 ± 0.03	0.618± 0.030	0.623± 0.048	0.624± 0.060	1.011±0.081
^{134g}Cs[b] x10^{5}	no value	no value	0.019± 0.009	0.011±0.007	0.064 ± 0.041
^{137}Cs	5.992± 0.090	6.088± 0.091	6.01± 0.25	6.29± 0.33	6.053± 0.061
^{140}Ba[c]	5.783± 0.035	5.943± 0.053	5.74± 0.41	6.09± 0.71	5.815± 0.041
^{148}Nd	2.281± 0.032	2.281± 0.032	2.28± 0.15	2.25± 0.26	2.113± 0.015

a. There is one measurement of this yield (0.162±0.063), but the measurement is average of several different analyses which differed by orders of magnitude. Thus this data is not used, although it is included in Appendix A.1.

b. shielded nuclide, only independent yield measured

c. cumulative yield of barium and lanthanum mass 140 are indistinguishable within uncertainty.

To examine the adjustment of the UKFY3 yields and to compare the different evaluated files to the UKFY3.0 evaluation the results above are shown below as a fraction of the evaluated UKFY3 values. Values which differ by more than one (or three) standard deviation from the UKFY3 evaluation are highlighted by stars.

Table 9.4: Comparison of cumulative yields, per 100 fissions, for the thermal fission of ^{235}U relative to the UKFY3 value.

Nuclide	UKFY2 Evaluation	UKFY3 Evaluation	UKFY2 File	UKFY3.0 File	ENDF/B-VI File
^{85}Kr	1.0000	1.0000 ± 0.0090	1.0000	1.0015	0.9940
^{99}Mo	1.0057	1.0000 ± 0.0090	1.0083	1.0056	0.9972
^{106}Ru	0.9951	1.0000 ± 0.0220	0.9951	1.0005	0.9829
^{129}I	1.1018*	1.0000 ± 0.0453	1.1061*	1.0014	0.7680***
^{137}Cs	1.0040	1.0000 ± 0.0090	1.0053	1.0056	0.9963
^{140}Ba[a]	0.9885	1.0000 ± 0.0090	0.9899	1.0054	0.9809*
^{148}Nd	0.9964	1.0000 ± 0.0060	0.9970	1.0000	0.9964

a. cumulative yield of barium and lanthanum indistinguishable within uncertainty.

* differs from UKFY3 by more than one UKFY3 standard deviation *** differs by greater than three

Table 9.5: Comparison of cumulative yields, per 100 fissions, for the thermal fission of ^{239}Pu relative to the UKFY3 value.

Nuclide	UKFY2 Evaluation	UKFY3 Evaluation	UKFY2 File	UKFY3 File	ENDF/B-VI File
^{85}Kr	0.9593	1.0000 ± 0.4068	0.9627	1.0051	0.9729
^{99}Mo	0.9965	1.0000 ± 0.0081	0.9958	0.9961	1.0011
^{106}Ru	0.9976	1.0000 ± 0.0181	0.9941	0.9941	1.033*
^{129}I	1.0000	1.0000 ± 0.0490	1.011	1.017	0.9878
^{137}Cs	0.9710*	1.000 ± 0.0110	0.9715*	1.0036	0.9861*
$^{140}Ba^{a}$	0.9955*	1.000± 0.0010	0.9934*	0.9998	1.0064***
^{148}Nd	1.0059	1.0000 ± 0.0089	1.0030	0.9970	0.9751

a. cumulative yield of barium and lanthanum indistinguishable within uncertainty.
* differs from UKFY3 by more than one UKFY3 standard deviation *** differs by greater than three

Table 9.6: Comparison of cumulative yields, per 100 fissions, for the fast fission of ^{238}U relative to the UKFY3 value.

Nuclide	UKFY2 Evaluation	UKFY3 Evaluation	UKFY2 File	UKFY3 File	ENDF/B-VI File
^{85}Kr	0.9576	1.0000± 0.1106	1.0824	1.0706	0.8741*
^{99}Mo	0.9982	1.0000± 0.0139	0.9963	0.9915	0.9864
^{106}Ru	1.0122	1.0000 ± 0.0409	1.0031	0.9756	0.9795
^{129}I	1.0016	1.0000 ± 0.0485	1.0081	1.0097	1.6359***
^{137}Cs	0.9842*	1.0000 ± 0.0149	0.9871	1.0332*	0.9943
$^{140}Ba^{a}$	0.9731*	1.0000 ± 0.0089	0.9658*	1.0247*	0.9785*
^{148}Nd	1.0000	1.0000 ± 0.0140	0.9996	0.9864	0.9263***

a. cumulative yield of barium and lanthanum indistinguishable within uncertainty.
* differs from UKFY3 by more than one UKFY3 standard deviation *** differs by greater than three

As can be seen from these tables only in the fast neutron fission of ^{238}U have the UKFY3 values been adjusted by more than one standard deviation. These results suggest that for this fissioning system the region around mass 140, on the high mass peak, may be underestimated in the UKFY3 analysis of experimental data, or that the estimated uncertainty is too low. A large portion of the measurements for these two nuclides (^{137}Cs and ^{140}Ba) are based upon a single reference by Ford and Norris[9.1] which collected

[9.1] Report LA-6129. “A compilation of yields from neutron fission of ^{232}Th, ^{235}U, ^{238}U etc.” G.P.Ford and A.E.Norris, Los Alamos, U.S.A. (1976)

together previously unpublished Los Alamos measurements. Although no direct duplications of measurements could be found in the UKFY3 database it is possible some of this data is duplicated or correlated, thus giving rise to an over-optimistic estimate of the uncertainties.

The comparisons between ENDF/B-VI and UKFY3.0 mostly show agreement within three standard deviations. However some of these important nuclides (^{129}I, ^{140}Ba and ^{148}Nd) differ by more than three standard deviations for some of these systems. This suggests that detailed study of these discrepancies should be made and, if this fails to identify a cause, new experimental results should be commissioned.

The second type of internal test is checking that physical conservations maintained during the fission process are conserved in the file. Table 9.7 shows tests of the global constraints for these three main fissioning systems. These constraints are that: the sum of all independent yields sums to two (ignoring the ternary yields), charge is conserved and mass is conserved. The mass conservation is tested by calculating the mass lost, which should equal the average number of prompt neutrons emitted during fission.

Table 9.7: Test of global constraints for UKFY3.0 file

Fission system	Sum of binary yield - 2.0	Sum of yield charge	Calculated $\bar{\nu}$	Evaluated $\bar{\nu}$ from Table 8.4
U235T	$2.62\text{x}10^{-6}$	92.0000	2.4167	2.4169 ± 0.036
U238F	$5.12\text{x}10^{-6}$	92.0109	2.7274	2.7355 ± 0.007
Pu239T	$2.38\text{x}10^{-6}$	93.9999	2.8757	2.8760 ± 0.0051

However as in this work these constraints are forced by the adjustment procedure this only shows how well the adjustment procedure is processing the data when producing the evaluated files.

9.3 External consistency of the evaluated files

As discussed above external tests can be very wide ranging but are also very dependent on the other nuclear data used. Two types of calculations were chosen to test the evaluated fission yield data, both of which only require the decay data to be known. The first test is calculation of delayed neutron emission. This is dominated by a set of nuclides with half-lives of less than a minute. The second is the calculation of decay heat from fission products; this covers both short and long lived nuclides. In both cases very low values of neutron flux were assumed in the modelling so that cross-section effects could be ignored.

9.3.1 Delayed neutron calculations

If we consider delayed neutron emission from fission products, the governing phenomenon is the decay of a fission product that leaves a daughter nucleus with sufficient excitation energy to throw off a neutron. For nuclides where this occurs the fraction of decays that produce a neutron is called the P_n value; these nuclides are short-lived and on the neutron rich side of the line of stability.

The total number of delayed neutrons per fission, $\bar{\nu}_d$, and the time dependence of the delayed neutron emission rate are important parameters for reactor design and safety studies, as they determine the kinetic response and behaviour of reactors. There exist three ways of determining $\bar{\nu}_d$; firstly experimentally from integral measurements e.g. Keepin[9.2], secondly from summation calculations e.g. Liaw et al[9.3] using cumulative fission yields and P_n branching ratios; and thirdly by a more empirical method, proposed by Pai et al[9.4] and modified by Tuttle[9.5], based upon systematics of the delayed neutron production with mass and charge of the fissioning compound nucleus.

The time dependence of delayed neutron emission can be determined by experiment or

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[9.2] G.R.Keepin, Physics of Nuclear Kinetics, Addison-Wesley(1965).
[9.3] J.R.Liaw and T.R.England: Trans. Amer. Nucl. Soc. 28, 750 (1978).
[9.4] H.L.Pai: Ann. Nucl. Energy, 3, 125(1976).
[9.5] R.J.Tuttle in Proc. consultants' meeting on delayed neutrons properties, Vienna, 26-30 March(1979).

by summation calculations using the P_n branching ratios, half-lives and inventories of the fission products following an irradiation e.g. the work of Brady and England[9.6]. The proposed use of reprocessed fuel containing significant quantities of higher actinides has led to requests for the values of $\bar{\nu}_d$ for these nuclides so that their effects on the kinetic response of reactors can be estimated for safety studies. As experiments with these materials are often difficult due to the lack of reasonably sized samples and thus reported experiments are rare in the literature, the summation method may be the most reliable way for these $\bar{\nu}_d$'s to be estimated if it can be shown to be more accurate than the empirical extrapolation method of Pai[9.4] and Tuttle[9.5]. However the uncertainties in the yields and branching ratios of the delayed neutron emitters must be reviewed in order to decide whether the summation method is significantly accurate for practical use.

The delayed neutron emitters exist on the extremely neutron rich side of the independent fission yield distribution, where few fission product yield measurements have been made except for the more common actinides such as ^{235}U and ^{239}Pu. Thus the models used to predict the charge distribution of the fission yields will have a significant effect on the $\bar{\nu}_d$. Also the different chain yield distributions for the fission of the higher actinides mean that some precursors, relatively unimportant for ^{235}U fission, become much more significant. Especially important is the movement of the light mass peak towards higher mass as the mass of the fissioning nuclide increases. However, measurements of the P_n values have been based mainly upon ^{235}U fission so theoretical estimates of the P_n branching ratios become much more important when considering the higher actinides.

The neutron emission is a result of β^- decay producing a daughter which has sufficient energy to throw off a neutron. The probability of a nuclide emitting a neutron as a result of a β^- decay is referred to as the P_n. The fission products present determine the delayed neutron emission rate, n_{emit}, from the activity of these precursors:

$$n_{emit}(t) = \sum P_{ni}\lambda_i N_i(t) \qquad \text{Eqn (9.1)}$$

[9.6] M.C.Brady and T.R.England: Nucl. Sci. Eng. 103 129(1989).

where P_{ni} is the P_n for nuclide i, λ_i is the decay constant of i, and N_i (t) is the number of i present at time t after the irradiation. N_i is determined by the initial fuel composition and the irradiation this receives. Therefore to generate the delayed neutron emission rate the irradiation must be specified and a calculation made of the inventory at each time t. However, the total delayed neutron emission rate per fission, $\bar{\nu}_d$, can be calculated by integrating over all time for a single fission. Thus

$$\overline{\nu_d} = \sum_i P_{ni} R_i = \sum_i P_{ni} c_i \qquad \text{Eqn (9.2)}$$

The total decays of nuclide i per fission, R_i, is equal to the cumulative fission product yield of i; thus, for a pure sample of an actinide, if the cumulative yields, c_i are known the $\bar{\nu}_d$ can be calculated. Alternatively, if we consider a very long irradiation where all the fission products have reached equilibrium then the activity of each is the cumulative yield, thus producing the same formula. This equivalence is due to the definition of the cumulative yield.

The uncertainty in the calculated $\bar{\nu}_d$ can be estimated from Eqn (9.2), by partial differentiation and assuming c and P_n are independent, as:

$$\sigma^2_{\overline{\nu_d}} = \sum_i P^2{}_{ni} \sigma^2_{c_i} + \sum_i \sigma^2_{P_{ni}} c^2{}_i \qquad \text{Eqn (9.3)}$$

9.3.1.1Summation calculations of $\bar{\nu}_d$.

From Eqn (9.2) and Eqn (9.3) values of $\bar{\nu}_d$ with uncertainties are easily calculated from the UKFY2, JEF2.2 and the UKFY3 datafiles with the respective decay data sets. In all cases the decay data used to generate the cumulative yields were those used for the calculations. The $\bar{\nu}_d$ values given in the following tables are quoted per 100 fissions.

Table 9.8 shows the results for UKFY3 with the officially released JEF2.2 decay data. For each fissioning system the $\bar{\nu}_d$ value with its calculated uncertainty is shown alongside the most recent evaluations and the ratio of calculated over measured.

The evaluated values are based upon experiment and taken from the following sources; the evaluations of Tuttle (1979)[9.5], Tuttle (1975)[9.7] and Manero (1972)[9.8], and where these evaluations do not contain data the experimental values reported by Benedetti[9.9] and Waldo[9.10] were used.

Table 9.8 contains previous results using the UKFY2(1991) evaluated file and a pre-release version of the JEF2.2(1991) decay data. These results have been reported previously[9.11].

Table 9.8 shows an updated set of these results using the final JEF2.2 fission yields and decay data, which were extensively modified from the preliminary versions used in the calculations for Table 9.8. The JEF2.2 files were released in August 1993.

As can be seen from Table 9.8 there is a tendency to over-predict $\bar{\nu}_d$ for masses below 238 and under-predict those above. But if we look at the six main systems which could be fitted to the Wahl Z_p model then UKFY3 appears to either improve over the previous versions or not to change significantly. These results of calculated to evaluated experimental (C/E) values for these six fissioning systems are shown in Table 9.11. The evaluated uncertainties are given as one standard deviation and are also given in brackets as a percentage of the value. For the main systems a recent study[9.12] based upon the currently available experimental data considered the previous evaluated uncertainties to be low, and suggested larger values which should be associated with the results. The uncertainties of the other experimental values measured relative to these are thus also brought into question.

[9.7] R.J.Tuttle: Nucl. Sci. Eng. 56, 37(1975)
[9.8] F.Manero and V.A.Konshin: Atomic Eng. Rev. 10, 637(1972).
[9.9] G.Benedetti, A.Cesana, V.Sangiust, M.Terrani and G.Sandrelli: Nucl. Sci. Eng. 80, 379-387(1982).
[9.10] R.W.Waldo R.A.Karam and R.A.Meyer: Phys. Rev. C. 23, 1113(1981).
[9.11]R.W.Mills, M.F. James and D.R.Weaver "Study of the delayed neutron yield and its time dependence by the summation method, and the sensitivity of the yield to parameters of the independent yield model and the decay data", Proceedings of an international conference on Nuclear Data for science and technology held at Jülich, Germany, 13-17 May 1991.
[9.12] "Status of delayed neutron data- 1990", J.Blachot, M.C.Brady, A.Filip, R.W.Mills and D.R.Weaver. Report of the Nuclear Energy Agency NEACRP-L-323. (1990)

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Table 9.8 Calculation of $\bar{\nu}_d$ using the UKFY3 fission yields with JEF2.2 decay data

Nuclide	neutron energy	calculated $\bar{\nu}_d$	Measured $\bar{\nu}_d$ [a]	Calculated/ Measured
Thorium-232	Fast	7.03334 +/- 9.57E-01	5.47 +/-0.12 T	1.29±0.14
Thorium-232	14 MeV	3.56795 +/- 9.40E-01	2.85 +/-0.13 V	1.25±0.27
Uranium-233	Thermal	0.79953 +/- 8.40E-02	0.664+/-0.018 T	1.20±0.11
Uranium-233	Fast	1.16914 +/- 1.11E-01	0.729+/-0.019 T	1.60±0.09
Uranium-233	14 MeV	0.65902 +/- 1.34E-01	0.422+/-0.025 V	1.56±0.21
Uranium-234	Fast	1.52247 +/- 1.97E-01	1.06 +/-0.12 T	1.44±0.17
Uranium-235	Thermal	1.65122 +/- 1.17E-01	1.654+/-0.042 T	1.00±0.08
Uranium-235	Fast	1.86154 +/- 1.48E-01	1.714+/-0.022 T	1.09±0.08
Uranium-235	14 MeV	1.00089 +/- 1.01E-01	0.927+/-0.029 V	1.09±0.11
Uranium-236	Fast	2.77807 +/- 3.59E-01	2.31 +/-0.26 T	1.20±0.17
Uranium-238	Fast	4.64905 +/- 3.73E-01	4.510+/-0.061 T	1.03±0.08
Uranium-238	14 MeV	2.72759 +/- 3.31E-01	2.73 +/-0.08 V	1.00±0.12
Neptunium-237	Thermal	1.24691 +/- 1.93E-01	1.07 +/-0.10 W	1.16±0.18
Neptunium-237	Fast	1.30329 +/- 1.40E-01	1.22 +/-0.03 B	1.07±0.11
Neptunium-238	Thermal	1.54841 +/- 2.42E-01		
Neptunium-238	Fast	1.64188 +/- 2.83E-01		
Plutonium-238	Thermal	0.32770 +/- 7.03E-02	0.456+/-0.051 T	0.72±0.24
Plutonium-238	Fast	0.50951 +/- 1.34E-01	0.456+/-0.051 T	1.12±0.29
Plutonium-239	Thermal	0.65824 +/- 5.83E-02	0.624+/-0.024 T	1.06±0.10
Plutonium-239	Fast	0.72143 +/- 1.05E-01	0.664+/-0.013 T	1.09±0.15
Plutonium-240	Fast	0.96673 +/- 9.10E-02	0.96 +/-0.11 T	1.01±0.15
Plutonium-241	Thermal	1.36298 +/- 1.48E-01	1.56 +/-0.16 T	0.87±0.15
Plutonium-241	Fast	1.40386 +/- 1.41E-01	1.63 +/-0.16 T	0.86±0.14
Plutonium-242	Fast	1.83733 +/- 1.45E-01	2.28 +/-0.25 T	0.81±0.14
Americium-241	Thermal	0.41096 +/- 5.69E-02	0.44 +/-0.05 W	0.934±0.18
Americium-241	Fast	0.46681 +/- 9.76E-02	0.394+/-0.024 B	1.18±0.22
Americium-242m	Thermal	0.62532 +/- 1.37E-01	0.69 +/-0.05 W	0.906±0.23
Americium-242m	Fast	0.60369 +/- 1.14E-01		
Americium-243	Thermal	0.91154 +/- 1.78E-01		
Americium-243	Fast	0.87035 +/- 1.56E-01		
Curium-242	Spontaneous	0.12504 +/- 3.31E-02		
Curium-243	Thermal	0.22206 +/- 6.57E-02		
Curium-243	Fast	0.22219 +/- 4.53E-02		
Curium-244	Spontaneous	0.33026 +/- 9.82E-02		
Curium-244	Thermal	0.34944 +/- 8.76E-02		
Curium-244	Fast	0.35229 +/- 7.48E-02		
Curium-245	Thermal	0.47013 +/- 1.32E-01	0.59 +/-0.04 W	0.797±0.29
Curium-245	Fast	0.49572 +/- 8.87E-02		
Californium-252	Spontaneous	0.58425 +/- 2.08E-01	0.86 +/-0.10 M	0.679±0.37

a. References denoted by letter; B-Benedetti(1982) M-Manero(1972) T-Tuttle(1975) V-Tuttle(1979) W-Waldo(1981)

Table 9.9 Calculation of $\bar{\nu}_d$ using JEF2 (1991) decay data and UKFY2

Nuclide	neutron energy	calculated $\bar{\nu}_d$	Measured $\bar{\nu}_d$ [a]	Calculated/ Measured
Thorium-232	Fast	5.61039+/-0.390	5.47 +/-0.12 T	1.026±0.07
Thorium-232	14 MeV	2.83841+/-0.245	2.85 +/-0.13 V	0.996±0.10
Uranium-233	Thermal	0.85440+/-0.083	0.664+/-0.018 T	1.287±0.10
Uranium-233	Fast	0.92347+/-0.088	0.729+/-0.019 T	1.267±0.10
Uranium-233	14 MeV	0.33727+/-0.065	0.422+/-0.025 V	0.799±0.20
Uranium-234	Fast	1.15861+/-0.156	1.06 +/-0.12 T	1.093±0.18
Uranium-235	Thermal	1.64484+/-0.114	1.654+/-0.042 T	0.994±0.07
Uranium-235	Fast	1.85414+/-0.129	1.714+/-0.022 T	1.082±0.07
Uranium-235	14 MeV	0.78682+/-0.082	0.927+/-0.029 V	0.849±0.11
Uranium-236	Fast	2.24125+/-0.182	2.31 +/-0.26 T	0.970±0.14
Uranium-238	Fast	4.05641+/-0.195	4.510+/-0.061 T	0.899±0.05
Uranium-238	14 MeV	2.30629+/-0.196	2.73 +/-0.08 V	0.845±0.09
Neptunium-237	Thermal	1.17786+/-0.149	1.07 +/-0.10 W	1.101±0.16
Neptunium-237	Fast	1.18115+/-0.086	1.22 +/-0.03 B	0.968±0.08
Plutonium-238	Thermal	0.33699+/-0.051	0.456+/-0.051 T	0.739±0.19
Plutonium-238	Fast	0.45152+/-0.072	0.456+/-0.051 T	1.001±0.19
Plutonium-239	Thermal	0.58948+/-0.054	0.624+/-0.024 T	0.945±0.10
Plutonium-239	Fast	0.66093+/-0.057	0.664+/-0.013 T	0.995±0.09
Plutonium-240	Fast	0.89203+/-0.107	0.96 +/-0.11 T	0.929±0.17
Plutonium-241	Thermal	1.30026+/-0.129	1.56 +/-0.16 T	0.834±0.14
Plutonium-241	Fast	1.37337+/-0.093	1.63 +/-0.16 T	0.843±0.12
Plutonium-242	Fast	1.81825+/-0.137	2.28 +/-0.25 T	0.797±0.13
Americium-241	Thermal	0.38675+/-0.063	0.44 +/-0.05 W	0.879±0.20
Americium-241	Fast	0.39153+/-0.074	0.394+/-0.024 B	0.994±0.20
Americium-242m	Thermal	0.61209+/-0.084	0.69 +/-0.05 W	0.887±0.16
Curium-245	Thermal	0.47658+/-0.084	0.59 +/-0.04 W	0.808±0.19
Californium-252	Spontaneous	0.68913+/-0.154	0.86 +/-0.10 M	0.801±0.25

a. References denoted by letter; B-Benedetti(1982) M-Manero(1972) T-Tuttle(1975) V-Tuttle(1979) W-Waldo(1981)

Table 9.10 Calculation of $\bar{\nu}_d$ using JEF2.2 decay data and fission yields

Nuclide	**neutron energy**	**calculated $\bar{\nu}_d$**		**Measured $\bar{\nu}_d$ [a]**	**Calculated/ Measured**
Thorium-232	Fast	6.04559	+/- 4.55E-01	5.47 +/-0.12 T	1.105±0.08
Thorium-232	14 MeV	2.93874	+/- 2.52E-01	2.85 +/-0.13 V	1.031±0.10
Uranium-233	Thermal	0.87778	+/- 8.45E-02	0.664+/-0.018 T	1.322±0.10
Uranium-233	Fast	0.95255	+/- 1.15E-01	0.729+/-0.019 T	1.307±0.12
Uranium-233	14 MeV	0.34425	+/- 6.88E-02	0.422+/-0.025 V	0.816±0.21
Uranium-234	Fast	1.19717	+/- 1.94E-01	1.06 +/-0.12 T	1.124±0.20
Uranium-235	Thermal	1.70768	+/- 1.17E-01	1.654+/-0.042 T	1.032±0.20
Uranium-235	Fast	1.90981	+/- 2.01E-01	1.714+/-0.022 T	1.166±0.11
Uranium-235	14 MeV	0.78986	+/- 8.16E-02	0.927+/-0.029 V	0.852±0.11
Uranium-236	Fast	2.32978	+/- 2.05E-01	2.31 +/-0.26 T	1.009±0.14
Uranium-238	Fast	4.26631	+/- 2.02E-01	4.510+/-0.061 T	0.946±0.09
Uranium-238	14 MeV	2.39520	+/- 2.06E-01	2.73 +/-0.08 V	0.877±0.16
Neptunium-237	Thermal	1.23220	+/- 1.55E-01	1.07 +/-0.10 W	1.152±0.07
Neptunium-237	Fast	1.23409	+/- 8.88E-02	1.22 +/-0.03 B	1.011±0.16
Plutonium-238	Thermal	1.47197	+/- 1.76E-01	0.456+/-0.051 T	3.228±0.20
Plutonium-238	Fast	0.46987	+/- 7.49E-02	0.456+/-0.051 T	1.030±0.19
Plutonium-239	Thermal	0.61740	+/- 5.61E-02	0.624+/-0.024 T	0.989±0.10
Plutonium-239	Fast	0.69008	+/- 7.93E-02	0.664+/-0.013 T	1.039±0.19
Plutonium-240	Fast	0.93974	+/- 1.12E-01	0.96 +/-0.11 T	0.979±0.17
Plutonium-241	Thermal	1.33637	+/- 1.35E-01	1.56 +/-0.16 T	0.857±0.14
Plutonium-241	Fast	1.45238	+/- 9.63E-02	1.63 +/-0.16 T	0.891±0.12
Plutonium-242	Fast	1.92750	+/- 1.39E-01	2.28 +/-0.25 T	0.845±0.13
Americium-241	Thermal	0.40910	+/- 6.62E-02	0.44 +/-0.05 W	0.930±0.20
Americium-241	Fast	0.41147	+/- 7.70E-02	0.394+/-0.024 B	1.044±0.20
Americium-242m	Thermal	0.64864	+/- 8.38E-02	0.69 +/-0.05 W	0.940±0.15
Curium-245	Thermal	0.50695	+/- 8.86E-02	0.59 +/-0.04 W	0.859±0.19
Californium-252	Spontaneous	0.74153	+/- 1.64E-01	0.86 +/-0.10 M	0.862±0.25

a. References denoted by letter; B-Benedetti(1982) M-Manero(1972) T-Tuttle(1975) V-Tuttle(1979) W-Waldo(1981)

Table 9.11: Comparison of the calculated and evaluated $\bar{\nu}_d$ for the three main fissioning systems.

System	Evaluated $\bar{\nu}_d$ Tuttle (1975)	Recommended uncertainty (1990)[9.12]	UKFY3 ----------- Expt	JEF2.2 ----------- Expt	UKFY2 ----------- Expt
U233T	0.87778±0.0845 (9.6%)	-	1.20	1.32	1.29
U235T	1.654±0.042 (2.5%)	5.0%	1.00	1.03	0.99
U235F	1.90981±0.201 (10.1%)	-	1.09	1.17	1.08
U235H	0.78986±0.0816 (10.3%)	-	1.09	0.852	0.85
U238F	4.510+/-0.061 (1.4%)	6.4%	1.03	0.94	0.90
Pu239T	0.664+/-0.013 (2.0%)	10.0%	1.06	0.99	0.95

It is interesting to note that the system with the poorest fit to the Z_p model (thermal neutron fission of ^{233}U) also has the worst C/E values. Unfortunately other fissioning systems between masses 235 and 238 do show considerable apparently random variation of C/E. This suggests that the increasing under-estimation of $\bar{\nu}_d$ with increasing compound nucleus mass cannot be explained by a trend in the P_n model calculations.

Although these results show UKFY3 to be an improvement if we consider the overall set of data the situation is more complex. The mean of the C/E values, although not a rigorous statistical comparison, shows that previously the results were slightly under-predicted and now they are slightly over-predicted. However if the χ^2 test is applied using the experimentally determined uncertainties the χ^2 calculations suggest that the results are highly discrepant with some χ^2 components being considerably greater than 3.0. If the calculations are carried out using the uncertainties calculated from Eqn (9.3) then the results do show an improvement.

Table 9.12: χ^2 test of the three sets of calculations

Fission yield file	Decay data file	χ^2 (calc) /dof	χ^2 (expt) /dof	mean C/E
UKFY2	JEF2.1 (pre-release)	2.27	1.90	0.95
JEF2.2	JEF2.2	2.62	16.29	1.08
UKFY3	JEF2.2	2.08	5.22	1.07

These results suggest that using the summation method where it has not been possible to fit the Z_p model produces considerable discrepancies in the calculated $\bar{\nu}_d$ when compared with the evaluated experimental data.

When the components of the χ^2 are examined it was found that most discrepancy came from seven systems with χ^2 components greater than ten. These systems (TH232F, TH232H,U233T, U233F, U233H, U234F and Pu238T) contain little or no fractional independent yield measurements. If these are removed the results become:

Table 9.13: χ^2 test of the three sets of calculations

Fission yield file	Decay data file	χ^2 (calc) /dof	χ^2 (expt) /dof	mean C/E
UKFY2	JEF2.1 (pre-release)	2.18	1.29	0.92
JEF2.2	JEF2.2	1.19	0.87	0.96
UKFY3	JEF2.2	1.13	1.65	1.00

It can thus be concluded that UKFY3 gives good agreement where the systems have been successfully fitted to the Wahl Z_p model. However the extrapolation of the eight Z_p parameters shows considerable deviation from the expected experimental results for the seven system referred to above.

It must be remembered that these calculations are very sensitive to short lived nuclides far from stability and the P_n values used. Thus study of the sensitivity of these calculations to the Z_p parameters and different P_n data sets will give more information on the properties of the $\bar{\nu}_d$ calculations.

9.3.1.2 Sensitivity of $\bar{\nu}_d$ to Z_p Parameters

The sensitivity of the $\bar{\nu}_d$ to the Z_p parameters was studied by considering the fractional change in $\bar{\nu}_d$ following a small change in each Z_p parameter used to generate a set of unadjusted yields. These yield sets were not adjusted to fit physical constraints as this would alter the independent yields used in the calculation. This study was made with the UKFY2 fission yields and its corresponding decay data file. Time constraints have not allowed this work to be repeated with the UKFY3.0 file. Each of the eight parameters $\mathbf{x}$ was varied in turn by + and - 1%, and the sensitivity S($\mathbf{x}$) of $\bar{\nu}_d$ to $\mathbf{x}$ found from:

$$S(\mathbf{x}) = 100\frac{\bar{\nu}_d(\mathbf{x}+1\%)-\bar{\nu}_d(\mathbf{x}-1\%)}{2\bar{\nu}_d(\mathbf{x})} \qquad \text{Eqn (9.4)}$$

The results of this calculation are shown in Table 9.14. This shows the 1% sensitivities to the Z_p parameters for the thermal and fast neutron fission of ^{235}U.

Table 9.14: Sensitivity of $\bar{\nu}_d$ to input Z_p model parameters

System	$\Delta Z(A'=50)$	$\frac{d\Delta Z}{dA'}$	$\bar{\sigma}_z$	$\bar{\sigma}_{50}$	$\bar{F}_z$	$\bar{F}_n$	$\Delta A'_z$	ΔZ_{max}
U235T	-0.44	-0.046	1.2	0.0010	-0.99	0.10	-0.0012	-0.0010
U235F	-0.47	-0.10	1.0	0.00045	-0.95	0.037	-0.000021	0.000023

Variations of + and - 10% were also made, but the calculated sensitivities were not found to change significantly. This suggests the sensitivity to the parameters are not rapidly changing.

These results shows that $\bar{\sigma}_z$, $\bar{F}_z$ and $\Delta Z(A'=50)$ are the most important Z_p parameters for calculation of $\bar{\nu}_d$. The two parameters $\bar{\sigma}_z$ and $\Delta Z(A'=140)$ largely determine the shape and positions of the Gaussian fractional independent fission yield distributions, and hence the yields of the neutron-rich precursors. The dependence on $\bar{F}_z$ reflects the preponderance of odd-Z delayed neutron precursors.

A detailed understanding of how these three Z_p parameters change between different systems would thus improve the results of summation calculations.

9.3.1.3Sensitivity of $\bar{\nu}_d$ to different P_n sets

To study the effect of different P_n datasets upon $\bar{\nu}_d$, calculations of Eqn (9.2) were carried out using the UKFY2 cumulative yields with different P_n datasets. It should be noted that if the different P_n values had been used in the production of the UKFY2 they file would alter the predicted cumulative yields. Thus the $\bar{\nu}_d$ would be altered. However, previous work[1.4] had showed that for most mass chains these differences in chain yields would be small. This effect was, therefore, ignored for the purpose of this study.

The results for the thermal neutron fission of ^{235}U and ^{239}Pu, and the fast neutron fission of ^{235}U and ^{238}U are shown in Table 9.15. The number of delayed neutron emitters in each file are shown in the table with a flag to show whether the set includes experimental (E), model prediction (M) or both (EM). Also the results of the two later calculations with the JEF2.2 decay data are shown for comparison.

Table 9.15: $\bar{\nu}_d$ calculated using different P_n datasets.

Fission yield file	Decay data file	number of P_n's[a]	$\bar{\nu}_d$ ^{235}U (thermal)	$\bar{\nu}_d$ ^{235}U (fast)	$\bar{\nu}_d$ ^{238}U (fast)	$\bar{\nu}_d$ ^{239}Pu (thermal)
UKFY2(1990)	JEF2 (1991)	94 EM	1.6354	1.8492	3.9039	0.5884
UKFY2(1990)	Lund(1986)	83 E	1.4455	1.5963	3.5420	0.5050
UKFY2(1990)	Mann(1986)	88 E	1.5665	1.7629	3.6896	0.5970
UKFY2(1990)	Brady (1988)	271 EM	1.6995	1.9092	4.0218	0.6131
UKFY2(1990)	Klapdor(1989)	209 M	1.2572	1.4044	3.2950	0.4697
UKFY2(1990)	JEF2 (May 1991) + Klapdor (1989)	251 EM	1.6447	1.8541	4.0491	0.5895
JEF2.2(1993)	JEF2.2 (1993)	165EM	1.7071	1.9092	4.2611	0.6171
UKFY3(1994)	Final JEF2.2 (July 1993)	165 EM	1.65122	1.86154	4.64905	0.65824

a. E is experimental data, M is modelled data and EM is a combination of the two.

This work shows that the majority of the delayed neutron emission comes from precursors whose P_n values have been measured. For the thermal fission of ^{235}U only around 6% of the total $\bar{\nu}_d$ for the thermal ^{235}U case comes from modelled P_n values. Interestingly using all modelled P_n values decreases for the value. This may indicated that the modelled P_n values are unrealistically small.

9.3.1.4 The Keepin six group model

As described above the neutron emission rate following a neutron irradiation can be calculated from an inventory calculation using Eqn (9.1). However, in practice, reactor kinetics codes consider a small set of "lumped fission products" with a set of a representative decay constants and yields. This approach was pioneered by Keepin[9.2] who found that a set of six "lumped fission products" gave a good approximation to measurements.

The six group representation of the delayed neutron activity following a single fission pulse of one 'average' fission was thus approximated by Keepin[9.2] as:

$$n_{emit}(t) = \bar{\nu}_d \sum_{k=1}^{6} \alpha_k \lambda_k e^{-\lambda_k t} \qquad \text{Eqn (9.5)}$$

and similarly for a long constant irradiation, producing 1 fission per second, as:

$$n_{emit}(t) = \bar{\nu}_d \sum_{k=1}^{6} \alpha_k e^{-\lambda_k t} \qquad \text{Eqn (9.6)}$$

where t is the time after the irradiation, α_k are the normalised group strengths and the λ_k are the decay constants for the six delayed neutron emitting groups. For these conditions to be applicable the pulse must be too short for any precursor to decay significantly during the irradiation. Similarly the long irradiation condition only applies if all precursors have reached equilibrium before the end of the irradiation.

It is an interesting result, which also applies to decay heat calculations, that at zero time after the long irradiation the neutron emission is equal to the integral of neutron emission following a single "average" fission pulse over all time after the irradiation.

The fission product yield set used for the following calculations of neutron emission was UKFY2. The calculations were not repeated with UKFY3 due to time constraints. The

UKFY2 fission yield file, unlike JEF2.2 and UKFY3, included nuclides that were not in the corresponding JEF2 (1991) decay data or were stable. Thus the decay data used for this work was based upon a preliminary version of JEF2 (1991), with the P_n values extended with the work of Lund[9.13] and Klapdor[9.14]. The half-lives were also extended using the Japanese Chart of the Nuclides[9.15]. For JEF2.2 and UKFY3 adjustments were made to the fission yields so that the yields not in the decay data were added to the yields that were present in the decay data so that the experimental chain yields were reproduced using the fission yield sets and the JEF2.2 decay data.

To generate the Keepin six group constants using the UKFY2 data it was first necessary to use Eqn (9.1) and the inventory code FISPIN[2.1] to generate the n_{emit} for all 39 fission systems in UKFY2. Both a single fission pulse (10^6 fission/s for 10^{-6}s) and a 'long' irradiation (1 fission/s for 10^{13}s) were modelled. The cooling time steps after the irradiation ranged from zero to 500 seconds. 204 time steps were chosen to reproduce accurately the rapidly changing curves.

The FISPIN code used was a modified version of 6.0 that read in the UKFY2 and JEF2 (1991) decay data in ENDF/B format. The FISPIN calculations used no actinide content or flux but assumed a constant fission rate that produced fission products. The number density and activities of these were then calculated by numerically solving Eqn (2.1).

The Keepin's six group model was fitted to the pulse and infinite irradiation data simultaneously (i.e. 408 data points) using the Levenberg-Marquardt method[9.16] as applied by Press et al[9.17]. The $\bar{\nu}_d$ values used were taken from the zero time long

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irradiation results. The results of these calculations are shown in Table 9.16.

Table 9.16: Keepin six Group parameters fitted using the UKFY2 fission yields for the 39 fissioning systems.

Nuclide	Group	1	2	3	4	5	6
AM241F	alpha	0.0517	0.3316	0.0876	0.2201	0.2742	0.0349
	lambda	0.0125	0.0291	0.0633	0.1821	0.4029	2.1434
AM241T	alpha	0.0277	0.1859	0.2184	0.1706	0.3554	0.0420
	lambda	0.0124	0.0263	0.0322	0.1346	0.3647	2.0514
AM242MF	alpha	0.0214	0.3612	0.1158	0.3055	0.1556	0.0405
	lambda	0.0125	0.0288	0.0882	0.2455	0.5433	2.3395
AM242MT	alpha	0.0235	0.2919	0.0995	0.2062	0.3304	0.0486
	lambda	0.0124	0.0277	0.0385	0.1406	0.3805	2.0568
AM243F	alpha	0.0138	0.3360	0.1433	0.3385	0.1259	0.0424
	lambda	0.0125	0.0288	0.0971	0.2813	0.7276	2.5737
AM243T	alpha	0.0136	0.3659	0.1353	0.3261	0.1189	0.0401
	lambda	0.0125	0.0287	0.0969	0.2847	0.7465	2.6004
CF252S	alpha	0.0060	0.2134	0.2156	0.2166	0.0521	0.2963
	lambda	0.0124	0.0270	0.0306	0.1168	1.5128	0.3892
CM242S	alpha	0.0320	0.1237	0.2618	0.3995	0.0319	0.1511
	lambda	0.0124	0.0253	0.0317	0.3523	1.9673	0.1318
CM243F	alpha	0.0362	0.3419	0.1833	0.3126	0.0305	0.0955
	lambda	0.0124	0.0279	0.1395	0.3619	1.9644	0.0401
CM243T	alpha	0.0258	0.1980	0.2909	0.1710	0.2871	0.0273
	lambda	0.0124	0.0261	0.0314	0.1253	0.3580	1.9313
CM244F	alpha	0.0234	0.3261	0.1266	0.1882	0.2997	0.0360
	lambda	0.0124	0.0275	0.0356	0.1322	0.3687	1.9639
CM244S	alpha	0.0177	0.3566	0.1769	0.2772	0.0285	0.1430
	lambda	0.0124	0.0275	0.1288	0.3703	2.0649	0.0336
CM244T	alpha	0.0222	0.3035	0.1547	0.1866	0.2958	0.0372
	lambda	0.0124	0.0272	0.0341	0.1314	0.3694	1.9630
CM245F	alpha	0.0163	0.2857	0.1616	0.1982	0.2956	0.0427
	lambda	0.0124	0.0272	0.0334	0.1282	0.3785	1.9093
CM245T	alpha	0.0173	0.3169	0.0874	0.2168	0.3182	0.0434
	lambda	0.0124	0.0278	0.0376	0.1291	0.3786	1.9349
NP237F	alpha	0.0308	0.2198	0.1112	0.3863	0.1804	0.0715
	lambda	0.0125	0.0298	0.0863	0.2475	0.5821	2.4425
NP237T	alpha	0.0328	0.2546	0.1169	0.3865	0.1455	0.0638
	lambda	0.0125	0.0295	0.0925	0.2653	0.6557	2.5504
NP238F	alpha	0.0201	0.2308	0.1236	0.4023	0.1548	0.0685
	lambda	0.0125	0.0294	0.0934	0.2698	0.7263	2.6630
NP238T	alpha	0.0201	0.2638	0.1239	0.3857	0.1374	0.0691
	lambda	0.0125	0.0292	0.0962	0.2791	0.8055	2.7287
PU238F	alpha	0.0473	0.2566	0.0816	0.2711	0.2953	0.0481

Table 9.16: Keepin six Group parameters fitted using the UKFY2 fission yields for the 39 fissioning systems.

Nuclide	Group	1	2	3	4	5	6
	lambda	0.0125	0.0294	0.0621	0.1832	0.3984	2.1457
PU238T	alpha	0.0294	0.2517	0.0759	0.2886	0.2933	0.0611
	lambda	0.0125	0.0291	0.0711	0.1980	0.4156	2.2023
PU239F	alpha	0.0289	0.2719	0.0905	0.3055	0.2476	0.0557
	lambda	0.0125	0.0292	0.0737	0.2095	0.4520	2.2679
PU239T	alpha	0.0292	0.2799	0.0982	0.3323	0.2034	0.0569
	lambda	0.0125	0.0292	0.0828	0.2322	0.4973	2.3386
PU240F	alpha	0.0193	0.2911	0.1332	0.3735	0.1341	0.0489
	lambda	0.0125	0.0289	0.0976	0.2740	0.6601	2.5194
PU241F	alpha	0.0122	0.2516	0.1418	0.3878	0.1475	0.0590
	lambda	0.0125	0.0289	0.0998	0.2915	0.8047	2.7593
PU241T	alpha	0.0125	0.2516	0.1344	0.3913	0.1469	0.0634
	lambda	0.0125	0.0290	0.0988	0.2888	0.7827	2.7168
PU242F	alpha	0.0081	0.2134	0.1419	0.3957	0.1784	0.0625
	lambda	0.0126	0.0289	0.1023	0.3047	0.8744	2.8921
TH232F	alpha	0.0291	0.1177	0.1116	0.4632	0.2070	0.0714
	lambda	0.0126	0.0323	0.1058	0.3033	0.9131	2.9891
TH232H	alpha	0.0410	0.1583	0.1148	0.4341	0.1873	0.0645
	lambda	0.0125	0.0315	0.0955	0.2706	0.6942	2.4129
U233F	alpha	0.0722	0.0575	0.1894	0.2697	0.3506	0.0605
	lambda	0.0124	0.0247	0.0391	0.1542	0.3675	2.0712
U233H	alpha	0.0331	0.1123	0.2809	0.3204	0.0327	0.2206
	lambda	0.0112	0.0133	0.0357	0.3369	1.8030	0.1338
U233T	alpha	0.0757	0.1915	0.0947	0.3497	0.2256	0.0629
	lambda	0.0125	0.0315	0.0685	0.2014	0.4620	2.2332
U234F	alpha	0.0559	0.1957	0.0974	0.3554	0.2316	0.0640
	lambda	0.0125	0.0310	0.0726	0.2132	0.4840	2.3218
U235F	alpha	0.0324	0.1605	0.1141	0.4523	0.1533	0.0874
	lambda	0.0125	0.0314	0.0922	0.2607	0.7062	2.6802
U235H	alpha	0.0603	0.2223	0.1046	0.2647	0.3028	0.0452
	lambda	0.0125	0.0296	0.0528	0.1690	0.3949	2.0373
U235T	alpha	0.0343	0.1974	0.1193	0.4002	0.1745	0.0742
	lambda	0.0125	0.0304	0.0903	0.2501	0.6455	2.4599
U236F	alpha	0.0257	0.1681	0.1250	0.4326	0.1703	0.0784
	lambda	0.0126	0.0305	0.0977	0.2810	0.8215	2.7776
U238F	alpha	0.0096	0.1198	0.1109	0.4062	0.2469	0.1067
	lambda	0.0126	0.0298	0.1038	0.3040	0.9322	3.0302
U238H	alpha	0.0193	0.1768	0.1266	0.4288	0.1832	0.0652
	lambda	0.0126	0.0297	0.1010	0.2867	0.8141	2.7951

As well as fitting the twelve α_k and λ_k parameters, an attempt was made to fit the six α_k values with a constant set of λ_k to allow simplification in reactor calculations where more than one of the nuclides are present.

Table 9.17 contains the fitted α_k values if the set of average λ_k values reported by Keepin[9.2] (Table 4-9, page 91) were used.

Table 9.18 shows the results of using the set of λ_k values from Table 9.16 for the thermal neutron fission of ^{235}U.

The effects of these approximations were then studied. A "maximum percentage deviation" was calculated as the maximum percentage deviation of the fitted curves from the FISPIN calculations. Also a "percentage standard deviation" was calculated as the mean of the percentage deviations of the fitted curves from the FISPIN calculation.

These measures of the goodness of fit are shown in Table 9.19, Table 9.20 and Table 9.20 for the results in Table 9.16, Table 9.17 and Table 9.18 respectively. These tables also include the number of percentage deviations within each of one to five "percentage standard deviations".

As can be seen from these calculations the 12 parameter fits gives the best results. These seldom vary by more than 1% from the calculation. However the two approximations (using the fixed λ_k sets) show considerably higher variation from the FISPIN calculations. These differences would not allow accurate reactor calculations and thus the full 12 parameters fits must be used.

Table 9.17: Fits to the Keepin 6 Group model using the FISPIN code with UKFY2 fission products yields and preliminary JEF2 decay data for the 39 fissioning systems. The lambda's are kept fixed at the 'average' Keepin values. p91 table 4-9.

Group	1	2	3	4	5	6
lambda	0.0127	0.0320	0.1279	0.3040	1.3485	3.6290
AM241F	0.0574	0.3873	0.1062	0.3882	0.0545	0.0065
AM241T	0.0339	0.4474	0.0172	0.4431	0.0481	0.0102
AM242MF	0.0247	0.4240	0.0576	0.4196	0.0617	0.0124
AM242MT	0.0284	0.4229	0.0583	0.4195	0.0599	0.0109
AM243F	0.0161	0.3996	0.0542	0.4291	0.0861	0.0149
AM243T	0.0160	0.4356	0.0295	0.4226	0.0813	0.0151
CF252S	0.0082	0.5168	0.0089	0.4009	0.0631	0.0022
CM242S	0.0388	0.4206	0.0204	0.4738	0.0404	0.0059
CM243F	0.0427	0.4653	0.0547	0.3944	0.0369	0.0061
CM243T	0.0320	0.5489	0.0115	0.3736	0.0275	0.0064
CM244F	0.0287	0.5019	0.0315	0.3898	0.0402	0.0079
CM244S	0.0223	0.5675	0.0000	0.3715	0.0316	0.0071
CM244T	0.0274	0.5122	0.0224	0.3891	0.0404	0.0085
CM245F	0.0206	0.5077	0.0244	0.3899	0.0490	0.0083
CM245T	0.0214	0.4519	0.0622	0.4020	0.0547	0.0077
NP237F	0.0334	0.2472	0.1415	0.4434	0.1122	0.0222
NP237T	0.0361	0.2865	0.1111	0.4395	0.1040	0.0228
NP238F	0.0222	0.2645	0.1140	0.4497	0.1231	0.0265
NP238T	0.0225	0.3036	0.0886	0.4334	0.1211	0.0309
PU238F	0.0518	0.2996	0.1500	0.4217	0.0665	0.0104
PU238T	0.0328	0.2923	0.1141	0.4677	0.0766	0.0166
PU239F	0.0321	0.3158	0.1177	0.4416	0.0777	0.0151
PU239T	0.0327	0.3217	0.0991	0.4492	0.0801	0.0172
PU240F	0.0220	0.3397	0.0777	0.4583	0.0854	0.0169
PU241F	0.0140	0.2980	0.0772	0.4612	0.1260	0.0235
PU241T	0.0143	0.2973	0.0730	0.4654	0.1245	0.0254
PU242F	0.0093	0.2558	0.0706	0.4728	0.1680	0.0236
TH232F	0.0299	0.1188	0.1345	0.4688	0.2279	0.0201
TH232H	0.0427	0.1654	0.1612	0.4623	0.1597	0.0087
U233F	0.0785	0.2056	0.2375	0.3832	0.0849	0.0103
U233H	0.1405	0.2528	0.2523	0.3011	0.0525	0.0008
U233T	0.0791	0.2072	0.2315	0.3732	0.0954	0.0137
U234F	0.0588	0.2140	0.2029	0.4067	0.1026	0.0150
U235F	0.0337	0.1684	0.1846	0.4416	0.1356	0.0360
U235H	0.0648	0.2792	0.2005	0.3758	0.0747	0.0050
U235T	0.0365	0.2156	0.1712	0.4245	0.1310	0.0213
U236F	0.0272	0.1835	0.1463	0.4464	0.1670	0.0295
U238F	0.0104	0.1369	0.0928	0.4469	0.2675	0.0454
U238H	0.0210	0.1995	0.1152	0.4768	0.1665	0.0210

Table 9.18Fits to the Keepin six Group model using the FISPIN code with UKFY2 fission products yields and preliminary JEF2 decay data for the 39 fissioning systems. The Lambdas being fixed at the U235T values from this work.

Group	1	2	3	4	5	6
lambda	0.0125	0.0304	0.0903	0.2502	0.6454	2.4580
AM241F	0.0536	0.3633	0.0868	0.3593	0.1134	0.0237
AM241T	0.0311	0.4248	0.0121	0.3969	0.1068	0.0283
AM242MF	0.0226	0.3975	0.0449	0.3873	0.1101	0.0376
AM242MT	0.0261	0.3970	0.0468	0.3835	0.1126	0.0340
AM243F	0.0146	0.3723	0.0453	0.3828	0.1348	0.0502
AM243T	0.0145	0.4071	0.0296	0.3705	0.1292	0.0489
CF252S	0.0073	0.4813	0.0202	0.3502	0.1172	0.0238
CM242S	0.0358	0.3996	0.0144	0.4182	0.1148	0.0172
CM243F	0.0394	0.4400	0.0436	0.3695	0.0889	0.0187
CM243T	0.0293	0.5203	0.0126	0.3497	0.0708	0.0174
CM244F	0.0262	0.4733	0.0282	0.3620	0.0865	0.0237
CM244S	0.0203	0.5384	0.0000	0.3503	0.0704	0.0206
CM244T	0.0250	0.4836	0.0209	0.3604	0.0850	0.0249
CM245F	0.0187	0.4769	0.0256	0.3565	0.0944	0.0279
CM245T	0.0195	0.4225	0.0512	0.3746	0.1038	0.0283
NP237F	0.0312	0.2284	0.0991	0.4119	0.1615	0.0679
NP237T	0.0336	0.2675	0.0786	0.4021	0.1519	0.0663
NP238F	0.0205	0.2445	0.0811	0.4067	0.1682	0.0790
NP238T	0.0207	0.2824	0.0648	0.3893	0.1566	0.0862
PU238F	0.0486	0.2791	0.1061	0.4108	0.1211	0.0343
PU238T	0.0304	0.2731	0.0748	0.4429	0.1314	0.0474
PU239F	0.0298	0.2939	0.0842	0.4150	0.1317	0.0454
PU239T	0.0303	0.3010	0.0688	0.4174	0.1328	0.0497
PU240F	0.0202	0.3175	0.0538	0.4186	0.1381	0.0518
PU241F	0.0128	0.2759	0.0579	0.4016	0.1756	0.0762
PU241T	0.0130	0.2755	0.0545	0.4047	0.1740	0.0783
PU242F	0.0084	0.2350	0.0561	0.3873	0.2217	0.0915
TH232F	0.0284	0.1061	0.0972	0.3697	0.2951	0.1035
TH232H	0.0405	0.1498	0.1155	0.3976	0.2344	0.0623
U233F	0.0751	0.1854	0.1700	0.3954	0.1342	0.0399
U233H	0.1351	0.2286	0.1973	0.3235	0.1011	0.0144
U233T	0.0756	0.1875	0.1655	0.3844	0.1373	0.0497
U234F	0.0559	0.1946	0.1458	0.3962	0.1547	0.0528
U235F	0.0319	0.1525	0.1233	0.4248	0.1718	0.0958
U235H	0.0614	0.2553	0.1546	0.3669	0.1340	0.0278
U235T	0.0343	0.1973	0.1196	0.4002	0.1743	0.0743
U236F	0.0255	0.1673	0.1028	0.3941	0.2121	0.0983
U238F	0.0096	0.1241	0.0671	0.3467	0.2907	0.1618
U238H	0.0195	0.1832	0.0808	0.4054	0.2257	0.0854

Table 9.19: Differences between FISPIN calculation and six group model using the 12 parameter fits of Table 9.16.

System	Maximum % diff	%SD	number of points within standard deviations				
			1	2	3	4	5
AM241F	0.634	0.1327	296	377	406	407	408
AM241T	0.874	0.1952	295	380	406	407	408
AM242MF	0.598	0.1577	266	395	406	407	408
AM242MT	1.05	0.2275	303	382	406	407	408
AM243F	0.522	0.1715	262	394	407	408	408
AM243T	0.497	0.1651	259	393	407	408	408
CF252S	0.989	0.2018	322	377	405	406	408
CM242S	0.617	0.1524	281	384	406	407	408
CM243F	0.616	0.1365	302	382	406	407	408
CM243T	0.623	0.1461	285	382	406	407	408
CM244F	0.816	0.1797	304	379	406	407	408
CM244S	0.778	0.1704	306	377	406	407	408
CM244T	0.843	0.1870	300	379	406	407	408
CM245F	1.02	0.2196	302	379	406	407	408
CM245T	1.02	0.2192	304	379	406	407	408
NP237F	0.916	0.2378	272	395	406	407	408
NP237T	0.756	0.2158	273	398	406	407	408
NP238F	0.759	0.2494	265	392	407	408	408
NP238T	0.682	0.2318	264	392	408	408	408
PU238F	0.755	0.1550	300	376	406	407	408
PU238T	0.835	0.1779	291	383	406	407	408
PU239F	0.856	0.1930	286	388	406	407	408
PU239T	0.779	0.1867	281	391	406	407	408
PU240F	0.586	0.1756	261	395	407	408	408
PU241F	0.599	0.2067	260	394	408	408	408
PU241T	0.667	0.2142	261	394	407	408	408
PU242F	0.645	0.2310	262	393	408	408	408
TH232F	0.918	0.3220	268	390	408	408	408
TH232H	0.880	0.2631	271	391	407	408	408
U233F	1.13	0.2397	306	382	406	407	408
U233H	0.602	0.1822	272	390	407	408	408
U233T	0.984	0.2023	296	380	406	407	408
U234F	1.01	0.2250	290	386	406	407	408
U235F	0.910	0.3023	271	391	407	408	408
U235H	0.844	0.1641	306	374	405	406	408
U235T	0.907	0.2648	272	394	407	408	408
U236F	0.800	0.2936	270	390	408	408	408
U238F	0.976	0.3470	262	394	408	408	408
U238H	0.730	0.2674	263	389	408	408	408

Table 9.20: Differences between FISPIN calculation and six group model using the 6 parameter fits of Table 9.17.

System	Maximum % diff	%SD	number of points within standard deviations				
			1	2	3	4	5
AM241F	5.277	1.76997	284	384	408	408	408
AM241T	12.41	4.46131	277	379	408	408	408
AM242MF	13.37	4.70202	282	377	408	408	408
AM242MT	12.15	4.27126	280	377	408	408	408
AM243F	16.25	5.68500	286	374	408	408	408
AM243T	17.26	6.07802	288	375	408	408	408
CF252S	25.32	8.87814	298	373	408	408	408
CM242S	10.413	3.71415	278	381	408	408	408
CM243F	10.087	3.56741	278	380	408	408	408
CM243T	14.45	5.19135	282	377	408	408	408
CM244F	14.12	5.02283	282	377	408	408	408
CM244S	18.07	6.45693	286	374	408	408	408
CM244T	14.86	5.30635	283	378	408	408	408
CM245F	16.99	6.01770	289	374	408	408	408
CM245T	15.33	5.38727	288	376	408	408	408
NP237F	4.569	1.50362	282	383	404	405	408
NP237T	6.313	2.14711	281	381	408	408	408
NP238F	8.396	2.82976	285	379	408	408	408
NP238T	10.202	3.51224	280	378	408	408	408
PU238F	3.424	1.10436	290	381	403	404	408
PU238T	7.043	2.38741	282	381	408	408	408
PU239F	7.266	2.43468	283	379	408	408	408
PU239T	8.150	2.80030	280	381	408	408	408
PU240F	12.38	4.33948	280	377	408	408	408
PU241F	14.27	4.93830	287	376	408	408	408
PU241T	13.99	4.84020	286	376	408	408	408
PU242F	15.93	5.50193	289	374	408	408	408
TH232F	-5.790	2.18133	286	388	408	408	408
TH232H	-3.996	1.48478	298	384	408	408	408
U233F	5.535	1.90107	279	384	408	408	408
U233H	6.293	2.20002	274	386	408	408	408
U233T	5.270	1.70830	278	387	407	408	408
U234F	4.161	1.30596	276	387	406	407	408
U235F	3.424	1.06953	284	382	406	407	408
U235H	3.385	1.02755	291	378	406	407	408
U235T	2.201	0.873311	279	388	408	408	408
U236F	-2.949	1.15692	281	383	408	408	408
U238F	7.688	2.81241	266	387	408	408	408
U238H	6.469	2.27519	269	385	408	408	408

Table 9.21: Differences between FISPIN calculation and six group model using the 6 parameter fits of Table 9.18.

System	Maximum % diff	%SD	number of points within standard deviations				
			1	2	3	4	5
AM241F	2.214	0.75101	282	387	408	408	408
AM241T	6.570	2.3247	283	379	408	408	408
AM242MF	7.023	2.4645	285	378	408	408	408
AM242MT	6.302	2.2019	284	380	408	408	408
AM243F	8.813	3.0941	289	378	408	408	408
AM243T	9.395	3.2845	291	378	408	408	408
CF252S	14.60	5.1432	294	377	408	408	408
CM242S	5.261	1.8496	283	381	408	408	408
CM243F	5.085	1.7735	282	381	408	408	408
CM243T	7.742	2.7373	284	378	408	408	408
CM244F	7.502	2.6415	286	378	408	408	408
CM244S	9.910	3.4796	289	377	408	408	408
CM244T	7.968	2.8137	284	378	408	408	408
CM245F	9.262	3.2679	287	377	408	408	408
CM245T	8.375	2.9641	288	378	408	408	408
NP237F	1.761	0.58613	290	384	407	408	408
NP237T	2.854	0.99391	278	385	408	408	408
NP238F	3.936	1.3428	285	382	408	408	408
NP238T	5.033	1.7493	284	380	408	408	408
PU238F	-1.145	0.39214	304	383	408	408	408
PU238T	3.190	1.0934	284	384	408	408	408
PU239F	3.253	1.0866	282	381	408	408	408
PU239T	3.888	1.3463	281	383	408	408	408
PU240F	6.560	2.3255	283	380	408	408	408
PU241F	7.637	2.6771	288	378	408	408	408
PU241T	7.396	2.5772	288	378	408	408	408
PU242F	8.639	3.0112	291	378	408	408	408
TH232F	-3.171	1.2232	281	390	408	408	408
TH232H	-2.119	0.81461	285	387	408	408	408
U233F	-3.552	1.3251	286	382	408	408	408
U233H	-3.740	1.4532	279	383	408	408	408
U233T	-3.151	1.1599	289	378	408	408	408
U234F	-2.511	0.94849	284	384	408	408	408
U235F	2.561	0.91626	286	382	408	408	408
U235H	-2.024	0.77499	283	382	408	408	408
U235T	0.9155	0.26491	273	395	406	407	408
U236F	1.840	0.34728	301	390	403	404	408
U238F	3.547	1.2526	283	384	408	408	408
U238H	2.938	1.0309	282	385	408	408	408

The following figures are an example of the results obtained from the calculations. They show the delayed neutron emission rates for the thermal neutron fission of ^{235}U and ^{239}Pu, and the fast neutron fission of ^{238}U. Both the pulse and long irradiation results are shown. To show this work in context the figures plot the results of the FISPIN calculation, the six group parameter fits to this and the six group parameters published by other workers.

The other workers who have published complete six group parameters include Keepin[9.2], Brady and England[9.6] and Waldo[9.10]. The work of Keepin and Waldo are based upon experimental measurements. The Brady and England work is based upon summation calculations. Brady and England based their work on the update of the Meek and Rider fission yields and the ENDF/B-V decay data. They augmented the decay data with model calculations of P_n values and individual nuclides' delayed neutron spectra. They were thus able to also produce estimates of the delayed neutron spectra after fission.

The differences from the "long" irradiation case FISPIN results are shown for each of the six group parameter sets in a second figure.

When comparing the results it should be born in mind that experiments have difficulty in measuring the neutron emission at very long times after irradiation due to the fall off of the delayed neutron emission to below the experimental noise. Also, the short lived groups cannot be measured directly as moderated neutrons from the irradiation will still be present. One common technique to measure the short lived groups is to use a pulsed irradiation. The long-lived groups and the moderated neutrons then become a background that can be subtracted. However, at very short times, this background will swamp the neutron emission being measured. Thus the short and long measurements will not be as accurate as those at the middle of the range. Also the accuracy of the six group model will be less than that for $\bar{\nu}_d$.

The six group half-lives vary from ~0.2 to 60 seconds. Thus if any neutron emission occurs outside of this time window it cannot be accurately represented by the model.

Figure 9.1: The delayed neutron emission rate following a pulse and long irradiation for the thermal neutron fission of ^{235}U.

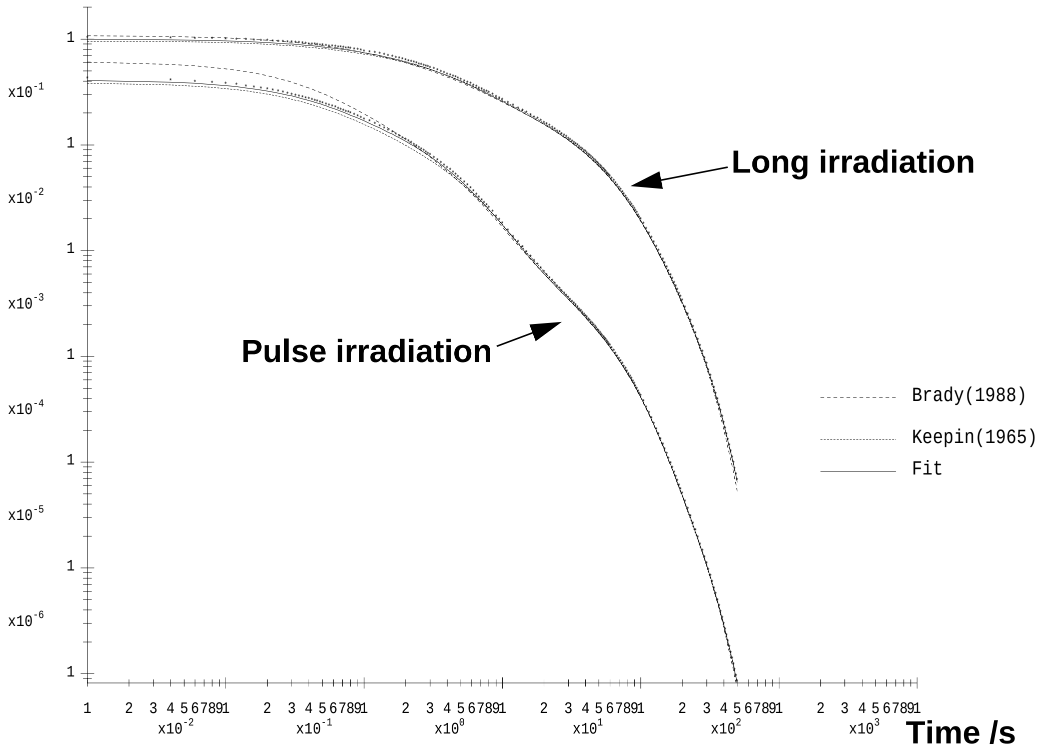


Figure 9.2: Percentage difference between the long irradiation FISPIN calculations and 6 group parameters for the thermal neutron fission of ^{235}U

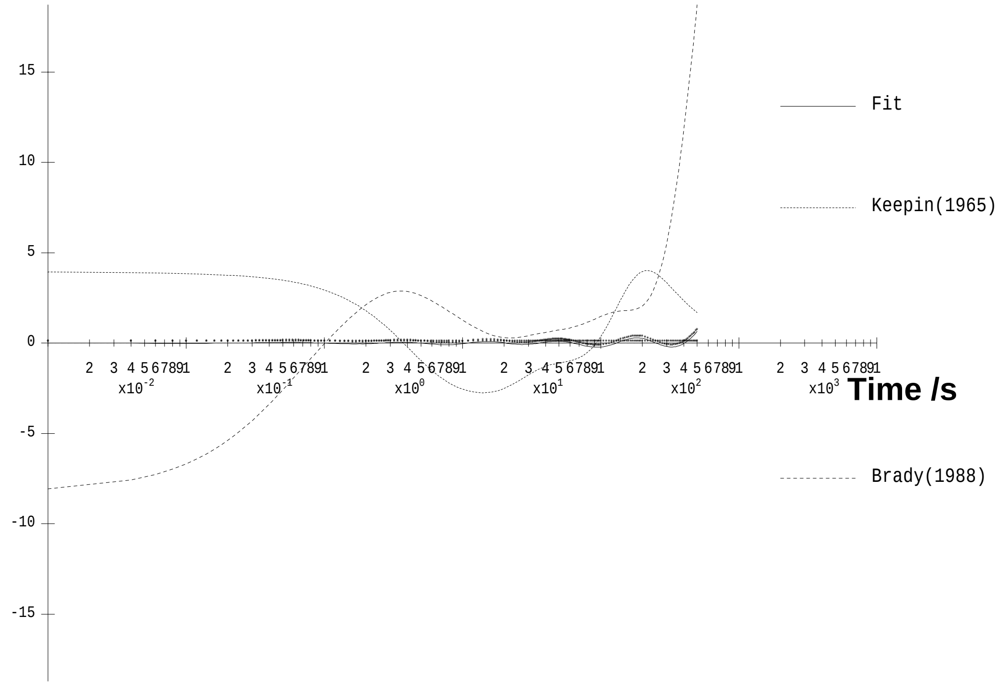


Figure 9.3:The delayed neutron emission rate following a pulse and long irradiation for the thermal neutron fission of ^{239}Pu.

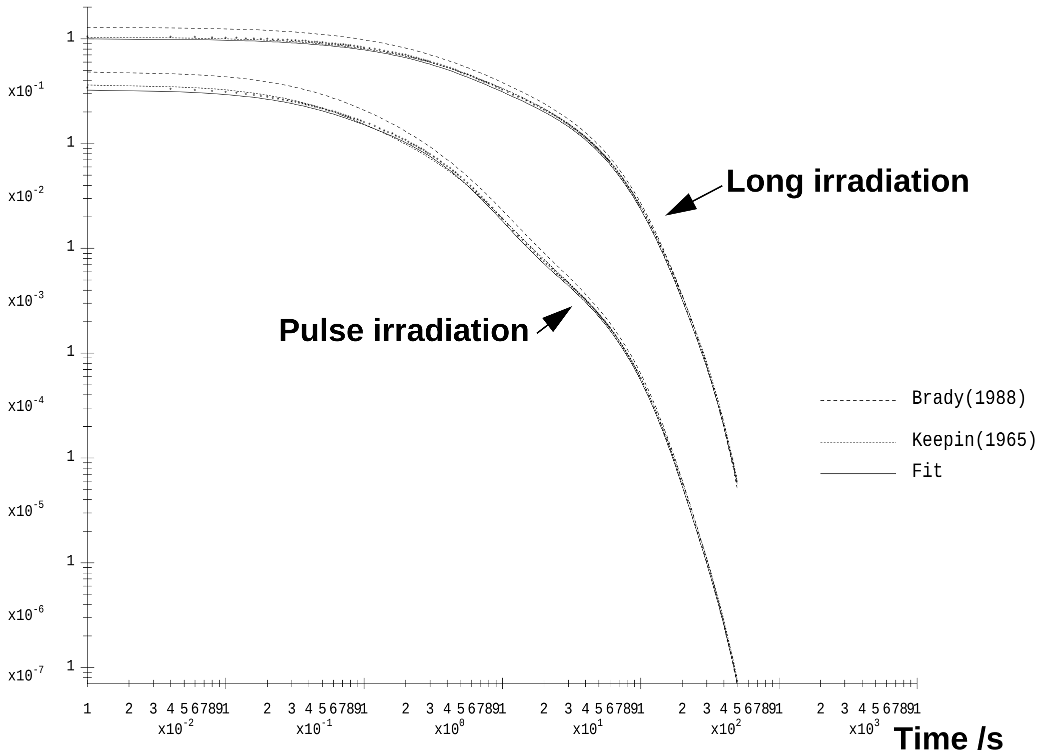


Figure 9.4:Percentage difference between the long irradiation FISPIN calculations and 6 group parameters for the thermal neutron fission of ^{239}Pu

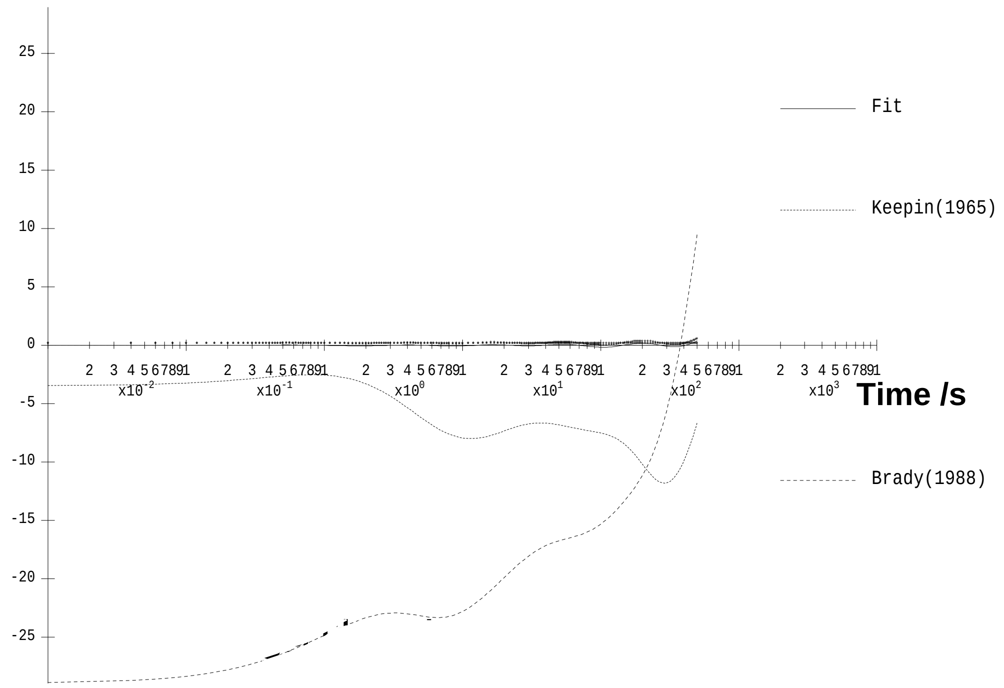


Figure 9.5:The delayed neutron emission rate following a pulse and long irradiation for the fast neutron fission of ^{238}U.

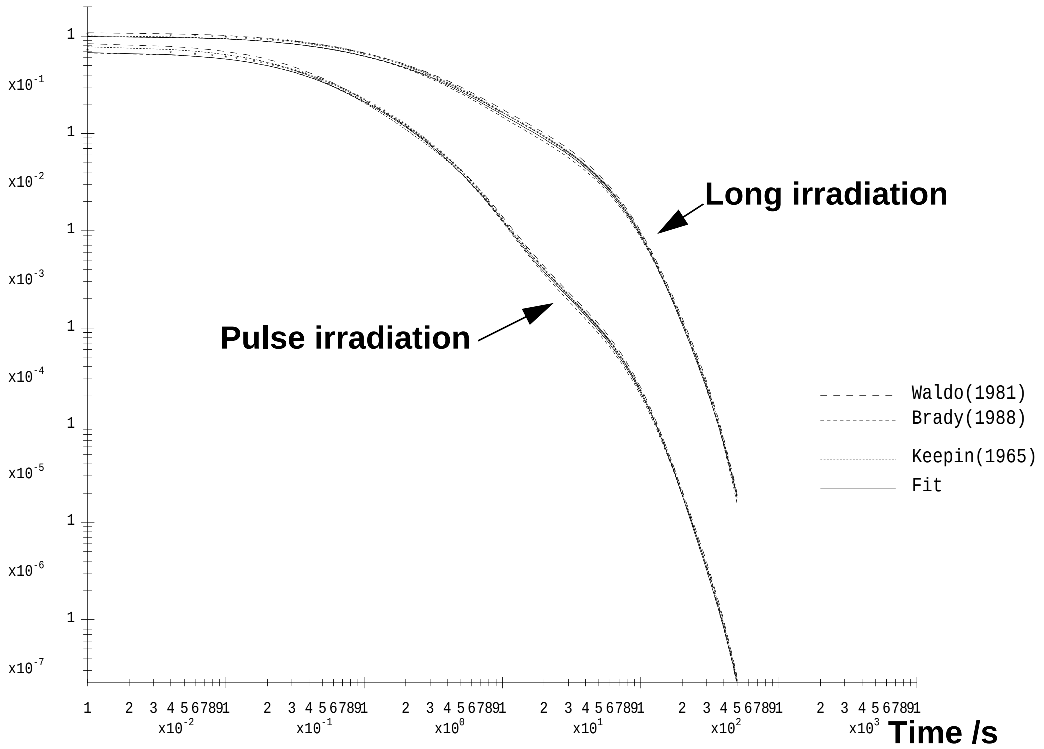
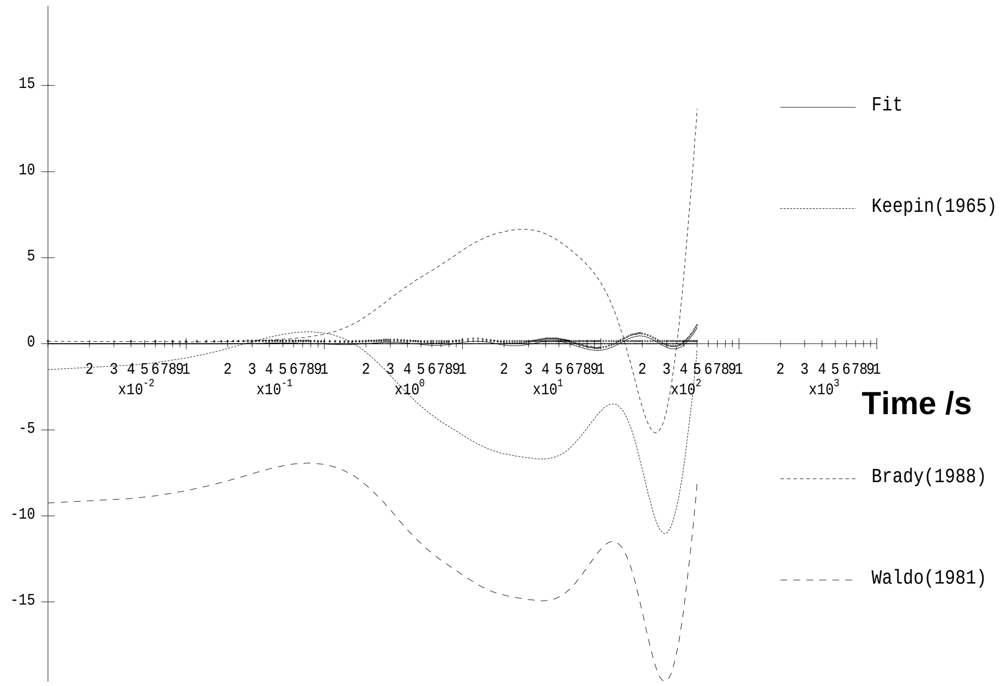


Figure 9.6: Percentage difference between the long irradiation FISPIN calculations and 6 group parameters for the fast neutron fission of ^{238}U.



The majority of the differences in these figures can be attributed to the different values of $\bar{\nu}_d$ used in the calculations. This can be seen on the figures showing the differences, because at zero time after the “long” irradiation the neutron emission rate will equal the $\bar{\nu}_d$ value. Thus the differences at zero time are directly related to the $\bar{\nu}_d$ values used.

In the region up to 200 seconds the remaining differences are of the same order as the uncertainty on $\bar{\nu}_d$. For times greater than 200 seconds the neutron emission has dropped to such a level that the differences have no practical significance.

9.3.2 Decay heat calculations

Another method of testing the fission yield dataset is in calculation of decay heat using decay data and fission yields in an inventory code. The FISPIN code used for the delayed neutron calculations above also generates the power produced by decay of fission products. Thus the energy released per fission can be extracted from the “long” irradiation FISPIN models. This requires the approximation described above that the rate of emission at zero time after a “long” irradiation is equal to the total emission following a single ‘average’ fission.

The decay power in FISPIN is generated by calculating the activity of each fission product. The average baryon, lepton and photon release per decay (often loosely referred to as the alpha, beta and gamma energy release per decay) in the decay data file is then used to calculate the components of the energy release. These components can then be summed over all fission products to produce totals. It should be noted that the ENDF/B decay data format includes the delayed neutron energy release in the alpha energy release values as this covers all baryons.

The version of FISPIN used in these calculations also used the total energy release for each decay branch in the decay data. This is calculated from the binding energies and is given in the decay data file. Hence a total decay power including neutrinos was also generated. The neutrino energy release was thus calculated by subtraction. The results of these calculations are shown in Table 9.22 for each of the 39 fissioning systems.

Table 9.22: Calculated delayed energy release per fission.

Nuclide	Average delayed energy release per fission in MeV				
	Total	beta	gamma	alpha	neutrino
AM241F	15.7390	4.79557	4.42494	1.94255E-04	6.5183
AM241T	16.0106	4.90415	4.44575	1.26687E-04	6.6606
AM242MF	17.5343	5.34123	4.96844	1.58028E-04	7.2245
AM242MT	18.0544	5.52760	4.97669	1.94630E-04	7.5499
AM243F	19.5907	5.99902	5.54356	2.16633E-04	8.0479
AM243T	19.8362	6.07784	5.58494	2.44248E-04	8.1732
CF252S	19.8770	6.21047	5.20475	1.30202E-04	8.4617
CM242S	12.5941	3.84906	3.58749	3.63303E-05	5.1575
CM243F	14.0780	4.26621	3.99532	7.87618E-05	5.8164
CM243T	14.3828	4.39328	4.03421	6.90842E-05	5.9552
CM244F	15.7202	4.77613	4.43039	1.01247E-04	6.5136
CM244S	15.9284	4.88581	4.47624	7.71950E-05	6.5663
CM244T	15.7734	4.79532	4.44029	1.00561E-04	6.5377
CM245F	17.0605	5.19413	4.79192	1.30464E-04	7.0743
CM245T	17.4481	5.32354	4.86709	1.32539E-04	7.2573
NP237F	19.7303	6.00895	5.48515	3.76642E-04	8.2358
NP237T	19.9430	6.08048	5.46396	4.17397E-04	8.3981
NP238F	21.3995	6.54241	5.92135	4.02045E-04	8.9353
NP238T	21.3399	6.53268	5.89469	4.48627E-04	8.9121
PU238F	15.7993	4.79294	4.47115	1.98432E-04	6.5350
PU238T	15.5911	4.71935	4.49008	1.06685E-04	6.3816
PU239F	17.6549	5.36554	5.00604	2.07672E-04	7.2831
PU239T	17.7189	5.40062	4.95770	1.99531E-04	7.3604
PU240F	19.2116	5.86983	5.37211	2.21704E-04	7.9694
PU241F	21.8447	6.71432	6.03755	3.11226E-04	9.0925
PU241T	21.9267	6.73069	6.05606	3.46218E-04	9.1396
PU242F	23.6137	7.27032	6.46576	3.96404E-04	9.8772
TH232F	27.3841	8.22437	7.79775	1.56241E-03	11.360
TH232H	22.8252	6.81977	6.83133	1.11457E-03	9.1730
U233H	13.6818	4.04465	4.24601	3.85983E-04	5.3908
U233T	17.0150	5.06582	4.94797	5.75037E-04	7.0006
U234F	18.6637	5.60385	5.32437	5.89650E-04	7.7349
U235F	21.7001	6.58928	6.05029	5.54042E-04	9.0600
U235H	17.2386	5.14087	5.16158	4.30630E-04	6.9357
U235T	21.5246	6.53190	5.95720	6.30297E-04	9.0349
U236F	23.2179	7.05850	6.41035	6.70750E-04	9.7484
U238F	27.8521	8.54696	7.53807	7.12207E-04	11.766
U238H	23.5930	7.18285	6.70420	6.00352E-04	9.7054

There exist several published evaluations for the energy release per fission. The values published by James[9.18][9.19] are shown in Table 9.22, along with comparison with the calculations above.

Table 9.23: Comparison of calculations and the James evaluation of beta and gamma energy release from fission.

Fissioning system	Average delayed energy release per fission in MeV					
	beta			gamma		
	Evaluated	Calculated	Difference/standard deviation	Evaluated	Calculated	Difference/standard deviation
TH232F	8.3 ± 0.6	8.2	-0.2	8.6 ± 2.0	7.8	-0.5
U233T	5.7 ± 0.4	5.1	-1.5	5.9 ± 1.3	4.9	-0.8
U234F	6.2 ± 0.5	5.6	-1.2	6.4 ± 1.3	5.3	-0.7
U235T	7.0 ± 0.3	6.5	-1.7	7.2 ± 1.1	6.0	-1.1
U236F	7.5 ± 0.5	7.1	-0.8	7.7 ± 1.7	6.4	-0.8
U238F	8.9 ± 0.6	8.5	-0.7	8.4 ± 1.6	7.5	-0.6
Np237T	6.4 ± 0.5	6.0	-0.8	6.6 ± 1.4	5.5	-0.8
Pu238T	5.5 ± 0.4	4.7	-2.0	5.7 ± 1.2	4.5	-1.0
Pu239T	6.1 ± 0.6	5.4	-1.2	6.1 ± 1.3	5.0	-0.8
Pu240F	6.5 ± 0.5	5.9	-1.2	6.8 ± 1.4	5.4	-1.0
Pu241T	7.4 ± 0.6	6.7	-1.2	7.8 ± 1.6	6.1	-1.1
Pu242F	8.0 ± 0.6	7.3	-1.2	8.2 ± 1.6	6.5	-1.0

It is interesting that the beta energy release is under-estimated by around 0.5 MeV and the gamma energy release is under-estimated by 1.5 MeV. These differences are either due to an under-estimation by summation or an over-estimation in the evaluation.

A second evaluation by Beck[9.20] was similarly compared. These results are shown in Table 9.22. The results show a similar beta energy under-estimate of around 0.5 MeV and a gamma under-estimate around 0.8 MeV.

The experimental delayed energy release data available is minimal. These evaluations of delayed energy release depend upon extrapolation from the thermal neutron fission of

[9.18] Journal of Nuclear Energy, Vol. 23, p517-536. M.F.James (1969).
[9.19] Journal of Nuclear Energy, Vol. 25, p513-523. M.F.James (1971).
[9.20] “The components of fission energy release for 17 actinides”, Stanford University (U.S.A.), Thesis by C.A.Beck (1978).

Table 9.24: Comparison of calculations and the Beck evaluation of beta and gamma energy release from fission.

Fissioning system	Average delayed energy release per fission in MeV					
	beta			gamma		
	Evaluated	Calculated	Difference/standard deviation	Evaluated	Calculated	Difference/standard deviation
TH232F	8.2 ± 0.5	8.2	0.0	8.0 ± 0.75	7.8	-0.3
U233T	5.6 ± 0.5	5.1	-1.0	5.5 ± 0.75	4.9	-0.8
U234F	6.1 ± 0.5	5.6	-1.0	5.9 ± 0.75	5.3	-0.8
U235T	6.9 ± 0.3	6.5	-1.3	6.7 ± 0.5	6.0	-1.4
U236F	7.4 ± 0.5	7.1	-0.6	7.2 ± 0.75	6.4	-1.1
U238F	8.7 ± 0.5	8.5	-0.4	8.5 ± 0.75	7.5	-1.3
Np237T	6.2 ± 0.5	6.0	-0.4	6.1 ± 0.75	5.5	-0.8
Pu238T	5.4 ± 0.5	4.7	-1.4	5.3 ± 0.75	4.5	-1.1
Pu239T	6.0 ± 0.5	5.4	-1.2	5.9 ± 0.75	5.0	-1.2
Pu240F	6.4 ± 0.5	5.9	-1.0	6.3 ± 0.75	5.4	-1.2
Pu241T	7.3 ± 0.5	6.7	-1.2	7.1 ± 0.75	6.1	-1.3
Pu242F	7.7 ± 0.5	7.3	-0.8	7.6 ± 0.75	6.5	-1.5

^{235}U to fill many of the gaps in the data.

The data used by James(1969) for the beta energy release from thermal neutron fission of ^{235}U are based upon the work of Carter et al[9.21], McNair et al[9.22], McMahon[9.23] and Armbruster[9.24]. Some of these values were modified after private communication between James, his colleagues and the authors. These results are shown in Table 9.25.

Table 9.25: Experimental measurements of the beta energy release from fission for thermal neutron fission of ^{235}U.

Reference	Energy per fission
Carter et al (1959)	7.1 ± 0.6
Armbruster (1962)	7.75 ± 0.28
McNair et al (1965)	6.73 ± 0.35
McMahon (1968)	6.3 ± 0.5

[9.21] Phys. Rev. 113, 280. R.E. Carter, F.Reines, J.J. Wagner and M.E. Wyman (1959).
[9.22] Report AWRE 0-95/65. A.McNair, F.J. Bannister, R.L.G. Keith and H.W. Wilson (1965)
[9.23] Thesis, University of Strathclyde. T.D.MacMahon (1968)
[9.24] Z.f. Phys., 170, 274. P.Armbruster and H. Meister (1962)

From these results it is immediately obvious that the Armbruster result is significantly higher than the other measurements, although this result has the smallest quoted uncertainty.

James in his work used an unweighted mean because of this obvious discrepancy. This gave a value of 7.0 ± 0.4. Applying a weighted mean gives a value of 7.2 ± 0.3. The normalized residual technique, described in chapter 3, gives 7.1 ± 0.3. If, however, the Armbruster result is removed the weighted mean becomes 6.7 ± 0.2.

It is interesting to speculate that if the James beta energy release evaluations were scaled down by 0.3 MeV, about half of the discrepancy between the evaluation and calculation would be resolved. However, considering the uncertainties of the summation calculation, and of the experimental measurements no valid conclusions can be drawn from the differences between the calculations and the previous evaluations.

10 Summary of results and areas of future work

10.1 Experimental data and analysis

The UKFY3 experimental database considerably extends the UKFY2 database and has allowed an improved study of fission yield systematics to be carried out. There are now a reduced number of discrepancies within the file, however many still remain which need to be resolved.

New experimental work currently being carried out will allow much greater understanding of the mass, charge and isomeric fission product yield distributions and these should be incorporated in future evaluations. Two experimental programmes are especially important. The first is the work of Mutter at Darmstadt, Germany, using the Heidelberg-Darmstadt Crystal-Ball-Spectrometer. This allows the mass and nuclear charge of fission fragments, mass and nuclear charge of ternary fragments, angular distribution in coincidence with gamma-rays and neutrons emitted and their angular distribution to be measured for a single fission event. These data will allow a greater understanding of the production of fission products and may lead to new predictive theories. The second is the program of Rudstam at Studsvik, Sweden, who will soon publish new the fractional independent and isomeric yield measurements for the fast neutron fission of ^{238}U and ^{232}Th.

10.2 Chain yields

The chain yield data can be fitted effectively by the five Gaussian model, and the parameters can be extrapolated for unmeasured systems. However, the fine structure on the mass distributions, believed to be the result of an odd-even effect and prompt neutron emission, has yet to be satisfactorily modelled. Modelling of this fine structure may allow the five Gaussian model to be significantly improved.

There is still a need for some yields to be better known, especially those used for determining the burn-up of spent nuclear fuel, which would allow higher accuracy in these analyses. The work of Mutter and Rudstam soon to be published will allow greater understanding of the chain yield distributions.

10.3 Ternary yields

This work has shown that the alpha yields are dependent upon the initial, and not compound, nucleus parameters. Also, the alpha and tritium yields cannot be shown to have any strong energy dependency. New work by Wagemans at Geel, Belgium, will allow greater testing of this energy independence approximation. These empirical results suggest either that the extra mass and energy added to the compound nucleus by a neutron does not significantly alter the nuclear parameters effecting light charged particle emission or that some form of compensation is occurring between the neutron energy and the resultant yields.

The hydrogen yields have been shown to be a constant fraction of the alpha yield over a wide range of nuclides suggesting that the triton and alpha particle production processes are linked.

10.4 Fractional independent yields

The fractional independent Z_p model was used to fit the UKFY3 experimental data. It was found that more fissioning systems could be fitted in this work that for UKFY2. However, the data needs to be examined in more detail to remove the remaining discrepancies in UKFY3. This is especially true for yields of isomeric states where many discrepancies still exist. New data, primarily from Rudstam, may allow some of these discrepancies to be resolved and a greater understanding of the charge distribution may be obtained.

If the fitting of the Z_p model can be improved, by removing discrepancies and adding new experimental data, it would then be worthwhile to try to implement Wahl's more detailed A_p' model.

10.5 Independent yield isomeric splitting

The Rudstam extension of the Madland and England model allows a considerable improvement to be made to the modelling of isomeric splitting. However, this model requires more experimental data before the parameters can be extrapolated to other fissioning systems. Until such time as these parameters can be modelled the Madland and England model, or experimental data must be used. The UKFY3 experimental data still contains many discrepancies for this data type and further work is suggested in order to remove these.

10.6 The production of the UKFY3.0 evaluated file

A new library of independent and cumulative yields have been produced for a selected set of nuclides considered important for applications. Improved understanding of fission product yield systematics from the study of UKFY3 has considerably improved the file.

10.7 Testing of the UKFY2 and UKFY3.0 data libraries

The UKFY2 evaluated file has been used to generate decay heat and delayed neutron emission for the fissioning systems evaluated. So far the UKFY3.0 evaluation has only been used to generate the average number of delayed neutrons per fission. The UKFY3.0 testing should be extended to the same level as employed for UKFY2. Also, the UKFY3.0 evaluated file should now be used in spent fuel inventory calculations and the results compared with post irradiation experimental analyses.

Some yields important for applications should be studied in depth to remove discrepancies, e.g. where the UKFY3 and latest US evaluations differ significantly. Especially important in this regard are the yields of ^{148}Nd, ^{137}Cs and ^{140}Ba which are used for many applications.

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Appendices

A.1 Chain and cumulative yield tables

These tables contain experimental values for chain yields and cumulative yields for isobars near the stable ends of mass chains. In averaging the data, a cumulative yield was only included if the sum of fractional independent yields for subsequent isobars is so small that the cumulative yield should be a good estimate of the chain yield.

These Tables give in successive columns:

i The mass number

ii An asterisk * after the mass shows that the automatic down-weighting procedure has been used for at least one measurement.

iii The element and any isomeric state identifier.

iv The source of the value is given as a number corresponding to its reference in Appendix A.5.

v If the measurement was relative, or ratio of ratio, the reference number is followed by ‘r’.

vi The measured data. The yield is given as a percentage per fission, and the standard deviation as a percentage of the yield. For a relative measurement, the yield was calculated using standard yields from a preliminary evaluation involving absolute measurements only. For absolute measurements the standard deviation is the value stored in the UKFY3 database. For relative measurements, the percentage uncertainties of the experiment and of the evaluated standard yields are combined in quadrature.

vii A ‘W’ after the percentage standard deviation indicates that the measurement was down-weighted using the method of reduced residuals. This technique was applied if a measurement was discrepant and no resolution of the discrepancy could be found by further study of the relevant reference.

viii If a chain having an isobar, near enough to the stable end for its cumulative yield to be a good measure of the chain yield, which has an isomer, then the calculated cumulative yields of ground and excited state, and direct measurements of the chain yield, are averaged separately and shown.

ix The normalised residual of the measured value.

x If a chain having an isobar, near enough to the stable end for its cumulative yield to be a good measure of the chain yield, which has an isomer, then the values of χ^2 per degree of freedom are given separately for data for each isomer and for direct data for the chain yield. Cases for which χ^2>2 are flagged, to indicate discrepancies.

xi The separate weighted means of the cumulative yields of each isomer and of the chain yield are adjusted to give consistency. The contribution to χ^2 from this is then given.

xii In the results section of the table the first parameters are the total χ^2 and χ^2 per degrees of freedom .

xiii The weighted mean chain yield and its percentage standard deviation is then given. Both internal 'I' and external 'E' standard deviations are quoted.

xiv The larger of the internal and external standard deviations is flagged by an 'A' and is taken as the recommended standard deviation.

xv Discrepant sets of data are flagged, if χ^2 per degrees of freedom are >1 or > 2.

Index of Cumulative and Chain yield Tables

A.2 Discrepancy tables for chain yield data

These Tables refer to the experimental data tables in appendix A.1. They summarize the deficiencies in these chain yields measurements.

A table is included for each fissioning reaction (i.e. for each fissile nucleus and incident neutron energy). Successive columns give the mass number of the fission product chain, the number of measurements (if any), the reference number and the contribution to χ^2 of the most discrepant measurement, the value of the total χ^2, and the probability of such a value arising by chance. An entry is made if the probability is less than 10%, and the line has a flag for additional emphasis if it is less than 1.5% or 0.01%. A “w” at the head of the line shows that automatic down-weighting has been applied to at least one measurement (probably the one specified), but that the discrepancy remained: the χ^2 and the probability are those subsequent to the down-weighting. Of course, the listing of the most discrepant measurement should not be taken as indicating that it is inevitably the most suspect: all data should be re-investigated in any detailed evaluation of the chain.

If these is only one measurement, this is stated and the reference number given. An entry is made in this case because it is felt very strongly that any single experiment needs confirmation by others.

There are also clearly labelled entries for chains with no measurements.

An entry reading ‘DATA BUT NOT “INCLUDED”’ indicates that measurements have been made but only on fission products too far along the chain for them to be good estimates of the chain yield.

A.3 Fractional Independent yield tables

These Tables of fractional independent yields give in successive columns:

i The mass number.

ii The chemical symbol, and whether the measurement was for the ground state (G), the first or second excited state (M or N), or for all states combined (T).

iii The reference number.

iv The value for the fractional independent yield derived from this measurement.

v The percentage standard deviation.

vi The reduced residual (defined in chapter 3).

vii The type of measurement:

FractInd	Direct measurement of the fractional independent yield.
Ind/Y(A)	A measurement of the independent yield converted to a fractional yield by dividing by the chain yield obtained by evaluation of measurements given in the Tables of Appendix A.1.
Ind/I(A)	A measurement of the independent yield converted to a fractional yield by dividing by the chain yield obtained by interpolation between yields of neighbouring chains, no measurements of this chain yield being available.
Ind/C(A)	A measurement of the independent yield converted to a fractional yield by dividing by the chain yield obtained from a 5-Gaussian fit, no measurements of this or of neighbouring chain yields being available.

viii The weighted mean of the measurements.

ix The value of χ^2 / degrees of freedom.

x The internal percentage standard deviation (I).

xi The external percentage standard deviation (E).

xii The recommended percentage standard deviation (A), which is the larger of the two previous columns.

Index of fractional independent yield tables

TABLE	1	ENERGY:THERMAL	NUCLIDE:TH-229
TABLE	2	ENERGY:THERMAL	NUCLIDE:U -233
TABLE	3	ENERGY:THERMAL	NUCLIDE:U -235
TABLE	4	ENERGY:THERMAL	NUCLIDE:NP-237
TABLE	5	ENERGY:THERMAL	NUCLIDE:NP-238
TABLE	6	ENERGY:THERMAL	NUCLIDE:PU-238
TABLE	7	ENERGY:THERMAL	NUCLIDE:PU-239
TABLE	8	ENERGY:THERMAL	NUCLIDE:PU-241
TABLE	9	ENERGY:THERMAL	NUCLIDE:AM-241
TABLE	10	ENERGY:THERMAL	NUCLIDE:AM-242
TABLE	11	ENERGY:THERMAL	NUCLIDE:CM-245
TABLE	12	ENERGY:THERMAL	NUCLIDE:CF-249
TABLE	13	ENERGY:FAST	NUCLIDE:TH-232
TABLE	14	ENERGY:FAST	NUCLIDE:U -235
TABLE	15	ENERGY:FAST	NUCLIDE:U -236
TABLE	16	ENERGY:FAST	NUCLIDE:U -238
TABLE	17	ENERGY:FAST	NUCLIDE:NP-237
TABLE	18	ENERGY:FAST	NUCLIDE:PU-239
TABLE	19	ENERGY:FAST	NUCLIDE:PU-240
TABLE	20	ENERGY:HIGH	NUCLIDE:TH-232
TABLE	21	ENERGY:HIGH	NUCLIDE:U -233
TABLE	22	ENERGY:HIGH	NUCLIDE:U -235
TABLE	23	ENERGY:HIGH	NUCLIDE:U -238
TABLE	24	ENERGY:HIGH	NUCLIDE:PU-239
TABLE	25	ENERGY:HIGH	NUCLIDE:AM-241
TABLE	26	ENERGY:SPONT.	NUCLIDE:CM-244
TABLE	27	ENERGY:SPONT.	NUCLIDE:CF-252
TABLE	28	ENERGY:SPONT.	NUCLIDE:FM-254

A.4 Discrepancy Tables for Fractional Independent yields

These tables refer to the experimental data tables in appendix A.3. They summarize the deficiencies in these fractional independent yields measurements.

A table is given for each fissioning system. Fractional independent yields with discrepant measurements are shown. Each entry lists the mass number, the chemical symbol of the nuclide, the value of χ^2 per degrees of freedom, the probability of this value arising by chance, and the number of measurements. A “w” at the start of a line shows that automatic down-weighting has been applied to at least one of the measurements. A flag at the end of the line shows if the probability falls below 1.5% or 0.01%.

A.5 Experimental reference list

This appendix lists the references for the UKFY3 database. These reference numbers are detailed in this appendix. The reference numbers are divided into five section each with a range of values.

These are:

• The Crouch database (1981)	1 to 1190
• The Banai reference list (1986)	1191 to 1206
• The James and Mills list (upto 1993).	2000 to 2115
• Data extracted from the EXFOR database (Last update August 1993)	10433-77500 (not continuous)
• Data that requires special note are prefixed by a nine	90000-92043 (not continuous)

Where possible the references are abbreviated using the standard CINDA and EXFOR journal and report codes, as given in the “CINDA93” book[2.6]

A.6 Computer codes used in the UKFY3 evaluation

The following are the computer codes used to produce the UKFY3.0 evaluated file. For each code the purpose and UNIX run commands are given.

- **ANALYSE**

Purpose: To analyse the experimental data

To run: cd ~/fy/Analysis/shell
csh runx

To test for convergence of iteration 5 the following commands are executed.

```
cd ~/fy/Analysis/datafiles
diff -rs 5 6
```

- **FOUTPUT**

Purpose: To format the tables output from ANALYSE.

To run: cd ~/fy/Analysis
echo 0 | fortran/foutput/foutput.out

The `FOUTPUT` code reads yield masses for which to prepare tables from the standard input until "0" is entered. If no masses are selected then all masses are printed. This allows listings tailored to individual requirements.The output is left in the directory ~/fy/Analysis/output_short.

- **MKCHAIN**

Purpose: To combine the experiment data with model estimates to generate complete fission product chain yield distributions for UKFY3.

To run: cd ~/fy/Analysis/fortran/mkchain_ukfy3

```
mkchain.out > mkchain.log.301094
```

Output files are stored in ~/fy/Library/data/chain_ukfy3.

- **MKFIND**

Purpose: To generate complete sets of fractional independent yields.

To run: cd ~/fy/Analysis/fortran/mkfind_ukfy3

mkfind.exe

The output files were placed in the directory `~/fy/Analysis/data/find_ukfy3`.

- **FITFYS_SCAN**

Purpose: To adjust the fission product yield data sets with different numbers of constraints to determine how many constraints should be applied.

To run: cd ~/fy/Library/fitfys_jef2

OBJ/run_scan.out

- **FITFYS**

Purpose: To adjust the fission product yield data sets and produce adjusted independent yield files.

It is first necessary to edit setdat.f to include the number of constraints to apply.

To run: cd ~/fy/Library/fitfys_jef2

OBJ/run_scan.out

- **DECAY_PROG**

Purpose: To produce adjusted independent and cumulative yields in ENDF-6 format.

To run: cd ~/fy/Library/decay_prog

`OBJ/run.out`

- **MAKEQ**

Purpose: To generate the Q matrix required by the DECAY_PROG code.

To run: cd ~/fy/Library/decay_data/makeq

makeq.exe

- **MKUKFY3**

Purpose: To generate the complete ENDF-6 formatted file, UKFY3.0, from the outputs of DECAY_PROG.

To run: cd ~/fy/Library/decay_prog/mkukfy3

mkukfy3.exe

TABLE 1 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 227TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
77	AS	21496	1.400E+00	20.0							1.400E+00	20.0
83	BR	21496	1.100E+00	31.8								
89	SR	21496	8.000E+00	5.4							8.000E+00	5.4
90	SR	21496	8.720E+00	10.0							8.720E+00	10.0
91	SR	21496	6.210E+00	15.6							6.210E+00	15.6
95	ZR	21496	3.400E+00	8.5							3.400E+00	8.5
97	ZR	21496	2.410E+00	23.7							2.410E+00	23.7
99	MO	21496	1.440E+00	9.7							1.440E+00	9.7
103	RU	21496	5.800E-01	15.5							5.800E-01	15.5
105	RU	21496	2.800E-01	14.3							2.800E-01	14.3
106	RU	21496	1.900E-01	31.6							1.900E-01	31.6
109	PD	21496	3.300E-02	33.3							3.300E-02	33.3
111	AG	21496	5.100E-02	19.6							5.100E-02	19.6
112	PD	21496	2.900E-02	20.7							2.900E-02	20.7
113	AG	21496	3.400E-02	20.6							3.400E-02	20.6
115	CD	21496	1.770E-01	20.0							1.770E-01	20.0
121	SN	21496	1.100E-01	36.4								
125	SN	21496	4.300E-01	23.3								
127	SB	21496	6.800E-01	23.5							6.800E-01	23.5
	TE	21496	5.300E-01	47.2								
129	TE(M)	21496	1.360E+00	20.6							1.360E+00	20.6
131	I	21496	2.610E+00	17.6							2.610E+00	17.6
132	TE	21496	3.300E+00	1.8							3.300E+00	1.8
133	I	21496	4.800E+00	21.0							4.800E+00	21.0
137	CS	21496	6.930E+00	17.9							6.930E+00	17.9
140	BA	21496	7.710E+00	15.0							7.710E+00	15.0
141	CE	21496	7.620E+00	6.7							7.620E+00	6.7
143	CE	21496	6.970E+00	6.9							6.970E+00	6.9
144	CE	21496	5.950E+00	7.4							5.950E+00	7.4
147	ND	21496	1.800E-01	27.8								

TABLE 2 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 229TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
77	GE	640	1.100E-02	15.0					3.33	3.33	9.215E-03	(I) 19.7 >2
	AS	300	1.050E-01	50.0		1.83						(E) 36.0A
	CHAIN	2102	9.100E-03	20.0		-1.83						
78	GE	640	5.200E-02	15.0							2.030E-01	14.8
	AS	2024	2.030E-01	14.8								
79	GE	12734	4.300E-01	18.6							4.300E-01	18.6
80	AS	12734	2.780E+00	28.1							2.780E+00	28.1
83*	SE(G)	2024	3.150E+00	2.5					2.46	1.23	5.154E+00	(I) 3.6
		12734	3.290E+00	4.6								(E) 4.0A
		12807	3.420E+00	2.6								
	SE(M)	2024	1.990E+00	7.0								
	BR	640	6.400E+00	5.0W		0.49						
		300	8.000E+00	30.0		1.23						
	CHAIN	2102	4.510E+00	5.0W		-2.45						
84	SE	12734	8.280E+00	4.2					2.45	1.22	1.052E+01	(I) 2.4
		2024	8.390E+00	3.6								(E) 2.6A
	BR(G)	2024	1.012E+01	3.2	1.020E+01	-0.64	1.22					
		640	1.090E+01	5.0		1.61						
		12807	9.720E+00	5.8		-1.07						
	BR(M)	2024	3.180E-01	6.3	3.180E-01							
85	SE	12734	7.500E+00	16.0							9.830E+00	15.0
	KR(M)	2024	8.790E+00	3.4								
		12807	9.200E+00	7.3								
	CHAIN	2102	9.830E+00	15.0								
86	BR	12734	5.320E+00	10.2		-2.43			5.91	5.91	6.327E+00	(I) 5.5 >2
		2024	7.050E+00	6.5		2.43						(E) 13.5A
87	KR	2024	6.270E+00	4.8		-0.38			0.18	0.09	6.363E+00	(I) 2.7A
		12807	6.380E+00	4.2		0.08						(E) 0.8
		12734	6.460E+00	5.4		0.32						
88*	BR	12734	3.130E+00	15.7					10.48	2.62	7.095E+00	(I) 2.6 >2
	KR	2024	6.580E+00	3.8W		-1.75						(E) 4.2A
		12807	7.240E+00	8.8		0.24						
	RB	640	7.660E+00	6.0		1.41						
		12807	7.690E+00	6.1		1.44						
	SR	224r	3.012E+00	20.1								
	CHAIN	2102	9.230E+00	10.0		2.38						
89	KR	12734	8.470E+00	7.7		-0.66			7.16	1.19	8.889E+00	(I) 1.4
		2024	8.910E+00	2.2		0.13						(E) 1.5A
	RB	12734	7.660E+00	7.2		-2.29						
		2024	8.990E+00	2.0		0.76						
	SR	300	7.200E+00	30.0		-0.78						
		640	9.300E+00	5.0		0.92						
	CHAIN	2102	8.600E+00	20.0		-0.17						
90	KR	12734	5.960E+00	10.4					0.72	0.72	8.367E+00	(I) 4.9A
	RB(M)	12734	2.070E+00	6.8								(E) 4.2
	SR	300	6.700E+00	30.0		-0.85						
		640	8.440E+00	5.0		0.85						
91	RB	12734	4.350E+00	8.3					8.90	2.22	6.520E+00	(I) 2.1 >2
	SR	300	5.700E+00	30.0		-0.40	0.00	0.00				(E) 3.1A
		12807	6.250E+00	2.9		-1.27						
		2024	6.590E+00	3.9		0.94						
	Y (G)	640	7.400E+00	5.0	7.400E+00	0.00		5.65				
	Y (M)	12807	3.790E+00	2.1	3.790E+00	0.00		0.00				

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
CHAIN	2102	7.110E+00	10.0	6.386E+00	0.00		0.86						
92 SR	12807	5.430E+00	11.2		-0.86				2.86	0.71	5.927E+00	(I)	3.0A
	2024	5.780E+00	4.2		-0.93							(E)	2.6
Y	12807	6.080E+00	7.7		0.35								
	640	6.400E+00	8.0		0.99								
CHAIN	2102	6.530E+00	10.0		0.96								
93*SR	12734	3.650E+00	11.8						7.00	3.50	4.938E+00	(I)	3.2 >2
	12807	3.660E+00	11.5									(E)	6.0A
	12734	4.280E+00	12.1										
	2024	4.400E+00	3.4										
	12807	4.500E+00	15.6										
Y	640	4.400E+00	6.0W		-2.46								
	12807	5.020E+00	6.4		0.30								
	2024	5.370E+00	4.7		2.24								
94 SR	12734	3.180E+00	5.7						2.63	2.63	3.384E+00	(I)	6.4 >2
Y	2024	3.150E+00	8.3		-1.62							(E)	10.4A
	12807	3.910E+00	10.0		1.62								
95 Y	12734	2.350E+00	15.3						0.78	0.26	2.673E+00	(I)	2.4A
ZR	2024	2.550E+00	6.3		-0.84							(E)	1.2
	640	2.600E+00	15.0		-0.19								
	300	2.600E+00	30.0		-0.09								
	12807	2.700E+00	2.6		0.88								
97 ZR	640	6.100E-01	15.0		-0.97				4.66	1.17	6.978E-01	(I)	1.6
	12807	6.850E-01	4.5		-0.44							(E)	1.7A
	12807	6.970E-01	2.1		-0.08								
	2024	7.000E-01	2.9		0.13								
CHAIN	2102	8.600E-01	10.0		1.90								
99*MO	2024	1.050E-01	9.5W		-1.52				10.17	3.39	1.225E-01	(I)	6.7 >2
	640	1.500E-01	10.0W		2.24							(E)	12.3A
	300	1.600E-01	50.0		0.47								
CHAIN	2102	3.300E-01	20.0W		2.50								
103 RU	300	4.300E-02	50.0		1.72				2.98	2.98	5.928E-03	(I)	9.9 >2
	640	5.900E-03	10.0		-1.72							(E)	17.2A
105 RU	300	2.500E-02	50.0		1.36				1.85	1.85	8.017E-03	(I)	5.0
	640	8.000E-03	5.0		-1.36							(E)	6.8A
106 RU	640	1.170E-02	9.0		-0.83				0.68	0.68	1.179E-02	(I)	8.9A
	300	2.000E-02	50.0		0.83							(E)	7.3
109 PD	300	1.300E-02	50.0		0.90				0.81	0.81	7.170E-03	(I)	9.8A
	640	7.100E-03	10.0		-0.90							(E)	8.9
111 AG	300	2.000E-02	50.0		-0.11				1.00	0.50	2.111E-02	(I)	4.9A
	640	2.100E-02	5.0		-0.67							(E)	3.5
CHAIN	2102	3.000E-02	30.0		0.99								
112 PD	300	1.800E-02	50.0		-0.35				1.57	0.79	2.109E-02	(I)	4.9A
	640	2.100E-02	5.0		-0.56							(E)	4.4
CHAIN	2102	3.300E-02	30.0		1.21								
113 AG	640	1.440E-02	10.0		-1.32				3.95	1.98	1.482E-02	(I)	9.5
	300	1.600E-02	50.0		0.15							(E)	13.3A
CHAIN	2102	3.600E-02	30.0		1.98								
115 CD(G)	640	1.840E-02	5.0		-0.83				0.70	0.35	1.857E-02	(I)	4.8A
	300	2.100E-02	50.0		0.23							(E)	2.8
CHAIN	2102	2.200E-02	20.0		0.80								
117 CD	640	1.630E-02	12.0		-0.13				0.02	0.02	1.652E-02	(I)	6.0A
IN	640	1.660E-02	7.0		0.13							(E)	0.8
118 CD	640	1.740E-02	5.0								1.740E-02		5.0
121 SN	640	7.400E-03	5.0								1.200E-02		20.0
CHAIN	2102	1.200E-02	20.0										

TABLE 2 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 229TH. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
125 SN	300	2.900E-02	50.0		1.77				3.13	3.13	3.419E-03	(I)	28.9 >2
SN(M)	640	2.200E-03	14.0									(E)	51.1A
CHAIN	2102	3.300E-03	30.0		-1.77								
126 CHAIN	2102	5.500E-03	20.0								5.500E-03		20.0
127 SB	300	3.900E-02	50.0						3.05	3.05	5.087E-03	(I)	19.6 >2
	640	8.400E-03	5.0									(E)	34.3A
TE	300	4.000E-02	50.0		1.75								
CHAIN	2102	5.000E-03	20.0		-1.75								
129 SB	640	1.220E-01	7.0		-2.09				4.89	2.44	1.293E-01	(I)	6.0 >2
	2024	1.700E-01	11.8		2.21							(E)	9.4A
TE	300	1.230E-01	50.0		-0.10								
130 SB(G)	12734	1.500E-01	40.0	1.720E-01	-0.40	0.15			0.15	0.15	5.920E-01	(I)	10.6A
	12807	1.740E-01	10.3		1.34							(E)	4.0
SB(M)	12734	4.200E-01	14.3	4.200E-01									
131*SB	12734	5.800E-01	24.1		0.00				14.38	2.05	5.797E-01	(I)	1.9 >2
	2024	7.220E-01	5.5W		2.15							(E)	2.8A
TE	12807	4.400E-01	6.8W		-2.33								
I	2024	5.690E-01	10.5		-0.19								
	12807	6.090E-01	2.3W		1.10								
	300	8.700E-01	50.0		0.67								
CHAIN	640	4.300E-01	10.0W		-2.14								
	2102	5.760E-01	10.0		-0.07								
132*SB(G)	2024	1.260E+00	11.9						9.96	1.99	1.201E+00	(I)	1.9
SB(M)	12734	7.400E-01	6.8									(E)	2.7A
TE	12807	1.180E+00	2.5		-1.08								
	300	1.230E+00	30.0		0.08								
	2024	1.440E+00	13.9		1.20								
	640	8.700E-01	15.0W		-2.50								
I	12807	1.250E+00	3.2		1.51								
CHAIN	2102	1.290E+00	10.0		0.70								
133*SB	2024	7.640E-01	6.5						8.16	2.04	3.075E+00	(I)	1.6 >2
TE(G)	12807	1.420E+00	9.9									(E)	2.3A
	12734	1.490E+00	8.1										
TE(M)	12807	8.600E-01	12.8										
I	12807	3.080E+00	1.9		0.14								
	2024	3.170E+00	3.2		1.09								
CS	223r	2.382E+00	11.2W		-2.49								
CHAIN	2102	2.910E+00	10.0		-0.58								
	640	4.000E+00	24.0		0.96								
134 TE	12807	4.760E+00	7.6						0.52	0.52	5.678E+00	(I)	7.9A
	12807	5.020E+00	9.2									(E)	5.8
	2024	5.120E+00	5.9										
	12734	5.720E+00	8.0										
I (G)	12807	5.950E+00	3.0										
	2024	6.340E+00	2.4										
I (M)	2024	2.150E-01	4.7										
	12734	9.700E-01	19.6										
CHAIN	640	5.300E+00	13.0		-0.72								
	2102	5.960E+00	10.0		0.72								
135 I	12807	4.980E+00	2.8		-0.44	0.00	0.00	2.8>2	8.36	1.39	5.092E+00	(I)	1.5
	12807	5.030E+00	2.6		0.00							(E)	1.7A
	2024	5.070E+00	5.1		0.16								
XE(G)	2024	5.350E+00	3.2	5.350E+00	0.00		2.30						
XE(M)	2024	1.300E-01	46.1	1.300E-01	0.00		0.00						

TABLE 2 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 229TH. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CS	223r	4.801E+00	11.2		0.00		0.00						
	CHAIN	640	4.960E+00	6.0	5.030E+00	-0.24	1.10	0.56						
		2102	6.500E+00	10.0		2.28								
136	I (G)	12734	2.100E+00	41.4	2.100E+00					0.22	0.22	3.203E+00	(I)	27.3A
	I (M)	12734	1.040E+00	16.3	1.103E+00	-0.59	0.22						(E)	12.8
		12734	1.140E+00	11.4		0.77								
137	XE	12734	5.280E+00	11.0						0.00	0.00	5.986E+00	(I)	11.1A
		2024	7.190E+00	3.3									(E)	0.6
	CS	300	5.900E+00	30.0		-0.05								
		640	6.000E+00	12.0		0.05								
138	XE	12734	6.810E+00	6.5		-1.70	0.00	0.00	1.1	8.37	1.39	7.502E+00	(I)	1.4
		12807	7.210E+00	11.0		-0.41							(E)	1.6A
		2024	7.500E+00	1.6		-0.63								
		12734	8.090E+00	6.1		1.16								
	CS(G)	2024	7.030E+00	5.1	7.030E+00	0.00		1.06						
	CS(M)	2024	5.300E-01	18.9	5.300E-01	0.00		0.00						
	CHAIN	640	8.000E+00	5.0	7.535E+00	1.21	1.44	0.09						
		2102	8.630E+00	10.0		1.28								
139	XE	2024	7.050E+00	3.5						1.41	0.35	8.639E+00	(I)	2.3A
		12734	7.700E+00	14.3									(E)	1.4
	CS	12734	7.200E+00	40.3		-0.50								
		2024	8.690E+00	3.5		0.23								
	BA	12807	8.370E+00	4.2		-0.93								
	CHAIN	2102	8.790E+00	10.0		0.18								
		640	8.960E+00	5.0		0.80								
140	XE	12734	3.800E+00	63.2						0.55	0.18	8.137E+00	(I)	1.9A
	CS	2024	6.000E+00	3.3									(E)	0.8
		12734	6.120E+00	11.3										
	BA	300	7.200E+00	30.0										
		12807	7.980E+00	2.5										
		2024	8.130E+00	3.7										
	LA	12807	8.010E+00	4.2		-0.42								
		12807	8.160E+00	2.2		0.26								
	CHAIN	640	8.700E+00	28.0		0.23								
		2102	9.220E+00	20.0		0.59								
141	BA	12807	7.000E+00	10.0		-0.68				7.49	1.07	7.463E+00	(I)	2.0
		12734	7.290E+00	9.9		-0.25							(E)	2.0A
		12807	7.530E+00	7.2		0.13								
	CE	2024	7.200E+00	4.2		-1.00								
		12807	7.240E+00	3.5		-1.10								
		300	7.800E+00	30.0		0.14								
	CHAIN	640	7.830E+00	5.0		1.01								
		640	8.350E+00	5.0		2.27								
142	BA	12734	7.250E+00	7.2		-0.56				2.26	0.45	7.525E+00	(I)	2.1A
		12807	7.270E+00	7.7		-0.47							(E)	1.4
		2024	7.450E+00	3.9		-0.31								
	LA	2024	7.590E+00	3.2		0.36								
	CHAIN	2102	7.480E+00	10.0		-0.06								
		640	8.500E+00	9.0		1.30								
143	CE	12807	7.700E+00	11.7		-1.37				7.69	1.92	8.901E+00	(I)	2.3
		12807	8.680E+00	5.0		-0.58							(E)	3.1A
		2024	9.370E+00	3.2		2.11								
	CHAIN	2102	7.550E+00	10.0		-1.86								
		640	8.870E+00	5.0		-0.08								
144	LA	2024	1.085E+01	4.6		1.63				2.80	0.93	1.035E+01	(I)	3.8A
		12734	9.580E+00	7.4		-1.30							(E)	3.7
	CE	300	8.600E+00	30.0		-0.69								

TABLE 2 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 229TH. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CHAIN	640	9.570E+00	20.0		-0.42								
145	CE	12734	5.400E+00	14.6		-0.41				0.35	0.17	5.718E+00	(I)	3.0A
		2024	5.750E+00	3.1		0.59							(E)	1.3
	CHAIN	640	5.400E+00	15.0		-0.40								
146	CE	2024	3.220E+00	6.2		-1.51				3.30	0.66	3.442E+00	(I)	3.9A
		12807	3.440E+00	11.3		0.00							(E)	3.2
		12807	3.700E+00	16.2		0.44								
		12734	3.940E+00	11.7		1.13								
		12734	4.050E+00	20.7		0.74								
	PR	12734	3.560E+00	7.6		0.51								
147	PR	640	1.830E+00	15.0		-0.68				5.94	1.19	2.009E+00	(I)	3.7
		12807	1.930E+00	8.3		-0.56							(E)	4.1A
		12807	2.020E+00	7.4		0.08								
	ND	12807	1.930E+00	6.7		-0.75								
		2024	2.220E+00	18.5		0.52								
	CHAIN	2102	2.560E+00	10.0		2.25								
148	CE	12734	8.800E-01	39.8								1.360E+00		17.6
	PR	12734	1.360E+00	17.6										
149	ND	12807	6.000E-01	11.7								7.100E-01		15.0
		2024	6.400E-01	9.4										
	CHAIN	640	7.100E-01	15.0										
151	CHAIN	640	4.600E-02	15.0								4.600E-02		15.0

TABLE 3 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 232U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
85	KR(M)	22119	2.240E+00	20.0											
87	KR	22119	3.610E+00	15.0								3.610E+00		15.0	
88	KR	22119	5.540E+00	15.0								5.540E+00		15.0	
89	KR	22119	7.270E+00	5.0								7.270E+00		5.0	
91	SR	22119	7.070E+00	5.0		-0.32				0.10	0.10	7.104E+00	(I)	4.7A	
		2070	7.440E+00	15.0		0.32							(E)	1.5	
92	SR	2070	5.800E+00	15.0		-0.91				0.92	0.46	6.531E+00	(I)	5.2A	
		22119	6.710E+00	6.0		0.84							(E)	3.6	
	Y	2070	6.400E+00	15.0		-0.15									
93	SR	22119	6.940E+00	5.0								6.940E+00		5.0	
94	SR	22119	4.230E+00	10.0								5.230E+00		10.0	
	Y	22119	5.230E+00	10.0											
95	ZR	22119	5.860E+00	10.0								5.860E+00		10.0	
97	ZR	2070	3.450E+00	50.0		-1.04				1.08	1.08	5.233E+00	(I)	4.0	
		22119	5.260E+00	4.0		1.04							(E)	4.2A	
99	MO	22119	4.230E+00	5.0		-0.13				0.02	0.02	4.239E+00	(I)	4.7A	
		2070	4.320E+00	15.0		0.13							(E)	0.6	
127	SB	22119	4.700E-01	15.0								4.700E-01		15.0	
129	SB	22119	1.570E+00	7.0								1.570E+00		7.0	
131*	TE	2070	1.410E+00	40.0W		-1.53				3.40	1.70	2.396E+00	(I)	6.1	
	I	2070	1.400E+00	15.0W		-0.44							(E)	7.9A	
		22119	3.580E+00	6.0W		1.94									
132	TE	22119	4.950E+00	4.0		-1.19				1.42	1.42	4.985E+00	(I)	3.9	
	I	2070	6.520E+00	20.0		1.19							(E)	4.7A	
133	TE(M)	2070	5.880E+00	20.0		0.24				0.10	0.05	5.605E+00	(I)	2.0A	
	I	22119	5.600E+00	2.0		-0.32							(E)	0.5	
		2070	5.860E+00	20.0		0.22									
134	TE	22119	2.630E+00	5.0						0.00	0.00	4.139E+00	(I)	3.0A	
	I (G)	22119	4.120E+00	3.0	4.120E+00								(E)	0.0	
	I (M)	22119	9.300E-01	10.0	9.300E-01										
135	I	22119	3.610E+00	9.0						0.00	0.00	5.281E+00	(I)	6.0A	
		2070	5.370E+00	15.0									(E)	0.0	
	XE(G)	22119	5.280E+00	6.0	5.280E+00										
	XE(M)	22119	1.370E+00	21.0	1.370E+00										
138	XE	22119	3.900E+00	5.0						0.00	0.00	5.152E+00	(I)	4.9A	
	CS(G)	22119	5.010E+00	5.0	5.010E+00								(E)	0.0	
	CS(M)	22119	7.500E-01	25.0	7.500E-01										
139	XE	22119	2.580E+00	3.0								6.910E+00		5.0	
	CS	22119	6.270E+00	5.0											
	BA	22119	6.910E+00	5.0											
140	LA	22119	7.720E+00	5.0								7.720E+00		5.0	
141	CE	22119	7.280E+00	5.0								7.280E+00		5.0	
142	LA	2070	4.860E+00	15.0		-2.25				5.04	5.04	6.349E+00	(I)	4.8	>2
		22119	6.660E+00	5.0		2.25							(E)	10.7A	
143	CE	22119	5.250E+00	5.0								5.250E+00		5.0	
144	LA	22119	3.770E+00	3.0								3.770E+00		3.0	
145	CE	22119	3.080E+00	4.0								3.080E+00		4.0	
146	CE	22119	2.420E+00	7.0								2.420E+00		7.0	

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
1	H PI	2065r	6.542E-03	40.2								6.542E-03		40.2	
2	H PI	825r	8.466E-04	15.6								8.466E-04		15.6	
3*	H PI	1201	1.140E-02	10.0		2.09				10.29	3.43	9.691E-03	(I)	7.7	>2
		2065r	1.627E-02	20.4		2.04							(E)	14.3A	
		826r	5.782E-03	25.3W		-2.22									
		825r	9.499E-03	15.6		-0.15									
4*	HE	1191	1.880E-01	10.0		-1.05				14.01	1.75	2.065E-01	(I)	3.1	
	HE PI	2065r	1.631E-01	10.6W		-2.45							(E)	4.1A	
		2055r	1.971E-01	10.6		-0.47									
		921	2.060E-01	10.0		-0.02									
		2058r	2.073E-01	6.2		0.08									
		1201	2.170E-01	10.0		0.51									
		854	2.420E-01	10.0		1.52									
		2050	2.451E-01	10.0		1.64									
		2056	2.470E-01	10.0		1.70									
6	HE PI	825r	2.829E-03	15.6		1.86				5.43	2.72	2.153E-03	(I)	11.5	>2
		826r	1.507E-03	25.3		-2.23							(E)	19.0A	
		831r	2.375E-03	20.4		0.53									
7	LI PI	825r	7.640E-05	15.6								7.640E-05		15.6	
8	HE PI	825r	7.579E-05	15.6								3.717E-05		15.6	
	LI PI	825r	3.717E-05	15.6											
9	LI PI	825r	7.434E-05	15.6								7.434E-05		15.6	
	BE PI	825r	7.640E-05	22.0											
10	BE PI	825r	8.880E-04	15.6								8.880E-04		15.6	
77	GE	13361	1.000E-02	10.0								3.800E-02		7.9	
		343	8.600E-03	15.0											
	AS	13361	1.900E-02	10.0											
		343	1.930E-02	15.0											
	CHAIN	10918	3.800E-02	7.9											
78	CHAIN	10918	6.200E-02	6.5								6.200E-02		6.5	
79	CHAIN	10918	1.250E-01	4.8								1.250E-01		4.8	
80	CHAIN	10918	2.480E-01	3.2								2.480E-01		3.2	
81	SE(G)	82	3.180E-01	13.0	3.180E-01	0.00		1.58	1.6	1.67	1.67	3.700E-01	(I)	2.6	
	SE(M)	82	1.380E-02	15.0	1.380E-02	0.00		0.00					(E)	3.4A	
	CHAIN	10918	3.730E-01	2.7	3.730E-01	0.00		0.09							
82	CHAIN	10918	5.890E-01	5.0								5.890E-01		5.0	
83	SE(G)	82	3.940E-01	10.0						8.94	2.98	1.073E+00	(I)	2.8	>2
	BR	343	7.500E-01	20.0									(E)	4.8A	
		13361	7.900E-01	10.0											
	KR	13377	1.200E+00	5.0		2.44									
		72	1.230E+00	10.0		1.31									
	CHAIN	10918	1.000E+00	5.0		-1.83									
		247	1.030E+00	5.0		-1.03									
84*	KR	13377	2.000E+00	5.0W		2.47				9.10	3.03	1.683E+00	(I)	1.2	>2
		72	2.060E+00	10.0		1.88							(E)	2.2A	
	CHAIN	10918	1.660E+00	1.3W		-0.48									
		247	1.730E+00	5.0		0.66									
85	KR(G)	866	4.950E-01	5.0						3.63	1.21	2.179E+00	(I)	1.1	
		582	5.120E-01	5.0									(E)	1.2A	
		601r	5.352E-01	5.5											
		13377	5.930E-01	5.0											
	RB	582	2.230E+00	5.0		0.47									
		72	2.650E+00	10.0		1.79									
	CHAIN	10918	2.170E+00	1.1		-1.13									
		247	2.220E+00	5.0		0.38									
86*	KR	13377	3.360E+00	1.0W		1.78				4.58	1.53	3.042E+00	(I)	0.7	

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		72	3.440E+00	10.0		1.23						(E)	0.9A
	CHAIN	10918	2.820E+00	1.0W		-0.15							
		247	2.900E+00	5.0		-1.55							
87	KR	72	4.810E+00	10.0		1.75			3.31	1.65	3.969E+00	(I)	1.0
	CHAIN	10918	3.960E+00	1.0		-1.12						(E)	1.3A
		247	4.060E+00	5.0		0.46							
88	SR	17	5.300E+00	10.0					0.24	0.24	5.435E+00	(I)	1.0A
		217	5.390E+00	10.0								(E)	0.5
		72	5.540E+00	10.0									
	CHAIN	10918	5.430E+00	1.0		-0.49							
		247	5.570E+00	5.0		0.49							
89	SR	13054	3.946E+00	50.0		-1.10			6.33	0.63	6.109E+00	(I)	2.4A
		305	5.560E+00	10.0		-1.02						(E)	1.9
		2025r	5.808E+00	6.6		-0.85							
		13474	5.870E+00	5.0		-0.94							
		343	6.000E+00	15.0		-0.12							
		72	6.150E+00	10.0		0.07							
		2025r	6.325E+00	7.6		0.47							
		13361	6.500E+00	10.0		0.62							
		31	6.750E+00	10.0		0.97							
	Y	217	6.630E+00	10.0		0.81							
	CHAIN	10918	6.390E+00	5.0		0.99							
90	SR	13054	1.444E+00	50.0					0.58	0.58	6.700E+00	(I)	1.0A
		27	4.560E+00	30.0								(E)	0.7
		17	5.800E+00	30.0									
		305	6.190E+00	7.0									
		2025r	6.596E+00	7.6									
		72	6.750E+00	7.0									
	ZR	217	5.820E+00	30.0									
	CHAIN	10918	6.690E+00	1.0		-0.76							
		247	6.960E+00	5.0		0.76							
91	SR	305	4.820E+00	10.0					0.35	0.06	6.584E+00	(I)	1.0A
		13474	5.610E+00	1.1								(E)	0.2
		2025r	6.009E+00	6.6									
		601r	6.395E+00	5.7									
		31	6.430E+00	10.0									
	Y	305	3.550E+00	20.0									
		13054	3.946E+00	50.0									
		343	4.390E+00	20.0									
		74r	7.091E+00	11.3									
	ZR	2025r	6.384E+00	8.7		-0.36							
		72	6.450E+00	10.0		-0.21							
		13381	6.530E+00	10.0		-0.08							
		217	6.760E+00	10.0		0.26							
	CHAIN	21736r	6.454E+00	6.7		-0.30							
		10918	6.590E+00	1.0		0.27							
		247	6.600E+00	5.0		0.05							
92	ZR	217	6.550E+00	10.0		0.01			0.44	0.07	6.546E+00	(I)	1.0A
		2025r	6.554E+00	8.7		0.01						(E)	0.3
		13381	6.700E+00	10.0		0.23							
		72	6.720E+00	10.0		0.26							
	CHAIN	21736r	6.329E+00	9.5		-0.36							
		10918	6.540E+00	1.0		-0.33							
		247	6.690E+00	5.0		0.44							
93	ZR	72	7.010E+00	10.0		0.15			0.51	0.13	6.907E+00	(I)	1.0A
		13381	7.100E+00	10.0		0.27						(E)	0.3
	CHAIN	21736r	6.642E+00	10.9		-0.37							
		10918	6.900E+00	1.0		-0.43							
		247	7.090E+00	5.0		0.52							
94	ZR	72	6.680E+00	10.0		-0.27			0.19	0.04	6.860E+00	(I)	1.0A
		217	6.710E+00	10.0		-0.22						(E)	0.2
		13381	6.820E+00	10.0		-0.06							
		2025r	6.984E+00	8.7		0.21							
	CHAIN	10918	6.860E+00	1.0		0.01							
		247	6.910E+00	5.0		0.15							

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
95	ZR	305	5.010E+00	20.0		-1.39			6.36	0.64	6.405E+00	(I)	0.9A
		13361	5.900E+00	10.0		-0.86						(E)	0.7
		2025r	6.034E+00	6.3		-0.98							
		72	6.230E+00	10.0		-0.28							
		601r	6.533E+00	4.7		0.43							
		13054	6.738E+00	50.0		0.10							
		2025r	6.998E+00	8.7		0.98							
	NB(G)	305	5.160E+00	20.0									
	MO	13381	6.100E+00	10.0		-0.50							
	CHAIN	21736r	5.953E+00	7.2		-1.07							
		247	6.400E+00	5.0		-0.01							
		10918	6.430E+00	1.0		1.00							
96	ZR	13381	5.600E+00	10.0		-0.26			0.27	0.05	5.743E+00	(I)	1.0A
		72	5.670E+00	10.0		-0.13						(E)	0.2
		217	5.710E+00	10.0		-0.06							
		2025r	5.883E+00	8.7		0.28							
	CHAIN	10918	5.740E+00	1.0		-0.19							
		247	5.840E+00	5.0		0.34							
97	ZR	2025r	5.653E+00	6.6		0.31			1.24	0.21	5.537E+00	(I)	0.9A
		601r	5.800E+00	5.0		0.93						(E)	0.4
	MO	2025r	5.301E+00	11.2		-0.40							
		13381	5.350E+00	10.0		-0.35							
		72	5.510E+00	10.0		-0.05							
	CHAIN	247	5.520E+00	5.0		-0.06							
		10918	5.530E+00	1.0		-0.39							
98	MO	2025r	5.002E+00	11.2		-0.33			0.14	0.03	5.177E+00	(I)	3.0A
		13381	5.180E+00	10.0		0.01						(E)	0.6
		72	5.220E+00	10.0		0.09							
	CHAIN	10918	5.160E+00	5.0		-0.08							
		247	5.220E+00	5.0		0.21							
99	MO	194	4.960E+00	10.0		-0.13			0.45	0.09	5.024E+00	(I)	2.6A
		1000	4.960E+00	5.0		-0.31						(E)	0.8
		343	5.040E+00	15.0		0.02							
		13361	5.100E+00	10.0		0.15							
	CHAIN	10918	4.960E+00	5.0		-0.31							
		247	5.160E+00	5.0		0.61							
100	MO	2025r	4.380E+00	11.2		-0.02			0.32	0.08	4.389E+00	(I)	3.0A
		13381	4.400E+00	10.0		0.03						(E)	0.9
		72	4.490E+00	10.0		0.23							
	CHAIN	10918	4.300E+00	5.0		-0.53							
		247	4.460E+00	5.0		0.40							
101	RU	72	2.870E+00	10.0					0.48	0.24	3.208E+00	(I)	2.3A
		13381	3.000E+00	10.0								(E)	1.1
	CHAIN	10918	3.120E+00	5.0		-0.64							
		1119	3.220E+00	3.0		0.19							
		247	3.270E+00	5.0		0.42							
102	RU	72	2.100E+00	10.0					0.33	0.17	2.428E+00	(I)	1.0A
		2025r	2.202E+00	8.7								(E)	0.4
		13381	2.370E+00	10.0									
	CHAIN	1119	2.400E+00	3.0		-0.42							
		10918	2.430E+00	1.1		0.14							
		247	2.480E+00	5.0		0.42							
103*	RU	42	1.400E+00	25.0		-0.15			16.69	2.09	1.453E+00	(I)	2.5 >2
		2025r	1.472E+00	7.4		0.19						(E)	3.6A
		13361	1.600E+00	10.0		0.96							
		601r	1.647E+00	4.9W		2.27							
		305	2.020E+00	20.0		1.41							
		13054	2.021E-01	50.0W		-2.20							
	CHAIN	10918	1.520E+00	5.0		1.11							
		21736r	1.629E+00	12.0		0.93							
		1119	1.790E+00	4.0W		1.91							
104	RU	2025r	9.148E-01	8.7					1.72	0.86	9.745E-01	(I)	1.4A
		72	9.400E-01	10.0								(E)	1.3
		13381	9.600E-01	10.0									
	CHAIN	247	1.040E+00	5.0		1.31							

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	10918	9.690E-01	1.8		-0.58								
	1119	9.700E-01	3.0		-0.18								
105 RH	305	1.460E-01	25.0						1.36	1.36	5.000E-01	(I)	2.1
CHAIN	10918	4.930E-01	2.4		-1.16							(E)	2.4A
	1119	5.210E-01	4.0		1.16								
106 RU	13054	1.500E-01	50.0		-1.35				9.06	1.29	2.508E-01	(I)	2.7
	42	1.570E-01	40.0		-1.50							(E)	3.0A
	343	2.570E-01	15.0		0.16								
	305	2.590E-01	12.0		0.27								
	13361	2.800E-01	10.0		1.07								
CHAIN	1119	2.410E-01	5.0		-0.98								
	247	2.420E-01	5.0		-0.87								
	10918	2.730E-01	5.0		1.86								
107 RU	2023	1.110E-01	10.8		-0.40				0.16	0.08	1.156E-01	(I)	3.0A
CHAIN	1119	1.160E-01	4.0		0.14							(E)	0.9
	10918	1.160E-01	5.2		0.09								
108 RU	2023	7.700E-02	6.5		-0.63				2.12	1.06	7.974E-02	(I)	3.1
CHAIN	1119	7.800E-02	4.5		-0.70							(E)	3.2A
	10918	8.600E-02	5.8		1.45								
109 PD(G)	13361	4.000E-02	10.0		-1.22				1.48	1.48	4.227E-02	(I)	8.4
	343	5.040E-02	15.0		1.22							(E)	10.2A
110 CHAIN	1119	3.990E-02	10.0								3.990E-02		10.0
111 AG	13054	1.444E-02	50.0		-1.47				7.75	1.94	2.483E-02	(I)	5.7
	305	1.870E-02	20.0		-1.77							(E)	7.9A
	343	2.360E-02	15.0		-0.38								
	13361	2.500E-02	10.0		0.08								
	2025r	2.888E-02	8.3		2.09								
112 PD	305	1.250E-02	10.0		-1.83				3.64	1.82	1.438E-02	(I)	5.0
	343	1.500E-02	7.0		0.82							(E)	6.7A
	13361	1.600E-02	10.0		1.14								
115 CD(G)	343	1.710E-02	15.0	1.833E-02	-0.60	0.35	0.00	0.4	0.89	0.30	1.942E-02	(I)	7.8A
	13361	1.900E-02	10.0		0.60							(E)	4.3
CD(M)	13361	1.000E-03	10.0	1.020E-03	-0.37	0.14	0.00						
	343	1.070E-03	15.0		0.37								
CHAIN	21736r	3.133E-02	60.1	3.133E-02	0.00		0.40						
117 SN(G)	243	1.500E-02	7.0								1.500E-02		7.0
118 SN	243	1.550E-02	7.0								1.550E-02		7.0
119 SN(G)	243	1.580E-02	8.0								1.580E-02		8.0
120 SN	243	1.750E-02	7.0								1.750E-02		7.0
121 SN	13361	1.800E-02	10.0		-0.34				0.16	0.08	1.846E-02	(I)	6.3A
SN(G)	2025r	1.860E-02	9.6		0.10							(E)	1.8
	343	1.930E-02	15.0		0.32								
122 SN	243	1.950E-02	6.0								1.950E-02		6.0
123 SN(G)	13054	2.406E-03	50.0										
124 SN	243	3.220E-02	7.0								3.220E-02		7.0
125 SN	13361	5.000E-02	10.0								1.160E-01		12.0
SN(G)	13054	1.925E-02	50.0										
	2025r	3.788E-02	8.4										
	343	5.790E-02	15.0										
CHAIN	247	1.160E-01	12.0										
127 SB	305	5.900E-01	14.0		2.05				4.19	4.19	4.564E-01	(I)	11.1 >2
TE(M)	13054	6.449E-02	50.0									(E)	22.7A
CHAIN	21736r	3.760E-01	17.0		-2.05								
128 SB	13054	1.636E-02	50.0										
XE	13393	1.300E-04	10.0										

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
129 TE(M)	13054	2.118E-01	50.0										
	343	2.360E-01	15.0										
130 XE	13393	3.900E-03	10.0										
131 I	13054	1.348E+00	50.0						0.20	0.05	3.554E+00	(I)	2.5A
	13361	2.700E+00	50.0									(E)	0.6
	305	2.840E+00	20.0										
	343	2.890E+00	20.0										
	2025r	3.333E+00	6.6										
	601r	3.627E+00	5.1										
XE	72	3.520E+00	7.0		-0.15								
	13377	3.550E+00	5.0		-0.03								
	13377	3.590E+00	5.0		0.23								
CHAIN	247	3.510E+00	5.0		-0.29								
	21736r	3.634E+00	7.7		0.30								
132 TE	305	4.320E+00	7.0		-1.61				5.51	0.69	4.767E+00	(I)	2.5A
	13054	4.716E+00	50.0		-0.02							(E)	2.1
	2025r	4.769E+00	6.5		0.01								
	343	5.250E+00	15.0		0.62								
I	601r	5.055E+00	4.9		1.33								
XE	711	4.270E+00	10.0		-1.21								
	72	4.820E+00	10.0		0.11								
CHAIN	21736r	4.762E+00	8.6		-0.01								
	247	4.880E+00	5.0		0.53								
133 I (G)	305	3.370E+00	9.0						1.96	0.24	5.941E+00	(I)	2.2A
XE	601r	6.116E+00	6.0		0.51							(E)	1.1
CS	15	5.200E+00	20.0		-0.72								
	15	5.500E+00	20.0		-0.40								
	70	5.600E+00	10.0		-0.63								
	72	5.770E+00	10.0		-0.30								
	13322	5.850E+00	5.0		-0.35								
CHAIN	376	5.880E+00	5.0		-0.23								
	247	6.060E+00	5.0		0.43								
	376	6.110E+00	5.0		0.61								
134 XE	711	5.980E+00	10.0		-0.40				0.33	0.08	6.208E+00	(I)	2.7A
	72	6.180E+00	10.0		-0.05							(E)	0.8
	13377	6.280E+00	5.0		0.27								
	13377	6.290E+00	5.0		0.31								
CHAIN	247	6.130E+00	5.0		-0.30								
135 I	269	4.850E+00	7.0		-1.84				5.34	1.07	5.341E+00	(I)	3.9
	13361	5.100E+00	10.0		-0.52							(E)	4.1A
XE	2025r	5.545E+00	11.5		0.34								
	601r	5.789E+00	11.7		0.70								
	70	6.000E+00	10.0		1.17								
	72	6.020E+00	10.0		1.20								
136 I (M)	343	1.820E+00	15.0						0.49	0.49	7.039E+00	(I)	9.3A
XE	72	6.890E+00	10.0		-0.70							(E)	6.5
	711	8.440E+00	25.0		0.70								
CS	13054	1.925E-02	50.0										
137*CS	13054	1.059E+00	50.0W		-2.39				20.34	1.45	6.206E+00	(I)	1.9
	15	5.160E+00	20.0		-1.02							(E)	2.2A
	305	5.390E+00	20.0		-0.76								
	15	5.800E+00	20.0		-0.35								
	378	6.130E+00	10.0		-0.13								
	217	6.420E+00	10.0		0.34								
	2025r	6.500E+00	6.4		0.74								
	72	6.580E+00	10.0		0.58								
	13322	6.630E+00	5.0		1.37								
	42	6.820E+00	20.0		0.45								
CHAIN	21736r	5.828E+00	5.5		-1.28								
	376	6.580E+00	5.0		1.22								
	376	6.600E+00	5.0		1.28								
	376	6.630E+00	5.0		1.37								
	247	6.930E+00	5.0		2.22								
138 CHAIN	376	5.740E+00	5.0		-0.56				0.31	0.31	5.850E+00	(I)	3.5A

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		247	5.970E+00	5.0		0.56						(E)	2.0
139	BA	13474	5.590E+00	1.0		-2.27			5.26	1.75	5.612E+00	(I)	1.0
		601r	6.328E+00	6.9		1.66						(E)	1.3A
		31	6.430E+00	10.0		1.28							
	LA	217	6.160E+00	10.0		0.89							
140	BA	13054	5.005E+00	50.0		-0.54			5.18	0.43	6.345E+00	(I)	2.4A
		305	5.210E+00	20.0		-1.10						(E)	1.6
		13361	6.000E+00	10.0		-0.59							
		343	6.000E+00	20.0		-0.29							
		272	6.300E+00	7.0		-0.11							
		601r	6.333E+00	4.6		-0.05							
		21736r	7.390E+00	13.4		1.06							
	LA	601r	6.276E+00	10.9									
	CE	15	5.450E+00	20.0		-0.83							
		286	5.600E+00	20.0		-0.67							
		15	6.160E+00	10.0		-0.31							
		217	6.420E+00	10.0		0.12							
		72	6.720E+00	7.0		0.84							
	CHAIN	247	6.530E+00	5.0		0.64							
141	LA	13474	6.170E+00	1.0		-1.55			7.06	1.01	6.198E+00	(I)	1.0
		31	7.070E+00	7.0		1.77						(E)	1.0A
	CE	305	5.300E+00	20.0		-0.85							
		2025r	6.315E+00	6.9		0.27							
		601r	6.597E+00	5.7		1.08							
		74r	7.005E+00	11.3		1.02							
	PR	217	5.810E+00	10.0		-0.67							
	CHAIN	21736r	6.517E+00	8.4		0.59							
142	CE	15	5.500E+00	20.0		-1.06			3.35	0.42	6.654E+00	(I)	2.7A
		286	5.600E+00	20.0		-0.95						(E)	1.7
		15	6.060E+00	20.0		-0.50							
		217	6.320E+00	10.0		-0.55							
		2025r	6.603E+00	6.9		-0.12							
		72	7.000E+00	7.0		0.76							
	CHAIN	21736r	6.391E+00	20.3		-0.21							
		247	6.710E+00	5.0		0.20							
		376	6.830E+00	5.0		0.60							
143	CE	2025r	5.557E+00	6.8		-0.86			8.98	0.60	5.873E+00	(I)	1.5A
		601r	5.868E+00	5.3		-0.02						(E)	1.2
		305	6.990E+00	20.0		0.80							
	PR	74r	6.015E+00	14.7		0.16							
	ND	15	5.000E+00	20.0		-0.88							
		286	5.150E+00	20.0		-0.70							
		15	5.190E+00	20.0		-0.66							
		217	5.410E+00	10.0		-0.87							
		2025r	5.889E+00	5.4		0.05							
		13322	5.980E+00	2.3		0.98							
		72	6.220E+00	10.0		0.56							
		70	6.450E+00	10.0		0.90							
	CHAIN	21736r	5.013E+00	9.4		-1.86							
		247	5.850E+00	5.0		-0.08							
		376	5.900E+00	5.0		0.10							
		376	5.980E+00	5.0		0.38							
144	CE	13054	2.118E+00	50.0					8.40	0.70	4.630E+00	(I)	1.5A
		343	3.640E+00	20.0								(E)	1.3
		305	3.690E+00	20.0									
		13361	4.100E+00	10.0									
		2025r	4.376E+00	6.9									
		74r	4.678E+00	11.3									
		601r	4.740E+00	5.3									
	ND	286	3.370E+00	20.0		-1.88							
		15	3.800E+00	20.0		-1.10							
		15	3.840E+00	20.0		-1.03							
		257	4.560E+00	15.0		-0.10							
		13384r	4.620E+00	10.2		-0.02							
		13322	4.620E+00	2.4		-0.13							
		2025r	4.789E+00	5.4		0.63							
		72	4.870E+00	10.0		0.50							
	CHAIN	376	4.510E+00	5.0		-0.56							

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		376	4.620E+00	5.0		-0.05							
		247	4.670E+00	5.0		0.18							
		376	4.720E+00	5.0		0.40							
		21736r	5.076E+00	7.0		1.27							
145	ND	15	2.820E+00	20.0		-1.01			4.51	0.41	3.385E+00	(I)	1.6A
		15	2.880E+00	20.0		-0.88						(E)	1.0
		286	3.000E+00	10.0		-1.31							
		257	3.290E+00	15.0		-0.19							
		13322	3.390E+00	2.4		0.08							
		2025r	3.417E+00	5.4		0.18							
		13384r	3.481E+00	10.2		0.27							
		72	3.660E+00	10.0		0.76							
	CHAIN	247	3.370E+00	5.0		-0.10							
		376	3.390E+00	5.0		0.03							
		376	3.400E+00	5.0		0.09							
		376	3.490E+00	5.0		0.63							
146	ND	15	2.200E+00	20.0		-0.73			2.37	0.24	2.520E+00	(I)	1.6A
		15	2.240E+00	20.0		-0.63						(E)	0.8
		286	2.340E+00	10.0		-0.78							
		13322	2.520E+00	2.4		0.00							
		2025r	2.550E+00	5.4		0.23							
		257	2.580E+00	15.0		0.16							
		13384r	2.615E+00	10.2		0.36							
		72	2.740E+00	10.0		0.81							
	CHAIN	376	2.510E+00	5.0		-0.08							
		376	2.520E+00	5.0		0.00							
		247	2.530E+00	5.0		0.09							
147*	ND	2025r	1.645E+00	6.8		-1.55			14.44	1.81	1.802E+00	(I)	2.7
		74r	1.904E+00	11.2		0.49						(E)	3.6A
		601r	1.925E+00	5.3		1.35							
	PM	70	2.100E+00	10.0		1.46							
		13054	5.775E-01	50.0W		-2.45							
	SM	13384r	2.102E+00	11.4		1.27							
		259	2.160E+00	15.0		1.12							
	CHAIN	247	1.780E+00	5.0		-0.30							
		21736r	1.817E+00	7.7		0.11							
148	ND	15	1.030E+00	20.0		-1.28			4.35	0.44	1.291E+00	(I)	1.7A
		15	1.070E+00	20.0		-1.04						(E)	1.1
		286	1.150E+00	20.0		-0.62							
		13322	1.300E+00	2.3		0.42							
		257	1.310E+00	15.0		0.10							
		13384r	1.328E+00	10.2		0.27							
		72	1.400E+00	10.0		0.79							
	CHAIN	286	1.150E+00	20.0		-0.62							
		376	1.270E+00	5.0		-0.36							
		247	1.300E+00	5.0		0.14							
		376	1.300E+00	5.0		0.14							
149	PM	74r	8.527E-01	14.6		0.71			2.32	0.46	7.659E-01	(I)	3.6A
	SM	15	6.600E-01	20.0		-0.82						(E)	2.5
		15	7.000E-01	10.0		-1.02							
		72	7.900E-01	10.0		0.33							
		70	8.000E-01	10.0		0.45							
	CHAIN	247	7.730E-01	5.0		0.26							
150	ND	13322	4.800E-01	2.1		-1.26			4.04	0.40	4.885E-01	(I)	1.5A
		15	4.900E-01	10.0		0.03						(E)	1.0
		2025r	4.958E-01	5.4		0.28							
		15	5.100E-01	10.0		0.43							
		286	5.100E-01	10.0		0.43							
		257	5.220E-01	15.0		0.43							
		13384r	5.278E-01	10.2		0.74							
		72	5.670E-01	10.0		1.40							
	CHAIN	376	4.840E-01	5.0		-0.20							
		376	4.910E-01	5.0		0.11							
		247	5.000E-01	5.0		0.48							
151	PM	74r	2.910E-01	14.1					12.04	1.72	3.354E-01	(I)	3.4
	SM	70	3.000E-01	10.0		-1.27						(E)	4.5A
		13384r	3.157E-01	11.4		-0.57							
		259	3.250E-01	15.0		-0.22							
		18	3.300E-01	10.0		-0.17							
		72	3.340E-01	10.0		-0.04							

TABLE 4 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 233U . (cont)

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	15	5.400E-01	20.0		1.91							
CHAIN	21736r	2.381E-01	20.3		-2.07							
	247	3.650E-01	5.0		2.09							
152 SM	13384r	2.079E-01	11.4		0.46			3.89	0.97	1.975E-01	(I)	3.6A
	18	2.100E-01	10.0		0.63						(E)	3.5
	259	2.140E-01	10.0		0.82							
	72	2.220E-01	10.0		1.17							
CHAIN	247	1.860E-01	5.0		-1.91							
153 SM	343	8.360E-02	20.0							1.300E-01		15.0
	13361	9.500E-02	10.0									
	74r	9.602E-02	11.7									
EU	18	1.300E-01	15.0									
154 SM	13384r	4.563E-02	11.4		-0.11			0.20	0.07	4.619E-02	(I)	4.0A
	259	4.700E-02	15.0		0.12						(E)	1.0
	72	4.800E-02	10.0		0.41							
CHAIN	247	4.580E-02	5.0		-0.29							
156 EU	74r	1.134E-02	11.9							1.134E-02		11.9
157 EU	74r	7.085E-03	12.6							7.085E-03		12.6
159 GD	74r	9.589E-04	12.4							9.589E-04		12.4
161 TB	74r	1.194E-04	13.6							1.194E-04		13.6

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U .

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1 H PI	1196	1.600E-03	10.0		-1.28			3.79	1.89	1.711E-03	(I)	7.9
	840	1.930E-03	13.0		1.04						(E)	10.8A
	2065r	4.757E-03	40.2		1.60							
2 H PI	840	8.400E-04	20.0		0.00			0.00	0.00	8.400E-04	(I)	17.9A
	1195	8.400E-04	40.0		0.00						(E)	0.0
3*H	829r	5.267E-03	30.2W		-2.49			21.07	1.50	9.314E-03	(I)	3.1
	839	7.500E-03	33.0		-0.74						(E)	3.8A
	824	8.000E-03	12.0		-1.44							
	821	8.500E-03	20.0		-0.49							
	862	9.520E-03	10.0		0.23							
H PI	840	1.040E-02	10.0		1.09							
	1196	1.060E-02	10.0		1.26							
	2043	1.060E-02	12.0		1.04							
	859	1.060E-02	15.0		0.82							
	1201	1.080E-02	10.0		1.43							
	831r	1.121E-02	20.3		0.84							
	1195	1.210E-02	40.0		0.58							
	2065r	1.359E-02	20.3		1.56							
	30526r	8.495E-03	6.2		-1.88							
	861	9.900E-03	10.0		0.62							
HE	830r	3.398E-07	300.0									
4 HE	1191	1.570E-01	30.0		-0.28			9.89	0.90	1.699E-01	(I)	3.6A
	828	2.180E-01	30.0		0.74						(E)	3.4
HE PI	1195	1.300E-01	40.0		-0.77							
	2050	1.302E-01	40.0		-0.77							
	861	1.450E-01	10.0		-1.90							
	922	1.620E-01	10.0		-0.53							
	2043	1.693E-01	10.0		-0.04							
	1196	1.700E-01	10.0		0.00							
	1201	1.700E-01	10.0		0.00							
	1194	1.930E-01	15.0		0.82							
	2056	1.980E-01	10.0		1.49							
	854	2.000E-01	10.0		1.58							
6*HE PI	840	1.850E-03	18.2W		-2.46			7.94	1.99	2.668E-03	(I)	4.9
	831r	2.260E-03	20.3		-0.93						(E)	6.9A
	1196	2.860E-03	10.0		0.76							
	2047r	2.871E-03	6.2		1.72							
	1195	3.210E-03	40.0		0.42							
7 LI PI	1195	6.890E-05	40.0							6.890E-05		40.0
BE	21884	2.000E-10	20.0									
8*HE PI	1195	1.380E-04	40.0					2.77	1.38	7.292E-05	(I)	13.8
LI PI	1202	1.520E-04	15.0W		1.42						(E)	16.2A
	1203	2.020E-04	15.0W		0.93							
	1195	3.020E-05	40.0W		-1.25							
BE PI	1202	8.060E-05	15.0									
9*LI PI	2047r	3.721E-05	7.0W		-0.34			5.76	1.44	4.071E-05	(I)	5.9
	1195	5.040E-05	40.0		0.51						(E)	7.0A
BE PI	2047r	2.837E-05	50.1		-0.99							
	1195	4.870E-05	40.0		0.44							
B PI	2062r	7.136E-05	10.6W		2.41							
10*BE	21884	3.000E-04	20.0W		-2.32			7.65	1.53	5.201E-04	(I)	4.0
BE PI	1195	5.380E-04	40.0		0.08						(E)	4.9A
	2047r	5.437E-04	6.2		0.92							
	1202	5.710E-04	15.0		0.61							
	1203	6.220E-04	15.0		1.12							
B PI	2062r	5.437E-04	6.2		0.92							
11 BE PI	1195	3.360E-05	40.0									
B PI	1195	4.200E-06	40.0									
	2062r	5.029E-05	12.5									
12 BE PI	2047r	1.189E-05	20.3		-1.28			1.65	1.65	1.261E-05	(I)	18.6
	1195	2.520E-05	40.0		1.28						(E)	23.9A
B PI	2062r	2.464E-05	14.5									
	1195	2.860E-06	40.0									
	2047r	3.738E-06	10.6									

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
13	B PI	1195	3.360E-06	40.0							3.360E-06	40.0
	C PI	2062r	6.796E-06	40.2								
		1195	8.400E-06	40.0								
14	B PI	1195	1.680E-06	50.0					3.86	3.86	1.578E-04	(I) 7.8 >2
		2062r	2.549E-08	200.0								(E) 15.4A
	C PI	2062r	1.665E-04	7.9		1.97						
		1195	9.070E-05	40.0		-1.97						
15*	C PI	2047r	2.175E-05	10.6		-2.47			6.36	3.18	2.528E-05	(I) 7.2 >2
		1195	2.520E-05	40.0		-0.01						(E) 12.8A
		2062r	3.143E-05	9.7W		2.49						
16	C PI	2062r	2.633E-05	13.5								
		1195	3.360E-06	50.0								
17	C PI	2062r	2.379E-06	30.2							2.379E-06	30.2
18*	C PI	2062r	8.495E-07	40.2		-0.38			6.34	3.17	9.531E-07	(I) 21.9 >2
		2047r	9.684E-07	27.2		0.09						(E) 39.0A
	O PI	2047r	3.517E-05	20.3W		2.50						
20*	C PI	2062r	3.058E-08	200.0W		-0.06			6.32	3.16	5.551E-08	(I) 109.8 >2
	O PI	2062r	3.058E-06	23.3W		0.86						(E) 195.2A
		1195	8.400E-06	40.0W		2.48						
21	O PI	2062r	1.019E-06	50.1							2.146E-04	20.3
	NE PI	2047r	2.146E-04	20.3								
32	SI	21884	1.200E-10	20.0								
66	NI	755	1.980E-07	44.0								
		904	2.000E-08	50.0								
67	CO	755	1.640E-06	40.0								
72	ZN	13415	1.500E-05	20.0								
		341	1.540E-05	50.0								
		786	5.780E-06	40.0								
73	GA	13415	1.000E-04	20.0		-0.04			0.00	0.00	1.003E-04	(I) 18.6A
		341	1.020E-04	50.0		0.04						(E) 0.7
74	GA	260r	3.404E-04	15.1							3.404E-04	15.1
75	ZN	22003	8.300E-04	10.0		0.16			0.03	0.03	8.271E-04	(I) 9.8A
	GA	22003	7.700E-04	48.0		-0.16						(E) 1.6
76	ZN	22003	4.800E-03	17.0		0.36			0.13	0.13	4.623E-03	(I) 14.2A
	GA	22003	4.300E-03	25.6		-0.36						(E) 5.2
77	ZN	22003	5.000E-03	38.0					3.88	1.29	8.385E-03	(I) 6.3
	GA	22003	6.100E-03	10.0								(E) 7.2A
	GE	13417r	3.840E-03	10.1								
	GE(G)	303	2.360E-03	15.0								
		341	3.800E-03	15.0								
	AS	303	6.860E-03	15.0		-1.73						
		341	9.320E-03	15.0		0.72						
		13417r	9.427E-03	10.1		1.32						
	CHAIN	1098	8.200E-03	12.0		-0.22						
78	ZN	22003	4.800E-03	33.0					2.73	0.46	2.032E-02	(I) 4.5A
	GA	22003	1.080E-02	22.0								(E) 3.1
	GE	303	1.840E-02	15.0		-0.74						
		13417r	1.847E-02	10.1		-1.14						
		341	2.050E-02	15.0		0.06						
	AS	303	2.050E-02	15.0		0.06						
		341	2.050E-02	15.0		0.06						
		13417r	2.240E-02	10.1		1.01						
	CHAIN	1098	2.160E-02	9.3		0.72						

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
79	ZN	22003	1.600E-03	44.0					4.36	2.18	4.712E-02	(I) 5.4 >2
	GA	22003	2.120E-02	20.0								(E) 7.9A
	GE	22055r	3.018E-02	20.4								
	GE(G)	22003	2.100E-02	76.0								
	GE(M)	22003	1.900E-02	16.0								
	AS	155	5.490E-02	9.0		1.83						
	CHAIN	1098	4.390E-02	6.8		-2.04						
		21054	6.400E-02	31.2		0.85						
80	GA	22003	1.210E-02	21.0					1.25	0.63	1.265E-01	(I) 4.5A
	GE	22003	1.150E-01	15.0		-0.70						(E) 3.6
	CHAIN	21054	1.150E-01	13.9		-0.77						
		1098	1.300E-01	5.0		1.12						
81	GA	22003	6.000E-03	18.0					8.62	2.15	1.974E-01	(I) 3.1 >2
	GE(G)	22003	1.400E-01	15.0								(E) 4.6A
	GE(M)	22003	6.300E-02	20.0								
	AS	22003	2.590E-01	9.0		0.00		0.00				
	SE(G)	80	2.090E-01	10.0	2.090E-01	0.00		0.31				
	SE(M)	80	7.560E-03	12.0	7.782E-03	-0.41	0.17	0.00				
		341	8.190E-03	15.0		0.41						
	CHAIN	1098	1.900E-01	3.7	1.963E-01	-2.19	4.06>2	0.03				
		21054	2.020E-01	10.4		0.28						
82	GA	22003	3.600E-04	25.0					1.09	0.54	3.287E-01	(I) 3.7A
	GE	22003	1.630E-01	16.0								(E) 2.7
	AS(G)	22003	3.500E-01	20.0	3.500E-01	0.00		0.72				
	AS(M)	22003	4.000E-02	30.0	4.000E-02	0.00		0.02				
	BR	13402	3.500E-05	30.0								
	CHAIN	1098	3.210E-01	5.0	3.268E-01	-0.56	0.32	0.02				
		21054	3.350E-01	5.7		0.56						
83	GE	22055r	1.698E-02	45.6					7.23	1.45	5.566E-01	(I) 2.2
	AS	22003	1.910E-01	22.0								(E) 2.7A
	SE(G)	22003	1.700E-01	12.0								
		341	2.150E-01	15.0								
		80	2.170E-01	10.0								
	SE(M)	80	3.380E-01	6.0								
		22003	5.000E-01	18.0								
	BR	13395	3.000E-01	15.0								
		2008r	3.257E-01	19.4								
		341	4.920E-01	15.0								
	KR	1116	5.430E-01	5.0		-0.56						
		276	5.470E-01	5.0		-0.39						
		340	5.900E-01	15.0		0.38						
	CHAIN	251	5.230E-01	5.0		-1.46						
		1098	5.600E-01	5.0		0.14						
		21054	6.270E-01	5.0		2.44						
84	GE	22055r	1.509E-01	50.5					1.28	0.18	9.991E-01	(I) 1.8A
	AS	22003	2.200E-01	5.0								(E) 0.8
	SE	22003	9.700E-01	16.0								
	BR(G)	341	6.660E-01	15.0								
		2008r	6.670E-01	19.0								
		13475	9.200E-01	6.5								
		80	9.260E-01	5.4								
		304	9.310E-01	6.5								
	BR(M)	13475	1.900E-01	5.0								

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		304	1.920E-02	15.6									
	KR	276	1.000E+00	5.0		0.02							
		1116	1.020E+00	5.0		0.44							
		340	1.100E+00	15.0		0.61							
		28r	9.841E-01	15.4		-0.10							
		805	9.900E-01	3.0		-0.38							
	CHAIN	1098	1.030E+00	5.0		0.64							
		21054	9.740E-01	5.0		-0.55							
		251	9.940E-01	5.0		-0.11							
85	AS	22003	4.400E-01	32.0					7.10	0.37	1.327E+00	(I)	0.9A
	SE	13475	1.080E+00	10.0								(E)	0.5
		22003	9.300E-01	12.0									
	BR	22003	1.850E+00	7.0									
		2008r	9.617E-01	18.9									
	KR(G)	13426	2.730E-01	5.0	2.851E-01	-0.93	0.27	0.00					
		10722	2.800E-01	17.9		-0.10							
		865	2.840E-01	3.0		-0.15							
		583	2.860E-01	2.0		0.20							
		585r	2.867E-01	5.0		0.11							
		805	2.870E-01	3.0		0.24							
		21689	2.900E-01	34.5		0.05							
		28r	2.946E-01	15.4		0.21							
		340	3.190E-01	15.0		0.71							
		2084r	5.119E-01	44.2		1.00							
	KR(M)	1178	1.260E+00	5.0	1.319E+00	-1.26	0.81	0.00					
		628	1.360E+00	5.0		0.76							
		773	1.380E+00	7.2		0.67							
	RB	13386	1.300E+00	10.0		-0.21	0.00	0.00					
		276	1.300E+00	5.0		-0.42							
		583	1.320E+00	2.0		-0.30							
	CHAIN	251	1.310E+00	2.0	1.327E+00	-0.74	0.43	0.00					
		1116	1.330E+00	2.0		0.13							
		21531	1.330E+00	5.3		0.04							
		1098	1.340E+00	2.0		0.55							
		21054	1.430E+00	5.0		1.46							
86	AS	22003	2.400E-02	34.0					3.01	0.38	1.963E+00	(I)	1.0A
	SE	21743	1.260E+00	3.2								(E)	0.6
		22003	8.700E-01	14.0									
	BR	2008r	1.287E+00	19.0									
		22003	1.760E+00	9.0									
	KR	805	1.940E+00	3.0		-0.42							
		1116	1.980E+00	2.0		0.49							
		28r	2.027E+00	5.2		0.61							
		276	2.030E+00	5.0		0.67							
		28r	2.033E+00	15.4		0.22							
		340	2.100E+00	15.0		0.44							
	CHAIN	251	1.930E+00	2.0		-0.98							
		21054	1.930E+00	2.6		-0.71							
		1098	1.990E+00	2.0		0.77							
87*	SE	22003	1.030E+00	16.0					15.08	1.37	2.534E+00	(I)	1.0
		561	1.170E+00	20.0								(E)	1.1A
		13475	2.020E+00	10.0									
		633	6.500E-01	20.0									
		653	6.600E-01	20.0									
	BR	2008r	1.474E+00	18.9									
		22003	2.190E+00	6.0									
		302r	3.179E+00	5.5									
	KR	2084r	1.086E+00	31.3W		-2.49							
		628	2.290E+00	8.0		-1.34							
		1178	2.480E+00	6.2		-0.35							
	RB	13386	2.490E+00	10.0		-0.18							
		276	2.500E+00	5.0		-0.28							
		1116	2.590E+00	2.0		1.23							
		13375	2.750E+00	10.0		0.79							
	CHAIN	21531	2.420E+00	5.8		-0.82							
		21054	2.450E+00	2.5		-1.53							
		248	2.540E+00	2.0		0.14							
		1098	2.600E+00	2.0		1.45							

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		399	2.790E+00	10.0		0.92							
88*	SE	653	3.880E-01	13.0					10.74	0.77	3.492E+00	(I)	1.7A
	BR	22003	1.320E+00	6.0								(E)	1.5
		21743	1.920E+00	5.2									
	KR	1178	2.860E+00	7.0W		-2.41							
		21558	3.090E+00	20.0		-0.65							
		773	3.470E+00	5.0		-0.14							
		628	3.730E+00	6.0		1.10							
	RB	22003	3.260E+00	11.0		-0.66							
	SR	13386	3.530E+00	10.0		0.11							
		276	3.540E+00	5.0		0.29							
		1116	3.550E+00	5.0		0.35							
		13428	3.610E+00	10.0		0.33							
		207	3.650E+00	10.0		0.44							
	CHAIN	21054	3.450E+00	5.0		-0.26							
		21531	3.460E+00	6.1		-0.16							
		248	3.610E+00	5.0		0.69							
		1098	3.630E+00	5.0		0.80							
		400	4.010E+00	10.0		1.31							
89*	SE	653	1.090E-01	37.0					12.95	0.86	4.760E+00	(I)	1.1A
	BR	2008r	1.117E+00	19.6								(E)	1.0
		22003	9.000E-01	9.0									
	KR	22003	4.800E+00	15.0									
		2018	5.260E+00	21.5									
	RB	1178	4.440E+00	6.0		-1.23							
		2008r	4.830E+00	5.5		0.27							
		22003	6.230E+00	8.0W		2.49							
	SR	13054	3.582E+00	50.0		-0.66							
		661	4.590E+00	10.0		-0.37							
		13395	4.600E+00	15.0		-0.23							
		755	4.610E+00	5.0		-0.67							
		341	4.710E+00	15.0		-0.07							
		33	4.740E+00	5.0		-0.09							
		13405r	4.745E+00	10.1		-0.03							
		13372	4.780E+00	20.0		0.02							
		786	4.820E+00	5.0		0.25							
		207	4.830E+00	5.0		0.30							
	CHAIN	21531	4.450E+00	3.8		-1.91							
		21054	4.780E+00	1.9		0.27							
		1098	4.840E+00	2.0		0.97							
90	BR	22003	3.600E-01	16.7					3.39	0.34	5.777E+00	(I)	1.9A
		2008r	6.515E-01	51.2								(E)	1.1
	KR	22003	4.730E+00	10.0									
		2018	5.040E+00	12.5									
		21743	5.200E+00	4.0									
	RB	2008r	4.358E+00	7.1									
	RB(T)	22003	5.490E+00	9.0									
	SR	13054	1.455E+00	500.0		-0.59							
		13387	4.020E+00	30.0		-1.46							
		4	5.610E+00	5.0		-0.65							
		13386	5.740E+00	10.0		-0.07							
		276	5.760E+00	5.0		-0.07							
		13428	5.800E+00	10.0		0.04							
		2025r	5.836E+00	5.8		0.18							
	CHAIN	1116	5.710E+00	5.0		-0.26							
		1098	5.880E+00	5.0		0.37							
		248	5.900E+00	5.0		0.45							
		21054	5.900E+00	5.0		0.45							
91*	BR	22003	3.400E-01	27.0					23.46	0.98	5.864E+00	(I)	0.8A
	KR	22003	3.020E+00	11.6								(E)	0.8
	RB	22003	5.250E+00	5.0									
	SR	13395	5.000E+00	15.0		-1.15							
		13372	5.100E+00	20.0		-0.75							
		341	5.120E+00	15.0		-0.97							
		661	5.310E+00	8.0		-1.31							

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		628	5.310E+00	9.0		-1.16							
		33	5.710E+00	5.0		-0.55							
		309	5.770E+00	10.0		-0.16							
		774	5.810E+00	3.0		-0.32							
		1151	6.400E+00	15.0		0.56							
	Y	13054	4.477E+00	50.0		-0.62							
		284	5.370E+00	10.0		-0.92							
		628	5.770E+00	4.0		-0.42							
		13395	5.900E+00	15.0		0.04							
		341	6.040E+00	15.0		0.20							
		13405r	6.118E+00	10.1		0.41							
		73	6.180E+00	10.0		0.51							
	Y (G)	13387	5.350E+00	3.9W		-2.50							
	ZR	2025r	5.626E+00	6.5		-0.66							
		1116	5.760E+00	3.0		-0.63							
		13428	5.840E+00	10.0		-0.04							
		207	6.090E+00	5.0		0.75							
	CHAIN	248	5.900E+00	2.0		0.34							
		21054	5.920E+00	1.9		0.57							
		1098	6.010E+00	2.0		1.34							
		21531	6.470E+00	3.5W		2.48							
92	RB	1188	3.240E+00	9.0					7.67	0.70	5.981E+00	(I)	0.9A
		22003	4.720E+00	9.0								(E)	0.8
		2008r	4.778E+00	7.1									
	SR	341	5.120E+00	15.0		-1.12							
		628	6.000E+00	3.0		0.11							
		1178	6.490E+00	4.0		2.01							
	Y	774	5.880E+00	6.0		-0.29							
	ZR	1116	5.830E+00	3.0		-0.91							
		13428	6.030E+00	10.0		0.08							
		2025r	6.037E+00	6.5		0.15							
		207	6.160E+00	10.0		0.29							
	CHAIN	21054	5.910E+00	1.9		-0.74							
		248	5.950E+00	2.0		-0.29							
		1098	6.010E+00	2.0		0.27							
		21531	6.240E+00	4.0		1.06							
93	KR	22003	5.500E-01	16.4					2.32	0.26	6.309E+00	(I)	1.0A
	RB	1188	3.130E+00	11.0								(E)	0.5
		2008r	3.675E+00	5.2									
		22003	3.720E+00	7.0									
	SR	22003	5.400E+00	17.0									
		1188	6.470E+00	5.0									
	Y	237	6.110E+00	10.0		-0.33							
		361	6.630E+00	10.0		0.49							
		628	6.820E+00	10.0		0.75							
	ZR	1116	6.210E+00	5.0		-0.32							
		13428	6.450E+00	10.0		0.22							
		207	6.650E+00	10.0		0.52							
	CHAIN	21054	6.210E+00	1.9		-0.99							
		248	6.340E+00	2.0		0.29							
		1098	6.340E+00	2.0		0.29							
		21531	6.440E+00	4.5		0.47							
94	KR	22003	1.100E-01	28.0					4.94	0.71	6.468E+00	(I)	1.0A
	RB	22003	1.310E+00	9.0								(E)	0.8
		2008r	1.837E+00	5.8									
		1188	2.260E+00	15.0									
	SR	1188	5.770E+00	28.0									
		22003	5.900E+00	14.0									
	Y	341	5.120E+00	15.0									
	ZR	1116	6.220E+00	3.0		-1.42							
		13428	6.400E+00	10.0		-0.11							
		2025r	6.567E+00	6.5		0.24							
		207	6.690E+00	10.0		0.33							
	CHAIN	21531	6.350E+00	4.9		-0.39							
		248	6.410E+00	2.0		-0.53							
		1098	6.430E+00	2.0		-0.34							

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		21054	6.660E+00	1.8		1.90							
95	RB	2008r	7.875E-01	8.3					7.67	0.48	6.524E+00	(I)	0.8A
		1188	8.900E-01	22.0								(E)	0.5
	SR	1188	4.450E+00	3.0									
		22003	5.190E+00	5.0									
		21743	5.470E+00	3.7									
	ZR	13395	6.000E+00	15.0		-0.58							
		13403	6.000E+00	5.0		-1.77							
		341	6.150E+00	15.0		-0.41							
		13054	6.380E+00	50.0		-0.05							
		628	6.400E+00	3.0		-0.67							
		13478	6.520E+00	2.6		-0.02							
		793	6.530E+00	3.0		0.03							
		774	6.530E+00	6.0		0.02							
		757	6.570E+00	5.0		0.14							
		702	7.080E+00	5.0		1.59							
	MO	13428	6.270E+00	10.0		-0.41							
		1116	6.530E+00	2.0		0.05							
	CHAIN	248	6.450E+00	2.0		-0.62							
		21054	6.570E+00	1.8		0.42							
		21531	6.590E+00	3.2		0.33							
		1098	6.610E+00	2.0		0.71							
		21736r	6.643E+00	8.7		0.21							
96	RB	22003	2.100E-01	15.0					2.68	0.45	6.270E+00	(I)	1.0A
		1188	3.500E-01	17.0								(E)	0.7
	SR	1188	2.560E+00	28.0									
		22003	3.900E+00	18.0									
	ZR	1116	6.030E+00	3.0		-1.42							
		13428	6.330E+00	10.0		0.10							
		2025r	6.378E+00	6.5		0.27							
		207	6.540E+00	10.0		0.42							
	CHAIN	248	6.230E+00	2.0		-0.37							
		21054	6.320E+00	1.9		0.50							
		1098	6.350E+00	2.0		0.74							
97*	RB	1188	1.000E-01	20.0					33.62	1.68	5.910E+00	(I)	0.7
		22003	6.200E-01	13.0								(E)	0.9A
	SR	1188	1.630E+00	28.0									
		22003	2.600E+00	20.0									
	ZR	38r	1.761E+01	15.1W		2.50							
		309	4.750E+00	11.0		-2.23							
		793	5.280E+00	10.0		-1.20							
		13372	5.420E+00	20.0		-0.45							
		13372	5.500E+00	2.0W		-2.28							
		774	6.090E+00	6.0		0.50							
		1151	6.130E+00	15.0		0.24							
		628	6.170E+00	2.0		2.24							
		13403	6.240E+00	3.2		1.69							
		341	6.350E+00	15.0		0.46							
	ZR(G)	13478	5.920E+00	4.1		0.04							
	NB(G)	628	6.150E+00	2.0		2.08							
		774	6.160E+00	7.0		0.58							
	MO	1116	5.940E+00	2.0		0.27							
		2025r	6.089E+00	5.4		0.55							
		13428	6.090E+00	10.0		0.30							
		207	6.460E+00	10.0		0.85							
	CHAIN	21531	5.740E+00	3.3		-0.92							
		21054	5.790E+00	1.9		-1.18							
		248	5.860E+00	2.0		-0.46							
		1098	6.010E+00	2.0		0.89							
98	RB	1188	3.600E-02	25.0					2.61	0.44	5.736E+00	(I)	1.0A
		22003	3.900E-03	16.0								(E)	0.7
	SR	22003	3.700E+00	22.0									
		1188	4.900E-01	29.0									
	NB(G)	388	6.400E-02	19.0									
	MO	13428	5.780E+00	10.0		0.08							
		1116	5.830E+00	2.0		0.93							
		2025r	5.841E+00	5.4		0.34							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
		207	6.050E+00	10.0		0.52						
	CHAIN	1098	5.600E+00	2.0		-1.42						
		21054	5.720E+00	2.5		-0.12						
		248	5.770E+00	2.0		0.35						
99	RB	1188	6.400E-03	28.0					4.28	0.25	6.126E+00 (I)	0.9A
	SR	22003	1.090E-01	22.0							(E)	0.4
		1188	1.800E-01	33.0								
	NB(M)	21008	2.240E+00	5.8								
	MO	13382	5.900E+00	3.4		-1.17						
		13372	5.910E+00	20.0		-0.18						
		13054	5.932E+00	50.0		-0.07						
		13372	5.980E+00	20.0		-0.12						
		774	6.000E+00	9.0		-0.23						
		327	6.010E+00	3.5		-0.57						
		312	6.140E+00	3.0		0.08						
		213	6.160E+00	3.0		0.19						
		1151	6.170E+00	15.0		0.05						
		13395	6.200E+00	15.0		0.08						
		195	6.250E+00	3.0		0.69						
		1000	6.250E+00	4.0		0.51						
		341	6.350E+00	15.0		0.24						
	TC	628	6.140E+00	3.0		0.08						
	CHAIN	1098	6.040E+00	2.0		-0.79						
		248	6.140E+00	2.0		0.13						
		21531	6.320E+00	3.5		0.91						
		21054	6.350E+00	5.0		0.72						
100	SR	22003	4.200E-02	22.0					1.39	0.23	6.199E+00 (I)	1.0A
	MO	1116	6.250E+00	2.0		0.47					(E)	0.5
		13428	6.300E+00	10.0		0.16						
		2025r	6.395E+00	50.0		0.06						
		207	6.720E+00	10.0		0.78						
	CHAIN	21054	6.120E+00	2.0		-0.76						
		1098	6.170E+00	2.0		-0.27						
		248	6.240E+00	2.0		0.38						
101	SR	22003	8.000E-04	23.0					10.18	1.27	5.130E+00 (I)	0.9
	MO	13382	5.400E+00	3.7		1.39					(E)	1.0A
		327	5.500E+00	10.0		0.68						
	RU	13428	5.000E+00	10.0		-0.26						
		1116	5.240E+00	2.0		1.17						
	CHAIN	21054	4.990E+00	2.0		-1.57						
		248	5.030E+00	2.0		-1.11						
		1120	5.040E+00	3.0		-0.62						
		1098	5.140E+00	2.0		0.11						
		21531	5.500E+00	3.6		1.90						
102	SR	22003	1.900E-04	37.0					4.78	0.60	4.260E+00 (I)	1.0A
	MO	13382	4.100E+00	4.9		-0.82					(E)	0.8
		327	4.180E+00	5.0		-0.39						
	RU	13428	4.100E+00	10.0		-0.39						
		2025r	4.268E+00	5.4		0.04						
		1116	4.360E+00	2.0		1.31						
	CHAIN	248	4.190E+00	2.0		-0.96						
		1120	4.220E+00	3.0		-0.33						
		1098	4.260E+00	2.0		0.00						
		21054	4.560E+00	5.0		1.34						
103	RU	220	2.910E+00	5.5		-1.09			11.64	0.68	3.078E+00 (I)	1.4A
		793	2.950E+00	5.0		-0.91					(E)	1.2
		40	2.970E+00	10.0		-0.37						
		1151	2.980E+00	15.0		-0.22						
		13395	3.000E+00	15.0		-0.17						
		13478	3.020E+00	5.0		-0.40						
		702	3.070E+00	5.0		-0.05						
		757	3.080E+00	5.0		0.01						
		358	3.130E+00	5.0		0.35						
		628	3.220E+00	5.0		0.92						
		774	3.410E+00	5.5		1.82						
		13365	3.700E+00	10.0		1.69						
		341	3.790E+00	15.0		1.26						

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	CHAIN	1098	2.940E+00	5.0		-0.98						
		21736r	2.974E+00	10.7		-0.33						
		21054	3.080E+00	5.0		0.01						
		1120	3.080E+00	6.0		0.01						
		21531	3.100E+00	5.2		0.14						
104	MO	311	2.020E+00	15.0					5.32	0.76	1.869E+00 (I)	1.0A
	TC	1178	1.640E+00	14.0							(E)	0.9
	RU	13428	1.800E+00	10.0		-0.39						
		2025r	1.878E+00	5.4		0.09						
		1116	1.900E+00	2.0		0.92						
	CHAIN	21531	1.800E+00	5.0		-0.79						
		248	1.820E+00	2.0		-1.57						
		1098	1.870E+00	2.0		0.02						
		21054	1.900E+00	2.6		0.66						
		1120	2.000E+00	5.0		1.33						
105	RU	774	1.020E+00	5.0		1.45			4.31	0.48	9.475E-01 (I)	1.0A
		13382	8.300E-01	24.1		-0.59					(E)	0.7
		327	8.460E-01	36.0		-0.33						
		341	9.220E-01	15.0		-0.18						
		13420r	9.332E-01	1.7		-1.17						
		358	9.610E-01	4.5		0.32						
	CHAIN	21531	9.360E-01	4.1		-0.31						
		1120	9.410E-01	3.0		-0.24						
		1098	9.570E-01	2.0		0.58						
		21054	9.720E-01	3.7		0.71						
106	RU	13054	1.679E-01	500.0		-0.29			20.77	1.60	4.093E-01 (I)	1.8
		13428	3.800E-01	10.0		-0.78					(E)	2.3A
		219	3.870E-01	8.0		-0.74						
		628	4.010E-01	5.0		-0.44						
		757	4.020E-01	5.0		-0.39						
		1116	4.600E-01	6.9		1.64						
		13395	5.000E-01	15.0		1.22						
		13365	5.200E-01	10.0		2.15						
		341	5.330E-01	15.0		1.55						
	CHAIN	21531	3.560E-01	16.9		-0.89						
		1120	3.760E-01	5.0		-1.92						
		248	3.890E-01	5.0		-1.13						
		1098	4.360E-01	5.0		1.30						
		21054	4.390E-01	5.0		1.44						
107	RU	2023	1.450E-01	22.0		0.19			4.03	1.34	1.391E-01 (I)	3.4
	CHAIN	21054	1.100E-01	14.5		-1.91					(E)	3.9A
		1098	1.390E-01	5.0		-0.03						
		1120	1.450E-01	5.0		1.07						
108*	RU	2023	6.700E-02	14.9		1.03			5.77	1.92	5.716E-02 (I)	3.6
	CHAIN	1120	5.230E-02	5.0W		-1.87					(E)	5.0A
		21054	5.700E-02	12.3		-0.02						
		1098	6.700E-02	6.0W		2.04						
109*	RU	2023	3.400E-02	11.7		1.40			13.35	1.91	2.885E-02 (I)	4.7
	PD	13413	1.700E-02	150.0		-0.47					(E)	6.4A
		13396	2.800E-02	10.0		-0.36						
		38r	3.663E-02	15.1		1.47						
	PD(G)	175	2.570E-02	15.0		-0.89						
		341	2.870E-02	15.0		-0.04						
	CHAIN	21054	1.600E-02	20.0W		-2.19						
		1098	3.800E-02	7.9W		2.19						
110*	CHAIN	21054	2.400E-02	20.8		-0.30			6.28	3.14	2.545E-02 (I)	4.3 >2
		1120	2.430E-02	5.0		-2.34					(E)	7.6A
		1098	3.300E-02	9.1W		2.45						
111	AG	175	1.780E-02	15.0		-0.73			3.01	0.43	1.970E-02 (I)	3.1A
		13054	1.791E-02	50.0		-0.20					(E)	2.1
		13396	1.800E-02	10.0		-1.01						
		13436	1.800E-02	20.0		-0.48						
		341	1.840E-02	15.0		-0.48						
		786	1.980E-02	5.0		0.13						
		755	2.080E-02	5.0		1.31						
	CD	898r	1.948E-02	40.3		-0.03						
112*	PD	13413	1.100E-02	15.0		-0.54			17.58	2.93	1.186E-02 (I)	3.4 >2

