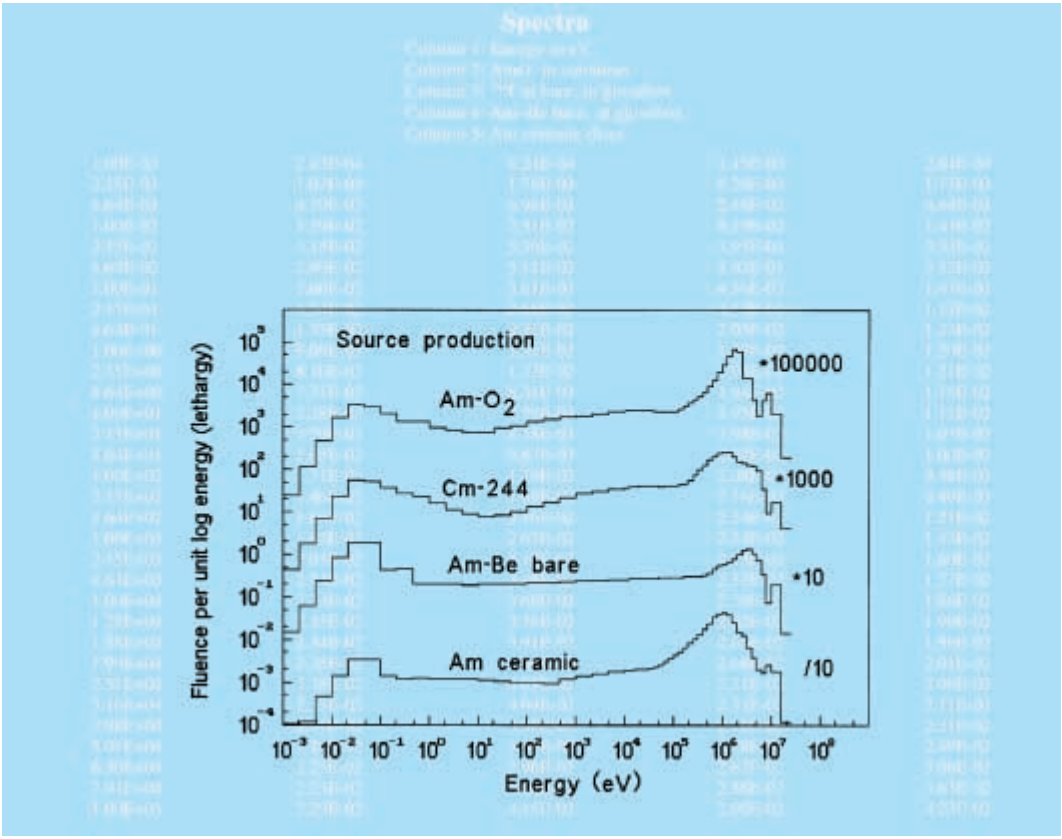

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Compendium of Neutron Spectra and Detector Responses for Radiation Protection Purposes

Supplement to Technical Reports Series No. 318

INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, 2001

COMPENDIUM OF NEUTRON SPECTRA AND DETECTOR RESPONSES FOR RADIATION PROTECTION PURPOSES

Supplement to Technical Reports Series No. 318

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FOREWORD

Neutrons are used or encountered in a wide range of applications in medicine, energy production, industry and research. Of increasing importance are neutrons produced by the interaction of cosmic radiation with the atmosphere. Neutrons account for about half of the dose received in jet aircraft at normal cruising altitude. Neutron energy spectra vary widely and the energies span more than 11 orders of magnitude. The risk associated with neutron irradiation depends strongly on the neutron energy. A wide variety of radiation dosimeters and survey instruments are used to monitor the exposure to neutrons. The responses of these detectors also depend on the neutron energy. The energy dependence of an ideal neutron dosimeter would match the energy dependence of radiation protection quantities. Unfortunately, such a dosimeter does not exist.

Therefore a detailed knowledge of both the neutron energy spectra and the dependence of detector responses on neutron energy is needed in order to achieve an appropriate level of protection against irradiation with neutrons.

The Compendium of Neutron Spectra and Detector Responses for Radiation Protection Purposes (Technical Reports Series No. 318) published in 1990 contains a large collection of detector responses and spectra. This supplement to that compendium represents a technical update that has become necessary in order to take account of:

— Major changes in the recommended energy dependence of risk related quantities,
— The increased importance of high neutron energies,
— The increased use of boron neutron capture therapy,
— Promising new developments in detector design,
— The many new measured workplace spectra,
— Improved calibration facilities.

This supplement includes the fluence to dose equivalent conversion coefficients for the recently recommended radiation protection quantities and a large number of fluence response functions for recently developed or improved detectors, as well as over 200 new spectra. It is hoped that this supplement will assist in the proper selection of the detectors, survey instruments and calibration sources that are to be used in radiation monitoring programmes.

This supplement was compiled by three experts who served as consultants to the IAEA: R.V. Griffith (Chairman), IAEA, retired; J. Pálfalvi, Atomic Energy Research Institute, Hungary; and B.R.L. Siebert, Physikalisch-Technische Bundesanstalt, Germany. The collection of the data was completed near the end of 1997. It is recognized that new data have been published since that time.

The help of numerous colleagues is gratefully acknowledged. Special thanks are expressed to O.F. Naismith (National Physical Laboratory, United Kingdom), who

made her large collection of response functions and spectra available prior to their publication, and to I. Nagy (Ipolyság BT, Hungary) for his help in the development of the COMPI code system that was used in the preparation of this supplement. The IAEA technical officer responsible for the preparation of this publication was Seong-Ho Na of the Division of Radiation and Waste Safety.

The data published in this compendium and some software to replicate them are contained on a diskette that is available on request from J. Pálfalvi, AEKI, P.O. Box 49, H-1525 Budapest, Hungary.

EDITORIAL NOTE

The symbol ″ indicates inches (1 inch = 2.54 cm). The symbol ′ indicates feet (1 foot = 30.48 cm).

CONTENTS

Chapter 1
INTRODUCTION

1.1. BACKGROUND

There are a significant number of neutron generating facilities and industrial applications of radiation that have the potential for delivering occupational neutron exposures. This number has continued to increase in the last several years. Such facilities and applications include power reactors, research reactors, medical accelerators, neutron generators, high energy particle accelerators, source storage facilities and well logging. The IAEA has addressed the need for guidance on assessment of occupational neutron exposures and on calibration of neutron dosimeters and instruments in a number of publications [1–9].

In view of the significant potential for neutron exposure in the workplace, the Compendium of Neutron Spectra and Detector Responses for Radiation Protection Purposes (Technical Reports Series No. 318) was published in 1990 [10]. The major motivation for development of that report was the need to provide specific technical information that could be used by radiation protection specialists for proper selection of dosimeters and survey instruments, and for interpretation of data obtained with these detectors. Since the publication of the original compendium, a number of international developments have given rise to a need to update the information required for proper application of neutron dosimetry for occupational radiation protection.

The most important development has been the definition of new quantities for radiation protection. In 1990, the International Commission on Radiological Protection (ICRP) published the definition of two new quantities to be used for protection purposes — equivalent dose, $H_{T,R}$, and effective dose, E [11]. These quantities, termed protection quantities, replace the previously used effective dose equivalent, H_E. Since equivalent dose and effective dose are not directly measurable, the International Commission on Radiation Units and Measurements (ICRU) defined the quantities ambient dose equivalent, $H^*(d)$, and directional dose equivalent, $H'(d, \Omega)$, for area monitoring, and personal dose equivalent, $H_P(d)$, for determining the dose to the individual [12–15]. These quantities are measurable and are termed operational quantities. A Joint Task Group of the ICRP and ICRU published a report that reviews the relationship between these quantities and provides a single set of dose conversion coefficients for the purposes of calculation and measurement [16] that is now accepted by both commissions and is recommended by the IAEA [3, 4].

In its recommendations, the ICRP introduced new energy and radiation type dependent radiation weighting factors, w_R [11], to account for differences in the biological response associated with different radiation qualities (photons, neutrons, electrons and heavy charged particles). The use of the previously employed $Q(L)$ concept is now restricted for use with operational quantities and for some types of radiation for which weighting factors have not been defined. These changes have an impact on the requirements for neutron dosimetry and on the importance of neutron spectral distribution in particular. This, together with substantial differences in the definition of E to

replace the effective dose equivalent, H_E, has led to an increase in the dose conversion coefficients by up to a factor of 8 for certain energies (see Tables 2.II and 2.IV). Definitions of the new quantities for radiation protection have a clear impact on the energy dependent response that is required for dosimeters and monitoring instruments. Definitions of the new quantities and additional details are provided in Section 1.3.

Since the preparation of the previous compendium [10], a number of developments have occurred which are addressed in this publication. The concern about occupational cosmic radiation exposure of commercial aircrew has become an issue that is being addressed internationally [17–22]. It was also a major topic discussed during the 1998 annual meeting of the US National Council on Radiation Protection (NCRP). The neutron spectra have characteristics that are similar to those found in high energy accelerator environments, particularly those spectra above 20 MeV. Although serious consideration has not been given to individual monitoring for aircrew, measurements have been made to more carefully characterize the radiation environment and probable resulting exposure.

Improved spectrometric techniques and wider use of unfolding methods for multisphere systems and spectrometers have led to a large number of publications which offer information on spectra related to workplace exposure, e.g. Refs [23–26]. A parallel development is the work by national and international research organizations to construct calibration facilities specifically designed to simulate operational spectra of concern for radiation protection [27–30].

Development of survey instruments and dosimeters has led to advances in the design of moderated detectors that offer some improvement in simulation of the response of the new operational quantities. Probably the most widely discussed advance in individual dosimetry techniques has been the development of bubble or superheated drop detectors, which are now commercially available [31–34]. In addition, studies aimed at improving the performance of solid state nuclear track detectors (SSNTDs) have produced a clearer understanding of the potential of this technique, with emphasis on the effect of processing parameters on energy response, as set forth in Refs [35–38].

There have also been some new developments that extend the response of survey instruments and dosimeters [39, 40]. Finally, there have been advances towards the development of electronic solid state detectors for neutron dosimetry applications [41–43].

Two recent publications provide a valuable review of the developments in neutron dosimetry and the use of neutrons in research and industry [44, 45]. Since the use of material presented in this report has a strong computational emphasis, the significant increase in the use of computational dosimetry should be noted [46]. Fluence to dose equivalent conversion coefficients are the result of calculations, and most of the response functions and some of the spectra presented in this report are based in part on numerical simulations.

1.2. PURPOSE AND SCOPE

This report is intended to provide guidance to health physicists and dosimetry specialists on the proper selection and use of dosimeters and survey instruments on the basis of their energy response characteristics and the neutron spectra in the environment where the devices are to be used. There are other physical characteristics (e.g. sensitivity, orientation dependence, sensitivity to photons, loss of signal or fading following exposure) and organizational or economic considerations that must be included in the selection and optimization of a dosimetry system which are not within the scope of this compendium. However, review articles for all types of instrument are cited which address the physical characteristics in detail.

This report includes dosimetric quantities, response functions and neutron spectra. Response functions are given for commonly used personal dosimeters and survey instruments, including spherical moderator detector systems used for spectrometry. The neutron spectra given encompass a representative selection of those used for the calibration of dosimetric instruments and those that are representative of fields to which personnel could potentially be exposed.

The detector responses or dose conversion coefficients have been numerically folded with each of the spectra to yield calculated spectrum weighted responses. Data are presented over the energy range 1 meV (10^{-9} MeV) to 630 MeV. However, experimental or calculational information over this entire range of energy is not always available. High energy calibration facilities for neutron dosimetry have only recently become available. Moreover, since most evaluated data sets extend only to 20 MeV, this is the upper energy limit for many data sets produced with radiation transport codes.

The lower limit of 1 meV has been chosen in order to represent fully the contributions from thermal neutrons. The upper limit of 630 MeV serves to accommodate new experimental and calculational information obtained in recent years as a consequence of the increased attention given to the question of commercial aircrew exposure. The information published in this report can be used for at least five purposes:

(1) The implications of the change to the new quantities for radiation protection for a dosimeter or instrument considered for use in specific workplaces can be evaluated and the results used to decide whether the instrumentation is appropriate for use in a given workplace.
(2) The responses for various detectors can be compared as an aid in the design or the selection of new dosimeters, particularly those that may represent combinations of individual detecting elements (TLD–SSNTD, TL albedo detectors, bubble detectors, etc.).
(3) The calculated responses for multisphere sets or similar systems used for spectral unfolding can be used as input data to evaluate and compare the performance of neutron unfolding codes.

(4) A comparison of the detector response to calibration spectra with that to operational spectra will provide a measure or index of how effectively the calibration fields simulate operational fields, and can therefore aid in the selection of the proper calibration source or source moderator configurations.
(5) The data presented here can be used to aid in the evaluation of data obtained as part of a routine dosimetry programme.

Examples of such applications are discussed in more detail in the Appendix.

As in the previous report [10], this compendium does not include data for accident dosimeters. Such information has been compiled by the IAEA in a separate publication [7].

Inclusion of a specific set of data in this report does not represent endorsement of use of the dosimeter, instrument or spectral characterization. Neither does such inclusion imply confirmation of the accuracy or validity of a set of measurements or calculations represented by the data. Selection of information to be used was based on a number of considerations, including the energy range covered by the data set and the availability of alternative sets that could be used to illustrate the points to be made. Some preference was given to well documented data. However, in addition to the data presented in this report, references have been included for other detectors and spectra of potential interest to the compendium user.

Some of the detectors for which response functions were provided in the previous compendium may still be widely used. Spectrum averaged responses for these detectors will therefore be given for all spectra presented in this supplement. Details on the continued use and availability of the data compiled in the previous compendium [10] are given in Chapter 6.

1.3. DOSIMETRIC QUANTITIES

The following summarizes the dosimetric quantities defined by the ICRP and ICRU. Details of the definitions of these quantities, including their relationship to the physical quantities, can be found in the appropriate references [11–16]. A short summary is given here for completeness.

1.3.1. Protection quantities

Equivalent dose:

$$H_T = \sum_R w_R D_{T,R} \tag{1.1}$$

where w_R is the radiation weighting factor and $D_{T,R}$ is the absorbed dose averaged over the tissue or organ, T, from radiation R.

Effective dose:

$$E = \sum_T w_T H_T \tag{1.2}$$

where w_T is the tissue weighting factor. The effective dose replaces the effective dose equivalent, H_E, originally defined in ICRP Publication 26 [47].

1.3.2. Operational quantities

1.3.2.1. Area monitoring

Ambient dose equivalent, H(d)*

H(d)*, at a point in a radiation field, is the dose equivalent that would be produced by the corresponding aligned and expanded field in the ICRU sphere at a depth d on the radius opposing the direction of the aligned field. A depth d = 10 mm is recommended for strongly penetrating radiation.

Directional dose equivalent, H'(d, Ω)

H'(d, Ω), at a point in a radiation field, is the dose equivalent that would be produced by the corresponding expanded field in the ICRU sphere at depth d on a radius in a specified direction, Ω. A depth d = 0.07 mm is recommended for weakly penetrating radiation.

1.3.2.2. Individual monitoring

Personal dose equivalent, $H_P(d)$

$H_P(d)$ is defined for both strongly and weakly penetrating radiations. *$H_P(d)$* is the dose equivalent in soft tissue below a specified point on the body at an

appropriate depth d. Depths of d = 10 mm for strongly penetrating radiation and d = 0.07 mm for weakly penetrating radiation are recommended.

Notes:

(a) Angular dependent conversion coefficients, $H_P(E, \alpha)$, are supplied in order to support the calculation of $H_P(d)$ for practical neutron fields which are directionally distributed.
(b) Neutrons are classified as strongly penetrating radiation. Therefore the depth d = 10 mm is used for the quantities $H^*(d)$ and $H_P(d)$. The directional dose equivalent, $H'(d, \Omega)$, is not used for neutrons.
(c) The operational quantities $H^*(d)$ and $H_P(d)$ were introduced by the ICRU in 1988 [13]. However, the numerical values of a generally accepted set of conversion coefficients have not been available until recently [16].
(d) The dose equivalent index, H_I, has been included for comparison with the new operational quantities. Originally defined by the ICRU [48], H_I was widely used for many years.

In view of the number of tissues and organs relevant for radiation protection purposes, tabulations and calculations for organ equivalent dose would result in an unnecessarily voluminous compilation. Moreover, the results would be of little practical value. Therefore only effective dose will be included in the tabulations and calculations presented in this report.

Details on the calculation and evaluation process employed to arrive at the recommended neutron dose conversion coefficients used in this report may be found in the report of the Joint Task Group of the ICRP and ICRU [16]. However, the energy structure has been modified to meet the needs of this report. Details on that modification may be found in Section 1.6.

It should be stressed that ambient dose equivalent is the appropriate quantity for evaluation of survey or monitoring instrument response. The appropriate quantity for evaluating the performance of dosimeters or detectors intended to be worn on the body of the individual is the personal dose equivalent.

1.4. NEUTRON DOSIMETERS AND SURVEY INSTRUMENTS

As in the previous compendium, the detectors or detection mechanisms included in this report are those that have been or are expected to be routinely used in radiation monitoring programmes. The previous report addressed a wide range of dosimeter detection techniques, including NTA film, TL albedo detectors, SSNTDs (PADC — polyallyl diglycol carbonate, often referred to by the trade name CR39;

polycarbonate; LR115 cellulose nitrate) and fission track detectors. In this compendium, emphasis is given to new detector developments: bubble detectors, electronic dosimeters, refinements in SSNTDs, and new survey instruments and spectrometers based on the use of moderated detectors.

In recent years, bubble or superheated drop detectors have become commercially available [32–34]. On the basis of a principle that was identified in the 1950s, superheated liquid drops are incorporated in a fluid or semisolid gel. A charged particle resulting from a neutron capture in the medium interacts with the drop, causing it to expand. In the gel, it expands to a readily visible dimension so that the number of bubbles can be counted and related to the neutron fluence. In liquid media, the bubbles simply expand and dissipate, so detection is based on acoustic techniques, or on some quantification of the gas expansion. Variations in the parameters (e.g. detector composition, temperature and pressure) for production and use of the bubble detectors significantly affect the neutron sensitivity and energy response. This fact has been used to provide sets of detectors that can in principle be used for simple spectrometry [49].

Electronic dosimeters have been under study for several years. Two basic detection mechanisms have been proposed for use for this purpose — tissue equivalent proportional counters (TEPCs) and surface barrier detectors.

TEPC measurements provide a good approximation of the dose distribution in L (linear energy transfer) [50]. The dose equivalent can then be inferred from the integral over the product of this distribution and the function $Q(L)$, which is used for radiation weighting with the operational quantities. Since simple fluence responses are rarely given for TEPCs and they are not routinely used instruments, they are not included in this report.

On the other hand, various attempts have been made to develop an instrument based on silicon barrier detectors [51–53]. These typically depend on the use of a hydrogenous radiator such as polyethylene to produce heavy charged particles that can be discriminated from photon induced electrons. Limits of detection as low as 4 mSv for 8 h are possible [51]. However, the relatively high energy threshold (about 1 MeV) has presented a limitation for use in applications where the spectrum is degraded and contains a large fraction of low and intermediate energy neutrons. Until recently very little spectral response information was available. However, there is promising research on the use of converters and filters which have been shown to be successful with SSNTDs [41].

PADC/CR39 is the most frequently used SSNTD material to be studied in detail for personal dosimetry applications. Recent work on SSNTDs has focused on two principal approaches to improve energy response. The first is alteration of the energy response through modification of the processing parameters, such as multistep chemical and electrochemical etching (ECE), variation of etching temperature and change in ECE frequency [54, 55]. The second approach has relied on the use of radiators such as ^{6}Li or ^{10}B to produce α particles from the low energy (n,α)

reactions, and/or hydrogenous radiators including polyethylene to enhance proton production at lower energies [56–59]. A review on this subject is given in Ref. [35].

Very little change has been made in the design of moderated detectors for survey instruments or multidetector spectrometry. Modified remmeter designs reported since 1990 have emphasized either improved dose equivalent response in the intermediate energy region (<0.1 MeV) or enhanced performance for high energy application, for example in accelerator environments. The major development related to survey instruments and multispheres has been the publication of new energy response calculations using improved radiation transport codes such as MCNP, LAHET [60, 61] and FLUKA [39].

Finally, it should be noted that in recent detector development, extensive use has been made of numerical techniques to optimize performance. Further, completely calculated response functions evaluated on the basis of experimental calibrations using broad sources and monoenergetic neutrons exist for most new detectors.

1.5. NEUTRON SPECTRA

Neutron spectra can be placed in two broad categories: calibration or reference spectra, and operational spectra. However, since well characterized operational fields have sometimes been used as reference fields, the distinction between these categories is not always clear.

Traditionally, isotopic sources have been the primary source of neutrons for calibration. Generally ^{252}Cf or α–neutron sources (primarily ^{241}Am–Be or ^{238}Pu–Be), either bare or moderated, are used for dosimeter and instrument calibrations. Such sources were treated extensively in the previous report. Some recent work has been done to establish more realistic operational calibration fields using some elaborate designs [29, 62]. Although primarily intended to address power reactor environments, some work has now been done aimed at establishing reference fields for accelerator applications. These can perhaps also be used for simulation of spectra representative of aircrew exposures.

Little change has occurred in the environments of concern from an operational exposure standpoint with power reactors, medical accelerators, high energy accelerators, industrial source applications, and transport of fuel cycle materials and sources. However, recent measurements have been published which provide a number of new spectra.

1.6. DATA PREPARATION, NOMENCLATURE AND CONVENTIONS

The primary physical quantity for the assessment of derived radiation protection quantities for neutrons is the neutron energy spectrum, i.e. the differential

distribution of neutron fluence, $\phi_E(E)$, where E is the neutron energy. In practical applications, the fluence rate, i.e. the derivative of the fluence with respect to time and its possible dependence on the location, may need to be taken into account. In the context of this compendium, only ratios of fluence weighted quantities are of interest. Therefore it is sufficient to restrict the discussion to normalized fluences and assume that the fluence has spatial uniformity.

The instruments used are described by their neutron fluence response, $R_\Phi(E)$. The reading, M, when exposed to a particular neutron spectrum, is computed as the energy integral over the product of $\phi_E(E)$ and $R_\Phi(E)$. Possible influences due to dead time, fading or background are not discussed here.

The quantity to be determined is a specific dose equivalent, H, which is computed as the energy integral over the product of $\phi_E(E)$ and the fluence to dose equivalent conversion coefficients, $h_\Phi(E)$. The specific dose equivalents of interest are the operational quantities for area monitoring, $H^*(10)$, and personal monitoring, $H_P(10)$, as well as the protection quantity, effective dose, E.

The neutron fluence is also distributed in angle. The fluence response function of an instrument and the dose equivalent quantity considered, apart from $H^*(10)$, which is independent of angle, may depend on the angular distribution of the neutron fluence. For the sake of clarity, however, this compendium is restricted to the consideration of broad parallel beams and few idealized irradiation geometries.

Measured and calculated fluences and fluence responses of instruments are known only within finite uncertainties, whereas conversion coefficients are, by convention, free of uncertainties. In the context of this compendium, however, fluences and fluence responses are also considered to be free of uncertainties as they would depend on the specific situation of an actual experiment. However, if conclusions are to be drawn on the use of a particular instrumentation, it is necessary to make a variance analysis for the specific situation. In view of this, only three digits are given for numerical values in this compendium and only two are considered to be significant.

Measured or computed neutron spectra are in most cases originally obtained as group fluences in energy bins. A standard energy grid is used in this compendium. Any bin is described by its lower boundary, E_i, and its upper boundary, E_{i+1}. Sixty energy bins are used with $E_1 = 1$ meV and $E_{61} = 630$ MeV. The group fluence in the ith energy bin is given by

$$\varphi_i = \int_{E_i}^{E_{i+1}} dE \Phi_E(E) \tag{1.3}$$

However, throughout this compendium it is understood that the values representing neutron spectra, $\phi_E(E)$, in tables and figures are group fluences divided by the lethargy interval (i.e. $\ln E_{i+1} - \ln E_i$) and are normalized.

$$\Phi = \sum_{i=1}^{I} \varphi_i \tag{1.4}$$

where I is selected as 60 and the value of $\phi_E(E)$ is by definition 1/cm^2. This notation is also meant to point out that knowledge of $\phi_E(E)$ within a given bin is not available.

The fluence response function of instruments and the fluence to dose equivalent conversion coefficients are in general a continuous function of neutron energy. The contribution of the fluence in the ith energy bin to the reading of a dosimeter is given by

$$m_i = \int_{E_i}^{E_{i+1}} dE \Phi_E(E) R_\Phi(E) \tag{1.5}$$

and using the mean value theorem one can rewrite Eq. (1.5) as

$$m_i = R_\Phi(E_i') \varphi_i \tag{1.6}$$

where E_i' is an energy out of the ith bin, $[E_i, E_{i+1}]$. However, E_i' cannot be determined without knowledge of $\phi_E(E)$ within the given bin and an approximation must be used:

$$r_i \equiv R_\Phi(E_i') = \frac{1}{E_{i+1} - E_i} \int_{E_i}^{E_{i+1}} dE R_\Phi(E) \tag{1.7}$$

Finally we obtain the values measured from

$$M = \sum_{i=1}^{I} \varphi_i r_i \tag{1.8}$$

The dose equivalent is obtained by

$$H = \sum_{i=1}^{I} \varphi_i h_i \tag{1.9}$$

As mentioned above (Section 1.1), there are spectra which specify fluences for neutrons above 20 MeV. Caution is needed if such spectra are used to average a dose quantity (such as $H_P(10)$) or a detector response for which information for energies above 20 MeV is not available. In tables of spectra it is necessary to refrain from interpolations that are not justified. Therefore missing values have been set to zero. However, in order to discourage misinterpretations, in tables showing spectrum averaged responses, the fraction of the fluence integral for an upper energy of 20 MeV is specified in the first row. These numbers are especially important if, for instance, $H^*(10)$ and $H_P(10)$ are compared for high energy spectra.

The approximation used in Eq. (1.7) may lead to slight deviations. Therefore the values given here may differ slightly from those obtained using a different bin structure, such as the original one. The possible size of these deviations depends on the width of an energy bin and the energy dependence of the fluence response function or the conversion coefficient. In general, these deviations are irrelevant within the scope of this compendium, considering that its main purpose is to study ratios of spectrum averaged quantities. However, as far as the calibration spectra are concerned, it is not acceptable if the values provided differ from the recommended values. Therefore the recommended mean fluence to dose equivalent conversion coefficients are provided (Table 4.IV) for ISO ^{252}Cf, D_2O moderated ^{252}Cf, ^{241}Am–Be and ^{241}Am–B reference fields (Fig. 4.1).

It should be noted that the dimensions and the units of M depend on the physics of the detector. Examples are total counts, count rate, tracks per unit area, or the sum over the content of the channels in a multichannel analyser. However, for the purposes of this compendium it is always possible to relate the response to fluence and use cm^2 as a unit. The unit selected for H is pSv and its dimensions are energy per mass. These conventions imply that M is a dimensionless number and that the units for the conversion coefficient are $pSv \cdot cm^2$.

For the graphical representation, the logarithm of the neutron energy is used as the abscissa. In this case it is appropriate to show the fluence per unit lethargy. Upon substituting ln E for E in Eq. (1.3), one obtains, again using the mean value theorem,

$$\varphi_i = \int_{\ln E_i}^{\ln E_{i+1}} d \ln E \; E\Phi_E(E) = E'_i\Phi_{E'}(E')(\ln E'_{i+1} - \ln E'_i) \tag{1.10}$$

From Eq. (1.10) it is obvious that the appropriate ordinate for the representation of spectra is the group fluence in a bin divided by the difference in the logarithms of neutron energy, i.e. by the lethargy. In order to accommodate the presentation of up to five curves in one figure, a logarithmic ordinate must be used. This implies that equal areas on these graphs do not mean equal fluences, as would be the case if the ordinates were linear.

For the graphical representation of dose quantities and responses, again the logarithm of the neutron energy is used as the abscissa and the values of h_i and r_i, cf. Eq. (1.7), are used as ordinates.

The representation of dose quantities, responses and spectra by histograms is consistent with the data processing as indicated in Eqs (1.7) and (1.9).

Chapter 2

DOSIMETRIC QUANTITIES

TABLE 2.I. DOSIMETRIC QUANTITIES

Dose conversion coefficients	Ref.	Calculated or measured	Identification code	Table
Effective dose, E	[16]	C	HE A-P R60	2.II
Ambient dose equivalent, $H^*(10)$	[16]	C	H AMBIENT	2.III
Personal dose equivalent, $H_P(10,\alpha)$	[16]	C	H PERSONAL	2.III
Effective dose equivalent, H_E	[63]	C	HE A-P R51	2.IV
Maximum dose equivalent, H_i	[64]	C	MADE R21	2.IV

TABLE 2.II. PROTECTION QUANTITIES: EFFECTIVE DOSE

Fluence to dose conversion coefficients (pSv·cm^2)

Column 1: Energy in eV
Column 2: *E*-AP
Column 3: *E*-PA
Column 4: *E*-RLAT
Column 5: *E*-ROT
Column 6: *E*-ISO

1.00E-03	5.24E+00	3.57E+00	1.38E+00	3.03E+00	2.43E+00
2.15E-03	5.63E+00	3.76E+00	1.45E+00	3.19E+00	2.53E+00
4.64E-03	6.11E+00	4.12E+00	1.59E+00	3.49E+00	2.74E+00
1.00E-02	6.55E+00	4.70E+00	1.82E+00	3.99E+00	3.06E+00
2.15E-02	7.60E+00	5.28E+00	2.03E+00	4.52E+00	3.35E+00
4.64E-02	8.87E+00	6.41E+00	2.45E+00	5.47E+00	3.95E+00
1.00E-01	9.95E+00	7.31E+00	2.79E+00	6.19E+00	4.41E+00
2.15E-01	1.13E+01	7.72E+00	2.98E+00	6.43E+00	4.66E+00
4.64E-01	1.29E+01	8.91E+00	3.40E+00	7.35E+00	5.28E+00
1.00E+00	1.39E+01	9.72E+00	3.74E+00	7.95E+00	5.72E+00
2.15E+00	1.42E+01	1.01E+01	3.80E+00	8.27E+00	5.89E+00
4.64E+00	1.47E+01	1.05E+01	4.04E+00	8.63E+00	6.24E+00
1.00E+01	1.49E+01	1.10E+01	4.13E+00	8.82E+00	6.41E+00
2.15E+01	1.49E+01	1.08E+01	4.14E+00	8.69E+00	6.39E+00
4.64E+01	1.45E+01	1.10E+01	4.14E+00	8.72E+00	6.44E+00
1.00E+02	1.45E+01	1.08E+01	4.11E+00	8.60E+00	6.37E+00
2.15E+02	1.43E+01	1.08E+01	4.07E+00	8.52E+00	6.18E+00
4.64E+02	1.42E+01	1.06E+01	4.02E+00	8.39E+00	6.11E+00
1.00E+03	1.43E+01	1.08E+01	4.01E+00	8.38E+00	6.05E+00
2.15E+03	1.48E+01	1.10E+01	4.07E+00	8.62E+00	6.26E+00
4.64E+03	1.67E+01	1.22E+01	4.57E+00	9.66E+00	6.97E+00
1.00E+04	1.89E+01	1.40E+01	5.22E+00	1.10E+01	8.02E+00
1.25E+04	2.05E+01	1.50E+01	5.62E+00	1.19E+01	8.71E+00
1.58E+04	2.25E+01	1.64E+01	6.15E+00	1.30E+01	9.63E+00
1.99E+04	2.50E+01	1.82E+01	6.83E+00	1.45E+01	1.08E+01
2.51E+04	2.80E+01	2.03E+01	7.67E+00	1.63E+01	1.22E+01
3.16E+04	3.17E+01	2.29E+01	8.70E+00	1.85E+01	1.40E+01
3.98E+04	3.60E+01	2.59E+01	9.90E+00	2.12E+01	1.61E+01
5.01E+04	4.12E+01	2.94E+01	1.14E+01	2.43E+01	1.86E+01
6.30E+04	4.75E+01	3.37E+01	1.34E+01	2.79E+01	2.16E+01
7.94E+04	5.52E+01	3.86E+01	1.54E+01	3.23E+01	2.52E+01
1.00E+05	6.48E+01	4.41E+01	1.75E+01	3.74E+01	2.93E+01
1.25E+05	7.67E+01	5.04E+01	2.03E+01	4.36E+01	3.38E+01
1.58E+05	9.09E+01	5.75E+01	2.36E+01	5.07E+01	3.92E+01
1.99E+05	1.07E+02	6.55E+01	2.75E+01	5.90E+01	4.56E+01
2.51E+05	1.27E+02	7.44E+01	3.20E+01	6.86E+01	5.26E+01
3.16E+05	1.49E+02	8.45E+01	3.72E+01	7.98E+01	6.05E+01
3.98E+05	1.74E+02	9.66E+01	4.34E+01	9.25E+01	6.99E+01
5.01E+05	2.02E+02	1.09E+02	5.05E+01	1.07E+02	8.08E+01
6.30E+05	2.32E+02	1.24E+02	5.87E+01	1.23E+02	9.34E+01
7.94E+05	2.65E+02	1.43E+02	6.86E+01	1.43E+02	1.07E+02
1.00E+06	2.99E+02	1.66E+02	8.12E+01	1.65E+02	1.25E+02
1.25E+06	3.36E+02	1.97E+02	9.80E+01	1.91E+02	1.42E+02
1.58E+06	3.70E+02	2.31E+02	1.18E+02	2.19E+02	1.63E+02
1.99E+06	3.96E+02	2.64E+02	1.40E+02	2.48E+02	1.89E+02
2.51E+06	4.25E+02	2.99E+02	1.64E+02	2.75E+02	2.13E+02
3.16E+06	4.48E+02	3.30E+02	1.87E+02	3.02E+02	2.37E+02
3.98E+06	4.66E+02	3.56E+02	2.07E+02	3.25E+02	2.61E+02
5.01E+06	4.80E+02	3.75E+02	2.26E+02	3.43E+02	2.79E+02
6.30E+06	4.90E+02	3.91E+02	2.44E+02	3.58E+02	2.90E+02
7.94E+06	4.96E+02	4.05E+02	2.60E+02	3.72E+02	3.02E+02
1.00E+07	4.98E+02	4.24E+02	2.80E+02	3.86E+02	3.25E+02
1.58E+07	4.80E+02	4.35E+02	3.04E+02	3.94E+02	3.43E+02
2.51E+07	4.57E+02	4.38E+02	3.24E+02	3.93E+02	0.00E+00
3.98E+07	4.36E+02	4.44E+02	3.58E+02	4.04E+02	0.00E+00
6.30E+07	4.28E+02	4.62E+02	4.03E+02	4.25E+02	0.00E+00
1.00E+08	4.32E+02	4.95E+02	4.68E+02	4.65E+02	0.00E+00
1.58E+08	4.62E+02	5.58E+02	5.95E+02	5.50E+02	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

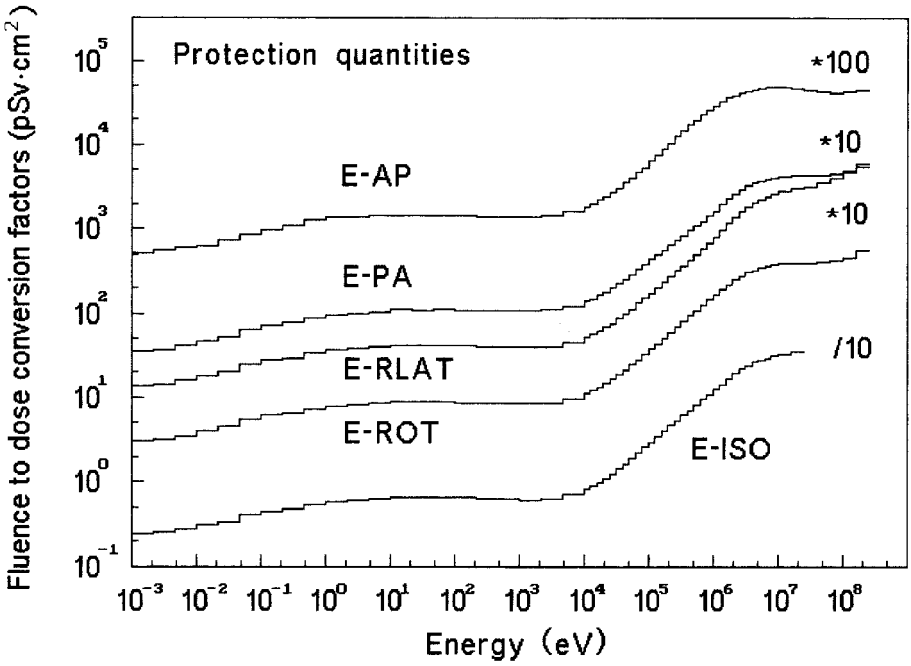

FIG. 2.1. Protection quantities: effective dose.

TABLE 2.III. OPERATIONAL QUANTITIES

Fluence to dose conversion coefficients (pSv·cm^2)

Column 1: Energy in eV
Column 2: $H^*(10)$ (ambient dose equivalent)
Column 3: $H_p(10, 0)$ (personal dose equivalent, 0°)
Column 4: $H_p(10, 45)$ (personal dose equivalent, 45°)
Column 5: $H_p(10, 60)$ (personal dose equivalent, 60°)
Column 6: $H_p(10, 75)$ (personal dose equivalent, 75°)

1.00E-03	6.75E+00	8.30E+00	4.29E+00	2.65E+00	1.15E+00
2.15E-03	7.29E+00	8.69E+00	4.53E+00	2.82E+00	1.23E+00
4.64E-03	8.29E+00	9.43E+00	5.01E+00	3.13E+00	1.39E+00
1.00E-02	9.78E+00	1.06E+01	5.84E+00	3.64E+00	1.61E+00
2.15E-02	1.06E+01	1.15E+01	6.90E+00	4.14E+00	1.71E+00
4.64E-02	1.27E+01	1.29E+01	8.00E+00	4.79E+00	1.98E+00
1.00E-01	1.34E+01	1.31E+01	8.34E+00	4.98E+00	2.03E+00
2.15E-01	1.26E+01	1.39E+01	9.08E+00	5.45E+00	2.22E+00
4.64E-01	1.31E+01	1.39E+01	9.15E+00	5.55E+00	2.30E+00
1.00E+00	1.29E+01	1.41E+01	9.30E+00	5.72E+00	2.38E+00
2.15E+00	1.26E+01	1.38E+01	9.12E+00	5.64E+00	2.42E+00
4.64E+00	1.16E+01	1.34E+01	8.86E+00	5.56E+00	2.44E+00
1.00E+01	1.10E+01	1.28E+01	8.35E+00	5.27E+00	2.37E+00
2.15E+01	1.04E+01	1.18E+01	7.82E+00	4.91E+00	2.24E+00
4.64E+01	9.93E+00	1.09E+01	7.17E+00	4.40E+00	2.08E+00
1.00E+02	9.26E+00	1.01E+01	6.57E+00	3.98E+00	1.91E+00
2.15E+02	8.77E+00	1.03E+01	6.15E+00	4.23E+00	1.80E+00
4.64E+02	8.25E+00	9.30E+00	5.70E+00	3.50E+00	1.70E+00
1.00E+03	7.85E+00	8.57E+00	5.52E+00	3.54E+00	1.72E+00
2.15E+03	7.98E+00	9.47E+00	5.79E+00	3.64E+00	1.71E+00
4.64E+03	8.69E+00	1.00E+01	6.08E+00	3.77E+00	1.70E+00
1.00E+04	1.13E+01	1.17E+01	7.55E+00	4.56E+00	1.79E+00
1.25E+04	1.28E+01	1.33E+01	8.74E+00	5.15E+00	1.87E+00
1.58E+04	1.51E+01	1.55E+01	1.04E+01	6.03E+00	2.00E+00
1.99E+04	1.82E+01	1.88E+01	1.27E+01	7.34E+00	2.25E+00
2.51E+04	2.23E+01	2.34E+01	1.57E+01	9.20E+00	2.69E+00
3.16E+04	2.80E+01	2.93E+01	1.96E+01	1.17E+01	3.35E+00
3.98E+04	3.61E+01	3.50E+01	2.43E+01	1.46E+01	4.16E+00
5.01E+04	4.69E+01	4.41E+01	3.15E+01	1.94E+01	5.62E+00
6.30E+04	6.07E+01	5.98E+01	4.35E+01	2.77E+01	8.24E+00
7.94E+04	7.81E+01	7.96E+01	5.87E+01	3.85E+01	1.17E+01
1.00E+05	9.91E+01	1.03E+02	7.69E+01	5.18E+01	1.61E+01
1.25E+05	1.24E+02	1.31E+02	9.94E+01	6.83E+01	2.22E+01
1.58E+05	1.54E+02	1.62E+02	1.26E+02	8.85E+01	3.04E+01
1.99E+05	1.86E+02	1.97E+02	1.56E+02	1.12E+02	4.10E+01
2.51E+05	2.22E+02	2.35E+02	1.91E+02	1.40E+02	5.44E+01
3.16E+05	2.61E+02	2.74E+02	2.29E+02	1.73E+02	7.09E+01
3.98E+05	3.02E+02	3.15E+02	2.70E+02	2.08E+02	9.08E+01
5.01E+05	3.42E+02	3.54E+02	3.11E+02	2.44E+02	1.14E+02
6.30E+05	3.76E+02	3.87E+02	3.49E+02	2.80E+02	1.40E+02
7.94E+05	3.98E+02	4.13E+02	3.81E+02	3.15E+02	1.70E+02
1.00E+06	4.27E+02	4.29E+02	4.06E+02	3.47E+02	1.94E+02
1.25E+06	4.14E+02	4.39E+02	4.22E+02	3.71E+02	2.48E+02
1.58E+06	3.97E+02	4.41E+02	4.32E+02	3.90E+02	2.89E+02
1.99E+06	4.13E+02	4.38E+02	4.39E+02	4.06E+02	2.82E+02
2.51E+06	4.13E+02	4.33E+02	4.41E+02	4.12E+02	3.02E+02
3.16E+06	4.09E+02	4.25E+02	4.37E+02	4.10E+02	3.14E+02
3.98E+06	4.06E+02	4.20E+02	4.34E+02	4.08E+02	3.25E+02
5.01E+06	4.01E+02	4.21E+02	4.37E+02	4.11E+02	3.39E+02
6.30E+06	4.05E+02	4.32E+02	4.48E+02	4.26E+02	3.62E+02
7.94E+06	4.18E+02	4.59E+02	4.74E+02	4.56E+02	3.97E+02
1.00E+07	4.91E+02	5.27E+02	5.38E+02	5.35E+02	4.76E+02
1.58E+07	5.96E+02	6.00E+02	6.15E+02	6.19E+02	5.70E+02
2.51E+07	4.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	3.99E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	3.20E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	2.59E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	2.59E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

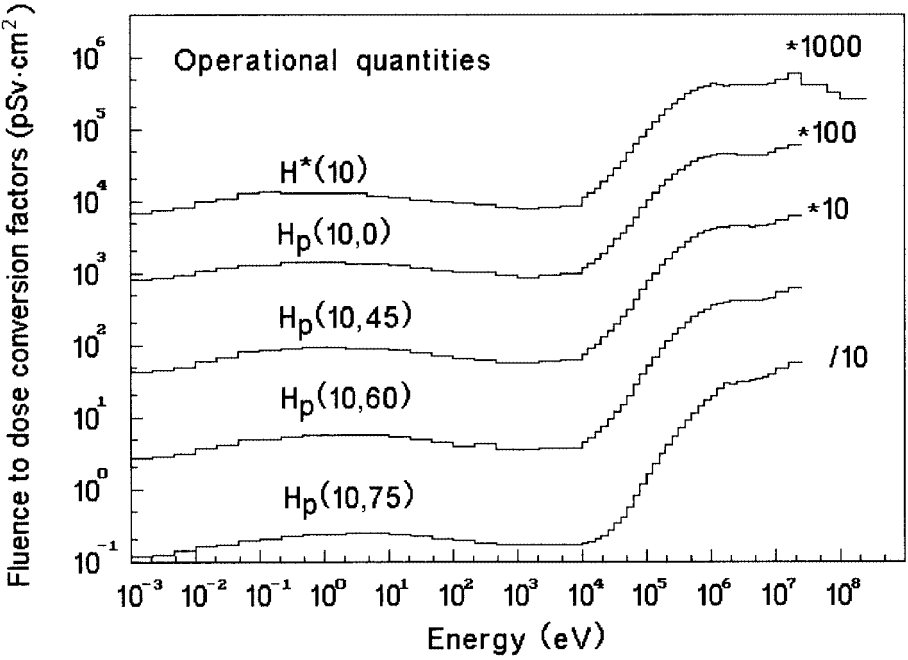

FIG. 2.2. Operational quantities.

TABLE 2.IV. OTHER DOSIMETRIC QUANTITIES

Fluence to dose conversion coefficients (pSv·cm^2)

Column 1: Energy in eV
Column 2: H_E-AP
Column 3: H_E-PA
Column 4: H_E-ROT
Column 5: H_E-LAT
Column 6: MADE (maximum dose equivalent)

1.00E-03	2.46E+00	2.21E+00	2.03E+00	1.06E+00	7.49E+00
2.15E-03	2.89E+00	2.31E+00	2.09E+00	1.12E+00	8.45E+00
4.64E-03	3.34E+00	2.45E+00	2.17E+00	1.18E+00	9.38E+00
1.00E-02	3.75E+00	2.55E+00	2.24E+00	1.25E+00	1.02E+01
2.15E-02	4.08E+00	2.62E+00	2.31E+00	1.31E+00	1.08E+01
4.64E-02	4.31E+00	2.67E+00	2.37E+00	1.37E+00	1.13E+01
1.00E-01	4.50E+00	2.72E+00	2.44E+00	1.41E+00	1.18E+01
2.15E-01	4.67E+00	2.76E+00	2.52E+00	1.43E+00	1.22E+01
4.64E-01	4.79E+00	2.79E+00	2.60E+00	1.43E+00	1.25E+01
1.00E+00	4.79E+00	2.81E+00	2.62E+00	1.41E+00	1.26E+01
2.15E+00	4.68E+00	2.81E+00	2.57E+00	1.38E+00	1.24E+01
4.64E+00	4.53E+00	2.79E+00	2.51E+00	1.34E+00	1.22E+01
1.00E+01	4.40E+00	2.76E+00	2.45E+00	1.31E+00	1.20E+01
2.15E+01	4.29E+00	2.71E+00	2.40E+00	1.29E+00	1.18E+01
4.64E+01	4.19E+00	2.65E+00	2.35E+00	1.28E+00	1.16E+01
1.00E+02	4.06E+00	2.60E+00	2.29E+00	1.25E+00	1.14E+01
2.15E+02	3.92E+00	2.54E+00	2.23E+00	1.22E+00	1.11E+01
4.64E+02	3.84E+00	2.50E+00	2.18E+00	1.19E+00	1.06E+01
1.00E+03	3.76E+00	2.46E+00	2.14E+00	1.17E+00	9.77E+00
2.15E+03	3.77E+00	2.45E+00	2.13E+00	1.16E+00	9.12E+00
4.64E+03	4.13E+00	2.51E+00	2.26E+00	1.21E+00	9.16E+00
1.00E+04	4.68E+00	2.60E+00	2.46E+00	1.29E+00	1.06E+01
1.25E+04	5.05E+00	2.65E+00	2.59E+00	1.34E+00	1.24E+01
1.58E+04	5.55E+00	2.73E+00	2.77E+00	1.41E+00	1.48E+01
1.99E+04	6.24E+00	2.84E+00	3.02E+00	1.50E+00	1.77E+01
2.51E+04	7.18E+00	2.98E+00	3.35E+00	1.63E+00	2.11E+01
3.16E+04	8.39E+00	3.18E+00	3.79E+00	1.79E+00	2.51E+01
3.98E+04	9.97E+00	3.46E+00	4.36E+00	2.00E+00	2.99E+01
5.01E+04	1.19E+01	3.89E+00	5.11E+00	2.30E+00	3.60E+01
6.30E+04	1.45E+01	4.51E+00	6.10E+00	2.70E+00	4.35E+01
7.94E+04	1.78E+01	5.26E+00	7.38E+00	3.24E+00	5.26E+01
1.00E+05	2.20E+01	6.03E+00	9.00E+00	3.95E+00	6.34E+01
1.25E+05	2.75E+01	6.82E+00	1.10E+01	4.89E+00	7.61E+01
1.58E+05	3.44E+01	7.88E+00	1.36E+01	6.15E+00	9.10E+01
1.99E+05	4.29E+01	9.90E+00	1.71E+01	7.85E+00	1.08E+02
2.51E+05	5.31E+01	1.36E+01	2.18E+01	1.01E+01	1.28E+02
3.16E+05	6.51E+01	1.90E+01	2.77E+01	1.30E+01	1.51E+02
3.98E+05	7.93E+01	2.64E+01	3.48E+01	1.66E+01	1.80E+02
5.01E+05	9.53E+01	3.38E+01	4.24E+01	2.05E+01	2.19E+02
6.30E+05	1.13E+02	4.02E+01	5.04E+01	2.46E+01	2.63E+02
7.94E+05	1.32E+02	4.83E+01	6.00E+01	2.99E+01	3.07E+02
1.00E+06	1.53E+02	6.08E+01	7.25E+01	3.76E+01	3.43E+02
1.25E+06	1.76E+02	7.98E+01	8.88E+01	4.86E+01	3.70E+02
1.58E+06	2.01E+02	1.05E+02	1.08E+02	6.31E+01	3.89E+02
1.99E+06	2.27E+02	1.34E+02	1.31E+02	8.04E+01	4.02E+02
2.51E+06	2.56E+02	1.65E+02	1.55E+02	9.95E+01	4.09E+02
3.16E+06	2.85E+02	1.98E+02	1.81E+02	1.20E+02	4.10E+02
3.98E+06	3.13E+02	2.29E+02	2.07E+02	1.40E+02	4.08E+02
5.01E+06	3.39E+02	2.57E+02	2.30E+02	1.61E+02	4.07E+02
6.30E+06	3.66E+02	2.84E+02	2.54E+02	1.82E+02	4.06E+02
7.94E+06	3.93E+02	3.06E+02	2.77E+02	2.04E+02	4.06E+02
1.00E+07	4.56E+02	3.81E+02	3.40E+02	2.59E+02	4.13E+02
1.58E+07	5.49E+02	4.79E+02	3.99E+02	3.00E+02	4.26E+02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

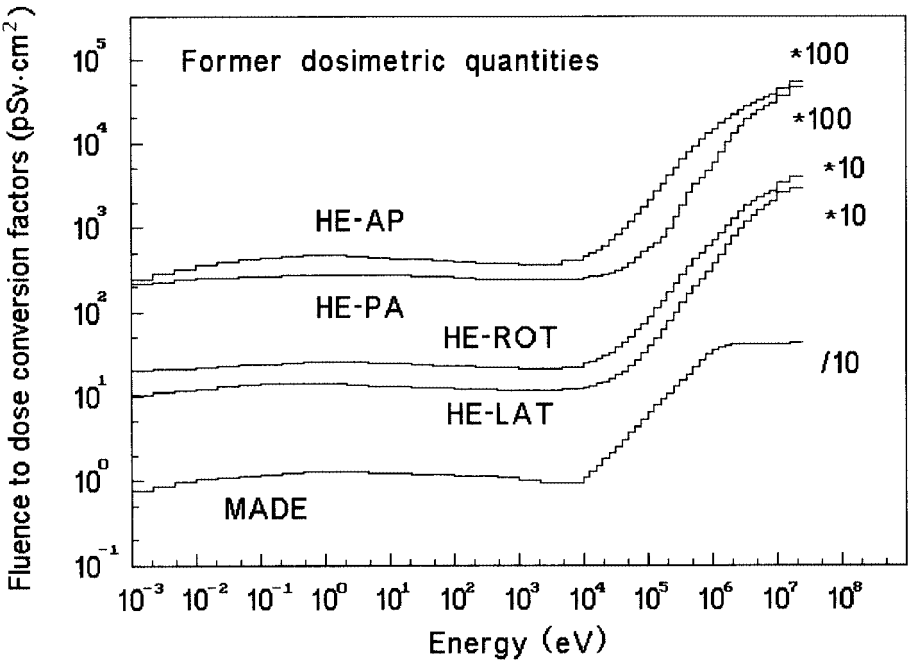

FIG. 2.3. Former dosimetric quantities.

Chapter 3

MULTISPHERE, SURVEY INSTRUMENT AND DOSIMETER RESPONSES

TABLE 3.I. MULTISPHERE SPECTROMETERS

Detector	Sphere diameter (inches)[a]	Ref.	Calculated or measured	Identification code	Table
^{3}He filled	0–4	[65]	C, PTB	BS 3HE*	3.IX
^{3}He filled	4.5–8	[65]	C, PTB	BS 3HE*	3.X
^{3}He filled	9.5–18	[65]	C, PTB	BS 3HE*	3.XI
^{3}He filled	3–8	[66]	C, LANL		3.XII
^{3}He filled	9–18	[66]	C, LANL		3.XIII
^{3}He filled + Pb	9–18	[66]	C, LANL		3.XIV
^{6}LiI	0–6	[67]	C, GSF	BS LiI*	3.XV
^{6}LiI	8–18	[67]	C, GSF	BS LiI*	3.XVI
^{3}He filled		[68]	C		

[a] 1 inch = 2.54 cm.

TABLE 3.II. SURVEY INSTRUMENTS

Instrument	Ref.	Calculated or measured	Identification code	Table
Andersson–Braun-2	[69]	C	A-B_2	3.XVII
Eberline NRD	[69]	C	EBERNRD2	3.XVII
LANL model 930-2	[69]	C	MOD930_2	3.XVII
Studsvik 2202D	[70]	M	STUDSVIK	3.XVII
Berthold LB6411	[71]	C	LB6411	3.XVII
LINUS	[72]	C		
Long counter	[10]	M	LONG C[a]	3.XVIII
Leake remmeter	[10]	M	LEAKE[a]	3.XVIII

[a] Taken from Ref. [10].

TABLE 3.III. THERMAL AND EPITHERMAL NEUTRON DETECTORS

Detector	Ref.	Calculated or measured	Identification code[a]	Table
Bare ^{6}LiF	[10]	C[b]	6Li BARE	3.XVIII
^{6}LiF in Cd	[10]	C[b]	6Li Cd	3.XVIII
Bare Au	[10]	C	GOLD BARE	3.XVIII

[a] Taken from Ref. [10].

[b] Calculated on phantom front.

TABLE 3.IV. TRACK ETCH DETECTORS

Detector	Ref.	Calculated or measured	Identification code	Table
Natural U with PC in Cd	[10]	C[a]	Nat U PC[b]	3.XIX
^{238}U with PC	[10]	C[a]	238 U PC[b]	3.XIX
^{232}Th with PC	[10]	C[a]	232 Th PC[b]	3.XIX
CR39 ECE	[10]	M	CR39 ECE[b]	3.XIX
LR115 with natural $Li_2B_4O_7$	[10]	C[a]	LR115 LiB[b]	3.XIX
Autoscan Ltd system, planar dosimeter	[73]	M	PLANAR	3.XX
Autoscan Ltd system, base of 4 element dosimeter	[73]	M	BASE	3.XX
Autoscan Ltd system, side of 4 element dosimeter	[73]	M	PYRAMIDE	3.XX
CR39 ECE by Lounis	[74]	M		3.XX
Multielement CR39 dosimeter at PTB				
Thermal	[75, 76]	M	PTB TH	3.XXI
Intermediate	[75, 76]	M	PTB INT	3.XXI
Fast	[75, 76]	M	PTB FAST	3.XXI
Combined intermediate and fast	[75, 76]	M	PTB I+F	3.XXI
NRPB dosimeter on cylindrical phantom	[77]	M		3.XXII
NRPB dosimeter on spherical phantom	[77]	M		3.XXII
NRPB dosimeter on rotated cylindrical phantom	[77]	M		3.XXII
NRPB dosimeter on rotated spherical phantom	[77]	M		3.XXII

[a] Calculated on phantom front.

[b] Taken from Ref. [10].

TABLE 3.V. BUBBLE DETECTORS

Detector	Ref.	Calculated or measured	Identification code	Table
SDD-100, unmoderated	[78]	C		3.XXIII
SDD-100, moderated by 1″ PE	[78]	C		3.XXIII
SDD-100, moderated by 1.5″ PE	[78]	C		3.XXIII
SDD-100, moderated by 2″ PE	[78]	C		3.XXIII
SDD-100, unmoderated	[79]	M	BUBBLE	3.XXIV
Smirnova type, free-in-air	[80]	M		3.XXIV
Smirnova type, on phantom	[80]	M		3.XXIV
BD-100R	[81]	M		3.XXIV
BD-100R	[82]	M		

TABLE 3.VI. TL ALBEDO DETECTORS

Detector	Ref.	Calculated or measured	Identification code	Table
On surface of phantom	[83]	C		3.XXV
5 cm from surface of phantom	[83]	C		3.XXV
Anterior–posterior irradiation	[83]	C		3.XXV
Lateral irradiation	[83]	C		3.XXV
Karlsruhe dosimeter	[84]	M		3.XXV
Ratio of ^{6}LiF/^{7}LiF signals	[84]	M		3.XXVI
Combined response of a 4 element dosimeter	[84]	C		3.XXVI
Response of the front element	[84]	M		3.XXVI
Combined response of 3 elements	[84]	M		3.XXVI
Combined response of 4 elements	[84]	M		3.XXVI

TABLE 3.VII. CHAMBER TYPE DETECTORS

Detector	Ref.	Calculated or measured	Identification code	Table
Rossi counter	[85]	M		3.XXVII
KFA counter with 15 mm wall	[85]	M		3.XXVII
KFA counter with 20 mm wall	[85]	M		3.XXVII
TEPC	[86]	C		3.XXVII
CO_2 filled chamber	[87]	M		3.XXVIII
Ar filled chamber	[87]	M		3.XXVIII
Electret, free-in-air	[88]	C		3.XXVIII
Electret, on phantom	[88]	C	ELECTRET	3.XXVIII

TABLE 3.VIII. ELECTRONIC DOSIMETERS

Detector	Ref.	Calculated or measured	Identification code	Table
Simple Si diode	[85]	M	SILICON	3.XXVIII
Si detector with PMMA converter, dead layer 10 µm	[89]	C		3.XXIX
Si detector with PMMA converter, dead layer 50 nm	[89]	C		3.XXIX
Si detector with UFA converter, dead layer 50 µm	[89]	C		3.XXIX
Si detector with 2 mm LiF converter	[89]	C		3.XXIX
Si detector with 50 µm LiF converter	[89]	C		3.XXIX

TABLE 3.IX. CALCULATED BONNER SPHERE RESPONSES, ^{3}He, PTB 1

Column 1: Energy in eV
Column 2: Bonner sphere bare, calculated PTB
Column 3: Bonner sphere 2.5″, calculated PTB
Column 4: Bonner sphere 3″, calculated PTB
Column 5: Bonner sphere 3.5″, calculated PTB
Column 6: Bonner sphere 4″, calculated PTB

1.00E-03	6.11E+00	7.36E-01	5.98E-01	5.01E-01	4.15E-01
2.15E-03	5.60E+00	8.08E-01	6.57E-01	5.50E-01	4.55E-01
4.64E-03	4.80E+00	9.34E-01	7.58E-01	6.34E-01	5.24E-01
1.00E-02	3.89E+00	1.12E+00	9.00E-01	7.50E-01	6.18E-01
2.15E-02	3.03E+00	1.36E+00	1.08E+00	9.18E-01	7.61E-01
4.64E-02	2.27E+00	1.72E+00	1.42E+00	1.22E+00	1.01E+00
1.00E-01	1.64E+00	2.11E+00	1.89E+00	1.62E+00	1.36E+00
2.15E-01	1.17E+00	2.38E+00	2.27E+00	2.00E+00	1.72E+00
4.64E-01	8.20E-01	2.47E+00	2.51E+00	2.31E+00	2.04E+00
1.00E+00	5.72E-01	2.46E+00	2.65E+00	2.52E+00	2.27E+00
2.15E+00	3.94E-01	2.37E+00	2.69E+00	2.66E+00	2.45E+00
4.64E+00	2.73E-01	2.24E+00	2.67E+00	2.75E+00	2.58E+00
1.00E+01	1.90E-01	2.04E+00	2.58E+00	2.75E+00	2.64E+00
2.15E+01	1.28E-01	1.85E+00	2.45E+00	2.71E+00	2.67E+00
4.64E+01	8.88E-02	1.65E+00	2.29E+00	2.63E+00	2.66E+00
1.00E+02	6.02E-02	1.47E+00	2.14E+00	2.53E+00	2.63E+00
2.15E+02	4.05E-02	1.30E+00	1.98E+00	2.41E+00	2.58E+00
4.64E+02	2.79E-02	1.14E+00	1.83E+00	2.30E+00	2.51E+00
1.00E+03	1.91E-02	1.01E+00	1.67E+00	2.18E+00	2.43E+00
2.15E+03	1.27E-02	8.83E-01	1.53E+00	2.04E+00	2.35E+00
4.64E+03	9.01E-03	7.64E-01	1.39E+00	1.92E+00	2.26E+00
1.00E+04	6.86E-03	6.98E-01	1.31E+00	1.84E+00	2.21E+00
1.25E+04	6.24E-03	6.69E-01	1.27E+00	1.81E+00	2.18E+00
1.58E+04	5.62E-03	6.39E-01	1.23E+00	1.78E+00	2.15E+00
1.99E+04	4.99E-03	6.09E-01	1.20E+00	1.74E+00	2.13E+00
2.51E+04	4.37E-03	5.81E-01	1.16E+00	1.71E+00	2.10E+00
3.16E+04	3.83E-03	5.54E-01	1.13E+00	1.67E+00	2.08E+00
3.98E+04	3.36E-03	5.26E-01	1.09E+00	1.64E+00	2.06E+00
5.01E+04	2.90E-03	4.99E-01	1.05E+00	1.61E+00	2.04E+00
6.30E+04	2.43E-03	4.71E-01	1.02E+00	1.57E+00	2.02E+00
7.94E+04	1.97E-03	4.41E-01	9.77E-01	1.53E+00	1.99E+00
1.00E+05	1.64E-03	4.09E-01	9.33E-01	1.49E+00	1.95E+00
1.25E+05	1.47E-03	3.77E-01	8.87E-01	1.44E+00	1.92E+00
1.58E+05	1.31E-03	3.45E-01	8.35E-01	1.38E+00	1.88E+00
1.99E+05	1.15E-03	3.13E-01	7.78E-01	1.32E+00	1.83E+00
2.51E+05	9.96E-04	2.81E-01	7.19E-01	1.25E+00	1.77E+00
3.16E+05	8.95E-04	2.49E-01	6.57E-01	1.17E+00	1.70E+00
3.98E+05	8.61E-04	2.17E-01	5.94E-01	1.09E+00	1.61E+00
5.01E+05	8.28E-04	1.87E-01	5.27E-01	9.97E-01	1.51E+00
6.30E+05	7.94E-04	1.59E-01	4.61E-01	8.96E-01	1.38E+00
7.94E+05	7.60E-04	1.34E-01	3.96E-01	7.96E-01	1.26E+00
1.00E+06	7.22E-04	1.11E-01	3.39E-01	6.97E-01	1.13E+00
1.25E+06	6.79E-04	9.38E-02	2.90E-01	6.02E-01	1.00E+00
1.58E+06	6.37E-04	7.58E-02	2.42E-01	5.13E-01	8.67E-01
1.99E+06	5.94E-04	5.80E-02	1.94E-01	4.24E-01	7.33E-01
2.51E+06	5.51E-04	4.42E-02	1.54E-01	3.47E-01	6.13E-01
3.16E+06	4.94E-04	3.52E-02	1.24E-01	2.85E-01	5.10E-01
3.98E+06	4.19E-04	2.63E-02	9.54E-02	2.24E-01	4.08E-01
5.01E+06	3.44E-04	1.95E-02	7.21E-02	1.77E-01	3.30E-01
6.30E+06	2.70E-04	1.52E-02	5.66E-02	1.49E-01	2.80E-01
7.94E+06	1.97E-04	1.10E-02	4.15E-02	1.21E-01	2.30E-01
1.00E+07	1.39E-04	7.43E-03	2.81E-02	7.95E-02	1.55E-01
1.58E+07	1.00E-04	4.65E-03	1.77E-02	4.26E-02	8.39E-02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

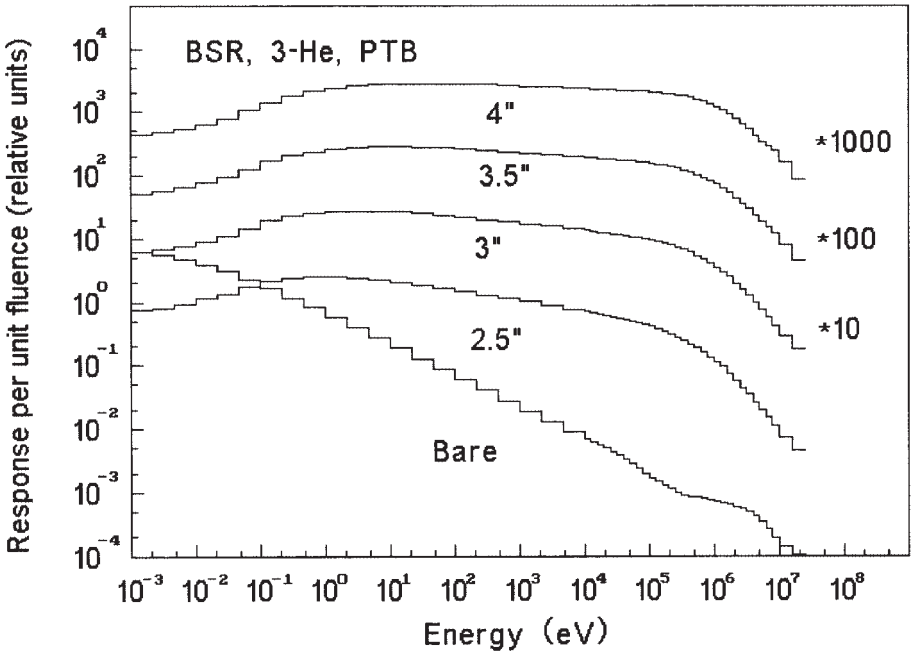

FIG. 3.1. Calculated Bonner sphere responses, ^{3}He, PTB 1.

TABLE 3.X. CALCULATED BONNER SPHERE RESPONSES, ^{3}He, PTB 2

Column 1: Energy in eV
Column 2: Bonner sphere 4.5″, calculated PTB
Column 3: Bonner sphere 5″, calculated PTB
Column 4: Bonner sphere 6″, calculated PTB
Column 5: Bonner sphere 7″, calculated PTB
Column 6: Bonner sphere 8″, calculated PTB

1.00E-03	3.43E-01	2.80E-01	1.85E-01	1.18E-01	7.19E-02
2.15E-03	3.75E-01	3.07E-01	2.05E-01	1.30E-01	8.04E-02
4.64E-03	4.31E-01	3.53E-01	2.34E-01	1.52E-01	9.38E-02
1.00E-02	5.11E-01	4.23E-01	2.79E-01	1.79E-01	1.13E-01
2.15E-02	6.31E-01	5.13E-01	3.42E-01	2.13E-01	1.40E-01
4.64E-02	8.34E-01	6.91E-01	4.57E-01	2.91E-01	1.84E-01
1.00E-01	1.12E+00	9.32E-01	6.16E-01	3.95E-01	2.52E-01
2.15E-01	1.43E+00	1.18E+00	7.74E-01	5.07E-01	3.21E-01
4.64E-01	1.72E+00	1.41E+00	9.38E-01	6.09E-01	3.84E-01
1.00E+00	1.95E+00	1.62E+00	1.08E+00	7.04E-01	4.42E-01
2.15E+00	2.13E+00	1.81E+00	1.22E+00	7.92E-01	5.04E-01
4.64E+00	2.29E+00	1.95E+00	1.34E+00	8.66E-01	5.58E-01
1.00E+01	2.39E+00	2.07E+00	1.44E+00	9.43E-01	6.06E-01
2.15E+01	2.46E+00	2.18E+00	1.52E+00	1.02E+00	6.49E-01
4.64E+01	2.50E+00	2.24E+00	1.61E+00	1.08E+00	6.77E-01
1.00E+02	2.51E+00	2.29E+00	1.69E+00	1.14E+00	7.23E-01
2.15E+02	2.52E+00	2.32E+00	1.74E+00	1.20E+00	7.85E-01
4.64E+02	2.52E+00	2.34E+00	1.80E+00	1.25E+00	8.28E-01
1.00E+03	2.47E+00	2.36E+00	1.87E+00	1.31E+00	8.73E-01
2.15E+03	2.44E+00	2.36E+00	1.90E+00	1.37E+00	9.13E-01
4.64E+03	2.39E+00	2.33E+00	1.92E+00	1.42E+00	9.47E-01
1.00E+04	2.36E+00	2.33E+00	1.96E+00	1.46E+00	9.90E-01
1.25E+04	2.35E+00	2.33E+00	1.98E+00	1.48E+00	1.01E+00
1.58E+04	2.34E+00	2.33E+00	2.00E+00	1.50E+00	1.04E+00
1.99E+04	2.33E+00	2.34E+00	2.02E+00	1.53E+00	1.06E+00
2.51E+04	2.32E+00	2.34E+00	2.05E+00	1.55E+00	1.08E+00
3.16E+04	2.31E+00	2.35E+00	2.08E+00	1.58E+00	1.12E+00
3.98E+04	2.31E+00	2.37E+00	2.12E+00	1.62E+00	1.16E+00
5.01E+04	2.30E+00	2.38E+00	2.16E+00	1.67E+00	1.21E+00
6.30E+04	2.29E+00	2.39E+00	2.20E+00	1.73E+00	1.25E+00
7.94E+04	2.28E+00	2.41E+00	2.25E+00	1.80E+00	1.32E+00
1.00E+05	2.27E+00	2.43E+00	2.31E+00	1.87E+00	1.38E+00
1.25E+05	2.26E+00	2.44E+00	2.37E+00	1.95E+00	1.46E+00
1.58E+05	2.24E+00	2.46E+00	2.43E+00	2.05E+00	1.56E+00
1.99E+05	2.22E+00	2.47E+00	2.50E+00	2.15E+00	1.68E+00
2.51E+05	2.19E+00	2.47E+00	2.57E+00	2.27E+00	1.80E+00
3.16E+05	2.13E+00	2.44E+00	2.62E+00	2.41E+00	1.95E+00
3.98E+05	2.07E+00	2.40E+00	2.66E+00	2.52E+00	2.08E+00
5.01E+05	1.97E+00	2.33E+00	2.68E+00	2.59E+00	2.22E+00
6.30E+05	1.86E+00	2.23E+00	2.67E+00	2.65E+00	2.35E+00
7.94E+05	1.73E+00	2.10E+00	2.61E+00	2.70E+00	2.47E+00
1.00E+06	1.59E+00	1.98E+00	2.53E+00	2.71E+00	2.57E+00
1.25E+06	1.42E+00	1.82E+00	2.42E+00	2.67E+00	2.65E+00
1.58E+06	1.25E+00	1.63E+00	2.25E+00	2.58E+00	2.64E+00
1.99E+06	1.08E+00	1.45E+00	2.06E+00	2.44E+00	2.54E+00
2.51E+06	9.20E-01	1.26E+00	1.82E+00	2.25E+00	2.38E+00
3.16E+06	7.60E-01	1.07E+00	1.57E+00	2.02E+00	2.16E+00
3.98E+06	6.27E-01	8.88E-01	1.36E+00	1.78E+00	2.01E+00
5.01E+06	5.14E-01	7.36E-01	1.16E+00	1.55E+00	1.87E+00
6.30E+06	4.09E-01	6.29E-01	9.63E-01	1.31E+00	1.62E+00
7.94E+06	3.03E-01	5.22E-01	7.98E-01	1.07E+00	1.31E+00
1.00E+07	2.25E-01	3.61E-01	5.95E-01	8.07E-01	1.02E+00
1.58E+07	1.40E-01	2.04E-01	3.53E-01	5.25E-01	6.80E-01
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

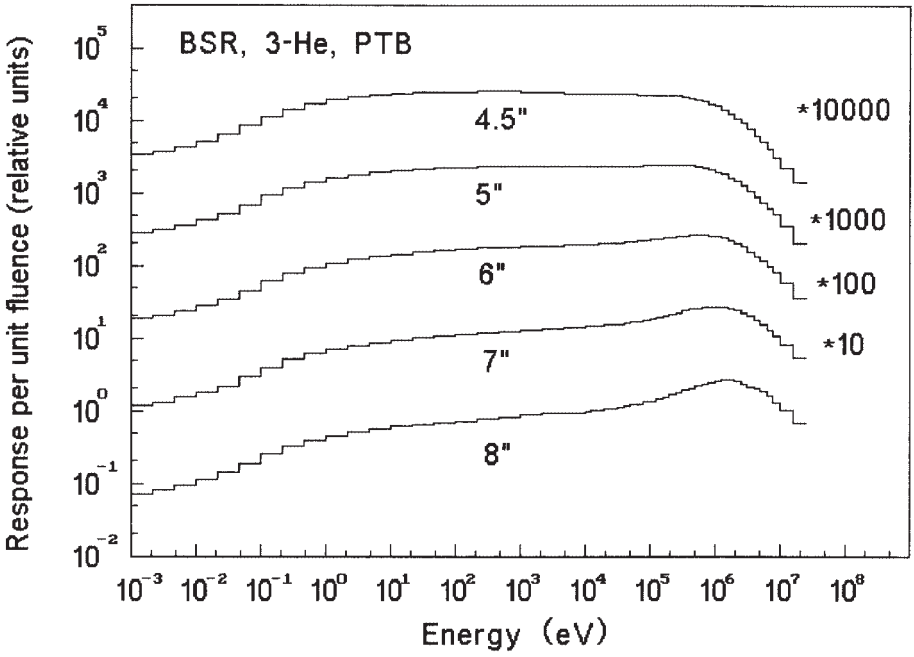

FIG. 3.2. Calculated Bonner sphere responses, ^{3}He, PTB 2.

TABLE 3.XI. CALCULATED BONNER SPHERE RESPONSES, ^{3}He, PTB 3

Column 1: Energy in eV
Column 2: Bonner sphere 9.5″, calculated PTB
Column 3: Bonner sphere 10″, calculated PTB
Column 4: Bonner sphere 12″, calculated PTB
Column 5: Bonner sphere 15″, calculated PTB
Column 6: Bonner sphere 18″, calculated PTB

1.00E-03	3.63E-02	2.72E-02	1.05E-02	1.65E-03	4.83E-04
2.15E-03	4.04E-02	3.05E-02	1.11E-02	2.14E-03	4.94E-04
4.64E-03	4.84E-02	3.71E-02	1.29E-02	2.62E-03	5.05E-04
1.00E-02	5.66E-02	4.49E-02	1.55E-02	3.40E-03	6.48E-04
2.15E-02	6.52E-02	5.41E-02	1.94E-02	4.49E-03	9.25E-04
4.64E-02	8.84E-02	6.96E-02	2.79E-02	5.06E-03	1.11E-03
1.00E-01	1.21E-01	9.36E-02	3.72E-02	6.08E-03	1.21E-03
2.15E-01	1.55E-01	1.26E-01	4.61E-02	8.28E-03	1.33E-03
4.64E-01	1.90E-01	1.48E-01	5.23E-02	1.04E-02	1.45E-03
1.00E+00	2.19E-01	1.70E-01	5.95E-02	1.26E-02	1.63E-03
2.15E+00	2.43E-01	1.92E-01	7.00E-02	1.46E-02	1.87E-03
4.64E+00	2.75E-01	2.18E-01	7.80E-02	1.60E-02	2.12E-03
1.00E+01	2.99E-01	2.33E-01	8.42E-02	1.70E-02	3.00E-03
2.15E+01	3.16E-01	2.37E-01	8.85E-02	1.80E-02	4.46E-03
4.64E+01	3.39E-01	2.65E-01	9.14E-02	2.01E-02	4.11E-03
1.00E+02	3.64E-01	2.89E-01	1.01E-01	2.21E-02	3.78E-03
2.15E+02	3.90E-01	3.08E-01	1.17E-01	2.39E-02	3.54E-03
4.64E+02	4.13E-01	3.26E-01	1.20E-01	2.40E-02	3.66E-03
1.00E+03	4.36E-01	3.46E-01	1.28E-01	2.27E-02	4.27E-03
2.15E+03	4.68E-01	3.70E-01	1.34E-01	2.46E-02	4.84E-03
4.64E+03	5.00E-01	3.83E-01	1.43E-01	2.65E-02	5.42E-03
1.00E+04	5.23E-01	4.06E-01	1.46E-01	2.94E-02	6.01E-03
1.25E+04	5.34E-01	4.22E-01	1.54E-01	3.12E-02	6.35E-03
1.58E+04	5.45E-01	4.38E-01	1.62E-01	3.30E-02	6.69E-03
1.99E+04	5.56E-01	4.53E-01	1.66E-01	3.48E-02	7.03E-03
2.51E+04	5.70E-01	4.69E-01	1.65E-01	3.63E-02	7.31E-03
3.16E+04	5.91E-01	4.83E-01	1.67E-01	3.72E-02	7.49E-03
3.98E+04	6.15E-01	4.97E-01	1.73E-01	3.78E-02	7.62E-03
5.01E+04	6.37E-01	5.10E-01	1.87E-01	3.84E-02	7.76E-03
6.30E+04	6.64E-01	5.29E-01	2.06E-01	4.01E-02	7.97E-03
7.94E+04	7.03E-01	5.61E-01	2.26E-01	4.48E-02	8.39E-03
1.00E+05	7.52E-01	6.09E-01	2.40E-01	5.09E-02	9.16E-03
1.25E+05	8.14E-01	6.70E-01	2.54E-01	5.71E-02	1.03E-02
1.58E+05	8.93E-01	7.43E-01	2.84E-01	6.37E-02	1.20E-02
1.99E+05	9.84E-01	8.24E-01	3.25E-01	7.14E-02	1.42E-02
2.51E+05	1.08E+00	9.19E-01	3.79E-01	8.52E-02	1.83E-02
3.16E+05	1.21E+00	1.03E+00	4.50E-01	1.06E-01	2.47E-02
3.98E+05	1.35E+00	1.14E+00	5.37E-01	1.32E-01	3.10E-02
5.01E+05	1.52E+00	1.29E+00	6.52E-01	1.73E-01	4.07E-02
6.30E+05	1.69E+00	1.46E+00	7.77E-01	2.28E-01	5.80E-02
7.94E+05	1.88E+00	1.66E+00	9.34E-01	3.12E-01	8.93E-02
1.00E+06	2.06E+00	1.85E+00	1.12E+00	4.31E-01	1.39E-01
1.25E+06	2.22E+00	2.02E+00	1.32E+00	5.70E-01	2.08E-01
1.58E+06	2.35E+00	2.19E+00	1.51E+00	7.23E-01	3.07E-01
1.99E+06	2.41E+00	2.30E+00	1.68E+00	8.93E-01	4.30E-01
2.51E+06	2.36E+00	2.29E+00	1.77E+00	1.03E+00	5.79E-01
3.16E+06	2.22E+00	2.18E+00	1.77E+00	1.11E+00	7.51E-01
3.98E+06	2.13E+00	2.10E+00	1.88E+00	1.31E+00	9.22E-01
5.01E+06	2.03E+00	2.03E+00	1.98E+00	1.55E+00	1.10E+00
6.30E+06	1.80E+00	1.82E+00	1.89E+00	1.59E+00	1.22E+00
7.94E+06	1.56E+00	1.60E+00	1.68E+00	1.52E+00	1.25E+00
1.00E+07	1.24E+00	1.31E+00	1.43E+00	1.40E+00	1.22E+00
1.58E+07	8.69E-01	9.15E-01	1.05E+00	1.09E+00	1.08E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

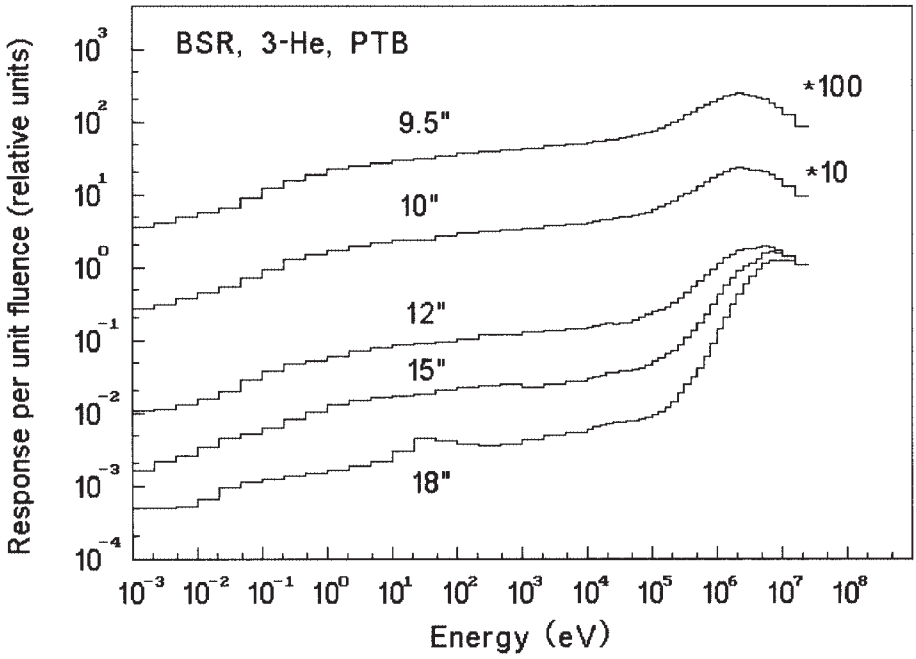

FIG. 3.3. Calculated Bonner sphere responses, ^{3}He, PTB 3.

TABLE 3.XII. BONNER SPHERE RESPONSES, ^{3}He, LANL 1

Column 1: Energy in eV
Column 2: Bonner sphere 3″, LANL
Column 3: Bonner sphere 4″, LANL
Column 4: Bonner sphere 5″, LANL
Column 5: Bonner sphere 6″, LANL
Column 6: Bonner sphere 8″, LANL

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	8.71E-01	5.67E-01	3.85E-01	2.62E-01	1.02E-01
4.64E-03	8.82E-01	5.77E-01	3.91E-01	2.63E-01	1.04E-01
1.00E-02	9.38E-01	6.18E-01	4.19E-01	2.76E-01	1.12E-01
2.15E-02	1.16E+00	7.70E-01	5.25E-01	3.37E-01	1.39E-01
4.64E-02	1.55E+00	1.05E+00	7.25E-01	4.58E-01	1.90E-01
1.00E-01	1.87E+00	1.31E+00	9.14E-01	5.74E-01	2.39E-01
2.15E-01	2.08E+00	1.52E+00	1.08E+00	6.77E-01	2.85E-01
4.64E-01	2.26E+00	1.76E+00	1.26E+00	7.98E-01	3.42E-01
1.00E+00	2.62E+00	2.15E+00	1.55E+00	1.00E+00	4.33E-01
2.15E+00	2.98E+00	2.54E+00	1.86E+00	1.24E+00	5.26E-01
4.64E+00	3.14E+00	2.76E+00	2.09E+00	1.43E+00	5.88E-01
1.00E+01	3.03E+00	2.76E+00	2.17E+00	1.55E+00	6.10E-01
2.15E+01	2.82E+00	2.71E+00	2.24E+00	1.65E+00	6.28E-01
4.64E+01	2.67E+00	2.79E+00	2.35E+00	1.73E+00	6.75E-01
1.00E+02	2.59E+00	2.97E+00	2.46E+00	1.78E+00	7.40E-01
2.15E+02	2.45E+00	3.05E+00	2.45E+00	1.79E+00	7.74E-01
4.64E+02	2.17E+00	2.89E+00	2.40E+00	1.83E+00	7.45E-01
1.00E+03	1.82E+00	2.66E+00	2.40E+00	1.89E+00	7.20E-01
2.15E+03	1.60E+00	2.53E+00	2.50E+00	1.97E+00	7.87E-01
4.64E+03	1.42E+00	2.44E+00	2.46E+00	2.01E+00	1.03E+00
1.00E+04	1.25E+00	2.22E+00	2.30E+00	1.97E+00	1.30E+00
1.26E+04	1.16E+00	2.08E+00	2.21E+00	1.90E+00	1.45E+00
1.58E+04	1.12E+00	1.97E+00	2.18E+00	1.84E+00	1.58E+00
2.00E+04	1.15E+00	1.97E+00	2.27E+00	1.89E+00	1.67E+00
2.51E+04	1.21E+00	2.08E+00	2.49E+00	2.07E+00	1.68E+00
3.16E+04	1.27E+00	2.24E+00	2.72E+00	2.31E+00	1.61E+00
3.98E+04	1.31E+00	2.41E+00	2.92E+00	2.54E+00	1.53E+00
5.01E+04	1.31E+00	2.50E+00	2.97E+00	2.71E+00	1.49E+00
6.31E+04	1.26E+00	2.47E+00	2.89E+00	2.81E+00	1.49E+00
7.94E+04	1.13E+00	2.30E+00	2.67E+00	2.85E+00	1.49E+00
1.00E+05	9.54E-01	2.05E+00	2.38E+00	2.86E+00	1.48E+00
1.26E+05	8.03E-01	1.83E+00	2.17E+00	2.87E+00	1.47E+00
1.58E+05	7.36E-01	1.75E+00	2.17E+00	2.92E+00	1.54E+00
2.00E+05	7.33E-01	1.80E+00	2.40E+00	3.03E+00	1.69E+00
2.51E+05	7.52E-01	1.94E+00	2.69E+00	3.22E+00	1.95E+00
3.16E+05	7.48E-01	2.07E+00	2.91E+00	3.43E+00	2.27E+00
3.98E+05	7.20E-01	2.14E+00	2.98E+00	3.60E+00	2.61E+00
5.01E+05	6.66E-01	2.11E+00	2.90E+00	3.65E+00	2.87E+00
6.31E+05	5.87E-01	1.98E+00	2.72E+00	3.51E+00	2.99E+00
7.94E+05	4.81E-01	1.75E+00	2.46E+00	3.15E+00	2.91E+00
1.00E+06	3.68E-01	1.48E+00	2.13E+00	2.63E+00	2.68E+00
1.26E+06	2.76E-01	1.19E+00	1.75E+00	2.16E+00	2.41E+00
1.58E+06	2.25E-01	9.39E-01	1.39E+00	1.92E+00	2.27E+00
2.00E+06	1.95E-01	7.36E-01	1.14E+00	1.96E+00	2.35E+00
2.51E+06	1.64E-01	6.01E-01	1.00E+00	2.07E+00	2.59E+00
3.16E+06	1.29E-01	5.15E-01	9.57E-01	2.08E+00	2.81E+00
3.98E+06	1.08E-01	4.63E-01	9.37E-01	1.92E+00	2.78E+00
5.01E+06	1.07E-01	4.14E-01	8.81E-01	1.64E+00	2.45E+00
6.31E+06	1.07E-01	3.62E-01	7.82E-01	1.33E+00	1.98E+00
7.94E+06	9.62E-02	3.06E-01	6.56E-01	1.08E+00	1.59E+00
1.00E+07	6.80E-02	2.35E-01	5.01E-01	8.31E-01	1.26E+00
1.58E+07	3.68E-02	1.57E-01	3.38E-01	5.95E-01	9.96E-01
2.51E+07	2.03E-02	1.02E-01	2.23E-01	4.29E-01	7.87E-01
3.98E+07	1.33E-02	6.84E-02	1.52E-01	2.14E-01	6.05E-01
6.31E+07	9.99E-03	3.91E-02	1.08E-01	1.88E-01	3.29E-01
1.00E+08	8.34E-03	3.32E-02	9.75E-02	1.52E-01	2.65E-01
1.58E+08	7.14E-03	3.17E-02	9.33E-02	1.44E-01	2.32E-01
2.51E+08	6.79E-03	2.89E-02	8.26E-02	1.34E-01	2.44E-01
3.98E+08	5.60E-03	2.37E-02	5.35E-02	1.20E-01	2.56E-01
6.31E+08					

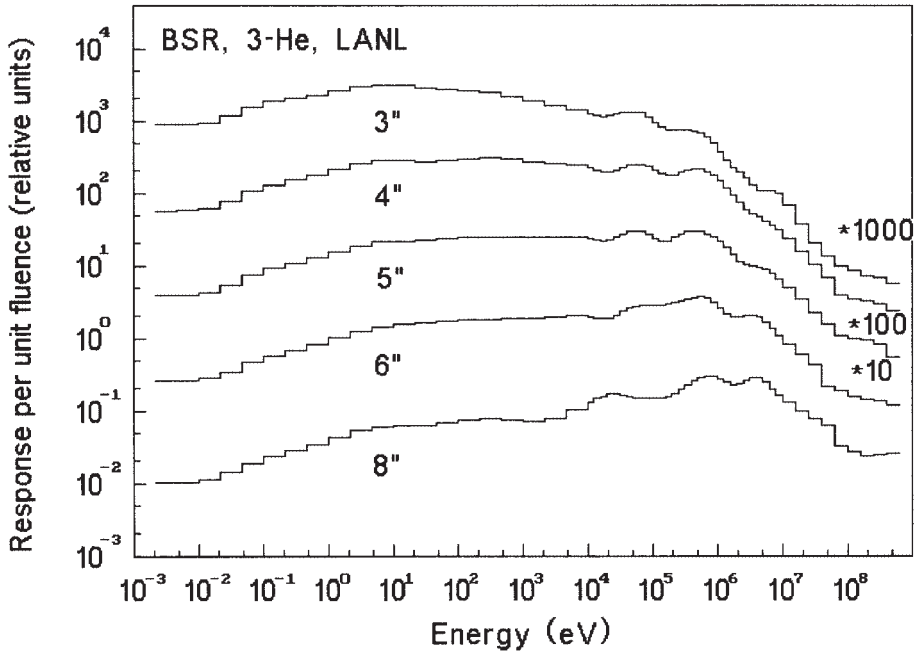

FIG. 3.4. Bonner sphere responses, ^{3}He, *LANL 1.*

TABLE 3.XIII. BONNER SPHERE RESPONSES, ^{3}He, LANL 2

Column 1: Energy in eV
Column 2: Bonner sphere 9″, LANL
Column 3: Bonner sphere 12″, LANL
Column 4: Bonner sphere 18″, LANL

1.00E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	7.20E-02	1.58E-02	0.00E+00
4.64E-03	7.19E-02	1.59E-02	0.00E+00
1.00E-02	7.45E-02	1.67E-02	0.00E+00
2.15E-02	8.91E-02	2.06E-02	0.00E+00
4.64E-02	1.18E-01	2.87E-02	0.00E+00
1.00E-01	1.43E-01	3.75E-02	0.00E+00
2.15E-01	1.66E-01	4.64E-02	0.00E+00
4.64E-01	1.96E-01	5.64E-02	0.00E+00
1.00E+00	2.55E-01	7.07E-02	0.00E+00
2.15E+00	3.24E-01	8.59E-02	0.00E+00
4.64E+00	3.86E-01	9.90E-02	0.00E+00
1.00E+01	4.23E-01	1.08E-01	0.00E+00
2.15E+01	4.46E-01	1.14E-01	0.00E+00
4.64E+01	4.59E-01	1.19E-01	0.00E+00
1.00E+02	4.80E-01	1.27E-01	0.00E+00
2.15E+02	5.01E-01	1.34E-01	0.00E+00
4.64E+02	5.21E-01	1.37E-01	0.00E+00
1.00E+03	5.25E-01	1.36E-01	0.00E+00
2.15E+03	5.53E-01	1.46E-01	0.00E+00
4.64E+03	6.30E-01	1.69E-01	0.00E+00
1.00E+04	6.97E-01	1.81E-01	0.00E+00
1.26E+04	6.89E-01	1.78E-01	0.00E+00
1.58E+04	6.47E-01	1.72E-01	0.00E+00
2.00E+04	6.14E-01	1.73E-01	0.00E+00
2.51E+04	6.52E-01	1.89E-01	0.00E+00
3.16E+04	7.49E-01	2.15E-01	0.00E+00
3.98E+04	8.77E-01	2.43E-01	0.00E+00
5.01E+04	9.74E-01	2.62E-01	5.63E-03
6.31E+04	1.03E+00	2.75E-01	6.95E-03
7.94E+04	1.05E+00	2.89E-01	8.57E-03
1.00E+05	1.05E+00	3.10E-01	1.07E-02
1.26E+05	1.07E+00	3.38E-01	1.32E-02
1.58E+05	1.13E+00	3.77E-01	1.61E-02
2.00E+05	1.25E+00	4.31E-01	1.92E-02
2.51E+05	1.46E+00	5.09E-01	2.33E-02
3.16E+05	1.70E+00	6.15E-01	2.91E-02
3.98E+05	1.96E+00	7.50E-01	3.88E-02
5.01E+05	2.19E+00	9.05E-01	5.53E-02
6.31E+05	2.37E+00	1.08E+00	8.41E-02
7.94E+05	2.49E+00	1.26E+00	1.32E-01
1.00E+06	2.58E+00	1.45E+00	2.09E-01
1.26E+06	2.64E+00	1.65E+00	3.26E-01
1.58E+06	2.75E+00	1.88E+00	4.81E-01
2.00E+06	2.90E+00	2.13E+00	6.62E-01
2.51E+06	3.09E+00	2.40E+00	8.40E-01
3.16E+06	3.17E+00	2.64E+00	9.93E-01
3.98E+06	3.08E+00	2.77E+00	1.12E+00
5.01E+06	2.77E+00	2.74E+00	1.22E+00
6.31E+06	2.37E+00	2.52E+00	1.28E+00
7.94E+06	1.95E+00	2.18E+00	1.26E+00
1.00E+07	1.46E+00	1.64E+00	1.10E+00
1.58E+07	9.22E-01	1.07E+00	8.47E-01
2.51E+07	5.82E-01	7.59E-01	7.00E-01
3.98E+07	4.05E-01	6.70E-01	7.28E-01
6.31E+07	3.79E-01	6.45E-01	7.35E-01
1.00E+08	3.83E-01	6.36E-01	7.71E-01
1.58E+08	3.86E-01	6.54E-01	5.67E-01
2.51E+08	2.81E-01	7.43E-01	5.53E-01
3.98E+08	3.49E-01	8.66E-01	6.99E-01
6.31E+08			

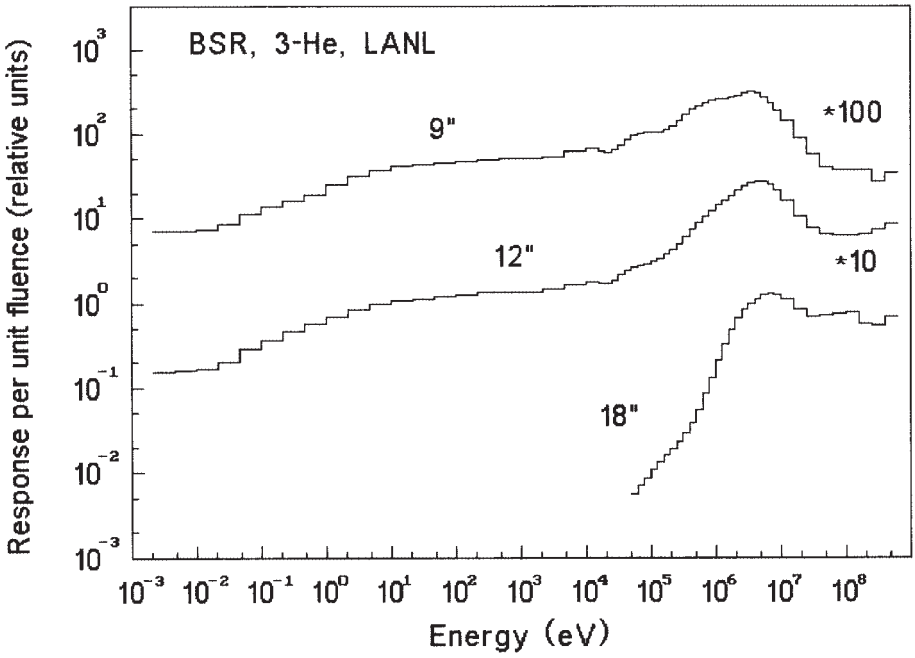

FIG. 3.5. Bonner sphere responses, ^{3}He, LANL 2.

TABLE 3.XIV. BONNER SPHERE RESPONSES, ^{3}He, LANL 3

Column 1: Energy in eV
Column 2: Bonner sphere 9″ + Pb, LANL
Column 3: Bonner sphere 12″ + Pb, LANL
Column 4: Bonner sphere 18″ + Pb, LANL

1.00E-03	9.55E-02	0.00E+00	0.00E+00
2.15E-03	9.34E-02	0.00E+00	0.00E+00
4.64E-03	9.14E-02	0.00E+00	0.00E+00
1.00E-02	9.60E-02	0.00E+00	0.00E+00
2.15E-02	1.17E-01	0.00E+00	0.00E+00
4.64E-02	1.59E-01	0.00E+00	0.00E+00
1.00E-01	2.00E-01	0.00E+00	0.00E+00
2.15E-01	2.37E-01	7.88E-02	0.00E+00
4.64E-01	2.82E-01	8.46E-02	0.00E+00
1.00E+00	3.60E-01	9.50E-02	0.00E+00
2.15E+00	4.47E-01	1.10E-01	0.00E+00
4.64E+00	5.11E-01	1.27E-01	0.00E+00
1.00E+01	5.38E-01	1.44E-01	0.00E+00
2.15E+01	5.66E-01	1.57E-01	0.00E+00
4.64E+01	6.26E-01	1.64E-01	0.00E+00
1.00E+02	7.09E-01	1.65E-01	0.00E+00
2.15E+02	7.44E-01	1.67E-01	0.00E+00
4.64E+02	7.36E-01	1.75E-01	0.00E+00
1.00E+03	7.28E-01	1.90E-01	0.00E+00
2.15E+03	7.96E-01	2.15E-01	0.00E+00
4.64E+03	8.95E-01	2.45E-01	0.00E+00
1.00E+04	9.31E-01	2.58E-01	0.00E+00
1.26E+04	9.04E-01	2.49E-01	0.00E+00
1.58E+04	8.49E-01	2.33E-01	0.00E+00
2.00E+04	8.23E-01	2.25E-01	0.00E+00
2.51E+04	8.77E-01	2.39E-01	0.00E+00
3.16E+04	1.00E+00	2.75E-01	0.00E+00
3.98E+04	1.15E+00	3.24E-01	0.00E+00
5.01E+04	1.27E+00	3.73E-01	5.30E-03
6.31E+04	1.32E+00	4.10E-01	7.75E-03
7.94E+04	1.32E+00	4.37E-01	1.05E-02
1.00E+05	1.31E+00	4.53E-01	1.35E-02
1.26E+05	1.30E+00	4.67E-01	1.70E-02
1.58E+05	1.35E+00	4.84E-01	2.17E-02
2.00E+05	1.49E+00	5.26E-01	2.76E-02
2.51E+05	1.71E+00	6.04E-01	3.46E-02
3.16E+05	1.98E+00	7.29E-01	4.35E-02
3.98E+05	2.26E+00	8.94E-01	5.78E-02
5.01E+05	2.48E+00	1.09E+00	8.29E-02
6.31E+05	2.64E+00	1.30E+00	1.23E-01
7.94E+05	2.73E+00	1.51E+00	1.83E-01
1.00E+06	2.75E+00	1.72E+00	2.65E-01
1.26E+06	2.75E+00	1.92E+00	3.81E-01
1.58E+06	2.79E+00	2.12E+00	5.28E-01
2.00E+06	2.90E+00	2.33E+00	7.13E-01
2.51E+06	3.03E+00	2.55E+00	9.18E-01
3.16E+06	3.04E+00	2.73E+00	1.13E+00
3.98E+06	2.88E+00	2.83E+00	1.33E+00
5.01E+06	2.53E+00	2.80E+00	1.47E+00
6.31E+06	2.17E+00	2.61E+00	1.53E+00
7.94E+06	1.89E+00	2.51E+00	1.89E+00
1.00E+07	1.64E+00	2.36E+00	1.98E+00
1.58E+07	1.53E+00	1.02E+00	1.83E+00
2.51E+07	1.43E+00	1.90E+00	1.84E+00
3.98E+07	1.40E+00	1.56E+00	1.94E+00
6.31E+07	1.51E+00	1.49E+00	1.88E+00
1.00E+08	1.76E+00	1.60E+00	1.92E+00
1.58E+08	1.91E+00	2.04E+00	2.03E+00
2.51E+08	2.31E+00	2.56E+00	2.97E+00
3.98E+08	2.97E+00	3.22E+00	3.52E+00
6.31E+08			

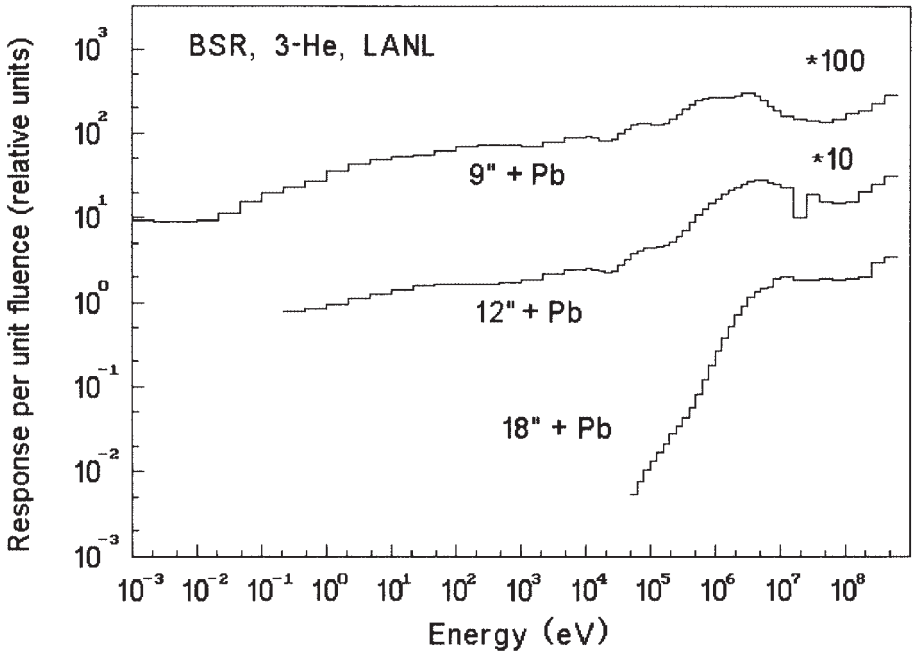

FIG. 3.6. Bonner sphere responses, ^{3}He, LANL 3.

TABLE 3.XV. CALCULATED BONNER SPHERE RESPONSES, LiI, GSF 1

Column 1: Energy in eV
Column 2: Bonner sphere bare, calculated GSF
Column 3: Bonner sphere 2″, calculated GSF
Column 4: Bonner sphere 3″, calculated GSF
Column 5: Bonner sphere 5″, calculated GSF
Column 6: Bonner sphere 6″, calculated GSF

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	2.12E-01	5.07E-02	2.63E-02	1.43E-02	1.23E-02
1.00E-02	2.03E-01	8.35E-02	6.29E-02	2.85E-02	2.09E-02
2.15E-02	1.96E-01	1.11E-01	7.99E-02	3.84E-02	2.60E-02
4.64E-02	1.87E-01	1.46E-01	1.09E-01	5.29E-02	3.46E-02
1.00E-01	1.70E-01	1.87E-01	1.48E-01	7.36E-02	4.83E-02
2.15E-01	1.47E-01	2.18E-01	1.87E-01	9.40E-02	6.24E-02
4.64E-01	1.22E-01	2.32E-01	2.19E-01	1.14E-01	7.70E-02
1.00E+00	9.72E-02	2.33E-01	2.42E-01	1.33E-01	9.01E-02
2.15E+00	7.60E-02	2.25E-01	2.56E-01	1.48E-01	1.00E-01
4.64E+00	5.67E-02	2.13E-01	2.66E-01	1.62E-01	1.10E-01
1.00E+01	4.14E-02	1.98E-01	2.67E-01	1.73E-01	1.18E-01
2.15E+01	3.07E-02	1.80E-01	2.60E-01	1.83E-01	1.24E-01
4.64E+01	2.19E-02	1.62E-01	2.56E-01	1.91E-01	1.30E-01
1.00E+02	1.55E-02	1.45E-01	2.49E-01	1.99E-01	1.35E-01
2.15E+02	1.12E-02	1.29E-01	2.39E-01	2.05E-01	1.40E-01
4.64E+02	7.80E-03	1.13E-01	2.27E-01	2.10E-01	1.45E-01
1.00E+03	5.38E-03	9.95E-02	2.15E-01	2.13E-01	1.50E-01
2.15E+03	3.79E-03	8.76E-02	2.02E-01	2.15E-01	1.57E-01
4.64E+03	2.57E-03	7.60E-02	1.89E-01	2.18E-01	1.64E-01
1.00E+04	2.04E-03	6.90E-02	1.81E-01	2.21E-01	1.68E-01
1.25E+04	1.85E-03	6.60E-02	1.77E-01	2.23E-01	1.71E-01
1.58E+04	1.62E-03	6.27E-02	1.73E-01	2.25E-01	1.73E-01
1.99E+04	1.47E-03	5.97E-02	1.70E-01	2.27E-01	1.76E-01
2.51E+04	1.29E-03	5.64E-02	1.66E-01	2.29E-01	1.79E-01
3.16E+04	1.17E-03	5.35E-02	1.62E-01	2.30E-01	1.82E-01
3.98E+04	1.05E-03	5.02E-02	1.58E-01	2.32E-01	1.86E-01
5.01E+04	9.64E-04	4.73E-02	1.54E-01	2.33E-01	1.91E-01
6.30E+04	8.46E-04	4.41E-02	1.49E-01	2.35E-01	1.97E-01
7.94E+04	7.76E-04	4.11E-02	1.45E-01	2.36E-01	2.04E-01
1.00E+05	7.52E-04	3.79E-02	1.40E-01	2.38E-01	2.12E-01
1.25E+05	1.05E-03	3.50E-02	1.34E-01	2.42E-01	2.21E-01
1.58E+05	1.78E-03	3.18E-02	1.28E-01	2.48E-01	2.29E-01
1.99E+05	2.61E-03	2.89E-02	1.21E-01	2.54E-01	2.37E-01
2.51E+05	3.19E-03	2.58E-02	1.14E-01	2.58E-01	2.46E-01
3.16E+05	2.56E-03	2.31E-02	1.06E-01	2.58E-01	2.55E-01
3.98E+05	6.18E-05	2.01E-02	9.75E-02	2.50E-01	2.65E-01
5.01E+05	5.13E-04	1.76E-02	8.88E-02	2.43E-01	2.71E-01
6.30E+05	3.99E-04	1.50E-02	7.96E-02	2.37E-01	2.72E-01
7.94E+05	5.49E-04	1.29E-02	7.06E-02	2.28E-01	2.69E-01
1.00E+06	3.41E-04	1.06E-02	6.14E-02	2.19E-01	2.62E-01
1.25E+06	4.31E-04	8.86E-03	5.28E-02	2.06E-01	2.49E-01
1.58E+06	2.18E-04	6.95E-03	4.42E-02	1.88E-01	2.34E-01
1.99E+06	2.10E-04	5.61E-03	3.69E-02	1.69E-01	2.13E-01
2.51E+06	1.80E-04	4.17E-03	2.96E-02	1.48E-01	1.93E-01
3.16E+06	1.43E-04	3.30E-03	2.42E-02	1.27E-01	1.70E-01
3.98E+06	8.17E-05	2.36E-03	1.88E-02	1.07E-01	1.48E-01
5.01E+06	5.04E-05	1.90E-03	1.52E-02	8.72E-02	1.25E-01
6.30E+06	6.30E-05	1.27E-03	1.12E-02	6.89E-02	1.04E-01
7.94E+06	5.63E-05	1.07E-03	9.16E-03	5.43E-02	8.67E-02
1.00E+07	3.25E-05	6.93E-04	6.14E-03	3.84E-02	6.48E-02
1.58E+07	2.09E-05	4.17E-04	3.59E-03	2.59E-02	4.11E-02
2.51E+07	1.62E-05	2.12E-04	1.78E-03	1.22E-02	2.04E-02
3.98E+07	1.68E-05	1.30E-04	9.71E-04	6.06E-03	1.06E-02
6.30E+07	1.52E-05	9.86E-05	7.07E-04	4.62E-03	7.63E-03
1.00E+08	1.32E-05	6.43E-05	4.21E-04	2.20E-03	3.09E-03
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

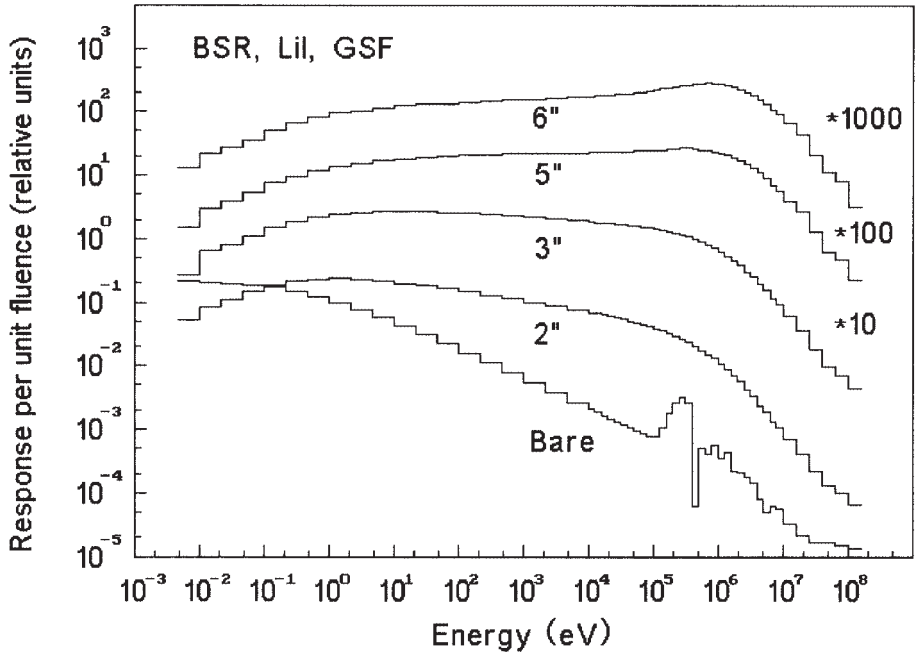

FIG. 3.7. Calculated Bonner sphere responses, LiI, GSF 1.

TABLE 3.XVI. CALCULATED BONNER SPHERE RESPONSES, LiI, GSF 2

Column 1: Energy in eV
Column 2: Bonner sphere 8″, calculated GSF
Column 3: Bonner sphere 10″, calculated GSF
Column 4: Bonner sphere 12″, calculated GSF
Column 5: Bonner sphere 15″, calculated GSF
Column 6: Bonner sphere 18″, calculated GSF

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	5.25E-03	2.04E-03	4.30E-04	9.51E-05	2.38E-05
1.00E-02	8.74E-03	3.28E-03	1.01E-03	1.99E-04	4.73E-05
2.15E-02	1.08E-02	4.12E-03	1.39E-03	2.98E-04	6.39E-05
4.64E-02	1.43E-02	5.39E-03	1.98E-03	4.11E-04	8.81E-05
1.00E-01	1.99E-02	7.48E-03	2.81E-03	5.63E-04	1.22E-04
2.15E-01	2.56E-02	9.94E-03	3.54E-03	7.63E-04	1.52E-04
4.64E-01	3.08E-02	1.22E-02	4.37E-03	9.60E-04	1.77E-04
1.00E+00	3.52E-02	1.41E-02	5.05E-03	1.11E-03	1.99E-04
2.15E+00	3.89E-02	1.56E-02	5.49E-03	1.20E-03	2.19E-04
4.64E+00	4.26E-02	1.70E-02	5.90E-03	1.28E-03	2.41E-04
1.00E+01	4.63E-02	1.84E-02	6.35E-03	1.39E-03	2.66E-04
2.15E+01	5.02E-02	1.97E-02	6.86E-03	1.53E-03	2.93E-04
4.64E+01	5.42E-02	2.12E-02	7.43E-03	1.67E-03	3.22E-04
1.00E+02	5.80E-02	2.28E-02	7.97E-03	1.79E-03	3.51E-04
2.15E+02	6.13E-02	2.43E-02	8.45E-03	1.87E-03	3.75E-04
4.64E+02	6.47E-02	2.58E-02	8.98E-03	1.93E-03	3.96E-04
1.00E+03	6.78E-02	2.69E-02	9.55E-03	1.96E-03	4.07E-04
2.15E+03	7.12E-02	2.78E-02	1.01E-02	2.00E-03	4.19E-04
4.64E+03	7.58E-02	2.91E-02	1.09E-02	2.13E-03	4.53E-04
1.00E+04	7.98E-02	3.03E-02	1.14E-02	2.28E-03	4.96E-04
1.25E+04	8.18E-02	3.10E-02	1.17E-02	2.37E-03	5.21E-04
1.58E+04	8.38E-02	3.19E-02	1.21E-02	2.46E-03	5.47E-04
1.99E+04	8.57E-02	3.30E-02	1.24E-02	2.56E-03	5.73E-04
2.51E+04	8.74E-02	3.44E-02	1.28E-02	2.64E-03	5.95E-04
3.16E+04	8.90E-02	3.60E-02	1.33E-02	2.72E-03	6.16E-04
3.98E+04	9.08E-02	3.79E-02	1.38E-02	2.81E-03	6.37E-04
5.01E+04	9.35E-02	4.00E-02	1.44E-02	2.93E-03	6.63E-04
6.30E+04	9.84E-02	4.22E-02	1.51E-02	3.15E-03	7.05E-04
7.94E+04	1.04E-01	4.47E-02	1.59E-02	3.42E-03	7.53E-04
1.00E+05	1.13E-01	4.77E-02	1.70E-02	3.81E-03	8.17E-04
1.25E+05	1.22E-01	5.18E-02	1.87E-02	4.24E-03	8.76E-04
1.58E+05	1.32E-01	5.77E-02	2.13E-02	4.72E-03	9.25E-04
1.99E+05	1.42E-01	6.48E-02	2.47E-02	5.37E-03	9.86E-04
2.51E+05	1.54E-01	7.38E-02	2.95E-02	6.29E-03	1.08E-03
3.16E+05	1.68E-01	8.40E-02	3.55E-02	7.79E-03	1.30E-03
3.98E+05	1.84E-01	9.53E-02	4.29E-02	1.03E-02	1.79E-03
5.01E+05	1.99E-01	1.09E-01	5.22E-02	1.42E-02	2.72E-03
6.30E+05	2.12E-01	1.27E-01	6.34E-02	2.02E-02	4.45E-03
7.94E+05	2.23E-01	1.46E-01	7.70E-02	2.81E-02	7.17E-03
1.00E+06	2.33E-01	1.66E-01	9.29E-02	3.79E-02	1.13E-02
1.25E+06	2.42E-01	1.85E-01	1.11E-01	5.01E-02	1.76E-02
1.58E+06	2.52E-01	1.99E-01	1.32E-01	6.39E-02	2.65E-02
1.99E+06	2.53E-01	2.11E-01	1.53E-01	8.14E-02	3.85E-02
2.51E+06	2.48E-01	2.19E-01	1.72E-01	1.01E-01	5.38E-02
3.16E+06	2.33E-01	2.19E-01	1.87E-01	1.23E-01	7.14E-02
3.98E+06	2.10E-01	2.14E-01	1.94E-01	1.42E-01	8.85E-02
5.01E+06	1.83E-01	1.98E-01	1.89E-01	1.50E-01	1.00E-01
6.30E+06	1.62E-01	1.79E-01	1.71E-01	1.42E-01	1.01E-01
7.94E+06	1.36E-01	1.55E-01	1.51E-01	1.34E-01	1.03E-01
1.00E+07	1.07E-01	1.28E-01	1.31E-01	1.26E-01	1.04E-01
1.58E+07	6.98E-02	9.49E-02	1.09E-01	1.12E-01	1.02E-01
2.51E+07	3.69E-02	4.77E-02	5.86E-02	6.57E-02	7.74E-02
3.98E+07	2.03E-02	2.49E-02	3.07E-02	3.86E-02	4.55E-02
6.30E+07	1.36E-02	1.75E-02	2.08E-02	2.32E-02	2.44E-02
1.00E+08	4.79E-03	4.72E-03	5.01E-03	2.28E-03	8.64E-03
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

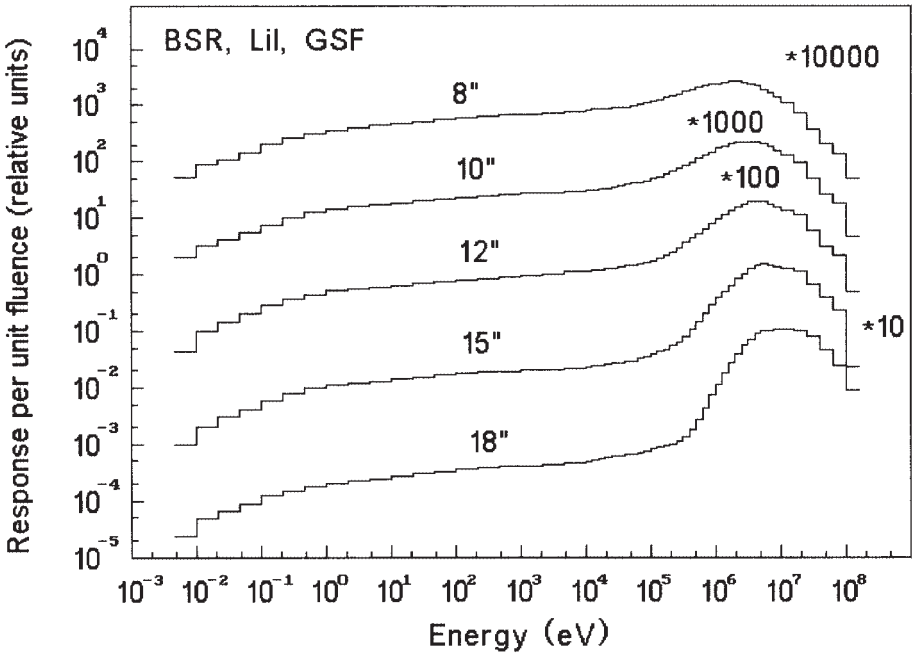

FIG. 3.8. Calculated Bonner sphere responses, LiI, GSF 2.

