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INDC INTERNATIONAL NUCLEAR DATA COMMITTEE

WRENDA 76/77

World Request List for Nuclear Data

R.M. Lessler, IAEA, Editor

Published on behalf of

National Neutron Cross Section Center, Brookhaven, USA(C.L.Dunford, coordinator)
Neutron Data Compilation Centre, Saclay, France (L. Lesca, coordinator)
Nuclear Data Section, Vienna, Austria (P.M. Smith, coordinator)
Nuclear Data Center, Obninsk, USSR (V.N. Manokhin, coordinator)

August 1976

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I. General Introduction to WRENDA

The nuclear data request lists for fission reactors, fusion reactors and nuclear safeguards development appear in Parts II, III and IV, respectively, of this document. Supporting information which is pertinent to only one of the request lists has been collected in sections immediately preceding the relevant request list. Information applicable to all the request lists appears in Part I. Expansions of codes used in the request lists can be found in the appendices at the end of the document.

I.A. Background and General Information

The use of a "request list" for communication of the data requirements of a developing technology to the producers of the required data is long standing in both the United States and the United Kingdom. In 1968, the Neutron Data Compilation Centre at Saclay initiated publication of a request list for neutron data measurements from a computerized file, known as RENDA, on behalf of the European-American Nuclear Data Committee (EANDC). The list contained requests from the countries represented on that committee. In 1971, the International Nuclear Data Committee (INDC) recommended that the IAEA assume responsibility for publication of an expanded international data request list, which would include neutron data requests from a larger number of countries and international organizations.

The data request file maintained by the Nuclear Data Section of the IAEA is known as WRENDA. The input to this data

request file is provided by officially constituted bodies in the Member States through the four regional Neutron Data Centers[1]. This issue of WRENDA is published by the IAEA on behalf of the four Neutron Data Centers.

Concurrently with the transfer of responsibility for the neutron data request file from the NEA to the IAEA, the Nuclear Data Section (NDS) had developed international nuclear data request lists for technologies related to nuclear safeguards and to controlled fusion. It was expedient to develop the new WRENDA system to accommodate data requests for all applications.

An immediate consequence of the expanded scope was that the new WRENDA system was designed to accommodate requests for data related to other nuclear processes as well as to neutron-induced reactions. Also concurrently with the development of the WRENDA system it was agreed that data requests related to fusion, safeguards and other applications should be handled through the regional data centers.[1]

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1 NNCSC - National Neutron Cross Section Center, Brookhaven National Laboratory, Upton, L.I., N.Y., USA.

NDCC - Neutron Data Compilation Centre, Nuclear Energy Agency, Saclay, France.

NDS - Nuclear Data Section of the International Atomic Energy Agency, Vienna, Austria.

CJD - Centr po Jadernym Dannym, Obninsk, USSR.

WRENDA requests for all applications are maintained in a single computer master-file but are associated with a particular application by an application code. In planning the present publication, it was considered that the users of WRENDA, who consult the publication to plan research programs, to evaluate research proposals and to survey data requirements, generally have in mind a particular application and that, therefore, separation of the requests according to the three applications mentioned above would be the most convenient form of presentation. Collection of the three request lists in a single publication should at the same time make it reasonably convenient to locate all requests related to the same material and data type by individually checking each of the lists. If in the future the predominant interest of the users appears to be in the material and data type regardless of application, then requests for all applications would be published in a single list.

Status comments are maintained in a separate file from the data requests and do not bear application codes. For publication the requests and status comments are merged as described in Section I.B. When requests related to a particular material and data type occur in more than one request list, all status comments referring to that combination of material and data type are printed in each request list where the combination appears.

When the same block of status comments appears in several request lists, some of the comments may not be relevant to any request in a given list, for example, because of differing energy ranges for the request and status information. Since only a small number of status blocks appear in more than one request list, the duplication and irrelevance of some status information was considered justifiable in view of the convenience of reviewing and maintaining only a single status file rather than a separate one for each application.

The request lists are intended to serve as guides to experimentalists, evaluators and administrators when planning nuclear data measurement and evaluation programs. When measurers and evaluators begin work which will provide data requested in this document, they are asked to inform the requestor(s). Information about such work should also be provided to the Nuclear Data Section or to a regional data center[1].
The names of the requestors are printed with each request, and their addresses are given in Appendix D.

Future editions of WRENDA will be issued biannually in the summer. Before each publication the national data committees will be asked to review their requests so that the lists can be kept current.

Although major updating of the file will usually occur in the spring, the master-files can be updated at any time. Between book-publications computer listings of the current files can be requested from the IAEA Nuclear Data Section. Special sorts and selective retrievals from the files can also be obtained upon request.

Comments from the users of WRENDA are encouraged so that the document and the special services available from the system can meet their needs.

I.B. Editorial Policy

There seems to be a lack of consensus among users of WRENDA about purpose and content of the status comments which could be provided for each request. Ideally perhaps the status comments should provide a concise, up-to-date evaluation of the accuracy or uncertainty of the available data. In fact, no organization has been able to accept continuing responsibility of this kind for all requests. Alternatively the status file could provide only references to recently completed work and to work in progress although the CINDA publication provides similar information. An intermediate possibility would be to cite a recent review or evaluation related to each data request and to provide additional references to work completed or in progress after the effective date of the evaluation.

The following solution to this problem has been adopted for this edition. In accordance with the recommendations of the 8th INDC meeting, most status comments from WRENDA 75 were deleted and NDS has provided status comments for those quantities which are under continuous review by members of the technical subcommittees of INDC and NEANDC. Thus in the present edition of WRENDA most of the status blocks provide only references to reviews by INDC and NEANDC and continuing and planned work. Appendix A gives more information on these INDC and NEANDC reviews. When appropriate, reference to the INDC and NEANDC reviews has been given for the estimated uncertainty of the available data. As recommended, uncertainty information from evaluated data files has been deleted. Comments from users about the value of the status information in the present edition would be particularly helpful in planning future editions.

Other recommendations issued by the 8th INDC meeting that have been used in WRENDA 76/77 are:

1. Requests unreviewed for 2 years have been dropped if the requesting country has not specifically indicated that the request should continue to be published.

2. In the assignment of request numbers, the file number has been placed on the right adding a sequential number on the left of the request.

3. The word "measurements" has been dropped from the WRENDA title.

I.C. Description of Requests

This edition of WRENDA contains three separate data request lists each of which contains only requests related to a particular application. Within each request list the form of presentation of requests is the same.

Each request list is presented in a sort by increasing target charge (Z) and mass (A) number, then by projectile type starting with the lightest (γ-rays) and sorted by increasing mass, and finally by reaction type. All requests for a single target nuclide, projectile and reaction are blocked together. A sample is shown on I.viii.

Each request block consists of two parts separated by a single line. The first part contains all the requests for one target-projectile-quantity combination. The second part called "STATUS" contains comments on the present state of knowledge of this data type. Where there are no status comments in the WRENDA file, this second part is omitted.

Block-heading

The first line of each request block gives, from left to right, the target nuclide, the incident particle, and the quantity. This line of text is enclosed by a double line to make the beginning of each block stand out visually. The meaning of a quantity generally conforms to CINDA[2] usage with the addition of some quantities to describe nuclear structure data and complex reactions. A list of the allowed quantities appears as part of the next section. The target nuclide description consists of the charge number, the element name, and the mass number of the isotope. No mass number is given when the natural element is meant, except in the case where the natural element is monoisotopic. Mixtures and compounds appear at the end of the list.

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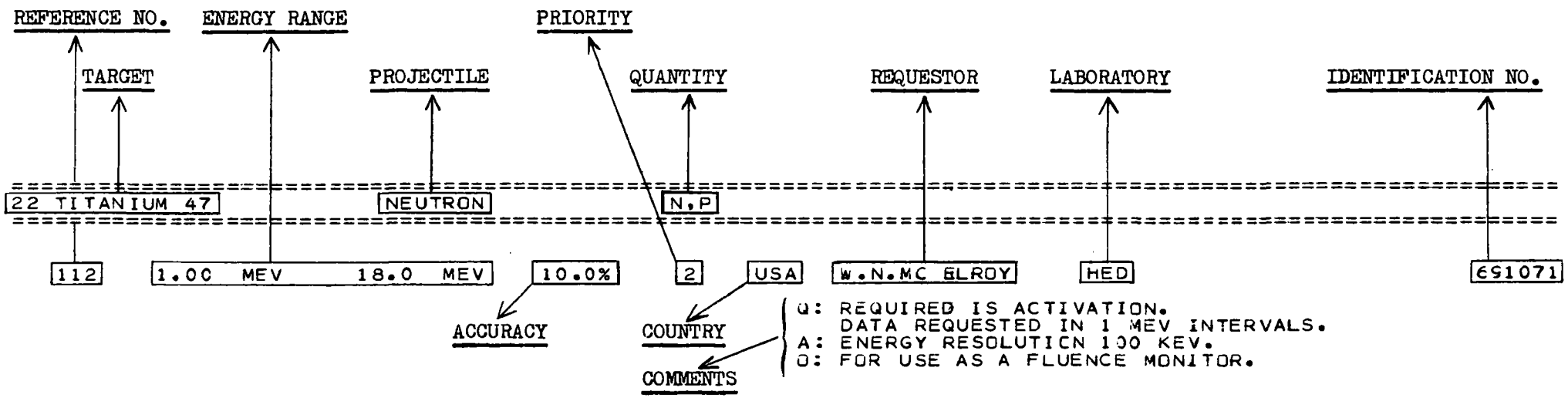
[2] CINDA - An Index to the Literature on Microscopic Neutron Data published annually by the International Atomic Energy Agency



113			15.0	MEV	10.0%	2	FR	C.PHILIS	BRC	692070

Q: PRODUCTION OF SC-47 (3.43 DAY).
O: ACTIVATION DETECTOR.

114	2.10	MEV	7.00	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742127

O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

Identification number

The individual requests follow in order of increasing identification number. The number at the far right of the first line of each request is the IDENTIFICATION number. The number assigned is unique and remains associated with a request. When a request is withdrawn, this number is not assigned to another request. The first two digits of the identification number are the last two digits of the year in which the request was originated. The third digit represents the responsible neutron data center (1-NNCSC, 2-NDCC, 3-NDS, 4-CJD) and the final three digits are a sequence number. The neutron data centers are responsible for assigning the identification number.

Reference number

A serial number, the REFERENCE number, is attached to the left of each entry of the listing. The number identifies an entry in one specific issue of WRENDA only.

Energy

The next two entries on the first line of each request give the range of energy of the incident particle over which data are desired. The energy unit is given after each number. Because no lower case is used, we have adopted the symbol, MV, for milli-electron volts, thus preventing confusion with MEV for million electron volts.

If an energy appears in the first field with the second field blank, then the requested information is required at only a single energy. In the case of a resonance integral, the single entry gives the lower energy limit for the integral. A lone entry in the second energy field with the first field blank indicates that measurement is desired for energies up to the specified value. This format appears most frequently for threshold reactions. Only numerical energies are allowed. Thus thermal is given as 25.3 MV. All spectrum averages and non-standard energy specifications must be explained in the requestors comments.

Accuracy

The fourth field on the first line gives the accuracy required of the requested data stated in percent. Any accuracy requirements which cannot be stated simply must be given in the requestor's comments. All accuracies are assumed to be one standard deviation. Any other meaning must be explained in the comments.

Priority

The fifth field on the second line gives the priority of the requested information. Each of the three request lists in this publication employs a different set of priority criteria, which are presented in separate sections preceding each of the respective lists.

Requestor

The next three fields of the second line are used to identify the requestor. The first piece of information is a three letter code for the country originating the request. The codes and their explanations are given in Appendix B. The country code is followed by the name of the requestor. Mailing addresses for the requestors are given in Appendix D. The last piece of information is a three character code for the requestor's organization. These codes conform to the CINDA codes and are listed along with the organization name in Appendix C. In the case where there is more than one requestor for a request, then their names and organization codes are given on successive lines. However all requestors so combined must come from the same country.

Requestor's comments

Comments by requestors follow below the requestors' names on the right hand side of the page. The comments are grouped into four types denoted by the characters Q, A, O and M. The group of comments designated by Q refers to further experimental specifications such as details of the quantity to be measured and the energy range of incident or secondary particles. Those denoted by an A refer to further details concerning accuracy or energy resolution required. The category O includes all other comments such as use of or justification for requested data. The last group of comments, designated by an M, contains statements about modifications which have been made since the previous version of WRENDA, such as "new request" etc.

Status comments

The status comments for a block of requests generally consist of an organization code (see Appendix C for explanations) followed by a name and a comment. In the present edition of WRENDA and for the foreseeable future a majority of these comments will be references to INDC and NEANDC reviews and related to experiments underway or planned. When appropriate, reference to the INDC or NEANDC review is given for various discrepancies or attained accuracies.

Two exceptions to this are requests for fission product nuclear data and transactinium isotope nuclear data. Since so many fission products and transactinium isotopes are listed, it has been decided to just make a general statement here that all fission products and transactinium isotopes are under continuous review by INDC.

I.D. How to find a request in WRENDA

In this publication WRENDA requests have been collected in three separate lists according to application. The request list for fission-reactor development appears in Part II, the list for fusion research and reactor development in Part III, and the list for nuclear safeguards development in Part IV.

As is discussed in the previous section, within each list all data requests for a single target nucleus, projectile, and reaction quantity are blocked together. These blocks are sorted by target - projectile - reaction in that order.

The target nuclei are in increasing order of Z and, within Z, A. Elements which are isotopic mixtures appear before individual isotopes. Monoisotopic elements appear at their natural position in order of increasing A. Following the request blocks of highest Z are requests in which the target is lumped fission products and, finally, requests in which the target is an alloy or chemical compound.

Immediately preceding each of the request lists is an index printed on coloured paper. The index gives the number of the page in the following request list on which the first block for any target nucleus (Z, A) appears.

In this section are two additional tables for assistance in locating requests. The first table gives the projectile particle sort order, and the second table gives the reaction quantity sort order.

Table I

Incident Particle Sorting Order

1	No incident particle (e.g. level structure)
2	Photon
3	Neutron
4	Proton
5	Deuteron
6	Triton
7	Helium-3
8	Alpha
9	Lithium-6

Table II (page 1) QUANTITY SORT ORDER

LEVEL DENSITY PARAMETERS
DISCRETE LEVEL STRUCTURE (ENERGY, SPIN, PARITY)
HALF LIFE
FISSION HALF LIFE
TOTAL CROSS SECTION
ELASTIC CROSS SECTION
DIFFERENTIAL ELASTIC CROSS SECTION
INELASTIC CROSS SECTION
ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION
ENERGY DIFFERENTIAL INELASTIC CROSS SECTION
DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION
THERMAL SCATTERING LAW
TOTAL SCATTERING CROSS SECTION
DIFFERENTIAL TOTAL SCATTERING CROSS SECTION
NON-ELASTIC CROSS SECTION
ABSORPTION CROSS SECTION
CAPTURE CROSS SECTION
ENERGY DIFFERENTIAL CAPTURE CROSS SECTION
CAPTURE GAMMA RAY SPECTRUM
DELAYED CAPTURE GAMMA RAY SPECTRUM
PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.
TOTAL PHOTON PRODUCTION CROSS SECTION
GAMMA RAY YIELD
X,N
X,N NEUTRON SPECTRA
X,2N
X,2N ANGULAR DISTRIBUTION
X,2N NEUTRON SPECTRA
X,3N
NEUTRON EMISSION CROSS SECTION
TOTAL NEUTRON YIELD
DELAYED NEUTRON YIELD
ENERGY DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION
DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION
X,P
X,P DELAYED NEUTRON YIELD
X,NP
X,2P
TOTAL PROTON PRODUCTION CROSS SECTION
X,D
X,ND
X,T
X,NT
X,HELIUM-3
X,ALPHA
X,NALPHA
X,N3ALPHA
TOTAL ALPHA PRODUCTION CROSS SECTION
FISSION CROSS SECTION
SECOND CHANCE FISSION CROSS SECTION
CAPTURE TO FISSION RATIO (ALPHA)
NEUTRONS EMITTED PER NEUTRON ABSORPTION (ETA)
NEUTRONS EMITTED PER NON-ELASTIC PROCESS
NEUTRONS EMITTED PER FISSION (NU BAR)
DELAYED NEUTRONS EMITTED PER FISSION
PROMPT NEUTRONS EMITTED PER FISSION
INFORMATION ON NEUTRONS FROM A FISSION FRAGMENT
ENERGY SPECTRUM OF FISSION NEUTRONS
ENERGY SPECTRUM OF DELAYED FISSION NEUTRONS
SPECTRUM OF PROMPT GAMMA RAYS EMITTED IN FISSION

Table II (page 2)

SPECTRUM OF GAMMA RAYS EMITTED IN FISSION
DELAYED GAMMA SPECTRUM FROM FISSION PRODUCTS
FISSION PRODUCT MASS YIELD SPECTRUM
INFORMATION ON KINETICS OF FISSION FRAGMENTS
RESONANCE PARAMETERS
ABSORPTION RESONANCE INTEGRAL
CAPTURE RESONANCE INTEGRAL
FISSION RESONANCE INTEGRAL

II. Fission Reactor Development

II.A. Introduction

The fission list contains 1194 requests in 615 block-headings for improved nuclear data needed in support of the fission-reactor development programs of 19 Member States of the IAEA and one International Organization. The requests from FR Germany, France, Japan, Sweden, Switzerland and the United Kingdom have been reviewed and updated since the last publication of the WRENDA fission list (INDC(SEC)-46 /U+R+F+S, June 1975).

111 requests which appeared in WRENDA 75 have been withdrawn from the present edition. Because of the difficulties in distinguishing between withdrawn and satisfied requests, the present edition of the data request list for fission-reactor applications is accompanied only by a list of withdrawn requests, which should be considered to include also satisfied requests.

II. B. Supplementary Information from Contributors

[Requestors and national data committees sometimes supply supplementary information about the requests for which they are responsible. The remarks which follow were received from the USSR.]

General comments to the Soviet Requests

L.N. Usachev's requests

Together all the requests make a unique system of requirements for the accuracy of evaluated nuclear data which would assure calculation of K_{eff} and breeding ratio (BR) of a fast plutonium breeder with accuracies of 1% and 2% respectively.

Priorities

Accuracy requirements designated 2nd priority would assure the necessary calculational accuracy on the basis only of microscopic data without the use of data from integral experiments.

Accuracy requirements designated 1st priority are less stringent because use would be made of evaluated results from integral experiments, which are available at the Nuclear Data Centre in Obninsk.

Meaning of uncertainty

Uncertainty (or accuracy) is characterized by one standard deviation.

Uncertainty of a point is supposed to be represented as a sum of components with different correlative properties. Accuracy specifications are for those components of the uncertainty which determine the accuracy of the integral under the curve in the partial energy interval mentioned in each request.

In requests for measurements the use of standards - $\bar{\nu}$ of ^{252}Cf, the ^{10}B (n, α) cross section (below 100 keV) and the ^{235}U (n,f) cross section (above 100 keV) - is assumed. In all requests except those for standards, the accuracy specifications refer to measurements relative to standards, and the accuracies required of the standards are specified separately.

The algorithm used to derive these requirements is described in the following papers:

1. L.N. Usachev and Yu.G. Bobkov, "Planning of an optimum set of microscopic experiments and evaluations to obtain a given accuracy in reactor parameter calculations" Evaluation of Nuclear Data, (Proc. Panel, Vienna, 1971), Report IAEA-153, IAEA, Vienna, 1973 (in Russian). English translation: INDC(CCP)-19 (1972).

2. L.N. Usachev, V.N. Manokhin and Yu. G. Bobkov, "The accuracy of nuclear data and its influence on fast reactor development", Nuclear Data in Science and Technology, (Proc. Symp., Paris, 1973), IAEA, Vienna, 1973, Vol. 1, p. 129 (in Russian).

3. Yu.G. Bobkov, L.T. Pyatnitskaya and L.N. Usachev, "Planning of experiments and evaluations on neutron data for reactors " The Metrology of Neutron Radiation in Reactors and Accelerators, (Proc. Conf., Moscow, 1974), Report FEI-527 (1974) (in Russian). English translation to be published as INDC(CCP) document.

4. L.N. Usachev, "Unique definition of nuclear data accuracy" 7th INDC Meeting, Lucas Heights, 1974, Proceedings in preparation (in English). Report FEI-537 (1974) (in Russian).

M.N. Nikolaev's requests

Basic demands for accuracy of K_{eff} and BR prediction are 1 and 1.6 percent, respectively.

The requests are formulated for the totality of microscopic data without taking into account the results of integral experiments. Therefore, these requests are, as a rule, of the second priority.

The comparatively less demanding accuracies specified in this set of requests are stipulated by an assumption about the sense of uncertainties which differs from the assumption used in Usachev's requests. In this set of requests complete correlation of uncertainties within each group in the ABBN 26-group set and full statistical independence of uncertainties of neighbouring groups is supposed.

Correlation of uncertainties for different isotopes, cross sections and $\bar{\nu}$ values is taken into account by assuming as standards the U-235 fission cross section and $\bar{\nu}$ of Cf-252.

The author of the requests considers that these conditions would exist for instance, when on each adjacent lethargy interval 0.5 - 1 there would fall, on the average, one experiment carried out by an independent method with the requested, guaranteed accuracy.

The algorithm of request formulation and substantiation of basic requirements for K_{eff} and BR are described in paper by S.M. Zaritsky, M.N. Nikolaev, M.F. Troyanov, "Nuclear Data Requirements for Calculation of Fast Reactors", Report INDC(CCP)-17, IAEA, Vienna, 1972.

Conclusion

The two sets of requirements presented here emphasize the importance of precise understanding of accuracy specifications.

II.C. Priority Criteria

Three priorities, noted 1, 2 and 3 (1 being the highest), can be attributed to the requests. The priorities are defined as follows:

* Priority 1 *

Nuclear data which satisfy the criteria of Priority 2 and which have been selected for maximum practicable attention, taking into account the urgency of nuclear energy programme requirements.

For example, the Nuclear Energy Agency for Reactor Physics assigns its highest priorities for reactor measurements as follows:

"The highest priority should be given to requests for nuclear data for reactors to be built in the near future if:

a. These data are still necessary to predict the different reactor properties after all information from integral experiments and operating reactors has been used; or

b. information on an important reactor parameter is in principle attainable through mathematical calculation from nuclear data only; or

c. these data are needed for materials required in reactor physics measurements."

* Priority 2 *

Nuclear data which will be required during the next few years in the applied nuclear energy programme (e.g. the design of a reactor or fuel processing plant; data needed for optimum use of reactor fuel and construction materials such as neutron moderators, absorbers and radiation shields; space application and biomedical studies; data required for better understanding of some significant aspect of reactor behaviour).

* Priority 3 *

Nuclear data of more general interest and data required to fill out the body of information needed for nuclear technology.

II.D. LIST OF WITHDRAWN REQUESTS

Fission List

692010	FR	5 BORON 10	NEUTRON	ABSORPTION CROSS SECTION
742027	FR	6 CARBON	NEUTRON	CAPTURE CROSS SECTION
693008	BZL	17 CHLORINE 36	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
702005	FR	22 TITANIUM	NEUTRON	CAPTURE CROSS SECTION
712008	FR	22 TITANIUM	NEUTRON	N,P
712009	FR	22 TITANIUM	NEUTRON	N,ALPHA
702006	FR	23 VANADIUM	NEUTRON	CAPTURE CROSS SECTION
712011	FR	23 VANADIUM	NEUTRON	N,P
712012	FR	23 VANADIUM	NEUTRON	N,ALPHA
712015	JAP	24 CHROMIUM	NEUTRON	CAPTURE CROSS SECTION
692090	FR	25 MANGANESE 55	NEUTRON	CAPTURE CROSS SECTION
712018	JAP	25 MANGANESE 55	NEUTRON	CAPTURE CROSS SECTION
693012	BZL	25 MANGANESE 55	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
712019	FR	25 MANGANESE 55	NEUTRON	N,P
712020	FR	25 MANGANESE 55	NEUTRON	N,ALPHA
693014	BZL	26 IRON 56	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
712029	FR	27 COBALT 59	NEUTRON	N,P
712030	FR	27 COBALT 59	NEUTRON	N,ALPHA
693016	BZL	27 COBALT 60	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
702013	JAP	30 ZINC 64	NEUTRON	CAPTURE CROSS SECTION
692145	FR	33 ARSENIC 75	NEUTRON	N,2N
682019	FR	39 YTTRIUM 89	NEUTRON	CAPTURE CROSS SECTION
712035	FR	40 ZIRCONIUM	NEUTRON	N,P
712036	FR	40 ZIRCONIUM	NEUTRON	N,ALPHA
732045	FR	40 ZIRCONIUM 94	NEUTRON	CAPTURE CROSS SECTION
732046	FR	40 ZIRCONIUM 96	NEUTRON	CAPTURE CROSS SECTION
702015	FR	41 NIOBIUM 93	NEUTRON	CAPTURE CROSS SECTION
712038	FR	41 NIOBIUM 93	NEUTRON	N,P
712039	FR	41 NIOBIUM 93	NEUTRON	N,ALPHA
702016	FR	42 MOLYBDENUM	NEUTRON	CAPTURE CROSS SECTION
712041	FR	42 MOLYBDENUM	NEUTRON	N,P
712042	FR	42 MOLYBDENUM	NEUTRON	N,ALPHA
692160	FR	42 MOLYBDENUM 92	NEUTRON	N,P
732047	FR	42 MOLYBDENUM 95	NEUTRON	INELASTIC CROSS SECTION
732048	FR	42 MOLYBDENUM 95	NEUTRON	CAPTURE CROSS SECTION
692164	FR	42 MOLYBDENUM 95	NEUTRON	N,P
732049	FR	42 MOLYBDENUM 97	NEUTRON	INELASTIC CROSS SECTION
732050	FR	42 MOLYBDENUM 97	NEUTRON	CAPTURE CROSS SECTION
732051	FR	42 MOLYBDENUM 98	NEUTRON	CAPTURE CROSS SECTION
732052	FR	43 TECHNETIUM 99	NEUTRON	INELASTIC CROSS SECTION
732053	FR	43 TECHNETIUM 99	NEUTRON	CAPTURE CROSS SECTION
732054	FR	44 RUTHENIUM 101	NEUTRON	CAPTURE CROSS SECTION
732055	FR	44 RUTHENIUM 102	NEUTRON	CAPTURE CROSS SECTION
732056	FR	44 RUTHENIUM 104	NEUTRON	CAPTURE CROSS SECTION
732057	FR	45 RHODIUM 103	NEUTRON	INELASTIC CROSS SECTION
732059	FR	45 RHODIUM 103	NEUTRON	CAPTURE CROSS SECTION
732060	FR	46 PALLADIUM 105	NEUTRON	CAPTURE CROSS SECTION
732061	FR	46 PALLADIUM 107	NEUTRON	CAPTURE CROSS SECTION
752001	SWD	47 SILVER	NEUTRON	CAPTURE CROSS SECTION
732062	FR	47 SILVER 109	NEUTRON	CAPTURE CROSS SECTION
752002	SWD	48 CADMIUM	NEUTRON	CAPTURE CROSS SECTION
693022	AUL	48 CADMIUM 110	NEUTRON	CAPTURE CROSS SECTION

II.D. LIST OF WITHDRAWN REQUESTS (continued)

752003	SWD	49	INDIUM	NEUTRON	CAPTURE CROSS SECTION
742042	FR	51	ANTIMONY 121	NEUTRON	N,2N
742043	FR	51	ANTIMONY 123	NEUTRON	N,2N
732066	FR	55	CESIUM 133	NEUTRON	INELASTIC CROSS SECTION
732067	FR	55	CESIUM 133	NEUTRON	CAPTURE CROSS SECTION
732068	FR	55	CESIUM 133	NEUTRON	CAPTURE CROSS SECTION
732070	FR	55	CESIUM 135	NEUTRON	CAPTURE CROSS SECTION
693023	AUL	56	BARIUM 136	NEUTRON	CAPTURE CROSS SECTION
732071	FR	60	NEODYMIUM 143	NEUTRON	CAPTURE CROSS SECTION
732072	FR	60	NEODYMIUM 143	NEUTRON	CAPTURE CROSS SECTION
732073	FR	60	NEODYMIUM 145	NEUTRON	CAPTURE CROSS SECTION
732074	FR	60	NEODYMIUM 145	NEUTRON	CAPTURE CROSS SECTION
732078	FR	61	PROMETHIUM 147	NEUTRON	CAPTURE CROSS SECTION
732080	FR	62	SAMARIUM 149	NEUTRON	CAPTURE CROSS SECTION
732081	FR	62	SAMARIUM 149	NEUTRON	CAPTURE CROSS SECTION
732083	FR	62	SAMARIUM 151	NEUTRON	CAPTURE CROSS SECTION
693025	DDR	63	EUROPIUM 151	NEUTRON	CAPTURE CROSS SECTION
693026	BUL	63	EUROPIUM 151	NEUTRON	CAPTURE CROSS SECTION
693027	DDR	63	EUROPIUM 151	NEUTRON	CAPTURE RESONANCE INTEGRAL
693028	BUL	63	EUROPIUM 151	NEUTRON	CAPTURE RESONANCE INTEGRAL
742001	SWD	64	GADOLINIUM 155	NEUTRON	CAPTURE CROSS SECTION
742003	SWD	64	GADOLINIUM 157	NEUTRON	CAPTURE CROSS SECTION
693029	DDR	66	DYSPROSIUM 164	NEUTRON	CAPTURE CROSS SECTION
693032	BUL	70	YTTERBIUM 168	NEUTRON	CAPTURE CROSS SECTION
693031	BUL	70	YTTERBIUM 168	NEUTRON	CAPTURE RESONANCE INTEGRAL
682039	FR	71	LUTETIUM 176	NEUTRON	CAPTURE CROSS SECTION
693033	BUL	71	LUTETIUM 176	NEUTRON	CAPTURE CROSS SECTION
693036	DDR	71	LUTETIUM 176	NEUTRON	CAPTURE CROSS SECTION
682038	FR	71	LUTETIUM 176	NEUTRON	N,2N
693034	DDR	71	LUTETIUM 176	NEUTRON	CAPTURE RESONANCE INTEGRAL
693035	BUL	71	LUTETIUM 176	NEUTRON	CAPTURE RESONANCE INTEGRAL
692317	FR	79	GOLD 197	NEUTRON	CAPTURE CROSS SECTION
693042	BZL	79	GOLD 197	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
693041	BZL	79	GOLD 197	NEUTRON	RESONANCE PARAMETERS
693043	BZL	80	MERCURY 198	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
693044	BZL	80	MERCURY 200	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
693045	BZL	80	MERCURY 201	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION
712053	FR	90	THORIUM 232	NEUTRON	RESONANCE PARAMETERS
692483	NED	91	PROTACTINIUM 233	NEUTRON	ABSORPTION CROSS SECTION
692332	NED	91	PROTACTINIUM 233	NEUTRON	RESONANCE PARAMETERS
642005	UK	92	URANIUM 233	NEUTRON	ELASTIC CROSS SECTION
692487	NED	92	URANIUM 233	NEUTRON	CAPTURE CROSS SECTION
712054	FR	92	URANIUM 233	NEUTRON	RESONANCE PARAMETERS
712065	FR	92	URANIUM 238	NEUTRON	TOTAL CROSS SECTION
742090	FR	92	URANIUM 239	NEUTRON	FISSION CROSS SECTION
712076	GER	94	PLUTONIUM 236	NEUTRON	FISSION CROSS SECTION
692419	GER	94	PLUTONIUM 239	NEUTRON	INELASTIC CROSS SECTION
692421	GER	94	PLUTONIUM 239	NEUTRON	ENERGY DIFFERENTIAL INELASTIC CROSS SECTION
702035	FR	94	PLUTONIUM 239	NEUTRON	CAPTURE TO FISSION RATIO (ALPHA)
692446	UK	94	PLUTONIUM 240	NEUTRON	NEUTRONS EMITTED PER FISSION (NU BAR)
692448	GER	94	PLUTONIUM 240	NEUTRON	NEUTRONS EMITTED PER FISSION (NU BAR)
692465	UK	94	PLUTONIUM 241	NEUTRON	CAPTURE TO FISSION RATIO (ALPHA)
702044	FR	94	PLUTONIUM 241	NEUTRON	CAPTURE TO FISSION RATIO (ALPHA)

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712118	GER	96	CURIUM 242	NEUTRON	CAPTURE CROSS SECTION
742020	GER	96	CURIUM 242	NEUTRON	CAPTURE CROSS SECTION
712116	GER	96	CURIUM 242	NEUTRON	FISSION CROSS SECTION
712117	GER	96	CURIUM 242	NEUTRON	NEUTRONS EMITTED PER FISSION (NU BAR)
712122	FR	98	CALIFORNIUM 252	SPONTANEOUS	ENERGY SPECTRUM OF FISSION NEUTRONS

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II. F. DATA REQUEST LIST FOR FISSION REACTOR DEVELOPMENT

1 HYDROGEN 1			NEUTRON		DIFFERENTIAL ELASTIC CROSS SECTION					
1	7.00	MEV	20.0	MEV	2.0%	1	USA	R.S.CASWELL	NBS	721001
							Q: MEASUREMENTS AT 3 ENERGIES - 7, 10, AND 20 MEV SUGGESTED.			
							O: FOR USE AS STANDARD.			
STATUS										STATUS
	UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.									
	DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.									
DKE	MEASUREMENT IN PROGRESS BETWEEN 8 AND 15 MEV.									
HAR	MEASUREMENT IN PROGRESS BETWEEN 14 AND 28 MEV.									
1 HYDROGEN 2			NEUTRON		ELASTIC CROSS SECTION					
2	1.00	EV	1.00	KEV		1	USA	N.STEEN	BET	721002
							A: ACCURACY REQUIRED - 0.5 TO 1 PERCENT.			
2 HELIUM 3			NEUTRON		N,P					
3	10.0	KEV	3.00	MEV	1.0%	2	USA	P.B.HEMMIG	AEC	691001
							Q: ABSOLUTE VALUES REQUIRED. A: INTERMEDIATE ACCURACY USEFUL. O: FOR USE AS A SECONDARY STANDARD.			
4	1.00	KEV	3.00	MEV	3.0%	2	USA	R.S.CASWELL	NBS	691003
							Q: ABSOLUTE VALUES REQUIRED. A: INTERMEDIATE ACCURACY USEFUL. O: FOR USE AS A SECONDARY STANDARD.			
5	100.	KEV	1.00	MEV	2.0%	2	UK	B.ROSE	HAR	692003
							A: ENERGY DEPENDENCE NEEDED MORE ACCURATELY O: USED AS A STANDARD IN CROSS-SECTION MEASUREMENTS.			
6	100.	KEV	10.0	MEV	3.0%	1	IND	M.P.NAVALKAR	TRM	713001
							Q: ENERGY STEPS OF 0.1 MEV. O: FOR NEUTRON SPECTRUM MEASUREMENTS WITH SANDWICHED HE-3 SPECTROMETER.			
3 LITHIUM 6			NEUTRON		ELASTIC CROSS SECTION					
7	1.00	KEV	300.	KEV	5.0%	1	USA	R.S.CASWELL	NBS	691008
							Q: DIFFERENTIAL ELASTIC MAY BE REQUIRED AT UPPER END. A: ACCURACY TO OBTAIN N,ALPHA TO 2 PERCENT.			
3 LITHIUM 6			NEUTRON		N,ALPHA					
8	1.00	KEV	3.00	MEV	1.0%	1	USA	C.E.TILL P.B.HEMMIG	ANL AEC	691009
							A: ACCURACY OF 3 PERCENT USEFUL. ENERGY RESOLUTION MUST REPRODUCE TRUE SHAPE. O: FOR USE AS A STANDARD.			
9	500.	EV	3.00	MEV	3.0%	1	USA	G.E.HANSEN	LAS	691011
							O: FOR USE AS A STANDARD.			
10	5.00	KEV	15.0	MEV	5.0%	1	GER	M.KUECHLE	KFK	692004
							O: STANDARD.			
11	100.	KEV	5.00	MEV	5.0%	3	UK	C.G.CAMPBELL	WIN	692005
							Q: SECONDARY ANGULAR DISTRIBUTION REQUIRED. O: FLUX MONITOR FOR NEUTRON SPECTRUM MEASUREMENTS. DISCREPANCIES ARE PARTICULARLY LARGE ABOVE 1 MEV			
12	500.	KEV	5.00	MEV	5.0%	1	UK	B.ROSE C.G.CAMPBELL	HAR WIN	712002
							O: STANDARD FOR CROSS-SECTION MEASUREMENTS AND FOR NEUTRON SPECTRUM MEASUREMENTS.			
13	100.	KEV	10.0	MEV	3.0%	1	IND	M.P.NAVALKAR	TRM	713002
							Q: ENERGY STEPS OF 0.1 MEV. O: FOR NEUTRON SPECTRUM MEASUREMENTS WITH SANDWICHED LI-6 SPECTROMETER.			
14	100.	KEV	13.0	MEV	5.0%	1	USA	H.T.MOTZ	LAS	721008
							Q: ABSOLUTE VALUES REQUIRED BELOW 150 KEV. O: FOR USE AS STANDARD BELOW 3 MEV.			
15	10.0	KEV	14.0	MEV		1	USA	R.S.CASWELL	NBS	721009
							A: ACCURACY 1 PERCENT BELOW 100 KEV, 3 PERCENT ABOVE. O: FOR USE AS STANDARD BELOW 3 MEV.			
16	10.0	KEV	3.00	MEV	2.0%	1	FR	E.FORT	CAD	732038
							O: STANDARD.			

17	5.00	KEV	15.0	MEV	5.0%	1	BLG	G.DELEEUW-GIERTS MOL	742024

Q: SECONDARY ANGULAR DISTRIBUTION REQUIRED UP TO 1 MEV WITH EMPHASIS BELOW 100 KEV AND ABOVE 500 KEV.
A: ANGULAR RESOLUTION - 10 DEGREES.
NEUTRON ENERGY RESOLUTION - 5 KEV UP TO 150 KEV AND 10 KEV UP TO 500 KEV.
O: DETERMINATION OF NEUTRON SPECTRA FROM TRITON ENERGY DISTRIBUTIONS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.
WORK IN PROGRESS OR PLANNED:

NBS 10 TO 400 KEV.

LAS INVERSE REACTION CROSS SECTIONS.

LRL 1 KEV TO 1 MEV, RATIO TO U 235 FISSION.

3 LITHIUM 6 NEUTRON TOTAL ALPHA PRODUCTION CROSS SECTION

18	1.00	KEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY HED	691012

Q: FOR USE AS A FLUENCE MONITOR.
TOTAL HELIUM PRODUCTION FOR MASS SPECTROMETER.

3 LITHIUM 7 ALPHA ALPHA,N

19	4.00	MEV	6.00	MEV	2.0%	2	USA	R.S.CASWELL NBS	721146

A: ACCURACY 2 PERCENT FOR INVERSE REACTION.
O: ENERGY CORRESPONDS TO 10 KEV TO 1 MEV FOR INVERSE REACTION B-10(N,ALPHA).

4 BERYLLIUM 9 NEUTRON NEUTRON EMISSION CROSS SECTION

20	1.80	MEV	5.00	MEV	15.0%	2	USA	P.B.HEMMIG AEC	621002

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
A: ACCURACY 50 MB AT 2-3 MEV.
RESOLUTION, 5 PERCENT INCIDENT ENERGY, 500 KEV IN OUTGOING ENERGY.
O: FOR BE MODERATED FAST SPECTRUM REACTORS.
FOR THERMAL BREEDERS OR CONVERTORS.
NEUTRON ECONOMY CALCULATIONS.

5 BORON NEUTRON TOTAL CROSS SECTION

21	100.	KEV	15.0	MEV		2	USA	P.B.HEMMIG AEC C.E.CLIFFORD ORL	741001

A: ACCURACY REQUIRED - 3 TO 4 PERCENT.
O: FOR SHIELDING EFFECT OF BORON CARBIDE.

5 BORON NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

22	100.	KEV	15.0	MEV	15.0%	2	USA	P.B.HEMMIG AEC C.E.CLIFFORD ORL	741003

5 BORON NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

23			15.0	MEV	10.0%	2	USA	P.B.HEMMIG AEC C.E.CLIFFORD ORL	741005

A: 15 PERCENT IN ENERGY SPECTRA.
20 PERCENT IN ANGULAR DISTRIBUTION IF NOT ISOTROPIC.
OUTGOING ENERGY RESOLUTION 10 PERCENT.

5 BORON NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

24	1.00	KEV	15.0	MEV	15.0%	2	USA	P.B.HEMMIG AEC C.E.CLIFFORD ORL	741007

Q: ENERGY AND ANGULAR DISTRIBUTION OF PHOTONS WANTED.
A: 20 PERCENT IN ANGULAR DISTRIBUTION IF NOT ISOTROPIC.
GAMMA ENERGY RESOLUTION 10 PERCENT.

5 BORON 10 NEUTRON TOTAL CROSS SECTION

25	10.0	KEV	1.00	MEV	1.0%	2	USA	R.S.CASWELL NBS	691016

O: DESIRED FOR ASSESSING B-10(N,ALPHA) STANDARD.

5 BORON 10 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

26	1.00	KEV	1.00	MEV		2	USA	R.S.CASWELL NBS	691017

A: ACCURACY 5 PERCENT TO 100 KEV AND 3 PERCENT ABOVE.
O: DESIRED FOR ASSESSING B-10(N,ALPHA) STANDARD.

5 BORON 10			NEUTRON				N,ALPHA			
27	100.	KEV	1.00	MEV	2.0%	1	UK	B.ROSE	HAR	642001
								Q: ALSO (N,ALPHA GAMMA).		
								A: ENERGY DEPENDENCE NEEDED MORE ACCURATELY.		
								O: USED AS A STANDARD IN CROSS SECTION MEASUREMENTS.		
28	10.0	KEV	2.00	MEV		1	BLG	A.FABRY	MOL	682004
								A: ACCURACY 1 PERCENT TO 100 KEV, 3 PERCENT ABOVE.		
								O: STANDARD CROSS SECTION. CALCULATION OF STANDARD NEUTRON SPECTRUM.		
29	1.00	KEV	1.00	MEV	2.0%	1	USA	R.S.CASWELL	NBS	691022
30	1.00	KEV	10.0	MEV		1	USA	C.E.TILL P.B.HEMMIG F.C.MAIENSCHEIN	ANL AEC ORL	691364
								Q: ABSOLUTE VALUES REQUIRED.		
								A: 1-100 KEV, ACCURACY 1 PERCENT, 3 PERCENT USEFUL. 100-300 KEV, ACCURACY 3 PERCENT, 10 PERCENT USEFUL. 0.3-10 MEV, ACCURACY 5 PERCENT, 10 PERCENT USEFUL.		
								O: FOR USE AS A STANDARD.		
31	1.00	KEV	10.0	MEV		1	USA	C.E.TILL P.B.HEMMIG F.C.MAIENSCHEIN	ANL AEC ORL	691373
								Q: ABSOLUTE CROSS SECTION FOR PRODUCTION OF 480 KEV GAMMA IS REQUIRED.		
								A: 1-100 KEV, ACCURACY 1 PERCENT, 3 PERCENT USEFUL. 100-300 KEV, ACCURACY 3 PERCENT, 10 PERCENT USEFUL. 0.3-10 MEV, ACCURACY 5 PERCENT, 10 PERCENT USEFUL.		
								O: FOR USE AS A STANDARD.		
32	50.0	KEV	1.00	MEV	2.0%	1	USA	R.S.CASWELL	NBS	721028
								Q: ABSOLUTE CROSS SECTION FOR PRODUCTION OF 480 KEV GAMMA IS REQUIRED.		
								O: FOR USE AS A STANDARD.		
33	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754025
								A: FROM 0.5 - 100 KEV ACCURACY 2.6 PERCENT, PRIORITY 2 ACCURACY 2.0 PERCENT.		
								O: STANDARD CROSS SECTION BELOW 100 KEV. FOR MORE DETAIL SEE INTRODUCTION.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

5 BORON 10			NEUTRON				TOTAL ALPHA PRODUCTION CROSS SECTION			
34	1.00	KEV	18.0	MEV	10.0%	1	USA	W.N.MC ELROY	HED	691026
								O: FOR USE AS A FLUENCE MONITOR. TOTAL HELIUM PRODUCTION FOR MASS SPECTROMETER.		
5 CARBON			NEUTRON				DIFFERENTIAL ELASTIC CROSS SECTION			
35	100.	KEV	15.0	MEV		2	SWD	H.HAEGGBLOM	AE	712003
								A: 5 PERC. BETWEEN 100KEV- 4 MEV, 10 PERC. BETWEEN 4-15 MEV		
								O: FOR FAST CRITICAL SYSTEM.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

6 CARBON 12			NEUTRON				DIFFERENTIAL ELASTIC CROSS SECTION			
36	4.00	MEV	5.50	MEV	15.0%	2	USA	R.EHRLICH	KAP	691031
								Q: POLARIZATION OF SCATTERED NEUTRONS WANTED.		
								A: ENERGY RESOLUTION 50 KEV.		
								O: NEEDED TO RESOLVE DISCREPANCY BETWEEN THEORY AND EXPERIMENT.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

7 NITROGEN			NEUTRON				CAPTURE CROSS SECTION			
37	1.00	KEV	1.00	MEV	10.0%	2	USA	P.B.HEMMIG	AEC	741009
								Q: RESONANCE PARAMETERS NEEDED.		
								A: RESOLUTION 20 PERCENT.		

7 NITROGEN 14			NEUTRON		DIFFERENTIAL ELASTIC CROSS SECTION					
38	1.00	MEV	15.0	MEV	20.0%	2	FR	A.MICHAUDON	BRC	692015
								A: AVERAGE (1-COS) ACCURACY 10 PERCENT. ANGULAR RESOLUTION - 2.5 DEGREES UP TO 20 DEGREES. 5 DEGREES FROM 20 TO 180 DEGREES. O: FOR AIR SCATTERING CALCULATION. NEW EVALUATION TO BE DONE IF NEW EXPERIMENTAL DATA.		
39	8.00	MEV	14.0	MEV	10.0%	2	SWD	T.LEFVERT	FOA	692016
								A: ENERGY RESOLUTION 0.2 MEV. O: NEUTRON TRANSPORT CALCULATIONS.		
7 NITROGEN 14			NEUTRON		N,2N					
40	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693002
								A: INCIDENT ENERGY RESOLUTION 200 KEV. O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.		
7 NITROGEN 14			NEUTRON		NEUTRON EMISSION CROSS SECTION					
41	4.00	MEV	15.0	MEV	20.0%	2	FR	A.MICHAUDON	BRC	692017
								Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED. A: AVERAGE (1-COS) ACCURACY 10 PERCENT. O: FOR AIR SCATTERING CALCULATION. NEW EVALUATION TO BE DONE IF NEW EXPERIMENTAL DATA.		
42	8.00	MEV	14.0	MEV	15.0%	2	SWD	T.LEFVERT	FOA	692018
								Q: SECONDARY ENERGY DISTRIBUTION ALSO USEFUL. A: ENERGY RESOLUTION 0.2 MEV. O: NEUTRON TRANSPORT CALCULATIONS.		
7 NITROGEN 14			NEUTRON		N,P					
43	1.00	KEV	15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	692020
								O: EVALUATION MAY BE SUFFICIENT. NO MEASUREMENTS EXIST FROM 4.25 TO 15 MEV.		
7 NITROGEN 15			NEUTRON		N,P					
44			15.0	MEV	30. %	2	JAP	T.NISIMURA	MAP	762175
								O: FOR FBR SHIELDING CALCULATIONS. M: NEW REQUEST.		
8 OXYGEN			NEUTRON		DIFFERENTIAL ELASTIC CROSS SECTION					
45	10.0	KEV	16.0	MEV	5.0%	1	USA	P.B.HEMMIG	AEC	661028
								O: NEEDED FOR FAST REACTOR REFLECTOR WORTHS.		
46	4.00	MEV	16.0	MEV	5.0%	1	USA	C.E.CLIFFORD	ORL	661029
								O: NEEDED FOR FAST REACTOR REFLECTOR WORTHS. M: NEW REQUEST.		
47	1.70	MEV	2.20	MEV	10.0%	2	GER	F.WELLER	KFK	692021
								O: EXPERIMENTAL DATA AVAILABLE IN THIS RANGE NOT SUFFICIENTLY DETAILED TO ACCOUNT FOR RESONANCE STRUCTURE.		
48	4.70	MEV	14.0	MEV	10.0%	2	GER	F.WELLER	KFK	692022
								A: MEASUREMENTS DESIRED IN ENERGY STEPS INCREASING FROM 30 TO 100 KEV. ANGULAR RESOLUTION 5 TO 10 DEGREES. O: ONLY FEW MEASUREMENT POINTS AVAILABLE.		
49	8.00	MEV	14.0	MEV	10.0%	2	SWD	T.LEFVERT	FOA	692023
								Q: SECONDARY ENERGY DISTRIBUTION ALSO USEFUL. A: ENERGY RESOLUTION 0.2 MEV. O: NEUTRON TRANSPORT CALCULATIONS.		
50	100.	KEV	15.0	MEV		2	SWD	H.HAEGGBLOM	AE	712004
								A: 5 PERC. BETWEEN 100 KEV- 4 MEV. 10 PERC. BETWEEN 4-15 MEV. O: FOR FAST REACTOR CALCULATIONS.		
8 OXYGEN			NEUTRON		TOTAL PHOTON PRODUCTION CROSS SECTION					
51	1.00	KEV	15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	742028
								O: FOR SHIELDING CALCULATION.		

8 OXYGEN — NEUTRON — NEUTRON EMISSION CROSS SECTION

52	8.00	MEV	14.0	MEV	15.0%	2	SWD	T.LEFVERT	FOA	692025

Q: SECONDARY ENERGY DISTRIBUTION ALSO USEFUL.
A: ENERGY RESOLUTION 0.2 MEV.
O: NEUTRON TRANSPORT CALCULATIONS.

8 OXYGEN — ALPHA — ALPHA,N

53			15.0	MEV	20.0%	3	FR	J.Y.BARRE	CAD	762138

O: NEUTRON DOSE FOR FUEL-CYCLE PROBLEMS OUT-OF-CORE INHERENT SOURCE IN-CORE
M: NEW REQUEST.

8 OXYGEN 16 — NEUTRON — TOTAL CROSS SECTION

54	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754016

A: FROM 0.5 - 100 KEV ACCURACY 10 PERCENT, PRIORITY 2 ACCURACY 10 PERCENT. FROM 0.1 - 0.8 MEV ACCURACY 7.0 PERCENT, PRIORITY 2 ACCURACY 6.0 PERCENT. FROM 0.8 - 4.5 MEV ACCURACY 10 PERCENT, PRIORITY 2 ACCURACY 10 PERCENT. ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.

8 OXYGEN 16 — NEUTRON — N,P

55	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693003

A: INCIDENT ENERGY RESOLUTION 200 KEV.
O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.

8 OXYGEN 17 — NEUTRON — CAPTURE CROSS SECTION

56	25.3	MV				2	CAN	G.C.HANNA	CRC	691801

A: ACCURACY 0.2 BARNS.
O: FOR UNDERSTANDING ABSORPTION IN HEAVY WATER.

8 OXYGEN 18 — ALPHA — ALPHA,N

57			7.00	MEV	10.0%	2	USA	N.STEEN	BET	661010

A: ALPHA ENERGY RESOLUTION 0.2 MEV.
O: TO RESOLVE DISCREPANCIES BETWEEN CROSS SECTION AND NEUTRON YIELD DATA.

58	4.00	MEV	7.50	MEV	30.0%	2	FR	C.DEVILLERS	SAC	692029

Q: SECONDARY ENERGY DISTRIBUTION REQUIRED.
A: RESOLUTION FOR E AND E', 1.0 MEV.
O: FOR SHIELDING OF ALPHA EMITTING SAMPLES. NEW EVALUATION TO BE DONE IF NEW EXPERIMENTAL DATA.

9 FLUORINE — ALPHA — ALPHA,N

59			15.0	MEV	30.0%	2	FR	C.DEVILLERS	SAC	732039

Q: ENERGY DISTRIBUTION REQUIRED.
O: FOR SHIELDING OF ALPHA EMITTING SAMPLES.

9 FLUORINE 19 — NEUTRON — INELASTIC CROSS SECTION

60	100.	KEV	14.0	MEV	20. %	2	JAP	T.AKIMOTO	HOK	762176

O: FOR FAST REACTOR AND FUSION REACTOR CALCULATIONS.
M: NEW REQUEST.

9 FLUORINE 19 — NEUTRON — CAPTURE CROSS SECTION

61	1.00	KEV	1.00	MEV	10.0%	2	USA	A.M.PERRY	ORL	661011

O: TO CALCULATE NEUTRON LOSS IN MOLTEN SALT BREEDER.

9 FLUORINE 19 — NEUTRON — N,2N

62	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693004

A: INCIDENT ENERGY RESOLUTION 200 KEV.
O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.

11 SODIUM 23 — NEUTRON — TOTAL CROSS SECTION

63	10.0	KEV	15.0	MEV		1	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741010

A: ACCURACY BELOW 7 MEV - 2 TO 5 PERCENT. ACCURACY ABOVE 7 MEV - 5 PERCENT.

STATUS

USA (1974). USNDC BELIEVES CROSS SECTION IS PROBABLY KNOWN TO 5 PERCENT UP TO 1 MEV. REQUESTS FOR DATA OF 5-PERCENT ACCURACY MUST REFER TO CROSS SECTION WINDOWS OR REQUIRE FINER RESOLUTION, WHICH SHOULD BE SPECIFIED EXPLICITLY.

11 SODIUM 23 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

64	2.20	MEV	10.0	MEV		2	GER	F.WELLER	KFK	692032

Q: SEPARATION OF ELASTIC AND INELASTIC ANGULAR DEPENDENCES DESIRED.
MEASUREMENTS IN STEPS OF SEVERAL 100 KEV.
A: ACCURACY REQUIRED TO BETTER THAN 10. PERCENT.
INCIDENT NEUTRON RESOLUTION 100 KEV.
ANGULAR RESOLUTION 5 - 10 DEGREES.
O: BECAUSE OF RESONANCES IN TOTAL CROSS SECTION, FLUCTUATIONS IN ANGULAR DISTRIBUTION EXPECTED.
THEREFORE, MORE EXPERIMENTAL DATA NEEDED.

65	10.0	KEV	15.0	MEV	10.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741012

A: 15 PERCENT IN ANGULAR DISTRIBUTION.

STATUS

USA (1974). USNDC BELIEVES ANGULAR DISTRIBUTIONS ARE KNOWN TO 15 PERCENT UP TO 1 MEV. REQUESTS FOR DATA OF 15-PERCENT ACCURACY MUST BE FOR DATA IN WINDOWS OR FOR FINER RESOLUTION, WHICH SHOULD BE SPECIFIED EXPLICITLY.

11 SODIUM 23 NEUTRON ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

66	4.00	MEV	15.0	MEV	10.0%	2	GER	F.WELLER	KFK	692035

11 SODIUM 23 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

67	2.00	MEV	10.0	MEV	10.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	621006

Q: TOTAL INTEGRAL OVER 4 PI REQUIRED.
SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC.
A: ENERGY RESOLUTION LESS THAN 10 PERCENT INCIDENT AND FINAL ENERGIES.

11 SODIUM 23 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

68			15.0	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	712005

Q: FOR FAST REACTOR CALCULATIONS.

69			15.0	MEV		2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741014

A: ACCURACY BELOW 2 MEV - 5 PERCENT.
ACCURACY ABOVE 2 MEV - 10 PERCENT.
15 PERCENT IN ENERGY SPECTRA.
OUTGOING ENERGY RESOLUTION 10 PERCENT.

11 SODIUM 23 NEUTRON CAPTURE CROSS SECTION

70	100.	EV	100.	KEV		2	UK	C.G.CAMPBELL	WIN	642002

A: ACCURACY 10 PERCENT UP TO 10 KEV, 20 PERCENT ABOVE.
O: FOR FAST REACTORS.
DISCREPANCY IN RADIATION WIDTH DATA AT 3 KEV RESONANCE.

71	100.	EV	50.0	KEV	10.0%	1	JAP	S.KATSURAGI	JAE	692038

Q: RESONANCE PARAMETERS NEEDED.
O: FOR FAST REACTORS.
DISCREPANCIES IN RESONANCE PARAMETERS EXIST.

72	25.3	MV	4.00	KEV		2	CCP	M.N.NIKLAEV	FEI	714002

Q: CAPTURE WIDTH OF 2.9 KEV RESONANCE SHOULD BE MEASURED IN THREE DIFFERENT EXPERIMENTS, RESULTS SHOULD COINCIDE WITHIN LIMITS OF 5-7 PERCENT.
IF HIGH RPI CAPTURE WIDTH CONFIRMED, ENERGY DEPENDENCE OF CAPTURE CROSS SECTION SHOULD BE MEASURED FROM THERMAL TO RESONANCE REGION TO INVESTIGATE INTERFERENCE BETWEEN DIRECT AND RESONANCE CAPTURE.
MEASUREMENTS OF GAMMA RAY SPECTRA IN THERMAL AND 2.95 KEV REGIONS DESIRABLE FOR DECISION ABOUT EXISTENCE OF INTERFERENCE EFFECTS.
DIRECT MEASUREMENT OF THE EFFECTIVE RESONANCE INTEGRAL IN THE SODIUM MEDIUM FROM 24 KEV NEUTRON SOURCE SEEMS TO BE USEFUL FOR DECIDING THE QUESTION ABOUT THE 2.9 KEV RESONANCE CAPTURE WIDTH.
A: ACCURACY REQUIRED TO BETTER THAN 10. PERCENT.
O: FOR CALCULATION OF NA ACTIVATION IN LMFBR.
SEE ALSO GENERAL COMMENTS IN THE INTRODUCTION.

73	1.00	KEV	100.	KEV	20.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741016

A: ACCURACY OF 0.5 MB OR 20 PERCENT WANTED.

11 SODIUM 23 NEUTRON CAPTURE CROSS SECTION (CONTINUED)

74	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754017

A: FROM 0.5 - 100 KEV ACCURACY 44 PERCENT.
PRIORITY 2 ACCURACY 44 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 50 PERCENT.
PRIORITY 2 ACCURACY 50 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 50 PERCENT.
PRIORITY 2 ACCURACY 50 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS

USA (1974). USNDC: 2.8 KEV. CAPTURE WIDTH DISCREPANCY REMAINS.

11 SODIUM 23 NEUTRON CAPTURE GAMMA RAY SPECTRUM

75	2.95	KEV			10.0%	2	USA	C.E.TILL	ANL	721032

M: SUBSTANTIAL MODIFICATIONS.

11 SODIUM 23 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

76	2.00	MEV	15.0	MEV	15.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741018

Q: ENERGY AND ANGULAR DISTRIBUTION OF PHOTONS WANTED.
A: 20 PERCENT IN ANGULAR DISTRIBUTION IF NOT ISOTROPIC.
GAMMA ENERGY RESOLUTION 10 PERCENT.

11 SODIUM 23 NEUTRON N,2N

77			16.0	MEV	15.0%	2	USA	P.B.HEMMIG	AEC	741020

O: NEEDED FOR COOLANT ACTIVATION.

11 SODIUM 23 NEUTRON RESONANCE PARAMETERS

78	2.95	KEV			10.0%	1	USA	C.E.TILL P.B.HEMMIG	ANL AEC	621008

Q: NEUTRON AND CAPTURE WIDTH NEEDED.

79	2.90	KEV	100.	KEV		2	CCP	M.N.NIKOLAEV	FEI	714001

Q: NEUTRON AND CAPTURE WIDTHS WANTED.
A: NEUTRON WIDTH FOR 2.95 KEV LEVEL WANTED WITH 5 PERCENT ACCURACY.
ALL OTHER WIDTHS REQUIRED WITH 10 PERCENT ACCURACY.
O: FOR FAST REACTOR CALCULATION.

STATUS

UNDER CONTINUOUS REVIEW BY NEANDC. SEE APPENDIX A.

USA (1974). USNDC: 2.8 KEV. CAPTURE WIDTH DISCREPANCY REMAINS.

BNL CHRIEN ET AL UNPUBLISHED DATA.

HAR MEASUREMENTS TO BE PUBLISHED.

ANL W.M.WILSON ET AL. MEASUREMENTS TO BE PUBLISHED.

13 ALUMINUM NEUTRON NEUTRON EMISSION CROSS SECTION

80	500.	KEV	15.0	MEV	15. %	2	SWD	T.LEFVERT	FOA	762163

Q: SECONDARY ANGULAR AND ENERGY DISTRIBUTION ALSO USEFUL.
O: SHIELDING
NEUTRON TRANSPORT CALCULATIONS.
M: NEW REQUEST.

13 ALUMINUM 27 NEUTRON N,ALPHA

81	8.00	MEV	12.0	MEV	4.0%	1	JAP	Y.KANDA	KYU	682007

O: FOR NEUTRON YIELD MONITOR.
DATA AVAILABLE 7 PERCENT.

82					2.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742114

Q: AVERAGE CROSS SECTION IN A U-235 FISSION SPECTRUM DESIRED.
O: FOR NORMALIZATION OF AVERAGE CROSS SECTIONS FOR DOSIMETRY PURPOSES.

83	6.40	MEV	11.9	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742123

O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

14 SILICON — NEUTRON — NEUTRON EMISSION CROSS SECTION

84	500.	KEV	15.0	MEV	15. %	2	SWD	T.LEFVERT	FOA		762164

Q: SECONDARY ANGULAR AND ENERGY DISTRIBUTION ALSO USEFUL.
O: SHIELDING.
NEUTRON TRANSPORT CALCULATIONS.
M: NEW REQUEST.

15 PHOSPHORUS 31 — NEUTRON — N,P

85			15.0	MEV		2	SWT	J.BRUNNER	WUR		692050

A: REQUIRED 5. PERCENT ACCURACY TO 6. MEV AND 10. PERCENT ABOVE.
O: FAST FLUX MEASUREMENTS IN SHIELDS.
DISAGREEMENT BETWEEN DIFFERENT MEASUREMENTS OF INSUFFICIENT ACCURACY.
NO DATA BETWEEN 10 AND 14 MEV.

86	2.20	MEV	7.00	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP		GEL	742124

O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

16 SULFUR — NEUTRON — TOTAL CROSS SECTION

87	10.0	KEV	500.	KEV	3.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL		741021

O: FOR SHIELDING EFFECT OF CONCRETE.