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF    MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
            358 1.210E-02   5.0            0.70                       |                         (E)    5.8A
             38r6.544E-03  15.1W          -2.06                       |
            175 8.300E-03  20.0           -2.24                       |
            341 8.500E-03  20.0           -2.06                       |
    --------------------------                                        |
    CD      898r1.707E-02  40.3            0.76                       |
           1044 1.770E-02   5.0W           2.03                       |
======================================================================================================================
113 PD     22003 1.480E-03   8.0                                      |  0.01   0.01 1.600E-02 (I)    5.0A
    --------------------------                                        |
    AG(M) 22003 1.300E-03  26.4                                       |                         (E)    0.5
    --------------------------                                        |
    CD      898r1.449E-02 100.1           -0.10                       |
           1044 1.600E-02   5.0            0.10                       |
    --------------------------                                        |
    CD(M) 12610r2.145E-04  14.8                                       |
======================================================================================================================
114 PD     22003 1.310E-03  39.0                                      |  0.02   0.01 1.291E-02 (I)    4.9A
    --------------------------                                        |
    AG     22003 1.340E-02  37.3           0.10                       |                         (E)    0.5
    --------------------------                                        |
    CD      1044 1.290E-02   5.0          -0.13                       |
            898r1.449E-02 100.1            0.11                       |
======================================================================================================================
115 PD(G) 22003 8.400E-04  22.0                                       | 14.99   1.67 1.139E-02 (I)    4.5
    --------------------------                                        |
    PD(M) 22003 3.700E-04  30.0                                       |                         (E)    5.8A
    --------------------------                                        |
    AG(G) 22003 7.000E-03  28.6                                       |
    --------------------------                                        |
    AG(M) 22003 3.500E-03  26.7                                       |
    --------------------------                                        |
    AG(T)   331 7.800E-03  15.0                                       |
    --------------------------                                        |
    CD       38r2.281E-02  20.0            0.00          0.00         |
    --------------------------                                        |
    CD(G)   358 1.010E-02   6.0 1.038E-02 -0.88  1.44    0.17         |
          13436 1.100E-02  20.0            0.29                       |
            341 1.130E-02  15.0            0.57                       |
            175 1.880E-02  20.0            2.26                       |
            331 9.800E-03  15.0           -0.42                       |
    ::::::::::::::::::::::::::                                        |
    CD(M)   331 7.100E-04  15.0 7.946E-04 -1.04  0.64    0.00         |
            341 8.200E-04  15.0            0.25                       |
          13395 9.000E-04  15.0            0.91                       |
    --------------------------                                        |
    CHAIN 21531 1.300E-02  38.5 1.849E-02 -1.36  1.05    5.68         |
          21736r1.898E-02  33.3            0.09                       |
======================================================================================================================
116 PD     22003 1.300E-03  10.0                                      |              1.610E-02        5.0
    --------------------------                                        |
    AG(G) 22003 8.600E-03  21.0                                       |
    --------------------------                                        |
    CD      1044 1.610E-02   5.0                                      |
======================================================================================================================
117*PD     22003 2.100E-04  30.0                                      |  8.65   2.88 1.222E-02 (I)    5.6  >2
    --------------------------                                        |
    AG(G) 22003 6.200E-03  16.1                                       |                         (E)    9.5A
    --------------------------                                        |
    AG(M) 22003 5.600E-03  24.1                                       |
    --------------------------                                        |
    SN      2017r1.342E-02  17.5           0.54                       |
           1044 1.610E-02   8.0W           2.09                       |
    --------------------------                                        |
    CHAIN   341 1.020E-02  15.0           -1.53                       |
          13412r1.037E-02  10.1W          -2.41                       |
======================================================================================================================
118 PD     22003 2.400E-04  30.0                                      |  0.28   0.28 1.324E-02 (I)   15.5A
    --------------------------                                        |
    AG     22003 6.600E-03  31.1                                      |                         (E)    8.2
    --------------------------                                        |
    SN      2017r1.281E-02  17.3          -0.53                       |
           1044 1.600E-02  35.0            0.53                       |
======================================================================================================================
119 PD     22003 6.300E-04  30.0                                      |  0.01   0.01 1.490E-02 (I)    9.9A
    --------------------------                                        |
    AG     22003 8.800E-03  28.0                                      |                         (E)    0.9
    --------------------------                                        |
    CD(G) 22003 8.700E-03  38.0                                       |
    --------------------------                                        |
    CD(M) 22003 3.700E-03  26.0                                       |
    --------------------------                                        |
    IN     22003 8.400E-03  56.0                                      |
    --------------------------                                        |
    SN      2017r1.470E-02  17.6          -0.10                       |
           1044 1.500E-02  12.0            0.10                       |
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TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF    MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
120 AG(G) 22003 4.100E-03  34.2                                       |  1.22   0.61 1.442E-02 (I)   11.1A
    --------------------------                                        |
    IN(G) 22003 1.210E-02  22.0           -1.09                       |                         (E)    8.7
    --------------------------                                        |
    SN      2017r1.549E-02  17.3           0.50                       |
           1044 1.610E-02  19.0            0.64                       |
======================================================================================================================
121 AG     12813 2.700E-03 100.0                                      |  4.70   0.78 1.259E-02 (I)    4.0A
           22003 3.300E-03  41.2                                      |                         (E)    3.5
    --------------------------                                        |
    CD(G) 22003 6.100E-03  32.8                                       |
            333 6.400E-03   8.0                                       |
    --------------------------                                        |
    CD(M) 22003 4.300E-03  19.0                                       |
    --------------------------                                        |
    IN(G) 22003 1.000E-02  12.0                                       |
    --------------------------                                        |
    IN(M)   333 3.200E-03  15.0                                       |
    --------------------------                                        |
    SN     13418 1.400E-02  15.0           0.00          0.00         |
    --------------------------                                        |
    SN(G)   333 1.100E-02   9.0 1.204E-02 -1.24  0.85    0.01         |
            358 1.210E-02   8.0            0.07                       |
            172 1.240E-02   7.0            0.52                       |
            341 1.450E-02  15.0            1.17                       |
    ::::::::::::::::::::::::::                                        |
    SN(M)   172 1.930E-03  31.0 2.268E-03 -1.26  1.58    0.00         |
           1044 3.600E-03  33.0            1.26                       |
    --------------------------                                        |
    CHAIN   333 1.200E-02  15.0 1.285E-02  0.00          0.04         |
======================================================================================================================
122 AG     22003 1.060E-03  37.5                                      |  0.16   0.16 1.799E-02 (I)    6.5A
    --------------------------                                        |
    IN(G) 22003 1.040E-02  21.0                                       |                         (E)    2.6
    --------------------------                                        |
    SN      2017r1.696E-02  16.8          -0.40                       |
           1044 1.820E-02   7.0            0.40                       |
======================================================================================================================
123*CD     22003 8.200E-03  22.0                                      |  9.04   1.81 1.505E-02 (I)    3.1
    --------------------------                                        |
    IN(G) 22003 1.200E-02  18.0                                       |                         (E)    4.1A
          12813 1.400E-02  14.3                                       |
    --------------------------                                        |
    IN(M) 22003 2.400E-03  21.0                                       |
    --------------------------                                        |
    SN(G)   341 1.230E-03  15.0 1.181E-03  1.03  1.56                 |
            172 1.930E-03   5.0W           1.31                       |
          13054 7.275E-04  50.0           -1.54                       |
    ::::::::::::::::::::::::::                                        |
    SN(M) 22003 1.190E-02  13.0 1.387E-02 -1.38  1.98                 |
            678 1.340E-02   5.0           -1.20                       |
            679 1.400E-02   5.0            0.29                       |
            173 1.620E-02   7.4            2.23                       |
======================================================================================================================
124 IN(G) 22003 2.030E-02  13.0                                       |  0.07   0.07 3.154E-02 (I)    8.5A
    --------------------------                                        |
    IN(M)  2028 2.000E-02  10.0                                       |                         (E)    2.2
    --------------------------                                        |
    SN      2017r3.050E-02  15.8          -0.26                       |
           1044 3.200E-02  10.0            0.26                       |
    --------------------------                                        |
    SB(G)    26 4.400E-05 150.0                                       |
======================================================================================================================
125*CD     22003 1.030E-02  27.0                                      | 14.74   2.46 2.603E-02 (I)    3.3  >2
    --------------------------                                        |
    IN     12813 1.620E-02  32.1                                      |                         (E)    5.2A
           2028 2.200E-02   9.1                                       |
    --------------------------                                        |
    IN(G) 22003 2.300E-02  13.0                                       |
    --------------------------                                        |
    IN(M) 22003 4.900E-03  13.0                                       |
    --------------------------                                        |
    SN(G)   172 1.180E-02   4.0                                       |
          13418 1.200E-02  15.0                                       |
            358 1.210E-02  10.0                                       |
            341 1.230E-02  15.0                                       |
          13054 3.358E-03  50.0                                       |
          13414r4.563E-03   5.2                                       |
    --------------------------                                        |
    SN(M) 22003 1.220E-02  23.0                                       |
            173 1.550E-02   9.0                                       |
            678 1.850E-02   5.0                                       |
            679 1.920E-02   5.0                                       |
    --------------------------                                        |
    SB     13409 1.770E-02  20.0          -2.44                       |
             26 2.060E-02  15.0           -1.84                       |
            341 2.360E-02  15.0           -0.71                       |
```

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		13416r	2.478E-02	5.9		-1.10							
		172	2.950E-02	5.0W		2.19							
	CHAIN	248	2.910E-02	11.3		0.97							
		1098	2.940E-02	17.0		0.69							
126	CD	22003	1.250E-02	25.0					0.05	0.05	5.943E-02	(I)	9.4A
	IN(G)	2028	3.100E-02	19.4								(E)	2.0
	IN(M)	22003	1.900E-02	16.0									
	SN	1044	6.100E-02	15.0		0.22							
	SB(G)	26	8.130E-04	7.0									
	CHAIN	1098	5.850E-02	12.0		-0.22							
127*	CD	22003	1.030E-02	37.0					27.29	1.71	1.203E-01	(I)	3.1
	IN(G)	22003	5.400E-02	17.0								(E)	4.0A
		2028	6.000E-02	25.0									
	IN(M)	22003	1.100E-02	19.0									
		12813	2.830E-02	30.4									
	SN(G)	22003	5.300E-02	27.0	6.785E-02	-1.12	0.53	0.46					
		172	6.800E-02	12.0		0.02							
		173	7.110E-02	15.0		0.36							
		906	7.800E-02	20.0		0.70							
	SN(M)	22003	6.500E-02	13.0	6.500E-02	0.00		1.08					
	SB	13436	1.000E-01	20.0		-0.94	0.00	0.00					
		172	1.050E-01	10.0		-1.37							
		221	1.390E-01	10.0		1.55							
		774	1.400E-01	14.0		1.13							
		13461	1.500E-01	10.0		2.19							
		905	1.540E-01	25.0		0.93							
		175	9.180E-02	20.0		-1.48							
		13396	9.400E-02	10.0W		-2.50							
		341	9.630E-02	20.0		-1.17							
		13054	9.850E-02	50.0		-0.40							
	TE(M)	13054	1.679E-02	50.0									
		341	3.380E-02	15.0									
	CHAIN	1098	1.230E-01	7.3	1.183E-01	0.58	1.99	0.24					
		21531	1.290E-01	7.8		1.16							
		21736r	1.771E-01	21.4		1.56							
128	CD	22003	3.600E-03	67.0					6.79	0.97	3.307E-01	(I)	2.2A
	IN(G)	22003	2.700E-02	23.0								(E)	2.1
		2028	3.900E-02	28.2									
	IN(M)	12813	1.470E-02	50.3									
	SN(G)	22003	3.120E-01	7.0	3.233E-01	-0.57	0.28	0.69					
		678	3.190E-01	5.0		-0.33							
		172	3.190E-01	6.0		-0.26							
		679	3.360E-01	5.0		0.89							
		173	3.440E-01	15.0		0.41							
	SN(M)	22003	3.900E-03	26.0	3.900E-03	0.00		0.00					
	SB(G)	13054	3.358E-03	50.0									
		13319	3.440E-01	5.2									
	SB(M)	22003	2.100E-02	15.0									
	XE	13393	3.600E-05	10.0									
	CHAIN	21531	2.840E-01	12.3	3.440E-01	-1.83	1.87	1.24					
		13319	3.440E-01	5.2		0.00							
		1098	3.600E-01	5.0		1.19							
129*	IN(G)	22003	3.700E-02	27.0					10.70	2.67	7.067E-01	(I)	2.8 >2
		2028	5.300E-02	37.7								(E)	4.5A
	IN(M)	22003	1.200E-02	25.0									
	SN(G)	30	2.020E-01	5.0									
		22003	2.410E-01	14.0									
	SN(M)	22003	1.650E-01	9.0									

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	SB	221	1.110E+00	15.0									
		905	4.090E-01	25.0									
		30	5.060E-01	8.0									
		13319	6.000E-01	3.3									
		172	6.310E-01	5.0									
	SB(G)	13461	4.000E-01	10.0									
	TE(M)	13054	1.007E-01	50.0									
		341	1.950E-01	15.0									
		13461	3.370E-01	38.6									
		905	3.450E-01	10.0									
	I	21917	6.900E-01	7.2		-0.40							
		21393	9.000E-01	25.0		0.87							
	CHAIN	13319	6.100E-01	4.9W		-1.72							
		1098	8.040E-01	5.0W		2.17							
		21531	8.170E-01	5.8W		2.29							
130	IN(G)	2028	1.300E-02	30.8					4.08	4.08	1.778E+00	(I)	2.9 >2
		22003	4.100E-03	15.0								(E)	5.9A
	SN(G)	22003	9.400E-01	9.0									
	SN(M)	22003	1.310E-01	13.0									
	SB	13319	1.380E+00	11.6									
		13461	2.100E+00	19.1									
	SB(G)	22003	1.120E+00	11.0									
		279	2.060E+00	25.0									
	SB(M)	22003	3.000E-01	24.0									
	XE	13393	5.000E-04	10.0									
	CHAIN	13319	1.430E+00	12.6		-2.02							
		1098	1.810E+00	3.0		2.02							
131*	IN	2028	1.600E-02	31.3					28.71	1.37	2.881E+00	(I)	1.0
	IN(G)	22003	3.100E-03	29.0								(E)	1.1A
	IN(M)	22003	1.600E-02	44.0									
	IN(N)	22003	7.600E-05	24.0									
	SN	307	1.290E+00	16.0									
		22003	8.600E-01	10.0									
	SB	905	1.750E+00	15.0									
		13461	1.750E+00	22.9									
		279	2.570E+00	8.0									
		22003	2.650E+00	14.0									
	TE(M)	13461	4.160E-01	5.0									
		905	4.260E-01	10.0									
		341	4.510E-01	15.0									
		2007	5.000E-01	10.0									
		21662	5.000E-01	10.0									
	I	13054	1.455E+00	50.0		-1.96							
		13395	1.700E+00	15.0W		-2.48							
		793	2.660E+00	5.0		-1.70							
		774	2.670E+00	7.0		-1.14							
		628	2.680E+00	5.0		-1.54							
		1151	2.710E+00	15.0		-0.42							
		13396	2.800E+00	10.0		-0.29							
		702	2.800E+00	6.0		-0.49							
		175	2.860E+00	15.0		-0.05							
		13478	2.860E+00	5.0		-0.15							
		341	2.870E+00	15.0		-0.03							
		757	2.930E+00	5.0		0.34							
		13461	3.020E+00	5.0		0.94							
		905	3.090E+00	10.0		0.68							
		45r	3.215E+00	5.2		2.03							
	XE	1116	2.910E+00	2.0		0.56							
		13386	2.920E+00	10.0		0.13							
		277	2.990E+00	5.0		0.74							
	CHAIN	248	2.790E+00	3.0		-1.16							
		21531	2.900E+00	5.2		0.13							
		1098	2.920E+00	3.0		0.47							
		21736r	3.037E+00	2.5		2.24							

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R      CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF    MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
132 IN    22003 2.800E-04  25.0                                      |  9.35    0.49 4.297E+00 (I)   1.0A
           2028 7.000E-03  42.8                                      |                         (E)   0.7
    ---------------------------                                      |
    SN      307 5.970E-01  29.0                                      |
          22003 6.100E-01   5.0                                      |
    ---------------------------                                      |
    SB      279 3.090E+00  15.0                                      |
    ---------------------------                                      |
    SB(M) 22003 1.980E+00  12.0                                      |
    ---------------------------                                      |
    TE      628 4.170E+00   5.0           -0.62                      |
          13478 4.210E+00   6.2           -0.34                      |
           1151 4.330E+00  15.0            0.05                      |
          13461 4.490E+00   3.3            1.34                      |
            341 4.510E+00  15.0            0.32                      |
            905 4.600E+00  10.0            0.66                      |
            309 4.650E+00   5.0            1.54                      |
          13054 5.373E+00  50.0            0.40                      |
    ---------------------------                                      |
    I      1151 4.270E+00  15.0           -0.04                      |
            628 4.380E+00   3.0            0.67                      |
            774 4.390E+00   4.0            0.54                      |
    ---------------------------                                      |
    XE      340 4.200E+00  15.0           -0.15                      |
            806 4.210E+00   3.0           -0.73                      |
           1116 4.340E+00   2.0            0.56                      |
             28r4.366E+00  15.1            0.10                      |
          13386 4.370E+00  10.0            0.17                      |
    ---------------------------                                      |
    CHAIN 21531 4.130E+00   5.1           -0.81                      |
            248 4.160E+00   3.0           -1.16                      |
          21736r4.176E+00   5.2           -0.57                      |
           1098 4.200E+00   3.0           -0.82                      |
======================================================================================================================
133*SN    22003 1.400E-01  60.0                                      | 15.90    0.80 6.548E+00 (I)   1.5A
            307 1.520E-02  10.0                                      |                         (E)   1.3
    ---------------------------                                      |
    SB      560 1.700E+00  25.0                                      |
          22003 2.270E+00  13.0                                      |
          13461 3.700E+00   5.0                                      |
            905 3.830E+00  15.0                                      |
    ---------------------------                                      |
    TE(G) 22003 2.810E+00  16.0                                      |
    ---------------------------                                      |
    TE(M)  2007 3.610E+00   4.2                                      |
          21662 3.790E+00   4.0                                      |
            341 4.610E+00  15.0                                      |
          13461 4.680E+00   2.4                                      |
            905 4.790E+00  10.0                                      |
          22003 4.900E+00  13.0                                      |
    ---------------------------                                      |
    I (G) 13395 3.800E+00 100.0 6.419E+00 -0.69  1.25     0.44       |
            341 4.710E+00  15.0W          -2.50                      |
            774 6.150E+00   9.0           -0.52                      |
            628 6.590E+00   5.0            0.64                      |
          13461 6.620E+00   5.0            0.75                      |
           1151 6.670E+00  15.0            0.26                      |
            905 6.780E+00  10.0            0.56                      |
    :::::::::::::::::::::::::::                                      |
    I (M) 22003 6.200E-01  18.0 6.200E-01  0.00           0.00       |
    ---------------------------                                      |
    XE      230 6.620E+00   5.0            0.10  0.00     0.00       |
          13371 6.620E+00   5.0            0.10                      |
            628 6.670E+00   8.0            0.15                      |
            253r6.703E+00  15.1            0.11                      |
          13426r6.843E-01  10.1W          -2.50                      |
    ---------------------------                                      |
    CS    13457r6.351E+00  20.0           -0.19  0.00     0.00       |
          13385 6.590E+00  10.0            0.00                      |
             68 6.590E+00   5.0            0.00                      |
    ---------------------------                                      |
    CHAIN 21531 6.290E+00   5.0 6.590E+00 -1.02  0.60     0.15       |
           1098 6.550E+00   5.0           -0.13                      |
           1116 6.680E+00   5.0            0.29                      |
            248 6.730E+00   5.0            0.44                      |
            374 6.750E+00   5.0            0.50                      |
          21736r7.054E+00  20.0            0.33                      |
======================================================================================================================
134 SN    22003 1.100E-03  64.0                                      |  5.65    0.63 7.743E+00 (I)   1.2A
    ---------------------------                                      |
    SB(G)   159 3.140E-01  13.0                                      |                         (E)   1.0
    ---------------------------                                      |
    TE      341 5.840E+00  15.0                                      |
            380r6.584E+00   8.3                                      |
          22003 6.800E+00  18.2                                      |
           1178 6.800E+00   6.0                                      |
          13461 7.060E+00   2.3                                      |
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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R      CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF    MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
            341 7.070E+00  15.0                                      |
            905 7.230E+00  10.0                                      |
           1178 7.260E+00   5.0                                      |
            628 7.600E+00   3.0                                      |
            905 8.190E+00  10.0                                      |
    ---------------------------                                      |
    I     13395 5.700E+00  15.0                                      |
    ---------------------------                                      |
    I (G) 22003 7.100E+00  11.0                                      |
    ---------------------------                                      |
    XE      340 7.460E+00  15.0           -0.25                      |
            806 7.710E+00   3.0           -0.15                      |
           1116 7.920E+00   2.0            1.39                      |
          13386 8.030E+00  10.0            0.36                      |
             28r8.034E+00  15.1            0.24                      |
            277 8.220E+00   5.0            1.19                      |
    ---------------------------                                      |
    CS    13457r7.893E+00  20.0            0.10                      |
    ---------------------------                                      |
    CHAIN 21531 7.290E+00   5.0           -1.29                      |
            248 7.510E+00   3.0           -1.14                      |
           1098 7.650E+00   3.0           -0.44                      |
======================================================================================================================
135 SB    22003 5.900E-01  31.0                                      |  1.77    0.22 6.563E+00 (I)   2.6A
    ---------------------------                                      |
    TE    22003 4.200E+00  22.0                                      |                         (E)   1.2
    ---------------------------                                      |
    I (G) 13395 4.300E+00  15.0                                      |
            774 5.620E+00   3.0                                      |
            341 5.740E+00  16.0                                      |
          13461 6.310E+00   3.2                                      |
            628 6.310E+00   9.0                                      |
            905 6.460E+00  10.0                                      |
          22003 6.860E+00   5.2                                      |
           1178 6.860E+00   7.0                                      |
    ---------------------------                                      |
    I (M)  2018 9.300E-01  10.8                                      |
    ---------------------------                                      |
    XE      341 6.040E+00  15.0           -0.59                      |
             68 6.410E+00  10.0           -0.25                      |
            628 6.710E+00   5.0            0.51                      |
    ---------------------------                                      |
    CS    13385 6.410E+00  10.0           -0.25                      |
            275 6.570E+00  10.0            0.01                      |
          13375 7.180E+00  10.0            0.89                      |
    ---------------------------                                      |
    CHAIN 21531 6.180E+00  10.0           -0.65                      |
            398 6.520E+00  10.0           -0.07                      |
           1098 6.560E+00   5.0           -0.01                      |
======================================================================================================================
136 SB    22003 3.800E-02  27.0                                      |  1.91    0.32 6.279E+00 (I)   1.8A
    ---------------------------                                      |
    TE    21743 1.440E+00   6.9                                      |                         (E)   1.0
          22003 1.930E+00  13.0                                      |
    ---------------------------                                      |
    I (G) 22003 1.700E+00  15.0                                      |
            341 3.180E+00  15.0                                      |
            687r3.904E+00  20.0                                      |
    ---------------------------                                      |
    I (M)  2092 1.500E+00  15.0                                      |
    ---------------------------                                      |
    XE      806 6.160E+00   3.0           -0.81                      |
            340 6.180E+00  15.0           -0.11                      |
          13386 6.440E+00  10.0            0.25                      |
             28r6.440E+00  15.1            0.17                      |
            277 6.600E+00   5.0            1.03                      |
    ---------------------------                                      |
    CS    13054 2.239E-02  50.0                                      |
          13457r6.166E-04 *****                                      |
    ---------------------------                                      |
    CHAIN  1098 6.220E+00   3.0           -0.40                      |
            356 6.470E+00   5.0            0.63                      |
======================================================================================================================
137*TE    22003 4.600E-01  18.0                                      | 12.31    0.68 6.211E+00 (I)   0.9A
    ---------------------------                                      |
    I     22003 2.450E+00   9.0                                      |                         (E)   0.8
    ---------------------------                                      |
    XE     2018 6.940E+00  12.8            0.82                      |
          22003 7.700E+00  16.0            1.21                      |
    ---------------------------                                      |
    CS    13054 2.127E+00  50.0W          -2.50                      |
           2025r6.091E+00   6.6           -0.30                      |
          13385 6.100E+00  10.0           -0.18                      |
          13478 6.120E+00   2.4           -0.67                      |
            757 6.150E+00   4.0           -0.25                      |
            356 6.170E+00   5.0           -0.13                      |
            398 6.190E+00  10.0           -0.03                      |
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A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		628	6.200E+00	3.0		-0.06							
		46	6.230E+00	3.0		0.11							
		275	6.300E+00	10.0		0.14							
		13375	6.810E+00	10.0		0.88							
	CHAIN	21736r	5.947E+00	5.2		-0.87							
		374	6.190E+00	3.0		-0.12							
		1116	6.230E+00	2.0		0.17							
		21531	6.240E+00	6.4		0.07							
		248	6.280E+00	3.0		0.39							
		1098	6.460E+00	3.0		1.35							
138	I	22003	6.900E-01	24.0					4.31	0.62	6.711E+00	(I)	1.2A
	XE	21558	5.280E+00	20.0								(E)	1.0
		22003	6.500E+00	17.0									
	CS	1178	6.550E+00	6.0		-0.42							
		628	6.910E+00	5.0		0.59							
	BA	13258	6.520E+00	5.0		-0.61							
		1116	6.760E+00	2.0		0.45							
	CHAIN	21531	6.200E+00	4.8		-1.77							
		356	6.680E+00	5.0		-0.10							
		248	6.800E+00	3.0		0.47							
		1098	6.810E+00	3.0		0.53							
139	I	22003	6.700E-01	20.0					8.70	0.58	6.366E+00	(I)	1.0A
	XE	2018	5.470E+00	32.9		-0.50						(E)	0.7
		22003	6.400E+00	16.0		0.03							
	CS	22003	6.690E+00	5.0		0.99							
	BA	13461	5.790E+00	10.0		-1.00							
		13395	6.300E+00	15.0		-0.07							
		628	6.310E+00	5.0		-0.18							
		1178	6.340E+00	5.0		-0.08							
		13372	6.400E+00	20.0		0.03							
		341	6.450E+00	15.0		0.09							
		13408r	6.535E+00	10.1		0.26							
		213	6.550E+00	5.0		0.57							
		33	6.570E+00	5.0		0.63							
	LA	13344r	6.331E+00	1.2		-0.77							
		13344	6.440E+00	10.0		0.12							
		212	8.300E+00	10.0		2.34							
	CHAIN	1098	6.320E+00	3.0		-0.26							
140*	I	22003	1.500E-01	20.0					20.05	0.69	6.341E+00	(I)	0.9A
	XE	22003	3.700E+00	27.0								(E)	0.8
	CS	2018	4.180E+00	8.8									
		22003	4.300E+00	12.0									
		21743	5.700E+00	3.5									
	BA	755	5.140E+00	40.0		-0.58							
		793	5.810E+00	30.0		-0.30							
		13398	6.150E+00	5.0		-0.63							
		13478	6.220E+00	2.3		-0.93							
		1151	6.250E+00	15.0		-0.10							
		667	6.290E+00	10.0		-0.08							
		13372	6.300E+00	20.0		-0.03							
		381	6.320E+00	5.0		-0.07							
		757	6.350E+00	4.0		0.04							
		151	6.360E+00	5.0		0.06							
		301	6.360E+00	5.0		0.06							
		21483	6.360E+00	5.0		0.06							
		174	6.400E+00	10.0		0.09							
		628	6.400E+00	5.0		0.19							
		786	6.530E+00	6.0		0.49							
		21736r	7.596E+00	20.0		0.83							
		2025r	9.606E+00	7.3W		2.49							
		2025r	9.850E+00	7.3W		2.49							
	LA	361	6.320E+00	10.0		-0.03							
	CE	1116	6.100E+00	5.0		-0.80							
		148	6.250E+00	5.0		-0.30							
		19	6.300E+00	5.0		-0.13							
		13386	6.330E+00	10.0		-0.02							
		212	6.380E+00	5.0		0.13							
		277	6.480E+00	5.0		0.44							
		13428	6.560E+00	10.0		0.34							

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CHAIN	1098	6.070E+00	3.0		-1.58							
		356	6.250E+00	5.0		-0.30							
		248	6.310E+00	3.0		-0.17							
		21531	6.800E+00	5.0		1.37							
141	I	22003	3.800E-02	30.0					11.31	0.63	5.793E+00	(I)	1.5A
	XE	21743	1.350E+00	5.0								(E)	1.2
		22003	1.600E+00	22.0									
	CS	2008r	3.360E+00	10.1									
		22003	4.280E+00	11.0									
	BA	341	4.710E+00	15.0		-1.55							
		666	5.430E+00	6.0		-1.16							
		1178	5.960E+00	6.0		0.48							
	LA	33	6.300E+00	5.0		1.67							
	CE	13395	5.000E+00	15.0		-1.07							
		13394	5.700E+00	10.0		-0.17							
		628	5.760E+00	5.0		-0.12							
		757	5.790E+00	5.0		-0.01							
		341	5.840E+00	15.0		0.05							
		1151	6.220E+00	15.0		0.46							
		13054	7.163E+00	50.0		0.38							
	CE(G)	13478	5.720E+00	5.5		-0.24							
	PR	19	5.600E+00	6.0		-0.60							
		212	5.670E+00	6.0		-0.38							
	CHAIN	248	5.500E+00	7.0		-0.78							
		356	5.730E+00	5.0		-0.23							
		21736r	6.010E+00	6.5		0.57							
		1098	6.020E+00	5.0		0.79							
		21531	6.250E+00	6.2		1.20							
142	XE	22003	4.500E-01	30.0					9.14	0.76	5.795E+00	(I)	1.1A
	CS	2008r	1.933E+00	10.2								(E)	0.9
		1188	2.340E+00	14.0									
		22003	2.690E+00	12.0									
	LA	1178	5.220E+00	5.0		-2.26							
		628	5.700E+00	5.0		-0.34							
	CE	1116	5.780E+00	2.0		-0.15							
		19	5.800E+00	5.0		0.02							
		13428	5.860E+00	10.0		0.11							
		2025r	5.931E+00	5.4		0.43							
		148	5.950E+00	3.0		0.93							
		13386	6.030E+00	10.0		0.39							
		277	6.180E+00	5.0		1.27							
	CHAIN	1098	5.640E+00	3.0		-0.98							
		356	5.800E+00	4.0		0.02							
		248	5.880E+00	3.0		0.52							
		21531	6.000E+00	5.2		0.68							
143	CS	2008r	1.151E+00	10.8					7.06	0.31	5.941E+00	(I)	0.9A
		22003	1.220E-02	13.0								(E)	0.5
		1188	1.450E+00	12.0									
	BA	1188	4.420E+00	26.0									
		22003	7.300E+00	13.0									
	CE	13478	5.360E+00	9.2		-1.19							
		13395	5.400E+00	15.0		-0.67							
		341	5.530E+00	15.0		-0.50							
		361	5.650E+00	10.0		-0.52							
		628	5.760E+00	9.0		-0.35							
		309	5.870E+00	5.0		-0.25							
		774	6.130E+00	5.0		0.63							
		1151	6.550E+00	15.0		0.62							
	PR	73	5.950E+00	10.0		0.01							
	ND	13386	5.800E+00	10.0		-0.24							
		19	5.800E+00	5.0		-0.50							
		68	5.800E+00	5.0		-0.50							
		212	5.810E+00	5.0		-0.46							
		2025r	5.922E+00	5.0		-0.07							
		277	5.940E+00	5.0		0.00							
		1116	6.010E+00	2.0		0.64							
		13428	6.160E+00	10.0		0.36							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CHAIN	21736r	5.441E+00	8.2		-1.12							
		21531	5.790E+00	5.2		-0.51							
		248	5.900E+00	3.0		-0.24							
		374	5.960E+00	3.0		0.11							
		374	5.980E+00	3.0		0.23							
		374	6.040E+00	3.0		0.57							
		1098	6.090E+00	3.0		0.85							
144	CS	2008r	3.682E-01	16.0					15.78	0.61	5.457E+00	(I)	0.7A
		22003	4.300E-01	5.0								(E)	0.6
		1188	4.500E-01	14.0									
	BA	1188	3.900E+00	8.0									
		22003	4.360E+00	11.0									
		21743	4.360E+00	1.1									
	LA	2018	4.630E+00	10.2									
	CE	13054	3.246E+00	50.0		-1.36							
		774	5.240E+00	4.0		-1.05							
		13362	5.300E+00	20.0		-0.15							
		341	5.430E+00	15.0		-0.03							
		13395	5.500E+00	15.0		0.05							
		628	5.790E+00	8.0		0.72							
		13428	6.220E+00	10.0		1.23							
	CE(G)	13478	5.720E+00	2.9		1.63							
	ND	339	5.110E+00	15.0		-0.45							
		148	5.360E+00	3.0		-0.62							
		13386	5.390E+00	10.0		-0.12							
		277	5.520E+00	5.0		0.23							
		13384r	5.524E+00	1.9		0.67							
		256	5.530E+00	4.0		0.34							
		19	5.600E+00	6.0		0.43							
		2025r	5.602E+00	5.0		0.52							
		212	5.670E+00	6.0		0.63							
		13428	5.950E+00	10.0		0.83							
	CHAIN	374	5.290E+00	3.0		-1.08							
		356	5.300E+00	4.0		-0.75							
		374	5.310E+00	2.0		-1.48							
		374	5.330E+00	3.0		-0.82							
		248	5.420E+00	3.0		-0.23							
		21736r	5.441E+00	2.7		-0.11							
		1116	5.540E+00	2.0		0.80							
		21531	5.580E+00	5.2		0.43							
		1098	5.590E+00	3.0		0.82							
145	CS	1188	1.000E-01	28.0					5.51	0.32	3.943E+00	(I)	0.8A
		22003	7.500E-02	36.0								(E)	0.5
	BA	22003	2.340E+00	25.0									
		1188	2.600E+00	23.0									
	ND	13386	3.860E+00	10.0		-0.21							
		2025r	3.903E+00	5.0		-0.20							
		148	3.930E+00	3.0		-0.11							
		13384r	3.950E+00	1.8		0.12							
		277	3.950E+00	5.0		0.04							
		1116	3.960E+00	2.0		0.24							
		256	3.960E+00	4.0		0.11							
		339	3.990E+00	15.0		0.08							
		19	4.000E+00	5.0		0.29							
		13428	4.040E+00	10.0		0.24							
		212	4.050E+00	4.0		0.68							
	CHAIN	13352	3.620E+00	10.0		-0.89							
		356	3.800E+00	4.0		-0.96							
		248	3.860E+00	3.0		-0.74							
		374	3.890E+00	3.0		-0.47							
		374	3.910E+00	3.0		-0.29							
		374	3.940E+00	3.0		-0.02							
		1098	4.130E+00	3.0		1.56							
146	CS	1188	3.800E-02	20.0					3.82	0.22	2.980E+00	(I)	0.8A
		22003	9.000E-03	20.0								(E)	0.4
	BA	1188	7.200E-01	36.0									
		22003	8.100E-01	32.0									
	ND	13386	2.930E+00	10.0		-0.17							
		148	2.980E+00	3.0		0.00							
		13384r	2.999E+00	1.8		0.41							
		277	3.000E+00	5.0		0.14							
		1116	3.010E+00	2.0		0.55							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		2025r	3.011E+00	5.0		0.21							
		339	3.100E+00	15.0		0.26							
		19	3.200E+00	10.0		0.69							
		13428	3.220E+00	10.0		0.75							
		212	3.240E+00	10.0		0.81							
	CHAIN	13352	2.810E+00	10.0		-0.61							
		356	2.890E+00	4.0		-0.79							
		374	2.940E+00	3.0		-0.47							
		21531	2.940E+00	4.1		-0.34							
		248	2.950E+00	3.0		-0.35							
		374	2.950E+00	3.0		-0.35							
		374	2.960E+00	3.0		-0.23							
		1098	3.000E+00	3.0		0.23							
147*	CS	1188	7.800E-03	24.0					29.69	1.65	2.220E+00	(I)	1.0
	BA	22003	2.000E-01	20.0								(E)	1.3A
		1188	3.300E-01	39.0									
	ND	73	2.240E+00	10.0		0.09							
		1151	2.290E+00	15.0		0.20							
		628	2.290E+00	4.0		0.80							
		774	2.300E+00	6.0		0.59							
		361	2.410E+00	10.0		0.79							
		341	2.660E+00	15.0		1.11							
	PM	68	2.380E+00	3.0		2.41							
		19	2.900E+00	15.0		1.57							
		13054	7.835E-01	50.0W		-2.50							
	SM	13384	2.100E+00	1.9W		-1.98							
		148	2.260E+00	3.0		0.64							
		13386	2.380E+00	10.0		0.68							
		277	2.440E+00	5.0		1.85							
	CHAIN	248	2.120E+00	5.0		-0.97							
		356	2.160E+00	4.0		-0.73							
		21531	2.210E+00	5.0		-0.09							
		21736r	2.214E+00	8.7		-0.03							
		1098	2.300E+00	3.0		1.25							
		212	2.940E+00	14.0		1.75							
148*	CS	1188	1.900E-03	37.0					9.84	0.58	1.680E+00	(I)	0.6A
	BA	1188	1.700E-01	35.0								(E)	0.5
		22003	2.300E-02	40.0									
	CE	2018	2.420E+00	9.5W		2.50							
	ND	13386	1.630E+00	10.0		-0.30							
		660	1.650E+00	3.0		-0.61							
		13384r	1.669E+00	1.8		-0.38							
		277	1.670E+00	5.0		-0.12							
		22050	1.680E+00	1.8		0.02							
		148	1.680E+00	3.0		0.01							
		1116	1.680E+00	3.0		0.01							
		13344	1.690E+00	1.0		0.79							
		19	1.700E+00	6.0		0.20							
		212	1.720E+00	6.0		0.39							
		13428	1.770E+00	10.0		0.51							
		339	1.810E+00	15.0		0.48							
	CHAIN	356	1.610E+00	4.0		-1.10							
		13352	1.640E+00	10.0		-0.24							
		1098	1.640E+00	3.0		-0.82							
		374	1.670E+00	3.0		-0.20							
		248	1.690E+00	3.0		0.21							
149	BA	1188	5.400E-02	50.0					20.68	1.59	1.049E+00	(I)	1.2
	ND	628	1.080E+00	5.0		0.60						(E)	1.6A
	PM	73	1.050E+00	10.0		0.01							
		341	1.330E+00	15.0		1.41							
		212	1.520E+00	20.0		1.55							
	SM	1116	1.030E+00	2.0		-1.17							
		148	1.110E+00	5.0		1.14							
		13386	1.130E+00	10.0		0.73							
		68	1.130E+00	5.0		1.48							
		277	1.160E+00	5.0		1.97							
		19	1.500E+00	20.0		1.51							
	CHAIN	248	1.000E+00	4.0		-1.29							
		356	1.020E+00	4.0		-0.74							
		21531	1.090E+00	5.2		0.76							

TABLE 5 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	1098	9.670E-01	5.0		-1.75						
150 ND	13386	6.400E-01	10.0		-0.16			4.53	0.27	6.505E-01	(I) 0.9A
	2025r	6.494E-01	10.4		-0.02						(E) 0.5
	13384r	6.533E-01	2.3		0.20						
	148	6.550E-01	3.0		0.24						
	256	6.550E-01	4.0		0.18						
	277	6.560E-01	5.0		0.17						
	1116	6.580E-01	2.5		0.49						
	19	7.000E-01	15.0		0.47						
	13428	7.080E-01	10.0		0.82						
	339	7.250E-01	15.0		0.69						
CHAIN	374	6.330E-01	3.0		-0.97						
	248	6.380E-01	3.0		-0.68						
	356	6.380E-01	4.0		-0.50						
	374	6.400E-01	3.0		-0.57						
	374	6.500E-01	3.0		-0.02						
	13352	6.580E-01	10.0		0.11						
	1098	6.670E-01	3.0		0.86						
	212	7.080E-01	15.0		0.54						
151 PM	774	3.690E-01	9.0					11.36	1.26	4.181E-01	(I) 1.5
SM	13384	3.980E-01	10.0		-0.51						(E) 1.7A
	148	4.170E-01	3.0		-0.10						
	13386	4.500E-01	10.0		0.72						
	68	4.500E-01	5.0		1.48						
	277	4.610E-01	5.0		1.94						
CHAIN	21736r	3.163E-01	16.1		-2.02						
	356	3.990E-01	10.0		-0.49						
	21531	4.060E-01	6.9		-0.44						
	248	4.080E-01	3.0		-0.97						
	1098	4.170E-01	3.6		-0.08						
152 SM	13384	2.510E-01	1.0		-1.77			11.61	1.45	2.525E-01	(I) 0.9
	148	2.600E-01	5.0		0.59						(E) 1.1A
	338	2.630E-01	15.0		0.27						
	13352	2.790E-01	10.0		0.95						
	13386	2.800E-01	10.0		0.99						
	277	2.870E-01	8.0		1.51						
CHAIN	248	2.120E-01	10.0		-1.92						
	356	2.600E-01	10.0		0.29						
	1098	2.750E-01	4.7		1.76						
153*SM	278	1.290E-01	10.0		-1.81			18.65	1.87	1.511E-01	(I) 2.6
	361	1.440E-01	10.0		-0.51						(E) 3.6A
	13396	1.500E-01	10.0		-0.07						
	341	1.540E-01	15.0		0.13						
	175	1.580E-01	15.0		0.30						
	73	1.610E-01	10.0		0.64						
EU	148	1.640E-01	4.0W		2.42						
CHAIN	1098	1.050E-01	10.5W		-2.27						
	21736r	1.392E+00	5.2W		2.49						
	21531	1.430E-01	11.2		-0.52						
	356	1.480E-01	10.0		-0.22						
154*SM	13384	6.800E-02	10.0		-0.72			12.58	1.80	7.275E-02	(I) 2.1
	148	7.440E-02	3.0		1.04						(E) 2.9A
	1116	7.600E-02	4.0		1.25						
	13386	7.700E-02	10.0		0.56						
	338	8.570E-02	15.0		1.02						
CHAIN	1098	5.600E-02	16.1		-1.89						
	248	5.630E-02	10.0W		-2.44						
	356	7.240E-02	10.0		-0.05						
155*SM	13422r	3.022E-02	20.5		-0.14			4.60	1.53	3.102E-02	(I) 2.9
	341	3.180E-02	15.0		0.20						(E) 3.6A
EU	13395	1.900E-02	15.0W		-2.41						
	148	3.240E-02	3.0W		0.31						
156 SM	341	1.230E-02	15.0		-0.60			3.23	0.54	1.340E-02	(I) 1.6A
	13424r	1.348E-02	1.7		0.97						(E) 1.1
	13396	1.400E-02	10.0		0.43						
EU	278	1.190E-02	10.0		-1.28						
	167	1.250E-02	8.0		-0.92						
	175	1.380E-02	15.0		0.20						
	73	1.390E-02	10.0		0.37						
157 EU	167	6.000E-03	12.0		-1.03			3.78	1.26	6.634E-03	(I) 5.7
	73	6.170E-03	10.0		-0.95						(E) 6.4A
	341	7.580E-03	15.0		0.88						
	13423r	7.655E-03	10.1		1.52						
158*EU	13423r	1.639E-03	10.1W		-0.27			7.61	2.54	1.971E-03	(I) 7.9 >2
	341	2.050E-03	50.0		0.09						(E) 12.5A
	167	3.100E-03	20.0W		1.75						
GD	13352	8.400E-03	10.0W		2.48						
159 EU	167	1.100E-03	28.0		0.13			0.36	0.12	1.062E-03	(I) 6.0A
GD	73	1.040E-03	10.0		-0.27						(E) 2.1
	278	1.040E-03	10.0		-0.27						
	180	1.130E-03	12.0		0.57						
161 TB	786	1.310E-04	20.0		1.94			6.07	2.02	8.105E-05	(I) 5.8 >2
	278	7.170E-05	10.0		-1.72						(E) 8.2A
	180	8.210E-05	11.0		0.14						
	73	8.860E-05	10.0		1.00						
166 DY	263	6.560E-08	50.0								
172 ER	755	8.700E-07	40.0								
175 YB	755	6.000E-07	40.0								
177 LU	755	3.600E-07	40.0								

TABLE 6 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 237NP.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	CHAIN	21651	1.040E+00	7.7							1.040E+00	7.7
87	CHAIN	21651	1.880E+00	8.5							1.880E+00	8.5
88	CHAIN	21651	2.240E+00	7.6							2.240E+00	7.6
91	CHAIN	21651	3.670E+00	7.1							3.670E+00	7.1
92	CHAIN	21651	4.180E+00	5.7							4.180E+00	5.7
93	CHAIN	21651	4.800E+00	9.4							4.800E+00	9.4
94	CHAIN	21651	5.020E+00	11.0							5.020E+00	11.0
95	CHAIN	21651	5.720E+00	7.7							5.720E+00	7.7
97	CHAIN	21651	5.880E+00	4.9							5.880E+00	4.9
99	CHAIN	21651	6.650E+00	5.6							6.650E+00	5.6
101	CHAIN	21651	6.800E+00	9.1							6.800E+00	9.1
103	CHAIN	21651	5.870E+00	7.3							5.870E+00	7.3
104	CHAIN	21651	3.890E+00	7.5							3.890E+00	7.5
105	CHAIN	21651	2.600E+00	9.6							2.600E+00	9.6
115	CHAIN	21651	1.310E-02	9.2							1.310E-02	9.2
127	CHAIN	21651	1.700E-01	23.5							1.700E-01	23.5
129	CHAIN	21651	9.900E-01	13.1							9.900E-01	13.1
131	TE	2027r	6.209E+00	20.6		2.07			4.26	4.26	3.634E+00 (I)	7.5 >2
	CHAIN	21651	3.510E+00	8.0		-2.07					(E)	15.5A
132	TE	2027r	4.471E+00	20.6		0.17			0.03	0.03	4.321E+00 (I)	7.4A
	CHAIN	21651	4.300E+00	7.9		-0.17					(E)	1.3
133	TE	2027r	3.987E+00	20.6							6.550E+00	5.5
	CHAIN	21651	6.550E+00	5.5								
134	TE	2027r	4.386E+00	20.6							6.620E+00	8.3
	CHAIN	21651	6.620E+00	8.3								
135	CHAIN	21651	7.770E+00	4.5							7.770E+00	4.5
138	CHAIN	21651	6.230E+00	6.1							6.230E+00	6.1
140	CHAIN	21651	6.110E+00	6.5							6.110E+00	6.5
141	CHAIN	21651	6.140E+00	7.7							6.140E+00	7.7
142	CHAIN	21651	5.030E+00	8.0							5.030E+00	8.0
143	CHAIN	21651	5.100E+00	7.2							5.100E+00	7.2
146	CHAIN	21651	2.870E+00	12.5							2.870E+00	12.5
147	CHAIN	21651	2.570E+00	8.2							2.570E+00	8.2
149	CHAIN	21651	1.700E+00	14.7							1.700E+00	14.7
151	CHAIN	21651	8.100E-01	14.8							8.100E-01	14.8
156	CHAIN	21651	1.200E-01	33.3							1.200E-01	33.3

TABLE 7 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 238NP.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	CHAIN	2110	9.100E-01	5.0							9.100E-01	5.0
86	CHAIN	2110	1.120E+00	5.0							1.120E+00	5.0
87	CHAIN	2110	1.380E+00	5.0							1.380E+00	5.0
88	CHAIN	2110	1.890E+00	5.0							1.890E+00	5.0
89	CHAIN	2110	2.270E+00	5.0							2.270E+00	5.0
90	CHAIN	2110	3.030E+00	5.0							3.030E+00	5.0
91	CHAIN	2110	3.460E+00	5.0							3.460E+00	5.0
92	CHAIN	2110	4.090E+00	5.0							4.090E+00	5.0
93	CHAIN	2110	4.640E+00	5.0							4.640E+00	5.0
94	CHAIN	2110	5.090E+00	5.0							5.090E+00	5.0
95	CHAIN	2110	5.300E+00	5.0							5.300E+00	5.0
96	CHAIN	2110	5.450E+00	5.0							5.450E+00	5.0
97	CHAIN	2110	5.800E+00	5.0							5.800E+00	5.0
98	CHAIN	2110	5.760E+00	5.0							5.760E+00	5.0
99	CHAIN	2110	6.350E+00	5.0							6.350E+00	5.0
100	CHAIN	2110	6.520E+00	5.0							6.520E+00	5.0
101	CHAIN	2110	6.530E+00	5.0							6.530E+00	5.0
102	CHAIN	2110	6.540E+00	5.0							6.540E+00	5.0
103	CHAIN	2110	6.400E+00	5.0							6.400E+00	5.0
104	CHAIN	2110	5.660E+00	5.0							5.660E+00	5.0
105	CHAIN	2110	4.450E+00	5.0							4.450E+00	5.0
106	CHAIN	2110	3.260E+00	5.0							3.260E+00	5.0
107	CHAIN	2110	1.980E+00	5.0							1.980E+00	5.0
108	CHAIN	2110	1.160E+00	10.0							1.160E+00	10.0
109	CHAIN	2110	6.200E-01	10.0							6.200E-01	10.0
110	CHAIN	2110	3.100E-01	10.0							3.100E-01	10.0

TABLE 8 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 238PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	KR	22087	6.000E-01	16.7							6.000E-01	16.7
89	KR	22087	1.230E+00	6.5							1.480E+00	6.8
	RB	22087	1.480E+00	6.8								
91	SR	22087	2.550E+00	5.0							2.550E+00	5.0
92	SR	22087	3.220E+00	5.0							3.220E+00	5.0
93	SR	22087	3.170E+00	7.9							3.600E+00	8.3
	CHAIN	22087	3.600E+00	8.3								
94	SR	22087	3.870E+00	5.0							4.750E+00	5.0
	Y	22087	4.750E+00	5.0								
95	Y	22087	5.570E+00	5.0		0.18			0.03	0.03	5.535E+00 (I)	3.5A
	ZR	22087	5.500E+00	5.0		-0.18					(E)	0.6
97	ZR	22087	5.730E+00	5.0							5.730E+00	5.0
99	MO	22087	6.110E+00	5.0							6.110E+00	5.0
101	MO	22087	6.840E+00	5.0							6.840E+00	5.0
103	RU	22087	7.910E+00	5.0							7.910E+00	5.0
104	TC	22087	6.870E+00	5.0							6.870E+00	5.0
105	RU	22087	5.800E+00	5.0							5.800E+00	5.0
109	RH(G)	22087	1.280E+00	7.8							1.400E+00	7.9
	CHAIN	22087	1.400E+00	7.9								
127	SB	22087	6.300E-01	12.7							6.300E-01	12.7
128	SN	22087	6.100E-01	16.4							6.100E-01	16.4
129	SB	22087	1.920E+00	7.8							1.920E+00	7.8
130	SN(G)	22087	5.000E-01	14.0								
131	SB	22087	2.660E+00	5.0							5.200E+00	5.0
	I	22087	5.200E+00	5.0								
132	TE	22087	7.470E+00	5.0							7.470E+00	5.0
133	SB	22087	1.350E-01	37.0							7.620E+00	5.0
	TE(G)	22087	2.900E+00	6.9								
	I	22087	7.620E+00	5.0								
134	TE	22087	3.080E+00	5.0							7.780E+00	5.0
	CHAIN	22087	7.780E+00	5.0								
135	I	22087	5.530E+00	5.0							7.560E+00	5.0
	CHAIN	22087	7.560E+00	5.0								
137	XE	22087	5.480E+00	5.5							5.480E+00	5.5
138	XE	22087	4.080E+00	5.0							5.460E+00	5.5
	CS(G)	22087	5.460E+00	5.5								
139	XE	22087	1.890E+00	10.6							5.870E+00	5.1
	CS	22087	5.360E+00	5.6								
	BA	22087	5.870E+00	5.1								
140	BA	22087	5.290E+00	5.0							5.290E+00	5.0
141	BA	22087	5.590E+00	7.2							5.550E+00	5.0
	CE	22087	5.550E+00	5.0								
142	BA	22087	4.790E+00	5.0							5.270E+00	5.0
	LA	22087	5.270E+00	5.0								

TABLE 8 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 238PU. **(cont)**

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
143	CE	22087	3.940E+00	5.0							3.940E+00	5.0
144	LA	22087	2.390E+00	12.6								
145	CE	22087	2.730E+00	5.0							2.730E+00	5.0
147	ND	22087	1.610E+00	9.3							1.610E+00	9.3
149	ND	22087	1.090E+00	18.3							1.090E+00	18.3

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1 H PI	842	4.080E-03	10.0								4.080E-03		10.0
2 H PI	842	1.070E-03	20.0		-1.58				2.48	2.48	1.347E-03	(I)	9.0 >2
	845	1.480E-03	10.0		1.58							(E)	14.2A
3 H PI	832r	1.186E-02	20.3		-1.12				1.66	0.42	1.442E-02	(I)	5.3A
	1201	1.420E-02	10.0		-0.18							(E)	3.4
	2043	1.453E-02	17.0		0.05								
	842	1.460E-02	10.0		0.14								
	845	1.550E-02	10.0		0.80								
4 HE	1191	2.000E-01	10.0		-0.42				6.87	0.98	2.080E-01	(I)	3.3A
HE PI	2055r	1.767E-01	10.6		-1.79							(E)	3.2
	2058r	2.005E-01	6.2		-0.72								
	923	2.110E-01	10.0		0.15								
	1197	2.220E-01	10.0		0.66								
	2043	2.220E-01	10.0		0.66								
	2056	2.250E-01	10.0		0.79								
	854	2.440E-01	10.0		1.54								
6 HE PI	832r	4.077E-03	20.3		-0.03				0.01	0.00	4.098E-03	(I)	6.8A
	842	4.080E-03	10.5		-0.06							(E)	0.3
	845	4.120E-03	10.0		0.07								
7 LI PI	845	1.400E-04	10.0								1.400E-04		10.0
8 HE PI	842	1.720E-04	25.0								6.870E-05		10.0
	845	1.890E-04	10.0										
C PI	845	6.870E-05	10.0										
9 LI PI	845	1.140E-04	10.0								1.140E-04		10.0
BE PI	845	1.090E-04	11.8										
10 BE PI	845	1.050E-03	10.0								1.050E-03		10.0
11 BE PI	845	7.520E-05	10.0								7.520E-05		10.0
12 BE PI	845	4.730E-05	22.7								4.730E-05		22.7
13 B PI	845	2.790E-05	30.8								2.790E-05		30.8
14 B PI	845	4.300E-06	50.0								3.010E-04		10.0
C PI	845	3.010E-04	10.0										
15 C PI	845	7.520E-05	37.1								7.520E-05		37.1
16 C PI	845	7.520E-05	45.7								7.520E-05		45.7
20 O PI	845	1.720E-05	50.0								1.720E-05		50.0
72 ZN	342	1.140E-04	15.0								1.140E-04		15.0
77 AS	156r	7.697E-03	11.3								7.697E-03		11.3
78 AS	156r	2.923E-02	9.2								2.923E-02		9.2
81 SE(G)	84	1.840E-01	14.0	1.840E-01					0.00	0.00	1.840E-01	(I)	14.0A
SE(M)	84	4.540E-03	33.0	4.540E-03								(E)	0.0
83 SE(G)	84	1.620E-02	13.0						8.23	1.18	2.817E-01	(I)	3.1
SE(M)	84	1.510E-02	15.0									(E)	3.4A
BR	156r	2.057E-01	17.3		-2.21								
	2021	2.600E-01	7.7		-1.21								
	2021	2.800E-01	7.1		-0.10								
	84	3.130E-01	15.0		0.68								
	13395	8.600E-02	500.0		-0.46								
KR	193	2.900E-01	10.0		0.30								
	178	2.910E-01	10.0		0.33								
CHAIN	249	3.010E-01	5.0		1.57								
84 BR(G)	84	4.200E-01	10.0		-1.35				1.90	0.95	4.703E-01	(I)	4.1A
KR	178	4.710E-01	10.0		0.02							(E)	4.0
CHAIN	249	4.870E-01	5.0		1.12								
85*KR(G)	584r	1.288E-01	5.1	1.315E-01	-0.51	3.06>2	0.19	10.0>2	24.61	3.08	5.899E-01	(I)	2.3 >2
	867	1.320E-01	5.0		0.09							(E)	4.1A

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	602r	1.457E-01	5.4		2.07								
	13426	9.940E-02	5.0W		-2.50								
KR(M)	1141	5.800E-01	8.6	6.423E-01	-1.45	2.13>2	5.36						
	946	5.900E-01	10.0		-0.98								
	2021	6.900E-01	5.0		2.06								
RB	178	5.370E-01	10.0		-0.28	0.00	0.00						
	584	5.750E-01	5.0		1.08								
CHAIN	249	5.340E-01	5.0	5.511E-01	0.00		4.45						
86 KR	1153	7.670E-01	2.5		-0.07				0.00	0.00	7.676E-01	(I)	2.2A
CHAIN	249	7.700E-01	5.0		0.07							(E)	0.2
87 KR	891	6.460E-01	20.0		-2.41				8.38	1.68	9.493E-01	(I)	3.0
	1141	8.700E-01	9.2		-1.06							(E)	3.8A
	946	9.300E-01	10.0		-0.22								
	1059	9.900E-01	5.0		1.00								
RB	178	9.150E-01	10.0		-0.39								
CHAIN	249	1.000E+00	5.0		1.23								
88 KR	21558	1.080E+00	20.0						10.11	1.68	1.291E+00	(I)	1.9
	1141	1.210E+00	9.9									(E)	2.5A
	1059	1.250E+00	5.0										
	946	1.380E+00	10.0										
RB	1141	1.250E+00	10.4		-0.32								
SR	234	1.020E+00	15.0		-1.79								
	234	1.100E+00	10.0		-1.78								
	1153	1.280E+00	2.5		-0.53								
	20	1.390E+00	5.0		1.53								
	178	1.430E+00	10.0		0.99								
CHAIN	249	1.350E+00	5.0		0.94								
89 KR	946	1.500E+00	10.0						4.15	0.46	1.694E+00	(I)	1.6A
	1059	1.500E+00	5.0									(E)	1.1
SR	1021r	1.610E+00	3.6		-1.60								
	2025r	1.676E+00	5.8		-0.19								
	32	1.680E+00	5.0		-0.18								
	13395	1.700E+00	15.0		0.02								
	13474	1.710E+00	2.3		0.53								
	178	1.720E+00	10.0		0.15								
	261	1.740E+00	5.0		0.55								
	2021	1.770E+00	9.0		0.48								
	2021	1.850E+00	8.6		0.99								
	342	1.870E+00	15.0		0.63								
90*KR	1059	1.190E+00	5.0						12.15	2.02	1.985E+00	(I)	1.6 >2
SR	234	1.720E+00	15.0		-1.03							(E)	2.3A
	1153	1.980E+00	3.0		-0.10								
	2025r	2.027E+00	5.9		0.36								
	261	2.050E+00	5.0		0.67								
	20	2.310E+00	5.0W		2.45								
CHAIN	1021r	1.876E+00	2.9W		-2.46								
	249	2.090E+00	5.0		1.06								
91 SR	602r	2.025E+00	10.4		-2.04	0.00	0.00	0.0	16.63	0.92	2.445E+00	(I)	1.1A
	2021	2.190E+00	10.0		-1.19							(E)	1.1
	2025r	2.200E+00	10.4		-1.09								
	13395	2.300E+00	15.0		-0.43								
	342	2.390E+00	15.0		-0.16								
	32	2.400E+00	5.0		-0.42								
	2021	2.410E+00	4.2		-0.41								
	13474	2.450E+00	2.0		0.03								
	2021	2.550E+00	3.9		1.06								
	1141	2.630E+00	5.0		1.42								
	891	3.270E+00	20.0		1.26								
Y	13395	3.400E+00	15.0		0.00		0.00						
Y (G)	261	2.410E+00	5.0	2.426E+00	-0.17	0.06	0.07						
	342	2.410E+00	5.0		-0.17								
	593	2.460E+00	5.0		0.33								
Y (M)	1141	1.390E+00	5.0	1.390E+00	0.00		0.00						
ZR	2025r	2.326E+00	6.7		-0.80	0.00	0.00						
	1153	2.450E+00	3.0		0.02								

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		178	2.600E+00	10.0		0.59							
	CHAIN	249	2.520E+00	5.0	2.449E+00	0.00		0.01					
92	KR	1059	3.050E-01	5.0					0.34	0.07	2.997E+00	(I)	2.0A
	SR	1141	2.940E+00	12.6		-0.15						(E)	0.5
	Y	891	2.820E+00	20.0		-0.31							
	ZR	2025r	2.987E+00	6.7		-0.05							
		1153	2.990E+00	2.5		-0.15							
		178	3.130E+00	10.0		0.43							
	CHAIN	249	3.020E+00	5.0		0.17							
93	KR	1059	6.500E-02	10.0					0.59	0.20	3.851E+00	(I)	3.1A
	Y	1141	3.790E+00	8.4		-0.21						(E)	1.4
	ZR	1153	3.760E+00	5.0		-0.63							
		178	3.950E+00	10.0		0.26							
	CHAIN	249	3.950E+00	5.0		0.63							
94	Y	1141	4.340E+00	6.0		-0.09			0.81	0.20	4.361E+00	(I)	2.7A
	ZR	1153	4.230E+00	5.0		-0.74						(E)	1.2
		2025r	4.364E+00	6.7		0.01							
		178	4.450E+00	10.0		0.21							
	CHAIN	249	4.500E+00	5.0		0.72							
95	ZR	760	4.540E+00	15.0		-0.63			3.64	0.33	4.962E+00	(I)	2.0A
		1141	4.700E+00	13.0		-0.44						(E)	1.1
		2025r	4.757E+00	5.6		-0.84							
		794	4.830E+00	7.0		-0.41							
		13395	4.900E+00	15.0		-0.09							
		602r	4.976E+00	5.4		0.05							
		261	5.060E+00	7.0		0.29							
		704	5.070E+00	5.0		0.46							
		2021	5.210E+00	5.0		1.03							
		342	5.820E+00	15.0		0.99							
	MO	178	5.000E+00	10.0		0.08							
	CHAIN	249	4.860E+00	5.0		-0.46							
96	ZR	1153	4.780E+00	5.0		-0.89			1.11	0.37	4.946E+00	(I)	3.0A
		2025r	4.896E+00	6.7		-0.17						(E)	1.8
		178	5.140E+00	10.0		0.39							
	CHAIN	249	5.120E+00	5.0		0.83							
97	ZR	760	4.620E+00	17.0		-0.78			9.37	0.72	5.230E+00	(I)	1.3A
		794	4.980E+00	7.0		-0.73						(E)	1.1
		2021	5.090E+00	2.5		-1.27							
		1141	5.110E+00	5.0		-0.49							
		2025r	5.169E+00	5.9		-0.21							
		2021	5.360E+00	2.4		1.18							
		1152	5.440E+00	15.0		0.26							
		342	5.510E+00	15.0		0.34							
		13395	6.200E+00	15.0		1.05							
	NB	1141	5.300E+00	5.0		0.27							
	MO	178	5.630E+00	10.0		0.72							
		2025r	5.800E+00	11.2		0.88							
	CHAIN	1021r	4.982E+00	4.7		-1.10							
		249	5.640E+00	5.0		1.50							
98	NB(G)	391	2.000E-01	15.0					0.78	0.78	6.179E+00	(I)	7.5A
	MO	178	5.860E+00	10.0		-0.88						(E)	6.6
		2025r	6.700E+00	11.2		0.88							
99	NB	2015	3.700E+00	16.2					6.88	0.49	6.205E+00	(I)	0.8A
	MO	261	5.610E+00	10.0		-1.06						(E)	0.6
		950r	5.918E+00	5.2		-0.95							
		2025r	5.933E+00	5.5		-0.84							
		196	6.020E+00	10.0		-0.31							
		1000	6.020E+00	4.0		-0.78							
		2025r	6.087E+00	5.5		-0.35							
		676	6.170E+00	7.0		-0.08							
		2021	6.180E+00	3.1		-0.13							

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		2021	6.220E+00	2.4		0.11							
		908	6.220E+00	3.0		0.09							
		2021	6.230E+00	1.1		0.52							
		1141	6.230E+00	5.0		0.08							
		342	6.340E+00	15.0		0.14							
		764r	6.427E+00	3.2		1.10							
		13395	7.900E+00	15.0		1.43							
100	ZR	2015	5.500E+00	25.5					0.54	0.54	7.394E+00	(I)	7.5A
	MO	178	7.070E+00	10.0		-0.73						(E)	5.5
		2025r	7.900E+00	11.2		0.73							
101	NB	2015	6.300E+00	17.5		0.03			1.23	0.41	6.268E+00	(I)	3.4A
	MO	1141	6.570E+00	5.6		1.01						(E)	2.2
	RU	178	5.880E+00	10.0		-0.71							
	CHAIN	249	6.160E+00	5.0		-0.49							
102	NB	2015	1.900E+00	68.4							6.300E+00		5.0
	RU	2025r	5.939E+00	14.1									
		178	5.960E+00	10.0									
	CHAIN	249	6.300E+00	5.0									
103	RU	178	5.650E+00	15.0		-1.55			8.58	0.78	6.960E+00	(I)	1.0A
		342	5.720E+00	20.0		-1.09						(E)	0.9
		261	5.790E+00	15.0		-1.35							
		760	6.660E+00	10.0		-0.45							
		1141	6.900E+00	5.0		-0.18							
		2021	6.960E+00	1.1		0.01							
		2021	7.010E+00	6.1		0.12							
		794	7.040E+00	7.0		0.16							
		704	7.100E+00	5.0		0.40							
		602r	7.124E+00	7.3		0.32							
		2025r	7.313E+00	5.7		0.87							
		13395	8.800E+00	15.0		1.40							
104	TC	1141	6.290E+00	6.5		0.28			0.43	0.14	6.192E+00	(I)	3.5A
	RU	178	5.900E+00	10.0		-0.53						(E)	1.3
		2025r	5.998E+00	11.2		-0.31							
	CHAIN	249	6.260E+00	5.0		0.30							
105	RU	891	5.640E+00	20.0		-0.17			4.38	1.09	5.825E+00	(I)	2.5
		1141	5.920E+00	5.0		0.37						(E)	2.6A
	RH	261	5.470E+00	5.0		-1.53							
		1141	6.320E+00	5.0		1.76							
	CHAIN	1121	5.730E+00	5.0		-0.38							
106	RU	261	4.040E+00	5.0		-0.89			8.81	1.26	4.209E+00	(I)	1.6
		2021	4.130E+00	2.2		-1.36						(E)	1.8A
		178	4.540E+00	10.0		0.74							
		342	4.880E+00	15.0		0.92							
		1141	5.100E+00	17.6		1.00							
		13395	5.800E+00	15.0		1.83							
	CHAIN	1121	4.280E+00	4.0		0.45							
		249	4.480E+00	5.0		1.27							
107	RU	2023	3.070E+00	9.2		-0.65			0.86	0.43	3.233E+00	(I)	4.1A
	RH	1141	3.540E+00	11.9		0.77						(E)	2.7
	CHAIN	1121	3.240E+00	5.0		0.08							
108	RU	2023	2.010E+00	8.2		-0.56			0.31	0.31	2.088E+00	(I)	4.3A
	CHAIN	1121	2.120E+00	5.0		0.56						(E)	2.4
109	RU	2023	1.090E+00	90.1		-0.76			9.04	2.26	1.835E+00	(I)	5.4 >2
	PD	201r	1.930E+00	9.1		0.65						(E)	8.0A
	PD(G)	342	1.040E+00	45.0		-1.74							
		261	1.130E+00	30.0		-2.17							
	CHAIN	1027r	1.965E+00	6.7		1.47							
110	CHAIN	1121	6.300E-01	5.0							6.300E-01		5.0

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
111	AG	201r	2.758E-01	6.1		-2.08			6.63	0.95	3.077E-01	(I)	2.3A
		261	2.790E-01	14.0		-0.75						(E)	2.2
		342	2.810E-01	15.0		-0.64							
		2021	3.100E-01	5.0		0.17							
		2025r	3.107E-01	6.2		0.17							
		2021	3.200E-01	5.0		0.86							
	CHAIN	1021r	3.172E-01	6.1		0.53							
		1028r	3.298E-01	6.1		1.18							
112*	PD	342	1.040E-01	15.0					8.81	2.94	1.286E-01	(I)	3.3 >2
		201r	8.453E-02	13.1								(E)	5.7A
		261	9.300E-02	10.0									
	AG	2021	1.200E-01	5.0		-2.05							
		2021	9.600E-01	5.2W		2.48							
	CD	1045	1.260E-01	5.0		-0.56							
	CHAIN	1021r	1.134E-01	20.9		-0.65							
113*	AG	2021	1.000E-01	4.0W		1.95			6.43	3.21	8.119E-02	(I)	2.7 >2
		2021	7.300E-02	5.5W		-1.38						(E)	4.9A
	CD	1045	7.250E-02	5.0W		-1.99							
114	CD	1045	5.400E-02	5.0							5.400E-02		5.0
115*	CD(G)	2021	3.300E-02	12.1	3.383E-02	-0.25	1.82		6.20	1.24	3.646E-02	(I)	4.7
		261	3.300E-02	6.0		-1.70						(E)	5.3A
		342	4.680E-02	15.0		1.97							
	CD(M)	2021	2.200E-03	5.0W	2.634E-03	-1.35	0.85						
		201r	2.608E-03	9.1		-0.25							
		261	3.000E-03	20.0		0.67							
		342	3.100E-03	15.0		1.17							
116	CD	1045	4.580E-02	5.0							4.580E-02		5.0
117	CD(G)	891	7.180E-02	20.0							4.580E-02		5.0
	SN	1045	4.580E-02	5.0									
118	SN	1045	4.580E-02	7.0							4.580E-02		7.0
119	SN	1045	4.860E-02	7.0							4.860E-02		7.0
120	SN	1045	4.290E-02	14.0							4.290E-02		14.0
121	SN(G)	2021	3.400E-02	11.8									
		342	4.260E-02	15.0									
	SN(M)	1045	1.050E-02	14.0									
122	SN	1045	6.960E-02	5.0							6.960E-02		5.0
124	SN	1045	1.280E-01	5.0							1.280E-01		5.0
125	SN(G)	342	7.000E-02	15.0							1.160E-01		12.0
		2021	7.700E-02	19.5									
	CHAIN	249	1.160E-01	12.0									
126	SN	1045	3.030E-01	15.0							3.030E-01		15.0
127	SN	1141	4.090E-01	20.5		-0.62			5.59	1.12	4.587E-01	(I)	4.9
	SB	342	3.840E-01	20.0		-1.02						(E)	5.2A
		2021	4.200E-01	19.1		-0.50							
		1141	4.470E-01	6.7		-0.59							
		261	5.500E-01	10.0		1.82							
		2025r	5.928E-01	21.1		1.09							
128	SN	1141	5.400E-01	12.9							8.200E-01		6.1
	SB(M)	1141	8.200E-01	6.1									
	XE	13393	2.000E-04	10.0									
129	SB	1141	1.380E+00	5.0		-0.51			0.26	0.26	1.388E+00	(I)	4.9A
		891	1.540E+00	20.0		0.51						(E)	2.5
130	SB(M)	1141	8.560E-01	5.1									
	XE	13393	5.200E-03	10.0									
131*	SB	20878	1.060E+00	36.8					19.86	1.24	3.710E+00	(I)	1.6
		1141	2.430E+00	12.3								(E)	1.8A
	TE(M)	1141	9.420E-01	6.8									
	I	13395	1.500E+00	15.0W		-2.34							
		342	3.740E+00	15.0		0.05							
		1152	3.740E+00	15.0		0.05							
		261	3.800E+00	6.0		0.41							
		1141	3.880E+00	5.0		0.92							
		794	3.950E+00	7.0		0.89							
		602r	3.991E+00	4.0		1.88							
		704	4.000E+00	5.0		1.52							
		2025r	4.053E+00	5.8		1.51							
		2021	4.120E+00	10.0		1.01							
		2021	4.230E+00	10.0		1.24							
		2021	4.380E+00	10.0		1.54							
	XE	1152	3.740E+00	15.0		0.05							
		179	3.770E+00	5.0		0.34							
		193	3.780E+00	7.0		0.27							
	CHAIN	249	3.600E+00	5.0		-0.65							
		177	3.770E+00	5.0		0.34							
132	SN	20878	4.400E-01	52.3					6.92	0.46	5.256E+00	(I)	1.5A
	TE	760	4.550E+00	25.0		-0.62						(E)	1.0
		342	5.090E+00	15.0		-0.22							
		1152	5.120E+00	15.0		-0.18							
		1141	5.210E+00	5.0		-0.19							
		2021	5.220E+00	5.0		-0.14							
		602r	5.347E+00	3.3		0.57							
		261	5.510E+00	5.0		0.96							
		891	5.580E+00	25.0		0.23							
		2025r	5.661E+00	5.8		1.27							
	I	1152	5.250E+00	15.0		-0.01							
	XE	710	4.870E+00	5.0		-1.68							
		709	5.070E+00	7.0		-0.54							
		179	5.260E+00	11.0		0.01							
		1153	5.450E+00	5.0		0.74							
	CHAIN	249	5.090E+00	5.0		-0.69							
		177	5.260E+00	5.0		0.02							
133*	SB	20878	1.060E+00	36.8					23.07	1.54	6.714E+00	(I)	1.5
		20878	4.500E-01	15.6								(E)	1.8A
	TE(M)	1141	3.620E+00	8.6									
	I (G)	760	4.170E+00	25.0		-2.45							
		342	5.200E+00	15.0		-1.96							
		261	5.530E+00	5.0W		-2.27							
		2025r	6.605E+00	6.3		-0.27							
		602r	6.663E+00	6.2		-0.13							
		2021	7.000E+00	5.0		0.86							
		1141	7.150E+00	5.0		1.28							
	XE	2021	7.280E+00	5.0		1.62							
	CS	20	5.260E+00	50.0		-0.55							
		13256	6.800E+00	5.0		0.27							
		13256	6.895E+00	5.0		0.55							
		69	6.910E+00	10.0		0.29							
		1153	7.060E+00	5.0		1.03							
	CHAIN	375	6.800E+00	5.0		0.27							
		177	6.900E+00	5.0		0.57							
		249	7.180E+00	5.0		1.36							
134*	SB	20878	2.800E-01	35.7					15.23	2.54	6.730E+00	(I)	2.3 >2
	TE	1141	4.910E+00	6.1								(E)	3.7A
	I	13395	3.600E+00	15.0									
		891	6.030E+00	20.0									
		1141	7.440E+00	5.0									
	XE	13392	5.370E+00	5.0W		-1.77							
		710	6.580E+00	20.0		-0.12							
		709	7.320E+00	7.0		1.24							
		179	7.440E+00	10.0		0.99							
		1153	7.700E+00	5.0W		2.33							
	CHAIN	249	7.200E+00	5.0		1.54							
		177	7.460E+00	5.0		2.28							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
135	SB	20878	7.000E-02	42.9					1.16	0.15	7.320E+00	(I)	2.5A
	I	13395	1.300E+00	15.0								(E)	1.0
		270	5.270E+00	10.0									
		342	5.720E+00	15.0									
		1141	6.430E+00	5.0									
	XE	2021	7.100E+00	10.0		-0.32							
		69	7.270E+00	10.0		-0.07							
		2025r	7.390E+00	6.9		0.15							
		67	7.450E+00	10.0		0.18							
		1141	7.600E+00	5.0		0.84							
	CS	20	6.950E+00	10.0		-0.55							
		233	7.050E+00	10.0		-0.40							
		13429r	7.251E+00	14.6		-0.07							
	CHAIN	177	7.250E+00	5.0		-0.23							
136*	I (G)	342	1.970E+00	15.0					8.23	1.65	6.770E+00	(I)	2.3
	I (M)	2015	1.300E+00	15.4								(E)	2.9A
	XE	13392	4.700E+00	10.6W		-2.36							
		709	6.380E+00	7.0		-0.98							
		710	6.620E+00	10.0		-0.24							
		179	6.680E+00	11.0		-0.13							
		1153	7.360E+00	3.0W		1.56							
	CHAIN	177	6.620E+00	5.0		-0.57							
137	XE	946	5.970E+00	10.0					8.43	0.84	6.700E+00	(I)	1.1A
		1061	6.150E+00	5.0								(E)	1.0
	CS	261	5.400E+00	10.0		-2.43							
		20	6.500E+00	10.0		-0.31							
		2025r	6.505E+00	5.7		-0.53							
		1153	6.630E+00	3.0		-0.37							
		13256	6.720E+00	2.1		0.17							
		13256	6.819E+00	2.1		0.99							
		13429r	6.864E+00	2.9		0.87							
	CHAIN	177	6.480E+00	5.0		-0.69							
		1021r	6.522E+00	5.3		-0.52							
		375	6.720E+00	5.0		0.06							
		249	6.740E+00	5.0		0.12							
138	I	2015	1.100E+00	18.2					3.75	0.94	6.094E+00	(I)	2.4A
	XE	21558	4.320E+00	20.0								(E)	2.3
		836	4.570E+00	10.0									
		946	5.000E+00	10.0									
		1141	5.260E+00	8.9									
		1061	5.420E+00	7.0									
	CS	891	5.520E+00	20.0									
		1141	5.720E+00	8.0									
	BA	13258	5.150E+00	15.0		-1.24							
		1153	6.140E+00	3.0		0.41							
		20	6.260E+00	10.0		0.27							
	CHAIN	249	5.400E+00	10.0		-1.33							
		177	6.310E+00	5.0		0.77							
139	XE	1061	3.070E+00	5.0					6.91	1.15	5.976E+00	(I)	1.3
	CS	1141	5.500E+00	22.7								(E)	1.4A
	BA	2021	5.550E+00	16.2		-0.48							
		602r	5.607E+00	3.2		-2.28							
		342	5.610E+00	15.0		-0.44							
		32	5.960E+00	10.0		-0.03							
		13474	6.070E+00	1.5		2.15							
		13395	6.100E+00	15.0		0.14							
		1141	7.500E+00	18.7		1.09							
140	BA	760	3.090E+00	40.0		-1.81			12.64	0.79	5.320E+00	(I)	1.0A
		2021	4.980E+00	20.1		-0.34						(E)	0.9
		2021	5.040E+00	19.8		-0.28							
		273	5.200E+00	10.0		-0.23							
		794	5.240E+00	7.0		-0.22							
		1141	5.250E+00	5.0		-0.27							
		13433	5.310E+00	2.8		-0.08							
		2021	5.360E+00	2.6		0.31							
		1152	5.430E+00	15.0		0.13							

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		261	5.470E+00	10.0		0.27							
		602r	5.473E+00	3.4		0.87							
	LA	1141	5.350E+00	5.0		0.11							
	CE	1153	5.080E+00	3.0		-1.70							
		20	5.520E+00	5.0		0.74							
	CHAIN	1021r	5.240E+00	2.3		-0.74							
		249	5.610E+00	5.0		1.05							
		177	5.880E+00	5.0		1.94							
141	XE	1061	4.880E-01	6.0					2.44	0.22	5.203E+00	(I)	1.4A
	LA	595	4.700E+00	10.0								(E)	0.7
		32	5.630E+00	5.0									
		13474	5.750E+00	1.6									
	CE	2021	4.750E+00	31.6		-0.30							
		2025r	4.992E+00	19.8		-0.21							
		593	5.080E+00	10.0		-0.25							
		342	5.090E+00	15.0		-0.15							
		261	5.110E+00	10.0		-0.18							
		602r	5.154E+00	3.9		-0.27							
		675	5.180E+00	5.0		-0.09							
		13395	5.200E+00	15.0		0.00							
		2021	5.200E+00	1.7		-0.06							
		1141	5.290E+00	7.0		0.24							
		1152	5.600E+00	15.0		0.47							
	PR	20	6.020E+00	10.0		1.37							
142	XE	1061	1.380E-01	7.0					9.87	0.90	4.967E+00	(I)	1.1A
	LA	1141	4.670E+00	5.8		-1.12						(E)	1.0
		602r	5.018E+00	5.9		0.17							
		2021	5.390E+00	3.5		2.31							
	CE	13429r	4.665E+00	10.6		-0.61							
		2025r	4.789E+00	6.2		-0.61							
		13256	4.894E+00	2.0		-0.88							
		13256	4.930E+00	2.0		-0.44							
		1153	5.080E+00	3.0		0.79							
		20	6.660E+00	20.0		1.27							
	CHAIN	375	4.930E+00	5.0		-0.15							
		177	4.970E+00	5.0		0.01							
		249	5.040E+00	5.0		0.30							
143	BA	2015	3.400E+00	23.5					5.35	0.49	4.485E+00	(I)	1.1A
	CE	760	2.960E+00	12.0								(E)	0.8
		595	4.000E+00	10.0									
		602r	4.097E+00	8.4									
		2021	4.190E+00	7.2									
		2021	4.200E+00	3.6									
		261	4.280E+00	10.0									
		1141	4.320E+00	5.3									
		2025r	4.339E+00	6.1									
		1152	4.710E+00	15.0									
		342	5.300E+00	15.0									
		13395	5.400E+00	15.0									
	PR	593	4.240E+00	10.0		-0.58							
		13395	5.400E+00	15.0		1.13							
	ND	1153	4.430E+00	3.0		-0.45							
		2025r	4.445E+00	5.1		-0.18							
		13256	4.453E+00	2.1		-0.41							
		69	4.490E+00	5.0		0.02							
		13256	4.510E+00	2.0		0.33							
		392	5.480E+00	15.0		1.21							
		20	6.100E+00	20.0		1.32							
	CHAIN	249	4.480E+00	5.0		-0.02							
		375	4.510E+00	5.0		0.11							
		177	4.560E+00	5.0		0.34							
144	LA	2015	4.000E+00	15.0		0.41			10.57	0.50	3.756E+00	(I)	0.8A
	CE	337r	3.176E+00	20.3		-0.90						(E)	0.5
		2021	3.490E+00	5.0		-1.55							
		2025r	3.545E+00	6.2		-0.96							
		13429r	3.576E+00	4.1		-1.25							
		602r	3.740E+00	4.0		-0.11							
		1153	3.770E+00	3.0		0.13							
		2021	3.800E+00	1.8		0.69							

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	342	3.840E+00	15.0		0.15							
	675	3.850E+00	5.0		0.49							
	1141	3.910E+00	7.2		0.55							
	261	4.090E+00	10.0		0.82							
	13395	4.600E+00	15.0		1.22							
ND	13429r	3.745E+00	1.6		-0.21							
	13256	3.770E+00	2.1		0.19							
	13256	3.787E+00	2.1		0.42							
	2025r	3.822E+00	5.1		0.34							
	20	4.200E+00	20.0		0.53							
CHAIN	1021r	3.593E+00	4.8		-0.96							
	375	3.770E+00	5.0		0.08							
	249	3.780E+00	5.0		0.13							
	177	3.840E+00	5.0		0.44							
145 PR	595	3.540E+00	10.0		1.42				4.69	0.52	3.040E+00	(I) 1.0A
ND	13256	3.000E+00	2.1		-0.73							(E) 0.7
	1153	3.020E+00	3.0		-0.23							
	2025r	3.030E+00	5.1		-0.07							
	13256	3.040E+00	2.6		0.00							
	13429r	3.051E+00	1.6		0.29							
	20	4.200E+00	20.0		1.38							
CHAIN	249	3.030E+00	5.0		-0.07							
	375	3.040E+00	5.0		0.00							
	177	3.120E+00	5.0		0.52							
146 CE	1141	2.260E+00	15.5						2.86	0.36	2.498E+00	(I) 0.9A
PR	891	1.670E+00	30.0									(E) 0.6
ND	1153	2.470E+00	3.0		-0.40							
	13256	2.483E+00	2.1		-0.34							
	13256	2.490E+00	2.0		-0.19							
	2025r	2.492E+00	5.1		-0.05							
	13429r	2.513E+00	1.6		0.46							
	20	3.530E+00	20.0		1.46							
CHAIN	249	2.490E+00	5.0		-0.07							
	375	2.490E+00	5.0		-0.07							
	177	2.570E+00	5.0		0.57							
147 ND	2025r	1.810E+00	10.6		-1.26				9.12	0.61	2.047E+00	(I) 1.7A
	261	1.920E+00	10.0		-0.68							(E) 1.3
	337r	1.982E+00	20.3		-0.16							
	1141	2.050E+00	5.0		0.03							
	2021	2.050E+00	5.0		0.03							
	602r	2.101E+00	4.9		0.55							
	593	2.130E+00	10.0		0.39							
	1152	2.180E+00	15.0		0.41							
PM	69	2.070E+00	10.0		0.11							
	593	2.140E+00	10.0		0.44							
	20	2.580E+00	10.0		2.08							
SM	232	1.920E+00	27.0		-0.25							
	13429	1.975E+00	5.0		-0.79							
	1153	1.990E+00	6.0		-0.50							
CHAIN	177	1.990E+00	5.0		-0.62							
	249	2.150E+00	5.0		1.01							
148 ND	1153	1.650E+00	3.0		-0.73				3.48	0.44	1.684E+00	(I) 0.9A
	13256	1.670E+00	1.8		-0.55							(E) 0.6
	13256	1.671E+00	2.0		-0.43							
	13429r	1.698E+00	1.6		0.60							
	22050	1.710E+00	2.3		0.69							
	20	2.300E+00	20.0		1.34							
CHAIN	375	1.670E+00	5.0		-0.17							
	249	1.700E+00	5.0		0.19							
	177	1.710E+00	5.0		0.30							
149 ND	595	1.140E+00	10.0		-1.15				4.48	0.64	1.267E+00	(I) 2.2A
PM	337r	1.253E+00	22.3		-0.05							(E) 1.7
	595	1.300E+00	5.0		0.56							
SM	1153	1.220E+00	5.0		-0.86							
	69	1.310E+00	5.0		0.73							
	20	1.680E+00	20.0		1.23							
CHAIN	249	1.240E+00	5.0		-0.48							
	177	1.300E+00	5.0		0.56							

TABLE 9 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 239PU. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
150 ND	20	1.350E+00	20.0		1.38				3.61	0.45	9.778E-01	(I) 1.2A
	13256	9.450E-01	5.0		-0.72							(E) 0.8
	13256	9.600E-01	5.0		-0.38							
	1153	9.660E-01	5.0		-0.25							
	13429r	9.810E-01	1.6		0.32							
	2025r	9.933E-01	5.1		0.32							
CHAIN	177	1.020E+00	5.0		0.85							
	375	9.600E-01	5.0		-0.38							
	249	9.650E-01	5.0		-0.27							
151 PM	1141	6.990E-01	63.0		-0.18				9.16	1.15	7.794E-01	(I) 2.1
	595	7.400E-01	10.0		-0.55							(E) 2.3A
	13429	7.715E-01	5.0		-0.23							
SM	20	1.510E+00	20.0		2.42							
	1153	7.290E-01	5.0		-1.55							
	69	7.900E-01	5.0		0.30							
	232	7.960E-01	10.0		0.21							
CHAIN	177	8.020E-01	5.0		0.62							
	249	8.110E-01	5.0		0.85							
152 ND	13429	6.236E-01	5.0		0.00		0.00	0.4	3.64	0.91	6.093E-01	(I) 2.7A
PM(G)	232	5.220E-01	10.0	5.466E-01	-1.44	2.06>2	0.34					(E) 2.6
	20	7.500E-01	20.0		1.44							
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PM(M)	1153	9.400E-02	15.0	9.400E-02	0.00		0.03					
CHAIN	249	5.810E-01	5.0	6.057E-01	-1.07	0.58	0.04					
	177	6.160E-01	5.0		0.41							
153 SM	595	1.700E-01	40.0									
	337r	3.484E-01	20.6									
	342	4.050E-01	20.0									
154 ND	13429	2.782E-01	2.0						1.33	1.33	2.806E-01	(I) 3.5
SM	232	2.020E-01	20.0									(E) 4.1A
	1153	2.500E-01	5.0									
	20	3.600E-01	20.0									
CHAIN	249	2.700E-01	5.0		-1.15							
	177	2.930E-01	5.0		1.15							
155 SM	13422r	1.633E-01	31.4		0.01				4.03	2.01	1.628E-01	(I) 10.3 >2
	342	2.180E-01	15.0		1.96							(E) 14.6A
EU	13395	1.400E-01	15.0		-1.79							
156*SM	595	9.600E-02	10.0		-2.10				12.52	2.50	1.147E-01	(I) 2.5 >2
EU	593	1.240E-01	7.0		1.18							(E) 3.9A
	342	1.250E-01	15.0		0.56							
	261	6.200E-02	20.0W		-2.42							
	337r	9.952E-02	20.7		-0.75							
CHAIN	1021r	1.194E-01	2.8W		1.58							
157 EU	595	7.600E-02	10.0								7.600E-02	10.0
159 GD	337r	2.058E-02	21.0		-0.21				0.04	0.04	2.140E-02	(I) 9.0A
	595	2.160E-02	10.0		0.21							(E) 1.9
161 TB	337r	4.108E-03	21.7		-1.02				1.05	1.05	4.895E-03	(I) 9.1
	595	5.160E-03	10.0		1.02							(E) 9.3A
166 DY	337r	7.137E-05	53.9								7.137E-05	53.9

TABLE 10 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 241PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
3 H PI	1201	1.410E-02	10.0							1.410E-02		10.0
4 HE PI	1201	1.860E-01	10.0		-1.37			1.87	1.87	2.015E-01	(I)	7.3
	2055r	2.277E-01	10.6		1.37						(E)	10.0A
77 AS	101r	4.965E-04	13.5							4.965E-04		13.5
83 BR	101r	1.944E-01	7.6		-0.31			0.10	0.10	1.982E-01	(I)	4.2A
CHAIN	250	2.000E-01	5.0		0.31						(E)	1.3
84 CHAIN	250	3.530E-01	5.0							3.530E-01		5.0
85 KR(G)	583r	8.505E-02	6.8					0.02	0.02	3.890E-01	(I)	3.5A
RB	585	3.910E-01	5.0		0.15						(E)	0.5
CHAIN	250	3.870E-01	5.0		-0.15							
86 CHAIN	250	6.010E-01	5.0							6.010E-01		5.0
87 KR	1060	7.140E-01	5.0		-0.52			0.28	0.28	7.270E-01	(I)	3.5A
CHAIN	250	7.410E-01	5.0		0.52						(E)	1.9
88 KR	1060	1.000E+00	8.0		0.39			0.31	0.16	9.716E-01	(I)	3.6A
SR	2025r	9.864E-01	6.8		0.26						(E)	1.4
CHAIN	250	9.540E-01	5.0		-0.54							
89 KR	1060	1.110E+00	6.0		-1.40			2.07	1.03	1.186E+00	(I)	3.2
SR	770	1.210E+00	5.0		0.51						(E)	3.3A
	2025r	1.243E+00	5.9		0.91							
90 KR	1060	1.190E+00	5.0					0.65	0.16	1.498E+00	(I)	2.5A
SR	770	1.460E+00	5.0		-0.60						(E)	1.0
	2103	1.480E+00	5.0		-0.28							
	2025r	1.528E+00	6.8		0.32							
	2025r	1.529E+00	8.4		0.26							
CHAIN	250	1.530E+00	5.0		0.49							
91*KR(G)	594	1.690E+00	10.0		-0.02			13.55	2.71	1.694E+00	(I)	2.5 >2
SR	2025r	1.798E+00	5.8		1.10						(E)	4.1A
	10894	1.900E+00	5.3		2.32							
Y	10894	1.040E+00	10.0W		-2.13							
ZR	2103	1.820E+00	5.0		1.61							
CHAIN	250	1.820E+00	5.0		1.61							
92 KR	1060	5.750E-01	12.0					0.52	0.26	2.224E+00	(I)	3.4A
Y	10894	2.040E+00	13.2		-0.71						(E)	1.7
ZR	2103	2.250E+00	5.0		0.31							
CHAIN	250	2.230E+00	5.0		0.07							
93 KR	1060	1.940E-01	7.0					0.17	0.17	2.872E+00	(I)	4.5A
Y	10894	2.770E+00	10.1		-0.41						(E)	1.8
CHAIN	250	2.900E+00	5.0		0.41							
94 ZR	2103	3.280E+00	5.0		-0.21			0.05	0.05	3.305E+00	(I)	3.5A
CHAIN	250	3.330E+00	5.0		0.21						(E)	0.8
95 ZR	762	3.000E+00	20.0		-1.59			5.11	0.85	3.941E+00	(I)	2.2A
	771r	3.822E+00	4.3		-0.87						(E)	2.0
	2025r	3.876E+00	5.6		-0.33							
	770	4.080E+00	5.0		0.75							
	101r	4.194E+00	5.3		1.24							
CHAIN	250	3.920E+00	5.0		-0.12							
	30514	4.370E+00	20.0		0.49							
96 ZR	2103	4.280E+00	5.0		-0.16			0.03	0.03	4.305E+00	(I)	3.5A
CHAIN	250	4.330E+00	5.0		0.16						(E)	0.6

TABLE 10 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 241PU. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
97 ZR	762	3.220E+00	30.0		-1.54			7.87	1.31	4.701E+00	(I)	2.1
	771r	4.347E+00	5.4		-1.66						(E)	2.4A
	101r	4.567E+00	5.4		-0.60							
	10894	4.750E+00	4.2		0.28							
	2025r	4.846E+00	5.9		0.54							
MO	2103	5.110E+00	5.0		1.73							
CHAIN	250	4.760E+00	5.0		0.27							
98 MO	2103	5.240E+00	5.0							5.240E+00		5.0
99 MO	2025r	5.431E+00	5.6		-1.46			4.42	1.11	5.827E+00	(I)	2.3
	2025r	5.653E+00	5.6		-0.61						(E)	2.4A
	10894	5.760E+00	4.7		-0.29							
	770	6.150E+00	5.0		1.17							
CHAIN	250	6.170E+00	5.0		1.23							
100 MO	2103	7.130E+00	5.0							7.130E+00		5.0
101 CHAIN	250	5.940E+00	5.0							5.940E+00		5.0
102 RU	2103	6.530E+00	5.0		0.46			0.21	0.21	6.422E+00	(I)	3.5A
CHAIN	250	6.320E+00	5.0		-0.46						(E)	1.6
103 RU	762	5.530E+00	30.0		-0.91			1.13	0.28	7.023E+00	(I)	2.8A
	771r	6.950E+00	4.3		-0.33						(E)	1.5
	10894	7.100E+00	4.9		0.26							
	2025r	7.100E+00	5.7		0.22							
CHAIN	30514	7.660E+00	20.0		0.42							
104 RU	2103	7.150E+00	5.0		0.71			0.50	0.50	6.966E+00	(I)	3.5A
CHAIN	250	6.800E+00	5.0		-0.71						(E)	2.5
105 RH	10894	5.950E+00	4.9							5.950E+00		4.9
106 CHAIN	250	6.080E+00	5.0							6.080E+00		5.0
107 RU	2016	4.880E+00	8.4							4.880E+00		8.4
108 RU	2016	3.890E+00	8.0							3.890E+00		8.0
109 RU	2016	2.730E+00	1.0		-0.53			0.28	0.28	2.731E+00	(I)	1.0A
PD	771r	2.897E+00	10.9		0.53						(E)	0.5
111 AG	770	5.900E-01	10.0									
	101r	6.119E-01	8.6									
	2025r	6.892E-01	10.7									
112*PD	771r	1.661E-01	9.1W		-1.81			8.31	4.16	1.927E-01	(I)	6.2 >2
	770	2.230E-01	10.0		1.75						(E)	12.7A
AG	10894	2.800E-01	14.3		2.33							
113 AG	101r	1.843E-01	16.8							1.843E-01		16.8
115 CD(G)	771r	1.820E-02	8.7									
121 SN	2025r	1.205E-02	18.4							9.200E-02		20.0
CHAIN	40194	9.200E-02	20.0									
122 CHAIN	40194	1.060E-01	20.0							1.060E-01		20.0
123 CHAIN	40194	1.380E-01	20.0							1.380E-01		20.0
124 CHAIN	40194	1.860E-01	20.0							1.860E-01		20.0
125 CHAIN	40194	2.620E-01	20.0							2.620E-01		20.0
126 CHAIN	40194	3.820E-01	20.0							3.820E-01		20.0
127 SB	770	2.270E-01	5.0							5.830E-01		20.0
	771r	2.718E-01	8.4									
	2025r	2.730E-01	7.7									
CHAIN	40194	5.830E-01	20.0									
128 CHAIN	40194	8.600E-01	20.0							8.600E-01		20.0
129 CHAIN	40194	1.380E+00	20.0							1.380E+00		20.0

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
130	CHAIN	40194	2.160E+00	20.0							2.160E+00		20.0
131*	TE	2032r	8.923E-01	10.3					6.84	0.98	3.072E+00	(I)	2.3A
	I	762	1.290E+00	50.0W		-2.49						(E)	2.3
		10894	3.050E+00	3.9		-0.22							
		2025r	3.101E+00	5.8		0.18							
		771r	3.137E+00	5.5		0.42							
	CHAIN	40194	2.980E+00	20.0		-0.15							
		209	3.000E+00	10.0		-0.25							
		250	3.150E+00	5.0		0.56							
		30514	3.330E+00	20.0		0.39							
132	TE	762	3.650E+00	50.0		-0.48			3.23	0.36	4.529E+00	(I)	2.1A
		771r	4.339E+00	4.0		-1.28						(E)	1.2
		770	4.490E+00	10.0		-0.09							
		2025r	4.601E+00	5.8		0.29							
		10894	4.650E+00	3.9		0.79							
		2032r	4.784E+00	10.3		0.53							
	CHAIN	40194	3.860E+00	20.0		-0.87							
		209	4.470E+00	10.0		-0.13							
		250	4.640E+00	5.0		0.53							
		30514	4.680E+00	20.0		0.16							
133	TE(G)	762	3.440E+00	50.0					6.06	0.87	6.601E+00	(I)	2.3A
		2032r	5.203E+00	10.3								(E)	2.1
	I	10894	6.920E+00	5.0		1.02							
	CS	13257	6.520E+00	5.2		-0.27							
		2025r	6.570E+00	6.8		-0.07							
	CHAIN	40194	4.620E+00	20.0		-2.17							
		377	6.520E+00	5.0		-0.28							
		209	6.560E+00	10.0		-0.06							
		250	6.710E+00	5.0		0.36							
		30514	7.530E+00	20.0		0.62							
134	TE	2032r	6.988E+00	10.3		-0.92			7.23	2.41	7.584E+00	(I)	4.0 >2
	CHAIN	40194	5.230E+00	20.0		-2.35						(E)	6.3A
		209	7.810E+00	10.0		0.31							
		250	8.060E+00	5.0		1.82							
135	I	607r	6.199E+00	9.9		-1.56			5.11	0.85	7.087E+00	(I)	3.3A
		10894	7.210E+00	5.3		0.41						(E)	3.0
		271	7.270E+00	10.0		0.27							
	XE	2025r	7.641E+00	6.9		1.17							
	CHAIN	40194	5.670E+00	20.0		-1.28							
		209	7.080E+00	10.0		-0.01							
		30514	7.750E+00	20.0		0.43							
136	CHAIN	40194	6.010E+00	20.0		-0.74			0.55	0.55	6.777E+00	(I)	9.0A
		209	7.040E+00	10.0		0.74						(E)	6.6
137	XE	1062	6.360E+00	5.0		-0.18			3.35	0.37	6.414E+00	(I)	1.8A
	CS	13257	6.140E+00	5.2		-0.92						(E)	1.1
		2103	6.380E+00	5.0		-0.11							
		2025r	6.421E+00	6.5		0.02							
		2025r	6.458E+00	6.8		0.10							
		771r	6.799E+00	5.6		1.07							
	CHAIN	377	6.140E+00	5.0		-0.96							
		40194	6.220E+00	20.0		-0.16							
		250	6.600E+00	5.0		0.60							
		209	6.620E+00	5.0		0.66							
138	XE	1062	6.160E+00	6.0					0.83	0.21	6.485E+00	(I)	3.4A
	CS	101r	6.835E+00	8.6		0.64						(E)	1.5
	BA	2025r	6.402E+00	6.8		-0.22							
	CHAIN	40194	6.210E+00	20.0		-0.22							
		250	6.370E+00	5.0		-0.50							
		209	6.830E+00	10.0		0.53							
139	XE	1062	4.550E+00	6.0							6.040E+00		20.0
	CHAIN	40194	6.040E+00	20.0									
140	BA	10894	5.570E+00	4.0		-1.10			3.63	0.52	5.778E+00	(I)	1.9A
		770	5.640E+00	5.0		-0.53						(E)	1.4
		274	6.260E+00	5.0		1.65							
	CE	2103	5.770E+00	5.0		-0.03							
	CHAIN	209	5.780E+00	5.0		0.01							
		250	5.860E+00	5.0		0.30							
		40194	5.870E+00	20.0		0.08							
		30514	6.010E+00	20.0		0.19							
141	XE	1062	1.430E+00	5.0					3.82	0.48	4.882E+00	(I)	2.3A
	LA	596	4.510E+00	10.0		-0.85						(E)	1.6
	CE	594	4.760E+00	10.0		-0.26							
		770	4.810E+00	5.0		-0.34							
		101r	4.845E+00	4.9		-0.18							
		2025r	4.895E+00	6.2		0.05							
		10894	5.500E+00	7.3		1.61							
	CHAIN	209	4.840E+00	5.0		-0.19							
		40194	5.420E+00	20.0		0.50							
		30514	5.480E+00	20.0		0.55							
142	XE	1062	5.650E-01	10.0					0.71	0.14	4.728E+00	(I)	2.7A
	CE	2025r	4.541E+00	6.8		-0.67						(E)	1.0
		2103	4.740E+00	5.0		0.06							
		2025r	4.743E+00	7.1		0.05							
	CHAIN	209	4.700E+00	10.0		-0.06							
		250	4.800E+00	5.0		0.36							
		40194	5.250E+00	20.0		0.50							
143	CE	596	3.900E+00	20.0		-0.66			1.28	0.11	4.409E+00	(I)	1.9A
		10894	4.330E+00	6.5		-0.29						(E)	0.6
		2025r	4.343E+00	6.1		-0.26							
		101r	4.558E+00	5.8		0.59							
	PR	594	4.310E+00	10.0		-0.23							
	ND	13257	4.380E+00	5.0		-0.14							
		2025r	4.392E+00	6.8		-0.06							
		2103	4.430E+00	5.0		0.10							
	CHAIN	377	4.380E+00	5.0		-0.14							
		209	4.440E+00	10.0		0.07							
		250	4.480E+00	5.0		0.34							
		30514	4.530E+00	20.0		0.13							
		40194	4.810E+00	20.0		0.42							
144	CE	676	4.080E+00	5.0		-0.22			0.60	0.07	4.122E+00	(I)	1.9A
		2025r	4.101E+00	6.3		-0.08						(E)	0.5
	ND	13257	4.080E+00	4.9		-0.23							
		2025r	4.169E+00	6.8		0.17							
	CHAIN	209	4.070E+00	10.0		-0.13							
		377	4.080E+00	5.0		-0.22							
		250	4.130E+00	5.0		0.04							
		2103	4.220E+00	5.0		0.50							
		40194	4.310E+00	20.0		0.22							
		30514	4.470E+00	20.0		0.39							
145	PR	596	3.020E+00	15.0		-0.29			1.04	0.15	3.150E+00	(I)	2.3A
	ND	13257	3.110E+00	5.1		-0.28						(E)	0.9
		2025r	3.145E+00	6.8		-0.03							
		2103	3.180E+00	5.0		0.21							
	CHAIN	377	3.110E+00	5.0		-0.29							
		209	3.160E+00	10.0		0.03							
		250	3.190E+00	5.0		0.28							
		40194	3.800E+00	20.0		0.86							
146	ND	13257	2.600E+00	5.0		-0.46			1.48	0.25	2.654E+00	(I)	2.1A
		2025r	2.643E+00	6.8		-0.07						(E)	1.0
		2103	2.670E+00	5.0		0.13							
	CHAIN	377	2.600E+00	5.0		-0.46							
		250	2.680E+00	5.0		0.21							
		209	2.710E+00	5.0		0.45							
		40194	3.280E+00	20.0		0.96							
147	ND	2025r	2.258E+00	10.6		-0.10			1.35	0.23	2.280E+00	(I)	3.5A
		594	2.350E+00	11.0		0.28						(E)	1.7

TABLE 10 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 241PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	PM	594	2.340E+00	10.0		0.27							
	CHAIN	250	2.220E+00	5.0		-0.78							
		209	2.330E+00	10.0		0.23							
		30514	2.420E+00	20.0		0.29							
		40194	2.770E+00	20.0		0.89							
148	ND	13257	1.810E+00	6.0		-0.69			1.96	0.39	1.878E+00	(I)	2.4A
		2025r	1.943E+00	7.1		0.50						(E)	1.5
	CHAIN	377	1.840E+00	5.0		-0.48							
		250	1.890E+00	5.0		0.14							
		209	1.910E+00	5.0		0.38							
		40194	2.360E+00	20.0		1.03							
149	ND	596	1.480E+00	10.0		0.05			2.21	0.55	1.473E+00	(I)	3.7A
	PM	596	1.510E+00	10.0		0.26						(E)	2.8
	CHAIN	250	1.430E+00	5.0		-0.93							
		209	1.550E+00	10.0		0.53							
		40194	1.960E+00	20.0		1.26							
150	ND	13257	1.100E+00	4.5		-1.13			5.72	0.95	1.150E+00	(I)	2.1A
		2025r	1.158E+00	6.8		0.11						(E)	2.0
		2103	1.170E+00	5.0		0.38							
	CHAIN	377	1.100E+00	5.0		-1.00							
		250	1.160E+00	5.0		0.20							
		209	1.230E+00	5.0		1.42							
		40194	1.610E+00	20.0		1.43							
151	PM	10894	7.700E-01	12.0		-1.35			4.74	1.58	8.736E-01	(I)	5.9
		596	8.490E-01	10.0		-0.36						(E)	7.4A
	CHAIN	40194	1.290E+00	20.0		1.65							
		209	9.590E-01	10.0		1.05							
152	CHAIN	40194	1.010E+00	20.0		1.36			2.00	1.00	7.381E-01	(I)	4.4
		250	7.250E-01	5.0		-0.79						(E)	4.4A
		209	7.570E-01	10.0		0.28							
153	SM	596	5.210E-01	10.0		-1.59			2.52	2.52	5.471E-01	(I)	9.0 >2
	CHAIN	40194	7.830E-01	20.0		1.59						(E)	14.3A
154	CHAIN	250	3.700E-01	20.0		-0.69			2.74	1.37	4.154E-01	(I)	8.2
		209	4.080E-01	10.0		-0.33						(E)	9.6A
		40194	5.980E-01	20.0		1.59							
155	EU	594	2.320E-01	10.0							4.580E-01		20.0
	CHAIN	40194	4.580E-01	20.0									
156	SM	596	1.590E-01	10.0							3.570E-01		20.0
	EU	594	1.710E-01	10.0									
	CHAIN	40194	3.570E-01	20.0									
157	EU	596	1.310E-01	10.0							2.760E-01		20.0
	CHAIN	40194	2.760E-01	20.0									
158	CHAIN	40194	2.060E-01	20.0							2.060E-01		20.0
159	GD	596	4.630E-02	10.0							1.420E-01		20.0
	CHAIN	40194	1.420E-01	20.0									
160	CHAIN	40194	1.080E-01	20.0							1.080E-01		20.0
161	TB	596	8.160E-03	10.0							7.600E-02		20.0
	CHAIN	40194	7.600E-02	20.0									
162	CHAIN	40194	5.200E-02	20.0							5.200E-02		20.0

TABLE 11 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 241AM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
83	KR	13315r	1.794E-01	11.7		-0.02			0.00	0.00	1.797E-01	(I)	7.6A
		732	1.800E-01	10.0		0.02						(E)	0.2
84	KR	732	2.760E-01	10.0							2.760E-01		10.0
85	KR(G)	13315r	3.119E-01	14.0									
		732	3.120E-01	10.0									
86	KR	13315r	4.195E-01	15.5							4.195E-01		15.5
88	CHAIN	685	7.190E-01	12.0							7.190E-01		12.0
89	SR	767	1.070E+00	7.0		0.49			3.58	1.19	1.047E+00	(I)	5.6
		297	1.200E+00	12.0		1.16						(E)	6.1A
		78	8.100E-01	20.0		-1.57							
	CHAIN	685	9.580E-01	20.0		-0.49							
90	SR	767	1.370E+00	7.0							1.370E+00		7.0
91	SR	629	1.480E+00	30.0		-0.66			4.73	1.18	1.771E+00	(I)	3.4
		297	1.900E+00	5.0		1.74						(E)	3.7A
	Y	78	1.160E+00	40.0		-1.33							
		768	1.720E+00	5.0		-0.82							
	CHAIN	685	1.650E+00	12.0		-0.64							
92	SR	629	2.090E+00	5.0		-0.48			4.36	1.45	2.129E+00	(I)	3.1
		297	2.310E+00	5.0		1.92						(E)	3.8A
	Y	768	1.930E+00	10.0		-1.10							
	CHAIN	768	1.980E+00	9.0		-0.90							
93	Y	768	2.650E+00	5.0		-0.71			2.94	1.47	2.710E+00	(I)	3.8
		297	3.010E+00	7.0		1.63						(E)	4.6A
	CHAIN	685	2.500E+00	10.0		-0.92							
95	ZR	297	2.720E+00	20.0		-2.36			8.38	1.40	3.985E+00	(I)	2.3
		769r	3.796E+00	4.8		-1.19						(E)	2.7A
		78	3.900E+00	13.0		-0.17							
		767	4.030E+00	5.0		0.25							
		629	4.040E+00	6.0		0.24							
		769r	4.139E+00	4.3		1.00							
	CHAIN	685	4.290E+00	7.0		1.06							
97	ZR	78	3.550E+00	25.0		-1.66			3.08	0.77	5.009E+00	(I)	2.2A
		769r	4.974E+00	4.1		-0.20						(E)	1.9
		769r	5.012E+00	3.7		0.02							
		629	5.160E+00	5.0		0.65							
	CHAIN	685	5.030E+00	5.0		0.09							
99	MO	297	6.310E+00	5.0		-1.14			2.56	0.85	6.594E+00	(I)	2.9A
		78	6.850E+00	6.0		0.70						(E)	2.7
		631	6.900E+00	5.0		1.07							
	CHAIN	685	6.130E+00	10.0		-0.80							
103	RU	769r	6.634E+00	10.5		-0.93			4.61	1.54	7.234E+00	(I)	3.8
		629	7.650E+00	5.0		1.57						(E)	4.7A
		297	7.710E+00	10.0		0.66							
	CHAIN	685	6.280E+00	10.0		-1.69							
105	RU	297	6.610E+00	5.0		0.19			1.99	1.00	6.566E+00	(I)	3.6A
		629	6.850E+00	6.0		0.84						(E)	3.6
	CHAIN	685	5.850E+00	10.0		-1.34							
109	CHAIN	685	1.960E+00	10.0							1.960E+00		10.0
111	AG	631	1.190E+00	5.0									
		297	2.140E-01	15.0									
		78	8.900E-01	6.0									
112	PD	769r	4.408E-01	16.9		-1.53			3.81	1.90	5.471E-01	(I)	4.7
		767	5.700E-01	5.0		1.95						(E)	6.5A
	CHAIN	685	4.220E-01	28.0		-1.09							
113*	AG	78	1.800E-01	20.0W		-2.17			9.32	4.66	2.497E-01	(I)	9.2 >2
		631	4.870E-01	10.0W		2.04						(E)	20.0A

TABLE 11 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 241AM. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
	CHAIN	685	1.820E-01	21.0W		-2.34								
115	CD(G)	78	4.600E-02	7.0							4.485E-02		11.8	
		631	7.500E-02	11.0										
	CD(M)	769r	2.904E-03	12.2										
		78	4.000E-03	15.0										
	CHAIN	769r	4.485E-02	11.8										
117	CD(G)	631	8.600E-03	6.0										
121	SN	78	4.500E-02	13.0										
127	SB	769r	6.295E-01	7.6		-0.52			0.27	0.27	6.503E-01	(I)	4.2A	
		631	6.600E-01	5.0		0.52						(E)	2.2	
129	SB	631	1.320E+00	6.0							1.320E+00		6.0	
131	I	297	2.100E+00	5.0					0.04	0.04	3.399E+00	(I)	4.2A	
		769r	3.660E+00	6.7								(E)	0.9	
		78	3.710E+00	5.0										
		769r	3.926E+00	5.1										
		630	4.010E+00	5.0										
	XE	732	3.370E+00	6.0		-0.21								
	CHAIN	685	3.430E+00	6.0		0.21								
132	TE	2040r	3.038E+00	12.0							4.340E+00		5.0	
		297	4.010E+00	7.0										
		78	4.480E+00	7.0										
		630	4.700E+00	5.0										
		767	4.880E+00	5.0										
		769r	5.098E+00	4.7										
	CHAIN	685	4.340E+00	5.0										
133*	TE	2040r	2.646E+00	14.2					12.04	4.01	5.739E+00	(I)	2.9	>2
	I	297	4.000E+00	20.0		-2.24						(E)	5.8A	
		630	7.460E+00	5.0W		2.11								
	XE	732	5.220E+00	5.0W		-2.14								
	CHAIN	685	5.580E+00	5.0		-0.80								
134	TE	2040r	5.843E+00	13.3		-0.39			1.69	0.85	6.115E+00	(I)	6.0A	
	XE	732	6.870E+00	10.0		1.30						(E)	5.5	
	CHAIN	685	5.800E+00	9.0		-0.85								
135	I	297	4.810E+00	15.0							6.560E+00		20.0	
		630	6.090E+00	15.0										
	XE	630	6.800E+00	15.0										
	CHAIN	685	6.560E+00	20.0										
136	XE	732	7.230E+00	5.0							7.230E+00		5.0	
	CS(G)	297	1.600E-01	25.0										
137*	CS	297	5.610E+00	25.0		-1.22			6.29	2.10	7.213E+00	(I)	3.7	>2
		769r	6.495E+00	15.4		-0.83						(E)	5.4A	
		78	9.200E+00	6.0W		2.30								
	CHAIN	685	6.660E+00	5.0W		-0.89								
138	CS(G)	297	6.410E+00	15.0		-0.57			4.09	2.04	6.919E+00	(I)	4.9	>2
		630	8.480E+00	10.0		2.01						(E)	7.0A	
	CHAIN	685	6.660E+00	6.0		-1.22								
139*	BA	78	6.220E+00	15.0		-1.20			6.15	2.05	7.207E+00	(I)	3.4	>2
		767	6.580E+00	5.0W		-1.00						(E)	4.9A	
		631	8.680E+00	5.0W		2.15								
	CHAIN	685	5.950E+00	20.0		-1.14								
140	BA	297	5.210E+00	15.0		-0.82			1.78	0.36	5.839E+00	(I)	2.4A	
		631	5.630E+00	5.0		-0.85						(E)	1.4	
		769r	5.833E+00	6.1		-0.02								
		78	6.000E+00	6.0		0.48								
		767	6.020E+00	5.0		0.68								

TABLE 11 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 241AM. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	LA	768	5.880E+00	5.0		0.16							
141	LA	768	4.090E+00	10.0					3.56	0.71	4.795E+00	(I)	2.8A
	CE	768	4.540E+00	10.0		-0.59						(E)	2.3
		297	4.710E+00	5.0		-0.44							
		767	4.710E+00	5.0		-0.44							
		78	5.040E+00	10.0		0.50							
		630	6.290E+00	15.0		1.60							
	CHAIN	685	4.940E+00	6.0		0.55							
142	CHAIN	685	4.800E+00	10.0							4.800E+00		10.0
143	CE	297	3.410E+00	5.0							3.800E+00		7.0
		768	3.460E+00	5.0									
		630	3.480E+00	5.0									
		769r	3.958E+00	4.8									
	PR	78	3.320E+00	14.0									
		768	3.660E+00	5.0									
	CHAIN	685	3.800E+00	7.0									
144	CE	78	3.150E+00	13.0		-0.56			1.69	0.56	3.372E+00	(I)	3.4A
		297	3.200E+00	7.0		-0.89						(E)	2.5
		767	3.410E+00	5.0		0.30							
	CHAIN	685	3.590E+00	7.0		0.97							
145	PR	768	3.250E+00	5.0		0.75			0.57	0.57	3.207E+00	(I)	4.7A
	CHAIN	685	2.900E+00	15.0		-0.75						(E)	3.6
147	ND	630	1.810E+00	30.0		-0.39			1.04	0.35	2.020E+00	(I)	4.3A
		78	2.060E+00	16.0		0.12						(E)	2.5
		768	2.070E+00	5.0		0.87							
	CHAIN	685	1.870E+00	10.0		-0.91							
149	ND	768	1.280E+00	7.0		0.11			0.85	0.42	1.275E+00	(I)	6.2A
	PM	768	1.480E+00	20.0		0.72						(E)	4.0
	CHAIN	685	1.150E+00	18.0		-0.66							
151	PM	768	8.050E-01	5.0		0.19			0.04	0.04	8.034E-01	(I)	4.9A
	CHAIN	685	7.670E-01	25.0		-0.19						(E)	1.0
153	SM	768	5.660E-01	5.0		-0.64			2.71	1.35	5.721E-01	(I)	4.7
		78	7.600E-01	16.0		1.58						(E)	5.4A
	CHAIN	685	5.180E-01	20.0		-0.54							
155	EU	768	2.980E-01	10.0							2.980E-01		10.0
156	SM	768	1.210E-01	5.0					0.98	0.98	2.381E-01	(I)	4.9A
	EU	768	2.410E-01	5.0		0.99						(E)	4.9
	CHAIN	685	1.920E-01	25.0		-0.99							
157	EU	768	1.600E-01	5.0		0.40			0.16	0.16	1.594E-01	(I)	4.9A
	CHAIN	685	1.440E-01	27.0		-0.40						(E)	2.0
159	GD	768	7.060E-02	5.0							7.060E-02		5.0
161	TB	768	2.160E-02	5.0							2.160E-02		5.0

TABLE 12 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 242AM.

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
83 BR	568r	1.713E-01	35.1		-1.12			1.24	1.24	2.315E-01	(I)	11.4
KR	734	2.460E-01	12.0		1.12						(E)	12.8A
85 KR(M)	734	4.260E-01	20.0									
86 KR	734	5.670E-01	21.0							5.670E-01		21.0
89 SR	568r	1.284E+00	31.7							1.284E+00		31.7
90 SR	568r	1.504E+00	31.8							1.504E+00		31.8
92 SR	568r	2.301E+00	31.8							2.301E+00		31.8
93 Y	568r	2.863E+00	32.2							2.863E+00		32.2
95 ZR	568r	3.560E+00	31.7							3.560E+00		31.7
97 ZR	568r	4.707E+00	31.7							4.707E+00		31.7
99 MO	568r	5.817E+00	31.7							5.817E+00		31.7
103 RU	568r	7.824E+00	31.7							7.824E+00		31.7
109 PD	568r	3.593E+00	32.9							3.593E+00		32.9
115 CD(G)	568r	7.747E-02	32.2	7.747E-02				0.00	0.00	8.325E-02	(I)	30.1A
CD(M)	568r	5.780E-03	32.8	5.780E-03							(E)	0.0
121 SN	568r	2.194E-02	35.0									
125 SB	568r	1.103E-01	32.4							1.103E-01		32.4
131 I	568r	3.375E+00	31.7							3.490E+00		7.0
XE	733	3.490E+00	7.0									
132 TE	568r	4.610E+00	31.7							4.610E+00		31.7
134 I	568r	4.784E+00	35.0									
XE	733	7.710E+00	9.0									
136 XE	733	9.160E+00	9.0									
137 CS	568r	6.382E+00	32.4							6.382E+00		32.4
139 BA	568r	6.086E+00	31.7							6.086E+00		31.7
140 BA	90000	5.900E+00	30.0							5.900E+00		30.0
141 CE	568r	5.519E+00	31.8							5.519E+00		31.8
143 CE	568r	4.688E+00	31.8							4.688E+00		31.8
144 CE	568r	3.969E+00	31.8							3.969E+00		31.8
147 ND	568r	2.668E+00	31.8							2.668E+00		31.8
149 PM	568r	1.944E+00	33.1							1.944E+00		33.1
151 PM	568r	1.129E+00	32.9							1.129E+00		32.9
153 SM	568r	7.884E-01	32.0							7.884E-01		32.0
156 EU	568r	2.960E-01	32.0							2.960E-01		32.0
157 EU	568r	1.751E-01	32.3							1.751E-01		32.3
161 TB	568r	2.003E-02	32.7							2.003E-02		32.7

TABLE 13 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 243CM.

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
89 RB	2011	1.240E+00	25.8									
91 SR	2011	1.450E+00	9.7									
Y (M)	2011	8.400E-01	9.5									
92 SR	2011	1.450E+00	17.9							1.450E+00		17.9
93 SR	2011	1.760E+00	11.4							1.760E+00		11.4
94 SR	2011	1.880E+00	11.7							2.340E+00		16.7
Y	2011	2.340E+00	16.7									
95 ZR	2011	2.310E+00	9.5							2.810E+00		8.9
NB	2011	2.810E+00	8.9									
97 ZR	2011	3.770E+00	8.5		0.15			0.02	0.02	3.735E+00	(I)	6.1A
NB	2011	3.700E+00	8.6		-0.15						(E)	0.9
98 NB(M)	2011	3.700E-01	10.8									
99 MO	2011	4.640E+00	8.6					0.05	0.05	5.279E+00	(I)	10.4A
TC(M)	2011	5.170E+00	14.3		-0.22						(E)	2.3
	2082	5.410E+00	15.0		0.22							
101 MO	2082	5.490E+00	15.0							6.530E+00		11.0
	2011	5.790E+00	14.3									
TC	2011	6.530E+00	11.0									
102 TC(G)	2011	6.580E+00	21.1	6.580E+00				0.00	0.00	6.619E+00	(I)	21.0A
TC(M)	2011	4.000E-02	100.0	4.000E-02							(E)	0.0
103 TC	2011	5.400E+00	23.9							6.080E+00		8.4
RU	2011	6.080E+00	8.4									
104 TC	2011	7.020E+00	8.4							7.020E+00		8.4
105 TC	2011	5.540E+00	8.5		-1.68			4.19	0.84	6.200E+00	(I)	4.1A
	2082	6.590E+00	15.0		0.41						(E)	3.8
	2082	7.640E+00	15.0		1.29							
RU	2011	6.130E+00	10.1		-0.12							
	2011	6.410E+00	9.4		0.39							
RH	2011	6.520E+00	8.3		0.67							
106 TC	2011	5.100E+00	11.6		-1.47			2.16	2.16	5.532E+00	(I)	9.2 >2
	2082	6.840E+00	15.0		1.47						(E)	13.6A
107 RU	2011	6.060E+00	28.4		0.17			0.26	0.13	5.785E+00	(I)	11.0A
RH	2082	5.520E+00	15.0		-0.50						(E)	3.9
	2011	6.220E+00	19.6		0.42							
108 RU	2082	3.190E+00	15.0		-0.78			0.60	0.60	3.330E+00	(I)	13.3A
	2011	4.180E+00	28.2		0.78						(E)	10.4
109 RH	2011	4.340E+00	15.2							4.340E+00		15.2
112 AG	2011	2.120E+00	14.6							2.120E+00		14.6
115 IN(M)	2011	3.500E-01	48.6							3.500E-01		48.6
127 SB	2011	6.400E-01	9.4							6.400E-01		9.4
128 SN	2011	3.400E-01	23.5					0.00	0.00	7.691E-01	(I)	10.4A
SB(G)	2011	2.100E-01	9.5	2.100E-01							(E)	0.0
SB(M)	2011	5.800E-01	13.8	5.800E-01								
129 SB	2011	1.130E+00	15.0							1.130E+00		15.0
130 SN	2011	2.600E-01	34.6					0.97	0.48	1.853E+00	(I)	5.9A
SB(G)	2011	8.900E-01	10.1	9.141E-01	-0.67	0.18					(E)	4.1
	2011	9.500E-01	11.6		0.55							
SB(M)	2011	1.050E+00	14.3	9.392E-01	1.07	0.79						
	2011	8.900E-01	11.2		-1.60							

TABLE 13 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 243CM. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
131 SB	2011	1.590E+00	16.4					0.69	0.34	3.177E+00	(I)	5.6A
TE(G)	2082	2.100E+00	15.0	2.147E+00	-0.21	0.04	0.23				(E)	3.3
	2011	2.190E+00	13.7		0.21							
TE(M)	2011	1.170E+00	9.4	1.170E+00	0.00		0.04					
I	2011	3.350E+00	8.4	3.350E+00	0.00		0.38					
132 SB	2011	7.400E-01	16.2					0.08	0.08	4.414E+00	(I)	6.3A
TE	2011	4.500E+00	9.1		0.29						(E)	1.8
I	2011	4.340E+00	8.8		-0.29							
133 I	2011	5.170E+00	8.5							5.170E+00		8.5
134 I (M)	2011	1.910E+00	9.9									
135 I	2011	3.830E+00	10.4					0.03	0.03	6.027E+00	(I)	9.7A
	2011	3.900E+00	10.3								(E)	1.5
XE	2082	6.140E+00	15.0	6.140E+00	0.00		0.02					
XE(G)	2011	5.950E+00	12.8	5.950E+00	0.00		0.01					
XE(M)	2011	7.200E-01	8.3	7.200E-01	0.00		0.00					
136 I (G)	2011	6.800E-01	30.9									
I (M)	2011	8.000E-01	13.8									
	2011	8.300E-01	28.9									
CS	2011	4.300E-01	11.6									
	2011	4.800E-01	10.4									
138 XE	2082	2.940E+00	15.0									
	2011	3.320E+00	14.2									
	2011	3.560E+00	11.5									
139 XE	2011	1.970E+00	18.3					0.07	0.04	6.321E+00	(I)	9.7A
CS	2011	6.320E+00	13.9		0.00						(E)	1.8
BA	2082	6.220E+00	15.0		-0.14							
	2011	6.840E+00	30.7		0.26							
140 CS	2011	2.710E+00	15.1					0.13	0.07	4.981E+00	(I)	5.3A
BA	2011	4.910E+00	8.3		-0.23						(E)	1.4
LA	2011	4.940E+00	9.5		-0.11							
	2011	5.140E+00	9.9		0.36							
141 BA	2011	4.840E+00	14.7		-0.21			0.04	0.04	4.943E+00	(I)	10.5A
	2082	5.060E+00	15.0		0.21						(E)	2.2
142 BA	2011	2.540E+00	19.7									
143 CE	2011	3.930E+00	9.9							3.930E+00		9.9
144 LA	2011	3.130E+00	12.5							3.130E+00		12.5
145 CE	2011	3.240E+00	13.0							3.240E+00		13.0
146 CE	2011	2.260E+00	19.9		-0.33			0.11	0.11	2.374E+00	(I)	12.0A
	2082	2.450E+00	15.0		0.33						(E)	3.9
147 ND	2011	1.940E+00	10.8							1.940E+00		10.8
151 PM	2011	1.210E+00	8.3							1.210E+00		8.3

TABLE 14 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 245CM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
77 AS	620r	4.543E-03	27.1							4.543E-03		27.1	
83 BR	620r	1.387E-01	27.5							1.387E-01		27.5	
84 BR	1173	2.900E-01	31.0							2.900E-01		31.0	
85 KR(G)	690r	8.280E-02	8.6										
87 KR	1173	5.000E-01	8.0							5.000E-01		8.0	
88 KR	1173	5.800E-01	10.3		-1.73			3.00	3.00	6.452E-01	(I)	7.2	>2
	690r	7.440E-01	9.9		1.73						(E)	12.4A	
89 RB	1173	8.200E-01	11.0		0.51			0.26	0.26	7.900E-01	(I)	8.7A	
SR	620r	7.487E-01	14.1		-0.51						(E)	4.5	
90 KR	1173	8.300E-01	25.3		-0.47			0.22	0.22	9.095E-01	(I)	13.5A	
SR	620r	9.511E-01	16.0		0.47						(E)	6.3	
91*SR	1173	1.180E+00	5.1W		1.04			9.24	3.08	1.090E+00	(I)	4.4	>2
Y	620r	1.074E+00	24.9		-0.06						(E)	7.8A	
	1173	6.860E-01	15.0W		-2.21								
CHAIN	690r	1.436E+00	11.2W		2.49								
92 SR	1173	1.310E+00	11.5		-1.56			2.43	2.43	1.462E+00	(I)	7.9	>2
	690r	1.674E+00	10.7		1.56						(E)	12.3A	
93*SR	1173	9.300E-01	21.5W		-1.84			7.66	3.83	1.687E+00	(I)	7.0	>2
Y	1173	1.930E+00	9.8		2.29						(E)	13.7A	
	690r	2.332E+00	9.9W		1.94								
94 SR	1173	1.520E+00	9.2										
Y	1173	1.610E+00	6.8										
95*ZR	620r	2.237E+00	14.6		-0.47			5.69	1.90	2.381E+00	(I)	2.5	
	1173	2.350E+00	8.1		-0.20						(E)	3.5A	
	690r	3.086E+00	5.7W		2.39								
NB	1173	2.280E+00	3.1W		-0.87								
97*ZR	1173	2.690E+00	7.4		-2.01			9.42	3.14	3.060E+00	(I)	2.5	>2
	620r	2.815E+00	13.7		-0.65						(E)	4.3A	
	1173	2.990E+00	3.0		-1.60								
CHAIN	690r	3.938E+00	5.4W		2.28								
99*NB	1173	2.340E+00	7.7W		-1.49			1.70	0.85	3.654E+00	(I)	2.8A	
MO	1173	4.100E+00	3.2W		0.52						(E)	2.5	
TC	690r	5.323E+00	6.5W		0.60								
101 MO	1173	5.700E+00	9.1							5.700E+00		9.1	
102 MO	1173	5.800E+00	20.7							5.800E+00		20.7	
103 TC	1173	7.000E+00	22.9		0.45			5.90	1.97	6.286E+00	(I)	2.8	
RU	620r	5.771E+00	16.3		-0.56						(E)	4.0A	
	1173	6.180E+00	3.1		-1.65								
	690r	7.858E+00	8.9		2.33								
104 TC	1173	6.670E+00	6.3							6.670E+00		6.3	
105 RU	620r	5.395E+00	22.1		-0.86			2.91	0.97	6.407E+00	(I)	2.6A	
	1173	6.530E+00	3.8		0.65						(E)	2.5	
	1173	6.640E+00	4.7		0.89								
RH	1173	6.030E+00	5.3		-1.37								
106 TC	1173	5.320E+00	10.0		-0.57			0.33	0.16	5.563E+00	(I)	5.6A	
RU	620r	5.592E+00	25.6		0.02						(E)	2.3	
	1173	5.700E+00	7.0		0.54								
107 RH	1173	5.500E+00	9.1							5.500E+00		9.1	
108 RU	1173	5.500E+00	25.5							5.500E+00		25.5	
109 RH	1173	3.730E+00	13.9							4.607E+00		16.2	

TABLE 14 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 245CM. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
	PD	620r	4.607E+00	16.2										
111	AG	620r	3.357E+00	20.9		-0.30			0.09	0.09	3.487E+00	(I)	15.9A	
		1173	3.700E+00	24.3		0.30						(E)	4.8	
112	PD	620r	1.275E+00	28.7							3.420E+00		12.6	
	AG	1173	3.420E+00	12.6										
114	CD	1173	1.800E+00	38.9							1.800E+00		38.9	
115	CD(G)	1173	5.700E-01	5.3	5.700E-01				0.00	0.00	5.999E-01	(I)	5.1A	
	CD(M)	620r	2.995E-02	20.6	2.995E-02							(E)	0.0	
121	SN(M)	620r	6.336E-03	39.8							6.336E-03		39.8	
125	SN(M)	620r	7.390E-02	26.7		-0.02			0.00	0.00	7.414E-02	(I)	17.6A	
	SB	620r	7.433E-02	23.4		0.02						(E)	0.3	
127	SN	1173	4.400E-01	15.9		0.16			0.04	0.02	4.296E-01	(I)	6.7A	
	SB	1173	4.260E-01	8.0		-0.20						(E)	0.9	
		620r	4.362E-01	18.6		0.09								
128	SN	1173	4.400E-01	11.4					0.00	0.00	6.588E-01	(I)	6.0A	
	SB(G)	1173	9.000E-02	11.1	9.000E-02							(E)	0.0	
	SB(M)	1173	5.900E-01	6.8	5.900E-01									
129	SB	1173	1.060E+00	11.3		0.50			0.25	0.25	1.031E+00	(I)	10.1A	
		620r	9.376E-01	22.9		-0.50						(E)	5.0	
130	SB(G)	1173	7.990E-01	5.3	7.990E-01				0.00	0.00	1.739E+00	(I)	6.2A	
	SB(M)	1173	9.400E-01	10.6	9.400E-01							(E)	0.0	
131*	SB	1173	2.240E+00	10.7					4.66	2.33	2.915E+00	(I)	2.5	>2
	TE(M)	1173	9.300E-01	7.5								(E)	3.9A	
	I	620r	2.585E+00	14.8		-1.10								
		1173	2.820E+00	2.8W		-0.29								
		690r	3.824E+00	6.0W		2.29								
132	SB	1173	1.830E+00	8.2					9.84	9.84	4.465E+00	(I)	4.1	>2
		1173	1.940E+00	6.2								(E)	12.9A	
	TE	620r	3.694E+00	19.7										
		1173	4.010E+00	5.0										
	I	1173	4.160E+00	5.0		-3.14								
	CHAIN	690r	5.556E+00	7.1		3.14								
133	TE(G)	1173	2.000E+00	8.0							5.390E+00		5.0	
	TE(M)	1173	2.720E+00	5.9										
	I	1173	5.390E+00	5.0										
134	TE	1173	3.920E+00	6.9					1.49	1.49	5.791E+00	(I)	4.3	
	I (G)	1173	5.310E+00	8.5	5.768E+00	-1.47	1.49					(E)	5.3A	
		1173	5.970E+00	5.0		2.21								
	I (M)	1173	1.120E+00	8.9	1.120E+00									
135	I	1173	5.480E+00	5.0					11.07	11.07	6.509E+00	(I)	4.2	>2
		1173	5.600E+00	5.0								(E)	13.9A	
	XE(G)	1173	6.060E+00	5.0	6.060E+00	0.00		2.19						
	XE(M)	1173	1.380E+00	5.1	1.380E+00	0.00		0.00						
	CHAIN	690r	8.328E+00	7.3	8.328E+00	0.00		8.88						
136	I (G)	1173	1.800E+00	27.8										
	I (M)	1173	1.530E+00	9.2										
137	I	1173	1.200E+00	58.3					4.42	2.21	5.340E+00	(I)	8.7	>2
	XE	1173	4.900E+00	10.4		-2.07						(E)	12.9A	

TABLE 14 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 245CM. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
	CS	620r	7.054E+00	21.6		1.18								
		690r	7.862E+00	20.6		1.62								
138	XE	1173	4.780E+00	7.1					9.20	9.20	6.355E+00	(I)	4.9	>2
		1173	4.830E+00	6.6								(E)	15.0A	
	CS	1173	5.710E+00	6.7		-3.03								
		690r	7.766E+00	7.2		3.03								
139	XE	1173	4.800E+00	14.6					0.31	0.15	7.166E+00	(I)	7.3A	
	CS	1173	6.800E+00	41.2		-0.13						(E)	2.8	
	BA	1173	6.600E+00	18.2		-0.52								
		690r	7.319E+00	8.1		0.55								
140*	BA	620r	5.063E+00	14.4		-0.79			7.32	1.83	5.632E+00	(I)	2.2	
		1173	5.390E+00	5.0		-1.01						(E)	2.9A	
	LA	1173	5.580E+00	3.0		-0.44								
		1173	5.680E+00	5.0		0.19								
	CHAIN	690r	7.007E+00	7.1W		2.46								
141	BA	1173	4.010E+00	11.2					5.75	2.87	5.334E+00	(I)	4.4	>2
	CE	620r	4.164E+00	15.7		-1.92						(E)	7.5A	
		1173	5.380E+00	5.0		0.36								
		690r	6.533E+00	11.6		1.67								
142	BA	1173	4.240E+00	10.8					4.33	4.33	4.963E+00	(I)	4.9	>2
	LA	1173	4.670E+00	6.0		-2.08						(E)	10.2A	
		690r	5.831E+00	8.3		2.08								
143	CE	620r	3.412E+00	17.5		-1.79			6.49	3.25	4.409E+00	(I)	4.8	>2
		1173	4.400E+00	5.5		-0.08						(E)	8.6A	
		690r	5.660E+00	11.5		2.03								
144	LA	1173	4.310E+00	7.2		2.47			6.11	6.11	3.958E+00	(I)	7.0	>2
	CE	620r	2.643E+00	22.7		-2.47						(E)	17.2A	
145	CE	1173	3.040E+00	8.9							3.040E+00		8.9	
146	CE	1173	2.680E+00	18.3		0.27			3.84	1.28	2.554E+00	(I)	6.5	
		1173	2.880E+00	12.5		1.02						(E)	7.4A	
	PR	1173	1.970E+00	17.8		-1.89								
		1173	2.660E+00	9.4		0.57								
147	ND	1173	2.330E+00	7.3		-1.33			4.56	1.14	2.515E+00	(I)	3.9	
		620r	2.421E+00	20.8		-0.19						(E)	4.2A	
		1173	2.630E+00	5.0		1.31								
		690r	3.087E+00	16.0		1.18								
	PM	620r	1.945E+00	26.3		-1.13								
149	ND	1173	1.940E+00	7.7		0.01			0.00	0.00	1.940E+00	(I)	7.3A	
	PM	620r	1.935E+00	23.7		-0.01						(E)	0.1	
151	ND	1173	1.150E+00	4.3		0.94			5.05	1.68	1.120E+00	(I)	3.5	
		1173	9.200E-01	10.9		-2.16						(E)	4.5A	
	PM	620r	1.010E+00	28.4		-0.39								
		1173	1.180E+00	6.8		0.85								
152	PM	1173	1.400E+00	50.0							1.400E+00		50.0	
153	PM	1173	6.700E-01	80.6							9.825E-01		26.5	
	SM	620r	9.825E-01	26.5										
156	EU	620r	2.074E-01	25.6		-2.91			8.45	8.45	3.099E-01	(I)	12.8	>2
		1173	4.400E-01	13.6		2.91						(E)	37.3A	

TABLE 15 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 249CF.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	BR	695	1.300E-01	5.0							1.300E-01	5.0
85	KR(M)	12710	1.500E-01	20.0							2.260E-01	26.1
	CHAIN	21967	2.260E-01	26.1								
86	CHAIN	21967	2.620E-01	24.4							2.620E-01	24.4
87	CHAIN	21967	3.650E-01	20.5							3.650E-01	20.5
88	KR	12710	3.700E-01	5.4							4.520E-01	18.4
	CHAIN	21967	4.520E-01	18.4								
89	RB	12705	5.000E-01	16.0							5.530E-01	16.6
	SR	695	3.200E-01	15.0								
	CHAIN	21967	5.530E-01	16.6								
90	CHAIN	21967	5.960E-01	5.9							5.960E-01	5.9
91*	SR	12710	8.200E-01	4.9W		1.65			11.07	2.77	6.634E-01	(I) 2.7 >2
		12705	8.400E-01	4.8W		1.91						(E) 4.5A
	Y	12705	4.400E-01	6.8W		-1.68						
		695	8.050E-01	15.0		1.21						
	CHAIN	21967	7.070E-01	5.4		2.03						
92	SR	205	1.170E+00	25.0		1.04			2.26	0.56	8.679E-01	(I) 3.8A
		12705	8.700E-01	11.5		0.02						(E) 2.8
		12710	8.700E-01	8.1		0.03						
	Y	695	1.020E+00	15.0		1.02						
	CHAIN	21967	8.490E-01	5.0		-0.72						
93	SR	12705	1.030E+00	18.4		-0.06			2.49	0.62	1.041E+00	(I) 3.6A
		12705	9.700E-01	16.5		-0.46						(E) 2.8
	Y	695	1.180E+00	15.0		0.80						
		12710	9.500E-01	8.4		-1.29						
	CHAIN	21967	1.070E+00	4.4		1.01						
94	SR	12705	6.700E-01	11.9					1.86	1.86	1.255E+00	(I) 3.8
	Y	12710	1.090E+00	11.9		-1.36						(E) 5.2A
	CHAIN	21967	1.280E+00	4.0		1.36						
95*	ZR	12710	1.160E+00	11.2W		-2.49			9.00	1.80	1.484E+00	(I) 1.9
		695	1.300E+00	15.0		-0.95						(E) 2.6A
		12705	1.490E+00	3.4		0.15						
		205	1.720E+00	15.0		0.92						
	NB	12705	1.540E+00	3.2		1.37						
	CHAIN	21967	1.470E+00	3.8		-0.29						
96	CHAIN	21967	1.670E+00	3.5							1.670E+00	3.5
97	ZR	695	1.880E+00	15.0		-0.72			2.17	0.43	2.081E+00	(I) 1.7A
		12705	2.080E+00	3.9		-0.01						(E) 1.1
		12710	2.090E+00	3.8		0.13						
		205	2.350E+00	20.0		0.57						
	NB	12705	2.140E+00	3.3		0.98						
	CHAIN	21967	2.030E+00	3.2		-0.94						
98	CHAIN	21967	2.310E+00	3.0							2.310E+00	3.0
99*	MO	12705	2.780E+00	3.2		-0.21			7.98	2.00	2.795E+00	(I) 1.8
		12710	2.850E+00	4.2		0.50						(E) 2.5A
		695	3.010E+00	10.0		0.72						
		205	3.420E+00	7.0W		2.49						
	CHAIN	21967	2.710E+00	2.8		-1.53						
100	CHAIN	21967	3.220E+00	2.5							3.220E+00	2.5
101	MO	12705	4.150E+00	11.8					0.66	0.66	3.615E+00	(I) 2.3A
	TC	12705	3.440E+00	6.7		-0.81						(E) 1.8
	CHAIN	21967	3.640E+00	2.4		0.81						
102	TC	12705	4.400E+00	34.1		0.14			0.02	0.02	4.191E+00	(I) 2.2A
	CHAIN	21967	4.190E+00	2.2		-0.14						(E) 0.3
103	TC	12705	3.670E+00	23.4		-1.30			5.69	1.14	4.787E+00	(I) 1.5
	RU	12705	4.870E+00	2.5		0.86						(E) 1.6A
		12710	4.990E+00	4.2		1.03						
		205	5.270E+00	12.0		0.77						
		695	5.530E+00	15.0		0.90						
	CHAIN	21967	4.680E+00	2.1		-1.57						
104	TC	12705	4.970E+00	7.4							5.130E+00	2.0
	CHAIN	21967	5.130E+00	2.0								
105	RU	12710	5.400E+00	4.1		0.30			2.98	0.60	5.339E+00	(I) 1.4A
		12705	5.420E+00	3.1		0.53						(E) 1.1
		205	5.490E+00	12.0		0.23						
		12705	5.800E+00	6.0		1.35						
	RH	12705	5.160E+00	4.3		-0.87						
	CHAIN	21967	5.290E+00	2.0		-0.67						
106	TC	12705	5.200E+00	7.5					0.40	0.13	5.413E+00	(I) 1.9A
	RU	205	5.090E+00	21.0		-0.30						(E) 0.7
		695	5.640E+00	15.0		0.27						
	RH	12705	5.600E+00	7.1		0.48						
	CHAIN	21967	5.400E+00	2.0		-0.43						
107	RU	12705	5.200E+00	26.9					0.00	0.00	5.700E+00	(I) 1.9A
	RH	12705	5.690E+00	10.7		-0.02						(E) 0.0
	CHAIN	21967	5.700E+00	1.9		0.02						
108	RU	12705	5.050E+00	26.3					5.60	5.60	5.773E+00	(I) 1.9 >2
	RH	12705	3.280E+00	32.3		-2.37						(E) 4.5A
	CHAIN	21967	5.800E+00	1.9		2.37						
109	RH	12705	6.000E+00	16.7					0.26	0.13	5.546E+00	(I) 1.9A
	PD	205	4.920E+00	25.0		-0.51						(E) 0.7
		12710	5.570E+00	10.2		0.04						
	CHAIN	21967	5.550E+00	1.9		0.18						
110	CHAIN	21967	5.380E+00	2.0							5.380E+00	2.0
111	PD(M)	12705	6.300E-01	11.1					4.89	1.22	5.086E+00	(I) 1.9
	AG	12710	4.850E+00	15.5		-0.32						(E) 2.1A
		205	5.160E+00	11.0		0.13						
		695	5.480E+00	15.0		0.48						
		12705	6.170E+00	8.4		2.12						
	CHAIN	21967	5.040E+00	2.0		-1.46						
112	PD	205	3.480E+00	16.0		-2.11			9.93	3.31	4.641E+00	(I) 2.0 >2
		12710	5.450E+00	7.0		2.19						(E) 3.6A
	AG	12705	5.270E+00	12.3		0.98						
	CHAIN	21967	4.610E+00	2.1		-1.00						
113	AG(G)	205	2.920E+00	11.0							4.220E+00	2.2
		12705	4.800E+00	33.3								
	AG(M)	12705	1.150E+00	11.3								
	CHAIN	21967	4.220E+00	2.2								
114	AG	12705	4.460E+00	13.9							3.530E+00	2.4
	CHAIN	21967	3.530E+00	2.4								
115	CD(G)	12705	1.330E+00	12.0					3.79	1.26	2.903E+00	(I) 2.3
		12705	1.750E+00	30.3								(E) 2.6A

TABLE 15 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 249CF. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
		695	2.680E+00	15.0									
		12710	2.880E+00	4.9									
	CD(M)	12710	2.600E-01	15.4									
		695	2.700E-01	15.0									
	CHAIN	205	2.460E+00	20.0		-0.91							
		21967	2.850E+00	2.7		-1.40							
		695	2.950E+00	15.0		0.11							
		12710	3.140E+00	4.8		1.77							
116	AG	12705	8.500E-01	8.2								2.190E+00	3.1
	CHAIN	21967	2.190E+00	3.1									
117	CD(G)	12705	5.200E-01	13.5								1.580E+00	3.6
	CD(M)	12705	5.600E-01	12.5									
	CD(T)	695	1.880E+00	8.0									
	CHAIN	21967	1.580E+00	3.6									
118	CHAIN	21967	1.040E+00	4.4								1.040E+00	4.4
119	IN	12705	5.300E-01	11.3								6.150E-01	5.8
	CHAIN	21967	6.150E-01	5.8									
120	CHAIN	21967	4.270E-01	19.0								4.270E-01	19.0
121	SN	12710	1.800E-01	16.7		-1.12				3.93	0.98	2.071E-01	(I) 8.6A
		695	2.040E-01	15.0		-0.12							(E) 8.5
		205	3.400E-01	26.0		1.54							
	CHAIN	12710	2.100E-01	19.0		0.08							
		21967	2.660E-01	24.1		0.96							
122	CHAIN	21967	1.650E-01	30.3								1.650E-01	30.3
123	SN	12710	4.600E-02	19.6								1.410E-01	33.3
	CHAIN	21967	1.410E-01	33.3									
125	SN(G)	695	1.070E-01	15.0								2.300E-01	17.4
		12705	1.400E-01	35.7									
		205	2.400E-01	25.0									
		12710	9.400E-02	14.9									
	CHAIN	12710	2.300E-01	17.4									
127*	SN(G)	12705	4.800E-01	14.6	4.800E-01	0.00		1.00	1.6	13.88	3.47	5.642E-01	(I) 4.5 >2
	SN(M)	12705	1.900E-01	26.3	1.900E-01	0.00		0.51					(E) 8.4A
	SB	695	1.070E+00	15.0W	5.542E-01	2.50	4.07>2	0.14					
		205	1.230E+00	24.0		2.30							
		12710	5.000E-01	12.0		-1.01							
		12705	5.500E-01	5.5		-0.30							
128	SN(M)	12705	4.600E-01	8.7						0.00	0.00	7.935E-01	(I) 5.1A
	SB(G)	12705	2.440E-01	5.3	2.440E-01								(E) 0.0
	SB(M)	12705	5.700E-01	7.0	5.700E-01								
129	SB	12710	1.210E+00	5.0								2.190E+00	15.0
		12705	1.270E+00	10.2									
	TE(M)	205	2.190E+00	15.0									
130	SB(G)	12705	6.100E-01	8.2	7.050E-01	-3.80	7.22>2			7.22	7.22	1.485E+00	(I) 3.5 >2
		12705	8.000E-01	6.2		3.80							(E) 9.5A
	SB(M)	12705	7.800E-01	5.0	7.800E-01								
131*	SB	12705	1.780E+00	10.7						6.51	2.17	3.131E+00	(I) 2.8 >2
	TE(M)	12705	1.280E+00	5.5									(E) 4.2A
	I	695	2.200E+00	15.0W		-2.45							
		205	3.010E+00	15.0		-0.27							
		12705	3.200E+00	3.8		0.86							
		12710	3.230E+00	4.6		0.82							
132	SN	20878	1.400E-01	42.9						0.00	0.00	4.181E+00	(I) 5.0A

TABLE 15 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 249CF. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	SB	12705	1.060E+00	9.4									(E) 0.0
		20878	1.790E+00	22.9									
	TE	12710	3.310E+00	3.6									
		205	3.950E+00	7.0									
	I (G)	12705	4.130E+00	5.1	4.130E+00								
	I (M)	12705	3.900E-01	17.9	3.900E-01								
133	TE(G)	12705	1.630E+00	12.9						2.86	0.95	4.947E+00	(I) 2.4A
	TE(M)	12705	1.640E+00	13.4									(E) 2.4
	I	12710	4.710E+00	4.0		-1.62							
		695	4.770E+00	15.0		-0.25							
		205	5.090E+00	10.0		0.29							
		12705	5.130E+00	3.3		1.54							
134	TE	12705	1.590E+00	8.2						0.01	0.01	4.571E+00	(I) 1.8A
		12710	2.290E+00	14.4									(E) 0.2
	I (G)	12705	4.540E+00	2.4	4.548E+00	-0.18	0.01						
		12705	4.560E+00	2.9		0.15							
	I (M)	12705	1.150E+00	15.7	1.150E+00								
135	I	12705	3.590E+00	5.3		-1.58				3.52	1.76	3.840E+00	(I) 2.7
		12705	3.790E+00	5.3		-0.29							(E) 3.6A
		12710	4.050E+00	4.0		1.73							
	XE(M)	12705	1.430E+00	4.2									
136	I (G)	12705	5.900E-01	61.0									
	I (M)	12705	9.200E-01	8.7									
	CS	12705	4.700E-01	4.3									
137	XE	12705	4.290E+00	14.5		-2.01				5.02	2.51	5.153E+00	(I) 8.7 >2
	CS	695	5.570E+00	15.0		0.59							(E) 13.8A
		205	6.900E+00	15.0		1.87							
138	XE	12705	2.470E+00	8.5						0.00	0.00	4.336E+00	(I) 5.9A
	CS(G)	12705	3.950E+00	5.3	3.950E+00								(E) 0.0
	CS(M)	12705	2.030E+00	37.4	2.030E+00								
139	XE	12705	1.940E+00	13.4						4.22	2.11	6.035E+00	(I) 3.3 >2
	CS	12705	4.100E+00	41.5									(E) 4.9A
	BA	695	5.680E+00	5.0		-1.78							
		12705	6.190E+00	5.7		0.54							
		12710	6.820E+00	7.3		1.72							
140	CS	12705	2.780E+00	9.0						0.70	0.14	5.185E+00	(I) 1.7A
	BA	205	4.840E+00	27.0		-0.26							(E) 0.6
		12705	5.120E+00	2.5		-0.68							
		12710	5.250E+00	4.0		0.34							
		695	5.360E+00	15.0		0.22							
	LA	12705	5.200E+00	3.3		0.10							
		12705	5.310E+00	4.9		0.51							
141	BA	12705	4.380E+00	9.6						8.41	2.10	5.541E+00	(I) 2.3 >2
		12705	4.490E+00	12.7									(E) 3.3A
	CE	695	5.150E+00	5.0		-1.74							
		12710	5.260E+00	5.3		-1.13							
		12705	5.660E+00	3.5		0.77							
		1051	5.880E+00	10.0		0.59							
		205	6.340E+00	6.0		2.23							
142	BA	12705	2.830E+00	8.8						3.34	1.67	4.473E+00	(I) 3.3
	LA	12705	4.210E+00	5.2		-1.60							(E) 4.2A
		1051	4.340E+00	10.0		-0.33							
		12710	4.770E+00	4.6		1.81							
143	CE	1051	4.320E+00	10.0		-0.96				6.93	1.15	4.722E+00	(I) 2.3
		1051	4.430E+00	10.0		-0.68							(E) 2.5A
		12710	4.540E+00	4.2		-1.16							
		12705	4.620E+00	5.2		-0.48							

TABLE 15 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 249CF. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	1051	4.890E+00	10.0		0.35						
	205	4.900E+00	6.0		0.65						
	695	5.250E+00	5.0		2.21						
144 LA	12705	3.360E+00	7.7					1.19	1.19	4.412E+00 (I)	4.6
CE	695	4.180E+00	7.0		-1.09					(E)	5.0A
	205	4.620E+00	6.0		1.09						
145 CE	12705	3.560E+00	15.2							3.560E+00	15.2
146 CE	12705	3.120E+00	16.7		-0.21			0.11	0.05	3.222E+00 (I)	6.3A
	12705	3.160E+00	12.3		-0.19					(E)	1.5
PR	12705	3.280E+00	8.2		0.33						
147 ND	12705	2.600E+00	6.9		-0.98			2.08	0.69	2.747E+00 (I)	3.6A
	205	2.620E+00	15.0		-0.33					(E)	3.0
	12710	2.800E+00	4.6		0.64						
	695	3.270E+00	15.0		1.09						
149*ND	12710	1.940E+00	5.2W		-2.07			14.35	2.87	2.154E+00 (I)	3.1 >2
	12705	2.040E+00	7.8		-0.80					(E)	5.3A
	1051	2.310E+00	10.0		0.71						
	1051	2.620E+00	10.0		1.86						
	1051	2.850E+00	10.0W		2.50						
PM	695	2.360E+00	7.0		1.40						
151 ND	12705	1.140E+00	10.5					8.85	1.77	1.683E+00 (I)	3.5
PM	1051	1.540E+00	10.0		-1.00					(E)	4.6A
	12705	1.610E+00	10.6		-0.45						
	12710	1.610E+00	5.0		-1.32						
	695	1.880E+00	15.0		0.71						
	1051	1.980E+00	10.0		1.57						
	1051	2.120E+00	10.0		2.15						
153*SM	1052	1.120E+00	15.0		-0.49			12.99	2.17	1.201E+00 (I)	2.9 >2
	12710	1.130E+00	5.0		-1.59					(E)	4.2A
	1052	1.190E+00	15.0		-0.06						
	695	1.260E+00	5.0		1.12						
	12705	1.270E+00	7.1		0.83						
	1051	1.630E+00	10.0W		2.48						
	1052	9.300E-01	15.0		-2.01						
154 PM(M)	12705	5.100E-01	39.2								
155 SM	12710	6.200E-01	6.5							6.200E-01	6.5
156*SM	1052	5.900E-01	15.0		-1.24			15.44	2.21	6.949E-01 (I)	3.8 >2
	12710	7.200E-01	6.9		0.60					(E)	5.7A
	1052	8.100E-01	15.0		0.97						
	1052	9.700E-01	15.0		1.92						
	1051	9.900E-01	10.0W		2.43						
EU	1051	6.000E-01	10.0		-1.77						
	695	6.400E-01	15.0		-0.60						
	12705	6.400E-01	9.4		-1.02						
157 EU	12710	3.600E-01	8.3		-1.76			5.93	1.19	3.999E-01 (I)	4.9
	1052	3.800E-01	15.0		-0.37					(E)	5.3A
	1051	4.100E-01	10.0		0.28						
	1052	4.400E-01	15.0		0.64						
	1052	4.800E-01	15.0		1.16						
	695	5.200E-01	15.0		1.59						
159 GD	1052	3.300E-01	15.0		-0.62			1.64	0.41	3.576E-01 (I)	6.0A
	695	3.400E-01	15.0		-0.38					(E)	3.9
	1052	3.400E-01	15.0		-0.38						
	1051	3.700E-01	10.0		0.41						
	1052	4.200E-01	15.0		1.05						
161 TB	1052	1.900E-01	15.0		-0.47			0.22	0.22	1.990E-01 (I)	10.6A
	695	2.100E-01	15.0		0.47					(E)	5.0

TABLE 16 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 251CF.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
91 SR	903	5.100E-01	8.0							5.100E-01	8.0
93 Y	903	7.200E-01	10.0							7.200E-01	10.0
95 ZR	903	9.900E-01	10.0							9.900E-01	10.0
97 ZR	903	1.610E+00	7.0							1.610E+00	7.0
99 MO	903	3.220E+00	6.0							3.220E+00	6.0
105 RU	903	4.790E+00	9.0							4.790E+00	9.0
109 PD	903	5.160E+00	8.0							5.160E+00	8.0
111 AG	903	4.930E+00	5.0							4.930E+00	5.0
112 PD	903	5.240E+00	8.0							5.240E+00	8.0
113 AG(G)	903	3.650E+00	10.0							3.650E+00	10.0
115 CD	903	4.080E+00	5.0		-1.82			3.31	3.31	4.345E+00 (I)	3.3 >2
CHAIN	2014	4.600E+00	4.3		1.82					(E)	6.0A
121 SN(G)	903	4.600E-01	8.0		-1.45			2.10	2.10	4.916E-01 (I)	6.0 >2
CHAIN	2014	5.500E-01	9.1		1.45					(E)	8.7A
125 SN(G)	903	1.900E-01	10.0							1.900E-01	10.0
127 SB	903	5.900E-01	10.0							5.900E-01	10.0
129 SB	903	9.000E-01	10.0							9.000E-01	10.0
131 I	903	1.770E+00	8.0							1.770E+00	8.0
132 TE	903	4.180E+00	10.0		-0.38			0.14	0.14	4.295E+00 (I)	6.7A
	2014	4.400E+00	9.1		0.38					(E)	2.6
133 I	903	3.780E+00	10.0		-0.40			0.16	0.16	3.884E+00 (I)	7.1A
	2014	4.000E+00	10.0		0.40					(E)	2.8
135 I	2014	4.060E+00	9.3							4.060E+00	9.3
140 BA	903	4.360E+00	5.0							4.360E+00	5.0
141 CE	903	4.790E+00	10.0							4.790E+00	10.0
143 CE	903	4.910E+00	6.0							4.910E+00	6.0
147 ND	903	3.490E+00	10.0							3.490E+00	10.0
149 PM	903	3.000E+00	10.0							3.000E+00	10.0
151 PM	903	1.240E+00	15.0							1.240E+00	15.0
156 SM	903	5.600E-01	10.0							5.600E-01	10.0

TABLE 17 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 254ES.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
89	SR	927	5.300E-02	15.0								5.300E-02	15.0
91	SR	927	2.800E-01	11.0								2.800E-01	11.0
95	ZR	927	7.200E-01	10.0								7.200E-01	10.0
97	ZR	927	9.900E-01	10.0								9.900E-01	10.0
99	MO	927	2.340E+00	8.0								2.340E+00	8.0
103	RU	927	3.150E+00	10.0								3.150E+00	10.0
105	RU	927	4.290E+00	10.0								4.290E+00	10.0
106	RU	927	4.070E+00	10.0								4.070E+00	10.0
109	PD	927	3.760E+00	15.0								3.760E+00	15.0
111	AG	927	4.230E+00	5.0								4.230E+00	5.0
112	PD	927	4.400E+00	10.0								4.400E+00	10.0
113	AG(G)	927	3.490E+00	10.0								4.720E+00	10.0
	CHAIN	927	4.720E+00	10.0									
115	CD(G)	927	5.340E+00	10.0	5.340E+00	0.00		0.00	0.0	0.00	0.00	5.640E+00 (I)	6.9A
	CD(M)	927	3.000E-01	10.0	3.000E-01	0.00		0.00				(E)	0.0
	CHAIN	927	5.640E+00	10.0	5.640E+00	0.00		0.00					
121	SN	927	2.540E+00	6.0		-1.15				1.33	1.33	2.621E+00 (I)	5.2
	CHAIN	927	2.920E+00	10.0		1.15						(E)	5.9A
125	SN	927	4.470E-01	11.0								9.400E-01	10.0
	CHAIN	927	9.400E-01	10.0									
127	SB	927	9.500E-01	11.0								9.500E-01	11.0
129	SB	927	1.940E+00	10.0								1.940E+00	10.0
131	I	927	3.840E+00	10.0								3.840E+00	10.0
132	TE	927	4.760E+00	10.0								4.760E+00	10.0
133	I	927	5.090E+00	15.0								5.090E+00	15.0
135	I	927	5.310E+00	15.0								5.310E+00	15.0
140	BA	927	4.010E+00	5.0								4.010E+00	5.0
141	CE	2014	4.600E+00	6.5		-0.06				0.00	0.00	4.612E+00 (I)	5.1A
		927	4.630E+00	8.0		0.06						(E)	0.3
143	CE	927	4.890E+00	8.0								4.890E+00	8.0
144	CE	927	3.920E+00	10.0								3.920E+00	10.0
151	PM	927	1.730E+00	20.0								1.730E+00	20.0
153	PM	927	1.620E+00	20.0								1.620E+00	20.0
156	SM	927	8.000E-01	20.0								8.000E-01	20.0
157	EU	927	7.600E-01	15.0								7.600E-01	15.0

TABLE 18 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 255FM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
91	SR	2014	5.000E-01	20.0								5.000E-01	20.0
93	Y	902	2.000E-01	20.0								2.000E-01	20.0
97	ZR	902	7.000E-01	10.0								7.000E-01	10.0
99	MO	902	1.560E+00	10.0								1.560E+00	10.0
105	RU	902	2.430E+00	10.0								2.430E+00	10.0
109	PD	902	2.600E+00	20.0								2.600E+00	20.0
111	AG	902	2.850E+00	20.0								2.850E+00	20.0
112	PD	902	3.740E+00	20.0								3.740E+00	20.0
113	AG	902	3.240E+00	20.0								3.240E+00	20.0
115	CD	902	5.130E+00	10.0		-0.60				0.35	0.35	5.329E+00 (I)	7.3A
	CHAIN	2014	5.600E+00	10.7		0.60						(E)	4.4
121	SN(G)	902	3.270E+00	10.0		-0.83				0.69	0.69	3.442E+00 (I)	7.4A
	CHAIN	2014	3.700E+00	10.8		0.83						(E)	6.1
125	SN(G)	2014	1.600E+00	12.5								1.600E+00	12.5
127	SB	902	2.390E+00	10.0								2.390E+00	10.0
129	SB	902	2.330E+00	10.0								2.330E+00	10.0
131	I	902	3.350E+00	10.0		-0.10				0.01	0.01	3.373E+00 (I)	7.3A
		2014	3.400E+00	10.5		0.10						(E)	0.7
132	TE	902	4.900E+00	10.0								4.900E+00	10.0
133	I	902	5.580E+00	10.0		-0.15				0.02	0.02	5.636E+00 (I)	7.3A
		2014	5.700E+00	10.5		0.15						(E)	1.1
135	I	902	6.150E+00	10.0								6.150E+00	10.0
140	BA	902	5.030E+00	10.0								5.030E+00	10.0
143	CE	2014	3.700E+00	10.8								3.700E+00	10.8
149	PM	902	1.530E+00	10.0								1.530E+00	10.0
151	PM	902	1.340E+00	10.0								1.340E+00	10.0
153	SM	902	1.040E+00	10.0								1.040E+00	10.0
157	EU	902	3.800E-01	10.0								3.800E-01	10.0

TABLE 19 CHAIN AND CUMULATIVE YIELDS FROM THERMAL FISSION OF 257FM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
112	PD	13458	3.020E+00	19.9							3.020E+00	19.9
127	SB	13458	6.300E+00	15.1							6.300E+00	15.1
132	TE	13458	5.570E+00	15.1							5.570E+00	15.1
140	BA	13458	3.950E+00	15.2							3.950E+00	15.2

TABLE 20 CHAIN AND CUMULATIVE YIELDS FROM EPI-TH FISSION OF 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
72	ZN	13219r	1.013E-04	18.0							1.013E-04	18.0
87	CHAIN	21560r	8.534E-01	5.1							8.534E-01	5.1
88	CHAIN	21560r	1.256E+00	4.6							1.256E+00	4.6
97	CHAIN	21560r	5.230E+00	1.8							5.230E+00	1.8
105	CHAIN	21560r	5.778E+00	3.0							5.778E+00	3.0
107	CHAIN	21560r	3.023E+00	5.7							3.023E+00	5.7
111	CHAIN	21560r	2.372E-01	4.0							2.372E-01	4.0
115	CD(G)	13219r	2.434E-02	16.5		0.07			0.00	0.00	2.410E-02 (I)	7.7A
	CHAIN	21560r	2.403E-02	8.6		-0.07					(E)	0.5
127	CHAIN	21560r	3.757E-01	8.6							3.757E-01	8.6
128	CHAIN	21560r	7.708E-01	7.0							7.708E-01	7.0
129	CHAIN	21560r	1.385E+00	5.5							1.385E+00	5.5
140	CHAIN	21560r	5.373E+00	2.7							5.373E+00	2.7
149	CHAIN	21560r	1.242E+00	4.3							1.242E+00	4.3

TABLE 21 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	91205	1.940E-01	4.0									
		91204	6.000E-02	50.0									
72	ZN	344	1.550E-04	15.0		-2.08				4.86	2.43	1.719E-04	(I) 12.7 >2
		322r	2.371E-04	42.0		0.67							(E) 19.8A
		13367	3.300E-04	24.2		2.05							
73	GA	13367	4.500E-04	48.9		-0.01				0.00	0.00	4.508E-04	(I) 36.0A
		322r	4.518E-04	53.1		0.01							(E) 0.2
77	GE	13367	9.000E-03	22.2		-1.14				2.34	1.17	1.089E-02	(I) 10.4
	AS	225r	1.150E-02	12.2		0.74							(E) 11.3A
		322r	1.883E-02	37.5		1.14							
83	SE(G)	2002	9.000E-01	16.7						10.07	2.52	1.778E+00	(I) 7.2 >2
	BR	225r	1.331E+00	17.2		-2.35							(E) 11.4A
		322r	1.388E+00	29.5		-1.00							
		13367	1.900E+00	23.7		0.28							
		13430r	2.024E+00	9.3		1.78							
		344	2.860E+00	20.0		1.94							
	KR	238	1.990E+00	5.0									
84	SE	2010	2.320E+00	4.7						5.59	2.80	3.913E+00	(I) 4.8 >2
	BR	13430r	3.211E+00	13.2		-1.85							(E) 8.1A
	KR	238	3.650E+00	10.0		-0.84							
	CHAIN	2002	4.310E+00	6.0		2.23							
85	KR(G)	781r	8.782E-01	9.2	8.782E-01	0.00		0.08	1.2	1.64	0.82	4.253E+00	(I) 3.7A
	KR(M)	238	3.880E+00	10.0	4.056E+00	-0.61	0.38	0.54					(E) 3.3
		40554	4.200E+00	8.3		0.61							
	CHAIN	2002	4.430E+00	5.0	4.430E+00	0.00		0.64					
86	KR	238	6.000E+00	10.0								6.000E+00	10.0
87	BR	12926	7.610E+00	5.1						0.31	0.31	6.261E+00	(I) 5.6A
	KR	2010	4.420E+00	10.0									(E) 3.1
		40554	6.400E+00	7.8									
	CHAIN	2002	6.140E+00	6.7		-0.56							
		364	6.570E+00	10.0		0.56							
88	BR	2010	4.880E+00	6.6						1.58	0.53	6.635E+00	(I) 4.0A
	KR	781r	6.019E+00	9.3		-1.24							(E) 2.9
		40554	6.800E+00	7.3		0.39							
	CHAIN	2002	6.770E+00	6.5		0.38							
		364	6.920E+00	10.0		0.45							
89	RB	2010	7.340E+00	9.8		0.42				3.64	1.21	7.084E+00	(I) 5.5
	SR	344	6.000E+00	15.0		-1.33							(E) 6.0A
		13367	6.700E+00	10.4		-0.66							
		14	8.170E+00	10.0		1.51							
90	SR	13367	6.100E+00	19.7		-1.19				3.10	0.52	7.487E+00	(I) 3.6A
		344	7.040E+00	15.0		-0.44							(E) 2.6
		322r	7.339E+00	21.8		-0.09							
		384	7.450E+00	10.0		-0.05							
		332	7.460E+00	7.0		-0.06							
		225r	7.510E+00	5.9		0.07							
		14	8.560E+00	10.0		1.32							
91	KR	21805	5.690E+00	9.0						13.76	6.88	6.537E+00	(I) 4.5 >2
	SR	13367	6.400E+00	10.9									(E) 11.9A
		781r	6.491E+00	7.6									
		781r	6.565E+00	9.6									
		20272	6.600E+00	15.2									
		344	6.800E+00	15.0									
		225r	6.803E+00	9.2									
		894	7.220E+00	5.0									
		322r	7.393E+00	14.3									
	Y (G)	14	5.030E+00	10.0	5.030E+00	0.00		8.98					
	Y (M)	40554	4.300E+00	7.0	4.306E+00	-0.03	0.00	0.00					
		2010	4.310E+00	6.0		0.03							

TABLE 21 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 232TH. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	CHAIN	2002	7.340E+00	5.0	7.340E+00	0.00		4.78					
92	SR	781r	6.587E+00	8.6		-0.81				0.76	0.38	7.006E+00	(I) 3.3A
	Y	894	7.010E+00	5.0		0.02							(E) 2.0
	CHAIN	2002	7.170E+00	5.0		0.59							
93	SR	2010	6.270E+00	12.0		0.22				4.60	2.30	6.116E+00	(I) 4.2 >2
	Y	894	5.870E+00	5.0		-1.74							(E) 6.4A
		362	7.610E+00	10.0		2.09							
94	SR	2010	5.490E+00	4.5		0.00				0.00	0.00	5.490E+00	(I) 4.0A
	CHAIN	2002	5.490E+00	8.0		0.00							(E) 0.0
95	SR	2010	3.000E+00	10.3						1.94	0.65	5.612E+00	(I) 3.0A
	ZR	20272	5.000E+00	10.0		-1.30							(E) 2.4
		225r	5.523E+00	7.2		-0.24							
		894	5.800E+00	7.0		0.51							
	CHAIN	2002	5.710E+00	4.0		0.63							
97	SR	2010	5.600E+00	11.8		1.75				9.90	1.24	4.459E+00	(I) 2.4
	ZR	781r	4.295E+00	8.0		-0.50							(E) 2.6A
		225r	4.407E+00	4.6		-0.29							
		894	4.610E+00	7.0		0.50							
		322r	5.389E+00	17.4		1.00							
		13367	5.400E+00	14.8		1.19							
		344	5.850E+00	15.0		1.60							
	NB	40554	4.100E+00	7.3		-1.28							
	CHAIN	2002	4.400E+00	4.1		-0.40							
99	MO	2010	2.340E+00	12.0		-2.27				7.02	1.00	2.954E+00	(I) 2.6
		894	2.640E+00	13.0		-0.94							(E) 2.6A
		322r	2.898E+00	13.7		-0.14							
		13367	2.900E+00	10.3		-0.18							
		21712	2.980E+00	5.0		0.21							
		14	3.140E+00	10.0		0.61							
		344	3.160E+00	15.0		0.44							
	CHAIN	2002	3.060E+00	3.9		1.16							
103	RU	894	1.170E-01	15.0		-2.36				8.78	1.76	1.547E-01	(I) 4.7
		332	1.570E-01	10.0		0.17							(E) 6.2A
		225r	1.588E-01	6.2		0.61							
		322r	1.697E-01	36.2		0.25							
		13367	2.000E-01	35.0		0.65							
		344	2.150E-01	15.0		1.92							
105*	RU	894	5.200E-02	10.0W		-1.63				1.45	0.73	7.112E-02	(I) 4.5A
	RH	13367	7.000E-02	28.6		-0.07							(E) 3.9
		344	8.350E-02	5.0W		0.41							
106	RU	225r	4.477E-02	15.8		-1.51				4.23	1.06	5.443E-02	(I) 5.5
		322r	4.859E-02	14.0		-0.96							(E) 5.7A
		13367	5.800E-02	10.3		0.69							
		332	5.900E-02	10.0		0.90							
		344	6.210E-02	15.0		0.87							
109	PD	225r	5.170E-02	12.3		-0.41				0.24	0.08	5.364E-02	(I) 8.0A
		13367	5.300E-02	18.9		-0.07							(E) 2.3
		322r	5.683E-02	22.7		0.26							
	PD(G)	344	5.610E-02	15.0		0.34							
111	AG	13367	5.200E-02	19.2		-1.39				9.37	2.34	6.479E-02	(I) 6.0 >2
		344	5.250E-02	15.0		-1.79							(E) 9.1A
		322r	5.773E-02	21.4		-0.60							
		225r	7.116E-02	10.2		1.04							
		332	8.150E-02	10.0		2.33							
112*	PD	13430r	3.560E-01	13.2W		2.47				13.58	2.26	6.930E-02	(I) 7.5 >2
		322r	5.354E-02	21.5		-1.54							(E) 11.2A
		225r	5.959E-02	15.6		-1.26							
		13367	6.500E-02	15.4		-0.50							
		344	6.920E-02	30.0		-0.01							
		332	8.990E-02	20.0		1.20							
	AG	894	1.060E-01	20.0		1.79							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
113	AG	13430r	4.677E-01	13.2										
115	AG	13430r	4.956E-01	13.2		0.00		0.00	0.2	47.38	5.26	6.640E-02	(I)	5.4 >2
	CD(G)	322r	3.943E-02	51.1	6.077E-02	-1.09	0.67	0.08					(E)	12.3A
		894	5.840E-02	10.0		-0.63								
		344	6.320E-02	15.0		0.29								
		13367	7.200E-02	19.4		0.85								
		225r	7.881E-02	27.8		0.84								
	CD(M)	13367	3.000E-03	50.0	4.371E-03	-0.95	0.69	0.00						
		225r	4.371E-03	10.2		0.00								
		322r	5.273E-03	23.1		0.79								
	CHAIN	225r	6.405E-02	9.8	6.854E-02	-1.93	21.55>2	0.13						
		322r	7.210E-02	22.7		0.23								
117	CD(G)	894	5.740E-02	10.0										
121	SN(M)	225r	9.287E-03	30.2										
123	SN(M)	225r	2.745E-02	7.1										
125	SN(M)	225r	2.276E-02	10.3										
127	SB	225r	7.995E-02	8.6								7.995E-02		8.6
129	CHAIN	2002	4.300E-01	20.9								4.300E-01		20.9
130	SB(G)	2002	5.500E-01	18.2										
131*	SN	21805	1.340E+00	28.4						44.65	3.43	1.517E+00	(I)	2.8 >2
	SB	2010	1.830E+00	11.5		1.55							(E)	5.2A
	I	13367	1.200E+00	50.0		-0.53								
		322r	1.227E+00	50.8		-0.47								
		225r	1.616E+00	15.6		0.40								
		781r	1.812E+00	8.8		1.98								
		894	1.830E+00	10.0		1.80								
		2010	2.050E+00	12.2		2.19								
		384	2.150E+00	10.0W		2.44								
		332	2.160E+00	10.0W		2.44								
		344	7.760E-01	20.0W		-2.33								
		13334	9.200E-01	10.9W		-2.11								
		782	9.220E-01	20.0W		-2.40								
	XE	238	1.620E+00	7.0		1.05								
	CHAIN	2002	1.810E+00	5.0W		2.04								
132*	SB	2010	2.630E+00	12.2		0.12				27.99	2.33	2.592E+00	(I)	2.6 >2
	TE	782	1.900E+00	10.0W		-2.28							(E)	4.0A
		13334	1.900E+00	10.5W		-2.29								
		344	1.910E+00	15.0		-2.48								
		13367	2.400E+00	29.2		-0.28								
		322r	2.439E+00	30.6		-0.21								
		781r	2.534E+00	10.8		-0.22								
		21712	2.760E+00	5.8		1.20								
		2010	3.430E+00	12.6		1.97								
	I	894	2.870E+00	10.0		1.01								
	XE	238	2.870E+00	7.0		1.50								
	CHAIN	20272	2.500E+00	12.0		-0.32								
		2002	3.280E+00	5.0W		2.20								
133*	TE	2010	1.330E+00	5.0						4.71	2.36	4.501E+00	(I)	2.7 >2
	I	894	4.660E+00	10.0		0.38							(E)	4.1A
	CHAIN	364	3.750E+00	7.0W		-2.43								
		2002	4.700E+00	3.0W		0.98								
134	I	2010	6.190E+00	9.7		0.96				1.55	0.77	5.683E+00	(I)	4.9A
	XE	238	5.380E+00	7.0		-1.21							(E)	4.4
	CHAIN	2002	5.940E+00	10.0		0.49								
135	I	894	5.360E+00	10.0		0.00		0.00	0.5	6.51	1.63	5.537E+00	(I)	3.6
	XE(G)	2010	5.320E+00	6.8	5.320E+00	0.00		0.36					(E)	4.6A

TABLE 21 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 232TH. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	XE(M)	2010	2.320E+00	5.0	2.346E+00	-1.74	3.03>2	0.00						
		20272	3.900E+00	23.1		1.74								
	CHAIN	364	4.660E+00	15.0	5.634E+00	-1.49	1.48	0.16						
		2002	5.890E+00	5.0		1.53								
136	I (G)	2010	3.610E+00	5.0						0.20	0.20	5.575E+00	(I)	4.1A
	I (M)	2010	8.000E-01	6.2									(E)	1.8
	XE	238	5.650E+00	5.0		0.44								
	CS	13367	1.700E-03	52.9										
		13430r	5.305E-02	10.1										
	CHAIN	364	5.440E+00	7.0		-0.44								
137	I	12926	4.100E+00	34.1						5.11	0.85	6.496E+00	(I)	5.0A
	CS	225r	4.588E+00	20.4		-2.18							(E)	4.6
		13367	6.600E+00	15.2		0.11								
		322r	6.654E+00	17.7		0.14								
		332	6.660E+00	10.0		0.28								
		384	6.660E+00	10.0		0.28								
		344	6.920E+00	15.0		0.43								
		13430r	7.260E+00	13.2		0.85								
138	CS	2010	5.540E+00	6.3								6.390E+00		3.1
	CHAIN	2002	6.390E+00	3.1										
139*	XE	2010	3.700E+00	18.9						6.58	2.19	7.317E+00	(I)	3.4 >2
	BA	225r	7.850E+00	20.5		0.34							(E)	5.1A
		2010	8.550E+00	6.3W		2.46								
	CHAIN	2002	6.920E+00	5.2		-1.56								
		364	6.990E+00	7.0		-0.78								
140	XE	21805	6.630E+00	5.6						7.67	0.77	7.763E+00	(I)	2.8A
	CS	2010	4.140E+00	6.3									(E)	2.5
	BA	13367	6.200E+00	32.3		-0.79								
		322r	6.447E+00	33.5		-0.61								
		344	6.560E+00	15.0		-1.25								
		13334	7.310E+00	6.8		-1.01								
		782	7.310E+00	8.0		-0.83								
		384	7.800E+00	10.0		0.05								
		332	7.810E+00	10.0		0.06								
		225r	8.686E+00	10.8		1.02								
	LA	362	8.400E+00	10.0		0.79								
		2010	9.300E+00	12.9		1.30								
	CHAIN	2002	8.070E+00	5.0		0.90								
141	BA	2010	5.180E+00	10.6						15.47	1.41	7.220E+00	(I)	2.7
	CE	2010	5.540E+00	15.0		-2.08							(E)	3.2A
		782	6.330E+00	10.0		-1.48								
		13334	6.330E+00	7.4		-2.08								
		344	7.160E+00	15.0		-0.06								
		332	7.330E+00	10.0		0.16								
		384	7.340E+00	10.0		0.17								
		14	7.470E+00	10.0		0.35								
		894	7.700E+00	10.0		0.64								
		225r	7.734E+00	6.7		1.07								
		13367	9.000E+00	33.3		0.59								
		322r	9.194E+00	34.6		0.62								
	CHAIN	2002	7.970E+00	5.0		2.15								
142	LA	781r	5.798E+00	9.3		-1.41				2.10	0.70	6.514E+00	(I)	2.7A
		40554	6.500E+00	10.8		-0.02							(E)	2.2
		894	6.800E+00	10.0		0.43								
	CHAIN	2002	6.590E+00	3.0		0.78								
143	BA	2010	2.470E+00	6.5						4.87	0.81	6.594E+00	(I)	3.4A
	CE	894	6.310E+00	10.0		-0.48							(E)	3.1
		40554	6.400E+00	10.9		-0.29								
		362	6.900E+00	10.0		0.47								
	PR	225r	7.449E+00	11.2		1.06								
		14	7.470E+00	10.0		1.23								

TABLE 21 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 232TH. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
CHAIN	2002	6.030E+00	7.0		-1.59							
	364	6.790E+00	7.0		0.47							
144 LA	2010	3.580E+00	10.6					1.20	0.20	7.820E+00	(I)	4.4A
CE	13367	7.100E+00	14.1		-0.77						(E)	1.9
	322r	7.317E+00	17.0		-0.42							
	344	7.400E+00	15.0		-0.40							
	362	7.890E+00	10.0		0.10							
	332	8.060E+00	10.0		0.33							
	384	8.070E+00	10.0		0.34							
	14	8.170E+00	10.0		0.47							
145 CE	2010	4.200E+00	6.2							5.520E+00		7.0
CHAIN	364	5.520E+00	7.0									
146 CE	2010	6.220E+00	20.0		1.52			7.20	3.60	4.367E+00	(I)	5.9 >2
CHAIN	2002	3.530E+00	12.2		-2.42						(E)	11.2A
	364	4.730E+00	7.0		1.74							
147 ND	894	2.590E+00	15.0		-1.39			2.92	0.73	3.100E+00	(I)	4.1A
	14	3.070E+00	8.0		-0.14						(E)	3.5
	362	3.140E+00	10.0		0.14							
	225r	3.346E+00	7.1		1.24							
CHAIN	2002	3.010E+00	10.3		-0.32							
148 CE	2010	1.910E+00	8.9		-0.76			0.58	0.58	2.008E+00	(I)	5.5A
CHAIN	364	2.080E+00	7.0		0.76						(E)	4.2
149 ND	2010	1.150E+00	13.0		-0.30			3.14	1.05	1.186E+00	(I)	7.8
	362	1.530E+00	15.0		1.64						(E)	7.9A
PM	225r	9.855E-01	22.6		-0.99							
CHAIN	2002	1.160E+00	14.7		-0.18							
150 CHAIN	364	1.040E+00	15.0							1.040E+00		15.0
151 PM	894	3.400E-01	25.0		-1.08			1.18	1.18	4.217E-01	(I)	9.3
	362	4.440E-01	10.0		1.08						(E)	10.1A
153 SM	362	2.080E-01	10.0							2.080E-01		10.0
156 EU	225r	2.521E-03	12.7							2.521E-03		12.7

TABLE 22 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 231PA.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
83 BR	651	2.270E+00	15.0							2.270E+00		15.0
85 KR(G)	580r	1.015E+00	15.4							1.015E+00		15.4
89 SR	227r	7.217E+00	25.1		-0.02			0.00	0.00	7.249E+00	(I)	12.9A
	651	7.260E+00	15.0		0.02						(E)	0.3
91 SR	227r	7.081E+00	25.1		-0.12			0.02	0.02	7.268E+00	(I)	12.9A
	651	7.340E+00	15.0		0.12						(E)	1.6
97 ZR	651	4.500E+00	15.0		-0.04			0.00	0.00	4.513E+00	(I)	12.9A
	227r	4.549E+00	25.1		0.04						(E)	0.5
99 MO	651	2.590E+00	15.0							2.590E+00		15.0
103 RU	651	3.280E-01	15.0		-0.68			1.20	0.60	3.491E-01	(I)	10.9A
	227r	3.310E-01	25.1		-0.25						(E)	8.4
	580r	4.344E-01	20.0		1.09							
105 RU	651	1.540E-01	15.0							1.540E-01		15.0
106 RU	651	1.080E-01	15.0		-0.26			0.07	0.07	1.100E-01	(I)	12.9A
	227r	1.167E-01	25.2		0.26						(E)	3.3
109 PD	227r	8.138E-02	26.5		-0.07			0.00	0.00	8.260E-02	(I)	13.1A
PD(G)	651	8.300E-02	15.0		0.07						(E)	0.8
111 AG	227r	1.019E-01	25.2		0.10			0.01	0.01	9.973E-02	(I)	12.9A
	651	9.900E-02	15.0		-0.10						(E)	1.3
112 PD	227r	5.352E-02	27.8		-0.43			0.18	0.18	5.894E-02	(I)	13.2A
	651	6.100E-02	15.0		0.43						(E)	5.7
113 AG(G)	651	7.700E-02	15.0							7.700E-02		15.0
115 CD(M)	227r	6.485E-03	26.5							8.000E-02		15.0
CHAIN	651	8.000E-02	15.0									
121 SN(G)	651	7.600E-02	15.0	7.600E-02				0.00	0.00	7.918E-02	(I)	14.5A
SN(M)	227r	1.420E-02	38.8	1.420E-02							(E)	0.0
127 SB	651	8.000E-02	15.0							8.000E-02		15.0
129 CHAIN	651	1.180E+00	15.0							1.180E+00		15.0
131 I	580r	2.696E+00	15.3							2.696E+00		15.3
132 TE	227r	3.173E+00	25.1		-0.43			0.33	0.17	3.482E+00	(I)	9.9A
	651	3.420E+00	15.0		-0.16						(E)	4.0
	580r	3.712E+00	15.2		0.51							
133 XE	580r	5.288E+00	15.6							5.288E+00		15.6
135 XE	580r	7.120E+00	15.7							7.120E+00		15.7
137 CS	580r	7.332E+00	15.3							7.332E+00		15.3
140 BA	227r	6.763E+00	25.1		-0.20			0.12	0.06	7.066E+00	(I)	10.5A
	651	6.960E+00	15.0		-0.14						(E)	2.5
LA	580r	7.432E+00	18.1		0.33							
141 CE	580r	7.177E+00	15.4							7.177E+00		15.4
143 CE	580r	5.439E+00	15.4		-0.61			0.37	0.19	5.809E+00	(I)	9.9A
	651	6.120E+00	15.0		0.43						(E)	4.3
	227r	6.201E+00	25.2		0.27							
144 CE	580r	4.990E+00	15.7							4.990E+00		15.7
147 ND	580r	2.036E+00	15.4		-0.86			0.73	0.73	2.211E+00	(I)	10.8A
	651	2.450E+00	15.0		0.86						(E)	9.2
149 PM	580r	1.082E+00	18.2							1.082E+00		18.2
153 SM	651	7.900E-02	15.0							7.900E-02		15.0

TABLE 23 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 232U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
87	BR	12926	2.810E+00	6.4										
137	I	12926	4.800E-01	70.8										

TABLE 24 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 233U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
3	H	91204	1.500E-01	50.0											
4	HE PI	2057r	2.003E-01	10.8								2.003E-01		10.8	
83	SE	40554	5.500E-01	12.7								9.950E-01		5.0	
	KR	868	9.950E-01	5.0											
84	KR	868	1.640E+00	5.0								1.640E+00		5.0	
85	KR(M)	40554	3.050E+00	9.2						0.03	0.03	2.124E+00	(I)	4.9A	
	CHAIN	868	2.120E+00	5.0		-0.18							(E)	0.9	
		21736r	2.203E+00	20.3		0.18									
86	KR	868	2.780E+00	5.0								2.780E+00		5.0	
87	BR	12926	2.310E+00	8.2						2.51	2.51	4.206E+00	(I)	7.3	>2
	KR	40554	4.850E+00	10.5		1.58							(E)	11.5A	
	RB	868	3.840E+00	10.0		-1.58									
88	SR	868	5.120E+00	5.0								5.120E+00		5.0	
89	SR	29r	6.016E+00	15.6		-0.27				0.08	0.08	6.248E+00	(I)	6.4A	
		61	6.300E+00	7.0		0.27							(E)	1.8	
90	CHAIN	868	6.450E+00	5.0								6.450E+00		5.0	
91	Y (G)	29r	6.169E+00	15.9		-0.08				2.33	1.17	6.247E+00	(I)	4.6	
	Y (M)	40554	4.200E+00	9.1									(E)	4.9A	
	ZR	868	6.440E+00	5.0		1.29									
	CHAIN	21736r	5.139E+00	15.4		-1.50									
92	SR	40554	5.900E+00	8.6						1.65	1.65	6.414E+00	(I)	4.9	
	ZR	868	6.540E+00	5.0		1.28							(E)	6.2A	
	CHAIN	21736r	5.139E+00	20.3		-1.28									
93	ZR	868	6.920E+00	5.0								6.920E+00		5.0	
94	ZR	868	6.740E+00	5.0								6.740E+00		5.0	
95	ZR	21707	6.400E+00	4.6		0.40				0.18	0.09	6.301E+00	(I)	2.6A	
	MO	868	6.290E+00	5.0		-0.04							(E)	0.8	
	CHAIN	21736r	6.240E+00	3.9		-0.34									
96	ZR	868	5.700E+00	5.0								5.700E+00		5.0	
97	ZR	21707	5.510E+00	3.6		0.53				0.74	0.37	5.442E+00	(I)	2.8A	
	MO	868	5.440E+00	5.0		-0.01							(E)	1.7	
	CHAIN	21736r	5.078E+00	9.1		-0.84									
98	MO	868	5.140E+00	5.0								5.140E+00		5.0	
99	MO	61	4.750E+00	8.0		-0.29				1.36	0.68	4.850E+00	(I)	3.2A	
		21707	4.910E+00	3.5		0.78							(E)	2.6	
	CHAIN	21736r	3.977E+00	20.3		-1.10									
100	MO	868	4.380E+00	5.0								4.380E+00		5.0	
103*	RU	21707	1.680E+00	4.9W		1.31				6.74	3.37	1.542E+00	(I)	4.3	>2
		61	4.130E-01	50.0W		-2.31							(E)	7.9A	
	CHAIN	21736r	1.652E+00	8.1		1.17									
104	TC	40554	1.680E+00	10.1											
106	RU	61	1.600E-01	13.0								2.876E-01		9.1	
	CHAIN	21736r	2.876E-01	9.1											
111	AG	29r	1.373E-01	20.5											
		61	8.370E-02	10.0											
115	CD(G)	61	5.200E-02	11.0	5.200E-02	0.00		0.12	0.2	0.27	0.27	5.830E-02	(I)	7.3A	

TABLE 24 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CD(M)	29r	8.423E-03	17.7	8.423E-03	0.00		0.01				(E)	3.8
	CHAIN	61	5.600E-02	11.0	5.600E-02	0.00		0.14					
117	SN	244	6.000E-02	10.0							6.000E-02		10.0
118	SN	244	6.000E-02	10.0							6.000E-02		10.0
119	SN	244	7.400E-02	11.0							7.400E-02		11.0
120	SN	244	8.300E-02	10.0							8.300E-02		10.0
122	SN	244	8.300E-02	10.0							8.300E-02		10.0
124	SN	244	1.200E-01	10.0							1.200E-01		10.0
125	SB	868	1.410E-01	11.0		-0.74			2.22	1.11	1.495E-01	(I)	7.0
	CHAIN	21155	1.500E-01	10.0		0.05						(E)	7.4A
		21736r	2.080E-01	20.3		1.43							
126	CHAIN	21155	3.400E-01	20.0							3.400E-01		20.0
127	CHAIN	21736r	4.772E-01	10.6		-3.14			9.88	9.88	5.642E-01	(I)	7.5 >2
		21155	7.650E-01	10.0		3.14						(E)	23.4A
128	CHAIN	21155	1.430E+00	20.0							1.430E+00		20.0
129	TE	61	6.020E-01	9.0					1.54	1.54	1.795E+00	(I)	8.4
	CHAIN	61	1.570E+00	15.0		-1.24						(E)	10.4A
		21155	1.950E+00	10.0		1.24							
130	CHAIN	21155	2.590E+00	20.0							2.590E+00		20.0
131	I	21707	3.810E+00	10.0		-0.14			2.88	0.72	3.859E+00	(I)	3.4A
		40554	4.800E+00	13.5		1.48						(E)	2.9
	XE	868	3.730E+00	5.0		-0.98							
	CHAIN	21155	3.720E+00	20.0		-0.19							
		21736r	3.977E+00	6.0		0.59							
132	TE	61	4.360E+00	15.0		-0.53			3.61	0.60	4.701E+00	(I)	2.5A
		40554	4.500E+00	8.0		-0.59						(E)	2.0
		21707	4.620E+00	3.5		-0.74							
		29r	5.307E+00	15.5		0.74							
	XE	868	5.040E+00	5.0		1.52							
	CHAIN	21736r	4.466E+00	10.2		-0.54							
		21155	5.110E+00	20.0		0.40							
133	I	40554	5.100E+00	12.7		-0.94			3.01	0.75	5.688E+00	(I)	2.8A
		21707	5.540E+00	3.7		-1.12						(E)	2.4
	CS	868	6.010E+00	5.0		1.26							
	CHAIN	21736r	6.057E+00	9.7		0.65							
		21155	6.110E+00	20.0		0.35							
134	TE	40554	4.300E+00	10.5					0.01	0.01	6.294E+00	(I)	4.9A
	XE	868	6.300E+00	5.0		0.08						(E)	0.4
	CHAIN	21155	6.200E+00	20.0		-0.08							
135	XE	21707	5.400E+00	10.0		-1.67			3.86	1.29	6.236E+00	(I)	3.3
		868	6.370E+00	5.0		0.55						(E)	3.7A
	CHAIN	21736r	5.323E+00	20.3		-0.86							
		21155	6.480E+00	5.0		0.98							
136	XE	40877r	6.588E+00	6.4		-0.52			0.29	0.14	6.761E+00	(I)	3.9A
		868	6.880E+00	5.0		0.53						(E)	1.5
	CS	2113	1.100E-01	10.0									
		21707	1.160E-01	7.3									
	CHAIN	21155	6.690E+00	20.0		-0.05							
137	I	12926	1.400E+00	50.0					1.30	0.33	6.510E+00	(I)	3.9A
	CS	21707	6.200E+00	12.0		-0.44						(E)	2.2
		61	6.280E+00	15.0		-0.25							
	CHAIN	21736r	6.118E+00	8.7		-0.84							

TABLE 24 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		21155	6.700E+00	20.0		0.14							
		868	6.750E+00	5.0		1.07							
138	BA	868	6.520E+00	5.0		0.08			0.01	0.01	6.514E+00	(I)	4.9A
	CHAIN	21155	6.420E+00	20.0		-0.08						(E)	0.4
139	BA	40554	8.000E+00	10.0					0.00	0.00	6.365E+00	(I)	4.9A
	LA	868	6.370E+00	5.0		0.06						(E)	0.3
	CHAIN	21155	6.290E+00	20.0		-0.06							
140	BA	21707	6.080E+00	3.7		-0.55			0.32	0.11	6.161E+00	(I)	2.8A
		61	6.310E+00	8.0		0.31						(E)	0.9
	CE	868	6.260E+00	5.0		0.38							
	CHAIN	21155	6.170E+00	20.0		0.01							
141	CE	29r	6.246E+00	15.7		-0.20			2.02	0.51	6.442E+00	(I)	2.9A
		21707	6.290E+00	3.6		-1.17						(E)	2.0
		61	6.770E+00	9.0		0.56							
	CHAIN	21155	6.130E+00	20.0		-0.26							
		21736r	6.913E+00	6.3		1.20							
142	LA	40554	7.800E+00	10.9					0.07	0.07	6.339E+00	(I)	4.9A
	CE	868	6.360E+00	5.0		0.26						(E)	1.3
	CHAIN	21155	6.030E+00	20.0		-0.26							
143	CE	21707	5.380E+00	3.7					2.59	0.86	5.314E+00	(I)	4.2A
	PR	29r	5.035E+00	18.4		-0.31						(E)	3.9
	ND	868	5.540E+00	5.0		1.40							
	CHAIN	21736r	4.711E+00	9.7		-1.52							
		21155	5.660E+00	20.0		0.31							
144	CE	29r	4.092E+00	15.7		-0.60			2.07	0.52	4.465E+00	(I)	3.3A
		21707	4.520E+00	4.8		0.34						(E)	2.4
	CHAIN	868	4.400E+00	5.0		-0.40							
		21155	4.500E+00	20.0		0.04							
		21736r	5.996E+00	20.3		1.27							
145	ND	868	3.200E+00	5.0		-0.13			0.02	0.02	3.205E+00	(I)	4.9A
	CHAIN	21155	3.290E+00	20.0		0.13						(E)	0.6
146	ND	868	2.390E+00	5.0		-0.14			0.02	0.02	2.394E+00	(I)	4.9A
	CHAIN	21155	2.460E+00	20.0		0.14						(E)	0.7
147	ND	29r	1.713E+00	15.7		-0.08			0.78	0.19	1.735E+00	(I)	2.8A
		21707	1.760E+00	4.9		0.35						(E)	1.2
	SM	868	1.680E+00	5.0		-0.79							
	CHAIN	21155	1.660E+00	20.0		-0.23							
		21736r	1.774E+00	4.8		0.55							
148	ND	868	1.200E+00	5.0		-0.12			0.01	0.01	1.202E+00	(I)	4.9A
	CHAIN	21155	1.230E+00	20.0		0.12						(E)	0.6
149	PM	29r	8.488E-01	18.2		0.87			1.04	0.52	7.177E-01	(I)	4.7A
	SM	868	7.070E-01	5.0		-0.99						(E)	3.4
	CHAIN	21155	7.950E-01	20.0		0.50							
150	ND	868	4.650E-01	5.0		-0.20			0.04	0.04	4.661E-01	(I)	4.9A
	CHAIN	21155	4.850E-01	20.0		0.20						(E)	1.0
151	PM	29r	2.973E-01	17.8		-0.28			0.91	0.30	3.117E-01	(I)	4.5A
	SM	868	3.090E-01	5.0		-0.42						(E)	2.5
	CHAIN	21155	3.200E-01	20.0		0.13							
		21736r	3.671E-01	17.0		0.91							
152	SM	868	1.920E-01	5.0		-0.81			0.65	0.65	1.936E-01	(I)	4.9A

TABLE 24 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 233U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CHAIN	21155	2.300E-01	20.0		0.81						(E)	3.9
153	SM	29r	1.035E-01	16.0		-1.53			2.35	2.35	1.151E-01	(I)	12.8 >2
	CHAIN	21736r	1.591E-01	20.3		1.53						(E)	19.6A
154	SM	868	3.300E-02	5.0									
156	EU	29r	1.689E-02	16.2							1.689E-02		16.2
157	EU	29r	1.163E-02	16.7							1.163E-02		16.7
159	GD	29r	1.888E-03	16.6							1.888E-03		16.6
161	TB	29r	4.933E-04	17.4							4.933E-04		17.4

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1	H PI	91199r	1.174E-02	51.1							1.174E-02		51.1
3	H	91205	1.540E-02	10.0		1.78			5.98	1.99	1.352E-02	(I)	8.3
		821r	2.189E-02	40.2		0.96						(E)	11.7A
	H PI	92043r	1.080E-02	15.5		-2.19							
		91199r	2.617E-02	50.1		0.97							
4	HE	817	2.270E-01	15.0		0.99			0.99	0.33	1.980E-01	(I)	8.6A
	HE PI	92043r	1.852E-01	15.4		-0.56						(E)	5.0
		91199r	1.903E-01	50.1		-0.08							
		1198	1.910E-01	15.0		-0.30							
83	KR	869	5.690E-01	5.0		-0.69			0.48	0.48	5.773E-01	(I)	4.5A
	CHAIN	245	6.160E-01	10.0		0.69						(E)	3.1
84	KR	869	1.030E+00	5.0		-0.34			0.11	0.11	1.038E+00	(I)	4.5A
	CHAIN	245	1.070E+00	10.0		0.34						(E)	1.5
85	KR(M)	40554	1.300E+00	3.9					0.61	0.15	1.325E+00	(I)	2.7A
		942	1.390E+00	10.0								(E)	1.0
	RB	414	1.290E+00	5.0		-0.65							
		413	1.330E+00	5.0		0.08							
	CHAIN	21736r	1.312E+00	9.1		-0.12							
		869	1.350E+00	5.0		0.43							
		245	1.380E+00	10.0		0.41							
86	SE	21743	9.200E-01	3.3					0.02	0.02	1.954E+00	(I)	4.5A
	BR	21743	8.400E-01	3.6								(E)	0.6
	KR	869	1.960E+00	5.0		0.14							
	CHAIN	245	1.930E+00	10.0		-0.14							
87	BR	21743	2.050E+00	5.0					19.80	2.47	2.554E+00	(I)	2.1 >2
		12926	2.350E+00	5.0								(E)	3.3A
	KR	21624r	2.195E+00	10.1		-1.68							
		942	2.370E+00	10.0		-0.80							
		21743	2.900E+00	5.2		2.47							
		40554	3.020E+00	15.0		1.03							
	RB	414	2.360E+00	5.0		-1.85							
		413	2.390E+00	5.0		-1.54							
		869	2.570E+00	5.0		0.13							
	CHAIN	245	2.660E+00	10.0		0.40							
		924	2.890E+00	5.0		2.50							
88	BR	21743	2.030E+00	3.9					1.12	0.56	3.561E+00	(I)	4.4A
	KR	40554	3.310E+00	3.3								(E)	3.3
		21624r	3.416E+00	5.7									
		942	3.550E+00	10.0									
	SR	869	3.510E+00	5.0		-0.62							
	CHAIN	245	3.630E+00	10.0		0.21							
		924	4.450E+00	20.0		1.01							
89*	KR	13358	4.360E+00	5.0					23.93	1.26	4.392E+00	(I)	0.8
		21743	4.410E+00	5.0								(E)	0.9A
		942	4.460E+00	10.0									
	SR	22066	4.220E+00	5.0		-0.83							
		625	4.400E+00	7.0		0.03							
		161	4.400E+00	9.0		0.02							
		1	5.600E+00	7.0W		2.49							
	CHAIN	969r	4.213E+00	3.1		-1.43							
		967r	4.227E+00	3.5		-1.16							
		970r	4.241E+00	3.5		-1.06							
		971r	4.254E+00	3.5		-0.96							
		972r	4.264E+00	3.5		-0.89							
		964r	4.266E+00	3.5		-0.88							
		961r	4.318E+00	3.5		-0.51							
		956r	4.339E+00	3.5		-0.36							
		959r	4.371E+00	3.1		-0.16							
		965r	4.457E+00	3.5		0.43							
		957r	4.496E+00	3.5		0.68							
		963r	4.534E+00	3.5		0.92							

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	966r	4.538E+00	3.5		0.95								
	954r	4.539E+00	3.5		0.95								
	958r	4.562E+00	3.5		1.10								
	953r	4.798E+00	3.5		2.49								
90 BR	21743	6.500E-01	15.4						9.67	1.61	5.226E+00	(I)	1.7
KR	21743	4.100E+00	1.2									(E)	2.2A
SR	625	4.760E+00	7.0		-1.45								
	22066	4.830E+00	5.6		-1.56								
	6	5.020E+00	7.0		-0.61								
	22066	5.510E+00	2.9		2.16								
CHAIN	970r	5.092E+00	3.3		-0.94								
	869	5.520E+00	5.0		1.13								
	245	5.530E+00	10.0		0.56								
91 KR	21743	2.590E+00	5.0						4.28	1.07	5.369E+00	(I)	1.7
SR	21624r	5.227E+00	2.5		-1.53							(E)	1.7A
	21743	5.600E+00	5.0		0.87								
Y (G)	969r	4.631E+00	5.7										
	959r	5.002E+00	5.7										
Y (M)	40554	3.270E+00	5.0										
ZR	869	5.700E+00	5.0		1.22								
CHAIN	21736r	5.307E+00	3.5		-0.38								
	924	5.640E+00	5.0		1.01								
92 SR	40554	5.720E+00	5.6		-0.15				3.85	0.77	5.766E+00	(I)	2.0A
	21743	5.850E+00	4.8		0.33							(E)	1.8
	21624r	5.914E+00	3.6		0.84								
ZR	869	5.790E+00	5.0		0.09								
CHAIN	21736r	5.009E+00	8.4		-1.87								
	924	5.770E+00	5.0		0.02								
93 RB	21743	3.590E+00	5.0						4.11	0.69	5.846E+00	(I)	1.7A
SR	21743	5.800E+00	4.8		-0.18							(E)	1.4
	21743	5.920E+00	3.4		0.43								
Y	40554	5.900E+00	15.1		0.06								
	21624r	6.167E+00	6.1		0.89								
ZR	869	5.790E+00	5.0		-0.21								
CHAIN	21736r	5.605E+00	3.3		-1.53								
	924	6.230E+00	5.0		1.30								
94 RB	21743	1.910E+00	6.8						0.06	0.06	6.174E+00	(I)	3.5A
SR	21743	5.700E+00	2.6									(E)	0.9
Y	21743	6.350E+00	5.3										
ZR	869	6.230E+00	5.0		0.25								
CHAIN	924	6.120E+00	5.0		-0.25								
95 SR	21743	5.200E+00	5.8						15.92	0.72	6.335E+00	(I)	1.0A
Y	21743	6.400E+00	4.4									(E)	0.9
ZR	161	5.850E+00	9.0		-0.93								
	22066	6.240E+00	3.2		-0.50								
	21707	6.290E+00	4.0		-0.19								
	625	6.320E+00	8.0		-0.03								
	30744	6.400E+00	3.6		0.29								
	790	6.410E+00	5.0		0.24								
	625	6.430E+00	12.0		0.12								
	878	6.430E+00	5.0		0.30								
	882	6.460E+00	7.0		0.28								
	701	6.490E+00	5.0		0.49								
	697	6.500E+00	5.0		0.52								
	22057	6.610E+00	5.0		0.85								
	30752	6.710E+00	3.2		1.83								
	1	7.700E+00	8.0		2.23								
MO	869	6.420E+00	5.0		0.27								
CHAIN	974r	6.015E+00	4.6		-1.19								

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	969r	6.043E+00	4.6		-1.08								
	959r	6.050E+00	4.6		-1.06								
	955r	6.063E+00	4.6		-1.01								
	21736r	6.142E+00	5.0		-0.65								
	975r	6.229E+00	4.6		-0.38								
	245	6.490E+00	10.0		0.24								
	924	6.490E+00	5.0		0.49								
96 ZR	869	6.130E+00	5.0								6.130E+00		5.0
97 ZR	40554	5.460E+00	7.1		-0.98	0.00	0.00	0.3	18.25	0.83	5.847E+00	(I)	0.8A
	790	5.530E+00	10.0		-0.56							(E)	0.7
	625	5.550E+00	10.0		-0.52								
	882	5.590E+00	7.0		-0.64								
	878	5.680E+00	5.0		-0.57								
	21707	5.880E+00	3.3		0.22								
	22066	5.930E+00	2.4		0.69								
	21743	5.980E+00	4.0		0.60								
	21624r	6.104E+00	2.5		1.81								
	697	6.130E+00	5.0		0.96								
	161	6.550E+00	11.0		0.99								
NB(G)	40554	5.950E+00	3.0	5.950E+00	0.00		0.33						
NB(M)	40554	5.520E+00	3.1	5.520E+00	0.00		0.00						
MO	869	5.990E+00	5.0		0.00		0.00						
CHAIN	970r	1.143E+01	40.1	5.839E+00	1.22	0.85	0.02						
	21736r	5.486E+00	7.7		-0.84								
	960r	5.541E+00	2.8		-2.01								
	962r	5.601E+00	2.8		-1.58								
	981r	5.803E+00	2.8		-0.23								
	968r	5.837E+00	2.8		-0.01								
	980r	5.860E+00	2.8		0.13								
	22057	5.950E+00	5.0		0.38								
	924	6.050E+00	5.0		0.71								
	245	6.140E+00	5.0		0.99								
98 MO	869	5.910E+00	10.0		-0.17				0.03	0.03	5.978E+00	(I)	7.1A
CHAIN	245	6.050E+00	10.0		0.17							(E)	1.2
99*MO	625	5.220E+00	5.0		-2.47				26.18	1.87	5.830E+00	(I)	1.4
	882	5.410E+00	8.0		-0.99							(E)	2.0A
	22066	5.460E+00	5.0		-1.43								
	696	5.700E+00	5.0		-0.48								
	697	5.800E+00	5.0		-0.11								
	161	5.900E+00	7.0		0.17								
	22057	6.090E+00	5.0		0.89								
	13272	6.100E+00	10.0		0.45								
	21743	6.150E+00	5.2		1.04								
	21624r	6.195E+00	5.2		1.18								
	21707	6.230E+00	5.0		1.33								
	1	6.400E+00	6.0		1.52								
	30744	6.420E+00	5.0		1.90								
CHAIN	21736r	4.890E+00	6.2W		-2.42								
	924	6.230E+00	5.0		1.33								
100 MO	869	6.390E+00	5.0		0.03				0.00	0.00	6.386E+00	(I)	4.5A
CHAIN	245	6.370E+00	10.0		-0.03							(E)	0.1
101 MO	21743	5.050E+00	5.0		-0.86				0.79	0.39	5.205E+00	(I)	3.3A
CHAIN	924	5.320E+00	5.0		0.57							(E)	2.1
	245	5.460E+00	10.0		0.49								
102 TC	21743	4.400E+00	5.0		-0.50				0.25	0.25	4.447E+00	(I)	4.5A
CHAIN	245	4.660E+00	10.0		0.50							(E)	2.3
103 RU	66	2.820E+00	19.0		-0.80				10.51	0.81	3.247E+00	(I)	1.3A
	30752	3.170E+00	3.2		-0.84							(E)	1.2
	701	3.180E+00	5.0		-0.44								
	882	3.200E+00	8.0		-0.19								
	21707	3.250E+00	3.6		0.03								
	878	3.250E+00	5.0		0.02								
	790	3.290E+00	5.0		0.27								
	22057	3.320E+00	5.0		0.45								
	21624r	3.403E+00	5.3		0.89								
	21743	3.480E+00	5.2		1.33								
	697	3.540E+00	5.0		1.71								
	161	3.750E+00	15.0		0.90								
CHAIN	21736r	3.041E+00	4.0		-1.79								

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	924	3.210E+00	5.0		-0.24							
104 TC	21743	2.150E+00	4.7						1.18	1.18	2.214E+00	(I) 9.0
CHAIN	924	1.870E+00	20.0		-1.09							(E) 9.8A
	245	2.350E+00	10.0		1.09							
105 RU	21743	1.250E+00	4.8		-0.91				2.06	0.69	1.278E+00	(I) 4.0A
	40554	1.420E+00	9.2		1.19							(E) 3.4
	161	1.450E+00	20.0		0.60							
CHAIN	924	1.170E+00	17.0		-0.56							
106 RU	161	1.190E+00	100.0		0.61				8.31	1.66	4.653E-01	(I) 5.3
	414	4.190E-01	10.0		-1.37							(E) 6.9A
	413	4.210E-01	10.0		-1.30							
	21707	5.550E-01	10.0		1.81							
	66	6.260E-01	17.0		1.55							
CHAIN	21736r	5.605E-01	20.0		0.87							
109 PD(G)	979r	1.249E-02	10.9									
	970r	2.525E-02	41.4									
	960r	7.345E-02	14.8									
111*AG(G)	1	3.100E-02	20.0		-0.19				89.37	3.89	3.217E-02	(I) 1.5 >2
	625	3.100E-02	20.0		-0.19							(E) 2.9A
	22066	3.150E-02	5.0		-0.46							
	161	3.500E-02	20.0		0.41							
CHAIN	953r	2.013E-02	6.3W		-2.17							
	958r	2.264E-02	6.3W		-2.21							
	959r	2.734E-02	7.9		-2.33							
	960r	2.857E-02	6.3		-2.12							
	954r	2.878E-02	6.3		-1.98							
	955r	3.028E-02	6.3		-1.04							
	956r	3.055E-02	6.3		-0.88							
	957r	3.292E-02	6.3		0.38							
	961r	3.398E-02	6.3		0.88							
	963r	3.725E-02	6.3		2.23							
	964r	3.871E-02	6.3W		2.47							
	965r	4.263E-02	6.3W		2.43							
	245	4.560E-02	7.0W		2.45							
	966r	4.685E-02	6.3W		2.43							
	967r	4.982E-02	6.3W		2.44							
	970r	5.618E-02	10.7W		2.49							
	971r	6.635E-02	6.3W		2.47							
	972r	6.637E-02	6.3W		2.47							
	980r	7.185E-02	6.3W		2.47							
	969r	7.232E-02	7.9W		2.48							
112*CHAIN	960r	1.783E-02	11.8W		-2.18				24.07	4.81	2.591E-02	(I) 4.2 >2
	962r	2.144E-02	8.0W		-1.35							(E) 9.2A
	970r	3.569E-02	8.0W		2.36							
	968r	3.793E-02	11.8W		2.33							
	245	3.920E-02	10.0W		2.16							
	980r	4.610E-02	11.8W		2.47							
113 CHAIN	245	3.420E-02	10.0								3.420E-02	10.0
115 CD(G)	625	1.890E-02	10.0	2.588E-02	-4.74	22.48>2	2.02	7.7>2	31.77	7.94	2.671E-02	(I) 3.9 >2
	161	3.040E-02	5.0		4.74							(E) 10.9A
CD(M)	161	2.200E-03	20.0	2.574E-03	-1.00	0.77	0.08					
	103r	2.703E-03	10.3		0.86							
	625	4.800E-03	60.0		0.78							
CHAIN	1	2.200E-02	9.0	2.200E-02	0.00		5.65					
116 CHAIN	245	3.590E-02	10.0								3.590E-02	10.0
125 SB	869	3.800E-02	10.0						3.95	1.97	6.835E-02	(I) 10.2
CHAIN	21736r	2.147E-01	40.0		1.71							(E) 14.3A
	21155	5.800E-02	20.0		-1.11							
	245	7.270E-02	12.0		0.82							
126 CHAIN	21155	1.000E-01	20.0								1.000E-01	20.0
127*SB	21743	3.100E-01	6.5		0.58				17.58	4.39	3.015E-01	(I) 4.2 >2
	21624r	3.291E-01	7.1		1.46							(E) 8.9A
	40554	5.200E-01	9.6W		2.39							
CHAIN	21736r	1.789E-01	20.0W		-2.31							
	21155	2.000E-01	20.0W		-2.45							
128 CHAIN	21155	4.950E-01	20.0								4.950E-01	20.0

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
129 SB	21624r	9.121E-01	8.3								1.090E+00	20.0
TE(M)	161	5.500E-01	11.0									
CHAIN	21155	1.090E+00	20.0									
130 CHAIN	21155	2.000E+00	20.0								2.000E+00	20.0
131*SN	21743	5.700E-01	8.8						19.66	1.31	3.360E+00	(I) 1.3
SB	21743	2.560E+00	5.0									(E) 1.5A
TE	40554	1.900E+00	5.3									
I	882	3.160E+00	8.0		-0.80							
	701	3.220E+00	5.0		-0.91							
	790	3.250E+00	5.0		-0.70							
	40554	3.280E+00	5.0		-0.51							
	878	3.320E+00	5.0		-0.25							
	21707	3.320E+00	5.0		-0.25							
	696	3.440E+00	5.0		0.48							
	22057	3.460E+00	5.0		0.59							
	30752	3.460E+00	5.6		0.53							
	21624r	3.556E+00	2.7		2.31							
	21743	3.950E+00	5.1W		2.46							
XE	869	3.180E+00	5.0		-1.18							
CHAIN	924	3.070E+00	5.0		-1.97							
	21736r	3.101E+00	7.8		-1.10							
	245	3.150E+00	10.0		-0.67							
	21155	3.210E+00	20.0		-0.23							
132*SN	21743	4.900E-01	10.2						21.98	1.37	4.693E+00	(I) 1.1
TE	625	3.990E+00	8.0		-2.23							(E) 1.3A
	878	4.680E+00	8.0		-0.03							
	40554	4.720E+00	2.3		0.28							
	21707	4.760E+00	3.0		0.51							
	696	4.770E+00	6.0		0.28							
	21743	4.900E+00	5.1		0.85							
	882	4.960E+00	10.0		0.54							
	21624r	5.016E+00	2.4W		2.34							
	161	5.350E+00	9.0		1.37							
I	40554	4.780E+00	2.7		0.73							
XE	869	4.600E+00	5.0		-0.41							
CHAIN	969r	1.690E+00	20.1W		-2.45							
	21736r	4.174E+00	8.6		-1.46							
	245	4.460E+00	10.0		-0.53							
	924	4.590E+00	5.0		-0.46							
	21155	4.680E+00	20.0		-0.01							
	22057	4.700E+00	5.0		0.03							
133 SB	21743	1.820E+00	5.5						10.63	0.97	6.589E+00	(I) 1.7A
TE(M)	40554	2.760E+00	8.0									(E) 1.6
I	21707	5.900E+00	5.4		-2.30							
	40554	6.500E+00	6.2		-0.23							
	21743	6.700E+00	4.9		0.36							
	22057	7.090E+00	5.0		1.49							
CS	414	6.330E+00	5.0		-0.87							
	413	6.370E+00	5.0		-0.73							
	869	6.820E+00	5.0		0.72							
CHAIN	882	6.590E+00	8.0		0.00							
	21736r	6.678E+00	5.5		0.26							
	245	6.690E+00	10.0		0.15							
	21155	6.860E+00	20.0		0.20							
	924	7.100E+00	5.0		1.51							
134 SB	21743	5.000E-01	16.0						0.77	0.26	7.654E+00	(I) 3.3A
TE	40554	4.100E+00	10.0									(E) 1.7
	21743	5.370E+00	2.8									
	21624r	6.667E+00	4.6									
I	40554	5.200E+00	11.5									
XE	869	7.670E+00	5.0		0.06							
CHAIN	245	7.100E+00	10.0		-0.83							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		21155	7.580E+00	20.0		-0.05							
		924	7.810E+00	5.0		0.52							
135	TE	21743	2.080E+00	3.9					9.91	1.42	6.304E+00	(I)	2.0
	I	40554	6.780E+00	5.0								(E)	2.4A
	XE	40554	7.350E+00	5.0									
	CS	414	5.750E+00	5.0		-2.15							
		413	6.010E+00	5.0		-1.08							
		869	6.520E+00	5.0		0.72							
	CHAIN	21736r	5.009E+00	20.0		-1.30							
		245	6.550E+00	5.0		0.82							
		1109	6.670E+00	5.0		1.19							
		924	6.680E+00	5.0		1.22							
		21155	6.720E+00	20.0		0.31							
136	TE	21743	8.500E-01	5.0					0.12	0.06	6.115E+00	(I)	4.4A
	XE	245	5.930E+00	10.0		-0.35						(E)	1.1
		869	6.160E+00	5.0		0.29							
	CHAIN	21155	6.200E+00	20.0		0.07							
137*	I	21743	2.540E+00	4.7					19.95	0.87	5.961E+00	(I)	0.9A
		12926	3.000E+00	20.0								(E)	0.9
	XE	942	5.820E+00	10.0		-0.24							
	CS	625	4.560E+00	36.0		-0.85							
		414	5.320E+00	5.0		-2.47							
		413	5.610E+00	5.0		-1.28							
		21707	6.140E+00	8.5		0.34							
		13272	6.200E+00	10.0		0.39							
		235	6.300E+00	5.0		1.09							
		22066	6.550E+00	3.5W		2.48							
	CHAIN	955r	5.775E+00	4.7		-0.70							
		959r	5.812E+00	4.7		-0.56							
		970r	5.828E+00	3.5		-0.68							
		965r	5.881E+00	3.5		-0.40							
		966r	5.885E+00	3.5		-0.38							
		954r	5.916E+00	3.5		-0.23							
		958r	5.935E+00	3.5		-0.13							
		957r	5.950E+00	3.5		-0.06							
		21736r	5.963E+00	6.1		0.01							
		963r	5.982E+00	3.5		0.10							
		953r	6.027E+00	3.5		0.32							
		869	6.210E+00	5.0		0.81							
		245	6.250E+00	10.0		0.46							
		1109	6.250E+00	5.0		0.94							
		969r	6.267E+00	4.7		1.06							
		21155	6.270E+00	20.0		0.25							
138	I	21743	1.270E+00	4.7					0.51	0.17	6.513E+00	(I)	3.3A
	XE	21743	5.740E+00	3.5								(E)	1.4
		942	6.120E+00	10.0									
	CS	21624r	6.348E+00	5.0		-0.71							
	BA	869	6.660E+00	5.0		0.57							
	CHAIN	245	6.610E+00	10.0		0.15							
		21155	6.700E+00	20.0		0.14							
139	I	21743	4.800E-01	6.2					1.88	0.47	6.383E+00	(I)	1.4A
	XE	21743	4.200E+00	4.8								(E)	0.9
	BA	40554	5.700E+00	10.5									
	LA	13344r	6.141E+00	3.5		-1.22							
		13344r	6.412E+00	1.6		0.57							
		869	6.760E+00	10.0		0.56							
	CHAIN	21155	6.440E+00	20.0		0.04							
		924	6.540E+00	5.0		0.50							
140*	XE	21743	2.630E+00	3.8					45.79	1.17	5.865E+00	(I)	0.6
	CS	21743	5.700E+00	1.4								(E)	0.6A
	BA	161	5.000E+00	15.0		-1.15							
		790	5.670E+00	5.0		-0.69							

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		625	5.680E+00	10.0		-0.33							
		697	5.690E+00	5.0		-0.62							
		22066	5.750E+00	2.4		-0.85							
		625	5.890E+00	5.0		0.09							
		21707	5.960E+00	3.9		0.41							
		1	6.000E+00	10.0		0.23							
		878	6.040E+00	5.0		0.58							
		21624r	6.074E+00	1.7		2.19							
		882	6.080E+00	7.0		0.51							
		13272	6.100E+00	10.0		0.39							
		21743	6.100E+00	3.3		1.19							
		668	6.100E+00	8.0		0.48							
		30752	6.130E+00	3.1		1.42							
	CE	869	6.190E+00	5.0		1.06							
	CHAIN	956r	4.520E+00	15.2		-1.96							
		966r	5.030E+00	2.9W		-2.40							
		972r	5.626E+00	2.9		-1.51							
		955r	5.652E+00	2.9		-1.34							
		971r	5.656E+00	2.9		-1.31							
		982r	5.709E+00	2.9		-0.97							
		967r	5.734E+00	3.9		-0.60							
		961r	5.764E+00	2.9		-0.62							
		959r	5.817E+00	2.9		-0.29							
		964r	5.817E+00	2.9		-0.29							
		957r	5.819E+00	2.9		-0.28							
		965r	5.839E+00	2.9		-0.16							
		969r	5.870E+00	2.9		0.03							
		952r	5.884E+00	2.9		0.12							
		958r	5.890E+00	2.9		0.15							
		954r	5.938E+00	2.9		0.44							
		953r	6.056E+00	2.9		1.12							
		21155	6.060E+00	20.0		0.16							
		22057	6.120E+00	5.0		0.84							
		837	6.160E+00	5.0		0.96							
		245	6.220E+00	5.0		1.15							
		924	6.290E+00	5.0		1.36							
		1109	6.500E+00	5.0		1.97							
		963r	6.772E+00	2.9W		2.45							
141*	XE	21743	6.300E-01	20.6					13.49	1.35	5.707E+00	(I)	1.3
	BA	21743	5.800E+00	3.5								(E)	1.5A
	CE	22066	5.690E+00	2.1		-0.19							
		21707	5.830E+00	3.9		0.57							
		625	6.080E+00	7.0		0.89							
		161	6.100E+00	10.0		0.65							
		625	6.280E+00	5.0		1.88							
	PR	283	5.880E+00	7.0		0.43							
	CHAIN	969r	5.039E+00	4.1W		-2.33							
		924	5.560E+00	5.0		-0.55							
		21155	5.570E+00	20.0		-0.12							
		959r	5.694E+00	4.1		-0.06							
		21736r	6.142E+00	4.0		1.86							
142	CS	21743	2.660E+00	3.8					4.05	0.51	5.702E+00	(I)	1.9A
	BA	21743	5.640E+00	1.8								(E)	1.3
	LA	21624r	5.167E+00	6.1		-1.81							
		40554	5.700E+00	7.0		0.00							
		21743	5.800E+00	4.8		0.38							
	CE	869	5.780E+00	5.0		0.29							
	CHAIN	924	5.590E+00	5.0		-0.43							
		21155	5.630E+00	20.0		-0.06							
		837	5.770E+00	5.0		0.25							
		245	5.820E+00	10.0		0.21							
		1109	5.900E+00	4.0		0.94							
143*	CS	21743	1.230E+00	9.8					34.94	1.46	5.605E+00	(I)	0.7
	BA	21743	4.810E+00	2.1								(E)	0.8A
	CE	21624r	5.214E+00	3.0W		-2.49							
		21743	5.250E+00	5.3		-1.28							
		21707	5.410E+00	3.2		-1.16							
		40554	5.500E+00	2.2		-0.93							
		882	5.520E+00	8.0		-0.19							
		22057	5.810E+00	5.8		0.61							
	ND	659	5.640E+00	5.0		0.12							

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		22050r	5.691E+00	10.1		0.15							
		869	5.800E+00	5.0		0.68							
		22066	5.980E+00	3.0		2.13							
	CHAIN	21736r	4.890E+00	7.4		-1.99							
		969r	5.075E+00	4.6		-2.30							
		965r	5.448E+00	2.6		-1.14							
		957r	5.606E+00	2.6		0.00							
		963r	5.619E+00	2.6		0.10							
		837	5.650E+00	5.0		0.16							
		966r	5.658E+00	2.6		0.36							
		21155	5.670E+00	20.0		0.06							
		959r	5.685E+00	4.6		0.31							
		954r	5.699E+00	2.6		0.64							
		245	5.700E+00	10.0		0.17							
		924	5.720E+00	5.0		0.40							
		1109	5.750E+00	3.0		0.86							
		953r	5.885E+00	2.6		1.86							
		958r	5.965E+00	2.6		2.36							
144*	CS	21743	3.800E-01	7.9					42.37	1.63	4.946E+00	(I)	1.0
	BA	21743	3.390E+00	5.9								(E)	1.3A
	CE	625	3.450E+00	6.0									
		34r	4.529E+00	15.5									
		21707	5.070E+00	4.5									
		22066	5.220E+00	3.5									
		625	5.460E+00	8.0									
	ND	414	5.420E+00	5.0		1.78							
		413	5.880E+00	5.0W		2.47							
	CHAIN	982r	4.456E+00	5.1		-2.21							
		972r	4.484E+00	5.1		-2.07							
		967r	4.525E+00	5.1		-1.87							
		964r	4.591E+00	5.1		-1.55							
		977r	4.599E+00	5.1		-1.52							
		969r	4.607E+00	5.0		-1.51							
		961r	4.696E+00	5.1		-1.07							
		956r	4.727E+00	5.1		-0.93							
		965r	4.836E+00	5.1		-0.46							
		962r	4.846E+00	5.1		-0.41							
		960r	4.953E+00	5.1		0.03							
		959r	4.984E+00	5.0		0.15							
		966r	5.000E+00	5.1		0.22							
		968r	5.014E+00	5.1		0.27							
		963r	5.062E+00	5.1		0.46							
		957r	5.085E+00	5.1		0.55							
		837	5.110E+00	5.0		0.65							
		1109	5.130E+00	3.0		1.26							
		245	5.150E+00	10.0		0.40							
		21155	5.180E+00	20.0		0.23							
		954r	5.191E+00	5.1		0.94							
		958r	5.199E+00	5.1		0.97							
		869	5.270E+00	5.0		1.25							
		953r	5.411E+00	5.1		1.71							
		21736r	5.724E+00	7.4		1.86							
145	CE	21743	3.760E+00	5.3					1.61	0.20	3.812E+00	(I)	1.7A
	ND	414	3.720E+00	5.0		-0.53						(E)	0.8
		413	3.740E+00	5.0		-0.41							
		659	3.750E+00	5.0		-0.35							
		22050r	3.783E+00	10.1		-0.08							
		869	3.830E+00	5.0		0.10							
		22066	3.930E+00	3.0		1.18							
	CHAIN	21155	3.730E+00	20.0		-0.11							
		837	3.750E+00	5.0		-0.35							
		245	3.790E+00	10.0		-0.06							
146	ND	414	2.870E+00	5.0		-0.46			3.98	0.50	2.931E+00	(I)	1.7A
		413	2.880E+00	5.0		-0.38						(E)	1.2
		659	2.890E+00	5.0		-0.30							
		22050r	2.938E+00	10.1		0.02							
		869	2.940E+00	5.0		0.06							
		22066	3.060E+00	2.9		1.73							
	CHAIN	924	2.760E+00	5.0		-1.33							
		21155	2.910E+00	20.0		-0.04							
		245	2.940E+00	10.0		0.03							
147*	ND	34r	2.109E+00	15.4		0.03			34.12	0.85	2.100E+00	(I)	0.7A
		103r	2.170E+00	3.8		0.86						(E)	0.6
		21624r	2.238E+00	5.9		1.05							
		22057	2.240E+00	5.0		1.26							

A.1.47

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		21743	2.260E+00	4.4		1.62							
		21707	2.270E+00	4.5		1.68							
		30744	2.350E+00	4.3W		2.50							
	SM	869	2.110E+00	5.0		0.10							
	CHAIN	958r	1.167E+00	20.2W		-2.49							
		21736r	1.848E+00	9.7		-1.41							
		955r	2.015E+00	4.2		-1.01							
		978r	2.022E+00	3.8		-1.04							
		953r	2.024E+00	4.2		-0.90							
		975r	2.038E+00	2.9		-1.07							
		953r	2.045E+00	4.2		-0.65							
		976r	2.050E+00	4.2		-0.59							
		959r	2.053E+00	4.2		-0.55							
		953r	2.056E+00	4.2		-0.51							
		973r	2.057E+00	3.8		-0.56							
		967r	2.059E+00	3.8		-0.54							
		952r	2.065E+00	4.2		-0.41							
		964r	2.068E+00	3.8		-0.42							
		974r	2.071E+00	4.2		-0.34							
		952r	2.074E+00	4.2		-0.30							
		982r	2.077E+00	3.8		-0.30							
		971r	2.079E+00	3.8		-0.27							
		961r	2.093E+00	3.8		-0.09							
		969r	2.094E+00	4.2		-0.07							
		952r	2.096E+00	4.2		-0.05							
		972r	2.102E+00	3.8		0.03							
		965r	2.111E+00	3.8		0.14							
		953r	2.115E+00	3.8		0.19							
		977r	2.119E+00	3.8		0.24							
		21155	2.120E+00	20.0		0.05							
		956r	2.123E+00	3.8		0.29							
		957r	2.127E+00	3.8		0.34							
		966r	2.137E+00	3.8		0.47							
		963r	2.146E+00	3.8		0.58							
		954r	2.154E+00	3.8		0.68							
		837	2.240E+00	5.0		1.26							
		924	2.280E+00	6.0		1.32							
148	ND	414	1.580E+00	5.0		-1.45			5.08	0.51	1.691E+00	(I)	1.1A
		13344r	1.632E+00	3.5		-1.10						(E)	0.8
		413	1.650E+00	5.0		-0.52							
		869	1.680E+00	5.0		-0.14							
		22050	1.700E+00	1.8		0.37							
		659	1.720E+00	5.0		0.34							
		22066	1.750E+00	2.9		1.26							
	CHAIN	21155	1.660E+00	20.0		-0.09							
		1109	1.700E+00	4.0		0.13							
		837	1.720E+00	5.0		0.34							
		245	1.730E+00	10.0		0.22							
149	PM	34r	1.112E+00	18.1		0.22			1.77	0.35	1.068E+00	(I)	2.5A
	SM	869	1.020E+00	5.0		-1.09						(E)	1.5
	CHAIN	21155	1.010E+00	20.0		-0.29							
		924	1.060E+00	5.0		-0.16							
		837	1.090E+00	5.0		0.47							
		245	1.110E+00	5.0		0.87							
150	ND	414	6.140E-01	7.0		-2.22			10.77	1.35	7.044E-01	(I)	1.9
		869	6.220E-01	7.0		-1.99						(E)	2.2A
		413	6.940E-01	7.0		-0.22							
		22050r	7.092E-01	10.1		0.07							
		659	7.220E-01	7.0		0.36							
		22066	7.300E-01	2.7		1.75							
	CHAIN	21155	6.800E-01	20.0		-0.18							
		245	7.390E-01	7.0		0.69							
		837	7.400E-01	7.0		0.71							
151	PM	21624r	4.649E-01	10.6					5.42	1.08	4.334E-01	(I)	2.7
		21743	4.900E-01	4.1								(E)	2.9A
	SM	869	4.060E-01	5.0		-1.66							
	CHAIN	21736r	3.578E-01	33.3		-0.64							
		21155	4.100E-01	20.0		-0.29							
		924	4.300E-01	5.0		-0.19							
		837	4.670E-01	5.0		1.67							
		245	4.820E-01	10.0		1.04							
152	SM	869	2.650E-01	5.0					1.85	0.93	3.087E-01	(I)	3.5A
	CHAIN	21155	2.450E-01	20.0		-1.33						(E)	3.4

TABLE 25 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 235U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
		837	3.090E-01	5.0		0.03								
		245	3.150E-01	5.0		0.55								
153	SM	34r	1.872E-01	15.8		1.10			8.04	1.34	1.550E-01	(I)	2.9	
	CHAIN	958r	1.445E-01	6.6		-1.26						(E)	3.3A	
		954r	1.454E-01	6.6		-1.14								
		957r	1.500E-01	6.6		-0.57								
		953r	1.629E-01	6.6		0.81								
		965r	1.775E-01	6.6		2.09								
		966r	1.845E-01	50.2		0.32								
154	SM	869	7.200E-02	5.0							1.130E-01		5.0	
	CHAIN	245	1.130E-01	5.0										
156*	EU	625	1.350E-02	10.0W		-2.45			59.62	3.31	1.823E-02	(I)	1.5	>2
		103r	2.101E-02	7.4		1.81						(E)	2.7A	
		34r	2.185E-02	16.0		1.04								
	CHAIN	953r	1.392E-02	17.2		-1.81								
		958r	1.478E-02	17.2		-1.37								
		959r	1.561E-02	5.7W		-2.41								
		954r	1.617E-02	5.7		-2.35								
		956r	1.640E-02	5.7		-2.06								
		961r	1.690E-02	5.7		-1.45								
		957r	1.696E-02	5.7		-1.38								
		964r	1.789E-02	5.7		-0.35								
		963r	1.812E-02	5.7		-0.12								
		965r	1.900E-02	5.7		0.73								
		966r	1.942E-02	5.7		1.11								
		967r	1.958E-02	5.7		1.24								
		972r	2.144E-02	5.7W		2.48								
		970r	2.247E-02	5.7W		2.45								
		971r	2.286E-02	5.7W		2.44								
		969r	2.531E-02	5.7W		2.44								
159	GD	34r	3.182E-03	16.4							3.182E-03		16.4	
161*	TB	34r	4.587E-04	17.2		1.91			18.87	3.15	3.102E-04	(I)	4.5	>2
	CHAIN	963r	2.169E-04	21.7		-2.07						(E)	8.0A	
		965r	2.538E-04	13.1		-1.87								
		966r	2.765E-04	10.2		-1.38								
		971r	3.403E-04	10.2		0.95								
		972r	3.438E-04	10.2		1.05								
		969r	4.040E-04	9.9W		2.50								

A.1.48

TABLE 26 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 236U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
85	CHAIN	21736r	1.385E+00	8.9							1.385E+00		8.9	
89	CHAIN	989r	3.327E+00	8.8							3.327E+00		8.8	
91	SR	40878	5.440E+00	7.2		0.69			3.08	1.54	5.206E+00	(I)	3.6	
		40878	5.470E+00	5.5		1.14						(E)	4.5A	
	CHAIN	21736r	4.772E+00	6.5		-1.75								
92	SR	40878	4.420E+00	13.1							5.439E+00		15.8	
		40878	4.580E+00	12.2										
	Y	40878	4.360E+00	9.6										
		40878	5.010E+00	8.6										
	CHAIN	21736r	5.439E+00	15.8										
93	SR	40878	5.400E+00	5.9		1.69			2.88	1.44	5.073E+00	(I)	5.0	
	Y	40878	4.450E+00	12.8		-1.22						(E)	6.0A	
		40878	4.590E+00	13.3		-0.87								
94	Y	40878	4.700E+00	27.7										
		40878	4.720E+00	14.8										
95	CHAIN	21736r	5.593E+00	15.8							5.593E+00		15.8	
97	ZR	40878	5.340E+00	5.1		1.32			1.75	1.75	5.209E+00	(I)	4.8	
	CHAIN	21736r	4.362E+00	15.8		-1.32						(E)	6.4A	
99	MO	40878	5.010E+00	14.0		-0.66			0.75	0.19	5.397E+00	(I)	7.1A	
		40878	5.330E+00	11.6		-0.14						(E)	3.1	
		40878	5.800E+00	14.8		0.52								
		40878	5.900E+00	18.6		0.49								
	CHAIN	21736r	4.413E+00	300.0		-0.07								
101	MO	40878	4.800E+00	22.9		-0.38			0.37	0.12	5.206E+00	(I)	5.5A	
		40878	5.010E+00	11.8		-0.38						(E)	1.9	
		40878	5.280E+00	7.4		0.28								
		40878	5.420E+00	13.3		0.32								
103	CHAIN	21736r	3.643E+00	8.6							3.643E+00		8.6	
106	CHAIN	21736r	8.723E-01	20.6							8.723E-01		20.6	
111	CHAIN	989r	5.687E-02	10.4							5.687E-02		10.4	
125	CHAIN	21736r	1.693E-01	20.6		1.89			3.56	3.56	1.208E-01	(I)	19.5	>2
		21155	8.000E-02	40.0		-1.89						(E)	36.8A	
126	CHAIN	21155	2.900E-01	20.0							2.900E-01		20.0	
127	CHAIN	21736r	1.796E-01	17.8		-2.46			6.07	6.07	2.098E-01	(I)	14.1	>2
		21155	3.850E-01	20.0		2.46						(E)	34.7A	
128	SB	40878	1.100E-01	27.3							5.750E-01		20.0	
		40878	3.600E-01	13.9										
	CHAIN	21155	5.750E-01	20.0										
129	SB	40878	2.400E-01	58.3							9.600E-01		20.0	
		40878	5.000E-01	18.0										
	CHAIN	21155	9.600E-01	20.0										
130	SB	40878	8.200E-01	46.3							1.920E+00		20.0	
		40878	8.300E-01	13.3										
	CHAIN	21155	1.920E+00	20.0										
131	TE(M)	40878	7.100E-01	14.1					0.90	0.90	3.046E+00	(I)	8.5A	
		40878	7.200E-01	20.8								(E)	8.0	
	XE	40877r	1.199E+00	9.4										
	CHAIN	21736r	2.720E+00	15.8		-0.95								
		21155	3.230E+00	10.0		0.95								
132	TE	40878	3.970E+00	11.3		-0.23			4.88	1.63	4.066E+00	(I)	4.2	
		40878	4.820E+00	8.5		2.03						(E)	5.4A	
	XE	40877r	2.594E+00	8.7										
	CHAIN	21736r	3.849E+00	5.6		-1.69								
		21155	4.680E+00	20.0		0.67								

TABLE 26 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 236U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
133	TE(M)	40878	2.420E+00	16.1					0.19	0.19	6.674E+00	(I)	9.1A
	I	40878	5.730E+00	9.1								(E)	4.0
		40878	5.820E+00	7.0									
	CHAIN	21155	6.200E+00	20.0		-0.44							
		21736r	6.825E+00	10.3		0.44							
134	TE	40878	6.180E+00	8.7					0.01	0.01	7.660E+00	(I)	5.6A
		40878	6.590E+00	10.6								(E)	0.4
	I	40878	6.850E+00	12.0									
		40878	7.420E+00	9.7									
	XE	40877r	7.670E+00	5.8		0.08							
	CHAIN	21155	7.550E+00	20.0		-0.08							
135	I	40878	5.980E+00	5.5		-0.88			4.58	1.15	6.184E+00	(I)	3.8
		40878	6.720E+00	7.1		1.28						(E)	4.1A
	XE	40877r	5.601E+00	19.1		-0.56							
	CHAIN	21736r	5.183E+00	15.8		-1.28							
		21155	6.930E+00	10.0		1.14							
136	XE	40877r	5.225E+00	7.4							6.200E+00		20.0
	CHAIN	21155	6.200E+00	20.0									
137	CHAIN	989r	5.307E+00	12.3		-1.01			1.27	0.64	5.909E+00	(I)	4.5A
		21736r	5.475E+00	20.6		-0.40						(E)	3.6
		21155	6.070E+00	5.0		1.12							
138	CHAIN	21155	5.990E+00	20.0							5.990E+00		20.0
139	BA	40878	6.140E+00	11.7		-0.33			0.35	0.17	6.341E+00	(I)	5.9A
		40878	6.500E+00	7.2		0.56						(E)	2.4
	CHAIN	21155	5.880E+00	20.0		-0.41							
140	BA	40878	4.970E+00	9.3					0.02	0.02	5.698E+00	(I)	8.6A
		40878	5.200E+00	5.8								(E)	1.2
	CHAIN	989r	5.586E+00	16.7		-0.14							
		21155	5.740E+00	10.0		0.14							
141	CHAIN	21736r	4.977E+00	11.4		-0.67			0.45	0.45	5.252E+00	(I)	7.5A
		21155	5.510E+00	10.0		0.67						(E)	5.1
142	LA	40878	4.930E+00	10.5		-0.53			0.32	0.16	5.147E+00	(I)	6.1A
		40878	5.180E+00	11.0		0.07						(E)	2.4
	CHAIN	21155	5.350E+00	10.0		0.47							
143	CHAIN	21736r	3.541E+00	15.8		-2.17			4.72	4.72	4.430E+00	(I)	8.6 >2
		21155	5.200E+00	10.0		2.17						(E)	18.7A
144	CHAIN	989r	4.436E+00	12.3		-0.41			0.21	0.10	4.627E+00	(I)	6.0A
		21736r	4.670E+00	7.4		0.21						(E)	2.0
		21155	4.890E+00	20.0		0.28							
145	CHAIN	21155	3.690E+00	20.0							3.690E+00		20.0
146	PR	40878	3.370E+00	11.3		-0.15			0.41	0.21	3.407E+00	(I)	8.3A
		40878	3.690E+00	15.4		0.57						(E)	3.8
	CHAIN	21155	3.160E+00	20.0		-0.44							
147	CHAIN	990r	1.924E+00	12.4		-0.43			1.88	0.19	2.023E+00	(I)	3.5A
		990r	1.930E+00	12.4		-0.41						(E)	1.5
		990r	1.939E+00	12.4		-0.36							
		990r	1.957E+00	12.4		-0.28							
		990r	1.959E+00	12.4		-0.27							
		990r	2.014E+00	12.4		-0.04							
		989r	2.024E+00	12.4		0.01							
		990r	2.057E+00	12.4		0.14							
		990r	2.079E+00	12.4		0.23							
		21736r	2.104E+00	6.9		0.64							
		21155	2.500E+00	20.0		0.96							
148	CHAIN	21155	1.800E+00	20.0							1.800E+00		20.0
149	CHAIN	21155	1.470E+00	20.0							1.470E+00		20.0
150	CHAIN	21155	1.020E+00	20.0							1.020E+00		20.0

TABLE 26 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 236U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
151	CHAIN	21736r	1.950E+00	19.0		3.03			9.16	9.16	9.059E-01	(I)	15.2 >2
		21155	7.400E-01	20.0		-3.03						(E)	45.9A
152	CHAIN	21155	5.600E-01	20.0							5.600E-01		20.0
156	CHAIN	989r	2.969E-02	12.4							2.969E-02		12.4
161	CHAIN	989r	3.928E-04	14.8							3.928E-04		14.8

TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U .

