LA-5253-MS

INFORMAL REPORT

Compilation of Requests for Nuclear Data

los alamos
scientific laboratory
of the University of California
LOS ALAMOS, NEW MEXICO 87544

UNITED STATES
ATOMIC ENERGY COMMISSION
CONTRACT W-7405-ENG. 36

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Printed in the United States of America. Available from
National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22151
Price: Printed Copy ~~\$3.00~~; Microfiche \$0.95
\$10.60

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LA-5253-MS
Informal Report
USNDC-6
UC-34

ISSUED: June 1973

Compilation of Requests for Nuclear Data

Compiled and edited by

Leona Stewart, Michael S. Moore, and Henry T. Motz

for the

United States Nuclear Data Committee

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I. INTRODUCTION

This report is a working document of the U. S. Nuclear Data Committee. It contains a list of cross-section and related measurements important to the U. S. nuclear energy programs. These requests have originated from various Atomic Energy Commission agencies and contractors, Department of Defense laboratories and contractors, National Aeronautics and Space Administration laboratories and contractors, and other interested groups. Requests have also been received from the Advisory Committee on Reactor Physics (ACRP), the United States Nuclear Data Committee (USNDC), the Defense Nuclear Agency (DNA), and others.

Each request which appears in this compilation has been reviewed by subcommittees of the USNDC. In addition, those requests designated as DRDT and DNA have been reviewed by the ACRP; those designated as DCTR were reviewed by an ad-hoc Committee on Controlled Thermonuclear Research; those designated as DNA were reviewed by individuals designated by the DNA; etc.

Requesters' comments have often been edited to conserve space, hopefully without compromising the intended meaning. Status comments are the responsibility of the working subcommittees of the USNDC although editing was often required before inclusion in the final document. In compiling the status comments, the USNDC assumes that the requester has consulted the published literature and the National Neutron Cross Section Center files for available data listed in CINDA documents which are kept current and are available in all AEC depository libraries. Most references to such published literature have therefore been omitted.

This version* of the request list was produced by computer printout. The computer program was written by Myron L. Stein specifically for the MANIAC at Los Alamos. The present printout is untouched and contains slight notation problems which may be confusing. The MANIAC printer allows only a few Greek characters but it does allow overprinting; therefore Roman letters with a bar over the top are chosen to denote many of the common Greek symbols; for example, $\bar{a}$ is Greek α , $\bar{b}$ is Greek β , $\bar{g}$ is Greek γ , etc. Throughout the tables, capital σ is used for σ due to the obvious similarity between the two.

It should be noted that this reaction list was originally set up to handle neutron interactions but, at a later date, the list was amended to include other incident particles. Therefore, a channel description such as "Elastic" and "Total" always refers to incident neutrons. If a particle other than a neutron is in the incident channel, the specific particle appears under "REACTION" for each request listed.

*Future request compilations will be the responsibility of the National Neutron Cross Section Center at Brookhaven National Laboratory.

Reaction types are, for the most part, in standard notation. These requests are invariably for microscopic data, and dependence on the incident neutron energy is implied. If the request is for the measurement of a cross section as a function of angle or exit particle energy as well as incident energy, this information is given in the column labeled "REACTION TYPE-VARIABLE."

All requests are ordered by Z, A, and then by reaction type according to an ordering scheme which resembles that chosen for ENDF/B. For example, retrievals are easily made on cross sections, angular distributions, energy spectra, etc. The main body of the requests contains requests for nucleon induced reactions and scattering for energies up to 20 MeV (Table 1). Photon-induced requests are in Table 2 and medium energy requests in Table 3. All of the reaction indices are completely described and defined as prefixes to each of these tables.

ACKNOWLEDGMENTS

The editors of this compilation would like to acknowledge the work of Dr. Myron L. Stein who handled all of the computer programming and operations, and to Mrs. Jane Rasmussen, who keypunched the majority of the requests. Mrs. Juanita Gammel has conscientiously and patiently prepared the input and edited the output for this final version. To all of these people, we express our sincere appreciation.

II. PROCEDURES FOR SUBMITTING REQUESTS

Requests for measurements of nuclear data should be transmitted through the appropriate channels to the U. S. Nuclear Data Committee at which time they will be reviewed by the various USNDC subcommittees. All requests should be completely specified and transmitted in the appropriate format, including the requester's comments regarding the importance and application of the request. They should then be submitted in the following manner:

- A. Fission reactor requests should be transmitted to the Advisory Committee on Reactor Physics which will review and set the priority for each such entry. The present chairman is:

Dr. W. H. Hannum, Chief
Division of Reactor Development & Technology
Reactor Physics Branch
U. S. Atomic Energy Commission
Washington, D. C. 20545

- B. DOD requests should be transmitted to the Radiation Physics Division of the Defense Nuclear Agency. The present contact is:

Capt. Dean Kaul, Radiation Transport Project Officer
 HQ, Defense Nuclear Agency, Attn: RARP
 Department of Defense
 Washington, D. C. 20305

- C. Other requests should be transmitted to:

Dr. George A. Kolstad, Assistant Director for Physics & Mathematics Programs
 Division of Physical Research
 U. S. Atomic Energy Commission
 Washington, D. C. 20545

III. PRIORITY ASSIGNMENTS

The exact meaning of "priority" is difficult to assess but the following definitions,^{*} which closely resemble those used by both EANDC and the EACRP, have been adopted by the USNDC:

PRIORITY I. Nuclear data which satisfy the criteria of Priority II and which have been selected for maximum practicable attention taking into account the urgency of nuclear energy program requirements.**

* The priority has been left blank on all requests for fusion reactor data. These fall under the organization listing of the Division of Controlled Thermonuclear Research (DCTR), AEC, Washington.

** For example, the EACRP assigns its highest priorities for reactor measurements as follows:

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

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

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

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

- PRIORITY II. Nuclear data that will be required during the next few years in the applied nuclear energy programs (for example, in data needed to make the best use of reactor fuel and construction materials such as neutron moderators, absorbers, and radiation shields, space and bio-medical applications; data required for better understanding of some significant aspect of reactor behavior).
- PRIORITY III. Nuclear data of more general interest and data required to fill out the body of information needed for nuclear technology.

IV. SCREENING REQUESTS

All fission reactor requests in this report were reviewed by the ACRP; all fusion reactor requests were reviewed by an Ad Hoc Committee for CTR; and the entire list of requests was reviewed by the following members and Subcommittee members of the USNDC in the Fall of 1972:

Standards

R. S. Caswell, NBS, Chrm.
W. W. Havens, Jr., Col.
W. P. Poenitz, ANL
L. Stewart, LASL
B. R. Leonard, Jr., BNW

Elastic and Inelastic Scattering

A. B. Smith, ANL, Chrm.
J. C. Hopkins, LASL
H. Goldstein, Col.
F. G. J. Perey, ORNL

Gamma-ray Production

H. E. Jackson, ANL, Chrm.
H. T. Motz, LASL
R. E. Chrien, BNL
J. K. Dickens, ORNL
V. J. Orphan, IRT

Total Capture Cross Sections

R. L. Macklin, ORNL, Chrm.
R. C. Block, RPI
M. P. Fricke, SAI
W. P. Poenitz, ANL
J. B. Czirr, LLL

Fission

M. S. Moore, LASL, Chrm.
C. D. Bowman, NBS
G. De Saussure, ORNL
R. W. Hockenbury, RPI
E. Melkonian, Col.
J. A. Grundl, NBS

Resonance Parameters, Resonance Integrals, and Total Cross Sections

R. C. Block, RPI, Chrm.
A. D. Carlson, NBS
J. A. Farrell, LASL
W. W. Havens, Jr., Col.
M. H. Kalos, NYU
O. D. Simpson, ANC

Fast Neutron Reactions

H. Alter, AI, Chrm.
D. W. Barr, LASL
D. E. Gardner, LLL
J. L. Brownlee, LLL
G. W. Butler, LASL

V. TABLES WITH DESCRIPTIVE INFORMATION

Preceding Tables 1, 2, and 3 will be the dictionary describing the quantities in the table which follows. The entire request list is contained in these three tables which are described as:

Table 1 contains the measurement requests for low-energy incident particles, that is, neutrons, protons, deuterons, tritons, and ^3He , ^4He , and ^6Li particles;

Table 2 contains the measurement requests for photons incident; and

Table 3 contains the medium-energy measurement requests for incident charged particles.

The requests which have been deleted from the last publication of the request list (NCSAC 35) have been compiled by hand for inclusion in Table 4. One line retrievals sorted on organization are to be found in Table 5. Each organization comprises a subset of Table 5 with names and organizational addresses given on each title page. A word of explanation is necessary since the one-line computer printout may appear to include erroneous requests. In making a search of this nature, only the first line of the particular request is retrieved even though the first requester (A-1 card and request) may not belong to that particular organization. Therefore, when a request appears in Table 5 without the correct organizational listing, one should take that request number and refer back to the main document in order to determine the energy range, priority, and accuracy associated with that specific request.

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TABLE 1. LOW ENERGY REQUESTS FOR INCIDENT NUCLEONS

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
<u>A. NEUTRONS INCIDENT</u>		
Total		Sum of all partial cross sections
Elastic	$\sigma(\theta_n)$	Cross section for the scattering of the incident particle with the center-of-mass energy unchanged
Elas + 1st	$\sigma(\theta_n)$	Elastic plus first excited state cross section
Elas + In	$\sigma(\theta_n)$	Elastic plus "some" inelastic cross section
Tot n Scat	$\sigma(\theta_n)$	All emitted neutrons including elastic
Emission	$\sigma(\theta_{n'})$ $\sigma(E_{n'})$ $\sigma(\theta_{n'}, E_{n'})$ $\sigma(55^\circ, E_{n'})$ $\sigma(90^\circ, E_{n'})$	All emitted neutrons except elastic, that is: $\text{Emission} = \sigma_{n,n'} + 2\sigma_{n,2n} + 3\sigma_{n,3n} + \bar{v}\sigma_{n,f} + \text{etc.}$
Inelastic	$\sigma(\theta_{n'})$ $\sigma(E_{n'})$ $\sigma(\theta_{n'}, E_{n'})$	Total inelastic scattering cross section
$\sigma_{n,n'}$	Isom State	Inelastic scattering to an isomeric state
$\sigma_{n,n'}$	1st State	Inelastic scattering to the first excited state
$\sigma_{n,n'}$	2nd State	Inelastic scattering to the second excited state
$\sigma_{n,n'p}$		Reaction cross section for the emission of n and p

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
$\sigma_{n,n'd}$		Reaction cross section for the emission of n and d
$\sigma_{n,n't}$	$\sigma(\theta_n,)$	Reaction cross section for the emission of n and t
$\sigma_{n,n'3\alpha}$		Cross section for the $^{12}\text{C}(n,n'3\alpha)$ reaction
$\sigma_{n,2n}$		Total cross section for the (n,2n) reaction
$\sigma_{n,2n}$	Isom State	Partial (n,2n) cross section to an isomeric state
$\sigma_{n,2n}$	Act	Activation cross section for the (n,2n) reaction
$\sigma_{n,3n}$		Total (n,3n) cross section
$\sigma_{n,3n}$	Act	Activation cross section for the (n,3n) reaction
$\sigma_{n,4n}$		Total (n,4n) cross section
$\sigma_{n,\bar{g}}$		$(\sigma_{n,\gamma})$ Total radiative capture cross section
$\sigma_{n,\bar{g}}$	Act	Activation cross section for the (n, γ) reaction
$\sigma_{n,\bar{g}} \text{ wrt}$	$\sigma_{n,f} \text{Pu}^{239}$	Relative measurement with respect to Pu^{239} fission
$\sigma_{n,p}$		Total (n,p) cross section
$\sigma_{n,p}$	Act	Activation cross section for the (n,p) reaction
$(n,p)\text{Li}^9$	$\bar{b}^- \rightarrow \text{Be}^{9*} \rightarrow n$	The $\text{Be}^9(n,p)\text{Li}^9$ reaction which β decays to an excited state in Be^9 , which then emits a neutron
$(n,p)\text{N}^{17}$	$\bar{b}^- \rightarrow \text{O}^{17*} \rightarrow n$	The $\text{O}^{17}(n,p)\text{N}^{17}$ reaction which β decays to an excited state in O^{17} which then emits a neutron
$\sigma_{n,d}$		Total (n,d) cross section
$\sigma_{n,t}$		Total (n,t) cross section

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
Tot $\bar{\alpha}$ Prod		Total α production cross section; for example, for B^{10} , this would be $\sigma_{n,\alpha_0} + \sigma_{n,\alpha_1} + 2\sigma_{n,t2\alpha} + 2\sigma_{n,2n} + 2\sigma_{n,n'd}$
$\sigma_{n,\bar{a}}$		Total (n,α) cross section
$\sigma_{n,\bar{a}}$	Act	Activation cross section for the (n,α) reaction
$\sigma_{n,\bar{a}}$ Ratio	wrt B^{10}	Measurement of the $Li^6(n,\alpha)$ relative to B^{10}
$\sigma_{n,\bar{a}}$	1st	The $B^{10}(n,\alpha_1\gamma)$ cross section (separate α_0 and α_1)
$\sigma_{n,\bar{ag}}$	$E_g^- = 480 \text{ keV}$	The $B^{10}(n,\alpha_1\gamma)$ cross section (detect the 480-keV γ)
Tot $\bar{g}$ Prod	$\sigma(\theta_g^-)$ $\sigma(E_g^-)$ $\sigma(\theta_g^-, E_g^-)$ $\sigma(55^\circ, E_g^-)$ $\sigma(90^\circ, E_g^-)$	Total γ -ray production cross section, including all processes such as inelastic, radiative capture, (n,p) , (n,α) , $(n,2n)$, (n,f) , etc.
$\sigma_{n,n'}(\bar{g}'s)$	$\sigma(\theta_g^-)$	
$\sigma_{n,n'}(\bar{g}_1)$	$\sigma(\theta_g^-)$	
		A specific γ (or γ 's) which is uniquely identified with inelastic scattering
		A discrete γ -ray associated with the deexcitation of the first excited state of the target. In most cases of interest, the excitation and deexcitation cross sections are identical.

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
Absorption		Usually specified as $\sigma_{n,\gamma} + \sigma_{n,f}$ but here includes $\sigma_{n,p} + \sigma_{n,d}$ etc
$\sigma_{abs} - \sigma_{n,f}$	no n exit	$\sigma_{n,p} + \sigma_{n,d} + \text{etc.}$
Destruct	of target	All cross sections in which the target is consumed
$\sigma_{n,f}$		Cross section for all processes accompanied by fission
$\sigma_{n,f}$ Ratio	wrt H, B ¹⁰	The fission cross section ratio to hydrogen scattering or B ¹⁰ as the reference standard
Fis Ratio	wrt U ²³⁵	Ratio measurements of fission cross section relative to U ²³⁵
Fis Ratio	wrt Pu ²³⁹	Ratio measurements of fission cross section relative to Pu ²³⁹
$\sigma_{n,f} + \sigma_{n,g}$	at 77° K	Absorption cross section averaged over a spectrum represented by a Maxwellian with temperature 77° K
Eta		Number of neutrons per nonelastic collision
Alpha		Ratio of the capture to fission cross section
Nu Bar		Average number of fission neutrons emitted per fission
Nu Bar	Prompt	Average number of prompt fission neutrons per fission
Nu Bar	Delayed	Average number of delayed fission neutrons per fission
Fis. Spect	$P(E_n,)$	Energy spectrum of the fission neutrons produced by fission
Cap Spect	$P(E_g-)$	Energy spectrum of the γ 's produced in radiative capture
Prompt n Y	$P(E_n,)$	Energy spectrum of the prompt neutrons
Delayd n Y	$P(E_n,)$	Energy spectrum of the delayed neutrons

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
Fis n Y	$P(E_n)$	Energy spectrum of the fission neutrons (prompt plus delayed)
Tot f Y		Total fission yield
Prompt f Y		Prompt fission yield
Delayd f Y		Delayed fission yield
Fis $\bar{g}$ Y	$P(E_g)$	Fission gamma spectrum (total)
Prompt $\bar{g}$ Y	$P(E_g)$	Prompt gamma spectrum
Delayd $\bar{g}$ Y	$P(E_g)$	Delayed gamma spectrum
Delayd $\bar{g}$ Y	$P(E_g, T^{1/2})$	Time dependent delayed gamma spectrum
Fis Prod Y	of Xe^{135}	Average number of Xe^{135} produced per fission
Fis Prod Y	of Cs^{137}	Average number of Cs^{137} produced per fission
Fis Prod Y	of Nd^{147}	Average number of Nd^{147} produced per fission
Fis Prod Y	of Sm^{149}	Average number of Sm^{149} produced per fission
Polariz	$P(\theta_n)$	Vector polarization produced in neutron elastic scattering
Res Par		All resonance parameters
Res Int		Resonance Integral
Res Int	Capture	Resonance radiative capture integral
J, π		Spin and parity
$\bar{G}$		Total level width

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
$\bar{G}_n$		Neutron level width
$\bar{G}_f$		Fission level width
$\bar{G}_g$		Radiative capture level width
$\bar{G}_p$		Proton level width
$\bar{G}_a$		Alpha level width
$\bar{G}_n$ and $\bar{G}_g$		Neutron and radiative capture widths
$\bar{G}_f$ and $\bar{G}_n$		Fission and neutron widths
$\bar{G}_g$ and $\bar{G}_f$		Radiative capture and fission widths
 <u>B. PROTONS INCIDENT</u>		
$\sigma_{p,n}$		Cross section for the (p,n) reaction
$\sigma_{p,\bar{a}}$		Cross section for the (p, α) reaction
$\sigma_{p,n'p}$		Cross section for the (p,n'p) reaction
$(p,p')Li^6$	$d + \bar{a}$	$Li^6(p,p')Li^{6*}$ reaction which decays via $(d + \alpha)$
$(p,d)Be^8$	$2\bar{a}$ decay	$Be^9(p,d)Be^8$ reaction which decays via 2α

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
<u>C. DEUTERONS INCIDENT</u>		
$\sigma_{d,n}$		Cross section for the (d,n) reaction
$\sigma_{d,n}$	$\text{He}^3 + \bar{a}$	$\text{Li}^6(d,n)\text{Be}^7$ reaction which decays via $(\text{He}^3 + \alpha)$
$\sigma_{d,p}$		Cross section for the (d,p) reaction
$\sigma_{d,p}$	$t + \bar{a}$	$\text{Li}^6(d,p)\text{Li}^7$ reaction which decays via $(t + \alpha)$
$\sigma_{d,n'p}$		Cross section for the (d,n'p) reaction
$\sigma_{d,a}$		Cross section for the (d, α) reaction
$(d,d')\text{Li}^{6*}$	$d + \bar{a}$	$\text{Li}^6(d,d')\text{Li}^{6*}$ reaction which decays via $(d + \alpha)$
<u>D. TRITONS INCIDENT</u>		
t,d		Cross section for the (t,d) reaction
$t,2n$		Cross section for the (t,2n) reaction
$(t,p)\text{Li}^8$	$\bar{b}^- \rightarrow 2\bar{a}$	$\text{Li}^6(t,p)\text{Li}^8$ reaction which β^- decays to Be^8 and then 2α 's are emitted
$(t,n)\text{Be}^8$	$2\bar{a}$ decay	$\text{Li}^6(t,n)\text{Be}^8$ reaction where 2α 's are emitted promptly

TABLE 1. (cont.)

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
<u>E. He's INCIDENT</u>		
${}^3\text{He}, p$		Cross section for the $({}^3\text{He}, p)$ reaction
$({}^3\text{He}, p)$	$2\bar{a}$ decay	$\text{Li}^6({}^3\text{He}^3, p)$ reaction which leads to the emission of 2α 's
$({}^3\text{He}, d)$		Cross section for the $({}^3\text{He}, d)$ reaction
$({}^3\text{He}, n)\text{B}^8$	$\bar{b}^+ \rightarrow 2\bar{a}$	$\text{Li}^6({}^3\text{He}^3, n)\text{B}^8$ reaction which β^+ decays to Be^8 and then 2α 's are emitted
<u>F. α's INCIDENT</u>		
$\sigma_{\bar{a}, n}^-$		Cross section for the (α, n) reaction
$\sigma_{\bar{a}, p}^-$		Cross section for the (α, p) reaction
$(\bar{a}, \bar{a}')\text{Li}^{6*}$	$d + \bar{a}$	$\text{Li}^6(\alpha, \alpha')\text{Li}^{6*}$ reaction which decays by $(d + \alpha)$
<u>G. Li^6 PARTICLES INCIDENT</u>		
${}^6\text{Li} + {}^6\text{Li} \rightarrow$	${}^7\text{Be} + {}^4\text{He} + n$	Cross section for the production of Be^7 , α , and n

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG.		
1	$^1_1\text{H}^1$	Elastic	$\sigma(e_n)$	I			*	2					NDC	Gaswell	DPR	72
					REQ COM: For use as standard, 2 percent accuracy.											72
					* At three energies, 7,10, and 20 MeV suggested.											72
					STATUS: No active work,											72
2	$^1_1\text{H}^2$	Elastic		I	*****											72
					1=	1		<2					BET	Payard	DNR	72
					REQ COM: None,											72
					STATUS: RPI data 1 keV and above,											72
3	$^1_1\text{H}^2$	$\sigma_{p,n}p$														72
																72
																72
					REQ COM: To estimate feasibility of fusion chain reactions,											72
					STATUS: No active work,											72
4	$^1_1\text{H}^3$	Elastic	$\sigma(e_n)$	II	*****											65
							14				10		LASL	Motz	DMA	65
					REQ COM: Absolute values required,											65
					STATUS: No active work,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
5	$^1_1\text{H}^3$	$\sigma_{n,2n}$		III			12.5			10			LASL Motz	DMA	65
					REQ COM: Absolute cross section required,										65
					STATUS: No active work,										72
6	$^1_1\text{H}^3$	$\sigma_{p,n}$				1.5-15				<25	ORNL McNally	DCTR		72	
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72
7	$^1_1\text{H}^3$	$\sigma_{t,2n}$				10-	10				<25	ORNL McNally	DCTR	72	
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72
8	$^2_1\text{He}^3$	$\sigma_{n,p}$		II		10-	3	1					GGA Nordheim	DRDT	69
				II		10-	3	1					LMFB Hemmig-AEC	DRDT	69
				II		1-	3	3					NDC Caswell	DPR	69
				II		100-	3	3					LASL Diven	DMA	69
				II			3-10		5				LASL Diven	DMA	69
					REQ COM: For use as secondary standard,										69
					Intermediate accuracy useful,										69
					Absolute values required,										69
					STATUS: GGA Costello ⁺ , 0.3-1.1 MeV; accuracy 10 percent.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG		
9	${}^3_2\text{He}$	$\sigma_{t,d}$				100=	10					<25	ORNL McNally	DCTR	72	
						REQ COM: To estimate feasibility of fusion chain reactions,										72
						STATUS: No active work,										72
10	${}^4_2\text{He}$	$\sigma_{d,n'p}$					3.3-15					<25	ORNL McNally	DCTR	72	
						REQ COM: To estimate feasibility of fusion chain reactions,										72
						STATUS: No active work,										72
11	${}^7_3\text{Li}$	Tot $\bar{E}$ Prod	$\sigma(E_n)$	II I		250±10				15*	1	SNPO Fleishman	DSNS	69		
							4-10			15*		SNPO Fleishman	DSNS	69		
						REQ COM: *Accuracy 15 percent or 5 mb whichever greater.										69
						Absolute $\sigma(E_n)$ required for all $E_n > 200$ keV,										69
						Neutron energy intervals required:										69
						Res. regions: reproduce major variations in $\sigma(E_n)$										69
						>1MeV: 500-keV intervals.										69
						Gamma-energy resolution required:										69
						<2.5MeV, 10 percent; >2.5MeV, 250 keV.										69
						STATUS: Frankfurt, Presser+Bass, $E_n=1-9$ MeV,										72
						${}^7\text{Li}(n,n')$ 400-keV $\bar{E}$.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
12	${}^6_3\text{Li}$	Elastic	$\sigma(\theta_n)$	I		1-100		1-	5			NDC	Caswell	DFR	69
					REQ COM: Accuracy 1 to 5 per, to obtain n, alpha to 2 per. $\sigma(\theta)$ may be required at upper end,										69
					STATUS: Asami ⁺ EANDC(JAP)=13L, 1-10 keV, 4 percent.										70
13	${}^6_3\text{Li}$	Elastic	$\sigma(\theta_n)$			~14			15			AEC	Gough	DCTR	71
					REQ COM: Need for shield, magnet cost estimates, CTR,										71
					STATUS: No data to required accuracy,										72
14	${}^6_3\text{Li}$	Emission	$\sigma(\theta_n, E_n)$	I		8-14			≤10			LASL	Mote	DMA	65
					REQ COM: Absolute $\sigma(\theta_n, E_n)$ at several angles required, Include (n,2n) neutrons,										67
					STATUS: No active work,										72
15	${}^6_3\text{Li}$	$\sigma_{n,2n}$		I		8-16			5			LASL	Mote	DMA	66
					REQ COM: Absolute σ 's, coincidence technique required, Needed to determine true energy dependence, Omit 14-MeV point,										66
															66
					STATUS: No active work,										72
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG		
19	${}_3\text{Li}^6$	Tot $\bar{\alpha}$ Prod		II		1-	10				10			HEDL McElroy	DRDT	69
					REQ COM: For use as fluence monitor.											69
					Total helium production for mass spectrometer.											69
					STATUS: No active work.											72
20	${}_3\text{Li}^6$	$(p,p')\text{Li}^6$	$d + \bar{\alpha}$				3-15					<25	ORNL McNally	DOER	72	
					REQ COM: To estimate feasibility of fusion chain reactions.											72
					STATUS: No active work.											72
21	${}_3\text{Li}^6$	$\sigma_{p,\bar{\alpha}}$				100-	15					<25	ORNL McNally	DOER	72	
					REQ COM: To estimate feasibility of fusion chain reactions.											72
					STATUS: No active work.											72
22	${}_3\text{Li}^6$	$\sigma_{d,n}$				100-	5					<25	ORNL McNally	DOER	72	
					REQ COM: To estimate feasibility of fusion chain reactions.											72
					STATUS: No active work.											72
23	${}_3\text{Li}^6$	$\sigma_{d,n}$	$\text{He}^3 + \bar{\alpha}$			100-	5					<25	ORNL McNally	DOER	72	
					REQ COM: To estimate feasibility of fusion chain reactions.											72
					STATUS: No active work.											72

REQ #	TARGET	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	MeV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
24	${}_3\text{Li}^6$	$\sigma_{d,p}$				100-	5					<25	ORNL McNally	DOE	72
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72
25	${}_3\text{Li}^6$	$\sigma_{d,p}$	$t + \bar{e}$			100-	5					<25	ORNL McNally	DOE	72
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72
26	${}_3\text{Li}^6$	$(d,d'){}_3\text{Li}^6$	$d + \bar{e}$				3-6					<25	ORNL McNally	DOE	72
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72
27	${}_3\text{Li}^6$	$\sigma_{d,e}$				100-	5					<25	ORNL McNally	DOE	72
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72
28	${}_3\text{Li}^6$	$(t,n){}_3\text{He}^3$	$2\bar{e}$ decay			10-	2					<25	ORNL McNally	DOE	72
					REQ COM: To estimate feasibility of fusion chain reactions,										72
					STATUS: No active work,										72

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
38	${}^7_3\text{Li}$	Inelastic	$\sigma(E_n)$			Thresh	14			15		AEC	Gough	DCTR	71
					REQ COM: Energy spectra needed to evaluate effect of neut. capture competition between ${}^6\text{Li}$ and resonance absorbers in calculation of tritium breeding ratio, CTR. Also needed to evaluate neutron transport in blanket and shield.										71
					STATUS: No active work,										72
39	${}^7_3\text{Li}$	Emission	$\sigma(\theta_n, E_n)$	I			5-16			10		LASL	Mots	DMA	63
					REQ COM: Spectrum at several angles required,										63
					STATUS: No active work,										72
40	${}^7_3\text{Li}$	$\sigma_{n,2n}$		I			8-16		5			LASL	Mots	DMA	65
					REQ COM: Absolute cross sections required, omit 14-MeV point,										69
					STATUS: No active work,										72
41	${}^7_3\text{Li}$	$\sigma_{n,n't}$					3-14		40			AEC	Gough	DCTR	71
					REQ COM: Present accuracy leads to uncertainty of 0.1 in breeding ratio for CTR, Need 40 percent at 14 MeV										71
					STATUS: Present accuracy is 25 percent at 8 MeV, 15 percent at 14 MeV,										72
															72

STATUS: No active work.	72
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REQ #	TARGET E Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG		
53	$^{5}_{\text{B}}^{10}$	$\sigma_{n,\alpha}$		I		1=	10	1=	5				ANL	Avery	DRDT	69
				I		1=	10	1=	5				LHFB Hennig-AEG	DRDT	69	
				I		1=	1		5				LLL	Howerton	DMA	72
				I		1=	10	1=	5				ORNL	Maiese	DRDT	69
				I		1=	1	2					NDC	Caswell	DPR	69
REQ COM: 1-100 keV, accuracy 1 percent; 3 percent useful, 69																
100-300 keV, accuracy 3 percent; 10 percent useful 69																
0.3-10 MeV, accuracy 5 percent; 10 percent useful, 69																
Needed as standard; absolute σ 's required, DRPT 69																
$\bar{\sigma}_0/\bar{\sigma}_1$ ratio needed for both $\bar{\sigma}$ and $\bar{\sigma}$ detection, 69																
STATUS: GRT Fricke, New measurements, 72																
54	$^{5}_{\text{B}}^{10}$	$\sigma_{n,\alpha}(\bar{\sigma}_1)$	$E_{\alpha} \approx 480 \text{ keV}$	I		1=	10	1=	5				ANL	Avery	DRDT	69
				I		1=	10	1=	5				LHFB Hennig-AEG	DRDT	69	
				I		1=	10	1=	5				ORNL	Maiese	DRDT	69
				I		50=	1	2					NDC	Caswell	DPR	72
REQ COM: 1-100 keV, accuracy 1 percent; 3 percent useful, 69																
100-300 keV, accuracy 3 percent; 10 percent useful 69																
0.3-10 MeV, accuracy 5 percent; 10 percent useful, 69																
Needed as standard; absolute σ 's required, 69																
STATUS: GRT Friesenhahn ⁺ , Gulf-RT-A12210, 4 to 1000 keV, 72																
accuracy 1.5 to 4.5 percent, 72																
HAR Coates ⁺ preliminary data from $\sim 1-240 \text{ keV}$. 72																

STATUS: No active work. 72

REQ	TARGET	REACTION TYPE		PRI	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
#	* Z A	QUANTITY	VARIABLE	OR.	eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
68	7 ^N	Tot $\frac{1}{2}$ Prod	$\sigma(\theta_n^*, E_n^*)$	I			8-15			10		AC	Greenhow	DNA	69
				I			8-15			10		AFWL	Enn	DNA	69
				I			8-20			10		LASL	Biggers	DNA	69
				I			9-20			10		LLL	Howerton	DNA	69
				I			8-15			10		NEL	Eccleshall	DNA	70
REQ COM: Must include contributions of continuum gammas															69
Resolution: $\Delta E_n \leq 250$ keV, $\Delta E_\gamma \leq 250$ keV,															69
$\Delta\theta = 5^\circ (5-30^\circ)$ and $10^\circ (>30^\circ)$ or as															69
dictated by anisotropy.															69
STATUS: ORNL, Dickens ⁺ , $\theta_\gamma = 125$ deg, $E_n = 2-20$ MeV															72
in progress,															72
Lund, Nyberg ⁺ , $E_n = 15$ MeV, PS 4, 165 (1971).															72

REQ #	TARGET * Z A	REACTION TYPE QUANTITY VARIABLE	PRI OR.	INCIDENT ENERGY eV keV MeV	PERCENT ACCURACY 1-3 4-9 15 >15	REQUESTER LAB PERSON ORG	YR	
69	80	Elastic $\sigma(\theta_n)$	II	10-	1	5	IRT Preskitt DRDT	69
			I		1-4	4-9	KAPL Ehrlich DNR	69
			I		4-16	3- 5	LMPB Hennig-AEC DRDT	66
			I		4-16	3- 5	ORNL Clifford DRDT	66
			I		8-15	5	AFWL Enz DNA	69
					8-16	5	LASL Biggers DMA	62
				7-15	5	NEL Eccleshall DNA	69	
REQ COM: Needed for fast reactor reflector worths, DRDT, $\Delta\theta = \pm 2.5^\circ$ ($<30^\circ$), $\pm 5^\circ$ ($>30^\circ$), DASA, $\Delta\theta = \pm 1^\circ$ every 5° ($<20^\circ$), $\pm 1.5^\circ$ every 10° ($>20^\circ$), $\Delta E=100$ keV or 10 percent (every 500 keV), DNA,								
STATUS: ORNL Kinney ⁺ , data in range 4.3-8.5 MeV, ORNL-4780								
70	80	Emission $\sigma(\theta_{n'}, E_{n'})$	I		8-15	10	AFWL Enz DNA	69
			III		14	5	IRT Preskitt DRDT	69
			I		7-15	10	NEL Eccleshall DNA	69
REQ COM: Needed for fast reactor reflector worths, DRDT, 250-keV intervals or as dictated by structure, DNA Res: $\Delta E = 100$ keV or 10 percent, DNA, Low-energy (<1 MeV) neutrons must be included, DNA								
STATUS: No active work,								

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
71	80	Absorption		I			10-15		5				AFWL Ens	DNA	66	
				I			8-15		5				LASL Biggers	DNA	66	
					REQ COM: $\Delta E_n = 250$ keV at 250-keV intervals, Filling the energy gap and supporting evidence for $(n, \bar{\alpha}_0)$ likely to suffice; if so, integral of inverse will satisfy.										69	
					STATUS: No active work.										72	
72	80	Tot $\bar{E}$ Prod	$\sigma(\alpha_n, E_n)$	I			10-15			10			LASL Biggers	DNA	62	
													AFWL Ens	DNA	70	
					REQ COM: Absolute cross sections required.										62	
					STATUS: Lund, Nyberg ⁺ , $E_n = 15$ MeV, PS 4, 165.										72	
					ORNL, Dickens ⁺ , $\theta_g = 125$ degrees, $E_n = 6-20$ MeV,										72	
					in progress, also NSE 40, 283, $E_n = 6.7-11$ MeV,										72	
					QRT, Orphan ⁺ , NSE 42, 352, $E_n = 6.4-16.5$ MeV.										72	
73	8017	$\sigma_{\alpha, n}$		II	***** Ths=7 20 KAPL Ehrlich										DNR	72
					REQ COM: Alpha energy resolution 0.1 MeV, For calculation of neutron source strengths										66	
					STATUS: Sample not readily available.										72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
78	${}^9\text{F}$	$\sigma_{n,\bar{e}}$		II		1-	1				10		ORNL Perry	DNBDT	66
					REQ COM: To calculate neutron loss in Molten Salt Breeder,										66
					STATUS: ORNL Macklin has experiment in progress.										70
					FMA Nystrom ⁺ , PS 4 95, (1971), 20-80 keV,										72
79	${}^9\text{F}$	Absorption			Th-	to	14			10		AEC Gough	DOCTR	71	
					REQ COM: Needed for CTR applications using LiF,										71
					STATUS: No active work,										72
80	${}^9\text{F}$	$\sigma_{n,\bar{e}}$		I			9-14			10		LLL Howerton	DMA	69	
					REQ COM: Absolute values at a few energies,										69
					STATUS: Grumpton, NIM 92, 533 (1971),										72
81	${}^{11}\text{Na}$	Total		I		10-	5		3-	5		ORNL Clifford	DNBDT	69	
					REQ COM: Fast reactor deep penetration; 1 percent in valley										69
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
82	$_{11}\text{Na}$	Elastic	$\sigma(\theta_n)$	II			8-15			5			NEL	Eccleshall	DNA	69
					REQ COM: Energy resolution 0.25 MeV, angular res, 3 deg.											69
					Energy intervals 0.5 MeV, angular int, 10 deg,											69
					STATUS: No active work,											72
83	$_{11}\text{Na}$	Inelastic	$\sigma(E_{n'})$	II			2-10			10			AI	Alter	DRDT	62
													ANL	Avery	DRDT	62
													LMFB	Hemmig-AEC	DRDT	69
													WARD	Pitterle	DRDT	72
					REQ COM: Total integral over $k\pi$ required,											62
					Spectra at several angles if signif, anisotropic											62
					ΔE_0 and $\Delta E_{n'} \leq 10$ percent,											62
					STATUS: ORNL Perey ⁺ , ORNL-4518, has results 5.4 to 8.5 MeV											72
84	$_{11}\text{Na}$	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			4-15			10			NEL	Eccleshall	DNA	69
					REQ COM: $\Delta\theta_{n'} = 3^\circ$; $\Delta E_{n'} = 250$ keV.											69
					Energy increments 500 keV, every 10 degrees											69
					STATUS: No active work,											72

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
88	¹³ Al	Elastic	$\sigma(\sigma_n)$	I II			8-16 8-5		5 5				LASL Biggers NEL Eccleshall	DNA DNA	66 69
					REQ COM: $\Delta E_n = 250$ keV, 250-keV intervals or as dictated by structure. $\Delta\theta = \pm 2.5^\circ (<30^\circ)$ and $\pm 5^\circ (>30^\circ)$. Omit 14 MeV point.										69 69 69 69
					STATUS: U. of Ky. Brandenberger has data at 8 and 9 MeV,										72
89	¹³ Al	$\sigma_{n,2n}$					14			10			AEC Gough	DCTR	71
					REQ COM: Accuracy needed to reduce uncertainty in neutron multiplication estimates for CTR,										71 71
					STATUS: No data to required accuracy,										72
90	¹³ Al	$\sigma_{n,2n}$	$\sigma(\sigma_n, E_n)$				14			15			AEC Gough	DCTR	71
					REQ COM: Energy and angular dependence of secondary neutrons needed to calculate neutron transport in blanket and shield, CTR,										71 71 71
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
91	^{13}Al	Inelastic	$\sigma(E_{n_1})$			Ths-	14			15		AEC	Gough	DOE	72
						REQ COM: Needed to calculate neutron transport in blanket and shield, CTR,									71
						STATUS: ORNL Kinney ⁺ data to 8.5 MeV, ORNL-4516.									71
						U. Ky. Brandenberger, data at 8 and 9 MeV,									72
92	^{13}Al	Emission	$\sigma(E_{n_1}, E_{n_1'})$	I II			8-15			10		AFWL	Ens	DNA	69
							8-15			10		NEI	Eccleshall	DNA	69
						REQ COM: $\Delta E_n = 250$ keV at 250 keV intervals, or as dictated by structure,									69
						$\Delta\theta = \pm 2.5^\circ$ ($0-30^\circ$), $\pm 5^\circ$ ($30-180^\circ$) or as dictated by anisotropy,									69
						STATUS: ORNL Kinney ⁺ data to 8.5 MeV, ORNL-4516.									72
						U. Ky. Brandenberger, data at 8 and 9 MeV,									72
93	^{13}Al	$\sigma_{n,\bar{g}}$					14			20		AEC	Gough	DOE	71
						REQ COM: Needed to calculate formation of higher mass isotopes, CTR,									71
						STATUS: No active work,									71
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
94	^{13}Al	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
					REQ COM: Needed for radiation damage estimates, CTR,										71
					STATUS: Partington, Analyst 95, 257 (1970),										72
					Husain, PR U, 1233 (1970),										72
					Salaita, NP A170, 193 (1971),										72
95	^{13}Al	$\sigma_{n,\alpha}$					14				20	AEC	Gough	DCTR	71
					REQ COM: Needed for radiation damage estimates, CTR,										71
					STATUS: LASL Prestwood gets 122.6 $\pm$ 3 mb at 14.1 MeV.										72
96	^{13}Al	$\sigma_{n,n'}(\bar{E}'S)$			Ths-		14			15		AEC	Gough	DCTR	72
					REQ COM: Needed are gamma ray spectra to calculate										71
					heat generation in blanket and shield, CTR,										71
					STATUS: GRT, Orphan ⁺ , Gulf-RT-A10743,										72
					ORNL, Linac+NaI $E_n=1-20$ MeV in progress,										72
					FOA Nyberg ⁺ FS 4, 165 (1971), $E_n=15$ MeV,										72
					USSR Kravcov ⁺ , 72 Kiev, Gamma-Spectrum with Ge(Li)										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
97	^{13}Al	Cap Spect	$P(E_\gamma)$	I	Th						10		SNPO Fleishman	DSNS	69
					Th=	res.					15		AEC Gough	DCTR	72
					REQ COM: For shielding calculations, Both line and continuum spectra are required, Needed to calculate heat generation, in blanket and shield, CTR.										69
					STATUS: Stecher-Rasmussen ⁺ , thermal NP A181, 225. Orphan ⁺ , GGA report GA-10248.										72
98	^{13}Al	Tot $\bar{E}$ Prod	$\sigma(E_n)$	II I		5-200					15*		SNPO Fleishman	DSNS	69
							1-10				15*		SNPO fleishman	DSNS	69
					REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater. Absolute $\sigma(E_n)$ required for all $E_n > 200$ keV, Neutron energy intervals required: Res. region: reproduce major variations in $\sigma(E_n)$ > 1 MeV: 500-keV intervals Gamma-energy resolution required: < 2.5 MeV, 10 percent; > 2.5 MeV, 250 keV.										69
					STATUS: GRT Orphan ⁺ , Gulf-RT-10743, Line + Continuum gamma rays, $E_n = 0.86-16.7$ MeV, ORNL, Linac+NaI $E_n = 1-20$ MeV in progress, Dickens, PR G5, 100 (1972), $E_n = 3.53-9.0$ MeV, USSR Kravcov ⁺ , 72 Kiev, Gamma-Spectrum with Ge(Li)										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
99	$^{13}_{\text{Al}}$	$\sigma_{n,p}$	Act	III			5-11,9			10			NEL	Eccleshall	DNA	69
					REQ COM: Resolution in energy 5 per, 500-keV intervals											69
					STATUS: FRK Bass ⁺ Eur 199c have data 6-9 MeV.											72
100	$^{31}_{\text{P}}$	Elastic	$\sigma(\theta_n)$	II			8-15			10			NEL	Eccleshall	DNA	69
					REQ COM: Resolution: energy, 0,25 MeV; angular, 3°.											69
					Increments: energy, 0,5 MeV; angular, 10°.											69
					STATUS: No active work,											72
101	$^{31}_{\text{P}}$	Emission	$\sigma(\theta_n, E_n)$	II			8-15			10			NEL	Eccleshall	DNA	69
					REQ COM: $\Delta E_n = 250$ keV, 500 keV intervals or as dictated,											69
					$\Delta\theta = \pm 2,5^\circ (<30^\circ)$ and $\pm 5^\circ (>30^\circ)$											69
					STATUS: No active work,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG		
102	$_{14}\text{Si}^{30}$	$\sigma_{n,\alpha}$	Act	III	.025	to	15					30	LLL	Howerton	DMA	69
REQ COM: Required is cross section for activation of Si^{31} , in naturally occurring element, Accuracy 30 per if $\sigma > 100$ mb, 50 per if 25 mb $< \sigma < 100$ mb, Accuracy to a factor of 2 if 1 mb $< \sigma < 25$ mb; to a factor of 10 if $\sigma < 1$ mb.																
STATUS: FGA Nystroem ⁺ , PS 4, 95 (1971), 20-80 keV.																
103	$_{16}\text{S}^{34}$	$\sigma_{n,\alpha}$	Act	I	.025	to	15					30	LLL	Howerton	DMA	69
REQ COM: Required is cross section for activation of S^{35} in naturally occurring element, Accuracy 30 per if $\sigma > 100$ mb, 50 per if 25 mb $< \sigma < 100$ mb, Accuracy to a factor of 2 if 1 mb $< \sigma < 25$ mb; to a factor of 10 if $\sigma < 1$ mb.																
STATUS: Kappe, Diss, Abstr, 27B 919 gives thermal value, FGA Nystroem ⁺ , PS 4, 95 (1971), 20-80 keV.																