16 SULFUR — NEUTRON — CAPTURE CROSS SECTION

88	10.0	KEV	500.	KEV	10.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL		741023

O: FOR SHIELDING EFFECT OF CONCRETE.

16 SULFUR — NEUTRON — CAPTURE GAMMA RAY SPECTRUM

89	10.0	KEV	500.	KEV	15.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL		741025

O: FOR SHIELDING EFFECT OF CONCRETE.

16 SULFUR 32 — NEUTRON — N,P

90			15.0	MEV		2	SWT	J.BRUNNER	WUR		692053

A: REQUIRED 5. PERCENT ACCURACY TO 6. MEV AND 10. PERCENT ABOVE.
O: STANDARD FOR FLUX MEASUREMENTS.

91	2.50	MEV	7.50	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP		GEL	742125

O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

17 CHLORINE — NEUTRON — N,P

92	10.0	KEV	2.00	MEV	10.0%	3	UK	J.SMITH	WIN		692054

O: FOR FUSED SALT REACTORS.

18 ARGON 36 — NEUTRON — N,P

93	25.2	MV	15.0	MEV	30. %	2	JAP	T.NISIMURA	MAP		762177

Q: FOR FBR SHIELDING CALCULATIONS.
M: NEW REQUEST.

18 ARGON 40 — NEUTRON — CAPTURE CROSS SECTION

94			10.0	MEV		2	JAP	M.KAWAI	NIG		712006

A: ACCURACY REQUIRED TO BETTER THAN 20.0 PERCENT.
O: FOR REACTOR HAZARD CALCULATION.

18 ARGON 40 — NEUTRON — N,P

95	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS		693009

A: INCIDENT ENERGY RESOLUTION 200 KEV.
O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.

96			15.0	MEV	20. %	2	JAP	T.NISIMURA	MAP	762178

Q: FOR FBR SHIELDING CALCULATIONS.
M: NEW REQUEST.

19 POTASSIUM 41 NEUTRON N,P

97	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693010

A: INCIDENT ENERGY RESOLUTION 200 KEV.
Q: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.

20 CALCIUM NEUTRON TOTAL CROSS SECTION

98	1.00	KEV	500.	KEV		2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741027

A: ACCURACY REQUIRED - 3 TO 4 PERCENT.
Q: FOR SHIELDING EFFECT OF CONCRETE.

20 CALCIUM NEUTRON CAPTURE CROSS SECTION

99	1.00	KEV	500.	KEV	10.0%	2	USA	P.B.HEMMIG C.E.CLIFFORD	AEC ORL	741029

Q: FOR SHIELDING EFFECT OF CONCRETE.

20 CALCIUM NEUTRON NEUTRON EMISSION CROSS SECTION

100	500.	KEV	15.0	MEV	15. %	2	SWD	T.LEFVERT	FOA	762165

Q: SECONDARY ANGULAR AND ENERGY DISTRIBUTION ALSO USEFUL.
Q: SHIELDING.
NEUTRON TRANSPORT CALCULATIONS.
M: NEW REQUEST.

21 SCANDIUM 45 NEUTRON CAPTURE CROSS SECTION

101	1.00	KEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691065

Q: FOR USE AS A FLUENCE MONITOR.

102	1.00	KEV	3.00	MEV	10.0%	2	FR	C.PHILIS	BRC	692062

Q: PRODUCTION OF SC-46 (84 DAY).
Q: DOSIMETRY.

21 SCANDIUM 45 NEUTRON N,2N

103			15.0	MEV	5.0%	2	FR	C.PHILIS	BRC	692061

Q: PRODUCTION OF SC-44 (2.44 DAY AND 3.9 HOUR).
Q: DOSIMETRY.

21 SCANDIUM 45 NEUTRON N,ALPHA

104			15.0	MEV	10.0%	2	FR	C.PHILIS	BRC	692064

Q: PRODUCTION OF K-42 (12.4 HOUR).
Q: DOSIMETRY.

22 TITANIUM NEUTRON ABSORPTION CROSS SECTION

105	500.	EV	15.0	MEV	25.0%	3	FR	J.Y.BARRE	CAD	712007

Q: FOR FAST REACTOR CALCULATIONS.

22 TITANIUM NEUTRON CAPTURE CROSS SECTION

106	100.	EV	100.	KEV	20.0%	2	UK	C.G.CAMPBELL	WIN	692065

Q: FOR FAST REACTORS.

22 TITANIUM NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

107	10.0	KEV	16.0	MEV	20.0%	1	USA	C.E.CLIFFORD	ORL	691068

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
Q: FOR USE IN REACTOR SHIELDING CALCULATIONS.

22 TITANIUM NEUTRON N,P

108	3.40	MEV	9.10	MEV	5.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742118

Q: ROUTINE FAST NEUTRON FLUENCE MONITOR.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.
STATUS

22 TITANIUM 46 — NEUTRON — N,P

109	1.00	MEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691069
							Q:	REQUIRED IS ACTIVATION. DATA REQUIRED AT 500 KEV INTERVALS.		
							A:	ENERGY RESOLUTION 100 KEV.		
							O:	FOR USE AS A FLUENCE MONITOR.		
110			15.0	MEV	10.0%	2	FR	C.PHILIS	BRC	692067
							Q:	PRODUCTION OF SC-46 (85 DAY).		
							O:	ACTIVATION DETECTOR.		
111	3.40	MEV	9.10	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742126
							O:	FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.		

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

22 TITANIUM 47 — NEUTRON — N,P

112	1.00	MEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691071
							Q:	REQUIRED IS ACTIVATION. DATA REQUESTED IN 1 MEV INTERVALS.		
							A:	ENERGY RESOLUTION 100 KEV.		
							O:	FOR USE AS A FLUENCE MONITOR.		
113			15.0	MEV	10.0%	2	FR	C.PHILIS	BRC	692070
							Q:	PRODUCTION OF SC-47 (3.43 DAY).		
							O:	ACTIVATION DETECTOR.		
114	2.10	MEV	7.00	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742127
							O:	FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.		

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

22 TITANIUM 48 — NEUTRON — N,P

115	1.00	MEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691073
							Q:	REQUIRED IS ACTIVATION. DATA REQUIRED AT 500 KEV INTERVALS.		
							A:	ENERGY RESOLUTION 100 KEV.		
							O:	FOR USE AS FLUENCE MONITOR.		
116	3.20	MEV	10.0	MEV	20.0%	2	USA	R.EHRLICH	KAP	691074
							Q:	REQUIRED IS ACTIVATION.		
117			15.0	MEV	10.0%	2	FR	C.PHILIS	BRC	692072
							Q:	PRODUCTION OF SC-48 (1.83 DAY).		
							O:	ACTIVATION DETECTOR.		
118	6.60	MEV	12.8	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742128
							O:	FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.		

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

23 VANADIUM — NEUTRON — ELASTIC CROSS SECTION

119	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753040
							O:	REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		

23 VANADIUM — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

120	1.40	MEV	10.0	MEV	10.0%	3	USA	C.E.TILL P.B.HEMMIG	ANL AEC	621009
							A:	ENERGY RESOLUTION 500 KEV. ANGULAR RESOLUTION 10 DEGREES.		

23 VANADIUM — NEUTRON — INELASTIC CROSS SECTION

121			20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753041
							O:	REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		

23 VANADIUM			**NEUTRON**		**ENERGY DIFFERENTIAL INELASTIC CROSS SECTION**					
122	1.50	MEV	10.0	MEV	15.0%	3	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	621011
								Q: TOTAL INTEGRAL OVER 4 PI REQUIRED. SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC.		
23 VANADIUM			**NEUTRON**		**ABSORPTION CROSS SECTION**					
123	1.00	KEV	150.	KEV	10.0%	3	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	621015
								A: ENERGY RESOLUTION 10 PERCENT. Q: TO RESOLVE DISCREPANCIES IN EXISTING DATA.		
124	500.	EV	15.0	MEV	25.0%	3	FR	J.Y.BARRE	CAD	712010
								Q: FOR FAST REACTOR CALCULATIONS.		
23 VANADIUM			**NEUTRON**		**CAPTURE CROSS SECTION**					
125	100.	EV	100.	KEV	10.0%	2	UK	C.G.CAMPBELL	WIN	692073
								Q: FOR FAST REACTORS.		
126	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753042
								Q: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		
23 VANADIUM 51			**NEUTRON**		**N,ALPHA**					
127			15.0	MEV	5.0%	2	FR	C.PHILIS	BRC	692075
								Q: PRODUCTION OF SC-48 (1.83 DAY). Q: ACTIVATION DETECTOR.		
24 CHROMIUM			**NEUTRON**		**TOTAL CROSS SECTION**					
128	1.00	KEV	20.0	MEV	3.0%	2	USA	P.B.HEMMIG	AEC	721035
								A: 5 PERCENT ACCURACY IN DEEP MINIMA. ENERGY RESOLUTION SUFFICIENT TO RESOLVE MAJOR STRUCTURE.		
129	1.00	KEV	20.0	MEV	3.0%	2	USA	B.HUTCHINS	GEB	741031
								A: 5 PERCENT ACCURACY IN DEEP MINIMA.		
24 CHROMIUM			**NEUTRON**		**ELASTIC CROSS SECTION**					
130	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753031
								Q: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		
24 CHROMIUM			**NEUTRON**		**DIFFERENTIAL ELASTIC CROSS SECTION**					
131	2.00	MEV	14.0	MEV	9.0%	2	USA	R.EHRLICH	KAP	691076
								A: ENERGY RESOLUTION 100 KEV.		
132	1.50	MEV	3.00	MEV	15.0%	2	GER	B.GOEL	KFK	692076
								A: ABOUT 100 KEV ENERGY RESOLUTION NEEDED. ABOUT 10 DEGREE ANGULAR RESOLUTION REQUIRED.		
133	2.00	MEV	16.0	MEV	20.0%	2	FR	C.DEVILLERS	SAC	692077
								A: ACCURACY 10 PERCENT PREFERRED. ENERGY RESOLUTION 0.5 MEV. ANGULAR RESOLUTION 5 TO 10 DEGREES. Q: EVALUATION MAY BE SUFFICIENT.		
134	8.00	MEV	16.0	MEV	20.0%	2	GER	B.GOEL	KFK	692078
								A: ENERGY RESOLUTION .5 MEV. ANGULAR RESOLUTION 5 TO 10 DEGREES.		
135	100.	KEV	15.0	MEV	10.0%	3	USA	P.B.HEMMIG	AEC	741032
24 CHROMIUM			**NEUTRON**		**INELASTIC CROSS SECTION**					
136			20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753032
								Q: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		

24 CHROMIUM NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

137	500.	KEV	15.0	MEV	10.0%	2	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	661012

Q: TOTAL INTEGRAL OVER 4 PI REQUIRED. SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC.
A: ENERGY RESOLUTION REQUIRED TO DETERMINE MAJOR STRUCTURE.

138			15.0	MEV	20.0%	3	FR	J.Y.BARRE	CAD	732040

O: FOR FAST REACTOR CALCULATIONS.

24 CHROMIUM NEUTRON ABSORPTION CROSS SECTION

139	500.	EV	15.0	MEV	5.0%	1	FR	J.Y.BARRE	CAD	712014

O: FOR FAST REACTOR CALCULATIONS.

24 CHROMIUM NEUTRON CAPTURE CROSS SECTION

140	100.	EV	100.	KEV	20.0%	1	UK	C.G.CAMPBELL	WIN	692082

O: FOR FAST REACTORS.

141	1.00	KEV	200.	KEV	10.0%	2	GER	B.GOEL	KFK	692083

Q: RESONANCE PARAMETERS ALSO REQUIRED PARTICULARY FOR CR-53.
ADDITIONAL CAPTURE MEASUREMENTS AND CAPTURE WIDTH DETERMINATIONS FOR INDIVIDUAL RESONANCES WANTED.
O: CAPTURE WIDTHS NEEDED BECAUSE OF LARGE DISCREPANCIES BETWEEN DIRECTLY MEASURED INFINITE CAPTURE RESONANCE INTEGRAL AND THAT CALCULATED FROM DIFFERENTIAL CAPTURE MEASUREMENTS.

142	500.	EV	1.00	MEV	5.0%	1	FR	J.Y.BARRE	CAD	692084

Q: NEED OF RESONANCE PARAMETERS FOR THE MAIN ISOTOPES.
O: FAST REACTOR CALCULATIONS.
EVALUATION AND EXPERIMENT NEEDED.

143	1.00	KEV	600.	KEV	25.0%	2	FR	C.DEVILLERS	SAC	692085

O: FOR HEATING AND CIRCUIT ACTIVATION CALCULATION. EVALUATION MAY BE SUFFICIENT.

144	1.00	KEV	1.00	MEV	15.0%	2	USA	B.HUTCHINS P.B.HEMMIG C.E.CLIFFORD	GEB AEC ORL	721036

A: ENERGY RESOLUTION 20 PERCENT.

145	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753033

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

24 CHROMIUM NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

146	1.00	KEV	15.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692080

Q: GAMMA SPECTRA REQUIRED.
A: ENERGY RESOLUTION OF 250 KEV FOR GAMMA RAYS LESS THAN 1 MEV AND 500 KEV FOR ENERGIES GREATER THAN 1 MEV.
O: EVALUATION MAY BE SUFFICIENT.

147			15.0	MEV	10.0%	2	USA	P.B.HEMMIG	AEC	721037

Q: ENERGY DISTRIBUTION OF PHOTONS WANTED. ENERGY REQUESTED IS A MAXIMUM VALUE ONLY.
A: GAMMA-RAY INTERVALS - 500 KEV.
O: FOR USE IN SHIELDING CALCULATIONS.

24 CHROMIUM NEUTRON NEUTRON EMISSION CROSS SECTION

148	2.00	MEV	14.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692079

Q: SECONDARY ENERGY-ANGLE DISTRIBUTION REQUIRED.
A: ENERGY RESOLUTION 10 PERCENT.
O: FOR FAST REACTOR SHIELDING CALCULATIONS. EVALUATION MAY BE SUFFICIENT.

24 CHROMIUM NEUTRON N,P

149					30.0%	3	UK	C.G.CAMPBELL	WIN	692086

Q: FISSION SPECTRUM AVERAGE WANTED.
O: FOR FAST REACTORS.

150			15.0	MEV	10.0%	1	FR	J.Y.BARRE	CAD	712016

O: FOR FAST REACTOR CALCULATIONS.

24 CHROMIUM			NEUTRON		N,ALPHA					
151	3.00	MEV	15.0	MEV	20.0%	2	FR	C.DEVILLERS	SAC	682008
								D: EVALUATION MAY BE SUFFICIENT.		
152	3.00	MEV	15.0	MEV	10.0%	1	FR	J.Y.BARRE	CAD	732041
								D: FOR FAST REACTOR CALCULATIONS.		
24 CHROMIUM			NEUTRON		CAPTURE RESONANCE INTEGRAL					
153	0.50	EV				1	USA	R.EHRLICH	KAP	691077
								Q: ENERGY REQUESTED IS A MINIMUM VALUE ONLY. REMOVE OR CORRECT FOR (N,P) CONTRIBUTION. A: ACCURACY REQUIRED - 10 TO 15 PERCENT. D: INTEGRAL EXPERIMENT NEEDED TO CHECK RESONANCE PARAMETERS.		
24 CHROMIUM 50			NEUTRON		RESONANCE PARAMETERS					
154			100.	KEV	10.0%	2	USA	F.G.PEREY	ORL	741033
								Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.		
24 CHROMIUM 52			NEUTRON		N,P					
155			15.0	MEV		2	GER	B.GOEL	KFK	692088
								A: ACCURACY 10-20 PERCENT DESIRED. D: MAIN ABSORPTION PROCESS IN MEV RANGE.		
24 CHROMIUM 52			NEUTRON		RESONANCE PARAMETERS					
156			100.	KEV	10.0%	2	USA	F.G.PEREY	ORL	741034
								Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.		
24 CHROMIUM 53			NEUTRON		RESONANCE PARAMETERS					
157	1.00	KEV	600.	KEV		2	USA	R.EHRLICH	KAP	691081
								Q: NEUTRON WIDTHS WANTED. D: INTEGRAL EXPERIMENT NEEDED TO CHECK RESONANCE PARAMETERS.		
158			100.	KEV	10.0%	2	USA	F.G.PEREY	ORL	741035
								Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.		
25 MANGANESE 54			NEUTRON		CAPTURE CROSS SECTION					
159	25.3	MV			5.0%	2	BLG	N.MAENE	MOL	692092
								D: FOR BURN-UP CALCULATION OF FE-54(N,P) MN-54 REACTION PRODUCT.		
25 MANGANESE 55			NEUTRON		TOTAL CROSS SECTION					
160					4.0%	2	USA	F.G.PEREY	ORL	741195
								Q: NEED VALUES IN FE WINDOWS.		
25 MANGANESE 55			NEUTRON		ABSORPTION CROSS SECTION					
161	500.	EV	15.0	MEV	7.00%	2	FR	J.Y.BARRE	CAD	712017
								D: FOR FAST REACTOR CALCULATIONS.		
25 MANGANESE 55			NEUTRON		CAPTURE CROSS SECTION					
162	100.	EV	100.	KEV	20.0%	2	UK	C.G.CAMPBELL	WIN	682010
								D: FOR FAST REACTORS.		
25 MANGANESE 55			NEUTRON		N,2N					
163			13.0	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742129
								D: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.		

STATUS STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

25 MANGANESE 55 NEUTRON CAPTURE RESONANCE INTEGRAL

164	0.50	EV			5.0%	2	USA	N.STEEN	BET	741036
								Q: ENERGY REQUESTED IS A MINIMUM VALUE ONLY.		
								O: NEEDED FOR ANALYSIS OF EXPERIMENTS.		

26 IRON NEUTRON TOTAL CROSS SECTION

165	500.	EV	15.0	MEV	1.0%	2	FR	J.Y.BARRE	CAD	712021
								O: FOR FAST REACTOR CALCULATIONS.		
166	10.0	KEV	1.00	MEV	5.0%	2	CCP	M.N.NIKOLAEV	FEI	714003
								Q: CAREFUL MEASUREMENTS OF INTERFERENCE MINIMA NEEDED. OBSERVATION OF P-WAVE RESONANCES IS WANTED.		
								A: TRANSMISSION MEASUREMENTS WITH POOR RESOLUTION BUT STRONG ATTENUATION OF THE PRIMARY BEAM ARE WANTED FOR MINIMA CS MEASUREMENTS. HIGH RESOLUTION MEASUREMENTS ARE DESIRED FOR P-WAVE RESONANCE OBSERVATION AND RESONANCE PARAMETER DERIVATION.		
								O: FOR SHIELDING CALCULATION NEEDS AND EVALUATION OF THE TOTAL AND CAPTURE CROSS SECTIONS FOR FAST REACTOR CALCULATIONS. COMPARISON OF THE S AND P-WAVE LEVEL DENSITIES IS VERY INTERESTING FROM THE POINT OF VIEW OF LEVEL DENSITY PARITY DEPENDENCE CONFIRMATION.		
167	1.00	MV	1.00	MEV	5.0%	1	USA	P.B.HEMMIG B.HUTCHINS C.E.CLIFFORD	AEC GEB ORL	741037
								A: 5 PERCENT ACCURACY IN DEEP MINIMA (LESS THAN ONE BARN).		

26 IRON NEUTRON ELASTIC CROSS SECTION

168	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753034
								O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		

26 IRON NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

169	7.00	MEV	14.0	MEV	9.0%	1	USA	R.EHRLICH	KAP	691084
								A: ENERGY RESOLUTION 100 KEV. ANGULAR RESOLUTION 5 DEGREES.		
170	500.	KEV	3.00	MEV	5.0%	1	USA	C.E.CLIFFORD	ORL	691085
								Q: REQUIRED AT SEVERAL PEAKS AND VALLEYS. A: ENERGY RESOLUTION 1 PERCENT. O: REQUIRED FOR SHIELDING.		
171	1.00	KEV	15.0	MEV	10.0%	1	USA	C.E.TILL	ANL	691086
								A: RESOLUTION AT LEAST TO RESOLVE INTERMEDIATE STRUCTURE.		
172	1.00	KEV	15.0	MEV	10.0%	1	USA	P.B.HEMMIG	AEC	691087
173	8.00	MEV	15.0	MEV	10.0%	2	GER	B.GOEL	KFK	692094
								Q: MEASUREMENTS DESIRED IN ENERGY STEPS OF 1 MEV. AND ANGULAR STEPS OF 10 DEGREES. O: FOR SHIELDING CALCULATIONS.		
174	1.00	KEV	15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742029
								O: FOR CRITICAL ASSEMBLIES.		

26 IRON NEUTRON INELASTIC CROSS SECTION

175			20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753035
								O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		

26 IRON NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

176	850.	KEV	2.00	MEV	5.0%	1	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	661016
								Q: TOTAL INTEGRAL OVER 4 PI WANTED. SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC. A: RESOLUTION 20 KEV FOR INCIDENT AND SCATTERED NEUTRONS.		
177	2.00	MEV	5.00	MEV	10.0%	2	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	661018
								Q: TOTAL INTEGRAL OVER 4 PI WANTED. SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC. A: RESOLUTION 20 KEV FOR INCIDENT AND SCATTERED NEUTRONS.		
178			14.0	MEV	5.0%	2	FR	J.Y.BARRE	CAD	702007
								O: FOR FAST REACTOR CALCULATIONS.		

179	1.50	MEV	15.0	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	712022

Q: FOR FAST REACTOR CALCULATIONS.

180	900.	KEV	15.0	MEV	5.0%	2	CCP	M.N.NIKOLAEV	FEI	714004

Q: IN CONTINUUM REGION ENERGY DEPENDENCE OF NUCLEAR TEMPERATURE WANTED.
IN THE REGION BELOW 3 MEV AVERAGE CHARACTERISTICS OF STRUCTURE IN THE CROSS SECTION ARE WANTED FOR EVALUATION OF SELF SHIELDING.
TRANSMISSION MEASUREMENTS USING THE SELF-INDICATION METHOD WITH DETECTION OF GAMMA RAYS FROM INELASTIC SCATTERING ARE DESIRED.
MEASUREMENTS SHOULD EXTEND TO PRIMARY-BEAM ATTENUATION DOWN TO 1/100 OR 1/1000.
A: CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION THRESHOLD OF U-238 WANTED WITH 5.0 PERCENT ACCURACY.
LEVEL EXCITATION CROSS SECTION DESIRED WITH 10 PERCENT ACCURACY.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

26 IRON NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

181			10.0	MEV		3	UK	C.G.CAMPBELL J.BUTLER	WIN WIN	692098

A: ACCURACY REQUIRED IS 5 PERCENT TO 4 MEV AND 5 TO 10 PERCENT ABOVE
O: FOR FAST REACTORS AND SHIELDING.

182			15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742030

O: FOR CRITICAL ASSEMBLIES.

26 IRON NEUTRON ABSORPTION CROSS SECTION

183	500.	EV	15.0	MEV	5.0%	1	FR	J.Y.BARRE	CAD	712023

O: FOR FAST REACTOR CALCULATIONS.

26 IRON NEUTRON CAPTURE CROSS SECTION

184	100.	EV	1.00	MEV		1	UK	C.G.CAMPBELL	WIN	692101

A: ACCURACY REQUIRED 10 PERCENT TO 100 KEV, 20. PERCENT ABOVE.
O: FOR FAST REACTORS.

185	1.00	KEV	200.	KEV	10.0%	1	JAP	S.KATSURAGI	JAE	692102

O: FOR FAST REACTORS.
DISCREPANCIES EXIST AMONG EXPERIMENTAL DATA.

186	1.00	KEV	100.	KEV	10.0%	2	GER	B.GOEL	KFK	692103

O: EXISTING DATA DISAGREE UP TO 200 PERCENT.
STRONG DISAGREEMENT BETWEEN 10 AND 100 KEV.

187	500.	EV	1.00	MEV	5.0%	1	FR	J.Y.BARRE	CAD	692104

Q: NEED OF RESONANCE PARAMETERS FOR THE MAIN ISOTOPES.
O: FOR FAST REACTOR CALCULATIONS.

188	1.00	EV	1.00	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	712024

O: FOR FAST REACTOR CALCULATIONS.

189	500.	EV	800.	KEV	10.0%	1	CCP	M.N.NIKOLAEV	FEI	714005

Q: DESIRABLE TO USE EXPERIMENTAL METHODS WHICH ARE NOT VERY SENSITIVE TO SELF-SHIELDING AND TO CAPTURE-AFTER-SCATTERING EFFECTS.
A: 20 PERCENT ABOVE 100 KEV WOULD BE VERY USEFUL.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
FIRST PRIORITY BECAUSE IT IS DIFFICULT TO EVALUATE THE IRON CAPTURE CROSS SECTION TO REQUESTED ACCURACY FROM MACROSCOPIC EXPERIMENTS ONLY.

190	1.00	MV	1.00	MEV	10.0%	2	USA	R.EHRLICH	KAP	721039

Q: VALUES NEEDED IN MINIMA.
O: SHAPE OF RESOLUTION FUNCTION IMPORTANT SO MEANINGFUL BROADENING CAN BE APPLIED TO THEORETICAL VALUES TO COMPARE WITH EXPERIMENT.
SAMPLE COMPOSITION SHOULD BE KNOWN WELL ENOUGH TO PERMIT ISOTOPE SYNTHESIS OF THEORETICAL CROSS SECTION.
FOR SHIELDING CALCULATIONS.

191	1.00	KEV	1.00	MEV		1	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741040

A: ACCURACY REQUIRED - 5 TO 10 PERCENT.

192	1.00	KEV	3.00	MEV	10.0%	2	FR	M.SOLEILHAC	BRC	742032

O: FOR CRITICAL ASSEMBLIES.

193	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753036

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

STATUS

26 IRON NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

194	25.3	MV	10.0	MEV		1	USA	P.B.HEMMIG	AEC	661022
								Q: SECONDARY ENERGY DISTRIBUTION REQUIRED.		
								A: ACCURACY REQUIRED TO BETTER THAN 15. PERCENT.		
								O: FOR USE IN SHIELDING CALCULATIONS.		
195	1.00	KEV	15.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692096
								Q: GAMMA SPECTRA REQUIRED.		
								A: ENERGY RESOLUTION OF 250 KEV FOR GAMMA RAYS LESS THAN 1 MEV AND 500 KEV FOR ENERGIES GREATER THAN 1 MEV.		
								O: FOR SHIELDING CALCULATIONS. EVALUATION MAY BE SUFFICIENT.		
196	100.	KEV	15.0	MEV	15. %	2	SWD	T.LEFVERT	FOA	762166
								Q: GAMMA RAY ANGULAR AND ENERGY DISTRIBUTIONS ALSO WANTED.		
								A: GAMMA RAY ENERGY RESOLUTION 0.5 MEV.		
								O: SHIELDING CALCULATIONS		
								M: NEW REQUEST.		

26 IRON NEUTRON NEUTRON EMISSION CROSS SECTION

197	50.0	KEV	15.0	MEV	15. %	2	SWD	T.LEFVERT	FOA	762167
								Q: SECONDARY ANGULAR AND ENERGY DISTRIBUTION ALSO USEFUL.		
								O: SHIELDING. NEUTRON TRANSPORT CALCULATIONS.		
								M: NEW REQUEST.		

26 IRON NEUTRON N,P

198			15.0	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	712025
								O: FOR FAST REACTOR CALCULATIONS.		
199			15.0	MEV	10.0%	1	FR	J.Y.BARRE	CAD	712026
								O: FOR FAST REACTOR CALCULATIONS.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

26 IRON NEUTRON N,ALPHA

200	25.3	MV	15.0	MEV	20.0%	2	GER	B.GOEL	KFK	692105
								O: FOR THE THERMAL VALUE ONLY AN UPPER-LIMIT OF 0.01 MB IS AVAILABLE.		
201			15.0	MEV	20.0%	2	FR	C.DEVILLERS	SAC	692107
								O: EVALUATION MAY BE SUFFICIENT.		
202			15.0	MEV	10.0%	1	FR	J.Y.BARRE	CAD	732042
								O: FOR FAST REACTOR CALCULATIONS.		

26 IRON NEUTRON CAPTURE RESONANCE INTEGRAL

203	0.50	EV				1	USA	R.EHRLICH	KAP	691098
								Q: ENERGY REQUESTED IS A MINIMUM VALUE ONLY. REMOVE OR CORRECT FOR (N,P) CONTRIBUTION.		
								A: ACCURACY REQUIRED - 10 TO 15 PERCENT.		
								O: INTEGRAL EXPERIMENT NEEDED TO CHECK RESONANCE PARAMETERS.		

26 IRON 54 NEUTRON CAPTURE CROSS SECTION

204	1.00	KEV	3.00	MEV	10.0%	2	FR	M.SOLEILHAC	BRC	742033
								O: ACTIVATION DETECTOR.		

26 IRON 54 NEUTRON N,P

205	1.00	MEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691099
								Q: REQUIRED IS ACTIVATION. ENERGY STEPS OF 500 KEV.		
								A: ENERGY RESOLUTION 250 KEV.		
								O: FOR USE AS A FLUENCE MONITOR.		
206			10.0	MEV	15.0%	2	USA	N.STEEN	BET	721044
								Q: REQUIRED IS ACTIVATION. ENERGY INTERVALS - 500 KEV.		
								A: ENERGY RESOLUTION 250 KEV.		

207	2.30	MEV	7.80	MEV	5.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742119
								Q: ROUTINE FAST NEUTRON FLUENCE MONITOR.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

26 IRON 54 NEUTRON RESONANCE PARAMETERS

208			100.	KEV	10.0%	2	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741043
								Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.		

26 IRON 56 NEUTRON N,P

209	8.00	MEV	12.0	MEV	4.0%	1	JAP	Y.KANDA	KYU	682012
								Q: FOR NEUTRON YIELD MONITOR. DATA AVAILABLE 5 PERCENT TO 7 PERCENT.		
210			15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	692111
								Q: PRODUCTION OF MN-56 (2.58 HOUR). O: ACTIVATION DETECTOR.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

26 IRON 56 NEUTRON N,ALPHA

211			10.0	MEV	15.0%	2	USA	B.HUTCHINS	GEB	721040
								Q: TO DETERMINE HE PRODUCTION IN FAST REACTORS.		

26 IRON 56 NEUTRON RESONANCE PARAMETERS

212			100.	KEV	10.0%	1	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741046
								Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.		

26 IRON 57 NEUTRON RESONANCE PARAMETERS

213	1.00	KEV	600.	KEV	9.0%	1	USA	R.EHRLICH	KAP	691102
								Q: NEUTRON WIDTH NEEDED. O: NEEDED FOR EVALUATIONS.		
214			100.	KEV	10.0%	2	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741049
								Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.		

26 IRON 58 NEUTRON CAPTURE CROSS SECTION

215	1.00	KEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691104
								Q: REQUIRED IS ACTIVATION. O: FOR USE AS A FLUENCE MONITOR.		
216	25.2	MV	15.0	MEV	20. %	2	JAP	M.KAWAI	NIG	762179
								O: FISSION REACTOR M: NEW REQUEST.		

27 COBALT 58 NEUTRON CAPTURE CROSS SECTION

217					10.0%	2	USA	N.STEEN	BET	721045
								Q: WANTED FOR BOTH THE 71.3 DAY RADIOACTIVE TARGET AND THE 9.1 HOUR ISOMER. ALL ENERGIES. THERMAL CROSS SECTION MOST IMPORTANT. RESONANCE INTEGRAL ALSO NEEDED. O: FOR INTERPRETATION OF NI-58(N,P) FLUENCE MONITOR DATA.		

27 COBALT 59 NEUTRON ABSORPTION CROSS SECTION

218	500.	EV	15.0	MEV	25.0%	3	FR	J.Y.BARRE	CAD	712027
								O: FOR FAST REACTOR CALCULATIONS.		

27 COBALT 59 NEUTRON CAPTURE CROSS SECTION

219	1.00	KEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691106

Q: REQUIRED IS ACTIVATION OF BOTH GROUND AND METASTABLE STATES.
O: FOR USE AS A FLUENCE MONITOR.

220			10.0	MEV		2	JAP	M.KAWAI	NIG	712028

A: ACCURACY REQUIRED TO BETTER THAN 20.0 PERCENT.
O: FOR FUEL CASK DESIGN AND CONTROL ROD DESIGN.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

27 COBALT 59 NEUTRON N,P

221			15.0	MEV	10.0%	2	FR	M.SOLEILHAC	BRC	692119

Q: PRODUCTION OF FE-59 (45.1 DAY).
O: ACTIVATION DETECTOR.
MEASUREMENTS DIFFER BY FACTOR 10.

28 NICKEL NEUTRON TOTAL CROSS SECTION

222	1.00	KEV	20.0	MEV	3.0%	2	USA	C.E.CLIFFORD P.B.HEMMIG	ORL AEC	721047

A: ACCURACY NEEDED TO 3 TO 5 PERCENT IN DEEP MINIMA.
ENERGY RESOLUTION SUFFICIENT TO RESOLVE MAJOR STRUCTURE.
O: FOR USE IN SHIELDING CALCULATIONS.

28 NICKEL NEUTRON ELASTIC CROSS SECTION

223	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753037

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

28 NICKEL NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

224	1.50	MEV	14.0	MEV	9.0%	1	USA	R.EHRLICH	KAP	691110

A: ENERGY RESOLUTION 100 KEV.
ANGULAR RESOLUTION 5 DEGREES.

225	1.50	MEV	3.00	MEV	15.0%	2	GER	B.GOEL	KFK	692120

A: ABOUT 100 KEV ENERGY RESOLUTION AND ABOUT 5 DEGREES ANGULAR.
RESOLUTION 10 PERCENT ON AVERAGE (COS).

226	8.00	MEV	15.0	MEV	20.0%	2	FR	C.DEVILLERS	SAC	692123

A: ACCURACY 10 PERCENT PREFERRED.
ENERGY RESOLUTION - 500 KEV.
ANGULAR RESOLUTION - 10 DEGREES.
O: FOR FAST REACTOR SHIELDING CALCULATIONS.
EVALUATION MAY BE SUFFICIENT.

227	100.	KEV	15.0	MEV		2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	721048

A: ACCURACY REQUIRED - 5 TO 10 PERCENT.
RESOLUTION OF INTERMEDIATE STRUCTURE PROBABLY ADEQUATE.

28 NICKEL NEUTRON INELASTIC CROSS SECTION

228			20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753038

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

28 NICKEL NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

229			15.0	MEV	10.0%	2	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	661024

Q: TOTAL INTEGRAL OVER 4 PI REQUIRED.
SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC.
A: ENERGY RESOLUTION - 10 PERCENT FOR INCIDENT AND SCATTERED NEUTRON REQUIRED TO DETERMINE MAJOR STRUCTURE.

230			15.0	MEV	30.0%	3	FR	J.Y.BARRE	CAD	702008

O: FOR FAST REACTOR CALCULATIONS.

28 NICKEL NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

231			7.00	MEV		3	UK	C.G.CAMPBELL	WIN	642004

A: ACCURACY REQUIRED 5.0 PERCENT BELOW 4.0 MEV.
5.0 TO 10.0 PERCENT ABOVE.
O: FOR FAST REACTORS.

28 NICKEL — NEUTRON — ABSORPTION CROSS SECTION

232	500.	EV	15.0	MEV	5.0%	1	FR	J.Y.BARRE	CAD	712031
								O: FOR FAST REACTOR CALCULATIONS.		

28 NICKEL — NEUTRON — CAPTURE CROSS SECTION

233	100.	EV	1.00	MEV		1	UK	C.G.CAMPBELL	WIN	692128
								A: ACCURACY REQUIRED 10 PERCENT TO 100 KEV. 20.0 PERCENT OR 2 MB ABOVE. O: FOR FAST REACTORS.		
234	1.00	KEV	200.	KEV	10.0%	1	JAP	S.KATSURAGI	JAE	692129
								O: FOR FAST REACTORS. DATA ARE NOT SUFFICIENT ABOVE 10 KEV.		
235	10.0	KEV	300.	KEV	20.0%	2	GER	B.GOEL	KFK	692131
236	500.	EV	1.00	MEV	5.0%	1	FR	J.Y.BARRE	CAD	702009
								Q: RESONANCE PARAMETERS ALSO REQUIRED. O: FOR FAST REACTOR CALCULATIONS.		
237	1.00	KEV	1.00	MEV	10.0%	2	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741053
238	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753039
								O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

28 NICKEL — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

239	25.3	MV	300.	KEV	20.0%	1	USA	C.E.CLIFFORD	ORL	621020
								Q: SECONDARY ENERGY DISTRIBUTION REQUIRED. O: FOR SHIELDING AND GAMMA HEATING CALCULATIONS.		
240	2.00	MEV	14.0	MEV	20.0%	2	USA	C.E.CLIFFORD	ORL	631003
								Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED. O: FOR SHIELDING AND GAMMA HEATING CALCULATIONS.		
241	1.00	KEV	15.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692125
								Q: GAMMA SPECTRA REQUIRED. A: ENERGY RESOLUTION OF 250 KEV FOR GAMMA RAYS LESS THAN 1 MEV AND 500 KEV FOR ENERGIES GREATER THAN 1 MEV. O: FOR FAST REACTOR SHIELDING CALCULATIONS. EVALUATION MAY BE SUFFICIENT.		
242	25.3	MV	10.0	MEV	20.0%	2	USA	P.B.HEMMIG	AEC	721052
								Q: SECONDARY ENERGY DISTRIBUTION REQUIRED. O: FOR SHIELDING AND GAMMA HEATING CALCULATIONS.		

28 NICKEL — NEUTRON — NEUTRON EMISSION CROSS SECTION

243	2.00	MEV	15.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692124
								Q: SECONDARY ENERGY DISTRIBUTION REQUIRED. A: RESOLUTION FOR PRIMARY AND SECONDARY NEUTRONS 10 PERCENT. O: FOR FAST REACTOR SHIELDING CALCULATIONS. EVALUATION MAY BE SUFFICIENT.		

28 NICKEL — NEUTRON — N,P

244			15.0	MEV	10.0%	1	FR	J.Y.BARRE	CAD	702010
								O: FOR FAST REACTOR CALCULATIONS.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

28 NICKEL — NEUTRON — N,ALPHA

245			15.0	MEV	20.0%	2	FR	C.DEVILLERS	SAC	692132
								O: FOR FAST REACTOR CALCULATIONS. EVALUATION MAY BE SUFFICIENT.		
246			10.0	MEV	15.0%	2	USA	B.HUTCHINS	GEB	721051
								O: TO DETERMINE HE PRODUCTION IN FAST REACTORS.		
247			15.0	MEV	10.0%	1	FR	J.Y.BARRE	CAD	732044
								O: FOR FAST REACTOR CALCULATIONS.		
248	25.3	MV	10.0	MEV	50.0%	2	GER	B.GOEL	KFK	762250
								O: FOR NEUTRON DAMAGE PREDICTION. M: NEW REQUEST.		

STATUS UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A. STATUS

28 NICKEL NEUTRON CAPTURE RESONANCE INTEGRAL

249	0.50	EV		15.0%	1	USA	R.EHRLICH	KAP		691109
							O: REMOVE OR CORRECT FOR N,P CONTRIBUTION.			

28 NICKEL 58 NEUTRON N,2N

250			15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	692133
							Q: PRODUCTION OF NI-57 (36.4 HOUR). O: ACTIVATION DETECTOR. EVALUATION MAY BE SUFFICIENT. DISAGREEMENT BETWEEN JERONYMO(SACLAY) AND OTHERS.			

STATUS UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A. STATUS

28 NICKEL 58 NEUTRON N,P

251			15.0	MEV	5.0%	2	USA	N.STEEN	BET	721055
							O: FOR USE AS FAST FLUENCE MONITOR.			
252					2.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742115
							Q: AVERAGE CROSS SECTION IN A U-235 FISSION SPECTRUM DESIRED. O: FOR NORMALIZATION OF AVERAGE CROSS SECTIONS FOR DOSIMETRY PURPOSES.			
253	2.10	MEV	7.00	MEV	5.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742117
							O: ROUTINE FAST NEUTRON FLUENCE MONITOR. STRONG DISCREPANCY BETWEEN DIFFERENTIAL DATA AND AVERAGE VALUE IN U-235 FISSION NEUTRON SPECTRUM.			

STATUS UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A. STATUS

28 NICKEL 58 NEUTRON N,NP

254			15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	692136
							Q: PRODUCTION OF CO-57 (270 DAY) THROUGH SIGMA(N,NP)+SIGMA(N,D). O: ACTIVATION DETECTOR. CIRCUIT ACTIVATION. DISAGREEMENT BETWEEN JERONYMO(SACLAY) AND OTHERS.			

28 NICKEL 58 NEUTRON N,ALPHA

255			14.0	MEV		2	GER	B.GOEL	KFK	692135
							A: ACCURACY REQUIRED TO BETTER THAN 20. PERCENT. O: VERIFICATION OF EVAPORATION THEORY CALCULATIONS.			

STATUS UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A. STATUS

28 NICKEL 58 NEUTRON RESONANCE PARAMETERS

256			100.	KEV	10.0%	2	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741056
							Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.			

28 NICKEL 59 NEUTRON N,ALPHA

257	25.3	MV	500.	EV	20.0%	2	BLG	N.MAENE	MOL	742023
							A: EVEN AN ACCURACY OF 50 PERCENT WOULD BE USEFUL. O: EVALUATION OF HE PRODUCTION IN STEEL IN HIGH FLUX REACTORS THROUGH THE REACTION CHAIN NI-58(N,GAMMA)NI-59(N,ALPHA)FE-56.			
258	25.3	MV	10.0	MEV	25.0%	2	GER	B.GOEL	KFK	762251
							O: FOR NEUTRON DAMAGE PREDICTION. M: NEW REQUEST.			

28 NICKEL 60 NEUTRON N,P

259			15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	692137
							Q: PRODUCTION OF CO-60 (5.3 YEAR). O: ACTIVATION DETECTOR.			

28 NICKEL 60 — NEUTRON — N,ALPHA

260			14.0	MEV		2	GER	B.GOEL	KFK	692138

A: ACCURACY REQUIRED TO BETTER THAN 20. PERCENT.
O: VERIFICATION OF EVAPORATION THEORY CALCULATIONS.

28 NICKEL 60 — NEUTRON — RESONANCE PARAMETERS

261			100.	KEV	10.0%	2	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741059

Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.

28 NICKEL 61 — NEUTRON — RESONANCE PARAMETERS

262	1.00	KEV	600.	KEV	9.0%	1	USA	R.EHRLICH	KAP	691128

Q: NEUTRON WIDTH NEEDED.

263			100.	KEV	10.0%	3	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741062

Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.

28 NICKEL 62 — NEUTRON — CAPTURE CROSS SECTION

264	1.00	KEV	1.00	MEV	20.0%	2	FR	A.MICHAUDON	BRC	682013

Q: PRODUCTION OF NI-63 (92 YEAR).
O: ACTIVATION DETECTOR.

265	500.	EV	200.	KEV	30.0%	3	FR	J.Y.BARRE	CAD	762139

O: PROBLEMS OF FUEL-CYCLE OUT-OF-CORE
M: NEW REQUEST.

28 NICKEL 62 — NEUTRON — RESONANCE PARAMETERS

266			100.	KEV	10.0%	3	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741065

Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.

28 NICKEL 64 — NEUTRON — CAPTURE CROSS SECTION

267	1.00	KEV	1.00	MEV	20.0%	2	FR	A.MICHAUDON	BRC	682014

Q: PRODUCTION OF NI-65 (2.56 HOUR).
O: ACTIVATION DETECTOR.

28 NICKEL 64 — NEUTRON — N,2N

268			15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	692139

Q: PRODUCTION OF NI-63 (92 YEAR).
O: ACTIVATION DETECTOR.

28 NICKEL 64 — NEUTRON — RESONANCE PARAMETERS

269			100.	KEV	10.0%	3	USA	F.G.PEREY P.B.HEMMIG C.E.TILL	ORL AEC ANL	741068

Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY. NEUTRON WIDTH, GAMMA WIDTH, SPIN AND PARITY WANTED.

29 COPPER 63 — NEUTRON — CAPTURE CROSS SECTION

270	25.3	MV	1.00	KEV		2	USA	P.B.HEMMIG	AEC	671001

A: ACCURACY 2 PERCENT NEAR THERMAL, 5 PERCENT ABOVE THERMAL.
O: FOR DETECTOR APPLICATIONS.

271	1.00	KEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691132

Q: REQUIRED IS ACTIVATION.
O: FOR USE AS A FLUENCE MONITOR.

272			10.0	KEV	3.0%	2	FR	H.TELLIER	SAC	732043

O: DETECTOR.

29 COPPER 63 | NEUTRON | N,2N

273			12.0	MEV	5.0%	1	JAP	Y.KANDA	KYU	682015
							O: FOR NEUTRON YIELD MONITOR. A FEW DATA AVAILABLE.			
274	14.0	MEV	20.0	MEV	5.0%	1	JAP	Y.KANDA	KYU	682016
							O: FOR NEUTRON YIELD MONITOR. LARGE DISCREPANCIES AMONG DATA.			
275	11.9	MEV	16.4	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742130
							O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.			

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

29 COPPER 63 | NEUTRON | N,ALPHA

276	6.00	MEV	18.0	MEV	10.0%	2	USA	W.N.MC ELROY	HED	691133
							Q: REQUIRED IS ACTIVATION. O: FOR USE AS A FLUENCE MONITOR.			
277	6.10	MEV	11.3	MEV	5.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742120
							O: ROUTINE FAST NEUTRON FLUENCE MONITOR.			

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

29 COPPER 65 | NEUTRON | CAPTURE CROSS SECTION

278	25.3	MV,	1.00	KEV		2	USA	P.B.HEMMIG	AEC	671002
							A: ACCURACY 2 PERCENT NEAR THERMAL, 5 PERCENT ABOVE. O: FOR DETECTOR APPLICATIONS.			

29 COPPER 65 | NEUTRON | N,2N

279			12.0	MEV	5.0%	1	JAP	Y.KANDA	KYU	682017
							O: FOR NEUTRON YIELD MONITOR.			
280	15.0	MEV	20.0	MEV	5.0%	1	JAP	Y.KANDA	KYU	682018
							O: FOR NEUTRON YIELD MONITOR. LARGE DISCREPANCIES AMONG DATA.			

30 ZINC 64 | NEUTRON | N,2N

281	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693018
							A: INCIDENT ENERGY RESOLUTION 200 KEV. O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.			

30 ZINC 64 | NEUTRON | N,P

282	2.30	MEV	7.80	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742131
							O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. ABOUT 20 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.			

31 GALLIUM | NEUTRON | N,2N

283			15.0	MEV	20.0%	2	FR	C.PHILIS	BRC	742038

31 GALLIUM 69 | NEUTRON | N,2N

284	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693019
							A: INCIDENT ENERGY RESOLUTION 200 KEV. O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.			

36 KRYPTON 83 | NEUTRON | TOTAL CROSS SECTION

285	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN R.EHRLICH	BET KAP	671118
							A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT. O: FOR FISSION PRODUCT ABSORPTION CALCULATION.			

36 KRYPTON 83 — NEUTRON — CAPTURE CROSS SECTION

286	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN R.EHRLICH	BET KAP	671190

Q: THERMAL CROSS SECTION AND RI WANTED.
A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: FOR FISSION PRODUCT ABSORPTION CALCULATION.

36 KRYPTON 84 — NEUTRON — CAPTURE CROSS SECTION

287	1.00	KEV	3.00	MEV	10.0%	1	FR	C.PHILIS	BRC	742040

O: FOR ACTIVATION.

37 RUBIDIUM 85 — NEUTRON — N,2N

288	10.0	MEV	15.0	MEV	5.0%	2	FR	C.PHILIS	BRC	692147

Q: PRODUCTION OF RB-84 (33 DAY).
O: ACTIVATION DETECTOR.

40 ZIRCONIUM — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

289	200.	KEV	1.50	MEV	10.0%	2	USA	R.EHRLICH	KAP	691295

A: ENERGY RESOLUTION 5.0 PERCENT.
O: TO RESOLVE DISCREPANCIES IN EXISTING DATA.

290	7.00	MEV	14.0	MEV	20.0%	2	USA	R.EHRLICH	KAP	691296

A: ENERGY RESOLUTION 2.5 PERCENT.

40 ZIRCONIUM — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

291	4.00	MEV	7.00	MEV		3	JAP	H.NAKAMURA	FE	702014

A: ACCURACY REQUIRED TO BETTER THAN 20.0 PERCENT.
O: FOR INVESTIGATIONS OF LEVEL DENSITY PARAMETERS.

40 ZIRCONIUM — NEUTRON — ABSORPTION CROSS SECTION

292	500.	EV	15.0	MEV	25.0%	3	FR	J.Y.BARRE	CAD	712034

O: FOR FAST REACTOR CALCULATIONS.

40 ZIRCONIUM — NEUTRON — CAPTURE CROSS SECTION

293	25.3	MV	1.00	KEV	5.0%	2	USA	G.T.ORTON	RL	671005

O: FOR REACTOR MODERATION AND REACTIVITY EFFECTS.

294	3.00	KEV	10.0	MEV	15.0%	2	USA	R.EHRLICH	KAP	691142

O: FOR REACTOR MODERATION AND REACTIVITY EFFECTS.
TO VERIFY EXISTING MEASUREMENTS FOR NEUTRON ENERGIES LESS THAN 25 KEV.
TO RESOLVE DISCREPANCIES IN EXISTING DATA FROM 25 KEV TO 1 MEV.
NO DATA AVAILABLE ABOVE 1 MEV.

295	25.0	MV	25.0	MV	5.00%	1	FR	H.TELLIER	SAC	762137

O: CLAD AND STRUCTURE MATERIAL
M: NEW REQUEST.

40 ZIRCONIUM — NEUTRON — NEUTRON EMISSION CROSS SECTION

296	3.00	MEV	14.0	MEV	10.0%	1	USA	R.EHRLICH C.E.TILL	KAP ANL	671003

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
A: INCIDENT AND EXIT ENERGY RESOLUTION 10 PERCENT.
O: FOR DESIGN OF PRESSURIZED WATER REACTORS USING ZR.

40 ZIRCONIUM — NEUTRON — CAPTURE RESONANCE INTEGRAL

297	0.50	EV			5.0%	1	USA	R.EHRLICH	KAP	691143

O: TO RESOLVE DISCREPANCIES IN EXISTING DATA.

298	0.50	EV			5.00%	1	FR	H.TELLIER	SAC	762136

O: CLAD AND STRUCTURE MATERIAL
M: NEW REQUEST.

40 ZIRCONIUM 90 — DISCRETE LEVEL STRUCTURE (ENERGY, SPIN, PARITY)

299						2	USA	R.EHRLICH	KAP	691152

Q: J AND PI FOR ALL LEVELS LESS THAN 5 MEV REQUIRED.
O: FOR CALCULATING COMPOUND ELASTIC AND INELASTIC AND N,P.

40 ZIRCONIUM 90 | NEUTRON | TOTAL CROSS SECTION

300	5.00	MEV	15.0	MEV	3.0%	1	USA	B.HUICHINS N.STEEN	GEB BET	721059

Q: TO RESOLVE DISCREPANCIES IN EXISTING DATA.

40 ZIRCONIUM 90 | NEUTRON | DIFFERENTIAL ELASTIC CROSS SECTION

301	100.	KEV	10.0	MEV	10.0%	1	USA	N.STEEN	BET	721060

Q: SCATTERING FROM SEPARATED ISOTOPES 90-91,92-94,AND 96 IS DESIRED.
O: TO CHECK THE SHELL EFFECT ON THE OPTICAL POTENTIAL.
TO DERIVE USEFUL OPTICAL MODEL PARAMETERS.

40 ZIRCONIUM 90 | NEUTRON | ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

302	14.0	MEV			15.0%	2	USA	R.EHRLICH	KAP	691149

Q: RESOLVE DISCRETE LEVELS UP TO 3 MEV EXCITATION.
O: TO COMPUTE DIRECT INELASTIC SCATTERING AND INVESTIGATE ISOTOPIC SPIN DEPENDENT COUPLING BETWEEN GROUND AND EXCITED STATES.

40 ZIRCONIUM 90 | NEUTRON | ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

303	5.00	MEV	15.0	MEV	10.0%	1	USA	N.STEEN	BET	721061

O: TO DETERMINE THE SPLIT OF TOTAL ZR CROSS SECTION BETWEEN ELASTIC AND INELASTIC.

40 ZIRCONIUM 90 | NEUTRON | RESONANCE PARAMETERS

304			15.0	MEV	10.0%	2	USA	R.EHRLICH N.STEEN	KAP BET	691151

Q: ELASTIC AND GAMMA WIDTHS WANTED.
ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: NEEDED TO VERIFY EXISTING MEASUREMENTS.
DISCREPANCIES STILL EXIST.

40 ZIRCONIUM 90 | NEUTRON | CAPTURE RESONANCE INTEGRAL

305	0.50	EV			20.0%	2	USA	R.EHRLICH	KAP	691150

O: NEEDED FOR EVALUATING MEASUREMENTS AND RESONANCE PARAMETERS.

40 ZIRCONIUM 91 | DISCRETE LEVEL STRUCTURE (ENERGY, SPIN, PARITY)

306						2	USA	R.EHRLICH	KAP	691157

Q: LEVELS FROM 1.0 TO 3.0 MEV WANTED.
O: FOR CALCULATING COMPOUND ELASTIC AND INELASTIC.

40 ZIRCONIUM 91 | NEUTRON | TOTAL CROSS SECTION

307	2.00	MV	100.	EV	10.0%	2	TUK	C.ERTEK A.ISYAR	CNA CNA	752092

O: FOR REACTIVITY EFFECTS MEASUREMENTS.

40 ZIRCONIUM 91 | NEUTRON | DIFFERENTIAL ELASTIC CROSS SECTION

308	100.	KEV	10.0	MEV	10.0%	1	USA	N.STEEN	BET	721063

Q: SCATTERING FROM SEPARATED ISOTOPES 90-91, 92-94, AND 96 IS DESIRED.
O: TO CHECK THE SHELL EFFECT ON THE OPTICAL POTENTIAL.
TO DERIVE USEFUL OPTICAL MODEL PARAMETERS.

40 ZIRCONIUM 91 | NEUTRON | ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

309	14.0	MEV			15.0%	2	USA	R.EHRLICH	KAP	691153

Q: RESOLVE DISCRETE LEVELS UP TO 2 MEV EXCITATION.
O: TO COMPUTE DIRECT INELASTIC SCATTERING AND INVESTIGATE ISOTOPIC SPIN DEPENDENT COUPLING BETWEEN GROUND AND EXCITED STATES.

40 ZIRCONIUM 91 | NEUTRON | ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

310	5.00	MEV	15.0	MEV	10.0%	1	USA	N.STEEN	BET	721064

O: TO DETERMINE THE SPLIT OF THE TOTAL ZR CROSS SECTION BETWEEN ELASTIC AND INELASTIC.

40 ZIRCONIUM 91 | NEUTRON | CAPTURE CROSS SECTION

311	2.00	MV	100.	EV	10.0%	2	TUK	C.ERTEK A.ISYAR	CNA CNA	752091

Q: FOR REACTIVITY EFFECTS MEASUREMENTS.

40 ZIRCONIUM 91 | NEUTRON | N,ALPHA

312	14.0	MEV			30.0%	3	USA	R.EHRLICH	KAP	691154

40 ZIRCONIUM 91 | NEUTRON | RESONANCE PARAMETERS

313			10.0	KEV	10.0%	1	USA	R.EHRLICH	KAP	691156

Q: ELASTIC AND GAMMA WIDTHS WANTED.
ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: NEEDED TO RESOLVE DISCREPANCIES BELOW 4 KEV AND TO EXTEND RESOLVED RANGE TO 10 KEV.

314			15.0	KEV	10.0%	1	USA	N.STEEN	BET	721065

Q: ELASTIC AND GAMMA WIDTHS WANTED.
ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: NEEDED TO RESOLVE DISCREPANCIES BELOW 4 KEV AND TO EXTEND RESOLVED RANGE TO 15 KEV.
M: NEW REQUEST.

40 ZIRCONIUM 91 | NEUTRON | CAPTURE RESONANCE INTEGRAL

315	0.50	EV			5.0%	1	USA	R.EHRLICH	KAP	691155

O: VERIFICATION OF EXISTING DATA REQUIRED.

40 ZIRCONIUM 92 | DISCRETE LEVEL STRUCTURE (ENERGY, SPIN, PARITY)

316						2	USA	R.EHRLICH	KAP	691161

Q: J AND PI FOR ALL LEVELS LESS THAN 4 MEV REQUIRED.
O: FOR CALCULATING COMPOUND ELASTIC AND INELASTIC.

40 ZIRCONIUM 92 | NEUTRON | DIFFERENTIAL ELASTIC CROSS SECTION

317	5.00	MEV	15.0	MEV	10.0%	2	USA	N.STEEN	BET	721066

O: SCATTERING ON SEPARATED ISOTOPES IS DESIRED TO CHECK THE SHELL EFFECT ON THE OPTICAL POTENTIAL AND DERIVE USEFUL PARAMETERS.

40 ZIRCONIUM 92 | NEUTRON | ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

318	14.0	MEV			15.0%	2	USA	R.EHRLICH	KAP	691158

Q: RESOLVE DISCRETE LEVELS TO 2 MEV EXCITATION.
O: TO COMPUTE DIRECT INELASTIC SCATTERING AND INVESTIGATE ISOTOPIC SPIN-DEPENDENT COUPLING BETWEEN GROUND AND EXCITED STATES.

40 ZIRCONIUM 92 | NEUTRON | ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

319	5.00	MEV	15.0	MEV	10.0%	2	USA	N.STEEN	BET	721067

O: TO DETERMINE THE SPLIT OF THE TOTAL ZR CROSS SECTION BETWEEN ELASTIC AND INELASTIC.

40 ZIRCONIUM 92 | NEUTRON | RESONANCE PARAMETERS

320			15.0	MEV	10.0%	1	USA	R.EHRLICH N.STEEN	KAP BET	691160

Q: NEUTRON AND CAPTURE WIDTH NEEDED.
ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: VERIFICATION OF EXISTING DATA REQUIRED.

40 ZIRCONIUM 92 | NEUTRON | CAPTURE RESONANCE INTEGRAL

321	0.50	EV			20.0%	2	USA	R.EHRLICH	KAP	691159

O: NEEDED FOR EVALUATING MEASUREMENTS, AND RESONANCE PARAMETERS.

40 ZIRCONIUM 93 | NEUTRON | CAPTURE CROSS SECTION

322	1.00	KEV	10.0	MEV	20.0%	2	USA	R.E.SCHENTER	HED	741071

O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

323	100.	EV	400.	KEV	30.0%	2	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752004

O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA ABOVE 100 EV.

40 ZIRCONIUM 94 — DISCRETE LEVEL STRUCTURE (ENERGY, SPIN, PARITY)

324						2	USA	R.EHRLICH	KAP	691163

Q: J AND PI FOR ALL LEVELS LESS THAN 4 MEV REQUIRED.
O: FOR CALCULATING COMPOUND ELASTIC AND INELASTIC.

40 ZIRCONIUM 94 — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

325	5.00	MEV	15.0	MEV	10.0%	2	USA	N.STEEN	BET	671008

O: SCATTERING ON SEPARATED ISOTOPES IS DESIRED TO CHECK THE SHELL EFFECT ON THE OPTICAL POTENTIAL AND DERIVE USEFUL PARAMETERS.

40 ZIRCONIUM 94 — NEUTRON — ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

326	14.0	MEV			15.0%	2	USA	R.EHRLICH	KAP	671009

Q: RESOLVE DISCRETE LEVELS UP TO 2 MEV EXCITATION.
O: TO COMPUTE DIRECT INELASTIC SCATTERING AND INVESTIGATE ISOTOPIC SPIN-DEPENDENT COUPLING BETWEEN GROUND AND EXCITED STATES.

40 ZIRCONIUM 94 — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

327	5.00	MEV	15.0	MEV	10.0%	2	USA	N.STEEN	BET	741072

O: TO DETERMINE SPLIT OF THE TOTAL ZR CROSS SECTION BETWEEN NONELASTIC AND ELASTIC.

40 ZIRCONIUM 94 — NEUTRON — RESONANCE PARAMETERS

328			15.0	MEV	10.0%	2	USA	R.EHRLICH	KAP	691162

Q: NEUTRON AND CAPTURE WIDTH NEEDED.
O: VERIFICATION REQUIRED INCLUDES RECENT RPI RESULTS.

40 ZIRCONIUM 95 — NEUTRON — CAPTURE CROSS SECTION

329	1.00	EV	10.0	KEV		2	USA	N.STEEN	BET	671010

Q: RADIOACTIVE TARGET, 65 DAY.
THERMAL CROSS SECTION AND RI WANTED.
A: ACCURACY 10 PERCENT IF CROSS SECTION GREATER THAN 100 BARNS AND 20 PERCENT IF BETWEEN 10 AND 100 BARNS.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL IF GREATER THAN 1000 BARNS AND 20 PERCENT IF BETWEEN 100 AND 1000 BARNS.
O: THE DECAY IS TO AN IMPORTANT FISSION PRODUCT.

330	0.50	EV	10.0	KEV		2	USA	R.EHRLICH	KAP	671011

Q: RADIOACTIVE TARGET, 65 DAY.
THERMAL CROSS SECTION AND RI WANTED.
A: ACCURACY 10 PERCENT IF CROSS SECTION GREATER THAN 100 BARNS AND 20 PERCENT IF BETWEEN 10 AND 100 BARNS.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL IF GREATER THAN 1000 BARNS AND 20 PERCENT IF BETWEEN 100 AND 1000 BARNS.
O: THE DECAY IS TO AN IMPORTANT FISSION PRODUCT.

331	25.3	MV				2	CAN	W.H.WALKER	CRC	691802

A: ACCURACY REQUIRED 20 BARNS.
O: FISSION PRODUCT, UNKNOWN CROSS SECTION.

332	1.00	KEV	10.0	MEV	20.0%	2	USA	R.E.SCHENTER	HED	741073

Q: RADIOACTIVE TARGET, 65.5 DAY.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

40 ZIRCONIUM 96 — NEUTRON — RESONANCE PARAMETERS

333	300.	EV			10.0%	1	USA	R.EHRLICH	KAP	741074

Q: NEUTRON AND GAMMA WIDTHS REQUIRED.
O: NEEDED TO VERIFY MEASUREMENT ON 300 EV RESONANCE AND REMOVE DISCREPANCIES.