TABLE 3.XVII. SURVEY METER RESPONSES

Column 1: Energy in eV
Column 2: Andersson–Braun
Column 3: Eberline
Column 4: Los Alamos high energy (Mod930_2)
Column 5: Studsvik 2202D (by Nakamura)
Column 6: EG&G (Berthold LB6411)

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.09E-03
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.40E-03
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-03
1.00E-02	0.00E+00	2.20E-02	0.00E+00	0.00E+00	6.28E-03
2.15E-02	4.44E-02	2.36E-02	1.60E-02	0.00E+00	8.36E-03
4.64E-02	5.99E-02	2.70E-02	1.74E-02	0.00E+00	1.15E-02
1.00E-01	6.94E-02	3.33E-02	1.96E-02	0.00E+00	1.53E-02
2.15E-01	6.28E-02	4.24E-02	2.24E-02	9.88E-03	1.88E-02
4.64E-01	7.43E-02	5.23E-02	2.52E-02	1.02E-02	2.31E-02
1.00E+00	8.12E-02	6.14E-02	2.80E-02	1.06E-02	2.82E-02
2.15E+00	8.06E-02	7.03E-02	3.07E-02	1.07E-02	3.20E-02
4.64E+00	9.19E-02	7.89E-02	3.31E-02	1.04E-02	3.74E-02
1.00E+01	8.83E-02	8.67E-02	3.50E-02	1.03E-02	4.20E-02
2.15E+01	9.55E-02	9.32E-02	3.63E-02	1.12E-02	4.60E-02
4.64E+01	1.05E-01	9.93E-02	3.77E-02	1.25E-02	5.12E-02
1.00E+02	9.99E-02	1.06E-01	3.98E-02	1.36E-02	5.60E-02
2.15E+02	9.98E-02	1.11E-01	4.27E-02	1.42E-02	6.08E-02
4.64E+02	9.96E-02	1.18E-01	4.71E-02	1.49E-02	6.74E-02
1.00E+03	1.17E-01	1.25E-01	5.28E-02	1.58E-02	7.47E-02
2.15E+03	1.20E-01	1.32E-01	5.99E-02	1.75E-02	8.29E-02
4.64E+03	1.26E-01	1.41E-01	6.79E-02	2.13E-02	9.54E-02
1.00E+04	1.28E-01	1.51E-01	7.33E-02	2.61E-02	1.06E-01
1.26E+04	1.28E-01	1.59E-01	7.68E-02	2.94E-02	1.12E-01
1.58E+04	1.33E-01	1.69E-01	8.21E-02	3.36E-02	1.17E-01
2.00E+04	1.40E-01	1.79E-01	8.89E-02	3.83E-02	1.22E-01
2.51E+04	1.46E-01	1.86E-01	9.50E-02	4.34E-02	1.27E-01
3.16E+04	1.49E-01	1.89E-01	1.00E-01	4.86E-02	1.31E-01
3.98E+04	1.57E-01	1.88E-01	1.06E-01	5.43E-02	1.41E-01
5.01E+04	1.67E-01	1.87E-01	1.16E-01	6.08E-02	1.52E-01
6.31E+04	1.78E-01	1.92E-01	1.29E-01	6.84E-02	1.66E-01
7.94E+04	1.88E-01	2.06E-01	1.45E-01	7.76E-02	1.84E-01
1.00E+05	1.88E-01	2.25E-01	1.61E-01	8.91E-02	2.11E-01
1.26E+05	2.05E-01	2.48E-01	1.79E-01	1.03E-01	2.64E-01
1.58E+05	2.38E-01	2.76E-01	2.04E-01	1.20E-01	3.20E-01
2.00E+05	2.81E-01	3.08E-01	2.37E-01	1.41E-01	3.69E-01
2.51E+05	3.35E-01	3.42E-01	2.78E-01	1.64E-01	4.61E-01
3.16E+05	3.60E-01	3.71E-01	3.26E-01	1.90E-01	5.90E-01
3.98E+05	4.27E-01	4.28E-01	3.83E-01	2.18E-01	6.87E-01
5.01E+05	4.60E-01	5.21E-01	4.60E-01	2.51E-01	8.11E-01
6.31E+05	7.07E-01	6.66E-01	5.57E-01	2.88E-01	9.43E-01
7.94E+05	8.10E-01	7.88E-01	6.73E-01	3.30E-01	1.07E+00
1.00E+06	8.93E-01	8.79E-01	7.83E-01	3.72E-01	1.17E+00
1.26E+06	9.39E-01	9.21E-01	8.73E-01	4.11E-01	1.29E+00
1.58E+06	9.80E-01	9.51E-01	9.33E-01	4.41E-01	1.38E+00
2.00E+06	9.70E-01	9.54E-01	9.55E-01	4.61E-01	1.42E+00
2.51E+06	9.64E-01	9.33E-01	9.46E-01	4.70E-01	1.47E+00
3.16E+06	8.13E-01	8.80E-01	9.05E-01	4.67E-01	1.47E+00
3.98E+06	8.78E-01	8.26E-01	8.66E-01	4.56E-01	1.44E+00
5.01E+06	7.93E-01	7.57E-01	8.14E-01	4.39E-01	1.36E+00
6.31E+06	6.60E-01	6.85E-01	7.48E-01	4.19E-01	1.24E+00
7.94E+06	5.69E-01	6.00E-01	6.65E-01	4.00E-01	1.08E+00
1.00E+07	4.56E-01	4.95E-01	5.70E-01	3.68E-01	8.19E-01
1.58E+07	3.00E-01	3.81E-01	5.01E-01	0.00E+00	7.15E-01
2.51E+07	0.00E+00	2.96E-01	4.88E-01	0.00E+00	0.00E+00
3.98E+07	0.00E+00	2.13E-01	4.69E-01	0.00E+00	0.00E+00
6.31E+07	0.00E+00	1.46E-01	4.41E-01	0.00E+00	0.00E+00
1.00E+08	0.00E+00	9.40E-02	3.96E-01	0.00E+00	0.00E+00
1.58E+08	0.00E+00	7.50E-02	3.91E-01	0.00E+00	0.00E+00
2.51E+08	0.00E+00	6.23E-02	4.19E-01	0.00E+00	0.00E+00
3.98E+08	0.00E+00	4.81E-02	4.85E-01	0.00E+00	0.00E+00
6.31E+08					

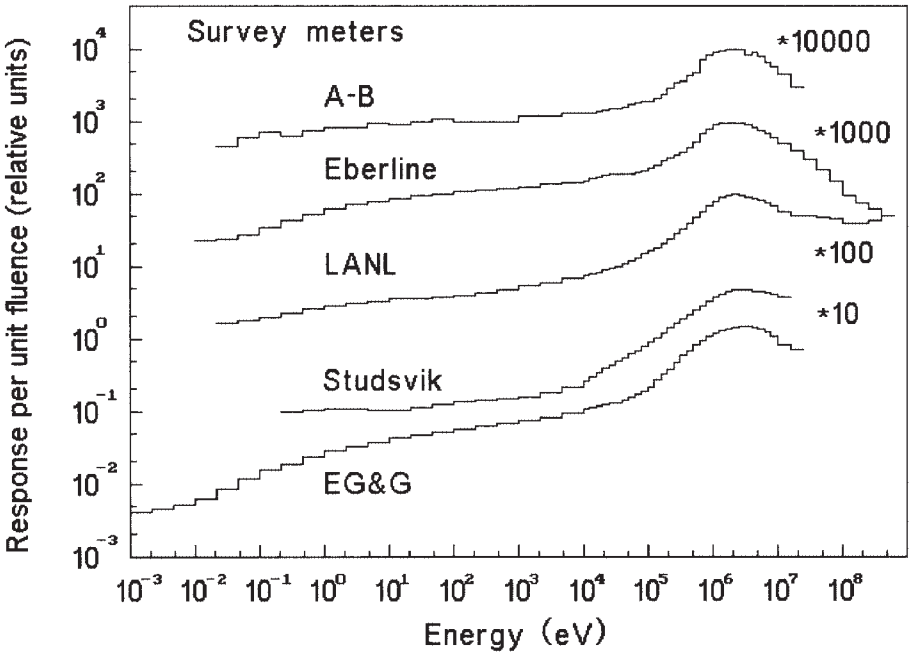

FIG. 3.9. Survey meter responses.

TABLE 3.XVIII. DETECTOR RESPONSES FROM TRS 318 [10], 1

Column 1: Energy in eV
Column 2: Bare ^{6}LiF
Column 3: ^{6}LiF, behind Cd cover
Column 4: Long counter
Column 5: Leake spherical remmeter (95/0075)
Column 6: Bare Au foil

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	6.24E-01	1.00E-01	0.00E+00	1.55E-02	1.58E-02
2.15E-01	5.84E-01	1.48E-01	0.00E+00	1.69E-02	1.26E-02
4.64E-01	5.44E-01	2.25E-01	0.00E+00	1.86E-02	1.07E-02
1.00E+00	5.06E-01	2.77E-01	0.00E+00	2.04E-02	1.53E-02
2.15E+00	4.71E-01	2.67E-01	0.00E+00	2.24E-02	3.12E-01
4.64E+00	4.39E-01	2.57E-01	0.00E+00	2.46E-02	5.05E-03
1.00E+01	4.07E-01	2.33E-01	0.00E+00	2.71E-02	6.47E-04
2.15E+01	3.77E-01	2.10E-01	0.00E+00	2.96E-02	1.26E-02
4.64E+01	3.49E-01	1.91E-01	0.00E+00	3.25E-02	4.32E-03
1.00E+02	3.22E-01	1.75E-01	0.00E+00	3.72E-02	8.05E-03
2.15E+02	2.92E-01	1.56E-01	0.00E+00	3.60E-02	3.20E-03
4.64E+02	2.74E-01	1.44E-01	0.00E+00	4.30E-02	4.41E-03
1.00E+03	2.54E-01	1.30E-01	0.00E+00	4.60E-02	2.02E-03
2.15E+03	2.36E-01	1.17E-01	0.00E+00	5.10E-02	1.12E-03
4.64E+03	2.22E-01	1.10E-01	0.00E+00	5.55E-02	6.41E-04
1.00E+04	2.13E-01	1.05E-01	0.00E+00	5.89E-02	4.46E-04
1.25E+04	2.09E-01	1.03E-01	0.00E+00	6.12E-02	3.69E-04
1.58E+04	2.06E-01	1.00E-01	0.00E+00	6.36E-02	3.05E-04
1.99E+04	2.02E-01	9.83E-02	9.59E-01	6.51E-02	2.51E-04
2.51E+04	1.98E-01	9.56E-02	9.58E-01	6.66E-02	2.14E-04
3.16E+04	1.94E-01	9.31E-02	9.56E-01	6.91E-02	1.87E-04
3.98E+04	1.91E-01	9.06E-02	9.55E-01	7.18E-02	1.63E-04
5.01E+04	1.87E-01	8.82E-02	9.54E-01	7.44E-02	1.47E-04
6.30E+04	1.83E-01	8.59E-02	9.52E-01	7.81E-02	1.44E-04
7.94E+04	1.80E-01	8.36E-02	9.51E-01	8.31E-02	1.42E-04
1.00E+05	1.76E-01	8.09E-02	9.48E-01	8.86E-02	1.38E-04
1.25E+05	1.67E-01	7.71E-02	9.45E-01	9.61E-02	1.24E-04
1.58E+05	1.64E-01	7.37E-02	9.42E-01	1.06E-01	1.14E-04
1.99E+05	1.58E-01	7.03E-02	9.40E-01	1.17E-01	1.03E-04
2.51E+05	1.53E-01	6.70E-02	9.40E-01	1.39E-01	8.53E-05
3.16E+05	1.46E-01	6.31E-02	9.46E-01	1.78E-01	7.09E-05
3.98E+05	1.39E-01	5.95E-02	9.55E-01	2.11E-01	5.89E-05
5.01E+05	1.33E-01	5.61E-02	9.66E-01	2.46E-01	5.25E-05
6.30E+05	1.26E-01	5.19E-02	9.81E-01	2.75E-01	4.69E-05
7.94E+05	1.17E-01	4.72E-02	1.01E+00	2.94E-01	4.19E-05
1.00E+06	1.09E-01	4.29E-02	1.05E+00	3.09E-01	3.66E-05
1.25E+06	1.01E-01	3.88E-02	1.06E+00	3.21E-01	3.18E-05
1.58E+06	9.13E-02	3.42E-02	1.05E+00	3.25E-01	2.78E-05
1.99E+06	8.19E-02	3.03E-02	1.04E+00	3.22E-01	2.32E-05
2.51E+06	7.32E-02	2.66E-02	9.99E-01	3.11E-01	1.92E-05
3.16E+06	6.50E-02	2.33E-02	9.63E-01	2.98E-01	1.60E-05
3.98E+06	5.65E-02	2.04E-02	9.63E-01	2.82E-01	1.34E-05
5.01E+06	4.92E-02	1.78E-02	9.50E-01	2.63E-01	1.13E-05
6.30E+06	4.21E-02	1.57E-02	9.50E-01	2.37E-01	9.53E-06
7.94E+06	3.66E-02	1.32E-02	0.00E+00	2.12E-01	8.15E-06
1.00E+07	2.93E-02	1.06E-02	0.00E+00	1.73E-01	6.49E-06
1.58E+07	2.25E-02	7.85E-03	0.00E+00	1.35E-01	4.70E-06
2.51E+07	1.56E-02	5.39E-03	0.00E+00	1.26E-01	3.47E-06
3.98E+07	1.38E-02	5.05E-03	0.00E+00	0.00E+00	2.60E-06
6.30E+07	1.38E-02	4.67E-03	0.00E+00	0.00E+00	1.85E-06
1.00E+08	1.08E-02	3.59E-03	0.00E+00	0.00E+00	1.52E-06
1.58E+08	9.51E-03	3.33E-03	0.00E+00	0.00E+00	1.21E-06
2.51E+08	9.30E-03	3.20E-03	0.00E+00	0.00E+00	1.01E-06
3.98E+08	8.35E-03	3.05E-03	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

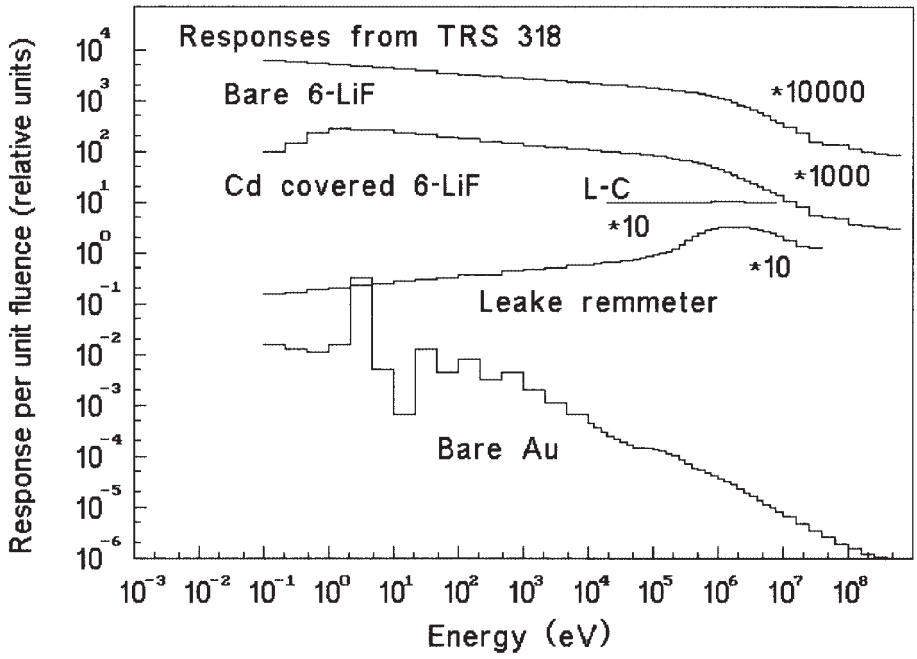

FIG. 3.10. Detector responses from TRS 318 [10], 1.

TABLE 3.XIX. DETECTOR RESPONSES FROM TRS 318 [10], 2

Column 1: Energy in eV
Column 2: Natural U with PC in Cd, tracks/neutron
Column 3: ^{238}U with PC, tracks/neutron
Column 4: ^{232}Th with PC, tracks/neutron
Column 5: CR39, electrochemically etched (Griffith)
Column 6: LR115 II with natural $Li_2B_4O_7$ on phantom, tracks/neutron

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-01	1.15E-05	0.00E+00	0.00E+00	0.00E+00	8.88E-05
1.00E+00	1.60E-05	0.00E+00	0.00E+00	0.00E+00	7.36E-05
2.15E+00	2.22E-05	0.00E+00	0.00E+00	0.00E+00	6.09E-05
4.64E+00	3.09E-05	0.00E+00	0.00E+00	0.00E+00	5.05E-05
1.00E+01	2.24E-04	0.00E+00	0.00E+00	0.00E+00	4.21E-05
2.15E+01	3.08E-05	0.00E+00	0.00E+00	0.00E+00	3.52E-05
4.64E+01	2.75E-05	0.00E+00	0.00E+00	0.00E+00	2.95E-05
1.00E+02	1.54E-03	0.00E+00	0.00E+00	0.00E+00	2.68E-05
2.15E+02	2.03E-05	0.00E+00	0.00E+00	0.00E+00	2.65E-05
4.64E+02	1.72E-05	0.00E+00	0.00E+00	0.00E+00	2.62E-05
1.00E+03	1.48E-05	0.00E+00	0.00E+00	0.00E+00	2.49E-05
2.15E+03	1.27E-05	0.00E+00	0.00E+00	0.00E+00	2.28E-05
4.64E+03	1.10E-05	0.00E+00	0.00E+00	0.00E+00	2.09E-05
1.00E+04	1.01E-05	0.00E+00	0.00E+00	0.00E+00	2.01E-05
1.25E+04	9.96E-06	0.00E+00	0.00E+00	0.00E+00	2.03E-05
1.58E+04	9.78E-06	0.00E+00	0.00E+00	0.00E+00	2.05E-05
1.99E+04	9.60E-06	0.00E+00	0.00E+00	0.00E+00	2.07E-05
2.51E+04	9.42E-06	0.00E+00	0.00E+00	0.00E+00	2.09E-05
3.16E+04	9.26E-06	0.00E+00	0.00E+00	0.00E+00	2.11E-05
3.98E+04	9.09E-06	0.00E+00	0.00E+00	0.00E+00	2.13E-05
5.01E+04	8.92E-06	0.00E+00	0.00E+00	0.00E+00	2.15E-05
6.30E+04	8.76E-06	0.00E+00	0.00E+00	5.82E-07	2.17E-05
7.94E+04	8.60E-06	0.00E+00	0.00E+00	4.84E-06	2.19E-05
1.00E+05	8.27E-06	0.00E+00	0.00E+00	1.09E-05	2.11E-05
1.25E+05	7.78E-06	0.00E+00	0.00E+00	1.87E-05	1.92E-05
1.58E+05	7.33E-06	0.00E+00	0.00E+00	2.61E-05	1.77E-05
1.99E+05	6.90E-06	0.00E+00	0.00E+00	3.19E-05	1.62E-05
2.51E+05	6.50E-06	0.00E+00	0.00E+00	3.88E-05	1.48E-05
3.16E+05	6.12E-06	0.00E+00	0.00E+00	4.87E-05	1.37E-05
3.98E+05	5.78E-06	0.00E+00	0.00E+00	6.24E-05	1.25E-05
5.01E+05	5.29E-06	0.00E+00	0.00E+00	8.21E-05	1.12E-05
6.30E+05	4.72E-06	5.11E-10	0.00E+00	1.10E-04	9.79E-06
7.94E+05	4.21E-06	5.11E-09	0.00E+00	1.50E-04	8.55E-06
1.00E+06	4.28E-06	2.31E-08	3.24E-10	2.02E-04	7.44E-06
1.25E+06	5.01E-06	1.05E-07	3.43E-09	2.78E-04	6.43E-06
1.58E+06	5.84E-06	4.77E-07	3.32E-08	3.83E-04	5.56E-06
1.99E+06	6.80E-06	2.15E-06	3.16E-07	3.89E-04	4.82E-06
2.51E+06	7.32E-06	4.57E-06	1.07E-06	3.00E-04	3.50E-06
3.16E+06	7.29E-06	4.74E-06	1.25E-06	2.27E-04	2.48E-06
3.98E+06	7.26E-06	4.87E-06	1.31E-06	1.76E-04	2.08E-06
5.01E+06	8.28E-06	5.96E-06	1.81E-06	1.36E-04	1.66E-06
6.30E+06	1.06E-05	8.52E-06	3.17E-06	1.06E-04	1.29E-06
7.94E+06	1.16E-05	9.58E-06	3.09E-06	8.27E-05	1.07E-06
1.00E+07	1.36E-05	1.16E-05	3.56E-06	6.52E-05	8.57E-07
1.58E+07	1.61E-05	1.25E-05	3.90E-06	5.97E-05	7.07E-07
2.51E+07	1.69E-05	1.43E-05	4.69E-06	5.46E-05	6.29E-07
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

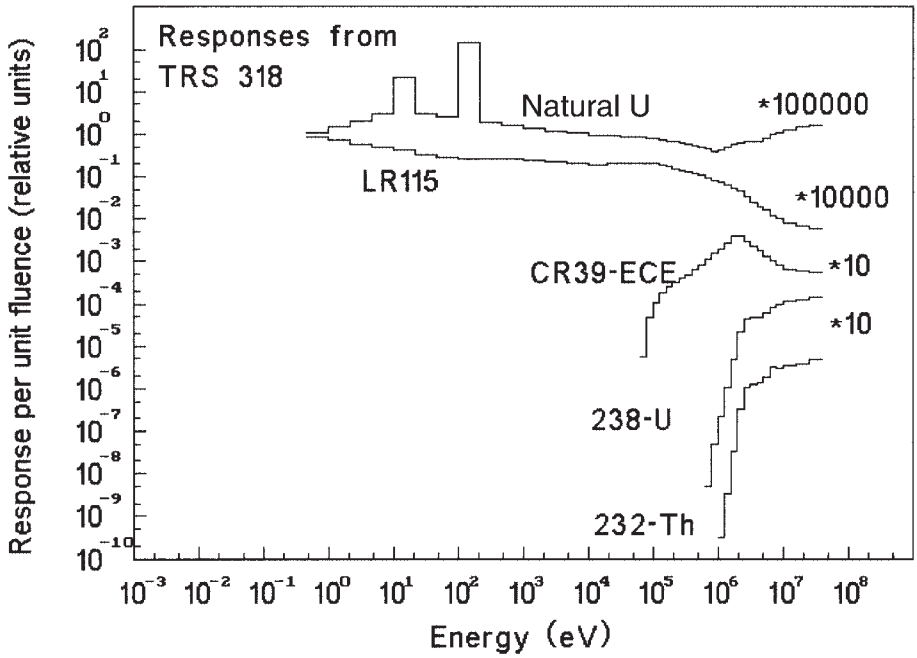

FIG. 3.11. Detector responses from TRS 318 [10], 2.

TABLE 3.XX. TRACK ETCH DETECTORS, 1 (UK AND ALGERIA)

Column 1: Energy in eV
Column 2: Planar detector (Autoscan Ltd)
Column 3: Pyramidal, base element (Autoscan Ltd)
Column 4: Pyramidal, side element (Autoscan Ltd)
Column 5: Lounis type (Algeria)

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.25E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+04	0.00E+00	0.00E+00	0.00E+00	1.59E+02
1.99E+04	0.00E+00	0.00E+00	0.00E+00	1.34E+02
2.51E+04	0.00E+00	0.00E+00	0.00E+00	1.39E+02
3.16E+04	0.00E+00	0.00E+00	0.00E+00	1.54E+02
3.98E+04	0.00E+00	0.00E+00	0.00E+00	1.74E+02
5.01E+04	0.00E+00	0.00E+00	0.00E+00	2.20E+02
6.30E+04	0.00E+00	0.00E+00	0.00E+00	2.89E+02
7.94E+04	0.00E+00	0.00E+00	0.00E+00	3.73E+02
1.00E+05	2.66E+03	5.35E+02	2.70E+02	4.70E+02
1.25E+05	8.66E+03	5.27E+03	2.33E+03	5.91E+02
1.58E+05	1.87E+04	1.66E+04	9.31E+03	7.37E+02
1.99E+05	3.27E+04	3.47E+04	2.04E+04	8.84E+02
2.51E+05	4.94E+04	6.06E+04	3.58E+04	1.05E+03
3.16E+05	7.27E+04	9.16E+04	5.68E+04	1.23E+03
3.98E+05	1.01E+05	1.31E+05	8.29E+04	1.44E+03
5.01E+05	1.32E+05	1.64E+05	1.00E+05	1.75E+03
6.30E+05	1.64E+05	1.67E+05	1.02E+05	1.88E+03
7.94E+05	1.97E+05	1.63E+05	1.01E+05	2.22E+03
1.00E+06	2.24E+05	1.56E+05	9.94E+04	2.84E+03
1.25E+06	2.17E+05	1.42E+05	9.52E+04	3.12E+03
1.58E+06	2.04E+05	1.39E+05	9.74E+04	3.38E+03
1.99E+06	2.03E+05	1.40E+05	1.03E+05	3.47E+03
2.51E+06	1.94E+05	1.37E+05	1.02E+05	3.36E+03
3.16E+06	1.86E+05	1.34E+05	1.04E+05	3.21E+03
3.98E+06	1.78E+05	1.30E+05	1.07E+05	3.17E+03
5.01E+06	1.67E+05	1.22E+05	1.01E+05	3.10E+03
6.30E+06	1.56E+05	1.10E+05	9.18E+04	3.09E+03
7.94E+06	1.52E+05	1.04E+05	9.04E+04	3.25E+03
1.00E+07	1.55E+05	1.01E+05	9.52E+04	3.62E+03
1.58E+07	1.49E+05	9.03E+04	7.03E+04	1.34E+03
2.51E+07	2.75E+04	3.95E+04	1.22E+04	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

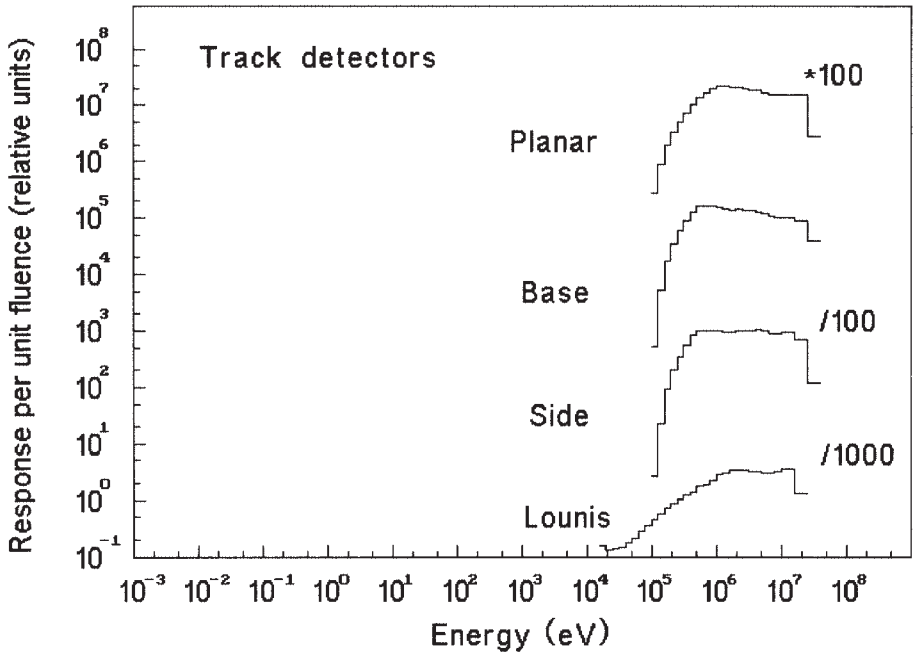

FIG. 3.12. Track etch detectors, 1 (UK and Algeria).

TABLE 3.XXI. TRACK ETCH DETECTORS, 2 (PTB)

Column 1: Energy in eV
Column 2: Thermal neutron window
Column 3: Intermediate neutron window
Column 4: Fast neutron window
Column 5: Combined intermediate and fast windows

1.00E-03	1.21E+02	2.32E+01	0.00E+00	6.50E+00
2.15E-03	1.06E+02	2.32E+01	0.00E+00	6.50E+00
4.64E-03	7.82E+01	2.29E+01	0.00E+00	6.41E+00
1.00E-02	5.65E+01	2.16E+01	0.00E+00	6.06E+00
2.15E-02	3.68E+01	2.19E+01	0.00E+00	6.12E+00
4.64E-02	2.64E+01	2.42E+01	0.00E+00	6.77E+00
1.00E-01	1.84E+01	2.71E+01	0.00E+00	7.58E+00
2.15E-01	1.13E+01	3.37E+01	0.00E+00	9.43E+00
4.64E-01	8.02E+00	4.11E+01	0.00E+00	1.15E+01
1.00E+00	6.00E+00	4.39E+01	0.00E+00	1.23E+01
2.15E+00	4.58E+00	4.56E+01	0.00E+00	1.28E+01
4.64E+00	4.06E+00	4.61E+01	0.00E+00	1.29E+01
1.00E+01	2.95E+00	4.73E+01	0.00E+00	1.32E+01
2.15E+01	2.12E+00	4.75E+01	0.00E+00	1.33E+01
4.64E+01	1.89E+00	4.61E+01	0.00E+00	1.29E+01
1.00E+02	1.40E+00	4.29E+01	0.00E+00	1.20E+01
2.15E+02	1.13E+00	4.06E+01	0.00E+00	1.14E+01
4.64E+02	1.05E+00	3.86E+01	0.00E+00	1.08E+01
1.00E+03	8.68E-01	3.41E+01	0.00E+00	9.55E+00
2.15E+03	7.41E-01	3.10E+01	0.00E+00	8.70E+00
4.64E+03	7.22E-01	3.10E+01	0.00E+00	8.68E+00
1.00E+04	7.00E-01	3.09E+01	0.00E+00	8.65E+00
1.26E+04	6.85E-01	3.08E+01	0.00E+00	8.63E+00
1.58E+04	6.53E-01	3.07E+01	0.00E+00	8.60E+00
2.00E+04	7.25E-01	3.06E+01	1.43E-01	8.64E+00
2.51E+04	1.83E+00	3.04E+01	1.43E+00	9.51E+00
3.16E+04	4.25E+00	3.01E+01	3.91E+00	1.14E+01
3.98E+04	7.14E+00	2.98E+01	7.03E+00	1.37E+01
5.01E+04	1.01E+01	2.88E+01	1.05E+01	1.60E+01
6.31E+04	2.20E+01	3.43E+01	2.07E+01	2.53E+01
7.94E+04	5.78E+01	5.87E+01	4.85E+01	5.32E+01
1.00E+05	1.13E+02	9.73E+01	9.06E+01	9.57E+01
1.26E+05	1.76E+02	1.44E+02	1.42E+02	1.48E+02
1.58E+05	2.43E+02	2.03E+02	2.04E+02	2.11E+02
2.00E+05	3.20E+02	2.78E+02	2.86E+02	2.94E+02
2.51E+05	3.74E+02	3.35E+02	3.39E+02	3.50E+02
3.16E+05	3.81E+02	3.54E+02	3.42E+02	3.58E+02
3.98E+05	4.00E+02	3.87E+02	3.55E+02	3.77E+02
5.01E+05	4.21E+02	4.22E+02	3.73E+02	4.00E+02
6.31E+05	4.40E+02	4.45E+02	3.99E+02	4.26E+02
7.94E+05	4.58E+02	4.62E+02	4.35E+02	4.59E+02
1.00E+06	4.78E+02	4.82E+02	4.75E+02	4.94E+02
1.26E+06	4.77E+02	4.79E+02	4.84E+02	5.00E+02
1.58E+06	4.48E+02	4.47E+02	4.54E+02	4.69E+02
2.00E+06	4.14E+02	4.09E+02	4.22E+02	4.34E+02
2.51E+06	3.99E+02	3.92E+02	4.07E+02	4.18E+02
3.16E+06	4.18E+02	4.15E+02	4.24E+02	4.37E+02
3.98E+06	4.37E+02	4.38E+02	4.43E+02	4.58E+02
5.01E+06	4.39E+02	4.43E+02	4.43E+02	4.59E+02
6.31E+06	4.08E+02	4.14E+02	4.12E+02	4.28E+02
7.94E+06	3.75E+02	3.83E+02	3.78E+02	3.93E+02
1.00E+07	3.09E+02	3.20E+02	3.10E+02	3.24E+02
1.58E+07	2.22E+02	2.65E+02	2.75E+02	2.82E+02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+08				

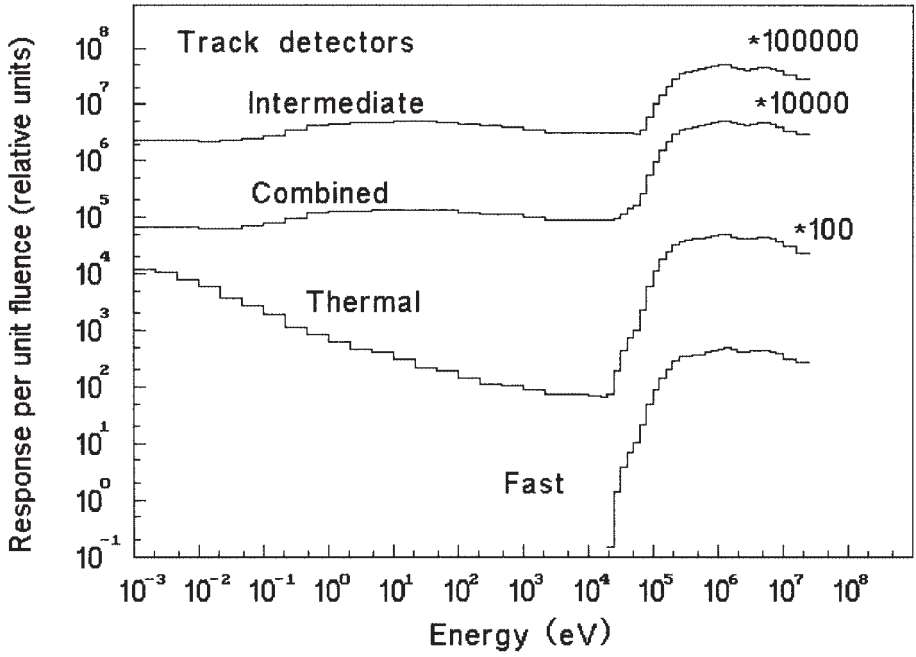

FIG. 3.13. Track etch detectors, 2 (PTB).

TABLE 3.XXII. TRACK ETCH DETECTORS, 3 (NRPB)

Column 1: Energy in eV
Column 2: On cylindrical phantom
Column 3: On spherical phantom
Column 4: On rotated cylindrical phantom
Column 5: On rotated spherical phantom

1.00E-03	6.98E-06	6.98E-06	3.49E-06	3.49E-06
2.15E-03	7.72E-06	7.72E-06	3.86E-06	3.86E-06
4.64E-03	8.99E-06	8.99E-06	4.50E-06	4.50E-06
1.00E-02	1.01E-05	1.01E-05	5.08E-06	5.08E-06
2.15E-02	6.45E-06	6.45E-06	3.22E-06	3.22E-06
4.64E-02	3.85E-05	3.85E-05	1.92E-05	1.92E-05
1.00E-01	4.08E-04	4.08E-04	2.04E-04	2.04E-04
2.15E-01	9.94E-05	9.94E-05	4.97E-05	4.97E-05
4.64E-01	8.00E-06	8.00E-06	4.00E-06	4.00E-06
1.00E+00	1.34E-04	1.34E-04	6.74E-05	6.74E-05
2.15E+00	5.26E-06	5.26E-06	2.63E-06	2.63E-06
4.64E+00	3.73E-06	3.73E-06	1.86E-06	1.86E-06
1.00E+01	3.15E-06	3.15E-06	1.57E-06	1.57E-06
2.15E+01	2.28E-06	2.28E-06	1.14E-06	1.14E-06
4.64E+01	1.78E-06	1.78E-06	8.89E-07	8.89E-07
1.00E+02	1.33E-06	1.33E-06	6.67E-07	6.67E-07
2.15E+02	1.11E-06	1.11E-06	5.56E-07	5.56E-07
4.64E+02	8.88E-07	8.90E-07	4.45E-07	4.47E-07
1.00E+03	6.82E-07	7.09E-07	3.53E-07	3.73E-07
2.15E+03	6.42E-07	6.68E-07	3.32E-07	3.53E-07
4.64E+03	8.86E-07	9.05E-07	4.49E-07	4.62E-07
1.00E+04	1.45E-06	1.32E-06	7.04E-07	6.08E-07
1.25E+04	2.11E-06	1.73E-06	9.86E-07	7.19E-07
1.58E+04	3.24E-06	2.40E-06	1.45E-06	9.02E-07
1.99E+04	5.21E-06	3.51E-06	2.23E-06	1.18E-06
2.51E+04	8.71E-06	5.38E-06	3.56E-06	1.64E-06
3.16E+04	1.52E-05	8.72E-06	5.93E-06	2.43E-06
3.98E+04	2.79E-05	1.49E-05	1.02E-05	3.82E-06
5.01E+04	5.21E-05	2.65E-05	1.81E-05	6.28E-06
6.30E+04	9.84E-05	4.88E-05	3.23E-05	1.08E-05
7.94E+04	1.86E-04	9.23E-05	5.79E-05	1.94E-05
1.00E+05	3.55E-04	1.79E-04	1.04E-04	3.66E-05
1.25E+05	6.86E-04	3.81E-04	1.86E-04	7.77E-05
1.58E+05	1.33E-03	8.58E-04	3.31E-04	1.81E-04
1.99E+05	2.51E-03	1.88E-03	5.85E-04	4.16E-04
2.51E+05	4.56E-03	3.82E-03	1.03E-03	8.82E-04
3.16E+05	7.98E-03	7.13E-03	1.82E-03	1.71E-03
3.98E+05	1.29E-02	1.20E-02	3.11E-03	2.99E-03
5.01E+05	1.82E-02	1.77E-02	4.67E-03	4.50E-03
6.30E+05	2.16E-02	2.25E-02	5.95E-03	5.77E-03
7.94E+05	2.28E-02	2.58E-02	6.77E-03	6.60E-03
1.00E+06	2.22E-02	2.63E-02	6.91E-03	6.84E-03
1.25E+06	1.96E-02	2.34E-02	6.19E-03	6.29E-03
1.58E+06	1.75E-02	2.06E-02	5.57E-03	5.81E-03
1.99E+06	1.61E-02	1.84E-02	5.11E-03	5.46E-03
2.51E+06	1.42E-02	1.55E-02	4.51E-03	4.91E-03
3.16E+06	1.26E-02	1.31E-02	4.04E-03	4.44E-03
3.98E+06	1.17E-02	1.14E-02	3.88E-03	4.23E-03
5.01E+06	1.24E-02	1.11E-02	4.49E-03	4.61E-03
6.30E+06	1.40E-02	1.16E-02	5.65E-03	5.42E-03
7.94E+06	1.64E-02	1.30E-02	7.47E-03	6.69E-03
1.00E+07	2.32E-02	1.98E-02	1.28E-02	1.06E-02
1.58E+07	2.22E-02	2.19E-02	1.38E-02	1.16E-02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

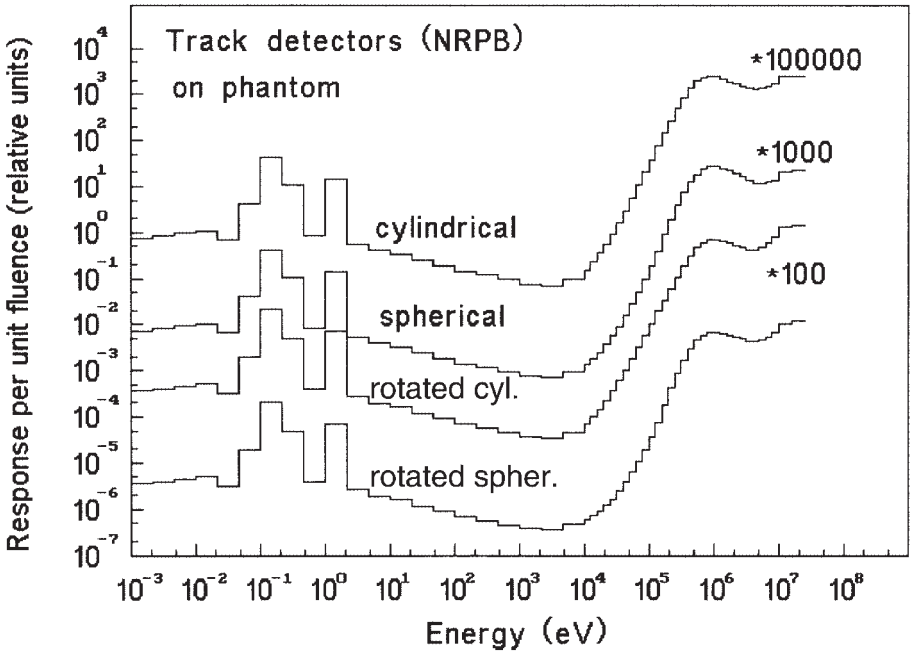

FIG. 3.14. Track etch detectors, 3 (NRPB).

TABLE 3.XXIII. BUBBLE DETECTORS, 1

Column 1: Energy in eV
Column 2: Without PE converter
Column 3: With 1″ PE converter
Column 4: With 1.5″ PE converter
Column 5: With 2″ PE converter

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	1.15E+01
2.15E-02	8.81E+01	3.86E+01	2.30E+01	1.48E+01
4.64E-02	5.93E+01	4.81E+01	3.02E+01	1.76E+01
1.00E-01	4.56E+01	6.19E+01	3.96E+01	2.12E+01
2.15E-01	3.27E+01	7.28E+01	5.40E+01	2.84E+01
4.64E-01	2.73E+01	8.93E+01	6.39E+01	3.79E+01
1.00E+00	1.93E+01	9.23E+01	6.53E+01	4.23E+01
2.15E+00	1.40E+01	9.31E+01	5.59E+01	4.64E+01
4.64E+00	9.29E+00	8.41E+01	8.32E+01	4.88E+01
1.00E+01	6.27E+00	8.38E+01	8.45E+01	5.11E+01
2.15E+01	4.58E+00	7.97E+01	9.17E+01	4.95E+01
4.64E+01	2.61E+00	7.56E+01	7.81E+01	5.23E+01
1.00E+02	1.73E+00	6.98E+01	6.68E+01	4.90E+01
2.15E+02	1.43E+01	6.99E+01	7.26E+01	5.36E+01
4.64E+02	3.75E+01	6.24E+01	6.68E+01	5.42E+01
1.00E+03	9.88E+00	5.83E+01	5.69E+01	5.83E+01
2.15E+03	2.82E+00	6.24E+01	6.07E+01	6.03E+01
4.64E+03	2.44E+00	6.29E+01	6.74E+01	5.22E+01
1.00E+04	1.28E+00	5.70E+01	7.21E+01	4.89E+01
1.25E+04	1.12E+00	5.79E+01	6.90E+01	4.56E+01
1.58E+04	9.08E-01	6.45E+01	6.38E+01	4.29E+01
1.99E+04	7.93E-01	7.19E+01	5.87E+01	4.23E+01
2.51E+04	7.00E-01	6.96E+01	5.83E+01	4.72E+01
3.16E+04	6.22E-01	5.07E+01	5.87E+01	4.62E+01
3.98E+04	1.82E+00	5.59E+01	5.60E+01	4.17E+01
5.01E+04	3.99E+01	5.72E+01	5.55E+01	4.60E+01
6.30E+04	2.55E+02	6.29E+01	6.53E+01	6.28E+01
7.94E+04	7.87E+02	7.51E+01	8.30E+01	9.38E+01
1.00E+05	1.04E+03	8.80E+01	9.50E+01	1.56E+02
1.25E+05	1.15E+03	9.44E+01	1.16E+02	1.98E+02
1.58E+05	1.42E+03	1.08E+02	1.71E+02	3.30E+02
1.99E+05	1.90E+03	1.49E+02	2.51E+02	4.35E+02
2.51E+05	2.32E+03	2.09E+02	3.88E+02	7.43E+02
3.16E+05	3.13E+03	3.10E+02	5.62E+02	1.04E+03
3.98E+05	3.07E+03	4.87E+02	8.36E+02	1.28E+03
5.01E+05	2.58E+03	8.97E+02	1.02E+03	1.62E+03
6.30E+05	2.18E+03	6.47E+02	1.24E+03	2.13E+03
7.94E+05	2.38E+03	8.55E+02	1.47E+03	2.03E+03
1.00E+06	2.36E+03	1.00E+03	1.64E+03	1.87E+03
1.25E+06	2.18E+03	1.24E+03	1.68E+03	2.08E+03
1.58E+06	2.16E+03	1.59E+03	1.92E+03	2.24E+03
1.99E+06	2.26E+03	1.86E+03	1.93E+03	2.30E+03
2.51E+06	2.16E+03	1.88E+03	1.79E+03	2.04E+03
3.16E+06	2.11E+03	1.79E+03	1.65E+03	2.06E+03
3.98E+06	2.00E+03	1.84E+03	1.89E+03	2.04E+03
5.01E+06	1.60E+03	1.69E+03	1.80E+03	1.83E+03
6.30E+06	1.61E+03	1.60E+03	1.75E+03	1.71E+03
7.94E+06	1.68E+03	0.00E+00	2.71E+03	1.66E+03
1.00E+07	1.31E+03	0.00E+00	0.00E+00	1.34E+03
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

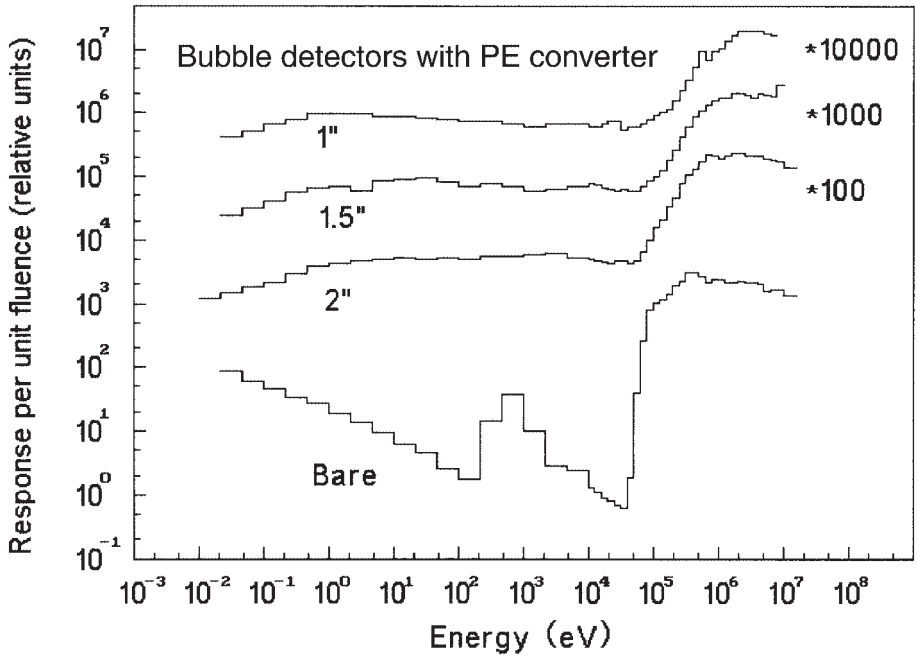

FIG. 3.15. Bubble detectors, 1 (with PE converter).

TABLE 3.XXIV. BUBBLE DETECTORS, 2

Column 1: Energy in eV
Column 2: Apfel
Column 3: Smirnova version 1
Column 4: Ing
Column 5: Smirnova version 2

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	7.95E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	2.68E+01	0.00E+00	0.00E+00	0.00E+00
2.15E-02	5.18E+01	0.00E+00	0.00E+00	0.00E+00
4.64E-02	6.55E+01	0.00E+00	0.00E+00	0.00E+00
1.00E-01	8.73E+01	0.00E+00	0.00E+00	0.00E+00
2.15E-01	8.66E+01	0.00E+00	0.00E+00	0.00E+00
4.64E-01	1.21E+02	0.00E+00	0.00E+00	0.00E+00
1.00E+00	7.75E+01	0.00E+00	0.00E+00	0.00E+00
2.15E+00	7.28E+01	0.00E+00	0.00E+00	0.00E+00
4.64E+00	5.63E+01	0.00E+00	0.00E+00	0.00E+00
1.00E+01	5.66E+01	0.00E+00	0.00E+00	0.00E+00
2.15E+01	3.47E+01	0.00E+00	0.00E+00	0.00E+00
4.64E+01	2.44E+01	0.00E+00	0.00E+00	0.00E+00
1.00E+02	2.52E+01	0.00E+00	0.00E+00	0.00E+00
2.15E+02	1.53E+01	0.00E+00	0.00E+00	1.95E+01
4.64E+02	1.42E+01	0.00E+00	0.00E+00	1.48E+01
1.00E+03	1.13E+01	0.00E+00	0.00E+00	1.02E+01
2.15E+03	1.27E+01	0.00E+00	0.00E+00	8.52E+00
4.64E+03	1.84E+01	0.00E+00	0.00E+00	5.92E+00
1.00E+04	2.58E+01	0.00E+00	0.00E+00	5.70E+00
1.25E+04	3.23E+01	0.00E+00	0.00E+00	5.51E+00
1.58E+04	4.16E+01	0.00E+00	0.00E+00	5.76E+00
1.99E+04	5.70E+01	0.00E+00	0.00E+00	5.71E+00
2.51E+04	8.35E+01	0.00E+00	0.00E+00	5.69E+00
3.16E+04	1.28E+02	0.00E+00	0.00E+00	6.28E+00
3.98E+04	2.53E+02	0.00E+00	0.00E+00	6.56E+00
5.01E+04	4.28E+02	0.00E+00	0.00E+00	7.73E+00
6.30E+04	1.08E+03	0.00E+00	0.00E+00	1.08E+01
7.94E+04	2.25E+03	0.00E+00	0.00E+00	1.63E+01
1.00E+05	3.45E+03	0.00E+00	8.20E-01	2.86E+01
1.25E+05	6.73E+03	0.00E+00	3.22E+00	5.77E+01
1.58E+05	1.50E+04	0.00E+00	5.62E+00	1.21E+02
1.99E+05	2.90E+04	0.00E+00	9.79E+00	2.16E+02
2.51E+05	4.94E+04	0.00E+00	2.44E+01	3.12E+02
3.16E+05	7.35E+04	0.00E+00	2.85E+01	4.13E+02
3.98E+05	9.34E+04	0.00E+00	2.53E+01	4.97E+02
5.01E+05	1.16E+05	0.00E+00	3.17E+01	5.50E+02
6.30E+05	1.45E+05	0.00E+00	3.16E+01	6.09E+02
7.94E+05	1.72E+05	0.00E+00	4.61E+01	6.48E+02
1.00E+06	1.80E+05	9.34E-05	3.20E+01	6.56E+02
1.25E+06	1.62E+05	6.78E-03	3.27E+01	6.58E+02
1.58E+06	1.55E+05	8.30E-02	3.56E+01	6.70E+02
1.99E+06	1.47E+05	2.13E-01	4.27E+01	6.68E+02
2.51E+06	1.30E+05	5.39E-01	3.25E+01	6.55E+02
3.16E+06	1.38E+05	6.80E-01	3.67E+01	6.45E+02
3.98E+06	1.63E+05	4.07E-01	4.20E+01	6.28E+02
5.01E+06	1.68E+05	3.36E-01	3.87E+01	6.22E+02
6.30E+06	1.73E+05	2.71E-01	4.18E+01	6.36E+02
7.94E+06	2.05E+05	4.60E-01	2.97E+01	6.77E+02
1.00E+07	3.48E+05	6.76E-01	4.64E+01	9.63E+02
1.58E+07	0.00E+00	7.14E-01	8.38E+01	8.93E+02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

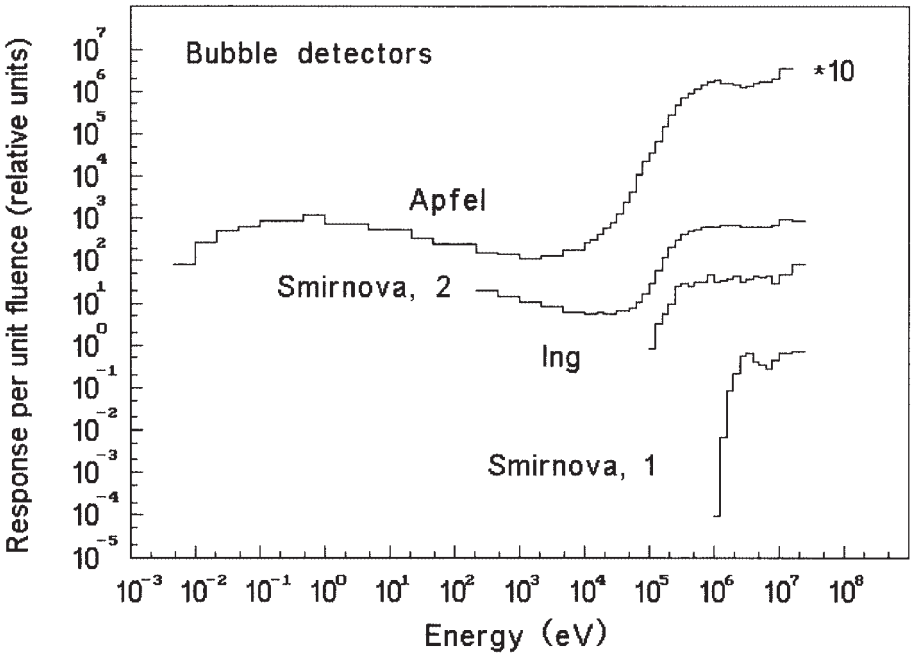

FIG. 3.16. Bubble detectors, 2.

TABLE 3.XXV. TL ALBEDO DETECTORS, 1

Column 1: Energy in eV
Column 2: On phantom surface
Column 3: 5 cm from phantom surface
Column 4: Anterior–posterior irradiation
Column 5: Lateral irradiation
Column 6: Karlsruhe albedo dosimeter

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	7.21E-01	6.59E-02	0.00E+00
2.15E-02	0.00E+00	0.00E+00	7.02E-01	8.81E-02	0.00E+00
4.64E-02	0.00E+00	0.00E+00	7.99E-01	1.10E-01	0.00E+00
1.00E-01	3.90E-01	0.00E+00	8.65E-01	1.21E-01	0.00E+00
2.15E-01	4.62E-01	2.21E-01	9.63E-01	1.33E-01	0.00E+00
4.64E-01	4.69E-01	2.47E-01	9.95E-01	1.41E-01	0.00E+00
1.00E+00	4.63E-01	2.49E-01	9.85E-01	1.43E-01	0.00E+00
2.15E+00	4.16E-01	2.24E-01	8.74E-01	1.26E-01	0.00E+00
4.64E+00	3.67E-01	2.08E-01	6.54E-01	1.03E-01	0.00E+00
1.00E+01	3.30E-01	1.90E-01	5.24E-01	8.91E-02	0.00E+00
2.15E+01	2.93E-01	1.61E-01	4.65E-01	6.94E-02	0.00E+00
4.64E+01	2.53E-01	1.46E-01	4.03E-01	6.94E-02	0.00E+00
1.00E+02	2.33E-01	1.37E-01	3.58E-01	4.66E-02	0.00E+00
2.15E+02	2.08E-01	1.19E-01	3.13E-01	4.39E-02	0.00E+00
4.64E+02	1.87E-01	1.15E-01	2.78E-01	3.88E-02	0.00E+00
1.00E+03	1.75E-01	1.01E-01	2.50E-01	2.42E-02	1.82E-02
2.15E+03	1.68E-01	9.50E-02	2.30E-01	2.18E-02	1.65E-02
4.64E+03	1.57E-01	8.59E-02	2.12E-01	1.61E-02	2.39E-02
1.00E+04	1.46E-01	8.33E-02	1.89E-01	1.26E-02	3.48E-02
1.25E+04	1.42E-01	8.15E-02	1.82E-01	1.26E-02	4.07E-02
1.58E+04	1.39E-01	7.88E-02	1.77E-01	1.35E-02	5.11E-02
1.99E+04	1.35E-01	7.60E-02	1.76E-01	1.33E-02	6.70E-02
2.51E+04	1.32E-01	7.28E-02	1.71E-01	8.53E-03	8.44E-02
3.16E+04	1.29E-01	6.92E-02	1.55E-01	5.31E-03	1.03E-01
3.98E+04	1.27E-01	6.56E-02	1.50E-01	5.70E-03	1.68E-01
5.01E+04	1.25E-01	6.56E-02	1.52E-01	4.99E-03	2.22E-01
6.30E+04	1.24E-01	6.81E-02	1.48E-01	5.10E-03	2.86E-01
7.94E+04	1.20E-01	6.69E-02	1.46E-01	5.87E-03	6.32E-01
1.00E+05	1.14E-01	5.70E-02	1.35E-01	5.69E-03	6.96E-01
1.25E+05	1.11E-01	5.40E-02	1.26E-01	5.29E-03	1.06E+00
1.58E+05	1.08E-01	5.90E-02	1.23E-01	5.29E-03	1.51E+00
1.99E+05	1.03E-01	5.77E-02	1.15E-01	5.29E-03	2.08E+00
2.51E+05	9.77E-02	5.22E-02	1.05E-01	5.29E-03	3.19E+00
3.16E+05	8.59E-02	4.77E-02	9.37E-02	5.29E-03	4.55E+00
3.98E+05	8.23E-02	4.71E-02	8.50E-02	5.29E-03	6.14E+00
5.01E+05	8.28E-02	4.25E-02	7.39E-02	5.29E-03	8.67E+00
6.30E+05	8.01E-02	3.72E-02	6.52E-02	5.29E-03	1.13E+01
7.94E+05	7.60E-02	3.24E-02	6.43E-02	5.22E-03	1.53E+01
1.00E+06	6.66E-02	2.84E-02	5.56E-02	4.14E-03	2.11E+01
1.25E+06	5.24E-02	2.74E-02	4.50E-02	2.64E-03	2.76E+01
1.58E+06	4.02E-02	2.75E-02	3.25E-02	1.75E-03	3.89E+01
1.99E+06	4.33E-02	2.17E-02	2.49E-02	1.27E-03	5.10E+01
2.51E+06	3.37E-02	1.77E-02	1.83E-02	1.44E-03	6.84E+01
3.16E+06	2.70E-02	1.46E-02	3.16E-03	1.52E-03	9.09E+01
3.98E+06	2.14E-02	1.38E-02	6.00E-03	1.54E-03	1.13E+02
5.01E+06	1.53E-02	1.13E-02	2.56E-03	1.80E-03	1.48E+02
6.30E+06	1.28E-02	8.80E-03	2.22E-03	1.93E-03	1.86E+02
7.94E+06	1.16E-02	7.93E-03	2.08E-03	1.49E-03	2.23E+02
1.00E+07	7.58E-03	6.10E-03	1.38E-03	1.47E-03	2.64E+02
1.58E+07	2.20E-03	3.40E-03	0.00E+00	0.00E+00	1.89E+02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

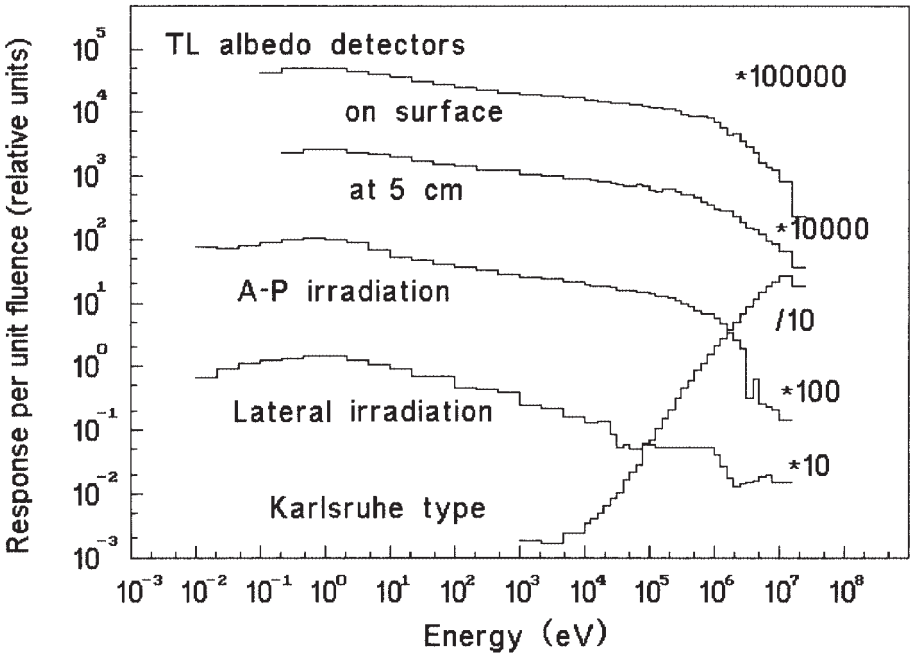

FIG. 3.17. TL albedo detectors, 1.

TABLE 3.XXVI. TL ALBEDO DETECTORS, 2

Column 1: Energy in eV
Column 2: Ratio of ^{6}LiF and ^{7}LiF signals
Column 3: Calculated response of a multielement dosimeter
Column 4: Response of the front detector
Column 5: Combined response of 3 elements
Column 6: Combined response of 4 elements

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	3.68E+00	1.13E+01	1.18E+01
1.00E-02	0.00E+00	0.00E+00	3.74E+00	1.20E+01	1.29E+01
2.15E-02	0.00E+00	0.00E+00	4.19E+00	1.32E+01	1.44E+01
4.64E-02	0.00E+00	0.00E+00	5.49E+00	1.46E+01	1.54E+01
1.00E-01	0.00E+00	0.00E+00	4.80E+00	1.33E+01	1.43E+01
2.15E-01	0.00E+00	0.00E+00	5.70E+00	1.56E+01	1.63E+01
4.64E-01	0.00E+00	3.80E+03	1.12E+01	1.18E+01	1.34E+01
1.00E+00	0.00E+00	3.75E+03	1.00E+01	1.11E+01	9.47E+00
2.15E+00	0.00E+00	3.59E+03	1.16E+01	1.22E+01	1.28E+01
4.64E+00	0.00E+00	3.20E+03	1.26E+01	1.13E+01	1.01E+01
1.00E+01	0.00E+00	3.27E+03	1.30E+01	1.04E+01	9.54E+00
2.15E+01	0.00E+00	2.77E+03	1.41E+01	9.44E+00	9.29E+00
4.64E+01	0.00E+00	2.87E+03	1.48E+01	8.93E+00	8.21E+00
1.00E+02	0.00E+00	2.30E+03	1.44E+01	9.02E+00	7.97E+00
2.15E+02	0.00E+00	2.08E+03	1.66E+01	9.59E+00	9.73E+00
4.64E+02	8.16E+01	1.77E+03	1.56E+01	8.33E+00	7.50E+00
1.00E+03	9.15E+01	1.78E+03	1.89E+01	9.29E+00	9.33E+00
2.15E+03	9.06E+01	1.39E+03	2.08E+01	1.13E+01	1.15E+01
4.64E+03	6.78E+01	1.25E+03	2.38E+01	1.26E+01	1.38E+01
1.00E+04	6.47E+01	1.45E+03	2.71E+01	1.42E+01	1.59E+01
1.25E+04	5.98E+01	1.52E+03	2.90E+01	1.56E+01	1.78E+01
1.58E+04	5.34E+01	1.54E+03	3.12E+01	1.79E+01	2.07E+01
1.99E+04	5.18E+01	1.61E+03	3.35E+01	2.10E+01	2.47E+01
2.51E+04	5.38E+01	1.89E+03	3.65E+01	2.45E+01	2.97E+01
3.16E+04	5.18E+01	2.04E+03	4.07E+01	2.81E+01	3.43E+01
3.98E+04	4.72E+01	2.04E+03	4.64E+01	3.29E+01	3.94E+01
5.01E+04	4.86E+01	2.18E+03	5.30E+01	4.00E+01	4.91E+01
6.30E+04	5.27E+01	2.22E+03	6.02E+01	4.96E+01	6.21E+01
7.94E+04	5.26E+01	2.15E+03	7.10E+01	6.19E+01	7.79E+01
1.00E+05	5.14E+01	2.07E+03	8.60E+01	7.59E+01	9.65E+01
1.25E+05	5.58E+01	2.10E+03	9.83E+01	9.26E+01	1.15E+02
1.58E+05	5.45E+01	2.01E+03	1.13E+02	1.11E+02	1.35E+02
1.99E+05	4.94E+01	1.88E+03	1.30E+02	1.31E+02	1.57E+02
2.51E+05	4.45E+01	1.78E+03	1.56E+02	1.55E+02	1.85E+02
3.16E+05	4.14E+01	1.60E+03	1.83E+02	1.84E+02	2.13E+02
3.98E+05	3.74E+01	1.45E+03	2.12E+02	2.18E+02	2.43E+02
5.01E+05	3.18E+01	1.32E+03	2.49E+02	2.54E+02	2.77E+02
6.30E+05	2.53E+01	1.05E+03	2.89E+02	2.91E+02	3.11E+02
7.94E+05	2.08E+01	8.55E+02	3.24E+02	3.26E+02	3.44E+02
1.00E+06	1.63E+01	7.16E+02	3.47E+02	3.57E+02	3.69E+02
1.25E+06	1.28E+01	5.78E+02	3.55E+02	3.95E+02	4.02E+02
1.58E+06	1.04E+01	4.65E+02	3.72E+02	4.36E+02	4.25E+02
1.99E+06	9.16E+00	4.32E+02	4.01E+02	4.63E+02	4.25E+02
2.51E+06	8.77E+00	3.57E+02	4.10E+02	4.75E+02	4.46E+02
3.16E+06	7.93E+00	2.99E+02	4.10E+02	4.89E+02	4.53E+02
3.98E+06	7.59E+00	2.79E+02	4.09E+02	4.96E+02	4.56E+02
5.01E+06	7.70E+00	2.21E+02	4.05E+02	5.01E+02	4.63E+02
6.30E+06	7.87E+00	1.83E+02	3.98E+02	5.05E+02	4.76E+02
7.94E+06	8.40E+00	1.64E+02	3.97E+02	5.01E+02	4.84E+02
1.00E+07	1.66E+01	1.57E+02	4.69E+02	5.15E+02	4.40E+02
1.58E+07	0.00E+00	4.51E+01	7.17E+00	3.14E+02	3.19E+02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

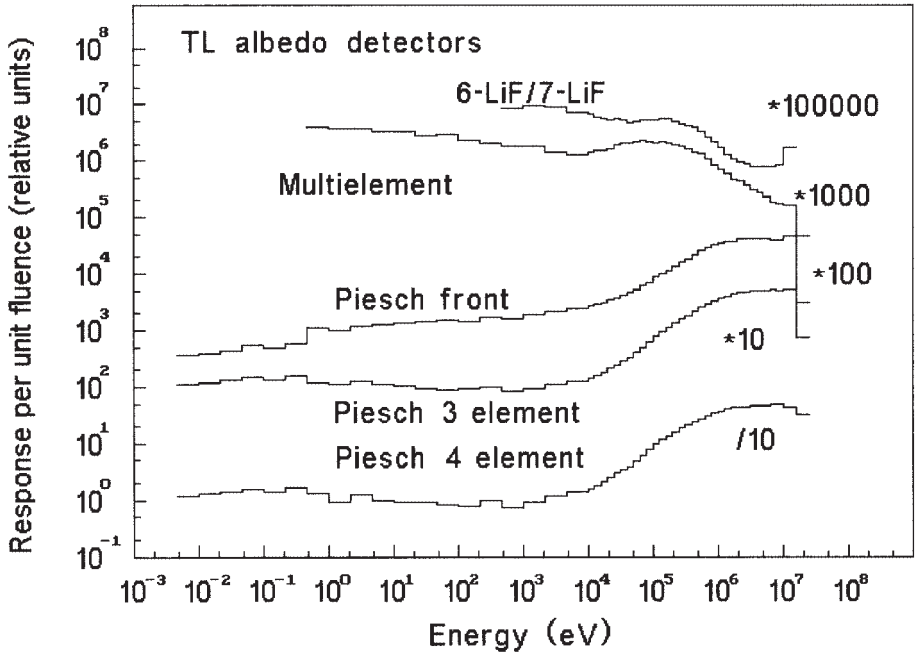

FIG. 3.18. TL albedo detectors, 2.

TABLE 3.XXVII. IONIZATION CHAMBERS

Column 1: Energy in eV
Column 2: Rossi counter
Column 3: KFA counter, 15 mm wall
Column 4: KFA counter, 20 mm wall
Column 5: BF_3 tube
Column 6: Tissue equivalent proportional counter

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	2.38E-02	2.09E-02	1.68E-02	0.00E+00	1.43E+01
4.64E-02	2.35E-02	2.36E-02	2.24E-02	0.00E+00	1.60E+01
1.00E-01	2.56E-02	2.97E-02	2.57E-02	0.00E+00	1.70E+01
2.15E-01	2.59E-02	3.89E-02	3.57E-02	0.00E+00	1.39E+01
4.64E-01	2.53E-02	4.42E-02	3.73E-02	0.00E+00	1.86E+01
1.00E+00	2.21E-02	4.70E-02	4.63E-02	0.00E+00	1.54E+01
2.15E+00	1.88E-02	4.83E-02	5.02E-02	0.00E+00	1.60E+01
4.64E+00	1.53E-02	4.14E-02	5.03E-02	0.00E+00	1.38E+01
1.00E+01	1.17E-02	4.28E-02	5.20E-02	0.00E+00	1.44E+01
2.15E+01	9.43E-03	4.22E-02	4.98E-02	0.00E+00	1.35E+01
4.64E+01	7.61E-03	3.90E-02	4.78E-02	0.00E+00	1.28E+01
1.00E+02	6.57E-03	3.59E-02	4.50E-02	0.00E+00	1.19E+01
2.15E+02	5.75E-03	3.47E-02	4.29E-02	0.00E+00	1.09E+01
4.64E+02	4.80E-03	3.16E-02	4.20E-02	3.63E+02	1.06E+01
1.00E+03	4.63E-03	2.82E-02	4.05E-02	4.11E+02	9.80E+00
2.15E+03	4.47E-03	2.78E-02	3.81E-02	4.19E+02	8.88E+00
4.64E+03	6.17E-03	2.95E-02	3.65E-02	3.41E+02	8.95E+00
1.00E+04	9.70E-03	3.20E-02	3.72E-02	3.44E+02	1.06E+01
1.25E+04	1.26E-02	3.47E-02	3.82E-02	3.43E+02	1.21E+01
1.58E+04	1.97E-02	3.68E-02	3.90E-02	3.37E+02	1.44E+01
1.99E+04	3.52E-02	3.85E-02	4.03E-02	3.50E+02	1.72E+01
2.51E+04	4.68E-02	4.55E-02	4.17E-02	3.72E+02	2.12E+01
3.16E+04	6.67E-02	5.30E-02	4.41E-02	3.52E+02	2.68E+01
3.98E+04	1.03E-01	6.11E-02	4.90E-02	3.22E+02	3.44E+01
5.01E+04	1.38E-01	7.30E-02	5.84E-02	3.43E+02	4.40E+01
6.30E+04	1.82E-01	9.65E-02	7.40E-02	3.83E+02	5.58E+01
7.94E+04	2.50E-01	1.21E-01	8.16E-02	4.09E+02	7.09E+01
1.00E+05	3.40E-01	1.53E-01	1.00E-01	4.29E+02	9.03E+01
1.25E+05	4.49E-01	2.24E-01	1.59E-01	4.48E+02	1.13E+02
1.58E+05	5.96E-01	2.39E-01	2.18E-01	4.55E+02	1.41E+02
1.99E+05	7.21E-01	4.77E-01	2.81E-01	4.55E+02	1.75E+02
2.51E+05	8.94E-01	4.88E-01	3.56E-01	4.59E+02	2.10E+02
3.16E+05	1.18E+00	4.34E-01	4.80E-01	4.44E+02	2.47E+02
3.98E+05	1.31E+00	7.23E-01	6.20E-01	4.18E+02	2.90E+02
5.01E+05	1.54E+00	9.84E-01	7.17E-01	3.83E+02	3.30E+02
6.30E+05	1.86E+00	1.16E+00	9.65E-01	3.52E+02	3.62E+02
7.94E+05	2.19E+00	1.43E+00	1.11E+00	3.22E+02	3.94E+02
1.00E+06	2.49E+00	1.92E+00	1.38E+00	2.72E+02	4.11E+02
1.25E+06	2.56E+00	2.06E+00	1.67E+00	2.43E+02	3.93E+02
1.58E+06	2.82E+00	2.27E+00	1.89E+00	2.20E+02	3.92E+02
1.99E+06	2.94E+00	2.43E+00	1.97E+00	1.85E+02	4.06E+02
2.51E+06	2.76E+00	2.34E+00	1.87E+00	1.57E+02	4.04E+02
3.16E+06	3.10E+00	2.60E+00	2.24E+00	1.31E+02	4.02E+02
3.98E+06	3.49E+00	2.88E+00	2.49E+00	1.14E+02	3.97E+02
5.01E+06	3.57E+00	2.99E+00	2.53E+00	1.00E+02	3.97E+02
6.30E+06	3.31E+00	2.67E+00	2.04E+00	9.38E+01	4.08E+02
7.94E+06	3.32E+00	2.99E+00	2.26E+00	8.85E+01	4.34E+02
1.00E+07	4.04E+00	3.58E+00	2.68E+00	8.16E+01	5.95E+02
1.58E+07	4.68E+00	4.66E+00	6.26E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	6.02E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

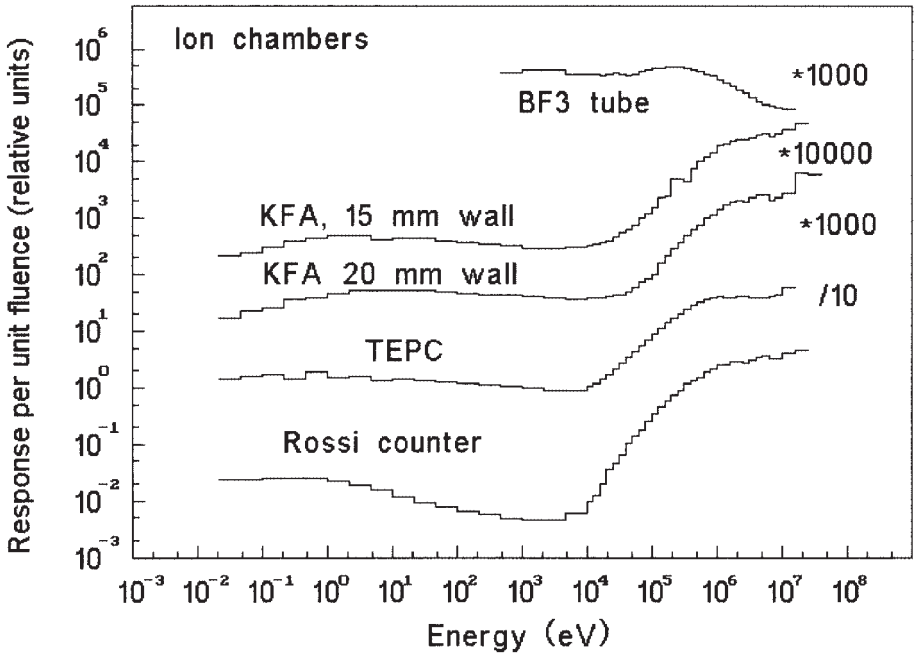

FIG. 3.19. Ionization chambers.

TABLE 3.XXVIII. CHAMBERS, ELECTRETS AND Si DIODE

Column 1: Energy in eV
Column 2: Ionization chamber with CO_2 gas
Column 3: Ionization chamber with Ar gas
Column 4: Electret without converter
Column 5: Electret with converter
Column 6: Si diode

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	1.36E+02	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00	1.50E+02	0.00E+00
2.15E-01	0.00E+00	0.00E+00	0.00E+00	1.42E+02	0.00E+00
4.64E-01	0.00E+00	0.00E+00	0.00E+00	6.45E+01	0.00E+00
1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E+02	0.00E+00
2.15E+00	0.00E+00	0.00E+00	0.00E+00	1.05E+02	0.00E+00
4.64E+00	0.00E+00	0.00E+00	0.00E+00	9.01E+01	0.00E+00
1.00E+01	0.00E+00	0.00E+00	0.00E+00	8.70E+01	0.00E+00
2.15E+01	0.00E+00	0.00E+00	0.00E+00	9.35E+01	0.00E+00
4.64E+01	0.00E+00	0.00E+00	0.00E+00	7.29E+01	0.00E+00
1.00E+02	0.00E+00	0.00E+00	0.00E+00	5.11E+01	0.00E+00
2.15E+02	0.00E+00	0.00E+00	0.00E+00	7.58E+01	0.00E+00
4.64E+02	0.00E+00	0.00E+00	0.00E+00	4.16E+01	0.00E+00
1.00E+03	0.00E+00	0.00E+00	0.00E+00	3.04E+01	0.00E+00
2.15E+03	0.00E+00	0.00E+00	0.00E+00	3.46E+01	0.00E+00
4.64E+03	0.00E+00	0.00E+00	0.00E+00	3.18E+01	0.00E+00
1.00E+04	0.00E+00	0.00E+00	0.00E+00	3.24E+01	0.00E+00
1.25E+04	0.00E+00	0.00E+00	0.00E+00	3.38E+01	0.00E+00
1.58E+04	0.00E+00	0.00E+00	0.00E+00	3.28E+01	0.00E+00
1.99E+04	0.00E+00	0.00E+00	0.00E+00	3.25E+01	0.00E+00
2.51E+04	0.00E+00	0.00E+00	0.00E+00	3.50E+01	0.00E+00
3.16E+04	0.00E+00	0.00E+00	0.00E+00	3.81E+01	0.00E+00
3.98E+04	0.00E+00	0.00E+00	0.00E+00	3.47E+01	0.00E+00
5.01E+04	0.00E+00	0.00E+00	0.00E+00	2.54E+01	0.00E+00
6.30E+04	0.00E+00	0.00E+00	0.00E+00	3.13E+01	0.00E+00
7.94E+04	0.00E+00	0.00E+00	0.00E+00	3.37E+01	0.00E+00
1.00E+05	0.00E+00	0.00E+00	0.00E+00	3.66E+01	6.73E-02
1.25E+05	0.00E+00	0.00E+00	0.00E+00	3.80E+01	2.18E-02
1.58E+05	0.00E+00	0.00E+00	0.00E+00	3.61E+01	7.01E-01
1.99E+05	3.20E-01	1.34E-01	0.00E+00	3.38E+01	1.53E+00
2.51E+05	4.83E-01	1.23E-01	0.00E+00	3.61E+01	6.12E-01
3.16E+05	6.56E-01	1.29E-01	0.00E+00	5.56E+01	6.18E-01
3.98E+05	7.89E-01	1.32E-01	0.00E+00	1.02E+02	9.97E-01
5.01E+05	8.00E-01	1.52E-01	0.00E+00	1.33E+02	2.01E+00
6.30E+05	8.51E-01	1.63E-01	1.87E+02	1.50E+02	1.24E+00
7.94E+05	1.11E+00	1.92E-01	2.71E+02	2.23E+02	2.09E+00
1.00E+06	1.94E+00	2.66E-01	3.52E+02	2.94E+02	1.19E+00
1.25E+06	1.61E+00	3.69E-01	4.22E+02	3.66E+02	1.86E+00
1.58E+06	1.62E+00	4.53E-01	5.05E+02	5.04E+02	1.99E+00
1.99E+06	1.69E+00	5.76E-01	6.19E+02	5.64E+02	1.19E+00
2.51E+06	0.00E+00	0.00E+00	7.26E+02	5.50E+02	0.00E+00
3.16E+06	0.00E+00	0.00E+00	8.24E+02	9.49E+02	0.00E+00
3.98E+06	0.00E+00	0.00E+00	9.28E+02	1.23E+03	0.00E+00
5.01E+06	0.00E+00	0.00E+00	1.02E+03	9.79E+02	0.00E+00
6.30E+06	0.00E+00	0.00E+00	1.10E+03	1.12E+03	0.00E+00
7.94E+06	0.00E+00	0.00E+00	1.18E+03	1.20E+03	0.00E+00
1.00E+07	0.00E+00	0.00E+00	1.33E+03	1.94E+03	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

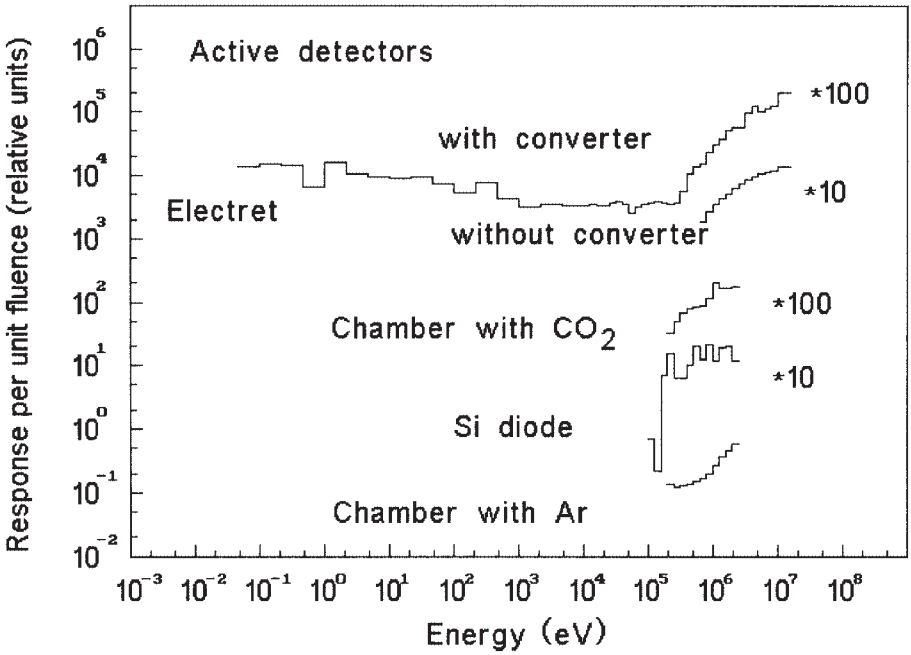

FIG. 3.20. Chambers, electrets and Si diode.

TABLE 3.XXIX. Si DOSIMETERS FROM GSF

Column 1: Energy in eV
Column 2: Si detector with PMMA converter, dead layer 10 μm
Column 3: Si detector with PMMA converter, dead layer 50 nm
Column 4: Si detector with ureaformaldehyde converter, dead layer 50 nm
Column 5: Si detector with 2 mm LiF converter
Column 6: Si detector with 50 μm LiF converter

1.00E-03	0.00E+00	0.00E+00	7.16E-06	0.00E+00	1.40E-05
2.15E-03	0.00E+00	0.00E+00	6.10E-06	0.00E+00	1.46E-04
4.64E-03	0.00E+00	0.00E+00	4.20E-06	0.00E+00	7.10E-04
1.00E-02	0.00E+00	0.00E+00	2.28E-06	0.00E+00	2.90E-03
2.15E-02	0.00E+00	0.00E+00	1.01E-06	0.00E+00	7.31E-03
4.64E-02	0.00E+00	0.00E+00	1.13E-06	0.00E+00	1.25E-02
1.00E-01	0.00E+00	0.00E+00	1.04E-06	0.00E+00	1.40E-02
2.15E-01	0.00E+00	0.00E+00	1.36E-06	0.00E+00	1.20E-02
4.64E-01	0.00E+00	0.00E+00	1.06E-06	0.00E+00	8.83E-03
1.00E+00	0.00E+00	0.00E+00	9.88E-07	1.45E-05	8.23E-03
2.15E+00	0.00E+00	0.00E+00	3.87E-07	7.51E-05	6.98E-03
4.64E+00	0.00E+00	0.00E+00	2.98E-07	2.26E-04	5.49E-03
1.00E+01	0.00E+00	0.00E+00	3.38E-07	6.50E-04	4.58E-03
2.15E+01	0.00E+00	0.00E+00	1.34E-07	1.75E-03	1.30E-02
4.64E+01	0.00E+00	0.00E+00	8.16E-08	4.04E-03	3.35E-02
1.00E+02	0.00E+00	0.00E+00	7.54E-08	6.64E-03	6.41E-02
2.15E+02	0.00E+00	0.00E+00	4.55E-08	7.74E-03	6.44E-02
4.64E+02	0.00E+00	0.00E+00	2.93E-08	5.66E-03	4.00E-02
1.00E+03	0.00E+00	0.00E+00	2.48E-08	2.65E-03	2.37E-03
2.15E+03	0.00E+00	0.00E+00	8.51E-09	7.41E-04	1.43E-03
4.64E+03	0.00E+00	0.00E+00	3.13E-09	7.18E-04	1.12E-03
1.00E+04	0.00E+00	0.00E+00	4.14E-09	3.27E-04	4.03E-04
1.25E+04	0.00E+00	0.00E+00	3.49E-09	1.24E-04	1.30E-05
1.58E+04	0.00E+00	0.00E+00	3.13E-09	1.28E-05	9.99E-06
1.99E+04	0.00E+00	0.00E+00	5.34E-10	1.18E-05	1.06E-05
2.51E+04	0.00E+00	0.00E+00	5.01E-10	1.17E-05	1.14E-05
3.16E+04	0.00E+00	0.00E+00	5.14E-10	1.11E-05	1.12E-05
3.98E+04	0.00E+00	0.00E+00	8.46E-10	1.00E-05	9.44E-06
5.01E+04	0.00E+00	3.14E-09	9.95E-10	9.20E-06	8.15E-06
6.30E+04	0.00E+00	1.72E-08	1.18E-09	9.54E-06	7.93E-06
7.94E+04	0.00E+00	2.89E-08	1.46E-07	1.17E-05	1.04E-05
1.00E+05	0.00E+00	5.70E-07	5.87E-07	1.63E-05	1.64E-05
1.25E+05	0.00E+00	1.21E-06	1.35E-06	2.31E-05	2.56E-05
1.58E+05	0.00E+00	1.96E-06	2.28E-06	3.07E-05	3.41E-05
1.99E+05	0.00E+00	2.75E-06	3.44E-06	3.60E-05	3.80E-05
2.51E+05	6.37E-08	3.50E-06	4.83E-06	3.62E-05	3.47E-05
3.16E+05	1.26E-07	3.54E-06	6.56E-06	3.08E-05	2.63E-05
3.98E+05	1.65E-07	3.41E-06	8.58E-06	2.19E-05	1.69E-05
5.01E+05	3.13E-07	3.63E-06	1.11E-05	1.40E-05	1.05E-05
6.30E+05	1.64E-06	3.56E-06	1.44E-05	1.02E-05	7.87E-06
7.94E+05	8.00E-06	3.24E-06	1.77E-05	1.14E-05	7.59E-06
1.00E+06	3.79E-05	3.75E-06	2.11E-05	1.58E-05	8.72E-06
1.25E+06	9.83E-05	3.16E-06	2.49E-05	2.12E-05	1.20E-05
1.58E+06	1.81E-04	4.53E-06	3.24E-05	2.69E-05	1.84E-05
1.99E+06	2.83E-04	6.75E-06	4.26E-05	3.32E-05	2.72E-05
2.51E+06	3.94E-04	8.09E-06	5.32E-05	4.13E-05	3.66E-05
3.16E+06	5.31E-04	9.21E-06	6.21E-05	5.03E-05	4.57E-05
3.98E+06	6.61E-04	1.11E-05	6.94E-05	5.90E-05	5.47E-05
5.01E+06	8.01E-04	1.22E-05	7.72E-05	6.69E-05	6.42E-05
6.30E+06	9.39E-04	1.37E-05	8.45E-05	7.72E-05	7.67E-05
7.94E+06	1.36E-03	1.50E-05	1.05E-04	9.49E-05	9.72E-05
1.00E+07	2.54E-03	4.73E-05	1.62E-04	1.37E-04	1.47E-04
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

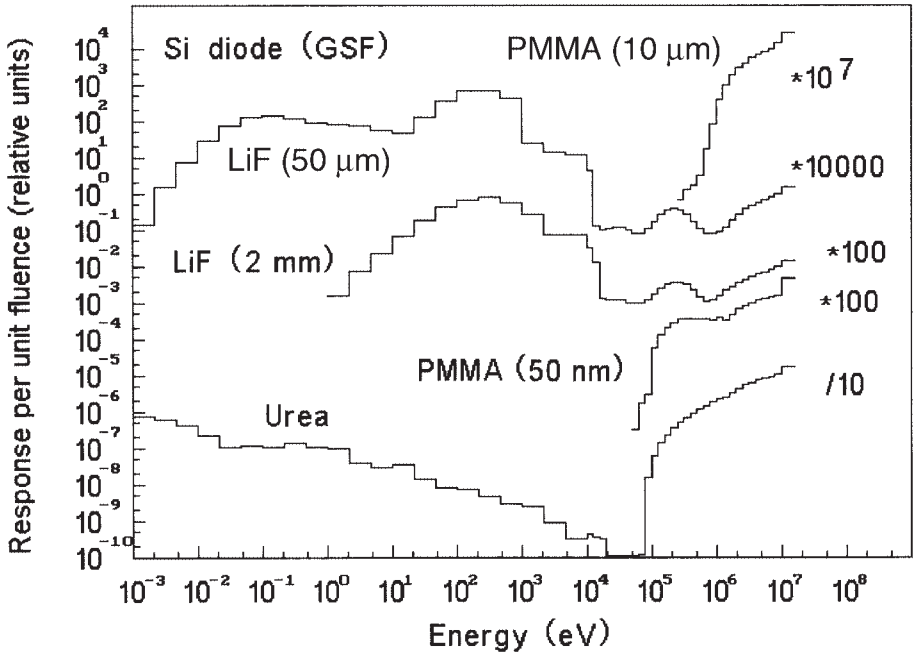

FIG. 3.21. Si dosimeters from GSF.

Chapter 4
CALIBRATION AND REFERENCE SPECTRA

TABLE 4.I. REFERENCE FIELDS

Spectrum	Ref.	Calculated or measured	Table
ISO, unmoderated Cf	[90]	C	4.V
ISO, moderated Cf	[90]	C	4.V
ISO, Am–Be	[90]	C	4.V
ISO, Am–B	[90]	C	4.V
PTB, unmoderated Cf, without shadow cone	[23]	M	4.VI
PTB, unmoderated Cf, with shadow cone	[23]	M	4.VI
PTB, unmoderated Cf, the difference	[23]	M	4.VI
PTB, moderated Cf, without shadow cone	[23]	M	4.VII
PTB, moderated Cf, with shadow cone	[23]	M	4.VII
PTB, moderated Cf, the difference	[23]	M	4.VII
Tohoko, Fe moderated Cf	[91]	M	4.VIII
Tohoko, C moderated Cf	[91]	M	4.VIII
Tohoko, PE moderated Cf	[91]	M	4.VIII
JINR, PE (29.2 cm dia.) moderated Cf	[92]	M	4.VIII
JINR, PE (12.7 cm dia.) moderated Cf	[92]	M	4.VIII
PTB, Am–Be, without shadow cone	[23]	M	4.IX
PTB, Am–Be, with shadow cone	[23]	M	4.IX
PTB, Am–Be, the difference	[23]	M	4.IX
CERN, Pu–Be, 1 m from source	[93]	M	4.X
CERN, Pu–Be, 2 m from source	[93]	M	4.X
CERN, Pu–Be, 3 m from source	[93]	M	4.X
CERN, PE mod. Pu–Be, 1 m from source	[93]	M	4.X
CERN, PE mod. Pu–Be, 2 m from source	[93]	M	4.X

TABLE 4.II. ISOTOPIC SOURCES

Spectrum	Ref.	Calculated or measured	Table
Unmoderated Pu–Be	[94]	M	4.XI
H_2O moderated Pu–Be	[94]	M	4.XI
D_2O moderated Pu–Be	[94]	M	4.XI
Bare PuO_2 at 1 m	[30]	M	4.XI
Bare Pu metal at 0.5 m	[30]	M	4.XI
Bare PuF_4 at 0.5 m	[30]	M	4.XII
PuF_4 at 0.5 m with 1″ acrylic shield	[30]	M	4.XII
PuF_4 at 0.5 m with 2″ acrylic shield	[30]	M	4.XII
Bare PuF_4 at 1 m	[30]	M	4.XII
PuF_4 at 1 m with 2″ acrylic shield	[30]	M	4.XII
5 cm Fe moderated Cf	[62]	M	4.XIII
25 cm Fe moderated Cf	[62]	M	4.XIII
5 cm Fe + 10 cm PE moderated Cf	[62]	M	4.XIII
25 cm Fe + 10 cm PE moderated Cf	[62]	M	4.XIII

TABLE 4.III. OPERATIONAL FIELD SIMULATION SPECTRA

Spectrum	Ref.	Calculated or measured	Table
GRENF, position A	[95]	C	4.XIV
GRENF, position B	[95]	C	4.XIV
GRENF, position C	[95]	C	4.XIV
Cadarache, mock-up, 1991 intercomparison	[96]	M	4.XIV
Cadarache, mock-up, 1994 intercomparison	[96]	M	4.XIV
GRENF with 30 cm D_2O	[62]	M	4.XV
GRENF with 10 cm iron	[62]	M	4.XV
GRENF with 3–10 cm PE	[62]	M	4.XV
PTB, Li–Be, 2.5 MeV	[62]	M	4.XV
PTB, Li–Be, 3.3 MeV	[62]	M	4.XV
RNSF, CFG II, 2.8 MeV, position A	[97]	C	4.XVI
RNSF, CFG II, 2.8 MeV, position B	[97]	C	4.XVI
RNSF, CFG II, 2.8 MeV, position D	[97]	C	4.XVI
RNSF, CFG II, 2.8 MeV, position E	[97]	C	4.XVI
RNSF, CFG C, 3 MeV, position B	[98]	C	4.XVI
RNSF, CFG I, 14 MeV, position VI	[97]	C	4.XVII
RNSF, CFG I, 14 MeV, position 28	[97]	C	4.XVII
IPSN-SDOS, 14 MeV	[62]	C	4.XVII
IPSN-SDOS, 14 MeV, 5 cm water shield	[62]	C	4.XVII
IPSN-SDOS, 14 MeV, 20 cm water shield	[62]	C	4.XVII
TEXTOR, bare	[23]	M	4.XVIII
TEXTOR, with 2.3 cm iron shield	[23]	M	4.XVIII
TEXTOR, with 60 cm wood at 120 cm	[23]	M	4.XVIII
TEXTOR, with 60 cm wood at 180 cm	[23]	M	4.XVIII
UTR-Kinki facility, in void	[99]	C	4.XIX
UTR-Kinki facility, in void + fission plate	[99]	C	4.XIX
UTR-Kinki facility, in void + fission plate with boron	[99]	C	4.XIX
Silene, bare	[100]	M	4.XX
Silene, lead shield	[100]	M	4.XX
Silene, PE shield	[100]	M	4.XX
Silene, steel shield	[100]	M	4.XX
MOX, position 1	[95]	M	4.XXI
MOX, position 2	[95]	M	4.XXI
MOX, in container	[95]	M	4.XXI
PSI, 60 MeV field with background	[101]	M	4.XXII
PSI, 60 MeV field background	[101]	M	4.XXII
PSI, 60 MeV field without background	[101]	M	4.XXII
CERN, lead beam on lead target	[102]	M	4.XXII
CERN, proton beam on copper	[102]	M	4.XXII
CERN, stray field, concrete top	[103]	M	4.XXIII

TABLE 4.III. (cont.)

Spectrum	Ref.	Calculated or measured	Table
CERN, stray field, concrete side	[103]	M	4.XXIII
CERN, stray field, iron top	[103]	M	4.XXIII
CERN, stray field, iron side	[103]	M	4.XXIII
CERN–CEC intercomparison, iron shield	[104]	M	4.XXIV
CERN–CEC intercomparison, concrete shield	[104]	M	4.XXIV
FFTP facility	[104]	M	4.XXIV
SSRL linac, diagnostic room	[104]	M	4.XXIV
SSRL SPEAR, on the roof	[104]	M	4.XXIV
JINR phasotron, ‘soft’ field	[92]	M	4.XXV
JINR phasotron, ‘hard’ field	[92]	M	4.XXV
IHEP facility	[105]	M	4.XXV

TABLE 4.IV. FLUENCE TO DOSE EQUIVALENT CONVERSION COEFFICIENTS FOR CALIBRATION SPECTRA RECOMMENDED BY ISO REFERENCE SPECTRA (pSv·cm^2)

Quantity	Calibration field			
	^{252}Cf, ISO	D_2O mod., Cf, ISO	Am–Be, ISO	Am–B, ISO
Ambient dose equivalent, $H^*(10)$	385	105	391	408
Personal dose equivalent, $H_P(10)$	400	110	411	426

TABLE 4.V. ISO REFERENCE SPECTRA

Spectra

Column 1: Energy in eV
Column 2: ^{252}Cf
Column 3: D_2O moderated Cf
Column 4: Am–Be
Column 5: Am–B

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-01	0.00E+00	2.39E-02	0.00E+00	0.00E+00
4.64E-01	0.00E+00	2.41E-02	0.00E+00	0.00E+00
1.00E+00	0.00E+00	2.46E-02	0.00E+00	0.00E+00
2.15E+00	0.00E+00	2.56E-02	0.00E+00	0.00E+00
4.64E+00	0.00E+00	2.80E-02	0.00E+00	0.00E+00
1.00E+01	0.00E+00	3.35E-02	0.00E+00	0.00E+00
2.15E+01	0.00E+00	4.35E-02	0.00E+00	0.00E+00
4.64E+01	0.00E+00	5.15E-02	0.00E+00	0.00E+00
1.00E+02	0.00E+00	5.58E-02	0.00E+00	0.00E+00
2.15E+02	0.00E+00	6.38E-02	0.00E+00	0.00E+00
4.64E+02	0.00E+00	6.87E-02	0.00E+00	0.00E+00
1.00E+03	0.00E+00	7.80E-02	0.00E+00	0.00E+00
2.15E+03	0.00E+00	6.93E-02	0.00E+00	0.00E+00
4.64E+03	0.00E+00	8.51E-02	0.00E+00	0.00E+00
1.00E+04	9.22E-04	8.74E-02	0.00E+00	0.00E+00
1.25E+04	1.29E-03	8.95E-02	0.00E+00	0.00E+00
1.58E+04	1.79E-03	9.14E-02	0.00E+00	0.00E+00
1.99E+04	2.48E-03	8.76E-02	0.00E+00	0.00E+00
2.51E+04	3.39E-03	8.38E-02	0.00E+00	0.00E+00
3.16E+04	4.64E-03	8.32E-02	0.00E+00	0.00E+00
3.98E+04	6.38E-03	8.37E-02	0.00E+00	0.00E+00
5.01E+04	8.81E-03	8.29E-02	0.00E+00	0.00E+00
6.30E+04	1.21E-02	7.98E-02	0.00E+00	0.00E+00
7.94E+04	1.69E-02	7.54E-02	0.00E+00	0.00E+00
1.00E+05	2.37E-02	7.14E-02	1.66E-02	0.00E+00
1.25E+05	3.26E-02	6.80E-02	2.21E-02	0.00E+00
1.58E+05	4.45E-02	6.34E-02	2.87E-02	0.00E+00
1.99E+05	6.05E-02	5.91E-02	3.67E-02	0.00E+00
2.51E+05	8.22E-02	5.53E-02	4.65E-02	0.00E+00
3.16E+05	1.09E-01	4.56E-02	5.77E-02	0.00E+00
3.98E+05	1.45E-01	2.77E-02	7.06E-02	0.00E+00
5.01E+05	1.89E-01	5.44E-02	8.48E-02	0.00E+00
6.30E+05	2.41E-01	5.92E-02	9.61E-02	0.00E+00
7.94E+05	3.00E-01	4.92E-02	1.06E-01	5.19E-02
1.00E+06	3.59E-01	5.07E-02	1.18E-01	2.93E-02
1.25E+06	4.14E-01	7.32E-02	1.27E-01	1.18E-01
1.58E+06	4.52E-01	8.53E-02	1.81E-01	4.85E-01
1.99E+06	4.62E-01	1.20E-01	2.43E-01	1.06E+00
2.51E+06	4.34E-01	1.18E-01	4.21E-01	1.40E+00
3.16E+06	3.66E-01	7.69E-02	5.71E-01	8.43E-01
3.98E+06	2.71E-01	7.75E-02	6.86E-01	3.41E-01
5.01E+06	1.69E-01	5.18E-02	6.50E-01	5.67E-03
6.30E+06	8.61E-02	2.68E-02	5.78E-01	0.00E+00
7.94E+06	3.35E-02	1.06E-02	1.66E-01	0.00E+00
1.00E+07	4.27E-03	1.71E-03	1.72E-02	0.00E+00
1.58E+07	4.31E-04	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

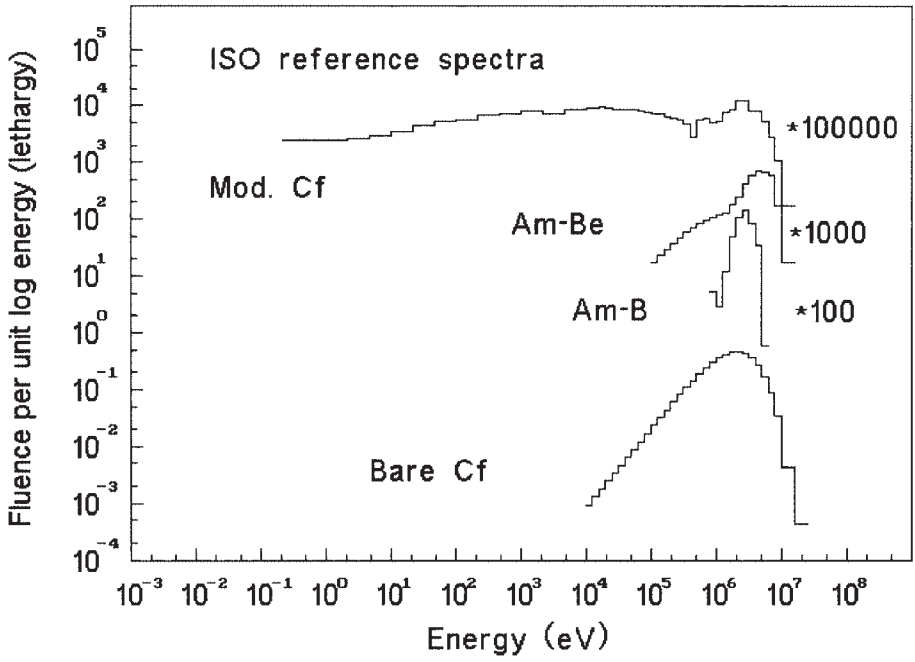

FIG. 4.1. ISO reference spectra.

TABLE 4.V. ISO REFERENCE SPECTRA

Spectrum weighted responses

Column 2: ^{252}Cf
Column 3: D_2O moderated Cf
Column 4: Am–Be
Column 5: Am–B

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	9.98E-01
E A-P R60	3.36E+02	9.75E+01	4.14E+02	4.14E+02
H AMBIENT	3.80E+02	1.07E+02	3.95E+02	4.10E+02
H PERSONAL	3.99E+02	1.12E+02	4.15E+02	4.32E+02
HE A-P R51	1.95E+02	5.21E+01	2.72E+02	2.48E+02
MADE R21	3.38E+02	9.33E+01	3.77E+02	4.02E+02
BS 3HE BARE	6.91E-04	8.33E-02	5.01E-04	5.56E-04
BS 3HE 2.5″	1.07E-01	9.11E-01	5.95E-02	5.08E-02
BS 3HE 3″	3.09E-01	1.39E+00	1.82E-01	1.71E-01
BS 3HE 3.5″	6.09E-01	1.76E+00	3.79E-01	3.77E-01
BS 3HE 4″	9.66E-01	2.00E+00	6.29E-01	6.55E-01
BS 3HE 4.5″	1.33E+00	2.11E+00	8.93E-01	9.70E-01
BS 3HE 5″	1.66E+00	2.10E+00	1.18E+00	1.31E+00
BS 3HE 6″	2.14E+00	1.87E+00	1.63E+00	1.87E+00
BS 3HE 7″	2.35E+00	1.54E+00	1.94E+00	2.27E+00
BS 3HE 8″	2.30E+00	1.21E+00	2.06E+00	2.39E+00
BS 3HE 9.5″	2.00E+00	8.15E-01	2.01E+00	2.31E+00
BS 3HE 10″	1.86E+00	7.13E-01	1.95E+00	2.23E+00
BS 3HE 12″	1.32E+00	4.14E-01	1.63E+00	1.70E+00
BS 3HE 15″	7.00E-01	1.91E-01	1.10E+00	9.75E-01
BS 3HE 18″	3.81E-01	1.00E-01	7.39E-01	5.53E-01
BS LiI BARE	4.43E-04	1.53E-02	2.54E-04	1.89E-04
BS LiI 2″	1.01E-02	8.83E-02	5.55E-03	4.79E-03
BS LiI 3″	5.39E-02	1.70E-01	3.29E-02	3.24E-02
BS LiI 6″	2.20E-01	1.67E-01	1.71E-01	1.98E-01
BS LiI 8″	2.20E-01	1.05E-01	2.05E-01	2.43E-01
BS LiI 10″	1.73E-01	6.19E-02	1.88E-01	2.12E-01
BS LiI 15″	6.73E-02	1.81E-02	1.08E-01	9.71E-02
BS LiI 18″	3.44E-02	9.06E-03	6.65E-02	5.13E-02
6Li BARE	9.70E-02	2.40E-01	7.15E-02	7.59E-02
6Li Cd	3.85E-02	1.19E-01	2.74E-02	2.79E-02
GOLD BARE	3.60E-05	8.59E-03	2.25E-05	2.08E-05
Nat U PC	6.27E-06	8.34E-05	7.64E-06	6.89E-06
238 U PC	1.95E-06	5.23E-07	4.47E-06	3.37E-06
232 Th PC	4.97E-07	1.36E-07	1.33E-06	7.75E-07
CR39 ECE	2.18E-04	5.02E-05	1.87E-04	3.04E-04
LR115 LiB	6.73E+02	2.33E+03	3.98E+02	3.91E+02
PLANAR	1.75E+05	4.03E+04	1.72E+05	1.96E+05
BASE	1.33E+05	3.13E+04	1.27E+05	1.37E+05
PYRAMIDE	9.32E+04	2.20E+04	9.70E+04	1.03E+05
PTB TH	4.20E+02	1.12E+02	4.19E+02	4.18E+02
PTB INT	4.17E+02	1.33E+02	4.18E+02	4.14E+02
PTB FAST	4.14E+02	1.07E+02	4.18E+02	4.24E+02
PTB I+F	4.30E+02	1.18E+02	4.33E+02	4.37E+02
LONG C	9.87E-01	4.05E-01	9.04E-01	1.01E+00
LEAKE	2.80E-01	1.03E-01	2.72E-01	3.10E-01
A-B_2	7.93E-01	2.75E-01	7.83E-01	9.26E-01
EBERNRD2	7.86E-01	2.83E-01	7.78E-01	9.17E-01
MOD930_2	7.57E-01	2.27E-01	7.94E-01	9.24E-01
STUDSVIK	3.79E-01	1.11E-01	4.15E-01	4.58E-01
LB6411	1.18E+00	3.47E-01	1.28E+00	1.43E+00
BUBBLE	1.41E+05	3.30E+04	1.53E+05	1.43E+05
ELECTRET	4.94E+02	1.61E+02	8.17E+02	6.69E+02
SILICON	1.00E+00	2.37E-01	4.04E-01	5.98E-01

TABLE 4.VI. BARE Cf SPECTRA (PTB)

Spectra

Column 1: Energy in eV
Column 2: Measured without shadow cone
Column 3: Measured with shadow cone
Column 4: The difference

1.00E-03	1.09E-03	2.41E-03	3.99E-05
2.15E-03	2.73E-03	5.94E-03	8.23E-05
4.64E-03	7.02E-03	1.48E-02	1.54E-04
1.00E-02	1.72E-02	3.47E-02	2.39E-04
2.15E-02	3.34E-02	6.39E-02	2.52E-04
4.64E-02	3.61E-02	6.67E-02	2.27E-04
1.00E-01	1.52E-02	2.88E-02	1.88E-04
2.15E-01	1.17E-02	2.28E-02	1.52E-04
4.64E-01	1.04E-02	2.01E-02	1.26E-04
1.00E+00	1.10E-02	2.12E-02	1.10E-04
2.15E+00	1.18E-02	2.25E-02	1.05E-04
4.64E+00	1.26E-02	2.41E-02	1.01E-04
1.00E+01	1.35E-02	2.59E-02	1.02E-04
2.15E+01	1.44E-02	2.78E-02	1.05E-04
4.64E+01	1.54E-02	3.02E-02	1.11E-04
1.00E+02	1.65E-02	3.25E-02	1.19E-04
2.15E+02	1.76E-02	3.51E-02	1.29E-04
4.64E+02	1.89E-02	3.79E-02	1.46E-04
1.00E+03	2.02E-02	4.10E-02	1.81E-04
2.15E+03	2.17E-02	4.42E-02	2.67E-04
4.64E+03	2.34E-02	4.78E-02	5.17E-04
1.00E+04	2.46E-02	5.05E-02	9.10E-04
1.26E+04	2.54E-02	5.17E-02	1.22E-03
1.58E+04	2.62E-02	5.30E-02	1.64E-03
2.00E+04	2.71E-02	5.42E-02	2.25E-03
2.51E+04	2.82E-02	5.56E-02	3.09E-03
3.16E+04	2.94E-02	5.70E-02	4.28E-03
3.98E+04	3.10E-02	5.87E-02	5.95E-03
5.01E+04	3.30E-02	6.03E-02	8.28E-03
6.31E+04	3.56E-02	6.20E-02	1.16E-02
7.94E+04	3.89E-02	6.39E-02	1.61E-02
1.00E+05	4.34E-02	6.60E-02	2.24E-02
1.26E+05	4.92E-02	6.83E-02	3.10E-02
1.58E+05	5.69E-02	7.13E-02	4.28E-02
2.00E+05	6.72E-02	7.45E-02	5.90E-02
2.51E+05	8.04E-02	7.83E-02	8.03E-02
3.16E+05	9.73E-02	8.27E-02	1.08E-01
3.98E+05	1.19E-01	8.81E-02	1.44E-01
5.01E+05	1.44E-01	9.44E-02	1.88E-01
6.31E+05	1.75E-01	1.02E-01	2.41E-01
7.94E+05	2.08E-01	1.10E-01	3.00E-01
1.00E+06	2.41E-01	1.19E-01	3.62E-01
1.26E+06	2.73E-01	1.28E-01	4.17E-01
1.58E+06	2.91E-01	1.33E-01	4.55E-01
2.00E+06	2.90E-01	1.24E-01	4.65E-01
2.51E+06	2.60E-01	9.37E-02	4.32E-01
3.16E+06	2.10E-01	6.64E-02	3.60E-01
3.98E+06	1.51E-01	4.87E-02	2.60E-01
5.01E+06	8.28E-02	2.53E-02	1.44E-01
6.31E+06	4.20E-02	1.33E-02	7.26E-02
7.94E+06	6.11E-03	4.11E-03	8.10E-03
1.00E+07	1.15E-02	5.23E-03	1.77E-02
1.58E+07	1.38E-02	4.30E-03	2.39E-02
2.51E+07	1.79E-05	4.57E-06	3.22E-05
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.31E+08			

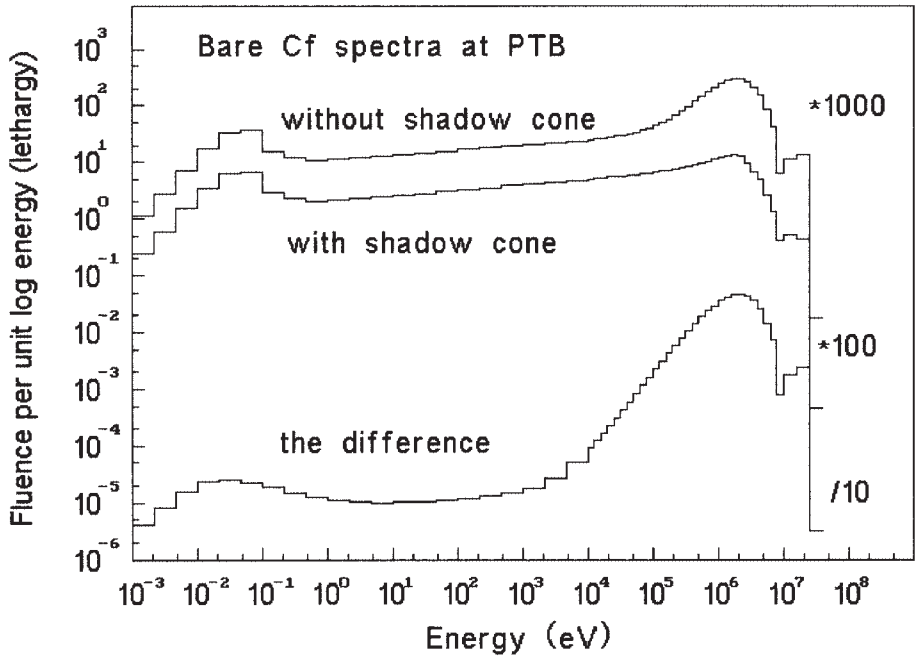

FIG. 4.2. Unmoderated (bare) ^{252}Cf spectra (PTB).