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	KeV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
104	$^{19}\text{K}^{41}$	$\sigma_{n,\bar{e}}$	Act	II	.025	to	15					30	LLL	Howerton	DMA	69
					REQ COM: Required is cross section for activation of K^{42} in naturally occurring element, Accuracy 30 per if $\sigma > 100$ mb, 50 per if 25 mb $< \sigma < 100$ mb, Accuracy to a factor of 2 if 1 mb $< \sigma < 25$ mb; to a factor of 10 if $\sigma < 1$ mb,											69
					STATUS: Kappe, Diss, Abstr, 27B 919 gives thermal value, Stupogia ⁺ JNE 22, 267. 0, 16-25 MeV, to 10 percent INC Schuman WASH-1127 gives 2keV value, 310 ± 100 mb,											70
																72
																69
105	^{20}Ca	Elastic	$\sigma(\theta_n)$	II			0-15				10		NEL	Eccleshall	DNA	69
					REQ COM: Resolution: Energy 0.25 MeV; angular 3 degrees Intervals: Energy 0.5 MeV; angular 10 degrees.											69
					STATUS: No active work,											72
106	^{20}Ca	Emission	$\sigma(\theta_n, E_n)$	II			0-15				10		NEL	Eccleshall	DNA	69
					REQ COM: Resolution: Energy 0.25 MeV; angular 3 degrees, Increments: Energy 0.5 MeV; angular 10 degrees,											69
					STATUS: No active work,											72

REQ #	TARGET			REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	* Z	A		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
107	20	Ca		Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	II			5-15			10		NEL	Eccleshall	DNA	69
							REQ COM: Need energy spectrum of all gammas, Resolution: 5 per in $E_{\bar{E}}$, 5 degrees in θ , Increments of 0.5 MeV, 10 degrees.										69
							STATUS: ORNL Dickens, $E_n = 4.8-8$ MeV, $\theta_n = 125$ degrees.										72
108	20	Ca ⁴⁴		$\sigma_{n,\bar{E}}$	Act	I	.025	to	15				30	LLL	Howerton	DMA	69

							REQ COM: Required is cross section for activation of Ca ⁴⁵ in naturally occurring element, Accuracy 30 per if $\sigma > 100$ mb, 50 per if 25 mb $< \sigma < 100$ mb, Accuracy to a factor of 2 if 1 mb $< \sigma < 25$ mb, to a factor of 10 if $\sigma < 1$ mb.										69
							STATUS: No active work,										72
109	21	Sc		$\sigma_{n,\bar{E}}$	Act	II		1-	18			10		HEDL	McElroy	DRDT	69
							REQ COM: For use as fluence monitor.										69
							STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
110	22 ^{Ti}	Tot $\bar{\nu}$ Prod	$\sigma(E_{\bar{\nu}})$	II I		1-100					15*		SNPO Fleishman	DSNS	69
							1-10				15*		SNPO Fleishman	DSNS	69
					REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater.										69
					Absolute $\sigma(E_{\bar{\nu}})$ required for all $E_{\bar{\nu}} > 200$ keV.										69
					Neutron Energy intervals required:										69
					Res. region: reproduce major variations in $(E_{\bar{\nu}})$										69
					> 1 Mev: 500-keV intervals										69
					Gamma-energy resolution required:										69
					<2.5MeV, 10 percent; >2.5MeV, 250keV.										69
					STATUS: ORNL Dickens, $E_n=5-6$ MeV in progress.										72
111	22 ^{Ti}	Tot $\bar{\nu}$ Prod	$\sigma(\theta_{\bar{\nu}}, E_{\bar{\nu}})$	I		10-	16				20		ORNL Clifford	DRDT	69
					REQ COM: Needed for space reactor shielding.										69
					STATUS: ORNL Dickens, $E_n=5-6$ MeV in progress.										72
112	22 ^{Ti}	Tot $\bar{\nu}$ Prod	$\sigma(\theta_{\bar{\nu}}, E_{\bar{\nu}})$	III			4-14				20		GDFW Western	DNA	63
					REQ COM: $\Delta E = \pm 250$ keV at 500-keV intervals										63
					$\Delta\theta = \pm 5^\circ$; $\sigma(\theta)$ only if significantly anisotropic.										63
					STATUS: ORNL Dickens, $E_n=5-6$ MeV in progress.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
113	$^{46}_{22}\text{Ti}$	$\sigma_{n,p}$	Act	II III			1-18 1-12,5			10 10			HEDL McElroy NEL Eccleshall	DRDT DNA	69 69
					REQ COM: Resolution in energy 100 keV, 500-keV intervals For use as a fluence monitor.										69 69
					STATUS: Ghorai, JNE 25, 319 (1971). ANL Meadows has measurements $\lambda=6$ MeV,										72 72
114	$^{47}_{22}\text{Ti}$	$\sigma_{n,p}$	Act	II III			>1 1-15			10 *			HEDL McElroy NEL Eccleshall	DRDT DNA	69 69
					REQ COM: Resolution in energy 100 keV, 1-MeV intervals * For $\sigma > 5$ mb, $\Delta\sigma = 2,5$ mb. For use as fluence monitor.										69 69 69
					STATUS: ANL Meadows, NCSAC-42, 10 (1972), Ghorai, JNE 25, 319 (1971).										72 72
115	$^{48}_{22}\text{Ti}$	$\sigma_{n,p}$	Act	II II III			>1 3,2-10 3-12,5			10 10		20	HEDL McElroy KAPL Ehrlich NEL Eccleshall	DRDT DNR DNA	69 69 69
					REQ COM: Resolution in energy 100 keV, 500-keV intervals, For use as fluence monitor, activation analysis.										69 69
					STATUS: Ghorai, JNE 25, 319 (1971). ANL Meadows ⁺ has measurements 4.5-6 MeV,										72 72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
116	^{23}V	Elastic	$\sigma(\theta_n)$	III			1.4-10			10		ANL Avery DMDT LMFB Hemmig-AEC DRDT	62 62		
					REQ COM: Resolution $\Delta E_n = 500 \text{ keV}$, $\Delta\theta = 10^\circ$								62		
					STATUS: ANL results to 3.8 MeV, PR 01, 581 (2/70), AE Holmquist data to 8.0 MeV, AE-430.								72 72		
117	^{23}V	$\sigma_{n,2n}$				14		10		AEC Gough	DCTR	71			
					REQ COM: Accuracy needed to reduce uncertainty in neutron multiplication estimates for CTR,								71 71		
					STATUS: No data to required accuracy,								72		
118	^{23}V	$\sigma_{n,2n}$	$\sigma(\theta_n, E_n)$			14		15		AEC Gough	DCTR	71			
					REQ COM: Energy and angular dependence of secondary neutrons needed to calculate neutron transport in blanket and shield, CTR,								71 71 71		
					STATUS: No active work,								72		

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
119	23 ^V	Inelastic	$\sigma(E_n)$	III			1.5-10				15	ANL	Avery	DRDT	62
												GE	Snyder	DRDT	62
												LMFB	Hennig-AEC	DRDT	62
					REQ COM: Total integral over E_n required, Spectra at several angles if significantly anisotropic										62
					STATUS: AE Almen ⁺ , 2 to 4.5 MeV, Helsinki Conf, II, p. 349										72
120	23 ^V	Inelastic	$\sigma(E_n)$			Th=	14			15		AEC	Gough	DCR	72
					REQ COM: Needed to calculate neutron transport in blanket and shield, DCR,										71
					STATUS: AE Almen ⁺ , 2 to 4.5 MeV, Helsinki Conf. II, p. 349										72
121	23 ^V	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCR	71
					REQ COM: Needed to calculate formation of higher mass isotopes, DCR,										71
					STATUS: No active work,										72
122	23 ^V	$\sigma_{n,\bar{e}}$	Act	II	Th					5		AFIT	Dooley	DNA	62
					REQ COM: Activation cross section desired at 0.025 eV										62
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE QUANTITY VARIABLE	PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
				eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
123	23 ^V	$\sigma_{n,p}$				1k				20	AEC	Gough	DCTR	71
				REQ COM: Needed for radiation damage estimates, GTR,										71
				STATUS: No active work,										72
124	23 ^V	$\sigma_{n,\bar{n}}$				1k				20	AEC	Gough	DCTR	71
				REQ COM: Needed for radiation damage estimates, GTR,										71
				STATUS: No active work,										72
125	23 ^V	Absorption	III		1-150				10		ANL	Avery	DRDT	62
											GE	Snyder	DRDT	62
											LHFB	Hennig=AEC	DRDT	62
				REQ COM: Available data inconsistent,										62
				Energy resolution 10 percent,										62
				STATUS: RPI Stieglitz ⁺ , NP A163, 592 (3/71).										72
126	23 ^V	$\sigma_{n,n'}(\bar{g}'s)$			Ths=	1k			15		AEC	Gough	DCTR	72
				REQ COM: Needed are gamma ray spectra to calculate										71
				heat generation in blanket and shield, GTR,										71
				STATUS: AWRE Porter ⁺ , $E_n = 0.3-1$ MeV, AWRE-0-78/70,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
127	²³ V	Cap Spect	P(E _g)		Th-	rez.				15		AEC	Gough	DCTR	71
					REQ COM: Needed to calculate heat generation in blanket and shield, GTR,										71
					STATUS: ORNL Bird ⁺ , ORNL-TM-3379 E _n =20-60 MeV,										72
128	²⁴ Cr	Total		II		1-	20	3				LMFB Hemmig-AEC DRDT		72	
					REQ COM: One percent accuracy in deep minima, Energy resolution sufficient to resolve major structure,										72
					STATUS: No active work,										72
129	²⁴ Cr	Elastic	σ(e _n)	II			2-14		4-9			KAPL Ehrlich	DNR	69	
					REQ COM: Res: 100keV, Δθ = 5°										69
					STATUS: ANL measurements in progress,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
130	^{24}Cr	Inelastic	$\sigma(E_n)$	II		500	-10				10		GE	Snyder	DRDT	66
													LMFB	Hemmig-AEC	DRDT	66
					REQ COM: Total integral over 4π required, Spectra at several angles if significantly anisotropic. Required energy resolution has not been determined											66
					STATUS: No active work,											72
131	^{24}Cr	Inelastic	$\sigma(E_n)$			Ths=	14				15		AEC	Gough	DCTR	72
					REQ COM: Needed to calculate neutron transport in blanket and shield, CTR,											71
					STATUS: No active work,											72
132	^{24}Cr	$\sigma_{n,2n}$					14				10		AEC	Gough	DCTR	71
					REQ COM: Accuracy needed to reduce uncertainty in neutron multiplication estimates for CTR,											71
					STATUS: No active work,											71

[illegible]

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
141	24Cr	Tot $\bar{\nu}$ Prod	$\sigma(E_{\bar{\nu}})$	I	500-	20				15*		SNPO	Fleishman	DSNS	69
				I			1-10		15*		SNPO	Fleishman	DSNS	69	
				II			1-14		15*		NEL	Eccleshall	DNA	70	
				REQ COM: (a) Accuracy 15 per or 5 mb whichever is greater. Absolute $\sigma(E_{\bar{\nu}})$ required for all $E_{\bar{\nu}} > 200$ keV. Neutron Energy intervals required: Res. region: reproduce major variations in $(E_{\bar{\nu}})$ > 1 Mev: 500-keV intervals Gamma-energy resolution required: <2,5MeV, 10 percent; >2,5MeV, 250keV.											
142	24Cr	Tot $\bar{\nu}$ Prod	$\sigma(E_{\bar{\nu}})$	II	up	to	10			10		BET	Bayard	DNR	69
												LMFB	Hemmig-AEC	DRDT	72
REQ COM: The above accuracy (10 percent) is requested, in 0,5 MeV gamma-ray resolution intervals, for shielding calculations.															
STATUS: Degtjarev ⁺ , IZV 35 2341, $E_n=1,0-3,4$ MeV.															

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
143	$^{53}_{24}\text{Cr}$	$\sigma_{\bar{n}}$		II		1-600			4-9			KAPL	Ehrlich	DNR	69
					REQ COM: None.										69
					STATUS: KFK Moeller and Rohr, NP A164, 97 (1971), report J, σ_n for 30 res. in ^{53}Cr from 17 to 250 keV.										72
					KFK Plan measurements on separated isotopes.										72
144	$^{55}_{25}\text{Mn}$	$\sigma_{n,\bar{n}}$		II	Th=	1				10		LLL	Howerton	DMA	66
					REQ COM: Energy dependence of $\sigma_{n,\bar{n}}$ should be well defined.										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
145	25Mn	Tot $\bar{\nu}$ Prod	$\sigma(E_{\gamma})$	I	300-	120				15*	SNPO Fleishman	DSNS	69		
				I			1-10		15*	SNPO fleishman	DSNS	69			
				II			1-14		15*	NEL Eccleshall	DNA	70			
REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater, Absolute $\sigma(E_{\gamma})$ required for all $E_{\gamma} > 200$ keV, Neutron Energy intervals required: Res. regions: reproduce major variations in (E_{γ}) > 1 Mev: 500-keV intervals Gamma-energy resolution required: <2.5MeV, 10 percent; >2.5MeV, 250keV.														69	
STATUS: BNL Chrien reports spectra for 4 res. WASH-1136. BNL Chrien, 2 keV capture spectrum from MTR, IN-1317, p. 116 (1970).														69	
														72	
														72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
147	26Fe	Elastic	$\sigma(e_n)$	I			7-14		4-9			KAPL Ehrlich	DNR	69	
				I		500-	3		5		ORNL Clifford	DRDT	69		
				I		1-	10		10		ANL Avery	DRDT	69		
				I		1-	10		10		LMFB Hemmig-AEC	DRDT	69		
REQ COM: Resolution: 100keV, $\Delta\theta = 5^\circ$, KAPL.															69
Resolutions: 1 percent energy at several peaks.															69
and valleys: $\sigma(e_n)$ required in valleys															69
for shielding, ORNL,															69
Resolution to at least resolve intermediate															69
structure, ANL.															69
STATUS: ANL Smith ⁺ data available satisfying intermediate															72
requirements to 3.8 MeV,															72
ORNL Perey ⁺ data 4.19-8.56 MeV, ORNL-4515.															72
AE Holmquist ⁺ , AE-337; Helsinki Conf., to 8 MeV.															72
148	26Fe	Elastic	$\sigma(e_n)$	I			8-16		5			LASL Biggers	DMA	66	
														66	
REQ COM: $\Delta E_n = 250\text{keV}$, intervals dictated by structure,															66
$\Delta\theta = \pm 2.5^\circ (\leq 30^\circ)$, $\pm 5^\circ (> 30^\circ)$.															62
STATUS: No active work.															72

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
154	²⁶ Fe	Emission	$\sigma(\theta_n, E_n)$	I			7-15			10		AFWL	Enz	DNA	69
				III			8-16			10		GDFW	Western	DNA	66
				I			8-16			10		LASL	Biggers	DNA	66
				II			7-15			10		NEL	Eccleshall	DNA	69
155	²⁶ Fe	$\sigma_{n,g}$		II	REQ COM: $\Delta E = 500$ keV, 500 keV intervals as dictated by structure,										72
					$\Delta\theta = \pm 5$ degrees, $\sigma(\theta)$ as dictated by anisotropy,										72
					STATUS: No active work,										72
					.001	to	1			10		KAPL	Ehrlich	DNR	72
156	²⁶ Fe	$\sigma_{n,g}$			REQ COM: Capture cross sections needed in minima (<1 barn) for shielding applications,										72
					Shape of resolution function important so meaningful broadening can be applied in theoretical cross section to compare with experiment,										72
					Sample composition should be known well enough to permit isotopic synthesis of theoretical X-sect,										72
					STATUS: Kenny AUJ 24, 805 (1972),										72
156	²⁶ Fe	$\sigma_{n,g}$					14			20		AEC	Gough	DCTR	71
					REQ COM: Needed to calculate formation of higher mass isotopes, CTR,										71
					STATUS: No active work,										71
															72

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
164	^{26}Fe	Tot $\bar{e}$ Prod	$\sigma(E_{\gamma})$	I	Th	to	10					<15	LMFB Hemmig-AEC	DNDD	66
					REQ COM: All gamma energies of interest for fast reactor shielding.										66
					STATUS: No active work.										72
165	^{26}Fe	Tot $\bar{e}$ Prod	$\sigma(E_{\gamma}, E_{\gamma})$	II			8-15				10		GDFW Western	DNA	69
				I			8-16				10		LASL Biggers	DNA	69
				II			7-15				10		NEL Eccleshall	DNA	69
													AFWL. Eng	DNA	70
					REQ COM: $\Delta E = 250$ keV at 500-keV intervals										69
					$\Delta\theta = \pm 5^{\circ} (< 30^{\circ}), \pm 10^{\circ} (> 30^{\circ})$										69
					$\sigma(55^{\circ})$ only unless significantly anisotropic.										69
					STATUS: GRT Orphan ⁺ , Gulf-RT-A10743, $E_n = 0.86-16.7$ MeV.										72
					ORNL Dickens ⁺ , $E_n = 0.85-20$ MeV, ORNL-4796.										72
					USSR Kravcov ⁺ , 72 Kiev, $E_n = 14$ MeV.										72
166	^{26}Fe	Res Int	Capture	I	.5-	up					10-	15	KAPL Ehrlich	DNR	69
					REQ COM: Remove or correct for n,p contribution.										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
169	$^{54}_{26}\text{Fe}$	$\sigma_{n,\alpha}$	Act	II	.025-	to	15					30	LLL	Howerton	DMA	69
					REQ COM: Required is cross section for activation of Fe^{55} in naturally occurring element. Accuracy 30 per if $\sigma > 100$ mb, 50 per if 25 mb $< \sigma < 100$ mb; Accuracy to a factor of 2 if 1 mb $< \sigma < 25$ mb; to a factor of 10 if $\sigma < 1$ mb.											69
					STATUS: RPI Hockenbury ⁺ , USNDC-1; 0.1-200 keV, separated isotopes.											72
170	$^{54}_{26}\text{Fe}$	$\sigma_{n,p}$	Act	III			1-10			15			BET	Bayard	DNR	72
				II			1-10			10			HEDL	McElroy	DRDT	69
				III			6.2-13			10			NEL	Eccleshall	DNA	69
					REQ COM: Energy resolution 250 keV, 500-keV intervals For use as fluence monitor.											69
					STATUS: GEEL Paulsen, experiments underway, 1.5-6 MeV and from 12-20 MeV. ANL Meadows ⁺ has measurements underway.											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
173	^{58}Fe	$\sigma_{n,\bar{e}}$	Act	II	.025	to	15				30	LLL	Hewerton	DMA	69
				II		1-	18				10	HEDL	McElroy	DRDT	69
					REQ COM: Required is cross section for activation of Fe^{59} in naturally occurring element, (LLL) Accuracy 30 per if $\sigma > 100$ mb, 50 per if $25 \text{ mb} < \sigma < 100 \text{ mb}$, Accuracy to a factor of 2 if $1 \text{ mb} < \sigma < 25 \text{ mb}$; to a factor of 10 if $\sigma < 1 \text{ mb}$, (LLL) For use as fluence monitor (PNWL)										69
					STATUS: RPI Hockenbury ⁺ , USNDG-1, 0.1-200 keV underway, KFK Bear, measurements planned.										72
															72
174	^{60}Co	Res Par		II	132				1			ANG	Brugger	DRDT	62
					REQ COM: 1 percent in parameters of this resonance, Needed as flux monitor.										62
					STATUS: Lucas HTS, Bird ⁺ , AAEC/PR33, p. 14 (1970): $\bar{\sigma}_R$.										72
175	^{60}Co	$\sigma_{n,\bar{e}}$		II	132				1			ANG	Brugger	DRDT	62
					REQ COM: 1 percent in $\bar{\sigma}_R$ for this resonance, Needed as flux monitor.										62
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG		
183	28 ^{Ni}	Inelastic	$\sigma(E_{n'})$	II			1-10				10		GE	Snyder	DRDT	66
													LMFB Hemmig=AEC	DRDT		66
					REQ COM: ΔE_0 and $\Delta E_{n'}$ = 10 percent, Energy resolution required to determine major structure,											72
					Total integral over 4π required, Spectra											72
					at several angles if significantly anisotropic,											69
																69
					STATUS: ORNL Perey ⁺ , ORNL-4523, 6.5-8.5 MeV,											72
					ANL Smith ⁺ , preliminary data to 3.0 MeV,											72
184	28 ^{Ni}	Inelastic	$\sigma(E_{n'})$			14				15			AEC	Gough	DCTR	72
					REQ COM: Needed to calculate neutron transport											71
					in blanket and shield, CTR,											71
					STATUS: ANL Smith ⁺ , preliminary data to 3.0 MeV,											72
					ORNL Perey ⁺ , ORNL-4523, 6.5-8.5 MeV,											72
185	28 ^{Ni}	$\sigma_{n,2n}$				14				10			AEC	Gough	DCTR	71
					REQ COM: Accuracy needed to reduce uncertainty in											71
					neutron multiplication estimates for CTR,											71
					STATUS: No active work,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
190	$^{28}\text{N1}$	$\sigma_{n,\bar{\alpha}}$		II	Th	to	10				15		GE	Hutchins	DRDT	72
					REQ COM: To determine He production in fast reactors.											72
					STATUS: No active work.											72
191	$^{28}\text{N1}$	$\sigma_{n,\bar{\alpha}}$					14					20	AEC	Gough	DCTR	71
					REQ COM: Needed for radiation damage estimates, CTR,											71
					STATUS: No active work.											72
192	$^{28}\text{N1}$	$\sigma_{n,n'}(\bar{E}'S)$			Th=		14				15		AEC	Gough	DCTR	72
					REQ COM: Needed are gamma ray spectra to calculate											71
					heat generation in blanket and shield, CTR,											71
					STATUS: ORNL Dickens ⁺ , NaI data, E_n 7 keV to 20 MeV,											72
					not yet reduced,											72
193	$^{28}\text{N1}$	Cap Spect	$P(E_g)$		Th=	res.					15		AEC	Gough	DCTR	71
					REQ COM: Needed to calculate heat generation											71
					in blanket and shield, CTR,											71
					STATUS: ORNL Dickens ⁺ , NaI data, E_n 7 keV to 20 MeV,											72
					not yet reduced,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
194	^{28}Ni	Res Int	Capture	I	.5-	up					10-	15	KAPL Ehrlich	DNR	69
					REQ COM: Remove or correct for n,p contribution,										69
					STATUS: KFK Beer ⁺ , KFK 1271/3 some separated isotope data,										72
195	^{28}Ni	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	II	Th	to	10			10			BET Bayard	DNR	66
				II	Th	to	10				20	LMFB Hemmig-AEC	DRDT	72	
		Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}}, E_{\gamma})$	I	Th=	300				20	ORNL Clifford	DRDT	62		
				II			2-14			20	ORNL Clifford	DRDT	63		
					REQ COM: All gammas are of interest, resolution 0.5 MeV. For shielding and gamma heating calculations.										66
					STATUS: ORNL Dickens ⁺ , E_n 7 keV-20 MeV, not yet reduced.										72
196	^{28}Ni	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	II		12-340			15-				SNPO Fleishman	DSNS	69
				I			1-10		15-		SNPO Fleishman	DSNS	69		
				II			1-14		15-		NEL Eccleshall	DNA	70		
					REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater, Absolute $\sigma(E_{\bar{E}})$ required for all $E_{\bar{E}} > 200$ keV, Neutron Energy intervals required: Res, regions reproduce major variations in $(E_{\bar{E}})$ > 1 MeV: 500-keV intervals Gamma-energy resolution required: <2.5MeV, 10 percent; >2.5MeV, 250keV,										69
					STATUS: ORNL Dickens ⁺ , E_n 7 keV-20 MeV, not yet reduced.										72

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
211	$^{63}_{29}\text{Cu}$	$\sigma_{n,\alpha}$	Act	III	.025	to	15				30	LLL	Howerton	DMA	69
				II		1-	18			10		HEDL	McElroy	DRDT	69
					REQ COM: Required is cross section for activation of Cu^{64} in naturally occurring elements. (LLL) Accuracy 30 per if $\sigma > 100$ mb, 50 per if $25 \text{ mb} < \sigma < 100 \text{ mb}$, Accuracy to a factor of 2 if $1 \text{ mb} < \sigma < 25 \text{ mb}$; to a factor of 10 if $\sigma < 1 \text{ mb}$, (LLL) For use as fluence monitor (PNwL)										69
					STATUS: No active work,										72
212	$^{63}_{29}\text{Cu}$	$\sigma_{n,\alpha}$	Act	II			>6			10		HEDL	McElroy	DRDT	69
					REQ COM: For use as fluence monitor.										69
					STATUS: Hamburg, Bormann, to be published,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG		
216	30 Zn	Tot $\bar{E}$ Prod	$\pi(E_n)$	I	200-	25					15*	SNPO	Fleishman	DSNS	69	
				I						1-10		15*	SNPO	Fleishman	DSNS	69
				II						1-14		15*	NEL	Eccleshall	DNA	70
				REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater. Absolute $\sigma(E_n)$ required for all $E_n > 200$ keV. Neutron Energy intervals required: Res. region: reproduce major variations in (E_n) > 1 Mev: 500-keV intervals Gamma-energy resolution required: < 2.5 MeV, 10 percent; > 2.5 MeV, 250 keV.												
					STATUS: ORNL Dickens, $E_n = 5-6$ MeV in progress.											72
217	^{64}Zn	$\sigma_{n,\bar{E}}$	Act	I	.025	to	15					30	LLL	Howerton	DMA	69

					REQ COM: Required is cross section for activation of Zn^{65} in naturally occurring element. Accuracy of 30 per if $\sigma > 100$ mb, 50 per if 25 mb < $\sigma < 100$ mb, Accuracy to a factor of 2 if 1 mb < $\sigma < 25$ mb; to a factor of 10 if $\sigma < 1$ mb.											
					STATUS: No active work.											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	OMG	
221	³³ As	Elastic	$\sigma(\bullet_n)$	II	Th	to	14			15		IRT	Russell	DNA	69
					REQ COM: For radiation effects,										69
					STATUS: No active work,										72
222	³³ As	Emission	$\sigma(\bullet_n')$	II		Ths-	14			15		IRT	Russell	DNA	69
					REQ COM: For radiation effects,										69
					STATUS: No active work,										72
223	³⁶ Kr ⁸³	Total		II	.001=	1				10		BET	Bayard	DNR	67
												KAPL	Ehrlich	DNR	67
					REQ COM: Accuracy 10 per thermal										67
					Accuracy 10 percent in RI above 1 eV,										67
					For fission product absorption calculation										67
					STATUS: No active work,										72
224	³⁶ Kr ⁸³	$\sigma_{n,f}$		II	.001=	1				10		BET	Bayard	DNR	67
												KAPL	Ehrlich	DNR	67
					REQ COM: Accuracy 10 per thermal										67
					Accuracy 10 percent in RI above 1 eV,										67
					For fission product absorption calculation										67
					STATUS: No active work,										72

REQ #	TARGET		REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	* Z	A	QUANTITY	VARIABLE		eV	MeV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
225	* 37	Rb ⁸³	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
						REQ COM: Needed for evaluation,										69
						* Radioactive target=83 day(neutron deficient)										69
						STATUS: No active work,										72
226	* 37	Rb ⁸⁴	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69

						REQ COM: Needed for evaluation,										69
						* Radioactive target=33 day(neutron deficient)										69
						STATUS: No active work,										72
227	40	Zr	Elastic	$\sigma(e_n)$	II II		200-	1.5			10		KAPL	Ehrlich	DNR	69
								7-14				20	KAPL	Ehrlich	DNR	69
						REQ COM: <1.5 MeV: Resolution ± 5 per cent; systematic diff exist in available data,										69
						>7 MeV: Resolution ± 2.5 percent; no data.										69
						STATUS: ANL work reported < 1.5 MeV,										72
						ANL working > 1.5 MeV,										72

90

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
228	^{90}Zr	Inelastic	$\sigma(E_n)$			Ths-	14				15			AEC Gough	DCTR	72
						REQ COM: Needed to calculate neutron transport in blanket and shield, CTR,										71
						STATUS: ANL Smith ⁺ , even isotopes 90-92-94 to ~5.0 MeV, U. Ky. McEllistrem ⁺ , even isotopes 90-94 to 6 MeV,										72
229	^{90}Zr	$\sigma_{n,2n}$					14				10			AEC Gough	DCTR	71
						REQ COM: Accuracy needed to reduce uncertainty in neutron multiplication estimates for CTR,										71
						STATUS: U. of Ark. Bari, activation X-section at 14.8 MeV,										72
230	^{90}Zr	$\sigma_{n,2n}$	$\sigma(\theta_n, E_n)$				14				15			AEC Gough	DCTR	71
						REQ COM: Energy and angular dependence of secondary neutrons needed to calculate neutron transport in blanket and shield, CTR,										71
						STATUS: No active work,										72

[illegible]

REQ #	TARGET Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
237	$_{40}\text{Zr}$	Cap Spect	$P(E_{\gamma})$	I	Th						10		SNPO Fleishman	DYNS	69
					REQ COM: For shielding calculations.										69
					Both line and continuum spectra are required.										69
					Bartholomew's spectrum does not give correct R.E.										69
					STATUS: MIT Rasmussen ⁺ , GA-10248/DASA-2570, thermal neutron capture spectrum.										72
															72
238	$_{40}\text{Zr}$	$\sigma_{n,n'}(\bar{E}^{\dagger}S)$			Ths-	14				15			AEC Gough	DCTR	72
					REQ COM: Needed are gamma ray spectra to calculate										71
					heat generation in blanket and shield, CTR.										71
					STATUS: BET Glickstein ⁺ , $E_n = 1.2-2.4$ MeV ^{91}Zr , Knoxville Conf.-710301, p. 241.										72
															72
239	$_{40}\text{Zr}$	Cap Spect	$P(E_{\gamma})$		Th-	res.				15			AEC Gough	DCTR	71
					REQ COM: Needed to calculate heat generation										71
					in blanket and shield, CTR.										71
					STATUS: MIT Rasmussen ⁺ , GA-10248/DASA-2570, thermal neutron capture spectrum.										72
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
240	40Zr	Tot R Prod	$\sigma(E_g)$	II	100-	20				15*		SNPO	Fleishman	DSNS	69	
				I						15*		SNPO	Fleishman	DSNS	69	
				II						15*		NEL	Eccleshall	DNA	70	
				REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater. Absolute $\sigma(E_g)$ required for all $E_g > 200$ keV. Neutron Energy intervals required: Res. regions: reproduce major variations in (E_g) > 1 MeV: 500-keV intervals Gamma-energy resolution required: <2.5MeV, 10 percent; >2.5MeV, 250keV.												
					STATUS: None which satisfy criteria.											72
241	* 40Zr ⁸⁸	$\sigma_{n,g}$		I	.1-300					50		LLL	Howerton	DMA	69	
				REQ COM: Needed for evaluation, * Radioactive target-85 day(neutron deficient)												
				STATUS: No active work.											72	
				***** .1-300												
242	* 40Zr ⁸⁹	$\sigma_{n,g}$		I	.1-300					50		LLL	Howerton	DMA	69	
				REQ COM: Needed for evaluation, * Radioactive target-78 hour(neutron deficient)												
				STATUS: No active work.											72	
				***** .1-300												

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
246	$_{40}\text{Zr}^{90}$	Inelastic	$\sigma(E_n)$	I			5-15			10		BET	Bayard	DNR	72
					REQ COM: To determine the split of the total Zr cross section between nonelastic and elastic.										72
					STATUS: U. Ky. McEllistrem ⁺ preliminary data to 6 MeV, ANL Smith preliminary results 1.5-3.0 MeV.										72
247	$_{40}\text{Zr}^{90}$	Emission	$\sigma(E_n, E_{n'})$	I			1-15			10		BET	Bayard	DNR	67
					REQ COM: Individual excitation cross sections desired to 20 per accuracy										67
					Needed for the design of pressurized water reactors with Zr										67
					Wanted from threshold up										67
					STATUS: U. Ky. McEllistrem ⁺ preliminary results 1.5-6 MeV, ANL Smith ⁺ , preliminary results 1.5-3.0 MeV.										72
248	$_{40}\text{Zr}^{90}$	Res Int	Capture	II	.5-	up					20	KAPL	Ehrlich	DNR	69
					REQ COM: Needed for evaluating meas. resonance parameters,										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OP.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR			
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG				
249	$_{40}\text{Zr}^{90}$	σ_n and σ_{π}		II	*	-15					10			KAPL Ehrlich BET Bayard	DNR DNR	69 72		
					REQ COM: Needed to verify existing measurements, (*) energy to include lowest resolved resonance. Discrepancies still exist, incl. recent RPI work,											69 69 70		
					STATUS: No active work,											72		
250	$_{40}\text{Zr}^{90}$	J, π		II			1.8-5							KAPL Ehrlich	DNR	69		
					REQ COM: J, π of all Zr^{90} levels ≤ 5 MeV desired for calculating compound elastic and inelastic and n,p.											69 69 69		
					STATUS: No active work,											72		
251	$_{40}\text{Zr}^{91}$	Elastic	$\sigma(\theta_n)$	I	*****													
						100-	10				10			BET Bayard	DNR	72		
					REQ COM: Scattering from the separated isotopes 90-91 92-94 and 96 is desired to check the shell effect on the optical potential and derive useful parameters											67 67 67 67		
					STATUS: ANL work in progress,											72		