41 NIOBIUM 93 — NEUTRON — TOTAL CROSS SECTION

334	2.00	MV	25.0	MV	10.0%	2	TUK	C.ERTEK A.ISYAR	CNA CNA	752090

O: FOR REACTIVITY EFFECTS MEASUREMENTS.

41 NIOBIUM 93 — NEUTRON — ELASTIC CROSS SECTION

335	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM	753043

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

41 NIOBIUM 93 NEUTRON INELASTIC CROSS SECTION

336			15.0	MEV	10.0%	2	SWT	J.BRUNNER	WUR	692155

Q: FORMATION OF THE 3.7 YEAR ISOMER (E' = 29 KEV).
O: FOR FAST FLUX MEASUREMENTS.
M: SUBSTANTIAL MODIFICATIONS.

337			8.00	MEV	5.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL 742121

Q: PRODUCTION OF 3.7 YEAR ISOMER NEEDED.
O: PROMISING FAST NEUTRON FLUENCE MONITOR DUE TO LOW THRESHOLD ENERGY.

338			20.0	MEV	3.0%	2	IND	G.B.GARG	TRM 753044

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

41 NIOBIUM 93 NEUTRON ABSORPTION CROSS SECTION

339	500.	EV	15.0	MEV	25.0%	3	FR	J.Y.BARRE	CAD 712037

O: FOR FAST REACTOR CALCULATIONS.

41 NIOBIUM 93 NEUTRON CAPTURE CROSS SECTION

340	1.00	KEV	100.	KEV	10.0%	2	USA	P.B.HEMMIG C.E.TILL	AEC ANL 621049

Q: LOOK FOR NON-1/V BELOW 1 EV.
A: ACCURACY - 5 PERCENT IN CALCULATED DILUTE AND SELF-SHIELDED RESONANCE INTEGRAL.
O: FOR FAST REACTOR CALCULATIONS, TO RESOLVE DISCREPANCIES IN THERMIONIC REACTOR WORTHS.

341	100.	EV	100.	KEV	20.0%	2	UK	C.G.CAMPBELL	WIN 682020

O: FOR FAST REACTORS.

342	1.00	EV	10.0	KEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL 742132

Q: PRODUCTION OF NB-94 (20000 YEARS) WANTED.
O: POSSIBLE LONG TERM FLUENCE MONITOR.

343	2.00	MV	25.0	MV	10.0%	2	TUK	C.ERTEK A.ISYAR	CNA CNA 752089

O: FOR REACTIVITY EFFECTS MEASUREMENTS.

344	25.3	MV	20.0	MEV	3.0%	2	IND	G.B.GARG	TRM 753045

O: REQUIRED FOR STRUCTURAL-MATERIAL CALCULATIONS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

41 NIOBIUM 93 NEUTRON N,2N

345			15.0	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL 742133

O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

41 NIOBIUM 95 NEUTRON CAPTURE CROSS SECTION

346	25.3	MV				2	USA	R.EHRLICH	KAP 671012

Q: RADIOACTIVE TARGET - 35 D.
THERMAL AVERAGE WILL BE USEFUL.
A: WANT 20 PERCENT ACCURACY IF ABSORPTION CROSS SECTION IS 10 TO 100 B, 10 PERCENT IF GREATER.
O: DECAYS TO AN IMPORTANT FISSION PRODUCT POISON.
M: SUBSTANTIAL MODIFICATIONS.

42 MOLYBDENUM NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

347	1.50	MEV	3.00	MEV	20.0%	3	USA	C.E.TILL P.B.HEMMIG	ANL AEC 721070

Q: TOTAL INTEGRAL OVER 4 PI REQUIRED.
SPECTRA AT SEVERAL ANGLES IF SIGNIFICANTLY ANISOTROPIC.
A: ENERGY RESOLUTION OF PRIMARY AND SCATTERED NEUTRONS 20 PERCENT.

42 MOLYBDENUM NEUTRON ABSORPTION CROSS SECTION

348	500.	EV	15.0	MEV	7.00%	2	FR	J.Y.BARRE	CAD 712040

O: FOR FAST REACTOR CALCULATIONS.

42 MOLYBDENUM — NEUTRON — CAPTURE CROSS SECTION

349	100.	EV	1.00	MEV		1	UK	C.G.CAMPBELL	WIN	692157

A: ACCURACY 10 PERCENT TO 100 KEV, 20 PERCENT ABOVE.
O: FOR FAST REACTORS.

350	1.00	KEV	1.00	MEV	10.0%	3	USA	P.B.HEMMIG	AEC	721072

O: TO RESOLVE DISCREPANCY IN REACTIVITY WORTH MEASUREMENTS.

42 MOLYBDENUM — NEUTRON — N,P

351			14.0	MEV	10.0%	2	GER	F.WELLER	KFK	692159

42 MOLYBDENUM 92 — NEUTRON — TOTAL CROSS SECTION

352	25.2	MV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762180

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 92 — NEUTRON — INELASTIC CROSS SECTION

353			15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762182

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 92 — NEUTRON — CAPTURE CROSS SECTION

354	25.2	MV	15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762181

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 94 — NEUTRON — TOTAL CROSS SECTION

355	25.2	MV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762183

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 94 — NEUTRON — INELASTIC CROSS SECTION

356			15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762185

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 94 — NEUTRON — CAPTURE CROSS SECTION

357	25.2	MV	15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762184

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 94 — NEUTRON — N,P

358			15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762186

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 94 — NEUTRON — N,ALPHA

359	25.2	MV	15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762187

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 95 — NEUTRON — TOTAL CROSS SECTION

360	25.2	MV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762188

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 95 — NEUTRON — INELASTIC CROSS SECTION

361			15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762189

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 95 NEUTRON CAPTURE CROSS SECTION

362	50.0	KEV	400.	KEV	30.0%	2	JAP	S.IIJIMA H.MATSUNOBU T.HOJUYAMA	NIG SAE MAP	752005

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
J: FOR FAST REACTOR CALCULATIONS.

42 MOLYBDENUM 95 NEUTRON N,P

363			15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762190

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 95 NEUTRON N,ALPHA

364	25.2	MV	15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762191

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 95 NEUTRON CAPTURE RESONANCE INTEGRAL

365	0.50	EV	10.0	KEV	10.0%	2	USA	N.STEEN	BET	741075

42 MOLYBDENUM 96 NEUTRON TOTAL CROSS SECTION

366	25.2	MV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762192

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 96 NEUTRON INELASTIC CROSS SECTION

367			15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762194

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 96 NEUTRON CAPTURE CROSS SECTION

368	10.0	KEV	100.	KEV	10.0%	2	AUL	J.L.SYMONDS	AUA	693020

Q: RESONANCE PARAMETERS AND P-WAVE STRENGTH FUNCTION ALSO REQUIRED.
O: FOR FISSION PRODUCT CALCULATIONS AND ASTROPHYSICS.

369	25.2	MV	15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762193

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 96 NEUTRON N,ALPHA

370	25.2	MV	15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762195

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 97 NEUTRON TOTAL CROSS SECTION

371	25.2	MV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762196

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 97 NEUTRON INELASTIC CROSS SECTION

372			15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762197

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 97 NEUTRON CAPTURE CROSS SECTION

373	60.0	KEV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU T.HOJUYAMA	NIG SAE MAP	752006

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA ABOVE 60 KEV.

42 MOLYBDENUM 97 NEUTRON N,ALPHA

374	25.2	MV	15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762198

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 98 NEUTRON INELASTIC CROSS SECTION

375			15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762199

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 98 NEUTRON N,ALPHA

376	25.2	MV	15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762200

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 99 NEUTRON CAPTURE CROSS SECTION

377	1.00	MV	1.00	KEV		2	USA	N.STEEN R.EHRLICH	BET KAP	671013

Q: RADIOACTIVE TARGET 66 HOURS.
A: WANT 20 PERCENT ACCURACY IF ABSORPTION CROSS SECTION IS 10 TO 100 B, 10 PERCENT IF GREATER. ENERGIES ABOVE 1 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL IF GREATER THAN 1000 BARNS AND 20 PERCENT IF BETWEEN 100 AND 1000 BARNS.
O: THE DECAY IS TO AN IMPORTANT FISSION PRODUCT.

378	25.3	MV				2	CAN	W.H.WALKER	CRC	691803

A: ACCURACY REQUIRED 600 B.
O: FISSION PRODUCT, UNKNOWN CROSS SECTION.

42 MOLYBDENUM 100 NEUTRON TOTAL CROSS SECTION

379	25.2	MV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762201

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 100 NEUTRON INELASTIC CROSS SECTION

380			15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762202

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 100 NEUTRON N,P

381			15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762203

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 100 NEUTRON N,ALPHA

382	25.2	MV	15.0	MEV	30. %	2	JAP	T.HOJUYAMA	MAP	762204

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

43 TECHNETIUM 99 NEUTRON CAPTURE CROSS SECTION

383	1.00	MV	10.0	KEV	10.0%	1	USA	N.STEEN	BET	741076

Q: THERMAL CROSS SECTION AND RI WANTED.

384	50.0	KEV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752007

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

44 RUTHENIUM 101 NEUTRON CAPTURE CROSS SECTION

385	1.00	MV	10.0	KEV	10.0%	1	USA	N.STEEN	BET	741077

Q: THERMAL CROSS SECTION AND RI WANTED.
O: CALCULATION OF FISSION PRODUCT POISON FOR THERMAL REACTORS.

386	1.00	KEV	10.0	MEV	10.0%	1	USA	R.E.SCHENTER	HED	741078

O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

387	100.	EV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752008

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

44 RUTHENIUM 102 NEUTRON CAPTURE CROSS SECTION

388	100.	EV	400.	KEV	30.0%	2	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752009

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

44 RUTHENIUM 103 NEUTRON CAPTURE CROSS SECTION

389	1.00	MV	1.00	KEV		2	USA	N.STEEN R.EHRLICH	BET KAP	671015

Q: RADIOACTIVE TARGET 40 DAYS.
A: 20 PERCENT ACCURACY DESIRED IF CROSS SECTION IN RANGE 10 TO 100 BARNS, 10 PERCENT IF LARGER. ENERGIES ABOVE 1 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL IF GREATER THAN 1000 BARNS AND 20 PERCENT IF BETWEEN 100 AND 1000 BARNS.
O: WANTED FOR FISSION PRODUCT POISON CALCULATIONS IN THERMAL REACTORS.

390	25.3	MV				2	CAN	W.H.WALKER	CRC	691804

A: ACCURACY REQUIRED 35 B.
O: FISSION PRODUCT, UNKNOWN CROSS SECTION.

391	1.00	KEV	10.0	MEV	20.0%	2	USA	R.E.SCHENTER	HED	741079

Q: RADIOACTIVE TARGET 39.6 DAY.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

44 RUTHENIUM 104 NEUTRON CAPTURE CROSS SECTION

392	1.00	KEV	10.0	MEV	10.0%	1	USA	R.E.SCHENTER	HED	741081

Q: RADIOACTIVE TARGET 4.35 MIN.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

393	100.	EV	400.	KEV	30.0%	2	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752010

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

44 RUTHENIUM 106 NEUTRON CAPTURE CROSS SECTION

394	1.00	KEV	10.0	MEV	10.0%	1	USA	R.E.SCHENTER	HED	741082

Q: RADIOACTIVE TARGET 2.18 HOUR.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

45 RHODIUM NEUTRON CAPTURE CROSS SECTION

395	1.00	MV	1.00	KEV	10.0%	1	USA	N.STEEN	BET	741080

Q: THERMAL CROSS SECTION AND RI WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.

45 RHODIUM 103 NEUTRON INELASTIC CROSS SECTION

396			10.0	MEV	5.0%	1	GER	M.KUECHLE	KFK	692477

Q: CROSS SECTION LEADING TO ISOMERIC STATE AFTER GAMMA DE-EXCITATION IS WANTED.
O: THRESHOLD DETECTOR.

397			10.0	MEV	5.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742122

Q: PRODUCTION OF 57 MINUTE ISOMER WANTED.
O: PROMISING FAST NEUTRON FLUENCE MONITOR DUE TO LOW THRESHOLD ENERGY.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

45 RHODIUM 103 NEUTRON CAPTURE CROSS SECTION

398	0.50	EV	1.00	KEV	10.0%	2	USA	R.EHRLICH	KAP	671017

A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE 10 PERCENT ACCURACY IN RESONANCE INTEGRAL.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

399	1.00	MV	1.00	EV	10.0%	2	USA	B.HUTCHINS	GEB	671018

O: FOR CALCULATION OF FISSION PRODUCT POISONS.

400	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712044

O: WANTED FOR FISSION PRODUCT CALCULATIONS.

401	10.0	MV	5.00	KEV	10.0%	2	FR	H.TELLIER	SAC	732058

O: REACTOR CALCULATIONS.

45 RHODIUM 105 — NEUTRON — CAPTURE CROSS SECTION

402 1.00 MV 1.00 EV 10.0% 2 USA B.HUTCHINS GEB 671019
Q: RADIOACTIVE TARGET 36 HOURS.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

403 10.0 MV 500. EV 2 CAN W.H.WALKER CRC 691805
A: ACCURACY 5. PERCENT TO 10 EV. 20 PERCENT ABOVE.
O: AVAILABLE DATA SUGGEST LARGE RESONANCE NEAR CADMIUM CUT-OFF.
ADDITIONAL DATA NEEDED TO DETERMINE DEPENDANCE ON NEUTRON TEMPERATURE AND EPITHERMAL FLUX.

404 1.00 MV 1.00 KEV 10.0% 1 USA N.STEEN BET 741083
Q: RADIOACTIVE TARGET 35.5 HOUR.
O: FOR FISSION PRODUCT POISON CALCULATIONS.

46 PALLADIUM 105 — NEUTRON — CAPTURE CROSS SECTION

405 1.00 KEV 10.0 MEV 10.0% 1 USA R.E.SCHENTER HED 741086
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

406 100. EV 400. KEV 20.0% 1 JAP S.IIJIMA NIG 752011
H.MATSUNOBU SAE
Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA ABOVE 100 EV.

46 PALLADIUM 107 — NEUTRON — CAPTURE CROSS SECTION

407 1.00 MV 10.0 KEV 10.0% 2 USA N.STEEN BET 671020
Q: RADIOACTIVE TARGET - 7 MILLION YEARS.
A: ABOVE 1 EV WANT RESONANCE INTEGRAL TO 10 PERCENT.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

408 25.3 MV 2 CAN W.H.WALKER CRC 691806
A: ACCURACY REQUIRED 10 BARNS.
O: PU FISSION PRODUCT. UNKNOWN CROSS SECTION.

409 1.00 KEV 10.0 MEV 10.0% 1 USA R.E.SCHENTER HED 741084
Q: RADIOACTIVE TARGET - 6.5 MILLION YEARS.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

410 100. EV 400. KEV 20.0% 1 JAP S.IIJIMA NIG 752012
H.MATSUNOBU SAE
Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

47 SILVER 107 — NEUTRON — CAPTURE CROSS SECTION

411 1.00 MV 5.00 KEV 10.0% 2 USA N.STEEN BET 741085
Q: THERMAL CROSS SECTION AND RI WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.

47 SILVER 107 — NEUTRON — N,ALPHA

412 25.3 MV 10.0% 3 HUN J.CSIKAI KOS 693021
O: FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS WANTED.

47 SILVER 109 — NEUTRON — CAPTURE CROSS SECTION

413 1.00 MV 1.00 EV 10.0% 2 USA B.HUTCHINS GEB 671021
O: FISSION PRODUCT POISON.

414 100. EV 400. KEV 30.0% 2 JAP S.IIJIMA NIG 752013
H.MATSUNOBU SAE
Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

48 CADMIUM 113 — NEUTRON — CAPTURE CROSS SECTION

415 100. EV 5.0% 3 FR H.TELLIER SAC 732063
O: CONTROL AND POISON.

49 INDIUM — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

416 4.00 MEV 7.00 MEV 3 JAP H.NAKAMURA FE 702017
A: ACCURACY REQUIRED TO BETTER THAN 20.0 PERCENT.
O: FOR INVESTIGATION OF LEVEL DENSITY PARAMETERS.

49 INDIUM 115 — NEUTRON — INELASTIC CROSS SECTION

417			15.0	MEV	3.0%	1	GER	M.KUECHLE	KFK	692180

Q: CROSS SECTION LEADING TO ISOMERIC STATE AFTER GAMMA DE-EXCITATION IS NEEDED.
O: THRESHOLD DETECTOR.

418	5.00	MEV	15.0	MEV	10.0%	2	SWT	J.BRUNNER	WUR	692194

Q: FORMATION OF THE 4.5 HOUR ISOMER (E' = .335 MEV).
O: FOR FAST FLUX MEASUREMENTS.
M: SUBSTANTIAL MODIFICATIONS.

419					2.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742116

Q: PRODUCTION OF IN-115 (4.5 HOUR) ISOMER. AVERAGE CROSS SECTION IN A U-235 FISSION SPECTRUM DESIRED.
O: FOR NORMALIZATION OF AVERAGE CROSS SECTIONS FOR DOSIMETRY PURPOSES.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

50 TIN 126 — NEUTRON — CAPTURE CROSS SECTION

420	25.3	MV				2	CAN	W.H.WALKER	CRC	691807

A: ACCURACY REQUIRED 120 BARNS.
O: FISSION PRODUCT, UNKNOWN CROSS SECTION.

51 ANTIMONY 121 — NEUTRON — CAPTURE CROSS SECTION

421	25.2	MV	15.0	MEV	15. %	2	JAP	T.HOJUYAMA	MAP	762205

O: FOR NEUTRON SOURCE CALCULATION.
M: NEW REQUEST.

51 ANTIMONY 123 — NEUTRON — CAPTURE CROSS SECTION

422	25.2	MV	15.0	MEV	15. %	2	JAP	T.HOJUYAMA	MAP	762206

O: FOR NEUTRON SOURCE CALCULATION.
M: NEW REQUEST.

51 ANTIMONY 125 — NEUTRON — CAPTURE CROSS SECTION

423	25.3	MV				3	CAN	W.H.WALKER	CRC	691808

A: ACCURACY REQUIRED 300 BARNS.
O: FISSION PRODUCT, UNKNOWN CROSS SECTION.

51 ANTIMONY 127 — NEUTRON — CAPTURE CROSS SECTION

424	25.3	MV				3	CAN	W.H.WALKER	CRC	691809

A: ACCURACY REQUIRED 4000 BARNS.
O: FISSION PRODUCT, UNKNOWN CROSS SECTION.

52 TELLURIUM 127 — NEUTRON — CAPTURE CROSS SECTION

425	1.00	MV	1.00	EV	20.0%	2	USA	R.EHRLICH	KAP	671022

Q: RADIOACTIVE TARGET 105 DAY ISOMER. THERMAL OR THERMAL AVERAGE VALUE USEFUL.
O: NEEDED FOR CALCULATION OF FISSION PRODUCT POISONS.

426	25.3	MV				3	CAN	W.H.WALKER	CRC	691810

Q: FOR THE ISOMERIC STATE (105 D).
A: ACCURACY REQUIRED 900 BARNS.
O: FISSION PRODUCT.

52 TELLURIUM 129 — NEUTRON — CAPTURE CROSS SECTION

427	25.3	MV				3	CAN	W.H.WALKER	CRC	691811

Q: FOR THE ISOMERIC STATE (33 D).
A: ACCURACY REQUIRED 1000 BARNS.
O: FISSION PRODUCT.

52 TELLURIUM 132 — NEUTRON — CAPTURE CROSS SECTION

428	25.3	MV	1.00	EV	20.0%	2	USA	N.STEEN	BET	671023

Q: RADIOACTIVE TARGET 78 HOURS.
A: ACCURACY 10 PERCENT IF CROSS SECTION LARGER THAN 2500 BARNS.
ABOVE 1 EV RESONANCE INTEGRAL WANTED TO 20 PERCENT IF BETWEEN 2500 AND 25000 BARNS AND 10 PERCENT IF LARGER THAN 25000 BARNS.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

53 IODINE 127 NEUTRON N,2N

429	10.0	MEV	14.6	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742134

Q: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
MORE THAN 25 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

53 IODINE 129 NEUTRON CAPTURE CROSS SECTION

430	1.00	KEV	10.0	MEV	20.0%	2	USA	R.E.SCHENTER	HED	741087

Q: RADIOACTIVE TARGET - 15.9 MILLION YEARS.
Q: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

53 IODINE 133 NEUTRON CAPTURE CROSS SECTION

431	1.00	MV	1.00	KEV	20.0%	2	USA	N.STEEN	BET	671024

Q: RADIOACTIVE TARGET 21 HOURS.
A: ACCURACY 10 PERCENT IF CROSS SECTION LARGER THAN 9000 BARNS.
ABOVE 1 EV RESONANCE INTEGRAL WANTED TO 20 PERCENT IF BETWEEN 9000 AND 90000 BARNS AND 10 PERCENT IF LARGER THAN 90000 BARNS.
Q: WANTED FOR FISSION PRODUCT POISON CALCULATIONS.

54 XENON 131 NEUTRON CAPTURE CROSS SECTION

432	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN B.HUTCHINS	BET GEB	671025

Q: THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE 10 PERCENT ACCURACY IN RESONANCE INTEGRAL.
Q: FISSION PRODUCT.

433	10.0	MV	5.00	KEV	10.0%	2	FR	H.TELLIER	SAC	732064

Q: REACTOR CALCULATIONS.

434	100.	EV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752014

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
Q: FOR FAST REACTOR CALCULATIONS.

54 XENON 133 NEUTRON CAPTURE CROSS SECTION

435	25.3	MV			10.0%	2	USA	B.HUTCHINS	GEB	671027

Q: RADIOACTIVE TARGET 5.3 DAYS.
THERMAL OR THERMAL AVERAGE VALUE WANTED.
Q: WANTED FOR FISSION PRODUCT POISON CALCULATIONS.

436	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712045

Q: WANTED FOR FISSION PRODUCT CALCULATIONS.

437	1.00	MV	5.00	KEV	3.0%	2	USA	N.STEEN	BET	741088

Q: RADIOACTIVE TARGET - 5.29 DAY.
THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
Q: FOR FISSION PRODUCT POISON CALCULATIONS.

54 XENON 135 NEUTRON CAPTURE CROSS SECTION

438	1.00	MV	2.00	EV	5.0%	2	USA	R.H.DAHLBERG	GA	671028

Q: RADIOACTIVE TARGET 9.17 HOUR.
Q: FOR DESIGN OF THORIUM CYCLE REACTORS.

439	10.0	MV	5.00	KEV	10.0%	2	FR	H.TELLIER	SAC	732065

Q: REACTOR CALCULATIONS.

440	1.00	MV	5.00	KEV	5.0%	1	USA	N.STEEN	BET	741089

Q: RADIOACTIVE TARGET - 9.17 HOUR.
THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED TO 3 PERCENT.
Q: FOR FISSION PRODUCT POISON CALCULATIONS.

54 XENON 135 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

441	25.3	MV				2	USA	R.EHRLICH	KAP	671029

Q: RADIOACTIVE TARGET 9.17 HOUR.
GAMMA RAY SPECTRA WANTED FOR GAMMA RAY ENERGIES BETWEEN 1 AND 8 MEV.
A: GAMMA RESOLUTION 10-20 PERCENT.
Q: NEEDED FOR GAMMA SHIELDING AND HEATING CALCULATIONS.

55 CESIUM 133 — NEUTRON — ABSORPTION CROSS SECTION

442 500. EV 15.0 MEV 30.0% 2 FR C.DEVILLERS SAC 732069
Q: FOR FAST REACTOR CALCULATIONS.

55 CESIUM 133 — NEUTRON — CAPTURE CROSS SECTION

443 1.00 MV 1.00 EV 10.0% 1 USA B.HUTCHINS GEB 671030
Q: THERMAL CROSS SECTION WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.
M: SUBSTANTIAL MODIFICATIONS.

444 1.00 MV 1.00 EV 10.0% 2 USA N.STEEN BET 671031
Q: THERMAL CROSS SECTION WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.
M: SUBSTANTIAL MODIFICATIONS.

445 100. EV 400. KEV 20.0% 1 JAP S.IIJIMA NIG 752015
H.MATSUNOBU SAE
Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

55 CESIUM 133 — NEUTRON — CAPTURE RESONANCE INTEGRAL

446 0.50 EV 1.00 KEV 10.0% 1 USA B.HUTCHINS GEB 671032
N.STEEN BET
O: FOR CALCULATION OF FISSION PRODUCT POISONS.
M: SUBSTANTIAL MODIFICATIONS.

55 CESIUM 135 — NEUTRON — CAPTURE CROSS SECTION

* 447 1.00 MV 10.0 KEV 10.0% 1 USA N.STEEN BET 741090
Q: RADIOACTIVE TARGET - 3.3 MILLION YEARS.
THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.

448 1.00 KEV 10.0 MEV 10.0% 1 USA R.E.SCHENTER HED 741091
Q: RADIOACTIVE TARGET - 3.3 MILLION YEARS.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

449 100. EV 400. KEV 20.0% 1 JAP S.IIJIMA NIG 752016
H.MATSUNOBU SAE
Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA FROM 100 EV TO 400 KEV.

56 BARIUM 133 — MISC

450 3. % 3 JAP K.HISATAKE TIT 762207
Q: RELATIVE YIELDS OF 53.2,79.6,81.0,160.6,276.4,302. AND 356.0 KEV GAMMA RAYS
O: INTENSITY STANDARDS FOR GAMMA RAY MEASUREMENTS.
M: NEW REQUEST.

58 CERIUM 144 — NEUTRON — CAPTURE CROSS SECTION

451 1.00 KEV 10.0 MEV 10.0% 1 USA R.E.SCHENTER HED 741093
Q: RADIOACTIVE TARGET - 284 DAY.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

59 PRASEODYMIUM 141 — NEUTRON — CAPTURE CROSS SECTION

452 1.00 MV 10.0 KEV 10.0% 2 USA N.STEEN BET 741092
Q: THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.
RESOLVE UNCERTAINTIES IN AVAILABLE DATA.

59 PRASEODYMIUM 141 — NEUTRON — RESONANCE PARAMETERS

453 5.00 KEV 3 ITY V.BENZI BOL 692214
Q: PARTIAL RADIATION WIDTHS NEEDED.
A: ACCURACY REQUIRED TO BETTER THAN 15 PERCENT.

60 NEODYMIUM 143 — NEUTRON — CAPTURE CROSS SECTION

454 1.00 MV 1.00 KEV 10.0% 1 USA N.STEEN BET 671034
B.HUTCHINS GEB
Q: THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
A: ENERGIES ABOVE 1.0 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

455	100.	EV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752017

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

60 NEODYMIUM 145 NEUTRON CAPTURE CROSS SECTION

456	1.00	MV	1.00	KEV	10.0%	1	USA	N.STEEN B.HUTCHINS R.EHRLICH	BET GEB KAP	671036

Q: THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
A: ENERGIES ABOVE 1.0 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

457	1.00	KEV	10.0	MEV	10.0%	1	USA	R.E.SCHENTER	HED	741094

O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

458	100.	EV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752018

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA FROM 100 EV TO 400 KEV.

60 NEODYMIUM 146 NEUTRON CAPTURE CROSS SECTION

459	500.	EV	200.	KEV	20.0%	2	FR	J.Y.BARRE	CAD	732075

O: BURN UP STUDY.

60 NEODYMIUM 147 NEUTRON CAPTURE CROSS SECTION

460	1.00	MV	1.00	KEV		1	USA	R.EHRLICH N.STEEN B.HUTCHINS	KAP BET GEB	671039

Q: RADIOACTIVE TARGET, 11 DAYS.
THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
A: ACCURACY 20 PERCENT IF ABSORPTION CROSS SECTION IN RANGE 10 TO 100 BARNS, 10 PERCENT IF BETWEEN 100 AND 1000 BARNS AND 5 PERCENT IF LARGER.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 20 PERCENT IF BETWEEN 100 AND 1000 BARNS, 10 PERCENT IF 1000 TO 10000 BARNS AND 5 PERCENT IF LARGER.

461	25.3	MV				2	CAN	W.H.WALKER	CRC	691812

A: REQUIRED WITH 350 BARN ACCURACY.
O: FISSION PRODUCT WITH UNKNOWN CROSS SECTION.

462	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712046

O: WANTED FOR FISSION PRODUCT CALCULATIONS.

463	10.0	MV	5.00	KEV	10.0%	1	FR	H.TELLIER	SAC	732076

O: BURN UP PHYSICS.

60 NEODYMIUM 148 NEUTRON CAPTURE CROSS SECTION

464	500.	EV	200.	KEV	20.0%	2	FR	J.Y.BARRE	CAD	732077

O: BURN UP STUDY.

61 PROMETHIUM 147 NEUTRON CAPTURE CROSS SECTION

465	1.00	MV	1.00	KEV	10.0%	1	USA	N.STEEN B.HUTCHINS	BET GEB	671042

Q: RADIOACTIVE TARGET - 2.6 YEAR.
WANT TOTAL AND (N,GAMMA) FOR FORMATION OF PM-148 AND THE PM-148 ISOMER.
THERMAL CROSS SECTION AND RESONANCE INTEGRAL WANTED.
A: ENERGIES ABOVE 1.0 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL.
O: NEEDED FOR CALCULATION OF FISSION PRODUCT POISONS.

466	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712047

O: WANTED FOR FISSION PRODUCT CALCULATIONS.

467	100.	EV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752019

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

61 PROMETHIUM 148 NEUTRON CAPTURE CROSS SECTION

468	1.00	MV	1.00	KEV	10.0%	1	USA	N.STEEN B.HUTCHINS	BET GEB	671044

Q: RADIOACTIVE TARGET - 41 DAY ISOMER.
THERMAL CROSS SECTION AND RI WANTED.
A: ENERGIES ABOVE 1.0 EV OF INTEREST TO GIVE 10 PERCENT IN RESONANCE INTEGRAL.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

469	1.00	MV	1.00	KEV	10.0%	1	USA	N.STEEN B.HUTCHINS	BET GEB	671046

Q: RADIOACTIVE TARGET - 5.37 DAY.
THERMAL CROSS SECTION AND RI WANTED.
LOOK FOR 1/V ABOVE 1 EV.
O: FOR FISSION PRODUCT POISON CALCULATIONS.

470	1.00	MV	1.00	EV	10.0%	1	USA	R.EHRLICH	KAP	671048

Q: RADIOACTIVE TARGET - 5.37 DAY.
THERMAL AVERAGE OR VALUE AT 0.025 EV WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.
M: NEW REQUEST.

471	5.00	EV	500.	EV	20.0%	3	CAN	W.H.WALKER	CRC	691813

Q: FOR THE ISOMERIC STATE (42 D).
ADDITIONAL DATA NEEDED TO DETERMINE DEPENDENCE ON NEUTRON TEMPERATURE AND EPITHERMAL FLUX.

61 PROMETHIUM 149 NEUTRON CAPTURE CROSS SECTION

472	1.00	MV	1.00	KEV	20.0%	1	USA	N.STEEN B.HUTCHINS	BET GEB	671049

Q: RADIOACTIVE TARGET - 53 HOUR.
THERMAL CROSS SECTION AND RI WANTED.
A: ACCURACY 10 PERCENT WANTED IF CROSS SECTION GREATER THAN 1000 BARNS, 20 PERCENT IF BETWEEN 10 AND 1000 BARNS.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT IF GREATER THAN 10000 BARNS OR 20 PERCENT IF BETWEEN 1000 AND 10000 BARNS.

473	1.00	MV	1.00	EV	20.0%	1	USA	R.EHRLICH	KAP	671051

Q: RADIOACTIVE TARGET - 53 HOUR.
THERMAL AVERAGE OR VALUE AT 0.025 EV WANTED.
A: ACCURACY 10 PERCENT WANTED IF CROSS SECTION GREATER THAN 1000 BARNS, 20 PERCENT IF BETWEEN 10 AND 1000 BARNS.
M: NEW REQUEST.

61 PROMETHIUM 151 NEUTRON CAPTURE CROSS SECTION

474	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN B.HUTCHINS	BET GEB	671057

Q: RADIOACTIVE TARGET 28 HOUR.
THERMAL CROSS SECTION AND RI WANTED.
A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

62 SAMARIUM NEUTRON RESONANCE PARAMETERS

475			200.	EV		3	ITY	V.BENZI	BOL	692230

Q: PARTIAL RADIATION WIDTHS NEEDED.
A: ACCURACY REQUIRED TO BETTER THAN 15 PERCENT.

62 SAMARIUM 144 NEUTRON N,2N

476	14.0	MEV			10.0%	3	HUN	J.CSIKAI	KOS	693024

A: INCIDENT ENERGY RESOLUTION 200 KEV.
O: NEEDED FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS.

62 SAMARIUM 147 NEUTRON CAPTURE CROSS SECTION

477	500.	EV	200.	KEV	20.0%	1	FR	J.Y.BARRE	CAD	732079

Q: RELATIVE VALUE VERSUS ENERGY OR VALUE RELATIVE TO CAPTURE IN ANOTHER NUCLEUS SUCH AS U-238.
O: FISSION PRODUCT EFFECT IN FAST REACTORS.

62 SAMARIUM 149 NEUTRON CAPTURE CROSS SECTION

478	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712048

O: WANTED FOR FISSION PRODUCT CALCULATIONS.

479	1.00	KEV	10.0	MEV	10.0%	1	USA	R.E.SCHENTER	HED	741095

O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

480	100.	EV	400.	KEV	20.0%	1	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752020

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA EXCEPT A MEASUREMENT AT 30 KEV.

62 SAMARIUM 150 NEUTRON CAPTURE CROSS SECTION

481	1.00	MV	1.00	KEV		1	USA	N.STEEN B.HUTCHINS	BET GEB	671052

Q: THERMAL CROSS SECTION AND RI WANTED.
A: ACCURACY REQUIRED - 2 TO 5 PERCENT.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO BETWEEN 2 AND 3 PERCENT.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

62 SAMARIUM 151 NEUTRON CAPTURE CROSS SECTION

482	1.00	MV	1.00	KEV	5.0%	1	USA	N.STEEN B.HUTCHINS	BET GEB	671054

Q: RADIOACTIVE TARGET - 93 YEARS.
THERMAL CROSS SECTION AND RI WANTED.
A: DESIRED ENERGY RESOLUTION 5 PERCENT.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: WANTED FOR CALCULATION OF FISSION PRODUCT POISONS.

483	10.0	MV	5.00	KEV	10.0%	2	FR	H.TELLIER	SAC	732082

O: REACTOR CALCULATIONS.

484	1.00	KEV	10.0	MEV	10.0%	1	USA	R.E.SCHENTER	HED	741096

Q: RADIOACTIVE TARGET - 93 YEARS.
O: CALCULATION OF FISSION PRODUCT POISON FOR FAST REACTORS.

485	100.	EV	400.	KEV	30.0%	2	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752021

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.

62 SAMARIUM 152 NEUTRON CAPTURE CROSS SECTION

486	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN B.HUTCHINS	BET GEB	671059

Q: THERMAL CROSS SECTION AND RI WANTED.
A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: FISSION PRODUCT POISON.

62 SAMARIUM 153 NEUTRON CAPTURE CROSS SECTION

487	1.00	MV	1.00	KEV		1	USA	N.STEEN	BET	671061

Q: RADIOACTIVE TARGET - 47 HOURS.
THERMAL CROSS SECTION AND RI WANTED.
A: ACCURACY OF 10 PERCENT REQUIRED IF CROSS SECTION GREATER THAN 30000 BARNS, 20 PERCENT IF LOWER.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 20 PERCENT IF BETWEEN 30 AND 300 BARNS OR 10 PERCENT IF LARGER.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

488	1.00	MV	1.00	KEV		2	USA	R.EHRLICH	KAP	671062

Q: RADIOACTIVE TARGET - 47 HOURS.
A: ACCURACY OF 10 PERCENT REQUIRED IF CROSS SECTION GREATER THAN 30000 BARNS, 20 PERCENT IF LOWER.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 20 PERCENT IF BETWEEN 30 AND 300 BARNS OR 10 PERCENT IF LARGER.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

489	25.3	MV				3	CAN	W.H.WALKER	CRC	691814

A: REQUIRED WITH A 10000 BARN ACCURACY.
O: FISSION PRODUCT WITH UNKNOWN CROSS SECTION.

63 EUROPIUM NEUTRON TOTAL CROSS SECTION

490	10.0	KEV	2.00	MEV	5.0%	2	GER	F.WELLER	KFK	692253
491	1.00	EV	15.0	MEV	15.0%	2	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	741097

O: NEEDED FOR RESONANCE SELF-SHIELDING.

63 EUROPIUM NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

492	100.	KEV	10.0	MEV	10.0%	3	GER	F.WELLER	KFK	692254

63 EUROPIUM — NEUTRON — INELASTIC CROSS SECTION

493	30.0	KEV	10.0	MEV	20.0%	3	GER	F.WELLER	KFK	692255
494	30.0	KEV	2.00	MEV	20.0%	3	GER	F.WELLER	KFK	692257

Q: MEASUREMENT OF INELASTIC SCATTERING TO GROUPS OF LEVELS REQUIRED.

63 EUROPIUM — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

495	2.00	MEV	10.0	MEV	20.0%	3	GER	F.WELLER	KFK	692258

63 EUROPIUM — NEUTRON — CAPTURE CROSS SECTION

496	200.	KEV	2.00	MEV	10.0%	2	GER	F.WELLER	KFK	692259
497	100.	EV	500.	KEV	10.0%	1	UK	C.G.CAMPBELL	WIN	732111

O: FOR FAST REACTORS.

63 EUROPIUM 151 — NEUTRON — CAPTURE CROSS SECTION

498	25.3	MV	5.00	KEV	5.0%	3	FR	H.TELLIER	SAC	732084

O: REACTOR CALCULATIONS.

499	1.00	KEV	1.00	MEV	5.0%	1	USA	P.B.HEMMIG	AEC	741099
500	1.00	KEV	1.00	MEV	10.0%	2	USA	P.B.HEMMIG F.G.PEREY	AEC ORL	741102

Q: RATIO GROUND STATE TO ISOMER CAPTURE WANTED.

63 EUROPIUM 151 — NEUTRON — CAPTURE GAMMA RAY SPECTRUM

501	1.00	KEV	1.00	MEV	10.0%	2	USA	P.B.HEMMIG F.G.PEREY	AEC ORL	741100

63 EUROPIUM 151 — NEUTRON — RESONANCE PARAMETERS

502	20.0	EV	200.	EV	10.0%	2	GER	F.WELLER	KFK	692260

Q: NEUTRON AND CAPTURE WIDTH NEEDED.

63 EUROPIUM 153 — NEUTRON — CAPTURE CROSS SECTION

503	1.00	MV	1.00	KEV		2	USA	B.HUTCHINS	GEB	671064

A: ACCURACY OF 2 PERCENT NEAR THERMAL AND 5 PERCENT ABOVE.
ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: FOR CALCULATION OF FISSION PRODUCT POISON.

504	1.00	EV	5.00	KEV	10.0%	3	FR	H.TELLIER	SAC	732085

O: REACTOR CALCULATIONS.

505	1.00	MV	5.00	KEV	10.0%	2	USA	N.STEEN	BET	741104

Q: THERMAL CROSS SECTION AND RI WANTED.
O: FOR FISSION PRODUCT POISON CALCULATIONS.

506	1.00	KEV	1.00	MEV	5.0%	1	USA	P.B.HEMMIG	AEC	741105
507	40.0	KEV	400.	KEV	30.0%	2	JAP	S.IIJIMA H.MATSUNOBU	NIG SAE	752022

Q: DESIRED WITH LOWER PRIORITY FOR WIDER ENERGY RANGE
O: FOR FAST REACTOR CALCULATIONS.
NO EXPERIMENTAL DATA FROM 40 KEV TO 400 KEV.

63 EUROPIUM 153 — NEUTRON — CAPTURE GAMMA RAY SPECTRUM

508	1.00	KEV	1.00	MEV	10.0%	2	USA	P.B.HEMMIG F.G.PEREY	AEC ORL	741106

63 EUROPIUM 153 — NEUTRON — RESONANCE PARAMETERS

509	25.0	EV	200.	EV	10.0%	2	GER	F.WELLER	KFK	692263

Q: NEUTRON AND CAPTURE WIDTH NEEDED.
O: FISSION PRODUCT IMPORTANT IN FAST REACTOR BURNUP CALCULATIONS.

63 EUROPIUM 154 — NEUTRON — CAPTURE CROSS SECTION

510	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN B.HUTCHINS	BET GEB	671066

Q: RADIOACTIVE TARGET ~ 8.6 YEARS.
THERMAL CROSS SECTION AND RI WANTED.
RESONANCE PARAMETERS WANTED.
A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

63 EUROPIUM 155 — NEUTRON — CAPTURE CROSS SECTION

511	1.00	MV	1.00	KEV	10.0%	2	USA	N.STEEN B.HUTCHINS	BET GEB	671068

Q: RADIOACTIVE TARGET ~ 4.8 YEARS.
THERMAL CROSS SECTION AND RI WANTED.
RESONANCE PARAMETERS NEEDED.
A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 10 PERCENT.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

512	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712050

O: WANTED FOR FISSION PRODUCT CALCULATIONS.

513	1.00	KEV	10.0	MEV	20.0%	2	USA	R.E.SCHENTER	HED	741108

Q: RADIOACTIVE TARGET ~ 4.8 YEARS.
O: CALCULATIONS OF FISSION PRODUCT POISON FOR FAST REACTORS.

63 EUROPIUM 156 — NEUTRON — CAPTURE CROSS SECTION

514	25.3	MV				3	CAN	W.H.WALKER	CRC	691815

A: REQUIRED WITH A 700 BARN ACCURACY.
O: FISSION PRODUCT WITH UNKNOWN CROSS SECTION.

64 GADOLINIUM — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

515	1.50	MEV	10.0	MEV	10.0%	1	USA	B.HUTCHINS	GEB	671070

64 GADOLINIUM — NEUTRON — NEUTRON EMISSION CROSS SECTION

516	1.50	MEV	10.0	MEV	15.0%	1	USA	B.HUTCHINS	GEB	671071

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
A: INCIDENT AND EXIT RESOLUTION 15 PERCENT.
O: FOR DESIGN OF THERMAL REACTORS HAVING APPRECIABLE QUANTITIES OF GD.

64 GADOLINIUM — NEUTRON — CAPTURE RESONANCE INTEGRAL

517	0.50	EV			5.0%	1	USA	B.HUTCHINS	GEB	691180

O: FOR EVALUATING RESONANCE PARAMETERS.

64 GADOLINIUM 155 — NEUTRON — CAPTURE CROSS SECTION

518	0.50	EV	1.00	KEV	5.0%	1	USA	B.HUTCHINS	GEB	671072

A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 5 PERCENT.
O: NEEDED TO DEFINE NEGATIVE ENERGY RESONANCE IN EITHER GD-155 OR GD-157.

519	10.0	MV	5.00	KEV	5.0%	2	FR	H.TELLIER	SAC	732086

O: CONSUMABLE POISON.

64 GADOLINIUM 155 — NEUTRON — RESONANCE PARAMETERS

520			500.	EV	10.0%	1	USA	B.HUTCHINS	GEB	691182

Q: NEUTRON AND CAPTURE WIDTH NEEDED.
MINIMUM ENERGY MUST INCLUDE LOWEST RESOLVED RESONANCE.
O: REQUIRED TO VERIFY EXISTING MEASUREMENTS.

64 GADOLINIUM 155 — NEUTRON — CAPTURE RESONANCE INTEGRAL

521	0.50	EV			5.0%	1	USA	B.HUTCHINS	GEB	691181

Q: ENERGY REQUESTED IS A MINIMUM VALUE ONLY.
O: FOR EVALUATING RESONANCE PARAMETERS.
NEEDED TO DEFINE NEGATIVE ENERGY RESONANCE IN EITHER GD-155 OR GD-157.

64 GADOLINIUM 156 NEUTRON CAPTURE CROSS SECTION

522	1.00	MV	1.00	KEV	5.0%	1	USA	B.HUTCHINS	GEB	671073

A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 5 PERCENT.
O: FOR CALCULATING OF BURN UP IN THERMAL REACTORS.

64 GADOLINIUM 156 NEUTRON RESONANCE PARAMETERS

523			2.00	KEV	5.0%	1	USA	B.HUTCHINS	GEB	691183

Q: NEUTRON AND CAPTURE WIDTH NEEDED. MINIMUM ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: REQUIRED TO VERIFY EXISTING MEASUREMENTS.

64 GADOLINIUM 156 NEUTRON CAPTURE RESONANCE INTEGRAL

524	0.50	EV			5.0%	1	USA	B.HUTCHINS	GEB	691298

O: FOR EVALUATING RESONANCE PARAMETERS.

64 GADOLINIUM 157 NEUTRON CAPTURE CROSS SECTION

525	0.50	EV	1.00	KEV	5.0%	1	USA	B.HUTCHINS	GEB	671074

A: ENERGIES ABOVE 1 EV OF INTEREST TO GIVE RESONANCE INTEGRAL TO 5 PERCENT.
O: FOR CALCULATION OF BURN UP IN THERMAL REACTORS.

526	1.00	MV	1.00	KEV	5.0%	3	DEN	C.F.HOEJERUP	RIS	712051

O: WANTED FOR FISSION PRODUCT CALCULATIONS.

527	10.0	MV	5.00	KEV	5.0%	2	FR	H.TELLIER	SAC	732087

O: CONSUMABLE POISON.

64 GADOLINIUM 157 NEUTRON RESONANCE PARAMETERS

528			1.00	KEV	10.0%	1	USA	B.HUTCHINS	GEB	691185

Q: NEUTRON AND CAPTURE WIDTH NEEDED. MINIMUM ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: REQUIRED TO VERIFY EXISTING MEASUREMENTS.

64 GADOLINIUM 157 NEUTRON CAPTURE RESONANCE INTEGRAL

529	0.50	EV			5.0%	1	USA	B.HUTCHINS	GEB	691184

O: FOR EVALUATING RESONANCE PARAMETERS.

64 GADOLINIUM 158 NEUTRON RESONANCE PARAMETERS

530			2.00	KEV	10.0%	1	USA	B.HUTCHINS	GEB	741109

Q: ELASTIC AND GAMMA WIDTH WANTED. ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: TO VERIFY EXISTING MEASUREMENTS.

64 GADOLINIUM 160 NEUTRON RESONANCE PARAMETERS

531			2.00	KEV	10.0%	1	USA	B.HUTCHINS	GEB	741110

Q: ELASTIC AND GAMMA WIDTH WANTED. ENERGY TO INCLUDE LOWEST RESOLVED RESONANCE.
O: TO VERIFY EXISTING MEASUREMENTS.

66 DYSPROSIUM 161 NEUTRON RESONANCE PARAMETERS

532			200.	EV		3	ITY	V.BENZI	BOL	692283

Q: PARTIAL RADIATION WIDTHS NEEDED.
A: ACCURACY REQUIRED TO BETTER THAN 15. PERCENT.

68 ERBIUM NEUTRON RESONANCE PARAMETERS

533			200.	EV		3	ITY	V.BENZI	BOL	692286

Q: PARTIAL RADIATION WIDTHS NEEDED.
A: ACCURACY REQUIRED TO BETTER THAN 15. PERCENT.

68 ERBIUM 167 NEUTRON CAPTURE CROSS SECTION

534			2.00	EV	3.0%	2	USA	R.H.DAHLBERG	GA	741133

Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY.
O: NEEDED FOR BURNABLE POISON IN TRIGA REACTORS.

68 ERBIUM 168 — NEUTRON — N,ALPHA

535	25.3	MV			10.0%	3	HUN	J.CSIKAI	KOS	693030

Q: FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS WANTED.

69 THULIUM 169 — NEUTRON — CAPTURE CROSS SECTION

536	1.00	KEV	15.0	MEV	10.0%	1	FR	C.PHILIS	BRC	692289

Q: PRODUCTION OF TM-170 (130 DAY).
O: ACTIVATION DETECTOR.

69 THULIUM 169 — NEUTRON — N,P

537			15.0	MEV	10.0%	1	FR	C.PHILIS	BRC	692290

Q: PRODUCTION OF ER-169 (9.4 DAY).
O: ACTIVATION DETECTOR.

69 THULIUM 169 — NEUTRON — N,ALPHA

538			15.0	MEV	10.0%	2	FR	C.PHILIS	BRC	692291

Q: PRODUCTION OF HO-166 (27 HOUR).
O: ACTIVATION DETECTOR.

71 LUTETIUM 175 — NEUTRON — CAPTURE CROSS SECTION

539	1.00	KEV	1.00	MEV	20.0%	3	FR	C.PHILIS	BRC	682037

Q: PRODUCTION OF LU-176 (30 THOUSAND-MILLION YEARS) AND LU-176M (3.7 HOURS).
O: ACTIVATION DETECTOR.
DISCREPANCY AT 10 KEV (2.5 AND 7 B).

540	5.00	MV	250.	EV		2	SWT	J.BRUNNER	WUR	692294

A: ACCURACY 2 PERCENT AT THERMAL, 5 PERCENT ABOVE.
O: NEUTRON THERMOMETER.

71 LUTETIUM 175 — NEUTRON — N,2N

541			15.0	MEV	10.0%	3	FR	C.PHILIS	BRC	682036

Q: PRODUCTION OF LU-174 (165 DAY).
O: ACTIVATION DETECTOR.

71 LUTETIUM 176 — NEUTRON — CAPTURE CROSS SECTION

542	5.00	MV	250.	EV		2	SWT	J.BRUNNER	WUR	692296

Q: ACTIVATION IS REQUIRED.
A: ACCURACY 2 PERCENT THERMAL, 5 PERCENT ABOVE.
O: NEUTRON THERMOMETER.

72 HAFNIUM — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

543	1.00	EV	15.0	MEV	10.0%	2	USA	N.STEEN	BET	661036

A: ACCURACY IN AVERAGE (1-COS) 10 PERCENT.
ENERGY RESOLUTION - 10 PERCENT.
O: WANTED FOR THERMAL REACTOR DESIGN.

72 HAFNIUM — NEUTRON — CAPTURE CROSS SECTION

544	1.00	MV	1.00	EV	2.0%	1	USA	N.STEEN R.EHRLICH	BET KAP	621024

O: NEEDED FOR MONTE CARLO CALCULATIONS OF BURNUP IN THERMAL REACTORS.

72 HAFNIUM — NEUTRON — NEUTRON EMISSION CROSS SECTION

545	1.00	EV	15.0	MEV	15.0%	2	USA	N.STEEN	BET	661037

Q: SECONDARY ENERGY DISTRIBUTION REQUIRED.
A: INCIDENT AND EXIT ENERGY RESOLUTIONS 15 PERCENT.
O: FOR DESIGN OF THERMAL REACTORS HAVING APPRECIABLE QUANTITIES OF HF.

72 HAFNIUM 174 — NEUTRON — CAPTURE CROSS SECTION

546	1.00	MV	5.00	KEV		1	USA	R.EHRLICH	KAP	661038

A: THERMAL VALUE WANTED TO 20 PERCENT.
NEED AVERAGE P-WAVE CAPTURE WIDTH TO 20 PERCENT.
BETWEEN 10 AND 100 EV, TOTAL, NEUTRON AND CAPTURE WIDTHS NEEDED WITH 10 PERCENT ACCURACY.
ABOVE 100 EV, 20 PERCENT ACCURACY REQUIRED.
O: NEEDED FOR MONTE CARLO BURN UP CALCULATIONS.

72 HAFNIUM 176 NEUTRON CAPTURE CROSS SECTION

547 1.00 MV 5.00 KEV 1 USA N.STEEN R.EHRLICH BET KAP 621026

A: THERMAL VALUE WANTED TO 20 PERCENT.
BELOW 1 EV, 40 PERCENT ACCURACY NEEDED.
BETWEEN 10 AND 100 EV, TOTAL, NEUTRON AND CAPTURE WIDTHS NEEDED WITH 10 PERCENT ACCURACY.
ABOVE 100 EV, 20 PERCENT ACCURACY REQUIRED.
AVERAGE P-WAVE CAPTURE WIDTH TO 20 PERCENT.
S-WAVE STRENGTH FUNCTION TO 40 PERCENT.
O: TO RESOLVE DISCREPANCIES IN RESONANCE INTEGRAL.
NEEDED FOR MONTE CARLO BURN UP CALCULATIONS.

548 10.0 MV 5.00 KEV 10.0% 1 FR H.TELLIER SAC 732088

O: REACTOR CALCULATIONS.

72 HAFNIUM 177 NEUTRON CAPTURE CROSS SECTION

549 1.00 MV 5.00 KEV 1 USA N.STEEN R.EHRLICH BET KAP 621028

A: S-WAVE STRENGTH FUNCTION TO 20 PERCENT.
NEED AVERAGE P-WAVE CAPTURE WIDTH TO 20 PERCENT.
BELOW 1 EV, 4 PERCENT ACCURACY NEEDED.
BETWEEN 10 AND 100 EV, TOTAL, NEUTRON AND CAPTURE WIDTHS NEEDED WITH 10 PERCENT ACCURACY.
ABOVE 100 EV, 20 PERCENT ACCURACY REQUIRED.
5.89, 6.57, AND 8.87 EV RESONANCE WIDTHS 5 PERCENT.
O: TO RESOLVE DISCREPANCIES IN RESONANCE INTEGRAL.
NEEDED FOR MONTE CARLO BURN UP CALCULATIONS.

550 10.0 MV 5.00 KEV 5.0% 1 FR H.TELLIER SAC 692302

Q: RESONANCE INTEGRAL ALSO WANTED.
A: ACCURACY 1 PERCENT AT THERMAL AND 5 PERCENT FOR RESONANCE INTEGRAL.
O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.

72 HAFNIUM 178 NEUTRON CAPTURE CROSS SECTION

551 1.00 MV 5.00 KEV 1 USA N.STEEN R.EHRLICH BET KAP 621030

A: BELOW 1 EV, 5 PERCENT ACCURACY NEEDED.
BETWEEN 10 AND 100 EV, TOTAL, NEUTRON AND CAPTURE WIDTHS NEEDED WITH 10 PERCENT ACCURACY.
ABOVE 100 EV, 20 PERCENT ACCURACY REQUIRED.
7.78-EV RESONANCE WIDTH TO 3 PERCENT.
S-WAVE STRENGTH FUNCTION TO 20 PERCENT.
P-WAVE AVERAGE CAPTURE WIDTH TO 20 PERCENT.
O: TO RESOLVE DISCREPANCIES IN RESONANCE INTEGRAL.
NEEDED FOR MONTE CARLO BURN UP CALCULATIONS.

552 10.0 MV 5.00 KEV 5.0% 1 FR H.TELLIER SAC 692304

Q: RESONANCE INTEGRAL ALSO WANTED.
A: ACCURACY 1 PERCENT AT THERMAL AND 5 PERCENT FOR RESONANCE INTEGRAL.
O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.

72 HAFNIUM 179 NEUTRON CAPTURE CROSS SECTION

553 1.00 MV 5.00 KEV 1 USA N.STEEN R.EHRLICH BET KAP 621032

A: BELOW 1 EV, 5 PERCENT ACCURACY NEEDED.
BETWEEN 10 AND 100 EV, TOTAL, NEUTRON AND CAPTURE WIDTHS NEEDED WITH 10 PERCENT ACCURACY.
ABOVE 100 EV, 20 PERCENT ACCURACY REQUIRED.
5.68-EV RESONANCE WIDTHS TO 5 PERCENT.
S-WAVE STRENGTH FUNCTION TO 20 PERCENT.
AVERAGE P-WAVE CAPTURE WIDTH TO 20 PERCENT.
O: TO RESOLVE DISCREPANCIES IN RESONANCE INTEGRAL.
NEEDED FOR MONTE CARLO BURN UP CALCULATIONS.

554 10.0 MV 5.00 KEV 5.0% 1 FR H.TELLIER SAC 692305

Q: RESONANCE INTEGRAL ALSO WANTED.
A: ACCURACY 1 PERCENT AT THERMAL AND 5 PERCENT FOR RESONANCE INTEGRAL.
O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.

72 HAFNIUM 180 NEUTRON CAPTURE CROSS SECTION

555 1.00 MV 5.00 KEV 1 USA N.STEEN R.EHRLICH BET KAP 671080

A: BELOW 1 EV, 4 PERCENT ACCURACY NEEDED.
BETWEEN 10 AND 100 EV, TOTAL, NEUTRON AND CAPTURE WIDTHS NEEDED WITH 10 PERCENT ACCURACY.
ABOVE 100 EV, 20 PERCENT ACCURACY REQUIRED.
S-WAVE STRENGTH FUNCTION TO 20 PERCENT.
AVERAGE P-WAVE CAPTURE WIDTH TO 20 PERCENT.
O: TO RESOLVE DISCREPANCIES IN RESONANCE INTEGRAL.
NEEDED FOR MONTE CARLO BURN UP CALCULATIONS.

556 10.0 MV 5.00 KEV 5.0% 1 FR H.TELLIER SAC 732089

O: REACTOR CALCULATIONS.

73 TANTALUM 181 NEUTRON CAPTURE CROSS SECTION

557 1.00 EV 500. KEV 2 USA P.B.HEMMIG AEC 691192
A: ACCURACY - 1 EV TO 1 KEV, 10 PERCENT,
- 1 KEV TO 150 KEV, 5 PERCENT,
- 150 KEV TO 500 KEV, 10 PERCENT.
DOUBLE ACCURACY USEFUL.
O: FAST BREEDER CONTROL AND BURN-UP CALCULATIONS.

73 TANTALUM 181 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

558 1.00 EV 16.0 MEV 15.0% 2 USA P.B.HEMMIG AEC 741111
Q: GAMMA RAYS BELOW 1 MEV IMPORTANT.

74 TUNGSTEN NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

559 1.00 KEV 15.0 MEV 10.0% 1 FR C.PHILIS BRC 742046
O: FOR CRITICAL ASSEMBLIES.

74 TUNGSTEN NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

560 15.0 MEV 10.0% 1 FR C.PHILIS BRC 742047
O: FOR CRITICAL ASSEMBLIES.

74 TUNGSTEN NEUTRON CAPTURE CROSS SECTION

561 1.00 KEV 3.00 MEV 10.0% 1 FR C.PHILIS BRC 742049
O: FOR CRITICAL ASSEMBLIES.

74 TUNGSTEN NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

562 1.00 KEV 1.00 MEV 20.0% 2 USA C.E.CLIFFORD ORL 631004
Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
ALL GAMMA ENERGIES OF INTEREST.
O: FOR USE IN SHIELDING CALCULATIONS.

74 TUNGSTEN NEUTRON NEUTRON EMISSION CROSS SECTION

563 4.00 MEV 16.0 MEV 5.0% 2 USA C.E.CLIFFORD ORL 661040
Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
LOW ENERGY NEUTRONS SHOULD BE INCLUDED.
SPECTRA AT A FEW ANGLES MAY SUFFICE.
A: ANGULAR RESOLUTION - 10 DEGREES.
OUTGOING ENERGY RESOLUTION - 500 KEV.
ENERGY RESOLUTION 5 PERCENT.

74 TUNGSTEN 182 NEUTRON CAPTURE CROSS SECTION

564 1.00 KEV 10.0 MEV 10.0% 2 USA P.B.HEMMIG AEC 691202
O: FAST BREEDER CONTROL AND BURNUP CALCULATIONS.

74 TUNGSTEN 182 NEUTRON N,2N

565 15.0 MEV 20.0% 1 FR C.PHILIS BRC 692308
Q: PRODUCTION OF W-181 (140 DAY).
O: ACTIVATION DETECTOR.

74 TUNGSTEN 182 NEUTRON N,ALPHA

566 25.3 MV 10.0% 3 HUN J.CSIKAI KOS 693040
O: FOR NEUTRON ACTIVATION ANALYSIS AND CROSS SECTION SYSTEMATICS WANTED.

74 TUNGSTEN 183 NEUTRON CAPTURE CROSS SECTION

567 1.00 KEV 10.0 MEV 10.0% 2 USA P.B.HEMMIG AEC 691203
O: FAST BREEDER CONTROL AND BURN UP CALCULATIONS.

74 TUNGSTEN 184 NEUTRON CAPTURE CROSS SECTION

568 10.0 KEV 10.0 MEV 10.0% 2 USA P.B.HEMMIG AEC 691204
O: FAST BREEDER CONTROL AND BURNUP CALCULATIONS.

569 1.00 KEV 3.00 MEV 10.0% 1 FR C.PHILIS BRC 692309
Q: PRODUCTION OF W-185 (74 DAY).
O: ACTIVATION DETECTOR.

74 TUNGSTEN 186 NEUTRON CAPTURE CROSS SECTION

570 10.0 KEV 10.0 MEV 10.0% 2 USA P.B.HEMMIG AEC 691207
O: FAST BREEDER CONTROL AND BURNUP CALCULATIONS.

571 1.00 KEV 3.00 MEV 10.0% 1 FR C.PHILIS BRC 692313
Q: PRODUCTION OF W-187 (24 HOUR).
O: ACTIVATION DETECTOR.

74 TUNGSTEN 186 NEUTRON N,2N

572 15.0 MEV 20.0% 1 FR C.PHILIS BRC 692312
Q: PRODUCTION OF W-185 (74 DAY).
O: ACTIVATION DETECTOR.

76 OSMIUM 186 NEUTRON CAPTURE CROSS SECTION

573 1.00 KEV 100. KEV 9.0% 3 USA R.L.MACKLIN ORL 701023
Q: NEED AVERAGE CAPTURE FOR A MAXWELLIAN WITH A TEMPERATURE OF 30 KEV.
O: FOR NUCLEOSYNTHESIS STUDIES.

76 OSMIUM 187 NEUTRON CAPTURE CROSS SECTION

574 1.00 KEV 100. KEV 9.0% 3 USA R.L.MACKLIN ORL 701024
Q: NEED AVERAGE CAPTURE FOR A MAXWELLIAN WITH A TEMPERATURE OF 30 KEV.
O: FOR NUCLEOSYNTHESIS STUDIES.

77 IRIDIUM 191 NEUTRON CAPTURE CROSS SECTION

575 1.00 KEV 3.00 MEV 15.0% 1 FR A.MICHAUDON BRC 742051
O: FOR ACTIVATION.

77 IRIDIUM 191 NEUTRON N,2N

576 15.0 MEV 10.0% 1 FR A.MICHAUDON BRC 742050
O: FOR ACTIVATION.