TABLE 4.VI. BARE Cf SPECTRA (PTB)

Spectrum weighted responses

Column 2: Measured without shadow cone
Column 3: Measured with shadow cone
Column 4: The difference

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00
E A-P R60	2.22E+02	1.10E+02	3.36E+02
H AMBIENT	2.58E+02	1.34E+02	3.82E+02
H PERSONAL	2.70E+02	1.41E+02	4.01E+02
HE A-P R51	1.27E+02	5.84E+01	1.97E+02
MADE R21	2.24E+02	1.11E+02	3.38E+02
BS 3HE BARE	2.90E-01	5.65E-01	4.10E-03
BS 3HE 2.5″	5.12E-01	8.97E-01	1.10E-01
BS 3HE 3″	7.66E-01	1.21E+00	3.11E-01
BS 3HE 3.5″	1.05E+00	1.48E+00	6.08E-01
BS 3HE 4″	1.32E+00	1.68E+00	9.63E-01
BS 3HE 4.5″	1.56E+00	1.79E+00	1.32E+00
BS 3HE 5″	1.74E+00	1.83E+00	1.66E+00
BS 3HE 6″	1.92E+00	1.72E+00	2.13E+00
BS 3HE 7″	1.91E+00	1.49E+00	2.33E+00
BS 3HE 8″	1.75E+00	1.22E+00	2.29E+00
BS 3HE 9.5″	1.41E+00	8.52E-01	1.98E+00
BS 3HE 10″	1.29E+00	7.50E-01	1.85E+00
BS 3HE 12″	8.65E-01	4.37E-01	1.31E+00
BS 3HE 15″	4.38E-01	1.91E-01	6.94E-01
BS 3HE 18″	2.33E-01	9.15E-02	3.80E-01
BS LiI BARE	2.25E-02	4.30E-02	6.57E-04
BS LiI 2″	4.72E-02	8.26E-02	1.03E-02
BS LiI 3″	9.73E-02	1.40E-01	5.38E-02
BS LiI 6″	1.88E-01	1.58E-01	2.19E-01
BS LiI 8″	1.62E-01	1.07E-01	2.19E-01
BS LiI 10″	1.18E-01	6.54E-02	1.71E-01
BS LiI 15″	4.18E-02	1.77E-02	6.67E-02
BS LiI 18″	2.10E-02	8.13E-03	3.44E-02
6Li BARE	1.48E-01	1.98E-01	9.69E-02
6Li Cd	6.48E-02	9.06E-02	3.85E-02
GOLD BARE	3.90E-03	7.44E-03	7.10E-05
Nat U PC	2.93E-05	5.15E-05	6.53E-06
238 U PC	1.22E-06	4.34E-07	2.05E-06
232 Th PC	3.12E-07	1.08E-07	5.26E-07
CR39 ECE	1.39E-04	6.26E-05	2.17E-04
LR115 LiB	1.22E+03	1.76E+03	6.73E+02
PLANAR	1.14E+05	5.31E+04	1.75E+05
BASE	8.78E+04	4.29E+04	1.33E+05
PYRAMIDE	6.08E+04	2.89E+04	9.29E+04
PTB TH	2.85E+02	1.54E+02	4.17E+02
PTB INT	2.89E+02	1.63E+02	4.15E+02
PTB FAST	2.75E+02	1.40E+02	4.11E+02
PTB I+F	2.89E+02	1.52E+02	4.27E+02
LONG C	7.11E-01	4.52E-01	9.75E-01
LEAKE	1.95E-01	1.12E-01	2.79E-01
A-B_2	5.44E-01	3.05E-01	7.88E-01
EBERNRD2	5.42E-01	3.07E-01	7.81E-01
MOD930_2	5.04E-01	2.59E-01	7.53E-01
STUDSVIK	2.49E-01	1.27E-01	3.74E-01
LB6411	7.83E-01	3.97E-01	1.18E+00
BUBBLE	9.16E+04	4.35E+04	1.40E+05
ELECTRET	3.21E+02	1.61E+02	4.87E+02
SILICON	7.00E-01	3.91E-01	1.00E+00

TABLE 4.VII. HEAVY WATER MODERATED Cf SPECTRA (PTB)

Spectra

Column 1: Energy in eV
Column 2: Measured without shadow cone
Column 3: Measured with shadow cone
Column 4: The difference

1.00E-03	2.66E-03	6.70E-03	9.91E-05
2.15E-03	5.89E-03	1.41E-02	3.06E-04
4.64E-03	1.29E-02	2.82E-02	9.93E-04
1.00E-02	2.65E-02	5.04E-02	3.00E-03
2.15E-02	4.43E-02	6.98E-02	6.78E-03
4.64E-02	4.88E-02	7.69E-02	7.35E-03
1.00E-01	2.84E-02	6.34E-02	1.96E-03
2.15E-01	2.51E-02	6.15E-02	9.25E-04
4.64E-01	3.23E-02	6.07E-02	1.74E-02
1.00E+00	3.35E-02	6.02E-02	1.84E-02
2.15E+00	3.62E-02	5.87E-02	2.30E-02
4.64E+00	3.90E-02	5.72E-02	2.82E-02
1.00E+01	4.23E-02	5.55E-02	3.48E-02
2.15E+01	4.57E-02	5.37E-02	4.18E-02
4.64E+01	4.89E-02	5.19E-02	4.88E-02
1.00E+02	5.24E-02	5.01E-02	5.66E-02
2.15E+02	5.67E-02	4.84E-02	6.60E-02
4.64E+02	5.89E-02	4.66E-02	7.10E-02
1.00E+03	6.04E-02	4.49E-02	7.50E-02
2.15E+03	6.36E-02	4.33E-02	8.25E-02
4.64E+03	6.60E-02	4.17E-02	8.87E-02
1.00E+04	6.66E-02	4.07E-02	9.04E-02
1.26E+04	6.65E-02	4.03E-02	9.03E-02
1.58E+04	6.64E-02	3.98E-02	9.04E-02
2.00E+04	6.60E-02	3.93E-02	8.98E-02
2.51E+04	6.58E-02	3.88E-02	8.95E-02
3.16E+04	6.53E-02	3.84E-02	8.87E-02
3.98E+04	6.48E-02	3.79E-02	8.81E-02
5.01E+04	6.39E-02	3.74E-02	8.62E-02
6.31E+04	6.23E-02	3.69E-02	8.29E-02
7.94E+04	6.03E-02	3.65E-02	7.83E-02
1.00E+05	5.75E-02	3.59E-02	7.23E-02
1.26E+05	5.47E-02	3.54E-02	6.60E-02
1.58E+05	5.23E-02	3.48E-02	6.06E-02
2.00E+05	4.96E-02	3.43E-02	5.43E-02
2.51E+05	4.70E-02	3.36E-02	4.81E-02
3.16E+05	4.32E-02	3.29E-02	3.83E-02
3.98E+05	3.88E-02	3.23E-02	2.72E-02
5.01E+05	4.28E-02	3.16E-02	3.69E-02
6.31E+05	5.63E-02	3.09E-02	7.08E-02
7.94E+05	5.78E-02	3.03E-02	7.35E-02
1.00E+06	4.35E-02	2.96E-02	3.55E-02
1.26E+06	4.84E-02	2.90E-02	4.70E-02
1.58E+06	7.23E-02	2.78E-02	1.09E-01
2.00E+06	8.02E-02	2.32E-02	1.39E-01
2.51E+06	6.91E-02	1.40E-02	1.32E-01
3.16E+06	5.35E-02	7.60E-03	1.09E-01
3.98E+06	2.56E-02	5.75E-03	4.39E-02
5.01E+06	6.98E-03	2.79E-03	6.21E-03
6.31E+06	1.14E-02	1.46E-03	2.35E-02
7.94E+06	6.03E-03	1.20E-03	1.25E-02
1.00E+07	1.58E-03	1.08E-03	1.23E-03
1.58E+07	3.33E-03	4.41E-04	6.72E-03
2.51E+07	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.31E+08			

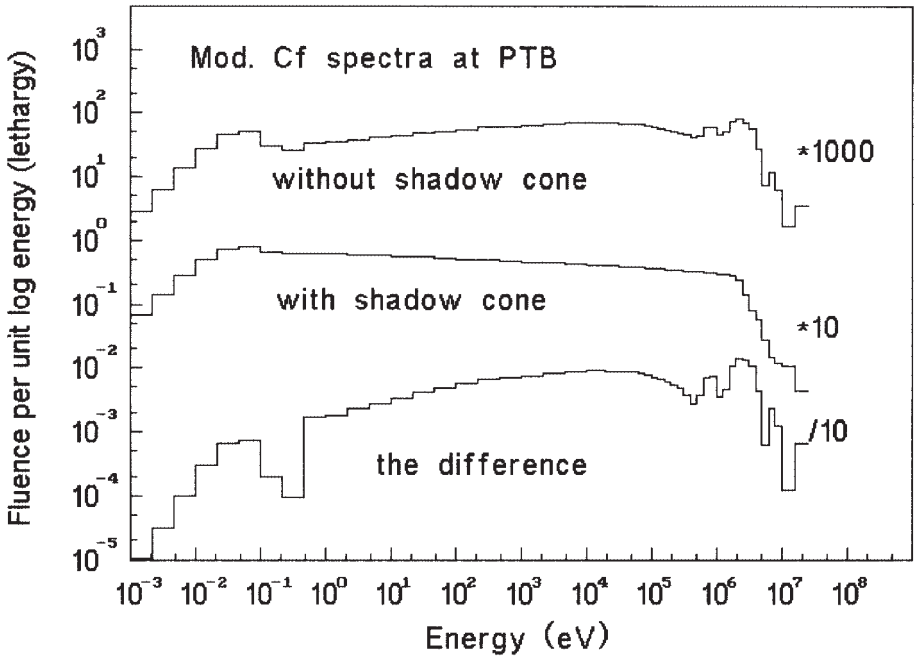

FIG. 4.3. Heavy water (D_2O) moderated Cf spectra (PTB).

TABLE 4.VII. HEAVY WATER MODERATED Cf SPECTRA (PTB)

Spectrum weighted responses

Column 2: Measured without shadow cone
Column 3: Measured with shadow cone
Column 4: The difference

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00
E A-P R60	6.96E+01	3.66E+01	9.63E+01
H AMBIENT	8.02E+01	4.38E+01	1.06E+02
H PERSONAL	8.44E+01	4.62E+01	1.12E+02
HE A-P R51	3.54E+01	1.64E+01	5.14E+01
MADE R21	6.79E+01	3.60E+01	9.27E+01
BS 3HE BARE	4.88E-01	8.97E-01	1.01E-01
BS 3HE 2.5″	1.11E+00	1.44E+00	8.76E-01
BS 3HE 3″	1.50E+00	1.72E+00	1.36E+00
BS 3HE 3.5″	1.78E+00	1.88E+00	1.75E+00
BS 3HE 4″	1.93E+00	1.91E+00	2.00E+00
BS 3HE 4.5″	1.97E+00	1.84E+00	2.11E+00
BS 3HE 5″	1.92E+00	1.71E+00	2.10E+00
BS 3HE 6″	1.65E+00	1.36E+00	1.88E+00
BS 3HE 7″	1.32E+00	1.01E+00	1.55E+00
BS 3HE 8″	1.00E+00	7.22E-01	1.21E+00
BS 3HE 9.5″	6.39E-01	4.16E-01	8.15E-01
BS 3HE 10″	5.49E-01	3.45E-01	7.12E-01
BS 3HE 12″	2.93E-01	1.58E-01	4.08E-01
BS 3HE 15″	1.20E-01	5.00E-02	1.83E-01
BS 3HE 18″	5.66E-02	1.82E-02	9.41E-02
BS LiI BARE	4.15E-02	7.13E-02	1.44E-02
BS LiI 2″	1.04E-01	1.32E-01	8.49E-02
BS LiI 3″	1.70E-01	1.78E-01	1.69E-01
BS LiI 6″	1.45E-01	1.16E-01	1.68E-01
BS LiI 8″	8.52E-02	5.93E-02	1.05E-01
BS LiI 10″	4.67E-02	2.83E-02	6.16E-02
BS LiI 15″	1.11E-02	4.38E-03	1.73E-02
BS LiI 18″	5.06E-03	1.59E-03	8.49E-03
6Li BARE	2.44E-01	2.83E-01	2.28E-01
6Li Cd	1.17E-01	1.29E-01	1.15E-01
GOLD BARE	1.16E-02	1.83E-02	7.64E-03
Nat U PC	7.99E-05	7.90E-05	8.45E-05
238 U PC	2.86E-07	6.32E-08	5.26E-07
232 Th PC	7.19E-08	1.51E-08	1.33E-07
CR39 ECE	3.49E-05	1.39E-05	5.22E-05
LR115 LiB	2.30E+03	2.53E+03	2.27E+03
PLANAR	2.85E+04	1.26E+04	4.02E+04
BASE	2.29E+04	1.08E+04	3.10E+04
PYRAMIDE	1.56E+04	7.08E+03	2.17E+04
PTB TH	8.79E+01	5.29E+01	1.09E+02
PTB INT	1.06E+02	7.00E+01	1.30E+02
PTB FAST	7.77E+01	3.80E+01	1.04E+02
PTB I+F	8.84E+01	4.84E+01	1.15E+02
LONG C	3.05E-01	1.65E-01	4.03E-01
LEAKE	7.89E-02	4.81E-02	1.03E-01
A-B_2	2.14E-01	1.36E-01	2.75E-01
EBERNRD2	2.18E-01	1.34E-01	2.84E-01
MOD930_2	1.66E-01	8.85E-02	2.27E-01
STUDSVIK	7.86E-02	3.98E-02	1.09E-01
LB6411	2.50E-01	1.29E-01	3.45E-01
BUBBLE	2.31E+04	1.06E+04	3.18E+04
ELECTRET	1.19E+02	8.85E+01	1.50E+02
SILICON	2.01E-01	1.13E-01	2.40E-01

TABLE 4.VIII. MODERATED Cf SPECTRA (TOHOKO UNIVERSITY AND JINR)

Spectra

Column 1: Energy in eV
Column 2: Fe moderated Cf
Column 3: C moderated Cf
Column 4: PE moderated Cf
Column 5: PE moderated Cf, D = 29.2 cm
Column 6: PE moderated Cf, D = 12.7 cm

1.00E-03	2.11E-11	4.67E-06	3.13E-02	0.00E+00	0.00E+00
2.15E-03	1.16E-10	6.83E-06	3.13E-02	0.00E+00	0.00E+00
4.64E-03	2.09E-10	1.14E-05	3.10E-02	1.83E-01	1.09E-01
1.00E-02	1.18E-09	2.12E-05	3.02E-02	1.61E-01	9.87E-02
2.15E-02	3.30E-09	4.16E-05	2.90E-02	1.39E-01	8.82E-02
4.64E-02	7.89E-09	8.32E-05	2.66E-02	1.14E-01	7.69E-02
1.00E-01	1.55E-08	2.22E-04	1.53E-02	8.94E-02	6.51E-02
2.15E-01	3.96E-08	2.96E-04	1.53E-02	6.29E-02	5.28E-02
4.64E-01	8.93E-08	4.22E-04	1.53E-02	3.42E-02	3.86E-02
1.00E+00	2.99E-07	6.08E-04	1.53E-02	1.14E-02	2.37E-02
2.15E+00	7.38E-07	8.74E-04	1.53E-02	2.04E-03	1.12E-02
4.64E+00	1.75E-06	1.25E-03	1.53E-02	9.39E-04	2.81E-03
1.00E+01	3.63E-06	1.80E-03	1.54E-02	7.65E-04	5.92E-04
2.15E+01	7.47E-06	2.59E-03	1.54E-02	8.48E-04	8.82E-04
4.64E+01	1.31E-05	3.72E-03	1.54E-02	8.94E-04	9.36E-04
1.00E+02	2.63E-05	5.32E-03	1.56E-02	9.09E-04	9.62E-04
2.15E+02	4.47E-05	7.62E-03	1.57E-02	9.16E-04	9.73E-04
4.64E+02	1.04E-04	1.09E-02	1.59E-02	9.16E-04	6.43E-04
1.00E+03	3.68E-04	1.54E-02	1.62E-02	9.32E-04	5.12E-03
2.15E+03	1.10E-03	2.18E-02	1.68E-02	9.85E-04	1.27E-02
4.64E+03	1.65E-03	3.07E-02	1.76E-02	7.47E-03	2.24E-02
1.00E+04	3.65E-03	3.81E-02	1.88E-02	1.32E-02	2.92E-02
1.25E+04	3.71E-03	4.18E-02	1.92E-02	1.61E-02	3.22E-02
1.58E+04	5.90E-03	4.56E-02	1.98E-02	1.92E-02	3.57E-02
1.99E+04	2.25E-02	5.04E-02	2.07E-02	2.24E-02	3.91E-02
2.51E+04	1.06E-02	5.52E-02	2.17E-02	2.58E-02	4.26E-02
3.16E+04	5.67E-03	6.03E-02	2.29E-02	2.90E-02	4.61E-02
3.98E+04	1.44E-02	6.59E-02	2.44E-02	3.26E-02	5.01E-02
5.01E+04	2.05E-02	7.19E-02	2.63E-02	3.61E-02	5.36E-02
6.30E+04	4.17E-02	7.85E-02	2.85E-02	3.96E-02	5.76E-02
7.94E+04	3.75E-02	8.55E-02	3.13E-02	4.29E-02	6.11E-02
1.00E+05	7.05E-02	9.44E-02	3.50E-02	4.63E-02	6.49E-02
1.25E+05	6.43E-02	1.03E-01	3.93E-02	4.94E-02	6.81E-02
1.58E+05	1.07E-01	1.07E-01	4.24E-02	5.28E-02	7.18E-02
1.99E+05	1.40E-01	1.25E-01	5.18E-02	5.60E-02	7.53E-02
2.51E+05	1.50E-01	1.38E-01	5.98E-02	5.97E-02	7.99E-02
3.16E+05	3.44E-01	1.56E-01	7.17E-02	6.34E-02	8.44E-02
3.98E+05	2.11E-01	1.73E-01	8.25E-02	6.80E-02	9.06E-02
5.01E+05	4.02E-01	1.97E-01	9.85E-02	7.26E-02	9.68E-02
6.30E+05	4.37E-01	2.24E-01	1.17E-01	7.73E-02	1.04E-01
7.94E+05	4.34E-01	2.59E-01	1.39E-01	8.18E-02	1.10E-01
1.00E+06	4.51E-01	2.97E-01	1.65E-01	8.56E-02	1.16E-01
1.25E+06	3.52E-01	3.31E-01	1.94E-01	8.79E-02	1.20E-01
1.58E+06	3.18E-01	3.43E-01	2.26E-01	8.86E-02	1.21E-01
1.99E+06	2.39E-01	2.86E-01	2.45E-01	8.63E-02	1.19E-01
2.51E+06	1.74E-01	1.69E-01	2.29E-01	8.18E-02	1.14E-01
3.16E+06	1.19E-01	9.76E-02	2.06E-01	7.48E-02	1.04E-01
3.98E+06	7.31E-02	1.41E-01	2.64E-01	6.54E-02	9.11E-02
5.01E+06	4.44E-02	9.13E-02	2.21E-01	5.28E-02	7.40E-02
6.30E+06	2.34E-02	5.33E-02	1.57E-01	4.01E-02	5.63E-02
7.94E+06	9.13E-03	1.45E-02	6.26E-02	2.58E-02	3.62E-02
1.00E+07	1.14E-03	1.43E-03	9.16E-03	2.00E-02	2.92E-02
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

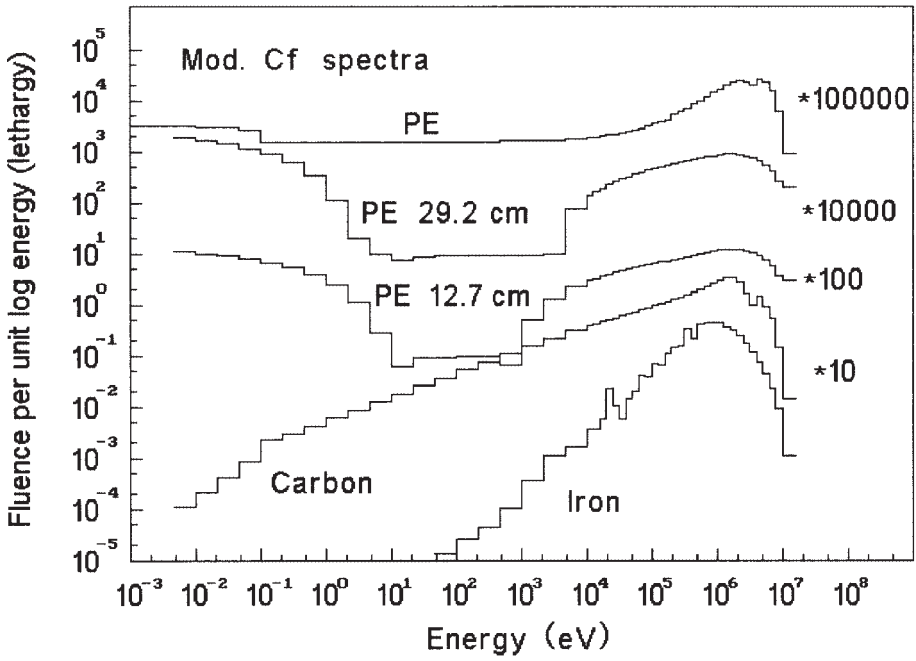

FIG. 4.4. Moderated ^{252}Cf spectra (Tohoko University and JINR).

TABLE 4.VIII. MODERATED Cf SPECTRA (TOHOKO UNIVERSITY AND JINR)

Spectrum weighted responses

Column 2: Fe moderated Cf
Column 3: C moderated Cf
Column 4: PE moderated Cf
Column 5: PE moderated Cf, D = 29.2 cm
Column 6: PE moderated Cf, D = 12.7 cm

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	2.56E+02	2.29E+02	2.27E+02	9.96E+01	1.35E+02
H AMBIENT	3.40E+02	2.81E+02	2.43E+02	1.17E+02	1.57E+02
H PERSONAL	3.55E+02	2.94E+02	2.55E+02	1.23E+02	1.65E+02
HE A-P R51	1.35E+02	1.25E+02	1.37E+02	5.75E+01	7.80E+01
MADE R21	2.70E+02	2.35E+02	2.19E+02	9.98E+01	1.33E+02
BS 3HE BARE	9.17E-04	5.28E-03	6.65E-01	1.88E+00	1.21E+00
BS 3HE 2.5″	1.71E-01	2.76E-01	5.55E-01	1.01E+00	8.53E-01
BS 3HE 3″	4.60E-01	6.07E-01	7.52E-01	1.01E+00	9.65E-01
BS 3HE 3.5″	8.53E-01	1.00E+00	9.70E-01	1.04E+00	1.11E+00
BS 3HE 4″	1.28E+00	1.39E+00	1.18E+00	1.08E+00	1.24E+00
BS 3HE 4.5″	1.69E+00	1.73E+00	1.36E+00	1.11E+00	1.34E+00
BS 3HE 5″	2.02E+00	1.99E+00	1.50E+00	1.13E+00	1.40E+00
BS 3HE 6″	2.40E+00	2.23E+00	1.65E+00	1.09E+00	1.41E+00
BS 3HE 7″	2.44E+00	2.20E+00	1.67E+00	9.87E-01	1.31E+00
BS 3HE 8″	2.23E+00	1.98E+00	1.57E+00	8.50E-01	1.14E+00
BS 3HE 9.5″	1.73E+00	1.54E+00	1.33E+00	6.41E-01	8.68E-01
BS 3HE 10″	1.55E+00	1.39E+00	1.23E+00	5.79E-01	7.86E-01
BS 3HE 12″	9.54E-01	8.88E-01	8.96E-01	3.74E-01	5.13E-01
BS 3HE 15″	4.11E-01	4.18E-01	5.15E-01	1.93E-01	2.67E-01
BS 3HE 18″	1.82E-01	2.06E-01	3.09E-01	1.09E-01	1.52E-01
BS LiI BARE	7.78E-04	1.54E-03	2.79E-02	1.16E-01	7.89E-02
BS LiI 2″	1.61E-02	2.65E-02	4.72E-02	8.30E-02	7.29E-02
BS LiI 3″	7.66E-02	9.25E-02	8.70E-02	9.05E-02	9.91E-02
BS LiI 6″	2.42E-01	2.20E-01	1.61E-01	1.01E-01	1.34E-01
BS LiI 8″	2.05E-01	1.81E-01	1.47E-01	7.66E-02	1.03E-01
BS LiI 10″	1.38E-01	1.25E-01	1.14E-01	5.16E-02	7.03E-02
BS LiI 15″	3.77E-02	3.89E-02	4.96E-02	1.81E-02	2.51E-02
BS LiI 18″	1.59E-02	1.83E-02	2.77E-02	9.66E-03	1.35E-02
6Li BARE	1.20E-01	1.35E-01	1.38E-01	1.40E-01	1.59E-01
6Li Cd	4.98E-02	5.92E-02	6.04E-02	4.42E-02	5.81E-02
GOLD BARE	5.70E-05	4.81E-04	4.84E-03	2.66E-03	4.69E-03
Nat U PC	5.88E-06	1.37E-05	2.84E-05	4.52E-06	6.38E-06
238 U PC	6.94E-07	9.02E-07	1.71E-06	6.12E-07	8.61E-07
232 Th PC	1.63E-07	2.26E-07	4.82E-07	1.71E-07	2.41E-07
CR39 ECE	1.61E-04	1.44E-04	1.25E-04	5.06E-05	6.95E-05
LR115 LiB	9.78E+02	1.18E+03	1.13E+03	7.40E+02	1.12E+03
PLANAR	1.49E+05	1.21E+05	1.06E+05	4.54E+04	6.23E+04
BASE	1.25E+05	9.65E+04	8.01E+04	3.63E+04	4.96E+04
PYRAMIDE	8.20E+04	6.53E+04	5.77E+04	2.52E+04	3.46E+04
PTB TH	3.99E+02	3.21E+02	2.73E+02	1.50E+02	1.86E+02
PTB INT	3.94E+02	3.21E+02	2.71E+02	1.38E+02	1.81E+02
PTB FAST	3.81E+02	3.10E+02	2.58E+02	1.19E+02	1.63E+02
PTB I+F	3.98E+02	3.24E+02	2.71E+02	1.29E+02	1.74E+02
LONG C	9.85E-01	8.78E-01	6.35E-01	3.42E-01	4.74E-01
LEAKE	2.51E-01	2.15E-01	1.80E-01	8.40E-02	1.16E-01
A-B_2	6.66E-01	5.85E-01	5.10E-01	2.40E-01	3.22E-01
EBERNRD2	6.64E-01	5.86E-01	5.05E-01	2.35E-01	3.20E-01
MOD930_2	6.07E-01	5.35E-01	4.82E-01	2.12E-01	2.90E-01
STUDSVIK	3.06E-01	2.68E-01	2.44E-01	1.06E-01	1.47E-01
LB6411	9.58E-01	8.33E-01	7.58E-01	3.29E-01	4.51E-01
BUBBLE	1.23E+05	9.93E+04	8.95E+04	4.01E+04	5.51E+04
ELECTRET	2.82E+02	2.94E+02	3.89E+02	1.76E+02	2.28E+02
SILICON	1.19E+00	8.85E-01	5.09E-01	2.83E-01	3.83E-01

TABLE 4.IX. Am–Be (PTB)

Spectra

Column 1: Energy in eV
Column 2: Difference with and without shadow cone
Column 3: Measured with shadow cone
Column 4: Measured without shadow cone

1.00E-03	2.57E-05	4.96E-03	2.43E-03
2.15E-03	5.04E-05	1.02E-02	4.87E-03
4.64E-03	9.06E-05	1.97E-02	9.21E-03
1.00E-02	1.37E-04	3.36E-02	1.53E-02
2.15E-02	1.48E-04	4.38E-02	1.92E-02
4.64E-02	1.43E-04	4.50E-02	1.89E-02
1.00E-01	1.38E-04	3.49E-02	1.41E-02
2.15E-01	2.12E-04	3.25E-02	1.31E-02
4.64E-01	1.32E-03	2.78E-02	1.39E-02
1.00E+00	1.14E-03	2.90E-02	1.38E-02
2.15E+00	1.08E-03	3.02E-02	1.37E-02
4.64E+00	1.02E-03	3.13E-02	1.38E-02
1.00E+01	1.00E-03	3.22E-02	1.39E-02
2.15E+01	1.01E-03	3.29E-02	1.41E-02
4.64E+01	1.02E-03	3.36E-02	1.44E-02
1.00E+02	1.04E-03	3.41E-02	1.47E-02
2.15E+02	1.07E-03	3.46E-02	1.50E-02
4.64E+02	1.10E-03	3.51E-02	1.54E-02
1.00E+03	1.13E-03	3.56E-02	1.58E-02
2.15E+03	1.16E-03	3.60E-02	1.61E-02
4.64E+03	1.20E-03	3.66E-02	1.66E-02
1.00E+04	1.22E-03	3.70E-02	1.69E-02
1.26E+04	1.23E-03	3.73E-02	1.71E-02
1.58E+04	1.24E-03	3.75E-02	1.73E-02
2.00E+04	1.25E-03	3.79E-02	1.75E-02
2.51E+04	1.26E-03	3.83E-02	1.78E-02
3.16E+04	1.27E-03	3.89E-02	1.82E-02
3.98E+04	1.29E-03	3.97E-02	1.86E-02
5.01E+04	1.30E-03	4.07E-02	1.92E-02
6.31E+04	1.84E-03	4.20E-02	2.02E-02
7.94E+04	5.31E-03	4.37E-02	2.32E-02
1.00E+05	1.34E-02	4.62E-02	2.92E-02
1.26E+05	2.37E-02	4.93E-02	3.70E-02
1.58E+05	3.48E-02	5.36E-02	4.58E-02
2.00E+05	3.79E-02	6.00E-02	5.08E-02
2.51E+05	2.88E-02	6.88E-02	4.95E-02
3.16E+05	3.83E-02	7.89E-02	6.00E-02
3.98E+05	7.13E-02	8.99E-02	8.48E-02
5.01E+05	8.74E-02	1.04E-01	1.01E-01
6.31E+05	8.66E-02	1.20E-01	1.07E-01
7.94E+05	9.52E-02	1.36E-01	1.17E-01
1.00E+06	1.09E-01	1.49E-01	1.29E-01
1.26E+06	1.25E-01	1.55E-01	1.39E-01
1.58E+06	1.59E-01	1.44E-01	1.52E-01
2.00E+06	2.33E-01	1.28E-01	1.84E-01
2.51E+06	3.62E-01	1.10E-01	2.48E-01
3.16E+06	4.97E-01	8.45E-02	3.10E-01
3.98E+06	6.05E-01	6.74E-02	3.62E-01
5.01E+06	6.36E-01	4.75E-02	3.73E-01
6.31E+06	4.96E-01	3.74E-02	2.96E-01
7.94E+06	2.85E-01	2.46E-02	1.74E-01
1.00E+07	8.86E-02	6.84E-03	5.44E-02
1.58E+07	3.72E-02	6.31E-04	1.91E-02
2.51E+07	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.31E+08			

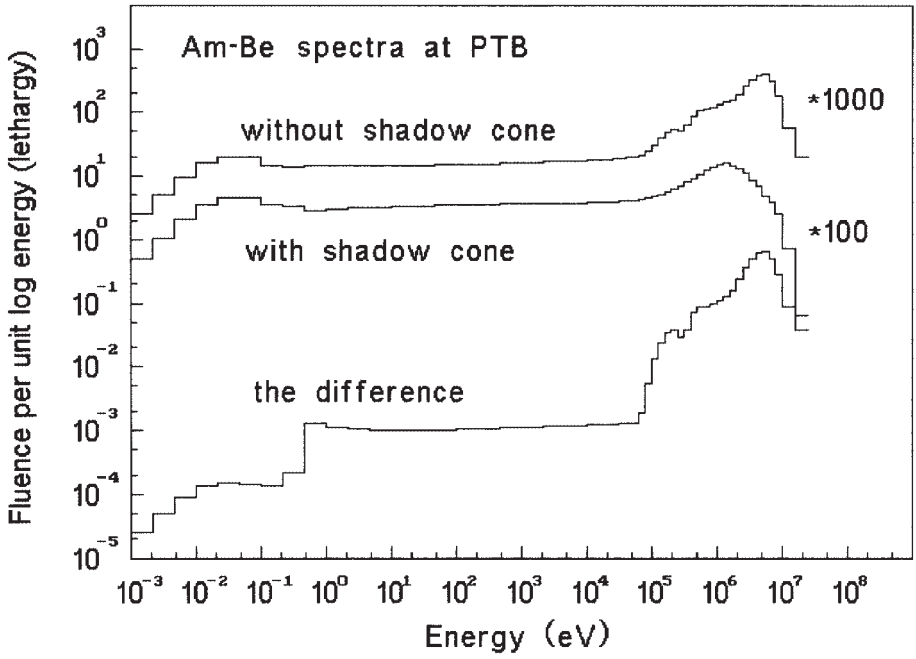

FIG. 4.5. ^{241}Am–Be spectra (PTB).

TABLE 4.IX. Am–Be SPECTRA (PTB)

Spectrum weighted responses

Column 2: Difference with and without shadow cone
Column 3: Measured with shadow cone
Column 4: Measured without shadow cone

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00
E A-P R60	4.14E+02	1.28E+02	2.88E+02
H AMBIENT	3.96E+02	1.52E+02	2.90E+02
H PERSONAL	4.17E+02	1.60E+02	3.05E+02
HE A-P R51	2.82E+02	7.03E+01	1.88E+02
MADE R21	3.74E+02	1.29E+02	2.66E+02
BS 3HE BARE	4.85E-03	5.55E-01	2.48E-01
BS 3HE 2.5″	7.64E-02	9.17E-01	4.38E-01
BS 3HE 3″	1.97E-01	1.21E+00	6.35E-01
BS 3HE 3.5″	3.86E-01	1.46E+00	8.53E-01
BS 3HE 4″	6.21E-01	1.64E+00	1.07E+00
BS 3HE 4.5″	8.65E-01	1.74E+00	1.25E+00
BS 3HE 5″	1.14E+00	1.78E+00	1.42E+00
BS 3HE 6″	1.55E+00	1.70E+00	1.62E+00
BS 3HE 7″	1.84E+00	1.51E+00	1.70E+00
BS 3HE 8″	1.96E+00	1.27E+00	1.66E+00
BS 3HE 9.5″	1.93E+00	9.23E-01	1.49E+00
BS 3HE 10″	1.87E+00	8.22E-01	1.41E+00
BS 3HE 12″	1.59E+00	5.05E-01	1.11E+00
BS 3HE 15″	1.10E+00	2.38E-01	7.21E-01
BS 3HE 18″	7.65E-01	1.22E-01	4.80E-01
BS LiI BARE	7.77E-04	4.17E-02	1.84E-02
BS LiI 2″	7.19E-03	8.43E-02	4.03E-02
BS LiI 3″	3.37E-02	1.37E-01	7.86E-02
BS LiI 6″	1.63E-01	1.58E-01	1.61E-01
BS LiI 8″	1.95E-01	1.13E-01	1.60E-01
BS LiI 10″	1.81E-01	7.28E-02	1.33E-01
BS LiI 15″	1.08E-01	2.22E-02	6.97E-02
BS LiI 18″	6.84E-02	1.08E-02	4.28E-02
6Li BARE	7.22E-02	2.10E-01	1.31E-01
6Li Cd	2.82E-02	9.48E-02	5.71E-02
GOLD BARE	3.42E-04	9.67E-03	4.36E-03
Nat U PC	9.61E-06	5.47E-05	2.82E-05
238 U PC	4.95E-06	6.02E-07	3.02E-06
232 Th PC	1.49E-06	1.60E-07	9.00E-07
CR39 ECE	1.74E-04	7.26E-05	1.29E-04
LR115 LiB	4.23E+02	1.82E+03	1.04E+03
PLANAR	1.68E+05	6.31E+04	1.22E+05
BASE	1.23E+05	5.03E+04	9.14E+04
PYRAMIDE	9.48E+04	3.43E+04	6.84E+04
PTB TH	4.04E+02	1.74E+02	3.05E+02
PTB INT	4.05E+02	1.83E+02	3.09E+02
PTB FAST	4.05E+02	1.61E+02	2.99E+02
PTB I+F	4.20E+02	1.73E+02	3.13E+02
LONG C	8.21E-01	4.56E-01	6.65E-01
LEAKE	2.60E-01	1.23E-01	2.01E-01
A-B_2	7.47E-01	3.40E-01	5.68E-01
EBERNRD2	7.46E-01	3.39E-01	5.67E-01
MOD930_2	7.66E-01	2.94E-01	5.58E-01
STUDSVIK	3.99E-01	1.45E-01	2.88E-01
LB6411	1.23E+00	4.54E-01	8.89E-01
BUBBLE	1.56E+05	5.26E+04	1.11E+05
ELECTRET	8.38E+02	2.00E+02	5.56E+02
SILICON	3.77E-01	4.29E-01	4.10E-01

TABLE 4.X. Pu–Be CALIBRATION SPECTRA (CERN)

Spectra

Column 1: Energy in eV
Column 2: At 1 m distance
Column 3: At 2 m distance
Column 4: At 3 m distance
Column 5: Shielded by PE, at 1 m distance
Column 6: Shielded by PE, at 2 m distance

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.20E-03	1.81E-02	8.83E-02	1.10E-01	1.71E-01	1.29E-01
4.60E-03	1.81E-02	8.63E-02	1.10E-01	1.61E-01	1.29E-01
1.00E-02	1.81E-02	8.23E-02	1.00E-01	1.51E-01	1.29E-01
2.20E-02	1.70E-02	7.42E-02	9.00E-02	1.31E-01	1.19E-01
4.60E-02	1.60E-02	5.91E-02	6.80E-02	9.59E-02	1.09E-01
1.00E-01	1.40E-02	3.41E-02	3.40E-02	3.53E-02	8.26E-02
2.10E-01	8.32E-03	1.40E-02	1.10E-02	2.52E-02	4.87E-02
4.60E-01	4.51E-03	1.30E-02	1.40E-02	7.37E-03	2.78E-02
1.00E+00	1.40E-02	4.11E-02	4.50E-02	4.24E-02	2.58E-02
2.20E+00	3.51E-03	8.93E-03	1.00E-02	9.80E-03	3.38E-02
4.60E+00	2.61E-03	7.42E-03	8.00E-03	4.45E-03	1.49E-02
1.00E+01	1.20E-02	3.31E-02	3.60E-02	2.22E-02	1.89E-02
2.20E+01	7.12E-03	1.90E-02	2.10E-02	1.51E-02	2.38E-02
4.60E+01	5.01E-03	1.30E-02	1.40E-02	1.11E-02	1.69E-02
1.00E+02	4.51E-03	1.20E-02	1.30E-02	9.59E-03	1.39E-02
2.20E+02	7.02E-03	1.70E-02	1.90E-02	1.51E-02	1.89E-02
4.60E+02	1.60E-02	3.41E-02	3.90E-02	3.33E-02	2.38E-02
1.00E+03	8.22E-03	1.70E-02	1.90E-02	1.61E-02	2.38E-02
2.20E+03	7.42E-03	1.40E-02	1.60E-02	1.31E-02	1.49E-02
4.60E+03	9.13E-03	1.60E-02	1.70E-02	1.41E-02	1.29E-02
1.00E+04	7.92E-03	1.30E-02	1.40E-02	1.21E-02	1.09E-02
1.30E+04	6.12E-03	1.00E-02	1.10E-02	9.09E-03	8.75E-03
1.60E+04	5.01E-03	8.03E-03	8.40E-03	7.07E-03	5.67E-03
2.00E+04	1.20E-03	2.00E-03	2.10E-03	1.71E-03	4.87E-03
2.50E+04	5.72E-03	8.83E-03	9.10E-03	7.58E-03	4.07E-03
3.20E+04	3.91E-03	5.51E-03	5.70E-03	4.65E-03	9.85E-03
4.00E+04	1.91E-02	2.81E-02	2.80E-02	2.22E-02	1.29E-02
5.00E+04	1.60E-02	2.10E-02	2.10E-02	1.61E-02	1.49E-02
6.30E+04	1.10E-02	1.40E-02	1.30E-02	1.01E-02	1.09E-02
7.90E+04	1.10E-02	1.20E-02	1.10E-02	8.08E-03	9.55E-03
1.00E+05	1.81E-02	2.00E-02	1.90E-02	1.41E-02	1.29E-02
1.30E+05	3.21E-02	3.41E-02	3.10E-02	2.22E-02	2.38E-02
1.60E+05	7.42E-02	7.42E-02	6.70E-02	4.75E-02	3.48E-02
2.00E+05	7.62E-02	7.32E-02	6.60E-02	4.65E-02	3.87E-02
2.50E+05	5.62E-02	5.11E-02	4.60E-02	3.03E-02	3.48E-02
3.20E+05	6.72E-02	5.61E-02	4.80E-02	3.03E-02	2.98E-02
4.00E+05	7.62E-02	6.01E-02	5.10E-02	3.13E-02	3.18E-02
5.00E+05	8.93E-02	6.61E-02	5.50E-02	3.23E-02	2.88E-02
6.30E+05	5.42E-02	3.91E-02	3.20E-02	1.92E-02	3.68E-02
7.90E+05	1.91E-01	1.30E-01	1.00E-01	5.96E-02	5.07E-02
1.00E+06	2.81E-01	1.70E-01	1.40E-01	7.68E-02	6.47E-02
1.30E+06	2.21E-01	1.30E-01	1.00E-01	5.86E-02	6.07E-02
1.60E+06	1.81E-01	1.00E-01	8.10E-02	4.55E-02	3.78E-02
2.00E+06	2.41E-02	1.30E-02	1.00E-02	5.86E-03	2.68E-02
2.50E+06	1.50E-01	7.42E-02	5.80E-02	3.33E-02	4.57E-02
3.20E+06	6.22E-01	2.91E-01	2.30E-01	1.31E-01	7.16E-02
4.00E+06	4.81E-01	2.10E-01	1.70E-01	1.01E-01	8.65E-02
5.00E+06	4.31E-01	1.80E-01	1.40E-01	8.89E-02	6.17E-02
6.30E+06	2.81E-01	1.10E-01	8.60E-02	5.66E-02	4.27E-02
7.90E+06	1.30E-01	5.01E-02	3.90E-02	2.62E-02	2.29E-02
1.00E+07	7.82E-03	3.01E-03	2.30E-03	1.51E-03	7.76E-03
1.60E+07	4.11E-04	1.40E-04	1.10E-04	8.08E-05	0.00E+00
2.50E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.60E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.50E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

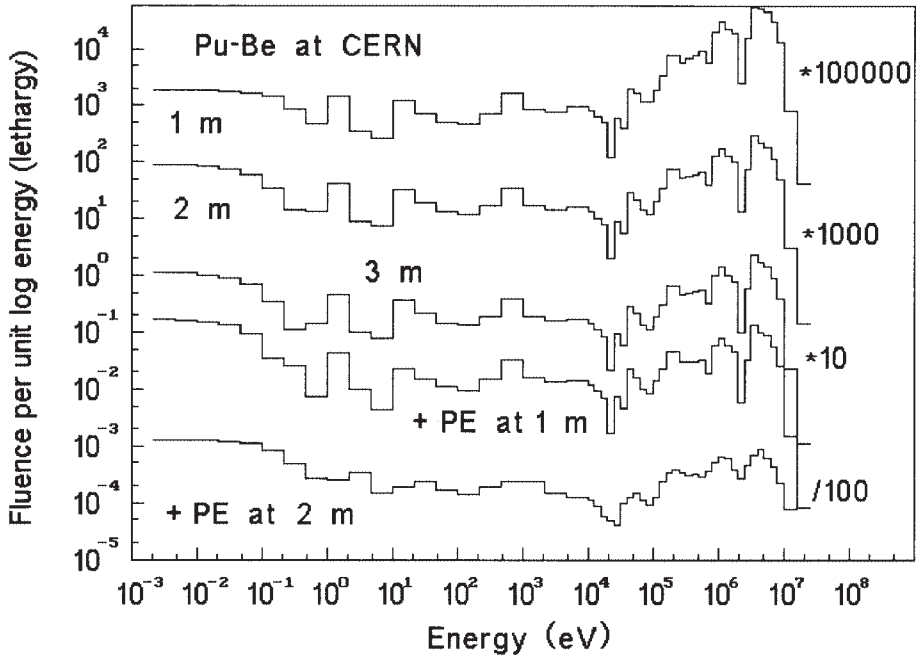

FIG. 4.6. ^{238}Pu–Be calibration spectra (CERN).

TABLE 4.X. Pu–Be CALIBRATION SPECTRA (CERN)

Spectrum weighted responses

Column 2: At 1 m distance
Column 3: At 2 m distance
Column 4: At 3 m distance
Column 5: Shielded by PE, at 1 m distance
Column 6: Shielded by PE, at 2 m distance

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	9.99E-01	9.99E-01
E A-P R60	3.13E+02	1.60E+02	1.29E+02	8.08E+01	7.21E+01
H AMBIENT	3.17E+02	1.70E+02	1.39E+02	8.73E+01	7.96E+01
H PERSONAL	3.32E+02	1.79E+02	1.46E+02	9.18E+01	8.37E+01
HE A-P R51	1.99E+02	9.68E+01	7.78E+01	4.84E+01	4.24E+01
MADE R21	2.93E+02	1.53E+02	1.24E+02	7.86E+01	7.07E+01
BS 3HE BARE	3.06E-01	1.32E+00	1.60E+00	2.35E+00	2.08E+00
BS 3HE 2.5″	3.19E-01	8.08E-01	9.01E-01	1.03E+00	1.18E+00
BS 3HE 3″	4.83E-01	9.37E-01	1.01E+00	1.05E+00	1.21E+00
BS 3HE 3.5″	6.97E-01	1.07E+00	1.12E+00	1.08E+00	1.23E+00
BS 3HE 4″	9.34E-01	1.18E+00	1.20E+00	1.08E+00	1.21E+00
BS 3HE 4.5″	1.16E+00	1.26E+00	1.25E+00	1.06E+00	1.17E+00
BS 3HE 5″	1.38E+00	1.32E+00	1.27E+00	1.03E+00	1.11E+00
BS 3HE 6″	1.67E+00	1.33E+00	1.22E+00	9.24E-01	9.63E-01
BS 3HE 7″	1.82E+00	1.27E+00	1.12E+00	8.00E-01	8.06E-01
BS 3HE 8″	1.81E+00	1.15E+00	9.89E-01	6.74E-01	6.60E-01
BS 3HE 9.5″	1.65E+00	9.38E-01	7.84E-01	5.09E-01	4.79E-01
BS 3HE 10″	1.56E+00	8.67E-01	7.19E-01	4.62E-01	4.29E-01
BS 3HE 12″	1.23E+00	6.22E-01	5.04E-01	3.14E-01	2.80E-01
BS 3HE 15″	7.72E-01	3.61E-01	2.88E-01	1.76E-01	1.50E-01
BS 3HE 18″	5.03E-01	2.24E-01	1.78E-01	1.09E-01	8.99E-02
BS LiI BARE	1.65E-02	6.05E-02	7.11E-02	9.75E-02	1.01E-01
BS LiI 2″	2.79E-02	6.59E-02	7.22E-02	7.76E-02	9.45E-02
BS LiI 3″	6.24E-02	9.40E-02	9.75E-02	8.92E-02	1.06E-01
BS LiI 6″	1.69E-01	1.26E-01	1.13E-01	8.10E-02	8.40E-02
BS LiI 8″	1.75E-01	1.06E-01	9.02E-02	5.97E-02	5.78E-02
BS LiI 10″	1.49E-01	8.02E-02	6.60E-02	4.16E-02	3.82E-02
BS LiI 15″	7.64E-02	3.54E-02	2.82E-02	1.71E-02	1.44E-02
BS LiI 18″	4.55E-02	2.03E-02	1.61E-02	9.78E-03	8.05E-03
6Li BARE	1.09E-01	1.39E-01	1.37E-01	1.13E-01	1.63E-01
6Li Cd	4.46E-02	6.04E-02	6.09E-02	4.83E-02	6.32E-02
GOLD BARE	1.55E-03	3.85E-03	4.19E-03	4.06E-03	1.07E-02
Nat U PC	1.45E-05	2.60E-05	2.74E-05	1.94E-05	2.48E-05
238 U PC	2.89E-06	1.24E-06	9.81E-07	6.01E-07	5.03E-07
232 Th PC	8.56E-07	3.64E-07	2.86E-07	1.77E-07	1.46E-07
CR39 ECE	1.44E-04	7.44E-05	5.93E-05	3.49E-05	3.17E-05
LR115 LiB	7.70E+02	1.14E+03	1.17E+03	8.88E+02	1.11E+03
PLANAR	1.38E+05	7.13E+04	5.69E+04	3.37E+04	3.01E+04
BASE	1.03E+05	5.44E+04	4.36E+04	2.59E+04	2.34E+04
PYRAMIDE	7.65E+04	3.93E+04	3.14E+04	1.87E+04	1.67E+04
PTB TH	3.49E+02	2.05E+02	1.74E+02	1.27E+02	1.12E+02
PTB INT	3.48E+02	1.99E+02	1.65E+02	1.09E+02	1.02E+02
PTB FAST	3.42E+02	1.81E+02	1.46E+02	8.78E+01	7.80E+01
PTB I+F	3.56E+02	1.93E+02	1.57E+02	9.71E+01	8.75E+01
LONG C	7.71E-01	4.41E-01	3.61E-01	2.23E-01	1.99E-01
LEAKE	2.24E-01	1.24E-01	1.02E-01	6.34E-02	5.93E-02
A-B_2	6.35E-01	3.53E-01	2.91E-01	1.85E-01	1.76E-01
EBERNRD2	6.35E-01	3.52E-01	2.90E-01	1.83E-01	1.71E-01
MOD930_2	6.26E-01	3.29E-01	2.66E-01	1.63E-01	1.48E-01
STUDSVIK	3.24E-01	1.67E-01	1.35E-01	8.17E-02	7.28E-02
LB6411	1.00E+00	5.22E-01	4.22E-01	2.58E-01	2.30E-01
BUBBLE	1.21E+05	6.15E+04	4.91E+04	2.93E+04	2.66E+04
ELECTRET	5.96E+02	2.96E+02	2.43E+02	1.59E+02	1.52E+02
SILICON	4.85E-01	3.24E-01	2.64E-01	1.58E-01	1.53E-01

TABLE 4.XI. Pu SPECTRA (LLNL AND PNL)

Spectra

Column 1: Energy in eV
Column 2: Bare Pu–Be source, room scatter
Column 3: H_2O moderated Pu–Be, R = 25 cm, room scatter
Column 4: D_2O moderated Pu–Be, R = 25 cm, room scatter
Column 5: Bare PuO_2 at 100 cm
Column 6: Bare Pu metal at 50 cm

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	8.08E-03	5.42E-02	0.00E+00	0.00E+00	0.00E+00
2.15E-02	1.02E-02	8.29E-02	1.58E-01	0.00E+00	0.00E+00
4.64E-02	1.31E-02	1.02E-01	2.02E-01	0.00E+00	0.00E+00
1.00E-01	1.46E-02	1.12E-01	2.19E-01	3.04E-01	8.81E-02
2.15E-01	1.38E-02	9.02E-02	1.79E-01	1.46E-01	7.04E-02
4.64E-01	9.93E-03	2.70E-02	4.02E-02	2.78E-02	4.40E-02
1.00E+00	7.63E-03	1.54E-02	1.37E-02	1.18E-01	2.44E-02
2.15E+00	6.25E-03	1.07E-02	7.67E-03	1.85E-02	1.56E-02
4.64E+00	4.87E-03	6.26E-03	6.01E-03	1.39E-02	1.13E-02
1.00E+01	4.09E-03	6.62E-03	6.12E-03	1.05E-02	4.99E-03
2.15E+01	2.65E-03	5.58E-03	8.21E-03	7.56E-03	2.13E-03
4.64E+01	2.64E-03	6.47E-03	1.27E-02	5.20E-03	8.90E-04
1.00E+02	2.06E-03	7.20E-03	2.05E-02	4.66E-03	4.10E-04
2.15E+02	1.70E-03	8.40E-03	3.07E-02	3.61E-03	9.15E-05
4.64E+02	1.38E-03	1.04E-02	4.09E-02	2.82E-03	2.99E-05
1.00E+03	1.32E-03	1.11E-02	4.33E-02	2.24E-03	9.49E-06
2.15E+03	1.27E-03	1.19E-02	3.54E-02	2.78E-03	5.49E-06
4.64E+03	1.33E-03	1.18E-02	2.69E-02	3.71E-03	4.75E-06
1.00E+04	1.45E-03	1.18E-02	2.18E-02	3.83E-03	5.82E-06
1.25E+04	1.63E-03	1.14E-02	1.73E-02	4.21E-03	7.58E-06
1.58E+04	1.64E-03	1.05E-02	1.52E-02	5.05E-03	9.91E-06
1.99E+04	1.72E-03	1.08E-02	1.43E-02	5.91E-03	1.38E-05
2.51E+04	1.88E-03	1.13E-02	1.36E-02	6.89E-03	1.98E-05
3.16E+04	2.14E-03	1.11E-02	1.23E-02	8.01E-03	2.94E-05
3.98E+04	2.32E-03	1.14E-02	1.12E-02	9.42E-03	4.68E-05
5.01E+04	2.65E-03	1.23E-02	9.78E-03	1.16E-02	8.12E-05
6.30E+04	3.38E-03	1.21E-02	9.13E-03	1.48E-02	1.49E-04
7.94E+04	4.15E-03	1.25E-02	9.77E-03	1.95E-02	3.11E-04
1.00E+05	5.11E-03	1.32E-02	1.05E-02	2.61E-02	7.66E-04
1.25E+05	6.42E-03	1.42E-02	9.23E-03	3.60E-02	1.85E-03
1.58E+05	8.05E-03	1.49E-02	9.63E-03	5.06E-02	4.64E-03
1.99E+05	1.02E-02	1.57E-02	1.03E-02	7.18E-02	1.30E-02
2.51E+05	1.49E-02	1.76E-02	1.13E-02	1.02E-01	3.37E-02
3.16E+05	1.60E-02	1.87E-02	1.30E-02	1.44E-01	7.69E-02
3.98E+05	2.53E-02	2.24E-02	1.63E-02	1.88E-01	1.33E-01
5.01E+05	3.52E-02	3.25E-02	1.96E-02	2.18E-01	2.13E-01
6.30E+05	4.97E-02	3.86E-02	2.40E-02	1.99E-01	3.10E-01
7.94E+05	7.87E-02	5.22E-02	3.23E-02	1.93E-01	4.22E-01
1.00E+06	1.20E-01	6.73E-02	4.78E-02	1.74E-01	4.94E-01
1.25E+06	1.22E-01	1.04E-01	6.38E-02	1.64E-01	4.07E-01
1.58E+06	2.39E-01	1.51E-01	8.24E-02	1.08E-01	3.51E-01
1.99E+06	4.06E-01	2.27E-01	9.36E-02	5.52E-02	2.44E-01
2.51E+06	4.57E-01	3.01E-01	8.39E-02	7.71E-02	1.47E-01
3.16E+06	6.83E-01	2.80E-01	8.41E-02	3.52E-02	1.26E-01
3.98E+06	5.96E-01	2.84E-01	6.22E-02	5.55E-03	8.65E-02
5.01E+06	5.67E-01	2.77E-01	2.17E-02	3.20E-02	7.61E-02
6.30E+06	4.64E-01	2.73E-01	6.09E-03	3.52E-02	8.06E-02
7.94E+06	5.20E-02	7.04E-02	1.68E-03	4.20E-02	1.13E-01
1.00E+07	3.38E-03	7.87E-03	7.60E-04	1.48E-02	2.76E-02
1.58E+07	3.38E-04	8.03E-04	0.00E+00	1.54E-02	3.76E-02
2.51E+07	0.00E+00	0.00E+00	0.00E+00	1.70E-04	1.91E-04
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

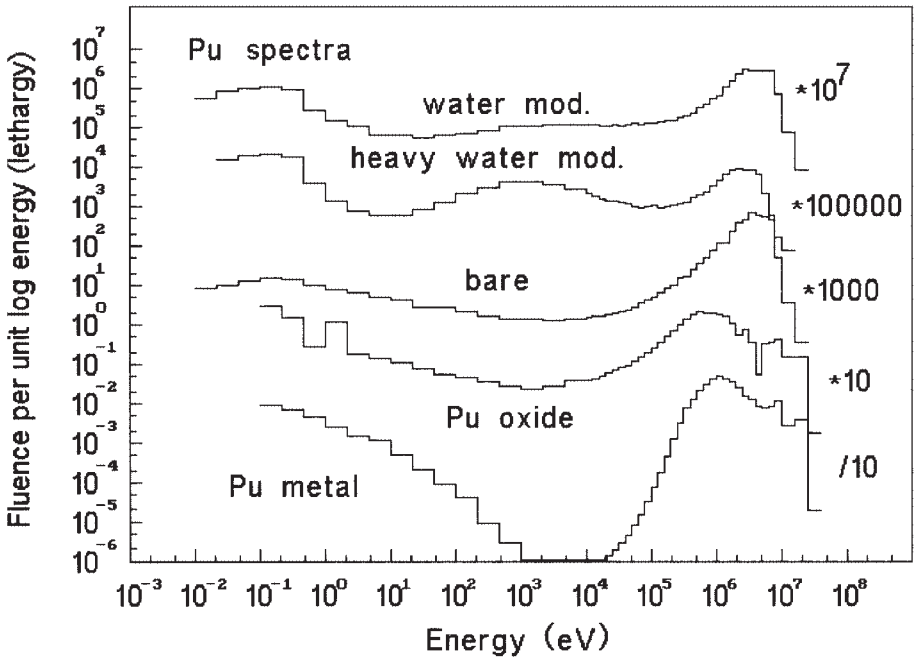

FIG. 4.7. Pu spectra (LLNL and PNL).

TABLE 4.XI. Pu SPECTRA (LLNL AND PNL)

Spectrum weighted responses

Column 2: Bare Pu–Be source, room scatter
Column 3: H_2O moderated Pu–Be, R = 25 cm, room scatter
Column 4: D_2O moderated Pu–Be, R = 25 cm, room scatter
Column 5: Bare PuO_2 at 100 cm
Column 6: Bare Pu metal at 50 cm

FLUENCE 20	1.00E+00	1.00E+00	9.99E-01	1.00E+00	9.99E-01
E A-P R60	3.89E+02	2.23E+02	6.76E+01	1.29E+02	2.64E+02
H AMBIENT	3.69E+02	2.16E+02	7.26E+01	1.70E+02	3.20E+02
H PERSONAL	3.88E+02	2.27E+02	7.63E+01	1.78E+02	3.35E+02
HE A-P R51	2.51E+02	1.42E+02	3.72E+01	7.10E+01	1.55E+02
MADE R21	3.59E+02	2.07E+02	6.68E+01	1.33E+02	2.71E+02
BS 3HE BARE	1.16E-01	7.87E-01	1.20E+00	5.97E-01	2.22E-01
BS 3HE 2.5″	2.06E-01	8.49E-01	1.48E+00	1.23E+00	5.46E-01
BS 3HE 3″	3.13E-01	9.01E-01	1.51E+00	1.36E+00	7.06E-01
BS 3HE 3.5″	4.78E-01	9.68E-01	1.51E+00	1.45E+00	9.15E-01
BS 3HE 4″	6.90E-01	1.04E+00	1.47E+00	1.53E+00	1.16E+00
BS 3HE 4.5″	9.19E-01	1.11E+00	1.39E+00	1.59E+00	1.41E+00
BS 3HE 5″	1.17E+00	1.19E+00	1.30E+00	1.62E+00	1.63E+00
BS 3HE 6″	1.58E+00	1.28E+00	1.09E+00	1.57E+00	1.93E+00
BS 3HE 7″	1.88E+00	1.33E+00	8.85E-01	1.43E+00	2.01E+00
BS 3HE 8″	1.99E+00	1.30E+00	7.07E-01	1.21E+00	1.91E+00
BS 3HE 9.5″	1.95E+00	1.18E+00	4.99E-01	8.80E-01	1.59E+00
BS 3HE 10″	1.89E+00	1.12E+00	4.45E-01	7.79E-01	1.46E+00
BS 3HE 12″	1.56E+00	8.87E-01	2.76E-01	4.65E-01	9.86E-01
BS 3HE 15″	1.02E+00	5.65E-01	1.33E-01	2.06E-01	5.02E-01
BS 3HE 18″	6.68E-01	3.65E-01	7.00E-02	1.03E-01	2.70E-01
BS LiI BARE	1.07E-02	6.60E-02	1.09E-01	7.05E-02	2.74E-02
BS LiI 2″	1.89E-02	7.56E-02	1.33E-01	1.13E-01	5.03E-02
BS LiI 3″	4.24E-02	8.88E-02	1.41E-01	1.34E-01	8.30E-02
BS LiI 6″	1.65E-01	1.25E-01	9.53E-02	1.49E-01	1.95E-01
BS LiI 8″	2.00E-01	1.26E-01	6.26E-02	1.09E-01	1.78E-01
BS LiI 10″	1.82E-01	1.06E-01	3.96E-02	6.85E-02	1.33E-01
BS LiI 15″	1.01E-01	5.51E-02	1.28E-02	1.87E-02	4.66E-02
BS LiI 18″	6.06E-02	3.28E-02	6.40E-03	8.87E-03	2.36E-02
6Li BARE	9.32E-02	1.79E-01	2.81E-01	3.49E-01	1.92E-01
6Li Cd	3.50E-02	5.68E-02	8.37E-02	1.07E-01	6.55E-02
GOLD BARE	2.08E-03	5.46E-03	7.34E-03	1.14E-02	6.24E-03
Nat U PC	1.06E-05	1.55E-05	3.00E-05	1.32E-05	7.54E-06
238 U PC	3.95E-06	2.19E-06	3.57E-07	5.63E-07	1.48E-06
232 Th PC	1.14E-06	6.38E-07	8.71E-08	1.62E-07	4.17E-07
CR39 ECE	1.98E-04	1.12E-04	3.84E-05	6.62E-05	1.60E-04
LR115 LiB	5.35E+02	7.83E+02	1.02E+03	1.58E+03	1.12E+03
PLANAR	1.65E+05	9.34E+04	2.89E+04	6.80E+04	1.46E+05
BASE	1.19E+05	6.78E+04	2.14E+04	5.89E+04	1.13E+05
PYRAMIDE	9.14E+04	5.14E+04	1.52E+04	3.87E+04	7.69E+04
PTB TH	3.88E+02	2.31E+02	8.21E+01	1.96E+02	3.48E+02
PTB INT	3.89E+02	2.34E+02	9.26E+01	2.04E+02	3.53E+02
PTB FAST	3.90E+02	2.22E+02	6.77E+01	1.80E+02	3.38E+02
PTB I+F	4.04E+02	2.33E+02	7.72E+01	1.93E+02	3.55E+02
LONG C	8.66E-01	5.06E-01	1.79E-01	4.51E-01	7.47E-01
LEAKE	2.62E-01	1.55E-01	6.18E-02	1.25E-01	2.28E-01
A-B_2	7.67E-01	4.61E-01	1.95E-01	3.36E-01	6.38E-01
EBERNRD2	7.60E-01	4.50E-01	1.79E-01	3.24E-01	6.28E-01
MOD930_2	7.73E-01	4.44E-01	1.53E-01	2.87E-01	5.90E-01
STUDSVIK	3.98E-01	2.26E-01	7.02E-02	1.42E-01	2.90E-01
LB6411	1.23E+00	7.00E-01	2.26E-01	4.48E-01	9.16E-01
BUBBLE	1.40E+05	8.02E+04	2.28E+04	5.84E+04	1.22E+05
ELECTRET	7.57E+02	4.49E+02	1.69E+02	2.10E+02	3.74E+02
SILICON	3.90E-01	2.65E-01	1.48E-01	5.46E-01	9.81E-01

TABLE 4.XII. Pu FLUORIDE SPECTRA (PNL)

Spectra

Column 1: Energy in eV
Column 2: Bare at 50 cm
Column 3: 1″ acrylic moderated at 50 cm
Column 4: 2″ acrylic moderated at 50 cm
Column 5: Bare at 100 cm
Column 6: 2″ acrylic moderated at 100 cm

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	2.04E-02	6.61E-02	2.19E-01	5.67E-02	2.05E-01
2.15E-01	1.36E-02	4.57E-02	1.49E-01	3.94E-02	1.43E-01
4.64E-01	6.06E-03	2.30E-02	7.11E-02	2.02E-02	7.25E-02
1.00E+00	3.19E-03	1.43E-02	4.08E-02	1.26E-02	4.25E-02
2.15E+00	3.82E-03	1.63E-02	4.69E-02	1.39E-02	4.40E-02
4.64E+00	2.36E-04	5.89E-03	9.93E-03	4.75E-03	9.87E-03
1.00E+01	2.51E-04	5.74E-03	8.97E-03	4.09E-03	6.66E-03
2.15E+01	2.88E-04	5.63E-03	8.30E-03	3.49E-03	4.46E-03
4.64E+01	3.30E-04	5.32E-03	7.51E-03	2.79E-03	2.92E-03
1.00E+02	3.75E-04	4.87E-03	6.84E-03	2.18E-03	2.00E-03
2.15E+02	4.22E-04	4.49E-03	6.47E-03	1.73E-03	1.47E-03
4.64E+02	4.38E-04	3.93E-03	5.97E-03	1.22E-03	9.26E-04
1.00E+03	4.42E-04	3.32E-03	5.56E-03	8.41E-04	6.36E-04
2.15E+03	4.83E-04	3.21E-03	6.12E-03	6.60E-04	5.01E-04
4.64E+03	5.85E-04	3.58E-03	7.60E-03	6.14E-04	8.47E-04
1.00E+04	6.55E-04	3.74E-03	8.68E-03	5.71E-04	1.64E-03
1.25E+04	7.00E-04	3.85E-03	9.32E-03	5.67E-04	1.91E-03
1.58E+04	7.90E-04	4.30E-03	1.06E-02	6.33E-04	1.88E-03
1.99E+04	9.21E-04	4.91E-03	1.22E-02	7.22E-04	1.64E-03
2.51E+04	1.07E-03	5.63E-03	1.40E-02	8.49E-04	1.87E-03
3.16E+04	1.25E-03	6.46E-03	1.60E-02	1.01E-03	2.57E-03
3.98E+04	1.51E-03	7.59E-03	1.86E-02	1.27E-03	3.70E-03
5.01E+04	1.93E-03	9.33E-03	2.23E-02	1.68E-03	5.35E-03
6.30E+04	2.62E-03	1.21E-02	2.76E-02	2.40E-03	7.80E-03
7.94E+04	3.73E-03	1.64E-02	3.52E-02	3.72E-03	1.19E-02
1.00E+05	5.53E-03	2.34E-02	4.57E-02	6.25E-03	1.89E-02
1.25E+05	8.47E-03	3.47E-02	6.03E-02	1.12E-02	3.09E-02
1.58E+05	1.31E-02	5.29E-02	8.01E-02	2.06E-02	5.14E-02
1.99E+05	1.98E-02	8.19E-02	1.07E-01	3.85E-02	8.44E-02
2.51E+05	2.97E-02	1.27E-01	1.42E-01	7.14E-02	1.36E-01
3.16E+05	5.04E-02	1.91E-01	1.83E-01	1.23E-01	2.05E-01
3.98E+05	9.82E-02	2.72E-01	2.21E-01	1.97E-01	2.76E-01
5.01E+05	2.04E-01	3.57E-01	2.35E-01	2.90E-01	3.09E-01
6.30E+05	3.61E-01	4.38E-01	2.24E-01	3.97E-01	3.05E-01
7.94E+05	5.32E-01	4.87E-01	1.88E-01	4.94E-01	2.60E-01
1.00E+06	5.94E-01	4.42E-01	1.56E-01	5.09E-01	2.07E-01
1.25E+06	5.61E-01	2.96E-01	1.09E-01	4.36E-01	1.52E-01
1.58E+06	4.30E-01	1.64E-01	8.45E-02	2.85E-01	1.07E-01
1.99E+06	2.96E-01	8.76E-02	5.71E-02	1.73E-01	7.58E-02
2.51E+06	1.70E-01	8.72E-02	5.65E-02	9.96E-02	5.01E-02
3.16E+06	8.56E-02	4.46E-02	3.93E-02	7.56E-02	3.97E-02
3.98E+06	7.33E-02	3.13E-02	2.84E-02	6.02E-02	3.09E-02
5.01E+06	8.15E-02	3.89E-02	2.58E-02	6.41E-02	3.00E-02
6.30E+06	1.31E-01	6.99E-02	2.85E-02	9.99E-02	3.09E-02
7.94E+06	1.35E-01	8.19E-02	3.12E-02	1.06E-01	3.91E-02
1.00E+07	1.08E-01	6.34E-02	2.42E-02	8.49E-02	3.01E-02
1.58E+07	2.41E-02	1.13E-02	7.02E-03	1.95E-02	5.59E-03
2.51E+07	6.71E-03	3.07E-03	1.31E-03	5.33E-03	1.37E-03
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

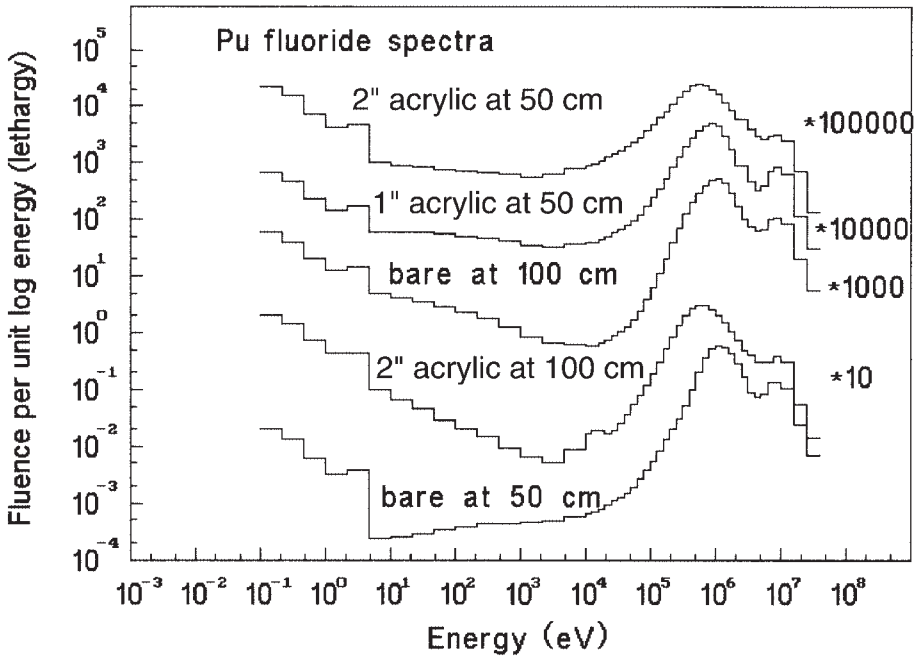

FIG. 4.8. Pu fluoride spectra (PNL).

TABLE 4.XII. Pu FLUORIDE SPECTRA (PNL)

Spectrum weighted responses

Column 2: Bare at 50 cm
Column 3: 1″ acrylic moderated at 50 cm
Column 4: 2″ acrylic moderated at 50 cm
Column 5: Bare at 100 cm
Column 6: 2″ acrylic moderated at 100 cm

FLUENCE 20	9.97E-01	9.99E-01	9.99E-01	9.97E-01	1.00E+00
E A-P R60	3.22E+02	2.29E+02	1.28E+02	2.71E+02	1.52E+02
H AMBIENT	3.86E+02	3.04E+02	1.73E+02	3.40E+02	2.07E+02
H PERSONAL	4.04E+02	3.17E+02	1.81E+02	3.54E+02	2.16E+02
HE A-P R51	1.92E+02	1.29E+02	6.90E+01	1.58E+02	8.25E+01
MADE R21	3.28E+02	2.38E+02	1.32E+02	2.78E+02	1.58E+02
BS 3HE BARE	4.52E-02	1.55E-01	4.94E-01	1.33E-01	4.70E-01
BS 3HE 2.5″	1.84E-01	4.74E-01	1.12E+00	3.86E-01	1.04E+00
BS 3HE 3″	3.73E-01	7.12E-01	1.30E+00	5.87E-01	1.19E+00
BS 3HE 3.5″	6.57E-01	1.01E+00	1.45E+00	8.58E-01	1.35E+00
BS 3HE 4″	9.98E-01	1.33E+00	1.59E+00	1.17E+00	1.50E+00
BS 3HE 4.5″	1.34E+00	1.63E+00	1.68E+00	1.47E+00	1.63E+00
BS 3HE 5″	1.66E+00	1.87E+00	1.73E+00	1.73E+00	1.72E+00
BS 3HE 6″	2.10E+00	2.12E+00	1.69E+00	2.07E+00	1.75E+00
BS 3HE 7″	2.27E+00	2.11E+00	1.52E+00	2.14E+00	1.64E+00
BS 3HE 8″	2.20E+00	1.90E+00	1.27E+00	2.01E+00	1.41E+00
BS 3HE 9.5″	1.87E+00	1.46E+00	9.02E-01	1.63E+00	1.03E+00
BS 3HE 10″	1.72E+00	1.31E+00	7.93E-01	1.49E+00	9.14E-01
BS 3HE 12″	1.19E+00	8.18E-01	4.59E-01	9.86E-01	5.41E-01
BS 3HE 15″	6.28E-01	3.78E-01	1.97E-01	4.95E-01	2.34E-01
BS 3HE 18″	3.48E-01	1.93E-01	9.73E-02	2.68E-01	1.14E-01
BS LiI BARE	5.64E-03	1.94E-02	5.98E-02	1.65E-02	5.69E-02
BS LiI 2″	1.71E-02	4.40E-02	1.03E-01	3.58E-02	9.51E-02
BS LiI 3″	5.83E-02	9.21E-02	1.35E-01	7.75E-02	1.24E-01
BS LiI 6″	2.16E-01	2.12E-01	1.60E-01	2.09E-01	1.70E-01
BS LiI 8″	2.07E-01	1.73E-01	1.13E-01	1.86E-01	1.27E-01
BS LiI 10″	1.57E-01	1.17E-01	6.92E-02	1.34E-01	8.03E-02
BS LiI 15″	5.77E-02	3.42E-02	1.79E-02	4.53E-02	2.11E-02
BS LiI 18″	3.03E-02	1.65E-02	8.39E-03	2.32E-02	9.76E-03
6Li BARE	1.14E-01	1.80E-01	3.21E-01	1.59E-01	3.04E-01
6Li Cd	4.25E-02	6.64E-02	1.04E-01	5.75E-02	9.69E-02
GOLD BARE	1.43E-03	5.71E-03	1.67E-02	4.84E-03	1.57E-02
Nat U PC	6.74E-06	1.31E-05	1.60E-05	9.52E-06	9.41E-06
238 U PC	1.98E-06	1.04E-06	5.15E-07	1.50E-06	5.74E-07
232 Th PC	5.69E-07	3.06E-07	1.47E-07	4.36E-07	1.64E-07
CR39 ECE	1.94E-04	1.21E-04	6.18E-05	1.53E-04	7.71E-05
LR115 LiB	7.16E+02	1.18E+03	1.71E+03	9.89E+02	1.61E+03
PLANAR	1.77E+05	1.30E+05	6.63E+04	1.51E+05	8.35E+04
BASE	1.35E+05	1.11E+05	5.96E+04	1.21E+05	7.50E+04
PYRAMIDE	9.22E+04	7.29E+04	3.90E+04	8.15E+04	4.89E+04
PTB TH	4.13E+02	3.46E+02	2.03E+02	3.73E+02	2.43E+02
PTB INT	4.15E+02	3.48E+02	2.10E+02	3.76E+02	2.49E+02
PTB FAST	4.05E+02	3.28E+02	1.86E+02	3.60E+02	2.24E+02
PTB I+F	4.22E+02	3.45E+02	1.99E+02	3.78E+02	2.39E+02
LONG C	8.73E-01	7.73E-01	4.98E-01	7.98E-01	5.51E-01
LEAKE	2.70E-01	2.15E-01	1.27E-01	2.38E-01	1.49E-01
A-B_2	7.55E-01	5.67E-01	3.33E-01	6.49E-01	3.91E-01
EBERNRD2	7.48E-01	5.64E-01	3.27E-01	6.42E-01	3.82E-01
MOD930_2	7.09E-01	5.12E-01	2.85E-01	5.98E-01	3.40E-01
STUDSVIK	3.52E-01	2.60E-01	1.45E-01	3.00E-01	1.73E-01
LB6411	1.09E+00	8.08E-01	4.49E-01	9.33E-01	5.39E-01
BUBBLE	1.56E+05	1.17E+05	5.90E+04	1.34E+05	7.43E+04
ELECTRET	4.78E+02	3.04E+02	1.99E+02	3.90E+02	2.24E+02
SILICON	1.18E+00	1.02E+00	5.56E-01	1.08E+00	6.98E-01

TABLE 4.XIII. Fe AND PE MODERATED Cf SPECTRA (NRI, REŽ)

Spectra

Column 1: Energy in eV
Column 2: Cf + 5 cm Fe, 10 cm PE
Column 3: Cf + 25 cm Fe, 10 cm PE
Column 4: Cf + 5 cm Fe
Column 5: Cf + 25 cm Fe

1.00E-03	6.64E-03	1.36E-02	0.00E+00	0.00E+00
2.15E-03	1.03E-02	1.97E-02	0.00E+00	0.00E+00
4.64E-03	2.90E-02	3.21E-02	0.00E+00	0.00E+00
1.00E-02	1.01E-01	1.30E-01	0.00E+00	0.00E+00
2.15E-02	2.43E-01	3.08E-01	0.00E+00	0.00E+00
4.64E-02	2.97E-01	4.36E-01	0.00E+00	0.00E+00
1.00E-01	9.96E-02	9.81E-02	0.00E+00	0.00E+00
2.15E-01	1.86E-02	2.05E-02	0.00E+00	0.00E+00
4.64E-01	1.19E-02	1.23E-02	0.00E+00	0.00E+00
1.00E+00	1.33E-02	9.62E-03	0.00E+00	0.00E+00
2.15E+00	1.15E-02	1.17E-02	0.00E+00	0.00E+00
4.64E+00	9.30E-03	6.61E-03	0.00E+00	0.00E+00
1.00E+01	1.16E-02	4.83E-03	0.00E+00	2.89E-03
2.15E+01	7.95E-03	1.51E-03	0.00E+00	2.89E-03
4.64E+01	7.95E-03	6.99E-03	0.00E+00	2.89E-03
1.00E+02	7.75E-03	4.95E-03	1.43E-04	2.89E-03
2.15E+02	4.88E-03	2.83E-03	8.54E-04	3.11E-03
4.64E+02	5.29E-03	2.24E-03	1.22E-03	5.22E-03
1.00E+03	5.29E-03	5.79E-04	2.60E-03	3.53E-03
2.15E+03	5.29E-03	6.99E-03	2.02E-03	4.06E-03
4.64E+03	5.29E-03	2.21E-03	2.08E-03	5.65E-03
1.00E+04	5.29E-03	3.09E-03	2.15E-03	1.12E-02
1.25E+04	5.29E-03	3.52E-03	2.20E-03	2.24E-02
1.58E+04	5.29E-03	2.05E-03	2.30E-03	3.90E-02
1.99E+04	5.50E-03	1.58E-03	2.52E-03	3.91E-02
2.51E+04	6.81E-03	3.25E-03	2.96E-03	3.23E-02
3.16E+04	8.30E-03	5.05E-03	3.71E-03	2.51E-02
3.98E+04	8.96E-03	7.70E-03	7.69E-03	4.78E-02
5.01E+04	9.37E-03	8.40E-03	1.95E-02	7.05E-02
6.30E+04	9.27E-03	9.11E-03	2.11E-02	1.01E-01
7.94E+04	9.79E-03	1.12E-02	3.88E-02	1.38E-01
1.00E+05	1.44E-02	1.72E-02	7.81E-02	1.73E-01
1.25E+05	1.99E-02	2.50E-02	8.54E-02	2.15E-01
1.58E+05	2.56E-02	3.18E-02	1.06E-01	2.70E-01
1.99E+05	3.07E-02	4.05E-02	1.78E-01	3.61E-01
2.51E+05	4.18E-02	5.04E-02	2.25E-01	4.48E-01
3.16E+05	4.88E-02	5.96E-02	2.66E-01	4.89E-01
3.98E+05	5.78E-02	6.61E-02	2.97E-01	4.58E-01
5.01E+05	7.16E-02	6.36E-02	3.23E-01	3.65E-01
6.30E+05	8.16E-02	5.41E-02	3.37E-01	3.33E-01
7.94E+05	9.37E-02	3.93E-02	3.70E-01	2.04E-01
1.00E+06	1.04E-01	3.26E-02	3.64E-01	2.04E-01
1.25E+06	1.18E-01	1.80E-02	3.43E-01	7.61E-02
1.58E+06	1.22E-01	8.85E-03	3.16E-01	6.49E-02
1.99E+06	1.13E-01	5.59E-03	2.96E-01	2.33E-02
2.51E+06	1.00E-01	4.82E-03	2.42E-01	9.18E-03
3.16E+06	7.57E-02	1.17E-04	1.68E-01	8.11E-03
3.98E+06	5.36E-02	8.72E-05	1.24E-01	1.59E-03
5.01E+06	3.30E-02	4.12E-05	7.09E-02	5.24E-04
6.30E+06	1.59E-02	0.00E+00	2.03E-02	0.00E+00
7.94E+06	4.22E-03	0.00E+00	1.30E-03	0.00E+00
1.00E+07	5.46E-04	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

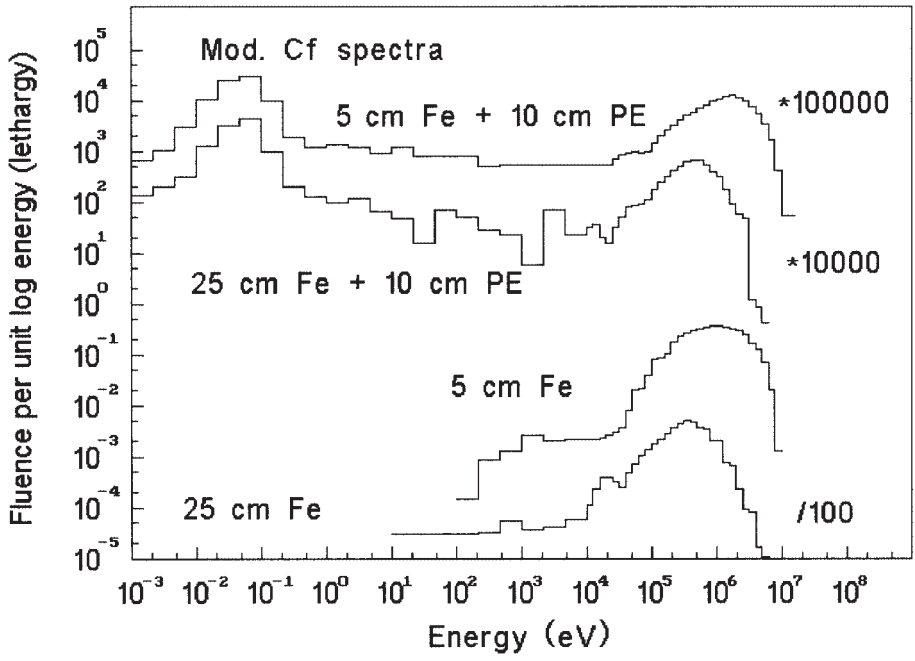

FIG. 4.9. Fe and PE moderated Cf spectra (NRI, REŽ).

TABLE 4.XIII. Fe AND PE MODERATED Cf SPECTRA (NRI, REŽ)

Spectrum weighted responses

Column 2: Cf + 5 cm Fe, 10 cm PE
Column 3: Cf + 25 cm Fe, 10 cm PE
Column 4: Cf + 5 cm Fe
Column 5: Cf + 25 cm Fe

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	9.46E+01	3.12E+01	2.64E+02	1.52E+02
H AMBIENT	1.12E+02	4.53E+01	3.39E+02	2.39E+02
H PERSONAL	1.18E+02	4.73E+01	3.55E+02	2.49E+02
HE A-P R51	5.19E+01	1.43E+01	1.42E+02	6.94E+01
MADE R21	9.71E+01	3.39E+01	2.74E+02	1.60E+02
BS 3HE BARE	1.73E+00	2.29E+00	9.60E-04	2.62E-03
BS 3HE 2.5″	1.16E+00	1.39E+00	1.68E-01	3.00E-01
BS 3HE 3″	1.11E+00	1.25E+00	4.50E-01	7.13E-01
BS 3HE 3.5″	1.11E+00	1.17E+00	8.32E-01	1.21E+00
BS 3HE 4″	1.11E+00	1.08E+00	1.25E+00	1.68E+00
BS 3HE 4.5″	1.11E+00	9.97E-01	1.65E+00	2.07E+00
BS 3HE 5″	1.10E+00	9.14E-01	1.98E+00	2.34E+00
BS 3HE 6″	1.05E+00	7.42E-01	2.36E+00	2.48E+00
BS 3HE 7″	9.48E-01	5.74E-01	2.41E+00	2.27E+00
BS 3HE 8″	8.23E-01	4.30E-01	2.21E+00	1.87E+00
BS 3HE 9.5″	6.27E-01	2.58E-01	1.74E+00	1.23E+00
BS 3HE 10″	5.66E-01	2.17E-01	1.58E+00	1.05E+00
BS 3HE 12″	3.61E-01	1.02E-01	9.95E-01	5.14E-01
BS 3HE 15″	1.72E-01	2.90E-02	4.51E-01	1.52E-01
BS 3HE 18″	8.69E-02	8.30E-03	2.13E-01	4.41E-02
BS LiI BARE	1.19E-01	1.53E-01	8.00E-04	1.63E-03
BS LiI 2″	9.83E-02	1.16E-01	1.58E-02	2.83E-02
BS LiI 3″	9.94E-02	1.04E-01	7.47E-02	1.11E-01
BS LiI 6″	9.70E-02	6.38E-02	2.38E-01	2.41E-01
BS LiI 8″	7.47E-02	3.59E-02	2.05E-01	1.63E-01
BS LiI 10″	5.07E-02	1.79E-02	1.42E-01	8.80E-02
BS LiI 15″	1.63E-02	2.43E-03	4.21E-02	1.28E-02
BS LiI 18″	7.78E-03	6.54E-04	1.89E-02	3.40E-03
6Li BARE	1.22E-01	9.83E-02	1.18E-01	1.51E-01
6Li Cd	4.06E-02	3.02E-02	4.88E-02	6.70E-02
GOLD BARE	4.65E-03	4.54E-03	6.52E-05	1.80E-04
Nat U PC	1.44E-05	8.43E-06	6.20E-06	1.06E-05
238 U PC	4.10E-07	9.77E-09	9.10E-07	4.29E-08
232 Th PC	1.01E-07	1.76E-09	2.15E-07	7.57E-09
CR39 ECE	5.68E-05	1.10E-05	1.66E-04	6.76E-05
LR115 LiB	6.43E+02	4.68E+02	9.57E+02	1.46E+03
PLANAR	4.69E+04	1.29E+04	1.47E+05	8.08E+04
BASE	3.69E+04	1.28E+04	1.22E+05	8.23E+04
PYRAMIDE	2.52E+04	8.00E+03	8.12E+04	5.12E+04
PTB TH	1.41E+02	7.51E+01	3.98E+02	3.13E+02
PTB INT	1.35E+02	6.53E+01	3.91E+02	3.01E+02
PTB FAST	1.15E+02	4.15E+01	3.81E+02	2.84E+02
PTB I+F	1.25E+02	4.97E+01	3.98E+02	2.99E+02
LONG C	2.93E-01	1.26E-01	9.83E-01	9.23E-01
LEAKE	8.17E-02	2.88E-02	2.50E-01	1.75E-01
A-B_2	2.51E-01	1.03E-01	6.69E-01	4.12E-01
EBERNRD2	2.37E-01	8.77E-02	6.67E-01	4.25E-01
MOD930_2	2.13E-01	6.73E-02	6.17E-01	3.57E-01
STUDSVIK	1.02E-01	2.93E-02	3.12E-01	1.91E-01
LB6411	3.26E-01	9.84E-02	9.73E-01	5.82E-01
BUBBLE	3.79E+04	1.13E+04	1.20E+05	7.13E+04
ELECTRET	1.69E+02	8.02E+01	3.11E+02	1.02E+02
SILICON	3.09E-01	1.37E-01	1.12E+00	9.00E-01

TABLE 4.XIV. WORKPLACE SIMULATION SPECTRA (CADARACHE AND GSF)

Spectra

Column 1: Energy in eV
Column 2: Cadarache, spectrum 1
Column 3: Cadarache, spectrum 2
Column 4: GRENF, position A
Column 5: GRENF, position B
Column 6: GRENF, position C

1.00E-03	2.85E-03	1.90E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	7.39E-03	6.53E-03	0.00E+00	0.00E+00	0.00E+00
4.64E-03	2.04E-02	2.29E-02	0.00E+00	0.00E+00	0.00E+00
1.00E-02	5.55E-02	7.47E-02	7.07E-03	3.37E-03	1.78E-03
2.15E-02	1.19E-01	1.82E-01	2.32E-02	2.53E-02	1.69E-02
4.64E-02	1.36E-01	2.17E-01	5.07E-02	3.75E-02	3.46E-02
1.00E-01	4.76E-02	7.55E-02	3.96E-02	3.46E-02	3.41E-02
2.15E-01	2.90E-02	4.46E-02	2.44E-02	1.89E-02	2.37E-02
4.64E-01	1.96E-02	2.15E-02	2.54E-02	2.44E-02	2.46E-02
1.00E+00	1.98E-02	2.60E-02	2.88E-02	2.85E-02	2.90E-02
2.15E+00	2.01E-02	3.00E-02	3.18E-02	3.30E-02	3.54E-02
4.64E+00	2.05E-02	2.98E-02	3.72E-02	3.89E-02	4.01E-02
1.00E+01	2.07E-02	2.93E-02	4.04E-02	4.31E-02	4.65E-02
2.15E+01	2.08E-02	3.04E-02	4.45E-02	4.86E-02	5.27E-02
4.64E+01	2.09E-02	3.12E-02	4.90E-02	5.18E-02	5.71E-02
1.00E+02	2.10E-02	3.20E-02	5.53E-02	5.56E-02	6.03E-02
2.15E+02	2.09E-02	3.26E-02	5.44E-02	5.97E-02	6.17E-02
4.64E+02	2.09E-02	3.32E-02	5.44E-02	5.87E-02	6.38E-02
1.00E+03	2.10E-02	3.40E-02	5.86E-02	6.41E-02	6.82E-02
2.15E+03	2.14E-02	3.47E-02	4.45E-02	5.82E-02	5.35E-02
4.64E+03	2.29E-02	3.56E-02	6.07E-02	6.60E-02	6.47E-02
1.00E+04	2.53E-02	3.64E-02	6.07E-02	6.47E-02	6.51E-02
1.25E+04	2.71E-02	3.67E-02	5.86E-02	6.21E-02	5.96E-02
1.58E+04	3.37E-02	3.72E-02	6.28E-02	6.31E-02	6.87E-02
1.99E+04	6.45E-02	3.77E-02	7.56E-02	8.50E-02	8.60E-02
2.51E+04	1.17E-01	3.83E-02	7.98E-02	8.82E-02	8.60E-02
3.16E+04	1.09E-01	3.91E-02	5.40E-02	5.21E-02	1.89E-02
3.98E+04	1.99E-02	4.00E-02	6.73E-02	6.91E-02	6.25E-02
5.01E+04	6.33E-03	4.12E-02	5.99E-02	7.04E-02	6.65E-02
6.30E+04	8.61E-02	4.26E-02	7.48E-02	7.80E-02	8.84E-02
7.94E+04	1.12E-01	4.43E-02	6.98E-02	7.99E-02	1.12E-01
1.00E+05	1.10E-01	4.63E-02	7.02E-02	8.43E-02	8.60E-02
1.25E+05	1.31E-01	4.86E-02	8.52E-02	9.89E-02	1.04E-01
1.58E+05	1.51E-01	5.11E-02	8.10E-02	8.56E-02	9.41E-02
1.99E+05	1.68E-01	5.35E-02	6.86E-02	8.24E-02	7.56E-02
2.51E+05	1.77E-01	5.53E-02	8.85E-02	9.77E-02	9.97E-02
3.16E+05	1.73E-01	5.61E-02	7.73E-02	7.99E-02	7.06E-02
3.98E+05	1.51E-01	5.43E-02	6.69E-02	7.67E-02	7.84E-02
5.01E+05	1.17E-01	4.62E-02	1.10E-01	1.04E-01	1.01E-01
6.30E+05	8.14E-02	3.09E-02	1.26E-01	1.35E-01	1.20E-01
7.94E+05	4.06E-02	1.81E-02	7.15E-02	7.99E-02	6.39E-02
1.00E+06	1.99E-02	1.29E-02	9.31E-02	7.86E-02	6.61E-02
1.25E+06	2.09E-03	5.86E-03	1.07E-01	1.23E-01	7.53E-02
1.58E+06	5.36E-03	3.29E-03	1.95E-01	2.85E-03	3.26E-02
1.99E+06	8.61E-03	2.17E-03	5.57E-03	0.00E+00	0.00E+00
2.51E+06	3.90E-03	1.34E-03	0.00E+00	0.00E+00	0.00E+00
3.16E+06	8.12E-03	2.51E-03	0.00E+00	0.00E+00	0.00E+00
3.98E+06	7.19E-04	6.08E-04	0.00E+00	0.00E+00	0.00E+00
5.01E+06	1.38E-03	1.18E-03	0.00E+00	0.00E+00	0.00E+00
6.30E+06	8.15E-05	1.34E-04	0.00E+00	0.00E+00	0.00E+00
7.94E+06	9.83E-05	2.01E-04	0.00E+00	0.00E+00	0.00E+00
1.00E+07	5.98E-03	2.71E-03	0.00E+00	0.00E+00	0.00E+00
1.58E+07	3.80E-02	1.70E-02	0.00E+00	0.00E+00	0.00E+00
2.51E+07	1.56E-03	7.01E-04	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

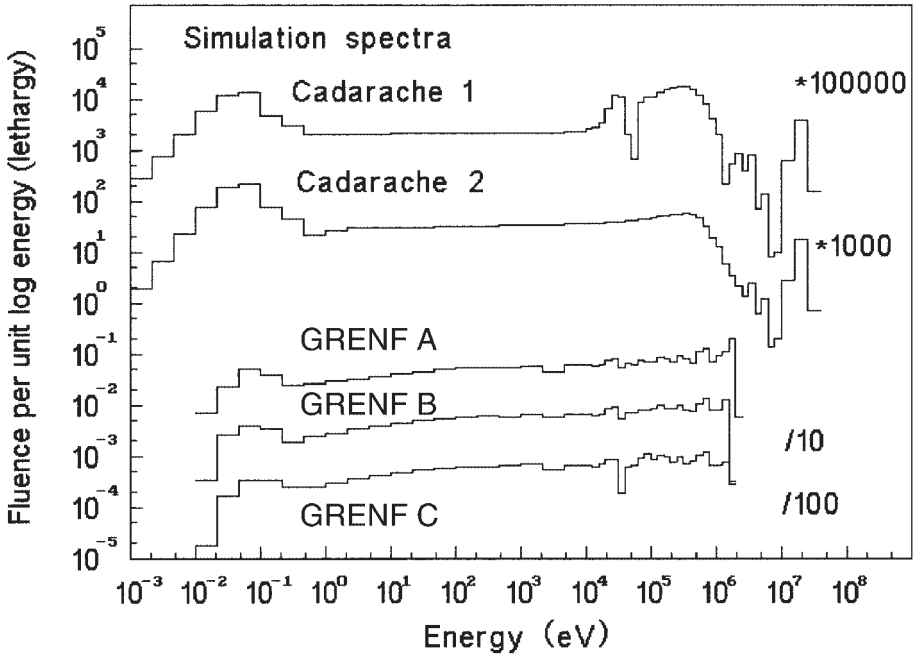

FIG. 4.10. Workplace simulation spectra (Cadarache and GSF).

TABLE 4.XIV. WORKPLACE SIMULATION SPECTRA (CADARACHE AND GSF)

Spectrum weighted responses

Column 2: Cadarache, spectrum 1
Column 3: Cadarache, spectrum 2
Column 4: GRENF, position A
Column 5: GRENF, position B
Column 6: GRENF, position C

FLUENCE 20	9.98E-01	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	6.61E+01	3.37E+01	7.48E+01	6.12E+01	5.77E+01
H AMBIENT	9.68E+01	4.46E+01	9.85E+01	8.49E+01	7.92E+01
H PERSONAL	1.01E+02	4.64E+01	1.04E+02	8.86E+01	8.29E+01
HE A-P R51	3.46E+01	1.68E+01	3.43E+01	2.64E+01	2.46E+01
MADE R21	6.55E+01	3.29E+01	7.71E+01	6.26E+01	5.83E+01
BS 3HE BARE	9.28E-01	1.34E+00	3.03E-01	2.64E-01	2.42E-01
BS 3HE 2.5″	1.01E+00	1.34E+00	1.04E+00	1.06E+00	1.08E+00
BS 3HE 3″	1.25E+00	1.49E+00	1.45E+00	1.50E+00	1.54E+00
BS 3HE 3.5″	1.47E+00	1.59E+00	1.78E+00	1.85E+00	1.89E+00
BS 3HE 4″	1.63E+00	1.60E+00	1.98E+00	2.06E+00	2.10E+00
BS 3HE 4.5″	1.71E+00	1.55E+00	2.07E+00	2.14E+00	2.17E+00
BS 3HE 5″	1.72E+00	1.45E+00	2.05E+00	2.11E+00	2.13E+00
BS 3HE 6″	1.55E+00	1.17E+00	1.82E+00	1.84E+00	1.84E+00
BS 3HE 7″	1.26E+00	8.76E-01	1.48E+00	1.46E+00	1.44E+00
BS 3HE 8″	9.51E-01	6.23E-01	1.14E+00	1.09E+00	1.07E+00
BS 3HE 9.5″	5.70E-01	3.49E-01	7.18E-01	6.51E-01	6.31E-01
BS 3HE 10″	4.79E-01	2.87E-01	6.09E-01	5.42E-01	5.23E-01
BS 3HE 12″	2.22E-01	1.25E-01	3.02E-01	2.47E-01	2.35E-01
BS 3HE 15″	7.48E-02	3.86E-02	9.85E-02	6.91E-02	6.49E-02
BS 3HE 18″	3.63E-02	1.73E-02	3.17E-02	1.85E-02	1.74E-02
BS LiI BARE	6.73E-02	9.96E-02	3.34E-02	3.04E-02	2.96E-02
BS LiI 2″	8.99E-02	1.20E-01	9.88E-02	1.01E-01	1.04E-01
BS LiI 3″	1.37E-01	1.48E-01	1.70E-01	1.77E-01	1.82E-01
BS LiI 6″	1.40E-01	1.00E-01	1.63E-01	1.63E-01	1.62E-01
BS LiI 8″	8.00E-02	5.09E-02	9.66E-02	9.10E-02	8.89E-02
BS LiI 10″	3.92E-02	2.31E-02	5.09E-02	4.45E-02	4.28E-02
BS LiI 15″	6.60E-03	3.37E-03	8.42E-03	5.79E-03	5.43E-03
BS LiI 18″	3.22E-03	1.54E-03	2.63E-03	1.49E-03	1.41E-03
6Li BARE	1.84E-01	1.98E-01	2.49E-01	2.55E-01	2.63E-01
6Li Cd	7.97E-02	8.42E-02	1.17E-01	1.22E-01	1.26E-01
GOLD BARE	6.80E-03	1.01E-02	1.05E-02	1.08E-02	1.15E-02
Nat U PC	3.54E-05	4.97E-05	8.27E-05	8.41E-05	9.06E-05
238 U PC	3.19E-07	1.42E-07	2.74E-08	3.84E-09	5.86E-09
232 Th PC	9.69E-08	4.34E-08	1.99E-09	1.25E-10	3.14E-10
CR39 ECE	1.87E-05	7.53E-06	4.09E-05	2.47E-05	2.27E-05
LR115 LiB	1.58E+03	1.53E+03	2.27E+03	2.39E+03	2.45E+03
PLANAR	2.47E+04	9.84E+03	3.60E+04	2.78E+04	2.46E+04
BASE	2.55E+04	9.77E+03	3.09E+04	2.56E+04	2.31E+04
PYRAMIDE	1.61E+04	6.21E+03	1.98E+04	1.60E+04	1.44E+04
PTB TH	1.21E+02	5.76E+01	1.14E+02	9.93E+01	9.22E+01
PTB INT	1.22E+02	6.46E+01	1.32E+02	1.18E+02	1.11E+02
PTB FAST	9.88E+01	3.69E+01	1.04E+02	8.82E+01	8.15E+01
PTB I+F	1.09E+02	4.60E+01	1.15E+02	9.97E+01	9.28E+01
LONG C	4.10E-01	1.70E-01	3.90E-01	3.69E-01	3.53E-01
LEAKE	7.22E-02	3.92E-02	9.28E-02	8.31E-02	7.95E-02
A-B_2	1.80E-01	1.14E-01	2.44E-01	2.11E-01	2.01E-01
EBERNRD2	1.85E-01	1.10E-01	2.47E-01	2.17E-01	2.07E-01
MOD930_2	1.41E-01	7.33E-02	1.88E-01	1.55E-01	1.46E-01
STUDSVIK	6.83E-02	3.09E-02	9.06E-02	7.48E-02	7.04E-02
LB6411	2.19E-01	1.06E-01	2.85E-01	2.36E-01	2.21E-01
BUBBLE	2.05E+04	8.06E+03	2.98E+04	2.37E+04	2.12E+04
ELECTRET	7.43E+01	7.41E+01	1.03E+02	8.15E+01	8.04E+01
SILICON	2.78E-01	1.03E-01	3.62E-01	2.89E-01	2.63E-01

TABLE 4.XV. WORKPLACE SIMULATION SPECTRA (GSF AND PTB)

Spectra

Column 1: Energy in eV
Column 2: GRENF, 30 cm D_2O sphere
Column 3: GRENF, 10 cm Fe slab
Column 4: GRENF, 10 cm PE slab
Column 5: PTB, Li(p,n)Be, 2.5 MeV
Column 6: PTB, Li(p,n)Be, 3.3 MeV

1.00E-03	0.00E+00	0.00E+00	0.00E+00	8.45E-03	8.76E-03
2.15E-03	0.00E+00	0.00E+00	0.00E+00	1.71E-02	2.33E-02
4.64E-03	3.48E-04	0.00E+00	0.00E+00	8.86E-02	7.77E-02
1.00E-02	3.60E-03	7.16E-04	5.81E-02	2.35E-01	2.24E-01
2.15E-02	1.36E-02	7.56E-04	1.21E-01	2.59E-01	2.10E-01
4.64E-02	2.25E-02	1.55E-03	9.44E-02	8.42E-02	6.05E-02
1.00E-01	1.50E-02	1.32E-03	3.50E-02	6.52E-02	3.34E-02
2.15E-01	2.49E-02	5.61E-04	2.50E-02	5.91E-02	2.50E-02
4.64E-01	3.10E-02	1.56E-03	2.21E-02	2.85E-02	4.25E-02
1.00E+00	3.57E-02	1.00E-03	1.94E-02	2.67E-02	2.40E-02
2.15E+00	3.87E-02	1.12E-03	1.59E-02	2.62E-02	2.40E-02
4.64E+00	4.26E-02	8.71E-04	1.33E-02	2.29E-02	2.40E-02
1.00E+01	4.47E-02	9.55E-04	1.55E-02	2.66E-02	2.40E-02
2.15E+01	4.61E-02	9.55E-04	1.37E-02	2.48E-02	2.40E-02
4.64E+01	4.96E-02	9.28E-04	1.37E-02	2.62E-02	2.18E-02
1.00E+02	5.14E-02	1.34E-03	1.37E-02	2.55E-02	2.38E-02
2.15E+02	5.28E-02	1.58E-03	1.73E-02	2.63E-02	2.59E-02
4.64E+02	5.31E-02	1.84E-03	1.56E-02	2.65E-02	2.53E-02
1.00E+03	5.17E-02	2.75E-03	2.02E-02	2.92E-02	2.71E-02
2.15E+03	5.14E-02	3.86E-03	1.99E-02	2.43E-02	3.05E-02
4.64E+03	5.12E-02	9.42E-03	2.21E-02	3.27E-02	3.61E-02
1.00E+04	5.64E-02	1.42E-02	2.65E-02	2.93E-02	3.50E-02
1.25E+04	5.55E-02	1.52E-02	2.86E-02	2.86E-02	3.53E-02
1.58E+04	5.64E-02	1.75E-02	2.74E-02	2.92E-02	3.58E-02
1.99E+04	5.93E-02	2.38E-02	2.78E-02	2.94E-02	3.91E-02
2.51E+04	5.93E-02	3.12E-02	2.97E-02	3.02E-02	4.25E-02
3.16E+04	5.85E-02	3.52E-02	3.12E-02	3.10E-02	4.22E-02
3.98E+04	5.79E-02	3.76E-02	3.20E-02	3.12E-02	4.28E-02
5.01E+04	5.73E-02	4.08E-02	3.25E-02	3.05E-02	4.47E-02
6.30E+04	6.02E-02	5.39E-02	3.33E-02	3.01E-02	4.60E-02
7.94E+04	6.91E-02	6.98E-02	3.82E-02	3.19E-02	4.73E-02
1.00E+05	7.59E-02	8.97E-02	4.16E-02	3.21E-02	5.06E-02
1.25E+05	1.04E-01	1.08E-01	4.46E-02	2.86E-02	5.20E-02
1.58E+05	9.33E-02	1.20E-01	4.73E-02	2.49E-02	5.32E-02
1.99E+05	1.10E-01	1.34E-01	5.05E-02	2.60E-02	5.58E-02
2.51E+05	1.14E-01	1.88E-01	5.88E-02	2.57E-02	6.24E-02
3.16E+05	1.42E-01	2.12E-01	6.39E-02	2.16E-02	6.21E-02
3.98E+05	1.44E-01	2.37E-01	6.45E-02	7.25E-03	6.20E-02
5.01E+05	1.51E-01	3.00E-01	8.81E-02	5.87E-04	5.67E-02
6.30E+05	1.50E-01	3.91E-01	1.29E-01	0.00E+00	5.65E-02
7.94E+05	1.36E-01	4.25E-01	1.52E-01	0.00E+00	3.51E-02
1.00E+06	1.06E-01	4.51E-01	1.63E-01	0.00E+00	2.99E-03
1.25E+06	7.53E-02	4.15E-01	2.12E-01	0.00E+00	0.00E+00
1.58E+06	4.43E-02	3.62E-01	2.27E-01	0.00E+00	0.00E+00
1.99E+06	2.22E-02	2.72E-01	2.33E-01	0.00E+00	0.00E+00
2.51E+06	1.00E-02	1.14E-01	2.23E-01	0.00E+00	0.00E+00
3.16E+06	3.34E-03	5.04E-02	1.62E-01	0.00E+00	0.00E+00
3.98E+06	3.01E-03	4.05E-03	1.19E-01	0.00E+00	0.00E+00
5.01E+06	8.92E-04	9.64E-03	7.26E-02	0.00E+00	0.00E+00
6.30E+06	3.36E-04	1.09E-02	2.53E-02	0.00E+00	0.00E+00
7.94E+06	0.00E+00	2.38E-05	3.20E-03	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	1.32E-04	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

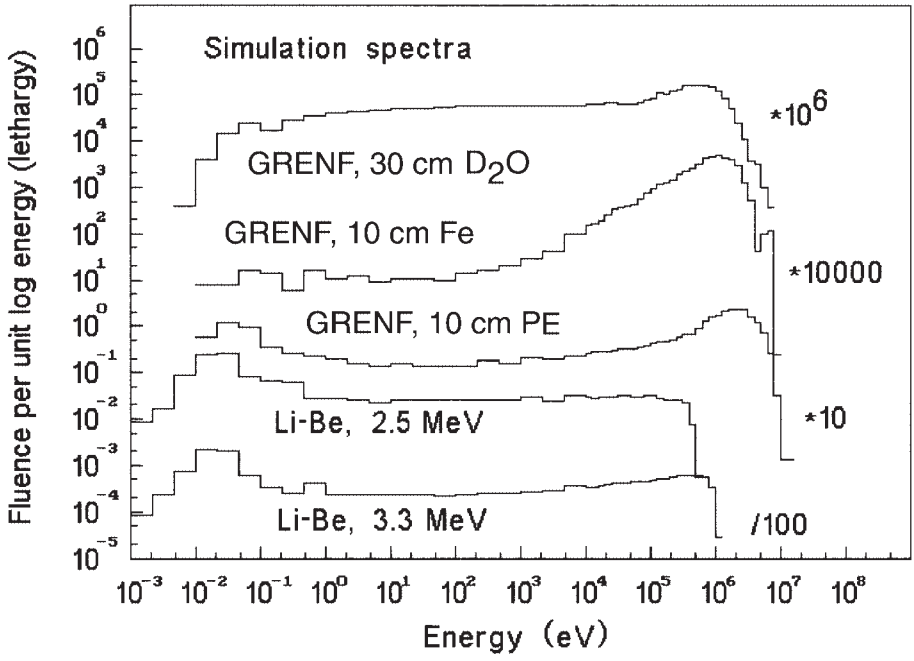

FIG. 4.11. Workplace simulation spectra (GSF and PTB).

TABLE 4.XV. WORKPLACE SIMULATION SPECTRA (GSF AND PTB)

Spectrum weighted responses

Column 2: GRENF, 30 cm D_2O sphere
Column 3: GRENF, 10 cm Fe slab
Column 4: GRENF, 10 cm PE slab
Column 5: PTB, Li(p,n)Be, 2.5 MeV
Column 6: PTB, Li(p,n)Be, 3.3 MeV

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	7.77E+01	2.34E+02	1.69E+02	1.52E+01	2.96E+01
H AMBIENT	1.10E+02	3.15E+02	1.93E+02	1.84E+01	4.24E+01
H PERSONAL	1.15E+02	3.30E+02	2.03E+02	1.96E+01	4.45E+01
HE A-P R51	3.50E+01	1.20E+02	9.43E+01	5.84E+00	1.23E+01
MADE R21	8.03E+01	2.50E+02	1.70E+02	1.55E+01	3.08E+01
BS 3HE BARE	2.02E-01	1.23E-02	7.24E-01	2.08E+00	1.82E+00
BS 3HE 2.5″	1.00E+00	2.21E-01	7.84E-01	1.37E+00	1.20E+00
BS 3HE 3″	1.44E+00	5.34E-01	9.56E-01	1.42E+00	1.33E+00
BS 3HE 3.5″	1.80E+00	9.39E-01	1.15E+00	1.44E+00	1.43E+00
BS 3HE 4″	2.03E+00	1.37E+00	1.32E+00	1.39E+00	1.46E+00
BS 3HE 4.5″	2.14E+00	1.77E+00	1.46E+00	1.30E+00	1.43E+00
BS 3HE 5″	2.14E+00	2.08E+00	1.56E+00	1.17E+00	1.35E+00
BS 3HE 6″	1.92E+00	2.41E+00	1.62E+00	8.87E-01	1.11E+00
BS 3HE 7″	1.57E+00	2.40E+00	1.55E+00	6.24E-01	8.42E-01
BS 3HE 8″	1.20E+00	2.16E+00	1.39E+00	4.20E-01	6.03E-01
BS 3HE 9.5″	7.47E-01	1.64E+00	1.11E+00	2.16E-01	3.37E-01
BS 3HE 10″	6.30E-01	1.47E+00	1.01E+00	1.73E-01	2.76E-01
BS 3HE 12″	3.01E-01	8.74E-01	6.67E-01	6.44E-02	1.13E-01
BS 3HE 15″	9.08E-02	3.54E-01	3.33E-01	1.33E-02	2.65E-02
BS 3HE 18″	2.75E-02	1.40E-01	1.73E-01	2.54E-03	5.75E-03
BS LiI BARE	2.61E-02	1.93E-03	5.53E-02	1.28E-01	1.06E-01
BS LiI 2″	9.58E-02	2.09E-02	7.05E-02	1.17E-01	1.03E-01
BS LiI 3″	1.72E-01	8.53E-02	1.06E-01	1.31E-01	1.30E-01
BS LiI 6″	1.73E-01	2.41E-01	1.56E-01	7.28E-02	9.56E-02
BS LiI 8″	1.02E-01	1.97E-01	1.29E-01	3.31E-02	4.92E-02
BS LiI 10″	5.23E-02	1.30E-01	9.16E-02	1.34E-02	2.19E-02
BS LiI 15″	7.75E-03	3.16E-02	3.18E-02	1.02E-03	2.11E-03
BS LiI 18″	2.25E-03	1.20E-02	1.56E-02	2.08E-04	4.38E-04
6Li BARE	2.51E-01	1.29E-01	1.54E-01	1.73E-01	1.63E-01
6Li Cd	1.22E-01	5.48E-02	6.47E-02	7.15E-02	7.36E-02
GOLD BARE	1.20E-02	4.23E-04	5.40E-03	9.04E-03	7.86E-03
Nat U PC	7.93E-05	7.81E-06	2.54E-05	4.00E-05	3.83E-05
238 U PC	3.79E-08	4.02E-07	8.49E-07	0.00E+00	6.40E-11
232 Th PC	6.98E-09	7.88E-08	2.08E-07	0.00E+00	2.23E-13
CR39 ECE	3.48E-05	1.55E-04	1.07E-04	1.17E-06	7.14E-06
LR115 LiB	2.44E+03	1.10E+03	1.23E+03	1.29E+03	1.52E+03
PLANAR	3.82E+04	1.38E+05	8.48E+04	1.22E+03	9.61E+03
BASE	3.59E+04	1.14E+05	6.48E+04	1.40E+03	1.05E+04
PYRAMIDE	2.26E+04	7.45E+04	4.50E+04	8.40E+02	6.46E+03
PTB TH	1.32E+02	3.71E+02	2.18E+02	3.97E+01	6.91E+01
PTB INT	1.48E+02	3.67E+02	2.21E+02	3.69E+01	6.55E+01
PTB FAST	1.19E+02	3.54E+02	2.05E+02	9.50E+00	3.86E+01
PTB I+F	1.31E+02	3.71E+02	2.17E+02	1.75E+01	4.76E+01
LONG C	4.26E-01	9.61E-01	5.50E-01	8.34E-02	1.88E-01
LEAKE	9.85E-02	2.37E-01	1.49E-01	2.02E-02	3.86E-02
A-B_2	2.48E-01	6.33E-01	4.28E-01	6.62E-02	1.04E-01
EBERNRD2	2.54E-01	6.32E-01	4.22E-01	6.42E-02	1.06E-01
MOD930_2	1.91E-01	5.70E-01	3.87E-01	3.34E-02	6.84E-02
STUDSVIK	9.50E-02	2.85E-01	1.90E-01	1.26E-02	3.23E-02
LB6411	2.98E-01	8.88E-01	5.97E-01	4.38E-02	1.03E-01
BUBBLE	3.28E+04	1.13E+05	6.76E+04	1.23E+03	8.79E+03
ELECTRET	9.39E+01	2.37E+02	2.57E+02	4.57E+01	4.51E+01
SILICON	3.91E-01	1.18E+00	5.14E-01	2.25E-02	1.21E-01

TABLE 4.XVI. WORKPLACE SIMULATION SPECTRA USING ^{238}U (CADARACHE)

Spectra

Column 1: Energy in eV
Column 2: 2.8 MeV neutrons on ^{238}U, no duct
Column 3: 2.8 MeV neutrons on ^{238}U, with PE duct
Column 4: 2.8 MeV neutrons on ^{238}U, with duct + 1 cm PE
Column 5: Reference spectrum at TRU facility
Column 6: 3 MeV neutrons on ^{238}U, with duct + 10 cm H_2O

1.00E-03	0.00E+00	1.27E-02	8.53E-03	0.00E+00	4.53E-03
2.15E-03	0.00E+00	1.31E-02	1.03E-02	7.36E-03	1.22E-02
4.64E-03	0.00E+00	1.85E-02	2.11E-02	3.08E-02	5.17E-02
1.00E-02	0.00E+00	8.71E-02	7.65E-02	1.46E-01	1.49E-01
2.15E-02	0.00E+00	1.20E-01	6.73E-02	9.84E-02	2.61E-01
4.64E-02	0.00E+00	1.54E-01	1.06E-01	4.13E-02	3.46E-01
1.00E-01	0.00E+00	3.67E-02	3.00E-02	9.68E-02	1.32E-01
2.15E-01	0.00E+00	2.98E-02	1.97E-02	1.14E-01	3.95E-02
4.64E-01	0.00E+00	9.25E-03	1.43E-02	5.52E-02	3.09E-02
1.00E+00	0.00E+00	2.58E-02	1.71E-02	3.08E-02	1.08E-02
2.15E+00	0.00E+00	1.71E-02	1.54E-02	2.25E-02	1.23E-02
4.64E+00	0.00E+00	1.42E-02	1.50E-02	2.21E-02	1.47E-02
1.00E+01	0.00E+00	1.57E-02	1.88E-02	2.04E-02	9.18E-03
2.15E+01	0.00E+00	1.63E-02	1.74E-02	2.01E-02	1.21E-02
4.64E+01	0.00E+00	1.78E-02	1.75E-02	2.00E-02	1.40E-02
1.00E+02	0.00E+00	1.96E-02	1.96E-02	2.07E-02	1.06E-02
2.15E+02	0.00E+00	2.12E-02	1.99E-02	2.09E-02	1.07E-02
4.64E+02	0.00E+00	2.22E-02	1.95E-02	2.12E-02	9.33E-03
1.00E+03	0.00E+00	2.59E-02	1.81E-02	2.46E-02	1.08E-02
2.15E+03	0.00E+00	2.66E-02	1.83E-02	2.76E-02	1.20E-02
4.64E+03	4.30E-03	2.76E-02	1.91E-02	3.47E-02	1.22E-02
1.00E+04	1.69E-02	2.87E-02	2.46E-02	3.83E-02	1.51E-02
1.25E+04	2.34E-02	3.03E-02	3.16E-02	4.19E-02	1.54E-02
1.58E+04	2.60E-02	3.59E-02	3.30E-02	4.56E-02	1.65E-02
1.99E+04	4.39E-02	4.71E-02	4.13E-02	4.83E-02	1.78E-02
2.51E+04	5.92E-02	4.52E-02	5.97E-02	5.25E-02	1.97E-02
3.16E+04	6.85E-02	5.20E-02	5.17E-02	5.67E-02	2.19E-02
3.98E+04	9.24E-02	6.04E-02	5.86E-02	6.25E-02	2.38E-02
5.01E+04	1.03E-01	6.93E-02	7.72E-02	6.64E-02	2.44E-02
6.30E+04	1.15E-01	7.32E-02	8.46E-02	6.91E-02	2.46E-02
7.94E+04	1.21E-01	7.37E-02	7.85E-02	7.90E-02	2.60E-02
1.00E+05	1.57E-01	8.51E-02	9.48E-02	8.42E-02	2.67E-02
1.25E+05	1.57E-01	9.50E-02	1.06E-01	8.72E-02	2.74E-02
1.58E+05	2.23E-01	1.09E-01	1.15E-01	9.11E-02	2.76E-02
1.99E+05	2.64E-01	1.15E-01	1.21E-01	9.14E-02	2.74E-02
2.51E+05	2.30E-01	1.18E-01	1.33E-01	9.14E-02	2.76E-02
3.16E+05	3.32E-01	1.21E-01	1.57E-01	8.96E-02	2.79E-02
3.98E+05	3.69E-01	1.48E-01	1.67E-01	8.09E-02	2.59E-02
5.01E+05	3.62E-01	1.34E-01	1.52E-01	7.30E-02	1.86E-02
6.30E+05	3.59E-01	1.23E-01	1.77E-01	3.08E-02	1.70E-02
7.94E+05	3.71E-01	8.71E-02	1.50E-01	4.37E-02	1.00E-02
1.00E+06	1.84E-01	8.46E-02	1.10E-01	3.98E-02	4.53E-03
1.25E+06	1.42E-01	4.18E-02	6.43E-02	2.28E-02	1.82E-03
1.58E+06	6.51E-02	2.46E-02	5.10E-02	1.31E-02	3.88E-03
1.99E+06	4.75E-02	2.08E-02	3.37E-02	1.19E-02	4.52E-03
2.51E+06	2.35E-01	4.19E-02	1.71E-01	6.79E-03	2.42E-03
3.16E+06	7.87E-02	1.74E-02	1.73E-02	1.03E-03	1.73E-04
3.98E+06	3.26E-02	7.87E-03	6.06E-02	1.88E-03	3.38E-04
5.01E+06	1.89E-02	5.64E-03	1.06E-02	9.72E-04	3.71E-04
6.30E+06	1.75E-02	5.20E-03	6.97E-03	1.10E-03	5.62E-04
7.94E+06	1.33E-02	3.14E-03	3.62E-03	4.98E-04	1.53E-04
1.00E+07	0.00E+00	0.00E+00	0.00E+00	3.50E-04	3.11E-05
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

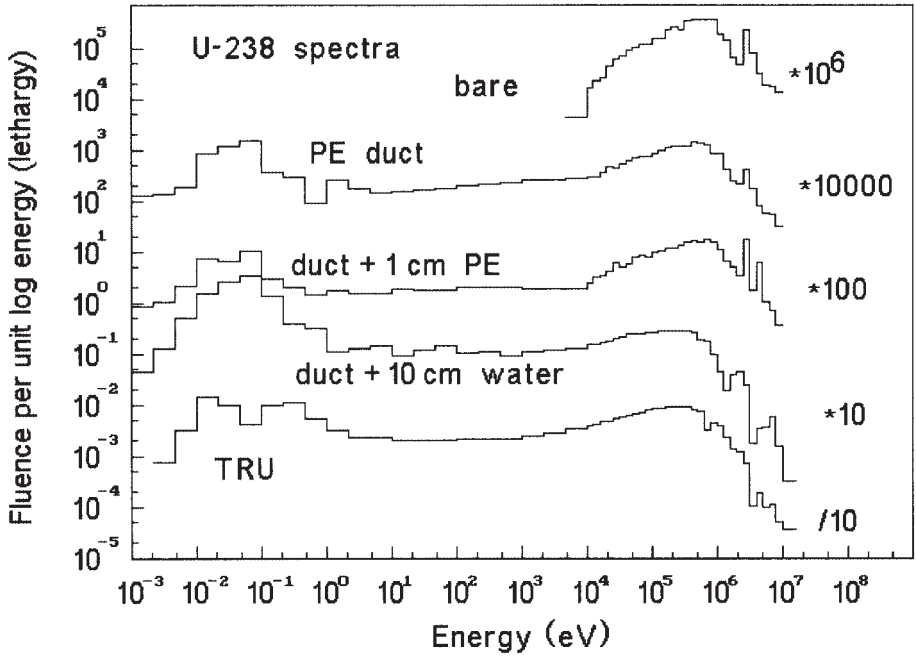

FIG. 4.12. Workplace simulation spectra using ^{238}U (Cadarache).