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
252	$_{40}\text{Zr}^{91}$	Inelastic	$\sigma(\theta_n)$	II			2.5-10			10		BET	Bayard	DNR	72
				II			14			15	KAPL	Ehrlich	DNR	69	
					REQ COM: Resolve discrete levels up to 2 MeV excitation. To compute direct inelastic scattering and investigate isotopic spin-dependent coupling between ground and excited states. To determine the split of the total Zr cross section between nonelastic and elastic.										69
					STATUS: U. Ky. McEllistrem ⁺ preliminary results 1.5-6 MeV. ANL Smith ⁺ , preliminary results 1.5-3.0 MeV.										72
253	$_{40}\text{Zr}^{91}$	$\sigma_{n,\alpha}$		III			14				30	KAPL	Ehrlich	DNR	69
					REQ COM: No data available.										69
					STATUS: No active work.										72
254	$_{40}\text{Zr}^{91}$	Res Int	Capture	I	.5	up			5			KAPL	Ehrlich	DNR	69
					REQ COM: Verification of existing data required.										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
258	$_{40}\text{Zr}^{92}$	Inelastic	$\sigma(E_n)$	II			14				15	KAPL Ehrlich	DNR	69	
					REQ COM: Resolve discrete levels up to 2 MeV excitation, To compute direct inelastic scattering and investigate isotopic spin-dependent coupling between ground and excited states,									69	
					STATUS: No active work,									72	
259	$_{40}\text{Zr}^{92}$	Inelastic	$\sigma(E_n)$	I			2.5-10			10		BET Bayard	DNR	72	
					REQ COM: To determine split of total Zr cross section between nonelastic and elastic									72	
					STATUS: U, Ky, McEllistrem ⁺ preliminary results 1.5-6 MeV, ANL Smith preliminary results 1.5-3.0 MeV,									72	
260	$_{40}\text{Zr}^{92}$	Res Int	Capture	II	.5-	up					20	KAPL Ehrlich	DNR	69	
					REQ COM: Needed for evaluating meas. resonance parameters,									69	
					STATUS: No active work,									72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
261	$_{40}\text{Zr}^{92}$	σ_n and σ_{π}		I	*	15					10		KAPL Ehrlich BET Bayard	DNR DNR	69 72
REQ COM: (*) : Energy to include lowest resolved resonance, Needed for verification of existing data, incl. recent RPI results.															69 70 70
STATUS: ORNL Macklin measurements underway.															72
262	$_{40}\text{Zr}^{92}$	J, π		II			1-4						KAPL Ehrlich	DNR	69
REQ COM: J, π of all Zr^{92} levels <4 MeV desired for calculating compound elastic and inelastic.															69 69
STATUS: No active work.															72
263	$_{40}\text{Zr}^{94}$	Elastic	$\sigma(\theta_n)$	I	.5	to	10				10		BET Bayard	DNR	67

REQ COM: Scattering from the separated isotopes 90-91 92-94 and 96 is desired to check the shell effect on the optical potential and derive useful parameters.															67 67 67 67
STATUS: U. Ky. underway.															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
264	$_{40}\text{Zr}^{94}$	Inelastic	$\sigma(\sigma_n)$	II			14			15			KAPL Ehrlich	DNR	67
					REQ COM: Resolve discrete levels up to 2 MeV excitation, To compute direct inelastic scattering and investigate isotopic spin-dependent coupling between ground and excited states,										69
					STATUS: No active work,										72
265	$_{40}\text{Zr}^{94}$	σ_n and σ_g		II	*	-15				10			KAPL Ehrlich	DNR	69
					REQ COM: (*): Energy to include lowest resolved resonance. Needed for verification of existing data, incl. recent RPI results,										69
					STATUS: ORNL Macklin, measurements underway,										72
266	$_{40}\text{Zr}^{94}$	J, π		II		950-	4						KAPL Ehrlich	DNR	69
					REQ COM: J, π of all Zr^{94} levels ≤ 4 MeV desired for calculating compound elastic and inelastic,										69
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
269	$_{40}\text{Zr}^{96}$	$\sigma_{n,\bar{g}}$		II	Th					5			KAPL Ehrlich	DNR	69
					REQ COM: Need to resolve discrepancies in σ 's and res. par. Preferably meas, with natural target or other isotopes, Note: Zr^{97} half-life is 16.8 hours.										69
					STATUS: No active work.										72
270	$_{41}\text{Nb}$	Inelastic	$\sigma(E_n)$		Ths-	14				15			AEC Gough	DOER	72
					REQ COM: Needed to calculate neutron transport in blanket and shield, CTR,										71
					STATUS: ANL Smith ⁺ data to 4.0 MeV in detail. AWRE Coles, 1.5-5 MeV, AWRE-0-66-71, AE Almen ⁺ , 2 to 4.5 MeV Helsinki Conf, II, p. 349.										72
271	$_{41}\text{Nb}$	$\sigma_{n,n'}$	Isom State	I	Ths-	15				20			LLL Howerton	DMA	69
					REQ COM: Needed is inelastic cross section to 13.6y isomer of Nb^{93} ,										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
272	$^{41}_{41}\text{Nb}$	Emission	$\sigma(\theta_n, E_n)$	I			1.5-15			10			LASL Streetman	DONS	69
					REQ COM: Low-energy neutrons must be included, Absolute spectra at 30° and 75° may suffice, Time scale requiring associated $\bar{\nu}$ -production data not yet established, Incident and exit energy resol. 10 per										69
					STATUS: ANL Smith ⁺ data to 4.0 MeV in detail, AWRE Coles, 1.5-5 MeV, AWRE-O-66-71, AE Almen ⁺ , 2 to 4.5 MeV Helsinki Conf. II, p. 349,										72
273	$^{41}_{41}\text{Nb}$	$\sigma_{n,2n}$				14			10			AEC Gough	DCTR	71	
					REQ COM: Accuracy needed to reduce uncertainty in neutron multiplication estimates for CTR,										71
					STATUS: No active work,										72
274	$^{41}_{41}\text{Nb}$	$\sigma_{n,2n}$	$\sigma(\theta_n, E_n)$			14			15			AEC Gough	DCTR	71	
					REQ COM: Energy and angular dependence of secondary neutrons needed to calculate neutron transport in blanket and shield, CTR,										71
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
275	^{41}Nb	$\sigma_{n,2n}$	Act.	I			Ths=15		≤5			LLL	Howerton	DMA	70
					REQ COM: Measurements with less accuracy not helpful.										70
					STATUS: No data to required accuracy.										72
276	^{41}Nb	$\sigma_{n,\bar{\epsilon}}$		II		1-100				10		AI	Alter	DRDT	62
				II		1-100				10		ANL	Avery	DRDT	62
				II		1-100				10		INT	Praskitt	DRDT	62
					REQ COM: Look for non-1/v below 1 eV.										69
					For fast reactor calculations, to resolve										69
					discrepancies in thermionic reactor worths.										69
					Accuracy: 5 per in calculated dilute and self-										67
					shielded resonance integral										67
					STATUS: ORNL Macklin plans,										72
277	^{41}Nb	$\sigma_{n,\bar{\epsilon}}$				14				20		AEC	Gough	DCTR	71
					REQ COM: Needed to calculate formation of higher										71
					mass isotopes, CTR,										71
					STATUS: No active work,										72
278	^{41}Nb	$\sigma_{n,p}$				14				20		AEC	Gough	DCTR	71
					REQ COM: Needed for radiation damage estimates, CTR,										71
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR		
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG			
283	$_{41}\text{Nb}$	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	II	30-	75				15*		SNPO	Fleishman	DSNS	69		
				I			1-10		15*		SNPO	Fleishman	DSNS	69			
				II			1-14		15*		NEL	Eccleshall	DNA	70			
				REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater, Absolute $\sigma(E_{\bar{E}})$ required for all $E_{\bar{E}} > 200$ keV, Neutron Energy intervals required: Res. region: reproduce major variations in $\sigma(E_{\bar{E}})$ > 1 Mev: 500-keV intervals Gamma-energy resolution required: <2.5MeV, 10 percent; >2.5MeV, 250keV,													
284	$_{41}\text{Nb}$	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$		Th-		to		14			15		AEC	Gough	DCTR	71
				REQ COM: Needed for UTR applications,													
				STATUS: ORNL Dickens ⁺ , NCSAC-42, p. 195, 6 MeV,													
285	* $_{41}\text{Nb}^{91}$	$\sigma_{n,\bar{E}}$		I		1-300						50		LLL	Howerton	DMA	69
REQ COM: Needed for evaluation, * Radioactive target-neutron deficient,																	
STATUS: No active work,																	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
292	^{142}Mo	$\sigma_{n,2n}$	$\sigma(\theta_{n1}, E_{n1})$				14			15		AEC	Gough	DCTR	71
					REQ COM: Energy and angular dependence of secondary neutrons needed to calculate neutron transport in blanket and shield, CTR,										71
					STATUS: No active work										72
293	^{142}Mo	Emission	$\sigma(\theta_{n1}, E_{n1})$	II			1.5-15			10		LASL	Streetman	DSNS	69
					REQ COM: Low-energy neutrons must be included. Absolute spectra at 30° and 75° may suffice. Time scale requiring associated $\bar{x}$ -production data not yet established.										69
					STATUS: AWRE Coles, AWRE-89/70, data to 5.0 MeV. ANL Smith ⁺ , all even isotopes to 1.6 MeV, extending to > 5 MeV, U, Ky, McEllistrem ⁺ even isotope data, 1.5-6 MeV.										72
															72
															72
294	^{142}Mo	$\sigma_{n,\bar{x}}$		III		1-	1			10		ACRP	Hannum	DRDT	72
					REQ COM: To resolve discrepancy in reactivity worth measurements.										72
					STATUS: ANL Poenitz measurements started 400-1500 keV.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
295	42Mo	$\sigma_{n,\bar{g}}$					14				20	AEC	Gough	DCTR	71
					REQ COM: Needed to calculate formation of higher mass isotopes, CTR,									71	
					STATUS: None,									72	
296	42Mo	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
					REQ COM: Needed for radiation damage estimates, CTR,									71	
					STATUS: No active work,									72	
297	42Mo	$\sigma_{n,\bar{a}}$					14				20	AEC	Gough	DCTR	71
					REQ COM: Needed for radiation damage estimates, CTR,									71	
					STATUS: No active work,									72	
298	42Mo	Cap Spect	$P(E_g)$	I	Th					10		SNPO	Fleishman	DSNS	69
					REQ COM: None which satisfy criteria,									69	
					Both line and continuum spectra are required,									69	
					Bartholomew's spectrum does not give correct B.E.									69	
					STATUS: USSR Barchuk ⁺ , 72 Kiev, Ge(Li) data for Mo-94,96, 98, 100,									72	
														72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
299	^{12}Mo	$\sigma_{n,n'}(\bar{E})$				Th-	14			15		AEC	Gough	DCTR	71
						REQ COM: Needed are gamma ray spectra to calculate heat generation in blanket and shield, CTR.									71
						STATUS: No active work.									72
300	^{12}Mo	Cap Spect	$P(E_{\gamma})$			Th-	res.			15		AEC	Gough	DCTR	71
						REQ COM: Needed to calculate heat generation in blanket and shield, CTR.									71
						STATUS: Wasson ⁺ , USNDC-1, pp. 27 and 134, 6-100 keV.									72
						Cole ⁺ , NCSAC-12, 185, 10-100 keV.									72
						Chrien ⁺ , NCSAU-12, 40, 12-48 keV.									72
301	^{12}Mo	Tot $\bar{E}$ Prod	$\sigma(E_{\gamma})$			Th-	to	14		15		AEC	Gough	DCTR	71
						REQ COM: Needed for CTR applications.									71
						STATUS: No active work except n, Gamma below 100 keV.									72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ONG		
302	^{142}Mo	Tot $\bar{\nu}$ Prod	$\sigma(E_n)$	I I II	10-	9					15*		SNPO Fleishman	DSNS	69	
							1-10				15*		SNPO Fleishman	DSNS	69	
							1-14				15*		NEL Eccleshall	DNA	70	
REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater,																69
Absolute $\sigma(E_n)$ required for all $E_n > 200$ keV,																69
Neutron Energy intervals required:																69
Res. regions: reproduce major variations in $\sigma(E_n)$																69
> 1 Mev; 500-keV intervals																69
Gamma-energy resolution required:																69
<2.5MeV, 10 percent; >2.5MeV, 250keV,																69
STATUS: URNL Wasson* some data on 92 and 98.																72
303	* $^{142}\text{Mo}^{99}$	$\sigma_{n,\bar{\nu}}$		II	.001-	1						20	BET Bayard	DNR	67	
													KAPL Ehrlich	DNR	67	
REQ COM: Accuracy 20 per if absorption X-section in																67
range 10-100 barns, 10 per if larger,																67
Above 1ev want 20 per in RI if in range 100-1000																69
barns, 10 per if larger,																67
Decays to an important fission product,																67
*Radioactive target=67h,																67
STATUS: No active work,																72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
304	* 44 Ru ¹⁰³	$\sigma_{n,\bar{g}}$		II	.001-	1					20	RET	Bayard	DNR	67
												KAPL	Ehrlich	DNR	67
												REQ COM: 20 percent accuracy desired if cross section in			67
												range 10-1000 barns, 10 per if larger,			67
												Above 1eV want 20 per in RI if in range 100-1000			67
305	* 45 Rh	$\sigma_{n,\bar{g}}$		II	.5-	1					10	KAPL	Ehrlich	DNR	67
												GE	Snyder	DRDT	67
												REQ COM: Accuracy 10 per in RI, KAPL,			67
												Energies above 1eV of interest,			67
												Want to calculate fission product poisons,			67
												STATUS: No active work,			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
306	* $_{45}\text{Rh}^{105}$	$\sigma_{n,\bar{e}}$		II	.001-1						10		GE	Snyder	DRDT	67
					REQ COM: For calculation of fission product poisons, *Radioactive target = 36h,											67 69
					STATUS: No active work,											72
307	* $_{46}\text{Pd}^{107}$	$\sigma_{n,\bar{e}}$		II	.001-	10					10		BET	Bayard	DNR	67
					REQ COM: For calculation of fission product poisons Above 1eV want RI to 10 per *Radioactive target = 7×10^6 y,											67 67 69
					STATUS: No active work,											72
308	$_{47}\text{Ag}^{109}$	$\sigma_{n,\bar{e}}$		II	.001-1						10		GE	Snyder.	DRDT	67
					REQ COM: Fission product poison											67
					STATUS: No active work,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
309	* 52Te ¹²⁷	$\sigma_{n,\bar{g}}$		II	.001-1							20	KAPL Ehrlich	DNR	67
					REQ COM: 0.025eV value or thermal average useful Request pertains to the metastable state Needed for calculation of fission product poisons *Radioactive target = 105d isomer STATUS: No active work,										67 67 67 69 72
310	* 52Te ¹³²	$\sigma_{n,\bar{g}}$		II	.001-1							20	BET Hayard	DNR	67
					***** REQ COM: Accuracy 10 per if X-sec larger than 2500 barns For calculation of fission product poison Above 1eV RI wanted to 20 per if in range 2500-25000 barns, 10 per if larger. *Radioactive target-7Ah, STATUS: No active work,										67 67 67 67 67 72
311	* 53I ¹³³	$\sigma_{n,\bar{g}}$		II	.001-	1						20	BET Hayard	DNR	67
					REQ COM: Accuracy 10 per if X-sec larger than 9000 barns Wanted for fission product poison calculations Above 1eV RI wanted to 20 per if in range 9000-90000 barns, 10 per if larger. *Radioactive target-21h, STATUS: No active work,										67 67 67 67 67 72

REQ #	TARGET # 2 A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
317	^{55}Cs	$\sigma_{n,\bar{f}}$		I	.5-	1				10		GE	Snyder	DNBT	67
												RET	Hayard	DNR	67
												REQ COM: Accuracy 10 per in RI			67
												Energies above 1eV of interest			67
												For fission product poison calculations			67
												STATUS: No active work.			72
318	$^{60}\text{Nd}^{143}$	$\sigma_{n,\bar{f}}$		I	.001-	1				10		RET	Hayard	DNR	67
												GE	Snyder	DNBT	67
												REQ COM: Accuracy 10 per in RI			67
												Energies above 1eV of interest			67
												Needed for fission product poison calculations			67
												Energy 0-1eV, 10 per in cross section			67
												STATUS: No active work.			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	Lab	PERSON	ORG	
319	$^{145}_{60}\text{Nd}$	$\sigma_{n,\bar{e}}$		1	.001-	1					10	RET	Bayard	LNR	67
												GE	Snyder	DNDT	67
												KAPL	Ehrlich	DNR	67
												REQ COM: Accuracy 10 per in RI			67
												Wanted for fission product poison calculations,			67
320	$^{147}_{60}\text{Nd}$	$\sigma_{n,\bar{e}}$		1	.001-	1						Energies above 1eV of interest			67
												Energy 0-1eV, 10 per in cross section			67
												STATUS: No active work,			72

												KAPL	Ehrlich	DNR	67
												RET	Bayard	DNR	67
												GE	Snyder	DNDT	67
												REQ COM: Thermal average or 0.025 eV value wanted			67
												Accuracy 20 per if absorption X-sec in range			67
												10-100 barns			67
												10 per in range 100-1000 barns, 5 per if larger,			67
												Above 1eV want RI to 20 per in range 100-1000b,			67
												10 per in range 1000-10000 barns, 5 per if larger,			67
												Decays to important fission product,			67
												*Radioactive target-11d,			67
												STATUS: No active work,			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR		
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG			
325	* 61Pr ¹⁵¹	$\sigma_{n,\bar{g}}$		II	.001-	1					10			BET GE	Bayard Snyder	DNR DRDT	67 67
REQ COM: Needed for calculation of fission product poisons																	67
0.025eV or thermal average wanted																	67
Interval 0-1eV of interest																	67
Above 1eV want RI to 10 per																	67
Radioactive target - 28h.																	67
STATUS: No active work.																	72
326	62Sm ¹⁵⁰	$\sigma_{n,\bar{g}}$		I	.001-	1			2-	5				BET GE	Bayard Snyder	DNR DRDT	67 67
REQ COM: For calculation of fission product poisons																	67
Above 1eV want RI to 2-5 per																	67
STATUS: No active work.																	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	GAG	
327	* $^{62}_{50}\text{Sn}^{151}$	$\sigma_{n,\bar{g}}$		I	.001-	1			5			BET	Bayard	DNR	67
												GE	Snyder	DRDT	67
												KAPL	Ehrlich	DNR	67
												REQ COM: Desired energy resolution 5 per			67
												Wanted for calculation of fission product poisons			67
												Energies above 2eV of interest			67
												Want RI to 10 per			67
												*Radioactive target = 90y.			67
												STATUS: No active work.			72

328	$^{62}_{50}\text{Sn}^{152}$	$\sigma_{n,\bar{g}}$		II	.001-	1				10		BET	Bayard	DNR	67
												GE	Snyder	DRDT	67
												REQ COM: Fission product poison			67
												Above 1eV want RI to 10 per			67
												Below 1eV, want σ to 10 per			67
												STATUS: Harker, USNDC-1, page 1,			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
329	* $^{62}_{34}\text{Se}^{153}$	$\sigma_{n,\bar{e}}$		II	1,001-	1					20	BET	Bayard	DNR	67
												KAPL	Enrlich	DNR	67
					REQ COM: For calculation of fission product poison 10 per error if X-sec is above 30000 barns Above 1eV want RI to 20 per if in range 30-300 barns, 10 per if larger, *Radioactive target-47h,										67
					STATUS: No active work,										72
330	$^{63}_{29}\text{Cu}$	$\sigma_{n,\bar{e}}$		II	100-	200					10	LASL	Mots	DMA	66
					REQ COM: Capture spectrum also desired to 40 per accuracy,										66
					STATUS: No active work,										72
331	$^{63}_{29}\text{Cu}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	III		1-	15				10	LASL	Mots	DMA	66
					REQ COM: (+): An upper limit on $\sigma(E_{\bar{e}})$ spectrum as a function of neutron energy will suffice,										66
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE QUANTITY VARIABLE	PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
				eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
336	$^{151}_{63}\text{Eu}$	$\sigma_{n,\bar{g}}$	II	.001-	1		2-	5				SRI	Dessauer	DPMH	67
				REQ COM: Accuracy 2 per near thermal											67
				Accuracy 5 per in resonance region											67
				For calculation of fission product poison											67
				Energies greater than 1eV of interest to											67
				give RI to 10 per.											67
				STATUS: No active work.											72
337	$^{151}_{63}\text{Eu}$	$\sigma_{n,\bar{g}}$	I	.1-300						20		LLL	Howerton	DMA	69
				REQ COM: Needed for evaluation.											69
				STATUS: No active work.											72
338	* $^{152}_{63}\text{Eu}$	$\sigma_{n,\bar{g}}$	I	.1-300						30		LASL	Bell	DMA	70

				REQ COM: Needed for evaluation.											70
				*Radioactive target, 12.4y.											70
				STATUS: LASL Harlow+ WASH-1127, prelim. data to 6keV.											70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
339	⁶³ Eu ¹⁵³	$\sigma_{n,\gamma}$		II	.001-	1		2-	5			GE	Snyder	DRDT	67
												SRL	Dessauer	DPMM	67
					REQ COM: 2 per near thermal										67
					5 percent accuracy in resonance region										67
					For calculation of fission product poison										67
					Energies above 1eV of interest to give										67
					RI to 10 per										67
					STATUS: No active work,										72
340	* ⁶³ Eu ¹⁵⁴	$\sigma_{n,\gamma}$		II	.001-	1					10	BET	Hayard	DNR	67
												GE	Snyder	DPDT	67
					REQ COM: Resonance parameters wanted for the calculation										67
					of fission product poisons										67
					RI wanted to 10 per										67
					Interval above 1eV of interest										67
					*Radioactive target - 16y,										67
					STATUS: No active work,										72
341	* ⁶³ Eu ¹⁵⁴	$\sigma_{n,\gamma}$		I	.1-300						30	LASL	Bell	DMA	70
					REQ COM: Needed for evaluation,										70
					*Radioactive target-16y,										70
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
342	* ${}_{63}\text{Eu}^{155}$	$\sigma_{n,\bar{e}}$		II	.001-	1				10		NET	Havard	DNR	67
												GE	Snyder	DRDT	67
												REQ COM: Res. param needed to calculate			67
												fission product poisons			67
												Resonance integral wanted to 10 per.			67
												*radioactive target = 1.8v.			67
												STATUS: Can. Jour. Physics 48, 1933 gives eff. sigma			72
												thermal = 4040 ± 125 barns.			72
															--
															--
343	${}_{64}\text{Gd}$	Elastic	$\sigma(\theta_n)$	I			1.5-10			10		GE	Snyder	DRDT	67
												REQ COM: Desired error in $(1-\cos\theta)$			67
												STATUS: No active work.			72
344	${}_{64}\text{Gd}$	Emission	$\sigma(\theta_n, E_n)$	I			1.5-10			15		GE	Snyder	DRDT	67
												REQ COM: For design of thermal reactors having			67
												appreciable quantities of Gd.			67
												Incident and exit resolution 15 per			67
												STATUS: No active work.			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
349	$^{155}_{64}\text{Gd}$	Res Int	Capture	I	.5-	up				5			GE	Snyder	DRDT	69
					REQ COM: For evaluating resonance parameters,										69	
					STATUS: No active work,										72	
350	$^{155}_{64}\text{Gd}$	$\bar{\sigma}_n$ and $\bar{\sigma}_k$		I	*-	.5				10			GE	Snyder	DRDT	69
					REQ COM: Required to verify existing measurements,										69	
					* energy to include lowest resolved resonance,										69	
					STATUS: No active work,										72	
351	$^{156}_{64}\text{Gd}$	$\sigma_{n,R}$		I	.001-	1				5			GE	Snyder	DRDT	67

					REQ COM: In range .001-1eV 5 per accuracy is wanted										67	
					Above 1eV want to calculate RI to 5 per										67	
					For calculation of burn up in thermal reactors										67	
					STATUS: No active work,										72	
352	$^{156}_{64}\text{Gd}$	Res Int	Capture	I	.5-	up				5			GE	Snyder	DRDT	69
					REQ COM: For evaluating resonance parameters,										69	
					STATUS: No active work,										72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YP
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
357	⁶⁶ Dy	$\sigma_{n,\bar{g}}$		II	100-	200					10		LASL Motz	DMA	66
					REQ COM: Capture spectrum also desired to 40 per accuracy.										66
					STATUS: No active work.										72
358	⁶⁶ Dy	Tot $\bar{g}$ Prod	$\sigma(E_{\bar{g}})$	III		1-	15				*		LASL Motz	DMA	66
					REQ COM: (*): An upper limit on $\sigma(E_{\bar{g}})$ spectrum as a function of neutron energy will suffice.										66
					STATUS: No active work.										72
359	* ⁶⁹ Tm ¹⁶⁷	$\sigma_{n,\bar{g}}$		I		.1-300					50		LLL Howerton	DMA	69
					REQ COM: Needed for evaluation, *radioactive target-9.3day(neutron deficient).										69
					STATUS: No active work.										70
					*****										72
360	* ⁶⁹ Tm ¹⁶⁸	$\sigma_{n,\bar{g}}$		I		.1-300					50		LLL Howerton	DMA	69
					REQ COM: Needed for evaluation, *radioactive target-93day(neutron deficient).										69
					STATUS: No active work.										70
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
361	^{69}Tm	$\sigma_{n,2n}$	Act.	I			Ths-15		≤5			LLL	Hoverton	DMA	70
					REQ COM: Measurements with less accuracy not helpful.										70
					STATUS: Druzhinin, Yad. Fiz, 14, 682.										72
362	^{69}Tm	$\sigma_{n,\bar{r}}$		I	Th-	1			5			BNW	Leonard	DPMM	67
					REQ COM: For production and burnup of Thulium.										67
					STATUS: SACLAY Julien CNA-R-3385 gives res. param. to 760 eV.										69
					COL Rahn ⁺ have new data, NCSAC-33.										69
					SAC Tellier ⁺ , Knoxville Conf. analysis of σ_T .										70
					*****										71
363	* $^{69}\text{Tm}^{170}$	$\sigma_{n,\bar{r}}$		I	Th-	1			10			BNW	Leonard	DPMM	67
												SRL	Hessauer	DPMM	67
					REQ COM: For production and burnup of thulium.										66
					*radioactive target - 125 day.										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
364	* $_{80}\text{Er}^{171}$	$\sigma_{n,\gamma}$		I	Th-	1				10		BNL	Leonard	DPMH	67
												SRL	Bessauer	DPMH	67
												REQ COM: For production and burn up of thulium.			66
												*radioactive target - 1.2 year.			69
												STATUS: No active work.			72
365	* $_{71}\text{Lu}^{175}$	$\sigma_{n,\gamma}$		I		.1-300				50		LLL	Howerton	DPA	69
												REQ COM: Needed for evaluation.			69
												* radioactive target-1.1 year(neutron deficient)			69
												STATUS: No active work.			72

366	* $_{71}\text{Lu}^{174}$	$\sigma_{n,\gamma}$		I		.1-300				50		LLL	Howerton	DPA	69
												REQ COM: Needed for evaluation.			69
												*radioactive target-isomeric pair, Lu^{174m} 140 d.			70
												Lu^{174g} 1200 d.			70
												STATUS: No active work.			72
367	$_{71}\text{Lu}^{175}$	$\sigma_{n,2n}$	Act.	I		Ths-15				≤5		LLL	Howerton	DPA	70
												REQ COM: Measurements with less accuracy not helpful.			70
												STATUS: No active work.			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	kev	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
368	71 Lu 175	$\sigma_{n,\bar{e}}$		I		1,-300					20	LLL	Howerton	DMA	69
					REQ COM: Needed for evaluation.										69
					STATUS: Hacken ⁺ (NCSAC-42, 61).										72
369	72 Hf	Elastic	$\sigma(E_n)$	II		1.5-10				10		BET	Hayard	DNR	66
					REQ COM: Accuracy 10 per in avg. (1-cos), Wanted for thermal reactor design. Energy resolution 10 percent.										66
					STATUS: AE Holmquist ⁺ , at 8MeV, Helsinki Conf. II, p. 341										72
370	72 Hf	Emission	$\sigma(E_{n'})$	II		1.5-10				15		BET	Hayard	DNR	66
					REQ COM: For design of thermal reactors having appreciable quantities of Hf. Incident and exit energy resolution 15 per.										66
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
371	72 ^{Hf}	$\sigma_{n,\bar{e}}$		II	200-	50					20	HET	Hayard	DNR	62	
				I	.001-	1				2		HET	Hayard	DNR	62	
				I	.001-	1				2		KAPL	Ehrlich	DNK	62	
					REQ COM: Needed for Monte Carlo calculations of burn up in thermal reactors, <1ev.										62	
					S-wave strength functions are wanted to 20 per at energies > 1ev.										62	
					For fast reactor calc. incl. burn up, > 200 eV.										62	
					STATUS: No active work on natural sample.										72	
372	72 ^{Hf} 174	$\sigma_{n,\bar{e}}$		I	.001-	5					10-	20	KAPL	Ehrlich	DNR	66
					REQ COM: Thermal value wanted to 20 percent.										66	
					10-100 eV, $\bar{\sigma}_{tot}$, $\bar{\sigma}_n$, and $\bar{\sigma}_{\bar{e}}$ to 10 percent.										66	
					0.1- 5 keV, $\bar{\sigma}_{tot}$, $\bar{\sigma}_n$, and $\bar{\sigma}_{\bar{e}}$ to 20 percent.										66	
					Needed for Monte Carlo burn up calculations.										66	
					Need average p-wave capture width to 20 per.										66	
					STATUS: No active work.										72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
373	$^{176}_{72}\text{Hf}$	$\sigma_{n,\bar{g}}$		I	.001-	5				10-	40	BET	Bayard	DNR	62
												KAPL	Ehrlich	DNR	62
					REQ COM: Detailed accuracies as stated below:										66
					Thermal value wanted to 20 percent.										66
					Less than 1 eV to 40 percent.										66
					10-100 eV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_n$, and $\bar{\sigma}_{\bar{g}}$ to 10 percent.										66
					0.1- 5 keV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_n$, and $\bar{\sigma}_{\bar{g}}$ to 20 percent.										66
					P-wave $\bar{\sigma}_{\bar{g}}$ avg. to 20 percent.										66
					S-wave strength function to 40 percent.										66
					Needed for Monte Carlo burn up calculations.										66
					STATUS: No active work.										72
374	$^{177}_{72}\text{Hf}$	$\sigma_{n,\bar{g}}$		I	.001-	5			4	to	20	BET	Bayard	DNR	62
												KAPL	Ehrlich	DNR	62
					REQ COM: Detailed accuracies as stated below:										66
					Less than 1 eV to 4 percent.										66
					10-100 eV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_n$, and $\bar{\sigma}_{\bar{g}}$ to 10 percent.										66
					0.1- 5 keV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_n$, and $\bar{\sigma}_{\bar{g}}$ to 20 percent.										66
					5.89, 6.57, and 8.67 eV res widths to 5 per.										66
					1,099 and 2,385 eV res. widths to 3 percent.										66
					S-wave strength function to 20 percent.										66
					Needed for Monte Carlo burn up calculations.										66
					Need average p-wave capture width to 20 per.										66
					STATUS: BCMN Rohr, Budapest Conf.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG		
375	$^{176}\text{Hf}_{72}$	$\sigma_{n,\bar{e}}$		I	.001-	5			3-	=	to	20	BET	Bayard	DNR	62
													KAPL	Ehrlich	DNR	62
REQ COM: Detailed accuracies as stated belows:																66
Less than 1 eV to 5 percent,																66
10-100 eV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_{\text{n}}$, and $\bar{\sigma}_{\bar{e}}$ to 10 percent,																66
0.1- 5 keV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_{\text{n}}$, and $\bar{\sigma}_{\bar{e}}$ to 20 percent,																66
P-wave $\bar{\sigma}_{\bar{e}}$ avg, to 20 percent,																66
7.78 - eV res, width to 3 percent,																66
S-wave strength function to 20 percent,																66
Needed for Monte Carlo burn up calculations,																66
STATUS: No active work,																72
376	$^{179}\text{Hf}_{72}$	$\sigma_{n,\bar{e}}$		I	.001-	5			5	to	20	BET	Bayard	DNR	62	
													KAPL	Ehrlich	DNR	62
REQ COM: Detailed accuracies as stated belows:																66
Less than 1 eV to 5 percent,																66
10-100 eV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_{\text{n}}$, and $\bar{\sigma}_{\bar{e}}$ to 10 percent,																66
0.1- 5 keV, $\bar{\sigma}_{\text{tot}}$, $\bar{\sigma}_{\text{n}}$, and $\bar{\sigma}_{\bar{e}}$ to 20 percent,																66
P-wave $\bar{\sigma}_{\bar{e}}$ wanted to 20 percent,																66
5.68 - eV res, widths to 5 per,																66
S-wave strength function to 20 percent,																66
Needed for Monte Carlo burn up calculations,																66
STATUS: No active work,																72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
377	^{180}Hf	$\sigma_{n,\bar{g}}$		I	1,001-	5			4	to	20	BET	Bayard	DNR	67
												KAPL	Ehrlich	DNR	67
					REQ COM: Detailed accuracies as stated below:										66
					Less than 1 eV to 4 percent,										66
					10-100 eV, $\bar{g}_{\text{tot}}$, $\bar{g}_n$, and $\bar{g}_g$ to 10 percent,										66
					0.1- 5 keV, $\bar{g}_{\text{tot}}$, $\bar{g}_n$, and $\bar{g}_g$ to 20 percent,										66
					p-wave $\bar{g}_g$ wanted to 20 percent,										66
					s-wave strength function to 20 percent.										66
					Needed for Monte Carlo burn up calculations,										66
					STATUS: No active work,										72
378	^{73}Ta	Emission	$\sigma(\bar{g}_n, E_n)$	III			1.5-15				10	LASL	Streetman	DSHS	69
					REQ COM: Low-energy neutrons must be included,										69
					Absolute spectra at 30° and 75° may suffice,										69
					Time scale requiring associated $\bar{g}$ -production data										69
					not yet established,										69
					STATUS: None which satisfy criteria,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
379	^{73}Ta	$\sigma_{n,\bar{g}}$		I		1-	10		5-	10			AI	Alter	DNDT	69
				II	1-	500			5-	10			KAPL	Ehrlich	DNR	69
				II	1-	500			5-	10			LMFB	Hennig-AEC	DRDT	69
					REQ COM: ~1 eV=1keV, accuracy 10 percent, 20 useful,											69
					1-150 keV, accuracy 5 percent, 10 useful,											69
					150-500 keV, accuracy 10 percent, 20 useful,											69
					For fast breeder control and burnup calculation,											69
					STATUS: LLL Gzirr ⁺ , USNDC-1,											72
					RPI Block ⁺ , USNDC-1, plan measurements to 80 keV,											72
380	^{73}Ta	Tot $\bar{g}$ Prod	$\sigma(E_{\bar{g}})$	I	1-	1,4				15-			SNPO	Fleishman	DSNS	69
				I			1-10			15-			SNPO	fleishman	DSNS	69
					REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater,											69
					Absolute $\sigma(E_{\bar{g}})$ required for all $E_{\bar{g}} > 200$ keV,											69
					Neutron Energy intervals required:											69
					Res, regions: reproduce major variations in $\sigma(E_{\bar{g}})$											69
					> 1 MeV: 500-keV intervals											69
					Gamma-energy resolution required:											69
					<2.5MeV, 10 percent; >2.5MeV, 250keV,											69
					STATUS: ORNL Morgan ⁺ , X-sections and spectra from $E_{\bar{g}} = 1$											72
					to 10.5 MeV, $E_n = 7$ keV to 20 MeV observed at 90											72
					and 125 degrees, ORNL-TM-3702,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
381	⁷ Li	Emission	$\sigma(e_{n'}, E_{n'})$	I			4-14			10		AFWL	Enz	DNA	69
				II			4-14			10		GDFW	Western	DNA	66
				III			1.5-15			10		LASL	Streetman	DSNS	69
				II			2-15			10		NEL	Eccleshall	DNA	69
				I			4-16		5			ORNL	Clifford	ORDT	66
REQ COM: $\Delta\theta = 10^\circ$; spectra at a few angles <u>may</u> suffice,															69
ΔE (Inc. and Exit) = 500 keV; 500-keV increments															69
or as required by structure, DASA, DSNS															69
ΔE (Inc.) ≤ 5 per; $\Delta E_{n'} < 500$ keV, ORDT															69
Low-energy neutrons must be included,															69
Absolute σ 's for shielding required,															69
Time scale requiring associated gamma production															69
data not yet established, DSNS															69
STATUS: ANL work planned,															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
382	7 _k ^W	Tot $\bar{\nu}$ Prod	$\sigma(E_{\bar{\nu}})$	I	2-	2.5				15*		SNPO Fleishman	DSNS	69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				I			1-10		15*		SNPO fleishman	DSNS	69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				II			1-14		15*		NEL Eccleshall	DNA	70																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater, Absolute $\sigma(E_{\bar{\nu}})$ required for all $E_{\bar{\nu}} > 200$ keV, Neutron Energy intervals required: Res. regions: reproduce major variations in $\sigma(E_{\bar{\nu}})$ > 1 MeV: 500-keV intervals Gamma-energy resolution required. <2.5 MeV, 10 percent; >2.5 MeV, 250 keV.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
384	74^{180}	$\sigma_{n,\bar{e}}$	Act	I	.025-	to	15					30	LLL	Howerton	DNA	69
					REQ COM: Required is cross section for activation of W^{181} , in naturally occurring element. Accuracy of 30 per if $\sigma > 100$ mb, 50 per if $25 \text{ mb} < \sigma < 100 \text{ mb}$. Accuracy to a factor ≤ 2 if $1 \text{ mb} < \sigma < 25 \text{ mb}$; to a factor of 10 if $\sigma < 1 \text{ mb}$.											69
					STATUS: No active work,											72
385	74^{182}	$\sigma_{n,2n}$	Act.	I			Ths=15					30	LLL	Howerton	DNA	69
					REQ COM: Required is cross section for activation of W^{181} , in naturally occurring element. Accuracy of 30 per if $\sigma > 100$ mb, 50 per if $25 \text{ mb} < \sigma < 100 \text{ mb}$. Accuracy to a factor of 2 if $1 \text{ mb} < \sigma < 25 \text{ mb}$; to a factor of 10 if $\sigma < 1 \text{ mb}$.											69
					STATUS: No active work,											72
386	74^{182}	$\sigma_{n,\bar{e}}$		I		1-	10			10			AI	Alter	PRDT	69
					REQ COM: Fast breeder control and burn up calculations,											69
					STATUS: ANL work planned, GGL Camarda ⁺ to be published in PR/C.											72
																72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
387	74^{183}	$\sigma_{n,\bar{e}}$		I		1-	10				10		AI	Alter	DNMT	69
					REQ COM: Fast breeder control and burn up calculations.											69
					STATUS: ANL work planned (Sample not available),											72
					CGL Camarda ⁺ to be published in PR/C.											72
388	74^{184}	$\sigma_{n,\bar{e}}$		I		10-	10				10		AI	Alter	DNMT	69
					REQ COM: Fast breeder control and burn up calculations.											69
					STATUS: ANL work planned,											72
					CGL Camarda ⁺ to be published in PR/C.											72
389	74^{184}	$\sigma_{n,\bar{e}}$	Act	I	.025-	100						30	LLL	Howerton	DMA	69
					REQ COM: Required is cross section for activation of W^{185} .											69
					in naturally occurring element.											69
					STATUS: No active work.											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
390	74^{186}W	$\sigma_{n,2n}$	Act.	I			Ths=15				30	LLL	Howerton	DMA	69
					REQ COM: Required is cross section for activation of W^{185} , in naturally occurring element. Accuracy of 30 per if $\sigma > 100$ mb, 50 per if $25 \text{ mb} < \sigma < 100 \text{ mb}$. Accuracy to a factor of 2 if $1 \text{ mb} < \sigma < 25 \text{ mb}$; to a factor of 10 if $\sigma < 1 \text{ mb}$.										69
					STATUS: No active work.										72
391	74^{186}W	$\sigma_{n,\bar{e}}$		I		10-	10			10		AI	Alter	DNBT	69
					REQ COM: Fast breeder control and burn up calculations,										69
					STATUS: CGL Camarda ⁺ to be published in PR/C. ANL work planned.										72
															72
392	76^{186}Os	$\sigma_{n,\bar{e}}$		III		1-100				4-9		ORNL	Macklin	DPR	70
					REQ COM: Need avg. capture for Maxwellian spectrum with $kT = 30 \text{ keV}$. for nucleosynthesis studies.										70
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
393	$^{187}_{76}\text{Os}$	$\sigma_{n,\bar{g}}$		III		1-100				4-9			ORNL Macklin	DPR	70
					REQ COM: Need avg. capture for Maxwellian spectrum with KT=30keV, for nucleosynthesis studies,										70
					STATUS: No active work,										72
394	$^{197}_{79}\text{Au}$	$\sigma_{n,\bar{g}}$		II	.5	1*		1					BET Bayard	DNR	67
				I		1-	1		5				LRL Grayson	DMA	70
				I		10-	1	2					NDC Caswell	DPR	72
					REQ COM: *Energies above 0.5 eV wanted so as to give infinite dilution RI to 1 per Individual and average resonance parameters required as primary standard,										67
					STATUS: LLL Ozirr ⁺ , USND=1. RPI Block ⁺ , USND=1, plan measurements to 80 keV.										72
395	* $^{204}_{81}\text{Tl}$	$\sigma_{n,\bar{g}}$		II	Th					10			BNW Leonard	DPMM	65
					REQ COM: Wanted to test feasibility of Tl^{204} production. *Radioactive target - 3.8y.										65
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
396	82Pb	Emission	$\sigma(e_n, E_n)$	II II			3-15 2-16			10 5			NEL Eccleshall ORNL Clifford	DNA DRDT	69 63
					REQ COM: Energy intervals 500 keV; ΔE (res.)=250 keV, $\sigma(e)$ only if significantly anisotropic; then $\Delta\theta = \pm 3^\circ$ at 10-degree intervals, STATUS: No active work,										69 69 69 72
397	82Pb	Total $\bar{x}$ Prod	$\sigma(E_x)$	II			8-15			10			NEL Eccleshall	DNA	69
					REQ COM: Spectra at a few energies would suffice, $\Delta E_n = 1$ MeV, $\Delta E_x = 500$ keV Omit 14.8 MeV point, STATUS: ORNL Dickens ⁺ , NCSAG-42, 194, 4.9-8.0 MeV, TNC Buchanan ⁺ , ORG-2791-32, Pb-206, 207, 208; (1-5 MeV, 14.8 MeV).										69 69 69 72 72 72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
398	82Pb	Tot $\bar{\nu}$ Prod	$\sigma(E_{\bar{\nu}})$	II I	80-	800					15*		SNPO Fleishman	DSNS	69
							1=10				15*		SNPO fleishman	DSNS	69
					REQ COM: (*) Accuracy 15 per or 5 mb whichever is greater, Absolute $\sigma(E_{\bar{\nu}})$ required for all $E_{\bar{\nu}} > 200$ keV.										69
					Res. regions: reproduce major variations in $\sigma(E_{\bar{\nu}})$ > 1 Mev: 500-keV intervals Gamma-energy resolution required: <2.5MeV, 10 percent; >2.5MeV, 250keV.										69
					STATUS: ORNL Dickens ⁺ , NCSAC-h2 194, 4.9-6.0 MeV. USSR Dektjarev ⁺ , IZV 35 2341, 0.1-3.4 MeV, TNC Buchanan ⁺ , ORG-2791-32, Pb-206, 207, 208; (1-5 MeV, 14.6 MeV).										72
															72
															72
															72
399	82Pb ²⁰⁴	$\sigma_{n,n'}$	Isom State	I			Ths=15				30		LLL Howerton	DMA	69
					REQ COM: Required is $\sigma_{n,n'}$ to 2.2 MeV isomer (67 min.)										69
					STATUS: No active work.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
400	82Pb208	$\sigma_{n,\bar{\alpha}}$	Act	II	.025	to	15					30	LLL	Howerton	DMA	69
REQ COM: Required is cross section for activation of Pb ²⁰⁹ , in naturally occurring element, Accuracy of 30 per if $\sigma > 100$ mb, 50 per if 25 mb $< \sigma < 100$ mb, Accuracy to a factor of 2 if 1 mb $< \sigma < 25$ mb; to a factor of 10 if $\sigma < 1$ mb,																
STATUS: ORNL Allen ⁺ , to be published.																
401	90Th	Elastic	$\sigma(\theta_n)$	III			1-5				10		ANL	Avery	DRDT	72
REQ COM: None																
STATUS: No active work,																
402	90Th	Inelastic	$\sigma(E_{n,1})$	III			1-4			5			ANL	Avery	DRDT	72
REQ COM: Accuracy 20 percent in $(1-\cos\theta)$ if anisotropic, Incident and exit energy resolution 20 per,																
STATUS: No active work,																
403	90Th	$\sigma_{n,2n}$		I			$T_{ns}=10$			10			GE	Snyder	DRDT	67
REQ COM: Needed for control of U ²³² production,																
STATUS: No active data,																