77 IRIDIUM 193 NEUTRON CAPTURE CROSS SECTION

577 1.00 KEV 3.00 MEV 20.0% 2 FR A.MICHAUDON BRC 742053
O: FOR ACTIVATION.

77 IRIDIUM 193 NEUTRON N,2N

578 15.0 MEV 10.0% 1 FR A.MICHAUDON BRC 742052
O: FOR ACTIVATION.

78 PLATINUM NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

579 1.00 KEV 15.0 MEV 10.0% 1 FR A.MICHAUDON BRC 742054

78 PLATINUM NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

580 15.0 MEV 10.0% 1 FR A.MICHAUDON BRC 742055

78 PLATINUM NEUTRON CAPTURE CROSS SECTION

581 1.00 KEV 3.00 MEV 10.0% 1 FR A.MICHAUDON BRC 742058

78 PLATINUM NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

582 1.00 KEV 15.0 MEV 20.0% 2 FR A.MICHAUDON BRC 742056

78 PLATINUM NEUTRON N,2N

583 15.0 MEV 10.0% 1 FR A.MICHAUDON BRC 742057

78 PLATINUM 190 NEUTRON N,P

584 15.0 MEV 20.0% 2 FR A.MICHAUDON BRC 742059
O: FOR ACTIVATION.

78 PLATINUM 192 | NEUTRON | N,P

585			15.0	MEV	20.0%	2	FR	A.MICHAUDON	BRC	742060
								Q: FOR ACTIVATION.		

78 PLATINUM 198 | NEUTRON | CAPTURE CROSS SECTION

586	1.00	KEV	3.00	MEV	20.0%	2	FR	A.MICHAUDON	BRC	742061
								Q: FOR ACTIVATION.		

79 GOLD 197 | NEUTRON | DIFFERENTIAL ELASTIC CROSS SECTION

587	1.00	KEV	15.0	MEV	10.0%	1	FR	A.MICHAUDON	BRC	742062

79 GOLD 197 | NEUTRON | DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

588			15.0	MEV	10.0%	1	FR	A.MICHAUDON	BRC	742063

79 GOLD 197 | NEUTRON | CAPTURE CROSS SECTION

589	0.50	EV	1.00	KEV	1.0%	2	USA	N.STEEN	BET	671082
								Q: INDIVIDUAL AND AVERAGE RESONANCE PARAMETERS REQUIRED.		
								A: ENERGIES ABOVE 0.5 EV WANTED SO AS TO GIVE INFINITE DILUTION RESONANCE INTEGRAL TO 1 PERCENT.		
								O: FOR USE AS A STANDARD.		
590	10.0	KEV	3.00	MEV	3.0%	1	BLG	A.FABRY	MOL	682041
								O: DETECTOR APPLICATIONS.		
591	10.0	KEV	1.00	MEV	2.0%	2	USA	R.S.CASWELL	NBS	721073
								O: REQUIRED AS PRIMARY STANDARD.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

CAD LE RIGOLEUR ET AL. ANALYSIS FOR ENERGIES BELOW 10 KEV IN PROGRESS.

ANL POENITZ TO BE PUBLISHED. CROSS SECTIONS BETWEEN 400 AND 3500 KEV.

81 THALLIUM 203 | NEUTRON | CAPTURE CROSS SECTION

592	1.00	KEV	3.00	MEV	10.0%	1	FR	C.PHILIS	BRC	682044
								Q: PRODUCTION OF TL-204 (3 YEAR).		
								O: ACTIVATION DETECTOR.		

81 THALLIUM 203 | NEUTRON | N,2N

593			15.0	MEV	10.0%	1	FR	C.PHILIS	BRC	682043
								Q: PRODUCTION OF TL-202 (12 DAY).		
								O: ACTIVATION DETECTOR.		

81 THALLIUM 204 | NEUTRON | CAPTURE CROSS SECTION

594	25.3	MV			10.0%	2	USA	G.T.ORTON	RL	651008
								Q: RADIOACTIVE TARGET - 3.8 YEAR.		
								O: WANTED TO TEST FEASIBILITY OF TL-204 PRODUCTION.		

81 THALLIUM 205 | NEUTRON | CAPTURE CROSS SECTION

595	1.00	KEV	3.00	MEV	10.0%	1	FR	C.PHILIS	BRC	682046
								Q: PRODUCTION OF TL-206 (4.2 MINUTE).		
								O: ACTIVATION DETECTOR.		

81 THALLIUM 205 | NEUTRON | N,2N

596			15.0	MEV	10.0%	1	FR	C.PHILIS	BRC	682045
								Q: PRODUCTION OF TL-204 (3 YEAR).		
								O: ACTIVATION DETECTOR.		

82 LEAD | NEUTRON | TOTAL PHOTON PRODUCTION CROSS SECTION

597	1.00	KEV	16.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692319
								Q: GAMMA SPECTRA REQUIRED.		
								A: NEUTRON AND GAMMA ENERGY RESOLUTION 500 KEV.		
								O: FOR SHIELDING CALCULATION. NEW EVALUATION TO BE DONE IF NEW EXPERIMENTAL DATA.		

82 LEAD — NEUTRON — NEUTRON EMISSION CROSS SECTION

598	2.00	MEV	16.0	MEV	5.0%	2	USA	C.E.CLIFFORD	ORL	631005
							Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.			
599	500.	KEV	16.0	MEV	10.0%	2	FR	C.DEVILLERS	SAC	692318
							Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED. ENERGY STEP - 500 KEV(INCIDENT NEUTRONS). A: ENERGY RESOLUTION - 250 KEV(EMITTED NEUTRONS) O: FOR SHIELDING CALCULATION. NEW EVALUATION TO BE DONE IF NEW EXPERIMENTAL DATA.			

88 RADIUM 226 — NEUTRON — CAPTURE CROSS SECTION

600	0.30	EV	10.0	KEV	10.0%	2	BLG	A.FABRY	MOL	752093
							Q: RESONANCE PARAMETERS ALSO WANTED. VALUE OF (N,GAMMA) CAN BE DEDUCED FROM TOTAL CROSS SECTION WITH REASONABLE ACCURACY. A: 20 PERCENT WOULD BE USEFUL AS A FIRST STEP. O: FOR DOSIMETRY OF EPITHERMAL AND FAST FLUX AND FOR PRODUCTION OF AC-227. TO PROVIDE BASIC INFORMATION.			

89 ACTINIUM 227 — NEUTRON — RESONANCE PARAMETERS

601			20.0	EV	20.0%	2	BLG	A.DE TROYER	UMK	692322
							Q: NEUTRON AND CAPTURE WIDTH NEEDED. O: ISOTOPE CONTEMPLATED AS POWER SOURCE FOR SATELLITES. DATA NEEDED FOR EVALUATION OF BURN-UP DURING PRODUCTION BY REACTOR IRRADIATION OF RA-226.			

90 THORIUM 232 — NEUTRON — TOTAL CROSS SECTION

602	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753001
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 232 — NEUTRON — ELASTIC CROSS SECTION

603	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753002
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 232 — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

604	1.00	MEV	5.00	MEV	10.0%	3	USA	C.E.TILL	ANL	721074

90 THORIUM 232 — NEUTRON — INELASTIC CROSS SECTION

605			20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753003
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 232 — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

606			10.0	MEV	10.0%	3	GER	H.GERWIN	JUL	692325
607	1.00	MEV	4.00	MEV	5.0%	3	USA	C.E.TILL	ANL	721075
							A: IF ANISOTROPIC, NEED 20 PERCENT ACCURACY IN (1-COS). INCIDENT AND EXIT ENERGY RESOLUTION 20 PERCENT.			

90 THORIUM 232 — NEUTRON — CAPTURE CROSS SECTION

608	1.00	MV	5.00	KEV		1	USA	N.STEEN	BET	621034
							Q: CAPTURE SHAPE IMPORTANT IN KEV RANGE A: ACCURACY REQUIRED - BELOW 2 EV, 2 PERCENT. ABOVE 2 EV, 5 PERCENT NEED LESS THAN 5 PERCENT IN RESONANCE INTEGRAL BUT 10 PERCENT IS USEFUL. O: FOR THERMAL BREEDER CALCULATIONS.			
609	1.00	KEV	1.00	MEV	3.0%	3	UK	C.G.CAMPBELL	WIN	692329
							O: FOR FAST REACTORS.			
610	4.00	KEV	10.0	MEV		1	GER	H.GERWIN	JUL	692330
							A: ACCURACY 5 PERCENT TO 2 MEV AND 10 PERCENT ABOVE.			
611	25.3	MV			2.0%	3	FR	H.TELLIER	SAC	732090
612	10.0	KEV	15.0	MEV	3.0%	1	USA	W.DAVEY	LAS	741204
							O: NEEDED FOR ASSESSMENT OF U-233/THORIUM REACTOR POTENTIAL.			

90 THORIUM 232 NEUTRON CAPTURE CROSS SECTION (CONTINUED)

613	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753004
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			
614	500.	EV	200.	KEV	10.0%	3	FR	J.Y.BARRE	CAD	762140
							Q: FAST REACTOR PROJECT M: NEW REQUEST.			

90 THORIUM 232 NEUTRON N,2N

615			10.0	MEV	10.0%	1	USA	B.HUTCHINS	GEB	671083
							Q: NEEDED FOR CONTROL OF U-232 PRODUCTION.			
616			10.0	MEV	20.0%	3	GER	H.GERWIN	JUL	692326
							Q: SECONDARY ENERGY DISTRIBUTION REQUIRED.			

90 THORIUM 232 NEUTRON FISSION CROSS SECTION

617	25.3	MV	10.0	MEV	5.0%	2	GER	H.GERWIN	JUL	692328
							Q: SPECTRUM INDEX.			
618	100.	KEV	10.0	MEV	10.0%	3	FR	H.TELLIER	SAC	732091
619			15.0	MEV	3.0%	2	USA	W.DAVEY	LAS	741205
							Q: RATIO TO U-235 FISSION PREFERRED. Q: NEEDED FOR ASSESSMENT OF U-233/THORIUM REACTOR POTENTIAL.			
620	1.50	MEV	7.20	MEV	5.0%	2	EUR	NEUTRON DOSIMETRY GROUP	GEL	742135
							Q: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS. GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.			
621	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753005
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

90 THORIUM 232 NEUTRON RESONANCE PARAMETERS

622			4.00	KEV	10.0%	1	GER	H.GERWIN	JUL	692323
							Q: RADIATION WIDTH NEEDED.			

90 THORIUM 233 NEUTRON TOTAL CROSS SECTION

623	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753006
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 233 NEUTRON ELASTIC CROSS SECTION

624	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753007
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 233 NEUTRON INELASTIC CROSS SECTION

625			20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753008
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 233 NEUTRON CAPTURE CROSS SECTION

626	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753009
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

90 THORIUM 233 NEUTRON FISSION CROSS SECTION

627	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753010
							Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.			

91 PROTACTINIUM 231 NEUTRON CAPTURE CROSS SECTION

628	25.3	MV	10.0	MEV	10.0%	2	USA	B.HUTCHINS	GEB	691219
							Q: NEEDED FOR CONTROL OF U-232 PRODUCTION.			

91 PROTACTINIUM 233 NEUTRON TOTAL CROSS SECTION

629	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753011

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 233 NEUTRON ELASTIC CROSS SECTION

630	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753012

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 233 NEUTRON INELASTIC CROSS SECTION

631			20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753013

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 233 NEUTRON ABSORPTION CROSS SECTION

632	25.3	MV	500.	EV	5.0%	1	GER	MAERKL	SRE	692333

91 PROTACTINIUM 233 NEUTRON CAPTURE CROSS SECTION

633	1.00	MV	1.00	KEV		2	USA	R.H.DAHLBERG	GA	671085

A: ACCURACY 5 PERCENT BELOW 2 EV. 10 PERCENT ABOVE.
O: DESIGN OF THORIUM CYCLE REACTORS.

634	1.00	MV	100.	EV	10.0%	2	USA	A.M.PERRY	ORL	691221

O: THORIUM CYCLE DESIGNS.

635	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753014

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

636	500.	EV	200.	KEV	30.0%	3	FR	J.Y.BARRE	CAD	762142

O: FAST REACTOR PROJECT
M: NEW REQUEST.

637	20.0	EV	15.0	MEV	10. %	1	JAP	R.SHINDO	JAE	762208

O: FOR BURN-UP CALCULATION OF THORIUM FUELED THERMAL REACTORS.
M: NEW REQUEST.

91 PROTACTINIUM 233 NEUTRON FISSION CROSS SECTION

638	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753015

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

639	500.	EV	200.	KEV	30.0%	3	FR	J.Y.BARRE	CAD	762141

O: FAST REACTOR PROJECT
M: NEW REQUEST.

91 PROTACTINIUM 233 NEUTRON ABSORPTION RESONANCE INTEGRAL

640	0.50	EV			10.0%	1	GER	MAERKL	SRE	692334

91 PROTACTINIUM 234 NEUTRON TOTAL CROSS SECTION

641	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753016

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 234 NEUTRON ELASTIC CROSS SECTION

642	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753017

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 234 NEUTRON INELASTIC CROSS SECTION

643			20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753018

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 234 NEUTRON CAPTURE CROSS SECTION

644	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753019

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

91 PROTACTINIUM 234 NEUTRON FISSION CROSS SECTION

645	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753020

Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

92 URANIUM 232 NEUTRON CAPTURE CROSS SECTION

646	500.	EV	10.0	MEV		2	USA	R.H.DAHLBERG	GA	741134

A: ACCURACY REQUIRED - 2 TO 10 PERCENT.
Q: FOR FAST REACTOR BLANKETS.

92 URANIUM 233 HALF LIFE

647					0.5%	1	USA	N.STEEN	BET	741115

Q: TO RESOLVE DISCREPANCIES.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 233 NEUTRON TOTAL CROSS SECTION

648	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753021

Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

92 URANIUM 233 NEUTRON ELASTIC CROSS SECTION

649	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753022

Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

92 URANIUM 233 NEUTRON INELASTIC CROSS SECTION

650			20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753023

Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

92 URANIUM 233 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

651	40.0	KEV	7.00	MEV	20.0%	3	USA	C.E.TILL	ANL	671086

A: NEED ENERGY DEPENDENCE TO 5 TO 10 PERCENT ABOVE 0.5 MEV.

92 URANIUM 233 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

652			5.00	MEV	20.0%	3	UK	C.G.CAMPBELL	WIN	692339

Q: FOR FAST REACTORS.

92 URANIUM 233 NEUTRON CAPTURE CROSS SECTION

653	25.3	MV	1.00	MEV	20.0%	1	GER	H.GERWIN	JUL	692350

Q: ACCURACY INSUFFICIENT.

654	1.00	MEV	10.0	MEV	20.0%	2	GER	H.GERWIN	JUL	692352

Q: ALPHA ALSO USEFUL.
Q: ACCURACY INSUFFICIENT.

655			10.0	KEV	3.0%	3	FR	H.TELLIER	SAC	732093

Q: EVALUATION PROBABLY NOT SUFFICIENT.

656	1.00	MV	2.00	EV		1	USA	N.STEEN	BET	741112

Q: SHAPE IMPORTANT ESPECIALLY AT LOW ENERGY.
A: ACCURACY REQUIRED - BELOW 0.5 EV, 1 PERCENT.
ABOVE 0.5 EV, 2 PERCENT.
Q: NEEDED TO CLEAR UP INTERPRETATION OF CAPTURE DATA.

657	10.0	KEV	1.50	MEV	3.0%	1	USA	W.DAVEY	LAS	741206

Q: ALPHA VALUES PREFERRED.
Q: NEEDED FOR ASSESSMENT OF U-233/THORIUM REACTOR POTENTIAL.

658	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753024

Q: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

659	500.	EV	200.	KEV	10.0%	3	FR	J.Y.BARRE	CAD	762143

Q: FAST REACTOR PROJECT
M: NEW REQUEST.

92 URANIUM 233 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

660	120.	KEV			20.0%	3	UK	C.G.CAMPBELL	WIN	692337

Q: GAMMA SPECTRUM WANTED.
A: INCIDENT ENERGY, ABOUT 120 KEV.
LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY AND PHOTON SPECTRUM.
O: FOR STUDY OF ACTIVATION AND HEAT RELEASE IN CORE.

92 URANIUM 233 NEUTRON N,2N

661			15.0	MEV	10.0%	3	USA	P.B.HEMMIG	AEC	671088

O: FOR CONTAMINATION OF U-233 BY U-232.

662			15.0	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	692341

92 URANIUM 233 NEUTRON FISSION CROSS SECTION

663	1.00	MV	1.00	KEV		1	USA	N.STEEN	BET	621035

Q: SHAPE IMPORTANT AT LOW ENERGIES.
A: ACCURACY REQUIRED - 0.5 TO 1 PERCENT.
WANT ETA TO 0.25 PERCENT BELOW 1 EV.

664	1.00	MV	1.00	KEV	10.0%	1	USA	R.H.DAHLBERG A.M.PERRY	GA ORL	621036

Q: SHAPE IMPORTANT AT LOW ENERGIES.
A: WANT ETA TO 0.25 PERCENT BELOW 1 EV.
WANT INTEGRAL ETA TO 1 PERCENT BELOW 1 KEV.

665	1.00	KEV	30.0	KEV	5.0%	3	USA	C.E.TILL R.H.DAHLBERG P.B.HEMMIG A.M.PERRY	ANL GA AEC ORL	621037

A: WANT 2 PERCENT IN ETA AND INTEGRAL DATA.

666	10.0	KEV	15.0	MEV	1.0%	1	USA	G.E.HANSEN	LAS	671089

Q: RATIO WANTED RELATIVE TO U-235.

667	1.00	KEV	10.0	MEV	1.0%	2	USA	P.B.HEMMIG	AEC	691226

Q: RATIO WANTED RELATIVE TO U-235.
A: CALIBRATION IN ENERGY 1 PERCENT, RESOLUTION 3 PERCENT.
ACCURACY OF 2 TO 3 PERCENT WOULD BE USEFUL.

668	25.3	MV	50.0	EV	2.0%	2	GER	H.GERWIN	JUL	692342
669	50.0	EV	10.0	MEV		2	GER	H.GERWIN	JUL	692343

A: ACCURACY REQUIRED TO BETTER THAN 10.0 PERCENT.
O: SPECTRUM INDEX.

670	100.	EV	15.0	MEV	5.0%	3	FR	J.Y.BARRE	CAD	692344

A: THIS ACCURACY CONCERNS THE FISSION RATIO U-233 U-235.
ACCURACY OF 2 PERCENT NEEDED BETWEEN 10 KEV AND 1 MEV.

671			10.0	KEV	3.0%	3	FR	H.TELLIER	SAC	732092
672	10.0	KEV	15.0	MEV	3.0 %	1	USA	W.DAVEY	LAS	741207

Q: RATIO TO U-235 FISSION PREFERRED.
A: ACCURACY OF 1.5 PERCENT NEEDED WITH PRIORITY 2.
O: NEEDED FOR ASSESSMENT OF U-233/THORIUM REACTOR POTENTIAL.

673	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753025

O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

92 URANIUM 233 NEUTRON CAPTURE TO FISSION RATIO (ALPHA)

674	5.00	MV	15.0	MEV		1	USA	N.STEEN	BET	621041

Q: CAPTURE CROSS SECTION EQUALLY USEFUL.
INTEGRAL EXPERIMENTS NEEDED TO RESOLVE DISCREPANCIES.
A: ACCURACY REQUIRED - 2 TO 8 PERCENT BELOW 0.5 EV.
3 PERCENT ABOVE 0.5 EV (AT PRIORITY 2).
WANT ETA TO 0.25 PERCENT BELOW 3 EV (1 PERCENT USEFUL BELOW 1 EV), 1 PERCENT FROM 30 EV TO 1 KEV (5 PERCENT USEFUL) AND 2 PERCENT FROM 1 KEV TO 30 KEV.
O: EXPERIMENTAL UNCERTAINTIES NEED VERIFICATION.

675	1.00	MV	3.00	MEV			USA	R.H.DAHLBERG A.M.PERRY	GA ORL	621042

Q: CAPTURE CROSS SECTION EQUALLY USEFUL.
A: PRIORITY ENERGY RANGE ACCURACY
1 1 MV TO 1 KEV 2 TO 8 PERCENT
2 1 KEV TO 3 MEV 10 TO 20 PERCENT
WANT ETA TO 0.25 PERCENT BELOW 3 EV (1 PERCENT USEFUL BELOW 1 EV), 1 PERCENT FROM 30 EV TO 1 KEV (5 PERCENT USEFUL) AND 2 PERCENT FROM 1 KEV TO 30 KEV.

676	1.00	KEV	3.00	MEV		2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	621043

Q: CAPTURE CROSS SECTION EQUALLY USEFUL.
A: ACCURACY REQUIRED - 10 TO 20 PERCENT.
WANT ETA TO 2 PERCENT FROM 1 TO 30 EV.

677	1.00	KEV	100.	KEV	5.0%	3	UK	C.G.CAMPBELL	WIN	692346

Q: FOR FAST REACTORS.

92 URANIUM 233 NEUTRON NEUTRONS EMITTED PER NEUTRON ABSORPTION (ETA)

678	10.0	MV	0.20	EV	0.5%	2	UK	J.G.TYROR	WIN	692345

Q: VALUE RELATIVE TO 25.3 MV ETA WANTED.
A: ACCURACY IS FOR AVERAGE VALUES IN 0.02 EV STEPS.
O: FOR THERMAL REACTORS.

679	1.00	MV	1.00	EV	0.4%	2	USA	N.STEEN	BET	741113

Q: THERMAL VALUE AND SHAPE NEEDED.
O: TO VERIFY FEW EXISTING RESULTS.

680					5.0%	2	USA	N.STEEN	BET	741114

Q: U-233 FISSION SPECTRUM AVERAGE VALUE NEEDED.
O: FOR ANALYSIS OF TARGET FAST MULTIPLICATION.

STATUS---
THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 233 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

681	10.0	KEV	1.50	MEV		2	USA	N.STEEN	BET	691229

A: ACCURACY REQUIRED - 1 TO 3 PERCENT.
O: TO LOCK FOR STRUCTURE BELOW 1 MEV.

682	30.0	KEV	3.00	MEV		2	USA	R.H.DAHLBERG A.M.PERRY	GA ORL	691230

A: ACCURACY REQUIRED - 1 TO 3 PERCENT.
O: TO LOCK FOR STRUCTURE BELOW 1 MEV.

683	1.00	MV	30.0	KEV		1	USA	N.STEEN R.H.DAHLBERG A.M.PERRY	BET GA ORL	691443

A: REQUIRE 0.25 PERCENT ACCURACY TO 30 EV, 1 PERCENT FROM 30 EV TO 1 KEV, AND 2 PERCENT ABOVE.
INTERMEDIATE ACCURACY OF 1.5 PERCENT USEFUL.

684	30.0	KEV	10.0	MEV	1.0%	2	GER	H.GERWIN	JUL	692486
685	50.0	KEV	5.00	MEV	0.5%	1	USA	W.DAVEY	LAS	741208

O: NEEDED TO CHECK POSSIBLE STRUCTURE (DIP) IN FEW 100-KEV REGION.
NEEDED FOR ASSESSMENT OF U-233/THORIUM REACTOR POTENTIAL.

STATUS---
THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 233 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

686	25.3	MV			5.0%	1	USA	N.STEEN	BET	741116

O: TO RESOLVE DISCREPANCIES.

STATUS---
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 233 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

687	25.3	MV			3.0%	2	USA	N.STEEN	BET	671095

Q: CUMULATIVE AND DIRECT YIELD OF XE-135 INCLUDING 15 MINUTE ISOMER REQUIRED.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

688	25.3	MV			1.0%	2	USA	N.STEEN	BET	671096

Q: YIELD OF CS-137 WANTED.
O: FOR BURN UP INDICATOR STANDARD.

689	25.3	MV			3.0%	2	USA	N.STEEN	BET	671097
								Q: YIELD OF ND-147 AND SM-149 WANTED.		
								O: FOR CALCULATION OF FISSION PRODUCT POISONS.		
690	25.3	MV			1.0%	2	CAN	W.H.WALKER	CRC	711801
								Q: YIELD OF XE-135 WANTED.		
								O: FOR CALCULATION OF FISSION PRODUCT ABSORPTION.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 233 NEUTRON RESONANCE PARAMETERS

691	25.3	MV	5.00	KEV		2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	671195
								Q: MULTILEVEL PARAMETERS AND STATISTICAL DISTRIBUTIONS WANTED IN EV RANGE.		
								A: ACCURACY 10 PERCENT WANTED TO 100 EV, 30 PERCENT ABOVE.		
								O: FOR THERMAL BREEDER CALCULATIONS.		

92 URANIUM 234 NEUTRON TOTAL CROSS SECTION

692	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753026
								O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.		

92 URANIUM 234 NEUTRON ELASTIC CROSS SECTION

693	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753027
								O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.		

92 URANIUM 234 NEUTRON INELASTIC CROSS SECTION

694			20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753028
								O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.		

92 URANIUM 234 NEUTRON CAPTURE CROSS SECTION

695	1.00	MV	10.0	MEV		2	USA	C.E.TILL	ANL	691400
								A: ACCURACY 3 PERCENT BELOW 2 EV, 6 PERCENT BELOW 10 KEV, 10 PERCENT ABOVE 10 KEV.		
696	1.00	EV	10.0	MEV	15.0%	2	GER	H.GERWIN	JUL	692356
697			10.0	KEV	5.0%	3	FR	H.TELLIER	SAC	732094
698	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753029
								O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.		

92 URANIUM 234 NEUTRON N,2N

699			15.0	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	682050

92 URANIUM 234 NEUTRON N,3N

700			15.0	MEV	15.0%	1	FR	M.SOLEILHAC	BRC	682051

92 URANIUM 234 NEUTRON FISSION CROSS SECTION

701	4.00	MEV	10.0	MEV	15.0%	2	GER	H.GERWIN	JUL	692353
								O: SPECTRUM INDEX.		
702	25.3	MV	20.0	MEV	5.0%	2	IND	G.B.GARG	TRM	753030
								O: REQUIRED FOR THORIUM FUEL-CYCLE STUDIES.		

92 URANIUM 235 DISCRETE LEVEL STRUCTURE (ENERGY, SPIN, PARITY)

703						2	GER	F.WELLER	KFK	692379
								Q: ENERGY, SPIN AND PARITY WANTED FOR LEVELS BELOW 1.0 MEV.		

92 URANIUM 235 NEUTRON ELASTIC CROSS SECTION

704					10.0%	3	UK	J.G.TYROR	WIN	692360
								Q: THERMAL AVERAGE INCIDENT ENERGY.		
								O: FOR LONG TERM IMPROVEMENT OF THE ABSORPTION CROSS SECTION.		

705	1.00	KEV	15.0	MEV	10.0%	1	FR	A.MICHAUDON	BRC	742067

Q: FOR CRITICAL ASSEMBLIES.

92 URANIUM 235 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

706	1.00	MEV	5.00	MEV	20.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	691237

A: ENERGY RESOLUTION AT LEAST 0.5 MEV.
Q: NEEDED FOR ANALYZING FAST CRITICAL EXPERIMENTS.

707	1.00	KEV	15.0	MEV	10.0%	1	FR	A.MICHAUDON	BRC	742068

Q: FOR CRITICAL ASSEMBLIES.

92 URANIUM 235 NEUTRON INELASTIC CROSS SECTION

708			15.0	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	692363

Q: FAST CRITICAL SYSTEMS.

709			15.0	MEV	10.0%	2	FR	A.MICHAUDON	BRC	742070

Q: FOR CRITICAL ASSEMBLIES.

710	800.	KEV	5.00	MEV		1	CCP	L.N.USACHEV	FEI	754024

A: FROM 0.8 - 1.4 MEV ACCURACY 15 PERCENT,
PRIORITY 2 ACCURACY 15 PERCENT.
FROM 1.4 - 2.5 MEV ACCURACY 17 PERCENT,
PRIORITY 2 ACCURACY 17 PERCENT.
FROM 2.5 - 5.0 MEV ACCURACY 30 PERCENT,
PRIORITY 2 ACCURACY 30 PERCENT.
Q: NEED FOR FAST REACTOR CALCULATION.
FOR MORE DETAIL SEE INTRODUCTION.

92 URANIUM 235 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

711			15.0	MEV	20.0%	2	GER	F.WELLER	KFK	692364

A: ACCURACY OF 10 PERCENT REQUIRED BELOW 1.5 MEV.
RESOLUTION FOR INCIDENT AND EXIT NEUTRON ENERGIES
100 KEV.
Q: FAST REACTOR CALCULATIONS.

712			15.0	MEV		2	CCP	M.N.NIKOLAEV	FEI	714006

Q: CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION
THRESHOLDS OF U-238 (7 PERCENT ACCURACY) AND OF
PU-240 OR NP-237 (10 PERCENT ACCURACY) WANTED.
EXCITATION CROSS SECTION FOR LOW LYING LEVELS
REQUESTED WITH 15 PERCENT ACCURACY.
TEMPERATURES OF THE INELASTIC SCATTERING SPECTRA
AS WELL AS DIRECT AND PRE-EQUILIBRIUM MECHANISM
CONTRIBUTIONS IN THE CONTINUUM ARE OF INTEREST.
Q: SEE GENERAL COMMENTS IN THE INTRODUCTION.

713	50.0	KEV	6.00	MEV	10.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	721076

Q: LOW ENERGY NEUTRONS MUST BE INCLUDED.
ABSOLUTE SPECTRA AT 30 AND 75 DEGREES MAY SUFFICE.
A: INCIDENT AND EXIT ENERGY RESOLUTIONS 10. PERCENT.

92 URANIUM 235 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

714	13.0	KEV	10.0	MEV	10.0%	1	JAP	H.MATSUNOBU	SAE	682052

Q: CROSS SECTIONS FOR EXCITATION OF INDIVIDUAL LEVELS
ALSO WANTED.
A: ENERGY RESOLUTION 1 TO 2 PERCENT DESIRED.
Q: FOR FAST REACTORS.
FOR EVALUATION OF NUCLEAR DATA.
NO EXPERIMENTAL DATA ABOVE 7.5 MEV.

715	300.	KEV	10.0	MEV	10.0%	1	BAN	M.M.ISLAM	RAM	693052

Q: FOR FAST REACTORS.

716			15.0	MEV	20.0%	2	FR	A.MICHAUDON	BRC	742071

Q: FOR CRITICAL ASSEMBLIES.

92 URANIUM 235 NEUTRON TOTAL SCATTERING CROSS SECTION

717	1.00	KEV	10.0	MEV	2.0%	1	JAP	H.MATSUNOBU	SAE	752026

A: ENERGY RESOLUTION - 1 TO 2 PERCENT.
Q: EVALUATION OF U-235 NUCLEAR DATA AND FOR REACTOR
DESIGN CALCULATIONS.
THE EXPERIMENTAL DATA ARE VERY POOR.
NO EXPERIMENTAL DATA FROM 5.5 MEV TO 10 MEV.

92 URANIUM 235 NEUTRON DIFFERENTIAL TOTAL SCATTERING CROSS SECTION

718	1.00	KEV	10.0	MEV		1	JAP	H.MATSUNOBU	SAE	752027

A: ACCURACY REQUIRED - 2 TO 5 PERCENT.
ENERGY RESOLUTION - 1 TO 2 PERCENT.
O: EVALUATION OF U-235 NUCLEAR DATA AND FOR REACTOR DESIGN CALCULATIONS.
THE EXPERIMENTAL DATA ARE VERY POOR.
NO EXPERIMENTAL DATA FROM 5.5 MEV TO 10 MEV.

92 URANIUM 235 NEUTRON NON-ELASTIC CROSS SECTION

719			15.0	MEV		2	GER	F.WELLER	KFK	692361

A: ACCURACY 10 PERCENT REQUIRED TO 1.5 MEV AND 20 PERCENT ABOVE.
ENERGY RESOLUTION ABOUT 100 KEV.

720	100.	KEV	10.0	MEV	10.0%	2	BAN	M.M.ISLAM	RAM	693051

O: FOR FAST REACTORS.

92 URANIUM 235 NEUTRON CAPTURE CROSS SECTION

721	1.00	KEV	10.0	MEV		1	JAP	S.KATSURAGI H.MATSUNOBU	JAE SAE	682055

Q: ALPHA ALSO WANTED.
A: REQUIRED ACCURACY - 5 TO 10 PERCENT.
RESOLUTION - 1 TO 2 PERCENT.
O: FOR FAST REACTORS.
NUCLEAR DATA EVALUATION.
NO EXPERIMENTAL DATA ABOVE 2.6 MEV.

722	10.0	KEV	10.0	MEV		2	GER	H.GERWIN	JUL	692378

A: ACCURACY TO OBTAIN 1 PERCENT IN ALPHA.
O: ANALYSIS OF CRITICAL EXPERIMENTS.

723	25.3	MV	30.0	KEV	3.0%	2	BAN	M.M.ISLAM	RAM	693060

O: FOR FAST REACTORS.

724	1.00	MV	1.00	EV	1.0%	1	USA	N.STEEN	BET	741117

Q: SHAPE ESPECIALLY IMPORTANT AT LOW ENERGY.

725	200.	EV	500.	KEV	3.0%	2	SWD	H.HAEGGBLOM	AE	742005

O: FAST REACTOR CALCULATIONS.

726			3.00	MEV	5.0%	1	FR	A.MICHAUDON	BRC	742078

O: FOR CRITICAL ASSEMBLIES.

727	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754007

A: FROM 0.5 - 100 KEV ACCURACY 4.5 PERCENT.
PRIORITY 2 ACCURACY 3.7 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 10 PERCENT.
PRIORITY 2 ACCURACY 10 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 50 PERCENT.
PRIORITY 2 ACCURACY 50 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

92 URANIUM 235 NEUTRON CAPTURE GAMMA RAY SPECTRUM

728	25.3	MV	15.0	EV	10.0%	2	USA	N.STEEN	BET	671103
729	25.3	MV			20.0%	2	USA	R.EHRLICH	KAP	671104

92 URANIUM 235 NEUTRON PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

730	300.	KEV	4.00	MEV	10.0%	1	BAN	M.M.ISLAM	RAM	693053

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
O: FOR FAST REACTORS.

92 URANIUM 235 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

731	120.	KEV			20.0%	3	UK	C.G.CAMPBELL A.WHITTAKER	WIN UKW	692362

Q: GAMMA SPECTRUM WANTED.
A: INCIDENT ENERGY, ABOUT 120 KEV.
LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY AND PHOTON SPECTRUM.
O: FOR STUDY OF ACTIVATION AND HEAT RELEASE IN CORE.

732	1.00	KEV	15.0	MEV	10.0%	1	FR	A.MICHAUDON	BRC	742069

O: FOR SHIELDING.

92 URANIUM 235 NEUTRON N,2N

733	5.00	MEV	10.0	MEV	10.0%	1	JAP	H.MATSUNOBU	SAE	752028

A: ENERGY RESOLUTION - 1 TO 2 PERCENT.
O: EVALUATION OF U-235 NUCLEAR DATA AND FOR REACTOR DESIGN CALCULATIONS.
THE EXPERIMENTAL DATA ARE VERY POOR.

92 URANIUM 235 NEUTRON N,3N

734			15.0	MEV	15.0%	1	FR	A.MICHAUDON	BRC	742072

O: FOR CRITICAL ASSEMBLIES.

92 URANIUM 235 NEUTRON FISSION CROSS SECTION

735	10.0	KEV	15.0	MEV	1.0%	1	USA	G.E.HANSEN	LAS	661043
736	1.00	EV	1.00	KEV	3.0%	2	USA	B.HUTCHINS	GEB	691241

O: USED AS STANDARD AT HIGHER ENERGIES.

737	10.0	KEV	14.0	MEV	1.0%	1	USA	R.S.CASWELL	NBS	691245

A: ENERGY RESOLUTION 3 PERCENT.

738	1.00	KEV	14.0	MEV	1.0%	1	USA	C.E.TILL P.B.HEMMIG F.C.MAIENSCHEIN	ANL AEC ORL	691246

Q: REQUIRED IS RATIO OF U-235(N,F) TO B-10(N,ALPHA), AND TO H-1(N,P) TO 1 PERCENT.
A: INTERMEDIATE ACCURACY OF 3 PERCENT USEFUL.
O: NEEDED TO COMPARE STANDARDS.

739	1.00	KEV	14.0	MEV		1	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	691449

Q: ABSOLUTE VALUES REQUIRED.
A: FROM 1-20 KEV, ACCURACY 2 PERCENT, 5 PERCENT USEFUL.
FROM 20 KEV - 3 MEV, ACCURACY 1 PERCENT, 3 PERCENT USEFUL.
FROM 3-14 MEV, ACCURACY 2 PERCENT, 5 PERCENT USEFUL.
O: FOR FAST REACTOR CALCULATIONS AND FOR USE AS A STANDARD.

740	100.	EV	10.0	MEV		1	GER	H.GERWIN	JUL	692366

A: ACCURACY 5 PERCENT FOR 100 EV - 10 KEV, 2 PERCENT FOR 10 KEV - 1 MEV AND 5 PERCENT FOR 1-10 MEV.
O: SPECTRUM INDEX.
STANDARD CROSS SECTION.

741	1.00	MEV	5.00	MEV	3.0%	1	UK	C.G.CAMPBELL	WIN	692368

A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.
O: STANDARD FOR PU CROSS-SECTIONS.
FOR FAST REACTORS.

742	200.	EV	500.	KEV	2.0%	2	SWD	H.HAEGGBLOM	AE	692496

O: FAST REACTOR CALCULATIONS.

743	25.3	MV	15.0	MEV	5.0%	1	BAN	M.M.ISLAM	RAM	693054

O: FOR FAST REACTORS.

744	5.00	KEV	7.00	MEV	2.0%	2	CCP	M.N.NIKOLAEV	FEI	714007

Q: BELOW 20 KEV MEASUREMENTS OF TRANSMISSION CURVES BY FLAT RESPONSE DETECTOR AND BY SELF DETECTION METHOD WITH FISSION DETECTOR WANTED FOR SELFSHIELDING EVALUATION.
THESE CURVES MUST BE MEASURED WITH ATTENUATIONS OF THE PRIMARY BEAM DOWN TO 1. PERCENT.
AVERAGE CS IN FISSION NEUTRON SPECTRUM OF CF-252 TIMES NU-BAR OF CF-252 IS OF GREAT INTEREST FOR REDUCING THE DEPENDENCE OF THE ACCURACY OF NEUTRON PRODUCTION CALCULATIONS UPON THE ACCURACY OF THE CF-252 NU-BAR STANDARD (REQUIRED ACCURACY 1 PERCENT).
A: ACCURACY DETERMINED BY USE OF THIS CROSS SECTION AS STANDARD IN FISSION AND CAPTURE MEASUREMENTS FOR OTHER ISOTOPES.
IF MEASUREMENT IS ABSOLUTE AND PU-239 AND U-238 FISSION CROSS SECTIONS ARE MEASURED RELATIVE TO U-235 FISSION, THEN 2.0 PERCENT ACCURACY IS REQUIRED.
BEST ACCURACY OF 1.5 PERCENT DESIRABLE IN 1.2 TO 2.5 MEV REGION BECAUSE OF U-238 FISSION CROSS SECTION NORMALIZATION.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
REQUEST CONSIDERED FULFILLED, WHEN AT LEAST THREE MEASUREMENTS WITH DIFFERENT METHODS AGREE WITHIN REQUESTED ACCURACY.

745	1.00	MV	1.00	EV,	5.0%	1	USA	N.STEEN	BET	741118

Q: SHAPE ESPECIALLY IMPORTANT AT LOW ENERGY.

746	400.	KEV	2.00	MEV	1.5%	1	USA	W.DAVEY	LAS	741209

Q: A RELATIVE MEASUREMENT NORMALIZED TO EXISTING DATA ABOVE 1 MEV IS SUFFICIENT.
O: EXTENSION OF LASL ABSOLUTE MEASUREMENT BELOW 1 MEV TO OVERLAP IMPORTANT LOWER ENERGY DATA. A REFERENCE WHICH IS VITAL TO ALL REACTOR STUDIES.

747			15.0	MEV		1	FR	A.MICHAUDON	BRC	742073

A: ACCURACY 3 PERCENT TO 1 KEV. 2 PERCENT ABOVE.
O: FOR CRITICAL ASSEMBLIES.

748					2.0%	1	EUR	NEUTRON DOSIMETRY GROUP	GEL	742113

Q: AVERAGE CROSS SECTION IN A U-235 FISSION SPECTRUM DESIRED.
O: FOR NORMALIZATION OF AVERAGE CROSS SECTIONS FOR DOSIMETRY PURPOSES.

749	1.00	KEV	100.	KEV	2.0%	1	JAP	H.MATSUNOBU	SAE	752023

Q: ABSOLUTE MEASUREMENT WANTED.
A: ENERGY RESOLUTION - 1 TO 2 PERCENT.
O: EVALUATION OF U-235 NUCLEAR DATA AND FOR REACTOR DESIGN CALCULATIONS.
DISCREPANCIES BETWEEN THE EXPERIMENTAL DATA ARE VERY REMARKABLE IN THE ENERGY RANGE BELOW 70 KEV.

750	100.	KEV	1.00	MEV	1.0%	1	JAP	H.MATSUNOBU	SAE	752024

Q: ABSOLUTE MEASUREMENT WANTED.
A: ENERGY RESOLUTION - 1 TO 2 PERCENT.
O: EVALUATION OF U-235 NUCLEAR DATA AND FOR REACTOR DESIGN CALCULATIONS.

751	1.00	MEV	20.0	MEV		1	JAP	H.MATSUNOBU	SAE	752025

Q: ABSOLUTE MEASUREMENT WANTED.
A: ACCURACY REQUIRED - 1 TO 2 PERCENT.
ENERGY RESOLUTION - 1 TO 2 PERCENT.
O: EVALUATION OF U-235 NUCLEAR DATA AND FOR REACTOR DESIGN CALCULATIONS.
THE EXPERIMENTAL DATA ARE COMPARATIVELY POOR IN THE ENERGY RANGE ABOVE 6 MEV EXCEPT 14 MEV DATA.

752	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754008

A: FROM 0.5 - 100 KEV ACCURACY 2.8 PERCENT, PRIORITY 2 ACCURACY 1.2 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 2.1 PERCENT, PRIORITY 2 ACCURACY 1.1 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 2.9 PERCENT, PRIORITY 2 ACCURACY 1.4 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
STANDARD CS ABOVE 100 KEV.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.
MEASUREMENTS PLANNED, IN PROGRESS, OR NOT FULLY DOCUMENTED:

MHG	ROBERTSON+	100 KEV TO 1 MEV.
HAR	JAMES AND EVANS	100 KEV TO 15 MEV.
KFK	CIERJACKS+	1 MEV TO 15 MEV.
CAD	SZABO	1 MEV TO 15 MEV.
LAS		6 MEV TO 15 MEV.
ORL		<100 KEV TO 1 MEV.
NBS		<100 KEV TO 15 MEV.
BRC		100 KEV TO 15 MEV.

92 URANIUM 235 NEUTRON CAPTURE TO FISSION RATIO (ALPHA)

753	1.00	MV	7.00	MEV		2	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	691249

Q: CAPTURE CROSS SECTION EQUALLY USEFUL.
A: REQUIRED ACCURACY - 5 TO 10 PERCENT.
O: EXPERIMENTAL UNCERTAINTIES NEED VERIFICATION.

754	100.	EV	1.00	MEV	5.0%	2	UK	C.G.CAMPBELL	WIN	692373

A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.
O: FOR FAST REACTORS.

755	100.	EV	800.	KEV	7.0%	1	CCP	M.N.NIKOLAEV	FEI	714008

Q: FOR EVALUATION OF THE DIFFERENCES IN THE CAPTURE- AND FISSION-RESONANCE SELF SHIELDING.
MEASUREMENTS OF TRANSMISSION CURVES WITH FLAT-RESPONSE DETECTOR AND BY SELF-INDICATION METHOD WITH CAPTURE AND FISSION DETECTORS IN THE TEMPERATURE RANGE 70-2500 DEGREES K ARE WANTED.
A: IN REGION 1-100 KEV BETTER ACCURACY DESIRABLE (ABOUT 5 PERCENT).
IN THE TRANSMISSION MEASUREMENTS ATTENUATION OF AT LEAST 1/100 WANTED.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
ALSO NEEDED FOR COMPARISON WITH ALPHA PU-239 FOR TEST OF MEASUREMENT METHODS.
AT LEAST THREE DIFFERENT RESULTS MUST COINCIDE WITHIN REQUESTED ACCURACY.

756	1.00	MV	1.00	EV	1.0%	1	USA	N.STEEN	BET	721077

Q: CAPTURE CROSS SECTION EQUALLY USEFUL.
O: EXPERIMENTAL UNCERTAINTIES NEED VERIFICATION.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 235 NEUTRON NEUTRONS EMITTED PER NEUTRON ABSORPTION (ETA)

757	25.3	MV	50.0	KEV		2	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	671100

A: ACCURACY 1/2 PERCENT AT THERMAL. 2 PERCENT ELSEWHERE.

758	10.0	MV	0.40	EV	0.5%	1	UK	J.G.TYROR	WIN	692370

Q: VALUE RELATIVE TO 25.3 MV ETA WANTED.
A: ACCURACY IS FOR AVERAGE VALUES IN 20 MV STEPS UP TO 0.2 EV, AND IN 50 MV STEPS ABOVE.
O: FOR TEMPERATURE COEFFICIENT WORK.

759	1.00	MV	1.00	EV	0.4%	1	USA	N.STEEN	BET	741119

Q: SHAPE ESPECIALLY IMPORTANT AT LOW ENERGY.

760					5.0%	2	USA	N.STEEN	BET	741121

Q: U-235 FISSION SPECTRUM AVERAGE VALUE WANTED.
O: FOR ANALYSIS OF TARGET FAST MULTIPLICATION.

STATUS---STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 235 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

761	25.3	MV	3.00	MEV	1.0%	1	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	691253

A: ACCURACY OF 2 PERCENT USEFUL.
O: NEEDED AS A CROSS CHECK WITH OTHER ISOTOPES.

762	25.3	MV	2.50	MEV	0.5%	2	CCP	M.N.NIKOLAEV	FEI	714009

Q: RATIO TO CF-252 NU REQUIRED.
A: ABSOLUTE MEASUREMENTS OF U-235 NU-BAR FOR THERMAL NEUTRONS WITH ACCURACY NOT WORSE THAN 0.5 PERCENT AS WELL AS ETA MEASUREMENTS WOULD BE USEFUL FOR LOWERING THE DEPENDENCE ON THE CF-252 STANDARD.
ENERGY DEPENDENCE OF NU IS WANTED WITH 0.7 LETHARGY RESOLUTION IN THE REGION BELOW 2.5 MEV.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

763			15.0	MEV		1	FR	A.MICHAUDON	BRC	742075

A: ACCURACY 2 PERCENT TO 1 KEV, 1 PERCENT ABOVE.
O: FOR CRITICAL ASSEMBLIES.

764	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754010

A: FROM 0.5 - 100 KEV ACCURACY 1.2 PERCENT, PRIORITY 2 ACCURACY 0.5 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 1.0 PERCENT, PRIORITY 2 ACCURACY 0.5 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 2.1 PERCENT, PRIORITY 2 ACCURACY 1.2 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
Q: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

LRL R.E.HOWE MEASUREMENTS IN PROGRESS.

92 URANIUM 235 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

765	25.3	MV	5.00	MEV	5.0%	2	USA	P.B.HEMMIG	AEC	691260

Q: DELAYED NEUTRON ENERGY SPECTRUM WANTED.
YIELD, HALF-LIFE, AND ENERGY NEEDED.
O: NEEDED FOR ANALYSIS OF FAST CRITICALS AND TO CHECK EXISTING DATA.

766					3.0%	1	USA	N.STEEN	BET	741120

Q: FOR THE ENTIRE ENERGY RANGE.
O: TO RESOLVE UNCERTAINTIES IN AVAILABLE DATA.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 235 NEUTRON ENERGY SPECTRUM OF FISSION NEUTRONS

767	25.3	MV	3.00	MEV	5.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	691256

O: VERIFICATION OF FISSION SPECTRUM NEEDED.

768	25.3	MV			3.0%	1	USA	R.EHRLICH	KAP	691257
								A: OUTGOING NEUTRON ENERGY RESOLUTION 5 PERCENT FOR NEUTRON ENERGIES BELOW 0.3 MEV.		
								O: VERIFICATION OF FISSION SPECTRUM.		
769	100.	KEV			2.0%	2	UK	C.G.CAMPBELL A.WHITTAKER S.B.WRIGHT	WIN UKW HAR	692376
								A: INCIDENT ENERGY, ABOUT 100 KEV. ACCURACY FOR AVERAGE E'. ACCURACY 10 PERCENT ON NUMBER OF NEUTRONS ABOVE 5 MEV AND BELOW .25 MEV. LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY.		
								O: FOR FAST REACTORS. FOR REACTION RATE ANALYSIS.		
770	25.3	MV			1.0%	1	USA	N.STEEN	BET	721080
								O: VERIFICATION OF FISSION SPECTRUM NEEDED.		
771			15.0	MEV	5.0%	1	FR	A.MICHAUDON	BRC	742077
								O: FOR CRITICAL ASSEMBLIES.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 235 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

772	25.3	MV			2.0%	2	USA	N.STEEN	BET	671105
								Q: CUMULATIVE AND DIRECT YIELDS OF XE-135.		
								O: CALCULATION OF FISSION PRODUCT POISONS.		
773	25.3	MV			1.0%	2	USA	N.STEEN	BET	671106
								Q: YIELD OF CS-137 WANTED.		
								O: FOR BURN UP INDICATOR STANDARD.		
774	25.3	MV			3.0%	2	USA	N.STEEN	BET	671107
								Q: YIELD OF SM-149 AND ND-147 WANTED.		
								O: CALCULATION OF FISSION PRODUCT POISONS.		
775	25.3	MV			1.0%	2	CAN	W.H.WALKER	CRC	711802
								Q: YIELD OF XE-135 WANTED.		
								O: CALCULATION OF FISSION PRODUCT POISONS.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 235 NEUTRON RESONANCE PARAMETERS

776	25.3	MV	200.	EV	10.0%	1	USA	C.E.TILL N.STEEN B.HUTCHINS P.B.HEMMIG	ANL BET GEB AEC	691262
								Q: NEEDED TO AS HIGH AN ENERGY AS POSSIBLE. MULTILEVEL FIT WANTED WHERE FEASIBLE.		
								A: NEED 10 PERCENT ACCURACY BELOW 100 EV.		
								O: NEEDED FOR EXTRAPOLATION TO UNRESOLVED RESONANCE REGION.		
777	150.	EV	200.	EV	10.0%	2	GER	F.WELLER	KFK	692359
778	1.00	EV	200.	EV	3.0%	2	FR	H.TELLIER	SAC	702025
								O: FOR RESONANCE SELF SHIELDING.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 236 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

779			5.00	MEV	10.0%	2	CCP	M.N.NIKOLAEV	FEI	714012
								Q: CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION THRESHOLDS OF U-236 AND U-238 WANTED. THIN SPHERE TRANSMISSION MEASUREMENTS WITH CF-252 SOURCE AND FISSION THRESHOLD DETECTORS WOULD BE USEFUL.		
								O: SEE GENERAL COMMENTS IN THE INTRODUCTION.		

92 URANIUM 236 NEUTRON CAPTURE CROSS SECTION

780	25.3	MV	1.00	MEV	10.0%	1	USA	B.HUTCHINS	GEB	671109
								A: REQUIRED 10 PERCENT ACCURACY IN CAPTURE WIDTHS.		
								O: ABOVE 1 KEV PRIORITY 2. NEEDED FOR CONTROL OF U-232 PRODUCTION.		
781	1.00	EV	500.	EV	5.0%	2	CAN	W.H.WALKER	CRC	681801
								O: DISAGREEMENT BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.		
782	1.00	KEV	3.00	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	682060

783	1.00	EV	10.0	MEV	20.0%	2	GER	H.GERWIN	JUL	692381
784	500.	EV	1.00	MEV	10.0%	3	FR	J.Y.BARRE	CAD	712064

Q: RATIO TO U-235 FISSION OR U-238 CAPTURE NEEDED.
O: FOR FAST REACTOR CALCULATIONS.

785	500.	EV	1.40	MEV	7.0%	2	CCP	M.N.NIKOLAEV	FEI	714015

Q: RATIO WANTED RELATIVE TO U-235 FISSION.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

92 URANIUM 236 NEUTRON FISSION CROSS SECTION

786			15.0	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	682058

O: EVALUATION MAY BE SUFFICIENT.

787	4.00	MEV	10.0	MEV	5.0%	2	GER	H.GERWIN	JUL	692380
788	500.	EV	15.0	MEV	3.0%	3	FR	J.Y.BARRE	CAD	712062

Q: WANTED RELATIVE TO U-235 FISSION CROSS SECTION.
O: FOR FAST REACTOR CALCULATIONS.

789	100.	KEV	5.00	MEV	5.0%	2	CCP	M.N.NIKOLAEV	FEI	714013

Q: RATIO WANTED RELATIVE TO U-235.
AVERAGE CS IN FISSION NEUTRON SPECTRUM OF CF-252 TIMES NU-BAR OF CF-252 WOULD BE VERY USEFUL (REQUIRED ACCURACY 1 PERCENT).
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

92 URANIUM 236 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

790	500.	EV	15.0	MEV	3.0%	3	FR	J.Y.BARRE	CAD	712063

A: ACCURACY RELATIVE TO NU CF-252.
O: FOR FAST REACTOR CALCULATIONS.

791			5.00	MEV	1.0%	2	CCP	M.N.NIKOLAEV	FEI	714014

O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

92 URANIUM 236 NEUTRON RESONANCE PARAMETERS

792	10.0	EV	5.00	KEV		2	CCP	M.N.NIKOLAEV	FEI	714011

Q: NEUTRON AND CAPTURE WIDTHS WANTED FOR EVALUATION OF SELFSHIELDING IN RESOLVED RESONANCE REGION.
A: OBSERVATION OF AT LEAST 50 PERCENT OF P-WAVE RESONANCES IN THE ENERGY INTERVAL TO 1 KEV IS DESIRED.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
STATISTICAL ANALYSIS OF MEASURED RESONANCE PARAMETERS WANTED.
AVERAGE S AND P WAVE RESONANCE PARAMETERS SHOULD BE DERIVED.

92 URANIUM 237 NEUTRON CAPTURE CROSS SECTION

793	1.00	KEV	3.00	MEV	20.0%	1	FR	M.SOLEILHAC	BRC	742080

O: EVALUATION MAY BE SUFFICIENT.

92 URANIUM 237 NEUTRON FISSION CROSS SECTION

794	1.00	KEV	15.0	MEV	20.0%	1	FR	M.SOLEILHAC	BRC	742079

O: EVALUATION MAY BE SUFFICIENT.

92 URANIUM 238 NEUTRON ELASTIC CROSS SECTION

795	1.00	KEV	15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742081

O: FOR CRITICAL ASSEMBLIES.

92 URANIUM 238 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

796	1.00	KEV	10.0	MEV		1	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG A.M.PERRY	ANL GEB AEC ORL	691407

A: ACCURACY 10 PERCENT FROM 1 TO 300 KEV.
5 PERCENT FROM 300 KEV TO 2 MEV.
10 PERCENT FROM 2 TO 10 MEV.
FACTORS OF 2 LOWER ACCURACY WOULD BE USEFUL ON SHORT TERM.

797	1.00	KEV	15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742082

O: FOR CRITICAL ASSEMBLIES.

92 URANIUM 238 NEUTRON INELASTIC CROSS SECTION

798			15.0	MEV	5.0%	2	FR	J.Y.BARRE	CAD	692387
								Q: ALTERNATE QUANTITY - NONELASTIC CROSS SECTION.		
								O: FOR FAST REACTOR CALCULATIONS.		
799	80.0	KEV	500.	KEV		2	SWD	H.HAEGGBLOM	AE	692389
								A: ACCURACY REQUIRED TO BETTER THAN 10 PERCENT.		
								O: NEEDED FOR FAST REACTOR CALCULATIONS.		
800	1.20	MEV	2.00	MEV	10.0%	2	GER	F.WELLER	KFK	692393
								Q: LEVEL EXCITATION CROSS SECTIONS FOR THE 45 AND 148 KEV LEVELS WANTED.		
801			15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742083
								O: FOR CRITICAL ASSEMBLIES.		
802	100.	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754021
								A: FROM 0.1-0.8 MEV ACCURACY 4.0 PERCENT, PRIORITY 2 ACCURACY 3.4 PERCENT. FROM 0.8-1.4 MEV ACCURACY 4.0 PERCENT, PRIORITY 2 ACCURACY 2.7 PERCENT. FROM 1.4-2.5 MEV ACCURACY 5.0 PERCENT, PRIORITY 2 ACCURACY 3.0 PERCENT. FROM 2.5-5.0 MEV ACCURACY 12 PERCENT, PRIORITY 2 ACCURACY 10 PERCENT. FROM 5.0-6.5 MEV ACCURACY 7.8 PERCENT, PRIORITY 2 ACCURACY 7.0 PERCENT. FROM 6.5-10 MEV ACCURACY 10 PERCENT, PRIORITY 2 ACCURACY 10 PERCENT.		
								O: NEED FOR FAST REACTOR CALCULATION. FOR MORE DETAIL SEE INTRODUCTION.		

STATUS

UNDER CONTINUOUS REVIEW BY NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

ANL MEASUREMENTS UNDERWAY BELOW 600 KEV AND AT 2 MEV AND ABOVE. MEASUREMENT OF SCATTERED NEUTRON ANGULAR DISTRIBUTION AT 550 KEV UNDERWAY WITH 5% ACCURACY OBJECTIVE.

ORL IN THE FEW HUNDRED KEV RANGE AN ATTEMPT TO MEASURE GAMMA RAYS EMITTED FOLLOWING THE INELASTIC SCATTERING PROCESS WILL BE MADE.

SWD MEASUREMENTS APPARENTLY UNDERWAY AT 400 TO 600 KEV.

ALD MEASUREMENTS UNDERWAY AT 1 TO 3 MEV.

92 URANIUM 238 NEUTRON ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

803			2.00	MEV	10.0%	2	GER	F.WELLER	KFK	692390

92 URANIUM 238 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

804	50.0	KEV	10.0	MEV	5.0%	1	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	691270
								Q: EMISSION INSTEAD OF INELASTIC AND N,2N MIGHT BE USEFUL.		
								A: ACCURACY OF 20 PERCENT WOULD BE USEFUL. ENERGY RESOLUTION 5 PERCENT.		
805			15.0	MEV	5.0%	2	FR	J.Y.BARRE	CAD	692391
								Q: SEPARATION OF LEVELS UP TO 2 MEV REQUIRED.		
								A: ACCURACY ON NUCLEAR TEMPERATURE ABOVE 2 MEV.		
								O: FOR FAST REACTOR CALCULATIONS.		
806	7.00	MEV	14.0	MEV	5.0%	2	GER	F.WELLER	KFK	692394
807	50.0	KEV	15.0	MEV		1	CCP	M.N.NIKOLAEV	FEI	714018
								Q: DECISION ABOUT TOTAL INELASTIC CROSS SECTION AT 1.0 TO 2.5 MEV WANTED. TEMPERATURE FOR INELASTIC NEUTRONS WANTED AT THE HIGHER ENERGIES. SPECTRA AND CROSS SECTION FOR DIRECT INELASTIC SCATTERING PROCESSES TO BE INVESTIGATED IN THE MEV REGION AS WELL AS DIRECT MECHANISM CONTRIBUTIONS.		
								A: CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION THRESHOLD OF U-238 WANTED TO 1.5 - 2.0 PERCENT. CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION THRESHOLD OF PU-240 OR NP-237 WANTED TO 3 - 5 PERCENT. EXCITATION CS FOR FIRST LEVEL ABOVE THRESHOLD TO 2 MEV SHOULD BE MEASURED WITH 5 PERCENT ACCURACY. NEUTRON SPECTRA TO BE MEASURED WITH 5 PERCENT ACCURACY AT 2.515 MEV.		
								O: SEE GENERAL COMMENTS IN THE INTRODUCTION. PRECISION MEASUREMENTS OF MENTIONED INTEGRAL PARAMETERS IN SHELL TRANSMISSION EXPERIMENTS WITH CF-252 NEUTRON SOURCE AND U-238 AND NP-237 FISSION THRESHOLD DETECTORS AS WELL AS BY NEUTRON SPECTROMETER SEEMS VERY USEFUL.		

STATUS

UNDER CONTINUOUS REVIEW BY NEANDC. SEE APPENDIX A.

92 URANIUM 238 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

808	1.00	MEV	2.50	MEV	5.0%	1	UK	C.G.CAMPBELL	WIN	692392
								O: FOR FAST REACTORS.		
809	300.	KEV	10.0	MEV	10.0%	1	BAN	M.M.ISLAM	RAM	693062
								O: FOR FAST REACTORS.		
810			15.0	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742084

92 URANIUM 238 NEUTRON NON-ELASTIC CROSS SECTION

811	100.	KEV	10.0	MEV	10.0%	2	BAN	M.M.ISLAM	RAM	693061
								O: FOR FAST REACTORS.		
812	10.0	KEV	15.0	MEV		2	CCP	M.N.NIKOLAEV	FEI	714017
								A: DIRECT MEASUREMENTS BY SHELL TRANSMISSION DESIRABLE WITH 3-5 PERCENT ACCURACY.		
								O: FOR EVALUATION OF INELASTIC SCATTERING CROSS SECTION FOR FAST REACTORS.		