```
A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF   MEAN     DEVIATION
 3 H     91205 1.650E-01   4.0                                      |
=========================================================================================================
66 NI      785 4.010E-06  40.0                                      |                 4.010E-06      40.0
=========================================================================================================
67 CU      785 2.320E-05  40.0           2.01                       |  4.06   4.06 4.803E-06 (I)  34.4  >2
           784 4.200E-06  40.0          -2.01                       |                        (E)  69.3A
=========================================================================================================
72 ZN      785 6.540E-05  40.0                                      |                 6.540E-05      40.0
=========================================================================================================
77 AS      785 1.510E-03  50.0          -2.34                       |  5.61   1.87 3.056E-03 (I)  11.9
           176 3.420E-03  15.0           1.01                       |                        (E)  16.3A
         13379 3.600E-03  27.8           0.58                       |
           231 3.840E-03  26.0           0.84                       |
=========================================================================================================
83 BR     2109 4.130E-01   5.0                                      |
   --------------------------                                       |
   KR      870 3.950E-01   5.0                                      |
         13289 7.000E-02  28.6                                      |
=========================================================================================================
84 KR    13289 2.400E-01  20.8                                      |
            28r4.970E-01  70.9                                      |
           870 8.160E-01   5.0                                      |
=========================================================================================================
85*KR(G)  2109 1.340E+00  10.0 1.149E+00  3.19 10.20>2 18.88 20.4>2| 65.76   9.39 8.506E-01 (I)   3.6  >2
            28r3.797E-01  70.9          -3.19                       |                        (E)  11.0A
   ::::::::::::::::::::::::::                                       |
   KR(M)  2109 2.380E-01  20.0 2.913E-01 -1.21  5.01>2  0.26        |
          2004 2.800E-01   7.1          -1.29                       |
         40554 5.900E-01   6.8W          2.50                       |
         30743 6.300E-01  20.6W          2.50                       |
           944 7.600E-01  10.0W          2.50                       |
   --------------------------                                       |
   CHAIN 21736r1.018E+00   6.0 8.142E-01  3.88 15.08>2  1.32        |
           870 7.400E-01   5.0          -3.88                       |
=========================================================================================================
86 KR    13289 1.100E+00   4.5          -2.15                       |  5.32   2.66 1.166E+00 (I)   3.4  >2
           870 1.280E+00   5.0           2.25                       |                        (E)   5.5A
            28r8.042E-01  70.9          -0.64                       |
=========================================================================================================
87*BR    12926 2.020E+00   8.9                                      |  8.61   2.15 1.617E+00 (I)   2.9  >2
   --------------------------                                       |
   KR    40554 1.150E+00   8.7W         -1.94                       |                        (E)   4.3A
           944 1.540E+00  10.0          -0.54                       |
         30743 1.720E+00   7.6           0.89                       |
          2109 2.120E+00   5.0W          2.11                       |
   --------------------------                                       |
   RB      870 1.610E+00   5.0          -0.12                       |
=========================================================================================================
88*KR    40554 1.850E+00   5.4W         -2.08                       | 17.18   2.86 2.145E+00 (I)   2.4  >2
         30743 1.900E+00  12.6          -1.05                       |                        (E)   4.0A
           944 2.330E+00  10.0           0.82                       |
          2109 2.760E+00   5.0W          2.25                       |
   --------------------------                                       |
   SR      870 1.960E+00   5.0          -2.37                       |
   --------------------------                                       |
   CHAIN  1115r2.313E+00   6.0           1.34                       |
          1114 2.380E+00   7.0           1.51                       |
=========================================================================================================
89*KR    13358 2.360E+00  10.0                                      | 43.61   2.18 2.900E+00 (I)   1.4  >2
           944 2.950E+00  10.0                                      |                        (E)   2.0A
   --------------------------                                       |
   RB     2004 2.620E+00  13.4                                      |
          2109 3.450E+00   5.0                                      |
   --------------------------                                       |
   SR      105r2.668E+00  20.2          -0.43                       |
         13379 2.700E+00  11.1          -0.67                       |
           231 2.880E+00  11.0          -0.06                       |
         30743 2.970E+00   4.7           0.52                       |
           626 3.120E+00   6.0           1.20                       |
           785 3.130E+00   5.0           1.52                       |
           176 3.140E+00  15.0           0.51                       |
          1075 3.440E+00   7.0           2.28                       |
             2 3.700E+00   8.0W          2.49                       |
           163 4.400E+00   9.0W          2.49                       |
           784 4.470E+00   5.0W          2.43                       |
   --------------------------                                       |
   CHAIN  1010r2.609E+00   5.5          -2.10                       |
          1009r2.652E+00   5.5          -1.76                       |
          1014r2.657E+00   5.5          -1.72                       |
          1012r2.683E+00   5.5          -1.52                       |
          1004r2.699E+00   5.5          -1.40                       |
          1008r2.787E+00   5.5          -0.76                       |
          1003r2.795E+00   5.5          -0.70                       |
          1007r2.805E+00   5.5          -0.63                       |
          1006r2.806E+00   5.5          -0.63                       |
          1002r2.809E+00   5.5          -0.61                       |
=========================================================================================================
```

TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

```
A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF   MEAN     DEVIATION
90 KR     2004 2.780E+00  11.0                                      |  2.39   0.80 3.307E+00 (I)   3.4A
   --------------------------                                       |
   SR        9 3.140E+00  10.0          -0.57                       |                        (E)   3.0
          1075 3.860E+00  12.0           1.23                       |
   --------------------------                                       |
   CHAIN   870 3.210E+00   5.0          -0.84                       |
          1004r3.417E+00   5.7           0.69                       |
=========================================================================================================
91*SR    40878 2.940E+00  13.9W         -2.45                       | 17.61   2.20 4.263E+00 (I)   2.0  >2
          1075 4.050E+00   9.0          -0.60                       |                        (E)   2.9A
         30743 4.330E+00   3.9           0.45                       |
          2109 4.680E+00   5.0           1.91                       |
          2004 5.130E+00   7.6           2.28                       |
   --------------------------                                       |
   Y (G)  1014r3.107E+00   6.7                                      |
   --------------------------                                       |
   Y (M) 40554 2.430E+00   3.3                                      |
          2004 3.410E+00   9.7                                      |
   --------------------------                                       |
   ZR      870 4.440E+00   5.0           0.86                       |
   --------------------------                                       |
   CHAIN 21736r3.893E+00  20.0          -0.48                       |
          1115r3.959E+00   5.4          -1.55                       |
          1114 4.160E+00   5.0          -0.54                       |
=========================================================================================================
92*SR    30743 4.580E+00   9.8           0.50                       | 14.24   2.37 4.365E+00 (I)   2.1  >2
          2004 5.700E+00  12.0           2.00                       |                        (E)   3.3A
   --------------------------                                       |
   Y      2109 5.740E+00   5.0W          2.11                       |
   --------------------------                                       |
   ZR      870 4.950E+00   5.0W          2.27                       |
   --------------------------                                       |
   CHAIN 21736r3.833E+00   3.4W         -1.37                       |
          1115r4.389E+00   5.4           0.13                       |
          1114 4.680E+00  11.0           0.64                       |
=========================================================================================================
93 SR     2004 4.220E+00  12.3                                      |  0.29   0.29 5.182E+00 (I)   4.2A
   --------------------------                                       |
   Y      1075 5.000E+00   8.0          -0.54                       |                        (E)   2.3
   --------------------------                                       |
   ZR      870 5.260E+00   5.0           0.54                       |
=========================================================================================================
94 SR     2004 5.390E+00   7.0           0.79                       |  0.62   0.62 5.140E+00 (I)   4.1A
   --------------------------                                       |
   ZR      870 5.030E+00   5.0          -0.79                       |                        (E)   3.2
=========================================================================================================
95*ZR    13379 4.700E+00  14.9          -0.78                       | 28.82   1.31 5.243E+00 (I)   1.3
           163 5.000E+00  10.0          -0.49                       |                        (E)   1.5A
           231 5.010E+00  15.0          -0.31                       |
         30743 5.080E+00   6.1          -0.54                       |
           879 5.190E+00   8.0          -0.13                       |
         30752 5.290E+00   4.1           0.23                       |
           883 5.410E+00   7.0           0.45                       |
           792 5.440E+00   8.0           0.46                       |
          2109 5.550E+00   5.0           1.14                       |
           698 5.740E+00   8.0           1.09                       |
          2109 5.830E+00   5.0           2.07                       |
           176 6.270E+00  15.0           1.09                       |
             2 6.500E+00  10.0           1.94                       |
           626 7.240E+00  18.0           1.53                       |
   --------------------------                                       |
   NB     2004 8.500E+00  15.3W          2.50                       |
   --------------------------                                       |
   MO      870 4.940E+00   5.0          -1.28                       |
   --------------------------                                       |
   CHAIN  1014r4.738E+00   5.5          -2.03                       |
           995r5.021E+00   5.5          -0.84                       |
         21736r5.031E+00   4.9          -0.89                       |
           997r5.115E+00   5.5          -0.47                       |
          1115r5.175E+00   5.4          -0.25                       |
          1114 5.300E+00   5.0           0.22                       |
          1005r5.365E+00   5.5           0.43                       |
=========================================================================================================
96 ZR      870 6.050E+00   5.0                                      |                 6.050E+00       5.0
=========================================================================================================
97 ZR      163 5.200E+00  11.0          -0.81  0.00    0.00  1.4    | 16.98   0.89 5.694E+00 (I)   1.3A
           792 5.320E+00   8.0          -0.80                       |                        (E)   1.2
           879 5.410E+00   8.0          -0.58                       |
           883 5.460E+00   7.0          -0.52                       |
         30743 5.480E+00   3.1          -1.17                       |
          2004 5.540E+00  16.6          -0.13                       |
          2109 5.840E+00   5.0           0.65                       |
           698 5.910E+00   8.0           0.54                       |
          1075 5.990E+00   5.0           1.15                       |
         40878 6.000E+00  26.7           0.21                       |
           626 6.010E+00   6.0           1.00                       |
          2109 6.430E+00   5.0           2.48                       |
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TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF   MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
    ---------------------------                                       |
    NB(G) 40554 5.760E+00   3.5 5.893E+00 -1.55  2.40>2  1.22         |
           2004 6.480E+00   6.5            1.55                       |
    :::::::::::::::::::::::::::                                       |
    NB(M) 40554 5.180E+00   3.9 5.180E+00  0.00          0.00         |
    ---------------------------                                       |
    MO      870 5.470E+00   5.0            0.00          0.00         |
    ---------------------------                                       |
    CHAIN   998r5.457E+00   5.5 5.656E+00 -0.69  0.77    0.23         |
          21736r5.510E+00  11.0           -0.24                       |
           1004r5.516E+00   5.5           -0.48                       |
           1115r5.623E+00   5.4           -0.11                       |
           1114 5.810E+00   5.0            0.55                       |
==================================================================================================================
 98 MO      870 5.820E+00   5.0                                       |                5.820E+00        5.0
==================================================================================================================
 99*MO      176 5.610E+00  15.0           -0.77                       | 17.33   0.96 6.253E+00 (I)   1.4A
            626 6.000E+00  14.0           -0.30                       |                        (E)   1.4
           2004 6.000E+00   5.2           -0.85                       |
            792 6.030E+00   5.0           -0.77                       |
          30743 6.140E+00   4.4           -0.44                       |
            698 6.140E+00   5.0           -0.38                       |
             36 6.200E+00  15.0           -0.06                       |
           2109 6.210E+00   5.0           -0.14                       |
            950r6.226E+00   5.2           -0.09                       |
          30439 6.270E+00   4.8            0.06                       |
          13272 6.300E+00  10.0            0.08                       |
          13379 6.400E+00  10.9            0.21                       |
              2 6.600E+00  10.0            0.53                       |
            231 6.830E+00  10.0            0.85                       |
            163 7.000E+00  10.0            1.08                       |
           2109 7.060E+00   5.0            2.37                       |
    ---------------------------                                       |
    CHAIN 21736r5.151E+00   8.2W          -2.49                       |
           1115r6.475E+00   5.4            0.66                       |
           1114 6.640E+00   5.0            1.21                       |
==================================================================================================================
100 MO      870 6.630E+00   5.0                                       |                6.630E+00        5.0
==================================================================================================================
101 MO     2109 6.300E+00   5.0           -0.80                       |  0.64   0.64 6.458E+00 (I)   3.8A
    ---------------------------                                       |
    TC    30743 6.700E+00   5.8            0.80                       |                        (E)   3.0
==================================================================================================================
103*RU      163 3.900E+00  13.0W          -2.45                       | 19.35   1.21 6.039E+00 (I)   1.4
           2109 5.720E+00   5.0           -1.17                       |                        (E)   1.5A
          30752 5.790E+00   3.7           -1.27                       |
          30743 5.960E+00   6.2           -0.22                       |
            698 6.260E+00   8.0            0.45                       |
            792 6.290E+00   8.0            0.51                       |
          13379 6.300E+00  15.9            0.26                       |
            879 6.320E+00   8.0            0.56                       |
           1075 6.330E+00   9.0            0.52                       |
            772r6.527E+00  12.6            0.60                       |
            883 6.530E+00   7.0            1.09                       |
            231 6.720E+00  16.0            0.64                       |
            176 7.130E+00  15.0            1.02                       |
           2004 7.140E+00   6.1W           2.50                       |
    ---------------------------                                       |
    CHAIN 21736r6.049E+00   2.4            0.09                       |
           1114 6.250E+00   5.0            0.70                       |
           1115r6.270E+00   7.2            0.52                       |
==================================================================================================================
105*TC     2004 3.190E+00  11.3                                       | 14.68   1.84 3.756E+00 (I)   2.3
    ---------------------------                                       |
    RU    40554 2.800E+00   7.5W          -2.16                       |                        (E)   3.2A
          40878 3.070E+00  27.0           -0.83                       |
           2109 3.930E+00   5.0            1.01                       |
          30743 4.350E+00   8.3            1.71                       |
           2004 4.460E+00   9.4            1.72                       |
    ---------------------------                                       |
    RH      163 3.500E+00  11.0           -0.69                       |
           1075 4.150E+00   7.0            1.43                       |
    ---------------------------                                       |
    CHAIN  1114 3.870E+00   5.0            0.67                       |
           1115r3.919E+00   5.4            0.85                       |
==================================================================================================================
106 RU     1075 2.060E+00  13.0           -1.89                       |  9.68   1.61 2.542E+00 (I)   3.2
           2109 2.450E+00   5.0           -1.02                       |                        (E)   4.1A
            163 2.650E+00  11.0            0.39                       |
          30743 2.700E+00   7.4            0.87                       |
          13379 2.900E+00  10.3            1.24                       |
            231 3.090E+00  10.0            1.84                       |
    ---------------------------                                       |
    CHAIN 21736r2.276E+00  15.8           -0.76                       |
==================================================================================================================
107 RH    30743 1.790E+00   6.7                                       |                1.790E+00        6.7
==================================================================================================================
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TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF   MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
109*RH     2004 8.800E-02  19.3                                       | 13.38   3.35 1.654E-01 (I)   3.9  >2
    ---------------------------                                       |
    PD    30743 1.290E-01  14.7           -2.05                       |                        (E)   7.2A
            163 1.300E-01  15.0           -1.93                       |
           1075 1.400E-01  21.0           -0.89                       |
           2109 1.710E-01   5.0            1.05                       |
    ---------------------------                                       |
    CHAIN  1004r2.111E-01   8.4W           2.43                       |
==================================================================================================================
111*AG    30439 4.600E-02   5.0W          -2.06                       | 95.02   3.80 6.846E-02 (I)   1.4  >2
          30743 5.000E-02  10.0W          -2.43                       |                        (E)   2.8A
            626 5.800E-02  20.0           -0.91                       |
          13379 6.400E-02   9.4           -0.76                       |
           2109 6.800E-02  15.0           -0.05                       |
            231 6.830E-02  10.0           -0.02                       |
            176 6.840E-02  15.0           -0.01                       |
           1075 7.000E-02  17.0            0.13                       |
            105r8.753E-02   6.3W           2.44                       |
            163 9.400E-02  13.0            2.10                       |
              2 9.400E-02   9.0W           2.48                       |
    ---------------------------                                       |
    CHAIN   999r5.378E-02   6.2W          -2.31                       |
           1011r6.044E-02   6.2           -2.25                       |
           1000r6.828E-02   6.2           -0.04                       |
           1001r7.334E-02   6.2            1.11                       |
           1002r7.445E-02   6.2            1.34                       |
           1003r7.642E-02   6.2            1.73                       |
           1004r7.986E-02   6.2            2.37                       |
           1005r8.067E-02   6.2W           2.50                       |
           1007r8.110E-02   6.2W           2.49                       |
           1008r8.156E-02   6.2W           2.48                       |
           1009r8.428E-02   6.2W           2.45                       |
           1010r8.597E-02   6.2W           2.45                       |
           1012r8.749E-02   6.2W           2.44                       |
           1014r9.239E-02   7.8W           2.47                       |
           1006r9.978E-02   6.2W           2.44                       |
==================================================================================================================
112*PD    30743 5.400E-02  29.6            0.82                       | 14.88   2.98 4.130E-02 (I)   5.7  >2
           1075 5.500E-02  18.0            1.52                       |                        (E)   9.9A
           2109 6.000E-02  15.0            2.34                       |
            163 7.000E-02  15.0W           2.38                       |
    ---------------------------                                       |
    CHAIN  1004r3.480E-02   7.9W          -0.87                       |
            998r5.498E-02  16.2            1.73                       |
==================================================================================================================
113 AG    30743 2.300E-02  21.7                                       |  0.06   0.06 3.196E-02 (I)  18.1A
           2109 2.500E-02  30.0                                       |                        (E)   4.4
    ---------------------------                                       |
    CHAIN 30743 3.100E-02  22.6           -0.24                       |
           2109 3.400E-02  30.0            0.24                       |
==================================================================================================================
115*CD     2109 5.600E-02  30.0            0.00          0.00  0.1    | 24.74   1.77 3.813E-02 (I)   3.9
    ---------------------------                                       |
    CD(G) 13379 3.200E-02  18.8 3.583E-02 -0.67  1.97    0.04         |                        (E)   5.2A
          30743 3.200E-02   9.4           -1.65                       |
            626 3.250E-02  15.0           -0.74                       |
            231 3.410E-02  20.0           -0.26                       |
           1075 4.100E-02  12.0            1.14                       |
            163 4.600E-02  15.0            1.53                       |
            176 5.700E-02  15.0W           2.50                       |
    :::::::::::::::::::::::::::                                       |
    CD(M) 13379 2.500E-03  12.0 2.688E-03 -0.73  1.78    0.00         |
            105r2.611E-03  10.2           -0.35                       |
            231 2.670E-03  12.0           -0.06                       |
            163 3.000E-03  15.0            0.74                       |
            176 6.150E-03  15.0W           2.50                       |
    ---------------------------                                       |
    CHAIN 30743 3.400E-02   8.8 3.752E-02 -1.95  1.90    0.06         |
              2 4.200E-02  10.0            1.30                       |
           2109 6.500E-02  30.0            1.42                       |
==================================================================================================================
121 SN     2109 1.510E-02  20.0           -2.06                       |  9.46   2.37 1.995E-02 (I)   9.5  >2
          30743 2.600E-02  19.2            1.31                       |                        (E)  14.6A
           1075 3.000E-02  23.0            1.51                       |
    ---------------------------                                       |
    CHAIN  2109 1.750E-02  20.0           -0.83                       |
          30743 3.000E-02  20.0            1.76                       |
==================================================================================================================
125*SN    30743 1.020E-02   9.8                                       |  2.33   0.78 2.083E-02 (I)  17.8A
           2109 4.290E-03  30.0                                       |                        (E)  15.7
           1075 6.600E-02  21.0                                       |
            163 7.800E-02  15.0                                       |
    ---------------------------                                       |
    SB      870 3.900E-01   5.0                                       |
    ---------------------------                                       |
    CHAIN 21155 1.000E-01  20.0W           1.25                       |
          21736r2.995E-02 100.0            0.43                       |
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TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF   MEAN    DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
          2109 4.110E-03 100.0W          -0.60                      |
         30743 9.900E-02  10.1W           0.80                      |
================================================================================================================
126 CHAIN 21155 9.000E-02  20.0                                      |                 9.000E-02      20.0
================================================================================================================
127*SB     2109 1.120E-01  10.0W          -2.21                      |  22.66    2.06 1.452E-01 (I)   3.7  >2
            176 1.140E-01  15.0           -1.94                      |                           (E)   5.3A
          30743 1.250E-01  15.2           -1.12                      |
          13379 1.300E-01  23.1           -0.52                      |
            231 1.390E-01  23.0           -0.20                      |
           2109 1.510E-01  10.0            0.42                      |
           1075 1.700E-01  12.0            1.27                      |
            163 2.600E-01  11.0W           2.45                      |
    --------------------------                                       |
    CHAIN 21736r1.318E-01  22.7           -0.46                      |
          21155 1.400E-01  20.0           -0.19                      |
           1115r1.714E-01  13.5            1.17                      |
           1114 1.750E-01   7.0W           2.38                      |
================================================================================================================
128 SB    30743 5.000E-01  28.0                                      |                 2.800E-01      20.0
    --------------------------                                       |
    CHAIN 21155 2.800E-01  20.0                                      |
================================================================================================================
129 SB    30743 4.500E-01  22.2                                      |   0.07    0.03 6.176E-01 (I)   4.8A
    --------------------------                                       |
    TE(M)   163 2.600E-01  11.0                                      |                           (E)   0.9
    --------------------------                                       |
    XE    13289 3.000E-02  33.3                                      |
    --------------------------                                       |
    CHAIN 21155 5.900E-01  20.0           -0.24                      |
           1115r6.027E-01  26.9           -0.09                      |
           1114 6.200E-01   5.0            0.26                      |
================================================================================================================
130 CHAIN 21155 1.340E+00  20.0                                      |                 1.340E+00      20.0
================================================================================================================
131*TE(M) 40554 1.720E+00   8.7                                      |  38.81    2.43 3.304E+00 (I)   1.3  >2
    --------------------------                                       |
    I     30743 2.230E+00  16.7W          -2.49                      |                           (E)   2.0A
            772r2.982E+00  12.5           -0.87                      |
            792 3.050E+00  10.0           -0.84                      |
            879 3.240E+00   5.0           -0.41                      |
            883 3.310E+00   8.0            0.02                      |
          30752 3.410E+00   5.4            0.59                      |
           1075 3.420E+00   8.0            0.43                      |
            698 3.620E+00   5.0            1.80                      |
           2004 3.790E+00   5.0W           2.49                      |
          40554 3.820E+00   5.0W           2.47                      |
           2109 4.130E+00   5.0W           2.43                      |
    --------------------------                                       |
    XE    40877r1.428E+00  20.6W          -2.45                      |
            870 3.210E+00   5.0           -0.61                      |
    --------------------------                                       |
    CHAIN 21736r3.174E+00   2.3           -2.27                      |
           1115r3.293E+00   5.4           -0.06                      |
           1114 3.410E+00   5.0            0.64                      |
          21155 3.470E+00  20.0            0.24                      |
================================================================================================================
132*TE      163 4.100E+00  20.0           -0.73                      |  43.61    2.30 4.692E+00 (I)   1.7  >2
            626 4.240E+00  15.0           -0.72                      |                           (E)   2.5A
           2109 4.650E+00   5.0           -0.19                      |
          30743 4.690E+00  10.1            0.00                      |
          13379 4.700E+00  14.9            0.01                      |
            231 5.010E+00  15.0            0.43                      |
          40554 5.220E+00   5.0            2.15                      |
            698 5.270E+00   6.0            1.90                      |
            883 5.720E+00  10.0            1.82                      |
           1075 6.180E+00   9.0W           2.49                      |
          40878 6.700E+00  46.3            0.65                      |
    --------------------------                                       |
    I      2004 4.880E+00   5.5            0.74                      |
            772r5.055E+00  12.4            0.58                      |
    --------------------------                                       |
    XE    40877r3.008E+00  20.6W          -2.49                      |
          13289 3.480E+00   5.0W          -2.04                      |
            870 5.160E+00   5.0            1.93                      |
    --------------------------                                       |
    CHAIN 21736r4.492E+00   8.1           -0.57                      |
           1115r5.152E+00   5.4            1.73                      |
           1114 5.320E+00   5.0            2.50                      |
          21155 6.760E+00  20.0            1.53                      |
================================================================================================================
133*I     30743 5.570E+00  20.2           -0.92                      |  17.04    1.55 6.596E+00 (I)   1.8
          40878 5.630E+00  15.0           -1.16                      |                           (E)   2.2A
           2109 6.050E+00   5.0           -1.96                      |
           1075 6.540E+00   5.0           -0.18                      |
          40554 6.820E+00   5.0            0.70                      |
           2004 7.550E+00   5.0W           2.47                      |
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TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF   MEAN    DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
    --------------------------                                       |
    CS      870 6.700E+00   5.0            0.33                      |
    --------------------------                                       |
    CHAIN   721 5.930E+00   6.0           -1.99                      |
           1115r6.613E+00   5.5            0.05                      |
           1114 6.980E+00   5.0            1.17                      |
          21736r7.067E+00  12.0            0.56                      |
          21155 7.660E+00  20.0            0.70                      |
================================================================================================================
134*TE     2004 4.610E+00  10.2                                      |  10.70    2.67 6.315E+00 (I)   2.7  >2
          40554 6.200E+00  11.3                                      |                           (E)   4.5A
    --------------------------                                       |
    I (G)  2109 6.800E+00   5.0                                      |
          30743 8.350E+00  10.3                                      |
           2004 8.950E+00   8.0                                      |
    --------------------------                                       |
    I (M)  2004 1.390E+00  29.2                                      |
    --------------------------                                       |
    XE    13289 4.990E+00   5.0W          -1.42                      |
          40877r7.670E+00   5.8W           1.86                      |
            870 7.950E+00   5.0W           1.83                      |
    --------------------------                                       |
    CHAIN   721 6.930E+00   6.0            2.29                      |
          21155 7.730E+00  20.0            0.94                      |
================================================================================================================
135*I     40554 6.060E+00   6.1           -1.11                      |  27.25    1.95 6.449E+00 (I)   1.8
           2004 6.630E+00   5.9            0.49                      |                           (E)   2.5A
          30743 7.660E+00   8.6            1.86                      |
          40878 8.400E+00  46.4            0.50                      |
    --------------------------                                       |
    XE     2004 4.900E+00  36.7           -0.86                      |
          40878 5.760E+00  14.1           -0.86                      |
          40554 5.980E+00   5.0           -1.70                      |
           2109 6.330E+00   5.0           -0.40                      |
          40877r6.865E+00  19.9            0.30                      |
    --------------------------                                       |
    CS      870 6.920E+00   5.0            1.44                      |
    --------------------------                                       |
    CHAIN 21736r5.510E+00   6.6W          -2.46                      |
            721 6.160E+00   6.0           -0.82                      |
          21155 6.910E+00  20.0            0.33                      |
           1114 7.340E+00   5.0W           2.49                      |
           1115r7.370E+00   5.9            2.18                      |
================================================================================================================
136 I (G)  2004 1.650E+00  29.1                                      |   4.79    1.60 6.517E+00 (I)   3.6
    --------------------------                                       |
    I (M)  2004 4.160E+00  20.9                                      |                           (E)   4.5A
    --------------------------                                       |
    XE    40877r5.738E+00  10.6           -1.39                      |
            870 7.070E+00   5.0            2.07                      |
    --------------------------                                       |
    CHAIN   721 6.210E+00   6.0           -1.05                      |
          21155 6.370E+00  20.0           -0.12                      |
================================================================================================================
137 I     12926 6.000E+00  16.7                                      |  14.23    1.02 6.088E+00 (I)   1.5
    --------------------------                                       |
    XE     2004 5.930E+00  11.0           -0.24                      |                           (E)   1.5A
            944 6.050E+00  10.0           -0.06                      |
    --------------------------                                       |
    CS      163 6.100E+00  11.0            0.02                      |
          13272 6.300E+00  10.0            0.34                      |
            176 6.840E+00  15.0            0.74                      |
          13379 7.100E+00   9.9            1.46                      |
            626 7.680E+00  23.0            0.90                      |
    --------------------------                                       |
    CHAIN   721 5.460E+00   6.0           -2.00                      |
           1005r5.664E+00   5.5           -1.43                      |
           1008r5.792E+00   5.5           -0.97                      |
           1014r5.829E+00   5.5           -0.85                      |
          21155 5.850E+00  20.0           -0.20                      |
            870 5.990E+00   5.0           -0.34                      |
           1006r6.242E+00   5.5            0.47                      |
          21736r6.348E+00   2.3            2.30                      |
================================================================================================================
138 XE     2004 5.970E+00   7.9            0.06                      |   8.00    0.89 5.943E+00 (I)   2.3A
            944 5.990E+00  10.0            0.08                      |                           (E)   2.2
    --------------------------                                       |
    CS    30743 5.490E+00   7.3           -1.21                      |
           2109 5.740E+00   5.0           -0.81                      |
           2004 7.700E+00  26.0            0.88                      |
    --------------------------                                       |
    BA      870 5.730E+00   5.0           -0.85                      |
    --------------------------                                       |
    CHAIN 21155 5.730E+00  20.0           -0.19                      |
            721 6.250E+00   7.0            0.74                      |
           1115r6.404E+00   7.8            0.96                      |
           1114 6.840E+00   7.0            1.96                      |
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TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
139	XE	2004	5.800E+00	15.3		-0.04			3.50	0.58	5.834E+00	(I)	3.2A
	BA	2004	4.550E+00	19.1		-1.51						(E)	2.4
		40554	5.300E+00	13.2		-0.79							
		40878	5.400E+00	20.4		-0.40							
		2109	6.030E+00	5.0		0.83							
	LA	870	5.940E+00	5.0		0.46							
	CHAIN	21155	5.640E+00	20.0		-0.17							
140	CS	2004	6.050E+00	6.8		0.26			14.38	0.36	5.943E+00	(I)	0.9A
	BA	785	4.800E+00	12.0		-1.99						(E)	0.5
		30743	5.770E+00	3.8		-0.81							
		163	5.800E+00	9.0		-0.28							
		105r	5.803E+00	5.6		-0.44							
		2109	5.870E+00	5.0		-0.25							
		792	5.920E+00	5.0		-0.08							
		698	5.960E+00	5.0		0.06							
		879	5.980E+00	6.0		0.10							
		13272	6.000E+00	10.0		0.09							
		21483	6.030E+00	3.6		0.40							
		154	6.030E+00	6.0		0.24							
		30752	6.060E+00	4.1		0.48							
		1075	6.070E+00	5.0		0.42							
		883	6.180E+00	7.0		0.55							
		626	6.210E+00	7.0		0.62							
		2109	6.340E+00	5.0		1.27							
		670	6.340E+00	7.0		0.90							
		2	6.700E+00	8.0		1.42							
	LA	2004	6.080E+00	4.9		0.46							
	CE	870	5.920E+00	5.0		-0.08							
	CHAIN	21155	5.560E+00	20.0		-0.35							
		997r	5.642E+00	5.5		-0.99							
		1003r	5.793E+00	5.5		-0.48							
		1011r	5.795E+00	5.5		-0.47							
		1012r	5.812E+00	5.5		-0.42							
		1002r	5.815E+00	5.5		-0.41							
		1010r	5.819E+00	5.5		-0.40							
		996r	5.844E+00	5.5		-0.31							
		1001r	5.854E+00	5.5		-0.28							
		1013r	5.869E+00	5.5		-0.23							
		1000r	5.884E+00	5.5		-0.19							
		1006r	5.894E+00	5.5		-0.15							
		993r	5.898E+00	5.5		-0.14							
		1009r	5.900E+00	5.5		-0.14							
		1008r	5.914E+00	5.5		-0.09							
		1007r	5.978E+00	5.5		0.11							
		1005r	5.983E+00	5.5		0.12							
		999r	6.044E+00	5.5		0.31							
		1014r	6.095E+00	5.5		0.46							
		721	6.300E+00	6.0		0.95							
141	CE	2109	4.650E+00	10.0					0.87	0.29	5.740E+00	(I)	3.9A
		772r	4.877E+00	12.6								(E)	2.1
		2109	5.050E+00	10.0									
		30743	5.270E+00	4.9									
	CHAIN	1014r	4.670E+00	30.1		-0.77							
		21155	5.480E+00	20.0		-0.24							
		21736r	5.690E+00	5.4		-0.24							
		1075	5.900E+00	6.0		0.59							
142	LA	40554	3.730E+00	9.4					2.04	0.51	4.727E+00	(I)	3.2A
		2004	4.040E+00	7.4								(E)	2.3
		40878	4.220E+00	11.6									
		2109	5.200E+00	10.0									
	CE	870	4.690E+00	5.0		-0.21							
	CHAIN	1114	4.260E+00	20.0		-0.56							
		1115r	4.522E+00	6.4		-0.84							
		721	5.040E+00	6.0		1.20							
		21155	5.110E+00	20.0		0.38							
143*	CE	2004	4.220E+00	10.7		-1.13			17.10	0.81	4.724E+00	(I)	1.4A
		883	4.340E+00	8.0		-1.12						(E)	1.2
		1075	4.640E+00	5.0		-0.38							
		30743	4.750E+00	11.4		0.05							
		2109	4.760E+00	10.0		0.08							
		772r	4.826E+00	12.5		0.17							

TABLE 27 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	PR	2109	4.230E+00	10.0									
	ND	870	4.560E+00	5.0		-0.75							
		22050r	4.948E+00	10.1		0.45							
		657	5.210E+00	10.0		0.94							
	CHAIN	21736r	4.132E+00	7.4		-1.99							
		21155	4.430E+00	20.0		-0.33							
		1014r	4.537E+00	5.5		-0.78							
		1003r	4.625E+00	5.5		-0.40							
		1115r	4.644E+00	5.4		-0.33							
		1114	4.730E+00	5.0		0.03							
		1007r	4.752E+00	5.5		0.11							
		721	4.790E+00	6.0		0.24							
		1006r	4.797E+00	5.5		0.29							
		1008r	4.805E+00	5.5		0.32							
		998r	4.961E+00	5.5		0.90							
		1002r	5.033E+00	5.5		1.15							
		1001r	5.540E+00	5.5W		2.48							
144*	LA	2004	4.940E+00	7.7		1.13			24.33	0.94	4.515E+00	(I)	1.2A
	CE	36	3.770E+00	20.0		-0.99						(E)	1.1
		35r	3.824E+00	15.5		-1.17							
		105r	4.242E+00	6.3		-1.05							
		772r	4.372E+00	12.6		-0.26							
		2109	4.500E+00	10.0		-0.03							
		30743	4.720E+00	8.3		0.53							
		13379	4.900E+00	10.2		0.78							
		231	5.230E+00	10.0		1.37							
	CHAIN	21155	4.270E+00	20.0		-0.29							
		1010r	4.291E+00	5.0		-1.08							
		1012r	4.293E+00	5.0		-1.07							
		996r	4.297E+00	5.0		-1.05							
		994r	4.315E+00	5.0		-0.95							
		1013r	4.338E+00	5.0		-0.84							
		1011r	4.354E+00	5.0		-0.76							
		1009r	4.409E+00	5.0		-0.49							
		870	4.480E+00	5.0		-0.16							
		1014r	4.510E+00	4.9		-0.02							
		1003r	4.561E+00	5.0		0.21							
		1002r	4.661E+00	5.0		0.64							
		1007r	4.679E+00	5.0		0.72							
		1008r	4.698E+00	5.0		0.80							
		1006r	4.708E+00	5.0		0.84							
		1001r	4.825E+00	5.0		1.32							
		721	4.840E+00	6.0		1.14							
		21736r	5.869E+00	8.3W		2.49							
145	CE	2004	3.650E+00	10.7					1.65	0.41	3.888E+00	(I)	3.3A
	ND	870	3.760E+00	5.0		-0.94						(E)	2.1
		22050r	4.101E+00	10.1		0.54							
		657	4.250E+00	10.0		0.89							
	CHAIN	21155	3.610E+00	20.0		-0.39							
		721	3.940E+00	6.0		0.26							
146	PR	2109	3.150E+00	10.0					2.06	0.52	3.523E+00	(I)	3.3A
	ND	870	3.400E+00	5.0		-1.00						(E)	2.4
		22050r	3.711E+00	10.1		0.53							
		657	3.940E+00	10.0		1.11							
	CHAIN	21155	3.280E+00	20.0		-0.38							
		721	3.560E+00	6.0		0.21							
147	ND	36	2.440E+00	15.0		-0.58			14.96	0.52	2.651E+00	(I)	0.8A
		35r	2.474E+00	15.4		-0.46						(E)	0.6
		1075	2.690E+00	9.0		0.16							
		105r	2.716E+00	3.7		0.66							
		2109	2.730E+00	10.0		0.29							
		30743	2.870E+00	8.7		0.88							
		2109	3.180E+00	10.0		1.67							
		772r	3.288E+00	12.2		1.59							
	SM	870	2.520E+00	5.0		-1.05							
	CHAIN	1114	2.430E+00	7.0		-1.31							
		997r	2.577E+00	4.1		-0.71							
		996r	2.584E+00	3.6		-0.73							
		1115r	2.584E+00	6.0		-0.43							
		1003r	2.593E+00	3.6		-0.63							
		1013r	2.602E+00	3.6		-0.53							
		1012r	2.611E+00	3.6		-0.43							
		1014r	2.615E+00	4.1		-0.34							

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	1008r	2.633E+00	3.6		-0.19						
	1006r	2.637E+00	3.6		-0.15						
	21155	2.640E+00	20.0		-0.02						
	1010r	2.644E+00	3.6		-0.07						
	995r	2.646E+00	4.1		-0.05						
	1009r	2.648E+00	3.6		-0.03						
	994r	2.668E+00	3.6		0.18						
	1002r	2.671E+00	3.6		0.21						
	1001r	2.673E+00	3.6		0.23						
	999r	2.677E+00	3.6		0.27						
	1007r	2.684E+00	3.6		0.35						
	1005r	2.717E+00	4.1		0.60						
	21736r	2.755E+00	2.5		1.57						
148*CE	2004	1.760E+00	7.4					8.59	2.15	2.281E+00	(I) 1.0 >2
ND	870	2.080E+00	5.0		-2.01						(E) 1.4A
	22050	2.300E+00	1.0W		1.36						
	657	2.400E+00	9.0		0.56						
CHAIN	21155	2.000E+00	20.0		-0.70						
	721	2.080E+00	5.0		-2.01						
149 ND	40878	4.000E+00	45.0		1.29			4.46	0.74	1.675E+00	(I) 3.3A
PM	36	1.720E+00	15.0		0.18						(E) 2.8
	1075	1.720E+00	8.0		0.36						
	35r	1.877E+00	18.0		0.61						
SM	870	1.590E+00	5.0		-1.47						
CHAIN	21155	1.540E+00	20.0		-0.44						
	721	1.780E+00	6.0		1.15						
150 ND	870	1.250E+00	5.0		-1.39			3.26	0.81	1.312E+00	(I) 3.3A
	22050r	1.397E+00	10.1		0.63						(E) 3.0
	657	1.490E+00	10.0		1.25						
CHAIN	21155	1.190E+00	20.0		-0.52						
	721	1.350E+00	6.0		0.56						
151 PM	2109	6.280E-01	20.0		-1.44			7.96	1.14	8.088E-01	(I) 1.4
	1075	8.800E-01	9.0		0.91						(E) 1.5A
SM	870	7.940E-01	5.0		-0.39						
CHAIN	21155	7.300E-01	20.0		-0.54						
	1114	8.000E-01	5.0		-0.23						
	21736r	8.025E-01	1.6		-0.91						
	1115r	8.864E-01	6.1		1.47						
	721	8.900E-01	6.0		1.56						
152 SM	870	5.210E-01	5.0					0.07	0.07	5.573E-01	(I) 5.7A
CHAIN	21155	5.300E-01	20.0		-0.27						(E) 1.6
	721	5.600E-01	6.0		0.27						
153*SM	2109	3.590E-01	10.0		-0.09			26.30	2.19	3.623E-01	(I) 2.1 >2
	35r	4.018E-01	15.8		0.63						(E) 3.1A
	30743	4.030E-01	10.2		1.01						
	36	4.320E-01	15.0		1.09						
	1075	4.800E-01	9.0W		2.48						
CHAIN	999r	2.593E-01	6.5W		-2.04						
	1000r	3.350E-01	6.5		-1.36						
	1001r	3.746E-01	6.5		0.54						
	1003r	3.921E-01	6.5		1.24						
	1002r	3.941E-01	6.5		1.32						
	1008r	4.001E-01	6.5		1.54						
	1006r	4.062E-01	6.5		1.76						
	1007r	4.173E-01	6.5		2.14						
154 SM	870	2.130E-01	5.0							2.400E-01	7.0
CHAIN	721	2.400E-01	7.0								
156*EU	626	4.300E-02	19.0W		-2.50			25.06	1.39	6.734E-02	(I) 1.0
	2109	4.700E-02	20.0		-2.17						(E) 1.2A
	176	6.100E-02	15.0		-0.69						
	30743	6.200E-02	14.5		-0.60						
	105r	6.525E-02	7.4		-0.44						
	36	6.800E-02	15.0		0.07						
	35r	6.901E-02	15.9		0.15						
	13379	7.300E-02	13.7		0.57						
	231	7.790E-02	14.0		0.97						
CHAIN	1009r	6.333E-02	3.1		-2.16						

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	1003r	6.542E-02	3.1		-1.00						
	1004r	6.612E-02	3.1		-0.63						
	1010r	6.837E-02	3.1		0.51						
	1008r	6.842E-02	3.1		0.53						
	1007r	6.847E-02	3.1		0.56						
	1012r	6.857E-02	3.1		0.61						
	1006r	6.859E-02	3.1		0.62						
	1011r	6.973E-02	3.1		1.16						
	1014r	7.302E-02	4.0		2.01						
159 GD	36	8.310E-03	15.0		-0.06			0.00	0.00	8.357E-03	(I) 11.0A
	35r	8.413E-03	16.3		0.06						(E) 0.6
161 TB	105r	1.128E-03	21.7		-0.22			12.21	1.74	1.181E-03	(I) 4.9
	2109	1.500E-03	30.0		0.72						(E) 6.4A
	36	1.640E-03	15.0		1.92						
	35r	1.686E-03	17.2		1.78						
	785	6.450E-04	40.0		-2.13						
CHAIN	1012r	1.115E-03	10.1		-0.68						
	1006r	1.117E-03	10.1		-0.65						
	1014r	1.228E-03	9.0		0.50						
172 ER	785	9.400E-06	40.0							9.400E-06	40.0
175 YB	785	8.000E-06	40.0							8.000E-06	40.0
177 LU	784	1.400E-06	40.0		-1.93			3.71	3.71	1.624E-06	(I) 33.7 >2
	785	6.600E-06	40.0		1.93						(E) 65.0A

TABLE 28 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 237NP.

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
83 BR	228r	2.574E-01	29.2					0.34	0.34	4.859E-01	(I)	2.1A	
	652	2.650E-01	15.0								(E)	1.2	
KR	1073	4.800E-01	3.0		-0.58								
	1072	4.920E-01	3.0		0.58								
84 KR	1073	7.620E-01	3.0		-0.43			0.18	0.18	7.689E-01	(I)	2.1A	
	1072	7.760E-01	3.0		0.43						(E)	0.9	
85 KR(G)	40677	6.200E-01	12.9					0.02	0.02	9.505E-01	(I)	2.1A	
CHAIN	1072	9.480E-01	3.0		-0.12						(E)	0.3	
	1073	9.530E-01	3.0		0.12								
86 KR	1073	1.300E+00	3.0		-0.36			0.13	0.13	1.310E+00	(I)	2.1A	
CHAIN	1072	1.320E+00	3.0		0.36						(E)	0.8	
87 BR	12926	1.510E+00	9.3					3.51	3.51	1.764E+00	(I)	2.8	>2
KR	40677	2.010E+00	7.0		1.87						(E)	5.2A	
RB	1073	1.730E+00	3.0		-1.87								
88 KR	40677	1.790E+00	20.7					0.05	0.05	2.200E+00	(I)	2.1A	
SR	1072	2.190E+00	3.0		-0.21						(E)	0.5	
	1073	2.210E+00	3.0		0.21								
89 SR	652	2.040E+00	15.0		-1.06			1.11	1.11	2.232E+00	(I)	11.0	
	228r	2.583E+00	16.0		1.06						(E)	11.6A	
90 SR	1072	3.300E+00	3.0		-0.49			0.24	0.24	3.334E+00	(I)	2.1A	
CHAIN	1073	3.370E+00	3.0		0.49						(E)	1.0	
91 SR	40677	3.720E+00	5.7		-0.68			3.22	0.64	3.854E+00	(I)	1.9A	
	228r	3.964E+00	25.1		0.11						(E)	1.5	
	652	4.040E+00	15.0		0.31								
ZR	1072	3.890E+00	3.0		0.40								
	1073	3.920E+00	3.0		0.72								
CHAIN	10985	3.400E+00	8.8		-1.56								
92 SR	40677	3.780E+00	4.2					3.63	1.81	4.433E+00	(I)	2.1	
Y	40677	3.370E+00	6.8								(E)	2.8A	
ZR	1073	4.450E+00	3.0		0.17								
	1072	4.500E+00	3.0		0.68								
CHAIN	10985	3.700E+00	10.8		-1.89								
93 ZR	1072	5.110E+00	3.0		-0.14			0.02	0.02	5.125E+00	(I)	2.1A	
	1073	5.140E+00	3.0		0.14						(E)	0.3	
94 ZR	1073	5.100E+00	3.0		-0.18			0.03	0.03	5.120E+00	(I)	2.1A	
	1072	5.140E+00	3.0		0.18						(E)	0.4	
95*ZR	40677	5.120E+00	8.0		-1.38			8.85	2.21	5.665E+00	(I)	2.0	>2
	881	6.050E+00	7.0		0.94						(E)	2.9A	
MO	1072	5.630E+00	3.0		-0.27								
	1073	5.680E+00	3.0		0.12								
CHAIN	991r	9.656E+00	15.6W		2.50								
96 ZR	1073	5.470E+00	3.0		-0.51			0.26	0.26	5.529E+00	(I)	2.1A	
	1072	5.590E+00	3.0		0.51						(E)	1.1	
97 ZR	40677	6.370E+00	2.7		1.02			4.05	1.01	6.230E+00	(I)	1.6	
	652	6.950E+00	15.0		0.69						(E)	1.6A	
MO	1072	6.080E+00	3.0		-0.99								
	1073	6.130E+00	3.0		-0.65								
CHAIN	10985	7.200E+00	9.7		1.40								
98 MO	1072	6.090E+00	3.0		-0.19			0.04	0.04	6.115E+00	(I)	2.1A	
	1073	6.140E+00	3.0		0.19						(E)	0.4	
99 MO	652	6.980E+00	15.0							6.980E+00		15.0	
100 MO	1072	6.510E+00	3.0		-0.29			0.08	0.08	6.550E+00	(I)	2.1A	
	1073	6.590E+00	3.0		0.29						(E)	0.6	

TABLE 28 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 237NP. (cont)

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
101 RU	1072	6.120E+00	3.0		-0.42			0.18	0.18	6.174E+00	(I)	2.1A	
	1073	6.230E+00	3.0		0.42						(E)	0.9	
102 RU	1072	5.830E+00	3.0		-0.40			0.16	0.16	5.879E+00	(I)	2.1A	
	1073	5.930E+00	3.0		0.40						(E)	0.9	
103 RU	652	4.040E+00	15.0		-2.02			5.99	2.00	5.115E+00	(I)	5.6	
	40677	4.740E+00	13.5		-0.66						(E)	8.0A	
	228r	4.997E+00	25.1		-0.10								
	881	5.750E+00	7.0		2.27								
104 RU	1072	4.160E+00	3.0		-0.39			0.15	0.15	4.194E+00	(I)	2.1A	
	1073	4.230E+00	3.0		0.39						(E)	0.8	
105 RU	652	2.750E+00	15.0		-0.42			0.18	0.18	2.907E+00	(I)	5.9A	
	40677	2.940E+00	6.5		0.42						(E)	2.5	
106*RU	652	1.560E+00	15.0W		-2.19			6.75	2.25	2.176E+00	(I)	6.0	>2
	228r	1.985E+00	25.2		-0.40						(E)	9.1A	
	1073	2.310E+00	12.0		0.59								
	1072	2.630E+00	8.0W		2.03								
109 PD	228r	3.928E-01	26.5		0.83			0.68	0.68	3.137E-01	(I)	13.1A	
PD(G)	652	2.990E-01	15.0		-0.83						(E)	10.9	
111 AG	228r	1.189E-01	25.2		0.93			1.17	0.59	9.237E-02	(I)	10.0A	
	652	8.500E-02	15.0		-0.84						(E)	7.7	
CHAIN	991r	9.592E-02	15.6		0.30								
112 PD	228r	4.974E-02	27.8		-1.27			1.61	1.61	6.355E-02	(I)	13.4	
	652	7.200E-02	15.0		1.27						(E)	17.0A	
113 AG(G)	652	4.500E-02	15.0							4.500E-02		15.0	
115 CD(G)	228r	5.770E-02	25.7		1.04			1.08	1.08	4.345E-02	(I)	13.1	
CHAIN	652	4.100E-02	15.0		-1.04						(E)	13.6A	
121 SN(G)	652	4.700E-02	15.0	4.700E-02				0.00	0.00	4.933E-02	(I)	14.4A	
SN(M)	228r	1.040E-02	38.8	1.040E-02							(E)	0.0	
125 SN(M)	652	1.210E-01	15.0		1.71			6.43	1.61	9.167E-02	(I)	6.6	
	228r	1.509E-01	25.7		1.55						(E)	8.4A	
SB	1073	8.000E-02	12.0		-1.56								
	1072	9.200E-02	11.0		0.04								
CHAIN	21155	9.000E-02	20.0		-0.10								
126 CHAIN	21155	1.500E-01	20.0							1.500E-01		20.0	
127*SB	228r	4.500E-01	25.8		0.09			5.84	2.92	4.420E-01	(I)	12.0	>2
	652	9.160E-01	15.0W		2.35						(E)	20.5A	
CHAIN	21155	3.300E-01	20.0W		-1.34								
128 CHAIN	21155	7.970E-01	20.0							7.970E-01		20.0	
129 SB	40677	1.070E+00	10.3					4.77	4.77	1.928E+00	(I)	12.4	>2
CHAIN	21155	1.520E+00	20.0		-2.18						(E)	27.2A	
	652	2.600E+00	15.0		2.18								
130 SB	40677	6.400E-01	20.3							2.370E+00		20.0	
CHAIN	21155	2.370E+00	20.0										
131 TE(M)	40677	7.100E-01	11.3					0.57	0.11	3.742E+00	(I)	2.6A	
I	40677	3.740E+00	6.2		-0.01						(E)	0.9	
XE	684	2.220E+00	200.0		-0.34								
	1073	3.680E+00	5.0		-0.40								
	1072	3.760E+00	5.0		0.11								
	735	3.770E+00	5.0		0.17								
CHAIN	21155	4.210E+00	20.0		0.56								
132*TE	40677	3.680E+00	6.2W		-1.93			13.06	1.63	4.700E+00	(I)	2.6	
	228r	4.685E+00	25.1		-0.01						(E)	3.3A	
	652	6.330E+00	15.0		1.73								
XE	684	3.470E+00	200.0		-0.18								
	1073	5.030E+00	5.0		1.57								

TABLE 28 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 237NP. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		1072	5.060E+00	5.0		1.69							
		2077r	5.079E+00	5.8		1.46							
	CHAIN	10985	5.100E+00	9.8		0.83							
		21155	5.490E+00	20.0		0.73							
133	TE(M)	40677	3.680E+00	9.2					0.03	0.01	6.697E+00	(I)	2.9A
	I	40677	7.460E+00	4.7								(E)	0.3
	XE	735	6.670E+00	5.0		-0.10							
	CS	1072	6.680E+00	5.0		-0.06							
		1073	6.730E+00	5.0		0.12							
	CHAIN	21155	6.870E+00	20.0		0.13							
134	TE	40677	3.680E+00	17.9					3.85	0.77	7.338E+00	(I)	2.9A
	I	40677	6.050E+00	11.6		-1.93						(E)	2.5
	XE	684	5.390E+00	200.0		-0.18							
		735	7.420E+00	5.0		0.27							
		2077r	7.470E+00	5.8		0.35							
		1072	7.490E+00	5.0		0.49							
	CHAIN	21155	7.940E+00	20.0		0.38							
135	I	40677	6.350E+00	5.0					0.03	0.01	7.600E+00	(I)	2.6A
	XE	40677	6.970E+00	5.0								(E)	0.3
	CS	1072	7.550E+00	5.0		-0.15							
		1073	7.620E+00	3.0		0.17							
	CHAIN	21155	7.510E+00	20.0		-0.06							
136	XE	1073	6.840E+00	5.0		-0.22			0.13	0.04	6.900E+00	(I)	3.0A
		735	6.920E+00	5.0		0.07						(E)	0.6
		2077r	6.984E+00	5.8		0.24							
	CHAIN	21155	6.590E+00	20.0		-0.24							
137	I	12926	2.400E+00	20.8					0.67	0.17	6.352E+00	(I)	3.2A
	CS	13272	6.400E+00	10.0		0.08						(E)	1.3
	CHAIN	991r	5.660E+00	15.9		-0.79							
		21155	6.200E+00	20.0		-0.12							
		1072	6.360E+00	5.0		0.03							
		1073	6.430E+00	5.0		0.32							
138	CS	40677	6.480E+00	9.7		0.38			0.15	0.05	6.254E+00	(I)	3.3A
	BA	1073	6.210E+00	5.0		-0.19						(E)	0.7
		1072	6.240E+00	5.0		-0.06							
	CHAIN	21155	6.290E+00	20.0		0.03							
139	BA	40677	5.110E+00	12.1					0.60	0.30	5.691E+00	(I)	3.5A
	LA	1073	5.550E+00	5.0		-0.73						(E)	1.9
		1072	5.820E+00	5.0		0.61							
	CHAIN	21155	6.160E+00	20.0		0.39							
140	BA	652	5.300E+00	15.0		-0.55			9.33	0.93	5.733E+00	(I)	2.0A
		2076	5.410E+00	5.0		-1.31						(E)	1.9
		228r	5.587E+00	25.1		-0.10							
		881	5.790E+00	5.0		0.21							
		40677	6.400E+00	5.0		2.23							
	LA	40677	6.080E+00	5.0		1.23							
	CE	1073	5.470E+00	5.0		-1.05							
		1072	5.500E+00	5.0		-0.93							
	CHAIN	21155	5.590E+00	20.0		-0.13							
		10985	5.900E+00	10.2		0.28							
		991r	6.117E+00	15.2		0.42							
141	CE	228r	3.646E+00	42.9		-0.81			0.66	0.33	4.825E+00	(I)	11.6A
		652	4.970E+00	15.0		0.30						(E)	6.7
	CHAIN	21155	5.050E+00	20.0		0.27							
142	LA	40677	4.260E+00	4.7					0.18	0.09	4.915E+00	(I)	2.1A

TABLE 28 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 237NP. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CE	1072	4.910E+00	3.0		-0.05						(E)	0.6
		1073	4.930E+00	3.0		0.14							
	CHAIN	21155	4.540E+00	20.0		-0.42							
143	CE	40677	3.390E+00	7.7					0.05	0.03	4.713E+00	(I)	2.1A
	ND	1072	4.700E+00	3.0		-0.13						(E)	0.3
		1073	4.730E+00	3.0		0.17							
	CHAIN	21155	4.550E+00	20.0		-0.18							
144*	CE	228r	2.433E+00	25.2W		-2.48			6.35	2.12	4.097E+00	(I)	2.9 >2
		652	4.310E+00	15.0		0.34						(E)	4.2A
	CHAIN	21155	4.010E+00	20.0		-0.11							
		1073	4.160E+00	3.0		1.71							
145*	ND	1073	3.010E+00	3.0W		-2.00			2.10	1.05	3.213E+00	(I)	2.1
		1072	3.480E+00	3.0W		1.05						(E)	2.2A
	CHAIN	21155	3.350E+00	20.0		0.21							
146	ND	1072	2.800E+00	3.0		-0.15			0.05	0.02	2.809E+00	(I)	2.1A
		1073	2.820E+00	3.0		0.18						(E)	0.3
	CHAIN	21155	2.730E+00	20.0		-0.15							
147	ND	652	2.350E+00	15.0		0.37			0.53	0.13	2.219E+00	(I)	2.1A
	SM	1072	2.210E+00	3.0		-0.19						(E)	0.8
		1073	2.220E+00	3.0		0.02							
	CHAIN	21155	2.100E+00	20.0		-0.29							
		991r	2.420E+00	15.5		0.54							
148	ND	1073	1.740E+00	3.0		0.18			0.03	0.03	1.739E+00	(I)	3.0A
	CHAIN	21155	1.680E+00	20.0		-0.18						(E)	0.5
149	ND	40677	9.800E-01	22.4					0.03	0.02	1.275E+00	(I)	2.1A
	SM	1073	1.270E+00	3.0		-0.18						(E)	0.3
		1072	1.280E+00	3.0		0.19							
	CHAIN	21155	1.270E+00	20.0		-0.02							
150	ND	1073	9.830E-01	3.0		-0.15			0.05	0.02	9.862E-01	(I)	2.1A
		1072	9.900E-01	3.0		0.18						(E)	0.3
	CHAIN	21155	9.600E-01	20.0		-0.14							
151	SM	1073	7.070E-01	3.0		-0.27			0.39	0.20	7.110E-01	(I)	2.1A
		1072	7.170E-01	3.0		0.39						(E)	0.9
	CHAIN	21155	6.430E-01	20.0		-0.53							
152	SM	1073	4.530E-01	3.0		-0.45			0.22	0.11	4.573E-01	(I)	2.1A
		1072	4.620E-01	3.0		0.47						(E)	0.7
	CHAIN	21155	4.500E-01	20.0		-0.08							
154	SM	1073	1.830E-01	3.0		-0.64			0.40	0.40	1.854E-01	(I)	2.1A
		1072	1.880E-01	3.0		0.64						(E)	1.3
156	EU	652	9.000E-02	15.0							9.000E-02		15.0

TABLE 29 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238NP.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
131	XE	40877r	1.326E+00	6.9							1.326E+00	6.9
132	XE	40877r	2.843E+00	6.0							2.843E+00	6.0
134	XE	40877r	7.670E+00	5.4							7.670E+00	5.4
135	XE	40877r	5.718E+00	30.0							5.718E+00	30.0
136	XE	40877r	6.172E+00	26.1							6.172E+00	26.1

TABLE 30 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 238PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	BR	12926	8.400E-01	15.5								
137	I	12926	1.500E+00	26.7								

TABLE 31 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 239PU.

```
A  EL.     REF.  EXPERIMENTAL      MEAN     R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF   MEAN     DEVIATION
=========================================================================================================
  3 H  PI 92043r1.413E-02  15.9                                      |               1.413E-02      15.9
=========================================================================================================
  4 HE PI  2057r2.028E-01  10.5            -0.01                     |  0.00   0.00 2.029E-01 (I)   8.7A
          92043r2.030E-01  15.4             0.01                     |                        (E)   0.0
=========================================================================================================
 77 AS       623 1.180E-02  12.0           -5.33                     | 28.41  28.41 1.511E-02 (I)   8.4  >2
             624 2.900E-02  10.0            5.33                     |                        (E)  44.9A
=========================================================================================================
 83 CHAIN    871 3.090E-01   5.0           -1.43                     |  2.06   2.06 3.176E-01 (I)   4.5  >2
             246 3.660E-01  10.0            1.43                     |                        (E)   6.4A
=========================================================================================================
 84 CHAIN    871 4.900E-01   5.0           -1.13                     |  1.28   1.28 5.011E-01 (I)   4.5
             246 5.590E-01  10.0            1.13                     |                        (E)   5.1A
=========================================================================================================
 85 KR(M) 40554 5.000E-01  12.0                                      |  0.95   0.95 6.164E-01 (I)   5.7A
             947 6.100E-01  10.0                                     |                        (E)   5.6
   --------------------------                                        |
   CHAIN     871 5.950E-01   7.0           -0.97                     |
             246 6.720E-01  10.0            0.97                     |
=========================================================================================================
 86 CHAIN    871 7.770E-01   5.0           -1.09                     |  1.19   1.19 7.941E-01 (I)   4.5
             246 8.820E-01  10.0            1.09                     |                        (E)   4.9A
=========================================================================================================
 87 BR     12926 8.000E-01   6.2                                     |  2.90   0.72 1.011E+00 (I)   3.4A
   --------------------------                                        |
   KR        892 1.100E+00  25.0            0.33                     |                        (E)   2.9
             947 9.600E-01  10.0           -0.56                     |
           40554 9.600E-01   6.2           -1.03                     |
   --------------------------                                        |
   CHAIN     871 1.030E+00   5.0            0.50                     |
             246 1.160E+00  10.0            1.35                     |
=========================================================================================================
 88 KR       947 1.360E+00  10.0           -0.33                     |  6.89   2.30 1.402E+00 (I)   3.4  >2
           40554 1.620E+00   6.2            2.49                     |                        (E)   5.2A
   --------------------------                                        |
   SR        871 1.310E+00   5.0           -2.06                     |
   --------------------------                                        |
   CHAIN     246 1.440E+00  10.0            0.28                     |
=========================================================================================================
 89 KR       947 1.490E+00  10.0                                     |  5.63   0.80 1.692E+00 (I)   1.7A
   --------------------------                                        |
   SR       1029r1.579E+00   3.8           -2.13                     |                        (E)   1.5
            1041r1.694E+00   4.1            0.03                     |
            1035r1.702E+00   4.1            0.15                     |
            1022r1.719E+00   4.1            0.41                     |
            1042r1.739E+00   3.8            0.78                     |
           13438 1.760E+00  10.0            0.39                     |
               3 1.800E+00  11.0            0.55                     |
             627 1.820E+00   7.0            1.03                     |
=========================================================================================================
 90*SR     22066 2.010E+00   3.0           -1.06                     |  7.77   1.30 2.058E+00 (I)   1.9
           13438 2.100E+00  10.0            0.20                     |                        (E)   2.2A
              12 2.120E+00  10.0            0.30                     |
             627 3.350E+00  12.0W           2.49                     |
   --------------------------                                        |
   CHAIN     871 2.020E+00   5.0           -0.41                     |
            1035r2.073E+00   3.5            0.25                     |
             246 2.240E+00  10.0            0.83                     |
=========================================================================================================
 91 SR     40554 2.670E+00   5.2            0.90                     |  1.39   0.46 2.571E+00 (I)   3.4A
             892 3.020E+00  25.0            0.60                     |                        (E)   2.3
   --------------------------                                        |
   Y (G)  1029r2.236E+00   5.8                                       |
   --------------------------                                        |
   Y (M) 40554 1.710E+00   3.5                                       |
   --------------------------                                        |
   ZR        871 2.480E+00   5.0           -1.03                     |
   --------------------------                                        |
   CHAIN     246 2.580E+00  10.0            0.04                     |
=========================================================================================================
 92 SR     40554 2.930E+00   5.1                                     |  0.28   0.14 3.031E+00 (I)   4.4A
   --------------------------                                        |
   Y         892 3.490E+00  25.0            0.53                     |                        (E)   1.7
   --------------------------                                        |
   ZR        871 3.020E+00   5.0           -0.16                     |
   --------------------------                                        |
   CHAIN     246 3.020E+00  10.0           -0.04                     |
=========================================================================================================
 93 ZR       871 3.800E+00   5.0           -0.25                     |  0.06   0.06 3.821E+00 (I)   4.5A
   --------------------------                                        |
   CHAIN     246 3.910E+00  10.0            0.25                     |                        (E)   1.1
=========================================================================================================
 94 ZR       871 4.280E+00   5.0           -0.23                     |  0.05   0.05 4.301E+00 (I)   4.5A
   --------------------------                                        |
   CHAIN     246 4.390E+00  10.0            0.23                     |                        (E)   1.0
=========================================================================================================
 95*ZR       761 3.720E+00   8.0W          -2.45                     | 28.91   1.81 4.649E+00 (I)   1.4
```


TABLE 31 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 239PU. (cont)

```
A  EL.     REF.  EXPERIMENTAL      MEAN     R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL  |  INT. EXT./DF   MEAN     DEVIATION
=========================================================================================================
             884 4.350E+00   8.0           -0.88                     |                        (E)   1.9A
           21707 4.480E+00   5.0           -0.79                     |
             880 4.640E+00   5.0           -0.04                     |
             703 4.710E+00   5.0            0.27                     |
             791 4.770E+00   7.0            0.37                     |
           30752 5.110E+00   5.0            1.87                     |
               3 5.300E+00  10.0            1.24                     |
             627 5.550E+00   7.0            2.35                     |
             627 5.680E+00   7.0W           2.49                     |
             346 5.920E+00  15.0            1.43                     |
   --------------------------                                        |
   MO        871 4.710E+00   5.0            0.27                     |
   --------------------------                                        |
   CHAIN  1029r4.316E+00   4.7             -1.74                     |
          1033r4.505E+00   4.7             -0.72                     |
          1042r4.646E+00   4.7             -0.02                     |
          1036r4.680E+00   4.7              0.15                     |
             246 4.780E+00  10.0            0.28                     |
=========================================================================================================
 96 ZR       871 4.840E+00   5.0           -0.48                     |  0.23   0.23 4.889E+00 (I)   4.5A
   --------------------------                                        |
   CHAIN     246 5.110E+00  10.0            0.48                     |                        (E)   2.1
=========================================================================================================
 97*ZR       761 3.780E+00   8.0W          -2.50  0.00    0.00  1.5  | 28.77   1.80 4.893E+00 (I)   1.0
           40554 4.700E+00   7.9           -0.64                     |                        (E)   1.4A
             791 4.860E+00   7.0           -0.22                     |
           21707 5.020E+00   5.0            0.35                     |
             880 5.120E+00   5.0            0.74                     |
             884 5.150E+00   8.0            0.53                     |
             624 5.270E+00   6.0            1.08                     |
             346 5.500E+00  15.0            0.69                     |
             623 5.610E+00   6.0            2.04                     |
             627 5.660E+00   7.0            1.85                     |
   --------------------------                                        |
   NB(G) 40554 4.800E+00   1.9 4.800E+00  0.00          1.06         |
   ::::::::::::::::::::::::::                                        |
   NB(M) 40554 4.430E+00   2.3 4.430E+00  0.00          0.00         |
   --------------------------                                        |
   MO        871 5.330E+00   5.0            0.00          0.00       |
   --------------------------                                        |
   CHAIN  1035r4.482E+00   3.0W4.935E+00 -2.50  1.82    0.48         |
          1022r4.745E+00   3.0             -1.49                     |
          1030r4.917E+00   3.0             -0.14                     |
          1024r4.999E+00   3.0              0.47                     |
             246 5.470E+00  10.0            0.98                     |
=========================================================================================================
 98 MO       871 5.660E+00   5.0           -0.23                     |  0.05   0.05 5.689E+00 (I)   4.5A
   --------------------------                                        |
   CHAIN     246 5.810E+00  10.0            0.23                     |                        (E)   1.0
=========================================================================================================
 99 MO         3 5.500E+00   7.0           -0.98                     |  1.52   0.25 5.858E+00 (I)   2.1A
             627 5.780E+00   5.0           -0.30                     |                        (E)   1.1
             619 5.800E+00   6.0           -0.18                     |
              63 5.900E+00  10.0            0.07                     |
           21707 5.940E+00   3.0            0.64                     |
           13438 6.110E+00  10.0            0.42                     |
             346 6.240E+00  15.0            0.41                     |
=========================================================================================================
100 MO       871 6.640E+00   5.0           -0.16                     |  0.03   0.03 6.663E+00 (I)   4.5A
   --------------------------                                        |
   CHAIN     246 6.760E+00  10.0            0.16                     |                        (E)   0.7
=========================================================================================================
101 CHAIN    246 6.880E+00  10.0                                     |               6.880E+00      10.0
=========================================================================================================
102 CHAIN    246 6.970E+00  10.0                                     |               6.970E+00      10.0
=========================================================================================================
103*RU       761 4.990E+00   8.0W          -2.34                     | 12.41   1.55 6.594E+00 (I)   1.9
              65 5.920E+00  18.0           -0.64                     |                        (E)   2.3A
              63 6.000E+00  11.0           -0.92                     |
           21707 6.580E+00   3.2           -0.08                     |
             880 6.660E+00   6.0            0.17                     |
             703 6.780E+00   5.0            0.59                     |
             884 7.010E+00   8.0            0.76                     |
             791 7.050E+00   7.0            0.96                     |
           30752 7.180E+00   4.0            2.27                     |
=========================================================================================================
104 TC     40554 5.200E+00  12.5                                     |               6.770E+00      10.0
   --------------------------                                        |
   CHAIN     246 6.770E+00  10.0                                     |
=========================================================================================================
105 RU     40554 5.300E+00   2.1            0.24                     |  0.16   0.08 5.289E+00 (I)   1.9A
             892 5.680E+00  25.0            0.28                     |                        (E)   0.5
   --------------------------                                        |
   RH      21707 5.220E+00   4.9           -0.30                     |
=========================================================================================================
106 RU     21707 3.960E+00   6.5           -1.49                     |  2.23   1.11 4.137E+00 (I)   5.5
              65 4.780E+00  17.0            0.82                     |                        (E)   5.8A
```

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN     R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD   COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF   MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
            63 4.800E+00  13.0              1.14                    |
=====================================================================================================================================
109*PD(G)   346 1.800E+00  15.0              0.98                    |   8.80   2.93 1.549E+00 (I)   4.0  >2
    --------------------------                                       |
    CHAIN  1035r1.259E+00   7.0W            -1.53                    |                          (E)   6.8A
           1031r1.753E+00   7.0              2.40                    |
           1023r1.915E+00   7.0W             2.01                    |
=====================================================================================================================================
111*AG      627 3.600E-01   7.0             -1.32                    |  28.82   2.88 3.908E-01 (I)   2.1  >2
            623 4.160E-01   6.0              1.09                    |                          (E)   3.6A
              3 4.500E-01   7.0              1.97                    |
             63 5.500E-01  11.0W             2.49                    |
            624 7.100E-01   6.0W             2.42                    |
    --------------------------                                       |
    CHAIN  1029r3.197E-01   6.4W            -2.24                    |
           1030r3.272E-01   6.4W            -2.27                    |
            246 3.760E-01  10.0             -0.41                    |
           1035r3.922E-01   6.4              0.06                    |
           1041r4.056E-01   6.4              0.61                    |
           1042r4.277E-01   8.0              1.13                    |
=====================================================================================================================================
112*CHAIN  1030r1.153E-01   8.0W            -1.88                    |   9.27   3.09 1.398E-01 (I)   4.3  >2
           1035r1.460E-01   8.0              0.66                    |                          (E)   7.5A
           1024r1.524E-01   8.0              1.26                    |
            246 2.070E-01  10.0W             2.36                    |
=====================================================================================================================================
113 CHAIN   246 1.330E-01  10.0                                      |                 1.330E-01      10.0
=====================================================================================================================================
114 CHAIN   246 9.870E-02  10.0                                      |                 9.870E-02      10.0
=====================================================================================================================================
115*CD(G)   624 2.160E-01  10.0W6.863E-02  2.47  5.27>2  1.72  7.0>2|  29.79   3.72 7.759E-02 (I)   3.5  >2
            627 5.800E-02   7.0W            -2.49                    |                          (E)   6.7A
            623 7.010E-02   6.0              0.51                    |
             63 9.000E-02  10.0W             2.50                    |
    ::::::::::::::::::::::::::                                       |
    CD(M)   624 1.580E-02  85.0 4.877E-03  0.81  0.33    0.01        |
            623 4.870E-03   6.0             -0.09                    |
            627 4.900E-03  20.0              0.02                    |
    --------------------------                                       |
    CHAIN   627 6.300E-02   6.0W9.002E-02 -2.50  3.15>2  5.28        |
             63 9.500E-02  10.0              0.64                    |
              3 9.800E-02   8.0              1.41                    |
=====================================================================================================================================
116 CHAIN   246 6.360E-02  10.0                                      |                 6.360E-02      10.0
=====================================================================================================================================
117 CD(G)   892 1.600E-01  25.0                                      |
=====================================================================================================================================
125*SB      871 1.250E-01  10.0             -1.21                    |   8.48   4.24 1.343E-01 (I)   6.9  >2
    --------------------------                                       |
    CHAIN   246 1.940E-01  10.0W             2.19                    |                          (E)  14.2A
          21155 9.700E-02  20.0             -2.23                    |
=====================================================================================================================================
126 CHAIN 21155 2.000E-01  20.0                                      |                 2.000E-01      20.0
=====================================================================================================================================
127 CHAIN 21155 4.770E-01  20.0                                      |                 4.770E-01      20.0
=====================================================================================================================================
128 SN    40554 4.400E-01  13.6                                      |                 8.170E-01      20.0
    --------------------------                                       |
    CHAIN 21155 8.170E-01  20.0                                      |
=====================================================================================================================================
129 SB    40554 1.300E+00  10.8              0.18                    |   1.00   0.33 1.281E+00 (I)   7.7A
            892 1.300E+00  25.0              0.06                    |                          (E)   4.4
    --------------------------                                       |
    TE(M)    63 4.500E-01  20.0                                      |
    --------------------------                                       |
    CHAIN    63 1.170E+00  15.0             -0.77                    |
          21155 1.510E+00  20.0              0.80                    |
=====================================================================================================================================
130 SB(M) 40554 1.800E+00   7.2                                      |                 2.520E+00      20.0
    --------------------------                                       |
    CHAIN 21155 2.520E+00  20.0                                      |
=====================================================================================================================================
131*TE(M) 40554 2.900E+00  12.1                                      |  10.33   1.48 4.079E+00 (I)   2.3
    --------------------------                                       |
    I     21707 3.630E+00   4.7W            -2.15                    |                          (E)   2.8A
            791 4.080E+00   7.0              0.00                    |
            880 4.100E+00   6.0              0.09                    |
          40554 4.250E+00   5.9              0.75                    |
            703 4.450E+00   5.0              1.87                    |
            699 4.770E+00   8.0              1.88                    |
    --------------------------                                       |
    XE    40877r1.565E+00  20.6                                      |
            871 3.840E+00   5.0                                      |
    --------------------------                                       |
    CHAIN   246 4.060E+00  10.0             -0.05                    |
          21155 4.210E+00  20.0              0.16                    |
=====================================================================================================================================
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TABLE 31 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 239PU. (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN     R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2    WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD   COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF   MEAN     DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
132 TE       63 3.500E+00  29.0                                      |  10.37   2.07 5.143E+00 (I)   4.3  >2
            892 3.580E+00  25.0                                      |                          (E)   6.1A
          21707 4.870E+00   3.3                                      |
            880 4.970E+00   8.0                                      |
            627 5.020E+00   7.0                                      |
            699 5.360E+00   6.0                                      |
          40554 5.460E+00   2.8                                      |
            884 5.640E+00   9.0                                      |
    --------------------------                                       |
    I     40554 5.700E+00  20.0              0.50                    |
    --------------------------                                       |
    XE    40877r3.220E+00  29.0             -2.12                    |
            871 5.270E+00   5.0              0.86                    |
    --------------------------                                       |
    CHAIN  1042r1.584E+00  99.0             -2.29                    |
            246 5.420E+00  10.0              0.56                    |
          21155 5.730E+00  20.0              0.52                    |
=====================================================================================================================================
133 TE(G)   884 6.850E+00   7.0                                      |   0.05   0.03 6.987E+00 (I)   4.4A
    --------------------------                                       |
    TE(M) 40554 3.570E+00   6.7                                      |                          (E)   0.7
    --------------------------                                       |
    I     21707 5.920E+00   6.0                                      |
          40554 6.550E+00   4.6                                      |
    --------------------------                                       |
    CS      871 6.990E+00   5.0              0.02                    |
    --------------------------                                       |
    CHAIN   246 6.910E+00  10.0             -0.12                    |
          21155 7.270E+00  20.0              0.20                    |
=====================================================================================================================================
134 TE    40554 4.700E+00   7.5                                      |   0.40   0.13 7.490E+00 (I)   3.2A
    --------------------------                                       |
    I       892 5.780E+00  25.0                                      |                          (E)   1.2
          40554 6.900E+00  10.1                                      |
    --------------------------                                       |
    XE      871 7.390E+00   5.0             -0.35                    |
          40877r7.670E+00   5.2              0.56                    |
    --------------------------                                       |
    CHAIN   246 7.350E+00   7.0             -0.31                    |
          21155 7.830E+00  20.0              0.22                    |
=====================================================================================================================================
135 I     40554 5.530E+00   5.0                                      |   0.88   0.18 7.515E+00 (I)   2.7A
    --------------------------                                       |
    XE    40554 7.250E+00   5.0             -0.88                    |                          (E)   1.1
          40877r7.644E+00  13.5              0.13                    |
    --------------------------                                       |
    CS      871 7.570E+00   5.0              0.17                    |
    --------------------------                                       |
    CHAIN   246 7.540E+00  10.0              0.03                    |
          21155 7.600E+00  20.0              0.06                    |
           1108 7.730E+00   5.0              0.65                    |
=====================================================================================================================================
136 XE    40877r5.414E+00   5.0                                      |   0.01   0.01 6.947E+00 (I)   8.9A
            871 6.990E+00   5.0                                      |                          (E)   0.8
    --------------------------                                       |
    CS    21707 1.110E-01   6.5                                      |
          13438 1.500E+00  10.0                                      |
    --------------------------                                       |
    CHAIN   246 6.920E+00  10.0             -0.09                    |
          21155 7.060E+00  20.0              0.09                    |
=====================================================================================================================================
137 I     12926 2.000E+00  15.0                                      |  11.73   1.17 6.380E+00 (I)   1.6
    --------------------------                                       |
    XE      947 5.620E+00  10.0                                      |                          (E)   1.7A
    --------------------------                                       |
    CS      627 4.000E+00  40.0             -1.49                    |
          13438 6.150E+00  10.0             -0.38                    |
          22066 6.470E+00   2.9              0.56                    |
            236 6.810E+00  10.0              0.64                    |
    --------------------------                                       |
    CHAIN  1022r3.984E+00  25.1             -2.40                    |
           1029r6.045E+00   4.8             -1.24                    |
           1042r6.181E+00   4.8             -0.72                    |
          21155 6.430E+00  20.0              0.04                    |
           1108 6.540E+00   3.0              0.96                    |
            246 6.580E+00  10.0              0.31                    |
            871 6.610E+00   5.0              0.73                    |
=====================================================================================================================================
138 I       940 9.200E-01  10.0                                      |   3.93   1.31 5.794E+00 (I)   4.0
    --------------------------                                       |
    XE      940 4.560E+00  10.0                                      |                          (E)   4.6A
            947 4.590E+00  10.0                                      |
            940 5.786E+00  10.0                                      |
    --------------------------                                       |
    CS      892 5.160E+00  25.0                                      |
    --------------------------                                       |
    BA      871 6.120E+00   5.0              1.64                    |
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TABLE 31 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CHAIN	246	4.970E+00	10.0		-1.88							
		21155	5.560E+00	20.0		-0.22							
		940	5.810E+00	10.0		0.03							
139	BA	40554	4.950E+00	1.8					0.00	0.00	5.508E+00	(I)	4.9A
		624	5.960E+00	6.0								(E)	0.2
		623	6.160E+00	8.0									
	LA	871	5.510E+00	5.0		0.04							
	CHAIN	21155	5.470E+00	20.0		-0.04							
140	BA	3	4.900E+00	8.0		-0.87			17.37	0.96	5.238E+00	(I)	1.1A
		21707	4.980E+00	4.5		-1.19						(E)	1.1
		619	5.000E+00	6.0		-0.81							
		624	5.070E+00	8.0		-0.42							
		623	5.100E+00	8.0		-0.34							
		880	5.140E+00	6.0		-0.32							
		791	5.250E+00	7.0		0.03							
		627	5.290E+00	7.0		0.14							
		627	5.360E+00	10.0		0.23							
		884	5.390E+00	8.0		0.36							
		63	5.400E+00	9.0		0.34							
		30752	5.730E+00	3.8		2.35							
	CE	871	5.390E+00	5.0		0.58							
	CHAIN	1029r	5.010E+00	3.0		-1.63							
		1041r	5.106E+00	3.0		-0.92							
		1042r	5.207E+00	3.0		-0.21							
		21155	5.320E+00	20.0		0.08							
		246	5.590E+00	10.0		0.63							
		1108	5.620E+00	3.0		2.42							
141	CE	13438	4.230E+00	10.0		-1.52			14.86	1.86	4.856E+00	(I)	1.9
		21707	4.840E+00	4.3		-0.09						(E)	2.6A
		624	5.060E+00	14.0		0.29							
		627	5.590E+00	7.0		1.93							
		627	5.700E+00	7.0		2.17							
		623	5.890E+00	10.0		1.78							
	CHAIN	1042r	4.656E+00	4.2		-1.17							
		1029r	4.761E+00	3.1		-0.83							
		21155	5.020E+00	20.0		0.16							
142	LA	40554	4.150E+00	4.3					0.39	0.13	4.990E+00	(I)	2.5A
	CE	871	4.890E+00	5.0		-0.47						(E)	0.9
	CHAIN	21155	4.680E+00	20.0		-0.33							
		246	4.950E+00	10.0		-0.08							
		1108	5.040E+00	3.0		0.57							
143	CE	40554	3.960E+00	4.5		-1.89			10.25	0.79	4.285E+00	(I)	1.3A
		21707	4.080E+00	3.6		-1.50						(E)	1.1
		884	4.350E+00	6.0		0.26							
		624	4.410E+00	8.0		0.36							
		623	4.600E+00	8.0		0.87							
	ND	871	4.370E+00	6.0		0.33							
		658	4.380E+00	5.0		0.45							
		22066	4.410E+00	2.5		1.31							
		22050r	4.460E+00	10.2		0.39							
	CHAIN	1042r	4.066E+00	4.7		-1.19							
		1029r	4.242E+00	4.7		-0.22							
		21155	4.270E+00	20.0		-0.02							
		246	4.300E+00	10.0		0.04							
		1108	4.420E+00	3.0		1.12							
144*	CE	627	2.700E+00	7.0W		-2.42			20.31	1.19	3.471E+00	(I)	1.2
		171	3.490E+00	5.0		0.11						(E)	1.3A
		13438	3.560E+00	10.0		0.25							
		21707	3.580E+00	4.0		0.80							
		627	3.860E+00	8.0		1.27							
		623	4.180E+00	28.0		0.61							
		624	5.290E+00	20.0		1.72							
	ND	22066	3.490E+00	2.9		0.21							
	CHAIN	1041r	3.269E+00	5.2		-1.23							
		1022r	3.288E+00	5.2		-1.11							
		1039r	3.376E+00	5.2		-0.56							
		1042r	3.393E+00	5.1		-0.46							
		1030r	3.421E+00	5.2		-0.29							
		1029r	3.504E+00	5.1		0.19							

TABLE 31 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		21155	3.580E+00	20.0		0.15							
		246	3.680E+00	10.0		0.57							
		1108	3.690E+00	3.0		2.15							
		871	3.700E+00	5.0		1.27							
145	ND	871	3.010E+00	5.0		-0.24			0.08	0.02	3.043E+00	(I)	2.0A
		22066	3.050E+00	2.6		0.14						(E)	0.3
		658	3.050E+00	5.0		0.05							
		22050r	3.064E+00	10.2		0.07							
	CHAIN	21155	2.970E+00	20.0		-0.12							
		246	3.040E+00	10.0		-0.01							
146	PR	892	9.500E-01	50.0					0.10	0.02	2.532E+00	(I)	1.9A
	ND	658	2.520E+00	5.0		-0.10						(E)	0.3
		22066	2.530E+00	2.4		-0.05							
		22050r	2.536E+00	10.2		0.02							
		871	2.560E+00	5.0		0.24							
	CHAIN	21155	2.440E+00	20.0		-0.19							
		246	2.520E+00	10.0		-0.05							
147*	ND	21707	2.000E+00	4.0		1.00			13.97	0.82	1.923E+00	(I)	1.1A
		13438	2.010E+00	10.0		0.44						(E)	1.0
	SM	871	1.990E+00	5.0		0.69							
	CHAIN	1020r	1.810E+00	4.3		-1.49							
		1020r	1.868E+00	4.3		-0.70							
		1029r	1.870E+00	4.3		-0.67							
		1020r	1.887E+00	4.3		-0.45							
		1025r	1.891E+00	4.3		-0.40							
		1036r	1.903E+00	4.3		-0.25							
		1034r	1.910E+00	3.9		-0.18							
		1026r	1.935E+00	4.3		0.15							
		1032r	1.935E+00	4.3		0.15							
		1041r	1.939E+00	3.9		0.23							
		1039r	1.971E+00	3.9		0.66							
		1040r	2.008E+00	3.9		1.13							
		1042r	2.012E+00	4.3		1.06							
		21155	2.030E+00	20.0		0.27							
		1020r	8.785E-01	33.1W		-2.49							
148	ND	871	1.650E+00	5.0		-0.63			1.17	0.23	1.699E+00	(I)	1.5A
		22066	1.690E+00	2.4		-0.30						(E)	0.7
		22050	1.740E+00	2.9		0.94							
	CHAIN	21155	1.640E+00	20.0		-0.18							
		1108	1.690E+00	3.0		-0.21							
		246	1.730E+00	10.0		0.18							
149	SM	871	1.230E+00	5.0		-1.36			2.03	1.02	1.287E+00	(I)	3.5
	CHAIN	21155	1.250E+00	20.0		-0.15						(E)	3.5A
		246	1.360E+00	5.0		1.42							
150	ND	22066	1.010E+00	3.0		-0.14			1.48	0.25	1.013E+00	(I)	1.7A
		22050r	1.025E+00	10.2		0.11						(E)	0.9
		658	1.060E+00	5.0		0.93							
		871	9.810E-01	5.0		-0.71							
	CHAIN	1108	1.010E+00	3.0		-0.14							
		246	1.060E+00	10.0		0.45							
		21155	9.730E-01	20.0		-0.21							
151	SM	871	7.760E-01	5.0		-1.08			1.22	0.61	8.049E-01	(I)	3.5A
	CHAIN	21155	7.990E-01	20.0		-0.04						(E)	2.7
		246	8.390E-01	5.0		1.09							
152	SM	871	5.890E-01	5.0		-2.09			4.39	2.19	6.299E-01	(I)	3.5 >2
	CHAIN	21155	6.570E-01	20.0		0.21						(E)	5.2A
		246	6.830E-01	5.0		2.03							
153	SM	346	5.080E-01	15.0							5.080E-01		15.0
154	CHAIN	871	2.640E-01	5.0		-2.87			8.24	8.24	2.879E-01	(I)	3.6 >2
		246	3.240E-01	5.0		2.87						(E)	10.2A
156*	EU	627	1.050E-01	15.0		-2.07			17.33	3.47	1.368E-01	(I)	2.1 >2
		623	1.160E-01	10.0		-1.87						(E)	4.0A
		624	1.390E-01	10.0		0.16							
	CHAIN	1029r	1.235E-01	4.2W		-2.08							
		1041r	1.439E-01	3.4		2.00							

TABLE 31 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		1042r	1.572E-01	4.2W		2.27							
157	EU	623	1.020E-01	8.0		-0.51			0.26	0.26	1.055E-01	(I)	4.2A
		624	1.070E-01	5.0		0.51						(E)	2.2
161	CHAIN	1042r	6.777E-03	9.1		-0.44			0.19	0.19	6.951E-03	(I)	6.8A
		1041r	7.200E-03	10.2		0.44						(E)	3.0

TABLE 32 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 240PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
72	ZN	1117	1.160E-04	7.0							1.160E-04		7.0
83	KR	1135	2.270E-01	2.9							2.270E-01		2.9
84	KR	1135	3.900E-01	3.0							3.900E-01		3.0
85	CHAIN	1135	4.370E-01	4.1							4.370E-01		4.1
86	KR	1135	6.300E-01	3.0							6.300E-01		3.0
87	BR	12926	9.200E-01	14.1							8.630E-01		4.2
	RB	1135	8.630E-01	4.2									
88	SR	1135	9.790E-01	4.3							9.790E-01		4.3
89	SR	1117	1.490E+00	11.0							1.490E+00		11.0
90	SR	1117	1.930E+00	7.0		0.84			0.70	0.70	1.824E+00	(I)	2.5A
	CHAIN	1135	1.810E+00	2.7		-0.84						(E)	2.1
91	SR	1117	2.320E+00	7.0		0.54			0.99	0.50	2.238E+00	(I)	2.7A
	Y	1117	2.350E+00	7.0		0.73						(E)	1.9
	ZR	1135	2.200E+00	3.3		-0.99							
92	ZR	1135	2.690E+00	3.3							2.690E+00		3.3
93	Y	1117	3.980E+00	7.0		1.49			2.22	2.22	3.597E+00	(I)	3.0 >2
	ZR	1135	3.530E+00	3.3		-1.49						(E)	4.5A
94	ZR	1135	3.950E+00	3.2							3.950E+00		3.2
95	ZR	1117	4.490E+00	7.0		0.06			0.00	0.00	4.474E+00	(I)	3.1A
	MO	1135	4.470E+00	3.5		-0.06						(E)	0.2
96	ZR	1135	4.760E+00	3.3							4.760E+00		3.3
97	ZR	1117	5.280E+00	7.0		0.19			0.04	0.04	5.216E+00	(I)	3.1A
	MO	1135	5.200E+00	3.5		-0.19						(E)	0.6
98	MO	1135	5.540E+00	3.7							5.540E+00		3.7
99	MO	1117	6.180E+00	7.0							6.180E+00		7.0
100	MO	1135	6.880E+00	3.5							6.880E+00		3.5
101	RU	1135	6.620E+00	5.8							6.620E+00		5.8
102	RU	1135	6.820E+00	5.8							6.820E+00		5.8
103	RU	1117	7.090E+00	7.0							7.090E+00		7.0
104	RU	1135	7.030E+00	5.8							7.030E+00		5.8
105	RH	1117	5.740E+00	7.0							5.740E+00		7.0
106	RU	1117	5.120E+00	7.0		-0.44			0.19	0.19	5.228E+00	(I)	5.0A
		1135	5.350E+00	7.1		0.44						(E)	2.2
109	PD	1117	1.800E+00	9.0							1.800E+00		9.0
111	AG(G)	1117	5.010E-01	7.0							5.010E-01		7.0
112	PD	1117	2.340E-01	7.0							2.340E-01		7.0
113	AG(G)	1117	1.590E-01	14.0							1.590E-01		14.0
115	CD(G)	1117	6.100E-02	7.0	6.100E-02				0.00	0.00	6.504E-02	(I)	6.6A
	CD(M)	1117	4.040E-03	7.0	4.040E-03							(E)	0.0
125	SB	1135	8.900E-02	12.4		0.46			0.21	0.21	8.610E-02	(I)	10.6A
	CHAIN	21155	8.000E-02	20.0		-0.46						(E)	4.9
126	CHAIN	21155	2.150E-01	20.0							2.150E-01		20.0
127	SB	1117	4.470E-01	7.0		0.30			0.09	0.09	4.437E-01	(I)	6.6A
	CHAIN	21155	4.200E-01	20.0		-0.30						(E)	2.0

TABLE 32 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 240PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
128	CHAIN	21155	8.100E-01	20.0							8.100E-01		20.0
129	CHAIN	21155	1.460E+00	20.0							1.460E+00		20.0
130	CHAIN	21155	2.480E+00	20.0							2.480E+00		20.0
131*	TE(M)	1117	7.690E-01	7.0					2.51	1.25	3.568E+00	(I)	2.8
	I	1117	5.200E+00	7.0W		1.73						(E)	3.1A
	XE	1135	3.430E+00	3.0W		-0.11							
	CHAIN	21155	4.050E+00	20.0		0.88							
132	XE	1135	4.630E+00	3.0		-0.91			0.83	0.83	4.645E+00	(I)	3.0A
	CHAIN	21155	5.670E+00	20.0		0.91						(E)	2.7
133	CS	1135	6.970E+00	2.9		0.06			0.00	0.00	6.968E+00	(I)	2.9A
	CHAIN	21155	6.890E+00	20.0		-0.06						(E)	0.2
134	XE	1135	7.150E+00	2.9		-0.54			0.29	0.29	7.164E+00	(I)	2.9A
	CHAIN	21155	8.020E+00	20.0		0.54						(E)	1.5
135	I	1117	7.160E+00	7.0		-0.86			1.26	0.42	7.559E+00	(I)	2.5A
	XE	1117	7.260E+00	8.0		-0.54						(E)	1.6
	CS	1135	7.680E+00	2.8		1.11							
	CHAIN	21155	7.250E+00	20.0		-0.21							
136	XE	1135	6.590E+00	3.0		-0.08			0.01	0.01	6.592E+00	(I)	3.0A
	CHAIN	21155	6.700E+00	20.0		0.08						(E)	0.2
137	I	12926	2.700E+00	14.8					2.50	1.25	6.654E+00	(I)	2.7
	CS	1117	6.060E+00	7.0		-1.54						(E)	3.0A
	CHAIN	21155	6.340E+00	20.0		-0.25							
		1135	6.790E+00	2.9		1.57							
138	BA	1135	6.430E+00	3.8		0.26			0.07	0.07	6.418E+00	(I)	3.7A
	CHAIN	21155	6.110E+00	20.0		-0.26						(E)	1.0
139	LA	1135	5.990E+00	7.3		0.11			0.01	0.01	5.973E+00	(I)	6.9A
	CHAIN	21155	5.850E+00	20.0		-0.11						(E)	0.8
140	BA	1117	5.460E+00	7.0		-0.24			0.08	0.04	5.542E+00	(I)	3.2A
	CE	1135	5.570E+00	3.7		0.27						(E)	0.6
	CHAIN	21155	5.430E+00	20.0		-0.10							
141	CE	1117	4.900E+00	7.0		-0.22			0.05	0.05	4.924E+00	(I)	6.6A
	CHAIN	21155	5.140E+00	20.0		0.22						(E)	1.5
142	CE	1135	4.870E+00	3.7		0.20			0.04	0.04	4.863E+00	(I)	3.6A
	CHAIN	21155	4.680E+00	20.0		-0.20						(E)	0.7
143	CE	1117	4.400E+00	7.0		-0.68			0.74	0.25	4.590E+00	(I)	2.8A
		1135	4.650E+00	3.2		0.78						(E)	1.4
	ND	22050r	4.551E+00	10.5		-0.09							
	CHAIN	21155	4.220E+00	20.0		-0.44							
144	CE	1117	3.970E+00	7.0		-0.28			0.49	0.24	4.040E+00	(I)	2.9A
	CHAIN	21155	3.600E+00	20.0		-0.62						(E)	1.4
		1135	4.070E+00	3.2		0.51							
145	ND	22050r	3.156E+00	10.5		-0.11			0.19	0.09	3.190E+00	(I)	3.0A
		1135	3.200E+00	3.2		0.30						(E)	0.9
	CHAIN	21155	2.950E+00	20.0		-0.41							
146	ND	1135	2.620E+00	3.2		0.03			0.13	0.06	2.619E+00	(I)	3.0A
		22050r	2.661E+00	10.5		0.16						(E)	0.8

TABLE 32 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 240PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	CHAIN	21155	2.460E+00	20.0		-0.33							
147	ND	1117	2.270E+00	7.0		0.44			0.40	0.20	2.212E+00	(I)	4.0A
	SM	1135	2.200E+00	5.0		-0.19						(E)	1.8
	CHAIN	21155	2.010E+00	20.0		-0.52							
148	ND	1135	1.820E+00	3.3		-0.55			0.92	0.46	1.831E+00	(I)	3.1A
		22050	2.000E+00	10.0		0.88						(E)	2.1
	CHAIN	21155	1.690E+00	20.0		-0.42							
149	PM	1117	1.410E+00	7.0		0.65			0.43	0.21	1.351E+00	(I)	3.0A
	SM	1135	1.340E+00	3.3		-0.59						(E)	1.4
	CHAIN	21155	1.330E+00	20.0		-0.08							
150	ND	1135	1.090E+00	3.5		-0.01			0.16	0.08	1.090E+00	(I)	3.3A
		22050r	1.114E+00	10.5		0.22						(E)	0.9
	CHAIN	21155	1.020E+00	20.0		-0.35							
151	PM	1117	8.420E-01	7.0		-0.11			0.02	0.01	8.479E-01	(I)	3.2A
	SM	1135	8.490E-01	3.6		0.07						(E)	0.3
	CHAIN	21155	8.650E-01	20.0		0.10							
152	SM	1135	6.460E-01	5.2		-0.14			0.02	0.02	6.471E-01	(I)	5.0A
	CHAIN	21155	6.650E-01	20.0		0.14						(E)	0.7
153	SM	1117	5.220E-01	7.0							5.220E-01		7.0
154	SM	1135	3.060E-01	5.9							3.060E-01		5.9
155	EU	1117	2.420E-01	7.0							2.420E-01		7.0
156	EU	1117	1.720E-01	7.0							1.720E-01		7.0
157	EU	1117	1.330E-01	12.0							1.330E-01		12.0
159	GD	1117	3.240E-02	7.0							3.240E-02		7.0
161	TB	1117	1.220E-02	7.0							1.220E-02		7.0
169	ER	1117	1.100E-04	15.0							1.100E-04		15.0

TABLE 33 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 241PU.

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
83 KR	1071	1.990E-01	3.0							1.990E-01		3.0
84 KR	1071	3.490E-01	3.0							3.490E-01		3.0
85 CHAIN	1071	3.980E-01	3.0		-1.97			3.88	3.88	4.091E-01	(I)	2.6 >2
	1182	4.480E-01	5.0		1.97						(E)	5.1A
86 KR	1071	5.860E-01	3.0							5.860E-01		3.0
87 BR	12926	7.600E-01	6.6					1.22	1.22	7.662E-01	(I)	2.6
KR	1071	7.540E-01	3.0		-1.10						(E)	2.8A
CHAIN	1182	8.050E-01	5.0		1.10							
88 KR	1071	9.670E-01	3.0							9.670E-01		3.0
90 SR	1071	1.540E+00	3.0		-0.18			0.03	0.03	1.544E+00	(I)	2.6A
CHAIN	1182	1.556E+00	5.0		0.18						(E)	0.5
91 ZR	1071	1.900E+00	3.0		-0.29			0.08	0.08	1.908E+00	(I)	2.6A
CHAIN	1182	1.932E+00	5.0		0.29						(E)	0.7
92 ZR	1071	2.350E+00	3.0		-0.36			0.13	0.13	2.363E+00	(I)	2.6A
CHAIN	1182	2.400E+00	5.0		0.36						(E)	0.9
93 ZR	1071	2.980E+00	3.0		-0.06			0.00	0.00	2.983E+00	(I)	2.6A
CHAIN	1182	2.990E+00	5.0		0.06						(E)	0.1
94 ZR	1071	3.420E+00	3.0		0.57			0.33	0.33	3.389E+00	(I)	2.6A
CHAIN	1182	3.309E+00	5.0		-0.57						(E)	1.5
95 MO	1071	3.930E+00	3.0		0.62			0.39	0.39	3.891E+00	(I)	2.6A
CHAIN	1182	3.791E+00	5.0		-0.62						(E)	1.6
96 ZR	1071	4.400E+00	3.0		0.39			0.15	0.15	4.373E+00	(I)	2.6A
CHAIN	1182	4.301E+00	5.0		-0.39						(E)	1.0
97 MO	1071	4.660E+00	3.0		0.60			0.36	0.36	4.616E+00	(I)	2.6A
CHAIN	1182	4.502E+00	5.0		-0.60						(E)	1.5
98 MO	1071	4.980E+00	3.0		0.58			0.34	0.34	4.934E+00	(I)	2.6A
CHAIN	1182	4.815E+00	5.0		-0.58						(E)	1.5
100 MO	1071	6.290E+00	3.0		0.87			0.75	0.75	6.203E+00	(I)	2.6A
CHAIN	1182	5.984E+00	5.0		-0.87						(E)	2.2
101 RU	1071	6.350E+00	3.0							6.350E+00		3.0
102 RU	1071	6.720E+00	3.0							6.720E+00		3.0
104 RU	1071	7.160E+00	3.0							7.160E+00		3.0
106 RU	1071	6.120E+00	3.0							6.120E+00		3.0
125 SB	1071	5.800E-02	16.0							9.000E-02		20.0
CHAIN	21155	9.000E-02	20.0									
126 CHAIN	21155	1.550E-01	20.0							1.550E-01		20.0
127 CHAIN	21155	3.050E-01	20.0							3.050E-01		20.0
128 CHAIN	21155	5.700E-01	20.0							5.700E-01		20.0
129 CHAIN	21155	1.610E+00	20.0							1.610E+00		20.0
130 CHAIN	21155	2.260E+00	20.0							2.260E+00		20.0
131 XE	1071	3.150E+00	3.0		-0.37			0.65	0.32	3.168E+00	(I)	2.6A
CHAIN	1182	3.194E+00	5.0		0.19						(E)	1.5
	21155	3.740E+00	20.0		0.77							
132 XE	1071	4.590E+00	3.0		-0.15			0.22	0.11	4.601E+00	(I)	2.6A
CHAIN	1182	4.607E+00	5.0		0.03						(E)	0.8

TABLE 33 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 241PU. (cont)

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	21155	5.070E+00	20.0		0.47							
133 CS	1071	6.730E+00	3.0		0.46			0.22	0.11	6.681E+00	(I)	2.6A
CHAIN	1182	6.551E+00	5.0		-0.46						(E)	0.8
	21155	6.680E+00	20.0		0.00							
134 XE	1071	7.800E+00	3.0		0.63			0.45	0.23	7.720E+00	(I)	2.6A
CHAIN	1182	7.506E+00	5.0		-0.67						(E)	1.2
	21155	7.870E+00	20.0		0.10							
135 CS	1071	7.350E+00	3.0		0.38			0.14	0.07	7.305E+00	(I)	2.6A
CHAIN	1182	7.192E+00	5.0		-0.37						(E)	0.7
	21155	7.220E+00	20.0		-0.06							
136 XE	1071	6.970E+00	3.0		0.31			0.10	0.05	6.935E+00	(I)	2.6A
CHAIN	21155	6.800E+00	20.0		-0.10						(E)	0.6
	1182	6.850E+00	5.0		-0.29							
137 I	12926	3.900E+00	12.8					0.15	0.07	6.555E+00	(I)	2.8A
CHAIN	21155	6.300E+00	20.0		-0.20						(E)	0.8
	1182	6.365E+00	10.0		-0.31							
	1071	6.580E+00	3.0		0.38							
138 BA	1071	6.440E+00	3.0		1.21			1.55	0.78	6.311E+00	(I)	2.6A
CHAIN	1182	5.996E+00	5.0		-1.24						(E)	2.2
	21155	6.360E+00	20.0		0.04							
139 LA	1071	6.210E+00	3.0		0.09			0.01	0.01	6.207E+00	(I)	3.0A
CHAIN	21155	6.100E+00	20.0		-0.09						(E)	0.3
140 CE	1071	5.380E+00	3.0		0.23			0.19	0.09	5.361E+00	(I)	2.6A
CHAIN	1182	5.289E+00	5.0		-0.32						(E)	0.8
	21155	5.720E+00	20.0		0.32							
141 CHAIN	21155	4.680E+00	20.0							4.680E+00		20.0
142 CE	1071	4.670E+00	3.0		0.20			0.04	0.02	4.655E+00	(I)	2.6A
CHAIN	21155	4.610E+00	20.0		-0.05						(E)	0.4
	1182	4.617E+00	5.0		-0.19							
143 ND	1071	4.600E+00	3.0		-0.18			0.12	0.04	4.614E+00	(I)	2.5A
	22050r	4.648E+00	10.5		0.07						(E)	0.5
CHAIN	21155	4.390E+00	20.0		-0.26							
	1182	4.663E+00	5.0		0.24							
144 CHAIN	21155	4.000E+00	20.0		-0.24			0.07	0.04	4.188E+00	(I)	2.6A
	1182	4.167E+00	5.0		-0.12						(E)	0.5
	1071	4.200E+00	3.0		0.18							
145 ND	1071	3.270E+00	3.0		-0.27			0.19	0.06	3.285E+00	(I)	2.5A
	22050r	3.306E+00	10.5		0.06						(E)	0.6
CHAIN	21155	3.120E+00	20.0		-0.27							
	1182	3.335E+00	5.0		0.34							
146 ND	1071	2.740E+00	3.0		-0.11			0.06	0.02	2.745E+00	(I)	2.5A
	22050r	2.781E+00	10.5		0.13						(E)	0.4
CHAIN	21155	2.650E+00	20.0		-0.18							
	1182	2.758E+00	5.0		0.11							
147 SM	1071	2.240E+00	3.0		0.22			0.07	0.03	2.232E+00	(I)	2.6A
CHAIN	21155	2.160E+00	20.0		-0.17						(E)	0.5
	1182	2.215E+00	5.0		-0.18							
148 ND	1071	1.910E+00	3.0		-0.98			1.56	0.52	1.946E+00	(I)	2.3A
	22050	2.050E+00	4.9		1.16						(E)	1.6
CHAIN	21155	1.850E+00	20.0		-0.26							
	1182	1.958E+00	5.0		0.14							
149 SM	1071	1.460E+00	3.0		0.19			0.04	0.02	1.456E+00	(I)	2.6A
CHAIN	21155	1.430E+00	20.0		-0.09						(E)	0.4
	1182	1.445E+00	5.0		-0.17							

TABLE 33 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 241PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
150	ND	1071	1.190E+00	3.0		-0.60			0.49	0.16	1.202E+00	(I)	2.5A
		22050r	1.227E+00	10.5		0.20						(E)	1.0
	CHAIN	21155	1.150E+00	20.0		-0.23							
		1182	1.235E+00	5.0		0.61							
151	SM	1071	9.140E-01	3.0		0.17			0.03	0.02	9.116E-01	(I)	2.6A
	CHAIN	21155	8.950E-01	20.0		-0.09						(E)	0.3
		1182	9.060E-01	5.0		-0.14							
152	SM	1071	7.050E-01	3.0		-0.69			0.50	0.25	7.124E-01	(I)	2.6A
	CHAIN	21155	7.100E-01	20.0		-0.02						(E)	1.3
		1182	7.350E-01	5.0		0.71							
154	SM	1071	3.700E-01	3.0		-0.36			0.13	0.13	3.721E-01	(I)	2.6A
	CHAIN	1182	3.780E-01	5.0		0.36						(E)	0.9

TABLE 34 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 242PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
83	KR	1134	1.790E-01	5.0							1.790E-01		5.0
84	KR	1134	3.440E-01	5.0							3.440E-01		5.0
85	KR(M)	40678	3.700E-01	10.8							3.230E-01		20.0
	CHAIN	1134	3.230E-01	20.0									
86	KR	1134	5.420E-01	5.0							5.420E-01		5.0
87	BR	12926	8.000E-01	16.3							6.230E-01		5.0
	KR	40678	1.470E+00	15.6									
	RB	1134	6.230E-01	5.0									
88	KR	40678	7.700E-01	13.0		-0.61			0.37	0.37	8.262E-01	(I)	4.7A
	SR	1134	8.360E-01	5.0		0.61						(E)	2.8
90	CHAIN	1134	1.630E+00	5.0							1.630E+00		5.0
91	SR	40678	1.770E+00	7.9		-0.24			0.06	0.06	1.799E+00	(I)	4.0A
	ZR	1134	1.810E+00	4.7		0.24						(E)	1.0
92	SR	40678	1.930E+00	5.7					0.01	0.01	2.176E+00	(I)	4.3A
	Y	40678	2.150E+00	11.6		-0.11						(E)	0.5
	ZR	1134	2.180E+00	4.6		0.11							
93	Y	40678	3.320E+00	18.1		0.81			0.66	0.66	2.842E+00	(I)	4.5A
	ZR	1134	2.820E+00	4.6		-0.81						(E)	3.6
94	ZR	1134	3.130E+00	4.6							3.130E+00		4.6
95	ZR	40678	3.240E+00	11.7		-0.99			0.98	0.98	3.600E+00	(I)	2.9A
	MO	1134	3.630E+00	3.0		0.99						(E)	2.9
96	ZR	1134	4.290E+00	4.6							4.290E+00		4.6
97	ZR	40678	4.780E+00	6.7		0.96			0.92	0.92	4.496E+00	(I)	2.7A
	MO	1134	4.450E+00	2.9		-0.96						(E)	2.5
98	MO	1134	4.840E+00	2.9							4.840E+00		2.9
100	MO	1134	6.100E+00	3.0							6.100E+00		3.0
101	RU	1134	6.030E+00	7.6							6.030E+00		7.6
102	RU	1134	6.480E+00	7.6							6.480E+00		7.6
104	TC	40678	5.520E+00	10.0							6.840E+00		7.5
	RU	1134	6.840E+00	7.5									
105	RU	40678	6.920E+00	6.2									
	RH	40678	7.480E+00	6.3									
106	RU	1134	5.810E+00	7.6							5.810E+00		7.6
125	SB	1134	5.500E-02	13.0		-0.36			0.13	0.13	5.631E-02	(I)	10.9A
	CHAIN	21155	6.000E-02	20.0		0.36						(E)	3.9
126	CHAIN	21155	1.750E-01	20.0							1.750E-01		20.0
127	CHAIN	21155	3.400E-01	20.0							3.400E-01		20.0
128	SN	40678	6.300E-01	65.1		0.21			0.05	0.05	5.458E-01	(I)	19.1A
	CHAIN	21155	5.400E-01	20.0		-0.21						(E)	4.1
129	SB	40678	2.230E+00	33.2		1.51			2.27	2.27	1.159E+00	(I)	17.7 >2
	CHAIN	21155	1.070E+00	20.0		-1.51						(E)	26.7A
130	SB(M)	40678	7.100E-01	9.9							1.920E+00		20.0
	CHAIN	21155	1.920E+00	20.0									
131	TE(M)	40678	4.100E-01	14.6					0.20	0.10	3.105E+00	(I)	2.6A

TABLE 34 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 242PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	I	40678	3.190E+00	6.6		0.44						(E) 0.8
	XE	1134	3.090E+00	2.8		-0.45						
	CHAIN	21155	3.160E+00	20.0		0.09						
132	I	40678	4.640E+00	8.2		0.38			0.15	0.08	4.503E+00	(I) 2.6A
	XE	1134	4.490E+00	2.8		-0.31						(E) 0.7
	CHAIN	21155	4.410E+00	20.0		-0.11						
133	I	40678	7.040E+00	6.0		0.47			0.31	0.15	6.857E+00	(I) 2.4A
	CS	1134	6.830E+00	2.7		-0.35						(E) 1.0
	CHAIN	21155	6.460E+00	20.0		-0.31						
134	TE	40678	6.750E+00	11.6		-0.75			2.99	1.00	7.321E+00	(I) 2.4A
	I	40678	6.830E+00	5.6		-1.45						(E) 2.4
	XE	1134	7.500E+00	2.7		1.70						
	CHAIN	21155	7.290E+00	20.0		-0.02						
135	I	40678	6.830E+00	5.6		-0.37			0.14	0.05	6.959E+00	(I) 2.2A
	XE	40678	6.990E+00	5.9		0.08						(E) 0.5
	CS	1134	6.980E+00	2.6		0.21						
	CHAIN	21155	7.080E+00	20.0		0.09						
136	XE	1134	6.920E+00	2.7		0.16			0.03	0.03	6.916E+00	(I) 2.7A
	CHAIN	21155	6.700E+00	20.0		-0.16						(E) 0.4
137	I	12926	3.500E+00	45.7					0.00	0.00	6.339E+00	(I) 2.7A
	CHAIN	21155	6.310E+00	20.0		-0.02						(E) 0.1
		1134	6.340E+00	2.7		0.02						
138	BA	1134	6.220E+00	3.1		-0.02			0.00	0.00	6.221E+00	(I) 3.1A
	CHAIN	21155	6.250E+00	20.0		0.02						(E) 0.1
139	BA	40678	5.870E+00	6.3		-0.46			0.21	0.10	6.012E+00	(I) 3.3A
	LA	1134	6.070E+00	4.0		0.42						(E) 1.1
	CHAIN	21155	6.080E+00	20.0		0.06						
140	BA	40678	6.700E+00	10.3		1.53			3.73	1.24	5.673E+00	(I) 2.9
	LA	40678	6.490E+00	12.0		1.07						(E) 3.3A
	CE	1134	5.560E+00	3.2		-1.81						
	CHAIN	21155	5.780E+00	20.0		0.09						
141	CHAIN	21155	5.260E+00	20.0							5.260E+00	20.0
142	LA	40678	4.630E+00	8.0		-0.03			0.00	0.00	4.639E+00	(I) 2.9A
	CE	1134	4.640E+00	3.2		0.02						(E) 0.1
	CHAIN	21155	4.660E+00	20.0		0.02						
143	CE	40678	3.950E+00	7.6					0.01	0.01	4.598E+00	(I) 2.7A
	ND	1134	4.600E+00	2.7		0.11						(E) 0.3
	CHAIN	21155	4.500E+00	20.0		-0.11						
144	CHAIN	21155	4.160E+00	20.0		-0.14			0.02	0.02	4.278E+00	(I) 2.7A
		1134	4.280E+00	2.7		0.14						(E) 0.4
145	ND	1134	3.410E+00	2.7		0.10			0.01	0.01	3.409E+00	(I) 2.7A
	CHAIN	21155	3.340E+00	20.0		-0.10						(E) 0.3
146	ND	1134	2.920E+00	2.7		0.07			0.00	0.00	2.919E+00	(I) 2.7A
	CHAIN	21155	2.880E+00	20.0		-0.07						(E) 0.2

TABLE 34 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 242PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
147	SM	1134	2.380E+00	2.7		0.00			0.00	0.00	2.380E+00	(I) 2.7A
	CHAIN	21155	2.380E+00	20.0		0.00						(E) 0.0
148	ND	1134	2.020E+00	2.8		0.10			0.01	0.01	2.019E+00	(I) 2.8A
	CHAIN	21155	1.980E+00	20.0		-0.10						(E) 0.3
149	ND	40678	1.510E+00	9.3		-0.58			0.35	0.17	1.581E+00	(I) 4.3A
	SM	1134	1.600E+00	5.0		0.46						(E) 1.8
	CHAIN	21155	1.640E+00	20.0		0.19						
150	ND	1134	3.410E+00	20.0		3.08			9.49	9.49	1.319E+00	(I) 4.9 >2
	CHAIN	21155	1.300E+00	5.0		-3.08						(E) 15.1A
151	SM	1134	9.970E-01	5.0		-0.11			0.01	0.01	9.983E-01	(I) 4.9A
	CHAIN	21155	1.020E+00	20.0		0.11						(E) 0.5
152	SM	1134	7.700E-01	5.0		-0.43			0.19	0.19	7.737E-01	(I) 4.9A
	CHAIN	21155	8.450E-01	20.0		0.43						(E) 2.1
154	SM	1134	4.300E-01	5.0							4.300E-01	5.0

TABLE 35 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 241AM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	KR(M)	40678	8.700E-01	20.7								
87	BR	12926	7.600E-01	11.8								
	KR	40678	9.100E-01	25.3								
88	KR	40678	1.800E+00	22.8							1.800E+00	22.8
91	SR	40678	2.130E+00	9.9								
	Y	2003	2.110E+00	5.0								
92	SR	40678	2.890E+00	6.2							2.890E+00	6.2
94	Y	40678	2.710E+00	10.3								
95	ZR	2003	3.710E+00	5.0								
97	ZR	2003	4.500E+00	5.0		-2.74			7.50	7.50	4.892E+00 (I)	3.6 >2
		40678	5.470E+00	5.0		2.74					(E)	9.7A
99	MO	2003	5.360E+00	5.0							5.360E+00	5.0
103	RU	2003	6.420E+00	5.0							6.420E+00	5.0
104	TC	40678	5.350E+00	15.5							5.350E+00	15.5
105	RH	2003	5.290E+00	5.0							5.290E+00	5.0
106	RU	2003	4.760E+00	5.0							4.760E+00	5.0
109	PD	2003	2.300E+00	5.0							2.300E+00	5.0
111	AG(G)	2003	9.870E-01	5.0							9.870E-01	5.0
112	PD	2003	7.440E-01	5.0							7.440E-01	5.0
115	CD(G)	2003	1.500E-01	5.0	1.500E-01				0.00	0.00	1.597E-01 (I)	4.7A
	::::::::::::::::::::::::::											
	CD(M)	2003	9.700E-03	5.0	9.700E-03						(E)	0.0
125	CHAIN	21155	2.000E-01	20.0							2.000E-01	20.0
126	CHAIN	21155	1.000E-01	200.0							1.000E-01	200.0
127	SB	2003	7.710E-01	8.0		5.47			29.96	29.96	5.290E-01 (I)	8.1 >2
	CHAIN	21155	3.000E-01	20.0		-5.47					(E)	44.5A
128	SN	40678	6.700E-01	11.9		1.33			1.77	1.77	6.039E-01 (I)	10.3
	CHAIN	21155	5.000E-01	20.0		-1.33					(E)	13.7A
129	SB	40678	1.760E+00	23.9		1.16			1.34	1.34	1.338E+00 (I)	15.6
	CHAIN	21155	1.200E+00	20.0		-1.16					(E)	18.0A
130	SB(M)	40678	1.110E+00	7.2							2.400E+00	20.0
	CHAIN	21155	2.400E+00	20.0								
131	SB	40678	1.970E+00	15.2					0.35	0.35	4.160E+00 (I)	3.0A
	TE(M)	40678	1.250E+00	23.2							(E)	1.7
	I	2003	4.150E+00	3.0		-0.59						
	CHAIN	21155	4.710E+00	20.0		0.59						
132	TE	2003	3.900E+00	15.0							5.800E+00	20.0
		40678	4.460E+00	13.5								
	CHAIN	21155	5.800E+00	20.0								
133	I	2003	5.610E+00	5.0		-1.18			6.92	2.31	5.857E+00 (I)	3.2 >2
		40678	7.160E+00	7.8		2.47					(E)	4.8A
	XE	2003	5.730E+00	5.0		-0.59						
	CHAIN	21155	6.860E+00	20.0		0.74						
134	TE	40678	5.440E+00	7.3							7.350E+00	20.0
	I	40678	5.300E+00	6.8								
	CHAIN	21155	7.350E+00	20.0								

TABLE 35 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 241AM. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
135	I	40678	5.300E+00	6.8							7.460E+00	20.0
	XE(G)	2003	6.070E+00	4.8								
		40678	6.610E+00	6.0								
	XE(M)	40678	2.210E+00	24.9								
	CHAIN	21155	7.460E+00	20.0								
136	CS	2003	4.520E-01	5.0							6.900E+00	20.0
	CHAIN	21155	6.900E+00	20.0								
137	I	12926	1.800E+00	16.7							6.290E+00	20.0
	CS	2003	5.700E+00	5.0								
	CHAIN	21155	6.290E+00	20.0								
138	CS	40678	4.420E+00	10.9							6.300E+00	20.0
	CHAIN	21155	6.300E+00	20.0								
139	BA	40678	6.720E+00	17.0		0.46			0.21	0.21	6.356E+00 (I)	13.0A
	CHAIN	21155	5.960E+00	20.0		-0.46					(E)	6.0
140	BA	2003	4.820E+00	5.0		-0.74			1.72	0.57	4.923E+00 (I)	4.0A
		40678	4.820E+00	9.3		-0.25					(E)	3.0
	LA	40678	5.620E+00	10.5		1.25						
	CHAIN	21155	5.230E+00	20.0		0.30						
141	CE	2003	4.680E+00	5.0		0.25			0.06	0.06	4.665E+00 (I)	4.9A
	CHAIN	21155	4.450E+00	20.0		-0.25					(E)	1.2
142	LA	40678	4.040E+00	5.9		-0.17			0.03	0.03	4.051E+00 (I)	5.7A
	CHAIN	21155	4.190E+00	20.0		0.17					(E)	1.0
143	CE	40678	3.750E+00	10.7		-0.24			0.08	0.04	3.837E+00 (I)	4.4A
		2003	3.850E+00	5.0		0.14					(E)	0.9
	CHAIN	21155	3.960E+00	20.0		0.16						
144	CE	2003	3.370E+00	5.0		-0.14			0.02	0.02	3.376E+00 (I)	4.9A
	CHAIN	21155	3.470E+00	20.0		0.14					(E)	0.7
145	CHAIN	21155	3.010E+00	20.0							3.010E+00	20.0
146	CHAIN	21155	2.650E+00	20.0							2.650E+00	20.0
147	ND	2003	2.130E+00	5.0		-0.11			0.01	0.01	2.133E+00 (I)	4.9A
	CHAIN	21155	2.180E+00	20.0		0.11					(E)	0.5
148	CHAIN	21155	1.770E+00	20.0							1.770E+00	20.0
149	PM	2003	1.560E+00	5.0		0.55			0.30	0.30	1.548E+00 (I)	4.9A
	CHAIN	21155	1.400E+00	20.0		-0.55					(E)	2.7
150	CHAIN	21155	1.200E+00	20.0							1.200E+00	20.0
151	PM	2003	9.390E-01	5.0		-0.30			0.09	0.09	9.422E-01 (I)	4.9A
	CHAIN	21155	1.000E+00	20.0		0.30					(E)	1.4
152	CHAIN	21155	8.500E-01	20.0							8.500E-01	20.0
153	SM	2003	6.260E-01	5.0							6.260E-01	5.0
155	EU	2003	4.090E-01	5.6							4.090E-01	5.6
156	EU	2003	2.620E-01	5.0							2.620E-01	5.0
159	GD	2003	7.940E-02	5.0							7.940E-02	5.0
160	TB	2003	1.020E-03	5.0								
161	TB	2003	3.740E-02	5.0							3.740E-02	5.0

TABLE 36 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 242AM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	BR	12926	7.100E-01	7.0								
137	I	12926	2.400E+00	12.5								

TABLE 37 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 243CM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
95	ZR	2061	3.220E+00	1.0							3.220E+00	1.0
125	SB	2061	2.150E-01	1.2							2.150E-01	1.2
137	CS	2061	6.760E+00	1.0							6.760E+00	1.0
141	CE	2061	4.840E+00	1.1							4.840E+00	1.1
144	CE	2061	3.700E+00	1.1							3.700E+00	1.1

TABLE 38 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 244CM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
95 ZR	2061	3.000E+00	1.0							3.000E+00	1.0
125 SB	2061	1.800E-01	1.3							1.800E-01	1.3
137 CS	2061	6.680E+00	1.0							6.680E+00	1.0
141 CE	2061	5.960E+00	1.3							5.960E+00	1.3
144 CE	2061	4.020E+00	1.0							4.020E+00	1.0
155 EU	2061	5.330E-01	1.5							5.330E-01	1.5

TABLE 39 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 245CM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87 BR	12926	5.100E-01	7.8								
137 I	12926	2.200E+00	13.6								

TABLE 40 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 246CM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
95	ZR	2061	2.290E+00	1.1							2.290E+00	1.1
125	SB	2061	1.160E-01	1.5							1.160E-01	1.5
137	CS	2061	6.520E+00	1.1							6.520E+00	1.1
141	CE	2061	5.940E+00	1.2							5.940E+00	1.2
144	CE	2061	4.710E+00	1.2							4.710E+00	1.2
155	EU	2061	7.060E-01	1.5							7.060E-01	1.5

TABLE 41 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 248CM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
95	ZR	2061	2.060E+00	1.0							2.060E+00	1.0
125	SB	2061	8.760E-02	1.3							8.760E-02	1.3
137	CS	2061	6.360E+00	1.0							6.360E+00	1.0
141	CE	2061	6.650E+00	1.0							6.650E+00	1.0
144	CE	2061	5.080E+00	1.2							5.080E+00	1.2
155	EU	2061	7.430E-01	1.4							7.430E-01	1.4

TABLE 42 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 249CF.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	BR	12926	3.000E-01	10.0								
137	I	12926	1.250E+00	13.6								

TABLE 43 CHAIN AND CUMULATIVE YIELDS FROM FAST FISSION OF 252CF.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
137	I	12926	3.000E+00	10.0								

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	BR	77500	6.540E+00	8.7							6.540E+00	8.7
91	SR	77500	7.950E+00	5.5							7.950E+00	5.5
92	RB	77500	6.540E+00	6.3							6.540E+00	6.3
97	Y (G)	77500	2.930E+00	5.8		-0.84			0.70	0.70	3.022E+00 (I)	4.3A
	ZR	77500	3.150E+00	6.3		0.84					(E)	3.6
99	NB	77500	1.910E+00	5.8		-1.09			1.19	1.19	1.995E+00 (I)	3.9
	MO	77500	2.080E+00	5.3		1.09					(E)	4.3A
132	SB(G)	77500	1.590E+00	10.1		-2.81			7.89	7.89	1.971E+00 (I)	4.3 >2
	TE	77500	2.120E+00	4.7		2.81					(E)	12.1A
133	TE	77500	3.760E+00	5.9							3.760E+00	5.9
134	TE	77500	4.410E+00	6.8							4.410E+00	6.8
142	BA	77500	8.260E+00	5.2							8.260E+00	5.2
143	LA	77500	7.600E+00	4.2							7.600E+00	4.2

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
125	CHAIN	2099	2.900E-01	20.0							2.900E-01	20.0
127	CHAIN	2099	4.400E-01	10.0							4.400E-01	10.0

TABLE 46 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 232TH.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4 HE PI	2065r	5.097E-02	70.1		-0.86			0.73	0.73	7.181E-02	(I) 36.4A
	2050	9.578E-02	40.0		0.86						(E) 31.1
66 NI	348	1.310E-04	10.0		2.78			7.76	7.76	1.014E-04	(I) 7.6 >2
	756	8.600E-05	11.0		-2.78						(E) 21.1A
67 CU	756	1.520E-04	23.0		-1.56			2.43	2.43	1.795E-04	(I) 16.8 >2
	348	2.600E-04	23.0		1.56						(E) 26.2A
72 ZN	756	1.050E-03	20.0							5.300E-03	15.0
	348	7.000E-03	9.0								
GA	756	5.300E-03	15.0								
73 GA	756	1.520E-02	14.0		2.66			7.10	7.10	1.097E-02	(I) 12.9 >2
	587	7.600E-03	25.0		-2.66						(E) 34.4A
77 GE(G)	587	6.650E-02	30.0					0.00	0.00	1.240E-01	(I) 12.0A
	756	9.500E-02	20.0								(E) 0.0
AS	587	1.240E-01	17.0		0.00						
	756	1.240E-01	17.0		0.00						
78 GE	587	1.050E-01	28.0							2.950E-01	17.0
AS	587	2.950E-01	17.0								
79 AS	587	9.030E-01	16.0							9.030E-01	16.0
81 SE(G)	587	1.150E+00	17.0								
83 BR	353	1.450E+00	22.0								
	354	1.600E+00	19.0								
	621	1.640E+00	6.0								
84 BR	353	1.860E+00	7.0								
	621	2.340E+00	6.0								
85 KR(M)	654	4.180E+00	10.0								
	893	4.300E+00	5.0								
88 KR	654	4.360E+00	15.0		-0.77			1.06	0.53	4.836E+00	(I) 4.3A
	893	4.610E+00	10.0		-0.55						(E) 3.1
	21561	4.970E+00	5.0		0.98						
89 SR	354	5.700E+00	15.0		-0.14			0.02	0.02	5.802E+00	(I) 8.3A
	49	5.850E+00	10.0		0.14						(E) 1.2
90 SR	49	5.540E+00	15.0							5.540E+00	15.0
91 SR	654	4.890E+00	15.0		-1.40			7.55	1.26	5.878E+00	(I) 3.4
	49	5.350E+00	10.0		-1.06						(E) 3.8A
	893	5.620E+00	8.0		-0.64						
	21561	5.900E+00	20.0		0.02						
	353	6.500E+00	5.0		2.43						
Y	354	5.200E+00	15.0		-0.90						
	13238	5.940E+00	10.1		0.11						
92 SR	893	5.050E+00	5.0		-1.51			2.43	0.81	5.324E+00	(I) 3.3A
	49	5.410E+00	10.0		0.17						(E) 3.0
Y	893	5.610E+00	5.0		1.31						
	21561	5.830E+00	20.0		0.44						
93 Y	348	5.300E+00	10.0		-0.42			1.73	0.43	5.505E+00	(I) 3.5A
	893	5.340E+00	5.0		-0.89						(E) 2.3
	13238	5.760E+00	10.4		0.45						
	353	5.800E+00	7.0		0.83						
	21561	6.400E+00	20.0		0.71						
95 ZR	893	4.710E+00	7.0		-1.32			1.74	1.74	4.805E+00	(I) 6.7
	354	6.700E+00	22.0		1.32						(E) 8.8A
97 ZR	912	2.680E+00	15.0		-1.01			9.25	1.85	3.054E+00	(I) 5.2
	621	2.840E+00	15.0		-0.54						(E) 7.1A
	893	3.500E+00	11.0		1.27						
	353	3.800E+00	10.0		2.16						
NB	21561	3.480E+00	20.0		0.63						
CHAIN	950r	2.595E+00	11.1		-1.92						
99 MO	353	1.840E+00	10.0		-0.74			0.56	0.19	1.960E+00	(I) 4.5A
	893	1.980E+00	10.0		0.11						(E) 1.9
	354	2.000E+00	10.0		0.22						
	355	2.000E+00	7.0		0.37						