TABLE 4.XVI. WORKPLACE SIMULATION SPECTRA USING ^{238}U (CADARACHE)

Spectrum weighted responses

Column 2: 2.8 MeV neutrons on ^{238}U, no duct
Column 3: 2.8 MeV neutrons on ^{238}U, with PE duct
Column 4: 2.8 MeV neutrons on ^{238}U, with duct + 1 cm PE
Column 5: Reference spectrum at TRU facility
Column 6: 3 MeV neutrons on ^{238}U, with duct + 10 cm H_2O

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.88E+02	7.17E+01	1.07E+02	4.37E+01	1.96E+01
H AMBIENT	2.65E+02	1.01E+02	1.44E+02	6.16E+01	2.60E+01
H PERSONAL	2.76E+02	1.06E+02	1.50E+02	6.45E+01	2.72E+01
HE A-P R51	9.44E+01	3.36E+01	5.39E+01	1.89E+01	8.30E+00
MADE R21	1.96E+02	7.41E+01	1.10E+02	4.47E+01	2.06E+01
BS 3HE BARE	1.31E-03	1.10E+00	8.21E-01	1.18E+00	2.16E+00
BS 3HE 2.5″	2.54E-01	9.94E-01	8.29E-01	1.25E+00	1.47E+00
BS 3HE 3″	6.25E-01	1.20E+00	1.07E+00	1.44E+00	1.38E+00
BS 3HE 3.5″	1.08E+00	1.40E+00	1.33E+00	1.58E+00	1.32E+00
BS 3HE 4″	1.53E+00	1.55E+00	1.54E+00	1.65E+00	1.22E+00
BS 3HE 4.5″	1.92E+00	1.63E+00	1.68E+00	1.65E+00	1.11E+00
BS 3HE 5″	2.20E+00	1.65E+00	1.75E+00	1.59E+00	9.96E-01
BS 3HE 6″	2.41E+00	1.51E+00	1.70E+00	1.35E+00	7.58E-01
BS 3HE 7″	2.28E+00	1.26E+00	1.50E+00	1.06E+00	5.45E-01
BS 3HE 8″	1.95E+00	9.86E-01	1.22E+00	7.80E-01	3.79E-01
BS 3HE 9.5″	1.38E+00	6.25E-01	8.35E-01	4.55E-01	2.05E-01
BS 3HE 10″	1.21E+00	5.32E-01	7.29E-01	3.78E-01	1.67E-01
BS 3HE 12″	6.76E-01	2.64E-01	4.01E-01	1.67E-01	6.94E-02
BS 3HE 15″	2.63E-01	8.79E-02	1.59E-01	4.61E-02	1.71E-02
BS 3HE 18″	1.12E-01	3.26E-02	7.04E-02	1.35E-02	4.56E-03
BS LiI BARE	1.03E-03	7.19E-02	5.37E-02	8.67E-02	1.49E-01
BS LiI 2″	2.39E-02	8.72E-02	7.34E-02	1.12E-01	1.25E-01
BS LiI 3″	9.90E-02	1.29E-01	1.23E-01	1.47E-01	1.19E-01
BS LiI 6″	2.36E-01	1.38E-01	1.59E-01	1.19E-01	6.28E-02
BS LiI 8″	1.74E-01	8.42E-02	1.07E-01	6.47E-02	3.05E-02
BS LiI 10″	1.05E-01	4.45E-02	6.28E-02	3.06E-02	1.33E-02
BS LiI 15″	2.39E-02	7.71E-03	1.46E-02	3.85E-03	1.39E-03
BS LiI 18″	9.71E-03	2.75E-03	6.22E-03	1.10E-03	3.72E-04
6Li BARE	1.39E-01	1.66E-01	1.65E-01	2.50E-01	1.49E-01
6Li Cd	6.07E-02	7.23E-02	7.29E-02	9.54E-02	4.85E-02
GOLD BARE	8.41E-05	5.86E-03	5.20E-03	9.22E-03	5.71E-03
Nat U PC	6.51E-06	3.21E-05	3.31E-05	3.46E-05	1.71E-05
238 U PC	4.96E-07	1.11E-07	3.28E-07	2.50E-08	7.98E-09
232 Th PC	1.25E-07	2.79E-08	8.05E-08	5.67E-09	1.83E-09
CR39 ECE	9.51E-05	3.06E-05	5.28E-05	1.48E-05	3.94E-06
LR115 LiB	1.30E+03	1.40E+03	1.45E+03	1.74E+03	7.89E+02
PLANAR	1.01E+05	3.32E+04	5.25E+04	1.60E+04	4.34E+03
BASE	9.31E+04	3.16E+04	4.71E+04	1.58E+04	4.47E+03
PYRAMIDE	6.00E+04	2.01E+04	3.07E+04	9.89E+03	2.79E+03
PTB TH	3.23E+02	1.32E+02	1.77E+02	8.35E+01	4.77E+01
PTB INT	3.15E+02	1.31E+02	1.76E+02	8.75E+01	4.30E+01
PTB FAST	2.99E+02	1.08E+02	1.55E+02	6.14E+01	1.76E+01
PTB I+F	3.15E+02	1.18E+02	1.67E+02	7.09E+01	2.54E+01
LONG C	9.50E-01	4.02E-01	5.25E-01	2.87E-01	9.10E-02
LEAKE	1.97E-01	8.14E-02	1.12E-01	5.57E-02	1.96E-02
A-B_2	4.92E-01	2.12E-01	2.95E-01	1.45E-01	7.69E-02
EBERNRD2	5.01E-01	2.13E-01	2.96E-01	1.47E-01	6.41E-02
MOD930_2	4.38E-01	1.68E-01	2.49E-01	1.03E-01	4.12E-02
STUDSVIK	2.28E-01	8.43E-02	1.26E-01	5.09E-02	1.56E-02
LB6411	7.03E-01	2.62E-01	3.92E-01	1.56E-01	5.45E-02
BUBBLE	8.54E+04	2.86E+04	4.40E+04	1.41E+04	3.92E+03
ELECTRET	1.76E+02	9.34E+01	1.34E+02	7.35E+01	7.28E+01
SILICON	9.00E-01	3.25E-01	4.27E-01	1.87E-01	5.18E-02

TABLE 4.XVII. WORKPLACE SIMULATION SPECTRA, 14 MeV NEUTRONS (CADARACHE)

Spectra

Column 1: Energy in eV
Column 2: PE duct + 5 cm D_2O shield
Column 3: Simulated fuel transport container
Column 4: Bare beam
Column 5: 5 cm H_2O shield
Column 6: 20 cm H_2O shield

1.00E-03	2.61E-02	3.73E-02	1.20E-02	1.74E-02	1.73E-02
2.15E-03	2.69E-02	4.25E-02	1.20E-02	1.77E-02	1.61E-02
4.64E-03	2.65E-02	5.30E-02	1.17E-02	2.23E-02	1.64E-02
1.00E-02	7.54E-02	5.85E-02	9.26E-02	8.59E-02	2.55E-01
2.15E-02	7.92E-02	6.09E-02	1.53E-01	2.61E-01	2.33E-01
4.64E-02	9.95E-02	5.82E-02	1.44E-01	2.20E-01	1.63E-01
1.00E-01	3.39E-02	5.52E-02	5.13E-02	6.91E-02	7.78E-02
2.15E-01	1.57E-01	5.30E-02	1.65E-02	6.54E-02	1.55E-02
4.64E-01	2.89E-02	5.05E-02	1.50E-02	1.86E-02	7.06E-02
1.00E+00	3.17E-02	4.58E-02	1.43E-02	1.97E-02	1.41E-02
2.15E+00	3.07E-02	4.39E-02	1.48E-02	1.48E-02	1.90E-02
4.64E+00	2.99E-02	3.92E-02	1.63E-02	1.96E-02	1.13E-02
1.00E+01	3.19E-02	3.79E-02	1.26E-02	1.96E-02	1.34E-02
2.15E+01	3.01E-02	3.54E-02	1.52E-02	1.96E-02	1.67E-02
4.64E+01	3.05E-02	3.29E-02	1.61E-02	1.97E-02	1.71E-02
1.00E+02	3.15E-02	3.32E-02	1.78E-02	2.21E-02	1.61E-02
2.15E+02	3.19E-02	2.88E-02	1.67E-02	2.29E-02	1.50E-02
4.64E+02	3.15E-02	2.94E-02	2.01E-02	2.38E-02	1.77E-02
1.00E+03	3.65E-02	2.91E-02	2.30E-02	2.41E-02	2.04E-02
2.15E+03	3.65E-02	2.88E-02	2.67E-02	2.46E-02	2.50E-02
4.64E+03	3.73E-02	2.88E-02	3.05E-02	3.11E-02	2.53E-02
1.00E+04	3.85E-02	3.13E-02	3.74E-02	3.01E-02	2.88E-02
1.25E+04	4.09E-02	3.38E-02	4.70E-02	3.26E-02	2.56E-02
1.58E+04	4.45E-02	3.68E-02	9.07E-02	3.68E-02	3.18E-02
1.99E+04	4.55E-02	3.84E-02	9.40E-02	4.16E-02	4.79E-02
2.51E+04	4.35E-02	4.17E-02	3.76E-02	3.83E-02	2.12E-02
3.16E+04	4.43E-02	4.64E-02	5.11E-02	3.66E-02	3.77E-02
3.98E+04	4.81E-02	5.16E-02	5.02E-02	3.98E-02	8.19E-02
5.01E+04	4.97E-02	5.87E-02	7.95E-02	5.39E-02	5.94E-02
6.30E+04	4.39E-02	6.97E-02	8.38E-02	4.71E-02	4.31E-02
7.94E+04	4.87E-02	8.07E-02	8.56E-02	4.98E-02	4.79E-02
1.00E+05	5.14E-02	8.62E-02	1.02E-01	7.16E-02	5.50E-02
1.25E+05	5.06E-02	9.17E-02	1.19E-01	5.76E-02	5.26E-02
1.58E+05	5.44E-02	9.83E-02	1.19E-01	5.34E-02	4.59E-02
1.99E+05	5.42E-02	1.06E-01	1.78E-01	6.11E-02	4.96E-02
2.51E+05	6.16E-02	1.14E-01	1.76E-01	7.19E-02	5.50E-02
3.16E+05	5.58E-02	1.10E-01	1.04E-01	4.83E-02	2.50E-02
3.98E+05	4.05E-02	1.22E-01	1.33E-01	2.12E-02	2.23E-02
5.01E+05	5.34E-02	7.96E-02	1.18E-01	5.11E-02	2.14E-02
6.30E+05	3.87E-02	5.74E-02	7.38E-02	1.38E-02	7.81E-03
7.94E+05	2.83E-02	2.42E-02	4.52E-02	1.73E-02	0.00E+00
1.00E+06	3.01E-02	2.38E-02	1.62E-02	3.88E-03	0.00E+00
1.25E+06	2.61E-02	0.00E+00	8.61E-03	3.63E-03	0.00E+00
1.58E+06	2.33E-02	0.00E+00	7.04E-03	0.00E+00	0.00E+00
1.99E+06	2.17E-02	0.00E+00	2.71E-03	0.00E+00	0.00E+00
2.51E+06	2.01E-02	0.00E+00	4.76E-03	0.00E+00	0.00E+00
3.16E+06	1.95E-02	0.00E+00	2.85E-03	0.00E+00	0.00E+00
3.98E+06	1.94E-02	0.00E+00	3.68E-03	0.00E+00	0.00E+00
5.01E+06	1.94E-02	0.00E+00	4.43E-03	0.00E+00	0.00E+00
6.30E+06	2.01E-02	0.00E+00	3.93E-03	0.00E+00	0.00E+00
7.94E+06	1.99E-02	0.00E+00	1.77E-03	0.00E+00	0.00E+00
1.00E+07	2.13E-02	0.00E+00	1.06E-02	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

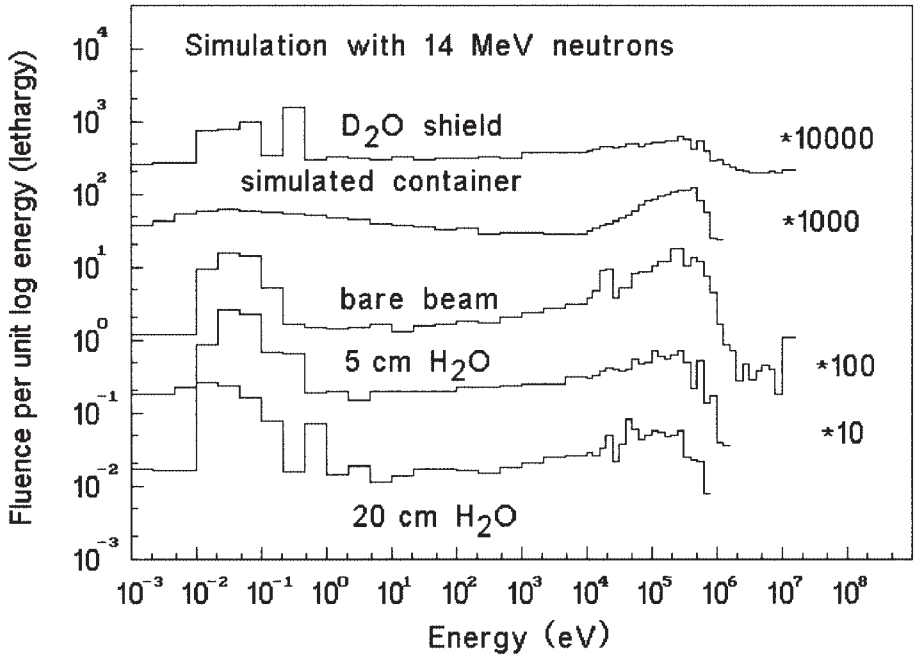

FIG. 4.13. Workplace simulation spectra, 14 MeV neutrons (Cadarache).

TABLE 4.XVII. WORKPLACE SIMULATION SPECTRA, 14 MeV NEUTRONS (CADARACHE)

Spectrum weighted responses

Column 2: PE duct + 5 cm D_2O shield
Column 3: Simulated fuel transport container
Column 4: Bare beam
Column 5: 5 cm H_2O shield
Column 6: 20 cm H_2O shield

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	5.33E+01	4.14E+01	5.55E+01	2.59E+01	2.03E+01
H AMBIENT	6.33E+01	6.10E+01	8.12E+01	3.55E+01	2.73E+01
H PERSONAL	6.67E+01	6.39E+01	8.50E+01	3.73E+01	2.87E+01
HE A-P R51	2.86E+01	1.69E+01	2.50E+01	1.03E+01	7.94E+00
MADE R21	5.13E+01	4.18E+01	5.59E+01	2.61E+01	2.07E+01
BS 3HE BARE	1.17E+00	1.18E+00	1.15E+00	1.67E+00	1.98E+00
BS 3HE 2.5″	1.29E+00	1.22E+00	1.01E+00	1.33E+00	1.32E+00
BS 3HE 3″	1.49E+00	1.47E+00	1.22E+00	1.40E+00	1.36E+00
BS 3HE 3.5″	1.62E+00	1.66E+00	1.43E+00	1.46E+00	1.39E+00
BS 3HE 4″	1.67E+00	1.75E+00	1.58E+00	1.46E+00	1.36E+00
BS 3HE 4.5″	1.64E+00	1.76E+00	1.65E+00	1.41E+00	1.29E+00
BS 3HE 5″	1.56E+00	1.69E+00	1.65E+00	1.32E+00	1.19E+00
BS 3HE 6″	1.29E+00	1.43E+00	1.48E+00	1.06E+00	9.42E-01
BS 3HE 7″	1.01E+00	1.11E+00	1.19E+00	7.86E-01	6.86E-01
BS 3HE 8″	7.51E-01	8.05E-01	8.97E-01	5.55E-01	4.76E-01
BS 3HE 9.5″	4.64E-01	4.56E-01	5.31E-01	3.02E-01	2.53E-01
BS 3HE 10″	3.96E-01	3.74E-01	4.43E-01	2.46E-01	2.04E-01
BS 3HE 12″	2.09E-01	1.56E-01	1.99E-01	9.85E-02	7.84E-02
BS 3HE 15″	9.07E-02	3.66E-02	5.84E-02	2.21E-02	1.67E-02
BS 3HE 18″	4.99E-02	8.03E-03	2.12E-02	4.71E-03	3.32E-03
BS LiI BARE	7.65E-02	6.51E-02	7.51E-02	1.12E-01	1.24E-01
BS LiI 2″	1.15E-01	1.07E-01	8.83E-02	1.15E-01	1.13E-01
BS LiI 3″	1.51E-01	1.53E-01	1.32E-01	1.35E-01	1.27E-01
BS LiI 6″	1.12E-01	1.25E-01	1.33E-01	9.01E-02	7.93E-02
BS LiI 8″	6.30E-02	6.60E-02	7.50E-02	4.49E-02	3.81E-02
BS LiI 10″	3.32E-02	2.99E-02	3.59E-02	1.94E-02	1.59E-02
BS LiI 15″	8.19E-03	2.92E-03	4.86E-03	1.74E-03	1.29E-03
BS LiI 18″	4.32E-03	6.03E-04	1.72E-03	3.66E-04	2.61E-04
6Li BARE	2.42E-01	2.39E-01	1.66E-01	1.72E-01	1.59E-01
6Li Cd	9.97E-02	1.06E-01	7.11E-02	6.84E-02	6.36E-02
GOLD BARE	1.09E-02	1.38E-02	5.24E-03	6.12E-03	6.95E-03
Nat U PC	5.02E-05	5.41E-05	2.95E-05	3.46E-05	2.61E-05
238 U PC	3.03E-07	1.62E-10	8.94E-08	1.31E-10	9.21E-13
232 Th PC	9.01E-08	1.78E-12	2.67E-08	3.16E-12	0.00E+00
CR39 ECE	1.83E-05	1.10E-05	1.66E-05	5.08E-06	2.76E-06
LR115 LiB	1.68E+03	2.14E+03	1.41E+03	1.19E+03	1.38E+03
PLANAR	1.90E+04	1.44E+04	2.08E+04	6.22E+03	3.23E+03
BASE	1.63E+04	1.60E+04	2.20E+04	6.81E+03	3.73E+03
PYRAMIDE	1.12E+04	9.79E+03	1.38E+04	4.16E+03	2.25E+03
PTB TH	7.89E+01	8.83E+01	1.12E+02	5.62E+01	4.97E+01
PTB INT	8.62E+01	9.06E+01	1.10E+02	5.63E+01	4.55E+01
PTB FAST	5.85E+01	6.26E+01	8.66E+01	3.03E+01	2.00E+01
PTB I+F	6.84E+01	7.27E+01	9.62E+01	3.87E+01	2.79E+01
LONG C	2.24E-01	2.86E-01	3.74E-01	1.72E-01	1.47E-01
LEAKE	5.59E-02	5.55E-02	6.62E-02	3.25E-02	2.55E-02
A-B_2	1.54E-01	1.39E-01	1.67E-01	9.87E-02	7.89E-02
EBERNRD2	1.53E-01	1.42E-01	1.71E-01	9.32E-02	7.71E-02
MOD930_2	1.14E-01	9.70E-02	1.26E-01	5.96E-02	4.51E-02
STUDSVIK	5.61E-02	4.86E-02	6.46E-02	2.63E-02	1.93E-02
LB6411	1.72E-01	1.49E-01	1.96E-01	8.39E-02	6.21E-02
BUBBLE	1.88E+04	1.32E+04	1.99E+04	5.74E+03	3.07E+03
ELECTRET	1.22E+02	6.51E+01	7.57E+01	6.32E+01	4.94E+01
SILICON	1.40E-01	1.86E-01	2.64E-01	9.20E-02	5.46E-02

TABLE 4.XVIII. FUSION ENVIRONMENT SIMULATION (TEXTOR)

Spectra

Column 1: Energy in eV
Column 2: In the beam
Column 3: With iron shield
Column 4: With wooden shield, position 1
Column 5: With wooden shield, position 2

1.00E-03	4.91E-05	3.05E-05	9.74E-05	9.26E-04
2.15E-03	1.46E-04	1.52E-04	5.04E-04	5.34E-03
4.64E-03	3.69E-04	4.57E-04	1.54E-03	1.65E-02
1.00E-02	8.32E-04	1.17E-03	3.97E-03	4.21E-02
2.15E-02	1.41E-03	2.10E-03	7.15E-03	7.43E-02
4.64E-02	1.60E-03	2.43E-03	8.30E-03	8.33E-02
1.00E-01	1.22E-03	1.75E-03	5.95E-03	5.61E-02
2.15E-01	6.32E-04	7.28E-04	2.37E-03	1.87E-02
4.64E-01	5.22E-04	5.44E-04	1.70E-03	1.14E-02
1.00E+00	5.07E-04	5.25E-04	1.60E-03	9.19E-03
2.15E+00	5.42E-04	5.94E-04	1.80E-03	1.01E-02
4.64E+00	5.82E-04	6.78E-04	2.03E-03	1.11E-02
1.00E+01	6.17E-04	7.78E-04	2.28E-03	1.24E-02
2.15E+01	6.62E-04	8.87E-04	2.56E-03	1.38E-02
4.64E+01	7.07E-04	1.01E-03	2.87E-03	1.55E-02
1.00E+02	7.52E-04	1.15E-03	3.21E-03	1.74E-02
2.15E+02	8.02E-04	1.31E-03	3.59E-03	1.96E-02
4.64E+02	8.58E-04	1.50E-03	4.01E-03	2.21E-02
1.00E+03	9.18E-04	1.72E-03	4.49E-03	2.49E-02
2.15E+03	9.88E-04	1.98E-03	4.99E-03	2.81E-02
4.64E+03	1.07E-03	2.33E-03	5.61E-03	3.21E-02
1.00E+04	1.14E-03	2.64E-03	6.14E-03	3.52E-02
1.26E+04	1.17E-03	2.79E-03	6.38E-03	3.65E-02
1.58E+04	1.21E-03	2.96E-03	6.62E-03	3.82E-02
2.00E+04	1.26E-03	3.15E-03	6.86E-03	3.95E-02
2.51E+04	1.30E-03	3.37E-03	7.15E-03	4.11E-02
3.16E+04	1.36E-03	3.62E-03	7.44E-03	4.28E-02
3.98E+04	1.43E-03	3.92E-03	7.77E-03	4.48E-02
5.01E+04	1.51E-03	4.27E-03	8.16E-03	4.65E-02
6.31E+04	1.60E-03	4.68E-03	8.59E-03	4.88E-02
7.94E+04	1.71E-03	5.15E-03	9.12E-03	5.08E-02
1.00E+05	1.84E-03	5.79E-03	9.70E-03	5.34E-02
1.26E+05	2.01E-03	6.49E-03	1.04E-02	5.61E-02
1.58E+05	2.21E-03	7.38E-03	1.13E-02	5.87E-02
2.00E+05	2.46E-03	8.47E-03	1.24E-02	6.21E-02
2.51E+05	2.76E-03	9.86E-03	1.37E-02	6.57E-02
3.16E+05	3.13E-03	1.15E-02	1.55E-02	7.00E-02
3.98E+05	3.59E-03	1.35E-02	1.76E-02	7.43E-02
5.01E+05	4.15E-03	1.61E-02	2.04E-02	7.96E-02
6.31E+05	4.84E-03	1.92E-02	2.40E-02	8.53E-02
7.94E+05	5.67E-03	2.30E-02	2.87E-02	9.16E-02
1.00E+06	6.72E-03	2.77E-02	3.47E-02	9.86E-02
1.26E+06	3.55E-02	5.89E-02	6.57E-02	1.11E-01
1.58E+06	2.48E-01	2.61E-01	2.55E-01	1.62E-01
2.00E+06	8.17E-01	7.87E-01	7.44E-01	2.79E-01
2.51E+06	1.32E+00	1.26E+00	1.18E+00	3.65E-01
3.16E+06	1.18E+00	1.12E+00	1.04E+00	3.00E-01
3.98E+06	5.62E-01	5.25E-01	4.89E-01	1.35E-01
5.01E+06	7.07E-02	6.73E-02	6.28E-02	2.01E-02
6.31E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+08				

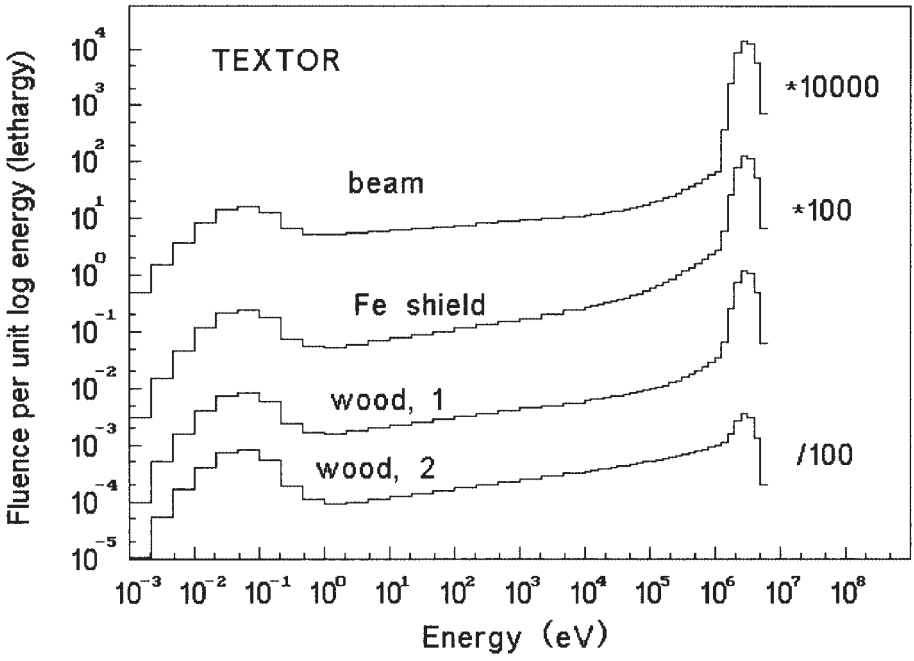

FIG. 4.14. Fusion environment simulation (TEXTOR).

TABLE 4.XVIII. FUSION ENVIRONMENT SIMULATION (TEXTOR)

Spectrum weighted responses

Column 2: In the beam
Column 3: With iron shield
Column 4: With wooden shield, position 1
Column 5: With wooden shield, position 2

FLUENCE 20	9.99E-01	1.00E+00	1.00E+00	1.00E+00
E A-P R60	4.20E+02	4.09E+02	3.87E+02	1.72E+02
H AMBIENT	4.03E+02	3.97E+02	3.78E+02	1.89E+02
H PERSONAL	4.23E+02	4.17E+02	3.97E+02	1.99E+02
HE A-P R51	2.58E+02	2.50E+02	2.36E+02	9.70E+01
MADE R21	3.98E+02	3.90E+02	3.70E+02	1.70E+02
BS 3HE BARE	1.46E-02	1.99E-02	6.56E-02	6.44E-01
BS 3HE 2.5″	6.55E-02	8.06E-02	1.41E-01	7.30E-01
BS 3HE 3″	1.78E-01	2.04E-01	2.76E-01	9.37E-01
BS 3HE 3.5″	3.67E-01	4.04E-01	4.80E-01	1.16E+00
BS 3HE 4″	6.22E-01	6.67E-01	7.36E-01	1.35E+00
BS 3HE 4.5″	9.10E-01	9.58E-01	1.01E+00	1.50E+00
BS 3HE 5″	1.23E+00	1.28E+00	1.31E+00	1.60E+00
BS 3HE 6″	1.76E+00	1.79E+00	1.78E+00	1.65E+00
BS 3HE 7″	2.16E+00	2.17E+00	2.12E+00	1.58E+00
BS 3HE 8″	2.29E+00	2.27E+00	2.20E+00	1.41E+00
BS 3HE 9.5″	2.26E+00	2.22E+00	2.12E+00	1.13E+00
BS 3HE 10″	2.19E+00	2.15E+00	2.05E+00	1.03E+00
BS 3HE 12″	1.72E+00	1.67E+00	1.58E+00	6.90E-01
BS 3HE 15″	1.03E+00	9.91E-01	9.33E-01	3.52E-01
BS 3HE 18″	6.18E-01	5.92E-01	5.55E-01	1.89E-01
BS LiI BARE	1.26E-03	1.70E-03	5.20E-03	4.69E-02
BS LiI 2″	6.12E-03	7.53E-03	1.30E-02	6.55E-02
BS LiI 3″	3.18E-02	3.53E-02	4.26E-02	1.07E-01
BS LiI 6″	1.86E-01	1.89E-01	1.86E-01	1.58E-01
BS LiI 8″	2.36E-01	2.33E-01	2.24E-01	1.31E-01
BS LiI 10″	2.11E-01	2.07E-01	1.97E-01	9.43E-02
BS LiI 15″	1.05E-01	1.01E-01	9.48E-02	3.45E-02
BS LiI 18″	5.78E-02	5.53E-02	5.18E-02	1.74E-02
6Li BARE	7.47E-02	7.84E-02	8.70E-02	1.60E-01
6Li Cd	2.77E-02	2.95E-02	3.35E-02	6.52E-02
GOLD BARE	2.04E-04	2.39E-04	6.83E-04	4.07E-03
Nat U PC	8.13E-06	8.60E-06	1.14E-05	2.96E-05
238 U PC	3.84E-06	3.65E-06	3.41E-06	1.05E-06
232 Th PC	9.26E-07	8.79E-07	8.21E-07	2.47E-07
CR39 ECE	2.77E-04	2.70E-04	2.56E-04	1.09E-04
LR115 LiB	3.76E+02	4.19E+02	5.03E+02	1.17E+03
PLANAR	1.89E+05	1.85E+05	1.76E+05	8.13E+04
BASE	1.34E+05	1.32E+05	1.26E+05	6.20E+04
PYRAMIDE	1.02E+05	9.97E+04	9.46E+04	4.40E+04
PTB TH	4.10E+02	4.06E+02	3.87E+02	2.10E+02
PTB INT	4.06E+02	4.02E+02	3.85E+02	2.13E+02
PTB FAST	4.16E+02	4.11E+02	3.91E+02	1.98E+02
PTB I+F	4.28E+02	4.23E+02	4.04E+02	2.09E+02
LONG C	9.81E-01	9.76E-01	9.37E-01	5.65E-01
LEAKE	3.01E-01	2.96E-01	2.83E-01	1.49E-01
A-B_2	8.93E-01	8.77E-01	8.37E-01	4.25E-01
EBERNRD2	8.90E-01	8.75E-01	8.34E-01	4.23E-01
MOD930_2	9.04E-01	8.84E-01	8.40E-01	3.90E-01
STUDSVIK	4.54E-01	4.44E-01	4.21E-01	1.93E-01
LB6411	1.42E+00	1.39E+00	1.32E+00	6.05E-01
BUBBLE	1.40E+05	1.38E+05	1.31E+05	6.29E+04
ELECTRET	7.41E+02	7.13E+02	6.72E+02	2.72E+02
SILICON	3.64E-01	4.03E-01	4.04E-01	4.00E-01

TABLE 4.XIX. FISSION ENVIRONMENT SIMULATION (UTR-KINKI FACILITY)

Spectra

Column 1: Energy in eV
Column 2: Central void
Column 3: Central void + fission plate
Column 4: Central void + fission plate + B

1.00E-03	6.76E-04	1.39E-04	3.23E-05
2.15E-03	3.36E-02	6.29E-04	5.10E-05
4.64E-03	1.71E-02	7.46E-03	9.53E-04
1.00E-02	1.14E-01	1.77E-02	1.55E-03
2.15E-02	2.52E-01	5.83E-02	4.74E-03
4.64E-02	2.89E-01	8.70E-02	9.49E-03
1.00E-01	6.71E-02	6.46E-02	7.52E-03
2.15E-01	3.61E-02	3.43E-02	1.06E-02
4.64E-01	2.97E-02	3.64E-02	1.11E-02
1.00E+00	2.15E-02	2.84E-02	1.42E-02
2.15E+00	2.28E-02	9.97E-03	1.70E-02
4.64E+00	2.16E-02	2.41E-02	2.40E-02
1.00E+01	2.16E-02	2.62E-02	2.86E-02
2.15E+01	2.16E-02	2.82E-02	3.70E-02
4.64E+01	2.23E-02	2.91E-02	3.81E-02
1.00E+02	2.18E-02	2.93E-02	4.56E-02
2.15E+02	2.25E-02	3.21E-02	4.37E-02
4.64E+02	2.31E-02	3.27E-02	4.92E-02
1.00E+03	2.33E-02	3.23E-02	5.23E-02
2.15E+03	2.33E-02	3.56E-02	6.17E-02
4.64E+03	2.33E-02	3.90E-02	5.19E-02
1.00E+04	2.33E-02	4.05E-02	6.31E-02
1.25E+04	2.33E-02	4.18E-02	5.86E-02
1.58E+04	2.33E-02	4.27E-02	5.59E-02
1.99E+04	2.33E-02	4.27E-02	5.86E-02
2.51E+04	2.33E-02	4.34E-02	6.71E-02
3.16E+04	2.33E-02	4.57E-02	7.02E-02
3.98E+04	2.33E-02	4.70E-02	6.35E-02
5.01E+04	2.33E-02	4.81E-02	6.13E-02
6.30E+04	2.33E-02	4.81E-02	6.31E-02
7.94E+04	2.40E-02	4.97E-02	6.85E-02
1.00E+05	2.47E-02	5.47E-02	7.11E-02
1.25E+05	2.53E-02	5.75E-02	7.29E-02
1.58E+05	2.57E-02	5.66E-02	7.56E-02
1.99E+05	2.50E-02	5.83E-02	7.61E-02
2.51E+05	2.42E-02	6.33E-02	7.79E-02
3.16E+05	2.48E-02	7.26E-02	8.55E-02
3.98E+05	2.57E-02	8.37E-02	9.35E-02
5.01E+05	2.79E-02	8.80E-02	9.84E-02
6.30E+05	3.02E-02	9.45E-02	1.03E-01
7.94E+05	3.23E-02	1.03E-01	1.06E-01
1.00E+06	3.28E-02	1.11E-01	1.10E-01
1.25E+06	3.19E-02	1.19E-01	1.23E-01
1.58E+06	3.06E-02	1.30E-01	1.34E-01
1.99E+06	2.53E-02	1.37E-01	1.36E-01
2.51E+06	1.21E-02	1.38E-01	1.37E-01
3.16E+06	3.09E-03	1.17E-01	1.36E-01
3.98E+06	5.02E-03	8.70E-02	1.26E-01
5.01E+06	6.79E-03	5.64E-02	9.66E-02
6.30E+06	2.89E-03	4.36E-02	5.82E-02
7.94E+06	1.69E-03	2.56E-02	4.88E-02
1.00E+07	1.67E-04	9.24E-03	2.13E-02
1.58E+07	0.00E+00	0.00E+00	2.30E-03
2.51E+07	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.30E+08			

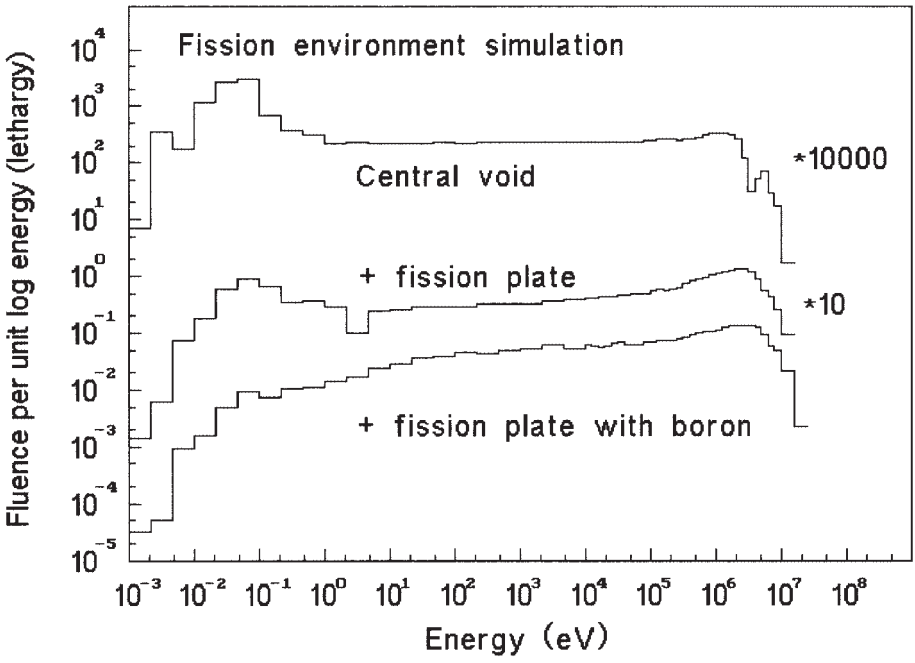

FIG. 4.15. Fission environment simulation (UTR-Kinki facility).

TABLE 4.XIX. FISSION ENVIRONMENT SIMULATION (UTR-KINKI FACILITY)

Spectrum weighted responses

Column 2: Central void
Column 3: Central void + fission plate
Column 4: Central void + fission plate + B

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00
E A-P R60	3.33E+01	1.29E+02	1.52E+02
H AMBIENT	4.13E+01	1.48E+02	1.70E+02
H PERSONAL	4.34E+01	1.55E+02	1.79E+02
HE A-P R51	1.57E+01	7.21E+01	8.74E+01
MADE R21	3.44E+01	1.27E+02	1.47E+02
BS 3HE BARE	1.81E+00	5.41E-01	9.62E-02
BS 3HE 2.5″	1.39E+00	9.45E-01	7.15E-01
BS 3HE 3″	1.40E+00	1.21E+00	1.12E+00
BS 3HE 3.5″	1.41E+00	1.43E+00	1.48E+00
BS 3HE 4″	1.37E+00	1.60E+00	1.74E+00
BS 3HE 4.5″	1.29E+00	1.69E+00	1.90E+00
BS 3HE 5″	1.19E+00	1.72E+00	1.97E+00
BS 3HE 6″	9.51E-01	1.64E+00	1.90E+00
BS 3HE 7″	7.18E-01	1.46E+00	1.69E+00
BS 3HE 8″	5.25E-01	1.23E+00	1.42E+00
BS 3HE 9.5″	3.14E-01	9.03E-01	1.05E+00
BS 3HE 10″	2.65E-01	8.10E-01	9.43E-01
BS 3HE 12″	1.30E-01	5.11E-01	6.04E-01
BS 3HE 15″	4.48E-02	2.52E-01	3.12E-01
BS 3HE 18″	1.74E-02	1.37E-01	1.79E-01
BS LiI BARE	1.22E-01	4.83E-02	1.34E-02
BS LiI 2″	1.20E-01	8.72E-02	6.89E-02
BS LiI 3″	1.30E-01	1.35E-01	1.41E-01
BS LiI 6″	8.07E-02	1.52E-01	1.77E-01
BS LiI 8″	4.36E-02	1.10E-01	1.28E-01
BS LiI 10″	2.19E-02	7.21E-02	8.41E-02
BS LiI 15″	3.93E-03	2.39E-02	2.96E-02
BS LiI 18″	1.50E-03	1.22E-02	1.59E-02
6Li BARE	1.54E-01	2.11E-01	2.01E-01
6Li Cd	6.33E-02	8.94E-02	9.70E-02
GOLD BARE	7.86E-03	5.13E-03	5.89E-03
Nat U PC	3.43E-05	4.74E-05	6.91E-05
238 U PC	5.83E-08	7.26E-07	1.01E-06
232 Th PC	1.39E-08	1.94E-07	2.79E-07
CR39 ECE	1.39E-05	7.08E-05	7.76E-05
LR115 LiB	1.17E+03	1.70E+03	1.86E+03
PLANAR	1.24E+04	6.00E+04	6.82E+04
BASE	1.04E+04	4.74E+04	5.39E+04
PYRAMIDE	6.81E+03	3.29E+04	3.79E+04
PTB TH	6.07E+01	1.65E+02	1.85E+02
PTB INT	6.13E+01	1.75E+02	1.99E+02
PTB FAST	3.49E+01	1.54E+02	1.78E+02
PTB I+F	4.36E+01	1.65E+02	1.90E+02
LONG C	1.30E-01	4.51E-01	5.32E-01
LEAKE	3.48E-02	1.19E-01	1.39E-01
A-B_2	1.16E-01	3.32E-01	3.75E-01
EBERNRD2	1.06E-01	3.30E-01	3.81E-01
MOD930_2	7.63E-02	2.89E-01	3.33E-01
STUDSVIK	3.29E-02	1.43E-01	1.67E-01
LB6411	1.09E-01	4.47E-01	5.19E-01
BUBBLE	1.03E+04	5.03E+04	5.92E+04
ELECTRET	8.40E+01	2.18E+02	2.52E+02
SILICON	1.07E-01	3.66E-01	3.93E-01

TABLE 4.XX. STRAY NEUTRON SIMULATION FIELDS (SILENE REACTOR)

Spectra

Column 1: Energy in eV
Column 2: Unmoderated spectrum
Column 3: Pb shield
Column 4: PE shield
Column 5: Steel shield

1.00E-03	0.00E+00	5.02E-03	0.00E+00	0.00E+00
2.15E-03	0.00E+00	3.06E-03	4.03E-03	5.27E-03
4.64E-03	0.00E+00	1.00E-02	1.32E-02	6.93E-03
1.00E-02	0.00E+00	2.19E-02	3.27E-02	2.29E-02
2.15E-02	0.00E+00	5.91E-02	6.26E-02	4.10E-02
4.64E-02	3.59E-02	7.52E-02	1.00E-01	6.94E-02
1.00E-01	4.61E-02	4.28E-02	4.29E-02	3.21E-02
2.15E-01	4.92E-02	9.78E-03	4.37E-02	2.90E-02
4.64E-01	4.70E-02	9.63E-02	4.24E-02	2.95E-02
1.00E+00	4.37E-02	2.78E-02	3.55E-02	3.25E-02
2.15E+00	4.45E-02	2.79E-02	3.44E-02	2.37E-02
4.64E+00	3.99E-02	2.26E-02	3.35E-02	3.10E-02
1.00E+01	3.75E-02	2.79E-02	3.27E-02	3.08E-02
2.15E+01	3.70E-02	2.81E-02	3.28E-02	3.27E-02
4.64E+01	3.42E-02	2.49E-02	3.29E-02	3.21E-02
1.00E+02	3.27E-02	2.69E-02	2.54E-02	3.08E-02
2.15E+02	3.11E-02	2.84E-02	2.93E-02	3.89E-02
4.64E+02	2.89E-02	2.65E-02	2.59E-02	2.97E-02
1.00E+03	2.73E-02	2.64E-02	3.01E-02	3.68E-02
2.15E+03	2.41E-02	2.51E-02	2.66E-02	3.75E-02
4.64E+03	2.21E-02	2.37E-02	2.57E-02	3.82E-02
1.00E+04	1.96E-02	2.50E-02	2.74E-02	4.05E-02
1.25E+04	1.88E-02	2.70E-02	2.44E-02	4.20E-02
1.58E+04	1.81E-02	2.63E-02	2.39E-02	4.28E-02
1.99E+04	1.84E-02	2.65E-02	2.35E-02	4.39E-02
2.51E+04	1.83E-02	2.68E-02	2.33E-02	4.54E-02
3.16E+04	1.75E-02	2.73E-02	2.32E-02	4.70E-02
3.98E+04	1.74E-02	2.95E-02	2.34E-02	4.89E-02
5.01E+04	1.75E-02	3.29E-02	2.41E-02	5.12E-02
6.30E+04	1.79E-02	3.67E-02	2.53E-02	5.54E-02
7.94E+04	1.86E-02	3.99E-02	2.72E-02	6.24E-02
1.00E+05	1.79E-02	4.46E-02	3.01E-02	6.93E-02
1.25E+05	1.89E-02	5.51E-02	3.55E-02	7.75E-02
1.58E+05	2.11E-02	6.94E-02	4.44E-02	8.61E-02
1.99E+05	2.47E-02	8.30E-02	5.62E-02	9.71E-02
2.51E+05	2.91E-02	9.22E-02	5.94E-02	1.16E-01
3.16E+05	3.62E-02	1.03E-01	7.41E-02	1.30E-01
3.98E+05	4.71E-02	1.10E-01	8.69E-02	1.44E-01
5.01E+05	5.96E-02	1.24E-01	9.97E-02	1.59E-01
6.30E+05	7.04E-02	1.39E-01	1.22E-01	1.70E-01
7.94E+05	8.63E-02	1.62E-01	1.30E-01	1.73E-01
1.00E+06	1.23E-01	1.77E-01	1.58E-01	1.65E-01
1.25E+06	1.65E-01	1.82E-01	1.81E-01	1.42E-01
1.58E+06	2.06E-01	1.80E-01	1.88E-01	1.08E-01
1.99E+06	2.05E-01	1.46E-01	1.80E-01	7.89E-02
2.51E+06	2.14E-01	1.06E-01	1.43E-01	2.64E-02
3.16E+06	2.32E-01	7.48E-02	1.13E-01	6.02E-03
3.98E+06	2.17E-01	4.40E-02	3.92E-02	1.00E-02
5.01E+06	2.04E-01	2.03E-02	1.14E-03	1.03E-03
6.30E+06	1.37E-01	8.74E-04	0.00E+00	0.00E+00
7.94E+06	9.02E-02	2.53E-04	0.00E+00	0.00E+00
1.00E+07	9.19E-03	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

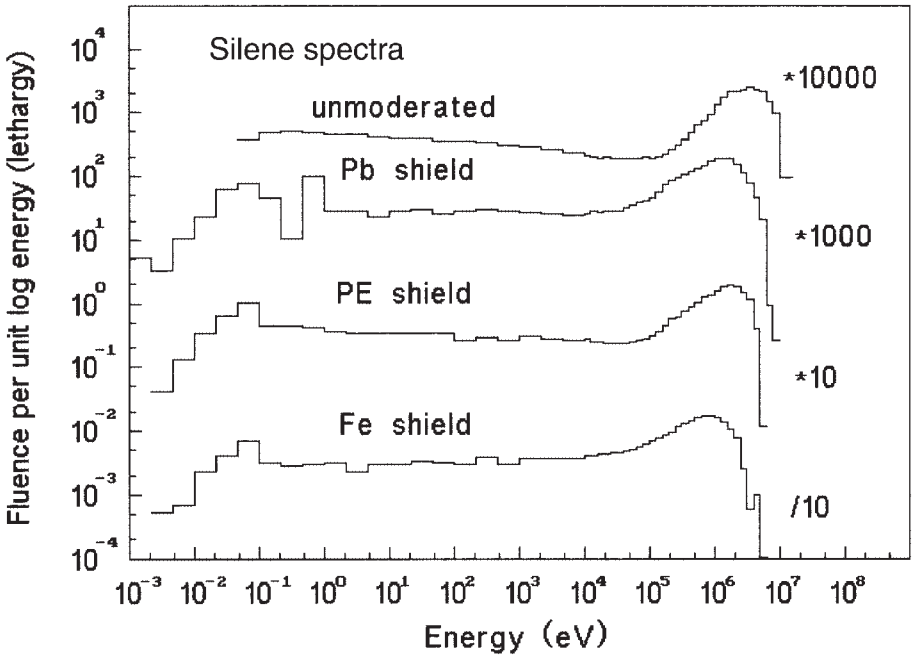

FIG. 4.16. Stray neutron simulation fields (Silene reactor).

TABLE 4.XX. STRAY NEUTRON SIMULATION FIELDS (SILENE REACTOR)

Spectrum weighted responses

Column 2: Unmoderated spectrum
Column 3: Pb shield
Column 4: PE shield
Column 5: Steel shield

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	2.01E+02	1.28E+02	1.26E+02	1.01E+02
H AMBIENT	2.06E+02	1.60E+02	1.53E+02	1.38E+02
H PERSONAL	2.17E+02	1.68E+02	1.60E+02	1.45E+02
HE A-P R51	1.23E+02	6.64E+01	6.67E+01	4.83E+01
MADE R21	1.91E+02	1.32E+02	1.30E+02	1.06E+02
BS 3HE BARE	2.52E-01	5.69E-01	6.51E-01	4.61E-01
BS 3HE 2.5″	8.98E-01	9.61E-01	1.02E+00	9.34E-01
BS 3HE 3″	1.15E+00	1.22E+00	1.25E+00	1.26E+00
BS 3HE 3.5″	1.34E+00	1.44E+00	1.45E+00	1.56E+00
BS 3HE 4″	1.48E+00	1.61E+00	1.59E+00	1.77E+00
BS 3HE 4.5″	1.57E+00	1.72E+00	1.67E+00	1.90E+00
BS 3HE 5″	1.62E+00	1.77E+00	1.70E+00	1.94E+00
BS 3HE 6″	1.62E+00	1.72E+00	1.63E+00	1.83E+00
BS 3HE 7″	1.55E+00	1.54E+00	1.46E+00	1.57E+00
BS 3HE 8″	1.42E+00	1.30E+00	1.24E+00	1.27E+00
BS 3HE 9.5″	1.18E+00	9.45E-01	9.19E-01	8.46E-01
BS 3HE 10″	1.10E+00	8.38E-01	8.21E-01	7.29E-01
BS 3HE 12″	8.04E-01	4.96E-01	4.99E-01	3.83E-01
BS 3HE 15″	4.72E-01	2.11E-01	2.20E-01	1.34E-01
BS 3HE 18″	2.89E-01	9.40E-02	1.01E-01	4.71E-02
BS LiI BARE	3.27E-02	4.86E-02	5.54E-02	4.03E-02
BS LiI 2″	8.49E-02	8.85E-02	9.36E-02	8.68E-02
BS LiI 3″	1.27E-01	1.35E-01	1.36E-01	1.47E-01
BS LiI 6″	1.54E-01	1.61E-01	1.52E-01	1.69E-01
BS LiI 8″	1.33E-01	1.16E-01	1.12E-01	1.10E-01
BS LiI 10″	1.02E-01	7.38E-02	7.29E-02	6.21E-02
BS LiI 15″	4.56E-02	1.95E-02	2.06E-02	1.17E-02
BS LiI 18″	2.59E-02	8.33E-03	9.02E-03	3.97E-03
6Li BARE	2.27E-01	2.14E-01	2.12E-01	2.17E-01
6Li Cd	9.99E-02	9.46E-02	9.33E-02	9.88E-02
GOLD BARE	1.37E-02	9.31E-03	1.10E-02	8.08E-03
Nat U PC	5.49E-05	4.48E-05	4.38E-05	5.04E-05
238 U PC	1.65E-06	3.71E-07	4.35E-07	1.03E-07
232 Th PC	4.66E-07	8.24E-08	9.48E-08	1.84E-08
CR39 ECE	1.08E-04	7.91E-05	8.22E-05	5.57E-05
LR115 LiB	1.90E+03	2.11E+03	1.81E+03	1.96E+03
PLANAR	8.98E+04	6.70E+04	6.57E+04	5.37E+04
BASE	6.65E+04	5.43E+04	5.17E+04	4.70E+04
PYRAMIDE	4.87E+04	3.62E+04	3.49E+04	3.01E+04
PTB TH	2.18E+02	1.87E+02	1.75E+02	1.66E+02
PTB INT	2.33E+02	1.95E+02	1.84E+02	1.76E+02
PTB FAST	2.14E+02	1.73E+02	1.62E+02	1.50E+02
PTB I+F	2.27E+02	1.85E+02	1.74E+02	1.63E+02
LONG C	5.05E-01	4.87E-01	4.39E-01	4.78E-01
LEAKE	1.57E-01	1.28E-01	1.23E-01	1.15E-01
A-B_2	4.54E-01	3.54E-01	3.48E-01	3.01E-01
EBERNRD2	4.48E-01	3.50E-01	3.43E-01	3.02E-01
MOD930_2	4.22E-01	3.04E-01	3.00E-01	2.46E-01
STUDSVIK	2.12E-01	1.49E-01	1.46E-01	1.22E-01
LB6411	6.59E-01	4.68E-01	4.60E-01	3.81E-01
BUBBLE	7.64E+04	5.41E+04	5.19E+04	4.47E+04
ELECTRET	3.81E+02	1.77E+02	1.90E+02	1.23E+02
SILICON	3.77E-01	5.19E-01	4.67E-01	5.01E-01

TABLE 4.XXI. PWR STRAY NEUTRON SIMULATION FIELDS

Spectra

Column 1: Energy in eV
Column 2: Experimental position 1
Column 3: Experimental position 2
Column 4: MOX element container

1.00E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00
1.00E-02	5.50E-03	2.96E-03	7.01E-03
2.15E-02	9.84E-03	8.84E-03	1.36E-02
4.64E-02	1.31E-02	1.52E-02	1.14E-02
1.00E-01	1.32E-02	1.92E-02	6.61E-03
2.15E-01	2.13E-02	3.17E-02	1.06E-02
4.64E-01	2.68E-02	3.26E-02	7.19E-03
1.00E+00	2.91E-02	3.65E-02	7.87E-03
2.15E+00	2.93E-02	3.76E-02	6.43E-03
4.64E+00	3.02E-02	4.16E-02	9.52E-03
1.00E+01	3.00E-02	4.35E-02	8.05E-03
2.15E+01	3.48E-02	4.81E-02	5.71E-03
4.64E+01	3.50E-02	4.99E-02	8.95E-03
1.00E+02	3.27E-02	4.91E-02	5.68E-03
2.15E+02	3.25E-02	4.98E-02	7.33E-03
4.64E+02	3.50E-02	5.29E-02	7.33E-03
1.00E+03	3.64E-02	5.77E-02	7.69E-03
2.15E+03	4.52E-02	6.86E-02	8.77E-03
4.64E+03	5.80E-02	8.20E-02	1.05E-02
1.00E+04	6.36E-02	8.36E-02	1.08E-02
1.25E+04	6.80E-02	8.55E-02	1.03E-02
1.58E+04	7.14E-02	8.51E-02	1.09E-02
1.99E+04	7.32E-02	8.74E-02	1.25E-02
2.51E+04	7.36E-02	8.85E-02	1.59E-02
3.16E+04	7.07E-02	8.97E-02	1.61E-02
3.98E+04	6.70E-02	8.98E-02	1.79E-02
5.01E+04	6.91E-02	9.59E-02	2.44E-02
6.30E+04	8.16E-02	9.99E-02	3.45E-02
7.94E+04	9.98E-02	1.11E-01	4.17E-02
1.00E+05	1.19E-01	1.17E-01	4.71E-02
1.25E+05	1.37E-01	1.24E-01	6.14E-02
1.58E+05	1.53E-01	1.23E-01	8.66E-02
1.99E+05	1.65E-01	1.19E-01	1.13E-01
2.51E+05	1.73E-01	1.13E-01	1.36E-01
3.16E+05	2.17E-01	1.06E-01	1.97E-01
3.98E+05	2.22E-01	1.02E-01	2.07E-01
5.01E+05	2.05E-01	8.12E-02	2.36E-01
6.30E+05	1.76E-01	3.97E-02	2.75E-01
7.94E+05	1.24E-01	4.23E-02	3.06E-01
1.00E+06	7.39E-02	1.79E-02	3.74E-01
1.25E+06	5.11E-02	1.68E-03	4.71E-01
1.58E+06	2.48E-02	3.51E-03	3.47E-01
1.99E+06	1.66E-02	9.11E-03	3.23E-01
2.51E+06	1.12E-02	4.24E-04	1.98E-01
3.16E+06	6.64E-03	0.00E+00	1.27E-01
3.98E+06	3.16E-03	0.00E+00	5.53E-02
5.01E+06	5.50E-04	0.00E+00	3.92E-02
6.30E+06	5.86E-05	0.00E+00	1.40E-02
7.94E+06	0.00E+00	0.00E+00	1.81E-02
1.00E+07	0.00E+00	0.00E+00	5.78E-03
1.58E+07	0.00E+00	0.00E+00	2.09E-03
2.51E+07	0.00E+00	0.00E+00	1.58E-04
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.30E+08			

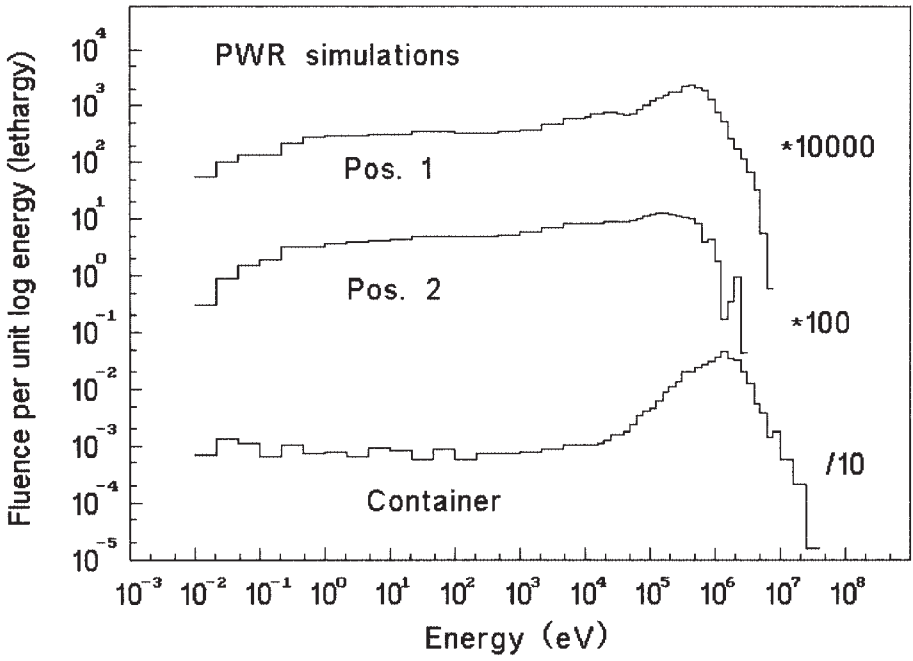

FIG. 4.17. PWR stray neutron simulation fields.

TABLE 4.XXI. PWR STRAY NEUTRON SIMULATION FIELDS

Spectrum weighted responses

Column 2: Experimental position 1
Column 3: Experimental position 2
Column 4: MOX element container

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00
E A-P R60	8.58E+01	4.67E+01	2.43E+02
H AMBIENT	1.27E+02	6.49E+01	3.07E+02
H PERSONAL	1.33E+02	6.79E+01	3.22E+02
HE A-P R51	3.80E+01	1.82E+01	1.31E+02
MADE R21	8.83E+01	4.50E+01	2.54E+02
BS 3HE BARE	1.59E-01	1.88E-01	1.06E-01
BS 3HE 2.5″	8.39E-01	1.07E+00	3.35E-01
BS 3HE 3″	1.28E+00	1.55E+00	6.07E-01
BS 3HE 3.5″	1.68E+00	1.93E+00	9.49E-01
BS 3HE 4″	1.97E+00	2.15E+00	1.31E+00
BS 3HE 4.5″	2.14E+00	2.23E+00	1.64E+00
BS 3HE 5″	2.20E+00	2.18E+00	1.91E+00
BS 3HE 6″	2.04E+00	1.87E+00	2.22E+00
BS 3HE 7″	1.70E+00	1.44E+00	2.24E+00
BS 3HE 8″	1.32E+00	1.04E+00	2.05E+00
BS 3HE 9.5″	8.12E-01	5.80E-01	1.62E+00
BS 3HE 10″	6.83E-01	4.74E-01	1.47E+00
BS 3HE 12″	3.18E-01	1.94E-01	9.26E-01
BS 3HE 15″	9.08E-02	4.60E-02	4.18E-01
BS 3HE 18″	2.62E-02	1.06E-02	1.92E-01
BS LiI BARE	2.05E-02	2.58E-02	1.03E-02
BS LiI 2″	8.00E-02	1.02E-01	3.13E-02
BS LiI 3″	1.60E-01	1.85E-01	8.67E-02
BS LiI 6″	1.87E-01	1.64E-01	2.21E-01
BS LiI 8″	1.12E-01	8.50E-02	1.89E-01
BS LiI 10″	5.63E-02	3.78E-02	1.31E-01
BS LiI 15″	7.64E-03	3.70E-03	3.85E-02
BS LiI 18″	2.09E-03	8.31E-04	1.68E-02
6Li BARE	2.30E-01	2.68E-01	1.38E-01
6Li Cd	1.10E-01	1.30E-01	5.86E-02
GOLD BARE	9.13E-03	1.19E-02	2.15E-03
Nat U PC	5.37E-05	7.71E-05	1.47E-05
238 U PC	3.62E-08	5.54E-09	7.88E-07
232 Th PC	7.35E-09	7.98E-10	1.82E-07
CR39 ECE	3.46E-05	1.24E-05	1.62E-04
LR115 LiB	2.25E+03	2.62E+03	1.13E+03
PLANAR	4.09E+04	1.47E+04	1.37E+05
BASE	4.14E+04	1.58E+04	1.09E+05
PYRAMIDE	2.58E+04	9.73E+03	7.29E+04
PTB TH	1.59E+02	7.68E+01	3.53E+02
PTB INT	1.68E+02	9.53E+01	3.52E+02
PTB FAST	1.42E+02	6.61E+01	3.40E+02
PTB I+F	1.54E+02	7.67E+01	3.56E+02
LONG C	5.35E-01	3.65E-01	8.70E-01
LEAKE	1.09E-01	7.04E-02	2.30E-01
A-B_2	2.62E-01	1.70E-01	6.29E-01
EBERNRD2	2.71E-01	1.80E-01	6.25E-01
MOD930_2	2.08E-01	1.18E-01	5.76E-01
STUDSVIK	1.07E-01	5.80E-02	2.87E-01
LB6411	3.30E-01	1.78E-01	8.95E-01
BUBBLE	3.59E+04	1.34E+04	1.11E+05
ELECTRET	8.57E+01	6.49E+01	2.92E+02
SILICON	4.55E-01	1.98E-01	1.04E+00

TABLE 4.XXII. HIGH ENERGY REFERENCE SPECTRA (PSI AND CERN)

Spectra

Column 1: Energy in eV
Column 2: PSI, 60 MeV, pure beam
Column 3: PSI, 60 MeV, background
Column 4: PSI, 60 MeV, beam with background
Column 5: CERN, Pb beam on Pb
Column 6: CERN, concrete shield, proton beam on Cu

1.00E-03	3.18E-06	4.32E-03	1.08E-03	0.00E+00	0.00E+00
2.15E-03	7.61E-06	1.11E-02	2.78E-03	0.00E+00	0.00E+00
4.64E-03	1.59E-05	2.84E-02	7.14E-03	0.00E+00	4.54E-02
1.00E-02	2.62E-05	6.92E-02	1.73E-02	3.99E-02	5.16E-02
2.15E-02	2.77E-05	1.34E-01	3.36E-02	4.23E-02	5.69E-02
4.64E-02	2.40E-05	1.54E-01	3.84E-02	4.33E-02	5.16E-02
1.00E-01	1.95E-05	7.10E-02	1.77E-02	1.67E-02	1.84E-02
2.15E-01	1.72E-05	5.30E-02	1.33E-02	1.51E-02	1.56E-02
4.64E-01	1.72E-05	4.39E-02	1.10E-02	1.75E-02	1.59E-02
1.00E+00	2.01E-05	4.19E-02	1.05E-02	1.76E-02	1.93E-02
2.15E+00	2.66E-05	4.11E-02	1.03E-02	1.59E-02	1.54E-02
4.64E+00	3.64E-05	4.04E-02	1.01E-02	1.27E-02	1.23E-02
1.00E+01	5.21E-05	4.01E-02	1.01E-02	1.28E-02	1.15E-02
2.15E+01	7.61E-05	4.02E-02	1.01E-02	1.22E-02	9.58E-03
4.64E+01	1.13E-04	4.04E-02	1.02E-02	1.19E-02	9.63E-03
1.00E+02	1.69E-04	4.06E-02	1.02E-02	1.19E-02	9.31E-03
2.15E+02	2.54E-04	4.09E-02	1.04E-02	1.22E-02	1.00E-02
4.64E+02	3.84E-04	4.11E-02	1.05E-02	1.33E-02	1.23E-02
1.00E+03	5.78E-04	4.11E-02	1.07E-02	1.30E-02	1.43E-02
2.15E+03	8.66E-04	4.09E-02	1.09E-02	1.55E-02	1.44E-02
4.64E+03	1.31E-03	4.05E-02	1.11E-02	1.70E-02	1.74E-02
1.00E+04	1.70E-03	4.00E-02	1.13E-02	1.84E-02	1.80E-02
1.25E+04	1.93E-03	3.98E-02	1.14E-02	1.90E-02	1.79E-02
1.58E+04	2.18E-03	3.95E-02	1.15E-02	1.95E-02	1.74E-02
1.99E+04	2.47E-03	3.92E-02	1.16E-02	2.06E-02	2.03E-02
2.51E+04	2.80E-03	3.89E-02	1.18E-02	2.25E-02	2.12E-02
3.16E+04	3.16E-03	3.86E-02	1.20E-02	2.47E-02	2.27E-02
3.98E+04	3.59E-03	3.81E-02	1.22E-02	2.67E-02	2.57E-02
5.01E+04	4.06E-03	3.78E-02	1.25E-02	2.41E-02	2.91E-02
6.30E+04	4.61E-03	3.72E-02	1.28E-02	2.69E-02	2.97E-02
7.94E+04	5.21E-03	3.65E-02	1.31E-02	3.04E-02	3.38E-02
1.00E+05	5.92E-03	3.58E-02	1.33E-02	3.17E-02	3.76E-02
1.25E+05	6.69E-03	3.48E-02	1.37E-02	3.36E-02	3.77E-02
1.58E+05	7.54E-03	3.34E-02	1.40E-02	3.80E-02	4.26E-02
1.99E+05	8.59E-03	3.16E-02	1.44E-02	4.19E-02	4.86E-02
2.51E+05	9.71E-03	2.97E-02	1.47E-02	4.82E-02	5.01E-02
3.16E+05	1.09E-02	2.77E-02	1.51E-02	5.52E-02	5.84E-02
3.98E+05	1.23E-02	2.63E-02	1.58E-02	6.44E-02	5.97E-02
5.01E+05	1.37E-02	2.44E-02	1.64E-02	7.19E-02	6.57E-02
6.30E+05	1.53E-02	2.23E-02	1.71E-02	8.13E-02	6.95E-02
7.94E+05	1.70E-02	2.10E-02	1.81E-02	8.90E-02	7.30E-02
1.00E+06	1.89E-02	2.00E-02	1.93E-02	9.84E-02	7.79E-02
1.25E+06	2.09E-02	1.72E-02	2.00E-02	1.05E-01	8.22E-02
1.58E+06	2.31E-02	1.14E-02	2.02E-02	1.14E-01	8.39E-02
1.99E+06	2.54E-02	6.19E-03	2.07E-02	1.19E-01	8.81E-02
2.51E+06	2.83E-02	1.73E-03	2.17E-02	1.28E-01	8.96E-02
3.16E+06	3.13E-02	1.81E-03	2.34E-02	1.31E-01	8.97E-02
3.98E+06	3.62E-02	1.42E-03	2.77E-02	1.29E-01	9.18E-02
5.01E+06	4.78E-02	2.19E-03	3.66E-02	1.33E-01	9.39E-02
6.30E+06	6.75E-02	8.34E-04	5.12E-02	1.33E-01	9.41E-02
7.94E+06	7.93E-02	1.23E-03	6.03E-02	1.30E-01	9.48E-02
1.00E+07	8.66E-02	8.26E-04	6.54E-02	1.25E-01	8.30E-02
1.58E+07	1.55E-01	4.25E-03	1.17E-01	1.01E-01	4.86E-02
2.51E+07	2.79E-01	7.49E-03	2.12E-01	8.28E-02	1.64E-02
3.98E+07	3.23E-01	6.22E-04	2.43E-01	9.55E-02	1.19E-02
6.30E+07	1.06E+00	2.70E-02	8.01E-01	1.02E-01	5.86E-02
1.00E+08	0.00E+00	0.00E+00	0.00E+00	6.77E-02	1.51E-01
1.58E+08	0.00E+00	0.00E+00	0.00E+00	2.66E-02	1.73E-01
2.51E+08	0.00E+00	0.00E+00	0.00E+00	3.41E-04	1.02E-01
3.98E+08	0.00E+00	0.00E+00	0.00E+00	1.60E-04	8.64E-03
6.30E+08					

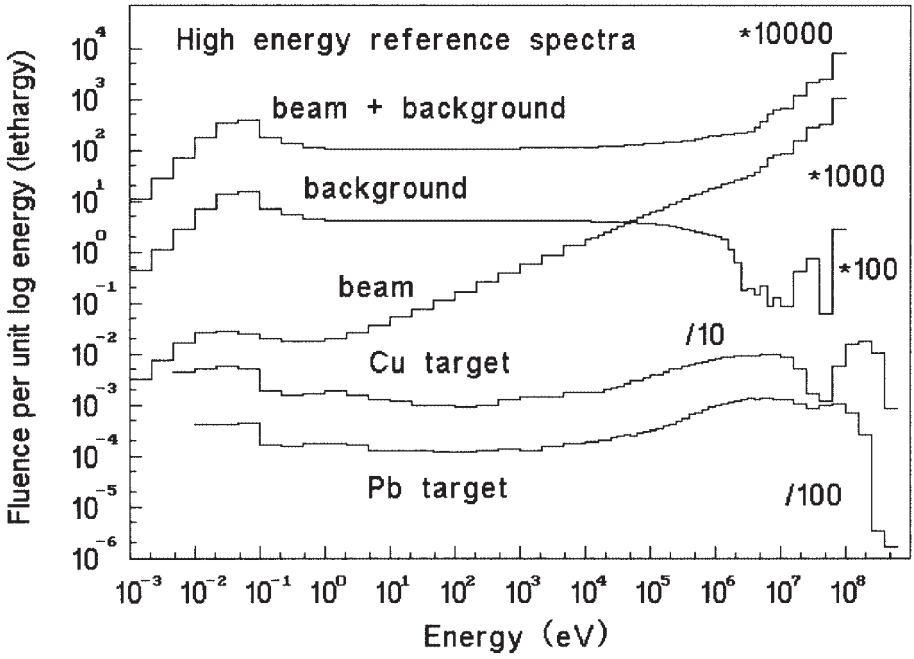

FIG. 4.18. High energy reference spectra (PSI and CERN).

TABLE 4.XXII. HIGH ENERGY REFERENCE SPECTRA (PSI AND CERN)

Spectrum weighted responses

Column 2: PSI, 60 MeV, pure beam
Column 3: PSI, 60 MeV, background
Column 4: PSI, 60 MeV, beam with background
Column 5: CERN, Pb beam on Pb
Column 6: CERN, concrete shield, proton beam on Cu

FLUENCE 20	2.34E-01	9.84E-01	4.21E-01	8.28E-01	7.59E-01
E A-P R60	4.31E+02	3.51E+01	3.32E+02	2.74E+02	2.27E+02
H AMBIENT	3.72E+02	3.98E+01	2.90E+02	2.71E+02	2.08E+02
H PERSONAL	1.09E+02	3.61E+01	9.12E+01	2.23E+02	1.63E+02
HE A-P R51	8.63E+01	1.24E+01	6.79E+01	1.42E+02	9.72E+01
MADE R21	8.68E+01	2.75E+01	7.20E+01	1.84E+02	1.33E+02
BS 3HE BARE	5.39E-04	1.18E+00	2.96E-01	3.60E-01	6.12E-01
BS 3HE 2.5″	1.69E-02	1.40E+00	3.63E-01	5.02E-01	5.56E-01
BS 3HE 3″	4.15E-02	1.60E+00	4.30E-01	6.54E-01	6.81E-01
BS 3HE 3.5″	7.63E-02	1.71E+00	4.84E-01	8.12E-01	8.12E-01
BS 3HE 4″	1.17E-01	1.72E+00	5.16E-01	9.54E-01	9.23E-01
BS 3HE 4.5″	1.55E-01	1.64E+00	5.27E-01	1.06E+00	1.00E+00
BS 3HE 5″	1.97E-01	1.52E+00	5.27E-01	1.15E+00	1.06E+00
BS 3HE 6″	2.58E-01	1.19E+00	4.92E-01	1.22E+00	1.08E+00
BS 3HE 7″	3.00E-01	8.74E-01	4.44E-01	1.21E+00	1.02E+00
BS 3HE 8″	3.21E-01	6.11E-01	3.94E-01	1.13E+00	9.22E-01
BS 3HE 9.5″	3.25E-01	3.38E-01	3.29E-01	9.68E-01	7.52E-01
BS 3HE 10″	3.22E-01	2.76E-01	3.11E-01	9.11E-01	6.98E-01
BS 3HE 12″	2.99E-01	1.19E-01	2.54E-01	7.04E-01	5.14E-01
BS 3HE 15″	2.48E-01	3.37E-02	1.94E-01	4.69E-01	3.26E-01
BS 3HE 18″	2.05E-01	1.17E-02	1.57E-01	3.31E-01	2.23E-01
BS LiI BARE	1.09E-04	8.91E-02	2.23E-02	2.88E-02	4.14E-02
BS LiI 2″	1.69E-03	1.26E-01	3.29E-02	4.60E-02	4.92E-02
BS LiI 3″	7.54E-03	1.61E-01	4.58E-02	7.57E-02	7.45E-02
BS LiI 6″	3.48E-02	1.01E-01	5.14E-02	1.20E-01	1.03E-01
BS LiI 8″	4.61E-02	4.98E-02	4.71E-02	1.09E-01	8.62E-02
BS LiI 10″	4.96E-02	2.26E-02	4.29E-02	8.86E-02	6.54E-02
BS LiI 15″	4.93E-02	3.40E-03	3.79E-02	4.99E-02	3.22E-02
BS LiI 18″	4.69E-02	1.59E-03	3.56E-02	3.57E-02	2.17E-02
6Li BARE	2.45E-02	2.35E-01	7.72E-02	1.19E-01	1.10E-01
6Li Cd	9.23E-03	1.04E-01	3.28E-02	5.20E-02	4.80E-02
GOLD BARE	2.07E-05	1.34E-02	3.37E-03	4.94E-03	4.79E-03
Nat U PC	2.96E-06	6.30E-05	1.79E-05	2.35E-05	1.88E-05
238 U PC	2.04E-06	5.17E-08	1.54E-06	2.60E-06	1.66E-06
232 Th PC	6.32E-07	1.49E-08	4.78E-07	7.87E-07	4.99E-07
CR39 ECE	2.45E-05	7.54E-06	2.03E-05	7.85E-05	5.80E-05
LR115 LiB	8.74E+01	1.97E+03	5.59E+02	9.85E+02	9.28E+02
PLANAR	3.84E+04	7.98E+03	3.08E+04	8.23E+04	5.93E+04
BASE	2.90E+04	7.26E+03	2.36E+04	6.18E+04	4.52E+04
PYRAMIDE	2.05E+04	4.61E+03	1.66E+04	4.55E+04	3.31E+04
PTB TH	7.38E+01	4.45E+01	6.66E+01	2.00E+02	1.58E+02
PTB INT	7.74E+01	5.64E+01	7.23E+01	2.06E+02	1.60E+02
PTB FAST	7.71E+01	2.67E+01	6.46E+01	1.95E+02	1.47E+02
PTB I+F	8.00E+01	3.60E+01	6.91E+01	2.05E+02	1.56E+02
LONG C	9.44E-02	1.37E-01	1.05E-01	4.06E-01	3.38E-01
LEAKE	4.50E-02	3.73E-02	4.32E-02	1.31E-01	1.01E-01
A-B_2	1.21E-01	1.10E-01	1.18E-01	3.63E-01	2.78E-01
EBERNRD2	2.70E-01	1.09E-01	2.30E-01	3.99E-01	3.04E-01
MOD930_2	4.88E-01	7.37E-02	3.85E-01	4.36E-01	3.65E-01
STUDSVIK	5.80E-02	2.80E-02	5.06E-02	1.76E-01	1.33E-01
LB6411	2.15E-01	9.36E-02	1.85E-01	5.58E-01	4.15E-01
BUBBLE	3.09E+04	6.66E+03	2.49E+04	7.73E+04	5.70E+04
ELECTRET	1.60E+02	7.54E+01	1.40E+02	3.72E+02	2.69E+02
SILICON	6.08E-02	7.91E-02	6.55E-02	3.08E-01	2.59E-01

TABLE 4.XXIII. HIGH ENERGY REFERENCE SPECTRA (CERN)

Spectra

Column 1: Energy in eV
Column 2: Concrete, top
Column 3: Concrete, side
Column 4: Fe, top
Column 5: Fe, side

1.00E-03	1.69E-03	1.45E-03	2.32E-04	6.53E-03
2.15E-03	4.27E-03	4.15E-03	5.00E-04	1.35E-02
4.64E-03	1.10E-02	1.22E-02	1.01E-03	2.63E-02
1.00E-02	2.78E-02	3.47E-02	1.73E-03	4.40E-02
2.15E-02	5.66E-02	7.81E-02	2.15E-03	5.45E-02
4.64E-02	6.48E-02	9.35E-02	2.41E-03	5.58E-02
1.00E-01	2.77E-02	3.74E-02	2.71E-03	4.77E-02
2.15E-01	2.03E-02	2.51E-02	3.07E-03	4.51E-02
4.64E-01	1.69E-02	1.97E-02	3.56E-03	4.29E-02
1.00E+00	1.69E-02	1.89E-02	4.24E-03	4.11E-02
2.15E+00	1.68E-02	1.79E-02	5.18E-03	3.94E-02
4.64E+00	1.67E-02	1.69E-02	6.44E-03	3.78E-02
1.00E+01	1.67E-02	1.60E-02	8.11E-03	3.63E-02
2.15E+01	1.67E-02	1.52E-02	1.02E-02	3.49E-02
4.64E+01	1.67E-02	1.46E-02	1.30E-02	3.36E-02
1.00E+02	1.68E-02	1.40E-02	1.67E-02	3.22E-02
2.15E+02	1.69E-02	1.35E-02	2.14E-02	3.11E-02
4.64E+02	1.70E-02	1.33E-02	2.75E-02	3.00E-02
1.00E+03	1.72E-02	2.22E-02	3.53E-02	2.90E-02
2.15E+03	1.74E-02	2.01E-02	4.50E-02	2.81E-02
4.64E+03	1.78E-02	2.32E-02	5.80E-02	2.73E-02
1.00E+04	1.81E-02	1.90E-02	6.85E-02	2.70E-02
1.25E+04	1.83E-02	1.80E-02	7.39E-02	2.69E-02
1.58E+04	1.86E-02	2.10E-02	8.03E-02	2.69E-02
1.99E+04	1.90E-02	2.26E-02	8.71E-02	2.71E-02
2.51E+04	1.91E-02	2.41E-02	9.06E-02	2.68E-02
3.16E+04	1.75E-02	2.28E-02	7.12E-02	2.41E-02
3.98E+04	1.44E-02	1.77E-02	2.65E-02	1.91E-02
5.01E+04	1.73E-02	2.08E-02	2.42E-02	2.28E-02
6.30E+04	2.82E-02	3.42E-02	8.66E-02	3.83E-02
7.94E+04	3.02E-02	3.83E-02	1.23E-01	4.73E-02
1.00E+05	2.17E-02	3.16E-02	1.42E-01	4.75E-02
1.25E+05	2.27E-02	3.28E-02	1.82E-01	4.97E-02
1.58E+05	3.26E-02	3.96E-02	2.17E-01	4.83E-02
1.99E+05	3.65E-02	4.06E-02	2.46E-01	5.28E-02
2.51E+05	3.57E-02	3.74E-02	2.56E-01	6.45E-02
3.16E+05	3.64E-02	3.60E-02	2.88E-01	5.68E-02
3.98E+05	3.81E-02	3.85E-02	3.41E-01	3.00E-02
5.01E+05	5.20E-02	4.95E-02	3.02E-01	3.24E-02
6.30E+05	8.04E-02	7.19E-02	1.60E-01	7.14E-02
7.94E+05	8.24E-02	7.33E-02	6.82E-02	7.16E-02
1.00E+06	5.04E-02	4.67E-02	6.30E-02	3.07E-02
1.25E+06	5.22E-02	4.92E-02	3.45E-02	2.23E-02
1.58E+06	9.26E-02	8.52E-02	4.97E-02	4.43E-02
1.99E+06	1.07E-01	1.02E-01	5.21E-02	5.39E-02
2.51E+06	9.99E-02	1.01E-01	2.26E-02	5.90E-02
3.16E+06	8.31E-02	8.46E-02	2.08E-02	5.34E-02
3.98E+06	4.48E-02	3.90E-02	1.18E-02	2.49E-02
5.01E+06	3.38E-02	2.21E-02	1.19E-02	1.74E-02
6.30E+06	6.78E-02	5.14E-02	9.97E-03	3.60E-02
7.94E+06	6.68E-02	5.13E-02	1.08E-02	3.55E-02
1.00E+07	3.32E-02	3.27E-02	9.01E-03	1.96E-02
1.58E+07	5.42E-02	4.46E-02	9.74E-03	2.63E-02
2.51E+07	7.33E-02	6.57E-02	1.37E-02	3.08E-02
3.98E+07	1.32E-01	1.16E-01	1.70E-02	6.79E-02
6.30E+07	1.90E-01	1.49E-01	2.58E-02	6.76E-02
1.00E+08	1.69E-01	1.49E-01	2.09E-02	8.67E-02
1.58E+08	1.01E-01	7.48E-02	1.24E-02	3.46E-02
2.51E+08	8.70E-03	1.21E-02	2.79E-03	1.18E-02
3.98E+08	1.62E-02	1.22E-02	1.33E-03	2.86E-03
6.30E+08				

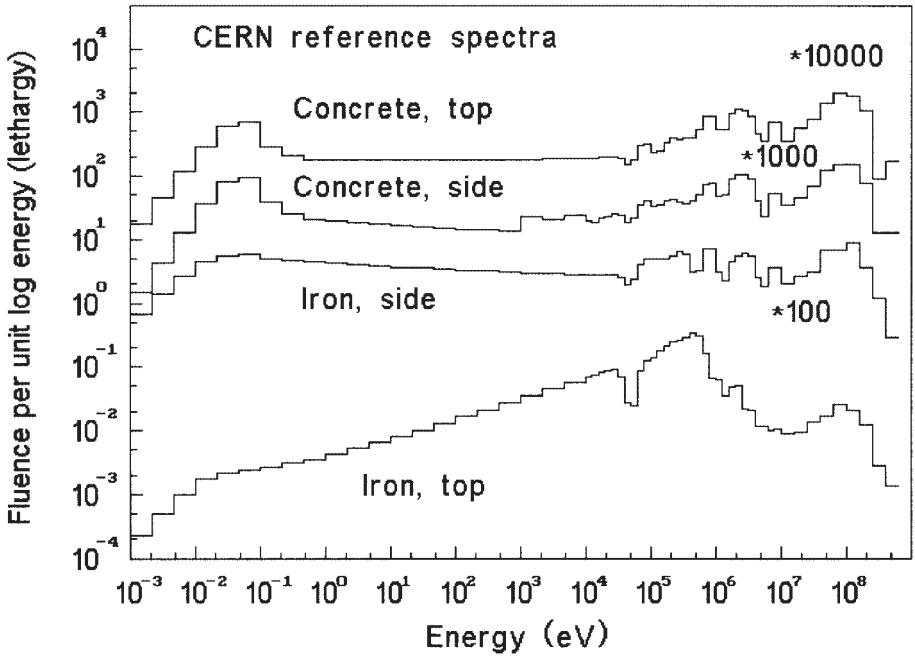

FIG. 4.19. High energy reference spectra (CERN).

TABLE 4.XXIII. HIGH ENERGY REFERENCE SPECTRA (CERN)

Spectrum weighted responses

Column 2: Concrete, top
Column 3: Concrete, side
Column 4: Fe, top
Column 5: Fe, side

FLUENCE 20	6.82E-01	7.33E-01	9.57E-01	8.61E-01
E A-P R60	2.45E+02	2.14E+02	1.30E+02	1.33E+02
H AMBIENT	2.21E+02	1.96E+02	1.78E+02	1.29E+02
H PERSONAL	1.29E+02	1.20E+02	1.72E+02	9.09E+01
HE A-P R51	7.36E+01	6.63E+01	5.43E+01	4.55E+01
MADE R21	1.05E+02	9.77E+01	1.13E+02	7.18E+01
BS 3HE BARE	4.82E-01	6.25E-01	4.23E-02	7.23E-01
BS 3HE 2.5″	6.01E-01	7.03E-01	4.89E-01	1.03E+00
BS 3HE 3″	7.32E-01	8.26E-01	9.26E-01	1.24E+00
BS 3HE 3.5″	8.51E-01	9.39E-01	1.38E+00	1.39E+00
BS 3HE 4″	9.39E-01	1.02E+00	1.76E+00	1.46E+00
BS 3HE 4.5″	9.91E-01	1.06E+00	2.03E+00	1.46E+00
BS 3HE 5″	1.02E+00	1.08E+00	2.17E+00	1.41E+00
BS 3HE 6″	9.91E-01	1.02E+00	2.14E+00	1.22E+00
BS 3HE 7″	9.08E-01	9.18E-01	1.86E+00	9.96E-01
BS 3HE 8″	7.96E-01	7.88E-01	1.48E+00	7.84E-01
BS 3HE 9.5″	6.28E-01	6.04E-01	9.46E-01	5.33E-01
BS 3HE 10″	5.76E-01	5.51E-01	8.07E-01	4.68E-01
BS 3HE 12″	4.04E-01	3.75E-01	4.00E-01	2.82E-01
BS 3HE 15″	2.40E-01	2.15E-01	1.36E-01	1.44E-01
BS 3HE 18″	1.57E-01	1.37E-01	5.62E-02	8.79E-02
BS LiI BARE	3.65E-02	4.73E-02	5.67E-03	5.37E-02
BS LiI 2″	5.44E-02	6.31E-02	4.69E-02	9.37E-02
BS LiI 3″	7.96E-02	8.75E-02	1.30E-01	1.31E-01
BS LiI 6″	9.50E-02	9.68E-02	2.01E-01	1.10E-01
BS LiI 8″	7.69E-02	7.50E-02	1.28E-01	6.98E-02
BS LiI 10″	5.74E-02	5.40E-02	6.80E-02	4.30E-02
BS LiI 15″	2.95E-02	2.61E-02	1.28E-02	1.64E-02
BS LiI 18″	2.21E-02	1.92E-02	5.91E-03	1.14E-02
6Li BARE	1.23E-01	1.32E-01	1.73E-01	2.10E-01
6Li Cd	5.32E-02	5.55E-02	8.09E-02	9.36E-02
GOLD BARE	5.46E-03	5.89E-03	2.01E-03	1.24E-02
Nat U PC	2.84E-05	2.49E-05	2.93E-05	5.24E-05
238 U PC	1.19E-06	1.04E-06	2.68E-07	6.43E-07
232 Th PC	3.54E-07	3.03E-07	7.51E-08	1.90E-07
CR39 ECE	5.07E-05	4.74E-05	4.56E-05	3.05E-05
LR115 LiB	9.76E+02	1.03E+03	1.67E+03	1.83E+03
PLANAR	4.84E+04	4.43E+04	5.22E+04	3.02E+04
BASE	3.75E+04	3.44E+04	5.35E+04	2.44E+04
PYRAMIDE	2.64E+04	2.42E+04	3.39E+04	1.69E+04
PTB TH	1.23E+02	1.17E+02	2.07E+02	9.43E+01
PTB INT	1.29E+02	1.22E+02	2.07E+02	1.04E+02
PTB FAST	1.15E+02	1.07E+02	1.87E+02	8.11E+01
PTB I+F	1.23E+02	1.15E+02	2.00E+02	9.04E+01
LONG C	2.73E-01	2.72E-01	6.60E-01	2.39E-01
LEAKE	8.34E-02	7.93E-02	1.29E-01	6.71E-02
A-B_2	2.34E-01	2.24E-01	3.01E-01	1.86E-01
EBERNRD2	2.82E-01	2.63E-01	3.24E-01	2.07E-01
MOD930_2	3.55E-01	3.19E-01	2.76E-01	2.14E-01
STUDSVIK	1.04E-01	9.71E-02	1.35E-01	7.33E-02
LB6411	3.35E-01	3.12E-01	4.15E-01	2.34E-01
BUBBLE	4.05E+04	3.71E+04	4.63E+04	2.60E+04
ELECTRET	1.87E+02	1.76E+02	1.02E+02	1.38E+02
SILICON	2.33E-01	2.21E-01	5.68E-01	1.75E-01

TABLE 4.XXIV. HIGH ENERGY REFERENCE SPECTRA (CERN, FFTP, SSRL)

Spectra

Column 1: Energy in eV
Column 2: CERN, Fe shield
Column 3: CERN, concrete shield
Column 4: FFTP facility
Column 5: SSRL linac, diagnostic room
Column 6: SSRL SPEAR, on the roof

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	3.09E-03	3.13E-02	3.60E-02	1.09E-01	1.72E-01
2.15E-01	3.09E-03	2.97E-02	4.24E-02	1.09E-01	1.76E-01
4.64E-01	3.36E-03	2.66E-02	2.34E-02	9.18E-02	1.32E-01
1.00E+00	3.41E-03	2.54E-02	1.82E-02	7.41E-02	9.09E-02
2.15E+00	3.69E-03	2.36E-02	1.62E-02	5.95E-02	6.34E-02
4.64E+00	4.15E-03	2.16E-02	1.53E-02	4.67E-02	4.77E-02
1.00E+01	4.53E-03	2.21E-02	1.48E-02	3.96E-02	3.73E-02
2.15E+01	5.28E-03	1.99E-02	1.42E-02	3.29E-02	2.92E-02
4.64E+01	6.77E-03	1.92E-02	1.47E-02	2.84E-02	2.57E-02
1.00E+02	8.35E-03	1.97E-02	1.50E-02	2.65E-02	2.21E-02
2.15E+02	1.06E-02	1.94E-02	1.64E-02	2.39E-02	1.88E-02
4.64E+02	1.47E-02	1.83E-02	1.71E-02	2.42E-02	1.76E-02
1.00E+03	2.09E-02	1.93E-02	1.94E-02	2.37E-02	1.70E-02
2.15E+03	2.98E-02	1.97E-02	2.18E-02	2.43E-02	1.67E-02
4.64E+03	4.47E-02	2.05E-02	2.43E-02	2.68E-02	1.67E-02
1.00E+04	5.31E-02	2.04E-02	2.62E-02	2.81E-02	1.75E-02
1.25E+04	5.83E-02	2.14E-02	2.69E-02	2.92E-02	1.74E-02
1.58E+04	6.94E-02	2.16E-02	2.77E-02	3.03E-02	1.76E-02
1.99E+04	7.94E-02	2.18E-02	2.90E-02	3.24E-02	1.98E-02
2.51E+04	9.21E-02	2.37E-02	3.03E-02	3.34E-02	2.18E-02
3.16E+04	1.04E-01	2.39E-02	3.24E-02	3.45E-02	2.12E-02
3.98E+04	1.25E-01	2.42E-02	3.50E-02	3.61E-02	2.11E-02
5.01E+04	1.44E-01	2.51E-02	3.76E-02	3.96E-02	2.18E-02
6.30E+04	1.66E-01	2.68E-02	4.05E-02	4.51E-02	2.58E-02
7.94E+04	1.92E-01	2.87E-02	4.30E-02	4.67E-02	2.69E-02
1.00E+05	2.17E-01	3.04E-02	4.75E-02	5.15E-02	2.99E-02
1.25E+05	2.39E-01	3.22E-02	4.98E-02	6.08E-02	3.24E-02
1.58E+05	2.51E-01	3.57E-02	5.33E-02	6.11E-02	3.75E-02
1.99E+05	2.50E-01	4.15E-02	6.36E-02	6.64E-02	4.73E-02
2.51E+05	2.63E-01	4.44E-02	6.84E-02	7.99E-02	4.94E-02
3.16E+05	2.55E-01	5.15E-02	7.32E-02	9.05E-02	5.39E-02
3.98E+05	2.21E-01	6.34E-02	7.71E-02	9.00E-02	5.80E-02
5.01E+05	1.75E-01	7.08E-02	9.54E-02	9.32E-02	6.34E-02
6.30E+05	1.57E-01	7.50E-02	8.93E-02	9.53E-02	6.66E-02
7.94E+05	1.34E-01	8.24E-02	9.86E-02	9.66E-02	7.04E-02
1.00E+06	1.26E-01	8.21E-02	1.09E-01	1.00E-01	7.45E-02
1.25E+06	7.34E-02	8.44E-02	1.15E-01	1.07E-01	7.78E-02
1.58E+06	5.20E-02	8.82E-02	1.14E-01	1.16E-01	7.78E-02
1.99E+06	4.23E-02	9.21E-02	1.12E-01	1.01E-01	7.16E-02
2.51E+06	3.06E-02	9.18E-02	1.10E-01	6.45E-02	5.51E-02
3.16E+06	1.94E-02	8.95E-02	1.03E-01	6.05E-02	5.10E-02
3.98E+06	1.44E-02	9.31E-02	1.01E-01	5.04E-02	4.28E-02
5.01E+06	1.45E-02	9.37E-02	9.86E-02	2.89E-02	4.04E-02
6.30E+06	1.12E-02	8.18E-02	9.76E-02	2.97E-02	3.93E-02
7.94E+06	9.48E-03	7.99E-02	8.80E-02	2.11E-02	3.32E-02
1.00E+07	1.09E-02	9.05E-02	9.44E-02	2.19E-02	2.91E-02
1.58E+07	1.14E-02	1.29E-01	8.90E-02	4.22E-03	2.18E-02
2.51E+07	1.62E-02	1.50E-01	1.21E-01	4.06E-04	8.27E-03
3.98E+07	1.42E-02	1.33E-01	1.24E-01	5.28E-04	5.39E-04
6.30E+07	1.34E-02	1.21E-01	1.17E-01	7.38E-06	2.52E-04
1.00E+08	6.15E-03	1.06E-01	5.33E-02	0.00E+00	0.00E+00
1.58E+08	1.42E-03	5.22E-02	1.02E-02	0.00E+00	0.00E+00
2.51E+08	8.75E-04	7.25E-03	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

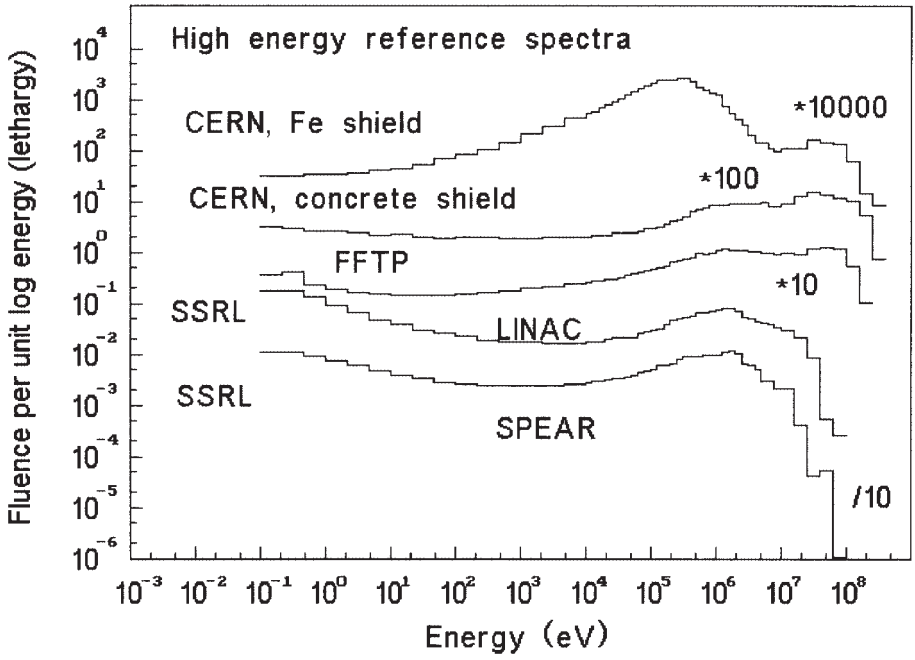

FIG. 4.20. High energy reference spectra (CERN, FFTP, SSRL).

TABLE 4.XXIV. HIGH ENERGY REFERENCE SPECTRA (CERN, FFTP, SSRL)

Spectrum weighted responses

Column 2: CERN, Fe shield
Column 3: CERN, concrete shield
Column 4: FFTP facility
Column 5: SSRL linac, diagnostic room
Column 6: SSRL SPEAR, on the roof

FLUENCE 20	9.76E-01	7.37E-01	8.04E-01	9.99E-01	9.97E-01
E A-P R60	1.29E+02	2.75E+02	2.61E+02	1.07E+02	9.56E+01
H AMBIENT	1.79E+02	2.67E+02	2.65E+02	1.28E+02	1.10E+02
H PERSONAL	1.78E+02	1.86E+02	2.05E+02	1.35E+02	1.13E+02
HE A-P R51	5.77E+01	1.18E+02	1.21E+02	5.89E+01	5.64E+01
MADE R21	1.20E+02	1.50E+02	1.65E+02	1.06E+02	9.10E+01
BS 3HE BARE	1.74E-02	1.15E-01	1.22E-01	3.69E-01	5.41E-01
BS 3HE 2.5″	4.37E-01	5.39E-01	5.21E-01	1.25E+00	1.51E+00
BS 3HE 3″	8.80E-01	7.39E-01	7.39E-01	1.53E+00	1.70E+00
BS 3HE 3.5″	1.35E+00	9.07E-01	9.43E-01	1.71E+00	1.78E+00
BS 3HE 4″	1.76E+00	1.04E+00	1.12E+00	1.81E+00	1.77E+00
BS 3HE 4.5″	2.05E+00	1.12E+00	1.24E+00	1.84E+00	1.71E+00
BS 3HE 5″	2.22E+00	1.17E+00	1.33E+00	1.81E+00	1.62E+00
BS 3HE 6″	2.21E+00	1.17E+00	1.36E+00	1.63E+00	1.38E+00
BS 3HE 7″	1.93E+00	1.10E+00	1.29E+00	1.38E+00	1.14E+00
BS 3HE 8″	1.54E+00	9.86E-01	1.16E+00	1.12E+00	9.15E-01
BS 3HE 9.5″	9.93E-01	8.06E-01	9.37E-01	7.86E-01	6.42E-01
BS 3HE 10″	8.50E-01	7.50E-01	8.66E-01	6.94E-01	5.69E-01
BS 3HE 12″	4.27E-01	5.59E-01	6.27E-01	4.13E-01	3.53E-01
BS 3HE 15″	1.50E-01	3.66E-01	3.90E-01	1.92E-01	1.82E-01
BS 3HE 18″	6.30E-02	2.61E-01	2.65E-01	1.01E-01	1.08E-01
BS LiI BARE	3.71E-03	1.66E-02	1.67E-02	5.01E-02	7.07E-02
BS LiI 2″	4.17E-02	5.13E-02	4.93E-02	1.18E-01	1.41E-01
BS LiI 3″	1.27E-01	8.61E-02	8.90E-02	1.62E-01	1.68E-01
BS LiI 6″	2.08E-01	1.14E-01	1.33E-01	1.49E-01	1.24E-01
BS LiI 8″	1.33E-01	9.58E-02	1.11E-01	9.90E-02	8.06E-02
BS LiI 10″	7.17E-02	7.51E-02	8.44E-02	6.08E-02	5.05E-02
BS LiI 15″	1.40E-02	4.32E-02	4.41E-02	1.78E-02	1.73E-02
BS LiI 18″	6.38E-03	3.32E-02	3.19E-02	8.90E-03	9.88E-03
6Li BARE	1.69E-01	1.55E-01	1.60E-01	3.21E-01	3.77E-01
6Li Cd	7.78E-02	6.73E-02	6.63E-02	1.30E-01	1.41E-01
GOLD BARE	1.42E-03	7.51E-03	5.68E-03	1.93E-02	2.20E-02
Nat U PC	1.86E-05	3.49E-05	2.79E-05	4.78E-05	4.17E-05
238 U PC	3.00E-07	2.21E-06	2.06E-06	5.48E-07	7.23E-07
232 Th PC	8.46E-08	6.67E-07	6.19E-07	1.51E-07	2.11E-07
CR39 ECE	4.97E-05	6.13E-05	7.31E-05	5.51E-05	4.23E-05
LR115 LiB	1.68E+03	1.26E+03	1.21E+03	2.56E+03	2.68E+03
PLANAR	5.39E+04	6.75E+04	7.58E+04	4.94E+04	4.01E+04
BASE	5.09E+04	5.18E+04	5.87E+04	4.02E+04	3.18E+04
PYRAMIDE	3.24E+04	3.70E+04	4.18E+04	2.74E+04	2.22E+04
PTB TH	2.08E+02	1.59E+02	1.88E+02	1.41E+02	1.12E+02
PTB INT	2.06E+02	1.71E+02	1.97E+02	1.58E+02	1.31E+02
PTB FAST	1.90E+02	1.58E+02	1.84E+02	1.32E+02	1.03E+02
PTB I+F	2.01E+02	1.67E+02	1.94E+02	1.44E+02	1.14E+02
LONG C	7.64E-01	3.35E-01	4.31E-01	3.86E-01	2.69E-01
LEAKE	1.34E-01	1.09E-01	1.27E-01	1.04E-01	8.38E-02
A-B_2	3.22E-01	2.97E-01	3.45E-01	2.85E-01	2.37E-01
EBERNRD2	3.44E-01	3.51E-01	3.90E-01	2.81E-01	2.30E-01
MOD930_2	2.86E-01	4.06E-01	4.21E-01	2.39E-01	1.97E-01
STUDSVIK	1.44E-01	1.35E-01	1.62E-01	1.18E-01	9.42E-02
LB6411	4.33E-01	4.47E-01	5.14E-01	3.66E-01	2.95E-01
BUBBLE	4.72E+04	5.81E+04	6.80E+04	4.31E+04	3.55E+04
ELECTRET	1.08E+02	2.75E+02	3.06E+02	1.95E+02	2.03E+02
SILICON	5.50E-01	2.68E-01	3.50E-01	3.51E-01	2.43E-01

TABLE 4.XXV. HIGH ENERGY REFERENCE SPECTRA (JINR AND IHEP)

Spectra

Column 1: Energy in eV
Column 2: Phasotron, soft field
Column 3: Phasotron, hard field
Column 4: IHEP, filtered by 220 cm concrete

1.00E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00
4.64E-03	1.74E-01	7.60E-02	0.00E+00
1.00E-02	1.56E-01	7.18E-02	0.00E+00
2.15E-02	1.36E-01	6.72E-02	6.23E-02
4.64E-02	1.16E-01	6.26E-02	6.36E-02
1.00E-01	9.65E-02	5.73E-02	7.15E-02
2.15E-01	7.86E-02	5.17E-02	2.66E-02
4.64E-01	6.13E-02	4.47E-02	9.21E-03
1.00E+00	4.61E-02	3.66E-02	1.38E-02
2.15E+00	3.42E-02	2.87E-02	1.33E-02
4.64E+00	2.43E-02	2.09E-02	1.32E-02
1.00E+01	1.76E-02	1.46E-02	1.41E-02
2.15E+01	1.43E-02	1.12E-02	1.37E-02
4.64E+01	1.30E-02	1.00E-02	1.46E-02
1.00E+02	1.41E-02	1.20E-02	1.45E-02
2.15E+02	1.69E-02	1.67E-02	1.46E-02
4.64E+02	2.07E-02	2.34E-02	1.49E-02
1.00E+03	2.49E-02	3.15E-02	1.51E-02
2.15E+03	2.87E-02	3.94E-02	1.55E-02
4.64E+03	3.19E-02	4.75E-02	1.62E-02
1.00E+04	3.32E-02	5.17E-02	1.64E-02
1.25E+04	3.36E-02	5.31E-02	1.65E-02
1.58E+04	3.40E-02	5.49E-02	1.70E-02
1.99E+04	3.40E-02	5.59E-02	1.74E-02
2.51E+04	3.40E-02	5.70E-02	1.79E-02
3.16E+04	3.38E-02	5.73E-02	1.84E-02
3.98E+04	3.34E-02	5.80E-02	1.93E-02
5.01E+04	3.28E-02	5.77E-02	2.00E-02
6.30E+04	3.23E-02	5.77E-02	2.28E-02
7.94E+04	3.15E-02	5.70E-02	2.62E-02
1.00E+05	3.06E-02	5.63E-02	2.58E-02
1.25E+05	2.92E-02	5.52E-02	2.90E-02
1.58E+05	2.79E-02	5.38E-02	3.16E-02
1.99E+05	2.66E-02	5.21E-02	3.12E-02
2.51E+05	2.51E-02	5.03E-02	3.31E-02
3.16E+05	2.35E-02	4.82E-02	3.49E-02
3.98E+05	2.18E-02	4.61E-02	3.47E-02
5.01E+05	1.99E-02	4.36E-02	3.82E-02
6.30E+05	1.83E-02	4.12E-02	4.41E-02
7.94E+05	1.65E-02	3.90E-02	4.95E-02
1.00E+06	1.46E-02	3.66E-02	6.20E-02
1.25E+06	1.28E-02	3.48E-02	6.70E-02
1.58E+06	1.10E-02	3.29E-02	7.15E-02
1.99E+06	9.46E-03	3.14E-02	8.03E-02
2.51E+06	7.84E-03	3.01E-02	1.11E-01
3.16E+06	6.49E-03	2.95E-02	1.94E-01
3.98E+06	5.07E-03	2.90E-02	8.88E-02
5.01E+06	4.03E-03	2.93E-02	7.89E-02
6.30E+06	2.92E-03	2.97E-02	1.62E-01
7.94E+06	2.18E-03	3.09E-02	7.31E-02
1.00E+07	1.20E-03	3.30E-02	5.94E-02
1.58E+07	4.20E-04	3.62E-02	4.88E-02
2.51E+07	3.02E-04	3.98E-02	4.25E-02
3.98E+07	1.42E-04	4.26E-02	8.83E-02
6.30E+07	5.16E-04	4.26E-02	1.18E-01
1.00E+08	7.03E-04	3.80E-02	1.32E-01
1.58E+08	1.04E-03	2.82E-02	9.75E-02
2.51E+08	1.42E-03	1.54E-02	9.23E-02
3.98E+08	0.00E+00	9.36E-03	4.88E-02
6.30E+08			

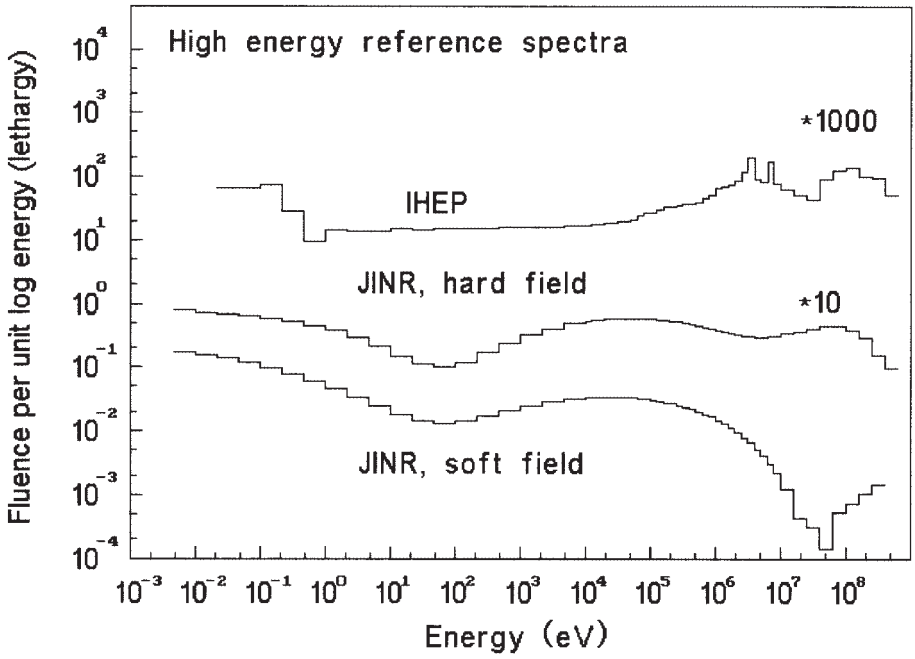

FIG. 4.21. High energy reference spectra (JINR and IHEP).

TABLE 4.XXV. HIGH ENERGY REFERENCE SPECTRA (JINR AND IHEP)

Spectrum weighted responses

Column 2: Phasotron, soft field
Column 3: Phasotron, hard field
Column 4: IHEP, filtered by 220 cm concrete

FLUENCE 20	9.98E-01	9.01E-01	7.15E-01
E A-P R60	2.63E+01	1.11E+02	2.39E+02
H AMBIENT	3.22E+01	1.13E+02	2.16E+02
H PERSONAL	3.36E+01	8.77E+01	1.54E+02
HE A-P R51	1.19E+01	4.59E+01	9.71E+01
MADE R21	2.64E+01	6.82E+01	1.31E+02
BS 3HE BARE	1.90E+00	9.44E-01	3.96E-01
BS 3HE 2.5″	1.40E+00	9.89E-01	5.96E-01
BS 3HE 3″	1.45E+00	1.18E+00	7.11E-01
BS 3HE 3.5″	1.47E+00	1.33E+00	8.18E-01
BS 3HE 4″	1.43E+00	1.41E+00	9.02E-01
BS 3HE 4.5″	1.34E+00	1.43E+00	9.58E-01
BS 3HE 5″	1.22E+00	1.39E+00	9.98E-01
BS 3HE 6″	9.55E-01	1.22E+00	9.99E-01
BS 3HE 7″	7.02E-01	9.88E-01	9.53E-01
BS 3HE 8″	4.96E-01	7.69E-01	8.71E-01
BS 3HE 9.5″	2.80E-01	5.10E-01	7.33E-01
BS 3HE 10″	2.31E-01	4.46E-01	6.87E-01
BS 3HE 12″	1.04E-01	2.65E-01	5.24E-01
BS 3HE 15″	3.27E-02	1.40E-01	3.40E-01
BS 3HE 18″	1.28E-02	9.04E-02	2.34E-01
BS LiI BARE	1.26E-01	6.76E-02	3.59E-02
BS LiI 2″	1.20E-01	8.84E-02	5.44E-02
BS LiI 3″	1.33E-01	1.23E-01	7.66E-02
BS LiI 6″	8.03E-02	1.09E-01	9.63E-02
BS LiI 8″	4.03E-02	6.74E-02	8.43E-02
BS LiI 10″	1.87E-02	4.03E-02	6.72E-02
BS LiI 15″	2.87E-03	1.55E-02	3.69E-02
BS LiI 18″	1.13E-03	1.09E-02	2.60E-02
6Li BARE	2.11E-01	1.94E-01	1.35E-01
6Li Cd	8.14E-02	8.08E-02	5.11E-02
GOLD BARE	1.18E-02	9.45E-03	5.03E-03
Nat U PC	2.52E-05	2.37E-05	2.53E-05
238 U PC	5.28E-08	7.14E-07	1.73E-06
232 Th PC	1.44E-08	2.16E-07	5.23E-07
CR39 ECE	7.51E-06	2.46E-05	5.84E-05
LR115 LiB	1.56E+03	1.61E+03	8.23E+02
PLANAR	7.29E+03	2.70E+04	5.76E+04
BASE	6.47E+03	2.19E+04	4.28E+04
PYRAMIDE	4.24E+03	1.52E+04	3.18E+04
PTB TH	5.24E+01	8.97E+01	1.44E+02
PTB INT	5.16E+01	9.58E+01	1.50E+02
PTB FAST	2.41E+01	7.39E+01	1.38E+02
PTB I+F	3.26E+01	8.28E+01	1.47E+02
LONG C	1.21E-01	2.59E-01	3.10E-01
LEAKE	3.04E-02	6.38E-02	9.70E-02
A-B_2	9.21E-02	1.72E-01	2.75E-01
EBERNRD2	8.80E-02	1.91E-01	3.11E-01
MOD930_2	5.82E-02	1.87E-01	3.88E-01
STUDSVIK	2.52E-02	6.73E-02	1.31E-01
LB6411	8.20E-02	2.16E-01	4.13E-01
BUBBLE	6.37E+03	2.43E+04	5.24E+04
ELECTRET	7.07E+01	1.34E+02	2.80E+02
SILICON	6.60E-02	1.52E-01	1.89E-01

Chapter 5
OPERATIONAL SPECTRA

TABLE 5.I. POWER REACTORS

Spectrum	Ref.	Calculated or measured	Table
BWR, Caorso, position 1	[96]	M	5.VIII
BWR, Caorso, position 2	[96]	M	5.VIII
BWR, Caorso, position 3	[96]	M	5.VIII
BWR, Caorso, position 4	[96]	M	5.VIII
BWR, Caorso, position 1	[96]	C	5.IX
BWR, Caorso, position 2	[96]	C	5.IX
BWR, Caorso, position 3	[96]	C	5.IX
BWR, Caorso, position 4	[96]	C	5.IX
BWR, Dungeness, boiler cell	[106]	M	5.X
BWR, Dungeness, on the roof	[106]	M	5.X
BWR, Dungeness, on the walkway	[106]	M	5.X
PWR, Gosgen, position 1	[106]	M	5.X
PWR, Gosgen, position 2	[106]	M	5.XI
Trawsfynnydd, filter gallery	[106]	M	5.XI
Hinkley Point, pile cap	[106]	M	5.XI
Hinkley Point, filter gallery	[106]	M	5.XI
PWR, Wolf Creek, power 50%, at PH 2047′ level	[96]	M	5.XII
PWR, Wolf Creek, power 50%, 2 m from PH 2047′ level	[96]	M	5.XII
PWR, Wolf Creek, power 50%, 2026′ level by valves	[96]	M	5.XII
PWR, Wolf Creek, power 100%, at PH 2047′ level	[96]	M	5.XII
PWR, Wolf Creek, power 100%, 2026′ level at loop penetration	[96]	M	5.XII
Czech PWR, circ. pumps, cold side, p1	[96]	M	5.XIII
Czech PWR, check room, under reactor, p5	[96]	M	5.XIII
Czech PWR, check room, in middle, p12	[96]	M	5.XIII
Czech PWR, check room, under reactor, p13	[96]	M	5.XIII
Czech PWR, check room, corridor, p6	[96]	M	5.XIII
Czech PWR, circ. pumps, near cold side, p2	[96]	M	5.XIV
Czech PWR, circ. pumps, hot side, p3	[96]	M	5.XIV
Czech PWR, circ. pumps, near door, p4	[96]	M	5.XIV
Czech PWR, circ. pumps, 4&4, p11	[96]	M	5.XIV
Czech PWR, reactor hall, at cap, p7	[96]	M	5.XV
Czech PWR, reactor hall, at valve, p8	[96]	M	5.XV
Czech PWR, reactor hall, at generator, p9	[96]	M	5.XV
Czech PWR, reactor hall, near cap, p10	[96]	M	5.XV
CP reactor, site 5, SPUNIT code	[107]	M	5.XVI

TABLE 5.I. (cont.)