92 URANIUM 238 NEUTRON CAPTURE CROSS SECTION

813	500.	EV	10.0	MEV		1	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG	ANL GEB AEC	691419
								A: ACCURACY 6 PERCENT FROM 500 EV TO 1 KEV, 4 PERCENT FROM 1 KEV TO 300 KEV, 6 PERCENT FROM 300 KEV TO 500 KEV, 10 PERCENT FROM 500 KEV TO 10 MEV. ACCURACY OF 10 PERCENT FROM 1 KEV TO 10 MEV, USEFUL.		
								O: HIGHEST PRIORITY NEED FOR FAST REACTOR CALCULATIONS.		
814	10.0	KEV	10.0	MEV		1	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG A.M.PERRY	ANL GEB AEC ORL	691435
								Q: NEEDED IS RATIO OF CAPTURE CROSS SECTION U-238 TO FISSION CROSS SECTION OF PU-239 OR U-235. DIRECT RATIO NEEDED TO SUPPLEMENT SEPARATE MEASUREMENT.		
								A: ACCURACY 1.5 PERCENT BELOW 300 KEV, 7 PERCENT ABOVE. INTERMEDIATE ACCURACY USEFUL NEAR TERM.		
815	5.00	MV	6.00	EV		1	UK	J.G.TYROR	WIN	692401
								A: ACCURACY REQUIRED .03 BARNS.		
								O: FOR THERMAL REACTORS.		
816	4.00	EV	500.	EV	2.0%	2	FR	H.TELLIER	SAC	692402
								Q: RELATIVE TO SIGMA(N,G) AT THERMAL.		
								O: FOR CALCULATION OF IEFF. EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.		
817	500.	EV	800.	KEV		1	GER	H.GERWIN	JUL	692403
								A: ACCURACY 2 PERCENT 10 TO 400 KEV, 3 PERCENT ELSEWHERE.		
								O: FAST REACTOR CALCULATIONS.		
818	500.	EV	1.00	MEV	5.0%	2	FR	H.TELLIER	SAC	692404
								Q: RELATIVE TO SIGMA(N,G) AT THERMAL.		
								O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.		
819	10.0	KEV	2.00	MEV	3.0%	1	UK	C.G.CAMPBELL	WIN	692405
								A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.		
								O: FOR FAST REACTORS.		
820	5.00	KEV	1.00	MEV	3.0%	2	SWD	H.HAEGGBLOM	AE	692406
								O: NEEDED FOR FAST REACTOR CALCULATIONS.		
821	25.3	MV	30.0	KEV	3.0%	2	BAN	M.M.ISLAM	RAM	693066
								O: FOR FAST REACTORS.		
822	1.00	KEV	1.00	MEV		1	JAP	S.IIJIMA	NIG	702032
								A: ACCURACY REQUIRED TO BETTER THAN 5.0 PERCENT.		
								O: FOR FAST REACTOR CALCULATIONS. PRECISE MEASUREMENT AT SOME ENERGY POINTS ALSO DESIRED.		

823	500.	EV	1.40	MEV	3.0%	1	CCP	M.N.NIKOLAEV	FEI 714022

Q: RATIO TO U-235 FISSION CS IS WANTED.
ABSOLUTE MEASUREMENTS OR RATIOS TO B-10(N,ALPHA) AND LI-6(N,ALPHA) CROSS SECTIONS WOULD ALSO BE USEFUL, AND AT HIGHER ENERGIES THE RATIO TO THE NP-237 FISSION CS.
TRANSMISSION MEASUREMENTS WITH FLAT-RESPONSE DETECTOR AND BY THE SELF-INDICATION METHOD WITH CAPTURE GAMMA-RAY DETECTOR IN THE TEMPERATURE RANGE 70-2500 DEGREES K ARE DESIRED FOR EVALUATION OF SELF-SHIELDING AND DOPPLER EFFECTS.
SPHERICAL TRANSMISSION TIME-OF-FLIGHT MEASUREMENTS SEEM TO BE A USEFUL INDEPENDENT METHOD FOR DETERMINING THE RELIABILITY OF CAPTURE CROSS-SECTION DATA.
A: BETWEEN 1 AND 100 KEV INFORMATION ON RESONANCE SELFSHIELDING FACTORS (SEE BOOK BY ABAGYAN ET AL., CONSULTANTS BUREAU, NEW YORK,1964) WITH 2 PERCENT ACCURACY AND AVERAGED OVER 0.2 LETHARGY INTERVALS DESIRED.
TEMPERATURE DIFFERENCES OF SELFSHIELDING FACTORS MUST BE KNOWN WITH 7 PERCENT ACCURACY.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
FIRST PRIORITY BECAUSE IT IS DIFFICULT TO INTERPRET THE DOPPLER-EFFECT AND SELF-SHIELDING FACTORS FROM MACROSCOPIC DATA ONLY.

824	1.00	EV	20.0	KEV	5.0%	1	USA	N.STEEN	BET 741123

O: TO RESOLVE DISCREPANCIES AMONG INTEGRAL AND DIFFERENTIAL EXPERIMENTS.

825	1.00	KEV	3.00	MEV	5.0%	1	FR	M.SOLEILHAC	BRC 742087

O: FOR CRITICAL ASSEMBLIES.

826	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI 754005

A: FROM 0.5 - 100 KEV ACCURACY 4.6 PERCENT.
PRIORITY 2 ACCURACY 2.1 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 4.0 PERCENT.
PRIORITY 2 ACCURACY 2.7 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 9.6 PERCENT.
PRIORITY 2 ACCURACY 9.3 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

92 URANIUM 238 NEUTRON PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

827	300.	KEV	4.00	MEV	10.0%	1	BAN	M.M.ISLAM	RAM 693063

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
O: FOR FAST REACTORS.

92 URANIUM 238 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

828			200.	KEV	15.0%	2	UK	C.G.CAMPBELL	WIN 712066

Q: GAMMA SPECTRUM WANTED.
A: LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY AND PHOTON SPECTRUM.
O: FOR STUDY OF ACTIVATION AND HEAT RELEASE IN CORE.

829	1.00	MV	15.0	MEV	10.0%	2	USA	P.B.HEMMIG	AEC 721079

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED. FOR ALL GAMMA ENERGIES.
A: GAMMA-ENERGY INTERVALS - 500 KEV.
O: FOR SHIELDING AND GAMMA-HEATING CALCULATIONS.

92 URANIUM 238 NEUTRON N,2N

830			20.0	MEV		2	CCP	M.N.NIKOLAEV	FEI 714019

Q: SECONDARY ENERGY DISTRIBUTION REQUIRED.
A: ACCURACY 5 TO 10 PERCENT WANTED.
ENERGY SPECTRA OF SECONDARY NEUTRONS DESIRABLE WITH 5 PERCENT ACCURACY AND 0.2 RESOLUTION IN LETHARGY.
O: FOR FAST REACTORS.

831			10.0	MEV	7.0%	1	USA	B.HUTCHINS	GEB 721078

O: IMPORTANT TO PRODUCTION OF U-238.

832			15.0	MEV	20.0%	2	FR	J.Y.BARRE	CAD 762144

O: FUEL CYCLE IN-CORE
M: NEW REQUEST.

92 URANIUM 238 NEUTRON FISSION CROSS SECTION

833	500.	KEV	15.0	MEV		1	USA	G.E.HANSEN	LAS 671203

Q: RATIO TO U-235 FISSION WANTED.
A: ACCURACY 5 PERCENT TO 1.3 MEV AND 1 PERCENT ABOVE.
ENERGY RESOLUTION - 3 PERCENT.
ENERGY CALIBRATION - 1 PERCENT.
O: FOR FAST BREEDER CALCULATIONS.
FOR CURIUM AND CALIFORNIUM PRODUCTION.

834 500. EV 14.0 MEV 1 USA P.B.HEMMIG AEC 691416
Q: RATIO WANTED RELATIVE TO U-235 FISSION.
A: ACCURACY 4 PERCENT BELOW 1.3 MEV, 2 PERCENT 1.3 TO 5. MEV, 3 PERCENT ABOVE 5. MEV.
ENERGY RESOLUTION 3 PERCENT, ENERGY CALIBRATION 1 PERCENT.
INTERMEDIATE ACCURACY USEFUL.

835 15.0 MEV 5.0% 1 BAN M.M.ISLAM RAM 693065
O: FOR FAST REACTORS.

836 2.0% 2 UK C.G.CAMPBELL WIN 712067
J.G.TYROR WIN
Q: FISSION SPECTRUM AVERAGE WANTED.
O: FOR FAST AND THERMAL REACTORS.

837 800. KEV 15.0 MEV 1 CCP M.N.NIKOLAEV FEI 714020
Q: RATIO TO U-235 FISSION CS IS WANTED.
ABSOLUTE MEASUREMENTS AND MEASUREMENT OF THE RATIO TO THE NP-237 FISSION CS WOULD BE VERY USEFUL.
AVERAGE CS IN FISSION-NEUTRON SPECTRUM OF CF-252 TIMES NU-BAR OF CF-252 IS OF GREAT INTEREST FOR REDUCING THE DEPENDENCE OF THE ACCURACY OF NEUTRON PRODUCTION CALCULATIONS UPON THE ACCURACY OF THE CF-252 NU-BAR STANDARD (REQUIRED ACCURACY 1 PERCENT).
A: REQUESTED ACCURACIES - 5 PERCENT BELOW 1.3 MEV, AND ABOVE 6.5 MEV, AND 2 PERCENT BETWEEN 1.3 AND 6.5 MEV.
ABSOLUTE VALUES WITH 2 TO 3 PERCENT ACCURACY.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
AT LEAST THREE DIFFERENT MEASUREMENTS WITH THESE ACCURACIES WANTED.
FIRST PRIORITY BECAUSE HIGH ACCURACY OF THE U-238 FISSION CS IS IMPORTANT IN CONNECTION WITH THE USE OF THIS CS AS A CONVENIENT STANDARD FOR THRESHOLD-REACTION MEASUREMENTS.

838 5.00 MEV 3.0% 1 UK C.G.CAMPBELL WIN 732112
O: FOR FAST REACTORS.

839 15.0 MEV 3.0% 1 FR M.SOLEILHAC BRC 742086
O: FOR CRITICAL ASSEMBLIES.

840 2.0% 1 EUR NEUTRON DOSIMETRY GROUP GEL 742112
Q: RATIO OF AVERAGE CROSS SECTION IN A U-235 FISSION SPECTRUM TO AVERAGE U-235 FISSION CROSS SECTION IS WANTED.
O: FOR NORMALIZATION OF AVERAGE CROSS SECTIONS FOR DOSIMETRY PURPOSES.

841 1.50 MEV 6.70 MEV 5.0% 2 EUR NEUTRON DOSIMETRY GROUP GEL 742136
O: FOR NEUTRON DOSIMETRY USING SPECTRUM UNFOLDING METHODS.
GREATER THAN 10 PERCENT DISCREPANCY BETWEEN INTEGRAL AND DIFFERENTIAL MEASUREMENTS.

842 800. KEV 10.0 MEV 1 CCP L.N.USACHEV FEI 754019
A: FROM 0.8 - 10.0 MEV ACCURACY 2.8 PERCENT, PRIORITY 2 ACCURACY 1.8 PERCENT.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DRL MEASUREMENTS PLANNED.

KFK MEASUREMENTS UNDERWAY.

92 URANIUM 238 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

843 10.0 MEV 1.0% 1 USA C.E.TILL ANL 691275
P.B.HEMMIG AEC
Q: ENERGY REQUESTED IS A MAXIMUM VALUE ONLY.
RATIO TO CF-252 NU WANTED.
O: TO VERIFY MEASUREMENT OF SOLEILAC.

844 5.00 MEV 0.7% 2 CCP M.N.NIKOLAEV FEI 714021
Q: RATIO TO CF-252 NU WANTED.
A: ENERGY DEPENDENCE MUST BE KNOWN WITH 0.7 PERCENT ACCURACY AND ABOUT 10 PERCENT ENERGY RESOLUTION.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

845 15.0 MEV 1.0% 1 FR M.SOLEILHAC BRC 742088
O: FOR CRITICAL ASSEMBLIES.

846 800. KEV 10.0 MEV 1 CCP L.N.USACHEV FEI 754020
A: FROM 0.8 - 10.0 MEV ACCURACY 2.1 PERCENT, PRIORITY 2 ACCURACY 1.0 PERCENT.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

STATUS

92 URANIUM 238 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

847	2.00	MEV		5.0%	2	UK	C.G.CAMPBELL J.G.TYROR	WIN WIN	692397
							A: INCIDENT ENERGY, ABOUT 2 MEV. LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY. D: FOR FAST AND THERMAL REACTORS.		
848			15.0 MEV	5.0%	1	USA	N.STEEN	BET	741122
							D: DATA STILL DISCREPANT.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

ANL WORK IN PROGRESS.

92 URANIUM 238 NEUTRON ENERGY SPECTRUM OF FISSION NEUTRONS

849	2.00	MEV		2.0%	3	UK	C.G.CAMPBELL	WIN	692400
							A: INCIDENT ENERGY, ABOUT 2 MEV. ACCURACY FOR AVERAGE E'. ACCURACY 10 PERCENT ON NUMBER OF NEUTRONS ABOVE 5. MEV AND BELOW .25 MEV. LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY. D: FOR FAST REACTORS.		
850			5.00 MEV	5.0%	1	USA	P.B.HEMMIG	AEC	721145
							D: TO RESOLVE DISCREPANCIES IN EXISTING DATA.		
851			15.0 MEV	2.0%	1	FR	M.SOLEILHAC	BRC	742089
							D: FOR CRITICAL ASSEMBLIES.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 238 NEUTRON RESONANCE PARAMETERS

852	1.00	EV	20.0 KEV	10.0%	1	USA	P.B.HEMMIG C.E.TILL B.HUTCHINS	AEC ANL GEB	691286
							Q: WANTED TO AS HIGH AN ENERGY AS CAN BE MEASURED. D: NEEDED FOR DOPPLER EFFECT IN FAST REACTORS. NEED ANSWERS TO QUESTIONS OF MISSING P-WAVE LEVELS AND UNCERTAINTY OF GAMMA WIDTHS.		
853	2.00	KEV	5.00 KEV	3.0%	2	SWD	H.HAEGGBLOM	AE	692385
							Q: NEUTRON CAPTURE AND FISSION WIDTH NEEDED. D: NEEDED FOR FAST REACTOR CALCULATIONS.		
854	5.00	EV	4.00 KEV	2.0%	2	FR	H.TELLIER	SAC	702029
							D: FOR RESONANCE SELF SHIELDING AND DOPPLER EFFECT.		
855			5.00 KEV		1	CCP	M.N.NIKOLAEV	FEI	714016
							Q: OBSERVATION OF VERY WEAK P-WAVE RESONANCES IS DESIRED. RESOLUTION OF 90 PERCENT OF P-WAVE RESONANCES CONTROLLED BY PORTER-THOMAS DISTRIBUTION AND LEVEL SPACING DISTRIBUTION AND ALL S-WAVE RESONANCES BELOW 5 KEV IS DESIRED. D: CAREFUL IDENTIFICATION OF S AND P WAVE RESONANCES NEEDED FOR DETERMINATION OF P WAVE STRENGTH FUNCTION. REQUEST CONNECTED WITH PROBLEM OF SELFSHIELDING EVALUATION IN UNRESOLVED RESONANCE REGION. ATTENTION TO BE PAID TO THE PROBABLE DIFFERENCE BETWEEN THE 1/2 (+) AND 1/2 (-) LEVEL DENSITIES. FIRST PRIORITY BECAUSE INVESTIGATION OF THE PARITY DEPENDENCE OF LEVEL DENSITY IS OF INTEREST FROM A SCIENTIFIC AS WELL AS FROM A PRACTICAL POINT OF VIEW.		
856	6.00	EV	10.0 KEV	3.0%	1	UK	C.G.CAMPBELL	WIN	732113
							A: ACCURACY IS FOR THE AVERAGE ERROR BETWEEN E AND 2E. BROAD RESOLUTION MEASUREMENTS COULD SUFFICE. D: FOR FAST REACTORS. TO GIVE SHIELDED CROSS SECTIONS TO 3 PERCENT. TO GIVE DOPPLER CHANGE TO 5 PERCENT FOR TEMPERATURES BETWEEN 300 AND 1200 DEGREES K.		

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

93 NEPTUNIUM 237 GAMMA GAMMA,N

857 20.0% 3 UK A.WHITTAKER UKW 692409
Q: PRODUCTION OF PU-236.
FOR AN AVERAGE GAMMA RAY ENERGY FROM MG, C, ZIRCALOY AND STAINLESS STEEL(20/25).
O: FOR ISOTOPE PRODUCTION.

858 50.0% 3 FR J.Y.BARRE CAD 762145
O: FUEL CYCLE OUT-OF-CORE
M: NEW REQUEST.

93 NEPTUNIUM 237 NEUTRON CAPTURE CROSS SECTION

859 1.00 MV 5.00 MEV 1 USA B.HUTCHINS GEB 671115
A: ACCURACY - 3 PERCENT FROM THERMAL TO 10 EV, 10 PERCENT ABOVE 10 EV, 5 PERCENT IN NEUTRON WIDTH, 10 PERCENT IN GAMMA WIDTH FROM THERMAL TO 1 KEV.
O: ABOVE 1 KEV PRICRITY 2.
FOR THERMAL REACTOR CALCULATIONS AND PU-238 PRODUCTION.

860 500. EV 200. KEV 30.0% 2 FR J.Y.BARRE CAD 762146
O: FUEL CYCLE IN-CORE
M: NEW REQUEST.

93 NEPTUNIUM 237 NEUTRON N,2N

861 15.0 MEV 10.0% 2 USA F.J.MC CROSSON SRL 671112
O: TO EVALUATE CONTAMINATION OF PU-238 BY PU-236.

862 10.0 MEV 10.0% 2 USA B.HUTCHINS GEB 691290
O: NEEDED FOR CONTPOL OF U-232 PRODUCTION.

863 15.0 MEV 50.0% 2 FR J.Y.BARRE CAD 762147
O: FUEL CYCLE OUT-OF-CORE
M: NEW REQUEST.

93 NEPTUNIUM 237 NEUTRON FISSION CROSS SECTION

864 20.0 EV 50.0 KEV 10.0% 3 USA G.E.HANSEN LAS 661044
Q: RATIO TO U-235 FISSION WANTED.
A: ENERGY RESOLUTION - 30 PERCENT.

865 50.0 KEV 1.00 MEV 5.0% 1 USA G.E.HANSEN LAS 661045
Q: RATIO TO U-235 FISSION WANTED.
A: ENERGY RESOLUTION - 3 PERCENT.

866 1.00 MEV 15.0 MEV 1.0% 2 USA G.E.HANSEN LAS 661046
Q: RATIO TO U-235 FISSION WANTED.
A: ENERGY RESOLUTION - 3 PERCENT.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

93 NEPTUNIUM 238 NEUTRON CAPTURE CROSS SECTION

867 25.3 MV 2 CAN W.H.WALKER CRC 681802
A: ACCURACY REQUIRED 100 B.
O: UNKNOWN CROSS SECTION.

93 NEPTUNIUM 239 NEUTRON CAPTURE CROSS SECTION

868 10.0 KEV 1.00 MEV 20.0% 3 JAP M.OHTA KYU 712075
O: FOR NORMALIZATION OF CALCULATED CAPTURE CROSS SECTION.

869 500. EV 200. KEV 20.0% 2 FR J.Y.BARRE CAD 762148
O: FAST REACTOR OPERATION
M: NEW REQUEST.

870 25.2 MV 15.0 MEV 20. % 2 JAP R.SHINDO JAE 762209
O: FOR BURN-UP CALCULATION OF THERMAL REACTOR.
M: NEW REQUEST.

93 NEPTUNIUM 239 NEUTRON FISSION CROSS SECTION

871 15.0 MEV 50.0% 2 FR J.Y.BARRE CAD 762149
O: FAST REACTOR OPERATION
M: NEW REQUEST.

93 NEPTUNIUM 239 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

872			15.0	MEV	50.0%	2	FR	J.Y.BARRE	CAD	762150

Q: FAST REACTOR OPERATION
M: NEW REQUEST.

94 PLUTONIUM 236 NEUTRON ABSORPTION CROSS SECTION

873	500.	EV	200.	KEV	50.0%	2	FR	J.Y.BARRE	CAD	762151

Q: FUEL CYCLE OUT-OF-CORE
M: NEW REQUEST.

94 PLUTONIUM 237 NEUTRON CAPTURE CROSS SECTION

874	1.00	KEV	3.00	MEV	20.0%	1	FR	M.SOLEILHAC	BRC	742092

O: EVALUATION MAY BE SUFFICIENT.

94 PLUTONIUM 237 NEUTRON FISSION CROSS SECTION

875	1.00	KEV	15.0	MEV	20.0%	1	FR	M.SOLEILHAC	BRC	692411

94 PLUTONIUM 238 NEUTRON CAPTURE CROSS SECTION

876	25.3	MV			5.0%	2	CAN	W.H.WALKER	CRC	681803

O: DISAGREEMENT BETWEEN INTEGRAL (APPROX 450 B) AND DIFFERENTIAL (APPROX 530 B) MEASUREMENTS.

877	500.	EV	1.00	MEV	20.0%	2	FR	J.Y.BARRE	CAD	732096

Q: VALUE RELATIVE TO U-238 CAPTURE CROSS SECTICN.
O: FOR FAST REACTOR CALCULATIONS.

878	1.00	KEV	3.00	MEV	20.0%	2	FR	M.SOLEILHAC	BRC	742093

94 PLUTONIUM 238 NEUTRON N,2N

879			15.0	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	682062

94 PLUTONIUM 238 NEUTRON FISSION CROSS SECTION

880			15.0	MEV	20.0%	1	FR	M.SOLEILHAC	BRC	682064

O: MEASUREMENTS DONE AT LOS ALAMOS MAY SATISFY THIS REQUEST UP TO 1 MEV.
EVALUATICN MAY EE SUFFICIENT

881	500.	EV	15.0	MEV	7.00%	2	FR	J.Y.BARRE	CAD	732095

Q: VALUE RELATIVE TO U-235 FISSION CROSS SECTION.
O: FOR FAST REACTOR CALCULATIONS.

94 PLUTONIUM 238 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

882	500.	EV	15.0	MEV	4.00%	2	FR	J.Y.BARRE	CAD	732097

Q: VALUE RELATIVE TO CF-252 NU.
O: FOR FAST REACTOR CALCULATIONS.

94 PLUTONIUM 239 NEUTRON TOTAL CROSS SECTION

883	1.00	EV	500.	KEV	3.0%	1	USA	B.HUTCHINS	GEB	741124

A: ENERGY RESOLUTION TO SHOW SECONDARY STRUCTURE UP TO 10 KEV.

884	10.0	KEV	100.	KEV	2. %	1	JAP	M.KAWAI	NIG	762210

Q: FISSION REACTOR
M: NEW REQUEST.

94 PLUTONIUM 239 NEUTRON ELASTIC CROSS SECTION

885					10.0%	3	UK	J.G.TYROR	WIN	692416

Q: THERMAL AVERAGE INCIDENT ENERGY.
O: FOR LONG TERM IMPROVEMENT OF THE ABSORPTICN CROSS SECTION.

886	1.00	KEV	15.0	MEV	5.0%	1	FR	M.SOLEILHAC	BRC	742094

O: FOR CRITICAL ASSEMBLIES.

94 PLUTONIUM 239 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

887	1.00	MEV	3.00	MEV	10.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	691303

A: ENERGY RESOLUTION 500 KEV OR BETTER.

94 PLUTONIUM 239 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION (CONTINUED)

888	1.00	KEV	15.0	MEV	5.0%	1	FR	M.SOLEILHAC	BRC	742095

O: FOR CRITICAL ASSEMBLIES.

94 PLUTONIUM 239 NEUTRON INELASTIC CROSS SECTION

889			15.0	MEV	10.0%	2	FR	M.SOLEILHAC	BRC	742097

O: FOR CRITICAL ASSEMBLIES.

890	800.	KEV	5.00	MEV		1	CCP	L.N.USACHEV	FEI	754023

A: FROM 0.8 - 1.4 MEV ACCURACY 15 PERCENT,
PRIORITY 2 ACCURACY 15 PERCENT.
FROM 1.4 - 2.5 MEV ACCURACY 17 PERCENT,
PRIORITY 2 ACCURACY 17 PERCENT.
FROM 2.5 - 5.0 MEV ACCURACY 30 PERCENT,
PRIORITY 2 ACCURACY 30 PERCENT.
O: NEED FOR FAST REACTOR CALCULATION.
FOR MORE DETAIL SEE INTRODUCTION.

94 PLUTONIUM 239 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

891	10.0	KEV	10.0	MEV	10.0%	1	JAP	M.KAWAI	NIG	682066

Q: CROSS SECTIONS FOR EXCITATION OF INDIVIDUAL LEVELS DESIRED.
O: FOR FAST REACTORS.

892			15.0	MEV		2	CCP	M.N.NIKOLAEV	FEI	714023

A: CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION THRESHOLDS OF U-238 AND OF PU-240 OR NP-237 DESIRED WITH 10 PERCENT ACCURACY.
EXCITATION CROSS SECTION FOR LOW LYING LEVELS REQUIRED WITH 15 PERCENT ACCURACY.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

893	10.0	KEV	10.0	MEV	20.0%	1	USA	P.B.HEMMIG	AEC	721084

94 PLUTONIUM 239 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

894	300.	KEV	10.0	MEV	10.0%	1	BAN	M.M.ISLAM	RAM	693068

O: FOR FAST REACTORS.

895			15.0	MEV	20.0%	2	FR	M.SOLEILHAC	BRC	742098

O: FOR CRITICAL ASSEMBLIES.

94 PLUTONIUM 239 NEUTRON NON-ELASTIC CROSS SECTION

896	100.	KEV	10.0	MEV	10.0%	2	BAN	M.M.ISLAM	RAM	693067

O: FOR FAST REACTORS.

94 PLUTONIUM 239 NEUTRON CAPTURE CROSS SECTION

897	1.00	KEV	500.	KEV	3.0%	2	SWD	H.HAEGGBLOM	AE	692437

O: NEEDED FOR FAST REACTOR CALCULATIONS.

898	25.3	MV	30.0	KEV	3.0%	2	BAN	M.M.ISLAM	RAM	693078

O: FOR FAST REACTORS.

899	1.00	KEV	200.	KEV	5.0%	1	JAP	S.KATSURAGI	JAE	702039

Q: ALPHA ALSO USEFUL.
O: FOR FAST REACTORS.

900	1.00	KEV	1.00	MEV	10.0%	2	GER	B.GOEL	KFK	712082

Q: ALPHA ALSO USEFUL.
A: PREFER 5 PERCENT ACCURACY UP TO 100 KEV.
O: FOR BURNUP CALCULATIONS.

901	1.00	KEV	3.00	MEV	5.0%	1	FR	M.SOLEILHAC	BRC	742104

O: FOR CRITICAL ASSEMBLIES.

902	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754012

A: FROM 0.5 - 100 KEV ACCURACY 4.5 PERCENT,
PRIORITY 2 ACCURACY 3.7 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 10 PERCENT,
PRIORITY 2 ACCURACY 10 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 50 PERCENT,
PRIORITY 2 ACCURACY 50 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 — NEUTRON — PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

903	300.	KEV	4.00	MEV	10.0%	1	BAN	M.M.ISLAM	RAM	693069

Q: SECONDARY ENERGY-ANGLE DISTRIBUTIONS REQUIRED.
O: FOR FAST REACTORS.

94 PLUTONIUM 239 — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

904	120.	KEV			20.0%	2	UK	C.G.CAMPBELL	WIN	692418

Q: GAMMA SPECTRUM WANTED.
A: INCIDENT ENERGY, ABOUT 120 KEV.
LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY AND PHOTON SPECTRUM.
O: FOR STUDY OF ACTIVATION AND HEAT RELEASE IN CORE.

905	1.00	KEV	15.0	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	742096

O: FOR SHIELDING.

94 PLUTONIUM 239 — NEUTRON — N,2N

906			15.0	MEV	10.0%	1	FR	M.SOLEILHAC	BRC	682067
907	6.00	MEV	10.0	MEV	10.0%	2	USA	P.B.HEMMIG	AEC	691306

O: NEEDED TO PREDICT BUILDUP OF PU-236.

908			15.0	MEV	50.0%	2	FR	J.Y.BARRE	CAD	762152

O: FUEL CYCLE IN-CORE
M: NEW REQUEST.

94 PLUTONIUM 239 — NEUTRON — N,3N

909			15.0	MEV	20.0%	1	FR	M.SOLEILHAC	BRC	682068

94 PLUTONIUM 239 — NEUTRON — N,ALPHA

910	1.00	KEV	1.00	MEV	5. %	1	JAP	M.KAWAI	NIG	762212

O: FISSION REACTOR
M: NEW REQUEST.

94 PLUTONIUM 239 — NEUTRON — FISSION CROSS SECTION

911	10.0	KEV	15.0	MEV	1.0%	1	USA	G.E.HANSEN	LAS	661049

Q: RELATIVE TO U-235.
A: ENERGY RESOLUTION 3 PERCENT, ENERGY CALIBRATION 1 PERCENT.

912	1.00	EV	10.0	MEV			USA	B.HUTCHINS	GEB	691439

A: PRIORITY ENERGY RANGE ACCURACY
1 1 EV TO 10 KEV 3 PERCENT
2 10 KEV TO 1 MEV 2 TO 5 PERCENT
1 1 MEV TO 10 MEV 5 PERCENT
VERIFICATION OF CURRENT ACCURACY OR INTERMEDIATE ACCURACY USEFUL.
O: NEED RELATED ACCURACY FOR 5-10 PERCENT ENERGY BINS FOR FAST REACTOR CALCULATIONS.

913	1.00	EV	10.0	MEV		1	USA	C.E.TILL P.B.HEMMIG	ANL AEC	691467

A: ACCURACY 3 PERCENT BELOW 20 KEV, 2 PERCENT, 20 KEV TO 3 MEV, 5 PERCENT, 3 MEV TO 10 MEV.
O: HIGHEST PRIORITY FOR FAST REACTOR CALCULATIONS.

914	1.00	MEV	5.00	MEV	3.0%	1	UK	C.G.CAMPBELL	WIN	692426

Q: RATIO TO U-235 FISSION CROSS SECTION ACCEPTABLE.
A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.
O: FOR FAST REACTORS.

915	25.3	MV	15.0	MEV	5.0%	1	BAN	M.M.ISLAM	RAM	693070

O: FOR FAST REACTORS.

916	1.00	KEV	4.00	MEV		1	CCP	M.N.NIKOLAEV	FEI	714024

Q: RATIO TO U-235 FISSION CS IS WANTED BUT ABSOLUTE MEASUREMENT AND MEASUREMENT OF RATIOS TO B-10 (N,ALPHA), LI-6(N,ALPHA) CROSS SECTIONS AND OTHER STANDARDS WOULD BE VERY USEFUL.
BELOW 30 KEV MEASUREMENTS OF TRANSMISSION CURVES BY FLAT RESPONSE DETECTOR AND BY SELF DETECTION METHOD WITH FISSION DETECTOR WANTED FOR SELFSHIELDING EVALUATION.
THESE CURVES MUST BE MEASURED WITH ATTENUATIONS OF THE PRIMARY BEAM DOWN TO 1 PERCENT.
A: ACCURACY REQUIRED TO BETTER THAN 2.0 PERCENT.
OPTIMUM PRECISION OF 1.5 PERCENT DESIRED IN REGION 20 KEV TO 1 MEV.
LETHARGY RESOLUTION OF ABOUT 0.2 CONSIDERED SUFFICIENT FOR SUCH MEASUREMENTS.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
REQUEST CONSIDERED FULFILLED, WHEN AT LEAST THREE MEASUREMENTS WITH DIFFERENT METHODS AGREE WITHIN REQUESTED ACCURACY.
FIRST PRIORITY BECAUSE IT IS DIFFICULT TO INTERPRET THE SELF-SHIELDING FACTORS FROM MACROSCOPIC DATA ONLY.

917	25.3	MV	1.00	KEV	1.0%	2	USA	B.HUTCHINS	GEB	721085

O: DIRECT MEASUREMENTS DISAGREE.
IMPROVED PRECISION NEEDED FOR THERMAL REACTORS.
U AND PU HALF LIVES SHOULD BE CONFIRMED AS THEY AFFECT THIS MEASUREMENT.

918	10.0	KEV	14.0	MEV	2.0%	1	USA	P.B.HEMMIG	AEC	721086

Q: RELATIVE TO U-235.
AVERAGES OVER 10 TO 20 PERCENT ENERGY INTERVALS WANTED.
A: ENERGY RESOLUTION 3 PERCENT, ENERGY CALIBRATION 1 PERCENT.

919	10.0	KEV	1.00	MEV	2.0%	2	USA	B.HUTCHINS	GEB	741125

Q: RATIO TO U-235 (N,F) WANTED.

920	1.00	KEV	5.00	MEV		2	SWD	H.HAEGGBLOM	AE	742006

A: ACCURACY 2 PERCENT TO 1 MEV, 5 PERCENT ABOVE.
O: FAST REACTOR CALCULATIONS.

921			15.0	MEV		1	FR	M.SOLEILHAC	BRC	742099

A: ACCURACY 5 PERCENT TO 1 KEV, 2 PERCENT ABOVE.
O: FOR CRITICAL ASSEMBLIES.

922	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754009

A: FROM 0.5 - 100 KEV ACCURACY 2.8 PERCENT,
PRIORITY 2 ACCURACY 1.2 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 3.0 PERCENT,
PRIORITY 2 ACCURACY 1.3 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 4.0 PERCENT,
PRIORITY 2 ACCURACY 2.6 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

923	1.00	KEV	15.0	MEV	3. %	1	JAP	M.KAWAI	NIG	762211

O: FISSION REACTOR
M: NEW REQUEST.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.
MEASUREMENTS PLANNED, IN PROGRESS, OR NOT FULLY DOCUMENTED:

HAR	JAMES AND EVANS	100 KEV TO 15 MEV.
GEL	WEIGMANN+	BELOW 100 KEV.
KFK	VOSS+	100 KEV TO 15 MEV.
CAD	SZABO	1 TO 6 MEV.
LRL	BEHRENS	BELOW 100 KEV TO 15 MEV.
BRC		1 TO 15 MEV.

924	100.	EV	10.0	MEV		1	USA	C.E.TILL B.HUTCHINS P.B.HEMMIG F.C.MAIENSCHEIN	ANL GEB AEC ORL	691314

Q: CAPTURE CROSS SECTION EQUALLY USEFUL.
A: ACCURACY 100 EV TO 1 KEV, 8 PERCENT.
.. 1 KEV TO 50 KEV, 4 PERCENT.
.. 50 KEV TO 600 KEV, 6 PERCENT.
.. 600 KEV TO 10 MEV, 10 PERCENT.

925	20.0	KEV	100.	KEV	10.0%	3	UK	C.G.CAMPBELL	WIN	712078

A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.
O: FOR FAST REACTORS.

926 100. EV 800. KEV 7.0% 1 CCP M.N.NIKOLAEV FEI 714025

Q: FOR EVALUATION OF DIFFERENCES IN CAPTURE AND FISSION-RESONANCE SELF SHIELDING.
MEASUREMENTS OF TRANSMISSION CURVES WITH FLAT-RESPONSE DETECTOR AND BY SELF-INDICATION METHOD WITH CAPTURE AND FISSION DETECTORS ARE WANTED.
BEAM ATTENUATION DOWN TO 1 PERCENT WANTED.
A: IN REGION 1 TO 100 KEV, 4 TO 5 PERCENT ACCURACY DESIRABLE.
LETHARGY RESOLUTION OF 0.2 SUFFICIENT FOR REGION 0.1 TO 30 KEV.
AT LEAST THREE DIFFERENT REQUESTS MUST COINCIDE WITHIN REQUESTED ACCURACY.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
FIRST PRIORITY BECAUSE IT IS DIFFICULT TO INTERPRET THE SELF-SHIELDING FACTORS FROM MACROSCOPIC DATA ONLY.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON NEUTRONS EMITTED PER NEUTRON ABSORPTION (ETA)

927 10.0 MV 0.50 EV 0.8% 1 UK J.G.TYROR WIN 642006

Q: VALUE RELATIVE TO 25.3 MV ETA WANTED.
A: ACCURACY IS FOR AVERAGE VALUES IN 20 MV STEPS.
O: FOR TEMPERATURE COEFFICIENT WORK.

928 25.3 MV 1.00 EV 0.5% 1 USA B.HUTCHINS GEB 671124

O: FOR PU-FUELED REACTOR CALCULATIONS.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

929 25.3 MV 10.0 MEV 1 USA C.E.TILL ANL 661063
B.HUTCHINS GEB
P.B.HEMMIG AEC
A.M.PERRY ORL

Q: MEASUREMENT SHOULD INCLUDE LOW ENERGY NEUTRONS (TO APPROXIMATELY 100 KEV).
A: ACCURACY 1 KEV TO 3 MEV, 0.5 PERCENT, OTHERWISE 1 PERCENT.
ACCURACY OF 1.5 PERCENT WOULD BE USEFUL.
REQUIRE RESOLUTION OF SIGNIFICANT STRUCTURE UP TO 500 KEV.
O: HIGHEST PRIORITY FOR FAST REACTOR CALCULATIONS.

930 15.0 MEV 1 JAP M.KAWAI NIG 702037

A: ACCURACY REQUIRED TO BETTER THAN 0.5 PERCENT.
O: FOR FAST REACTORS CALCULATIONS.

931 25.3 MV 2.50 MEV 0.5% 2 CCP M.N.NIKOLAEV FEI 714026

Q: RATIO TO CF-252 NU REQUIRED.
ABSOLUTE MEASUREMENTS OF NU-BAR AND ETA FOR THERMAL NEUTRONS WITH ACCURACY OF AT LEAST 0.5 PERCENT WOULD BE VERY USEFUL FOR LOWERING THE DEPENDENCE OF PU-239 NU-BAR RESULTS FROM THE CF-252 NU-BAR STANDARD.
A: ENERGY DEPENDENCE OF NU IS WANTED WITH 0.7 PERCENT ACCURACY.
ENERGY RESOLUTION OF 10. PERCENT REQUIRED BELOW 2.5 MEV.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

932 15.0 MEV 1 FR M.SOLEILHAC BRC 742101

A: ACCURACY 2 PERCENT TO 1 KEV, 1 PERCENT ABOVE.
O: FOR CRITICAL ASSEMBLIES.

933 5.00 KEV 10.0 MEV 1 CCP L.N.USACHEV FEI 754011

A: FROM 0.5 - 100 KEV ACCURACY 1.2 PERCENT.
PRIORITY 2 ACCURACY 0.5 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 1.0 PERCENT.
PRIORITY 2 ACCURACY 0.5 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 2.1 PERCENT.
PRIORITY 2 ACCURACY 1.2 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

STATUS---STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

934 25.3 MV 5.00 MEV 5.0% 2 USA C.E.TILL ANL 691312
P.B.HEMMIG AEC

Q: NEUTRON SPECTRUM WANTED.
YIELD, HALF LIFE, AND ENERGY NEEDED.
O: NEEDED FOR ANALYSIS OF FAST CRITICALS AND FAST REACTOR CALCULATIONS.

935 100. KEV 5.0% 2 UK C.G.CAMPBELL WIN 732114

A: LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY.
O: FOR FAST REACTORS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

STATUS

94 PLUTONIUM 239 NEUTRON ENERGY SPECTRUM OF FISSION NEUTRONS

936	100.	KEV		2.0%	1	UK	C.G.CAMPBELL A.WHITTAKER	WIN UKW	692433

A: INCIDENT ENERGY, ABOUT 100 KEV.
ACCURACY 2 PERCENT AVERAGE E'.
10 PERCENT ON THE NUMBER OF NEUTRONS ABOVE 5 MEV AND BELOW .25 MEV.
LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY.
O: FOR FAST REACTORS.
FOR REACTION RATE ANALYSIS.

937	25.3	MV			2	JAP	T.IIJIMA	JAE	712080

A: ACCURACY OF NUCLEAR TEMPERATURE FOR MAXWELL DISTRIBUTION IS REQUIRED WITHIN 30 KEV.
O: FOR FAST REACTORS.

938			15.0	MEV	1.0%	1	FR	M.SOLEILHAC	BRC	742103

O: FOR CRITICAL ASSEMBLIES.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

939	25.3	MV			3.0%	2	USA	N.STEEN	BET	671125

Q: CUMULATIVE AND DIRECT YIELD OF XE-135 INCLUSIVE OF 15 MINUTE ISOMER IS WANTED.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

940	25.3	MV			1.0%	2	USA	N.STEEN F.J.MC CROSSON	BET SRL	671126

Q: FISSION PRODUCT YIELD OF CS-137 WANTED.
O: FOR BURN UP INDICATOR STANDARD.

941	25.3	MV			3.0%	2	USA	N.STEEN	BET	671128

Q: FISSION PRODUCT YIELD OF ND-147 AND SM-149 WANTED.
O: FOR CALCULATION OF FISSION PRODUCT POISONS.

942	25.3	MV			1.0%	2	CAN	W.H.WALKER	CRC	711803

Q: YIELD OF XE-135 WANTED.
O: FOR CALCULATION OF FISSION PRODUCT ABSORPTION.

943	25.3	MV	15.0	MEV	5.0%	2	USA	B.HUTCHINS	GEB	741126

Q: ALL FISSION PRODUCTS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON RESONANCE PARAMETERS

944			600.	EV	10.0%	2	USA	C.E.TILL P.B.HEMMIG B.HUTCHINS	ANL AEC GEB	691319

O: FOR THERMAL REACTORS.
TO DETERMINE STATISTICAL PARAMETERS FOR EXTRAPOLATION TO HIGHER ENERGIES FOR FAST REACTORS.

945	250.	EV	1.00	KEV	3.0%	2	SWD	H.HAEGGBLOM	AE	692415

Q: NEUTRON, CAPTURE AND FISSION WIDTH NEEDED.
O: NEEDED FOR FAST REACTOR CALCULATIONS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 240 NEUTRON TOTAL CROSS SECTION

946	10.0	KEV	1.00	MEV	10.0%	2	GER	B.GOEL	KFK	692439

A: BETWEEN 10 AND 100 KEV AT 1 NS/M RESOLUTION.

94 PLUTONIUM 240 NEUTRON INELASTIC CROSS SECTION

947	1.50	MEV	10.0	MEV	20.0%	2	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	721087

Q: EMISSION CROSS SECTION MIGHT BE EQUALLY USEFUL AT THE HIGHER ENERGIES.

94 PLUTONIUM 240 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

948			5.00	MEV	10.0%	2	CCP	M.N.NIKOLAEV FEI	714029

A: CROSS SECTION FOR INELASTIC REMOVAL BELOW FISSION THRESHOLDS OF U-238 AND PU-240 OR NP-237 WANTED WITH 10 PERCENT ACCURACY.
EXCITATION CS FOR LOW-LYING LEVELS REQUIRED WITH ACCURACY OF 15 PERCENT.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

94 PLUTONIUM 240 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

949			4.00	MEV	40.0%	2	UK	C.G.CAMPBELL WIN	692443

O: FOR FAST REACTORS.

94 PLUTONIUM 240 NEUTRON CAPTURE CROSS SECTION

950	25.3	MV	100.	EV	3.0%	1	USA	B.HUTCHINS GEB	671194

O: IMPROVED PRECISION NEEDED FOR THERMAL REACTORS.

951	10.0	KEV	15.0	MEV	10.0%	1	JAP	S.KATSURAGI JAE	682071

Q: RESONANCE PARAMETERS ALSO REQUIRED.
O: FOR FAST REACTORS.

952	500.	EV	150.	KEV	5.0%	1	USA	C.E.TILL ANL	691389

A: ACCURACY OF 15 PERCENT USEFUL.
O: HIGH PRIORITY FOR FAST REACTOR CALCULATIONS.

953	500.	EV	1.00	MEV	5.00%	2	FR	J.Y.BARRE CAD	692451

Q: ABSOLUTE VALUES USEFUL BUT REQUEST CONCERNS MAINLY RELATIVE VALUES VERSUS ENERGY OR RELATIVE VALUES TO U-238 CAPTURE OR U-235 FISSION.
O: FOR FAST REACTOR CALCULATIONS.

954	1.00	KEV	500.	KEV	10.0%	2	SWD	H.HAEGGBLOM AE	692452

A: ENERGY DEPENDANCE WITHIN 10 PERCENT.
O: NEEDED FOR FAST REACTOR CALCULATIONS.

955	5.00	KEV	1.00	MEV	10.0%	2	GER	B.GOEL KFK	692453

A: 1 NS/M RESOLUTION NEEDED.

956	500.	EV	1.40	MEV	7.0%	2	CCP	M.N.NIKOLAEV FEI	714032

Q: RATIO TO U-235 FISSION CS WANTED BUT RATIOS TO B-10, LI-6, HE-3 AND OTHER STANDARDS WOULD BE VERY USEFUL.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION

957	150.	KEV	1.00	MEV	10.0%	1	USA	B.HUTCHINS GEB P.B.HEMMIG AEC	721137

A: ACCURACY OF 15 PERCENT USEFUL.
O: HIGH PRIORITY FOR FAST REACTOR CALCULATIONS.

958	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV FEI	754006

A: FROM 0.5 - 100 KEV ACCURACY 7.1 PERCENT,
PRIORITY 2 ACCURACY 7.0 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 14 PERCENT,
PRIORITY 2 ACCURACY 14 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 46 PERCENT,
PRIORITY 2 ACCURACY 46 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

959	1.00	KEV	500.	KEV	10. %	1	JAP	Y.SEKI MAP	762214

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

94 PLUTONIUM 240 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

960	120.	KEV			20.0%	3	UK	C.G.CAMPBELL WIN	692442

Q: GAMMA SPECTRUM WANTED.
A: INCIDENT ENERGY, ABOUT 120 KEV.
LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY AND PHOTON SPECTRUM.
O: FOR STUDY OF ACTIVATION AND HEAT RELEASE IN CORE.

94 PLUTONIUM 240 NEUTRON FISSION CROSS SECTION

961	1.00	KEV	15.0	MEV	2.0%	2	USA	G.E.HANSEN LAS	671130

Q: RATIO WANTED RELATIVE TO U-235.

962	100.	KEV	5.00	MEV	5.0%	2	CCP	M.N.NIKOLAEV FEI	714030

Q: RATIO TO U-235 OR NP-237 FISSION CS WANTED.
MEASUREMENT OF AVERAGE CS IN FISSION-NEUTRON SPECTRUM OF CF-252 TIMES NU-BAR OF CF-252 WITH ACCURACY OF 2 PERCENT IS DESIRED.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

963	500.	KEV	10.0	MEV	5.0%	2	USA	B.HUTCHINS	GEB	721088
								Q: IMPORTANT FOR FAST REACTOR CALCULATIONS.		
964	500.	EV	100.	KEV	9.0%	2	USA	P.B.HEMMIG	AEC	721089
								Q: FOR FAST REACTOR CALCULATIONS.		
965	1.00	KEV	100.	KEV	5.0%	3	USA	P.B.HEMMIG	AEC	721090
								Q: RATIO WANTED RELATIVE TO U-235.		
966	100.	KEV	5.00	MEV	3.0%	2	USA	P.B.HEMMIG	AEC	721091
								Q: RATIO WANTED RELATIVE TO U-235. A: ACCURACY OF 5 PERCENT USEFUL.		
967			5.00	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	742008
								Q: FAST REACTOR CALCULATIONS.		
968	1.00	KEV	15.0	MEV	5.0%	1	GER	B.GOEL	KFK	742022
969	1.00	KEV	15.0	MEV	3.0%	2	FR	M.SOLEILHAC	BRC	742105
								Q: FOR CRITICAL ASSEMBLIES.		
970	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754003
								A: FROM 0.1 - 0.8 MEV ACCURACY 5.4 PERCENT, PRIORITY 2 ACCURACY 5.3 PERCENT. FROM 0.8 - 4.5 MEV ACCURACY 4.0 PERCENT, PRIORITY 2 ACCURACY 3.5 PERCENT. ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER. Q: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.		
971	25.2	MV	1.00	MEV	10. %	1	JAP	M.SASAKI	MAP	762213
								Q: FOR FAST REACTOR CALCULATIONS M: NEW REQUEST.		

94 PLUTONIUM 240 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

972			5.00	MEV	1.0%	2	CCP	M.N.NIKOLAEV	FEI	714031
								Q: RATIO TO CF-252 NU-BAR WANTED, Q: SEE GENERAL COMMENTS IN THE INTRODUCTION.		
973			10.0	MEV	3.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	721092
								A: ACCURACY OF 5 PERCENT WOULD BE USEFUL.		
974	1.00	KEV	15.0	MEV	1.0%	2	FR	M.SOLEILHAC	BRC	742106
								Q: FOR CRITICAL ASSEMBLIES.		
975	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754004
								A: FROM 0.1 - 0.8 MEV ACCURACY 3.0 PERCENT, PRIORITY 2 ACCURACY 3.0 PERCENT. FROM 0.8 - 4.5 MEV ACCURACY 2.3 PERCENT, PRIORITY 2 ACCURACY 2.0 PERCENT. ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER. Q: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.		

94 PLUTONIUM 240 NEUTRON ENERGY SPECTRUM OF FISSION NEUTRONS

976			15.0	MEV	3.0%	2	FR	J.Y.BARRE	CAD	732098
								A: ACCURACY FOR AVERAGE E' RELATIVE TO AVERAGE E' U-235 OR PU-239.		

94 PLUTONIUM 240 NEUTRON RESONANCE PARAMETERS

977	100.	EV	5.00	KEV	10.0%	2	USA	C.E.TILL P.B.HEMMIG	ANL AEC	691391
								Q: NEEDED FOR FAST REACTOR CALCULATIONS INCLUDING DOPPLER EFFECT.		
978	10.0	EV	5.00	KEV		2	CCP	M.N.NIKOLAEV	FEI	714028
								Q: NEUTRON AND CAPTURE WIDTHS WANTED FOR EVALUATION OF SELF SHIELDING IN RESOLVED RESONANCE REGIONS AND EVALUATION OF AVERAGE RESONANCE PARAMETERS. SELF-INDICATION CAPTURE MEASUREMENTS ARE DESIRED FOR P-WAVE RESONANCE OBSERVATION. Q: AVERAGE S AND P WAVE RESONANCE PARAMETERS SHOULD BE DERIVED. STATISTICAL ANALYSIS OF MEASURED RESONANCE PARAMETERS WANTED. SEE ALSO GENERAL COMMENTS IN THE INTRODUCTION.		
979	1.00	EV	10.0	KEV		1	JAP	M.SASAKI	MAP	762215
								Q: FOR FAST REACTOR CALCULATIONS M: NEW REQUEST.		

94 PLUTONIUM 241 NEUTRON TOTAL CROSS SECTION

980	1.00	KEV	1.00	MEV	10.0%	2	GER	B.GOEL	KFK	692455
981	1.00	MEV	15.0	MEV	10.0%	3	GER	B.GOEL	KFK	692457
982	100.	EV	15.0	MEV	10. %	1	JAP	T.HOJUYAMA	MAP	762216

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

94 PLUTONIUM 241 NEUTRON INELASTIC CROSS SECTION

983			15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762220

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

94 PLUTONIUM 241 NEUTRON ABSORPTION CROSS SECTION

984	15.0	EV	300.	EV	8.0%	3	UK	J.G.TYROR	WIN	712095

A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.
Q: FOR THERMAL REACTORS.

985	1.00	KEV	2.00	KEV	20.0%	3	UK	J.G.TYROR	WIN	712096

A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.
Q: FOR THERMAL REACTORS.

94 PLUTONIUM 241 NEUTRON CAPTURE CROSS SECTION

986	25.3	MV	30.0	KEV	3.0%	1	USA	B.HUTCHINS	GEB	671132

Q: ALPHA ALSO USEFUL.
A: ACCURACY TO 3 PERCENT IN ETA.
Q: IMPROVED PRECISION NEEDED FOR THERMAL REACTORS. ALSO WANTED FOR FAST REACTORS.

987	1.00	KEV	5.00	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	692470

Q: FAST REACTOR CALCULATIONS.

988	200.	EV	1.00	MEV	10.0%	2	GER	B.GOEL	KFK	692471

Q: ALPHA IS USEFUL.

989	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754001

A: FROM 0.5 - 100 KEV ACCURACY 18 PERCENT, PRIORITY 2 ACCURACY 18 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 30 PERCENT, PRIORITY 2 ACCURACY 30 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 50 PERCENT, PRIORITY 2 ACCURACY 50 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
Q: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.

990	100.	MV	15.0	MEV	8. %	1	JAP	T.HOJUYAMA	MAP	762217

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

94 PLUTONIUM 241 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

991	120.	KEV			20.0%	3	UK	C.G.CAMPBELL	WIN	692460

Q: GAMMA SPECTRUM WANTED.
A: INCIDENT ENERGY, ABOUT 120 KEV. LOW RESOLUTION ADEQUATE FOR INCIDENT ENERGY AND PHOTON SPECTRUM.
Q: FOR STUDY OF ACTIVATION AND HEAT RELEASE IN CORE.

94 PLUTONIUM 241 NEUTRON N.2N

992			15.0	MEV	20. %	2	JAP	T.HOJUYAMA	MAP	762221

Q: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

94 PLUTONIUM 241 NEUTRON FISSION CROSS SECTION

993	100.	EV	15.0	MEV	1.0%	2	USA	G.E.HANSEN	LAS	661055

Q: RATIO TO U-235 FISSION WANTED.
A: ENERGY RESOLUTION - 3 PERCENT.

994	10.0	KEV	15.0	MEV	10.0%	1	JAP	S.KATSURAGI	JAE	682072

Q: RESONANCE PARAMETERS ALSO REQUIRED.
Q: FOR FAST REACTOR.

995	25.3	MV	30.0	KEV		1	USA	C.E.TILL B.HUTCHINS	ANL GEB	691328

Q: RATIO TO U-235 OR PU-239 USEFUL.
A: ACCURACY 3 PERCENT BELOW 10 EV, 10 PERCENT ABOVE 10 EV.

996	100.	EV	150.	KEV	5.0%	2	UK	C.G.CAMPBELL	WIN	692462
								A: ACCURACY FOR AVERAGE VALUE OF THE ERROR BETWEEN E AND 2E.		
								O: FOR FAST REACTORS.		
997	1.00	KEV	5.00	MEV	10.0%	2	SWD	H.HAEGGBLOM	AE	692463
								O: NEEDED FOR FAST REACTOR CALCULATIONS.		
998	1.00	KEV	10.0	MEV	5.0%	1	USA	P.B.HEMMIG	AEC	721094
								Q: RATIO WANTED RELATIVE TO U-235.		
999			5.00	KEV	5.0%	2	FR	H.TELLIER	SAC	732099
								O: REACTOR CALCULATIONS.		
1000	1.00	KEV	15.0	MEV	10.0%	2	GER	B.GOEL	KFK	742013
1001	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754002
								A: FROM 0.5 - 100 KEV ACCURACY 5.0 PERCENT. PRIORITY 2 ACCURACY 3.7 PERCENT. FROM 0.1 - 0.8 MEV ACCURACY 5.3 PERCENT. PRIORITY 2 ACCURACY 5.0 PERCENT. FROM 0.8 - 4.5 MEV ACCURACY 10 PERCENT. PRIORITY 2 ACCURACY 9.7 PERCENT. ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.		
								O: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.		
1002	100.	MV	15.0	MEV	5. %	1	JAP	T.HOJUYAMA	MAP	762218
								O: FOR FAST REACTOR CALCULATIONS M: NEW REQUEST.		
1003	1.00	EV	1.00	MEV	1-5.%	1	RUM	S.RAPEANU	RUM	763007
								M: NEW REQUEST.		

94 PLUTONIUM 241 NEUTRON CAPTURE TO FISSION RATIO (ALPHA)

1004	1.00	KEV	2.00	MEV	10.0%	1	USA	B.HUTCHINS P.B.HEMMIG	GEB AEC	691331
								Q: CAPTURE CROSS SECTION EQUALLY USEFUL.		
1005	25.3	MV			1.0%	2	FR	H.TELLIER	SAC	702043
								O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.		
1006	100.	MV	15.0	MEV	8. %	1	JAP	T.HOJUYAMA	MAP	762219
								O: FOR FAST REACTOR CALCULATIONS M: NEW REQUEST.		

STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

STATUS

94 PLUTONIUM 241 NEUTRON NEUTRONS EMITTED PER NEUTRON ABSORPTION (ETA)

1007	10.0	MV	15.0	EV		2	UK	J.G.TYROR	WIN	642007
								Q: VALUE RELATIVE TO 25.3 MV ETA WANTED. A: ACCURACY 2 PERCENT TO 1 EV, 6 PERCENT ABOVE. O: FOR THERMAL REACTORS.		
1008	25.3	MV			1.0%	2	FR	H.TELLIER	SAC	692464
								O: FOR THERMAL REACTOR CALCULATIONS. EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.		

STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 241 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1009	1.00	KEV	1.00	MEV	4.0%	1	USA	P.B.HEMMIG	AEC	691330
1010	1.00	KEV	15.0	MEV	5.0%	2	GER	B.GOEL	KFK	692466
1011	1.00	MEV	10.0	MEV	6.0%	1	USA	C.E.TILL	ANL	721095
1012	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754013
								A: FROM 0.5 - 100 KEV ACCURACY 1.8 PERCENT. PRIORITY 2 ACCURACY 1.2 PERCENT. FROM 0.1 - 0.8 MEV ACCURACY 2.6 PERCENT. PRIORITY 2 ACCURACY 2.3 PERCENT. FROM 0.8 - 4.5 MEV ACCURACY 4.0 PERCENT. PRIORITY 2 ACCURACY 4.0 PERCENT. ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.		
								O: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.		

STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 241 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

1013	25.3	MV			1.0%	2	CAN	W.H.WALKER	CRC	711804

Q: YIELD OF XE-135 WANTED.
O: FOR CALCULATION OF FISSION PRODUCT ABSORPTION.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 241 NEUTRON RESONANCE PARAMETERS

1014	35.0	EV	200.	EV	10.0%	2	GER	B.GOEL	KFK	692459

Q: NEUTRON WIDTHS NEEDED.

1015	25.3	MV	400.	EV		2	USA	C.E.TILL	ANL	721140

A: ACCURACY 5 PERCENT TO 100 EV AND 10 PERCENT ABOVE. ACCURACY 20 PERCENT USEFUL.
O: FOR THERMAL AND FAST REACTOR CALCULATIONS.

1016	0.20	EV	200.	EV	10. %	1	JAP	T.HOJUYAMA	MAP	762222

A: 10 PER CENT IN FISSION WIDTH
O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

94 PLUTONIUM 242 NEUTRON CAPTURE CROSS SECTION

1017	25.3	MV			5.0%	1	FR	H.TELLIER	SAC	702047

O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.

1018			5.00	KEV	5.0%	2	FR	H.TELLIER	SAC	702048

A: ACCURACY FOR RATIO TO THERMAL CROSS SECTION.
O: EVALUATION MAY SUFFICE IF IT EXPLAINS DISCREPANCIES.

1019	500.	EV	1.00	MEV	8.00%	2	FR	J.Y.BARRE	CAD	712102

Q: RELATIVE VALUES VERSUS ENERGY OR TO U-238 CAPTURE.
O: FOR FAST REACTOR CALCULATIONS.

1020	1.00	KEV	7.00	MEV	20.0%	1	USA	P.B.HEMMIG	AEC	721098

O: FOR FAST BREEDER CALCULATIONS, CM AND CF PRODUCTION.

1021	25.3	MV	7.00	MEV		1	USA	B.HUTCHINS	GEB	721142

A: ACCURACY 3 PERCENT TO 100 EV, 10 PERCENT 100 EV TO 1 KEV, 15-20 PERCENT 1 KEV TO 7 MEV. RESONANCE PARAMETERS TO 10-20 PERCENT BELOW 10 KEV.
O: FOR FAST BREEDER CALCULATIONS, CM AND CF PRODUCTION.

1022	1.00	KEV	5.00	MEV	10.0%	3	SWD	H.HAEGGBLOM	AE	742010

O: FAST REACTOR CALCULATIONS.

1023	5.00	KEV	10.0	MEV		1	CCP	L.N.USACHEV	FEI	754014

A: FROM 0.5 - 100 KEV ACCURACY 30 PERCENT, PRIORITY 2 ACCURACY 30 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 30 PERCENT, PRIORITY 2 ACCURACY 30 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 50 PERCENT, PRIORITY 2 ACCURACY 50 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

1024	1.00	KEV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762223

O: FOR SHIELDING OF SPENT FUEL.
M: NEW REQUEST.

94 PLUTONIUM 242 NEUTRON FISSION CROSS SECTION

1025	1.00	KEV	5.00	MEV	10.0%	3	SWD	H.HAEGGBLOM	AE	742009

O: FAST REACTOR CALCULATIONS.

1026	1.00	KEV	15.0	MEV	10. %	2	JAP	T.HOJUYAMA	MAP	762224

O: FOR SHIELDING OF SPENT FUEL.
M: NEW REQUEST.

1027	1.00	EV	1.00	MEV	1-5.%	1	RUM	S.RAPEANU	RUM	763008

M: NEW REQUEST.

94 PLUTONIUM 242 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1028	500.	KEV	10.0	MEV	5.0%	2	USA	P.B.HEMMIG	AEC	691334
1029	500.	EV	15.0	MEV	5.0%	2	FR	J.Y.BARRE	CAD	712100

Q: RELATIVE TO CF-252 NU.
O: FOR FAST REACTOR CALCULATIONS.

94 PLUTONIUM 243 NEUTRON CAPTURE CROSS SECTION

1030	25.3	MV	10.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752031

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

94 PLUTONIUM 243 NEUTRON FISSION CROSS SECTION

1031	25.3	MV	500.	KEV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752029

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1032	2.00	MEV	10.0	MEV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752030

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

94 PLUTONIUM 245 NEUTRON FISSION CROSS SECTION

1033	25.3	MV				2	CAN	W.H.WALKER	CRC	681804

A: ACCURACY REQUIRED 200 B.
O: UNKNOWN CROSS SECTION.

95 AMERICIUM 241 NEUTRON TOTAL CROSS SECTION

1034	25.3	MV			3.0%	2	USA	G.T.ORTON	RL	691336

95 AMERICIUM 241 NEUTRON ABSORPTION CROSS SECTION

1035	25.3	MV			5.0%	2	CAN	W.H.WALKER	CRC	681805

O: WIDE SPREAD OF AVAILABLE VALUES.

1036	1.00	EV	500.	EV	10.0%	2	CAN	W.H.WALKER	CRC	681806

O: DESIRE CONFIRMATION OF RESONANCE INTEGRAL.

1037	25.3	MV			5.0%	2	FR	H.TELLIER	SAC	712106

95 AMERICIUM 241 NEUTRON CAPTURE CROSS SECTION

1038	25.3	MV	1.00	KEV	10.0%	1	USA	F.J.MC CROSSON	SRL	671135

Q: PRODUCTION OF AM-242 AND AM-242 M WANTED.
O: NEEDED FOR PU-238 PROGRAM, AND PRODUCTION OF CM-244.