TABLE 46 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 232TH. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
101 MO	6	1.520E+00	14.0		-0.03			0.00	0.00	1.523E+00	(I) 11.8A
	609	1.531E+00	22.0		0.03						(E) 0.3
102 MO	609	6.700E-01	22.0								
103 RU	893	1.110E+00	10.0		2.29			5.71	1.43	8.858E-01	(I) 5.9
	355	7.500E-01	25.0		-0.75						(E) 7.1A
	357	7.890E-01	18.0		-0.73						
	30785	8.200E-01	10.0		-1.04						
	654	8.900E-01	15.0		0.03						
105 RU	30785	1.130E+00	10.0		1.17			5.71	1.43	1.011E+00	(I) 4.7
	353	1.210E+00	10.0		1.79						(E) 5.7A
	893	9.200E-01	11.0		-1.02						
	355	9.200E-01	12.0		-0.91						
	357	9.500E-01	10.0		-0.74						
106 RU	355	1.070E+00	10.0		-0.69			0.48	0.48	1.120E+00	(I) 7.1A
	30785	1.180E+00	10.0		0.69						(E) 4.9
109*PD	355	1.100E+00	9.0		1.76			7.07	3.53	9.606E-01	(I) 5.4 >2
	357	1.220E+00	12.0		1.94						(E) 10.2A
CHAIN	950r	8.407E-01	8.0W		-1.93						
111 AG	49	1.100E+00	15.0		-0.58			10.99	1.57	1.192E+00	(I) 3.6
	30785	1.110E+00	10.0		-0.80						(E) 4.5A
	357	1.150E+00	10.0		-0.39						
	354	1.270E+00	12.0		0.54						
	355	1.500E+00	11.0		1.93						
	353	1.500E+00	13.0		1.62						
	677	9.900E-01	11.0		-2.01						
CHAIN	950r	1.236E+00	6.3		0.68						
112*PD	30785	1.240E+00	10.0		0.84			21.42	3.06	1.142E+00	(I) 2.9 >2
	357	1.250E+00	7.0		1.39						(E) 5.1A
	654	1.780E+00	15.0		2.42						
AG	677	1.120E+00	8.0		-0.28						
	49	1.280E+00	13.0		0.85						
	353	1.290E+00	5.0W		2.21						
	893	1.670E+00	12.0W		2.49						
CHAIN	950r	8.290E-01	7.5W		-1.89						
113 AG(G)	677	1.040E+00	10.0		-1.61			8.55	1.42	1.193E+00	(I) 3.5
	49	1.070E+00	10.0		-1.25						(E) 4.2A
	357	1.200E+00	7.0		0.09						
	355	1.200E+00	9.0		0.07						
	353	1.260E+00	8.0		0.73						
	30785	1.380E+00	10.0		1.42						
	893	1.590E+00	15.0		1.69						
115 AG	355	1.240E+00	17.0								
	49	1.670E+00	30.0								
	677	8.900E-01	7.0								
CD(G)	677	1.060E+00	8.0								
	354	1.070E+00	12.0								
	357	1.140E+00	7.0								
	30785	1.230E+00	10.0								
	262	1.430E+00	14.0								
	893	1.540E+00	10.0								
117 CD(G)	30785	1.120E+00	10.0								
	893	1.480E+00	10.0								
CD(M)	30785	2.500E-01	10.0								
121 SN(G)	357	8.840E-01	11.0		-0.49			0.24	0.24	9.178E-01	(I) 7.4A
	262	9.500E-01	10.0		0.49						(E) 3.6
125 SN(G)	357	4.940E-01	8.0								
	262	5.510E-01	17.0								
SB	30785	6.800E-01	10.0								
127 SB	893	1.050E+00	10.0		-1.02			1.19	0.40	1.136E+00	(I) 5.5A
	262	1.150E+00	17.0		0.08						(E) 3.5
	654	1.160E+00	10.0		0.25						
	30785	1.220E+00	10.0		0.80						
129 SB	353	1.190E+00	8.0					0.00	0.00	1.776E+00	(I) 14.0A
	30785	1.200E+00	10.0								(E) 0.0
	893	1.450E+00	15.0								

TABLE 46 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 232TH. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
	621	9.010E-01	10.0										
TE(G)	262	1.520E+00	16.0	1.520E+00									
TE(M)	354	7.300E-01	21.0	7.300E-01									
131*I	49	1.540E+00	14.0W		-2.33			10.91	2.73	2.323E+00	(I)	3.1	>2
	654	2.220E+00	10.0		-0.49						(E)	5.2A	
	621	2.370E+00	6.0		0.39								
	893	2.810E+00	7.0W		2.44								
XE	1113	2.380E+00	5.0		0.63								
132*TE	262	2.090E+00	20.0		-2.21			22.32	2.79	2.992E+00	(I)	2.8	>2
	30785	2.300E+00	10.0W		-2.35						(E)	4.8A	
	354	2.800E+00	22.0		-0.32								
	353	3.050E+00	6.0		0.36								
	893	3.490E+00	8.0		1.88								
I	49	3.010E+00	5.0		0.14								
	893	3.210E+00	8.0		0.90								
	654	3.560E+00	10.0		1.65								
	21561	5.840E+00	20.0		2.45								
133*I	49	3.660E+00	5.0W		-1.79			10.32	2.58	4.105E+00	(I)	3.1	>2
	893	4.280E+00	8.0		0.57						(E)	4.9A	
	912	4.440E+00	5.0		2.03								
	654	5.160E+00	10.0		2.13								
	21561	5.280E+00	20.0		1.12								
134 I	21561	4.860E+00	20.0		-0.97			5.17	2.59	5.778E+00	(I)	3.8	>2
	49	6.480E+00	6.0		2.18						(E)	6.1A	
XE	1113	5.500E+00	5.0		-1.67								
135 I	893	4.200E+00	6.0							5.170E+00		6.0	
	49	4.590E+00	6.0										
	21561	5.960E+00	20.0										
CHAIN	912	5.170E+00	6.0										
136 XE	1113	6.400E+00	5.0							6.400E+00		5.0	
138 CS	21561	7.400E+00	20.0										
139 BA	49	5.180E+00	7.0		-1.78			3.18	3.18	5.677E+00	(I)	4.1	>2
	353	6.020E+00	5.0		1.78						(E)	7.3A	
140 BA	753	5.210E+00	10.0		-1.03			1.07	0.53	5.705E+00	(I)	3.6A	
	49	5.790E+00	6.0		0.30						(E)	2.6	
	348	5.800E+00	5.0		0.46								
141 CE	893	5.590E+00	10.0		-0.31			0.11	0.05	5.716E+00	(I)	6.8A	
	13238	5.780E+00	12.1		0.11						(E)	1.6	
	354	5.900E+00	14.0		0.25								
142 LA	893	5.040E+00	8.0		-0.26			0.07	0.07	5.077E+00	(I)	7.4A	
	21561	5.340E+00	20.0		0.26						(E)	2.0	
143 CE	893	4.530E+00	8.0		-1.42			3.14	1.05	4.942E+00	(I)	4.4	
	654	4.770E+00	10.0		-0.41						(E)	4.5A	
	353	5.440E+00	8.0		1.32								
PR	13238	5.260E+00	9.5		0.70								
144 CE	13238	5.120E+00	30.1							5.120E+00		30.1	
145 PR	621	2.310E+00	5.0		-5.36			28.72	28.72	2.449E+00	(I)	4.6	>2
	13238	5.060E+00	9.9		5.36						(E)	24.6A	
147 ND	13238	1.700E+00	7.1		-0.69			0.48	0.24	1.760E+00	(I)	4.7A	
	348	1.810E+00	8.0		0.42						(E)	2.3	
	893	1.820E+00	10.0		0.37								
149 ND	893	9.870E-01	9.0		2.89			8.36	8.36	7.853E-01	(I)	7.0	>2
PM	13238	6.600E-01	10.6		-2.89						(E)	20.2A	
151 PM	13238	1.600E-01	18.8							1.600E-01		18.8	
153 SM	13238	8.500E-02	11.8		-0.07			0.01	0.01	8.553E-02	(I)	8.0A	
	348	8.600E-02	11.0		0.07						(E)	0.6	
156 EU	13238	3.600E-02	19.4							3.600E-02		19.4	
157 EU	13238	1.200E-02	50.0							1.200E-02		50.0	

TABLE 46 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 232TH. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
159 GD	348	4.400E-03	10.0							4.400E-03	10.0
161 TB	348	1.060E-03	5.0							1.060E-03	5.0
166 DY	348	2.900E-05	7.0								
169 ER	348	2.300E-05	35.0								

TABLE 47 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 231PA.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84 BR	645	2.780E+00	5.0							2.780E+00	5.0
91 SR	645	5.560E+00	6.0							5.560E+00	6.0
93 Y	645	6.630E+00	5.0							6.630E+00	5.0
97 ZR	645	4.290E+00	5.0							4.290E+00	5.0
105 RU	645	1.310E+00	7.0							1.310E+00	7.0
112 AG	645	2.050E+00	8.0							2.050E+00	8.0
113 AG	645	2.460E+00	5.0							2.460E+00	5.0
129 SB	645	5.800E-01	5.0							5.800E-01	5.0
131 I	645	3.370E+00	10.0							3.370E+00	10.0
132 TE	645	4.880E+00	5.0		0.47			0.22	0.22	4.797E+00 (I)	3.5A
I	645	4.720E+00	5.0		-0.47					(E)	1.7
133 I	169	5.740E+00	5.0		-1.09			1.19	1.19	5.952E+00 (I)	3.5
XE	169	6.200E+00	5.0		1.09					(E)	3.9A
134 I	169	9.180E+00	5.0							9.180E+00	5.0
135 XE	169	6.500E+00	6.0							6.500E+00	6.0
143 CE	645	3.000E+00	35.0							3.000E+00	35.0

TABLE 48 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 233U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
1 H PI	2065r	9.018E-03	41.4							9.018E-03	41.4
3 H PI	2065r	2.480E-02	22.6							2.480E-02	22.6
4 HE PI	2065r	1.957E-01	10.6							1.957E-01	10.6
66 NI	565r	7.178E-04	13.0							7.178E-04	13.0
67 CU	565r	1.657E-03	13.9							1.657E-03	13.9
72 ZN	565r	1.364E-02	7.1							1.364E-02	7.1
83 BR	71	1.330E+00	7.0							1.330E+00	7.0
84 BR	71	2.020E+00	5.0								
85 KR(M)	934	1.860E+00	19.0								
87 KR	934	3.330E+00	20.0							3.330E+00	20.0
88 KR	934	4.250E+00	7.0							4.250E+00	7.0
89 SR	71	4.820E+00	11.0							4.820E+00	11.0
91 SR	655	4.200E+00	13.0		-1.61			4.99	2.49	5.009E+00 (I)	4.3 >2
	934	4.890E+00	6.0		-0.60					(E)	6.8A
	71	5.650E+00	7.0		1.94						
92 SR	934	4.570E+00	7.0		-2.24			5.04	5.04	5.018E+00 (I)	5.0 >2
	71	5.720E+00	7.0		2.24					(E)	11.2A
93 Y	565r	5.558E+00	13.0		-0.43			0.19	0.19	5.780E+00 (I)	8.8A
	934	6.000E+00	12.0		0.43					(E)	3.8
95 ZR	934	4.990E+00	10.0		-0.32			0.16	0.08	5.133E+00 (I)	4.2A
	21708	5.130E+00	5.5		-0.01					(E)	1.2
	565r	5.257E+00	8.6		0.31						
97 ZR	934	4.850E+00	11.0		0.00			0.00	0.00	4.850E+00 (I)	5.1A
	21708	4.850E+00	5.7		0.00					(E)	0.0
99*MO	62	3.500E+00	9.0		-1.48			7.60	1.90	3.925E+00 (I)	3.3
	71	3.640E+00	6.0		-1.63					(E)	4.5A
	565r	3.841E+00	12.1		-0.19						
	934	4.090E+00	11.0		0.38						
	21708	4.400E+00	5.0W		2.36						
103 RU	62	2.310E+00	13.0		-1.49			2.24	1.12	2.718E+00 (I)	4.6
	934	2.760E+00	12.0		0.14					(E)	4.8A
	21708	2.810E+00	5.3		1.11						
105 RU	71	1.630E+00	12.0		-1.45			2.21	1.11	1.840E+00 (I)	7.1
	934	1.940E+00	14.0		0.42					(E)	7.5A
RH	565r	2.062E+00	11.2		1.16						
106 RU	62	1.520E+00	14.0							1.520E+00	14.0
109 PD	71	1.200E+00	20.0		-1.50			2.26	2.26	1.477E+00 (I)	10.4 >2
	877	1.670E+00	12.0		1.50					(E)	15.7A
111 AG	71	1.210E+00	13.0		-1.03			6.21	2.07	1.349E+00 (I)	6.0 >2
	62	1.220E+00	10.0		-1.40					(E)	8.6A
	877	1.650E+00	10.0		2.09						
	565r	1.657E+00	18.7		1.03						
112*PD	565r	1.769E+00	7.8		1.07			7.27	1.82	1.642E+00 (I)	4.2
	877	1.770E+00	6.0		1.65					(E)	5.6A
	655	1.800E+00	15.0		0.61						
AG	71	1.080E+00	15.0W		-2.22						
	934	1.710E+00	13.0		0.32						
113*AG	71	1.060E+00	11.0W		-1.59			8.73	4.37	1.313E+00 (I)	6.7 >2
	877	1.580E+00	10.0		2.37					(E)	14.0A
	934	1.840E+00	14.0		2.26						
115 AG	71	1.030E+00	13.0		-1.51			8.54	2.14	1.196E+00 (I)	6.4 >2
CD(G)	877	1.450E+00	10.0		2.07					(E)	9.4A
	62	9.800E-01	20.0		-1.20						
CHAIN	62	1.050E+00	20.0		-0.74						
	565r	1.567E+00	15.8		1.58						
121 SN	71	1.060E+00	7.0		-2.14			4.58	4.58	1.091E+00 (I)	6.7 >2
	877	1.880E+00	20.0		2.14					(E)	14.3A

TABLE 48 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 233U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
125 SN	71	1.510E+00	6.0							1.510E+00		6.0
127 SB	655	1.730E+00	15.0		-1.73			3.36	1.12	2.145E+00	(I)	4.6
	934	2.160E+00	11.0		0.07						(E)	4.9A
	71	2.200E+00	6.0		0.62							
	877	2.370E+00	12.0		0.84							
131 I	71	3.400E+00	8.0		-3.36			11.27	11.27	4.078E+00	(I)	4.5 >2
	21708	4.630E+00	5.3		3.36						(E)	15.0A
132 TE	21708	3.140E+00	5.3					0.15	0.15	3.889E+00	(I)	7.1A
	565r	3.234E+00	13.9								(E)	2.8
	934	3.620E+00	7.0									
	62	3.980E+00	9.0									
I	655	3.700E+00	15.0		-0.39							
	71	3.950E+00	8.0		0.39							
133 I	71	4.360E+00	8.0		-0.11			0.01	0.01	4.377E+00	(I)	7.1A
	655	4.440E+00	15.0		0.11						(E)	0.8
134 I	71	4.650E+00	6.0							4.650E+00		6.0
135 I	71	4.960E+00	8.0							4.960E+00		8.0
XE	21708	3.460E+00	7.0									
136 CS	21708	8.370E-01	6.0									
137 CS	62	4.700E+00	11.0		-0.67			0.45	0.45	4.962E+00	(I)	6.8A
	565r	5.156E+00	8.6		0.67						(E)	4.5
139 BA	71	5.790E+00	5.0							5.790E+00		5.0
140 BA	565r	4.054E+00	15.8		-1.12			3.89	1.30	4.696E+00	(I)	6.2
	21708	4.390E+00	10.0		-0.93						(E)	7.0A
	877	5.320E+00	11.0		1.23							
	655	5.650E+00	15.0		1.20							
141 CE	21708	4.240E+00	6.1		-1.26			2.85	0.95	4.489E+00	(I)	3.7A
	565r	4.245E+00	11.2		-0.55						(E)	3.6
	934	4.710E+00	6.0		0.97							
	62	5.000E+00	10.0		1.08							
143 CE	934	3.140E+00	6.0		-0.29			0.27	0.14	3.183E+00	(I)	3.7A
	21708	3.170E+00	5.5		-0.10						(E)	1.3
	565r	3.315E+00	8.6		0.51							
144 CE	21708	2.430E+00	8.0									
	565r	2.516E+00	13.0									
147 ND	934	1.130E+00	20.0		-0.61			1.12	0.56	1.261E+00	(I)	5.0A
	565r	1.203E+00	8.6		-0.71						(E)	3.8
	21708	1.320E+00	6.5		1.02							
151 PM	934	5.200E-01	17.0							5.200E-01		17.0
153 SM	565r	1.455E-01	11.2							1.455E-01		11.2
156 EU	565r	4.447E-02	7.8							4.447E-02		7.8
159 GD	565r	1.082E-02	13.0							1.082E-02		13.0
161 TB	565r	4.751E-03	8.6							4.751E-03		8.6
166 DY	565r	2.426E-04	15.8							2.426E-04		15.8
169 ER	565r	8.492E-05	8.6							8.492E-05		8.6
172 ER	565r	1.829E-05	9.5							1.829E-05		9.5
175 YB	565r	1.921E-06	16.8							1.921E-06		16.8

TABLE 49 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1 H PI	2065r	6.335E-03	40.4							6.335E-03		40.4
3 H PI	2065r	1.742E-02	20.7							1.742E-02		20.7
4 HE PI	2050	1.456E-01	40.0		-0.37			0.29	0.15	1.667E-01	(I)	5.3A
	2065r	1.614E-01	10.6		-0.36						(E)	2.0
	2052r	1.694E-01	6.2		0.48							
66 NI	349	2.800E-04	10.0		-2.46			6.04	6.04	3.195E-04	(I)	7.2 >2
	403	4.000E-04	10.0		2.46						(E)	17.6A
67 CU	349	6.500E-04	14.0							6.500E-04		14.0
72*ZN	13091r	1.785E-03	34.8W		-2.49			5.27	2.63	5.653E-03	(I)	4.7 >2
	349	6.300E-03	5.0W		0.65						(E)	7.6A
	403	7.800E-03	10.0W		0.97							
73 GA	403	1.150E-02	10.0							1.150E-02		10.0
77 AS	403	6.800E-02	10.0							6.800E-02		10.0
81 SE(G)	403	3.000E-01	10.0									
SE(M)	403	5.100E-02	10.0									
83 BR	403	8.300E-01	10.0							1.154E+00		4.8
CHAIN	987r	1.154E+00	4.8									
84 BR(G)	403	1.030E+00	10.0									
85 KR(M)	943	1.840E+00	10.0									
87 KR	943	2.670E+00	10.0							2.670E+00		10.0
88 KR	943	3.760E+00	10.0							3.760E+00		10.0
89 KR	943	4.040E+00	10.0		-0.15			6.80	0.97	4.099E+00	(I)	1.7A
SR	13091r	3.805E+00	6.1		-1.33						(E)	1.6
	102r	3.962E+00	3.6		-1.10							
	162	4.200E+00	10.0		0.24							
	203r	4.268E+00	3.6		1.24							
	280	4.450E+00	10.0		0.80							
CHAIN	985r	3.987E+00	3.7		-0.86							
	987r	4.307E+00	3.7		1.46							
90 SR	5	4.400E+00	5.0		-0.65			1.02	0.51	4.527E+00	(I)	2.2A
CHAIN	988r	4.477E+00	3.5		-0.41						(E)	1.6
	986r	4.652E+00	3.5		0.97							
91 SR	203r	4.613E+00	3.9		-0.03			1.60	0.53	4.618E+00	(I)	2.5A
	987r	4.656E+00	4.2		0.24						(E)	1.8
	280	4.960E+00	8.0		0.90							
Y (G)	13091r	4.348E+00	6.9		-0.98							
93 Y	349	5.400E+00	10.0							5.400E+00		10.0
95 ZR	162	4.300E+00	10.0		-2.03			5.13	1.71	5.129E+00	(I)	2.6
	280	5.010E+00	5.0		-0.56						(E)	3.4A
	13091r	5.267E+00	5.8		0.50							
	21708	5.330E+00	3.8		1.32							
97*ZR	162	4.400E+00	10.0		-1.91			8.60	2.15	5.195E+00	(I)	2.6 >2
	21708	5.030E+00	5.0		-0.79						(E)	3.8A
	13091r	5.032E+00	6.1		-0.60							
	280	6.000E+00	5.0W		2.32							
CHAIN	987r	5.151E+00	5.7		-0.17							
99 MO	617	5.010E+00	3.0		-0.61			1.88	0.63	5.072E+00	(I)	2.2A
	21708	5.050E+00	3.8		-0.14						(E)	1.7
	280	5.200E+00	10.0		0.25							
	162	5.650E+00	8.0		1.32							
103 RU	21708	3.080E+00	4.1		-1.71			3.44	1.72	3.208E+00	(I)	3.2
	162	3.250E+00	10.0		0.14						(E)	4.2A
CHAIN	987r	3.524E+00	5.8		1.79							
105*RU	280	1.450E+00	7.0W		-2.43			8.82	4.41	1.783E+00	(I)	3.4 >2
	162	2.950E+00	10.0W		2.49						(E)	7.1A
CHAIN	987r	1.895E+00	4.1W		0.66							

TABLE 49 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
106 RU	162	2.300E+00 12.0		2.27			5.16	5.16	1.695E+00	(I) 4.3 >2
CHAIN	987r	1.650E+00 4.6		-2.27						(E) 9.7A
109 PD	203r	1.436E+00 9.2		1.48			2.24	1.12	1.265E+00	(I) 5.1
PD(G)	13091r	1.188E+00 12.0		-0.60						(E) 5.4A
CHAIN	987r	1.220E+00 7.0		-0.78						
111 AG	162	1.050E+00 10.0		-1.52			4.70	0.94	1.205E+00	(I) 2.0A
	280	1.140E+00 5.0		-1.26						(E) 2.0
	102r	1.216E+00 4.2		0.25						
	203r	1.248E+00 4.2		0.93						
CHAIN	985r	1.216E+00 5.0		0.20						
	987r	1.247E+00 5.0		0.74						
112*PD	13091r	6.374E-01 13.3		-2.29			7.15	3.57	7.962E-01	(I) 5.3 >2
	203r	6.995E-01 12.3		-1.36						(E) 10.1A
CHAIN	987r	9.215E-01 6.5W		1.91						
113 AG	280	1.140E+00 10.0							1.140E+00	10.0
115*CD(G)	280	1.610E+00 5.0W	9.126E-01	2.26	1.44		6.18	0.88	9.778E-01	(I) 4.1A
	102r	8.783E-01 6.9		-1.01						(E) 3.8
	13091r	8.870E-01 8.2		-0.51						
	162	9.500E-01 10.0		0.48						
	331	9.800E-01 15.0		0.49						
CD(M)	162	6.000E-02 15.0	6.514E-02	-0.70	0.15					
	102r	6.550E-02 9.1		0.10						
	203r	6.715E-02 9.1		0.54						
	331	6.900E-05 15.0W		-0.01						
121 AG	12813	1.520E-01 122.0					0.00	0.00	1.141E+00	(I) 9.7A
SN(G)	162	1.100E+00 10.0	1.100E+00							(E) 0.0
SN(M)	203r	1.809E-01 29.8	1.809E-01							
123 IN	12813	1.130E+00 21.2								
125 SN(M)	203r	1.112E+00 6.5								
126 CHAIN	987r	1.873E+00 10.2							1.873E+00	10.2
127 SB	21708	1.760E+00 7.5							2.056E+00	5.6
	203r	1.900E+00 7.1								
CHAIN	987r	2.056E+00 5.6								
129 SB	203r	1.330E+00 12.5							1.582E+00	5.3
TE	162	1.580E+00 8.0								
CHAIN	987r	1.582E+00 5.3								
131 I	203r	3.796E+00 4.5		-1.50			7.18	1.80	4.024E+00	(I) 2.0
	395r	4.127E+00 5.8		0.46						(E) 2.7A
	280	4.290E+00 6.0		1.09						
	21708	4.320E+00 4.0		1.94						
CHAIN	987r	3.872E+00 3.5		-1.36						
132*TE	203r	4.134E+00 6.0		-1.08			15.15	2.52	4.384E+00	(I) 2.0 >2
	21708	4.140E+00 5.0		-1.31						(E) 3.2A
	162	4.200E+00 7.0		-0.66						
	395r	4.211E+00 6.0		-0.73						
I	395r	4.832E+00 3.9W		2.42						
XE	1111	4.920E+00 5.0		2.34						
CHAIN	987r	4.030E+00 5.7		-1.67						
133 I	21708	5.430E+00 5.0							5.430E+00	5.0
134 I	395r	3.640E+00 15.5							5.580E+00	5.0
XE	1111	5.580E+00 5.0								
135 XE	21708	4.970E+00 6.4								
136 XE	1111	5.080E+00 5.0							5.080E+00	5.0

TABLE 49 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 235U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
CS	21708	2.160E-01 9.0								
137 XE	943	4.450E+00 10.0		-1.96			3.85	3.85	4.976E+00	(I) 7.1 >2
CS	162	5.900E+00 10.0		1.96						(E) 14.0A
138 XE	943	3.670E+00 10.0								
139 CHAIN	987r	4.701E+00 4.1							4.701E+00	4.1
140*BA	162	4.200E+00 7.0		-0.82			13.86	1.54	4.435E+00	(I) 1.2
	349	4.250E+00 5.0		-0.91						(E) 1.5A
	280	4.450E+00 6.0		0.06						
	203r	4.530E+00 4.2		0.53						
	102r	4.586E+00 3.1		1.19						
	21708	4.610E+00 4.2		0.95						
	13091r	5.037E+00 5.8		2.11						
CHAIN	987r	4.051E+00 2.9W		-2.17						
	987r	4.524E+00 3.1		0.70						
	985r	4.596E+00 3.1		1.24						
141 CE	162	3.800E+00 10.0		-1.73			2.99	1.49	4.409E+00	(I) 3.2
	21708	4.500E+00 4.0		0.82						(E) 3.9A
	13091r	4.527E+00 6.4		0.47						
143 CE	21708	3.750E+00 4.1							3.867E+00	2.9
	203r	3.758E+00 4.3								
	102r	3.795E+00 3.9								
CHAIN	985r	3.867E+00 2.9								
144*CE	203r	2.978E+00 5.1		-1.15			7.69	1.54	3.148E+00	(I) 0.9
	102r	3.087E+00 4.2		-0.49						(E) 1.1A
	21708	3.150E+00 1.0		0.13						
	13091r	3.843E+00 6.5W		2.49						
CHAIN	987r	3.124E+00 5.2		-0.15						
	985r	3.127E+00 5.2		-0.13						
147 ND	21708	1.620E+00 4.8		-0.28			1.16	0.29	1.639E+00	(I) 2.2A
	349	1.640E+00 7.0		0.01						(E) 1.2
	102r	1.665E+00 4.0		0.45						
	13091r	1.722E+00 6.3		0.80						
CHAIN	985r	1.601E+00 3.9		-0.73						
148*CHAIN	1183r	1.175E+00 5.5W		2.35			9.89	3.30	5.861E-01	(I) 2.9 >2
	1183r	4.327E-01 5.5W		-1.17						(E) 5.3A
	1183r	6.032E-01 5.5		1.50						
	1183r	8.162E-01 5.5W		1.75						
153 SM	349	2.200E-01 10.0		-0.50			0.25	0.25	2.287E-01	(I) 5.9A
	13091r	2.338E-01 7.2		0.50						(E) 2.9
156 EU	203r	5.111E-02 7.1		-0.34			1.54	0.39	5.228E-02	(I) 2.1A
	102r	5.126E-02 5.8		-0.37						(E) 1.3
	13091r	5.390E-02 7.5		0.41						
CHAIN	987r	5.116E-02 3.5		-0.80						
	985r	5.391E-02 3.5		1.07						
159 GD	349	1.270E-02 10.0							1.270E-02	10.0
161 TB	102r	4.450E-03 9.2		-1.56			8.39	2.80	4.979E-03	(I) 4.6 >2
	349	5.600E-03 7.0		1.96						(E) 7.7A
	13091r	6.318E-03 13.2		1.67						
CHAIN	985r	4.403E-03 10.2		-1.48						
166 DY	349	2.800E-04 7.0							2.800E-04	7.0
169 ER	349	8.000E-05 8.0							8.000E-05	8.0
172 ER	349	1.800E-05 11.0							1.800E-05	11.0

TABLE 50 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	R VALUE	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1 H PI	2065r	2.001E-03	100.5				2.001E-03		100.5
3 H PI	2065r	6.499E-03	22.1				6.499E-03		22.1
4 HE PI	2065r	1.033E-01	10.6	2.22	5.95	1.98	8.226E-02	(I)	6.7
	2050	1.258E-01	40.0	0.87				(E)	9.5A
	2053	7.407E-02	15.0	-0.85					
	2052r	7.442E-02	10.6	-1.38					
66 NI	350	8.500E-05	11.0				8.500E-05		11.0
67 CU	350	1.400E-04	29.0				1.400E-04		29.0
72 ZN	350	3.000E-03	14.0				3.000E-03		14.0
73 GA	586	5.400E-03	19.0				5.400E-03		19.0
77 GE	586	3.100E-02	17.0	-0.24	0.23	0.11	3.204E-02	(I)	9.4A
AS	586	3.100E-02	17.0	-0.24				(E)	3.2
	371	3.400E-02	15.0	0.47					
78 GE	586	4.100E-02	13.0	-0.08	0.01	0.01	4.120E-02	(I)	11.5A
AS	586	4.200E-02	25.0	0.08				(E)	1.0
79 AS	586	1.840E-01	17.0						
81 SE	586	3.400E-01	15.0				3.400E-01		15.0
83 SE	30639	2.600E-01	20.0		0.93	0.31	7.196E-01	(I)	4.1A
BR	352	6.800E-01	8.0	-0.87				(E)	2.3
	895	7.160E-01	9.0	-0.06					
CHAIN	30639	7.220E-01	19.9	0.02					
	363	7.480E-01	6.0	0.85					
84 BR	895	1.120E+00	8.0	-1.75	3.54	1.77	1.257E+00	(I)	3.5
	352	1.330E+00	5.0	1.46				(E)	4.6A
CHAIN	363	1.260E+00	6.0	0.05					
85 KR(M)	30639	1.020E+00	5.0		1.41	1.41	1.057E+00	(I)	3.8
	917	1.430E+00	21.0					(E)	4.6A
	656	9.050E-01	10.0						
	945	9.700E-01	10.0						
	933	9.800E-01	7.0						
CHAIN	30639	1.020E+00	5.0	-1.19					
	363	1.120E+00	6.0	1.19					
86 CHAIN	363	1.760E+00	6.0				1.760E+00		6.0
87 KR	945	1.590E+00	10.0	-1.59	5.32	1.33	1.827E+00	(I)	3.1
	933	1.630E+00	10.0	-1.29				(E)	3.6A
	30639	1.890E+00	5.0	0.84					
	917	2.120E+00	16.0	0.88					
CHAIN	30639	1.890E+00	5.0	0.84					
88*KR	933	1.950E+00	8.0	-0.46	7.29	2.43	2.008E+00	(I)	3.4 >2
	945	2.200E+00	10.0	0.96				(E)	5.4A
	917	2.720E+00	7.0W	2.33					
CHAIN	30639	1.830E+00	5.0W	-1.53					
89*KR	945	2.770E+00	10.0	0.01	20.94	1.90	2.768E+00	(I)	2.4
	30639	3.070E+00	20.8	0.48				(E)	3.3A
RB	30639	2.810E+00	5.0	0.34					
SR	48	2.130E+00	10.0W	-2.40					
	79	2.300E+00	8.0W	-2.43					
	204r	3.031E+00	10.4	0.86					
	281	3.150E+00	10.0	1.24					
	895	3.260E+00	11.0	1.40					
	164	3.300E+00	11.0	1.49					
CHAIN	30639	2.830E+00	5.0	0.50					
	1016r	2.997E+00	10.2	0.77					
	1019r	3.362E+00	10.2	1.77					
90 SR	8	3.060E+00	6.0	-1.19	2.99	1.00	3.266E+00	(I)	1.9A
	48	3.620E+00	10.0	0.99				(E)	1.9
CHAIN	1017r	3.226E+00	2.8	-0.58					

TABLE 50 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 238U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	R VALUE	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	1018r	3.339E+00	2.8	1.01					
91*SR	48	2.770E+00	10.0W	-2.46	44.38	2.11	3.687E+00	(I)	1.4 >2
	30639	3.340E+00	5.4	-2.03				(E)	2.1A
	30639	3.360E+00	17.6	-0.56					
	795	3.470E+00	16.0	-0.39					
	656	3.480E+00	10.0	-0.60					
	917	3.570E+00	6.0	-0.57					
	776	3.620E+00	7.0	-0.27					
	673	3.630E+00	8.0	-0.20					
	30639	3.660E+00	10.9	-0.07					
	281	3.720E+00	8.0	0.11					
	30639	3.760E+00	5.0	0.41					
	30639	3.980E+00	5.0	1.54					
	30639	4.220E+00	5.0W	2.48					
	895	4.240E+00	9.0	1.47					
	30639	4.370E+00	5.3W	2.45					
	30639	4.380E+00	5.0W	2.43					
	30639	4.390E+00	7.7	2.10					
Y	79	2.780E+00	6.0W	-2.30					
	776	3.580E+00	7.0	-0.44					
	933	3.600E+00	7.0	-0.35					
CHAIN	363	3.660E+00	8.0	-0.09					
	30639	3.980E+00	5.0	1.54					
92 SR	30639	3.520E+00	5.4	-1.43	3.07	0.34	3.782E+00	(I)	1.4A
	933	3.640E+00	8.0	-0.49				(E)	0.8
	30639	3.780E+00	2.6	-0.02					
	917	3.850E+00	7.0	0.26					
	30639	3.860E+00	3.1	0.73					
	776	3.930E+00	11.0	0.35					
	895	4.020E+00	11.0	0.54					
Y	933	3.800E+00	8.0	0.06					
	917	3.830E+00	7.0	0.18					
CHAIN	30639	3.780E+00	2.6	-0.02					
93 SR	795	2.510E+00	28.0		4.15	0.59	4.320E+00	(I)	2.7A
	30639	4.100E+00	9.8					(E)	2.1
Y	30639	4.100E+00	9.8	-0.57					
	352	4.110E+00	5.0	-1.23					
	917	4.340E+00	8.0	0.06					
	350	4.400E+00	9.0	0.21					
	776	4.460E+00	9.0	0.36					
	933	4.480E+00	9.0	0.41					
	895	4.740E+00	6.0	1.61					
CHAIN	30639	4.100E+00	9.8	-0.57					
94 Y	895	4.950E+00	13.0				4.950E+00		13.0
95 ZR	164	4.600E+00	7.0	-0.31	20.16	1.55	4.697E+00	(I)	1.0
	30639	4.610E+00	2.8	-0.72				(E)	1.2A
	30639	4.630E+00	2.8	-0.56					
	30639	4.640E+00	1.9	-0.75					
	917	4.700E+00	6.0	0.01					
	776	4.700E+00	8.0	0.01					
	933	4.720E+00	6.0	0.08					
	21708	4.970E+00	4.2	1.34					
	30639	5.070E+00	9.7	0.76					
	281	5.330E+00	10.0	1.19					
	895	5.330E+00	6.0	2.00					
	649	6.100E+00	9.8	2.34					
	649	6.130E+00	10.0	2.34					
CHAIN	30639	4.640E+00	1.9	-0.75					
97*ZR	649	4.700E+00	10.6	-1.01	21.93	0.95	5.202E+00	(I)	0.8A
	649	4.720E+00	10.0	-1.03				(E)	0.8
	795	4.820E+00	11.0	-0.72					
	164	4.900E+00	8.0	-0.78					
	917	4.920E+00	7.0	-0.83					
	30639	5.020E+00	5.0	-0.74					
	776	5.030E+00	10.0	-0.34					
	933	5.050E+00	10.0	-0.30					
	30639	5.060E+00	3.2	-0.93					
	30639	5.090E+00	2.8	-0.85					
	30639	5.120E+00	1.8	-1.05					
	21708	5.230E+00	4.8	0.11					
	30639	5.290E+00	4.9	0.34					
	204r	5.356E+00	2.9	1.01					
	30639	5.410E+00	5.4	0.72					
	895	5.680E+00	10.0	0.84					

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	281	5.840E+00	10.0		1.09							
	352	5.970E+00	7.0		1.85							
NB	776	4.770E+00	10.0		-0.91							
	933	4.790E+00	9.0		-0.96							
CHAIN	30639	5.120E+00	1.8		-1.05							
	363	5.270E+00	8.0		0.16							
	915	5.450E+00	7.0		0.65							
	1019r	5.684E+00	2.2W		2.33							
99 MO	776	4.940E+00	10.0		-1.73			14.87	0.74	5.792E+00	(I)	0.7A
	933	4.960E+00	10.0		-1.68						(E)	0.6
	917	5.530E+00	6.0		-0.80							
	950r	5.557E+00	5.2		-0.83							
	79	5.580E+00	10.0		-0.38							
	610	5.600E+00	5.0		-0.69							
	795	5.610E+00	15.0		-0.22							
	30639	5.640E+00	3.0		-0.92							
	321	5.680E+00	10.0		-0.20							
	21708	5.750E+00	3.9		-0.19							
	30639	5.760E+00	2.1		-0.29							
	30639	5.800E+00	7.8		0.02							
	30639	5.820E+00	4.5		0.11							
	30768	5.840E+00	5.0		0.17							
	618	5.860E+00	1.0		1.63							
	30639	5.910E+00	20.6		0.10							
	30639	6.070E+00	5.4		0.85							
	352	6.470E+00	7.0		1.50							
	164	6.500E+00	10.0		1.09							
CHAIN	363	5.500E+00	7.0		-0.76							
	30639	5.760E+00	2.1		-0.29							
100 MO	281	5.670E+00	10.0									
TC	917	4.880E+00	8.0									
101 MO	30639	5.480E+00	13.3		-0.44			2.53	0.36	5.801E+00	(I)	1.8A
	30639	5.710E+00	4.7		-0.36						(E)	1.1
	30639	5.760E+00	3.8		-0.21							
	895	5.980E+00	8.0		0.38							
	610	6.500E+00	8.0		1.37							
TC	30639	5.760E+00	3.8		-0.21							
	30639	5.970E+00	6.9		0.43							
CHAIN	30639	5.760E+00	3.8		-0.21							
102 MO	610	2.920E+00	40.0		-1.26			2.58	1.29	4.334E+00	(I)	7.1
	281	4.070E+00	12.0		-0.70						(E)	8.1A
	895	4.720E+00	9.0		1.33							
103*RU	164	3.000E+00	10.0W		-2.43			23.82	1.99	4.488E+00	(I)	1.3
	359	3.000E+00	10.0W		-2.43						(E)	1.8A
	656	4.470E+00	10.0		-0.04							
	30639	4.510E+00	2.9		0.19							
	776	4.520E+00	8.0		0.09							
	30639	4.530E+00	2.6		0.40							
	933	4.540E+00	8.0		0.15							
	30639	4.630E+00	5.6		0.56							
	917	4.670E+00	6.0		0.66							
	21708	4.740E+00	4.0		1.40							
	895	5.160E+00	6.0		2.21							
CHAIN	30639	4.530E+00	2.6		0.40							
	363	5.150E+00	6.0		2.18							
104 TC	30639	3.590E+00	4.2		0.00			0.00	0.00	3.590E+00	(I)	3.0A
CHAIN	30639	3.590E+00	4.2		0.00						(E)	0.0
105*RU	281	2.230E+00	10.0W		-2.46			29.64	1.56	3.155E+00	(I)	1.1
	352	2.650E+00	7.0W		-2.48						(E)	1.4A
	895	2.970E+00	13.0		-0.48							
	30639	3.010E+00	4.3		-1.16							
	359	3.070E+00	7.0		-0.40							
	30639	3.120E+00	2.6		-0.50							
	164	3.300E+00	9.0		0.49							
	917	3.420E+00	18.0		0.43							
	30639	3.450E+00	5.5		1.58							
	776	3.550E+00	9.0		1.24							
	933	3.570E+00	9.0		1.30							
	673	3.730E+00	12.0		1.29							
RH	30639	2.990E+00	6.3		-0.89							
	30639	3.120E+00	2.6		-0.50							

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
	30639	3.150E+00	4.4		-0.04							
	776	3.200E+00	11.0		0.13							
	933	3.210E+00	12.0		0.14							
	21708	3.400E+00	6.0		1.22							
CHAIN	30639	3.120E+00	2.6		-0.50							
	1019r	3.862E+00	3.5W		2.37							
106 RU	164	2.400E+00	13.0		-0.42			0.18	0.09	2.525E+00	(I)	4.0A
	30639	2.540E+00	5.9		0.13						(E)	1.2
CHAIN	30639	2.540E+00	5.9		0.13							
107 RH	673	1.760E+00	8.0							1.760E+00		8.0
109*PD	352	1.200E+00	6.0W		-1.92			8.28	2.76	1.327E+00	(I)	4.2 >2
	895	1.280E+00	16.0		-0.24						(E)	7.0A
	673	1.570E+00	8.0		2.25							
	359	1.580E+00	10.0		1.75							
111*PD	352	6.500E-01	12.0					24.50	2.45	1.012E+00	(I)	2.7 >2
	895	9.900E-01	18.0								(E)	4.2A
AG	281	1.030E+00	10.0		0.19							
	164	1.060E+00	12.0		0.39							
	359	1.130E+00	12.0		0.90							
	204r	1.224E+00	6.1W		2.28							
	48	6.400E-01	17.0W		-2.38							
	79	8.100E-01	6.0W		-1.91							
	371	8.800E-01	15.0		-1.03							
	917	9.600E-01	16.0		-0.35							
	352	9.800E-01	17.0		-0.19							
CHAIN	1016r	1.159E+00	6.1		2.41							
	1019r	1.328E+00	6.1W		2.26							
112*PD	30639	1.020E+00	8.3		-0.02			21.06	1.76	1.021E+00	(I)	2.3
	30639	1.080E+00	5.0		1.21						(E)	3.0A
	30639	1.110E+00	6.0		1.44							
	656	1.250E+00	14.0		1.32							
	359	1.270E+00	13.0		1.52							
	164	7.000E-01	15.0W		-2.46							
	352	7.900E-01	10.0W		-2.42							
	895	9.500E-01	17.0		-0.45							
AG	933	1.030E+00	8.0		0.11							
	776	1.050E+00	8.0		0.35							
	281	9.200E-01	10.0		-1.14							
	917	9.900E-01	16.0		-0.20							
CHAIN	30639	1.080E+00	5.0		1.21							
113 AG	895	1.120E+00	17.0		1.13			5.49	1.10	9.102E-01	(I)	4.3
	917	1.150E+00	16.0		1.33						(E)	4.5A
	48	6.400E-01	32.0		-1.34							
	352	8.700E-01	7.0		-0.86							
	359	9.000E-01	8.0		-0.17							
	933	9.700E-01	10.0		0.67							
115*AG	352	6.400E-01	8.0					20.29	1.45	8.994E-01	(I)	2.5
CD(G)	30768	5.700E-01	3.5W	8.203E-01	-2.50	2.11>2	0.70				(E)	3.0A
	79	5.800E-01	6.0W		-2.50							
	164	8.000E-01	10.0		-0.27							
	371	8.000E-01	15.0		-0.17							
	103r	8.312E-01	6.5		0.23							
	30639	8.430E-01	5.7		0.56							
	359	8.800E-01	11.0		0.64							
	281	9.200E-01	10.0		1.13							
	776	9.800E-01	9.0		1.89							
CD(M)	204r	5.554E-02	9.7	5.727E-02	-0.52	0.13	0.02					
	164	6.000E-02	15.0		0.34							
	79	6.000E-02	17.0		0.29							
IN	933	9.500E-01	10.0		0.00		0.00					
CHAIN	895	8.900E-01	15.0	9.606E-01	-0.56	0.12	2.02					
	917	9.700E-01	16.0		0.06							
	30639	9.750E-01	5.6		0.42							
117 CD(G)	895	8.200E-01	20.0	8.200E-01				44.35	44.35	9.839E-01	(I)	16.7 >2
CD(M)	30768	1.500E-01	6.7	1.639E-01	-31.98	44.35>2					(E)	111.2A
	933	4.700E-01	10.0		6.81							
118 CD	895	8.800E-01	16.0							8.800E-01		16.0

```
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF    MEAN     DEVIATION
=======================================================================================================
121 SN(G)    359 1.170E+00  11.0 1.029E+00  2.25  2.47>2            |   2.47   2.47 1.062E+00 (I)   8.7  >2
             895 8.800E-01  15.0           -2.20                    |                         (E)  13.7A
    ::::::::::::::::::::::::::                                      |
    SN(M)    204r1.473E-01  29.8 1.473E-01                          |
=======================================================================================================
123 SN       895 1.120E+00  20.0                                    |                1.120E+00      20.0
=======================================================================================================
125 SN(G)    795 1.210E+00  73.0 9.008E-01  0.35  0.27      7.15 11.7>2|  13.40   2.23 1.271E+00 (I)   3.0  >2
             359 8.700E-01  10.0           -0.69                    |                         (E)   4.4A
             895 9.800E-01  15.0            0.63                    |
    ::::::::::::::::::::::::::                                      |
    SN(M)    204r6.341E-01   6.7 6.341E-01  0.00            2.30    |
    --------------------------                                      |
    SB     30639 1.160E+00   7.1           -0.67  0.00      0.00    |
           30639 1.210E+00   6.1            0.04                    |
           30639 1.340E+00  11.1            0.93                    |
    --------------------------                                      |
    CHAIN 30639 1.210E+00    6.1 1.207E+00  0.00            2.28    |
=======================================================================================================
126 SB(G) 30768 2.500E-01    4.0                                    |
=======================================================================================================
127*SB       656 1.380E+00  10.0           -0.48                    |   9.71   0.81 1.446E+00 (I)   1.3A
           21708 1.380E+00   5.2           -0.96                    |                         (E)   1.2
           30639 1.400E+00  11.1           -0.30                    |
           30639 1.410E+00   3.3           -0.85                    |
           30639 1.430E+00   2.7           -0.50                    |
             776 1.450E+00  11.0            0.02                    |
             933 1.460E+00  11.0            0.09                    |
           30639 1.470E+00   4.7            0.36                    |
             204r1.484E+00   7.2            0.36                    |
             673 1.550E+00   8.0            0.85                    |
             895 1.570E+00   9.0            0.88                    |
    --------------------------                                      |
    CHAIN 30639 1.430E+00    2.7           -0.50                    |
            1019r1.736E+00   5.2W           2.45                    |
=======================================================================================================
128 SN       895 1.490E+00  13.0                                    |                1.490E+00      13.0
    --------------------------                                      |
    SB     30768 2.100E-01   4.8                                    |
=======================================================================================================
129*SB       352 1.180E+00   7.0W          -2.50  0.00      0.00  6.3>2|  37.93   5.42 1.603E+00 (I)   3.7  >2
             895 1.410E+00  19.0           -1.20                    |                         (E)   8.7A
             917 1.550E+00   9.0           -1.43                    |
             673 1.700E+00  12.0           -0.10                    |
             776 1.860E+00  15.0            0.53                    |
             933 1.870E+00   8.0            1.17                    |
    --------------------------                                      |
    TE(G)    164 1.220E+00   8.0 1.220E+00  0.00            3.90    |
    ::::::::::::::::::::::::::                                      |
    TE(M) 30639 5.260E-01    9.7 5.260E-01  0.00            0.13    |
    --------------------------                                      |
    CHAIN 30639 3.170E+00    9.8 1.718E+00  0.00            2.32    |
=======================================================================================================
131*SB     30639 2.540E+00   5.5                                    |  57.97   3.86 3.559E+00 (I)   1.7  >2
    --------------------------                                      |
    TE(G) 30639 3.800E+00    5.0                                    |                         (E)   3.3A
             895 3.920E+00  13.0                                    |
    --------------------------                                      |
    TE(M) 30639 3.110E-01  40.2                                     |
           30639 3.590E-01   9.8                                    |
           30639 3.630E-01   9.9                                    |
           30768 4.100E+00   5.0                                    |
             933 6.000E-01  10.0                                    |
    --------------------------                                      |
    I        933 1.460E+00  11.0W          -2.17                    |
              48 2.880E+00   8.0W          -2.43                    |
             673 3.640E+00   8.0            0.29                    |
             917 3.730E+00   6.0            0.80                    |
             776 3.830E+00  10.0            0.72                    |
           30639 4.010E+00   5.0            2.38                    |
           30639 4.040E+00   5.0W           2.50                    |
           21708 4.050E+00   5.0W           2.49                    |
           30639 4.080E+00   5.2W           2.48                    |
             656 4.170E+00  10.0            1.48                    |
             352 4.600E+00  10.0            2.29                    |
             281 5.210E+00  15.0            2.12                    |
    --------------------------                                      |
    XE       639 3.960E+00   7.0            1.49                    |
    --------------------------                                      |
    CHAIN    915 3.670E+00   7.0            0.45                    |
             363 4.010E+00   5.0            2.38                    |
           30639 4.040E+00   5.0W           2.50                    |
=======================================================================================================
132 TE       795 4.200E+00  10.0           -1.18                    |  19.04   0.68 4.693E+00 (I)   1.1A
             895 4.210E+00   8.0           -1.45                    |                         (E)   0.9
             917 4.290E+00   6.0           -1.60                    |
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TABLE 50 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 238U .   (cont)

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 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
 NO.         NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL |  INT. EXT./DF    MEAN     DEVIATION
=======================================================================================================
             164 4.400E+00  10.0           -0.67                    |
           30639 4.410E+00   9.1           -0.71                    |
           30639 4.430E+00   8.8           -0.68                    |
           30639 4.530E+00   5.7           -0.64                    |
           30639 4.560E+00   5.0           -0.60                    |
           30639 4.580E+00   5.0           -0.51                    |
           30639 4.600E+00   5.0           -0.41                    |
           30639 4.620E+00   5.0           -0.32                    |
           30639 4.640E+00   5.0           -0.23                    |
           30639 4.650E+00   5.0           -0.19                    |
           30639 4.660E+00   5.8           -0.12                    |
           30639 4.690E+00   5.0           -0.01                    |
           30639 4.710E+00   5.5            0.07                    |
           21708 4.720E+00   5.0            0.12                    |
             204r4.760E+00   5.7            0.25                    |
           30639 4.770E+00   5.0            0.33                    |
           30639 4.870E+00   5.0            0.74                    |
    --------------------------                                      |
    I        656 4.730E+00  10.0            0.08                    |
              48 4.790E+00   9.0            0.23                    |
             776 4.950E+00   8.0            0.65                    |
             933 4.970E+00   7.0            0.81                    |
             795 5.780E+00  12.0            1.57                    |
    --------------------------                                      |
    CHAIN 30639 4.820E+00    5.0            0.54                    |
             363 4.940E+00   5.0            1.02                    |
            1019r5.015E+00   4.2            1.57                    |
             915 5.280E+00   7.0            1.60                    |
=======================================================================================================
133*I         48 2.770E+00  11.0W          -2.31                    |  22.24   1.48 5.676E+00 (I)   1.5
           21708 5.500E+00   6.0           -0.55                    |                         (E)   1.9A
           30639 5.650E+00   5.0           -0.10                    |
           30639 5.680E+00   6.2            0.01                    |
             917 5.710E+00   7.0            0.09                    |
           30639 5.780E+00   5.0            0.38                    |
             895 5.810E+00   9.0            0.26                    |
             776 5.980E+00   5.0            1.07                    |
           30639 6.000E+00   5.0            1.14                    |
             933 6.000E+00   7.0            0.79                    |
           30639 6.130E+00   5.2            1.48                    |
             656 6.290E+00  10.0            0.99                    |
    --------------------------                                      |
    XE       352 6.650E+00   5.0W           2.44                    |
    --------------------------                                      |
    CHAIN 30639 5.800E+00    5.0            0.45                    |
             363 6.080E+00   8.0            0.85                    |
             915 6.620E+00   7.0            2.08                    |
=======================================================================================================
134 TE     30639 4.360E+00  18.3                                    |  16.07   1.79 6.181E+00 (I)   2.1
           30639 4.420E+00   5.0                                    |                         (E)   2.7A
           30639 4.500E+00   5.0                                    |
           30639 4.760E+00   6.5                                    |
    --------------------------                                      |
    I         48 5.010E+00  11.0           -2.18                    |
             917 5.470E+00   9.0           -1.49                    |
           30639 5.850E+00   5.0           -1.25                    |
           30639 5.890E+00  16.3           -0.31                    |
           30639 6.340E+00  13.2            0.19                    |
             895 6.500E+00   5.0            1.07                    |
    --------------------------                                      |
    XE       639 6.720E+00   7.0            1.19                    |
    --------------------------                                      |
    CHAIN 30639 5.950E+00    5.0           -0.86                    |
             363 6.500E+00   5.0            1.07                    |
             915 7.050E+00   6.0            2.15                    |
=======================================================================================================
135*I        776 4.880E+00   7.0           -1.69                    |  24.64   1.30 5.446E+00 (I)   1.3
             933 4.900E+00   6.0           -1.91                    |                         (E)   1.5A
           30639 5.040E+00   5.8           -1.44                    |
           30639 5.140E+00   5.2           -1.17                    |
           30639 5.250E+00   5.5           -0.70                    |
           30639 5.290E+00   5.0           -0.61                    |
              48 5.330E+00  10.0           -0.22                    |
           30639 5.360E+00   5.0           -0.33                    |
             917 5.420E+00   6.0           -0.08                    |
           30639 5.480E+00   5.0            0.13                    |
             895 5.520E+00   8.0            0.17                    |
    --------------------------                                      |
    XE     30639 5.340E+00   5.6           -0.36                    |
             795 5.580E+00  15.0            0.16                    |
             352 5.590E+00   5.0            0.53                    |
           30639 5.680E+00   5.0            0.85                    |
           21708 5.700E+00   5.0            0.92                    |
             917 6.160E+00   6.0            1.97                    |
    --------------------------                                      |
    CHAIN 30639 5.580E+00    5.0            0.50                    |
             363 5.890E+00   5.0            1.55                    |
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TABLE 50 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		915	7.120E+00	7.0W		2.48							
136	XE	639	5.650E+00	7.0		-0.18			0.03	0.03	5.709E+00	(I)	4.1A
	CHAIN	363	5.740E+00	5.0		0.18						(E)	0.7
137	XE	945	4.630E+00	10.0					5.01	1.67	5.365E+00	(I)	4.0
	CS	30639	5.210E+00	6.9		-0.53						(E)	5.1A
		164	6.600E+00	9.0		2.23							
	CHAIN	363	5.080E+00	10.0		-0.62							
		30639	5.210E+00	6.9		-0.53							
138	XE	30639	4.260E+00	10.3					1.57	0.31	4.603E+00	(I)	2.6A
		945	4.280E+00	10.0								(E)	1.5
	CS	30639	4.510E+00	5.1		-0.47							
		30639	4.530E+00	4.9		-0.40							
		895	5.040E+00	9.0		1.00							
		917	5.080E+00	16.0		0.59							
	BA	48	4.690E+00	12.0		0.16							
	CHAIN	30639	4.610E+00	4.8		0.04							
139	BA	644	4.320E+00	7.0		-2.28			8.19	1.17	4.953E+00	(I)	2.4
		644	4.670E+00	7.0		-0.93						(E)	2.6A
		352	4.920E+00	10.0		-0.07							
		917	5.080E+00	7.0		0.38							
		30639	5.130E+00	4.9		0.80							
		895	5.570E+00	8.0		1.44							
	CHAIN	352	4.920E+00	15.0		-0.05							
		30639	5.130E+00	4.9		0.80							
140*	BA	30639	4.320E+00	5.1		-1.59			24.01	1.00	4.667E+00	(I)	0.6
		30768	4.340E+00	3.9		-1.95						(E)	0.6A
		30639	4.390E+00	5.5		-1.16							
		79	4.410E+00	10.0		-0.58							
		30639	4.460E+00	2.9		-1.64							
		350	4.460E+00	8.0		-0.58							
		363	4.540E+00	12.0		-0.23							
		281	4.580E+00	10.0		-0.19							
		30639	4.620E+00	1.5		-0.74							
		21708	4.650E+00	4.2		-0.09							
		895	4.650E+00	9.0		-0.04							
		352	4.670E+00	8.0		0.01							
		30639	4.710E+00	2.8		0.34							
		204r	4.720E+00	3.6		0.31							
		30639	4.790E+00	2.9		0.90							
		30639	4.810E+00	6.0		0.49							
		30639	4.890E+00	5.5		0.83							
		164	4.900E+00	8.0		0.60							
	LA	30639	4.440E+00	7.2		-0.71							
		795	4.620E+00	7.0		-0.15							
		30639	4.630E+00	1.5		-0.59							
		656	4.910E+00	10.0		0.50							
	CHAIN	30639	4.630E+00	1.5		-0.59							
		1016r	4.877E+00	2.3		1.94							
		1019r	5.128E+00	2.3W		2.40							
141	CE	917	4.020E+00	6.0		-1.64			8.29	0.69	4.402E+00	(I)	1.4A
		255	4.150E+00	11.0		-0.56						(E)	1.2
		30639	4.360E+00	3.7		-0.29							
		30639	4.380E+00	3.2		-0.18							
		21708	4.440E+00	4.0		0.23							
		30768	4.460E+00	3.8		0.36							
		30639	4.460E+00	6.7		0.20							
		776	4.510E+00	15.0		0.16							
		933	4.530E+00	14.0		0.20							
		895	4.690E+00	7.0		0.89							
		164	5.800E+00	13.0		1.86							
	CHAIN	30639	4.380E+00	3.2		-0.18							
		363	4.810E+00	9.0		0.95							
142	LA	917	3.850E+00	6.0		-1.38			3.54	0.71	4.147E+00	(I)	2.0A
		895	3.900E+00	8.0		-0.82						(E)	1.7
		30639	4.190E+00	3.3		0.39							
		776	4.430E+00	9.0		0.73							
		933	4.450E+00	9.0		0.77							
	CHAIN	30639	4.190E+00	3.3		0.39							
143	CE	352	3.510E+00	10.0		-1.13			27.51	1.62	3.905E+00	(I)	1.0
		30639	3.600E+00	5.3		-1.64						(E)	1.2A
		917	3.600E+00	6.0		-1.43							
		656	3.620E+00	10.0		-0.79							
		776	3.810E+00	8.0		-0.31							
		933	3.830E+00	5.0		-0.40							
		30639	3.850E+00	2.3		-0.67							
		30639	3.880E+00	3.1		-0.22							
		79	3.910E+00	6.0		0.02							
		21708	3.940E+00	4.5		0.20							
		30639	3.980E+00	4.3		0.45							
		895	4.350E+00	5.0		2.08							
		255	4.580E+00	12.0		1.23							
		673	4.680E+00	8.0		2.08							
	PR	79	3.160E+00	10.0		-2.37							
	CHAIN	30639	3.850E+00	2.3		-0.67							
		1016r	4.062E+00	2.0		2.16							
		363	4.260E+00	11.0		0.76							
144*	CE	79	2.680E+00	10.0W		-2.38			15.60	1.73	3.652E+00	(I)	2.2
		795	3.340E+00	22.0		-0.43						(E)	2.8A
		30639	3.390E+00	6.5		-1.28							
		21708	3.720E+00	7.0		0.28							
		204r	3.820E+00	5.3		0.91							
		895	3.970E+00	8.0		1.04							
		255	4.260E+00	50.0		0.29							
	CHAIN	30639	3.390E+00	6.5		-1.28							
		1016r	3.757E+00	4.8		0.66							
		1019r	4.189E+00	4.8W		2.38							
145	PR	895	2.910E+00	5.0		-0.79			0.63	0.63	2.968E+00	(I)	4.2A
		673	3.140E+00	8.0		0.79						(E)	3.4
146	CE	30639	1.920E+00	12.2									
147	ND	79	1.990E+00	6.0		-1.33			10.76	0.98	2.142E+00	(I)	1.6A
		917	2.000E+00	7.0		-1.05						(E)	1.6
		895	2.020E+00	5.0		-1.28							
		21708	2.080E+00	4.7		-0.68							
		776	2.100E+00	8.0		-0.26							
		933	2.110E+00	8.0		-0.19							
		350	2.200E+00	8.0		0.34							
		30639	2.300E+00	4.3		1.68							
	PM	255	2.450E+00	15.0		0.84							
	CHAIN	363	2.030E+00	12.0		-0.46							
		1016r	2.169E+00	3.4		0.42							
		30639	2.300E+00	4.3		1.68							
148	CHAIN	1184r	1.266E+00	10.1		-1.85			4.07	1.36	1.410E+00	(I)	7.2
		1184r	1.677E+00	10.1		1.97						(E)	8.4A
		1184r	6.897E-01	200.0		-0.52							
		1184r	9.361E-01	200.0		-0.25							
149	ND	30639	1.290E+00	10.6		-0.70			4.30	1.07	1.374E+00	(I)	4.7
		917	1.350E+00	9.0		-0.24						(E)	4.9A
		776	1.360E+00	14.0		-0.08							
	PM	895	1.690E+00	10.0		2.02							
	CHAIN	30639	1.290E+00	10.6		-0.70							
151*	PM	895	6.550E-01	15.0		-1.66			8.85	2.95	8.095E-01	(I)	3.5 >2
		933	6.800E-01	10.0		-2.14						(E)	5.9A
		917	7.900E-01	7.0		-0.43							
		30768	8.900E-01	4.5W		2.07							
153	SM	895	3.700E-01	20.0		-0.37			0.59	0.30	3.964E-01	(I)	4.8A
		79	3.900E-01	6.0		-0.48						(E)	2.6
		350	4.200E-01	9.0		0.72							
156*	EU	204r	1.060E-01	6.6W		-1.56			8.86	2.21	1.213E-01	(I)	2.3 >2
		895	1.120E-01	18.0		-0.49						(E)	3.4A
		79	1.300E-01	10.0		0.78							
	CHAIN	1019r	1.111E+00	2.8W		2.48							
		1016r	1.138E-01	2.8W		-0.75							
157	EU	30768	1.100E-01	9.1									
		895	8.200E-02	25.0									
159	GD	350	2.600E-02	12.0							2.600E-02		12.0

TABLE 50 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
161	TB	350	8.900E-03	15.0		0.79			0.62	0.62	7.988E-03	(I)	8.4A
	CHAIN	1016r	7.684E-03	10.0		-0.79						(E)	6.6
166	DY	350	6.300E-04	10.0							6.300E-04		10.0
169	ER	350	1.290E-04	8.0							1.290E-04		8.0
172	ER	350	2.100E-05	34.0							2.100E-05		34.0

TABLE 51 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 237NP.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1	H PI	2065r	1.902E-02	41.4							1.902E-02		41.4
3	H PI	2065r	3.329E-02	22.6							3.329E-02		22.6
4	HE PI	2065r	2.010E-01	10.6							2.010E-01		10.6
39	RB	2108	1.370E+00	15.0							1.370E+00		15.0
91	SR	615	2.710E+00	10.0		-0.84			0.70	0.70	2.796E+00	(I)	9.0A
		2108	3.310E+00	20.0		0.84						(E)	7.5
93	Y	615	4.940E+00	15.0							4.940E+00		15.0
97	ZR	2108	5.430E+00	10.0		0.00			0.00	0.00	5.430E+00	(I)	6.7A
		615	5.430E+00	9.0		0.00						(E)	0.0
99	MO	615	4.940E+00	5.0		-0.62			0.39	0.39	4.973E+00	(I)	4.9A
		2108	5.660E+00	20.0		0.62						(E)	3.0
103	RU	2108	5.070E+00	20.0							5.070E+00		20.0
105	RU	2108	3.630E+00	20.0		0.17			0.03	0.03	3.510E+00	(I)	5.7A
	RH	615	3.500E+00	6.0		-0.17						(E)	1.0
109	PD	615	1.480E+00	17.0							1.480E+00		17.0
111	AG	615	1.230E+00	5.0							1.230E+00		5.0
112	PD	615	1.230E+00	5.0		-0.50			0.25	0.25	1.237E+00	(I)	4.9A
		2108	1.370E+00	20.0		0.50						(E)	2.4
115	CHAIN	615	1.230E+00	5.0							1.230E+00		5.0
123	SN(M)	2108	7.000E-01	20.0									
125	SN(M)	2108	5.000E-01	50.0									
127	SB	615	2.520E+00	6.0		-0.56			0.31	0.31	2.542E+00	(I)	5.7A
		2108	2.850E+00	20.0		0.56						(E)	3.2
128	SB(G)	2108	1.420E+00	30.0							1.420E+00		30.0
129	SB	2108	2.560E+00	20.0							2.560E+00		20.0
130	SB(G)	2108	1.060E+00	20.0							1.060E+00		20.0
131	I	2108	3.300E+00	10.0		-0.36			0.13	0.13	3.358E+00	(I)	8.6A
		615	3.550E+00	17.0		0.36						(E)	3.1
132	TE	2108	4.240E+00	10.0		-0.06			0.00	0.00	4.253E+00	(I)	8.6A
		615	4.290E+00	17.0		0.06						(E)	0.5
133	I (G)	2108	5.850E+00	10.0									
134	TE	2108	3.460E+00	20.0							4.680E+00		30.0
	I (G)	2108	1.620E+00	90.0									
	CHAIN	2108	4.680E+00	30.0									
135	I	2108	4.690E+00	10.0							4.690E+00		10.0
138	XE	2108	8.640E-01	90.0					0.29	0.29	3.714E+00	(I)	19.0A
	CS(G)	2108	2.770E+00	30.0	2.770E+00	0.00		0.09				(E)	10.3
	CS(M)	2108	3.650E+00	20.0	3.650E+00	0.00		0.00					
	CHAIN	2108	4.300E+00	30.0	4.300E+00	0.00		0.21					
139	BA	615	4.840E+00	7.0							4.840E+00		7.0
140	BA	615	4.890E+00	7.0							4.890E+00		7.0
142	LA	2108	3.780E+00	15.0							3.780E+00		15.0
143	CE	615	3.600E+00	21.0							3.600E+00		21.0
146	PR	2108	1.530E+00	30.0							1.530E+00		30.0
147	ND	615	1.730E+00	14.0							1.730E+00		14.0
150	BA	2108	4.970E+00	15.0							4.970E+00		15.0
153	SM	615	3.200E-01	8.0							3.200E-01		8.0

TABLE 51 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 237NP. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
157 EU	615	9.400E-02	32.0								9.400E-02	32.0

TABLE 52 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 239PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(M)	948	7.900E-01	10.0									
87 KR	948	1.100E+00	10.0								1.100E+00	10.0
88 KR	948	1.410E+00	10.0								1.410E+00	10.0
89 KR	948	1.390E+00	10.0						2.74	1.37	1.815E+00	(I) 4.7
SR	106	1.600E+00	10.0		-1.59							(E) 5.5A
	282	1.830E+00	10.0		0.09							
	1038r	1.932E+00	6.3		1.36							
91 SR	282	2.040E+00	10.0								2.040E+00	10.0
95 ZR	21708	3.960E+00	3.9								3.960E+00	3.9
97 ZR	282	3.990E+00	10.0		-0.51				1.91	0.64	4.186E+00	(I) 2.8A
	21708	4.400E+00	4.5		1.34							(E) 2.2
CHAIN	1043r	4.044E+00	5.4		-0.78							
	1037r	4.127E+00	5.4		-0.31							
99 MO	64	4.160E+00	10.0		-2.22				6.01	3.00	5.027E+00	(I) 2.8 >2
	21708	5.040E+00	3.6		0.11							(E) 4.9A
	950r	5.385E+00	5.2		1.50							
103 RU	21708	5.300E+00	3.7		-1.14				1.29	1.29	5.352E+00	(I) 3.6
	64	6.250E+00	13.0		1.14							(E) 4.0A
105 RH	21708	4.300E+00	4.6								4.300E+00	4.6
106 RU	64	4.160E+00	12.0								4.160E+00	12.0
109 CHAIN	1043r	2.237E+00	8.3								2.237E+00	8.3
111*AG(G)	106	1.310E+00	12.0		-2.39				17.50	4.37	1.653E+00	(I) 3.8 >2
	282	1.410E+00	10.0		-1.94							(E) 8.0A
	64	1.460E+00	11.0		-1.31							
CHAIN	1043r	1.896E+00	6.6		2.25							
	1038r	1.960E+00	6.6W		2.39							
112 CHAIN	1043r	1.188E+00	7.8								1.188E+00	7.8
115*CD(G)	282	1.160E+00	10.0	1.078E+00	0.85	3.22>2	0.34	1.2	7.66	2.55	1.202E+00	(I) 4.6 >2
	64	1.230E+00	9.0		1.69							(E) 7.3A
	106	8.600E-01	10.0W		-2.50							
CD(M)	104r	8.685E-02	10.1	8.685E-02	0.00		0.01					
CHAIN	64	1.300E+00	8.0	1.300E+00	0.00		0.88					
127 SB	21708	2.170E+00	5.0									
131 I	21708	4.550E+00	5.0								3.770E+00	5.0
XE	1112	3.770E+00	5.0									
132 TE	21708	3.150E+00	5.0		-2.50				6.26	6.26	3.259E+00	(I) 4.6 >2
	64	4.580E+00	12.0		2.50							(E) 11.6A
133 I	21708	4.250E+00	9.0									
134 XE	1112	5.240E+00	5.0								5.240E+00	5.0
136 XE	1112	4.740E+00	5.0		9.93				98.52	98.52	3.337E+00	(I) 5.7 >2
	21708	7.970E-01	40.0		-9.93							(E) 56.6A
137 XE	948	2.410E+00	10.0								5.100E+00	16.0
CS	64	5.100E+00	16.0									
138 I	941	9.000E-02	10.0								3.410E+00	10.0
XE	941	1.510E+00	10.0									
	948	1.540E+00	10.0									
CS	941	3.240E+00	10.0									
CHAIN	941	3.410E+00	10.0									
140 BA	282	2.660E+00	20.0		-1.82				7.61	1.90	3.612E+00	(I) 2.9
	106	3.210E+00	10.0		-1.32							(E) 4.0A
	21708	3.600E+00	3.8		-0.13							
	64	4.350E+00	20.0		0.86							
CHAIN	1038r	3.918E+00	5.4		1.68							

TABLE 52 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 239PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
141	CE	21708	3.680E+00	4.1							3.680E+00		4.1
143	CE	21708	2.930E+00	4.0									
144	CE	106	2.180E+00	10.0		-1.79			3.34	1.67	2.515E+00	(I)	4.5
		21708	2.590E+00	7.3		0.49						(E)	5.8A
	CHAIN	1038r	2.681E+00	6.8		1.15							
147	ND	106	1.470E+00	10.0		-1.24			1.96	0.98	1.640E+00	(I)	3.2A
		21708	1.640E+00	4.2		0.01						(E)	3.2
	CHAIN	1038r	1.720E+00	5.9		0.93							
156	EU	106	1.700E-01	10.0		-2.06			4.23	4.23	1.986E-01	(I)	4.9 >2
	CHAIN	1038r	2.127E-01	5.6		2.06						(E)	10.1A
161	TB	106	1.400E-02	15.0		-0.97			0.95	0.95	1.553E-02	(I)	9.0A
	CHAIN	1038r	1.674E-02	11.2		0.97						(E)	8.8

TABLE 53 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 240PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
66	NI	1076	6.040E-05	44.0							6.040E-05		44.0
67	CU	1076	1.310E-04	35.0							1.310E-04		35.0
72	ZN	1076	4.470E-03	17.0							4.470E-03		17.0
73	GA	1076	8.340E-03	10.0							8.340E-03		10.0
87	KR	1076	1.220E+00	12.0							1.220E+00		12.0
88	KR	1076	1.390E+00	9.0							1.390E+00		9.0
89	SR	1076	1.740E+00	7.0							1.740E+00		7.0
90	SR	1076	1.940E+00	7.0							1.940E+00		7.0
91	SR	1076	2.390E+00	7.0		-0.41			0.17	0.17	2.438E+00	(I)	5.0A
	Y	1076	2.490E+00	7.0		0.41						(E)	2.0
92	SR	1076	2.770E+00	7.0		-0.53			0.28	0.28	2.835E+00	(I)	5.3A
	Y	1076	2.930E+00	8.0		0.53						(E)	2.8
93	Y	1076	2.880E+00	7.0							2.880E+00		7.0
95	ZR	1076	3.680E+00	7.0							3.680E+00		7.0
97	ZR	1076	4.180E+00	7.0							4.180E+00		7.0
99	MO	1076	4.850E+00	7.0							4.850E+00		7.0
103	RU	1076	5.270E+00	7.0							5.270E+00		7.0
105	RU	1076	5.250E+00	7.0		1.95			3.82	3.82	4.695E+00	(I)	5.0 >2
	RH	1076	4.320E+00	7.0		-1.95						(E)	9.7A
106	RU	1076	4.000E+00	7.0							4.000E+00		7.0
109	PD	1076	2.290E+00	7.0							2.290E+00		7.0
111	PD(M)	1076	9.900E-01	13.0							1.660E+00		7.0
	AG	1076	1.660E+00	7.0									
112	PD	1076	1.560E+00	7.0							1.560E+00		7.0
115	CD(G)	1076	1.090E+00	7.0	1.090E+00				0.00	0.00	1.162E+00	(I)	6.6A
	CD(M)	1076	7.180E-02	7.0	7.180E-02							(E)	0.0
117	CD(G)	1076	6.010E-01	24.0	6.010E-01				0.00	0.00	8.580E-01	(I)	18.3A
	CD(M)	1076	2.570E-01	24.0	2.570E-01							(E)	0.0
118	CD	1076	4.950E-01	10.0							4.950E-01		10.0
125	SN(G)	1076	8.440E-01	7.0							1.570E+00		7.0
	SB	1076	1.570E+00	7.0									
127	SN(G)	1076	1.430E+00	24.0							1.950E+00		7.0
	SB	1076	1.950E+00	7.0									
128	SB(G)	1076	1.010E+00	7.0									
129	SB	1076	1.910E+00	7.0									
130	SB(G)	1076	1.710E+00	9.0									
131	TE(M)	1076	1.540E+00	7.0							4.450E+00		7.0
	I	1076	4.450E+00	7.0									
132	TE	1076	3.550E+00	7.0							3.550E+00		7.0
133	I	1076	5.380E+00	8.0							5.380E+00		8.0
135	I	1076	3.860E+00	8.0							5.790E+00		8.0
	XE	1076	5.790E+00	8.0									
	CS(G)	1076	4.970E+00	8.0									
137	CS	1076	4.480E+00	8.0							4.480E+00		8.0

TABLE 53 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 240PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
138	CS	1076	5.190E+00	14.0								5.190E+00		14.0
139	BA	1076	4.560E+00	7.0								4.560E+00		7.0
140	BA	1076	3.770E+00	7.0								3.770E+00		7.0
141	CE	1076	3.570E+00	7.0								3.570E+00		7.0
142	LA	1076	3.880E+00	12.0								3.880E+00		12.0
143	CE	1076	3.090E+00	7.0								3.090E+00		7.0
144	CE	1076	2.650E+00	7.0								2.650E+00		7.0
145	PR	1076	2.690E+00	14.0								2.690E+00		14.0
147	ND	1076	1.780E+00	7.0								1.780E+00		7.0
149	ND	1076	1.450E+00	7.0		1.18				1.39	1.39	1.361E+00	(I)	5.0
	PM	1076	1.290E+00	7.0		-1.18							(E)	5.8A
151	PM	1076	8.050E-01	10.0								8.050E-01		10.0
153	SM	1076	5.800E-04	8.0										
155	EU	1076	2.780E-01	7.0								2.780E-01		7.0
156	EU	1076	2.250E-01	7.0								2.250E-01		7.0
157	EU	1076	1.580E-01	7.0								1.580E-01		7.0
159	GD	1076	6.800E-02	19.0								6.800E-02		19.0
161	TB	1076	3.460E-02	7.0								3.460E-02		7.0
169	ER	1076	1.150E-03	8.0								1.150E-03		8.0

TABLE 54 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 242PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
85	KR(M)	21983	6.720E-01	7.1										
87	KR	21983	9.930E-01	7.6								9.930E-01		7.6
88	KR	21983	1.160E+00	8.1								1.160E+00		8.1
89	RB	21983	1.330E+00	11.0								1.330E+00		11.0
91	SR	21983	2.110E+00	7.1		0.30				0.13	0.07	2.071E+00	(I)	3.7A
	Y (M)	21983	2.030E+00	7.9		-0.29							(E)	1.0
	CHAIN	21983	2.070E+00	5.3		-0.02								
92	SR	21983	2.260E+00	13.0		-0.46				0.30	0.15	2.377E+00	(I)	6.2A
	Y	21983	2.490E+00	12.0		0.44							(E)	2.4
	CHAIN	21983	2.380E+00	8.8		0.02								
93	Y	21983	2.600E+00	13.0								2.600E+00		13.0
94	Y	21983	2.790E+00	10.0								2.790E+00		10.0
95	ZR	21983	3.370E+00	8.9								3.370E+00		8.9
97	ZR	21983	4.230E+00	7.5		0.02				0.00	0.00	4.225E+00	(I)	5.2A
	NB	21983	4.220E+00	7.1		-0.02							(E)	0.1
99	MO	21983	4.970E+00	7.2		0.43				0.29	0.15	4.836E+00	(I)	3.7A
	TC(M)	21983	4.700E+00	7.4		-0.45							(E)	1.4
	CHAIN	21983	4.840E+00	5.2		0.03								
101	TC	21983	5.040E+00	99.0								5.040E+00		99.0
103	RU	21983	5.640E+00	79.0								5.640E+00		79.0
104	TC	21983	5.450E+00	12.0								5.450E+00		12.0
105	RU	21983	5.580E+00	7.5		0.22				0.07	0.04	5.501E+00	(I)	3.9A
	RH	21983	5.420E+00	7.9		-0.22							(E)	0.7
	CHAIN	21983	5.500E+00	5.5		0.00								
107	RH	21983	3.800E+00	10.0								3.800E+00		10.0
109	PD	21983	2.530E+00	8.6								2.530E+00		8.6
111	PD(M)	21983	9.400E-05	64.0								2.200E+00		11.0
	AG	21983	2.200E+00	11.0										
112	PD	21983	1.920E+00	7.2								1.920E+00		7.2
113	AG	21983	1.600E+00	10.0		-0.61				0.37	0.37	1.653E+00	(I)	8.1A
	CHAIN	21983	1.780E+00	14.0		0.61							(E)	5.0
115	CD	21983	1.120E+00	13.0								1.120E+00		13.0
117	CD(G)	21983	5.030E-01	20.0	5.030E-01	0.00		0.00	0.0	0.00	0.00	6.521E-01	(I)	11.6A
	CD(M)	21983	1.510E-01	20.0	1.510E-01	0.00		0.00					(E)	0.3
	CHAIN	21983	6.500E-01	16.9	6.500E-01	0.00		0.00						
118	CD	21983	4.200E-01	16.0										
121	SN	21983	6.580E-01	20.0		-0.47				0.22	0.22	6.962E-01	(I)	15.0A
	CHAIN	21983	7.600E-01	22.4		0.47							(E)	7.1
125	SN	21983	6.840E-01	16.0								1.350E+00		18.0
	SB	21983	1.350E+00	18.0										
126	SB	21983	1.200E-01	60.0										
127	SN	21983	1.660E+00	11.0								1.880E+00		12.2
	SB	21983	1.870E+00	11.2										
	CHAIN	21983	1.880E+00	12.2										

TABLE 54 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 242PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
128	SN	21983	1.290E+00	20.0		-0.79			2.49	0.83	1.466E+00	(I)	8.8A
		21983	1.300E+00	17.0		-0.92						(E)	8.0
	SB	21983	6.780E-01	11.0									
	CHAIN	21983	1.700E+00	21.2		0.69							
		21983	1.710E+00	14.0		1.21							
129	SB	21983	2.000E+00	10.0		-0.49			0.33	0.11	2.086E+00	(I)	4.6A
	TE	21983	2.160E+00	10.0		0.38						(E)	1.5
	CHAIN	21983	2.070E+00	10.1		-0.09							
		21983	2.110E+00	7.6		0.19							
130	SB	21983	1.420E+00	12.0							1.610E+00		12.4
	CHAIN	21983	1.610E+00	12.4									
131	SB	21983	2.400E+00	13.0							3.550E+00		14.9
	TE(M)	21983	1.590E+00	10.0									
	I	21983	3.910E+00	6.1									
	CHAIN	21983	3.550E+00	14.9									
132	TE	21983	4.560E+00	7.4					0.33	0.33	5.060E+00	(I)	3.9A
	I	21983	5.270E+00	5.3								(E)	2.2
	CHAIN	21983	4.880E+00	7.6		-0.57							
		21983	5.130E+00	4.5		0.57							
133	TE(M)	21983	1.430E+00	13.0					0.07	0.02	5.581E+00	(I)	3.3A
	I	21983	5.520E+00	7.2		-0.17						(E)	0.5
	XE	21983	5.660E+00	7.6		0.20							
	CHAIN	21983	5.540E+00	7.2		-0.12							
		21983	5.600E+00	5.4		0.08							
134	I	21983	5.990E+00	12.0							5.830E+00		12.0
	CHAIN	21983	5.830E+00	12.0									
135	I	21983	5.100E+00	8.7					0.43	0.21	5.739E+00	(I)	4.6A
	XE	21983	5.520E+00	8.9		-0.53						(E)	2.1
	CHAIN	21983	5.750E+00	6.6		0.04							
		21983	6.010E+00	9.5		0.54							
138	CS	21983	5.000E+00	9.1							5.020E+00		9.2
	CHAIN	21983	5.020E+00	9.2									
139	BA	21983	4.930E+00	7.7									
140	BA	21983	4.840E+00	9.0		-0.16			0.07	0.02	4.906E+00	(I)	3.5A
	LA	21983	4.950E+00	7.8		0.13						(E)	0.4
	CHAIN	21983	4.850E+00	9.1		-0.14							
		21983	4.910E+00	6.1		0.02							
		21983	4.950E+00	7.9		0.13							
141	CE	21983	4.860E+00	8.2							4.860E+00		8.2
142	LA	21983	4.340E+00	7.6									
143	CE	21983	3.660E+00	7.1							3.660E+00		7.1
144	CE	21983	3.190E+00	8.4									
146	PR	21983	2.180E+00	8.7									
149	ND	21983	1.610E+00	9.9									
151	PM	21983	9.150E-01	9.7							9.200E-01		9.8
	CHAIN	21983	9.200E-01	9.8									

TABLE 55 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 241AM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
87	KR	1154	1.050E+00	4.0							1.050E+00		4.0
88	KR	1154	1.070E+00	3.0							1.070E+00		3.0
91	SR	1154	2.010E+00	3.0		-0.81			0.65	0.65	2.044E+00	(I)	2.1A
	Y	1154	2.080E+00	3.0		0.81						(E)	1.7
92	SR	1154	2.150E+00	3.0							2.150E+00		3.0
94	Y	1154	2.550E+00	3.0							2.550E+00		3.0
95	ZR	1154	3.140E+00	3.0							3.140E+00		3.0
97	ZR	1154	3.390E+00	3.0							3.390E+00		3.0
99	MO	1154	4.360E+00	3.0							4.360E+00		3.0
103	RU	1154	5.070E+00	3.0							5.070E+00		3.0
104	TC	1154	4.630E+00	3.0							4.630E+00		3.0
105	RH	1154	4.760E+00	3.0							4.760E+00		3.0
106	RU	1154	4.100E+00	3.0							4.100E+00		3.0
107	RH	1154	3.800E+00	3.0							3.800E+00		3.0
109	PD	1154	3.240E+00	3.0							3.240E+00		3.0
111	PD(M)	1154	1.770E-01	8.4							2.310E+00		3.0
	AG	1154	2.310E+00	3.0									
112	PD	1154	2.420E+00	3.0							2.420E+00		3.0
113	AG	1154	2.210E+00	3.0							2.210E+00		3.0
115	CD(G)	1154	1.600E+00	3.0	1.600E+00				0.00	0.00	1.730E+00	(I)	2.8A
	CD(M)	1154	1.300E-01	3.0	1.300E-01							(E)	0.0
126	SB(G)	1154	6.890E-01	13.0									
127	SB	1154	2.230E+00	5.0							2.230E+00		5.0
128	SN	1154	4.930E-01	3.0									
	SB(G)	1154	1.170E+00	3.0									
130	I	1154	6.670E-01	4.0									
131	TE(M)	1154	1.400E+00	7.0							4.450E+00		3.0
	I	1154	4.450E+00	3.0									
132	TE	1154	2.160E+00	3.0									
	CS	1154	7.850E-03	14.0									
133	I	1154	4.300E+00	3.0							4.600E+00		3.0
	XE	1154	4.600E+00	3.0									
134	CS	1154	2.250E-01	5.0									
135	I	1154	1.810E+00	4.0							4.490E+00		3.0
	XE	1154	4.490E+00	3.0									
136	CS	1154	1.240E+00	3.0									
137	CS	1154	4.250E+00	3.0							4.250E+00		3.0
139	BA	1154	4.020E+00	3.0							4.020E+00		3.0
140	BA	1154	3.340E+00	3.0							3.340E+00		3.0
141	CE	1154	3.230E+00	3.0							3.230E+00		3.0
142	LA	1154	2.960E+00	3.0							2.960E+00		3.0
143	CE	1154	2.690E+00	3.0							2.690E+00		3.0
144	CE	1154	2.490E+00	3.0							2.490E+00		3.0
147	ND	1154	1.810E+00	3.0							1.810E+00		3.0

TABLE 55 CHAIN AND CUMULATIVE YIELDS FROM HIGH ENERGY FISSION OF 241AM. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
149	PM	1154	1.300E+00	3.0							1.300E+00	3.0
151	PM	1154	8.850E-01	3.0							8.850E-01	3.0
153	SM	1154	6.680E-01	3.0							6.680E-01	3.0
155	EU	1154	3.390E-01	3.0							3.390E-01	3.0
156	SM	1154	2.200E-01	3.0							2.700E-01	3.0
	EU	1154	2.700E-01	3.0								
157	EU	1154	1.690E-01	3.0							1.690E-01	3.0
159	GD	1154	1.310E-01	5.0							1.310E-01	5.0
161	TB	1154	6.010E-02	3.0							6.010E-02	3.0

TABLE 56 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	KR	326	3.600E-02	69.4							3.600E-02	69.4
84	KR	326	1.800E-01	22.2							1.800E-01	22.2
86	KR	326	8.600E-01	14.0							8.600E-01	14.0
131	XE	326	5.090E-01	3.9							5.090E-01	3.9
132	XE	326	3.630E+00	2.2							3.630E+00	2.2
134	XE	326	5.120E+00	1.9							5.120E+00	1.9
136	XE	326	6.000E+00	20.0							6.000E+00	20.0

TABLE 57 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	KR	379	3.270E-02	8.6		-0.22			0.05	0.05	3.281E-02	(I) 8.4A
		325	3.600E-02	41.7		0.22						(E) 1.8
84	KR	325	1.190E-01	33.6		-0.07			0.01	0.01	1.218E-01	(I) 9.4A
		379	1.220E-01	9.8		0.07						(E) 0.7
86	KR	325	7.500E-01	14.7		-1.62			2.62	2.62	9.086E-01	(I) 5.6 >2
		379	9.510E-01	6.0		1.62						(E) 9.0A
89	SR	650	3.300E+00	9.1		-1.75			3.69	1.85	3.451E+00	(I) 8.3
		299	4.320E+00	33.0		0.62						(E) 11.3A
		589	5.900E+00	23.7		1.79						
90	SR	299	4.690E+00	33.0		-1.04			2.19	1.10	6.235E+00	(I) 6.6
		650	5.900E+00	10.2		-0.76						(E) 6.9A
		589	6.800E+00	8.8		1.29						
91	SR	589	5.000E+00	80.0							8.300E+00	5.6
	Y	616	8.300E+00	5.6								
92	SR	589	1.100E+01	36.4							1.100E+01	36.4
93	Y	616	9.620E+00	4.4							9.620E+00	4.4
95	ZR	648	5.300E+00	24.5								
97	ZR	360	6.100E+00	11.5								
99	MO	726	5.700E+00	5.3		-1.28			1.93	0.96	5.892E+00	(I) 4.4A
		589	6.300E+00	9.5		0.75						(E) 4.3
		229	6.940E+00	14.7		1.06						
103	RU	588	2.350E+00	5.0							2.350E+00	5.0
105	RH	229	1.150E+00	15.7							1.150E+00	15.7
106	RU	588	3.300E-01	25.0							3.300E-01	25.0
131	I	726	2.800E-01	71.4		-0.97			4.59	1.15	4.732E-01	(I) 3.5
		589	4.200E-01	33.3		-0.38						(E) 3.8A
		612	4.800E-01	60.0		0.02						
	XE	325	4.550E-01	4.4		-1.63						
		379	5.240E-01	5.9		1.94						
132	TE	298	3.520E+00	15.0		-0.10			1.33	0.27	3.572E+00	(I) 1.6A
		229	4.000E+00	15.0		0.72						(E) 0.8
	I	612	2.900E+00	28.1		-0.83						
		589	3.470E+00	12.1		-0.25						
	XE	325	3.570E+00	1.7		-0.11						
		379	3.630E+00	6.1		0.27						
133*	I	589	1.400E+00	21.4W		-0.32			3.10	1.55	2.935E+00	(I) 7.9
		612	3.300E+00	27.8		0.76						(E) 9.8A
		726	5.600E+00	7.1W		1.94						
134	I	589	5.000E+00	12.0		0.00			2.70	0.90	5.002E+00	(I) 1.4A
		612	7.200E+00	19.4		1.58						(E) 1.3
	XE	325	4.990E+00	1.4		-0.71						
		379	5.140E+00	6.0		0.45						
135	I	612	4.100E+00	13.3		-0.99			0.98	0.98	4.463E+00	(I) 9.0A
		589	4.900E+00	12.2		0.99						(E) 8.9
136	XE	325	6.000E+00	20.0		-0.24			0.06	0.06	6.273E+00	(I) 5.8A
		379	6.300E+00	6.0		0.24						(E) 1.4
138	CS	299	4.890E+00	20.0								
139	BA	299	4.720E+00	22.0								
140	BA	589	9.600E+00	12.5							9.600E+00	12.5
141	CE	254	6.900E+00	20.3		-0.87			0.76	0.76	8.063E+00	(I) 5.4A
		616	8.190E+00	5.6		0.87						(E) 4.8
143	CE	254	6.400E+00	15.6		-1.07			1.24	0.62	7.445E+00	(I) 3.0A
		616	7.490E+00	3.1		0.69						(E) 2.4
		589	7.900E+00	17.7		0.33						
144	CE	254	6.000E+00	16.7							6.000E+00	16.7
147	ND	254	4.500E+00	24.4		-0.47			0.22	0.22	4.883E+00	(I) 15.1A

TABLE 57 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	PM	254	5.200E+00	19.2		0.47						(E) 7.1
149	PM	254	2.300E+00	13.0							2.300E+00	13.0

TABLE 58 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 240PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	850	3.190E-01	10.0							3.190E-01	10.0
89	CHAIN	21482	8.000E-01	40.0							8.000E-01	40.0
91	CHAIN	21482	1.510E+00	11.3							1.510E+00	11.3
97	CHAIN	21482	6.480E+00	3.2							6.480E+00	3.2
99	CHAIN	21482	6.820E+00	1.0							6.820E+00	1.0
105	CHAIN	21482	7.100E+00	7.8							7.100E+00	7.8
109	CHAIN	21482	9.400E-01	12.8							9.400E-01	12.8
111	CHAIN	21482	3.500E-02	25.7							3.500E-02	25.7
115	CHAIN	21482	3.000E-02	100.0							3.000E-02	100.0
131	CHAIN	21482	2.340E+00	2.1							2.340E+00	2.1
133	CHAIN	21482	8.200E+00	1.5							8.200E+00	1.5
135	CHAIN	21482	6.940E+00	9.7							6.940E+00	9.7
140	CHAIN	21482	5.990E+00	3.7							5.990E+00	3.7
141	CHAIN	21482	6.020E+00	6.5							6.020E+00	6.5
143	CHAIN	21482	4.780E+00	8.2							4.780E+00	8.2
147	CHAIN	21482	1.220E+00	30.3							1.220E+00	30.3

TABLE 59 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 242PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	851	2.740E-01	10.0							2.740E-01	10.0
121	CHAIN	40194	1.280E-01	20.0							1.280E-01	20.0
122	CHAIN	40194	1.280E-01	20.0							1.280E-01	20.0
123	CHAIN	40194	1.690E-01	20.0							1.690E-01	20.0
124	CHAIN	40194	2.360E-01	20.0							2.360E-01	20.0
125	CHAIN	40194	3.170E-01	20.0							3.170E-01	20.0
126	CHAIN	40194	4.370E-01	20.0							4.370E-01	20.0
127	CHAIN	40194	6.840E-01	20.0							6.840E-01	20.0
128	CHAIN	40194	1.116E+00	20.0							1.116E+00	20.0
129	CHAIN	40194	1.966E+00	20.0							1.966E+00	20.0
130	CHAIN	40194	2.953E+00	20.0							2.953E+00	20.0
131	CHAIN	40194	4.065E+00	20.0							4.065E+00	20.0
132	I	662	5.000E+00	14.0		-0.22			0.05	0.05	5.084E+00 (I)	11.5A
	CHAIN	40194	5.275E+00	20.0		0.22					(E)	2.5
133	I	662	5.300E+00	13.2		-0.75			0.56	0.56	5.552E+00 (I)	11.1A
	CHAIN	40194	6.393E+00	20.0		0.75					(E)	8.3
134	I	662	6.700E+00	14.9		-0.28			0.08	0.08	6.857E+00 (I)	12.0A
	CHAIN	40194	7.181E+00	20.0		0.28					(E)	3.3
135	I	662	4.900E+00	16.3		-1.51			2.29	2.29	5.470E+00 (I)	12.9 >2
	CHAIN	40194	7.458E+00	20.0		1.51					(E)	19.5A
136	CHAIN	40194	7.701E+00	20.0							7.701E+00	20.0
137	CHAIN	40194	7.601E+00	20.0							7.601E+00	20.0
138	CHAIN	40194	6.886E+00	20.0							6.886E+00	20.0
139	CHAIN	40194	5.983E+00	20.0							5.983E+00	20.0
140	CHAIN	40194	5.556E+00	20.0							5.556E+00	20.0
141	CHAIN	40194	4.942E+00	20.0							4.942E+00	20.0
142	CHAIN	40194	4.230E+00	20.0							4.230E+00	20.0
143	CHAIN	40194	3.635E+00	20.0							3.635E+00	20.0
144	CHAIN	40194	3.193E+00	20.0							3.193E+00	20.0
145	CHAIN	40194	2.797E+00	20.0							2.797E+00	20.0
146	CHAIN	40194	2.167E+00	20.0							2.167E+00	20.0
147	CHAIN	40194	1.657E+00	20.0							1.657E+00	20.0
148	CHAIN	40194	1.318E+00	20.0							1.318E+00	20.0
149	CHAIN	40194	1.097E+00	20.0							1.097E+00	20.0
150	CHAIN	40194	8.300E-01	20.0							8.300E-01	20.0
151	CHAIN	40194	5.460E-01	20.0							5.460E-01	20.0
152	CHAIN	40194	3.550E-01	20.0							3.550E-01	20.0
153	CHAIN	40194	2.680E-01	20.0							2.680E-01	20.0
154	CHAIN	40194	2.110E-01	20.0							2.110E-01	20.0
155	CHAIN	40194	1.700E-01	20.0							1.700E-01	20.0
156	CHAIN	40194	1.180E-01	20.0							1.180E-01	20.0
157	CHAIN	40194	7.200E-02	20.0							7.200E-02	20.0
158	CHAIN	40194	5.200E-02	20.0							5.200E-02	20.0
159	CHAIN	40194	3.600E-02	20.0							3.600E-02	20.0

TABLE 59 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 242PU. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
160	CHAIN	40194	2.300E-02	20.0							2.300E-02	20.0
161	CHAIN	40194	1.100E-02	20.0							1.100E-02	20.0
162	CHAIN	40194	1.200E-02	20.0							1.200E-02	20.0

TABLE 60 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 242CM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2049	2.940E-01	20.0		-1.35			1.82	1.82	3.601E-01	(I) 9.0
		848	3.890E-01	10.0		1.35						(E) 12.1A
91	SR	613	9.400E-01	31.9							9.400E-01	31.9
92	SR	613	1.100E+00	27.3							1.100E+00	27.3
99	MO	613	5.700E+00	12.3							5.700E+00	12.3
103	RU	613	7.200E+00	20.8								
105	RU	613	9.500E+00	9.5							9.500E+00	9.5
106	RU	613	7.400E+00	10.8							7.400E+00	10.8
109	PD(M)	613	2.900E+00	13.8							2.900E+00	13.8
112	PD	613	9.500E-01	15.8							9.500E-01	15.8
115	CD(M)	613	3.300E-02	30.3							3.300E-02	30.3
127	SB	613	3.500E-01	28.6							3.500E-01	28.6
129	SB	613	1.300E+00	23.1							1.300E+00	23.1
131	TE	613	2.300E+00	21.7								
	I	613	2.000E+00	20.0								
132	TE	613	5.800E+00	15.5							5.800E+00	15.5
133	I	613	5.700E+00	14.0							5.700E+00	14.0
134	I	613	6.900E+00	14.5							6.900E+00	14.5
135	I	613	3.900E+00	15.4								
139	BA	613	6.600E+00	10.6							6.600E+00	10.6
140	BA	613	5.900E+00	13.6							5.900E+00	13.6

TABLE 61 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 244CM. (cont)

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
1 H PI	2065r	1.221E-02	41.0							1.221E-02	41.0
3 H PI	2065r	2.197E-02	22.0							2.197E-02	22.0
4 HE PI	2065r	2.426E-01	10.6		-2.17			4.72	2.36	2.849E-01	(I) 5.9 >2
	2054	3.145E-01	10.0		1.12						(E) 9.1A
	849	3.190E-01	10.0		1.26						
77 AS	720	2.500E-03	36.0							2.500E-03	36.0
83 BR	720	1.160E-01	10.3							1.160E-01	10.3
84 KR	720	1.660E-01	20.5							1.660E-01	20.5
85 KR(M)	720	3.070E-01	10.1								
86 KR	720	2.890E-01	15.6								
89 SR	720	7.160E-01	5.0							7.160E-01	5.0
90 SR	720	8.080E-01	10.0							8.080E-01	10.0
91 SR	720	8.250E-01	10.1							8.250E-01	10.1
95 ZR	720	1.630E+00	9.8							1.630E+00	9.8
97 ZR	720	3.040E+00	9.9							3.040E+00	9.9
99 MO	720	3.750E+00	1.0		-1.37			1.87	1.87	3.759E+00	(I) 1.0
	2104	4.030E+00	5.0		1.37						(E) 1.3A
103 RU	720	6.940E+00	10.1							6.940E+00	10.1
105 RU	720	9.430E+00	10.0		0.28			0.08	0.08	9.238E+00	(I) 7.1A
RH	720	9.060E+00	10.0		-0.28						(E) 2.0
106 RU	720	7.400E+00	10.0							7.400E+00	10.0
109 PD	720	5.020E+00	10.0							5.020E+00	10.0
111 AG	720	2.870E+00	4.9							2.870E+00	4.9
112 PD	720	2.030E+00	9.8							2.030E+00	9.8
113 AG(G)	720	7.900E-01	10.1							7.900E-01	10.1
115 CD(G)	720	2.330E-01	5.2	2.330E-01				0.00	0.00	2.580E-01	(I) 4.7A
CD(M)	720	2.500E-02	8.0	2.500E-02							(E) 0.0
125 SN(G)	720	6.700E-03	19.4								
127 SB	720	2.000E-01	10.0							2.000E-01	10.0
129 SB	720	7.400E-01	9.5							7.400E-01	9.5
TE(G)	720	4.700E-01	10.6								
131 I	720	3.150E+00	10.2		0.34			0.12	0.06	3.047E+00	(I) 3.8A
XE	720	3.030E+00	5.0		-0.18						(E) 0.9
	13256r	3.036E+00	7.1		-0.06						
132 TE	720	4.270E+00	5.2		0.09			0.01	0.01	4.258E+00	(I) 4.2A
XE	13256r	4.235E+00	7.1		-0.09						(E) 0.4
133 I	720	7.450E+00	20.1		1.11			1.23	0.61	5.812E+00	(I) 4.0A
XE	13256r	5.753E+00	7.1		-0.18						(E) 3.1
	720	5.780E+00	5.0		-0.18						
134 XE	13256r	6.892E+00	7.1		-0.08			0.01	0.01	6.924E+00	(I) 4.1A
	720	6.940E+00	5.0		0.08						(E) 0.3
135 I	720	5.480E+00	20.1					0.05	0.05	7.550E+00	(I) 4.1A
XE	720	7.500E+00	5.1		-0.23						(E) 0.9
	13256r	7.651E+00	7.1		0.23						
136 XE	720	7.590E+00	5.0							7.590E+00	5.0
137 CS	720	8.140E+00	9.9							8.140E+00	9.9
139 BA	720	7.160E+00	10.1							7.160E+00	10.1
140 BA	720	6.040E+00	5.3		-0.37			0.14	0.14	6.093E+00	(I) 4.7A
	2104	6.300E+00	10.0		0.37						(E) 1.7
141 CE	720	5.790E+00	5.0							5.790E+00	5.0
143 CE	720	3.900E+00	5.1							3.900E+00	5.1
144 CE	720	4.040E+00	9.9							4.040E+00	9.9
147 ND	720	1.440E+00	20.1								
149 ND	720	1.540E+00	9.7		-0.53			0.28	0.28	1.593E+00	(I) 7.0A
PM	720	1.660E+00	10.2		0.53						(E) 3.7
151 PM	720	7.000E-01	10.0							7.000E-01	10.0
153 SM	720	5.200E-01	9.6							5.200E-01	9.6
156 SM	720	2.300E-01	13.0		1.11			1.24	1.24	2.023E-01	(I) 8.2
EU	720	1.900E-01	10.5		-1.11						(E) 9.1A

TABLE 62 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 246CM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
95 ZR	10986	1.990E+00	14.1							1.990E+00	14.1
97 ZR	10986	2.370E+00	12.2							2.370E+00	12.2
99 MO	10986	4.240E+00	8.5							4.240E+00	8.5
103 RU	10986	6.860E+00	8.8							6.860E+00	8.8
105 RU	10986	6.820E+00	14.1							6.820E+00	14.1
111 AG	10986	4.640E+00	42.5							4.640E+00	42.5
112 AG	10986	4.050E+00	13.3							4.050E+00	13.3
131 I	10986	3.390E+00	8.6							3.390E+00	8.6
132 TE	10986	4.680E+00	8.1							4.680E+00	8.1
133 I	10986	5.810E+00	9.1							5.810E+00	9.1
135 I	10986	6.310E+00	10.0							6.310E+00	10.0
140 BA	10986	6.540E+00	9.9							6.540E+00	9.9
141 CE	10986	5.470E+00	10.2							5.470E+00	10.2
142 LA	10986	5.740E+00	24.6							5.740E+00	24.6
143 CE	10986	5.460E+00	10.3							5.460E+00	10.3
144 CE	10986	5.190E+00	17.5							5.190E+00	17.5
147 ND	10986	2.620E+00	9.2							2.620E+00	9.2

TABLE 63 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 248CM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83 CHAIN	12711	3.600E-02	11.1		-1.37			1.87	1.87	3.800E-02	(I) 9.8
	10979	5.100E-02	20.0		1.37						(E) 13.4A
84 CHAIN	12711	7.400E-02	12.2							7.400E-02	12.2
85 CHAIN	12711	9.600E-02	11.5							9.600E-02	11.5
86 CHAIN	12711	1.610E-01	9.9							1.610E-01	9.9
89 CHAIN	10979	4.200E-01	20.0							4.200E-01	20.0
91 CHAIN	10979	5.800E-01	20.0		-0.18			0.03	0.03	5.942E-01	(I) 14.1A
	10979	6.100E-01	20.0		0.18						(E) 2.5
95 CHAIN	10979	1.600E+00	20.0							1.600E+00	20.0
97 CHAIN	10979	2.570E+00	20.0							2.570E+00	20.0
99 CHAIN	10979	3.960E+00	20.0		-0.46			0.21	0.21	4.199E+00	(I) 14.2A
	10979	4.510E+00	20.0		0.46						(E) 6.5
103 CHAIN	10979	5.300E+00	20.0		-0.10			0.01	0.01	5.373E+00	(I) 14.1A
	10979	5.450E+00	20.0		0.10						(E) 1.4
105 CHAIN	10979	6.320E+00	20.0							6.320E+00	20.0
106 CHAIN	10979	5.980E+00	20.0		-0.24			0.06	0.06	6.176E+00	(I) 14.2A
	10979	6.400E+00	20.0		0.24						(E) 3.4
109 CHAIN	10979	5.910E+00	20.0							5.910E+00	20.0
111 CHAIN	10979	5.190E+00	20.0							5.190E+00	20.0
112 CHAIN	10979	3.940E+00	20.0		-0.66			0.44	0.44	4.273E+00	(I) 14.2A
	10979	4.760E+00	20.0		0.66						(E) 9.4
113 CHAIN	10979	2.820E+00	20.0							2.820E+00	20.0
115 CHAIN	10979	1.390E+00	20.0		0.00			0.00	0.00	1.390E+00	(I) 14.1A
	10979	1.390E+00	20.0		0.00						(E) 0.0
125 CHAIN	10979	6.600E-03	20.0							6.600E-03	20.0
127 CHAIN	10979	3.100E-02	20.0							3.100E-02	20.0
129 CHAIN	10979	3.200E-01	20.0							3.200E-01	20.0
131 CHAIN	12711	2.210E+00	9.9		-0.94			0.98	0.49	2.316E+00	(I) 8.2A
	10979	2.510E+00	20.0		0.42						(E) 5.7
	10979	2.740E+00	20.0		0.83						
132 CHAIN	12711	3.730E+00	9.9		-0.90			0.82	0.41	3.900E+00	(I) 8.1A
	10979	4.310E+00	20.0		0.51						(E) 5.2
	10979	4.450E+00	20.0		0.66						
133 CHAIN	10979	4.910E+00	20.0		-0.29			0.08	0.08	5.103E+00	(I) 14.2A
	10979	5.330E+00	20.0		0.29						(E) 4.1
134 CHAIN	12711	4.890E+00	10.0							4.890E+00	10.0
135 CHAIN	10979	5.620E+00	20.0							5.620E+00	20.0
136 CHAIN	12711	4.550E+00	9.9							4.550E+00	9.9
137 CHAIN	10979	6.050E+00	20.0							6.050E+00	20.0
139 CHAIN	10979	6.200E+00	20.0							6.200E+00	20.0
140 CHAIN	10979	5.660E+00	20.0		-0.41			0.17	0.17	5.969E+00	(I) 14.2A
	10979	6.360E+00	20.0		0.41						(E) 5.8
141 CHAIN	10979	5.440E+00	20.0		-0.45			0.20	0.20	5.763E+00	(I) 14.2A
	10979	6.180E+00	20.0		0.45						(E) 6.4
142 CHAIN	10979	6.280E+00	20.0							6.280E+00	20.0
143 CHAIN	10979	5.440E+00	20.0							5.440E+00	20.0
144 CHAIN	10979	5.750E+00	20.0		-0.17			0.03	0.03	5.888E+00	(I) 14.1A
	10979	6.040E+00	20.0		0.17						(E) 2.5
147 CHAIN	10979	3.120E+00	20.0							3.120E+00	20.0
151 CHAIN	10979	1.180E+00	20.0							1.180E+00	20.0
153 CHAIN	10979	7.900E-01	20.0							7.900E-01	20.0

TABLE 64 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 250CF.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
1	H PI	2048	9.000E-03	25.0							9.000E-03		25.0
3	H PI	2048	2.700E-02	20.0							2.700E-02		20.0
4	H PI	2048	3.980E-01	10.0							3.980E-01		10.0
83	CHAIN	10979	1.030E-01	20.0		2.83			8.01	8.01	4.632E-02	(I)	10.5 >2
		12711	4.300E-02	11.6		-2.83						(E)	29.6A
84	CHAIN	12711	8.200E-02	12.2							8.200E-02		12.2
85	CHAIN	12711	1.120E-01	10.7							1.120E-01		10.7
86	CHAIN	12711	1.400E-01	10.0							1.400E-01		10.0
89	CHAIN	10979	4.800E-01	20.0							4.800E-01		20.0
91	CHAIN	10979	5.600E-01	20.0		-0.24			0.06	0.06	5.786E-01	(I)	14.2A
		10979	6.000E-01	20.0		0.24						(E)	3.4
95	CHAIN	10979	1.310E+00	20.0		-0.55			0.30	0.30	1.403E+00	(I)	14.2A
		10979	1.530E+00	20.0		0.55						(E)	7.7
97	CHAIN	10979	1.560E+00	20.0		-0.22			0.05	0.05	1.607E+00	(I)	14.1A
		10979	1.660E+00	20.0		0.22						(E)	3.1
99	CHAIN	10979	3.280E+00	20.0		-0.03			0.00	0.00	3.295E+00	(I)	14.1A
		10979	3.310E+00	20.0		0.03						(E)	0.5
101	TC	12710	3.990E+00	27.8							3.990E+00		27.8
103	CHAIN	10979	5.200E+00	20.0		-0.10			0.01	0.01	5.273E+00	(I)	14.1A
		10979	5.350E+00	20.0		0.10						(E)	1.4
104	TC	12710	6.560E+00	14.0							6.560E+00		14.0
105	RU	12710	6.380E+00	8.3		-0.22			0.05	0.05	6.422E+00	(I)	7.7A
	CHAIN	10979	6.690E+00	20.0		0.22						(E)	1.7
106	CHAIN	10979	6.680E+00	20.0		-0.39			0.16	0.16	7.031E+00	(I)	14.2A
		10979	7.470E+00	20.0		0.39						(E)	5.6
107	RH	12710	7.330E+00	14.5							7.330E+00		14.5
109	CHAIN	10979	6.370E+00	20.0							6.370E+00		20.0
111	CHAIN	10979	4.970E+00	20.0							4.970E+00		20.0
112	CHAIN	10979	3.470E+00	20.0		-0.56			0.31	0.31	3.723E+00	(I)	14.2A
		10979	4.070E+00	20.0		0.56						(E)	8.0
113	CHAIN	10979	3.560E+00	20.0							3.560E+00		20.0
115	CHAIN	10979	1.840E+00	20.0		-0.45			0.20	0.20	1.949E+00	(I)	14.2A
		10979	2.090E+00	20.0		0.45						(E)	6.4
121	CHAIN	10979	2.900E-02	20.0							2.900E-02		20.0
125	CHAIN	10979	2.200E-02	20.0							2.200E-02		20.0
127	CHAIN	10979	1.140E-01	20.0							1.140E-01		20.0
129	CHAIN	10979	4.000E-01	20.0							4.000E-01		20.0
131	CHAIN	12711	1.130E+00	9.7		-1.83			3.95	1.98	1.218E+00	(I)	8.1
		10979	1.450E+00	20.0		0.85						(E)	11.4A
		10979	1.810E+00	20.0		1.70							
132	CHAIN	12711	1.670E+00	10.2		-1.70			2.91	1.46	1.805E+00	(I)	8.4
		10979	2.250E+00	20.0		1.05						(E)	10.1A
		10979	2.340E+00	20.0		1.21							
133	I	12710	3.660E+00	11.2		-0.35			0.13	0.07	3.745E+00	(I)	8.8A
	CHAIN	10979	3.840E+00	20.0		0.14						(E)	2.3
		10979	3.960E+00	20.0		0.30							
134	CHAIN	12711	2.810E+00	10.0							2.810E+00		10.0
135	CHAIN	10979	4.030E+00	20.0							4.030E+00		20.0
136	CHAIN	12711	3.300E+00	10.0							3.300E+00		10.0
139	BA	12710	6.320E+00	9.0		0.07			0.00	0.00	6.304E+00	(I)	8.2A
	CHAIN	10979	6.230E+00	20.0		-0.07						(E)	0.5

TABLE 64 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 250CF. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
140	CHAIN	10979	5.170E+00	20.0		-0.36			0.13	0.13	5.417E+00	(I)	14.2A
		10979	5.720E+00	20.0		0.36						(E)	5.1
141	CHAIN	10979	5.870E+00	20.0		-0.02			0.00	0.00	5.885E+00	(I)	14.1A
		10979	5.900E+00	20.0		0.02						(E)	0.3
142	LA	12710	6.660E+00	10.4							6.660E+00		10.4
143	CHAIN	10979	5.540E+00	20.0		-0.15			0.02	0.02	5.655E+00	(I)	14.1A
		10979	5.780E+00	20.0		0.15						(E)	2.1
144	CHAIN	10979	4.660E+00	20.0		-0.37			0.13	0.13	4.889E+00	(I)	14.2A
		10979	5.170E+00	20.0		0.37						(E)	5.2
147	CHAIN	10979	3.830E+00	20.0							3.830E+00		20.0
149	CHAIN	10979	3.270E+00	20.0							3.270E+00		20.0
151	CHAIN	10979	2.080E+00	20.0							2.080E+00		20.0
153	CHAIN	10979	1.220E+00	20.0							1.220E+00		20.0

TABLE 65 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 252CF.

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
NO.          NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL | INT. EXT./DF   MEAN    DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
  1 H  PI  2071 4.600E-03  20.0            -2.23                     |  4.99   4.99 6.086E-03 (I)  10.4  >2
           2063r7.445E-03  11.8             2.23                     |                        (E)  23.4A
==============================================================================================================
  2 H  PI  2071 1.500E-03  20.0                                      |              1.500E-03      20.0
==============================================================================================================
  3 H       823 2.210E-02  10.0            -0.16                     |  8.99   1.28 2.244E-02 (I)   3.4
    --------------------------                                       |
    H  PI   844 1.900E-02  10.0            -1.97                     |                        (E)   3.9A
           2071 1.980E-02  20.0            -0.68                     |
           2063r2.109E-02   8.7            -0.81                     |
          21699r2.295E-02   8.0             0.31                     |
            843 2.320E-02  19.8             0.17                     |
          22118r2.358E-02   8.7             0.60                     |
            841r2.624E-02   7.0             2.28                     |
==============================================================================================================
  4 HE PI   843 2.900E-01  10.0            -0.94                     |  1.09   0.36 3.102E-01 (I)   6.3A
           2071 3.030E-01  20.0            -0.13                     |                        (E)   3.8
            844 3.270E-01  18.3             0.30                     |
            847 3.340E-01  10.0             0.88                     |
==============================================================================================================
  6*HE PI  2071 2.900E-03  20.0W           -1.77                     |  4.95   1.65 5.304E-03 (I)   6.8
          21699r5.894E-03  12.7             1.31                     |                        (E)   8.7A
          21699r6.204E-03  35.6             0.42                     |
           2020r7.389E-03   8.0W            1.33                     |
==============================================================================================================
  8 HE PI  2020r1.398E-04  16.3            -1.13                     |  1.28   1.28 1.530E-04 (I)  12.8
           2071 1.900E-04  20.0             1.13                     |                        (E)  14.5A
==============================================================================================================
 78 AS      264r2.188E-03  12.0                                      |              2.188E-03      12.0
==============================================================================================================
 83 BR      264r1.596E-02  46.1                                      |  0.00   0.00 5.100E-02 (I)  14.0A
            888 4.200E-02  10.0                                      |                        (E)   0.0
    --------------------------                                       |
    KR      306 5.100E-02  20.0             0.00                     |
    --------------------------                                       |
    CHAIN 13261 5.100E-02  19.6             0.00                     |
==============================================================================================================
 84 KR      306 8.500E-02  20.0             0.00                     |  0.00   0.00 8.500E-02 (I)  18.8A
    --------------------------                                       |
    CHAIN 13261 8.500E-02  55.3             0.00                     |                        (E)   0.0
==============================================================================================================
 85 KR(M)   888 8.200E-02  10.0                                      |  0.02   0.01 1.104E-01 (I)   5.2A
    --------------------------                                       |
    CHAIN 13261 1.090E-01  11.9            -0.12                     |                        (E)   0.5
            306 1.090E-01  20.0            -0.07                     |
          21531 1.100E-01  18.2            -0.02                     |
          30691 1.110E-01   6.3             0.15                     |
==============================================================================================================
 86 KR      306 1.560E-01  20.0             0.00                     |  0.00   0.00 1.560E-01 (I)  11.9A
    --------------------------                                       |
    CHAIN 13261 1.560E-01  14.7             0.00                     |                        (E)   0.0
==============================================================================================================
 88 CHAIN 30691 2.960E-01  14.2            -0.08                     |  0.01   0.01 2.987E-01 (I)   8.2A
          21531 3.000E-01  10.0             0.08                     |                        (E)   0.6
==============================================================================================================
 89 SR      264r3.272E-01   4.6            -1.29                     |  1.66   1.66 3.345E-01 (I)   4.2
            888 3.800E-01  10.0             1.29                     |                        (E)   5.4A
==============================================================================================================
 91*SR      888 6.100E-01  10.0             0.74                     | 10.97   2.19 5.690E-01 (I)   3.1  >2
    --------------------------                                       |
    Y       264r6.018E-01  11.0             0.54                     |                        (E)   4.5A
            742 6.900E-01   4.3W            1.87                     |
    --------------------------                                       |
    CHAIN 21592 4.100E-01  14.6W           -2.35                     |
          21531 4.800E-01   6.2W           -1.62                     |
          30691 5.350E-01  11.2            -0.63                     |
==============================================================================================================
 92 Y       742 7.000E-01   4.3             2.22                     |  7.07   2.36 6.479E-01 (I)   2.9  >2
    --------------------------                                       |
    CHAIN 21592 5.700E-01  21.1            -0.66                     |                        (E)   4.4A
          30691 6.040E-01   4.3            -2.43                     |
          21531 7.100E-01   9.9             0.92                     |
==============================================================================================================
 93*Y       742 1.000E+00   4.0W            1.54                     |  7.52   2.51 9.160E-01 (I)   3.2  >2
            888 7.000E-01  10.0W           -2.35                     |                        (E)   5.1A
            264r8.601E-01   7.3            -1.15                     |
    --------------------------                                       |
    CHAIN 21592 1.000E+00  12.0             0.74                     |
==============================================================================================================
 94 CHAIN 30691 1.050E+00   7.6            -0.07                     |  0.00   0.00 1.053E+00 (I)   6.3A
          21531 1.060E+00  11.3             0.07                     |                        (E)   0.4
==============================================================================================================
 95 ZR      598r1.226E+00   8.7            -0.03                     |  8.29   1.04 1.229E+00 (I)   1.5
          13283r1.255E+00   4.8             0.45                     |                        (E)   1.5A
            743r1.279E+00   6.1             0.65                     |
            741 1.290E+00   3.1             1.71                     |
            888 1.300E+00  10.0             0.55                     |
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TABLE 65 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 252CF.   (cont)

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""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
 A  EL.     REF.  EXPERIMENTAL      MEAN      R     CHI2/DF  DCHI2 CHI2| TOTAL CHI2     WEIGHTED  STANDARD
NO.          NO.  YIELDS & SD    COMPONENT VALUE COMPONENT  EXTERNAL | INT. EXT./DF   MEAN    DEVIATION
""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""""
            264r1.441E+00  20.2             0.73                     |
    --------------------------                                       |
    CHAIN 30691 1.170E+00   3.0            -2.01                     |
          21531 1.190E+00   3.4            -1.11                     |
          21592 1.280E+00   4.7             0.89                     |
==============================================================================================================
 97*ZR      744r1.472E+00   5.1W           -2.50                     | 16.48   2.06 1.646E+00 (I)   1.7  >2
            264r1.549E+00  10.3            -0.62                     |                        (E)   2.5A
          13283r1.808E+00   5.2             1.82                     |
            598r1.823E+00   6.4             1.55                     |
            888 1.900E+00  10.0             1.35                     |
             77 2.100E+00  14.3             1.52                     |
    --------------------------                                       |
    CHAIN 21592 1.580E+00   5.1            -0.89                     |
          21531 1.610E+00   3.7            -0.69                     |
          30691 1.680E+00   3.2             0.74                     |
==============================================================================================================
 99*MO    13283r1.538E+01   4.8W            2.49                     | 18.67   2.07 2.636E+00 (I)   1.6  >2
            218 2.200E+00  22.7            -0.88                     |                        (E)   2.3A
          40459r2.225E+00  20.3            -0.92                     |
            888 2.480E+00   6.0            -1.11                     |
            598r2.733E+00   4.5             0.84                     |
            741 2.760E+00   2.9             1.89                     |
             77 3.000E+00  15.0             0.81                     |
    --------------------------                                       |
    CHAIN 21592 2.290E+00   3.9W           -2.10                     |
          30691 2.550E+00   4.3            -0.87                     |
          21531 2.780E+00   4.3             1.30                     |
==============================================================================================================
101 MO    21700 3.230E+00  12.4            -1.85                     |  4.14   0.83 3.955E+00 (I)   2.1A
            598r4.065E+00   5.0             0.60                     |                        (E)   1.9
          13283r4.068E+00   4.6             0.67                     |
             77 4.100E+00  19.5             0.18                     |
    --------------------------                                       |
    CHAIN 30691 3.910E+00   3.3            -0.45                     |
          21531 4.000E+00   5.2             0.23                     |
==============================================================================================================
102 MO    13283r3.731E+00   4.6                                      |
            598r3.731E+00   5.0                                      |
==============================================================================================================
103 RU      888 4.840E+00  10.0                                      |  3.95   1.98 5.593E+00 (I)   2.1
            598r5.418E+00   8.8                                      |                        (E)   2.9A
          13283r5.422E+00   3.0                                      |
          40459r6.231E+00  14.7                                      |
            744r6.710E+00   4.8                                      |
    --------------------------                                       |
    CHAIN 21531 5.210E+00   5.0            -1.65                     |
          30691 5.590E+00   2.9            -0.03                     |
          21592 5.900E+00   3.9             1.55                     |
==============================================================================================================
104 TC    21700 5.500E+00   7.3             0.03                     |  0.12   0.06 5.490E+00 (I)   2.8A
    --------------------------                                       |
    CHAIN 30691 5.450E+00   3.7            -0.31                     |                        (E)   0.7
          21531 5.570E+00   5.2             0.32                     |
==============================================================================================================
105*RU      916 5.300E+00   5.7W           -2.29                     | 21.06   2.63 6.139E+00 (I)   2.1  >2
            888 5.800E+00  10.0            -0.60                     |                        (E)   3.5A
           2022 7.200E+00   5.0W            2.37                     |
            218 9.200E+00  15.2             2.20                     |
    --------------------------                                       |
    RH      916 5.100E+00  13.7            -1.52                     |
            744r6.073E+00   9.8            -0.11                     |
    --------------------------                                       |
    CHAIN 30691 5.920E+00   5.0            -0.84                     |
          21531 6.130E+00   5.0            -0.03                     |
          21592 6.770E+00   5.0             2.05                     |
==============================================================================================================
106 TC    21700 4.680E+00   4.3                                      |  6.05   3.03 6.271E+00 (I)   2.8  >2
    --------------------------                                       |
    RU      599 5.800E+00   5.2                                      |                        (E)   4.9A
            888 6.030E+00  10.0                                      |
    --------------------------                                       |
    CHAIN 21531 5.930E+00   6.1            -1.09                     |
          30691 6.060E+00   4.1            -1.20                     |
          21592 7.010E+00   5.0             2.44                     |
==============================================================================================================
107 RU      916 6.300E+00  14.3                                      |  0.00   0.00 6.625E+00 (I)   2.9A
           2022 6.350E+00   6.0                                      |                        (E)   0.1
    --------------------------                                       |
    RH      916 6.200E+00  14.5                                      |
    --------------------------                                       |
    CHAIN 21531 6.610E+00   5.6            -0.05                     |
          30691 6.630E+00   3.3             0.05                     |
==============================================================================================================
108 TC    40895 3.300E+00  15.2                                      |
    --------------------------                                       |
    RU     2022 5.890E+00   5.0                                      |
```

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
		916	6.000E+00	15.0											
109	RU	2022	4.080E+00	8.0						2.03	0.34	5.985E+00	(I)	3.8A	
		21700	5.180E+00	3.9									(E)	2.2	
	PD	40459r	5.341E+00	25.2		-0.48									
		888	5.870E+00	10.0		-0.21									
		264r	6.255E+00	13.8		0.32									
		218	6.800E+00	19.1		0.64									
		741	7.650E+00	20.0		1.10									
	CHAIN	30691	5.890E+00	5.4		-0.42									
		21531	6.000E+00	8.2		0.03									
111	AG	218	4.500E+00	20.0						0.93	0.46	5.187E+00	(I)	3.4A	
		888	5.280E+00	10.0									(E)	2.3	
		743r	5.435E+00	5.0											
		264r	5.901E+00	6.9											
	CHAIN	21592	4.780E+00	10.0		-0.91									
		21531	5.170E+00	6.2		-0.06									
		30691	5.290E+00	4.3		0.68									
112	PD	743r	2.788E+00	9.2						5.35	2.67	5.143E+00	(I)	2.6	>2
		264r	3.082E+00	13.2									(E)	4.3A	
		741	3.770E+00	2.9											
		888	4.410E+00	10.0											
		218	4.500E+00	20.0											
	CHAIN	21531	4.690E+00	5.1		-2.27									
		30691	5.310E+00	3.4		1.39									
		21592	5.490E+00	6.6		1.04									
113	AG	741	2.990E+00	33.4		-1.65				3.69	1.23	4.624E+00	(I)	3.0	
		218	4.200E+00	19.0		-0.54							(E)	3.3A	
	CHAIN	30691	4.610E+00	3.5		-0.17									
		21531	4.880E+00	6.2		0.96									
115	CD(G)	888	2.180E+00	10.0	2.435E+00	-1.44	0.80	6.80	9.1>2	12.02	2.00	2.879E+00	(I)	2.2	>2
		264r	2.502E+00	8.6		0.39							(E)	3.2A	
		888	2.600E+00	10.0		0.73									
		218	2.800E+00	17.9		0.75									
	CD(M)	743r	1.099E-01	7.9	1.099E-01	0.00		0.03							
	CHAIN	30691	2.970E+00	3.0	2.993E+00	-0.45	0.24	2.33							
		21531	2.980E+00	6.0		-0.08									
		21592	3.120E+00	6.4		0.69									
116	AG	21700	1.600E+00	12.5											
117	CHAIN	21592	1.130E+00	13.3		-1.85				4.71	2.35	1.367E+00	(I)	5.7	>2
		30691	1.350E+00	9.6		-0.16							(E)	8.8A	
		21531	1.560E+00	8.3		1.87									
121	SN	264r	1.474E-01	16.2		2.29				5.23	5.23	9.610E-02	(I)	8.7	>2
		888	8.900E-02	10.0		-2.29							(E)	19.9A	
123	SN	888	4.700E-03	10.0											
125	SN	888	8.200E-03	10.0								3.000E-02		100.0	
	SB	888	1.720E-02	10.0											
	CHAIN	21592	3.000E-02	100.0											
127*	SN(G)	2074	4.370E-02	5.0W		-0.13				4.63	1.54	4.695E-02	(I)	4.6	
	SB	743r	1.278E-01	7.7									(E)	5.7A	
		264r	6.026E-02	9.2											
		888	7.500E-02	10.0											
	TE(M)	888	2.200E-02	10.0											
	CHAIN	21592	1.200E-01	41.7		1.72									
		21531	1.380E-01	9.4W		0.72									
		30691	1.480E-01	20.3W		1.52									
128*	SN	2074	1.450E-01	5.0W		-2.40				4.86	2.43	2.463E-01	(I)	1.0	>2
	CHAIN	21531	2.600E-01	1.0W		0.03							(E)	1.6A	
		30691	2.930E-01	10.9W		1.82									
129	SB	888	3.300E-01	10.0						2.64	1.32	5.651E-01	(I)	7.1	
		264r	3.778E-01	6.4									(E)	8.2A	

TABLE 65 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 252CF. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
	TE(M)	888	1.110E-01	10.0											
	CHAIN	30691	5.270E-01	10.2		-1.07									
		21531	5.700E-01	12.3		0.09									
		21592	7.400E-01	16.2		1.55									
131*	SB	21700	1.200E+00	16.7						15.76	1.75	1.735E+00	(I)	1.0	
	I	745r	1.237E+00	20.4		-1.97							(E)	1.3A	
		264r	1.286E+00	20.3		-1.73									
		888	1.720E+00	10.0		-0.09									
		598r	1.804E+00	6.4		0.60									
		13283r	4.740E+00	6.8W		2.49									
	XE	306	1.730E+00	15.0		-0.02									
	CHAIN	21531	1.610E+00	5.6		-1.42									
		13261	1.730E+00	1.2		-0.52									
		21592	1.730E+00	4.0		-0.07									
		30691	1.770E+00	3.4		0.61									
132*	TE	743r	1.771E+00	4.6W		-2.03				23.98	1.84	2.306E+00	(I)	1.0	
		741	1.780E+00	4.5W		-1.87							(E)	1.3A	
		264r	1.822E+00	3.8W		-1.98									
		745r	1.939E+00	5.9W		-2.27									
		40459r	2.225E+00	20.3		-0.18									
		888	2.280E+00	10.0		-0.12									
		13283r	2.492E+00	3.3W		2.16									
		218	2.800E+00	14.3		1.24									
	I	598r	2.445E+00	5.4		1.16									
	XE	306	2.540E+00	15.0		0.62									
	CHAIN	21531	2.130E+00	10.0		-0.86									
		21592	2.270E+00	15.3		-0.11									
		30691	2.360E+00	14.7		0.16									
		13261	2.540E+00	1.2W		1.16									
133*	I	40459r	2.671E+00	17.0		-1.50				14.77	2.95	3.339E+00	(I)	2.7	>2
		888	3.180E+00	10.0		-0.53							(E)	4.7A	
		218	4.800E+00	14.6		2.11									
	XE	13283r	4.140E+00	5.0W		2.15									
	CHAIN	21531	3.090E+00	5.2		-1.98									
		30691	3.160E+00	5.0		-1.45									
134*	TE	1080	3.100E+00	12.9						4.00	1.00	4.327E+00	(I)	1.0A	
	I	218	4.200E+00	14.3		-0.22							(E)	1.0	
	XE	306	4.410E+00	15.0		0.13									
	CHAIN	21531	3.650E+00	4.1W		-1.29									
		30691	3.660E+00	6.3W		-1.69									
		13261	4.410E+00	1.0W		0.47									
135	I	218	4.000E+00	15.0		-0.13				7.30	1.04	4.076E+00	(I)	1.8	
		21700	4.000E+00	2.5		-1.10							(E)	1.8A	
		888	4.050E+00	10.0		-0.06									
	XE	745r	3.848E+00	6.1		-1.01									
		264r	4.775E+00	19.2		0.77									
	CHAIN	21592	3.750E+00	9.6		-0.92									
		30691	4.230E+00	4.0		1.00									
		21531	4.500E+00	5.0		1.99									
137	XE	21700	4.600E+00	4.3		-2.22				11.37	1.90	4.965E+00	(I)	2.3	
	CS	264r	4.775E+00	20.2		-0.20							(E)	3.2A	
		598r	5.173E+00	14.1		0.29									
		13283r	5.227E+00	4.8		1.17									
	CHAIN	21592	4.510E+00	6.7		-1.64									
		21531	5.420E+00	6.6		1.33									
		30691	5.430E+00	5.0		1.89									
138	CS	21700	5.610E+00	5.0		1.21				3.57	0.89	5.307E+00	(I)	2.4A	
		264r	5.969E+00	20.5		0.54							(E)	2.3	
		218	6.300E+00	14.3		1.11									
	CHAIN	30691	5.100E+00	4.5		-1.08									
		21531	5.250E+00	3.6		-0.41									
139	BA	598r	5.720E+00	4.8		-0.71				5.94	0.85	5.901E+00	(I)	1.7A	

TABLE 65 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 252CF. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
		13283r	5.733E+00	3.4		-1.02						(E)	1.6
		888	6.030E+00	10.0		0.22							
		2060	6.080E+00	5.0		0.62							
		218	6.200E+00	14.5		0.33							
		741	6.240E+00	3.2		1.97							
		264r	6.345E+00	20.3		0.35							
	CHAIN	30691	5.620E+00	4.5		-1.23							
140	CS	40895	6.000E+00	11.7		0.28			7.36	0.92	5.809E+00	(I)	2.0A
	BA	40459r	5.341E+00	17.0		-0.52						(E)	1.9
		888	5.770E+00	10.0		-0.07							
		745r	5.945E+00	5.4		0.46							
		741	6.490E+00	12.6		0.84							
		742	6.500E+00	5.7		1.96							
		264r	6.592E+00	15.3		0.78							
	CHAIN	21531	5.500E+00	4.0		-1.64							
		30691	5.760E+00	3.1		-0.35							
141*	BA	2060	5.660E+00	1.0					11.57	1.16	6.251E+00	(I)	1.4
		21700	6.000E+00	3.3								(E)	1.5A
	LA	742	6.150E+00	3.7		-0.47							
	CE	13283r	3.104E+01	8.0W		2.50							
		264r	5.867E+00	20.4		-0.32							
		598r	5.878E+00	7.9		-0.82							
		2036	6.000E+00	11.0		-0.38							
		888	6.370E+00	10.0		0.19							
		742	6.390E+00	3.8		0.62							
		40459r	6.676E+00	26.9		0.24							
	CHAIN	30691	5.780E+00	4.5		-1.91							
		21531	6.130E+00	5.9		-0.34							
		21592	6.330E+00	1.9		0.93							
142	BA	2060	5.410E+00	5.0		-2.27			5.22	1.74	5.906E+00	(I)	2.7
	LA	742	6.260E+00	7.8		0.76						(E)	3.6A
	CHAIN	30691	6.150E+00	3.9		1.37							
		21531	6.190E+00	8.4		0.57							
143	CE	40459r	4.896E+00	27.5		-1.12			9.41	0.67	6.405E+00	(I)	1.5A
		264r	5.812E+00	7.0		-1.50						(E)	1.2
		888	5.930E+00	10.0		-0.81							
		2036	6.200E+00	12.0		-0.28							
		745r	6.452E+00	8.6		0.09							
		13283r	6.476E+00	4.1		0.28							
		598r	6.529E+00	4.8		0.42							
		742	6.620E+00	3.9		0.89							
		218	7.800E+00	19.2		0.93							
	PR	742	6.730E+00	3.7		1.41							
		741	7.130E+00	20.0		0.51							
		77	7.400E+00	20.3		0.66							
	CHAIN	21531	6.130E+00	5.1		-0.93							
		21592	6.290E+00	4.8		-0.40							
		30691	6.300E+00	3.6		-0.50							
144	BA	40895	4.300E+00	18.6					2.14	0.43	6.045E+00	(I)	2.2A
	LA	2100	4.780E+00	15.0								(E)	1.5
		21700	5.400E+00	3.7									
		40895	5.500E+00	9.1									
	CE	598r	5.808E+00	5.3		-0.86							
		13283r	5.819E+00	4.9		-0.89							
		742	6.250E+00	5.0		0.73							
		888	6.270E+00	10.0		0.37							
	CHAIN	30691	6.160E+00	4.5		0.47							
		21531	6.210E+00	6.1		0.46							
145	CE	2100	4.200E+00	5.0							5.600E+00		3.6
	PR	742	5.600E+00	3.6									
146	CE	21700	3.820E+00	2.6					0.96	0.96	5.460E+00	(I)	2.6A
		2100	4.140E+00	10.0								(E)	2.6
	CHAIN	21531	5.180E+00	6.2		-0.98							
		30691	5.530E+00	2.9		0.98							

TABLE 65 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 252CF. (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
147*	CE	2100	3.760E+00	10.0					21.24	1.93	4.301E+00	(I)	1.9
	PR	2100	4.380E+00	10.0		0.18						(E)	2.6A
	ND	2100	2.430E+00	20.0W		-2.46							
		2036	3.300E+00	20.0		-1.53							
		77	4.000E+00	20.0		-0.38							
		888	4.180E+00	10.0		-0.29							
		264r	4.327E+00	17.5		0.03							
		741	4.480E+00	3.1		1.58							
		13283r	4.857E+00	5.4		2.21							
		598r	4.908E+00	14.9		0.84							
	CHAIN	30691	4.030E+00	4.5		-1.69							
		21531	4.100E+00	5.1		-1.04							
		21592	4.800E+00	6.2		1.73							
148	PR	2100	4.810E+00	5.0							4.810E+00		5.0
149*	ND	2036	2.420E+00	11.0		-0.73			11.04	1.38	2.606E+00	(I)	2.7
		21700	2.420E+00	4.1W		-2.31						(E)	3.2A
		742	2.820E+00	10.0		0.79							
	PM	264r	2.422E+00	22.4		-0.34							
		888	2.950E+00	10.0		1.20							
		742	3.120E+00	15.0		1.11							
	CHAIN	21531	2.740E+00	7.3		0.72							
		30691	2.870E+00	6.3		1.61							
		21592	3.900E+00	25.0		1.33							
151*	ND	2100	1.210E+00	5.0					14.65	2.44	1.931E+00	(I)	2.4 >2
		21700	1.720E+00	5.8								(E)	3.8A
		2036	9.400E-01	14.0									
	PM	2036	1.400E+00	11.0W		-2.37							
		264r	1.671E+00	22.1		-0.71							
		888	1.680E+00	10.0		-1.56							
		742	2.000E+00	3.5		1.35							
	CHAIN	21592	1.770E+00	11.3		-0.83							
		21531	1.990E+00	6.5		0.49							
		30691	2.170E+00	5.1		2.41							
152	ND	2100	2.470E+00	5.0							2.470E+00		5.0
153	SM	40459r	1.068E+00	25.2		-0.94			5.64	0.71	1.318E+00	(I)	2.4A
		888	1.170E+00	10.0		-1.32						(E)	2.1
		742	1.290E+00	3.9		-0.74							
		77	1.300E+00	23.1		-0.06							
		2036	1.350E+00	12.0		0.20							
		264r	1.427E+00	21.9		0.35							
	CHAIN	21531	1.310E+00	6.1		-0.11							
		30691	1.400E+00	4.7		1.42							
		21592	1.510E+00	11.9		1.08							
155	SM	2100	7.000E-01	10.0		-0.32			2.30	1.15	7.202E-01	(I)	4.4
	CHAIN	30691	7.010E-01	5.6		-0.84						(E)	4.7A
		21531	8.380E-01	10.0		1.52							
156*	SM	742	5.300E-01	3.8W		-1.75			13.79	2.76	6.253E-01	(I)	1.9 >2
		888	7.200E-01	10.0		1.36						(E)	3.2A
	EU	742	6.800E-01	2.9W		1.51							
		264r	7.145E-01	5.7		2.44							
	CHAIN	21531	6.140E-01	6.3		-0.33							
		30691	6.960E-01	6.2		1.82							
157	EU	742	5.600E-01	5.0		1.59			5.40	1.80	5.329E-01	(I)	4.2
	CHAIN	21592	4.300E-01	11.6		-2.30						(E)	5.6A
		30691	5.230E-01	22.9		-0.08							
		21531	5.600E-01	10.7		0.49							
159	GD	742	3.600E-01	2.8							3.600E-01		2.8
161	TB	264r	1.577E-01	21.8		-1.29			2.34	1.17	2.004E-01	(I)	4.4
		742	2.000E-01	5.0		-0.09						(E)	4.8A
		888	2.200E-01	10.0		0.97							
166	DY	264r	1.883E-02	50.9							1.883E-02		50.9

TABLE 66 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 254CF.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
93	CHAIN	13467	6.900E-01	10.0							6.900E-01	10.0
97	CHAIN	13467	8.900E-01	10.0							8.900E-01	10.0
99	CHAIN	13467	2.000E+00	10.0							2.000E+00	10.0
105	CHAIN	13467	4.880E+00	10.0							4.880E+00	10.0
109	CHAIN	13467	5.600E+00	13.0							5.600E+00	13.0
111	CHAIN	13467	5.300E+00	10.0							5.300E+00	10.0
112	CHAIN	13467	4.400E+00	10.0							4.400E+00	10.0
113	CHAIN	13467	5.200E+00	10.0							5.200E+00	10.0
115	CHAIN	13467	3.200E+00	10.0							3.200E+00	10.0
131	CHAIN	13467	2.600E+00	10.0							2.600E+00	10.0
132	CHAIN	13467	2.900E+00	10.0							2.900E+00	10.0
133	CHAIN	13467	4.900E+00	10.0							4.900E+00	10.0
134	CHAIN	13467	5.400E+00	10.0							5.400E+00	10.0
135	CHAIN	13467	4.600E+00	13.0							4.600E+00	13.0
139	CHAIN	13467	5.700E+00	10.0							5.700E+00	10.0
140	CHAIN	13467	5.900E+00	10.0							5.900E+00	10.0
141	CHAIN	13467	5.300E+00	13.0							5.300E+00	13.0
143	CHAIN	13467	5.900E+00	10.0							5.900E+00	10.0
145	CHAIN	13467	5.600E+00	18.0							5.600E+00	18.0
147	CHAIN	13467	4.700E+00	10.0							4.700E+00	10.0
149	CHAIN	13467	3.000E+00	10.0							3.000E+00	10.0
151	CHAIN	13467	2.600E+00	12.0							2.600E+00	12.0
153	CHAIN	13467	1.500E+00	10.0							1.500E+00	10.0
157	CHAIN	13467	6.000E-01	10.0							6.000E-01	10.0

TABLE 67 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 253ES.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	BR	926	6.100E-02	9.8							6.100E-02	9.8
89	SR	926	3.660E-01	10.1							3.660E-01	10.1
91	SR	926	5.280E-01	7.0							5.280E-01	7.0
93	Y	926	6.740E-01	9.9							6.740E-01	9.9
95	ZR	926	1.130E+00	17.7							1.130E+00	17.7
97	ZR	926	1.840E+00	4.9							1.840E+00	4.9
99	MO	926	3.090E+00	4.8							3.090E+00	4.8
103	RU	926	5.830E+00	5.0							5.830E+00	5.0
105	RU	926	6.180E+00	15.0							6.180E+00	15.0
106	RU	926	6.450E+00	7.4							6.450E+00	7.4
109	PD	926	5.470E+00	10.1							5.470E+00	10.1
111	AG	926	4.690E+00	5.1							4.690E+00	5.1
112	PD	926	3.770E+00	10.1							3.770E+00	10.1
115	CD(G)	926	2.610E+00	5.0	2.610E+00	0.00		0.00 0.0	0.00	0.00	2.821E+00 (I)	3.4A
	CD(M)	926	2.120E-01	5.7	2.120E-01	0.00		0.00			(E)	0.0
	CHAIN	926	2.820E+00	5.0	2.820E+00	0.00		0.00				
121	SN	926	1.390E-01	10.1							1.600E-01	10.0
	CHAIN	926	1.600E-01	10.0								
125	SN	926	9.180E-03	9.8							1.930E-02	10.4
	CHAIN	926	1.930E-02	10.4								
127	SB	926	6.390E-02	9.4							6.390E-02	9.4
129	SB	926	3.130E-01	7.7							3.130E-01	7.7
131	I	926	1.150E+00	10.4							1.150E+00	10.4
132	TE	926	2.400E+00	10.0							2.400E+00	10.0
133	I	926	2.680E+00	10.1							2.680E+00	10.1
135	I	926	3.900E+00	10.0							3.900E+00	10.0
139	BA	926	5.930E+00	10.1							5.930E+00	10.1
140	BA	926	5.620E+00	5.0							5.620E+00	5.0
141	CE	926	5.810E+00	10.0							5.810E+00	10.0
143	CE	926	6.480E+00	4.9							6.480E+00	4.9
144	CE	926	5.160E+00	10.1							5.160E+00	10.1
149	PM	926	3.170E+00	10.1							3.170E+00	10.1
151	PM	926	1.930E+00	9.8							1.930E+00	9.8
153	SM	926	1.500E+00	10.0							1.500E+00	10.0
157	EU	926	7.500E-01	10.7							7.500E-01	10.7
159	GD	926	5.700E-01	10.5							5.700E-01	10.5

TABLE 68 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 254FM.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
88	CHAIN	759	8.000E-02	10.0								8.000E-02		10.0	
91	SR	10642	3.800E-01	10.5								3.800E-01		10.5	
93	Y	10642	4.800E-01	10.4								4.800E-01		10.4	
95	ZR	10642	5.400E-01	14.8		0.21				0.04	0.04	5.259E-01	(I)	8.3A	
	CHAIN	759	5.200E-01	10.0		-0.21							(E)	1.7	
97	ZR	10642	1.350E+00	9.6		0.91				0.82	0.82	1.263E+00	(I)	7.0A	
	CHAIN	759	1.190E+00	10.0		-0.91							(E)	6.3	
99	CHAIN	759	1.540E+00	10.0								1.540E+00		10.0	
103	RU	10642	3.130E+00	9.9		-0.18				0.03	0.03	3.169E+00	(I)	7.0A	
	CHAIN	759	3.210E+00	10.0		0.18							(E)	1.3	
105	CHAIN	759	4.910E+00	10.0								4.910E+00		10.0	
106	RU	10642	5.750E+00	10.1		1.43				2.06	2.06	5.101E+00	(I)	7.1	>2
	CHAIN	759	4.680E+00	10.0		-1.43							(E)	10.2A	
109	PD	10642	5.670E+00	10.1								5.670E+00		10.1	
111	AG	10642	5.500E+00	5.5								5.500E+00		5.5	
112	PD	10642	5.060E+00	10.1								6.420E+00		10.0	
	CHAIN	759	6.420E+00	10.0											
115	CD(G)	10642	4.470E+00	9.8	4.470E+00	0.00		0.00	0.0	0.01	0.01	5.078E+00	(I)	5.9A	
	CD(M)	10642	5.800E-01	10.3	5.800E-01	0.00		0.00					(E)	0.5	
	CHAIN	2014	5.100E+00	7.8	5.100E+00	0.00		0.00							
121	SN(G)	10642	6.660E-01	10.1		-0.90				0.81	0.81	7.049E-01	(I)	7.3A	
	CHAIN	2014	7.600E-01	10.5		0.90							(E)	6.6	
125	SN(G)	10642	6.600E-02	10.6								6.600E-02		10.6	
127	SB	10642	2.400E-01	12.5		-0.74				0.55	0.55	2.566E-01	(I)	7.8A	
	CHAIN	759	2.700E-01	10.0		0.74							(E)	5.8	
129	SB	10642	8.800E-01	10.2								8.800E-01		10.2	
131	I	10642	2.580E+00	10.1		0.72				0.51	0.51	2.441E+00	(I)	7.1A	
	CHAIN	759	2.330E+00	10.0		-0.72							(E)	5.1	
132	TE	10642	3.020E+00	9.9		0.21				0.05	0.05	2.974E+00	(I)	7.0A	
	CHAIN	759	2.930E+00	10.0		-0.21							(E)	1.5	
133	I	10642	3.290E+00	10.0								4.740E+00		10.0	
	CHAIN	759	4.740E+00	10.0											
135	CHAIN	759	4.300E+00	10.0								4.300E+00		10.0	
139	CHAIN	759	5.130E+00	10.0								5.130E+00		10.0	
140	BA	10642	5.490E+00	10.0		0.66				0.44	0.44	5.222E+00	(I)	7.1A	
	CHAIN	759	5.000E+00	10.0		-0.66							(E)	4.7	
141	CE	10642	6.290E+00	8.0		2.03				4.14	4.14	5.561E+00	(I)	6.3	>2
	CHAIN	759	4.870E+00	10.0		-2.03							(E)	12.8A	
142	CHAIN	759	5.140E+00	10.0								5.140E+00		10.0	
143	CE	10642	5.640E+00	5.3		1.89				3.59	3.59	5.330E+00	(I)	4.7	>2
	CHAIN	759	4.600E+00	10.0		-1.89							(E)	8.9A	
144	CE	10642	5.090E+00	9.8		1.23				1.52	1.52	4.623E+00	(I)	7.0	
	CHAIN	759	4.280E+00	10.0		-1.23							(E)	8.7A	
147	CHAIN	759	3.560E+00	10.0								3.560E+00		10.0	
149	CHAIN	759	2.980E+00	10.0								2.980E+00		10.0	
153	SM	10642	1.420E+00	9.9								1.420E+00		9.9	
157	EU	10642	6.200E-01	9.7								6.200E-01		9.7	
159	GD	10642	4.400E-01	9.1								4.400E-01		9.1	

TABLE 69 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 256FM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
1 H PI	2048	7.000E-03	30.0							7.000E-03	30.0
3 H PI	2048	3.900E-02	15.0							3.900E-02	15.0
4 HE PI	2048	4.620E-01	15.0		-0.21			0.05	0.05	4.742E-01	(I) 8.3A
	2814	4.800E-01	10.0		0.21						(E) 1.8
91 SR	686	2.400E-01	12.5							2.400E-01	12.5
97 ZR	686	7.500E-01	20.0							7.500E-01	20.0
105 RU	686	3.100E+00	12.9							3.100E+00	12.9
109 PD	686	3.600E+00	27.8							3.600E+00	27.8
111 AG	686	5.400E+00	7.4							5.400E+00	7.4
112 PD	2014	4.400E+00	13.6		-0.35			0.12	0.12	4.550E+00	(I) 9.3A
AG	686	4.700E+00	12.8		0.35						(E) 3.3
113 AG	686	4.000E+00	7.5							4.000E+00	7.5
115 CD(G)	2014	5.200E+00	9.6		-0.51			0.26	0.26	5.364E+00	(I) 7.2A
CHAIN	2014	5.600E+00	10.7		0.51						(E) 3.7
118 CD	686	5.700E+00	17.5							5.700E+00	17.5
121 SN(G)	2014	2.100E+00	9.5							2.500E+00	12.0
CHAIN	2014	2.500E+00	12.0								
125 SN(G)	2014	5.600E-01	35.7							5.600E-01	35.7
127 SB	686	4.400E-01	18.2							4.400E-01	18.2
129 SB	686	8.800E-01	17.0							8.800E-01	17.0
131 I	686	2.600E+00	19.2							2.600E+00	19.2
132 TE	686	3.900E+00	12.8							3.900E+00	12.8
133 I	686	3.900E+00	20.5							3.900E+00	20.5
135 I	686	5.400E+00	18.5							5.400E+00	18.5
139 BA	686	6.200E+00	12.9							6.200E+00	12.9
140 BA	686	6.000E+00	8.3							6.000E+00	8.3
141 LA	686	7.100E+00	19.7							7.100E+00	19.7
143 CE	686	6.100E+00	8.2							6.100E+00	8.2
145 PR	686	5.200E+00	19.2							5.200E+00	19.2
149 PM	686	2.700E+00	14.8							2.700E+00	14.8
151 PM	686	2.100E+00	14.3							2.100E+00	14.3
153 SM	686	1.400E+00	21.4							1.400E+00	21.4
156 SM	686	7.000E-01	28.6							7.000E-01	28.6
157 EU	686	5.300E-01	13.2							5.300E-01	13.2
159 GD	686	5.000E-01	14.0							5.000E-01	14.0

TABLE 70 CHAIN AND CUMULATIVE YIELDS FROM SPONTANEOUS FISSION OF 257FM.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4 HE PI	2048	3.760E-01	10.0		-0.95			0.89	0.89	3.994E-01	(I) 7.1A
	2814	4.300E-01	10.0		0.95						(E) 6.7

TABLE 71 CHAIN AND CUMULATIVE YIELDS FROM 2.000E+06 eV FISSION IN 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	SE(M)	1162	9.300E-01	23.0						9.300E-01	23.0
84	BR(G)	1162	4.540E+00	11.0						4.540E+00	11.0
85	KR(M)	1162	5.130E+00	4.1							
87	KR	1162	7.370E+00	4.6						7.370E+00	4.6
88	KR	1162	6.930E+00	4.2						6.930E+00	4.2
89	RB	1162	7.700E+00	8.3						7.700E+00	8.3
91	SR	1162	7.820E+00	3.1						7.820E+00	3.1
92	SR	1162	7.240E+00	12.0						7.240E+00	12.0
93	Y	1162	5.610E+00	7.0						5.610E+00	7.0
94	Y	1162	5.790E+00	6.2						5.790E+00	6.2
97	ZR	1162	4.500E+00	2.7						4.500E+00	2.7
99	MO	1162	2.870E+00	5.9						2.870E+00	5.9
101	TC	1162	8.200E-01	18.3						8.200E-01	18.3
111	AG	1162	4.000E-03	100.0						4.000E-03	100.0
115	CD(G)	1162	5.000E-03	20.0						5.000E-03	20.0
127	SB	1162	3.000E-03	33.0						3.000E-03	33.0
129	SB	1162	1.100E-01	18.0						1.100E-01	18.0
131	I	1162	1.400E+00	5.0						1.400E+00	5.0
132	TE	1162	2.740E+00	5.0						2.740E+00	5.0
133	I	1162	4.110E+00	5.0						4.110E+00	5.0
134	TE	1162	6.970E+00	6.3						6.970E+00	6.3
135	I	1162	5.920E+00	5.0						5.920E+00	5.0
138	CS	1162	6.360E+00	5.0						6.360E+00	5.0
139	BA	1162	8.340E+00	7.7						8.340E+00	7.7
140	BA	1162	8.950E+00	5.0						8.950E+00	5.0
141	BA	1162	8.900E+00	5.1						8.900E+00	5.1
142	LA	1162	7.230E+00	5.3						7.230E+00	5.3
143	CE	1162	6.790E+00	5.6						6.790E+00	5.6
146	CE	1162	4.450E+00	14.6						4.450E+00	14.6
147	ND	1162	3.400E+00	28.5						3.400E+00	28.5
149	ND	1162	1.380E+00	15.2						1.380E+00	15.2

TABLE 72 CHAIN AND CUMULATIVE YIELDS FROM 2.500E+06 eV FISSION IN 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2050	8.403E-02	40.0						8.403E-02	40.0

TABLE 73 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 232TH.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
77 AS	634	1.000E-02	50.0							1.000E-02	50.0
78 AS	634	3.600E-02	12.0							3.600E-02	12.0
79 AS	634	7.500E-02	11.0							7.500E-02	11.0
81 AS	634	5.000E-02	10.0							5.000E-02	10.0
83 SE(M)	1163	1.120E+00	18.0							2.130E+00	7.0
BR	622	2.130E+00	7.0								
84 BR	622	3.230E+00	7.0		-1.43			2.05	2.05	3.358E+00 (I)	6.2 >2
	1163	4.050E+00	13.0		1.43					(E)	8.9A
85 KR(M)	1163	4.380E+00	3.9								
87 KR	1163	6.860E+00	4.8							6.860E+00	4.8
88 KR	1163	6.640E+00	4.0							6.640E+00	4.0
89 RB	1163	7.570E+00	8.9							7.570E+00	8.9
91 SR	50	6.190E+00	10.0		-2.20			6.11	3.05	7.481E+00 (I)	2.7 >2
	1163	7.710E+00	2.9		2.35					(E)	4.7A
Y	634	6.900E+00	10.0		-0.88						
92 SR	50	6.390E+00	10.0		-0.77			0.59	0.59	6.679E+00 (I)	7.7A
	1163	7.230E+00	12.2		0.77					(E)	6.0
93 Y	634	7.340E+00	10.0							7.340E+00	10.0
94 Y	1163	6.070E+00	11.0							6.070E+00	11.0
97 ZR	1163	4.870E+00	3.1		-0.53			0.75	0.38	4.910E+00 (I)	2.7A
	622	5.350E+00	10.0		0.85					(E)	1.6
CHAIN	913	4.930E+00	6.0		0.07						
99 MO	1163	3.150E+00	5.8							3.150E+00	5.8
101 TC	1163	1.080E+00	11.0							1.080E+00	11.0
103 RU	1163	1.500E-01	100.0							1.500E-01	100.0
105 RU	1163	1.100E-02	100.0							1.100E-02	100.0
109 PD	1163	1.600E-02	44.0							1.600E-02	44.0
111 AG	1163	2.700E-02	11.0							2.700E-02	11.0
112 PD	1163	2.800E-02	14.3							2.800E-02	14.3
113 AG	50	4.500E-02	20.0							4.500E-02	20.0
115 CD(G)	1163	2.300E-02	17.4							2.300E-02	17.4
129*SB	622	1.600E-01	10.0W		2.29			6.91	3.45	1.363E-01 (I)	8.9 >2
	1163	2.000E-01	25.0		1.32					(E)	16.5A
	1163	9.000E-02	22.0W		-2.18						
131 I	50	1.110E+00	13.0		-4.60			21.17	21.17	1.690E+00 (I)	4.2 >2
	1163	1.870E+00	4.3		4.60					(E)	19.1A
132*TE	1163	3.250E+00	2.8W		0.50			4.54	2.27	3.115E+00 (I)	2.6 >2
	622	3.370E+00	10.0		0.93					(E)	3.9A
I	50	2.420E+00	8.0W		-2.35						
133*I	50	3.150E+00	11.0W		-2.40			5.91	2.95	4.624E+00 (I)	2.8 >2
	1163	4.850E+00	3.1W		0.64					(E)	4.8A
CHAIN	913	4.990E+00	8.0		1.25						
134 TE	1163	7.440E+00	10.2		0.04			0.00	0.00	7.419E+00 (I)	7.8A
I	50	7.390E+00	12.0		-0.04					(E)	0.3
135 I	50	5.390E+00	12.0		-1.59			2.61	1.31	6.235E+00 (I)	5.9
	1163	6.180E+00	28.0		-0.03					(E)	6.8A
CHAIN	913	6.680E+00	7.0		1.56						
138 CS	1163	6.290E+00	4.3							6.290E+00	4.3
139 BA	50	6.560E+00	7.0		-1.20			1.44	1.44	6.864E+00 (I)	5.6

TABLE 73 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 232TH. (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
	1163	7.560E+00	9.2		1.20					(E)	6.7A
140 BA	1163	8.600E+00	2.7							8.600E+00	2.7
141 BA	1163	7.690E+00	5.3		1.41			1.97	1.97	7.389E+00 (I)	4.7
CE	634	6.600E+00	10.0		-1.41					(E)	6.6A
142 LA	1163	6.610E+00	5.9							6.610E+00	5.9
143 CE	634	6.000E+00	10.0		-0.74			0.66	0.33	6.405E+00 (I)	3.9A
	1163	6.450E+00	4.7		0.26					(E)	2.2
	622	6.690E+00	10.0		0.46						
145 PR	634	4.700E+00	10.0		-0.83			0.70	0.70	4.960E+00 (I)	7.1A
	622	5.290E+00	10.0		0.83					(E)	5.9
146 CE	1163	3.710E+00	19.0							3.710E+00	19.0
147 ND	634	2.200E+00	10.0		-2.08			4.33	4.33	2.387E+00 (I)	8.4 >2
	1163	3.320E+00	14.8		2.08					(E)	17.5A
149 ND	1163	1.060E+00	15.1		0.32			0.10	0.10	1.017E+00 (I)	8.3A
PM	634	1.000E+00	10.0		-0.32					(E)	2.7
151 PM	634	1.000E-01	20.0							1.000E-01	20.0
153 SM	634	3.000E-02	13.0							3.000E-02	13.0
156 SM	634	1.300E-03	40.0							1.300E-03	40.0

TABLE 74 CHAIN AND CUMULATIVE YIELDS FROM 4.000E+06 eV FISSION IN 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	SE(M)	1164	9.100E-01	16.5							9.100E-01	16.5
84	BR(G)	1164	1.500E-01	26.6							1.500E-01	26.6
85	KR(M)	1164	4.170E+00	3.8								
87	KR	1164	6.210E+00	4.8							6.210E+00	4.8
88	KR	1164	6.160E+00	4.1							6.160E+00	4.1
89	RB	1164	7.180E+00	8.1							7.180E+00	8.1
91	SR	1164	7.300E+00	2.9							7.300E+00	2.9
92	SR	1164	6.930E+00	12.4							6.930E+00	12.4
93	Y	1164	5.680E+00	6.7							5.680E+00	6.7
94	Y	1164	6.200E+00	5.6							6.200E+00	5.6
97	ZR	1164	4.850E+00	2.7							4.850E+00	2.7
99	MO	1164	3.410E+00	4.4							3.410E+00	4.4
101	TC	1164	1.250E+00	5.8							1.250E+00	5.8
103	RU	1164	1.500E-01	26.6							1.500E-01	26.6
105	RU	1164	3.700E-02	10.8							3.700E-02	10.8
109	PD	1164	3.600E-02	13.9							3.600E-02	13.9
111	AG	1164	7.600E-02	10.3							7.600E-02	10.3
112	PD	1164	9.700E-02	11.3							9.700E-02	11.3
115	CD(G)	1164	9.900E-02	15.0							9.900E-02	15.0
121	SN(G)	1164	6.300E-02	15.9							6.300E-02	15.9
127	SB	1164	5.600E-02	19.6							5.600E-02	19.6
129	SB	1164	3.200E-01	18.8		-0.26			0.07	0.07	3.318E-01 (I)	11.6A
	SB(G)	1164	3.400E-01	14.7		0.26					(E)	3.0
131	I	1164	2.130E+00	3.8							2.130E+00	3.8
132	TE	1164	3.420E+00	2.9							3.420E+00	2.9
133	I	1164	5.190E+00	3.3							5.190E+00	3.3
134	TE	1164	7.680E+00	7.9							7.680E+00	7.9
135	I	1164	6.120E+00	2.8							6.120E+00	2.8
138	CS(G)	1164	6.180E+00	5.7							6.180E+00	5.7
139	BA	1164	7.560E+00	7.9							7.560E+00	7.9
140	BA	1164	8.010E+00	2.5							8.010E+00	2.5
141	BA	1164	8.140E+00	5.0							8.140E+00	5.0
142	LA	1164	6.270E+00	5.7							6.270E+00	5.7
145	CE	1164	5.970E+00	8.9							5.970E+00	8.9
146	CE	1164	3.330E+00	12.9							3.330E+00	12.9
147	ND	1164	2.640E+00	13.9							2.640E+00	13.9
149	ND	1164	1.100E+00	13.6							1.100E+00	13.6

TABLE 75 CHAIN AND CUMULATIVE YIELDS FROM 5.900E+06 eV FISSION IN 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84	BR(G)	1165	4.020E+00	19.0							4.020E+00	19.0
85	KR(G)	1165	4.000E+00	5.0								
87	KR	1165	5.280E+00	5.9							5.280E+00	5.9
88	KR	1165	5.710E+00	4.7							5.710E+00	4.7
89	RB	1165	7.490E+00	13.4							7.490E+00	13.4
91	SR	1165	6.630E+00	3.2							6.630E+00	3.2
92	SR	1165	6.560E+00	13.1							6.560E+00	13.1
93	Y	1165	4.850E+00	10.1							4.850E+00	10.1
97	ZR	1165	4.800E+00	2.7							4.800E+00	2.7
99	MO	1165	3.790E+00	6.1							3.790E+00	6.1
101	TC	1165	1.770E+00	12.4							1.770E+00	12.4
103	RU	1165	6.700E-01	14.9							6.700E-01	14.9
105	RU	1165	2.400E-01	20.8							2.400E-01	20.8
109	PD	1165	1.900E-01	15.8							1.900E-01	15.8
111	AG	1165	2.900E-01	10.3							2.900E-01	10.3
112	PD	1165	3.000E-01	13.3							3.000E-01	13.3
115	CD(G)	1165	2.700E-01	14.8							2.700E-01	14.8
121	SN(G)	1165	1.900E-01	15.8							1.900E-01	15.8
127	SB	1165	2.200E-01	18.2							2.200E-01	18.2
129	SB	1165	6.400E-01	20.3		-1.42			2.01	2.01	7.703E-01 (I)	11.9 >2
	SB(G)	1165	9.000E-01	14.4		1.42					(E)	16.9A
131	I	1165	2.750E+00	5.8							2.750E+00	5.8
132	TE	1165	3.800E+00	3.4							3.800E+00	3.4
133	I	1165	5.640E+00	3.4							5.640E+00	3.4
134	TE	1165	8.080E+00	6.6							8.080E+00	6.6
135	I	1165	5.980E+00	3.2							5.980E+00	3.2
138	CS	1165	5.930E+00	4.7							5.930E+00	4.7
139	BA	1165	7.240E+00	12.2							7.240E+00	12.2
140	BA	1165	7.750E+00	7.1							7.750E+00	7.1
141	BA	1165	7.370E+00	7.5							7.370E+00	7.5
142	LA	1165	5.760E+00	7.5							5.760E+00	7.5
143	CE	1165	5.590E+00	6.3							5.590E+00	6.3
146	CE	1165	3.070E+00	36.0							3.070E+00	36.0
149	ND	1165	1.450E+00	24.0							1.450E+00	24.0

TABLE 76 CHAIN AND CUMULATIVE YIELDS FROM 6.400E+06 eV FISSION IN 232TH.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
77 AS	1166	3.900E-02	15.4							3.900E-02	15.4
78 AS	1166	6.500E-02	15.4							6.500E-02	15.4
83 SE(M)	1166	1.250E+00	21.6							1.250E+00	21.6
84 BR(G)	1166	5.340E+00	12.2							5.340E+00	12.2
85 KR(M)	1166	5.700E+00	3.9								
88 KR	1166	6.460E+00	3.9							6.460E+00	3.9
89 RB	1166	7.970E+00	8.9							7.970E+00	8.9
91 SR	1166	6.930E+00	2.3							6.930E+00	2.3
92 SR	1166	6.260E+00	12.2							6.260E+00	12.2
93 Y	1166	4.710E+00	7.9							4.710E+00	7.9
94 Y	1166	4.750E+00	19.6							4.750E+00	19.6
97 ZR	1166	3.380E+00	3.3							3.380E+00	3.3
99 MO	1166	2.600E+00	5.0							2.600E+00	5.0
101 TC	1166	1.220E+00	12.3							1.220E+00	12.3
103 RU	1166	1.600E-01	25.0							1.600E-01	25.0
105 RU	1166	1.300E-01	15.4							1.300E-01	15.4
109 PD	1166	1.400E-01	21.4							1.400E-01	21.4
111 AG	1166	2.000E-01	15.0							2.000E-01	15.0
112 PD	1166	2.400E-01	16.8							2.400E-01	16.8
115 CD(G)	1166	2.300E-01	17.4							2.300E-01	17.4
121 SN(G)	1166	1.400E-01	21.4							1.400E-01	21.4
127 SB	1166	1.800E-01	16.7							1.800E-01	16.7
129 SB	1166 1166	4.700E-01 6.100E-01	14.9 14.8		-1.23 1.23			1.50	1.50	5.226E-01	(I) 10.6 (E) 13.0A
131 I	1166	2.010E+00	4.5							2.010E+00	4.5
132 TE	1166	2.980E+00	9.0							2.980E+00	9.0
133 I	1166	4.510E+00	3.3							4.510E+00	3.3
134 TE	1166	6.330E+00	6.3							6.330E+00	6.3
135 I	1166	5.420E+00	29.0							5.420E+00	29.0
138 CS	1166	6.040E+00	6.0							6.040E+00	6.0
139 BA	1166	7.050E+00	9.8							7.050E+00	9.8
140 BA	1166	8.080E+00	2.8							8.080E+00	2.8
141 BA	1166	8.410E+00	7.5							8.410E+00	7.5
142 LA	1166	6.510E+00	6.5							6.510E+00	6.5
143 CE	1166	6.660E+00	6.0							6.660E+00	6.0
146 CE	1166	3.670E+00	16.9							3.670E+00	16.9
147 ND	1166	3.020E+00	21.2							3.020E+00	21.2
149 ND	1166	1.170E+00	25.6							1.170E+00	25.6

TABLE 77 CHAIN AND CUMULATIVE YIELDS FROM 6.900E+06 eV FISSION IN 232TH.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83 SE(M)	1167	1.440E+00	18.1							1.440E+00	18.1
84 BR(G)	1167	5.500E+00	12.9							5.500E+00	12.9
85 KR(M)	1167	6.820E+00	4.8								
87 KR	1167	7.610E+00	5.1							7.610E+00	5.1
88 KR	1167	7.550E+00	4.5							7.550E+00	4.5
89 RB	1167	6.980E+00	9.5							6.980E+00	9.5
91 SR	1167	7.280E+00	7.2							7.280E+00	7.2
92 SR	1167	6.460E+00	12.5							6.460E+00	12.5
93 Y	1167	5.210E+00	8.4							5.210E+00	8.4
94 Y	1167	4.790E+00	26.2							4.790E+00	26.2
97 ZR	1167	3.500E+00	2.9							3.500E+00	2.9
99 MO	1167	2.090E+00	7.7							2.090E+00	7.7
101 TC	1167	7.800E-01	41.0							7.800E-01	41.0
105 RU	1167	1.800E-01	16.7							1.800E-01	16.7
109 PD	1167	1.300E-01	15.4							1.300E-01	15.4
111 AG	1167	1.700E-01	11.8							1.700E-01	11.8
112 PD	1167	1.800E-01	16.7							1.800E-01	16.7
115 CD(G)	1167	2.000E-01	15.0							2.000E-01	15.0
127 SB	1167	1.500E-01	20.0							1.500E-01	20.0
129 SB	1167 1167	3.700E-01 5.800E-01	19.0 17.2		-1.72 1.72			2.96	2.96	4.397E-01	(I) 13.1 >2 (E) 22.5A
131 I	1167	1.670E+00	6.0							1.670E+00	6.0
132 TE	1167	2.720E+00	4.0							2.720E+00	4.0
133 I	1167	4.230E+00	3.3							4.230E+00	3.3
134 TE	1167	6.620E+00	6.2							6.620E+00	6.2
135 I	1167	5.420E+00	3.0							5.420E+00	3.0
138 CS	1167	6.150E+00	6.0							6.150E+00	6.0
139 BA	1167	8.160E+00	9.4							8.160E+00	9.4
140 BA	1167	8.700E+00	4.0							8.700E+00	4.0
141 BA	1167	8.000E+00	10.4							8.000E+00	10.4
142 LA	1167	7.550E+00	12.5							7.550E+00	12.5
143 CE	1167	7.670E+00	6.0							7.670E+00	6.0
146 CE	1167	3.130E+00	14.7							3.130E+00	14.7
147 ND	1167	3.110E+00	18.3							3.110E+00	18.3
149 ND	1167	1.290E+00	17.1							1.290E+00	17.1

TABLE 78 CHAIN AND CUMULATIVE YIELDS FROM 7.600E+06 eV FISSION IN 232TH.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
77 AS	1168	2.900E-02	13.8							2.900E-02		13.8
78 AS	1168	7.800E-02	15.4							7.800E-02		15.4
83 SE(M)	1168	1.380E+00	15.9							1.380E+00		15.9
84 BR(G)	1168	5.050E+00	11.9							5.050E+00		11.9
85 KR(M)	1168	6.010E+00	4.2									
87 KR	1168	7.100E+00	4.9							7.100E+00		4.9
88 KR	1168	7.030E+00	4.3							7.030E+00		4.3
89 RB	1168	7.070E+00	9.1							7.070E+00		9.1
91 SR	1168	7.150E+00	2.9							7.150E+00		2.9
92 SR	1168	6.450E+00	12.1							6.450E+00		12.1
93 Y	1168	5.260E+00	7.2							5.260E+00		7.2
94 Y	1168	5.580E+00	11.8							5.580E+00		11.8
97 ZR	1168	3.620E+00	3.6							3.620E+00		3.6
99 MO	1168	2.210E+00	5.9							2.210E+00		5.9
101 TC	1168	1.000E+00	12.0							1.000E+00		12.0
109 PD	1168	1.800E-01	22.2							1.800E-01		22.2
111 AG	1168	2.200E-01	13.6							2.200E-01		13.6
112 PD	1168	2.600E-01	15.4							2.600E-01		15.4
115 CD(G)	1168	2.000E-01	15.0							2.000E-01		15.0
121 SN(G)	1168	2.800E-01	19.0							2.800E-01		19.0
127 SB	1168	2.000E-01	15.0							2.000E-01		15.0
129 SB(G)	1168	4.800E-01	14.6		-0.30			0.09	0.09	4.950E-01	(I)	10.0A
	1168	5.100E-01	13.7		0.30						(E)	3.0
131 I	1168	1.760E+00	4.5							1.760E+00		4.5
132 TE	1168	2.780E+00	4.0							2.780E+00		4.0
133 I	1168	4.340E+00	3.2							4.340E+00		3.2
134 TE	1168	6.800E+00	7.5							6.800E+00		7.5
135 I	1168	5.490E+00	2.9							5.490E+00		2.9
138 CS	1168	5.850E+00	5.6							5.850E+00		5.6
139 BA	1168	7.490E+00	8.4							7.490E+00		8.4
140 BA	1168	8.380E+00	2.7							8.380E+00		2.7
141 BA	1168	7.640E+00	8.0							7.640E+00		8.0
142 LA	1168	7.010E+00	6.1							7.010E+00		6.1
143 CE	1168	6.950E+00	5.9							6.950E+00		5.9
146 CE	1168	3.300E+00	16.1							3.300E+00		16.1
147 ND	1168	3.110E+00	18.3							3.110E+00		18.3
149 ND	1168	1.020E+00	21.6							1.020E+00		21.6

TABLE 79 CHAIN AND CUMULATIVE YIELDS FROM 8.000E+06 eV FISSION IN 232TH.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
83 SE(M)	1169	1.850E+00	15.1							1.850E+00		15.1
84 BR(G)	1169	5.470E+00	9.7							5.470E+00		9.7
85 KR(M)	1169	5.810E+00	3.4									
87 KR	1169	3.440E+00	4.0							3.440E+00		4.0
88 KR	1169	6.710E+00	11.2							6.710E+00		11.2
89 RB	1169	7.760E+00	10.8							7.760E+00		10.8
91 SR	1169	7.150E+00	2.8							7.150E+00		2.8
92 SR	1169	6.620E+00	12.2							6.620E+00		12.2
93 Y	1169	5.010E+00	7.8							5.010E+00		7.8
94 Y	1169	5.190E+00	7.5							5.190E+00		7.5
97 ZR	1169	3.590E+00	2.8							3.590E+00		2.8
99 MO	1169	2.250E+00	10.2							2.250E+00		10.2
101 TC	1169	1.080E+00	13.9							1.080E+00		13.9
109 PD	1169	1.800E-01	22.2							1.800E-01		22.2
111 AG	1169	2.800E-01	10.7							2.800E-01		10.7
112 PD	1169	2.800E-01	17.9							2.800E-01		17.9
115 CD(G)	1169	2.900E-01	13.8							2.900E-01		13.8
127 SB	1169	2.600E-01	19.2							2.600E-01		19.2
129 SB(G)	1169	4.000E-01	20.0		-1.62			2.62	2.62	4.763E-01	(I)	13.6 >2
	1169	6.200E-01	17.7		1.62						(E)	22.0A
131 I	1169	1.690E+00	5.3							1.690E+00		5.3
132 TE	1169	2.770E+00	3.2							2.770E+00		3.2
133 I	1169	4.320E+00	2.8							4.320E+00		2.8
134 TE	1169	7.160E+00	4.5							7.160E+00		4.5
135 I	1169	5.580E+00	2.7							5.580E+00		2.7
138 CS	1169	5.950E+00	5.7							5.950E+00		5.7
139 BA	1169	6.610E+00	10.7							6.610E+00		10.7
140 BA	1169	7.870E+00	4.4							7.870E+00		4.4
141 BA	1169	7.220E+00	7.8							7.220E+00		7.8
142 LA	1169	6.840E+00	5.3							6.840E+00		5.3
143 CE	1169	6.940E+00	4.8							6.940E+00		4.8
146 CE	1169	3.880E+00	12.6							3.880E+00		12.6
147 ND	1169	2.880E+00	11.1							2.880E+00		11.1
149 ND	1169	1.080E+00	15.7							1.080E+00		15.7

TABLE 80 CHAIN AND CUMULATIVE YIELDS FROM 1.100E+07 eV FISSION IN 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
77	AS	614	2.200E-02	20.0							2.200E-02	20.0
91	SR	614	5.600E+00	20.0							5.600E+00	20.0
97	ZR	614	4.950E+00	20.0							4.950E+00	20.0
99	MO	614	3.100E+00	20.0							3.100E+00	20.0
103	RU	614	5.100E+00	20.0							5.100E+00	20.0
106	RU	614	5.300E+00	20.0							5.300E+00	20.0
111	AG	614	6.300E-01	20.0							6.300E-01	20.0
115	CD(G)	614	7.600E-01	20.0								
117	CD(G)	614	3.700E-01	50.0								
131	I	614	2.300E+00	20.0							2.300E+00	20.0
132	TE	614	1.800E+00	50.0							1.800E+00	50.0
139	BA	614	9.000E+00	20.0							9.000E+00	20.0
144	CE	614	7.200E+00	20.0							7.200E+00	20.0

TABLE 81 CHAIN AND CUMULATIVE YIELDS FROM 1.400E+07 eV FISSION IN 232TH.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2050	9.578E-02	40.0							9.578E-02	40.0

TABLE 82 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 231PA.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83	BR	75	2.580E+00	9.0						2.580E+00	9.0
84	BR	75	3.910E+00	5.0						3.910E+00	5.0
91	SR	75	5.890E+00	5.0						5.890E+00	5.0
97	ZR	75	3.960E+00	5.0						3.960E+00	5.0
99	MO	75	2.570E+00	5.0						2.570E+00	5.0
105	RU	75	2.400E-01	9.0						2.400E-01	9.0
113	AG	75	7.200E-02	14.0						7.200E-02	14.0
129	SB	75	9.200E-01	6.0						9.200E-01	6.0
143	CE	75	5.200E+00	5.0						5.200E+00	5.0
145	PR	75	3.220E+00	6.0						3.220E+00	6.0

TABLE 83 CHAIN AND CUMULATIVE YIELDS FROM 3.300E+05 eV FISSION IN 233U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	2.540E-01	10.8						2.540E-01	10.8

TABLE 84 CHAIN AND CUMULATIVE YIELDS FROM 6.900E+05 eV FISSION IN 233U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	1.920E-01	10.8							1.920E-01	10.8

TABLE 85 CHAIN AND CUMULATIVE YIELDS FROM 1.160E+06 eV FISSION IN 233U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	1.838E-01	10.8							1.838E-01	10.8

TABLE 86 CHAIN AND CUMULATIVE YIELDS FROM 1.990E+06 eV FISSION IN 233U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	2.168E-01	10.8							2.168E-01	10.8

TABLE 87 CHAIN AND CUMULATIVE YIELDS FROM 1.000E+06 eV FISSION IN 234U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	858	2.146E-01	10.0							2.146E-01	10.0

TABLE 88 CHAIN AND CUMULATIVE YIELDS FROM 1.100E+00 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
111	AG	13436	2.000E-02	20.0							2.000E-02	20.0
115	CD	13436	1.300E-02	20.0							1.300E-02	20.0
127	SB	13436	1.100E-01	20.0							1.100E-01	20.0

TABLE 89 CHAIN AND CUMULATIVE YIELDS FROM 3.100E+00 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
111	AG	13436	1.900E-02	20.0							1.900E-02	20.0
115	CD	13436	8.000E-03	20.0							8.000E-03	20.0

TABLE 90 CHAIN AND CUMULATIVE YIELDS FROM 4.850E+00 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	312	5.450E+00	3.0							5.450E+00	3.0

TABLE 91 CHAIN AND CUMULATIVE YIELDS FROM 9.500E+00 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
111	AG	13436	1.800E-02	20.0							1.800E-02	20.0
115	CD	13436	1.000E-02	20.0							1.000E-02	20.0

TABLE 92 CHAIN AND CUMULATIVE YIELDS FROM 9.500E-01 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99 MO	312	6.100E+00	3.0						6.100E+00	3.0

TABLE 93 CHAIN AND CUMULATIVE YIELDS FROM 1.300E+05 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99 MO	796	5.700E+00	6.9						5.700E+00	6.9
111 AG	797	1.500E-02	8.1						1.500E-02	8.1
140 BA	797	6.100E+00	6.6						6.100E+00	6.6
147 ND	797	2.350E+00	6.1						2.350E+00	6.1
153 SM	797	1.320E-01	9.9						1.320E-01	9.9

TABLE 94 CHAIN AND CUMULATIVE YIELDS FROM 1.500E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
1	H PI	1199r	2.567E-03	31.9							2.567E-03	31.9
3	H PI	1199r	1.397E-02	30.2							1.397E-02	30.2
4	HE PI	1199r	2.226E-01	30.2							2.226E-01	30.2

TABLE 95 CHAIN AND CUMULATIVE YIELDS FROM 1.700E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84	BR	12729	1.700E+00	15.3								
85	KR(M)	12729	1.350E+00	6.7								
87	KR	12729	2.380E+00	8.0								
88	KR	12729	3.290E+00	4.6								
89	RB	12729	4.270E+00	12.2								
91	SR	12729	5.820E+00	4.0							5.820E+00	4.0
92	SR	12729	5.780E+00	7.3								
93	Y	12729	6.640E+00	5.3							6.640E+00	5.3
95	ZR	12729	6.810E+00	5.3							6.810E+00	5.3
97	ZR	12729	5.910E+00	3.7								
99	MO	12729	5.940E+00	4.5							5.940E+00	4.5
103	RU	12729	3.600E+00	5.3							3.600E+00	5.3
105	RU	12729	1.110E+00	7.2							1.110E+00	7.2
109	PD	12729	2.700E-02	18.5							2.700E-02	18.5
111	AG	12729	1.600E-02	12.5							1.600E-02	12.5
112	PD	12729	1.200E-02	16.7								
115	CD	12729	1.000E-02	20.0							1.000E-02	20.0
121	SN	12729	9.000E-03	22.2							9.000E-03	22.2
125	SN	12729	9.000E-03	22.2								
127	SB	12729	1.300E-01	15.4								
129	SB	12729	8.900E-01	7.9								
131	I	12729	3.530E+00	5.1								
132	TE	12729	4.650E+00	4.3								
133	I	12729	6.630E+00	4.2								
134	TE	12729	6.180E+00	4.8								
135	I	12729	6.480E+00	3.9								
138	XE	12729	5.320E+00	5.8								
139	BA	12729	6.270E+00	7.3								
140	BA	12729	6.450E+00	5.3								
142	LA	12729	5.350E+00	6.7								
143	CE	12729	5.570E+00	4.7								
144	CE	12729	5.260E+00	11.2								
147	ND	12729	2.180E+00	8.3							2.180E+00	8.3
149	PM	12729	1.170E+00	9.4							1.170E+00	9.4
151	PM	12729	4.300E-01	7.0								

TABLE 96 CHAIN AND CUMULATIVE YIELDS FROM 1.750E+05 eV FISSION IN 235U .

A NO.	EL.		REF. NO.		EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
3	H	PI	813	r	2.142E-02	27.3							2.142E-02		27.3	

TABLE 97 CHAIN AND CUMULATIVE YIELDS FROM 2.100E+05 eV FISSION IN 235U .

A NO.	EL.		REF. NO.		EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
1	H	PI	1199	r	2.567E-03	31.9							2.567E-03		31.9	
3	H	PI	1199	r	1.490E-02	30.2		-2.24			5.01	5.01	2.172E-02	(I)	15.3	>2
			814	r	2.980E-02	16.4		2.24						(E)	34.2	A
4	HE	PI	1199	r	1.954E-01	30.2							1.954E-01		30.2	

TABLE 98 CHAIN AND CUMULATIVE YIELDS FROM 2.250E+05 eV FISSION IN 235U .

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
1	H	PI	1199r	6.673E-03	31.9							6.673E-03	31.9
3	H	PI	1199r	2.003E-02	30.2							2.003E-02	30.2
4	HE	PI	1199r	2.192E-01	30.2							2.192E-01	30.2

TABLE 99 CHAIN AND CUMULATIVE YIELDS FROM 2.850E+05 eV FISSION IN 235U .

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI	814r	2.701E-02	14.5							2.701E-02	14.5

TABLE 100 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	815r	2.422E-02	8.0							2.422E-02	8.0
99	MO	798	5.550E+00	6.7							5.550E+00	6.7
111	AG	798	1.800E-02	22.5							1.800E-02	22.5
140	BA	798	5.790E+00	6.0							5.790E+00	6.0
147	ND	798	2.610E+00	6.4							2.610E+00	6.4
153	SM	798	1.520E-01	5.9							1.520E-01	5.9

TABLE 101 CHAIN AND CUMULATIVE YIELDS FROM 3.300E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	1.699E-01	15.4							1.699E-01	15.4

TABLE 102 CHAIN AND CUMULATIVE YIELDS FROM 3.450E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	815r	2.776E-02	20.4							2.776E-02	20.4

TABLE 103 CHAIN AND CUMULATIVE YIELDS FROM 3.550E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	816r	2.804E-02	13.5							2.804E-02	13.5

TABLE 104 CHAIN AND CUMULATIVE YIELDS FROM 3.700E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	816r	1.630E-02 35.2						1.630E-02	35.2

TABLE 105 CHAIN AND CUMULATIVE YIELDS FROM 3.850E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	816r	2.086E-02 11.6						2.086E-02	11.6

TABLE 106 CHAIN AND CUMULATIVE YIELDS FROM 4.300E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	816r	2.273E-02	8.9							2.273E-02	8.9

TABLE 107 CHAIN AND CUMULATIVE YIELDS FROM 4.500E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	817r	1.816E-02	16.4							1.816E-02	16.4

TABLE 108 CHAIN AND CUMULATIVE YIELDS FROM 4.600E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	817r	1.928E-02	10.7							1.928E-02	10.7

TABLE 109 CHAIN AND CUMULATIVE YIELDS FROM 4.900E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	818r	2.030E-02	38.7							2.030E-02	38.7

TABLE 110 CHAIN AND CUMULATIVE YIELDS FROM 5.000E+05 eV FISSION IN 235U .