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
404	90Th	$\sigma_{n,\bar{e}}$		I	.5-	2			5-	10			BET Bayard	DNR	62
					REQ COM: Need < 5 per in res, integ., 10 per useful for thermal breeder calculations.										62
					STATUS: COL, Rahn ⁺ , data to be published, should give at least 10 per in RI; see NCSAC-42.										72
405	90Th	Absorption		II	100	to	1	3-	5				BET Bayard	DNR	69
					REQ COM: Accuracy 5 per below 10 keV, 3 per above, Intermediate accuracy would be useful.										69
					STATUS: COL, Rahn ⁺ , data to be published, see NCSAC-42.										72
406	90Th	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II		500	~15			10			AFWL Enz	DNA	69
					REQ COM: Spectra at a few energies may suffice, $\Delta E_n = 10$ percent; $\Delta E_{\bar{e}} = 250$ keV.										69
					STATUS: No active data.										72
407	90Th	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}}, E_{\gamma})$	II	.5	to	10			10			BET Bayard	DNR	67
					REQ COM: Need gamma spectrum at intervals of 0.5 MeV, DRDT Gammas of all energies of interest, DRDT Data needed for shielding and gamma heating calc.										67
					STATUS: BNL von Egidy ⁺ , fast chopper, Resonance spectra for first 4 resonances + thermal.										72
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
408	90Th	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	II			2, 14				35	BNL	Kouts	DNMS	69
															70
															70
															70
															72
409	91Pa ²³¹	$\sigma_{n,\bar{\nu}}$		II	Th	to	10			10		GE	Snyder	DRDT	69
															69
															72
410	* 91Pa ²³³	$\sigma_{n,\bar{\nu}}$		II	.001-2					5		IRT	Preskitt	DRDT	67
				II	2-	1				10		IRT	Preskitt	DRDT	69
				II	.001-	.1				10		ORNL	Perry	DRDT	69
															69
															72
															72
411	92U ²³³	Inelastic	$\sigma(E_n)$	III		40-	7			10-	20	ANL	Avery	DRDT	67
															67
															72

REQ COM: Accuracy refers to rel. intensities of delayed
gammas from fission $E_{\bar{\nu}} > 2$ MeV and $10 \text{ usec} < t < 1 \text{ hr}$
Absolute gamma yields to factor of 2 also useful,

STATUS: No active work,

REQ COM: Needed for control of U²³² production

STATUS: No active work,

REQ COM: Thorium cycle designs,

STATUS: BET Conner, WAPD-TH-837, 1970 gives $\sigma = 38.3 \pm 1.1$ b,
and $R = 657 \pm 35$ barns.

REQ COM: Need energy dependence to 5-10 per above 0.5 MeV

STATUS: No active data,

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
k12	92U ²³³	Emission	$\sigma(E_n)$	I			5-15				20	LLL	Howerton	DMA	70
					REQ COM: Energy range of interest: $0.2\text{MeV} \leq E_n \leq E_n$.										70
					STATUS: No active data.										72
k13	92U ²³³	$\sigma_{n,2n}$		II			$T_{90}=15$			10		LASL	Barr	DMA	67
				III			$T_{90}=15$			10		ACRP	Hannum	DRDT	67
					REQ COM: For contamination of U ²³³ by U ²³² , DRDT.										67
					STATUS: No active data.										72
k14	92U ²³³	$\sigma_{n,f}$		I	.001-	1		.5-	5			BET	Bayard	DNR	62
										10		OGA	Nordheim	DRDT	62
												ORNL	Perry		62
					REQ COM: Want eta to 1/k per below 1eV.										69
					Want integral eta to 1 per below 1 keV										69
					STATUS: LLL Behrens ⁺ have measurements in progress above										72
					0.01 eV, see NCSAC-42,										72
					BOHM Deruytter ⁺ , relative to ¹⁰ B, from 0.01-45 eV,										72
					in progress, EANDC(E)150/U,										72
					SAC Blons, data at liquid N temp., to be pub, NSE.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
417	$^{233}_{92}\text{U}$	Nu Bar		I	,001-	30		.25	-2			BET	Bayard	DNR	69
												GGA	Nordheim	DRDT	66
												ORNL	Perry	DRDT	69
												REQ COM: Need 1/4 per to 30 eV, 1 per 0.3 eV - 1 keV			69
												Need 2 per 1-30 keV			69
												Intermediate accuracy of 1.5 per useful			69
												STATUS: RPI Reed ⁺ have measurements in progress, thermal			72
												to 200 eV and 24 keV.			72
												BET	Bayard	DNR	69
												GGA	Nordheim	DRDT	69
418	$^{233}_{92}\text{U}$	Nu Bar		II		30-	3	1-3				ORNL	Perry	DRDT	69
												REQ COM: Is there structure below 1 MeV.			69
												STATUS: AUA Walsh ⁺ find evidence for structure (~2 per)			72
												below 1 MeV,			72
												LLL Howe ⁺ plan measurements, NCSAC-42.			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
419	$^{233}_{92}\text{U}$	Alpha		I	,001-	1		2-	8			BET	Bayard	DNR	62
												GGA	Nordheim	DRDT	62
												ORNL	Perry	DRDT	62
												REQ COM: 1/4 per in eta below 1eV, 1 per useful			69
												1/4 per in eta to 3eV,			69
												1 per in eta 30eV to 1 keV, 5 per useful			69
												Capture cross section equally useful,			69
												STATUS: Weston ⁺ estimate uncertainties in eta 0.5 per < .2			72
												eV up to 1 per at 1eV; <2 keV ~2 per integral eta			72
420	$^{233}_{92}\text{U}$	Alpha		II		1-	3			10-	20	ANL	Avery	DRDT	62
												BET	Bayard	DNR	62
												GGA	Nordheim	DRDT	62
												LMFB	Hammig-AFC	DRDT	67
												ORNL	Perry	DRDT	62
												REQ COM: Want 2 per in eta and integral eta			69
												from 1 keV to 30 keV			69
												Capture cross section equally useful			69
												STATUS: No active work,			72
421	$^{233}_{92}\text{U}$	Nu Bar	Prompt	1			7-20	3				LLL	Howerton	DMA	62
												REQ COM: Inconsistent results obscure energy dependence.			62
												STATUS: LLL Howe ⁺ plan measurements to 15 MeV; NCSAG-L2.			72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
422	92U ²³³	Res Par		II	Th=	5					10=	30	ANL	Avery	DRDT	67
													BET	Bayard	DNR	67
													LMFB	Hennig-AEC	DRDT	67
					REQ COM: For thermal breeder calculations											67
					Multilevel param., statistical dist, in eV range,											67
					Want 10 per accuracy to 100 eV, 20-30 per to 5 keV											67
					STATUS: CGL Felvinci ⁺ have analysis in progress, USNDC=1.											72
					LASL Keyworth ⁺ have measurements of J, K in											72
					progress at ORELA,											72
					Blons ⁺ single-level analysis completed to 100 eV,											72
					100-150eV in progress, EANDC(E) 150/U.											72
423	92U ²³³	Cap Spect	P(E _γ)	II	.01-15							15	BET	Bayard	DNR	67
					REQ COM: ΔN(E)/N(E) needed to 15 per every 50keV in E _γ .											67
					Gammas of 100 keV and above desired, for shielding											67
					Are thermal and resonance spectra the same,											67
					STATUS: No active work,											72
424	92U ²³³	Delayed γ Y	P(E _γ , T ^{1/2})	I			2, 14					35	BNL	Kouts	DNHS	69
					REQ COM: Accuracy refers to rel. intensities of delayed											70
					gammas from fission, E _γ > 2MeV and 10 usec < t < 1 hr											70
					Absolute gamma yields to factor of 2 also useful,											70
					STATUS: No active work,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	≥15	LAB	PERSON	ORG		
436	$^{92}\text{U}^{235}$	Emission	$\sigma(\sigma_n, E_n)$	I			6-20		5				LLL	Howerton	DMA	62
				I			6-16		5			LASL	Diven	DMA	69	
				II			1-7		5-10			LASL	Diven	DMA	69	
				REQ COM: Low-energy neutrons must be included (~300 keV). Absolute spectra at 30° and 75° may suffice,											69	
437	$^{92}\text{U}^{235}$	$\sigma_{n,2n}$	Act.	I			Ths-15		≤5			LLL	Howerton	DMA	70	
				REQ COM: Needed for evaluation, Measurements with less accuracy not helpful,											69	
				STATUS: No active work,											72	
				REQ COM: None											69	
438	$^{92}\text{U}^{235}$	$\sigma_{n,3n}$	II				Ths-16		10			LASL	Barr	DMA	67	
				STATUS: No active work,											72	

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
442	92 ^U 235	σ _{n,f}		I		10-	15	1					LASL Hansen	DMA	66
				I		10-	14	1					NDC Caswell	DPR	69
					REQ COM: Excitation cross sections at many energies req.										69
					Absolute calibration at several different energies										69
					Energy resolution 3 per, energy calibration 1 per										69
					STATUS: LASL Barton ⁺ , meas, at 1.5-7 MeV; plan 6-15 MeV.										72
					LLL Gzirr ⁺ , meas, rel. H > 50keV; rel ⁶ Li(n,ᾱ) < 1										72
					ANL Poenitz ⁺ measurements in progress 30-150 keV.										72
					Absolute points at 500, 966 keV planned.										72
					ORNL de Saussure ⁺ meas, rel, ¹⁰ B(n,ᾱ) and ⁶ Li(n,ᾱ)										72
					up to 1.5 MeV.										72
					ORNL Peele ⁺ meas, rel H planned to 15 MeV.										72
					ORNL Gwin ⁺ , rel, ¹⁰ B, to 200 keV, USNDC-3.										72
					AERE Gayther ⁺ measuring 1 keV-1 MeV, <5 percent.										72
					BCMN Deruytter ⁺ to 100 keV, rel, ¹⁰ B,										72
					EANDC(E) 150/U,										72
					CEA Szabo finds older data should be normalized										72
					upward by 2-4 percent, EANDC(E) 150/u,										72

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG		
444	92U ²³⁵	Eta		II	Th=	50		.5=	2				ANL	Avery	DRDT	67
													GE	Snyder	DRDT	67
													LMFB	Hemmig-AEC	DRDT	67
					REQ COM: Accuracy 0.5 per at thermal, 2 per elsewhere											67
					STATUS: No active work; however see alpha, nubar,											72
445	92U ²³⁵	Alpha		II	.001	to	7		5=	10			ANL	Avery	DRDT	69
													GE	Snyder	DRDT	69
													LMFB	Hemmig-AEC	DRDT	69
				I	.001-1				1				BET	Bayard	DNR	72
					REQ COM: Capture cross section equally useful,											69
					STATUS: ORNL deSaussure NCSAC-33, to 100 keV in progress,											70
446	92U ²³⁵	$\sigma_{n,f} + \sigma_{n,\bar{f}}$	at 77°K	II	Th=	1			3=	5			SNPO	Fleishman	DSNS	69
					REQ COM: Required are simultaneous measurements of capture and fission cross sections at low temperature, 77°K, to validate Doppler broadening calculations,											69
					STATUS: SAC Elons, NSE, to be published,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
447	92 ²³⁵ U	Nu Bar		I	Th	to	3	1					ANL Avery	DRDT	69
													GE Snyder	DRDT	69
													LMFB Hemmig-AEC	DRDT	69
					REQ COM: Needed as a cross check with other isotopes, Accuracy of 1,5 to 2 per would be useful,										69
					STATUS: RPI Reed ⁺ have measurements in progress, thermal to 200 eV and 2h keV,										72
					Howe ⁺ measurements in progress, NGSAC-42; USNDC-3,										72
					ORNL Peele ⁺ plan measurements to 1,5 MeV.										72
448	92 ²³⁵ U	Fis n Y	P(E _n)	II	Th	to	3		5				ANL Avery	DRDT	69
				I	Th			1					BET Bayard	DNR	72
				II	Th					10			KAPL Ehrlich	DNR	69
				II	Th	to	3		5				LMFB Hemmig-AEC	DRDT	69
					REQ COM: Verification of fission spectrum needed, ΔE _n = 5per for E _n < 0,3MeV and from 10-20MeV, KAPL,										69
					STATUS: ANL Smith ⁺ have measurements in progress < 1,6 MeV										72
					AERE Rose ⁺ find evidence for nonlinearity > 6 MeV,										72
					at E _n = 130 keV,										72
					LASL Auchampaugh ⁺ have verified spectrum										72
					linearity to 12 MeV at E _n = 1,85 MeV, USNDC-3,										72
					CEA Abramson ⁺ have data to be analyzed at										72
					E _n = 8-50 keV, EANDC(E) 150/U,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
449	$^{92}\text{U}^{235}$	Fis $\bar{\nu}$ Y	$P(E_{\bar{\nu}})$	II	Th						15		LASL Walton	DNMS	70
					REQ COM: For non-destructive assays of ^{235}U , Ge(Li) resolution required $\pm 2.5\text{keV}$ at 1.2MeV Need spectra 0.25-5MeV, and yield (photons/fission=MeV-sec) 1ms-12hr, to 15ner Associate gammas with fission products if possible										70
					STATUS: GRT Sund ⁺ , $\bar{\nu}$ -rays to 1 usec after fission for U-235, Pu-239, USNDC-1, p. 79.										72
450	$^{92}\text{U}^{235}$	Delayed n Y	$P(E_{n'})$	II	Th						15		WAPL Ehrlich	DNR	69
				II	Th	to	5			5			LMFB Hemmig-AEC	DRDT	69
					REQ COM: Needed for analysis of fast criticals, and to check existing data, DRDT, Yield, half-life and energy needed, DRDT,										69
					STATUS: LASL Evans ⁺ report corrected data, USNDC-3, ANL Cox, work in progress.										72
451	$^{92}\text{U}^{235}$	Delayed n Y		II			5-14			5			LASL Walton	DNMS	70
					REQ COM: Calculation of moderating assemblies for U assay Data needed for extrapolation to 15 MeV,										70
					STATUS: ANL Cox, work in progress.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
452	$_{92}\text{U}^{235}$	Cap Spect	$P(E_{\gamma})$	II	Th-15						10		BET	Bayard	DNR	67
				II	Th							20	KAPL	Ehrlich	DNR	67
					REQ COM: E_n thermal, gamma resol, $dn(E)/n(E) = 20$ per, KAPL											67
					E_n 0.001 to 15 eV, $dn(E)/n(E) = 10$ per at											67
					50 keV intervals for E_{γ} above 100 keV, BET											67
					Does spectrum change for thermal and resonances.											67
					STATUS: BNL Graves ⁺ , data for 6 resonances NCSAC-42, p.46,											72
					Geel Coceva ⁺ , low energy $\bar{\gamma}$ -ray data reported at											72
					Aix-en-Provence = 14 spin assignments made.											72
453	$_{92}\text{U}^{235}$	Delayed $\bar{\gamma}$ Y	$P(E_{\gamma}, T^{1/2})$	I			2, 14					35	BNL	Kouts	DNMS	69
					REQ COM: Accuracy refers to rel, intensities of delayed											70
					gammas from fission, $E_{\gamma} > 2\text{MeV}$ and $10 \text{ usec} < t < 1 \text{ hr}$											70
					Absolute gamma yields to factor of 2 also useful,											70
					STATUS: BNL Chrien ⁺ have some data for ^{235}U and ^{239}Pu ,											70
					Large ⁺ , Phys, Chem, Fission give some data on U,											69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
456	92U235	Fis Prod Y	of Cs137	II	Th				1				BET	Bayard	DNR	67
					REQ COM: For burn up indicator standards,											67
					STATUS: GE Meek and Rider, compilation summarizes status, NEDG-1215k,											72
																72
457	92U235	Fis Prod Y	of Sn149	II	Th				.3				BET	Bayard	DNR	67
					REQ COM: For calculation of fission product poisons											67
					STATUS: GE Meek and Rider, compilation summarizes status, NEDG-1215k,											72
																72
458	92U235	Fis Prod Y	of Nd147	II	Th				3				BET	Bayard	DNR	67
					REQ COM: For calculation of fission product poisons											67
					STATUS: GE Meek and Rider, compilation summarizes status, NEDG-1215k,											72
																72
459	92U236	Nu Bar	Prompt	I	*****											62
						500-	1k		3				LLL	Howerton	DMA	62
					REQ COM: None,											69
					STATUS: Conde and Holmberg, 0.8-6.7 MeV; <2 percent,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
460	$^{92}\text{U}^{236}$	Fis Spect	$P(E_n)$	II			*			10			LASL Walton	DNMS	70
					REQ COM: Background corr, in ^{235}U spent fuel assays.										70
					* Needed at one energy above fission threshold.										70
					STATUS: BCMN Coppola ⁺ have data at 1.5, 1.9, 2.3 MeV to be analyzed, EANDC(E) 150/u.										72
															72
461	$^{92}\text{U}^{236}$	Delayed n γ		I			3, 14			10			LASL Walton	DNMS	70
					REQ COM: Background corr, in ^{235}U spent fuel assay.										70
					STATUS: No active work.										72
462	$^{92}\text{U}^{236}$	$\sigma_{n,\bar{e}}$		I	Th=	1				10			GE Snyder	DRDT	69
					REQ COM: Needed for control of U^{232} production GE										69
					Needed for isotope build up in thermal										69
					and fast reactors and for Np^{237} production.										69
					Required 10 percent accuracy in capture widths.										69
					STATUS: GRT Carlson ⁺ reports radiation widths to 10 per.										72
					NP A141, 577.										72
					BCMN Rohr ⁺ , in progress to 3 keV.										72
463	* $^{92}\text{U}^{237}$	$\sigma_{n,f}$		II	100=		16			10			LASL Barr	DMA	67

					REQ COM: *Short-lived radioactive target, 6.7d										69
					STATUS: LASL McNally, LA 4420, data for 44 eV-1.8 MeV.										72

[illegible]

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
470	92U ²³⁸	Fis Ratio	wrt U ²³⁵	I		500-	15	1-	5				LASL Hansen	DHA	67
						REQ COM: Accuracy 5 per below 1.3 MeV, 1 per above, Energy resolution 3 per, energy calibration 1 per, Intermediate accuracy would be useful.									69
						STATUS: ANL Meadows ⁺ have data to 5.3 MeV, to be published, See USNDC-1, ANL Poenitz ⁺ have points at 2, 2.5, 3 MeV, with quoted accuracy ~2 per, USNDC-1, LLL Behrens ⁺ measurements in progress, NCSAC-42.									72
471	92U ²³⁸	Fis Ratio	wrt Pu ²³⁹	I		500-	1k	2-	k				LMFB Hemmig-AEC DRDT		69
						REQ COM: Accuracy 4 per below 1.3 MeV, 2 per 1.3-5 MeV, 3 per > 5 MeV, Energy resolution 3 per, energy calibration 1 per, Intermediate accuracy would be useful.									69
						STATUS: ANL work planned,									72
472	92U ²³⁸	Nu Bar		I			1-10	1					ANL Avery LMFB Hemmig-AEC DRDT		69
						REQ COM: Confirmation of Soleilhac data requested, need ratio to Cf Nu Bar,									72
						STATUS: LLL Howe ⁺ have measurements in progress.									72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
473	$^{92}\text{U}^{238}$	Delayed n Y		II			5-14		5				LASL Walton	DNMS	70
					REQ COM: Calculation of moderating assemblies for U assay, Data needed for extrapolation to 15MeV,										70
					STATUS: ANL Cox, work in progress, LASL Evans ⁺ have recorrected older work, see USNDC-3, NSE to be published,										72
474	$^{92}\text{U}^{238}$	Delayed n Y	$P(E_n)$	I	Th	to	5		5				LMFB Hemmig-AEC DWDT		72
					REQ COM: Available data discrepant										72
					STATUS: ANL Cox planning work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
475	92 ^{U238}	σ _{n,γ}		I	500	to	10	2	to	10			AI	Alter	DNDT	69
													ANL	Avery	DNDT	69
													GE	Snyder	DRDT	69
													LHFB	Hennig-AEC	DRDT	69
					REQ COM: Highest priority need for fast reactor calc, Accuracy 6 per from 500 eV to 1 keV, Accuracy 4 per from 1-300 keV, Accuracy 6 per from 300-500 keV, Accuracy 10 per from 500 keV to 10 MeV, Accuracy of 10 per from 1 keV to 10 MeV would be useful,											69
					STATUS: LLL Czirr ⁺ , USNDC-1, RPI Block ⁺ , USNDC-1, to 80 keV in progress, ANL Poenitz, measuring in 400-1500 keV range,											72
476	92 ^{U238}	σ _{n,γ}		I	Th	to	15			10			LLL	Howerton	DMA	69
					REQ COM: Needed for evaluation, Disagreements and gaps in existing data need to be resolved,											69
					STATUS: LLL Czirr ⁺ , USNDC-1, RPI Block ⁺ , USNDC-1, to 80 keV in progress, ANL Poenitz, measuring in 400-1500 keV range,											72
					STATUS: LLL Czirr ⁺ , USNDC-1, RPI Block ⁺ , USNDC-1, to 80 keV in progress, ANL Poenitz, measuring in 400-1500 keV range,											72
					STATUS: LLL Czirr ⁺ , USNDC-1, RPI Block ⁺ , USNDC-1, to 80 keV in progress, ANL Poenitz, measuring in 400-1500 keV range,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
477	92 ^{U238}	Tot $\bar{\epsilon}$ Prod	$\sigma(\theta_{\bar{\epsilon}}, E_{\bar{\epsilon}})$	II	.001	to	10	*		10			LHFB Hennig-AEC	DRDT	72
					REQ COM: Accuracy 10 per in spectrum										67
					Gamma ray spectrum desired at intervals of 0.5 Mev										67
					in gamma energy,										67
					Gammas of all energies wanted,										67
					For shielding and $\bar{\epsilon}$ heating calculations,										67
					STATUS: ANL Bollinger, average spectrum results,										72
					LASL journey, thermal capture spectrum, NCSAC-42,										72
478	92 ^{U238}	$\sigma_{n,\bar{\epsilon}}$ wrt or	$\sigma_{n,\bar{\epsilon}}$ Pu ²³⁹ $\sigma_{n,\bar{\epsilon}}$ U ²³⁵	I		10-	10	1,5	-7				ANL Avery	DRDT	69
													GE Snyder	DRDT	72
													LHFB Hennig-AEC	DRDT	69
													ORNL Perry	DRDT	69
					REQ COM: Needed is ratio of capture cross section of										69
					U ²³⁸ to fission cross section of Pu ²³⁹ or U ²³⁵ ,										72
					Direct ratio needed to supplement separate meas.										69
					Accuracy 1,5 per below 300 keV, 7 per above,										69
					Intermediate accuracy would be useful on near term										69
					Ratio data discrepant with absolute measurements,										72
					STATUS: ORNL de Saussure ⁺ have measurements rel. to ²³⁵ U										72
					and to ⁶ Li in progress to 100 keV, plan to extend										72
					to 800 keV,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
479	$^{92}\text{U}^{238}$	Delayed γ	$P(E_{\gamma}, T^{1/2})$	II			2, 14				35	ANL	Kouts	DNMS	69
					REQ COM: Accuracy refers to rel. intensities of delayed gammas from fission, $E_{\gamma} > 2\text{MeV}$ and $10\text{ usec} < t < 1\text{hr}$, Absolute gamma yields to a factor of 2 also useful										70
					STATUS: No active work.										72
480	$^{92}\text{U}^{238}$	Res Par		I		*					10	AI	Alter	DRDT	69
												ANL	Avery	DRDT	69
												GE	Snyder	DRDT	69
												LMFB	Hemmig-AEC	DRDT	69
					REQ COM: *Needed for Doppler effect on fast reactors, to as high energy as can be measured, Need answers to questions of missing p-wave levels and uncertainty of gamma-widths, Existing data $> 1\text{ keV}$ are discrepant,										69
					STATUS: GGL Rahn ⁺ , NCSAG-42 and USNDC-1, Trans, and Self indication measurements,										72
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
481	93Nd ²³⁷	σ _{n,2n}	Act.	II			Ths=15			10		SRL	Dessauer	DPMM	67
				II			Ths=10			10		GE	Snyder	DRDT	69
				I			Ths=15		≤5			LLL	Howerton	DMA	70
				REQ COM: To evaluate contamination of Pu ²³⁸ by Pu ²³⁶ Also needed for control of U-232 production Measurements with lower accuracy not helpful, LLL											67
STATUS: No active work,															72
482	93Nd ²³⁷	σ _{n,f}		II		1-	5			10		SRL	Dessauer	DPMM	67
				REQ COM: Subthreshold to several MeV, for Pu ²³⁸ production,											67
				STATUS: NBS Bowman ⁺ plan measurements rel. to ²³⁵ U(n,f) to 2 MeV,											72
483	93Nd ²³⁷	Fis Ratio	wrt U ²³⁵	III	20-	50				10		LASL	Hansen	DMA	66
				I		50-	1		5		LASL	Hansen	DMA	66	
				II			1-15	1			LASL	Hansen	DMA	66	
				REQ COM: < 50 keV; E _n (res) = 30 per; E _n (calib) = 10 per. > 50 keV; E _n (res) = 3 per; E _n (calib) = 1 per.											69
STATUS: NBS Bowman ⁺ plan measurements 10 keV-2 MeV.															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR					
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG						
484	93 ^{Np} 237	$\sigma_{n,\bar{e}}$		I	.001-	1		3	to	10		BNW	Leonard	DPHM	67					
				I	.001-	1						GE	Snyder	DNDT	67					
				II		1-	5					SRL	Dessauer	DPHM	67					
				REQ COM: Accuracy 3 per interval Th=10 eV Accuracy 5 per in $\bar{e}$, Accuracy 10 per in $\bar{e}$, from thermal to 1keV, For thermal reactor calc, and Pu-238 prod.																
485	93 ^{Np} 238	$\sigma_{n,\bar{e}}$		II	*****															
					Th=	1									10		BNW	Leonard	DPHM	67
					REQ COM: Needed to evaluate Pu ²³⁸ production. *Radioactive sample = 2.1 days															
					STATUS: No active work,															
486	94 ^{Pu} 238	$\sigma_{n,2n}$		I	-----															
					Ths=15															
REQ COM: Needed for evaluation,																				
STATUS: No active work,																				

REQ #	TARGET	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
487	^{238}Pu	$\sigma_{n,3n}$		I			14				50	LLL	Howerton	DMA	69
					REQ COM: Needed for evaluation,										69
					STATUS: No active work,										72
488	^{238}Pu	$\sigma_{n,f}$		III			1-10			10		AI	Alter	DRDT	72
					REQ COM: Neutron source in startup and reprocessing,										72
					STATUS: LASL Silbert ⁺ data to be published, See USNDC-3,										72
489	^{238}Pu	Fis Ratio	wrt U^{235}	I		10-	5	3				LASL	Hansen	DMA	66
					REQ COM: Appropriate calibration and resolution on E_n ,										69
					STATUS: None that satisfy accuracy requirements,										72
490	^{238}Pu	Nu Bar	Prompt	I		10-	15	3				LLL	Howerton	DMA	62
					REQ COM: None,										69
					STATUS: LLL Howe ⁺ have measurements in progress, NCSAC-42,										72
491	^{238}Pu	$\sigma_{n,\bar{e}}$		III		1-	10			10		AI	Alter	DRDT	69
				I	Th-	1				10		BNW	Leonard	DPMM	67
					REQ COM: Pu-238 production; neutron source in reprocessing,										72
					STATUS: LASL Silbert ⁺ data to be published, 16 eV-200 keV, See USNDC-3,										72

REQ #	TARGET			REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	*	Z	A	QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
492	94	Pu	238	$\sigma_{n,\bar{e}}$		I		1-300					50	LLL	Howerton	DMA	69
							REQ COM: Needed for evaluation,										69
							STATUS: LASL Silbert ⁺ to be published, to 200keV, USNDC-3,										72
493	94	Pu	238	$\sigma_{n,p}$		II		to	15				50	LLL	Howerton	DMA	69
							REQ COM: Needed for evaluation,										69
							STATUS: No active work,										72
494	94	Pu	238	Destruct	of Target	I		1-	1		5			LASL	Mots	DMA	66
						I		1-	15			10		LLL	Howerton	DMA	70
							REQ COM: None,										66
							STATUS: LASL Silbert ⁺ capture and fission data to be published, See USNDC-3,										72
																	72
495	94	Pu	239	Elastic	$\sigma(\theta_n)$	II			1-3			10		ANL	Avery	DRDT	69
						II			1-3			10		LMFB	Hennig-AEC	DRDT	69
						II			1-7			10		LASL	Diven	DMA	67
							REQ COM: Energy resolution 500 keV or better,										69
							STATUS: ANL Smith ⁺ data to 3.0 MeV, extending to 4.0 MeV,										72

REQ #	TARGET	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
496	^{239}Pu	Inelastic	$\sigma(E_n)$	I		10-	10				20	KAPL Ehrlich	DNR	72	
												LMFB Hennig-AEC	DRDT	69	
					REQ COM: None.									69	
					STATUS: ANL work in progress to 4.0 MeV,									72	
497	^{239}Pu	Emission	$\sigma(E_n)$	I			5-15				20	LLL Howerton	DMA	70	
					REQ COM: Energy range of interest: $0.2\text{MeV} \leq E_n \leq E_n$									70	
					STATUS: None.									72	
498	^{239}Pu	$\sigma_{n,2n}$		I			$T_{hs}=15$			10		LASL Barr	DMA	67	
				II			6-10			10		LMFB Hennig-AEC	DRDT	69	
		$\sigma_{n,2n}$	Act.	I			$T_{hs}=15$		≤ 5			LLL Howerton	DMA	70	
					REQ COM: Needed to predict buildup of Pu^{238} , LMFB, Measurements with lower accuracy not helpful, LLL,									67	
					STATUS: LASL Barr gets $150 \text{ mb} \pm 20$ per at 14 MeV,									72	
499	^{239}Pu	$\sigma_{n,3n}$		II			$T_{hs}=15$			20		LASL Barr	DMA	67	
		$\sigma_{n,3n}$	Act.	I			$T_{hs}=15$		≤ 5			LLL Howerton	DMA	70	
					REQ COM: None									67	
					STATUS: LASL Barr gets $1.5 \pm 0.5 \text{ mb}$ at 14 MeV,									72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	FUNSON	ORG	
500	⁹⁴ Pu ²³⁹	$\sigma_{n,f}$		I	Th-	1			1			GE	Snyder	DRDT	72
					REQ COM: Standard parameter for Pu-fueled reactor										67
					Direct measurements disagree										67
					Improved precision needed for thermal reactors										67
					U and Pu half lives should be confirmed as they										72
					affect this measurement,										72
					STATUS: LLL Behrens ⁺ measurements in progress, NCSAC-42.										72
					RPI Block ⁺ , plan meas, rel. to ²³⁵ U, Th at 24 keV.										72
					ECMN Theobald ⁺ in progress to 2keV, EANDC(E) 150/u										72
					SAC Blons, NSE, to be published,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR		
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG			
501	94Pu239	σ _{n,f}		I	1	to	10	2-	5					ANL	Avery	DRDT	69
				I	1	to	10	2-	5					GE	Snyder	DRDT	69
				I	1	to	10	2-	5					LMFB	Hemmig-AEC	DRDT	69
				I		50-	8	1					NDC	Caswell	DPR	69	
REQ COM: Highest priority for fast reactor calculations, 69																	
Accuracy 3 per below 20 keV, 2 per 20 keV to 3 MeV 69																	
Accuracy 5 per in energy range 3-6 MeV 69																	
Verification of current accuracy or intermediate 69																	
improvement would be useful. 69																	
Need related accuracy for 5-10 percent energy bins 72																	
STATUS: LLL Behrens ⁺ measurements in progress, NCSAC-42. 72																	
ORNL Gwin ⁺ to 1,5 in progress, See NCSAC-42, 72																	
ANL Poenitz, 0.5-5.0 MeV rel. to ²³⁵ U, in progress 72																	
NBS Bowman ⁺ plan measurements 0.1-2.0 MeV, 72																	
RPI Block ⁺ measurements in progress, 1-200 keV, 72																	
AERE Gayther ⁺ measurements in progress agree to 5 72																	
per with Sowerby ⁺ evaluation, AEREN 2497. 72																	
SAC Blons, to 30 keV, NSE, to be published, 72																	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
502	²³⁹ Pu ₉₄	Fis Ratio	wrt U ²³⁵	I		10-	14	2					LMFB Hennig-AEC	DRDT	72
				I		10-	15	1					LASL Hansen	DMA	66
REQ COM: Energy resolution 3 per., energy calibration 1 per															
Need 2 per for avg over 5-10 per energy intervals,															
STATUS: NBS Bowman ⁺ plan measurements 0.1-2 MeV, 2-5 per.															
ANL Poenitz ⁺ in progress 0.15-3 MeV, 1 percent,															
LLL Behrens ⁺ in progress, expect 2 per, NCSAC-k2.															
GRNL Gwin ⁺ in progress to 1.5 MeV, expect 2 per,															
See NCSAC-k2.															
RPI Block ⁺ in progress to 200 keV, expect 1 per.															
CEA Szabo ⁺ have completed new measurements 17 keV															
to 1 MeV, EANDC(E) 150/U.															