Spectrum	Ref.	Calculated or measured	Table
CP reactor, site 6, SPUNIT code	[107]	M	5.XVI
CP reactor, site 4, SPUNIT code	[107]	M	5.XVI
CP reactor, site 4, YOGI code	[107]	M	5.XVI
Ringhals, point D	[108]	M	5.XVII
Ringhals, point E	[108]	M	5.XVII
Ringhals, point P	[108]	M	5.XVII
Ringhals, point B2	[108]	M	5.XVII
Ringhals, point B4	[108]	M	5.XVII
CH1 GC reactor	[109]	M	5.XVIII
CH2 GC reactor	[109]	M	5.XVIII
Trawsfynydd GC reactor, position S3	[109]	M	5.XVIII
Trawsfynydd GC reactor, position S4	[109]	M	5.XVIII
BWR (Switzerland), at maze entrance	[110]	M	5.XIX
BWR (Switzerland), at bend of maze	[110]	M	5.XIX
BWR (Switzerland), at drywell	[110]	M	5.XIX
BWR (Switzerland), under access	[110]	M	5.XIX
BWR (Switzerland), at stairwell	[110]	M	5.XIX
BWR (Switzerland), 16 m level, near pump	[110]	M	5.XX
BWR (Switzerland), 16 m level, near tap	[110]	M	5.XX
BWR (Switzerland), near lock, closed	[110]	M	5.XX
BWR (Switzerland), near lock, open	[110]	M	5.XX
PWR (Switzerland), in front of containment	[110]	M	5.XXI
PWR (Switzerland), 1 m from platform	[110]	M	5.XXI
PWR (Switzerland), 3 m from platform	[110]	M	5.XXI
PWR (Switzerland), behind generator	[110]	M	5.XXI
PWR (Switzerland), at reactor axis	[110]	M	5.XXII
PWR (Switzerland), 40 cm behind door	[110]	M	5.XXII
PWR (Switzerland), 33 cm behind door	[110]	M	5.XXII

Note: PH: personnel hatch; ′: feet (1 foot = 30.48 cm).

TABLE 5.II. MEDICAL ACCELERATORS

Spectrum	Ref.	Calculated or measured	Table
Microtron at NCC, 1 m from Au target	[111]	M	5.XXIII
Microtron at NCC, site B	[111]	M	5.XXIII
Microtron at NCC, site C	[111]	M	5.XXIII
Microtron at NCC, site D, door 2 open	[111]	M	5.XXIII
Microtron at NCC, site D, door 2 closed	[111]	M	5.XXIII
Microtron at NCC, site E, door 2 open	[111]	M	5.XXIV
Microtron at NCC, site E, door 2 closed	[111]	M	5.XXIV
Microtron at NCC, site D, door 2 closed and backed with C	[111]	C	5.XXIV
Microtron at NCC, site D, door 2 closed	[111]	C	5.XXIV
Microtron at NCC, site D, door 2 open	[111]	C	5.XXIV

TABLE 5.III. HIGH ENERGY ACCELERATORS

Spectrum	Ref.	Calculated or measured	Table
AVF cyclotron, inside hall	[96]	M	5.XXV
AVF cyclotron, 1st leg of labyrinth	[96]	M	5.XXV
AVF cyclotron, 2nd leg of labyrinth	[96]	M	5.XXV
AVF cyclotron, 2nd leg, position 2	[96]	M	5.XXV
AVF cyclotron, 2nd leg, coupling interface	[96]	M	5.XXV
AVF cyclotron, 2nd leg, position 3	[96]	M	5.XXVI
AVF cyclotron, 3rd leg, at iron door	[96]	M	5.XXVI
AVF cyclotron, 3rd leg, behind iron door	[96]	M	5.XXVI
AVF cyclotron, under hall,	[96]	M	5.XXVI
Triumf cyclotron, vault door	[112]	M	5.XXVII
Triumf cyclotron, TNF door	[112]	M	5.XXVII
Triumf cyclotron, at LD2 target	[112]	M	5.XXVII
Triumf cyclotron, at M8 channel	[112]	M	5.XXVII
Triumf cyclotron, top of TNF	[112]	M	5.XXVII
KEK cyclotron, location 1	[113]	M	5.XXVIII
KEK cyclotron, location 2	[113]	M	5.XXVIII
KEK cyclotron, location 4	[113]	M	5.XXVIII
KEK cyclotron, location 5	[113]	M	5.XXVIII
KEK cyclotron, location 11	[113]	M	5.XXVIII
1 GeV ES, skyshine at 111 m	[96]	C	5.XXIX
1 GeV ES, skyshine at 111 m	[96]	M	5.XXIX
1 GeV ES, on concrete roof	[96]	C	5.XXIX
1 GeV ES, on concrete roof	[96]	M	5.XXIX
1 GeV ES, model spectrum for skyshine	[96]	C	5.XXIX
DESY, proton acc., 1 m concrete shield	[96]	M	5.XXX
DESY, proton acc., heavy concrete shield	[96]	M	5.XXX
DESY, proton acc., 40 cm iron shield	[96]	M	5.XXX
DESY, proton acc., 50 cm iron + 50 cm concrete shield	[96]	M	5.XXX
DESY, proton acc., 2.5 m sand + 0.5 m concrete	[96]	M	5.XXXI
DESY, proton acc., 1.2 m heavy concrete, thick target	[96]	M	5.XXXI
DESY, proton acc., 1.2 m heavy concrete, thin target	[96]	M	5.XXXI
DESY, proton acc., 1.5 m concrete	[96]	M	5.XXXI
46 MeV proton cyclotron spectrum at port evaluated with starting spectrum: START1	[96]	M	5.XXXII
46 MeV proton cyclotron spectrum at port evaluated with starting spectrum: FLAT	[96]	M	5.XXXII

TABLE 5.III. (cont.)

Spectrum	Ref.	Calculated or measured	Table
46 MeV proton cyclotron spectrum at port evaluated with starting spectrum: PSEUDO-GRAVES	[96]	M	5.XXXII
46 MeV proton cyclotron spectrum at port evaluated with starting spectrum: Maxwellian	[96]	M	5.XXXII
46 MeV proton cyclotron spectrum at magnet evaluated with starting spectrum: Maxwellian	[96]	M	5.XXXII

TABLE 5.IV. COSMIC RAY SPECTRA

Spectrum	Ref.	Calculated or measured	Table
PTB, at sea level	[23]	M	5.XXXIII
PTB, in basement	[23]	M	5.XXXIII
5000 m above Rome	[114]	C	5.XXXIII
At Zugspitze (3000 m)	[115]	M	5.XXXIII
At Zugspitze (3000 m)	[115]	C	5.XXXIII

TABLE 5.V. MISCELLANEOUS SPECTRA: REACTOR FUEL TREATMENT

Spectrum	Ref.	Calculated or measured	Table
Pu reprocessing at Valduc	[96]	M	5.XXXIV
LK-100 fuel container at La Hague, position1	[96]	M	5.XXXIV
LK-100 fuel container at La Hague, position 2	[24]	M	5.XXXIV
TN-12 fuel container at Valognes	[24]	M	5.XXXIV
Transport cask 1392(1)	[96]	M	5.XXXV
Transport cask 1393(2)	[96]	M	5.XXXV
Transport cask NTL-111, at 115 cm	[96]	M	5.XXXV
Transport cask NTL-111, at 367 cm	[96]	M	5.XXXV
Transport cask C30/KB54, in a hall at 45 cm	[96]	M	5.XXXVI
Transport cask C30/KB54, in a hall at 2 m	[96]	M	5.XXXVI
Transport cask C30/KB54, in corridor at 45 cm	[96]	M	5.XXXVI
Transport cask C30/KB54, in corridor at 2 m	[96]	M	5.XXXVI
MOX transport cask, ver. 02	[96]	M	5.XXXVII
MOX transport cask, ver. 03	[96]	M	5.XXXVII
New MOX at 20 cm, no shield	[96]	M	5.XXXVII
Fresh MOX, borated water shield	[96]	M	5.XXXVII
Fresh MOX, no shield	[96]	M	5.XXXVII
Fission material deposition, BS measurements	[96]	M	5.XXXVIII
Fission material deposition, LS measurements	[96]	M	5.XXXVIII
Pollux container in salt mine	[116]	M	5.XXXVIII
Pollux container above ground level	[116]	M	5.XXXVIII
Pu reprocessing plant, little shielding, location 1	[109]	M	5.XXXIX
Pu reprocessing plant, well shielded	[109]	M	5.XXXIX
Pu reprocessing plant, fuel pin assembly	[109]	M	5.XXXIX
Pu reprocessing plant, little shielding, location 4	[109]	M	5.XXXIX
Pu reprocessing plant, little shielding, location 5	[109]	M	5.XXXIX

TABLE 5.VI. MISCELLANEOUS SPECTRA: INDUSTRIAL SOURCES

Spectrum	Ref.	Calculated or measured	Table
TRU plant, lightly shielded glovebox 1	[117]	M	5.XL
TRU plant, heavily shielded glovebox 1	[117]	M	5.XL
TRU plant, at operator desk	[117]	M	5.XL
TRU plant, at conduit exit, less shielding	[117]	M	5.XL
TRU plant, lightly shielded glovebox 2	[117]	M	5.XL
TRU plant, 25 g AmO_2 in container	[118]	M	5.XLI
TRU plant, ^{244}Cm in glovebox, no shield	[118]	M	5.XLI
Am–Be sources in gloveboxes in line	[118]	M	5.XLI
25 Ci Am ceramics, no shield	[118]	M	5.XLI

Note: 1 Ci = 3.7×10^{10} Bq.

TABLE 5.VII. MISCELLANEOUS SPECTRA: BORON THERAPY SPECTRA

Spectrum	Ref.	Calculated or measured	Table
BNCT in Petten, HB11 filtered beam	[119]	M	5.XLII
Accelerator based spectrum, 2.5 MeV protons on ^{7}Li	[120]	C	5.XLII
Gantry spectrum	[121]	C	5.XLII
LVR-15, epithermal beam	[122]	C	5.XLII
Spallation source, 72 MeV protons on W	[121]	C	5.XLIII
FRM I beam	[123]	M	5.XLIII
FRM II beam, unfiltered	[123]	M	5.XLIII
FRM II beam, filtered	[123]	M	5.XLIII
Accelerator based epithermal beam	[124]	M	5.XLIV
BMRR spectra, filtered by 34 cm Al/AlF_3	[125]	M	5.XLIV
BMRR spectra, filtered by 22 cm ^{7}LiF	[125]	M	5.XLIV
BMRR spectra, filtered by 17 cm D_2O	[125]	M	5.XLIV

TABLE 5.VIII. CAORSO BWR, MEASURED

Spectra

Column 1: Energy in eV
Column 2: Position 1
Column 3: Position 2
Column 4: Position 3
Column 5: Position 4

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	5.46E-04	6.22E-04	5.53E-04	7.16E-04
2.15E-02	8.02E-04	7.77E-04	6.74E-04	9.02E-04
4.64E-02	1.34E-03	1.11E-03	9.30E-04	1.30E-03
1.00E-01	2.50E-03	1.81E-03	1.47E-03	2.14E-03
2.15E-01	4.87E-03	3.25E-03	2.59E-03	3.86E-03
4.64E-01	9.44E-03	6.06E-03	4.76E-03	7.22E-03
1.00E+00	1.70E-02	1.09E-02	8.44E-03	1.29E-02
2.15E+00	2.44E-02	1.62E-02	1.24E-02	1.90E-02
4.64E+00	2.86E-02	2.00E-02	1.50E-02	2.29E-02
1.00E+01	3.55E-02	2.05E-02	1.60E-02	2.44E-02
2.15E+01	4.14E-02	2.35E-02	1.84E-02	2.81E-02
4.64E+01	3.88E-02	2.28E-02	1.78E-02	2.71E-02
1.00E+02	3.75E-02	2.02E-02	1.65E-02	2.48E-02
2.15E+02	2.73E-02	1.58E-02	1.14E-02	1.82E-02
4.64E+02	4.69E-02	3.58E-02	2.67E-02	3.99E-02
1.00E+03	4.87E-02	3.66E-02	2.65E-02	4.02E-02
2.15E+03	4.86E-02	3.47E-02	2.74E-02	3.61E-02
4.64E+03	4.61E-02	3.43E-02	2.81E-02	3.66E-02
1.00E+04	6.68E-02	3.01E-02	4.60E-02	5.82E-02
1.26E+04	9.41E-02	4.16E-02	6.92E-02	8.53E-02
1.58E+04	1.09E-01	7.19E-02	8.80E-02	1.02E-01
2.00E+04	1.09E-01	1.15E-01	9.71E-02	1.04E-01
2.51E+04	1.29E-01	1.33E-01	9.88E-02	1.08E-01
3.16E+04	1.55E-01	1.03E-01	7.76E-02	9.97E-02
3.98E+04	1.47E-01	8.99E-02	6.57E-02	8.99E-02
5.01E+04	8.51E-02	9.10E-02	7.96E-02	8.95E-02
6.31E+04	4.94E-02	8.66E-02	8.83E-02	9.12E-02
7.94E+04	1.36E-01	1.37E-01	1.28E-01	1.42E-01
1.00E+05	1.82E-01	1.73E-01	1.67E-01	1.83E-01
1.26E+05	1.53E-01	1.63E-01	1.61E-01	1.71E-01
1.58E+05	1.51E-01	1.69E-01	1.71E-01	1.76E-01
2.00E+05	1.69E-01	1.98E-01	2.06E-01	2.08E-01
2.51E+05	1.81E-01	2.19E-01	2.36E-01	2.30E-01
3.16E+05	1.66E-01	2.05E-01	2.22E-01	2.15E-01
3.98E+05	1.52E-01	1.97E-01	2.17E-01	2.04E-01
5.01E+05	1.93E-01	2.82E-01	3.36E-01	2.92E-01
6.31E+05	1.38E-01	2.14E-01	2.60E-01	2.20E-01
7.94E+05	5.86E-02	1.03E-01	1.28E-01	9.39E-02
1.00E+06	6.31E-02	1.23E-01	1.55E-01	8.41E-02
1.26E+06	4.26E-02	1.01E-01	1.20E-01	4.09E-02
1.58E+06	2.42E-02	6.72E-02	7.82E-02	2.64E-02
2.00E+06	1.91E-02	5.84E-02	6.53E-02	2.25E-02
2.51E+06	1.50E-02	4.92E-02	5.64E-02	1.94E-02
3.16E+06	6.96E-03	2.50E-02	2.95E-02	9.58E-03
3.98E+06	5.07E-03	2.42E-02	3.15E-02	8.28E-03
5.01E+06	3.77E-03	2.29E-02	3.07E-02	6.69E-03
6.31E+06	2.29E-03	1.93E-02	2.64E-02	4.59E-03
7.94E+06	8.98E-04	1.02E-02	1.39E-02	2.01E-03
1.00E+07	1.07E-04	1.82E-03	2.48E-03	3.37E-04
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+08				

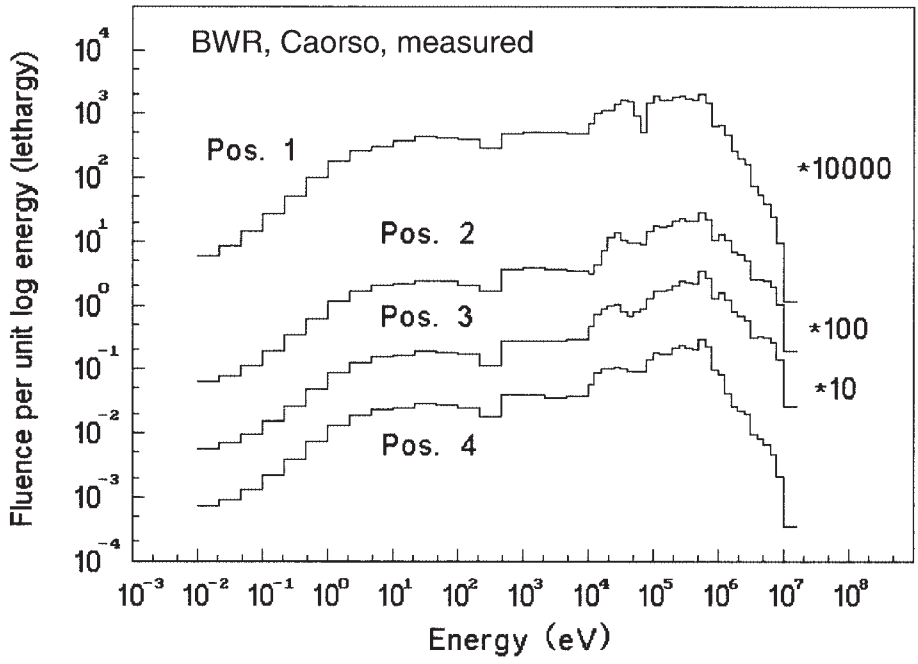

FIG. 5.1. Caorso BWR, measured.

TABLE 5.VIII. CAORSO BWR, MEASURED

Spectrum weighted responses

Column 2: Position 1
Column 3: Position 2
Column 4: Position 3
Column 5: Position 4

FLUENCE 20	1.00E+00	1.00E+00	9.99E-01	1.00E+00
E A-P R60	7.83E+01	1.21E+02	1.37E+02	9.82E+01
H AMBIENT	1.13E+02	1.69E+02	1.92E+02	1.46E+02
H PERSONAL	1.18E+02	1.76E+02	2.00E+02	1.52E+02
HE A-P R51	3.40E+01	5.82E+01	6.75E+01	4.41E+01
MADE R21	7.88E+01	1.23E+02	1.41E+02	1.01E+02
BS 3HE BARE	5.86E-02	4.00E-02	3.19E-02	4.68E-02
BS 3HE 2.5″	7.75E-01	5.84E-01	5.09E-01	6.48E-01
BS 3HE 3″	1.28E+00	1.03E+00	9.39E-01	1.12E+00
BS 3HE 3.5″	1.72E+00	1.48E+00	1.38E+00	1.58E+00
BS 3HE 4″	2.04E+00	1.85E+00	1.77E+00	1.94E+00
BS 3HE 4.5″	2.23E+00	2.10E+00	2.05E+00	2.18E+00
BS 3HE 5″	2.28E+00	2.23E+00	2.22E+00	2.29E+00
BS 3HE 6″	2.09E+00	2.19E+00	2.24E+00	2.19E+00
BS 3HE 7″	1.71E+00	1.91E+00	1.99E+00	1.85E+00
BS 3HE 8″	1.30E+00	1.54E+00	1.63E+00	1.45E+00
BS 3HE 9.5″	7.86E-01	1.01E+00	1.10E+00	9.03E-01
BS 3HE 10″	6.58E-01	8.67E-01	9.48E-01	7.62E-01
BS 3HE 12″	3.00E-01	4.49E-01	5.05E-01	3.60E-01
BS 3HE 15″	8.63E-02	1.62E-01	1.89E-01	1.07E-01
BS 3HE 18″	2.64E-02	6.60E-02	7.98E-02	3.44E-02
BS LiI BARE	1.11E-02	7.57E-03	6.13E-03	8.76E-03
BS LiI 2″	7.48E-02	5.61E-02	4.88E-02	6.23E-02
BS LiI 3″	1.65E-01	1.40E-01	1.30E-01	1.50E-01
BS LiI 6″	1.90E-01	2.05E-01	2.12E-01	2.03E-01
BS LiI 8″	1.10E-01	1.33E-01	1.42E-01	1.24E-01
BS LiI 10″	5.38E-02	7.32E-02	8.07E-02	6.30E-02
BS LiI 15″	7.26E-03	1.43E-02	1.68E-02	9.13E-03
BS LiI 18″	2.15E-03	5.61E-03	6.79E-03	2.79E-03
6Li BARE	2.23E-01	1.92E-01	1.80E-01	2.04E-01
6Li Cd	1.10E-01	9.18E-02	8.45E-02	9.86E-02
GOLD BARE	7.55E-03	4.97E-03	3.84E-03	5.82E-03
Nat U PC	6.10E-05	3.66E-05	3.08E-05	4.30E-05
238 U PC	5.49E-08	2.47E-07	3.10E-07	8.03E-08
232 Th PC	1.29E-08	6.54E-08	8.34E-08	2.00E-08
CR39 ECE	2.96E-05	5.57E-05	6.53E-05	3.91E-05
LR115 LiB	2.26E+03	1.90E+03	1.75E+03	2.05E+03
PLANAR	3.34E+04	5.83E+04	6.88E+04	4.61E+04
BASE	3.37E+04	5.49E+04	6.44E+04	4.70E+04
PYRAMIDE	2.11E+04	3.52E+04	4.14E+04	2.94E+04
PTB TH	1.38E+02	2.05E+02	2.34E+02	1.82E+02
PTB INT	1.49E+02	2.10E+02	2.36E+02	1.88E+02
PTB FAST	1.23E+02	1.88E+02	2.15E+02	1.64E+02
PTB I+F	1.35E+02	2.01E+02	2.29E+02	1.76E+02
LONG C	5.61E-01	7.05E-01	7.42E-01	6.50E-01
LEAKE	1.02E-01	1.37E-01	1.51E-01	1.22E-01
A-B_2	2.43E-01	3.35E-01	3.72E-01	2.88E-01
EBERNRD2	2.59E-01	3.49E-01	3.85E-01	3.03E-01
MOD930_2	1.91E-01	2.85E-01	3.21E-01	2.35E-01
STUDSVIK	9.81E-02	1.47E-01	1.66E-01	1.23E-01
LB6411	2.99E-01	4.50E-01	5.11E-01	3.75E-01
BUBBLE	2.93E+04	5.03E+04	5.94E+04	4.06E+04
ELECTRET	7.77E+01	1.23E+02	1.40E+02	8.72E+01
SILICON	3.81E-01	5.72E-01	6.58E-01	5.18E-01

TABLE 5.IX. CAORSO BWR, CALCULATED

Spectra

Column 1: Energy in eV
Column 2: Position 1
Column 3: Position 2
Column 4: Position 3
Column 5: Position 4

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	3.80E-04	5.11E-04	4.82E-04	4.89E-04
2.15E-02	5.69E-04	6.47E-04	5.92E-04	6.26E-04
4.64E-02	9.73E-04	9.38E-04	8.29E-04	9.16E-04
1.00E-01	1.82E-03	1.55E-03	1.33E-03	1.53E-03
2.15E-01	3.58E-03	2.82E-03	2.35E-03	2.78E-03
4.64E-01	7.00E-03	5.27E-03	4.34E-03	5.22E-03
1.00E+00	1.27E-02	9.42E-03	7.69E-03	9.33E-03
2.15E+00	1.90E-02	1.38E-02	1.12E-02	1.35E-02
4.64E+00	2.32E-02	1.66E-02	1.34E-02	1.62E-02
1.00E+01	2.53E-02	1.79E-02	1.45E-02	1.77E-02
2.15E+01	2.94E-02	2.08E-02	1.67E-02	2.05E-02
4.64E+01	2.83E-02	1.99E-02	1.59E-02	1.96E-02
1.00E+02	2.55E-02	1.78E-02	1.41E-02	1.74E-02
2.15E+02	2.18E-02	1.41E-02	1.06E-02	1.36E-02
4.64E+02	3.96E-02	2.82E-02	2.27E-02	2.78E-02
1.00E+03	4.77E-02	3.27E-02	2.56E-02	3.22E-02
2.15E+03	3.96E-02	2.75E-02	2.17E-02	2.72E-02
4.64E+03	4.56E-02	3.37E-02	2.73E-02	3.36E-02
1.00E+04	6.81E-02	5.43E-02	4.66E-02	5.49E-02
1.25E+04	9.75E-02	8.07E-02	7.16E-02	8.16E-02
1.58E+04	1.17E-01	1.01E-01	9.37E-02	1.01E-01
1.99E+04	1.25E-01	1.11E-01	1.06E-01	1.10E-01
2.51E+04	1.51E-01	1.19E-01	1.05E-01	1.16E-01
3.16E+04	1.76E-01	1.09E-01	7.54E-02	1.05E-01
3.98E+04	1.63E-01	9.86E-02	6.05E-02	9.32E-02
5.01E+04	8.62E-02	9.56E-02	8.40E-02	9.07E-02
6.30E+04	4.12E-02	9.42E-02	9.76E-02	9.10E-02
7.94E+04	1.55E-01	1.49E-01	1.37E-01	1.51E-01
1.00E+05	2.16E-01	1.89E-01	1.76E-01	1.97E-01
1.25E+05	1.71E-01	1.73E-01	1.66E-01	1.77E-01
1.58E+05	1.59E-01	1.73E-01	1.71E-01	1.77E-01
1.99E+05	1.81E-01	2.01E-01	2.05E-01	2.08E-01
2.51E+05	1.94E-01	2.23E-01	2.34E-01	2.31E-01
3.16E+05	1.88E-01	2.20E-01	2.33E-01	2.28E-01
3.98E+05	1.81E-01	2.20E-01	2.38E-01	2.28E-01
5.01E+05	2.05E-01	2.82E-01	3.25E-01	2.88E-01
6.30E+05	1.52E-01	2.23E-01	2.62E-01	2.26E-01
7.94E+05	8.24E-02	1.30E-01	1.59E-01	1.31E-01
1.00E+06	7.66E-02	1.34E-01	1.72E-01	1.32E-01
1.25E+06	4.01E-02	7.68E-02	1.01E-01	7.46E-02
1.58E+06	2.78E-02	5.92E-02	8.23E-02	5.65E-02
1.99E+06	1.96E-02	4.57E-02	6.59E-02	4.24E-02
2.51E+06	1.11E-02	2.81E-02	4.27E-02	2.56E-02
3.16E+06	6.22E-03	1.69E-02	2.65E-02	1.52E-02
3.98E+06	4.68E-03	1.67E-02	2.91E-02	1.40E-02
5.01E+06	3.35E-03	1.55E-02	2.84E-02	1.23E-02
6.30E+06	2.02E-03	1.30E-02	2.51E-02	1.01E-02
7.94E+06	8.14E-04	7.13E-03	1.39E-02	5.42E-03
1.00E+07	9.03E-05	1.17E-03	2.32E-03	9.05E-04
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

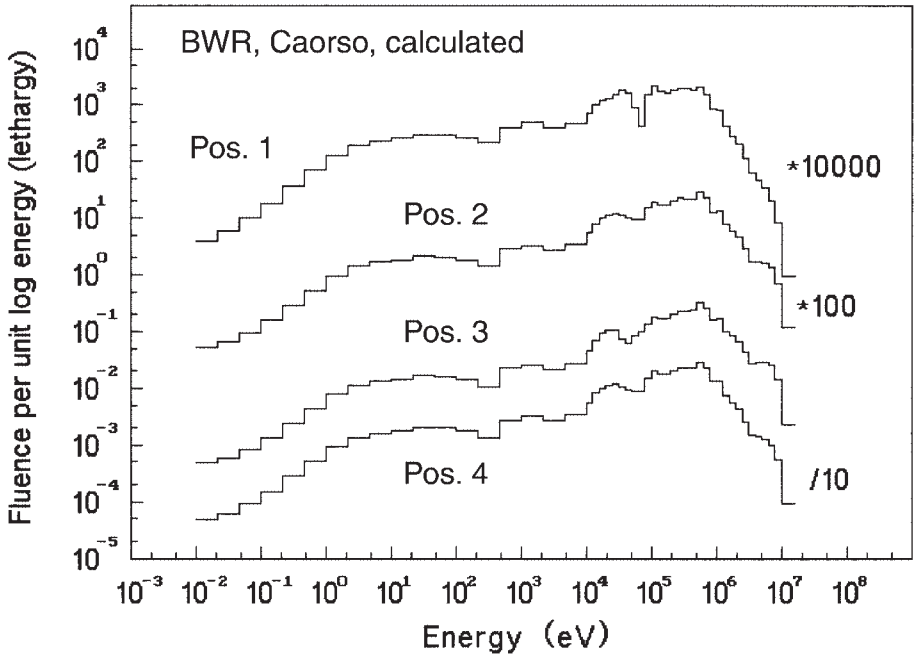

FIG. 5.2. Caorso BWR, calculated.

TABLE 5.IX. CAORSO BWR, CALCULATED

Spectrum weighted responses

Column 2: Position 1
Column 3: Position 2
Column 4: Position 3
Column 5: Position 4

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	8.49E+01	1.16E+02	1.38E+02	1.16E+02
H AMBIENT	1.24E+02	1.68E+02	1.95E+02	1.68E+02
H PERSONAL	1.30E+02	1.75E+02	2.03E+02	1.75E+02
HE A-P R51	3.70E+01	5.47E+01	6.74E+01	5.38E+01
MADE R21	8.61E+01	1.20E+02	1.42E+02	1.19E+02
BS 3HE BARE	4.45E-02	3.46E-02	2.89E-02	3.41E-02
BS 3HE 2.5″	6.85E-01	5.58E-01	4.90E-01	5.55E-01
BS 3HE 3″	1.18E+00	1.01E+00	9.20E-01	1.01E+00
BS 3HE 3.5″	1.64E+00	1.47E+00	1.37E+00	1.47E+00
BS 3HE 4″	2.00E+00	1.86E+00	1.76E+00	1.86E+00
BS 3HE 4.5″	2.22E+00	2.12E+00	2.06E+00	2.13E+00
BS 3HE 5″	2.30E+00	2.26E+00	2.23E+00	2.27E+00
BS 3HE 6″	2.15E+00	2.23E+00	2.26E+00	2.24E+00
BS 3HE 7″	1.79E+00	1.93E+00	2.01E+00	1.94E+00
BS 3HE 8″	1.37E+00	1.55E+00	1.65E+00	1.55E+00
BS 3HE 9.5″	8.34E-01	9.99E-01	1.10E+00	9.98E-01
BS 3HE 10″	7.00E-01	8.54E-01	9.55E-01	8.52E-01
BS 3HE 12″	3.20E-01	4.29E-01	5.05E-01	4.23E-01
BS 3HE 15″	9.16E-02	1.44E-01	1.86E-01	1.39E-01
BS 3HE 18″	2.74E-02	5.38E-02	7.67E-02	4.99E-02
BS LiI BARE	8.68E-03	6.69E-03	5.63E-03	6.61E-03
BS LiI 2″	6.60E-02	5.36E-02	4.69E-02	5.32E-02
BS LiI 3″	1.57E-01	1.39E-01	1.29E-01	1.39E-01
BS LiI 6″	1.97E-01	2.09E-01	2.14E-01	2.10E-01
BS LiI 8″	1.16E-01	1.33E-01	1.44E-01	1.34E-01
BS LiI 10″	5.72E-02	7.16E-02	8.11E-02	7.13E-02
BS LiI 15″	7.67E-03	1.25E-02	1.64E-02	1.20E-02
BS LiI 18″	2.21E-03	4.49E-03	6.49E-03	4.14E-03
6Li BARE	2.10E-01	1.89E-01	1.77E-01	1.89E-01
6Li Cd	1.02E-01	8.99E-02	8.30E-02	8.97E-02
GOLD BARE	5.87E-03	4.27E-03	3.47E-03	4.19E-03
Nat U PC	4.44E-05	3.30E-05	2.75E-05	3.25E-05
238 U PC	4.89E-08	1.68E-07	2.83E-07	1.43E-07
232 Th PC	1.12E-08	4.36E-08	7.63E-08	3.64E-08
CR39 ECE	3.26E-05	5.20E-05	6.53E-05	5.13E-05
LR115 LiB	2.13E+03	1.88E+03	1.73E+03	1.88E+03
PLANAR	3.73E+04	5.68E+04	6.98E+04	5.66E+04
BASE	3.76E+04	5.47E+04	6.55E+04	5.49E+04
PYRAMIDE	2.35E+04	3.47E+04	4.19E+04	3.47E+04
PTB TH	1.53E+02	2.05E+02	2.37E+02	2.07E+02
PTB INT	1.61E+02	2.09E+02	2.39E+02	2.10E+02
PTB FAST	1.37E+02	1.87E+02	2.18E+02	1.89E+02
PTB I+F	1.49E+02	2.00E+02	2.32E+02	2.02E+02
LONG C	6.23E-01	7.15E-01	7.59E-01	7.18E-01
LEAKE	1.10E-01	1.37E-01	1.53E-01	1.37E-01
A-B_2	2.59E-01	3.30E-01	3.76E-01	3.28E-01
EBERNRD2	2.76E-01	3.44E-01	3.88E-01	3.43E-01
MOD930_2	2.07E-01	2.77E-01	3.24E-01	2.76E-01
STUDSVIK	1.07E-01	1.44E-01	1.68E-01	1.43E-01
LB6411	3.26E-01	4.40E-01	5.15E-01	4.38E-01
BUBBLE	3.28E+04	4.95E+04	6.05E+04	4.93E+04
ELECTRET	7.73E+01	1.10E+02	1.37E+02	1.06E+02
SILICON	4.24E-01	5.83E-01	6.73E-01	5.90E-01

TABLE 5.X. MEASURED BWR AND PWR SPECTRA (UK)

Spectra

Column 1: Energy in eV
Column 2: DUNGBCFL, in boiler cell
Column 3: DUNGRFFL, roof
Column 4: DUNGWWFL, walkway
Column 5: PWR1GOFL, position 1
Column 6: PWR2GOFL, position 2

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-01	1.60E-01	1.98E-01	2.25E-01	1.78E-01	1.62E-01
1.00E+00	1.31E-01	1.34E-01	1.54E-01	1.47E-01	1.41E-01
2.15E+00	1.04E-01	8.42E-02	9.79E-02	1.02E-01	1.10E-01
4.64E+00	8.68E-02	5.96E-02	6.91E-02	7.04E-02	8.61E-02
1.00E+01	7.44E-02	4.35E-02	4.99E-02	5.15E-02	6.95E-02
2.15E+01	6.60E-02	3.38E-02	3.82E-02	3.91E-02	5.75E-02
4.64E+01	6.17E-02	3.00E-02	3.28E-02	3.22E-02	4.95E-02
1.00E+02	6.06E-02	2.88E-02	3.03E-02	2.92E-02	4.51E-02
2.15E+02	6.11E-02	3.08E-02	3.09E-02	2.95E-02	4.32E-02
4.64E+02	6.38E-02	3.64E-02	3.47E-02	3.27E-02	4.40E-02
1.00E+03	6.79E-02	4.68E-02	4.26E-02	4.04E-02	4.77E-02
2.15E+03	7.21E-02	6.30E-02	5.49E-02	5.42E-02	5.37E-02
4.64E+03	7.39E-02	8.54E-02	7.24E-02	7.67E-02	6.27E-02
1.00E+04	7.27E-02	1.01E-01	8.50E-02	9.84E-02	7.06E-02
1.26E+04	7.17E-02	1.08E-01	9.08E-02	1.10E-01	7.39E-02
1.58E+04	6.98E-02	1.14E-01	9.55E-02	1.20E-01	7.69E-02
2.00E+04	6.71E-02	1.18E-01	9.90E-02	1.31E-01	7.98E-02
2.51E+04	6.39E-02	1.20E-01	1.02E-01	1.34E-01	8.23E-02
3.16E+04	6.55E-02	1.21E-01	1.03E-01	1.16E-01	8.19E-02
3.98E+04	6.98E-02	1.18E-01	1.01E-01	8.87E-02	6.93E-02
5.01E+04	4.19E-02	1.12E-01	9.65E-02	6.40E-02	5.98E-02
6.31E+04	3.12E-02	1.02E-01	8.92E-02	5.98E-02	5.33E-02
7.94E+04	3.03E-02	9.25E-02	8.12E-02	5.79E-02	5.50E-02
1.00E+05	2.96E-02	7.91E-02	7.00E-02	5.70E-02	6.14E-02
1.26E+05	3.19E-02	6.61E-02	5.92E-02	5.86E-02	5.83E-02
1.58E+05	2.12E-02	5.17E-02	4.69E-02	4.76E-02	6.20E-02
2.00E+05	1.59E-02	3.96E-02	3.62E-02	3.97E-02	5.23E-02
2.51E+05	1.51E-02	2.85E-02	2.61E-02	2.61E-02	4.59E-02
3.16E+05	1.38E-02	1.99E-02	1.85E-02	3.95E-02	4.22E-02
3.98E+05	8.55E-03	1.37E-02	1.26E-02	4.33E-02	2.51E-02
5.01E+05	6.66E-03	8.22E-03	7.61E-03	4.61E-02	2.13E-02
6.31E+05	2.18E-03	6.15E-03	5.52E-03	2.40E-02	1.07E-02
7.94E+05	4.42E-03	3.05E-03	2.88E-03	1.49E-02	9.82E-03
1.00E+06	3.28E-04	3.08E-03	2.86E-03	1.69E-02	8.21E-03
1.26E+06	2.15E-04	1.19E-03	1.11E-03	6.62E-03	1.71E-03
1.58E+06	7.89E-05	1.55E-03	1.44E-03	0.00E+00	0.00E+00
2.00E+06	1.06E-05	3.84E-04	3.68E-04	0.00E+00	0.00E+00
2.51E+06	0.00E+00	5.45E-04	5.20E-04	0.00E+00	0.00E+00
3.16E+06	0.00E+00	1.14E-04	1.09E-04	0.00E+00	0.00E+00
3.98E+06	0.00E+00	1.61E-04	1.53E-04	0.00E+00	0.00E+00
5.01E+06	0.00E+00	3.43E-05	3.32E-05	0.00E+00	0.00E+00
6.31E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+08					

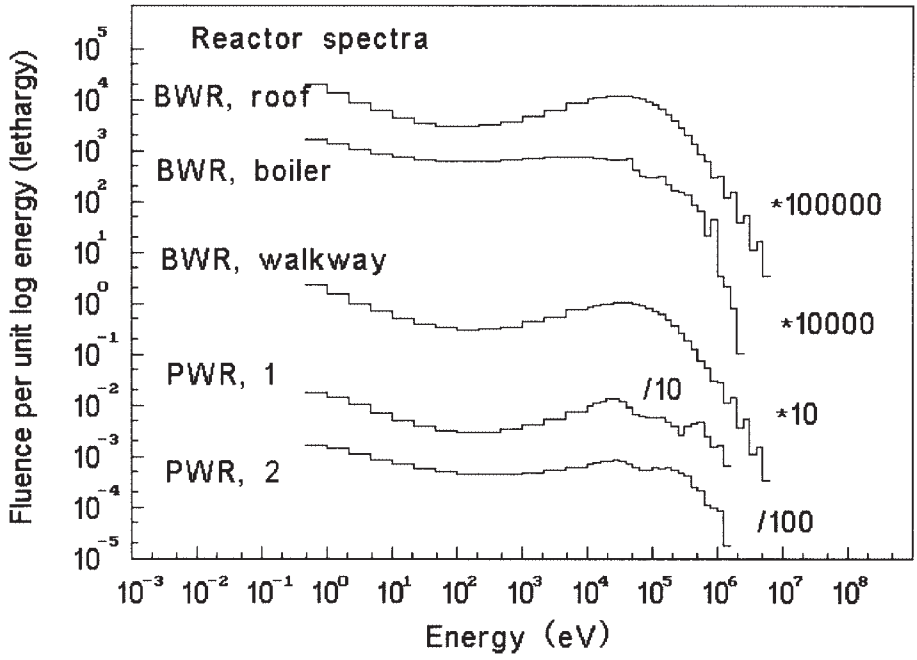

FIG. 5.3. Measured BWR and PWR spectra (UK).

TABLE 5.X. MEASURED BWR AND PWR SPECTRA (UK)

Spectrum weighted responses

Column 2: DUNGBCFL, in boiler cell
Column 3: DUNGRFFL, roof
Column 4: DUNGWWFL, walkway
Column 5: PWR1GOFL, position 1
Column 6: PWR2GOFL, position 2

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.98E+01	2.58E+01	2.45E+01	3.02E+01	2.70E+01
H AMBIENT	1.90E+01	2.86E+01	2.69E+01	3.64E+01	3.18E+01
H PERSONAL	2.04E+01	3.01E+01	2.84E+01	3.82E+01	3.36E+01
HE A-P R51	6.29E+00	8.51E+00	8.12E+00	1.09E+01	9.44E+00
MADE R21	1.66E+01	2.25E+01	2.14E+01	2.77E+01	2.43E+01
BS 3HE BARE	2.39E-01	2.40E-01	2.73E-01	2.42E-01	2.41E-01
BS 3HE 2.5″	1.60E+00	1.44E+00	1.55E+00	1.46E+00	1.54E+00
BS 3HE 3″	2.07E+00	1.88E+00	1.97E+00	1.90E+00	1.99E+00
BS 3HE 3.5″	2.31E+00	2.15E+00	2.20E+00	2.15E+00	2.23E+00
BS 3HE 4″	2.36E+00	2.25E+00	2.26E+00	2.25E+00	2.30E+00
BS 3HE 4.5″	2.26E+00	2.21E+00	2.19E+00	2.21E+00	2.23E+00
BS 3HE 5″	2.07E+00	2.07E+00	2.03E+00	2.06E+00	2.06E+00
BS 3HE 6″	1.57E+00	1.65E+00	1.59E+00	1.65E+00	1.62E+00
BS 3HE 7″	1.10E+00	1.20E+00	1.14E+00	1.21E+00	1.17E+00
BS 3HE 8″	7.36E-01	8.19E-01	7.78E-01	8.36E-01	7.97E-01
BS 3HE 9.5″	3.78E-01	4.30E-01	4.07E-01	4.50E-01	4.21E-01
BS 3HE 10″	2.99E-01	3.43E-01	3.24E-01	3.62E-01	3.37E-01
BS 3HE 12″	1.10E-01	1.29E-01	1.21E-01	1.42E-01	1.29E-01
BS 3HE 15″	2.28E-02	2.73E-02	2.58E-02	3.19E-02	2.79E-02
BS 3HE 18″	4.17E-03	5.37E-03	5.00E-03	6.61E-03	5.44E-03
BS LiI BARE	4.21E-02	4.06E-02	4.61E-02	4.15E-02	4.23E-02
BS LiI 2″	1.54E-01	1.37E-01	1.48E-01	1.40E-01	1.48E-01
BS LiI 3″	2.24E-01	2.07E-01	2.12E-01	2.08E-01	2.15E-01
BS LiI 6″	1.31E-01	1.41E-01	1.35E-01	1.41E-01	1.37E-01
BS LiI 8″	5.83E-02	6.54E-02	6.21E-02	6.75E-02	6.39E-02
BS LiI 10″	2.35E-02	2.68E-02	2.55E-02	2.86E-02	2.66E-02
BS LiI 15″	1.84E-03	2.18E-03	2.07E-03	2.57E-03	2.24E-03
BS LiI 18″	3.72E-04	4.66E-04	4.39E-04	5.49E-04	4.59E-04
6Li BARE	3.57E-01	3.36E-01	3.54E-01	3.39E-01	3.49E-01
6Li Cd	1.84E-01	1.68E-01	1.78E-01	1.72E-01	1.79E-01
GOLD BARE	3.00E-02	2.47E-02	2.85E-02	2.90E-02	3.12E-02
Nat U PC	9.96E-05	5.50E-05	5.83E-05	5.71E-05	7.98E-05
238 U PC	2.64E-11	1.34E-09	1.27E-09	2.72E-10	9.83E-11
232 Th PC	1.57E-12	2.71E-10	2.59E-10	6.50E-12	1.97E-12
CR39 ECE	1.28E-06	2.74E-06	2.50E-06	5.56E-06	3.98E-06
LR115 LiB	4.30E+03	4.23E+03	4.53E+03	4.24E+03	4.28E+03
PLANAR	1.42E+03	2.65E+03	2.44E+03	6.83E+03	4.65E+03
BASE	1.54E+03	2.74E+03	2.52E+03	7.14E+03	4.97E+03
PYRAMIDE	9.32E+02	1.66E+03	1.53E+03	4.40E+03	3.03E+03
PTB TH	1.29E+01	2.36E+01	2.20E+01	3.46E+01	3.08E+01
PTB INT	4.70E+01	5.23E+01	5.18E+01	6.36E+01	6.07E+01
PTB FAST	8.73E+00	1.82E+01	1.65E+01	2.83E+01	2.46E+01
PTB I+F	1.98E+01	2.84E+01	2.70E+01	3.92E+01	3.56E+01
LONG C	1.14E-01	2.43E-01	2.12E-01	2.36E-01	1.93E-01
LEAKE	3.99E-02	4.75E-02	4.45E-02	5.16E-02	4.66E-02
A-B_2	1.09E-01	1.22E-01	1.17E-01	1.32E-01	1.23E-01
EBERNRD2	1.11E-01	1.28E-01	1.20E-01	1.37E-01	1.26E-01
MOD930_2	5.39E-02	6.95E-02	6.48E-02	7.91E-02	6.96E-02
STUDSVIK	2.16E-02	3.10E-02	2.87E-02	3.61E-02	3.12E-02
LB6411	7.21E-02	9.45E-02	8.72E-02	1.13E-01	9.74E-02
BUBBLE	1.38E+03	2.52E+03	2.32E+03	6.16E+03	4.31E+03
ELECTRET	7.13E+01	6.58E+01	7.00E+01	7.20E+01	7.27E+01
SILICON	2.18E-02	4.31E-02	3.94E-02	8.50E-02	6.86E-02

TABLE 5.XI. MEASURED PWR SPECTRA (UK)

Spectra

Column 1: Energy in eV
Column 2: Trawsfynydd, filter gallery
Column 3: Hinkley Point, pile cap
Column 4: Hinkley Point, filter gallery

1.00E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00
2.15E-01	0.00E+00	0.00E+00	0.00E+00
4.64E-01	1.72E-01	1.08E-01	2.81E-01
1.00E+00	1.48E-01	7.17E-02	2.31E-01
2.15E+00	1.12E-01	2.19E-02	1.58E-01
4.64E+00	8.23E-02	9.89E-04	1.07E-01
1.00E+01	6.23E-02	4.61E-04	7.63E-02
2.15E+01	4.80E-02	8.26E-05	5.57E-02
4.64E+01	3.88E-02	3.84E-05	4.29E-02
1.00E+02	3.37E-02	3.18E-05	3.54E-02
2.15E+02	3.17E-02	3.49E-05	3.08E-02
4.64E+02	3.28E-02	5.43E-05	2.84E-02
1.00E+03	3.75E-02	1.10E-04	2.79E-02
2.15E+03	4.64E-02	2.78E-04	2.86E-02
4.64E+03	6.09E-02	7.68E-04	3.05E-02
1.00E+04	7.41E-02	1.51E-03	3.20E-02
1.25E+04	8.06E-02	2.11E-03	3.29E-02
1.58E+04	8.61E-02	3.00E-03	3.34E-02
1.99E+04	9.15E-02	4.07E-03	3.34E-02
2.51E+04	9.55E-02	6.55E-03	3.78E-02
3.16E+04	9.68E-02	1.23E-02	5.02E-02
3.98E+04	9.17E-02	2.33E-02	5.09E-02
5.01E+04	7.88E-02	5.58E-02	4.73E-02
6.30E+04	6.83E-02	1.57E-01	2.84E-02
7.94E+04	6.63E-02	2.56E-01	2.84E-02
1.00E+05	7.54E-02	5.78E-01	1.84E-02
1.25E+05	7.56E-02	6.05E-01	2.01E-02
1.58E+05	6.58E-02	5.93E-01	1.79E-02
1.99E+05	5.65E-02	2.42E-01	2.93E-02
2.51E+05	4.71E-02	1.93E-01	2.77E-02
3.16E+05	3.97E-02	1.41E-01	2.47E-02
3.98E+05	2.41E-02	8.03E-02	1.21E-02
5.01E+05	2.48E-02	3.95E-02	7.15E-03
6.30E+05	3.17E-02	9.61E-02	7.81E-03
7.94E+05	2.95E-02	2.08E-01	9.63E-03
1.00E+06	1.69E-02	2.16E-01	9.16E-03
1.25E+06	2.03E-03	1.48E-01	7.37E-03
1.58E+06	2.04E-03	0.00E+00	0.00E+00
1.99E+06	1.48E-03	0.00E+00	0.00E+00
2.51E+06	0.00E+00	0.00E+00	0.00E+00
3.16E+06	0.00E+00	0.00E+00	0.00E+00
3.98E+06	0.00E+00	0.00E+00	0.00E+00
5.01E+06	0.00E+00	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.30E+08			

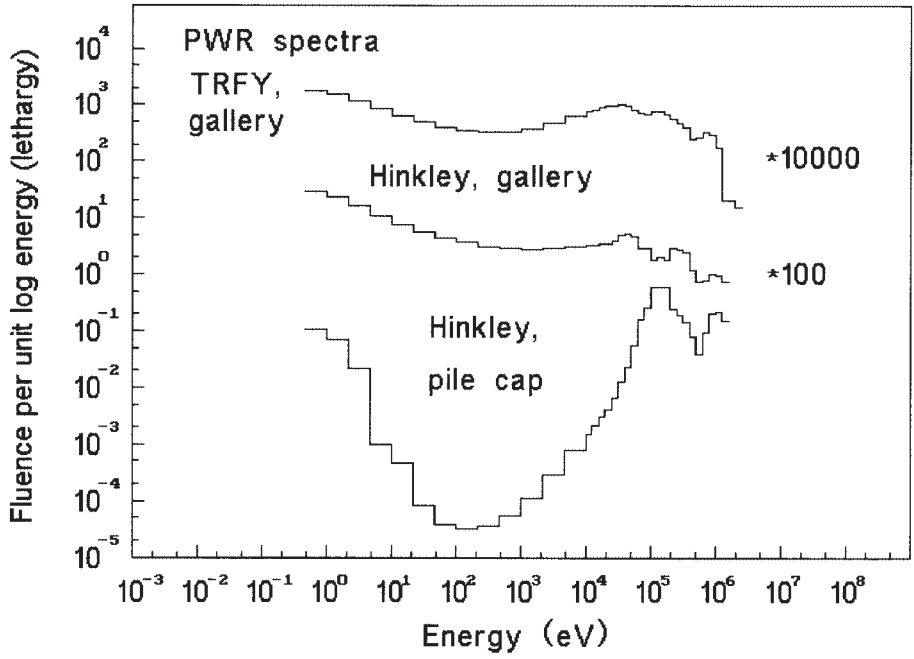

FIG. 5.4. Measured PWR spectra (UK).

TABLE 5.XI. MEASURED PWR SPECTRA (UK)

Spectrum weighted responses

Column 2: Trawsfynydd, filter gallery
Column 3: Hinkley Point, pile cap
Column 4: Hinkley Point, filter gallery

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00
E A-P R60	3.13E+01	1.06E+02	2.15E+01
H AMBIENT	3.85E+01	1.62E+02	2.34E+01
H PERSONAL	4.05E+01	1.68E+02	2.49E+01
HE A-P R51	1.15E+01	4.58E+01	7.60E+00
MADE R21	2.91E+01	1.11E+02	1.95E+01
BS 3HE BARE	2.47E-01	1.08E-01	3.73E-01
BS 3HE 2.5″	1.51E+00	6.58E-01	1.91E+00
BS 3HE 3″	1.94E+00	1.06E+00	2.27E+00
BS 3HE 3.5″	2.18E+00	1.47E+00	2.37E+00
BS 3HE 4″	2.26E+00	1.83E+00	2.31E+00
BS 3HE 4.5″	2.21E+00	2.09E+00	2.13E+00
BS 3HE 5″	2.06E+00	2.24E+00	1.90E+00
BS 3HE 6″	1.64E+00	2.20E+00	1.40E+00
BS 3HE 7″	1.20E+00	1.90E+00	9.75E-01
BS 3HE 8″	8.32E-01	1.51E+00	6.51E-01
BS 3HE 9.5″	4.48E-01	9.37E-01	3.38E-01
BS 3HE 10″	3.62E-01	7.93E-01	2.69E-01
BS 3HE 12″	1.42E-01	3.69E-01	1.02E-01
BS 3HE 15″	3.24E-02	1.07E-01	2.25E-02
BS 3HE 18″	6.81E-03	2.85E-02	4.32E-03
BS LiI BARE	4.28E-02	1.79E-02	6.33E-02
BS LiI 2″	1.44E-01	6.17E-02	1.82E-01
BS LiI 3″	2.10E-01	1.37E-01	2.28E-01
BS LiI 6″	1.41E-01	2.08E-01	1.18E-01
BS LiI 8″	6.71E-02	1.28E-01	5.19E-02
BS LiI 10″	2.87E-02	6.54E-02	2.16E-02
BS LiI 15″	2.63E-03	8.84E-03	1.86E-03
BS LiI 18″	5.70E-04	2.29E-03	3.87E-04
6Li BARE	3.45E-01	2.14E-01	4.13E-01
6Li Cd	1.76E-01	9.82E-02	2.11E-01
GOLD BARE	3.15E-02	7.08E-03	4.45E-02
Nat U PC	6.46E-05	8.32E-06	7.06E-05
238 U PC	1.14E-09	5.01E-09	2.41E-10
232 Th PC	1.26E-10	1.33E-10	6.52E-12
CR39 ECE	6.15E-06	4.41E-05	2.76E-06
LR115 LiB	4.30E+03	2.66E+03	5.46E+03
PLANAR	7.11E+03	4.53E+04	3.16E+03
BASE	7.09E+03	3.87E+04	3.11E+03
PYRAMIDE	4.35E+03	2.40E+04	1.92E+03
PTB TH	3.84E+01	2.08E+02	1.94E+01
PTB INT	6.67E+01	1.98E+02	5.36E+01
PTB FAST	3.16E+01	1.85E+02	1.37E+01
PTB I+F	4.26E+01	1.96E+02	2.54E+01
LONG C	2.38E-01	8.09E-01	1.03E-01
LEAKE	5.11E-02	1.23E-01	3.58E-02
A-B_2	1.34E-01	3.05E-01	1.06E-01
EBERNRD2	1.37E-01	3.20E-01	1.00E-01
MOD930_2	8.02E-02	2.55E-01	5.26E-02
STUDSVIK	3.71E-02	1.35E-01	2.23E-02
LB6411	1.14E-01	3.88E-01	6.90E-02
BUBBLE	6.42E+03	3.86E+04	2.88E+03
ELECTRET	7.44E+01	8.47E+01	8.70E+01
SILICON	9.16E-02	5.28E-01	3.97E-02

TABLE 5.XII. MEASURED PWR SPECTRA (WOLF CREEK)

Spectra

Column 1: Energy in eV
Column 2: Power 50%, at PH 2047′ level
Column 3: Power 50%, 2 m from PH 2047′ level
Column 4: Power 50%, 2026′ level by valves
Column 5: Power 100%, at PH 2047′ level
Column 6: Power 100%, 2026′ level at loop penetration

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	2.76E-01	2.67E-01	2.17E-01	2.99E-01	2.33E-01
2.15E-01	2.15E-01	2.13E-01	1.46E-01	2.05E-01	1.60E-01
4.64E-01	1.27E-01	1.34E-01	6.82E-02	9.96E-02	7.96E-02
1.00E+00	6.84E-02	7.90E-02	3.77E-02	5.68E-02	4.74E-02
2.15E+00	4.38E-02	5.21E-02	4.43E-02	6.39E-02	5.13E-02
4.64E+00	2.97E-02	3.76E-02	6.78E-03	1.23E-02	1.04E-02
1.00E+01	8.80E-03	1.54E-02	7.48E-03	1.08E-02	5.98E-03
2.15E+01	1.15E-02	1.14E-02	1.02E-02	1.01E-02	7.49E-03
4.64E+01	1.55E-02	8.64E-03	1.71E-02	1.12E-02	7.80E-03
1.00E+02	2.00E-02	9.65E-03	2.44E-02	1.32E-02	1.24E-02
2.15E+02	2.56E-02	1.21E-02	3.35E-02	1.81E-02	2.60E-02
4.64E+02	3.13E-02	1.66E-02	3.64E-02	2.00E-02	4.19E-02
1.00E+03	3.60E-02	2.16E-02	4.79E-02	2.57E-02	7.71E-02
2.15E+03	3.81E-02	3.01E-02	5.58E-02	3.06E-02	1.17E-01
4.64E+03	3.79E-02	3.95E-02	6.14E-02	3.55E-02	1.52E-01
1.00E+04	3.58E-02	4.61E-02	6.21E-02	3.79E-02	1.55E-01
1.25E+04	3.44E-02	4.78E-02	6.09E-02	3.88E-02	1.48E-01
1.58E+04	3.28E-02	4.78E-02	5.89E-02	3.84E-02	1.29E-01
1.99E+04	3.07E-02	4.57E-02	5.63E-02	3.73E-02	1.00E-01
2.51E+04	2.87E-02	4.23E-02	5.14E-02	3.50E-02	6.58E-02
3.16E+04	2.76E-02	3.91E-02	4.72E-02	3.35E-02	3.88E-02
3.98E+04	3.15E-02	4.08E-02	4.94E-02	3.70E-02	3.15E-02
5.01E+04	4.69E-02	5.53E-02	7.04E-02	5.59E-02	2.95E-02
6.30E+04	7.76E-02	8.77E-02	1.27E-01	1.05E-01	3.16E-02
7.94E+04	1.16E-01	1.30E-01	2.06E-01	1.73E-01	3.69E-02
1.00E+05	1.36E-01	1.51E-01	2.59E-01	2.19E-01	4.83E-02
1.25E+05	1.21E-01	1.32E-01	2.03E-01	1.74E-01	4.19E-02
1.58E+05	7.66E-02	7.75E-02	1.08E-01	9.65E-02	2.31E-02
1.99E+05	3.93E-02	3.33E-02	1.58E-02	1.97E-02	1.44E-04
2.51E+05	2.50E-02	1.68E-02	1.18E-02	1.29E-02	1.61E-04
3.16E+05	3.64E-02	3.16E-02	2.96E-02	2.20E-02	3.67E-03
3.98E+05	4.79E-02	4.80E-02	6.48E-02	4.50E-02	9.12E-03
5.01E+05	4.81E-02	5.23E-02	6.85E-02	4.79E-02	1.03E-02
6.30E+05	3.03E-02	3.39E-02	4.75E-02	3.55E-02	6.43E-03
7.94E+05	1.17E-02	1.34E-02	1.10E-02	1.34E-02	0.00E+00
1.00E+06	8.58E-04	3.48E-04	1.17E-02	1.42E-02	0.00E+00
1.25E+06	3.17E-03	1.29E-03	7.61E-03	9.31E-03	0.00E+00
1.58E+06	5.98E-03	2.41E-03	3.40E-05	1.71E-04	0.00E+00
1.99E+06	7.17E-03	2.90E-03	3.74E-05	1.88E-04	0.00E+00
2.51E+06	4.89E-03	1.99E-03	2.49E-05	1.25E-04	0.00E+00
3.16E+06	2.03E-03	8.24E-04	0.00E+00	0.00E+00	0.00E+00
3.98E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.01E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

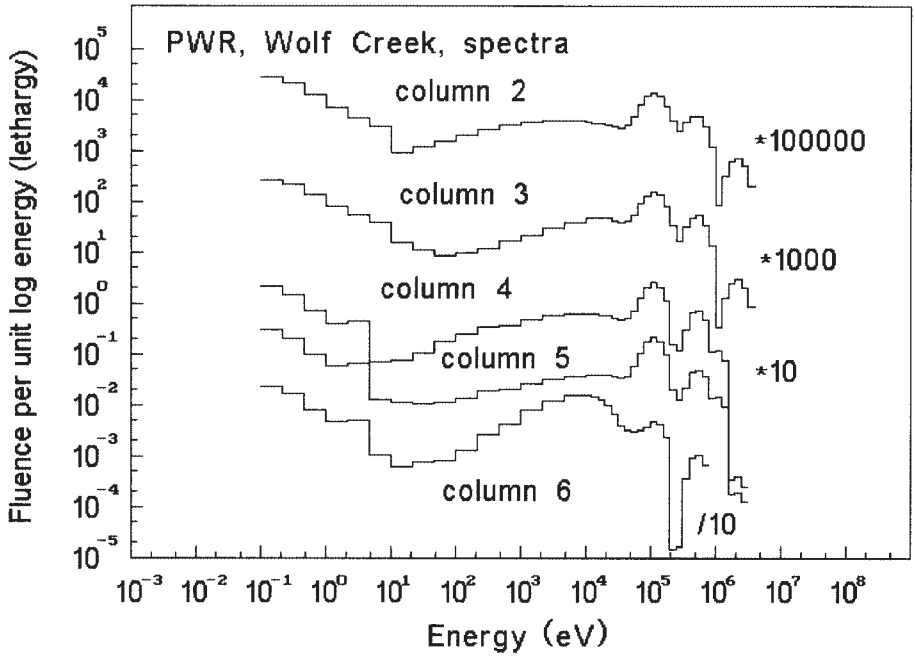

FIG. 5.5. Measured PWR spectra (Wolf Creek).

TABLE 5.XII. MEASURED PWR SPECTRA (WOLF CREEK)

Spectrum weighted responses

Column 2: Power 50%, at PH 2047′ level
Column 3: Power 50%, 2 m from PH 2047′ level
Column 4: Power 50%, 2026′ level by valves
Column 5: Power 100%, at PH 2047′ level
Column 6: Power 100%, 2026′ level at loop penetration

FLUENCE 20	9.99E-01	1.00E+00	1.00E+00	1.00E+00	9.99E-01
E A-P R60	3.10E+01	3.06E+01	3.69E+01	3.26E+01	1.85E+01
H AMBIENT	4.13E+01	4.12E+01	5.07E+01	4.47E+01	1.81E+01
H PERSONAL	4.32E+01	4.30E+01	5.28E+01	4.65E+01	1.91E+01
HE A-P R51	1.22E+01	1.18E+01	1.40E+01	1.25E+01	5.98E+00
MADE R21	3.04E+01	3.00E+01	3.59E+01	3.22E+01	1.55E+01
BS 3HE BARE	6.79E-01	6.79E-01	4.89E-01	6.79E-01	5.36E-01
BS 3HE 2.5″	1.64E+00	1.65E+00	1.33E+00	1.58E+00	1.48E+00
BS 3HE 3″	1.85E+00	1.85E+00	1.64E+00	1.78E+00	1.80E+00
BS 3HE 3.5″	1.93E+00	1.93E+00	1.85E+00	1.88E+00	1.98E+00
BS 3HE 4″	1.92E+00	1.92E+00	1.97E+00	1.89E+00	2.04E+00
BS 3HE 4.5″	1.84E+00	1.83E+00	1.98E+00	1.83E+00	1.98E+00
BS 3HE 5″	1.70E+00	1.70E+00	1.90E+00	1.71E+00	1.84E+00
BS 3HE 6″	1.35E+00	1.35E+00	1.59E+00	1.39E+00	1.44E+00
BS 3HE 7″	1.00E+00	1.00E+00	1.21E+00	1.04E+00	1.03E+00
BS 3HE 8″	7.03E-01	7.04E-01	8.59E-01	7.34E-01	6.95E-01
BS 3HE 9.5″	3.84E-01	3.82E-01	4.71E-01	4.00E-01	3.59E-01
BS 3HE 10″	3.12E-01	3.09E-01	3.81E-01	3.24E-01	2.84E-01
BS 3HE 12″	1.27E-01	1.24E-01	1.54E-01	1.31E-01	1.06E-01
BS 3HE 15″	3.01E-02	2.80E-02	3.44E-02	2.96E-02	2.09E-02
BS 3HE 18″	7.35E-03	6.12E-03	7.23E-03	6.27E-03	3.97E-03
BS LiI BARE	8.34E-02	8.40E-02	5.95E-02	8.20E-02	6.55E-02
BS LiI 2″	1.52E-01	1.53E-01	1.23E-01	1.46E-01	1.38E-01
BS LiI 3″	1.83E-01	1.82E-01	1.76E-01	1.77E-01	1.90E-01
BS LiI 6″	1.16E-01	1.17E-01	1.39E-01	1.20E-01	1.21E-01
BS LiI 8″	5.73E-02	5.73E-02	7.00E-02	5.98E-02	5.53E-02
BS LiI 10″	2.49E-02	2.47E-02	3.03E-02	2.59E-02	2.19E-02
BS LiI 15″	2.50E-03	2.29E-03	2.77E-03	2.41E-03	1.69E-03
BS LiI 18″	6.30E-04	5.18E-04	5.96E-04	5.27E-04	3.53E-04
6Li BARE	4.24E-01	4.25E-01	3.58E-01	4.16E-01	3.84E-01
6Li Cd	1.41E-01	1.44E-01	1.26E-01	1.35E-01	1.36E-01
GOLD BARE	1.85E-02	2.04E-02	1.64E-02	2.29E-02	1.87E-02
Nat U PC	3.30E-05	2.19E-05	3.84E-05	2.47E-05	2.46E-05
238 U PC	1.17E-08	4.75E-09	3.15E-10	5.66E-10	7.58E-13
232 Th PC	2.36E-09	9.59E-10	1.60E-11	5.43E-11	0.00E+00
CR39 ECE	7.02E-06	6.08E-06	7.83E-06	6.82E-06	1.02E-06
LR115 LiB	2.47E+03	2.60E+03	2.20E+03	2.27E+03	2.33E+03
PLANAR	7.24E+03	6.73E+03	8.68E+03	7.26E+03	1.05E+03
BASE	7.55E+03	7.20E+03	9.08E+03	7.29E+03	1.14E+03
PYRAMIDE	4.69E+03	4.43E+03	5.56E+03	4.47E+03	6.90E+02
PTB TH	4.62E+01	4.53E+01	5.56E+01	4.94E+01	1.39E+01
PTB INT	6.44E+01	6.34E+01	7.12E+01	6.52E+01	3.89E+01
PTB FAST	3.41E+01	3.31E+01	4.34E+01	3.65E+01	6.74E+00
PTB I+F	4.38E+01	4.28E+01	5.28E+01	4.59E+01	1.60E+01
LONG C	2.10E-01	2.28E-01	3.18E-01	2.61E-01	1.05E-01
LEAKE	4.58E-02	4.56E-02	5.69E-02	4.81E-02	4.01E-02
A-B_2	1.23E-01	1.22E-01	1.41E-01	1.27E-01	1.05E-01
EBERNRD2	1.16E-01	1.15E-01	1.43E-01	1.22E-01	1.04E-01
MOD930_2	7.45E-02	7.37E-02	9.26E-02	7.91E-02	5.34E-02
STUDSVIK	3.46E-02	3.45E-02	4.44E-02	3.74E-02	1.99E-02
LB6411	1.04E-01	1.02E-01	1.32E-01	1.10E-01	7.04E-02
BUBBLE	6.50E+03	6.14E+03	7.86E+03	6.54E+03	1.02E+03
ELECTRET	9.86E+01	9.76E+01	8.22E+01	9.69E+01	8.00E+01
SILICON	9.16E-02	8.81E-02	1.06E-01	8.89E-02	1.40E-02

TABLE 5.XIII. CZECH PWR, PUMP ROOM

Spectra

Column 1: Energy in eV
Column 2: Near cold side
Column 3: Between pump and cold side
Column 4: Hot side
Column 5: Near entrance door
Column 6: Between pumps 3 and 4

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	9.46E-03	8.98E-03	1.31E-02	1.92E-02	1.97E-02
1.00E-02	3.08E-02	2.93E-02	4.25E-02	6.26E-02	6.40E-02
2.15E-02	5.81E-02	5.52E-02	8.04E-02	1.18E-01	1.21E-01
4.64E-02	6.63E-02	6.29E-02	9.13E-02	1.35E-01	1.37E-01
1.00E-01	5.44E-02	5.11E-02	7.06E-02	9.70E-02	1.12E-01
2.15E-01	3.77E-02	3.44E-02	3.92E-02	4.40E-02	7.04E-02
4.64E-01	4.83E-02	4.35E-02	4.31E-02	4.52E-02	7.81E-02
1.00E+00	3.62E-02	3.28E-02	2.48E-02	3.28E-02	3.58E-02
2.15E+00	3.62E-02	3.31E-02	2.23E-02	3.36E-02	2.68E-02
4.64E+00	3.70E-02	3.41E-02	2.13E-02	3.46E-02	2.20E-02
1.00E+01	3.77E-02	3.51E-02	2.11E-02	3.57E-02	1.89E-02
2.15E+01	3.87E-02	3.64E-02	2.14E-02	3.69E-02	1.73E-02
4.64E+01	3.99E-02	3.82E-02	2.23E-02	3.81E-02	1.65E-02
1.00E+02	4.11E-02	3.99E-02	2.36E-02	3.93E-02	1.63E-02
2.15E+02	4.29E-02	4.20E-02	2.54E-02	4.09E-02	1.65E-02
4.64E+02	4.46E-02	4.43E-02	2.75E-02	4.25E-02	1.73E-02
1.00E+03	4.66E-02	4.68E-02	3.05E-02	4.44E-02	1.86E-02
2.15E+03	4.90E-02	4.99E-02	3.46E-02	4.64E-02	2.08E-02
4.64E+03	5.22E-02	5.42E-02	4.03E-02	4.86E-02	2.47E-02
1.00E+04	5.54E-02	5.85E-02	4.60E-02	5.04E-02	2.92E-02
1.25E+04	5.74E-02	6.08E-02	4.93E-02	5.15E-02	3.20E-02
1.58E+04	5.94E-02	6.39E-02	5.29E-02	5.21E-02	3.55E-02
1.99E+04	6.23E-02	6.74E-02	5.69E-02	5.27E-02	3.98E-02
2.51E+04	6.55E-02	7.18E-02	6.21E-02	5.33E-02	4.49E-02
3.16E+04	6.97E-02	7.74E-02	6.78E-02	5.39E-02	5.13E-02
3.98E+04	7.49E-02	8.37E-02	7.49E-02	5.45E-02	5.88E-02
5.01E+04	8.13E-02	9.13E-02	8.28E-02	5.49E-02	6.73E-02
6.30E+04	8.84E-02	1.00E-01	9.16E-02	5.51E-02	7.67E-02
7.94E+04	9.63E-02	1.09E-01	1.01E-01	5.51E-02	8.66E-02
1.00E+05	1.04E-01	1.17E-01	1.11E-01	5.51E-02	9.59E-02
1.25E+05	1.12E-01	1.24E-01	1.20E-01	5.45E-02	1.03E-01
1.58E+05	1.17E-01	1.27E-01	1.28E-01	5.37E-02	1.08E-01
1.99E+05	1.18E-01	1.26E-01	1.33E-01	5.23E-02	1.10E-01
2.51E+05	1.13E-01	1.18E-01	1.34E-01	5.02E-02	1.07E-01
3.16E+05	1.03E-01	1.05E-01	1.31E-01	4.74E-02	1.00E-01
3.98E+05	8.77E-02	8.60E-02	1.23E-01	4.40E-02	8.88E-02
5.01E+05	6.87E-02	6.54E-02	1.11E-01	3.95E-02	7.44E-02
6.30E+05	4.90E-02	4.55E-02	9.37E-02	3.38E-02	5.86E-02
7.94E+05	3.20E-02	2.98E-02	7.58E-02	2.76E-02	4.38E-02
1.00E+06	1.88E-02	1.83E-02	5.78E-02	2.03E-02	3.08E-02
1.25E+06	1.04E-02	1.12E-02	4.25E-02	1.27E-02	2.14E-02
1.58E+06	5.15E-03	6.59E-03	2.97E-02	3.59E-03	1.41E-02
1.99E+06	2.29E-03	3.61E-03	1.99E-02	0.00E+00	9.02E-03
2.51E+06	8.45E-04	1.63E-03	1.30E-02	0.00E+00	5.32E-03
3.16E+06	0.00E+00	0.00E+00	8.28E-03	0.00E+00	2.56E-03
3.98E+06	0.00E+00	0.00E+00	5.01E-03	0.00E+00	2.61E-05
5.01E+06	0.00E+00	0.00E+00	2.64E-03	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	4.33E-04	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

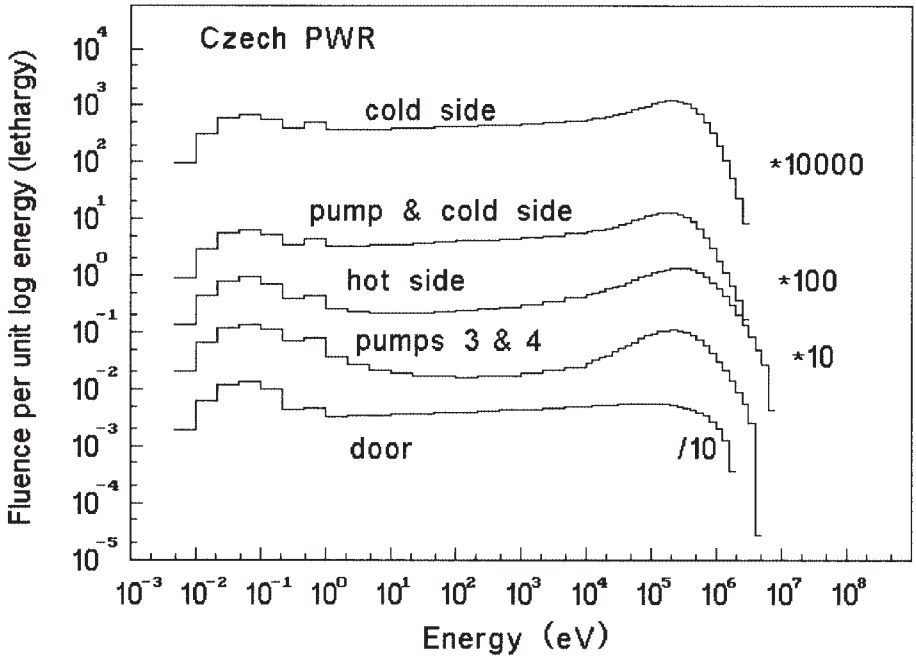

FIG. 5.6. Czech PWR, pump room.

TABLE 5.XIII. CZECH PWR, PUMP ROOM

Spectrum weighted responses

Column 2: Near cold side
Column 3: Between pump and cold side
Column 4: Hot side
Column 5: Near entrance door
Column 6: Between pumps 3 and 4

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	9.99E-01
E A-P R60	4.37E+01	4.48E+01	6.47E+01	3.05E+01	4.62E+01
H AMBIENT	6.18E+01	6.33E+01	9.24E+01	4.00E+01	6.67E+01
H PERSONAL	6.47E+01	6.63E+01	9.66E+01	4.19E+01	6.97E+01
HE A-P R51	1.74E+01	1.78E+01	2.87E+01	1.20E+01	1.97E+01
MADE R21	4.30E+01	4.40E+01	6.62E+01	3.00E+01	4.73E+01
BS 3HE BARE	5.64E-01	5.31E-01	7.07E-01	1.01E+00	1.08E+00
BS 3HE 2.5″	1.17E+00	1.13E+00	1.05E+00	1.35E+00	1.28E+00
BS 3HE 3″	1.54E+00	1.50E+00	1.33E+00	1.59E+00	1.45E+00
BS 3HE 3.5″	1.81E+00	1.80E+00	1.59E+00	1.75E+00	1.58E+00
BS 3HE 4″	1.97E+00	1.97E+00	1.76E+00	1.80E+00	1.65E+00
BS 3HE 4.5″	2.00E+00	2.02E+00	1.85E+00	1.76E+00	1.65E+00
BS 3HE 5″	1.94E+00	1.97E+00	1.84E+00	1.66E+00	1.60E+00
BS 3HE 6″	1.65E+00	1.68E+00	1.66E+00	1.34E+00	1.37E+00
BS 3HE 7″	1.27E+00	1.30E+00	1.35E+00	9.94E-01	1.08E+00
BS 3HE 8″	9.18E-01	9.42E-01	1.03E+00	7.01E-01	7.98E-01
BS 3HE 9.5″	5.16E-01	5.30E-01	6.23E-01	3.85E-01	4.66E-01
BS 3HE 10″	4.23E-01	4.34E-01	5.23E-01	3.13E-01	3.87E-01
BS 3HE 12″	1.75E-01	1.79E-01	2.43E-01	1.28E-01	1.70E-01
BS 3HE 15″	4.16E-02	4.30E-02	7.22E-02	3.04E-02	4.54E-02
BS 3HE 18″	9.54E-03	9.99E-03	2.27E-02	6.93E-03	1.23E-02
BS LiI BARE	5.19E-02	4.87E-02	5.89E-02	8.24E-02	8.87E-02
BS LiI 2″	1.10E-01	1.06E-01	9.56E-02	1.23E-01	1.16E-01
BS LiI 3″	1.73E-01	1.71E-01	1.49E-01	1.65E-01	1.48E-01
BS LiI 6″	1.45E-01	1.48E-01	1.49E-01	1.15E-01	1.21E-01
BS LiI 8″	7.54E-02	7.74E-02	8.64E-02	5.69E-02	6.64E-02
BS LiI 10″	3.38E-02	3.47E-02	4.31E-02	2.50E-02	3.14E-02
BS LiI 15″	3.35E-03	3.45E-03	6.15E-03	2.47E-03	3.76E-03
BS LiI 18″	7.47E-04	7.86E-04	1.88E-03	5.58E-04	9.87E-04
6Li BARE	2.57E-01	2.52E-01	2.24E-01	2.48E-01	2.43E-01
6Li Cd	1.17E-01	1.15E-01	9.44E-02	1.05E-01	9.36E-02
GOLD BARE	1.19E-02	1.10E-02	8.06E-03	1.17E-02	1.01E-02
Nat U PC	6.49E-05	6.29E-05	3.93E-05	6.09E-05	2.90E-05
238 U PC	2.99E-09	4.64E-09	4.74E-08	8.49E-10	1.52E-08
232 Th PC	4.24E-10	7.26E-10	1.02E-08	3.90E-11	2.84E-09
CR39 ECE	1.18E-05	1.21E-05	2.57E-05	7.40E-06	1.54E-05
LR115 LiB	2.36E+03	2.32E+03	1.89E+03	2.00E+03	1.88E+03
PLANAR	1.40E+04	1.41E+04	2.76E+04	8.76E+03	1.71E+04
BASE	1.49E+04	1.49E+04	2.67E+04	8.83E+03	1.73E+04
PYRAMIDE	9.18E+03	9.16E+03	1.68E+04	5.46E+03	1.07E+04
PTB TH	7.76E+01	7.94E+01	1.17E+02	5.12E+01	8.87E+01
PTB INT	9.10E+01	9.21E+01	1.23E+02	6.41E+01	9.35E+01
PTB FAST	6.28E+01	6.46E+01	9.85E+01	3.46E+01	6.78E+01
PTB I+F	7.29E+01	7.47E+01	1.09E+02	4.41E+01	7.75E+01
LONG C	3.25E-01	3.48E-01	4.16E-01	1.93E-01	3.09E-01
LEAKE	6.22E-02	6.39E-02	7.99E-02	4.39E-02	5.73E-02
A-B_2	1.56E-01	1.59E-01	2.03E-01	1.22E-01	1.53E-01
EBERNRD2	1.61E-01	1.65E-01	2.07E-01	1.20E-01	1.50E-01
MOD930_2	1.07E-01	1.10E-01	1.56E-01	7.50E-02	1.09E-01
STUDSVIK	5.26E-02	5.44E-02	7.79E-02	3.35E-02	5.35E-02
LB6411	1.61E-01	1.66E-01	2.39E-01	1.08E-01	1.63E-01
BUBBLE	1.27E+04	1.27E+04	2.39E+04	7.81E+03	1.51E+04
ELECTRET	6.85E+01	6.69E+01	8.52E+01	7.21E+01	8.03E+01
SILICON	1.87E-01	1.90E-01	3.04E-01	1.06E-01	2.07E-01

TABLE 5.XIV. CZECH PWR, VESSEL TEST ROOM

Spectra

Column 1: Energy in eV
Column 2: Under reactor, position 1
Column 3: Middle of room
Column 4: Under reactor, position 2
Column 5: Corridor outside room

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	4.26E-03	1.34E-02	3.00E-03	1.29E-02
1.00E-02	1.39E-02	4.37E-02	9.76E-03	4.17E-02
2.15E-02	2.62E-02	8.26E-02	1.84E-02	7.89E-02
4.64E-02	2.98E-02	9.39E-02	2.09E-02	9.00E-02
1.00E-01	2.34E-02	6.54E-02	2.47E-02	6.19E-02
2.15E-01	1.41E-02	2.42E-02	2.82E-02	2.12E-02
4.64E-01	1.67E-02	1.97E-02	3.88E-02	1.55E-02
1.00E+00	1.20E-02	1.07E-02	2.32E-02	7.20E-03
2.15E+00	1.23E-02	1.03E-02	2.04E-02	6.54E-03
4.64E+00	1.31E-02	1.06E-02	1.92E-02	6.57E-03
1.00E+01	1.42E-02	1.14E-02	1.88E-02	7.04E-03
2.15E+01	1.59E-02	1.27E-02	1.92E-02	7.99E-03
4.64E+01	1.82E-02	1.45E-02	2.03E-02	9.41E-03
1.00E+02	2.11E-02	1.70E-02	2.19E-02	1.14E-02
2.15E+02	2.48E-02	2.01E-02	2.42E-02	1.43E-02
4.64E+02	2.96E-02	2.43E-02	2.74E-02	1.82E-02
1.00E+03	3.56E-02	2.97E-02	3.17E-02	2.36E-02
2.15E+03	4.36E-02	3.71E-02	3.78E-02	3.14E-02
4.64E+03	5.60E-02	4.84E-02	4.73E-02	4.36E-02
1.00E+04	6.75E-02	5.88E-02	5.72E-02	5.56E-02
1.25E+04	7.38E-02	6.48E-02	6.31E-02	6.25E-02
1.58E+04	8.05E-02	7.07E-02	6.93E-02	7.01E-02
1.99E+04	8.93E-02	7.78E-02	7.75E-02	7.93E-02
2.51E+04	9.90E-02	8.62E-02	8.74E-02	8.97E-02
3.16E+04	1.11E-01	9.54E-02	9.89E-02	1.02E-01
3.98E+04	1.25E-01	1.06E-01	1.13E-01	1.17E-01
5.01E+04	1.41E-01	1.17E-01	1.28E-01	1.33E-01
6.30E+04	1.59E-01	1.30E-01	1.46E-01	1.51E-01
7.94E+04	1.78E-01	1.41E-01	1.65E-01	1.69E-01
1.00E+05	1.97E-01	1.53E-01	1.83E-01	1.87E-01
1.25E+05	2.14E-01	1.62E-01	2.00E-01	2.01E-01
1.58E+05	2.27E-01	1.67E-01	2.12E-01	2.10E-01
1.99E+05	2.30E-01	1.67E-01	2.16E-01	2.09E-01
2.51E+05	2.21E-01	1.61E-01	2.11E-01	1.98E-01
3.16E+05	2.01E-01	1.49E-01	1.95E-01	1.76E-01
3.98E+05	1.69E-01	1.31E-01	1.70E-01	1.45E-01
5.01E+05	1.31E-01	1.08E-01	1.39E-01	1.10E-01
6.30E+05	9.20E-02	8.35E-02	1.05E-01	7.58E-02
7.94E+05	5.87E-02	6.00E-02	7.42E-02	4.83E-02
1.00E+06	3.36E-02	3.98E-02	4.89E-02	2.87E-02
1.25E+06	1.81E-02	2.50E-02	3.16E-02	1.66E-02
1.58E+06	8.19E-03	1.40E-02	1.90E-02	8.72E-03
1.99E+06	3.01E-03	7.04E-03	1.06E-02	3.79E-03
2.51E+06	0.00E+00	2.97E-03	4.89E-03	0.00E+00
3.16E+06	0.00E+00	7.37E-05	0.00E+00	0.00E+00
3.98E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.01E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

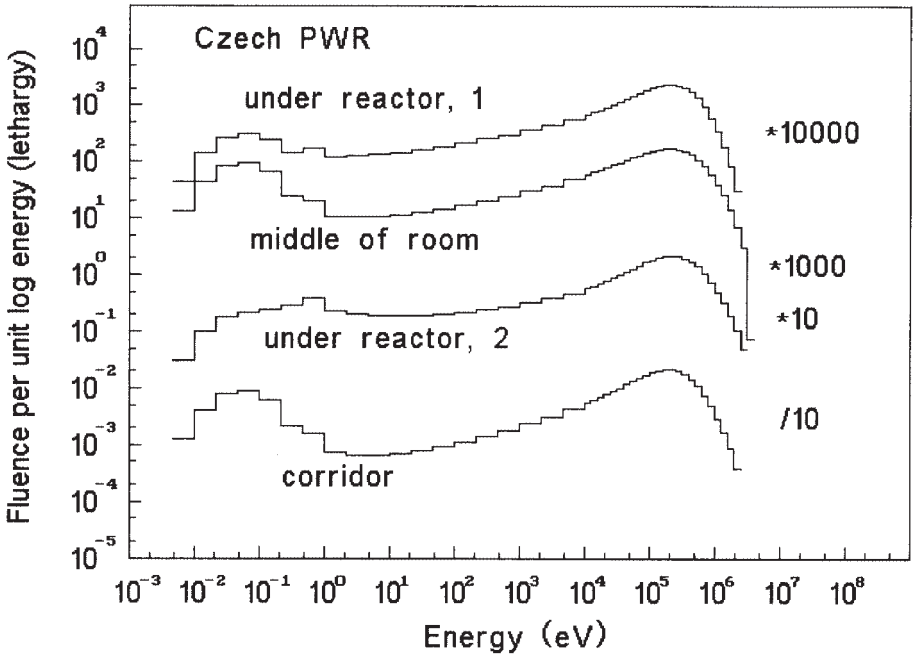

FIG. 5.7. Czech PWR, vessel test room.

TABLE 5.XIV. CZECH PWR, VESSEL TEST ROOM

Spectrum weighted responses

Column 2: Under reactor, position 1
Column 3: Middle of room
Column 4: Under reactor, position 2
Column 5: Corridor outside room

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	7.05E+01	6.11E+01	7.46E+01	6.34E+01
H AMBIENT	1.07E+02	9.07E+01	1.12E+02	9.64E+01
H PERSONAL	1.12E+02	9.47E+01	1.17E+02	1.01E+02
HE A-P R51	2.88E+01	2.55E+01	3.14E+01	2.60E+01
MADE R21	7.07E+01	6.19E+01	7.56E+01	6.40E+01
BS 3HE BARE	2.45E-01	6.71E-01	2.32E-01	6.33E-01
BS 3HE 2.5″	7.37E-01	9.05E-01	8.11E-01	8.31E-01
BS 3HE 3″	1.18E+00	1.22E+00	1.24E+00	1.16E+00
BS 3HE 3.5″	1.61E+00	1.53E+00	1.64E+00	1.49E+00
BS 3HE 4″	1.93E+00	1.76E+00	1.94E+00	1.75E+00
BS 3HE 4.5″	2.13E+00	1.89E+00	2.12E+00	1.91E+00
BS 3HE 5″	2.20E+00	1.92E+00	2.18E+00	1.96E+00
BS 3HE 6″	2.04E+00	1.74E+00	2.01E+00	1.81E+00
BS 3HE 7″	1.67E+00	1.42E+00	1.66E+00	1.48E+00
BS 3HE 8″	1.26E+00	1.07E+00	1.26E+00	1.11E+00
BS 3HE 9.5″	7.36E-01	6.27E-01	7.49E-01	6.51E-01
BS 3HE 10″	6.10E-01	5.21E-01	6.25E-01	5.40E-01
BS 3HE 12″	2.60E-01	2.27E-01	2.75E-01	2.30E-01
BS 3HE 15″	6.40E-02	5.85E-02	7.21E-02	5.66E-02
BS 3HE 18″	1.51E-02	1.48E-02	1.85E-02	1.34E-02
BS LiI BARE	2.26E-02	5.25E-02	2.49E-02	4.87E-02
BS LiI 2″	6.93E-02	8.22E-02	7.65E-02	7.51E-02
BS LiI 3″	1.52E-01	1.44E-01	1.55E-01	1.39E-01
BS LiI 6″	1.86E-01	1.58E-01	1.84E-01	1.64E-01
BS LiI 8″	1.05E-01	8.90E-02	1.06E-01	9.30E-02
BS LiI 10″	4.90E-02	4.21E-02	5.07E-02	4.33E-02
BS LiI 15″	5.11E-03	4.75E-03	5.87E-03	4.51E-03
BS LiI 18″	1.14E-03	1.15E-03	1.44E-03	1.01E-03
6Li BARE	2.06E-01	1.99E-01	2.25E-01	1.90E-01
6Li Cd	9.46E-02	8.34E-02	1.02E-01	7.88E-02
GOLD BARE	4.42E-03	4.42E-03	6.87E-03	3.21E-03
Nat U PC	3.62E-05	2.93E-05	3.82E-05	2.16E-05
238 U PC	3.09E-09	9.14E-09	1.36E-08	3.46E-09
232 Th PC	2.99E-10	1.40E-09	2.15E-09	3.58E-10
CR39 ECE	2.19E-05	2.03E-05	2.60E-05	1.94E-05
LR115 LiB	1.99E+03	1.66E+03	2.19E+03	1.60E+03
PLANAR	2.64E+04	2.34E+04	3.00E+04	2.29E+04
BASE	2.83E+04	2.41E+04	3.10E+04	2.45E+04
PYRAMIDE	1.74E+04	1.49E+04	1.92E+04	1.50E+04
PTB TH	1.38E+02	1.18E+02	1.42E+02	1.27E+02
PTB INT	1.41E+02	1.20E+02	1.47E+02	1.26E+02
PTB FAST	1.20E+02	9.76E+01	1.25E+02	1.06E+02
PTB I+F	1.30E+02	1.07E+02	1.36E+02	1.16E+02
LONG C	5.95E-01	4.81E-01	5.81E-01	5.40E-01
LEAKE	9.44E-02	7.96E-02	9.72E-02	8.26E-02
A-B_2	2.20E-01	1.95E-01	2.30E-01	1.97E-01
EBERNRD2	2.35E-01	2.03E-01	2.43E-01	2.08E-01
MOD930_2	1.71E-01	1.48E-01	1.81E-01	1.52E-01
STUDSVIK	8.99E-02	7.56E-02	9.43E-02	7.94E-02
LB6411	2.67E-01	2.28E-01	2.82E-01	2.35E-01
BUBBLE	2.39E+04	2.09E+04	2.68E+04	2.08E+04
ELECTRET	6.08E+01	6.78E+01	7.02E+01	6.26E+01
SILICON	3.57E-01	2.96E-01	3.80E-01	3.14E-01

TABLE 5.XV. CZECH PWR, REACTOR HALL

Spectra

Column 1: Energy in eV
Column 2: Above reactor cap
Column 3: Above isolation valve
Column 4: Above steam generator
Column 5: Platform of reactor cap

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	2.76E-03	4.77E-03	0.00E+00	2.83E-03
1.00E-02	8.99E-03	1.56E-02	0.00E+00	9.21E-03
2.15E-02	1.70E-02	2.94E-02	0.00E+00	1.74E-02
4.64E-02	1.92E-02	3.35E-02	0.00E+00	1.98E-02
1.00E-01	2.87E-02	2.31E-02	6.13E-02	1.57E-02
2.15E-01	4.13E-02	8.36E-03	6.02E-02	9.44E-03
4.64E-01	6.17E-02	7.05E-03	5.85E-02	1.06E-02
1.00E+00	4.44E-02	5.08E-03	5.72E-02	5.84E-03
2.15E+00	4.29E-02	5.94E-03	5.67E-02	5.27E-03
4.64E+00	4.23E-02	7.19E-03	5.67E-02	5.27E-03
1.00E+01	4.23E-02	8.81E-03	5.72E-02	5.65E-03
2.15E+01	4.31E-02	1.10E-02	5.80E-02	6.41E-03
4.64E+01	4.44E-02	1.38E-02	5.91E-02	7.58E-03
1.00E+02	4.60E-02	1.73E-02	6.09E-02	9.25E-03
2.15E+02	4.78E-02	2.20E-02	6.28E-02	1.16E-02
4.64E+02	5.04E-02	2.79E-02	6.50E-02	1.49E-02
1.00E+03	5.32E-02	3.56E-02	6.79E-02	1.94E-02
2.15E+03	5.71E-02	4.56E-02	7.09E-02	2.60E-02
4.64E+03	6.27E-02	6.01E-02	7.49E-02	3.65E-02
1.00E+04	6.84E-02	7.29E-02	7.75E-02	4.66E-02
1.25E+04	7.15E-02	7.95E-02	7.86E-02	5.27E-02
1.58E+04	7.49E-02	8.57E-02	7.94E-02	5.91E-02
1.99E+04	7.90E-02	9.33E-02	7.99E-02	6.71E-02
2.51E+04	8.39E-02	1.01E-01	8.03E-02	7.66E-02
3.16E+04	8.93E-02	1.10E-01	8.03E-02	8.76E-02
3.98E+04	9.53E-02	1.18E-01	7.99E-02	1.01E-01
5.01E+04	1.02E-01	1.27E-01	7.88E-02	1.16E-01
6.30E+04	1.08E-01	1.36E-01	7.70E-02	1.33E-01
7.94E+04	1.13E-01	1.45E-01	7.42E-02	1.53E-01
1.00E+05	1.17E-01	1.52E-01	7.05E-02	1.74E-01
1.25E+05	1.17E-01	1.58E-01	6.57E-02	1.94E-01
1.58E+05	1.15E-01	1.62E-01	5.98E-02	2.13E-01
1.99E+05	1.09E-01	1.64E-01	5.30E-02	2.29E-01
2.51E+05	1.00E-01	1.64E-01	4.63E-02	2.39E-01
3.16E+05	8.88E-02	1.63E-01	3.95E-02	2.41E-01
3.98E+05	7.59E-02	1.61E-01	3.32E-02	2.34E-01
5.01E+05	6.22E-02	1.58E-01	2.73E-02	2.19E-01
6.30E+05	4.85E-02	1.51E-01	2.18E-02	1.97E-01
7.94E+05	3.62E-02	1.42E-01	1.71E-02	1.73E-01
1.00E+06	2.55E-02	1.29E-01	1.29E-02	1.48E-01
1.25E+06	1.75E-02	1.11E-01	9.32E-03	1.25E-01
1.58E+06	1.12E-02	8.88E-02	5.98E-03	1.02E-01
1.99E+06	6.71E-03	6.18E-02	3.03E-03	7.96E-02
2.51E+06	3.72E-03	3.33E-02	6.55E-05	5.57E-02
3.16E+06	1.75E-03	1.16E-03	0.00E+00	3.01E-02
3.98E+06	1.31E-04	0.00E+00	0.00E+00	1.39E-04
5.01E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

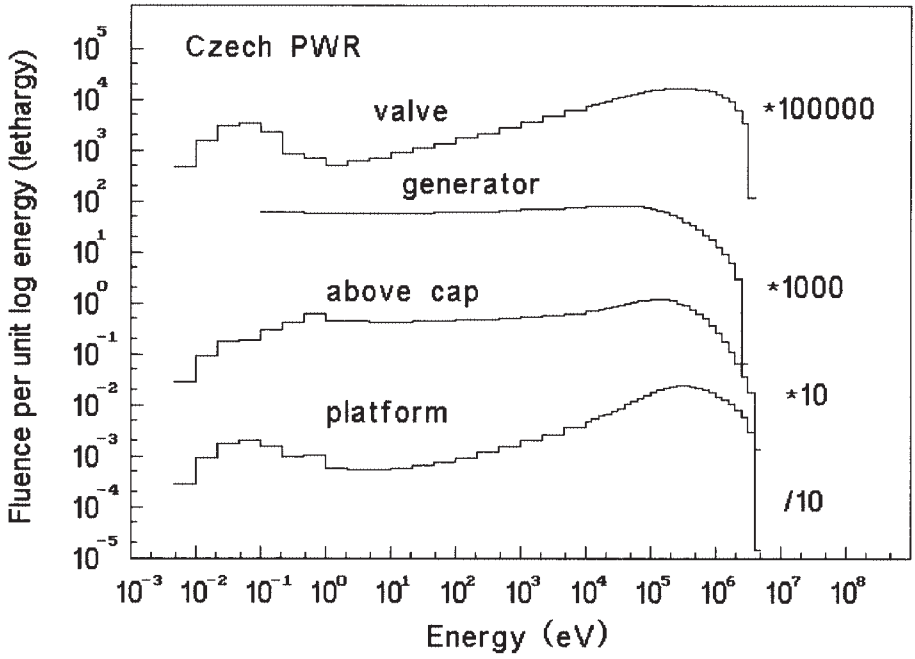

FIG. 5.8. Czech PWR, reactor hall.

TABLE 5.XV. CZECH PWR, REACTOR HALL

Spectrum weighted responses

Column 2: Above reactor cap
Column 3: Above isolation valve
Column 4: Above steam generator
Column 5: Platform of reactor cap

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	4.60E+01	1.00E+02	3.07E+01	1.27E+02
H AMBIENT	6.29E+01	1.41E+02	3.69E+01	1.82E+02
H PERSONAL	6.58E+01	1.48E+02	3.89E+01	1.90E+02
HE A-P R51	1.83E+01	4.60E+01	1.12E+01	5.96E+01
MADE R21	4.48E+01	1.04E+02	2.82E+01	1.32E+02
BS 3HE BARE	2.85E-01	2.46E-01	2.50E-01	1.59E-01
BS 3HE 2.5″	1.15E+00	6.40E-01	1.35E+00	5.15E-01
BS 3HE 3″	1.59E+00	1.05E+00	1.81E+00	9.13E-01
BS 3HE 3.5″	1.92E+00	1.47E+00	2.11E+00	1.34E+00
BS 3HE 4″	2.11E+00	1.81E+00	2.23E+00	1.73E+00
BS 3HE 4.5″	2.16E+00	2.04E+00	2.22E+00	2.01E+00
BS 3HE 5″	2.10E+00	2.14E+00	2.09E+00	2.18E+00
BS 3HE 6″	1.78E+00	2.07E+00	1.68E+00	2.20E+00
BS 3HE 7″	1.37E+00	1.77E+00	1.24E+00	1.95E+00
BS 3HE 8″	9.91E-01	1.40E+00	8.57E-01	1.59E+00
BS 3HE 9.5″	5.59E-01	9.00E-01	4.60E-01	1.05E+00
BS 3HE 10″	4.58E-01	7.68E-01	3.71E-01	9.07E-01
BS 3HE 12″	1.91E-01	3.80E-01	1.47E-01	4.64E-01
BS 3HE 15″	4.77E-02	1.23E-01	3.34E-02	1.57E-01
BS 3HE 18″	1.19E-02	4.02E-02	7.39E-03	5.51E-02
BS LiI BARE	3.45E-02	2.07E-02	3.73E-02	1.44E-02
BS LiI 2″	1.09E-01	5.99E-02	1.29E-01	4.82E-02
BS LiI 3″	1.84E-01	1.39E-01	2.03E-01	1.26E-01
BS LiI 6″	1.56E-01	1.92E-01	1.44E-01	2.08E-01
BS LiI 8″	8.13E-02	1.20E-01	6.90E-02	1.38E-01
BS LiI 10″	3.67E-02	6.41E-02	2.94E-02	7.66E-02
BS LiI 15″	3.90E-03	1.05E-02	2.71E-03	1.37E-02
BS LiI 18″	9.65E-04	3.33E-03	6.16E-04	4.62E-03
6Li BARE	2.79E-01	1.85E-01	3.27E-01	1.74E-01
6Li Cd	1.32E-01	8.38E-02	1.52E-01	7.71E-02
GOLD BARE	1.36E-02	2.55E-03	1.81E-02	2.10E-03
Nat U PC	7.29E-05	3.01E-05	9.44E-05	1.94E-05
238 U PC	1.11E-08	8.03E-08	2.55E-09	1.46E-07
232 Th PC	2.05E-09	1.38E-08	2.91E-10	2.91E-08
CR39 ECE	1.33E-05	4.96E-05	6.30E-06	6.43E-05
LR115 LiB	2.74E+03	1.71E+03	2.99E+03	1.63E+03
PLANAR	1.47E+04	4.86E+04	6.80E+03	6.36E+04
BASE	1.49E+04	4.41E+04	6.81E+03	5.88E+04
PYRAMIDE	9.22E+03	2.80E+04	4.21E+03	3.74E+04
PTB TH	7.36E+01	1.71E+02	3.71E+01	2.25E+02
PTB INT	9.19E+01	1.76E+02	6.38E+01	2.23E+02
PTB FAST	6.27E+01	1.55E+02	3.04E+01	2.06E+02
PTB I+F	7.31E+01	1.67E+02	4.09E+01	2.18E+02
LONG C	3.54E-01	6.32E-01	2.24E-01	7.56E-01
LEAKE	6.75E-02	1.21E-01	5.26E-02	1.44E-01
A-B_2	1.67E-01	3.00E-01	1.34E-01	3.57E-01
EBERNRD2	1.75E-01	3.11E-01	1.40E-01	3.69E-01
MOD930_2	1.16E-01	2.47E-01	8.08E-02	3.06E-01
STUDSVIK	5.66E-02	1.25E-01	3.63E-02	1.58E-01
LB6411	1.73E-01	3.83E-01	1.16E-01	4.80E-01
BUBBLE	1.31E+04	4.10E+04	6.08E+03	5.38E+04
ELECTRET	6.97E+01	9.65E+01	7.18E+01	1.15E+02
SILICON	1.85E-01	4.96E-01	8.78E-02	6.45E-01

TABLE 5.XVI. PWR, IN CONTAINMENT (USA)

Spectra

Column 1: Energy in eV
Column 2: Site 5
Column 3: Site 6 (SPUNIT code)
Column 4: Site 4 (SPUNIT code)
Column 5: Site 4 (YOGI code)

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	1.94E-01	2.05E-01	2.37E-01	2.51E-01
2.15E-02	1.83E-01	1.95E-01	2.22E-01	2.33E-01
4.64E-02	1.60E-01	1.72E-01	1.92E-01	1.97E-01
1.00E-01	1.21E-01	1.31E-01	1.41E-01	1.36E-01
2.15E-01	7.31E-02	8.17E-02	7.97E-02	6.49E-02
4.64E-01	3.49E-02	4.13E-02	3.28E-02	1.62E-02
1.00E+00	2.17E-02	2.56E-02	1.92E-02	1.02E-02
2.15E+00	2.01E-02	2.17E-02	1.93E-02	1.89E-02
4.64E+00	1.67E-02	1.77E-02	1.66E-02	2.31E-02
1.00E+01	1.37E-02	1.41E-02	1.42E-02	2.82E-02
2.15E+01	1.19E-02	1.19E-02	1.34E-02	3.14E-02
4.64E+01	1.06E-02	1.10E-02	1.36E-02	3.28E-02
1.00E+02	8.30E-03	1.08E-02	1.52E-02	3.40E-02
2.15E+02	8.01E-03	1.16E-02	1.71E-02	3.38E-02
4.64E+02	7.95E-03	1.32E-02	2.03E-02	3.40E-02
1.00E+03	8.50E-03	1.57E-02	2.44E-02	3.35E-02
2.15E+03	9.78E-03	1.96E-02	2.94E-02	3.40E-02
4.64E+03	1.22E-02	2.56E-02	3.56E-02	3.18E-02
1.00E+04	1.47E-02	3.11E-02	4.07E-02	2.63E-02
1.25E+04	1.63E-02	3.40E-02	4.25E-02	2.10E-02
1.58E+04	1.82E-02	3.70E-02	4.42E-02	1.46E-02
1.99E+04	2.09E-02	4.11E-02	4.57E-02	1.19E-02
2.51E+04	2.43E-02	4.56E-02	4.69E-02	1.12E-02
3.16E+04	2.87E-02	5.08E-02	4.74E-02	1.20E-02
3.98E+04	3.49E-02	5.63E-02	4.67E-02	1.02E-02
5.01E+04	4.33E-02	6.24E-02	4.49E-02	8.89E-03
6.30E+04	5.45E-02	6.84E-02	4.10E-02	8.18E-03
7.94E+04	7.00E-02	7.35E-02	3.53E-02	7.44E-03
1.00E+05	8.96E-02	7.70E-02	2.72E-02	6.46E-03
1.25E+05	1.11E-01	7.68E-02	1.76E-02	5.25E-03
1.58E+05	1.28E-01	7.02E-02	8.34E-03	5.65E-03
1.99E+05	1.34E-01	5.55E-02	3.14E-03	5.41E-03
2.51E+05	1.25E-01	3.36E-02	2.05E-03	4.83E-03
3.16E+05	9.65E-02	1.83E-02	1.95E-03	4.51E-03
3.98E+05	6.03E-02	9.11E-03	2.49E-03	4.21E-03
5.01E+05	2.80E-02	9.23E-03	6.20E-03	3.54E-03
6.30E+05	1.28E-02	4.87E-03	1.01E-02	3.17E-03
7.94E+05	1.21E-02	4.99E-03	9.30E-03	3.27E-03
1.00E+06	2.61E-02	1.10E-02	5.24E-03	3.43E-03
1.25E+06	4.37E-02	1.82E-02	1.97E-03	3.53E-03
1.58E+06	4.19E-02	1.72E-02	1.80E-03	3.38E-03
1.99E+06	2.65E-02	1.04E-02	8.88E-04	2.93E-03
2.51E+06	1.16E-02	3.91E-03	2.49E-05	2.21E-03
3.16E+06	1.08E-02	3.66E-03	2.30E-05	1.46E-03
3.98E+06	5.32E-03	1.88E-03	1.13E-05	7.91E-04
5.01E+06	8.70E-05	1.78E-04	0.00E+00	4.09E-04
6.30E+06	8.12E-05	1.68E-04	0.00E+00	3.66E-04
7.94E+06	4.72E-05	1.04E-04	0.00E+00	5.43E-04
1.00E+07	0.00E+00	1.00E-05	0.00E+00	6.69E-04
1.58E+07	0.00E+00	0.00E+00	0.00E+00	2.15E-04
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

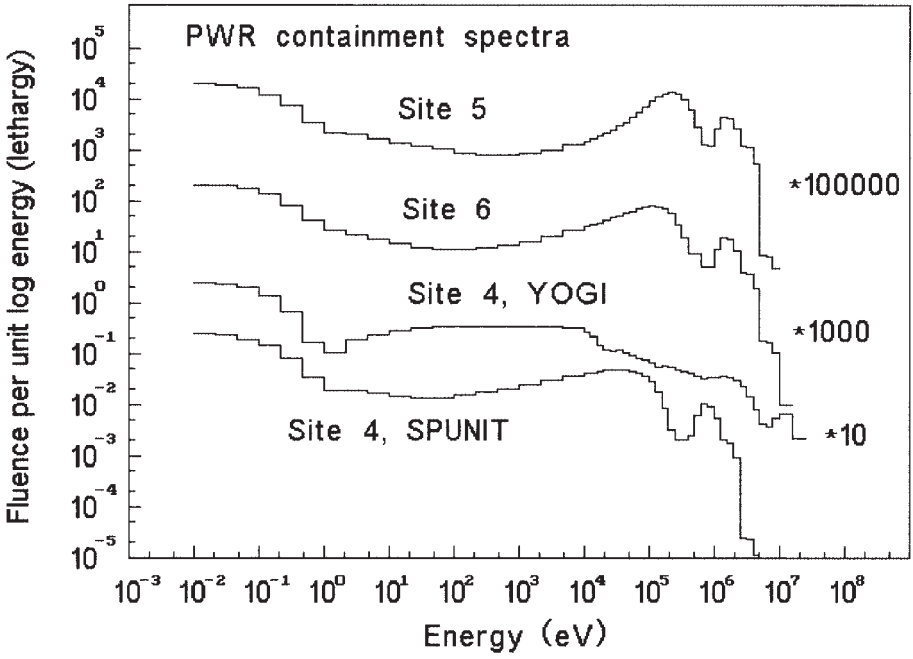

FIG. 5.9. PWR, in containment (USA).

TABLE 5.XVI. PWR, IN CONTAINMENT (USA)

Spectrum weighted responses

Column 2: Site 5
Column 3: Site 6 (SPUNIT code)
Column 4: Site 4 (SPUNIT code)
Column 5: Site 4 (YOGI code)

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	4.55E+01	2.62E+01	1.57E+01	1.43E+01
H AMBIENT	6.35E+01	3.36E+01	1.81E+01	1.57E+01
H PERSONAL	6.68E+01	3.53E+01	1.90E+01	1.66E+01
HE A-P R51	2.05E+01	1.09E+01	6.10E+00	5.99E+00
MADE R21	4.69E+01	2.66E+01	1.59E+01	1.46E+01
BS 3HE BARE	1.55E+00	1.66E+00	1.86E+00	1.91E+00
BS 3HE 2.5″	1.27E+00	1.39E+00	1.46E+00	1.51E+00
BS 3HE 3″	1.33E+00	1.43E+00	1.47E+00	1.52E+00
BS 3HE 3.5″	1.38E+00	1.46E+00	1.46E+00	1.50E+00
BS 3HE 4″	1.41E+00	1.44E+00	1.40E+00	1.42E+00
BS 3HE 4.5″	1.39E+00	1.37E+00	1.29E+00	1.29E+00
BS 3HE 5″	1.34E+00	1.27E+00	1.16E+00	1.14E+00
BS 3HE 6″	1.15E+00	1.02E+00	8.80E-01	8.38E-01
BS 3HE 7″	9.14E-01	7.54E-01	6.20E-01	5.76E-01
BS 3HE 8″	6.90E-01	5.35E-01	4.19E-01	3.82E-01
BS 3HE 9.5″	4.16E-01	2.96E-01	2.17E-01	1.98E-01
BS 3HE 10″	3.51E-01	2.43E-01	1.74E-01	1.58E-01
BS 3HE 12″	1.65E-01	1.03E-01	6.73E-02	6.28E-02
BS 3HE 15″	5.20E-02	2.80E-02	1.47E-02	1.54E-02
BS 3HE 18″	1.81E-02	8.48E-03	3.15E-03	4.55E-03
BS LiI BARE	1.13E-01	1.22E-01	1.34E-01	1.36E-01
BS LiI 2″	1.11E-01	1.22E-01	1.28E-01	1.32E-01
BS LiI 3″	1.27E-01	1.35E-01	1.36E-01	1.40E-01
BS LiI 6″	1.02E-01	8.69E-02	7.28E-02	6.80E-02
BS LiI 8″	5.81E-02	4.35E-02	3.33E-02	3.04E-02
BS LiI 10″	2.89E-02	1.94E-02	1.36E-02	1.25E-02
BS LiI 15″	4.47E-03	2.35E-03	1.18E-03	1.29E-03
BS LiI 18″	1.54E-03	7.31E-04	2.68E-04	3.96E-04
6Li BARE	1.95E-01	2.07E-01	2.00E-01	1.96E-01
6Li Cd	6.83E-02	7.30E-02	6.90E-02	7.14E-02
GOLD BARE	7.92E-03	8.68E-03	8.16E-03	8.09E-03
Nat U PC	1.67E-05	1.99E-05	2.48E-05	5.00E-05
238 U PC	4.93E-08	1.86E-08	7.90E-10	1.43E-08
232 Th PC	9.99E-09	3.78E-09	9.66E-11	3.83E-09
CR39 ECE	1.86E-05	7.24E-06	1.65E-06	1.80E-06
LR115 LiB	1.20E+03	1.27E+03	1.11E+03	1.06E+03
PLANAR	1.61E+04	5.72E+03	1.72E+03	1.64E+03
BASE	1.48E+04	4.86E+03	1.54E+03	1.40E+03
PYRAMIDE	9.45E+03	3.12E+03	9.61E+02	9.27E+02
PTB TH	9.22E+01	5.00E+01	3.10E+01	3.01E+01
PTB INT	8.80E+01	5.10E+01	3.38E+01	3.36E+01
PTB FAST	6.60E+01	2.61E+01	6.56E+00	5.19E+00
PTB I+F	7.46E+01	3.40E+01	1.44E+01	1.33E+01
LONG C	2.74E-01	1.82E-01	8.96E-02	2.99E-02
LEAKE	4.94E-02	3.16E-02	2.09E-02	1.78E-02
A-B_2	1.40E-01	9.77E-02	7.31E-02	6.80E-02
EBERNRD2	1.37E-01	9.37E-02	6.70E-02	6.06E-02
MOD930_2	1.04E-01	6.06E-02	3.60E-02	3.10E-02
STUDSVIK	5.07E-02	2.66E-02	1.25E-02	9.47E-03
LB6411	1.54E-01	8.26E-02	4.51E-02	3.87E-02
BUBBLE	1.37E+04	4.83E+03	1.56E+03	1.48E+03
ELECTRET	8.12E+01	7.09E+01	6.48E+01	6.63E+01
SILICON	1.90E-01	7.16E-02	1.77E-02	1.42E-02

TABLE 5.XVII. RINGHALS (SWEDEN)

Spectra

Column 1: Energy in eV
Column 2: CLAB at point D
Column 3: CLAB at point E
Column 4: CLAB at point P
Column 5: B4 at point L
Column 6: B2 at point G

1.00E-03	1.63E-03	2.13E-03	1.97E-03	2.57E-03	6.68E-03
2.15E-03	3.81E-03	4.89E-03	4.40E-03	5.32E-03	1.52E-02
4.64E-03	8.54E-03	1.06E-02	9.28E-03	1.04E-02	3.42E-02
1.00E-02	1.69E-02	2.02E-02	1.70E-02	1.77E-02	7.29E-02
2.15E-02	2.51E-02	2.85E-02	2.29E-02	2.26E-02	1.29E-01
4.64E-02	3.43E-02	3.65E-02	2.82E-02	2.71E-02	1.63E-01
1.00E-01	4.72E-02	4.74E-02	3.50E-02	3.31E-02	1.15E-01
2.15E-01	6.15E-02	5.94E-02	4.29E-02	4.24E-02	9.79E-02
4.64E-01	7.67E-02	7.13E-02	5.79E-02	6.19E-02	5.88E-02
1.00E+00	7.56E-02	7.15E-02	5.62E-02	6.56E-02	5.70E-02
2.15E+00	7.10E-02	6.75E-02	5.26E-02	6.70E-02	5.44E-02
4.64E+00	6.64E-02	6.33E-02	4.93E-02	6.80E-02	5.15E-02
1.00E+01	6.20E-02	5.89E-02	4.68E-02	6.76E-02	4.77E-02
2.15E+01	5.85E-02	5.56E-02	4.56E-02	6.62E-02	4.40E-02
4.64E+01	5.56E-02	5.30E-02	4.52E-02	6.38E-02	4.04E-02
1.00E+02	5.34E-02	5.12E-02	4.57E-02	6.14E-02	3.72E-02
2.15E+02	5.19E-02	5.00E-02	4.71E-02	5.94E-02	3.45E-02
4.64E+02	5.07E-02	4.94E-02	4.91E-02	5.74E-02	3.20E-02
1.00E+03	5.00E-02	4.93E-02	5.21E-02	5.61E-02	3.00E-02
2.15E+03	4.96E-02	4.97E-02	5.55E-02	5.52E-02	2.84E-02
4.64E+03	4.96E-02	5.07E-02	5.99E-02	5.48E-02	2.70E-02
1.00E+04	4.97E-02	5.16E-02	6.34E-02	5.52E-02	2.62E-02
1.26E+04	4.99E-02	5.21E-02	6.51E-02	5.55E-02	2.59E-02
1.58E+04	5.01E-02	5.26E-02	6.71E-02	5.60E-02	2.56E-02
2.00E+04	5.03E-02	5.33E-02	6.92E-02	5.65E-02	2.53E-02
2.51E+04	5.06E-02	5.41E-02	7.15E-02	5.71E-02	2.51E-02
3.16E+04	5.10E-02	5.49E-02	7.41E-02	5.78E-02	2.49E-02
3.98E+04	5.15E-02	5.58E-02	7.70E-02	5.88E-02	2.47E-02
5.01E+04	5.20E-02	5.69E-02	8.01E-02	6.02E-02	2.45E-02
6.31E+04	5.28E-02	5.83E-02	8.38E-02	6.22E-02	2.44E-02
7.94E+04	5.36E-02	5.99E-02	8.78E-02	6.44E-02	2.43E-02
1.00E+05	5.46E-02	6.16E-02	9.20E-02	6.69E-02	2.41E-02
1.26E+05	5.57E-02	6.36E-02	9.63E-02	6.99E-02	2.40E-02
1.58E+05	5.69E-02	6.58E-02	1.00E-01	7.30E-02	2.37E-02
2.00E+05	5.83E-02	6.80E-02	1.03E-01	7.59E-02	2.31E-02
2.51E+05	5.97E-02	6.99E-02	1.04E-01	7.64E-02	2.19E-02
3.16E+05	6.12E-02	7.12E-02	1.01E-01	6.81E-02	1.86E-02
3.98E+05	6.14E-02	6.96E-02	9.17E-02	4.74E-02	1.26E-02
5.01E+05	5.65E-02	6.00E-02	7.23E-02	2.84E-02	7.62E-03
6.31E+05	4.44E-02	3.97E-02	4.29E-02	1.63E-02	4.99E-03
7.94E+05	3.29E-02	2.25E-02	1.91E-02	4.23E-03	2.18E-03
1.00E+06	2.41E-02	1.40E-02	1.21E-02	3.55E-03	1.34E-03
1.26E+06	1.37E-02	4.68E-03	3.65E-03	2.69E-03	9.94E-04
1.58E+06	7.90E-03	3.44E-03	4.03E-03	2.13E-03	5.39E-04
2.00E+06	3.33E-03	2.93E-03	5.75E-03	4.27E-03	9.93E-04
2.51E+06	2.05E-03	1.77E-03	1.94E-03	6.56E-04	2.01E-04
3.16E+06	2.34E-03	3.48E-03	3.89E-03	1.34E-03	4.15E-04
3.98E+06	9.99E-04	5.57E-04	4.15E-04	6.27E-05	2.99E-05
5.01E+06	2.06E-03	1.15E-03	8.51E-04	1.27E-05	6.09E-05
6.31E+06	2.91E-04	6.11E-05	3.66E-05	0.00E+00	1.26E-05
7.94E+06	5.96E-04	1.24E-05	1.42E-05	0.00E+00	0.00E+00
1.00E+07	4.18E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.31E+08					

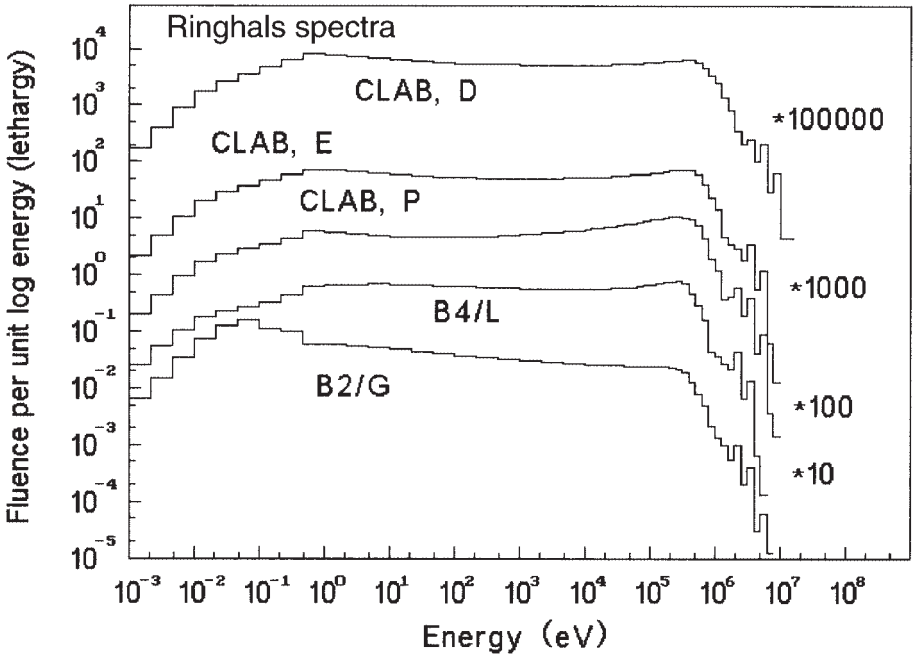

FIG. 5.10. Ringhals (Sweden).