1039	25.3	MV	1.00	KEV	10.0%	2	USA	G.T.ORTON	RL	671136

Q: PRODUCTION OF AM-242 AND AM-242 M WANTED.
O: NEEDED FOR PU-238 PROGRAM, AND PRODUCTION OF CM-244.

1040	25.3	MV			5.0%	2	CAN	W.H.WALKER	CRC	681807

Q: PRODUCTION OF BOTH AM-242 ISOMERS WANTED.

1041	1.00	EV	500.	EV	10.0%	2	CAN	W.H.WALKER	CRC	681808

O: DESIRE CONFIRMATION OF RESONANCE INTEGRAL MEASUREMENT OF BAK (AE 23 316).

1042	10.0	KEV	1.00	MEV	10.0%	1	GER	B.GOEL	KFK	712108

O: FOR BURNUP CALCULATIONS.

1043	100.	EV	100.	KEV	20.0%	1	UK	C.G.CAMPBELL	WIN	712109

O: FOR FAST REACTORS.

1044	500.	EV	1.00	MEV	5.00%	2	FR	J.Y.BARRE	CAD	712110

Q: RELATIVE VALUES VS.ENERGY OR TO U-238 CAPTURE
O: FOR FUEL CYCLE CALCULATIONS.

1045	25.3	MV	10.0	MEV	15.0%	2	USA	B.HUTCHINS	GEB	721099

O: FOR SPENT FUEL SHIELDING.

1046	1.00	KEV	2.00	MEV	20.0%	1	USA	P.B.HEMMIG	AEC	741127
								Q: PRODUCTION OF BOTH AM-242 AND AM-242M WANTED. O: FOR SPENT FUEL SHIELDING.		
1047	25.3	MV	10.0	KEV	10.0%	2	GER	B.GOEL	KFK	742014
								O: BURN UP CALCULATIONS.		
1048	1.00	MEV	15.0	MEV	10.0%	2	GER	B.GOEL	KFK	742015
								O: BURN UP CALCULATIONS.		
1049	1.00	KEV	3.00	MEV	5.0%	2	FR	M.SOLEILHAC	BRC	742108
								O: FOR CRITICAL ASSEMBLIES.		
1050	10.0	MV	20.0	EV		1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP	752032
								Q: ENERGY DEPENDENCE WANTED. A: ACCURACY REQUIRED 5 TO 10 PERCENT. O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.		
1051	20.0	EV	15.0	MEV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP	752033
								Q: PRODUCTION OF AM-242 AND AM-242 M WANTED O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.		
1052	500.	EV	200.	KEV	10.0%	2	FR	J.Y.BARRE	CAD	762153
								Q: BRANCHING RATIO, AM-242, AM-242M A: RELATIVE ACCURACY REQUESTED ON THE BRANCHING TO AM-242M O: FUEL CYCLE IN- AND OUT-OF-CORE M: NEW REQUEST.		
1053	1.00	MV	1.00	KEV	10. %	2	SWD	L.HJAERNE	AKA	762170
								Q: CAPTURE CROSS SECTIONS TO THE GROUND AND ISOMERIC STATES WANTED. A: ACCURACY 10 PER CENT TO GROUND STATE AND TO ISOMERIC STATE. O: ACTINIDE PRODUCTION CALCULATIONS M: NEW REQUEST.		

95 AMERICIUM 241 NEUTRON FISSION CROSS SECTION

1054	500.	EV	15.0	MEV	15.0%	2	FR	J.Y.BARRE	CAD	712103
								Q: RELATIVE VALUES VS. ENERGY OR TO U-235 FISSION O: FOR FUEL CYCLE CALCULATIONS.		
1055	100.	EV	100.	KEV	20.0%	1	UK	C.G.CAMPBELL	WIN	732115
								O: FOR FAST REACTORS.		
1056	1.00	KEV	15.0	MEV	5.0%	1	GER	B.GOEL	KFK	742018
								O: FAST REACTOR DESIGN.		
1057	1.00	KEV	15.0	MEV	3.0%	1	FR	M.SOLEILHAC	BRC	742107
								O: FOR CRITICAL ASSEMBLIES.		
1058	100.	MV	15.0	MEV	10. %	1	JAP	T.HOJUYAMA	MAP	762225
								O: FOR SHIELDING OF SPENT FUEL. M: NEW REQUEST.		

95 AMERICIUM 241 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1059	100.	KEV	1.00	MEV	5.0%	1	GER	B.GOEL	KFK	712104
								O: FOR FAST REACTOR DESIGN.		
1060	500.	EV	14.0	MEV	10.0%	2	FR	J.Y.BARRE	CAD	712105
								Q: RELATIVE TO CF-252 NU. O: FOR FUEL CYCLE CALCULATIONS.		
1061	25.3	MV	100.	KEV	10.0%	2	GER	B.GOEL	KFK	742016
								O: FAST REACTOR DESIGN.		
1062	1.00	MEV	10.0	MEV	10.0%	2	GER	B.GOEL	KFK	742017
								O: FAST REACTOR DESIGN.		

95 AMERICIUM 241 NEUTRON ABSORPTION RESONANCE INTEGRAL

1063					10.0%	2	FR	H.TELLIER	SAC	712107

95 AMERICIUM 242 NEUTRON TOTAL CROSS SECTION

1064 25.3 MV 10.0 KEV 10.0% 2 USA F.J.MC CROSSON SRL 671137
Q: NEED AM-242 AND AM-242M RESONANCE ENERGIES.
O: FOR PU-238 PRODUCTION.

95 AMERICIUM 242 NEUTRON CAPTURE CROSS SECTION

1065 25.3 MV 10.0 KEV 2 USA F.J.MC CROSSON SRL 691341
Q: WANTED FOR BOTH 16 HOUR AND 152 YEAR ISOMERS. THERMAL VALUE AND RI WANTED.
A: REQUIRED ACCURACY - 10 TO 20 PERCENT.
O: FOR PU-238 PRODUCTION.

1066 25.3 MV 2 CAN W.H.WALKER CRC 711805
Q: FOR 16 HOUR ISOMER.
A: ACCURACY REQUIRED 500 B.
O: UNKNOWN CROSS SECTION.

1067 25.3 MV 10.0 MEV 15.0% 2 USA B.HUTCHINS GEB 721100
O: FOR SPENT FUEL SHIELDING.

1068 10.0 MV 5.00 KEV 10.0% 2 FR H.TELLIER SAC 732101
Q: FOR METASTABLE STATE OF AM-242 (152 YEARS).
O: FOR BURN UP PHYSICS. EVALUATION MAY BE SUFFICIENT.

1069 500. EV 15.0 MEV 50.0% 2 FR J.Y.BARRE CAD 732102
Q: FOR METASTABLE STATE OF AM-242 (152 YEARS). VALUE RELATIVE TO U-238 CAPTURE CROSS SECTION.
O: FOR FUEL CYCLE CALCULATIONS.

1070 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752036
H.MATSUNOBU SAE
R.SHINDO JAE
Q: WANTED FOR GROUND AND ISOMERIC STATES.
A: ACCURACY REQUIRED 5 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1071 1.00 MV 1.00 KEV 20. % 2 SWD L.HJAERNE AKA 762171
Q: THERMAL CROSS SECTION AND RI WANTED FOR THE GROUND AND ISOMERIC STATES.
O: ACTINIDE PRODUCTION CALCULATIONS
M: NEW REQUEST.

95 AMERICIUM 242 NEUTRON FISSION CROSS SECTION

1072 25.3 MV 10.0 KEV 2 USA F.J.MC CROSSON SRL 691339
Q: WANTED FOR BOTH 16 HOUR AND 152 YEAR ISOMERS.
A: REQUIRED ACCURACY - 10 TO 20 PERCENT.

1073 500. EV 15.0 MEV 15.0% 2 FR J.Y.BARRE CAD 732100
Q: FOR METASTABLE STATE OF AM-242 (152 YEARS). VALUE RELATIVE TO U-235 FISSION CROSS SECTION.
O: FOR FUEL CYCLE CALCULATIONS.

1074 1.00 MEV 6.00 MEV 1 JAP R.YUMOTO PNC 752034
H.MATSUNOBU SAE
Q: WANTED FOR GROUND STATE OF AM-242.
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1075 6.00 MEV 10.0 MEV 1 JAP R.YUMOTO PNC 752035
H.MATSUNOBU SAE
Q: WANTED FOR GROUND AND ISOMERIC STATES.
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1076 1.00 MV 1.00 KEV 20. % 2 SWD L.HJAERNE AKA 762172
O: ACTINIDE PRODUCTION CALCULATIONS
M: NEW REQUEST.

1077 100. MV 10.0 KEV 10. % 2 JAP R.SHINDO JAE 762226
O: FOR BURN-UP CALCULATION OF THERMAL REACTOR.
M: NEW REQUEST.

95 AMERICIUM 242 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1078 500. EV 15.0 MEV 10.0% 2 FR J.Y.BARRE CAD 732103
Q: FOR METASTABLE STATE OF AM-242 (152 YEARS). VALUE RELATIVE TO CF-252 NU.
O: FOR FUEL CYCLE CALCULATIONS

95 AMERICIUM 243 NEUTRON ABSORPTION CROSS SECTION

1079	25.3	MV			5.0%	2	FR	H.TELLIER	SAC 712113

95 AMERICIUM 243 NEUTRON CAPTURE CROSS SECTION

1080	25.3	MV			5.0%	2	CAN	W.H.WALKER	CRC 711806

O: DISAGREEMENT BETWEEN INTEGRAL (90 B) AND DIFFERENTIAL MEASUREMENTS (180 B).

1081			10.0	MEV	10.0%	1	USA	B.HUTCHINS	GEB 721101

A: WANT 5 TO 10 PERCENT ACCURACY IN THERMAL VALUE AND RESONANCE INTEGRAL.
O: NEEDED FOR LONG TERM REACTIVITY CALCULATIONS AND FOR SPENT FUEL SHIELDING.
TO DETERMINE CM-244 PRODUCTION.

1082	500.	EV	15.0	MEV	10.0%	2	FR	J.Y.BARRE	CAD 732104

O: FOR FUEL CYCLE CALCULATIONS.
NEUTRON DOSE FOR CYCLE OUT-OF-CORE.

1083	1.00	KEV	200.	KEV	30.0%	1	USA	P.B.HEMMIG	AEC 741128

O: FOR SPENT FUEL SHIELDING.

1084	20.0	EV	15.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU K.SHINDO T.HOJUYAMA	PNC SAE JAE MAP 752038

Q: PRODUCTION OF AM-244 AND AM-244 M WANTED.
A: ACCURACY REQUIRED 5 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

95 AMERICIUM 243 NEUTRON FISSION CROSS SECTION

1085	500.	EV	15.0	MEV	30.0%	2	FR	J.Y.BARRE	CAD 712111

Q: RELATIVE TO U-235 FISSION.
O: FOR FUEL CYCLE CALCULATIONS.

1086	4.00	MEV	15.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP 752037

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1087	25.2	MV	4.00	MEV	20. %	1	JAP	T.HOJUYAMA	MAP 762227

O: FOR FAST REACTOR CALCULATIONS
M: NEW REQUEST.

95 AMERICIUM 243 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1088	500.	EV	15.0	MEV	25.0%	2	FR	J.Y.BARRE	CAD 712112

Q: RELATIVE TO CF-252 NU.
O: FOR FUEL CYCLE CALCULATIONS.

95 AMERICIUM 243 NEUTRON ABSORPTION RESONANCE INTEGRAL

1089					10.0%	2	FR	H.TELLIER	SAC 712114

95 AMERICIUM 244 NEUTRON CAPTURE CROSS SECTION

1090	25.3	MV	10.0	MEV		2	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE 752040

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

95 AMERICIUM 244 NEUTRON FISSION CROSS SECTION

1091	25.3	MV	10.0	MEV		2	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE 752039

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 242 NEUTRON CAPTURE CROSS SECTION

1092	25.3	MV			20.0%	2	USA	F.J.MC CROSSON	SRL 671139

Q: TARGET HALF-LIFE 163 D.
O: FOR PU-238 PRODUCTION.

1093	10.0	MV	5.00	KEV	10.0%	2	FR	H.TELLIER	SAC	732107
								O: BURN UP PHYSICS.		
1094	1.00	MEV	15.0	MEV	10.0%	2	GER	B.GOEL	KFK	742021
								O: CALCULATIONS OF SPONTANEOUS FISSION IN FAST REACTORS.		
1095	25.3	MV	15.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP	752042
								A: ACCURACY REQUIRED 10 TO 20 PERCENT. O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.		
1096	500.	EV	200.	KEV	50.0%	2	FR	J.Y.BARRE	CAD	762154
								O: FUEL CYCLE IN- AND OUT-OF-CORE M: NEW REQUEST.		
1097	1.00	MV	1.00	KEV	15. %	2	SWD	L.HJAERNE	AKA	762173
								Q: THERMAL CROSS SECTION AND RI WANTED. O: ACTINIDE PRODUCTION CALCULATIONS M: NEW REQUEST.		

96 CURIUM 242 NEUTRON FISSION CROSS SECTION

1098	500.	EV	15.0	MEV	25.0%	2	FR	J.Y.BARRE	CAD	732105
								Q: VALUE RELATIVE TO U-235 FISSION CROSS SECTION. O: FOR FUEL CYCLE CALCULATIONS.		
1099	25.3	MV	100.	KEV	10.0%	2	GER	B.GOEL	KFK	742012
								O: CALCULATIONS OF SPONTANEOUS FISSION IN FAST REACTORS AND CALIBRATION.		
1100	25.3	MV	15.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP	752041
								A: ACCURACY REQUIRED 10 TO 20 PERCENT. O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.		

96 CURIUM 242 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1101	500.	EV	15.0	MEV	30.0%	2	FR	J.Y.BARRE	CAD	732106
								Q: VALUE RELATIVE TO CF-252 NU. O: FOR FUEL CYCLE CALCULATIONS.		
1102	25.3	MV	100.	KEV	10.0%	2	GER	B.GOEL	KFK	742019
								O: CALCULATIONS OF SPONTANEOUS FISSION IN FAST REACTORS.		

96 CURIUM 242 NEUTRON RESONANCE PARAMETERS

1103	25.3	MV	1.00	KEV	20.0%	3	USA	G.T.ORTON	RL	671192
								Q: ELASTIC AND GAMMA WIDTHS WANTED. RADIATIVE CAPTURE AND NEUTRON WIDTHS WANTED. O: FOR PU-238 PRODUCTION.		

96 CURIUM 243 NEUTRON CAPTURE CROSS SECTION

1104	25.3	MV				2	CAN	W.H.WALKER	CRC	711807
								A: ACCURACY REQUIRED 50 B. O: UNKNOWN CROSS SECTION.		
1105	10.0	MV	1.00	EV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752046
								Q: ENERGY DEPENDENCE WANTED. A: ACCURACY REQUIRED 5 TO 10 PERCENT. O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.		
1106	20.0	EV	10.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752047
								A: ACCURACY REQUIRED 10 TO 20 PERCENT. O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.		
1107	500.	EV	200.	KEV	50.0%	2	FR	J.Y.BARRE	CAD	762156
								O: FUEL CYCLE. TRANSACTINIUM BUILD-UP M: NEW REQUEST.		
1108	1.00	MV	1.00	KEV	15. %	2	SWD	L.HJAERNE	AKA	762174
								Q: THERMAL CROSS SECTION AND RI WANTED. O: ACTINIDE PRODUCTION CALCULATIONS M: NEW REQUEST.		

96 CURIUM 243 — NEUTRON — FISSION CROSS SECTION

1109	10.0	MV	1.00	EV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752043

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1110	20.0	EV	100.	KEV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752044

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1111	3.00	MEV	10.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752045

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1112	500.	EV	15.0	MEV	50.0%	2	FR	J.Y.BARRE	CAD	762155

O: FUEL CYCLE. TRANSACTINIUM BUILD-UP
M: NEW REQUEST.

96 CURIUM 244 — NEUTRON — CAPTURE CROSS SECTION

1113	10.0	KEV	10.0	MEV	10.0%	2	USA	B.HUTCHINS	GE8	671142

A: ACCURACY OF 5 TO 10 PERCENT IN RI.
O: FOR SPENT FUEL SHIELDING. TO EVALUATE CF PRODUCTION.

1114	10.0	MV	5.00	KEV	10.0%	2	FR	H.TELLIER	SAC	732109

O: BURN UP PHYSICS.

1115	1.00	KEV	15.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP	752049

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1116	500.	EV	200.	KEV	50.0%	2	FR	J.Y.BARRE	CAD	762157

O: FUEL CYCLE. TRANSACTINIUM BUILD-UP
M: NEW REQUEST.

1117	5.00	EV	1.00	KEV	10. %	2	JAP	T.HOJUYAMA	MAP	762228

O: FOR SHIELDING OF SPENT FUEL.
M: NEW REQUEST.

96 CURIUM 244 — NEUTRON — FISSION CROSS SECTION

1118	500.	EV	15.0	MEV	50.0%	3	FR	J.Y.BARRE	CAD	732108

Q: VALUE RELATIVE TO U-235 FISSION CROSS SECTION.
O: FOR FAST REACTOR CALCULATIONS.

1119	1.00	KEV	15.0	MEV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU T.HOJUYAMA	PNC SAE MAP	752048

A: ACCURACY. 5 TO 10 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1120	5.00	EV	1.00	KEV	10. %	2	JAP	T.HOJUYAMA	MAP	762229

O: FOR SHIELDING OF SPENT FUEL.
M: NEW REQUEST.

96 CURIUM 244 — NEUTRON — NEUTRONS EMITTED PER FISSION (NU BAR)

1121	500.	EV	15.0	MEV	30.0%	3	FR	J.Y.BARRE	CAD	732110

Q: VALUE RELATIVE TO CF-252 NU.
O: FOR FUEL CYCLE CALCULATIONS.

96 CURIUM 245 — NEUTRON — TOTAL CROSS SECTION

1122	25.3	MV	10.0	KEV	10.0%	1	USA	F.J.MC CROSSON	SRL	671144

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
A: NEED 10 PERCENT IN RESONANCE INTEGRAL.
O: TO EVALUATE CF PRODUCTION.

96 CURIUM 245 — NEUTRON — CAPTURE CROSS SECTION

1123	25.3	MV	10.0	KEV	10.0%	1	USA	F.J.MC CROSSON	SRL	691348

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
RESONANCE STRUCTURE NEEDED.
A: NEED 10 PERCENT IN RESONANCE INTEGRAL.
NEED INTEGRAL ALPHA TO 10 PERCENT.
O: TO EVALUATE CF PRODUCTION.

1124	10.0	MV	1.00	EV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752053

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1125	60.0	EV	10.0	MEV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752054

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1126	500.	EV	200.	KEV	50.0%	2	FR	J.Y.BARRE	CAD	762159

O: FUEL CYCLE. TRANSACTINIUM BUILD-UP
M: NEW REQUEST.

96 CURIUM 245 — NEUTRON — FISSION CROSS SECTION

1127	25.3	MV	10.0	KEV	10.0%	1	USA	F.J.MC CROSSON	SRL	671145

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
A: NEED 10 PERCENT IN RESONANCE INTEGRAL.
NEED INTEGRAL ALPHA TO 10 PERCENT.
O: TO EVALUATE CF PRODUCTION.

1128	10.0	MV	1.00	EV	5.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752050

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1129	60.0	EV	10.0	KEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752051

A: ACCURACY REQUIRED 5 TO 10 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1130	3.00	MEV	10.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752052

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1131	500.	EV	15.0	MEV	50.0%	2	FR	J.Y.BARRE	CAD	762158

O: FUEL CYCLE. TRANSACTINIUM BUILD-UP
M: NEW REQUEST.

96 CURIUM 246 — NEUTRON — TOTAL CROSS SECTION

1132	25.3	MV	10.0	KEV	10.0%	2	USA	F.J.MC CROSSON	SRL	671146

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
RESONANCE STRUCTURE DESIRED.
A: ACCURACY 10 PERCENT IN RESONANCE INTEGRAL.

96 CURIUM 246 — NEUTRON — CAPTURE CROSS SECTION

1133	25.3	MV	10.0	KEV	10.0%	1	USA	F.J.MC CROSSON	SRL	691350

Q: RESONANCE STRUCTURE DESIRED.
A: NEED ACCURACY 10 PERCENT IN RESONANCE INTEGRAL.
O: TO EVALUATE CF PRODUCTION.

1134	10.0	MV	5.00	EV	10.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752058

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1135	400.	EV	10.0	MEV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752059

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL.
NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 246 NEUTRON FISSION CROSS SECTION

1136	10.0	MV	5.00	EV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752055

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1137	1.00	KEV	10.0	KEV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752056

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1138	3.00	MEV	10.0	MEV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752057

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 247 NEUTRON TOTAL CROSS SECTION

1139	25.3	MV	10.0	KEV	20.0%	1	USA	F.J.MC CROSSON	SRL	671147

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
A: NEED 20 PERCENT IN RESONANCE INTEGRAL.
O: TO EVALUATE CF PRODUCTION.

96 CURIUM 247 NEUTRON CAPTURE CROSS SECTION

1140	25.3	MV	10.0	KEV		1	USA	F.J.MC CROSSON	SRL	671149

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
A: NEED 5 TO 10 PERCENT IN RESONANCE INTEGRAL AND THERMAL VALUE.
O: NEEDED TO EVALUATE CF PRODUCTION.

1141	25.3	MV	10.0	MEV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752063

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 247 NEUTRON FISSION CROSS SECTION

1142	25.3	MV	10.0	KEV		1	USA	F.J.MC CROSSON	SRL	671148

Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
A: NEED 5 TO 10 PERCENT IN THERMAL VALUE AND RESONANCE INTEGRAL.

1143	25.3	MV	20.0	EV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752060

Q: ENERGY DEPENDENCE WANTED.
A: ACCURACY REQUIRED 5 TO 10 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1144	60.0	EV	10.0	KEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752061

A: ACCURACY REQUIRED 5 TO 10 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1145	3.00	MEV	10.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752062

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 248 NEUTRON CAPTURE CROSS SECTION

1146	25.3	MV	10.0	MEV		1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752067

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 248 NEUTRON FISSION CROSS SECTION

1147	25.3	MV	20.0	EV	20.0%	1	JAP	R.YUMOTO H.MATSUNOBU	PNC SAE	752064

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 248 NEUTRON FISSION CROSS SECTION (CONTINUED)

1148 1.00 KEV 10.0 KEV 20.0% 1 JAP R.YUMOTO PNC 752065
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1149 3.00 MEV 10.0 MEV 20.0% 1 JAP R.YUMOTO PNC 752066
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 249 NEUTRON CAPTURE CROSS SECTION

1150 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752069
H.MATSUNOBU SAE
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 249 NEUTRON FISSION CROSS SECTION

1151 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752068
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 250 NEUTRON CAPTURE CROSS SECTION

1152 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752071
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

96 CURIUM 250 NEUTRON FISSION CROSS SECTION

1153 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752070
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

97 BERKELIUM 249 NEUTRON TOTAL CROSS SECTION

1154 25.3 MV 10.0 KEV 20.0% 2 USA F.J.MC CROSSON SRL 671151
G: RESONANCE ENERGIES WANTED.
A: NEED 20 PERCENT IN RESONANCE INTEGRAL.
O: TO EVALUATE CF PRODUCTION.

97 BERKELIUM 249 NEUTRON CAPTURE CROSS SECTION

1155 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 691354
Q: SHAPE OF THERMAL CROSS SECTION ESPECIALLY IMPORTANT.
A: 10 PERCENT THERMAL AND RESONANCE INTEGRAL.
O: FOR CF PRODUCTION.

1156 25.3 MV 10.0 MEV 20.0% 1 JAP R.YUMOTO PNC 752074
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

97 BERKELIUM 249 NEUTRON FISSION CROSS SECTION

1157 25.3 MV 200. KEV 20.0% 2 JAP R.YUMOTO PNC 752072
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1158 5.00 MEV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752073
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

97 BERKELIUM 250 NEUTRON CAPTURE CROSS SECTION

1159 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752076
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

97 BERKELIUM 250 NEUTRON FISSION CROSS SECTION

1160 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752075
H.MATSUNOBU SAE
Q: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 249 NEUTRON CAPTURE CROSS SECTION

1161 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752077
H.MATSUNOBU SAE
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
Q: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 250 NEUTRON TOTAL CROSS SECTION

1162 25.3 MV 10.0 KEV 20.0% 1 USA F.J.MC CROSSON SRL 671152
Q: RESONANCE ENERGIES DESIRED.
A: NEED 20 PERCENT ACCURACY IN RESONANCE INTEGRAL.
Q: TO EVALUATE CF PRODUCTION.

98 CALIFORNIUM 250 NEUTRON CAPTURE CROSS SECTION

1163 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 691357
A: NEED 10 PERCENT IN RESONANCE INTEGRAL.
Q: TO EVALUATE CF PRODUCTION.

1164 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752079
H.MATSUNOBU SAE
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
Q: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 250 NEUTRON FISSION CROSS SECTION

1165 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 671153
A: ACCURACY 10 PERCENT IN RESONANCE INTEGRAL.
Q: TO EVALUATE CF PRODUCTION.

1166 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752078
H.MATSUNOBU SAE
Q: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 251 NEUTRON CAPTURE CROSS SECTION

1167 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 671154
A: ACCURACY 10 PERCENT IN RESONANCE INTEGRAL.
Q: TO EVALUATE CF PRODUCTION.

1168 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752081
H.MATSUNOBU SAE
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
Q: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 251 NEUTRON FISSION CROSS SECTION

1169 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 741132
Q: THERMAL CROSS SECTION SHAPE ESPECIALLY IMPORTANT.
A: NEED 10 PERCENT ACCURACY IN RESONANCE INTEGRAL.
Q: TO EVALUATE CF PRODUCTION.

1170 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752080
H.MATSUNOBU SAE
A: ACCURACY REQUIRED 10 TO 20 PERCENT.
Q: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 252 SPONTANEOUS NEUTRONS EMITTED PER FISSION (NU BAR)

1171 0.25% 1 USA P.B.HEMNIG AEC 691359
R.S.CASWELL NBS
A: ACCURACY OF 1 PERCENT USEFUL.
Q: FOR USE AS STANDARD.

1172 0.3% 1 FR E.FORT CAD 712119
Q: DISCREPANCY BETWEEN DIFFERENTIAL AND MAXWELL SPECTRUM EXPERIMENTS HAVE TO BE RESOLVED FOR 2200M/S DATA.

1173 1 CCP M.N.NIKOLAEV FEI 714033

A: ACCURACY NOT WORSE THAN 0.3 PERCENT. MUST BE GUARANTEED BY AGREEMENT WITHIN 0.5 PERCENT OF AT LEAST FOUR EXPERIMENTS CARRIED OUT BY NOT LESS THAN TWO DIFFERENT METHODS.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION. FIRST PRIORITY BECAUSE IT IS DIFFICULT TO RECONCILE THIS STANDARD WITH MACROSCOPIC EXPERIMENTS.

1174 0.25% 1 USA R.EHRLICH KAP 741130

A: ACCURACY 1 PERCENT OR BETTER USEFUL.
O: FOR USE AS A STANDARD.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

ORL SPENCER+ TANK CALIBRATION RESULTS PENDING.

98 CALIFORNIUM 252 SPONTANEOUS ENERGY SPECTRUM OF FISSION NEUTRONS

1175 5.0% 1 USA R.S.CASWELL NBS 721105

O: FOR USE AS A STANDARD.

1176 2.0% 1 UK B.ROSE HAR 732117

A: ACCURACY FOR MEAN SPECTRUM ENERGY. 10 PERCENT ACCURACY WANTED FOR THE NUMBER OF NEUTRONS ABOVE 5 MEV AND BELOW .25 MEV.
O: STANDARD.

1177 1.0% 1 USA R.EHRLICH KAP 741131

Q: MEAN SPECTRUM ENERGY TO 1 PERCENT.
O: FOR USE AS A STANDARD.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

AUA NEW RESULTS CURRENTLY EXPECTED.

98 CALIFORNIUM 252 NEUTRON CAPTURE CROSS SECTION

1178 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 671155

A: ACCURACY 10 PERCENT IN RESONANCE INTEGRAL.
O: TO EVALUATE CF PRODUCTION.

1179 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752084
H.MATSUNOBU SAE

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 252 NEUTRON FISSION CROSS SECTION

1180 25.3 MV 20.0 EV 10.0% 1 JAP R.YUMOTO PNC 752082
H.MATSUNOBU SAE

Q: ENERGY DEPENDENCE WANTED.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

1181 5.00 MEV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752083
H.MATSUNOBU SAE

O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 253 NEUTRON CAPTURE CROSS SECTION

1182 25.3 MV 10.0 MEV 2 JAP R.YUMOTO PNC 752086
H.MATSUNOBU SAE

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 253 NEUTRON FISSION CROSS SECTION

1183 25.3 MV 10.0 MEV 1 JAP R.YUMOTO PNC 752085
H.MATSUNOBU SAE

A: ACCURACY REQUIRED 10 TO 20 PERCENT.
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 254 NEUTRON CAPTURE CROSS SECTION

1184 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752088
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

98 CALIFORNIUM 254 NEUTRON FISSION CROSS SECTION

1185 25.3 MV 10.0 MEV 20.0% 2 JAP R.YUMOTO PNC 752087
H.MATSUNOBU SAE
O: REACTOR BURN-UP CALCULATIONS AND ESTIMATION OF TRANS-URANIUM NUCLIDE BUILD-UP IN SPENT FUEL. NEUTRON SHIELDING OF SPENT-FUEL TRANSPORT CASK.

99 EINSTEINIUM 253 NEUTRON FISSION CROSS SECTION

1186 25.3 MV 10.0 KEV 10.0% 1 USA F.J.MC CROSSON SRL 741129

FISSION PRODUCTS NEUTRON INELASTIC CROSS SECTION

1187 800. KEV 5.00 MEV 1 CCP L.N.USACHEV FEI 754022
A: FROM 0.8 - 1.4 MEV ACCURACY 13 PERCENT, PRIORITY 2 ACCURACY 13 PERCENT. FROM 1.4 - 2.5 MEV ACCURACY 15 PERCENT, PRIORITY 2 ACCURACY 15 PERCENT. FROM 2.5 - 5.0 MEV ACCURACY 30 PERCENT, PRIORITY 2 ACCURACY 30 PERCENT.
O: NEED FOR FAST REACTOR CALCULATION. FOR MORE DETAIL SEE INTRODUCTION.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

FISSION PRODUCTS NEUTRON ABSORPTION CROSS SECTION

1188 25.3 MV 5.0% 2 UK J.G.TYROR WIN 692476
O: FOR THERMAL REACTORS. INTEGRAL REQUIREMENT FOR TOTAL FISSION PRODUCT POISONING IN IRRADIATED FUEL.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

FISSION PRODUCTS NEUTRON CAPTURE CROSS SECTION

1189 25.3 MV 100. KEV 2 AUL J.L.SYMONDS AUA 693089
Q: RESONANCE PARAMETERS ALSO REQUIRED. S, P AND D WAVE STRENGTH FUNCTIONS NEEDED.
O: DESIRED FOR THEORETICAL PREDICTIONS OF CROSS SECTIONS FOR MASSES 80-160.

1190 100. EV 100. KEV 20.0% 2 CCP M.N.NIKOLAEV FEI 714036
Q: AVERAGE CAPTURE CROSS SECTION FOR LUMPED FISSION PRODUCTS, STABLE, LONG-LIVED AND EQUILIBRIUM FISSION PRODUCTS DATA FOR FISSION PRODUCTS OF U-235, U-238, PU-239 AND PU-240 ARE OF GREAT INTEREST.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.

1191 5.00 KEV 10.0 MEV 1 CCP L.N.USACHEV FEI 754015
A: FROM 0.5 - 100 KEV ACCURACY 8 PERCENT, PRIORITY 2 ACCURACY 7 PERCENT. FROM 0.1 - 0.8 MEV ACCURACY 15 PERCENT, PRIORITY 2 ACCURACY 14 PERCENT. FROM 0.8 - 4.5 MEV ACCURACY 48 PERCENT, PRIORITY 2 ACCURACY 48 PERCENT. ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS. FOR MORE DETAIL SEE INTRODUCTION.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

FISSION PRODUCTS NEUTRON ABSORPTION RESONANCE INTEGRAL

1192 0.55 EV 2.00 MEV 10.0% 2 UK J.G.TYROR WIN 692495
O: FOR THERMAL REACTORS. INTEGRAL REQUIREMENT FOR TOTAL FISSION PRODUCT POISONING IN IRRADIATED FUEL.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

STEEL	NEUTRON				CAPTURE CROSS SECTION				
1193	500.	EV	800.	KEV	1	CCP	M.N.NIKOLAEV	FEI	714035

Q: RATIOS WANTED RELATIVE TO U-235 FISSION. B-10, LI-6, HE-3 AND H-1 STANDARDS.
A: 10 PERCENT BELOW, 20 PERCENT ABOVE 100 KEV WANTED.
O: SEE GENERAL COMMENTS IN THE INTRODUCTION.
ANALYSIS OF FAST CRITICAL ASSEMBLIES INDICATES THAT THE CAPTURE CROSS SECTION OF STAINLESS STEEL IS MUCH GREATER THAN CALCULATED FROM MICROSCOPIC DATA.
FIRST PRIORITY BECAUSE IT IS DIFFICULT TO EVALUATE STEEL CAPTURE CROSS SECTION TO REQUESTED ACCURACY FROM MACROSCOPIC EXPERIMENTS ONLY.

1194	5.00	KEV	10.0	MEV	1	CCP	L.N.USACHEV	FEI	754018

A: FROM 0.5 - 100 KEV ACCURACY 11 PERCENT, PRIORITY 2 ACCURACY 11 PERCENT.
FROM 0.1 - 0.8 MEV ACCURACY 15 PERCENT, PRIORITY 2 ACCURACY 15 PERCENT.
FROM 0.8 - 4.5 MEV ACCURACY 20 PERCENT, PRIORITY 2 ACCURACY 20 PERCENT.
ABOVE 4.5 MEV REQUIREMENTS 2 TIMES WEAKER.
O: NEED FOR FAST REACTOR CALCULATIONS.
FOR MORE DETAIL SEE INTRODUCTION.

III. Fusion Reactor Development

III.A. Introduction

This is the third publication by the Agency of an international nuclear data request list for fusion research and reactor development. The previous publication was report INDC(SEC)-46/U+R+F+S issued in June 1975.

The present list contains 328 data requests in 200 block-headings from six Member States - France, the Federal Republic of Germany, Japan, the Soviet Union, the United Kingdom and the United States. Seven requests which appeared in WRENDA 75 have been withdrawn from the present edition.

III.B. Supplementary Information from Contributors

1. France:

In a letter appended to the data requests received from France in 1973, R. Joly cautions that the requests should be considered with prudence because without a model which permits determination of the consequences of uncertainties in nuclear data on the performance of a fusion reactor, data needs cannot be established by rigorous means.

2. The United Kingdom:

In a letter appended to the data requests received from the UK in 1973, B. Rose states that the requests are for information and that in many cases it is not known whether existing data might satisfy certain requests. This implies that the requests may be either for measurement or for evaluation and that it has not yet proved possible to identify each request as being for one or the other. The priority designations are based on the Agency-developed Priority Criteria of Section III.C.

The following addendum was communicated to the Agency by C.A. Uttley in April 1975 on behalf of the United Kingdom Nuclear Data Committee's Subcommittee for Fusion:

At present the requests from the UK should still not be interpreted as requests for measurements. Initial emphasis will be placed on stainless steel as the main structural material. The relevant cross sections of the components - Fe, Cr and Ni - will be evaluated as a first step in defining further data requirements.

Over the next six months data requirements for interpretation of integral experiments on LiF systems are expected to become apparent. Immediate data requirements are for inelastic excitation cross sections to the first few excited states of ^{19}F for incident neutron energies of less than 1 MeV to 15 MeV with an accuracy of 10 to 15% and for partial excitation cross sections for different modes of ^{7}Li (n,n'α t) to interpret tritium production. A review of existing data for inelastic cross sections of ^{19}F and theoretical calculations for ^{7}Li (n, n'α t) are in progress.

3. The Federal Republic of Germany:

The following comments regarding the data requests from Germany were communicated to the Agency in 1973 by S. Cierjacks:

It has been shown[3] that in principle a large number of fusion reactions can be considered for energy production in a thermonuclear reactor. The three most important reactions are the following:

$$D + T \longrightarrow {}^{4}He\ (3.52\ MeV) + n\ (14.06\ MeV)$$
$$D + {}^{3}He \longrightarrow {}^{4}He\ (3.67\ MeV) + p\ (14.67\ MeV)$$
$$2D + 2D \longrightarrow T\ (1.01\ MeV) + p\ (3.03\ MeV)$$
$$\searrow\ {}^{3}He\ (0.82\ MeV) + n\ (2.45\ MeV)$$

Among these the D + ^{3}He-reaction is - from a theoretical point of view - the most interesting process, since both reaction products are stable charged particles. Their energy should thus be easily utilized, and there might even be a possibility for direct conversion of the kinetic energy to electric power. However, ^{3}He is a very scarce component in the natural isotopic composition of helium, and consideration of net power yields attainable with the above reactions shows that this quantity for the D + T-process exceeds the yield for the D + ^{3}He- and the D + D-reaction by two and three orders of magnitude, respectively. Therefore, from the present stage of knowledge, the first prototype reactor will be most probably a DT-reactor.

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3 V.S. Crocker, S. Blow and C.J.H. Watson, Nuclear Data for Reactors, (Proc. Conf., Helsinki, 1970), IAEA, Vienna, 1970, Vol. I, p. 67.

Accepting this point of view, it is apparent that a large number of neutron data are necessary. In general various data for a large number of promising materials are required from thermal energies up to 15 MeV. A complete list of presently interesting materials and reactions has been given elsewhere.[4] While for most of the elements under consideration sufficiently accurate data are available from thermal values up to ~1 MeV, there is a considerable lack of experimental information in the energy range from 1 - 15 MeV. An inspection of the lists of materials which might be used in thermonuclear reactors shows that the body of nuclear data needed for fusion purposes will presumably exceed even the data requirements for the development of fission reactors. Despite the tremendous extent of overall data needs, the present German request list contains only data requirements for five of the most important elements: Li, Be, F, Nb, Mo. The primary criteria leading to this selection arise from priority considerations elaborated in the national Memorandum on Fusion Reactor Technology. Major effort in the near future will be devoted to tests of computer codes and the reliability of microscopic neutron data. This can be achieved by comparison of experimentally determined and calculated results for the characteristic physical parameters (Tritium-breeding ratio, space-dependent neutron and power distribution etc.) of simple test blankets without any structural material. Our understanding of the present request list is, that only the needs for the next few years programme are included. As thermonuclear research proceeds, new requests will subsequently be added in the coming years.

The present compilation is a combined list of the three Research Centers, Kernforschungszentrum Karlsruhe, Kernforschungsanlage Juelich and Max-Planck Institut fuer Plasmaphysik, Garching, which are the main laboratories involved in the national fusion reactor technology programme. Priority assignments are due to the criteria developed previously by the Agency and the International Fusion Research Council.

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4 M. Neve de Mevergnies and A. Paulsen in "Survey of Fusion Reactor Technology", Report EUR 4873e (1972), p. 277.

III.C. Priority Criteria

The priority criteria which appear in this section were developed by the Agency with the assistance of the International Fusion Research Council (IFRC), the INDC and many scientists engaged in fusion research. Presently they are the basis of the priority assignments for the requests from the United Kingdom and the Federal Republic of Germany.

Priority Criteria for Nuclear Data Requests in Controlled Fusion Research (CFR)

Priority 1

In general highest (first) priority shall be assigned to those nuclear data upon which some important aspect of CFR is immediately contingent. Specifically Priority 1 shall be assigned to requests for nuclear data which

1. are required for evaluation of the feasibility of a proposed CF reactor concept or

2. are required for immediate application of plasma phenomena in a fusion reactor context, or

3. are essential for application of a material which is of conceptual importance in CFR, or

4. are required for an important decision involving allocation of resources or redirection of research effort in CFR programmes, or

5. are necessary to develop some important aspect of current CFR programmes to a level consistent with progress in other aspects of these programmes.

Priority 2

Priority 2 shall be assigned to nuclear data which

1. are required for evaluation of materials of high potential utility in current CF reactor designs, or

2. are expected to contribute to significant progress in CFR or reactor design studies in the near future.

Priority 3

Priority 3 shall be assigned to nuclear data which

1. are of use in current design studies but are not of crucial importance, or

2. are not of immediate importance for CFR but which have probability of becoming important as CFR programmes develop.

Priority 4

Priority 4 shall be assigned to nuclear data which

1. fill out the body of information needed for fusion reactor technology, or

2. are of potential interest for CFR but which cannot be assigned more definite priority at present.

III.D. LIST OF WITHDRAWN REQUESTS

Fusion List

732118	UK	3 LITHIUM 6	NEUTRON	DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION
722067	UK	3 LITHIUM 7	NEUTRON	DIFFERENTIAL ELASTIC CROSS SECTION
722076	UK	4 BERYLLIUM 9	NEUTRON	N.2N
722087	UK	9 FLUORINE 19	NEUTRON	ABSORPTION CROSS SECTION
722085	UK	9 FLUORINE 19	NEUTRON	N.2N
722103	UK	26 IRON	NEUTRON	PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.
732120	UK	26 IRON	NEUTRON	TOTAL PHOTON PRODUCTION CROSS SECTION

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3 LITHIUM 7	.....	III. 3
4 BERYLLIUM 9	.....	III. 4
5 BORON 10	.....	III. 5
6 CARBON	.....	III. 6
6 CARBON 12	.....	III. 6
6 CARBON 13	.....	III. 6
7 NITROGEN 14	.....	III. 6
8 OXYGEN	.....	III. 6
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92 URANIUM 238	.....	III. 23
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III. F. DATA REQUEST LIST FOR FUSION REACTOR DEVELOPMENT

1 HYDROGEN 2 — NEUTRON — N,2N

1195			15.0	MEV		2	FR	A.MICHAUDON	BRC	752094

A: ACCURACY REQUIRED TO BETTER THAN 20 PERCENT.

1 HYDROGEN 3 — NEUTRON — N,2N

1196			15.0	MEV		2	FR	A.MICHAUDON	BRC	752095

A: ACCURACY REQUIRED TO BETTER THAN 20 PERCENT.

2 HELIUM 3 — NEUTRON — N,P

1197	1.00	KEV	15.0	MEV	10.0%	1	FR	A.MICHAUDON	BRC	752096

2 HELIUM 3 — HELIUM-3 — HELIUM-3,2P

1198	100.	KEV	5.00	MEV	15.0%	3	USA	J.R.MC NALLY	ORL	741249

O: TO EVALUATE ADVANCED FUELS.
EVALUATION AND MEASUREMENTS NEEDED.

3 LITHIUM 6 — NEUTRON — ELASTIC CROSS SECTION

1199	7.50	MEV	15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762168

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 6 — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

1200	1.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722060

Q: ADDITIONAL ANGULAR DISTRIBUTIONS ABOVE 6 MEV AND AN IMPROVEMENT IN ACCURACY BELOW 6 MEV REQUIRED.
O: CALCULATION OF NEUTRON TRANSPORT.

1201	1.00	KEV	15.0	MEV	20.0%	3	UK	G.D.MC CRACKEN	CUL	722061

O: FOR SHIELDING CALCULATIONS AND NEUTRON TRANSPORT

1202	4.00	MEV	15.0	MEV	10.0%	2	CCP	I.N.GOLOVIN	KUR	724001

Q: REFINEMENT OF DATA BELOW 7 MEV AND ADDITIONAL DATA ABOVE 7 MEV REQUIRED.
O: CALCULATION OF NEUTRON TRANSMISSION.

1203	14.0	MEV			10.0%	1	FR	D.BRETON	FAR	732001

O: EVALUATION OF NEUTRON BALANCE.

1204	7.50	MEV	15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762051

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 6 — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1205	9.00	MEV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724004

Q: GAMMA RAY PRODUCTION CROSS SECTIONS AND GAMMA RAY SPECTRA ARE REQUIRED.
O: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

1206	1.00	MEV	15.0	MEV	15. %	2	JAP	M.KASAI Y.SEKI	MAP JAE	762054

O: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 6 — NEUTRON — DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1207			15.0	MEV	20.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722064

Q: SECONDARY ENERGY AND ANGULAR DISTRIBUTIONS WANTED. NEUTRON SPECTRA UP TO MAXIMUM ENERGIES ARE REQUIRED.
NEUTRON ANGULAR DISTRIBUTIONS AT A FEW ENERGIES WOULD BE USEFUL.
O: FOR CALCULATIONS OF NEUTRON TRANSPORT AND SHIELDING.

1208	14.0	MEV			10.0%	2	USA	L.STEWART	LAS	741250

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

3 LITHIUM 6			NEUTRON				N,ND			
1209			15.0	MEV	10.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722151
								A: ENERGY RESOLUTION OF 0.2 TO 0.5 MEV WOULD BE SUFFICIENT. O: FOR SHIELDING AND CALCULATION OF HEAT GENERATION.		
1210			15.0	MEV	10.0%	1	CCP	I.N.GOLOVIN	KUR	724003
								O: NEUTRONICS CALCULATIONS AND ENERGY DEPOSITION IN BLANKET MATERIALS.		
1211			15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762052
								O: NEUTRONICS CALCULATIONS AND ENERGY DEPOSITION M: NEW REQUEST.		
3 LITHIUM 6			NEUTRON				N,T			
1212	300.	KEV	15.0	MEV	5.0%	1	GER	D.DARVAS H.KUESTERS	JUL KFK	722062
								Q: TOTAL TRITIUM PRODUCTION REQUIRED. A: ENERGY RESOLUTION SHOULD REPRODUCE TRUE SHAPE. O: FOR DETERMINATION OF MORE ACCURATE TRITIUM BREEDING RATIOS.		
1213	100.	KEV	3.00	MEV	3.0%	1	CCP	I.N.GOLOVIN	KUR	724002
								O: FOR TRITIUM BREEDING AND ENERGY DEPOSITION.		
1214	3.00	MEV	14.0	MEV	5.0%	1	FR	D.BRETON	FAR	732002
								O: FOR EVALUATION OF NEUTRON BALANCE.		
1215	3.00	MEV	15.0	MEV	5. %	1	JAP	Y.SEKI	JAE	762053
								O: TRITIUM BREEDING AND ENERGY DEPOSITION CALCULATION M: NEW REQUEST.		
1216	100.	KEV	2.00	MEV	10.0%	2	UK	G.D.MC CRACKEN	CUL	762245
								O: FOR TRITIUM BREEDING CALCULATIONS. M: NEW REQUEST.		
3 LITHIUM 6			NEUTRON				N,ALPHA			
1217	5.00	KEV	15.0	MEV	5.0%	1	GER	M.KUECHLE	KFK	742110
								O: STANDARD.		

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.
WORK IN PROGRESS OR PLANNED:

NBS 10 TO 400 KEV.

LAS INVERSE REACTION CROSS SECTIONS.

LRL 1 KEV TO 1 MEV. RATIO TO U 235 FISSION.

3 LITHIUM 6			DEUTERON				D,N			
1218	100.	KEV	10.0	MEV	15.0%	2	USA	J.R.MC NALLY	ORL	741245
								Q: BREAK UP INTO HE-3 AND AN ALPHA PARTICLE. O: TO EVALUATE ADVANCED FUELS. EVALUATION AND MEASUREMENTS NEEDED.		
3 LITHIUM 6			HELIUM-3				HELIUM-3,P			
1219	100.	KEV	5.00	MEV	15.0%	2	USA	J.R.MC NALLY	ORL	741244
								Q: BREAK UP INTO TWO ALPHAS WANTED. O: TO EVALUATE ADVANCED FUELS. EVALUATION AND MEASUREMENTS NEEDED.		
3 LITHIUM 6			LITHIUM-6				LITHIUM-6,T			
1220	200.	KEV	5.00	MEV	15.0%	2	USA	J.R.MC NALLY	ORL	741246
								Q: TOTAL TRITON PRODUCTION CROSS SECTION WANTED. O: TO EVALUATE ADVANCED FUELS. EVALUATION AND MEASUREMENTS NEEDED.		
3 LITHIUM 6			LITHIUM-6				LITHIUM-6,HELIUM-3			
1221	200.	KEV	5.00	MEV	15.0%	2	USA	J.R.MC NALLY	ORL	741247
								Q: TOTAL HE-3 PRODUCTION CROSS SECTION WANTED. O: TO EVALUATE ADVANCED FUELS. EVALUATION AND MEASUREMENTS NEEDED.		

3 LITHIUM 6 — LITHIUM-6 — LITHIUM-6,ALPHA

1222	200.	KEV	5.00	MEV	15.0%	2	USA	J.R.MC NALLY	ORL	741248

Q: CROSS SECTION FOR PRODUCTION OF 3 ALPHA PARTICLES.
O: TO EVALUATE ADVANCED FUELS.
EVALUATION AND MEASUREMENTS NEEDED.

3 LITHIUM 7 — NEUTRON — ELASTIC CROSS SECTION

1223	7.50	MEV	15.0	MEV	5.00%	2	JAP	Y.SEKI	JAE	762230

Q: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 7 — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

1224	1.00	MEV	15.0	MEV	10.0%	1	GER	D.DARVAS H.KUESTERS	JUL KFK	722066

Q: ADDITIONAL DISTRIBUTIONS BETWEEN 2 AND 14 MEV REQUIRED IN STEPS OF 0.5 TO 1 MEV.
O: FOR CALCULATION OF NEUTRON TRANSPORT.

1225	2.00	MEV	15.0	MEV	10.0%	1	CCP	I.N.GOLOVIN	KUR	724005

Q: REFINEMENT OF DATA BELOW 7 MEV AND ADDITIONAL DATA ABOVE 7 MEV REQUIRED.
O: FOR TRITIUM BREEDING AND ENERGY DEPOSITION.

1226	14.0	MEV			10.0%	1	FR	D.BRETON	FAR	732003

O: EVALUATION OF NEUTRON BALANCE.

1227	7.50	MEV	15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762055

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 7 — NEUTRON — INELASTIC CROSS SECTION

1228	500.	KEV	15.0	MEV	10.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722068

Q: CROSS SECTION FOR 0.478 MEV LEVEL REQUIRED.
O: FOR SHIELDING ESTIMATES AND CALCULATION OF HEAT GENERATION.

1229			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724006

Q: CROSS SECTION FOR 0.478 MEV LEVEL REQUIRED.
O: NEUTRONICS CALCULATIONS AND ENERGY DEPOSITION.

1230			15.0	MEV	15.0%	2	JAP	Y.SEKI	JAE	762231

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 7 — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

1231			15.0	MEV	20.0%	3	UK	T.D.BEYNON G.D.MC CRACKEN	BIR CUL	732119

O: FOR TRITIUM BREEDING CALCULATIONS.

1232			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762056

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 7 — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1233	9.00	MEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724010

Q: GAMMA RAY PRODUCTION CROSS SECTIONS AND GAMMA RAY SPECTRA ARE REQUIRED.
O: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

1234	25.3	MV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762059

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 7 — NEUTRON — N,2N

1235			15.0	MEV	20.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722071

Q: THREE OR FOUR DATA POINTS USEFUL.
O: FOR ESTIMATES OF NEUTRON MULTIPLICATION.

1236			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724009

Q: SECONDARY ENERGY AND ANGULAR DISTRIBUTIONS AT 14 TO 15 MEV REQUIRED.
O: BLANKET NEUTRONICS CALCULATIONS.

3 LITHIUM 7 | NEUTRON | N,2N | ANGULAR DISTRIBUTION

1237			15.0	MEV	15.0%	2	JAP	Y.SEKI	JAE	762232

Q: BLANKET NEUTRONICS CALCULATIONS.
M: NEW REQUEST.

3 LITHIUM 7 | NEUTRON | N,2N | NEUTRON SPECTRA

1238			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762057

Q: BLANKET NEUTRONICS CALCULATIONS
M: NEW REQUEST.

3 LITHIUM 7 | NEUTRON | DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1239	14.0	MEV			10.0%	1	USA	L.STEWART	LAS	741251

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

3 LITHIUM 7 | NEUTRON | N,NT

1240			15.0	MEV	5.0%	1	GER	D.DARVAS H.KUESTERS	JUL KFK	722069

A: RESOLUTION AND ENERGY STEPS OF .2 TO .5 MEV SUFFICIENT.
Q: DETERMINATION OF MORE ACCURATE TRITIUM BREEDING RATIOS.

1241			15.0	MEV	5.0%	1	CCP	I.N.GOLOVIN	KUR	724007

Q: FOR TRITIUM BREEDING AND ENERGY DEPOSITION.

1242	10.0	MEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724008

Q: SECONDARY ENERGY AND ANGULAR DISTRIBUTIONS REQUIRED.
Q: NEUTRON TRANSMISSION CALCULATIONS.

1243	3.00	MEV	14.0	MEV	5.0%	1	FR	D.BRETON	FAR	732004

Q: EVALUATION OF NEUTRON BALANCE.

1244			15.0	MEV	5. %	1	JAP	Y.SEKI	JAE	762058

Q: NEUTRON SPECTRA WITH ACCURACY 15 PER CENT ALSO REQUIRED.
Q: TRITIUM BREEDING AND ENERGY DEPOSITION CALCULATION
M: NEW REQUEST.

1245			15.0	MEV	10.0%	2	UK	T.D.BEYNON	BIR	762246

Q: ENERGY SPECTRA OF EMITTED PARTICLES NEEDED.
Q: TRITIUM BREEDING.
MODE OF BREAK-UP AND CROSS-SECTION IN THRESHOLD REGION.
M: NEW REQUEST.

3 LITHIUM 7 | NEUTRON | N,NALPHA

1246			15.0	MEV	10.0%	3	USA	D.DUDZIAK	LAS	741252

Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: TO CALCULATE TRITRIUM BREEDING - HIGH SENSITIVITY. UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY STUDIES FOR FUSION DEVICES.

4 BERYLLIUM 9 | NEUTRON | DIFFERENTIAL ELASTIC CROSS SECTION

1247	1.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722073

Q: CALCULATION OF NEUTRON TRANSPORT.

1248	2.00	MEV	15.0	MEV	10.0%	2	CCP	I.N.GOLOVIN	KUR	724011

Q: FOR NEUTRON TRANSMISSION CALCULATIONS.

4 BERYLLIUM 9 | NEUTRON | INELASTIC CROSS SECTION

1249			15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724012

Q: NEUTRONICS CALCULATIONS FOR BLANKET AND SHIELD.

1250			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762060

Q: BLANKET NEUTRONICS CALCULATIONS
M: NEW REQUEST.

4 BERYLLIUM 9 | NEUTRON | DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

1251	8.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722074

4 BERYLLIUM 9 — NEUTRON — PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

1252	8.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722075

Q: ENERGY DISTRIBUTION OF GAMMA RAYS REQUIRED.

4 BERYLLIUM 9 — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1253	3.00	MEV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724015

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

4 BERYLLIUM 9 — NEUTRON — N,2N

1254			15.0	MEV	20.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722077

Q: ANGULAR DISTRIBUTIONS AND ENERGY SPECTRA OF SECONDARY NEUTRONS AND GAMMA RAYS ALSO NEEDED.
O: RADIATION DAMAGE ESTIMATES.

1255			15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724013

Q: ENERGY AND ANGULAR DISTRIBUTION OF SECONDARY NEUTRONS REQUIRED.
O: USE FOR NEUTRON MULTIPLICATION AND TRANSMISSION CALCULATIONS.

1256	2.00	MEV	14.0	MEV	15.0%	2	FR	D.BRETON	FAR	732005

O: TO IMPROVE NEUTRON BALANCE CALCULATIONS.

1257			15.0	MEV	10.0%	3	USA	D.DUDZIAK	LAS	741254

Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
O: SWELLING OF BERYLLIUM NEUTRON MULTIPLIER DUE TO TWO ALPHA-PARTICLE BREAK UP.
HIGH SENSITIVITY OF TRITIUM BREEDING AND ENERGY PRODUCTION TO NEUTRON MULTIPLICATION.
UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY STUDIES FOR FUSION DEVICES.

1258			15.0	MEV	15. %	3	JAP	Y.SEKI M.KASAI	JAE MAP	762061

O: NEUTRON MULTIPLICATION CALCULATIONS
M: NEW REQUEST.

4 BERYLLIUM 9 — NEUTRON — N,2N ANGULAR DISTRIBUTION

1259			15.0	MEV	15.0%	2	JAP	Y.SEKI	JAE	762233

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

4 BERYLLIUM 9 — NEUTRON — N,2N NEUTRON SPECTRA

1260			15.0	MEV	15. %	3	JAP	Y.SEKI	JAE	762062

O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

4 BERYLLIUM 9 — NEUTRON — DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1261	14.0	MEV			10.0%	1	USA	L.STEWART	LAS	741253

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

4 BERYLLIUM 9 — NEUTRON — N,ALPHA

1262	8.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722078

Q: TOTAL ALPHA PRODUCTION REQUIRED.
O: CALCULATION OF NEUTRON TRANSPORT.

1263	8.00	MEV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724014

O: FOR HELIUM ACCUMULATION CALCULATIONS.

1264	8.00	MEV	15.0	MEV	15. %	3	JAP	Y.SEKI	JAE	762063

O: HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

5 BORON 10 — NEUTRON — N,2N

1265	8.00	MEV	14.0	MEV	15.0%	2	FR	D.BRETON	FAR	732006

O: FOR IMPROVED CALCULATION OF NEUTRON BALANCE.

5 BORON 10 | NEUTRON | N,3N

1266	10.0	MEV	14.0	MEV	15.0%	2	FR	D.BRETON	FAR	732007

Q: FOR IMPROVED CALCULATION OF NEUTRON BALANCE.

6 CARBON | NEUTRON | DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1267	8.00	MEV	15.0	MEV	10.0%	2	USA	V.J.ORPHAN F.G.PEREY G.HOPKINS	SAI ORL GA	741255

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

6 CARBON 12 | NEUTRON | DIFFERENTIAL ELASTIC CROSS SECTION

1268	8.00	MEV	15.0	MEV	10.0%	2	CCP	I.N.GOLOVIN	KUR	724016

O: NEUTRON TRANSMISSION CALCULATIONS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.

6 CARBON 12 | NEUTRON | INELASTIC CROSS SECTION

1269	8.00	MEV	15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762064

Q: INELASTICALLY SCATTERED NEUTRON SPECTRA REQUIRED
WITH INCIDENT ENERGY STEPS 0.5 MEV.
O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

6 CARBON 12 | NEUTRON | N,ALPHA

1270			15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724017

O: NEUTRON ABSORPTION CALCULATIONS.

6 CARBON 12 | NEUTRON | N,N3ALPHA

1271			15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724018

Q: SECONDARY NEUTRON ENERGY DISTRIBUTION REQUIRED
AT 14. MEV.
O: FOR BLANKET NEUTRONICS CALCULATIONS.

1272			15.0	MEV	10.0%	2	USA	G.HOPKINS V.J.ORPHAN	GA SAI	741256

O: TO CALCULATE HELIUM PRODUCTION.

1273			15.0	MEV		3	USA	D.DUDZIAK	LAS	741258

O: TO CALCULATE HELIUM PRODUCTION.

1274			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762065

Q: TOTAL ALPHA PRODUCTION CROSS SECTION AND SECONDARY
NEUTRON ENERGY SPECTRUM REQUIRED.
O: NEUTRON TRANSPORT AND HELIUM ACCUMULATION CALC.
M: NEW REQUEST.

6 CARBON 13 | NEUTRON | CAPTURE CROSS SECTION

1275	25.3	MV	3.00	MEV	25.0%	2	USA	V.J.ORPHAN G.HOPKINS	SAI GA	741259

O: PRODUCTION OF C-14 ACTIVITY.

6 CARBON 13 | NEUTRON | N,ALPHA

1276			15.0	MEV	25.0%	2	USA	V.J.ORPHAN G.HOPKINS	SAI GA	741260

O: PRODUCTION OF BE-10 ACTIVITY.

7 NITROGEN 14 | NEUTRON | DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1277	14.0	MEV			10.0%	3	USA	P.G.YOUNG	LAS	741261

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW KEV.

8 OXYGEN | NEUTRON | ANGULAR DIFFERENTIAL INELASTIC CROSS SECTION

1278	14.0	MEV			10.0%	2	USA	P.G.YOUNG	LAS	741262

Q: CROSS SECTION FOR THE FIRST TWO LEVELS IN O-16
REQUIRED (NEED NOT BE SEPARATED).
MEASUREMENTS AT SEVERAL ANGLES NEEDED.

8 OXYGEN — NEUTRON — DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1279	14.0	MEV			10.0%	2	USA	P.G.YOUNG	LAS	741263

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

8 OXYGEN 16 — NEUTRON — N,ALPHA

1280	7.50	MEV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762066

Q: TOTAL ALPHA PRODUCTION CROSS SECTION
O: HELIUM ACCUMULATION CALC. IN LI-OXIDE BLANKETS
M: NEW REQUEST.

8 OXYGEN 16 — NEUTRON — N,ALPHA

1281			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762067

Q: SECONDARY NEUTRON ENERGY SPECTRA REQUIRED.
O: CALCULATION OF NEUTRON TRANSPORT AND HELIUM ACCUMULATION IN LI-OXIDE BLANKETS
M: NEW REQUEST.

9 FLUORINE 19 — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

1282	1.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722080

Q: INCIDENT ENERGY STEPS FROM 10 TO 20 PERCENT.
O: CALCULATION OF NEUTRON TRANSPORT.

1283	2.00	MEV	15.0	MEV	10.0%	2	CCP	I.N.GOLOVIN	KUR	724019

O: USE IN COOLANT.

9 FLUORINE 19 — NEUTRON — INELASTIC CROSS SECTION

1284	1.00	MEV	15.0	MEV	10.0%	1	GER	D.DARVAS S.CIERJACKS	JUL KFK	722081

Q: INELASTIC EXCITATION FUNCTIONS REQUIRED.
O: CALCULATION OF HEAT GENERATION AND SHIELDING ESTIMATES.

1285			15.0	MEV	25.0%	2	UK	T.D.BEYNON	BIR	722082

O: FOR NEUTRON SPECTRUM CALCULATIONS.

1286	1.00	MEV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724020

O: NEUTRONICS CALCULATIONS FOR BLANKET AND SHIELD.