[illegible]

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
504	94Pu239	Delayed n	Y	P(E _n)	II	Th	to	5		5			ANL	Avery	DRDT	69
													LMFB Hemmig-AEC	DRDT		69
						REQ COM: Needed for analysis of fast criticals and fast reactor calculations.										69
						Yield, half life, and energy needed. DRDT										69
						STATUS: No active work.										72
505	94Pu239	Delayed n	Y		II			3-14			10		LASL Walton		DNMS	70
						REQ COM: Calculation of moderating assemblies for Pu assay, Data needed for extrapolation to 15MeV,										70
						STATUS: LASL Evans ⁺ report recorrected older work, NSE, to be published, USNDC-3, ANL Cox, work in progress,										72
																72
																72
506	94Pu239	Eta			I	Th-1				1			GE	Snyder	DRDT	67
						REQ COM: For Pu-fueled reactor calculations										67
						Desire accuracy to 0.5 per, Th-1 eV										67
						Standard parameter, want value at 0.025 eV,										67
						STATUS: No active work; however, see alpha and nubar,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
509	$^{239}_{94}\text{Pu}$	Fis $\frac{1}{2}$ Y	$P(E_{\gamma})$	II	Th						15		LASL Walton	DNMS	70
					REQ COM: For non-destructive assays of ^{239}Pu . Ge(Li) resolution required-2,5 keV at 1,2 MeV. Need spectra 0,25-5 MeV, and yield (photons/fission-MeV-sec) 1ms-12hr, to 15 percent. Associate gammas with fission products if possible										70
					STATUS: Kimhof ⁺ , 4 min=2h hrs. NGSAC-42, p. 142.										70
510	$^{239}_{94}\text{Pu}$	Cap Spect	$P(E_{\gamma})$	III	Th-100						20		LASL Walton	DNMS	70
					REQ COM: Development of new Pu assay technique, Ge(Li) resolution (2,5keV, at 1,2MeV) required, Gamma yield per capture required to 20 percent, Need spectra above 1,2MeV gamma energy.										70
					STATUS: No active work.										70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
511	94Pu239	Res Par		II	Thr=50						10		ANL Avery	DRDT	69
													LMFB Hennig-AEC	DRDT	69
													GE Snyder	DRDT	69
					REQ COM: For thermal reactors, and to determine statistical parameters for extrapolation to higher energy for fast reactor calculations.										69
					Exact requirements on accuracy not yet established										69
					STATUS: SAC Blons, NSE, to be published, report analysis of data taken at liquid N temp,										72
512	94Pu239	Fis Prod Y	of Xe135	II	Th			3					BET Bayard	DNR	67
					REQ COM: For calculation of fission product poison Cumulative and direct (inclusive of 15 M isomer) is wanted,										67
					STATUS: GE Meek and Rider compilation summarizes status, NEDG-12154,										72
513	94Pu239	Fis Prod Y	of Cs137	II	Th			1					BET Bayard	DNR	67
													SRL Dessauer	DPMH	67
					REQ COM: For burnup indicator standard,										67
					STATUS: GE Meek and Rider compilation summarizes status, NEDG-12154,										72
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
514	94Pu ²³⁹	Fis Prod Y	of Nd ¹⁴⁷	II	Th			3				BET	Bayard	DNR	67
					REQ COM: For calculation of Fission product poisons,										67
					STATUS: GE Meek and Rider compilation summarizes status, NEDG-12154,										72
515	94Pu ²³⁹	Fis Prod Y	of Sm ¹⁴⁹	II	Th			3				BET	Bayard	DNR	67
					REQ COM: For calculation of Fission product poisons										67
					STATUS: GE Meek and Rider compilation summarizes status, NEDG-12154,										72
516	94Pu ²⁴⁰	Inelastic		II	*****			1.5-10			20	GE	Snyder	DRDT	72
					*****										69
					*****										69
					REQ COM: Emission G's might be equally useful at the higher energies,										69
					STATUS: ANL Smith ⁺ , data to 1.5 MeV, work planned to higher energies,										72
					*****										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
517	94Pu240	σ _{n,f}		II		500-	10		5			GE	Snyder	DRDT	72
				II	500-	100			9			LMFB Hemmig-AEC	DRDT	72	
					REQ COM: Important for fast reactor calculations.										69
					STATUS: LLL Behrens* measurements in progress, NCSAC-42.										72
					ORNL Weston* measurements in progress to 250 keV.										72
					AERE Belcher* measurements in progress rel. to 235U to 1 MeV.										72
															72
518	94Pu240	Fis Ratio	wrt U235	III		1-100			5			ACRP Hannum	DRDT	72	
				II		1-	15	2				LASL Hansen	DMA	67	
				II		100-	5	3				LMFB Hemmig-AEC	DRDT	72	
					REQ COM: < 100 keV; E _n (res) = 6 per; E _n (calib) = 2 per.										67
					> 100 keV; E _n (res) = 3 per; E _n (calib) = 2 per.										67
					Accuracy 5 percent useful.										72
					STATUS: LLL Behrens* measurements in progress, NCSAC-42.										72
					AERE Belcher* measurements in progress to 1 MeV.										72
519	94Pu240	Pu Bar		II		Ths-	10	3				ANL Avery	DRDT	72	
												LMFB Hemmig-AEC	DRDT	69	
					REQ COM: Accuracy of 5 percent would be useful.										72
					STATUS: SCU Savin* 70 HELS 2, 157, 3-5 per in energy										72
					region 1-4 MeV, Solieihac* planning 1-14 MeV.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
520	$^{240}_{94}\text{Pu}$	Delayed n Y		II		750-	1h					20	LASL Walton	DNMS	70
					REQ COM: Calculation of moderating assemblies for Pu assay Data needed for extrapolation to 15MeV,										70
					STATUS: ANL Cox will try if sample is available,										72
521	$^{240}_{94}\text{Pu}$	$\sigma_{n,\bar{g}}$		I	Th=100				3				GE Snyder	DRDT	67
					REQ COM: Improved precision needed for thermal reactors,										67
					STATUS: Discrepancy between RPI and older measurements has been resolved, see Hockenbury ⁺ NSE 49, 153.										72
															72
522	$^{240}_{94}\text{Pu}$	$\sigma_{n,\bar{g}}$		I	500-	150			5				ANL Avery	DRDT	69
				I		150-	1				10		GE Snyder	DRDT	72
				I									LMFB Hammig-AEC	DRDT	69
					REQ COM: Accuracy of 15 per would be useful, High priority for fast reactor calculations										69
					STATUS: Discrepancy between RPI and older measurements has been resolved, see Hockenbury ⁺ NSE 49, 153.										72
					ORNL Weston ⁺ measurements in progress to 250 keV.										72
529	$^{240}_{94}\text{Pu}$	Alpha		II		150-	7				10		LLL Howerton	DMA	62
					REQ COM: None,										62
					STATUS: ORNL Weston ⁺ measurements in progress to 250 keV.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
524	$^{240}_{94}\text{Pu}$	Res Par		II	100-	5					10		ANL Avery	DRDT	69
													LMFB Hemmig-AEC	DRDT	69
					REQ COM: Needed for fast reactor calc., incl. Doppler eff, Existing data discrepant.										69
					STATUS: RPI Hockenbury ⁺ , NSE(1972); capture, fission and total measurements to 30 keV, Deduced res. par. for 35 resonances below 500 eV.										72
															72
															72
525	$^{240}_{94}\text{Pu}$	Delayed γ	$P(E_{\gamma}, T^{1/2})$	II			2, 14				35		BNL Kouts	DNMS	69
					REQ COM: Accuracy refers to rel. intensities of delayed gammas from fission, $E_{\gamma} > 2\text{MeV}$ and $10\text{ usec} < t < 1\text{hr}$. Absolute gamma yield to factor of 2 also useful.										70
															70
					STATUS: HAR Thomas resonance ($n, \bar{g}$) data from Pu-240 in eV region, shows delayed component, UKNDG, p. 37.										72
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG		
526	94Pu241	σn,f		I	Th=	30		3	to	10			ANL Avery	DRDT	69	
		Fis Ratio	wrt U235	I		1=	10		5				GE Snyder	DRDT	69	
													LMFB Hennig-AEC	DRDT	72	
					REQ COM: Accuracy to 3 per from thermal to 10 eV,											69
					10 per from 10eV to 30keV,											69
					Ratio to U235 or Pu239 would be useful											69
					STATUS: ORNL Weston+, in progress, rel. to 10B(n,α), to											72
					200 keV,											72
					LLL Behrens+ in progress, rel. to 235U, UOSAC-42,											72
					CEA Szabo+ have completed measurements 17 keV to											72
					1 MeV, KANDC(E) 150/U,											72
					SAC Blons report data taken at liq, N temp., to											72
					30 keV, NSE, to be published											72
527	94Pu241	Fis Ratio	wrt U235	II		10=	15	1					LASL Hansen	DMA	66	
					REQ COM: Energy resolution 3 per, energy calibration 1 per,											69
					STATUS: LLL Behrens+ in progress, NCSAC-42,											72
526	94Pu241	Nu Bar		II			1-10		6				ANL Avery	DRDT	72	
						1,	1		4				LMFB Hennig-AEC	DRDT	69	
					REQ COM: None,											72
					STATUS: LLL Howe+ plan measurements > 10 keV, See NCSAC-42											72
					Conde+, 5 values from 0.52-15 MeV, JNE 22, p. 53,											68

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
532	$^{241}_{94}\text{Pu}$	Res Par		II	Th=	.4			5	to	20	ANL	Avery	DRDT	72
					REQ COM: Accuracy 5 per from thermal to 100 eV, Accuracy 10 per from 100 eV to 400 eV, 20 per would be useful for thermal and fast reactor calculations.										67
					STATUS: SAC Elons ⁺ , least squares multilevel analysis in progress, EANDC(E) 150/U.										72
533	$^{241}_{94}\text{Pu}$	Delayed n Y		III	Th	to	14		10			LLNL	Walton	DNMS	70
					REQ COM: Calculation of moderating assemblies for Pu assay Data needed for extrapolation to 15MeV.										70
					STATUS: ANL Cox may attempt if sample is available,										72
534	$^{242}_{94}\text{Pu}$	$\sigma_{n,2n}$		I	***** Th=15 15 LLL Howerton DMA										69
					REQ COM: Needed for evaluation,										69
					STATUS: No active work,										72
535	$^{242}_{94}\text{Pu}$	Nu Bar		II	500=	10		5				LMFB	Hennig-AEC	DRDT	69
					REQ COM: None										69
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG		
536	^{242}Pu	Nu Bar	Prompt	II		500-	1k	3					LLL	Howerton	DMA	62
					REQ COM: None,											69
					STATUS: No active work.											72
537	^{242}Pu	Delayed n Y		III			3, 1k				20		LASL	Walton	DNMS	70
					REQ COM: Calculation of moderating assemblies for Pu assay											70
					STATUS: LASL Evans ⁺ report recorrected older data, to be published NSE, see USNDC-3,											72
																72
538	^{242}Pu	$\sigma_{n,\bar{\gamma}}$		I	Th	to	7	3-			20		BNW	Leonard	DPHM	67
				II	Th	to	7	3-			20		GE	Hutchins	DRDT	72
				I		1-	7				<20		LMFB	Hemmig-AEC	DRDT	72
					REQ COM: Accuracy: 3 per to 100 eV; 10 per, 100 eV to 1 keV											67
					Accuracy: 15-20 per from 1 keV to 7 MeV,											72
					Accuracy: Res. params, to 10-20 per below 10 keV,											67
					For fast breeder calc., Cm, Cf production,											67
					STATUS: RPI Hockenbury ⁺ , capture measurements up to 30 keV are in progress,											72
																72

[illegible]

REQ #	TARGET Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
546	$^{95}\text{Am}^{242}$	$\sigma_{n,f}$		II	Th=	10				10=	20	SRL	Dessauer	DPHM	69
					REQ COM: Cross section needed for 150 year isomer, Require accuracy 10 per in thermal value and RI, Needed to determine Cm^{244} production.										69
					STATUS: LLL Brown ⁺ plan measurement, see NCSAG-42.										72
547	$^{95}\text{Am}^{242}$	$\sigma_{n,\gamma}$		II	Th	to	10			15		GE	Hutchins	DRDT	72
				I	Th	to	5			≤10		LLL	Howerton	DMA	69
				II	Th=	10				10=	20	SRL	Dessauer	DPHM	69
					REQ COM: Needed for evaluation, LLL, Cross section wanted for 152 year isomer, Need resonance integral and thermal value to 10 percent, to evaluate Cm^{244} production, SRL.										69
					STATUS: No active work,										72
548	$^{95}\text{Am}^{243}$	Total		I	Th=	10				2		BNW	Leonard	DPHM	67
					REQ COM: Res. int. wanted for Cm^{244} production, Needed for long term reactivity calculations.										67
					STATUS: AND Simpson ⁺ , meas. trans. from 0.5 to 1000 eV, ANCR=1060.										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
552	$^{96}\text{Gm}^{243}$	Total		II	Th=	10				10		SRL	Dessauer	DPMH	67
					REQ COM: Resonance energies wanted to evaluate Cm^{244} prod.										67
					Accuracy 10 per in res, integral										67
					STATUS: No active work.										72
553	$^{96}\text{Gm}^{243}$	$\sigma_{n,f}$		II	Th=	10				10		SRL	Dessauer	DPMH	67
				I		10-100				10		LASL	Cowan	DMA	69
					REQ COM: Needed to evaluate Cm^{244} production.										67
					Accuracy 10 per in resonance integral										67
					STATUS: LASL Diven, data to be analyzed from Physics 8,										72
					LLL Browne ⁺ plan measurements, see NCSAC-42,										72
554	$^{96}\text{Gm}^{243}$	$\sigma_{n,\bar{e}}$		II	Th=	10			5-	10		SRL	Dessauer	DPMH	69
					REQ COM: Require alpha to 10 percent.										69
					Accuracy 5-10 per in thermal value and R.I.										69
					STATUS: No active work.										72
555	$^{96}\text{Gm}^{244}$	$\sigma_{n,2n}$		I	*****										69
						Th=15				15		LLL	Howerton	DMA	69
					REQ COM: Needed for evaluation,										69
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR			
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG				
560	$^{96}\text{Cm}^{245}$	$\sigma_{n,f}$		I	Th=	10					10		SRL	Dessauer	DPHM	67		
				I		10-100					10		LASL	Cowan	DMA	69		
				REQ COM: Need 10 per in σ and res. int., to eval. Cf prod.														
				Need integral alpha to 10 per, thermal and res.														
561	$^{96}\text{Cm}^{245}$	$\sigma_{n,\bar{e}}$		I	Th=	10					10		SRL	Dessauer	DPHM	69		
				REQ COM: Need 10 per in res. int., to evaluate Cf prod.														
				Need integral alpha to 10 per, thermal and res.														
				STATUS: LLL Browne ⁺ plan measurements, NCSAC-42.														
562	$^{96}\text{Cm}^{246}$	Total		I	Th=	10							10		SRL	Dessauer	DPHM	67

				REQ COM: Resonance structure desired, to evaluate Cf prod.														
				Accuracy 10 per in resonance integral														
563	$^{96}\text{Cm}^{246}$	$\sigma_{n,f}$		I		10-100							10		LASL	Cowan	DMA	69
				REQ COM: To evaluate Cf ²⁵² production by R-process.														
				STATUS: No active work in this energy region.														

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
564	$^{96}\text{Gm}^{246}$	$\sigma_{n,\bar{f}}$		I	Th=	10					10		SRL	Dessauer	DPMM	69
					REQ COM: Need accuracy 10 per in resonance integral, Resonance structure desired, to evaluate Cf prod,											69
					STATUS: No active work,											72
565	$^{96}\text{Gm}^{247}$	Total		I	Th=	10						20	SRL	Dessauer	DPMM	67
					REQ COM: Need 20 per in res, int, to evaluate Cf prod,											67
					STATUS: No active work,											72
566	$^{96}\text{Gm}^{247}$	$\sigma_{n,f}$		I	Th=	10				5=	10		SRL	Dessauer	DPMM	67
				I		10=100					10		LASL	Cowan	DMA	69
					REQ COM: Need 5=10 per in thermal value and RI, SRL, Need 10 per in σ to evaluate Cf prod, by R-process, LASL,											67
					STATUS: LLL Browne ⁺ plan measurements, NCSAC=42,											72
567	$^{96}\text{Gm}^{247}$	$\sigma_{n,\bar{f}}$		I	Th=	10				5=	10		SRL	Dessauer	DPMM	69
					REQ COM: Need 5=10 per in res, int, and thermal value, to evaluate Cf production,											69
					STATUS: No active work,											72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
568	$^{96}\text{Gm}^{248}$	Total		I	Th=	10					20	SRL	Dessauer	DPMM	67
					REQ COM: Need 50 per accuracy at thermal										67
					Need 20 per in res. int. to evaluate Cf prod.										67
					STATUS: SRL Benjamin ⁺ plan measurements at GRELA,										72
569	$^{96}\text{Gm}^{248}$	$\sigma_{n,f}$		I		10-100				10		LASL	Cowan	DMA	69
					REQ COM: To evaluate Cf production,										69
					STATUS: No active work in this energy region,										72
570	$^{96}\text{Gm}^{248}$	$\sigma_{n,\bar{e}}$		I	Th=	10				10		SRL	Dessauer	DPMM	69
					REQ COM: Need 10 per at thermal and in resonance integral to evaluate Cf production,										69
					STATUS: SRL Benjamin ⁺ will try to infer from total cross section measured on GRELA,										72
															72
571	$^{97}\text{Bk}^{249}$	Total		I	Th=	10					20	SRL	Dessauer	DPMM	67
					REQ COM: Res. param. desired to evaluate Cf production.										67
					Need 20 per in resonance integral,										67
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
572	$^{97}\text{Bk}^{249}$	$\sigma_{n,\bar{e}}$		I	Th=	10				10		SRL	Dessauer	DPMM	69
					REQ COM: For Cf production, 10 per thermal and HI,										69
					STATUS: No active work.										72
573	$^{98}\text{Cf}^{249}$	$\sigma_{n,f}$		I		10-100				10		LASL	Cowan	DMA	69
					REQ COM: None.										69
					STATUS: LASL Silbert has data to be published, USNDC-3, LLL Browne ⁺ plan measurements, NCSAC-42.										72
					*****										72
574	$^{98}\text{Cf}^{250}$	Total		I	Th=	10				20		SRL	Dessauer	DPMM	67
					REQ COM: Resonances desired to evaluate Cf production, Need 20 per in res, int, to evaluate Cf ²⁵² prod.										67
					STATUS: No active work.										72
575	$^{98}\text{Cf}^{250}$	$\sigma_{n,f}$		I	Th=	10				10		SRL	Dessauer	DPMM	67
				I		10-100				10		LASL	Cowan	DMA	69
					REQ COM: To evaluate Cf production, Accuracy 10 per in res, integral, SRL,										67
					STATUS: No active work.										67
															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
576	$^{250}_{98}\text{Cf}$	$\sigma_{n,\bar{g}}$		I	Th-	10				10		SRL	Dessauer	DPMH	69
					REQ COM: Need 10 per in res. int. to eval. Cf^{252} prod.										69
					STATUS: No active work.										72
577	$^{251}_{98}\text{Cf}$	$\sigma_{n,\bar{g}}$		I	Th-	10				10		SRL	Dessauer	DPMH	67
					REQ COM: To evaluate Cf production,										67
					Accuracy 10 per in resonance integral,										67
					STATUS: No active work.										72
578	$^{252}_{98}\text{Cf}$	$\sigma_{n,f}$		I		10-100				10		LASL	Cowan	DMA	69
					REQ COM: None.										69
					STATUS: No active work.										72
579	$^{252}_{98}\text{Cf}$	Nu Bar		I					.25			NDC	Gaswell	DFR	69
												BET	Hayard	DNR	72
					REQ COM: Required is nubar for spontaneous fission of Cf^{252}										69
					as primary standard.										69
					STATUS: NPL Axton has work in progress.										70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
580	$^{98}\text{Cf}^{252}$	Nu Bar		I				<1				AI	Alter	DNRT	72
					REQ COM: Spontaneous fission source; required as standard,										72
					STATUS: No active work,										72
581	$^{98}\text{Cf}^{252}$	Fis Spect	$P(E_n)$	I				1				BET	Bayard	DNR	72
				I				5*				NDC	Caswell	DPR	72
					REQ COM: Spontaneous fission source,										72
					One percent in mean energy of spectrum req, DNR,										72
					5 percent in shape; 5 percent in energy, DPR,										72
					Needed for reference standard,										72
					STATUS: No active work,										72
582	$^{98}\text{Cf}^{252}$	$\sigma_{n,\bar{g}}$		I	Th-	10			10			SRL	Dessauer	DPMM	67
					REQ COM: To evaluate Cf production										67
					Accuracy 10 per in resonance integral,										67
					STATUS: No active work,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
583	* $_{98}\text{Cf}^{253}$	$\sigma_{n,g}$		II	Th=	10					20	SRL	Dessauer	DPM	67
					REQ COM: To evaluate Cf production										67
					Accuracy 20 per in res, integral										67
					*Target half-life 18d,										67
					Want to confirm that thermal cross sect, < 3b,										67
					STATUS: ORNL Bemis, NSE h1, 146 gives sigma eff. = 17.6 b										72
					for pile neutrons,										72
584	* $_{99}\text{Es}^{253}$	$\sigma_{n,f}$		I		10-100					10	LASL	Gowan	DMA	69
					REQ COM: *Target half-life 20d,										69
					STATUS: LASL Silbert, USNDC-3, no active work,										72
585	* $_{99}\text{Es}^{254}$	Alpha		II	Th=	20					20	LASL	Bell	DMA	67

					REQ COM: Needed to plan for production of Fm^{257}										67
					*Target half-life 480d,										67
					STATUS: No active work,										72

TABLE 2. PHOTONS INCIDENT

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
$\sigma_{g,f}^-$		Photofission cross section
$\bar{g},n$	Total n Y	Total yield of neutrons per incident photon
$\bar{g},n$	Delayd n Y	Delayed neutron yield per incident photon
$\bar{g},f$	Del $\bar{g}$ spec	Spectrum of delayed fission gammas per incident photon
Photoneut	Yield	Photoneutron yield

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REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
590	${}^4_2\text{Be}$	$\bar{\nu}, n$	Total n Y	II			Ths=10				20	IRT	Bramblett	DNMS	72
REQ COM: Background effect on non-destr, photonuc, assay, Electron energy resol, 1 percent, Total neut, yield produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop elects, Neutron yield absolute or relative to D($\bar{\nu}, n$).															70
STATUS: No useful data,															72
591	${}^{13}_6\text{C}$	$\bar{\nu}, n$	Total n Y	II			Ths=10				20	IRT	Bramblett	DNMS	72
REQ COM: Background effect on non-destr, photonuc, assay, Electron energy resol, 1 percent, Total neut, yield produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop elects, Neutron yield absolute or relative to D($\bar{\nu}, n$).															70
STATUS: No useful data,															72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
594	$^{232}_{90}\text{Th}$	$\bar{\nu}, n$	Delayed n Y	I			Ths=10			10		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc, assay of Th mixtures Delayed neut. yield produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to D($\bar{\nu}, n$), Electron energy resolution 1 percent.										70
					STATUS: Relative data of Gozani+, Trans,ANS13,707(1970). Katz+, Can,J.Phys,35,470(1957).										70
595	$^{232}_{90}\text{Th}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	III			10			10		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc, assay of Th mixtures Electron energy resolution 5 percent, Absolute fission product delayed gamma yield (1ms-1hr) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Emergent gamma energies 0.5-5 MeV, $\Delta E_{\gamma} = 3 \text{ keV}$.										70
					STATUS: Prelim. data of Rundquist, Trans,ANS13,746(1970).										70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
598	$_{92}\text{U}^{233}$	$\bar{E}, f$	Del $\bar{E}$ Spec	II			10			10			IRT Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc, assay of ^{233}U , Electron energy resolution 5 percent, Absolute fission product delayed gamma yield (1ms-1hr) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Emergent gamma energies 0.5-5 MeV, $\Delta E_{\gamma} = 3 \text{ keV}$,										70
					STATUS: No data,										72
599	$_{92}\text{U}^{235}$	$\bar{E}, n$	Total n Y	II	***** Tns=10 30 IRT Bramblett DNMS										72
					REQ COM: For non-destructive photonuc, assay of ^{233}U , ^{235}U , λ neutron yield (incl, fission) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron energy resolution 1 percent.										70
					STATUS: No data,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
600	$^{92}\text{U}^{234}$	$\bar{\nu}, n$	Delayed n Y	III			Ths=10			30		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of $^{233}\text{U}, ^{235}\text{U}$, Delayed neut, yield produced by bremsstrahlung required. Converter (prefer Ta) thick enough to stop electrons. Absolute neutron yield or relative to D($\bar{\nu}, n$). Electron energy resolution 1 percent,										70
					STATUS: No data,										72
601	$^{92}\text{U}^{234}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	III			10			30		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of $^{233}\text{U}, ^{235}\text{U}$, Electron energy resolution 5 percent. Absolute fission product delayed gamma yield (1ms-1hr) produced by bremsstrahlung required. Converter (prefer Ta) thick enough to stop electrons. Emergent gamma energies 0.5-5 MeV, $\Delta E_{\bar{\nu}} = 3 \text{ keV}$,										70
					STATUS: No data,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
602	$^{92}\text{U}^{235}$	$\bar{\nu}, n$	Total n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{235}U . by neutron yield (incl. fission) produced by bremsstrahlung required. Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\nu}, n)$. Electron energy resolution 1 percent.										70
					STATUS: Relative data of Gozani+, Trans,ANS13,707(1970). LLL Bowman+, PR 133, B676(1964).										7C
							Ths=10			10		IRT	Bramblett	DNMS	72
603	$^{92}\text{U}^{235}$	$\bar{\nu}, n$	Delayed n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{235}U . Delayed neut. yield produced by bremsstrahlung required. Converter (prefer Ta) thick enough to stop electrons. Absolute neutron yield or relative to $D(\bar{\nu}, n)$. Electron energy resolution 1 percent.										70
					STATUS: Relative data of Gozani+, Trans,ANS13,707(1970).										70

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REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
604	$^{92}\text{U}^{235}$	$\bar{\gamma}, f$	Del $\bar{\gamma}$ Spec	II			10			10			IRT Bramblett DNMS	72	
REQ COM: For non-destructive photonuc, assay of ^{235}U , Electron energy resolution 5 percent, Absolute fission product delayed gamma yield (1ms-1hr) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Emergent gamma energies 0.5-5 MeV, $\Delta E_{\bar{\gamma}} = 3 \text{ keV}$.														70	
STATUS: Prelim, data of Rundquist, TRANS,ANS13,746(1970).														70	
605	$^{92}\text{U}^{236}$	$\bar{\gamma}, n$	Total n Y	II	*****			Ths=10		30			IRT Bramblett DNMS	72	
REQ COM: For non-destructive photonuc, assay of ^{235}U , lx neutron yield (incl, fission) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\gamma}, n)$. Electron energy resolution 1 percent,														70	
STATUS: No data.														72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
606	$^{236}_{92}\text{U}$	$\bar{\nu}, n$	Delayed n Y	II			Ths=10			30		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{235}U , Delayed neut. yield produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\nu}, n)$, Electron energy resolution 1 percent,										70
					STATUS: None,										72
607	$^{236}_{92}\text{U}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	III			10			30		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{235}U , Electron energy resolution 5 percent, Absolute fission product delayed gamma yield (1ms-1hr) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Emergent gamma energies 0.5-5 MeV, $\Delta E_g = 3 \text{ keV}$.										70
					STAT'S: No data,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR	
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG		
610	$_{92}^{238}\text{U}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	II			10			10			IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of uranium. Electron energy resolution 5 percent, Absolute fission product delayed gamma yield (1ms=1hr) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Emergent gamma energies 0.5-5 MeV, $\Delta E_{\gamma} = 3$ keV.											70
					STATUS: Prelim. data of Rundquist, Trans. ANS 13, 716 (1970).											70
611	$_{94}^{239}\text{Pu}$	$\bar{\nu}, n$	Total n Y	II			Ths=10			10			IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{239}Pu , ΔE neutron yield (incl. fission) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\nu}, n)$. Electron energy resolution 1 percent.											70
					STATUS: Relative data of Gozani+, Trans. ANS 13, 707 (1970).											70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
614	$^{240}_{94}\text{Pu}$	$\bar{\gamma}, n$	Total n Y	II			$T_{90}=10$			10		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{239}Pu , h ν neutron yield (incl. fission) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\gamma}, n)$, Electron energy resolution 1 percent,										70
					STATUS: No data.										72
615	$^{240}_{94}\text{Pu}$	$\bar{\gamma}, n$	Delayed n Y	II			$T_{90}=10$			10		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc. assay of ^{239}Pu , Delayed neut. yield produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\gamma}, n)$, Electron energy resolution 1 percent,										70
					STATUS: No data.										72

REQ #	TARGET Z A	REACTION TYPE		PRI OK	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
618	$^{241}_{94}\text{Pu}$	$\bar{\nu}, n$	Delayed n Y	III			Ths-10			30		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc, assay of Pu, Delayed neut, yield produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Absolute neutron yield or relative to $D(\bar{\nu}, n)$, Electron energy resolution 1 percent,										70
					STATUS: None,										72
619	$^{241}_{94}\text{Pu}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	III			10			30		IRT	Bramblett	DNMS	72
					REQ COM: For non-destructive photonuc, assay of Pu, Electron energy resolution 5 percent, Absolute fission product delayed gamma yield (1ms-1hr) produced by bremsstrahlung required, Converter (prefer Ta) thick enough to stop electrons, Emergent gamma energies 0.5-5 MeV, $\Delta E_{\gamma} = 3$ keV,										70
					STATUS: No data,										70

TABLE 3. MEDIUM ENERGY REQUESTS

<u>Reaction</u>	<u>Variables Allowed</u>	<u>Definition</u>
Tot p Reac		Total reaction cross section for incident protons
$\sigma_{p,x}$	$\sigma(E_x)$	Cross section for the emission of a charged-particle, x, where x is one of many charged particles allowed
σ_{p, Li^6}		Cross section for Li^6 production due to incident protons
$\sigma_{p,A=19}$		Cross section for the production of mass 19 particles
$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	Angle and energy dependence of the neutrons produced by protons incident, k is the neutron multiplicity, and y is the remaining particle or particles
$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	Angle and energy dependence of the protons produced by protons incident, k is the proton multiplicity, and y is the remaining particle or particles
$\sigma_{\alpha,kny}^-$	$\sigma(\theta_n, E_n)$	Angle and energy dependence of the neutrons produced by α 's incident, k is the neutron multiplicity, and y is the remaining particle or particles
$\sigma_{\alpha,k\pi^\pm y}^-$	$\sigma(\theta_\pi, E_\pi)$	Angle and energy dependence of the pions produced by α 's incident, k is the pion multiplicity, and y is the remaining particle or particles
$\sigma_{\alpha,x}^-$	$\sigma(E_x)$	Cross section for the emission of a charged particle, x, where x is one of many charged particles allowed

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REQ #	TARGET			REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	*	Z	A	QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
620		^4_2He		$\sigma_{p,x}$	$\sigma(E_x)$	II		25-100				10*		GSFC Reames	NASA	67	
								REQ COM: x = each of the nuclides: D, T, and He^3 ,								67	
								(*): requested accuracy 10 percent or a few mb,								69	
								STATUS: None,								72	
621		^4_2He		$\sigma_{p,x}$	$\sigma(E_x)$	II		300-	.6			10*		GSFC Reames	NASA	67	
								REQ COM: x = each of the nuclides: D, T, and He^3 ,								67	
								(*): requested accuracy 10 percent or a few mb,								69	
								STATUS: None,								72	
622		^4_2He		$\sigma_{\alpha,x}$	$\sigma(E_x)$	II		25-600				10*		GSFC Reames	NASA	67	
								REQ COM: x = each of the nuclides: D, T, and He^3 ,								67	
								(*): requested accuracy 10 percent or a few mb,								69	
								STATUS: None,								72	
623		^6_3Li		Tot p Reac		III		25-600				10*		GSFC Reames	NASA	67	
								REQ COM: (*): requested accuracy 10 percent or a few mb,								69	
								STATUS: None,								72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
624	${}^7_3\text{Li}$	Tot p Reac		III		25-600					10*		GSFC Reames	NASA	67
					REQ COM: (*) : requested accuracy 10 percent or a few mb,										69
					STATUS: None,										72
625	${}^7_3\text{Li}$	$\sigma_{p,x}$		II		25-600					10*		GSFC Reames	NASA	67
					REQ COM: x = each of the nuclides Li^6 and Be^7 ,										67
					(*) : requested accuracy 10 percent or a few mb,										69
					STATUS: None,										72
626	${}^7_4\text{Be}$	σ_{p,Li^6}		II		25-600						est.*	GSFC Reames	NASA	67
					REQ COM: (*) : need an estimate of the amount of Li^6 formed,										67
					STATUS: None,										72
627	${}^9_4\text{Be}$	Tot p Reac		III		25-600					10*		GSFC Reames	NASA	67
					REQ COM: (*) : requested accuracy 10 percent or a few mb,										69
					STATUS: None,										72

STATUS: None.

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
637	8 ⁰	σ _{p,kny}	σ(θ _n , E _n)	I		~50					25	HASL O'Brien	DBER	66	
												NASA Reetz	NASA	66	
												ORNL Alsmiller	DPR	66	
					REQ COM: Measurements at a few angles, one near 0°.									66	
					Measurements should include 1-MeV neutrons.									66	
					STATUS: None.									72	
638	8 ⁰	σ _{p,kny}	σ(θ _n , E _n)	II		600-	2				25	HASL O'Brien	DBER	66	
												NASA Reetz	NASA	66	
												ORNL Alsmiller	DPR	66	
					REQ COM: One energy in interval.									66	
					Measurements at a few angles, one near 0°.									66	
					Include very low (~1 MeV) neutrons.									66	
					STATUS: None.									72	
639	8 ⁰	σ _{π⁺,Kπ⁺y}	σ(θ _π , E _π)	II			1-2				25	HASL O'Brien	DBER	66	
												NASA Reetz	NASA	66	
												ORNL Alsmiller	DPR	66	
					REQ COM: Cross section for π ⁺ at one energy in interval.									66	
					Measurements at a few angles, one near 0°.									66	
					Low-energy (~50 MeV) pions should be included.									66	
					STATUS: None.									72	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
643	8^{18}	$\sigma_{p,x}$		I		25-600					10*		GSFC Reames	NASA	67
REQ COM: x = each of the nuclides: $Li^{6,7}$, Be^{7-10} , $B^{10,11}$, C^{10-14} , N^{13-16} , $O^{16,17}$, (*): requested accuracy 10 percent or a few mb, STATUS: None,															67 67 69 72
644	10^{20}	$\sigma_{p,A=19}$		I		25-600					10		GSFC Reames	NASA	67
REQ COM: Production of O^{19} , F^{19} , and Ne^{19} ; Upper limits useful, STATUS: None,															67 67 72
645	12^{24}	$\sigma_{p,x}$		II		25-600					10*		GSFC Reames	NASA	67
REQ COM: x = each of the stable and particle-stable iso- topes with $3 \leq Z \leq 11$. (*): requested accuracy 10 percent or a few mb, STATUS: None,															67 67 69 72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
649	^{13}Al	$\sigma_{\alpha, \text{kny}}$	$\sigma(\theta_{n'}, E_{n'})$	II		100+	1					25	HASL O'Brien NASA Reetz ORNL Alsmiller	DBER NASA DPR	66 66 66
					REQ COM: Measurements at a few angles, one near 0° , include very low-energy (~ 1 MeV) neutrons.										66 66
					STATUS: None.										72
650	$^{40}_{20}\text{Ca}$	$\sigma_{p,x}$		III		25-600						10*	GSFC Reames	NASA	67
					REQ COM: x = each of the stable and particle-stable iso- topes with $3 \leq Z \leq 11$.										67 67
					(*): requested accuracy 10 percent or a few mb,										67
					STATUS: None.										72
651	$^{56}_{26}\text{Fe}$	$\sigma_{p,x}$		II		25-600						10*	GSFC Reames	NASA	67
					REQ COM: x = each of the stable and particle stable iso- topes with $3 \leq Z \leq 11$.										67 67
					(*): requested accuracy 10 percent or a few mb.										67
					STATUS: None.										72

REQ #	T/ *	TT A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
			QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
655	2'		$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II		~2000,	~10,30					25	HASL O'Brien	DBER	66
														NASA Reetz	NASA	66
														ORNL Alsmiller	DPR	66
						REQ COM: Measurements at a few angles, one near 0°,										66
						Include low-energy (~50 MeV) protons,										66
						Data on an adjacent element would suffice,										66
						STATUS: None,										72
656	^{83}Bi		$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		600-	2					25	HASL O'Brien	DBER	66
														NASA Reetz	NASA	66
														ORNL Alsmiller	DPR	66
						REQ COM: One energy (only) within energy range,										66
						Measurements at a few angles, one near 0°.										66
						Measurements should include 1-MeV neutrons,										66
						Data on an adjacent element would suffice,										66
						STATUS: None,										72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
657	83^{81}Bi	$\sigma_{p,kny}$	$\sigma(e_{n1}, E_{n1})$	II			~10,30					25	HASL O'Brien NASA Reetz ORNL Alsmiller	DBER NASA DPR	66 66 66
					REQ COM: Measurements at a few angles, one near 0° , Measurements should include 1-MeV neutron, Data on an adjacent element would suffice,										66 66 66
					STATUS: None,										72
658	83^{81}Bi	$\sigma_{p,kpy}$	$\sigma(e_p, E_p)$	II		~2000,	~10,30					25	HASL O'Brien NASA Reetz ORNL Alsmiller	DBER NASA DPR	66 66 66
					REQ COM: Measurements at a few angles, one near 0° , Include low-energy (~50 MeV) protons, Data on an adjacent element would suffice,										66 66 66
					STATUS: None,										72

TABLE 4

REQUESTS DELETED FROM NCSAS 35

NCSAC-35 Number	Target	Reaction	Variable	Priority	NCSAC-35 Number	Target	Reaction	Variable	Priority
	${}^1_1\text{H}$	Total		I	149	${}^{87}_{39}\text{Y}$	$\sigma_{n,2n}$	Act	I
3	${}^1_1\text{H}$	$\sigma_{n,\bar{g}}$		II	150	${}^{87}_{39}\text{Y}$	$\sigma_{n,p}$		II
6	${}^3_2\text{He}$	Total		I	151	${}^{88}_{39}\text{Y}$	$\sigma_{n,2m}$	Act	I
7	${}^3_2\text{He}$	Elastic	$\sigma(\theta_n)$	III	152	${}^{88}_{39}\text{Y}$	$\sigma_{n,p}$		II
10	${}^6_3\text{Li}$	Total		I	159	${}^{88}_{40}\text{Zr}$	$\sigma_{n,2n}$	Act	I
15	${}^6_3\text{Li}$	$\sigma_{n,\alpha}$ Ratio	wrt B^{10}	I	161	${}^{88}_{40}\text{Zr}^*$	$\sigma_{n,p}$		II
17	${}^7_3\text{Li}$	Total		I	162	${}^{89}_{40}\text{Zr}$	$n,2n$	Act	I
47	${}^{17}_8\text{O}$	$(n,p)\text{N}^{17}$	$\beta \rightarrow \text{O}^{17*} \rightarrow n$	I	169	${}^{90}_{40}\text{Zr}$	$n,\bar{g}$		I
69	${}^{36}_{16}\text{S}$	$\sigma_{n,2n}$	Act	I	173	${}^{91}_{40}\text{Zr}$	Total		I
74	${}^{40}_{20}\text{Ca}$	$\sigma_{n,\alpha}$	Act	III	176	${}^{91}_{40}\text{Zr}$	$\sigma_{n,\bar{g}}$		I
76	${}^{46}_{20}\text{Ca}$	$\sigma_{n,2n}$	Act	I	179	${}^{91}_{40}\text{Zr}$	Res Par		I
104	${}^{56}_{26}\text{Fe}$	Tot $\bar{g}$ Prod	$\sigma(\theta_{\bar{g}}, E_{\bar{g}})$	I	182	${}^{92}_{40}\text{Zr}$	Total		I
148	${}^{84}_{37}\text{Rb}^*$	$\sigma_{n,p}$		II	185	${}^{92}_{40}\text{Zr}$	$\sigma_{n,\bar{g}}$		I

TABLE 4 (cont.)