TABLE 5.XVII. RINGHALS (SWEDEN)

Spectrum weighted responses

Column 2: CLAB at point D
Column 3: CLAB at point E
Column 4: CLAB at point P
Column 5: B4 at point L
Column 6: B2 at point G

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	3.64E+01	3.54E+01	4.19E+01	3.05E+01	1.73E+01
H AMBIENT	4.72E+01	4.67E+01	5.76E+01	3.85E+01	1.99E+01
H PERSONAL	4.96E+01	4.91E+01	6.04E+01	4.07E+01	2.11E+01
HE A-P R51	1.47E+01	1.39E+01	1.65E+01	1.12E+01	6.41E+00
MADE R21	3.53E+01	3.41E+01	4.04E+01	2.83E+01	1.67E+01
BS 3HE BARE	4.82E-01	5.09E-01	4.08E-01	4.38E-01	1.37E+00
BS 3HE 2.5″	1.43E+00	1.40E+00	1.22E+00	1.39E+00	1.62E+00
BS 3HE 3″	1.81E+00	1.78E+00	1.64E+00	1.81E+00	1.76E+00
BS 3HE 3.5″	2.04E+00	2.01E+00	1.93E+00	2.07E+00	1.79E+00
BS 3HE 4″	2.11E+00	2.10E+00	2.09E+00	2.17E+00	1.72E+00
BS 3HE 4.5″	2.07E+00	2.06E+00	2.11E+00	2.14E+00	1.59E+00
BS 3HE 5″	1.94E+00	1.94E+00	2.03E+00	2.00E+00	1.42E+00
BS 3HE 6″	1.56E+00	1.57E+00	1.70E+00	1.60E+00	1.06E+00
BS 3HE 7″	1.16E+00	1.17E+00	1.30E+00	1.18E+00	7.37E-01
BS 3HE 8″	8.22E-01	8.24E-01	9.29E-01	8.14E-01	4.92E-01
BS 3HE 9.5″	4.57E-01	4.54E-01	5.18E-01	4.37E-01	2.54E-01
BS 3HE 10″	3.73E-01	3.69E-01	4.23E-01	3.52E-01	2.02E-01
BS 3HE 12″	1.56E-01	1.51E-01	1.73E-01	1.38E-01	7.68E-02
BS 3HE 15″	3.96E-02	3.63E-02	4.16E-02	3.08E-02	1.63E-02
BS 3HE 18″	1.04E-02	8.86E-03	1.01E-02	6.71E-03	3.28E-03
BS LiI BARE	5.22E-02	5.23E-02	4.16E-02	4.57E-02	1.06E-01
BS LiI 2″	1.35E-01	1.32E-01	1.15E-01	1.31E-01	1.46E-01
BS LiI 3″	1.95E-01	1.92E-01	1.85E-01	1.99E-01	1.68E-01
BS LiI 6″	1.35E-01	1.35E-01	1.48E-01	1.37E-01	8.72E-02
BS LiI 8″	6.71E-02	6.70E-02	7.60E-02	6.56E-02	3.90E-02
BS LiI 10″	3.01E-02	2.95E-02	3.37E-02	2.79E-02	1.59E-02
BS LiI 15″	3.30E-03	2.99E-03	3.38E-03	2.48E-03	1.32E-03
BS LiI 18″	8.60E-04	7.26E-04	8.15E-04	5.50E-04	2.82E-04
6Li BARE	3.17E-01	3.09E-01	2.83E-01	3.07E-01	2.78E-01
6Li Cd	1.49E-01	1.45E-01	1.34E-01	1.49E-01	1.14E-01
GOLD BARE	2.16E-02	2.05E-02	1.62E-02	2.02E-02	1.78E-02
Nat U PC	8.57E-05	8.23E-05	7.33E-05	9.67E-05	6.01E-05
238 U PC	1.38E-08	1.01E-08	1.15E-08	4.69E-09	1.39E-09
232 Th PC	3.36E-09	2.38E-09	2.57E-09	9.02E-10	2.90E-10
CR39 ECE	1.00E-05	8.63E-06	1.07E-05	5.80E-06	1.74E-06
LR115 LiB	3.04E+03	2.96E+03	2.76E+03	3.05E+03	2.09E+03
PLANAR	1.17E+04	1.05E+04	1.28E+04	6.57E+03	1.94E+03
BASE	1.18E+04	1.12E+04	1.39E+04	7.27E+03	2.10E+03
PYRAMIDE	7.34E+03	6.93E+03	8.58E+03	4.47E+03	1.29E+03
PTB TH	5.43E+01	5.51E+01	6.99E+01	4.49E+01	2.97E+01
PTB INT	7.70E+01	7.63E+01	8.77E+01	6.77E+01	4.21E+01
PTB FAST	4.34E+01	4.34E+01	5.74E+01	3.45E+01	1.05E+01
PTB I+F	5.44E+01	5.42E+01	6.80E+01	4.51E+01	1.97E+01
LONG C	2.12E-01	2.24E-01	3.07E-01	2.10E-01	7.47E-02
LEAKE	5.38E-02	5.31E-02	6.20E-02	4.92E-02	2.52E-02
A-B_2	1.42E-01	1.38E-01	1.53E-01	1.27E-01	8.34E-02
EBERNRD2	1.43E-01	1.40E-01	1.60E-01	1.31E-01	7.49E-02
MOD930_2	8.99E-02	8.71E-02	1.03E-01	7.65E-02	3.98E-02
STUDSVIK	4.19E-02	4.09E-02	5.05E-02	3.52E-02	1.49E-02
LB6411	1.33E-01	1.29E-01	1.56E-01	1.11E-01	5.12E-02
BUBBLE	1.04E+04	9.47E+03	1.16E+04	6.07E+03	1.83E+03
ELECTRET	8.05E+01	7.65E+01	7.00E+01	7.00E+01	7.87E+01
SILICON	1.34E-01	1.30E-01	1.68E-01	9.54E-02	2.84E-02

TABLE 5.XVIII. GAS COOLED REACTOR (UK)

Spectra

Column 1: Energy in eV
Column 2: Position CH1
Column 3: Position CH2
Column 4: Filter gallery, position S3
Column 5: Filter gallery, position S4

1.00E-03	3.53E-02	3.48E-02	2.09E-02	1.54E-02
2.15E-03	3.93E-02	3.87E-02	2.32E-02	1.71E-02
4.64E-03	4.78E-02	4.68E-02	2.79E-02	2.05E-02
1.00E-02	6.51E-02	6.39E-02	3.79E-02	2.77E-02
2.15E-02	9.97E-02	9.79E-02	5.77E-02	4.22E-02
4.64E-02	1.61E-01	1.58E-01	9.35E-02	6.85E-02
1.00E-01	1.64E-01	1.61E-01	1.01E-01	7.65E-02
2.15E-01	8.87E-02	8.62E-02	6.74E-02	5.82E-02
4.64E-01	3.95E-02	3.59E-02	4.56E-02	4.58E-02
1.00E+00	5.59E-02	4.88E-02	5.18E-02	4.86E-02
2.15E+00	6.74E-02	5.54E-02	5.57E-02	5.02E-02
4.64E+00	6.61E-02	5.58E-02	5.71E-02	5.14E-02
1.00E+01	6.12E-02	5.45E-02	5.79E-02	5.26E-02
2.15E+01	5.31E-02	5.07E-02	5.74E-02	5.36E-02
4.64E+01	4.54E-02	4.64E-02	5.62E-02	5.43E-02
1.00E+02	3.90E-02	4.24E-02	5.50E-02	5.48E-02
2.15E+02	3.36E-02	3.83E-02	5.33E-02	5.53E-02
4.64E+02	2.94E-02	3.51E-02	5.18E-02	5.54E-02
1.00E+03	2.47E-02	3.09E-02	4.97E-02	5.59E-02
2.15E+03	2.01E-02	2.62E-02	4.72E-02	5.62E-02
4.64E+03	1.64E-02	2.19E-02	4.48E-02	5.65E-02
1.00E+04	1.51E-02	2.06E-02	4.35E-02	5.63E-02
1.25E+04	1.49E-02	2.06E-02	4.32E-02	5.62E-02
1.58E+04	1.44E-02	2.00E-02	4.26E-02	5.62E-02
1.99E+04	1.34E-02	1.86E-02	4.19E-02	5.62E-02
2.51E+04	1.24E-02	1.75E-02	4.10E-02	5.62E-02
3.16E+04	1.12E-02	1.61E-02	3.97E-02	5.60E-02
3.98E+04	1.02E-02	1.50E-02	3.86E-02	5.56E-02
5.01E+04	9.71E-03	1.49E-02	3.76E-02	5.49E-02
6.30E+04	8.12E-03	1.33E-02	3.59E-02	5.43E-02
7.94E+04	6.89E-03	1.20E-02	3.43E-02	5.33E-02
1.00E+05	8.62E-03	1.35E-02	3.45E-02	5.13E-02
1.25E+05	1.05E-02	1.50E-02	3.50E-02	4.91E-02
1.58E+05	7.25E-03	1.18E-02	3.21E-02	4.86E-02
1.99E+05	5.01E-03	9.60E-03	2.96E-02	4.69E-02
2.51E+05	3.86E-03	7.87E-03	2.64E-02	4.45E-02
3.16E+05	4.18E-03	6.92E-03	2.27E-02	4.13E-02
3.98E+05	4.61E-03	6.22E-03	1.83E-02	3.66E-02
5.01E+05	3.53E-03	4.35E-03	1.32E-02	3.02E-02
6.30E+05	1.97E-03	2.27E-03	9.06E-03	2.16E-02
7.94E+05	3.80E-04	4.65E-04	6.42E-03	1.24E-02
1.00E+06	1.25E-04	1.58E-04	4.95E-03	6.91E-03
1.25E+06	6.70E-05	6.73E-05	2.61E-03	4.98E-03
1.58E+06	4.73E-05	3.68E-05	9.51E-04	2.70E-03
1.99E+06	2.93E-05	3.21E-05	5.72E-05	1.00E-03
2.51E+06	0.00E+00	0.00E+00	3.39E-05	4.18E-04
3.16E+06	0.00E+00	0.00E+00	0.00E+00	6.64E-05
3.98E+06	0.00E+00	0.00E+00	0.00E+00	1.64E-05
5.01E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

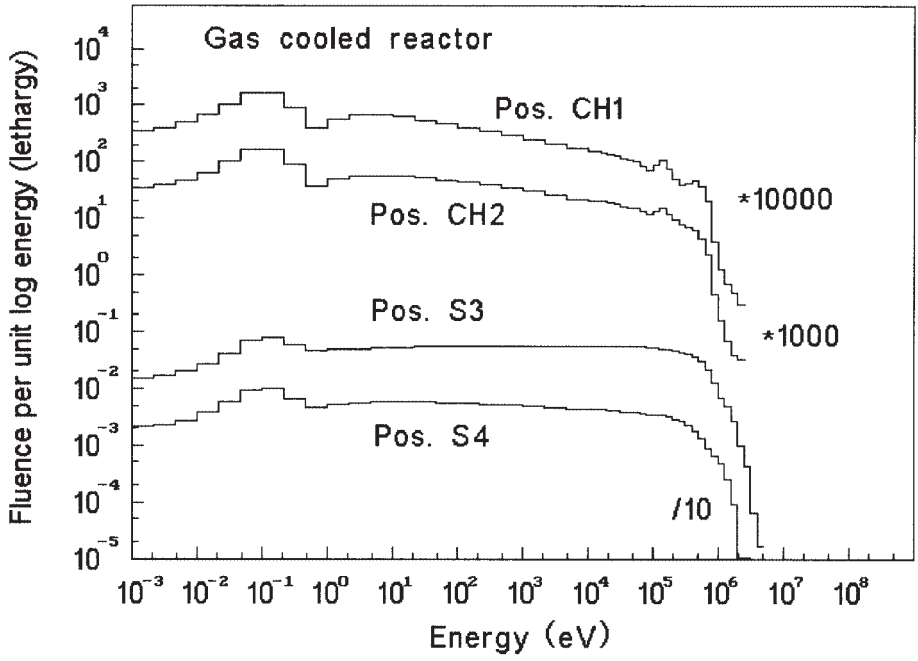

FIG. 5.11. Gas cooled reactor (UK).

TABLE 5.XVIII. GAS COOLED REACTOR (UK)

Spectrum weighted responses

Column 2: Position CH1
Column 3: Position CH2
Column 4: Filter gallery, position. S3
Column 5: Filter gallery, position S4

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.32E+01	1.41E+01	2.06E+01	2.68E+01
H AMBIENT	1.37E+01	1.50E+01	2.35E+01	3.30E+01
H PERSONAL	1.47E+01	1.60E+01	2.49E+01	3.48E+01
HE A-P R51	4.82E+00	5.12E+00	7.39E+00	9.95E+00
MADE R21	1.28E+01	1.36E+01	1.91E+01	2.52E+01
BS 3HE BARE	1.61E+00	1.57E+00	1.01E+00	7.72E-01
BS 3HE 2.5″	1.69E+00	1.64E+00	1.51E+00	1.39E+00
BS 3HE 3″	1.80E+00	1.76E+00	1.78E+00	1.73E+00
BS 3HE 3.5″	1.79E+00	1.78E+00	1.93E+00	1.94E+00
BS 3HE 4″	1.68E+00	1.69E+00	1.94E+00	2.01E+00
BS 3HE 4.5″	1.52E+00	1.54E+00	1.84E+00	1.96E+00
BS 3HE 5″	1.33E+00	1.36E+00	1.69E+00	1.83E+00
BS 3HE 6″	9.50E-01	9.91E-01	1.29E+00	1.45E+00
BS 3HE 7″	6.41E-01	6.76E-01	9.17E-01	1.06E+00
BS 3HE 8″	4.17E-01	4.44E-01	6.19E-01	7.28E-01
BS 3HE 9.5″	2.09E-01	2.24E-01	3.23E-01	3.90E-01
BS 3HE 10″	1.65E-01	1.77E-01	2.58E-01	3.14E-01
BS 3HE 12″	6.11E-02	6.59E-02	9.86E-02	1.23E-01
BS 3HE 15″	1.23E-02	1.33E-02	2.11E-02	2.75E-02
BS 3HE 18″	2.25E-03	2.47E-03	4.22E-03	5.87E-03
BS LiI BARE	1.07E-01	1.04E-01	7.36E-02	5.97E-02
BS LiI 2″	1.49E-01	1.44E-01	1.37E-01	1.28E-01
BS LiI 3″	1.65E-01	1.64E-01	1.82E-01	1.84E-01
BS LiI 6″	7.62E-02	8.00E-02	1.07E-01	1.22E-01
BS LiI 8″	3.24E-02	3.46E-02	4.91E-02	5.84E-02
BS LiI 10″	1.29E-02	1.38E-02	2.03E-02	2.48E-02
BS LiI 15″	9.95E-04	1.07E-03	1.70E-03	2.21E-03
BS LiI 18″	2.00E-04	2.16E-04	3.56E-04	4.82E-04
6Li BARE	2.92E-01	2.84E-01	2.96E-01	2.90E-01
6Li Cd	1.16E-01	1.12E-01	1.30E-01	1.31E-01
GOLD BARE	2.14E-02	1.84E-02	1.80E-02	1.63E-02
Nat U PC	6.45E-05	6.72E-05	8.50E-05	8.44E-05
238 U PC	2.27E-11	2.32E-11	2.67E-10	1.50E-09
232 Th PC	2.56E-12	2.68E-12	2.22E-11	2.25E-10
CR39 ECE	4.51E-07	6.67E-07	2.64E-06	4.98E-06
LR115 LiB	1.99E+03	1.90E+03	2.41E+03	2.50E+03
PLANAR	5.30E+02	7.67E+02	3.04E+03	5.86E+03
BASE	5.97E+02	8.66E+02	3.20E+03	6.22E+03
PYRAMIDE	3.63E+02	5.26E+02	1.96E+03	3.83E+03
PTB TH	2.61E+01	2.74E+01	3.10E+01	4.06E+01
PTB INT	3.56E+01	3.68E+01	4.80E+01	5.88E+01
PTB FAST	2.92E+00	4.56E+00	1.50E+01	2.65E+01
PTB I+F	1.22E+01	1.38E+01	2.48E+01	3.65E+01
LONG C	2.68E-02	4.07E-02	1.11E-01	1.73E-01
LEAKE	1.94E-02	2.13E-02	3.42E-02	4.35E-02
A-B_2	7.10E-02	7.42E-02	9.84E-02	1.17E-01
EBERNRD2	6.00E-02	6.46E-02	9.56E-02	1.17E-01
MOD930_2	2.88E-02	3.17E-02	5.12E-02	6.76E-02
STUDSVIK	8.77E-03	1.03E-02	2.06E-02	2.97E-02
LB6411	3.42E-02	3.90E-02	6.97E-02	9.65E-02
BUBBLE	5.42E+02	7.65E+02	2.80E+03	5.33E+03
ELECTRET	8.24E+01	7.99E+01	7.43E+01	7.13E+01
SILICON	7.80E-03	1.21E-02	4.22E-02	7.77E-02

TABLE 5.XIX. SWISS BWR, MARK I, 1

Spectra

Column 1: Energy in eV
Column 2: Maze entrance
Column 3: First bend of maze
Column 4: Entrance of drywell
Column 5: Under access opening
Column 6: Between drywell and stairwell

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	2.17E-01	2.31E-01	1.36E-01	1.15E-01	1.73E-01
4.64E-03	2.09E-01	2.21E-01	1.30E-01	1.11E-01	1.67E-01
1.00E-02	1.89E-01	2.00E-01	1.19E-01	1.03E-01	1.52E-01
2.15E-02	1.51E-01	1.58E-01	9.67E-02	8.72E-02	1.26E-01
4.64E-02	9.74E-02	9.91E-02	6.50E-02	6.08E-02	8.65E-02
1.00E-01	4.62E-02	4.38E-02	3.57E-02	3.06E-02	4.81E-02
2.15E-01	2.17E-02	1.90E-02	2.31E-02	1.43E-02	2.75E-02
4.64E-01	2.07E-02	1.93E-02	2.55E-02	2.28E-02	2.50E-02
1.00E+00	2.30E-02	2.08E-02	2.89E-02	4.00E-02	2.78E-02
2.15E+00	2.35E-02	1.99E-02	2.79E-02	4.06E-02	2.96E-02
4.64E+00	2.41E-02	1.96E-02	2.91E-02	4.42E-02	3.12E-02
1.00E+01	2.63E-02	2.22E-02	3.47E-02	5.14E-02	3.36E-02
2.15E+01	3.46E-02	2.92E-02	4.61E-02	6.80E-02	4.46E-02
4.64E+01	2.33E-02	1.92E-02	3.20E-02	4.72E-02	3.06E-02
1.00E+02	1.99E-02	1.69E-02	2.96E-02	4.17E-02	2.68E-02
2.15E+02	2.70E-02	2.38E-02	4.61E-02	5.94E-02	3.78E-02
4.64E+02	3.43E-02	3.09E-02	6.38E-02	7.83E-02	4.93E-02
1.00E+03	3.49E-02	3.19E-02	7.01E-02	8.17E-02	5.12E-02
2.15E+03	2.12E-02	2.00E-02	4.80E-02	5.14E-02	3.23E-02
4.64E+03	1.75E-02	1.69E-02	4.56E-02	4.41E-02	2.77E-02
1.00E+04	1.40E-02	1.38E-02	3.95E-02	3.61E-02	2.28E-02
1.25E+04	1.11E-02	1.10E-02	3.27E-02	2.89E-02	1.82E-02
1.58E+04	7.09E-03	7.08E-03	2.14E-02	1.86E-02	1.18E-02
1.99E+04	6.07E-03	6.10E-03	1.92E-02	1.61E-02	1.03E-02
2.51E+04	5.02E-03	5.08E-03	1.70E-02	1.35E-02	8.69E-03
3.16E+04	1.22E-02	1.24E-02	4.32E-02	3.28E-02	2.13E-02
3.98E+04	1.53E-02	1.55E-02	5.77E-02	4.19E-02	2.74E-02
5.01E+04	1.75E-02	1.78E-02	6.81E-02	4.81E-02	3.17E-02
6.30E+04	1.02E-02	1.04E-02	4.46E-02	2.84E-02	1.92E-02
7.94E+04	6.57E-03	6.59E-03	3.28E-02	1.84E-02	1.29E-02
1.00E+05	5.88E-03	5.77E-03	3.20E-02	1.66E-02	1.19E-02
1.25E+05	6.74E-03	6.51E-03	3.64E-02	1.88E-02	1.36E-02
1.58E+05	5.51E-03	5.18E-03	3.18E-02	1.53E-02	1.13E-02
1.99E+05	3.99E-03	3.65E-03	2.47E-02	1.11E-02	8.35E-03
2.51E+05	2.70E-03	2.35E-03	1.77E-02	7.41E-03	5.71E-03
3.16E+05	1.81E-03	1.48E-03	1.26E-02	4.88E-03	3.86E-03
3.98E+05	1.39E-03	1.05E-03	1.02E-02	3.64E-03	2.95E-03
5.01E+05	8.91E-04	6.34E-04	6.77E-03	2.30E-03	1.89E-03
6.30E+05	6.35E-04	4.02E-04	5.02E-03	1.58E-03	1.32E-03
7.94E+05	4.89E-04	2.70E-04	3.93E-03	1.17E-03	9.87E-04
1.00E+06	4.64E-04	2.35E-04	3.76E-03	1.08E-03	9.15E-04
1.25E+06	2.68E-04	1.14E-04	2.16E-03	5.99E-04	5.02E-04
1.58E+06	1.44E-04	6.17E-05	1.16E-03	3.24E-04	2.68E-04
1.99E+06	7.26E-05	2.83E-05	5.73E-04	1.58E-04	1.30E-04
2.51E+06	3.66E-05	1.22E-05	2.77E-04	7.75E-05	6.11E-05
3.16E+06	3.94E-05	1.11E-05	2.89E-04	8.27E-05	6.44E-05
3.98E+06	2.83E-05	4.32E-06	2.14E-04	5.45E-05	4.32E-05
5.01E+06	2.07E-05	0.00E+00	8.42E-05	2.52E-05	2.03E-05
6.30E+06	0.00E+00	0.00E+00	7.37E-05	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

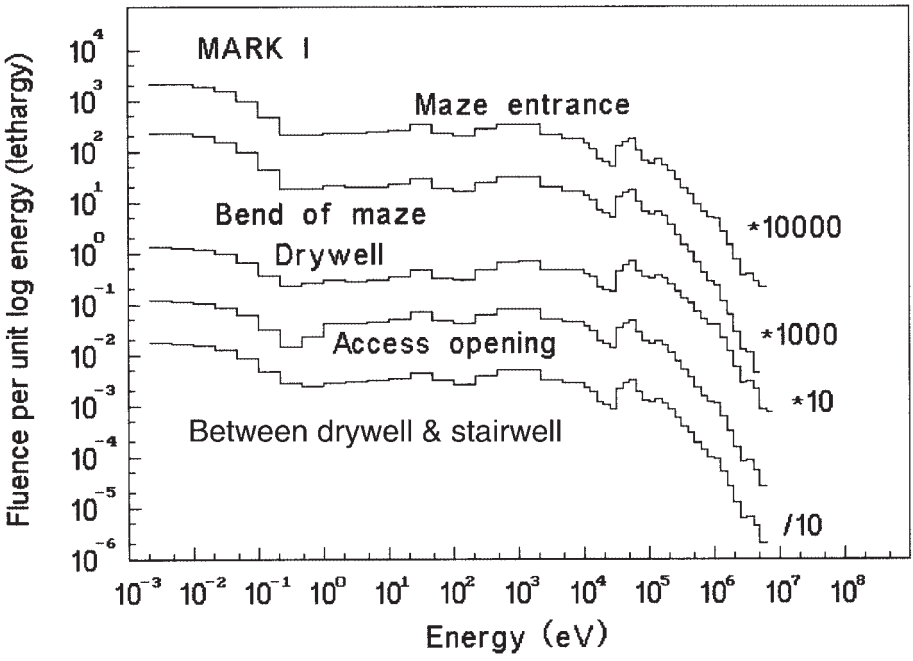

FIG. 5.12. Swiss BWR, Mark I, 1.

TABLE 5.XIX. SWISS BWR, MARK I, 1

Spectrum weighted responses

Column 2: Maze entrance
Column 3: First bend of maze
Column 4: Entrance of drywell
Column 5: Under access opening
Column 6: Between drywell and stairwell

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	9.99E-01
E A-P R60	1.01E+01	9.65E+00	1.74E+01	1.46E+01	1.22E+01
H AMBIENT	1.15E+01	1.12E+01	2.01E+01	1.46E+01	1.34E+01
H PERSONAL	1.25E+01	1.23E+01	2.14E+01	1.58E+01	1.45E+01
HE A-P R51	4.23E+00	4.13E+00	6.48E+00	5.11E+00	4.73E+00
MADE R21	1.15E+01	1.12E+01	1.70E+01	1.37E+01	1.27E+01
BS 3HE BARE	2.92E+00	3.06E+00	1.89E+00	1.65E+00	2.40E+00
BS 3HE 2.5″	1.28E+00	1.26E+00	1.24E+00	1.34E+00	1.31E+00
BS 3HE 3″	1.29E+00	1.24E+00	1.44E+00	1.59E+00	1.41E+00
BS 3HE 3.5″	1.26E+00	1.20E+00	1.57E+00	1.73E+00	1.44E+00
BS 3HE 4″	1.19E+00	1.12E+00	1.59E+00	1.74E+00	1.40E+00
BS 3HE 4.5″	1.07E+00	1.01E+00	1.53E+00	1.66E+00	1.30E+00
BS 3HE 5″	9.46E-01	8.90E-01	1.41E+00	1.51E+00	1.16E+00
BS 3HE 6″	6.86E-01	6.44E-01	1.10E+00	1.14E+00	8.62E-01
BS 3HE 7″	4.65E-01	4.36E-01	7.82E-01	7.95E-01	5.95E-01
BS 3HE 8″	3.04E-01	2.85E-01	5.30E-01	5.27E-01	3.92E-01
BS 3HE 9.5″	1.53E-01	1.43E-01	2.76E-01	2.68E-01	1.99E-01
BS 3HE 10″	1.21E-01	1.13E-01	2.20E-01	2.12E-01	1.58E-01
BS 3HE 12″	4.45E-02	4.15E-02	8.38E-02	7.87E-02	5.85E-02
BS 3HE 15″	9.07E-03	8.40E-03	1.80E-02	1.61E-02	1.20E-02
BS 3HE 18″	1.74E-03	1.60E-03	3.75E-03	3.08E-03	2.32E-03
BS LiI BARE	1.18E-01	1.21E-01	8.31E-02	7.74E-02	1.03E-01
BS LiI 2″	9.66E-02	9.25E-02	1.03E-01	1.15E-01	1.05E-01
BS LiI 3″	1.05E-01	9.77E-02	1.41E-01	1.58E-01	1.25E-01
BS LiI 6″	5.18E-02	4.81E-02	8.93E-02	9.20E-02	6.76E-02
BS LiI 8″	2.25E-02	2.09E-02	4.12E-02	4.08E-02	2.98E-02
BS LiI 10″	8.91E-03	8.25E-03	1.70E-02	1.64E-02	1.19E-02
BS LiI 15″	6.75E-04	6.15E-04	1.41E-03	1.27E-03	9.23E-04
BS LiI 18″	1.42E-04	1.28E-04	3.14E-04	2.65E-04	1.94E-04
6Li BARE	1.28E-01	1.15E-01	1.87E-01	2.13E-01	1.66E-01
6Li Cd	5.71E-02	5.05E-02	8.86E-02	1.06E-01	7.60E-02
GOLD BARE	7.75E-03	6.67E-03	9.28E-03	1.28E-02	9.70E-03
Nat U PC	3.27E-05	2.79E-05	4.88E-05	6.77E-05	4.39E-05
238 U PC	2.03E-10	5.50E-11	1.60E-09	4.04E-10	3.23E-10
232 Th PC	4.42E-11	1.02E-11	3.58E-10	8.44E-11	6.71E-11
CR39 ECE	2.94E-07	2.22E-07	2.01E-06	7.63E-07	5.95E-07
LR115 LiB	1.07E+03	9.43E+02	1.72E+03	2.05E+03	1.43E+03
PLANAR	2.91E+02	2.13E+02	2.07E+03	7.51E+02	5.97E+02
BASE	2.93E+02	2.19E+02	2.08E+03	7.62E+02	6.06E+02
PYRAMIDE	1.79E+02	1.32E+02	1.28E+03	4.64E+02	3.69E+02
PTB TH	4.82E+01	5.04E+01	4.26E+01	3.16E+01	4.20E+01
PTB INT	2.95E+01	2.86E+01	4.07E+01	3.69E+01	3.29E+01
PTB FAST	1.83E+00	1.58E+00	1.14E+01	4.95E+00	3.74E+00
PTB I+F	9.64E+00	9.19E+00	2.01E+01	1.41E+01	1.20E+01
LONG C	2.28E-02	2.23E-02	1.04E-01	6.24E-02	4.29E-02
LEAKE	1.21E-02	1.10E-02	2.78E-02	2.61E-02	1.79E-02
A-B_2	4.39E-02	4.07E-02	7.78E-02	7.55E-02	5.72E-02
EBERNRD2	4.16E-02	3.85E-02	7.99E-02	7.67E-02	5.58E-02
MOD930_2	1.90E-02	1.75E-02	4.20E-02	3.62E-02	2.65E-02
STUDSVIK	5.73E-03	5.17E-03	1.70E-02	1.31E-02	9.06E-03
LB6411	2.50E-02	2.31E-02	5.86E-02	4.89E-02	3.53E-02
BUBBLE	2.98E+02	2.30E+02	1.90E+03	7.24E+02	5.80E+02
ELECTRET	3.74E+01	3.45E+01	4.57E+01	5.01E+01	4.39E+01
SILICON	4.54E-03	3.72E-03	3.03E-02	1.21E-02	9.41E-03

TABLE 5.XX. SWISS BWR, MARK I, 2

Spectra

Column 1: Energy in eV
Column 2: 16 m level, near pump
Column 3: 16 m level, near sprinkler tap
Column 4: Containment lock, door closed
Column 5: Containment lock, door open

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	1.40E-01	1.41E-01	2.92E-01	5.89E-02
4.64E-03	1.35E-01	1.36E-01	2.78E-01	5.67E-02
1.00E-02	1.25E-01	1.25E-01	2.50E-01	5.23E-02
2.15E-02	1.05E-01	1.04E-01	1.92E-01	4.35E-02
4.64E-02	6.78E-02	6.49E-02	8.83E-02	2.77E-02
1.00E-01	1.45E-02	8.94E-03	1.59E-02	6.76E-03
2.15E-01	2.56E-02	2.26E-02	8.83E-03	6.79E-03
4.64E-01	1.52E-02	1.25E-02	2.63E-03	3.02E-02
1.00E+00	3.65E-02	3.09E-02	1.17E-02	4.32E-02
2.15E+00	4.20E-02	3.57E-02	9.89E-03	2.42E-02
4.64E+00	1.57E-02	1.39E-02	3.48E-03	1.32E-02
1.00E+01	7.50E-02	6.52E-02	1.64E-02	6.92E-02
2.15E+01	5.48E-02	4.75E-02	1.20E-02	4.18E-02
4.64E+01	3.95E-02	3.50E-02	8.88E-03	3.06E-02
1.00E+02	3.21E-02	3.20E-02	8.00E-03	3.13E-02
2.15E+02	5.00E-02	4.81E-02	1.22E-02	4.93E-02
4.64E+02	1.08E-01	1.12E-01	2.81E-02	1.31E-01
1.00E+03	5.09E-02	5.42E-02	1.35E-02	6.83E-02
2.15E+03	3.95E-02	4.46E-02	1.10E-02	6.65E-02
4.64E+03	4.02E-02	4.78E-02	1.17E-02	8.33E-02
1.00E+04	3.01E-02	3.66E-02	8.92E-03	6.94E-02
1.25E+04	2.19E-02	2.70E-02	6.55E-03	5.31E-02
1.58E+04	1.67E-02	2.10E-02	5.10E-03	4.39E-02
1.99E+04	4.15E-03	5.21E-03	1.27E-03	1.09E-02
2.51E+04	1.77E-02	2.28E-02	5.54E-03	5.14E-02
3.16E+04	1.05E-02	1.41E-02	3.40E-03	3.66E-02
3.98E+04	5.32E-02	7.10E-02	1.70E-02	1.79E-01
5.01E+04	3.64E-02	5.04E-02	1.20E-02	1.42E-01
6.30E+04	1.82E-02	2.57E-02	6.15E-03	8.31E-02
7.94E+04	8.17E-03	1.26E-02	3.02E-03	5.55E-02
1.00E+05	1.71E-02	2.49E-02	5.89E-03	9.25E-02
1.25E+05	1.53E-02	2.26E-02	5.27E-03	9.02E-02
1.58E+05	1.33E-02	1.97E-02	4.53E-03	8.48E-02
1.99E+05	9.64E-03	1.42E-02	3.26E-03	6.47E-02
2.51E+05	5.56E-03	8.07E-03	1.82E-03	3.77E-02
3.16E+05	5.47E-03	7.43E-03	1.61E-03	3.66E-02
3.98E+05	4.46E-03	5.77E-03	1.21E-03	2.90E-02
5.01E+05	3.05E-03	3.64E-03	7.25E-04	1.83E-02
6.30E+05	1.53E-03	1.71E-03	3.30E-04	8.52E-03
7.94E+05	3.66E-03	3.54E-03	6.33E-04	1.69E-02
1.00E+06	2.99E-03	2.18E-03	3.30E-04	9.41E-03
1.25E+06	1.90E-03	1.34E-03	2.05E-04	5.77E-03
1.58E+06	1.46E-03	8.78E-04	1.25E-04	3.57E-03
1.99E+06	2.02E-04	1.10E-04	1.51E-05	4.35E-04
2.51E+06	4.89E-04	2.25E-04	2.84E-05	8.32E-04
3.16E+06	9.94E-04	3.87E-04	4.53E-05	1.34E-03
3.98E+06	3.85E-04	1.19E-04	1.48E-05	3.79E-04
5.01E+06	1.16E-04	2.25E-05	1.12E-05	9.70E-05
6.30E+06	3.70E-05	1.31E-05	0.00E+00	4.79E-05
7.94E+06	8.87E-06	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

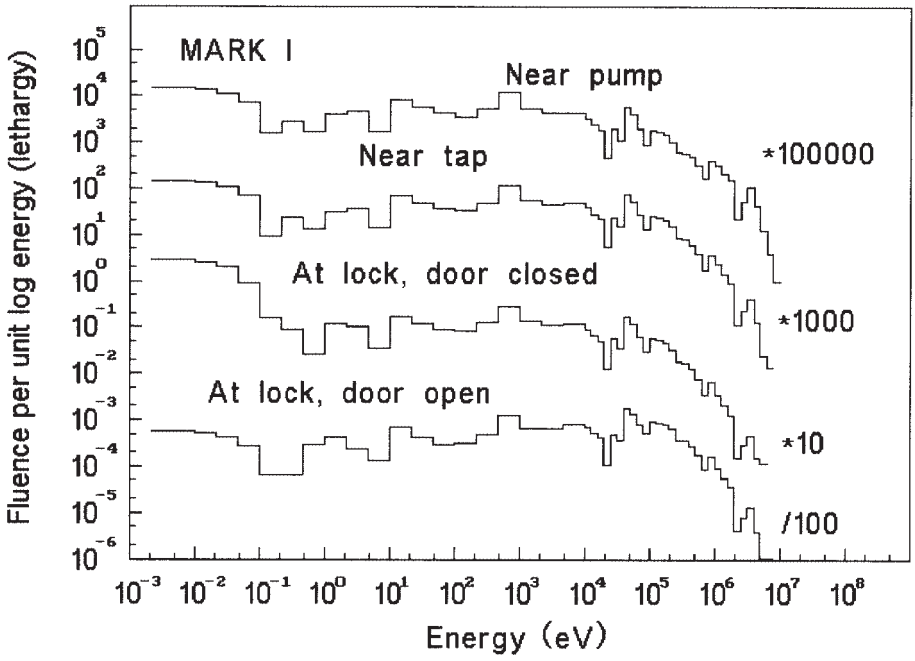

FIG. 5.13. Swiss BWR, Mark I, 2.

TABLE 5.XX. SWISS BWR, MARK I, 2

Spectrum weighted responses

Column 2: 16 m level, near pump
Column 3: 16 m level, near sprinkler tap
Column 4: Containment lock, door closed
Column 5: Containment lock, door open

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.42E+01	1.49E+01	8.28E+00	2.88E+01
H AMBIENT	1.48E+01	1.59E+01	1.07E+01	3.55E+01
H PERSONAL	1.60E+01	1.71E+01	1.17E+01	3.74E+01
HE A-P R51	5.31E+00	5.47E+00	3.96E+00	1.05E+01
MADE R21	1.40E+01	1.45E+01	1.08E+01	2.69E+01
BS 3HE BARE	1.95E+00	1.93E+00	3.67E+00	8.56E-01
BS 3HE 2.5″	1.31E+00	1.26E+00	1.14E+00	1.12E+00
BS 3HE 3″	1.52E+00	1.47E+00	1.04E+00	1.52E+00
BS 3HE 3.5″	1.62E+00	1.60E+00	9.66E-01	1.82E+00
BS 3HE 4″	1.62E+00	1.61E+00	8.72E-01	1.97E+00
BS 3HE 4.5″	1.53E+00	1.54E+00	7.72E-01	1.99E+00
BS 3HE 5″	1.39E+00	1.41E+00	6.69E-01	1.91E+00
BS 3HE 6″	1.04E+00	1.08E+00	4.78E-01	1.56E+00
BS 3HE 7″	7.26E-01	7.55E-01	3.22E-01	1.16E+00
BS 3HE 8″	4.81E-01	5.04E-01	2.09E-01	8.05E-01
BS 3HE 9.5″	2.47E-01	2.59E-01	1.06E-01	4.32E-01
BS 3HE 10″	1.96E-01	2.05E-01	8.34E-02	3.48E-01
BS 3HE 12″	7.37E-02	7.70E-02	3.07E-02	1.36E-01
BS 3HE 15″	1.59E-02	1.62E-02	6.34E-03	3.05E-02
BS 3HE 18″	3.38E-03	3.24E-03	1.25E-03	6.73E-03
BS LiI BARE	8.56E-02	8.25E-02	1.33E-01	4.40E-02
BS LiI 2″	1.09E-01	1.04E-01	7.52E-02	1.01E-01
BS LiI 3″	1.46E-01	1.44E-01	7.04E-02	1.72E-01
BS LiI 6″	8.33E-02	8.64E-02	3.34E-02	1.32E-01
BS LiI 8″	3.71E-02	3.89E-02	1.46E-02	6.43E-02
BS LiI 10″	1.51E-02	1.58E-02	5.76E-03	2.73E-02
BS LiI 15″	1.26E-03	1.27E-03	4.26E-04	2.44E-03
BS LiI 18″	2.91E-04	2.76E-04	9.20E-05	5.62E-04
6Li BARE	1.88E-01	1.79E-01	5.43E-02	2.27E-01
6Li Cd	9.46E-02	9.05E-02	2.49E-02	1.15E-01
GOLD BARE	1.26E-02	1.09E-02	3.19E-03	8.30E-03
Nat U PC	5.88E-05	5.68E-05	1.43E-05	5.90E-05
238 U PC	2.61E-09	1.05E-09	1.40E-10	3.81E-09
232 Th PC	6.32E-10	2.38E-10	3.14E-11	8.45E-10
CR39 ECE	1.18E-06	1.19E-06	2.35E-07	5.30E-06
LR115 LiB	1.80E+03	1.73E+03	4.55E+02	2.37E+03
PLANAR	1.16E+03	1.20E+03	2.36E+02	5.54E+03
BASE	1.07E+03	1.18E+03	2.37E+02	5.54E+03
PYRAMIDE	6.75E+02	7.25E+02	1.45E+02	3.40E+03
PTB TH	3.67E+01	3.82E+01	6.07E+01	4.68E+01
PTB INT	3.65E+01	3.71E+01	2.62E+01	5.90E+01
PTB FAST	5.39E+00	6.71E+00	1.45E+00	2.94E+01
PTB I+F	1.43E+01	1.55E+01	8.43E+00	3.88E+01
LONG C	5.19E-02	7.00E-02	1.63E-02	2.33E-01
LEAKE	2.35E-02	2.51E-02	6.38E-03	4.82E-02
A-B_2	6.92E-02	7.14E-02	2.76E-02	1.20E-01
EBERNRD2	7.06E-02	7.41E-02	2.69E-02	1.29E-01
MOD930_2	3.39E-02	3.62E-02	1.21E-02	7.49E-02
STUDSVIK	1.23E-02	1.36E-02	3.29E-03	3.42E-02
LB6411	4.63E-02	4.99E-02	1.68E-02	1.08E-01
BUBBLE	1.05E+03	1.11E+03	2.40E+02	5.00E+03
ELECTRET	4.70E+01	4.36E+01	2.08E+01	5.06E+01
SILICON	1.45E-02	1.77E-02	3.74E-03	8.15E-02

TABLE 5.XXI. SWISS PWR, WESTINGHOUSE

Spectra

Column 1: Energy in eV
Column 2: 1 m from metal door into containment
Column 3: In containment, 1 m from platform
Column 4: In containment, 3 m from platform
Column 5: Behind steam generator

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	9.86E-02	1.13E-01	1.06E-01	1.94E-01
4.64E-03	9.58E-02	1.09E-01	1.03E-01	1.86E-01
1.00E-02	9.00E-02	1.02E-01	9.70E-02	1.69E-01
2.15E-02	7.80E-02	8.68E-02	8.38E-02	1.34E-01
4.64E-02	5.60E-02	6.04E-02	5.94E-02	7.28E-02
1.00E-01	2.36E-02	2.11E-02	2.38E-02	2.94E-02
2.15E-01	7.59E-03	3.22E-03	6.58E-03	2.51E-02
4.64E-01	1.65E-02	1.55E-02	1.64E-02	2.31E-02
1.00E+00	3.65E-02	3.52E-02	3.64E-02	3.63E-02
2.15E+00	4.45E-02	4.49E-02	4.77E-02	3.57E-02
4.64E+00	1.72E-02	1.47E-02	1.55E-02	1.12E-02
1.00E+01	8.12E-02	7.93E-02	8.39E-02	6.48E-02
2.15E+01	5.93E-02	5.76E-02	6.06E-02	4.13E-02
4.64E+01	4.34E-02	4.18E-02	4.37E-02	2.81E-02
1.00E+02	3.76E-02	3.48E-02	3.64E-02	2.34E-02
2.15E+02	5.80E-02	5.79E-02	5.99E-02	3.59E-02
4.64E+02	1.32E-01	1.28E-01	1.30E-01	6.97E-02
1.00E+03	6.41E-02	6.26E-02	6.34E-02	3.29E-02
2.15E+03	5.26E-02	5.09E-02	5.11E-02	2.45E-02
4.64E+03	5.66E-02	5.42E-02	5.38E-02	2.41E-02
1.00E+04	4.35E-02	4.14E-02	4.09E-02	1.75E-02
1.25E+04	3.21E-02	3.04E-02	3.00E-02	1.26E-02
1.58E+04	2.51E-02	2.36E-02	2.31E-02	9.44E-03
1.99E+04	6.23E-03	5.85E-03	5.75E-03	2.35E-03
2.51E+04	2.75E-02	2.56E-02	2.50E-02	9.81E-03
3.16E+04	1.72E-02	1.56E-02	1.51E-02	5.45E-03
3.98E+04	8.63E-02	7.87E-02	7.62E-02	2.79E-02
5.01E+04	6.21E-02	5.55E-02	5.31E-02	1.79E-02
6.30E+04	3.25E-02	2.81E-02	2.67E-02	8.20E-03
7.94E+04	1.70E-02	1.33E-02	1.22E-02	2.57E-03
1.00E+05	3.24E-02	2.66E-02	2.48E-02	6.72E-03
1.25E+05	2.99E-02	2.36E-02	2.18E-02	5.48E-03
1.58E+05	2.67E-02	2.00E-02	1.83E-02	4.13E-03
1.99E+05	1.97E-02	1.42E-02	1.29E-02	2.67E-03
2.51E+05	1.13E-02	7.86E-03	7.05E-03	1.36E-03
3.16E+05	1.09E-02	6.86E-03	6.03E-03	1.02E-03
3.98E+05	8.64E-03	5.14E-03	4.45E-03	6.85E-04
5.01E+05	5.57E-03	3.04E-03	2.58E-03	3.56E-04
6.30E+05	2.65E-03	1.38E-03	1.15E-03	1.47E-04
7.94E+05	5.60E-03	2.65E-03	2.16E-03	2.46E-04
1.00E+06	3.55E-03	1.40E-03	1.08E-03	9.50E-05
1.25E+06	2.17E-03	8.68E-04	6.81E-04	6.23E-05
1.58E+06	1.43E-03	5.42E-04	4.14E-04	3.50E-05
1.99E+06	1.82E-04	6.64E-05	5.00E-05	6.85E-06
2.51E+06	3.71E-04	1.28E-04	9.44E-05	0.00E+00
3.16E+06	6.41E-04	2.10E-04	1.52E-04	0.00E+00
3.98E+06	2.00E-04	6.08E-05	5.00E-05	0.00E+00
5.01E+06	5.37E-05	1.21E-05	3.72E-05	0.00E+00
6.30E+06	2.51E-05	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

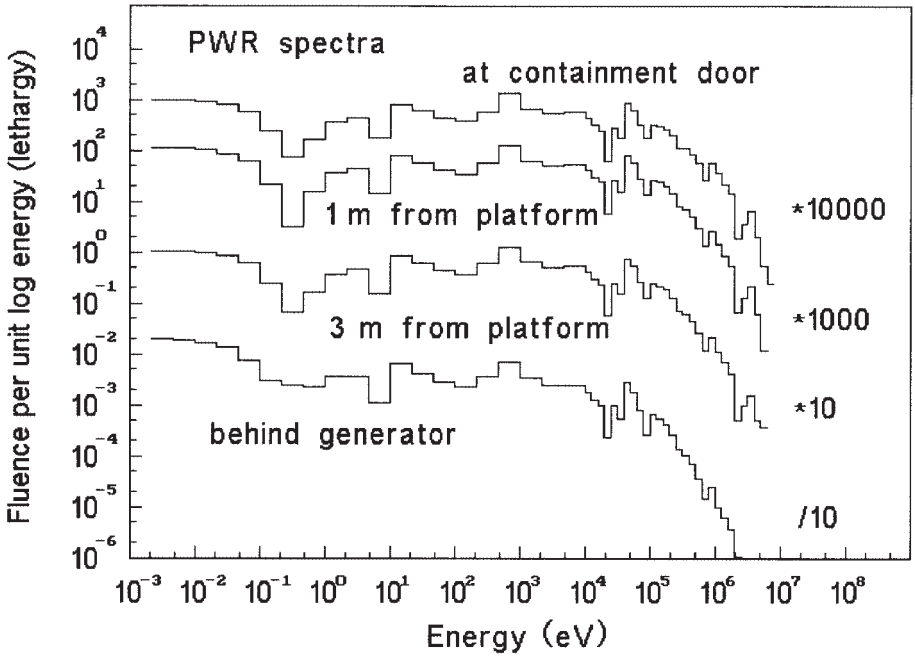

FIG. 5.14. Swiss PWR, Westinghouse.

TABLE 5.XXI. SWISS PWR, WESTINGHOUSE

Spectrum weighted responses

Column 2: 1 m from metal door into containment
Column 3: In containment, 1 m from platform
Column 4: In containment, 3 m from platform
Column 5: Behind steam generator

FLUENCE 20	1.00E+00	1.00E+00	9.99E-01	1.00E+00
E A-P R60	1.75E+01	1.55E+01	1.53E+01	1.05E+01
H AMBIENT	1.85E+01	1.58E+01	1.53E+01	1.10E+01
H PERSONAL	1.98E+01	1.70E+01	1.64E+01	1.21E+01
HE A-P R51	6.20E+00	5.41E+00	5.27E+00	4.13E+00
MADE R21	1.63E+01	1.45E+01	1.41E+01	1.13E+01
BS 3HE BARE	1.44E+00	1.60E+00	1.53E+00	2.59E+00
BS 3HE 2.5″	1.29E+00	1.28E+00	1.31E+00	1.32E+00
BS 3HE 3″	1.59E+00	1.56E+00	1.59E+00	1.40E+00
BS 3HE 3.5″	1.77E+00	1.72E+00	1.76E+00	1.41E+00
BS 3HE 4″	1.82E+00	1.76E+00	1.79E+00	1.35E+00
BS 3HE 4.5″	1.75E+00	1.69E+00	1.71E+00	1.24E+00
BS 3HE 5″	1.62E+00	1.55E+00	1.57E+00	1.10E+00
BS 3HE 6″	1.25E+00	1.18E+00	1.20E+00	7.99E-01
BS 3HE 7″	8.81E-01	8.30E-01	8.37E-01	5.42E-01
BS 3HE 8″	5.91E-01	5.53E-01	5.56E-01	3.53E-01
BS 3HE 9.5″	3.06E-01	2.83E-01	2.84E-01	1.77E-01
BS 3HE 10″	2.43E-01	2.24E-01	2.25E-01	1.39E-01
BS 3HE 12″	9.18E-02	8.35E-02	8.34E-02	5.10E-02
BS 3HE 15″	1.96E-02	1.73E-02	1.71E-02	1.03E-02
BS 3HE 18″	4.02E-03	3.33E-03	3.27E-03	1.89E-03
BS LiI BARE	6.82E-02	7.29E-02	7.19E-02	1.06E-01
BS LiI 2″	1.12E-01	1.10E-01	1.13E-01	1.03E-01
BS LiI 3″	1.64E-01	1.58E-01	1.62E-01	1.21E-01
BS LiI 6″	1.02E-01	9.58E-02	9.68E-02	6.15E-02
BS LiI 8″	4.62E-02	4.29E-02	4.32E-02	2.65E-02
BS LiI 10″	1.89E-02	1.73E-02	1.74E-02	1.05E-02
BS LiI 15″	1.56E-03	1.36E-03	1.35E-03	7.82E-04
BS LiI 18″	3.45E-04	2.87E-04	2.84E-04	1.60E-04
6Li BARE	2.15E-01	2.03E-01	2.12E-01	1.55E-01
6Li Cd	1.09E-01	1.04E-01	1.08E-01	7.43E-02
GOLD BARE	1.34E-02	1.34E-02	1.42E-02	1.09E-02
Nat U PC	6.79E-05	6.38E-05	6.68E-05	4.45E-05
238 U PC	1.77E-09	5.74E-10	4.68E-10	9.57E-12
232 Th PC	4.03E-10	1.25E-10	1.05E-10	8.23E-13
CR39 ECE	1.77E-06	1.02E-06	8.79E-07	1.54E-07
LR115 LiB	2.11E+03	2.02E+03	2.08E+03	1.43E+03
PLANAR	1.81E+03	1.01E+03	8.67E+02	1.39E+02
BASE	1.76E+03	1.01E+03	8.73E+02	1.41E+02
PYRAMIDE	1.09E+03	6.17E+02	5.31E+02	8.45E+01
PTB TH	3.33E+01	3.25E+01	3.06E+01	4.24E+01
PTB INT	4.14E+01	3.81E+01	3.78E+01	3.07E+01
PTB FAST	9.52E+00	6.35E+00	5.68E+00	1.19E+00
PTB I+F	1.88E+01	1.55E+01	1.49E+01	9.49E+00
LONG C	9.03E-02	7.40E-02	6.98E-02	2.13E-02
LEAKE	3.10E-02	2.79E-02	2.80E-02	1.49E-02
A-B_2	8.53E-02	7.82E-02	7.86E-02	4.96E-02
EBERNRD2	8.88E-02	8.14E-02	8.15E-02	4.87E-02
MOD930_2	4.44E-02	3.91E-02	3.87E-02	2.14E-02
STUDSVIK	1.73E-02	1.45E-02	1.42E-02	6.63E-03
LB6411	6.16E-02	5.35E-02	5.27E-02	2.82E-02
BUBBLE	1.64E+03	9.51E+02	8.26E+02	1.64E+02
ELECTRET	5.04E+01	4.76E+01	4.93E+01	4.03E+01
SILICON	2.57E-02	1.61E-02	1.42E-02	2.63E-03

TABLE 5.XXII. SWISS PWR, SIEMENS KWU

Spectra

Column 1: Energy in eV
Column 2: 18.4 m level, reactor axis
Column 3: Reactor level, 40 cm behind metal door
Column 4: Reactor level, 33 cm behind metal door

1.00E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	2.06E-01	2.24E-01	2.26E-01
4.64E-03	1.99E-01	2.14E-01	2.16E-01
1.00E-02	1.86E-01	1.94E-01	1.97E-01
2.15E-02	1.59E-01	1.55E-01	1.58E-01
4.64E-02	1.09E-01	8.39E-02	8.73E-02
1.00E-01	3.72E-02	3.36E-02	3.61E-02
2.15E-01	3.30E-03	2.57E-02	2.65E-02
4.64E-01	2.26E-02	1.92E-02	1.84E-02
1.00E+00	5.00E-02	3.13E-02	3.24E-02
2.15E+00	4.53E-02	2.96E-02	3.05E-02
4.64E+00	1.24E-02	8.50E-03	8.12E-03
1.00E+01	5.28E-02	4.50E-02	4.44E-02
2.15E+01	3.11E-02	2.68E-02	2.65E-02
4.64E+01	2.01E-02	1.81E-02	1.77E-02
1.00E+02	1.77E-02	1.64E-02	1.55E-02
2.15E+02	2.12E-02	2.29E-02	2.19E-02
4.64E+02	4.05E-02	4.77E-02	4.43E-02
1.00E+03	1.79E-02	2.26E-02	2.08E-02
2.15E+03	1.34E-02	1.81E-02	1.65E-02
4.64E+03	1.37E-02	1.90E-02	1.72E-02
1.00E+04	1.03E-02	1.45E-02	1.31E-02
1.25E+04	7.52E-03	1.07E-02	9.56E-03
1.58E+04	5.79E-03	8.28E-03	7.39E-03
1.99E+04	1.43E-03	2.05E-03	1.84E-03
2.51E+04	6.21E-03	8.96E-03	8.01E-03
3.16E+04	3.88E-03	5.53E-03	4.92E-03
3.98E+04	1.96E-02	2.78E-02	2.48E-02
5.01E+04	1.41E-02	1.97E-02	1.75E-02
6.30E+04	7.58E-03	1.00E-02	9.01E-03
7.94E+04	4.33E-03	4.93E-03	4.48E-03
1.00E+05	8.08E-03	9.64E-03	8.73E-03
1.25E+05	7.89E-03	8.67E-03	7.89E-03
1.58E+05	7.64E-03	7.48E-03	6.89E-03
1.99E+05	5.94E-03	5.36E-03	5.01E-03
2.51E+05	3.67E-03	2.98E-03	2.82E-03
3.16E+05	4.24E-03	2.63E-03	2.58E-03
3.98E+05	3.79E-03	1.98E-03	1.99E-03
5.01E+05	2.94E-03	1.18E-03	1.22E-03
6.30E+05	1.58E-03	5.36E-04	5.67E-04
7.94E+05	4.27E-03	1.03E-03	1.13E-03
1.00E+06	4.09E-03	5.37E-04	6.45E-04
1.25E+06	2.62E-03	3.33E-04	4.01E-04
1.58E+06	2.11E-03	2.04E-04	2.54E-04
1.99E+06	3.00E-04	2.47E-05	3.14E-05
2.51E+06	7.46E-04	4.69E-05	6.12E-05
3.16E+06	1.55E-03	7.54E-05	1.02E-04
3.98E+06	6.11E-04	2.47E-05	2.99E-05
5.01E+06	1.84E-04	7.14E-06	5.78E-06
6.30E+06	5.82E-05	0.00E+00	0.00E+00
7.94E+06	1.52E-05	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00
6.30E+08			

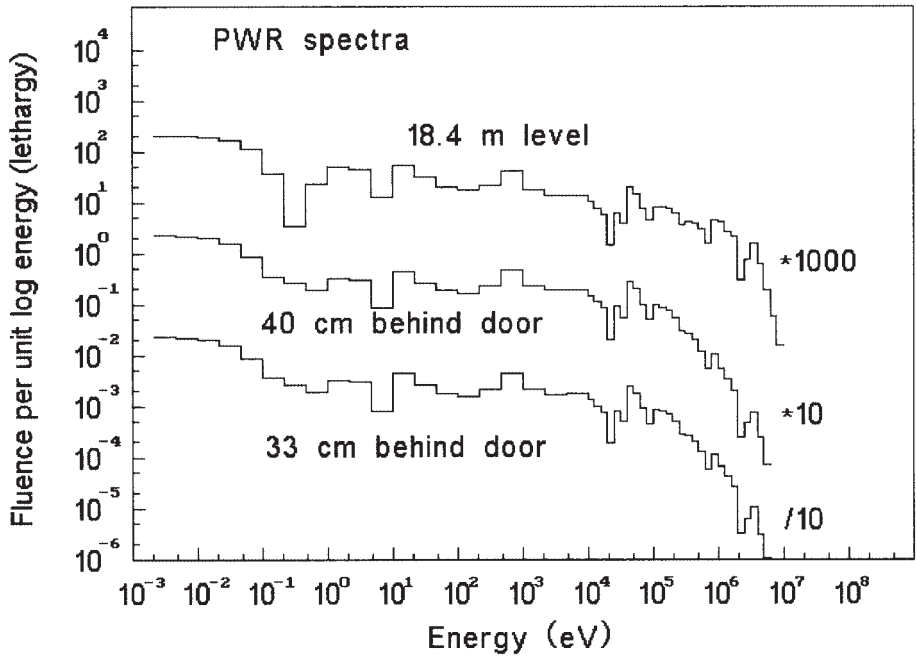

FIG. 5.15. Swiss PWR, Siemens KWU.

TABLE 5.XXII. SWISS PWR, SIEMENS KWU

Spectrum weighted responses

Column 2: 18.4 m level, reactor axis
Column 3: Reactor level, 40 cm behind metal door
Column 4: Reactor level, 33 cm behind metal door

FLUENCE 20	9.99E-01	9.99E-01	1.00E+00
E A-P R60	1.17E+01	1.03E+01	1.01E+01
H AMBIENT	1.37E+01	1.19E+01	1.19E+01
H PERSONAL	1.49E+01	1.30E+01	1.29E+01
HE A-P R51	5.07E+00	4.33E+00	4.32E+00
MADE R21	1.32E+01	1.17E+01	1.17E+01
BS 3HE BARE	2.85E+00	2.96E+00	3.00E+00
BS 3HE 2.5″	1.32E+00	1.27E+00	1.28E+00
BS 3HE 3″	1.33E+00	1.27E+00	1.27E+00
BS 3HE 3.5″	1.29E+00	1.25E+00	1.24E+00
BS 3HE 4″	1.21E+00	1.17E+00	1.16E+00
BS 3HE 4.5″	1.09E+00	1.06E+00	1.04E+00
BS 3HE 5″	9.52E-01	9.37E-01	9.17E-01
BS 3HE 6″	6.89E-01	6.81E-01	6.63E-01
BS 3HE 7″	4.69E-01	4.63E-01	4.50E-01
BS 3HE 8″	3.09E-01	3.03E-01	2.94E-01
BS 3HE 9.5″	1.59E-01	1.53E-01	1.49E-01
BS 3HE 10″	1.26E-01	1.21E-01	1.17E-01
BS 3HE 12″	4.89E-02	4.47E-02	4.34E-02
BS 3HE 15″	1.13E-02	9.20E-03	8.96E-03
BS 3HE 18″	2.76E-03	1.76E-03	1.73E-03
BS LiI BARE	1.19E-01	1.18E-01	1.20E-01
BS LiI 2″	1.01E-01	9.51E-02	9.54E-02
BS LiI 3″	1.08E-01	1.03E-01	1.02E-01
BS LiI 6″	5.25E-02	5.15E-02	4.99E-02
BS LiI 8″	2.31E-02	2.24E-02	2.17E-02
BS LiI 10″	9.54E-03	8.93E-03	8.64E-03
BS LiI 15″	8.91E-04	6.82E-04	6.63E-04
BS LiI 18″	2.33E-04	1.43E-04	1.40E-04
6Li BARE	1.31E-01	1.25E-01	1.24E-01
6Li Cd	6.31E-02	5.71E-02	5.60E-02
GOLD BARE	1.29E-02	9.04E-03	9.27E-03
Nat U PC	3.46E-05	3.13E-05	3.00E-05
238 U PC	4.04E-09	2.16E-10	2.76E-10
232 Th PC	9.85E-10	4.74E-11	6.05E-11
CR39 ECE	1.27E-06	3.84E-07	3.92E-07
LR115 LiB	1.30E+03	1.09E+03	1.06E+03
PLANAR	1.23E+03	3.85E+02	3.96E+02
BASE	1.08E+03	3.87E+02	3.94E+02
PYRAMIDE	6.95E+02	2.36E+02	2.41E+02
PTB TH	4.97E+01	4.96E+01	5.01E+01
PTB INT	3.25E+01	2.99E+01	2.98E+01
PTB FAST	4.39E+00	2.38E+00	2.30E+00
PTB I+F	1.24E+01	1.02E+01	1.01E+01
LONG C	2.65E-02	2.67E-02	2.44E-02
LEAKE	1.30E-02	1.22E-02	1.17E-02
A-B_2	4.77E-02	4.31E-02	4.22E-02
EBERNRD2	4.46E-02	4.17E-02	4.03E-02
MOD930_2	2.22E-02	1.93E-02	1.86E-02
STUDSVIK	7.43E-03	6.14E-03	5.84E-03
LB6411	2.98E-02	2.57E-02	2.47E-02
BUBBLE	1.08E+03	3.82E+02	3.89E+02
ELECTRET	4.20E+01	3.56E+01	3.60E+01
SILICON	1.27E-02	6.13E-03	6.02E-03

TABLE 5.XXIII. MICROTRON STRAY FIELD, 1

Spectra

Column 1: Energy in eV
Column 2: 1 m from Au target
Column 3: Site B, measured
Column 4: Site C, measured
Column 5: Site D, door 2 open
Column 6: Site D, door 2 closed

1.00E-03	1.68E-03	1.33E-02	3.63E-02	1.23E-02	6.74E-03
2.15E-03	1.69E-03	1.33E-02	3.66E-02	1.27E-02	6.85E-03
4.64E-03	1.73E-03	1.33E-02	3.66E-02	1.35E-02	7.07E-03
1.00E-02	1.80E-03	1.33E-02	3.70E-02	1.52E-02	7.54E-03
2.15E-02	1.96E-03	1.34E-02	3.73E-02	1.89E-02	8.54E-03
4.64E-02	2.29E-03	1.37E-02	3.82E-02	2.67E-02	1.07E-02
1.00E-01	2.96E-03	1.41E-02	4.04E-02	4.24E-02	1.50E-02
2.15E-01	4.21E-03	1.50E-02	4.39E-02	7.19E-02	2.36E-02
4.64E-01	6.02E-03	1.66E-02	4.99E-02	1.16E-01	3.81E-02
1.00E+00	5.10E-03	1.81E-02	4.90E-02	9.84E-02	4.80E-02
2.15E+00	3.62E-03	2.09E-02	4.80E-02	7.07E-02	6.21E-02
4.64E+00	2.47E-03	2.69E-02	4.77E-02	4.92E-02	6.46E-02
1.00E+01	5.03E-03	3.71E-02	5.15E-02	9.20E-02	1.07E-02
2.15E+01	5.31E-03	4.46E-02	4.61E-02	4.18E-02	5.45E-02
4.64E+01	1.65E-02	4.50E-02	4.55E-02	1.51E-01	1.47E-02
1.00E+02	8.62E-03	5.39E-02	4.58E-02	5.57E-02	5.08E-02
2.15E+02	1.12E-02	8.00E-02	4.33E-02	7.75E-03	5.02E-02
4.64E+02	1.07E-02	3.10E-02	4.71E-02	4.93E-02	5.96E-02
1.00E+03	1.85E-02	7.88E-02	4.26E-02	9.61E-03	4.80E-02
2.15E+03	1.84E-02	3.79E-02	4.52E-02	2.42E-02	5.89E-02
4.64E+03	2.85E-02	5.96E-02	4.33E-02	9.66E-03	5.06E-02
1.00E+04	4.44E-02	8.53E-02	4.01E-02	2.48E-03	3.89E-02
1.25E+04	4.45E-02	7.92E-02	4.04E-02	2.97E-03	4.08E-02
1.58E+04	4.17E-02	6.99E-02	4.17E-02	4.00E-03	4.45E-02
1.99E+04	5.28E-02	7.27E-02	4.11E-02	2.60E-03	4.03E-02
2.51E+04	5.54E-02	6.85E-02	4.20E-02	2.61E-03	4.09E-02
3.16E+04	5.66E-02	6.46E-02	4.33E-02	2.78E-03	4.18E-02
3.98E+04	5.53E-02	6.12E-02	4.52E-02	3.16E-03	4.36E-02
5.01E+04	5.77E-02	5.71E-02	4.77E-02	3.47E-03	4.59E-02
6.30E+04	6.21E-02	5.35E-02	5.05E-02	3.87E-03	4.95E-02
7.94E+04	6.82E-02	5.15E-02	5.43E-02	4.47E-03	5.43E-02
1.00E+05	7.79E-02	5.29E-02	5.88E-02	5.39E-03	6.11E-02
1.25E+05	9.86E-02	5.92E-02	6.29E-02	6.69E-03	6.71E-02
1.58E+05	1.33E-01	7.21E-02	6.63E-02	8.58E-03	7.26E-02
1.99E+05	1.79E-01	9.16E-02	6.85E-02	1.14E-02	7.83E-02
2.51E+05	2.15E-01	1.02E-01	6.89E-02	1.52E-02	8.79E-02
3.16E+05	2.54E-01	1.13E-01	6.73E-02	2.10E-02	9.94E-02
3.98E+05	2.86E-01	1.20E-01	6.41E-02	2.98E-02	1.13E-01
5.01E+05	3.06E-01	1.28E-01	6.63E-02	4.37E-02	1.28E-01
6.30E+05	3.11E-01	1.29E-01	6.57E-02	6.25E-02	1.40E-01
7.94E+05	3.07E-01	1.28E-01	6.48E-02	8.62E-02	1.38E-01
1.00E+06	2.88E-01	1.22E-01	6.13E-02	1.11E-01	1.24E-01
1.25E+06	2.53E-01	1.10E-01	4.96E-02	1.25E-01	1.13E-01
1.58E+06	2.13E-01	9.30E-02	2.93E-02	1.18E-01	1.09E-01
1.99E+06	1.52E-01	6.85E-02	1.67E-02	1.14E-01	9.17E-02
2.51E+06	1.02E-01	4.54E-02	2.12E-02	1.10E-01	7.33E-02
3.16E+06	4.51E-02	2.03E-02	1.66E-02	7.89E-02	4.42E-02
3.98E+06	2.58E-02	1.18E-02	3.06E-03	2.79E-02	8.94E-03
5.01E+06	9.68E-03	3.55E-03	2.47E-03	2.23E-02	9.06E-03
6.30E+06	2.52E-03	1.18E-03	4.64E-04	5.83E-03	2.58E-03
7.94E+06	1.78E-02	7.58E-03	4.26E-03	1.28E-02	1.72E-02
1.00E+07	1.38E-04	6.56E-05	2.44E-05	3.47E-04	1.40E-04
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

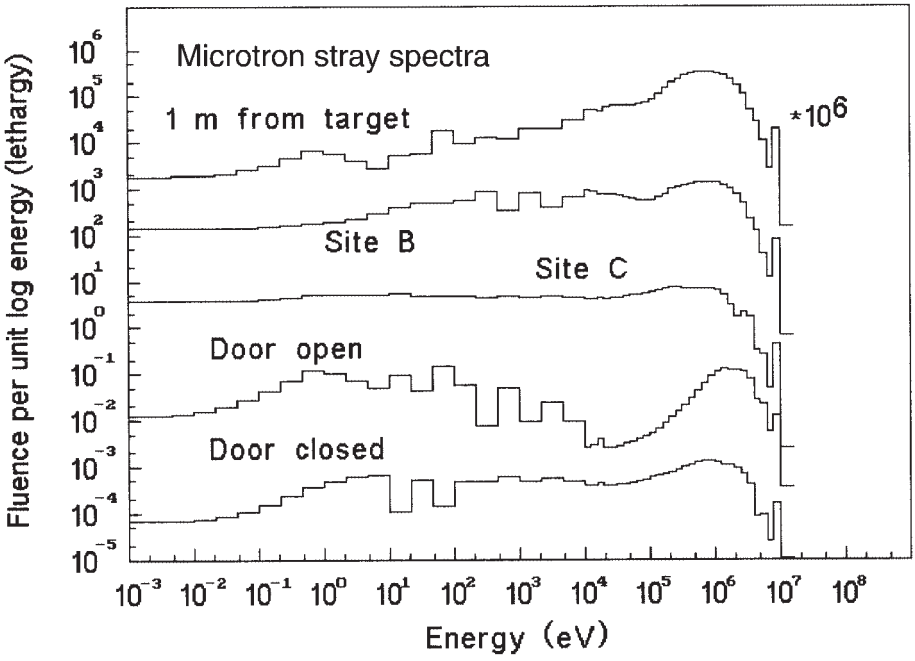

FIG. 5.16. Microtron stray field, 1.

TABLE 5.XXIII. MICROTRON STRAY FIELD, 1

Spectrum weighted responses

Column 2: 1 m from Au target
Column 3: Site B, measured
Column 4: Site C, measured
Column 5: Site D, door 2 open
Column 6: Site D, door 2 closed

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.85E+02	9.00E+01	5.17E+01	8.84E+01	9.98E+01
H AMBIENT	2.54E+02	1.18E+02	6.78E+01	9.97E+01	1.28E+02
H PERSONAL	2.65E+02	1.24E+02	7.11E+01	1.05E+02	1.34E+02
HE A-P R51	9.32E+01	4.33E+01	2.35E+01	4.75E+01	4.98E+01
MADE R21	1.95E+02	9.23E+01	5.24E+01	8.92E+01	1.02E+02
BS 3HE BARE	5.58E-02	3.47E-01	9.16E-01	5.97E-01	2.81E-01
BS 3HE 2.5″	3.71E-01	8.92E-01	1.23E+00	1.48E+00	1.00E+00
BS 3HE 3″	7.36E-01	1.32E+00	1.55E+00	1.77E+00	1.40E+00
BS 3HE 3.5″	1.16E+00	1.68E+00	1.76E+00	1.89E+00	1.71E+00
BS 3HE 4″	1.56E+00	1.92E+00	1.87E+00	1.91E+00	1.92E+00
BS 3HE 4.5″	1.90E+00	2.05E+00	1.87E+00	1.84E+00	2.02E+00
BS 3HE 5″	2.14E+00	2.07E+00	1.79E+00	1.73E+00	2.03E+00
BS 3HE 6″	2.31E+00	1.89E+00	1.51E+00	1.46E+00	1.85E+00
BS 3HE 7″	2.19E+00	1.58E+00	1.18E+00	1.19E+00	1.56E+00
BS 3HE 8″	1.89E+00	1.24E+00	8.74E-01	9.56E-01	1.25E+00
BS 3HE 9.5″	1.36E+00	8.04E-01	5.26E-01	6.77E-01	8.36E-01
BS 3HE 10″	1.20E+00	6.90E-01	4.41E-01	5.99E-01	7.25E-01
BS 3HE 12″	6.84E-01	3.58E-01	2.09E-01	3.61E-01	3.95E-01
BS 3HE 15″	2.67E-01	1.28E-01	6.68E-02	1.65E-01	1.53E-01
BS 3HE 18″	1.07E-01	4.91E-02	2.36E-02	8.02E-02	6.44E-02
BS LiI BARE	5.18E-03	2.27E-02	5.18E-02	5.72E-02	2.76E-02
BS LiI 2″	3.51E-02	8.36E-02	1.10E-01	1.39E-01	9.46E-02
BS LiI 3″	1.07E-01	1.60E-01	1.65E-01	1.80E-01	1.63E-01
BS LiI 6″	2.25E-01	1.71E-01	1.32E-01	1.30E-01	1.69E-01
BS LiI 8″	1.69E-01	1.06E-01	7.28E-02	8.44E-02	1.08E-01
BS LiI 10″	1.05E-01	5.84E-02	3.64E-02	5.32E-02	6.22E-02
BS LiI 15″	2.39E-02	1.14E-02	5.84E-03	1.55E-02	1.38E-02
BS LiI 18″	9.17E-03	4.21E-03	2.02E-03	7.19E-03	5.60E-03
6Li BARE	1.54E-01	2.24E-01	2.56E-01	3.21E-01	2.49E-01
6Li Cd	6.87E-02	1.09E-01	1.19E-01	1.50E-01	1.21E-01
GOLD BARE	1.42E-03	7.26E-03	1.49E-02	2.20E-02	1.78E-02
Nat U PC	1.82E-05	8.04E-05	7.28E-05	9.31E-05	7.33E-05
238 U PC	3.51E-07	1.55E-07	7.09E-08	3.79E-07	2.53E-07
232 Th PC	7.76E-08	3.43E-08	1.69E-08	9.08E-08	5.93E-08
CR39 ECE	1.09E-04	4.76E-05	2.16E-05	5.42E-05	5.51E-05
LR115 LiB	1.39E+03	2.10E+03	2.39E+03	3.10E+03	2.48E+03
PLANAR	1.04E+05	4.49E+04	2.17E+04	4.29E+04	5.00E+04
BASE	9.08E+04	3.91E+04	1.95E+04	3.24E+04	4.25E+04
PYRAMIDE	5.87E+04	2.53E+04	1.25E+04	2.23E+04	2.79E+04
PTB TH	3.05E+02	1.40E+02	8.73E+01	1.09E+02	1.48E+02
PTB INT	3.04E+02	1.54E+02	9.74E+01	1.31E+02	1.63E+02
PTB FAST	2.86E+02	1.27E+02	6.76E+01	9.93E+01	1.36E+02
PTB I+F	3.01E+02	1.39E+02	7.85E+01	1.12E+02	1.49E+02
LONG C	8.31E-01	4.29E-01	2.63E-01	2.38E-01	4.25E-01
LEAKE	1.94E-01	1.06E-01	6.50E-02	8.68E-02	1.11E-01
A-B_2	5.01E-01	2.75E-01	1.72E-01	2.55E-01	2.93E-01
EBERNRD2	5.05E-01	2.81E-01	1.74E-01	2.47E-01	2.96E-01
MOD930_2	4.43E-01	2.21E-01	1.25E-01	2.06E-01	2.40E-01
STUDSVIK	2.25E-01	1.08E-01	6.00E-02	9.79E-02	1.18E-01
LB6411	6.99E-01	3.41E-01	1.89E-01	3.10E-01	3.71E-01
BUBBLE	8.66E+04	3.74E+04	1.84E+04	3.40E+04	4.13E+04
ELECTRET	1.86E+02	1.13E+02	8.66E+01	1.71E+02	1.37E+02
SILICON	9.24E-01	4.03E-01	2.07E-01	2.67E-01	4.17E-01

TABLE 5.XXIV. MICROTRON STRAY FIELD, 2

Spectra

Column 1: Energy in eV
Column 2: Site E, door 2 open
Column 3: Site E, door 2 closed
Column 4: Site D, with backing, door 2 closed
Column 5: Site D, without backing, door 2 closed
Column 6: Site D, door 2 open

1.00E-03	1.86E-02	1.10E-02	6.31E-03	8.74E-06	7.07E-02
2.15E-03	1.87E-02	1.11E-02	6.54E-03	4.80E-05	7.07E-02
4.64E-03	1.89E-02	1.14E-02	7.03E-03	9.36E-05	7.02E-02
1.00E-02	1.95E-02	1.21E-02	8.10E-03	5.49E-04	6.96E-02
2.15E-02	2.07E-02	1.34E-02	1.04E-02	1.52E-03	6.81E-02
4.64E-02	2.32E-02	1.63E-02	1.51E-02	3.55E-03	6.55E-02
1.00E-01	2.80E-02	2.22E-02	2.48E-02	7.72E-03	5.98E-02
2.15E-01	3.78E-02	3.37E-02	4.32E-02	1.57E-02	4.92E-02
4.64E-01	5.33E-02	5.26E-02	7.18E-02	2.83E-02	3.23E-02
1.00E+00	5.74E-02	6.26E-02	7.12E-02	3.03E-02	3.15E-02
2.15E+00	6.29E-02	7.63E-02	6.96E-02	3.29E-02	3.05E-02
4.64E+00	6.29E-02	7.60E-02	6.59E-02	3.15E-02	3.02E-02
1.00E+01	3.74E-02	1.30E-02	5.84E-02	1.52E-02	3.40E-02
2.15E+01	5.63E-02	6.13E-02	6.06E-02	2.95E-02	2.98E-02
4.64E+01	4.18E-02	2.73E-02	6.99E-02	2.95E-02	3.09E-02
1.00E+02	5.48E-02	5.93E-02	5.98E-02	2.77E-02	2.97E-02
2.15E+02	5.03E-02	4.99E-02	4.94E-02	2.78E-02	3.02E-02
4.64E+02	5.91E-02	6.99E-02	6.47E-02	3.74E-02	3.67E-02
1.00E+03	4.89E-02	4.76E-02	4.63E-02	2.66E-02	2.73E-02
2.15E+03	5.69E-02	6.38E-02	5.23E-02	2.53E-02	2.14E-02
4.64E+03	5.03E-02	5.03E-02	4.73E-02	2.87E-02	2.78E-02
1.00E+04	4.10E-02	3.33E-02	3.66E-02	2.85E-02	2.81E-02
1.25E+04	4.21E-02	3.52E-02	3.76E-02	2.93E-02	2.92E-02
1.58E+04	4.42E-02	3.94E-02	4.02E-02	3.06E-02	3.12E-02
1.99E+04	4.16E-02	3.35E-02	3.61E-02	3.07E-02	3.02E-02
2.51E+04	4.23E-02	3.35E-02	3.61E-02	3.17E-02	3.14E-02
3.16E+04	4.35E-02	3.40E-02	3.68E-02	3.30E-02	3.30E-02
3.98E+04	4.59E-02	3.56E-02	3.84E-02	3.45E-02	3.53E-02
5.01E+04	4.82E-02	3.71E-02	3.92E-02	3.72E-02	3.74E-02
6.30E+04	5.10E-02	3.93E-02	3.98E-02	4.12E-02	3.96E-02
7.94E+04	5.50E-02	4.27E-02	4.04E-02	4.67E-02	4.19E-02
1.00E+05	5.97E-02	4.74E-02	4.13E-02	5.42E-02	4.47E-02
1.25E+05	6.44E-02	5.13E-02	4.26E-02	6.30E-02	4.95E-02
1.58E+05	6.84E-02	5.47E-02	4.47E-02	7.36E-02	5.62E-02
1.99E+05	7.16E-02	5.81E-02	4.75E-02	8.72E-02	6.45E-02
2.51E+05	7.31E-02	6.45E-02	5.16E-02	1.05E-01	6.81E-02
3.16E+05	7.24E-02	7.23E-02	5.68E-02	1.28E-01	6.96E-02
3.98E+05	7.12E-02	8.21E-02	6.31E-02	1.57E-01	6.96E-02
5.01E+05	7.48E-02	9.29E-02	6.82E-02	1.89E-01	7.38E-02
6.30E+05	7.61E-02	1.02E-01	7.41E-02	2.23E-01	7.53E-02
7.94E+05	7.65E-02	1.01E-01	7.93E-02	2.45E-01	8.05E-02
1.00E+06	7.35E-02	9.12E-02	8.16E-02	2.54E-01	8.41E-02
1.25E+06	6.08E-02	8.48E-02	7.68E-02	2.57E-01	7.38E-02
1.58E+06	3.72E-02	8.23E-02	6.32E-02	2.49E-01	4.76E-02
1.99E+06	2.21E-02	7.03E-02	4.97E-02	2.15E-01	2.92E-02
2.51E+06	2.70E-02	5.64E-02	4.29E-02	1.64E-01	2.88E-02
3.16E+06	2.06E-02	3.42E-02	2.75E-02	9.79E-02	1.85E-02
3.98E+06	4.06E-03	7.13E-03	1.33E-02	6.31E-02	9.70E-03
5.01E+06	3.29E-03	7.18E-03	1.15E-03	1.54E-02	4.94E-03
6.30E+06	6.33E-04	2.08E-03	2.56E-03	1.22E-02	9.65E-04
7.94E+06	5.37E-03	1.31E-02	5.19E-03	1.32E-02	2.47E-03
1.00E+07	3.36E-05	1.14E-04	1.53E-04	7.41E-04	5.78E-05
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

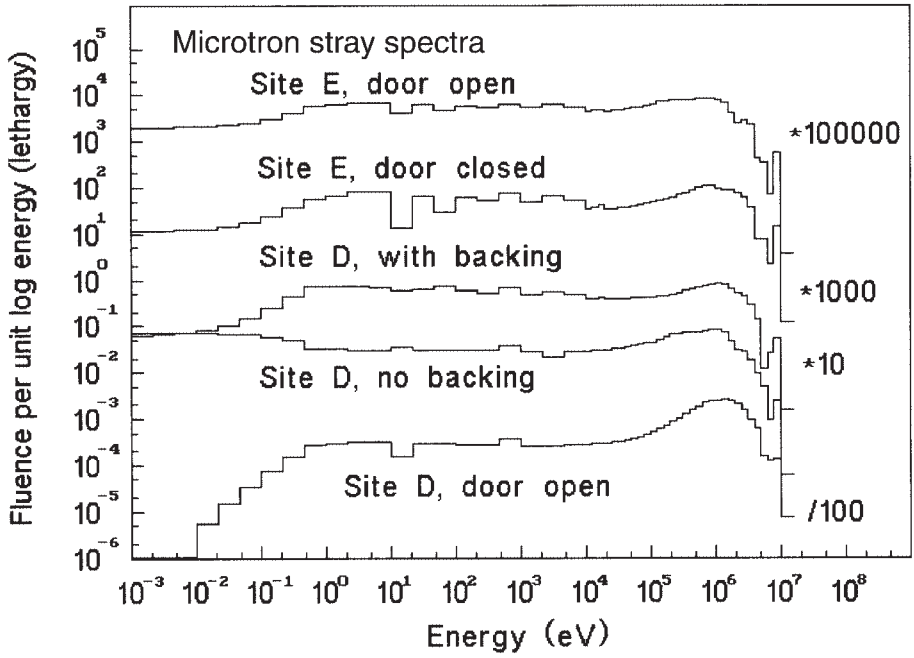

FIG. 5.17. Microtron stray field, 2.

TABLE 5.XXIV. MICROTRON STRAY FIELD, 2

Spectrum weighted responses

Column 2: Site E, door 2 open
Column 3: Site E, door 2 closed
Column 4: Site D, with backing, door 2 closed
Column 5: Site D, without backing, door 2 closed
Column 6: Site D, door 2 open

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	5.87E+01	7.81E+01	6.51E+01	1.78E+02	5.89E+01
H AMBIENT	7.62E+01	9.81E+01	8.03E+01	2.24E+02	7.80E+01
H PERSONAL	8.00E+01	1.03E+02	8.45E+01	2.35E+02	8.18E+01
HE A-P R51	2.70E+01	3.84E+01	3.12E+01	9.42E+01	2.84E+01
MADE R21	5.92E+01	7.93E+01	6.55E+01	1.85E+02	6.14E+01
BS 3HE BARE	5.66E-01	4.13E-01	3.67E-01	9.53E-02	1.56E+00
BS 3HE 2.5″	1.22E+00	1.18E+00	1.31E+00	6.58E-01	1.14E+00
BS 3HE 3″	1.60E+00	1.57E+00	1.71E+00	1.01E+00	1.33E+00
BS 3HE 3.5″	1.86E+00	1.83E+00	1.96E+00	1.35E+00	1.47E+00
BS 3HE 4″	1.99E+00	1.98E+00	2.07E+00	1.64E+00	1.54E+00
BS 3HE 4.5″	2.01E+00	2.01E+00	2.07E+00	1.86E+00	1.55E+00
BS 3HE 5″	1.94E+00	1.96E+00	1.98E+00	2.00E+00	1.51E+00
BS 3HE 6″	1.65E+00	1.71E+00	1.67E+00	2.07E+00	1.31E+00
BS 3HE 7″	1.29E+00	1.39E+00	1.31E+00	1.94E+00	1.06E+00
BS 3HE 8″	9.66E-01	1.08E+00	9.89E-01	1.69E+00	8.19E-01
BS 3HE 9.5″	5.88E-01	6.97E-01	6.21E-01	1.27E+00	5.23E-01
BS 3HE 10″	4.95E-01	5.98E-01	5.28E-01	1.14E+00	4.46E-01
BS 3HE 12″	2.39E-01	3.16E-01	2.70E-01	6.91E-01	2.28E-01
BS 3HE 15″	7.87E-02	1.20E-01	9.78E-02	3.03E-01	8.07E-02
BS 3HE 18″	2.86E-02	4.97E-02	3.91E-02	1.38E-01	3.09E-02
BS LiI BARE	4.17E-02	3.69E-02	4.00E-02	1.51E-02	6.76E-02
BS LiI 2″	1.13E-01	1.11E-01	1.24E-01	6.30E-02	9.50E-02
BS LiI 3″	1.77E-01	1.75E-01	1.88E-01	1.27E-01	1.32E-01
BS LiI 6″	1.45E-01	1.53E-01	1.47E-01	1.99E-01	1.15E-01
BS LiI 8″	8.09E-02	9.20E-02	8.38E-02	1.53E-01	6.91E-02
BS LiI 10″	4.12E-02	5.10E-02	4.47E-02	1.01E-01	3.75E-02
BS LiI 15″	6.93E-03	1.08E-02	8.81E-03	2.80E-02	7.17E-03
BS LiI 18″	2.46E-03	4.33E-03	3.42E-03	1.21E-02	2.66E-03
6Li BARE	2.74E-01	2.74E-01	3.01E-01	1.99E-01	2.04E-01
6Li Cd	1.32E-01	1.33E-01	1.46E-01	9.29E-02	8.80E-02
GOLD BARE	1.87E-02	2.19E-02	2.08E-02	9.72E-03	1.02E-02
Nat U PC	8.26E-05	8.44E-05	9.31E-05	4.47E-05	4.80E-05
238 U PC	9.03E-08	1.95E-07	1.43E-07	5.71E-07	9.79E-08
232 Th PC	2.15E-08	4.58E-08	3.30E-08	1.31E-07	2.25E-08
CR39 ECE	2.58E-05	4.13E-05	3.28E-05	1.14E-04	2.87E-05
LR115 LiB	2.69E+03	2.74E+03	3.00E+03	1.88E+03	1.66E+03
PLANAR	2.56E+04	3.72E+04	2.95E+04	9.70E+04	2.76E+04
BASE	2.27E+04	3.15E+04	2.48E+04	7.86E+04	2.40E+04
PYRAMIDE	1.46E+04	2.07E+04	1.63E+04	5.24E+04	1.55E+04
PTB TH	9.17E+01	1.13E+02	8.99E+01	2.55E+02	1.10E+02
PTB INT	1.08E+02	1.31E+02	1.13E+02	2.64E+02	1.06E+02
PTB FAST	7.74E+01	1.01E+02	8.04E+01	2.44E+02	7.96E+01
PTB I+F	8.88E+01	1.13E+02	9.23E+01	2.59E+02	9.00E+01
LONG C	2.88E-01	3.21E-01	2.70E-01	6.66E-01	2.70E-01
LEAKE	7.37E-02	8.98E-02	7.81E-02	1.76E-01	6.64E-02
A-B_2	1.94E-01	2.41E-01	2.12E-01	4.79E-01	1.80E-01
EBERNRD2	1.97E-01	2.42E-01	2.12E-01	4.78E-01	1.79E-01
MOD930_2	1.43E-01	1.88E-01	1.58E-01	4.24E-01	1.39E-01
STUDSVIK	6.88E-02	9.11E-02	7.54E-02	2.10E-01	6.76E-02
LB6411	2.17E-01	2.88E-01	2.39E-01	6.59E-01	2.13E-01
BUBBLE	2.16E+04	3.07E+04	2.43E+04	7.86E+04	2.31E+04
ELECTRET	9.52E+01	1.22E+02	1.14E+02	2.28E+02	9.16E+01
SILICON	2.37E-01	3.08E-01	2.44E-01	7.36E-01	2.47E-01

TABLE 5.XXV. AVF, TOHOKO UNIVERSITY, 35 MeV CYCLOTRON, 1

Spectra

Column 1: Energy in eV
Column 2: Cyclotron room
Column 3: First leg of labyrinth
Column 4: Second leg of labyrinth, position 1
Column 5: Second leg of labyrinth, position 2
Column 6: Second leg of labyrinth, coupling interface

1.00E-03	1.30E-02	2.99E-02	5.39E-02	6.00E-02	6.26E-02
2.15E-03	1.30E-02	2.99E-02	5.37E-02	5.99E-02	6.26E-02
4.64E-03	1.31E-02	2.99E-02	5.35E-02	5.97E-02	6.22E-02
1.00E-02	1.32E-02	3.02E-02	5.31E-02	5.91E-02	6.17E-02
2.15E-02	1.34E-02	3.02E-02	5.21E-02	5.80E-02	6.05E-02
4.64E-02	1.39E-02	3.04E-02	5.02E-02	5.57E-02	5.78E-02
1.00E-01	1.49E-02	3.06E-02	4.63E-02	5.10E-02	5.26E-02
2.15E-01	1.67E-02	3.11E-02	3.90E-02	4.23E-02	4.31E-02
4.64E-01	1.93E-02	3.16E-02	2.87E-02	3.00E-02	2.94E-02
1.00E+00	2.02E-02	3.09E-02	2.56E-02	2.66E-02	2.56E-02
2.15E+00	2.00E-02	2.59E-02	6.22E-02	7.03E-02	7.43E-02
4.64E+00	2.00E-02	2.32E-02	9.58E-02	1.10E-01	1.18E-01
1.00E+01	2.63E-02	3.63E-02	1.06E-01	1.19E-01	1.27E-01
2.15E+01	3.33E-02	8.88E-02	5.95E-02	5.41E-02	5.13E-02
4.64E+01	3.62E-02	1.16E-01	7.58E-02	6.76E-02	6.47E-02
1.00E+02	3.27E-02	1.01E-01	6.61E-02	5.93E-02	5.78E-02
2.15E+02	2.21E-02	2.23E-02	1.62E-02	1.57E-02	1.67E-02
4.64E+02	2.51E-02	2.47E-02	1.78E-02	1.69E-02	1.82E-02
1.00E+03	3.09E-02	2.97E-02	2.07E-02	1.93E-02	1.75E-02
2.15E+03	4.20E-02	4.27E-02	3.02E-02	2.89E-02	2.63E-02
4.64E+03	4.84E-02	3.65E-02	2.54E-02	2.31E-02	2.07E-02
1.00E+04	5.54E-02	3.58E-02	2.52E-02	2.30E-02	2.03E-02
1.25E+04	5.89E-02	3.63E-02	2.56E-02	2.30E-02	2.05E-02
1.58E+04	6.05E-02	3.68E-02	2.58E-02	2.30E-02	2.05E-02
1.99E+04	5.99E-02	3.65E-02	2.58E-02	2.30E-02	2.03E-02
2.51E+04	5.41E-02	3.58E-02	2.54E-02	2.24E-02	1.98E-02
3.16E+04	4.77E-02	3.51E-02	2.50E-02	2.19E-02	1.95E-02
3.98E+04	4.36E-02	3.51E-02	2.50E-02	2.17E-02	1.93E-02
5.01E+04	4.48E-02	3.65E-02	2.60E-02	2.24E-02	1.98E-02
6.30E+04	4.90E-02	3.94E-02	2.77E-02	2.35E-02	2.09E-02
7.94E+04	5.92E-02	4.45E-02	3.10E-02	2.62E-02	2.31E-02
1.00E+05	7.14E-02	5.11E-02	3.51E-02	2.95E-02	2.59E-02
1.25E+05	8.33E-02	5.80E-02	3.93E-02	3.27E-02	2.91E-02
1.58E+05	8.81E-02	6.34E-02	4.25E-02	3.49E-02	3.08E-02
1.99E+05	9.00E-02	6.81E-02	4.50E-02	3.65E-02	3.24E-02
2.51E+05	9.00E-02	7.21E-02	4.69E-02	3.74E-02	3.33E-02
3.16E+05	9.74E-02	7.52E-02	4.85E-02	3.82E-02	3.38E-02
3.98E+05	1.20E-01	7.78E-02	4.98E-02	3.87E-02	3.43E-02
5.01E+05	1.62E-01	7.92E-02	5.08E-02	3.89E-02	3.47E-02
6.30E+05	1.96E-01	7.89E-02	4.87E-02	3.67E-02	3.28E-02
7.94E+05	2.08E-01	7.73E-02	4.26E-02	3.15E-02	2.80E-02
1.00E+06	1.93E-01	7.47E-02	3.59E-02	2.57E-02	2.28E-02
1.25E+06	1.71E-01	7.12E-02	3.26E-02	2.28E-02	2.03E-02
1.58E+06	1.53E-01	6.60E-02	3.10E-02	2.17E-02	1.93E-02
1.99E+06	1.37E-01	5.70E-02	2.75E-02	1.92E-02	1.72E-02
2.51E+06	1.14E-01	4.69E-02	2.13E-02	1.47E-02	1.32E-02
3.16E+06	8.17E-02	3.77E-02	1.60E-02	1.09E-02	9.73E-03
3.98E+06	5.00E-02	2.95E-02	1.21E-02	8.10E-03	7.24E-03
5.01E+06	2.99E-02	2.05E-02	7.83E-03	5.23E-03	4.68E-03
6.30E+06	2.17E-02	1.18E-02	4.05E-03	2.69E-03	2.58E-03
7.94E+06	1.28E-02	7.00E-03	1.76E-03	1.15E-03	1.23E-03
1.00E+07	6.53E-03	3.77E-03	5.25E-04	3.29E-04	5.34E-04
1.58E+07	4.55E-04	1.10E-03	3.43E-04	2.26E-04	1.21E-04
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

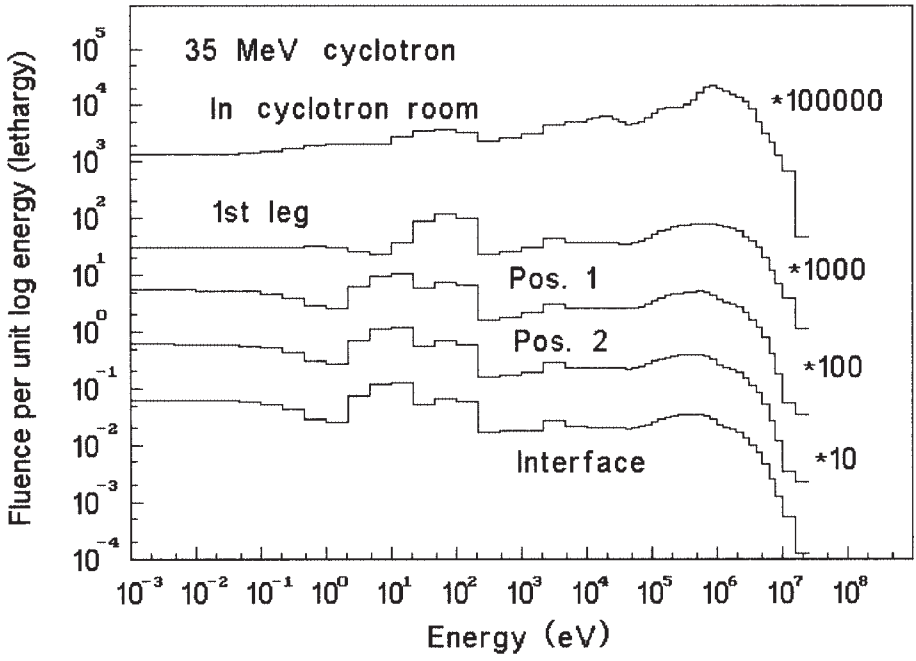

FIG. 5.18. AVF, Tohoko University, 35 MeV cyclotron, 1.

TABLE 5.XXV. AVF, TOHOKO UNIVERSITY, 35 MeV CYCLOTRON, 1

Spectrum weighted responses

Column 2: Cyclotron room
Column 3: First leg of labyrinth
Column 4: Second leg of labyrinth, position 1
Column 5: Second leg of labyrinth, position 2
Column 6: Second leg of labyrinth, coupling interface

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	9.99E-01	9.99E-01
E A-P R60	1.43E+02	7.51E+01	4.42E+01	3.56E+01	3.30E+01
H AMBIENT	1.80E+02	9.26E+01	5.48E+01	4.36E+01	4.01E+01
H PERSONAL	1.88E+02	9.73E+01	5.79E+01	4.62E+01	4.25E+01
HE A-P R51	7.54E+01	3.81E+01	2.09E+01	1.63E+01	1.50E+01
MADE R21	1.46E+02	7.51E+01	4.43E+01	3.56E+01	3.30E+01
BS 3HE BARE	3.40E-01	7.35E-01	1.24E+00	1.38E+00	1.43E+00
BS 3HE 2.5″	7.17E-01	1.13E+00	1.37E+00	1.43E+00	1.46E+00
BS 3HE 3″	1.07E+00	1.48E+00	1.64E+00	1.68E+00	1.70E+00
BS 3HE 3.5″	1.41E+00	1.74E+00	1.79E+00	1.80E+00	1.81E+00
BS 3HE 4″	1.67E+00	1.87E+00	1.81E+00	1.80E+00	1.79E+00
BS 3HE 4.5″	1.86E+00	1.90E+00	1.75E+00	1.71E+00	1.69E+00
BS 3HE 5″	1.95E+00	1.85E+00	1.63E+00	1.57E+00	1.55E+00
BS 3HE 6″	1.94E+00	1.60E+00	1.32E+00	1.24E+00	1.20E+00
BS 3HE 7″	1.75E+00	1.30E+00	1.00E+00	9.16E-01	8.82E-01
BS 3HE 8″	1.47E+00	1.00E+00	7.33E-01	6.55E-01	6.25E-01
BS 3HE 9.5″	1.06E+00	6.49E-01	4.41E-01	3.81E-01	3.60E-01
BS 3HE 10″	9.39E-01	5.59E-01	3.70E-01	3.16E-01	2.98E-01
BS 3HE 12″	5.55E-01	3.01E-01	1.80E-01	1.47E-01	1.37E-01
BS 3HE 15″	2.41E-01	1.21E-01	6.29E-02	4.82E-02	4.44E-02
BS 3HE 18″	1.13E-01	5.63E-02	2.55E-02	1.84E-02	1.68E-02
BS LiI BARE	2.13E-02	4.13E-02	6.25E-02	6.84E-02	7.08E-02
BS LiI 2″	6.64E-02	1.03E-01	1.21E-01	1.26E-01	1.28E-01
BS LiI 3″	1.32E-01	1.63E-01	1.65E-01	1.66E-01	1.66E-01
BS LiI 6″	1.82E-01	1.42E-01	1.13E-01	1.04E-01	1.01E-01
BS LiI 8″	1.31E-01	8.56E-02	6.06E-02	5.34E-02	5.07E-02
BS LiI 10″	8.23E-02	4.77E-02	3.07E-02	2.59E-02	2.44E-02
BS LiI 15″	2.23E-02	1.11E-02	5.62E-03	4.26E-03	3.91E-03
BS LiI 18″	9.97E-03	4.95E-03	2.22E-03	1.60E-03	1.46E-03
6Li BARE	1.95E-01	2.43E-01	2.55E-01	2.60E-01	2.61E-01
6Li Cd	9.07E-02	1.16E-01	1.23E-01	1.25E-01	1.26E-01
GOLD BARE	6.57E-03	9.75E-03	1.82E-02	2.02E-02	2.12E-02
Nat U PC	5.20E-05	1.36E-04	1.06E-04	1.00E-04	9.96E-05
238 U PC	5.06E-07	2.56E-07	9.94E-08	6.75E-08	6.19E-08
232 Th PC	1.27E-07	6.68E-08	2.49E-08	1.68E-08	1.55E-08
CR39 ECE	8.25E-05	3.67E-05	1.84E-05	1.33E-05	1.18E-05
LR115 LiB	1.78E+03	2.17E+03	2.31E+03	2.35E+03	2.36E+03
PLANAR	7.43E+04	3.37E+04	1.74E+04	1.27E+04	1.14E+04
BASE	6.12E+04	2.85E+04	1.53E+04	1.13E+04	1.01E+04
PYRAMIDE	4.07E+04	1.90E+04	1.00E+04	7.39E+03	6.60E+03
PTB TH	2.08E+02	1.12E+02	7.54E+01	6.38E+01	6.01E+01
PTB INT	2.15E+02	1.24E+02	8.36E+01	7.13E+01	6.74E+01
PTB FAST	1.93E+02	9.51E+01	5.20E+01	3.89E+01	3.47E+01
PTB I+F	2.06E+02	1.07E+02	6.27E+01	4.94E+01	4.51E+01
LONG C	5.71E-01	3.10E-01	1.84E-01	1.44E-01	1.28E-01
LEAKE	1.45E-01	8.26E-02	5.25E-02	4.38E-02	4.08E-02
A-B_2	3.87E-01	2.22E-01	1.46E-01	1.25E-01	1.18E-01
EBERNRD2	3.90E-01	2.24E-01	1.45E-01	1.22E-01	1.15E-01
MOD930_2	3.36E-01	1.75E-01	1.03E-01	8.23E-02	7.58E-02
STUDSVIK	1.67E-01	8.52E-02	4.82E-02	3.76E-02	3.43E-02
LB6411	5.23E-01	2.69E-01	1.55E-01	1.22E-01	1.12E-01
BUBBLE	6.17E+04	2.85E+04	1.47E+04	1.08E+04	9.67E+03
ELECTRET	1.89E+02	1.22E+02	8.95E+01	8.20E+01	8.07E+01
SILICON	5.67E-01	2.68E-01	1.52E-01	1.15E-01	1.02E-01

TABLE 5.XXVI. AVF, TOHOKO UNIVERSITY, 35 MeV CYCLOTRON, 2

Spectra

Column 1: Energy in eV
Column 2: Second leg of labyrinth, position 4
Column 3: Third leg of labyrinth, in front of Fe door
Column 4: Third leg of labyrinth, behind Fe door
Column 5: Underpass for room

1.00E-03	6.44E-02	8.05E-02	7.79E-02	7.86E-02
2.15E-03	6.44E-02	8.03E-02	7.75E-02	7.84E-02
4.64E-03	6.41E-02	7.98E-02	7.72E-02	7.79E-02
1.00E-02	6.34E-02	7.88E-02	7.62E-02	7.71E-02
2.15E-02	6.22E-02	7.65E-02	7.41E-02	7.48E-02
4.64E-02	5.95E-02	7.17E-02	6.98E-02	7.05E-02
1.00E-01	5.38E-02	6.18E-02	6.06E-02	6.13E-02
2.15E-01	4.30E-02	4.28E-02	4.32E-02	4.36E-02
4.64E-01	2.54E-02	1.14E-02	1.48E-02	1.47E-02
1.00E+00	1.02E-02	1.11E-02	1.45E-02	1.44E-02
2.15E+00	5.65E-02	6.93E-02	6.74E-02	6.82E-02
4.64E+00	2.56E-01	4.29E-01	3.95E-01	4.02E-01
1.00E+01	2.61E-02	1.08E-02	1.39E-02	1.32E-02
2.15E+01	5.14E-02	2.06E-02	2.39E-02	1.96E-02
4.64E+01	1.06E-01	4.31E-02	4.76E-02	3.57E-02
1.00E+02	1.75E-02	7.08E-03	9.34E-03	9.11E-03
2.15E+02	1.24E-02	3.72E-02	4.48E-02	5.63E-02
4.64E+02	2.61E-03	7.27E-03	9.56E-03	9.23E-03
1.00E+03	3.43E-02	1.41E-02	1.84E-02	1.78E-02
2.15E+03	2.20E-02	7.81E-03	1.02E-02	9.56E-03
4.64E+03	2.08E-02	7.48E-03	9.77E-03	9.23E-03
1.00E+04	2.08E-02	7.36E-03	9.56E-03	9.02E-03
1.25E+04	2.08E-02	7.29E-03	9.48E-03	8.92E-03
1.58E+04	2.08E-02	7.20E-03	9.34E-03	8.76E-03
1.99E+04	2.07E-02	7.08E-03	9.15E-03	8.57E-03
2.51E+04	2.03E-02	6.89E-03	8.89E-03	8.29E-03
3.16E+04	1.95E-02	6.61E-03	8.53E-03	7.96E-03
3.98E+04	1.95E-02	6.53E-03	8.39E-03	7.81E-03
5.01E+04	1.98E-02	6.55E-03	8.37E-03	7.76E-03
6.30E+04	2.07E-02	6.72E-03	8.56E-03	7.90E-03
7.94E+04	2.25E-02	7.17E-03	9.10E-03	8.36E-03
1.00E+05	2.71E-02	8.69E-03	1.10E-02	1.02E-02
1.25E+05	2.91E-02	9.16E-03	1.16E-02	1.07E-02
1.58E+05	3.09E-02	9.56E-03	1.20E-02	1.11E-02
1.99E+05	3.23E-02	9.77E-03	1.23E-02	1.12E-02
2.51E+05	3.28E-02	9.68E-03	1.21E-02	1.10E-02
3.16E+05	3.26E-02	9.39E-03	1.16E-02	1.06E-02
3.98E+05	3.35E-02	9.40E-03	1.16E-02	1.06E-02
5.01E+05	3.36E-02	9.25E-03	1.14E-02	1.03E-02
6.30E+05	3.26E-02	8.71E-03	1.06E-02	9.64E-03
7.94E+05	2.66E-02	6.51E-03	7.89E-03	7.10E-03
1.00E+06	1.88E-02	3.77E-03	4.50E-03	3.97E-03
1.25E+06	1.80E-02	3.48E-03	4.12E-03	3.62E-03
1.58E+06	1.98E-02	4.28E-03	5.10E-03	4.54E-03
1.99E+06	1.56E-02	3.12E-03	3.69E-03	3.26E-03
2.51E+06	1.11E-02	2.03E-03	2.39E-03	2.11E-03
3.16E+06	8.84E-03	1.49E-03	1.74E-03	1.52E-03
3.98E+06	6.19E-03	9.00E-04	1.05E-03	9.06E-04
5.01E+06	4.27E-03	6.94E-04	8.10E-04	7.10E-04
6.30E+06	1.80E-03	2.55E-04	2.96E-04	2.60E-04
7.94E+06	5.23E-04	3.38E-05	3.91E-05	3.38E-05
1.00E+07	7.03E-04	7.57E-05	8.79E-05	7.65E-05
1.58E+07	3.65E-05	2.29E-06	2.65E-06	2.29E-06
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

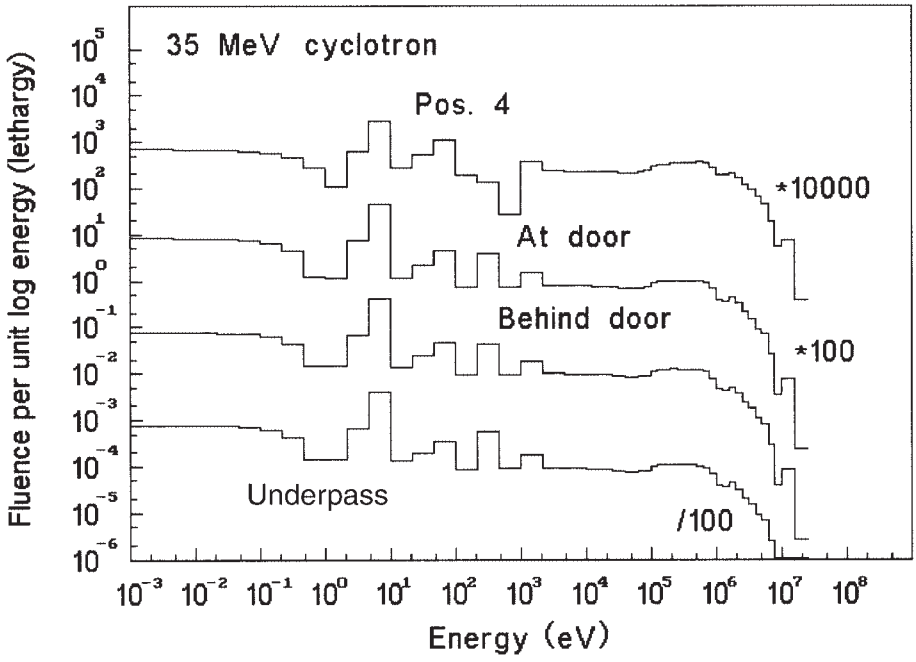

FIG. 5.19. AVF, Tohoko University, 35 MeV cyclotron, 2.