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
3	H	PI	2043r	1.095E-02	18.4		-1.81			3.28	3.28	1.222E-02	(I)	15.5	>2
			818r	2.142E-02	25.3		1.81						(E)	28.0A	
4	HE	PI	2043r	1.871E-01	6.2							1.871E-01		6.2	

TABLE 111 CHAIN AND CUMULATIVE YIELDS FROM 5.250E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	819r	2.235E-02	27.3							2.235E-02	27.3

TABLE 112 CHAIN AND CUMULATIVE YIELDS FROM 5.500E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
1	H PI	1199r	1.540E-02	31.9							1.540E-02	31.9
3	H PI	1199r	3.260E-02	30.2							3.260E-02	30.2
4	HE PI	1199r	1.665E-01	30.2							1.665E-01	30.2
85	KR(M)	12729	1.740E+00	7.5								
87	KR	12729	2.480E+00	6.0								
88	KR	12729	3.260E+00	5.8								
91	SR	12729	5.530E+00	4.0							5.530E+00	4.0
92	SR	12729	5.380E+00	8.2								
93	Y	12729	6.360E+00	8.7							6.360E+00	8.7
95	ZR	12729	6.710E+00	4.2							6.710E+00	4.2
97	ZR	12729	5.780E+00	3.8								
99	MO	12729	5.420E+00	5.3							5.420E+00	5.3
103	RU	12729	3.510E+00	5.1							3.510E+00	5.1
105	RU	12729	1.160E+00	7.8							1.160E+00	7.8
109	PD	12729	2.700E-02	18.5							2.700E-02	18.5
111	AG	12729	2.400E-02	16.7							2.400E-02	16.7
115	CD	12729	1.700E-02	17.6							1.700E-02	17.6
121	SN	12729	1.400E-02	14.3							1.400E-02	14.3
125	SN	12729	1.500E-02	13.3								
127	SB	12729	1.400E-01	14.3								
129	SB	12729	8.800E-01	9.1								
131	I	12729	3.630E+00	4.4								
132	TE	12729	4.690E+00	4.5								
133	I	12729	6.690E+00	4.3								
134	TE	12729	5.940E+00	7.9								
135	I	12729	6.290E+00	3.8								
138	XE	12729	5.860E+00	6.3								
139	BA	12729	6.400E+00	4.8								
140	BA	12729	6.300E+00	4.0								
141	CE	12729	6.370E+00	8.9							6.370E+00	8.9
142	LA	12729	5.550E+00	6.7								
143	CE	12729	6.140E+00	5.9								
147	ND	12729	2.510E+00	6.8							2.510E+00	6.8
149	PM	12729	1.400E+00	11.4							1.400E+00	11.4
151	PM	12729	3.800E-01	10.5								

TABLE 113 CHAIN AND CUMULATIVE YIELDS FROM 5.600E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	819r	1.937E-02	75.1							1.937E-02	75.1

TABLE 114 CHAIN AND CUMULATIVE YIELDS FROM 6.200E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	820r	2.962E-02	35.2							2.962E-02	35.2

TABLE 115 CHAIN AND CUMULATIVE YIELDS FROM 6.250E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	821r	2.030E-02	25.3							2.030E-02	25.3

TABLE 116 CHAIN AND CUMULATIVE YIELDS FROM 6.950E+05 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3 H	821r	3.558E-02	14.5						3.558E-02	14.5

TABLE 117 CHAIN AND CUMULATIVE YIELDS FROM 7.000E+05 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99 MO	799	5.600E+00	5.7						5.600E+00	5.7
111 AG	799	2.400E-02	10.4						2.400E-02	10.4
140 BA	799	6.080E+00	5.9						6.080E+00	5.9
147 ND	799	2.510E+00	6.9						2.510E+00	6.9
153 SM	799	1.540E-01	6.1						1.540E-01	6.1

TABLE 118 CHAIN AND CUMULATIVE YIELDS FROM 7.650E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	822r	1.807E-02	10.7							1.807E-02	10.7

TABLE 119 CHAIN AND CUMULATIVE YIELDS FROM 9.000E+05 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	800	5.780E+00	5.6							5.780E+00	5.6
111	AG	800	3.500E-02	15.7							3.500E-02	15.7
140	BA	800	6.010E+00	5.7							6.010E+00	5.7
147	ND	800	2.450E+00	5.7							2.450E+00	5.7
153	SM	800	1.590E-01	9.0							1.590E-01	9.0

TABLE 120 CHAIN AND CUMULATIVE YIELDS FROM 1.000E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	2043r	1.665E-02	20.4							1.665E-02	20.4
4	HE PI	857	1.873E-01	10.0		-0.25			0.06	0.06	1.906E-01 (I)	7.0A
		2043r	1.939E-01	9.7		0.25					(E)	1.7
84	BR	12729	1.240E+00	17.7								
85	KR(M)	12729	1.490E+00	4.0								
87	KR	12729	2.710E+00	5.2								
88	KR	12729	3.350E+00	4.5								
91	SR	12729	5.810E+00	4.0							5.810E+00	4.0
92	SR	12729	5.860E+00	11.4								
93	Y	12729	6.430E+00	5.0							6.430E+00	5.0
95	ZR	12729	6.570E+00	3.8							6.570E+00	3.8
97	ZR	12729	6.120E+00	3.8								
99	MO	12729	5.710E+00	5.2							5.710E+00	5.2
103	RU	12729	3.440E+00	5.2							3.440E+00	5.2
105	RU	12729	1.230E+00	4.9							1.230E+00	4.9
109	PD	12729	4.700E-02	14.9							4.700E-02	14.9
111	AG	12729	2.300E-02	13.0							2.300E-02	13.0
112	PD	12729	2.500E-02	16.0								
115	CD	12729	2.000E-02	15.0							2.000E-02	15.0
121	SN	12729	1.400E-02	14.3							1.400E-02	14.3
125	SN	12729	1.400E-02	14.3								
127	SB	12729	1.200E-01	16.7								
129	SB	12729	9.900E-01	13.1								
131	I	12729	3.560E+00	3.9								
132	TE	12729	4.840E+00	3.7								
133	I	12729	6.920E+00	4.3								
134	TE	12729	6.460E+00	5.0								
135	I	12729	6.390E+00	4.1								
138	XE	12729	5.870E+00	5.5								
139	BA	12729	6.910E+00	6.8								
140	BA	12729	6.230E+00	4.5								
142	LA	12729	5.610E+00	7.0								
143	CE	12729	5.500E+00	6.5								
147	ND	12729	2.330E+00	9.4							2.330E+00	9.4
149	PM	12729	1.240E+00	12.1							1.240E+00	12.1
151	PM	12729	4.000E-01	10.0								

TABLE 121 CHAIN AND CUMULATIVE YIELDS FROM 1.160E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	1.393E-01	15.4							1.393E-01	15.4

TABLE 122 CHAIN AND CUMULATIVE YIELDS FROM 1.300E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	801	5.550E+00	6.0							5.550E+00	6.0
111	AG	801	4.400E-02	5.6							4.400E-02	5.6
140	BA	801	5.970E+00	6.0							5.970E+00	6.0
147	ND	801	2.560E+00	6.6							2.560E+00	6.6
153	SM	801	1.760E-01	7.6							1.760E-01	7.6

TABLE 123 CHAIN AND CUMULATIVE YIELDS FROM 1.700E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	802	5.550E+00	7.0							5.550E+00	7.0
111	AG	802	5.300E-02	7.8							5.300E-02	7.8
140	BA	802	5.750E+00	5.5							5.750E+00	5.5
147	ND	802	2.420E+00	5.6							2.420E+00	5.6
153	SM	802	1.720E-01	7.4							1.720E-01	7.4

TABLE 124 CHAIN AND CUMULATIVE YIELDS FROM 2.000E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	2043r	8.047E-03	25.3							8.047E-03	25.3
4	HE PI	2043r	1.137E-01	7.9							1.137E-01	7.9
85	KR(M)	12729	1.760E+00	6.2								
87	KR	12729	2.810E+00	5.7								
88	KR	12729	3.220E+00	5.3								
91	SR	12729	5.360E+00	3.9							5.360E+00	3.9
92	SR	12729	5.170E+00	8.1								
93	Y	12729	6.620E+00	6.0							6.620E+00	6.0
95	ZR	12729	6.650E+00	8.6							6.650E+00	8.6
97	ZR	12729	5.760E+00	3.8								
99	MO	12729	5.410E+00	5.4							5.410E+00	5.4
103	RU	12729	3.330E+00	5.4							3.330E+00	5.4
105	RU	12729	1.100E+00	8.2							1.100E+00	8.2
109	PD	12729	6.100E-02	14.8							6.100E-02	14.8
111	AG	12729	4.700E-02	14.9							4.700E-02	14.9
112	PD	12729	4.800E-02	14.6								
115	CD	12729	5.100E-02	15.7							5.100E-02	15.7
121	SN	12729	3.300E-02	15.2							3.300E-02	15.2
125	SN	12729	3.300E-02	15.2								
127	SB	12729	2.300E-01	13.0								
129	SB	12729	1.060E+00	9.4								
131	I	12729	3.690E+00	4.3								
132	TE	12729	4.730E+00	4.0								
133	I	12729	6.370E+00	4.2								
134	TE	12729	5.710E+00	5.2								
135	I	12729	6.320E+00	3.8								
138	XE	12729	6.460E+00	5.6								
139	BA	12729	5.870E+00	6.0								
140	BA	12729	6.110E+00	3.9								
141	CE	12729	6.260E+00	8.5							6.260E+00	8.5
142	LA	12729	5.560E+00	5.8								
143	CE	12729	5.760E+00	5.7								
144	CE	12729	5.480E+00	13.0								
147	ND	12729	2.470E+00	6.5							2.470E+00	6.5
149	PM	12729	1.410E+00	10.6							1.410E+00	10.6
151	PM	12729	4.300E-01	9.3								

TABLE 125 CHAIN AND CUMULATIVE YIELDS FROM 2.500E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2050	1.399E-01	40.0		-0.45			2.94	1.47	1.648E-01 (I)	5.7
		2052r	1.609E-01	6.2		-1.21					(E)	6.9A
		2057r	2.192E-01	15.4		1.67						

TABLE 126 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
4 HE PI	2059r	2.039E-01	6.2							2.039E-01		6.2	
86 SE	21743	9.200E-01	3.3		1.89			3.56	3.56	8.800E-01	(I)	2.4	>2
BR	21743	8.400E-01	3.6		-1.89						(E)	4.5A	
87*BR	21743	2.050E+00	3.9W		-1.05			1.94	0.97	2.251E+00	(I)	3.1A	
KR	2046	2.580E+00	14.0		1.14						(E)	3.0	
	21743	2.900E+00	5.2W		0.82								
88 BR	21743	2.030E+00	3.9							2.030E+00		3.9	
89 KR	21743	4.410E+00	5.0							4.410E+00		5.0	
90 BR	21743	6.500E-01	15.4		-15.12			228.70	228.70	1.314E+00	(I)	6.8	>2
KR	21743	4.100E+00	5.0		15.12						(E)	103.5A	
91*KR	21743	2.590E+00	3.9W		-0.95			2.00	1.00	3.201E+00	(I)	2.8A	
SR	2046	5.580E+00	5.0W		0.18						(E)	2.8	
	21743	5.600E+00	5.0W		1.55								
92 SR	21743	5.850E+00	4.8							5.850E+00		4.8	
93*RB	21743	3.590E+00	4.2W		-2.06			2.29	1.14	4.641E+00	(I)	2.4	
SR	21743	5.800E+00	4.8W		0.31						(E)	2.5A	
	21743	5.920E+00	3.4W		1.08								
94*RB	21743	1.910E+00	6.8W		-0.47			0.32	0.16	3.755E+00	(I)	2.5A	
SR	21743	5.700E+00	2.6W		0.63						(E)	1.0	
Y	21743	6.350E+00	5.3W		0.13								
95 SR	21743	5.200E+00	5.8		-2.92			8.54	8.54	5.841E+00	(I)	3.5	>2
Y	21743	6.400E+00	4.4		2.92						(E)	10.2A	
97 ZR	2046	5.940E+00	11.0		-0.06			0.00	0.00	5.975E+00	(I)	3.8A	
	21743	5.980E+00	4.0		0.06						(E)	0.2	
99 MO	21743	6.150E+00	5.2							6.150E+00		5.2	
101 MO	21743	5.050E+00	5.0							5.050E+00		5.0	
102 TC	21743	4.400E+00	5.0							4.400E+00		5.0	
103 RU	21743	3.480E+00	5.2							3.480E+00		5.2	
104 TC	21743	2.150E+00	4.7							2.150E+00		4.7	
105 RU	21743	1.250E+00	4.8							1.250E+00		4.8	
127 SB	21743	3.100E-01	6.5							3.100E-01		6.5	
131*SN	21743	5.700E-01	8.8W		-1.52			0.67	0.33	1.060E+00	(I)	4.2A	
SB	21743	2.560E+00	4.3W		0.64						(E)	2.4	
I	21743	3.950E+00	5.1W		0.13								
132 SN	21743	4.900E-01	10.2		-17.30			299.44	299.44	6.596E-01	(I)	7.4	>2
TE	21743	4.900E+00	5.1		17.30						(E)	128.6A	
133*SB	21743	1.820E+00	5.5W		-0.39			3.32	1.11	2.314E+00	(I)	4.1	
TE(M)	2046	3.570E+00	20.0W		0.74						(E)	4.3A	
I	2046	6.570E+00	12.0W		1.67								
	21743	6.700E+00	4.9W		0.77								
134*SB	21743	5.000E-01	16.0W		-1.50			0.50	0.25	1.603E+00	(I)	4.4A	
TE	21743	5.370E+00	2.8W		0.07						(E)	2.2	
I	2046	6.400E+00	16.0W		0.58								
135 TE	21743	2.080E+00	3.9		-4.21			17.76	17.76	2.117E+00	(I)	3.8	>2
I	2046	5.120E+00	14.0		4.21						(E)	15.8A	
136 TE	21743	8.500E-01	4.7							8.500E-01		4.7	

TABLE 126 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 235U . **(cont)**

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
137 I	21743	2.540E+00	4.7							2.540E+00		4.7	
138*I	21743	1.270E+00	4.7W		-1.06			0.48	0.24	1.657E+00	(I)	3.5A	
XE	21743	5.740E+00	3.5W		0.12						(E)	1.7	
CS	2046	7.500E+00	14.0W		0.66								
139 I	21743	4.800E-01	6.2		-18.40			338.61	338.61	5.619E-01	(I)	5.3	>2
XE	21743	4.200E+00	4.8		18.40						(E)	97.2A	
140*XE	21743	2.630E+00	3.8W		-0.54			0.33	0.17	4.646E+00	(I)	1.3A	
CS	21743	5.700E+00	1.4W		0.62						(E)	0.5	
BA	21743	6.100E+00	3.3W		0.07								
141 XE	21743	6.300E-01	20.6		-21.68			469.89	469.89	2.161E+00	(I)	5.0	>2
BA	21743	5.800E+00	3.5		21.68						(E)	109.2A	
142*CS	21743	2.660E+00	3.8W		-0.23			0.15	0.07	4.251E+00	(I)	1.6A	
BA	21743	5.640E+00	1.8W		0.50						(E)	0.4	
LA	21743	5.800E+00	4.8W		0.15								
143*CS	21743	1.230E+00	9.8W		-1.63			1.85	0.62	3.507E+00	(I)	2.1A	
BA	21743	4.810E+00	2.1W		0.37						(E)	1.6	
CE	21743	5.250E+00	5.3W		0.55								
	2046	5.690E+00	11.0W		0.54								
144 CS	21743	3.800E-01	7.9		-14.88			221.50	221.50	4.462E-01	(I)	6.6	>2
BA	21743	3.390E+00	5.9		14.88						(E)	98.9A	
145 CE	21743	3.760E+00	5.3							3.760E+00		5.3	
147 ND	21743	2.260E+00	4.4							2.260E+00		4.4	
151 PM	21743	4.900E-01	4.1							4.900E-01		4.1	

TABLE 127 CHAIN AND CUMULATIVE YIELDS FROM 4.000E+06 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84 BR	12729	1.400E+00	15.0							
85 KR(M)	12729	1.700E+00	4.1							
87 KR	12729	2.890E+00	5.2							
88 KR	12729	3.240E+00	4.9							
89 RB	12729	4.220E+00	13.3							
91 SR	12729	5.200E+00	3.9						5.200E+00	3.9
92 SR	12729	5.220E+00	6.9							
93 Y	12729	6.180E+00	6.0						6.180E+00	6.0
94 Y	12729	5.870E+00	7.2							
95 ZR	12729	6.390E+00	4.4						6.390E+00	4.4
97 ZR	12729	5.920E+00	3.9							
99 MO	12729	5.450E+00	5.3						5.450E+00	5.3
103 RU	12729	3.570E+00	5.3						3.570E+00	5.3
105 RU	12729	1.420E+00	6.3						1.420E+00	6.3
109 PD	12729	1.600E-01	12.5						1.600E-01	12.5
111 AG	12729	1.400E-01	14.3						1.400E-01	14.3
112 PD	12729	1.200E-01	16.7							
115 CD	12729	1.000E-01	20.0						1.000E-01	20.0
121 SN	12729	8.200E-02	14.6						8.200E-02	14.6
125 SN	12729	8.800E-02	14.8							
127 SB	12729	3.900E-01	15.4							
129 SB	12729	1.410E+00	10.6							
131 I	12729	4.000E+00	4.2							
132 TE	12729	5.100E+00	4.9							
133 I	12729	6.470E+00	4.3							
134 TE	12729	4.710E+00	5.1							
135 I	12729	6.420E+00	3.7							
138 XE	12729	6.100E+00	9.3							
139 BA	12729	6.420E+00	5.8							
140 BA	12729	5.820E+00	4.1							
141 CE	12729	6.030E+00	13.1						6.030E+00	13.1
142 LA	12729	5.160E+00	7.0							
143 CE	12729	4.660E+00	9.2							
144 CE	12729	4.190E+00	10.5							
147 ND	12729	2.220E+00	4.5						2.220E+00	4.5
149 PM	12729	1.150E+00	8.7						1.150E+00	8.7
151 PM	12729	5.200E-01	5.8							

TABLE 128 CHAIN AND CUMULATIVE YIELDS FROM 5.500E+06 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(M)	12729	1.810E+00	5.5							
87 KR	12729	2.860E+00	5.6							
88 KR	12729	3.220E+00	5.0							
89 RB	12729	3.570E+00	15.4							
91 SR	12729	4.980E+00	4.0						4.980E+00	4.0
92 SR	12729	5.080E+00	8.9							
93 Y	12729	5.880E+00	8.5						5.880E+00	8.5
94 Y	12729	5.590E+00	8.4							
95 ZR	12729	6.410E+00	3.9						6.410E+00	3.9
97 ZR	12729	5.860E+00	4.1							
99 MO	12729	5.520E+00	5.6						5.520E+00	5.6
103 RU	12729	2.580E+00	5.4						2.580E+00	5.4
105 RU	12729	1.660E+00	6.0						1.660E+00	6.0
109 PD	12729	4.100E-01	14.6						4.100E-01	14.6
111 AG	12729	3.000E-01	16.7						3.000E-01	16.7
112 PD	12729	2.300E-01	17.4							
115 CD	12729	2.800E-01	14.3						2.800E-01	14.3
121 SN	12729	2.100E-01	14.3						2.100E-01	14.3
125 SN	12729	1.800E-01	16.7							
127 SB	12729	7.800E-01	15.4							
129 SB	12729	1.970E+00	7.1							
131 I	12729	4.750E+00	4.2							
132 TE	12729	5.170E+00	3.9							
133 I	12729	6.340E+00	4.3							
134 TE	12729	3.800E+00	7.1							
135 I	12729	6.230E+00	3.9							
138 XE	12729	5.410E+00	13.9							
139 BA	12729	5.530E+00	9.8							
140 BA	12729	5.660E+00	4.2							
141 CE	12729	6.450E+00	13.0						6.450E+00	13.0
142 LA	12729	4.630E+00	6.3							
143 CE	12729	4.830E+00	5.8							
147 ND	12729	2.610E+00	7.3						2.610E+00	7.3
149 PM	12729	1.310E+00	16.8						1.310E+00	16.8
151 PM	12729	6.400E-01	6.2							

TABLE 129 CHAIN AND CUMULATIVE YIELDS FROM 6.000E+06 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84 BR	1099	1.160E+00	44.0							1.160E+00	44.0
87 KR	1099	2.940E+00	16.0							2.940E+00	16.0
89 SR	1099	3.820E+00	8.0							3.820E+00	8.0
91 SR	1099	5.310E+00	9.0							5.310E+00	9.0
95 ZR	1099	5.850E+00	8.0							5.850E+00	8.0
97 ZR	1099	5.720E+00	10.0							5.720E+00	10.0
99 MO	1099	6.170E+00	8.0							6.170E+00	8.0
103 RU	1099	3.110E+00	5.0							3.110E+00	5.0
104 TC	1099	2.810E+00	46.1							2.810E+00	46.1
105 RH	1099	1.720E+00	10.0							1.720E+00	10.0
111 AG	1099	2.410E-01	8.0							2.410E-01	8.0
112 PD	1099	2.200E-01	8.0							2.200E-01	8.0
115 CD(G)	1099	1.840E-01	8.0	1.840E-01				0.00	0.00	1.983E-01 (I)	8.1A
CD(M)	1099	1.430E-02	44.0	1.430E-02						(E)	0.0
127 SB	1099	8.210E-01	22.0							8.210E-01	22.0
129 SN	1099	8.040E-01	19.0							8.040E-01	19.0
130 SB	1099	1.020E+00	19.0							1.020E+00	19.0
132 TE	1099	4.580E+00	8.0							4.580E+00	8.0
133 I	1099	6.140E+00	13.0							6.140E+00	13.0
137 CS	1099	6.090E+00	13.0							6.090E+00	13.0
140 BA	1099	5.030E+00	8.0							5.030E+00	8.0
141 CE	1099	4.930E+00	9.0							4.930E+00	9.0
142 LA	1099	5.030E+00	19.0							5.030E+00	19.0
143 CE	1099	4.690E+00	10.0							4.690E+00	10.0
144 CE	1099	2.160E+00	9.0							2.160E+00	9.0
147 ND	1099	2.090E+00	9.0							2.090E+00	9.0
151 PM	1099	5.340E-01	102.0							5.340E-01	102.0
156 EU	1099	4.640E-02	10.0							4.640E-02	10.0

TABLE 130 CHAIN AND CUMULATIVE YIELDS FROM 6.300E+06 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(M)	12729	1.840E+00	6.5								
87 KR	12729	2.660E+00	7.9								
88 KR	12729	3.270E+00	6.4								
91 SR	12729	4.870E+00	3.9							4.870E+00	3.9
92 SR	12729	4.730E+00	8.2								
93 Y	12729	6.470E+00	6.8							6.470E+00	6.8
95 ZR	12729	6.270E+00	5.3							6.270E+00	5.3
97 ZR	12729	5.580E+00	4.1								
99 MO	12729	5.050E+00	5.7							5.050E+00	5.7
103 RU	12729	3.520E+00	5.4							3.520E+00	5.4
105 RU	12729	1.600E+00	10.6							1.600E+00	10.6
109 PD	12729	3.900E-01	15.4							3.900E-01	15.4
111 AG	12729	3.000E-01	16.7							3.000E-01	16.7
112 PD	12729	2.900E-01	13.8								
115 CD	12729	3.200E-01	15.6							3.200E-01	15.6
121 SN	12729	2.300E-01	13.0							2.300E-01	13.0
125 SN	12729	2.100E-01	14.3								
127 SB	12729	7.300E-01	15.1								
129 SB	12729	1.720E+00	8.7								
131 I	12729	4.980E+00	4.2								
132 TE	12729	4.860E+00	4.3								
133 I	12729	6.110E+00	4.3								
134 TE	12729	3.600E+00	12.2								
135 I	12729	5.660E+00	4.4								
139 BA	12729	5.570E+00	7.7								
140 BA	12729	5.600E+00	4.1								
141 CE	12729	5.700E+00	8.6							5.700E+00	8.6
142 LA	12729	4.850E+00	6.8								
143 CE	12729	4.900E+00	6.1								
147 ND	12729	2.270E+00	7.5							2.270E+00	7.5
149 PM	12729	1.490E+00	12.8							1.490E+00	12.8
151 PM	12729	5.800E-01	8.6								

TABLE 131 CHAIN AND CUMULATIVE YIELDS FROM 7.100E+06 eV FISSION IN 235U .

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
84 BR	1100	1.220E+00	40.3								1.220E+00		40.3
85 KR(M)	12729	2.370E+00	5.9										
87 KR	1100	2.920E+00	14.3										
	12729	3.050E+00	6.6										
88 KR	12729	3.430E+00	5.5										
89 SR	1100	4.140E+00	7.7								4.140E+00		7.7
91 SR	1100	5.190E+00	10.4								5.190E+00		10.4
92 SR	12729	4.780E+00	9.4										
93 Y	12729	6.200E+00	7.1								6.200E+00		7.1
95 ZR	12729	6.050E+00	5.0		-0.13				0.02	0.02	6.070E+00	(I)	4.2A
	1100	6.120E+00	7.7		0.13							(E)	0.5
97 ZR	12729	5.570E+00	4.0		-0.34				0.11	0.11	5.597E+00	(I)	3.7A
	1100	5.770E+00	9.6		0.34							(E)	1.2
99 MO	12729	5.210E+00	5.4		-0.40				0.16	0.16	5.272E+00	(I)	4.4A
	1100	5.410E+00	7.7		0.40							(E)	1.8
103 RU	1100	3.140E+00	8.2		-0.26				0.07	0.07	3.196E+00	(I)	4.4A
	12729	3.220E+00	5.3		0.26							(E)	1.2
104 TC	1100	2.740E+00	34.2								2.740E+00		34.2
105 RU	12729	1.630E+00	5.5		1.62				2.62	2.62	1.548E+00	(I)	4.8 >2
RH	1100	1.370E+00	9.7		-1.62							(E)	7.8A
109 PD	12729	3.900E-01	15.4								3.900E-01		15.4
111 AG	1100	2.180E-01	7.5		-1.75				3.07	3.07	2.269E-01	(I)	6.8 >2
	12729	3.100E-01	16.1		1.75							(E)	12.0A
112 PD	1100	2.020E-01	7.4										
	12729	2.300E-01	17.4										
115 CD	12729	3.400E-01	14.7	3.400E-01	0.00		6.92	7.4>2	7.44	7.44	2.085E-01	(I)	6.3 >2
CD(G)	1100	1.790E-01	7.5	1.790E-01	0.00		0.50					(E)	17.3A
CD(M)	1100	1.960E-02	14.7	1.960E-02	0.00		0.02						
121 SN	12729	2.300E-01	13.0								2.300E-01		13.0
125 SN	12729	2.000E-01	15.0										
127 SB	12729	7.800E-01	15.4		-0.24				0.06	0.06	7.957E-01	(I)	12.6A
	1100	8.320E-01	22.0		0.24							(E)	3.0
129 SN	1100	7.080E-01	20.5								7.080E-01		20.5
SB	12729	1.740E+00	8.1										
130 SB	1100	9.550E-01	19.1								9.550E-01		19.1
131 I	12729	4.410E+00	7.3										
132 TE	12729	4.850E+00	3.9		-0.05				0.00	0.00	4.854E+00	(I)	3.5A
	1100	4.870E+00	8.0		0.05							(E)	0.2
133 I	1100	6.190E+00	12.7										
	12729	6.220E+00	4.3										
134 TE	12729	3.910E+00	14.8										
135 I	12729	5.830E+00	3.8										
137 CS	1100	7.240E+00	12.8								7.240E+00		12.8
140 BA	1100	5.300E+00	7.7										
	12729	5.510E+00	4.0										
141 CE	1100	5.010E+00	9.2		-1.20				1.44	1.44	5.365E+00	(I)	6.6
	12729	5.870E+00	9.4		1.20							(E)	7.9A
142 LA	12729	4.900E+00	5.9		-0.24				0.06	0.06	4.922E+00	(I)	5.6A
	1100	5.130E+00	17.6		0.24							(E)	1.4
143 CE	1100	4.640E+00	9.6										
	12729	5.020E+00	5.8										

TABLE 131 CHAIN AND CUMULATIVE YIELDS FROM 7.100E+06 eV FISSION IN 235U . (cont)

A NO. EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2	CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
144 CE	12729	4.300E+00	11.9		-0.02				0.00	0.00	4.306E+00	(I)	7.3A
	1100	4.310E+00	9.2		0.02							(E)	0.1
147 ND	12729	2.130E+00	6.6		-0.28				0.08	0.08	2.153E+00	(I)	5.3A
	1100	2.200E+00	9.2		0.28							(E)	1.5
149 PM	12729	1.100E+00	12.7								1.100E+00		12.7
151 PM	1100	3.590E-01	16.9										
	12729	5.300E-01	9.4										
156 EU	1100	3.880E-02	9.9								3.880E-02		9.9

TABLE 132 CHAIN AND CUMULATIVE YIELDS FROM 8.100E+06 eV FISSION IN 235U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 EXTERNAL	CHI2 EXTERNAL	TOTAL CHI2 INT.	CHI2 EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
84 BR	1101	1.580E+00	34.6								1.580E+00		34.6	
85 KR(M)	12729	2.070E+00	6.3											
87 KR	12729	2.830E+00	6.0		-0.53				0.28	0.28	2.859E+00	(I)	5.6A	
	1101	3.110E+00	16.0		0.53							(E)	3.0	
88 KR	12729	3.380E+00	5.3											
89 SR	1101	3.850E+00	9.8								3.850E+00		9.8	
91 SR	12729	5.150E+00	4.1		-0.05				0.00	0.00	5.153E+00	(I)	3.9A	
	1101	5.180E+00	12.2		0.05							(E)	0.2	
92 SR	12729	4.790E+00	8.1											
93 Y	12729	6.230E+00	5.8								6.230E+00		5.8	
95 ZR	1101	5.900E+00	8.7		-0.40				0.16	0.16	6.073E+00	(I)	4.5A	
	12729	6.140E+00	5.2		0.40							(E)	1.8	
97 ZR	12729	5.470E+00	4.2		-0.08				0.01	0.01	5.476E+00	(I)	3.9A	
	1101	5.520E+00	10.8		0.08							(E)	0.3	
99 MO	12729	4.920E+00	5.5		-0.86				0.74	0.74	5.035E+00	(I)	4.7A	
	1101	5.390E+00	8.8		0.86							(E)	4.0	
103 RU	1101	2.960E+00	9.8		-0.36				0.13	0.13	3.049E+00	(I)	4.8A	
	12729	3.080E+00	5.5		0.36							(E)	1.7	
104 TC	1101	2.420E+00	31.2								2.420E+00		31.2	
105 RU	12729	1.530E+00	5.9		0.77				0.60	0.60	1.495E+00	(I)	5.2A	
RH	1101	1.390E+00	11.3		-0.77							(E)	4.0	
109 PD	12729	5.400E-01	14.8								5.400E-01		14.8	
111 AG	1101	2.270E-01	8.1		-3.23				10.40	10.40	2.443E-01	(I)	7.2	>2
	12729	4.300E-01	14.0		3.23							(E)	23.2A	
112 PD	1101	2.170E-01	7.9											
	12729	4.400E-01	13.6											
115 CD	12729	3.800E-01	15.8	3.800E-01	0.00		8.20	8.7>2	8.71	8.71	2.080E-01	(I)	7.0	>2
CD(G)	1101	1.820E-01	8.0	1.820E-01	0.00		0.48					(E)	20.6A	
CD(M)	1101	1.540E-02	21.3	1.540E-02	0.00		0.02							
121 SN	12729	3.000E-01	16.7								3.000E-01		16.7	
125 SN	12729	3.000E-01	16.7											
127 SB	1101	6.420E-01	22.0											
	12729	9.800E-01	15.3											
129 SN	1101	7.530E-01	19.9								7.530E-01		19.9	
SB	12729	1.750E+00	8.0											
130 SB	1101	8.880E-01	20.1								8.880E-01		20.1	
131 I	12729	4.360E+00	4.1											
132 TE	1101	4.450E+00	8.7											
	12729	4.750E+00	4.2											
133 I	1101	5.890E+00	14.9											
	12729	5.950E+00	4.4											
134 TE	12729	3.740E+00	13.6											
135 I	12729	5.680E+00	6.3											
137 CS	1101	4.180E+00	15.7								4.180E+00		15.7	
138 XE	12729	5.230E+00	5.7											
139 BA	12729	6.010E+00	6.5											
140 BA	1101	5.100E+00	8.8											
	12729	5.300E+00	3.8											
141 CE	1101	4.970E+00	10.4		-0.89				0.80	0.80	5.325E+00	(I)	6.2A	
	12729	5.570E+00	7.7		0.89							(E)	5.5	
142 LA	12729	4.680E+00	5.8		-0.60				0.36	0.36	4.719E+00	(I)	5.5A	
	1101	5.340E+00	20.1		0.60							(E)	3.3	
143 CE	1101	4.730E+00	11.0											
	12729	4.920E+00	5.7											
144 CE	1101	4.100E+00	10.5											
	12729	4.650E+00	11.8											
147 ND	1101	2.030E+00	11.1		-0.70				0.49	0.49	2.162E+00	(I)	5.8A	
	12729	2.220E+00	6.8		0.70							(E)	4.1	
149 PM	12729	1.120E+00	10.7								1.120E+00		10.7	
151 PM	1101	4.760E-01	16.1											
	12729	5.300E-01	5.7											
156 EU	1101	3.420E-02	12.1								3.420E-02		12.1	

TABLE 133 CHAIN AND CUMULATIVE YIELDS FROM 9.100E+06 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
84	BR	1102	1.140E+00	38.1							1.140E+00		38.1
87	KR	1102	2.910E+00	19.6							2.910E+00		19.6
89	SR	1102	3.250E+00	14.9							3.250E+00		14.9
91	SR	1102	4.880E+00	12.9							4.880E+00		12.9
95	ZR	1102	6.050E+00	10.5							6.050E+00		10.5
97	ZR	1102	5.350E+00	12.8							5.350E+00		12.8
99	MO	1102	5.360E+00	10.8							5.360E+00		10.8
103	RU	1102	2.700E+00	14.2							2.700E+00		14.2
104	TC	1102	2.670E+00	31.1							2.670E+00		31.1
105	RH	1102	1.020E+00	17.0							1.020E+00		17.0
111	AG	1102	3.060E-01	8.8							3.060E-01		8.8
112	PD	1102	2.920E-01	8.5							2.920E-01		8.5
115	CD(G)	1102	2.420E-01	8.3	2.420E-01				0.00	0.00	2.573E-01	(I)	8.1A
	CD(M)	1102	1.530E-02	33.1	1.530E-02							(E)	0.0
127	SB	1102	8.080E-01	12.2							8.080E-01		12.2
129	SN	1102	8.280E-01	22.0							8.280E-01		22.0
130	SB	1102	1.040E+00	20.7							1.040E+00		20.7
132	TE	1102	3.960E+00	11.1							3.960E+00		11.1
133	I	1102	5.640E+00	18.1							5.640E+00		18.1
137	CS	1102	5.400E+00	15.1							5.400E+00		15.1
140	BA	1102	4.710E+00	11.3							4.710E+00		11.3
141	CE	1102	4.570E+00	12.9							4.570E+00		12.9
142	LA	1102	5.500E+00	22.9							5.500E+00		22.9
143	CE	1102	4.390E+00	13.5							4.390E+00		13.5
144	CE	1102	3.620E+00	13.3							3.620E+00		13.3
147	ND	1102	1.870E+00	14.9							1.870E+00		14.9
151	PM	1102	3.700E-01	47.5							3.700E-01		47.5
156	EU	1102	3.810E-02	15.6							3.810E-02		15.6

TABLE 134 CHAIN AND CUMULATIVE YIELDS FROM 1.400E+07 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
4	HE PI	2050	1.456E-01	40.0		-0.40			0.16	0.16	1.687E-01	(I)	6.1A
		2052r	1.694E-01	6.2		0.40						(E)	2.5

TABLE 135 CHAIN AND CUMULATIVE YIELDS FROM 1.430E+07 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	KR(G)	13116	3.980E-01	50.0								
156	EU	13116	5.140E-02	50.0							5.140E-02	50.0
161	TB	13116	4.090E-03	50.0							4.090E-03	50.0

TABLE 136 CHAIN AND CUMULATIVE YIELDS FROM 1.470E+07 eV FISSION IN 235U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	KR(G)	13116	4.000E-01	50.0								
156	EU	13116	5.350E-02	50.0							5.350E-02	50.0
161	TB	13116	4.380E-03	50.0							4.380E-03	50.0

TABLE 137 CHAIN AND CUMULATIVE YIELDS FROM 4.500E+06 eV FISSION IN 236U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2079	6.135E-03	10.0							6.135E-03	10.0

TABLE 138 CHAIN AND CUMULATIVE YIELDS FROM 4.850E+00 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	321	6.450E+00	10.0							6.450E+00	10.0

TABLE 139 CHAIN AND CUMULATIVE YIELDS FROM 9.500E-01 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	321	6.190E+00	10.0							6.190E+00	10.0

TABLE 140 CHAIN AND CUMULATIVE YIELDS FROM 5.000E+05 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI 92043	1.907E-02	17.0								
4	HE	PI 92043	1.025E-01	10.0								

TABLE 141 CHAIN AND CUMULATIVE YIELDS FROM 1.000E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3 H	PI 92043	1.225E-02	16.0								
4 HE	PI 92043	1.106E-01	10.0								

TABLE 142 CHAIN AND CUMULATIVE YIELDS FROM 1.500E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83 BR	1086	2.800E-01	11.0							2.800E-01	11.0
85 KR(G)	1086	7.900E-01	6.0								
87 KR	1086	1.600E+00	6.0							1.600E+00	6.0
88 KR	1086	1.710E+00	8.0							1.710E+00	8.0
89 RB	1086	2.340E+00	13.0							2.340E+00	13.0
91 SR	1086	3.930E+00	6.0							3.930E+00	6.0
92 SR	1086	4.180E+00	6.0							4.180E+00	6.0
93 Y	1086	4.360E+00	7.0							4.360E+00	7.0
94 Y	1086	4.450E+00	8.0							4.450E+00	8.0
95 ZR	1086	5.310E+00	4.0							5.310E+00	4.0
97 ZR	1086	5.360E+00	5.0							5.360E+00	5.0
99 MO	1086	6.290E+00	5.0							6.290E+00	5.0
101 TC	1086	6.410E+00	9.0							6.410E+00	9.0
103 RU	1086	6.960E+00	5.0							6.960E+00	5.0
104 TC	1086	5.170E+00	7.0							5.170E+00	7.0
105 RU	1086	4.680E+00	6.0							4.680E+00	6.0
107 RH	1086	5.400E-01	9.0							5.400E-01	9.0
109 PD	1086	7.500E-02	11.0							7.500E-02	11.0
112 PD	1086	2.800E-02	22.0							2.800E-02	22.0
113 AG	1086	2.600E-02	25.0							2.600E-02	25.0
115 CD(G)	1086	8.900E-03	10.0								
121 SN(G)	1086	1.360E-02	11.0								
125 SN(G)	1086	6.200E-03	25.0								
127 SB	1086	8.300E-02	5.0							8.300E-02	5.0
129 SB	1086	2.800E-01	15.0		-2.04			4.18	4.18	3.291E-01 (I)	10.5 >2
	1086	4.300E-01	14.0		2.04					(E)	21.4A
131 I	1086	3.240E+00	5.0							3.240E+00	5.0
132 TE	1086	5.400E+00	5.0							5.400E+00	5.0
133 I	1086	7.150E+00	5.0								
134 TE	1086	8.120E+00	5.0							8.120E+00	5.0
135 I	1086	7.230E+00	5.0							7.230E+00	5.0
138 XE	1086	5.270E+00	5.0							5.270E+00	5.0
139 BA	1086	7.110E+00	10.0							7.110E+00	10.0
140 BA	1086	6.010E+00	5.0							6.010E+00	5.0
142 LA	1086	4.690E+00	6.0							4.690E+00	6.0
143 CE	1086	4.630E+00	7.0							4.630E+00	7.0
146 CE	1086	3.820E+00	9.0								
147 ND	1086	2.650E+00	14.0							2.650E+00	14.0
149 ND	1086	1.740E+00	22.0							1.740E+00	22.0

TABLE 143 CHAIN AND CUMULATIVE YIELDS FROM 1.720E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
85 KR(M)	2000	7.410E-01	9.4									
87 KR	2000	1.200E+00	12.5							1.200E+00		12.5
88 KR	2000	1.600E+00	10.6							1.600E+00		10.6
89 RB	2000	2.870E+00	12.5		-0.77			0.59	0.59	3.065E+00	(I)	8.3A
	2000	3.260E+00	11.0		0.77						(E)	6.4
91 SR	2000	3.630E+00	10.2		-0.52			0.30	0.15	3.782E+00	(I)	5.9A
	2000	3.920E+00	10.2		0.42						(E)	2.3
Y (M)	2000	3.820E+00	10.2		0.12							
92 SR	2000	4.380E+00	9.1							4.380E+00		9.1
93 Y	2000	5.160E+00	10.5							5.160E+00		10.5
94 Y	2000	4.370E+00	12.1							4.370E+00		12.1
95 ZR	2000	5.370E+00	10.6							5.370E+00		10.6
97 NB(G)	2000	5.480E+00	11.5	5.480E+00				0.00	0.00	5.480E+00	(I)	11.5A
NB(M)	2000	5.220E+00	10.9	5.220E+00							(E)	0.0
101 TC	2000	7.830E+00	11.9							7.830E+00		11.9
103 RU	2000	6.680E+00	10.5							6.680E+00		10.5
104 TC	2000	4.820E+00	10.8							4.820E+00		10.8
105 RU	2000	3.650E+00	11.2		-1.24			1.54	1.54	4.010E+00	(I)	7.2
	2000	4.370E+00	9.4		1.24						(E)	9.0A
107 RH	2000	6.700E-01	31.3							6.700E-01		31.3
129 SB	2000	4.400E-01	15.9							4.400E-01		15.9
131 I	2000	3.570E+00	10.4							3.570E+00		10.4
132 I	2000	4.620E+00	12.6		-0.73			1.10	0.37	4.986E+00	(I)	5.8A
	2000	4.900E+00	10.2		-0.21						(E)	3.5
	2000	5.010E+00	14.2		0.04							
	2000	5.470E+00	10.8		0.94							
133 I	2000	7.080E+00	10.0							7.080E+00		10.0
134 TE	2000	6.640E+00	11.1							6.640E+00		11.1
135 I	2000	6.730E+00	10.0		-0.70			0.49	0.24	7.093E+00	(I)	6.0A
	2000	7.320E+00	10.7		0.35						(E)	3.0
	2000	7.350E+00	10.5		0.40							
140 BA	2000	5.670E+00	10.8		-0.11			0.03	0.02	5.726E+00	(I)	6.2A
LA	2000	5.690E+00	10.9		-0.07						(E)	0.8
	2000	5.820E+00	10.7		0.19							
141 BA	2000	4.980E+00	13.1							4.980E+00		13.1
142 LA	2000	5.040E+00	11.7							5.040E+00		11.7
143 CE	2000	4.600E+00	12.0							4.600E+00		12.0
146 CE	2000	3.290E+00	11.8							3.290E+00		11.8
147 ND	2000	2.640E+00	15.9							2.640E+00		15.9
149 ND	2000	1.650E+00	15.2							1.650E+00		15.2

TABLE 144 CHAIN AND CUMULATIVE YIELDS FROM 2.000E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
3 H PI	92043	9.160E-03	33.0									
4 HE PI	92043	1.080E-01	10.0									
77 AS	366	4.000E-03	15.0							4.000E-03		15.0
83 KR	935	2.600E-01	15.0		-0.40			0.16	0.16	2.723E-01	(I)	8.9A
	1087	2.800E-01	11.0		0.40						(E)	3.6
85 KR(M)	935	7.500E-01	15.0									
	1087	7.700E-01	5.0									
87 KR	935	1.530E+00	15.0		-0.16			0.03	0.03	1.566E+00	(I)	4.7A
	1087	1.570E+00	5.0		0.16						(E)	0.8
88 KR	935	1.790E+00	15.0		-0.56			0.31	0.31	1.931E+00	(I)	4.7A
	1087	1.950E+00	5.0		0.56						(E)	2.7
89 RB	1087	2.260E+00	14.0		-0.45			0.20	0.20	2.352E+00	(I)	10.2A
SR	935	2.480E+00	15.0		0.45						(E)	4.6
91 SR	1087	3.940E+00	6.0		-0.50			0.58	0.29	3.996E+00	(I)	5.2A
	935	3.970E+00	15.0		-0.05						(E)	2.8
Y	935	4.480E+00	15.0		0.76							
92 SR	1087	4.100E+00	6.0							4.100E+00		6.0
93 Y	935	4.580E+00	15.0		-0.29			0.08	0.08	4.758E+00	(I)	6.3A
	1087	4.800E+00	7.0		0.29						(E)	1.8
94 Y	1087	4.400E+00	7.0							4.400E+00		7.0
95 ZR	935	5.110E+00	15.0		-0.04			0.00	0.00	5.137E+00	(I)	4.7A
	1087	5.140E+00	5.0		0.04						(E)	0.2
97 ZR	1087	5.580E+00	5.0		-0.23			0.05	0.05	5.600E+00	(I)	4.7A
	935	5.790E+00	15.0		0.23						(E)	1.1
99 MO	1087	6.120E+00	5.0		-1.14			1.72	0.86	6.252E+00	(I)	4.5A
	935	6.620E+00	15.0		0.39						(E)	4.2
	935	7.600E+00	15.0		1.22							
101 TC	1087	6.450E+00	7.0							6.450E+00		7.0
103*RU	935	4.760E+00	15.0W		-2.38			6.32	3.16	6.610E+00	(I)	4.6 >2
	935	6.850E+00	15.0		0.25						(E)	8.1A
	1087	7.030E+00	5.0W		2.44							
104 TC	1087	4.880E+00	7.0							4.880E+00		7.0
105 RU	935	4.440E+00	15.0		-0.11			0.01	0.01	4.509E+00	(I)	5.2A
	935	4.510E+00	15.0		0.00						(E)	0.4
	1087	4.520E+00	6.0		0.08							
106 RU	1087	2.880E+00	10.0		-1.06			1.13	1.13	3.027E+00	(I)	8.4
	935	3.520E+00	15.0		1.06						(E)	8.9A
107 RH	1087	1.050E+00	26.0							1.050E+00		26.0
109 PD	935	6.200E-02	15.0		-1.05			1.09	1.09	6.928E-02	(I)	8.9
	1087	7.500E-02	11.0		1.05						(E)	9.3A
111 AG	935	2.900E-02	15.0		-0.33			0.14	0.07	3.025E-02	(I)	7.3A
	366	3.000E-02	15.0		-0.06						(E)	2.0
	1087	3.100E-02	10.0		0.34							
112 PD	1087	2.600E-02	12.0		-0.20			0.04	0.04	2.637E-02	(I)	9.4A
	935	2.700E-02	15.0		0.20						(E)	1.8
113 AG(G)	1087	9.000E-03	23.0							9.000E-03		23.0
115 CD(G)	1087	1.050E-02	15.0		-0.66			1.05	0.53	1.131E-02	(I)	8.7A
	366	1.300E-02	15.0		1.00						(E)	6.3
CHAIN	935	1.100E-02	15.0		-0.24							
121 SN(G)	1087	1.390E-02	10.0		-0.04			0.00	0.00	1.393E-02	(I)	8.3A
	935	1.400E-02	15.0		0.04						(E)	0.3
125 SN(G)	1087	8.200E-03	25.0							2.000E-02		15.0
CHAIN	935	2.000E-02	15.0									
127 SB	935	5.600E-02	15.0		-0.67			0.45	0.45	5.955E-02	(I)	11.0A
	1087	6.500E-02	16.0		0.67						(E)	7.4

TABLE 144 CHAIN AND CUMULATIVE YIELDS FROM 2.000E+06 eV FISSION IN 238U . (cont)

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
129 SB	935	3.300E-01	15.0		-1.05			2.83	0.94	3.738E-01	(I)	7.1A	
	1087	3.500E-01	14.0		-0.58						(E)	6.9	
	1087	4.000E-01	13.0		0.59								
	935	4.600E-01	15.0		1.35								
131 I	935	2.460E+00	15.0		-2.00			4.06	2.03	3.141E+00	(I)	4.5	>2
	1087	3.250E+00	5.0		1.40						(E)	6.5A	
	935	3.370E+00	15.0		0.47								
132 TE	935	4.160E+00	15.0		-1.48			2.93	1.47	5.018E+00	(I)	4.5	
	935	4.590E+00	15.0		-0.66						(E)	5.5A	
	1087	5.230E+00	5.0		1.65								
133 I	935	6.600E+00	15.0		-0.49			0.24	0.12	7.060E+00	(I)	4.5A	
	935	7.050E+00	15.0		-0.01						(E)	1.6	
	1087	7.120E+00	5.0		0.38								
134 TE	1087	7.780E+00	5.0							7.780E+00		5.0	
135 I	935	5.340E+00	15.0		-2.00			4.91	2.46	6.816E+00	(I)	4.5	>2
	935	6.240E+00	15.0		-0.65						(E)	7.1A	
	1087	7.200E+00	5.0		2.09								
138 XE	1087	5.690E+00	5.0							5.690E+00		5.0	
139 BA	935	6.810E+00	15.0		-0.12			0.01	0.01	6.918E+00	(I)	7.1A	
	1087	6.950E+00	8.0		0.12						(E)	0.8	
140 BA	935	5.770E+00	15.0		-0.35			0.14	0.07	6.055E+00	(I)	4.5A	
	935	5.970E+00	15.0		-0.10						(E)	1.2	
	1087	6.100E+00	5.0		0.34								
141 BA	1087	5.730E+00	6.0		0.32			0.12	0.04	5.651E+00	(I)	4.2A	
CE	1087	5.550E+00	7.0		-0.33						(E)	0.9	
	935	5.610E+00	15.0		-0.05								
	935	5.690E+00	15.0		0.05								
142 LA	935	4.540E+00	15.0		-0.16			0.03	0.03	4.638E+00	(I)	6.3A	
	1087	4.660E+00	7.0		0.16						(E)	1.0	
143 CE	935	4.280E+00	15.0		-0.59			0.51	0.17	4.641E+00	(I)	4.2A	
	1087	4.620E+00	6.0		-0.11						(E)	1.7	
	1087	4.710E+00	7.0		0.26								
	935	4.920E+00	15.0		0.39								
144 CE	935	4.800E+00	15.0							4.800E+00		15.0	
146 CE	1087	3.720E+00	8.0							3.720E+00		8.0	
147 ND	935	2.250E+00	15.0		-2.28			6.98	3.49	2.880E+00	(I)	6.7	>2
	1087	2.820E+00	13.0		-0.19						(E)	12.6A	
	1087	3.460E+00	9.0		2.38								
149 ND	1087	1.720E+00	12.0		-1.12			1.26	1.26	1.845E+00	(I)	9.4	
PM	935	2.150E+00	15.0		1.12						(E)	10.6A	
151 PM	935	6.500E-01	15.0		-1.64			3.10	1.55	7.830E-01	(I)	6.9	
	1087	8.200E-01	9.0		0.74						(E)	8.6A	
	935	9.200E-01	15.0		1.08								
153 SM	935	3.800E-01	15.0		-0.33			0.11	0.11	3.869E-01	(I)	13.7A	
	1087	4.300E-01	33.0		0.33						(E)	4.5	
156 EU	935	9.100E-02	15.0							9.100E-02		15.0	

TABLE 145 CHAIN AND CUMULATIVE YIELDS FROM 2.160E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
85 KR(M)	2000	8.657E-01	13.9										
87 KR	2000	1.060E+00	12.3							1.060E+00		12.3	
88 KR	2000	1.480E+00	14.9							1.480E+00		14.9	
89 RB	2000	3.020E+00	12.9		-0.02			0.00	0.00	3.025E+00	(I)	9.5A	
	2000	3.030E+00	14.2		0.02						(E)	0.2	
91 SR	2000	3.570E+00	11.5		-1.19			1.41	1.41	3.886E+00	(I)	8.0	
	2000	4.320E+00	11.1		1.19						(E)	9.5A	
92 SR	2000	4.450E+00	10.6							4.450E+00		10.6	
93 Y	2000	4.550E+00	10.3							4.550E+00		10.3	
94 Y	2000	4.370E+00	12.1							4.370E+00		12.1	
95 ZR	2000	5.330E+00	10.7							5.330E+00		10.7	
97 NB(M)	2000	5.540E+00	10.5							5.540E+00		10.5	
99 Y (M)	2000	3.340E+00	12.0							3.340E+00		12.0	
101 TC	2000	6.990E+00	11.0							6.990E+00		11.0	
103 RU	2000	6.480E+00	10.3							6.480E+00		10.3	
104 TC	2000	4.730E+00	11.4							4.730E+00		11.4	
105 RU	2000	3.320E+00	11.4		-1.87			3.50	3.50	3.767E+00	(I)	7.8	>2
	2000	4.450E+00	10.6		1.87						(E)	14.7A	
107 RH	2000	8.200E-01	28.1							8.200E-01		28.1	
129 SB	2000	4.300E-01	11.6							4.300E-01		11.6	
131 I	2000	3.530E+00	10.5							3.530E+00		10.5	
132 I	2000	5.380E+00	11.0		-0.81			0.94	0.31	5.785E+00	(I)	5.3A	
	2000	5.690E+00	10.4		-0.19						(E)	3.0	
	2000	6.050E+00	10.2		0.49								
	2000	6.140E+00	11.2		0.58								
133 I	2000	6.960E+00	10.3							6.960E+00		10.3	
134 TE	2000	6.540E+00	10.9							6.540E+00		10.9	
135 I	2000	6.950E+00	10.5		-0.33			0.28	0.14	7.141E+00	(I)	6.2A	
	2000	7.040E+00	10.8		-0.16						(E)	2.3	
	2000	7.510E+00	11.1		0.53								
138 CS	2000	5.290E+00	10.8							5.290E+00		10.8	
140 BA	2000	5.730E+00	11.0		-0.06			0.45	0.15	5.764E+00	(I)	5.4A	
LA	2000	5.590E+00	10.6		-0.35						(E)	2.1	
	2000	5.640E+00	11.3		-0.22								
	2000	6.130E+00	10.4		0.65								
141 BA	2000	4.670E+00	10.9							4.670E+00		10.9	
142 LA	2000	4.790E+00	10.9							4.790E+00		10.9	
143 CE	2000	4.490E+00	11.1							4.490E+00		11.1	
146 CE	2000	3.540E+00	13.0							3.540E+00		13.0	
147 ND	2000	2.730E+00	16.1							2.730E+00		16.1	
149 ND	2000	1.680E+00	15.5							1.680E+00		15.5	

TABLE 146 CHAIN AND CUMULATIVE YIELDS FROM 2.500E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4*HE PI	2051	1.666E-01 10.0W		2.30			8.52	2.84	7.258E-02	(I) 7.7 >2
	2057r	4.825E-02 30.2		-2.26						(E) 13.0A
	2052r	6.218E-02 10.6W		-0.89						
	2050	9.066E-02 40.0		0.52						

TABLE 147 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
77 AS	367	9.100E-03 15.0							9.100E-03	15.0
83 BR	911	1.170E-01 20.0							1.170E-01	20.0
84 BR	911	2.100E-01 10.0							2.100E-01	10.0
89 SR	911	3.730E+00 11.0							3.730E+00	11.0
91 SR	911	4.650E+00 11.0		1.54			2.36	2.36	3.972E+00	(I) 6.5 >2
CHAIN	405	3.740E+00 8.0		-1.54						(E) 10.0A
92 SR	911	5.210E+00 10.0							5.210E+00	10.0
93 Y	911	5.720E+00 9.0		0.96			0.92	0.92	5.332E+00	(I) 6.0A
CHAIN	405	5.090E+00 8.0		-0.96						(E) 5.7
95 ZR	911	6.670E+00 12.0							6.670E+00	12.0
97 ZR	911	6.920E+00 10.0							6.920E+00	10.0
99 MO	911	6.750E+00 11.0							6.750E+00	11.0
103 RU	911	5.240E+00 16.0							5.240E+00	16.0
105 RH	911	2.160E+00 15.0		-4.16			17.29	17.29	3.110E+00	(I) 7.4 >2
	405	4.070E+00 8.0		4.16						(E) 30.7A
107 CHAIN	405	1.450E+00 10.0							1.450E+00	10.0
109 PD	911	1.020E-01 10.0							1.020E-01	10.0
111 AG	367	5.200E-02 15.0		-2.17			4.71	4.71	6.347E-02	(I) 9.0 >2
	911	7.700E-02 11.0		2.17						(E) 19.6A
112 PD	911	6.900E-02 13.0							6.900E-02	13.0
113 AG	911	5.900E-02 12.0							5.900E-02	12.0
115 CD(G)	367	2.600E-02 15.0		-2.82			7.98	7.98	2.991E-02	(I) 12.2 >2
	911	5.700E-02 18.0		2.82						(E) 34.4A
118 CD	911	5.400E-02 18.0							5.400E-02	18.0
121 SN	911	5.900E-02 15.0							5.900E-02	15.0
127 SB	911	1.310E-01 16.0							1.310E-01	16.0
129 CHAIN	405	4.400E-01 8.0							4.400E-01	8.0
131 TE(M)	911	1.680E+00 11.0							3.310E+00	8.0
CHAIN	405	3.310E+00 8.0								
132 TE	911	3.790E+00 9.0							3.790E+00	9.0
133 I	911	7.370E+00 12.0							7.370E+00	12.0
134 I	911	8.190E+00 10.0							8.190E+00	10.0
135 I	911	6.880E+00 13.0							6.880E+00	13.0
139 BA	911	6.510E+00 10.0							6.510E+00	10.0
140 BA	911	6.160E+00 7.0							6.160E+00	7.0
141 CE	911	5.760E+00 11.0							5.760E+00	11.0
143 CE	911	5.450E+00 10.0		-0.06			0.00	0.00	5.474E+00	(I) 6.2A
CHAIN	405	5.490E+00 8.0		0.06						(E) 0.4
145 PR	911	4.070E+00 10.0		-0.54			0.29	0.29	4.237E+00	(I) 6.3A
CHAIN	405	4.360E+00 8.0		0.54						(E) 3.4
147 ND	911	3.500E+00 14.0							3.500E+00	14.0
149 PM	911	1.830E+00 13.0							1.830E+00	13.0
151 PM	911	6.900E-01 12.0							6.900E-01	12.0

TABLE 148 CHAIN AND CUMULATIVE YIELDS FROM 3.600E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3 H PI	2000	1.770E-02	25.0							1.770E-02	25.0
4 HE PI	2000	1.130E-01	10.0							1.130E-01	10.0

TABLE 149 CHAIN AND CUMULATIVE YIELDS FROM 3.730E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(M)	2000	8.344E-01	9.6								
87 KR	2000	1.390E+00	11.5							1.390E+00	11.5
88 KR	2000	1.770E+00	10.7							1.770E+00	10.7
89 RB	2000	2.930E+00	13.7		-0.03			0.00	0.00	2.939E+00 (I)	10.2A
	2000	2.950E+00	15.2		0.03					(E)	0.3
91 SR	2000	3.360E+00	11.9		-0.72			1.67	0.84	3.599E+00 (I)	6.2A
	2000	4.040E+00	10.2		1.28					(E)	5.6
Y (M)	2000	3.460E+00	10.1		-0.51						
92 SR	2000	4.900E+00	10.4							4.900E+00	10.4
93 Y	2000	5.230E+00	10.9							5.230E+00	10.9
94 Y	2000	4.570E+00	12.2							4.570E+00	12.2
95 ZR	2000	5.750E+00	11.0							5.750E+00	11.0
97 NB(G)	2000	5.930E+00	10.3	5.930E+00				0.00	0.00	5.930E+00 (I)	10.3A
NB(M)	2000	5.460E+00	10.3	5.460E+00						(E)	0.0
101 TC	2000	7.490E+00	10.6							7.490E+00	10.6
103 RU	2000	6.270E+00	10.2							6.270E+00	10.2
104 TC	2000	4.130E+00	10.9							4.130E+00	10.9
105 RU	2000	3.330E+00	11.1		-0.47			0.22	0.22	3.448E+00 (I)	7.8A
	2000	3.580E+00	10.9		0.47					(E)	3.6
107 RH	2000	8.100E-01	22.2							8.100E-01	22.2
129 SB	2000	6.200E-01	12.9							6.200E-01	12.9
131 I	2000	3.650E+00	10.1							3.650E+00	10.1
132 I	2000	4.590E+00	11.6		-1.01			3.88	1.94	5.017E+00 (I)	6.4
	2000	4.690E+00	11.3		-0.78					(E)	8.9A
	2000	6.080E+00	10.4		1.96						
133 I	2000	6.500E+00	10.3							6.500E+00	10.3
134 TE	2000	6.110E+00	12.3							6.110E+00	12.3
135 I	2000	7.050E+00	10.6		-0.06			0.00	0.00	7.077E+00 (I)	8.3A
	2000	7.120E+00	13.2		0.06					(E)	0.5
138 CS	2000	5.290E+00	11.0		-0.08			0.01	0.01	5.324E+00 (I)	7.8A
	2000	5.360E+00	11.2		0.08					(E)	0.7
140 BA	2000	5.730E+00	10.5		0.23			0.07	0.03	5.620E+00 (I)	6.4A
LA	2000	5.510E+00	10.5		-0.24					(E)	1.2
	2000	5.630E+00	13.0		0.02						
141 BA	2000	4.990E+00	15.8							4.990E+00	15.8
142 LA	2000	5.110E+00	10.4							5.110E+00	10.4
143 CE	2000	4.390E+00	10.2							4.390E+00	10.2
146 CE	2000	3.340E+00	12.9		-0.18			0.03	0.03	3.392E+00 (I)	9.2A
	2000	3.450E+00	13.0		0.18					(E)	1.6
147 ND	2000	2.770E+00	15.5							2.770E+00	15.5
149 ND	2000	1.840E+00	15.2							1.840E+00	15.2

TABLE 150 CHAIN AND CUMULATIVE YIELDS FROM 3.900E+06 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	KR(G)	1088	8.800E-01 5.0								
87	KR	1088	1.780E+00 5.0							1.780E+00	5.0
88	KR	1088	2.090E+00 8.0							2.090E+00	8.0
89	RB	1088	2.570E+00 12.0							2.570E+00	12.0
91	SR	1088	3.960E+00 7.0							3.960E+00	7.0
92	SR	1088	4.240E+00 6.0							4.240E+00	6.0
93	Y	1088	4.310E+00 7.0		-1.31			1.72	1.72	4.571E+00	(I) 5.0
		1088	4.910E+00 7.0		1.31						(E) 6.5A
94	Y	1088	5.130E+00 8.0							5.130E+00	8.0
95	ZR	1088	5.340E+00 5.0							5.340E+00	5.0
97	ZR	1088	5.620E+00 5.0							5.620E+00	5.0
99	MO	1088	6.000E+00 5.0							6.000E+00	5.0
101	TC	1088	7.080E+00 8.0							7.080E+00	8.0
103	RU	1088	6.120E+00 5.0							6.120E+00	5.0
104	TC	1088	4.740E+00 7.0							4.740E+00	7.0
105	RU	1088	4.400E+00 7.0							4.400E+00	7.0
106	RU	1088	2.810E+00 11.0							2.810E+00	11.0
107	RH	1088	1.050E+00 21.0							1.050E+00	21.0
109	PD	1088	1.180E-01 11.0							1.180E-01	11.0
111	AG	1088	1.040E-01 13.0							1.040E-01	13.0
112	PD	1088	5.700E-02 30.0							5.700E-02	30.0
113	AG(G)	1088	3.400E-02 24.0							3.400E-02	24.0
115	CD(G)	1088	2.900E-02 11.0								
121	SN(G)	1088	2.900E-02 11.0							2.900E-02	11.0
125	SN(G)	1088	2.600E-02 27.0							2.600E-02	27.0
127	SB	1088	1.600E-01 13.0		-1.02			1.04	1.04	1.749E-01	(I) 8.4
		1088	1.900E-01 11.0		1.02						(E) 8.6A
129	SB	1088	6.100E-01 15.0		-1.47			2.17	2.17	7.170E-01	(I) 7.8 >2
		1088	7.800E-01 9.0		1.47						(E) 11.5A
131	I	1088	3.360E+00 5.0							3.360E+00	5.0
132	TE	1088	4.890E+00 5.0							4.890E+00	5.0
133	I	1088	6.950E+00 5.0							6.950E+00	5.0
134	TE	1088	7.760E+00 6.0							7.760E+00	6.0
135	I	1088	6.450E+00 5.0							6.450E+00	5.0
138	XE	1088	5.820E+00 5.0							5.820E+00	5.0
139	BA	1088	5.430E+00 11.0							5.430E+00	11.0
140	BA	1088	6.170E+00 8.0							6.170E+00	8.0
141	BA	1088	5.850E+00 10.0		0.31			0.10	0.10	5.693E+00	(I) 5.1A
	CE	1088	5.640E+00 6.0		-0.31						(E) 1.6
142	LA	1088	4.850E+00 6.0							4.850E+00	6.0
143	CE	1088	4.600E+00 6.0		-0.35			0.12	0.12	4.668E+00	(I) 4.2A
		1088	4.740E+00 6.0		0.35						(E) 1.5
146	CE	1088	3.440E+00 9.0							3.440E+00	9.0
147	ND	1088	2.700E+00 8.0		-1.57			2.48	2.48	2.918E+00	(I) 5.7 >2
		1088	3.230E+00 8.0		1.57						(E) 8.9A
149	ND	1088	1.940E+00 13.0		-0.03			0.00	0.00	1.945E+00	(I) 9.2A
		1088	1.950E+00 13.0		0.03						(E) 0.3

TABLE 150 CHAIN AND CUMULATIVE YIELDS FROM 3.900E+06 eV FISSION IN 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
151	PM	1088	9.000E-01 7.0							9.000E-01	7.0
153	SM	1088	4.300E-01 19.0							4.300E-01	19.0

TABLE 151 CHAIN AND CUMULATIVE YIELDS FROM 4.200E+06 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	2000	2.370E-02	25.0						2.370E-02	25.0
4	HE PI	2000	1.150E-01	12.0						1.150E-01	12.0

TABLE 152 CHAIN AND CUMULATIVE YIELDS FROM 4.500E+06 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2079	2.041E-02	10.0						2.041E-02	10.0

TABLE 153 CHAIN AND CUMULATIVE YIELDS FROM 4.780E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(M)	2000	1.033E+00	9.7								
87 KR	2000	1.520E+00	10.5							1.520E+00	10.5
88 KR	2000	2.000E+00	10.5							2.000E+00	10.5
89 RB	2000	3.660E+00	13.7							3.660E+00	13.7
91 SR	2000	3.620E+00	10.5							3.620E+00	10.5
92 SR	2000	3.480E+00	10.9							3.480E+00	10.9
93 Y	2000	4.110E+00	10.5							4.110E+00	10.5
94 Y	2000	4.770E+00	10.9							4.770E+00	10.9
101 TC	2000	6.560E+00	10.4							6.560E+00	10.4
103 RU	2000	5.820E+00	10.7							5.820E+00	10.7
104 TC	2000	5.000E+00	10.6							5.000E+00	10.6
105 RU	2000	3.710E+00	10.8							3.710E+00	10.8
107 RH	2000	9.200E-01	21.7							9.200E-01	21.7
127 SB	2000	2.400E-01	20.8		-2.34			5.49	5.49	3.314E-01 (I)	9.4 >2
	2000	3.900E-01	10.3		2.34					(E)	22.1A
129 SB	2000	7.500E-01	12.0							7.500E-01	12.0
131 I	2000	3.860E+00	10.1							3.860E+00	10.1
132 I	2000	4.310E+00	10.7		-0.84			2.19	0.73	4.637E+00 (I)	5.3A
	2000	4.350E+00	10.6		-0.74					(E)	4.5
	2000	4.890E+00	10.4		0.56						
	2000	5.180E+00	10.2		1.15						
133 I	2000	6.170E+00	10.2							6.170E+00	10.2
134 TE	2000	6.280E+00	11.5							6.280E+00	11.5
135 I	2000	6.560E+00	10.4		-0.15			0.05	0.03	6.640E+00 (I)	6.1A
	2000	6.590E+00	11.1		-0.08					(E)	1.0
	2000	6.770E+00	10.3		0.23						
139 BA	2000	5.530E+00	12.8							5.530E+00	12.8
140 BA	2000	6.060E+00	10.4		-0.16			0.03	0.03	6.132E+00 (I)	7.1A
LA	2000	6.200E+00	9.8		0.16					(E)	1.1
141 BA	2000	5.090E+00	10.8							5.090E+00	10.8
142 LA	2000	3.810E+00	10.2							3.810E+00	10.2
143 CE	2000	4.470E+00	10.3							4.470E+00	10.3
146 CE	2000	3.550E+00	11.0							3.550E+00	11.0
147 ND	2000	2.740E+00	12.4							2.740E+00	12.4
149 ND	2000	1.710E+00	12.9							1.710E+00	12.9

TABLE 154 CHAIN AND CUMULATIVE YIELDS FROM 5.500E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83 BR	1089	3.900E-01	11.0							3.900E-01	11.0
85 KR(G)	1089	1.030E+00	6.0								
87 KR	1089	1.900E+00	6.0							1.900E+00	6.0
88 KR	1089	2.050E+00	8.0							2.050E+00	8.0
89 RB	1089	2.860E+00	13.0							2.860E+00	13.0
91 SR	1089	3.630E+00	6.0							3.630E+00	6.0
92 SR	1089	3.960E+00	7.0							3.960E+00	7.0
93 Y	1089	4.930E+00	7.0							4.930E+00	7.0
94 Y	1089	5.110E+00	8.0							5.110E+00	8.0
95 ZR	1089	5.590E+00	5.0							5.590E+00	5.0
97 ZR	1089	5.440E+00	5.0							5.440E+00	5.0
99 MO	1089	5.460E+00	6.0							5.460E+00	6.0
101 TC	1089	6.530E+00	9.0							6.530E+00	9.0
103 RU	1089	6.000E+00	5.0							6.000E+00	5.0
104 TC	1089	4.490E+00	7.0							4.490E+00	7.0
105 RU	1089	3.870E+00	8.0							3.870E+00	8.0
106 RU	1089	3.050E+00	11.0							3.050E+00	11.0
107 RH	1089	1.400E+00	42.0							1.400E+00	42.0
111 AG	1089	1.670E-01	11.0							1.670E-01	11.0
113 AG(G)	1089	8.300E-02	25.0							8.300E-02	25.0
115 CD(G)	1089	6.700E-02	11.0								
121 SN(G)	1089	9.100E-02	10.0							9.100E-02	10.0
125 SN(G)	1089	3.300E-02	24.0							3.300E-02	24.0
127 SB	1089	2.800E-01	15.0		-1.64			2.68	2.68	3.195E-01 (I)	10.8 >2
	1089	4.000E-01	15.0		1.64					(E)	17.6A
129 SB	1089	1.100E+00	7.0		2.66			7.10	7.10	9.830E-01 (I)	6.4 >2
	1089	7.400E-01	15.0		-2.66					(E)	17.2A
131 I	1089	3.720E+00	5.0							3.720E+00	5.0
132 TE	1089	5.050E+00	5.0							5.050E+00	5.0
133 I	1089	6.770E+00	5.0							6.770E+00	5.0
134 TE	1089	7.000E+00	8.0							7.000E+00	8.0
135 I	1089	6.490E+00	5.0							6.490E+00	5.0
138 XE	1089	5.800E+00	5.0							5.800E+00	5.0
139 BA	1089	6.500E+00	8.0							6.500E+00	8.0
140 BA	1089	5.610E+00	5.0							5.610E+00	5.0
141 BA	1089	5.300E+00	7.0							5.300E+00	7.0
142 LA	1089	4.580E+00	7.0							4.580E+00	7.0
143 CE	1089	4.750E+00	7.0							4.750E+00	7.0
146 CE	1089	3.640E+00	9.0							3.640E+00	9.0
147 ND	1089	2.960E+00	10.0							2.960E+00	10.0
149 ND	1089	1.510E+00	6.0							1.510E+00	6.0

TABLE 155 CHAIN AND CUMULATIVE YIELDS FROM 5.980E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(M)	2000	1.106E+00	12.7								
87 KR	2000	1.540E+00	13.0							1.540E+00	13.0
88 KR	2000	2.040E+00	11.3							2.040E+00	11.3
89 RB	2000	3.150E+00	12.4							3.150E+00	12.4
91 SR	2000	3.500E+00	11.7		-0.45			0.20	0.20	3.630E+00 (I)	8.0A
	2000	3.760E+00	10.9		0.45					(E)	3.6
92 SR	2000	3.740E+00	10.2							3.740E+00	10.2
93 Y	2000	4.280E+00	11.0							4.280E+00	11.0
94 Y	2000	4.920E+00	10.2							4.920E+00	10.2
95 ZR	2000	5.390E+00	10.2							5.390E+00	10.2
97 NB(G)	2000	5.680E+00	10.2	5.680E+00				0.00	0.00	5.680E+00 (I)	10.2A
NB(M)	2000	5.120E+00	10.2	5.120E+00						(E)	0.0
101 TC	2000	6.300E+00	11.8							6.300E+00	11.8
103 RU	2000	5.960E+00	10.4							5.960E+00	10.4
104 TC	2000	3.870E+00	11.9							3.870E+00	11.9
105 RU	2000	4.520E+00	10.4							4.520E+00	10.4
107 RH	2000	1.170E+00	12.8							1.170E+00	12.8
127 SB	2000	2.700E-01	22.2		-1.39			1.92	1.92	3.392E-01 (I)	9.8
	2000	3.700E-01	10.8		1.39					(E)	13.6A
129 SB	2000	1.110E+00	10.8							1.110E+00	10.8
131 I	2000	3.720E+00	10.2							3.720E+00	10.2
132 I	2000	4.480E+00	10.3		-0.66			1.62	0.54	4.737E+00 (I)	5.1A
	2000	4.560E+00	10.3		-0.44					(E)	3.8
	2000	4.740E+00	10.1		0.01						
	2000	5.320E+00	10.2		1.21						
133 I	2000	6.940E+00	10.9							6.940E+00	10.9
134 TE	2000	5.310E+00	11.5							5.310E+00	11.5
135 I	2000	6.190E+00	10.5		-0.28			0.13	0.07	6.334E+00 (I)	6.4A
	2000	6.290E+00	12.7		-0.06					(E)	1.7
	2000	6.530E+00	10.6		0.35						
138 CS	2000	5.640E+00	10.5							5.640E+00	10.5
140 BA	2000	5.860E+00	10.9		0.53			0.62	0.31	5.595E+00 (I)	7.1A
LA	2000	5.210E+00	12.1		-0.79					(E)	4.0
	2000	5.840E+00	14.9		0.32						
141 BA	2000	5.210E+00	12.1							5.210E+00	12.1
142 LA	2000	4.620E+00	10.4							4.620E+00	10.4
143 CE	2000	4.640E+00	11.8							4.640E+00	11.8
146 CE	2000	3.380E+00	13.3							3.380E+00	13.3
147 ND	2000	2.930E+00	10.2							2.930E+00	10.2
149 ND	2000	1.610E+00	12.4							1.610E+00	12.4

TABLE 156 CHAIN AND CUMULATIVE YIELDS FROM 6.000E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84 BR	1103	7.670E-01	55.2							7.670E-01	55.2
87 KR	1103	1.540E+00	23.4							1.540E+00	23.4
89 SR	1103	2.680E+00	7.4							2.680E+00	7.4
91 SR	1103	3.920E+00	9.2							3.920E+00	9.2
95 ZR	1103	5.200E+00	7.4							5.200E+00	7.4
97 ZR	1103	5.640E+00	9.3							5.640E+00	9.3
99 MO	1103	6.260E+00	7.4							6.260E+00	7.4
103 RU	1103	5.230E+00	7.8							5.230E+00	7.8
104 TC	1103	4.470E+00	34.5							4.470E+00	34.5
105 RH	1103	3.980E+00	10.3							3.980E+00	10.3
111 AG	1103	1.930E-01	7.4							1.930E-01	7.4
112 PD	1103	1.540E-01	7.9							1.540E-01	7.9
115 CD(G)	1103	1.030E-01	7.4	1.030E-01				0.00	0.00	1.246E-01 (I)	9.2A
CD(M)	1103	2.160E-02	40.0	2.160E-02						(E)	0.0
127 SB	1103	5.790E-01	50.8							5.790E-01	50.8
129 SN	1103	4.750E-01	30.2							4.750E-01	30.2
130 SB	1103	5.960E-01	26.4							5.960E-01	26.4
132 TE	1103	4.200E+00	7.6							4.200E+00	7.6
133 I	1103	6.170E+00	15.2							6.170E+00	15.2
137 CS	1103	5.360E+00	16.9							5.360E+00	16.9
140 BA	1103	5.380E+00	7.4							5.380E+00	7.4
141 CE	1103	4.720E+00	8.9							4.720E+00	8.9
142 LA	1103	4.430E+00	19.4							4.430E+00	19.4
143 CE	1103	4.340E+00	11.6							4.340E+00	11.6
144 CE	1103	4.330E+00	5.0							4.330E+00	5.0
147 ND	1103	2.550E+00	8.9							2.550E+00	8.9
151 PM	1103	1.690E+00	46.1							1.690E+00	46.1
156 EU	1103	1.050E-01	9.4							1.050E-01	9.4

TABLE 157 CHAIN AND CUMULATIVE YIELDS FROM 6.900E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(G)	1090	8.300E-01	6.0								
87 KR	1090	1.470E+00	8.0							1.470E+00	8.0
91 SR	1090	3.990E+00	6.0							3.990E+00	6.0
92 SR	1090	3.680E+00	7.0							3.680E+00	7.0
95 ZR	1090	5.580E+00	5.0							5.580E+00	5.0
97 ZR	1090	5.430E+00	8.0							5.430E+00	8.0
99 MO	1090	6.060E+00	5.0							6.060E+00	5.0
103 RU	1090	5.980E+00	5.0							5.980E+00	5.0
105 RU	1090	3.880E+00	6.0							3.880E+00	6.0
109 PD	1090	3.600E-01	11.0							3.600E-01	11.0
111 AG	1090	2.500E-01	12.0							2.500E-01	12.0
112 PD	1090	2.000E-01	20.0							2.000E-01	20.0
115 CD(G)	1090	1.160E-01	11.0							1.160E-01	11.0
121 SN(G)	1090	1.220E-01	10.0							1.220E-01	10.0
125 SN(G)	1090	6.700E-02	26.0							6.700E-02	26.0
127 SB	1090	3.900E-01	16.0		-0.86			0.74	0.74	4.378E-01 (I)	6.4A
	1090	4.500E-01	7.0		0.86					(E)	5.5
129 SB	1090	8.900E-01	7.0		-0.19			0.04	0.04	8.946E-01 (I)	6.4A
	1090	9.200E-01	16.0		0.19					(E)	1.2
131 I	1090	3.480E+00	5.0							3.480E+00	5.0
132 TE	1090	5.100E+00	5.0							5.100E+00	5.0
133 I	1090	7.100E+00	5.0							7.100E+00	5.0
134 TE	1090	7.240E+00	12.0							7.240E+00	12.0
135 I	1090	6.660E+00	5.0							6.660E+00	5.0
139 BA	1090	6.100E+00	8.0							6.100E+00	8.0
140 BA	1090	5.400E+00	5.0							5.400E+00	5.0
141 CE	1090	5.070E+00	8.0							5.070E+00	8.0
142 LA	1090	4.250E+00	6.0		-0.33			0.11	0.11	4.308E+00 (I)	4.2A
	1090	4.370E+00	6.0		0.33					(E)	1.4
143 CE	1090	4.170E+00	6.0		-0.31			0.09	0.09	4.224E+00 (I)	4.2A
	1090	4.280E+00	6.0		0.31					(E)	1.3
144 CE	1090	4.750E+00	13.0							4.750E+00	13.0
147 ND	1090	2.900E+00	9.0							2.900E+00	9.0
149 ND	1090	1.750E+00	16.0							1.750E+00	16.0
151 PM	1090	8.500E-01	6.0							8.500E-01	6.0
153 SM	1090	4.600E-01	11.0							4.600E-01	11.0

TABLE 158 CHAIN AND CUMULATIVE YIELDS FROM 7.100E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
84 BR	1104	1.070E+00	40.3							1.070E+00	40.3
87 KR	1104	1.840E+00	15.7							1.840E+00	15.7
89 SR	1104	2.570E+00	7.5							2.570E+00	7.5
91 SR	1104	4.140E+00	9.3							4.140E+00	9.3
95 ZR	1104	5.190E+00	7.5							5.190E+00	7.5
97 ZR	1104	5.540E+00	9.4							5.540E+00	9.4
99 MO	1104	6.080E+00	7.5							6.080E+00	7.5
103 RU	1104	5.590E+00	8.5							5.590E+00	8.5
104 TC	1104	4.510E+00	25.9							4.510E+00	25.9
105 RH	1104	3.490E+00	10.2							3.490E+00	10.2
111 AG	1104	1.730E-01	7.4							1.730E-01	7.4
112 PD	1104	1.390E-01	7.6							1.390E-01	7.6
115 CD(G)	1104	9.810E-02	7.7	9.810E-02				0.00	0.00	1.207E-01 (I)	8.7A
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CD(M)	1104	2.260E-02	32.1	2.260E-02						(E)	0.0
127 SB	1104	1.010E+00	50.8							1.010E+00	50.8
129 SN	1104	4.920E-01	19.5							4.920E-01	19.5
130 SB	1104	6.160E-01	20.8							6.160E-01	20.8
132 TE	1104	4.690E+00	7.6							4.690E+00	7.6
133 I	1104	6.840E+00	13.4							6.840E+00	13.4
137 CS	1104	2.660E+00	45.2							2.660E+00	45.2
140 BA	1104	5.350E+00	7.5							5.350E+00	7.5
141 CE	1104	4.740E+00	9.0							4.740E+00	9.0
142 LA	1104	4.760E+00	18.0							4.760E+00	18.0
143 CE	1104	4.690E+00	9.1							4.690E+00	9.1
144 CE	1104	5.080E+00	9.1							5.080E+00	9.1
147 ND	1104	2.580E+00	9.0							2.580E+00	9.0
151 PM	1104	7.020E-01	29.7							7.020E-01	29.7
156 EU	1104	7.730E-02	9.8							7.730E-02	9.8

TABLE 159 CHAIN AND CUMULATIVE YIELDS FROM 7.700E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85 KR(G)	1091	2.400E-01	6.0								
87 KR	1091	1.820E+00	5.0							1.820E+00	5.0
88 KR	1091	2.320E+00	7.0							2.320E+00	7.0
89 RB	1091	2.680E+00	13.0							2.680E+00	13.0
91 SR	1091	4.040E+00	6.0							4.040E+00	6.0
92 SR	1091	4.230E+00	7.0							4.230E+00	7.0
93 Y	1091	5.050E+00	7.0							5.050E+00	7.0
94 Y	1091	4.510E+00	9.0							4.510E+00	9.0
95 ZR	1091	5.360E+00	5.0							5.360E+00	5.0
97 ZR	1091	5.620E+00	5.0							5.620E+00	5.0
99 MO	1091	5.960E+00	5.0							5.960E+00	5.0
101 TC	1091	6.780E+00	7.0							6.780E+00	7.0
103 RU	1091	6.220E+00	5.0							6.220E+00	5.0
104 TC	1091	4.440E+00	7.0							4.440E+00	7.0
105 RU	1091	3.750E+00	6.0							3.750E+00	6.0
106 RU	1091	3.020E+00	10.0							3.020E+00	10.0
107 RH	1091	7.100E-01	26.0							7.100E-01	26.0
109 PD	1091	3.200E-01	10.0							3.200E-01	10.0
111 AG	1091	2.600E-01	12.0							2.600E-01	12.0
112 PD	1091	2.000E-01	20.0							2.000E-01	20.0
115 CD(G)	1091	1.650E-01	14.0							1.650E-01	14.0
121 SN(G)	1091	1.500E-01	10.0							1.500E-01	10.0
125 SN(G)	1091	9.100E-02	25.0							9.100E-02	25.0
127 SB	1091	4.100E-01	15.0		-1.36			1.84	1.84	4.680E-01 (I)	9.4
	1091	5.300E-01	12.0		1.36					(E)	12.8A
129 SB	1091	1.230E+00	7.0		1.82			3.30	3.30	1.151E+00 (I)	6.5 >2
	1091	9.200E-01	16.0		-1.82					(E)	11.7A
131 I	1091	3.890E+00	5.0							3.890E+00	5.0
132 TE	1091	5.220E+00	5.0							5.220E+00	5.0
133 I	1091	7.040E+00	5.0							7.040E+00	5.0
134 TE	1091	7.020E+00	7.0							7.020E+00	7.0
135 I	1091	6.790E+00	5.0		3.82			14.61	14.61	5.757E+00 (I)	3.6 >2
XE	1091	5.160E+00	5.0		-3.82					(E)	13.6A
139 BA	1091	4.540E+00	8.0							4.540E+00	8.0
140 BA	1091	5.690E+00	5.0							5.690E+00	5.0
141 BA	1091	5.510E+00	6.0							5.510E+00	6.0
142 LA	1091	4.350E+00	6.0							4.350E+00	6.0
143 CE	1091	4.580E+00	6.0							4.580E+00	6.0
146 CE	1091	3.190E+00	8.0							3.190E+00	8.0
147 ND	1091	2.660E+00	9.0							2.660E+00	9.0
149 ND	1091	1.910E+00	10.0							1.910E+00	10.0

TABLE 160 CHAIN AND CUMULATIVE YIELDS FROM 8.000E+06 eV FISSION IN 238U .

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
83 BR	936	6.200E-01	15.0							6.200E-01	15.0
85 KR(M)	936	8.800E-01	15.0								
87 KR	936	2.000E+00	15.0							2.000E+00	15.0
88 KR	936	2.280E+00	15.0							2.280E+00	15.0
89 RB	936	2.640E+00	15.0		0.28			0.08	0.08	2.561E+00 (I)	10.6A
SR	936	2.490E+00	15.0		-0.28					(E)	2.9
91 SR	936	4.400E+00	15.0		0.81			0.66	0.66	3.990E+00 (I)	10.6A
Y	936	3.700E+00	15.0		-0.81					(E)	8.6
92 SR	936	4.810E+00	15.0							4.810E+00	15.0
93 Y	936	5.330E+00	15.0							5.330E+00	15.0
94 Y	936	5.010E+00	15.0							5.010E+00	15.0
95 ZR	936	5.910E+00	15.0		-0.04			0.00	0.00	5.935E+00 (I)	10.6A
	936	5.960E+00	15.0		0.04					(E)	0.4
97 ZR	936	6.280E+00	15.0							6.280E+00	15.0
99 MO	936	6.520E+00	15.0		-0.77			0.59	0.59	7.006E+00 (I)	10.6A
	936	7.680E+00	15.0		0.77					(E)	8.2
101 MO	936	7.340E+00	15.0							7.340E+00	15.0
103 RU	936	5.120E+00	15.0		-1.08			1.16	1.16	5.634E+00 (I)	10.7
	936	6.450E+00	15.0		1.08					(E)	11.5A
105 RU	936	3.960E+00	15.0							3.960E+00	15.0
106 RU	936	3.110E+00	15.0							3.110E+00	15.0
107 RH	936	2.360E+00	15.0							2.360E+00	15.0
109 PD	936	3.200E-01	15.0							3.200E-01	15.0
111 AG	936	2.400E-01	15.0							2.400E-01	15.0
112 PD	936	2.000E-01	15.0							2.000E-01	15.0
121 SN	936	1.600E-01	15.0							1.600E-01	15.0
125 SN	936	2.000E-01	15.0							2.000E-01	15.0
127 SB	936	3.700E-01	15.0		-1.96			3.85	3.85	4.293E-01 (I)	10.8 >2
	936	5.700E-01	15.0		1.96					(E)	21.3A
129 SB	936	1.290E+00	15.0		2.20			4.86	4.86	9.264E-01 (I)	10.9 >2
	936	7.900E-01	15.0		-2.20					(E)	24.0A
131 I	936	2.300E+00	15.0		-2.76			7.62	7.62	2.747E+00 (I)	11.1 >2
	936	4.330E+00	15.0		2.76					(E)	30.6A
132 TE	936	4.350E+00	15.0		-0.71			0.50	0.50	4.652E+00 (I)	10.6A
	936	5.060E+00	15.0		0.71					(E)	7.5
133 I	936	7.330E+00	15.0		-0.45			0.20	0.20	7.665E+00 (I)	10.6A
	936	8.070E+00	15.0		0.45					(E)	4.8
135 I	936	6.280E+00	15.0		-0.90			0.82	0.82	6.822E+00 (I)	10.7A
	936	7.620E+00	15.0		0.90					(E)	9.6
138 XE	936	5.520E+00	15.0							5.520E+00	15.0
139 BA	936	4.910E+00	15.0							4.910E+00	15.0
140 BA	936	5.710E+00	15.0		-0.09			0.01	0.01	5.764E+00 (I)	10.6A
	936	5.820E+00	15.0		0.09					(E)	1.0
141 CE	936	5.390E+00	15.0		-0.44			0.19	0.19	5.630E+00 (I)	10.6A
	936	5.920E+00	15.0		0.44					(E)	4.7
142 LA	936	4.430E+00	15.0							4.430E+00	15.0
143 CE	936	4.350E+00	15.0		-0.27			0.07	0.07	4.472E+00 (I)	10.6A
	936	4.610E+00	15.0		0.27					(E)	2.9
146 ND	936	3.400E+00	15.0							3.400E+00	15.0
147 ND	936	2.850E+00	15.0							2.850E+00	15.0

TABLE 160 CHAIN AND CUMULATIVE YIELDS FROM 8.000E+06 eV FISSION IN 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
149	ND	936	2.030E+00	15.0		4.17			17.36	17.36	8.288E-01	(I)	11.8 >2
	PM	936	6.900E-01	15.0		-4.17						(E)	49.3A
151	PM	936	5.400E-01	15.0		-1.21			1.46	1.46	5.997E-01	(I)	10.7
		936	7.000E-01	15.0		1.21						(E)	12.9A
153	SM	936	1.900E-01	15.0							1.900E-01		15.0

TABLE 161 CHAIN AND CUMULATIVE YIELDS FROM 8.100E+06 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
84	BR	1105	1.110E+00	39.8							1.110E+00		39.8
87	KR	1105	1.740E+00	18.5							1.740E+00		18.5
89	SR	1105	2.610E+00	8.4							2.610E+00		8.4
91	SR	1105	3.770E+00	10.0							3.770E+00		10.0
95	ZR	1105	4.990E+00	9.8							4.990E+00		9.8
97	ZR	1105	5.400E+00	10.1							5.400E+00		10.1
99	MO	1105	6.060E+00	8.0							6.060E+00		8.0
103	RU	1105	5.220E+00	9.2							5.220E+00		9.2
104	TC	1105	4.560E+00	27.4							4.560E+00		27.4
105	RH	1105	3.560E+00	10.9							3.560E+00		10.9
111	AG	1105	1.950E-01	8.6							1.950E-01		8.6
112	PD	1105	1.690E-01	8.6							1.690E-01		8.6
115	CD(G)	1105	1.230E-01	7.9	1.230E-01				0.00	0.00	1.353E-01	(I)	7.8A
	CD(M)	1105	1.230E-02	33.8	1.230E-02							(E)	0.0
127	SB	1105	5.390E-01	51.6							5.390E-01		51.6
129	SN	1105	4.600E-01	20.9							4.600E-01		20.9
130	SB	1105	7.330E-01	19.3							7.330E-01		19.3
132	TE	1105	4.660E+00	5.9							4.660E+00		5.9
133	I	1105	6.710E+00	14.6							6.710E+00		14.6
137	CS	1105	3.820E+00	20.2							3.820E+00		20.2
140	BA	1105	5.150E+00	8.2							5.150E+00		8.2
141	CE	1105	4.620E+00	9.7							4.620E+00		9.7
142	LA	1105	4.670E+00	37.6							4.670E+00		37.6
143	CE	1105	4.780E+00	10.1							4.780E+00		10.1
144	CE	1105	4.340E+00	9.7							4.340E+00		9.7
147	ND	1105	2.630E+00	9.9							2.630E+00		9.9
151	PM	1105	8.210E-01	17.3							8.210E-01		17.3
156	EU	1105	7.700E-02	14.3							7.700E-02		14.3

TABLE 162 CHAIN AND CUMULATIVE YIELDS FROM 8.270E+06 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
83	CHAIN	30751	5.100E-01	7.8							5.100E-01		7.8	
84	CHAIN	30751	9.800E-01	6.1							9.800E-01		6.1	
85	CHAIN	30751	7.900E-01	6.3							7.900E-01		6.3	
87	CHAIN	30751	1.800E+00	5.0							1.800E+00		5.0	
88	CHAIN	30751	2.080E+00	5.3							2.080E+00		5.3	
89	CHAIN	30751	2.770E+00	5.0		-2.59			6.69	6.69	2.999E+00	(I)	3.6	>2
		30751	3.330E+00	5.0		2.59						(E)	9.2A	
91	CHAIN	30751	4.140E+00	5.0		-1.30			1.70	1.70	4.322E+00	(I)	3.5	
		30751	4.540E+00	5.0		1.30						(E)	4.6A	
92	CHAIN	30751	4.200E+00	5.0							4.200E+00		5.0	
93	CHAIN	30751	5.410E+00	5.0							5.410E+00		5.0	
94	CHAIN	30751	4.290E+00	5.0							4.290E+00		5.0	
95	CHAIN	30751	5.420E+00	5.0		-0.66			0.44	0.44	5.544E+00	(I)	3.5A	
		30751	5.680E+00	5.0		0.66						(E)	2.3	
97	CHAIN	30751	5.730E+00	5.0		-0.67			0.45	0.45	5.863E+00	(I)	3.5A	
		30751	6.010E+00	5.0		0.67						(E)	2.4	
99	CHAIN	30751	6.220E+00	5.0		-0.02			0.00	0.00	6.225E+00	(I)	3.5A	
		30751	6.230E+00	5.0		0.02						(E)	0.1	
101	CHAIN	30751	6.130E+00	5.0							6.130E+00		5.0	
103	CHAIN	30751	5.190E+00	6.5		-1.81			3.27	3.27	5.650E+00	(I)	4.0	>2
		30751	6.010E+00	5.0		1.81						(E)	7.2A	
104	CHAIN	30751	3.740E+00	5.0							3.740E+00		5.0	
105	CHAIN	30751	3.710E+00	5.0							3.710E+00		5.0	
106	CHAIN	30751	2.680E+00	6.7							2.680E+00		6.7	
107	CHAIN	30751	1.830E+00	5.0							1.830E+00		5.0	
109	CHAIN	30751	5.230E-01	5.3							5.230E-01		5.3	
111	CHAIN	30751	3.460E-01	8.7							3.460E-01		8.7	
112	CHAIN	30751	2.570E-01	5.0							2.570E-01		5.0	
113	CHAIN	30751	2.500E-01	5.0							2.500E-01		5.0	
115	CHAIN	30751	2.270E-01	5.0							2.270E-01		5.0	
121	CHAIN	30751	2.630E-01	9.5							2.630E-01		9.5	
125	SN(G)	30751	7.600E-02	5.0										
127	CHAIN	30751	5.600E-01	5.0		-3.66			13.38	13.38	6.225E-01	(I)	3.6	>2
		30751	7.280E-01	5.0		3.66						(E)	13.0A	
128	CHAIN	30751	7.000E-01	5.0							7.000E-01		5.0	
129	CHAIN	30751	1.320E+00	5.0							1.320E+00		5.0	
130	SB(G)	30751	6.600E-01	6.1										
131	CHAIN	30751	3.160E+00	5.0		-0.57			0.32	0.32	3.222E+00	(I)	3.5A	
		30751	3.290E+00	5.0		0.57						(E)	2.0	
132	CHAIN	30751	4.610E+00	5.0		-1.51			2.27	2.27	4.842E+00	(I)	3.5	>2
		30751	5.130E+00	5.0		1.51						(E)	5.3A	
133	CHAIN	30751	7.210E+00	5.0							7.210E+00		5.0	
134	CHAIN	30751	6.550E+00	5.0							6.550E+00		5.0	
135	CHAIN	30751	6.750E+00	5.0							6.750E+00		5.0	
138	CHAIN	30751	5.870E+00	5.0							5.870E+00		5.0	
139	CHAIN	30751	4.890E+00	6.1							4.890E+00		6.1	
140	CHAIN	30751	5.640E+00	5.0		-0.17			0.03	0.03	5.675E+00	(I)	3.5A	
		30751	5.710E+00	5.0		0.17						(E)	0.6	
141	CHAIN	30751	4.680E+00	5.1		-2.22			4.93	4.93	5.031E+00	(I)	3.6	>2

TABLE 162 CHAIN AND CUMULATIVE YIELDS FROM 8.270E+06 eV FISSION IN 238U . (cont)

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION	
		30751	5.490E+00	5.0		2.22						(E)	8.0A	
142	CHAIN	30751	4.210E+00	5.0							4.210E+00		5.0	
143	CHAIN	30751	4.660E+00	5.0							4.660E+00		5.0	
144	CHAIN	30751	4.060E+00	5.0							4.060E+00		5.0	
146	CHAIN	30751	3.620E+00	5.0							3.620E+00		5.0	
147	CHAIN	30751	2.580E+00	5.0		-0.64			0.41	0.41	2.637E+00	(I)	3.5A	
		30751	2.700E+00	5.0		0.64						(E)	2.3	
151	CHAIN	30751	7.070E-01	5.0							7.070E-01		5.0	
153	CHAIN	30751	4.340E-01	5.0							4.340E-01		5.0	
156	CHAIN	30751	9.050E-02	7.3							9.050E-02		7.3	
161	CHAIN	30751	4.000E-03	7.5							4.000E-03		7.5	

TABLE 163 CHAIN AND CUMULATIVE YIELDS FROM 9.100E+06 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
84	BR	1106	8.940E-01	39.9							8.940E-01		39.9
87	KR	1106	1.910E+00	21.7							1.910E+00		21.7
89	SR	1106	2.420E+00	10.9							2.420E+00		10.9
91	SR	1106	4.020E+00	11.2							4.020E+00		11.2
95	ZR	1106	4.990E+00	9.4							4.990E+00		9.4
97	ZR	1106	5.280E+00	11.5							5.280E+00		11.5
99	MO	1106	5.980E+00	9.3							5.980E+00		9.3
103	RU	1106	4.870E+00	12.1							4.870E+00		12.1
104	TC	1106	4.510E+00	27.3							4.510E+00		27.3
105	RH	1106	2.660E+00	14.9							2.660E+00		14.9
111	AG	1106	2.690E-01	9.9							2.690E-01		9.9
112	PD	1106	2.230E-01	10.0							2.230E-01		10.0
115	CD(G)	1106	1.690E-01	8.5	1.690E-01				0.00	0.00	1.911E-01	(I)	8.4A
	::::::::::::::::::::::::::::												
	CD(M)	1106	2.210E-02	33.1	2.210E-02							(E)	0.0
127	SB	1106	5.110E-01	18.5							5.110E-01		18.5
129	SN	1106	5.670E-01	23.0							5.670E-01		23.0
130	SB	1106	7.520E-01	22.2							7.520E-01		22.2
132	TE	1106	4.300E+00	9.5							4.300E+00		9.5
133	I	1106	6.310E+00	16.0							6.310E+00		16.0
137	CS	1106	5.340E+00	18.9							5.340E+00		18.9
140	BA	1106	4.980E+00	9.7							4.980E+00		9.7
141	CE	1106	4.410E+00	11.2							4.410E+00		11.2
142	LA	1106	4.710E+00	22.0							4.710E+00		22.0
143	CE	1106	4.370E+00	11.6							4.370E+00		11.6
144	CE	1106	4.270E+00	11.1							4.270E+00		11.1
147	ND	1106	2.440E+00	12.2							2.440E+00		12.2
151	PM	1106	1.040E+00	56.2							1.040E+00		56.2
156	EU	1106	8.340E-02	16.5							8.340E-02		16.5

TABLE 164 CHAIN AND CUMULATIVE YIELDS FROM 1.400E+07 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN		STANDARD DEVIATION
4	HE PI	2050	1.258E-01	40.0		1.02			1.03	0.52	7.513E-02	(I)	8.5A
		2053	7.407E-02	15.0		-0.12						(E)	6.1
		2052r	7.442E-02	10.6		-0.15							

TABLE 165 CHAIN AND CUMULATIVE YIELDS FROM 1.440E+07 eV FISSION IN 238U .

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	KR(G)	13116	2.500E-01	50.0								
156	EU	13116	1.040E-01	50.0							1.040E-01	50.0
161	TB	13116	6.890E-03	50.0							6.890E-03	50.0

TABLE 166 CHAIN AND CUMULATIVE YIELDS FROM 3.000E-01 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
91	SR	1107	2.400E+00	8.0							2.400E+00	8.0
111	AG	1107	2.800E-01	14.0							2.800E-01	14.0
112	AG	1107	1.300E-01	15.0							1.300E-01	15.0
113	AG(G)	1107	7.600E-02	13.0							7.600E-02	13.0
115	CD(G)	1107	2.400E-02	25.0							2.400E-02	25.0
117	CD	1107	1.800E-02	22.0							1.800E-02	22.0
118	CD	1107	3.000E-02	60.0							3.000E-02	60.0

TABLE 167 CHAIN AND CUMULATIVE YIELDS FROM 1.300E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	1053	5.240E+00	6.0							5.240E+00	6.0
111	AG	1053	2.900E-01	7.0							2.900E-01	7.0
140	BA	1053	4.960E+00	7.0							4.960E+00	7.0
147	ND	1053	2.190E+00	7.0							2.190E+00	7.0
153	SM	1053	3.000E-01	12.0							3.000E-01	12.0

TABLE 168 CHAIN AND CUMULATIVE YIELDS FROM 1.400E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI 30498r	3.461E-03	80.2							3.461E-03	80.2
4	HE	PI 30498r	2.059E-01	4.5							2.059E-01	4.5

TABLE 169 CHAIN AND CUMULATIVE YIELDS FROM 1.700E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	KR	12817	7.600E-01	13.2							7.600E-01	13.2
88	KR	12817	1.130E+00	8.8							1.130E+00	8.8
91	SR	12817	2.720E+00	5.9							2.720E+00	5.9
92	SR	12817	3.050E+00	12.5							3.050E+00	12.5
93	Y	12817	4.160E+00	9.6							4.160E+00	9.6
97	ZR	12817	5.670E+00	5.6							5.670E+00	5.6
99	MO	12817	6.290E+00	6.7							6.290E+00	6.7
103	RU	12817	7.570E+00	6.6							7.570E+00	6.6
105	RU	12817	6.030E+00	9.1							6.030E+00	9.1
109	PD	12817	1.140E+00	14.9							1.140E+00	14.9
111	AG	12817	2.500E-01	16.0							2.500E-01	16.0
112	PD	12817	1.400E-01	14.3							1.400E-01	14.3
115	CD	12817	2.700E-02	14.8							2.700E-02	14.8
121	SN	12817	3.200E-02	15.6							3.200E-02	15.6
125	SN	12817	3.900E-02	15.4							3.900E-02	15.4
127	SB	12817	3.400E-01	14.7							3.400E-01	14.7
129	SB	12817	1.180E+00	20.3							1.180E+00	20.3
132	TE	12817	5.520E+00	6.9							5.520E+00	6.9
133	I	12817	7.640E+00	5.9							7.640E+00	5.9
134	TE	12817	5.140E+00	8.2							5.140E+00	8.2
135	I	12817	6.890E+00	5.4							6.890E+00	5.4
140	BA	12817	5.490E+00	6.0							5.490E+00	6.0
142	LA	12817	4.880E+00	8.4							4.880E+00	8.4
143	CE	12817	4.570E+00	7.9							4.570E+00	7.9

TABLE 170 CHAIN AND CUMULATIVE YIELDS FROM 1.750E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI 30498r	3.605E-02	80.2							3.605E-02	80.2
4	HE	PI 30498r	2.080E-01	4.5							2.080E-01	4.5

TABLE 171 CHAIN AND CUMULATIVE YIELDS FROM 2.000E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI 30498r	1.716E-02	80.2						1.716E-02	80.2
4	HE	PI 30498r	2.163E-01	5.1						2.163E-01	5.1

TABLE 172 CHAIN AND CUMULATIVE YIELDS FROM 2.650E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI 30498r	5.047E-02	90.2						5.047E-02	90.2
4	HE	PI 30498r	2.226E-01	5.0						2.226E-01	5.0

TABLE 173 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+05 eV FISSION IN 239PU.

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI	30498r	2.884E-02	80.2						2.884E-02	80.2
4	HE	PI	30498r	1.934E-01	4.6						1.934E-01	4.6

TABLE 174 CHAIN AND CUMULATIVE YIELDS FROM 3.300E+05 eV FISSION IN 239PU.

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE	PI	2057r	2.184E-01	10.5						2.184E-01	10.5

TABLE 175 CHAIN AND CUMULATIVE YIELDS FROM 5.000E+05 eV FISSION IN 239PU.

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI	2043r	1.410E-02	21.7							1.410E-02	21.7
4	HE	PI	2043r	2.028E-01	7.7							2.028E-01	7.7

TABLE 176 CHAIN AND CUMULATIVE YIELDS FROM 5.750E+05 eV FISSION IN 239PU.

A NO.	EL.		REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI	30498r	4.182E-03	80.2							4.182E-03	80.2
4	HE	PI	30498r	2.246E-01	4.3							2.246E-01	4.3

TABLE 177 CHAIN AND CUMULATIVE YIELDS FROM 6.900E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	1.872E-01	15.4						1.872E-01	15.4

TABLE 178 CHAIN AND CUMULATIVE YIELDS FROM 7.000E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	1055	5.650E+00	8.0						5.650E+00	8.0
111	AG	1055	3.200E-01	7.0						3.200E-01	7.0
140	BA	1055	5.960E+00	13.0						5.960E+00	13.0
147	ND	1055	2.460E+00	7.0						2.460E+00	7.0
153	SM	1055	3.600E-01	16.0						3.600E-01	16.0

TABLE 179 CHAIN AND CUMULATIVE YIELDS FROM 7.680E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	2043r	1.159E-02	32.4						1.159E-02	32.4
4	HE PI	2043r	2.259E-01	6.8						2.259E-01	6.8

TABLE 180 CHAIN AND CUMULATIVE YIELDS FROM 7.900E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	30498r	1.009E-03	80.2						1.009E-03	80.2
4	HE PI	30498r	2.101E-01	4.4						2.101E-01	4.4

TABLE 181 CHAIN AND CUMULATIVE YIELDS FROM 9.000E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	1056	5.580E+00	9.0						5.580E+00	9.0
111	AG	1056	3.300E-01	9.0						3.300E-01	9.0
140	BA	1056	5.340E+00	10.0						5.340E+00	10.0
147	ND	1056	2.380E+00	6.0						2.380E+00	6.0
153	SM	1056	3.500E-01	10.0						3.500E-01	10.0

TABLE 182 CHAIN AND CUMULATIVE YIELDS FROM 9.900E+05 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H	PI 30498r	4.470E-03	80.2						4.470E-03	80.2
4	HE	PI 30498r	2.226E-01	5.0						2.226E-01	5.0

TABLE 183 CHAIN AND CUMULATIVE YIELDS FROM 1.000E+06 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3	H PI	2043r	1.661E-02	18.8							1.661E-02	18.8
4	HE PI	2043r	2.330E-01	6.0		-0.53			0.28	0.28	2.366E-01 (I)	5.1A
		856	2.481E-01	10.0		0.53					(E)	2.7
87	KR	12817	8.300E-01	10.8							8.300E-01	10.8
88	KR	12817	1.160E+00	7.8							1.160E+00	7.8
91	SR	12817	2.710E+00	5.5							2.710E+00	5.5
92	SR	12817	3.000E+00	12.7							3.000E+00	12.7
93	Y	12817	4.430E+00	9.5							4.430E+00	9.5
97	ZR	12817	5.370E+00	6.2							5.370E+00	6.2
99	MO	12817	6.030E+00	6.6							6.030E+00	6.6
103	RU	12817	5.610E+00	9.6							5.610E+00	9.6
105	RU	12817	5.440E+00	7.9							5.440E+00	7.9
109	PD	12817	9.400E-01	14.9							9.400E-01	14.9
111	AG	12817	2.400E-01	16.7							2.400E-01	16.7
115	CD	12817	3.600E-02	13.9							3.600E-02	13.9
121	SN	12817	4.400E-02	15.9							4.400E-02	15.9
125	SN	12817	5.200E-02	15.4							5.200E-02	15.4
127	SB	12817	3.700E-01	16.2							3.700E-01	16.2
129	SB	12817	1.200E+00	20.0							1.200E+00	20.0
132	TE	12817	5.110E+00	6.8							5.110E+00	6.8
133	I	12817	7.020E+00	5.8							7.020E+00	5.8
134	TE	12817	4.140E+00	7.5							4.140E+00	7.5
135	I	12817	6.290E+00	5.4							6.290E+00	5.4
140	BA	12817	5.120E+00	5.9							5.120E+00	5.9
142	LA	12817	4.490E+00	8.2							4.490E+00	8.2
143	CE	12817	4.400E+00	8.0							4.400E+00	8.0

TABLE 184 CHAIN AND CUMULATIVE YIELDS FROM 1.300E+06 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	1057	5.360E+00	8.0							5.360E+00	8.0
111	AG	1057	3.600E-01	8.0							3.600E-01	8.0
140	BA	1057	5.220E+00	7.0							5.220E+00	7.0
147	ND	1057	2.250E+00	10.0							2.250E+00	10.0
153	SM	1057	3.600E-01	15.0							3.600E-01	15.0

TABLE 185 CHAIN AND CUMULATIVE YIELDS FROM 1.700E+06 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
99	MO	1058	5.610E+00	6.0							5.610E+00	6.0
111	AG	1058	3.800E-01	6.0							3.800E-01	6.0
140	BA	1058	5.420E+00	9.0							5.420E+00	9.0
147	ND	1058	2.600E+00	8.0							2.600E+00	8.0
153	SM	1058	3.600E-01	6.0							3.600E-01	6.0
156	EU	1058	8.700E-02	6.0							8.700E-02	6.0

TABLE 186 CHAIN AND CUMULATIVE YIELDS FROM 1.990E+06 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
4	HE PI	2057r	2.236E-01	30.2							2.236E-01	30.2

TABLE 187 CHAIN AND CUMULATIVE YIELDS FROM 2.000E+06 eV FISSION IN 239PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
3 H PI	2043r	1.330E-02	23.6							1.330E-02	23.6
4 HE PI	2043r	2.001E-01	6.0							2.001E-01	6.0
87 RB	12817	9.300E-01	9.7							9.300E-01	9.7
88 RB	12817	1.420E+00	7.0							1.420E+00	7.0
91 SR	12817	2.940E+00	5.8							2.940E+00	5.8
92 SR	12817	3.360E+00	12.5							3.360E+00	12.5
93 Y	12817	4.860E+00	9.5							4.860E+00	9.5
97 ZR	12817	5.830E+00	5.7							5.830E+00	5.7
99 MO	12817	6.300E+00	7.0							6.300E+00	7.0
103 RU	12817	6.970E+00	6.7							6.970E+00	6.7
105 RU	12817	5.490E+00	6.9							5.490E+00	6.9
109 PD	12817	1.100E+00	15.5							1.100E+00	15.5
111 AG	12817	2.800E-01	14.3							2.800E-01	14.3
112 PD	12817	1.600E-01	12.5							1.600E-01	12.5
115 CD	12817	5.000E-02	16.0							5.000E-02	16.0
121 SN	12817	4.800E-02	14.6							4.800E-02	14.6
125 SN	12817	5.800E-02	15.5							5.800E-02	15.5
127 SB	12817	3.500E-01	14.3							3.500E-01	14.3
129 SB	12817	1.270E+00	19.7							1.270E+00	19.7
132 TE	12817	5.330E+00	9.6							5.330E+00	9.6
133 I	12817	7.320E+00	5.9							7.320E+00	5.9
134 TE	12817	4.360E+00	8.5							4.360E+00	8.5
135 I	12817	6.670E+00	5.7							6.670E+00	5.7
140 BA	12817	5.370E+00	6.0							5.370E+00	6.0
142 LA	12817	4.920E+00	8.9							4.920E+00	8.9
143 CE	12817	4.440E+00	7.7							4.440E+00	7.7

TABLE 188 CHAIN AND CUMULATIVE YIELDS FROM 3.000E+06 eV FISSION IN 239PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
91 SR	2046	2.180E+00	13.0							2.180E+00	13.0
92 SR	2046	2.850E+00	11.0							2.850E+00	11.0
99 MO	1054	5.420E+00	8.0							5.420E+00	8.0
105 RU	2046	5.480E+00	11.0							5.480E+00	11.0
111 AG	1054	2.800E-01	16.0							2.800E-01	16.0
127 SN	2046	7.800E-01	24.0							7.800E-01	24.0
129 SB	2046	2.730E+00	15.0							2.730E+00	15.0
130 SB	2046	1.010E+00	11.0							1.010E+00	11.0
131 TE(M)	2046	1.100E+00	13.0							1.100E+00	13.0
133 I	2046	6.590E+00	11.0							6.590E+00	11.0
134 TE	2046	3.330E+00	17.0		-3.40			11.58	11.58	4.262E+00 (I)	11.6 >2
I	2046	7.310E+00	14.0		3.40					(E)	39.5A
135 I	2046	5.740E+00	11.0							5.740E+00	11.0
138 LA	2046	7.050E+00	11.0							7.050E+00	11.0
140 BA	1054	5.220E+00	6.0		-1.64			2.70	1.35	5.501E+00 (I)	4.8
	2046	6.120E+00	11.0		1.00					(E)	5.5A
LA	2046	6.200E+00	11.0		1.11						
147 ND	1054	2.220E+00	6.0							2.220E+00	6.0
153 SM	1054	3.300E-01	16.0							3.300E-01	16.0

TABLE 189 CHAIN AND CUMULATIVE YIELDS FROM 3.400E+06 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	KR	12817	1.040E+00	10.6							1.040E+00	10.6
88	KR	12817	1.590E+00	6.9							1.590E+00	6.9
91	SR	12817	3.180E+00	5.7							3.180E+00	5.7
92	SR	12817	3.480E+00	12.4							3.480E+00	12.4
93	Y	12817	4.670E+00	8.3							4.670E+00	8.3
97	ZR	12817	5.840E+00	6.7							5.840E+00	6.7
99	MO	12817	6.210E+00	6.8							6.210E+00	6.8
103	RU	12817	6.680E+00	7.2							6.680E+00	7.2
105	RU	12817	5.470E+00	8.6							5.470E+00	8.6
109	PD	12817	1.120E+00	15.2							1.120E+00	15.2
111	AG	12817	4.500E-01	15.6							4.500E-01	15.6
112	PD	12817	2.600E-01	15.4							2.600E-01	15.4
115	CD	12817	1.100E-01	18.2							1.100E-01	18.2
121	SN	12817	8.500E-02	15.3							8.500E-02	15.3
125	SN	12817	1.200E-01	16.7							1.200E-01	16.7
127	SB	12817	7.600E-01	14.5							7.600E-01	14.5
129	SB	12817	1.770E+00	19.8							1.770E+00	19.8
132	TE	12817	4.990E+00	5.6							4.990E+00	5.6
133	I	12817	7.060E+00	5.8							7.060E+00	5.8
134	TE	12817	3.280E+00	9.8							3.280E+00	9.8
135	I	12817	6.430E+00	5.8							6.430E+00	5.8
140	BA	12817	5.100E+00	5.9							5.100E+00	5.9
142	LA	12817	4.500E+00	8.0							4.500E+00	8.0
143	CE	12817	4.220E+00	7.8							4.220E+00	7.8

TABLE 190 CHAIN AND CUMULATIVE YIELDS FROM 4.500E+06 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87	KR	12817	1.380E+00	8.0							1.380E+00	8.0
88	KR	12817	1.610E+00	7.5							1.610E+00	7.5
91	SR	12817	3.240E+00	5.6							3.240E+00	5.6
92	SR	12817	3.700E+00	12.4							3.700E+00	12.4
93	Y	12817	5.410E+00	10.4							5.410E+00	10.4
97	ZR	12817	5.930E+00	5.9							5.930E+00	5.9
99	MO	12817	6.360E+00	6.9							6.360E+00	6.9
103	RU	12817	5.830E+00	16.3							5.830E+00	16.3
105	RU	12817	5.530E+00	7.4							5.530E+00	7.4
109	PD	12817	1.410E+00	14.9							1.410E+00	14.9
111	AG	12817	6.300E-01	14.3							6.300E-01	14.3
112	PD	12817	3.600E-01	13.9							3.600E-01	13.9
121	SN	12817	1.300E-01	15.4							1.300E-01	15.4
125	SN	12817	1.700E-01	17.6							1.700E-01	17.6
127	SB	12817	7.700E-01	15.6							7.700E-01	15.6
129	SB	12817	1.650E+00	20.0							1.650E+00	20.0
132	TE	12817	5.370E+00	10.4							5.370E+00	10.4
133	I	12817	7.090E+00	5.9							7.090E+00	5.9
134	TE	12817	3.570E+00	8.4							3.570E+00	8.4
135	I	12817	6.390E+00	6.1							6.390E+00	6.1
140	BA	12817	5.620E+00	6.0							5.620E+00	6.0
142	LA	12817	5.000E+00	8.0							5.000E+00	8.0
143	CE	12817	4.150E+00	8.0							4.150E+00	8.0

TABLE 191 CHAIN AND CUMULATIVE YIELDS FROM 6.100E+06 eV FISSION IN 239PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87 KR	12817	8.100E-01	18.5						8.100E-01	18.5
88 KR	12817	1.650E+00	12.7						1.650E+00	12.7
91 SR	12817	3.070E+00	7.2						3.070E+00	7.2
92 SR	12817	3.530E+00	12.5						3.530E+00	12.5
93 Y	12817	4.960E+00	17.3						4.960E+00	17.3
97 ZR	12817	5.990E+00	10.9						5.990E+00	10.9
105 RU	12817	4.710E+00	9.6						4.710E+00	9.6
109 PD	12817	1.210E+00	14.9						1.210E+00	14.9
111 AG	12817	3.800E-01	26.3						3.800E-01	26.3
112 PD	12817	4.700E-01	14.9						4.700E-01	14.9
115 CD	12817	2.700E-01	14.8						2.700E-01	14.8
121 SN	12817	2.200E-01	13.6						2.200E-01	13.6
125 SN	12817	1.600E-01	12.5						1.600E-01	12.5
127 SB	12817	8.200E-01	14.6						8.200E-01	14.6
129 SB	12817	1.580E+00	20.3						1.580E+00	20.3
132 TE	12817	5.070E+00	10.3						5.070E+00	10.3
133 I	12817	6.300E+00	5.9						6.300E+00	5.9
134 TE	12817	2.450E+00	11.0						2.450E+00	11.0
135 I	12817	5.400E+00	5.7						5.400E+00	5.7
140 BA	12817	5.620E+00	6.2						5.620E+00	6.2

TABLE 192 CHAIN AND CUMULATIVE YIELDS FROM 7.900E+06 eV FISSION IN 239PU.

A EL. NO.	REF. NO.	EXPERIMENTAL YIELDS & SD		MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT. EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
87 KR	12817	9.300E-01	17.2						9.300E-01	17.2
88 KR	12817	1.730E+00	11.6						1.730E+00	11.6
91 SR	12817	3.030E+00	6.3						3.030E+00	6.3
92 SR	12817	3.510E+00	12.5						3.510E+00	12.5
93 Y	12817	4.030E+00	12.4						4.030E+00	12.4
97 ZR	12817	5.130E+00	10.1						5.130E+00	10.1
99 MO	12817	5.490E+00	7.1						5.490E+00	7.1
103 RU	12817	5.660E+00	6.9						5.660E+00	6.9
105 RU	12817	4.740E+00	8.7						4.740E+00	8.7
109 PD	12817	1.160E+00	14.7						1.160E+00	14.7
111 AG	12817	6.600E-01	15.2						6.600E-01	15.2
112 PD	12817	5.900E-01	15.3						5.900E-01	15.3
125 SN	12817	3.100E-01	16.1						3.100E-01	16.1
127 SB	12817	1.080E+00	14.8						1.080E+00	14.8
129 SB	12817	1.670E+00	19.8						1.670E+00	19.8
132 TE	12817	4.920E+00	7.9						4.920E+00	7.9
133 I	12817	6.240E+00	5.8						6.240E+00	5.8
134 TE	12817	2.860E+00	8.4						2.860E+00	8.4
135 I	12817	5.210E+00	5.6						5.210E+00	5.6
140 BA	12817	5.490E+00	6.2						5.490E+00	6.2

TABLE 193 CHAIN AND CUMULATIVE YIELDS FROM 1.480E+07 eV FISSION IN 239PU.

A NO.	EL.	REF. NO.	EXPERIMENTAL YIELDS	& SD	MEAN COMPONENT	R VALUE	CHI2/DF COMPONENT	DCHI2 CHI2 EXTERNAL	TOTAL CHI2 INT.	EXT./DF	WEIGHTED MEAN	STANDARD DEVIATION
85	KR(G)	13116	2.320E-01	50.0								
156	EU	13116	1.940E-01	50.0							1.940E-01	50.0
161	TB	13116	2.290E-02	50.0							2.290E-02	50.0

TABLE 1 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 90-TH-227 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77	1	21496		ONE MEASUREMENT ONLY	
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........DATA BUT NOT "INCLUDED"		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
89	1	21496		ONE MEASUREMENT ONLY	
90	1	21496		ONE MEASUREMENT ONLY	
91	1	21496		ONE MEASUREMENT ONLY	
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95	1	21496		ONE MEASUREMENT ONLY	
96			.........NO YIELD IN DATABASE		
97	1	21496		ONE MEASUREMENT ONLY	
98			.........NO YIELD IN DATABASE		
99	1	21496		ONE MEASUREMENT ONLY	
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103	1	21496		ONE MEASUREMENT ONLY	
104			.........NO YIELD IN DATABASE		
105	1	21496		ONE MEASUREMENT ONLY	
106	1	21496		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	21496		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	21496		ONE MEASUREMENT ONLY	
112	1	21496		ONE MEASUREMENT ONLY	
113	1	21496		ONE MEASUREMENT ONLY	
114			.........NO YIELD IN DATABASE		
115	1	21496		ONE MEASUREMENT ONLY	
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........DATA BUT NOT "INCLUDED"		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........DATA BUT NOT "INCLUDED"		
126			.........NO YIELD IN DATABASE		
127	1	21496		ONE MEASUREMENT ONLY	
128			.........NO YIELD IN DATABASE		
129	1	21496		ONE MEASUREMENT ONLY	
130			.........NO YIELD IN DATABASE		
131	1	21496		ONE MEASUREMENT ONLY	
132	1	21496		ONE MEASUREMENT ONLY	
133	1	21496		ONE MEASUREMENT ONLY	
134			.........NO YIELD IN DATABASE		
135			.........NO YIELD IN DATABASE		
136			.........NO YIELD IN DATABASE		
137	1	21496		ONE MEASUREMENT ONLY	
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
140	1	21496		ONE MEASUREMENT ONLY	
141	1	21496		ONE MEASUREMENT ONLY	
142			.........NO YIELD IN DATABASE		
143	1	21496		ONE MEASUREMENT ONLY	
144	1	21496		ONE MEASUREMENT ONLY	
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147			.........DATA BUT NOT "INCLUDED"		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		

TABLE 2 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 90-TH-229 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77	2	300	3.3	3.3	6.7915
78	1	2024		ONE MEASUREMENT ONLY	
79	1	12734		ONE MEASUREMENT ONLY	
80	1	12734		ONE MEASUREMENT ONLY	
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
85	1	2102		ONE MEASUREMENT ONLY	
86	2	12734	3.4	5.9	1.5021
W 88	5	2102	5.4	10.5	3.3094
91	6	2102	1.0	8.9	6.3707
W 93	3	640	3.9	7.0	3.0237
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
W 99	4	2102	6.1	10.2	1.7185
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103	2	300	3.0	3.0	8.4540
104			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
118	1	640		ONE MEASUREMENT ONLY	
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121	1	2102		ONE MEASUREMENT ONLY	
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	2	300	3.1	3.1	7.7011
126	1	2102		ONE MEASUREMENT ONLY	
127	2	300	3.0	3.1	8.0496
128			.........NO YIELD IN DATABASE		
129	3	2024	4.1	4.9	8.6912
W131	8	12807	4.8	14.4	4.4832
W132	6	640	6.0	10.0	7.6392
W133	5	223	6.0	8.2	8.5929
148	1	12734		ONE MEASUREMENT ONLY	
149	1	640		ONE MEASUREMENT ONLY	
150			.........NO YIELD IN DATABASE		
151	1	640		ONE MEASUREMENT ONLY	
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 3 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -232 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87	1	22119		ONE MEASUREMENT ONLY	
88	1	22119		ONE MEASUREMENT ONLY	
89	1	22119		ONE MEASUREMENT ONLY	
90			.........NO YIELD IN DATABASE		
93	1	22119		ONE MEASUREMENT ONLY	
94	1	22119		ONE MEASUREMENT ONLY	
95	1	22119		ONE MEASUREMENT ONLY	
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105			.........NO YIELD IN DATABASE		
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127	1	22119		ONE MEASUREMENT ONLY	
128			.........NO YIELD IN DATABASE		
129	1	22119		ONE MEASUREMENT ONLY	
130			.........NO YIELD IN DATABASE		
136			.........NO YIELD IN DATABASE		
137			.........NO YIELD IN DATABASE		
139	1	22119		ONE MEASUREMENT ONLY	
140	1	22119		ONE MEASUREMENT ONLY	
141	1	22119		ONE MEASUREMENT ONLY	
142	2	2070	4.2	5.0	2.4709
143	1	22119		ONE MEASUREMENT ONLY	
144	1	22119		ONE MEASUREMENT ONLY	
145	1	22119		ONE MEASUREMENT ONLY	
146	1	22119		ONE MEASUREMENT ONLY	
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 4 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -233 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2065			ONE MEASUREMENT ONLY
2	1	825			ONE MEASUREMENT ONLY
W 3	4	826	4.1	10.3	1.6252
W 4	9	2065	5.3	14.0	8.1576
6	3	826	2.9	5.4	6.6043
7	1	825			ONE MEASUREMENT ONLY
8	1	825			ONE MEASUREMENT ONLY
9	1	825			ONE MEASUREMENT ONLY
10	1	825			ONE MEASUREMENT ONLY
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77	1	10918			ONE MEASUREMENT ONLY
78	1	10918			ONE MEASUREMENT ONLY
79	1	10918			ONE MEASUREMENT ONLY
80	1	10918			ONE MEASUREMENT ONLY
82	1	10918			ONE MEASUREMENT ONLY
83	4	13377	4.5	8.9	3.0124
W 84	4	13377	5.3	9.1	2.7957
W103	9	13054	4.8	16.7	3.3476
110	1	1119			ONE MEASUREMENT ONLY
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117	1	243			ONE MEASUREMENT ONLY
118	1	243			ONE MEASUREMENT ONLY
119	1	243			ONE MEASUREMENT ONLY
120	1	243			ONE MEASUREMENT ONLY
122	1	243			ONE MEASUREMENT ONLY
123			.........DATA	BUT NOT	"INCLUDED"
124	1	243			ONE MEASUREMENT ONLY
125	1	247			ONE MEASUREMENT ONLY
126			.........NO	YIELD IN	DATABASE
127	2	305	2.6	4.2	4.0644
128			.........DATA	BUT NOT	"INCLUDED"
129			.........DATA	BUT NOT	"INCLUDED"
130			.........DATA	BUT NOT	"INCLUDED"
W147	9	13054	6.0	14.4	7.0923
151	8	21736	4.1	12.0	9.9124
153	1	18			ONE MEASUREMENT ONLY
155			.........NO	YIELD IN	DATABASE
156	1	74			ONE MEASUREMENT ONLY
157	1	74			ONE MEASUREMENT ONLY
158			.........NO	YIELD IN	DATABASE
159	1	74			ONE MEASUREMENT ONLY
160			.........NO	YIELD IN	DATABASE
161	1	74			ONE MEASUREMENT ONLY
162			.........NO	YIELD IN	DATABASE

TABLE 5 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -235 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
W 3	15	829	6.0	21.1	9.9967
W 6	5	840	5.2	7.9	9.3699
7	1	1195			ONE MEASUREMENT ONLY
11			.........DATA	BUT NOT	"INCLUDED"
13	1	1195			ONE MEASUREMENT ONLY
14	2	1195	3.4	3.9	4.9410
W 15	3	2062	4.0	6.4	4.1555
16			.........DATA	BUT NOT	"INCLUDED"
17	1	2062			ONE MEASUREMENT ONLY
W 18	3	2047	6.2	6.3	4.2080
W 20	3	1195	5.6	6.3	4.2321
21	1	2047			ONE MEASUREMENT ONLY
32			.........DATA	BUT NOT	"INCLUDED"
66			.........DATA	BUT NOT	"INCLUDED"
67			.........DATA	BUT NOT	"INCLUDED"
71			.........NO	YIELD IN	DATABASE
72			.........DATA	BUT NOT	"INCLUDED"
74	1	260			ONE MEASUREMENT ONLY
81	6	22003	7.2	8.6	7.1390
W 97	21	38	6.2	33.6	2.8846
106	14	13365	4.5	20.8	7.7515
W109	8	21054	4.5	13.4	6.3977
W110	3	1098	5.3	6.3	4.3353
W112	7	175	4.6	17.6	0.7362 < 1.5%
115	11	175	5.0	15.0	9.1109
116	1	1044			ONE MEASUREMENT ONLY
W117	4	1044	3.7	8.6	3.4355
W125	7	13409	5.5	14.7	2.2393
W127	18	13396	5.3	27.3	3.8412
W129	5	21531	4.0	10.7	3.0206
130	2	13319	3.7	4.1	4.3304
W147	19	13054	6.2	29.7	4.0556
149	14	277	3.7	20.7	7.9524
W153	11	21736	6.2	18.7	4.4924
W154	8	248	5.6	12.6	8.2976
W158	4	13352	5.9	7.6	5.4764
160			.........NO	YIELD IN	DATABASE
162			.........NO	YIELD IN	DATABASE
163			.........NO	YIELD IN	DATABASE
164			.........NO	YIELD IN	DATABASE
165			.........NO	YIELD IN	DATABASE
166			.........DATA	BUT NOT	"INCLUDED"
167			.........NO	YIELD IN	DATABASE
168			.........NO	YIELD IN	DATABASE
169			.........NO	YIELD IN	DATABASE
170			.........NO	YIELD IN	DATABASE
171			.........NO	YIELD IN	DATABASE
172			.........DATA	BUT NOT	"INCLUDED"
173			.........NO	YIELD IN	DATABASE
174			.........NO	YIELD IN	DATABASE
175			.........DATA	BUT NOT	"INCLUDED"
176			.........NO	YIELD IN	DATABASE
177			.........DATA	BUT NOT	"INCLUDED"

TABLE 6 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 93-NP-237 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85	1	21651			ONE MEASUREMENT ONLY
86			.........NO	YIELD IN	DATABASE
87	1	21651			ONE MEASUREMENT ONLY
88	1	21651			ONE MEASUREMENT ONLY
89			.........NO	YIELD IN	DATABASE
90			.........NO	YIELD IN	DATABASE
91	1	21651			ONE MEASUREMENT ONLY
92	1	21651			ONE MEASUREMENT ONLY
93	1	21651			ONE MEASUREMENT ONLY
94	1	21651			ONE MEASUREMENT ONLY
95	1	21651			ONE MEASUREMENT ONLY
96			.........NO	YIELD IN	DATABASE
97	1	21651			ONE MEASUREMENT ONLY
98			.........NO	YIELD IN	DATABASE
99	1	21651			ONE MEASUREMENT ONLY
100			.........NO	YIELD IN	DATABASE
101	1	21651			ONE MEASUREMENT ONLY
102			.........NO	YIELD IN	DATABASE
103	1	21651			ONE MEASUREMENT ONLY
104	1	21651			ONE MEASUREMENT ONLY
105	1	21651			ONE MEASUREMENT ONLY
106			.........NO	YIELD IN	DATABASE
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109			.........NO	YIELD IN	DATABASE
110			.........NO	YIELD IN	DATABASE
111			.........NO	YIELD IN	DATABASE
112			.........NO	YIELD IN	DATABASE
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115	1	21651			ONE MEASUREMENT ONLY
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127	1	21651			ONE MEASUREMENT ONLY
128			.........NO	YIELD IN	DATABASE
129	1	21651			ONE MEASUREMENT ONLY
130			.........NO	YIELD IN	DATABASE
131	2	2027	4.1	4.3	3.8910
133	1	21651			ONE MEASUREMENT ONLY
134	1	21651			ONE MEASUREMENT ONLY
135	1	21651			ONE MEASUREMENT ONLY
136			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138	1	21651			ONE MEASUREMENT ONLY
139			.........NO	YIELD IN	DATABASE
140	1	21651			ONE MEASUREMENT ONLY
141	1	21651			ONE MEASUREMENT ONLY
142	1	21651			ONE MEASUREMENT ONLY
143	1	21651			ONE MEASUREMENT ONLY
144			.........NO	YIELD IN	DATABASE
145			.........NO	YIELD IN	DATABASE
146	1	21651			ONE MEASUREMENT ONLY
147	1	21651			ONE MEASUREMENT ONLY
148			.........NO	YIELD IN	DATABASE
149	1	21651			ONE MEASUREMENT ONLY
150			.........NO	YIELD IN	DATABASE
151	1	21651			ONE MEASUREMENT ONLY
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156	1	21651			ONE MEASUREMENT ONLY
157			.........NO	YIELD IN	DATABASE

TABLE 7 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 93-NP-238 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85	1	2110		ONE MEASUREMENT	ONLY
86	1	2110		ONE MEASUREMENT	ONLY
87	1	2110		ONE MEASUREMENT	ONLY
88	1	2110		ONE MEASUREMENT	ONLY
89	1	2110		ONE MEASUREMENT	ONLY
90	1	2110		ONE MEASUREMENT	ONLY
91	1	2110		ONE MEASUREMENT	ONLY
92	1	2110		ONE MEASUREMENT	ONLY
93	1	2110		ONE MEASUREMENT	ONLY
94	1	2110		ONE MEASUREMENT	ONLY
95	1	2110		ONE MEASUREMENT	ONLY
96	1	2110		ONE MEASUREMENT	ONLY
97	1	2110		ONE MEASUREMENT	ONLY
98	1	2110		ONE MEASUREMENT	ONLY
99	1	2110		ONE MEASUREMENT	ONLY
100	1	2110		ONE MEASUREMENT	ONLY
101	1	2110		ONE MEASUREMENT	ONLY
102	1	2110		ONE MEASUREMENT	ONLY
103	1	2110		ONE MEASUREMENT	ONLY
104	1	2110		ONE MEASUREMENT	ONLY
105	1	2110		ONE MEASUREMENT	ONLY
106	1	2110		ONE MEASUREMENT	ONLY
107	1	2110		ONE MEASUREMENT	ONLY
108	1	2110		ONE MEASUREMENT	ONLY
109	1	2110		ONE MEASUREMENT	ONLY
110	1	2110		ONE MEASUREMENT	ONLY
111			.........NO	YIELD IN	DATABASE
112			.........NO	YIELD IN	DATABASE
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127			.........NO	YIELD IN	DATABASE
128			.........NO	YIELD IN	DATABASE
129			.........NO	YIELD IN	DATABASE
130			.........NO	YIELD IN	DATABASE
131			.........NO	YIELD IN	DATABASE
132			.........NO	YIELD IN	DATABASE
133			.........NO	YIELD IN	DATABASE
134			.........NO	YIELD IN	DATABASE
135			.........NO	YIELD IN	DATABASE
136			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138			.........NO	YIELD IN	DATABASE
139			.........NO	YIELD IN	DATABASE
140			.........NO	YIELD IN	DATABASE
141			.........NO	YIELD IN	DATABASE
142			.........NO	YIELD IN	DATABASE
143			.........NO	YIELD IN	DATABASE
144			.........NO	YIELD IN	DATABASE
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147			.........NO	YIELD IN	DATABASE
148			.........NO	YIELD IN	DATABASE
149			.........NO	YIELD IN	DATABASE
150			.........NO	YIELD IN	DATABASE
151			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156			.........NO	YIELD IN	DATABASE

TABLE 8 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-238 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85			.........NO	YIELD IN	DATABASE
86			.........NO	YIELD IN	DATABASE
87	1	22087		ONE MEASUREMENT	ONLY
88			.........NO	YIELD IN	DATABASE
89	1	22087		ONE MEASUREMENT	ONLY
90			.........NO	YIELD IN	DATABASE
91	1	22087		ONE MEASUREMENT	ONLY
92	1	22087		ONE MEASUREMENT	ONLY
93	1	22087		ONE MEASUREMENT	ONLY
94	1	22087		ONE MEASUREMENT	ONLY
96			.........NO	YIELD IN	DATABASE
97	1	22087		ONE MEASUREMENT	ONLY
98			.........NO	YIELD IN	DATABASE
99	1	22087		ONE MEASUREMENT	ONLY
100			.........NO	YIELD IN	DATABASE
101	1	22087		ONE MEASUREMENT	ONLY
102			.........NO	YIELD IN	DATABASE
103	1	22087		ONE MEASUREMENT	ONLY
104	1	22087		ONE MEASUREMENT	ONLY
105	1	22087		ONE MEASUREMENT	ONLY
106			.........NO	YIELD IN	DATABASE
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109	1	22087		ONE MEASUREMENT	ONLY
110			.........NO	YIELD IN	DATABASE
111			.........NO	YIELD IN	DATABASE
112			.........NO	YIELD IN	DATABASE
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127	1	22087		ONE MEASUREMENT	ONLY
128	1	22087		ONE MEASUREMENT	ONLY
129	1	22087		ONE MEASUREMENT	ONLY
130			.........DATA	BUT NOT	"INCLUDED"
131	1	22087		ONE MEASUREMENT	ONLY
132	1	22087		ONE MEASUREMENT	ONLY
133	1	22087		ONE MEASUREMENT	ONLY
134	1	22087		ONE MEASUREMENT	ONLY
135	1	22087		ONE MEASUREMENT	ONLY
136			.........NO	YIELD IN	DATABASE
137	1	22087		ONE MEASUREMENT	ONLY
138	1	22087		ONE MEASUREMENT	ONLY
139	1	22087		ONE MEASUREMENT	ONLY
140	1	22087		ONE MEASUREMENT	ONLY
141	1	22087		ONE MEASUREMENT	ONLY
142	1	22087		ONE MEASUREMENT	ONLY
143	1	22087		ONE MEASUREMENT	ONLY
144			.........DATA	BUT NOT	"INCLUDED"
145	1	22087		ONE MEASUREMENT	ONLY
146			.........NO	YIELD IN	DATABASE
147	1	22087		ONE MEASUREMENT	ONLY
148			.........NO	YIELD IN	DATABASE
149	1	22087		ONE MEASUREMENT	ONLY
150			.........NO	YIELD IN	DATABASE
151			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156			.........NO	YIELD IN	DATABASE
157			.........NO	YIELD IN	DATABASE

TABLE 9 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-239 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	842		ONE MEASUREMENT	ONLY
7	1	845		ONE MEASUREMENT	ONLY
8	1	845		ONE MEASUREMENT	ONLY
9	1	845		ONE MEASUREMENT	ONLY
10	1	845		ONE MEASUREMENT	ONLY
11	1	845		ONE MEASUREMENT	ONLY
12	1	845		ONE MEASUREMENT	ONLY
13	1	845		ONE MEASUREMENT	ONLY
14	1	845		ONE MEASUREMENT	ONLY
15	1	845		ONE MEASUREMENT	ONLY
16	1	845		ONE MEASUREMENT	ONLY
20	1	845		ONE MEASUREMENT	ONLY
71			.........NO	YIELD IN	DATABASE
72	1	342		ONE MEASUREMENT	ONLY
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77	1	156		ONE MEASUREMENT	ONLY
78	1	156		ONE MEASUREMENT	ONLY
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
W 85	10	13426	5.7	24.6	0.1810 < 1.5%
W 90	7	20	5.6	12.1	5.8723
102	1	249		ONE MEASUREMENT	ONLY
109	5	261	4.3	9.0	6.0017
110	1	1121		ONE MEASUREMENT	ONLY
W112	4	2021	6.2	8.8	3.1960
W113	3	2021	3.2	6.4	4.0157
114	1	1045		ONE MEASUREMENT	ONLY
116	1	1045		ONE MEASUREMENT	ONLY
117	1	1045		ONE MEASUREMENT	ONLY
118	1	1045		ONE MEASUREMENT	ONLY
119	1	1045		ONE MEASUREMENT	ONLY
120	1	1045		ONE MEASUREMENT	ONLY
121			.........DATA	BUT NOT	"INCLUDED"
122	1	1045		ONE MEASUREMENT	ONLY
123			.........NO	YIELD IN	DATABASE
124	1	1045		ONE MEASUREMENT	ONLY
125	1	249		ONE MEASUREMENT	ONLY
126	1	1045		ONE MEASUREMENT	ONLY
128	1	1141		ONE MEASUREMENT	ONLY
130			.........DATA	BUT NOT	"INCLUDED"
W133	16	760	6.0	23.1	8.2708
W134	7	1153	4.5	15.2	1.8575
153			.........DATA	BUT NOT	"INCLUDED"
W156	6	261	5.7	12.5	2.8322
157	1	595		ONE MEASUREMENT	ONLY
158			.........NO	YIELD IN	DATABASE
160			.........NO	YIELD IN	DATABASE
162			.........NO	YIELD IN	DATABASE
163			.........NO	YIELD IN	DATABASE
164			.........NO	YIELD IN	DATABASE
165			.........NO	YIELD IN	DATABASE
166	1	337		ONE MEASUREMENT	ONLY

TABLE 10 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-241 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
3	1	1201			ONE MEASUREMENT ONLY
71					.........NO YIELD IN DATABASE
72					.........NO YIELD IN DATABASE
73					.........NO YIELD IN DATABASE
74					.........NO YIELD IN DATABASE
75					.........NO YIELD IN DATABASE
76					.........NO YIELD IN DATABASE
77	1	101			ONE MEASUREMENT ONLY
78					.........NO YIELD IN DATABASE
79					.........NO YIELD IN DATABASE
80					.........NO YIELD IN DATABASE
81					.........NO YIELD IN DATABASE
82					.........NO YIELD IN DATABASE
84	1	250			ONE MEASUREMENT ONLY
86	1	250			ONE MEASUREMENT ONLY
W 91	6	10894	4.5	13.5	1.8769
98	1	2103			ONE MEASUREMENT ONLY
100	1	2103			ONE MEASUREMENT ONLY
101	1	250			ONE MEASUREMENT ONLY
105	1	10894			ONE MEASUREMENT ONLY
106	1	250			ONE MEASUREMENT ONLY
107	1	2016			ONE MEASUREMENT ONLY
108	1	2016			ONE MEASUREMENT ONLY
110					.........NO YIELD IN DATABASE
111					.........DATA BUT NOT “INCLUDED”
W112	3	10894	4.8	8.3	1.5650
113	1	101			ONE MEASUREMENT ONLY
114					.........NO YIELD IN DATABASE
115					.........DATA BUT NOT “INCLUDED”
116					.........NO YIELD IN DATABASE
117					.........NO YIELD IN DATABASE
118					.........NO YIELD IN DATABASE
119					.........NO YIELD IN DATABASE
120					.........NO YIELD IN DATABASE
121	1	40194			ONE MEASUREMENT ONLY
122	1	40194			ONE MEASUREMENT ONLY
123	1	40194			ONE MEASUREMENT ONLY
124	1	40194			ONE MEASUREMENT ONLY
125	1	40194			ONE MEASUREMENT ONLY
126	1	40194			ONE MEASUREMENT ONLY
127	1	40194			ONE MEASUREMENT ONLY
128	1	40194			ONE MEASUREMENT ONLY
129	1	40194			ONE MEASUREMENT ONLY
130	1	40194			ONE MEASUREMENT ONLY
134	4	40194	5.1	7.2	6.4903
139	1	40194			ONE MEASUREMENT ONLY
155	1	40194			ONE MEASUREMENT ONLY
156	1	40194			ONE MEASUREMENT ONLY
157	1	40194			ONE MEASUREMENT ONLY
158	1	40194			ONE MEASUREMENT ONLY
159	1	40194			ONE MEASUREMENT ONLY
160	1	40194			ONE MEASUREMENT ONLY
161	1	40194			ONE MEASUREMENT ONLY
162	1	40194			ONE MEASUREMENT ONLY

TABLE 11 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 95-AM-241 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71					.........NO YIELD IN DATABASE
72					.........NO YIELD IN DATABASE
73					.........NO YIELD IN DATABASE
74					.........NO YIELD IN DATABASE
75					.........NO YIELD IN DATABASE
76					.........NO YIELD IN DATABASE
77					.........NO YIELD IN DATABASE
78					.........NO YIELD IN DATABASE
79					.........NO YIELD IN DATABASE
80					.........NO YIELD IN DATABASE
81					.........NO YIELD IN DATABASE
82					.........NO YIELD IN DATABASE
84	1	732			ONE MEASUREMENT ONLY
85					.........DATA BUT NOT “INCLUDED”
86	1	13315			ONE MEASUREMENT ONLY
87					.........NO YIELD IN DATABASE
88	1	685			ONE MEASUREMENT ONLY
90	1	767			ONE MEASUREMENT ONLY
94					.........NO YIELD IN DATABASE
96					.........NO YIELD IN DATABASE
98					.........NO YIELD IN DATABASE
100					.........NO YIELD IN DATABASE
101					.........NO YIELD IN DATABASE
102					.........NO YIELD IN DATABASE
104					.........NO YIELD IN DATABASE
106					.........NO YIELD IN DATABASE
107					.........NO YIELD IN DATABASE
108					.........NO YIELD IN DATABASE
109	1	685			ONE MEASUREMENT ONLY
110					.........NO YIELD IN DATABASE
111					.........DATA BUT NOT “INCLUDED”
W113	3	631	3.9	9.3	0.9471 < 1.5%
114					.........NO YIELD IN DATABASE
115	1	769			ONE MEASUREMENT ONLY
116					.........NO YIELD IN DATABASE
117					.........DATA BUT NOT “INCLUDED”
118					.........NO YIELD IN DATABASE
119					.........NO YIELD IN DATABASE
120					.........NO YIELD IN DATABASE
121					.........DATA BUT NOT “INCLUDED”
122					.........NO YIELD IN DATABASE
123					.........NO YIELD IN DATABASE
124					.........NO YIELD IN DATABASE
125					.........NO YIELD IN DATABASE
126					.........NO YIELD IN DATABASE
128					.........NO YIELD IN DATABASE
129	1	631			ONE MEASUREMENT ONLY
130					.........NO YIELD IN DATABASE
132	1	685			ONE MEASUREMENT ONLY
W133	4	297	4.7	12.0	0.7234 < 1.5%
135	1	685			ONE MEASUREMENT ONLY
136	1	732			ONE MEASUREMENT ONLY
W137	4	78	4.0	6.3	9.8418
142	1	685			ONE MEASUREMENT ONLY
143	1	685			ONE MEASUREMENT ONLY
146					.........NO YIELD IN DATABASE
148					.........NO YIELD IN DATABASE
150					.........NO YIELD IN DATABASE
152					.........NO YIELD IN DATABASE
154					.........NO YIELD IN DATABASE
155	1	768			ONE MEASUREMENT ONLY
158					.........NO YIELD IN DATABASE
159	1	768			ONE MEASUREMENT ONLY
160					.........NO YIELD IN DATABASE
161	1	768			ONE MEASUREMENT ONLY
162					.........NO YIELD IN DATABASE

TABLE 12 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 95-AM-242 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71					.........NO YIELD IN DATABASE
72					.........NO YIELD IN DATABASE
73					.........NO YIELD IN DATABASE
74					.........NO YIELD IN DATABASE
75					.........NO YIELD IN DATABASE
76					.........NO YIELD IN DATABASE
77					.........NO YIELD IN DATABASE
78					.........NO YIELD IN DATABASE
79					.........NO YIELD IN DATABASE
80					.........NO YIELD IN DATABASE
81					.........NO YIELD IN DATABASE
82					.........NO YIELD IN DATABASE
84					.........NO YIELD IN DATABASE
85					.........DATA BUT NOT “INCLUDED”
86	1	734			ONE MEASUREMENT ONLY
87					.........NO YIELD IN DATABASE
88					.........NO YIELD IN DATABASE
89	1	568			ONE MEASUREMENT ONLY
90	1	568			ONE MEASUREMENT ONLY
91					.........NO YIELD IN DATABASE
92	1	568			ONE MEASUREMENT ONLY
93	1	568			ONE MEASUREMENT ONLY
94					.........NO YIELD IN DATABASE
95	1	568			ONE MEASUREMENT ONLY
96					.........NO YIELD IN DATABASE
97	1	568			ONE MEASUREMENT ONLY
98					.........NO YIELD IN DATABASE
99	1	568			ONE MEASUREMENT ONLY
100					.........NO YIELD IN DATABASE
101					.........NO YIELD IN DATABASE
102					.........NO YIELD IN DATABASE
103	1	568			ONE MEASUREMENT ONLY
104					.........NO YIELD IN DATABASE
105					.........NO YIELD IN DATABASE
106					.........NO YIELD IN DATABASE
107					.........NO YIELD IN DATABASE
108					.........NO YIELD IN DATABASE
109	1	568			ONE MEASUREMENT ONLY
110					.........NO YIELD IN DATABASE
111					.........NO YIELD IN DATABASE
112					.........NO YIELD IN DATABASE
113					.........NO YIELD IN DATABASE
114					.........NO YIELD IN DATABASE
116					.........NO YIELD IN DATABASE
117					.........NO YIELD IN DATABASE
118					.........NO YIELD IN DATABASE
119					.........NO YIELD IN DATABASE
120					.........NO YIELD IN DATABASE
121					.........DATA BUT NOT “INCLUDED”
122					.........NO YIELD IN DATABASE
123					.........NO YIELD IN DATABASE
124					.........NO YIELD IN DATABASE
125	1	568			ONE MEASUREMENT ONLY
126					.........NO YIELD IN DATABASE
127					.........NO YIELD IN DATABASE
128					.........NO YIELD IN DATABASE
129					.........NO YIELD IN DATABASE
130					.........NO YIELD IN DATABASE
131	1	733			ONE MEASUREMENT ONLY
132	1	568			ONE MEASUREMENT ONLY
133					.........NO YIELD IN DATABASE
134					.........DATA BUT NOT “INCLUDED”
135					.........NO YIELD IN DATABASE
136					.........DATA BUT NOT “INCLUDED”
137	1	568			ONE MEASUREMENT ONLY
138					.........NO YIELD IN DATABASE
139	1	568			ONE MEASUREMENT ONLY
140	1	90000			ONE MEASUREMENT ONLY
141	1	568			ONE MEASUREMENT ONLY
142					.........NO YIELD IN DATABASE
143	1	568			ONE MEASUREMENT ONLY
144	1	568			ONE MEASUREMENT ONLY
145					.........NO YIELD IN DATABASE
146					.........NO YIELD IN DATABASE
147	1	568			ONE MEASUREMENT ONLY
148					.........NO YIELD IN DATABASE
149	1	568			ONE MEASUREMENT ONLY
150					.........NO YIELD IN DATABASE
151	1	568			ONE MEASUREMENT ONLY
152					.........NO YIELD IN DATABASE
153	1	568			ONE MEASUREMENT ONLY
154					.........NO YIELD IN DATABASE
155					.........NO YIELD IN DATABASE
156	1	568			ONE MEASUREMENT ONLY
157	1	568			ONE MEASUREMENT ONLY
158					.........NO YIELD IN DATABASE
159					.........NO YIELD IN DATABASE

TABLE 12 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS: 95-AM-242 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
160			.........NO YIELD IN DATABASE		
161	1	568	ONE MEASUREMENT ONLY		
162			.........NO YIELD IN DATABASE		

TABLE 13 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-243 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
89			.........DATA BUT NOT "INCLUDED"		
90			.........NO YIELD IN DATABASE		
91			.........DATA BUT NOT "INCLUDED"		
92	1	2011	ONE MEASUREMENT ONLY		
93	1	2011	ONE MEASUREMENT ONLY		
94	1	2011	ONE MEASUREMENT ONLY		
95	1	2011	ONE MEASUREMENT ONLY		
96			.........NO YIELD IN DATABASE		
98			.........DATA BUT NOT "INCLUDED"		
100			.........NO YIELD IN DATABASE		
101	1	2011	ONE MEASUREMENT ONLY		
103	1	2011	ONE MEASUREMENT ONLY		
104	1	2011	ONE MEASUREMENT ONLY		
109	1	2011	ONE MEASUREMENT ONLY		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112	1	2011	ONE MEASUREMENT ONLY		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115	1	2011	ONE MEASUREMENT ONLY		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127	1	2011	ONE MEASUREMENT ONLY		
129	1	2011	ONE MEASUREMENT ONLY		
133	1	2011	ONE MEASUREMENT ONLY		
134			.........DATA BUT NOT "INCLUDED"		
136			.........DATA BUT NOT "INCLUDED"		
137			.........NO YIELD IN DATABASE		
138			.........DATA BUT NOT "INCLUDED"		
142			.........DATA BUT NOT "INCLUDED"		
143	1	2011	ONE MEASUREMENT ONLY		
144	1	2011	ONE MEASUREMENT ONLY		
145	1	2011	ONE MEASUREMENT ONLY		
147	1	2011	ONE MEASUREMENT ONLY		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151	1	2011	ONE MEASUREMENT ONLY		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 14 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-245 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77	1	620	ONE MEASUREMENT ONLY		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	1	620	ONE MEASUREMENT ONLY		
84	1	1173	ONE MEASUREMENT ONLY		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87	1	1173	ONE MEASUREMENT ONLY		
88	2	690	1.8	3.0	8.3382
W 91	4	690	4.6	9.2	2.6263
W 93	3	690	3.1	7.7	2.1754
94			.........DATA BUT NOT "INCLUDED"		
96			.........NO YIELD IN DATABASE		
W 97	4	690	5.0	9.4	2.4218
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101	1	1173	ONE MEASUREMENT ONLY		
102	1	1173	ONE MEASUREMENT ONLY		
104	1	1173	ONE MEASUREMENT ONLY		
107	1	1173	ONE MEASUREMENT ONLY		
108	1	1173	ONE MEASUREMENT ONLY		
109	1	620	ONE MEASUREMENT ONLY		
110			.........NO YIELD IN DATABASE		
112	1	1173	ONE MEASUREMENT ONLY		
113			.........NO YIELD IN DATABASE		
114	1	1173	ONE MEASUREMENT ONLY		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121	1	620	ONE MEASUREMENT ONLY		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
W131	3	690	3.9	4.7	9.7305
132	2	690	7.7	9.8	0.1703 < 1.5%
133	1	1173	ONE MEASUREMENT ONLY		
135	3	1173	0.0	11.1	0.0878 < 1.5%
136			.........DATA BUT NOT "INCLUDED"		
138	2	690	6.3	9.2	0.2419 < 1.5%
141	3	620	3.2	5.7	5.6461
142	2	690	3.2	4.3	3.7405
143	3	690	3.7	6.5	3.8911
144	2	620	4.8	6.1	1.3465 < 1.5%
145	1	1173	ONE MEASUREMENT ONLY		
148			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
152	1	1173	ONE MEASUREMENT ONLY		
153	1	620	ONE MEASUREMENT ONLY		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	2	1173	4.7	8.5	0.3643 < 1.5%
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 15 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 98-CF-249 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83	1	695		ONE MEASUREMENT	ONLY
84			.........NO	YIELD IN	DATABASE
85	1	21967		ONE MEASUREMENT	ONLY
86	1	21967		ONE MEASUREMENT	ONLY
87	1	21967		ONE MEASUREMENT	ONLY
88	1	21967		ONE MEASUREMENT	ONLY
89	1	21967		ONE MEASUREMENT	ONLY
90	1	21967		ONE MEASUREMENT	ONLY
W 91	5	12705	3.3	11.1	2.5753
96	1	21967		ONE MEASUREMENT	ONLY
98	1	21967		ONE MEASUREMENT	ONLY
W 99	5	205	5.9	8.0	9.2222
100	1	21967		ONE MEASUREMENT	ONLY
104	1	21967		ONE MEASUREMENT	ONLY
108	2	12705	5.5	5.6	1.7989
110	1	21967		ONE MEASUREMENT	ONLY
112	4	12710	4.5	9.9	1.9175
113	1	21967		ONE MEASUREMENT	ONLY
114	1	21967		ONE MEASUREMENT	ONLY
116	1	21967		ONE MEASUREMENT	ONLY
117	1	21967		ONE MEASUREMENT	ONLY
118	1	21967		ONE MEASUREMENT	ONLY
119	1	21967		ONE MEASUREMENT	ONLY
120	1	21967		ONE MEASUREMENT	ONLY
122	1	21967		ONE MEASUREMENT	ONLY
123	1	21967		ONE MEASUREMENT	ONLY
124			.........NO	YIELD IN	DATABASE
125	1	12710		ONE MEASUREMENT	ONLY
126			.........NO	YIELD IN	DATABASE
W127	6	695	6.1	13.9	0.7692 < 1.5%
129	1	205		ONE MEASUREMENT	ONLY
130	3	12705	3.6	7.2	0.7221 < 1.5%
W131	4	695	5.7	6.5	8.9122
136			.........DATA	BUT NOT	"INCLUDED"
137	3	205	2.9	5.0	8.1150
141	5	205	4.4	8.4	7.7570
145	1	12705		ONE MEASUREMENT	ONLY
148			.........NO	YIELD IN	DATABASE
W149	6	1051	5.8	14.3	1.3556 < 1.5%
150			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
W153	7	1051	5.9	13.0	4.3158
154			.........DATA	BUT NOT	"INCLUDED"
155	1	12710		ONE MEASUREMENT	ONLY
W156	8	1051	5.6	15.4	3.0764
158			.........NO	YIELD IN	DATABASE
160			.........NO	YIELD IN	DATABASE
162			.........NO	YIELD IN	DATABASE

TABLE 16 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 98-CF-251 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85			.........NO	YIELD IN	DATABASE
86			.........NO	YIELD IN	DATABASE
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
89			.........NO	YIELD IN	DATABASE
90			.........NO	YIELD IN	DATABASE
91	1	903		ONE MEASUREMENT	ONLY
92			.........NO	YIELD IN	DATABASE
93	1	903		ONE MEASUREMENT	ONLY
94			.........NO	YIELD IN	DATABASE
95	1	903		ONE MEASUREMENT	ONLY
96			.........NO	YIELD IN	DATABASE
97	1	903		ONE MEASUREMENT	ONLY
98			.........NO	YIELD IN	DATABASE
99	1	903		ONE MEASUREMENT	ONLY
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103			.........NO	YIELD IN	DATABASE
104			.........NO	YIELD IN	DATABASE
105	1	903		ONE MEASUREMENT	ONLY
106			.........NO	YIELD IN	DATABASE
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109	1	903		ONE MEASUREMENT	ONLY
110			.........NO	YIELD IN	DATABASE
111	1	903		ONE MEASUREMENT	ONLY
112	1	903		ONE MEASUREMENT	ONLY
113	1	903		ONE MEASUREMENT	ONLY
114			.........NO	YIELD IN	DATABASE
115	2	903	1.7	3.3	6.8736
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125	1	903		ONE MEASUREMENT	ONLY
126			.........NO	YIELD IN	DATABASE
127	1	903		ONE MEASUREMENT	ONLY
128			.........NO	YIELD IN	DATABASE
129	1	903		ONE MEASUREMENT	ONLY
130			.........NO	YIELD IN	DATABASE
131	1	903		ONE MEASUREMENT	ONLY
134			.........NO	YIELD IN	DATABASE
135	1	2014		ONE MEASUREMENT	ONLY
136			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138			.........NO	YIELD IN	DATABASE
139			.........NO	YIELD IN	DATABASE
140	1	903		ONE MEASUREMENT	ONLY
141	1	903		ONE MEASUREMENT	ONLY
142			.........NO	YIELD IN	DATABASE
143	1	903		ONE MEASUREMENT	ONLY
144			.........NO	YIELD IN	DATABASE
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147	1	903		ONE MEASUREMENT	ONLY
148			.........NO	YIELD IN	DATABASE
149	1	903		ONE MEASUREMENT	ONLY
150			.........NO	YIELD IN	DATABASE
151	1	903		ONE MEASUREMENT	ONLY
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156	1	903		ONE MEASUREMENT	ONLY
157			.........NO	YIELD IN	DATABASE
158			.........NO	YIELD IN	DATABASE
159			.........NO	YIELD IN	DATABASE
160			.........NO	YIELD IN	DATABASE

TABLE 17 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 99-ES-254 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85			.........NO	YIELD IN	DATABASE
86			.........NO	YIELD IN	DATABASE
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
89	1	927		ONE MEASUREMENT	ONLY
90			.........NO	YIELD IN	DATABASE
91	1	927		ONE MEASUREMENT	ONLY
92			.........NO	YIELD IN	DATABASE
93			.........NO	YIELD IN	DATABASE
94			.........NO	YIELD IN	DATABASE
95	1	927		ONE MEASUREMENT	ONLY
96			.........NO	YIELD IN	DATABASE
97	1	927		ONE MEASUREMENT	ONLY
98			.........NO	YIELD IN	DATABASE
99	1	927		ONE MEASUREMENT	ONLY
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103	1	927		ONE MEASUREMENT	ONLY
104			.........NO	YIELD IN	DATABASE
105	1	927		ONE MEASUREMENT	ONLY
106	1	927		ONE MEASUREMENT	ONLY
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109	1	927		ONE MEASUREMENT	ONLY
110			.........NO	YIELD IN	DATABASE
111	1	927		ONE MEASUREMENT	ONLY
112	1	927		ONE MEASUREMENT	ONLY
113	1	927		ONE MEASUREMENT	ONLY
114			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125	1	927		ONE MEASUREMENT	ONLY
126			.........NO	YIELD IN	DATABASE
127	1	927		ONE MEASUREMENT	ONLY
128			.........NO	YIELD IN	DATABASE
129	1	927		ONE MEASUREMENT	ONLY
130			.........NO	YIELD IN	DATABASE
131	1	927		ONE MEASUREMENT	ONLY
132	1	927		ONE MEASUREMENT	ONLY
133	1	927		ONE MEASUREMENT	ONLY
134			.........NO	YIELD IN	DATABASE
135	1	927		ONE MEASUREMENT	ONLY
136			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138			.........NO	YIELD IN	DATABASE
139			.........NO	YIELD IN	DATABASE
140	1	927		ONE MEASUREMENT	ONLY
142			.........NO	YIELD IN	DATABASE
143	1	927		ONE MEASUREMENT	ONLY
144	1	927		ONE MEASUREMENT	ONLY
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147			.........NO	YIELD IN	DATABASE
148			.........NO	YIELD IN	DATABASE
149			.........NO	YIELD IN	DATABASE
150			.........NO	YIELD IN	DATABASE
151	1	927		ONE MEASUREMENT	ONLY
152			.........NO	YIELD IN	DATABASE
153	1	927		ONE MEASUREMENT	ONLY
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156	1	927		ONE MEASUREMENT	ONLY
157	1	927		ONE MEASUREMENT	ONLY
158			.........NO	YIELD IN	DATABASE
159			.........NO	YIELD IN	DATABASE
160			.........NO	YIELD IN	DATABASE

TABLE 18 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS:100-FM-255 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			........NO YIELD IN DATABASE
72			........NO YIELD IN DATABASE
73			........NO YIELD IN DATABASE
74			........NO YIELD IN DATABASE
75			........NO YIELD IN DATABASE
76			........NO YIELD IN DATABASE
77			........NO YIELD IN DATABASE
78			........NO YIELD IN DATABASE
79			........NO YIELD IN DATABASE
80			........NO YIELD IN DATABASE
81			........NO YIELD IN DATABASE
82			........NO YIELD IN DATABASE
83			........NO YIELD IN DATABASE
84			........NO YIELD IN DATABASE
85			........NO YIELD IN DATABASE
86			........NO YIELD IN DATABASE
87			........NO YIELD IN DATABASE
88			........NO YIELD IN DATABASE
89			........NO YIELD IN DATABASE
90			........NO YIELD IN DATABASE
91	1	2014	ONE MEASUREMENT ONLY
92			........NO YIELD IN DATABASE
93	1	902	ONE MEASUREMENT ONLY
94			........NO YIELD IN DATABASE
95			........NO YIELD IN DATABASE
96			........NO YIELD IN DATABASE
97	1	902	ONE MEASUREMENT ONLY
98			........NO YIELD IN DATABASE
99	1	902	ONE MEASUREMENT ONLY
100			........NO YIELD IN DATABASE
101			........NO YIELD IN DATABASE
102			........NO YIELD IN DATABASE
103			........NO YIELD IN DATABASE
104			........NO YIELD IN DATABASE
105	1	902	ONE MEASUREMENT ONLY
106			........NO YIELD IN DATABASE
107			........NO YIELD IN DATABASE
108			........NO YIELD IN DATABASE
109	1	902	ONE MEASUREMENT ONLY
110			........NO YIELD IN DATABASE
111	1	902	ONE MEASUREMENT ONLY
112	1	902	ONE MEASUREMENT ONLY
113	1	902	ONE MEASUREMENT ONLY
114			........NO YIELD IN DATABASE
116			........NO YIELD IN DATABASE
117			........NO YIELD IN DATABASE
118			........NO YIELD IN DATABASE
119			........NO YIELD IN DATABASE
120			........NO YIELD IN DATABASE
122			........NO YIELD IN DATABASE
123			........NO YIELD IN DATABASE
124			........NO YIELD IN DATABASE
125	1	2014	ONE MEASUREMENT ONLY
126			........NO YIELD IN DATABASE
127	1	902	ONE MEASUREMENT ONLY
128			........NO YIELD IN DATABASE
129	1	902	ONE MEASUREMENT ONLY
130			........NO YIELD IN DATABASE
132	1	902	ONE MEASUREMENT ONLY
134			........NO YIELD IN DATABASE
135	1	902	ONE MEASUREMENT ONLY
136			........NO YIELD IN DATABASE
137			........NO YIELD IN DATABASE
138			........NO YIELD IN DATABASE
139			........NO YIELD IN DATABASE
140	1	902	ONE MEASUREMENT ONLY
141			........NO YIELD IN DATABASE
142			........NO YIELD IN DATABASE
143	1	2014	ONE MEASUREMENT ONLY
144			........NO YIELD IN DATABASE
145			........NO YIELD IN DATABASE
146			........NO YIELD IN DATABASE
147			........NO YIELD IN DATABASE
148			........NO YIELD IN DATABASE
149	1	902	ONE MEASUREMENT ONLY
150			........NO YIELD IN DATABASE
151	1	902	ONE MEASUREMENT ONLY
152			........NO YIELD IN DATABASE
153	1	902	ONE MEASUREMENT ONLY
154			........NO YIELD IN DATABASE
155			........NO YIELD IN DATABASE
156			........NO YIELD IN DATABASE
157	1	902	ONE MEASUREMENT ONLY
158			........NO YIELD IN DATABASE
159			........NO YIELD IN DATABASE
160			........NO YIELD IN DATABASE
161			........NO YIELD IN DATABASE

TABLE 19 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS:100-FM-257 ,NEUTRON ENERGY:THERMAL.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			........NO YIELD IN DATABASE
72			........NO YIELD IN DATABASE
73			........NO YIELD IN DATABASE
74			........NO YIELD IN DATABASE
75			........NO YIELD IN DATABASE
76			........NO YIELD IN DATABASE
77			........NO YIELD IN DATABASE
78			........NO YIELD IN DATABASE
79			........NO YIELD IN DATABASE
80			........NO YIELD IN DATABASE
81			........NO YIELD IN DATABASE
82			........NO YIELD IN DATABASE
83			........NO YIELD IN DATABASE
84			........NO YIELD IN DATABASE
85			........NO YIELD IN DATABASE
86			........NO YIELD IN DATABASE
87			........NO YIELD IN DATABASE
88			........NO YIELD IN DATABASE
89			........NO YIELD IN DATABASE
90			........NO YIELD IN DATABASE
91			........NO YIELD IN DATABASE
92			........NO YIELD IN DATABASE
93			........NO YIELD IN DATABASE
94			........NO YIELD IN DATABASE
95			........NO YIELD IN DATABASE
96			........NO YIELD IN DATABASE
97			........NO YIELD IN DATABASE
98			........NO YIELD IN DATABASE
99			........NO YIELD IN DATABASE
100			........NO YIELD IN DATABASE
101			........NO YIELD IN DATABASE
102			........NO YIELD IN DATABASE
103			........NO YIELD IN DATABASE
104			........NO YIELD IN DATABASE
105			........NO YIELD IN DATABASE
106			........NO YIELD IN DATABASE
107			........NO YIELD IN DATABASE
108			........NO YIELD IN DATABASE
109			........NO YIELD IN DATABASE
110			........NO YIELD IN DATABASE
111			........NO YIELD IN DATABASE
112	1	13458	ONE MEASUREMENT ONLY
113			........NO YIELD IN DATABASE
114			........NO YIELD IN DATABASE
115			........NO YIELD IN DATABASE
116			........NO YIELD IN DATABASE
117			........NO YIELD IN DATABASE
118			........NO YIELD IN DATABASE
119			........NO YIELD IN DATABASE
120			........NO YIELD IN DATABASE
121			........NO YIELD IN DATABASE
122			........NO YIELD IN DATABASE
123			........NO YIELD IN DATABASE
124			........NO YIELD IN DATABASE
125			........NO YIELD IN DATABASE
126			........NO YIELD IN DATABASE
127	1	13458	ONE MEASUREMENT ONLY
128			........NO YIELD IN DATABASE
129			........NO YIELD IN DATABASE
130			........NO YIELD IN DATABASE
131			........NO YIELD IN DATABASE
132	1	13458	ONE MEASUREMENT ONLY
133			........NO YIELD IN DATABASE
134			........NO YIELD IN DATABASE
135			........NO YIELD IN DATABASE
136			........NO YIELD IN DATABASE
137			........NO YIELD IN DATABASE
138			........NO YIELD IN DATABASE
139			........NO YIELD IN DATABASE
140	1	13458	ONE MEASUREMENT ONLY
141			........NO YIELD IN DATABASE
142			........NO YIELD IN DATABASE
143			........NO YIELD IN DATABASE
144			........NO YIELD IN DATABASE
145			........NO YIELD IN DATABASE
146			........NO YIELD IN DATABASE
147			........NO YIELD IN DATABASE
148			........NO YIELD IN DATABASE
149			........NO YIELD IN DATABASE
150			........NO YIELD IN DATABASE
151			........NO YIELD IN DATABASE
152			........NO YIELD IN DATABASE
153			........NO YIELD IN DATABASE
154			........NO YIELD IN DATABASE
155			........NO YIELD IN DATABASE
156			........NO YIELD IN DATABASE
157			........NO YIELD IN DATABASE

TABLE 20 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-239 ,NEUTRON ENERGY:EPI-THERMAL

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			........NO YIELD IN DATABASE
72	1	13219	ONE MEASUREMENT ONLY
73			........NO YIELD IN DATABASE
74			........NO YIELD IN DATABASE
75			........NO YIELD IN DATABASE
76			........NO YIELD IN DATABASE
77			........NO YIELD IN DATABASE
78			........NO YIELD IN DATABASE
79			........NO YIELD IN DATABASE
80			........NO YIELD IN DATABASE
81			........NO YIELD IN DATABASE
82			........NO YIELD IN DATABASE
83			........NO YIELD IN DATABASE
84			........NO YIELD IN DATABASE
85			........NO YIELD IN DATABASE
86			........NO YIELD IN DATABASE
87	1	21560	ONE MEASUREMENT ONLY
88	1	21560	ONE MEASUREMENT ONLY
89			........NO YIELD IN DATABASE
90			........NO YIELD IN DATABASE
91			........NO YIELD IN DATABASE
92			........NO YIELD IN DATABASE
93			........NO YIELD IN DATABASE
94			........NO YIELD IN DATABASE
95			........NO YIELD IN DATABASE
96			........NO YIELD IN DATABASE
97	1	21560	ONE MEASUREMENT ONLY
98			........NO YIELD IN DATABASE
99			........NO YIELD IN DATABASE
100			........NO YIELD IN DATABASE
101			........NO YIELD IN DATABASE
102			........NO YIELD IN DATABASE
103			........NO YIELD IN DATABASE
104			........NO YIELD IN DATABASE
105	1	21560	ONE MEASUREMENT ONLY
106			........NO YIELD IN DATABASE
107	1	21560	ONE MEASUREMENT ONLY
108			........NO YIELD IN DATABASE
109			........NO YIELD IN DATABASE
110			........NO YIELD IN DATABASE
111	1	21560	ONE MEASUREMENT ONLY
112			........NO YIELD IN DATABASE
113			........NO YIELD IN DATABASE
114			........NO YIELD IN DATABASE
116			........NO YIELD IN DATABASE
117			........NO YIELD IN DATABASE
118			........NO YIELD IN DATABASE
119			........NO YIELD IN DATABASE
120			........NO YIELD IN DATABASE
121			........NO YIELD IN DATABASE
122			........NO YIELD IN DATABASE
123			........NO YIELD IN DATABASE
124			........NO YIELD IN DATABASE
125			........NO YIELD IN DATABASE
126			........NO YIELD IN DATABASE
127	1	21560	ONE MEASUREMENT ONLY
128	1	21560	ONE MEASUREMENT ONLY
129	1	21560	ONE MEASUREMENT ONLY
130			........NO YIELD IN DATABASE
131			........NO YIELD IN DATABASE
132			........NO YIELD IN DATABASE
133			........NO YIELD IN DATABASE
134			........NO YIELD IN DATABASE
135			........NO YIELD IN DATABASE
136			........NO YIELD IN DATABASE
137			........NO YIELD IN DATABASE
138			........NO YIELD IN DATABASE
139			........NO YIELD IN DATABASE
140	1	21560	ONE MEASUREMENT ONLY
141			........NO YIELD IN DATABASE
142			........NO YIELD IN DATABASE
143			........NO YIELD IN DATABASE
144			........NO YIELD IN DATABASE
145			........NO YIELD IN DATABASE
146			........NO YIELD IN DATABASE
147			........NO YIELD IN DATABASE
148			........NO YIELD IN DATABASE
149	1	21560	ONE MEASUREMENT ONLY
150			........NO YIELD IN DATABASE
151			........NO YIELD IN DATABASE
152			........NO YIELD IN DATABASE
153			........NO YIELD IN DATABASE
154			........NO YIELD IN DATABASE
155			........NO YIELD IN DATABASE
156			........NO YIELD IN DATABASE
157			........NO YIELD IN DATABASE
158			........NO YIELD IN DATABASE

TABLE 21 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 90-TH-232 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
3			.........DATA BUT NOT "INCLUDED"		
71			.........NO YIELD IN DATABASE		
72	3	13367	3.9	4.9	8.7924
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	5	225	3.8	10.1	3.9249
84	3	13430	2.7	5.6	6.1067
86	1	238	ONE MEASUREMENT ONLY		
91	4	40554	0.0	13.8	0.1026 < 1.5%
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111	5	332	4.2	9.4	5.2482
W112	7	13430	6.1	13.6	3.4728
113			.........DATA BUT NOT "INCLUDED"		
114			.........NO YIELD IN DATABASE		
115	11	13430	42.6	47.4	0.0000 < 0.01%
<!?					
116			.........NO YIELD IN DATABASE		
117			.........DATA BUT NOT "INCLUDED"		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........DATA BUT NOT "INCLUDED"		
122			.........NO YIELD IN DATABASE		
123			.........DATA BUT NOT "INCLUDED"		
124			.........NO YIELD IN DATABASE		
125			.........DATA BUT NOT "INCLUDED"		
126			.........NO YIELD IN DATABASE		
127	1	225	ONE MEASUREMENT ONLY		
128			.........NO YIELD IN DATABASE		
129	1	2002	ONE MEASUREMENT ONLY		
130			.........DATA BUT NOT "INCLUDED"		
W131	14	332	5.7	44.7	0.0024 < 0.01%
<!?					
W132	13	344	5.7	28.0	0.5549 < 1.5%
W133	3	364	4.1	4.7	9.4884
138	1	2002	ONE MEASUREMENT ONLY		
W139	4	2010	4.8	6.6	8.6660
145	1	364	ONE MEASUREMENT ONLY		
146	3	2002	3.8	7.2	2.7351
150	1	364	ONE MEASUREMENT ONLY		
152			.........NO YIELD IN DATABASE		
153	1	362	ONE MEASUREMENT ONLY		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	1	225	ONE MEASUREMENT ONLY		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 22 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 91-PA-231 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	1	651	ONE MEASUREMENT ONLY		
84			.........NO YIELD IN DATABASE		
85	1	580	ONE MEASUREMENT ONLY		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99	1	651	ONE MEASUREMENT ONLY		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105	1	651	ONE MEASUREMENT ONLY		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
113	1	651	ONE MEASUREMENT ONLY		
114			.........NO YIELD IN DATABASE		
115	1	651	ONE MEASUREMENT ONLY		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127	1	651	ONE MEASUREMENT ONLY		
128			.........NO YIELD IN DATABASE		
129	1	651	ONE MEASUREMENT ONLY		
130			.........NO YIELD IN DATABASE		
131	1	580	ONE MEASUREMENT ONLY		
133	1	580	ONE MEASUREMENT ONLY		
134			.........NO YIELD IN DATABASE		
135	1	580	ONE MEASUREMENT ONLY		
136			.........NO YIELD IN DATABASE		
137	1	580	ONE MEASUREMENT ONLY		
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
141	1	580	ONE MEASUREMENT ONLY		
142			.........NO YIELD IN DATABASE		
144	1	580	ONE MEASUREMENT ONLY		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149	1	580	ONE MEASUREMENT ONLY		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153	1	651	ONE MEASUREMENT ONLY		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 23 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -232 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........DATA BUT NOT "INCLUDED"		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91			.........NO YIELD IN DATABASE		
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105			.........NO YIELD IN DATABASE		
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
131			.........NO YIELD IN DATABASE		
132			.........NO YIELD IN DATABASE		
133			.........NO YIELD IN DATABASE		
134			.........NO YIELD IN DATABASE		
135			.........NO YIELD IN DATABASE		
136			.........NO YIELD IN DATABASE		
137			.........DATA BUT NOT "INCLUDED"		
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
140			.........NO YIELD IN DATABASE		
141			.........NO YIELD IN DATABASE		
142			.........NO YIELD IN DATABASE		
143			.........NO YIELD IN DATABASE		
144			.........NO YIELD IN DATABASE		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		

TABLE 24 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -233 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
3			........DATA BUT NOT “INCLUDED”		
4	1	2057		ONE MEASUREMENT ONLY	
71			........NO	YIELD IN DATABASE	
72			........NO	YIELD IN DATABASE	
73			........NO	YIELD IN DATABASE	
74			........NO	YIELD IN DATABASE	
75			........NO	YIELD IN DATABASE	
76			........NO	YIELD IN DATABASE	
77			........NO	YIELD IN DATABASE	
78			........NO	YIELD IN DATABASE	
79			........NO	YIELD IN DATABASE	
80			........NO	YIELD IN DATABASE	
81			........NO	YIELD IN DATABASE	
82			........NO	YIELD IN DATABASE	
83	1	868		ONE MEASUREMENT ONLY	
84	1	868		ONE MEASUREMENT ONLY	
86	1	868		ONE MEASUREMENT ONLY	
88	1	868		ONE MEASUREMENT ONLY	
90	1	868		ONE MEASUREMENT ONLY	
93	1	868		ONE MEASUREMENT ONLY	
94	1	868		ONE MEASUREMENT ONLY	
96	1	868		ONE MEASUREMENT ONLY	
98	1	868		ONE MEASUREMENT ONLY	
100	1	868		ONE MEASUREMENT ONLY	
101			........NO	YIELD IN DATABASE	
102			........NO	YIELD IN DATABASE	
W103	3	61	5.1	6.7	3.4467
104			........DATA BUT NOT “INCLUDED”		
105			........NO	YIELD IN DATABASE	
106	1	21736		ONE MEASUREMENT ONLY	
107			........NO	YIELD IN DATABASE	
108			........NO	YIELD IN DATABASE	
109			........NO	YIELD IN DATABASE	
110			........NO	YIELD IN DATABASE	
111			........DATA BUT NOT “INCLUDED”		
112			........NO	YIELD IN DATABASE	
113			........NO	YIELD IN DATABASE	
114			........NO	YIELD IN DATABASE	
116			........NO	YIELD IN DATABASE	
117	1	244		ONE MEASUREMENT ONLY	
118	1	244		ONE MEASUREMENT ONLY	
119	1	244		ONE MEASUREMENT ONLY	
120	1	244		ONE MEASUREMENT ONLY	
121			........NO	YIELD IN DATABASE	
122	1	244		ONE MEASUREMENT ONLY	
123			........NO	YIELD IN DATABASE	
124	1	244		ONE MEASUREMENT ONLY	
126	1	21155		ONE MEASUREMENT ONLY	
127	2	21155	6.9	9.9	0.1674 < 1.5%
128	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
154			........DATA BUT NOT “INCLUDED”		
155			........NO	YIELD IN DATABASE	
156	1	29		ONE MEASUREMENT ONLY	
157	1	29		ONE MEASUREMENT ONLY	
158			........NO	YIELD IN DATABASE	
159	1	29		ONE MEASUREMENT ONLY	
160			........NO	YIELD IN DATABASE	
161	1	29		ONE MEASUREMENT ONLY	
162			........NO	YIELD IN DATABASE	

TABLE 25 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -235 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	91199		ONE MEASUREMENT ONLY	
71			........NO	YIELD IN DATABASE	
72			........NO	YIELD IN DATABASE	
73			........NO	YIELD IN DATABASE	
74			........NO	YIELD IN DATABASE	
75			........NO	YIELD IN DATABASE	
76			........NO	YIELD IN DATABASE	
77			........NO	YIELD IN DATABASE	
78			........NO	YIELD IN DATABASE	
79			........NO	YIELD IN DATABASE	
80			........NO	YIELD IN DATABASE	
81			........NO	YIELD IN DATABASE	
82			........NO	YIELD IN DATABASE	
87	9	924	5.4	19.8	1.1131 < 1.5%
96	1	869		ONE MEASUREMENT ONLY	
W 99	15	21736	5.6	26.2	2.4565
107			........NO	YIELD IN DATABASE	
108			........NO	YIELD IN DATABASE	
109			........DATA BUT NOT “INCLUDED”		
110			........NO	YIELD IN DATABASE	
W111	24	970	6.2	89.4	0.0000 < 0.01%
<!?					
W112	6	980	5.8	24.1	0.0211 < 1.5%
113	1	245		ONE MEASUREMENT ONLY	
114			........NO	YIELD IN DATABASE	
115	6	625	13.7	31.8	0.0002 < 0.01%
<!?					
116	1	245		ONE MEASUREMENT ONLY	
117			........NO	YIELD IN DATABASE	
118			........NO	YIELD IN DATABASE	
119			........NO	YIELD IN DATABASE	
120			........NO	YIELD IN DATABASE	
121			........NO	YIELD IN DATABASE	
122			........NO	YIELD IN DATABASE	
123			........NO	YIELD IN DATABASE	
124			........NO	YIELD IN DATABASE	
126	1	21155		ONE MEASUREMENT ONLY	
W127	5	40554	5.6	17.6	0.1491 < 1.5%
128	1	21155		ONE MEASUREMENT ONLY	
129	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
W143	25	21624	5.8	34.9	6.9296
W144	27	413	6.0	42.4	2.2495
154	1	245		ONE MEASUREMENT ONLY	
155			........NO	YIELD IN DATABASE	
W156	19	969	5.9	59.6	0.0002 < 0.01%
<!?					
157			........NO	YIELD IN DATABASE	
158			........NO	YIELD IN DATABASE	
159	1	34		ONE MEASUREMENT ONLY	
160			........NO	YIELD IN DATABASE	
W161	7	969	5.5	18.9	0.4388 < 1.5%
162			........NO	YIELD IN DATABASE	

TABLE 26 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -236 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			........NO	YIELD IN DATABASE	
72			........NO	YIELD IN DATABASE	
73			........NO	YIELD IN DATABASE	
74			........NO	YIELD IN DATABASE	
75			........NO	YIELD IN DATABASE	
76			........NO	YIELD IN DATABASE	
77			........NO	YIELD IN DATABASE	
78			........NO	YIELD IN DATABASE	
79			........NO	YIELD IN DATABASE	
80			........NO	YIELD IN DATABASE	
81			........NO	YIELD IN DATABASE	
82			........NO	YIELD IN DATABASE	
83			........NO	YIELD IN DATABASE	
84			........NO	YIELD IN DATABASE	
85	1	21736		ONE MEASUREMENT ONLY	
86			........NO	YIELD IN DATABASE	
87			........NO	YIELD IN DATABASE	
88			........NO	YIELD IN DATABASE	
89	1	989		ONE MEASUREMENT ONLY	
90			........NO	YIELD IN DATABASE	
92	1	21736		ONE MEASUREMENT ONLY	
94			........DATA BUT NOT “INCLUDED”		
95	1	21736		ONE MEASUREMENT ONLY	
96			........NO	YIELD IN DATABASE	
98			........NO	YIELD IN DATABASE	
100			........NO	YIELD IN DATABASE	
102			........NO	YIELD IN DATABASE	
103	1	21736		ONE MEASUREMENT ONLY	
104			........NO	YIELD IN DATABASE	
105			........NO	YIELD IN DATABASE	
106	1	21736		ONE MEASUREMENT ONLY	
107			........NO	YIELD IN DATABASE	
108			........NO	YIELD IN DATABASE	
109			........NO	YIELD IN DATABASE	
110			........NO	YIELD IN DATABASE	
111	1	989		ONE MEASUREMENT ONLY	
112			........NO	YIELD IN DATABASE	
113			........NO	YIELD IN DATABASE	
114			........NO	YIELD IN DATABASE	
115			........NO	YIELD IN DATABASE	
116			........NO	YIELD IN DATABASE	
117			........NO	YIELD IN DATABASE	
118			........NO	YIELD IN DATABASE	
119			........NO	YIELD IN DATABASE	
120			........NO	YIELD IN DATABASE	
121			........NO	YIELD IN DATABASE	
122			........NO	YIELD IN DATABASE	
123			........NO	YIELD IN DATABASE	
124			........NO	YIELD IN DATABASE	
125	2	21736	1.9	3.6	5.9138
126	1	21155		ONE MEASUREMENT ONLY	
127	2	21155	5.2	6.1	1.3746 < 1.5%
128	1	21155		ONE MEASUREMENT ONLY	
129	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
136	1	21155		ONE MEASUREMENT ONLY	
138	1	21155		ONE MEASUREMENT ONLY	
143	2	21736	2.5	4.7	2.9745
145	1	21155		ONE MEASUREMENT ONLY	
148	1	21155		ONE MEASUREMENT ONLY	
149	1	21155		ONE MEASUREMENT ONLY	
150	1	21155		ONE MEASUREMENT ONLY	
151	2	21736	7.9	9.2	0.2467 < 1.5%
152	1	21155		ONE MEASUREMENT ONLY	
153			........NO	YIELD IN DATABASE	
154			........NO	YIELD IN DATABASE	
155			........NO	YIELD IN DATABASE	
156	1	989		ONE MEASUREMENT ONLY	
157			........NO	YIELD IN DATABASE	
158			........NO	YIELD IN DATABASE	
159			........NO	YIELD IN DATABASE	
160			........NO	YIELD IN DATABASE	
161	1	989		ONE MEASUREMENT ONLY	
162			........NO	YIELD IN DATABASE	

TABLE 27 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -238 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
3			.........DATA BUT NOT "INCLUDED"		
66	1	785		ONE MEASUREMENT ONLY	
67	2	785	3.9	4.1	4.3940
71			.........NO YIELD IN DATABASE		
72	1	785		ONE MEASUREMENT ONLY	
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........DATA BUT NOT "INCLUDED"		
84			.........DATA BUT NOT "INCLUDED"		
W 85	9	21736	11.1	65.8	0.0000 < 0.01%
<!?					
86	3	870	3.1	5.3	7.0011
W 87	5	2109	4.2	8.6	7.1516
W 88	7	2109	4.8	17.2	0.8646 < 1.5%
W 89	21	163	6.2	43.6	0.1697 < 1.5%
W 91	9	40878	5.9	17.6	2.4320
W 92	7	2109	4.2	14.2	2.7043
96	1	870		ONE MEASUREMENT ONLY	
98	1	870		ONE MEASUREMENT ONLY	
100	1	870		ONE MEASUREMENT ONLY	
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
W105	9	40554	4.5	14.7	6.5649
107	1	30743		ONE MEASUREMENT ONLY	
108			.........NO YIELD IN DATABASE		
W109	5	1004	5.2	13.4	0.9556 < 1.5%
110			.........NO YIELD IN DATABASE		
W111	26	2	6.1	95.0	0.0000 < 0.01%
<!?					
W112	6	163	5.1	14.9	1.0868 < 1.5%
114			.........NO YIELD IN DATABASE		
W115	16	176	6.2	24.7	3.7238
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121	5	30743	2.8	9.5	5.0472
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
126	1	21155		ONE MEASUREMENT ONLY	
W127	12	163	5.9	22.7	1.9733
128	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
W131	17	30743	6.1	38.8	0.1157 < 1.5%
W132	20	40877	6.1	43.6	0.1070 < 1.5%
W134	5	870	3.0	10.7	3.0210
W135	15	1114	5.6	27.3	1.7846
W148	5	870	3.7	8.6	7.2073
W153	13	1075	6.0	26.3	0.9721 < 1.5%
154	1	721		ONE MEASUREMENT ONLY	
155			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161	8	785	4.3	12.2	9.3725
162			.........NO YIELD IN DATABASE		
163			.........NO YIELD IN DATABASE		
164			.........NO YIELD IN DATABASE		
165			.........NO YIELD IN DATABASE		
166			.........NO YIELD IN DATABASE		
167			.........NO YIELD IN DATABASE		
168			.........NO YIELD IN DATABASE		
169			.........NO YIELD IN DATABASE		
170			.........NO YIELD IN DATABASE		
171			.........NO YIELD IN DATABASE		
172	1	785		ONE MEASUREMENT ONLY	
173			.........NO YIELD IN DATABASE		
174			.........NO YIELD IN DATABASE		
175	1	785		ONE MEASUREMENT ONLY	
176			.........NO YIELD IN DATABASE		
177	2	785	3.6	3.7	5.4001