NCSAC-35 Number	Target	Reaction	Variable	Priority	NCSAC-35 Number	Target	Reaction	Variable	Priority
189	$_{40}\text{Zr}^{94}$	Total		I	242	$_{60}\text{Nd}^{146}$	$\sigma_{n,\bar{g}}$		II
192	$_{40}\text{Zr}^{94}$	$\sigma_{n,\bar{g}}$			249	$_{62}\text{Sm}^{147}$	$\sigma_{n,\bar{g}}$		II
193	$_{40}\text{Zr}^{94}$	Res Int	Capture	II	252	$^{*}_{62}\text{Sm}^{151}$	Total		I
197	$_{40}\text{Zr}^{96}$	Total		I	257	$^{*}_{63}\text{Eu}^{148}$	$\sigma_{n,2n}$	Act.	II
198	$_{40}\text{Zr}^{96}$	$\sigma_{n,\bar{g}}$		I	261	$^{*}_{63}\text{Eu}^{150}$	$\sigma_{n,2n}$	Act	II
201	$_{40}\text{Zr}^{96}$	Res In	Capture	I	268	$^{*}_{63}\text{Eu}^{154}$	Total		II
202	$_{40}\text{Zr}^{96}$	$\bar{G}_n$ and $\bar{G}_{\bar{g}}$		I	271	$^{*}_{63}\text{Eu}^{155}$	Total		II
203	$_{41}\text{Nb}$	Elastic	$\sigma(\theta_n)$	II	278	$_{64}\text{Gd}^{154}$	$\bar{G}_n$ and $\bar{G}_{\bar{g}}$		
210	$_{41}\text{Nb}^{91}$	$n,2n$	Act	I	288	$_{64}\text{Gd}^{158}$	$\sigma_{n,\bar{g}}$		I
212	$^{*}_{41}\text{Nb}^{91}$	$\sigma_{n,p}$		II	289	$_{64}\text{Gd}^{158}$	Res Int	Capture	I
213	$^{*}_{41}\text{Nb}^{92}$	$\sigma_{n,2n}$	Act	I	290	$_{64}\text{Gd}^{158}$	$\bar{G}_n$ and $\bar{G}_{\bar{g}}$		I
215	$^{*}_{41}\text{Nb}^{92}$	$\sigma_{n,p}$		II	291	$_{64}\text{Gd}^{160}$	Res Int	Capture	I
217	$^{*}_{41}\text{Nb}^{94}$	$\sigma_{n,\bar{g}}$		I	292	$_{64}\text{Gd}^{160}$	$\bar{G}_n$ and $\bar{G}_{\bar{g}}$		I
219	$^{*}_{41}\text{Nb}^{95}$	Res Int	Capture	I	295	$_{68}\text{Er}^{166}$	$\sigma_{n,\bar{g}}$		I II

Table 4 (cont.)

NCSAC-35 Number	Target	Reaction	Variable	Priority	NCSAC-35 Number	Target	Reaction	Variable	Priority
296	$^{167}_{68}\text{Er}$	$\sigma_{n,\bar{g}}$		I	426	$^{238}_{92}\text{U}$	Delayd f Y		II
297	$*^{167}_{69}\text{Tm}$	$\sigma_{n,2n}$	Act	II	437	$^{238}_{94}\text{U}$	Nu Bar		II
299	$*^{168}_{69}\text{Tm}$	$\sigma_{n,2n}$	Act	II	440	$^{238}_{94}\text{U}$	$\sigma_{n,\bar{g}}$		II
305	$*^{173}_{71}\text{Lu}$	$\sigma_{n,2n}$	Act	II	462	$^{239}_{94}\text{U}$	Delayd f Y		II
307	$*^{174}_{71}\text{Lu}$	$\sigma_{n,2n}$	Act	II	467	$^{240}_{94}\text{Pu}$	Delayd n Y $P(E_n,)$		II II II
342	$^{206}_{82}\text{Pb}$	$\sigma_{n,\alpha}$	Act	I	473	$^{240}_{94}\text{Pu}$	Delayd f Y		III
351	^{90}Th	Delayd n Y $P(E_n,)$		II II	482	$^{241}_{94}\text{Pu}$	Delayd $\bar{g}$ Y $P(E_{\bar{g}}, T^{\frac{1}{2}})$		II
366	$^{233}_{92}\text{U}$	Delayd n Y $P(E_n,)$		II II ^I	483	$^{241}_{94}\text{Pu}$	Delayd f Y		III
374	$^{233}_{92}\text{U}$	Delayd f Y		III	485	$^{242}_{94}\text{Pu}$	$\sigma_{n,f}$		I
375	$^{234}_{92}\text{U}$	Total		II	491	$^{242}_{94}\text{Pu}$	Delayd $\bar{g}$ Y $P(E_{\bar{g}}, T^{\frac{1}{2}})$		II
379	$^{234}_{92}\text{U}$	Nu Bar		II	492	$^{242}_{94}\text{Pu}$	$\sigma_{n,p}$		II
405	$^{235}_{92}\text{U}$	Delayd f Y		II	493	$^{242}_{94}\text{Pu}$	Delayd f Y		III
406	$^{236}_{92}\text{U}$	Total		I	508	$^{244}_{96}\text{Cm}$	Total		II
408	$^{236}_{92}\text{U}$	Res Int		II	511	$^{244}_{96}\text{Cm}$	Nu Bar		II

SECTION V.

TABLE 5.A

DBER

Division of Biomedical and Environmental Research, James L. Liverman, Director

Phone: 301-973-3208

USAEC, Washington, D. C. 20545

Contact: Keran O'Brien (HASL)

Phone: 212-620-3632

Health and Safety Laboratory
Radiation Physics Division
USAEC
376 Hudson Street
New York, New York 10014

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
630	⁶ C	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		~50					25	HASL	O'Brien	DBER	67
631	⁶ C	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	II		600-	2				25	HASL	O'Brien	DBER	66
637	⁸ O	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		~50					25	HASL	O'Brien	DBER	66
638	⁸ O	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	II		600-	2				25	HASL	O'Brien	DBER	66
639	⁸ O	$\sigma_{\alpha,kr+y}$	$\sigma(\theta_w, E_w)$	II			1-2				25	HASL	O'Brien	DBER	66
646	¹³ Al	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		600-	2				25	HASL	O'Brien	DBER	66
647	¹³ Al	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I			~10,30				25	HASL	O'Brien	DBER	66
648	¹³ Al	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II		~2000,	~10,30				25	HASL	O'Brien	DBER	66
649	¹³ Al	$\sigma_{\alpha,kny}$	$\sigma(\theta_n, E_n)$	II		100-	1				25	HASL	O'Brien	DBER	66
653	²⁷ Co	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		600-	2				25	HASL	O'Brien	DBER	66
654	²⁷ Co	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I			~10,30				25	HASL	O'Brien	DBER	66
655	²⁷ Co	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II		~2000,	~10,30				25	HASL	O'Brien	DBER	66
656	⁸³ Bi	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		600-	2				25	HASL	O'Brien	DBER	66
657	⁸³ Bi	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	II			~10,30				25	HASL	O'Brien	DBER	66
658	⁸³ Bi	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II		~2000,	~10,30				25	HASL	O'Brien	DBER	66

SECTION V.

TABLE 5.B

DCTR

Division of Controlled Thermonuclear Research, Robert L. Hirsch, Director

Phone: 301-973-4558

USAEC, Washington, D. C. 20545

Contact: William C. Gough

Phone: 301-973-3155

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
3	${}^1_1\text{H}^2$	$\sigma_{p,n'p}$			*****	*****	3.3-15	***	***	***	<25	ORNL	McNally	DCTR	72
6	${}^1_1\text{H}^3$	$\sigma_{p,n}$					1.5-15				<25	ORNL	McNally	DCTR	72
7	${}^1_1\text{H}^3$	$\sigma_{t,2n}$				10-	10				<25	ORNL	McNally	DCTR	72
9	${}^2_2\text{He}^3$	$\sigma_{t,d}$			*****	*****	100-				<25	ORNL	McNally	DCTR	72
10	${}^2_2\text{He}^4$	$\sigma_{d,n'p}$			*****	*****	3.3-15	***	***	***	<25	ORNL	McNally	DCTR	72
13	${}^3_3\text{Li}^6$	Elastic	$\sigma(\theta_n)$				~14			15		AEC	Gough	DCTR	71
16	${}^3_3\text{Li}^6$	$\sigma_{n,n'd}$					Ths-14			10		AEC	Gough	DCTR	71
17	${}^3_3\text{Li}^6$	$\sigma_{n,t}$					3-14		<10			AEC	Gough	DCTR	71
20	${}^3_3\text{Li}^6$	$(p,p')\text{Li}^6*$	$d + \bar{a}$				3-15				<25	ORNL	McNally	DCTR	72
21	${}^3_3\text{Li}^6$	$\sigma_{p,\bar{a}}$				100-	15				<25	ORNL	McNally	DCTR	72
22	${}^3_3\text{Li}^6$	$\sigma_{d,n}$				100-	5				<25	ORNL	McNally	DCTR	72
23	${}^3_3\text{Li}^6$	$\sigma_{d,n}$	$\text{He}^3 + \bar{a}$			100-	5				<25	ORNL	McNally	DCTR	72
24	${}^3_3\text{Li}^6$	$\sigma_{d,p}$				100-	5				<25	ORNL	McNally	DCTR	72
25	${}^3_3\text{Li}^6$	$\sigma_{d,p}$	$t + \bar{a}$			100-	5				<25	ORNL	McNally	DCTR	72
26	${}^3_3\text{Li}^6$	$(d,d')\text{Li}^6*$	$d + \bar{a}$				3-6				<25	ORNL	McNally	DCTR	72
27	${}^3_3\text{Li}^6$	$\sigma_{d,\bar{a}}$				100-	5				<25	ORNL	McNally	DCTR	72
28	${}^3_3\text{Li}^6$	$(t,n)\text{Be}^8$	$2\bar{a}$ decay			10-	2				<25	ORNL	McNally	DCTR	72
29	${}^3_3\text{Li}^6$	$(t,p)\text{Li}^8$	$\bar{b}^+ + 2\bar{a}$			10-	2				<25	ORNL	McNally	DCTR	72
30	${}^3_3\text{Li}^6$	$\sigma_{t,d}$				10-	2				<25	ORNL	McNally	DCTR	72
31	${}^3_3\text{Li}^6$	$({}^3\text{He},n)\text{B}^8$	$\bar{b}^+ + 2\bar{a}$				2-8				<25	ORNL	McNally	DCTR	72
32	${}^3_3\text{Li}^6$	$({}^3\text{He},p)$	$2\bar{a}$ decay			100-	8				<25	ORNL	McNally	DCTR	72
33	${}^3_3\text{Li}^6$	$({}^3\text{He},d)$				100-	8				<25	ORNL	McNally	DCTR	72
34	${}^3_3\text{Li}^6$	$\sigma_{\bar{a},p}$					3-12				<25	ORNL	McNally	DCTR	72

REQ #	TARGET * Z A	REACTION TYPE		PRI CR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	<15	>15	LAB	PERSON	ORG	
35	${}^6_3\text{Li}$	$(\bar{a}, \bar{a}')\text{Li}^{6*}$	$d + \bar{a}$				3-12				<25	ORNL	McNally	DCTR	72
36	${}^6_3\text{Li}$	${}^6\text{Li} + {}^6\text{Li} \rightarrow {}^7\text{Be} + {}^4\text{He} + n$				*	*				*	AEC	Gough	DCTR	71
					*****	*****	*****	***	***	***	*****				
37	${}^7_3\text{Li}$	Elastic	$\sigma(E_n)$				~14			15		AEC	Gough	DCTR	71
38	${}^7_3\text{Li}$	Inelastic	$\sigma(E_{n'})$			Ths=	14			15		AEC	Gough	DCTR	71
41	${}^7_3\text{Li}$	$\sigma_{n,n't}$					3-14		<10			AEC	Gough	DCTR	71
42	${}^7_3\text{Li}$	$\sigma_{n,n't}$	$\sigma(E_{n'})$				~14			15		AEC	Gough	DCTR	71
49	${}^9_4\text{Be}$	$\sigma_{p,\bar{a}}$				10=	15				<25	ORNL	McNally	DCTR	72
50	${}^9_4\text{Be}$	$(f,d)\text{Be}^8$	$2\bar{a}$ decay			10=	15				<25	ORNL	McNally	DCTR	72
61	${}^{12}_6\text{C}$	$\sigma_{n,n'} \text{ 1st}$					4.8-14			10		AEC	Gough	DCTR	71
62	${}^{12}_6\text{C}$	$\sigma_{n,n'} 3\bar{a}$					14			10		AEC	Gough	DCTR	71
76	${}^9_9\text{F}$	Inelastic					10-14			10		AEC	Gough	DCTR	71
78	${}^9_9\text{F}$	$\sigma_{n,\bar{g}}$				1=	1			10		ORNL	Perry	DMDT	66
79	${}^9_9\text{F}$	Absorption			Th=	to	14			10		AEC	Gough	DCTR	71
89	${}^{13}_{13}\text{Al}$	$\sigma_{n,2n}$					14			10		AEC	Gough	DCTR	71
90	${}^{13}_{13}\text{Al}$	$\sigma_{n,2n}$	$\sigma(E_{n'}, E_{n'})$				14			15		AEC	Gough	DCTR	71
91	${}^{13}_{13}\text{Al}$	Inelastic	$\sigma(E_{n'})$			Ths=	14			15		AEC	Gough	DCTR	72
93	${}^{13}_{13}\text{Al}$	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
94	${}^{13}_{13}\text{Al}$	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
95	${}^{13}_{13}\text{Al}$	$\sigma_{n,\bar{a}}$					14				20	AEC	Gough	DCTR	71
96	${}^{13}_{13}\text{Al}$	$\sigma_{n,n'} (E'S)$				Ths=	14			15		AEC	Gough	DCTR	72
97	${}^{13}_{13}\text{Al}$	Cap Spect	$P(E_{\bar{g}})$	I	Th					10		SNPO	Fleishman	DSNS	69
117	${}^{23}_{23}\text{V}$	$\sigma_{n,2n}$					14			10		AEC	Gough	DCTR	71

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
118	23 ^V	$\sigma_{n,2n}$	$\sigma(\theta_{n'}, E_{n'})$				14			15		AEC	Gough	DCTR	71
120	23 ^V	Inelastic	$\sigma(E_{n'})$			Ths=	14			15		AEC	Gough	DCTR	72
121	23 ^V	$\sigma_{n,\bar{n}}$					14				20	AEC	Gough	DCTR	71
123	23 ^V	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
124	23 ^V	$\sigma_{n,\bar{p}}$					14				20	AEC	Gough	DCTR	71
126	23 ^V	$\sigma_{n,n'}(E'S)$				Ths=	14			15		AEC	Gough	DCTR	72
127	23 ^V	Cap Spect	$P(E_{\bar{n}})$		Th=	res.				15		AEC	Gough	DCTR	71
131	24 ^{Cr}	Inelastic	$\sigma(E_{n'})$			Ths=	14			15		AEC	Gough	DCTR	72
132	24 ^{Cr}	$\sigma_{n,2n}$					14			10		AEC	Gough	DCTR	71
133	24 ^{Cr}	$\sigma_{n,2n}$	$\sigma(\theta_{n'}, E_{n'})$				14			15		AEC	Gough	DCTR	71
135	24 ^{Cr}	$\sigma_{n,\bar{n}}$					14				20	AEC	Gough	DCTR	71
136	24 ^{Cr}	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
137	24 ^{Cr}	$\sigma_{n,\bar{p}}$					14				20	AEC	Gough	DCTR	71
138	24 ^{Cr}	$\sigma_{n,n'}(E'S)$					14				20	AEC	Gough	DCTR	71
139	24 ^{Cr}	Cap Spect	$P(E_{\bar{n}})$		Th=	res.				15		AEC	Gough	DCTR	71
150	26 ^{Fe}	Inelastic	$\sigma(E_{n'})$			Ths=	14			15		AEC	Gough	DCTR	72
151	26 ^{Fe}	$\sigma_{n,2n}$					14			10		AEC	Gough	DCTR	71
152	26 ^{Fe}	$\sigma_{n,2n}$	$\sigma(\theta_{n'}, E_{n'})$				14			15		AEC	Gough	DCTR	71
156	26 ^{Fe}	$\sigma_{n,\bar{n}}$					14				20	AEC	Gough	DCTR	71
157	26 ^{Fe}	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
159	26 ^{Fe}	$\sigma_{n,\bar{p}}$					14				20	AEC	Gough	DCTR	71
160	26 ^{Fe}	$\sigma_{n,n'}(E'S)$				Ths=	14			15		AEC	Gough	DCTR	72
161	26 ^{Fe}	Cap Spect	$P(E_{\bar{n}})$		Th=	res.				15		AEC	Gough	DCTR	71
184	28 ^{Ni}	Inelastic	$\sigma(E_{n'})$			Ths=	14			15		AEC	Gough	DCTR	72

REQ #	TARGET # Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
185	28 ^{Ni}	$\sigma_{n,2n}$	$\sigma(\theta_{n'}, E_{n'})$				14			10		AEC	Gough	DCTR	71
186	28 ^{Ni}	$\sigma_{n,2n}$					14			15		AEC	Gough	DCTR	71
188	28 ^{Ni}	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
189	28 ^{Ni}	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
191	28 ^{Ni}	$\sigma_{n,\frac{1}{2}}$					14				20	AEC	Gough	DCTR	71
192	28 ^{Ni}	$\sigma_{n,n'}(g's)$				Ths-	14			15		AEC	Gough	DCTR	72
193	28 ^{Ni}	Cap Spect	$P(E_{\bar{e}})$		Th-	res.				15		AEC	Gough	DCTR	71
201	29 ^{Cu}	Inelastic	$\sigma(E_{n'})$			Ths-	14			15		AEC	Gough	DCTR	72
202	29 ^{Cu}	$\sigma_{n,2n}$	$\sigma(\theta_{n'}, E_{n'})$				14			10		AEC	Gough	DCTR	71
203	29 ^{Cu}	$\sigma_{n,2n}$					14			15		AEC	Gough	DCTR	71
204	29 ^{Cu}	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
205	29 ^{Cu}	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
206	29 ^{Cu}	$\sigma_{n,\frac{1}{2}}$					14				20	AEC	Gough	DCTR	71
207	29 ^{Cu}	$\sigma_{n,n'}(g's)$				Ths-	14			15		AEC	Gough	DCTR	72
208	29 ^{Cu}	Cap Spect	$P(E_{\bar{e}})$		Th-	res.				15		AEC	Gough	DCTR	71
228	40 ^{Zr}	Inelastic	$\sigma(E_{n'})$			Ths-	14			15		AEC	Gough	DCTR	72
229	40 ^{Zr}	$\sigma_{n,2n}$	$\sigma(\theta_{n'}, E_{n'})$				14			10		AEC	Gough	DCTR	71
230	40 ^{Zr}	$\sigma_{n,2n}$					14			15		AEC	Gough	DCTR	71
233	40 ^{Zr}	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
235	40 ^{Zr}	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
236	40 ^{Zr}	$\sigma_{n,\frac{1}{2}}$					14				20	AEC	Gough	DCTR	71
238	40 ^{Zr}	$\sigma_{n,n'}(g's)$				Ths-	14			15		AEC	Gough	DCTR	72
239	40 ^{Zr}	Cap Spect	$P(E_{\bar{e}})$		Th-	res.				15		AEC	Gough	DCTR	71
270	41 ^{Nb}	Inelastic	$\sigma(E_{n'})$			Ths-	14			15		AEC	Gough	DCTR	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
273	⁴¹ Nb	$\sigma_{n,2n}$	$\sigma(\theta_n, E_n)$				14			10		AEC	Gough	DCTR	71
274	⁴¹ Nb	$\sigma_{n,2n}$					14			15		AEC	Gough	DCTR	71
277	⁴¹ Nb	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
278	⁴¹ Nb	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
279	⁴¹ Nb	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
281	⁴¹ Nb	$\sigma_{n,n'}(\bar{e}'S)$			Th-	Th-	14			15		AEC	Gough	DCTR	72
282	⁴¹ Nb	Cap Spect	$P(E_{\bar{e}})$		Th-	res.				15		AEC	Gough	DCTR	71
284	⁴¹ Nb	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$		Th-	to	14			15		AEC	Gough	DCTR	71
290	⁴² Mo	Inelastic	$\sigma(E_n)$			Th-	14			15		AEC	Gough	DCTR	72
291	⁴² Mo	$\sigma_{n,2n}$	$\sigma(\theta_n, E_n)$				14			10		AEC	Gough	DCTR	71
292	⁴² Mo	$\sigma_{n,2n}$					14			15		AEC	Gough	DCTR	71
295	⁴² Mo	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
296	⁴² Mo	$\sigma_{n,p}$					14				20	AEC	Gough	DCTR	71
297	⁴² Mo	$\sigma_{n,\bar{e}}$					14				20	AEC	Gough	DCTR	71
299	⁴² Mo	$\sigma_{n,n'}(\bar{e}'S)$			Th-	Th-	14			15		AEC	Gough	DCTR	71
300	⁴² Mo	Cap Spect	$P(E_{\bar{e}})$		Th-	res.				15		AEC	Gough	DCTR	71
301	⁴² Mo	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$		Th-	to	14			15		AEC	Gough	DCTR	71

SECTION V.

TABLE 5.C

DMA

Division of Military Application, Maj. Gen. Frank A. Camm, Asst. Gen Man. for Military Application

Phone: 301-973-4221

USAEC, Washington, D. C. 20545

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
4	${}^3_1\text{H}$	Elastic	$\sigma(\theta_n)$	II			14			10		LASL	Motz	DMA	65
5	${}^3_1\text{H}$	$\sigma_{n,2n}$		III			12.5			10		LASL	Motz	DMA	65
8	${}^3_2\text{He}$	$\sigma_{n,p}$		II		10-	3	1				GGA	Nordheim	DRDT	69
14	${}^6_3\text{Li}$	Emission	$\sigma(\theta_n, E_n)$	I			8-14			<10		LASL	Motz	DMA	65
15	${}^6_3\text{Li}$	$\sigma_{n,2n}$		I			8-16		5			LASL	Motz	DMA	66
18	${}^6_3\text{Li}$	$\sigma_{n,\alpha}$		I		1-	3	1				ANL	Avery	DRDT	69
					*****	*****	*****	***	***	***	*****				
39	${}^7_3\text{Li}$	Emission	$\sigma(\theta_n, E_n)$	I			5-16			10		LASL	Motz	DMA	63
40	${}^7_3\text{Li}$	$\sigma_{n,2n}$		I			8-16		5			LASL	Motz	DMA	65
44	${}^9_4\text{Be}$	Elastic	$\sigma(\theta_n)$	I			7-20			10		LLL	Howerton	DMA	62
					*****	*****	*****	***	***	***	*****				
48	${}^9_4\text{Be}$	$\sigma_{n,p}$		II	Th-	to	15				50	LLL	Howerton	DMA	69
53	${}^{10}_5\text{B}$	$\sigma_{n,\alpha}$		I		1-	10	1-	5			ANL	Avery	DRDT	69
56	${}^{12}_6\text{C}$	Elastic	$\sigma(\theta_n)$	II			6-15		5			AFWL	Enz	DMA	69
58	${}^{12}_6\text{C}$	Emission	$\sigma(\theta_n, E_n)$	II			8-15			10		AFWL	Enz	DMA	69
59	${}^{12}_6\text{C}$	Tot $\bar{E}$ Prod	$\sigma(\theta_n, E_n)$	III			6-16			<10		LASL	Biggers	DMA	65
64	${}^{14}_7\text{N}$	Elastic	$\sigma(\theta_n)$	I			7-15		5			AC	Greenhow	DMA	69
66	${}^{14}_7\text{N}$	Emission	$\sigma(\theta_n, E_n)$	I			7-15			10		AC	Greenhow	DMA	69
67	${}^{14}_7\text{N}$	Absorption		I			1-15		5			AC	Greenhow	DMA	66
68	${}^{14}_7\text{N}$	Tot $\bar{E}$ Prod	$\sigma(\theta_n, E_n)$	I			8-15			10		AC	Greenhow	DMA	69
69	${}^{16}_8\text{O}$	Elastic	$\sigma(\theta_n)$	II		10-	1		5			IRT	Preskitt	DRDT	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUEST STEP			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
71	8^0	Absorption		I			10-15		5			AFWL Enz	DNA		66
72	8^0	Tot $\bar{g}$ Prod	$\sigma(\theta_n, E_n)$	I			10-15			10		LASL Biggers	DMA		62
75	9^F	Elastic	$\sigma(\theta_n)$	I			3-20			10		LLL Howerton	DMA		69
77	9^F	Emission	$\sigma(E_n)$	I		500-	20			10		LLL Howerton	DMA		69
80	9^F	$\sigma_{n,\bar{g}}$		I			9-14			10		LLL Howerton	DMA		69
88	13^{Al}	Elastic	$\sigma(\theta_n)$	I			8-16		5			LASL Biggers	DMA		66
102	14^{Si}^{30}	$\sigma_{n,\bar{g}}$	Act	III	.025	to	15				30	LLL Howerton	DMA		69
103	16^{S}^{34}	$\sigma_{n,\bar{g}}$	Act	I	.025	to	15				30	LLL Howerton	DMA		69
104	19^{K}^{41}	$\sigma_{n,\bar{g}}$	Act	II	.025	to	15				30	LLL Howerton	DMA		69
108	20^{Ca}^{44}	$\sigma_{n,\bar{g}}$	Act	I	.025	to	15				30	LLL Howerton	DMA		69
144	25^{Mn}^{55}	$\sigma_{n,\bar{g}}$		II	Th~	1				10		LLL Howerton	DMA		66
148	26^{Fe}	Elastic	$\sigma(\theta_n)$	I			8-16		5			LASL Biggers	DMA		66
153	26^{Fe}	Emission	$\sigma(E_n)$	I			5-15				20	LLL Howerton	DMA		70
154	26^{Fe}	Emission	$\sigma(\theta_n, E_n)$	I			7-15			10		AFWL Enz	DNA		69
165	26^{Fe}	Tot $\bar{g}$ Prod	$\sigma(\theta_n, E_n)$	II			8-15			10		GDFW Western	DNA		69
169	26^{Fe}^{54}	$\sigma_{n,\bar{g}}$	Act	II	.025-	to	15				30	LLL Howerton	DMA		69
171	26^{Fe}^{56}	$\sigma_{n,2n}$	Act.	II			Ths=15				30	LLL Howerton	DMA		69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	<15	>15	LAB	PERSON	ORG	
173	⁵⁸ Fe ₂₆	$\sigma_{n,\bar{g}}$	Act	II	.025	to	15				30	LLL	Howerton	DMA	69
176	⁶⁰ Co ₂₇	$\sigma_{n,\bar{g}}$	Act	I	.025	to	15				30	LLL	Howerton	DMA	69
211	⁶³ Cu ₂₉	$\sigma_{n,\bar{g}}$	Act	III	.025	to	15				30	LLL	Howerton	DMA	69
213	⁶⁵ Cu ₂₉	$\sigma_{n,2n}$	Act.	III			Ths=15				30	LLL	Howerton	DMA	69
217	⁶⁴ Zn ₃₀	$\sigma_{n,\bar{g}}$	Act	I	.025	to	15				30	LLL	Howerton	DMA	69
218	⁶⁶ Zn ₃₀	$\sigma_{n,2n}$	Act.	I			Ths=15				30	LLL	Howerton	DMA	72
225	* ⁸³ Rb ₃₇	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
226	* ⁸⁴ Rb ₃₇	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
241	* ⁸⁸ Zr ₄₀	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
242	* ⁸⁹ Zr ₄₀	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
271	⁹¹ Nb ₄₁	$\sigma_{n,n'}$	Isom State	I		Ths=	15				20	LLL	Howerton	DMA	69
275	⁹¹ Nb ₄₁	$\sigma_{n,2n}$	Act.	I			Ths=15		45			LLL	Howerton	DMA	70
285	* ⁹¹ Nb ₄₁	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
286	* ⁹² Nb ₄₁	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
287	* ⁹³ Nb ₄₁	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		ev	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
330	⁶³ Eu	$\sigma_{n,\bar{g}}$		II	100-	200				10		LASL Motz	DMA	66	
331	⁶³ Eu	Tot $\bar{g}$ Prod	$\sigma(E_{\bar{g}})$	III		1-	15			*		LASL Motz	DMA	66	
					*****	*****	*****	***	***	***	*****				
332	* ⁶³ Eu ¹⁴⁶	$\sigma_{n,\bar{g}}$		I		.1-300				50		LLL Howerton	DMA	69	
					*****	*****	*****	***	***	***	*****				
333	* ⁶³ Eu ¹⁴⁹	$\sigma_{n,\bar{g}}$		I		.1-300				50		LLL Howerton	DMA	69	
					*****	*****	*****	***	***	***	*****				
334	* ⁶³ Eu ¹⁵⁰	$\sigma_{n,\bar{g}}$		I		.1-300				50		LLL Howerton	DMA	69	
					*****	*****	*****	***	***	***	*****				
335	⁶³ Eu ¹⁵¹	$\sigma_{n,2n}$	Act.	I			14			15		LLL Howerton	DMA	69	
337	⁶³ Eu ¹⁵¹	$\sigma_{n,\bar{g}}$		I		.1-300				20		LLL Howerton	DMA	69	
					*****	*****	*****	***	***	***	*****				
338	* ⁶³ Eu ¹⁵²	$\sigma_{n,\bar{g}}$		I		.1-300				30		LASL Bell	DMA	70	
					*****	*****	*****	***	***	***	*****				
341	* ⁶³ Eu ¹⁵⁴	$\sigma_{n,\bar{g}}$		I		.1-300				30		LASL Bell	DMA	70	
					*****	*****	*****	***	***	***	*****				
345	⁶⁴ Gd	$\sigma_{n,\bar{g}}$		II	100-	200				10		LASL Motz	DMA	66	
346	⁶⁴ Gd	Tot $\bar{g}$ Prod	$\sigma(E_{\bar{g}})$	III		1-	15			*		LASL Motz	DMA	66	
					*****	*****	*****	***	***	***	*****				
357	⁶⁶ Dy	$\sigma_{n,\bar{g}}$		II	100-	200				10		LASL Motz	DMA	66	
358	⁶⁶ Dy	Tot $\bar{g}$ Prod	$\sigma(E_{\bar{g}})$	III		1-	15			*		LASL Motz	DMA	66	
					*****	*****	*****	***	***	***	*****				
359	* ⁶⁹ Tm ¹⁶⁷	$\sigma_{n,\bar{g}}$		I		.1-300				50		LLL Howerton	DMA	69	
					*****	*****	*****	***	***	***	*****				
360	* ⁶⁹ Tm ¹⁶⁸	$\sigma_{n,\bar{g}}$		I		.1-300				50		LLL Howerton	DMA	69	
					*****	*****	*****	***	***	***	*****				
361	⁶⁹ Tm	$\sigma_{n,2n}$	Act.	I			Th=15		≤5			LLL Howerton	DMA	70	

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	OKC	
365	* 71 Lu ¹⁷³	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
366	* 71 Lu ¹⁷⁴	$\sigma_{n,\bar{g}}$		I		.1-300					50	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
367	71 Lu ¹⁷⁵	$\sigma_{n,2n}$	Act.	I			Ths=15		≤5			LLL	Howerton	DMA	70
368	71 Lu ¹⁷⁵	$\sigma_{n,\bar{g}}$		I		.1-300					20	LLL	Howerton	DMA	69
384	74 W ¹⁸⁰	$\sigma_{n,\bar{g}}$	Act	I	.025-	to	15				30	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
385	74 W ¹⁸²	$\sigma_{n,2n}$	Act.	I			Ths=15				30	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
389	74 W ¹⁸⁴	$\sigma_{n,\bar{g}}$	Act	I	.025-	100					30	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
390	74 W ¹⁸⁶	$\sigma_{n,2n}$	Act.	I			Ths=15				30	LLL	Howerton	DMA	69
394	79 Au	$\sigma_{n,\bar{g}}$		II	.5	1*		1				BET	Bayard	DMR	67
399	82 Pb ²⁰⁴	$\sigma_{n,n'}$	Isom State	I			Ths=15				30	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
400	82 Pb ²⁰⁸	$\sigma_{n,\bar{g}}$	Act	II	.025	to	15				30	LLL	Howerton	DMA	69
412	92 U ²³³	Emission	$\sigma(E_{n'})$	I			5-15				20	LLL	Howerton	DMA	70
413	92 U ²³³	$\sigma_{n,2n}$		II			Ths=15			10		LASL	Barr	DMA	67
416	92 U ²³³	Fis Ratio	wrt U ²³⁵	I		10*	15	1				LASL	Hansen	DMA	67
421	92 U ²³³	Nu Bar	Prompt	I			7-20	3				LLL	Howerton	DMA	62
					*****	*****	*****	***	***	***	*****				
429	92 U ²³⁴	$\sigma_{n,2n}$	Act.	I			Ths=15		≤5			LLL	Howerton	DMA	70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
430	92U ²³⁴	$\sigma_{n,3n}$		II			Ths=15				20	LASL Barr	DMA		67
432	92U ²³⁴	Nu Bar	Prompt	I		500=	20	3				LLL Howerton	DMA		62
					*****	*****	*****	***	***	***	*****				
433	92U ²³⁵	Elastic	$\sigma(E_n)$	II			1-5				20	ANL Avery	DRDT		69
434	92U ²³⁵	Inelastic	$\sigma(E_{n'})$	II		50=	6			10		ANL Avery	DRDT		69
435	92U ²³⁵	Emission	$\sigma(E_{n'})$	I			5-15				20	LLL Howerton	DMA		70
436	92U ²³⁵	Emission	$\sigma(E_{n'}, E_{n'})$	I			6-20		5			LLL Howerton	DMA		62
437	92U ²³⁵	$\sigma_{n,2n}$	Act.	I			Ths=15		≤5			LLL Howerton	DMA		70
438	92U ²³⁵	$\sigma_{n,3n}$		II			Ths=16			10		LASL Barr	DMA		67
442	92U ²³⁵	$\sigma_{n,f}$		I		10=	15	1				LASL Hansen	DMA		66
					*****	*****	*****	***	***	***	*****				
459	92U ²³⁶	Nu Bar	Prompt	I		500=	14	3				LLL Howerton	DMA		62
					*****	*****	*****	***	***	***	*****				
463	* 92U ²³⁷	$\sigma_{n,f}$		II	100=		16			10		LASL Barr	DMA		67
464	* 92U ²³⁷	Destruct	of Target	I		1=	15			10		LLL Howerton	DMA		70
					*****	*****	*****	***	***	***	*****				
467	92U ²³⁸	Emission	$\sigma(E_{n'})$	I			5-15				20	LLL Howerton	DMA		70
469	92U ²³⁸	$\sigma_{n,3n}$		II			Ths=15				20	LLL Howerton	DMA		69
470	92U ²³⁸	Fis Ratio	wrt U ²³⁵	I		500=	15	1=	5			LASL Hansen	DMA		67
476	92U ²³⁸	$\sigma_{n,g}$		I	Th=	60	15			10		LLL Howerton	DMA		69
481	93Nd ²³⁷	$\sigma_{n,2n}$		II			Ths=15			10		SRL Dessauer	DPKM		67
483	93Nd ²³⁷	Fis Ratio	wrt U ²³⁵	III	20=	50				10		LASL Hansen	DMA		66
486	94Pu ²³⁸	$\sigma_{n,2n}$		I			Ths=15			15		LLL Howerton	DMA		69
487	94Pu ²³⁸	$\sigma_{n,3n}$		I			14				50	LLL Howerton	DMA		69
489	94Pu ²³⁸	Fis Ratio	wrt U ²³⁵	I		10=	5	3				LASL Hansen	DMA		66

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	OPG	
490	94Pu ²³⁸	Nu Bar	Prompt	I		10=	15	3				LLL	Howerton	DMA	62
492	94Pu ²³⁸	$\sigma_{n,\bar{g}}$		I		.1=300					50	LLL	Howerton	DMA	69
493	94Pu ²³⁸	$\sigma_{n,p}$		II		to	15				50	LLL	Howerton	DMA	69
494	94Pu ²³⁸	Destruct	of Target	I		1=	1		5			LASL	Motz	DMA	66
					*****	*****	*****	***	***	***	*****				
495	94Pu ²³⁹	Elastic	$\sigma(E_n)$	II			1=3			10		ANL	Avery	DRDT	69
497	94Pu ²³⁹	Emission	$\sigma(E_{n'})$	I			5=15				20	LLL	Howerton	DMA	70
498	94Pu ²³⁹	$\sigma_{n,2n}$		I			Ths=15			10		LASL	Barr	DMA	67
499	94Pu ²³⁹	$\sigma_{n,3n}$		II			Ths=15				20	LASL	Barr	DMA	67
502	94Pu ²³⁹	Fis Ratio	wrt U ²³⁵	I		10=	14	2				LMFR	Hemmig-ARG	DRDT	72
					*****	*****	*****	***	***	***	*****				
518	94Pu ²⁴⁰	Fis Ratio	wrt U ²³⁵	III		1=100			5			ACKP	Hannum	DRDT	72
523	94Pu ²⁴⁰	Alpha		II		150=	7			10		LLL	Howerton	DMA	62
					*****	*****	*****	***	***	***	*****				
527	94Pu ²⁴¹	Fis Ratio	wrt U ²³⁵	II		10=	15	1				LASL	Hansen	DMA	66
529	94Pu ²⁴¹	Nu Bar	Prompt	II		500=	14	3				LLL	Howerton	DMA	62
					*****	*****	*****	***	***	***	*****				
534	94Pu ²⁴²	$\sigma_{n,2n}$		I			Ths=15			15		LLL	Howerton	DMA	69
536	94Pu ²⁴²	Nu Bar	Prompt	II		500=	14	3				LLL	Howerton	DMA	62
539	94Pu ²⁴²	$\sigma_{n,\bar{g}}$	Act	I		.1=300					50	LLL	Howerton	DMA	69
540	94Pu ²⁴²	$\sigma_{n,p}$		II			14				20	LASL	Bell	DMA	67
					*****	*****	*****	***	***	***	*****				
542	95Am ²⁴¹	$\sigma_{n,2n}$		I			Ths=15			15		LLL	Howerton	DMA	69
543	95Am ²⁴¹	$\sigma_{n,\bar{g}}$		I	Th=	1				10		SRL	Dessauer	DFNM	67
544	95Am ²⁴¹	$\sigma_{n,\bar{g}}$		I		.1=300					50	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
547	95Am ²⁴²	$\sigma_{n,\bar{g}}$		II	Th	to	10			15		OE	Hutchins	DRDT	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR:	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
553	$^{96}\text{Cm}^{243}$	$\sigma_{n,f}$		II	Th=	10				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
555	$^{96}\text{Cm}^{244}$	$\sigma_{n,2n}$		I			Th=15			15		LLL	Howerton	DMA	69
556	$^{96}\text{Cm}^{244}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
558	$^{96}\text{Cm}^{244}$	$\sigma_{n,g}$		I		1=300					50	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
560	$^{96}\text{Cm}^{245}$	$\sigma_{n,f}$		I	Th=	10				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
563	$^{96}\text{Cm}^{246}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				
566	$^{96}\text{Cm}^{247}$	$\sigma_{n,f}$		I	Th=	10				5= 10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
569	$^{96}\text{Cm}^{248}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				
573	$^{98}\text{Cf}^{249}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				
575	$^{98}\text{Cf}^{250}$	$\sigma_{n,f}$		I	Th=	10				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
578	$^{98}\text{Cf}^{252}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				
584	* $^{99}\text{Es}^{253}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				
585	* $^{99}\text{Es}^{254}$	Alpha		II	Th=	20					20	LASL	Bell	DMA	67
					*****	*****	*****	***	***	***	*****				
586	* $^{100}\text{Fm}^{255}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				
587	* $^{100}\text{Fm}^{257}$	$\sigma_{n,f}$		I		10=100				10		LASL	Cowan	DMA	69
					*****	*****	*****	***	***	***	*****				

SECTION V.