1287	1.00	MEV	15.0	MEV	10. %	3	JAP	Y.SEKI	JAE	762068

O: POTENTIAL CONSTITUENT IN COOLANT,FLIBE.
TRITIUM BREEDING CALCULATIONS
M: NEW REQUEST.

1288			15.0	MEV	15.0%	2	UK	T.D.BEYNON	BIR	762237

Q: EXCITATION FUNCTIONS TO FIRST FEW LEVELS
A: 10 TO 15 PERCENT.
O: FOR USE AS A SPECTRUM INDICATOR.
M: NEW REQUEST.

9 FLUORINE 19 — NEUTRON — DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

1289	1.00	MEV	15.0	MEV	20.0%	1	GER	D.DARVAS S.CIERJACKS	JUL KFK	722083

O: CALCULATION OF HEAT GENERATION AND SHIELDING ESTIMATES.

9 FLUORINE 19 — NEUTRON — ABSORPTION CROSS SECTION

1290	25.3	MV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724021

Q: ALL NEUTRON ABSORPTION PROCESSES SHOULD BE INCLUDED.
O: NEUTRONICS CALCULATIONS AND ENERGY DEPOSITION IN COOLANT.

1291	25.3	MV	14.0	MEV	10.0%	2	FR	D.BRETON	FAR	732008

O: UTILIZATION IN THE COOLANT.

1292	25.3	MV	15.0	MEV	10. %	3	JAP	Y.SEKI	JAE	762069

O: POTENTIAL CONSTITUENT IN COOLANT,FLIBE
TRITIUM BREEDING CALCULATIONS
M: NEW REQUEST.

9 FLUORINE 19 | NEUTRON | PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

1293	1.00	MEV	15.0	MEV	20.0%	1	GER	D.DARVAS S.CIERJACKS	JUL KFK	722084

Q: ENERGY AND ANGULAR DISTRIBUTION OF GAMMA RAYS REQUIRED.
D: CALCULATION OF HEAT GENERATION AND SHIELDING ESTIMATES.

9 FLUORINE 19 | NEUTRON | TOTAL PHOTON PRODUCTION CROSS SECTION

1294	500.	KEV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724022

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
D: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

9 FLUORINE 19 | NEUTRON | DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1295	900.	KEV	15.0	MEV	15.0%	3	USA	F.G.PEREY	ORL	741264

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

9 FLUORINE 19 | NEUTRON | TOTAL PROTON PRODUCTION CROSS SECTION

1296			15.0	MEV	15.0%	1	USA	F.G.PEREY	ORL	741265

D: CALCULATION OF HYDROGEN PRODUCTION.

9 FLUORINE 19 | NEUTRON | N,ALPHA

1297			15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722086

D: CALCULATION OF NEUTRON ABSORPTION AND TRANSMISSION RATES.

9 FLUORINE 19 | NEUTRON | TOTAL ALPHA PRODUCTION CROSS SECTION

1298			15.0	MEV	15.0%	1	USA	F.G.PEREY	ORL	741266

D: CALCULATION OF HELIUM PRODUCTION.

13 ALUMINUM 27 | NEUTRON | CAPTURE CROSS SECTION

1299	25.3	MV	15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762074

D: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

13 ALUMINUM 27 | NEUTRON | TOTAL PHOTON PRODUCTION CROSS SECTION

1300	25.3	MV	15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762075

D: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

13 ALUMINUM 27 | NEUTRON | N,2N

1301			15.0	MEV	15.0%	1	USA	D.DUDZIAK	LAS	741268

Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
D: NEEDED TO PREDICT GENERATION OF LONG-LIVED AL-26 IN FTR STRUCTURES. COILS AND ALUMINUM OXIDE INSULATORS.
UNCERTAINTY FILES REQUIRED TO PERFORM CROSS SECTION SENSITIVITY ANALYSIS FOR FUSION DEVICES.

1302			15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762070

D: POTENTIAL CONSTITUENT FOR STRUCTURAL MATERIAL. NEUTRON MULTIPLICATION CALCULATIONS
M: NEW REQUEST.

13 ALUMINUM 27 | NEUTRON | DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1303	14.0	MEV			10.0%	2	USA	P.G.YOUNG	LAS	741269

Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

13 ALUMINUM 27 | NEUTRON | N,P

1304			15.0	MEV	15.0%	2	USA	D.DUDZIAK	LAS	741267

Q: EVALUATION WITH UNCERTAINTY FILES REQUIRED.
D: NEEDED TO CALCULATE HEAT GENERATION IN AL STRUCTURES DUE TO SHORT-LIVED TRANSMUTANTS (MG-27) SHORTLY AFTER SHUTDOWN.
HIGH AFTERHEAT POWER DENSITY MAY CAUSE AL STRUCTURES TO MELT IN CASE OF LOSS-OF-COOLANT ACCIDENT.
FERF APPLICATIONS.
UNCERTAINTY FILES REQUIRED TO PERFORM CROSS SECTION SENSITIVITY ANALYSIS FOR FUSION DEVICES.

13 ALUMINUM 27 NEUTRON N,P (CONTINUED)

1305 15.0 MEV 15. % 3 JAP M.KASAI MAP 762071
Q: HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

STATUS---STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

13 ALUMINUM 27 NEUTRON TOTAL PROTON PRODUCTION CROSS SECTION

1306 15.0 MEV 15.0% 2 USA D.DUDZIAK LAS 741276
Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: EVALUATION OF RADIATION DAMAGE IN AL COILS AND STRUCTURES.
UNCERTAINTY FILES REQUIRED TO PERFORM CROSS SECTION SENSITIVITY ANALYSIS FOR FUSION DEVICES.

1307 15.0 MEV 15.0% 2 USA R.HAIGHT LRL 741277
Q: HYDROGEN PRODUCTION REQUIRED.

13 ALUMINUM 27 NEUTRON N,D

1308 15.0 MEV 15. % 3 JAP M.KASAI MAP 762072
Q: HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

13 ALUMINUM 27 NEUTRON N,T

1309 15.0 MEV 15. % 3 JAP M.KASAI MAP 762073
Q: HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

13 ALUMINUM 27 NEUTRON TOTAL ALPHA PRODUCTION CROSS SECTION

1310 15.0 MEV 15.0% 2 USA R.HAIGHT LRL 741274
Q: HELIUM PRODUCTION REQUIRED.

1311 15.0 MEV 15.0% 2 USA D.DUDZIAK LAS 741275
Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: EVALUATION OF RADIATION DAMAGE IN AL COILS AND STRUCTURES.
UNCERTAINTY FILES REQUIRED TO PERFORM CROSS SECTION SENSITIVITY ANALYSIS FOR FUSION DEVICES.

14 SILICON NEUTRON DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1312 8.00 MEV 15.0 MEV 10.0% 2 USA G.HOPKINS GA 741278
V.J.ORPHAN SAI
Q: MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

14 SILICON NEUTRON TOTAL ALPHA PRODUCTION CROSS SECTION

1313 15.0 MEV 15.0% 2 USA G.HOPKINS GA 741280
V.J.ORPHAN SAI
Q: HELIUM PRODUCTION REQUIRED.

18 ARGON 40 NEUTRON N,2N

1314 15.0 MEV 15.0% 2 USA D.DUDZIAK LAS 741282
Q: EVALUATION REQUIRED.
Q: TO EVALUATE AR-39 PRODUCTION IN AIR AROUND FUSION TEST REACTORS.

20 CALCIUM NEUTRON ELASTIC CROSS SECTION

1315 1.00 MEV 15.0 MEV 15.0% 3 JAP Y.SEKI JAE 762234
Q: INCLUDED IN CONCRETE. SHIELDING DESIGN.
M: NEW REQUEST.

20 CALCIUM NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

1316 1.00 MEV 15.0 MEV 15. % 3 JAP Y.SEKI JAE 762076
Q: INCLUDED IN CONCRETE SHIELDING DESIGN
M: NEW REQUEST.

20 CALCIUM — NEUTRON — CAPTURE CROSS SECTION

1317	25.3	MV	15.0	MEV	15. %	3	JAP	Y.SEKI	JAE	762077

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: INCLUDED IN CONCRETE.
SHIELDING DESIGN AND GAMMA-RAY HEATING CALCULATION
M: NEW REQUEST.

20 CALCIUM — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1318	500.	KEV	15.0	MEV	15. %	3	JAP	Y.SEKI	JAE	762078

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: INCLUDED IN CONCRETE.
GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

22 TITANIUM — NEUTRON — INELASTIC CROSS SECTION

1319	3.00	MEV	14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732009

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1320			15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762079

O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL
NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

22 TITANIUM — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1321	25.3	MV	15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762083

O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL
GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

22 TITANIUM — NEUTRON — N,2N

1322			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732010

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1323			15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762080

O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL
NEUTRON MULTIPLICATION CALCULATIONS
M: NEW REQUEST.

22 TITANIUM — NEUTRON — N,P

1324			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732011

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1325			15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762081

O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL
HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

22 TITANIUM — NEUTRON — N,ALPHA

1326			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732012

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1327	0.00	EV	15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762082

O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL
HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

23 VANADIUM — NEUTRON — ELASTIC CROSS SECTION

1328	2.00	MEV	15.0	MEV	10.0%	1	CCP	I.N.GOLOVIN	KUR	724023

O: POTENTIAL USE AS STRUCTURAL MATERIAL.
FOR DETERMINATION OF NEUTRON TRANSMISSION.

23 VANADIUM — NEUTRON — INELASTIC CROSS SECTION

1329	3.00	MEV	14.0	MEV	10.0%	2	FR	D.BRETON	FAR	732013

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1330			15.0	MEV	10. %	2	JAP	M.KASAI	MAP	762084

O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL
NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

23 VANADIUM — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

1331	2.00	MEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724024
							O: NEUTRONICS CALCULATIONS FOR BLANKET AND SHIELD.			

23 VANADIUM — NEUTRON — CAPTURE CROSS SECTION

1332	1.00	KEV	2.00	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724027
							O: NEUTRON ABSORPTION, GAMMA RAY HEATING, AND PRODUCTION OF HIGHER ISOTOPES.			
1333	14.0	MEV			15.0%	1	CCP	I.N.GOLOVIN	KUR	724028
							O: NEUTRON ABSORPTION, GAMMA RAY HEATING, AND PRODUCTION OF HIGHER ISOTOPES.			
1334	25.3	MV	15.0	MEV	10. %	2	JAP	K.IOKI	MAP	762088
							O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL GAMMA-RAY HEATING CALCULATIONS M: NEW REQUEST.			

23 VANADIUM — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1335	300.	KEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724029
							Q: GAMMA RAY SPECTRUM ALSO WANTED. O: GAMMA RAY HEATING CALCULATIONS.			
1336	8.00	MEV	15.0	MEV	15.0%	3	USA	F.G.PEREY	ORL	741224
1337	25.3	MV	15.0	MEV	10. %	2	JAP	M.KASAI	MAP	762089
							O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL GAMMA-RAY HEATING CALCULATIONS M: NEW REQUEST.			

23 VANADIUM — NEUTRON — N,2N

1338	2.00	MEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724025
							O: NEUTRON BLANKET CALCULATIONS.			
1339	14.0	MEV			15.0%	1	CCP	I.N.GOLOVIN	KUR	724026
							Q: ENERGY AND ANGULAR DEPENDENCE OF SECONDARY NEUTRONS REQUIRED. O: NEUTRON BLANKET CALCULATIONS.			
1340			14.0	MEV	10.0%	2	FR	D.BRETON	FAR	732014
							O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.			
1341			15.0	MEV	10. %	2	JAP	M.KASAI	MAP	762085
							O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL NEUTRON MULTIPLICATION CALCULATIONS M: NEW REQUEST.			

23 VANADIUM — NEUTRON — DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1342	8.00	MEV	15.0	MEV	15.0%	3	USA	F.G.PEREY	ORL	741283
							Q: MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.			

23 VANADIUM — NEUTRON — N,P

1343			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724030
							O: FOR HYDROGEN ACCUMULATION CALCULATIONS.			
1344			14.0	MEV	10.0%	2	FR	D.BRETON	FAR	732015
							O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.			
1345	0.00	EV	15.0	MEV	10. %	2	JAP	M.KASAI K.IOKI	MAP MAP	762086
							O: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL HYDROGEN ACCUMULATION CALCULATIONS M: NEW REQUEST.			

23 VANADIUM — NEUTRON — TOTAL PROTON PRODUCTION CROSS SECTION

1346			15.0	MEV	15.0%	3	USA	F.G.PEREY	ORL	741284
							O: HYDROGEN PRODUCTION.			

23 VANADIUM — NEUTRON — N,ALPHA

1347			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724031
							O: HELIUM ACCUMULATION CALCULATIONS.			

23 VANADIUM NEUTRON N,ALPHA (CONTINUED)

1348 14.0 MEV 10.0% 2 FR D.BRETON FAR 732016
Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1349 0.00 EV 15.0 MEV 10. % 2 JAP M.KASAI MAP 762087
K.IOKI MAP
Q: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

1350 15.0 MEV 10. % 2 JAP K.IOKI MAP 762090
Q: POTENTIAL CONSTITUENT OF STRUCTURAL MATERIAL NEUTRON TRANSPORT AND HELIUM ACCUMULATION CALC.
M: NEW REQUEST.

23 VANADIUM NEUTRON TOTAL ALPHA PRODUCTION CROSS SECTION

1351 15.0 MEV 15.0% 3 USA F.G.PEREY ORL 741285
Q: HELIUM PRODUCTION.

23 VANADIUM 50 NEUTRON N,2N

1352 15.0 MEV 10. % 3 JAP M.KASAI MAP 762091
Q: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

23 VANADIUM 50 NEUTRON N,ALPHA

1353 0.00 EV 15.0 MEV 10. % 3 JAP K.IOKI MAP 762092
M.KASAI MAP
Q: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

24 CHROMIUM NEUTRON TOTAL CROSS SECTION

1354 1.00 MEV 15.0 MEV 1 USA D.DUDZIAK LAS 741225
Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
O: UNCERTAINTY FILES NEEDED TO PERFORM CROSS SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.

24 CHROMIUM NEUTRON INELASTIC CROSS SECTION

1355 3.00 MEV 14.0 MEV 10.0% 3 FR D.BRETON FAR 732017
Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1356 15.0 MEV 15. % 2 JAP Y.SEKI JAE 762093
Q: INELASTIC GAMMA RAY SPECTRA ALSO REQUIRED
O: NEUTRON TRANSPORT AND GAMMA-RAY HEATING CALC.
M: NEW REQUEST.

1357 15.0 MEV 30.0% 2 UK G.D.MC CRACKEN CUL 762238
O: FOR NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

24 CHROMIUM NEUTRON ABSORPTION CROSS SECTION

1358 1.00 MEV 15.0 MEV 1 USA D.DUDZIAK LAS 741226
Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
O: UNCERTAINTY FILES NEEDED TO PERFORM CROSS SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.

24 CHROMIUM NEUTRON CAPTURE CROSS SECTION

1359 0.00 EV 15.0 MEV 15. % 2 JAP Y.SEKI JAE 762094
Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

1360 25.3 MV 15.0 MEV 30.0% 2 UK G.D.MC CRACKEN CUL 762247
O: FOR NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

STATUS
UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.
STATUS

24 CHROMIUM NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

1361 1.00 KEV 20.0 MEV 20.0% 2 USA M.BHAT BNL 741230

24 CHROMIUM			NEUTRON			N,2N			
1362			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732018
								O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.	
1363			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762095
								O: NEUTRON BALANCE CALCULATIONS M: NEW REQUEST.	
24 CHROMIUM			NEUTRON			DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION			
1364	14.0	MEV			15.0%	2	USA	R.HAIGHT	LRL	741227
								Q: SPECTRA AT SEVERAL ANGLES REQUIRED.	
24 CHROMIUM			NEUTRON			N,P			
1365			14.0	MEV	10.0%		FR	D.BRETON	FAR	732019
								O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.	
1366			15.0	MEV	20. %	2	JAP	Y.SEKI	JAE	762096
								O: HYDROGEN ACCUMULATION CALCULATIONS M: NEW REQUEST.	
1367			15.0	MEV	25.0%	2	UK	G.D.MC CRACKEN	CUL	762241
								O: FOR HYDROGEN GAS PRODUCTION RATES AND NEUTRON ECONOMY CALCULATIONS. M: NEW REQUEST.	
24 CHROMIUM			NEUTRON			TOTAL PROTON PRODUCTION CROSS SECTION			
1368			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741228
								O: HYDROGEN PRODUCTION REQUIRED.	
24 CHROMIUM			NEUTRON			N,ALPHA			
1369			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732020
								O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.	
1370	0.00	EV	15.0	MEV	20. %	2	JAP	Y.SEKI	JAE	762097
								O: HELIUM ACCUMULATION CALCULATIONS M: NEW REQUEST.	
1371			15.0	MEV	25.0%	2	UK	G.D.MC CRACKEN	CUL	762243
								O: FOR HELIUM GAS PRODUCTION RATES AND NEUTRON ECONOMY CALCULATIONS. M: NEW REQUEST.	
24 CHROMIUM			NEUTRON			TOTAL ALPHA PRODUCTION CROSS SECTION			
1372			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741229
								O: HELIUM PRODUCTION REQUIRED.	
24 CHROMIUM 52			NEUTRON			N,2N			
1373			15.0	MEV	15. %	3	JAP	M.KASAI	NAP	762098
								O: TRANSMUTATION CALCULATIONS M: NEW REQUEST.	
24 CHROMIUM 52			NEUTRON			N,P			
1374			20.0	MEV	25.0%	2	USA	M.BHAT	BNL	741231
								O: NEEDED FOR EVALUATION.	
24 CHROMIUM 52			NEUTRON			N,ALPHA			
1375			20.0	MEV	25.0%	2	USA	M.BHAT	BNL	741232
								O: NEEDED FOR EVALUATION.	
25 MANGANESE 55			NEUTRON			TOTAL PHOTON PRODUCTION CROSS SECTION			
1376	1.00	KEV	20.0	MEV	20.0%	2	USA	M.BHAT	BNL	741287

25 MANGANESE 55 | NEUTRON | N,2N

1377 | 20.0 MEV | 15.0% | 1 | USA | D.DUDZIAK | LAS | 741233
Q: EVALUATION WITH UNCERTAINTY-FILE IS REQUIRED.
O: TO EVALUATE LONG-LIVED ACTIVITION OF CAPACITORS AND MAGNETIC MATERIALS IN THETA-PINCH FTP AND STEEL STRUCTURES IN NEAR-TERM FUSION DEVICES RADIATION DAMAGE ANALYSIS.

1378 | 15.0 MEV | 15.0% | 2 | USA | R.HAIGHT | LRL | 741286
Q: EVALUATION REQUESTED.
O: NEEDED FOR FERF DESIGN.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

26 IRON | NEUTRON | INELASTIC CROSS SECTION

1379 | 15.0 MEV | 20.0% | 2 | UK | G.D.MC CRACKEN | CUL | 722102
O: FOR BLANKET HEATING CALCULATIONS.

1380 | 3.00 MEV | 14.0 MEV | 10.0% | 2 | FR | D.BRETON | FAR | 732021
O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1381 | 15.0 MEV | 15. % | 2 | JAP | Y.SEKI | JAE | 762099
Q: INELASTIC GAMMA RAY SPECTRA ALSO REQUIRED.
O: NEUTRON TRANSPORT AND GAMMA-RAY HEATING CALC.
M: NEW REQUEST.

26 IRON | NEUTRON | ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

1382 | 8.00 MEV | 15.0 MEV | 20.0% | 2 | GER | B.GOEL | KFK | 692100
A: ENERGY RESOLUTION 500 KEV FOR INCIDENT NEUTRONS AND 200 KEV FOR SECONDARY NEUTRONS

26 IRON | NEUTRON | CAPTURE CROSS SECTION

1383 | 25.3 MV | 15.0 MEV | 15. % | 2 | JAP | Y.SEKI | JAE | 762100
Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: NEUTRON TRANSPORT AND GAMMA-RAY HEATING CALC.
M: NEW REQUEST.

1384 | 25.3 MV | 15.0 MEV | 15.0% | 2 | UK | G.D.MC CRACKEN | CUL | 762248
O: FOR HEATING AND NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

STATUS
UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

26 IRON | NEUTRON | TOTAL PHOTON PRODUCTION CROSS SECTION

1385 | 25.3 MV | 15.0 MEV | 10. % | 2 | JAP | M.KASAI | MAP | 762104
O: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

26 IRON | NEUTRON | N,2N

1386 | 15.0 MEV | 10.0% | 2 | UK | G.D.MC CRACKEN | CUL | 722106
O: FOR NEUTRON ECONOMY CALCULATIONS.

1387 | 14.0 MEV | 10.0% | 2 | FR | D.BRETON | FAR | 732022
O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1388 | 15.0 MEV | 10. % | 2 | JAP | Y.SEKI | JAE | 762101
O: NEUTRON MULTIPLICATION CALCULATIONS
M: NEW REQUEST.

1389 | 15.0 MEV | 20.0% | 2 | UK | G.D.MC CRACKEN | CUL | 762239
O: FOR NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

26 IRON | NEUTRON | ENERGY DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1390 | 8.00 MEV | 15.0 MEV | 15.0% | 2 | USA | F.G.PEREY | ORL | 741288
Q: MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

26 IRON | NEUTRON | N,P

1391 | 15.0 MEV | 20.0% | 2 | UK | G.D.MC CRACKEN | CUL | 722107
O: FOR HYDROGEN GAS PRODUCTION RATES AND NEUTRON ECONOMY CALCULATIONS.

26 IRON — NEUTRON — N,P — (CONTINUED)

1392			14.0	MEV	10.0%	2	FR	D.BRETON	FAR	732023
								O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.	
1393	0.00	EV	15.0	MEV	20. %	2	JAP	Y.SEKI	JAE	762102
								O: HYDROGEN ACCUMULATION CALCULATIONS M: NEW REQUEST.	

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

26 IRON — NEUTRON — N,ALPHA

1394			15.0	MEV	20.0%	2	UK	G.D.MC CRACKEN	CUL	722108
								O: FOR HELIUM GAS PRODUCTION RATES AND NEUTRON ECONOMY CALCULATIONS.	
1395			14.0	MEV	10.0%	2	FR	D.BRETON	FAR	732024
								O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.	
1396	0.00	EV	15.0	MEV	20. %	2	JAP	Y.SEKI	JAE	762103
								O: HELIUM ACCUMULATION CALCULATIONS M: NEW REQUEST.	

26 IRON — NEUTRON — TOTAL ALPHA PRODUCTION CROSS SECTION

1397			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741289
								O: HYDROGEN PRODUCTION REQUIRED.	
1398			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741290
								O: HELIUM PRODUCTION REQUIRED.	

26 IRON 54 — NEUTRON — N,P

1399			15.0	MEV	15.0%	2	USA	J.D.LEE	LRL	741291
								O: PRODUCTION OF MN-54.	

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

26 IRON 58 — NEUTRON — CAPTURE CROSS SECTION

1400			15.0	MEV	15.0%	2	USA	J.D.LEE	LRL	741292
								O: PRODUCTION OF FE-59.	

28 NICKEL — NEUTRON — TOTAL CROSS SECTION

1401	1.00	MEV	15.0	MEV		1	USA	D.DUDZIAK	LAS	741293
								Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED. O: UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.	

28 NICKEL — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

1402	8.00	MEV	15.0	MEV	20.0%	2	GER	B.GOEL	KFK	692122
								O: FOR SHIELDING CALCULATIONS.	

28 NICKEL — NEUTRON — INELASTIC CROSS SECTION

1403	3.00	MEV	14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732025
								O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.	
1404			15.0	MEV	15. %	2	JAP	Y.SEKI M.KASAI	JAE MAP	762105
								Q: INELASTIC GAMMA RAY SPECTRA ALSO REQUIRED O: NEUTRON TRANSPORT AND GAMMA-RAY HEATING CALC. M: NEW REQUEST.	

28 NICKEL — NEUTRON — ABSORPTION CROSS SECTION

1405	1.00	MEV	15.0	MEV		1	USA	D.DUDZIAK	LAS	741294
								Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED. O: UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.	

28 NICKEL — NEUTRON — CAPTURE CROSS SECTION

1406	25.3	MV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762110

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
O: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

1407	25.3	MV	15.0	MEV	30.0%	2	UK	G.D.MC CRACKEN	CUL	762249

O: FOR NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

STATUS — STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

28 NICKEL — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1408	25.3	MV	15.0	MEV	10. %	2	JAP	M.KASAI	MAP	762111

O: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

28 NICKEL — NEUTRON — N,2N

1409			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732026

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1410			15.0	MEV	15. %	2	JAP	Y.SEKI M.KASAI	JAE MAP	762106

O: NEUTRON BALANCE CALCULATIONS
M: NEW REQUEST.

1411			15.0	MEV	30.0%	2	UK	G.D.MC CRACKEN	CUL	762240

O: FOR NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

STATUS — STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

28 NICKEL — NEUTRON — N,P

1412			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732027

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1413	0.00	EV	15.0	MEV	20. %	2	JAP	Y.SEKI M.KASAI	JAE MAP	762107

O: HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

1414			15.0	MEV	20.0%	2	UK	G.D.MC CRACKEN	CUL	762242

O: FOR HYDROGEN GAS PRODUCTION RATES AND NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

STATUS — STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

28 NICKEL — NEUTRON — TOTAL PROTON PRODUCTION CROSS SECTION

1415			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741295

O: HYDROGEN PRODUCTION REQUIRED.

28 NICKEL — NEUTRON — N,T

1416			15.0	MEV	15. %	3	JAP	M.KASAI	MAP	762109

O: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

28 NICKEL — NEUTRON — N,ALPHA

1417			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732028

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1418	0.00	EV	15.0	MEV	20. %	2	JAP	Y.SEKI M.KASAI	JAE MAP	762108

O: HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

1419			15.0	MEV	30.0%	3	UK	G.D.MC CRACKEN	CUL	762244

O: FOR HELIUM GAS PRODUCTION RATES AND NEUTRON ECONOMY CALCULATIONS.
M: NEW REQUEST.

STATUS — STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

28 NICKEL — NEUTRON — TOTAL ALPHA PRODUCTION CROSS SECTION

1420			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741296

Q: HELIUM PRODUCTION REQUIRED.

28 NICKEL 58 — NEUTRON — N,P

1421			20.0	MEV	15.0%	1	USA	D.DUDZIAK	LAS	741297

Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
D: TO EVALUATE LONG-LIVED ACTIVATION OF CAPACITORS AND MAGNETIC MATERIALS IN THETA-PINCH FTR AND STEEL STRUCTURES IN NEAR-TERM FUSION DEVICES. RADIATION DAMAGE ANALYSIS.

1422			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741298

Q: EVALUATION REQUESTED.
D: NEEDED FOR LLL FERF DESIGN.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

28 NICKEL 58 — NEUTRON — N,NP

1423			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741299

Q: TOTAL PRODUCTION OF CO-57 REQUIRED (INCLUDING (N,D) REACTION). EVALUATION REQUESTED.

28 NICKEL 60 — NEUTRON — N,ALPHA

1424			20.0	MEV	20.0%	2	USA	M.BHAT	BNL	741301

29 COPPER — NEUTRON — TOTAL CROSS SECTION

1425	1.00	MEV	15.0	MEV		1	USA	D.DUDZIAK	LAS	741302

Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
D: UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.

29 COPPER — NEUTRON — ELASTIC CROSS SECTION

1426	8.00	MEV	15.0	MEV	10.0%	2	CCP	I.N.GOLOVIN	KUR	724032

D: NEUTRON TRANSMISSION CALCULATIONS.

29 COPPER — NEUTRON — ABSORPTION CROSS SECTION

1427	1.00	MEV	15.0	MEV		1	USA	D.DUDZIAK	LAS	741303

Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
D: UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.

29 COPPER — NEUTRON — CAPTURE CROSS SECTION

1428	25.3	MV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762114

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
D: GAMMA-RAY HEATING IN MAGNETS
M: NEW REQUEST.

29 COPPER — NEUTRON — PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

1429			15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724033

D: NEUTRONICS CALCULATIONS FOR BLANKET AND SHIELD.

1430			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762112

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
D: GAMMA-RAY HEATING IN MAGNETS
M: NEW REQUEST.

29 COPPER — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1431	500.	KEV	15.0	MEV	15.0%	2	CCP	I.N.GOLOVIN	KUR	724034

Q: GAMMA RAY SPECTRA ALSO WANTED.
D: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

1432	1.00	MEV	15.0	MEV	15.0%	2	USA	V.J.ORPHAN	SAI	741304

Q: EVALUATION ONLY TO INCORPORATE NEW DATA.
D: FOR CALCULATING GAMMA-RAY HEATING IN COILS.

1433	25.3	MV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762113

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
D: GAMMA-RAY HEATING IN MAGNETS
M: NEW REQUEST.

29 COPPER — NEUTRON — N,P

1434 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724035
Q: HYDROGEN ACCUMULATION CALCULATIONS.

29 COPPER — NEUTRON — N,ALPHA

1435 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724036
Q: HELIUM ACCUMULATION CALCULATIONS.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

29 COPPER 63 — NEUTRON — CAPTURE CROSS SECTION

1436 — 25.3 MV — 2.00 MEV — 15.0% — 2 — USA — J.D.LEE — LRL — 741307
Q: ACTIVATION REQUIRED.
EVALUATION ONLY.
Q: PRODUCTION OF CU-64.

29 COPPER 63 — NEUTRON — N,P

1437 — 15.0 MEV — 15.0% — 1 — USA — D.DUDZIAK — LAS — 741305
Q: ACTIVATION REQUIRED.
EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: TO CALCULATE LONG-TERM ACTIVATION OF COPPER COILS IN FUSION DEVICES (NI-63, HALF-LIFE = 100 YEARS).
RADIATION DAMAGE ANALYSIS.

29 COPPER 63 — NEUTRON — N,ALPHA

1438 — 15.0 MEV — 15.0% — 1 — USA — D.DUDZIAK — LAS — 741306
Q: ACTIVATION REQUIRED.
EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: TO CALCULATE LONG-TERM ACTIVATION OF COPPER COILS IN FUSION DEVICES (CO-60, HALF-LIFE = 5.3 YEARS)
RADIATION DAMAGE ANALYSIS.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

30 ZINC 66 — NEUTRON — N,2N

1439 — 15.0 MEV — 15.0% — 2 — USA — R.HAIGHT — LRL — 741308
Q: PRODUCTION OF ZN-65 REQUIRED.
EVALUATION REQUESTED.

40 ZIRCONIUM — NEUTRON — ELASTIC CROSS SECTION

1440 — 5.00 MEV — 15.0 MEV — 10.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724037
Q: NEUTRON TRANSMISSION CALCULATIONS.

40 ZIRCONIUM — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

1441 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724038
Q: NEUTRONICS CALCULATIONS FOR BLANKET AND SHIELD.

40 ZIRCONIUM — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1442 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724039
Q: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

40 ZIRCONIUM — NEUTRON — N,2N

1443 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724040
Q: FOR NEUTRON MULTIPLICATION CALCULATIONS.

40 ZIRCONIUM — NEUTRON — N,P

1444 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724041
Q: HYDROGEN ACCUMULATION CALCULATIONS.

40 ZIRCONIUM — NEUTRON — N,ALPHA

1445 — 15.0 MEV — 15.0% — 2 — CCP — I.N.GOLOVIN — KUR — 724042
Q: HELIUM ACCUMULATION CALCULATIONS.

41 NIOBIUM 92 NEUTRON N,ALPHA

1446	0.00	EV	15.0	MEV	30. %	3	JAP	K.IOKI	MAP	762115

Q: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

41 NIOBIUM 93 NEUTRON DIFFERENTIAL ELASTIC CROSS SECTION

1447	1.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722125

Q: ANGULAR DISTRIBUTIONS AT A FEW SELECTED ENERGIES WOULD BE SUFFICIENT.
D: RADIATION DAMAGE ESTIMATES.

1448	3.00	MEV	15.0	MEV	10.0%	1	CCP	I.N.GOLOVIN	KUR	724043

D: NEUTRON TRANSMISSION CALCULATIONS.

41 NIOBIUM 93 NEUTRON INELASTIC CROSS SECTION

1449			15.0	MEV	10.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722126

Q: FORMATION OF 13.6 YEAR ISOMER WANTED.
D: CALCULATION OF HEAT GENERATION AND RADIOACTIVE AFTERHEAT.

1450			15.0	MEV	15. %	2	JAP	M.KASAI	MAP	762116

Q: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

1451			15.0	MEV	20. %	3	JAP	M.KASAI	MAP	762117

Q: NB-93M PRODUCTION CROSS-SECTION BY INELASTIC
D: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

41 NIOBIUM 93 NEUTRON ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

1452			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724044

D: NEUTRON CALCULATIONS FOR BLANKET AND SHIELD.

41 NIOBIUM 93 NEUTRON DOUBLE DIFFERENTIAL INELASTIC CROSS SECTION

1453	1.00	MEV	15.0	MEV	20.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722129

D: RADIATION DAMAGE ESTIMATES.

41 NIOBIUM 93 NEUTRON CAPTURE CROSS SECTION

1454	10.0	MEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724045

D: HEAVIER ISOTOPE ACCUMULATION CALCULATIONS.

1455	25.3	MV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762122

Q: GAMMA RAY SPECTRA ALSO REQUIRED.
D: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

1456	25.3	MV	15.0	MEV	20. %	3	JAP	M.KASAI	MAP	762123

Q: CAPTURE CROSS-SECTION TO NB-94M IS REQUESTED.
D: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

41 NIOBIUM 93 NEUTRON PHOTON PRODUCTION CROSS SECTION IN INELASTIC SCAT.

1457	1.00	MEV	15.0	MEV	20.0%		GER	D.DARVAS H.KUESTERS	JUL KFK	722130

Q: ENERGY AND ANGULAR DISTRIBUTION OF GAMMA RAYS REQUIRED.
D: RADIATION DAMAGE ESTIMATES.

41 NIOBIUM 93 NEUTRON TOTAL PHOTON PRODUCTION CROSS SECTION

1458			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724046

D: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

1459	25.3	MV	15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762124

Q: GAMMA RAY SPECTRA ALSO REQUESTED
D: GAMMA-RAY HEATING CALCULATIONS
M: NEW REQUEST.

41 NIOBIUM 93 NEUTRON N,2N

1460			15.0	MEV	10.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722134

Q: A MEASUREMENT COUNTING THE OUTCOMING NEUTRONS WOULD BE PREFERRED TO CLARIFY THE SITUATION OF HITHERTO UNOBSERVED DECAY MODES.
O: FOR RADIATION DAMAGE ESTIMATES.

1461			15.0	MEV	10.0%	1	CCP	I.N.GOLOVIN	KUR	724047

Q: ENERGY AND ANGULAR DEPENDENCE OF SECONDARY NEUTRONS REQUIRED.
O: FOR NEUTRON MULTIPLICATION AND RADIATION DAMAGE ESTIMATES.

1462			15.0	MEV	10. %	2	JAP	M.KASAI	MAP	762118

O: NEUTRON MULTIPLICATION CALCULATIONS
M: NEW REQUEST.

STATUS----------STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

41 NIOBIUM 93 NEUTRON N,2N NEUTRON SPECTRA

1463			20.0	MEV	15.0%	2	USA	D.DUDZIAK	LAS	741312

Q: EVALUATION REQUIRED.
O: RECOIL SPECTRUM IMPORTANT FOR RADIATION DAMAGE. NB-92 AND NB-92M IMPORTANT IN RADIOACTIVITY AND AFTER-HEAT FOR SYSTEMS STUDIES.

41 NIOBIUM 93 NEUTRON DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1464	14.0	MEV			10.0%	2	USA	L.STEWART	LAS	741309

Q: SPECTRA AT SEVERAL ANGLES WANTED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

41 NIOBIUM 93 NEUTRON N,P

1465	3.00	MEV	15.0	MEV	20.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722136

O: RADIATION DAMAGE ESTIMATES. CALCULATION OF TRANSMUTATION RATES AND RADIOACTIVE AFTERHEAT.

1466			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724048

O: HYDROGEN ACCUMULATION CALCULATIONS.

1467	0.00	EV	15.0	MEV	20. %	2	JAP	M.KASAI K.IOKI	MAP MAP	762119

O: HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

41 NIOBIUM 93 NEUTRON TOTAL PROTON PRODUCTION CROSS SECTION

1468			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741311

O: HYDROGEN PRODUCTION.

41 NIOBIUM 93 NEUTRON N,ALPHA

1469	4.50	MEV	15.0	MEV	20.0%	2	GER	D.DARVAS H.KUESTERS	JUL KFK	722137

O: RADIATION DAMAGE ESTIMATES. CALCULATION OF TRANSMISSION RATES AND RADIOACTIVE AFTERHEAT.

1470			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724049

O: HELIUM ACCUMULATION CALCULATIONS.

1471	0.00	EV	15.0	MEV	15. %	2	JAP	M.KASAI K.IOKI	MAP MAP	762120

O: HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

41 NIOBIUM 93 NEUTRON TOTAL ALPHA PRODUCTION CROSS SECTION

1472			15.0	MEV	15.0%	2	USA	R.HAIGHT	LRL	741310

O: HELIUM PRODUCTION.

1473	0.00	EV	15.0	MEV	15. %	2	JAP	K.IOKI	MAP	762121

O: HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

41 NIOBIUM 94 — NEUTRON — CAPTURE CROSS SECTION

1474	25.3	MV	15.0	MEV	10. %	3	JAP	M.KASAI	MAP	762125

Q: TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM — NEUTRON — ELASTIC CROSS SECTION

1475	1.00	MEV	15.0	MEV	10.0%	2	JAP	Y.SEKI	JAE	762235

Q: CROSS-SECTIONS FOR EACH ISOTOPE ARE REQUESTED
O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM — NEUTRON — DIFFERENTIAL ELASTIC CROSS SECTION

1476	1.00	MEV	15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722140

Q: DISTRIBUTIONS FOR ENERGY STEPS OF 10 TO 20 PERCENT WOULD SUFFICE.
O: CONFIRMATION OF ANL DATA USEFUL.
RADIATION DAMAGE ESTIMATES.

1477	3.00	MEV	15.0	MEV	10.0%	1	CCP	I.N.GOLOVIN	KUR	724050

O: NEUTRON TRANSMISSION CALCULATIONS.

1478	1.00	MEV	15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762126

Q: CROSS SECTION FOR EACH ISOTOPE ARE ALSO REQUESTED.
O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM — NEUTRON — INELASTIC CROSS SECTION

1479	3.00	MEV	14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732029

O: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1480			15.0	MEV	15.0%	2	JAP	Y.SEKI	JAE	762236

Q: CROSS-SECTIONS FOR EACH ISOTOPE ARE REQUESTED
GAMMA-RAY SPECTRA ALSO REQUIRED.
O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM — NEUTRON — ENERGY DIFFERENTIAL INELASTIC CROSS SECTION

1481			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724051

O: NEUTRON CALCULATIONS FOR BLANKET AND SHIELDING.

1482			15.0	MEV	15. %	2	JAP	Y.SEKI	JAE	762127

Q: CROSS SECTIONS FOR EACH ISOTOPE ARE ALSO REQUESTED
GAMMA RAY SPECTRA ALSO REQUIRED.
O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM — NEUTRON — CAPTURE CROSS SECTION

1483	10.0	MEV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724052

O: HEAVY ISOTOPE ACCUMULATION CALCULATIONS.

1484	1.00	MEV	15.0	MEV	15. %	2	JAP	Y.SEKI K.IOKI	JAE MAP	762131

Q: CROSS SECTIONS FOR EACH ISOTOPE ARE ALSO REQUESTED
GAMMA RAY SPECTRA ALSO REQUIRED.
O: NEUTRON BALANCE AND GAMMA-RAY HEATING CALCULATION
M: NEW REQUEST.

42 MOLYBDENUM — NEUTRON — TOTAL PHOTON PRODUCTION CROSS SECTION

1485	25.3	MV	15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724053

O: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

1486	8.00	MEV	15.0	MEV	15.0%	3	USA	F.G.PEREY	ORL	741313

42 MOLYBDENUM — NEUTRON — N,2N

1487			15.0	MEV	10.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722146

Q: COUNTING OF OUTGOING NEUTRONS TO DETERMINE NEUTRON MULTIPLICATION BY TRANSMISSION IS REQUIRED, SINCE ACTIVITY IS PRODUCED BY MO-92 AND MO-100 ONLY.
O: CALCULATION OF NEUTRON MULTIPLICATION AND RADIATION DAMAGE.

1488			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724054

Q: SECONDARY ENERGY SPECTRUM REQUIRED AT 14.0 MEV.
O: NEUTRON MULTIPLICATION CALCULATIONS.

1489			15.0	MEV	10.0%	3	FR	D.BRETON	FAR	732030

Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1490			15.0	MEV	10. %	2	JAP	Y.SEKI	JAE	762128

Q: CROSS SECTIONS FOR EACH ISOTOPE ARE ALSO REQUESTED
O: NEUTRON TRANSPORT CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM NEUTRON N,P

1491	1.50	MEV	15.0	MEV	20.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722148

Q: RADIATION DAMAGE ESTIMATES, CALCULATION OF TRANSMUTATION RATES AND RADIOACTIVE AFTERHEAT.

1492			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724055

Q: HYDROGEN ACCUMULATION CALCULATIONS.

1493			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732031

Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1494			14.0	MEV	10.0%	2	GER	F.WELLER	KFK	742111

Q: FOR RADIATION DAMAGE CALCULATIONS.
NO DATA AVAILABLE.

1495	0.00	EV	15.0	MEV	10. %	2	JAP	Y.SEKI K.IOKI	JAE MAP	762129

Q: CROSS SECTION FOR EACH ISOTOPE ARE ALSO REQUESTED.
O: HYDROGEN ACCUMULATION CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM NEUTRON N,ALPHA

1496	5.00	MEV	15.0	MEV	20.0%	2	GER	D.DARVAS S.CIERJACKS	JUL KFK	722149

Q: RADIATION DAMAGE ESTIMATES, CALCULATION OF TRANSMUTATION RATES AND RADIOACTIVE AFTERHEAT.

1497			15.0	MEV	15.0%	1	CCP	I.N.GOLOVIN	KUR	724056

Q: HELIUM ACCUMULATION CALCULATIONS.

1498			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732032

Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

1499	0.00	EV	15.0	MEV	20. %	2	JAP	Y.SEKI K.IOKI	JAE MAP	762130

Q: CROSS SECTIONS FOR EACH ISOTOPE ARE ALSO REQUESTED
O: HELIUM ACCUMULATION CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 92 NEUTRON CAPTURE CROSS SECTION

1500	25.3	MV	15.0	MEV	10. %	2	JAP	K.IOKI	MAP	762132

Q: NEUTRON BALANCE AND TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

42 MOLYBDENUM 94 NEUTRON N,2N

1501			15.0	MEV	10. %	2	JAP	K.IOKI	MAP	762133

Q: NEUTRON BALANCE AND TRANSMUTATION CALCULATIONS
M: NEW REQUEST.

47 SILVER 109 NEUTRON CAPTURE CROSS SECTION

1502	25.3	MV	1.00	MEV	15.0%	2	USA	R.HAIGHT	LRL	741314

Q: PRODUCTION OF AG-110M REQUIRED.
EVALUATION REQUESTED.

74 TUNGSTEN NEUTRON INELASTIC CROSS SECTION

1503	3.00	MEV	14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732033

Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

74 TUNGSTEN NEUTRON N,2N

1504			14.0	MEV	10.0%	3	FR	D.BRETON	FAR	732034

Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

74 TUNGSTEN | NEUTRON | N,P

1505 | 14.0 MEV | 10.0% | 3 | FR | D.BRETON | FAR | 732035
Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

74 TUNGSTEN | NEUTRON | N,ALPHA

1506 | 14.0 MEV | 10.0% | 3 | FR | D.BRETON | FAR | 732037
Q: POTENTIAL CONSTITUENT OF CONTAINMENT VESSEL.

82 LEAD | NEUTRON | TOTAL CROSS SECTION

1507 | 25.3 MV | 15.0 MEV | 1 | USA | D.DUDZIAK | LAS | 741315
Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.

82 LEAD | NEUTRON | ABSORPTION CROSS SECTION

1508 | 25.3 MV | 15.0 MEV | 1 | USA | D.DUDZIAK | LAS | 741316
Q: EVALUATION WITH UNCERTAINTY-FILES REQUIRED.
Q: UNCERTAINTY FILES NEEDED TO PERFORM CROSS-SECTION SENSITIVITY ANALYSIS FOR NEAR-TERM FUSION DEVICES.

82 LEAD | NEUTRON | TOTAL PHOTON PRODUCTION CROSS SECTION

1509 | 25.3 MV | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724057
Q: GAMMA RAY SPECTRA REQUIRED.
Q: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

1510 | 25.3 MV | 15.0 MEV | 15. % | 2 | JAP | Y.SEKI | JAE | 762134
Q: GAMMA RAY SPECTRA ALSO REQUIRED.
A: AN UPPER LIMIT OF THE CROSS SECTION OR ACCURACY 20 PER CENT USEFUL.
NEUTRON ENERGY RESOLUTION 300 KEV ABOVE 100 KEV AND 10 PER CENT OTHERWISE.
GAMMA ENERGY RESOLUTION 1 MEV.
Q: SHIELDING DESIGN AND GAMMA-RAY HEATING CALCULATION
M: NEW REQUEST.

82 LEAD | NEUTRON | N,2N

1511 | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724058
Q: POSSIBLE USE AS NEUTRON MULTIPLIER.

82 LEAD 204 | NEUTRON | N,2N

1512 | 15.0 MEV | 15.0% | 2 | USA | R.HAIGHT | LRL | 741317
Q: EVALUATION REQUESTED.
Q: PRODUCTION OF PB-203.

83 BISMUTH 209 | NEUTRON | TOTAL PHOTON PRODUCTION CROSS SECTION

1513 | 25.3 MV | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724059
Q: GAMMA RAY SPECTRA REQUIRED.
Q: GAMMA RAY HEATING AND SHIELDING CALCULATIONS.

83 BISMUTH 209 | NEUTRON | N,2N

1514 | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724060
Q: POSSIBLE USE AS NEUTRON MULTIPLIER.

90 THORIUM 232 | NEUTRON | N,2N

1515 | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724061
Q: POSSIBLE USE AS NEUTRON MULTIPLIER.

90 THORIUM 232 | NEUTRON | N,3N

1516 | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724062
Q: POSSIBLE USE AS NEUTRON MULTIPLIER.

92 URANIUM 238 | NEUTRON | N,2N

1517 | 15.0 MEV | 15.0% | 2 | CCP | I.N.GOLOVIN | KUR | 724063
Q: POSSIBLE USE AS NEUTRON MULTIPLIER.

92 URANIUM 238 NEUTRON N,2N (CONTINUED)

1518 15.0 MEV 15.0% 2 USA J.D.LEE LRL 741319
Q: EVALUATION REQUESTED.
O: PRODUCTION OF U-237.

92 URANIUM 238 NEUTRON N,3N

1519 15.0 MEV 15.0% 2 CCP I.N.GOLOVIN KUR 724064
O: POSSIBLE USE AS NEUTRON MULTIPLIER.

1520 15.0 MEV 15.0% 2 USA J.D.LEE LRL 741320
Q: EVALUATION REQUESTED.
O: PRODUCTION OF U-236.

92 URANIUM 238 NEUTRON DOUBLE DIFFERENTIAL NEUTRON-EMISSION CROSS SECTION

1521 14.0 MEV 15.0% 2 USA J.D.LEE LRL 741318
Q: SPECTRA AT SEVERAL ANGLES REQUIRED.
MUST RECORD NEUTRONS DOWN TO A FEW HUNDRED KEV.

93 NEPTUNIUM 237 NEUTRON FISSION CROSS SECTION

1522 15.0 MEV 1. % 2 JAP Y.SEKI JAE 762135
Q: RATIO TO U-235 FISSION USEFUL.
A: ACCURACY 3 PER CENT USEFUL.
NEUTRON ENERGY RESOLUTION 300 KEV.
O: FOR MONITOR REACTION AND RADIATION DOSIMETRY IN NEUTRONICS EXPERIMENTS ON BLANKET SYSTEM OF FUSION REACTORS.
M: NEW REQUEST.

STATUS STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

IV. Nuclear Safeguards and Accountability

IV.A. Introduction

The present Nuclear Data Request List for Safeguards Development Purposes contains 150 requests in 116 block-headings. The previous publication was report INDC(SEC)-46 /U+R+F+S (June 1975). Forty requests which appeared in WRENDA 75 have been withdrawn from the present edition (all by Japan). 60 additional requests (50 by Japan) have been added.

IV.B. Priority Criteria*

Used in Assigning Priorities to Nuclear Data Requests for Safeguards Purposes

First Priority - (1)

First priority shall be given to those requests for nuclear data that

1. are necessary for the refinement of an existing technique in order to bring its accuracy to within acceptable limits for safeguards purposes, or

2. are essential for the development of a new and promising technique for the nondestructive assay and control of nuclear material in amounts that are significant to the safeguards system.

Second Priority - (2)

Second priority shall be given to those requests for nuclear data that

1. are essential for the use or interpretation of an existing or proposed technique for nondestructive assay and that are now obtained either by extrapolation or by an empirical method but for which experimental confirmation is desirable, or

2. are necessary for the development of a technique for non-destructive assay that may reasonably be expected to be useful for safeguards purposes.

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* These priority criteria were recommended for use by the International Nuclear Data Committee (INDC).

Third Priority - (3)

Third priority shall be given to those requests for nuclear data that

1. may be needed for the nondestructive assay of materials not now included in the safeguards system but that are likely to be in the future, or

2. are necessary for the assessment or elimination of minor sources of error in the assay of nuclear material, or

3. are needed for the exploration of new techniques for non-destructive assay for future applications, or

4. may be needed for the development of new techniques for non-destructive assay for which the required technology does not now exist but which may reasonably be expected to in the future.

IV.C. LIST OF WITHDRAWN REQUESTS

Safeguards List

722001	JAP	36	KRYPTON 85		GAMMA RAY YIELD
722003	JAP	44	RUTHENIUM 103		GAMMA RAY YIELD
722005	JAP	45	RHODIUM 106		GAMMA RAY YIELD
722016	JAP	54	XENON 133		HALF LIFE
722017	JAP	54	XENON 133		HALF LIFE
722019	JAP	54	XENON 133	NEUTRON	CAPTURE CROSS SECTION
722020	JAP	54	XENON 133	NEUTRON	CAPTURE CROSS SECTION
722008	JAP	55	CESIUM 134		GAMMA RAY YIELD
722010	JAP	57	LANTHANUM 140		GAMMA RAY YIELD
722024	JAP	60	NEODYMIUM 142	NEUTRON	CAPTURE CROSS SECTION
722025	JAP	60	NEODYMIUM 142	NEUTRON	CAPTURE RESONANCE INTEGRAL
722026	JAP	60	NEODYMIUM 143	NEUTRON	CAPTURE CROSS SECTION
722027	JAP	60	NEODYMIUM 143	NEUTRON	CAPTURE RESONANCE INTEGRAL
722028	JAP	60	NEODYMIUM 144	NEUTRON	CAPTURE CROSS SECTION
722029	JAP	60	NEODYMIUM 144	NEUTRON	CAPTURE RESONANCE INTEGRAL
722030	JAP	60	NEODYMIUM 145	NEUTRON	CAPTURE CROSS SECTION
722031	JAP	60	NEODYMIUM 145	NEUTRON	CAPTURE RESONANCE INTEGRAL
722032	JAP	60	NEODYMIUM 146	NEUTRON	CAPTURE CROSS SECTION
722033	JAP	60	NEODYMIUM 147	NEUTRON	CAPTURE CROSS SECTION
722034	JAP	60	NEODYMIUM 148	NEUTRON	CAPTURE CROSS SECTION
722035	JAP	60	NEODYMIUM 150	NEUTRON	CAPTURE CROSS SECTION
722036	JAP	62	SAMARIUM 152	NEUTRON	CAPTURE CROSS SECTION
722037	JAP	62	SAMARIUM 153	NEUTRON	CAPTURE CROSS SECTION
722018	JAP	63	EUROPIUM 154		HALF LIFE
722013	JAP	63	EUROPIUM 154		GAMMA RAY YIELD
722014	JAP	63	EUROPIUM 154		GAMMA RAY YIELD
722049	JAP	92	URANIUM 235	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722050	JAP	92	URANIUM 235	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722051	JAP	92	URANIUM 235	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722052	JAP	92	URANIUM 238	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722053	JAP	92	URANIUM 238	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722041	JAP	94	PLUTONIUM 239	NEUTRON	CAPTURE CROSS SECTION
722054	JAP	94	PLUTONIUM 239	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722055	JAP	94	PLUTONIUM 239	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722056	JAP	94	PLUTONIUM 239	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722042	JAP	94	PLUTONIUM 241	NEUTRON	CAPTURE CROSS SECTION
722057	JAP	94	PLUTONIUM 241	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722058	JAP	94	PLUTONIUM 241	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722059	JAP	94	PLUTONIUM 241	NEUTRON	FISSION PRODUCT MASS YIELD SPECTRUM
722044	JAP	95	AMERICIUM 241	NEUTRON	CAPTURE CROSS SECTION

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8 OXYGEN 18	IV.	1
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35 BROMINE 87	IV.	1
35 BROMINE 88	IV.	1
36 KRYPTON 90	IV.	1
40 ZIRCONIUM 95	IV.	1
44 RUTHENIUM 103	IV.	1
44 RUTHENIUM 106	IV.	2
45 RHODIUM 106	IV.	2
51 ANTIMONY 125	IV.	2
53 IODINE 135	IV.	2
53 IODINE 137	IV.	2
53 IODINE 138	IV.	2
53 IODINE 139	IV.	2
54 XENON 139	IV.	2
55 CESIUM 133	IV.	2
55 CESIUM 134	IV.	3
55 CESIUM 137	IV.	3
56 BARIUM 140	IV.	3
57 LANTHANUM 140	IV.	3
58 CERIUM 144	IV.	3
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IV. E. DATA REQUEST LIST FOR NUCLEAR SAFEGUARDS DEVELOPMENT

4 BERYLLIUM 9 — NEUTRON — N,P DELAYED NEUTRON YIELD

1523	14.0	MEV			10.0%	2	USA	R.B.WALTON	LAS	701002

Q: DELAYED NEUTRON YIELD FROM BE-9 PRODUCED BY BETA DECAY OF LI-9 REACTION PRODUCT REQUIRED.
O: BACKGROUND IN DELAYED NEUTRON ASSAYS.

1524	14.0	MEV	16.0	MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714037

Q: DELAYED NEUTRON YIELD FROM BE-9 PRODUCED BY BETA DECAY OF LI-9 REACTION PRODUCT REQUIRED.
O: ALLOWANCE FOR BACKGROUND IN DELAYED NEUTRON COUNTING

5 BORON — ALPHA — ALPHA,N

1525			10.0	MEV	20. %	2	SWD	L.HJAERNE	AKA	762160

O: NEUTRON OUTPUT OF SOLIDIFIED NUCLEAR WASTE
M: NEW REQUEST.

8 OXYGEN — ALPHA — ALPHA,N

1526			10.0	MEV	20. %	2	SWD	L.HJAERNE	AKA	762162

O: NEUTRON OUTPUT OF SOLIDIFIED NUCLEAR WASTE
M: NEW REQUEST.

8 OXYGEN 18 — ALPHA — TOTAL NEUTRON YIELD

1527	5.10	MEV	5.50	MEV	5. %	2	JAP	K.ONISHI	PNC	762041

Q: ABSOLUTE NEUTRON YIELD REQUIRED.
O: DETECTION OF PU BY NEUTRON COINCIDENCE METHOD
M: NEW REQUEST.

9 FLUORINE — ALPHA — ALPHA,N

1528			10.0	MEV	20. %	2	SWD	L.HJAERNE	AKA	762161

O: NEUTRON OUTPUT OF SOLIDIFIED NUCLEAR WASTE
M: NEW REQUEST.

35 BROMINE 87 — GAMMA RAY YIELD

1529					10. %	3	JAP	H.SHIMOJIMA	TOS	762001

Q: YIELD PER DISINTEGRATION OF 1419 KEV GAMMA RAY REQUIRED.
(FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

35 BROMINE 88 — GAMMA RAY YIELD

1530					10. %	3	JAP	H.SHIMOJIMA	TOS	762002

Q: YIELD PER DISINTEGRATION OF 767 KEV GAMMA RAY REQUIRED.
(FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

36 KRYPTON 90 — GAMMA RAY YIELD

1531					10. %	3	JAP	H.SHIMOJIMA	TOS	762003

Q: YIELD PER DISINTEGRATION OF MAJOR GAMMA RAYS REQUIRED.
(FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

40 ZIRCONIUM 95 — NEUTRON — CAPTURE CROSS SECTION

1532	25.3	MV			5.0%	3	CCP	S.A.SKVORTSOV O.A.MILLER	KUR KUR	704003

Q: ALSO WANTED FOR .06 EV INCIDENT NEUTRONS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

44 RUTHENIUM 103 — GAMMA RAY YIELD

1533					1.0%	2	JAP	K.TASAKA	JAE	722002

Q: YIELDS PER DISINTEGRATION OF 497 AND 610 KEV GAMMA RAY REQUIRED.
(FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

44 RUTHENIUM 106 — NEUTRON — CAPTURE CROSS SECTION

1534 25.3 MV — 10.0% — 3 — CCP — S.A.SKVORTSOV KUR; O.A.MILLER KUR — 704006

Q: ALSO WANTED FOR .06 EV INCIDENT NEUTRONS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

45 RHODIUM 106 — GAMMA RAY YIELD

1535 — 1.0% — 2 — JAP — K.TASAKA JAE — 722004

Q: YIELD PER DISINTEGRATION OF 512,616,622 AND 1050 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

51 ANTIMONY 125 — GAMMA RAY YIELD

1536 — 1.0% — 2 — JAP — K.TASAKA JAE — 722006

Q: YIELD PER DISINTEGRATION OF 176, 381, 428, 464, 601, 607, 636 AND 672 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

53 IODINE 135 — GAMMA RAY YIELD

1537 — 10. % — 3 — JAP — H.SHIMOJIMA TOS — 762004

Q: YIELD PER DISINTEGRATION OF 527,1132,1260 AND 1458 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

53 IODINE 137 — GAMMA RAY YIELD

1538 — 10. % — 3 — JAP — H.SHIMOJIMA TOS — 762005

Q: YIELD PER DISINTEGRATION OF MAJOR GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

53 IODINE 138 — GAMMA RAY YIELD

1539 — 10. % — 3 — JAP — H.SHIMOJIMA TOS — 762006

Q: YIELD PER DISINTEGRATION OF 589 KEV GAMMA RAY REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

53 IODINE 139 — HALF LIFE

1540 — 10. % — 3 — JAP — H.SHIMOJIMA TOS — 762013

O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

53 IODINE 139 — GAMMA RAY YIELD

1541 — 10. % — 3 — JAP — H.SHIMOJIMA TOS — 762007

Q: YIELD PER DISINTEGRATION OF MAJOR GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

54 XENON 139 — GAMMA RAY YIELD

1542 — 10. % — 3 — JAP — H.SHIMOJIMA TOS — 762008

Q: YIELD PER DISINTEGRATION OF 175,219,290,297 AND 393 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

55 CESIUM 133 — NEUTRON — CAPTURE CROSS SECTION

1543 25.3 MV — 3.0% — 2 — CCP — S.A.SKVORTSOV KUR; O.A.MILLER KUR — 704007

Q: ALSO WANTED FOR .06 EV INCIDENT NEUTRONS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

1544 25.3 MV 14.0 MEV — 3.0% — 1 — JAP — H.OKASHITA JAE — 722021

Q: RESONANCE INTEGRAL ALSO WANTED.
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

55 CESIUM 134 — GAMMA RAY YIELD

1545 — 1.0% — 2 — JAP — H.OKASHITA — JAE — 722007

Q: YIELD PER DISINTEGRATION OF 563,569,796,802 AND 1365 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

55 CESIUM 134 — NEUTRON — CAPTURE CROSS SECTION

1546 — 25.3 MV — 3.0% — 2 — CCP — S.A.SKVORTSOV, O.A.MILLER — KUR, KUR — 704008

Q: ALSO WANTED FOR .06 EV INCIDENT NEUTRONS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

1547 — 25.3 MV — 3.0% — 1 — JAP — H.OKASHITA — JAE — 722022

Q: RESONANCE INTEGRAL ALSO WANTED.
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

1548 — 25.3 MV — 10.0 MEV — 20. % — 1 — JAP — K.TASAKA — JAE — 762024

Q: CROSS SECTION VALUES AT HIGHER NEUTRON ENERGIES ARE NEEDED, AS WELL AS AT THERMAL ENERGY.
A: 10 PER CENT ACCURACY FOR 25.3 MV, 20 PER CENT ACCURACY FOR HIGHER ENERGY REGION.
O: BURN-UP DETERMINATION BASED ON ABSOLUTE MEASUREMENT OF ACTIVITY RATIO CS-134/CS-137 ESTIMATION OF THE DECAY POWER OF FISSION PRODUCTS
M: NEW REQUEST.

55 CESIUM 137 — NEUTRON — CAPTURE CROSS SECTION

1549 — 25.3 MV — 10.0% — 2 — CCP — S.A.SKVORTSOV, O.A.MILLER — KUR, KUR — 704013

Q: ALSO WANTED FOR .06 EV INCIDENT NEUTRONS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

56 BARIUM 140 — NEUTRON — CAPTURE CROSS SECTION

1550 — 25.3 MV — 5.0% — 3 — CCP — S.A.SKVORTSOV, O.A.MILLER — KUR, KUR — 704015

Q: ALSO WANTED FOR .06 EV INCIDENT NEUTRONS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

57 LANTHANUM 140 — GAMMA RAY YIELD

1551 — 1.0% — 2 — CCP — S.A.SKVORTSOV, O.A.MILLER — KUR, KUR — 704016

Q: YIELD OF GAMMA QUANTA PER BETA DECAY EVENT WANTED FOR 328.8 AND 815.8 KEV GAMMAS.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

1552 — 1.0% — 2 — JAP — K.TASAKA — JAE — 722009

Q: YIELD PER DISINTEGRATION OF 328.8, 487.0, 815.8, AND 2522.0 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

58 CERIUM 144 — GAMMA RAY YIELD

1553 — 1.0% — 2 — CCP — S.A.SKVORTSOV, O.A.MILLER — KUR, KUR — 704018

Q: YIELD OF GAMMA QUANTA PER BETA DECAY EVENT WANTED FOR 133.5 KEV GAMMA.
O: FOR ASSAY OF U AND PU IN FUEL ELEMENTS FROM FISSION PRODUCT GAMMA RADIATION.