TABLE 28 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 93-NP-237 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
87	2	40677	3.1	3.5	6.0910
W 95	5	991	6.2	8.9	6.4868
99	1	652		ONE MEASUREMENT ONLY	
W106	4	652	3.6	6.8	8.0168
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
113	1	652		ONE MEASUREMENT ONLY	
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
126	1	21155		ONE MEASUREMENT ONLY	
W127	3	652	4.9	5.8	5.3916
128	1	21155		ONE MEASUREMENT ONLY	
129	2	652	3.0	4.8	2.8956
130	1	21155		ONE MEASUREMENT ONLY	
W144	4	228	6.0	6.3	9.5841
153			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	1	652		ONE MEASUREMENT ONLY	
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 29 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 93-NP-238 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91			.........NO YIELD IN DATABASE		
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105			.........NO YIELD IN DATABASE		
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
131	1	40877		ONE MEASUREMENT ONLY	
132	1	40877		ONE MEASUREMENT ONLY	
133			.........NO YIELD IN DATABASE		
134	1	40877		ONE MEASUREMENT ONLY	
135	1	40877		ONE MEASUREMENT ONLY	
136	1	40877		ONE MEASUREMENT ONLY	
137			.........NO YIELD IN DATABASE		
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
140			.........NO YIELD IN DATABASE		
141			.........NO YIELD IN DATABASE		
142			.........NO YIELD IN DATABASE		
143			.........NO YIELD IN DATABASE		
144			.........NO YIELD IN DATABASE		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		

TABLE 30 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-238 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........DATA BUT NOT "INCLUDED"		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91			.........NO YIELD IN DATABASE		
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105			.........NO YIELD IN DATABASE		
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
131			.........NO YIELD IN DATABASE		
132			.........NO YIELD IN DATABASE		
133			.........NO YIELD IN DATABASE		
134			.........NO YIELD IN DATABASE		
135			.........NO YIELD IN DATABASE		
136			.........NO YIELD IN DATABASE		
137			.........DATA BUT NOT "INCLUDED"		
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
140			.........NO YIELD IN DATABASE		
141			.........NO YIELD IN DATABASE		
142			.........NO YIELD IN DATABASE		
143			.........NO YIELD IN DATABASE		
144			.........NO YIELD IN DATABASE		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		

TABLE 31 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-239 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
3	1	92043		ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77	2	624	22.9	28.4	0.0000 < 0.01%
<!?					
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
88	4	40554	4.8	6.9	7.5333
W 95	17	627	6.1	28.9	2.4556
W 97	18	761	6.1	28.8	2.5545
101	1	246		ONE MEASUREMENT ONLY	
102	1	246		ONE MEASUREMENT ONLY	
104	1	246		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
W109	4	1023	3.3	8.8	3.2016
110			.........NO YIELD IN DATABASE		
W111	11	63	6.1	28.8	0.1334 < 1.5%
W112	4	246	5.2	9.3	2.5919
113	1	246		ONE MEASUREMENT ONLY	
114	1	246		ONE MEASUREMENT ONLY	
W115	10	624	6.1	29.8	0.0231 < 1.5%
116	1	246		ONE MEASUREMENT ONLY	
117			.........DATA BUT NOT "INCLUDED"		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
W125	3	246	4.2	8.5	1.4440 < 1.5%
126	1	21155		ONE MEASUREMENT ONLY	
127	1	21155		ONE MEASUREMENT ONLY	
128	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
132	6	1042	5.1	10.4	6.5323
141	9	627	4.5	14.9	6.1841
153	1	346		ONE MEASUREMENT ONLY	
154	2	246	5.0	8.2	0.4089 < 1.5%
155			.........NO YIELD IN DATABASE		
W156	6	1042	4.5	17.3	0.3907 < 1.5%
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 32 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-240 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72	1	1117		ONE MEASUREMENT ONLY	
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	1	1135		ONE MEASUREMENT ONLY	
84	1	1135		ONE MEASUREMENT ONLY	
85	1	1135		ONE MEASUREMENT ONLY	
86	1	1135		ONE MEASUREMENT ONLY	
87	1	1135		ONE MEASUREMENT ONLY	
88	1	1135		ONE MEASUREMENT ONLY	
89	1	1117		ONE MEASUREMENT ONLY	
92	1	1135		ONE MEASUREMENT ONLY	
94	1	1135		ONE MEASUREMENT ONLY	
96	1	1135		ONE MEASUREMENT ONLY	
98	1	1135		ONE MEASUREMENT ONLY	
99	1	1117		ONE MEASUREMENT ONLY	
100	1	1135		ONE MEASUREMENT ONLY	
101	1	1135		ONE MEASUREMENT ONLY	
102	1	1135		ONE MEASUREMENT ONLY	
103	1	1117		ONE MEASUREMENT ONLY	
104	1	1135		ONE MEASUREMENT ONLY	
105	1	1117		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	1117		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	1117		ONE MEASUREMENT ONLY	
112	1	1117		ONE MEASUREMENT ONLY	
113	1	1117		ONE MEASUREMENT ONLY	
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
126	1	21155		ONE MEASUREMENT ONLY	
128	1	21155		ONE MEASUREMENT ONLY	
129	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
153	1	1117		ONE MEASUREMENT ONLY	
154	1	1135		ONE MEASUREMENT ONLY	
155	1	1117		ONE MEASUREMENT ONLY	
156	1	1117		ONE MEASUREMENT ONLY	
157	1	1117		ONE MEASUREMENT ONLY	
158			.........NO YIELD IN DATABASE		
159	1	1117		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		
161	1	1117		ONE MEASUREMENT ONLY	
162			.........NO YIELD IN DATABASE		
163			.........NO YIELD IN DATABASE		
164			.........NO YIELD IN DATABASE		
165			.........NO YIELD IN DATABASE		
166			.........NO YIELD IN DATABASE		
167			.........NO YIELD IN DATABASE		
168			.........NO YIELD IN DATABASE		
169	1	1117		ONE MEASUREMENT ONLY	

TABLE 33 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-241 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	1	1071		ONE MEASUREMENT ONLY	
84	1	1071		ONE MEASUREMENT ONLY	
85	2	1182	3.0	3.9	4.8863
86	1	1071		ONE MEASUREMENT ONLY	
88	1	1071		ONE MEASUREMENT ONLY	
89			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
101	1	1071		ONE MEASUREMENT ONLY	
102	1	1071		ONE MEASUREMENT ONLY	
103			.........NO YIELD IN DATABASE		
104	1	1071		ONE MEASUREMENT ONLY	
105			.........NO YIELD IN DATABASE		
106	1	1071		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	1	21155		ONE MEASUREMENT ONLY	
126	1	21155		ONE MEASUREMENT ONLY	
127	1	21155		ONE MEASUREMENT ONLY	
128	1	21155		ONE MEASUREMENT ONLY	
129	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
141	1	21155		ONE MEASUREMENT ONLY	
153			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 34 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-242 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	1	1134		ONE MEASUREMENT ONLY	
84	1	1134		ONE MEASUREMENT ONLY	
85	1	1134		ONE MEASUREMENT ONLY	
86	1	1134		ONE MEASUREMENT ONLY	
87	1	1134		ONE MEASUREMENT ONLY	
89			.........NO YIELD IN DATABASE		
90	1	1134		ONE MEASUREMENT ONLY	
94	1	1134		ONE MEASUREMENT ONLY	
96	1	1134		ONE MEASUREMENT ONLY	
98	1	1134		ONE MEASUREMENT ONLY	
99			.........NO YIELD IN DATABASE		
100	1	1134		ONE MEASUREMENT ONLY	
101	1	1134		ONE MEASUREMENT ONLY	
102	1	1134		ONE MEASUREMENT ONLY	
103			.........NO YIELD IN DATABASE		
104	1	1134		ONE MEASUREMENT ONLY	
105			.........DATA BUT NOT "INCLUDED"		
106	1	1134		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
126	1	21155		ONE MEASUREMENT ONLY	
127	1	21155		ONE MEASUREMENT ONLY	
130	1	21155		ONE MEASUREMENT ONLY	
141	1	21155		ONE MEASUREMENT ONLY	
150	2	1134	9.4	9.5	0.2071 < 1.5%
153			.........NO YIELD IN DATABASE		
154	1	1134		ONE MEASUREMENT ONLY	
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 35 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 95-AM-241 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87			.........DATA BUT NOT "INCLUDED"		
88	1	40678		ONE MEASUREMENT ONLY	
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91			.........DATA BUT NOT "INCLUDED"		
92	1	40678		ONE MEASUREMENT ONLY	
93			.........NO YIELD IN DATABASE		
94			.........DATA BUT NOT "INCLUDED"		
95			.........DATA BUT NOT "INCLUDED"		
96			.........NO YIELD IN DATABASE		
97	2	40678	4.5	7.5	0.6165 < 1.5%
98			.........NO YIELD IN DATABASE		
99	1	2003		ONE MEASUREMENT ONLY	
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103	1	2003		ONE MEASUREMENT ONLY	
104	1	40678		ONE MEASUREMENT ONLY	
105	1	2003		ONE MEASUREMENT ONLY	
106	1	2003		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	2003		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	2003		ONE MEASUREMENT ONLY	
112	1	2003		ONE MEASUREMENT ONLY	
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	1	21155		ONE MEASUREMENT ONLY	
126	1	21155		ONE MEASUREMENT ONLY	
127	2	2003	15.4	30.0	0.0000 < 0.01%
<!?					
130	1	21155		ONE MEASUREMENT ONLY	
132	1	21155		ONE MEASUREMENT ONLY	
133	4	40678	5.4	6.9	7.4427
134	1	21155		ONE MEASUREMENT ONLY	
135	1	21155		ONE MEASUREMENT ONLY	
136	1	21155		ONE MEASUREMENT ONLY	
137	1	21155		ONE MEASUREMENT ONLY	
138	1	21155		ONE MEASUREMENT ONLY	
145	1	21155		ONE MEASUREMENT ONLY	
146	1	21155		ONE MEASUREMENT ONLY	
148	1	21155		ONE MEASUREMENT ONLY	
150	1	21155		ONE MEASUREMENT ONLY	
152	1	21155		ONE MEASUREMENT ONLY	
153	1	2003		ONE MEASUREMENT ONLY	
154			.........NO YIELD IN DATABASE		
155	1	2003		ONE MEASUREMENT ONLY	
156	1	2003		ONE MEASUREMENT ONLY	
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159	1	2003		ONE MEASUREMENT ONLY	
160			.........DATA BUT NOT "INCLUDED"		
161	1	2003		ONE MEASUREMENT ONLY	
162			.........NO YIELD IN DATABASE		

TABLE 36 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 95-AM-242 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 TOTAL CHI2 PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87			.........DATA BUT NOT "INCLUDED"
88			.........NO YIELD IN DATABASE
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
91			.........NO YIELD IN DATABASE
92			.........NO YIELD IN DATABASE
93			.........NO YIELD IN DATABASE
94			.........NO YIELD IN DATABASE
95			.........NO YIELD IN DATABASE
96			.........NO YIELD IN DATABASE
97			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
99			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103			.........NO YIELD IN DATABASE
104			.........NO YIELD IN DATABASE
105			.........NO YIELD IN DATABASE
106			.........NO YIELD IN DATABASE
107			.........NO YIELD IN DATABASE
108			.........NO YIELD IN DATABASE
109			.........NO YIELD IN DATABASE
110			.........NO YIELD IN DATABASE
111			.........NO YIELD IN DATABASE
112			.........NO YIELD IN DATABASE
113			.........NO YIELD IN DATABASE
114			.........NO YIELD IN DATABASE
115			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125			.........NO YIELD IN DATABASE
126			.........NO YIELD IN DATABASE
127			.........NO YIELD IN DATABASE
128			.........NO YIELD IN DATABASE
129			.........NO YIELD IN DATABASE
130			.........NO YIELD IN DATABASE
131			.........NO YIELD IN DATABASE
132			.........NO YIELD IN DATABASE
133			.........NO YIELD IN DATABASE
134			.........NO YIELD IN DATABASE
135			.........NO YIELD IN DATABASE
136			.........NO YIELD IN DATABASE
137			.........DATA BUT NOT "INCLUDED"
138			.........NO YIELD IN DATABASE
139			.........NO YIELD IN DATABASE
140			.........NO YIELD IN DATABASE
141			.........NO YIELD IN DATABASE
142			.........NO YIELD IN DATABASE
143			.........NO YIELD IN DATABASE
144			.........NO YIELD IN DATABASE
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........NO YIELD IN DATABASE
150			.........NO YIELD IN DATABASE
151			.........NO YIELD IN DATABASE
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155			.........NO YIELD IN DATABASE
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE

TABLE 37 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-243 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 TOTAL CHI2 PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87			.........NO YIELD IN DATABASE
88			.........NO YIELD IN DATABASE
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
91			.........NO YIELD IN DATABASE
92			.........NO YIELD IN DATABASE
93			.........NO YIELD IN DATABASE
94			.........NO YIELD IN DATABASE
95	1	2061	ONE MEASUREMENT ONLY
96			.........NO YIELD IN DATABASE
97			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
99			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103			.........NO YIELD IN DATABASE
104			.........NO YIELD IN DATABASE
105			.........NO YIELD IN DATABASE
106			.........NO YIELD IN DATABASE
107			.........NO YIELD IN DATABASE
108			.........NO YIELD IN DATABASE
109			.........NO YIELD IN DATABASE
110			.........NO YIELD IN DATABASE
111			.........NO YIELD IN DATABASE
112			.........NO YIELD IN DATABASE
113			.........NO YIELD IN DATABASE
114			.........NO YIELD IN DATABASE
115			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125	1	2061	ONE MEASUREMENT ONLY
126			.........NO YIELD IN DATABASE
127			.........NO YIELD IN DATABASE
128			.........NO YIELD IN DATABASE
129			.........NO YIELD IN DATABASE
130			.........NO YIELD IN DATABASE
131			.........NO YIELD IN DATABASE
132			.........NO YIELD IN DATABASE
133			.........NO YIELD IN DATABASE
134			.........NO YIELD IN DATABASE
135			.........NO YIELD IN DATABASE
136			.........NO YIELD IN DATABASE
137	1	2061	ONE MEASUREMENT ONLY
138			.........NO YIELD IN DATABASE
139			.........NO YIELD IN DATABASE
140			.........NO YIELD IN DATABASE
141	1	2061	ONE MEASUREMENT ONLY
142			.........NO YIELD IN DATABASE
143			.........NO YIELD IN DATABASE
144	1	2061	ONE MEASUREMENT ONLY
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........NO YIELD IN DATABASE
150			.........NO YIELD IN DATABASE
151			.........NO YIELD IN DATABASE
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155			.........NO YIELD IN DATABASE
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE

TABLE 38 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-244 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 TOTAL CHI2 PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
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81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87			.........NO YIELD IN DATABASE
88			.........NO YIELD IN DATABASE
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
91			.........NO YIELD IN DATABASE
92			.........NO YIELD IN DATABASE
93			.........NO YIELD IN DATABASE
94			.........NO YIELD IN DATABASE
95	1	2061	ONE MEASUREMENT ONLY
96			.........NO YIELD IN DATABASE
97			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
99			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103			.........NO YIELD IN DATABASE
104			.........NO YIELD IN DATABASE
105			.........NO YIELD IN DATABASE
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108			.........NO YIELD IN DATABASE
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114			.........NO YIELD IN DATABASE
115			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125	1	2061	ONE MEASUREMENT ONLY
126			.........NO YIELD IN DATABASE
127			.........NO YIELD IN DATABASE
128			.........NO YIELD IN DATABASE
129			.........NO YIELD IN DATABASE
130			.........NO YIELD IN DATABASE
131			.........NO YIELD IN DATABASE
132			.........NO YIELD IN DATABASE
133			.........NO YIELD IN DATABASE
134			.........NO YIELD IN DATABASE
135			.........NO YIELD IN DATABASE
136			.........NO YIELD IN DATABASE
137	1	2061	ONE MEASUREMENT ONLY
138			.........NO YIELD IN DATABASE
139			.........NO YIELD IN DATABASE
140			.........NO YIELD IN DATABASE
141	1	2061	ONE MEASUREMENT ONLY
142			.........NO YIELD IN DATABASE
143			.........NO YIELD IN DATABASE
144	1	2061	ONE MEASUREMENT ONLY
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........NO YIELD IN DATABASE
150			.........NO YIELD IN DATABASE
151			.........NO YIELD IN DATABASE
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155	1	2061	ONE MEASUREMENT ONLY
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE

TABLE 39 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-245 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING MEASUREMENT & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87			.........DATA BUT NOT "INCLUDED"
88			.........NO YIELD IN DATABASE
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
91			.........NO YIELD IN DATABASE
92			.........NO YIELD IN DATABASE
93			.........NO YIELD IN DATABASE
94			.........NO YIELD IN DATABASE
95			.........NO YIELD IN DATABASE
96			.........NO YIELD IN DATABASE
97			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
99			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103			.........NO YIELD IN DATABASE
104			.........NO YIELD IN DATABASE
105			.........NO YIELD IN DATABASE
106			.........NO YIELD IN DATABASE
107			.........NO YIELD IN DATABASE
108			.........NO YIELD IN DATABASE
109			.........NO YIELD IN DATABASE
110			.........NO YIELD IN DATABASE
111			.........NO YIELD IN DATABASE
112			.........NO YIELD IN DATABASE
113			.........NO YIELD IN DATABASE
114			.........NO YIELD IN DATABASE
115			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125			.........NO YIELD IN DATABASE
126			.........NO YIELD IN DATABASE
127			.........NO YIELD IN DATABASE
128			.........NO YIELD IN DATABASE
129			.........NO YIELD IN DATABASE
130			.........NO YIELD IN DATABASE
131			.........NO YIELD IN DATABASE
132			.........NO YIELD IN DATABASE
133			.........NO YIELD IN DATABASE
134			.........NO YIELD IN DATABASE
135			.........NO YIELD IN DATABASE
136			.........NO YIELD IN DATABASE
137			.........DATA BUT NOT "INCLUDED"
138			.........NO YIELD IN DATABASE
139			.........NO YIELD IN DATABASE
140			.........NO YIELD IN DATABASE
141			.........NO YIELD IN DATABASE
142			.........NO YIELD IN DATABASE
143			.........NO YIELD IN DATABASE
144			.........NO YIELD IN DATABASE
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........NO YIELD IN DATABASE
150			.........NO YIELD IN DATABASE
151			.........NO YIELD IN DATABASE
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155			.........NO YIELD IN DATABASE
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE

TABLE 40 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-246 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING MEASUREMENT & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87			.........NO YIELD IN DATABASE
88			.........NO YIELD IN DATABASE
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
91			.........NO YIELD IN DATABASE
92			.........NO YIELD IN DATABASE
93			.........NO YIELD IN DATABASE
94			.........NO YIELD IN DATABASE
95	1	2061	ONE MEASUREMENT ONLY
96			.........NO YIELD IN DATABASE
97			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
99			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103			.........NO YIELD IN DATABASE
104			.........NO YIELD IN DATABASE
105			.........NO YIELD IN DATABASE
106			.........NO YIELD IN DATABASE
107			.........NO YIELD IN DATABASE
108			.........NO YIELD IN DATABASE
109			.........NO YIELD IN DATABASE
110			.........NO YIELD IN DATABASE
111			.........NO YIELD IN DATABASE
112			.........NO YIELD IN DATABASE
113			.........NO YIELD IN DATABASE
114			.........NO YIELD IN DATABASE
115			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125	1	2061	ONE MEASUREMENT ONLY
126			.........NO YIELD IN DATABASE
127			.........NO YIELD IN DATABASE
128			.........NO YIELD IN DATABASE
129			.........NO YIELD IN DATABASE
130			.........NO YIELD IN DATABASE
131			.........NO YIELD IN DATABASE
132			.........NO YIELD IN DATABASE
133			.........NO YIELD IN DATABASE
134			.........NO YIELD IN DATABASE
135			.........NO YIELD IN DATABASE
136			.........NO YIELD IN DATABASE
137	1	2061	ONE MEASUREMENT ONLY
138			.........NO YIELD IN DATABASE
139			.........NO YIELD IN DATABASE
140			.........NO YIELD IN DATABASE
141	1	2061	ONE MEASUREMENT ONLY
142			.........NO YIELD IN DATABASE
143			.........NO YIELD IN DATABASE
144	1	2061	ONE MEASUREMENT ONLY
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........NO YIELD IN DATABASE
150			.........NO YIELD IN DATABASE
151			.........NO YIELD IN DATABASE
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155	1	2061	ONE MEASUREMENT ONLY
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE

TABLE 41 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-248 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING MEASUREMENT & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87			.........NO YIELD IN DATABASE
88			.........NO YIELD IN DATABASE
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
91			.........NO YIELD IN DATABASE
92			.........NO YIELD IN DATABASE
93			.........NO YIELD IN DATABASE
94			.........NO YIELD IN DATABASE
95	1	2061	ONE MEASUREMENT ONLY
96			.........NO YIELD IN DATABASE
97			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
99			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103			.........NO YIELD IN DATABASE
104			.........NO YIELD IN DATABASE
105			.........NO YIELD IN DATABASE
106			.........NO YIELD IN DATABASE
107			.........NO YIELD IN DATABASE
108			.........NO YIELD IN DATABASE
109			.........NO YIELD IN DATABASE
110			.........NO YIELD IN DATABASE
111			.........NO YIELD IN DATABASE
112			.........NO YIELD IN DATABASE
113			.........NO YIELD IN DATABASE
114			.........NO YIELD IN DATABASE
115			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125	1	2061	ONE MEASUREMENT ONLY
126			.........NO YIELD IN DATABASE
127			.........NO YIELD IN DATABASE
128			.........NO YIELD IN DATABASE
129			.........NO YIELD IN DATABASE
130			.........NO YIELD IN DATABASE
131			.........NO YIELD IN DATABASE
132			.........NO YIELD IN DATABASE
133			.........NO YIELD IN DATABASE
134			.........NO YIELD IN DATABASE
135			.........NO YIELD IN DATABASE
136			.........NO YIELD IN DATABASE
137	1	2061	ONE MEASUREMENT ONLY
138			.........NO YIELD IN DATABASE
139			.........NO YIELD IN DATABASE
140			.........NO YIELD IN DATABASE
141	1	2061	ONE MEASUREMENT ONLY
142			.........NO YIELD IN DATABASE
143			.........NO YIELD IN DATABASE
144	1	2061	ONE MEASUREMENT ONLY
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........NO YIELD IN DATABASE
150			.........NO YIELD IN DATABASE
151			.........NO YIELD IN DATABASE
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155	1	2061	ONE MEASUREMENT ONLY
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE

TABLE 42 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 98-CF-249 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........DATA BUT NOT "INCLUDED"		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91			.........NO YIELD IN DATABASE		
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105			.........NO YIELD IN DATABASE		
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112			.........NO YIELD IN DATABASE		
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
131			.........NO YIELD IN DATABASE		
132			.........NO YIELD IN DATABASE		
133			.........NO YIELD IN DATABASE		
134			.........NO YIELD IN DATABASE		
135			.........NO YIELD IN DATABASE		
136			.........NO YIELD IN DATABASE		
137			.........DATA BUT NOT "INCLUDED"		

TABLE 43 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 98-CF-252 ,NEUTRON ENERGY:FAST.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
137			.........DATA BUT NOT "INCLUDED"		
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
140			.........NO YIELD IN DATABASE		
141			.........NO YIELD IN DATABASE		
142			.........NO YIELD IN DATABASE		
143			.........NO YIELD IN DATABASE		
144			.........NO YIELD IN DATABASE		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 46 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 90-TH-232 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
66	2	348	5.1	7.8	0.5355 < 1.5%
71			.........NO YIELD IN DATABASE		
72	1	756		ONE MEASUREMENT ONLY	
73	2	756	3.9	7.1	0.7720 < 1.5%
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
78	1	587		ONE MEASUREMENT ONLY	
79	1	587		ONE MEASUREMENT ONLY	
80			.........NO YIELD IN DATABASE		
81			.........DATA BUT NOT "INCLUDED"		
82			.........NO YIELD IN DATABASE		
83			.........DATA BUT NOT "INCLUDED"		
84			.........DATA BUT NOT "INCLUDED"		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
90	1	49		ONE MEASUREMENT ONLY	
94			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97	6	353	3.9	9.2	9.9640
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
102			.........DATA BUT NOT "INCLUDED"		
104			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
W109	3	357	3.1	7.1	2.9179
110			.........NO YIELD IN DATABASE		
W112	8	893	6.0	21.4	0.3192 < 1.5%
114			.........NO YIELD IN DATABASE		
115			.........DATA BUT NOT "INCLUDED"		
116			.........NO YIELD IN DATABASE		
117			.........DATA BUT NOT "INCLUDED"		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........DATA BUT NOT "INCLUDED"		
126			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
W131	5	893	5.2	10.9	2.7630
W132	9	21561	5.9	22.3	0.4354 < 1.5%
W133	5	654	4.2	10.3	3.5398
134	3	49	3.3	5.2	7.5248
135	1	912		ONE MEASUREMENT ONLY	
136	1	1113		ONE MEASUREMENT ONLY	
137			.........NO YIELD IN DATABASE		
138			.........DATA BUT NOT "INCLUDED"		
139	2	49	1.9	3.2	7.4671
144	1	13238		ONE MEASUREMENT ONLY	
145	2	13238	27.3	28.7	0.0000 < 0.01%
<!?					
146			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149	2	893	5.2	8.4	0.3841 < 1.5%
150			.........NO YIELD IN DATABASE		
151	1	13238		ONE MEASUREMENT ONLY	
152			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	1	13238		ONE MEASUREMENT ONLY	
157	1	13238		ONE MEASUREMENT ONLY	
158			.........NO YIELD IN DATABASE		
159	1	348		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		
161	1	348		ONE MEASUREMENT ONLY	
162			.........NO YIELD IN DATABASE		
163			.........NO YIELD IN DATABASE		
164			.........NO YIELD IN DATABASE		
165			.........NO YIELD IN DATABASE		
166			.........DATA BUT NOT "INCLUDED"		
167			.........NO YIELD IN DATABASE		
168			.........NO YIELD IN DATABASE		
169			.........DATA BUT NOT "INCLUDED"		

TABLE 47 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 91-PA-231 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84	1	645			ONE MEASUREMENT ONLY
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91	1	645			ONE MEASUREMENT ONLY
92			.........NO YIELD IN DATABASE		
93	1	645			ONE MEASUREMENT ONLY
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97	1	645			ONE MEASUREMENT ONLY
98			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105	1	645			ONE MEASUREMENT ONLY
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
111			.........NO YIELD IN DATABASE		
112	1	645			ONE MEASUREMENT ONLY
113	1	645			ONE MEASUREMENT ONLY
114			.........NO YIELD IN DATABASE		
115			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129	1	645			ONE MEASUREMENT ONLY
130			.........NO YIELD IN DATABASE		
131	1	645			ONE MEASUREMENT ONLY
134	1	169			ONE MEASUREMENT ONLY
135	1	169			ONE MEASUREMENT ONLY
136			.........NO YIELD IN DATABASE		
137			.........NO YIELD IN DATABASE		
138			.........NO YIELD IN DATABASE		
139			.........NO YIELD IN DATABASE		
140			.........NO YIELD IN DATABASE		
141			.........NO YIELD IN DATABASE		
142			.........NO YIELD IN DATABASE		
143	1	645			ONE MEASUREMENT ONLY
144			.........NO YIELD IN DATABASE		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		

TABLE 48 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -233 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2065			ONE MEASUREMENT ONLY
3	1	2065			ONE MEASUREMENT ONLY
4	1	2065			ONE MEASUREMENT ONLY
66	1	565			ONE MEASUREMENT ONLY
67	1	565			ONE MEASUREMENT ONLY
71			.........NO YIELD IN DATABASE		
72	1	565			ONE MEASUREMENT ONLY
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83	1	71			ONE MEASUREMENT ONLY
84			.........DATA BUT NOT "INCLUDED"		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87	1	934			ONE MEASUREMENT ONLY
88	1	934			ONE MEASUREMENT ONLY
89	1	71			ONE MEASUREMENT ONLY
90			.........NO YIELD IN DATABASE		
91	3	71	2.6	5.0	8.2634
92	2	71	3.1	5.0	2.4839
94			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
106	1	62			ONE MEASUREMENT ONLY
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
W113	3	934	4.2	8.7	1.2709 < 1.5%
114			.........NO YIELD IN DATABASE		
115	5	877	3.1	8.5	7.3678
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121	2	877	4.4	4.6	3.2388
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	1	71			ONE MEASUREMENT ONLY
126			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
131	2	71	6.2	11.3	0.0786 < 1.5%
134	1	71			ONE MEASUREMENT ONLY
135	1	71			ONE MEASUREMENT ONLY
136			.........DATA BUT NOT "INCLUDED"		
138			.........NO YIELD IN DATABASE		
139	1	71			ONE MEASUREMENT ONLY
142			.........NO YIELD IN DATABASE		
144			.........DATA BUT NOT "INCLUDED"		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151	1	934			ONE MEASUREMENT ONLY
152			.........NO YIELD IN DATABASE		
153	1	565			ONE MEASUREMENT ONLY
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	1	565			ONE MEASUREMENT ONLY
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159	1	565			ONE MEASUREMENT ONLY
160			.........NO YIELD IN DATABASE		
161	1	565			ONE MEASUREMENT ONLY
162			.........NO YIELD IN DATABASE		
163			.........NO YIELD IN DATABASE		
164			.........NO YIELD IN DATABASE		
165			.........NO YIELD IN DATABASE		
166	1	565			ONE MEASUREMENT ONLY
167			.........NO YIELD IN DATABASE		
168			.........NO YIELD IN DATABASE		
169	1	565			ONE MEASUREMENT ONLY

TABLE 48 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS: 92-U -233 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
170			.........NO YIELD IN DATABASE		
171			.........NO YIELD IN DATABASE		
172	1	565			ONE MEASUREMENT ONLY
173			.........NO YIELD IN DATABASE		
174			.........NO YIELD IN DATABASE		
175	1	565			ONE MEASUREMENT ONLY

TABLE 49 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -235 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2065		ONE MEASUREMENT ONLY	
3	1	2065		ONE MEASUREMENT ONLY	
66	2	403	4.1	6.0	1.3983 < 1.5%
67	1	349		ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE		
W 72	3	13091	4.3	5.3	7.1850
73	1	403		ONE MEASUREMENT ONLY	
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77	1	403		ONE MEASUREMENT ONLY	
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........DATA BUT NOT "INCLUDED"		
82			.........NO YIELD IN DATABASE		
83	1	987		ONE MEASUREMENT ONLY	
84			.........DATA BUT NOT "INCLUDED"		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87	1	943		ONE MEASUREMENT ONLY	
88	1	943		ONE MEASUREMENT ONLY	
92			.........NO YIELD IN DATABASE		
93	1	349		ONE MEASUREMENT ONLY	
94			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
W 97	5	280	4.6	8.6	7.1890
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
W105	3	162	5.7	8.8	1.2157 < 1.5%
106	2	162	4.8	5.2	2.3085
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
110			.........NO YIELD IN DATABASE		
W112	3	13091	3.5	7.1	2.8040
113	1	280		ONE MEASUREMENT ONLY	
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........DATA BUT NOT "INCLUDED"		
124			.........NO YIELD IN DATABASE		
125			.........DATA BUT NOT "INCLUDED"		
126	1	987		ONE MEASUREMENT ONLY	
127	1	987		ONE MEASUREMENT ONLY	
128			.........NO YIELD IN DATABASE		
129	1	987		ONE MEASUREMENT ONLY	
130			.........NO YIELD IN DATABASE		
W132	7	395	4.8	15.1	1.9148
133	1	21708		ONE MEASUREMENT ONLY	
134	1	1111		ONE MEASUREMENT ONLY	
135			.........DATA BUT NOT "INCLUDED"		
136	1	1111		ONE MEASUREMENT ONLY	
137	2	162	2.5	3.8	4.9750
138			.........DATA BUT NOT "INCLUDED"		
139	1	987		ONE MEASUREMENT ONLY	
142			.........NO YIELD IN DATABASE		
143	1	985		ONE MEASUREMENT ONLY	
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
W148	4	1183	5.4	9.9	1.9507
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159	1	349		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		
161	4	13091	2.6	8.4	3.8650
162			.........NO YIELD IN DATABASE		
163			.........NO YIELD IN DATABASE		
164			.........NO YIELD IN DATABASE		
165			.........NO YIELD IN DATABASE		
166	1	349		ONE MEASUREMENT ONLY	
167			.........NO YIELD IN DATABASE		
168			.........NO YIELD IN DATABASE		
169	1	349		ONE MEASUREMENT ONLY	
170			.........NO YIELD IN DATABASE		

TABLE 49 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS: 92-U -235 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
171			.........NO YIELD IN DATABASE		
172	1	349		ONE MEASUREMENT ONLY	

TABLE 50 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -238 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2065		ONE MEASUREMENT ONLY	
3	1	2065		ONE MEASUREMENT ONLY	
66	1	350		ONE MEASUREMENT ONLY	
67	1	350		ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE		
72	1	350		ONE MEASUREMENT ONLY	
73	1	586		ONE MEASUREMENT ONLY	
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
79			.........DATA BUT NOT "INCLUDED"		
80			.........NO YIELD IN DATABASE		
81	1	586		ONE MEASUREMENT ONLY	
82			.........NO YIELD IN DATABASE		
86	1	363		ONE MEASUREMENT ONLY	
W 88	4	917	5.0	7.3	6.3087
W 89	12	48	5.4	20.9	3.4030
W 91	22	48	5.9	44.4	0.2085 < 1.5%
94	1	895		ONE MEASUREMENT ONLY	
95	14	649	5.5	20.2	9.1305
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
100			.........DATA BUT NOT "INCLUDED"		
W103	13	164	5.9	23.8	2.1498
W105	20	281	6.0	29.6	5.6582
107	1	673		ONE MEASUREMENT ONLY	
108			.........NO YIELD IN DATABASE		
W109	4	673	3.8	8.3	4.0515
110			.........NO YIELD IN DATABASE		
W111	11	48	5.4	24.5	0.6383 < 1.5%
W112	13	164	5.8	21.1	4.9463
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117	3	933	42.4	44.3	0.0000 < 0.01%
<!?					
118	1	895		ONE MEASUREMENT ONLY	
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123	1	895		ONE MEASUREMENT ONLY	
124			.........NO YIELD IN DATABASE		
125	8	30639	0.8	13.4	3.7111
126			.........DATA BUT NOT "INCLUDED"		
128	1	895		ONE MEASUREMENT ONLY	
W129	9	30639	21.9	37.9	0.0003 < 0.01%
<!?					
130			.........NO YIELD IN DATABASE		
W131	16	48	5.6	58.0	0.0001 < 0.01%
<!?					
134	10	48	4.5	16.1	6.5384
143	18	79	5.6	27.5	5.0976
W144	10	79	5.4	15.6	7.5718
146			.........DATA BUT NOT "INCLUDED"		
150			.........NO YIELD IN DATABASE		
W151	4	933	3.6	8.8	3.1355
152			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
W156	5	1019	6.1	8.9	6.4816
157			.........DATA BUT NOT "INCLUDED"		
158			.........NO YIELD IN DATABASE		
159	1	350		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		
163			.........NO YIELD IN DATABASE		
164			.........NO YIELD IN DATABASE		
165			.........NO YIELD IN DATABASE		
166	1	350		ONE MEASUREMENT ONLY	
167			.........NO YIELD IN DATABASE		
168			.........NO YIELD IN DATABASE		
169	1	350		ONE MEASUREMENT ONLY	
170			.........NO YIELD IN DATABASE		
171			.........NO YIELD IN DATABASE		
172	1	350		ONE MEASUREMENT ONLY	

TABLE 51 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 93-NP-237 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2065		ONE MEASUREMENT ONLY	
3	1	2065		ONE MEASUREMENT ONLY	
4	1	2065		ONE MEASUREMENT ONLY	
39	1	2108		ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
92			.........NO YIELD IN DATABASE		
93	1	615		ONE MEASUREMENT ONLY	
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103	1	2108		ONE MEASUREMENT ONLY	
104			.........NO YIELD IN DATABASE		
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	615		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	615		ONE MEASUREMENT ONLY	
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
115	1	615		ONE MEASUREMENT ONLY	
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........DATA BUT NOT "INCLUDED"		
124			.........NO YIELD IN DATABASE		
125			.........DATA BUT NOT "INCLUDED"		
126			.........NO YIELD IN DATABASE		
128	1	2108		ONE MEASUREMENT ONLY	
129	1	2108		ONE MEASUREMENT ONLY	
130	1	2108		ONE MEASUREMENT ONLY	
133			.........DATA BUT NOT "INCLUDED"		
134	1	2108		ONE MEASUREMENT ONLY	
135	1	2108		ONE MEASUREMENT ONLY	
136			.........NO YIELD IN DATABASE		
137			.........NO YIELD IN DATABASE		
139	1	615		ONE MEASUREMENT ONLY	
140	1	615		ONE MEASUREMENT ONLY	
141			.........NO YIELD IN DATABASE		
142	1	2108		ONE MEASUREMENT ONLY	
143	1	615		ONE MEASUREMENT ONLY	
144			.........NO YIELD IN DATABASE		
145			.........NO YIELD IN DATABASE		
146	1	2108		ONE MEASUREMENT ONLY	
147	1	615		ONE MEASUREMENT ONLY	
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150	1	2108		ONE MEASUREMENT ONLY	
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153	1	615		ONE MEASUREMENT ONLY	
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157	1	615		ONE MEASUREMENT ONLY	
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 52 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-239 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........DATA BUT NOT "INCLUDED"		
86			.........NO YIELD IN DATABASE		
87	1	948		ONE MEASUREMENT ONLY	
88	1	948		ONE MEASUREMENT ONLY	
90			.........NO YIELD IN DATABASE		
91	1	282		ONE MEASUREMENT ONLY	
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95	1	21708		ONE MEASUREMENT ONLY	
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99	3	64	4.3	6.0	4.9651
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105	1	21708		ONE MEASUREMENT ONLY	
106	1	64		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	1043		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
W111	5	106	4.8	17.5	0.1548 < 1.5%
112	1	1043		ONE MEASUREMENT ONLY	
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
W115	5	106	4.0	7.7	5.3513
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125			.........NO YIELD IN DATABASE		
126			.........NO YIELD IN DATABASE		
127			.........DATA BUT NOT "INCLUDED"		
128			.........NO YIELD IN DATABASE		
129			.........NO YIELD IN DATABASE		
130			.........NO YIELD IN DATABASE		
131	1	1112		ONE MEASUREMENT ONLY	
132	2	64	5.8	6.3	1.2377 < 1.5%
133			.........DATA BUT NOT "INCLUDED"		
134	1	1112		ONE MEASUREMENT ONLY	
135			.........NO YIELD IN DATABASE		
136	2	21708	63.5	98.5	0.0000 < 0.01%
<!?					
137	1	64		ONE MEASUREMENT ONLY	
138	1	941		ONE MEASUREMENT ONLY	
139			.........NO YIELD IN DATABASE		
141	1	21708		ONE MEASUREMENT ONLY	
142			.........NO YIELD IN DATABASE		
143			.........DATA BUT NOT "INCLUDED"		
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153			.........NO YIELD IN DATABASE		
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	2	106	2.8	4.2	3.9655
157			.........NO YIELD IN DATABASE		
158			.........NO YIELD IN DATABASE		
159			.........NO YIELD IN DATABASE		
160			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 53 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-240 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
66	1	1076		ONE MEASUREMENT ONLY	
67	1	1076		ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE		
72	1	1076		ONE MEASUREMENT ONLY	
73	1	1076		ONE MEASUREMENT ONLY	
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87	1	1076		ONE MEASUREMENT ONLY	
88	1	1076		ONE MEASUREMENT ONLY	
89	1	1076		ONE MEASUREMENT ONLY	
90	1	1076		ONE MEASUREMENT ONLY	
93	1	1076		ONE MEASUREMENT ONLY	
94			.........NO YIELD IN DATABASE		
95	1	1076		ONE MEASUREMENT ONLY	
96			.........NO YIELD IN DATABASE		
97	1	1076		ONE MEASUREMENT ONLY	
98			.........NO YIELD IN DATABASE		
99	1	1076		ONE MEASUREMENT ONLY	
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103	1	1076		ONE MEASUREMENT ONLY	
104			.........NO YIELD IN DATABASE		
105	2	1076	2.3	3.8	5.0689
106	1	1076		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	1076		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	1076		ONE MEASUREMENT ONLY	
112	1	1076		ONE MEASUREMENT ONLY	
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
118	1	1076		ONE MEASUREMENT ONLY	
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	1	1076		ONE MEASUREMENT ONLY	
126			.........NO YIELD IN DATABASE		
127	1	1076		ONE MEASUREMENT ONLY	
128			.........DATA BUT NOT "INCLUDED"		
129			.........DATA BUT NOT "INCLUDED"		
130			.........DATA BUT NOT "INCLUDED"		
131	1	1076		ONE MEASUREMENT ONLY	
132	1	1076		ONE MEASUREMENT ONLY	
133	1	1076		ONE MEASUREMENT ONLY	
134			.........NO YIELD IN DATABASE		
135	1	1076		ONE MEASUREMENT ONLY	
136			.........NO YIELD IN DATABASE		
137	1	1076		ONE MEASUREMENT ONLY	
138	1	1076		ONE MEASUREMENT ONLY	
139	1	1076		ONE MEASUREMENT ONLY	
140	1	1076		ONE MEASUREMENT ONLY	
141	1	1076		ONE MEASUREMENT ONLY	
142	1	1076		ONE MEASUREMENT ONLY	
143	1	1076		ONE MEASUREMENT ONLY	
144	1	1076		ONE MEASUREMENT ONLY	
145	1	1076		ONE MEASUREMENT ONLY	
146			.........NO YIELD IN DATABASE		
147	1	1076		ONE MEASUREMENT ONLY	
148			.........NO YIELD IN DATABASE		
150			.........NO YIELD IN DATABASE		
151	1	1076		ONE MEASUREMENT ONLY	
152			.........NO YIELD IN DATABASE		
153			.........DATA BUT NOT "INCLUDED"		
154			.........NO YIELD IN DATABASE		
155	1	1076		ONE MEASUREMENT ONLY	
156	1	1076		ONE MEASUREMENT ONLY	
157	1	1076		ONE MEASUREMENT ONLY	
158			.........NO YIELD IN DATABASE		
159	1	1076		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		

TABLE 53 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS: 94-PU-240 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
161	1	1076	ONE MEASUREMENT ONLY
162			.........NO YIELD IN DATABASE
163			.........NO YIELD IN DATABASE
164			.........NO YIELD IN DATABASE
165			.........NO YIELD IN DATABASE
166			.........NO YIELD IN DATABASE
167			.........NO YIELD IN DATABASE
168			.........NO YIELD IN DATABASE
169	1	1076	ONE MEASUREMENT ONLY

TABLE 54 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-242 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........DATA BUT NOT "INCLUDED"
86			.........NO YIELD IN DATABASE
87	1	21983	ONE MEASUREMENT ONLY
88	1	21983	ONE MEASUREMENT ONLY
89	1	21983	ONE MEASUREMENT ONLY
90			.........NO YIELD IN DATABASE
93	1	21983	ONE MEASUREMENT ONLY
94	1	21983	ONE MEASUREMENT ONLY
95	1	21983	ONE MEASUREMENT ONLY
96			.........NO YIELD IN DATABASE
98			.........NO YIELD IN DATABASE
100			.........NO YIELD IN DATABASE
101	1	21983	ONE MEASUREMENT ONLY
102			.........NO YIELD IN DATABASE
103	1	21983	ONE MEASUREMENT ONLY
104	1	21983	ONE MEASUREMENT ONLY
106			.........NO YIELD IN DATABASE
107	1	21983	ONE MEASUREMENT ONLY
108			.........NO YIELD IN DATABASE
109	1	21983	ONE MEASUREMENT ONLY
110			.........NO YIELD IN DATABASE
111	1	21983	ONE MEASUREMENT ONLY
112	1	21983	ONE MEASUREMENT ONLY
114			.........NO YIELD IN DATABASE
115	1	21983	ONE MEASUREMENT ONLY
116			.........NO YIELD IN DATABASE
118			.........DATA BUT NOT "INCLUDED"
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125	1	21983	ONE MEASUREMENT ONLY
126			.........DATA BUT NOT "INCLUDED"
127	1	21983	ONE MEASUREMENT ONLY
130	1	21983	ONE MEASUREMENT ONLY
131	1	21983	ONE MEASUREMENT ONLY
134	1	21983	ONE MEASUREMENT ONLY
136			.........NO YIELD IN DATABASE
137			.........NO YIELD IN DATABASE
138	1	21983	ONE MEASUREMENT ONLY
139			.........DATA BUT NOT "INCLUDED"
141	1	21983	ONE MEASUREMENT ONLY
142			.........DATA BUT NOT "INCLUDED"
143	1	21983	ONE MEASUREMENT ONLY
144			.........DATA BUT NOT "INCLUDED"
145			.........NO YIELD IN DATABASE
146			.........DATA BUT NOT "INCLUDED"
147			.........NO YIELD IN DATABASE
148			.........NO YIELD IN DATABASE
149			.........DATA BUT NOT "INCLUDED"
150			.........NO YIELD IN DATABASE
151	1	21983	ONE MEASUREMENT ONLY
152			.........NO YIELD IN DATABASE
153			.........NO YIELD IN DATABASE
154			.........NO YIELD IN DATABASE
155			.........NO YIELD IN DATABASE
156			.........NO YIELD IN DATABASE
157			.........NO YIELD IN DATABASE
158			.........NO YIELD IN DATABASE
159			.........NO YIELD IN DATABASE
160			.........NO YIELD IN DATABASE
161			.........NO YIELD IN DATABASE
162			.........NO YIELD IN DATABASE

TABLE 55 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 95-AM-241 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2 / TOTAL CHI2 / PROBABILITY PC.
71			.........NO YIELD IN DATABASE
72			.........NO YIELD IN DATABASE
73			.........NO YIELD IN DATABASE
74			.........NO YIELD IN DATABASE
75			.........NO YIELD IN DATABASE
76			.........NO YIELD IN DATABASE
77			.........NO YIELD IN DATABASE
78			.........NO YIELD IN DATABASE
79			.........NO YIELD IN DATABASE
80			.........NO YIELD IN DATABASE
81			.........NO YIELD IN DATABASE
82			.........NO YIELD IN DATABASE
83			.........NO YIELD IN DATABASE
84			.........NO YIELD IN DATABASE
85			.........NO YIELD IN DATABASE
86			.........NO YIELD IN DATABASE
87	1	1154	ONE MEASUREMENT ONLY
88	1	1154	ONE MEASUREMENT ONLY
89			.........NO YIELD IN DATABASE
90			.........NO YIELD IN DATABASE
92	1	1154	ONE MEASUREMENT ONLY
93			.........NO YIELD IN DATABASE
94	1	1154	ONE MEASUREMENT ONLY
95	1	1154	ONE MEASUREMENT ONLY
96			.........NO YIELD IN DATABASE
97	1	1154	ONE MEASUREMENT ONLY
98			.........NO YIELD IN DATABASE
99	1	1154	ONE MEASUREMENT ONLY
100			.........NO YIELD IN DATABASE
101			.........NO YIELD IN DATABASE
102			.........NO YIELD IN DATABASE
103	1	1154	ONE MEASUREMENT ONLY
104	1	1154	ONE MEASUREMENT ONLY
105	1	1154	ONE MEASUREMENT ONLY
106	1	1154	ONE MEASUREMENT ONLY
107	1	1154	ONE MEASUREMENT ONLY
108			.........NO YIELD IN DATABASE
109	1	1154	ONE MEASUREMENT ONLY
110			.........NO YIELD IN DATABASE
111	1	1154	ONE MEASUREMENT ONLY
112	1	1154	ONE MEASUREMENT ONLY
113	1	1154	ONE MEASUREMENT ONLY
114			.........NO YIELD IN DATABASE
116			.........NO YIELD IN DATABASE
117			.........NO YIELD IN DATABASE
118			.........NO YIELD IN DATABASE
119			.........NO YIELD IN DATABASE
120			.........NO YIELD IN DATABASE
121			.........NO YIELD IN DATABASE
122			.........NO YIELD IN DATABASE
123			.........NO YIELD IN DATABASE
124			.........NO YIELD IN DATABASE
125			.........NO YIELD IN DATABASE
126			.........DATA BUT NOT "INCLUDED"
127	1	1154	ONE MEASUREMENT ONLY
128			.........DATA BUT NOT "INCLUDED"
129			.........NO YIELD IN DATABASE
130			.........DATA BUT NOT "INCLUDED"
131	1	1154	ONE MEASUREMENT ONLY
132			.........DATA BUT NOT "INCLUDED"
133	1	1154	ONE MEASUREMENT ONLY
134			.........DATA BUT NOT "INCLUDED"
135	1	1154	ONE MEASUREMENT ONLY
136			.........DATA BUT NOT "INCLUDED"
137	1	1154	ONE MEASUREMENT ONLY
138			.........NO YIELD IN DATABASE
139	1	1154	ONE MEASUREMENT ONLY
140	1	1154	ONE MEASUREMENT ONLY
141	1	1154	ONE MEASUREMENT ONLY
142	1	1154	ONE MEASUREMENT ONLY
143	1	1154	ONE MEASUREMENT ONLY
144	1	1154	ONE MEASUREMENT ONLY
145			.........NO YIELD IN DATABASE
146			.........NO YIELD IN DATABASE
147	1	1154	ONE MEASUREMENT ONLY
148			.........NO YIELD IN DATABASE
149	1	1154	ONE MEASUREMENT ONLY
150			.........NO YIELD IN DATABASE
151	1	1154	ONE MEASUREMENT ONLY
152			.........NO YIELD IN DATABASE
153	1	1154	ONE MEASUREMENT ONLY
154			.........NO YIELD IN DATABASE
155	1	1154	ONE MEASUREMENT ONLY
156	1	1154	ONE MEASUREMENT ONLY
157	1	1154	ONE MEASUREMENT ONLY
158			.........NO YIELD IN DATABASE
159	1	1154	ONE MEASUREMENT ONLY

TABLE 55 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS: 95-AM-241 ,NEUTRON ENERGY:HIGH.

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
160			.........NO	YIELD IN	DATABASE
161	1	1154		ONE MEASUREMENT	ONLY
162			.........NO	YIELD IN	DATABASE

TABLE 56 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 90-TH-232 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83	1	326		ONE MEASUREMENT	ONLY
84	1	326		ONE MEASUREMENT	ONLY
85			.........NO	YIELD IN	DATABASE
86	1	326		ONE MEASUREMENT	ONLY
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
89			.........NO	YIELD IN	DATABASE
90			.........NO	YIELD IN	DATABASE
91			.........NO	YIELD IN	DATABASE
92			.........NO	YIELD IN	DATABASE
93			.........NO	YIELD IN	DATABASE
94			.........NO	YIELD IN	DATABASE
95			.........NO	YIELD IN	DATABASE
96			.........NO	YIELD IN	DATABASE
97			.........NO	YIELD IN	DATABASE
98			.........NO	YIELD IN	DATABASE
99			.........NO	YIELD IN	DATABASE
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103			.........NO	YIELD IN	DATABASE
104			.........NO	YIELD IN	DATABASE
105			.........NO	YIELD IN	DATABASE
106			.........NO	YIELD IN	DATABASE
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109			.........NO	YIELD IN	DATABASE
110			.........NO	YIELD IN	DATABASE
111			.........NO	YIELD IN	DATABASE
112			.........NO	YIELD IN	DATABASE
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127			.........NO	YIELD IN	DATABASE
128			.........NO	YIELD IN	DATABASE
129			.........NO	YIELD IN	DATABASE
130			.........NO	YIELD IN	DATABASE
131	1	326		ONE MEASUREMENT	ONLY
132	1	326		ONE MEASUREMENT	ONLY
133			.........NO	YIELD IN	DATABASE
134	1	326		ONE MEASUREMENT	ONLY
135			.........NO	YIELD IN	DATABASE
136	1	326		ONE MEASUREMENT	ONLY
137			.........NO	YIELD IN	DATABASE
138			.........NO	YIELD IN	DATABASE
139			.........NO	YIELD IN	DATABASE
140			.........NO	YIELD IN	DATABASE
141			.........NO	YIELD IN	DATABASE
142			.........NO	YIELD IN	DATABASE
143			.........NO	YIELD IN	DATABASE
144			.........NO	YIELD IN	DATABASE
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147			.........NO	YIELD IN	DATABASE
148			.........NO	YIELD IN	DATABASE
149			.........NO	YIELD IN	DATABASE
150			.........NO	YIELD IN	DATABASE
151			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156			.........NO	YIELD IN	DATABASE
157			.........NO	YIELD IN	DATABASE

TABLE 57 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 92-U -238 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
85			.........NO	YIELD IN	DATABASE
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
91	1	616		ONE MEASUREMENT	ONLY
92	1	589		ONE MEASUREMENT	ONLY
93	1	616		ONE MEASUREMENT	ONLY
94			.........NO	YIELD IN	DATABASE
95			.........DATA	BUT NOT	"INCLUDED"
96			.........NO	YIELD IN	DATABASE
97			.........DATA	BUT NOT	"INCLUDED"
98			.........NO	YIELD IN	DATABASE
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103	1	588		ONE MEASUREMENT	ONLY
104			.........NO	YIELD IN	DATABASE
105	1	229		ONE MEASUREMENT	ONLY
106	1	588		ONE MEASUREMENT	ONLY
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109			.........NO	YIELD IN	DATABASE
110			.........NO	YIELD IN	DATABASE
111			.........NO	YIELD IN	DATABASE
112			.........NO	YIELD IN	DATABASE
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127			.........NO	YIELD IN	DATABASE
128			.........NO	YIELD IN	DATABASE
129			.........NO	YIELD IN	DATABASE
130			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138			.........DATA	BUT NOT	"INCLUDED"
139			.........DATA	BUT NOT	"INCLUDED"
140	1	589		ONE MEASUREMENT	ONLY
142			.........NO	YIELD IN	DATABASE
144	1	254		ONE MEASUREMENT	ONLY
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
148			.........NO	YIELD IN	DATABASE
149	1	254		ONE MEASUREMENT	ONLY
150			.........NO	YIELD IN	DATABASE
151			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156			.........NO	YIELD IN	DATABASE
157			.........NO	YIELD IN	DATABASE
158			.........NO	YIELD IN	DATABASE
159			.........NO	YIELD IN	DATABASE
160			.........NO	YIELD IN	DATABASE
161			.........NO	YIELD IN	DATABASE
162			.........NO	YIELD IN	DATABASE

TABLE 58 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-240 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 CONTRIBUTING MEASUREMENT & DCHI2	TOTAL CHI2	PROBABILITY PC.
4	1	850	ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE	
72			.........NO YIELD IN DATABASE	
73			.........NO YIELD IN DATABASE	
74			.........NO YIELD IN DATABASE	
75			.........NO YIELD IN DATABASE	
76			.........NO YIELD IN DATABASE	
77			.........NO YIELD IN DATABASE	
78			.........NO YIELD IN DATABASE	
79			.........NO YIELD IN DATABASE	
80			.........NO YIELD IN DATABASE	
81			.........NO YIELD IN DATABASE	
82			.........NO YIELD IN DATABASE	
83			.........NO YIELD IN DATABASE	
84			.........NO YIELD IN DATABASE	
85			.........NO YIELD IN DATABASE	
86			.........NO YIELD IN DATABASE	
87			.........NO YIELD IN DATABASE	
88			.........NO YIELD IN DATABASE	
89	1	21482	ONE MEASUREMENT ONLY	
90			.........NO YIELD IN DATABASE	
91	1	21482	ONE MEASUREMENT ONLY	
92			.........NO YIELD IN DATABASE	
93			.........NO YIELD IN DATABASE	
94			.........NO YIELD IN DATABASE	
95			.........NO YIELD IN DATABASE	
96			.........NO YIELD IN DATABASE	
97	1	21482	ONE MEASUREMENT ONLY	
98			.........NO YIELD IN DATABASE	
99	1	21482	ONE MEASUREMENT ONLY	
100			.........NO YIELD IN DATABASE	
101			.........NO YIELD IN DATABASE	
102			.........NO YIELD IN DATABASE	
103			.........NO YIELD IN DATABASE	
104			.........NO YIELD IN DATABASE	
105	1	21482	ONE MEASUREMENT ONLY	
106			.........NO YIELD IN DATABASE	
107			.........NO YIELD IN DATABASE	
108			.........NO YIELD IN DATABASE	
109	1	21482	ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE	
111	1	21482	ONE MEASUREMENT ONLY	
112			.........NO YIELD IN DATABASE	
113			.........NO YIELD IN DATABASE	
114			.........NO YIELD IN DATABASE	
115	1	21482	ONE MEASUREMENT ONLY	
116			.........NO YIELD IN DATABASE	
117			.........NO YIELD IN DATABASE	
118			.........NO YIELD IN DATABASE	
119			.........NO YIELD IN DATABASE	
120			.........NO YIELD IN DATABASE	
121			.........NO YIELD IN DATABASE	
122			.........NO YIELD IN DATABASE	
123			.........NO YIELD IN DATABASE	
124			.........NO YIELD IN DATABASE	
125			.........NO YIELD IN DATABASE	
126			.........NO YIELD IN DATABASE	
127			.........NO YIELD IN DATABASE	
128			.........NO YIELD IN DATABASE	
129			.........NO YIELD IN DATABASE	
130			.........NO YIELD IN DATABASE	
131	1	21482	ONE MEASUREMENT ONLY	
132			.........NO YIELD IN DATABASE	
133	1	21482	ONE MEASUREMENT ONLY	
134			.........NO YIELD IN DATABASE	
135	1	21482	ONE MEASUREMENT ONLY	
136			.........NO YIELD IN DATABASE	
137			.........NO YIELD IN DATABASE	
138			.........NO YIELD IN DATABASE	
139			.........NO YIELD IN DATABASE	
140	1	21482	ONE MEASUREMENT ONLY	
141	1	21482	ONE MEASUREMENT ONLY	
142			.........NO YIELD IN DATABASE	
143	1	21482	ONE MEASUREMENT ONLY	
144			.........NO YIELD IN DATABASE	
145			.........NO YIELD IN DATABASE	
146			.........NO YIELD IN DATABASE	
147	1	21482	ONE MEASUREMENT ONLY	
148			.........NO YIELD IN DATABASE	
149			.........NO YIELD IN DATABASE	
150			.........NO YIELD IN DATABASE	
151			.........NO YIELD IN DATABASE	
152			.........NO YIELD IN DATABASE	
153			.........NO YIELD IN DATABASE	
154			.........NO YIELD IN DATABASE	
155			.........NO YIELD IN DATABASE	
156			.........NO YIELD IN DATABASE	

TABLE 59 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 94-PU-242 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 CONTRIBUTING MEASUREMENT & DCHI2	TOTAL CHI2	PROBABILITY PC.
4	1	851	ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE	
72			.........NO YIELD IN DATABASE	
73			.........NO YIELD IN DATABASE	
74			.........NO YIELD IN DATABASE	
75			.........NO YIELD IN DATABASE	
76			.........NO YIELD IN DATABASE	
77			.........NO YIELD IN DATABASE	
78			.........NO YIELD IN DATABASE	
79			.........NO YIELD IN DATABASE	
80			.........NO YIELD IN DATABASE	
81			.........NO YIELD IN DATABASE	
82			.........NO YIELD IN DATABASE	
83			.........NO YIELD IN DATABASE	
84			.........NO YIELD IN DATABASE	
85			.........NO YIELD IN DATABASE	
86			.........NO YIELD IN DATABASE	
87			.........NO YIELD IN DATABASE	
88			.........NO YIELD IN DATABASE	
89			.........NO YIELD IN DATABASE	
90			.........NO YIELD IN DATABASE	
91			.........NO YIELD IN DATABASE	
92			.........NO YIELD IN DATABASE	
93			.........NO YIELD IN DATABASE	
94			.........NO YIELD IN DATABASE	
95			.........NO YIELD IN DATABASE	
96			.........NO YIELD IN DATABASE	
97			.........NO YIELD IN DATABASE	
98			.........NO YIELD IN DATABASE	
99			.........NO YIELD IN DATABASE	
100			.........NO YIELD IN DATABASE	
101			.........NO YIELD IN DATABASE	
102			.........NO YIELD IN DATABASE	
103			.........NO YIELD IN DATABASE	
104			.........NO YIELD IN DATABASE	
105			.........NO YIELD IN DATABASE	
106			.........NO YIELD IN DATABASE	
107			.........NO YIELD IN DATABASE	
108			.........NO YIELD IN DATABASE	
109			.........NO YIELD IN DATABASE	
110			.........NO YIELD IN DATABASE	
111			.........NO YIELD IN DATABASE	
112			.........NO YIELD IN DATABASE	
113			.........NO YIELD IN DATABASE	
114			.........NO YIELD IN DATABASE	
115			.........NO YIELD IN DATABASE	
116			.........NO YIELD IN DATABASE	
117			.........NO YIELD IN DATABASE	
118			.........NO YIELD IN DATABASE	
119			.........NO YIELD IN DATABASE	
120			.........NO YIELD IN DATABASE	
121	1	40194	ONE MEASUREMENT ONLY	
122	1	40194	ONE MEASUREMENT ONLY	
123	1	40194	ONE MEASUREMENT ONLY	
124	1	40194	ONE MEASUREMENT ONLY	
125	1	40194	ONE MEASUREMENT ONLY	
126	1	40194	ONE MEASUREMENT ONLY	
127	1	40194	ONE MEASUREMENT ONLY	
128	1	40194	ONE MEASUREMENT ONLY	
129	1	40194	ONE MEASUREMENT ONLY	
130	1	40194	ONE MEASUREMENT ONLY	
131	1	40194	ONE MEASUREMENT ONLY	
136	1	40194	ONE MEASUREMENT ONLY	
137	1	40194	ONE MEASUREMENT ONLY	
138	1	40194	ONE MEASUREMENT ONLY	
139	1	40194	ONE MEASUREMENT ONLY	
140	1	40194	ONE MEASUREMENT ONLY	
141	1	40194	ONE MEASUREMENT ONLY	
142	1	40194	ONE MEASUREMENT ONLY	
143	1	40194	ONE MEASUREMENT ONLY	
144	1	40194	ONE MEASUREMENT ONLY	
145	1	40194	ONE MEASUREMENT ONLY	
146	1	40194	ONE MEASUREMENT ONLY	
147	1	40194	ONE MEASUREMENT ONLY	
148	1	40194	ONE MEASUREMENT ONLY	
149	1	40194	ONE MEASUREMENT ONLY	
150	1	40194	ONE MEASUREMENT ONLY	
151	1	40194	ONE MEASUREMENT ONLY	
152	1	40194	ONE MEASUREMENT ONLY	
153	1	40194	ONE MEASUREMENT ONLY	
154	1	40194	ONE MEASUREMENT ONLY	
155	1	40194	ONE MEASUREMENT ONLY	
156	1	40194	ONE MEASUREMENT ONLY	
157	1	40194	ONE MEASUREMENT ONLY	
158	1	40194	ONE MEASUREMENT ONLY	
159	1	40194	ONE MEASUREMENT ONLY	
160	1	40194	ONE MEASUREMENT ONLY	

TABLE 59 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS: 94-PU-242 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 CONTRIBUTING MEASUREMENT & DCHI2	TOTAL CHI2	PROBABILITY PC.
161	1	40194	ONE MEASUREMENT ONLY	
162	1	40194	ONE MEASUREMENT ONLY	

TABLE 60 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-242 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85			.........NO	YIELD IN	DATABASE
86			.........NO	YIELD IN	DATABASE
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
89			.........NO	YIELD IN	DATABASE
90			.........NO	YIELD IN	DATABASE
91	1	613		ONE MEASUREMENT	ONLY
92	1	613		ONE MEASUREMENT	ONLY
93			.........NO	YIELD IN	DATABASE
94			.........NO	YIELD IN	DATABASE
95			.........NO	YIELD IN	DATABASE
96			.........NO	YIELD IN	DATABASE
97			.........NO	YIELD IN	DATABASE
98			.........NO	YIELD IN	DATABASE
99	1	613		ONE MEASUREMENT	ONLY
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103			.........DATA	BUT NOT	"INCLUDED"
104			.........NO	YIELD IN	DATABASE
105	1	613		ONE MEASUREMENT	ONLY
106	1	613		ONE MEASUREMENT	ONLY
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109	1	613		ONE MEASUREMENT	ONLY
110			.........NO	YIELD IN	DATABASE
111			.........NO	YIELD IN	DATABASE
112	1	613		ONE MEASUREMENT	ONLY
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115	1	613		ONE MEASUREMENT	ONLY
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127	1	613		ONE MEASUREMENT	ONLY
128			.........NO	YIELD IN	DATABASE
129	1	613		ONE MEASUREMENT	ONLY
130			.........NO	YIELD IN	DATABASE
131			.........DATA	BUT NOT	"INCLUDED"
132	1	613		ONE MEASUREMENT	ONLY
133	1	613		ONE MEASUREMENT	ONLY
134	1	613		ONE MEASUREMENT	ONLY
135			.........DATA	BUT NOT	"INCLUDED"
136			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138			.........NO	YIELD IN	DATABASE
139	1	613		ONE MEASUREMENT	ONLY
140	1	613		ONE MEASUREMENT	ONLY
141			.........NO	YIELD IN	DATABASE
142			.........NO	YIELD IN	DATABASE
143			.........NO	YIELD IN	DATABASE
144			.........NO	YIELD IN	DATABASE
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147			.........NO	YIELD IN	DATABASE
148			.........NO	YIELD IN	DATABASE
149			.........NO	YIELD IN	DATABASE
150			.........NO	YIELD IN	DATABASE
151			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156			.........NO	YIELD IN	DATABASE
157			.........NO	YIELD IN	DATABASE

TABLE 61 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-244 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2065		ONE MEASUREMENT	ONLY
3	1	2065		ONE MEASUREMENT	ONLY
4	3	2065	2.7	4.7	9.4468
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77	1	720		ONE MEASUREMENT	ONLY
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83	1	720		ONE MEASUREMENT	ONLY
84	1	720		ONE MEASUREMENT	ONLY
85			.........DATA	BUT NOT	"INCLUDED"
86			.........DATA	BUT NOT	"INCLUDED"
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
89	1	720		ONE MEASUREMENT	ONLY
90	1	720		ONE MEASUREMENT	ONLY
91	1	720		ONE MEASUREMENT	ONLY
92			.........NO	YIELD IN	DATABASE
93			.........NO	YIELD IN	DATABASE
94			.........NO	YIELD IN	DATABASE
95	1	720		ONE MEASUREMENT	ONLY
96			.........NO	YIELD IN	DATABASE
97	1	720		ONE MEASUREMENT	ONLY
98			.........NO	YIELD IN	DATABASE
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103	1	720		ONE MEASUREMENT	ONLY
104			.........NO	YIELD IN	DATABASE
106	1	720		ONE MEASUREMENT	ONLY
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109	1	720		ONE MEASUREMENT	ONLY
110			.........NO	YIELD IN	DATABASE
111	1	720		ONE MEASUREMENT	ONLY
112	1	720		ONE MEASUREMENT	ONLY
113	1	720		ONE MEASUREMENT	ONLY
114			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........DATA	BUT NOT	"INCLUDED"
126			.........NO	YIELD IN	DATABASE
127	1	720		ONE MEASUREMENT	ONLY
128			.........NO	YIELD IN	DATABASE
129	1	720		ONE MEASUREMENT	ONLY
130			.........NO	YIELD IN	DATABASE
136	1	720		ONE MEASUREMENT	ONLY
137	1	720		ONE MEASUREMENT	ONLY
138			.........NO	YIELD IN	DATABASE
139	1	720		ONE MEASUREMENT	ONLY
141	1	720		ONE MEASUREMENT	ONLY
142			.........NO	YIELD IN	DATABASE
143	1	720		ONE MEASUREMENT	ONLY
144	1	720		ONE MEASUREMENT	ONLY
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147			.........DATA	BUT NOT	"INCLUDED"
148			.........NO	YIELD IN	DATABASE
150			.........NO	YIELD IN	DATABASE
151	1	720		ONE MEASUREMENT	ONLY
152			.........NO	YIELD IN	DATABASE
153	1	720		ONE MEASUREMENT	ONLY
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
157			.........NO	YIELD IN	DATABASE
158			.........NO	YIELD IN	DATABASE
159			.........NO	YIELD IN	DATABASE
160			.........NO	YIELD IN	DATABASE
161			.........NO	YIELD IN	DATABASE
162			.........NO	YIELD IN	DATABASE

TABLE 62 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-246 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN	DATABASE
72			.........NO	YIELD IN	DATABASE
73			.........NO	YIELD IN	DATABASE
74			.........NO	YIELD IN	DATABASE
75			.........NO	YIELD IN	DATABASE
76			.........NO	YIELD IN	DATABASE
77			.........NO	YIELD IN	DATABASE
78			.........NO	YIELD IN	DATABASE
79			.........NO	YIELD IN	DATABASE
80			.........NO	YIELD IN	DATABASE
81			.........NO	YIELD IN	DATABASE
82			.........NO	YIELD IN	DATABASE
83			.........NO	YIELD IN	DATABASE
84			.........NO	YIELD IN	DATABASE
85			.........NO	YIELD IN	DATABASE
86			.........NO	YIELD IN	DATABASE
87			.........NO	YIELD IN	DATABASE
88			.........NO	YIELD IN	DATABASE
89			.........NO	YIELD IN	DATABASE
90			.........NO	YIELD IN	DATABASE
91			.........NO	YIELD IN	DATABASE
92			.........NO	YIELD IN	DATABASE
93			.........NO	YIELD IN	DATABASE
94			.........NO	YIELD IN	DATABASE
95	1	10986		ONE MEASUREMENT	ONLY
96			.........NO	YIELD IN	DATABASE
97	1	10986		ONE MEASUREMENT	ONLY
98			.........NO	YIELD IN	DATABASE
99	1	10986		ONE MEASUREMENT	ONLY
100			.........NO	YIELD IN	DATABASE
101			.........NO	YIELD IN	DATABASE
102			.........NO	YIELD IN	DATABASE
103	1	10986		ONE MEASUREMENT	ONLY
104			.........NO	YIELD IN	DATABASE
105	1	10986		ONE MEASUREMENT	ONLY
106			.........NO	YIELD IN	DATABASE
107			.........NO	YIELD IN	DATABASE
108			.........NO	YIELD IN	DATABASE
109			.........NO	YIELD IN	DATABASE
110			.........NO	YIELD IN	DATABASE
111	1	10986		ONE MEASUREMENT	ONLY
112	1	10986		ONE MEASUREMENT	ONLY
113			.........NO	YIELD IN	DATABASE
114			.........NO	YIELD IN	DATABASE
115			.........NO	YIELD IN	DATABASE
116			.........NO	YIELD IN	DATABASE
117			.........NO	YIELD IN	DATABASE
118			.........NO	YIELD IN	DATABASE
119			.........NO	YIELD IN	DATABASE
120			.........NO	YIELD IN	DATABASE
121			.........NO	YIELD IN	DATABASE
122			.........NO	YIELD IN	DATABASE
123			.........NO	YIELD IN	DATABASE
124			.........NO	YIELD IN	DATABASE
125			.........NO	YIELD IN	DATABASE
126			.........NO	YIELD IN	DATABASE
127			.........NO	YIELD IN	DATABASE
128			.........NO	YIELD IN	DATABASE
129			.........NO	YIELD IN	DATABASE
130			.........NO	YIELD IN	DATABASE
131	1	10986		ONE MEASUREMENT	ONLY
132	1	10986		ONE MEASUREMENT	ONLY
133	1	10986		ONE MEASUREMENT	ONLY
134			.........NO	YIELD IN	DATABASE
135	1	10986		ONE MEASUREMENT	ONLY
136			.........NO	YIELD IN	DATABASE
137			.........NO	YIELD IN	DATABASE
138			.........NO	YIELD IN	DATABASE
139			.........NO	YIELD IN	DATABASE
140	1	10986		ONE MEASUREMENT	ONLY
141	1	10986		ONE MEASUREMENT	ONLY
142	1	10986		ONE MEASUREMENT	ONLY
143	1	10986		ONE MEASUREMENT	ONLY
144	1	10986		ONE MEASUREMENT	ONLY
145			.........NO	YIELD IN	DATABASE
146			.........NO	YIELD IN	DATABASE
147	1	10986		ONE MEASUREMENT	ONLY
148			.........NO	YIELD IN	DATABASE
149			.........NO	YIELD IN	DATABASE
150			.........NO	YIELD IN	DATABASE
151			.........NO	YIELD IN	DATABASE
152			.........NO	YIELD IN	DATABASE
153			.........NO	YIELD IN	DATABASE
154			.........NO	YIELD IN	DATABASE
155			.........NO	YIELD IN	DATABASE
156			.........NO	YIELD IN	DATABASE
157			.........NO	YIELD IN	DATABASE

TABLE 63 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 96-CM-248 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO	YIELD IN DATABASE	
72			.........NO	YIELD IN DATABASE	
73			.........NO	YIELD IN DATABASE	
74			.........NO	YIELD IN DATABASE	
75			.........NO	YIELD IN DATABASE	
76			.........NO	YIELD IN DATABASE	
77			.........NO	YIELD IN DATABASE	
78			.........NO	YIELD IN DATABASE	
79			.........NO	YIELD IN DATABASE	
80			.........NO	YIELD IN DATABASE	
81			.........NO	YIELD IN DATABASE	
82			.........NO	YIELD IN DATABASE	
84	1	12711		ONE MEASUREMENT ONLY	
85	1	12711		ONE MEASUREMENT ONLY	
86	1	12711		ONE MEASUREMENT ONLY	
87			.........NO	YIELD IN DATABASE	
88			.........NO	YIELD IN DATABASE	
89	1	10979		ONE MEASUREMENT ONLY	
90			.........NO	YIELD IN DATABASE	
92			.........NO	YIELD IN DATABASE	
93			.........NO	YIELD IN DATABASE	
94			.........NO	YIELD IN DATABASE	
95	1	10979		ONE MEASUREMENT ONLY	
96			.........NO	YIELD IN DATABASE	
97	1	10979		ONE MEASUREMENT ONLY	
98			.........NO	YIELD IN DATABASE	
100			.........NO	YIELD IN DATABASE	
101			.........NO	YIELD IN DATABASE	
102			.........NO	YIELD IN DATABASE	
104			.........NO	YIELD IN DATABASE	
105	1	10979		ONE MEASUREMENT ONLY	
107			.........NO	YIELD IN DATABASE	
108			.........NO	YIELD IN DATABASE	
109	1	10979		ONE MEASUREMENT ONLY	
110			.........NO	YIELD IN DATABASE	
111	1	10979		ONE MEASUREMENT ONLY	
113	1	10979		ONE MEASUREMENT ONLY	
114			.........NO	YIELD IN DATABASE	
116			.........NO	YIELD IN DATABASE	
117			.........NO	YIELD IN DATABASE	
118			.........NO	YIELD IN DATABASE	
119			.........NO	YIELD IN DATABASE	
120			.........NO	YIELD IN DATABASE	
121			.........NO	YIELD IN DATABASE	
122			.........NO	YIELD IN DATABASE	
123			.........NO	YIELD IN DATABASE	
124			.........NO	YIELD IN DATABASE	
125	1	10979		ONE MEASUREMENT ONLY	
126			.........NO	YIELD IN DATABASE	
127	1	10979		ONE MEASUREMENT ONLY	
128			.........NO	YIELD IN DATABASE	
129	1	10979		ONE MEASUREMENT ONLY	
130			.........NO	YIELD IN DATABASE	
134	1	12711		ONE MEASUREMENT ONLY	
135	1	10979		ONE MEASUREMENT ONLY	
136	1	12711		ONE MEASUREMENT ONLY	
137	1	10979		ONE MEASUREMENT ONLY	
138			.........NO	YIELD IN DATABASE	
139	1	10979		ONE MEASUREMENT ONLY	
142	1	10979		ONE MEASUREMENT ONLY	
143	1	10979		ONE MEASUREMENT ONLY	
145			.........NO	YIELD IN DATABASE	
146			.........NO	YIELD IN DATABASE	
147	1	10979		ONE MEASUREMENT ONLY	
148			.........NO	YIELD IN DATABASE	
149			.........NO	YIELD IN DATABASE	
150			.........NO	YIELD IN DATABASE	
151	1	10979		ONE MEASUREMENT ONLY	
152			.........NO	YIELD IN DATABASE	
153	1	10979		ONE MEASUREMENT ONLY	
154			.........NO	YIELD IN DATABASE	
155			.........NO	YIELD IN DATABASE	
156			.........NO	YIELD IN DATABASE	
157			.........NO	YIELD IN DATABASE	
158			.........NO	YIELD IN DATABASE	
159			.........NO	YIELD IN DATABASE	
160			.........NO	YIELD IN DATABASE	
161			.........NO	YIELD IN DATABASE	
162			.........NO	YIELD IN DATABASE	

TABLE 64 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 98-CF-250 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2048		ONE MEASUREMENT ONLY	
3	1	2048		ONE MEASUREMENT ONLY	
4	1	2048		ONE MEASUREMENT ONLY	
71			.........NO	YIELD IN DATABASE	
72			.........NO	YIELD IN DATABASE	
73			.........NO	YIELD IN DATABASE	
74			.........NO	YIELD IN DATABASE	
75			.........NO	YIELD IN DATABASE	
76			.........NO	YIELD IN DATABASE	
77			.........NO	YIELD IN DATABASE	
78			.........NO	YIELD IN DATABASE	
79			.........NO	YIELD IN DATABASE	
80			.........NO	YIELD IN DATABASE	
81			.........NO	YIELD IN DATABASE	
82			.........NO	YIELD IN DATABASE	
83	2	10979	7.6	8.0	0.4643 < 1.5%
84	1	12711		ONE MEASUREMENT ONLY	
85	1	12711		ONE MEASUREMENT ONLY	
86	1	12711		ONE MEASUREMENT ONLY	
87			.........NO	YIELD IN DATABASE	
88			.........NO	YIELD IN DATABASE	
89	1	10979		ONE MEASUREMENT ONLY	
90			.........NO	YIELD IN DATABASE	
92			.........NO	YIELD IN DATABASE	
93			.........NO	YIELD IN DATABASE	
94			.........NO	YIELD IN DATABASE	
96			.........NO	YIELD IN DATABASE	
98			.........NO	YIELD IN DATABASE	
100			.........NO	YIELD IN DATABASE	
101	1	12710		ONE MEASUREMENT ONLY	
102			.........NO	YIELD IN DATABASE	
104	1	12710		ONE MEASUREMENT ONLY	
107	1	12710		ONE MEASUREMENT ONLY	
108			.........NO	YIELD IN DATABASE	
109	1	10979		ONE MEASUREMENT ONLY	
110			.........NO	YIELD IN DATABASE	
111	1	10979		ONE MEASUREMENT ONLY	
113	1	10979		ONE MEASUREMENT ONLY	
114			.........NO	YIELD IN DATABASE	
116			.........NO	YIELD IN DATABASE	
117			.........NO	YIELD IN DATABASE	
118			.........NO	YIELD IN DATABASE	
119			.........NO	YIELD IN DATABASE	
120			.........NO	YIELD IN DATABASE	
121	1	10979		ONE MEASUREMENT ONLY	
122			.........NO	YIELD IN DATABASE	
123			.........NO	YIELD IN DATABASE	
124			.........NO	YIELD IN DATABASE	
125	1	10979		ONE MEASUREMENT ONLY	
126			.........NO	YIELD IN DATABASE	
127	1	10979		ONE MEASUREMENT ONLY	
128			.........NO	YIELD IN DATABASE	
129	1	10979		ONE MEASUREMENT ONLY	
130			.........NO	YIELD IN DATABASE	
134	1	12711		ONE MEASUREMENT ONLY	
135	1	10979		ONE MEASUREMENT ONLY	
136	1	12711		ONE MEASUREMENT ONLY	
137			.........NO	YIELD IN DATABASE	
138			.........NO	YIELD IN DATABASE	
142	1	12710		ONE MEASUREMENT ONLY	
145			.........NO	YIELD IN DATABASE	
146			.........NO	YIELD IN DATABASE	
147	1	10979		ONE MEASUREMENT ONLY	
148			.........NO	YIELD IN DATABASE	
149	1	10979		ONE MEASUREMENT ONLY	
150			.........NO	YIELD IN DATABASE	
151	1	10979		ONE MEASUREMENT ONLY	
152			.........NO	YIELD IN DATABASE	
153	1	10979		ONE MEASUREMENT ONLY	
154			.........NO	YIELD IN DATABASE	
155			.........NO	YIELD IN DATABASE	
156			.........NO	YIELD IN DATABASE	
157			.........NO	YIELD IN DATABASE	
158			.........NO	YIELD IN DATABASE	
159			.........NO	YIELD IN DATABASE	
160			.........NO	YIELD IN DATABASE	
161			.........NO	YIELD IN DATABASE	
162			.........NO	YIELD IN DATABASE	

TABLE 65 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS: 98-CF-252 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	2	2071	2.6	5.0	2.5438
2	1	2071		ONE MEASUREMENT ONLY	
71			.........NO	YIELD IN DATABASE	
72			.........NO	YIELD IN DATABASE	
73			.........NO	YIELD IN DATABASE	
74			.........NO	YIELD IN DATABASE	
75			.........NO	YIELD IN DATABASE	
76			.........NO	YIELD IN DATABASE	
77			.........NO	YIELD IN DATABASE	
78	1	264		ONE MEASUREMENT ONLY	
79			.........NO	YIELD IN DATABASE	
80			.........NO	YIELD IN DATABASE	
81			.........NO	YIELD IN DATABASE	
82			.........NO	YIELD IN DATABASE	
87			.........NO	YIELD IN DATABASE	
90			.........NO	YIELD IN DATABASE	
W 91	6	21592	4.8	11.0	5.2043
92	4	742	3.0	7.1	6.9593
W 93	4	888	4.7	7.5	5.7050
96			.........NO	YIELD IN DATABASE	
W 97	9	744	5.3	16.5	3.5961
98			.........NO	YIELD IN DATABASE	
W 99	10	13283	6.2	18.7	2.8106
100			.........NO	YIELD IN DATABASE	
102			.........DATA	BUT NOT "INCLUDED"	
W105	9	2022	5.1	21.1	0.6982 < 1.5%
106	3	21592	4.4	6.1	4.8469
108			.........DATA	BUT NOT "INCLUDED"	
110			.........NO	YIELD IN DATABASE	
112	3	21531	3.6	5.3	6.8980
114			.........NO	YIELD IN DATABASE	
115	8	888	1.4	12.0	6.1431
116			.........DATA	BUT NOT "INCLUDED"	
117	3	21592	2.5	4.7	9.4908
118			.........NO	YIELD IN DATABASE	
119			.........NO	YIELD IN DATABASE	
120			.........NO	YIELD IN DATABASE	
121	2	264	4.6	5.2	2.2140
122			.........NO	YIELD IN DATABASE	
123			.........DATA	BUT NOT "INCLUDED"	
124			.........NO	YIELD IN DATABASE	
125	1	21592		ONE MEASUREMENT ONLY	
126			.........NO	YIELD IN DATABASE	
W128	3	2074	3.6	4.9	8.8106
130			.........NO	YIELD IN DATABASE	
W131	10	13283	6.2	15.8	7.2099
W132	14	745	4.6	24.0	3.1317
W133	6	218	4.3	14.8	1.1371 < 1.5%
136			.........NO	YIELD IN DATABASE	
137	7	21700	3.3	11.4	7.7558
145	1	742		ONE MEASUREMENT ONLY	
W147	12	2100	6.0	21.2	3.1007
148	1	2100		ONE MEASUREMENT ONLY	
150			.........NO	YIELD IN DATABASE	
W151	7	2036	5.4	14.6	2.3177
152	1	2100		ONE MEASUREMENT ONLY	
154			.........NO	YIELD IN DATABASE	
W156	6	264	4.7	13.8	1.7027
158			.........NO	YIELD IN DATABASE	
159	1	742		ONE MEASUREMENT ONLY	
160			.........NO	YIELD IN DATABASE	
162			.........NO	YIELD IN DATABASE	
163			.........NO	YIELD IN DATABASE	
164			.........NO	YIELD IN DATABASE	
165			.........NO	YIELD IN DATABASE	
166	1	264		ONE MEASUREMENT ONLY	

TABLE 68 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS:100-FM-254 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88	1	759		ONE MEASUREMENT ONLY	
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91	1	10642		ONE MEASUREMENT ONLY	
92			.........NO YIELD IN DATABASE		
93	1	10642		ONE MEASUREMENT ONLY	
94			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
98			.........NO YIELD IN DATABASE		
99	1	759		ONE MEASUREMENT ONLY	
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105	1	759		ONE MEASUREMENT ONLY	
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	10642		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	10642		ONE MEASUREMENT ONLY	
112	1	759		ONE MEASUREMENT ONLY	
113			.........NO YIELD IN DATABASE		
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118			.........NO YIELD IN DATABASE		
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	1	10642		ONE MEASUREMENT ONLY	
126			.........NO YIELD IN DATABASE		
128			.........NO YIELD IN DATABASE		
129	1	10642		ONE MEASUREMENT ONLY	
130			.........NO YIELD IN DATABASE		
133	1	759		ONE MEASUREMENT ONLY	
134			.........NO YIELD IN DATABASE		
135	1	759		ONE MEASUREMENT ONLY	
136			.........NO YIELD IN DATABASE		
137			.........NO YIELD IN DATABASE		
138			.........NO YIELD IN DATABASE		
139	1	759		ONE MEASUREMENT ONLY	
141	2	10642	2.1	4.1	4.1917
142	1	759		ONE MEASUREMENT ONLY	
143	2	759	2.5	3.6	5.8273
145			.........NO YIELD IN DATABASE		
146			.........NO YIELD IN DATABASE		
147	1	759		ONE MEASUREMENT ONLY	
148			.........NO YIELD IN DATABASE		
149	1	759		ONE MEASUREMENT ONLY	
150			.........NO YIELD IN DATABASE		
151			.........NO YIELD IN DATABASE		
152			.........NO YIELD IN DATABASE		
153	1	10642		ONE MEASUREMENT ONLY	
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156			.........NO YIELD IN DATABASE		
157	1	10642		ONE MEASUREMENT ONLY	
158			.........NO YIELD IN DATABASE		
159	1	10642		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 69 LIST OF DISCREPANT CHAIN YIELDS

FISSILE NUCLEUS:100-FM-256 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
1	1	2048		ONE MEASUREMENT ONLY	
3	1	2048		ONE MEASUREMENT ONLY	
71			.........NO YIELD IN DATABASE		
72			.........NO YIELD IN DATABASE		
73			.........NO YIELD IN DATABASE		
74			.........NO YIELD IN DATABASE		
75			.........NO YIELD IN DATABASE		
76			.........NO YIELD IN DATABASE		
77			.........NO YIELD IN DATABASE		
78			.........NO YIELD IN DATABASE		
79			.........NO YIELD IN DATABASE		
80			.........NO YIELD IN DATABASE		
81			.........NO YIELD IN DATABASE		
82			.........NO YIELD IN DATABASE		
83			.........NO YIELD IN DATABASE		
84			.........NO YIELD IN DATABASE		
85			.........NO YIELD IN DATABASE		
86			.........NO YIELD IN DATABASE		
87			.........NO YIELD IN DATABASE		
88			.........NO YIELD IN DATABASE		
89			.........NO YIELD IN DATABASE		
90			.........NO YIELD IN DATABASE		
91	1	686		ONE MEASUREMENT ONLY	
92			.........NO YIELD IN DATABASE		
93			.........NO YIELD IN DATABASE		
94			.........NO YIELD IN DATABASE		
95			.........NO YIELD IN DATABASE		
96			.........NO YIELD IN DATABASE		
97	1	686		ONE MEASUREMENT ONLY	
98			.........NO YIELD IN DATABASE		
99			.........NO YIELD IN DATABASE		
100			.........NO YIELD IN DATABASE		
101			.........NO YIELD IN DATABASE		
102			.........NO YIELD IN DATABASE		
103			.........NO YIELD IN DATABASE		
104			.........NO YIELD IN DATABASE		
105	1	686		ONE MEASUREMENT ONLY	
106			.........NO YIELD IN DATABASE		
107			.........NO YIELD IN DATABASE		
108			.........NO YIELD IN DATABASE		
109	1	686		ONE MEASUREMENT ONLY	
110			.........NO YIELD IN DATABASE		
111	1	686		ONE MEASUREMENT ONLY	
113	1	686		ONE MEASUREMENT ONLY	
114			.........NO YIELD IN DATABASE		
116			.........NO YIELD IN DATABASE		
117			.........NO YIELD IN DATABASE		
118	1	686		ONE MEASUREMENT ONLY	
119			.........NO YIELD IN DATABASE		
120			.........NO YIELD IN DATABASE		
121	1	2014		ONE MEASUREMENT ONLY	
122			.........NO YIELD IN DATABASE		
123			.........NO YIELD IN DATABASE		
124			.........NO YIELD IN DATABASE		
125	1	2014		ONE MEASUREMENT ONLY	
126			.........NO YIELD IN DATABASE		
127	1	686		ONE MEASUREMENT ONLY	
128			.........NO YIELD IN DATABASE		
129	1	686		ONE MEASUREMENT ONLY	
130			.........NO YIELD IN DATABASE		
131	1	686		ONE MEASUREMENT ONLY	
132	1	686		ONE MEASUREMENT ONLY	
133	1	686		ONE MEASUREMENT ONLY	
134			.........NO YIELD IN DATABASE		
135	1	686		ONE MEASUREMENT ONLY	
136			.........NO YIELD IN DATABASE		
137			.........NO YIELD IN DATABASE		
138			.........NO YIELD IN DATABASE		
139	1	686		ONE MEASUREMENT ONLY	
140	1	686		ONE MEASUREMENT ONLY	
141	1	686		ONE MEASUREMENT ONLY	
142			.........NO YIELD IN DATABASE		
143	1	686		ONE MEASUREMENT ONLY	
144			.........NO YIELD IN DATABASE		
145	1	686		ONE MEASUREMENT ONLY	
146			.........NO YIELD IN DATABASE		
147			.........NO YIELD IN DATABASE		
148			.........NO YIELD IN DATABASE		
149	1	686		ONE MEASUREMENT ONLY	
150			.........NO YIELD IN DATABASE		
151	1	686		ONE MEASUREMENT ONLY	
152			.........NO YIELD IN DATABASE		
153	1	686		ONE MEASUREMENT ONLY	
154			.........NO YIELD IN DATABASE		
155			.........NO YIELD IN DATABASE		
156	1	686		ONE MEASUREMENT ONLY	
157	1	686		ONE MEASUREMENT ONLY	

TABLE 69 LIST OF DISCREPANT CHAIN YIELDS (cont)

FISSILE NUCLEUS:100-FM-256 ,NEUTRON ENERGY:SPONTANEOUS

MASS NUMBER	NUMBER OF MEASUREMENTS	MAX.DCHI2 MEASUREMENT	CONTRIBUTING & DCHI2	TOTAL CHI2	PROBABILITY PC.
158			.........NO YIELD IN DATABASE		
159	1	686		ONE MEASUREMENT ONLY	
160			.........NO YIELD IN DATABASE		
161			.........NO YIELD IN DATABASE		
162			.........NO YIELD IN DATABASE		

TABLE 1 ENERGY:THERMAL NUCLIDE:TH-229

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
78	GA	22143	2.7100E-01	20.7	0.00	FractInd	2.7100E-01	0.00	20.7(I)	0.0(E)	20.7(A)
	GE	22143	7.2900E-01	12.3	0.00	FractInd	7.2900E-01	0.00	12.3(I)	0.0(E)	12.3(A)
79	GA	22143	1.7600E-01	22.2	0.00	FractInd	1.7600E-01	0.00	22.2(I)	0.0(E)	22.2(A)
	GE	22143	7.8600E-01	10.9	0.00	FractInd	7.8600E-01	0.00	10.9(I)	0.0(E)	10.9(A)
	AS	22143	3.7000E-02	32.4	0.00	FractInd	3.7000E-02	0.00	32.4(I)	0.0(E)	32.4(A)
80	GA	22143	2.1000E-02	47.6	0.00	FractInd	2.1000E-02	0.00	47.6(I)	0.0(E)	47.6(A)
	GE	22143	9.4800E-01	3.9	0.00	FractInd	9.4800E-01	0.00	3.9(I)	0.0(E)	3.9(A)
	AS	22143	3.1000E-02	51.6	0.00	FractInd	3.1000E-02	0.00	51.6(I)	0.0(E)	51.6(A)
81	GA	22143	1.2000E-02	83.3	0.00	FractInd	1.2000E-02	0.00	83.3(I)	0.0(E)	83.3(A)
	GE	22143	7.1400E-01	3.6	0.00	FractInd	7.1400E-01	0.00	3.6(I)	0.0(E)	3.6(A)
	AS	22143	2.4800E-01	6.9	0.00	FractInd	2.4800E-01	0.00	6.9(I)	0.0(E)	6.9(A)
	SE	22143	2.6000E-02	42.3	0.00	FractInd	2.6000E-02	0.00	42.3(I)	0.0(E)	42.3(A)
82	GE	22143	3.3600E-01	4.8	0.00	FractInd	3.3600E-01	0.00	4.8(I)	0.0(E)	4.8(A)
	AS	22143	4.0000E-01	5.0	0.00	FractInd	4.0000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SE	22143	2.3800E-01	7.1	0.00	FractInd	2.3800E-01	0.00	7.1(I)	0.0(E)	7.1(A)
	BR	22143	2.5000E-02	40.0	0.00	FractInd	2.5000E-02	0.00	40.0(I)	0.0(E)	40.0(A)
83	GE	22143	3.0000E-02	33.3	0.00	FractInd	3.0000E-02	0.00	33.3(I)	0.0(E)	33.3(A)
	AS	22143	3.2600E-01	4.9	0.00	FractInd	3.2600E-01	0.00	4.9(I)	0.0(E)	4.9(A)
	SE	22143	6.2600E-01	3.4	0.00	FractInd	6.2600E-01	0.00	3.4(I)	0.0(E)	3.4(A)
	BR	22143	1.8000E-02	61.1	0.00	FractInd	1.8000E-02	0.00	61.1(I)	0.0(E)	61.1(A)
84	GE	22143	5.0000E-03	200.0	0.00	FractInd	5.0000E-03	0.00	200.0(I)	0.0(E)	200.0(A)
	AS	22143	7.7000E-02	13.0	0.00	FractInd	7.7000E-02	0.00	13.0(I)	0.0(E)	13.0(A)
	SE	22143	8.8300E-01	2.2	0.00	FractInd	8.8300E-01	0.00	2.2(I)	0.0(E)	2.2(A)
	BR	22143	3.6000E-02	30.6	0.00	FractInd	3.6000E-02	0.00	30.6(I)	0.0(E)	30.6(A)
85	AS	22143	3.0000E-02	43.3	0.00	FractInd	3.0000E-02	0.00	43.3(I)	0.0(E)	43.3(A)
	SE	22143	7.8900E-01	2.2	0.00	FractInd	7.8900E-01	0.00	2.2(I)	0.0(E)	2.2(A)
	BR	22143	1.8200E-01	10.4	0.00	FractInd	1.8200E-01	0.00	10.4(I)	0.0(E)	10.4(A)
86	AS	22143	6.0000E-03	166.7	0.00	FractInd	6.0000E-03	0.00	166.7(I)	0.0(E)	166.7(A)
	SE	22143	6.1500E-01	2.8	0.00	FractInd	6.1500E-01	0.00	2.8(I)	0.0(E)	2.8(A)
	BR	22143	3.1000E-01	5.2	0.00	FractInd	3.1000E-01	0.00	5.2(I)	0.0(E)	5.2(A)
	KR	22143	6.9000E-02	15.9	0.00	FractInd	6.9000E-02	0.00	15.9(I)	0.0(E)	15.9(A)
87	SE	22143	1.9400E-01	5.7	0.00	FractInd	1.9400E-01	0.00	5.7(I)	0.0(E)	5.7(A)
	BR	22143	4.8000E-01	4.0	0.00	FractInd	4.8000E-01	0.00	4.0(I)	0.0(E)	4.0(A)
	KR	22143	3.2600E-01	5.8	0.00	FractInd	3.2600E-01	0.00	5.8(I)	0.0(E)	5.8(A)
88	SE	22143	3.2000E-02	31.2	0.00	FractInd	3.2000E-02	0.00	31.2(I)	0.0(E)	31.2(A)
	BR	22143	2.9200E-01	6.2	0.00	FractInd	2.9200E-01	0.00	6.2(I)	0.0(E)	6.2(A)
	KR	22143	6.3300E-01	3.3	0.00	FractInd	6.3300E-01	0.00	3.3(I)	0.0(E)	3.3(A)
	RB	22143	4.4000E-02	50.0	0.00	FractInd	4.4000E-02	0.00	50.0(I)	0.0(E)	50.0(A)
89	SE	22143	1.1000E-02	90.9	0.00	FractInd	1.1000E-02	0.00	90.9(I)	0.0(E)	90.9(A)
	BR	22143	1.3400E-01	9.7	0.00	FractInd	1.3400E-01	0.00	9.7(I)	0.0(E)	9.7(A)
	KR	22143	7.9600E-01	3.0	0.00	FractInd	7.9600E-01	0.00	3.0(I)	0.0(E)	3.0(A)
	RB	22143	5.9000E-02	20.3	0.00	FractInd	5.9000E-02	0.00	20.3(I)	0.0(E)	20.3(A)
90	BR	22143	3.7000E-02	86.5	0.00	FractInd	3.7000E-02	0.00	86.5(I)	0.0(E)	86.5(A)
	KR	22143	7.4700E-01	2.4	0.00	FractInd	7.4700E-01	0.00	2.4(I)	0.0(E)	2.4(A)

TABLE 1 ENERGY:THERMAL NUCLIDE:TH-229

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	RB	22143	2.1000E-01	12.4	0.00	FractInd	2.1000E-01	0.00	12.4(I)	0.0(E)	12.4(A)
	SR	22143	6.0000E-03	166.7	0.00	FractInd	6.0000E-03	0.00	166.7(I)	0.0(E)	166.7(A)
91	BR	22143	2.2000E-02	54.5	0.00	FractInd	2.2000E-02	0.00	54.5(I)	0.0(E)	54.5(A)
	KR	22143	4.2400E-01	3.8	0.00	FractInd	4.2400E-01	0.00	3.8(I)	0.0(E)	3.8(A)
	RB	22143	4.5600E-01	5.0	0.00	FractInd	4.5600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	22143	9.7000E-02	11.3	0.00	FractInd	9.7000E-02	0.00	11.3(I)	0.0(E)	11.3(A)
92	KR	22143	1.9500E-01	6.2	0.00	FractInd	1.9500E-01	0.00	6.2(I)	0.0(E)	6.2(A)
	RB	22143	3.7300E-01	6.7	0.00	FractInd	3.7300E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	SR	22143	4.3100E-01	5.3	0.00	FractInd	4.3100E-01	0.00	5.3(I)	0.0(E)	5.3(A)
93	KR	22143	3.7000E-02	116.2	0.00	FractInd	3.7000E-02	0.00	116.2(I)	0.0(E)	116.2(A)
	RB	22143	2.5100E-01	7.2	0.00	FractInd	2.5100E-01	0.00	7.2(I)	0.0(E)	7.2(A)
	SR	22143	6.6500E-01	4.2	0.00	FractInd	6.6500E-01	0.00	4.2(I)	0.0(E)	4.2(A)
	Y	22143	4.7000E-02	48.9	0.00	FractInd	4.7000E-02	0.00	48.9(I)	0.0(E)	48.9(A)
94	KR	22143	1.3000E-02	76.9	0.00	FractInd	1.3000E-02	0.00	76.9(I)	0.0(E)	76.9(A)
	RB	22143	8.5000E-02	16.5	0.00	FractInd	8.5000E-02	0.00	16.5(I)	0.0(E)	16.5(A)
	SR	22143	7.7700E-01	4.2	0.00	FractInd	7.7700E-01	0.00	4.2(I)	0.0(E)	4.2(A)
	Y	22143	1.2500E-01	42.4	0.00	FractInd	1.2500E-01	0.00	42.4(I)	0.0(E)	42.4(A)
95	RB	22143	2.9000E-02	62.1	0.00	FractInd	2.9000E-02	0.00	62.1(I)	0.0(E)	62.1(A)
	SR	22143	6.0100E-01	5.7	0.00	FractInd	6.0100E-01	0.00	5.7(I)	0.0(E)	5.7(A)
	Y	22143	3.3800E-01	10.7	0.00	FractInd	3.3800E-01	0.00	10.7(I)	0.0(E)	10.7(A)
	ZR	22143	3.2000E-02	59.4	0.00	FractInd	3.2000E-02	0.00	59.4(I)	0.0(E)	59.4(A)
96	RB	22143	1.1000E-02	90.9	0.00	FractInd	1.1000E-02	0.00	90.9(I)	0.0(E)	90.9(A)
	SR	22143	4.4700E-01	5.1	0.00	FractInd	4.4700E-01	0.00	5.1(I)	0.0(E)	5.1(A)
	Y	22143	3.9800E-01	5.3	0.00	FractInd	3.9800E-01	0.00	5.3(I)	0.0(E)	5.3(A)
	ZR	22143	1.4400E-01	11.8	0.00	FractInd	1.4400E-01	0.00	11.8(I)	0.0(E)	11.8(A)
97	SR	22143	1.6000E-01	8.8	0.00	FractInd	1.6000E-01	0.00	8.8(I)	0.0(E)	8.8(A)
	Y	22143	4.3100E-01	7.4	0.00	FractInd	4.3100E-01	0.00	7.4(I)	0.0(E)	7.4(A)
	ZR	22143	3.3500E-01	7.5	0.00	FractInd	3.3500E-01	0.00	7.5(I)	0.0(E)	7.5(A)
136	CS	300	1.4400E-02	57.0	0.00	Ind/Y(A)	1.4400E-02	0.00	57.0(I)	0.0(E)	57.0(A)

TABLE 2 ENERGY:THERMAL NUCLIDE:U -233

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
81	GA	10918	8.3100E-02	31.2	0.00	FractInd	8.3100E-02	0.00	31.2(I)	0.0(E)	31.2(A)
	GE	10918	2.9600E-01	13.5	0.00	FractInd	2.9600E-01	0.00	13.5(I)	0.0(E)	13.5(A)
	AS	10918	5.4500E-01	7.9	0.00	FractInd	5.4500E-01	0.00	7.9(I)	0.0(E)	7.9(A)
	SE	10918	7.6000E-02	34.2	0.00	FractInd	7.6000E-02	0.00	34.2(I)	0.0(E)	34.2(A)
82	GA	10918	4.5900E-02	23.1	0.00	FractInd	4.5900E-02	0.00	23.1(I)	0.0(E)	23.1(A)
	GE	10918	1.4400E-01	9.2	0.00	FractInd	1.4400E-01	0.00	9.2(I)	0.0(E)	9.2(A)
	AS	10918	5.3000E-01	5.0	0.00	FractInd	5.3000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SE	10918	2.8100E-01	5.3	0.00	FractInd	2.8100E-01	0.00	5.3(I)	0.0(E)	5.3(A)
	BR(G)	416	2.0400E-03	13.9	2.59	Ind/Y(A)	1.3402E-03	6.70	6.4(I)	16.5(E)	16.5(A)
		305	1.2700E-03	7.1	-2.59	Ind/Y(A)					
83	GE	10918	4.7500E-02	13.7	0.00	FractInd	4.7500E-02	0.00	13.7(I)	0.0(E)	13.7(A)
	AS	10918	3.4900E-01	5.0	0.00	FractInd	3.4900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SE	10918	5.8900E-01	5.0	0.00	FractInd	5.8900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	10918	1.4000E-02	43.6	0.00	FractInd	1.4000E-02	0.00	43.6(I)	0.0(E)	43.6(A)
84	GE	10918	1.2700E-02	36.2	0.00	FractInd	1.2700E-02	0.00	36.2(I)	0.0(E)	36.2(A)
	AS	10918	1.0300E-01	8.2	0.00	FractInd	1.0300E-01	0.00	8.2(I)	0.0(E)	8.2(A)
	SE	10918	7.5500E-01	5.0	0.00	FractInd	7.5500E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	10918	1.2900E-01	5.6	0.00	FractInd	1.2900E-01	0.00	5.6(I)	0.0(E)	5.6(A)
	RB(G)	885	3.9200E-08	10.2	0.00	Ind/Y(A)	3.9200E-08	0.00	10.2(I)	0.0(E)	10.2(A)
85	AS	10918	4.9000E-02	10.2	0.00	FractInd	4.9000E-02	0.00	10.2(I)	0.0(E)	10.2(A)
	SE	10918	5.2000E-01	5.0	0.00	FractInd	5.2000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	10918	3.7700E-01	5.0	0.00	FractInd	3.7700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	KR	10918	5.3600E-02	17.9	0.00	FractInd	5.3600E-02	0.00	17.9(I)	0.0(E)	17.9(A)
86	AS	10918	1.7700E-02	18.1	0.00	FractInd	1.7700E-02	0.00	18.1(I)	0.0(E)	18.1(A)
	SE	10918	2.8800E-01	2.6	0.00	FractInd	2.8800E-01	0.00	2.6(I)	0.0(E)	2.6(A)
	BR	10918	4.9300E-01	1.6	0.00	FractInd	4.9300E-01	0.00	1.6(I)	0.0(E)	1.6(A)
	KR	10918	2.0200E-01	3.1	0.00	FractInd	2.0200E-01	0.00	3.1(I)	0.0(E)	3.1(A)
	RB(G)	885	3.0200E-04	10.0	0.00	Ind/Y(A)	3.0200E-04	0.00	10.0(I)	0.0(E)	10.0(A)
87	SE	10918	9.1700E-02	6.4	0.00	FractInd	9.1700E-02	0.00	6.4(I)	0.0(E)	6.4(A)
	BR	10918	4.3600E-01	1.6	0.61	FractInd	4.3479E-01	3.15	1.6(I)	2.8(E)	2.8(A)
		919	4.4200E-01	6.0	0.28	FractInd					
		810	2.5100E-01	5.2w	-2.50	Ind/Y(A)					
	KR	10918	4.5500E-01	1.6	-0.69	FractInd	4.5641E-01	0.48	1.5(I)	1.0(E)	1.5(A)
		919	4.7200E-01	5.0	0.69	FractInd					
	RB	10918	1.7800E-02	19.1	0.00	FractInd	1.7800E-02	0.00	19.1(I)	0.0(E)	19.1(A)
88	SE	10918	2.2800E-02	11.8	0.00	FractInd	2.2800E-02	0.00	11.8(I)	0.0(E)	11.8(A)
	BR	10918	2.1500E-01	2.8	-0.87	FractInd	2.1666E-01	0.76	2.7(I)	2.3(E)	2.7(A)
		919	2.3200E-01	8.0	0.87	FractInd					
	KR	10918	7.0400E-01	1.0	-0.19	FractInd	7.0426E-01	0.04	1.0(I)	0.2(E)	1.0(A)
		919	7.1100E-01	5.0	0.19	FractInd					
	RB	10918	5.7900E-02	6.9	0.00	FractInd	5.7900E-02	0.00	6.9(I)	0.0(E)	6.9(A)
89	BR	919	1.1600E-01	20.0	0.27	FractInd	1.1025E-01	3.61	8.9(I)	16.9(E)	16.9(A)
		807	2.1200E-01	20.0	2.47	FractInd					
		10918	9.3700E-02	5.8w	-2.50	FractInd					
		810	1.7000E-01	20.1	1.83	Ind/Y(A)					
	KR	10918	7.3800E-01	5.0	-0.85	FractInd	7.5961E-01	0.73	3.5(I)	3.0(E)	3.5(A)
		919	7.8400E-01	5.0	0.85	FractInd					
	RB	10918	1.5300E-01	5.0	0.00	FractInd	1.5300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	10918	1.5600E-02	14.1	0.00	FractInd	1.5600E-02	0.00	14.1(I)	0.0(E)	14.1(A)

TABLE 2 ENERGY:THERMAL NUCLIDE:U -233

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
90	BR	10918	2.4700E-02	11.3	-2.13	FractInd	2.5721E-02	4.52	10.7(I)	22.7(E)	22.7(A)
		919	5.9200E-02	27.0	2.13	FractInd					
	KR	10918	5.8100E-01	5.0	-0.24	FractInd	5.8591E-01	0.06	3.5(I)	0.9(E)	3.5(A)
		919	5.9100E-01	5.0	0.24	FractInd					
	RB	10918	3.4800E-01	5.0	0.00	FractInd	3.4800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	10918	4.6700E-02	7.7	0.00	FractInd	4.6700E-02	0.00	7.7(I)	0.0(E)	7.7(A)
91	BR	10918	1.0100E-02	17.8	0.00	FractInd	1.0100E-02	0.00	17.8(I)	0.0(E)	17.8(A)
	KR	10918	2.9600E-01	2.0	-0.96	FractInd	2.9794E-01	0.92	1.8(I)	1.8(E)	1.8(A)
		919	3.1200E-01	5.0	0.96	FractInd					
	RB	10918	5.1700E-01	1.2	0.00	FractInd	5.1700E-01	0.00	1.2(I)	0.0(E)	1.2(A)
	SR	10918	1.7700E-01	2.8	0.00	FractInd	1.7700E-01	0.00	2.8(I)	0.0(E)	2.8(A)
92	KR	919	1.1000E-01	5.0	-0.25	FractInd	1.1098E-01	0.06	3.5(I)	0.9(E)	3.5(A)
		10918	1.1200E-01	5.0	0.25	FractInd					
	RB	10918	4.5000E-01	1.4	0.00	FractInd	4.5000E-01	0.00	1.4(I)	0.0(E)	1.4(A)
	SR	10918	4.1700E-01	1.5	0.00	FractInd	4.1700E-01	0.00	1.5(I)	0.0(E)	1.5(A)
	Y	10918	2.1600E-02	12.5	0.00	FractInd	2.1600E-02	0.00	12.5(I)	0.0(E)	12.5(A)
	NB(M)	21711	3.3600E-09	50.0	0.00	Ind/Y(A)	3.3600E-09	0.00	50.0(I)	0.0(E)	50.0(A)
	NB(T)	21711	8.2500E-09	48.0	0.00	Ind/Y(A)	8.2500E-09	0.00	48.0(I)	0.0(E)	48.0(A)
93	KR	919	2.4000E-02	5.0	-0.34	FractInd	2.4165E-02	0.11	4.5(I)	1.5(E)	4.5(A)
		10918	2.5000E-02	10.8	0.34	FractInd					
	RB	10918	2.5600E-01	2.2	0.00	FractInd	2.5600E-01	0.00	2.2(I)	0.0(E)	2.2(A)
	SR	10918	6.4600E-01	1.0	0.00	FractInd	6.4600E-01	0.00	1.0(I)	0.0(E)	1.0(A)
	Y	10918	7.3500E-02	6.1	0.00	FractInd	7.3500E-02	0.00	6.1(I)	0.0(E)	6.1(A)
94	RB	10918	8.8400E-02	5.9	0.00	FractInd	8.8400E-02	0.00	5.9(I)	0.0(E)	5.9(A)
	SR	10918	7.0900E-01	1.0	0.00	FractInd	7.0900E-01	0.00	1.0(I)	0.0(E)	1.0(A)
	Y	10918	1.9000E-01	3.0	0.00	FractInd	1.9000E-01	0.00	3.0(I)	0.0(E)	3.0(A)
	ZR	10918	1.3100E-02	19.1	0.00	FractInd	1.3100E-02	0.00	19.1(I)	0.0(E)	19.1(A)
95	RB	10918	3.5500E-02	10.1	0.00	FractInd	3.5500E-02	0.00	10.1(I)	0.0(E)	10.1(A)
	SR	10918	5.0500E-01	1.2	0.00	FractInd	5.0500E-01	0.00	1.2(I)	0.0(E)	1.2(A)
	Y	10918	4.0900E-01	1.5	0.00	FractInd	4.0900E-01	0.00	1.5(I)	0.0(E)	1.5(A)
	ZR	407	3.4000E-02	18.0	-2.29	FractInd	4.5660E-02	5.26	7.5(I)	17.1(E)	17.1(A)
		10918	5.0900E-02	8.1	2.29	FractInd					
	NB(M)	390	3.0000E-04	15.0	0.00	FractInd	3.0000E-04	0.00	15.0(I)	0.0(E)	15.0(A)
96	RB	10918	7.0000E-03	24.3	0.00	FractInd	7.0000E-03	0.00	24.3(I)	0.0(E)	24.3(A)
	SR	10918	3.1400E-01	1.9	0.00	FractInd	3.1400E-01	0.00	1.9(I)	0.0(E)	1.9(A)
	Y	10918	4.9200E-01	1.3	0.00	FractInd	4.9200E-01	0.00	1.3(I)	0.0(E)	1.3(A)
	ZR	10918	1.8700E-01	3.0	0.00	FractInd	1.8700E-01	0.00	3.0(I)	0.0(E)	3.0(A)
	NB	390	1.3000E-03	7.0w	2.50	FractInd	9.7664E-04	3.33	4.9(I)	8.9(E)	8.9(A)
		21218	9.2300E-04	5.8	-2.30	Ind/Y(A)					
		562	1.0400E-03	17.0	0.37	Ind/Y(A)					
97	SR	10918	1.1500E-01	4.9	-0.15	FractInd	1.1537E-01	0.02	4.4(I)	0.7(E)	4.4(A)
		22016	1.1700E-01	10.0	0.15	FractInd					
	Y	10918	4.6500E-01	1.5	-0.07	FractInd	4.6510E-01	0.00	1.5(I)	0.1(E)	1.5(A)
		22016	4.6700E-01	6.4	0.07	FractInd					
	ZR	10918	3.9900E-01	1.7	0.00	FractInd	3.9900E-01	0.00	1.7(I)	0.0(E)	1.7(A)
	NB	390	1.1000E-02	40.0	-1.67	FractInd	1.6613E-02	2.78	17.1(I)	28.5(E)	28.5(A)
		10918	2.0600E-02	18.0	1.67	FractInd					
98	SR	10918	4.5900E-02	8.5	0.00	FractInd	4.5900E-02	0.00	8.5(I)	0.0(E)	8.5(A)
	Y	10918	2.5100E-01	5.0	0.00	FractInd	2.5100E-01	0.00	5.0(I)	0.0(E)	5.0(A)

TABLE 2 ENERGY:THERMAL NUCLIDE:U -233

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	ZR	10918	6.5800E-01	5.0	0.00	FractInd	6.5800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	10918	4.4300E-02	10.4	6.97	FractInd	1.7404E-02	48.53	14.4(I)	100.6(E)	100.6(A)
		21218	6.0000E-03	50.0	-6.97	FractInd					
99	SR	10918	1.3400E-02	16.4	0.00	FractInd	1.3400E-02	0.00	16.4(I)	0.0(E)	16.4(A)
	Y	10918	1.3400E-01	5.0	-6.83	FractInd	1.5496E-01	46.69	3.8(I)	26.3(E)	26.3(A)
		22016	2.3400E-01	5.6	6.83	FractInd					
	ZR	10918	7.1100E-01	5.0	-0.70	FractInd	7.2811E-01	0.49	3.5(I)	2.5(E)	3.5(A)
		22016	7.4700E-01	5.0	0.70	FractInd					
	NB	10918	1.4100E-01	5.0	16.39	FractInd	3.1613E-02	268.50	7.2(I)	117.5(E)	117.5(A)
		22016	1.9000E-02	12.6	-16.39	FractInd					
100	Y	10918	3.6600E-02	11.2	0.00	FractInd	3.6600E-02	0.00	11.2(I)	0.0(E)	11.2(A)
	ZR	10918	7.1500E-01	5.0	0.00	FractInd	7.1500E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	10918	1.9800E-01	5.0	0.00	FractInd	1.9800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	10918	4.9800E-02	10.4	0.00	FractInd	4.9800E-02	0.00	10.4(I)	0.0(E)	10.4(A)
101	Y	10918	2.3900E-02	15.1	0.00	FractInd	2.3900E-02	0.00	15.1(I)	0.0(E)	15.1(A)
	ZR	10918	4.4400E-01	5.0	0.00	FractInd	4.4400E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	10918	4.5500E-01	5.0	0.00	FractInd	4.5500E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	10918	7.7200E-02	8.2	0.00	FractInd	7.7200E-02	0.00	8.2(I)	0.0(E)	8.2(A)
102	ZR	10918	2.7000E-01	3.1	0.00	FractInd	2.7000E-01	0.00	3.1(I)	0.0(E)	3.1(A)
	NB	10918	4.1500E-01	2.5	0.00	FractInd	4.1500E-01	0.00	2.5(I)	0.0(E)	2.5(A)
	MO	10918	2.8500E-01	3.6	0.00	FractInd	2.8500E-01	0.00	3.6(I)	0.0(E)	3.6(A)
	TC	10918	2.9800E-02	24.2	0.00	FractInd	2.9800E-02	0.00	24.2(I)	0.0(E)	24.2(A)
103	ZR	10918	1.0100E-01	7.8	0.00	FractInd	1.0100E-01	0.00	7.8(I)	0.0(E)	7.8(A)
	NB	10918	3.6200E-01	3.3	0.00	FractInd	3.6200E-01	0.00	3.3(I)	0.0(E)	3.3(A)
	MO	10918	5.0800E-01	2.5	0.00	FractInd	5.0800E-01	0.00	2.5(I)	0.0(E)	2.5(A)
	TC	10918	3.0400E-02	27.6	0.00	FractInd	3.0400E-02	0.00	27.6(I)	0.0(E)	27.6(A)
104	ZR	10918	7.1100E-02	11.7	0.00	FractInd	7.1100E-02	0.00	11.7(I)	0.0(E)	11.7(A)
	NB	10918	1.7900E-01	7.8	0.00	FractInd	1.7900E-01	0.00	7.8(I)	0.0(E)	7.8(A)
	MO	10918	7.0400E-01	2.3	0.00	FractInd	7.0400E-01	0.00	2.3(I)	0.0(E)	2.3(A)
	TC	10918	4.5900E-02	20.9	0.00	FractInd	4.5900E-02	0.00	20.9(I)	0.0(E)	20.9(A)
105	NB	10918	1.4800E-01	11.6	0.00	FractInd	1.4800E-01	0.00	11.6(I)	0.0(E)	11.6(A)
	MO	10918	7.2300E-01	4.3	0.00	FractInd	7.2300E-01	0.00	4.3(I)	0.0(E)	4.3(A)
	TC	10918	9.9800E-02	27.7	0.00	FractInd	9.9800E-02	0.00	27.7(I)	0.0(E)	27.7(A)
	RU	10918	2.9200E-02	76.4	0.00	FractInd	2.9200E-02	0.00	76.4(I)	0.0(E)	76.4(A)
112	AG	336	2.7000E-04	15.0	-0.30	FractInd	2.7505E-04	0.09	13.4(I)	4.1(E)	13.4(A)
		671	3.0000E-04	30.0	0.30	FractInd					
130	SN	22016	5.3320E-01	5.0	0.00	FractInd	5.3320E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SB(T)	22016	7.7640E-01	5.0	0.00	FractInd	7.7640E-01	0.00	5.0(I)	0.0(E)	5.0(A)
131	TE(G)	780	1.3500E-01	15.0	-0.28	FractInd	1.3960E-01	0.08	8.5(I)	2.4(E)	8.5(A)
		930	1.4200E-01	10.3	0.28	Ind/Y(A)					
	TE(M)	780	3.3400E-01	6.0	2.53	FractInd	2.9571E-01	6.39	4.4(I)	11.2(E)	11.2(A)
		930	2.6700E-01	6.5	-2.53	Ind/Y(A)					
	I	780	1.4000E-02	22.0	2.73	FractInd	6.1179E-03	7.43	17.3(I)	47.2(E)	47.2(A)
		20848	5.0600E-03	22.3	-2.73	Ind/Y(A)					
132	SN	22016	1.3000E-02	15.4	-2.23	FractInd	1.4658E-02	4.96	12.7(I)	28.3(E)	28.3(A)
		682	2.5000E-02	20.0	2.23	FractInd					
	SB(G)	22016	2.0000E-01	7.0	-1.31	FractInd	2.1021E-01	3.28	5.5(I)	10.0(E)	10.0(A)
		682	2.7100E-01	10.0	2.48	FractInd					
		930	1.7800E-01	18.2	-1.06	Ind/Y(A)					

TABLE 2 ENERGY:THERMAL NUCLIDE:U -233

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	SB(M)	930	6.3600E-02	20.2	0.00	Ind/Y(A)	6.3600E-02	0.00	20.2(I)	0.0(E)	20.2(A)
	TE	682	6.4400E-01	7.0	-2.41	FractInd	7.2564E-01	5.78	4.1(I)	9.8(E)	9.8(A)
		22016	7.8800E-01	5.0	2.41	FractInd					
	I (G)	408	6.0000E-02	50.0	1.23	FractInd	2.3294E-02	1.50	9.3(I)	11.4(E)	11.4(A)
		20848	2.3100E-02	9.4	-1.23	Ind/Y(A)					
	I (M)	2064r	1.1600E-02	30.8	-1.45	Ind/Y(A)	1.6385E-02	2.10	8.3(I)	12.0(E)	12.0(A)
		20848	1.7200E-02	8.6	1.45	Ind/Y(A)					
	I (T)	20848	3.9900E-02	6.8	0.00	Ind/Y(A)	3.9900E-02	0.00	6.8(I)	0.0(E)	6.8(A)
133	SB	22016	1.7900E-01	6.7	0.00	FractInd	1.7900E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	TE(G)	780	2.1000E-01	10.0	-1.56	FractInd	2.3014E-01	2.42	7.2(I)	11.2(E)	11.2(A)
		930	2.6300E-01	10.2	1.56	Ind/Y(A)					
	TE(M)	780	5.5000E-01	5.0	5.16	FractInd	4.5164E-01	26.66	4.4(I)	22.7(E)	22.7(A)
		930	3.4500E-01	8.3	-5.16	Ind/Y(A)					
	TE(T)	22016	8.2100E-01	5.6	0.00	FractInd	8.2100E-01	0.00	5.6(I)	0.0(E)	5.6(A)
	I (G)	566	1.3700E-01	10.0	-0.29	FractInd	1.4057E-01	3.83	4.5(I)	8.8(E)	8.8(A)
		780	1.5500E-01	7.0	1.64	FractInd					
		408	2.1000E-01	13.0w	2.50	FractInd					
		20848	1.2100E-01	7.3w	-2.46	Ind/Y(A)					
	XE(G)	864	1.6000E-03	50.0	-1.33	FractInd	2.6429E-03	1.78	6.3(I)	8.4(E)	8.4(A)
		12895	2.6900E-03	6.3	1.33	FractInd					
	XE(M)	12895	6.4800E-03	10.6	0.00	FractInd	6.4800E-03	0.00	10.6(I)	0.0(E)	10.6(A)
	XE(T)	12895	9.2000E-03	7.9	0.00	FractInd	9.2000E-03	0.00	7.9(I)	0.0(E)	7.9(A)
134	TE	22016	3.9800E-01	5.0	0.00	FractInd	3.9800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	I (G)	20848	1.6400E-01	6.5	0.00	Ind/Y(A)	1.6400E-01	0.00	6.5(I)	0.0(E)	6.5(A)
	I (M)	20848	1.2400E-01	5.9	-0.71	Ind/Y(A)	1.2604E-01	0.50	5.3(I)	3.8(E)	5.3(A)
		2064r	1.3700E-01	12.3	0.71	Ind/Y(A)					
	I (T)	22016	2.3180E-01	9.2w	-2.50	FractInd	2.7563E-01	5.26	4.6(I)	10.5(E)	10.5(A)
		566	3.9820E-01	6.0w	2.50	FractInd					
		20848	2.8800E-01	5.7	1.19	Ind/Y(A)					
	XE(G)	408	3.7000E-01	16.0	0.00	FractInd	3.7000E-01	0.00	16.0(I)	0.0(E)	16.0(A)
135	I	566	6.0600E-01	15.0	0.00	FractInd	6.0600E-01	0.00	15.0(I)	0.0(E)	15.0(A)
	XE	604	2.7900E-01	5.0	0.00	FractInd	2.7900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	XE(G)	807	1.7000E-01	12.0	2.46	FractInd	1.2341E-01	4.70	6.2(I)	13.4(E)	13.4(A)
		265	1.8200E-01	10.0w	2.31	FractInd					
		12895	9.9400E-02	9.3w	-2.50	FractInd					
		20848	1.1800E-01	10.4	-0.56	Ind/Y(A)					
	XE(M)	12895	1.2800E-01	13.3	-2.79	FractInd	1.6494E-01	7.77	6.5(I)	18.1(E)	18.1(A)
		20848	1.8900E-01	7.3	2.79	Ind/Y(A)					
	XE(T)	777	1.7000E-01	12.0	-0.24	FractInd	1.7340E-01	4.74	8.5(I)	18.5(E)	18.5(A)
		12895	2.3200E-01	12.0	2.48	FractInd					
		864	9.9000E-02	14.0w	-2.50	FractInd					
136	TE	22016	4.4050E-02	5.7	0.00	FractInd	4.4050E-02	0.00	5.7(I)	0.0(E)	5.7(A)
	I	22016	5.0200E-01	5.0	0.00	FractInd	5.0200E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	CS	42	1.4600E-02	22.1	0.41	Ind/Y(A)	1.3351E-02	0.73	7.2(I)	6.2(E)	7.2(A)
		885	1.4900E-02	13.7	0.86	Ind/Y(A)					
		215	1.5300E-02	17.6	0.77	Ind/Y(A)					
		305	1.2100E-02	10.6	-1.47	Ind/Y(A)					
137	TE	22016	1.3000E-02	50.0	0.00	FractInd	1.3000E-02	0.00	50.0(I)	0.0(E)	50.0(A)
	I	22016	1.5500E-01	23.9	-1.79	FractInd	2.1581E-01	3.19	6.8(I)	12.1(E)	12.1(A)
		919	2.2700E-01	7.0	1.79	FractInd					
	XE	919	6.5300E-01	5.0	-3.35	FractInd	7.1973E-01	11.21	3.6(I)	12.0(E)	12.0(A)
		22016	8.3200E-01	5.1	3.35	FractInd					
138	I	919	1.1600E-01	20.0	0.00	FractInd	1.1600E-01	0.00	20.0(I)	0.0(E)	20.0(A)
	CS(G)	20848	5.8100E-02	9.5	0.00	Ind/Y(A)	5.8100E-02	0.00	9.5(I)	0.0(E)	9.5(A)
	CS(M)	20848	1.4200E-01	8.7	0.00	Ind/Y(A)	1.4200E-01	0.00	8.7(I)	0.0(E)	8.7(A)

TABLE 2 ENERGY:THERMAL NUCLIDE:U -233

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
139	I	919	3.2800E-02	60.0	-1.83	FractInd	6.2882E-02	3.36	17.2(I)	31.6(E)	31.6(A)
		22016	7.6000E-02	17.1	1.83	FractInd					
	XE	22016	4.1900E-01	5.0	-0.85	FractInd	4.2996E-01	0.72	3.8(I)	3.3(E)	3.8(A)
		919	4.4800E-01	6.0	0.85	FractInd					
	CS	22016	4.0400E-01	5.9	0.00	FractInd	4.0400E-01	0.00	5.9(I)	0.0(E)	5.9(A)
	BA	22016	1.0100E-01	21.8	0.73	FractInd	8.5793E-02	0.53	8.3(I)	6.1(E)	8.3(A)
		608	8.4000E-02	9.0	-0.73	FractInd					
140	XE	919	2.2600E-01	3.0	0.00	FractInd	2.2600E-01	0.00	3.0(I)	0.0(E)	3.0(A)
	BA	608	2.7000E-01	16.0	0.00	FractInd	2.7000E-01	0.00	16.0(I)	0.0(E)	16.0(A)
	LA	211	3.8000E-03	3.0	0.00	FractInd	3.8000E-03	0.00	3.0(I)	0.0(E)	3.0(A)
141	XE	919	5.6000E-02	8.0	0.00	FractInd	5.6000E-02	0.00	8.0(I)	0.0(E)	8.0(A)
	CS	22016	5.3720E-01	6.5	0.00	FractInd	5.3720E-01	0.00	6.5(I)	0.0(E)	6.5(A)
	BA	22016	3.8110E-01	14.0	0.00	FractInd	3.8110E-01	0.00	14.0(I)	0.0(E)	14.0(A)
	LA	10995	2.5700E-02	21.8	0.00	FractInd	2.5700E-02	0.00	21.8(I)	0.0(E)	21.8(A)
142	XE	919	1.3300E-02	7.0	0.00	FractInd	1.3300E-02	0.00	7.0(I)	0.0(E)	7.0(A)
	LA	10995	6.8200E-02	14.5	0.00	FractInd	6.8200E-02	0.00	14.5(I)	0.0(E)	14.5(A)
144	BA	22016	6.5720E-01	5.0	0.00	FractInd	6.5720E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	LA	22016	2.6200E-01	10.2	0.00	FractInd	2.6200E-01	0.00	10.2(I)	0.0(E)	10.2(A)
146	PM	21532	4.3700E-09	100.0	0.45	Ind/Y(A)	2.6164E-09	0.20	74.6(I)	33.4(E)	74.6(A)
		1070	2.1800E-09	100.0	-0.45	Ind/Y(A)					
148	PM(G)	722	1.8000E-07	28.0	-1.26	FractInd	2.1708E-07	3.89	18.8(I)	37.2(E)	37.2(A)
		21706	1.8600E-05	25.1w	2.50	Ind/Y(A)					
		21532	2.8700E-07	24.4	1.23	Ind/Y(A)					
	PM(M)	722	7.5000E-07	3.0	-1.21	FractInd	7.5591E-07	3.85	2.9(I)	5.7(E)	5.7(A)
		21532	8.7500E-07	11.6	1.20	Ind/Y(A)					
		21706	5.2700E-05	13.3w	2.50	Ind/Y(A)					
	PM(T)	21532	1.1600E-06	10.8	0.00	Ind/Y(A)	1.1600E-06	0.00	10.8(I)	0.0(E)	10.8(A)
150	PM	21552	5.3200E-04	7.8	-0.72	Ind/Y(A)	5.5181E-04	0.51	5.6(I)	4.0(E)	5.6(A)
		872	5.7700E-04	8.1	0.72	Ind/Y(A)					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
73	NI	22151	2.5900E-02	47.0	0.00	Ind/Y(A)	2.5900E-02	0.00	47.0(I)	0.0(E)	47.0(A)
	CU	22151	9.2800E-01	20.1	0.00	Ind/Y(A)	9.2800E-01	0.00	20.1(I)	0.0(E)	20.1(A)
	ZN	22151	3.3700E-01	19.8	0.00	Ind/Y(A)	3.3700E-01	0.00	19.8(I)	0.0(E)	19.8(A)
74	NI	22151	5.5800E-03	25.6	0.00	Ind/Y(A)	5.5800E-03	0.00	25.6(I)	0.0(E)	25.6(A)
	CU	22151	1.6700E-01	16.2	0.00	Ind/Y(A)	1.6700E-01	0.00	16.2(I)	0.0(E)	16.2(A)
	ZN	22151	1.8600E+00	15.7	0.00	Ind/Y(A)	1.8600E+00	0.00	15.7(I)	0.0(E)	15.7(A)
	GA	22151	4.0300E-02	36.7	0.00	Ind/Y(A)	4.0300E-02	0.00	36.7(I)	0.0(E)	36.7(A)
75	CU	22151	1.5000E-01	10.8	0.00	Ind/Y(A)	1.5000E-01	0.00	10.8(I)	0.0(E)	10.8(A)
	ZN	22151	1.4900E+00	10.4	0.00	Ind/Y(A)	1.4900E+00	0.00	10.4(I)	0.0(E)	10.4(A)
	GA	22151	1.5100E-01	9.8	0.00	Ind/Y(A)	1.5100E-01	0.00	9.8(I)	0.0(E)	9.8(A)
76	CU	22151	1.1100E-02	15.8	0.00	Ind/Y(A)	1.1100E-02	0.00	15.8(I)	0.0(E)	15.8(A)
	ZN	22151	1.0000E+00	14.7	0.00	Ind/Y(A)	1.0000E+00	0.00	14.7(I)	0.0(E)	14.7(A)
	GA	22151	1.4300E-01	14.9	0.00	Ind/Y(A)	1.4300E-01	0.00	14.9(I)	0.0(E)	14.9(A)
77	CU	22151	3.5700E-03	9.0	0.00	Ind/Y(A)	3.5700E-03	0.00	9.0(I)	0.0(E)	9.0(A)
	ZN	22151	3.2200E-01	8.8	0.00	Ind/Y(A)	3.2200E-01	0.00	8.8(I)	0.0(E)	8.8(A)
	GA	22003	1.3100E-01	100.0	-2.79	Ind/Y(A)	4.7646E-01	7.79	9.0(I)	25.1(E)	25.1(A)
		22151	5.1800E-01	8.8	2.79	Ind/Y(A)					
	GE	22151	1.0100E-01	8.8	0.00	Ind/Y(A)	1.0100E-01	0.00	8.8(I)	0.0(E)	8.8(A)
78	ZN	22151	1.5000E-01	7.8	0.00	Ind/Y(A)	1.5000E-01	0.00	7.8(I)	0.0(E)	7.8(A)
	GA	22003	2.3600E-01	32.3	-2.59	Ind/Y(A)	4.1932E-01	6.69	6.7(I)	17.3(E)	17.3(A)
		22151	4.4800E-01	6.7	2.59	Ind/Y(A)					
	GE	22151	2.9100E-01	6.7	0.00	Ind/Y(A)	2.9100E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	AS	239	9.0000E-03	33.0w	-2.50	FractInd	3.7417E-02	4.44	12.6(I)	26.6(E)	26.6(A)
		303	9.0600E-02	33.3	1.78	Ind/Y(A)					
		22151	4.0900E-02	12.7	1.62	Ind/Y(A)					
79	ZN	21605	3.7000E-02	40.5	1.56	FractInd	1.3767E-02	2.42	9.2(I)	14.3(E)	14.3(A)
		22151	1.3600E-02	9.3	-1.56	Ind/Y(A)					
	GA	21605	3.7800E-01	10.6	-0.59	FractInd	3.9562E-01	0.19	6.7(I)	2.9(E)	6.7(A)
		22003	3.9500E-01	24.3	-0.01	Ind/Y(A)					
		22151	4.1200E-01	9.3	0.59	Ind/Y(A)					
	GE(G)	22003	4.2400E-02	200.0	0.00	Ind/Y(A)	4.2400E-02	0.00	200.0(I)	0.0(E)	200.0(A)
	GE(M)	22003	3.8200E-01	17.8	0.00	Ind/Y(A)	3.8200E-01	0.00	17.8(I)	0.0(E)	17.8(A)
	GE(T)	21605	5.2500E-01	9.5	-0.06	FractInd	5.2702E-01	0.00	6.7(I)	0.4(E)	6.7(A)
		22151	5.2900E-01	9.3	0.06	Ind/Y(A)					
	AS	21605	6.0000E-02	33.3	0.25	FractInd	5.5216E-02	0.06	9.0(I)	2.2(E)	9.0(A)
		22151	5.4900E-02	9.3	-0.25	Ind/Y(A)					
80	ZN	22151	2.7700E-03	6.7	0.00	Ind/Y(A)	2.7700E-03	0.00	6.7(I)	0.0(E)	6.7(A)
	GA	21605	9.7000E-02	25.8	0.40	FractInd	8.7312E-02	0.12	6.2(I)	2.1(E)	6.2(A)
		21689	7.9100E-02	40.3	-0.26	Ind/Y(A)					
		22151	8.6500E-02	6.7	-0.37	Ind/Y(A)					
		22003	9.4100E-02	21.5	0.35	Ind/Y(A)					
	GE	21605	8.3200E-01	5.0	0.28	FractInd	8.2337E-01	0.44	3.4(I)	2.3(E)	3.4(A)
		22003	8.1400E-01	7.5	-0.17	Ind/Y(A)					
		22151	8.4700E-01	6.7	0.48	Ind/Y(A)					
		21689	7.1100E-01	15.1	-1.09	Ind/Y(A)					
	AS	21605	7.1000E-02	28.2	-0.94	FractInd	8.9014E-02	0.84	6.4(I)	5.9(E)	6.4(A)
		22151	8.9600E-02	6.7	0.29	Ind/Y(A)					
		21689	1.1900E-01	27.1	0.94	Ind/Y(A)					
	BR	415	4.7400E-06	17.6	0.00	Ind/Y(A)	4.7400E-06	0.00	17.6(I)	0.0(E)	17.6(A)
81	GA	21605	4.9000E-02	30.6	1.32	FractInd	2.9372E-02	0.90	6.6(I)	6.3(E)	6.6(A)
		21689	2.5300E-02	60.2	-0.27	Ind/Y(A)					
		22151	2.9100E-02	6.8	-0.76	Ind/Y(A)					
	GE(G)	22003	6.9400E-01	16.6	0.00	Ind/Y(A)	6.9400E-01	0.00	16.6(I)	0.0(E)	16.6(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	GE(M)	22003	3.0400E-01	22.5	0.00	Ind/Y(A)	3.0400E-01	0.00	22.5(I)	0.0(E)	22.5(A)
	GE(T)	21605	6.4400E-01	5.0	-0.37	FractInd	6.5150E-01	0.36	3.8(I)	2.3(E)	3.8(A)
		21689	6.1300E-01	12.5	-0.53	Ind/Y(A)					
		22151	6.8100E-01	6.8	0.76	Ind/Y(A)					
	AS	21605	2.6600E-01	9.4	-1.23	FractInd	2.9165E-01	0.99	4.7(I)	4.7(E)	4.7(A)
		22003	2.8400E-01	13.8	-0.21	Ind/Y(A)					
		22151	2.9800E-01	6.8	0.43	Ind/Y(A)					
		21689	3.5000E-01	12.5	1.41	Ind/Y(A)					
	SE(M)	21605	4.1000E-02	36.6	0.03	FractInd	4.0660E-02	0.00	20.9(I)	0.6(E)	20.9(A)
		21689	4.0500E-02	25.4	-0.03	Ind/Y(A)					
	SE(T)	22151	5.1100E-02	10.0	0.00	Ind/Y(A)	5.1100E-02	0.00	10.0(I)	0.0(E)	10.0(A)
82	GA	21605	2.1000E-02	47.6	1.39	FractInd	7.0996E-03	1.83	6.1(I)	8.3(E)	8.3(A)
		10722	3.5000E-02	42.9	1.86	FractInd					
		21689	6.0800E-03	50.1	-0.34	Ind/Y(A)					
		22151	7.0700E-03	6.2	-0.44	Ind/Y(A)					
	GE	21605	3.9500E-01	7.6	0.45	FractInd	3.8245E-01	0.77	2.9(I)	2.5(E)	2.9(A)
		10722	4.0600E-01	5.9	1.11	FractInd					
		22151	3.6800E-01	4.0	-1.50	Ind/Y(A)					
		21689	3.8600E-01	10.9	0.09	Ind/Y(A)					
		22003	4.7800E-01	20.3	0.99	Ind/Y(A)					
	AS(G)	22151	4.7100E-01	6.2	-0.49	Ind/Y(A)	4.7295E-01	0.24	6.1(I)	3.0(E)	6.1(A)
		22003	5.7800E-01	37.2	0.49	Ind/Y(A)					
	AS(M)	22003	1.2200E-01	30.2	0.00	Ind/Y(A)	1.2200E-01	0.00	30.2(I)	0.0(E)	30.2(A)
	AS(T)	10722	4.4100E-01	5.4	-1.13	FractInd	4.6028E-01	0.70	3.7(I)	3.1(E)	3.7(A)
		21605	4.7200E-01	6.4	0.47	FractInd					
		21689	4.9000E-01	7.8	0.87	Ind/Y(A)					
	SE	10722	1.1800E-01	12.7	-0.17	FractInd	1.2038E-01	1.26	5.1(I)	5.7(E)	5.7(A)
		21605	9.5000E-02	15.8	-1.85	FractInd					
		22151	1.2700E-01	6.2	1.33	Ind/Y(A)					
		21689	1.3100E-01	19.0	0.44	Ind/Y(A)					
	BR	13363r	4.8300E-06	21.3	0.00	Ind/Y(A)	4.8300E-06	0.00	21.3(I)	0.0(E)	21.3(A)
	BR(G)	341	1.0600E-04	15.4	-1.48	Ind/Y(A)	1.2309E-04	2.18	9.4(I)	13.8(E)	13.8(A)
		415	1.4000E-04	11.6	1.48	Ind/Y(A)					
	BR(T)	21605	1.7000E-02	58.8	0.00	FractInd	1.7000E-02	0.00	58.8(I)	0.0(E)	58.8(A)
83	GE	10722	8.6000E-02	9.3	0.52	FractInd	8.2127E-02	1.65	3.7(I)	4.7(E)	4.7(A)
		21605	9.7000E-02	10.3	1.56	FractInd					
		22151	7.5100E-02	5.7	-2.32	Ind/Y(A)					
		22003	8.6200E-02	7.5	0.71	Ind/Y(A)					
		21689	9.5200E-02	13.5	1.05	Ind/Y(A)					
	AS	10722	5.5500E-01	5.0	-0.01	FractInd	5.5528E-01	1.57	2.8(I)	3.5(E)	3.5(A)
		21605	5.6000E-01	5.0	0.20	FractInd					
		22151	5.6100E-01	5.7	0.21	Ind/Y(A)					
		21689	5.6400E-01	8.1	0.20	Ind/Y(A)					
		22003	1.5500E-01	32.1w	-2.50	Ind/Y(A)					
	SE(G)	22003	8.2600E-01	24.2	0.00	Ind/Y(A)	8.2600E-01	0.00	24.2(I)	0.0(E)	24.2(A)
	SE(M)	13401	3.7700E-01	15.2	3.16	Ind/Y(A)	2.5675E-01	10.00	16.7(I)	52.8(E)	52.8(A)
		22003	1.0400E-01	62.1	-3.16	Ind/Y(A)					
	SE(T)	21605	3.1200E-01	6.4	-1.32	FractInd	3.3465E-01	2.66	3.1(I)	5.0(E)	5.0(A)
		10722	3.2300E-01	5.0	-0.94	FractInd					
		22151	3.5400E-01	5.7	1.12	Ind/Y(A)					
		21689	4.3300E-01	9.9	2.36	Ind/Y(A)					
	BR	21605	3.1000E-02	32.3	-0.71	FractInd	3.7977E-02	1.75	5.3(I)	7.0(E)	7.0(A)
		10722	3.6000E-02	19.4	-0.30	FractInd					
		13401	3.4100E-01	15.2w	2.50	Ind/Y(A)					
		22151	3.8300E-02	5.7	0.40	Ind/Y(A)					
		21689	4.4900E-02	40.1	0.39	Ind/Y(A)					
84	GE	21605	2.3000E-02	30.4	0.93	FractInd	1.6528E-02	3.05	5.1(I)	9.0(E)	9.0(A)
		10722	2.4000E-02	20.8	1.52	FractInd					
		22151	1.6600E-02	5.3	0.29	Ind/Y(A)					
		21689	5.0000E-03	60.0w	-2.50	Ind/Y(A)					
	AS	10722	2.1700E-01	5.0	0.47	FractInd	2.1278E-01	1.52	2.9(I)	3.6(E)	3.6(A)
		21605	2.3500E-01	6.0	1.77	FractInd					
		22151	1.9900E-01	5.3	-1.61	Ind/Y(A)					
		21689	2.0500E-01	8.5	-0.48	Ind/Y(A)					
	SE	21605	6.9200E-01	5.0	-0.19	FractInd	6.9780E-01	0.17	2.3(I)	1.0(E)	2.3(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
		10722	7.0900E-01	5.0	0.35	FractInd					
		22151	6.7500E-01	5.3	-0.71	Ind/Y(A)					
		21689	7.0400E-01	5.3	0.18	Ind/Y(A)					
		22003	7.1100E-01	5.3	0.39	Ind/Y(A)					
	BR(G)	2086	4.0000E-02	12.1	-3.34	Ind/Y(A)	5.3560E-02	11.17	4.9(I)	16.5(E)	16.5(A)
		22151	5.9300E-02	5.3	3.34	Ind/Y(A)					
	BR(M)	2086	1.7000E-02	12.1	0.00	Ind/Y(A)	1.7000E-02	0.00	12.1(I)	0.0(E)	12.1(A)
	BR(T)	10722	5.0000E-02	16.0	-0.49	FractInd	5.2803E-02	0.54	10.7(I)	7.9(E)	10.7(A)
		21605	5.0000E-02	20.0	-0.34	FractInd					
		21689	6.5100E-02	20.1	1.04	Ind/Y(A)					
	RB	485	2.4000E-09	10.0	0.00	FractInd	2.4000E-09	0.00	7.1(I)	0.0(E)	7.1(A)
		886	2.4000E-09	10.2	0.00	Ind/Y(A)					
85	GE	21605	1.2000E-02	41.7	0.00	FractInd	1.2000E-02	0.00	41.7(I)	0.0(E)	41.7(A)
	AS	21605	1.1400E-01	7.0w	2.50	FractInd	9.3760E-02	3.13	4.3(I)	7.6(E)	7.6(A)
		10722	8.9000E-02	5.6	-1.62	FractInd					
		21689	8.7400E-02	12.1	-0.65	Ind/Y(A)					
	SE	21605	6.7600E-01	5.0	-1.35	FractInd	7.1247E-01	0.80	2.8(I)	2.5(E)	2.8(A)
		10722	7.2500E-01	5.0	0.42	FractInd					
		12740	7.5400E-01	20.0	0.28	Ind/Y(A)					
		21689	7.5400E-01	5.1	1.28	Ind/Y(A)					
		22003	6.2500E-01	17.0	-0.84	Ind/Y(A)					
	BR	10722	1.5900E-01	5.0	-2.36	FractInd	1.7033E-01	4.67	3.7(I)	8.0(E)	8.0(A)
		21605	1.7700E-01	7.3	0.59	FractInd					
		22003	8.8900E-01	16.0w	2.50	Ind/Y(A)					
		21689	2.1200E-01	7.9w	2.50	Ind/Y(A)					
86	AS	10722	1.6000E-02	25.0	0.16	FractInd	1.5601E-02	3.53	19.6(I)	36.9(E)	36.9(A)
		21605	4.8000E-02	20.8w	2.50	FractInd					
		21689	1.0200E-02	50.0	-1.32	Ind/Y(A)					
	SE	10722	5.8000E-01	5.0	0.19	FractInd	5.7542E-01	3.35	2.9(I)	5.3(E)	5.3(A)
		21605	6.0400E-01	5.0	1.13	FractInd					
		21689	5.9600E-01	5.1	0.81	Ind/Y(A)					
		12740	3.6700E-01	20.0w	-2.50	Ind/Y(A)					
		22003	3.7700E-01	19.0w	-2.50	Ind/Y(A)					
	BR	21605	2.9300E-01	5.1	-2.28	FractInd	3.2052E-01	1.72	2.8(I)	3.6(E)	3.6(A)
		10722	3.4600E-01	5.0	1.72	FractInd					
		2008r	2.3100E-01	47.2	-0.82	Ind/Y(A)					
		21689	3.1200E-01	7.6	-0.39	Ind/Y(A)					
		21743	3.3100E-01	6.2	0.56	Ind/Y(A)					
		22003	3.7700E-01	10.6	1.45	Ind/Y(A)					
	KR	21605	5.5000E-02	18.2	-0.27	FractInd	5.7492E-02	2.39	6.9(I)	10.6(E)	10.6(A)
		10722	5.8000E-02	8.6	0.17	FractInd					
		21689	6.6700E-02	13.7	1.12	Ind/Y(A)					
		13364r	9.5100E-05	5.3w	-2.50	Ind/Y(A)					
	RB(G)	886	1.0700E-05	10.0	-1.80	Ind/Y(A)	1.2361E-05	2.54	4.4(I)	7.0(E)	7.0(A)
		559	1.2700E-05	5.1	0.95	Ind/Y(A)					
		341	1.6100E-05	15.0	1.59	Ind/Y(A)					
87	AS	21605	2.0000E-02	50.0	0.00	FractInd	2.0000E-02	0.00	50.0(I)	0.0(E)	50.0(A)
	SE	10722	2.3500E-01	5.0	-1.98	FractInd	2.5413E-01	2.46	2.6(I)	4.1(E)	4.1(A)
		21605	2.7800E-01	5.0	1.96	FractInd					
		21689	2.4000E-01	6.3	-1.03	Ind/Y(A)					
		12740	2.6400E-01	5.1	0.84	Ind/Y(A)					
		22003	3.8300E-01	20.0	1.69	Ind/Y(A)					
	BR	1118	4.4800E-01	14.0	-1.08	FractInd	5.1481E-01	1.60	2.1(I)	2.7(E)	2.7(A)
		920	4.6800E-01	5.0	-2.26	FractInd					
		21605	5.1400E-01	5.0	-0.03	FractInd					
		10722	5.6400E-01	5.0	1.89	FractInd					
		21689	5.0100E-01	5.1	-0.60	Ind/Y(A)					
		811	5.2100E-01	7.1	0.18	Ind/Y(A)					
		22003	5.6000E-01	5.1	1.70	Ind/Y(A)					
		2008r	5.7800E-01	23.8	0.46	Ind/Y(A)					
	KR	21605	1.7200E-01	5.8	-0.90	FractInd	1.7957E-01	2.60	3.0(I)	4.9(E)	4.9(A)
		10722	1.8500E-01	5.0	0.73	FractInd					
		919	1.9000E-01	8.0	0.73	FractInd					
		694	1.4200E-01	8.1w	-2.50	Ind/Y(A)					
		21689	2.1000E-01	7.8	1.98	Ind/Y(A)					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	RB	10722	1.6000E-02	31.2	-0.10	FractInd	1.6333E-02	0.01	22.3(I)	2.0(E)	22.3(A)
		21605	1.6000E-02	62.5	-0.04	FractInd					
		21689	1.7000E-02	37.2	0.13	Ind/Y(A)					
88	AS	21605	1.0000E-02	50.0	0.00	FractInd	1.0000E-02	0.00	50.0(I)	0.0(E)	50.0(A)
	SE	21605	1.0100E-01	9.9w	2.50	FractInd	6.8344E-02	2.82	4.4(I)	7.3(E)	7.3(A)
		10722	6.4000E-02	6.2	-1.63	FractInd					
		2031	6.6000E-02	9.0	-0.46	FractInd					
		22003	7.1600E-02	16.1	0.29	Ind/Y(A)					
		21689	7.7000E-02	15.3	0.76	Ind/Y(A)					
		12740	1.5800E-01	5.3w	2.50	Ind/Y(A)					
	BR	920	3.4200E-01	8.0	-1.56	FractInd	3.8236E-01	1.55	2.3(I)	2.9(E)	2.9(A)
		2031	3.6600E-01	5.0	-1.02	FractInd					
		21605	3.9900E-01	5.0	0.93	FractInd					
		1118	4.1400E-01	18.0	0.43	FractInd					
		10722	4.2200E-01	5.0	2.07	FractInd					
		22003	3.1800E-01	11.8	-1.77	Ind/Y(A)					
		21689	3.8400E-01	5.3	0.09	Ind/Y(A)					
		2026	4.4700E-01	20.0	0.73	Ind/Y(A)					
	KR	21605	4.6600E-01	5.0	-1.33	FractInd	4.9348E-01	2.37	2.2(I)	3.4(E)	3.4(A)
		10722	4.9400E-01	5.0	0.02	FractInd					
		919	5.3000E-01	6.0	1.22	FractInd					
		2031	5.4200E-01	5.0	1.95	FractInd					
		694	3.7800E-01	8.2w	-2.50	Ind/Y(A)					
		21689	4.9300E-01	4.2	-0.03	Ind/Y(A)					
	RB	10722	1.9000E-02	21.1	-1.20	FractInd	2.2737E-02	2.23	11.1(I)	16.6(E)	16.6(A)
		21605	2.4000E-02	33.3	0.17	FractInd					
		2031	2.6000E-02	19.2	0.76	FractInd					
		21689	3.8100E-02	30.1	1.37	Ind/Y(A)					
		22003	4.5800E-02	13.1w	2.50	Ind/Y(A)					
		21641	6.6700E-03	50.0w	-2.21	Ind/Y(A)					
		2008r	1.7600E-02	100.0	-0.29	Ind/Y(A)					
	Y	2078r	4.2800E-09	100.0	0.00	Ind/Y(A)	4.2800E-09	0.00	100.0(I)	0.0(E)	100.0(A)
89	SE	2031	1.0000E-02	30.0	0.63	FractInd	8.4171E-03	1.57	19.5(I)	24.4(E)	24.4(A)
		21605	2.2000E-02	36.4	1.73	FractInd					
		10722	9.0000E-03	33.3	0.23	FractInd					
		21689	5.0400E-03	54.2	-1.55	Ind/Y(A)					
	BR	2031	2.0600E-01	5.0	-1.44	FractInd	2.1860E-01	1.89	2.5(I)	3.4(E)	3.4(A)
		920	2.1700E-01	10.0	-0.08	FractInd					
		10722	2.2000E-01	5.0	0.15	FractInd					
		21605	2.4800E-01	5.7	2.28	FractInd					
		1118	3.1400E-01	20.0	1.52	FractInd					
		2008r	2.2100E-01	26.8	0.04	Ind/Y(A)					
		2026	2.5800E-01	20.3	0.76	Ind/Y(A)					
		811	3.6300E-01	6.1w	2.50	Ind/Y(A)					
		21689	2.0100E-01	6.3	-1.55	Ind/Y(A)					
		22003	2.0800E-01	15.0	-0.35	Ind/Y(A)					
	KR	21605	6.7500E-01	3.0	-1.65	FractInd	7.0040E-01	0.64	1.8(I)	1.5(E)	1.8(A)
		10722	7.1900E-01	5.0	0.55	FractInd					
		919	7.2000E-01	5.0	0.58	FractInd					
		2031	7.2000E-01	5.0	0.58	FractInd					
		694	6.8500E-01	6.1	-0.39	Ind/Y(A)					
		21689	7.3100E-01	5.1	0.87	Ind/Y(A)					
		22003	7.9800E-01	16.0	0.77	Ind/Y(A)					
	RB	485	4.7000E-02	35.0	-0.30	FractInd	5.1822E-02	3.40	5.9(I)	10.8(E)	10.8(A)
		21605	4.8000E-02	18.7	-0.45	FractInd					
		10722	5.2000E-02	13.5	0.03	FractInd					
		2031	6.4000E-02	7.8w	2.50	FractInd					
		22003	2.4600E-01	9.6w	2.41	Ind/Y(A)					
		21641	3.9900E-02	5.1w	-2.44	Ind/Y(A)					
		21689	7.1800E-02	15.8	1.83	Ind/Y(A)					
		2008r	7.7300E-03	8.6w	-2.45	Ind/Y(A)					
	SR	21605	7.0000E-03	85.7	0.83	FractInd	2.1796E-03	0.68	65.5(I)	54.2(E)	65.5(A)
		21689	1.8900E-03	77.8	-0.83	Ind/Y(A)					
90	BR	21605	1.0000E-01	7.0w	2.40	FractInd	6.0584E-02	4.70	5.7(I)	12.3(E)	12.3(A)
		920	1.0700E-01	17.0w	2.50	FractInd					
		1118	1.1600E-01	12.0w	2.35	FractInd					
		10722	4.8000E-02	8.3w	-2.46	FractInd					
		2031	5.6000E-02	8.9	-1.27	FractInd					
		21689	6.4900E-02	17.7	0.39	Ind/Y(A)					
		2026	1.1400E-01	18.3w	2.50	Ind/Y(A)					
	KR	919	7.1500E-01	5.0	-2.04	FractInd	7.8579E-01	1.42	1.1(I)	1.3(E)	1.3(A)
		21605	7.5900E-01	5.0	-0.73	FractInd					
		2031	7.8400E-01	5.0	-0.05	FractInd					
		10722	7.9600E-01	1.3	2.15	FractInd					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
		694	6.4000E-01	13.1	-1.75	Ind/Y(A)					
		22003	7.6200E-01	30.1	-0.10	Ind/Y(A)					
		21689	7.7700E-01	5.3	-0.22	Ind/Y(A)					
	RB(G)	22003	7.4400E-02	17.1	0.00	Ind/Y(A)	7.4400E-02	0.00	17.1(I)	0.0(E)	17.1(A)
	RB(M)	22003	1.0200E-01	12.1	-1.99	Ind/Y(A)	1.2206E-01	3.95	5.8(I)	11.6(E)	11.6(A)
		12945r	1.3200E-01	6.6	1.99	Ind/Y(A)					
	RB(T)	485	1.3000E-01	16.0	-0.81	FractInd	1.4649E-01	2.15	2.6(I)	3.8(E)	3.8(A)
		21605	1.4100E-01	5.0	-0.92	FractInd					
		10722	1.4300E-01	7.7	-0.34	FractInd					
		2031	1.4700E-01	5.0	0.08	FractInd					
		21689	1.7700E-01	7.7	2.34	Ind/Y(A)					
		2008r	5.3100E-02	10.4w	-2.50	Ind/Y(A)					
		21641	1.5100E-01	5.3	0.63	Ind/Y(A)					
	SR	2031	1.3000E-02	23.0	0.60	FractInd	1.1649E-02	0.49	16.9(I)	11.8(E)	16.9(A)
		10722	1.3000E-02	30.8	0.39	FractInd					
		21689	8.8300E-03	39.2	-0.99	Ind/Y(A)					
	Y	13387	2.2500E-04	100.0	0.00	Ind/Y(A)	2.2500E-04	0.00	100.0(I)	0.0(E)	100.0(A)
91	BR	10722	1.2000E-02	25.0	-2.15	FractInd	1.7312E-02	4.58	9.8(I)	21.0(E)	21.0(A)
		2031	2.0000E-02	15.0	1.09	FractInd					
		1118	3.6000E-02	28.0	1.88	FractInd					
		21605	4.0000E-02	12.5w	2.50	FractInd					
		21556	4.2000E-02	5.0w	2.50	FractInd					
		2026	3.2400E-02	26.3	1.81	Ind/Y(A)					
		21689	9.3800E-03	38.2w	-2.50	Ind/Y(A)					
	KR	919	5.3000E-01	5.0	-0.74	FractInd	5.4836E-01	0.25	1.7(I)	0.8(E)	1.7(A)
		21605	5.3900E-01	5.0	-0.37	FractInd					
		21556	5.4700E-01	5.0	-0.05	FractInd					
		2031	5.4800E-01	5.0	-0.01	FractInd					
		10722	5.6100E-01	5.0	0.48	FractInd					
		22003	5.0300E-01	12.0	-0.76	Ind/Y(A)					
		694	5.5100E-01	5.1	0.10	Ind/Y(A)					
		21689	5.5900E-01	3.1	0.71	Ind/Y(A)					
	RB	21605	3.7600E-01	5.0	-0.43	FractInd	3.8363E-01	0.96	1.7(I)	1.7(E)	1.7(A)
		21556	3.8100E-01	5.0	-0.15	FractInd					
		10722	3.8900E-01	3.9	0.40	FractInd					
		2031	3.9000E-01	5.0	0.35	FractInd					
		485	4.0000E-01	5.0	0.87	FractInd					
		2008r	2.6200E-01	5.4w	-2.50	Ind/Y(A)					
		21641	3.7500E-01	5.1	-0.48	Ind/Y(A)					
		22003	3.8200E-01	5.1	-0.09	Ind/Y(A)					
		21689	3.9400E-01	5.1	0.55	Ind/Y(A)					
	SR	485	3.0000E-02	10.0w	-2.50	FractInd	3.9694E-02	2.19	5.5(I)	8.2(E)	8.2(A)
		10722	3.8000E-02	13.2	-0.38	FractInd					
		2031	4.2000E-02	9.5	0.69	FractInd					
		21605	4.5000E-02	11.1	1.18	FractInd					
		21689	5.2000E-02	15.1	1.63	Ind/Y(A)					
	Y	13387	8.5300E-03	100.0	0.00	Ind/Y(A)	8.5300E-03	0.00	100.0(I)	0.0(E)	100.0(A)
92	BR	21605	1.8000E-02	44.4	1.85	FractInd	3.5224E-03	2.01	43.6(I)	61.8(E)	61.8(A)
		2031	2.0000E-03	100.0	-1.19	FractInd					
		1118	4.5000E-03	56.0	0.49	FractInd					
	KR	10722	2.7600E-01	5.0	0.25	FractInd	2.7290E-01	1.90	2.1(I)	2.9(E)	2.9(A)
		919	2.8500E-01	5.0	0.93	FractInd					
		2031	2.8700E-01	35.8	0.14	FractInd					
		21605	3.1500E-01	5.0w	2.50	FractInd					
		694	2.4700E-01	5.1	-2.32	Ind/Y(A)					
		21689	2.6200E-01	5.1	-0.91	Ind/Y(A)					
		22003	2.7600E-01	5.1	0.24	Ind/Y(A)					
	RB	21605	5.0400E-01	3.6	-1.41	FractInd	5.2607E-01	1.84	1.7(I)	2.3(E)	2.3(A)
		2031	5.3400E-01	5.0	0.32	FractInd					
		485	5.5000E-01	6.0	0.75	FractInd					
		10722	5.6300E-01	1.2w	2.29	FractInd					
		13323	6.2000E-01	25.0	0.61	FractInd					
		2008r	4.5100E-01	5.4w	-2.50	Ind/Y(A)					
		22003	4.6000E-01	11.0	-1.33	Ind/Y(A)					
		21689	5.2200E-01	5.1	-0.16	Ind/Y(A)					
		21641	5.5000E-01	5.1	0.90	Ind/Y(A)					
	SR	21605	1.5200E-01	9.2	-1.72	FractInd	1.7433E-01	2.68	3.0(I)	4.9(E)	4.9(A)
		10722	1.6100E-01	6.8	-1.38	FractInd					
		2031	1.7600E-01	5.0	0.24	FractInd					
		21689	1.9400E-01	5.1	2.35	Ind/Y(A)					
	Y	2107	1.2700E-03	20.0	-0.19	FractInd	1.3064E-03	2.50	12.3(I)	19.5(E)	19.5(A)
		485	1.3000E-03	16.0	-0.05	FractInd					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
		21605	9.0000E-03	66.7	1.28	FractInd					
		21689	1.3000E-02	37.2	2.42	Ind/Y(A)					
	ZR	21605	2.0000E-03	100.0	0.00	FractInd	2.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
	NB(M)	21711	7.6900E-09	49.0	0.00	Ind/Y(A)	7.6900E-09	0.00	49.0(I)	0.0(E)	49.0(A)
	NB(T)	21711	2.0100E-08	50.0	0.00	Ind/Y(A)	2.0100E-08	0.00	50.0(I)	0.0(E)	50.0(A)
93	KR	21605	1.0700E-01	11.2w	2.48	FractInd	7.3220E-02	3.60	3.0(I)	5.6(E)	5.6(A)
		21556	1.3400E-01	5.0w	2.50	FractInd					
		10722	6.4000E-02	6.2w	-2.50	FractInd					
		2031	7.1000E-02	7.0	-0.49	FractInd					
		919	7.2000E-02	6.0	-0.33	FractInd					
		21689	7.1300E-02	10.4	-0.27	Ind/Y(A)					
		694	8.4000E-02	6.1	2.33	Ind/Y(A)					
	RB	21556	4.5900E-01	5.0	-1.29	FractInd	4.8602E-01	0.57	1.9(I)	1.4(E)	1.9(A)
		485	4.8000E-01	7.0	-0.19	FractInd					
		21605	4.8800E-01	5.0	0.09	FractInd					
		2031	4.9400E-01	5.0	0.35	FractInd					
		10722	5.0700E-01	5.0	0.89	FractInd					
		13323	5.9000E-01	14.0	1.27	FractInd					
		22003	4.6800E-01	9.1	-0.44	Ind/Y(A)					
		21689	4.7400E-01	5.1	-0.54	Ind/Y(A)					
		21641	5.0100E-01	5.1	0.63	Ind/Y(A)					
	SR	21605	3.7900E-01	5.0	-1.18	FractInd	3.9867E-01	0.91	2.2(I)	2.1(E)	2.2(A)
		21556	3.8700E-01	5.0	-0.68	FractInd					
		10722	4.1100E-01	5.0	0.67	FractInd					
		2031	4.1800E-01	5.0	1.02	FractInd					
		22003	3.1400E-01	22.0	-1.24	Ind/Y(A)					
		21689	4.1200E-01	5.1	0.70	Ind/Y(A)					
	Y	2107	1.5900E-02	25.0	-0.43	FractInd	1.7501E-02	1.25	7.7(I)	8.6(E)	8.6(A)
		485	1.6000E-02	13.0	-0.94	FractInd					
		2031	1.7000E-02	17.6	-0.19	FractInd					
		10722	1.8000E-02	16.7	0.19	FractInd					
		21605	2.6000E-02	26.9	1.24	FractInd					
		21689	3.2200E-02	22.7	2.05	Ind/Y(A)					
94	KR	21556	1.3000E-02	15.4	-0.95	FractInd	1.4351E-02	2.77	9.8(I)	16.4(E)	16.4(A)
		10722	1.4000E-02	21.4	-0.13	FractInd					
		21605	3.1000E-02	25.8	2.11	FractInd					
		694	4.0200E-02	8.1w	2.50	Ind/Y(A)					
		21689	1.3300E-02	22.1	-0.41	Ind/Y(A)					
	RB	21556	2.2300E-01	5.0	-1.98	FractInd	2.4323E-01	2.66	1.8(I)	3.0(E)	3.0(A)
		485	2.3000E-01	5.0	-1.25	FractInd					
		10722	2.3800E-01	5.0	-0.47	FractInd					
		21605	2.4800E-01	5.0	0.41	FractInd					
		22003	1.9200E-01	9.1w	-2.50	Ind/Y(A)					
		21641	2.6000E-01	5.1	1.34	Ind/Y(A)					
		21689	2.6000E-01	5.5	1.24	Ind/Y(A)					
		2008r	2.6600E-01	2.8w	2.40	Ind/Y(A)					
	SR	21605	6.5200E-01	5.0	-1.25	FractInd	6.8671E-01	0.44	2.5(I)	1.6(E)	2.5(A)
		10722	6.8900E-01	5.0	0.08	FractInd					
		21556	7.0300E-01	5.0	0.53	FractInd					
		21689	7.0500E-01	5.1	0.58	Ind/Y(A)					
		22003	7.2700E-01	15.0	0.37	Ind/Y(A)					
	Y	10722	5.9000E-02	8.5	-0.44	FractInd	6.0443E-02	0.31	6.2(I)	3.5(E)	6.2(A)
		485	6.0000E-02	55.0	-0.01	FractInd					
		21605	6.3000E-02	12.7	0.36	FractInd					
		2107	8.0000E-02	25.0	1.00	FractInd					
		21689	5.7700E-02	16.4	-0.32	Ind/Y(A)					
	ZR	21605	6.0000E-03	83.3	1.07	FractInd	6.9905E-04	1.14	87.7(I)	93.8(E)	93.8(A)
		21689	6.1800E-04	100.0	-1.07	Ind/Y(A)					
95	KR	21605	9.0000E-03	55.6	0.00	FractInd	9.0000E-03	0.00	55.6(I)	0.0(E)	55.6(A)
	RB	21556	1.3400E-01	5.0	2.10	FractInd	1.2137E-01	4.11	2.4(I)	4.9(E)	4.9(A)
		21605	1.3700E-01	10.9	1.07	FractInd					
		10722	9.6000E-02	5.0w	-2.50	FractInd					
		485	9.8000E-02	6.0w	-2.50	FractInd					
		21689	8.3200E-02	8.3w	-2.50	Ind/Y(A)					
		22003	1.0900E-01	8.0	-1.50	Ind/Y(A)					
		2008r	1.2700E-01	4.2	1.25	Ind/Y(A)					
		21641	1.3600E-01	5.7	2.05	Ind/Y(A)					
	SR	21605	6.8400E-01	5.0	-0.60	FractInd	7.0220E-01	0.97	2.2(I)	2.2(E)	2.2(A)
		10722	7.1500E-01	5.0	0.40	FractInd					
		21556	7.6300E-01	5.0	1.75	FractInd					
		21689	6.7100E-01	5.1	-1.04	Ind/Y(A)					
		22003	6.9100E-01	5.1	-0.36	Ind/Y(A)					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	Y	21556	1.0300E-01	25.2	-2.48	FractInd	1.6518E-01	2.96	4.1(I)	7.1(E)	7.1(A)
		485	1.3000E-01	47.0	-0.58	FractInd					
		21605	1.5400E-01	9.7	-0.84	FractInd					
		10722	1.6900E-01	5.0	0.77	FractInd					
		2107	2.9000E-01	30.0	1.44	FractInd					
		21689	2.3800E-01	5.1w	2.50	Ind/Y(A)					
	ZR	21605	1.6000E-02	50.0	-0.09	FractInd	1.6704E-02	2.19	15.3(I)	22.6(E)	22.6(A)
		10722	2.0000E-02	20.0	1.07	FractInd					
		406	4.0000E-03	50.0w	-2.50	FractInd					
		21689	2.1200E-02	22.5	1.12	Ind/Y(A)					
	NB	388	4.0000E-05	15.0	0.00	FractInd	4.0000E-05	0.00	15.0(I)	0.0(E)	15.0(A)
96	RB	10722	1.8000E-02	16.7w	-2.50	FractInd	2.7330E-02	5.11	3.7(I)	8.3(E)	8.3(A)
		485	2.0600E-02	6.0w	-2.50	FractInd					
		21605	4.9000E-02	20.4	2.18	FractInd					
		2008r	2.9400E-02	5.5	1.66	Ind/Y(A)					
		21641	2.9500E-02	5.5	1.70	Ind/Y(A)					
		21689	1.2400E-02	37.2w	-2.50	Ind/Y(A)					
	SR	10722	5.8400E-01	5.0	0.24	FractInd	5.7791E-01	0.10	2.5(I)	0.8(E)	2.5(A)
		21605	5.8400E-01	5.0	0.24	FractInd					
		21689	5.6500E-01	5.1	-0.52	Ind/Y(A)					
		22003	5.7900E-01	5.1	0.04	Ind/Y(A)					
	Y	21605	3.2200E-01	7.8	-1.33	FractInd	3.5148E-01	1.18	3.2(I)	3.5(E)	3.5(A)
		10722	3.5000E-01	5.0	-0.11	FractInd					
		21689	3.7000E-01	5.1	1.23	Ind/Y(A)					
	ZR	21605	3.5000E-02	22.9	-1.90	FractInd	4.8964E-02	3.27	6.4(I)	11.7(E)	11.7(A)
		10722	4.8000E-02	8.3	-0.39	FractInd					
		21689	6.1400E-02	10.9	2.11	Ind/Y(A)					
	NB	21605	1.0000E-02	80.0	1.24	FractInd	8.5337E-05	2.14	4.6(I)	6.7(E)	6.7(A)
		388	1.0000E-04	20.0	0.75	FractInd					
		410	7.6000E-04	25.0w	2.50	FractInd					
		21689	2.8700E-03	61.1	1.59	Ind/Y(A)					
		21218	8.2900E-05	5.1	-1.56	Ind/Y(A)					
		563	9.3300E-05	17.0	0.52	Ind/Y(A)					
		21008	1.1000E-04	18.8	1.21	Ind/Y(A)					
97	RB	21605	3.5000E-02	28.6w	2.50	FractInd	6.3049E-03	2.30	7.1(I)	10.8(E)	10.8(A)
		485	5.6000E-03	13.0	-1.23	FractInd					
		10722	6.0000E-03	50.0	-0.10	FractInd					
		21641	6.2100E-03	11.2	-0.18	Ind/Y(A)					
		2008r	7.7900E-03	13.5	1.56	Ind/Y(A)					
	SR	10722	3.0300E-01	4.0	0.67	FractInd	2.9750E-01	1.65	2.9(I)	3.8(E)	3.8(A)
		21605	3.0700E-01	6.5	0.53	FractInd					
		21689	2.7400E-01	6.2	-1.60	Ind/Y(A)					
		22003	4.4000E-01	20.0	1.63	Ind/Y(A)					
	Y	21605	5.4100E-01	3.7	0.31	FractInd	5.3647E-01	0.36	2.6(I)	1.5(E)	2.6(A)
		10722	5.4800E-01	5.0	0.49	FractInd					
		21689	5.1800E-01	5.1	-0.82	Ind/Y(A)					
	ZR	21605	1.0600E-01	14.2w	-2.50	FractInd	1.4226E-01	5.35	4.3(I)	9.9(E)	9.9(A)
		10722	1.4300E-01	5.0	0.20	FractInd					
		21689	1.8300E-01	7.4w	2.47	Ind/Y(A)					
	NB(G)	388	1.7000E-03	47.0	-0.36	FractInd	1.9823E-03	0.13	9.8(I)	3.6(E)	9.8(A)
		21008	2.0000E-03	10.0	0.36	FractInd					
	NB(T)	21605	1.1000E-02	54.5	-0.09	FractInd	1.1510E-02	0.52	15.2(I)	10.9(E)	15.2(A)
		410	1.2300E-02	16.0	0.87	FractInd					
		21689	6.9400E-03	70.7	-1.00	Ind/Y(A)					
98	RB	21605	9.0000E-03	66.7	1.39	FractInd	7.9566E-04	1.93	132.4(I)	183.8(E)	183.8(A)
		2008r	5.3500E-04	200.0	-1.39	Ind/Y(A)					
	SR	10722	1.4300E-01	5.6	0.41	FractInd	1.4121E-01	2.39	4.7(I)	7.3(E)	7.3(A)
		21605	1.5000E-01	14.7	0.42	FractInd					
		22003	6.4500E-01	24.0w	2.50	Ind/Y(A)					
		21689	1.2900E-01	11.2	-0.95	Ind/Y(A)					
	Y	21605	3.7700E-01	8.0	-0.66	FractInd	3.9439E-01	3.13	3.7(I)	6.5(E)	6.5(A)
		10722	4.6500E-01	5.0w	2.50	FractInd					
		21689	3.7500E-01	5.2	-1.48	Ind/Y(A)					
	ZR	10722	3.7100E-01	5.0w	-2.50	FractInd	4.2672E-01	3.45	3.6(I)	6.7(E)	6.7(A)
		21605	4.3400E-01	6.9	0.28	FractInd					
		21689	4.6500E-01	5.1	2.12	Ind/Y(A)					
	NB(G)	410	7.7000E-03	6.0	0.67	FractInd	7.6464E-03	0.44	5.9(I)	4.0(E)	5.9(A)
		21218	5.9300E-03	44.1	-0.67	Ind/Y(A)					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	NB(T)	10722	2.1000E-02	19.0	1.40	FractInd	1.6569E-02	2.49	14.7(I)	23.2(E)	23.2(A)
		21605	3.0000E-02	50.0	0.91	FractInd					
		21689	3.0900E-02	29.4	1.64	Ind/Y(A)					
		21008	1.0800E-02	12.9w	-2.50	Ind/Y(A)					
99	SR	10722	2.6000E-02	15.4	1.49	FractInd	2.1521E-02	4.86	12.2(I)	27.0(E)	27.0(A)
		21605	6.2000E-02	19.4w	2.50	FractInd					
		21689	1.6000E-02	22.4	-2.27	Ind/Y(A)					
	Y	21605	3.4300E-01	7.3	0.44	FractInd	3.3302E-01	2.84	3.2(I)	5.4(E)	5.4(A)
		10722	3.6300E-01	5.0	2.04	FractInd					
		21689	3.0700E-01	5.1	-2.29	Ind/Y(A)					
	ZR	21605	5.3600E-01	5.0	-1.63	FractInd	5.7166E-01	2.11	2.7(I)	3.9(E)	3.9(A)
		10722	5.6100E-01	5.0	-0.46	FractInd					
		20878	5.6900E-01	7.6	-0.07	FractInd					
		21689	6.4000E-01	5.1	2.39	Ind/Y(A)					
	NB(M)	20878	1.0800E-01	26.9	1.70	FractInd	7.5215E-02	4.35	28.9(I)	60.2(E)	60.2(A)
		410	2.8500E-01	15.0w	1.96	FractInd					
		20878	9.0000E-03	55.6w	-2.50	FractInd					
	NB(T)	20878	1.1700E-01	23.9	2.25	FractInd	5.4648E-02	4.02	6.3(I)	12.6(E)	12.6(A)
		21605	4.6000E-02	26.1	-0.75	FractInd					
		10722	5.0000E-02	8.0	-2.27	FractInd					
		21689	7.3900E-02	10.6w	2.50	Ind/Y(A)					
	MO	21605	1.3000E-02	61.5	1.29	FractInd	2.9567E-03	1.66	59.3(I)	76.3(E)	76.3(A)
		21689	2.4500E-03	73.3	-1.29	Ind/Y(A)					
100	SR	21605	9.0000E-03	66.7	1.24	FractInd	1.7075E-03	1.53	64.9(I)	80.3(E)	80.3(A)
		21689	1.4500E-03	77.8	-1.24	Ind/Y(A)					
	Y	10722	1.3500E-01	5.0w	2.08	FractInd	7.7940E-02	4.26	11.2(I)	23.1(E)	23.1(A)
		21605	8.8000E-02	13.6	1.23	FractInd					
		21689	5.0000E-02	15.5w	-2.50	Ind/Y(A)					
	ZR	10722	7.6000E-01	5.0	-0.38	FractInd	7.7165E-01	1.46	2.9(I)	3.5(E)	3.5(A)
		21605	8.2900E-01	5.0	1.65	FractInd					
		21689	7.3600E-01	5.1	-1.19	Ind/Y(A)					
	NB(G)	410	2.8500E-03	35.0	0.00	FractInd	2.8500E-03	0.00	35.0(I)	0.0(E)	35.0(A)
	NB(T)	21605	6.5000E-02	13.8	-2.04	FractInd	8.0215E-02	4.84	6.2(I)	13.6(E)	13.6(A)
		10722	8.5000E-02	7.1	1.41	FractInd					
		21689	1.9000E-01	16.9w	2.50	Ind/Y(A)					
	MO	10722	2.1000E-02	23.8	1.65	FractInd	1.4435E-02	1.42	20.9(I)	24.9(E)	24.9(A)
		21605	9.0000E-03	66.7	-1.05	FractInd					
		21689	1.1800E-02	41.1	-0.69	Ind/Y(A)					
101	Y	10722	5.7000E-02	7.0	5.12	FractInd	4.3653E-02	26.26	7.0(I)	35.7(E)	35.7(A)
		21689	2.5500E-02	18.3	-5.12	Ind/Y(A)					
	ZR	10722	6.0300E-01	5.0	2.20	FractInd	5.5297E-01	4.84	3.6(I)	7.9(E)	7.9(A)
		21689	5.1500E-01	5.1	-2.20	Ind/Y(A)					
	NB	10722	3.0400E-01	5.0w	-2.26	FractInd	3.8067E-01	4.61	4.0(I)	8.5(E)	8.5(A)
		20878	4.5200E-01	5.5w	2.50	FractInd					
		21689	3.7600E-01	5.1	-0.39	Ind/Y(A)					
	MO	20878	1.4000E-02	250.0	-0.66	FractInd	3.6640E-02	0.46	15.5(I)	10.5(E)	15.5(A)
		10722	3.6000E-02	16.7	-0.32	FractInd					
		21689	5.0100E-02	38.5	0.73	Ind/Y(A)					
	RH(G)	21754	6.2400E-12	25.0	0.00	Ind/Y(A)	6.2400E-12	0.00	25.0(I)	0.0(E)	25.0(A)
102	Y	10722	1.7000E-02	23.5	0.00	FractInd	1.7000E-02	0.00	23.5(I)	0.0(E)	23.5(A)
	ZR	10722	4.5400E-01	5.0	0.47	FractInd	4.4640E-01	0.22	3.6(I)	1.7(E)	3.6(A)
		21689	4.3900E-01	5.1	-0.47	Ind/Y(A)					
	NB(M)	20878	4.1000E-01	7.3	0.00	FractInd	4.1000E-01	0.00	7.3(I)	0.0(E)	7.3(A)
	NB(T)	10722	3.7500E-01	5.0	-1.97	FractInd	3.9894E-01	3.88	3.6(I)	7.1(E)	7.1(A)
		21689	4.3200E-01	5.1	1.97	Ind/Y(A)					
	MO	10722	1.5400E-01	12.3	-1.05	FractInd	1.7107E-01	1.09	5.6(I)	5.9(E)	5.9(A)
		21689	1.7700E-01	6.3	1.05	Ind/Y(A)					
	TC	21689	4.9300E-03	52.4	0.00	Ind/Y(A)	4.9300E-03	0.00	52.4(I)	0.0(E)	52.4(A)
	RH(G)	21754	1.5300E-10	26.2	0.00	Ind/Y(A)	1.5300E-10	0.00	26.2(I)	0.0(E)	26.2(A)
	RH(M)	21754	1.2200E-10	48.1	0.00	Ind/Y(A)	1.2200E-10	0.00	48.1(I)	0.0(E)	48.1(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	RH(T)	21754	2.7500E-10	25.6	0.00	Ind/Y(A)	2.7500E-10	0.00	25.6(I)	0.0(E)	25.6(A)
103	ZR	10722	1.9400E-01	5.2	3.55	FractInd	1.7116E-01	12.58	4.5(I)	15.8(E)	15.8(A)
		21689	1.3900E-01	8.5	-3.55	Ind/Y(A)					
	NB	10722	4.7200E-01	3.6	1.45	FractInd	4.5548E-01	2.12	2.8(I)	4.0(E)	4.0(A)
		21689	4.3500E-01	4.3	-1.45	Ind/Y(A)					
	MO	10722	3.0400E-01	6.6	-2.73	FractInd	3.4498E-01	7.48	3.8(I)	10.5(E)	10.5(A)
		21689	3.7700E-01	4.7	2.73	Ind/Y(A)					
	TC	10722	3.0000E-02	23.3	0.46	FractInd	2.7969E-02	0.21	19.3(I)	8.8(E)	19.3(A)
		21689	2.5000E-02	33.8	-0.46	Ind/Y(A)					
	RU	21530	1.1100E-02	3.5	0.00	Ind/Y(A)	1.1100E-02	0.00	3.5(I)	0.0(E)	3.5(A)
104	ZR	10722	8.0000E-02	6.2	3.60	FractInd	7.0456E-02	12.98	6.0(I)	21.7(E)	21.7(A)
		21689	4.6000E-02	17.4	-3.60	Ind/Y(A)					
	NB	10722	3.0200E-01	7.6	1.09	FractInd	2.8176E-01	1.19	4.8(I)	5.2(E)	5.2(A)
		21689	2.7100E-01	6.2	-1.09	Ind/Y(A)					
	MO	10722	5.5800E-01	5.0	-2.29	FractInd	5.9887E-01	5.25	3.6(I)	8.2(E)	8.2(A)
		21689	6.5800E-01	5.1	2.29	Ind/Y(A)					
	TC	1067	2.0000E-02	100.0	-1.35	FractInd	4.5252E-02	2.41	16.0(I)	24.8(E)	24.8(A)
		10722	6.0000E-02	16.7	2.13	FractInd					
		21689	3.2600E-02	37.7	-1.27	Ind/Y(A)					
105	ZR	10722	4.3000E-02	14.0	0.00	FractInd	4.3000E-02	0.00	14.0(I)	0.0(E)	14.0(A)
	NB	10722	1.5200E-01	11.2	-0.46	FractInd	1.5679E-01	0.22	8.6(I)	4.0(E)	8.6(A)
		21689	1.6500E-01	13.5	0.46	Ind/Y(A)					
	MO	10722	7.4500E-01	5.0	-0.83	FractInd	7.6426E-01	0.69	3.8(I)	3.2(E)	3.8(A)
		21689	7.9500E-01	5.9	0.83	Ind/Y(A)					
	TC	1067	2.5000E-02	100.0	-1.16	FractInd	5.1436E-02	0.72	20.3(I)	17.3(E)	20.3(A)
		10722	6.0000E-02	25.0	0.80	FractInd					
		21689	5.2800E-02	34.0	0.09	Ind/Y(A)					
106	NB	10722	1.0000E-01	17.0	2.42	FractInd	7.0989E-02	5.87	17.0(I)	41.2(E)	41.2(A)
		21689	4.1500E-02	41.3	-2.42	Ind/Y(A)					
	MO	10722	6.9500E-01	6.2	-2.83	FractInd	7.5472E-01	8.00	5.0(I)	14.1(E)	14.1(A)
		21689	9.4300E-01	8.1	2.83	Ind/Y(A)					
	TC	10722	2.0000E-01	20.0	2.53	FractInd	1.2096E-01	6.38	20.6(I)	52.0(E)	52.0(A)
		21689	7.0900E-02	44.9	-2.53	Ind/Y(A)					
107	NB	21689	1.4400E-02	50.2	0.00	Ind/Y(A)	1.4400E-02	0.00	50.2(I)	0.0(E)	50.2(A)
	MO	21689	6.4000E-01	15.1	0.00	Ind/Y(A)	6.4000E-01	0.00	15.1(I)	0.0(E)	15.1(A)
	TC	21689	1.1500E-01	37.7	0.00	Ind/Y(A)	1.1500E-01	0.00	37.7(I)	0.0(E)	37.7(A)
	RU	21530	9.3500E-02	8.6	0.00	Ind/Y(A)	9.3500E-02	0.00	8.6(I)	0.0(E)	8.6(A)
	RH	13465	1.9000E-01	20.0	0.00	FractInd	1.9000E-01	0.00	20.0(I)	0.0(E)	20.0(A)
108	RU	21530	7.3500E-03	11.2	0.00	Ind/Y(A)	7.3500E-03	0.00	11.2(I)	0.0(E)	11.2(A)
109	RU	21530	9.3600E-03	12.8	0.00	Ind/Y(A)	9.3600E-03	0.00	12.8(I)	0.0(E)	12.8(A)
111	RU	21530	8.6300E-01	35.4	0.00	Ind/Y(A)	8.6300E-01	0.00	35.4(I)	0.0(E)	35.4(A)
112	AG(G)	672	1.5000E-04	15.0	2.40	FractInd	1.1760E-04	5.76	15.3(I)	36.7(E)	36.7(A)
		335	6.0000E-05	50.0	-2.40	FractInd					
113	AG(M)	22003	8.1200E-02	31.4	0.00	Ind/Y(A)	8.1200E-02	0.00	31.4(I)	0.0(E)	31.4(A)
114	AG	22003	8.5200E-02	200.0	0.00	Ind/Y(A)	8.5200E-02	0.00	200.0(I)	0.0(E)	200.0(A)
115	AG(M)	22003	1.4900E-01	50.3	0.00	Ind/Y(A)	1.4900E-01	0.00	50.3(I)	0.0(E)	50.3(A)
	CD(G)	331	6.8500E-02	16.1	0.00	Ind/Y(A)	6.8500E-02	0.00	16.1(I)	0.0(E)	16.1(A)
	CD(M)	331	1.7600E-03	150.0	0.00	Ind/Y(A)	1.7600E-03	0.00	150.0(I)	0.0(E)	150.0(A)
116	AG(M)	22003	8.0100E-02	21.6	0.00	Ind/Y(A)	8.0100E-02	0.00	21.6(I)	0.0(E)	21.6(A)
117	AG(G)	404	3.5000E-02	15.0	0.00	FractInd	3.5000E-02	0.00	15.0(I)	0.0(E)	15.0(A)
	AG(M)	22003	4.5800E-01	25.8	0.00	Ind/Y(A)	4.5800E-01	0.00	25.8(I)	0.0(E)	25.8(A)
118	AG(G)	22003	2.8700E-01	270.0	0.00	Ind/Y(A)	2.8700E-01	0.00	270.0(I)	0.0(E)	270.0(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	AG(M)	22003	2.2700E-01	33.8	0.00	Ind/Y(A)	2.2700E-01	0.00	33.8(I)	0.0(E)	33.8(A)
	AG(T)	404	5.5000E-01	25.0	0.00	FractInd	5.5000E-01	0.00	25.0(I)	0.0(E)	25.0(A)
119	AG	22003	5.5700E-01	26.9	0.00	Ind/Y(A)	5.5700E-01	0.00	26.9(I)	0.0(E)	26.9(A)
	CD(G)	2086	1.8800E-01	33.5	0.00	Ind/Y(A)	1.8800E-01	0.00	33.5(I)	0.0(E)	33.5(A)
	CD(M)	2086	1.2100E-01	33.5	0.00	Ind/Y(A)	1.2100E-01	0.00	33.5(I)	0.0(E)	33.5(A)
	IN	22003	3.6200E-02	26.0	0.00	Ind/Y(A)	3.6200E-02	0.00	26.0(I)	0.0(E)	26.0(A)
120	AG(G)	22003	6.9300E-02	111.0	0.00	Ind/Y(A)	6.9300E-02	0.00	111.0(I)	0.0(E)	111.0(A)
	AG(M)	22003	3.8800E-01	35.8	0.00	Ind/Y(A)	3.8800E-01	0.00	35.8(I)	0.0(E)	35.8(A)
	IN(G)	2086	1.0400E-02	175.0	0.00	Ind/Y(A)	1.0400E-02	0.00	175.0(I)	0.0(E)	175.0(A)
	IN(M)	2086	1.1100E-02	33.9	0.00	Ind/Y(A)	1.1100E-02	0.00	33.9(I)	0.0(E)	33.9(A)
	IN(N)	2086	1.4600E-02	31.1	0.00	Ind/Y(A)	1.4600E-02	0.00	31.1(I)	0.0(E)	31.1(A)
121	CD(G)	12931	6.1000E-01	14.8	1.95	FractInd	5.2527E-01	3.13	15.1(I)	26.6(E)	26.6(A)
		22003	5.5600E-02	115.0w	-2.50	Ind/Y(A)					
		12813	5.9600E-01	46.9	0.26	Ind/Y(A)					
	CD(M)	22003	4.6100E-01	35.2	0.00	Ind/Y(A)	4.6100E-01	0.00	35.2(I)	0.0(E)	35.2(A)
	IN	12931	2.4000E-01	33.3	0.36	FractInd	2.1642E-01	0.10	20.9(I)	6.5(E)	20.9(A)
		12813	1.8300E-01	56.6	-0.36	Ind/Y(A)					
		22003	2.1400E-01	30.3	-0.05	Ind/Y(A)					
	SN	12931	3.0000E-02	133.0	-0.03	FractInd	3.0611E-02	0.00	105.9(I)	2.8(E)	105.9(A)
		12813	3.1800E-02	175.0	0.03	Ind/Y(A)					
122	IN(G)	22003	6.1100E-02	145.0	0.00	Ind/Y(A)	6.1100E-02	0.00	145.0(I)	0.0(E)	145.0(A)
	IN(M)	22003	5.3400E-02	17.3	0.00	Ind/Y(A)	5.3400E-02	0.00	17.3(I)	0.0(E)	17.3(A)
	IN(N)	22003	1.0600E-01	17.3	0.00	Ind/Y(A)	1.0600E-01	0.00	17.3(I)	0.0(E)	17.3(A)
123	IN(G)	22003	5.1800E-01	48.2	0.00	Ind/Y(A)	5.1800E-01	0.00	48.2(I)	0.0(E)	48.2(A)
	IN(M)	22003	3.3200E-02	180.0	0.00	Ind/Y(A)	3.3200E-02	0.00	180.0(I)	0.0(E)	180.0(A)
	IN(T)	2001	9.3000E-01	10.8	0.00	Ind/Y(A)	9.3000E-01	0.00	10.8(I)	0.0(E)	10.8(A)
	SN	485	1.3000E-01	47.0	0.11	FractInd	1.2546E-01	0.01	36.0(I)	4.0(E)	36.0(A)
		12813	1.2000E-01	55.8	-0.11	Ind/Y(A)					
	SN(G)	2086	1.2000E-01	13.6	0.00	Ind/Y(A)	1.2000E-01	0.00	13.6(I)	0.0(E)	13.6(A)
	SN(M)	2086	1.4000E-01	200.0	0.00	Ind/Y(A)	1.4000E-01	0.00	200.0(I)	0.0(E)	200.0(A)
124	CD	22003	4.8800E-01	40.9	0.00	Ind/Y(A)	4.8800E-01	0.00	40.9(I)	0.0(E)	40.9(A)
	IN(G)	2001	4.1200E-01	11.5	2.91	Ind/Y(A)	3.6368E-01	8.46	12.2(I)	35.5(E)	35.5(A)
		22003	1.9000E-02	666.0	-2.91	Ind/Y(A)					
	IN(M)	22003	1.1700E-01	16.4	0.00	Ind/Y(A)	1.1700E-01	0.00	16.4(I)	0.0(E)	16.4(A)
	SB	13439	4.7500E-04	700.0	0.00	FractInd	4.7500E-04	0.00	700.0(I)	0.0(E)	700.0(A)
	SB(G)	603	1.2500E-03	76.5	0.99	Ind/Y(A)	3.0174E-04	0.99	17.0(I)	16.9(E)	17.0(A)
		308	2.9900E-04	17.2	-0.99	Ind/Y(A)					
125	IN(G)	22003	4.9900E-01	54.2	0.00	Ind/Y(A)	4.9900E-01	0.00	54.2(I)	0.0(E)	54.2(A)
	IN(M)	2086	6.9200E-02	54.2	0.00	Ind/Y(A)	6.9200E-02	0.00	54.2(I)	0.0(E)	54.2(A)
	IN(T)	2001	7.3000E-01	7.4	0.00	Ind/Y(A)	7.3000E-01	0.00	7.4(I)	0.0(E)	7.4(A)
	SN(G)	485	3.5000E-01	43.0	0.04	FractInd	3.4431E-01	0.32	10.6(I)	5.9(E)	10.6(A)
		12813	4.9200E-01	38.7	0.79	Ind/Y(A)					
		2086	3.3800E-01	11.3	-0.54	Ind/Y(A)					
126	IN(G)	22003	7.4000E-02	21.2	0.00	Ind/Y(A)	7.4000E-02	0.00	21.2(I)	0.0(E)	21.2(A)
	IN(M)	2086	1.0100E-01	129.0	0.00	Ind/Y(A)	1.0100E-01	0.00	129.0(I)	0.0(E)	129.0(A)
	IN(T)	2001	3.0300E-01	10.9	0.00	Ind/Y(A)	3.0300E-01	0.00	10.9(I)	0.0(E)	10.9(A)
	SB(G)	485	1.7000E-02	30.0	0.21	FractInd	1.6019E-02	0.21	12.5(I)	5.8(E)	12.5(A)
		308	1.7300E-02	18.6	0.51	Ind/Y(A)					
		603	1.4600E-02	20.3	-0.65	Ind/Y(A)					
127	IN(G)	22003	4.3200E-01	25.3	0.00	Ind/Y(A)	4.3200E-01	0.00	25.3(I)	0.0(E)	25.3(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	IN(M)	22003	6.5700E-02	42.2	0.00	Ind/Y(A)	6.5700E-02	0.00	42.2(I)	0.0(E)	42.2(A)
	IN(T)	2001	2.4100E-01	6.4	0.00	Ind/Y(A)	2.4100E-01	0.00	6.4(I)	0.0(E)	6.4(A)
	SN(M)	22003	8.3100E-02	240.0	0.00	Ind/Y(A)	8.3100E-02	0.00	240.0(I)	0.0(E)	240.0(A)
	SN(T)	12813	7.3700E-01	14.8	0.00	Ind/Y(A)	7.3700E-01	0.00	14.8(I)	0.0(E)	14.8(A)
	SB	557	5.7000E-02	18.0	0.00	FractInd	5.7000E-02	0.00	18.0(I)	0.0(E)	18.0(A)
128	IN(G)	22003	9.0700E-02	27.1	0.00	Ind/Y(A)	9.0700E-02	0.00	27.1(I)	0.0(E)	27.1(A)
	IN(M)	22003	3.9300E-02	22.1	0.00	Ind/Y(A)	3.9300E-02	0.00	22.1(I)	0.0(E)	22.1(A)
	IN(T)	2001	6.9500E-02	5.5	0.00	Ind/Y(A)	6.9500E-02	0.00	5.5(I)	0.0(E)	5.5(A)
	SN(G)	2086	8.6200E-01	15.2	-0.75	Ind/Y(A)	9.5317E-01	0.56	5.1(I)	3.9(E)	5.1(A)
		12813	9.6800E-01	5.5	0.75	Ind/Y(A)					
	SN(M)	13465	3.7000E-01	20.0	2.52	FractInd	2.3836E-01	6.35	22.0(I)	55.4(E)	55.4(A)
		2086	1.0600E-01	70.0	-2.52	Ind/Y(A)					
	SB(G)	411	2.2000E-01	40.0	2.13	FractInd	3.2394E-02	1.63	7.6(I)	9.7(E)	9.7(A)
		700	3.0000E-02	13.0	-0.79	FractInd					
		13319	3.1000E-02	16.1	-0.32	FractInd					
		783	3.1000E-02	36.0	-0.13	FractInd					
		13465	5.0000E-02	20.0	1.82	FractInd					
		2086	3.3000E-02	15.2	0.14	Ind/Y(A)					
	SB(M)	700	1.9000E-02	15.0w	-2.40	FractInd	4.1324E-02	4.26	9.5(I)	19.5(E)	19.5(A)
		783	3.7000E-02	15.0	-1.10	FractInd					
		411	7.0000E-02	15.0w	2.50	FractInd					
		2086	5.1400E-02	15.2	1.49	Ind/Y(A)					
	I	418	4.2300E-05	25.1	-4.06	Ind/Y(A)	7.2970E-05	16.51	10.2(I)	41.6(E)	41.6(A)
		664	1.0300E-04	10.2	4.06	Ind/Y(A)					
129	IN(G)	2086	5.2400E-02	27.4	0.00	Ind/Y(A)	5.2400E-02	0.00	27.4(I)	0.0(E)	27.4(A)
	IN(M)	2086	1.7000E-02	27.4	0.00	Ind/Y(A)	1.7000E-02	0.00	27.4(I)	0.0(E)	27.4(A)
	IN(T)	2001	3.1100E-02	6.7	0.00	Ind/Y(A)	3.1100E-02	0.00	6.7(I)	0.0(E)	6.7(A)
	SN(G)	22003	3.3400E-01	13.8	0.00	Ind/Y(A)	3.3400E-01	0.00	13.8(I)	0.0(E)	13.8(A)
	SN(M)	22003	2.5200E-01	20.5	0.00	Ind/Y(A)	2.5200E-01	0.00	20.5(I)	0.0(E)	20.5(A)
	SB(G)	700	1.1400E-01	40.0	-0.03	FractInd	1.1504E-01	0.00	25.6(I)	1.4(E)	25.6(A)
		13319	1.1400E-01	40.4	-0.03	FractInd					
		485	1.2000E-01	59.0	0.08	FractInd					
130	IN(G)	2086	2.3100E-03	18.9	0.00	Ind/Y(A)	2.3100E-03	0.00	18.9(I)	0.0(E)	18.9(A)
	IN(M)	2086	3.1500E-03	18.9	0.00	Ind/Y(A)	3.1500E-03	0.00	18.9(I)	0.0(E)	18.9(A)
	IN(N)	2086	1.8000E-03	17.1	0.00	Ind/Y(A)	1.8000E-03	0.00	17.1(I)	0.0(E)	17.1(A)
	SN(G)	22003	5.2900E-01	11.6	0.00	Ind/Y(A)	5.2900E-01	0.00	11.6(I)	0.0(E)	11.6(A)
	SN(M)	22003	7.6500E-02	18.0	0.00	Ind/Y(A)	7.6500E-02	0.00	18.0(I)	0.0(E)	18.0(A)
	SN(T)	21939	6.9000E-01	5.8	0.00	FractInd	6.9000E-01	0.00	5.8(I)	0.0(E)	5.8(A)
	SB(G)	700	1.3900E-01	22.0	0.92	FractInd	1.1222E-01	2.87	8.4(I)	14.2(E)	14.2(A)
		21939	2.8000E-01	14.3w	2.50	FractInd					
		411	9.0000E-02	15.0	-2.30	FractInd					
		2086	1.1500E-01	15.2	0.19	Ind/Y(A)					
		931	1.5100E-01	18.9	1.44	Ind/Y(A)					
	SB(M)	700	2.0300E-01	13.0w	2.50	FractInd	1.1690E-01	4.67	9.9(I)	21.4(E)	21.4(A)
		411	3.7000E-01	15.0w	2.50	FractInd					
		2086	9.5600E-02	15.2	-2.43	Ind/Y(A)					
		931	1.2300E-01	18.9	0.30	Ind/Y(A)					
	TE	411	3.0000E-02	15.0	0.00	FractInd	3.0000E-02	0.00	15.0(I)	0.0(E)	15.0(A)
		21939	3.0000E-02	300.0	0.00	FractInd					
	I	418	1.2900E-04	11.6	-3.96	Ind/Y(A)	1.5502E-04	15.69	8.7(I)	34.4(E)	34.4(A)
		664	2.6400E-04	11.6	3.96	Ind/Y(A)					
131	IN(G)	2086	1.0800E-03	29.0	0.00	Ind/Y(A)	1.0800E-03	0.00	29.0(I)	0.0(E)	29.0(A)
	IN(M)	2086	2.6400E-05	44.0	0.00	Ind/Y(A)	2.6400E-05	0.00	44.0(I)	0.0(E)	44.0(A)
	IN(N)	2086	2.6400E-05	24.0	0.00	Ind/Y(A)	2.6400E-05	0.00	24.0(I)	0.0(E)	24.0(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	SN	21939	3.4000E-01	5.9	1.47	FractInd	3.2332E-01	2.17	5.1(I)	7.5(E)	7.5(A)
		22003	2.8800E-01	10.1	-1.47	Ind/Y(A)					
	SB	411	5.2000E-01	15.0	-1.17	FractInd	6.0670E-01	0.37	3.9(I)	2.4(E)	3.9(A)
		804	6.1000E-01	8.0	0.08	FractInd					
		21939	6.2000E-01	5.0	0.67	FractInd					
		307	5.8000E-01	24.0	-0.19	Ind/Y(A)					
		22003	6.1100E-01	17.0	0.04	Ind/Y(A)					
	TE(G)	411	1.2100E-02	15.0w	-2.50	FractInd	2.9623E-02	2.55	7.2(I)	11.4(E)	11.4(A)
		804	2.9000E-02	10.0	-0.31	FractInd					
		397	3.0000E-02	15.0	0.09	FractInd					
		641	4.4000E-02	19.0	1.78	FractInd					
		931	3.7800E-02	18.0	1.26	Ind/Y(A)					
	TE(M)	397	5.0000E-02	15.0	-2.06	FractInd	6.2829E-02	2.50	6.7(I)	10.5(E)	10.5(A)
		804	5.6000E-02	16.0	-0.86	FractInd					
		641	8.0000E-02	14.0	1.65	FractInd					
		931	7.2200E-02	10.1	1.57	Ind/Y(A)					
	TE(T)	21939	4.0000E-02	50.0	0.00	FractInd	4.0000E-02	0.00	50.0(I)	0.0(E)	50.0(A)
	I	397	1.0000E-02	15.0w	2.50	FractInd	1.3996E-03	4.49	6.6(I)	14.0(E)	14.0(A)
		13311	3.0000E-03	10.0w	2.49	FractInd					
		20848	7.9800E-04	30.4w	-2.50	Ind/Y(A)					
		76	1.4300E-03	10.1	0.27	Ind/Y(A)					
		13266	1.4600E-03	9.6	0.58	Ind/Y(A)					
132	SN	681	1.3700E-01	6.0	-0.45	FractInd	1.3983E-01	0.10	3.8(I)	1.2(E)	3.8(A)
		21939	1.4000E-01	14.3	0.01	FractInd					
		22003	1.4200E-01	5.1	0.43	Ind/Y(A)					
	SB(G)	681	4.8700E-01	5.0	-0.25	FractInd	4.9068E-01	3.28	4.0(I)	7.2(E)	7.2(A)
		804	5.3000E-01	8.0	1.05	FractInd					
		931	3.7500E-01	19.0	-1.69	Ind/Y(A)					
		307	6.4700E-01	13.0	1.91	Ind/Y(A)					
		22003	7.9100E-02	9.1w	-2.50	Ind/Y(A)					
	SB(M)	21939	4.5000E-01	6.7	3.17	FractInd	3.8689E-01	10.02	5.8(I)	18.4(E)	18.4(A)
		22003	3.0700E-01	11.0	-3.17	Ind/Y(A)					
	TE	804	3.2600E-01	10.0	-1.38	FractInd	3.6665E-01	3.29	3.8(I)	6.9(E)	6.9(A)
		681	3.7600E-01	5.0	0.74	FractInd					
		21939	4.1000E-01	7.3	1.63	FractInd					
		307	2.0200E-01	12.0w	-2.50	Ind/Y(A)					
	I (G)	397	1.0000E-02	15.0w	2.50	FractInd	3.7063E-03	5.44	6.4(I)	15.0(E)	15.0(A)
		20848	2.7900E-03	16.7	-2.29	Ind/Y(A)					
		76	3.9600E-03	7.1	1.74	Ind/Y(A)					
	I (M)	20848	2.3300E-03	10.0	0.00	Ind/Y(A)	2.3300E-03	3.25	7.0(I)	12.6(E)	12.6(A)
		2037r	3.1500E-03	12.5	2.29	Ind/Y(A)					
		2064r	1.9200E-03	14.5	-1.81	Ind/Y(A)					
	I (T)	13266	4.0500E-03	6.4	-2.00	Ind/Y(A)	4.3012E-03	4.00	5.3(I)	10.5(E)	10.5(A)
		20848	5.1200E-03	9.1	2.00	Ind/Y(A)					
	CS	558	3.5100E-08	15.0	0.00	Ind/Y(A)	3.5100E-08	0.00	15.0(I)	0.0(E)	15.0(A)
133	SB	21939	4.4000E-01	5.0	1.65	FractInd	4.2063E-01	3.22	4.4(I)	7.9(E)	7.9(A)
		22003	3.2500E-01	7.2w	-2.50	Ind/Y(A)					
		307	4.6900E-01	13.1	0.83	Ind/Y(A)					
	TE(G)	397	1.0000E-01	15.0w	-2.40	FractInd	1.7089E-01	3.85	6.8(I)	13.2(E)	13.2(A)
		804	1.5900E-01	10.0	-1.09	FractInd					
		22003	1.8200E-01	16.1	0.41	Ind/Y(A)					
		931	2.2800E-01	13.1	2.07	Ind/Y(A)					
		307	3.1900E-01	15.1w	2.50	Ind/Y(A)					
	TE(M)	804	4.9500E-01	7.0w	2.30	FractInd	3.3040E-01	4.23	6.6(I)	13.6(E)	13.6(A)
		931	2.9600E-01	5.2w	-2.44	Ind/Y(A)					
		307	3.3800E-01	15.1	0.16	Ind/Y(A)					
		22003	6.5700E-01	19.1w	2.50	Ind/Y(A)					
	TE(T)	21939	5.6000E-01	5.0	0.00	FractInd	5.6000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	I (G)	13311	2.0000E-02	70.0	-0.44	FractInd	2.6161E-02	2.72	3.7(I)	6.2(E)	6.2(A)
		611	2.3000E-01	30.0w	2.50	FractInd					
		804	2.6000E-02	20.0	-0.03	FractInd					
		397	5.0000E-02	15.0w	2.50	FractInd					
		20848	1.8300E-02	8.5w	-2.45	Ind/Y(A)					
		341	1.8800E-01	15.1w	2.47	Ind/Y(A)					
		2086	2.6000E-02	25.0	-0.03	Ind/Y(A)					
		307	2.6100E-02	35.0	-0.01	Ind/Y(A)					
		76	2.6300E-02	6.2	0.11	Ind/Y(A)					
		13266	2.6900E-02	5.3	0.71	Ind/Y(A)					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	I (M)	2086	1.8300E-03	25.0	0.00	Ind/Y(A)	1.8300E-03	0.00	25.0(I)	0.0(E)	25.0(A)
	XE(G)	863	1.0000E-03	15.0	0.00	FractInd	1.0000E-03	0.00	15.0(I)	0.0(E)	15.0(A)
	XE(M)	12895	2.6600E-04	6.4w	2.50	FractInd	9.4921E-05	3.13	17.2(I)	30.5(E)	30.5(A)
		12895	8.5000E-05	20.0	-2.14	FractInd					
		30666r	9.1900E-05	125.0	-0.03	Ind/Y(A)					
	XE(T)	12895	3.5400E-04	5.4	0.00	FractInd	3.5400E-04	0.00	5.4(I)	0.0(E)	5.4(A)
134	SB	21939	6.0000E-02	16.7	0.61	FractInd	5.5544E-02	0.37	12.3(I)	7.5(E)	12.3(A)
		22003	5.1700E-02	18.0	-0.61	Ind/Y(A)					
	TE	21939	8.2000E-01	9.8	-0.08	FractInd	8.2546E-01	0.01	4.5(I)	0.4(E)	4.5(A)
		22003	8.2700E-01	5.1	0.08	Ind/Y(A)					
	I (G)	411	1.0000E-01	13.0	-1.28	FractInd	1.1554E-01	0.43	3.9(I)	2.6(E)	3.9(A)
		397	1.1000E-01	20.0	-0.26	FractInd					
		804	1.1300E-01	10.0	-0.25	FractInd					
		334	1.2000E-01	15.0	0.26	FractInd					
		13402	1.2900E-01	10.1	1.10	Ind/Y(A)					
		341	1.3200E-01	15.0	0.85	Ind/Y(A)					
		2086	1.4600E-01	85.0	0.25	Ind/Y(A)					
		76	1.1400E-01	8.1	-0.19	Ind/Y(A)					
		13266	1.1600E-01	9.0	0.05	Ind/Y(A)					
	I (M)	2086	3.6200E-02	11.1w	-2.40	Ind/Y(A)	4.7708E-02	3.17	3.8(I)	6.7(E)	6.7(A)
		2064r	4.6200E-02	13.6	-0.25	Ind/Y(A)					
		20848	4.6500E-02	5.7	-0.63	Ind/Y(A)					
		20848	5.4200E-02	5.1w	2.50	Ind/Y(A)					
	I (T)	21939	1.2000E-01	16.7	0.42	FractInd	1.1204E-01	2.41	5.8(I)	9.0(E)	9.0(A)
		21531	1.3000E-01	23.1	0.61	FractInd					
		21743	1.4600E-01	10.7	2.39	Ind/Y(A)					
		20848	1.0100E-01	7.8	-2.48	Ind/Y(A)					
	CS	13439	1.7000E-06	150.0	0.00	FractInd	1.7000E-06	0.00	150.0(I)	0.0(E)	150.0(A)
	CS(G)	20847r	9.9500E-07	16.1	0.00	Ind/Y(A)	9.9500E-07	0.00	16.1(I)	0.0(E)	16.1(A)
	CS(M)	558	1.1500E-06	15.0	0.00	Ind/Y(A)	1.1500E-06	0.00	15.0(I)	0.0(E)	15.0(A)
135	SB	21939	6.0000E-02	50.0	0.00	FractInd	6.0000E-02	0.00	50.0(I)	0.0(E)	50.0(A)
	TE	76	4.3100E-01	16.0	-1.07	FractInd	4.9986E-01	0.76	4.8(I)	4.2(E)	4.8(A)
		21939	5.0000E-01	6.0	0.01	FractInd					
		22003	5.3600E-01	9.4	0.82	Ind/Y(A)					
	I	21939	4.2000E-01	4.8	-2.08	FractInd	4.5309E-01	1.10	2.7(I)	2.8(E)	2.8(A)
		334	4.2600E-01	15.0	-0.43	FractInd					
		76	4.3100E-01	16.0	-0.33	FractInd					
		13266	4.4000E-01	15.9	-0.19	FractInd					
		160	4.7000E-01	5.0	0.84	FractInd					
		13311	4.8400E-01	5.0	1.48	FractInd					
		611	5.6000E-01	16.0	1.20	FractInd					
	XE(G)	12895	1.4300E-02	12.6	-0.15	FractInd	1.4508E-02	2.87	7.8(I)	13.3(E)	13.3(A)
		863	1.9000E-02	69.0	0.34	FractInd					
		266	2.5000E-02	72.0	0.58	FractInd					
		47	2.7000E-02	37.0	1.26	FractInd					
		13371	3.5000E-02	28.6	2.06	FractInd					
		605	3.5700E-02	6.0w	2.50	FractInd					
		13406	4.9000E-02	15.0w	2.50	FractInd					
		20848	1.2600E-02	12.3	-1.81	Ind/Y(A)					
	XE(M)	12895	2.5600E-02	12.1	-0.21	FractInd	2.6138E-02	0.11	6.5(I)	2.2(E)	6.5(A)
		20848r	2.5700E-02	10.1	-0.22	Ind/Y(A)					
		30666r	2.7500E-02	12.2	0.47	Ind/Y(A)					
	XE(T)	21939	2.0000E-02	50.0	-2.05	FractInd	4.0037E-02	3.49	5.1(I)	9.5(E)	9.5(A)
		12895	3.9500E-02	10.4	-0.15	FractInd					
		21531	5.0000E-02	12.0	1.77	FractInd					
		20848	3.5000E-02	9.1	-2.07	Ind/Y(A)					
		21743	5.0300E-02	9.4	2.39	Ind/Y(A)					
136	TE	21939	2.5700E-01	25.0	0.00	FractInd	2.5700E-01	0.00	25.0(I)	0.0(E)	25.0(A)
	I (G)	22003	4.6200E-02	83.0	-0.05	Ind/Y(A)	4.8091E-02	0.00	5.6(I)	0.3(E)	5.6(A)
		21903	4.8100E-02	5.6	0.05	Ind/Y(A)					
	I (M)	611	2.0000E-01	40.0	0.05	FractInd	1.9636E-01	3.17	9.5(I)	16.9(E)	16.9(A)
		22003	1.7400E-01	12.1	-2.27	Ind/Y(A)					
		21903	3.0100E-01	5.3w	2.50	Ind/Y(A)					
	I (T)	21939	6.7500E-01	19.0	1.24	FractInd	5.1999E-01	1.53	5.1(I)	6.3(E)	6.3(A)
		21743	5.1300E-01	5.3	-1.24	Ind/Y(A)					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error (I)	(E)	(A)
	XE	687	2.4000E-01	75.0	0.95	FractInd	7.0537E-02	0.90	33.9(I)	32.2(E)	33.9(A)
		21939	6.7500E-02	35.7	-0.95	FractInd					
	CS	388	1.1000E-03	14.0	0.84	FractInd	9.7305E-04	2.27	3.2(I)	4.8(E)	4.8(A)
		555	9.5000E-04	5.0	-0.64	FractInd					
		38r	1.6800E-04	15.2w	-2.50	Ind/Y(A)					
		558	9.4600E-04	5.3	-0.68	Ind/Y(A)					
		341	1.0100E-03	15.1	0.25	Ind/Y(A)					
		214	1.1000E-03	15.1	0.78	Ind/Y(A)					
		886	1.1800E-03	10.2	1.78	Ind/Y(A)					
		40	1.3600E-03	30.1	0.95	Ind/Y(A)					
		13365	1.4200E-02	20.1w	2.50	Ind/Y(A)					
137	TE	21556	6.3000E-02	6.3	-1.58	FractInd	6.5345E-02	2.49	5.7(I)	9.0(E)	9.0(A)
		21939	8.0000E-02	12.5	1.58	FractInd					
	I	21556	3.4600E-01	5.0w	-2.50	FractInd	4.3157E-01	2.29	4.6(I)	7.0(E)	7.0(A)
		21939	4.3000E-01	11.6	-0.03	FractInd					
		1118	4.5600E-01	9.0	0.68	FractInd					
		920	4.7700E-01	7.0	1.69	FractInd					
	XE	919	4.3400E-01	7.0w	-2.50	FractInd	5.1274E-01	3.33	2.8(I)	5.1(E)	5.1(A)
		21939	4.9000E-01	10.2	-0.48	FractInd					
		21556	5.7100E-01	5.0	2.36	FractInd					
		693	4.8000E-01	7.1	-1.07	Ind/Y(A)					
		21743	5.2200E-01	5.1	0.42	Ind/Y(A)					
		22003	8.3700E-01	13.5w	2.47	Ind/Y(A)					
	CS	13365	8.5300E-01	20.0	4.94	Ind/Y(A)	9.7898E-03	24.43	10.4(I)	51.2(E)	51.2(A)
		21641	9.7600E-03	10.4	-4.94	Ind/Y(A)					
138	I	1118	2.0500E-01	10.0	-0.37	FractInd	2.1084E-01	0.15	6.2(I)	2.4(E)	6.2(A)
		920	2.1000E-01	10.0	-0.05	FractInd					
		2026	2.2500E-01	13.3	0.53	Ind/Y(A)					
	XE	919	6.9000E-01	6.0	-2.11	FractInd	7.5791E-01	3.60	3.4(I)	6.5(E)	6.5(A)
		693	7.5000E-01	6.1	-0.21	Ind/Y(A)					
		22003	8.6100E-01	5.1w	2.50	Ind/Y(A)					
	CS(G)	485	4.7000E-02	5.0	2.18	FractInd	4.4741E-02	3.09	4.7(I)	8.3(E)	8.3(A)
		2086	3.2800E-02	16.0	-2.48	Ind/Y(A)					
		680	4.8000E-02	24.0	0.29	Ind/Y(A)					
	CS(M)	2086	4.6200E-02	16.0	0.00	Ind/Y(A)	4.6200E-02	0.00	16.0(I)	0.0(E)	16.0(A)
	CS(T)	21641	7.9300E-02	5.1	0.00	Ind/Y(A)	7.9300E-02	0.00	5.1(I)	0.0(E)	5.1(A)
139	I	21556	1.5400E-01	1.9w	2.50	FractInd	8.7731E-02	2.62	3.9(I)	6.3(E)	6.3(A)
		21939	1.9000E-01	15.8w	2.50	FractInd					
		1118	7.8000E-02	28.0	-0.45	FractInd					
		920	8.4800E-02	5.0	-1.16	FractInd					
		2026	8.8000E-02	10.7	0.03	Ind/Y(A)					
		22003	8.9500E-02	9.1	0.24	Ind/Y(A)					
	XE	21556	4.8800E-01	5.0w	-2.50	FractInd	7.3103E-01	2.35	3.8(I)	5.9(E)	5.9(A)
		21939	7.4000E-01	5.4	0.31	FractInd					
		919	7.4000E-01	7.0	0.21	FractInd					
		693	8.1100E-01	9.1	1.18	Ind/Y(A)					
	CS	485	2.4000E-01	17.0	0.50	FractInd	2.2010E-01	3.44	4.5(I)	8.3(E)	8.3(A)
		21556	3.3800E-01	5.0w	2.47	FractInd					
		21939	8.0000E-02	62.5w	-2.50	FractInd					
		680	1.9900E-01	15.0	-0.75	Ind/Y(A)					
		21641	2.2500E-01	5.1	0.83	Ind/Y(A)					
		2008r	8.4600E-02	11.6w	-2.11	Ind/Y(A)					
	BA	485	1.2000E-02	33.0	-0.16	FractInd	1.2050E-02	0.03	32.8(I)	5.2(E)	32.8(A)
		21939	2.0000E-02	250.0	0.16	FractInd					
140	I	1118	1.8000E-02	28.0	-1.03	FractInd	2.0947E-02	0.77	19.8(I)	17.4(E)	19.8(A)
		21939	4.0000E-02	50.0	0.97	FractInd					
		2026	2.5200E-02	31.3	0.63	Ind/Y(A)					
	XE	919	5.6100E-01	15.0	-0.21	FractInd	5.7801E-01	2.62	4.1(I)	6.6(E)	6.6(A)
		21939	7.2000E-01	5.0w	2.50	FractInd					
		693	4.6000E-01	17.0	-1.58	Ind/Y(A)					
		22003	5.6500E-01	5.1	-0.80	Ind/Y(A)					
	CS	21939	2.2000E-01	9.1	-2.34	FractInd	2.5196E-01	3.04	5.8(I)	10.1(E)	10.1(A)
		485	3.1000E-01	14.0	1.42	FractInd					
		2008r	2.5500E-01	10.6	0.13	Ind/Y(A)					
		22003	3.7800E-01	25.0	1.35	Ind/Y(A)					
		21641	4.4800E-01	5.1w	2.50	Ind/Y(A)					
	BA	21939	3.0000E-02	167.0	-0.27	FractInd	4.1703E-02	0.07	62.3(I)	17.0(E)	62.3(A)
		485	4.6000E-02	66.0	0.27	FractInd					