TABLE 5.D

DNA

Department of Defense DOD

Jack W. Rosengren

Phone: 202-694-5044

Defense Nuclear Agency

(Capt. Dean Kaul) Radiation Transport Project Officer

Phone: 202-694-5395

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
56	⁶ C	Elastic	$\sigma(\theta_n)$	II			6-15		5			AFWL	Enz	DNA	69
58	⁶ C	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			8-15			10		AFWL	Enz	DNA	69
59	⁶ C	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	III			6-16			≤10		LASL	Biggers	DMA	65
60	⁶ C	Absorption		II			10-15		5			AFWL	Enz	DNA	69
64	⁷ N	Elastic	$\sigma(\theta_n)$	I			7-15		5			AC	Greenhow	DNA	69
65	⁷ N	Elastic	$\sigma(\theta_n)$	I			7-15		5			NEL	Eccleshall	DNA	69
66	⁷ N	Emission	$\sigma(\theta_{n'}, E_{n'})$	I			7-15			10		AC	Greenhow	DNA	69
67	⁷ N	Absorption		I			1-15		5			AC	Greenhow	DNA	66
68	⁷ N	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	I			8-15			10		AC	Greenhow	DNA	69
69	⁸ O	Elastic	$\sigma(\theta_n)$	II		10-	1		5			IRT	Preskitt	DRDT	69
70	⁸ O	Emission	$\sigma(\theta_{n'}, E_{n'})$	I			8-15			10		AFWL	Enz	DNA	69
71	⁸ O	Absorption		I			10-15		5			AFWL	Enz	DNA	66
72	⁸ O	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	I			10-15			10		LASL	Biggers	DMA	62
82	¹¹ Na	Elastic	$\sigma(\theta_n)$	II			8-15		5			NEL	Eccleshall	DNA	69
84	¹¹ Na	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			4-15			10		NEL	Eccleshall	DNA	69
88	¹³ Al	Elastic	$\sigma(\theta_n)$	I			8-16		5			LASL	Biggers	DMA	66
92	¹³ Al	Emission	$\sigma(\theta_{n'}, E_{n'})$	I			8-15			10		AFWL	Enz	DNA	69
99	¹³ Al	$\sigma_{n,p}$	Act	III			5-11,9			10		NEL	Eccleshall	DNA	69
100	¹⁴ Si	Elastic	$\sigma(\theta_n)$	II			8-15			10		NEL	Eccleshall	DNA	69
101	¹⁴ Si	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			8-15			10		NEL	Eccleshall	DNA	69
105	²⁰ Ca	Elastic	$\sigma(\theta_n)$	II			8-15			10		NEL	Eccleshall	DNA	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
106	20Ca	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			8-15			10		NEL	Eccleshall	DNA	69
107	20Ca	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	II			5-15			10		NEL	Eccleshall	DNA	69
112	22Ti	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	III			4-14				20	GDFW	Western	DNA	63
113	22Ti ⁴⁶	$\sigma_{n,p}$	Act	II			1-18			10		HEDL	McElroy	DRDT	69
114	22Ti ⁴⁷	$\sigma_{n,p}$	Act	II			>1			10		HEDL	McElroy	DRDT	69
115	22Ti ⁴⁸	$\sigma_{n,p}$	Act	II			>1			10		HEDL	McElroy	DRDT	69
122	23V	$\sigma_{n,\bar{E}}$	Act	II	Th				5			AFIT	Dooley	DNA	62
141	24Cr	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	I	500=	20				15*		SNPO	Fleishman	DSNS	69
145	25Mn	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	I	300=	120				15*		SNPO	Fleishman	DSNS	69
154	26Fe	Emission	$\sigma(\theta_{n'}, E_{n'})$	I			7-15			10		AFWL	Enz	DNA	69
165	26Fe	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{E}}, E_{\bar{E}})$	II			8-15			10		GDFW	Western	DNA	69
170	26Fe ⁵⁴	$\sigma_{n,p}$	Act	III			1-18			15		BET	Bayard	DNR	72
177	27Co	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	I	100=	100				15*		SNPO	Fleishman	DSNS	69
196	28Ni	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	II		12-340				15*		SNPO	Fleishman	DSNS	69
198	28Ni ⁵⁸	$\sigma_{n,p}$	Act	III			9.4-14			10		NEL	Eccleshall	DNA	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR _i	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
199	²⁸ Ni ⁶⁰	$\sigma_{n,p}$	Act	III			2=12.5			10		NEL	Eccleshall	DNA	69
209	²⁹ Cu	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	II	200=	50				15*		SNPO	Fleishman	DSNS	69
216	³⁰ Zn	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	I	200=	25				15*		SNPO	Fleishman	DSNS	69
219	³² Ge	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			1=15			10		NEL	Eccleshall	DNA	69
220	³² Ge	Tot $\bar{E}$ Prod	$\sigma(\theta_{\bar{e}}, E_{\bar{e}})$	II			1=15			10		NEL	Eccleshall	DNA	69
221	³³ As	Elastic	$\sigma(\theta_n)$	II	Th	to	14			15		IRT	Russell	DNA	69
222	³³ As	Emission	$\sigma(\theta_{n'})$	II		Th=	14			15		IRT	Russell	DNA	69
240	⁴⁰ Zr	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	II	100=	20				15*		SNPO	Fleishman	DSNS	69
283	⁴¹ Nb	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	II	30=	75				15*		SNPO	Fleishman	DSNS	69
302	⁴² Mo	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	I	10=	9				15*		SNPO	Fleishman	DSNS	69
381	⁷⁴ W	Emission	$\sigma(\theta_{n'}, E_{n'})$	I			4=14			10		AFWL	Enz	DNA	69
382	⁷⁴ W	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	I	2=	2.5				15*		SNPO	Fleishman	DSNS	69
396	⁸² Pb	Emission	$\sigma(\theta_{n'}, E_{n'})$	II			3=15			10		NEL	Eccleshall	DNA	69
397	⁸² Pb	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	II			8=15			10		NEL	Eccleshall	DNA	69
406	⁹⁰ Th	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{e}})$	II		500	=15			10		AFWL	Enz	DNA	69

SECTION V.

TABLE 5.E

DNMS

Division of Nuclear Materials Security, Delmar L. Crowson, Director

Phone: 301-973-3671

USAEC, Washington, D. C. 20545

Contacts have been set up by Nuclear Materials Security at ANC, BNL, IRT, and LASL

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
47	${}^4_2\text{He}$	(n,p)Li ⁹	$\text{B}^- \rightarrow \text{Be}^{9*} + n$	II			14			10		LASL	Walton	DNMS	70
408	${}^{90}_{90}\text{Th}$	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	II			2,14				35	BNL	Kouts	DNMS	69
424	${}^{92}_{92}\text{U}^{233}$	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	I	*****	*****	2,14				35	BNL	Kouts	DNMS	69
449	${}^{92}_{92}\text{U}^{235}$	Fis $\bar{\nu}$ Y	$P(E_{\bar{\nu}})$	II	Th					15		LASL	Walton	DNMS	70
451	${}^{92}_{92}\text{U}^{235}$	Delayed n Y		II			5=14		5			LASL	Walton	DNMS	70
453	${}^{92}_{92}\text{U}^{235}$	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	I	*****	*****	2,14				35	BNL	Kouts	DNMS	69
460	${}^{92}_{92}\text{U}^{236}$	Fis Spect	$P(E_{n'})$	II			*			10		LASL	Walton	DNMS	70
461	${}^{92}_{92}\text{U}^{236}$	Delayed n Y		I	*****	*****	3,14			10		LASL	Walton	DNMS	70
473	${}^{92}_{92}\text{U}^{238}$	Delayed n Y		II			5=14		5			LASL	Walton	DNMS	70
479	${}^{92}_{92}\text{U}^{238}$	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	II			2,14				35	BNL	Kouts	DNMS	69
505	${}^{94}_{94}\text{Pu}^{239}$	Delayed n Y		II			3=14			10		LASL	Walton	DNMS	70
508	${}^{94}_{94}\text{Pu}^{239}$	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	I			2,14				35	BNL	Kouts	DNMS	69
509	${}^{94}_{94}\text{Pu}^{239}$	Fis $\bar{\nu}$ Y	$P(E_{\bar{\nu}})$	II	Th					15		LASL	Walton	DNMS	70
510	${}^{94}_{94}\text{Pu}^{239}$	Cap Spect	$P(E_{\bar{\nu}})$	III	Th=100						20	LASL	Walton	DNMS	70
520	${}^{94}_{94}\text{Pu}^{240}$	Delayed n Y		II		750=	14				20	LASL	Walton	DNMS	70
525	${}^{94}_{94}\text{Pu}^{240}$	Delayed $\bar{\nu}$ Y	$P(E_{\bar{\nu}}, T^{1/2})$	II			2,14				35	BNL	Kouts	DNMS	69
533	${}^{94}_{94}\text{Pu}^{241}$	Delayed n Y		III	Th	to	14			10		LASL	Walton	DNMS	70
537	${}^{94}_{94}\text{Pu}^{242}$	Delayed n Y		III			3,14				20	LASL	Walton	DNMS	70

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	Q&Q	
588	1H^2	$\bar{E}, n$	Total n Y	I			Ths-10			10		IRT	Bramblett	DNMS	70
589	3Li^6	$\bar{E}, n$	Total n Y	III			Ths-10				20	IRT	Bramblett	DNMS	72
590	4Be	$\bar{E}, n$	Total n Y	II			Ths-10				20	IRT	Bramblett	DNMS	72
591	6C^{13}	$\bar{E}, n$	Total n Y	II			Ths-10				20	IRT	Bramblett	DNMS	72
592	8O^{17}	$\bar{E}, n$	Total n Y	II			Ths-10				20	IRT	Bramblett	DNMS	72
593	90Th^{232}	$\bar{E}, n$	Total n Y	II			Ths-10			10		IRT	Bramblett	DNMS	72
594	90Th^{232}	$\bar{E}, n$	Delayd n Y	I			Ths-10			10		IRT	Bramblett	DNMS	72
595	90Th^{232}	$\bar{E}, f$	Del $\bar{E}$ Spec	III			10			10		IRT	Bramblett	DNMS	72
596	92U^{233}	$\bar{E}, n$	Total n Y	I			Ths-10			10		IRT	Bramblett	DNMS	72
597	92U^{233}	$\bar{E}, n$	Delayd n Y	I			Ths-10			10		IRT	Bramblett	DNMS	72
598	92U^{233}	$\bar{E}, f$	Del $\bar{E}$ Spec	II			10			10		IRT	Bramblett	DNMS	72
599	92U^{234}	$\bar{E}, n$	Total n Y	II			Ths-10			30		IRT	Bramblett	DNMS	72
600	92U^{234}	$\bar{E}, n$	Delayd n Y	III			Ths-10			30		IRT	Bramblett	DNMS	72
601	92U^{234}	$\bar{E}, f$	Del $\bar{E}$ Spec	III			10			30		IRT	Bramblett	DNMS	72
602	92U^{235}	$\bar{E}, n$	Total n Y	II			Ths-10			10		IRT	Bramblett	DNMS	72
603	92U^{235}	$\bar{E}, n$	Delayd n Y	II			Ths-10			10		IRT	Bramblett	DNMS	72
604	92U^{235}	$\bar{E}, f$	Del $\bar{E}$ Spec	II			10			10		IRT	Bramblett	DNMS	72
605	92U^{236}	$\bar{E}, n$	Total n Y	II			Ths-10			30		IRT	Bramblett	DNMS	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
606	$^{92}_{92}\text{U}^{236}$	$\bar{\nu}, n$	Delayed n Y	II			Ths=10			30		IRT	Bramblett	DNMS	72
607	$^{92}_{92}\text{U}^{236}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	III			10			30		IRT	Bramblett	DNMS	72
					*****	*****	*****	***	***	***	*****				
608	$^{92}_{92}\text{U}^{238}$	$\bar{\nu}, n$	Total n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
609	$^{92}_{92}\text{U}^{238}$	$\bar{\nu}, n$	Delayed n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
610	$^{92}_{92}\text{U}^{238}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	II			10			10		IRT	Bramblett	DNMS	72
					*****	*****	*****	***	***	***	*****				
611	$^{94}_{94}\text{Pu}^{239}$	$\bar{\nu}, n$	Total n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
612	$^{94}_{94}\text{Pu}^{239}$	$\bar{\nu}, n$	Delayed n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
613	$^{94}_{94}\text{Pu}^{239}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	II			10			10		IRT	Bramblett	DNMS	72
					*****	*****	*****	***	***	***	*****				
614	$^{94}_{94}\text{Pu}^{240}$	$\bar{\nu}, n$	Total n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
615	$^{94}_{94}\text{Pu}^{240}$	$\bar{\nu}, n$	Delayed n Y	II			Ths=10			10		IRT	Bramblett	DNMS	72
616	$^{94}_{94}\text{Pu}^{240}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	II			10			10		IRT	Bramblett	DNMS	72
					*****	*****	*****	***	***	***	*****				
617	$^{94}_{94}\text{Pu}^{241}$	$\bar{\nu}, n$	Total n Y	III			Ths=10			30		IRT	Bramblett	DNMS	72
618	$^{94}_{94}\text{Pu}^{241}$	$\bar{\nu}, n$	Delayed n Y	III			Ths=10			30		IRT	Bramblett	DNMS	72
619	$^{94}_{94}\text{Pu}^{241}$	$\bar{\nu}, f$	Del $\bar{\nu}$ Spec	III			10			30		IRT	Bramblett	DNMS	72

SECTION V.

TABLE 5.F

DNR

Division of Naval Reactors, H. G. Rickover, Vice Admiral (USN), Director

Phone: 301-973-5771

USAEC, Washington, D. C. 20545

Contacts at BETTIS and KAPL

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
73	$^{17}_8O$	$\sigma_{s,n}$		II			Ths=7				20	KAPL	Ehrlich	DNR	72
					*****	*****	*****	***	***	***	*****				
74	$^{18}_8O$	$\sigma_{s,n}$		III			Ths=7			10		BET	Bayard	DNR	66
182	$^{20}_{26}Ni$	Elastic	$\sigma(\theta_n)$	II			1.5-3		5-	10		ANL	Avery	DNDT	72
195	$^{20}_{26}Ni$	Tot $\bar{E}$ Prod	$\sigma(E_{\bar{E}})$	II	Th	to	10			10		BET	Bayard	DNR	66
					*****	*****	*****	***	***	***	*****				
200	$^{61}_{28}Ni$	$\bar{\sigma}_n$		I		1-600			4-9			KAPL	Ehrlich	DNR	69
303	* $^{99}_{42}Mo$	$\sigma_{n,\bar{E}}$		II	.001-	1					20	BET	Bayard	DNR	67
304	* $^{103}_{44}Ru$	$\sigma_{n,\bar{E}}$		II	.001-	1					20	BET	Bayard	DNR	67
305	$^{145}_{45}Rh$	$\sigma_{n,\bar{E}}$		II	.5-	1				10		KAPL	Ehrlich	DNR	67
320	* $^{147}_{60}Nd$	$\sigma_{n,\bar{E}}$		I	.001-	1			5	to	20	KAPL	Ehrlich	DNR	67
321	* $^{147}_{61}Pm$	$\sigma_{n,\bar{E}}$		I	.001-	1				10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
324	* $^{149}_{61}Pm$	$\sigma_{n,\bar{E}}$		I	.001-	1					20	BET	Bayard	DNR	67
369	$^{72}_{72}Hf$	Elastic	$\sigma(\theta_n)$	II			1.5-10			10		BET	Bayard	DNR	66
370	$^{72}_{72}Hf$	Emission	$\sigma(E_{n'})$	II			1.5-10			15		BET	Bayard	DNR	66
371	$^{72}_{72}Hf$	$\sigma_{n,\bar{E}}$		II	200-	50					20	BET	Bayard	DNR	62
					*****	*****	*****	***	***	***	*****				
374	$^{177}_{72}Hf$	$\sigma_{n,\bar{E}}$		I	.001-	5			4	to	20	BET	Bayard	DNR	62
					*****	*****	*****	***	***	***	*****				
376	$^{179}_{72}Hf$	$\sigma_{n,\bar{E}}$		I	.001-	5			5	to	20	BET	Bayard	DNR	62

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
377	$^{180}_{72}\text{Hf}$	$\sigma_{n,\bar{g}}$		I	.001-	5			4	to	20	BET	Bayard	DNR	67
379	$^{180}_{73}\text{Ta}$	$\sigma_{n,\bar{g}}$		I		1-	10		5-	10		AI	Alter	DRDT	69
394	$^{197}_{79}\text{Au}$	$\sigma_{n,\bar{g}}$		II	.5	1+		1				BET	Bayard	DNR	67
405	$^{90}_{90}\text{Th}$	Absorption		II	100	to	1	3-	5			BET	Bayard	DNR	69
407	$^{90}_{90}\text{Th}$	Tot $\bar{g}$ Prod	$\sigma(E_{\bar{g}}, E_{\bar{g}})$	II	.5	to	10			10		BET	Bayard	DNR	67
450	$^{235}_{92}\text{U}$	Delayed n Y	$P(E_{n,1})$	II	Th					15		KAPL	Ehrlich	DNR	69
452	$^{235}_{92}\text{U}$	Cap Spect	$P(E_{\bar{g}})$	II	Th=15					10		BET	Bayard	DNR	67
454	$^{235}_{92}\text{U}$	Res Par		I	Th=200					10		ANL	Avery	DRDT	69
496	$^{239}_{94}\text{Pu}$	Inelastic	$\sigma(E_{n,1})$	I		10-	10				20	KAPL	Ehrlich	DNR	72
514	$^{239}_{94}\text{Pu}$	Fis Prod Y	of Nd^{147}	II	Th			3				BET	Bayard	DNR	67

SECTION V.

TABLE 5.G

DPMM

Division of Production and Materials Management, F. P. Baranowski, Director

Phone: 301-973-4413

USAEC, Washington, D. C. 20545

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
332	¹⁴⁰ Zr	$\sigma_{n,\bar{g}}$		II	Th-	1			5			BNW	Leonard	DPMM	67
336	¹⁵¹ Eu	$\sigma_{n,\bar{g}}$		II	.001-	1		2-	5			SRL	Dessauer	DPMM	67
339	¹⁵³ Eu	$\sigma_{n,\bar{g}}$		II	.001-	1		2-	5			GE	Snyder	DRDT	67
362	¹⁶⁹ Tm	$\sigma_{n,\bar{g}}$		I	Th-	1			5			BNW	Leonard	DPMM	67
363	* ¹⁷⁰ Tm	$\sigma_{n,\bar{g}}$		I	Th-	1				10		BNW	Leonard	DPMM	67
364	* ¹⁷¹ Tm	$\sigma_{n,\bar{g}}$		I	Th-	1				10		BNW	Leonard	DPMM	67
395	* ²⁰⁴ Tl	$\sigma_{n,\bar{g}}$		II	Th					10		BNW	Leonard	DPMM	65
481	²³⁷ Np	$\sigma_{n,2n}$		II			Ths=15			10		SRL	Dessauer	DPMM	67
482	²³⁷ Np	$\sigma_{n,f}$		II		1-	5			10		SRL	Dessauer	DPMM	67
484	²³⁷ Np	$\sigma_{n,\bar{g}}$		I	.001-	1		3	to	10		BNW	Leonard	DPMM	67
485	* ²³⁸ Np	$\sigma_{n,\bar{g}}$		II	Th-	1				10		BNW	Leonard	DPMM	67
491	²³⁸ Pu	$\sigma_{n,\bar{g}}$		III		1-	10			10		AI	Alter	DRDT	69
513	²³⁹ Pu	Fis Prod Y	of Cs ¹³⁷	II	Th			1				BET	Bayard	DNR	67
538	²⁴² Pu	$\sigma_{n,\bar{g}}$		I	Th	to	7	3-			20	BNW	Leonard	DPMM	67
541	²⁴¹ Am	Total		II	Th			2-3				BNW	Leonard	DPMM	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YP
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
543	⁹⁵ Am ²⁴¹	$\sigma_{n,\bar{g}}$		I	Th-	1				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
545	⁹⁵ Am ²⁴²	Total		II	Th-	10				10		SRL	Dessauer	DPMM	67
546	⁹⁵ Am ²⁴²	$\sigma_{n,f}$		II	Th-	10				10-	20	SRL	Dessauer	DPMM	69
547	⁹⁵ Am ²⁴²	$\sigma_{n,\bar{g}}$		II	Th	to	10			15		GE	Hutchins	DNDDT	72
					*****	*****	*****	***	***	***	*****				
548	⁹⁵ Am ²⁴³	Total		I	Th-	10		2				BNW	Leonard	DPMM	67
550	* ⁹⁶ Cm ²⁴²	$\sigma_{n,\bar{g}}$		II	Th						20	SRL	Dessauer	DPMM	67
551	* ⁹⁶ Cm ²⁴²	Res Par		II	Th-	1					20	BNW	Leonard	DPMM	67
					*****	*****	*****	***	***	***	*****				
552	⁹⁶ Cm ²⁴³	Total		II	Th-	10				10		SRL	Dessauer	DPMM	67
553	⁹⁶ Cm ²⁴³	$\sigma_{n,f}$		II	Th-	10				10		SRL	Dessauer	DPMM	67
554	⁹⁶ Cm ²⁴³	$\sigma_{n,\bar{g}}$		II	Th-	10			5-	10		SRL	Dessauer	DPMM	69
					*****	*****	*****	***	***	***	*****				
559	⁹⁶ Cm ²⁴⁵	Total		I	Th-	10				10		SRL	Dessauer	DPMM	67
560	⁹⁶ Cm ²⁴⁵	$\sigma_{n,f}$		I	Th-	10				10		SRL	Dessauer	DPMM	67
561	⁹⁶ Cm ²⁴⁵	$\sigma_{n,\bar{g}}$		I	Th-	10				10		SRL	Dessauer	DPMM	69
					*****	*****	*****	***	***	***	*****				
562	⁹⁶ Cm ²⁴⁶	Total		I	Th-	10				10		SRL	Dessauer	DPMM	67
564	⁹⁶ Cm ²⁴⁶	$\sigma_{n,\bar{g}}$		I	Th-	10				10		SRL	Dessauer	DPMM	69
					*****	*****	*****	***	***	***	*****				
565	⁹⁶ Cm ²⁴⁷	Total		I	Th-	10					20	SRL	Dessauer	DPMM	67
566	⁹⁶ Cm ²⁴⁷	$\sigma_{n,f}$		I	Th-	10			5-	10		SRL	Dessauer	DPMM	67
567	⁹⁶ Cm ²⁴⁷	$\sigma_{n,\bar{g}}$		I	Th-	10			5-	10		SRL	Dessauer	DPMM	69
					*****	*****	*****	***	***	***	*****				
568	⁹⁶ Cm ²⁴⁸	Total		I	Th-	10					20	SRL	Dessauer	DPMM	67

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DPMM

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REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
570	⁹⁶ Gm ²⁴⁸	$\sigma_{n,\bar{g}}$		I	Th=	10				10		SRL	Dessauer	DPMM	69
571	⁹⁷ Bk ²⁴⁹	Total		I	Th=	10					20	SRL	Dessauer	DPMM	67
572	⁹⁷ Bk ²⁴⁹	$\sigma_{n,\bar{g}}$		-I	Th=	10				10		SRL	Dessauer	DPMM	69
574	⁹⁸ Cf ²⁵⁰	Total		I	Th=	10					20	SRL	Dessauer	DPMM	67
575	⁹⁸ Cf ²⁵⁰	$\sigma_{n,f}$		I	Th=	10				10		SRL	Dessauer	DPMM	67
576	⁹⁸ Cf ²⁵⁰	$\sigma_{n,\bar{g}}$		I	Th=	10				10		SRL	Dessauer	DPMM	69
					*****	*****	*****	***	***	***	*****				
577	⁹⁸ Cf ²⁵¹	$\sigma_{n,\bar{g}}$		I	Th=	10				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
582	⁹⁸ Cf ²⁵²	$\sigma_{n,\bar{g}}$		I	Th=	10				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
583	* ⁹⁸ Cf ²⁵³	$\sigma_{n,\bar{g}}$		II	Th=	10					20	SRL	Dessauer	DPMM	67

SECTION V.

TABLE 5.H

DPR

Division of Physical Research, John M. Teem, Director

Phone: 301-973-5565

USAEC, Washington, D. C. 20545

Contact: George A. Kolstad, Assistant Director for Physics and Mathematics Programs

Phone: 301-973-3613

W. A. Wallenmeyer, Assistant Director, High-Energy Physics Programs

Phone: 301-973-3624

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	OPG	
1	^1_1H	Elastic	$\sigma(e_n)$	I			*	2				NDC	Caswell	DPR	72
8	^3_2He	n, p		II		10-	3	1				GGA	Nordheim	DRDT	69
12	$^{16}_3\text{Li}$	Elastic	$\sigma(e_n)$	I		1-100		1-	5			NDC	Caswell	DPR	69
18	$^{16}_3\text{Li}$	$\sigma_{n, \bar{a}}$		I		1-	3	1				ANL	Avery	DRDT	69
43	$^{17}_3\text{Li}$	$\sigma_{\bar{a}, n}$		II			4-6	2				NDC	Caswell	DPR	69
51	$^{10}_5\text{B}$	Total		II		10-	1	1				NDC	Caswell	DPR	69
52	$^{10}_5\text{B}$	Elastic	$\sigma(e_n)$	II		1-100		1-	5			NDC	Caswell	DPR	69
53	$^{10}_5\text{B}$	$\sigma_{n, \bar{a}}$		I		1-	10	1-	5			ANL	Avery	DRDT	69
54	$^{10}_5\text{B}$	$\sigma_{n, \bar{a}}(E_1)$	$E_1 = 480 \text{ keV}$	I		1-	10	1-	5			ANL	Avery	DRDT	69
392	$^{186}_{74}\text{Os}$	$\sigma_{n, \bar{g}}$		III		1-100			4-9			ORNL	Hacklin	DPR	70
393	$^{187}_{76}\text{Os}$	$\sigma_{n, \bar{g}}$		III		1-100			4-9			ORNL	Hacklin	DPR	70
394	$^{197}_{79}\text{Au}$	$\sigma_{n, \bar{g}}$		II	.5	1*		1				HET	Bayard	DNR	67
442	$^{235}_{92}\text{U}$	$\sigma_{n, f}$		I		10-	15	1				LASL	Hansen	DMA	66
501	$^{239}_{94}\text{Pu}$	$\sigma_{n, f}$		I	1	to	10	2-	5			ANL	Avery	DRDT	69
579	$^{252}_{98}\text{Cf}$	nu bar		I				.25				NDC	Caswell	DPR	69
581	$^{252}_{98}\text{Cf}$	vis Spect	$P(E_n)$	I				1				HET	Bayard	DNR	72

REQ #	TARGET			REACTION TYPE QUANTITY ; VARIABLE	PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	*	Z	A			keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
630		6	C	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I	~50					25	ORNL	Alsmiller	DPR	66
631		6	C	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	II	600-	2				25	ORNL	Alsmiller	DPR	66
637		8	O	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I	~50					25	ORNL	Alsmiller	DPR	66
638		8	O	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	II	600-	2				25	ORNL	Alsmiller	DPR	66
639		8	O	$\sigma_{\alpha,k\pi^{\pm}y}$	$\sigma(\theta_{\pi}, E_{\pi})$	II		1-2				25	ORNL	Alsmiller	DPR	66
646		13	Al	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I	600-	2				25	ORNL	Alsmiller	DPR	66
647		13	Al	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		~10, 30				25	ORNL	Alsmiller	DPR	66
648		13	Al	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II	~2000,	~10, 30				25	ORNL	Alsmiller	DPR	66
649		13	Al	$\sigma_{\alpha,kny}$	$\sigma(\theta_n, E_n)$	II	100-	1				25	ORNL	Alsmiller	DPR	66
653		27	Co	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I	600-	2				25	ORNL	Alsmiller	DPR	66
654		27	Co	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I		~10, 30				25	ORNL	Alsmiller	DPR	66
655		27	Co	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II	~2000,	~10, 30				25	ORNL	Alsmiller	DPR	66
656		83	Bi	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	I	600-	2				25	ORNL	Alsmiller	DPR	66
657		83	Bi	$\sigma_{p,kny}$	$\sigma(\theta_n, E_n)$	II		~10, 30				25	ORNL	Alsmiller	DPR	66
658		83	Bi	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II	~2000,	~10, 30				25	ORNL	Alsmiller	DPR	66

SECTION V.

TABLE 5.I

DRDT

Division of Reactor Development and Technology, Milton Shaw, Director

Phone: 301-973-5203

USAEC, Washington, D. C. 20545

Contacts: William H. Hannum

Phillip B. Hemmig

Reactor Physics Branch

Phone: 301-973-4181

REQ #	TARGET # Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
2	1H^2	Elastic		I	1-	1		<2				BET	Bayard	DNR	72
8	2He^3	$\sigma_{n,p}$		II		10-	3	1				GGA	Nordheim	DRDT	69
18	3Li^6	$\sigma_{n,\alpha}$		I		1-	3	1				ANL	Avery	DRDT	69
19	3Li^6	Tot & Prod		II		1-	18			10		HEDL	McElroy	DRDT	69
45	4Be	Emission	$\sigma(\theta_n, E_n)$	II			1.8-5			15		LMFB	Hennig-AEC	DRDT	62
46	4Be	$\sigma_{n,\alpha}$		II	1-	100				10		IRT	Preskitt	DRDT	69
53	5B^{10}	$\sigma_{n,\alpha}$		I		1-	10	1-	5			ANL	Avery	DRDT	69
54	5B^{10}	$\sigma_{n,\alpha}(\bar{E}_1)$	$E_{\bar{E}}=480 \text{ keV}$	I		1-	10	1-	5			ANL	Avery	DRDT	69
55	5B^{10}	Tot & Prod		I		1-	18			10		HEDL	McElroy	DRDT	69
57	6C	Elastic	$\sigma(\theta_n)$	III			2-14			10		KAPL	Ehrlich	DNR	62
63	6C^{12}	Polariz.	$P(\theta_n)$	II	*****	*****	*****	***	***	***	*****	KAPL	Ehrlich	DNR	69
69	8O	Elastic	$\sigma(\theta_n)$	II		10-	1		5			IRT	Preskitt	DRDT	69
70	8O	Emission	$\sigma(\theta_n, E_n)$	I			8-15			10		AFWL	Enz	DNA	69
78	9F	$\sigma_{n,\alpha}$		II		1-	1			10		ORNL	Perry	DRDT	66
81	11Na	Total		I		10-	5	3-	5			ORNL	Clifford	DRDT	69
83	11Na	Inelastic	$\sigma(E_n)$	II			2-10			10		AI	Alter	DRDT	62
85	11Na	Absorption		II		1-100					20	GE	Snyder	DRDT	69
86	11Na	$\bar{G}_n$ and $\bar{G}_\alpha$		I		3				10		ANL	Avery	DRDT	62

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
87	¹¹ Na	Cap Spect	$P(E_{\gamma})$	I		3				10		ANL	Avery	DRDT	72
109	²¹ Sc	$\sigma_{n,\bar{g}}$	Act	II		1=	18			10		HEDL	McElroy	DRDT	69
111	²² Ti	Tot $\bar{g}$ Prod	$\sigma(E_{\gamma}, E_{\gamma})$	I		10=	16				20	ORNL	Clifford	DRDT	69
113	²² Ti ⁴⁶	$\sigma_{n,p}$	Act	II			1=18			10		HEDL	McElroy	DRDT	69
114	²² Ti ⁴⁷	$\sigma_{n,p}$	Act	II			>1			10		HEDL	McElroy	DRDT	69
115	²² Ti ⁴⁸	$\sigma_{n,p}$	Act	II			>1			10		HEDL	McElroy	DRDT	69
116	²³ V	Elastic	$\sigma(E_n)$	III			1,4=10			10		ANL	Avery	DRDT	62
119	²³ V	Inelastic	$\sigma(E_n)$	III			1,5=10				15	ANL	Avery	DRDT	62
125	²³ V	Absorption		III		1=150				10		ANL	Avery	DRDT	62
128	²⁴ Cr	Total		II		1=	20	3				LMFB	Hemmig-AEC	DRDT	72
129	²⁴ Cr	Elastic	$\sigma(E_n)$	II			2=14		4=9			KAPL	Ehrlich	DNR	69
130	²⁴ Cr	Inelastic	$\sigma(E_n)$	II		500	=10			10		GE	Snyder	DRDT	66
134	²⁴ Cr	$\sigma_{n,\bar{g}}$		II		1=	1			15		GE	Snyder	DRDT	72
140	²⁴ Cr	Res Int	Capture	I	.5=	up				10=	15	KAPL	Ehrlich	DNR	69
142	²⁴ Cr	Tot $\bar{g}$ Prod	$\sigma(E_{\gamma})$	II		up	to	10		10		BET	Bayard	DNR	69
143	²⁴ Cr ⁵³	$\bar{g}_{\bar{g}}$		II		1=600				4=9		KAPL	Ehrlich	DNR	69
146	²⁶ Fe	Total		I	.001	to	1			5		KAPL	Ehrlich	DNR	72
147	²⁶ Fe	Elastic	$\sigma(E_n)$	I			7=14		4=9			KAPL	Ehrlich	DNR	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
149	²⁶ Fe	Inelastic	$\sigma(E_n)$	I		850=	2		5			GE	Snyder	DRDT	66
155	²⁶ Fe	$\sigma_{n,\bar{e}}$		II	.001	to	1			10		KAPL	Ehrlich	DNR	72
					*****	*****	*****	***	***	***	*****				
158	²⁶ Fe ⁵⁶	$\sigma_{n,\bar{a}}$		II	Th	to	10			15		GE	Hutchins	DRDT	72
					*****	*****	*****	***	***	***	*****				
162	²⁶ Fe	Absorption		I		1=	1.5		5	to	20	ANL	Avery	DRDT	69
164	²⁶ Fe	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	I	Th	to	10				<15	LMFB	Hemmig=AEC	DRDT	66
166	²⁶ Fe	Res Int	Capture	I	.5=	up				10=	15	KAPL	Ehrlich	DNR	69
167	²⁶ Fe	$\bar{e}_n$ and $\bar{e}_g$		II		to	1			10		KAPL	Ehrlich	DNR	72
168	²⁶ Fe	J, π		III		to	1					KAPL	Ehrlich	DNR	72
					*****	*****	*****	***	***	***	*****				
170	²⁶ Fe ⁵⁴	$\sigma_{n,p}$	Act	III			1=18			15		BET	Bayard	DNR	72
					*****	*****	*****	***	***	***	*****				
172	²⁶ Fe ⁵⁷	$\bar{e}_n$		I		1=600			4=9			KAPL	Ehrlich	DNR	69
					*****	*****	*****	***	***	***	*****				
173	²⁶ Fe ⁵⁸	$\sigma_{n,\bar{e}}$	Act	II	.025	to	15				30	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
174	²⁷ Co	Res Par		II	132			1				ANC	Brugger	DRDT	62
175	²⁷ Co	$\sigma_{n,\bar{e}}$		II	132			1				ANC	Brugger	DRDT	62
176	²⁷ Co	$\sigma_{n,\bar{e}}$	Act	I	.025	to	15				30	LLL	Howerton	DMA	69
					*****	*****	*****	***	***	***	*****				
178	* ²⁷ Co ⁵⁸	$\sigma_{n,\bar{e}}$		II	Th	to	10			10		BET	Bayard	DNR	72
179	* ²⁷ Co ⁵⁸	$\sigma_{n,\bar{e}}$		II	Th	to	10			10		BET	Bayard	DNR	72
180	* ²⁷ Co ⁵⁸	J, π		III		25=	3					KAPL	Ehrlich	DNR	66
					*****	*****	*****	***	***	***	*****				
181	²⁸ Ni	Total		II		1=	20	3				ORNL	Gilford	DRDT	72
182	²⁸ Ni	Elastic	$\sigma(\theta_n)$	II			1.5-3		5=	10		ANL	Avery	DRDT	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
183	²⁸ Ni	Inelastic	$\sigma(E_n)$	II			1=10			10		GE	Snyder	DRDT	66
187	²⁸ Ni	Absorption		II		1=	1			10		ANL	Avery	DRDT	72
190	²⁸ Ni	$\sigma_{n,\alpha}$		II	Th	to	10			15		GE	Hutchins	DRDT	72
194	²⁸ Ni	Res Int	Capture	I	.5=	up				10=	15	KAPL	Ehrlich	DNR	69
195	²⁸ Ni	Tot $\bar{\sigma}$ Prod	$\sigma(E_n)$	II	Th	to	10			10		BET	Bayard	DNR	66
					*****	*****	*****	***	***	***	*****				
197	²⁸ Ni ⁵⁸	$\sigma_{n,p}$		II			<10		5			BET	Bayard	DNR	72
					*****	*****	*****	***	***	***	*****				
210	²⁹ Cu ⁶³	$\sigma_{n,\bar{g}}$		II	Th=	1		2=	5			ACRP	Hannum	DRDT	67
211	²⁹ Cu ⁶³	$\sigma_{n,\bar{g}}$	Act	III	.025	to	15				50	LLL	Howerton	DMA	69
212	²⁹ Cu ⁶³	$\sigma_{n,\bar{g}}$	Act	II			>6			10		WEDL	McElroy	DRDT	69
					*****	*****	*****	***	***	***	*****				
214	²⁹ Cu ⁶⁵	$\sigma_{n,\bar{g}}$		II	Th=	1		2=	5			ACRP	Hannum	DRDT	67
					*****	*****	*****	***	***	***	*****				
223	³⁶ Kr ⁸³	Total		II	.001=	1				10		BET	Bayard	DNR	67
224	³⁶ Kr ⁸³	$\sigma_{n,\bar{g}}$		II	.001=	1				10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
227	⁴⁰ Zr	Elastic	$\sigma(\theta_n)$	II		200=	1,5			10		KAPL	Ehrlich	DNR	69
231	⁴⁰ Zr	Emission	$\sigma(\theta_n, E_n)$	I			2=14			10		KAPL	Ehrlich	DNR	67
232	⁴⁰ Zr	$\sigma_{n,\bar{g}}$		II	Th=	1			5			BNW	Leonard	DPMM	67
234	⁴⁰ Zr	Res Int	Capture	I	.5=	up			5			KAPL	Ehrlich	DNR	69
					*****	*****	*****	***	***	***	*****				
243	⁴⁰ Zr ⁹⁰	Total		I			2=10	3				GE	Snyder	DRDT	72
244	⁴⁰ Zr ⁹⁰	Elastic	$\sigma(E_n)$	I		100=	10			10		BET	Bayard	DNR	72
245	⁴⁰ Zr ⁹⁰	Inelastic	$\sigma(\theta_n)$	II			14				15	KAPL	Ehrlich	DNR	69
246	⁴⁰ Zr ⁹⁰	Inelastic	$\sigma(E_n)$	I			5=15			10		BET	Bayard	DNR	72
247	⁴⁰ Zr ⁹⁰	Emission	$\sigma(\theta_n, E_n)$	I			1=15			10		BET	Bayard	DNR	67