TABLE 5.XXVI. AVF, TOHOKO UNIVERSITY, 35 MeV CYCLOTRON, 2

Spectrum weighted responses

Column 2: Second leg of labyrinth, position 4
Column 3: Third leg of labyrinth, in front of Fe door
Column 4: Third leg of labyrinth, behind Fe door
Column 5: Underpass for room

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	3.16E+01	1.61E+01	1.73E+01	1.67E+01
H AMBIENT	3.85E+01	1.76E+01	1.92E+01	1.84E+01
H PERSONAL	4.09E+01	1.92E+01	2.08E+01	1.99E+01
HE A-P R51	1.42E+01	6.41E+00	6.91E+00	6.62E+00
MADE R21	3.16E+01	1.60E+01	1.71E+01	1.65E+01
BS 3HE BARE	1.47E+00	1.80E+00	1.75E+00	1.77E+00
BS 3HE 2.5″	1.48E+00	1.67E+00	1.65E+00	1.65E+00
BS 3HE 3″	1.71E+00	1.84E+00	1.82E+00	1.83E+00
BS 3HE 3.5″	1.81E+00	1.85E+00	1.85E+00	1.85E+00
BS 3HE 4″	1.79E+00	1.75E+00	1.76E+00	1.76E+00
BS 3HE 4.5″	1.68E+00	1.57E+00	1.59E+00	1.59E+00
BS 3HE 5″	1.53E+00	1.37E+00	1.40E+00	1.39E+00
BS 3HE 6″	1.19E+00	9.79E-01	1.01E+00	1.00E+00
BS 3HE 7″	8.65E-01	6.61E-01	6.89E-01	6.80E-01
BS 3HE 8″	6.11E-01	4.38E-01	4.59E-01	4.52E-01
BS 3HE 9.5″	3.50E-01	2.27E-01	2.40E-01	2.35E-01
BS 3HE 10″	2.89E-01	1.82E-01	1.93E-01	1.89E-01
BS 3HE 12″	1.31E-01	7.17E-02	7.68E-02	7.47E-02
BS 3HE 15″	4.14E-02	1.74E-02	1.89E-02	1.81E-02
BS 3HE 18″	1.52E-02	4.29E-03	4.84E-03	4.48E-03
BS LiI BARE	7.24E-02	8.69E-02	8.47E-02	8.54E-02
BS LiI 2″	1.29E-01	1.44E-01	1.42E-01	1.42E-01
BS LiI 3″	1.66E-01	1.69E-01	1.69E-01	1.69E-01
BS LiI 6″	9.91E-02	7.83E-02	8.12E-02	8.03E-02
BS LiI 8″	4.94E-02	3.37E-02	3.55E-02	3.49E-02
BS LiI 10″	2.35E-02	1.42E-02	1.51E-02	1.48E-02
BS LiI 15″	3.63E-03	1.43E-03	1.56E-03	1.49E-03
BS LiI 18″	1.32E-03	3.85E-04	4.31E-04	4.01E-04
6Li BARE	2.62E-01	2.72E-01	2.72E-01	2.72E-01
6Li Cd	1.27E-01	1.36E-01	1.35E-01	1.35E-01
GOLD BARE	1.70E-02	2.02E-02	1.98E-02	1.99E-02
Nat U PC	3.81E-05	2.45E-05	2.74E-05	2.70E-05
238 U PC	5.34E-08	8.86E-09	1.04E-08	9.12E-09
232 Th PC	1.32E-08	2.09E-09	2.45E-09	2.15E-09
CR39 ECE	1.10E-05	2.49E-06	3.00E-06	2.69E-06
LR115 LiB	2.37E+03	2.54E+03	2.53E+03	2.53E+03
PLANAR	1.06E+04	2.49E+03	3.01E+03	2.71E+03
BASE	9.53E+03	2.33E+03	2.84E+03	2.56E+03
PYRAMIDE	6.20E+03	1.49E+03	1.81E+03	1.63E+03
PTB TH	5.90E+01	3.80E+01	3.92E+01	3.84E+01
PTB INT	6.57E+01	4.29E+01	4.47E+01	4.37E+01
PTB FAST	3.29E+01	8.32E+00	1.02E+01	9.21E+00
PTB I+F	4.33E+01	1.83E+01	2.02E+01	1.92E+01
LONG C	1.25E-01	3.50E-02	4.37E-02	3.99E-02
LEAKE	3.92E-02	2.14E-02	2.32E-02	2.25E-02
A-B_2	1.15E-01	7.42E-02	7.79E-02	7.62E-02
EBERNRD2	1.11E-01	6.62E-02	7.05E-02	6.88E-02
MOD930_2	7.25E-02	3.43E-02	3.75E-02	3.60E-02
STUDSVIK	3.26E-02	1.27E-02	1.43E-02	1.36E-02
LB6411	1.06E-01	4.51E-02	5.01E-02	4.78E-02
BUBBLE	9.06E+03	2.18E+03	2.63E+03	2.37E+03
ELECTRET	7.87E+01	6.94E+01	6.97E+01	6.94E+01
SILICON	9.79E-02	2.53E-02	3.10E-02	2.80E-02

TABLE 5.XXVII. TRIUMF, 500 MeV CYCLOTRON

Spectra

Column 1: Energy in eV
Column 2: Vault door
Column 3: TNF door
Column 4: South of LD2 target
Column 5: M8 channel
Column 6: Top of TNF

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	1.29E-02	6.22E-01	5.01E-02	5.00E-02	2.00E-02
1.00E-02	1.58E-02	2.10E-01	5.04E-02	7.28E-02	1.97E-02
2.15E-02	3.68E-02	4.09E-02	5.66E-02	9.94E-02	2.18E-02
4.64E-02	1.48E-01	1.42E-02	5.34E-02	7.90E-02	2.03E-02
1.00E-01	4.38E-01	1.20E-02	4.00E-02	4.18E-02	1.49E-02
2.15E-01	1.60E-01	1.23E-02	3.33E-02	3.43E-02	1.27E-02
4.64E-01	9.56E-03	2.19E-02	4.02E-02	4.36E-02	1.77E-02
1.00E+00	1.34E-01	6.36E-02	7.30E-02	1.17E-01	4.49E-02
2.15E+00	5.40E-02	4.90E-02	6.70E-02	6.90E-02	3.57E-02
4.64E+00	3.09E-02	1.55E-02	3.58E-02	2.61E-02	1.39E-02
1.00E+01	2.54E-02	2.03E-02	3.28E-02	3.42E-02	1.62E-02
2.15E+01	1.88E-02	1.36E-02	2.80E-02	2.03E-02	1.17E-02
4.64E+01	1.37E-02	8.11E-03	2.18E-02	1.25E-02	7.93E-03
1.00E+02	1.32E-02	7.77E-03	2.15E-02	1.22E-02	7.73E-03
2.15E+02	1.35E-02	7.90E-03	2.24E-02	1.26E-02	8.02E-03
4.64E+02	1.37E-02	8.04E-03	2.38E-02	1.33E-02	8.48E-03
1.00E+03	1.40E-02	8.24E-03	2.58E-02	1.44E-02	9.14E-03
2.15E+03	1.45E-02	8.65E-03	2.85E-02	1.57E-02	1.00E-02
4.64E+03	1.51E-02	9.19E-03	3.19E-02	1.76E-02	1.11E-02
1.00E+04	1.54E-02	9.59E-03	3.47E-02	1.89E-02	1.20E-02
1.25E+04	1.56E-02	9.79E-03	3.59E-02	1.96E-02	1.23E-02
1.58E+04	1.57E-02	1.00E-02	3.75E-02	2.04E-02	1.28E-02
1.99E+04	1.59E-02	1.03E-02	3.96E-02	2.14E-02	1.34E-02
2.51E+04	1.60E-02	1.05E-02	4.14E-02	2.24E-02	1.39E-02
3.16E+04	1.62E-02	1.08E-02	4.39E-02	2.36E-02	1.47E-02
3.98E+04	1.63E-02	1.11E-02	4.68E-02	2.52E-02	1.55E-02
5.01E+04	1.64E-02	1.15E-02	4.98E-02	2.69E-02	1.65E-02
6.30E+04	1.64E-02	1.20E-02	5.39E-02	2.92E-02	1.80E-02
7.94E+04	1.63E-02	1.24E-02	5.80E-02	3.19E-02	2.01E-02
1.00E+05	1.59E-02	1.29E-02	6.23E-02	3.50E-02	2.27E-02
1.25E+05	1.56E-02	1.35E-02	6.69E-02	3.91E-02	2.68E-02
1.58E+05	1.51E-02	1.41E-02	7.10E-02	4.34E-02	3.23E-02
1.99E+05	1.43E-02	1.48E-02	7.40E-02	4.81E-02	4.04E-02
2.51E+05	1.35E-02	1.55E-02	7.52E-02	5.25E-02	5.19E-02
3.16E+05	1.23E-02	1.61E-02	7.38E-02	5.64E-02	6.72E-02
3.98E+05	1.13E-02	1.65E-02	7.02E-02	5.79E-02	8.71E-02
5.01E+05	1.02E-02	1.69E-02	6.32E-02	5.68E-02	1.10E-01
6.30E+05	9.01E-03	1.69E-02	5.30E-02	5.28E-02	1.32E-01
7.94E+05	8.06E-03	1.69E-02	4.88E-02	4.76E-02	1.39E-01
1.00E+06	7.21E-03	1.62E-02	3.87E-02	3.74E-02	1.41E-01
1.25E+06	6.48E-03	1.53E-02	2.96E-02	2.76E-02	1.29E-01
1.58E+06	5.59E-03	1.49E-02	2.97E-02	2.83E-02	9.58E-02
1.99E+06	5.38E-03	1.36E-02	2.64E-02	2.13E-02	5.14E-02
2.51E+06	5.08E-03	1.27E-02	2.38E-02	1.76E-02	2.75E-02
3.16E+06	4.41E-03	1.26E-02	2.14E-02	1.91E-02	4.66E-02
3.98E+06	4.65E-03	1.18E-02	2.35E-02	2.02E-02	3.23E-02
5.01E+06	4.37E-03	1.12E-02	2.13E-02	1.81E-02	2.91E-02
6.30E+06	4.12E-03	1.09E-02	1.89E-02	1.63E-02	3.60E-02
7.94E+06	4.47E-03	1.07E-02	2.15E-02	1.88E-02	4.35E-02
1.00E+07	4.39E-03	1.00E-02	2.08E-02	1.79E-02	3.17E-02
1.58E+07	5.24E-03	1.01E-02	2.96E-02	2.77E-02	4.85E-02
2.51E+07	6.29E-03	1.07E-02	4.69E-02	5.17E-02	8.93E-02
3.98E+07	7.03E-03	1.05E-02	7.23E-02	9.94E-02	1.87E-01
6.30E+07	6.35E-03	7.43E-03	5.91E-02	1.04E-01	2.66E-01
1.00E+08	3.79E-03	3.19E-03	2.15E-02	5.65E-02	2.11E-01
1.58E+08	8.94E-05	2.25E-04	9.32E-03	1.60E-02	6.51E-02
2.51E+08	3.26E-04	7.50E-04	7.49E-03	1.19E-02	7.47E-03
3.98E+08	1.82E-05	2.53E-05	8.76E-06	8.74E-06	2.31E-04
6.30E+08					

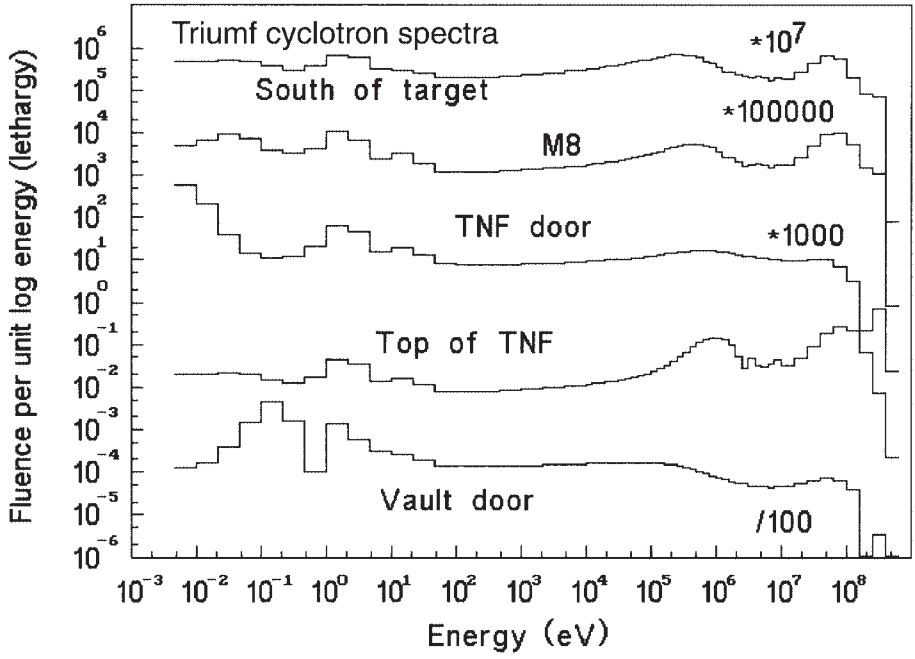

FIG. 5.20. Triumf, 500 MeV cyclotron.

TABLE 5.XXVII. TRIUMF, 500 MeV CYCLOTRON

Spectrum weighted responses

Column 2: Vault door
Column 3: TNF door
Column 4: South of LD2 target
Column 5: M8 channel
Column 6: Top of TNF

FLUENCE 20	9.89E-01	9.85E-01	9.00E-01	8.44E-01	6.20E-01
E A-P R60	2.76E+01	3.60E+01	1.10E+02	1.24E+02	2.73E+02
H AMBIENT	3.02E+01	4.11E+01	1.18E+02	1.23E+02	2.57E+02
H PERSONAL	2.75E+01	3.79E+01	8.71E+01	7.42E+01	1.40E+02
HE A-P R51	1.14E+01	1.84E+01	3.99E+01	3.49E+01	6.82E+01
MADE R21	2.23E+01	3.12E+01	6.50E+01	5.62E+01	1.08E+02
BS 3HE BARE	1.23E+00	3.13E+00	7.39E-01	9.70E-01	2.99E-01
BS 3HE 2.5″	1.87E+00	1.14E+00	1.08E+00	1.14E+00	4.97E-01
BS 3HE 3″	1.88E+00	1.10E+00	1.32E+00	1.28E+00	6.44E-01
BS 3HE 3.5″	1.79E+00	1.06E+00	1.48E+00	1.35E+00	7.81E-01
BS 3HE 4″	1.64E+00	9.94E-01	1.56E+00	1.36E+00	8.99E-01
BS 3HE 4.5″	1.46E+00	9.09E-01	1.57E+00	1.32E+00	9.85E-01
BS 3HE 5″	1.28E+00	8.17E-01	1.52E+00	1.24E+00	1.04E+00
BS 3HE 6″	9.30E-01	6.36E-01	1.31E+00	1.05E+00	1.06E+00
BS 3HE 7″	6.49E-01	4.79E-01	1.05E+00	8.35E-01	9.87E-01
BS 3HE 8″	4.42E-01	3.53E-01	8.08E-01	6.43E-01	8.65E-01
BS 3HE 9.5″	2.40E-01	2.24E-01	5.19E-01	4.19E-01	6.59E-01
BS 3HE 10″	1.96E-01	1.92E-01	4.47E-01	3.63E-01	5.94E-01
BS 3HE 12″	8.92E-02	1.08E-01	2.47E-01	2.06E-01	3.86E-01
BS 3HE 15″	3.06E-02	5.29E-02	1.16E-01	9.98E-02	2.02E-01
BS 3HE 18″	1.51E-02	3.20E-02	6.91E-02	6.03E-02	1.22E-01
BS LiI BARE	1.24E-01	1.57E-01	5.92E-02	7.57E-02	2.51E-02
BS LiI 2″	1.69E-01	8.54E-02	9.88E-02	1.03E-01	4.58E-02
BS LiI 3″	1.68E-01	8.36E-02	1.39E-01	1.26E-01	7.29E-02
BS LiI 6″	7.71E-02	5.17E-02	1.18E-01	9.42E-02	1.04E-01
BS LiI 8″	3.60E-02	2.91E-02	7.08E-02	5.76E-02	8.35E-02
BS LiI 10″	1.64E-02	1.65E-02	4.05E-02	3.45E-02	5.99E-02
BS LiI 15″	3.16E-03	5.43E-03	1.40E-02	1.37E-02	2.79E-02
BS LiI 18″	1.80E-03	3.52E-03	1.00E-02	1.06E-02	2.16E-02
6Li BARE	4.15E-01	1.03E-01	2.20E-01	2.04E-01	1.24E-01
6Li Cd	1.23E-01	5.06E-02	1.02E-01	9.37E-02	5.63E-02
GOLD BARE	2.20E-02	1.33E-02	1.89E-02	1.97E-02	9.88E-03
Nat U PC	2.56E-05	1.66E-05	3.96E-05	2.74E-05	1.73E-05
238 U PC	1.03E-07	2.34E-07	5.24E-07	4.65E-07	8.72E-07
232 Th PC	3.09E-08	7.00E-08	1.57E-07	1.40E-07	2.61E-07
CR39 ECE	4.53E-06	9.85E-06	2.35E-05	2.04E-05	5.18E-05
LR115 LiB	1.64E+03	1.13E+03	2.12E+03	2.04E+03	1.15E+03
PLANAR	4.91E+03	1.03E+04	2.64E+04	2.33E+04	5.49E+04
BASE	4.15E+03	8.25E+03	2.29E+04	2.02E+04	4.50E+04
PYRAMIDE	2.82E+03	5.75E+03	1.53E+04	1.34E+04	3.00E+04
PTB TH	2.99E+01	7.68E+01	9.25E+01	8.06E+01	1.42E+02
PTB INT	4.53E+01	5.19E+01	1.02E+02	8.79E+01	1.47E+02
PTB FAST	1.48E+01	2.69E+01	7.79E+01	6.45E+01	1.34E+02
PTB I+F	2.39E+01	3.49E+01	8.76E+01	7.34E+01	1.43E+02
LONG C	6.33E-02	7.85E-02	2.71E-01	1.95E-01	3.20E-01
LEAKE	2.66E-02	2.37E-02	6.50E-02	5.22E-02	9.19E-02
A-B_2	9.28E-02	6.77E-02	1.73E-01	1.46E-01	2.48E-01
EBERNRD2	7.58E-02	7.29E-02	1.94E-01	1.71E-01	3.08E-01
MOD930_2	5.21E-02	6.03E-02	1.84E-01	1.85E-01	3.92E-01
STUDSVIK	1.73E-02	2.51E-02	6.63E-02	5.42E-02	1.09E-01
LB6411	6.02E-02	8.34E-02	2.12E-01	1.75E-01	3.50E-01
BUBBLE	4.41E+03	9.16E+03	2.29E+04	1.99E+04	4.60E+04
ELECTRET	1.30E+02	5.75E+01	1.19E+02	1.12E+02	1.58E+02
SILICON	3.41E-02	5.84E-02	1.88E-01	1.59E-01	3.65E-01

TABLE 5.XXVIII. KEK, 12 GeV SYNCHROTRON

Spectra

Column 1: Energy in eV
Column 2: Location 11
Column 3: Location 1
Column 4: Location 2
Column 5: Location 5
Column 6: Location 4

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	3.12E-02	3.71E-02	2.37E-02	1.89E-03	1.23E-01
1.00E-02	2.78E-02	3.51E-02	2.48E-02	2.26E-03	8.58E-02
2.15E-02	2.54E-02	3.46E-02	2.85E-02	3.07E-03	4.88E-02
4.64E-02	2.59E-02	3.57E-02	3.28E-02	4.10E-03	5.19E-02
1.00E-01	1.34E-02	2.04E-02	2.18E-02	3.66E-03	2.73E-02
2.15E-01	1.25E-02	1.92E-02	2.17E-02	4.38E-03	2.13E-02
4.64E-01	1.57E-02	2.19E-02	2.92E-02	7.13E-03	1.86E-02
1.00E+00	3.47E-02	3.48E-02	5.41E-02	1.54E-02	2.78E-02
2.15E+00	2.49E-02	2.91E-02	4.42E-02	1.77E-02	2.33E-02
4.64E+00	1.18E-02	1.74E-02	2.36E-02	1.14E-02	1.45E-02
1.00E+01	1.11E-02	1.46E-02	2.01E-02	9.11E-03	1.22E-02
2.15E+01	8.71E-03	1.23E-02	1.64E-02	8.15E-03	1.05E-02
4.64E+01	7.02E-03	1.06E-02	1.34E-02	7.17E-03	9.17E-03
1.00E+02	6.35E-03	9.63E-03	1.20E-02	6.60E-03	8.48E-03
2.15E+02	6.23E-03	9.32E-03	1.13E-02	6.43E-03	8.26E-03
4.64E+02	6.40E-03	9.36E-03	1.13E-02	6.53E-03	8.36E-03
1.00E+03	6.76E-03	9.63E-03	1.15E-02	6.81E-03	8.62E-03
2.15E+03	7.28E-03	1.01E-02	1.20E-02	7.22E-03	9.07E-03
4.64E+03	7.96E-03	1.06E-02	1.25E-02	7.76E-03	9.65E-03
1.00E+04	8.41E-03	1.10E-02	1.30E-02	8.11E-03	1.00E-02
1.25E+04	8.75E-03	1.12E-02	1.32E-02	8.40E-03	1.03E-02
1.58E+04	8.99E-03	1.14E-02	1.34E-02	8.61E-03	1.05E-02
1.99E+04	9.26E-03	1.16E-02	1.35E-02	8.87E-03	1.07E-02
2.51E+04	9.71E-03	1.19E-02	1.39E-02	9.33E-03	1.10E-02
3.16E+04	1.01E-02	1.22E-02	1.41E-02	9.80E-03	1.13E-02
3.98E+04	1.06E-02	1.26E-02	1.45E-02	1.03E-02	1.17E-02
5.01E+04	1.14E-02	1.31E-02	1.50E-02	1.14E-02	1.22E-02
6.30E+04	1.26E-02	1.40E-02	1.56E-02	1.26E-02	1.29E-02
7.94E+04	1.40E-02	1.49E-02	1.65E-02	1.42E-02	1.38E-02
1.00E+05	1.63E-02	1.63E-02	1.78E-02	1.66E-02	1.52E-02
1.25E+05	1.95E-02	1.84E-02	1.96E-02	2.01E-02	1.70E-02
1.58E+05	2.42E-02	2.13E-02	2.21E-02	2.48E-02	1.95E-02
1.99E+05	3.14E-02	2.55E-02	2.57E-02	3.12E-02	2.32E-02
2.51E+05	4.21E-02	3.17E-02	3.10E-02	4.00E-02	2.84E-02
3.16E+05	5.74E-02	4.05E-02	3.83E-02	5.11E-02	3.55E-02
3.98E+05	7.98E-02	5.30E-02	4.88E-02	6.40E-02	4.56E-02
5.01E+05	1.08E-01	6.99E-02	6.34E-02	7.79E-02	5.89E-02
6.30E+05	1.41E-01	9.04E-02	8.26E-02	9.05E-02	7.51E-02
7.94E+05	1.63E-01	1.11E-01	1.06E-01	9.18E-02	9.18E-02
1.00E+06	1.68E-01	1.29E-01	1.32E-01	7.75E-02	1.06E-01
1.25E+06	1.66E-01	1.42E-01	1.55E-01	6.14E-02	1.18E-01
1.58E+06	1.28E-01	1.25E-01	1.60E-01	4.25E-02	1.09E-01
1.99E+06	4.09E-02	6.81E-02	1.32E-01	2.59E-02	7.25E-02
2.51E+06	5.44E-02	1.35E-02	1.02E-01	2.99E-02	3.52E-02
3.16E+06	3.52E-02	4.20E-02	6.52E-02	2.14E-02	9.13E-03
3.98E+06	2.06E-02	1.61E-02	3.52E-02	1.56E-02	2.11E-02
5.01E+06	3.00E-02	1.94E-02	4.39E-02	2.22E-02	2.44E-02
6.30E+06	3.62E-02	1.43E-02	3.27E-02	2.60E-02	1.86E-02
7.94E+06	1.28E-02	1.40E-02	2.64E-02	1.20E-02	1.64E-02
1.00E+07	4.23E-02	4.61E-02	5.85E-02	2.80E-02	4.11E-02
1.58E+07	1.54E-02	1.71E-02	2.97E-02	3.54E-02	2.10E-02
2.51E+07	3.57E-02	4.14E-02	5.26E-02	1.46E-01	4.44E-02
3.98E+07	7.40E-02	8.50E-02	7.02E-02	3.71E-01	7.98E-02
6.30E+07	1.41E-01	1.55E-01	8.96E-02	4.24E-01	1.24E-01
1.00E+08	2.11E-01	2.16E-01	1.13E-01	2.95E-01	1.64E-01
1.58E+08	2.08E-01	1.83E-01	1.12E-01	1.02E-01	1.42E-01
2.51E+08	1.18E-01	1.05E-01	1.10E-01	5.53E-02	1.08E-01
3.98E+08	1.02E-01	9.50E-02	8.58E-02	1.47E-02	4.22E-02
6.30E+08					

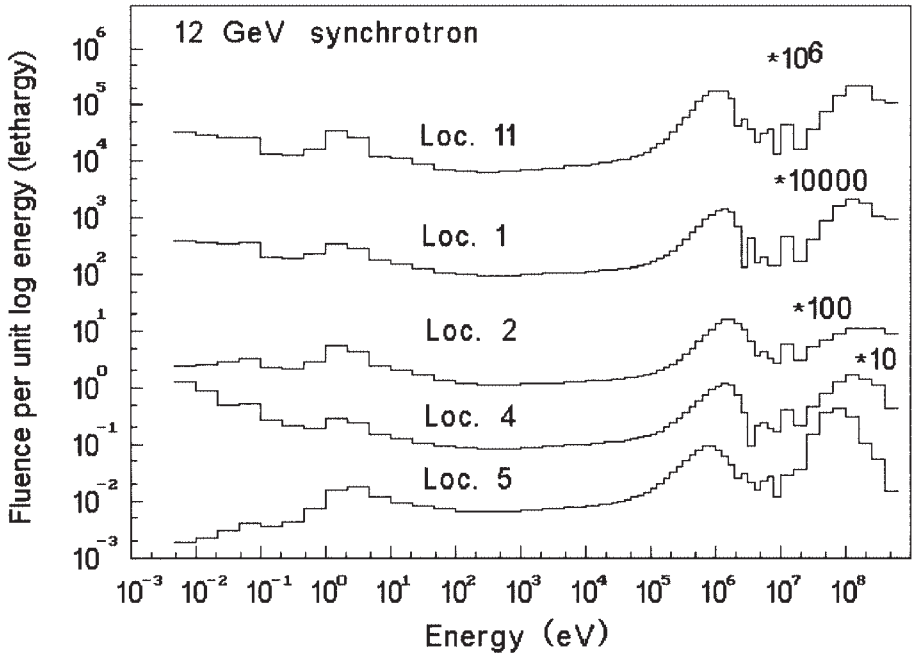

FIG. 5.21. KEK, 12 GeV synchrotron.

TABLE 5.XXVIII. KEK, 12 GeV SYNCHROTRON

Spectrum weighted responses

Column 2: Location 11
Column 3: Location 1
Column 4: Location 2
Column 5: Location 5
Column 6: Location 4

FLUENCE 20	5.91E-01	5.95E-01	7.08E-01	3.52E-01	6.76E-01
E A-P R60	2.43E+02	2.28E+02	2.13E+02	3.37E+02	1.95E+02
H AMBIENT	2.24E+02	2.03E+02	2.05E+02	2.90E+02	1.77E+02
H PERSONAL	1.39E+02	1.14E+02	1.49E+02	8.87E+01	1.05E+02
HE A-P R51	6.29E+01	5.38E+01	7.75E+01	4.34E+01	5.07E+01
MADE R21	1.09E+02	9.04E+01	1.22E+02	6.71E+01	8.32E+01
BS 3HE BARE	3.70E-01	4.75E-01	4.00E-01	5.93E-02	1.01E+00
BS 3HE 2.5″	4.43E-01	5.52E-01	6.52E-01	2.34E-01	6.54E-01
BS 3HE 3″	5.63E-01	6.64E-01	7.98E-01	3.41E-01	7.20E-01
BS 3HE 3.5″	6.89E-01	7.65E-01	9.20E-01	4.45E-01	7.86E-01
BS 3HE 4″	8.05E-01	8.46E-01	1.01E+00	5.33E-01	8.36E-01
BS 3HE 4.5″	9.01E-01	9.01E-01	1.08E+00	6.00E-01	8.68E-01
BS 3HE 5″	9.69E-01	9.31E-01	1.11E+00	6.43E-01	8.82E-01
BS 3HE 6″	1.02E+00	9.24E-01	1.11E+00	6.61E-01	8.55E-01
BS 3HE 7″	9.75E-01	8.52E-01	1.05E+00	6.18E-01	7.78E-01
BS 3HE 8″	8.69E-01	7.43E-01	9.33E-01	5.39E-01	6.75E-01
BS 3HE 9.5″	6.71E-01	5.65E-01	7.41E-01	4.07E-01	5.13E-01
BS 3HE 10″	6.05E-01	5.09E-01	6.78E-01	3.66E-01	4.62E-01
BS 3HE 12″	3.89E-01	3.27E-01	4.61E-01	2.37E-01	3.00E-01
BS 3HE 15″	1.93E-01	1.65E-01	2.53E-01	1.26E-01	1.56E-01
BS 3HE 18″	1.06E-01	9.26E-02	1.50E-01	7.75E-02	8.98E-02
BS LiI BARE	2.73E-02	3.53E-02	3.43E-02	7.06E-03	6.14E-02
BS LiI 2″	4.00E-02	4.97E-02	6.00E-02	2.22E-02	5.55E-02
BS LiI 3″	6.33E-02	7.08E-02	8.59E-02	4.22E-02	7.00E-02
BS LiI 6″	1.00E-01	8.92E-02	1.07E-01	6.87E-02	8.12E-02
BS LiI 8″	8.15E-02	6.99E-02	8.79E-02	5.78E-02	6.32E-02
BS LiI 10″	5.74E-02	4.91E-02	6.44E-02	4.42E-02	4.45E-02
BS LiI 15″	2.18E-02	1.98E-02	2.75E-02	2.75E-02	1.85E-02
BS LiI 18″	1.44E-02	1.39E-02	1.80E-02	2.57E-02	1.31E-02
6Li BARE	1.06E-01	1.18E-01	1.48E-01	7.44E-02	1.07E-01
6Li Cd	4.68E-02	5.19E-02	6.70E-02	3.41E-02	4.54E-02
GOLD BARE	7.06E-03	8.39E-03	1.24E-02	4.83E-03	6.94E-03
Nat U PC	1.39E-05	1.86E-05	2.40E-05	1.28E-05	1.63E-05
238 U PC	6.34E-07	5.83E-07	1.01E-06	5.98E-07	5.96E-07
232 Th PC	1.85E-07	1.67E-07	2.87E-07	1.80E-07	1.72E-07
CR39 ECE	5.76E-05	4.85E-05	6.80E-05	3.01E-05	4.36E-05
LR115 LiB	9.40E+02	1.03E+03	1.38E+03	6.42E+02	8.74E+02
PLANAR	5.70E+04	4.59E+04	6.02E+04	3.49E+04	4.10E+04
BASE	4.59E+04	3.61E+04	4.58E+04	2.99E+04	3.21E+04
PYRAMIDE	3.08E+04	2.44E+04	3.19E+04	1.93E+04	2.18E+04
PTB TH	1.48E+02	1.19E+02	1.47E+02	8.80E+01	1.14E+02
PTB INT	1.50E+02	1.22E+02	1.54E+02	9.15E+01	1.12E+02
PTB FAST	1.38E+02	1.09E+02	1.40E+02	8.41E+01	9.72E+01
PTB I+F	1.46E+02	1.17E+02	1.49E+02	8.92E+01	1.05E+02
LONG C	3.29E-01	2.62E-01	3.25E-01	2.05E-01	2.31E-01
LEAKE	9.45E-02	7.78E-02	1.01E-01	5.71E-02	6.92E-02
A-B_2	2.59E-01	2.16E-01	2.85E-01	1.50E-01	1.95E-01
EBERNRD2	3.00E-01	2.60E-01	3.16E-01	2.55E-01	2.31E-01
MOD930_2	4.07E-01	3.66E-01	3.87E-01	4.23E-01	3.12E-01
STUDSVIK	1.16E-01	9.43E-02	1.27E-01	6.66E-02	8.41E-02
LB6411	3.62E-01	2.95E-01	3.98E-01	2.16E-01	2.65E-01
BUBBLE	5.03E+04	4.10E+04	5.26E+04	2.89E+04	3.63E+04
ELECTRET	1.61E+02	1.49E+02	2.14E+02	9.48E+01	1.38E+02
SILICON	4.04E-01	3.19E-01	3.51E-01	2.23E-01	2.74E-01

TABLE 5.XXIX. TOKYO UNIVERSITY, 1 GeV SYNCHROTRON

Spectra

Column 1: Energy in eV
Column 2: Skyshine at 111 m, calculated
Column 3: Skyshine at 111 m, measured
Column 4: On concrete roof, calculated
Column 5: On concrete roof, measured
Column 6: Model spectrum for skyshine calculation

1.00E-03	4.45E-03	4.61E-03	2.74E-02	6.77E-03	0.00E+00
2.15E-03	4.51E-03	4.77E-03	2.74E-02	6.84E-03	0.00E+00
4.64E-03	4.61E-03	5.11E-03	2.74E-02	6.99E-03	0.00E+00
1.00E-02	4.83E-03	5.86E-03	2.74E-02	7.31E-03	0.00E+00
2.15E-02	5.31E-03	7.47E-03	2.74E-02	7.99E-03	0.00E+00
4.64E-02	6.31E-03	1.09E-02	2.74E-02	9.45E-03	0.00E+00
1.00E-01	8.29E-03	1.78E-02	2.72E-02	1.23E-02	0.00E+00
2.15E-01	1.19E-02	3.11E-02	2.69E-02	1.80E-02	0.00E+00
4.64E-01	1.66E-02	5.30E-02	2.64E-02	2.73E-02	0.00E+00
1.00E+00	1.65E-02	7.15E-02	2.54E-02	3.45E-02	0.00E+00
2.15E+00	1.68E-02	1.17E-02	2.33E-02	6.55E-03	0.00E+00
4.64E+00	2.39E-02	5.51E-02	2.20E-02	2.53E-02	0.00E+00
1.00E+01	2.34E-02	6.49E-02	2.94E-02	3.88E-02	0.00E+00
2.15E+01	1.67E-02	1.03E-01	7.90E-02	1.08E-01	0.00E+00
4.64E+01	4.99E-01	1.64E-01	1.85E-01	2.45E-01	0.00E+00
1.00E+02	1.23E-01	2.93E-02	1.70E-02	2.42E-02	0.00E+00
2.15E+02	1.97E-02	2.97E-02	1.69E-02	2.49E-02	0.00E+00
4.64E+02	1.76E-02	3.05E-02	1.66E-02	9.98E-03	0.00E+00
1.00E+03	1.98E-02	1.00E-01	3.16E-02	4.49E-02	0.00E+00
2.15E+03	2.14E-02	3.24E-02	1.62E-02	3.42E-02	7.95E-07
4.64E+03	1.24E-02	2.55E-02	1.99E-02	3.13E-02	9.13E-06
1.00E+04	2.01E-02	2.15E-02	2.23E-02	3.12E-02	3.51E-05
1.25E+04	2.35E-02	2.00E-02	2.32E-02	3.14E-02	5.55E-05
1.58E+04	2.55E-02	1.89E-02	2.38E-02	3.16E-02	8.48E-05
1.99E+04	2.02E-02	1.88E-02	2.38E-02	3.16E-02	1.27E-04
2.51E+04	2.00E-02	2.04E-02	2.28E-02	3.11E-02	1.90E-04
3.16E+04	1.98E-02	2.48E-02	2.01E-02	3.00E-02	2.83E-04
3.98E+04	2.22E-02	2.60E-02	2.00E-02	3.05E-02	4.22E-04
5.01E+04	2.32E-02	2.71E-02	2.03E-02	3.16E-02	6.32E-04
6.30E+04	2.57E-02	2.91E-02	2.10E-02	3.37E-02	9.53E-04
7.94E+04	2.91E-02	3.22E-02	2.21E-02	3.71E-02	1.44E-03
1.00E+05	3.36E-02	3.94E-02	2.49E-02	4.61E-02	2.17E-03
1.25E+05	3.75E-02	4.29E-02	2.64E-02	4.94E-02	3.35E-03
1.58E+05	4.10E-02	4.63E-02	2.81E-02	5.17E-02	5.14E-03
1.99E+05	4.26E-02	4.92E-02	2.96E-02	5.22E-02	7.90E-03
2.51E+05	4.24E-02	5.13E-02	3.16E-02	5.02E-02	1.21E-02
3.16E+05	4.35E-02	5.45E-02	3.51E-02	4.82E-02	1.82E-02
3.98E+05	4.64E-02	6.53E-02	4.39E-02	5.51E-02	2.72E-02
5.01E+05	5.61E-02	8.07E-02	5.60E-02	6.60E-02	4.05E-02
6.30E+05	8.54E-02	9.82E-02	6.89E-02	7.79E-02	5.94E-02
7.94E+05	9.11E-02	9.64E-02	5.73E-02	6.36E-02	8.52E-02
1.00E+06	7.17E-02	8.90E-02	4.25E-02	4.53E-02	1.20E-01
1.25E+06	8.62E-02	9.17E-02	6.22E-02	5.73E-02	1.65E-01
1.58E+06	8.70E-02	9.43E-02	1.01E-01	8.72E-02	2.20E-01
1.99E+06	9.51E-02	8.54E-02	1.31E-01	1.17E-01	2.76E-01
2.51E+06	6.50E-02	6.97E-02	1.46E-01	1.34E-01	3.31E-01
3.16E+06	6.05E-02	4.79E-02	7.70E-02	6.37E-02	3.66E-01
3.98E+06	4.16E-02	2.65E-02	1.54E-02	1.39E-03	3.71E-01
5.01E+06	3.90E-02	2.96E-02	7.38E-02	5.68E-02	3.25E-01
6.30E+06	2.49E-02	1.93E-02	5.63E-02	4.22E-02	2.90E-01
7.94E+06	1.69E-02	1.11E-02	3.41E-02	2.49E-02	2.46E-01
1.00E+07	1.13E-02	8.23E-03	3.48E-02	2.52E-02	2.13E-01
1.58E+07	1.31E-02	8.53E-03	5.97E-02	4.39E-02	1.74E-01
2.51E+07	8.70E-03	5.73E-03	7.51E-02	5.41E-02	1.30E-01
3.98E+07	5.60E-03	3.77E-03	6.69E-02	4.71E-02	8.89E-02
6.30E+07	2.15E-03	7.87E-04	3.63E-02	2.19E-02	5.46E-02
1.00E+08	6.21E-04	3.62E-04	5.80E-03	5.18E-03	2.24E-02
1.58E+08	5.07E-05	2.37E-05	8.32E-05	6.31E-05	1.11E-03
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-06
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

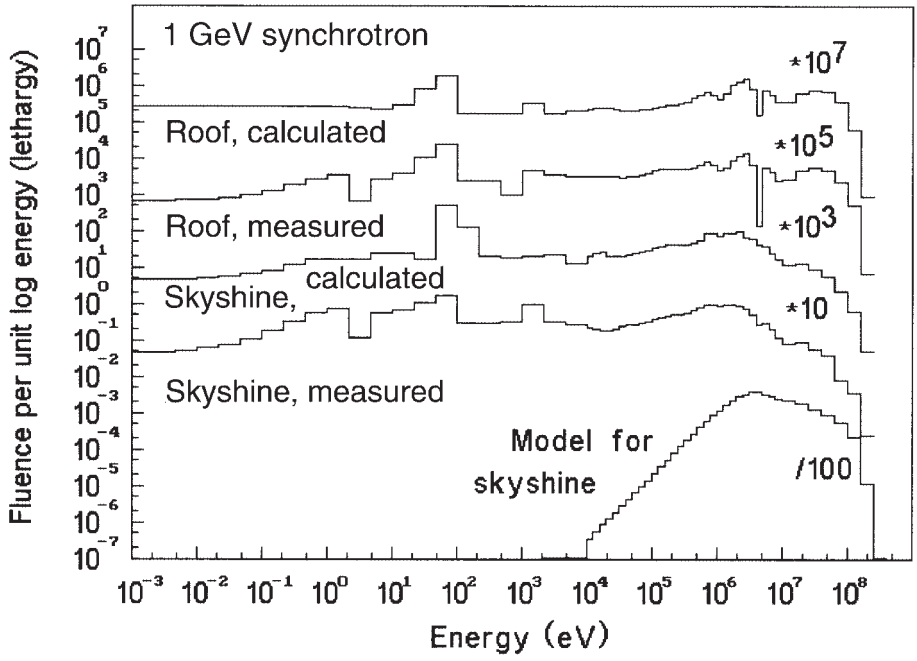

FIG. 5.22. Tokyo University, 1 GeV synchrotron.

TABLE 5.XXIX. TOKYO UNIVERSITY, 1 GeV SYNCHROTRON

Spectrum weighted responses

Column 2: Skyshine at 111 m, calculated
Column 3: Skyshine at 111 m, measured
Column 4: On concrete roof, calculated
Column 5: On concrete roof, measured
Column 6: Model spectrum for skyshine calculation

FLUENCE 20	9.92E-01	9.95E-01	9.15E-01	9.40E-01	8.63E-01
E A-P R60	9.47E+01	9.20E+01	1.54E+02	1.32E+02	4.33E+02
H AMBIENT	1.07E+02	1.09E+02	1.60E+02	1.42E+02	4.23E+02
H PERSONAL	1.09E+02	1.12E+02	1.34E+02	1.25E+02	3.91E+02
HE A-P R51	5.10E+01	4.83E+01	7.64E+01	6.52E+01	2.73E+02
MADE R21	8.91E+01	8.93E+01	1.11E+02	1.01E+02	3.39E+02
BS 3HE BARE	1.91E-01	2.81E-01	6.66E-01	2.52E-01	3.66E-04
BS 3HE 2.5″	1.17E+00	1.21E+00	9.64E-01	1.01E+00	3.87E-02
BS 3HE 3″	1.64E+00	1.62E+00	1.23E+00	1.40E+00	1.23E-01
BS 3HE 3.5″	1.96E+00	1.89E+00	1.42E+00	1.67E+00	2.66E-01
BS 3HE 4″	2.10E+00	2.01E+00	1.51E+00	1.81E+00	4.53E-01
BS 3HE 4.5″	2.10E+00	2.03E+00	1.53E+00	1.85E+00	6.53E-01
BS 3HE 5″	2.03E+00	1.96E+00	1.50E+00	1.81E+00	8.80E-01
BS 3HE 6″	1.72E+00	1.70E+00	1.34E+00	1.59E+00	1.24E+00
BS 3HE 7″	1.39E+00	1.39E+00	1.15E+00	1.32E+00	1.50E+00
BS 3HE 8″	1.07E+00	1.08E+00	9.57E-01	1.05E+00	1.62E+00
BS 3HE 9.5″	7.25E-01	7.28E-01	7.18E-01	7.40E-01	1.61E+00
BS 3HE 10″	6.34E-01	6.34E-01	6.50E-01	6.56E-01	1.57E+00
BS 3HE 12″	3.68E-01	3.60E-01	4.38E-01	4.07E-01	1.35E+00
BS 3HE 15″	1.73E-01	1.58E-01	2.51E-01	2.13E-01	9.59E-01
BS 3HE 18″	9.24E-02	7.88E-02	1.60E-01	1.28E-01	6.88E-01
BS LiI BARE	2.21E-02	3.26E-02	3.69E-02	2.42E-02	1.52E-04
BS LiI 2″	1.13E-01	1.15E-01	8.75E-02	9.66E-02	3.65E-03
BS LiI 3″	1.88E-01	1.80E-01	1.33E-01	1.60E-01	2.31E-02
BS LiI 6″	1.52E-01	1.52E-01	1.22E-01	1.43E-01	1.33E-01
BS LiI 8″	9.36E-02	9.41E-02	8.79E-02	9.42E-02	1.65E-01
BS LiI 10″	5.57E-02	5.52E-02	6.12E-02	5.98E-02	1.56E-01
BS LiI 15″	1.65E-02	1.49E-02	2.76E-02	2.27E-02	9.88E-02
BS LiI 18″	8.66E-03	7.26E-03	1.88E-02	1.46E-02	6.85E-02
6Li BARE	2.70E-01	2.82E-01	2.05E-01	2.39E-01	5.59E-02
6Li Cd	1.39E-01	1.39E-01	9.78E-02	1.19E-01	2.10E-02
GOLD BARE	7.44E-03	6.96E-03	8.47E-03	4.89E-03	1.59E-05
Nat U PC	1.65E-04	5.94E-05	3.65E-05	4.90E-05	7.83E-06
238 U PC	5.32E-07	4.18E-07	1.22E-06	9.39E-07	5.25E-06
232 Th PC	1.47E-07	1.12E-07	3.56E-07	2.70E-07	1.57E-06
CR39 ECE	4.60E-05	4.68E-05	5.50E-05	5.01E-05	1.56E-04
LR115 LiB	2.38E+03	2.73E+03	1.77E+03	2.19E+03	2.78E+02
PLANAR	4.06E+04	4.17E+04	4.97E+04	4.50E+04	1.53E+05
BASE	3.21E+04	3.38E+04	3.81E+04	3.56E+04	1.09E+05
PYRAMIDE	2.21E+04	2.28E+04	2.70E+04	2.47E+04	8.34E+04
PTB TH	1.09E+02	1.16E+02	1.28E+02	1.19E+02	3.38E+02
PTB INT	1.35E+02	1.38E+02	1.40E+02	1.39E+02	3.42E+02
PTB FAST	1.03E+02	1.08E+02	1.17E+02	1.12E+02	3.44E+02
PTB I+F	1.15E+02	1.20E+02	1.28E+02	1.24E+02	3.56E+02
LONG C	2.83E-01	3.07E-01	2.83E-01	3.12E-01	6.09E-01
LEAKE	9.18E-02	9.36E-02	9.26E-02	9.46E-02	2.20E-01
A-B_2	2.57E-01	2.58E-01	2.61E-01	2.61E-01	6.29E-01
EBERNRD2	2.58E-01	2.58E-01	2.81E-01	2.77E-01	6.67E-01
MOD930_2	2.08E-01	2.09E-01	2.72E-01	2.49E-01	7.24E-01
STUDSVIK	9.76E-02	9.91E-02	1.09E-01	1.05E-01	3.27E-01
LB6411	3.13E-01	3.16E-01	3.56E-01	3.39E-01	1.03E+00
BUBBLE	3.39E+04	3.46E+04	4.03E+04	3.65E+04	1.42E+05
ELECTRET	1.60E+02	1.53E+02	1.98E+02	1.74E+02	7.26E+02
SILICON	2.62E-01	2.98E-01	2.29E-01	2.47E-01	3.72E-01

TABLE 5.XXX. DESY, LEAKAGE NEUTRON SPECTRA, 1

Spectra

Column 1: Energy in eV
Column 2: Concrete shielding
Column 3: Heavy concrete shielding
Column 4: Fe shielding
Column 5: Fe and concrete shielding

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-01	9.89E-03	2.04E-02	4.73E-03	6.80E-02
1.00E+00	1.19E-02	2.62E-02	7.64E-03	4.51E-02
2.15E+00	1.46E-02	3.91E-02	1.03E-02	1.88E-02
4.64E+00	1.44E-02	3.23E-02	8.73E-03	1.96E-02
1.00E+01	1.43E-02	2.85E-02	6.55E-03	2.80E-02
2.15E+01	7.37E-02	6.91E-02	2.00E-02	1.62E-02
4.64E+01	1.21E-01	8.95E-02	2.62E-02	1.05E-02
1.00E+02	1.55E-01	1.26E-01	3.93E-02	1.83E-02
2.15E+02	4.03E-02	4.49E-02	2.61E-02	3.05E-02
4.64E+02	3.88E-02	5.50E-02	3.48E-02	3.70E-02
1.00E+03	3.49E-02	4.36E-02	3.15E-02	1.83E-02
2.15E+03	3.91E-02	4.82E-02	3.04E-02	1.73E-02
4.64E+03	3.78E-02	4.44E-02	3.06E-02	1.63E-02
1.00E+04	3.69E-02	3.83E-02	4.00E-02	1.91E-02
1.25E+04	4.63E-02	4.57E-02	5.20E-02	2.60E-02
1.58E+04	4.23E-02	4.24E-02	4.40E-02	2.45E-02
1.99E+04	3.24E-02	3.46E-02	2.75E-02	1.71E-02
2.51E+04	1.60E-02	2.35E-02	1.71E-02	7.33E-03
3.16E+04	1.55E-02	2.83E-02	1.42E-02	8.34E-03
3.98E+04	1.49E-02	3.23E-02	4.11E-02	1.54E-02
5.01E+04	1.26E-02	3.81E-02	5.67E-02	1.99E-02
6.30E+04	1.05E-02	4.59E-02	9.86E-02	2.72E-02
7.94E+04	5.78E-03	5.27E-02	1.11E-01	2.90E-02
1.00E+05	1.78E-02	5.93E-02	1.15E-01	3.30E-02
1.25E+05	4.01E-02	6.53E-02	1.05E-01	3.53E-02
1.58E+05	6.90E-02	7.04E-02	9.13E-02	3.65E-02
1.99E+05	7.15E-02	7.01E-02	1.05E-01	3.63E-02
2.51E+05	6.10E-02	6.26E-02	1.23E-01	3.02E-02
3.16E+05	3.69E-02	4.84E-02	1.48E-01	1.90E-02
3.98E+05	3.24E-02	4.34E-02	1.80E-01	1.44E-02
5.01E+05	4.88E-02	6.00E-02	2.31E-01	2.45E-02
6.30E+05	7.97E-02	9.16E-02	2.87E-01	4.49E-02
7.94E+05	1.12E-01	1.23E-01	3.10E-01	6.55E-02
1.00E+06	1.07E-01	1.10E-01	2.31E-01	5.90E-02
1.25E+06	8.07E-02	7.06E-02	1.25E-01	3.65E-02
1.58E+06	3.98E-02	4.04E-02	3.16E-02	2.70E-02
1.99E+06	2.71E-02	2.27E-02	2.38E-02	3.02E-02
2.51E+06	3.88E-02	3.71E-02	4.26E-02	6.25E-02
3.16E+06	6.57E-02	3.68E-02	1.12E-01	8.70E-02
3.98E+06	8.02E-02	5.88E-02	2.07E-01	1.21E-01
5.01E+06	7.05E-02	5.35E-02	1.92E-01	1.06E-01
6.30E+06	5.30E-02	4.31E-02	1.15E-01	6.40E-02
7.94E+06	3.54E-02	3.10E-02	1.32E-02	2.17E-02
1.00E+07	2.94E-02	2.80E-02	1.64E-02	2.87E-02
1.58E+07	3.71E-02	2.22E-02	1.27E-02	7.16E-02
2.51E+07	6.18E-02	2.04E-02	7.56E-03	1.27E-01
3.98E+07	8.47E-02	3.05E-02	7.64E-03	1.52E-01
6.30E+07	1.01E-01	4.87E-02	8.33E-03	1.77E-01
1.00E+08	7.94E-02	4.92E-02	6.33E-03	1.69E-01
1.58E+08	4.53E-02	4.04E-02	3.56E-03	1.46E-01
2.51E+08	1.54E-02	3.03E-02	1.02E-03	1.01E-01
3.98E+08	6.85E-03	0.00E+00	6.33E-04	4.99E-02
6.30E+08				

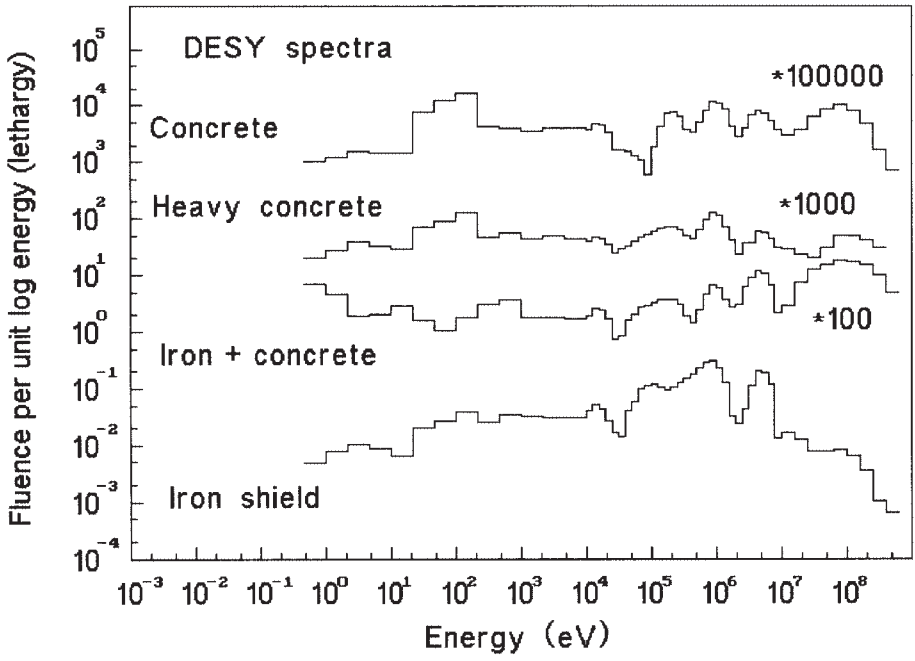

FIG. 5.23. DESY, leakage neutron spectra, 1.

TABLE 5.XXX. DESY, LEAKAGE NEUTRON SPECTRA, 1

Spectrum weighted responses

Column 2: Concrete shielding
Column 3: Heavy concrete shielding
Column 4: Fe shielding
Column 5: Fe and concrete shielding

FLUENCE 20	8.18E-01	8.99E-01	9.84E-01	5.75E-01
E A-P R60	1.77E+02	1.33E+02	1.94E+02	2.59E+02
H AMBIENT	1.72E+02	1.38E+02	2.36E+02	2.24E+02
H PERSONAL	1.20E+02	1.15E+02	2.40E+02	1.13E+02
HE A-P R51	6.38E+01	5.55E+01	1.08E+02	7.16E+01
MADE R21	9.67E+01	9.07E+01	1.85E+02	9.38E+01
BS 3HE BARE	4.74E-02	7.05E-02	2.13E-02	8.24E-02
BS 3HE 2.5″	7.72E-01	8.98E-01	4.60E-01	5.34E-01
BS 3HE 3″	1.16E+00	1.32E+00	8.32E-01	7.20E-01
BS 3HE 3.5″	1.45E+00	1.64E+00	1.22E+00	8.54E-01
BS 3HE 4″	1.61E+00	1.82E+00	1.55E+00	9.39E-01
BS 3HE 4.5″	1.67E+00	1.89E+00	1.81E+00	9.77E-01
BS 3HE 5″	1.65E+00	1.86E+00	1.98E+00	9.80E-01
BS 3HE 6″	1.47E+00	1.65E+00	2.06E+00	9.17E-01
BS 3HE 7″	1.23E+00	1.35E+00	1.92E+00	8.18E-01
BS 3HE 8″	9.88E-01	1.06E+00	1.66E+00	7.06E-01
BS 3HE 9.5″	6.96E-01	7.12E-01	1.24E+00	5.55E-01
BS 3HE 10″	6.18E-01	6.22E-01	1.11E+00	5.11E-01
BS 3HE 12″	3.90E-01	3.66E-01	7.04E-01	3.72E-01
BS 3HE 15″	2.11E-01	1.80E-01	3.57E-01	2.37E-01
BS 3HE 18″	1.32E-01	1.06E-01	2.06E-01	1.65E-01
BS LiI BARE	1.06E-02	1.46E-02	4.90E-03	1.42E-02
BS LiI 2″	7.54E-02	8.72E-02	4.44E-02	5.13E-02
BS LiI 3″	1.40E-01	1.58E-01	1.14E-01	8.20E-02
BS LiI 6″	1.34E-01	1.48E-01	1.98E-01	8.77E-02
BS LiI 8″	8.94E-02	9.25E-02	1.50E-01	6.93E-02
BS LiI 10″	5.81E-02	5.54E-02	9.90E-02	5.34E-02
BS LiI 15″	2.45E-02	1.85E-02	3.44E-02	3.18E-02
BS LiI 18″	1.72E-02	1.14E-02	1.88E-02	2.53E-02
6Li BARE	1.96E-01	2.25E-01	1.62E-01	1.39E-01
6Li Cd	1.01E-01	1.16E-01	7.65E-02	6.78E-02
GOLD BARE	6.22E-03	1.22E-02	3.49E-03	6.26E-03
Nat U PC	1.96E-04	1.65E-04	5.62E-05	3.32E-05
238 U PC	9.19E-07	6.95E-07	1.11E-06	1.29E-06
232 Th PC	2.77E-07	2.09E-07	3.35E-07	3.88E-07
CR39 ECE	4.09E-05	3.77E-05	8.07E-05	3.73E-05
LR115 LiB	1.80E+03	2.23E+03	1.51E+03	1.56E+03
PLANAR	4.45E+04	4.08E+04	9.18E+04	4.18E+04
BASE	3.52E+04	3.29E+04	7.84E+04	3.21E+04
PYRAMIDE	2.43E+04	2.25E+04	5.30E+04	2.28E+04
PTB TH	1.17E+02	1.15E+02	2.62E+02	1.00E+02
PTB INT	1.36E+02	1.35E+02	2.68E+02	1.12E+02
PTB FAST	1.13E+02	1.09E+02	2.49E+02	9.92E+01
PTB I+F	1.23E+02	1.20E+02	2.63E+02	1.06E+02
LONG C	2.77E-01	3.18E-01	7.00E-01	2.34E-01
LEAKE	9.03E-02	9.18E-02	1.72E-01	7.27E-02
A-B_2	2.45E-01	2.45E-01	4.50E-01	2.02E-01
EBERNRD2	2.79E-01	2.64E-01	4.57E-01	2.65E-01
MOD930_2	2.88E-01	2.44E-01	4.10E-01	3.74E-01
STUDSVIK	1.00E-01	9.78E-02	2.07E-01	8.84E-02
LB6411	3.24E-01	3.10E-01	6.46E-01	2.94E-01
BUBBLE	3.86E+04	3.66E+04	8.14E+04	3.35E+04
ELECTRET	1.75E+02	1.60E+02	2.73E+02	1.77E+02
SILICON	2.47E-01	2.62E-01	6.11E-01	1.38E-01

TABLE 5.XXXI. DESY, LEAKAGE NEUTRON SPECTRA, 2

Spectra

Column 1: Energy in eV
Column 2: Sand + concrete
Column 3: Heavy concrete
Column 4: Heavy concrete, thin target
Column 5: Concrete, thick target

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	4.09E-02	2.81E-02	4.38E-02	1.95E-02
1.00E-02	2.45E-02	3.27E-02	3.39E-02	8.21E-03
2.15E-02	7.35E-03	1.72E-02	2.04E-02	2.84E-03
4.64E-02	2.18E-03	9.33E-03	5.00E-03	1.16E-03
1.00E-01	5.28E-04	5.84E-03	6.19E-04	1.12E-03
2.15E-01	2.93E-04	4.76E-03	3.58E-04	2.49E-03
4.64E-01	1.18E-04	3.97E-03	1.99E-05	6.13E-03
1.00E+00	7.78E-05	3.85E-03	1.01E-06	4.87E-03
2.15E+00	6.47E-05	3.81E-03	7.88E-07	1.93E-03
4.64E+00	6.62E-05	4.07E-03	1.01E-07	4.05E-04
1.00E+01	7.43E-05	4.32E-03	6.08E-08	6.81E-05
2.15E+01	8.86E-05	4.28E-03	1.10E-07	8.62E-05
4.64E+01	1.08E-04	4.07E-03	4.41E-07	1.09E-04
1.00E+02	1.22E-04	4.11E-03	3.49E-06	1.80E-04
2.15E+02	1.70E-04	5.86E-03	5.14E-05	4.69E-04
4.64E+02	2.49E-04	7.88E-03	7.08E-04	9.18E-04
1.00E+03	3.92E-04	1.17E-02	4.72E-03	1.88E-03
2.15E+03	7.73E-04	2.09E-02	1.40E-02	3.58E-03
4.64E+03	1.91E-03	3.70E-02	2.94E-02	6.61E-03
1.00E+04	3.90E-03	4.84E-02	4.00E-02	8.51E-03
1.25E+04	5.70E-03	5.52E-02	4.62E-02	1.07E-02
1.58E+04	8.40E-03	6.43E-02	5.46E-02	1.50E-02
1.99E+04	1.19E-02	7.28E-02	6.25E-02	1.83E-02
2.51E+04	1.67E-02	8.07E-02	7.05E-02	2.05E-02
3.16E+04	2.42E-02	8.69E-02	7.90E-02	2.47E-02
3.98E+04	3.46E-02	9.17E-02	8.81E-02	3.06E-02
5.01E+04	4.27E-02	1.03E-01	9.61E-02	3.64E-02
6.30E+04	4.60E-02	1.24E-01	1.03E-01	4.24E-02
7.94E+04	5.18E-02	1.33E-01	1.08E-01	4.89E-02
1.00E+05	5.93E-02	1.28E-01	1.10E-01	5.62E-02
1.25E+05	6.55E-02	1.31E-01	1.13E-01	6.59E-02
1.58E+05	7.26E-02	1.43E-01	1.18E-01	7.94E-02
1.99E+05	7.65E-02	1.47E-01	1.19E-01	9.45E-02
2.51E+05	7.77E-02	1.50E-01	1.19E-01	1.11E-01
3.16E+05	7.75E-02	1.49E-01	1.15E-01	1.33E-01
3.98E+05	7.68E-02	1.47E-01	1.10E-01	1.54E-01
5.01E+05	7.19E-02	1.40E-01	9.66E-02	1.65E-01
6.30E+05	6.51E-02	1.30E-01	7.78E-02	1.57E-01
7.94E+05	5.53E-02	1.13E-01	6.13E-02	1.48E-01
1.00E+06	4.62E-02	9.44E-02	5.43E-02	1.37E-01
1.25E+06	3.97E-02	8.06E-02	4.88E-02	1.20E-01
1.58E+06	4.20E-02	7.99E-02	5.27E-02	1.10E-01
1.99E+06	4.55E-02	7.22E-02	6.07E-02	9.92E-02
2.51E+06	5.18E-02	5.94E-02	7.11E-02	9.65E-02
3.16E+06	6.05E-02	5.30E-02	8.90E-02	9.07E-02
3.98E+06	6.62E-02	4.88E-02	1.05E-01	8.33E-02
5.01E+06	7.63E-02	4.93E-02	1.25E-01	7.85E-02
6.30E+06	8.51E-02	5.27E-02	1.39E-01	7.24E-02
7.94E+06	9.43E-02	5.88E-02	1.52E-01	7.60E-02
1.00E+07	1.10E-01	6.83E-02	1.61E-01	9.47E-02
1.58E+07	1.79E-01	8.98E-02	1.53E-01	1.16E-01
2.51E+07	2.92E-01	9.61E-02	9.25E-02	1.55E-01
3.98E+07	3.47E-01	8.18E-02	5.43E-02	1.61E-01
6.30E+07	1.84E-01	1.19E-02	3.93E-02	1.27E-01
1.00E+08	5.60E-02	1.18E-02	2.86E-02	1.03E-01
1.58E+08	4.78E-02	8.05E-03	1.93E-02	7.96E-02
2.51E+08	3.31E-02	3.61E-03	1.61E-02	2.28E-02
3.98E+08	1.37E-02	1.52E-03	1.25E-02	1.46E-02
6.30E+08				

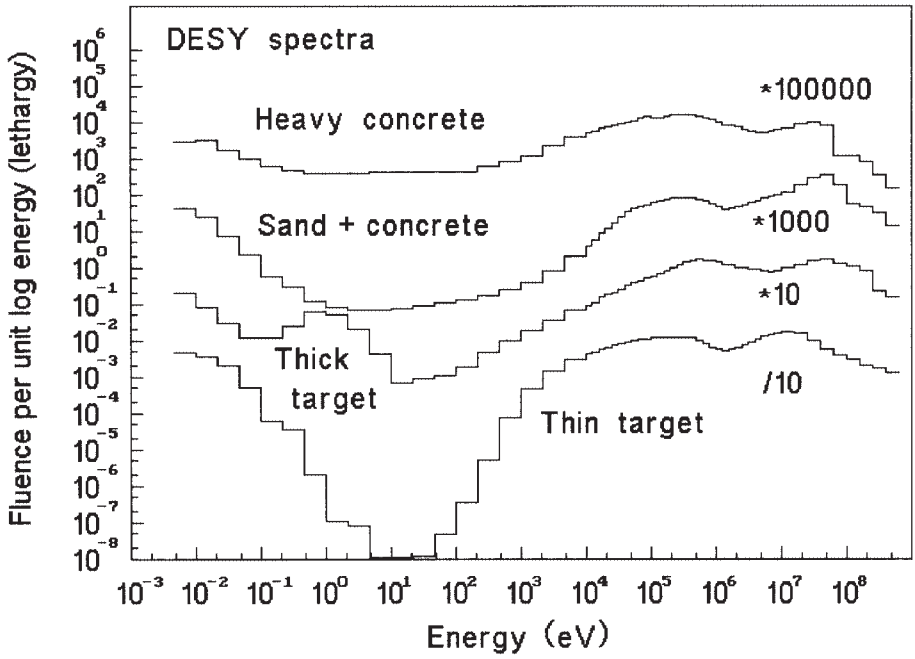

FIG. 5.24. DESY, leakage neutron spectra, 2.

TABLE 5.XXXI. DESY, LEAKAGE NEUTRON SPECTRA, 2

Spectrum weighted responses

Column 2: Sand + concrete
Column 3: Heavy concrete
Column 4: Heavy concrete, thin target
Column 5: Concrete, thick target

FLUENCE 20	5.52E-01	9.02E-01	8.80E-01	6.94E-01
E A-P R60	3.42E+02	1.95E+02	2.51E+02	3.13E+02
H AMBIENT	3.31E+02	2.26E+02	2.65E+02	3.21E+02
H PERSONAL	1.82E+02	1.97E+02	2.37E+02	2.32E+02
HE A-P R51	1.21E+02	9.88E+01	1.52E+02	1.28E+02
MADE R21	1.40E+02	1.46E+02	1.85E+02	1.79E+02
BS 3HE BARE	2.47E-01	2.79E-01	3.22E-01	1.16E-01
BS 3HE 2.5″	1.45E-01	4.08E-01	2.91E-01	1.75E-01
BS 3HE 3″	2.48E-01	7.09E-01	5.18E-01	3.44E-01
BS 3HE 3.5″	3.83E-01	1.04E+00	7.83E-01	5.59E-01
BS 3HE 4″	5.20E-01	1.33E+00	1.03E+00	7.83E-01
BS 3HE 4.5″	6.37E-01	1.55E+00	1.22E+00	9.80E-01
BS 3HE 5″	7.35E-01	1.68E+00	1.36E+00	1.14E+00
BS 3HE 6″	8.27E-01	1.71E+00	1.44E+00	1.31E+00
BS 3HE 7″	8.29E-01	1.55E+00	1.37E+00	1.31E+00
BS 3HE 8″	7.76E-01	1.31E+00	1.22E+00	1.21E+00
BS 3HE 9.5″	6.57E-01	9.41E-01	9.80E-01	9.78E-01
BS 3HE 10″	6.19E-01	8.40E-01	9.11E-01	9.02E-01
BS 3HE 12″	4.87E-01	5.28E-01	6.84E-01	6.37E-01
BS 3HE 15″	3.50E-01	2.87E-01	4.70E-01	3.83E-01
BS 3HE 18″	2.70E-01	1.87E-01	3.52E-01	2.59E-01
BS LiI BARE	1.24E-02	1.74E-02	1.71E-02	7.06E-03
BS LiI 2″	1.19E-02	3.72E-02	2.55E-02	1.58E-02
BS LiI 3″	3.44E-02	9.64E-02	7.18E-02	5.08E-02
BS LiI 6″	8.68E-02	1.64E-01	1.40E-01	1.33E-01
BS LiI 8″	8.17E-02	1.19E-01	1.14E-01	1.17E-01
BS LiI 10″	6.94E-02	7.69E-02	8.61E-02	8.86E-02
BS LiI 15″	5.03E-02	3.11E-02	4.85E-02	4.52E-02
BS LiI 18″	4.40E-02	2.17E-02	3.60E-02	3.36E-02
6Li BARE	5.41E-02	1.31E-01	9.64E-02	8.20E-02
6Li Cd	2.26E-02	5.87E-02	4.27E-02	3.46E-02
GOLD BARE	6.00E-05	1.37E-03	1.09E-04	6.62E-04
Nat U PC	4.94E-06	1.29E-05	7.50E-06	5.70E-06
238 U PC	2.54E-06	1.52E-06	3.04E-06	2.10E-06
232 Th PC	7.83E-07	4.58E-07	9.37E-07	6.29E-07
CR39 ECE	4.51E-05	5.82E-05	6.08E-05	7.75E-05
LR115 LiB	4.16E+02	1.22E+03	8.76E+02	6.83E+02
PLANAR	6.16E+04	6.52E+04	7.66E+04	8.57E+04
BASE	4.91E+04	5.49E+04	5.96E+04	6.99E+04
PYRAMIDE	3.43E+04	3.73E+04	4.39E+04	4.81E+04
PTB TH	1.52E+02	1.96E+02	2.10E+02	2.23E+02
PTB INT	1.51E+02	1.97E+02	2.10E+02	2.22E+02
PTB FAST	1.47E+02	1.83E+02	2.01E+02	2.15E+02
PTB I+F	1.54E+02	1.94E+02	2.11E+02	2.25E+02
LONG C	3.17E-01	5.91E-01	5.25E-01	5.10E-01
LEAKE	9.02E-02	1.28E-01	1.32E-01	1.37E-01
A-B_2	2.34E-01	3.23E-01	3.41E-01	3.61E-01
EBERNRD2	3.38E-01	3.60E-01	3.82E-01	4.23E-01
MOD930_2	4.54E-01	3.46E-01	4.00E-01	4.90E-01
STUDSVIK	1.13E-01	1.47E-01	1.69E-01	1.72E-01
LB6411	3.85E-01	4.67E-01	5.38E-01	5.55E-01
BUBBLE	5.20E+04	5.72E+04	7.53E+04	7.46E+04
ELECTRET	2.35E+02	2.06E+02	3.55E+02	2.74E+02
SILICON	2.20E-01	4.27E-01	2.95E-01	4.77E-01

TABLE 5.XXXII. 46 MeV CYCLOTRON STRAY NEUTRON SPECTRA

Spectra

Column 1: Energy in eV
Column 2: Variable energy port, START1 start sp.
Column 3: Variable energy port, FLAT start sp.
Column 4: Variable energy port, GRAVES start sp.
Column 5: Variable energy port, Maxwellian start sp.
Column 6: Switching magnet, Maxwellian start sp.

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	3.36E-04	9.71E-03	2.36E-04	4.93E-04	1.63E-02
2.15E-02	3.36E-03	1.36E-02	2.36E-03	4.93E-03	1.69E-02
4.64E-02	1.91E-02	2.17E-02	1.84E-02	1.97E-02	1.81E-02
1.00E-01	7.63E-02	3.85E-02	7.71E-02	7.27E-02	2.02E-02
2.15E-01	1.59E-01	7.13E-02	1.62E-01	1.50E-01	2.34E-02
4.64E-01	1.89E-01	1.25E-01	1.90E-01	1.81E-01	2.56E-02
1.00E+00	6.92E-02	1.41E-01	6.51E-02	7.30E-02	2.37E-02
2.15E+00	6.75E-02	5.41E-02	6.83E-02	5.86E-02	2.68E-02
4.64E+00	4.61E-02	6.16E-02	4.59E-02	4.44E-02	2.84E-02
1.00E+01	2.30E-02	2.99E-02	2.19E-02	2.33E-02	3.17E-02
2.15E+01	1.02E-02	1.53E-02	9.10E-03	1.02E-02	3.58E-02
4.64E+01	4.47E-03	6.98E-03	3.76E-03	4.32E-03	4.03E-02
1.00E+02	2.28E-03	3.61E-03	1.80E-03	2.05E-03	4.42E-02
2.15E+02	1.55E-03	2.28E-03	1.17E-03	1.29E-03	4.72E-02
4.64E+02	1.36E-03	1.80E-03	9.95E-04	1.06E-03	5.12E-02
1.00E+03	1.85E-03	2.11E-03	1.38E-03	1.44E-03	5.11E-02
2.15E+03	2.79E-03	3.25E-03	2.15E-03	2.21E-03	5.19E-02
4.64E+03	4.98E-03	5.33E-03	4.00E-03	4.10E-03	5.97E-02
1.00E+04	8.09E-03	8.59E-03	6.72E-03	6.94E-03	5.62E-02
1.25E+04	1.01E-02	1.06E-02	8.55E-03	8.81E-03	5.67E-02
1.58E+04	1.26E-02	1.32E-02	1.09E-02	1.13E-02	6.11E-02
1.99E+04	1.62E-02	1.69E-02	1.43E-02	1.49E-02	6.31E-02
2.51E+04	2.11E-02	2.21E-02	1.90E-02	2.01E-02	6.56E-02
3.16E+04	2.81E-02	2.97E-02	2.60E-02	2.76E-02	6.78E-02
3.98E+04	3.77E-02	4.00E-02	3.58E-02	3.84E-02	7.14E-02
5.01E+04	5.12E-02	5.48E-02	5.02E-02	5.45E-02	7.64E-02
6.30E+04	7.05E-02	7.64E-02	7.13E-02	7.87E-02	8.38E-02
7.94E+04	9.60E-02	1.05E-01	1.00E-01	1.12E-01	9.39E-02
1.00E+05	1.29E-01	1.41E-01	1.38E-01	1.55E-01	1.07E-01
1.25E+05	1.67E-01	1.80E-01	1.82E-01	2.05E-01	1.22E-01
1.58E+05	2.08E-01	2.19E-01	2.28E-01	2.56E-01	1.41E-01
1.99E+05	2.42E-01	2.54E-01	2.65E-01	2.94E-01	1.59E-01
2.51E+05	2.39E-01	2.54E-01	2.50E-01	2.64E-01	1.68E-01
3.16E+05	1.83E-01	2.04E-01	1.62E-01	1.43E-01	1.61E-01
3.98E+05	1.23E-01	1.44E-01	7.77E-02	3.30E-02	1.44E-01
5.01E+05	5.91E-02	7.56E-02	9.10E-03	6.23E-02	1.02E-01
6.30E+05	1.00E-02	1.21E-02	2.68E-02	2.16E-02	3.21E-02
7.94E+05	3.48E-02	4.06E-02	2.36E-02	1.65E-02	4.66E-02
1.00E+06	1.81E-02	2.27E-02	1.95E-02	1.02E-02	3.01E-02
1.25E+06	1.62E-02	2.10E-02	3.68E-02	2.40E-02	2.15E-02
1.58E+06	6.20E-02	7.05E-02	1.09E-01	9.13E-02	4.36E-02
1.99E+06	8.17E-02	9.07E-02	1.31E-01	1.15E-01	5.69E-02
2.51E+06	9.60E-03	8.88E-03	3.43E-03	2.79E-03	2.77E-02
3.16E+06	3.09E-02	2.97E-02	2.06E-03	1.06E-02	5.32E-02
3.98E+06	3.77E-02	3.74E-02	2.84E-03	1.78E-02	6.60E-02
5.01E+06	2.54E-03	5.45E-03	5.80E-03	1.77E-02	3.77E-02
6.30E+06	3.33E-03	8.55E-03	1.16E-02	2.61E-02	4.07E-02
7.94E+06	1.01E-02	6.17E-03	4.53E-03	9.84E-03	1.85E-02
1.00E+07	1.90E-02	7.39E-03	5.15E-03	2.37E-03	3.30E-03
1.58E+07	6.43E-04	6.08E-03	8.16E-03	1.83E-04	5.49E-04
2.51E+07	2.03E-04	5.98E-03	1.04E-02	2.03E-03	6.94E-03
3.98E+07	5.40E-03	3.89E-02	5.44E-03	1.18E-03	1.65E-03
6.30E+07	4.09E-05	2.94E-04	3.40E-04	5.83E-05	6.69E-05
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

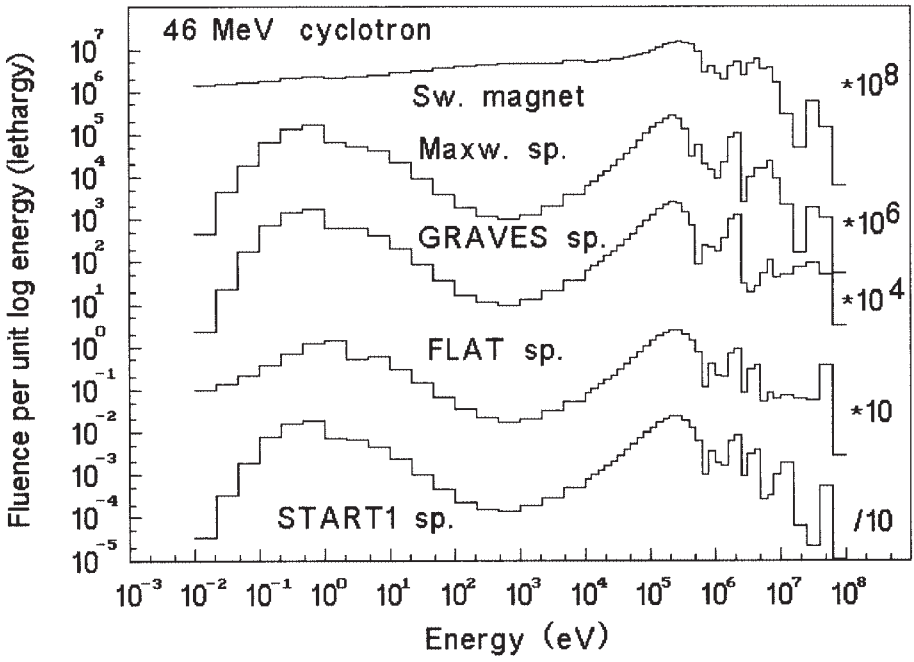

FIG. 5.25. 46 MeV cyclotron stray neutron spectra.

TABLE 5.XXXII. 46 MeV CYCLOTRON STRAY NEUTRON SPECTRA

Spectrum weighted responses

Column 2: Variable energy port, START1 start sp.
Column 3: Variable energy port, FLAT start sp.
Column 4: Variable energy port, GRAVES start sp.
Column 5: Variable energy port, Maxwellian start sp.
Column 6: Switching magnet, Maxwellian start sp.

FLUENCE 20	9.98E-01	9.79E-01	9.93E-01	9.99E-01	9.96E-01
E A-P R60	7.99E+01	9.27E+01	8.10E+01	7.91E+01	8.99E+01
H AMBIENT	1.08E+02	1.23E+02	1.09E+02	1.06E+02	1.12E+02
H PERSONAL	1.13E+02	1.21E+02	1.12E+02	1.12E+02	1.16E+02
HE A-P R51	3.91E+01	4.10E+01	3.79E+01	3.76E+01	4.49E+01
MADE R21	7.78E+01	8.31E+01	7.80E+01	7.79E+01	8.44E+01
BS 3HE BARE	4.67E-01	3.89E-01	4.65E-01	4.53E-01	2.25E-01
BS 3HE 2.5″	1.35E+00	1.20E+00	1.34E+00	1.31E+00	8.98E-01
BS 3HE 3″	1.58E+00	1.48E+00	1.58E+00	1.56E+00	1.33E+00
BS 3HE 3.5″	1.74E+00	1.69E+00	1.73E+00	1.73E+00	1.69E+00
BS 3HE 4″	1.83E+00	1.83E+00	1.82E+00	1.84E+00	1.93E+00
BS 3HE 4.5″	1.85E+00	1.88E+00	1.85E+00	1.87E+00	2.05E+00
BS 3HE 5″	1.82E+00	1.87E+00	1.81E+00	1.85E+00	2.07E+00
BS 3HE 6″	1.62E+00	1.69E+00	1.62E+00	1.65E+00	1.87E+00
BS 3HE 7″	1.33E+00	1.40E+00	1.33E+00	1.36E+00	1.54E+00
BS 3HE 8″	1.03E+00	1.09E+00	1.03E+00	1.05E+00	1.19E+00
BS 3HE 9.5″	6.48E-01	6.93E-01	6.53E-01	6.63E-01	7.57E-01
BS 3HE 10″	5.56E-01	5.94E-01	5.60E-01	5.68E-01	6.50E-01
BS 3HE 12″	2.82E-01	3.00E-01	2.82E-01	2.88E-01	3.45E-01
BS 3HE 15″	1.09E-01	1.13E-01	1.05E-01	1.09E-01	1.45E-01
BS 3HE 18″	5.19E-02	5.15E-02	4.47E-02	4.89E-02	7.54E-02
BS LiI BARE	6.20E-02	5.02E-02	6.19E-02	5.98E-02	2.49E-02
BS LiI 2″	1.25E-01	1.12E-01	1.25E-01	1.22E-01	8.54E-02
BS LiI 3″	1.63E-01	1.59E-01	1.62E-01	1.62E-01	1.61E-01
BS LiI 6″	1.48E-01	1.56E-01	1.48E-01	1.51E-01	1.69E-01
BS LiI 8″	8.83E-02	9.45E-02	8.88E-02	9.02E-02	1.02E-01
BS LiI 10″	4.68E-02	5.05E-02	4.72E-02	4.76E-02	5.52E-02
BS LiI 15″	9.87E-03	1.10E-02	9.51E-03	9.68E-03	1.36E-02
BS LiI 18″	4.63E-03	5.52E-03	4.33E-03	4.31E-03	6.92E-03
6Li BARE	3.38E-01	2.94E-01	3.38E-01	3.31E-01	2.31E-01
6Li Cd	1.34E-01	1.31E-01	1.33E-01	1.31E-01	1.10E-01
GOLD BARE	2.14E-02	1.73E-02	2.16E-02	1.91E-02	8.77E-03
Nat U PC	1.53E-05	1.90E-05	1.45E-05	1.50E-05	6.80E-05
238 U PC	2.73E-07	2.57E-07	2.12E-07	2.13E-07	3.89E-07
232 Th PC	7.23E-08	6.74E-08	5.29E-08	5.59E-08	1.12E-07
CR39 ECE	3.22E-05	3.55E-05	3.74E-05	3.52E-05	3.44E-05
LR115 LiB	3.03E+03	3.10E+03	3.01E+03	3.00E+03	2.19E+03
PLANAR	2.94E+04	3.24E+04	2.95E+04	2.84E+04	3.41E+04
BASE	2.73E+04	3.04E+04	2.60E+04	2.54E+04	3.13E+04
PYRAMIDE	1.80E+04	1.98E+04	1.70E+04	1.67E+04	2.10E+04
PTB TH	1.35E+02	1.46E+02	1.33E+02	1.36E+02	1.32E+02
PTB INT	1.42E+02	1.51E+02	1.40E+02	1.41E+02	1.43E+02
PTB FAST	1.18E+02	1.29E+02	1.18E+02	1.20E+02	1.19E+02
PTB I+F	1.29E+02	1.40E+02	1.28E+02	1.30E+02	1.30E+02
LONG C	4.36E-01	4.77E-01	4.43E-01	4.65E-01	4.58E-01
LEAKE	8.25E-02	8.85E-02	8.24E-02	8.31E-02	9.61E-02
A-B_2	2.15E-01	2.28E-01	2.19E-01	2.19E-01	2.42E-01
EBERNRD2	2.14E-01	2.34E-01	2.19E-01	2.19E-01	2.53E-01
MOD930_2	1.74E-01	1.96E-01	1.79E-01	1.77E-01	1.99E-01
STUDSVIK	9.09E-02	9.71E-02	9.01E-02	9.22E-02	1.01E-01
LB6411	2.64E-01	2.87E-01	2.64E-01	2.67E-01	3.09E-01
BUBBLE	2.74E+04	2.84E+04	2.50E+04	2.48E+04	3.04E+04
ELECTRET	1.38E+02	1.26E+02	1.21E+02	1.26E+02	1.33E+02
SILICON	3.20E-01	3.57E-01	3.40E-01	3.43E-01	2.93E-01

TABLE 5.XXXIII. COSMIC RAY SPECTRA, MEASURED AND CALCULATED

Spectra

Column 1: Energy in eV
Column 2: PTB, free-in-air
Column 3: PTB, in basement
Column 4: 5000 m above Rome, Luin code
Column 5: Zugspitze, FLUKA code
Column 6: Zugspitze, measured

1.00E-03	2.18E-03	2.28E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	4.93E-03	5.25E-03	0.00E+00	0.00E+00	0.00E+00
4.64E-03	1.13E-02	1.23E-02	3.16E-05	0.00E+00	0.00E+00
1.00E-02	2.51E-02	2.82E-02	3.11E-04	0.00E+00	3.93E-02
2.15E-02	4.58E-02	5.32E-02	1.30E-03	0.00E+00	5.45E-02
4.64E-02	4.97E-02	6.00E-02	4.35E-03	3.11E-03	2.94E-02
1.00E-01	2.24E-02	2.81E-02	9.57E-03	5.30E-03	2.71E-02
2.15E-01	1.72E-02	2.19E-02	1.20E-02	7.13E-03	1.75E-02
4.64E-01	1.50E-02	1.96E-02	1.31E-02	7.66E-03	1.82E-02
1.00E+00	1.51E-02	1.99E-02	1.33E-02	2.33E-02	1.86E-02
2.15E+00	1.52E-02	1.98E-02	1.49E-02	2.61E-02	1.86E-02
4.64E+00	1.52E-02	1.97E-02	1.59E-02	2.78E-02	1.97E-02
1.00E+01	1.52E-02	1.95E-02	1.60E-02	1.44E-02	1.96E-02
2.15E+01	1.52E-02	1.93E-02	1.79E-02	1.33E-02	2.20E-02
4.64E+01	1.51E-02	1.90E-02	1.97E-02	2.31E-02	2.09E-02
1.00E+02	1.51E-02	1.87E-02	2.03E-02	2.22E-02	2.16E-02
2.15E+02	1.50E-02	1.84E-02	2.27E-02	1.70E-02	2.18E-02
4.64E+02	1.50E-02	1.82E-02	2.32E-02	3.37E-02	1.63E-02
1.00E+03	1.50E-02	1.79E-02	2.45E-02	4.87E-02	1.90E-02
2.15E+03	1.50E-02	1.77E-02	2.71E-02	2.12E-02	1.90E-02
4.64E+03	1.51E-02	1.75E-02	2.94E-02	2.61E-02	1.86E-02
1.00E+04	1.52E-02	1.75E-02	3.08E-02	3.13E-02	1.86E-02
1.25E+04	1.53E-02	1.75E-02	3.11E-02	3.00E-02	1.85E-02
1.58E+04	1.55E-02	1.76E-02	3.24E-02	3.12E-02	1.83E-02
1.99E+04	1.57E-02	1.78E-02	3.52E-02	3.66E-02	1.75E-02
2.51E+04	1.61E-02	1.81E-02	3.38E-02	4.76E-02	1.69E-02
3.16E+04	1.65E-02	1.85E-02	3.47E-02	5.01E-02	1.63E-02
3.98E+04	1.72E-02	1.91E-02	3.77E-02	4.91E-02	1.59E-02
5.01E+04	1.81E-02	2.00E-02	4.10E-02	4.60E-02	1.54E-02
6.30E+04	1.94E-02	2.12E-02	4.55E-02	4.96E-02	1.49E-02
7.94E+04	2.11E-02	2.28E-02	4.80E-02	4.91E-02	1.46E-02
1.00E+05	2.34E-02	2.51E-02	6.54E-02	4.73E-02	1.47E-02
1.25E+05	2.64E-02	2.81E-02	1.71E-01	4.75E-02	1.59E-02
1.58E+05	3.05E-02	3.20E-02	5.57E-01	4.71E-02	1.87E-02
1.99E+05	3.59E-02	3.71E-02	1.74E-01	5.54E-02	2.24E-02
2.51E+05	4.26E-02	4.33E-02	1.59E-01	4.87E-02	3.24E-02
3.16E+05	5.08E-02	5.08E-02	1.36E-01	1.42E-01	5.14E-02
3.98E+05	6.05E-02	5.93E-02	1.36E-01	8.58E-02	5.55E-02
5.01E+05	7.12E-02	6.87E-02	1.35E-01	1.22E-01	7.27E-02
6.30E+05	8.19E-02	7.76E-02	2.83E-01	1.42E-01	9.29E-02
7.94E+05	9.18E-02	8.51E-02	1.38E-01	1.45E-01	1.10E-01
1.00E+06	9.82E-02	8.88E-02	1.34E-01	9.11E-02	1.22E-01
1.25E+06	9.82E-02	8.73E-02	1.27E-01	5.20E-02	1.22E-01
1.58E+06	8.97E-02	7.91E-02	1.11E-01	6.02E-02	1.11E-01
1.99E+06	7.48E-02	6.54E-02	9.65E-02	8.77E-02	9.55E-02
2.51E+06	5.57E-02	4.87E-02	8.04E-02	8.43E-02	6.05E-02
3.16E+06	3.50E-02	3.05E-02	6.24E-02	6.60E-02	3.91E-02
3.98E+06	2.46E-02	2.16E-02	4.96E-02	8.05E-02	3.42E-02
5.01E+06	1.55E-02	1.39E-02	4.30E-02	7.37E-02	4.95E-02
6.30E+06	1.85E-02	1.62E-02	3.88E-02	5.83E-02	4.62E-02
7.94E+06	2.06E-02	1.81E-02	3.38E-02	4.44E-02	4.99E-02
1.00E+07	2.03E-02	1.78E-02	2.83E-02	2.00E-02	5.02E-02
1.58E+07	7.12E-02	6.31E-02	2.26E-02	2.57E-02	5.20E-02
2.51E+07	8.47E-01	7.46E-01	1.80E-02	4.46E-02	9.55E-02
3.98E+07	0.00E+00	0.00E+00	1.42E-02	1.68E-01	1.32E-01
6.30E+07	0.00E+00	0.00E+00	1.36E-02	9.59E-02	1.46E-01
1.00E+08	0.00E+00	0.00E+00	1.51E-02	1.09E-01	1.42E-01
1.58E+08	0.00E+00	0.00E+00	1.33E-02	7.71E-02	1.06E-01
2.51E+08	0.00E+00	0.00E+00	1.08E-02	6.41E-02	3.21E-02
3.98E+08	0.00E+00	0.00E+00	8.40E-03	3.35E-02	2.04E-02
6.30E+08					

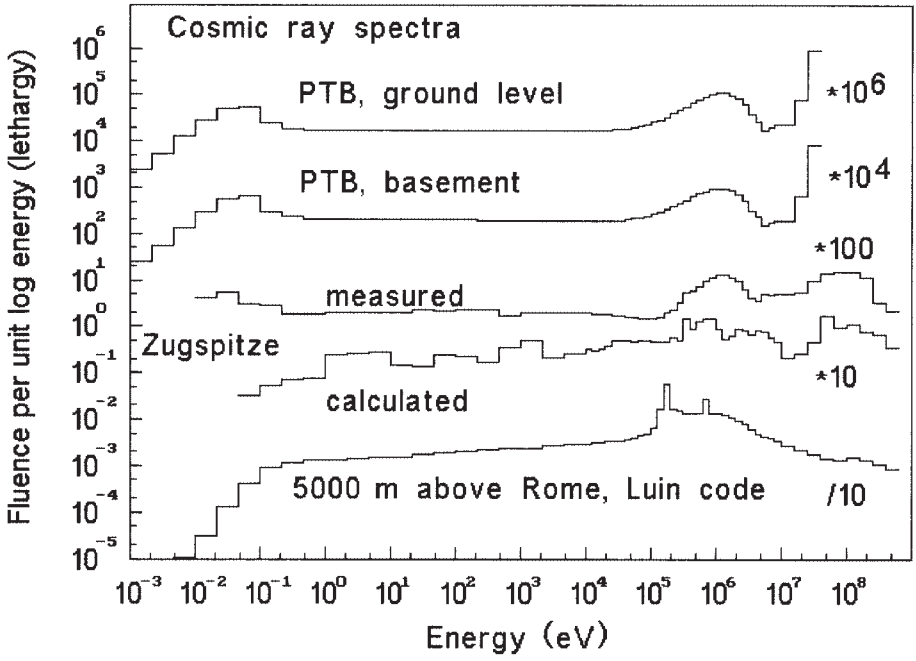

FIG. 5.26. Cosmic ray spectra, measured and calculated.

TABLE 5.XXXIII. COSMIC RAY SPECTRA, MEASURED AND CALCULATED

Spectrum weighted responses

Column 2: PTB, free-in-air
Column 3: PTB, in basement
Column 4: 5000 m above Rome, Luin code
Column 5: Zugspitze, FLUKA code
Column 6: Zugspitze, measured

FLUENCE 20	6.10E-01	6.56E-01	9.57E-01	7.28E-01	6.89E-01
E A-P R60	2.72E+02	2.43E+02	1.67E+02	2.20E+02	2.42E+02
H AMBIENT	2.70E+02	2.42E+02	2.10E+02	2.18E+02	2.28E+02
H PERSONAL	1.18E+02	1.09E+02	2.08E+02	1.49E+02	1.41E+02
HE A-P R51	6.12E+01	5.53E+01	8.42E+01	7.18E+01	7.58E+01
MADE R21	9.22E+01	8.47E+01	1.53E+02	1.17E+02	1.13E+02
BS 3HE BARE	4.16E-01	4.87E-01	6.58E-02	5.64E-02	3.84E-01
BS 3HE 2.5″	5.25E-01	6.37E-01	5.28E-01	4.99E-01	5.88E-01
BS 3HE 3″	6.56E-01	7.81E-01	8.98E-01	7.77E-01	7.45E-01
BS 3HE 3.5″	7.79E-01	9.04E-01	1.27E+00	1.03E+00	8.85E-01
BS 3HE 4″	8.74E-01	9.90E-01	1.60E+00	1.23E+00	9.91E-01
BS 3HE 4.5″	9.36E-01	1.04E+00	1.84E+00	1.36E+00	1.06E+00
BS 3HE 5″	9.68E-01	1.05E+00	1.99E+00	1.43E+00	1.10E+00
BS 3HE 6″	9.49E-01	9.91E-01	2.02E+00	1.41E+00	1.08E+00
BS 3HE 7″	8.63E-01	8.74E-01	1.83E+00	1.27E+00	9.94E-01
BS 3HE 8″	7.43E-01	7.35E-01	1.53E+00	1.07E+00	8.71E-01
BS 3HE 9.5″	5.61E-01	5.38E-01	1.08E+00	7.91E-01	6.78E-01
BS 3HE 10″	5.06E-01	4.81E-01	9.52E-01	7.09E-01	6.17E-01
BS 3HE 12″	3.29E-01	3.04E-01	5.54E-01	4.52E-01	4.20E-01
BS 3HE 15″	1.76E-01	1.58E-01	2.52E-01	2.36E-01	2.38E-01
BS 3HE 18″	1.08E-01	9.63E-02	1.33E-01	1.40E-01	1.50E-01
BS LiI BARE	3.06E-02	3.68E-02	1.01E-02	9.62E-03	3.16E-02
BS LiI 2″	4.76E-02	5.78E-02	5.04E-02	4.80E-02	5.42E-02
BS LiI 3″	7.31E-02	8.51E-02	1.20E-01	9.80E-02	8.34E-02
BS LiI 6″	9.72E-02	9.88E-02	1.92E-01	1.34E-01	1.04E-01
BS LiI 8″	8.13E-02	7.81E-02	1.36E-01	9.93E-02	8.31E-02
BS LiI 10″	6.38E-02	5.90E-02	8.34E-02	6.69E-02	6.08E-02
BS LiI 15″	4.21E-02	3.74E-02	2.40E-02	2.77E-02	2.91E-02
BS LiI 18″	3.99E-02	3.52E-02	1.28E-02	1.90E-02	2.16E-02
6Li BARE	1.15E-01	1.33E-01	1.76E-01	1.48E-01	1.32E-01
6Li Cd	4.98E-02	5.80E-02	8.07E-02	7.10E-02	5.84E-02
GOLD BARE	4.89E-03	6.33E-03	4.77E-03	7.48E-03	6.01E-03
Nat U PC	2.55E-05	3.10E-05	3.51E-05	3.62E-05	3.50E-05
238 U PC	8.84E-07	7.80E-07	7.92E-07	9.04E-07	1.11E-06
232 Th PC	2.59E-07	2.29E-07	2.26E-07	2.64E-07	3.29E-07
CR39 ECE	4.50E-05	4.04E-05	7.30E-05	5.44E-05	5.55E-05
LR115 LiB	9.11E+02	1.08E+03	1.64E+03	1.40E+03	1.08E+03
PLANAR	5.45E+04	4.91E+04	7.19E+04	5.58E+04	5.52E+04
BASE	4.96E+04	4.48E+04	6.14E+04	4.68E+04	4.32E+04
PYRAMIDE	2.83E+04	2.56E+04	4.07E+04	3.19E+04	2.97E+04
PTB TH	1.15E+02	1.07E+02	2.34E+02	1.53E+02	1.36E+02
PTB INT	1.20E+02	1.13E+02	2.34E+02	1.62E+02	1.43E+02
PTB FAST	1.07E+02	9.85E+01	2.18E+02	1.46E+02	1.29E+02
PTB I+F	1.15E+02	1.06E+02	2.30E+02	1.55E+02	1.38E+02
LONG C	2.62E-01	2.49E-01	6.63E-01	4.17E-01	2.91E-01
LEAKE	7.62E-02	7.21E-02	1.47E-01	1.07E-01	9.22E-02
A-B_2	2.09E-01	1.98E-01	3.79E-01	2.83E-01	2.56E-01
EBERNRD2	3.25E-01	3.00E-01	3.94E-01	3.26E-01	3.03E-01
MOD930_2	3.80E-01	3.43E-01	3.54E-01	3.73E-01	3.69E-01
STUDSVIK	8.64E-02	7.98E-02	1.71E-01	1.27E-01	1.12E-01
LB6411	2.91E-01	2.69E-01	5.27E-01	4.00E-01	3.60E-01
BUBBLE	3.42E+04	3.11E+04	6.23E+04	4.83E+04	4.75E+04
ELECTRET	1.24E+02	1.18E+02	1.91E+02	1.82E+02	1.89E+02
SILICON	2.77E-01	2.57E-01	6.05E-01	3.41E-01	3.12E-01

TABLE 5.XXXIV. REACTOR FUEL TREATMENT, CASK, 1

Spectra

Column 1: Energy in eV
Column 2: LK100 container, location 1
Column 3: TN12 container
Column 4: LK100 container, location 2
Column 5: PuF_4 workstation of Valduc

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	3.10E-02	2.48E-02	2.40E-02	3.76E-02
2.15E-02	8.12E-02	5.84E-02	6.10E-02	9.49E-02
4.64E-02	8.12E-02	6.95E-02	9.36E-02	1.41E-01
1.00E-01	4.40E-02	2.89E-02	4.60E-02	4.38E-02
2.15E-01	4.64E-02	3.87E-02	4.47E-02	2.27E-02
4.64E-01	4.56E-02	3.87E-02	4.96E-02	2.25E-02
1.00E+00	4.74E-02	3.87E-02	5.33E-02	2.43E-02
2.15E+00	4.74E-02	3.87E-02	4.29E-02	1.96E-02
4.64E+00	4.76E-02	3.77E-02	4.96E-02	2.25E-02
1.00E+01	4.76E-02	3.95E-02	5.33E-02	2.43E-02
2.15E+01	4.74E-02	3.85E-02	4.29E-02	1.96E-02
4.64E+01	4.74E-02	3.93E-02	4.96E-02	2.25E-02
1.00E+02	4.76E-02	3.93E-02	5.33E-02	2.43E-02
2.15E+02	4.74E-02	3.93E-02	4.29E-02	1.96E-02
4.64E+02	4.70E-02	3.95E-02	4.94E-02	2.25E-02
1.00E+03	4.68E-02	3.85E-02	5.31E-02	2.41E-02
2.15E+03	4.88E-02	3.87E-02	4.25E-02	1.95E-02
4.64E+03	4.60E-02	4.17E-02	4.86E-02	2.21E-02
1.00E+04	4.60E-02	4.30E-02	4.98E-02	2.27E-02
1.25E+04	4.66E-02	4.56E-02	5.15E-02	2.35E-02
1.58E+04	4.64E-02	4.91E-02	4.68E-02	2.13E-02
1.99E+04	4.56E-02	5.49E-02	4.33E-02	1.98E-02
2.51E+04	4.44E-02	5.86E-02	4.13E-02	1.89E-02
3.16E+04	4.48E-02	6.90E-02	4.13E-02	1.90E-02
3.98E+04	4.58E-02	7.54E-02	5.13E-02	2.35E-02
5.01E+04	4.72E-02	8.07E-02	5.13E-02	2.35E-02
6.30E+04	5.06E-02	1.00E-01	4.86E-02	2.45E-02
7.94E+04	5.70E-02	1.12E-01	4.72E-02	3.78E-02
1.00E+05	6.08E-02	1.27E-01	6.53E-02	4.81E-02
1.25E+05	6.70E-02	1.42E-01	6.96E-02	5.71E-02
1.58E+05	7.68E-02	1.53E-01	6.98E-02	7.69E-02
1.99E+05	9.12E-02	1.55E-01	7.40E-02	8.35E-02
2.51E+05	9.84E-02	1.71E-01	1.03E-01	9.21E-02
3.16E+05	9.84E-02	1.42E-01	8.60E-02	1.18E-01
3.98E+05	9.08E-02	1.19E-01	7.57E-02	1.24E-01
5.01E+05	7.54E-02	9.23E-02	1.06E-01	1.32E-01
6.30E+05	5.72E-02	5.60E-02	7.73E-02	1.79E-01
7.94E+05	3.64E-02	3.24E-02	4.66E-02	1.96E-01
1.00E+06	1.99E-02	1.90E-02	3.82E-02	2.43E-01
1.25E+06	2.56E-02	9.13E-03	2.10E-02	2.80E-01
1.58E+06	1.84E-02	4.11E-03	5.80E-03	2.84E-01
1.99E+06	1.82E-02	2.97E-03	7.87E-03	5.79E-02
2.51E+06	1.62E-02	1.14E-03	8.85E-03	1.64E-02
3.16E+06	1.04E-02	0.00E+00	8.75E-03	1.17E-02
3.98E+06	7.08E-03	0.00E+00	4.03E-03	8.84E-03
5.01E+06	4.76E-03	0.00E+00	1.55E-03	5.71E-03
6.30E+06	1.63E-03	0.00E+00	0.00E+00	4.62E-04
7.94E+06	4.10E-04	0.00E+00	0.00E+00	3.19E-05
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

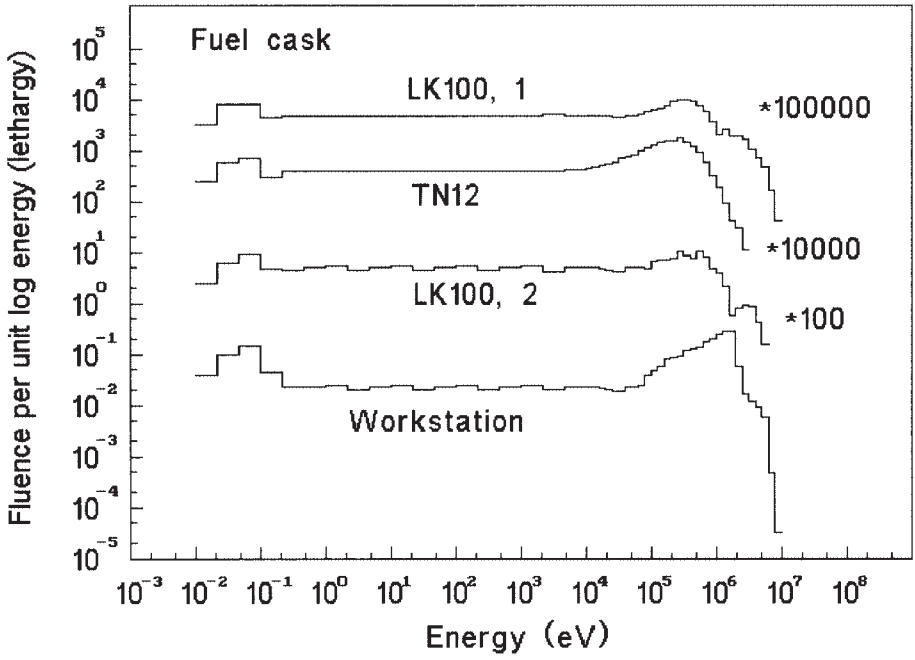

FIG. 5.27. Reactor fuel treatment, cask, 1.

TABLE 5.XXXIV. REACTOR FUEL TREATMENT, CASK, 1

Spectrum weighted responses

Column 2: LK100 container, location 1
Column 3: TN12 container
Column 4: LK100 container, location 2
Column 5: PuF_4 workstation at Valduc

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	4.81E+01	5.13E+01	4.70E+01	1.25E+02
H AMBIENT	6.43E+01	7.56E+01	6.45E+01	1.67E+02
H PERSONAL	6.75E+01	7.91E+01	6.75E+01	1.75E+02
HE A-P R51	2.10E+01	2.07E+01	2.01E+01	6.24E+01
MADE R21	4.76E+01	5.10E+01	4.70E+01	1.34E+02
BS 3HE BARE	6.16E-01	4.82E-01	5.76E-01	7.01E-01
BS 3HE 2.5″	1.27E+00	1.11E+00	1.29E+00	9.08E-01
BS 3HE 3″	1.61E+00	1.48E+00	1.63E+00	1.12E+00
BS 3HE 3.5″	1.84E+00	1.78E+00	1.86E+00	1.34E+00
BS 3HE 4″	1.95E+00	1.96E+00	1.97E+00	1.52E+00
BS 3HE 4.5″	1.95E+00	2.03E+00	1.97E+00	1.66E+00
BS 3HE 5″	1.87E+00	2.00E+00	1.89E+00	1.73E+00
BS 3HE 6″	1.56E+00	1.73E+00	1.58E+00	1.72E+00
BS 3HE 7″	1.21E+00	1.36E+00	1.22E+00	1.56E+00
BS 3HE 8″	8.83E-01	9.98E-01	8.89E-01	1.32E+00
BS 3HE 9.5″	5.16E-01	5.69E-01	5.15E-01	9.48E-01
BS 3HE 10″	4.28E-01	4.68E-01	4.26E-01	8.33E-01
BS 3HE 12″	1.94E-01	1.95E-01	1.88E-01	4.73E-01
BS 3HE 15″	5.76E-02	4.67E-02	5.17E-02	1.81E-01
BS 3HE 18″	1.95E-02	1.07E-02	1.52E-02	6.65E-02
BS LiI BARE	5.80E-02	4.61E-02	5.65E-02	5.76E-02
BS LiI 2″	1.19E-01	1.04E-01	1.20E-01	8.24E-02
BS LiI 3″	1.75E-01	1.69E-01	1.78E-01	1.25E-01
BS LiI 6″	1.37E-01	1.54E-01	1.39E-01	1.63E-01
BS LiI 8″	7.34E-02	8.26E-02	7.37E-02	1.17E-01
BS LiI 10″	3.51E-02	3.75E-02	3.48E-02	7.25E-02
BS LiI 15″	4.98E-03	3.74E-03	4.41E-03	1.59E-02
BS LiI 18″	1.66E-03	8.17E-04	1.27E-03	5.63E-03
6Li BARE	2.62E-01	2.45E-01	2.67E-01	1.78E-01
6Li Cd	1.22E-01	1.15E-01	1.24E-01	7.66E-02
GOLD BARE	1.48E-02	1.21E-02	1.39E-02	6.66E-03
Nat U PC	7.46E-05	6.30E-05	8.23E-05	3.96E-05
238 U PC	5.88E-08	3.49E-09	3.09E-08	1.17E-07
232 Th PC	1.41E-08	5.38E-10	7.20E-09	1.95E-08
CR39 ECE	1.70E-05	1.44E-05	1.57E-05	8.11E-05
LR115 LiB	2.41E+03	2.35E+03	2.48E+03	1.47E+03
PLANAR	1.80E+04	1.75E+04	1.84E+04	7.13E+04
BASE	1.77E+04	1.91E+04	1.85E+04	5.80E+04
PYRAMIDE	1.12E+04	1.17E+04	1.15E+04	3.76E+04
PTB TH	7.91E+01	9.75E+01	7.85E+01	2.01E+02
PTB INT	9.49E+01	1.08E+02	9.57E+01	2.06E+02
PTB FAST	6.51E+01	8.13E+01	6.48E+01	1.84E+02
PTB I+F	7.58E+01	9.18E+01	7.58E+01	1.97E+02
LONG C	2.68E-01	3.90E-01	2.64E-01	5.02E-01
LEAKE	6.26E-02	6.99E-02	6.32E-02	1.31E-01
A-B_2	1.65E-01	1.72E-01	1.65E-01	3.63E-01
EBERNRD2	1.66E-01	1.78E-01	1.66E-01	3.56E-01
MOD930_2	1.15E-01	1.23E-01	1.14E-01	3.07E-01
STUDSVIK	5.56E-02	6.27E-02	5.48E-02	1.49E-01
LB6411	1.75E-01	1.89E-01	1.73E-01	4.70E-01
BUBBLE	1.57E+04	1.60E+04	1.61E+04	5.81E+04
ELECTRET	8.52E+01	6.85E+01	8.37E+01	1.57E+02
SILICON	1.93E-01	2.40E-01	2.01E-01	6.41E-01

TABLE 5.XXXV. REACTOR FUEL TREATMENT, CASK, 2

Spectra

Column 1: Energy in eV
Column 2: NTL-111 container, at 115 cm
Column 3: NTL-111 container, at 367 cm
Column 4: 1392(1)
Column 5: 1393(2)

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	3.59E-02	6.83E-02	0.00E+00	0.00E+00
4.64E-03	3.48E-02	6.68E-02	0.00E+00	0.00E+00
1.00E-02	3.28E-02	6.33E-02	0.00E+00	0.00E+00
2.15E-02	2.86E-02	5.65E-02	0.00E+00	0.00E+00
4.64E-02	2.07E-02	4.38E-02	0.00E+00	0.00E+00
1.00E-01	9.10E-03	2.45E-02	0.00E+00	0.00E+00
2.15E-01	2.30E-03	1.24E-02	5.77E-02	2.99E-02
4.64E-01	4.05E-03	1.45E-02	5.58E-02	2.83E-02
1.00E+00	1.12E-02	2.86E-02	5.13E-02	2.69E-02
2.15E+00	1.17E-02	3.13E-02	4.71E-02	2.54E-02
4.64E+00	4.62E-03	1.19E-02	4.33E-02	2.40E-02
1.00E+01	2.39E-02	5.27E-02	3.91E-02	2.17E-02
2.15E+01	1.89E-02	3.73E-02	3.52E-02	1.97E-02
4.64E+01	1.60E-02	2.75E-02	3.18E-02	1.84E-02
1.00E+02	1.62E-02	2.48E-02	2.65E-02	1.85E-02
2.15E+02	3.16E-02	3.90E-02	2.22E-02	1.84E-02
4.64E+02	9.80E-02	1.02E-01	1.97E-02	1.92E-02
1.00E+03	5.41E-02	5.16E-02	2.18E-02	2.45E-02
2.15E+03	5.91E-02	4.90E-02	2.33E-02	3.11E-02
4.64E+03	8.16E-02	6.13E-02	2.72E-02	4.10E-02
1.00E+04	7.19E-02	5.14E-02	4.03E-02	5.85E-02
1.25E+04	5.60E-02	3.94E-02	4.58E-02	6.71E-02
1.58E+04	4.85E-02	3.31E-02	5.36E-02	7.82E-02
1.99E+04	1.20E-02	8.15E-03	6.26E-02	9.08E-02
2.51E+04	5.96E-02	3.94E-02	7.32E-02	1.05E-01
3.16E+04	4.69E-02	2.95E-02	8.52E-02	1.22E-01
3.98E+04	2.30E-01	1.46E-01	9.85E-02	1.42E-01
5.01E+04	2.02E-01	1.23E-01	1.15E-01	1.64E-01
6.30E+04	1.32E-01	7.86E-02	1.37E-01	1.86E-01
7.94E+04	1.11E-01	6.38E-02	1.65E-01	2.06E-01
1.00E+05	1.77E-01	1.03E-01	1.97E-01	2.28E-01
1.25E+05	1.96E-01	1.13E-01	2.35E-01	2.59E-01
1.58E+05	2.11E-01	1.22E-01	2.82E-01	2.91E-01
1.99E+05	1.76E-01	1.01E-01	3.27E-01	3.21E-01
2.51E+05	1.13E-01	6.58E-02	3.04E-01	2.98E-01
3.16E+05	1.33E-01	7.88E-02	1.80E-01	2.02E-01
3.98E+05	1.15E-01	6.95E-02	8.66E-02	1.21E-01
5.01E+05	7.94E-02	4.94E-02	5.59E-02	8.59E-02
6.30E+05	3.85E-02	2.45E-02	1.24E-02	3.87E-02
7.94E+05	7.58E-02	5.11E-02	3.50E-02	4.12E-02
1.00E+06	3.53E-02	2.78E-02	3.91E-02	3.41E-02
1.25E+06	2.11E-02	1.65E-02	1.18E-02	1.43E-02
1.58E+06	1.12E-02	9.57E-03	1.43E-02	1.55E-02
1.99E+06	1.22E-03	1.11E-03	3.82E-03	4.68E-03
2.51E+06	1.87E-03	1.91E-03	4.94E-03	6.70E-03
3.16E+06	2.46E-03	2.82E-03	9.01E-04	1.44E-03
3.98E+06	4.71E-04	6.73E-04	1.48E-03	2.50E-03
5.01E+06	1.05E-04	1.60E-04	4.62E-04	5.74E-04
6.30E+06	6.69E-05	8.85E-05	7.84E-04	9.41E-04
7.94E+06	0.00E+00	0.00E+00	2.60E-05	1.46E-04
1.00E+07	0.00E+00	0.00E+00	2.23E-05	6.06E-05
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

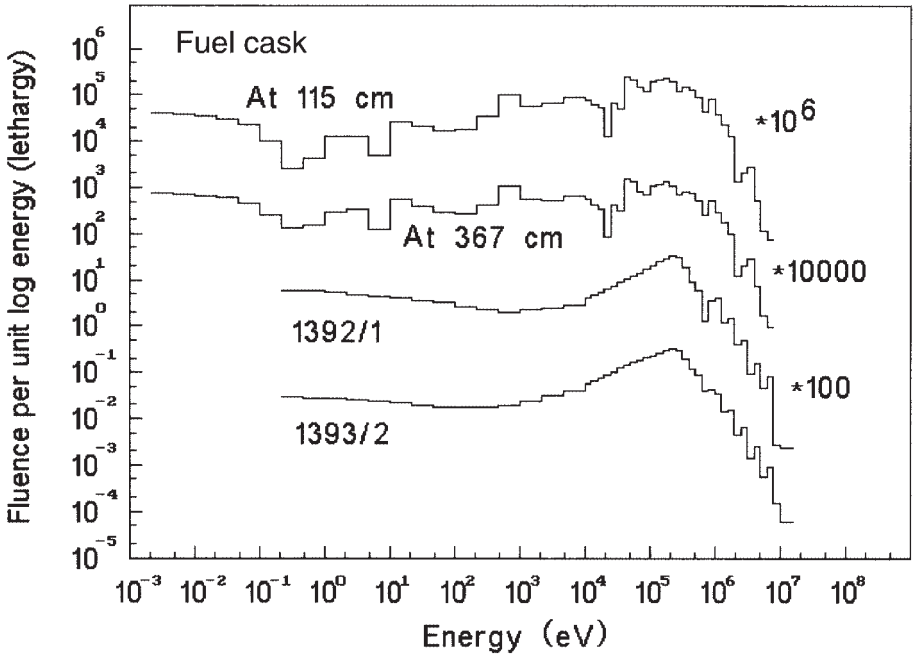

FIG. 5.28. Reactor fuel treatment, cask, 2.