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error (I)	(E)	(A)
	LA	13419	3.2800E-02	100.0	0.98	FractInd	7.0005E-04	0.96	6.0(I)	5.9(E)	6.0(A)
		210	7.0000E-04	6.0	-0.98	FractInd					
141	I	1118	7.0000E-03	36.0	-0.28	FractInd	7.5237E-03	0.08	22.3(I)	6.2(E)	22.3(A)
		2026	7.9400E-03	28.3	0.28	Ind/Y(A)					
	XE	21939	1.6000E-01	6.2w	-2.50	FractInd	2.3134E-01	3.70	4.3(I)	8.2(E)	8.2(A)
		919	2.3100E-01	5.0	-0.06	FractInd					
		22003	1.9900E-01	38.0	-0.43	Ind/Y(A)					
		693	2.9300E-01	9.1	2.49	Ind/Y(A)					
	CS	21939	4.7000E-01	6.4	-1.75	FractInd	5.1479E-01	1.17	3.1(I)	3.3(E)	3.3(A)
		485	5.5000E-01	13.0	0.50	FractInd					
		680	4.4500E-01	16.1	-1.00	Ind/Y(A)					
		21641	5.3700E-01	5.2	0.96	Ind/Y(A)					
		22003	5.3700E-01	5.2	0.96	Ind/Y(A)					
	BA	21008	1.3200E-01	15.2w	-2.19	FractInd	3.1375E-01	3.92	8.9(I)	17.7(E)	17.7(A)
		485	2.6000E-01	20.0	-1.23	FractInd					
		21939	3.7000E-01	5.4w	2.50	FractInd					
	LA	485	3.7000E-03	36.0	0.18	FractInd	3.5670E-03	0.04	31.3(I)	6.1(E)	31.3(A)
		637	2.9300E-03	88.0	-0.27	Ind/Y(A)					
		637	3.8000E-03	88.0	0.07	Ind/Y(A)					
142	XE	919	7.5400E-02	5.0	-4.99	FractInd	8.5928E-02	24.89	3.6(I)	18.1(E)	18.1(A)
		693	1.0900E-01	5.1	4.99	Ind/Y(A)					
	CS	21939	1.9700E-01	46.0	-2.30	FractInd	4.0334E-01	3.03	3.3(I)	5.7(E)	5.7(A)
		485	4.1000E-01	12.0	0.14	FractInd					
		680	2.5200E-01	27.0	-2.27	Ind/Y(A)					
		22003	3.8500E-01	17.0	-0.29	Ind/Y(A)					
		2008r	3.9700E-01	4.3	-0.58	Ind/Y(A)					
		21641	4.6200E-01	5.1w	2.50	Ind/Y(A)					
	BA	21939	6.9960E-01	20.0	0.00	FractInd	6.9960E-01	0.00	20.0(I)	0.0(E)	20.0(A)
	LA	485	1.7000E-02	25.0	0.00	FractInd	1.7000E-02	0.00	25.0(I)	0.0(E)	25.0(A)
143	XE	693	4.5400E-02	27.0	0.00	Ind/Y(A)	4.5400E-02	0.00	27.0(I)	0.0(E)	27.0(A)
	CS	485	2.5000E-01	12.0	0.94	FractInd	2.2245E-01	0.73	3.0(I)	2.6(E)	3.0(A)
		21939	2.5000E-01	16.0	0.70	FractInd					
		2008r	2.1600E-01	4.1	-1.13	Ind/Y(A)					
		21641	2.2900E-01	5.1	0.69	Ind/Y(A)					
		680	1.6500E-01	40.0	-0.87	Ind/Y(A)					
	BA	21939	6.7000E-01	7.5	-2.52	FractInd	7.1403E-01	6.34	6.6(I)	16.5(E)	16.5(A)
		22003	1.0300E+00	13.0	2.52	Ind/Y(A)					
	LA	21939	8.0000E-02	87.5	0.00	FractInd	8.0000E-02	0.00	87.5(I)	0.0(E)	87.5(A)
	CE	13437	1.2000E-01	33.0	0.65	FractInd	1.0237E-01	0.42	28.0(I)	18.1(E)	28.0(A)
		485	8.3000E-02	50.0	-0.65	FractInd					
144	CS	21939	2.0000E-02	50.0w	-2.50	FractInd	4.3640E-02	3.63	10.4(I)	19.8(E)	19.8(A)
		485	5.2000E-02	31.0	0.54	FractInd					
		2008r	4.4400E-02	12.8	0.22	Ind/Y(A)					
		21641	7.8400E-02	5.0w	2.47	Ind/Y(A)					
	BA	21939	7.7000E-01	5.2	0.93	FractInd	7.4264E-01	0.86	3.6(I)	3.4(E)	3.6(A)
		22003	7.2000E-01	5.0	-0.93	Ind/Y(A)					
	LA	20878	1.7000E-01	47.1	-0.33	FractInd	1.9643E-01	0.11	4.9(I)	1.6(E)	4.9(A)
		21939	2.1000E-01	19.0	0.35	FractInd					
		21743	1.9600E-01	5.0	-0.16	Ind/Y(A)					
145	CS	680	2.6600E-02	50.0	0.45	Ind/Y(A)	2.0699E-02	3.20	4.9(I)	8.8(E)	8.8(A)
		2008r	1.3700E-02	17.0w	-2.50	Ind/Y(A)					
		21641	2.1600E-02	5.1	2.34	Ind/Y(A)					
	BA	21939	4.5000E-01	6.7	-0.83	FractInd	4.5512E-01	0.69	6.5(I)	5.4(E)	6.5(A)
		22003	5.7100E-01	25.0	0.83	Ind/Y(A)					
	LA	13437	5.4000E-04	90.0	-0.02	FractInd	5.4993E-04	0.00	7.2(I)	0.1(E)	7.2(A)
		21939	5.5000E-04	7.3	0.02	FractInd					
146	CS	2008r	6.0200E-03	33.5	1.72	Ind/Y(A)	2.5760E-03	1.47	8.0(I)	9.8(E)	9.8(A)
		680	2.4500E-03	100.0	-0.05	Ind/Y(A)					
		21641	2.5400E-03	8.2	-1.30	Ind/Y(A)					
	BA	21939	2.8000E-01	10.7	0.13	FractInd	2.7876E-01	0.02	10.2(I)	1.3(E)	10.2(A)
		22003	2.6800E-01	33.0	-0.13	Ind/Y(A)					
	LA	21939	5.2000E-01	15.4	0.00	FractInd	5.2000E-01	0.00	15.4(I)	0.0(E)	15.4(A)
	CE	20878	1.8000E-01	27.8	-0.39	FractInd	1.9923E-01	0.15	4.9(I)	1.9(E)	4.9(A)

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
		21939	2.0000E-01	5.0	0.39	FractInd					
	PM	21532	1.5100E-10	100.0	0.00	Ind/Y(A)	1.5100E-10	0.00	100.0(I)	0.0(E)	100.0(A)
147	LA	21939	4.1000E-01	2.4	0.00	FractInd	4.1000E-01	0.00	2.4(I)	0.0(E)	2.4(A)
	CE	21939	4.1000E-01	19.5	0.00	FractInd	4.1000E-01	0.00	19.5(I)	0.0(E)	19.5(A)
	PR	21939	1.8000E-01	44.4	0.00	FractInd	1.8000E-01	0.00	44.4(I)	0.0(E)	44.4(A)
148	PM(G)	554	5.0000E-06	100.0	-2.99	FractInd	8.6130E-06	8.96	56.3(I)	168.6(E)	168.6(A)
		554	6.7000E-05	30.0	2.99	FractInd					
	PM(M)	21532	1.6700E-09	25.0w	-2.36	Ind/Y(A)	4.1493E-09	5.16	7.3(I)	16.6(E)	16.6(A)
		21532	3.9900E-09	9.0	-0.84	Ind/Y(A)					
		21532	5.6500E-09	9.5w	2.50	Ind/Y(A)					
150	PM	21552	4.6100E-05	33.3	-0.04	Ind/Y(A)	4.6497E-05	0.00	23.4(I)	0.9(E)	23.4(A)
		873	4.6900E-05	33.0	0.04	Ind/Y(A)					
160	TB	485	1.3000E-03	15.0	0.00	FractInd	1.3000E-03	0.00	15.0(I)	0.0(E)	15.0(A)

TABLE 4 ENERGY:THERMAL NUCLIDE:NP-237

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
134	I	21651	3.2600E-01	22.7	-1.23	FractInd	3.5936E-01	1.51	19.2(I)	23.5(E)	23.5(A)
		10967	5.7400E-01	32.7	1.23	Ind/Y(A)					
135	XE	21651	1.0200E-01	17.6	0.00	FractInd	1.0200E-01	0.00	17.6(I)	0.0(E)	17.6(A)

TABLE 5 ENERGY:THERMAL NUCLIDE:NP-238

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
86	AS	2110	5.4000E-02	5.0	0.00	FractInd	5.4000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	SE	2110	7.6600E-01	5.0	0.00	FractInd	7.6600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	2110	1.8000E-01	5.0	0.00	FractInd	1.8000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
87	AS	2110	4.2000E-02	5.0	0.00	FractInd	4.2000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	SE	2110	2.9900E-01	5.0	0.00	FractInd	2.9900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	2110	5.4600E-01	5.0	0.00	FractInd	5.4600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	KR	2110	1.1300E-01	5.0	0.00	FractInd	1.1300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
88	SE	2110	1.2000E-01	5.0	0.00	FractInd	1.2000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	2110	5.3800E-01	5.0	0.00	FractInd	5.3800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	KR	2110	3.0400E-01	5.0	0.00	FractInd	3.0400E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	3.8000E-02	5.0	0.00	FractInd	3.8000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
89	SE	2110	2.9000E-02	5.0	0.00	FractInd	2.9000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	BR	2110	3.7400E-01	5.0	0.00	FractInd	3.7400E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	KR	2110	5.3200E-01	5.0	0.00	FractInd	5.3200E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	6.5000E-02	5.0	0.00	FractInd	6.5000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
90	BR	2110	8.4000E-02	5.0	0.00	FractInd	8.4000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	KR	2110	7.4000E-01	5.0	0.00	FractInd	7.4000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	1.7600E-01	5.0	0.00	FractInd	1.7600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
91	BR	2110	4.1000E-02	5.0	0.00	FractInd	4.1000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	KR	2110	4.7000E-01	5.0	0.00	FractInd	4.7000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	4.3800E-01	5.0	0.00	FractInd	4.3800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	5.2000E-02	5.0	0.00	FractInd	5.2000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
92	KR	2110	2.6800E-01	5.0	0.00	FractInd	2.6800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	6.2100E-01	5.0	0.00	FractInd	6.2100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	1.1100E-01	5.0	0.00	FractInd	1.1100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
93	KR	2110	7.4000E-02	5.0	0.00	FractInd	7.4000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	6.6200E-01	5.0	0.00	FractInd	6.6200E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	2.6400E-01	5.0	0.00	FractInd	2.6400E-01	0.00	5.0(I)	0.0(E)	5.0(A)
94	KR	2110	2.6000E-02	5.0	0.00	FractInd	2.6000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	RB	2110	3.8700E-01	5.0	0.00	FractInd	3.8700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	5.2300E-01	5.0	0.00	FractInd	5.2300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	2110	6.4000E-02	5.0	0.00	FractInd	6.4000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
95	RB	2110	1.8300E-01	5.0	0.00	FractInd	1.8300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	6.2700E-01	5.0	0.00	FractInd	6.2700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	2110	1.9000E-01	5.0	0.00	FractInd	1.9000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
96	RB	2110	4.3000E-02	5.0	0.00	FractInd	4.3000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	5.5300E-01	5.0	0.00	FractInd	5.5300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	2110	3.4100E-01	5.0	0.00	FractInd	3.4100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	5.2950E-02	5.0	0.00	FractInd	5.2950E-02	0.00	5.0(I)	0.0(E)	5.0(A)
97	RB	2110	1.9000E-02	5.0	0.00	FractInd	1.9000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	SR	2110	2.8500E-01	5.0	0.00	FractInd	2.8500E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	2110	5.7800E-01	5.0	0.00	FractInd	5.7800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	1.1800E-01	5.0	0.00	FractInd	1.1800E-01	0.00	5.0(I)	0.0(E)	5.0(A)
98	SR	2110	1.6000E-01	5.0	0.00	FractInd	1.6000E-01	0.00	5.0(I)	0.0(E)	5.0(A)

TABLE 5 ENERGY:THERMAL NUCLIDE:NP-238

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	Y	2110	5.0100E-01	5.0	0.00	FractInd	5.0100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	3.0000E-01	5.0	0.00	FractInd	3.0000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	2110	3.9000E-02	5.0	0.00	FractInd	3.9000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
99	SR	2110	3.4000E-02	5.0	0.00	FractInd	3.4000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	2110	4.4100E-01	5.0	0.00	FractInd	4.4100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	3.8900E-01	5.0	0.00	FractInd	3.8900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	2110	8.6000E-02	5.0	0.00	FractInd	8.6000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
100	Y	2110	1.9100E-01	5.0	0.00	FractInd	1.9100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	6.9000E-01	5.0	0.00	FractInd	6.9000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	2110	1.1900E-01	5.0	0.00	FractInd	1.1900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
101	Y	2110	8.1000E-02	5.0	0.00	FractInd	8.1000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	5.2400E-01	5.0	0.00	FractInd	5.2400E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	2110	3.4700E-01	5.0	0.00	FractInd	3.4700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	2110	4.8000E-02	5.0	0.00	FractInd	4.8000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
102	Y	2110	1.9000E-02	5.0	0.00	FractInd	1.9000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	2110	4.4700E-01	5.0	0.00	FractInd	4.4700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	2110	4.6600E-01	5.0	0.00	FractInd	4.6600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	2110	8.8000E-02	5.0	0.00	FractInd	8.8000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
103	ZR	2110	1.3300E-01	10.0	0.00	FractInd	1.3300E-01	0.00	10.0(I)	0.0(E)	10.0(A)
	NB	2110	5.9900E-01	5.0	0.00	FractInd	5.9900E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	2110	2.1000E-01	5.0	0.00	FractInd	2.1000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	TC	2110	5.8000E-02	10.0	0.00	FractInd	5.8000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
104	ZR	2110	5.4000E-02	10.0	0.00	FractInd	5.4000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
	NB	2110	4.0300E-01	5.0	0.00	FractInd	4.0300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	2110	4.7000E-01	5.0	0.00	FractInd	4.7000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	TC	2110	7.3000E-02	10.0	0.00	FractInd	7.3000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
105	ZR	2110	5.4000E-02	10.0	0.00	FractInd	5.4000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
	NB	2110	2.4700E-01	5.0	0.00	FractInd	2.4700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	MO	2110	5.0600E-01	5.0	0.00	FractInd	5.0600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	TC	2110	1.9300E-01	5.0	0.00	FractInd	1.9300E-01	0.00	5.0(I)	0.0(E)	5.0(A)
106	NB	2110	6.5000E-02	10.0	0.00	FractInd	6.5000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
	MO	2110	5.4500E-01	5.0	0.00	FractInd	5.4500E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	TC	2110	3.2700E-01	5.0	0.00	FractInd	3.2700E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	RU	2110	6.3000E-02	10.0	0.00	FractInd	6.3000E-02	0.00	10.0(I)	0.0(E)	10.0(A)

TABLE 6 ENERGY:THERMAL NUCLIDE:PU-238

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
133	TE(M)	22087	3.4600E-01	6.3	0.00	Ind/Y(A)	3.4600E-01	0.00	6.3(I)	0.0(E)	6.3(A)
134	I (G)	22087	4.2400E-01	6.8	0.00	Ind/Y(A)	4.2400E-01	0.00	6.8(I)	0.0(E)	6.8(A)
	I (M)	22087	1.8000E-01	8.7	0.00	Ind/Y(A)	1.8000E-01	0.00	8.7(I)	0.0(E)	8.7(A)
135	XE(G)	22087	1.2300E-01	11.9	0.00	Ind/Y(A)	1.2300E-01	0.00	11.9(I)	0.0(E)	11.9(A)
	XE(M)	22087	1.4600E-01	18.9	0.00	Ind/Y(A)	1.4600E-01	0.00	18.9(I)	0.0(E)	18.9(A)

TABLE 7 ENERGY:THERMAL NUCLIDE:PU-239

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
84	RB(G)	887	8.4000E-08	10.8	0.00	Ind/Y(A)	8.4000E-08	0.00	10.8(I)	0.0(E)	10.8(A)
86	AS	21928	8.0000E-03	12.5	0.00	FractInd	8.0000E-03	0.00	12.5(I)	0.0(E)	12.5(A)
	SE	21928	3.9100E-01	4.4	0.00	FractInd	3.9100E-01	0.00	4.4(I)	0.0(E)	4.4(A)
	BR	21928	5.0400E-01	17.1	0.00	FractInd	5.0400E-01	0.00	17.1(I)	0.0(E)	17.1(A)
	KR	21928	9.4000E-02	6.4	0.00	FractInd	9.4000E-02	0.00	6.4(I)	0.0(E)	6.4(A)
	RB(G)	887	2.5100E-04	10.2	0.00	Ind/Y(A)	2.5100E-04	0.00	10.2(I)	0.0(E)	10.2(A)
	RB(T)	21928	3.0000E-03	33.3	0.00	FractInd	3.0000E-03	0.00	33.3(I)	0.0(E)	33.3(A)
87	AS	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
	SE	21928	1.4000E-01	7.1	0.00	FractInd	1.4000E-01	0.00	7.1(I)	0.0(E)	7.1(A)
	BR	21928	5.5900E-01	4.1	0.00	FractInd	5.5900E-01	0.00	4.1(I)	0.0(E)	4.1(A)
	KR	21928	2.8500E-01	4.6	-1.13	FractInd	2.9191E-01	1.27	3.9(I)	4.4(E)	4.4(A)
		21549	3.1600E-01	7.7	1.13	Ind/Y(A)					
	RB	21928	1.5000E-02	6.7	0.00	FractInd	1.5000E-02	0.00	6.7(I)	0.0(E)	6.7(A)
88	SE	21928	3.3000E-02	3.0	0.00	FractInd	3.3000E-02	0.00	3.0(I)	0.0(E)	3.0(A)
	BR	21928	3.5400E-01	3.7	0.00	FractInd	3.5400E-01	0.00	3.7(I)	0.0(E)	3.7(A)
	KR	21928	5.6800E-01	4.6	0.18	FractInd	5.6577E-01	0.03	4.1(I)	0.7(E)	4.1(A)
		21549	5.5800E-01	8.7	-0.18	Ind/Y(A)					
	RB	21928	4.5000E-02	4.4	0.00	FractInd	4.5000E-02	0.00	4.4(I)	0.0(E)	4.4(A)
89	SE	21928	3.0000E-03	33.3	0.00	FractInd	3.0000E-03	0.00	33.3(I)	0.0(E)	33.3(A)
	BR	21928	1.5300E-01	2.6	0.00	FractInd	1.5300E-01	0.00	2.6(I)	0.0(E)	2.6(A)
	KR	21928	6.8300E-01	3.8	0.39	FractInd	6.7647E-01	0.15	3.0(I)	1.2(E)	3.0(A)
		21549	6.6700E-01	4.7	-0.39	Ind/Y(A)					
	RB	21928	1.5100E-01	3.3	-0.16	FractInd	1.5107E-01	0.02	3.3(I)	0.5(E)	3.3(A)
		910	1.6000E-01	36.0	0.16	Ind/Y(A)					
	SR	21928	9.0000E-03	11.1	0.00	FractInd	9.0000E-03	0.00	11.1(I)	0.0(E)	11.1(A)
90	BR	21928	2.8000E-02	14.3	0.00	FractInd	2.8000E-02	0.00	14.3(I)	0.0(E)	14.3(A)
	KR	21928	5.5500E-01	2.7	0.27	FractInd	5.5348E-01	0.07	2.5(I)	0.7(E)	2.5(A)
		21549	5.4400E-01	6.9	-0.27	Ind/Y(A)					
	RB	21928	3.6900E-01	3.5	0.00	FractInd	3.6900E-01	0.00	3.5(I)	0.0(E)	3.5(A)
	SR	21928	4.8000E-02	8.3	0.00	FractInd	4.8000E-02	0.00	8.3(I)	0.0(E)	8.3(A)
91	BR	21928	8.0000E-03	1.2	0.00	FractInd	8.0000E-03	0.00	1.2(I)	0.0(E)	1.2(A)
	KR	21928	2.7900E-01	2.5	-0.18	FractInd	2.7978E-01	0.03	2.0(I)	0.3(E)	2.0(A)
		21549	2.8100E-01	3.1	0.18	Ind/Y(A)					
	RB	21928	5.5600E-01	2.5	0.00	FractInd	5.5600E-01	0.00	2.5(I)	0.0(E)	2.5(A)
		910	5.5600E-01	15.0	0.00	Ind/Y(A)					
	SR	21928	1.5600E-01	13.5	0.00	FractInd	1.5600E-01	0.00	13.5(I)	0.0(E)	13.5(A)
	Y	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
92	BR	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
	KR	21928	1.0800E-01	2.8	1.13	FractInd	1.0636E-01	1.28	2.5(I)	2.8(E)	2.8(A)
		21549	1.0100E-01	5.4	-1.13	Ind/Y(A)					
	RB	21928	5.3300E-01	2.8	-0.15	FractInd	5.3335E-01	0.02	2.8(I)	0.4(E)	2.8(A)
		910	5.4700E-01	17.1	0.15	Ind/Y(A)					
	SR	21928	3.4400E-01	2.6	0.00	FractInd	3.4400E-01	0.00	2.6(I)	0.0(E)	2.6(A)
	Y	21928	1.5000E-02	6.7	0.00	FractInd	1.5000E-02	0.00	6.7(I)	0.0(E)	6.7(A)
	NB(M)	21711	3.6700E-08	49.0	0.00	Ind/Y(A)	3.6700E-08	0.00	49.0(I)	0.0(E)	49.0(A)
	NB(T)	21711	8.6800E-08	70.0	0.00	Ind/Y(A)	8.6800E-08	0.00	70.0(I)	0.0(E)	70.0(A)
93	KR	21928	2.2000E-02	5.0	2.86	FractInd	2.0055E-02	8.20	4.3(I)	12.4(E)	12.4(A)
		21549	1.6900E-02	8.3	-2.86	Ind/Y(A)					
	RB	21928	3.4200E-01	5.0	-2.07	FractInd	3.4963E-01	4.28	4.8(I)	9.9(E)	9.9(A)

TABLE 7 ENERGY:THERMAL NUCLIDE:PU-239

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
		910	5.0600E-01	15.3	2.07	Ind/Y(A)					
	SR	21928	5.8600E-01	5.0	0.00	FractInd	5.8600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	21928	5.0000E-02	5.0	0.00	FractInd	5.0000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
94	KR	21928	5.0000E-03	20.0	0.00	FractInd	5.0000E-03	0.00	20.0(I)	0.0(E)	20.0(A)
	RB	21928	1.2800E-01	3.9	1.43	FractInd	1.2722E-01	2.06	3.9(I)	5.6(E)	5.6(A)
		910	6.1900E-02	74.0	-1.43	Ind/Y(A)					
	SR	21928	7.1200E-01	5.0	0.00	FractInd	7.1200E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	21928	1.4900E-01	4.7	0.00	FractInd	1.4900E-01	0.00	4.7(I)	0.0(E)	4.7(A)
	ZR	21928	7.0000E-03	14.3	0.00	FractInd	7.0000E-03	0.00	14.3(I)	0.0(E)	14.3(A)
95	RB	21928	5.0000E-02	5.0	-3.02	FractInd	5.0564E-02	9.11	4.9(I)	14.9(E)	14.9(A)
		910	1.5100E-01	22.1	3.02	Ind/Y(A)					
	SR	21928	5.6200E-01	5.0	0.00	FractInd	5.6200E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	Y	21928	3.6100E-01	5.0	0.00	FractInd	3.6100E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	ZR	21928	2.7000E-02	5.0	0.00	FractInd	2.7000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
	NB	391	3.0000E-04	15.0	0.00	FractInd	3.0000E-04	0.00	15.0(I)	0.0(E)	15.0(A)
96	RB	21928	8.0000E-03	12.5	0.00	FractInd	8.0000E-03	0.00	12.5(I)	0.0(E)	12.5(A)
	SR	21928	3.7300E-01	2.7	0.00	FractInd	3.7300E-01	0.00	2.7(I)	0.0(E)	2.7(A)
	Y	21928	5.0900E-01	2.5	0.00	FractInd	5.0900E-01	0.00	2.6(I)	0.0(E)	2.6(A)
	ZR	21928	1.1000E-01	2.7	0.00	FractInd	1.1000E-01	0.00	2.7(I)	0.0(E)	2.7(A)
	NB	391	7.7000E-04	13.0	0.41	FractInd	7.3105E-04	0.08	3.8(I)	1.1(E)	3.8(A)
		564	7.2400E-04	17.3	-0.06	Ind/Y(A)					
		21218	7.2800E-04	4.1	-0.29	Ind/Y(A)					
97	RB	21928	1.0000E-03	100.0	-1.52	FractInd	1.0215E-03	2.32	97.9(I)	149.2(E)	149.2(A)
		910	1.0900E-01	65.0	1.52	Ind/Y(A)					
	SR	21928	1.3500E-01	2.2	0.00	FractInd	1.3500E-01	0.00	2.2(I)	0.0(E)	2.2(A)
	Y	21928	5.5200E-01	2.0	0.00	FractInd	5.5200E-01	0.00	2.0(I)	0.0(E)	2.0(A)
	ZR	21928	2.9700E-01	2.7	0.00	FractInd	2.9700E-01	0.00	2.7(I)	0.0(E)	2.7(A)
	NB	21928	1.5000E-02	13.3	0.00	FractInd	1.5000E-02	0.00	11.9(I)	0.0(E)	11.9(A)
		391	1.5000E-02	27.0	0.00	FractInd					
98	SR	21928	5.5000E-02	3.6	0.00	FractInd	5.5000E-02	0.00	3.6(I)	0.0(E)	3.6(A)
	Y	21928	3.9900E-01	3.0	0.00	FractInd	3.9900E-01	0.00	3.0(I)	0.0(E)	3.0(A)
	ZR	21928	4.9100E-01	42.8	0.00	FractInd	4.9100E-01	0.00	42.8(I)	0.0(E)	42.8(A)
	NB(G)	1097	2.5900E-02	20.4	0.00	Ind/Y(A)	2.5900E-02	0.00	20.4(I)	0.0(E)	20.4(A)
	NB(T)	21928	5.5000E-02	3.6	0.00	FractInd	5.5000E-02	0.00	3.6(I)	0.0(E)	3.6(A)
99	SR	21928	6.0000E-03	16.7	0.00	FractInd	6.0000E-03	0.00	16.7(I)	0.0(E)	16.7(A)
	Y	21928	2.3400E-01	3.4	0.00	FractInd	2.3400E-01	0.00	3.4(I)	0.0(E)	3.4(A)
	ZR	21928	6.0200E-01	2.3	0.00	FractInd	6.0200E-01	0.00	2.3(I)	0.0(E)	2.3(A)
	NB	21928	1.5300E-01	4.6	0.00	FractInd	1.5300E-01	0.00	4.6(I)	0.0(E)	4.6(A)
	MO	21928	6.0000E-03	16.7	0.00	FractInd	6.0000E-03	0.00	16.7(I)	0.0(E)	16.7(A)
100	SR	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
	Y	21928	5.1000E-02	2.0	0.00	FractInd	5.1000E-02	0.00	2.0(I)	0.0(E)	2.0(A)
	ZR	21928	7.0600E-01	2.3	0.00	FractInd	7.0600E-01	0.00	2.3(I)	0.0(E)	2.3(A)
	NB	21928	2.2200E-01	3.6	0.00	FractInd	2.2200E-01	0.00	3.6(I)	0.0(E)	3.6(A)
	MO	21928	2.1000E-02	4.8	0.00	FractInd	2.1000E-02	0.00	4.8(I)	0.0(E)	4.8(A)
101	Y	21928	1.4000E-02	7.1	0.00	FractInd	1.4000E-02	0.00	7.1(I)	0.0(E)	7.1(A)
	ZR	21928	3.8800E-01	6.2	0.00	FractInd	3.8800E-01	0.00	6.2(I)	0.0(E)	6.2(A)
	NB	21928	5.7400E-01	61.0	0.00	FractInd	5.7400E-01	0.00	61.0(I)	0.0(E)	61.0(A)

TABLE 7 ENERGY:THERMAL NUCLIDE:PU-239

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
	MO	21928	2.3000E-02	4.3	0.00	FractInd	2.3000E-02	0.00	4.3(I)	0.0(E)	4.3(A)
	TC	2009	2.3000E-02	65.2	0.00	FractInd	2.3000E-02	0.00	65.2(I)	0.0(E)	65.2(A)
102	Y	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
	ZR	21928	1.9900E-01	5.5	0.00	FractInd	1.9900E-01	0.00	5.5(I)	0.0(E)	5.5(A)
	NB	21928	5.0300E-01	6.2	0.00	FractInd	5.0300E-01	0.00	6.2(I)	0.0(E)	6.2(A)
	MO	21928	2.8700E-01	7.0	0.00	FractInd	2.8700E-01	0.00	7.0(I)	0.0(E)	7.0(A)
	TC	21928	1.1000E-02	9.1	0.74	FractInd	1.0819E-02	0.55	9.0(I)	6.7(E)	9.0(A)
		2041	7.9400E-03	50.2	-0.74	Ind/Y(A)					
103	ZR	21928	3.2000E-02	6.2	0.00	FractInd	3.2000E-02	0.00	6.2(I)	0.0(E)	6.2(A)
	NB	21928	3.8700E-01	4.7	0.00	FractInd	3.8700E-01	0.00	4.7(I)	0.0(E)	4.7(A)
	MO	21928	5.4600E-01	4.2	0.00	FractInd	5.4600E-01	0.00	4.2(I)	0.0(E)	4.2(A)
	TC	2009	3.4600E-01	43.3	2.08	FractInd	3.5125E-02	4.31	8.5(I)	17.7(E)	17.7(A)
		21928	3.5000E-02	8.6	-2.08	FractInd					
104	ZR	21928	1.0000E-02	10.0	0.00	FractInd	1.0000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
	NB	21928	1.7600E-01	4.5	0.00	FractInd	1.7600E-01	0.00	4.5(I)	0.0(E)	4.5(A)
	MO	21928	6.8100E-01	3.2	0.00	FractInd	6.8100E-01	0.00	3.2(I)	0.0(E)	3.2(A)
	TC	21928	1.2800E-01	3.9w	2.50	FractInd	9.3340E-02	2.25	8.2(I)	12.3(E)	12.3(A)
		10996	7.7000E-02	15.6	-1.77	FractInd					
		1068	8.5000E-02	39.0	-0.26	FractInd					
		2009	9.0000E-02	15.5	-0.29	FractInd					
	RU	21928	4.0000E-03	25.0	0.00	FractInd	4.0000E-03	0.00	25.0(I)	0.0(E)	25.0(A)
105	NB	21928	8.7000E-02	4.6	0.00	FractInd	8.7000E-02	0.00	4.6(I)	0.0(E)	4.6(A)
	MO	21928	5.7700E-01	3.0	0.00	FractInd	5.7700E-01	0.00	3.0(I)	0.0(E)	3.0(A)
	TC	2009	1.9500E-01	23.1	-2.06	FractInd	2.8377E-01	2.93	4.6(I)	7.8(E)	7.8(A)
		10996	2.6400E-01	8.0	-1.20	FractInd					
		1068	2.8000E-01	11.0	-0.13	FractInd					
		21928	3.2700E-01	3.1w	2.50	FractInd					
	RU	21928	8.0000E-03	12.5	0.00	FractInd	8.0000E-03	0.00	12.5(I)	0.0(E)	12.5(A)
106	NB	21928	8.0000E-03	12.5	0.00	FractInd	8.0000E-03	0.00	12.5(I)	0.0(E)	12.5(A)
	MO	21928	4.9700E-01	1.1	0.00	FractInd	4.9700E-01	0.00	1.1(I)	0.0(E)	1.1(A)
	TC	21928	4.2100E-01	3.6	0.00	FractInd	4.2100E-01	0.00	3.6(I)	0.0(E)	3.6(A)
	RU	21928	7.2000E-02	4.2	0.00	FractInd	7.2000E-02	0.00	4.2(I)	0.0(E)	4.2(A)
	RH	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
107	NB	21928	1.0000E-03	100.0	0.00	FractInd	1.0000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
	MO	21928	1.7700E-01	11.3	0.00	FractInd	1.7700E-01	0.00	11.3(I)	0.0(E)	11.3(A)
	TC	21928	5.4500E-01	7.2	0.00	FractInd	5.4500E-01	0.00	7.2(I)	0.0(E)	7.2(A)
	RU	21928	2.5300E-01	1.1	0.00	FractInd	2.5300E-01	0.00	1.1(I)	0.0(E)	1.1(A)
	RH	21928	2.3000E-02	26.1	0.00	FractInd	2.3000E-02	0.00	26.1(I)	0.0(E)	26.1(A)
108	MO	21928	1.0300E-01	58.3	0.00	FractInd	1.0300E-01	0.00	58.3(I)	0.0(E)	58.3(A)
	TC	21928	2.5900E-01	46.3	0.00	FractInd	2.5900E-01	0.00	46.3(I)	0.0(E)	46.3(A)
	RU	21928	6.1900E-01	4.0	0.00	FractInd	6.1900E-01	0.00	4.0(I)	0.0(E)	4.0(A)
	RH	21928	1.9000E-02	10.5	0.00	FractInd	1.9000E-02	0.00	10.5(I)	0.0(E)	10.5(A)
109	MO	21928	4.0000E-03	25.0	0.00	FractInd	4.0000E-03	0.00	25.0(I)	0.0(E)	25.0(A)
	TC	21928	2.7300E-01	9.9	0.00	FractInd	2.7300E-01	0.00	9.9(I)	0.0(E)	9.9(A)
	RU	21928	6.7400E-01	6.8	0.00	FractInd	6.7400E-01	0.00	6.8(I)	0.0(E)	6.8(A)
	RH	21928	4.9000E-02	22.3	0.00	FractInd	4.9000E-02	0.00	22.3(I)	0.0(E)	22.3(A)
126	SB(G)	261	2.2800E-01	15.8	0.00	Ind/Y(A)	2.2800E-01	0.00	15.8(I)	0.0(E)	15.8(A)

TABLE 7 ENERGY:THERMAL NUCLIDE:PU-239

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
128	SB(G)	932	7.2700E-02	13.5	0.00	Ind/Y(A)	7.2700E-02	0.00	13.5(I)	0.0(E)	13.5(A)
	SB(M)	932	7.8700E-02	8.6	0.00	Ind/Y(A)	7.8700E-02	0.00	8.6(I)	0.0(E)	8.6(A)
	I	665	2.4400E-04	11.7	4.14	Ind/Y(A)	1.4266E-04	17.16	10.3(I)	42.7(E)	42.7(A)
		420	1.0600E-04	16.2	-4.14	Ind/Y(A)					
131	TE(G)	932	1.1300E-01	10.2	0.00	Ind/Y(A)	1.1300E-01	0.00	10.2(I)	0.0(E)	10.2(A)
	TE(M)	932	2.4000E-01	10.2	0.00	Ind/Y(A)	2.4000E-01	0.00	10.2(I)	0.0(E)	10.2(A)
132	SB(G)	932	2.2600E-01	16.1	0.00	Ind/Y(A)	2.2600E-01	0.00	16.1(I)	0.0(E)	16.1(A)
	SB(M)	20878	1.2500E-01	20.0	0.46	FractInd	1.1627E-01	3.44	14.0(I)	25.9(E)	25.9(A)
		20878r	3.7900E-01	6.2w	2.50	Ind/Y(A)					
		932	9.8600E-02	22.1	-1.22	Ind/Y(A)					
	SB(N)	20878	3.7900E-01	12.4	0.00	FractInd	3.7900E-01	0.00	12.4(I)	0.0(E)	12.4(A)
	SB(T)	20878	5.0400E-01	5.0	0.00	FractInd	5.0400E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	I (G)	20848	2.2800E-02	8.5	0.00	Ind/Y(A)	2.2800E-02	0.00	8.5(I)	0.0(E)	8.5(A)
	I (M)	20848	2.0900E-02	9.2	1.09	Ind/Y(A)	1.9569E-02	1.19	7.6(I)	8.3(E)	8.3(A)
		2064r	1.7600E-02	13.3	-1.09	Ind/Y(A)					
	I (T)	20848	4.3800E-02	8.8	0.00	Ind/Y(A)	4.3800E-02	0.00	8.8(I)	0.0(E)	8.8(A)
133	TE(G)	932	2.4000E-01	10.2	0.00	Ind/Y(A)	2.4000E-01	0.00	10.2(I)	0.0(E)	10.2(A)
	TE(M)	932	3.8700E-01	5.3	0.00	Ind/Y(A)	3.8700E-01	0.00	5.3(I)	0.0(E)	5.3(A)
	I (G)	567	1.5100E-01	19.0	0.36	FractInd	1.4135E-01	0.13	7.1(I)	2.6(E)	7.1(A)
		20848	1.4000E-01	7.7	-0.36	Ind/Y(A)					
	XE(G)	12895	1.3000E-03	8.5	0.00	FractInd	1.3000E-03	0.00	8.5(I)	0.0(E)	8.5(A)
	XE(M)	12895	4.6600E-03	5.6	0.00	FractInd	4.6600E-03	0.00	5.6(I)	0.0(E)	5.6(A)
	XE(T)	12895	5.9700E-03	5.0	0.00	FractInd	5.9700E-03	0.00	5.0(I)	0.0(E)	5.0(A)
134	I (G)	20848	1.8400E-01	6.2	0.00	Ind/Y(A)	1.8400E-01	0.00	6.2(I)	0.0(E)	6.2(A)
	I (M)	20848	1.6300E-01	6.6	1.28	Ind/Y(A)	1.5596E-01	1.65	5.9(I)	7.6(E)	7.6(A)
		2064r	1.3600E-01	13.3	-1.28	Ind/Y(A)					
	I (T)	567	3.3500E-01	8.0	-0.38	FractInd	3.4287E-01	0.14	4.9(I)	1.9(E)	4.9(A)
		20848	3.4800E-01	6.2	0.38	Ind/Y(A)					
135	I	567	6.0800E-01	6.0	0.00	FractInd	6.0800E-01	0.00	6.0(I)	0.0(E)	6.0(A)
	XE	606	1.7820E-01	5.0	0.00	FractInd	1.7820E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	XE(G)	12895	5.9800E-02	10.5	-0.03	FractInd	5.9933E-02	0.00	7.8(I)	0.2(E)	7.8(A)
		20848	6.0100E-02	11.7	0.03	Ind/Y(A)					
	XE(M)	12895	8.6700E-02	5.3	-1.93	FractInd	9.0993E-02	3.71	4.4(I)	8.5(E)	8.5(A)
		20848r	1.0500E-01	7.9	1.93	Ind/Y(A)					
	XE(T)	12895	1.4700E-01	5.4	-1.98	FractInd	1.5693E-01	2.49	3.9(I)	6.2(E)	6.2(A)
		267	1.4800E-01	17.0	-0.37	FractInd					
		20848	1.7600E-01	6.0	2.23	Ind/Y(A)					
136	CS	887	1.5100E-02	10.4	1.10	Ind/Y(A)	1.3534E-02	2.31	4.9(I)	7.5(E)	7.5(A)
		216	1.5700E-02	15.3	0.94	Ind/Y(A)					
		261	1.2300E-02	9.5	-1.30	Ind/Y(A)					
		1028r	1.3700E-03	7.7w	-2.50	Ind/Y(A)					
		1021r	1.4000E-02	7.7	0.56	Ind/Y(A)					
137	XE	21549	5.7000E-01	5.3	0.00	Ind/Y(A)	5.7000E-01	0.00	5.3(I)	0.0(E)	5.3(A)
138	XE	21549	6.7900E-01	7.6	0.00	Ind/Y(A)	6.7900E-01	0.00	7.6(I)	0.0(E)	7.6(A)
	CS(G)	20848	4.2700E-02	11.7	0.00	Ind/Y(A)	4.2700E-02	0.00	11.7(I)	0.0(E)	11.7(A)
	CS(M)	2006r	2.3300E-02	42.9	-5.44	Ind/Y(A)	6.4416E-02	29.55	10.1(I)	55.1(E)	55.1(A)
		20848r	9.5100E-02	9.1	5.44	Ind/Y(A)					
	CS(T)	20848	1.3800E-01	8.7	-0.13	Ind/Y(A)	1.3850E-01	0.02	8.2(I)	1.1(E)	8.2(A)
		910	1.4300E-01	25.1	0.13	Ind/Y(A)					
139	XE	21549	4.5900E-01	7.4	0.00	Ind/Y(A)	4.5900E-01	0.00	7.4(I)	0.0(E)	7.4(A)
	CS	910	3.9200E-01	16.1	0.00	Ind/Y(A)	3.9200E-01	0.00	16.1(I)	0.0(E)	16.1(A)
140	XE	21549	2.8200E-01	4.1	0.00	Ind/Y(A)	2.8200E-01	0.00	4.1(I)	0.0(E)	4.1(A)
141	XE	21549	9.2600E-02	6.4	0.00	Ind/Y(A)	9.2600E-02	0.00	6.4(I)	0.0(E)	6.4(A)
	CS	910	5.0000E-01	20.0	0.00	Ind/Y(A)	5.0000E-01	0.00	20.0(I)	0.0(E)	20.0(A)
142	XE	21549	2.7600E-02	7.4	0.00	Ind/Y(A)	2.7600E-02	0.00	7.4(I)	0.0(E)	7.4(A)
	CS	910	2.2800E-01	20.0	0.00	Ind/Y(A)	2.2800E-01	0.00	20.0(I)	0.0(E)	20.0(A)
143	CS	910	1.3400E-01	24.0	0.00	Ind/Y(A)	1.3400E-01	0.00	24.0(I)	0.0(E)	24.0(A)
145	CS	910	1.6800E-02	135.0	0.00	Ind/Y(A)	1.6800E-02	0.00	135.0(I)	0.0(E)	135.0(A)
148	PM(G)	21706	1.5400E-04	11.5	-0.24	Ind/Y(A)	1.5699E-04	0.06	8.0(I)	1.9(E)	8.0(A)
		21706	1.6000E-04	11.1	0.24	Ind/Y(A)					
	PM(M)	21706	4.4500E-05	20.0	0.00	Ind/Y(A)	4.4500E-05	0.00	20.0(I)	0.0(E)	20.0(A)
150	PM	21552	1.1800E-03	6.2	-6.12	Ind/Y(A)	1.3664E-03	37.48	4.9(I)	29.9(E)	29.9(A)
		874	2.2600E-03	7.1	6.12	Ind/Y(A)					

TABLE 8 ENERGY:THERMAL NUCLIDE:PU-241

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
87	KR	21549	1.4400E-01	10.1	0.00	Ind/Y(A)	1.4400E-01	0.00	10.1(I)	0.0(E)	10.1(A)
88	KR	21549	4.2700E-01	10.3	0.00	Ind/Y(A)	4.2700E-01	0.00	10.3(I)	0.0(E)	10.3(A)
89	KR	21549	5.9500E-01	9.1	0.00	Ind/Y(A)	5.9500E-01	0.00	9.1(I)	0.0(E)	9.1(A)
90	KR	21549	6.2300E-01	7.9	0.00	Ind/Y(A)	6.2300E-01	0.00	7.9(I)	0.0(E)	7.9(A)
91	KR	21549	5.1000E-01	7.1	0.00	Ind/Y(A)	5.1000E-01	0.00	7.1(I)	0.0(E)	7.1(A)
92	KR	21549	2.5000E-01	11.3	0.00	Ind/Y(A)	2.5000E-01	0.00	11.3(I)	0.0(E)	11.3(A)
93	KR	21549	6.7200E-02	11.3	0.00	Ind/Y(A)	6.7200E-02	0.00	11.3(I)	0.0(E)	11.3(A)
96	NB	101r	3.0200E-03	9.8	0.00	Ind/Y(A)	3.0200E-03	0.00	9.8(I)	0.0(E)	9.8(A)
135	XE	607	3.3200E-02	5.0	-0.47	FractInd	3.3232E-02	0.22	5.0(I)	2.3(E)	5.0(A)
		268	5.2000E-02	77.0	0.47	FractInd					
136	CS	771r	2.6300E-03	12.9	0.00	Ind/Y(A)	2.6300E-03	0.00	12.9(I)	0.0(E)	12.9(A)
137	XE	21549	3.8800E-01	8.2	0.00	Ind/Y(A)	3.8800E-01	0.00	8.2(I)	0.0(E)	8.2(A)
138	XE	21549	5.9800E-01	8.4	0.00	Ind/Y(A)	5.9800E-01	0.00	8.4(I)	0.0(E)	8.4(A)
139	XE	21549	6.1600E-01	21.1	0.00	Ind/Y(A)	6.1600E-01	0.00	21.1(I)	0.0(E)	21.1(A)
140	XE	21549	5.2400E-01	10.2	0.00	Ind/Y(A)	5.2400E-01	0.00	10.2(I)	0.0(E)	10.2(A)
141	XE	21549	2.8700E-01	10.3	0.00	Ind/Y(A)	2.8700E-01	0.00	10.3(I)	0.0(E)	10.3(A)
142	XE	21549	1.1800E-01	9.3	0.00	Ind/Y(A)	1.1800E-01	0.00	9.3(I)	0.0(E)	9.3(A)

TABLE 9 ENERGY:THERMAL NUCLIDE:AM-241

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
136	CS	769r	4.0700E-02	22.1	0.00	Ind/Y(A)	4.0700E-02	0.00	22.1(I)	0.0(E)	22.1(A)

TABLE 10 ENERGY:THERMAL NUCLIDE:AM-242m

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
133	XE(G)	12895	1.6400E-03	7.9	0.00	FractInd	1.6400E-03	0.00	7.9(I)	0.0(E)	7.9(A)
	XE(M)	12895	4.7100E-03	10.4	0.00	FractInd	4.7100E-03	0.00	10.4(I)	0.0(E)	10.4(A)
	XE(T)	12895	6.4000E-03	6.4	0.00	FractInd	6.4000E-03	0.00	6.4(I)	0.0(E)	6.4(A)
135	XE(G)	12895	5.0000E-02	15.0	0.00	FractInd	5.0000E-02	0.00	15.0(I)	0.0(E)	15.0(A)
	XE(M)	12895	8.6900E-02	6.2	0.00	FractInd	8.6900E-02	0.00	6.2(I)	0.0(E)	6.2(A)
	XE(T)	12895	1.3900E-01	3.4	0.00	FractInd	1.3900E-01	0.00	3.4(I)	0.0(E)	3.4(A)

TABLE 11 ENERGY:THERMAL NUCLIDE:CM-245

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
135	XE(G)	808	1.7000E-01	12.0	0.00	FractInd	1.7000E-01	0.00	12.0(I)	0.0(E)	12.0(A)

TABLE 12 ENERGY:THERMAL NUCLIDE:CF-249

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
96	NB	21604	2.6300E-03	14.0	0.00	Ind/Y(A)	2.6300E-03	0.00	14.0(I)	0.0(E)	14.0(A)
98	NB(M)	21604	6.4900E-02	20.2	0.00	Ind/Y(A)	6.4900E-02	0.00	20.2(I)	0.0(E)	20.2(A)
111	PD(M)	716	8.3000E-02	6.0	0.00	FractInd	8.3000E-02	0.00	6.0(I)	0.0(E)	6.0(A)
112	AG	716	3.5000E-02	23.0	0.00	FractInd	3.5000E-02	0.00	23.0(I)	0.0(E)	23.0(A)
130	I (G)	21604	2.0900E-02	13.6	0.00	Ind/Y(A)	2.0900E-02	0.00	13.6(I)	0.0(E)	13.6(A)
132	SB(M)	20878r	2.6300E-01	19.3	0.00	Ind/Y(A)	2.6300E-01	0.00	13.5(I)	0.0(E)	13.5(A)
		20878	2.6300E-01	18.9	0.00	Ind/Y(A)					
	SB(T)	20878	3.8700E-01	18.6	0.00	Ind/Y(A)	3.8700E-01	0.00	18.6(I)	0.0(E)	18.6(A)
133	I (G)	13328	3.5000E-01	10.0	0.00	FractInd	3.5000E-01	0.00	10.0(I)	0.0(E)	10.0(A)
134	I	12710	7.2200E-01	18.3	0.00	Ind/Y(A)	7.2200E-01	0.00	18.3(I)	0.0(E)	18.3(A)
135	XE	12710	4.9700E-01	8.2	0.00	Ind/Y(A)	4.9700E-01	0.00	8.2(I)	0.0(E)	8.2(A)
	XE(G)	809	3.6000E-01	12.0	0.00	FractInd	3.6000E-01	0.00	12.0(I)	0.0(E)	12.0(A)
138	CS	13318	3.7000E-01	8.0	0.00	FractInd	3.7000E-01	0.00	8.0(I)	0.0(E)	8.0(A)
139	BA	1142	1.4000E-01	20.0	0.00	FractInd	1.4000E-01	0.00	20.0(I)	0.0(E)	20.0(A)
140	CS	21604	6.5600E-02	6.1	0.00	Ind/Y(A)	6.5600E-02	0.00	6.1(I)	0.0(E)	6.1(A)
	LA	674	3.5000E-02	5.0	0.00	FractInd	3.5000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
142	LA	1142	2.9000E-01	10.0	0.00	FractInd	2.9000E-01	0.00	10.0(I)	0.0(E)	10.0(A)

TABLE 13 ENERGY:FAST NUCLIDE:TH-232

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
85	BR	2068	4.7000E-02	10.0	0.00	FractInd	4.7000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
86	BR	2068	1.8400E-01	20.0	0.00	FractInd	1.8400E-01	0.00	20.0(I)	0.0(E)	20.0(A)
	RB	21805	6.3300E-05	22.4	0.00	Ind/Y(A)	6.3300E-05	0.00	22.4(I)	0.0(E)	22.4(A)
90	KR	30425	7.6200E-01	15.0	0.00	FractInd	7.6200E-01	0.00	15.0(I)	0.0(E)	15.0(A)
91	KR	30425	7.4000E-01	8.7	0.00	FractInd	7.4000E-01	0.00	8.6(I)	0.0(E)	8.6(A)
96	NB	13441	3.0000E-05	1000.0	0.00	FractInd	3.0000E-05	0.00	*****(I)	0.0(E)	*****(A)
110	AG(M)	13441	1.0000E-04	15.0	0.00	FractInd	1.0000E-04	0.00	15.0(I)	0.0(E)	15.0(A)
131	SN	30425	7.1000E-01	28.5	0.00	FractInd	7.1000E-01	0.00	28.5(I)	0.0(E)	28.5(A)
	TE	21805	1.8500E-02	29.1	0.00	Ind/Y(A)	1.8500E-02	0.00	29.1(I)	0.0(E)	29.1(A)
132	SN	30425	5.2900E-01	16.1	-0.46	FractInd	5.5549E-01	0.21	11.2(I)	5.1(E)	11.2(A)
		21805	5.8600E-01	15.6	0.46	Ind/Y(A)					
	SB	30425	3.3000E-01	40.0	0.00	FractInd	3.3000E-01	0.00	40.0(I)	0.0(E)	40.0(A)
134	I	13430	7.7000E-02	52.0	0.00	FractInd	7.7000E-02	0.00	52.0(I)	0.0(E)	52.0(A)
	I (G)	2068	8.4800E-03	30.0	0.00	FractInd	8.4800E-03	0.00	30.0(I)	0.0(E)	30.0(A)
	I (M)	2068	7.5200E-03	30.0	0.00	FractInd	7.5200E-03	0.00	30.0(I)	0.0(E)	30.0(A)
135	I	2068	1.6200E-01	20.0	0.59	FractInd	1.4755E-01	0.34	14.3(I)	8.4(E)	14.3(A)
		21805	1.3700E-01	20.2	-0.59	Ind/Y(A)					
136	I (G)	2068	9.6900E-02	25.0	0.00	FractInd	9.6900E-02	0.00	25.0(I)	0.0(E)	25.0(A)
	I (M)	2068	2.3710E-01	25.0	0.00	FractInd	2.3710E-01	0.00	25.0(I)	0.0(E)	25.0(A)
	CS	13430	6.3000E-04	5.0w	2.32	FractInd	8.8856E-05	3.71	62.9(I)	121.1(E)	121.1(A)
		322r	3.0400E-04	59.8	1.24	Ind/Y(A)					
		21805	3.0500E-05	8.7w	-2.50	Ind/Y(A)					
139	XE	30425	7.5500E-01	10.3	0.00	FractInd	7.5500E-01	0.00	10.3(I)	0.0(E)	10.3(A)
140	XE	30425	7.7300E-01	7.2	0.00	FractInd	7.7300E-01	0.00	7.2(I)	0.0(E)	7.2(A)

TABLE 14 ENERGY:FAST NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
86	BR	21743	4.3000E-01	5.7	0.00	Ind/Y(A)	4.3000E-01	0.00	5.7(I)	0.0(E)	5.7(A)
	KR	21743	8.7000E-02	29.7	0.00	Ind/Y(A)	8.7000E-02	0.00	29.7(I)	0.0(E)	29.7(A)
87	BR	21743	6.1500E-01	6.1	0.00	Ind/Y(A)	6.1500E-01	0.00	6.1(I)	0.0(E)	6.1(A)
	KR	21743	1.6400E-01	19.3	0.00	Ind/Y(A)	1.6400E-01	0.00	19.3(I)	0.0(E)	19.3(A)
88	BR	21743	5.2000E-01	5.8	0.00	Ind/Y(A)	5.2000E-01	0.00	5.8(I)	0.0(E)	5.8(A)
	KR	21743	3.9000E-01	8.4	0.00	Ind/Y(A)	3.9000E-01	0.00	8.4(I)	0.0(E)	8.4(A)
	RB	21743	1.6800E-02	83.4	0.00	Ind/Y(A)	1.6800E-02	0.00	83.4(I)	0.0(E)	83.4(A)
89	BR	21743	3.1000E-01	3.8	0.00	Ind/Y(A)	3.1000E-01	0.00	3.8(I)	0.0(E)	3.8(A)
	KR	21743	6.1700E-01	9.3	0.00	Ind/Y(A)	6.1700E-01	0.00	9.3(I)	0.0(E)	9.3(A)
	RB	21743	9.5600E-02	52.4	0.00	Ind/Y(A)	9.5600E-02	0.00	52.4(I)	0.0(E)	52.4(A)
90	BR	21743	1.2200E-01	6.7	0.00	Ind/Y(A)	1.2200E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	KR	21743	6.6200E-01	4.9	0.00	Ind/Y(A)	6.6200E-01	0.00	4.9(I)	0.0(E)	4.9(A)
	RB	21743	2.5300E-01	15.4	0.00	Ind/Y(A)	2.5300E-01	0.00	15.4(I)	0.0(E)	15.4(A)
	SR	21743	5.7400E-03	33.4	0.00	Ind/Y(A)	5.7400E-03	0.00	33.4(I)	0.0(E)	33.4(A)
91	BR	21743	2.2400E-02	33.3	0.00	Ind/Y(A)	2.2400E-02	0.00	33.3(I)	0.0(E)	33.3(A)
	KR	21743	4.6000E-01	5.3	0.00	Ind/Y(A)	4.6000E-01	0.00	5.3(I)	0.0(E)	5.3(A)
	RB	21743	4.2800E-02	8.9	0.00	Ind/Y(A)	4.2800E-02	0.00	8.9(I)	0.0(E)	8.9(A)
93	KR	21743	5.3000E-02	6.7	0.00	Ind/Y(A)	5.3000E-02	0.00	6.7(I)	0.0(E)	6.7(A)
	RB	21743	5.6100E-01	5.3	0.00	Ind/Y(A)	5.6100E-01	0.00	5.3(I)	0.0(E)	5.3(A)
	SR	21743	3.9900E-01	10.8	0.00	Ind/Y(A)	3.9900E-01	0.00	10.8(I)	0.0(E)	10.8(A)
	Y	21743	3.5900E-02	95.2	0.00	Ind/Y(A)	3.5900E-02	0.00	95.2(I)	0.0(E)	95.2(A)
94	KR	21743	9.7200E-03	17.1	0.00	Ind/Y(A)	9.7200E-03	0.00	17.1(I)	0.0(E)	17.1(A)
	RB	21743	2.9300E-01	9.0	0.00	Ind/Y(A)	2.9300E-01	0.00	9.0(I)	0.0(E)	9.0(A)
	SR	21743	5.6500E-01	6.7	0.00	Ind/Y(A)	5.6500E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	Y	21743	7.9400E-02	30.8	0.00	Ind/Y(A)	7.9400E-02	0.00	30.8(I)	0.0(E)	30.8(A)
131	TE	21743	1.8800E-01	20.7	0.00	Ind/Y(A)	1.8800E-01	0.00	20.7(I)	0.0(E)	20.7(A)
132	SB	21743	5.9700E-01	7.3	0.00	Ind/Y(A)	5.9700E-01	0.00	7.3(I)	0.0(E)	7.3(A)
	TE	21743	3.4700E-01	12.4	0.00	Ind/Y(A)	3.4700E-01	0.00	12.4(I)	0.0(E)	12.4(A)
133	TE	21743	5.8100E-01	5.5	0.00	Ind/Y(A)	5.8100E-01	0.00	5.5(I)	0.0(E)	5.5(A)
	XE(G)	12895	1.6400E-04	23.8	0.00	FractInd	1.6400E-04	0.00	23.8(I)	0.0(E)	23.8(A)
	XE(M)	12895	6.7400E-04	4.9	0.00	FractInd	6.7400E-04	0.00	4.9(I)	0.0(E)	4.9(A)
	XE(T)	12895	8.3700E-04	6.2	0.00	FractInd	8.3700E-04	0.00	6.2(I)	0.0(E)	6.2(A)
134	TE	21743	6.4500E-01	3.9	0.00	Ind/Y(A)	6.4500E-01	0.00	3.9(I)	0.0(E)	3.9(A)
	I	21743	2.7200E-01	5.1	0.00	Ind/Y(A)	2.7200E-01	0.00	5.1(I)	0.0(E)	5.1(A)
135	TE	21743	3.2000E-01	4.6	0.00	Ind/Y(A)	3.2000E-01	0.00	4.6(I)	0.0(E)	4.6(A)
	I	21743	6.1500E-01	7.6	0.00	Ind/Y(A)	6.1500E-01	0.00	7.6(I)	0.0(E)	7.6(A)
	XE(G)	12895	1.7500E-02	24.0	0.00	FractInd	1.7500E-02	0.00	24.0(I)	0.0(E)	24.0(A)
	XE(M)	12895	2.9800E-02	5.7	0.00	FractInd	2.9800E-02	0.00	5.7(I)	0.0(E)	5.7(A)
	XE(T)	12895	4.7500E-02	8.2	-1.89	FractInd	5.1259E-02	3.56	6.5(I)	12.3(E)	12.3(A)
		21743	6.1900E-02	10.6	1.89	Ind/Y(A)					
136	TE	21743	1.3900E-01	6.7	0.00	Ind/Y(A)	1.3900E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	I	21743	6.4300E-01	6.7	0.00	Ind/Y(A)	6.4300E-01	0.00	6.7(I)	0.0(E)	6.7(A)
	XE	21743	2.2900E-01	11.6	0.00	Ind/Y(A)	2.2900E-01	0.00	11.6(I)	0.0(E)	11.6(A)
	CS	13326	2.5000E-03	12.0	2.31	FractInd	1.8170E-03	4.15	2.7(I)	5.5(E)	5.5(A)
		963r	1.7400E-03	8.5	-0.55	Ind/Y(A)					

TABLE 14 ENERGY:FAST NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
		965r	1.8500E-03	8.5	0.22	Ind/Y(A)					
		953r	1.8600E-03	8.5	0.29	Ind/Y(A)					
		966r	1.9600E-03	8.5	0.90	Ind/Y(A)					
		954r	2.2100E-03	8.5	2.16	Ind/Y(A)					
		955r	2.2500E-03	8.5	2.34	Ind/Y(A)					
		970r	2.3100E-03	8.5w	2.49	Ind/Y(A)					
		969r	2.7700E-03	8.5w	2.40	Ind/Y(A)					
		21743	6.5400E-03	25.4w	2.50	Ind/Y(A)					
		958r	1.2700E-03	8.5w	-2.50	Ind/Y(A)					
		960r	1.4300E-03	8.5w	-2.50	Ind/Y(A)					
		959r	1.4600E-03	8.5w	-2.50	Ind/Y(A)					
		957r	1.5800E-03	8.5	-1.89	Ind/Y(A)					
137	TE	21743	2.6800E-02	62.5	0.00	Ind/Y(A)	2.6800E-02	0.00	62.5(I)	0.0(E)	62.5(A)
	I	21743	3.9900E-01	6.4	0.00	Ind/Y(A)	3.9900E-01	0.00	6.4(I)	0.0(E)	6.4(A)
	XE	21743	5.5900E-01	6.1	0.00	Ind/Y(A)	5.5900E-01	0.00	6.1(I)	0.0(E)	6.1(A)
	CS	21743	5.2000E-02	64.5	0.00	Ind/Y(A)	5.2000E-02	0.00	64.5(I)	0.0(E)	64.5(A)
138	I	21743	1.9300E-01	5.8	0.00	Ind/Y(A)	1.9300E-01	0.00	5.8(I)	0.0(E)	5.8(A)
	XE	21743	6.8500E-01	5.6	0.00	Ind/Y(A)	6.8500E-01	0.00	5.6(I)	0.0(E)	5.6(A)
	CS	21743	1.2400E-01	18.8	0.00	Ind/Y(A)	1.2400E-01	0.00	18.8(I)	0.0(E)	18.8(A)
139	I	21743	7.3600E-02	6.5	0.00	Ind/Y(A)	7.3600E-02	0.00	6.5(I)	0.0(E)	6.5(A)
	XE	21743	5.8300E-01	6.1	0.00	Ind/Y(A)	5.8300E-01	0.00	6.1(I)	0.0(E)	6.1(A)
	CS	21743	3.3500E-01	9.4	0.00	Ind/Y(A)	3.3500E-01	0.00	9.4(I)	0.0(E)	9.4(A)
140	XE	21743	4.3500E-01	5.1	0.00	Ind/Y(A)	4.3500E-01	0.00	5.1(I)	0.0(E)	5.1(A)
	CS	21743	5.2300E-01	6.5	0.00	Ind/Y(A)	5.2300E-01	0.00	6.5(I)	0.0(E)	6.5(A)
141	XE	21743	1.0900E-01	21.1	0.00	Ind/Y(A)	1.0900E-01	0.00	21.1(I)	0.0(E)	21.1(A)
142	CS	21743	4.4500E-01	5.1	0.00	Ind/Y(A)	4.4500E-01	0.00	5.1(I)	0.0(E)	5.1(A)
	BA	21743	5.2300E-01	5.4	0.00	Ind/Y(A)	5.2300E-01	0.00	5.4(I)	0.0(E)	5.4(A)
143	CS	21743	2.1600E-01	9.9	0.00	Ind/Y(A)	2.1600E-01	0.00	9.9(I)	0.0(E)	9.9(A)
	BA	21743	6.3900E-01	4.3	0.00	Ind/Y(A)	6.3900E-01	0.00	4.3(I)	0.0(E)	4.3(A)
144	CS	21743	7.6800E-02	8.0	0.00	Ind/Y(A)	7.6800E-02	0.00	8.0(I)	0.0(E)	8.0(A)
	BA	21743	6.0900E-01	6.8	0.00	Ind/Y(A)	6.0900E-01	0.00	6.8(I)	0.0(E)	6.8(A)
	LA	21743	3.7400E-01	6.6	0.00	Ind/Y(A)	3.7400E-01	0.00	6.6(I)	0.0(E)	6.6(A)

TABLE 15 ENERGY:FAST NUCLIDE:U -236

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
136	CS	989r	6.9600E-04	22.4	0.00	Ind/Y(A)	6.9600E-04	0.00	22.4(I)	0.0(E)	22.4(A)

TABLE 16 ENERGY:FAST NUCLIDE:U -238

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
89	RB	876	3.9000E-02	56.0	0.00	Ind/Y(A)	3.9000E-02	0.00	56.0(I)	0.0(E)	56.0(A)
91	RB	876	2.2300E-01	32.1	0.00	Ind/Y(A)	2.2300E-01	0.00	32.1(I)	0.0(E)	32.1(A)
92	RB	876	2.6100E-01	28.2	0.00	Ind/Y(A)	2.6100E-01	0.00	28.2(I)	0.0(E)	28.2(A)
93	RB	876	5.4400E-01	23.4	0.00	Ind/Y(A)	5.4400E-01	0.00	23.4(I)	0.0(E)	23.4(A)
94	RB	876	4.9800E-01	26.3	0.00	Ind/Y(A)	4.9800E-01	0.00	26.3(I)	0.0(E)	26.3(A)
95	RB	876	3.2200E-01	25.0	0.00	Ind/Y(A)	3.2200E-01	0.00	25.0(I)	0.0(E)	25.0(A)
97	RB	876	1.6300E-02	27.0	0.00	Ind/Y(A)	1.6300E-02	0.00	27.0(I)	0.0(E)	27.0(A)
133	XE(G)	12895	2.5000E-04	20.0	0.00	FractInd	2.5000E-04	0.00	20.0(I)	0.0(E)	20.0(A)
	XE(M)	12895	1.5000E-03	20.0	0.00	FractInd	1.5000E-03	0.00	20.0(I)	0.0(E)	20.0(A)
	XE(T)	12895	1.7000E-03	20.0	0.00	FractInd	1.7000E-03	0.00	20.0(I)	0.0(E)	20.0(A)
136	CS	13326	1.4100E-04	9.9w	-2.47	FractInd	2.5992E-04	6.15	8.5(I)	21.0(E)	21.0(A)
		1014r	2.8400E-04	8.5	2.40	Ind/Y(A)					
		163	5.3700E-03	20.5w	2.50	Ind/Y(A)					
	CS(G)	13473	9.4000E-04	5.0	0.00	FractInd	9.4000E-04	0.00	5.0(I)	0.0(E)	5.0(A)
138	CS	876	5.8600E-02	73.0	1.13	Ind/Y(A)	1.1078E-02	1.27	63.4(I)	71.4(E)	71.4(A)
		876	9.7600E-03	73.0	-1.13	Ind/Y(A)					
139	CS	875	5.8300E-02	26.2	0.00	Ind/Y(A)	5.8300E-02	0.00	26.2(I)	0.0(E)	26.2(A)
141	CS	876	3.0000E-01	22.3	0.00	Ind/Y(A)	3.0000E-01	0.00	22.3(I)	0.0(E)	22.3(A)
142	CS	876	4.0200E-01	23.2	0.00	Ind/Y(A)	4.0200E-01	0.00	23.2(I)	0.0(E)	23.2(A)
143	CS	876	3.8500E-01	25.0	0.00	Ind/Y(A)	3.8500E-01	0.00	25.0(I)	0.0(E)	25.0(A)
145	CS	876	1.3100E-01	22.2	0.00	Ind/Y(A)	1.3100E-01	0.00	22.2(I)	0.0(E)	22.2(A)
146	CS	876	3.1800E-02	33.2	0.00	Ind/Y(A)	3.1800E-02	0.00	33.2(I)	0.0(E)	33.2(A)

TABLE 17 ENERGY:FAST NUCLIDE:NP-237

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
134	I	40677	3.4000E-01	58.8	0.00	FractInd	3.4000E-01	0.00	58.8(I)	0.0(E)	58.8(A)
135	XE	40677	3.3000E-02	45.5	0.00	FractInd	3.3000E-02	0.00	45.5(I)	0.0(E)	45.5(A)
136	CS	991r	9.8300E-03	16.8	0.00	Ind/Y(A)	9.8300E-03	0.00	16.8(I)	0.0(E)	16.8(A)

TABLE 18 ENERGY:FAST NUCLIDE:PU-239

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
136	CS	13326	1.9700E-02	10.2	0.54	FractInd	1.8728E-02	2.29	4.5(I)	6.9(E)	6.9(A)
		1029r	1.5700E-02	11.5	-1.90	Ind/Y(A)					
		1035r	1.9000E-02	11.5	0.14	Ind/Y(A)					
		1022r	2.1600E-02	11.5	1.23	Ind/Y(A)					
		1041r	2.1800E-02	11.5	1.30	Ind/Y(A)					
		1042r	2.2600E-02	11.5	1.58	Ind/Y(A)					
		1030r	1.2500E-02	11.5w	-2.50	Ind/Y(A)					
138	I	940	1.5600E-01	10.0	0.00	FractInd	1.5600E-01	0.00	10.0(I)	0.0(E)	10.0(A)
	XE	940	6.2500E-01	10.0	0.00	FractInd	6.2500E-01	0.00	10.0(I)	0.0(E)	10.0(A)
	CS	940	2.1100E-01	10.0	0.00	FractInd	2.1100E-01	0.00	10.0(I)	0.0(E)	10.0(A)

TABLE 19 ENERGY:FAST NUCLIDE:PU-240

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
96	NB	10821	4.7200E-04	3.4	0.00	FractInd	4.7200E-04	0.00	3.4(I)	0.0(E)	3.4(A)
136	CS	10821	8.7400E-03	3.0	0.00	FractInd	8.7400E-03	0.00	3.0(I)	0.0(E)	3.0(A)

TABLE 20 ENERGY:HIGH NUCLIDE:TH-232

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
88	KR	708	4.0900E-01	15.6	0.00	Ind/Y(A)	4.0900E-01	0.00	15.6(I)	0.0(E)	15.6(A)
89	KR	708	4.6500E-01	14.6	0.00	Ind/Y(A)	4.6500E-01	0.00	14.6(I)	0.0(E)	14.6(A)
90	KR	708	6.5300E-01	18.6	0.00	Ind/Y(A)	6.5300E-01	0.00	18.6(I)	0.0(E)	18.6(A)
91	KR	708	5.3200E-01	8.0	0.00	Ind/Y(A)	5.3200E-01	0.00	8.0(I)	0.0(E)	8.0(A)
92	KR	708	3.8100E-01	10.5	0.00	Ind/Y(A)	3.8100E-01	0.00	10.5(I)	0.0(E)	10.5(A)
93	KR	708	1.2700E-01	15.4	0.00	Ind/Y(A)	1.2700E-01	0.00	15.4(I)	0.0(E)	15.4(A)
95	NB	677	3.7700E-02	22.8	0.00	Ind/Y(A)	3.7700E-02	0.00	22.8(I)	0.0(E)	22.8(A)
99	TC	677	1.7400E-03	21.5	0.00	Ind/Y(A)	1.7400E-03	0.00	21.5(I)	0.0(E)	21.5(A)
106	RH	677	6.7100E-03	20.3	0.00	Ind/Y(A)	6.7100E-03	0.00	20.3(I)	0.0(E)	20.3(A)
	RH(M)	30785	1.3400E-04	50.5	0.00	Ind/Y(A)	1.3400E-04	0.00	50.5(I)	0.0(E)	50.5(A)
112	AG	677	1.1600E-02	23.6	2.22	Ind/Y(A)	6.0712E-03	2.56	18.9(I)	30.3(E)	30.3(A)
		30695	4.3800E-03	40.3	-1.26	Ind/Y(A)					
		30785	5.4300E-03	33.4	-0.46	Ind/Y(A)					
132	I (G)	723	3.5800E-02	20.6	0.34	Ind/Y(A)	3.3898E-02	0.12	14.4(I)	5.0(E)	14.4(A)
		30695	3.2400E-02	20.2	-0.34	Ind/Y(A)					
133	I	636	8.0000E-02	25.0	-0.84	FractInd	9.0462E-02	0.71	17.3(I)	14.5(E)	17.3(A)
		723	1.0700E-01	23.5	0.84	Ind/Y(A)					
134	I	636	1.5200E-01	3.0	1.56	FractInd	1.5064E-01	1.36	3.0(I)	3.5(E)	3.5(A)
		724	1.0700E-01	25.7	-1.61	Ind/Y(A)					
		30695	1.3500E-01	33.9	-0.34	Ind/Y(A)					
	CS(G)	677	7.0800E-03	11.7	0.00	Ind/Y(A)	7.0800E-03	0.00	11.7(I)	0.0(E)	11.7(A)
	CS(M)	30695	5.3700E-05	52.0	0.00	Ind/Y(A)	5.3700E-05	0.00	52.0(I)	0.0(E)	52.0(A)
135	I	636	4.7000E-01	17.0	0.00	FractInd	4.7000E-01	0.00	17.0(I)	0.0(E)	17.0(A)
	CS(G)	677	2.2100E-02	27.7	0.00	Ind/Y(A)	2.2100E-02	0.00	27.7(I)	0.0(E)	27.7(A)
	CS(M)	30695	1.0600E-03	35.0	0.00	Ind/Y(A)	1.0600E-03	0.00	35.0(I)	0.0(E)	35.0(A)
136	CS	30695	1.5600E-03	20.6	-5.04	Ind/Y(A)	1.7508E-03	25.38	18.2(I)	91.8(E)	91.8(A)
		646	1.5300E-02	17.7	5.04	Ind/Y(A)					
139	XE	708	5.9500E-01	15.8	0.00	Ind/Y(A)	5.9500E-01	0.00	15.8(I)	0.0(E)	15.8(A)
140	XE	708	5.4700E-01	13.5	0.00	Ind/Y(A)	5.4700E-01	0.00	13.5(I)	0.0(E)	13.5(A)
	LA	30695	6.1300E-03	20.3	0.00	Ind/Y(A)	6.1300E-03	0.00	20.3(I)	0.0(E)	20.3(A)
141	XE	708	2.5200E-01	15.6	0.00	Ind/Y(A)	2.5200E-01	0.00	15.6(I)	0.0(E)	15.6(A)
142	XE	708	1.4400E-01	19.5	0.00	Ind/Y(A)	1.4400E-01	0.00	19.5(I)	0.0(E)	19.5(A)

TABLE 21 ENERGY:HIGH NUCLIDE:U -233

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
87	KR	705	5.7400E-01	25.0	0.00	Ind/Y(A)	5.7400E-01	0.00	25.0(I)	0.0(E)	25.0(A)
88	KR	705	6.0500E-01	17.5	0.00	Ind/Y(A)	6.0500E-01	0.00	17.5(I)	0.0(E)	17.5(A)
89	KR	705	6.5800E-01	19.4	0.00	Ind/Y(A)	6.5800E-01	0.00	19.4(I)	0.0(E)	19.4(A)
91	KR	705	2.4000E-01	14.7	0.00	Ind/Y(A)	2.4000E-01	0.00	14.7(I)	0.0(E)	14.7(A)
92	KR	705	9.3700E-02	24.7	0.00	Ind/Y(A)	9.3700E-02	0.00	24.7(I)	0.0(E)	24.7(A)
93	KR	705	1.7300E-02	31.3	0.00	Ind/Y(A)	1.7300E-02	0.00	31.3(I)	0.0(E)	31.3(A)
136	CS	62	9.2100E-02	15.0	0.00	FractInd	9.2100E-02	0.00	15.0(I)	0.0(E)	15.0(A)
137	XE	705	6.3500E-01	6.9	0.00	Ind/Y(A)	6.3500E-01	0.00	6.9(I)	0.0(E)	6.9(A)
139	XE	705	1.6900E-01	12.1	0.00	Ind/Y(A)	1.6900E-01	0.00	12.1(I)	0.0(E)	12.1(A)
140	XE	705	8.3000E-02	13.0	0.00	Ind/Y(A)	8.3000E-02	0.00	13.0(I)	0.0(E)	13.0(A)
141	XE	705	2.0900E-02	22.3	0.00	Ind/Y(A)	2.0900E-02	0.00	22.3(I)	0.0(E)	22.3(A)

TABLE 22 ENERGY:HIGH NUCLIDE:U -235

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
82	BR	181	3.0000E-03	15.0	4.72	FractInd	9.4606E-04	22.31	12.3(I)	57.9(E)	57.9(A)
		403	8.0000E-04	15.0	-4.72	FractInd					
87	KR	706	3.1500E-01	20.6	0.00	Ind/Y(A)	3.1500E-01	0.00	20.6(I)	0.0(E)	20.6(A)
88	KR	706	3.5600E-01	22.4	0.00	Ind/Y(A)	3.5600E-01	0.00	22.4(I)	0.0(E)	22.4(A)
89	KR	706	6.2200E-01	18.1	0.00	Ind/Y(A)	6.2200E-01	0.00	18.1(I)	0.0(E)	18.1(A)
90	KR	706	5.4100E-01	18.1	0.00	Ind/Y(A)	5.4100E-01	0.00	18.1(I)	0.0(E)	18.1(A)
91	KR	706	3.8100E-01	19.2	0.00	Ind/Y(A)	3.8100E-01	0.00	19.2(I)	0.0(E)	19.2(A)
92	Y	638	7.7000E-03	20.0	0.00	FractInd	7.7000E-03	0.00	20.0(I)	0.0(E)	20.0(A)
93	KR	706	3.8900E-02	22.4	0.00	Ind/Y(A)	3.8900E-02	0.00	22.4(I)	0.0(E)	22.4(A)
96	NB	638	8.0000E-04	10.0	0.00	FractInd	8.0000E-04	0.00	10.0(I)	0.0(E)	10.0(A)
97	NB	713	6.9000E-02	22.0	0.00	FractInd	6.9000E-02	0.00	22.0(I)	0.0(E)	22.0(A)
112	AG	713	5.1000E-02	12.0	0.00	FractInd	5.1000E-02	0.00	12.0(I)	0.0(E)	12.0(A)
121	CD	12813	4.3700E-01	48.1	0.00	Ind/Y(A)	4.3700E-01	0.00	48.1(I)	0.0(E)	48.1(A)
	IN	12813	3.9900E-01	27.1	0.00	Ind/Y(A)	3.9900E-01	0.00	27.1(I)	0.0(E)	27.1(A)
	SN	12813	4.2900E-02	116.0	0.00	Ind/Y(A)	4.2900E-02	0.00	116.0(I)	0.0(E)	116.0(A)
131	TE(G)	396	3.0000E-01	15.0	0.00	FractInd	3.0000E-01	0.00	15.0(I)	0.0(E)	15.0(A)
	TE(M)	396	3.5000E-01	15.0	0.00	FractInd	3.5000E-01	0.00	15.0(I)	0.0(E)	15.0(A)
	I	396	8.0000E-02	15.0	0.00	FractInd	8.0000E-02	0.00	15.0(I)	0.0(E)	15.0(A)
132	I	396	1.6000E-01	7.0	0.00	FractInd	1.6000E-01	0.00	7.0(I)	0.0(E)	7.0(A)
133	TE	396	4.0000E-01	15.0	0.00	FractInd	4.0000E-01	0.00	15.0(I)	0.0(E)	15.0(A)
	XE(G)	12895	5.1000E-03	10.8	0.00	FractInd	5.1000E-03	0.00	10.8(I)	0.0(E)	10.8(A)
	XE(M)	717	2.2000E-02	32.0	-0.54	FractInd	2.5772E-02	0.30	4.9(I)	2.7(E)	4.9(A)
		12895	2.5900E-02	5.0	0.54	FractInd					
	XE(T)	12895	3.1000E-02	5.0	0.00	FractInd	3.1000E-02	0.00	5.0(I)	0.0(E)	5.0(A)
134	I	181	4.0000E-01	15.0	-0.47	FractInd	4.2659E-01	0.22	4.7(I)	2.2(E)	4.7(A)
		396	4.3000E-01	5.0	0.47	FractInd					
135	XE(G)	12895	8.3000E-02	13.3	0.00	FractInd	8.3000E-02	0.00	13.3(I)	0.0(E)	13.3(A)
	XE(M)	12895	1.6000E-01	5.0	0.00	FractInd	1.6000E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	XE(T)	12895	2.4300E-01	5.0	-0.96	FractInd	2.5093E-01	0.91	3.5(I)	3.4(E)	3.5(A)
		717	2.6000E-01	5.0	0.96	FractInd					
136	CS	713	4.0000E-02	12.0	-0.95	FractInd	4.4107E-02	2.75	4.7(I)	7.7(E)	7.7(A)
		13347	4.8000E-02	6.2	1.78	FractInd					
		162	2.8500E-02	14.9w	-2.50	Ind/Y(A)					
		987r	4.5900E-02	8.9	0.51	Ind/Y(A)					
137	XE	706	6.2900E-01	21.3	0.00	Ind/Y(A)	6.2900E-01	0.00	21.3(I)	0.0(E)	21.3(A)
138	I	941	9.7000E-02	10.0	0.00	FractInd	9.7000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
	XE	941	5.9000E-01	10.0	0.00	FractInd	5.9000E-01	0.00	10.0(I)	0.0(E)	10.0(A)
	CS	941	3.0100E-01	10.0	0.00	FractInd	3.0100E-01	0.00	10.0(I)	0.0(E)	10.0(A)
139	XE	706	3.8300E-01	17.5	0.00	Ind/Y(A)	3.8300E-01	0.00	17.5(I)	0.0(E)	17.5(A)
140	XE	706	2.1600E-01	16.1	0.00	Ind/Y(A)	2.1600E-01	0.00	16.1(I)	0.0(E)	16.1(A)
	LA	638	7.3500E-03	20.0	0.00	FractInd	7.3500E-03	0.00	20.0(I)	0.0(E)	20.0(A)
141	XE	706	5.6700E-02	16.5	0.00	Ind/Y(A)	5.6700E-02	0.00	16.5(I)	0.0(E)	16.5(A)
148	PM(G)	1183	1.0500E-06	12.4	0.00	FractInd	1.0500E-06	0.00	12.4(I)	0.0(E)	12.4(A)
	PM(M)	1183	8.0000E-06	7.5	0.00	FractInd	8.0000E-06	0.00	7.5(I)	0.0(E)	7.5(A)
	PM(T)	1183	9.1000E-06	6.6	0.00	FractInd	9.1000E-06	0.00	6.6(I)	0.0(E)	6.6(A)
150	PM	1183	1.7900E-03	8.4	0.00	FractInd	1.7900E-03	0.00	8.4(I)	0.0(E)	8.4(A)

TABLE 23 ENERGY:HIGH NUCLIDE:U -238

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
87	KR	707	4.3200E-01	6.2	0.00	Ind/Y(A)	4.3200E-01	0.00	6.2(I)	0.0(E)	6.2(A)
88	KR	707	2.9900E-01	13.2	0.00	Ind/Y(A)	2.9900E-01	0.00	13.2(I)	0.0(E)	13.2(A)
89	KR	707	5.0600E-01	14.4	0.00	Ind/Y(A)	5.0600E-01	0.00	14.4(I)	0.0(E)	14.4(A)
90	KR	707	5.7600E-01	11.2	0.00	Ind/Y(A)	5.7600E-01	0.00	11.2(I)	0.0(E)	11.2(A)
91	KR	707	5.5300E-01	11.2	0.00	Ind/Y(A)	5.5300E-01	0.00	11.2(I)	0.0(E)	11.2(A)
92	KR	707	4.3900E-01	12.1	0.00	Ind/Y(A)	4.3900E-01	0.00	12.1(I)	0.0(E)	12.1(A)
93	KR	707	1.6900E-01	13.3	0.00	Ind/Y(A)	1.6900E-01	0.00	13.3(I)	0.0(E)	13.3(A)
101	TC	795	4.6200E-02	2.1	0.00	Ind/Y(A)	4.6200E-02	0.00	2.1(I)	0.0(E)	2.1(A)
131	TE(G)	30639	3.8800E-01	15.5	-0.58	Ind/Y(A)	4.1269E-01	0.34	10.4(I)	6.1(E)	10.4(A)
		30639	4.3800E-01	13.9	0.58	Ind/Y(A)					
	TE(M)	30639	5.0900E-02	20.2	0.00	Ind/Y(A)	5.0900E-02	0.00	20.2(I)	0.0(E)	20.2(A)
133	XE(G)	718	3.0000E-01	44.0	2.27	FractInd	4.7034E-04	5.15	29.8(I)	67.6(E)	67.6(A)
		12895	4.7000E-04	29.8	-2.27	FractInd					
	XE(M)	12895	2.3800E-03	5.0	0.00	FractInd	2.3800E-03	0.00	5.0(I)	0.0(E)	5.0(A)
	XE(T)	12895	2.8600E-03	5.0	0.00	FractInd	2.8600E-03	0.00	5.0(I)	0.0(E)	5.0(A)
134	I	30639	2.3100E-01	14.9	-0.06	Ind/Y(A)	2.3126E-01	0.00	14.8(I)	0.9(E)	14.8(A)
		30639	2.4800E-01	111.0	0.06	Ind/Y(A)					
135	XE(G)	12895	1.8800E-02	12.2	0.00	FractInd	1.8800E-02	0.00	12.2(I)	0.0(E)	12.2(A)
	XE(M)	12895	2.8700E-02	14.3	0.00	FractInd	2.8700E-02	0.00	14.3(I)	0.0(E)	14.3(A)
	XE(T)	12895	4.9700E-02	6.4	-1.56	FractInd	5.1870E-02	0.65	5.6(I)	4.5(E)	5.6(A)
		718	5.6000E-02	56.0	0.13	FractInd					
		30639	5.4900E-02	35.5	0.16	Ind/Y(A)					
		30639	5.7300E-02	20.3	0.48	Ind/Y(A)					
		30639	5.8600E-02	24.5	0.48	Ind/Y(A)					
		795	7.0100E-02	17.1	1.57	Ind/Y(A)					
136	CS	13347	3.7000E-03	8.1w	-2.50	FractInd	5.1565E-03	1.96	3.5(I)	4.9(E)	4.9(A)
		13326	5.0000E-03	10.0	-0.34	FractInd					
		1018r	5.0600E-03	8.2	-0.26	Ind/Y(A)					
		204r	5.1200E-03	8.2	-0.10	Ind/Y(A)					
		1017r	5.1800E-03	8.2	0.06	Ind/Y(A)					
		1019r	5.5900E-03	8.2	1.03	Ind/Y(A)					
		164	5.9600E-03	12.7	1.09	Ind/Y(A)					
		647	8.5800E-03	16.5	2.44	Ind/Y(A)					
137	XE	707	3.0900E-01	9.5	0.00	Ind/Y(A)	3.0900E-01	0.00	9.5(I)	0.0(E)	9.5(A)
138	XE	707	5.1900E-01	8.4	0.00	Ind/Y(A)	5.1900E-01	0.00	8.4(I)	0.0(E)	8.4(A)
	CS	788	8.3000E-02	6.0	0.23	FractInd	8.2954E-02	0.05	6.0(I)	1.4(E)	6.0(A)
		30639	5.3400E-02	237.0	-0.23	Ind/Y(A)					
139	I	789	1.8300E-01	1.0	0.00	FractInd	1.8300E-01	0.00	1.0(I)	0.0(E)	1.0(A)
	XE	789	4.7500E-01	2.0	-1.34	FractInd	4.7763E-01	1.80	1.9(I)	2.6(E)	2.6(A)
		707	5.3700E-01	8.4	1.34	Ind/Y(A)					
	CS	712	2.8600E-01	5.0	0.00	FractInd	2.8600E-01	0.00	5.0(I)	0.0(E)	5.0(A)
	BA	712	5.6000E-02	23.0	0.00	FractInd	5.6000E-02	0.00	23.0(I)	0.0(E)	23.0(A)
140	XE	707	5.4000E-01	8.0	0.00	Ind/Y(A)	5.4000E-01	0.00	8.0(I)	0.0(E)	8.0(A)
	LA	30639	9.8600E-03	109.0	0.00	Ind/Y(A)	9.8600E-03	0.00	109.0(I)	0.0(E)	109.0(A)
141	XE	707	2.9100E-01	9.1	0.00	Ind/Y(A)	2.9100E-01	0.00	9.1(I)	0.0(E)	9.1(A)
142	XE	707	1.6400E-01	13.2	0.00	Ind/Y(A)	1.6400E-01	0.00	13.2(I)	0.0(E)	13.2(A)
150	PM	1184	2.3000E-05	30.4	0.00	FractInd	2.3000E-05	0.00	30.4(I)	0.0(E)	30.4(A)

TABLE 24 ENERGY:HIGH NUCLIDE:PU-239

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
133	XE(G)	12895	1.7000E-02	12.4	0.00	FractInd	1.7000E-02	0.00	12.4(I)	0.0(E)	12.4(A)
	XE(M)	12895	5.7500E-02	14.1	0.00	FractInd	5.7500E-02	0.00	14.1(I)	0.0(E)	14.1(A)
	XE(T)	719	1.2000E-01	9.0	3.27	FractInd	9.2240E-02	10.69	7.2(I)	23.6(E)	23.6(A)
		12895	7.5100E-02	11.3	-3.27	FractInd					
135	XE(G)	12895	1.1700E-01	21.4	0.00	FractInd	1.1700E-01	0.00	21.4(I)	0.0(E)	21.4(A)
	XE(M)	12895	3.1700E-01	6.6	0.00	FractInd	3.1700E-01	0.00	6.6(I)	0.0(E)	6.6(A)
	XE(T)	12895	4.3400E-01	5.0	-0.67	FractInd	4.4212E-01	0.45	4.1(I)	2.7(E)	4.1(A)
		719	4.6000E-01	7.0	0.67	FractInd					
136	CS	13347	1.5100E-01	5.3	-0.39	FractInd	1.5240E-01	0.15	4.7(I)	1.8(E)	4.7(A)
		13326	1.5800E-01	10.1	0.39	FractInd					
138	I	941	2.7000E-02	10.0	0.00	FractInd	2.7000E-02	0.00	10.0(I)	0.0(E)	10.0(A)
	XE	941	4.1500E-01	10.0	0.00	FractInd	4.1500E-01	0.00	10.0(I)	0.0(E)	10.0(A)
	CS	941	5.0700E-01	10.0	0.00	FractInd	5.0700E-01	0.00	10.0(I)	0.0(E)	10.0(A)

TABLE 25 ENERGY:HIGH NUCLIDE:AM-241

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
86	RB	1154	2.1000E-03	100.0	0.00	FractInd	2.1000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
96	NB	1154	4.7400E-03	5.1	0.00	FractInd	4.7400E-03	0.00	5.1(I)	0.0(E)	5.1(A)
110	AG(M)	1154	1.2000E-03	100.0	0.00	FractInd	1.2000E-03	0.00	100.0(I)	0.0(E)	100.0(A)
126	SB(G)	1154	2.6000E-01	45.0	0.00	FractInd	2.6000E-01	0.00	45.0(I)	0.0(E)	45.0(A)
130	I	1154	1.7000E-01	5.9	0.00	FractInd	1.7000E-01	0.00	5.9(I)	0.0(E)	5.9(A)
132	CS	1154	1.7000E-03	11.8	0.00	FractInd	1.7000E-03	0.00	11.8(I)	0.0(E)	11.8(A)
134	CS	1154	4.4700E-02	6.3	0.00	FractInd	4.4700E-02	0.00	6.3(I)	0.0(E)	6.3(A)
136	CS	1154	2.5600E-01	5.1	0.00	FractInd	2.5600E-01	0.00	5.1(I)	0.0(E)	5.1(A)
160	TB	1154	3.5200E-02	5.1	0.00	FractInd	3.5200E-02	0.00	5.1(I)	0.0(E)	5.1(A)

TABLE 26 ENERGY:SPONT. NUCLIDE:CM-244

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
136	CS	720	1.7100E-02	16.2	0.00	Ind/Y(A)	1.7100E-02	0.00	16.2(I)	0.0(E)	16.2(A)

TABLE 27 ENERGY:SPONT. NUCLIDE:CF-252

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
86	RB	347	3.4600E-05	23.3	0.00	Ind/Y(A)	3.4600E-05	0.00	23.3(I)	0.0(E)	23.3(A)
111	PD(M)	13357	3.3000E-02	3.0	0.00	FractInd	3.3000E-02	0.00	3.0(I)	0.0(E)	3.0(A)
112	AG	484	9.0000E-03	44.4	0.00	FractInd	9.0000E-03	0.00	44.4(I)	0.0(E)	44.4(A)
131	TE(G)	13301	1.5000E-01	20.0	-1.11	FractInd	1.7773E-01	1.23	9.3(I)	10.4(E)	10.4(A)
		632	1.9000E-01	10.5	1.11	FractInd					
	TE(M)	632	1.9000E-01	39.5	0.00	FractInd	1.9000E-01	0.00	39.5(I)	0.0(E)	39.5(A)
134	I (G)	1080	1.5900E-01	7.3	0.00	Ind/Y(A)	1.5900E-01	0.00	7.3(I)	0.0(E)	7.3(A)
	I (M)	1080	9.4800E-02	12.2	0.00	Ind/Y(A)	9.4800E-02	0.00	12.2(I)	0.0(E)	12.2(A)
	I (T)	484	2.6000E-01	11.5	-0.18	FractInd	2.6342E-01	0.02	8.9(I)	1.2(E)	8.9(A)
		30691	2.6800E-01	17.9	0.11	FractInd					
		21531	2.7000E-01	22.2	0.12	FractInd					
135	XE	30691	8.6000E-02	14.0	-0.06	FractInd	8.6592E-02	0.00	8.9(I)	0.6(E)	8.9(A)
		21531	8.7000E-02	11.5	0.06	FractInd					
136	CS	389	1.0000E-02	20.0	0.00	FractInd	1.0000E-02	0.00	20.0(I)	0.0(E)	20.0(A)
138	CS	484	1.1000E-01	27.3	0.00	FractInd	1.1000E-01	0.00	27.3(I)	0.0(E)	27.3(A)
140	CS	40895	7.4000E-01	28.0	0.00	Ind/Y(A)	7.4000E-01	0.00	28.0(I)	0.0(E)	28.0(A)
144	CS	21559	8.9000E-02	10.1	0.00	FractInd	8.9000E-02	0.00	10.1(I)	0.0(E)	10.1(A)
	BA	21559	5.9900E-01	10.0	-0.43	FractInd	6.0962E-01	0.19	9.0(I)	3.9(E)	9.0(A)
		40895	6.6200E-01	20.1	0.43	Ind/Y(A)					
	LA	21559	3.0200E-01	9.9	1.89	FractInd	2.7865E-01	3.56	9.8(I)	18.5(E)	18.5(A)
		40895	1.6500E-01	40.1	-1.89	Ind/Y(A)					
	CE	1066	1.0000E-02	20.0	0.00	FractInd	1.0000E-02	0.00	20.0(I)	0.0(E)	20.0(A)

TABLE 28 ENERGY:SPONT. NUCLIDE:FM-254

Mass	Elem.	Ref.	Yield	%error	N.Res	Type	wt.mean	Chi/df	Estimates of Error		
132	I	758	2.0000E-01	10.0	0.00	FractInd	2.0000E-01	0.00	10.0(I)	0.0(E)	10.0(A)
134	I	758	5.8000E-01	6.9	0.00	FractInd	5.8000E-01	0.00	6.9(I)	0.0(E)	6.9(A)
135	XE(M)	758	2.8000E-01	35.4	0.00	FractInd	2.8000E-01	0.00	35.4(I)	0.0(E)	35.4(A)

TABLE 2 ENERGY:THERMAL NUCLIDE:U -233

Mass	Element	Chi/df	Chi	%probability	number of points.
82	BR(G)	6.702	6.702	0.963	2 < 1.5
w 87	BR	3.149	6.298	4.290	3
w 89	BR	3.613	10.838	1.264	4 < 1.5
90	BR	4.521	4.521	3.348	2
95	ZR	5.261	5.261	2.180	2
w 96	NB	3.326	6.652	3.594	3
97	NB	2.784	2.784	9.524	2
98	NB	48.530	48.530	0.000	2 < 0.01
99	Y	46.694	46.694	0.000	2 < 0.01
99	NB	268.501	268.501	0.000	2 < 0.01
131	TE(M)	6.387	6.387	1.149	2 < 1.5
131	I	7.428	7.428	0.642	2 < 1.5
132	SN	4.964	4.964	2.588	2
132	SB(G)	3.276	6.552	3.777	3
132	TE	5.785	5.785	1.617	2
133	TE(M)	26.662	26.662	0.000	2 < 0.01
w133	I (G)	3.825	11.476	0.941	4 < 1.5
w134	I (T)	5.263	10.526	0.518	3 < 1.5
w135	XE(G)	4.705	14.114	0.275	4 < 1.5
135	XE(M)	7.775	7.775	0.530	2 < 1.5
w135	XE(T)	4.738	9.477	0.875	3 < 1.5
137	I	3.190	3.190	7.407	2
137	XE	11.205	11.205	0.082	2 < 1.5
139	I	3.355	3.355	6.699	2
w148	PM(G)	3.894	7.788	2.036	3
w148	PM(M)	3.848	7.696	2.133	3

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235

Mass	Element	Chi/df	Chi	%probability	number of points.
77	GA	7.790	7.790	0.525	2 < 1.5
78	GA	6.688	6.688	0.970	2 < 1.5
w 78	AS	4.443	8.886	1.176	3 < 1.5
83	SE(M)	9.997	9.997	0.157	2 < 1.5
83	SE(T)	2.661	7.982	4.638	4
w 84	GE	3.050	9.149	2.737	4
84	BR(G)	11.172	11.172	0.083	2 < 1.5
w 85	AS	3.134	6.269	4.353	3
w 85	BR	4.667	14.002	0.290	4 < 1.5
w 86	AS	3.525	7.051	2.944	3
w 86	SE	3.345	13.382	0.955	5 < 1.5
w 86	KR	2.386	7.157	6.705	4
86	RB(G)	2.540	5.081	7.884	3
87	SE	2.456	9.826	4.347	5
w 87	KR	2.598	10.391	3.434	5
w 88	SE	2.820	14.101	1.498	6 < 1.5
w 88	KR	2.368	11.842	3.702	6
w 88	RB	2.227	13.361	3.764	7
w 89	BR	1.894	17.050	4.795	10
w 89	RB	3.397	23.777	0.125	8 < 1.5
w 90	BR	4.700	28.199	0.009	7 < 0.01
90	RB(M)	3.951	3.951	4.683	2
w 90	RB(T)	2.146	12.877	4.503	7
w 91	BR	4.576	27.456	0.012	7 < 1.5
w 91	SR	2.193	8.773	6.704	5
w 92	KR	1.896	11.373	7.750	7
w 92	RB	1.837	14.698	6.530	9
92	SR	2.678	8.033	4.533	4
92	Y	2.504	7.511	5.728	4
w 93	KR	3.601	21.609	0.143	7 < 1.5
w 94	KR	2.766	11.066	2.584	5
w 94	RB	2.662	18.637	0.940	8 < 1.5
w 95	RB	4.110	28.770	0.016	8 < 1.5
w 95	Y	2.963	14.813	1.119	6 < 1.5
w 95	ZR	2.188	6.563	8.723	4
w 96	RB	5.111	25.554	0.011	6 < 1.5
96	ZR	3.273	6.546	3.789	3
w 96	NB	2.142	12.850	4.547	7
w 97	RB	2.300	9.201	5.626	5
w 97	ZR	5.347	10.694	0.476	3 < 1.5
w 98	SR	2.389	7.166	6.678	4
w 98	Y	3.127	6.253	4.387	3
w 98	ZR	3.454	6.907	3.163	3
w 98	NB(T)	2.492	7.475	5.820	4
w 99	SR	4.856	9.713	0.778	3 < 1.5
99	Y	2.836	5.671	5.868	3
99	ZR	2.112	6.337	9.631	4
w 99	NB(M)	4.353	8.706	1.287	3 < 1.5
w 99	NB(T)	4.018	12.054	0.720	4 < 1.5
w100	Y	4.262	8.523	1.410	3 < 1.5
w100	NB(T)	4.842	9.684	0.789	3 < 1.5
101	Y	26.259	26.259	0.000	2 < 0.01
101	ZR	4.843	4.843	2.775	2
w101	NB	4.614	9.227	0.992	3 < 1.5
102	NB(T)	3.882	3.882	4.881	2
103	ZR	12.583	12.583	0.039	2 < 1.5
103	MO	7.477	7.477	0.625	2 < 1.5
104	ZR	12.979	12.979	0.031	2 < 1.5
104	MO	5.251	5.251	2.194	2
104	TC	2.410	4.820	8.980	3
106	NB	5.872	5.872	1.538	2
106	MO	8.003	8.003	0.467	2 < 1.5
106	TC	6.377	6.377	1.156	2 < 1.5
112	AG(G)	5.760	5.760	1.640	2
w121	CD(G)	3.126	6.252	4.389	3
124	IN(G)	8.460	8.460	0.363	2 < 1.5
128	SN(M)	6.347	6.347	1.176	2 < 1.5
w128	SB(M)	4.261	12.782	0.513	4 < 1.5
128	I	16.515	16.515	0.005	2 < 0.01
w130	SB(G)	2.869	11.477	2.170	5
w130	SB(M)	4.667	14.000	0.291	4 < 1.5
130	I	15.688	15.688	0.007	2 < 0.01
w131	TE(G)	2.545	10.182	3.748	5
131	TE(M)	2.503	7.509	5.734	4
w131	I	4.492	17.967	0.125	5 < 1.5
w132	SB(G)	3.284	13.136	1.063	5 < 1.5
132	SB(M)	10.018	10.018	0.155	2 < 1.5
w132	TE	3.289	9.868	1.972	4
w132	I (G)	5.441	10.883	0.433	3 < 1.5
132	I (M)	3.253	6.506	3.866	3
132	I (T)	4.001	4.001	4.548	2
w133	SB	3.224	6.447	3.981	3
w133	TE(G)	3.846	15.383	0.397	5 < 1.5
w133	TE(M)	4.232	12.697	0.534	4 < 1.5
w133	I (G)	2.723	24.503	0.357	10 < 1.5
w133	XE(M)	3.127	6.254	4.386	3
w134	I (M)	3.171	9.514	2.318	4

TABLE 3 ENERGY:THERMAL NUCLIDE:U -235 (Cont)

Mass	Element	Chi/df	Chi	%probability	number of points.
134	I (T)	2.405	7.215	6.535	4
w135	XE(G)	2.871	20.096	0.537	8 < 1.5
135	XE(T)	3.491	13.963	0.741	5 < 1.5
w136	I (M)	3.174	6.349	4.182	3
w136	CS	2.265	18.124	2.032	9
w137	I	2.293	6.880	7.582	4
w137	XE	3.325	16.627	0.526	6 < 1.5
137	CS	24.430	24.430	0.000	2 < 0.01
w138	XE	3.596	7.192	2.743	3
138	CS(G)	3.091	6.181	4.547	3
w139	I	2.616	13.080	2.264	6
w139	XE	2.346	7.037	7.072	4
w139	CS	3.438	17.190	0.415	6 < 1.5
w140	XE	2.616	7.848	4.926	4
w140	CS	3.043	12.173	1.611	5
w141	XE	3.695	11.085	1.127	4 < 1.5
w141	BA	3.915	7.830	1.994	3
142	XE	24.890	24.890	0.000	2 < 0.01
w142	CS	3.026	15.130	0.982	6 < 1.5
143	BA	6.344	6.344	1.178	2 < 1.5
w144	CS	3.632	10.896	1.230	4 < 1.5
w145	CS	3.195	6.390	4.096	3
148	PM(G)	8.960	8.960	0.276	2 < 1.5
w148	PM(M)	5.159	10.318	0.575	3 < 1.5

TABLE 7 ENERGY:THERMAL NUCLIDE:PU-239

Mass	Element	Chi/df	Chi	%probability	number of points.
93	KR	8.198	8.198	0.419	2 < 1.5
93	RB	4.279	4.279	3.859	2
95	RB	9.109	9.109	0.254	2 < 1.5
103	TC	4.307	4.307	3.795	2
w104	TC	2.251	6.754	8.017	4
w105	TC	2.930	8.789	3.223	4
128	I	17.159	17.159	0.003	2 < 0.01
w132	SB(M)	3.442	6.884	3.201	3
135	XE(M)	3.707	3.707	5.420	2
135	XE(T)	2.490	4.980	8.292	3
w136	CS	2.314	9.255	5.504	5
138	CS(M)	29.547	29.547	0.000	2 < 0.01
150	PM	37.484	37.484	0.000	2 < 0.01

TABLE 13 ENERGY:FAST NUCLIDE:TH-232

Mass	Element	Chi/df	Chi	%probability	number of points.
w136	CS	3.712	7.424	2.443	3

TABLE 14 ENERGY:FAST NUCLIDE:U -235

Mass	Element	Chi/df	Chi	%probability	number of points.
135	XE(T)	3.559	3.559	5.922	2
w136	CS	4.145	53.886	0.000	14 < 0.01

TABLE 16 ENERGY:FAST NUCLIDE:U -238

Mass	Element	Chi/df	Chi	%probability	number of points.
w136	CS	6.145	12.291	0.214	3 < 1.5

TABLE 18 ENERGY:FAST NUCLIDE:PU-239

Mass	Element	Chi/df	Chi	%probability	number of points.
w136	CS	2.286	13.719	3.294	7

TABLE 20 ENERGY:HIGH NUCLIDE:TH-232

Mass	Element	Chi/df	Chi	%probability	number of points.
112	AG	2.561	5.122	7.724	3
136	CS	25.385	25.385	0.000	2 < 0.01

TABLE 22 ENERGY:HIGH NUCLIDE:U -235

Mass	Element	Chi/df	Chi	%probability	number of points.
82	BR	22.314	22.314	0.000	2 < 0.01
w136	CS	2.749	8.248	4.115	4

TABLE 23 ENERGY:HIGH NUCLIDE:U -238

Mass	Element	Chi/df	Chi	%probability	number of points.
133	XE(G)	5.149	5.149	2.326	2
w136	CS	1.963	13.741	5.598	8

TABLE 24 ENERGY:HIGH NUCLIDE:PU-239

Mass	Element	Chi/df	Chi	%probability	number of points.
133	XE(T)	10.686	10.686	0.108	2 < 1.5

TABLE 27 ENERGY:SPONT. NUCLIDE:CF-252

Mass	Element	Chi/df	Chi	%probability	number of points.
144	LA	3.557	3.557	5.931	2

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232_233. L M KRIZHANSKII, Y MALYI, A N MURIN, B K PREOBRAZHENSKII.
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234. L M KRIZHANSKII, A N MURIN. (J,SJA,4,95,58)translation of (J,AE,2,276,57)
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235_236. P KAFALAS, C E CROUTHAMEL. (J,JIN,4,239,57) ERRATUM, (J,JIN,5,92,58)
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237. J D KNIGHT, D C HOFFMAN, B J DROPESKY, D L FRASCO. (J,JIN,10,183,59)
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238. T J KENNETT, H G THODE. (J,CJP,35,969,57)
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239. A KJELBERG, A C PAPPAS. (J,JIN,11,173,59)
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240_241. S KATCOFF, W RUBINSON. (J,JIN,27,1447,65)
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243_244. J R DE LAETER, H G THODE. (J,CJP,47,1409,69)
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245_251. F L LISMAN, ET AL.(J,NSE,42,191,70) THIS AND THE PRECEDING REPLACE (R,IN-1277,)
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252. P DEL MARMOL. (J,JIN,30,2873,68)
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253. J MACNAMARA, C B COLLINS, H G THODE.(J,PR,78,129,50)
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254_255. M P MENON, P K KURODA. (J,JIN,26,401,64)
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256_259. E A MELAIKA, M J PARKER, J A PETRUSKA, R H TOMLINSON.(J,CJC,33,830,55)
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260. J A MARINSKY, E EICHLER. (J,JIN,12,223,60)
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261. D A MARSDEN, L YAFFE. (J,CJC,43,249,65)
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262. TIN MO, M N RAO. (J,JIN,30,345,68)
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263. R MUNTZE, H GROSSE-RUYKEN, G WAGNER. KERNENERGIE,12, (1969), P380.
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264. W E NERVIK. (J,PR,119,1685,60)
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265_268. A OKAZAKI, W H WALKER, C B BIGHAM. (J,CJP,44,237,66)
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275. J A PETRUSKA, E A MELAIKA, R H TOMLINSON. (J,CJP,33,640,55)
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276_277. J A PETRUSKA, H G THODE, R H TOMLINSON.(J,CJP,33,693,55)

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278. H G PETROW, G ROCCO. (J,PR,96,1614,54)
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279. A C PAPPAS, D R WILES. (J,JIN,2,69,56)
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280_282. A N PROTOPOPOV, G M TOLMACHEV, ET AL. (J,JNEA,10,80,59)
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283. K K S PILLAY, R J MEYER, R P LARSEN. (J,JRC,3,233,69)
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284. G W REED. (J,PR,98,1327,55)
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285. G W REED, A TURKEVICH. (J,PR,92,1473,53)
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286. G M KUKAVADZE, M P ANIKINA, L L GOLDIN, B V ERSCHLER. (R,AEC-TR-2435,)
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287. N G RUNNALS, D E TROUTNER, R L FERGUSON.(J,PR,179,1188,69)
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288_290. R B REGIER, W H BURGUS, R L TROMP.(J,PR,113,1589,59)
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291_296. R B REGIER, W H BURGUS, R L TROMP, B H SORENSEN.(J,PR,119,2017,60)
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298. M N RAO, P K KURODA. (J,PR,147,884,66)
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299. M N RAO. (J,RCA,8,12,67)
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300. N RAVINDRAN, K F FLYNN, L E GLENDENIN. (J,JIN,28,921,66)
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301. D C SANTRY, L YAFFE. (J,CJC,38,464,60)
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302. A F STEHNEY, N SUGARMAN. (J,PR,89,194,53)
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303. N SUGARMAN. (J,PR,89,570,53)
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304. J E SATTIZAHN, J D KNIGHT, M KAHN. (J,JIN,12,206,60)
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305. D C SANTRY, L YAFFE. (J,CJC,38,421,60)
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306. B SRINIVASAN, E C ALEXANDER, O K MANUEL, D E TROUTNER.(J,PR,179,1166,69)
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307. P O STROM, D L LOVE, A E GREENDALE, A A DELUCCHI, D SAM, N E BALLOU.
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309. E OHYOSHI, A OHYOSHI, M SHINAGANA. (J,RRL,3,1,70)
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312_321. J TERRELL, W E SCOTT, S GILMORE, C O MINKKINEN. (J,PR,92,1091,53).
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322. A TURKEVITCH, J B NIDAY. (J,PR,84,52,51)
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323. S L TONG, K FRITZE. (J,RCA,12,179,69)
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324. D E TROUTNER, R L FERGUSON, G D OKELLEY. (J,PR,130,1466,63)
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325_326. G W WETHERILL. (J,PR,92,907,53)
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327_330. D R WILES, C D CORYELL. (J,PR,96,696,54)
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331. A C WAHL, N A BONNER. (J,PR,85,570,52)
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332. A WYTTENBACH, H R VON GUNTEN. (C,65SALZBURG,65) SEE ALSO (J,RCA,3,118,64)
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333. H V WEISS, N E BALLOU. (C,65SALZBURG,65)
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334. H YOSHIDA, Y PAISS, S AMIEL. IA-1128
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335_336. M F ROCHE. (R,TID-24500,)
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337. L R BUNNEY, E M SCADDEN, J O ABRIAM, N E BALLOU. (C,58GENEVA,15,444,58)
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348_350. D R NETHAWAY, B MENDOZA, T E VOSS. (J,PR,182,1251,69)
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351. M THEIN, M N RAO, P K KURODA. (J,JIN,30,1145,68)
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352. R H JAMES, G R MARTIN, D J SILVESTER. (J,RCA,3,76,64)
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353. S J LYLE, G R MARTIN, J E WHITELEY. (J,RCA,3,80,64)
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354. V A VLASOV, YU A ZYSIN, I S KIRIN, A A LBOV, L I OSYAEVA, L I SELCHENKOV.
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355. R GANAPATHY, P K KURODA. (J,JIN,28,2071,66) ALSO IN 609.
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356. H FARRAR, R H TOMLINSON. (J,NP,34,367,62)
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357_359. L H GEVAERT, R E JERVIS, H D SHARMA. (J,CJC,48,641,70)
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"CUM. YIELDS IN THE 14MEV NEUTRON FISSION OF 232TH AND 238U IN THE ETC."

360. M N RAO. (J,JIN,29,863,67)
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361_362. M BRESESTI, G BUREI, P FERRARI, L MORETTO. (J,JIN,1189,67)
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363. D J GORMAN, R H TOMLINSON. (J,CJC,46,1663,68)
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364. J W HARVEY, W B CLARKE, D J GORMAN, R H TOMLINSON. (J,CJC,46,2911,68)
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365_373. N I BORISOVA, S M DUBROVINA, ET AL. (J,SNP,6,331,68)
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374_377. B F RIDER, J P PETERSON, C P RUIZ, F R SMITH. GEAP-5356.
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"A SURVEY AND EVALUATION OF THERMAL FISSION YIELDS FOR 235U 239PU 233U 241PU."

378. R S ONDREJCIN. (J,JIN,28,1763,66)
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379. B G YOUNG, H G THODE. (J,CJP,38,1,60)
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380. L YAFFE, A E DAY, B A GREER. (J,CJC,31,48,53)
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381. L YAFFE, H G THODE, W F MERRITT, R C HAWKINGS, F BROWN, AND
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382. H V WEISS, J L ELZIE, J M FRESCO. (J,PR,172,1269,68)
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383. L WISH. (J,PR,172,1262,68)
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384. A WYTTENBACH, H R VON GUNTEN, H DULAKAS. (J,RCA,3,118,64)
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385. H V WEISS, N E BALLOU. (J,JIN,27,1917,65)
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386. H V WEISS. (J,PR,139,B304,65)
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387. A C WAHL, D R NETHAWAY. (J,PR,131,830,63)
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388_391. A C WAHL, R L FERGUSON, D R NETHAWAY, D E TROUTNER, K WOLFSBURG.
(J,PR,126,1112,62) EXFOR-13097.
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392. A C WAHL. (J,JIN,6,263,58)
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393. D M WILES, J A PETRUSKA, R H TOMLINSON. (J,CJC,34,227,56)
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394. K WOLFSBERG, D R NETHAWAY, H P MALAN, A C WAHL. (J,JIN,12,201,60)
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395_397. A C WAHL. (J,PR,99,730,55)
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398_400. D R WILES, B W SMITH, R HORSLEY, H G THODE. (J,CJP,31,419,53)
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401_402. R K WANLESS, H G THODE.(J,CJP,33,541,55) Data in 28 (13389 and 13391).
"THE FISSION YIELD OF ISOTOPES OF XE AND KR IN THE NEUTRON FISSION OF ETC."

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"LIGHT MASS YIELDS IN THE 14MEV NEUTRON FISSION OF 235U."

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405. S J LYLE, R WELLUM. (J,RCA,13,167,70) DATA FROM (J,RCA,3,163,64)
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"SOME CUM. MASS_YIELDS FROM THE FISSION OF 238U BY 3MEV NEUTRONS."

406_407. L H NIECE, D E TROUTNER, R L FERGUSON.(J,PR/C,1,312,70)
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408. N G RUNNALLS, D E TROUTNER. (J,PR/C,1,316,70)
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409. B J BOWLES, H H WILLIS. PRIVATE COMMUNICATION.
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410_411. J BLACHOT, L C CARRAZ, P CAVALLINI, A GADELLE, A MOUSSA. (C,69VIENNA,69)
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412. CHIEN-CHANG LIN, A C WAHL. (J,JIN,32,2501,70)
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413_414. E A C CROUCH, M BROWNSWORD, I C MCKEAN. PRIVATE COMMUNICATION.
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415_420. B L TRACY, H G THODE. (J,CJP,48,1708,70)
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421_483. G A COWAN, B P BAYHURST, R J PRESTWOOD, J S GILMORE, G W KNOBELOCH.
(J,PR,144,979,66)
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484. D E TROUTNER, M EICHOR, C PACE. (J,PR/C,1,1044,70)
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485. A C WAHL, A E NORRIS, R A ROUSE, J C WILLIAMS.(C,69VIENNA,69)
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486_553. G A COWAN, B P BAYHURST, R J PRESTWOOD, J S GILMORE, G W KNOBELOCH.
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554. K BACHMANN. (J,RCA,9,27,68)
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555_556. A P BAERG, R M BARTHOLOMEW, R H BETTS. (J,CJC,38,2147,60)
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557. D E TROUTNER, A C WAHL, R L FERGUSON. (J,PR,134,B1027,64)
"IND. YIELD OF 127SB."

558_559. J A MCHUGH. (J,JIN,28,1787,66)
"THE IND. YIELDS OF 86RB, 132CS, 134CS AND 136CS IN THE THERMAL ETC."

560. B PARSA, G E GORDON, A WENZEL. (J,JIN,31,585,69)
"BRANCHING RATIO OF 133SB DECAY TO 133TE ISOMERS."

561. L TOMLINSON, M H HURDUS. (J,JIN,30,1995,68)
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562_564. I F CROALL. (J,JIN,16,358,61)
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565. D R NETHAWAY, B MENDOZA. (J,PR/C,2,2289,70)
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"FISSION OF 233U WITH 14.8MEV NEUTRONS"

566_567. S M QAIM, H O DENSCHLAG. (J,JIN,32,1767,70)
"IND. YIELDS OF 133I, 134I AND 135I IN THE THERMAL NEUTRON ETC."

568_569. K WOLFSBERG, G P FORD. LA-DC-12142 ALSO IN (J,PR/C,3,1333,71)
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570_573. K WOLFSBERG. (J,PR,137,B929,65)
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574_577. R M HARBOUR, D E TROUTNER. (J,JIN,33,1,71)
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578_579. J V KRATZ, G HERMANN. (J,JIN,32,3713,70)
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580. J KEMMER, J I KIM, H J BORN. (J,RCA,13,181,70)
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581. K WOLFSBERG. (J,JIN,33,587,71)
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582_585. F L LISMAN, R M ABERNATHEY, R E FOSTER, W J MAECK.(J,JIN,33,643,71)
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586_587. D L SWINDLE, R J WRIGHT, T E WARD, P K KURODA. (J,JIN,33,651,71)
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588. D L SWINDLE, R J WRIGHT, P K KURODA. (J,JIN,33,876,71)
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589. P K KURODA, M P MENON. (J,NSE,10,70,61) Exfor-13058
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598_599. R M HARBOUR, M EICHOR, D E TROUTNER. (J,RCA,15,146,71)
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600. R DIERCKX, G MARACCI, F RUSTIGHELLI. (J,JNE,25,85,71)
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612. H MENKE, G HERMANN. (J,RCA,6,76,66)
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613. E P STEINBERG, L E GLENDENIN. (J,PR,95,431,54)
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614. A TURKEVICH, J B NIDAY, A TOMPKINS. (J,PR,89,552,53)
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615. R F COLEMAN, B R HAWKER, J L PERKIN. (J,JIN,14,8,60)
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616. T ISHIMORI, K UEN, K KIMURA ET AL. (J,RCA,7,95,67)
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671_672. M F ROCHE, D E TROUTNER. (J,RCA,16,66,71)
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Also in Afarideh et al, (J,ANE,16(7)313,89)

2001. ST.HORNER, H.O.DENSCHLAG, H.GABELMANN , K.L.KRATZ, B.PFEIFFER, U.STOHLKER,
PRIV. COMM. INSTIT FUR KERNCHEMIE.

2002. A.E.RICHARDSON, H.L.WRIGHT, J.L.MEASON, J.R.SMITH (J,NSE,94,413,86)

2003. R.A.SIGG, M.V.KANTELO, D.H.SISSON, A.L.PRINDLE AND D.R.NETHAWAY
(J,PR/C,27,245,83)

2004. CHIEN CHUNG, MING-YUNG WOO. (J,JRN,109(1),117,87)

2005. K.RENGAN, J.LIN AND R.A.MEYER. (J,RRL,51,339,82)

2006. B.S.TOMAR, A.GOSWAMI, S.K.DAS, T.DATTA, SATYA PRAKASH AND M.V.RAMANIAH.
BARC-1381 (1987). P7-15.

2007. H.BRAUN AND H.O.DENSCHLAG. (J,RCA,38,169,85)

2008. P.L.REEDER, J.F.WRIGHT AND R.A.ANDERL. REPORT BNWL-SA-5243. (75WASH).

2009. ALOK SRIVASTAVA, A.GOSWAMI, B.K.SRIVASTAVA, A.G.C. NAIR, S.B.MANOHAR,
SATYA PRAKASH AND M.V.RAMANIAH (J,PR/C,33,969,86)

2010. CHIEN CHUNG AND LUNG-KWANG PAN (J,RCA,38,173,85).

2011. J.K.DICKENS AND J.W.MCCONNELL. (J,PR/C,34(2),722,8608)

2012. J.K.DICKENS AND S RAMAN. REPORT (ORNL-6266) PFR US/UK.
Only yields in 2061 considered useful.

2013. A.E.RICHARDSON, H.L.WRIGHT, J.L.MASON, J.R.SMITH (J,NSE,94,413,86)
==2002. EXFOR-13103

2014. J.P.UNIK, J.E.GINDLER, L.E.GLENDENIN, K.F.FLYNN, A.GORSKI AND
R.K.SJOBLOM. IAEA-SM-174/209.
[some new data, but mostly repeats from 686,903,927 and 10642.]

2015. A.G.GOLOVANOV, A.N.GUDKOV,V.V.KAZANTSEV,V.V.KOVALENKO,A.B.KOLDOBSKII,
V.M.KOLOBASHKIN,S.I.LIFANOV AND A.I.SLYUSARENKO. (J,AE,53(2),117,82)

2016. A.G.C.NAIR, S.K.DAS, B.S.TOMAR, A.GOSWAMI, B.K.SRIVASTAVA AND SATYA
PRAKASH. (J,RCA,42,7,87)

2017. K.J.R.ROSMAN, J.R.DE LAETER, J.W.BOLDEMAN AND H.G.THODE.(J,CJP,61,1490,83)

2018. C.CHUNG, A.A.HASAN AND S.SAHIN. (J,RCA,37,131,84)

2019. S.S.RATTAN, A.V.R.REDDY, R.J.SINGH, SATYA PRAKASH, AND M.V.RAMANIAH
BHABHA ATOMIC RES CENTRE. (J,RCA,33,189,83)

2020. R.BAYER, Z.DLOUHY, J.SVANDA, I.WILHELM. (J,CZJB,31,1273,81)

2021. H.C.JAIN AND M.V.RAMANIAH (J,RCA,37,63,84), also in (R,BARC-1248,84).
Some data reported in 1151-1152.

2022. A.G.C.NAIR, ALOK SRIVASTAVA, B.K.SRIVASTAVA, S.PRAKASH AND S.B.MANOHAR.
(J,JRN,82(2),263,84)

2023. A.G.C.NAIR, A.SRIVASTAVA, A.GOSWAMI AND B.K.SRIVASTAVA.(J,JRN,91(1),73,85)

2024. M.HADDAD, J.CRANCON, G.LHOSPICE, M.ASGHAR AND J.BLACHOT.(J,RCA,42,165,87)

2025. S.A.CHITAMBAR, H.C.JAIN AND M.V.RAMANIAH. (J,RCA,42,169,87).

2026. H.H.MEIXLER, K.WOLFSBERG AND H.O.DENSCHLAG (J,CJC,61,665,83)
Some reported in 20878 and 21686.

2027. A.V.REDDY, ET AL. SYMP. ON NUCLEAR PHYSICS BHABHA ATOMIC RES. CENTRE,1986.

2028. M.SHMID AND G.ENGLER. (J,ZP/A,311,113,83)

2029. G.ENGLER AND M.S.RAPAPORT. (J,ZP/A,314,59,83)

2030. GINO DIIORIO AND B.W.WEHRING. (J,NIM,147,487,77) Data in 1098.

2031. R.B.STRITTMATTER AND B.W.WEHRING (J,NIM,166,473,79)

2032. A.V.R.REDDY, S.M.DESHMUKH, MANOHAR, SATYA PRAKASH AND M.V.RAMANIAH.
(R,BARC-1381,25,87)

2033. A.GOSWAMI, A.G.C.NAIR, B.K.SRVASTAVA, S.B.MANOHAR, SATYA PRAKASH
AND M.V.RAMANIAH. (R,BARC-1381,33,87)

2034. A.V.R.REDDY, S.M.DESHMUKH, P.P.BURTE, S.B.MANOHAR, SATYA PRAKASH, AND
M.V.RAMANIAH BHABHA ATOMIC RES CENTRE (1986) SYMPSIUM ON NUCL PHYSICS.

2035. ALOK SRIVASTAVA, A.G.C.NAIR, B.K.SRIVASTAVA, S.B.MANOHAR, SATYA PRAKASH
AND M.V.RAMANIAH. (J,RCA,35,15,84).

2036. B.S.TOMAR, H.NAIK, A.RAMASWAMY, SATYA PRAKASH. (J,JRN,91(2),291,85)
Some of data also published in 2110.

2037. T.DATTA, S.P.DANGE, A.G.C.NAIR, SATYA PRAKASHAND M.V.RAMANIAH.
(J,PR/C,25,358,82)

2038. H.NAIK, S.P.DANGE, T.DATTA, SATYA PRAKASH AND M.V.RAMANIAH.
(R,BARC-1381,37,87).

2039. A.RAMASWAMI, S.S.RATTAN, N.CHAKRAVARTY, R.J.SINGH, S.B.MANOHAR
AND SATYA PRAKASH. (R,BARC-1381,40,87).

2040. A.V.R.REDDY, S.M.DESHMUKH, P.P.BURTE, S.B.MANOHAR, SATYA PRAKASH,
AND M.V.RAMANIAH. (R,BARC-1381,47,87)

2041. ALOK SRIVASTAVA, A.GOSWAMI, B.K.SRIVASTA, S.B.MANOHAR,
SATYA PRAKASH AND M.V.RAMANIAH. (R,BARC-1381,51,87)

2042. A.SRIVASTAVA,B.K.SRIVASTAVA, A.G.C.NAIR, S.B.MANOHAR, SATYA PRAKASH
AND M.V.RAMANIAH. (R,BARC-1381,61,87)

2043. Rachid QUASTI. These University of Bordeaux CENBG 8801,2228.
DATA TAKEN FROM GRAPHS. U-238 relative (not immediately obvious
to what quantity, therefore only gives energy trends see 92043).

2044. A.A.SOLONKIN, V.F.TEPLYKH et al, UDC 539.173:539.143.2
SOME XE same as EXFOR-40877 (2044 is 237NP(thermal) other 238NP(FAST).

2045. J.GINDLER. (J,PR/C,19,1806,79)

2046. A.N.Gudkov, V.M.Zhivun et al. UDC 539.173.8 (J,AE,54(6),404,8306)

2047. T.P.DOAN, G.BARREAU et al, supersedes 1200.(C,85SANTA FE,8505)

2048. J.F.WILD ET AL, (J,PR/C,32,488,85)

2049. N.A.Perfilov et al, (J,SPD,6(1),57,61)

2050. Nagy L. et al, (J,SNP,8,257,69), translation of (J,YF,8,443,68).

2051. Soloveva Z.I., (J,AE,8,137,60) Natural uranium and enriched, no apparent
difference as at 2.5 MeV less than 1% is due to U-235.

2052. Drapchinskii L.V. et al, (J,AE,16,144,64)
Paper gives ratios relative to U-235T, as probability of alpha detection
and fission detection not equal (BUT constant).

2053. Perfilov N.A., Sov. Phys.-JETP 14,7 (1962).
Data Perfilov N.A. et al, (J,AE,14(6),575,64)

2054. Malkin L.Z. et al, (J,AE,16(2),148,64)

2055. Mostovaya T.A., (J,AE,10(3),373,61)

2056. ALLEN K.W. AND T.J.DEWAN, (J,PR,80(2),181,50)

2057. NETTER M.F. et al, (C,58GENEVA,15,418,58)

2058. DMITRIEV V.N. et al, Sov. Phys. JETP VOL 11 p718-9 (1960).

2059. HATTANGADI et al, (C,65SALZBURG,2,397,65)

2060. RAMASWAMI A. et al, (J,JRN,125(1),85,88)

2061. DICKENS J.K. (J,NSE,96,8,87). See 2012.

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* Entries from literature search. *
* Entries given in EXFOR style format where possible. *
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* R.W.Mills October 1992. *
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ENTRY 2062
REFERENCE (C,89LENINGRD,8910)
AUTHOR (A.SICRE,W.BAUM,G.BARREAU,T.P.DOAN,A.GOPFERT,B.LEROUX,
M.MUTTERER,J.P.THEOBALD,H.FAUST)
TITLE EMISSION OF BE, C AND O ISOTOPES IN 235-U (N(TH),F).
NOTE 89LENINGRD was used as no CINDA code for this conference
data taken from micro-fiche CENBG-8926 A3419.
International Conference "50th Anniversary of Nuclear Fission"
Leningrad, USSR, Oct 16-20 (1989). Bordeaux university with
ILL Grenoble High Flux Reactor and Lohengrin spectrometer.
Results summed over ionic charge and energy.

ENTRY 2063
REFERENCE (J,ZP/A,341,481,92)
(J,ZP/A,338,115,91)
AUTHOR (A.SCHUBERT,J.HUTSCH,K.MOLLER,W.NEUBERT,W.PILZ,G.SCHMIDT,
M.ADLER)
TITLE LIGHT CHARGED PARTICLE RELEASE IN 252-CF SPONTANEOUS
FISSION: TRIPARTIATION VERUS FRAGMENT DE-EXCITATION
NOTE Data taken from table 1, using widest energy range or
extrapolated over entire energy range.

ENTRY 2064
REFERENCE (J,ZP/A,331,335,88)
AUTHOR (H.NAIK,T.DATTA,S.P.DANGE,P.K.PUJARI,S.PRAKASH,M.V.RAMANIAH)
TITLE CORRELATIONS OF FISSOIN FRAGMENT ANGULAR MOMENTUM WITH
COLLECTIVE AND INTRINSIC DEGREES OF FREEDOM.
NOTE DATA FROM TABLES 1 and 2.

ENTRY 2065
REFERENCE (J,SNP,9,424,69) Translation of
(J,YF,9,732,69)
(C,69VIENNA,900,69) Abstract.
AUTHOR (V.M.ADAMOV,S.S.KOVALENKO,K.A.PETRZHAK,I.I.TYUTYUGIN)
TITLE LONG-RANGE FISSION PARTICLES.
NOTE Table 1 long ranged particles per fission, Table 2 gives
separation of yields of light charged particles. Assumed D+T
is approximately T (for U235T about 1:100).

ENTRY 2066
REFERENCE (T,WOLFSBERG,5908)
AUTHOR (K.WOLFSBERG)
NOTE Data appears to be in 392 and 394, apparently no new data.

ENTRY 2067
REFERENCE (P,NEANDC(E)-262U,5,27,85)
(P,INDC(GER)-28/LN,27,85)
AUTHOR (G.LHERSONNEAU,H.OHM,K.SISTEMICH)
TITLE FISSION YIELD OF A HIGH SPIN ISOMER IN 97Y.
NOTE 144ms isomer of Y97 relative to independent yield of 97Y.

ENTRY 2068
REFERENCE (J,RCA,50,1,90)
AUTHOR (R.HENTZSCHEL,H.O.DENSCHLAG)
TITLE ISOMERIC YIELD RATIOS OF 134I AND 136I AND THE INDEPENDENT
YIELDS OF SOME HALOGEN ISOTOPES IN THE FISSION OF 232TH WITH
REACTOR NEUTRONS.
NOTE Data from 20848, no new data.

ENTRY 2069
REFERENCE (J,ANS,39,877,81)
AUTHOR (L.E.GLENDENIN,J.E.GINDLER,D.J.HENDERSON,J.W.MEADOWS)
TITLE NEUTRON-INDUCED FISSION YIELDS OF U-235 FROM 0.17 TO 8.0 MEV.
NOTE Data in 12729 as published in (J,PR/C,24,2600,81).

ENTRY 2070
REFERENCE (J,RCA,49,113,90)
AUTHOR (CHIEN CHUNG,KWEI LON HUANG)
TITLE CUMULATIVE FISSION YIELDS IN THE THERMAL_NEUTRON FISSION OF
232U.

ENTRY 2071
REFERENCE (J,PR,172,1272,68)
AUTHOR (G.M.RAISBECK,T.D.THOMAS)
TITLE LIGHT NUCLEI EMITTED IN THE FISSION OF 252CF.
NOTE LI-C data is very uncertain.

ENTRY 2072
REFERENCE (R,NFL-50,86)
AUTHOR (G.RUDSTAM)
TITLE ISOMERIC YIELDS IN THE FISSION OF 235U INDUCED BY THERMAL
NEUTRONS.

ENTRY 2073
REFERENCE ((R,CNIC-00421,90)=(R,IAE-0079,90)) IN CHINESE.
AUTHOR (ZHANG YANLING,LI XUELIANG,WANG FANGDING, GUO JINGRU,
TANG PEIJIA,LIU DAMING,CUI ANZHI,SU SHUXIN)
TITLE CHARGE DISTRIBUTION IN THE SPONTANEOUS FISSION OF 252CF-
DETERMINATION OF FRACTIONAL CUMULATIVE YIELDS OF 133mTE
and 133gTE.

ENTRY 2074
REFERENCE ((R,CNIC-00423,90)=(R,IAE-0080,90)) IN CHINESE.
AUTHOR (ZHAO XIN,LI XUELIANG,WANG FANGDING,TANG PEIJIA,LIU DAMING,
CUI ANZHI,SU SHUXIN)
TITLE CHARGE DISTRIBUTION IN THE SPONTANEOUS FISSION OF 252CF-
DETERMINATION OF FRACTIONAL CUMULATIVE YIELDS OF 127gSN AND 128SN.

ENTRY 2075
REFERENCE (J,RCA,55,173,91)
AUTHOR (B.S.TOMAR,A.GOSWAMI,A.V.R.REDDY,S.K.DAS,S.B.MANOHAR,
SATYA PRAKASH)
TITLE INDEPENDENT ISOMERICS YIELD RATIOS OF 132SB in 241PU(N'th,F) AND
U238(ALPHA,F).

ENTRY 2076
REFERENCE (P,ANL-7879,8,72)
AUTHOR (R.D.OLDHAM,J.WILLIAMS,R.P.LARSEN)
TITLE 237NP FISSION YIELD OF 140BA(FAST).

ENTRY 2077
REFERENCE (C,80KIEV,171,80) IN RUSSIAN.
AUTHOR (V.F.TEPLYKH,E.V.PLATYGINA,K.A.PETRZHAK) ??
TITLE RELATIVE CUMULATIVE YIELDS OF NP237 XENON ISOTOPES BY MASS SPECT.
NOTE Related to 683_684, but not identical.

ENTRY 2078
REFERENCE (J,JRNL,108,347,86)
AUTHOR (SUN JIANGUO,GUO JINGRU,WANG FANGDING)
TITLE INDEPENDENT YIELD OF 88-Y FROM THERMAL NEUTRON INDUCED FISSION
OF 235-U.
NOTE Upper limit only.

ENTRY 2079
REFERENCE (J,NP/A,502,363c,89)
AUTHOR (V.E.MAKARENKO,Yu.D.MOLCHANOV,G.A.OTROSHENKO,G.B.YANKOV)
TITLE TERNARY FISSION OF NEUTRON INDUCED FISSIONING ISOMERS.
NOTE Spontaneous fission isomers generated by neutron inelastic
reaction with 4.5MeV neutrons. Very large suggests that
ternary fission becomes more important with energy, before
there is sufficinet energy to throw of neutron (n,nf)etc.
However, up to ~1.5 Mev no effect?

ENTRY 2080
REFERENCE (J,SNP,36,783,82)
AUTHOR (D.V.ALEKSANDROV,Yu.A.GLUKHOV,A.S.DEM'YANOVA,V.I.DUKHANOV,
I.B.MAZUROV,B.G.NOVATSKII,AA.ORLOBLIN,S.B.SAKUTA,D.N.STEPANOV)
TITLE MEASUREMENT OF THE SPECTRA OF LIGHT CHARGED PARTICLES IN THE
TERNARY FISSION OF 252-CF AND THE SEARCH FOR THE ISOTOPES
10-HE AND 7H.

ENTRY 2081
REFERENCE (J,SNP,47,395,88)
AUTHOR (V.T.GRACHEV,Yu.I.GUSEV,D.M.SELIVERSTOV)
TITLE ANGULAR, ENERGY AND MASS CORRELATIONS FOR THE SPONTANEOUS
FISSION OF 252-CF WITH EMISSION OF 3-H, 4-HE AND 6-HE NUCLEI.

ENTRY 2082
REFERENCE (R,ORNL/TM-9047,,84)
AUTHOR (L.D.MERRIMAN)
TITLE FISSION-PRODUCT YIELDS FOR THE THERMAL-NEUTRON FISSION OF
243-CM DETERMINED FROM MEASUREMENTS WITH A HIGH-RESOLUTION
LOW ENERGY GERMANIUM GAMMA-RAY DETECTOR.

ENTRY 2083
REFERENCE (J,JRNL,155,299,91)
AUTHOR (A.P.TONCHEV, Ph.G.KONDEV,H.G.HRISTOV,Yu.P.GANGRSKY,
N.P.BALABNOV,V.D.TCHOLAKOV)
TITLE ISOMERIC YIELD RATIO OF 134-I IN PHOTOFISSION OF 232-TH AND
238-U.
NOTE INCLUDE VALUE FROM H.THIERENS ET AL (J,PR/C,25,1546,82).

ENTRY 2084
REFERENCE (J,PR,76,279,49)
AUTHOR (J.KOCH,O.KOFOED-HANSEN,P.KRISTENSEN,W.DROST-HANSEN)
TITLE MEASUREMENTS ON RADIOACTIVEKRYPTON ISOTOPES FROM FISSION AFTER
MASS-SPECTOGRAPHIC SEPARATION.

ENTRY 2085
REFERENCE (J,JIN,40,1859,78)
AUTHOR (H.GAGGELER,H.R.VON GUNTEN)
TITLE CHARGE DISTRIBUTION IN THE PHOTOFISSION OF 238-U WITH
BREMSSTRAHLUNG OF EMAX 20-50 MEV.
NOTE ALSO CONTAINS REVIEW OF OTHER MEASUREMENTS ALSO ADDED.

ENTRY 2086
REFERENCE (W,RUDSTAM,8909)
AUTHOR (G.RUDSTAM)
TITLE ISOMERIC YIELDS (Preliminary Study)
NOTE UPDATE OF SOME YIELDS IN 22003.

ENTRY 2087
REFERENCE (J,PR/C,38,1757,88)
AUTHOR (C.H.LEE,Y.W.YU,D.LEE,H.KUDO,K,J,MOODY,G.T.SEABORG)
TITLE CHARGE AND MASS DISTRIBUTION FROM THE REACTION OF 240MEV 12-C IONS
WITH 238-U.
NOTE AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY 2088
REFERENCE (J,RCA,56,69,92)
AUTHOR (S.B.MANOHAR,A.GOSWAMI,A.V.R.REDDY,B.S.TOMAR,P.P.BURTE,SATYA PRAKASH)
TITLE MASS DISTRIBUTION IN 12-C INDUCED FISSION OF 232TH. (79MEV).
NOTE AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY 2089
REFERENCE (J,ZP/A,338,325,91)
AUTHOR (J.J.HOGAN,D.J.PARKER,J.ASHER))
TITLE FISSION FOLLOWING COMPLETE OR INCOMPLETE FUSION OF 135 MEV 16-O AND
238-U.
NOTE AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY 2090
REFERENCE (J,RCA,51,97,90)
AUTHOR (R.GUIN,S.M.SAHAKUNDU,S.B.MANOHAR,SATYA PRAKASH))
TITLE MASS DISTRIBUTION OF FISSION PRODUCTS FROM MODERATELY EXCITED 236-U
COMPOUND NUCLEUS.
NOTE 38MEV ALPHA PARTICLE BOMBARDMENT. AS UNCERTAIN OF WHICH NUCLIDE IS
FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY 2091
REFERENCE (J,ZP/A,343,73,92)
AUTHOR (H.MACHNER,SA JUN,G.RIEPE,D.PROTIC,H.DANIEL,T.VON EGIDY,F.J.HARTMANN,
W.KANERT,W.MARKIEL,H.S.PLENDL,K.ZIOCK,R.MARSHALL,J.J.REIDY)
TITLE FISSION FRAGMENT DISTRIBUTION FOLLOWING ANTI-PROTON ABSORBATION AT
AT REST ON 238-U.
NOTE AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY 2092
REFERENCE (J,ANS,49,209,85)
AUTHOR (ABDULHAMID.A.HASAN,SUMER SAHIN,CHIEN CHUNG)
TITLE YIELDS OF SHORT LIVED FISSION PRODUCTS IN 235-U(N-TH,F).
NOTE DATA REPORTED IN 2018.

ENTRY 2093
REFERENCE (J,PR/C,44(4),1405,1991)
AUTHOR (T.OHTSUKI,Y.NAGAME,K.TSUKADA,N.SHINOHARA,S.BABA,K.HASIMOTO,
I.NISHINAKA,K.SUEKI,Y.HATSUKAWA,K.HATA,T.SEKINE,I.KANNO,H.IKEZOE,

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             H.NAKAHARA)
TITLE        MASS YIELD CURVES IN LOW-ENERGY PROTON-INDUCED FISSION OF 233U,
             235U, 236U, 237NP, 239PU, 242PU, 244PU, 241AM AND 243AM.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY        2094
REFERENCE    (J,NSE,109,350,91)
AUTHOR       (E.KARTTUNEN,M.BRENNER,V.A.RUBCHENA,S.A.EGOROV,V.B.FUNSCHTEIN,
             V.A.JAKOVLEV,Yu.A.SELITSKIY)
TITLE        CROSS SECTIONS FOR FORMATION OF FISSION PRODUCTS IN THE 238U(P,F)
             REACTION AT PROTON ENERGIES BETWEEN 12 AND 30MEV.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY        2095
REFERENCE    (J,PR,133,B724,64)
AUTHOR       (J.A.COLEMAN,A.W.FAIRHALL,I.HALPERN)
TITLE        LONG-RANGE PARTICLE EMISSION IN COINCIDENCE WITH FISSION AT
             MODERATE EXCITATION ENERGIES.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY        2096
REFERENCE    (J,CJC,61,786,83)
AUTHOR       (P.L.REEDER)
TITLE        MASS SPECTROMETRIC DETERMINATION OF RB FISSION YIELDS WITH
             3HE AND 4HE INDUCED FISSION OF 238U AND 232TH.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY        2097
REFERENCE    (J,PR,108,1274,57)
AUTHOR       (J.M.ALEXANDER,C.D.CORYELL)
TITLE        NUCLEAR CHARGE DISTRIBUTION IN THE FISSION OF URANIUM AND THORIUM
             WITH 13.6 MEV DEUTERONS.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY        2098
REFERENCE    (SYMPOSIUM ON RADIOCHEMISTRY AND RADIATION CHEMISTRY. NAGPUR (INDIA)
             5-8 FEB 1990)
AUTHOR       (A.V.R.REDDY,S.B.MANOHAR,A.GOSWAMI,B.S.TOMAR,SATYA PRAKASH)
TITLE        ISOTOPIC YIELDS OF IODINE IN THE FISSION OF U238 + 16O.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.

ENTRY        2099
REFERENCE    (J,RP/C,44,1118,9109)
AUTHOR       (J.R.SMITH,A.E.RICHARDSON)
TITLE        INDEPENDENT YIELDS FROM THE PHOTOFISSION OF 232-TH, AND THE ZP AND
             STATISTICAL-DYNAMIC MODELS.

ENTRY        2100
REFERENCE    (SYMPOSIUM ON RADIOCHEMISTRY AND RADIATION CHEMISTRY. NAGPUR (INDIA)
             5-8 FEB 1990)
AUTHOR       (M.S.OAK,A.RAMASWAMI,SATYA PRAKASH)
TITLE        CUMULATIVE YIELDS OF THE SHORT LIVED RARE EARTH FISSION PRODUCTS IN
             THE SPONTNEOUS FISSION OF 252-CF.
NOTE         SOME DATA PUBLISHED UNDER 2036.

ENTRY        2101
REFERENCE    (SYMPOSIUM ON RADIOCHEMISTRY AND RADIATION CHEMISTRY. NAGPUR (INDIA)
             5-8 FEB 1990)
AUTHOR       (A.RAMASWAMI,S.S.RATTAN,R.J.SINGH,SATYA PRAKASH)
TITLE        CHARGE DISTRIBUTION STUDY IN THE THERMAL NEUTRON INDUCED FISSION OF
             241-PU: FRACTIONAL CUMULATIVE YIELDS OF 134-TE,135-I, 138-XE AND
             140-BA.

ENTRY        2102
REFERENCE    (J,RCA,31,69,82)
AUTHOR       (R.J.SINGH,S.S.RATTAN,A.V.R.REDDY,C.R.VENKATASUBRAMANI,A.RAMASWAMI,
             SATYA PRAKASH,M.V.RAMANIAH)
TITLE        MASS DISTRIBUTION IN THE THERMAL NEUTRON INDUCED FISSION OF 229TH.

ENTRY        2103
REFERENCE    (PROCEEDINGS OF THE NUCLEAR CHEMISTRY AND RADIOCHEMISTRY SYMPOSIUM
             HELD AT ANDHRA UNIVERSITY, WALTAIR FEB. 25-28, 1980.)
AUTHOR       (S.A.CHITAMBAR,S.N.ACHARYA,H.C.JAIN,C.K.MATHEWS)
TITLE        FISSION YIELDS OF LONG LIVED AND STABLE FISSION PRODUCTS IN THERMAL
             NEUTRON INDUCED FISSION OF 241PU.

ENTRY        2104
REFERENCE    (PROCEEDINGS OF THE NUCLEAR CHEMISTRY AND RADIOCHEMISTRY SYMPOSIUM
             HELD AT ANDHRA UNIVERSITY, WALTAIR FEB. 25-28, 1980.)
AUTHOR       (A.RAMASWAMI,K.RAGHURAMAN,B.K.SRIVASTAVA,V.NATARAJAN,R.H.IYER,
             A.V.JADHAV,C.K.SIVARAMAKRISHNAN)
TITLE        DETERMINATION OF ABSOLUTE FISSION YIELDS IN SPONTANEOUS FISSION
             SYSTEMS: YIELD OF 99MO AND 140BA IN THE SPONTANEOUS FISSION OF 244CM.

ENTRY        2105
REFERENCE    (PROCEEDINGS OF THE NUCLEAR CHEMISTRY AND RADIOCHEMISTRY SYMPOSIUM
             HELD AT ANDHRA UNIVERSITY, WALTAIR FEB. 25-28, 1980.)
AUTHOR       (A.G.C.NAIR,TARUN DATA,S.P.DANGE,P.P.BURTE,S.B.MANOHAR,S.K.DAS,
             SATYA PRAKASH)
TITLE        CHARGE DISTRIBUTION IN THE THERMAL NEUTRON INDUCED FISSION OF 241PU:
             DETERMINATION OF FRACTIONAL CUMULATIVE YIELDS OF 135I AND 140BA.

ENTRY        2106
REFERENCE    (PROCEEDINGS OF THE NUCLEAR CHEMISTRY AND RADIOCHEMISTRY SYMPOSIUM
             HELD AT ANDHRA UNIVERSITY, WALTAIR FEB. 25-28, 1980.)
AUTHOR       (S.S.RATTAN,A.V.R.REDDY,R.J.SINGH,SATYA PRAKASH,M.V.RAMANIAH)
TITLE        STUDIES ON CHARGE DISTRIBUTION IN THE THERMAL NEUTRON INDUCED FISSION
             OF 229TH.

ENTRY        2107
REFERENCE    (J,PR/C,146,926,6606)
AUTHOR       (A.E.NORRIS,A.C.WAHL)
TITLE        NUCLEAR CHARGE DISTRIBUTION IN FISSION: Y92, Y93, Y94, AND Y95
             INDEPENDENT YIELDS.

ENTRY        2108
REFERENCE    (J,HFH,13,1,54,9102)
AUTHOR       (SUN TONGYU, LI WENXIN, FU MING, ZHAO LILI)
TITLE        MASS DISTRIBUTION IN THE 14.7 MEV NEUTRON-INDUCED FISSION OF 237NP.

ENTRY        2109
REFERENCE    (J,HFH,13,3,129,9108)
AUTHOR       (SU SHUXIN,LIU YONGHUI,ZHANG SUJING,LIU CONGGUI,WANG XIUZHI,
             QI DAIHAI,TANG PEIJIA)
TITLE        MASS DISTRIBUTION IN FISSION SPECTRUM NEUTRON INDUCED FISSION OF 238U.

ENTRY        2110
REFERENCE    (J,NP/A,515,433,90)
AUTHOR       (G.MARTINEZ,G.BARREAU,A.SICRE,T.P.DOAN,P.AUDOUARD,B.LEROUX,W.ARAFA,
             R.BRISSOT,J.P.BOCQUET,H.FAUST,P.KOCZON,M.MUTTERER,F.GONNENWEIN,
             M.ASGHAR,U.QUADE,K.RUDOLPH,D.ENGELHARDT,E.PIASECKI)
TITLE        MASS AND NUCLEAR CHARGE YIELDS FOR 237NP(2N-TH,F) AT DIFFERENT
             FISSION FRAGMENT KINETIC ENERGIES.

ENTRY        2111
REFERENCE    (J,AE,65(3),208,88)
AUTHOR       (A.N.GUDKOV,V.M.ZHIVUN,A.B.KOLDOBSKII,S.V.KRIVASHEEV,V.G.NESTEROV,
             N.S.PIVEN,E.V.SEMENOVA,G.N.SMIRENKIN)
TITLE        MEASUREMENTOF TEH FISSION PRODUCTS OF 235U AND 239PU BY SEMICONDUCTOR
             GAMMA SPECTROMETRY.
NOTE         DATA SAME AS 2046.

ENTRY        2112
REFERENCE    (J,SNP,20(3),248,7503)
AUTHOR       (A.A.VOROB'EV,V.T.GRACHEV,I.A.KONDUROV,YU.A.MIROSHNICHENKO,
             A.M.NIKITIN,D.M.SELIVERSTOV,N.N.SMIRNOV)
TITLE        TERNARY FISSION OF 239PU AND 242MAM BY NEUTRONS.

ENTRY        2113
REFERENCE    (J,AE,10(1),10,61)
AUTHOR       (E.K.BONYUSHKAN,YU.S.ZAMAYATNIN,V.V.SPEKTOR,V.V.RACHEV,
             V.R.NEGINA,V.N.ZAMYATNINA)
TITLE        FRAGMENT YIELD IN THE FISSION OF 233U AND 239PU BY FAST NEUTRONS.
NOTE         DATA IN 61-64.

ENTRY        2114
REFERENCE    (C,BERLIN89 [50 YEARS OF FISSION],89)
AUTHOR       (R.HENTZSCHEL,H.O.DENSCHLAG)
TITLE        THE ISOMERIC RATIOS OF 134I AND 136I IN THE REACTOR-NEUTRON
             INDUCED FISSION OF 232TH.

ENTRY        2115
REFERENCE    (J,PR,144,3,1060,66)
AUTHOR       (T.D.THOMAS,S.L.WHETSTONE))
TITLE        EMISSION OF ALPHA PARTICLES IN THE FISSION OF U-238 BY 11-21
             MEV PROTONS.
NOTE         AS UNCERTAIN OF WHICH NUCLIDE IS FISSIONING THIS DATA IS NOT INCLUDED.
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* Exfor Fission yield database references from Saclay March 1988.     *
*         Data added to database by M.F.James and R.Mills.            *
*         Updated from NEA Databank Saclay 6th Oct 1989.              *
*         Updated from NEA Databank Saclay 5th Dec 1990.              *
*         Updated from NEA Databank Saclay 7th Oct 1992.              *
*         Updated from NEA Databank Saclay 7th Jun 1993. (no new data) *
*                                                                     *
*         R.W.Mills August 1993.                                      *
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ENTRY        10433     810724
UKFY         877.
REFERENCE    (J,JIN,37,1341,7506)
AUTHOR       (W.D.JAMES,D.E.ADAMS,J.N.BECK,P.K.KURODA)
TITLE        INVESTIGATION OF THE REPORTED MASS DISTRIBUTION CURVES
             IN THE FISSION OF 233-U WITH 14.8 MEV NEUTRONS.

ENTRY        10516     840426
UKFY         902-903
REFERENCE    (J,PR/C,11,1676,7505)
AUTHOR       (K.F.FLYNN,J.E.GINDLER,R.K.SJOBLOM,L.E.GLENDENIN)
TITLE        MASS DISTRIBUTIONS FOR THERMAL-INDUCED FISSION OF
             FM-255 AND CF-251.

ENTRY        10517     811221
REFERENCE    (J,JIN,37,869,7504)
AUTHOR       (K.F.FLYNN,L.E.GLENDENIN)
TITLE        INDEPENDENT YIELDS OF 84-RB, 86-RB AND 136-CS FOR
             THERMAL-NEUTRON-INDUCED FISSION OF 233-U, 235-U AND
             239-PU.