1554 — 1.0% — 2 — JAP — H.OKASHITA — JAE — 722011

Q: YIELD PER DISINTEGRATION OF 133.5 KEV GAMMA RAY REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

59 PRASEODYMIUM 141 — NEUTRON — CAPTURE CROSS SECTION

1555 — 25.3 MV — 14.0 MEV — 3.0% — 1 — JAP — H.OKASHITA — JAE — 722023

Q: RESONANCE INTEGRAL ALSO WANTED.
O: FOR BURN UP CALCULATION FROM DESTRUCTIVE MEASUREMENT.

59 PRASEODYMIUM 144 — GAMMA RAY YIELD

1556			1.0%	1	JAP	H.OKASHITA	JAE	722012

Q: YIELD PER DISINTEGRATION OF 696.5, 1498.1, AND 2185.7 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

63 EUROPIUM 153 — NEUTRON — CAPTURE CROSS SECTION

1557	25.3	MV	14.0	MEV	5.0%	1	JAP	H.OKASHITA	JAE	722038

Q: RESONANCE INTEGRAL ALSO WANTED.
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

63 EUROPIUM 154 — NEUTRON — CAPTURE CROSS SECTION

1558	25.3	MV			5.0%	1	JAP	H.OKASHITA	JAE	722039

Q: RESONANCE INTEGRAL ALSO WANTED.
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

63 EUROPIUM 155 — GAMMA RAY YIELD

1559			1.0%	2	JAP	K.TASAKA	JAE	722015

Q: YIELD PER DISINTEGRATION OF 86.5 AND 105.3 KEV GAMMA RAYS REQUIRED. (FOLLOWING BETA DECAY EVENT)
O: FOR BURN UP CALCULATION FROM NON-DESTRUCTIVE MEASUREMENT.

92 URANIUM 235 — GAMMA — FISSION PRODUCT MASS YIELD SPECTRUM

1560	4.00	MEV	14.0	MEV	10. %	3	JAP	R.MIKI	KKU	762034

Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG REQUIRED. YIELD MAY BE IN THE UNIT OF YIELD ROENTGEN*NUCLEUS OR RELATIVE TO U-238 OR OTHER PHOTO ACTIVATION YIELDS.
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS. NON-DESTRUCTIVE ASSAY OF U
M: NEW REQUEST.

1561	4.00	MEV	14.0	MEV	5. %	3	JAP	R.MIKI	KKU	762042

Q: CUMULATIVE YIELDS OF HIGH FISSION YIELD ISOTOPES.
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS. NON-DESTRUCTIVE ASSAY OF NUCLEAR MATERIALS
M: NEW REQUEST.

92 URANIUM 235 — NEUTRON — DELAYED NEUTRON YIELD

1562	1.00	MEV	15.0	MEV		2	DDR	W.SCHMITT	RDS	763001

A: ABSOLUTE TOTAL DELAYED NEUTRON YIELD WANTED TO 7% ACCURACY. GROUP HALF LIVES AND YIELDS WANTED TO 3% ACCURACY.
O: DATA NEEDED FOR ASSAY OF FISSIONABLE MATERIALS.
M: NEW REQUEST.

92 URANIUM 235 — NEUTRON — FISSION CROSS SECTION

1563	1.00	MEV	15.0	MEV	3. %	2	DDR	W.SCHMITT	RDS	763004

O: DATA NEEDED FOR ASSAY OF FISSIONABLE MATERIALS.
M: NEW REQUEST.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.
MEASUREMENTS PLANNED, IN PROGRESS, OR NOT FULLY DOCUMENTED:

MHG	ROBERTSON+	100 KEV TO 1 MEV.
HAR	JAMES AND EVANS	100 KEV TO 15 MEV.
KFK	CIERJACKS+	1 MEV TO 15 MEV.
CAD	SZABO	1 MEV TO 15 MEV.
LAS		6 MEV TO 15 MEV.
ORL		<100 KEV TO 1 MEV.
NBS		<100 KEV TO 15 MEV.
BRC		100 KEV TO 15 MEV.

92 URANIUM 235 — NEUTRON — DELAYED NEUTRONS EMITTED PER FISSION

1564	5.00	MEV	14.0	MEV	5.0%	2	USA	R.B.WALTON	LAS	701030

O: DATA DESIRED FOR EXTRAPOLATION TO 15 MEV. CALCULATIONS OF MODERATING ASSEMBLIES FOR U ASSAY.

1565 25.3 MV 10.0 MEV 5. % 2 JAP T.MURATA NIG 762046

Q: THE REQUESTED QUANTITIES ARE THE GROUP HALF LIVES AND GROUP YIELDS (NORMALIZED TO 1 FISSION) WHICH CAN BE USED TO FIT THE DECAY CURVE OF DELAYED NEUTRONS FOR THE TIME RANGE 0.1-300 SEC WITHIN AN ACCURACY OF 5 PER CENT.
O: INCIDENT ENERGY STEP LESS THAN 2 MEV.
ACTIVE ASSAY OF MIXED FRESH AND IRRADIATED FUEL
M: NEW REQUEST.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 235 NEUTRON SPECTRUM OF PROMPT GAMMA RAYS EMITTED IN FISSION

1566 25.3 MV 14.0 MEV 2.0 % 3 CCP S.S.KOVALENKO RI 734001

Q: YIELD AND SPECTRA WANTED FOR 5 TO 15 MEV GAMMAS.
A: 10.0 KEV GAMMA RESOLUTION WANTED.
O: FOR ASSAY OF U IN FUEL ELEMENTS FROM PROMPT GAMMAS.

92 URANIUM 235 NEUTRON DELAYED GAMMA SPECTRUM FROM FISSION PRODUCTS

1567 25.3 MV 15.0% 2 USA R.B.WALTON LAS 701029

Q: FISSION PRODUCT GAMMA RAY ENERGIES FROM 0.25 TO 5 MEV.
DELAY TIME FROM 1 MILLISECOND TO 12 HOURS.
ASSOCIATE GAMMA RAYS WITH FISSION PRODUCTS IF POSSIBLE.
A: GE(LI) RESOLUTION AT 1.2 MEV SHOULD BE 2.5 KEV.
O: NON-DESTRUCTIVE ASSAY OF U-235.

92 URANIUM 235 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

1568 25.3 MV 1.0% 2 CCP S.A.SKVORTSOV KUR 704022
D.A.MILLER KUR

Q: YIELDS OF ZR-95 AND RU-106 ARE REQUIRED.
O: FOR ASSAY OF U IN SPENT FUEL ELEMENTS BY THE FISSION PRODUCT GAMMA RAYS.

STATUS---STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

92 URANIUM 236 NEUTRON CAPTURE CROSS SECTION

1569 25.3 MV 14.0 MEV 2 JAP Y.NAITO JAE 722040

A: ACCURACY REQUIRED AT THERMAL IS 3 PERCENT, 10 PERCENT ABOVE.
O: FOR BURN UP CALCULATION OF A PU LOADED THERMAL REACTOR.

92 URANIUM 236 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

1570 3.00 MEV 10.0% 1 USA R.B.WALTON LAS 701032

Q: ALSO FOR 14 MEV. NEUTRONS.
O: BACKGROUND CORRECTION IN U-235 SPENT FUEL ASSAY.

92 URANIUM 236 NEUTRON ENERGY SPECTRUM OF FISSION NEUTRONS

1571 10.0% 2 USA R.B.WALTON LAS 701031

Q: ONE ENERGY ABOVE FISSION THRESHOLD.
O: BACKGROUND CORRECTIONS IN U-235 SPENT FUEL ASSAY.

92 URANIUM 238 GAMMA FISSION PRODUCT MASS YIELD SPECTRUM

1572 4.00 MEV 14.0 MEV 10. % 3 JAP R.MIKI KKU 762035

Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG REQUIRED. YIELD MAY BE IN THE UNIT OF YIELD/ ROENTGEN*NUCLEUS OR RELATIVE TO OTHER PHOTOACTIVATION YIELDS.
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) SUFFICIENT THICKNESS TO STOP ELECTRONS.
NON-DESTRUCTIVE ASSAY OF U
M: NEW REQUEST.

1573 4.00 MEV 14.0 MEV 5. % 3 JAP R.MIKI KKU 762043

Q: CUMULATIVE YIELDS OF HIGH FISSION YIELD ISOTOPES.
O: NON-DESTRUCTIVE ASSAY OF NUCLEAR MATERIALS
M: NEW REQUEST.

92 URANIUM 238 NEUTRON DELAYED NEUTRON YIELD

1574 1.00 MEV 15.0 MEV 2 DDR W.SCHMITT ROS 763002

A: ABSOLUTE TOTAL DELAYED NEUTRON YIELD WANTED TO 7% ACCURACY.
GROUP HALF LIVES AND YIELDS WANTED TO 1% ACCURACY.
O: DATA NEEDED FOR ASSAY OF FISSIONABLE MATERIALS.
M: NEW REQUEST.

92 URANIUM 238 NEUTRON FISSION CROSS SECTION

1575 1.00 MEV 15.0 MEV 3. % 2 DDR W.SCHMITT RDS 763005
Q: DATA NEEDED FOR ASSAY OF FISSIONABLE MATERIALS
M: NEW REQUEST.

STATUS---STATUS
UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.
DPL MEASUREMENTS PLANNED.
KFK MEASUREMENTS UNDERWAY.

92 URANIUM 238 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

1576 5.00 MEV 14.0 MEV 5.0% 2 USA R.B.WALTON LAS 701035
Q: DATA DESIRED FOR EXTRAPOLATION TO 15 MEV.
CALCULATIONS OF MODERATING ASSEMBLIES FOR U ASSAY.

1577 25.3 MV 10.0 MEV 5. % 2 JAP T.MURATA NIG 762047
Q: THE REQUESTED QUANTITIES ARE THE GROUP HALF LIVES AND GROUP YIELDS (NORMALIZED TO 1 FISSION) WHICH CAN BE USED TO FIT THE DECAY CURVE OF DELAYED NEUTRONS FOR THE TIME RANGE 0.1-300 SEC WITHIN AN ACCURACY OF 5.PER CENT.
O: INCIDENT ENERGY STEP LESS THAN 2 MEV.
ACTIVE ASSAY OF MIXED FRESH AND IRRADIATED FUEL
M: NEW REQUEST.

STATUS---STATUS
UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.
DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.
ANL WORK IN PROGRESS.

92 URANIUM 238 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

1578 10. % 3 JAP H.SHIMOJIMA TOS 762044
Q: CUMULATIVE YIELDS OF BR-87,BR-88,KR-90,I-137,I-138,I-139,XE-137,XE-138 FOR FISSION NEUTRON AND 1-14 MEV NEUTRON SPECTRA.
O: DETECTION OF FAILED FUEL
M: NEW REQUEST.

STATUS---STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

93 NEPTUNIUM 237 NEUTRON CAPTURE CROSS SECTION

1579 1.00 MV 1.00 KEV 1 GER P.MCGRATH KFK 732125
Q: NEUTRON AND CAPTURE WIDTHS UP TO 1 KEV NEEDED.
A: ACCURACY 3 PERCENT NEEDED TO 10 EV, 10 PERCENT ABOVE.
ACCURACY 5 PERCENT IN NEUTRON WIDTH AND 10 PERCENT IN CAPTURE WIDTH.
O: FOR BURN UP CALCULATIONS.

1580 1.00 KEV 5.00 MEV 10.0% 2 GER P.MCGRATH KFK 732126
O: FOR BURN UP CALCULATIONS.

93 NEPTUNIUM 237 NEUTRON N,2N

1581 10.0 MEV 10.0% 2 GER P.MCGRATH KFK 732127
O: FOR BURN UP CALCULATION AND CONTAMINATION BY PU-236.

93 NEPTUNIUM 237 NEUTRON FISSION CROSS SECTION

1582 1.00 KEV 200. KEV 10.0% 2 GER P.MCGRATH KFK 702064
O: FOR BURN UP CALCULATIONS.

STATUS---STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

93 NEPTUNIUM 238 NEUTRON CAPTURE CROSS SECTION

1583 25.3 MV 20. % 2 SWD L.HJAERNE AKA 762169
Q: CALCULATION OF PU-238 PRODUCTION
M: NEW REQUEST.

93 NEPTUNIUM 239 NEUTRON CAPTURE CROSS SECTION

1584 25.3 MV 10.0 MEV 10. % 3 JAP M.YADA NFI 762025
Q: FOR HIGHER BURN-UP CALCULATIONS
M: NEW REQUEST.

93 NEPTUNIUM 239 NEUTRON FISSION CROSS SECTION

1585	25.3 MV	10.0 MEV	25. %	3	JAP	M.YADA.	NFI	762032

Q: THE VALUE OF NU ALSO WANTED.
A: 10 PER CENT ACCURACY IS DESIRABLE FOR APPLICATION.
O: NO EXPERIMENTAL DATA.
BURN-UP ANALYSIS OF FAST BREEDER REACTORS
M: NEW REQUEST.

94 PLUTONIUM 238 HALF LIFE

1586			0.1%	2	USA	W.W.STROHM	MND	741146

Q: FOR ACCURATE CALORIMETRIC ASSAY OF PU.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 238 SPONTANEOUS FISSION HALF LIFE

1587				2	USA	E.V.WEINSTOCK	BNL	741143

A: REQUESTED ACCURACY - 1 TO 2 PERCENT.
O: TO REDUCE ERRORS IN THE ASSAY OF HIGH-BURNUP PU.

1588			1.0%	2	USA	N.S.BEYER	ANL	741151

A: ACCURACY 3-5 PERCENT USEFUL IN SHORT TERM.
O: FOR CALCULATION OF THE EFFECTIVE PU-240 FOR SPONTANEOUS FISSION MEASUREMENTS OF PU IN NUCLEAR MATERIALS SAFEGUARDS.

1589			1. %	2	JAP	K.ONISHI	PNC	762014

O: DETECTION OF PU BY NEUTRON COINCIDENCE METHOD
M: NEW REQUEST.

94 PLUTONIUM 238 GAMMA RAY YIELD

1590			1. %	1	JAP	T.SUZUKI	JAE	762009

Q: YIELD PER DISINTEGRATION OF 43.45.99.7,152.7 KEV GAMMA RAYS REQUIRED.
(FOLLOWING ALPHA DECAY EVENT)
O: THOUGH PRESENT STATUS OF ACCURACY SEEMED TO MEET THE REQUIREMENT CONFIRMATION IS REQUIRED.
ASSAY OF PU-ISOTOPES BY GAMMA-RAY SPECTROSCOPY
M: NEW REQUEST.

94 PLUTONIUM 238 SPONTANEOUS NEUTRONS EMITTED PER FISSION (NU BAR)

1591			1.0%	2	USA	E.V.WEINSTOCK	BNL	741145

O: TO REDUCE ERRORS IN THE ASSAY OF HIGH-BURNUP PU.

1592			1.0%	2	USA	N.S.BEYER	ANL	741154

A: ACCURACY 3-5 PERCENT USEFUL IN SHORT TERM.
O: FOR CALCULATION OF THE EFFECTIVE PU-240 FOR SPONTANEOUS FISSION MEASUREMENTS OF PU IN NUCLEAR MATERIALS SAFEGUARDS.

94 PLUTONIUM 238 GAMMA TOTAL NEUTRON YIELD

1593		10.0 MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714046

O: PHOTONUCLEAR ASSAY OF PU.

94 PLUTONIUM 238 GAMMA FISSION CROSS SECTION

1594		10.0 MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714044

O: FOR PHOTONUCLEAR ASSAY OF PU.

94 PLUTONIUM 238 GAMMA FISSION PRODUCT MASS YIELD SPECTRUM

1595		10.0 MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714045

O: PHOTONUCLEAR ASSAY OF PU.

1596	4.00 MEV	14.0 MEV	10. %	3	JAP	R.MIKI	KKU	762036

Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS. NO EXPERIMENTAL DATA.
O: NON-DESTRUCTIVE ASSAY OF U
M: NEW REQUEST.

94 PLUTONIUM 238 NEUTRON CAPTURE CROSS SECTION

1597	25.3 MV	10.0 MEV	10.0%	2	GER	P.MCGRATH	KFK	702066

O: FOR BURN UP CALCULATIONS.

94 PLUTONIUM 238 NEUTRON FISSION CROSS SECTION

1598 1.00 MEV 10.0 MEV 10.0% 2 GER P.MCGRATH KFK 702065
Q: FOR BURN UP CALCULATIONS.

94 PLUTONIUM 238 MISC

1599 0.5% 1 JAP K.ONISHI PNC 762018
Q: DECAY HEAT (W/G) REQUIRED.
O: ASSAY OF PU BY CALORIMETRY
M: NEW REQUEST.

94 PLUTONIUM 239 HALF LIFE

1600 0.2% 2 USA W.W.STROHM MND 741147
Q: FOR ACCURATE CALORIMETRIC ASSAY OF PU.

STATUS
UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 239 SPONTANEOUS FISSION HALF LIFE

1601 1. % 2 JAP K.ONISHI PNC 762015
O: DETECTION OF PU BY NEUTRON COINCIDENCE METHOD
M: NEW REQUEST.

94 PLUTONIUM 239 GAMMA RAY YIELD

1602 1. % 1 JAP T.SUZUKI JAE 762010
Q: YIELD PER DISINTEGRATION OF 45.2,104.2 AND 642.3 KEV GAMMA RAYS REQUIRED.
(FOLLOWING ALPHA DECAY EVENT)
O: THOUGH PRESENT STATUS OF ACCURACY SEEMED TO MEET THE REQUIREMENT CONFIRMATION IS REQUIRED.
ASSAY OF PU-ISOTOPES BY GAMMA-RAY SPECTROSCOPY
M: NEW REQUEST.

94 PLUTONIUM 239 GAMMA FISSION PRODUCT MASS YIELD SPECTRUM

1603 4.00 MEV 14.0 MEV 10. % 3 JAP R.MIKI KKU 762037
Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG REQUIRED. YIELD MAY BE IN THE UNIT OF YIELD/ ROENTGEN*NUCLEUS OR RELATIVE TO U-238 OR OTHER PHOTOACTIVATION YIELDS.
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS.
NON-DESTRUCTIVE ASSAY OF PU
M: NEW REQUEST.

1604 4.00 MEV 14.0 MEV 5. % 3 JAP R.MIKI KKU 762045
Q: CUMULATIVE YIELDS OF HIGH FISSION YIELD ISOTOPES.
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS.
NON-DESTRUCTIVE ASSAY OF NUCLEAR MATERIALS
M: NEW REQUEST.

94 PLUTONIUM 239 NEUTRON CAPTURE GAMMA RAY SPECTRUM

1605 25.3 MV 100. EV 20.0% 3 USA R.B.WALTON LAS 701044
Q: FOR GAMMA RAY ENERGIES ABOVE 1.2 MEV.
A: GAMMA RESOLUTION OF 2.5 KEV AT 1.2 MEV.
O: DEVELOPMENT OF NEW PU ASSAY TECHNIQUE.

1606 25.3 MV 20.0% 2 USA R.B.WALTON LAS 741138
Q: ABSOLUTE SPECTRUM REQUIRED.
O: FOR DEVELOPMENT OF NONDESTRUCTIVE ASSAY METHODS.

94 PLUTONIUM 239 NEUTRON DELAYED NEUTRON YIELD

1607 1.00 MEV 15.0 MEV 2 DDR W.SCHMITT RDS 763003
A: ABSOLUTE TOTAL DELAYED NEUTRON YIELD WANTED TO 7% ACCURACY.
GROUP HALF LIVES AND YIELDS WANTED TO 3% ACCURACY.
O: DATA NEEDED FOR ASSAY OF FISSIONABLE MATERIALS.
M: NEW REQUEST.

94 PLUTONIUM 239 NEUTRON FISSION CROSS SECTION

1608 1.00 MEV 15.0 MEV 3. % 2 DDR W.SCHMITT RDS 763006
O: DATA NEEDED FOR ASSAY OF FISSIONABLE MATERIALS.
M: NEW REQUEST.

STATUS

UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

DETAILED UNCERTAINTIES INCLUDED IN ABOVE REVIEW.
MEASUREMENTS PLANNED, IN PROGRESS, OR NOT FULLY DOCUMENTED:

HAP	JAMES AND EVANS	100 KEV TO 15 MEV.
GEL	WEIGMANN+	BELOW 100 KEV.
KFK	VOSS+	100 KEV TO 15 MEV.
CAD	SZABO	1 TO 6 MEV.
LRL	BEHRENS	BELOW 100 KEV TO 15 MEV.
BRC		1 TO 15 MEV.

94 PLUTONIUM 239 NEUTRON CAPTURE TO FISSION RATIO (ALPHA)

1609 25.3 MV 14.0 MEV 2 JAP Y.NAITO JAE 722046

A: ACCURACY REQUIRED AT THERMAL IS 1 PERCENT, 5 PERCENT ABOVE.
O: FOR BURN UP CALCULATION OF A PU LOADED THERMAL REACTOR.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON NEUTRONS EMITTED PER FISSION (NU BAR)

1610 25.3 MV 0.5% 2 JAP Y.NAITO JAE 722048

Q: DATA WANTED FOR EPI-THERMAL NEUTRONS ALSO.
O: FOR BURN UP CALCULATION OF A PU LOADED THERMAL REACTOR.

STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

1611 3.00 MEV 14.0 MEV 10.0% 2 USA R.B.WALTON LAS 701042

O: DATA DESIRED FOR EXTRAPOLATION TO 15 MEV. CALCULATIONS OF MODERATING ASSEMBLIES FOR PU ASSAY.

1612 25.3 MV 10.0 MEV 5. % 2 JAP T.MURATA NIG 762048

Q: THE REQUESTED QUANTITIES ARE THE GROUP HALF LIVES AND GROUP YIELDS (NORMALIZED TO 1 FISSION) WHICH CAN BE USED TO FIT THE DECAY CURVE OF DELAYED NEUTRONS FOR THE TIME RANGE 0.1-300 SEC WITHIN AN ACCURACY OF 5 PER CENT.
O: INCIDENT ENERGY STEP LESS THAN 2 MEV. ACTIVE ASSAY OF MIXED FRESH AND IRRADIATED FUEL
M: NEW REQUEST.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 NEUTRON SPECTRUM OF PROMPT GAMMA RAYS EMITTED IN FISSION

1613 25.3 MV 14.0 MEV 2.0 % 3 CCP S.S.KOVALENKO RI 734002

Q: YIELD AND SPECTRA WANTED FOR 5 TO 15 MEV GAMMAS.
A: 10.0 KEV GAMMA RESOLUTION WANTED.
O: FOR ASSAY OF PU IN FUEL ELEMENTS FROM PROMPT GAMMAS.

94 PLUTONIUM 239 NEUTRON DELAYED GAMMA SPECTRUM FROM FISSION PRODUCTS

1614 25.3 MV 15.0% 2 USA R.B.WALTON LAS 701043

Q: FISSION PRODUCT GAMMA RAY ENERGIES FROM 0.25 TO 5. MEV.
DELAY TIME FROM 1 MILLISECOND TO 12 HOURS.
ASSOCIATE GAMMA RAYS WITH FISSION PRODUCTS IF POSSIBLE.
A: GE(LI) RESOLUTION AT 1.2 MEV SHOULD BE 2.5 KEV. ACCURACY FOR ABSOLUTE GAMMA RAY YIELDS.
O: NON-DESTRUCTIVE ASSAY OF PU-239

94 PLUTONIUM 239 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

1615 25.3 MV 1.0% 1 CCP S.A.SKVORTSOV KUR 704020
O.A.MILLER KUR

Q: YIELDS OF CS-133 AND CS-137 WANTED.
O: FOR ASSAY OF PU IN SPENT FUEL ELEMENTS BY THE FISSION PRODUCT GAMMA RAYS.

1616 25.3 MV 1.0% 2 CCP S.A.SKVORTSOV KUR 704023
O.A.MILLER KUR

Q: YIELDS OF ZR-95, RU-106, BA-140 AND CE-144 ARE REQUIRED.
O: FOR ASSAY OF PU IN SPENT FUEL ELEMENTS BY THE FISSION PRODUCT GAMMA RAYS.

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 239 MISC

1617 0.5% 1 JAP K.ONISHI PNC 762019

Q: DECAY HEAT (W/G) REQUIRED.
O: ASSAY OF PU BY CALORIMETRY
M: NEW REQUEST.

94 PLUTONIUM 240 HALF LIFE

1618 0.2% 2 USA W.W.STRCHM MND 741148

O: FOR ACCURATE CALORIMETRIC ASSAY OF PU.

94 PLUTONIUM 240 SPONTANEOUS FISSION HALF LIFE

1619 2 USA E.V.WEINSTOCK BNL 741144

O: TO REDUCE ERRORS IN THE ASSAY OF HIGH-BURNUP PU.

1620 1.0% 2 USA N.S.BEYER ANL 741152

A: ACCURACY 3-5 PERCENT USEFUL IN SHORT TERM.
O: FOR CALCULATION OF THE EFFECTIVE PU-240 FOR SPONTANEOUS FISSION MEASUREMENTS OF PU IN NUCLEAR MATERIALS SAFEGUARDS.

1621 1. % 2 JAP K.ONISHI PNC 762016

O: DETECTION OF PU BY NEUTRON COINCIDENCE METHOD
M: NEW REQUEST.

94 PLUTONIUM 240 GAMMA RAY YIELD

1622 1. % 1 JAP T.SUZUKI JAE 762011

Q: YIELD PER DISINTEGRATION OF 45.2,104.2 AND 642.3 KEV GAMMA RAYS REQUIRED.
(FOLLOWING ALPHA DECAY EVENT)
O: THOUGH PRESENT STATUS OF ACCURACY SEEMED TO MEET THE REQUIREMENT CONFIRMATION IS REQUIRED.
ASSAY OF PU-ISOTOPES BY GAMMA-RAY SPECTROSCOPY
M: NEW REQUEST.

94 PLUTONIUM 240 SPONTANEOUS NEUTRONS EMITTED PER FISSION (NU BAR)

1623 1.0% 2 USA N.S.BEYER ANL 741155

A: ACCURACY 3-5 PERCENT USEFUL IN SHORT TERM.
O: FOR CALCULATION OF THE EFFECTIVE PU-240 FOR SPONTANEOUS FISSION MEASUREMENTS OF PU IN NUCLEAR MATERIALS SAFEGUARDS.

94 PLUTONIUM 240 GAMMA FISSION PRODUCT MASS YIELD SPECTRUM

1624 4.00 MEV 14.0 MEV 10. % 3 JAP R.MIKI KKU 762038

Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG REQUIRED. YIELD MAY BE IN THE UNIT OF YIELD/ ROENTGEN*NUCLEUS OR RELATIVE TO U-238 OR OTHER PHOTOACTIVATION YIELDS.
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS. NO EXPERIMENTAL DATA.
NON-DESTRUCTIVE ASSAY OF PU
M: NEW REQUEST.

94 PLUTONIUM 240 NEUTRON CAPTURE GAMMA RAY SPECTRUM

1625 25.3 MV 20.0% 2 USA R.B.WALTON LAS 741139

Q: ABSOLUTE SPECTRA REQUIRED.
O: FOR DEVELOPMENT OF NONDESTRUCTIVE ASSAY METHOD.

94 PLUTONIUM 240 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

1626 750. KEV 14.0 MEV 20.0% 2 USA R.B.WALTON LAS 701045

O: DATA DESIRED FOR EXTRAPOLATION TO 15 MEV.
CALCULATIONS OF MODERATING ASSEMBLIES FOR PU ASSAY.

1627 25.3 MV 10.0 MEV 5. % 2 JAP T.MURATA NIG 762049

Q: THE REQUESTED QUANTITIES ARE THE GROUP HALF LIVES AND GROUP YIELDS (NORMALIZED TO 1 FISSION) WHICH CAN USED TO FIT THE DECAY CURVE OF DELAYED NEUTRONS FOR THE TIME RANGE 0.1-300 SEC WITHIN AN ACCURACY OF 5 PER CENT.
O: INCIDENT ENERGY STEP LESS THAN 2 MEV.
ACTIVE ASSAY OF MIXED FRESH AND IRRADIATED FUEL
M: NEW REQUEST.

94 PLUTONIUM 240 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION (CONTINUED)

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 240 MISC

1628			0.3%	2	GER	V.SCHNEIDER	ALK	702079
					Q: SPECIFIC DECAY HEAT IN WATTS/GRAM REQUIRED. PERCENTAGE OF HEAT CARRIED OFF BY LONG RANGE PARTICLES (X-RAYS,GAMMA RAYS) USEFUL.			
					O: FOR CALORIMETRIC PU DETERMINATION.			
1629			0.5%	1	JAP	K.ONISHI	PNC	762020
					Q: DECAY HEAT (W/G) REQUIRED.			
					O: ASSAY OF PU BY CALORIMETRY			
					M: NEW REQUEST.			

94 PLUTONIUM 241 HALF LIFE

1630			1.0%	2	USA	W.W.STROHM	MND	741149
					O: FOR ACCURATE CALORIMETRIC ASSAY OF PU.			

STATUS

UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 241 GAMMA RAY YIELD

1631			5. %	1	JAP	T.SUZUKI	JAE	762012
					Q: YIELD PER DISINTEGRATION OF 56.4,77.103.5,148.6 AND 160 KEV GAMMA RAYS REQUIRED. (FOLLOWING ALPHA DECAY EVENT)			
					A: 1 PER CENT ACCURACY FOR 103.5 AND 148.6 KEV GAMMA RAYS, 5 PER CENT ACCURACY FOR 56.4,77 AND 160 KEV GAMMA RAYS.			
					O: THOUGH PRESENT STATUS OF ACCURACY SEEMED TO MEET THE REQUIREMENT CONFIRMATION IS REQUIRED. ASSAY OF PU-ISOTOPES BY GAMMA-RAY SPECTROSCOPY			
					M: NEW REQUEST.			

94 PLUTONIUM 241 GAMMA TOTAL NEUTRON YIELD

1632		10.0 MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714049
					O: FOR PHOTONUCLEAR ASSAY OF PU.			

94 PLUTONIUM 241 GAMMA FISSION CROSS SECTION

1633		10.0 MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714047
					O: FOR PHOTONUCLEAR ASSAY OF PU.			

94 PLUTONIUM 241 GAMMA FISSION PRODUCT MASS YIELD SPECTRUM

1634		10.0 MEV	10.0%	2	CCP	V.K.MARKOV	GAC	714048
					O: FOR PHOTONUCLEAR ASSAY OF PU.			
1635	4.00 MEV	14.0 MEV	10. %	3	JAP	R.MIKI	KKU	762039
					Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG REQUIRED. YIELD MAY BE IN THE UNIT OF YIELD/ ROENTGEN*NUCLEUS OR RELATIVE TO U-238 OR OTHER PHOTOACTIVATION YIELDS.			
					O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS. NON-DESTRUCTIVE ASSAY OF PU			
					M: NEW REQUEST.			

94 PLUTONIUM 241 NEUTRON CAPTURE GAMMA RAY SPECTRUM

1636	25.3 MV		20.0%	2	USA	R.B.WALTON	LAS	741140
					Q: ABSOLUTE SPECTRA REQUIRED.			
					O: FOR DEVELOPMENT OF NONDESTRUCTIVE ASSAY METHODS.			

94 PLUTONIUM 241 NEUTRON CAPTURE TO FISSION RATIO (ALPHA)

1637	25.3 MV	14.0 MEV		2	JAP	Y.NAITO	JAE	722047
					A: ACCURACY REQUIRED AT THERMAL IS 1 PERCENT, 5 PERCENT ABOVE.			
					O: FOR BURN UP CALCULATION OF A PU LOADED THERMAL REACTOR.			

STATUS

THERMAL VALUE UNDER CONTINUOUS REVIEW BY INDC AND NEANDC. SEE APPENDIX A.

94 PLUTONIUM 241 NEUTRON DELAYED NEUTRONS EMITTED PER FISSION

1638 25.3 MV 14.0 MEV 10.0% 3 USA R.B.WALTON LAS 701046
Q: DATA DESIRED FOR EXTRAPOLATION TO 15 MEV. CALCULATIONS OF MODERATING ASSEMBLIES FOR PU ASSAY.

1639 25.3 MV 10.0 MEV 5. % 2 JAP T.MURATA NIG 762050
Q: THE REQUESTED QUANTITIES ARE THE GROUP HALF LIVES AND GROUP YIELDS (NORMALIZED TO 1 FISSION) WHICH CAN USED TO FIT THE DECAY CURVE OF DELAYED NEUTRONS FOR THE TIME RANGE 0.1-300 SEC WITHIN AN ACCURACY OF 5 PER CENT.
O: ACTIVE ASSAY OF MIXED FRESH AND IRRADIATED FUEL INCIDENT ENERGY STEP LESS THAN 2 MEV.
M: NEW REQUEST.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 241 NEUTRON FISSION PRODUCT MASS YIELD SPECTRUM

1640 25.3 MV 5.0% 3 CCP S.A.SKVORTSOV KUR 704021
O.A.MILLER KUR
Q: YIELD OF RU-144 WANTED.
O: FOR ASSAY OF PU IN FUEL ELEMENTS BY MEANS OF FISSION PRODUCT GAMMA RADIATION.

STATUS
UNDER CONTINUOUS REVIEW BY INDC. SEE APPENDIX A.

94 PLUTONIUM 241 MISC

1641 1.5% 2 GER V.SCHNEIDER ALK 702073
Q: SPECIFIC DECAY HEAT IN WATTS/GRAM REQUIRED. PERCENTAGE OF HEAT CARRIED OFF BY LONG RANGE PARTICLES (X-RAYS,GAMMA RAYS) USEFUL.
O: FOR CALORIMETRIC PU DETERMINATION.

1642 0.5% 1 JAP K.ONISHI PNC 762021
Q: DECAY HEAT (W/G) REQUIRED.
O: ASSAY OF PU BY CALORIMETRY
M: NEW REQUEST.

94 PLUTONIUM 242 SPONTANEOUS FISSION HALF-LIFE

1643 1.0% 2 USA N.S.BEYER ANL 741153
A: ACCURACY 3-5 PERCENT USEFUL IN SHORT TERM.
O: FOR CALCULATION OF THE EFFECTIVE PU-240 FOR SPONTANEOUS FISSION MEASUREMENTS OF PU IN NUCLEAR MATERIALS SAFEGUARDS.

1644 1. % 2 JAP K.ONISHI PNC 762017
O: DETECTION OF PU BY NEUTRON COINCIDENCE METHOD
M: NEW REQUEST.

94 PLUTONIUM 242 SPONTANEOUS NEUTRONS EMITTED PER FISSION (NU BAR)

1645 1.0% 2 USA N.S.BEYER ANL 741156
A: ACCURACY 3-5 PERCENT USEFUL IN SHORT TERM.
O: FOR CALCULATION OF THE EFFECTIVE PU-240 FOR SPONTANEOUS FISSION MEASUREMENTS OF PU IN NUCLEAR MATERIALS SAFEGUARDS.

94 PLUTONIUM 242 NEUTRON CAPTURE CROSS SECTION

1646 25.3 MV 14.0 MEV 2 JAP Y.NAITO JAE 722043
A: ACCURACY REQUIRED AT THERMAL IS 5 PERCENT, 10 PERCENT ABOVE.
O: FOR BURN UP CALCULATION OF A PU LOADED THERMAL REACTOR.

1647 25.3 MV 10.0 MEV 2 GER P.MCGRATH KFK 732128
A: ACCURACY 3 PERCENT FOR THERMAL AND 10 PERCENT ABOVE THERMAL.
O: FOR BURN UP CALCULATION AND PRODUCTION OF CM-ISOTOPES.

94 PLUTONIUM 242 NEUTRON CAPTURE GAMMA RAY SPECTRUM

1648 25.3 MV 20.0% 2 USA R.B.WALTON LAS 741141
Q: ABSOLUTE SPECTRA REQUIRED.
O: FOR DEVELOPMENT OF NONDESTRUCTIVE ASSAY METHODS.

94 PLUTONIUM 242 | NEUTRON | FISSION CROSS SECTION

1649 25.3 MV 10.0 MEV 2 GER P.MCGRATH KFK 732129
A: ACCURACY 3 PERCENT FOR THERMAL AND 10 PERCENT ABOVE THERMAL.
O: FOR BURN UP CALCULATIONS.

94 PLUTONIUM 242 | NEUTRON | DELAYED NEUTRONS EMITTED PER FISSION

1650 3.00 MEV 20.0% 3 USA R.B.WALTON LAS 701047
Q: ALSO REQUIRED FOR 14 MEV. INCIDENT NEUTRONS.
O: CALCULATIONS OF MODERATING ASSEMBLIES FOR PU ASSAYS.

94 PLUTONIUM 242 | MISC

1651 0.5% 1 JAP K.ONISHI PNC 762022
Q: DECAY HEAT (W/G) REQUIRED.
O: ASSAY OF PU BY CALORIMETRY
M: NEW REQUEST.

95 AMERICIUM 241 | HALF LIFE

1652 0.2% 2 USA W.W.STROHM MND 741150
O: FOR ACCURATE CALORIMETRIC ASSAY OF PU.

95 AMERICIUM 241 | GAMMA | TOTAL NEUTRON YIELD

1653 10.0 MEV 10.0% 2 CCP V.K.MARKOV GAC 714052
O: FOR PHOTONUCLEAR ASSAY OF PU.

95 AMERICIUM 241 | GAMMA | FISSION CROSS SECTION

1654 10.0 MEV 10.0% 2 CCP V.K.MARKOV GAC 714051
O: FOR PHOTONUCLEAR ASSAY OF PU.

95 AMERICIUM 241 | GAMMA | FISSION PRODUCT MASS YIELD SPECTRUM

1655 10.0 MEV 10.0% 2 CCP V.K.MARKOV GAC 714050
O: FOR PHOTONUCLEAR ASSAY OF PU.

1656 4.00 MEV 14.0 MEV 10. % 3 JAP R.MIKI KKJ 762040
Q: TOTAL FISSION YIELD PRODUCED BY BREMSSTRAHLUNG REQUIRED. YIELD MAY BE IN THE UNIT OF YIELD/ROENTGEN*NUCLEUS OR RELATIVE TO U-238 OR OTHER PHOTOACTIVATION YIELDS
O: BREMSSTRAHLUNG CONVERTER (PREFERABLY TA) OF SUFFICIENT THICKNESS TO STOP ELECTRONS. NON-DESTRUCTIVE ASSAY OF PU
M: NEW REQUEST.

95 AMERICIUM 241 | NEUTRON | CAPTURE CROSS SECTION

1657 25.3 MV 10.0 MEV 10.0% 1 GER P.MCGRATH KFK 702081
O: FOR BURN UP CALCULATIONS.

95 AMERICIUM 241 | NEUTRON | CAPTURE GAMMA RAY SPECTRUM

1658 25.3 MV 20.0% 2 USA R.B.WALTON LAS 741142
Q: ABSOLUTE SPECTRA REQUIRED.
O: FOR DEVELOPMENT OF NONDESTRUCTIVE ASSAY METHOD.

95 AMERICIUM 241 | NEUTRON | FISSION CROSS SECTION

1659 20.0 KEV 10.0 MEV 10.0% 1 GER P.MCGRATH KFK 702080
O: FOR BURN UP CALCULATIONS.

95 AMERICIUM 241 | MISC

1660 0.5% 1 JAP K.ONISHI PNC 762023
Q: DECAY HEAT (W/G) REQUIRED.
O: ASSAY OF PU BY CALORIMETRY
M: NEW REQUEST.

95 AMERICIUM 242 NEUTRON CAPTURE CROSS SECTION

1661 25.3 MV 14.0 MEV 2 JAP Y.NAITO JAE 722045
A: ACCURACY REQUIRED AT THERMAL IS 10 PERCENT, 20 PERCENT ABOVE.
O: FOR BURN UP CALCULATION OF A PU LOADED THERMAL REACTOR.

1662 25.3 MV 100. KEV 20.0% 2 GER P.MCGRATH KFK 732131
Q: CROSS SECTION NEEDED FOR 152 YEAR ISOMER.
O: FOR PRODUCTION OF CM-244.

1663 25.3 MV 10.0 MEV 10. % 3 JAP M.YADA NFI 762026
O: NO MEASUREMENTS OF CAPTURE CROSS SECTION BUT A FEW DATA OF FISSION CROSS SECTION ARE AVAILABLE. FOR HIGHER BURN-UP CALCULATIONS
M: NEW REQUEST.

1664 25.3 MV 10.0 MEV 10. % 3 JAP M.YADA NFI 762027
O: FOR HIGHER BURN-UP CALCULATIONS
M: NEW REQUEST.

95 AMERICIUM 242 NEUTRON FISSION CROSS SECTION

1665 25.3 MV 100. KEV 20.0% 2 GER P.MCGRATH KFK 732130
Q: CROSS SECTION NEEDED FOR 152 YEAR ISOMER.
O: FOR PRODUCTION OF CM-244.

1666 25.3 MV 10.0 MEV 5. % 3 JAP M.YADA NFI 762033
Q: THE VALUE OF NU ALSO WANTED.
A: 10 PER CENT ACCURACY IS DESIRABLE FOR APPLICATION.
O: NO EXPERIMENTAL DATA. THE VALUES OF FISSION CROSS SECTION AND NU ARE KNOWN WITHIN AN ERROR OF 5 PER CENT AT 25.3 MV.
BURN-UP ANALYSIS OF FAST BREEDER REACTORS
M: NEW REQUEST.

95 AMERICIUM 243 NEUTRON CAPTURE CROSS SECTION

1667 25.3 MV 10.0 MEV 10.0% 1 GER P.MCGRATH KFK 732132
O: FOR PRODUCTION OF CM-244.

1668 25.3 MV 2.00 MEV 20. % 3 JAP M.YADA NFI 762028
K.EBIZUKA TIT
Q: TOTAL,ELASTIC AND INELASTIC CROSS SECTIONS ARE ALSO REQUIRED BY K.EBIZUKA TIT.
A: 10 PER CENT ACCURACY FOR 25 MV.
20 PER CENT ACCURACY FOR HIGHER ENERGY REGION.
O: BURN-UP ANALYSIS OF FAST BREEDER REACTORS
M: NEW REQUEST.

95 AMERICIUM 244 NEUTRON CAPTURE CROSS SECTION

1669 25.3 MV 10.0 MEV 10.0% 1 GER P.MCGRATH KFK 732133
O: FOR NEUTRON SOURCE CALCULATIONS.

96 CURIUM 242 NEUTRON CAPTURE CROSS SECTION

1670 25.3 MV 10.0 MEV 20. % 3 JAP M.YADA NFI 762029
A: 10 PER CENT ACCURACY FOR 25.3 MV.
20 PER CENT ACCURACY FOR HIGHER ENERGY.
O: FOR HIGHER BURN-UP CALCULATIONS
M: NEW REQUEST.

96 CURIUM 243 NEUTRON CAPTURE CROSS SECTION

1671 25.3 MV 10.0 MEV 20. % 3 JAP M.YADA NFI 762030
A: 10 PER CENT ACCURACY FOR 25.3 MV.
20 PER CENT ACCURACY FOR HIGHER ENERGY REGION.
O: FOR HIGHER BURN-UP CALCULATIONS
M: NEW REQUEST.

96 CURIUM 244 NEUTRON CAPTURE CROSS SECTION

1672 25.3 MV 10.0 MEV 20. % 3 JAP M.YADA NFI 762031
A: 10 PER CENT ACCURACY FOR 25 MV.
20 PER CENT ACCURACY FOR HIGHER ENERGY REGION.
O: FOR HIGHER BURN-UP CALCULATIONS
M: NEW REQUEST.

APPENDICES

Review Reports by INDC and NEANDC

The two technical subcommittees of the International Nuclear Data Committee (INDC), the Subcommittee on Nuclear Standard Reference Data and the Subcommittee on Discrepancies in Important Nuclear Data and Evaluations have assumed a continuing responsibility for the review of particularly important nuclear data. The Nuclear Energy Agency Nuclear Data Committee (NEANDC) has a similar Subcommittee on Standard Reference Data and Discrepancies with reviewing responsibilities similar to those of the two INDC Subcommittees. These Subcommittees of INDC and NEANDC cooperate in establishing and updating a common file of review reports.

The following quantities requested in WRENDA are under review by INDC and/or NEANDC:

Quantity	Reviewed by: INDC	NEANDC
$H(n,n)$	x	x
$^{6}Li(n,\alpha)$	x	x
$^{10}B(n,\alpha)$	x	x
$^{12}C(n,n)$	x	x
$^{197}Au(n,\gamma)$	x	x
$^{235}U(n,f)$	x	x
^{252}Cf-N(E)	x	x
$^{252}Cf - \bar{\upsilon}$	x	x
$T_{1/2}$ of ^{233}U, ^{235}U, ^{238}Pu, ^{241}Pu	x	-
$T_{1/2}$ of ^{239}Pu	x	x
Thermal parameters (^{233}U, ^{235}U, ^{239}Pu, ^{241}Pu thermal fission cross sections, $\bar{\upsilon}$ and η)	x	x

Quantity	Reviewed by: INDC	NEANDC
^{239}Pu (n,f) (> 100 eV), ^{238}U (n,f) (above threshold), $^{239}Pu/^{235}U$ and $^{238}U/^{235}$ U fission cross section ratios	x	-
^{239}Pu(n,f) (15 eV - 100 keV),	-	x
^{233}U(n,f) (100 keV - 10 MeV,	-	x
$^{239}Pu/^{235}U$ and $^{233}U/^{235}U$ fission cross section ratios	-	x
^{238}U(n,f) and $^{238}U/^{235}U$ fission cross section ratio (threshold - 20 MeV)	-	x
^{238}U(n,γ) and ^{238}U(n,γ)/^{235}U (n,f) ratio (> 100 eV)	x	-
^{238}U (n,γ) (1 keV - 1 MeV) and resolved resonance parameters	x	x
α-values for ^{235}U and ^{239}Pu (> 100 eV)	x	-
Resonance parameter data of ^{235}U and ^{239}Pu	x	-
Resonance parameter data of ^{238}U	x	x
$\bar{\nu}$-values for ^{235}U, ^{238}U and ^{239}Pu	x	x
^{238}U (n,n')	x	-
^{238}U(n,n') (particularly for 45 keV state and for energy range 1-3 MeV)	-	x

Quantity	Reviewed by INDC	Reviewed by NEANDC
$\sigma_{n\gamma}$ of Cr, Fe and Ni ($>$100 eV)	x	x
^{23}Na capture and total cross sections in 3 keV resonance	x	-
Γ_γ for 2.85keV resonance in ^{23}Na	-	x
Energy spectrum of fission neutrons of ^{235}U, ^{238}U and ^{239}Pu	x	-
Fission product nuclear data	x	-
Transactinium isotope nuclear data (TND)	x	-
Reactor dosimetry cross sections	x	-
Discrepancies and gaps in major CPND for fusion, (D,T), (T,T), etc.	x	-
Delayed neutron emitters: ^{232}Th, ^{233}U, ^{235}U, ^{238}U, ^{239}Pu, ^{240}Pu, ^{241}Pu	x	-
Delayed neutron yield for ^{238}U (2-3 MeV)	-	x

When requests for these quantities appear in WRENDA, under status comments, reference is made to the fact that these quantities are under review so that anyone interested in these quantities can get the latest information by obtaining the appropriate review. Exceptions to this are requests for fission product and transactinium isotope nuclear data. Since the requests for these data are so numerous it has been decided to just make the general statement that these data are under continuous review by INDC and to omit reference to such review from the request list.

Requests for the latest information on quantities under review should be sent to Dr. J.J. Schmidt, INDC Scientific Secretary, Nuclear Data Section, International Atomic Energy Agency, P.O.Box 590, A-1011 Vienna, Austria.

LIST OF COUNTRY CODES

Appendix B

ARG	ARGENTINA
AUL	AUSTRALIA
AUS	AUSTRIA
BAN	BANGLA DESH
BLG	BELGIUM
BUL	BULGARIA
BZL	BRAZIL
CAN	CANADA
CCP	SOVIET UNION
DDR	GERMAN DEMOCRATIC REPUBLIC
DEN	DENMARK
EUR	COMMISSION OF THE EUROPEAN COMMUNITIES
FR	FRANCE
GER	FEDERAL REPUBLIC OF GERMANY
HUN	HUNGARY
IND	INDIA
ISL	ISRAEL
ITY	ITALY
JAP	JAPAN
NED	NETHERLANDS
NOR	NORWAY
POL	POLAND
RUM	ROMANIA
SAF	REPUBLIC OF SOUTH AFRICA
SF	FINLAND
SWD	SWEDEN
SWT	SWITZERLAND
TUK	TURKEY
UK	UNITED KINGDOM
UNO	UNITED NATIONS ORGANIZATION
USA	UNITED STATES
YUG	YUGOSLAVIA
ZZZ	INTERNATIONAL ORGANIZATION

LIST OF LABORATORY CODES

ABD	US ARMY ABERDEEN RESEARCH AND DEVEL. CENT., ABERDEEN, MD.	USA
AE	AKTIEBOLAGET ATOMENERGI, STUDSVIK	SWD
AEC	ENERGY RESEARCH & DEVELOP. ADMIN., WASHINGTON, DC	USA
AI	ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA	USA
AKA	ASEA-ATOM, VAESTERAS	SWD
ALD	UK AWRE, ALDERMASTON	UK
ALK	ALKEM GMBH, LEOPOLDSHAFEN	GER
ANC	AEROJET NUCLEAR CORP., IDAHO FALLS, IDAHO	USA
ANL	ARGONNE NATIONAL LABORATORY, LEMONT, ILLINOIS	USA
ARL	AEROSPACE RES.LABS, WRIGHT-PATTERSON AIR-FORCE BASE, OHIO	USA
ATI	ATOMINST. DER OESTERREICHISCHEN HOCHSCHULEN, VIENNA	AUS
AUA	AUSTRALIAN AEC RESEARCH ESTABLISHMENT, LUCAS HEIGHTS	AUL
AUB	AUBURN UNIVERSITY, ALABAMA	USA
AUW	ANDRAH U., NUCLEAR RESEARCH LAB., WALTAIR	IND
BAC	BULGARIAN ACADEMY OF SCIENCES, SOFIA	BUL
BET	WESTINGHOUSE, BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.	USA
BIR	UNIVERSITY OF BIRMINGHAM, ENGLAND	UK
BNL	BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK	USA
BNW	BATTELLE NORTHWEST LABORATORY, RICHLAND, WASHINGTON	USA
BOL	COMISION NACIONAL DE ENERGIA ATOMICA, BOLOGNA	ITY
BOR	BORDEAUX UNIVERSITY	FR
BRC	CEN BRUYERE LE CHATEL	FR
BRK	UNIVERSITY OF CALIFORNIA, LAWRENCE BERKELEY LAB. BERKELEY	USA
BUC	INSTITUTE FOR ATOMIC PHYSICS, BUCHAREST	RUM
BUQ	BISHOP'S UNIVERSITY, QUEBEC	CAN
CAD	CADARACHE, BOUCHES-DU-RHONE	FR
CAS	CENTRO DI STUDI NUCLEARI DELLA CASACCIA, ROME	ITY
CCP	SOVIET UNION	CCP
CNA	CEKMECE NUCLEAR RESEARCH CENTER, ISTANBUL	TUK
COL	COLUMBIA UNIVERSITY, NEW YORK CITY, NEW YORK	USA
CRC	CHALK RIVER NUCLEAR LABORATORIES, ONTARIO	CAN
CSE	CASE INSTITUTE OF TECHNOLOGY, CLEVELAND, OHIO	USA
CUL	CULHAM LABORATORY, UNITED KINGDOM	UK
DEB	ATOMMAG KUTATO INTEZET, DEBRECEN	HUN
DKE	DUKE UNIVERSITY, DURHAM, NORTH CAROLINA	USA
DRF	DOW CHEMICAL COMPANY, ROCKY FLATS, COLORADO	USA
DUB	JOINT INSTITUTE FOR NUCLEAR RESEARCH, DUBNA	ZZZ
FAR	CEA FONTENAY-AUX-ROSES, SEINE	FR
FE	FUJI ELECTRIC	JAP
FEI	FIZIKO-ENERGETICHESKIJ INSTITUT, OBNINSK	CCP
FOA	RESEARCH INSTITUTE OF NATIONAL DEFENSE, STOCKHOLM	SWD
FRK	J.W.GOETHE UNIVERSITY, FRANKFURT	GER
GA	GENERAL ATOMIC, SAN DIEGO, CALIFORNIA	USA
GAC	INSTITUTE FOR GEO- AND ANALYTIC CHEMISTRY, MOSCOW	CCP
GEB	GENERAL ELECTRIC, BRDO, SUNNYVALE, CALIF.	USA
GEL	B.C.M.N. EURATOM, GEEL	EUR
GEV	GENERAL ELECTRIC CO., VALLECITOS, CALIF.	USA
GIT	GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, GEORGIA	USA
GLS	UNIVERSITY OF GLASGOW, SCOTLAND	UK
GOE	UNIVERSITY OF GOETTINGEN	GER
GRE	CEA AND UNIVERSITY, GRENOBLE	FR
GRT	GULF RADIATION TECHNOLOGY, SAN DIEGO, CALIFORNIA	USA
HAM	INSTITUT FUER EXPERIMENTALPHYSIK, HAMBURG	GER
HAR	UK ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL	UK
HED	HANFORD ENGINEERING DEVELOPMENT LAB., RICHLAND, WASH.	USA
HFA	TECHNION HAIFA	ISL
HLS	UNIVERSITY OF HELSINKI	SF
HOK	HOKKAIDO UNIVERSITY	JAP
HRV	HARVARD UNIVERSITY, CAMBRIDGE, MASS	USA
IAE	INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA	UNO

IEN	INSTITUTO DE ENGENHARIA NUCLEAR, RIO DE JANEIRO	BZL
IFU	INSTITUT FIZIKI AN UKRAINSKOI SSR, KIEV	CCP
IIT	ILLINOIS INSTITUTE OF TECHNOLOGY, CHICAGO, ILLINOIS	USA
IJI	INSTITUT JADERNYKH ISSLEDOVANIJ, KIEV	CCP
IRK	INSTITUT FUER RADIUMFORSCHUNG UND KERNPHYSIK, VIENNA	AUS
IRT	INTELCOM RADIATION TECHNOLOGY, SAN DIEGO, CALIF.	USA
JAE	JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI	JAP
JAP	JAPAN	JAP
JUL	KERNFORSCHUNGSANLAGE, JUELICH	GER
JYV	JYVAESKYLAE UNIVERSITY	SF
KAP	KNOLLS ATOMIC POWER LABORATORY, SCHENECTADY, NEW YORK	USA
KFK	KERNFORSCHUNGSZENTRUM, KARLSRUHE	GER
KGU	GOSUDARSTVENNYJ UNIVERSITY, KIEV	CCP
KIG	GKSS, GEESTHACHT	GER
KIL	UNIVERSITY OF KIEL	GER
KKU	KINKI UNIVERSITY ATOMIC ENERGY RESEARCH INSTITUTE	JAP
KOS	KOSSUTH UNIVERSITY, DEBRECEN	HUN
KTO	KYOTO UNIVERSITY	JAP
KTY	UNIVERSITY OF KENTUCKY, LEXINGTON, KENTUCKY	USA
KUR	I.V. KURCHATOV ATOMIC ENERGY INST., MOSCOW	CCP
KYU	KYUSHU UNIVERSITY, FUKUOKA	JAP
LAS	LOS ALAMOS SCIENTIFIC LABORATORY, NEW MEXICO	USA
LOU	UNIVERSITY OF LODZ, LODZ	POL
LRL	LAWRENCE LIVERMORE LABORATORY, LIVERMORE, CALIFORNIA	USA
LTI	LOWELL TECHNOLOGICAL INSTITUTE, LOWELL, MASS.	USA
MAP	MITSUBISHI A.P.I., INC.	JAP
MCM	MCMASTER UNIVERSITY, HAMILTON, ONTARIO	CAN
MGT	MICHIGAN TECHNOLOGICAL UNIVERSITY	USA
MHG	UNIVERSITY OF MICHIGAN	USA
MIT	MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.	USA
MND	MOUND LABORATORY, MIAMISBURG, OHIO	USA
MOL	C.E.N., MOL	BLG
MTR	IDAHO NUCLEAR CORP., IDAHO FALLS, IDAHO	USA
MUA	MUSLIM UNIVERSITY, ALIGARH	IND
MUN	TECH. HOCHSCHULE, MUENCHEN	GER
NBS	NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.	USA
NDC	NEA NUCLEAR DATA COMPILATION CENTER, SACLAY, FRANCE	ZZZ
NEL	U.S. ARMY NUCLEAR EFFECTS LABORATORY, ABERDEEN, MARYLAND	USA
NEU	UNIVERSITY OF NEUCHATEL	SWT
NFI	NUCLEAR FUEL INDUSTRIES	JAP
NIG	NIPPON ATOMIC INDUSTRY GROUP	JAP
NPL	NATIONAL PHYSICAL LABORATORY, TEDDINGTON	UK
NRD	U.S. NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO	USA
NYU	NEW YORK UNIVERSITY, NEW YORK CITY	USA
OHO	OHIO UNIVERSITY, ATHENS, OHIO.	USA
ORE	UNIVERSITY OF OREGON, EUGENE, OREGON	USA
ORL	OAK RIDGE NATIONAL LABORATORY, TENNESSEE	USA
OSL	UNIVERSITY OF OSLO	NOR
PAD	UNIVERSITY OF PADUA	ITY
PAR	UNIVERSITY OF PARIS (INCL.ORSAY) PARIS	FR
PEL	AE BOARD, PELINDABA, PRETORIA	SAF
PNC	POWER REACTOR AND NUCLEAR FUEL DEV. CORP., TOKAI-MURA	JAP
PTN	PRINCETON UNIVERSITY, PRINCETON, N.J.	USA
RAM	ATOMIC ENERGY CENTRE, RAMNA, DACCA	BAN
RCN	REACTOR CENTRUM NEDERLAND, PETTEN	NED
REH	REHOVOTH LAB., ISRAEL AEC.	ISL
RI	KHLOPIN RADIUM INSTITUTE, LENINGRAD	CCP
RIS	RISO, ROSKILDE	DEN
RL	RICHLAND OPERATIONS OFFICE, RICHLAND, WASHINGTON	USA
ROS	ROSSENDORF BEI DRESDEN	DDR

RPI	RENNSELAER POLYTECHNIC INSTITUTE, TROY, NEW YORK	USA
RUM	ROMANIA	RUM
SAC	C.E.N. SACLAY, GIF-SUR-YVETTE	FR
SAE	SUMITOMO ATOMIC ENERGY INDUSTRIES, LTD., TOKYO	JAP
SAI	SCIENTIFIC APPLICATIONS INC., LA JOLLA, CALIFORNIA	USA
SAS	UNIV. OF SASKATCHEWAN, SASKATOON	CAN
SGA	OEST.STUDIENGES.F.ATOMENERGIE, VIENNA	AUS
SOR	SOREQ RESEARCH CENTER, YAVNE	ISL
SRE	SIEMENS REAKTORENTWICKLUNG, ERLANGEN	GER
SRL	SAVANNAH RIVER LABORATORIES, AIKEN, S.C.	USA
SUN	SOUTHERN UNIVERSITIES NUCLEAR INST., FAURE, CAPE PROV.	SAF
SWD	SWEDEN	SWD
THD	TECH. HOCHSCHULE, DARMSTADT	GER
TIT	TOKYO INSTITUTE OF TECHNOLOGY	JAP
TNC	TEXAS NUCLEAR CORPORATION, AUSTIN, TEXAS	USA
TOS	TOSHIBA RESEARCH AND DEVELOPMENT CENTER	JAP
TRM	BHABHA ATOMIC RESEARCH CENTRE, TROMBAY	IND
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USP	UNIVERSITY OF SAO PAULO, SAO PAULO	BZL
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HE	2	HELIUM	RB	37	RUBIDIUM	HF	72	HAFNIUM
LI	3	LITHIUM	SR	38	STRONTIUM	TA	73	TANTALUM
BE	4	BERYLLIUM	Y	39	YTTRIUM	W	74	TUNGSTEN
B	5	BORON	ZR	40	ZIRCONIUM	RE	75	RHENIUM
C	6	CARBON	NB	41	NIOBIUM	OS	76	OSMIUM
N	7	NITROGEN	MO	42	MOLYBDENUM	IR	77	IRIDIUM
O	8	OXYGEN	TC	43	TECHNETIUM	PT	78	PLATINUM
F	9	FLUORINE	RU	44	RUTHENIUM	AU	79	GOLD
NE	10	NEON	RH	45	RHODIUM	HG	80	MERCURY
NA	11	SODIUM	PD	46	PALLADIUM	TL	81	THALLIUM
MG	12	MAGNESIUM	AG	47	SILVER	PB	82	LEAD
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SI	14	SILICON	IN	49	INDIUM	PO	84	POLONIUM
P	15	PHOSPHORUS	SN	50	TIN	AT	85	ASTATINE
S	16	SULFUR	SB	51	ANTIMONY	RN	86	RADON
CL	17	CHLORINE	TE	52	TELLURIUM	FR	87	FRANCIUM
AR	18	ARGON	I	53	IODINE	RA	88	RADIUM
K	19	POTASSIUM	XE	54	XENON	AC	89	ACTINIUM
CA	20	CALCIUM	CS	55	CESIUM	TH	90	THORIUM
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TI	22	TITANIUM	LA	57	LANTHANUM	U	92	URANIUM
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CR	24	CHROMIUM	PR	59	PRASEODYMIUM	PU	94	PLUTONIUM
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FE	26	IRON	PM	61	PROMETHIUM	CM	96	CURIUM
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CU	29	COPPER	GD	64	GADOLINIUM	ES	99	EINSTEINIUM
ZN	30	ZINC	TB	65	TERBIUM	FM	100	FERMIUM
GA	31	GALLIUM	DY	66	DYSPROSIUM	MD	101	MENDELEVIUM
GE	32	GERMANIUM	HO	67	HOLMIUM	NO	102	NOBELIUM
AS	33	ARSENIC	ER	68	ERBIUM	LR	103	LAWRENCIUM
SE	34	SELENIUM	TM	69	THULIUM	KU	104	KURCHATOVIUM
BR	35	BROMINE	YB	70	YTTERBIUM			