TABLE 5.XXXV. REACTOR FUEL TREATMENT, CASK, 2

Spectrum weighted responses

Column 2: NTL-111 container, at 115 cm
Column 3: NTL-111 container, at 367 cm
Column 4: 1392(1)
Column 5: 1393(2)

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	5.76E+01	4.04E+01	6.42E+01	7.20E+01
H AMBIENT	8.35E+01	5.58E+01	9.67E+01	1.09E+02
H PERSONAL	8.72E+01	5.85E+01	1.01E+02	1.14E+02
HE A-P R51	2.33E+01	1.64E+01	2.58E+01	2.91E+01
MADE R21	5.73E+01	4.03E+01	6.36E+01	7.13E+01
BS 3HE BARE	5.22E-01	1.03E+00	1.49E-01	8.00E-02
BS 3HE 2.5″	7.73E-01	1.05E+00	9.72E-01	7.39E-01
BS 3HE 3″	1.22E+00	1.39E+00	1.42E+00	1.22E+00
BS 3HE 3.5″	1.62E+00	1.67E+00	1.80E+00	1.67E+00
BS 3HE 4″	1.91E+00	1.82E+00	2.06E+00	2.01E+00
BS 3HE 4.5″	2.07E+00	1.87E+00	2.19E+00	2.22E+00
BS 3HE 5″	2.10E+00	1.82E+00	2.21E+00	2.29E+00
BS 3HE 6″	1.89E+00	1.54E+00	1.98E+00	2.12E+00
BS 3HE 7″	1.51E+00	1.19E+00	1.59E+00	1.73E+00
BS 3HE 8″	1.12E+00	8.57E-01	1.19E+00	1.30E+00
BS 3HE 9.5″	6.46E-01	4.83E-01	6.81E-01	7.55E-01
BS 3HE 10″	5.33E-01	3.96E-01	5.64E-01	6.27E-01
BS 3HE 12″	2.26E-01	1.66E-01	2.35E-01	2.64E-01
BS 3HE 15″	5.64E-02	4.15E-02	5.84E-02	6.63E-02
BS 3HE 18″	1.39E-02	1.04E-02	1.45E-02	1.69E-02
BS LiI BARE	2.55E-02	5.12E-02	2.47E-02	1.39E-02
BS LiI 2″	7.01E-02	9.25E-02	9.25E-02	7.05E-02
BS LiI 3″	1.53E-01	1.55E-01	1.71E-01	1.58E-01
BS LiI 6″	1.69E-01	1.34E-01	1.79E-01	1.93E-01
BS LiI 8″	9.25E-02	6.97E-02	9.85E-02	1.08E-01
BS LiI 10″	4.27E-02	3.16E-02	4.52E-02	5.02E-02
BS LiI 15″	4.56E-03	3.39E-03	4.67E-03	5.32E-03
BS LiI 18″	1.10E-03	8.43E-04	1.13E-03	1.32E-03
6Li BARE	1.93E-01	2.06E-01	2.63E-01	2.24E-01
6Li Cd	9.33E-02	9.99E-02	1.24E-01	1.06E-01
GOLD BARE	4.13E-03	9.69E-03	1.40E-02	7.69E-03
Nat U PC	3.24E-05	4.73E-05	4.85E-05	3.52E-05
238 U PC	8.10E-09	8.46E-09	1.42E-08	1.93E-08
232 Th PC	1.60E-09	1.79E-09	3.15E-09	4.43E-09
CR39 ECE	1.76E-05	1.17E-05	1.91E-05	2.17E-05
LR115 LiB	1.93E+03	2.00E+03	2.70E+03	2.31E+03
PLANAR	2.00E+04	1.30E+04	2.04E+04	2.39E+04
BASE	2.02E+04	1.29E+04	2.12E+04	2.51E+04
PYRAMIDE	1.25E+04	8.01E+03	1.30E+04	1.54E+04
PTB TH	1.08E+02	7.76E+01	1.28E+02	1.41E+02
PTB INT	1.12E+02	8.22E+01	1.34E+02	1.44E+02
PTB FAST	8.90E+01	5.51E+01	1.12E+02	1.25E+02
PTB I+F	9.87E+01	6.47E+01	1.23E+02	1.35E+02
LONG C	4.80E-01	2.92E-01	5.54E-01	6.54E-01
LEAKE	8.03E-02	5.73E-02	8.40E-02	9.50E-02
A-B_2	1.89E-01	1.43E-01	2.01E-01	2.21E-01
EBERNRD2	2.04E-01	1.51E-01	2.14E-01	2.39E-01
MOD930_2	1.43E-01	9.96E-02	1.53E-01	1.73E-01
STUDSVIK	7.28E-02	4.84E-02	8.16E-02	9.27E-02
LB6411	2.19E-01	1.50E-01	2.34E-01	2.67E-01
BUBBLE	1.78E+04	1.15E+04	1.85E+04	2.17E+04
ELECTRET	5.37E+01	5.67E+01	6.73E+01	6.10E+01
SILICON	2.70E-01	1.68E-01	3.23E-01	3.58E-01

TABLE 5.XXXVI. REACTOR FUEL TREATMENT, CASK, 3 (WWER)

Spectra

Column 1: Energy in eV
Column 2: Storage hall, at 0.45 m
Column 3: Storage hall, at 2 m
Column 4: Transport wagon, corridor, at 0.45 m
Column 5: Transport wagon, corridor, at 2 m

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	2.40E-03	6.39E-03	6.93E-03	7.74E-03
4.64E-03	2.54E-03	6.18E-03	6.70E-03	7.46E-03
1.00E-02	2.84E-03	5.73E-03	6.19E-03	6.94E-03
2.15E-02	3.46E-03	4.78E-03	5.13E-03	5.77E-03
4.64E-02	4.74E-03	2.83E-03	2.96E-03	3.44E-03
1.00E-01	7.18E-03	1.27E-03	1.20E-03	1.54E-03
2.15E-01	1.10E-02	1.29E-03	1.19E-03	1.52E-03
4.64E-01	1.33E-02	1.31E-03	1.15E-03	1.49E-03
1.00E+00	9.29E-03	3.04E-02	3.34E-02	3.65E-02
2.15E+00	9.73E-03	2.42E-01	2.70E-01	2.92E-01
4.64E+00	1.06E-02	6.63E-01	7.38E-01	7.97E-01
1.00E+01	1.15E-02	2.86E-03	2.88E-03	3.05E-03
2.15E+01	1.15E-02	4.93E-03	1.03E-02	9.66E-03
4.64E+01	1.16E-02	7.31E-03	2.41E-02	2.18E-02
1.00E+02	1.25E-02	3.32E-03	2.23E-03	2.16E-03
2.15E+02	1.55E-02	4.25E-03	2.80E-03	2.55E-03
4.64E+02	1.92E-02	6.76E-03	4.16E-03	3.11E-03
1.00E+03	4.37E-02	8.85E-03	6.30E-03	6.14E-03
2.15E+03	5.92E-02	1.79E-02	1.12E-02	8.16E-03
4.64E+03	9.73E-02	2.90E-02	1.79E-02	1.21E-02
1.00E+04	1.18E-01	3.39E-02	2.05E-02	1.22E-02
1.25E+04	1.49E-01	4.33E-02	2.62E-02	1.59E-02
1.58E+04	1.76E-01	5.11E-02	3.10E-02	1.84E-02
1.99E+04	2.07E-01	6.00E-02	3.63E-02	2.13E-02
2.51E+04	2.40E-01	6.94E-02	4.18E-02	2.42E-02
3.16E+04	2.73E-01	7.84E-02	4.72E-02	2.69E-02
3.98E+04	3.00E-01	8.59E-02	5.15E-02	2.88E-02
5.01E+04	1.72E-01	4.56E-02	2.69E-02	1.27E-02
6.30E+04	1.85E-01	4.82E-02	2.82E-02	1.26E-02
7.94E+04	1.99E-01	5.09E-02	2.97E-02	1.25E-02
1.00E+05	2.10E-01	5.32E-02	3.08E-02	1.21E-02
1.25E+05	2.19E-01	5.43E-02	3.14E-02	1.16E-02
1.58E+05	2.19E-01	5.37E-02	3.08E-02	1.07E-02
1.99E+05	1.34E-01	3.31E-02	1.91E-02	7.18E-03
2.51E+05	1.08E-01	2.63E-02	1.50E-02	5.39E-03
3.16E+05	8.14E-02	1.93E-02	1.09E-02	3.61E-03
3.98E+05	5.59E-02	1.28E-02	7.13E-03	1.99E-03
5.01E+05	3.53E-02	7.56E-03	4.11E-03	8.40E-04
6.30E+05	2.24E-02	4.65E-03	2.49E-03	4.35E-04
7.94E+05	1.40E-02	2.91E-03	1.56E-03	3.38E-04
1.00E+06	5.59E-03	1.01E-03	5.08E-04	4.14E-05
1.25E+06	4.47E-03	9.17E-04	5.00E-04	1.14E-04
1.58E+06	9.82E-03	2.40E-03	1.40E-03	4.88E-04
1.99E+06	2.77E-05	3.46E-04	1.87E-04	3.98E-05
2.51E+06	2.44E-03	5.28E-04	2.87E-04	7.18E-05
3.16E+06	3.85E-03	8.55E-04	4.66E-04	1.21E-04
3.98E+06	4.00E-04	8.06E-05	4.40E-05	9.62E-06
5.01E+06	7.32E-04	1.51E-04	8.26E-05	1.88E-05
6.30E+06	5.88E-05	1.20E-05	6.34E-06	1.41E-06
7.94E+06	1.35E-04	2.73E-06	1.45E-06	7.93E-07
1.00E+07	6.50E-06	1.39E-06	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

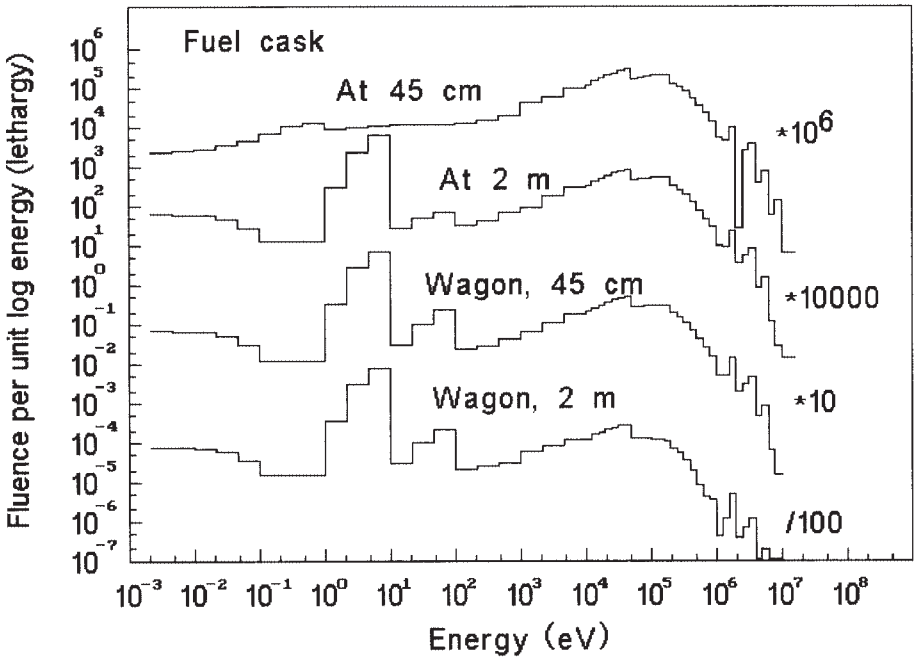

FIG. 5.29. Reactor fuel treatment, cask, 3 (WWER).

TABLE 5.XXXVI. REACTOR FUEL TREATMENT, CASK, 3 (WWER)

Spectrum weighted responses

Column 2: Storage hall, at 0.45 m
Column 3: Storage hall, at 2 m
Column 4: Transport wagon, corridor, at 0.45 m
Column 5: Transport wagon, corridor, at 2 m

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	4.88E+01	2.29E+01	1.93E+01	1.63E+01
H AMBIENT	6.59E+01	2.50E+01	1.94E+01	1.45E+01
H PERSONAL	6.87E+01	2.69E+01	2.11E+01	1.62E+01
HE A-P R51	1.77E+01	7.74E+00	6.36E+00	5.18E+00
MADE R21	4.53E+01	2.03E+01	1.68E+01	1.39E+01
BS 3HE BARE	9.03E-02	3.16E-01	3.49E-01	3.81E-01
BS 3HE 2.5″	6.97E-01	1.83E+00	1.99E+00	2.11E+00
BS 3HE 3″	1.23E+00	2.26E+00	2.40E+00	2.50E+00
BS 3HE 3.5″	1.71E+00	2.42E+00	2.53E+00	2.59E+00
BS 3HE 4″	2.07E+00	2.39E+00	2.44E+00	2.46E+00
BS 3HE 4.5″	2.27E+00	2.23E+00	2.22E+00	2.21E+00
BS 3HE 5″	2.31E+00	1.99E+00	1.95E+00	1.91E+00
BS 3HE 6″	2.06E+00	1.49E+00	1.41E+00	1.35E+00
BS 3HE 7″	1.62E+00	1.04E+00	9.56E-01	8.91E-01
BS 3HE 8″	1.17E+00	7.00E-01	6.33E-01	5.80E-01
BS 3HE 9.5″	6.46E-01	3.61E-01	3.21E-01	2.89E-01
BS 3HE 10″	5.27E-01	2.90E-01	2.56E-01	2.30E-01
BS 3HE 12″	2.08E-01	1.08E-01	9.45E-02	8.32E-02
BS 3HE 15″	4.79E-02	2.35E-02	2.01E-02	1.73E-02
BS 3HE 18″	1.12E-02	4.31E-03	3.38E-03	2.60E-03
BS LiI BARE	9.98E-03	4.96E-02	5.51E-02	5.96E-02
BS LiI 2″	6.67E-02	1.74E-01	1.89E-01	2.00E-01
BS LiI 3″	1.64E-01	2.33E-01	2.43E-01	2.50E-01
BS LiI 6″	1.83E-01	1.26E-01	1.18E-01	1.11E-01
BS LiI 8″	9.53E-02	5.50E-02	4.94E-02	4.48E-02
BS LiI 10″	4.11E-02	2.27E-02	2.01E-02	1.81E-02
BS LiI 15″	3.77E-03	1.87E-03	1.61E-03	1.39E-03
BS LiI 18″	9.05E-04	3.98E-04	3.29E-04	2.70E-04
6Li BARE	2.13E-01	3.78E-01	4.01E-01	4.17E-01
6Li Cd	1.01E-01	2.13E-01	2.28E-01	2.39E-01
GOLD BARE	3.42E-03	6.12E-02	6.82E-02	7.38E-02
Nat U PC	2.65E-05	2.73E-05	2.78E-05	2.89E-05
238 U PC	9.93E-09	2.29E-09	1.25E-09	3.26E-10
232 Th PC	2.37E-09	5.21E-10	2.83E-10	7.16E-11
CR39 ECE	1.03E-05	2.43E-06	1.37E-06	4.38E-07
LR115 LiB	2.18E+03	4.43E+03	4.72E+03	4.93E+03
PLANAR	1.03E+04	2.38E+03	1.33E+03	3.99E+02
BASE	1.07E+04	2.49E+03	1.39E+03	4.16E+02
PYRAMIDE	6.56E+03	1.52E+03	8.48E+02	2.52E+02
PTB TH	7.43E+01	2.21E+01	1.50E+01	8.89E+00
PTB INT	8.61E+01	5.47E+01	5.06E+01	4.66E+01
PTB FAST	6.38E+01	1.54E+01	8.76E+00	3.02E+00
PTB I+F	7.23E+01	2.70E+01	2.08E+01	1.53E+01
LONG C	5.93E-01	1.56E-01	9.18E-02	4.26E-02
LEAKE	7.76E-02	3.74E-02	3.18E-02	2.73E-02
A-B_2	1.76E-01	1.10E-01	1.01E-01	9.28E-02
EBERNRD2	1.99E-01	1.07E-01	9.41E-02	8.37E-02
MOD930_2	1.28E-01	5.62E-02	4.61E-02	3.79E-02
STUDSVIK	6.49E-02	2.40E-02	1.83E-02	1.36E-02
LB6411	1.88E-01	7.38E-02	5.78E-02	4.49E-02
BUBBLE	9.44E+03	2.24E+03	1.28E+03	4.30E+02
ELECTRET	4.64E+01	8.09E+01	8.60E+01	8.93E+01
SILICON	1.64E-01	3.89E-02	2.21E-02	7.21E-03

TABLE 5.XXXVII. REACTOR FUEL TREATMENT, MOX

Spectra

Column 1: Energy in eV
Column 2: Bare MOX fuel, at 20 cm
Column 3: MOX fuel, in borated water
Column 4: MOX fuel, at storage place
Column 5: GSF MOX fuel cask, position 2
Column 6: GSF MOX fuel cask, position 3

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	5.75E-02	1.06E-01	5.52E-02	0.00E+00	0.00E+00
4.64E-03	5.50E-02	1.01E-01	5.33E-02	7.81E-03	4.43E-03
1.00E-02	5.00E-02	9.18E-02	4.92E-02	4.08E-02	2.44E-02
2.15E-02	4.01E-02	7.27E-02	4.11E-02	3.26E-02	2.04E-02
4.64E-02	2.22E-02	3.80E-02	2.63E-02	3.77E-02	2.40E-02
1.00E-01	9.81E-03	1.45E-02	5.44E-03	3.50E-02	2.30E-02
2.15E-01	9.37E-03	1.41E-02	1.14E-02	3.18E-02	2.07E-02
4.64E-01	9.84E-03	1.50E-02	8.26E-03	2.65E-02	1.82E-02
1.00E+00	1.41E-02	2.06E-02	1.51E-02	2.10E-02	1.70E-02
2.15E+00	1.65E-02	2.06E-02	1.99E-02	1.69E-02	1.64E-02
4.64E+00	5.14E-03	7.16E-03	6.55E-03	1.38E-02	1.62E-02
1.00E+01	2.72E-02	3.67E-02	3.29E-02	1.14E-02	1.66E-02
2.15E+01	1.66E-02	2.24E-02	2.29E-02	9.99E-03	1.75E-02
4.64E+01	1.12E-02	1.58E-02	1.67E-02	8.84E-03	1.92E-02
1.00E+02	1.14E-02	1.61E-02	1.61E-02	8.15E-03	2.16E-02
2.15E+02	1.61E-02	2.40E-02	2.65E-02	7.77E-03	2.46E-02
4.64E+02	4.25E-02	6.59E-02	7.43E-02	7.67E-03	2.87E-02
1.00E+03	2.18E-02	3.45E-02	3.92E-02	7.82E-03	3.34E-02
2.15E+03	2.21E-02	3.55E-02	4.13E-02	8.24E-03	3.89E-02
4.64E+03	3.01E-02	4.80E-02	5.71E-02	9.00E-03	4.58E-02
1.00E+04	2.69E-02	4.21E-02	5.07E-02	9.73E-03	5.06E-02
1.25E+04	2.11E-02	3.29E-02	3.96E-02	1.01E-02	5.31E-02
1.58E+04	1.85E-02	2.84E-02	3.45E-02	1.06E-02	5.58E-02
1.99E+04	4.53E-03	7.00E-03	8.52E-03	1.12E-02	5.85E-02
2.51E+04	2.31E-02	3.51E-02	4.30E-02	1.18E-02	6.14E-02
3.16E+04	1.90E-02	2.79E-02	3.49E-02	1.27E-02	6.43E-02
3.98E+04	9.39E-02	1.38E-01	1.72E-01	1.38E-02	6.78E-02
5.01E+04	8.57E-02	1.22E-01	1.54E-01	1.51E-02	7.12E-02
6.30E+04	6.05E-02	8.18E-02	1.05E-01	1.68E-02	7.46E-02
7.94E+04	5.72E-02	7.16E-02	9.42E-02	1.89E-02	7.78E-02
1.00E+05	9.20E-02	1.14E-01	1.50E-01	2.17E-02	8.07E-02
1.25E+05	1.12E-01	1.30E-01	1.72E-01	2.53E-02	8.25E-02
1.58E+05	1.37E-01	1.45E-01	1.95E-01	3.08E-02	8.49E-02
1.99E+05	1.20E-01	1.23E-01	1.66E-01	4.25E-02	9.46E-02
2.51E+05	8.84E-02	8.18E-02	1.12E-01	6.50E-02	1.16E-01
3.16E+05	1.43E-01	1.04E-01	1.46E-01	1.01E-01	1.45E-01
3.98E+05	1.50E-01	9.46E-02	1.35E-01	1.55E-01	1.80E-01
5.01E+05	1.45E-01	7.09E-02	1.04E-01	2.20E-01	2.05E-01
6.30E+05	8.70E-02	3.63E-02	5.41E-02	2.85E-01	2.04E-01
7.94E+05	2.82E-01	8.05E-02	1.25E-01	3.43E-01	2.02E-01
1.00E+06	3.23E-01	4.92E-02	8.30E-02	3.67E-01	1.90E-01
1.25E+06	2.07E-01	2.87E-02	4.86E-02	3.65E-01	1.68E-01
1.58E+06	1.70E-01	1.69E-02	2.98E-02	3.18E-01	1.49E-01
1.99E+06	2.40E-02	1.97E-03	3.57E-03	2.51E-01	1.18E-01
2.51E+06	5.77E-02	3.42E-03	6.40E-03	1.90E-01	9.39E-02
3.16E+06	1.12E-01	4.94E-03	9.61E-03	1.13E-01	6.40E-02
3.98E+06	3.90E-02	1.12E-03	2.31E-03	7.90E-02	4.18E-02
5.01E+06	1.06E-02	2.53E-04	5.37E-04	3.57E-02	2.23E-02
6.30E+06	3.12E-03	6.68E-05	1.44E-04	1.87E-02	1.02E-02
7.94E+06	7.49E-04	0.00E+00	0.00E+00	1.24E-02	5.70E-03
1.00E+07	0.00E+00	0.00E+00	0.00E+00	1.47E-02	6.40E-03
1.58E+07	0.00E+00	0.00E+00	0.00E+00	1.52E-04	9.75E-05
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

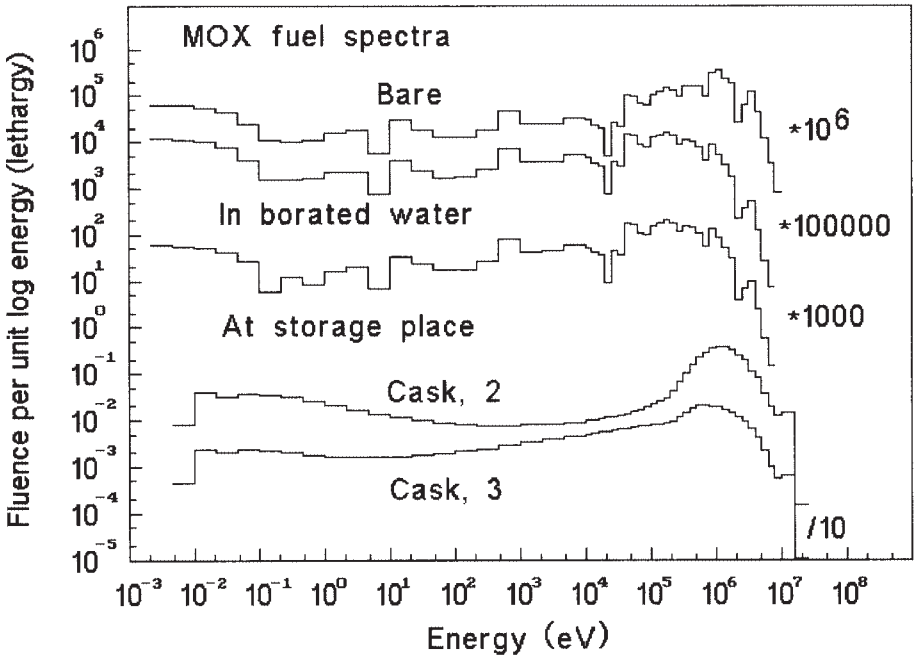

FIG. 5.30. Reactor fuel treatment, MOX.

TABLE 5.XXXVII. REACTOR FUEL TREATMENT, MOX

Spectrum weighted responses

Column 2: Bare MOX fuel, at 20 cm
Column 3: MOX fuel, in borated water
Column 4: MOX fuel, at storage place
Column 5: GSF MOX fuel cask, position 2
Column 6: GSF MOX fuel cask, position 3

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.37E+02	4.96E+01	6.88E+01	2.18E+02	1.40E+02
H AMBIENT	1.82E+02	7.16E+01	1.00E+02	2.72E+02	1.83E+02
H PERSONAL	1.90E+02	7.49E+01	1.04E+02	2.85E+02	1.91E+02
HE A-P R51	6.97E+01	2.13E+01	3.00E+01	1.19E+02	7.21E+01
MADE R21	1.44E+02	5.12E+01	7.08E+01	2.28E+02	1.45E+02
BS 3HE BARE	7.81E-01	1.41E+00	7.73E-01	4.04E-01	2.64E-01
BS 3HE 2.5″	6.49E-01	9.39E-01	8.05E-01	5.73E-01	6.78E-01
BS 3HE 3″	9.30E-01	1.21E+00	1.18E+00	7.75E-01	1.03E+00
BS 3HE 3.5″	1.23E+00	1.45E+00	1.52E+00	1.02E+00	1.38E+00
BS 3HE 4″	1.49E+00	1.61E+00	1.78E+00	1.29E+00	1.67E+00
BS 3HE 4.5″	1.69E+00	1.68E+00	1.92E+00	1.53E+00	1.88E+00
BS 3HE 5″	1.82E+00	1.67E+00	1.96E+00	1.73E+00	2.00E+00
BS 3HE 6″	1.85E+00	1.47E+00	1.80E+00	1.95E+00	2.00E+00
BS 3HE 7″	1.69E+00	1.18E+00	1.47E+00	1.96E+00	1.80E+00
BS 3HE 8″	1.44E+00	8.78E-01	1.13E+00	1.80E+00	1.51E+00
BS 3HE 9.5″	1.03E+00	5.17E-01	6.80E-01	1.43E+00	1.07E+00
BS 3HE 10″	9.05E-01	4.29E-01	5.70E-01	1.30E+00	9.39E-01
BS 3HE 12″	5.18E-01	1.90E-01	2.60E-01	8.33E-01	5.37E-01
BS 3HE 15″	2.07E-01	5.13E-02	7.41E-02	3.83E-01	2.20E-01
BS 3HE 18″	8.72E-02	1.41E-02	2.15E-02	1.81E-01	9.72E-02
BS LiI BARE	3.43E-02	5.88E-02	3.55E-02	3.32E-02	2.39E-02
BS LiI 2″	5.53E-02	7.75E-02	7.07E-02	5.21E-02	6.36E-02
BS LiI 3″	1.11E-01	1.30E-01	1.41E-01	9.36E-02	1.30E-01
BS LiI 6″	1.76E-01	1.30E-01	1.62E-01	1.94E-01	1.89E-01
BS LiI 8″	1.27E-01	7.24E-02	9.42E-02	1.66E-01	1.34E-01
BS LiI 10″	7.90E-02	3.46E-02	4.66E-02	1.17E-01	8.17E-02
BS LiI 15″	1.90E-02	4.24E-03	6.22E-03	3.55E-02	2.01E-02
BS LiI 18″	7.63E-03	1.13E-03	1.75E-03	1.59E-02	8.48E-03
6Li BARE	1.54E-01	1.67E-01	1.82E-01	1.61E-01	1.91E-01
6Li Cd	7.08E-02	7.93E-02	8.78E-02	6.47E-02	8.57E-02
GOLD BARE	5.01E-03	6.47E-03	6.11E-03	5.59E-03	5.52E-03
Nat U PC	2.49E-05	3.24E-05	3.29E-05	1.79E-05	3.66E-05
238 U PC	2.87E-07	1.46E-08	2.77E-08	7.76E-07	3.94E-07
232 Th PC	6.87E-08	3.06E-09	5.91E-09	1.86E-07	9.56E-08
CR39 ECE	7.91E-05	1.74E-05	2.69E-05	1.44E-04	7.93E-05
LR115 LiB	1.42E+03	1.63E+03	1.81E+03	1.22E+03	1.70E+03
PLANAR	7.50E+04	1.93E+04	2.94E+04	1.24E+05	7.38E+04
BASE	6.14E+04	1.86E+04	2.80E+04	9.82E+04	6.30E+04
PYRAMIDE	4.01E+04	1.16E+04	1.75E+04	6.58E+04	4.14E+04
PTB TH	2.23E+02	1.05E+02	1.32E+02	3.09E+02	2.13E+02
PTB INT	2.20E+02	9.87E+01	1.31E+02	3.11E+02	2.20E+02
PTB FAST	2.01E+02	7.46E+01	1.09E+02	2.95E+02	1.98E+02
PTB I+F	2.13E+02	8.41E+01	1.19E+02	3.10E+02	2.12E+02
LONG C	6.02E-01	3.47E-01	4.77E-01	7.24E-01	6.17E-01
LEAKE	1.42E-01	6.38E-02	8.73E-02	2.04E-01	1.47E-01
A-B_2	3.77E-01	1.58E-01	2.13E-01	5.67E-01	3.85E-01
EBERNRD2	3.81E-01	1.66E-01	2.24E-01	5.59E-01	3.89E-01
MOD930_2	3.29E-01	1.19E-01	1.68E-01	5.13E-01	3.33E-01
STUDSVIK	1.64E-01	5.99E-02	8.54E-02	2.54E-01	1.67E-01
LB6411	5.11E-01	1.83E-01	2.60E-01	7.97E-01	5.20E-01
BUBBLE	6.16E+04	1.69E+04	2.56E+04	1.01E+05	6.17E+04
ELECTRET	1.60E+02	5.50E+01	6.77E+01	2.89E+02	1.73E+02
SILICON	6.24E-01	2.33E-01	3.43E-01	9.01E-01	6.03E-01

TABLE 5.XXXVIII. REACTOR FUEL TREATMENT, FUEL STORAGE

Spectra

Column 1: Energy in eV
Column 2: Hanau fuel storage, Bonner sphere
Column 3: Hanau fuel storage, NE213 spectrometer
Column 4: Pollux container simulation, above ground
Column 5: Pollux container simulation, underground

1.00E-03	1.54E-03	0.00E+00	0.00E+00	0.00E+00
2.15E-03	3.89E-03	0.00E+00	0.00E+00	0.00E+00
4.64E-03	1.00E-02	0.00E+00	0.00E+00	0.00E+00
1.00E-02	2.40E-02	0.00E+00	4.22E-03	0.00E+00
2.15E-02	4.59E-02	0.00E+00	7.45E-03	0.00E+00
4.64E-02	5.52E-02	0.00E+00	9.86E-03	6.17E-03
1.00E-01	3.21E-02	0.00E+00	5.51E-03	9.03E-03
2.15E-01	2.80E-02	0.00E+00	3.48E-03	1.18E-02
4.64E-01	2.86E-02	0.00E+00	4.50E-03	9.13E-03
1.00E+00	3.01E-02	0.00E+00	6.45E-03	1.20E-02
2.15E+00	3.09E-02	0.00E+00	9.67E-03	1.91E-02
4.64E+00	3.13E-02	0.00E+00	1.48E-02	1.82E-02
1.00E+01	3.10E-02	0.00E+00	2.37E-02	1.66E-02
2.15E+01	3.02E-02	0.00E+00	2.79E-02	2.20E-02
4.64E+01	2.90E-02	0.00E+00	3.64E-02	2.40E-02
1.00E+02	2.82E-02	0.00E+00	4.74E-02	1.90E-02
2.15E+02	2.80E-02	0.00E+00	5.64E-02	2.04E-02
4.64E+02	2.82E-02	0.00E+00	8.85E-02	3.40E-02
1.00E+03	2.88E-02	0.00E+00	1.13E-01	3.64E-02
2.15E+03	3.00E-02	0.00E+00	4.90E-02	5.66E-02
4.64E+03	3.16E-02	0.00E+00	7.64E-02	4.38E-02
1.00E+04	3.32E-02	0.00E+00	1.05E-01	7.31E-02
1.25E+04	3.40E-02	0.00E+00	1.31E-01	1.20E-01
1.58E+04	3.49E-02	0.00E+00	1.36E-01	1.51E-01
1.99E+04	3.59E-02	0.00E+00	1.43E-01	1.85E-01
2.51E+04	3.71E-02	0.00E+00	1.45E-01	1.88E-01
3.16E+04	3.86E-02	0.00E+00	1.23E-01	1.02E-01
3.98E+04	4.06E-02	0.00E+00	1.02E-01	1.02E-01
5.01E+04	4.28E-02	0.00E+00	1.17E-01	1.26E-01
6.30E+04	4.56E-02	0.00E+00	1.31E-01	1.62E-01
7.94E+04	4.91E-02	0.00E+00	1.49E-01	2.19E-01
1.00E+05	5.36E-02	0.00E+00	1.55E-01	2.04E-01
1.25E+05	5.95E-02	0.00E+00	1.54E-01	2.33E-01
1.58E+05	6.72E-02	0.00E+00	1.57E-01	2.47E-01
1.99E+05	7.68E-02	0.00E+00	1.25E-01	2.31E-01
2.51E+05	8.86E-02	0.00E+00	1.31E-01	2.04E-01
3.16E+05	1.03E-01	0.00E+00	9.47E-02	1.81E-01
3.98E+05	1.20E-01	0.00E+00	9.81E-02	1.55E-01
5.01E+05	1.38E-01	0.00E+00	8.39E-02	1.35E-01
6.30E+05	1.55E-01	0.00E+00	7.19E-02	6.77E-02
7.94E+05	1.70E-01	0.00E+00	2.59E-02	3.81E-02
1.00E+06	1.78E-01	5.66E-01	1.21E-02	9.13E-03
1.25E+06	1.76E-01	8.38E-01	3.25E-03	7.92E-03
1.58E+06	1.61E-01	7.04E-01	1.90E-04	5.83E-03
1.99E+06	1.37E-01	8.38E-01	1.19E-04	1.56E-03
2.51E+06	1.12E-01	6.80E-01	6.48E-06	1.22E-04
3.16E+06	7.88E-02	2.73E-01	0.00E+00	0.00E+00
3.98E+06	5.24E-02	2.00E-01	0.00E+00	0.00E+00
5.01E+06	2.54E-02	1.56E-01	0.00E+00	0.00E+00
6.30E+06	1.27E-02	5.86E-02	0.00E+00	0.00E+00
7.94E+06	4.82E-03	2.41E-02	0.00E+00	0.00E+00
1.00E+07	7.47E-03	2.41E-03	0.00E+00	0.00E+00
1.58E+07	4.34E-03	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

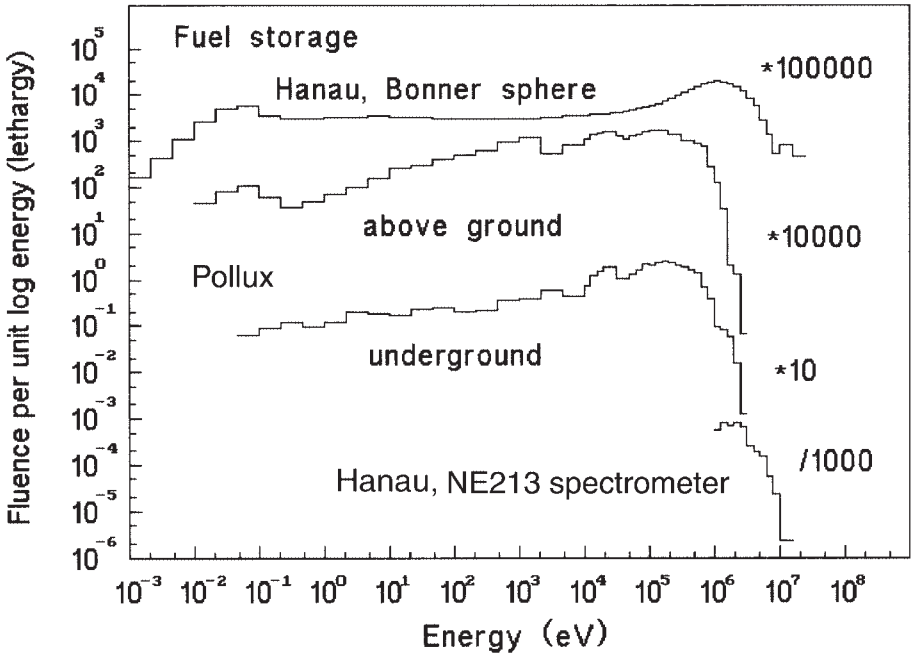

FIG. 5.31. Reactor fuel treatment, fuel storage.

TABLE 5.XXXVIII. REACTOR FUEL TREATMENT, FUEL STORAGE

Spectrum weighted responses

Column 2: Hanau fuel storage, Bonner sphere
Column 3: Hanau fuel storage, NE213 spectrometer
Column 4: Pollux container simulation, above ground
Column 5: Pollux container simulation, underground

FLUENCE 20	9.99E-01	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.34E+02	3.84E+02	4.92E+01	6.60E+01
H AMBIENT	1.68E+02	4.12E+02	6.89E+01	9.91E+01
H PERSONAL	1.76E+02	4.35E+02	7.20E+01	1.04E+02
HE A-P R51	7.16E+01	2.23E+02	1.87E+01	2.60E+01
MADE R21	1.38E+02	3.89E+02	4.70E+01	6.48E+01
BS 3HE BARE	4.63E-01	5.97E-04	8.77E-02	6.51E-02
BS 3HE 2.5″	8.73E-01	6.75E-02	8.24E-01	7.03E-01
BS 3HE 3″	1.17E+00	2.17E-01	1.37E+00	1.21E+00
BS 3HE 3.5″	1.43E+00	4.64E-01	1.84E+00	1.68E+00
BS 3HE 4″	1.63E+00	7.87E-01	2.15E+00	2.04E+00
BS 3HE 4.5″	1.77E+00	1.14E+00	2.30E+00	2.25E+00
BS 3HE 5″	1.83E+00	1.50E+00	2.30E+00	2.32E+00
BS 3HE 6″	1.79E+00	2.07E+00	2.02E+00	2.13E+00
BS 3HE 7″	1.61E+00	2.40E+00	1.57E+00	1.72E+00
BS 3HE 8″	1.36E+00	2.47E+00	1.13E+00	1.28E+00
BS 3HE 9.5″	9.83E-01	2.26E+00	6.32E-01	7.34E-01
BS 3HE 10″	8.72E-01	2.13E+00	5.16E-01	6.05E-01
BS 3HE 12″	5.20E-01	1.56E+00	2.08E-01	2.50E-01
BS 3HE 15″	2.28E-01	8.36E-01	4.72E-02	5.88E-02
BS 3HE 18″	1.08E-01	4.36E-01	1.01E-02	1.31E-02
BS LiI BARE	3.94E-02	2.48E-04	1.16E-02	1.06E-02
BS LiI 2″	8.08E-02	6.37E-03	7.97E-02	6.74E-02
BS LiI 3″	1.34E-01	4.03E-02	1.77E-01	1.61E-01
BS LiI 6″	1.68E-01	2.16E-01	1.78E-01	1.92E-01
BS LiI 8″	1.21E-01	2.40E-01	9.29E-02	1.06E-01
BS LiI 10″	7.68E-02	1.99E-01	4.08E-02	4.81E-02
BS LiI 15″	2.12E-02	7.92E-02	3.74E-03	4.63E-03
BS LiI 18″	9.55E-03	3.93E-02	7.83E-04	9.82E-04
6Li BARE	2.05E-01	8.51E-02	2.27E-01	2.15E-01
6Li Cd	9.27E-02	3.20E-02	1.12E-01	1.03E-01
GOLD BARE	9.65E-03	2.51E-05	4.07E-03	5.91E-03
Nat U PC	4.72E-05	6.25E-06	7.11E-05	3.52E-05
238 U PC	4.95E-07	2.15E-06	2.69E-10	1.84E-09
232 Th PC	1.22E-07	5.03E-07	1.52E-11	1.95E-10
CR39 ECE	7.91E-05	2.94E-04	1.19E-05	1.82E-05
LR115 LiB	1.82E+03	4.93E+02	2.24E+03	2.16E+03
PLANAR	6.94E+04	2.03E+05	1.47E+04	2.20E+04
BASE	5.66E+04	1.40E+05	1.61E+04	2.45E+04
PYRAMIDE	3.78E+04	1.00E+05	9.82E+03	1.49E+04
PTB TH	1.93E+02	4.40E+02	8.14E+01	1.25E+02
PTB INT	2.01E+02	4.38E+02	9.74E+01	1.32E+02
PTB FAST	1.79E+02	4.45E+02	7.06E+01	1.10E+02
PTB I+F	1.92E+02	4.59E+02	8.07E+01	1.20E+02
LONG C	5.13E-01	1.02E+00	4.44E-01	6.15E-01
LEAKE	1.33E-01	3.12E-01	7.71E-02	9.28E-02
A-B_2	3.64E-01	9.27E-01	1.79E-01	2.11E-01
EBERNRD2	3.63E-01	9.11E-01	1.96E-01	2.30E-01
MOD930_2	3.15E-01	8.95E-01	1.27E-01	1.62E-01
STUDSVIK	1.55E-01	4.36E-01	6.30E-02	8.54E-02
LB6411	4.87E-01	1.36E+00	1.93E-01	2.52E-01
BUBBLE	5.71E+04	1.55E+05	1.34E+04	2.02E+04
ELECTRET	1.89E+02	5.62E+02	5.11E+01	5.50E+01
SILICON	5.20E-01	1.07E+00	2.04E-01	3.25E-01

TABLE 5.XXXIX. REACTOR FUEL TREATMENT, Pu REPROCESSING PLANT (UK)

Spectra

Column 1: Energy in eV
Column 2: Location 1
Column 3: Location 2
Column 4: Location 3
Column 5: Location 4
Column 6: Location 5

1.00E-03	1.80E-02	4.58E-02	6.43E-03	1.45E-03	3.93E-03
2.15E-03	1.82E-02	4.58E-02	6.51E-03	1.73E-03	4.02E-03
4.64E-03	1.83E-02	4.58E-02	6.67E-03	2.32E-03	4.21E-03
1.00E-02	1.86E-02	4.57E-02	7.04E-03	3.57E-03	4.62E-03
2.15E-02	1.94E-02	4.55E-02	7.80E-03	6.19E-03	5.48E-03
4.64E-02	2.08E-02	4.51E-02	9.38E-03	1.14E-02	7.22E-03
1.00E-01	2.35E-02	4.46E-02	1.23E-02	2.10E-02	1.05E-02
2.15E-01	2.76E-02	4.44E-02	1.77E-02	3.45E-02	1.55E-02
4.64E-01	3.05E-02	4.72E-02	2.38E-02	3.80E-02	1.93E-02
1.00E+00	3.01E-02	4.84E-02	2.54E-02	3.14E-02	1.90E-02
2.15E+00	3.02E-02	4.32E-02	2.50E-02	3.12E-02	1.93E-02
4.64E+00	3.07E-02	4.79E-02	2.58E-02	3.96E-02	1.91E-02
1.00E+01	2.93E-02	5.04E-02	3.08E-02	2.55E-02	1.78E-02
2.15E+01	2.96E-02	4.65E-02	3.20E-02	2.49E-02	1.81E-02
4.64E+01	2.89E-02	5.16E-02	3.46E-02	1.88E-02	1.85E-02
1.00E+02	2.93E-02	4.39E-02	3.18E-02	1.89E-02	2.10E-02
2.15E+02	2.84E-02	4.64E-02	3.51E-02	1.59E-02	2.11E-02
4.64E+02	2.85E-02	4.64E-02	3.57E-02	1.51E-02	2.16E-02
1.00E+03	2.94E-02	4.53E-02	3.44E-02	1.44E-02	2.24E-02
2.15E+03	2.92E-02	5.02E-02	3.36E-02	1.31E-02	2.24E-02
4.64E+03	2.92E-02	5.12E-02	3.33E-02	1.30E-02	2.35E-02
1.00E+04	2.93E-02	3.90E-02	3.05E-02	1.38E-02	2.56E-02
1.25E+04	2.96E-02	3.87E-02	2.94E-02	1.41E-02	2.63E-02
1.58E+04	2.98E-02	5.05E-02	2.94E-02	1.36E-02	2.64E-02
1.99E+04	3.01E-02	5.05E-02	2.86E-02	1.39E-02	2.82E-02
2.51E+04	3.02E-02	3.97E-02	2.78E-02	1.45E-02	3.20E-02
3.16E+04	3.05E-02	3.99E-02	2.84E-02	1.45E-02	3.60E-02
3.98E+04	3.15E-02	5.05E-02	3.06E-02	1.35E-02	4.09E-02
5.01E+04	3.44E-02	5.25E-02	3.25E-02	1.35E-02	5.06E-02
6.30E+04	4.05E-02	4.60E-02	3.37E-02	1.49E-02	6.62E-02
7.94E+04	5.07E-02	4.46E-02	3.58E-02	1.70E-02	8.57E-02
1.00E+05	6.64E-02	4.65E-02	3.76E-02	2.09E-02	1.08E-01
1.25E+05	8.54E-02	4.81E-02	4.00E-02	2.59E-02	1.34E-01
1.58E+05	1.06E-01	5.12E-02	4.28E-02	3.32E-02	1.62E-01
1.99E+05	1.31E-01	4.97E-02	4.43E-02	4.99E-02	2.13E-01
2.51E+05	1.54E-01	4.25E-02	4.46E-02	7.93E-02	2.78E-01
3.16E+05	1.84E-01	4.44E-02	4.89E-02	1.17E-01	2.66E-01
3.98E+05	2.12E-01	5.65E-02	6.01E-02	1.65E-01	1.52E-01
5.01E+05	2.12E-01	5.42E-02	7.49E-02	2.08E-01	1.12E-01
6.30E+05	1.77E-01	3.50E-02	9.70E-02	2.53E-01	1.75E-01
7.94E+05	1.45E-01	2.75E-02	1.27E-01	4.02E-01	1.91E-01
1.00E+06	1.32E-01	3.24E-02	1.63E-01	6.35E-01	1.97E-01
1.25E+06	1.12E-01	3.10E-02	2.02E-01	5.44E-01	1.75E-01
1.58E+06	1.15E-01	2.88E-02	2.34E-01	2.30E-02	9.41E-02
1.99E+06	1.09E-01	2.65E-02	2.39E-01	1.26E-01	7.37E-02
2.51E+06	9.77E-02	2.02E-02	2.06E-01	1.10E-01	1.27E-01
3.16E+06	7.65E-02	1.43E-02	1.97E-01	1.13E-01	1.32E-01
3.98E+06	3.26E-02	6.83E-03	2.26E-01	7.35E-03	9.80E-02
5.01E+06	9.97E-03	1.73E-03	1.97E-01	2.81E-03	7.69E-02
6.30E+06	1.31E-02	1.13E-03	1.20E-01	9.09E-03	4.51E-02
7.94E+06	9.00E-03	7.60E-04	4.12E-02	1.85E-04	2.55E-02
1.00E+07	6.79E-04	9.22E-05	5.07E-03	3.19E-05	1.30E-02
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

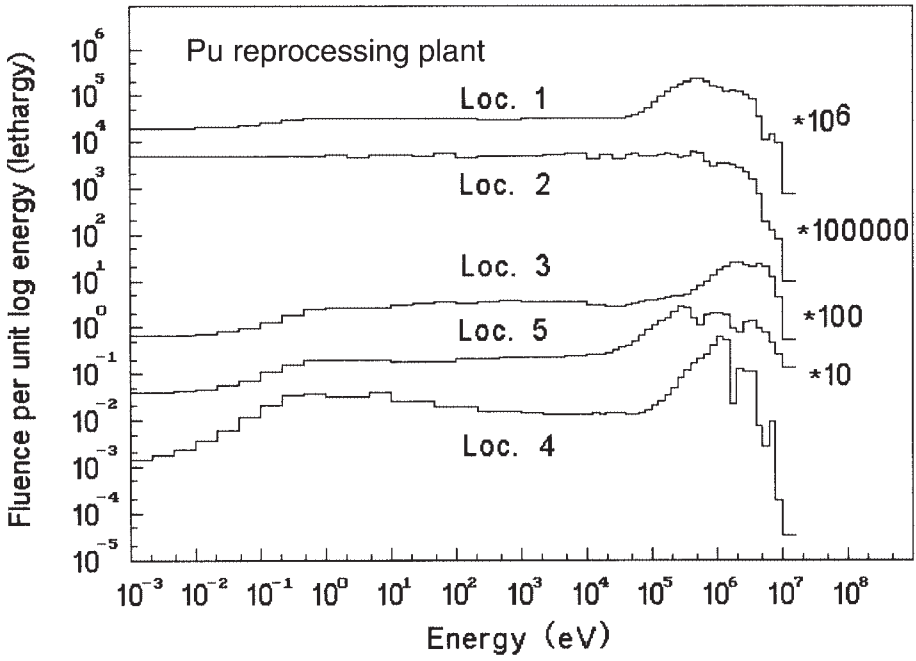

FIG. 5.32. Reactor fuel treatment, Pu reprocessing plant (UK).

TABLE 5.XXXIX. REACTOR FUEL TREATMENT, Pu REPROCESSING PLANT (UK)

Spectrum weighted responses

Column 2: Location 1
Column 3: Location 2
Column 4: Location 3
Column 5: Location 4
Column 6: Location 5

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.26E+02	4.16E+01	2.07E+02	1.93E+02	1.67E+02
H AMBIENT	1.67E+02	5.18E+01	2.20E+02	2.58E+02	2.12E+02
H PERSONAL	1.75E+02	5.45E+01	2.32E+02	2.68E+02	2.22E+02
HE A-P R51	6.40E+01	1.87E+01	1.23E+02	9.95E+01	9.03E+01
MADE R21	1.29E+02	4.13E+01	2.01E+02	2.08E+02	1.68E+02
BS 3HE BARE	.83E-01	1.09E+00	2.24E-01	1.91E-01	1.57E-01
BS 3HE 2.5″	8.18E-01	1.27E+00	6.79E-01	6.72E-01	5.75E-01
BS 3HE 3″	1.15E+00	1.57E+00	9.81E-01	9.57E-01	9.30E-01
BS 3HE 3.5″	1.45E+00	1.76E+00	1.25E+00	1.25E+00	1.29E+00
BS 3HE 4″	1.69E+00	1.84E+00	1.47E+00	1.53E+00	1.61E+00
BS 3HE 4.5″	1.85E+00	1.82E+00	1.63E+00	1.77E+00	1.86E+00
BS 3HE 5″	1.93E+00	1.72E+00	1.74E+00	1.94E+00	2.01E+00
BS 3HE 6″	1.88E+00	1.41E+00	1.79E+00	2.09E+00	2.07E+00
BS 3HE 7″	1.67E+00	1.07E+00	1.72E+00	2.03E+00	1.90E+00
BS 3HE 8″	1.38E+00	7.77E-01	1.56E+00	1.80E+00	1.62E+00
BS 3HE 9.5″	9.65E-01	4.56E-01	1.28E+00	1.37E+00	1.17E+00
BS 3HE 10″	8.45E-01	3.79E-01	1.18E+00	1.22E+00	1.04E+00
BS 3HE 12″	4.75E-01	1.76E-01	8.31E-01	7.26E-01	6.27E-01
BS 3HE 15″	1.91E-01	5.60E-02	4.64E-01	2.94E-01	2.89E-01
BS 3HE 18″	8.43E-02	2.04E-02	2.71E-01	1.17E-01	1.51E-01
BS LiI BARE	2.99E-02	5.70E-02	1.89E-02	2.24E-02	1.45E-02
BS LiI 2″	7.46E-02	1.13E-01	6.40E-02	6.33E-02	5.40E-02
BS LiI 3″	1.35E-01	1.64E-01	1.18E-01	1.16E-01	1.21E-01
BS LiI 6″	1.77E-01	1.21E-01	1.71E-01	2.05E-01	1.97E-01
BS LiI 8″	1.22E-01	6.39E-02	1.45E-01	1.63E-01	1.45E-01
BS LiI 10″	7.32E-02	3.11E-02	1.08E-01	1.08E-01	9.19E-02
BS LiI 15″	1.75E-02	4.92E-03	4.46E-02	2.68E-02	2.71E-02
BS LiI 18″	7.36E-03	1.77E-03	2.44E-02	1.01E-02	1.33E-02
6Li BARE	2.08E-01	2.52E-01	1.86E-01	2.00E-01	1.82E-01
6Li Cd	9.52E-02	1.17E-01	8.71E-02	8.84E-02	8.31E-02
GOLD BARE	9.39E-03	1.38E-02	7.88E-03	9.50E-03	5.98E-03
Nat U PC	4.83E-05	7.03E-05	5.24E-05	3.46E-05	3.63E-05
238 U PC	3.56E-07	6.86E-08	1.46E-06	3.52E-07	7.61E-07
232 Th PC	8.61E-08	1.56E-08	4.02E-07	7.97E-08	2.10E-07
CR39 ECE	6.84E-05	1.65E-05	1.17E-04	1.21E-04	8.37E-05
LR115 LiB	1.91E+03	2.32E+03	1.67E+03	1.75E+03	1.70E+03
PLANAR	6.44E+04	1.53E+04	9.66E+04	1.19E+05	8.12E+04
BASE	5.72E+04	1.37E+04	7.23E+04	9.48E+04	6.86E+04
PYRAMIDE	3.75E+04	8.89E+03	5.20E+04	6.17E+04	4.60E+04
PTB TH	2.04E+02	6.92E+01	2.40E+02	2.97E+02	2.55E+02
PTB INT	2.07E+02	7.85E+01	2.50E+02	3.05E+02	2.55E+02
PTB FAST	1.84E+02	4.82E+01	2.33E+02	2.85E+02	2.39E+02
PTB I+F	1.97E+02	5.84E+01	2.47E+02	3.01E+02	2.52E+02
LONG C	5.44E-01	2.10E-01	5.93E-01	7.03E-01	7.05E-01
LEAKE	1.32E-01	5.41E-02	1.71E-01	1.97E-01	1.60E-01
A-B_2	3.42E-01	1.45E-01	4.86E-01	5.38E-01	4.21E-01
EBERNRD2	3.45E-01	1.47E-01	4.83E-01	5.32E-01	4.26E-01
MOD930_2	2.94E-01	1.01E-01	4.49E-01	4.72E-01	3.75E-01
STUDSVIK	1.49E-01	4.71E-02	2.25E-01	2.32E-01	1.93E-01
LB6411	4.64E-01	1.50E-01	7.02E-01	7.32E-01	5.92E-01
BUBBLE	5.38E+04	1.28E+04	8.05E+04	9.64E+04	7.01E+04
ELECTRET	1.57E+02	8.08E+01	3.55E+02	2.22E+02	2.24E+02
SILICON	5.47E-01	1.43E-01	4.79E-01	9.05E-01	6.02E-01

TABLE 5.XL. REACTOR FUEL TREATMENT, Pu REPROCESSING PLANT (USA)

Spectra

Column 1: Energy in eV
Column 2: Lightly shielded
Column 3: Heavily shielded
Column 4: Operator desk
Column 5: At conduit exit
Column 6: At glovebox

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-02	9.18E-02	1.39E-01	2.85E-03	3.12E-02	5.53E-04
4.64E-02	8.87E-02	1.32E-01	3.93E-03	3.42E-02	3.04E-03
1.00E-01	8.26E-02	1.17E-01	1.63E-02	3.96E-02	7.85E-03
2.15E-01	7.12E-02	9.39E-02	3.67E-02	4.80E-02	2.43E-02
4.64E-01	5.47E-02	6.20E-02	5.70E-02	5.34E-02	3.99E-02
1.00E+00	4.06E-02	4.53E-02	4.93E-02	3.78E-02	2.90E-02
2.15E+00	2.91E-02	3.28E-02	5.35E-02	2.31E-02	1.86E-02
4.64E+00	2.84E-02	3.17E-02	4.46E-02	2.66E-02	2.08E-02
1.00E+01	2.30E-02	2.52E-02	4.63E-02	2.00E-02	1.68E-02
2.15E+01	2.06E-02	2.25E-02	4.43E-02	1.83E-02	1.59E-02
4.64E+01	2.00E-02	2.17E-02	4.51E-02	1.80E-02	1.60E-02
1.00E+02	1.94E-02	2.09E-02	4.40E-02	1.79E-02	1.61E-02
2.15E+02	1.84E-02	1.97E-02	4.12E-02	1.73E-02	1.61E-02
4.64E+02	1.92E-02	2.03E-02	4.18E-02	1.87E-02	1.75E-02
1.00E+03	1.92E-02	2.00E-02	3.99E-02	1.92E-02	1.84E-02
2.15E+03	2.07E-02	2.12E-02	4.11E-02	2.11E-02	2.05E-02
4.64E+03	2.45E-02	2.44E-02	4.58E-02	2.59E-02	2.57E-02
1.00E+04	2.81E-02	2.77E-02	5.06E-02	3.04E-02	3.05E-02
1.25E+04	2.99E-02	2.93E-02	5.24E-02	3.26E-02	3.27E-02
1.58E+04	3.23E-02	3.14E-02	5.54E-02	3.55E-02	3.59E-02
1.99E+04	3.53E-02	3.39E-02	5.92E-02	3.92E-02	4.02E-02
2.51E+04	3.88E-02	3.68E-02	6.36E-02	4.37E-02	4.54E-02
3.16E+04	4.26E-02	3.98E-02	6.80E-02	4.83E-02	5.06E-02
3.98E+04	4.67E-02	4.30E-02	7.23E-02	5.37E-02	5.67E-02
5.01E+04	5.12E-02	4.64E-02	7.63E-02	5.98E-02	6.34E-02
6.30E+04	5.58E-02	4.96E-02	8.01E-02	6.63E-02	7.08E-02
7.94E+04	6.10E-02	5.34E-02	8.39E-02	7.36E-02	7.97E-02
1.00E+05	6.71E-02	5.75E-02	8.79E-02	8.21E-02	9.04E-02
1.25E+05	7.25E-02	6.06E-02	8.98E-02	9.05E-02	1.01E-01
1.58E+05	7.94E-02	6.42E-02	9.29E-02	1.01E-01	1.14E-01
1.99E+05	8.82E-02	6.92E-02	9.83E-02	1.14E-01	1.31E-01
2.51E+05	9.50E-02	7.17E-02	9.89E-02	1.25E-01	1.47E-01
3.16E+05	1.02E-01	7.44E-02	1.00E-01	1.37E-01	1.66E-01
3.98E+05	1.11E-01	7.82E-02	1.04E-01	1.52E-01	1.86E-01
5.01E+05	1.16E-01	7.79E-02	1.02E-01	1.61E-01	2.01E-01
6.30E+05	1.19E-01	7.65E-02	9.86E-02	1.68E-01	2.13E-01
7.94E+05	1.21E-01	7.59E-02	9.67E-02	1.70E-01	2.17E-01
1.00E+06	1.16E-01	6.91E-02	8.81E-02	1.61E-01	2.09E-01
1.25E+06	1.07E-01	6.12E-02	7.89E-02	1.50E-01	1.94E-01
1.58E+06	1.02E-01	5.86E-02	7.51E-02	1.45E-01	1.84E-01
1.99E+06	8.31E-02	4.72E-02	6.29E-02	1.16E-01	1.44E-01
2.51E+06	6.48E-02	3.69E-02	5.13E-02	8.98E-02	1.07E-01
3.16E+06	7.26E-02	3.93E-02	4.95E-02	1.03E-01	1.30E-01
3.98E+06	5.19E-02	3.02E-02	3.91E-02	7.23E-02	8.78E-02
5.01E+06	3.69E-02	2.37E-02	3.09E-02	5.04E-02	5.88E-02
6.30E+06	3.05E-02	1.63E-02	2.12E-02	4.34E-02	5.33E-02
7.94E+06	2.12E-02	1.28E-02	1.67E-02	3.04E-02	3.77E-02
1.00E+07	9.78E-03	7.26E-03	9.40E-03	1.41E-02	1.87E-02
1.58E+07	8.35E-04	4.54E-04	5.91E-04	1.18E-03	1.43E-03
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

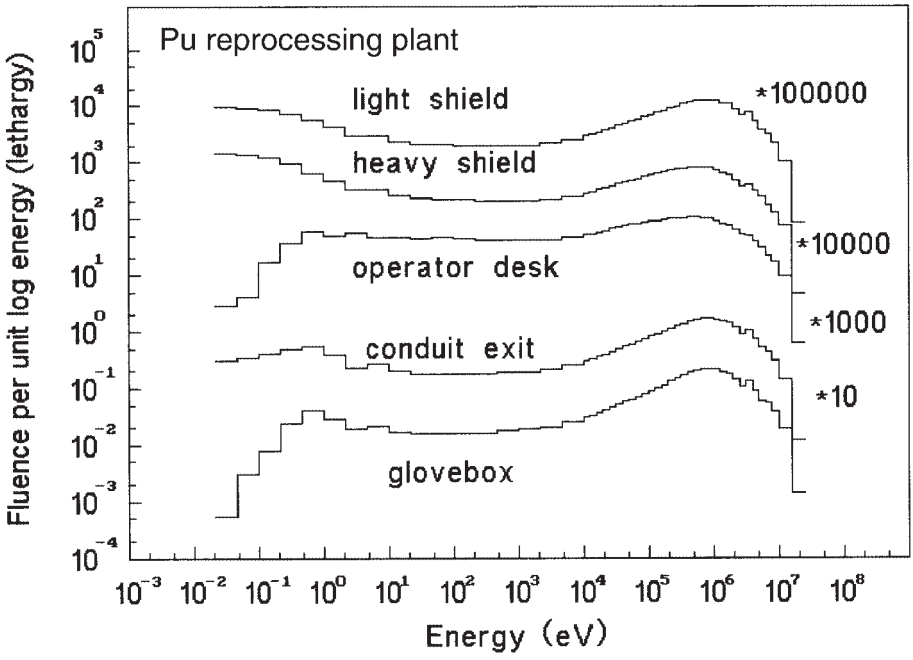

FIG. 5.33. Reactor fuel treatment, Pu reprocessing plant (USA).

TABLE 5.XL. REACTOR FUEL TREATMENT, Pu REPROCESSING PLANT (USA)

Spectrum weighted responses

Column 2: Lightly shielded
Column 3: Heavily shielded
Column 4: Operator desk
Column 5: At conduit exit
Column 6: At glovebox

FLUENCE 20	9.99E-01	9.99E-01	1.00E+00	1.00E+00	1.00E+00
E A-P R60	1.10E+02	7.37E+01	9.48E+01	1.48E+02	1.81E+02
H AMBIENT	1.37E+02	9.19E+01	1.18E+02	1.84E+02	2.25E+02
H PERSONAL	1.43E+02	9.63E+01	1.24E+02	1.93E+02	2.36E+02
HE A-P R51	5.91E+01	3.82E+01	4.88E+01	8.06E+01	9.92E+01
MADE R21	1.11E+02	7.38E+01	9.39E+01	1.49E+02	1.83E+02
BS 3HE BARE	6.14E-01	8.72E-01	1.71E-01	2.98E-01	9.46E-02
BS 3HE 2.5″	1.07E+00	1.30E+00	1.04E+00	8.18E-01	5.93E-01
BS 3HE 3″	1.29E+00	1.47E+00	1.45E+00	1.11E+00	9.32E-01
BS 3HE 3.5″	1.48E+00	1.59E+00	1.77E+00	1.39E+00	1.28E+00
BS 3HE 4″	1.62E+00	1.64E+00	1.97E+00	1.62E+00	1.58E+00
BS 3HE 4.5″	1.69E+00	1.63E+00	2.06E+00	1.79E+00	1.82E+00
BS 3HE 5″	1.71E+00	1.58E+00	2.06E+00	1.88E+00	1.98E+00
BS 3HE 6″	1.60E+00	1.39E+00	1.85E+00	1.87E+00	2.06E+00
BS 3HE 7″	1.40E+00	1.14E+00	1.53E+00	1.69E+00	1.93E+00
BS 3HE 8″	1.15E+00	8.93E-01	1.20E+00	1.44E+00	1.67E+00
BS 3HE 9.5″	8.09E-01	5.89E-01	7.92E-01	1.04E+00	1.24E+00
BS 3HE 10″	7.14E-01	5.10E-01	6.84E-01	9.30E-01	1.11E+00
BS 3HE 12″	4.21E-01	2.82E-01	3.74E-01	5.63E-01	6.84E-01
BS 3HE 15″	1.89E-01	1.19E-01	1.56E-01	2.60E-01	3.21E-01
BS 3HE 18″	9.62E-02	5.80E-02	7.58E-02	1.34E-01	1.66E-01
BS LiI BARE	5.92E-02	8.11E-02	2.67E-02	3.32E-02	1.47E-02
BS LiI 2″	9.85E-02	1.19E-01	9.91E-02	7.66E-02	5.64E-02
BS LiI 3″	1.39E-01	1.49E-01	1.69E-01	1.31E-01	1.20E-01
BS LiI 6″	1.49E-01	1.25E-01	1.68E-01	1.77E-01	1.98E-01
BS LiI 8″	1.02E-01	7.71E-02	1.04E-01	1.29E-01	1.51E-01
BS LiI 10″	6.25E-02	4.39E-02	5.86E-02	8.20E-02	9.85E-02
BS LiI 15″	1.76E-02	1.09E-02	1.43E-02	2.42E-02	2.98E-02
BS LiI 18″	8.46E-03	5.09E-03	6.65E-03	1.18E-02	1.46E-02
6Li BARE	2.38E-01	2.59E-01	2.65E-01	2.18E-01	1.90E-01
6Li Cd	9.52E-02	9.93E-02	1.27E-01	9.33E-02	8.59E-02
GOLD BARE	1.03E-02	1.20E-02	1.59E-02	8.05E-03	6.07E-03
Nat U PC	3.45E-05	3.61E-05	7.12E-05	3.29E-05	3.04E-05
238 U PC	4.77E-07	2.82E-07	3.69E-07	6.72E-07	8.30E-07
232 Th PC	1.30E-07	7.73E-08	1.01E-07	1.83E-07	2.26E-07
CR39 ECE	5.64E-05	3.40E-05	4.45E-05	7.87E-05	9.86E-05
LR115 LiB	1.84E+03	1.85E+03	2.64E+03	1.91E+03	1.81E+03
PLANAR	5.24E+04	3.23E+04	4.21E+04	7.30E+04	9.15E+04
BASE	4.38E+04	2.75E+04	3.60E+04	6.09E+04	7.61E+04
PYRAMIDE	2.94E+04	1.84E+04	2.40E+04	4.10E+04	5.12E+04
PTB TH	1.59E+02	1.08E+02	1.33E+02	2.12E+02	2.59E+02
PTB INT	1.67E+02	1.19E+02	1.50E+02	2.19E+02	2.64E+02
PTB FAST	1.44E+02	9.26E+01	1.23E+02	1.98E+02	2.46E+02
PTB I+F	1.56E+02	1.03E+02	1.35E+02	2.11E+02	2.60E+02
LONG C	4.42E-01	3.11E-01	4.40E-01	5.89E-01	7.08E-01
LEAKE	1.08E-01	7.54E-02	1.03E-01	1.43E-01	1.72E-01
A-B_2	2.95E-01	2.13E-01	2.69E-01	3.81E-01	4.56E-01
EBERNRD2	2.91E-01	2.05E-01	2.74E-01	3.82E-01	4.59E-01
MOD930_2	2.49E-01	1.67E-01	2.19E-01	3.35E-01	4.09E-01
STUDSVIK	1.24E-01	8.13E-02	1.09E-01	1.69E-01	2.08E-01
LB6411	3.85E-01	2.53E-01	3.38E-01	5.23E-01	6.42E-01
BUBBLE	4.49E+04	2.80E+04	3.66E+04	6.26E+04	7.85E+04
ELECTRET	1.80E+02	1.42E+02	1.48E+02	2.18E+02	2.51E+02
SILICON	3.92E-01	2.54E-01	3.35E-01	5.42E-01	6.77E-01

TABLE 5.XLI. ISOTOPIC SOURCE PRODUCTION

Spectra

Column 1: Energy in eV
Column 2: AmO_2 in container
Column 3: ^{244}Cm bare, in glovebox
Column 4: Am–Be bare, in glovebox
Column 5: Am ceramic discs

1.00E-03	2.42E-04	4.24E-04	1.45E-03	2.84E-04
2.15E-03	1.07E-03	1.78E-03	6.20E-03	1.17E-03
4.64E-03	4.59E-03	6.98E-03	2.46E-02	4.44E-03
1.00E-02	1.59E-02	2.31E-02	8.29E-02	1.43E-02
2.15E-02	3.15E-02	5.39E-02	1.95E-01	3.33E-02
4.64E-02	2.89E-02	5.11E-02	1.93E-01	3.33E-02
1.00E-01	2.00E-02	3.61E-02	4.36E-02	1.43E-02
2.15E-01	1.34E-02	2.68E-02	4.52E-02	1.17E-02
4.64E-01	1.35E-02	2.21E-02	2.03E-02	1.23E-02
1.00E+00	9.09E-03	1.55E-02	1.97E-02	1.20E-02
2.15E+00	8.10E-03	1.12E-02	1.95E-02	1.21E-02
4.64E+00	7.31E-03	8.51E-03	1.94E-02	1.15E-02
1.00E+01	7.38E-03	7.79E-03	1.95E-02	1.11E-02
2.15E+01	9.29E-03	8.38E-03	1.98E-02	1.05E-02
4.64E+01	1.05E-02	9.83E-03	2.02E-02	1.00E-02
1.00E+02	1.31E-02	1.29E-02	2.08E-02	9.58E-03
2.15E+02	1.46E-02	1.68E-02	2.16E-02	9.49E-03
4.64E+02	1.66E-02	2.16E-02	2.24E-02	1.21E-02
1.00E+03	1.82E-02	2.67E-02	2.34E-02	1.43E-02
2.15E+03	2.03E-02	3.10E-02	2.43E-02	1.60E-02
4.64E+03	2.24E-02	3.48E-02	2.52E-02	1.77E-02
1.00E+04	2.33E-02	3.68E-02	2.59E-02	1.86E-02
1.25E+04	2.35E-02	3.78E-02	2.62E-02	1.90E-02
1.58E+04	2.34E-02	3.91E-02	2.65E-02	1.96E-02
1.99E+04	2.35E-02	4.00E-02	2.68E-02	2.01E-02
2.51E+04	2.38E-02	4.05E-02	2.71E-02	2.06E-02
3.16E+04	2.37E-02	4.04E-02	2.73E-02	2.11E-02
3.98E+04	2.31E-02	3.98E-02	2.76E-02	2.21E-02
5.01E+04	2.26E-02	3.92E-02	2.78E-02	2.49E-02
6.30E+04	2.25E-02	3.96E-02	2.82E-02	3.06E-02
7.94E+04	2.23E-02	4.00E-02	2.86E-02	3.63E-02
1.00E+05	2.29E-02	4.15E-02	2.90E-02	4.23E-02
1.25E+05	2.55E-02	4.28E-02	2.94E-02	5.15E-02
1.58E+05	3.08E-02	4.48E-02	2.98E-02	6.38E-02
1.99E+05	3.64E-02	5.45E-02	3.02E-02	8.06E-02
2.51E+05	4.23E-02	7.51E-02	3.08E-02	1.03E-01
3.16E+05	5.19E-02	9.88E-02	3.12E-02	1.33E-01
3.98E+05	6.63E-02	1.27E-01	3.23E-02	1.75E-01
5.01E+05	8.97E-02	1.64E-01	3.71E-02	2.45E-01
6.30E+05	1.28E-01	2.06E-01	4.67E-02	3.44E-01
7.94E+05	1.89E-01	2.44E-01	5.43E-02	4.18E-01
1.00E+06	2.88E-01	2.63E-01	5.84E-02	4.28E-01
1.25E+06	4.54E-01	2.53E-01	6.64E-02	3.85E-01
1.58E+06	6.50E-01	1.97E-01	7.82E-02	2.53E-01
1.99E+06	5.86E-01	1.52E-01	9.83E-02	1.48E-01
2.51E+06	1.42E-01	1.45E-01	1.26E-01	1.29E-01
3.16E+06	1.44E-01	1.22E-01	1.34E-01	6.59E-02
3.98E+06	4.44E-02	1.19E-01	1.07E-01	3.76E-02
5.01E+06	1.76E-02	9.11E-02	7.54E-02	1.97E-02
6.30E+06	4.17E-02	3.47E-02	3.49E-02	1.71E-02
7.94E+06	6.26E-02	9.43E-03	7.49E-03	2.56E-02
1.00E+07	2.01E-02	1.67E-02	2.03E-02	1.79E-02
1.58E+07	1.88E-03	3.93E-03	1.43E-03	1.14E-03
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

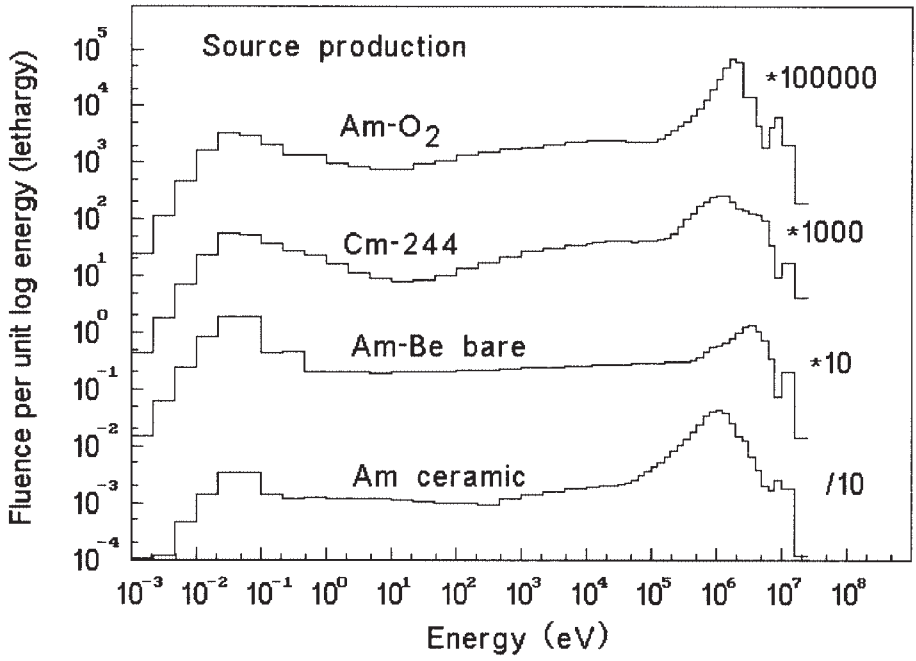

FIG. 5.34. Isotopic source production.

TABLE 5.XLI. ISOTOPIC SOURCE PRODUCTION

Spectrum weighted responses

Column 2: AmO_2 in container
Column 3: ^{244}Cm bare, in glovebox
Column 4: Am–Be bare, in glovebox
Column 5: Am ceramic discs

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	2.51E+02	1.83E+02	1.03E+02	2.09E+02
H AMBIENT	2.88E+02	2.21E+02	1.10E+02	2.74E+02
H PERSONAL	3.06E+02	2.31E+02	1.16E+02	2.86E+02
HE A-P R51	1.42E+02	1.02E+02	6.10E+01	1.11E+02
MADE R21	2.59E+02	1.86E+02	9.95E+01	2.21E+02
BS 3HE BARE	2.53E-01	4.21E-01	1.30E+00	2.54E-01
BS 3HE 2.5″	4.42E-01	6.41E-01	1.11E+00	4.72E-01
BS 3HE 3″	6.67E-01	8.88E-01	1.20E+00	7.39E-01
BS 3HE 3.5″	9.38E-01	1.16E+00	1.28E+00	1.06E+00
BS 3HE 4″	1.22E+00	1.41E+00	1.32E+00	1.39E+00
BS 3HE 4.5″	1.48E+00	1.61E+00	1.33E+00	1.67E+00
BS 3HE 5″	1.70E+00	1.75E+00	1.31E+00	1.89E+00
BS 3HE 6″	1.97E+00	1.85E+00	1.19E+00	2.12E+00
BS 3HE 7″	2.03E+00	1.77E+00	1.04E+00	2.08E+00
BS 3HE 8″	1.92E+00	1.58E+00	8.79E-01	1.87E+00
BS 3HE 9.5″	1.60E+00	1.22E+00	6.67E-01	1.43E+00
BS 3HE 10″	1.47E+00	1.10E+00	6.06E-01	1.28E+00
BS 3HE 12″	9.95E-01	7.04E-01	4.07E-01	7.81E-01
BS 3HE 15″	4.94E-01	3.40E-01	2.21E-01	3.36E-01
BS 3HE 18″	2.44E-01	1.75E-01	1.31E-01	1.49E-01
BS LiI BARE	2.06E-02	3.40E-02	9.27E-02	2.09E-02
BS LiI 2″	4.08E-02	5.87E-02	9.80E-02	4.36E-02
BS LiI 3″	8.63E-02	1.08E-01	1.18E-01	9.74E-02
BS LiI 6″	1.96E-01	1.79E-01	1.08E-01	2.09E-01
BS LiI 8″	1.80E-01	1.44E-01	7.96E-02	1.70E-01
BS LiI 10″	1.34E-01	9.87E-02	5.49E-02	1.14E-01
BS LiI 15″	4.53E-02	3.20E-02	2.15E-02	3.05E-02
BS LiI 18″	2.14E-02	1.56E-02	1.19E-02	1.28E-02
6Li BARE	1.40E-01	1.67E-01	1.54E-01	1.49E-01
6Li Cd	5.83E-02	6.91E-02	6.42E-02	6.43E-02
GOLD BARE	2.96E-03	4.22E-03	6.73E-03	3.83E-03
Nat U PC	2.37E-05	2.36E-05	3.39E-05	1.99E-05
238 U PC	1.10E-06	8.56E-07	7.66E-07	5.85E-07
232 Th PC	2.57E-07	2.26E-07	2.08E-07	1.46E-07
CR39 ECE	1.89E-04	1.07E-04	5.23E-05	1.30E-04
LR115 LiB	1.07E+03	1.31E+03	1.15E+03	1.25E+03
PLANAR	1.36E+05	9.60E+04	4.39E+04	1.22E+05
BASE	9.89E+04	7.65E+04	3.32E+04	9.94E+04
PYRAMIDE	6.86E+04	5.19E+04	2.41E+04	6.53E+04
PTB TH	3.16E+02	2.50E+02	1.27E+02	3.16E+02
PTB INT	3.19E+02	2.55E+02	1.29E+02	3.18E+02
PTB FAST	3.10E+02	2.37E+02	1.08E+02	3.00E+02
PTB I+F	3.24E+02	2.50E+02	1.18E+02	3.16E+02
LONG C	7.52E-01	6.29E-01	2.98E-01	7.64E-01
LEAKE	2.22E-01	1.69E-01	8.42E-02	2.05E-01
A-B_2	6.36E-01	4.65E-01	2.52E-01	5.57E-01
EBERNRD2	6.29E-01	4.62E-01	2.45E-01	5.52E-01
MOD930_2	5.93E-01	4.18E-01	2.19E-01	4.97E-01
STUDSVIK	2.89E-01	2.07E-01	1.07E-01	2.47E-01
LB6411	9.01E-01	6.51E-01	3.35E-01	7.74E-01
BUBBLE	1.09E+05	8.03E+04	3.78E+04	1.02E+05
ELECTRET	3.59E+02	2.65E+02	2.08E+02	2.50E+02
SILICON	9.50E-01	6.47E-01	1.96E-01	9.66E-01

TABLE 5.XLII. BORON THERAPY, 1

Spectra

Column 1: Energy in eV
Column 2: Petten HB11 filtered beam
Column 3: Accelerator based spectrum
Column 4: Gantry, cell 55
Column 5: LVR-15 epithermal beam, BS measurements

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	0.00E+00	1.74E-03
1.00E-02	0.00E+00	0.00E+00	1.54E-03	7.55E-03
2.15E-02	5.94E-03	0.00E+00	6.30E-03	1.75E-02
4.64E-02	5.94E-03	0.00E+00	1.57E-02	2.86E-02
1.00E-01	5.96E-03	0.00E+00	2.25E-02	3.99E-02
2.15E-01	1.16E-02	0.00E+00	2.28E-02	5.01E-02
4.64E-01	2.33E-02	0.00E+00	1.59E-02	5.76E-02
1.00E+00	3.94E-02	0.00E+00	1.93E-02	5.86E-02
2.15E+00	4.67E-02	0.00E+00	2.60E-02	5.50E-02
4.64E+00	6.37E-02	0.00E+00	3.29E-02	6.03E-02
1.00E+01	9.02E-02	0.00E+00	2.67E-02	6.63E-02
2.15E+01	1.25E-01	0.00E+00	2.58E-02	7.09E-02
4.64E+01	1.29E-01	0.00E+00	2.97E-02	7.51E-02
1.00E+02	1.23E-01	0.00E+00	2.90E-02	8.02E-02
2.15E+02	9.00E-02	0.00E+00	3.05E-02	8.88E-02
4.64E+02	7.78E-02	0.00E+00	3.86E-02	9.30E-02
1.00E+03	6.86E-02	0.00E+00	4.75E-02	9.06E-02
2.15E+03	5.98E-02	0.00E+00	4.59E-02	8.94E-02
4.64E+03	5.53E-02	0.00E+00	5.79E-02	1.01E-01
1.00E+04	4.18E-02	0.00E+00	8.45E-02	1.12E-01
1.25E+04	3.57E-02	0.00E+00	8.01E-02	1.17E-01
1.58E+04	4.63E-02	0.00E+00	5.98E-02	8.28E-02
1.99E+04	7.14E-02	0.00E+00	4.24E-02	8.04E-02
2.51E+04	7.06E-02	0.00E+00	4.62E-02	4.55E-02
3.16E+04	6.31E-02	0.00E+00	7.47E-02	5.11E-02
3.98E+04	7.27E-02	0.00E+00	1.20E-01	1.02E-02
5.01E+04	1.55E-01	0.00E+00	1.65E-01	8.25E-03
6.30E+04	1.52E-01	0.00E+00	1.78E-01	7.38E-03
7.94E+04	1.09E-01	6.68E-02	1.47E-01	6.25E-03
1.00E+05	1.46E-02	7.98E-02	8.45E-02	5.84E-03
1.25E+05	1.39E-02	1.05E-01	5.66E-02	5.95E-03
1.58E+05	9.59E-03	1.32E-01	3.83E-02	6.39E-03
1.99E+05	1.03E-02	2.03E-01	7.69E-02	6.10E-03
2.51E+05	1.15E-02	2.59E-01	9.37E-02	5.57E-03
3.16E+05	1.36E-02	2.54E-01	1.62E-01	4.58E-03
3.98E+05	8.27E-03	2.54E-01	1.80E-01	3.87E-03
5.01E+05	1.06E-02	2.54E-01	1.64E-01	3.17E-03
6.30E+05	6.86E-03	2.12E-01	1.26E-01	2.59E-03
7.94E+05	7.12E-03	1.85E-01	8.39E-02	1.86E-03
1.00E+06	4.92E-03	1.84E-01	6.04E-02	1.46E-03
1.25E+06	3.10E-03	2.37E-01	5.73E-02	1.02E-03
1.58E+06	1.46E-03	3.12E-01	5.19E-02	6.68E-04
1.99E+06	1.17E-03	3.12E-01	5.00E-02	3.15E-04
2.51E+06	1.14E-03	3.51E-01	2.62E-02	1.68E-04
3.16E+06	7.55E-04	2.95E-01	5.38E-02	5.28E-05
3.98E+06	4.14E-04	2.34E-01	6.42E-02	0.00E+00
5.01E+06	7.22E-05	2.16E-01	8.83E-02	0.00E+00
6.30E+06	9.00E-05	1.84E-01	6.36E-02	0.00E+00
7.94E+06	7.16E-05	1.19E-02	5.79E-02	0.00E+00
1.00E+07	8.78E-05	0.00E+00	2.88E-02	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

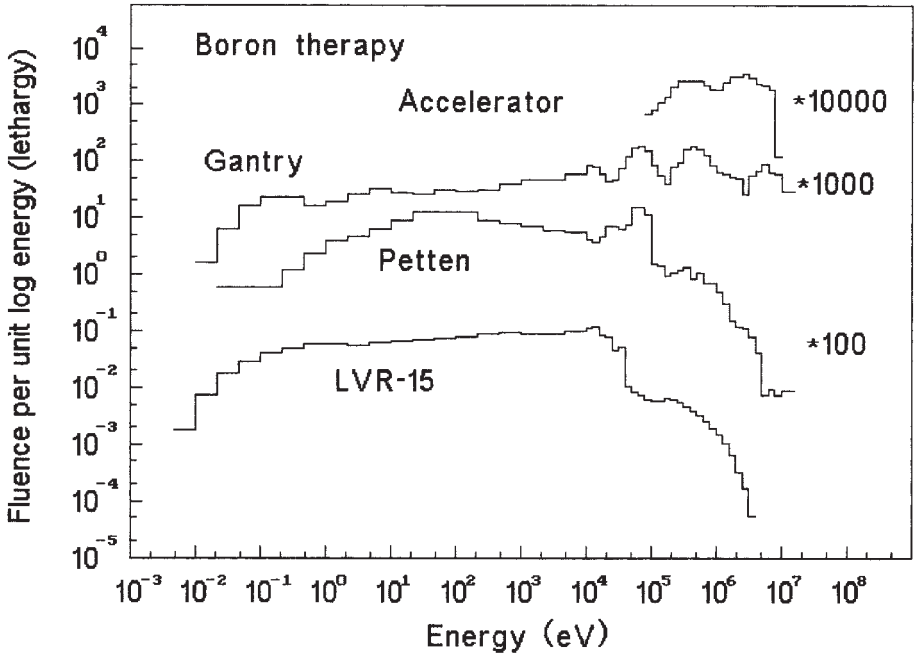

FIG. 5.35. Boron therapy, 1.

TABLE 5.XLII. BORON THERAPY, 1

Spectrum weighted responses

Column 2: Petten HB11 filtered beam
Column 3: Accelerator based spectrum
Column 4: Gantry, cell 55
Column 5: LVR-15 epithermal beam, BS measurements

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	2.29E+01	2.95E+02	1.17E+02	1.68E+01
H AMBIENT	2.25E+01	3.42E+02	1.41E+02	1.37E+01
H PERSONAL	2.37E+01	3.59E+02	1.48E+02	1.49E+01
HE A-P R51	7.40E+00	1.70E+02	6.50E+01	5.14E+00
MADE R21	1.95E+01	2.91E+02	1.12E+02	1.34E+01
BS 3HE BARE	1.49E-01	7.58E-04	1.43E-01	3.40E-01
BS 3HE 2.5″	1.37E+00	1.46E-01	7.84E-01	1.48E+00
BS 3HE 3″	1.93E+00	3.96E-01	1.20E+00	1.95E+00
BS 3HE 3.5″	2.27E+00	7.38E-01	1.57E+00	2.22E+00
BS 3HE 4″	2.40E+00	1.12E+00	1.84E+00	2.30E+00
BS 3HE 4.5″	2.35E+00	1.48E+00	1.99E+00	2.22E+00
BS 3HE 5″	2.19E+00	1.79E+00	2.05E+00	2.04E+00
BS 3HE 6″	1.70E+00	2.17E+00	1.92E+00	1.55E+00
BS 3HE 7″	1.21E+00	2.27E+00	1.63E+00	1.09E+00
BS 3HE 8″	8.16E-01	2.14E+00	1.31E+00	7.17E-01
BS 3HE 9.5″	4.23E-01	1.78E+00	8.81E-01	3.66E-01
BS 3HE 10″	3.36E-01	1.64E+00	7.69E-01	2.89E-01
BS 3HE 12″	1.27E-01	1.13E+00	4.49E-01	1.07E-01
BS 3HE 15″	2.76E-02	6.06E-01	2.16E-01	2.17E-02
BS 3HE 18″	5.89E-03	3.43E-01	1.24E-01	4.12E-03
BS LiI BARE	2.60E-02	7.48E-04	1.87E-02	4.31E-02
BS LiI 2″	1.33E-01	1.36E-02	7.48E-02	1.41E-01
BS LiI 3″	2.21E-01	6.61E-02	1.49E-01	2.15E-01
BS LiI 6″	1.43E-01	2.19E-01	1.76E-01	1.28E-01
BS LiI 8″	6.46E-02	2.02E-01	1.13E-01	5.67E-02
BS LiI 10″	2.65E-02	1.50E-01	6.64E-02	2.25E-02
BS LiI 15″	2.24E-03	5.81E-02	1.98E-02	1.76E-03
BS LiI 18″	5.09E-04	3.08E-02	1.08E-02	3.67E-04
6Li BARE	3.11E-01	1.07E-01	2.18E-01	3.27E-01
6Li Cd	1.63E-01	4.42E-02	1.02E-01	1.59E-01
GOLD BARE	1.54E-02	4.72E-05	8.17E-03	1.78E-02
Nat U PC	1.76E-04	6.56E-06	4.89E-05	1.20E-04
238 U PC	4.25E-09	1.83E-06	7.19E-07	4.99E-10
232 Th PC	1.01E-09	5.00E-07	2.17E-07	8.56E-11
CR39 ECE	2.17E-06	1.68E-04	4.50E-05	7.14E-07
LR115 LiB	3.12E+03	8.52E+02	2.02E+03	3.08E+03
PLANAR	2.26E+03	1.44E+05	4.92E+04	7.82E+02
BASE	2.21E+03	1.16E+05	4.38E+04	7.87E+02
PYRAMIDE	1.39E+03	8.10E+04	2.99E+04	4.88E+02
PTB TH	1.40E+01	3.96E+02	1.55E+02	8.17E+00
PTB INT	4.77E+01	3.87E+02	1.69E+02	4.07E+01
PTB FAST	1.07E+01	3.82E+02	1.44E+02	3.43E+00
PTB I+F	2.15E+01	3.97E+02	1.56E+02	1.40E+01
LONG C	1.79E-01	9.71E-01	5.21E-01	5.70E-02
LEAKE	4.53E-02	2.47E-01	1.17E-01	3.82E-02
A-B_2	1.19E-01	6.72E-01	2.95E-01	1.04E-01
EBERNRD2	1.25E-01	6.72E-01	3.03E-01	1.07E-01
MOD930_2	6.31E-02	6.43E-01	2.51E-01	4.90E-02
STUDSVIK	2.61E-02	3.30E-01	1.30E-01	1.73E-02
LB6411	8.64E-02	1.02E+00	3.95E-01	6.57E-02
BUBBLE	2.13E+03	1.19E+05	4.71E+04	7.35E+02
ELECTRET	6.54E+01	4.25E+02	1.91E+02	6.88E+01
SILICON	2.49E-02	8.74E-01	3.44E-01	9.97E-03

TABLE 5.XLIII. BORON THERAPY SPECTRA, 2

Spectra

Column 1: Energy in eV
Column 2: Spallation source
Column 3: RENT I beam
Column 4: FRM II unfiltered
Column 5: FRM II filtered

1.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.64E-03	0.00E+00	3.30E-03	0.00E+00	2.64E-03
1.00E-02	0.00E+00	1.04E-02	1.67E-02	3.88E-03
2.15E-02	0.00E+00	1.64E-02	1.82E-02	5.77E-03
4.64E-02	2.20E-04	1.04E-02	1.73E-02	8.48E-03
1.00E-01	9.63E-06	1.05E-02	1.81E-02	1.62E-02
2.15E-01	7.07E-05	9.00E-03	1.66E-02	1.87E-02
4.64E-01	9.36E-04	8.57E-03	1.67E-02	2.69E-02
1.00E+00	7.71E-03	6.92E-03	1.24E-02	3.46E-02
2.15E+00	1.04E-02	6.97E-03	1.50E-02	4.03E-02
4.64E+00	7.58E-02	6.97E-03	1.52E-02	4.58E-02
1.00E+01	4.84E-02	6.97E-03	1.52E-02	5.31E-02
2.15E+01	4.08E-02	9.87E-03	1.39E-02	5.40E-02
4.64E+01	7.30E-02	1.02E-02	2.14E-02	6.01E-02
1.00E+02	1.29E-01	5.72E-03	1.82E-02	6.43E-02
2.15E+02	1.34E-01	5.32E-03	1.82E-02	6.65E-02
4.64E+02	1.64E-01	6.85E-03	2.16E-02	6.61E-02
1.00E+03	1.82E-01	6.97E-03	2.23E-02	6.54E-02
2.15E+03	1.56E-01	6.97E-03	2.28E-02	4.40E-02
4.64E+03	1.97E-01	6.97E-03	2.45E-02	3.41E-02
1.00E+04	8.12E-02	7.20E-03	2.82E-02	1.82E-02
1.25E+04	6.16E-02	8.57E-03	2.74E-02	1.15E-02
1.58E+04	1.34E-02	8.37E-03	2.76E-02	3.92E-03
1.99E+04	1.62E-02	1.07E-02	2.55E-02	7.46E-03
2.51E+04	1.45E-02	1.47E-02	4.33E-02	1.04E-02
3.16E+04	2.14E-02	1.34E-02	3.45E-03	2.38E-02
3.98E+04	1.03E-02	2.20E-02	2.37E-02	3.08E-02
5.01E+04	1.12E-02	2.20E-02	3.74E-02	4.01E-02
6.30E+04	1.16E-02	2.97E-02	6.16E-02	4.91E-02
7.94E+04	2.60E-03	4.15E-02	3.32E-02	5.62E-02
1.00E+05	4.65E-03	5.10E-02	2.71E-02	8.12E-02
1.25E+05	3.45E-03	6.15E-02	7.22E-02	9.67E-02
1.58E+05	3.44E-03	7.42E-02	4.89E-02	5.57E-02
1.99E+05	4.88E-04	9.65E-02	7.89E-02	5.37E-02
2.51E+05	1.50E-03	1.24E-01	9.77E-02	5.07E-02
3.16E+05	3.71E-03	1.81E-01	1.15E-01	6.08E-02
3.98E+05	1.97E-03	2.39E-01	1.32E-01	7.24E-02
5.01E+05	3.79E-03	2.44E-01	1.59E-01	6.47E-02
6.30E+05	2.72E-03	2.82E-01	2.02E-01	7.38E-02
7.94E+05	2.21E-03	3.00E-01	2.34E-01	8.24E-02
1.00E+06	2.67E-03	3.32E-01	2.52E-01	9.01E-02
1.25E+06	1.68E-03	3.40E-01	2.71E-01	1.02E-01
1.58E+06	2.51E-03	3.27E-01	2.79E-01	1.10E-01
1.99E+06	4.56E-04	3.10E-01	2.89E-01	1.17E-01
2.51E+06	6.98E-04	2.52E-01	2.54E-01	1.34E-01
3.16E+06	3.83E-04	2.18E-01	2.06E-01	1.15E-01
3.98E+06	3.35E-04	9.17E-02	1.63E-01	1.04E-01
5.01E+06	1.41E-04	6.72E-02	6.37E-02	9.51E-02
6.30E+06	2.69E-04	8.70E-03	1.35E-03	8.74E-02
7.94E+06	3.33E-04	4.37E-02	2.47E-03	3.66E-02
1.00E+07	1.41E-04	3.02E-04	1.24E-03	9.91E-03
1.58E+07	5.52E-05	0.00E+00	4.54E-05	9.51E-03
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08				

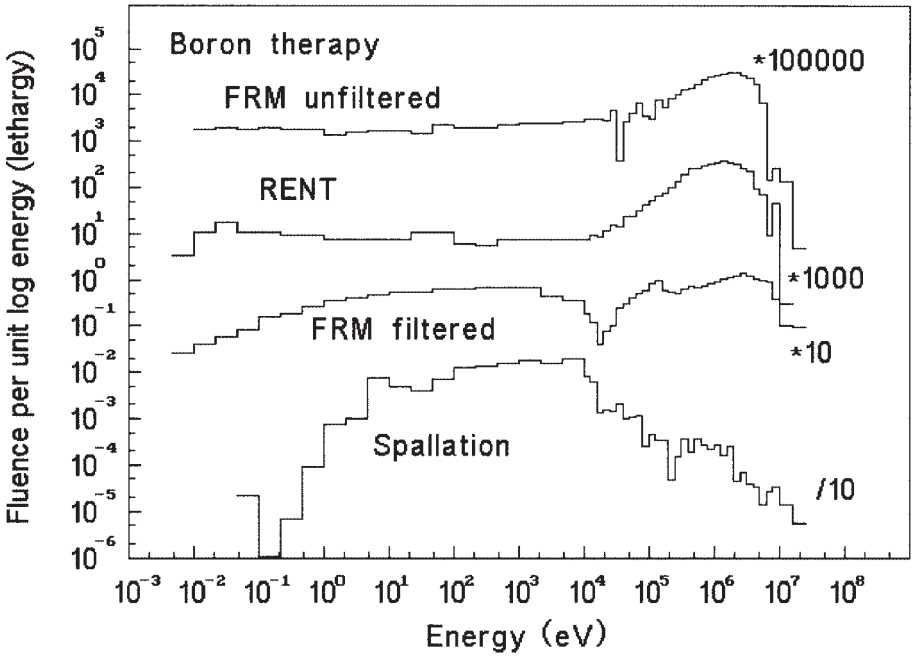

FIG. 5.36. Boron therapy, 2.

TABLE 5.XLIII. BORON THERAPY SPECTRA, 2

Spectrum weighted responses

Column 2: Spallation source
Column 3: RENT I beam
Column 4: FRM II unfiltered
Column 5: FRM II filtered

FLUENCE 20	1.00E+00	9.99E-01	1.00E+00	1.00E+00
E A-P R60	1.71E+01	2.49E+02	2.15E+02	1.33E+02
H AMBIENT	1.20E+01	3.07E+02	2.55E+02	1.46E+02
H PERSONAL	1.33E+01	3.22E+02	2.67E+02	1.54E+02
HE A-P R51	5.04E+00	1.36E+02	1.19E+02	7.78E+01
MADE R21	1.27E+01	2.57E+02	2.19E+02	1.28E+02
BS 3HE BARE	5.91E-02	1.37E-01	1.92E-01	1.67E-01
BS 3HE 2.5″	1.22E+00	3.36E-01	5.27E-01	9.71E-01
BS 3HE 3″	1.85E+00	5.94E-01	8.10E-01	1.37E+00
BS 3HE 3.5″	2.27E+00	9.21E-01	1.12E+00	1.67E+00
BS 3HE 4″	2.46E+00	1.27E+00	1.41E+00	1.85E+00
BS 3HE 4.5″	2.45E+00	1.59E+00	1.65E+00	1.93E+00
BS 3HE 5″	2.29E+00	1.85E+00	1.84E+00	1.93E+00
BS 3HE 6″	1.78E+00	2.16E+00	2.01E+00	1.77E+00
BS 3HE 7″	1.25E+00	2.19E+00	1.97E+00	1.52E+00
BS 3HE 8″	8.28E-01	2.02E+00	1.79E+00	1.26E+00
BS 3HE 9.5″	4.24E-01	1.62E+00	1.42E+00	9.21E-01
BS 3HE 10″	3.34E-01	1.47E+00	1.29E+00	8.26E-01
BS 3HE 12″	1.25E-01	9.53E-01	8.43E-01	5.33E-01
BS 3HE 15″	2.57E-02	4.50E-01	4.07E-01	2.81E-01
BS 3HE 18″	5.33E-03	2.21E-01	2.05E-01	1.64E-01
BS LiI BARE	1.37E-02	1.20E-02	1.85E-02	2.33E-02
BS LiI 2″	1.19E-01	3.12E-02	4.95E-02	9.33E-02
BS LiI 3″	2.23E-01	8.39E-02	1.04E-01	1.60E-01
BS LiI 6″	1.46E-01	2.16E-01	1.96E-01	1.61E-01
BS LiI 8″	6.54E-02	1.88E-01	1.66E-01	1.12E-01
BS LiI 10″	2.61E-02	1.33E-01	1.17E-01	7.39E-02
BS LiI 15″	2.11E-03	4.23E-02	3.88E-02	2.67E-02
BS LiI 18″	4.80E-04	1.96E-02	1.85E-02	1.47E-02
6Li BARE	2.86E-01	1.35E-01	1.64E-01	2.42E-01
6Li Cd	1.51E-01	5.69E-02	7.18E-02	1.19E-01
GOLD BARE	5.76E-03	2.33E-03	4.87E-03	1.26E-02
Nat U PC	1.76E-04	1.46E-05	3.18E-05	9.68E-05
238 U PC	4.69E-09	1.01E-06	9.60E-07	9.59E-07
232 Th PC	1.28E-09	2.44E-07	2.26E-07	2.73E-07
CR39 ECE	9.55E-07	1.60E-04	1.38E-04	6.64E-05
LR115 LiB	2.76E+03	1.09E+03	1.37E+03	2.30E+03
PLANAR	9.37E+02	1.36E+05	1.13E+05	5.78E+04
BASE	8.30E+02	1.10E+05	8.88E+04	4.48E+04
PYRAMIDE	5.37E+02	7.39E+04	6.08E+04	3.18E+04
PTB TH	4.51E+00	3.52E+02	2.87E+02	1.56E+02
PTB INT	4.03E+01	3.50E+02	2.91E+02	1.74E+02
PTB FAST	2.94E+00	3.38E+02	2.77E+02	1.50E+02
PTB I+F	1.35E+01	3.54E+02	2.91E+02	1.62E+02
LONG C	2.77E-02	8.61E-01	7.28E-01	4.17E-01
LEAKE	4.46E-02	2.29E-01	1.97E-01	1.19E-01
A-B_2	1.13E-01	6.27E-01	5.47E-01	3.30E-01
EBERNRD2	1.23E-01	6.24E-01	5.43E-01	3.32E-01
MOD930_2	5.49E-02	5.79E-01	5.00E-01	2.88E-01
STUDSVIK	1.86E-02	2.90E-01	2.48E-01	1.43E-01
LB6411	7.68E-02	9.06E-01	7.78E-01	4.46E-01
BUBBLE	8.35E+02	1.10E+05	9.06E+04	4.90E+04
ELECTRET	5.24E+01	3.19E+02	3.01E+02	2.33E+02
SILICON	8.34E-03	9.56E-01	7.34E-01	3.04E-01

TABLE 5.XLIV. BORON THERAPY SPECTRA, 3

Spectra

Column 1: Energy in eV
Column 2: Accelerator epithermal beam
Column 3: BMRR beam
Column 4: Accelerator, filtered by Al/AlF_3
Column 5: Accelerator, filtered by ^7LiF
Column 6: Accelerator, filtered by D_2O

1.00E-03	0.00E+00	0.00E+00	2.06E-03	0.00E+00	0.00E+00
2.15E-03	0.00E+00	0.00E+00	2.38E-03	0.00E+00	0.00E+00
4.64E-03	0.00E+00	0.00E+00	2.72E-03	0.00E+00	2.78E-03
1.00E-02	0.00E+00	0.00E+00	3.05E-03	6.97E-04	5.78E-03
2.15E-02	0.00E+00	0.00E+00	2.00E-03	3.13E-03	1.25E-02
4.64E-02	4.44E-03	2.67E-03	3.36E-03	2.84E-03	3.07E-02
1.00E-01	2.21E-02	6.67E-03	3.34E-03	3.96E-03	3.62E-02
2.15E-01	1.54E-02	7.70E-03	4.37E-03	2.19E-03	3.27E-02
4.64E-01	1.93E-02	3.32E-02	6.35E-03	7.03E-03	3.88E-02
1.00E+00	2.83E-02	5.22E-02	7.02E-03	9.24E-03	4.55E-02
2.15E+00	3.52E-02	6.64E-02	1.05E-02	1.38E-02	5.34E-02
4.64E+00	3.84E-02	9.93E-02	1.79E-02	1.98E-02	6.25E-02
1.00E+01	5.26E-02	1.35E-01	2.68E-02	2.83E-02	7.21E-02
2.15E+01	5.58E-02	2.01E-01	3.74E-02	4.25E-02	7.77E-02
4.64E+01	5.88E-02	1.24E-01	5.23E-02	5.49E-02	8.53E-02
1.00E+02	7.06E-02	1.18E-01	7.42E-02	7.15E-02	8.96E-02
2.15E+02	7.85E-02	1.01E-01	8.71E-02	9.72E-02	9.46E-02
4.64E+02	8.75E-02	7.51E-02	1.10E-01	1.24E-01	9.69E-02
1.00E+03	7.72E-02	5.64E-02	1.39E-01	1.54E-01	9.29E-02
2.15E+03	7.92E-02	5.80E-02	1.71E-01	1.76E-01	8.61E-02
4.64E+03	8.41E-02	5.94E-02	2.28E-01	1.95E-01	8.35E-02
1.00E+04	8.73E-02	5.75E-02	2.44E-01	1.82E-01	7.56E-02
1.25E+04	8.41E-02	4.55E-02	2.11E-01	1.54E-01	6.89E-02
1.58E+04	8.95E-02	3.60E-02	1.30E-01	1.22E-01	6.57E-02
1.99E+04	9.18E-02	2.29E-02	1.05E-01	1.06E-01	6.25E-02
2.51E+04	7.27E-02	1.53E-02	5.64E-02	9.15E-02	5.61E-02
3.16E+04	6.91E-02	3.24E-03	3.11E-02	7.65E-02	5.14E-02
3.98E+04	5.15E-02	9.71E-03	7.76E-02	7.91E-02	4.76E-02
5.01E+04	5.60E-02	1.17E-02	7.56E-02	6.38E-02	6.51E-02
6.30E+04	5.15E-02	1.12E-02	3.71E-02	3.57E-02	3.65E-02
7.94E+04	4.35E-02	8.99E-03	1.68E-03	2.58E-03	3.12E-02
1.00E+05	3.84E-02	8.82E-03	1.08E-02	2.58E-02	2.78E-02
1.25E+05	3.67E-02	9.38E-03	1.14E-02	2.26E-02	2.62E-02
1.58E+05	4.01E-02	1.02E-02	7.53E-03	1.93E-02	2.08E-02
1.99E+05	5.19E-02	1.11E-02	2.36E-03	9.66E-03	1.63E-02
2.51E+05	6.11E-02	1.01E-02	6.79E-03	0.00E+00	4.50E-03
3.16E+05	8.39E-02	8.09E-03	5.69E-03	0.00E+00	9.37E-03
3.98E+05	5.79E-02	1.16E-02	5.58E-03	0.00E+00	5.69E-03
5.01E+05	2.11E-02	1.19E-02	5.61E-03	0.00E+00	4.26E-03
6.30E+05	2.55E-02	9.18E-03	3.57E-03	0.00E+00	2.07E-03
7.94E+05	2.70E-02	1.07E-02	2.12E-03	0.00E+00	0.00E+00
1.00E+06	2.72E-02	1.40E-02	5.38E-03	0.00E+00	0.00E+00
1.25E+06	3.45E-02	5.75E-03	2.59E-03	0.00E+00	0.00E+00
1.58E+06	4.44E-02	1.04E-02	0.00E+00	0.00E+00	0.00E+00
1.99E+06	4.98E-02	2.00E-03	0.00E+00	0.00E+00	0.00E+00
2.51E+06	6.09E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.16E+06	7.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+06	9.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.01E+06	1.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.94E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.00E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.58E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.51E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.98E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.30E+08					

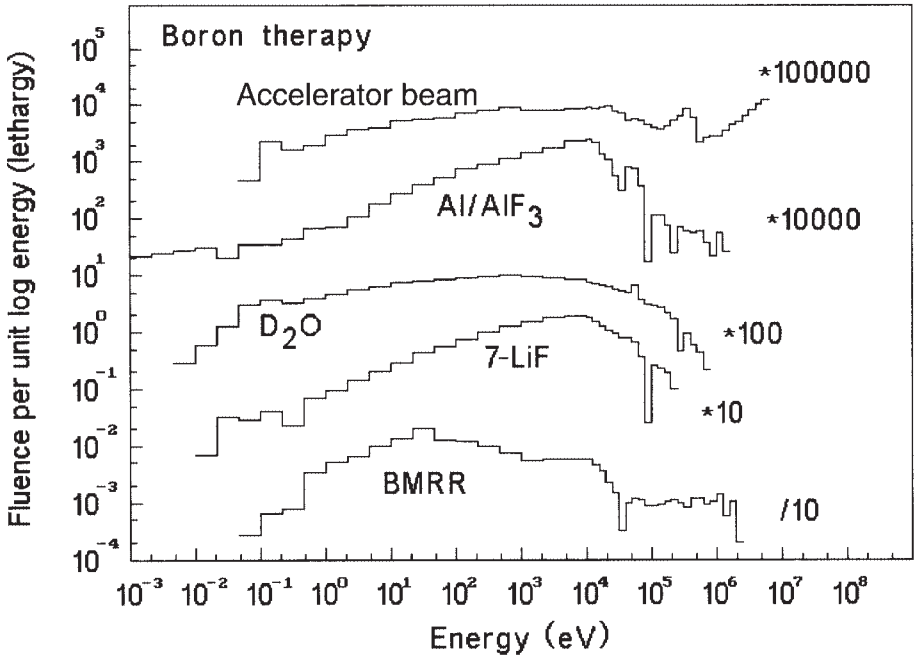

FIG. 5.37. Boron therapy, 3.

TABLE 5.XLIV. BORON THERAPY SPECTRA, 3

Spectrum weighted responses

Column 2: Accelerator epithermal beam
Column 3: BMRR beam
Column 4: Accelerator, filtered by Al/AlF_3
Column 5: Accelerator, filtered by ^7LiF
Column 6: Accelerator, filtered by D_2O

FLUENCE 20	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
E A-P R60	7.87E+01	2.08E+01	1.94E+01	1.85E+01	1.86E+01
H AMBIENT	8.27E+01	1.94E+01	1.51E+01	1.38E+01	1.67E+01
H PERSONAL	8.70E+01	2.10E+01	1.62E+01	1.50E+01	1.79E+01
HE A-P R51	4.22E+01	7.14E+00	5.60E+00	5.08E+00	5.68E+00
MADE R21	7.27E+01	1.80E+01	1.44E+01	1.35E+01	1.52E+01
BS 3HE BARE	1.21E-01	1.65E-01	9.79E-02	6.56E-02	2.96E-01
BS 3HE 2.5″	1.05E+00	1.59E+00	1.03E+00	1.06E+00	1.42E+00
BS 3HE 3″	1.54E+00	2.14E+00	1.64E+00	1.67E+00	1.92E+00
BS 3HE 3.5″	1.90E+00	2.43E+00	2.10E+00	2.13E+00	2.22E+00
BS 3HE 4″	2.10E+00	2.48E+00	2.34E+00	2.37E+00	2.31E+00
BS 3HE 4.5″	2.15E+00	2.36E+00	2.39E+00	2.41E+00	2.25E+00
BS 3HE 5″	2.09E+00	2.15E+00	2.28E+00	2.29E+00	2.08E+00
BS 3HE 6″	1.79E+00	1.61E+00	1.83E+00	1.83E+00	1.60E+00
BS 3HE 7″	1.42E+00	1.12E+00	1.32E+00	1.32E+00	1.13E+00
BS 3HE 8″	1.08E+00	7.41E-01	8.87E-01	8.82E-01	7.51E-01
BS 3HE 9.5″	6.97E-01	3.84E-01	4.60E-01	4.53E-01	3.84E-01
BS 3HE 10″	6.03E-01	3.05E-01	3.63E-01	3.58E-01	3.03E-01
BS 3HE 12″	3.43E-01	1.18E-01	1.35E-01	1.31E-01	1.12E-01
BS 3HE 15″	1.61E-01	2.69E-02	2.72E-02	2.59E-02	2.26E-02
BS 3HE 18″	8.92E-02	5.98E-03	5.36E-03	4.90E-03	4.18E-03
BS LiI BARE	2.01E-02	3.18E-02	1.20E-02	1.19E-02	3.80E-02
BS LiI 2″	1.02E-01	1.55E-01	1.01E-01	1.04E-01	1.36E-01
BS LiI 3″	1.84E-01	2.36E-01	2.05E-01	2.08E-01	2.15E-01
BS LiI 6″	1.57E-01	1.33E-01	1.53E-01	1.53E-01	1.33E-01
BS LiI 8″	9.20E-02	5.88E-02	7.03E-02	6.97E-02	5.93E-02
BS LiI 10″	5.20E-02	2.43E-02	2.79E-02	2.75E-02	2.37E-02
BS LiI 15″	1.56E-02	2.23E-03	2.18E-03	2.06E-03	1.82E-03
BS LiI 18″	8.19E-03	5.11E-04	4.64E-04	4.32E-04	3.70E-04
6Li BARE	2.63E-01	3.46E-01	2.58E-01	2.63E-01	3.16E-01
6Li Cd	1.30E-01	1.85E-01	1.32E-01	1.35E-01	1.57E-01
GOLD BARE	1.15E-02	2.12E-02	4.94E-03	5.88E-03	1.71E-02
Nat U PC	1.05E-04	1.80E-04	1.05E-04	1.03E-04	1.32E-04
238 U PC	4.52E-07	2.36E-09	9.47E-11	0.00E+00	2.44E-13
232 Th PC	1.20E-07	2.31E-10	2.45E-12	0.00E+00	0.00E+00
CR39 ECE	3.31E-05	3.51E-06	1.04E-06	3.58E-07	8.28E-07
LR115 LiB	2.49E+03	3.52E+03	2.47E+03	2.55E+03	3.00E+03
PLANAR	2.92E+04	3.47E+03	1.19E+03	2.17E+02	8.32E+02
BASE	2.35E+04	3.10E+03	1.16E+03	1.82E+02	9.20E+02
PYRAMIDE	1.68E+04	1.96E+03	7.15E+02	1.01E+02	5.53E+02
PTB TH	8.79E+01	1.39E+01	7.43E+00	5.30E+00	1.13E+01
PTB INT	1.12E+02	5.17E+01	3.91E+01	3.77E+01	4.30E+01
PTB FAST	8.30E+01	1.07E+01	4.99E+00	3.40E+00	6.42E+00
PTB I+F	9.42E+01	2.25E+01	1.47E+01	1.31E+01	1.69E+01
LONG C	3.10E-01	4.84E-02	1.00E-01	1.17E-01	1.03E-01
LEAKE	8.52E-02	4.02E-02	5.01E-02	4.88E-02	4.02E-02
A-B_2	2.28E-01	1.13E-01	1.21E-01	1.18E-01	1.08E-01
EBERNRD2	2.34E-01	1.15E-01	1.34E-01	1.32E-01	1.12E-01
MOD930_2	1.79E-01	5.56E-02	6.40E-02	6.13E-02	5.29E-02
STUDSVIK	8.66E-02	2.11E-02	2.35E-02	2.24E-02	1.99E-02
LB6411	2.76E-01	7.69E-02	9.00E-02	8.51E-02	7.13E-02
BUBBLE	2.48E+04	2.97E+03	1.08E+03	2.34E+02	8.32E+02
ELECTRET	1.50E+02	7.64E+01	4.56E+01	4.61E+01	6.65E+01
SILICON	1.46E-01	3.59E-02	1.26E-02	7.04E-03	1.55E-02

Chapter 6
USE OF DATA FROM THE PREVIOUS COMPENDIUM

The dose quantity maximum dose equivalent, H_I, and some detector responses from the previous compendium have been included in the spectrum weighted response tables in Chapters 4 and 5. The nomenclature of the previous compendium is used for their identification, with some minor changes.

The conversion coefficient included is termed MADE R21 (i.e. H_I). The detectors included are 6Li BARE, 6Li Cd (cadmium covered), GOLD BARE, Nat U PC, 238 U PC, 232 Th PC, LR115 LiB and CR39 ECE.

The main reason for including the maximum dose equivalent neutron fluence to dose equivalent conversion coefficient, and the detector response functions, is that they are still used in several laboratories. Furthermore, their inclusion allows interesting comparisons and consistency checks.

Spectra from the previous compendium are not included in this supplement. However, a data diskette that contains the data for all neutron fluence to dose equivalent conversion coefficients, neutron fluence detector response functions and neutron fluence spectra given in the previous compendium is available on request (see the Foreword).

Appendix

EXAMPLES OF COMPENDIUM APPLICATIONS

Five applications for the data in this report were enumerated in Section 1.2. These applications correspond to the following questions that may arise in practical dosimetry:

(1) Do the new protection and operational quantities substantially change the magnitudes of doses estimated for the purpose of dose record keeping?
(2) Can the existing instrumentation and dosimeters be used after appropriate recalibration with respect to the new dose quantities, or how can new instrumentation be selected, if necessary?
(3) How can the neutron spectrum be determined in a given environment?
(4) Which are the best calibration fields for the instrumentation used?
(5) How can these data support routine dosimetry?

The answers to the first four questions depend quite strongly on the neutron spectra encountered at given workplaces. Hence the first step in the use of this compendium is to identify the spectra that are most representative of those found in a specific workplace. In practice, the selection of appropriate representative spectra may be quite difficult, and some experimental verification by practical spectrometry is needed. The practical spectrometry may be as simple as the use of a pair of moderated detectors, e.g. 3″ and 9″ diameter Bonner spheres, and the determination of the 'hardness' of the spectrum from the measured ratio [126]. As Aroua et al. point out [126], there is a strong correlation between the ratio of the readings of 3″ and 9″ Bonner spheres. However, results obtained with such simple methods may be associated with large uncertainties.

The values for effective dose for anterior–posterior irradiation, E-AP, the ambient dose equivalent, $H^*(10)$, and the personal dose equivalent, $H_P(10)$, are found in the corresponding spectrum weighted response table (rows 2–4). These values can be compared with those for the quantities effective dose equivalent for anterior–posterior irradiation, H_E-AP, and the maximum dose equivalent (MADE), H_I, given in rows 5 and 6. This comparison provides the answer to the first question. It may be noted that the values given are numerically identical to the mean fluence to dose equivalent coefficients since all spectra are normalized to unity (refer to Eqs (1.3), (1.4) and (1.9) in Section 1.6).

For instruments listed in the spectrum weighted response table, the answer to the second question is obtained in the same manner. If an instrument is not listed in this table, its fluence response function should be established using the group structure (same energy bins) that is used in this compendium (for details see Eq. (1.7) in

Section 1.6). Then, using Eq. (1.8), the 'reading' expected for any spectrum can easily be computed as a sum over products.

The determination of a neutron spectrum is, in general, a complex task. Depending on the desired energy resolution and the energy range to be covered, various spectrometers may be used alone or in combination. Examples include liquid scintillators, proportional counters (using hydrogen or helium as fill gases) or multisphere systems with active or passive detectors in the centre of the moderating spheres. The last technique is especially well suited for practical spectrometry as it is the only one which in principle covers the full range of energy from thermal to some hundreds of MeV. This compendium presents responses for multispheres with diameters ranging from 0 (bare) to 18″ (45.7 cm), and gives their computed 'reading' in all spectra. The information given should be useful in the selection of the appropriate diameters of the moderator spheres. These readings can be used as input to an unfolding code and thereby the optimal selection of diameters for the actual measurement can be determined. A selection of diameters is optimal if it is possible to match the shape of the spectrum by a weighted sum of the fluence response functions of the selected sphere.

Finally, with respect to the fifth question, the data presented in this compendium may be used to compute the dose equivalent response of any detector or the mean fluence to dose equivalent conversion coefficient for any neutron spectrum. To facilitate the use of the data, they are given on a data diskette (see the Foreword) as plain ASCII text files. Also provided on the diskette are some programs which perform some of the above mentioned tasks. Among them are programs which convert data using the group structure of the compendium to other group structures and vice versa.

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