ENTRY        10642          0
REFERENCE    (J,PR/C,16,1483,7710)
AUTHOR       (J.E.GINDLER,K.F.FLYNN,L.E.GLENDENIN,R.K.SJOBLOM)
TITLE        DISTRIBUTION OF MASS, KINETIC ENERGY AND NEUTRON YIELD
             IN THE SPONTANEOUS FISSION OF FM-254.

ENTRY        10683     840227
REFERENCE    (J,NSE,63,504,7708)
AUTHOR       (D.C.HARRIS,J.N.BECK,W.L.RAINES,J.T.HARVEY,K.G.W.INN,
             J.L.MEASON,H.L.WRIGHT)
TITLE        DISTRIBUTION OF FISSION YIELDS FOR FISSION SPECTRUM
             NEUTRON-INDUCED FISSION OF URANIUM-238

ENTRY        10712     810724
REFERENCE    (J,PR/C,16,1907,7711)
             (J,PR/C,20,1824,7911)
AUTHOR       (D.R.NETHAWAY,A.L.PRINDLE,W.A.MYERS,W.C.FUQUA,
             M.V.KANTELO)
TITLE        FISSION OF PU-240 WITH 14.8-MEV NEUTRONS.

ENTRY        10722     840918
REFERENCE    (J,ANS,27,862,7712)
             (T,STRITTMATTER,78)
AUTHOR       (R.B.STRITTMATTER,B.W.WEHRING)
TITLE        DIRECT PHYSICAL MEASUREMENT OF NUCLIDE YIELDS FOR
             U-235(N(TH),F).
NOTE         Following discussion with Rider and Lammer October '94
             in Wien, Kr85(g) appears to be cumulative.

ENTRY        10723     840917
REFERENCE    (R,ICP-1050,(III),7709)
             (C,77NBS,,146,77)
AUTHOR       (W.J.MAECK,W.A.EMEL,A.L.ERIKSON,J.E.DELMORE,J.W.METEER)
TITLE        FAST REACTOR FISSION YIELDS FOR NP-237

ENTRY        10798     811221
REVISED            10798     891117
UKFY         1086-1091.
REFERENCE    (J,PR/C,17,163,7801)
AUTHOR       (S.NAGY,K.F.FLYNN,J.E.GINDLER,J.W.MEADOWS,
             L.E.GLENDENIN)
TITLE        MASS DISTRIBUTIONS IN MONOENERGETIC-NEUTRON-INDUCED
             FISSION OF U-238.

ENTRY        10821     820830
UKFY2        1117, 1154.
REFERENCE    (J,PR/C,18,1700,7810)
             (J,PR/C,20,1824,7911)
AUTHOR       (W.A.MYERS,M.V.KANTELO,R.L.OSBORNE,A.L.PRINDLE,
             D.R.NETHAWAY)
TITLE        FAST NEUTRON FISSION OF PU-240

ENTRY        10828     900404
UKFY         1099-1106.
REFERENCE    (J,PR/C,17,1089,7803)
AUTHOR       (T.C.CHAPMAN,G.A.ANZELON,G.C.SPITALE,D.R.NETHAWAY)
TITLE        FISSION PRODUCT YIELDS FROM 6-9 MEV INDUCED
             FISSION OF U-235 AND U-238

ENTRY        10832          0
REFERENCE    (J,PRL,39,1246,7711)
AUTHOR       (C.E.BEMIS JR,R.L.FERGUSON,F.PLASIL,R.J.SILVA,
             G.D.O'KELLEY,M.L.KIEFER,R.L.HAHN,D.C.HENSLEY,
             E.K.HULET,R.W.LOUGHEED)
TITLE        MASS ASYMMETRY AND TOTAL-KINETIC-ENERGY RELEASE IN THE
             SPONTANEOUS FISSION OF 262-(105)

ENTRY        10845     840917
UKFY         1134-1135.
REFERENCE    (R,ICP-1050-IV,7902)
             (C,77NBS,,146,7703)
AUTHOR       (W.J.MAECK,R.L.EGGLESTON,A.L.ERIKSON,R.L.TROMP)
TITLE        FAST REACTOR FISSION YIELDS FOR PU-240 AND PU-242

ENTRY        10864     820630
REFERENCE    (J,CJP,56,1340,7810)
AUTHOR       (M.SHIMA,H.G.THODE,R.H.TOMLINSON)
TITLE        CUMULATIVE YIELDS OF STABLE AND LONG-LIVED ISOTOPES OF
             RUTHENIUM AND PALLADIUM IN NEUTRON-INDUCED FISSION

ENTRY        10865     840917
REFERENCE    (R,ICP-1142,7809)
AUTHOR       (W.J.MAECK,W.A.EMEL,F.A.DUCE,R.L.TROMP,J.W.METEER)
TITLE        ABSOLUTE THERMAL FISSION YIELDS FOR U-235
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ENTRY     10890     810113
REFERENCE (J,NSE,73,42,8001)
AUTHOR    (J.K.DICKENS,J.W.MC CONNELL)
TITLE     FISSION PRODUCT YIELDS FOR THERMAL-NEUTRON FISSION OF
          PLUTONIUM-239

ENTRY     10893          0
REFERENCE (J,PAC,53,973,81)
          (C,79JULICH,2,299,7905)
AUTHOR    (E.K.HULET,J.F.WILD,R.W.LOUGHEED,P.A.BAISDEN,
          R.J.DOUGAN,M.G.MUSTAFA)
TITLE     THE KINETIC ENERGY DEFICIT IN THE SYMMETRIC FISSION
          OF 259-MD.

ENTRY     10894     820630
REFERENCE (J,NSE,70,177,7905)
AUTHOR    (J.K.DICKENS)
TITLE     FISSION YIELDS FOR THERMAL NEUTRON FISSION OF PLUTON-
          IUM-241

ENTRY     10897     820830
UKFY      1142.
REFERENCE (J,PR/C,20,212,7907)
AUTHOR    (M.A.MONZYK,D.E.TROUTNER)
TITLE     FRACTIONAL INDEPENDENT YIELDS OF BA-139 AND LA-142 FROM
          THERMAL-NEUTRON-INDUCED FISSION OF CF-249

ENTRY     10898     840917
REFERENCE (R,ENICO-1001,7909)
AUTHOR    (W.J.MAECK,F.A.DUCE,R.L.EGGLESTON,R.L.TROMP,J.W.METEER,
          W.A.EMEL)
TITLE     ABSOLUTE THERMAL FISSION YIELDS FOR PU-239

ENTRY     10913     840917
UKFY      1154.
REFERENCE (J,PR/C,20,1824,7911)
AUTHOR    (A.L.PRINDLE,D.H.SISSON,D.R.NETHAWAY,M.V.KANTELO,
          R.A.SIGG)
TITLE     FISSION OF AM-241 WITH 14.8-MEV NEUTRONS

ENTRY     10917     840917
UKFY      1182.
REFERENCE (R,ENICO-1046,8007)
AUTHOR    (W.J.MAECK,A.L.ERIKSON,R.L.TROMP)
TITLE     FAST REACTOR FISSION YIELDS FOR PU-241 AND RELATIVE FISSION
          PRODUCT ISOTOPIC DATA FOR PU-239 IRRADIATED IN ROW-4 OF EBR-II

ENTRY     10918     841126
REFERENCE (T,LEE,83)
          (J,ANS,35,551,8011)
          (R,UILU-ENG-80-5312,8005)
AUTHOR    (B.W.WEHRING,S.LEE,G.SWIFT,R.STRITTMATTER)
TITLE     LIGHT FRAGMENT INDEPENDENT YIELDS FOR THERMAL-NEUTRON
          FISSION OF U-233

ENTRY     10920     820127
UKFY      1162-1169.
REFERENCE (J,PR/C,22,152,8007)
AUTHOR    (L.E.GLENDENIN,J.E.GINDLER,I.AHMAD,D.J.HENDERSON,
          J.W.MEADOWS)
TITLE     MASS DISTRIBUTIONS IN MONOENERGETIC NEUTRON INDUCED
          FISSION OF TH-232

ENTRY     10923          0
REFERENCE (J,PR/C,21,972,8003)
AUTHOR    (D.C.HOFFMAN,J.B.WILHELMY,J.WEBER,W.R.DANIELS,
          E.K.HULET,R.W.LOUGHEED,J.H.LANDRUM,J.F.WILD,R.J.DUPZYK)
TITLE     12.3-MIN 256-CF AND 43-MIN 258-MD AND SYSTEMATICS OF
          THE SPONTANEOUS FISSION PROPERTIES OF HEAVY NUCLIDES.

ENTRY     10924          0
REFERENCE (J,PR/C,21,966,8003)
AUTHOR    (E.K.HULET,R.W.LOUGHEED,J.H.LANDRUM,J.F.WILD,
          D.C.HOFFMAN,J.WEBER,J.B.WILHELMY)
TITLE     SPONTANEOUS FISSION OF 259-FM.

ENTRY     10925          0
REFERENCE (J,PR/C,22,1581,8010)
AUTHOR    (D.HOFFMAN,D.LEE,A.GHIORSO,M.NURMIA,K.ALEKLETT)
TITLE     FRAGMENT MASS AND KINETIC-ENERGY DISTRIBUTIONS FROM
          SPONTANEOUS FISSION OF THE

ENTRY     10937          0
REFERENCE (J,PRL,44,1200,8005)
AUTHOR    (C.A.FONTENLA,D.P.FONTENLA)
TITLE     EVIDENCE FOR NUCLEAR SUPERFLUIDITY IN 236-U ISOMERIC-
          AND PROMPT-FISSION MODES.

ENTRY     10961     820318
REFERENCE (J,NSE,77,146,8102)
AUTHOR    (J.K.DICKENS,J.W.MC CONNELL, K.J.NORTHCUTT)
TITLE     YIELDS OF SHORT-LIVED FISSION PRODUCTS PRODUCED BY
          THERMAL-NEUTRON FISSION OF PLUTONIUM-239.

ENTRY     10962     810624
UKFY      1173.
REFERENCE (J,PR/C,23,331,8101)
AUTHOR    (J.K.DICKENS,J.W.MC CONNELL)
TITLE     YIELDS OF FISSION PRODUCTS PRODUCED BY THERMAL-NEUTRON
          FISSION OF CM-245

ENTRY     10964          0
REFERENCE (J,PR/C,22,2485,8012)
AUTHOR    (S.T.LAM,L.L.YU,H.W.FIELDING,W.K.DAWSON,G.C.NEILSON,
          J.T.SAMPLE)
TITLE     FAST NEUTRON INDUCED FISSION OF U-238.

ENTRY     10966     820318
REFERENCE (J,JIN,43,1433,81)
AUTHOR    (J.E.GINDLER,L.E.GLENDENIN,D.J.HENDERSON)
TITLE     MASS DISTRIBUTION FOR THERMAL-NEUTRON-INDUCED FISSION
          OF 229-TH.

ENTRY     10967     820318
REFERENCE (J,JIN,43,445,8103)
AUTHOR    (J.E.GINDLER,L.E.GLENDENIN,E.L.KRAPP,S.J.FERNANDEZ,
          K.F.FLYNN,D.J.HENDERSON)
TITLE     MASS DISTRIBUTION IN THERMAL-NEUTRON-INDUCED
          FISSION OF LONG-LIVED NP-236.

ENTRY     10974          0
REFERENCE (R,ENICO-10016,8310)
AUTHOR    (T.C.CHAPMAN,R.L.TROMP,W.A.EMEL)
TITLE     SHIELDED MASS 136 YIELD FROM FAST FISSION OF 233U,
          235U,237NP,AND 239-242PU.

ENTRY     10979          0
REFERENCE (J,JIN,39,759,7705)
AUTHOR    (K.F.FLYNN,J.E.GINDLER,L.E.GLENDENIN)
TITLE     MASS DISTRIBUTIONS FOR THE SPONTANEOUS FISSION OF
          248-CM AND 250-CF.

ENTRY     10985     820318
REFERENCE (R,KAPL-P-4005,,7401)
AUTHOR    (G.J.KIROUAC,H.M.EILAND,C.J.SLAVIK)
TITLE     FAST NEUTRON FLUX MEASUREMENT

ENTRY     10986     820318
REFERENCE (J,JIN,43,895,8105)
AUTHOR    (J.E.GINDLER,D.J.HENDERSON,L.E.GLENDENIN)
TITLE     SPONTANEOUS FISSION YIELDS FOR 246-CM.

ENTRY     10994     820830
UKFY      1183-1184.
REFERENCE (J,JIN,43,889,8105)
AUTHOR    (D.R.NETHAWAY,A.E.RICHARDSON)
TITLE     INDEPENDENT YIELDS OF 148M-PM, 148G-PM AND 150-PM FROM
          FISSION OF 235-U AND 238-U WITH 14.8 MEV NEUTRONS.

ENTRY     10995     820830
REFERENCE (J,JIN,43,885,8105)
AUTHOR    (D.K.PAL,D.E.TROUTNER)
TITLE     FRACTIONAL INDEPENDENT YIELDS OF 141-LA AND 142-LA
          FROM THERMAL-NEUTRON-INDUCED FISSION OF 233-U.

ENTRY     10996     820830
REFERENCE (J,JIN,43,877,8105)
AUTHOR    (E.N.VINE,A.C.WAHL)
TITLE     FRACTIONAL INDEPENDENT YIELDS OF 104-TC AND 105-TC FROM
          THERMAL-NEUTRON-INDUCED FISSION OF 235-U AND 239-PU.

ENTRY     12610     900130
REFERENCE (J,JIN,10,1,59)
AUTHOR    (A.WAHL)
TITLE     14 YEAR CD-113M

ENTRY     12705     820630
REFERENCE (J,PR/C,24,192,8107)
AUTHOR    (J.K.DICKENS,J.W.MC CONNELL)
TITLE     YIELDS OF FISSION PRODUCTS PRODUCED BY THERMAL NEUTRON
          FISSION OF CF-249

ENTRY     12709          0
REFERENCE (J,PR/C,23,2100,8105)
AUTHOR    (J.WEBER,H.C.BRITT,J.B.WILHELMY)
TITLE     COMPARISON OF CF-252 SPONTANEOUS FISSION WITH
          CF-250(TRITON,PROTON-FISSION)

ENTRY     12710          0
REFERENCE (J,INC,43,1743,81)
AUTHOR    (J.E.GINDLER,L.E.GLENDENIN,D.J.HENDERSON)
TITLE     MASS DISTRIBUTIONS FOR THE FISSION OF CF-250

ENTRY     12711          0
REFERENCE (J,EPL,47,235,80)
AUTHOR    (B.SRINIVASAN,K.F.FLYNN)
TITLE     KR AND XE ISOTOPES FROM SPONTANEOUS FISSION OF CM-248,
          AND CF-250 - COMPARISON WITH NOBLE GASSES IN
          CARBONACEOUS CHONDRITES

ENTRY     12729          0
REFERENCE (J,PR/C,24,2600,8112)
AUTHOR    (L.E.GLENDENIN,J.E.GINDLER,D.J.HENDERSON,J.W.MEADOWS)
TITLE     MASS DISTRIBUTION FOR MONOENERGETIC-NEUTRON-INDUCED
          FISSION OF U-235.

ENTRY     12734     830505
REFERENCE (J,NSE,80,455,8203)
AUTHOR    (J.K.DICKENS,J.W.MC CONNELL,K.J.NORTHCUTT)
TITLE     YIELDS OF SHORT-LIVED FISSION PRODUCTS OF THERMAL-
          NEUTRON FISSION OF THORIUM-229.

ENTRY     12740          0
REFERENCE (P,UCAR-10062-81-1,111,82)
AUTHOR    (K.RENGAN,J.LIN,R.A.MEYER)
TITLE     FISSION YIELDS BY CONTINUOUS CHEMISTRY.

ENTRY     12771          0
UKFY      790-794.
REFERENCE (J,NSE,54,263,7407)
AUTHOR    (R.P.LARSEN,,N.D.DUDEY,R.R.HEINRICH,R.D.OLDHAM,
          R.J.ARMANI,R.J.POPEK,R.GOLD)
TITLE     THE YIELD OF SHORT-LIVED GAMMA-RAY EMITTING NUCLIDES
          FROM FAST- AND THERMAL-NEUTRON FISSION

ENTRY     12807          0
REFERENCE (J,PR/C,27,253,8301)
AUTHOR    (J.K.DICKENS,J.W.MC CONNELL)
TITLE     YIELDS OF FISSION PRODUCTS PRODUCED BY THERMAL-
          NEUTRON FISSION OF 229-TH

ENTRY     12813     891106
REFERENCE (J,PR/C,30,1966,8412)
          (T,SEMKOW,8308)
AUTHOR    (T.M.SEMKOW,A.C.WAHL,L.ROBINSON)
TITLE     YIELDS OF IN AND SN PRODUCTS FROM THERMAL AND
          14-MEV NEUTRON INDUCED FISSION OF 235-U.

ENTRY     12814     830812
REFERENCE (P,UCAR-10062-81-1,153,82)
AUTHOR    (P.A.BAISDEN,J.F.WILD,R.J.DOUGAN,R.W.LOUGHEED,
          E.K.HULET)
TITLE     LIGHT PARTICLES FROM FISSION OF 256-FM AND 257-FM.

ENTRY     12817     840917
REFERENCE (J,PR/C,27,2058,8305)
AUTHOR    (J.E.GINDLER,L.E.GLENDENIN,D.J.HENDERSON,J.W.MEADOWS)
TITLE     MASS DISTRIBUTIONS IN MONOENERGETIC-NEUTRON-INDUCED
          FISSION OF 239-PU.

ENTRY     12843          0
REFERENCE (J,PR/C,28,1212,8309)
AUTHOR    (S.T.LAM,L.L.YU,H.W.FIELDING,W.K.DAWSON,G.C.NEILSON)
TITLE     NEUTRON INDUCED FISSION OF 232-TH NEAR THRESHOLD.

ENTRY     12895     891106
REFERENCE (J,PR/C,30,195,8407)
AUTHOR    (G.P.FORD,K.WOLFSBERG,B.R.ERDAL)
TITLE     INDEPENDENT YIELDS OF THE ISOMERS OF 133-XE AND 135-XE
          FOR NEUTRON INDUCED FISSION OF 233-U,235-U,238-U,
          239-PU, AND 242-AM-M.

ENTRY     12919          0
REFERENCE (P,UCAR-10062,164,84)
AUTHOR    (M.LINDNER,D.SEEGMILLER)
TITLE     REACTOR NEUTRON FISSION CHARACTERISTICS OF THE LONG-
          LIVED ISOMER OF NEPTUNIUM 236

ENTRY     12925          0
REFERENCE (P,UCAR-10062,66,84)
AUTHOR    (H.G.HICKS)
TITLE     FISSION YIELDS OF 161TB FROM FISSION-SPECTRUM NEUTRONS
          ON PLUTONIUM.

ENTRY     12926          0
REFERENCE (J,PR/C,23,1113,8103)
AUTHOR    (R.W.WALDO,R.A.KARAM,R.A.MEYER)
TITLE     DELAYED NEUTRON YIELDS, TIME DEPENDENT MEASUREMENTS AND
          A PREDICTIVE MODEL

ENTRY     12931          0
REFERENCE (J,PR/C,31,1334,8504)
AUTHOR    (L.ROBINSON,A.C.WAHL,T.M.SEMKOW,A.E.NORRIS)
TITLE     NUCLEAR-CHARGE DISTRIBUTION FOR A=121 FROM THERMAL-
          NEUTRON-INDUCED FISSION OF 235U.

ENTRY     12945          0
REFERENCE (J,PR/C,32,1327,8510)
AUTHOR    (P.L.REEDER,R.A.WARNER,G.P.FORD,H.WILLMES)
TITLE     INDEPENDENT ISOMER YIELD RATIO OF 90RB FROM THERMAL
          NEUTRON FISSION OF 235U.

ENTRY     13054     900403
RIDER     51GRU1 48GRU1
REFERENCE (R,CRC-470,51) DATE UNCERTAIN
          (J,NAT,161,520,48)
AUTHOR    (W.E.GRUMMITT,G.WILKINSON)
TITLE     THERMAL NEUTRON FISSION YIELDS OF U233 AND U235

ENTRY     13058     890518
RIDER     61KUR1
UKFY      589.
REFERENCE (J,NSE,10,70,61)
AUTHOR    (P.K.KURODA,M.P.MENON)
TITLE     DETERMINATION OF TRACE QUANTITIES OF FISSION PRODUCTS
          IN NONIRRADIATED NATURAL AND DEPLETED URANIUM SALTS

ENTRY     13079     890518
RIDER     65RIC1
UKFY      297.
REFERENCE (J,NSE,23,115,65)
AUTHOR    (R.R.RICKARD,C.F.GOEKING,E.I.WYATT)
TITLE     MASS-FISSION-YIELD CURVE FOR AMERICIUM-241

ENTRY     13085     890518
RIDER     66ARA1
UKFY      23.
REFERENCE (J,JIN,28,763,66)
          REPLACES (R,MIT-905-52,21,65)
AUTHOR    (N.K.ARAS,G.E.GORDON)
TITLE     THE FRACTIONAL CHAIN YIELD OF SB-126 IN THERMAL-
          NEUTRON FISSION OF U-235

ENTRY     13089     890907
RIDER     66GAN3
UKFY      609-610.
REFERENCE (J,JIN,28,3071,66)
          (T,GANAPATHY,68)
AUTHOR    (R.GANAPATHY,H.IHOCHI)
TITLE     YIELDS OF MOLYBDENUM ISOTOPES IN THE FISSION OF TH-232
          AND U-238 BY 14.8 MEV NEUTRONS

ENTRY     13090     890518
RIDER     66HAR1
UKFY      223-224.
REFERENCE (J,CJP,44,1011,66)
AUTHOR    (J.W.HARVEY,W.B.CLARKE,H.G.THODE,R.H.TOMLINSON)
NOTE      Some derived chain yields (not included).
TITLE     THE THERMAL-NEUTRON FISSION YIELDS OF 229TH

ENTRY     13091     890518
RIDER     62HIC1
REFERENCE (J,PR,128,700,6210)
AUTHOR    (H.G.HICKS,H.B.LEVY,W.E.NERVIK,P.C.STEVENSON,
          J.B.NIDAY,J.C.ARMSTRONG JR)
TITLE     FURTHER RADIOCHEMICAL STUDIES OF THE U236* COMPOUND NUCLEUS

ENTRY     13095     890518
RIDER     64BRO1
UKFY      49-50.
REFERENCE (J,PR/B,133,874,6402)
AUTHOR    (K.M.BROOM)
TITLE     2.95-MEV AND 14.8 MEV NEUTRON-INDUCED FISSION OF TH232

ENTRY     13097     890510
RIDER     62WAH1
UKFY      388-391.
REFERENCE (J,PR,126,1112,6205)
AUTHOR    (A.C.WAHL,R.L.FERGUSON,D.R.NETHAWAY,D.E.TROUTNER,K.WOLFSBERG)
TITLE     NUCLEAR-CHARGE DISTRIBUTION IN LOW-ENERGY FISSION
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ENTRY      13102      900529
UKFY       2011.
REFERENCE  (J,PR/C,34,722,8608)
AUTHOR     (J.K.DICKENS,J.W.MC CONNELL)
TITLE      YIELDS OF FISSION PRODUCTS PRODUCED BY THERMAL-NEUTRON
           FISSION OF 243CM

ENTRY      13116           0
REFERENCE  (P,UCAR-10062-83/1,64,8301)
AUTHOR     (D.R.NETHAWAY,F.F.MOMYER)
TITLE      MEASUREMENT OF 14-MEV FISSION YIELDS

ENTRY      13183           0
REFERENCE  (J,PR/C,31,1334,8504)
AUTHOR     (L.ROBINSON,A.C.WAHL,T.M.SEMKOW,A.E.NORRIS)
NOTE       Data in 12931!
TITLE      NUCLEAR-CHARGE DISTRIBUTION FOR A=121 FROM THERMAL-
           NEUTRON-INDUCED FISSION OF 235U.

ENTRY      13207           0
UKFY       2008.
REFERENCE  (C,75WASH,1,401,7503)
AUTHOR     (P.L.REEDER,J.F.WRIGHT,R.A.ANDERL)
TITLE      FISSION PRODUCT NUCLEAR DATA OBTAINED BY USE OF AN
           ON-LINE MASS SPECTROMETER

ENTRY      13219      881102
RIDER      66FRI1
REFERENCE  (J,RCA,5,57,66)
AUTHOR     (K.FRITZE)
TITLE      THE YIELD OF 72ZN IN THE THERMAL AND EPI-CADMIUM
           NEUTRON FISSION OF 239PU

ENTRY      13225           0
RIDER      53STE1
UKFY       302.
REFERENCE  (J,PR,89,194,5301)
AUTHOR     (A.W.STEHNEY,N.SUGARMAN)
TITLE      CHARACTERISTICS OF BR87, A DELAYED NEUTRON ACTIVITY

ENTRY      13236      881102
RIDER      68NIS1
REFERENCE  (J,NSE,31,241,68)
AUTHOR     (R.G.NISLE,I.E.STEPAN)
TITLE      MEASUREMENT OF 135I YIELD RATIOS AND FISSION PRODUCT
           CROSS-SECTIONS IN THE ADVANCED REACTIVITY MEASUREMENT
           FACILITIES

ENTRY      13238      881102
RIDER      68THE1
UKFY       351.
REFERENCE  (J,JIN,30,1145,6806)
           (J,DA/B,29,1809,68) THESIS, THEIN, 1968
AUTHOR     (M.THEIN,M.N.RAO,P.K.KURODA)
TITLE      MASS DISTRIBUTION IN 14.8 MEV NEUTRON-INDUCED FISSION OF 232TH

ENTRY      13252      881102
RIDER      69PAR1
UKFY       560.
REFERENCE  (J,JIN,31,585,69)
AUTHOR     (B.PARSA,G.E.GORDON,A.WENZEL)
TITLE      BRANCHING RATIO OF 133SB DECAY TO 133TE ISOMERS

ENTRY      13255      900117
RIDER      64OTH1
UKFY       950-1043.
REFERENCE  (R,LA-6129,7602) DATA COMPILATION
AUTHOR     (G.P.FORD,A.E.NORRIS)
TITLE      A COMPILATION OF YIELDS FROM NEUTRON-INDUCED FISSION
           OF 232TH, 235U, 236U, 237NP, 238U, AND 239PU
           MEASURED RADIOCHEMICALLY AT LOS ALAMOS

ENTRY      13256      900326
RIDER      66RID2
AUTHOR     (B.F.RIDER,C.P.RUIZ,J.P.PETERSON JR,F.R.SMITH)
TITLE      DETERMINATION OF PLUTONIUM-239 FISSION YIELDS.
REFERENCE  (P,GEAP-5403,2,6612)

ENTRY      13257           0
RIDER      67RID1
REFERENCE  (P,GEAP-5505,4,6706)
AUTHOR     (B.F.RIDER,C.P.RUIZ,J.P.PETERSON JR,F.R.SMITH)
TITLE      MASS YIELDS IN THERMAL FISSION OF PU-241

ENTRY      13258           0
RIDER      67RID1
UKFY       376(partial).
REFERENCE  (P,GEAP-5505,8,6706)
AUTHOR     (B.F.RIDER,C.P.RUIZ,J.P.PETERSON JR,F.R.SMITH)
TITLE      FISSION YIELD OF BA-138 IN THERMAL FISSION OF U-235,
           PU-239, AND U-233
NOTE       Some of data in 13256.

ENTRY      13261           0
RIDER      69SRI1
UKFY       306.
REFERENCE  (J,PR,179,1166,6903)
AUTHOR     (B.SRINIVASAN,E.C.ALEXANDER,E.C.,JR.O.K.MANUEL,D.E.TROUTNER)
TITLE      XENON AND KRYPTON FROM THE SPONTANEOUS FISSION OF CF-252

ENTRY      13262      890817
RIDER      69TON1
UKFY       323.
REFERENCE  (J,RCA,12,179,69)
AUTHOR     (S.L.TONG,K.FRITZE)
TITLE      THE YIELD OF 72ZN IN THE EPI-SM FISSION OF 239PU

ENTRY      13263           0
RIDER      69WAS1
REFERENCE  (J,PRL,22,1198,69)
           (J,JGR,74,4221,69)
AUTHOR     (G.J.WASSERBURG,J.G.HUNEKE,D.S.BURNETT)
TITLE      CORRELATION BETWEEN FISSION TRACKS AND FISSION-TYPE
           XENON FROM AN EXTINCT RADIOACTIVITY

ENTRY      13264           0
RIDER      69WEI1
UKFY       404.
REFERENCE  (J,PR,188,1893,6912)
AUTHOR     (H.V.WEISS,N.E.BALLOU,J.L.ELZIE,J.M.FRESCO)
TITLE      NUCLEAR CHARGE DISTRIBUTION IN SYMMETRIC FISSION OF
           235U WITH THERMAL NEUTRONS: YIELDS OF 117AG, 118AG AND 118PD

ENTRY      13266           0
RIDER      70DEL1
REFERENCE  (J,PR/C,1,1491,7004)
AUTHOR     (A.A.DELUCCHI,A.E.GREENDALE)
TITLE      FISSION YIELDS OF SEVERAL IODINE ISOTOPES AND
           HALF-LIFE AND FISSION YIELD OF 135TE

ENTRY      13267           0
RIDER      70FOR1
UKFY       680.
REFERENCE  (S,CERN-70-30,(1),589,7011)
           (R,LA-DC-11500,7010)
AUTHOR     (L.FORMAN,S.J.BALESTRINI,K.WOLFSBERG,T.R.JETER)
TITLE      ON-LINE INVESTIGATION OF INDEPENDENT CS YIELDS IN 236U
           FISSION: IDENTIFICATION OF 145CS

ENTRY      13268      890817
RIDER      70GEV1
UKFY       357-359.
REFERENCE  (J,CJC,48,641,70)
           (J,DA/B,32,3838,7201)
AUTHOR     (L.H.GEVAERT,R.E.JERVIS,H.D.SHARMA)
TITLE      CUMULATIVE YIELDS IN THE 14 MEV NEUTRON FISSION OF
           232TH AND 238U IN THE SYMMETRIC REGION

ENTRY      13269           0
RIDER      70LIN1
UKFY       412.
REFERENCE  (J,JIN,32,2501,70)
AUTHOR     (C.C.LIN,A.C.WAHL)
TITLE      132SN HALF-LIFE AND FRACTIONAL CUMULATIVE YIELD FROM
           THERMAL NEUTRON INDUCED FISSION OF 235U

ENTRY      13270           0
RIDER      70LIS1
UKFY       245-251.
REFERENCE  (J,NSE,42,191,70)
AUTHOR     (F.L.LISMAN,R.M.ABERNATHEY,W.J.MAECK,J.E.REIN)
TITLE      FISSION YIELDS OF OVER 40 STABLE AND LONG-LIVED FISSION
           PRODUCTS FOR THERMAL NEUTRON FISSIONED 233U, 235U, 239PU AND
           241PU AND FAST REACTOR FISSIONED 235U AND 239PU

ENTRY      13272           0
RIDER      70MCE1
REFERENCE  (J,ANS,13,868,7011)
AUTHOR     (W.N.MCELROY,L.S.KELLOGG,R.J.ARMANI,E.TOCHILIN,W.H.ZIMMER)
TITLE      SELECTION OF FISSION YIELDS

ENTRY      13273           0
RIDER      70NIE1
UKFY       406-407.
REFERENCE  (J,PR/C,1,312,7001)
AUTHOR     (L.H.NIECE,D.E.TROUTNER,R.L.FERGUSON)
TITLE      INDEPENDENT YIELDS OF 95ZR FROM THERMAL-NEUTRON
           FISSION OF 235U AND 233U

ENTRY      13274           0
RIDER      74BAL1
UKFY       940-948.
REFERENCE  (J,ACS,,(16),7404) NUCLEAR CHEM. AND TECHNOL. DIV.
           167TH AM. CHEM. SOC. NATIONAL MEETING, LOS ANGELES
AUTHOR     (N.E.BALLOU,J.H.KAYE,P.L.REEDER,R.A.ANDERL,J.J.STOFFELS)
TITLE      INDEPENDENT AND CUMULATIVE FISSION YIELDS FOR SEVERAL
           FISSION SYSTEMS

ENTRY      13275           0
RIDER      70ROW1
REFERENCE  (J,GCA,34,1019,70)
AUTHOR     (M.W.ROWE)
TITLE      EVIDENCE FOR DECAY OF EXTINCT PU244 AND I129 IN THE
           KAPOETA METEORITE

ENTRY      13276           0
RIDER      70RUN1
UKFY       408.
REFERENCE  (J,PR/C,1,316,7001)
AUTHOR     (N.G.RUNNALLS,D.E.TROUTNER)
TITLE      NUCLEAR CHARGE DISTRIBUTION IN FISSION: INDEPENDENT YIELDS
           OF 132I, 133I, AND 134I FROM THERMAL NEUTRON FISSION OF 233U

ENTRY      13277           0
RIDER      70TRA1
UKFY       415-420.
REFERENCE  (J,CJP,48,1708,7007)
AUTHOR     (B.L.TRACY,H.G.THODE)
TITLE      INDEPENDENT YIELDS OF 80BR, 82BR, 128I AND 130I FROM
           THE THERMAL NEUTRON FISSION OF 235U, 239PU, 233U, AND 238NP

ENTRY      13278           0
RIDER      70TRO1
UKFY       484.
REFERENCE  (J,PR/C,1,1044,7003)
AUTHOR     (D.E.TROUTNER,M.EICHOR,C.PACE)
TITLE      NUCLEAR CHARGE DISTRIBUTION IN FISSION: INDEPENDENT YIELDS OF
           112AG, 134I AND 138CS FROM SPONTANEOUS FISSION OF 252CF

ENTRY      13279           0
RIDER      71ALE1
REFERENCE  (J,SCI,172,837,7105)
AUTHOR     (E.C.ALEXANDER JR,R.S.LEWIS,J.H.REYNOLDS,M.C.MICHEL)
TITLE      PLUTONIUM-244: CONFIRMATION AS AN EXTINCT RADIOACTIVITY

ENTRY      13280      890829
RIDER      71EIC1
UKFY       608.
REFERENCE  (J,JIN,33,1543,71)
           (J,DA/B,34,1034,7309)
AUTHOR     (M.EICHOR,D.E.TROUTNER)
TITLE      NUCLEAR CHARGE DISTRIBUTION IN FISSION: INDEPENDENT YIELDS OF
           139BA AND 140BA FROM THERMAL-NEUTRON INDUCED FISSION OF 233U.

ENTRY      13282           0
RIDER      71HAR1
UKFY       574-577.
REFERENCE  (J,JIN,33,1,71)
           (J,DA/B,30,1578,6910) THESIS, HARBOUR, U.MISSOURI
AUTHOR     (R.M.HARBOUR,D.E.TROUTNER)
TITLE      FRACTIONAL CUMULATIVE YIELD OF 2.6 MIN 99(M)NB FROM LOW
           ENERGY NEUTRON FISSION OF 233U, 235U, 238U AND
           SPONTANEOUS FISSION OF 252CF

ENTRY      13283           0
RIDER      71HAR2
UKFY       598-599.
REFERENCE  (J,RCA,15,146,71)
AUTHOR     (R.M.HARBOUR,M.EICHOR,D.E.TROUTNER)
TITLE      MASS YIELDS FROM THE SPONTANEOUS FISSION OF 252CF

ENTRY      13284           0
RIDER      71HAW1
UKFY       604-607.
REFERENCE  (J,CJP,49,785,71)
AUTHOR     (R.C.HAWKINGS,W.J.EDWARDS,W.J.OLMSTEAD)
TITLE      INDEPENDENT YIELDS OF MASS-135 XENONS IN THE THERMAL
           NEUTRON FISSION OF 233U, 235U, 239PU, AND 241PU

ENTRY      13285           0
RIDER      71LIS1
UKFY       582-585.
REFERENCE  (J,JIN,33,643,71)
AUTHOR     (F.L.LISMAN,R.M.ABERNATHEY,R.E.FOSTER JR,W.J.MAECK)
TITLE      FISSION YIELDS AND BRANCHING RATIOS OF 85KR IN THERMAL
           NEUTRON FISSION OF 233U, 235U, 239PU, AND 241PU

ENTRY      13286      890829
RIDER      71MCL1
UKFY       628.
REFERENCE  (T,MC LAUGHLIN,7109) UNIV. OF ARIZONA
AUTHOR     (T.P.MC LAUGHLIN)
TITLE      MEASUREMENTS OF ABSOLUTE FISSION PRODUCT YIELDS FROM
           THERMAL FISSION OF 235U

ENTRY      13287           0
RIDER      71OKA1
UKFY       265-268.
REFERENCE  (J,CJP,44,237,6601)
           (J,CJP,49,498,7102) ERRATUM TO (J,CJP,44,237,66)
AUTHOR     (A.OKAZAKI,W.H.WALKER,C.B.BIGHAM)
TITLE      THE RATIO OF THE DIRECT TO THE CUMULATIVE YIELD OF 135XE IN
           THE THERMAL NEUTRON FISSION OF 233U, 235U, 239PU, AND 241PU

ENTRY      13288           0
RIDER      71ROC1
UKFY       671-672.
REFERENCE  (J,RCA,16,66,71)
AUTHOR     (M.F.ROCHE,D.E.TROUTNER,R.L.FERGUSON)
TITLE      THE INDEPENDENT YIELD OF 112AG FROM THERMAL NEUTRON
           INDUCED FISSION OF 233U AND 235U

ENTRY      13289           0
RIDER      71SAB1
REFERENCE  (J,JIN,33,1509,7105)
AUTHOR     (D.D.SABU)
TITLE      ON MASS-YIELD OF XENON AND KRYPTON ISOTOPES IN THE
           SPONTANEOUS FISSION OF URANIUM

ENTRY      13290           0
RIDER      71SWI1
UKFY       588.
REFERENCE  (J,JIN,33,876,71)
AUTHOR     (D.L.SWINDLE,R.J.WRIGHT,P.K.KURODA)
TITLE      YIELDS OF RUTHENIUM ISOTOPES FROM THE SPONTANEOUS
           FISSION OF 238U

ENTRY      13291           0
RIDER      71SWI2
UKFY       586-587.
REFERENCE  (J,JIN,33,651,7103)
AUTHOR     (D.L.SWINDLE,R.J.WRIGHT,T.E.WARD,P.K.KURODA)
TITLE      DISTRIBUTION OF LOW-MASS FISSION YIELDS IN THE 14.8 MEV
           NEUTRON INDUCED FISSION OF 238U AND 232TH

ENTRY      13292           0
RIDER      71SWI3
UKFY       634.
REFERENCE  (J,JIN,33,3643,7111)
AUTHOR     (D.L.SWINDLE,D.T.MOORE,J.N.BECK,P.K.KURODA)
TITLE      MASS DISTRIBUTION OF 3 MEV NEUTRON INDUCED FISSION OF 232TH

ENTRY      13293           0
RIDER      71TRO1
UKFY       632.
REFERENCE  (J,JIN,33,2271,71)
AUTHOR     (D.E.TROUTNER,N.G.RUNNALLS)
TITLE      NUCLEAR CHARGE DISTRIBUTION IN FISSION: FRACTIONAL
           CUMULATIVE YIELDS OF 131SB AND 131M-TE FROM
           SPONTANEOUS FISSION OF 252CF

ENTRY      13294           0
RIDER      71TRO2
UKFY       691-692.
REFERENCE  (J,PR/C,4,505,7108)
AUTHOR     (D.E.TROUTNER,R.M.HARBOUR)
TITLE      NUCLEAR CHARGE DISTRIBUTION IN FISSION: FRACTIONAL
           CUMULATIVE YIELDS OF 132TE AND 134TE FROM THERMAL-
           NEUTRON-INDUCED FISSION OF 245CM AND 249CF

ENTRY      13295           0
RIDER      71WOL1
UKFY       568-569.
REFERENCE  (J,PR/C,3,1333,7103)
           (R,LA-DC-12142,7006)
AUTHOR     (K.WOLFSBERG,G.P.FORD)
TITLE      THERMAL-NEUTRON FISSION OF AM-242M: MASS AND CHARGE
           DISTRIBUTION

ENTRY      13296           0
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RIDER       71WOL2
UKFY        581.
REFERENCE   (J,JIN,33,587,7103)
AUTHOR      (K.WOLFSBERG)
TITLE       A NEW NUCLIDE, XE-145: MEASUREMENT OF ITS FRACTIONAL
            CUMULATIVE YIELD FROM THERMAL NEUTRON FISSION OF U-235

ENTRY       13297          0
RIDER       72ALE1
UKFY        717-719.
REFERENCE   (J,NP/A,198,228,72)
AUTHOR      (P.ALEXANDER)
TITLE       INDEPENDENT YIELDS OF 133, 135XE IN THE FISSION OF
            235U, 238U, AND 239PU BY 14 MEV NEUTRONS

ENTRY       13298          0
RIDER       72AND1
UKFY        760-763.
REFERENCE   (T,ANDERSON,72)
AUTHOR      (D.G.ANDERSON)
NOTE        No data in EXFOR as author feels unknown fractions of
            volatiles lost.  Crouch has large uncertainities for
            the volatile element yields.
TITLE       FISSION PRODUCT MASS-YIELD MEASUREMENTS FROM INTERMEDIATE
            ENERGY NEUTRON FISSION OF PLUTONIUM-239 AND PLUTONIUM-241

ENTRY       13299          0
RIDER       72BER1
UKFY        780.
REFERENCE   (T,BERGE,72) UNIVERSITY OF MISSOURI
            (J,DA/B,34,1034,7309)
AUTHOR      (L.A.BERGE)
TITLE       NUCLEAR CHARGE DISTRIBUTIONS FOR THE 131 AND 133 MASS CHAINS
            FROM THE THERMAL-NEUTRON INDUCED FISSION OF URANIUM-233.

ENTRY       13301          0
RIDER       70TRO2
REFERENCE   (J,ACS,,(23),7002) NUCLEAR SECTION,159TH NAT. MEETING
            AMERICAN CHEMICAL SOC., HOUSTON, TEXAS
AUTHOR      (D.E.TROUTNER,M.EICHOR,R.M.HARBOUR,C.H.PACE, N.G.RUNNALLS)
TITLE       FRACTIONAL INDEPENDENT AND CUMULATIVE YIELDS OF SOME
            PRODUCTS OF SPONTANEOUS FISSION OF 252-CALIFORNIUM

ENTRY       13302          0
RIDER       72FLY2
UKFY        720.
REFERENCE   (J,PR/C,6,2211,7212)
AUTHOR      (K.F.FLYNN,B.SRINIVASAN,O.K.MANUEL,L.E.GLENDENIN)
TITLE       DISTRIBUTION OF MASS AND CHARGE IN SPONTANEOUS FISSION
            OF 244CM

ENTRY       13303     890907
RIDER       72LIN1
UKFY        678-679.
REFERENCE   (J,JIN,34,1479,72)
AUTHOR      (C.C.LIN,A.C.WAHL)
TITLE       CUMULATIVE YIELDS OF 40.1-MIN 123SN, 9.6-MIN 125SN AND
            128SN FROM THERMAL-NEUTRON INDUCED FISSION OF 235U

ENTRY       13305          0
RIDER       72RAO1
UKFY        677.
REFERENCE   (J,PR/C,5,171,7201)
AUTHOR      (S.A.RAO)
TITLE       CHARGE DISTRIBUTION IN THE FISSION OF TH232

ENTRY       13307          0
RIDER       72TRO1
UKFY        674.
REFERENCE   (J,JIN,34,801,72)
AUTHOR      (D.E.TROUTNER,R.M.HARBOUR)
TITLE       NUCLEAR CHARGE DISTRIBUTION IN FISSION: FRACTIONAL INDEPENDENT
            YIELD OF 140LA FROM THERMAL-NEUTRON INDUCED FISSION OF 249CF

ENTRY       13308          0
RIDER       72WAH1
UKFY        687.
REFERENCE   (J,JIN,34,2413,7208)
AUTHOR      (A.C.WAHL,R.DENIG)
TITLE       CUMULATIVE YIELD OF 83-SEC 136I FROM THERMAL-NEUTRON
            INDUCED FISSION OF 235U

ENTRY       13309          0
RIDER       73BAT1
UKFY        756.
REFERENCE   (J,JIN,35,3075,7309)
AUTHOR      (L.R.BATTLES,D.M.CHITTENDEN)
TITLE       YIELDS OF LOW MASS PRODUCTS IN THE FISSION OF 232TH BY
            14.8 MEV NEUTRONS

ENTRY       13310     890907
RIDER       73HAR1
UKFY        759.
INSTITUTE   (1USASRL)
REFERENCE   (J,PR/C,8,1488,7310)
TITLE       MASS AND NUCLEAR CHARGE DISTRIBUTIONS FROM SPONTANEOUS
            FISSION OF 254FM

ENTRY       13311          0
RIDER       73KIK1
REFERENCE   (J,RCA,19,54,73)
AUTHOR      (M.KIKUCHI,L.B.CHURCH)
TITLE       A NEW METHOD FOR THE DETERMINATION OF FRACTIONAL
            FISSION YIELDS: THE REACTION OF GASEOUS METHYL IODIDE
            WITH FISSION-PRODUCED IODINE

ENTRY       13312          0
RIDER       73MAN1
REFERENCE   (J,BAP,18,768(AB8),7306)
            DATA TAKEN FROM CUNINGHAME, AERE-R-7548 (1973)
AUTHOR      (J.W.MANDLER,J.H.REED,R.B.MOLER)
TITLE       RELATIVE YIELDS FROM FISSION OF U235 AND U238 WITH 1-,
            2-, 4-, 6-, 9-, AND 14-MEV NEUTRONS

ENTRY       13313          0
RIDER       73RAO1
UKFY        723-724.
REFERENCE   (J,JIN,35,1443,7305)
AUTHOR      (S.A.RAO,P.K.KURODA)
TITLE       CHARGE DISTRIBUTION IN NEUTRON-INDUCED FISSION OF THORIUM

ENTRY       13314          0
RIDER       73TON1
UKFY        739-740.
REFERENCE   (J,JIN,35,3079,7309)
AUTHOR      (S.L.TONG,K.FRITZE,W.V.PRESTWICH)
TITLE       MASS-YIELD VARIATIONS IN THE THERMAL AND EPITHERMAL
            FISSIONS OF 239PU

ENTRY       13315          0
RIDER       73TRA1
UKFY        727-738.
REFERENCE   (J,JIN,35,2639,7308)
AUTHOR      (B.L.TRACY,J.F.PLEVA,H.G.THODE)
TITLE       CUMULATIVE KRYPTON AND XENON YIELDS FROM THE NEUTRON-
            INDUCED FISSION OF 237NP, 238NP, 241AM, AND 242AM

ENTRY       13316          0
RIDER       73TRO1
UKFY        716.
REFERENCE   (J,JIN,35,11,7301)
AUTHOR      (D.E.TROUTNER,R.M.HARBOUR)
TITLE       FRACTIONAL INDEPENDENT YIELDS OF 111(M)PD AND 112AG
            FROM THERMAL-NEUTRON-INDUCED FISSION OF 249CF

ENTRY       13317          0
RIDER       74BAL2
UKFY        876.
REFERENCE   (J,PR/C,10,1872,7411)
AUTHOR      (S.J.BALESTRINI,L.FORMAN)
TITLE       INDEPENDENT FISSION YIELDS OF RB AND CS FROM 238U BY
            FISSION-SPECTRUM NEUTRONS

ENTRY       13318     900326
RIDER       74EIC1
REFERENCE   (J,JIN,36,3880,7412)
AUTHOR      (M.EICHOR,D.E.TROUTNER)
TITLE       THE INDEPENDENT YIELD OF 138CS FROM THERMAL-NEUTRON-
            INDUCED FISSION OF 249CF

ENTRY       13319          0
RIDER       74FOW1
UKFY        783.
REFERENCE   (J,JIN,36,1201,7406)
AUTHOR      (M.M.FOWLER,A.C.WAHL)
TITLE       YIELDS AND GENETIC HISTORIES OF 128SB, 129SB AND 130SB
            FROM THERMAL-NEUTRON INDUCED FISSION OF 235U

ENTRY       13320          0
RIDER       74HAR1
UKFY        807-809.
REFERENCE   (J,PR/C,10,769,7408)
AUTHOR      (R.M.HARBOUR,D.E.TROUTNER,K.W.MACMURDO)
TITLE       NUCLEAR CHARGE DISTRIBUTION IN FISSION: FRACTIONAL
            INDEPENDENT YIELD OF 135XE FROM THERMAL-NEUTRON-
            INDUCED FISSION OF 245CM AND 249CF

ENTRY       13321          0
RIDER       74FOW2
REFERENCE   (J,JIN,36,1191,7406)
AUTHOR      (M.M.FOWLER,G.W.GOTH,C.C.LIN,A.C.WAHL)
TITLE       HALF LIVES OF TIN AND ANTIMONY FISSION PRODUCTS WITH
            A = 128-133

ENTRY       13322          0
RIDER       66RID1
REFERENCE   (P,GEAP-5270,6,6609)
AUTHOR      (B.F.RIDER,C.P.RUIZ,J.P.PETERSON,J.P.,JR.F.R.SMITH)
TITLE       DETERMINATION OF U-233 THERMAL FISSION YIELDS.

ENTRY       13323          0
RIDER       66WAH1
REFERENCE   (J,PR,146,931,6606)
AUTHOR      (A.WAHL,A.E.NORRIS,R.L.FERGUSON)
TITLE       NUCLEAR CHARGE DISTRIBUTION IN FISSION: RB92 AND RB93
            INDEPENDENT YIELDS.

ENTRY       13324          0
RIDER       71ERD1
UKFY        172-173.
REFERENCE   (J,JIN,33,2763,71)
AUTHOR      (B.R.ERDAL,A.C.WAHL,R.L.FERGUSON)
TITLE       MODES OF FORMATION OF TIN FISSION PRODUCTS
NOTE        Data given as minimum and maximum in EXFOR.

ENTRY       13325     891023
RIDER       72HAR2
UKFY        690.
REFERENCE   (J,JIN,34,2109,7207)
AUTHOR      (R.M.HARBOUR,K.W.MACMURDO)
TITLE       MASS YIELDS FROM THERMAL-NEUTRON INDUCED FISSION OF 245CM.

ENTRY       13326          0
RIDER       72KNO1
REFERENCE   (W,KNOBELOCH,72) UNPUBLISHED RESULTS. CITED IN
            WOLFSBERG, LA-5553-MS (1974) AS REF 72KNO1.
AUTHOR      (G.W.KNOBELOCH)

ENTRY       13328          0
RIDER       73TRO3
REFERENCE   (W,TROUTNER,731012) PRIVATE COMM. TO K. WOLFSBERG
            CITED IN WOLFSBERG, LA-5553-MS (1974)
AUTHOR      (D.E.TROUTNER)

ENTRY       13329          0
RIDER       74JEN1
UKFY        891-892.
REFERENCE   (J,ANS,19,397,74)
AUTHOR      (C.M.JENSEN,V.C.ROGERS,G.L.JENSEN)
TITLE       RELATIVE THERMAL AND 450-KEV FISSION PRODUCT YIELDS IN 239PU

ENTRY       13331          0
RIDER       74PAR1
UKFY        804.
REFERENCE   (J,JIN,36,2392,74)
AUTHOR      (R.W.PARSONS,H.D.SHARMA)
TITLE       NUCLEAR CHARGE DISTRIBUTION IN MASS CHAINS 131-134 IN
            THERMAL NEUTRON FISSION OF 235U

ENTRY       13332          0
RIDER       75ADA1
UKFY        895.
REFERENCE   (J,JIN,37,419,75)
            (J,DA/B,36,2799,7512)
AUTHOR      (D.E.ADAMS,W.D.JAMES,J.N.BECK,P.K.KURODA)
TITLE       DISTRIBUTION OF FISSION YIELDS IN THE 14.8 MEV
            NEUTRON-INDUCED FISSION OF 238U

ENTRY       13333          0
RIDER       75BAL1
UKFY        910.
REFERENCE   (J,PR/C,12,413,7508)
AUTHOR      (S.J.BALESTRINI,L.FORMAN)
TITLE       INDEPENDENT FISSION YIELDS OF RB AND CS FROM THERMAL-
            NEUTRON-INDUCED FISSION OF 239PU

ENTRY       13334          0
RIDER       75DEE1
REFERENCE   (J,NT,25,416,75)
AUTHOR      (J.R.DEEN,E.L.DRAPER JR)
TITLE       MEASUREMENT OF FISSION PRODUCT YIELDS AND THE ENERGY
            INTEGRAL FISSION CROSS SECTION OF THORIUM-232 IN A
            CALIFORNIUM-252 FISSION-NEUTRON SPECTRUM

ENTRY       13336     900522
RIDER       75HAR1
UKFY        911.
REFERENCE   (J,JIN,37,2243,76)
AUTHOR      (J.T.HARVEY,D.E.ADAMS,W.D.JAMES,J.N.BECK,J.L.MEASON,
            P.K.KURODA)
TITLE       DISTRIBUTION OF FISSION YIELDS IN THE 3.0 MEV NEUTRON-
            INDUCED FISSION OF 238U

ENTRY       13338     891027
RIDER       75WOL1
UKFY        889-890.
REFERENCE   (J,JIN,37,1125,75)
AUTHOR      (K.WOLFSBERG)
TITLE       NUCLEAR CHARGE DISTRIBUTION IN FISSION-SPECTRUM-
            NEUTRON FISSION: FRACTIONAL CUMULATIVE YIELDS OF RARE
            GAS NUCLIDES FROM FISSION OF 235U AND 238U

ENTRY       13340          0
RIDER       76FLY1
UKFY        926-927.
REFERENCE   (J,JIN,38,661,76)
AUTHOR      (K.F.FLYNN,J.E.GINDLER,L.E.GLENDENIN,R.K.SJOBLOM)
TITLE       MASS DISTRIBUTIONS FOR THE SPONTANEOUS FISSION OF
            253ES AND THE THERMAL-NEUTRON-INDUCED FISSION OF 254ES

ENTRY       13341          0
RIDER       76MAE1
REFERENCE   (R,ICP-1092,76)
AUTHOR      (W.J.MAECK,F.A.DUCE,L.L.DICKERSON,J.H.KELLER, R.L.TROMP)
TITLE       DISCREPANCIES AND COMMENTS REGARDING 235U AND 239PU
            THERMAL FISSION YIELDS AND THE USE OF 148ND AS A
            BURNUP MONITOR
NOTE        Data not added to database as relative to sum of Nd
            isotopes, format cannot accept this.

ENTRY       13343          0
RIDER       66RUN1
REFERENCE   (J,DA/B,27,3897,67)
            (T,RUNNALLS,66)
AUTHOR      (N.G.RUNNALLS)
TITLE       YIELDS FROM HIGHLY ASYMMETRIC FISSION: FRACTIONAL
            CUMULATIVE YIELDS OF BA-143, BA-144, AND CE-147
            FROM THERMAL-NEUTRON INDUCED FISSION OF U-235

ENTRY       13344     900604
RIDER       72EBE1
REFERENCE   (W,EBERSOLE,721116) PRIVATE COMM. TO W. B. LOEWENSTEIN
AUTHOR      (E.R.EBERSOLE)
TITLE       EBR-II BURNUP MEASUREMENTS - COMPARISON OF 139LA AND
            148ND AS MONITORS

ENTRY       13345     891128
RIDER       72NET1
UKFY        714-715.
REFERENCE   (J,PR/C,6,1821,7211)
AUTHOR      (D.R.NETHAWAY,B.MENDOZA)
TITLE       FISSION OF 234U AND 236U WITH 14.8-MEV NEUTRONS
NOTE        See 13346.

ENTRY       13346          0
RIDER       72NET2
UKFY        565,714-715..
REFERENCE   (J,PR/C,2,2289,7012)
            (J,PR/C,6,1827,7211) REVISED DATA
AUTHOR      (D.R.NETHAWAY,B.MENDOZA)
TITLE       FISSION OF 233U WITH 14.8 MEV NEUTRINS
NOTE        See 13345.

ENTRY       13347          0
RIDER       72PRI1
REFERENCE   (W,PRINDLE,72) TO NETHAWAY, SEE (J,PR/C,6,1827,72)
AUTHOR      (A.PRINDLE)

ENTRY       13348          0
RIDER       67BRO1
REFERENCE   (J,JIN,29,2133,67)
AUTHOR      (L.C.BROWN,A.C.WAHL)
TITLE       CHEMICAL BEHAVIOR OF TIN FISSION PRODUCTS

ENTRY       13351          0
RIDER       68ARI1
UKFY        650.
REFERENCE   (J,JIN,30,677,68)
AUTHOR      (H.ARINO,P.K.KURODA)
TITLE       SPONTANEOUS FISSION-PRODUCED STRONTIUM ISOTOPES IN
            URANIUM MINERALS AND SALTS
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ENTRY     13352        0
REFERENCE (J,PR,79,271,5007)
AUTHOR    (M.G.INGHRAM,R.J.HAYDEN,D.C.HESS)
TITLE     U235 FISSION YIELDS IN THE RARE EARTH REGION

ENTRY     13353        0
RIDER     69GUN1
UKFY      347.
REFERENCE (J,JIN,31,3357,69)
AUTHOR    (H.R.VON GUNTEN,K.F.FLYNN,L.E.GLENDENIN)
TITLE     INDEPENDENT YIELDS OF BR-82, RB-86, CS-136, AND PM-150
          IN SPONTANEOUS FISSION OF CF-252

ENTRY     13356    891122
RIDER     70MAN1
REFERENCE (W,MANUEL,7012) PROGRESS REPORT TO NATIONAL SCIENCE
          FOUNDATION, P. 12, JUNE 1970. CITED BY ALEXANDER,
          SCIENCE, 172, 837 (1971)
AUTHOR    (O.K.MANUEL,V.J.BECKER,M.S.BOULOS,B.SRINIVASAN)
TITLE     RADIOCHEMICAL DETERMINATION OF HEAVY ELEMENTS AND
          CONTRIBUTION TO NOBLE GAS ANOMALIES

ENTRY     13357        0
RIDER     71PAC1
REFERENCE (T,PACE,7112) M. A. THESIS
AUTHOR    (C.H.PACE)
TITLE     FRACTIONAL INDEPENDENT AND CUMULATIVE YIELDS OF SOME
          PRODUCTS OF SPONTANEOUS FISSION OF 252-CALIFORNIUM

ENTRY     13358        0
RIDER     72HOF1
REFERENCE (W,HOFFMAN,7208)PRIVATE COMM. TO BALESTRINI, PAPER 16,
          ACS NATIONAL MEETING, LOS ANGELES, APR.1974
AUTHOR    (D.C.HOFFMAN,J.E.SATTIZAHN)

ENTRY     13359        0
RIDER     76DII1
UKFY      1098, 2030.
REFERENCE (J,NIM/B,147,487,7712)
          (T,DIIORIO,77) PH.D THESIS, UNIV. OF ILLINOIS, URBANA
AUTHOR    (G.DIIORIO,B.W.WEHRING)
TITLE     DIRECT PHYSICAL MEASUREMENT OF MASS YIELDS FOR 235U(N(TH),F)

ENTRY     13360        0
REFERENCE (J,PR,78,129,5004)
UKFY      253.
AUTHOR    (J.MACNAMARA,C.B.COLLINS,H.G.THODE)
TITLE     FISSION YIELD OF XE133 AND FINE STRUCTURE IN THE MASS
          YIELD CURVE

ENTRY     13361    900119
REFERENCE (R,MDDC-1632,480106)
          (C,55GENEVA,7,3,55) DATA REVISED BY STEINBERG, 1954.
AUTHOR    (E.P.STEINBERG,J.A.SEILER,A.GOLDSTEIN,A.DUDLEY)
TITLE     FISSION YIELDS IN URANIUM-233

ENTRY     13362    900604
RIDER     51BUR2
REFERENCE (B,RCS,2,1195(184),51)REPORT ON EARLIER WORK,1942-1945
AUTHOR    (W.H.BURGUS,L.WINSBERG,J.A.SEILER,W.RUBINSON)
TITLE     CHARACTERISICS OF 275D CE144

ENTRY     13363    891220
RIDER     51FEL1
REFERENCE (B,RCS,2,598(62),51) BASED ON EARLIER WORK,1946
AUTHOR    (M.H.FELDMAN,L.E.GLENDENIN,R.R.EDWARDS)
TITLE     IDENTIFICATION AND YIELD OF 36H BR82 IN FISSION

ENTRY     13364        0
RIDER     51FEL2
REFERENCE (B,RCS,2,654(71),51) BASED ON EARLIER WORK,1946
AUTHOR    (M.H.FELDMAN,L.E.GLENDENIN)
TITLE     IDENTIFICATION AND YIELD OF 19.5D RB86 IN FISSION

ENTRY     13365        0
REFERENCE (B,RCS,2,793(103),51) BASED ON EARLIER WORK, 1943
AUTHOR    (L.E.GLENDENIN,E.P.STEINBERG)
TITLE     LONG-LIVED RUTHENIUM-RHODIUM CHAINS IN FISSION

ENTRY     13367    900604
RIDER     51TUR1
REFERENCE (J,PR,84,52,5110)
AUTHOR    (A.TURKEVICH,J.B.NIDAY)
TITLE     RADIOCHEMICAL STUDIES ON THE FISSION OF TH232 WITH
          PILE NEUTRONS

ENTRY     13368        0
RIDER     52WAH1
UKFY      331.
REFERENCE (J,PR,85,570,5202)
AUTHOR    (A.C.WAHL,N.A.BONNER)
TITLE     GENETIC RELATIONSHIPS AND FISSION YIELDS OF MEMBERS OF
          THE MASS-115 DECAY CHAIN

ENTRY     13369        0
UKFY      45.
REFERENCE (J,CJC,31,120,53)
AUTHOR    (R.W.BARTHOLOMEW,F.BROWN,R.C.HAWKINGS,W.F.MERRITT,
          L.YAFFE)
TITLE     THE FISSION YIELD OF I131 IN THE THERMAL NEUTRON
          FISSION OF U235

ENTRY     13370        0
RIDER     53FOR1
UKFY      637.
REFERENCE (R,AECD-3551,5308)
AUTHOR    (G.P.FORD,C.W.STANLEY)
TITLE     THE FRACTION OF THE MASS 141 CHAIN FORMED INDEPENDENTLY
          AS LA141 IN THE THERMAL NEUTRON FISSION OF U235

ENTRY     13371        0
RIDER     53KAT1
UKFY      230.
REFERENCE (J,PR,91,1458,5309)
AUTHOR    (S.KATCOFF,W.RUBINSON)
TITLE     YIELD OF XE133 IN THE THERMAL NEUTRON FISSION OF U-235
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ENTRY     13372        0
RIDER     53REE1
UKFY      285.
REFERENCE (J,PR,92,1473,5312)
AUTHOR    (G.W.REED,A.TURKEVICH)
TITLE     URANIUM-235 THERMAL NEUTRON FISSION YIELDS

ENTRY     13373        0
RIDER     53SUG1
UKFY      303.
REFERENCE (J,PR,89,570,5302)
AUTHOR    (N.SUGARMAN)
TITLE     GENETICS OF THE GE78-AS78 FISSION CHAIN

ENTRY     13374        0
RIDER     53TER1
UKFY      312-321.
REFERENCE (J,PR,92,1091(I4),5311) ABSTRACT.
AUTHOR    (J.TERRELL,W.E.SCOTT,J.S.GILMORE,C.O.MINKKINEN)
TITLE     YIELDS OF MO99 FROM FISSION OF U-235 AND U-238

ENTRY     13375        0
RIDER     53WIL1
UKFY      398-400.
REFERENCE (J,CJP,31,419,53)
AUTHOR    (D.R.WILES,B.W.SMITH,R.HORSLEY,H.G.THODE)
TITLE     FISSION YIELDS OF THE STABLE AND LONG-LIVED ISOTOPES
          OF CESIUM, RUBIDIUM AND STRONTIUM AND NUCLEAR SHELL
          STRUCTURE

ENTRY     13376        0
UKFY      380.
REFERENCE (J,CJC,31,48,53)
AUTHOR    (L.YAFFE,A.E.DAY,B.A.GREER)
TITLE     THE FISSION YIELD OF TE134

ENTRY     13377        0
UKFY      206.
REFERENCE (J,CJP,32,522,54)
AUTHOR    (W.H.FLEMING,R.H.TOMLINSON,H.G.THODE)
TITLE     THE FISSION YIELD OF THE STABLE AND LONG-LIVED ISOTOPES
          OF XENON, CESIUM AND KRYPTON IN NEUTRON FISSION OF U-233

ENTRY     13378        0
RIDER     54FRE1
UKFY      180.
REFERENCE (J,PR,96,102,5410)
AUTHOR    (E.C.FREILING,L.R.BUNNEY,N.E.BALLOU)
TITLE     IDENTIFICATION OF GADOLINIUM AND TERBIUM RADIOISOTOPES
          AS FISSION PRODUCTS OF U235

ENTRY     13379        0
UKFY      231.
REFERENCE (J,PR,94,969,5405)
AUTHOR    (R.N.KELLER,E.P.STEINBERG,L.E.GLENDENIN)
TITLE     YIELDS OF FISSION PRODUCTS FROM U-238 IRRADIATED WITH
          FISSION SPECTRUM NEUTRONS

ENTRY     13380        0
RIDER     54PET1
UKFY      278.
REFERENCE (J,PR,96,1614,5412)
AUTHOR    (H.G.PETROW,G.ROCCO)
TITLE     FISSION YIELD OF GD159 AND TB161

ENTRY     13381        0
RIDER     54STE1
REFERENCE (J,PR,95,867,54)
AUTHOR    (E.P.STEINBERG,L.E.GLENDENIN,M.G.INGHRAM,R.J.HAYDEN)
TITLE     FINE STRUCTURE IN U233 FISSION

ENTRY     13382    891220
RIDER     54WIL1
UKFY      327-330.
REFERENCE (J,PR,96,696,5411)
AUTHOR    (D.R.WILES,C.D.CORYELL)
TITLE     FISSION YIELD FINE STRUCTURE IN THE MASS REGION 99-106

ENTRY     13383        0
RIDER     54YAF1
UKFY      381.
REFERENCE (J,CJC,32,1017,54)
AUTHOR    (L.YAFFE,H.G.THODE,W.F.MERRITT,R.C.HAWKINGS,F.BROWN,
          R.M.BARTHOLOMEW)
TITLE     DETERMINATION OF THE ABSOLUTE FISSION YIELD OF BA140
          IN THERMAL NEUTRON FISSION OF U235

ENTRY     13384        0
RIDER     55MEL1
UKFY      256-259.
REFERENCE (J,CJC,33,830,55)
AUTHOR    (E.A.MELAIKA,M.J.PARKER,J.A.PETRUSKA,R.H.TOMLINSON)
TITLE     THE RELATIVE ABUNDANCES OF NEODYMIUM AND SAMARIUM
          ISOTOPES IN THE THERMAL NEUTRON FISSION OF U235 AND U233

ENTRY     13385        0
UKFY      275.
REFERENCE (J,CJP,33,640,5511)
AUTHOR    (J.A.PETRUSKA,E.A.MELAIKA,R.H.TOMLINSON)
TITLE     THE FISSION YIELDS OF THE CESIUM ISOTOPES FORMED IN
          THE THERMAL NEUTRON FISSION OF U235 AND THE NEUTRON
          ABSORPTION CROSS SECTION OF XE-135

ENTRY     13386        0
RIDER     55PET2
UKFY      276-277.
REFERENCE (J,CJP,33,693,55)
AUTHOR    (J.A.PETRUSKA,H.G.THODE,R.H.TOMLINSON)
TITLE     THE ABSOLUTE FISSION YIELDS OF TWENTY-EIGHT MASS CHAINS
          IN THE THERMAL NEUTRON FISSION OF U-235

ENTRY     13387        0
RIDER     55REE1
UKFY      284.
REFERENCE (J,PR,98,1327,5506)
AUTHOR    (G.W.REED)
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TITLE     U235 THERMAL NEUTRON FISSION YIELDS AT MASSES 90 AND 91

ENTRY     13388        0
UKFY      395-397.
REFERENCE (J,PR,99,730,5508)
AUTHOR    (A.C.WAHL)
TITLE     FISSION OF U-235 BY 14-MEV NEUTRONS: NUCLEAR CHARGE
          DISTRIBUTIONS AND YIELD FINE STRUCTURE

ENTRY     13389    900403
RIDER     55WAN1
REFERENCE (J,CJP,33,541,55)
          (J,CJC,34,233,5603)
AUTHOR    (R.K.WANLESS,H.G.THODE)
NOTE      Data in (28), See 401,402 and 13391.
TITLE     THE FISSION YIELDS OF ISOTOPES OF XENON AND KRYPTON IN
          THE NEUTRON FISSION OF U235 AND U238

ENTRY     13390        0
RIDER     56BAR1
UKFY      44.
REFERENCE (J,CJC,34,201,5603)
AUTHOR    (R.M.BARTHOLOMEW,A.P.BAERG)
TITLE     THE YIELD OF CS138 IN THERMAL NEUTRON FISSION OF U235

ENTRY     13391    900403
RIDER     56BLA1
REFERENCE (J,CJC,34,233,5603)
AUTHOR    (A.T.BLADES,W.H.FLEMING,H.G.THODE)
NOTE      Data in 28, See (401,402) and 13389.
TITLE     THE RATIO OF XENON TO KRYPTON IN U235 FISSION

ENTRY     13392        0
RIDER     56FLE1
UKFY      179.
REFERENCE (J,CJC,34,193,56)
AUTHOR    (W.H.FLEMING,H.G.THODE)
TITLE     THE RELATIVE YIELDS OF THE ISOTOPES OF XENON IN
          PLUTONIUM FISSION

ENTRY     13393        0
RIDER     56KEN1
UKFY      238.
REFERENCE (J,PR,103,323,5607)
AUTHOR    (T.J.KENNETT,H.G.THODE)
TITLE     MASS SPECTROMETRICALLY DETERMINED INDEPENDENT YIELDS OF I128,
          I130, BR80, AND BR82 FOR U233, U235, AND PU-239 FISSION

ENTRY     13394        0
RIDER     51BUR1
REFERENCE (B,RCS,2,1184(180),51) REPORT ON EARLIER WORK
          (P,CN-2929,5,4504)
AUTHOR    (R.P.SCHUMAN)
TITLE     REVISION OF THE FISSION YIELD OF 28D CE141

ENTRY     13395        0
RIDER     51COR2
AUTHOR    (B.FINKLE,E.HOAGLAND,S.KATCOFF,N.SUGARMAN)
REFERENCE (B,RCS,3,1368(216),51) REPORT ON EARLIER WORK
          (R,CN-1958,4408)
TITLE     DETERMINATION OF YIELDS OF 48 FISSION PRODUCTS

ENTRY     13396        0
RIDER     51ENG2
REFERENCE (B,RCS,3,1372(217),51) REPORT ON WORK FROM CC-3420(1946)
AUTHOR    (D.W.ENGELKEMEIR,J.A.SEILER,E.P.STEINBERG,L.WINSBERG)
TITLE     THERMAL-NEUTRON FISSION YIELDS IN U235

ENTRY     13398        0
RIDER     51FRE1
REFERENCE (B,RCS,3,1344(206),51)
          (P,CC-1331,4,4402)
AUTHOR    (M.S.FREEDMAN,D.W.ENGELKEMEIR)
TITLE     DETERMINATION OF ABSOLUTE FISSION YIELD OF 12.5D BA

ENTRY     13400        0
RIDER     51GLE2
REFERENCE (B,RCS,2,1092(159),51) BASED ON EARLIER UNPUBLISHED WORK
AUTHOR    (L.E.GLENDENIN)
TITLE     FURTHER STUDY OF THE 13D CS ACTIVITY

ENTRY     13401        0
REFERENCE (P,MON-N-15,12,4509)
          SEE ALSO FOOTNOTE TO RADIOCHEM.STUDIES, P.591, PAPER
          59 (1951)
AUTHOR    (L.E.GLENDENIN,J.MARINSKY)
TITLE     FISSION PRODUCT RADIOCHEMISTRY

ENTRY     13402    900604
RIDER     49GLE2
REFERENCE (T,GLENDENIN,4907)
          (R,MIT-TR-35,4912)
AUTHOR    (L.E.GLENDENIN)
TITLE     THE DISTRIBUTION OF NUCLEAR CHARGE IN FISSION

ENTRY     13403        0
RIDER     49SAK1
REFERENCE (T,SAKAKURA,4906) B.A. THESIS
AUTHOR    (A.Y.SAKAKURA)
TITLE     ON THE ZIRCONIUM ACTIVITIES FOUND IN SLOW NEUTRON
          FISSION OF URANIUM

ENTRY     13404    891220
RIDER     50NID1
REFERENCE (R,AECD-2862,5006)
AUTHOR    (J.B.NIDAY,A.TURKEVICH)
TITLE     FISSION YIELD CURVE OF TH232 WITH PILE NEUTRONS

ENTRY     13405        0
REFERENCE (P,CC-920,4,4309)
          (B,RCS,2,675(75),51) RENORMALIZATION OF 91Y
          (B,RCS,2,678(76),51) RENORMALIZATION OF 89SR
AUTHOR    (T.B.NOVEY,D.W.ENGELKEMEIR,E.L.BRADY)
TITLE     DETERMINATION OF PILE FISSION YIELDS

ENTRY     13406        0
REFERENCE (B,RCS,2,1035(147),51)
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            (P,CC-3307,4504)
AUTHOR      (E.J.HOAGLAND,N.SUGARMAN)
TITLE       INDEPENDENT FISSION YIELD OF 9.2H XE135 IN FISSION

ENTRY       13408          0
REFERENCE   (B,RCS,2,1097(161),51)
            (P,CC-1331,19,4402)
AUTHOR      (S.KATCOFF,B.FINKLE,N.SUGARMAN)
TITLE       FISSION YIELD OF 85M BA139

ENTRY       13409          0
REFERENCE   (B,RCS,2,934(133),51)
            (R,CN-3465,4601)
AUTHOR      (G.R.LEADER,W.H.SULLIVAN)
TITLE       STUDY OF LONG-LIVED ANTIMONY IN FISSION (II)

ENTRY       13412          0
REFERENCE   (B,RCS,2,905(128),51)
            (P,CC-2310,140,4501)
AUTHOR      (R.P.METCALF)
TITLE       CD117 AND IN117; HALF-LIVES, RADIATIONS, AND FISSION YIELD

ENTRY       13413          0
REFERENCE   (B,RCS,2,860(119),51)
            (P,CC-2310,110,4501)
AUTHOR      (J.A.SEILER)
TITLE       PALLADIUM - SILVER CHAINS IN FISSION

ENTRY       13414          0
REFERENCE   (B,RCS,2,910(129),51)
            (P,CC-2310,145,51)
AUTHOR      (J.A.SEILER)
TITLE       SN ISOTOPES (80MIN, 62H, AND 10D) IN FISSION

ENTRY       13415          0
REFERENCE   (B,RCS,2,549(53),51)
            (R,CC-2835,4506)
AUTHOR      (J.M.SIEGEL,L.E.GLENDENIN)
TITLE       ZINC AND GALLIUM ACTIVITIES IN FISSION

ENTRY       13416          0
REFERENCE   (B,RCS,2,947(134),51)
            (R,MON-N-63,4603)
AUTHOR      (C.W.STANLEY,L.E.GLENDENIN)
TITLE       A LONG-LIVED ANTIMONY ACTIVITY IN URANIUM FISSION

ENTRY       13417          0
REFERENCE   (B,RCS,2,566(54),51)
            (P,CC-2310,31,4501)
AUTHOR      (E.P.STEINBERG,D.W.ENGELKEMEIR)
TITLE       SHORT-LIVED GERMANIUM AND ARSENIC FISSION ACTIVITIES

ENTRY       13418          0
REFERENCE   (W,STEINBERG,51) FOOTNOTE TO SEILER, RADIOCHEMICAL
            STUDIES: FISSION PRODUCTS, PAPER 129, P. 913 (1951)
AUTHOR      (E.P.STEINBERG)

ENTRY       13419          0
REFERENCE   (B,RCS,2,1139(170),51)
            (P,CC-2310,201,4501)
AUTHOR      (N.SUGARMAN)
TITLE       INDEPENDENT FISSION YIELD OF 40H LA140 IN FISSION

ENTRY       13420          0
REFERENCE   (B,RCS,2,808(105),51)
            (R,CC-1493,4403)
AUTHOR      (W.H.SULLIVAN,N.R.SLEIGHT,E.M.GLADROW)
TITLE       RADIOACTIVITIES OF RUTHENIUM AND RHODIUM

ENTRY       13422          0
REFERENCE   (B,RCS,2,1284(196),51)
AUTHOR      (L.WINSBERG)
TITLE       STUDY OF 25M SM155 IN FISSION

ENTRY       13423          0
REFERENCE   (B,RCS,2,1292(197),51)
            (P,CC-2310,231,4501)
AUTHOR      (L.WINSBERG)
TITLE       STUDY OF 60M EU158 AND 15.4H EU157 ACTIVITIES IN
            FISSION

ENTRY       13424          0
REFERENCE   (B,RCS,2,1302(198),51)
AUTHOR      (L.WINSBERG)
TITLE       STUDY OF THE FISSION CHAIN 10H SM156 - 15.4D EU156

ENTRY       13425          0
UKFY        174-176.
REFERENCE   (R,ANL-4927,5211)
AUTHOR      (D.W.ENGELKEMEIR,M.S.FREEDMAN,E.P.STEINBERG,J.A.SEILER,
            L.WINSBERG)
TITLE       FISSION YIELDS IN URANIUM-235 AND URANIUM-238
NOTE        DATA IN 13396.

ENTRY       13426          0
REFERENCE   (R,BNL-1652,53)
AUTHOR      (S.KATCOFF,W.RUBINSON)
TITLE       YIELD OF KR85 AND XE133 IN THE THERMAL NEUTRON FISSION
            OF U235 AND YIELD OF KR85 IN THE THERMAL NEUTRON
            FISSION OF PU239
NOTE        Duplicated data from reference 240 removed.

ENTRY       13427          0
UKFY        950-1043.
REFERENCE   (R,LA-1997,5602)
            (R,LA-6129,7602) DATA COMPILATION
AUTHOR      (G.P.FORD,J.S.GILMORE)
NOTE        Also see 13255, 13443, 13444 and 13446.
TITLE       MASS YIELDS FROM FISSION BY NEUTRONS BETWEEN THERMAL
            AND 14.7 MEV

ENTRY       13428     900604
RIDER       55GLE1
REFERENCE   (W,GLENDENIN,55) UNPUBLISHED WORK CITED IN
            STEINBERG, 55GENEVA, 7, 3 (1955)
AUTHOR      (L.E.GLENDENIN,E.P.STEINBERG,K.F.FLYNN,R.J.HAYDEN,
            M.G.INGHRAM)
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ENTRY       13429          0
RIDER       56WIL1
UKFY        393.
REFERENCE   (J,CJC,34,227,5603)
AUTHOR      (D.M.WILES,J.A.PETRUSKA,R.H.TOMLINSON)
TITLE       SOME CUMULATIVE YIELDS OF ISOTOPES FORMED IN THE
            THERMAL NEUTRON FISSION OF PU239
NOTE        ERROR IN X4, CE144 yield is 0.69 not 0.252 (which is mass
            spectrometric ratio before decay correction).

ENTRY       13430          0
REFERENCE   (J,PR,108,1274,57)
AUTHOR      (J.M.ALEXANDER,C.D.CORYELL)
TITLE       NUCLEAR CHARGE DISTRIBUTION IN THE FISSION OF URANIUM
            AND THORIUM WITH 13.6 MEV DEUTERONS

ENTRY       13431          0
UKFY        33.
REFERENCE   (J,CJC,35,980,57)
AUTHOR      (A.P.BAERG,R.M.BARTHOLOMEW)
TITLE       YIELDS IN U235 THERMAL NEUTRON FISSION

ENTRY       13432          0
UKFY        4-12.
REFERENCE   ((R,TID-5787,57)=(R,LADC-3083,57))
AUTHOR      (B.P.BAYHURST)
TITLE       FISSION YIELDS OF SR90

ENTRY       13433          0
REFERENCE   (P,ANL-5789,80,5712)
AUTHOR      (C.E.CROUTHAMEL,P.KAFALAS,D.STUPEGIA)
TITLE       FISSION YIELD DETERMINATION FOT PLUTONIUM-239

ENTRY       13434          0
RIDER       57GRU1
UKFY        210-211.
REFERENCE   (J,JIN,5,93,57)
AUTHOR      (W.E.GRUMMITT,G.M.MILTON)
TITLE       THE INDEPENDENT YIELDS OF 140LA, 90Y, AND 91Y IN THE
            THERMAL NEUTRON FISSION OF 235U AND 233U

ENTRY       13436          0
REFERENCE   (J,PR,108,1522,5712)
AUTHOR      (R.NASUHOGLU,S.RABOY,G.R.RINGO,L.E.GLENDENIN,
            E.P.STEINBERG)
TITLE       MASS DISTRIBUTION OF U235 BY RESONANCE NEUTRONS

ENTRY       13437          0
RIDER       67FAS1
REFERENCE   (J,BAP,16,516(BH2),7104)
AUTHOR      (J.L.FASCHING,C.D.CORYELL)
TITLE       YIELDS OF LA AND CE FISSION PRODUCTS, A= 143 TO 148

ENTRY       13438     900207
RIDER       67SCH1
REFERENCE   (W,SCHWARTZ,67) REPORTED IN UCRL-50243,VOL.1 (1967)
AUTHOR      (L.L.SCHWARTZ)

ENTRY       13439          0
RIDER       70COW2
REFERENCE   (W,COWAN,70) SEE (J,PR/C,2,615,70)
AUTHOR      (G.A.COWAN,B.P.BAYHURST,R.J.PRESTWOOD,J.S.GILMORE,
            J.S.KNOBELOCH)
NOTE        See 13451 for experimental details..
TITLE       SYMMETRY OF NEUTRON-INDUCED 235U FISSION AT
            INDIVIDUAL RESONANCES. III.

ENTRY       13441     891122
RIDER       73WOL1
REFERENCE   (W,WOLFSBERG,7310)    TO B. F. RIDER
AUTHOR      (K.WOLFSBERG,G.P.FORD,B.R.ERDAL)

ENTRY       13443          0
UKFY        950-1043.
REFERENCE   (R,LA-6129,7602) DATA COMPILATION
            (R,LA-1997,5602)
AUTHOR      (G.P.FORD,A.E.NORRIS)
TITLE       A COMPILATION OF YIELDS FROM NEUTRON-INDUCED FISSION
            OF 232TH, 235U, 236U, 237NP, 238U, AND 239PU
            MEASURED RADIOCHEMICALLY AT LOS ALAMOS

ENTRY       13444     891220
UKFY        950-1043.
REFERENCE   (R,LA-6129,7602) DATA COMPILATION
            (R,LA-1997,5602)
AUTHOR      (G.P.FORD,A.E.NORRIS)
TITLE       A COMPILATION OF YIELDS FROM NEUTRON-INDUCED FISSION
            OF 232TH, 235U, 236U, 237NP, 238U, AND 239PU
            MEASURED RADIOCHEMICALLY AT LOS ALAMOS

ENTRY       13446     891220
UKFY        950-1043.
REFERENCE   (R,LA-6129,7602) DATA COMPILATION
            (R,LA-1997,5602)
AUTHOR      (G.P.FORD,A.E.NORRIS)
TITLE       A COMPILATION OF YIELDS FROM NEUTRON-INDUCED FISSION
            OF 232TH, 235U, 236U, 237NP, 238U, AND 239PU
            MEASURED RADIOCHEMICALLY AT LOS ALAMOS

ENTRY       13449          0
REFERENCE   (J,PR,122,1286,6105)
AUTHOR      (G.A.COWAN,A.TURKEVICH,C.I.BROWNE)
TITLE       SYMMETRY OF NEUTRON-INDUCED U235 FISSION AT INDIVIDUAL
            RESONANCES
NOTE        Relative to activities.  But gives insight to change of
            yields in resonance region.

ENTRY       13450          0
UKFY        392.
REFERENCE   (J,JIN,6,263,58)
AUTHOR      (A.C.WAHL)
TITLE       NUCLEAR-CHARGE DISTRIBUTION IN FISSION: CUMULATIVE
            YIELDS OF SHORT-LIVED KRYPTON AND XENON ISOTOPES
            FROM THERMAL-NEUTRON FISSION OF 235U.

ENTRY       13451          0
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REFERENCE   (J,PR/C,2,615,7008)
AUTHOR      (G.A.COWAN,B.P.BAYHURST,R.J.PRESTWOOD,J.S.GILMORE,
            G.W.KNOBELOCH)
NOTE        CD115/MO99 Cumulative yield ratios at different energies
            energies separated by few ~eV (in range 19 to 86 eV).
TITLE       SYMMETRY OF NEUTRON-INDUCED 235U FISSION AT INDIVIDUAL
            RESONANCES

ENTRY       13452          0
UKFY        237.
REFERENCE   (J,JIN,10,183,5907)
AUTHOR      (J.D.KNIGHT,D.C.HOFFMAN,B.J.DROPESKY,D.L.FRASCO)
TITLE       RADIATIONS OF 93Y AND 94Y AND HALF-LIVES OF 93SR AND 94SR.

ENTRY       13453     900220
UKFY        38-39.
REFERENCE   (J,PR,107,325,5707)
AUTHOR      (B.P.BAYHURST,C.I.BROWNE,G.P.FORD,J.S.GILMORE,
            G.W.KNOBELOCH,E.J.LANG,M.A.MELNICK,C.ORTH)
TITLE       RESONANCE FISSION IN U235.

ENTRY       13454          0
UKFY        686.
REFERENCE   (J,PR,5,1725,7205)
AUTHOR      (K.F.FLYNN,E.P.HORWITZ,C.A.A.BLOOMQVIST,R.F.BARNES,
            R.K.SJOBLOM,P.R.FIELDS,L.E.GLENDENIN)
TITLE       DISTRIBUTION OF MASS IN THE SPONTANEOUS FISSION OF 256FM.

ENTRY       13455          0
UKFY        218.
REFERENCE   (J,JIN,1,45,5503)
AUTHOR      (L.E.GLENDENIN,E.P.STEINBERG)
TITLE       FISSION YIELDS IN SPONTANEOUS FISSION OF CF252

ENTRY       13456          0
REFERENCE   (J,NP/A,177,337,7112)
AUTHOR      (W.REISDORF,J.P.UNIK,H.C.GRIFFIN,L.E.GLENDENIN)
TITLE       FISSION FRAGMENT K X-RAY EMISSION AND NUCLEAR CHARGE
            DISTRIBUTION FOR THERMAL NEUTRON FISSION OF 233U,
            235U, 239PU AND SPONTANEOUS FISSION OF 252CF.

ENTRY       13457          0
REFERENCE   (J,PR,76,1717,4912)
AUTHOR      (M.G.INGHRAM,D.C.HESS JR,J.H.REYNOLDS)
TITLE       ON THE RELATIVE YIELDS OF FISSION CESIUM ISOTOPES

ENTRY       13458          0
UKFY        918.
REFERENCE   (J,PR/C,12,1478,7511)
AUTHOR      (K.F.FLYNN,J.E.GINDLER,L.E.GLENDENIN)
TITLE       DISTRIBUTION OF MASS IN THERMAL-NEUTRON-INDUCED FISSION
            OF 257FM.

ENTRY       13459          0
UKFY        888.
REFERENCE   (J,JIN,37,881,7504)
AUTHOR      (K.F.FLYNN,J.E.GINDLER,L.E.GLENDENIN)
TITLE       THE MASS DISTRIBUTION FOR SPONTANEOUS FISSION OF 252CF.

ENTRY       13460          0
UKFY        260.
REFERENCE   (J,JIN,12,223,60)
AUTHOR      (J.A.MARINSKY,E.EICHLER)
TITLE       A NEW FISSION PRODUCT: 74GA

ENTRY       13461          0
RIDER       53PAP1
UKFY        905.
REFERENCE   ((R,MIT-REP-63,53)=(R,AECU-2806,53))
AUTHOR      (A.C.PAPPAS)
TITLE       A RADIOCHEMICAL STUDY OF FISSION YIELDS IN THE REGION
            OF SHELL PERTURBATIONS AND THE EFFECT OF CLOSED
            SHELLS IN FISSION

ENTRY       13464          0
UKFY        47.
REFERENCE   (J,CJC,31,242,53)
AUTHOR      (F.BROWN,L.YAFFE)
TITLE       THE INDEPENDENT YIELD OF XE135 PRODUCED IN THE FISSION
            OF NATURAL URANIUM BY PILE NEUTRONS

ENTRY       13465          0
RIDER       55COR1
REFERENCE   (R,MIT-LNS-PR-38,5508)
AUTHOR      (C.D.CORYELL,J.W.WINCHESTER)
TITLE       NOT GIVEN

ENTRY       13467          0
RIDER       74WOL3
REFERENCE   (J,ACS,,(21),7404) NUCLEAR CHEM. AND TECHNOLOGY DIV.
            AMERICAN CHEM.SOC. NATIONAL MEETING, LOS ANGELES
AUTHOR      (K.WOLFSBERG,G.P.FORD)
TITLE       MASS YIELDS FROM SPONTANEOUS FISSION OF 254CF

ENTRY       13470          0
RIDER       59HEY1
UKFY        589.
REFERENCE   (J,JIN,12,12,59)
AUTHOR      (H.R.HEYDEGGER,P.K.KURODA)
TITLE       NATURAL OCCURRENCE OF THE SHORT-LIVED BARIUM AND
            STRONTIUM ISOTOPES

ENTRY       13471          0
RIDER       58PAR1
UKFY        589.
REFERENCE   (J,JIN,5,153,58)
AUTHOR      (P.L.PARKER,P.K.KURODA)
TITLE       THE OCCURRENCE OF MOLYBDENUM-99 IN NATURAL AND
            DEPLETED URANIUM SALTS AND THE SPONTANEOUS FISSION
            HALF-LIFE OF URANIUM-238

ENTRY       13472          0
UKFY        589.
REFERENCE   (J,JIN,5,12,58)
AUTHOR      (F.T.ASHIZAWA,P.K.KURODA)
TITLE       THE OCCURRENCE OF THE SHORT-LIVED IODINE ISOTOPES IN
            NATURAL AND DEPLETED URANIUM SALTS
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ENTRY      13473        0
RIDER      60BAE1
UKFY       555-556.
REFERENCE  (J,CJC,38,2147,60)
AUTHOR     (A.P.BAERG,R.M.BARTHOLOMEW,R.H.BETTS)
TITLE      SEARCH FOR INDEPENDENT FORMATION OF CS134M IN FISSION

ENTRY      13474        0
RIDER      59BAR1
UKFY       31-32.
REFERENCE  (J,CJC,37,660,59)
AUTHOR     (R.M.BARTHOLOMEW,J.S.MARTIN,A.P.BAERG)
TITLE      SOME YIELDS IN THE THERMAL NEUTRON FISSION OF U233 AND PU239

ENTRY      13475        0
RIDER      60SAT1
UKFY       304.
REFERENCE  (J,JIN,12,206,60)
AUTHOR     (J.E.SATTIZAHN,J.D.KNIGHT,M.KAHN)
TITLE      SHORT-LIVED BROMINE AND SELENIUM NUCLIDES FROM FISSION

ENTRY      13476        0
RIDER      60SAN1
UKFY       305.
REFERENCE  (J,CJC,38,421,60)
AUTHOR     (D.C.SANTRY,L.YAFFE)
TITLE      ABSOLUTE THERMAL NEUTRON FISSION YIELDS OF U233

ENTRY      13477        0
RIDER      60WOL1
UKFY       394.
REFERENCE  (J,JIN,12,201,60)
AUTHOR     (K.WOLFSBERG,D.R.NETHAWAY,H.P.MALAN,A.C.WAHL)
TITLE      IDENTIFICATION OF 142XE AND MEASUREMENT OF ITS
           CUMULATIVE YIELD FROM THERMAL-NEUTRON FISSION OF 235U

ENTRY      13478        0
RIDER      77GIL1
REFERENCE  (S,NUREG/CP-0004,(3),1289,7710)
           ASTM-EURATOM SYMP. ON REACTOR DOSIMETRY, PALO ALTO, CA
AUTHOR     (D.M.GILLIAM,R.G.HELMER,R.C.GREENWOOD,J.W.ROGERS,
           R.R.HEINRICH,R.J.POPEK,L.S.KELLOGG,E.P.LIPPINCOTT,
           G.E.HANSEN,W.H.ZIMMER)
TITLE      REFERENCE AND STANDARD BENCHMARK FIELD CONSENSUS
           FISSION YIELDS FOR U. S. REACTOR DOSIMETRY PROGRAMS

ENTRY      20272    900823
REFERENCE  (P,EANDC(J)-19,37,7008)
           (R,KURRI-AR-3,84,70)
AUTHOR     (K.KOBAYASHI, I.KIMURA)
TITLE      -MEASUREMENT OF THE AVERAGE CROSS-SECTION FOR THE
           TH-232(N,F) REACTION FOR THE FISSION-TYPE REACTOR
           SPECTRUM-

ENTRY      20521    800808
REFERENCE  (J,JIN,35,1407,7305)
AUTHOR     (J.V.KRATZ, H.FRANZ, G.HERRMANN)
TITLE      DELAYED-NEUTRONS FROM ARSENIC ISOTOPES AS-84, AS-85 AND AS-86.

ENTRY      20589    832908
REFERENCE  (J,NP/A,263,(1),141,7605)
AUTHOR     (N.IMANISHI,I.FUJIWARA,T.NISHI)
TITLE      -INDEPENDENT ISOMER YIELDS OF SB AND TE ISOTOPES
           IN THERMAL-NEUTRON FISSION OF U233,U235 AND PU239-

ENTRY      20711    800808
REFERENCE  (P,MAINZ-76,113,7606)
           (J,PR,126,1112,62)
AUTHOR     (H.MEIXLER,K.WOLFSBERG,H.O.DENSCHLAG)
TITLE      -TEST OF AN APARATUS FOR THE DETERMINATION OF THE
           CUMULATIVE INERT GAS YIELD FOR 249-CF(N(TH),F)-

ENTRY      20768    832908
RIDER      72CUN2
UKFY2      625-627
REFERENCE  (R,AERE-R-6862,,7205)
           (W,WILLIS,780515)
           (R,AERE-R-4727,6501)
           (R,AERE-R-5587,6701)
AUTHOR     (J.G.CUNINGHAME,J.A.B.GOODALL,H.H.WILLIS)
TITLE      -ABSOLUTE YIELDS IN THE FISSION OF U-235,U-238 AND
           PU-239 IRRADIATED IN DFR -

ENTRY      20769        0
UNFY2      796-802.
RIDER      74CUN1
REFERENCE  (J,JIN,36,,1453,7409)
           (W,WILLIS,780519)
           (R,AERE-R-4727,6401)
AUTHOR     (J.G.CUNINGHAME,J.A.B.GOODALL,H.H.WILLIS)
TITLE      -ABSOLUTE YIELDS IN THE FISSION OF U-235 BY
           MONO-ENERGETIC NEUTRONS OF ENERGY 130-1700 KEV -

ENTRY      20771        0
REFERENCE  (J,JIN,39,,383,7706)
           (W,WILLIS,780519)
           (R,AERE-R-4727,6401)
AUTHOR     (J.G.CUNINGHAME,H.H.WILLIS)
TITLE      -ABSOLUTE YIELDS IN THE FISSION OF PU-239 BY
           MONO-ENERGETIC NEUTRONS OF ENERGY 130-1700 KEV-

ENTRY      20824    800808
REFERENCE  (J,NP/A,285,32,7707)
           (R,BLG-514,7606)
           (P,BLG-520,77)
AUTHOR     (C.WAGEMANS,P.D'HONDT,A.J.DERUYTTER,M.ASGHAR,
           A.EMSALLEM)
TITLE      -STUDY OF SOME CHARACTERISTICS OF THE THERMAL NEUTRON
           INDUCED SUB-BARRIER FISSION OF PA-231, TH-232 AND NP-237 -.

ENTRY      20847    830111
REFERENCE  (P,NEANDC(J)-51,33,7709)
AUTHOR     (U.UMEZAWA,T.SUZUKI,S.ICHIKAWA,T.YAMASHITA)
TITLE      -INDEPENDANT YIELD OF CS-134 IN THE THERMAL NEUTRON
           FISSION OF U-235 -.

ENTRY      20848    800829
REFERENCE  (W,NISHI,800822)
           (P,NEANDC(J)-51,38,7709) SHORT REPORT, SAME AS
           INDC(JAP)-37/U, SUPERSEDED.
AUTHOR     (T.NISHI,I.FUJIWARA,N.IMANISHI,H.MORIYAMA)
TITLE      -INDEPENDENT ISOMER YIELDS OF I-132, I-134, XE-135,
           AND CS-138 PRODUCED IN THERMAL NEUTRON FISSION OF
           U-233, U-235, AND PU-239.-

ENTRY      20878    900827
REFERENCE  (W,DENSCHLAG,770608)
           (J,JIN,39,753,77)
           (P,MAINZ-75,108,76)
           (P,MAINZ-75,90,76)
           (T,PAFFRATH,76)
           (T,RUDOLPH,76)
           (P,MAINZ-75,84,76)
           (P,MAINZ-76,,77)
AUTHOR     (H.O.DENSCHLAG,G.FISCHBACH,H.MEIXLER,G.PAFFRATH,
           W.RUDOLPH,M.WEIS,K.WOLFSBERG)
TITLE      -CHARGE DISTRIBUTION IN THERMAL NEUTRON
           INDUCED FISSION REACTIONS-
NOTE       Some reported in 2026.

ENTRY      20879    830210
REFERENCE  (J,JIN,39,,753,77)
AUTHOR     (W.RUDOLPH,K.L.KRATZ,G.HERRMANN)
TITLE      -HALF-LIVES, FISSION YIELDS AND NEUTRON EMISSION
           PROBABILITIES OF NEUTRON RICH ANTIMONY ISOTOPES-

ENTRY      21008    810310
REFERENCE  (P,NEANDC(E)-192/U,5,70,7804)
AUTHOR     (H.O.DENSCHLAG,G.FISCHBACH,M.WEIS)
TITLE      -CHARGE DISTRIBUTION IN THERMAL NEUTRON INDUCED
           FISSION REACTIONS-

ENTRY      21054    801104
REFERENCE  (T,WOHLFARTH,7612)
AUTHOR     (H.WOHLFARTH)
TITLE      -MASS YIELDS OF THE REACTION 235-U(N(TH),F) AS A
           FUNCTION OF KINETIC ENERGY AND ION-CHARGE OF THE
           FISSION PRODUCTS-
           .IN GERMAN.

ENTRY      21058    832908
REFERENCE  (J,RCA,25,1,78)
           (P,MAINZ-1976,34,7706) SUPERSEDED.
           (J,NP/A,229,1,179,7408) SUPERSEDED DELAYED NEUTRON
           (P,NEANDC(E)-172,5,7606) SUPERSEDED DELAYED NEUTRON
           (P,NEANDC(E)-182,5,7704) SUPERSEDED DELAYED NEUTRON
AUTHOR     (K.L.KRATZ)
TITLE      -INDEPENDENT FISSION YIELDS AND NEUTRON EMISSION
           PROBABILITIES OF SHORT-LIVED HALOGEN ISOTOPES-

ENTRY      21155    860411
REFERENCE  (J,RCA,29,61,81)
           (J,EARR,3,1,81)
           (P,NEANDC(E)-182,5,7704)
           (R,AERE-R-8753,7705)
AUTHOR     (L.KOCH)
TITLE      -SYSTEMATICS IF FAST CUMULATIVE FISSION YIELDS

ENTRY      21218    832908
UKFY       1097.
REFERENCE  (J,JIN,40,377,7808)
AUTHOR     (T.KAISER,H.R.VON GUNTEN)
TITLE      -INDEPENDENT YIELDS OF NB-96 AND 51 MIN NB-98 IN THE THERMAL
           NEUTRON-INDUCED FISSION OF U-233, U-235 AND PU-239-.

ENTRY      21306        0
REFERENCE  (C,78HARWELL,,229,7809)
AUTHOR     (K.DEBERTIN)
TITLE      -FISSION PRODUCT YIELDS IN U-238 FISSION BY CF-252 NEUTRONS-.

ENTRY      21310    800718
REFERENCE  (W,TROCHON,800616)
           (J,NP/A,318,1,63,7904)
           (P,CEA-N-2037,73,7806)
           (P,CEA-N-1969,73,7706)
AUTHOR     (J.TROCHON,H.ABOU YEHIA,F.BRISARD,Y.PRANAL)
TITLE      -FISSION PROPERTIES OF TH-233-.

ENTRY      21313    810213
REFERENCE  (J,NP/A,311,3,413,7812)
           (P,CEA-N-2074,,79)
           (J,NP/A,311,,205,7811)
           (J,NP/A,334,,327,8002)
AUTHOR     (M.ASGHAR,F.CAITUCOLI,P.PERRIN,C.GUET,H.DHONDT,C.WAGEMANS)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS FOR
           THE THERMAL NEUTRON SUB-BARRIER FISSION OF PA-231.-

ENTRY      21393        0
REFERENCE  (J,CJC,34,293,56)
AUTHOR     (B.C.PURKAYASTHA,G.R.MARTIN)
TITLE      -THE YIELDS OF I-129 IN NATURAL AND IN NEUTRON
           INDUCED FISSION OF URANIUM -.

ENTRY      21412        0
REFERENCE  (J,JIN,31,3739,6912)
AUTHOR     (R.STELLA,L.G.MORETTO,V.MAXIA,M.DI CASA,V.CRESPI,
           M.A.ROLLIER)
TITLE      -MASS DISTRIBUTION IN THE FISSION OF NP-237 WITH
           EPI-CADMIUM NEUTRONS -.

ENTRY      21464        0
UKFY       84, 156-158, 562-564.
REFERENCE  (C,65SALZBURG,1,355,6503)
           (R,AERE-R-4723,,6409)
           (J,JIN,25,,1213,6309)
           (R,AERE-R-4148,,6208)
           (R,AERE-R-3879,,6111)
           (J,JIN,16,,358,6102)
           (R,AERE-R-3209,,6001)
AUTHOR     (I.F.CROAL,H.H.WILLIS)
TITLE      -SOME YIELDS IN THE THERMAL AND EPI-CADMIUM
           NEUTRON FISSION OF PU-239.-

ENTRY      21482        0
REFERENCE  (J,JIN,24,1485,62)
AUTHOR     (J.B.LAIDLER,F.BROWN)
TITLE      -MASS DISTRIBUTION IN THE SPONTANEOUS FISSION OF
           PU-240 -.

ENTRY      21483        0
REFERENCE  (J,EN,15,272,6804)
AUTHOR     (L.CIUFFOLOTTI)
TITLE      -THE BA-140 YIELDS FOR THERMAL AND FAST FISSION
           OF U-235 AND U-238 -.

ENTRY      21496    832908
REFERENCE  (C,69VIENNA,,731,6908)
           (R,EIR-157,,6906)
           (P,EANDC(OR)-90L,,6906)
AUTHOR     (K.F.FLYNN,H.R.VON GUNTEN)
TITLE      -DISTRIBUTION OF MASS AND CHARGE IN THE FISSION OF
           THORIUM 227.-

ENTRY      21529        0
REFERENCE  (J,ZP/A,275,149,75)
           (P,INDC(SEC)-51,72,7512)
AUTHOR     (C.WAGEMANS,A.J.DERUYTTER)
TITLE      -THE EMISSION OF LONG RANGE ALPHA-PARTICLES
           IN THE THERMAL NEUTRON INDUCED FISSION OF U-233
           U-235 AND PU-239 -.

ENTRY      21530        0
REFERENCE  (J,ZP/A,275,359,7512)
AUTHOR     (P.FETTWEIS,P.DEL MARMOL)
TITLE      -STUDY OF SHORT LIVED RU ISOTOPES PRODUCED IN THERMAL
           NEUTRON FISSION OF U-235 -.

ENTRY      21531    800808
REFERENCE  (J,NIM,134,299,7604)
           (P,INDC(SEC)-51,17,7512)
           (P,INIS-MF-1933,,75)
AUTHOR     (H.THIERENS,D.DE.FRENNE,E.JACOBS,A.DE.CLERCQ,P.DHONDT,
           A.J.DERUYTTER)
TITLE      -STUDY OF THE CATCHERFOIL TECHNIQUE WITH THE AID OF
           CF-252 SPONTANEOUS FISSION AND U-235 THERMAL NEUTRON
           FISSION -.

ENTRY      21532        0
REFERENCE  (J,JIN,39,1217,77)
           (J,PR/C,16,254,7707)
AUTHOR     (D.C.AUMANN,W.GUECKEL,H.ZEISING)
TITLE      -INDEPENDANT YIELDS OF PM-148M,PM-148G AND PM-146
           FOR THERMAL NEUTRON INDUCED FISSION OF U-233 AND U-235 -.

ENTRY      21543    810213
REFERENCE  (J,NP/A,292,225,7711)
           (P,BLG-524,,78) P. 5-12.
AUTHOR     (M.ASGHAR,P.D'HONDT,C.GUET,P.PERRIN,C.WAGEMANS)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS
           FOR THE THERMAL NEUTRON SUB-BARRIER FISSION OF
           NP-237 AND ABOVE-THE-BARRIER FISSION OF U-235.-

ENTRY      21544    810213
REFERENCE  (J,NP/A,311,205,7811)
AUTHOR     (M.ASGHAR,F.CAITUCOLI,P.PERRIN,C.WAGEMANS)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS
           FOR THE THERMAL NEUTRON FISSION OF PU-239
           AND U-235.-

ENTRY      21545    810213
REFERENCE  (J,NP/A,334,327,8002)
AUTHOR     (M.ASGHAR,F.CAITUCOLI,P.PERRIN,G.BARREAU,B.LEROUX)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS
           FOR THE SUB-BARRIER (N-TH,F) OF 241-AM AND 243-AM.-

ENTRY      21549        0
REFERENCE  (J,NP/A,282,109,7705)
           (J,JPR/L,37,10,241,7610)
           (R,CEA-N-1979,1,77)
           (J,JPR/L,37,241,7610)
           (T,BRISSOT,76)
AUTHOR     (R.BRISSOT,J.CRANCON,CH.RISTORI,J.P.BOCQUET,A.MOUSSA)
TITLE      -RARE GAS ISOTOPIC DISTRIBUTIONS AND THEIR PRECURSORS
           IN THERMAL FISSION OF PU-239 AND PU-241, STUDY OF THE
           ODD-EVEN EFFECT -.

ENTRY      21550        0
REFERENCE  (J,NP/A,255,461,7512)
AUTHOR     (R.BRISSOT,J.CRANCON,CH.RISTORI,J.P.BOCQUET,A.MOUSSA)
TITLE      -ISOTOPIC DISTRIBUTIONS OF RARE GASES IN THERMAL
           NEUTRON FISSION OF U-235 AND U-233 -.

ENTRY      21552        0
REFERENCE  (J,JIN,38,205,77)
           (T,GAEGGELER,7312)
           (C,73ROCH,2,475,73) SUPERSEDED.
AUTHOR     (H.GAEGGELER,H.R.VON GUNTEN,H.S.PRUYS)
TITLE      -INDEPENDANT YIELDS OF PM-150 IN THE THERMAL NEUTRON
           INDUCED FISSION OF U-233, U-235, PU-239 AND CF-249
           AND CROSS SECTION FOR THE PM-149(N,GAMMA) REACTION-.

ENTRY      21553        0
REFERENCE  (J,JIN,39,1105,77)
AUTHOR     (H.GAEGGELER,H.R.VON GUNTEN)
TITLE      -CUMULATIVE YIELDS OF RARE EARTH ELEMENTS IN THE
           THERMAL NEUTRON INDUCED FISSION OF CF-249 -.

ENTRY      21554        0
REFERENCE  (J,JIN,38,351,76)
           (P,INDC(SEC)-43,,7412)
           (P,NEANDC(OR)-140,,7406) SUPERSEDED.
AUTHOR     (M.RAJAGOPALAN,H.S.PRUYS,A.GRUETTER,E.A.HERMES,
           H.R.VON GUNTEN)
TITLE      -MASS YIELDS IN THE 14 MEV NEUTRON INDUCED FISSION
           OF U-238 -.

ENTRY      21556        0
REFERENCE  (J,ZP/A,277,1,71,76)
AUTHOR     (C.RISTORI,M.ASGHAR,J.CRANCON,J.P.GAUTHERON)
TITLE      -NUCLEAR CHARGE DISTRIBUTIONS FROM 4-PI BETA
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MEASUREMENTS ON MASS SEPERATED FRAGMENTS FROM U-235
THERMAL NEUTRON FISSION -.

ENTRY 21558 0
UKFY 836.
REFERENCE (R,KFK-1888,,7401)
AUTHOR (A.-H.HAWA,A.VON BAECKMAN)
TITLE -SIMULTANEOUS DETERMINATION OF U-235 AND PU-239
TRACES BY GAMMA SPECTROMETRIC ANALYSIS OF NOBLE
GASES FOLLOWING NEUTRON ACTIVATION -.

ENTRY 21559 0
REFERENCE (J,RCA,23,161,76)
AUTHOR (H.KLONK,K.BAECKMANN)
TITLE -RANGE MEASUREMNTS OF PRIMARY FISSION PRODUCTS FORMED
BY SPONTANEOUS FISSION OF CF-252 -.

ENTRY 21560 800808
REFERENCE (R,RCN-203,95,7312)
(C,73ROCH,2,492,7308)
(P,INDC(SEC)-43,,7412)
(P,NEANDC(E)-161U,,7408)
AUTHOR (P.H.M.VAN ASSCHE,G.VANDENPUT,L.JACOBS,
J.M.VAN DEN CRUYCE,R.SILVERNANS)
TITLE -THE MASS DISTRIBUTION OF NEUTRON INDUCED FISSION
FOR PU-239 AT THE 0.297 EV RESONANCE -.

ENTRY 21561 0
REFERENCE (J,JRC,7,309,71)
(P,NEANDC(E)-161U,,76)
AUTHOR (J.BLACHOT,L.C.CARRAZ,P.CAVALLINI,E.MONNAND,
F.SCHUSSLER)
TITLE -DIRECT GAMMA SPECTROSCOPY ANALYSIS OF FISSION
PRODUCTS FROM U-235, APPLICATION TO THE MASS
DISTRIBUTION OF FISSION PRODUCTS FROM FISSION
OF TH-232 BY 14 MEV NEUTRONS -.

ENTRY 21562 0
REFERENCE (J,PRL,34,1034,7504)
AUTHOR (G.SIEGERT,J.GREIF,H.WOLLNIK,G.FIELDER,R.DECKER,
M.ASGHAR,G.BAILLEUL,J.P.BOCQUET,J.P.GAUTHERON,
H.SCHRADER,P.ARMBRUSTER,H.EWALD)
TITLE -NUCLEAR CHARGE DISTRIBUTIONS IN THE ISOBARS 92 TO
100 RESULTING FROM THERMAL NEUTRON FISSION OF
URANIUM-235 -.

ENTRY 21567 0
REFERENCE (T,FEU ALVIM,750612)
(J,JPR,38,,273,7703)
(J,CEC,29,7,347,7706)
(R,CEA-N-1817,1,75)
AUTHOR (C.FEU ALVIM)
TITLE -MEASUREMENT OF THE MASS AND CHARGE DISTRIBUTIONS
IN NEUTRON INDUCED FISSION AT MEDIUM ENERGY BY
AN EMANATION METHOD.-(IN FRENCH).-

ENTRY 21579 0
REFERENCE (J,JIN,40,9,1611,78)
AUTHOR (D.C.AUMANN,D.WEISMANN)
TITLE -INDEPENDENT ISOMERIC YIELD RATIOS OF RB-90 AND
AND CS-138 IN THE SPONTANEOUS FISSION OF CF-252.-

ENTRY 21581 830111
REFERENCE (J,ZP/A,289,2,219,79)
AUTHOR (P.PEUSER,H.OTTO,M.WEIS,G.NYMAN,E.ROECKL,J.BONN,
L.VON REISKY,C.SPATH)
TITLE -HALF-LIVES, NEUTRON EMISSION PROBABILTIES AND
FISSION YIELDS OF NEUTRON-RICH RUBIDIUM ISOTOPES
IN THE MASS REGION A=96 TO A=100.-

ENTRY 21590 801124
REFERENCE (J,JIN,36,495,74)
AUTHOR (J.BLACHOT,L.C.CARRAZ,P.CAVALLINI,C.CHAUVIN,A.FERRIEU,
A.MOUSSA)
TITLE -MASS DISTRIBUTIONS IN FISSION OF U-238 BY 14 MEV
NEUTRONS -.

ENTRY 21591 0
REFERENCE (P,CEA-N-1784,2,74)
AUTHOR (C.FEU ALVIM DA SILVA,J.CRANCON)
TITLE -MEASUREMENT OF SOME FRACTIONAL CUMULATIVE YIELDS IN
THE 14 MEV FISSION OF U-238 -.

ENTRY 21592 0
REFERENCE (J,RCA,26,107,75)
AUTHOR (J.BLACHOT,P.CAVALLINI,A.FERRIEU,R.LOUIS)
TITLE -CUMULATIVE FISSION YIELDS FROM CF-252 -.

ENTRY 21594 0
REFERENCE (J,PL/B,53,45,7411)
AUTHOR (G.SIEGERT,H.WOLLNIK,J.GREIF,G.FIEDLER,M.ASGHAR,
G.BAILLEUL,J.P.BOCQUET,J.P.GAUTHERON,H.SCHRADER,
H.EWALD,P.ARMBRUSTER)
TITLE -DIRECT DETERMINATION OF THE NUCLEAR CHARGE DISTRIBUTI
OF MASS SEPERATED FISSION PRODUCTS FROM U-235(N,F) -.

ENTRY 21595 0
REFERENCE (J,NSE,58,414,7512)
(P,INDC(SEC)-43,,7412)
(P,NEANDC(OR)-140,,7406)
AUTHOR (M.RAJAGOPALAN,H.S.PRUYS,A.GRUETTER,H.R.VON GUNTEN,
E.A.HERMES,R.RICHMOND,E.ROESSLER,A.SCMID,P.WYDLER)
TITLE -MASS YIELDS IN THE FISSION OF URANIUM-235 AND
PLUTONIUM-239 IN THE NEUTRON SPECTRUM OF A GAS-COOLED
FAST REACTOR -.

ENTRY 21604 0
REFERENCE (J,PR/C,17,172,7801)
AUTHOR (H.GAEGGELER,H.R.VON GUNTEN)
TITLE -CHARGE DISTRIBUTION IN THE THERMAL NEUTRON INDUCED
FISSION OF CF-249. INDEPENDENT AND FRACTIONAL
CUMULATIVE YIELDS OF NB, I, AND CS -.

ENTRY 21605 832908
REFERENCE (J,PR/C,14,1864,7611)
AUTHOR (G.SIEGERT,H.WOLLNIK,J.GREIF,R.DECKER,G.FIEDLER,
B.PFEIFFER)
TITLE -NUCLEAR CHARGE DISTRIBUTION OF FISSION PRODUCTS FROM
U-235(N(TH),F) OF THE MASSES 79 TO 100 -.
NOTE Kr85(g) yield appears to be fractional cumulative,
related to discussion with Rider and Lammer October'94
in Wien, Kr85(g) appears to be cumulative.

ENTRY 21624 0
REFERENCE (R,INDC(NDS)-87,211,7805) PROCEEDINGS OF
THE 2ND IAEA ADVISORY GROUP MEETING ON FISSION
PRODUCT NUCLEAR DATA, HELD AT PETTEN, THE
NETHERLANDS,5-9 SEPTEMBER 1977, CONTAINING
THE CONTRIBUTED PAPERS TO THE REVIEW PAPERS.
(R,IAEA-208,2,261,78) LESS DATA GIVEN.
AUTHOR (K.DEBERTIN)
TITLE -FISSION PRODUCT YIELDS IN U-235 FISSION BY FAST
AND THERMAL NEUTRONS.-

ENTRY 21641 0
REFERENCE (J,PR/C,20,222-244,7912)
AUTHOR (S.J.BALESTRINI,R.DECKER,H.WOLLNICK,K.D.WUENSCH,
G.JUNG,E.KOGLIN,G.SIEGERT)
TITLE -INDEPENDENT YIELDS OF RB AND CS ISOTOPES FROM THERMAL
NEUTRON INDUCED FISSION OF U-235 -.

ENTRY 21651 820921
REFERENCE (J,NP/A,342,2,229,8006)
(W,JACOBS,800924) PRIVATE COMMUNICATION FROM
E.JACOBS WITH THE NUMERICAL DATA OF THE NEUTRON
EMISSION CURVE OF FIG. 2 OF NP/A,342,2,229(1980).
AUTHOR (H.THIERENS,E.JACOBS,P.D'HONDT,D.DE FRENNE,
A.DE CLERCQ,P.DE GELDER,A.J.DERUYTTER,J.BLACHOT,
P.PERRIN)
TITLE -THE THERMAL NEUTRON SUB-BARRIER FISSION OF NP-237.-

ENTRY 21661 801218
REFERENCE (R,KFK-2919,8003)
(P,NEANDC(E)-202U,5,74,7906)
AUTHOR (A.A.NAQVI)
TITLE -FRAGMENT PROPERTIES IN THE FISSION OF NP-237 WITH
FAST NEUTRONS- AN EXPERIMENTAL INVESTIGATION OF
FISSION DYNAMICS.

ENTRY 21662 0
REFERENCE (P,NEANDC(E)-202U,5,74,7906)
AUTHOR (H.BRAUN,T.IZAK-BIRAN,Z.ALFASSI,W.LAUPPE,
H.O.DENSCHLAG)
TITLE -SOME DECAY PROPERTIES AND YIELDS IN FISSION PRODUCT
CHAINS 131, 133 AND 135.

ENTRY 21686 0
REFERENCE (W,DENSCHLAG,801006) PRIVATE COMMUNICATION OF
H.A.DENSCHLAG WITH EXPERIMENTAL DETAILS AND DATA.
(T,MEIXLER,80) PH.D. THESIS, MAINZ.
AUTHOR (H.H.MEIXLER)
TITLE -FRACTIONAL CUMULATIVE YIELDS OF NOBLE GASES IN THE
REACTIONS CF-249(N-TH,F) AND CF-250(S.F.)-
NOTE DATA ALSO IN 20878, 1138, 1139 and 2026.

ENTRY 21687 810310
REFERENCE (W,DENSCHLAG,801006) PRIVATE COMMUNICATION OF
H.O.DENSCHLAG WITH EXPERIMENTAL DETAILS AND DATA.
(T,WEIS,79) THESIS OF M.WEIS.
AUTHOR (M.WEIS,H.O.DENSCHLAG)
TITLE -FRACTIONAL INDEPENDENT YIELDS OF Y-99,ZR-99,NB-99-M,
AND NB-99-G IN THE THERMAL NEUTRON INDUCED FISSION
OF U-235.-

ENTRY 21689 0
REFERENCE (J,NP/A,345,1,34,8008)
((C,79JUELICH,2,65,7905)=(R,IKDA-8/79,,79))
(J,ZP/A,274,,203,75)
(J,PL/B,63,,275,7608)
(J,NP/A,247,,74,7507)
(C,76CORSICA,,509,7605)
AUTHOR (W.LANG,H-G.CLERC,H.WOHLFARTH,H.SCHRADER,K-H.SCHMIDT)
TITLE -NUCLEAR CHARGE AND MASS YIELDS FOR U-235(N(TH),F) AS
A FUNCTION OF THE KINETIC ENERGY OF THE FISSION
PRODUCTS-.
NOTE Following discussion with Rider and Lammer October '94
in Wien, Kr85(g) appears to be cumulative.

ENTRY 21699 810722
REFERENCE (C,79JUELICH,2,223,790518)
(J,NP/A,359,2,377,810427)
AUTHOR (D.E.CUMPSTEY,D.G.VASS)
TITLE -A MULTIPARAMETER INVESTIGATION OF THE H-3 AND HE-4
EMISSION IN THE FISSION OF CF-252.-

ENTRY 21700 0
REFERENCE (S,IAEA-SM-241,182,790518) EXTENDED SYNOPSES
OF THE INTERNATIONAL SYMPOSIUM ON PHYSICS AND
CHEMISTRY OF FISSION, HELD AT JUELICH,1979.
AUTHOR (L.TOPPARE,H.N.ERTEN,N.K.ARAS)
TITLE -YIELDS OF PRODUCTS IN THE SPONTANEOUS FISSION
OF CF-252 BY DIRECT GAMMA-RAY SPECTROSCOPY.-

ENTRY 21701 810310
REFERENCE (C,79JUELICH,2,153,790518)
(P,NEANDC(E)-212U,5,57,80)
AUTHOR (H.O.DENSCHLAG,H.BRAUN,W.FAUBEL,G.FISCHBACH,
MEIXLER,G.PAFFRATH,W.POERSCH,M.WEIS,H.SCHRADER,
G.SIEGERT,J.BLACHOT,Z.B.ALFASSI,H.N.ERTEN,
T.IZAK-BIRAN,T.TAMAI,A.C.WAHL,K.WOLFSBERG)
TITLE -DISTRIBUTION OF NUCLEAR CHARGE AND ANGULAR MOMENTUM
IN CHAINS 132-137, AND 102 OF U-235(N-TH,F) AT
VARIOUS KINETIC ENERGIES AND IONIC CHARGE STATES
OF THE FRAGMENTS.-

ENTRY 21705 830210
REFERENCE (J,NP/A,346,3,461,800915)
(T,D'HONDT,81)
(C,82ANTWER,147,8209)
(S,IAEA-SM-241,210,79) PAPER F38 IN THE EXTENDED
SYNOPSES OF THE CONFERENCE (C,79JUELICH,,F38,79).
(P,BLG-537,(5-10),79)
AUTHOR (P.D'HONDT,C.WAGEMANS,A.DECLERCQ,G.BARREAU,
A.DERUYTTER)
TITLE -ENERGY DISTRIBUTIONS AND ABSOLUTE YIELDS OF THE
CHARGED LIGHT PARTICLES EMITTED DURING THE THERMAL
NEUTRON INDUCED TERNARY FISSION OF U-235.-

ENTRY 21706 0
REFERENCE (J,RCA,27,,121,80)
(W,ERTEN,801216) PRIVATE COMMUNICATION OF H.N.ERTEN,
WITH EXPERIMENTAL DETAILS AND DATA.
AUTHOR (H.U.ZWICKY,H.R.VON GUNTEN)
TITLE -INDEPENDENT YIELDS OF PM-148-M AND PM-148-G IN THE
THERMAL NEUTRON INDUCED FISSION OF U-233 AND PU-239.-

ENTRY 21707 860106
REFERENCE (R,CEA-R-5147,8112) MAIN REFERENCE. (IN FRENCH).
(W,GOUTIERE,810106) PRIVATE COMMUNICATION OF GOUTIERE,
WITH EXPERIMENTAL DETAILS AND DATA.
(P,NEANDC(E)-172,(4),18,76) ABSTRACT.
(P,NEANDC(E)-192,(4),28,78) ABSTRACT.
AUTHOR (J.LAUREC,A.ADAM,T.DEBRUYNE)
TITLE -DETERMINATION OF THE FISSION YIELDS OF U-233, U-235,
U-238, PU-239 INDUCED BY A SPECTRA OF FISSION
NEUTRONS AND NEUTRONS OF 14.7 MEV.
(DETERMINATION DES RENDEMENTS DE FISSIONS INDUITES
PAR UN SPECTRE DE NEUTRONS DE FISSION ET DES NEUTRONS
DE 14.7 MEV DANS U-233,U-235,U-238,PU-239).

ENTRY 21708 860106
REFERENCE (R,CEA-R-5147,8112) MAIN REFERENCE. (IN FRENCH).
(W,GOUTIERE,810106) PRIVATE COMMUNICATION OF
G.GOUTIERE WITH THE DETAILED DISCRIPTION OF THE
EXPERIMENT AND THE DATA.
(P,NEANDC(E)-172,(4),18,76)
(P,NEANDC(E)-192,(4),28,78)
AUTHOR (J.LAUREC,A.ADAM,T.DEBRUYNE)
TITLE -DETERMINATION OF THE FIISION YIELDS OF U-233,
U-235,U-238,PU-239 INDUCED BY A SPECTRA OF FISSION
NEUTRONS AND NEUTRONS OF 14.7 MEV.
(DETERMINATION DES RENDEMENTS DE FISSIONS INDUITES
PAR UN SPECTRE DE NEUTRONS DE FISSION ET DES
NEUTRONS DE 14.7 MEV DANS U-233,U-235,U-238,PU-239)

ENTRY 21711 840202
REFERENCE (J,JIN,43,2629,81)
(W,ERTEN,810106) PRIVATE COMMUNICATION OF
H.N.ERTEN WITH EXPERIMENTAL DETAILS AND DATA
AUTHOR (D.T.JOST,H.R.VON GUNTEN)
TITLE -INDEPENDENT YIELDS OF NB-92-M IN THE THERMAL
NEUTRON-INDUCED FISSION OF U-233, U-235 AND PU-239-

ENTRY 21712 832908
REFERENCE (J,NSE,79,(2),167,8110)
(W,ERTEN,810106) PRIVATE COMMUNICATION OF
H.N.ERTEN WITH EXPERIMENTAL DETAILS AND DATA.
(P,NEANDC(OR)-154,12,8005)
AUTHOR (H.N.ERTEN,A.GRUETTER,E.ROESSLER,H.R.VON GUNTEN)
TITLE -MASS DISTRIBUTION IN THE REACTOR-NEUTRON-INDUCED
FISSION OF THORIUM-232.-

ENTRY 21723 832908
REFERENCE (J,NSE,79,(2),167,8110) MAIN REF.
(W,ERTEN,810106) PRIVATE COMMUNICATION OF H.N.ERTEN
WITH EXPERIMENTAL DETAILS AND DATA.
(P,NEANDC(OR)-154,8005)
AUTHOR (H.N.ERTEN,A.GRUETTER,E.ROESSLER,H.R.VON GUNTEN)
TITLE -MASS DISTRIBUTION IN THE REACTOR-NEUTRON-INDUCED
FISSION OF THORIUM-232.-

ENTRY 21731 0
REFERENCE (J,RCA,11,108,6904)
AUTHOR (O.BIRGUL,S.J.LYLE)
TITLE -RADIOCHEMICAL STUDIES OF 3 AND 14 MEV NEUTRON
INDUCED FISSION OF PA-231 -.

ENTRY 21734 0
REFERENCE (J,NP/A,189,556,7207)
(C,71CANT,13,7109)
(T,BOCQUET,,71) THESIS, A.O.6032, CNRS.
AUTHOR (J.P.BOCQUET,R.BRISSOT,J.CRANCON,A.MOUSSA)
TITLE -ON-LINE MEASUREMENTS OF RARE-GAS FISSION YIELDS
IN 14 MEV NEUTRON FISSION -.

ENTRY 21736 0
UKFY 774.
REFERENCE (P,NEANDC(E)-162U,4,42,7400)
AUTHOR (J.BLACHOT)
TITLE -FISSION PRODUCT YIELDS FROM FISSION OF TARGETS OF
URANIUM IN A THERMAL NEUTRON SPECTRUM AND IN A FISSIO
NEUTRON SPECTRUM -.

ENTRY 21743 0
REFERENCE (J,NP/A,361,1,213,810518)
(S,IAEA-SM-241,(F29),7905)
(S,IAEA-SM-241,(F30),7905)
AUTHOR (G.MARIOLOPOULOS,CH.HAMELIN,J.BLACHOT,J.P.BOCQUET,
R.BRISSOT,J.CRANCON,H.NIFENECKER,CH.RISTORI)
TITLE -CHARGE DISTRIBUTIONS IN LOW-ENERGY NUCLEAR FISSION
AND THEIR RELEVANCE TO FISSION DYNAMICS.-

ENTRY 21744 0
REFERENCE (C,79JUELICH,2,143,7905)
(P,NEANDC(E)-212,3,7,8006)
AUTHOR (C.M.C.WAGEMANS,G.WEGENER-PENNING,H.WEIGMANN,R.BARTHELEMY)
TITLE -FISSION FRAGMENT MASS AND ENERGY DISTRIBUTIONS
FOR THE NEUTRON INDUCED FISSION OF PU-239 AS
FUNCTIONS OF THE RESONANCE SPINS.-

ENTRY 21745 0
UKFY 1107.
REFERENCE (J,PR/C,17,4,1510,7804)
AUTHOR (T.KAISER,H.R.VON GUNTEN)
TITLE -CUMULATIVE MASS YIELDS IN THE NEUTRON INDUCED
FISSION OF PU-239 AT THE RESONANCE ENERGY OF 0.3 EV.-

ENTRY 21752 832908
REFERENCE (J,NP/A,369,1,8110)
AUTHOR (C.WAGEMANS,E.ALLAERT,F.CAITUCOLI,P.D'HONDT,
G.BARREAU,P.PERRIN)

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TITLE      -EXPERIMENTAL STUDY OF SOME IMPORTANT CHARACTERISTICS
            OF THE THERMAL NEUTRON INDUCED FISSION OF NP-237

ENTRY      21754     832908
REFERENCE  (J,JIN,43,(10),2223,81)
AUTHOR     (D.C.AUMANN,D.WEISMANN,H.ZEISING)
TITLE      -INDEPENDENT YIELDS OF RH-102M,RH-102G AND RH-101G
            FOR THERMAL-NEUTRON-INDUCED FISSION OF U-235.-

ENTRY      21758     840710
REFERENCE  (J,NP/A,369,15,8110)
AUTHOR     (F.CAITUCOLI,C.WAGEMANS,P.PERRIN,E.ALLAERT,P.D'HONDT,M.ASGHAR)
TITLE      -MASS AND ENERGY CHARACTERISTICS OF THE PU-241(N,F) FRAGMENTS.

ENTRY      21771     820921
REFERENCE  (J,NP/A,368,328,8109)
AUTHOR     (M.ASGHAR,F.CAITUCOLI,B.LEROUX,P.PERRIN,G.BARREAU)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION
            MEASUREMENTS FOR (N,F) OF U-232 AND U-233.

ENTRY      21774     820921
REFERENCE  (J,NP/A,368,319,8109)
AUTHOR     (M.ASGHAR,F.CAITUCOLI,B.LEROUX,M.MAUREL,P.PERRIN,G.BARREAU)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS FOR
            PU-238(N,F).

ENTRY      21776     820921
REFERENCE  (J,NP/A,373,225,8201)
           (C,79JUELICH,2,81,79)
AUTHOR     (M.ASGHAR,F.CAITUCOLI,B.LEROUX,M.MAUREL,P.PERRIN,G.BARREAU)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION
            MEASUREMENTS FOR TH-229(N,F).

ENTRY      21788     840710
REFERENCE  (J,NP/A,380,61,8205)
           (C,82ANTWER,,737,8209)
AUTHOR     (E.ALLAERT, C.WAGEMANS, G.WEGENER-PENNING,
            A.J.DERUYTTER, R.BARTHELEMY)
TITLE      --ENERGY AND MASS DISTRIBUTIONS FOR PU-241(N-TH,F),
            PU-242(S.F.) AND PU-244(S.F.) FRAGMENTS.-

ENTRY      21805          0
REFERENCE  (J,PR/C,25,2519,8205)
           (J,NSE,79,(2),167,8110)
AUTHOR     (H.N.ERTEN,A.GRUETTER,E.ROESSLER,H.R.VON GUNTEN)
TITLE      -CHARGE DISTRIBUTION IN THE REACTOR-NEUTRON-INDUCED
            FISSION OF TH-232.-

ENTRY      21834          0
REFERENCE  (R,KFK-3220,8112)
           (P,KFK-3068,1,8010)
AUTHOR     (R.MUELLER,A.A.NAQVI,F.KAEPPELER,Z.Y.BAO)
TITLE      -NUMERICAL RESULTS OF A (2E,2V)-MEASUREMENT FOR
            FAST NEUTRON INDUCED FISSION OF U-235 AND NP-237.

ENTRY      21844          0
REFERENCE  (J,NP/A,394,360,8309)
AUTHOR     (F.CAITUCOLI, M.ASGHAR, B.LEROUX, G.BARREAU,
            K.HAMADACHE, A.SICRE, T.P.DOAN, M.ALLAB)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS
            FOR THE SPONTANEOUS FISSION OF CM-244.-

ENTRY      21851     831004
REFERENCE  (J,NP/A,395,15,8306)
           (J,NP/A,395,29,8306)
           (T,R.SCHMIDT,80)      UNIVERSITY OF GIESSEN
AUTHOR     (R.SCHMIDT, H.HENSCHEL)
TITLE      -.COMPARISON OF THE SPONTANEOUS FISSION OF CM-242 AND CF-252.
            (I).FRAGMENT MASSES AND KINETIC ENERGIES.
            (II).PROMPT NEUTRON EMISSION.-

ENTRY      21853          0
REFERENCE  (J,NP/A,394,360,8309)
AUTHOR     (F.CAITUCOLI, M.ASGHAR, B.LEROUX, G.BARREAU,
            K.HAMADACHE, A.SICRE, T.P.DOAN, M.ALLAB)
TITLE      -FISSION FRAGMENT ENERGY CORRELATION MEASUREMENTS
            FOR THE SPONTANEOUS FISSION OF CM-244.-

ENTRY      21859          0
REFERENCE  (J,NP/A,395,15,8306)
           (J,NP/A,395,29,8306)
           (T,R.SCHMIDT,80)      UNIVERSITY OF GIESSEN
AUTHOR     (R.SCHMIDT, H.HENSCHEL)
TITLE      -.COMPARISON OF THE SPONTANEOUS FISSION OF CM-242 AND CF-252.
            (I).FRAGMENT MASSES AND KINETIC ENERGIES.
            (II).PROMPT NEUTRON EMISSION.-

ENTRY      21860          0
REFERENCE  (J,PR/C,27,1117,8303)
AUTHOR     (H.THIERENS, A.DECLERCQ, E.JACOBS, M.PIESSENS,
            P.D-HONDT, D.DEFRENNE)
TITLE      -.KINETIC ENERGY AND FRAGMENT MASS DISTRIBUTION
            FOR THE SPONTANEOUS AND PHOTO-INDUCEDFISSION OF PU-244.-

ENTRY      21884          0
REFERENCE  (J,INC,16,171,80)
AUTHOR     (D.C.AUMANN,H.ZEISING)
TITLE      -SEARCH FOR BE-7 AND SI-32 AS PRODUCTS OF TERNARY
            FISSION OF U-235 BY THERMAL NEUTRONS-

ENTRY      21903     840710
REFERENCE  (J,JPR/L,41,(9),223,8005)
AUTHOR     (CH.HAMELIN,J.CRANCON,J.BLACHOT,G.LHOSPICE,
            J.P.BOCQUET,A.MOUSSA)
TITLE      -EXPERIMENTAL DETERMINATION OF I-136 ISOMERIC
            RATIO OBTAINED IN THERMIC FISSION AND BY
            NEUTRONS WITH AN ENERGY OF 3 MEV ON U-235

ENTRY      21914     840710
REFERENCE  (J,PL/B,60,(5),445,7602)
AUTHOR     (P.DAVID,J.DEBRUS,P.LUEBKE,H.MOMMSEN,R.SCHOENMACKERS)
TITLE      -TOTAL KINETIC ENERGIES AND MASS YIELD DISTRIBUTIONS
            OF CF-252 FISSION FRAGMENTS-

ENTRY      21915     840710
REFERENCE  (J,PR/C,29,(2),498,8402)
AUTHOR     (H.THIERENS,E.JACOBS,P.D'HONDT,A.DECLERQ,M.PIESSENS,
            D.DEFRENNE)
TITLE      -FRAGMENT MASS AND KINETIC ENERGY DISTRIBUTIONS FOR
            PU-242(0,F), PU-241(N,F) AND PU-242(G,F)-

ENTRY      21917     840710
REFERENCE  (J,RCA,30,(1),19,82)
AUTHOR     (D.C.AUMANN,L.FRIEDMANN)
TITLE      -CUMULATIVE YIELD OF 1.6*10E+07 I-129 FROM THERMAL-
            NEUTRON INDUCED FISSION OF U-235-

ENTRY      21919     860304
REFERENCE  (J,NP/A,425,120,84)
AUTHOR     (M.DJEBARA,N.ASGHAR,J.P.BOCQUET,R.BRISSOT,
            M.MAUREL,H.NIFENECKER,CH.RISTORI)
TITLE      -MEASUREMENT OF CHARGE DISTRIBUTIONS FOR
            229-TH(N,F) AND 232-U(N,F)

ENTRY      21928     900824
REFERENCE  (J,NP/A,430,21,84)
AUTHOR     (C.SCHMITT,A.GUESSOUS,J.P.BOCQUET,H.G.CLERC,
            R.BRISSOT, D.ENGELHART,H.R.FAUST,F.GOENNENWEIN,
            M.MUTTERER,H.NIEFENECKER,J.PANNICKE,CH.RISTORI,
            J.P.THEOBALD)
TITLE      -FISSION YIELDS AT DIFFERENT FISSION-PRODUCT KINETIC
            ENERGIES FOR THERMAL-NEUTRON-INDUCED FISSION OF 239-PU

ENTRY      21939     900824
REFERENCE  (P,NEANDC(E)-252U,(5),38,8406)
AUTHOR     (H.DENSCHLAG,Z.ALFASSI,H.BRAUN,W.DITZ,W.FAUBEL,H.FAUST,
            ST.HOENER,W.POERSCH,R.SEHR,H.SCHRADER,B.SOHNIUS)
TITLE      -NUCLEAR CHARGE DISTRIBUTION OF HEAVY MASS FISSION
            PRODUCTS IN U-235(N,F)

ENTRY      21967          0
REFERENCE  (C,85SANTA,,(BC05),85)
AUTHOR     (E.AKER,D.ENGELHARDT,R.BRISSOT,P.GELTENBORT,
            F.GOENNEWEIN,A.OED,J.GINDLER, B.WILKINS)
TITLE      -MASS AND ENERGY DISTRIBUTION OF FISSION FRAGMENTS
            IN 249-CF(N-TH,F)

ENTRY      21981          0
REFERENCE  (C,85SANTA,,85)
AUTHOR     (P.GELTENBORT,F.GOENNEWEIN,A.OED)
TITLE      -PRECISION MEASUREMENT OF MEAN KINETIC ENERGY RELEASE
            IN THERMAL NEUTRON INDUCED FISSION OF 233-U,235-U
            AND 239-PU

ENTRY      21983     860703
REFERENCE  (J,PR/C,30,934,8409)
AUTHOR     (I.WINKELMANN,D.C.AUMANN)
TITLE      -FISSION OF PU-242 WITH 15.1 MEV NEUTRONS

ENTRY      22003          0
REFERENCE  (R,NFL-42,85)
AUTHOR     (G.RUDSTAM,P.AAGAARD,H.U.ZWICKY)
NOTE       UPDATED 19/10/89 BY UNIVERSITY OF UPPSALA INTERNAL REPORT,
           TO BE PUBLISHED.  RB-89 value very high.
TITLE      -YIELDS OF PRODUCTS FROM THERMAL-NEUTRON INDUCED FISSION
            OF U-235

ENTRY      22016     870825
REFERENCE  (P,NEANDC(E)-272U,(5),33,8606)
AUTHOR     (C.LEITZ,H.O.DENSCHLAG,W.DITZ,U.GUTTLER,B.SOHNIUS,
            P.STUMPF,H.FAUST)
NOTE       DATA NORMALIZED TO 1.0, SOME MASSES CONTAINED ONLY FEW
           POINTS. THEREFORE MASSES 97,130,134,136 and 141 WERE
           RENORMALIZED TO 1.0 WITH OTHER DATA.  MASS 144 WAS
           RENORMALIZED WITH PREDICTIONS FOR FIND.
TITLE      -NUCLEAR CHARGE DISTRIBUTION OF HEAVY FISSION
            PRODUCTS IN THE REACTION U-233(N(THERMAL),F)
            AT VARIOUS KINETIC ENERGIES OF THE FISSION
            FRAGMENTS.

ENTRY      22038     871210
REFERENCE  (J,NP/A,198,228,7212)
AUTHOR     (P.ALEXANDER)
TITLE      -INDEPENDENT YIELDS OF XE-133,135 IN THE FISSION OF
            U-235,238 AND PU-239 BY 14 MEV NEUTRONS.

ENTRY      22039     871210
REFERENCE  (J,RCA,16,104,7104)
AUTHOR     (O.BIRGUL,S.J.LYLE,R.WELLUM)
TITLE      -SOME CUMULATIVE MASS-YIELDS AND PROMPT NEUTRON
            YIELDS FOR SELECTED MASSES FROM 14.8 MEV NEUTRON
            INDUCED FISSION OF U-238.

ENTRY      22047     871210
REFERENCE  (J,JIN,32,3713,7012)
AUTHOR     (J.V.KRATZ,G.HERRMAN)
TITLE      - HALF-LIVES, FISSION YIELDS AND NEUTRON EMISSION
            PROBABILITIES OF SE-87 AND SE-88, AND EVIDENCE
            FOR AS-87.

ENTRY      22050     871210
UKFY       660.
REFERENCE  (S,IAEA-169,3,59,74)
           (C,71CANT,19,7109)
AUTHOR     (M.ROBIN,R.HAGEMAN,J.BOUCHARD,G.FRAJAVILLE,R.VIDAL)
TITLE      -THE IMPORTANCE OF FISSION PRODUCT NUCLEAR DATA
            IN BURNUP DETERMINATION.

ENTRY      22053          0
UKFY       92-100.
REFERENCE  (J,NP,84,49,66)
AUTHOR     (J.G.CUNINGHAME,K.FRITZE,J.E.LYNN,C.B.WEBSTER)
TITLE      -THE RATIO OF ASYMMETRIC TO SYMMETRIC FISSION IN
            FISSION OF PU-239 BY NEUTRONS OF ENERGIES FROM
            30 KEV TO 14.7 MEV.

ENTRY      22054          0
REFERENCE  (J,RCA,18,4,202,7212)
AUTHOR     (K.DEBERTIN)
TITLE      -RELATIVE YIELDS OF SOME GAMMA-RAY EMITTING NUCLIDES
            FROM THERMAL NEUTRON FISSION OF U-235.

ENTRY      22055          0
REFERENCE  (J,NP/A,194,140,7210)
AUTHOR     (P.DEL MARMOL,P.FETTWEIS)
TITLE      -IDENTIFICATION OF NEW GERMANIUM ISOTOPES IN
            FISSION - DECAY PROPERTIES AND NUCLEAR CHARGE
            DISTRIBUTION IN THE A = 78 TO 84 MASS REGION.

ENTRY      22056          0
REFERENCE  (J,JIN,33,(11),3649,7111)
           (C,71CANT,51,7109)
AUTHOR     (H.O.DENSCHLAG,S.M.QAIM)
TITLE      -INDEPENDENT YIELDS OF I-133, I-134 AND I-135 IN
            THE FISSION OF TH-232 INDUCED BY REACTOR NEUTRONS
            AND 14.8 MEV NEUTRONS - CHARGE DISTRIBUTION IN
            LOW AND MEDIUM ENERGY FISSION.

ENTRY      22057          0
REFERENCE  (S,BLG-586,43,8605)
AUTHOR     (P.D'HONDT,A.FABRY)
UPDATED    161089
TITLE      -APPLICATION OF SOME FISSION PROPERTIES TO NEUTRON
            DOSIMETRY.

ENTRY      22058          0
UKFY       600.
REFERENCE  (J,JNE,25,85,7102)
AUTHOR     (R.DIERCKX,G.MARACCI,F.RUSTICHELLI)
TITLE      -MEASUREMENT OF THE LA-140 FISSION PRODUCT YIELD
            FOR FISSIONS IN U-238 IN A THERMAL REACTOR TYPE
            SPECTRUM.

ENTRY      22059          0
REFERENCE  (J,RCA,21,200,74)
AUTHOR     (C.EGGER,H.R.VON GUNTEN,A.SCHMID,H.S.PRUYS)
TITLE      -ABSOLUTE YIELDS OF MO-99 IN THE THERMAL NEUTRON-
            INDUCED FISSION OF U-233 AND PU-239.

ENTRY      22060          0
REFERENCE  (J,JIN,32,3149,7011)
AUTHOR     (J.FAHLAND,G.LANGE,G.HERRMANN)
TITLE      -INDEPENDENT YIELDS OF SB-124-G, SB-126-G AND TB-160
            IN THE FISSION OF U-235 BY THERMAL NEUTRONS. (IN
            GERMAN)

ENTRY      22062          0
REFERENCE  (J,RCA,12,43,6907)
AUTHOR     (S.J.LYLE,J.SELLARS)
TITLE      -FINE STRUCTURE IN NUCLEAR FISSION - YIELDS FROM
            3 AND 14.8 MEV NEUTRON INDUCED FISSION OF U-238
            AND TH-232 IN THE MASS REGION 131 - 135.

ENTRY      22064     900829
UKFY       629-631.
REFERENCE  (J,JIN,33,(10),3239,7110)
AUTHOR     (H.NAKAHARA,I.FUJIWARA,H.OKAMOTO,N.IMANISHI,
            M.ISHIBASHI,T.NISHI)
TITLE      -MASS YIELDS OF AM-241 THERMAL-NEUTRON FISSION.

ENTRY      22066          0
REFERENCE  (C,71CANT,,45,71)
           (J,RCA,12,173,6912)
           (W,BOWLES,70) UKAEA INTERNAL DOCUMENT 1970.
AUTHOR     (V.M.SINCLAIR,W.DAVIES)
TITLE      -MEASUREMENT OF FISSION YIELDS IN THE DOUNREAY
            FAST REACTOR.

ENTRY      22067          0
REFERENCE  (J,JIN,32,1767,7006)
AUTHOR     (S.M.QAIM,H.O.DENSCHLAG)
TITLE      -INDEPENDENT YIELDS OF I-133, I-134, AND I-135
            IN THE THERMAL NEUTRON INDICED FISSION OF U-233
            AND PU-239 - EFFECT OF THE 82-NEUTRON SHELL
            CLOSURE ON CHARGE DISTRIBUTION.

ENTRY      22069          0
REFERENCE  (J,JIN,35,(2),353,7302)
AUTHOR     (H.UMEZAWA)
TITLE      -INDEPENDENT ISOMERIC YIELD RATIO OF PM-148 IN THE
            THERMAL-NEUTRON INDUCED FISSION OF U-233.

ENTRY      22070          0
REFERENCE  (R,BLG-592,8611)  (IN FRENCH)
           (S,BLG-586,124,8605)
AUTHOR     (C.WAGEMANS,P.SCHILLEBEECKX,A.DERUYTTER,
            R.BARTHELEMY)
TITLE      -LA FISSION SPONTANEE ET INDUITE DES ISOTOPES
            DU PLUTONIUM.

ENTRY      22073          0
REFERENCE  (J,RCA,17,18,7202)
AUTHOR     (W.WEINLAENDER,H.J.BORN)
TITLE      -MEASUREMENT OF THE FISSION YIELD DISTRIBUTION FOR
            REACTOR-NEUTRON INDUCED FISSION OF AM-241. (IN
            GERMAN).

ENTRY      22087     900828
AUTHOR     (M.HADDAD,J.CRANCON,G.LHOSPICE,M.ASGHAR)
REFERENCE  (J,NP/A,481,339,8805)
TITLE      -POST-NEUTRON MASS DISTRIBUTION FOR PU-238(N,F).

ENTRY      22111          0
UKFY       2000.
REFERENCE  (J,ANE,16,313,8907) MAIN REF.
           (C,88MITO,,987,88)
AUTHOR     (H.AFARIDEH,K.RANDLE)
TITLE      -CUMULATIVE FISSION PRODUCT YIELDS FROM MONOENERGETIC
            NEUTRON INDUCED FISSION IN 238-U.

ENTRY      22118          0
REFERENCE  (P,INDC(UK)-043/LN,64,8812)
AUTHOR     (H.A.GARIDEH,K.RANDLE,S.A.DURRANI)
TITLE      -AN INVESTIGATION OF ALPHA PARTICLE AND TRITON EMISSION
            IN THE SPONTANEOUS FISSION OF 252-CF AND NEUTRON-IN-
            DUCED FISSION OF 238-U.

ENTRY      22119          0
UKFY       2024.
REFERENCE  (J,RCA,46,23,89)
AUTHOR     (M.HADDAD,J.CRANCON,G.LHOSPICE,M.ASGHAR)
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TITLE      -POST-NEUTRON MASS DISTRIBUTION FOR U-232(N,F).

ENTRY      22134          0
REFERENCE  (J,RCA,46,17,89) MAIN REF.
           (P,NEANDC(E)-292U,(5),38,8806)
AUTHOR     (A.SRIVASTAVA,H.O.DENSCHLAG)
TITLE      -NUCLEAR CHARGE DISTRIBUTION IN THE REACTOR NEUTRON
           INDUCED FISSION OF 232-TH, FRACTIONAL CUMULATIVE
           YIELDS OF THE ISOTOPES OF KRYPTON AND XENON.

ENTRY      22143          0
REFERENCE  (J,ZP/A,335,41,9001) MAIN REFERENCE.
           (J,NIM/A,267,466,88) DETAILS OF IONISATION CHAMBER
           RUNNING IN 'DELTA E - E' MODE.
AUTHOR     (J.P.BOCQUET,R.BRISSOT,H.R.FAUST,M.FOWLER,J.WILHELMY,
           M.ASGHAR,M.DJEBARA)
TITLE      -CHARACTERISTICS OF MASS AND NUCLEAR CHARGE DISTRI-
           BUTIONS OF 229-TH(N-TH,F). IMPLICATIONS FOR FISSION
           DYNAMICS.

ENTRY      22147          0
UKFY       2000.
REFERENCE  (C,89WASH,2,705,8904)
AUTHOR     (K.RANDLE,H.AFARIDEH)
TITLE      -A STUDY OF MONOENERGETIC, FAST NEUTRON-INDUCED TERNARY
           FISSION IN 238-U.

ENTRY      22151          0
REFERENCE  (J,NP/A,502,233,8910) MAIN REFERENCE.
           (J,NIM/A,267,466,88) DETAILS OF IONISATION CHAMBER
           RUNNING IN 'DELTA E - E' MODE.
AUTHOR     (J.L.SIDA,P.ARMBRUSTER,M.BERNAS,J.P.BOCQUET,R.BRISSOT,
           H.R.FAUST)
TITLE      -MASS, CHARGE, AND ENERGY DISTRIBUTIONS IN VERY
           ASYMMETRIC THERMAL FISSION OF 235-U.

ENTRY      30267     821214
AUTHOR     (S.DAROCZY,E.GERMAN,P.RAICS,S.NAGY,J.CSIKAI)
REFERENCE  (C,73KIEV,3,323,7305)SUPERSEDED BY CSIKAI'S PRIV.COMM.
           (P,INDC(HUN)-11,26,7309)
TITLE      SOME U-238 FISSION YIELDS FOR 14.4 MEV NEUTRONS

ENTRY      30317          0
UKFY       1203.
AUTHOR     (J.BLOCKI,J.CHWASZCZEWSKA,M.DAKOWSKI,T.KROGULSKI,
           E.PIASECKI,M.SOWINSKI,A.STEGNER,J.TYS)
REFERENCE  (J,NP/A,127,495,6904)
TITLE      LI AND BE NUCLEI EMITTED DURING THE THERMAL NEUTRON
           FISSION OF U-235.

ENTRY      30320          0
AUTHOR     (T.KROGULSKI,J.CHWASZCZEWSKA,M.DAKOWSKI,E.PIASECKI,
           M.SOWINSKI)
REFERENCE  (J,NP/A,128,219,6904)
           (R,INR-1142,6911)IN POLISH,
           (C,69VIENNA,893,6906)
TITLE      EMISSION OF LIGHT NUCLEI IN THERMAL NEUTRON EMISSION
           OF PU-239.

ENTRY      30365          0
AUTHOR     (N.LAVI,Y.NIR-EL)
REFERENCE  (J,JIN,38,2133,7612)
TITLE      ISOMER YIELD RATIOS OF I-132M AND I-134M.

ENTRY      30418     821214
AUTHOR     (N.N.AJITANAND,R.K.CHOUDHURY,S.S.KAPOOR)
REFERENCE  (J,NP/A,246,505,7507)
           (P,BARC-768,63,74)
           (P,BARC-694,63,73)
           (P,BARC-770,8,74)
           (C,73ROCH,2,477,7308)
TITLE      DETERMINATION OF FRAGMENT ISOTOPIC YIELDS IN THE
           FISSION OF CF-252 ACCOMPANIED BY LIGHT CHARGED
           PARTICLES.

ENTRY      30425     791205
AUTHOR     (T.IZAK-BIRAN,S.AMIEL)
REFERENCE  (J,PR/C,16,(1),266,7707)
           (J,JIN,40,(5),757,7805)
           (J,JIN,40,(6),937,7806)
TITLE      -INDEPENDENT AND CUMULATIVE YIELDS OF FAST-NEUTRON
           FISSION OF TH-232.-

ENTRY      30437     800429
UKFY       1157.
AUTHOR     (A.RAMASWAMI,S.P.DANGE,SATYA PRAKASH,M.V.RAMANIAH)
           (R.KANNABIRAN,A.G.C.NAIR) PROGRESS REPORT ONLY
REFERENCE  (J,JIN,41,1649,7912)
           (P,BARC-900,87,76)
           (P,BARC-872,104,76)
TITLE      MASS YIELDS FROM THERMAL NEUTRON INDUCED FISSION
           OF CM-245

ENTRY      30439          0
AUTHOR     (V.K.BHARGAVA, S.G.MARATHE, V.K.RAO, S.M.SAHAKUNDU,
           R.SAMPATHKUMAR, N.K.CHAUDHURY, R.H.IYER)
REFERENCE  (J,JIN,40,1981,7812)
           (P,BARC-900,91,76)
TITLE      ABSOLUTE YIELDS OF MO-99 AND AG-111 IN THE REACTOR
           NEUTRON INDUCED FISSION OF U-238

ENTRY      30495     791205
AUTHOR     (A.RAMASWAMI,R.SAMPATHKUMAR,B.K.SRIVASTAVA,
           N.K.CHAUDHURI,V.NATARAJAN,R.H.IYER)
REFERENCE  (J,JIN,41,1531,7911)
           (C,77PUNE,2,291,7712)
           (P,BARC-974,62,78)
           (P,BARC-821,190,75)
           (J,NIM,115,23,7401)
TITLE      -ABSOLUTE FISSION YIELDS FROM THERMAL NEUTRON FISSION
           IN U-235 AND PU-239.-

ENTRY      30496          0
AUTHOR     (V.K.RAO,V.K.BHARGAVA,S.G.MARATHE,S.M.SAHAKUNDU,
           R.H.IYER)
REFERENCE1 (J,PR/C,9,1506,7404)
           (P,BARC-690,137,73)
           (C,73BANGLO,2,21,7312)
           (P,BARC-821,187,75)
           (P,BARC-872,106,76)
           (J,PR/C,19,1372,7904)
           (C,72BOMBAY,2,53,7212)SUPERSEDED
REFERENCE2 (J,PR/C,19,1372,7904) THE MEASUREMENTS WERE EXTENDED
           TO 5 MORE LOW YIELD PRODUCTS. THE DATA GIVEN IN
           (J,PR/C,9,1506,74) ARE TAKEN OVER.
TITLE      SEARCH FOR LOW-YIELD PRODUCTS IN THE NEUTRON-INDUCED
           HIGHLY ASYMMETRIC FISSION OF URANIUM.

ENTRY      30497     791205
UKFY       1198.
AUTHOR     (B.KRISHNARAJULU,G.K.MEHTA,R.K.CHOUDHURY,D.M.NADKARNI,
           S.S.KAPOOR)
REFERENCE  (J,PRM,8,315,7704)
           (P,BARC-978,56,78)
           (C,76AHMEDABA,2,112,7612)
TITLE      YIELDS AND ENERGY SPECTRA OF LIGHT CHARGED PARTICLES
           EMITTED IN KEV-NEUTRON INDUCED FISSION OF U-235.

ENTRY      30498     791205
AUTHOR     (B.KRISHNARAJULU,S.SEN,G.K.MEHTA)
REFERENCE  (J,JP/G,5,319,7902)
           (C,77PUNE,2,240,7712)
TITLE      LIGHT-CHARGED-PARTICLE EMISSION IN KEV NEUTRON-INDUCED
           FISSION OF PU-239.

ENTRY      30504     800429
AUTHOR     (H.C.JAIN,M.V.RAMANIAH)
REFERENCE  (R,BARC-584,71)
           (J,RCA,19,90,73)
TITLE      MOLYBDENUM-99 FISSION YIELD IN THE THERMAL NEUTRON-
           INDUCED FISSION OF PLUTONIUM-239 AND URANIUM-235.

ENTRY      30508     801010
AUTHOR     (C.K.MATHEWS)
REFERENCE  (J,PR/C,15,344,7701)
TITLE      FISSION YIELDS IN THE SYMMETRIC REGION: YIELDS OF THE
           STABLE ISOTOPES OF TIN AND CADMIUM IN THE THERMAL
           NEUTRON FISSION OF U-235 AND PU-239.

ENTRY      30509     791205
AUTHOR     (D.M.NADKARNI,R.K.CHOUDHURY,P.N.RAMA RAO,S.S.KAPOOR)
REFERENCE  (C,76LOWELL,1409,7607)
           (C,75CALCUTTA,2,131,7512)
           (P,BARC-878,47,76)
TITLE      - ENERGY SPECTRA AND YIELDS OF ALFA PARTICLES IN TER-
           NARY FISSION OF U-235 BY NEUTRONS WITH ENERGIES RANGING
           FROM THERMAL TO 1.75 MEV.-

ENTRY      30511          0
AUTHOR     (S.B.MANOHAR, P.P.VENKATESAN, SATYA PRAKASH,
           M.V.RAMANIAH)
REFERENCE  (J,PR/C,19,1827,7905)
           (P,BARC-872,101,76)
           (P,BARC-821,183,75)
           (P,BARC-690,132,73)
TITLE      MASS DISTRIBUTION IN THE REACTOR NEUTRON INDUCED
           FISSION OF U-232

ENTRY      30514          0
AUTHOR     (S.A.CHITAMBAR,H.C.JAIN,V.D.KAVIMANDAN,C.K.MATHEWS)
REFERENCE  (P,BARC-690,134,73)
           (P,BARC-821,186,75)
TITLE      FISSION YIELDS IN THE THERMAL NEUTRON FISSION OF PU-241

ENTRY      30516     800429
AUTHOR     (S.B.MANOHAR,T.DATTA,S.S.RATTAN,S.PRAKASH,M.V.RAMANIAH,
           S.SINGH,P.P.VENKATESAN,S.P.DANGE,R.C.C.NAIR)
REFERENCE  (J,PR/C,17,188,7801)
           (C,77PUNE,2,249,7912)
           (P,BARC-974,72,78)
           (P,BARC-974 65,78)
           (C,76AHMEDABA,2,119,7612)
TITLE      - FRACTIONAL CUMULATIVE YIELDS IN THE THERMAL FISSION
           OF CM-245 AND THE SPONTANEOUS FISSION OF CF-252.-

ENTRY      30526          0
AUTHOR     (R.K.CHOUDHURY,D.M.NADKARNI)
REFERENCE  (P,BARC-978,56,78)
TITLE      MEASUREMENT OF RELATIVE YIELDS AND ENERGY SPECTRA OF
           TRITONS AND ALFA PARTICLES EMITTED IN THERMAL NEUTRON
           FISSION OF U-235.

ENTRY      30575          0
AUTHOR     (A.RAMASWAMI,V.NATARAJAN,R.H.IYER)
REFERENCE  (J,JIN,42,(9),1213,8009)
           (P,BARC-1114,78,81)
           (P,BARC-1126,10,8106)
           (C,79JUELICH,,(C22),7905)
           (C,78BOMBAY,2,233,7812)
TITLE      ABSOLUTE YIELDS OF SHORT-LIVED FISSION PRODUCTS IN THE
           THERMAL NEUTRON INDUCED FISSION OF U-235 AND PU-239

ENTRY      30629          0
AUTHOR     (A.RAMASWAMI,B.K.SRIVASTAVA,S.B.MANOHAR,S.PRAKASH,
           M.V.RAMANIAN)
REFERENCE  (J,RCA,30,15,82)
           (R,BARC-1126,7,81)
TITLE      CHARGE DISTRIBUTION IN THE SPONTANEOUS FISSION OF
           CF-252. DETERMINATION OF FRACTIONAL CUMULATIVE YIELDS
           OF XE-138 AND CS-139

ENTRY      30631          0
AUTHOR     (A.RAMASWAMI,K.RAGHURAMAN,B.K.SRIVASTAVA,R.H.IYER)
REFERENCE  (J,RCA,30,11,82)
           (R,BARC-1126,10,81)
TITLE      ABSOLUTE YIELDS OF FISSION PRODUCTS IN THE THERMAL-
           NEUTRON INDUCED FISSION OF CM-245

ENTRY      30639     841217
AUTHOR     (S.DAROCZY,P.RAICS,S.NAGY,L.KOEVER,I.HAMVAS,E.GERMAN)
REFERENCE  (J,AK,18,317,76)
           (P,INDC(SEC)-61,53,7710)
TITLE      EXPERIMENTAL RESULTS OF MASS DISTRIBUTION OF U-238
           FISSION INDUCED BY 14 MEV NEUTRONS

NOTE       DATA ALSO REPORTED IN 795. (Exact duplicates removed from 795).

ENTRY      30650     850826
AUTHOR     (J.R.DE LAETER,K.J.R.ROSMAN,J.W.BOLDEMAN)
REFERENCE  (J,AUJ,35,385,8208)
TITLE      RELATIVE YIELDS OF STABLE TELLURIUM ISOTOPES IN NEUTRON
           INDUCED FISSION

ENTRY      30666          0
AUTHOR     (S.S.HSU,J.T.LIN,C.M.YANG,Y.M.YU)
REFERENCE  (J,PR/C,24,523,8108)
TITLE      YIELDS AND ISOMERIC RATIO OF XENON AND KRYPTON ISOTOPES
           FROM THERMAL NEUTRON FISSION OF U-235.

ENTRY      30691          0
AUTHOR     (LI ZE,LIU CONGGUI,LU HUIJUN,LIU YONGHUI,WANG LIANBI)
REFERENCE  (J,CNP,5,(3),226,8308)IN CHINESE
TITLE      THE MEASUREMENT OF ABSOLUTE FISSION PRODUCT YIELD FOR
           SPONTANEOUS FISSION OF CF-252

ENTRY      30695          0
AUTHOR     (LI WENXIN, SUN TONGYU, SUN XIUHUA, ZHANG TIANMEI,
           ZHENG MANJIAO, DONG TIANRONG, FU MING)
REFERENCE  (J,PHE,6,365,8205) IN CHINESE
           (S,LBL-1118,928,8008) ABSTRACT OF THE INT. CONF. ON
           NUCLEAR PHYSICS,BERKELEY,CALIF.,24-30 AUGUST 1980.
           PRELIMINARY RESULTS.SUPERSEDED.
TITLE      CHARGE DISTRIBUTION IN THE FISSION OF TH-232 BY 14 MEV
           NEUTRONS

ENTRY      30743          0
AUTHOR     (CUMULATIVE YIELD GROUP)
REFERENCE  (J,HFH,7,(1),1,8502)
TITLE      DISTRIBUTION OF FISSION YIELDS IN THE 3.0 MEV NEUTRON
           INDUCED FISSION OF U-238

ENTRY      30744          0
AUTHOR     (WANG LIANBI) AND THE FISSION YIELD GROUP
REFERENCE  (J,HFH,4,(1),44,8202)
TITLE      ABSOLUTE CUMULATIVE YIELDS OF SEVERAL NUCLIDES FROM
           U-235 FISSION INDUCED BY CF-252 SPONTANEOUS  FISSION
           NEUTRONS

ENTRY      30751     881205
AUTHOR     (LI ZE,ZHANG CHUNHUA,LIU CONGGUI,WANG XIUZHI,QI LINKUN,
           CUI ANZHI,LU HUIJUN,ZHANG SUJING,LIU YONGHUI,
           JU CHANGXIN,LIU DAMING, TANG PEIJA,MENG JIANGCHEN,
           JING KEXING)
REFERENCE  (J,CNP,7,(2),97,8505) MAIN PUBLICATION,IN CHINESE
TITLE      MASS DISTRIBUTION IN 8.3 MEV NEUTRON-INDUCED FISSION
           OF U-238

ENTRY      30752          0
AUTHOR     (T.GARLEA,C.MIRON,T.MUSAT,C.ROTH)
REFERENCE  (P,INDC(ROM)-014,2,8212)
TITLE      DETERMINATION OF SOME FISSION YIELDS IN THE SPECTRUM
           FOR THE REACTIONS 235U(N,F),239PU(N,F),238U(N,F)

ENTRY      30765          0
AUTHOR     (A.RAMASWAMI,S.S.RATTAN,N.CHAKRAVARTY,R.J.SING,
           S.PRAKASH,M.V.RAMANIAH)
REFERENCE  (J,RCA,41,(1),9,87)
TITLE      CHARGE DISTRIBUTION STUDY IN THE NEUTRON INDUCED
           FISSION OF NP-237 - FRACTIONAL CUMULATIVE YIELD OF
           TE-134, I-135 AND XE-138.

ENTRY      30766          0
AUTHOR     (H.NAIK,S.P.DANGE,T.DATTA,S.PRAKASH,M.V.RAMANIAH)
REFERENCE  (J,RCA,40,(4),175,86)
TITLE      DETERMINATION OF FRACTIONAL CUMULATIVE YIELDS OF SR-91,
           SR-92 AND TE-134 IN THE THERMAL NEUTRON INDUCED FISSION
           OF U-233 AND PU-241

ENTRY      30768          0
AUTHOR     (S.RAM,N.L.SINGH,S.K.BOSE,J.R.RAO)
REFERENCE  (J,NIM/B,24/25,501,8704)
TITLE      ABSOLUTE YIELDS OF SOME FISSION PRODUCTS IN THE 14 MEV
           NEUTRON INDUCED FISSION OF U-238

ENTRY      30785     891010
AUTHOR     (LI WENXIN,SUN TONGYU,SUN XIUHUA,FU MING,DONG TIANRONG,
           ZHENG MANJIAO)
REFERENCE  (J,PHE,11,376,8705) IN CINESE
TITLE      CHARGE DISTRIBUTION IN THE 14.7 MEV NEUTRON INDUCED
           FISSION OF TH-232: INDEPENDENT YIELDS OF ISOTOPES OF
           RH, AG, IN AND SB.

ENTRY      40017     790516
REFERENCE  (R,YFI-8,7,6912)
AUTHOR     (P.P.DJACHENKO,B.D.KUZ'MINOV,A.LAJTAI)
TITLE      KINETIC ENERGY OF FRAGMENTS AT THE FISSION OF U-235
           BY NEUTRONS IN THE ENERGY RANGE 0-0.6MEV

ENTRY      40019          0
AUTHOR     (K.A.PETRZHAK,M.G.PAN'JAN,V.F.TEPLYKH,
           B.M.ALEKSANDROV)
REFERENCE  (J,YF,15,(5),860,7205)
TITLE      RELATIVE YIELDS OF XENON ISOTOPES IN NP-237 AND
           NP-238 FISSION BY NEUTRONS

ENTRY      40106          0
AUTHOR     (A.I.SERGACHEV,N.P.D'JACHENKO,A.M.KOVALEV,
           B.D.KUZ'MINOV)
REFERENCE  (J,YF,16,(3),475,7202)
TITLE      INFLUENCE OF EXCITATION ENERGY ON THE DISTRIBUTION
           OF FISSION FRAGMENTS OF U-233 IN MASSES AND
           KINETIC ENERGY

ENTRY      40112          0
AUTHOR     (V.M.SURIN,A.I.SERGACHEV,N.I.REZCHIKOV,B.D.KUZ'MINOV)
REFERENCE  (J,YF,14,(5),935,7105)
TITLE      YIELDS AND KINETIC ENERGIES OF FRAGMENTS AT THE FISSION
           OF U-233 AND PU-239 BY 5.5 AND 15 MEV NEUTRONS

ENTRY      40144          0
AUTHOR     (N.I.AKIMOV,V.G.VOROB'EVA,V.N.KABENIN,N.P.KOLOSOV,
           B.D.KUZ'MINOV,A.I.SERGACHEV,L.D.SMIRENKINA,M.Z.TARASKO)
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REFERENCE  (J,YF,13,(3),484,71)
TITLE      EFFECT OF EXCITATION ENERGY ON YIELDS AND KINETIC
           ENERGIES OF FRAGMENTS AT THE FISSION OF PU-239 BY
           NEUTRONS.

ENTRY      40145         0
AUTHOR     (B.V.KURCHATOV,L.N.MOROZOV,V.I.NOVGORODTSEVA,
           V.A.PCHELIN,L.V.CHISTJAKOV,V.M.SHUBKO)
REFERENCE  (J,YF,14,(5),943,71)
TITLE      MASS DISTRIBUTION OF THE FISSION PRODUCTS FROM CF-249
           EXPOSED TO SLOW NEUTRONS

ENTRY      40172         0
AUTHOR     (B.D.KUZ'MINOV,A.I.SERGACHEV,L.D.SMIRENKINA)
REFERENCE  (J,YF,11,(2),297,7002)
TITLE      MASS AND ENERGY DITRIBUTION OF FRAGMENTS
           AT THE FISSION OF NP-237 BY NEUTRONS

ENTRY      40173         0
AUTHOR     (A.I.SERGACHEV,V.G.VOROBJEVA,B.D.KUZ'MINOV,
           V.B.MIKHAYLOV,M.Z.TARASKO)
REFERENCE  (J,YF,7,(4),778,6804)
TITLE      INFLUENCE OF INTERMEDIATE STATES OF THE FISSIBLE
           NUCLEUS TH-232 ON MASS AND KINETIC ENERGY DISTRIBUTIONS
           OF FRAGMENTS

ENTRY      40176         0
AUTHOR     (I.D.ALKHAZOV,S.S.KOVALENKO,O.I.KOSTOCHKIN,
           L.Z.MALKIN,K.A.PETRZHAK,V.I.SHPAKOV)
REFERENCE  (J,YF,15,(1),22,7201)
           (P,YFI-12,91,7206)
           (J,YF,11,501,70)
TITLE      PROMPT NEUTRONS AND KINETIC ENERGY OF FISSION
           FRAGMENTS IN SPONTANEOUS FISSION OF CURIUM-244

ENTRY      40193         0
AUTHOR     (S.M.DUBROVINA,V.I.NOVGORODTSEVA,L.N.MOROZOV,
           V.A.PCHELIN,L.V.CHISTJAKOV,V.A.SHIGIN,V.M.SHUBKO)
REFERENCE  (R,YFI-16,19,7306)
TITLE      THE CHANGE OF FISSION FRAGMENT-YIELD
           WITH NEUTRON ENERGY

ENTRY      40194    900206
AUTHOR     (N.P.D'JACHENKO,V.N.KABENIN,N.P.KOLOSOV,
           B.D.KUZ'MINOV,A.I.SERGACHEV)
REFERENCE  (P,YFI-17,3,7408)
           (R,FEI-366,7302)
NOTE       ONLY STATISTICAL ERRORS GIVEN 3-16%, THEREFORE
           DECIDED TO SET TO 20%.
TITLE      YIELDS AND KINETIC ENERGIES OF FISSION FRAGMENTS
           BY SPONTANEOUS AND INDUCED FISSION OF PU-242

ENTRY      40200    830727
REFERENCE  (J,YF,16,(4),649,72)
AUTHOR     (V.P.ZAKHAROVA,D.K.RJAZANOV,B.G.BASOVA,A.D.RABINOVICH,
           V.A.KOROSTYLJOV)
TITLE      INVESTIGATION OF URANIUM-235 FISSION BY THE
           THERMAL NEUTRONS

ENTRY      40205         0
AUTHOR     (N.V.SKOVORODKIN,G.E.LOZHKOMOEV,K.A.PETRZHAK,
           A.V.SOROKINA,B.M.ALEKSANDROV,A.S.KRIVOKHATSKIJ)
REFERENCE  (J,AE,24,(5),365,7305)
TITLE      FRAGMENTS YIELDS OF CF-252 SPONTANEOUS FISSION

ENTRY      40206         0
AUTHOR     (L.N.JUROVA,A.V.BUSHUJEV,A.F.KOZHIN)
REFERENCE  (J,AE,36,(1),66,7401)
           (C,73KIEV,3,315,7305)
TITLE      YIELD DETERMINATION OF SOME FRAGMENTS IN U-238
           FISSION BY NEUTRONS OF REACTOR SPECTRUM

ENTRY      40232         0
AUTHOR     (V.P.ZAKHAROVA,D.K.RJAZANOV,B.G.BASOVA,
           A.D.RABINOVICH,V.A.KOROSTYLEV)
REFERENCE  (J,YF,18,(6),1145,7306)
TITLE      STUDY OF SPONTANEOUS FISSION OF CF-252

ENTRY      40234         0
AUTHOR     (P.P.D'JACHENKO,B.D.KUZ'MINOV)
REFERENCE  (J,YF,7,(1),36,6807)
TITLE      NEUTRON FISSION OF U-235 AT THE EXCITATION ENERGY
           OF COMPOUND NUCLEOUS 22 MEV

ENTRY      40235         0
AUTHOR     (P.P.D'JACHENKO,B.D.KUZ'MINOV,M.Z.TARASKO)
REFERENCE  (J,YF,8,(2),286,6808)
           (R,ICD-4,346,6700)
TITLE      ENERGY AND MASS DISTRIBUTION OF FRAGMENTS
           AT THE FISSION OF U-235 BY MONOENERGETIC NEUTRONS
           IN THE ENERGY INTERVAL 0-15.5 MEV

ENTRY      40240         0
AUTHOR     (V.G.VOROB'JOVA,A.I.GENTOSH,B.D.KUZ'MINOV,
           A.I.SERGACHJOV)
REFERENCE  (J,YF,10,(3),491,6909)
TITLE      ANGULAR ANISOTROPY AND ASYMMETRY OF FRAGMENT  MASSES
           BY FISSION OF U-235 AND U-238

ENTRY      40243         0
AUTHOR     (A.A.VOROB'EV,V.T.GRACHEV,A.P.KOMAR,P.A.KONDUROV,
           A.M.NIKITIN,L.M.SELIVERSTOV)
REFERENCE  (J,AE,27,(1),31,6907)
TITLE      YIELD OF LIGHT NUCLEI FORMED AT FISSION OF U-235
           BY THERMAL NEUTRON

ENTRY      40282    790516
AUTHOR     (V.G.VOROBYEVA,N.P.DJACHENKO,N.P.KOLOSOV,B.D.KUZ'MINOV,
           A.I.SERGACHEV,V.M.SURIN)
REFERENCE  (J,YF,19,(6),1216,74)
TITLE      YIELDS AND KINETIC ENERGIES OF FRAGMENTS FROM FISSION
           OF THE PU-241 NUCLEI INDUCED BY FAST NEUTRONS

ENTRY      40284         0
AUTHOR     (V.G.VOROB'YEVA,N.D.D'JACHENKO,B.D.KUZ'MINOV,
           A.I.SERGACHEV,V.M.SURIN)
REFERENCE  (C,73KIEV,3,270,7305)
TITLE      MASS YIELDS AND KINETIC ENERGY OF FRAGMENTS
           FOR FISSION OF PLUTONIUM ISOTOPES

ENTRY      40293         0
AUTHOR     (V.A.KOROSTYLEV,D.K.RJAZANOV,V.A.SAFONOV)
REFERENCE  (C,71KIEV,2,78,7105)
TITLE      FINE STRUCTURE IN MASS FRACTION DISTRIBUTION OF FISSION

ENTRY      40363         0
AUTHOR     (V.K.GORSHKOV,R.N.IVANOV,G.M.KUKAVADZE,
           I.A.REFORMATSKIJ)
REFERENCE  (J,AE,3,(7),11,5707)
TITLE      U-235 FISSION-PRODUCT YIELD
           IN THE RARE-EARTH REGION

ENTRY      40389         0
AUTHOR     (N.V.SKOVORODKIN,A.V.SOROKINA,K.A.PETPZHAK,
           A.S.KRIVOKHVATSKIJ,G.E.LOZHKOMOEV)
REFERENCE  (J,AE,35,(6),409,7312)
TITLE      CURVES OF FISSION FRAGMENT YIELD FOR AM-241 AND PU-241
           BY THERMAL NEUTRONS

ENTRY      40420         0
AUTHOR     (V.P.ZAKHAROVA,D.K.RJAZANOV,B.G.BASOVA,
           A.D.RABINOVICH,V.A.KOROSTYLJOV)
REFERENCE  (J,YF,30,(7),36,7907)
           (R,NIIAR-P-269,76)
           (J,YF,18,1145,73)
TITLE      THE VALUES OF NEUTRON YIFLD FOR THE SPONTANEOUS
           FISSION OF CALIFORNIUM-252

ENTRY      40428    840210
AUTHOR     (S.K.LISIN,L.N.MOROZOV,V.A.PCHELIN,L,V.CHISTJAKOV,
           V.A.SHIGIN,V.M.SHUBKO)
REFERENCE  (J,YF,24,(6),1089,7612)
           (P,YFI-24,8,7706)
TITLE      BARRIERS OF EMITTED FRAGMENTS AT FISSION OF TH-232 BY
           NEUTRONS

ENTRY      40459    820830
AUTHOR     (A.G.DONICHKIN,A.N.SMIRNOV,S.M.SOLOV'JOV,
           V.P.EJSMONT)
REFERENCE  (C,75KIEV,5,82,7506)
TITLE      YIELD DETERMINATION OF SOME FISSION-FRAGMENTS OF
           CF-252 BY MEANS OF SOFT ELECTROMAGNETIC RADIATION
           MEASUREMENT

ENTRY      40479         0
AUTHOR     (JU.S.ZAMJATNIN,B.G.BASOVA,D.K.RJAZANOV,A.D.RABINOVICH,
           V.A.KOROSTYLJOV)
REFERENCE  (J,YF,27,(1),60,7801)
TITLE      STRUCTURE OF MASS DISTRIBUTION OF FRAGMENTS FROM U-235,
           PU-239 FISSION BY THERMAL NEUTRONS AND FROM SPONTANEOUS
           FISSION OF CF-252 AND PU-240

ENTRY      40489         0
AUTHOR     (L.N.JUROVA,A.V.BUSHUJEV,V.N.OZERKOV,V.V.CHACHIN,
           A.V.ZVONARJOV,JU.G.LIFOROV,JU.V.KOLEGANOV,
           V.V.MILLER,O.V.GORBATJUK)
REFERENCE  (J,AE,47,(1),26,7907)
TITLE      YIELDS OF SOME SPECIES OF FRAGMENTS AT THE FISSION
           OF  U-235,  U-238,  PU-239  INDUCED BY THE
           NEUTRON SPECTRUM OF THE REACTOR  BR-1

ENTRY      40503         0
AUTHOR     (I.A.KONDUROV,A.M.NIKITIN,D.M.SELIVJORSTOV,
           A.A.VOROB'JOV,V.T.GRACHJOV,A.I.EGOROV,JU.K.ZALIT,
           N.N.SMIRNOV,A.P.KOMAR,JU.A.MIROSHNICHENKO)
REFERENCE  (C,77KIEV,3,258,7704)
           (R,LIJAF-6,11,7709)
           (J,PL/B,30,5,332,6910)
           (J,PL/B,40,1,102,7206)
           (J,YF,20,(3),461,7409)
           (J,AE,27,(1),31,6907)
           (C,75KIEV,6,97,7607)
NOTE       DATA COLLECTED IN INDC(CCP)-162/GJ (JUNE 1981),
           TRANSLATION OF (R,LIJAF-6,11,7709)
           REFERENCES IN CROUCH.
TITLE      ENERGY SPECTRA AND YIELDS OF LIGHT NUCLEI IN THE
           TERNARY FISSION

ENTRY      40527         0
AUTHOR     (V.N.ANDREEV,V.G.NEDOPEKIN,V.I.ROGOV)
REFERENCE  (J,YF,25,(4),732,7704)
TITLE      THERMAL NEUTRON FISSION OF U-233 AND U-235 ACCOMPANIED
           BY A PARTIOLES PRODUCED AT SMALL ANGLES WITH RESPECT
           TO THE FISSION AXIS

ENTRY      40545    850927
AUTHOR     (V.F.TEPLYKH,E.V.PLATYGINA,K.A.PETRZHAK,
           B.M.MARKOV,V.I.KOZINETS)
REFERENCE  (J,YF,29,(2),293,7902)
TITLE      FINE STRUCTURE IN MASS YIELDS OF NEUTRON-INDUCED
           FISSION PRODUCTS OF NP-237

ENTRY      40554    851003
AUTHOR     (A.N.GUDKOV,V.M.ZHIVUN,I.V.ZHUKOV,A.V.ZVONARJOV,
           V.V.KOVALENKO,A.B.KOLDOBSKIJ,JU.F.KOLEGANOV,
           V.M.KOLOBASHKIN, M.JA.KULAKOVSKIJ, N.S.PIVEN')
REFERENCE  (C,77KIEV,3,192,7704)
TITLE      DETERMINATION OF THE TH-232,U-233,U-235,U-238 AND
           PU-239 FISSION PRODUCTS CUMMULATIVE YIELDS BY FAST
           NEUTRONS

ENTRY      40570         0
AUTHOR     (N.P.D'JACNENKO,B.D.KUZ'MINOV,V.F.MITROFANOV,
           A.I.SERGACHJOV)
REFERENCE  (C,77KIEV,3,171,7704)
           (J,YF,26,(4),691,7710)
           (C,77KIEV,3,167,7704)
TITLE      FINE STRUCTURE OF FISSION FRAGMENTS DISTRIBUTION
           ON MASSES BY TH-232 FISSION

ENTRY      40677    840327
AUTHOR     (A.N.GUDKOV,V.M.ZHIVUN,A.V.ZVONARJOV,A.F.ZOLOTOV,
           A.B.KOLDOBSKYJ,JU.F.KOLEGANOV,V.M.KOLOBASHKIN,
           S.V.KRIVASHEEV,N.S.PIVEN')
REFERENCE  (J,YK,1/50,48,8303)
TITLE      DETERMINATION OF NP-237 FISSION YIELDS BY NEUTRONS OF
           FAST REACTOR CORE SPECTRUM USING GAMMA-SPECTROMETRIC
           METHOD

ENTRY      40678    840217
AUTHOR     (A.N.GUDKOV,V.M.ZHIVUN,A.V.ZVONARJOV,A.F.ZOLOTOV,
           A.B.KOLDOBSKIJ,JU.F.KOLEGANOV,V.M.KOLOBASHKIN,
           S.V.KRIVASHEEV,N.S.PIVEN')
REFERENCE  (J,AE,54,(6),404,8306)
TITLE      DETERMINING FAST-NEUTRON FISSION YIELDS OF PLUTONIUM-
           242 AND AMERICIUM-241 BY MEANS OF SEMICONDUCTOR GAMMA-
           SPECTROSCOPY

ENTRY      40869    850904
AUTHOR     (A.N.GUDKOV,V.M.ZHIVUN,V.V.KOVALENKO,A.B.KOLDOBSKIJ,
           V.M.KOLOBASHKIN,S.V.KRIVASHEEV,N.S.PIVEN',
           E.V.SEMENOVA,V.A.KHRISTOFOROV)
REFERENCE  (J,YF,41,(3),573,8503)
TITLE      MEASUREMENTS OF CUMULATIVE INDEPENDENT YIELDS
           OF THE FISSION PRODUCTS FROM AM-242M THERMAL-NEUTRON-
           INDUCED FISSION

ENTRY      40877    860606
AUTHOR     (V.F.TEPLYKH,E.V.PLATYGINA,K.A.PETRZHAK,A.V.SMIRNOV,
           V.V.NEBOGATIKOV,A.A.SOLONKIN)
REFERENCE  (C,83KIEV,2,251,8310)
TITLE      XENON-135 YIELD MEASUREMENT FROM FISSION OF URANIUM
           ISOTOPES, NP-238 AND PU-239

ENTRY      40878    851112
AUTHOR     (A.N.GUDKOV,A.N.DAVLETSHIN,V.M.ZHIVUN,
           A.V.ZVONAREV,V.V.KOVALENKO,A.B.KOLDOBSKIJ,
           JU.F.KOLEGANOV,V.M.KOLOBASHKIN,S.V.KRIVASHEEV,
           V.G.LIFOROV,N.S.PIVEN',A.O.TIPUNKOV,V.A.TOLSTIKOV)
REFERENCE  (C,83KIEV,2,259,8310)
TITLE      FISSION PRODUCT YIELD MEASUREMENT BY THE METHOD OF
           SEMICONDUCTOR GAMMA-SPECTROSCOPY FOR U-236 AND U-238
           FISSION BY THE MONOENERGETIC NEUTRONS

ENTRY      40895    860702
AUTHOR     (V.P.BUGROV,A.A.BJALKO,N.G.VOLKOV,V.M.KOLOBASHKIN,
           A.I.SLJUSARENKO)
REFERENCE  (J,YK,,(1),66,8503)
TITLE      CF-252 SPONTANEOUS FISSION SHORT-LIVED (T(1/2) LESS
           THEN 3 MIN) PRODUCTS YIELDS DETERMINATION

ENTRY      77500         0
REFERENCE  (J,CNP,10,(3),244,8808)
           (C,88MITO,,1151,8805)
AUTHOR     (JING KEXING,LI ZE,LIU CONGGUI,LIU YONGHUI,SU SHUXIN,
           HUANG SHENGNIAN)
TITLE      FISSION YIELDS IN 7.64 MEV GAMMA INDUCED FISSION OF
           TH-232
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WARNINGS ON DATA 90000+.
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Reference numbers of 90000 and above give warning that the data is highly discrepant, predicted or converted into a usable form by possibly inaccurate methods. Descriptions follow:

90000. Model estimates for the THERMAL 242AM high mass peak were unrealistic, when model calculations renormalised by sparse experimental data, summation much greater than 100%. Therefore extrapolated from log(CHAIN YIELD) vs Af-nu_bar graphs,30% standard deviation assumed, for 140BA to produce more realistic result in the absence of complete experimental data.

[Database record: B 0.000E+00 95242140 56 U 0.590E+01 3.000E+0190000Y]

91199. FAST H-1,H-3 and HE-4 estimated from reference 1199 monoenergetic data, assumed fast == 400keV.

91204. FAST H-3 yields for Th-232 and U-233. Measurements about 5-10 times expected, see 91205, and large uncertainies. Therefore this data not included. Although lack of other data requires more experimental measurements to resolve uncertainity. From reference 1204.

91205. FAST H-3 yields for U-238,U-235 and Th-232. Th-232 and U-238 are about 10 times larger than expected, paper suggests tritium contamination or (n,T) reactions. Therefore, this data not included in UKFY2 libraries. U235 uncertainty increased to 10%. From reference 1205.

92043. U-238 DATA is not in form convertable to absolute yield. Therefore, shows energy dependence only.
FAST H-3 and HE-4 estimated from graphs for PU-239 and U-235, thus assigned errors of 15%. From reference 2043.