REQ #	TARGET * Z A	REACTION TYPE		PRI OR _i	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
248	$^{90}_{40}\text{Zr}$	Res Int	Capture	II	.5-	up					20	KAPL	Ehrlich	DNR	69
249	$^{90}_{40}\text{Zr}$	$\bar{G}_n$ and $\bar{G}_K$		II	*	-15				10		KAPL	Ehrlich	DNR	69
250	$^{90}_{40}\text{Zr}$	J, π		II			1.6-5					KAPL	Ehrlich	DNR	69
					*****	*****	*****	***	***	***	*****				
251	$^{91}_{40}\text{Zr}$	Elastic	$\sigma(\theta_n)$	I		100-	10			10		BET	Bayard	DNR	72
252	$^{91}_{40}\text{Zr}$	Inelastic	$\sigma(\theta_{n'})$	II			2.5-10			10		BET	Bayard	DNR	72
253	$^{91}_{40}\text{Zr}$	$\sigma_{n,\bar{a}}$		III			14				30	KAPL	Ehrlich	DNR	69
254	$^{91}_{40}\text{Zr}$	Res Int	Capture	I	.5	up			5			KAPL	Ehrlich	DNR	69
255	$^{91}_{40}\text{Zr}$	$\bar{G}_n$ and $\bar{G}_K$		I	*	-10				10		KAPL	Ehrlich	DNR	69
256	$^{91}_{40}\text{Zr}$	J, π		II			1-4					KAPL	Ehrlich	DNR	69
					*****	*****	*****	***	***	***	*****				
257	$^{92}_{40}\text{Zr}$	Elastic	$\sigma(\theta_n)$	I		100-	10			10		BET	Bayard	DNR	72
258	$^{92}_{40}\text{Zr}$	Inelastic	$\sigma(\theta_{n'})$	II			14				15	KAPL	Ehrlich	DNR	69
259	$^{92}_{40}\text{Zr}$	Inelastic	$\sigma(E_{n'})$	I			2.5-10			10		BET	Bayard	DNR	72
260	$^{92}_{40}\text{Zr}$	Res Int	Capture	II	.5-	up					20	KAPL	Ehrlich	DNR	69
261	$^{92}_{40}\text{Zr}$	$\bar{G}_n$ and $\bar{G}_K$		I	**	15				10		KAPL	Ehrlich	DNR	69
262	$^{92}_{40}\text{Zr}$	J, π		II			1-4					KAPL	Ehrlich	DNR	69
					*****	*****	*****	***	***	***	*****				
263	$^{94}_{40}\text{Zr}$	Elastic	$\sigma(\theta_n)$	I	.5	to	10			10		BET	Bayard	DNR	67
264	$^{94}_{40}\text{Zr}$	Inelastic	$\sigma(\theta_{n'})$	II			14			15		KAPL	Ehrlich	DNR	67
265	$^{94}_{40}\text{Zr}$	$\bar{G}_n$ and $\bar{G}_K$		II	*	-15				10		KAPL	Ehrlich	DNR	69
266	$^{94}_{40}\text{Zr}$	J, π		II		950-	4					KAPL	Ehrlich	DNR	69
					*****	*****	*****	***	***	***	*****				
267	* $^{95}_{40}\text{Zr}$	$\sigma_{n,\bar{g}}$		II	.5-	10				10-	20	BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
268	$^{96}_{40}\text{Zr}$	Elastic	$\sigma(\theta_n)$	I		100-	10			10		BET	Bayard	DNR	72
269	$^{96}_{40}\text{Zr}$	$\sigma_{n,\bar{g}}$		II	Th					5		KAPL	Ehrlich	DNR	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	OPG	
276	$_{41}\text{Nb}$	$\sigma_{n,\bar{g}}$		II		1=100				10		AI	Alter	DRDT	62
288	* $_{41}\text{Nb}^{95}$	$\sigma_{n,\bar{g}}$		I	Th						20	KAPL	Ehrlich	DNR	67
289	$_{42}\text{Mo}$	Inelastic	$\sigma(E_n,')$	III			1.5-3				20	ANL	Avery	DRDT	72
294	$_{42}\text{Mo}$	$\sigma_{n,\bar{g}}$		III		1=	1			10		ACRP	Hannum	DRDT	72
305	$_{45}\text{Rh}$	$\sigma_{n,\bar{g}}$		II	.5=	1				10		KAPL	Ehrlich	DNR	67
306	* $_{45}\text{Rh}^{105}$	$\sigma_{n,\bar{g}}$		II	.001=1					10		GE	Snyder	DRDT	67
307	* $_{46}\text{Pd}^{107}$	$\sigma_{n,\bar{g}}$		II	.001=	10				10		BET	Bayard	DNR	67
308	$_{47}\text{Ag}^{109}$	$\sigma_{n,\bar{g}}$		II	.001=1					10		GE	Snyder	DRDT	67
309	* $_{52}\text{Te}^{127}$	$\sigma_{n,\bar{g}}$		II	.001=1						20	KAPL	Ehrlich	DNR	67
310	* $_{52}\text{Te}^{132}$	$\sigma_{n,\bar{g}}$		II	.001=1						20	BET	Bayard	DNR	67
311	* $_{53}\text{I}^{133}$	$\sigma_{n,\bar{g}}$		II	.001=	1					20	BET	Bayard	DNR	67
312	$_{54}\text{Xe}^{131}$	$\sigma_{n,\bar{g}}$		II	.001=	1				10		BET	Bayard	DNR	67
313	* $_{54}\text{Xe}^{133}$	$\sigma_{n,\bar{g}}$		II	Th					10		GE	Snyder	DRDT	67
314	* $_{54}\text{Xe}^{135}$	$\sigma_{n,\bar{g}}$		II	.001=2					5		GGA	Nordheim	DRDT	67
315	* $_{54}\text{Xe}^{135}$	Tot R Prod	$\sigma(E_{\bar{g}})$	II	Th					10=	20	KAPL	Ehrlich	DNR	67

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
316	55 ^{Co}	$\sigma_{n,\bar{e}}$		I	.001=1					10		GE	Snyder	DRDT	67
317	55 ^{Co}	$\sigma_{n,\bar{e}}$		I	.5=	1				10		GE	Snyder	DRDT	67
318	60 Nd ¹⁴³	$\sigma_{n,\bar{e}}$		I	.001=	1				10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
319	60 Nd ¹⁴⁵	$\sigma_{n,\bar{e}}$		I	.001=	1				10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
320	* 60 Nd ¹⁴⁷	$\sigma_{n,\bar{e}}$		I	.001=	1			5	to	20	KAPL	Ehrlich	DNR	67
321	* 61 ^{Pm} ¹⁴⁷	$\sigma_{n,\bar{e}}$		I	.001=	1				10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
322	* 61 ^{Pm} ¹⁴⁸	$\sigma_{n,\bar{e}}$		I	.001=	1				10		BET	Bayard	DNR	67
323	* 61 ^{Pm} ¹⁴⁸	$\sigma_{n,\bar{e}}$		I	.001=1					10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
324	* 61 ^{Pm} ¹⁴⁹	$\sigma_{n,\bar{e}}$		I	.001=	1					20	BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
325	* 61 ^{Pm} ¹⁵¹	$\sigma_{n,\bar{e}}$		II	.001=	1				10		BET	Bayard	DNR	67
326	62 Sm ¹⁵⁰	$\sigma_{n,\bar{e}}$		I	.001=	1		2=	5			BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
327	* 62 Sm ¹⁵¹	$\sigma_{n,\bar{e}}$		I	.001=	1			5			BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
328	62 Sm ¹⁵²	$\sigma_{n,\bar{e}}$		II	.001=	1				10		BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
329	* 62 Sm ¹⁵³	$\sigma_{n,\bar{e}}$		II	.001=	1					20	BET	Bayard	DNR	67
339	63 ^{Eu} ¹⁵³	$\sigma_{n,\bar{e}}$		II	.001=	1		2=	5			GE	Snyder	DRDT	67

REQ #	TARGET		REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	* Z	A	QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
340	* 63	Eu ¹⁵⁴	$\sigma_{n,\bar{g}}$		II	.001=	1				10		BET	Bayard	DNR	67
						*****	*****	*****	***	***	***	*****				
342	* 63	Eu ¹⁵⁵	$\sigma_{n,\bar{g}}$		II	.001=	1				10		BET	Bayard	DNR	67
343	64	Gd	Elastic	$\sigma(\theta_n)$	I			1.5=10			10		GE	Snyder	DRDT	67
344	64	Gd	Emission	$\sigma(\theta_n, E_n)$	I			1.5=10			15		GE	Snyder	DRDT	67
347	64	Gd	Res Int	Capture	I	.5=	up			5			GE	Snyder	DRDT	69
						*****	*****	*****	***	***	***	*****				
348	64	Gd ¹⁵⁵	$\sigma_{n,\bar{g}}$		I	.5=	1			5			GE	Snyder	DRDT	67
349	64	Gd ¹⁵⁵	Res Int	Capture	I	.5=	up			5			GE	Snyder	DRDT	69
350	64	Gd ¹⁵⁵	$\bar{\sigma}_n$ and $\bar{\sigma}_K$		I	=	.5				10		GE	Snyder	DRDT	69
						*****	*****	*****	***	***	***	*****				
351	64	Gd ¹⁵⁶	$\sigma_{n,\bar{g}}$		I	.001=	1			5			GE	Snyder	DRDT	67
352	64	Gd ¹⁵⁶	Res Int	Capture	I	.5=	up			5			GE	Snyder	DRDT	69
353	64	Gd ¹⁵⁶	$\bar{\sigma}_n$ and $\bar{\sigma}_K$		I	=	2			5			GE	Snyder	DRDT	69
						*****	*****	*****	***	***	***	*****				
354	64	Gd ¹⁵⁷	$\sigma_{n,\bar{g}}$		I	.5=	1			5			GE	Snyder	DRDT	67
355	64	Gd ¹⁵⁷	Res Int	Capture	I	.5=	up			5			GE	Snyder	DRDT	69
356	64	Gd ¹⁵⁷	$\bar{\sigma}_n$ and $\bar{\sigma}_K$		I	=	1				10		GE	Snyder	DRDT	69
371	72	Hf	$\sigma_{n,\bar{g}}$		II	200=	50					20	BET	Bayard	DNR	62
						*****	*****	*****	***	***	***	*****				
372	72	Hf ¹⁷⁴	$\sigma_{n,\bar{g}}$		I	.001=	5				10=	20	KAPL	Ehrlich	DNR	66
						*****	*****	*****	***	***	***	*****				
373	72	Hf ¹⁷⁶	$\sigma_{n,\bar{g}}$		I	.001=	5				10=	40	BET	Bayard	DNR	62
						*****	*****	*****	***	***	***	*****				
374	72	Hf ¹⁷⁷	$\sigma_{n,\bar{g}}$		I	.001=	5			4	10	20	BET	Bayard	DNR	62

REQ #	TARGET	REACTION TYPE		PHI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
375	$^{178}_{72}\text{Hf}$	$\sigma_{n,\bar{e}}$		I	.001-	5		3-	-	to	20	BET	Hayard	DNR	62
					*****	*****	*****	***	***	***	*****				
376	$^{179}_{72}\text{Hf}$	$\sigma_{n,\bar{e}}$		I	.001-	5			5	to	20	BET	Hayard	DNR	62
					*****	*****	*****	***	***	***	*****				
377	$^{180}_{72}\text{Hf}$	$\sigma_{n,\bar{e}}$		I	.001-	5			4	to	20	BET	Hayard	DNR	67
378	^{73}Ta	$\sigma_{n,\bar{e}}$		I		1-	10		5-	10		AI	Alter	DRDT	69
381	^{74}W	Emission	$\sigma(\theta_n, E_n)$	I			4-14			10		AFWL	Enz	DNA	69
383	^{74}W	Tot $\bar{e}$ Prod	$\sigma(\theta_n, E_n)$	I		100-	16				20	ORNL	Clifford	DRDT	63
					*****	*****	*****	***	***	***	*****				
386	$^{182}_{74}\text{W}$	$\sigma_{n,\bar{e}}$		I		1-	10			10		AI	Alter	DRDT	69
					*****	*****	*****	***	***	***	*****				
387	$^{183}_{74}\text{W}$	$\sigma_{n,\bar{e}}$		I		1-	10			10		AI	Alter	DRDT	69
					*****	*****	*****	***	***	***	*****				
388	$^{184}_{74}\text{W}$	$\sigma_{n,\bar{e}}$		I		10-	10			10		AI	Alter	DRDT	69
					*****	*****	*****	***	***	***	*****				
391	$^{186}_{74}\text{W}$	$\sigma_{n,\bar{e}}$		I		10-	10			10		AI	Alter	DRDT	69
396	^{82}Pb	Emission	$\sigma(\theta_n, E_n)$	II			3-15			10		NEL	Eccleshall	DNA	69
401	^{90}Th	Elastic	$\sigma(\theta_n)$	III			1-5			10		ANL	Avery	DRDT	72
402	^{90}Th	Inelastic	$\sigma(E_n)$	III			1-4		5			ANL	Avery	DRDT	72
403	^{90}Th	$\sigma_{n,2n}$		I			Ths=10			10		GE	Snyder	DRDT	67
404	^{90}Th	$\sigma_{n,\bar{e}}$		I	.5-	2			5-	10		BET	Hayard	DNR	62
409	$^{231}_{91}\text{Pa}$	$\sigma_{n,\bar{e}}$		II	Th	to	10			10		GE	Snyder	DRDT	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	Lab	PERSON	ORG	
410	* 91 Pa ²³³	$\sigma_{n,g}$		II	.001-2				5			IRT	Preskitt	DRDT	67
411	92 U ²³³	Inelastic	$\sigma(E_{n,i})$	III		40-	7			10-	20	ANL	Avery	DRDT	67
413	92 U ²³³	$\sigma_{n,2n}$		II			Th=15			10		LASL	Barr	DMA	67
414	92 U ²³³	$\sigma_{n,f}$		I	.001-	1		.5-	5			BET	Bayard	DNR	62
415	92 U ²³³	$\sigma_{n,f}$		III		1-30			5			ANL	Avery	DRDT	62
416	92 U ²³³	Fis Ratio	wrt U ²³⁵	I		10-	15	1				LASL	Hansen	DMA	67
417	92 U ²³³	Nu Bar		I	.001-	30		.25	2			BET	Bayard	DNR	69
418	92 U ²³³	Nu Bar		II		30-	3	1-3				BET	Bayard	DNR	69
419	92 U ²³³	Alpha		I	.001-	1		2-	8			BET	Bayard	DNR	62
420	92 U ²³³	Alpha		II		1-	3			10-	20	ANL	Avery	DRDT	62
422	92 U ²³³	Res Par		II	Th-	5				10-	30	ANL	Avery	DRDT	67
423	92 U ²³³	Cap Spect	P(E _g)	II	.01-15						15	BET	Bayard	DNR	67
425	92 U ²³³	Fis Prod Y	of Xe ¹³⁵	II	Th			3				BET	Bayard	DNR	67
426	92 U ²³³	Fis Prod Y	of Cs ¹³⁷	II	Th			1				BET	Bayard	DNR	67
427	92 U ²³³	Fis Prod Y	of Nd ¹⁴⁷	II	Th			3				BET	Bayard	DNR	67
428	92 U ²³³	Fis Prod Y	of Sm ¹⁴⁹	II	Th			3				BET	Bayard	DNR	67
431	92 U ²³⁴	$\sigma_{n,g}$		II	.001	to	10	3	to	10		AI	Alter	DRDT	69
433	92 U ²³⁵	Elastic	$\sigma(E_n)$	II			1-5				20	ANL	Avery	DRDT	69
434	92 U ²³⁵	Inelastic	$\sigma(E_{n,i})$	II		50-	6			10		ANL	Avery	DRDT	69
439	92 U ²³⁵	$\sigma_{n,f}$		II	1-	1		3				GE	Snyder	DRDT	69
440	92 U ²³⁵	$\sigma_{n,f}$		II	1,10	1,10	1,10	3				KAPL	Ehrlich	DNR	69
441	92 U ²³⁵	$\sigma_{n,f}$		I		1-	14	1-2				GE	Snyder	DRDT	69
443	92 U ²³⁵	$\sigma_{n,f}$ Ratio	wrt H, B ¹⁰	I		1-	14	1				ANL	Avery	DRDT	69
444	92 U ²³⁵	Eta		II	Th-	50		.5-	2			ANL	Avery	DRDT	67

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
445	92 ^{U235}	Alpha		II	.001	to	7		5-	10		ANL	Avery	DRDT	69
447	92 ^{U235}	Nu Bar		I	Th=	to	3	1				ANL	Avery	DRDT	69
448	92 ^{U235}	Fis n Y	P(E _n)	II	Th	to	3		5			ANL	Avery	DRDT	69
450	92 ^{U235}	Delayd n Y	P(E _n)	II	Th					15		KAPL	Ehrlich	DNR	69
454	92 ^{U235}	Res Par		I	Th=200					10		ANL	Avery	DRDT	69
455	92 ^{U235}	Fis Prod Y	of Xe ¹³⁵	II	Th			3				BET	Bayard	DNR	67
456	92 ^{U235}	Fis Prod Y	of Cs ¹³⁷	II	Th			1				BET	Bayard	DNR	67
457	92 ^{U235}	Fis Prod Y	of Sm ¹⁴⁹	II	Th			3				BET	Bayard	DNR	67
458	92 ^{U235}	Fis Prod Y	of Nd ¹⁴⁷	II	Th			3				BET	Bayard	DNR	67

462	92 ^{U236}	σ _{n,ε}		I	Th=	1				10		GE	Snyder	DRDT	69

465	92 ^{U238}	Elastic	σ(E _n)	I		1-	10		5-	10		ANL	Avery	DRDT	69
466	92 ^{U238}	Inelastic	σ(E _n)	I		100-	10		5			ANL	Avery	DRDT	69
468	92 ^{U238}	σ _{n,2n}		II			Th=10			10		GE	Snyder	DRDT	72
471	92 ^{U238}	Fis Ratio	wrt Pu ²³⁹	I		500-	14	2-	4			LMFB	Hemmig=AEC	DRDT	69
472	92 ^{U238}	Nu Bar		I			1-10	1				ANL	Avery		69
474	92 ^{U238}	Delayd n Y	P(E _n)	I	Th	to	5		5			LMFB	Hemmig=AEC	DRDT	72
475	92 ^{U238}	σ _{n,ε}		I	500	to	10	2	to	10		AI	Alter	DRDT	69
477	92 ^{U238}	Tot ε Prod	σ(E _n , E _ε)	II	.001	to	10			10		LMFB	Hemmig=AEC	DRDT	72
478	92 ^{U238}	σ _{n,ε} wrt σ _{n,f}	Pu ²³⁹	I		10-	10	1.5	-7			ANL	Avery	DRDT	69
480	92 ^{U238}	Res Par		I		*				10		AI	Alter	DRDT	69

481	93 ^{Nd237}	σ _{n,2n}		II			Th=15			10		SRL	Dessauer	DPMM	67
484	93 ^{Nd237}	σ _{n,ε}		I	.001-	1		3	to	10		BNW	Leonard	DPMM	67

488	94 ^{Pu238}	σ _{n,f}		III			1-10			10		AI	Alter	DRDT	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	15	>15	LAB	PERSON	ORG	
491	$^{238}_{94}\text{Pu}$	$\sigma_{n,\bar{e}}$		III		1-	10			10		AI	Alter	DRDT	69
					*****	*****	*****	***	***	***	*****				
495	$^{239}_{94}\text{Pu}$	Elastic	$\sigma(E_n)$	II			1-3			10		ANL	Avery	DRDT	69
496	$^{239}_{94}\text{Pu}$	Inelastic	$\sigma(E_{n'})$	I		10-	10				20	KAPL	Ehrlich	DNR	72
498	$^{239}_{94}\text{Pu}$	$\sigma_{n,2n}$		I			Ths=15			10		LASL	Barr	DMA	67
500	$^{239}_{94}\text{Pu}$	$\sigma_{n,f}$		I	Th=	1			1			GE	Snyder	DRDT	72
501	$^{239}_{94}\text{Pu}$	$\sigma_{n,f}$		I	1	to	10	2-	5			ANL	Avery	DRDT	69
502	$^{239}_{94}\text{Pu}$	Fis Ratio	wrt U^{235}	I		10-	14	2				LMFB	Hennig-AWC	DRDT	72
503	$^{239}_{94}\text{Pu}$	Nu Bar		I	Th	to	10	1*				AI	Alter	DRDT	66
504	$^{239}_{94}\text{Pu}$	Delayed n Y	$P(E_{n'})$	II	Th	to	5		5			ANL	Avery	DRDT	69
506	$^{239}_{94}\text{Pu}$	Eta		I	Th=1			1				GE	Snyder	DRDT	67
507	$^{239}_{94}\text{Pu}$	Alpha		I	100	to	10	4	to	10		ANL	Avery	DRDT	69
511	$^{239}_{94}\text{Pu}$	Res Par		II	Th=50					10		ANL	Avery	DRDT	69
512	$^{239}_{94}\text{Pu}$	Fis Prod Y	of Xe^{135}	II	Th			3				BET	Bayard	DNR	67
513	$^{239}_{94}\text{Pu}$	Fis Prod Y	of Cs^{137}	II	Th			1				BET	Bayard	DNR	67
515	$^{239}_{94}\text{Pu}$	Fis Prod Y	of Sr^{149}	II	Th			3				BET	Bayard	DNR	67
					*****	*****	*****	***	***	***	*****				
516	$^{240}_{94}\text{Pu}$	Inelastic		II			1.5-10				20	GE	Snyder	DRDT	72
517	$^{240}_{94}\text{Pu}$	$\sigma_{n,f}$		II		500-	10		5			GE	Snyder	DRDT	72
518	$^{240}_{94}\text{Pu}$	Fis Ratio	wrt U^{235}	III		1-100			5			ACRP	Hannum	DRDT	72
519	$^{240}_{94}\text{Pu}$	Nu Bar		II		Ths=	10	3				ANL	Avery	DRDT	72
521	$^{240}_{94}\text{Pu}$	$\sigma_{n,\bar{e}}$		I	Th=100			3				GE	Snyder	DRDT	67
522	$^{240}_{94}\text{Pu}$	$\sigma_{n,\bar{e}}$		I	500-	150			5			ANL	Avery	DRDT	69
524	$^{240}_{94}\text{Pu}$	Res Par		II	100-	5				10		ANL	Avery	DRDT	69
					*****	*****	*****	***	***	***	*****				
526	$^{241}_{94}\text{Pu}$	$\sigma_{n,f}$		I	Th=	30		3	to	10		ANL	Avery	DRDT	69
528	$^{241}_{94}\text{Pu}$	Nu Bar		II			1-10		6			ANL	Avery	DRDT	72

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
530	94Pu^{241}	$\sigma_{n,\bar{g}}$		I	Th=	30		3				GE	Snyder	DRDT	67
531	94Pu^{241}	Alpha		II		1=	2				20	GE	Snyder	DRDT	69
532	94Pu^{241}	Res Par		II	Thr=	.4			5	to	20	ANL	Avery	DRDT	72
					*****	*****	*****	***	***	***	*****				
535	94Pu^{242}	Nu Bar		II		500=	10		5			LHB	Hemmig-AEC	DRDT	69
538	94Pu^{242}	$\sigma_{n,\bar{g}}$		I	Th	to	7	3=			20	BNW	Leonard	DPMM	67
543	95Am^{241}	$\sigma_{n,\bar{g}}$		I	Th=	1				10		SRL	Dessauer	DPMM	67
					*****	*****	*****	***	***	***	*****				
547	95Am^{242}	$\sigma_{n,\bar{g}}$		II	Th	to	10			15		GE	Hutchins	DRDT	72
					*****	*****	*****	***	***	***	*****				
549	95Am^{243}	$\sigma_{n,\bar{g}}$		II	Thr	to	10			15		GE	Snyder	DRDT	72
557	96Cm^{244}	$\sigma_{n,\bar{g}}$		II		10=	10			10		GE	Snyder	DRDT	67
579	98Cf^{252}	Nu Bar		I				.25				NDC	Caswell	DPR	69
580	98Cf^{252}	Nu Bar		I				.41				AI	Alter	DRDT	72
581	98Cf^{252}	Fis Spect	$P(E_n,)$	I				1				BET	Hayard	DNR	72

SECTION V.

TABLE 5.J

DSNS

Division of Space Nuclear Systems, David S. Gabriel, Director

Phone: 301-973-3027

USAEC, Washington, D. C. 20545

Contacts set up at AGC and at WAL along with the following in the DSNS Division

Charles P. MaCallum

Donald S. Beard

} Phone: 301-973-4558

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
11	${}^3_{11}\text{Li}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II		258±10				15*	1	SNPO	Fleishman	DSNS	69
97	${}^{13}_{13}\text{Al}$	Cap Spect	$P(E_{\bar{e}})$	I	Th					10		SNPO	Fleishman	DSNS	69
98	${}^{13}_{13}\text{Al}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II		5=200				15*		SNPO	Fleishman	DSNS	69
110	${}^{22}_{22}\text{Ti}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II		1=100				15*		SNPO	Fleishman	DSNS	69
141	${}^{24}_{24}\text{Cr}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	I	500=	20				15*		SNPO	Fleishman	DSNS	69
145	${}^{25}_{25}\text{Mn}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	I	300=	120				15*		SNPO	Fleishman	DSNS	69
163	${}^{26}_{26}\text{Fe}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II		1=650				15*		SNPO	Fleishman	DSNS	69
177	${}^{27}_{27}\text{Co}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	I	100=	100				15*		SNPO	Fleishman	DSNS	69
196	${}^{28}_{28}\text{Ni}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II		12=340				15*		SNPO	Fleishman	DSNS	69
209	${}^{29}_{29}\text{Cu}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II	200=	50				15*		SNPO	Fleishman	DSNS	69
215	${}^{30}_{30}\text{Zn}$	Cap Spect	$P(E_{\bar{e}})$	I	Th					10		SNPO	Fleishman	DSNS	69
216	${}^{30}_{30}\text{Zn}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	I	200=	25				15*		SNPO	Fleishman	DSNS	69
231	${}^{40}_{40}\text{Zr}$	Emission	$\sigma(E_{n'}, E_{n'})$	I			2=14			10		KAPL	Enrich	DNR	67
237	${}^{40}_{40}\text{Zr}$	Cap Spect	$P(E_{\bar{e}})$	I	Th					10		SNPO	Fleishman	DSNS	69
240	${}^{40}_{40}\text{Zr}$	Tot $\bar{e}$ Prod	$\sigma(E_{\bar{e}})$	II	100=	20				15*		SNPO	Fleishman	DSNS	69
272	${}^{41}_{41}\text{Nb}$	Emission	$\sigma(E_{n'}, E_{n'})$	I			1.5=15			10		LASL	Streetman	DSNS	69

REQ #	TARGET * Z A	REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		eV	keV	MeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
280	$^{141}_{51}\text{Nb}$	Cap Spect	$P(E_{\gamma})$	I	Th					10		SNPO	Fleishman	DSNS	69
283	$^{141}_{51}\text{Nb}$	Tot $\bar{\gamma}$ Prod	$\sigma(E_{\gamma})$	II	30-	75				15*		SNPO	Fleishman	DSNS	69
293	$^{142}_{42}\text{Mo}$	Emission	$\sigma(\theta_{n,\gamma}, E_{n,\gamma})$	II			1.5-15			10		LASL	Streetman	DSNS	69
298	$^{142}_{42}\text{Mo}$	Cap Spect	$P(E_{\gamma})$	I	Th					10		SNPO	Fleishman	DSNS	69
302	$^{142}_{42}\text{Mo}$	Tot $\bar{\gamma}$ Prod	$\sigma(E_{\gamma})$	I	10-	9				15*		SNPO	Fleishman	DSNS	69
378	$^{181}_{73}\text{Ta}$	Emission	$\sigma(\theta_{n,\gamma}, E_{n,\gamma})$	III			1.5-15			10		LASL	Streetman	DSNS	69
380	$^{181}_{73}\text{Ta}$	Tot $\bar{\gamma}$ Prod	$\sigma(E_{\gamma})$	I	4-	1.4				15*		SNPO	Fleishman	DSNS	69
381	$^{184}_{74}\text{W}$	Emission	$\sigma(\theta_{n,\gamma}, E_{n,\gamma})$	I			4-14			10		AEWL	Eng	DNA	69
382	$^{184}_{74}\text{W}$	Tot $\bar{\gamma}$ Prod	$\sigma(E_{\gamma})$	I	2-	2.5				15*		SNPO	Fleishman	DSNS	69
398	$^{202}_{82}\text{Pb}$	Tot $\bar{\gamma}$ Prod	$\sigma(E_{\gamma})$	II	80-	800				15*		SNPO	Fleishman	DSNS	69
446	$^{235}_{92}\text{U}$	$\sigma_{n,f} + \sigma_{n,\bar{\gamma}}$	at 77°K	II	Th-	1		3-	5			SNPO	Fleishman	DSNS	69

SECTION V.

TABLE 5.K

NASA

National Aeronautics and Space Administration

REQ #	TARGET * Z A	REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
		QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≤15	>15	LAB	PERSON	ORG	
620	${}^4_2\text{He}$	$\sigma_{p,x}$	$\sigma(E_x)$	II		25-100					10*		GSFC Reames	NASA	67
621	${}^4_2\text{He}$	$\sigma_{p,x}$	$\sigma(E_x)$	II		300-	.6				10*		GSFC Reames	NASA	67
622	${}^4_2\text{He}$	$\sigma_{\alpha,x}$	$\sigma(E_x)$	II		25-600					10*		GSFC Reames	NASA	67
623	${}^6_3\text{Li}$	Tot p Reac		III		25-600					10*		GSFC Reames	NASA	67
624	${}^7_3\text{Li}$	Tot p Reac		III		25-600					10*		GSFC Reames	NASA	67
625	${}^7_3\text{Li}$	$\sigma_{p,x}$		II		25-600					10*		GSFC Reames	NASA	67
626	${}^7_4\text{Be}$	σ_{p,Li^6}		II		25-600					est.*		GSFC Reames	NASA	67
627	${}^9_4\text{Be}$	Tot p Reac		III		25-600					10*		GSFC Reames	NASA	67
628	${}^{10}_5\text{B}$	$\sigma_{p,x}$		II		25-600					10*		GSFC Reames	NASA	67
629	${}^{11}_5\text{B}$	$\sigma_{p,x}$		II		25-600					10*		GSFC Reames	NASA	67
630	${}^6_6\text{C}$	$\sigma_{p,\text{kny}}$	$\sigma(E_n, E_n')$	I		~50						25	HASL O'Brien	DHER	67
631	${}^6_6\text{C}$	$\sigma_{p,\text{kny}}$	$\sigma(E_n, E_n')$	II		600-	2					25	HASL O'Brien	DBER	66
632	${}^{12}_6\text{C}$	$\sigma_{p,x}$		II		25-	1				10*		GSFC Reames	NASA	67
633	${}^{12}_6\text{C}$	$\sigma_{\alpha,x}$		I		25-	1,2				10*		GSFC Reames	NASA	69
634	${}^{13}_6\text{C}$	$\sigma_{p,x}$		I		25-600					10*		GSFC Reames	NASA	67
635	${}^{14}_7\text{N}$	$\sigma_{p,x}$		II		25-600					10*		GSFC Reames	NASA	67
636	${}^{15}_7\text{N}$	$\sigma_{p,x}$		-II		25-600					10*		GSFC Reames	NASA	67

REQ #	TARGET			REACTION TYPE		PRI OR.	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	*	Z	A	QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	≥15	>15	LAB	PERSON	ORG	
637		8	0	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	I		~50					25	HASL	O'Brien	DBER	66
638		8	0	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	II		600=	2				25	HASL	O'Brien	DBER	66
639		8	0	$\sigma_{\pi,k\pi=y}$	$\sigma(\theta_{\pi}, E_{\pi})$	II			1=2				25	HASL	O'Brien	DBER	66
							*****	*****	*****	***	***	***	*****				
640		8	0 ¹⁶	$\sigma_{p,x}$		I		25-600				10*		GSFC	Reames	NASA	67
641		8	0 ¹⁶	$\sigma_{p,x}$		I		25-600				10*		GSFC	Reames	NASA	67
642		8	0 ¹⁶	$\sigma_{\pi,x}$		I		25=	1,2			10*		GSFC	Reames	NASA	69
							*****	*****	*****	***	***	***	*****				
643		8	0 ¹⁸	$\sigma_{p,x}$		I		25-600				10*		GSFC	Reames	NASA	67
644		10	Ne ²⁰	$\sigma_{p,A=19}$		I		25-600				10		GSFC	Reames	NASA	67
645		12	He ²⁴	$\sigma_{p,x}$		II		25-600				10*		GSFC	Reames	NASA	67
646		13	Al	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	I		600=	2				25	HASL	O'Brien	DBER	66
647		13	Al	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	I			~10,30				25	HASL	O'Brien	DBER	66
648		13	Al	$\sigma_{p,kpv}$	$\sigma(\theta_p, E_p)$	II		~2000,	~10,30				25	HASL	O'Brien	DBER	66
649		13	Al	$\sigma_{\pi,kny}$	$\sigma(\theta_{n'}, E_{n'})$	II		100=	1				25	HASL	O'Brien	DBER	66
650		20	Ca ⁴⁰	$\sigma_{p,x}$		III		25-600				10*		GSFC	Reames	NASA	67
651		26	Fe ⁵⁶	$\sigma_{p,x}$		II		25-600				10*		GSFC	Reames	NASA	67
652		26	Fe ⁵⁶	$\sigma_{p,x}$		I		25-600				10*		GSFC	Reames	NASA	67
653		27	Co	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	I		600=	2				25	HASL	O'Brien	DBER	66
654		27	Co	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	I			~10,30				25	HASL	O'Brien	DBER	66
655		27	Co	$\sigma_{p,kpy}$	$\sigma(\theta_p, E_p)$	II		~2000,	~10,30				25	HASL	O'Brien	DBER	66

REQ #	TARGET		REACTION TYPE		PRI OR,	INCIDENT ENERGY			PERCENT ACCURACY				REQUESTER			YR
	* Z	A	QUANTITY	VARIABLE		keV	MeV	GeV	1-3	4-9	10-15	>15	LAB	PERSON	ORG	
656	83	B1	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	I		600-	2				25	HASL	O'Brien	DBER	66
657	83	B1	$\sigma_{p,kny}$	$\sigma(\theta_{n'}, E_{n'})$	II			~10,30				25	HASL	O'Brien	DBER	66
658	83	B1	$\sigma_{p,kpy}$	$\sigma(\theta_{p'}, E_{p'})$	II		~2000,	~10,30				25	HASL	O'Brien	DBER	66

LIST OF REQUESTERS *

LAB	NAME	SPONSORING AND/OR REVIEWING AGENCY	FULL NAME OF CONTACT AND PHONE NUMBER	COMPLETE ADDRESS
AC	Greenhow	DNA	Charles R. Greenhow	Nuclear Effects Department . AEROSPACE CORPORATION
005	01	205	Phone:	P. O. Box 1308 San Bernadino, California 92401
ACRP	Hannum	DRDT	W. H. Hannum Chairman, ACRP	Division of Reactor Development & Tech. Reactor Physics Branch
010	01	135	Phone: 301-973-4181	U. S. Atomic Energy Commission Washington, D. C. 20545
AGC	Koebberling	DSNS	Karl O. Koebberling	Aerojet-General Corporation
015	01	165	Phone: 916-449-2000 Ask for: 355-3539	P. O. Box 15847 Sacramento, California 95813
AFIT	Dooley	DNA	John A. Dooley	Air Force Institute of Technology Wright Patterson Air Force Base
020	01	201	Phone: 513-257-7266	Space Systems Division Ohio 45433
AFWL	Enz	DNA	Major Richard Enz	USAF (SRUGT)
025	01	205	Phone: 505-247-1711 Ext-3636	Department of the Air Force Air Force Weapons Laboratory Kirtland Air Force Base New Mexico 87117
AI	Alter	DRDT	Harry Alter	Atomics International
030	01	135	Phone: 213-341-1000 Ext-2491 or 2492	P. O. Box 309 Canoga Park, California 91305

* Due to the many name and organizational changes during the past six years, the Laboratories are no longer listed alphabetically. The numbers which appear under the laboratory, name, and agency are those stored in the computer. Searches are therefore made on the numerical indices.

LAB	NAME	SPONSORING AND/OR REVIEWING AGENCY	FULL NAME OF CONTACT AND PHONE NUMBER	COMPLETE ADDRESS
ANL	Avery	DRDT	Robert Avery	Argonne National Laboratory
035	01	135	Phone: 312-739-2275	9700 S. Cass Ave. Argonne, Illinois 60439
BET	Bayard	DNR	R. T. Bayard	Westinghouse Electric Company
040	01	185	Phone: 412-462-0234	Bettis Atomic Power Lab P. O. Box 79 West Mifflin, Pennsylvania 15122
BNL	Kouts	DNMS	Herbert J. Kouts	Brookhaven National Laboratory
045	05	155	Phone: 516-924-7796	Upton, New York 11973
DNA	Kaul	DNA	Captain Dean Kaul	HQ, Defense Nuclear Agency
055	03	205	Phone: 202-694-5395	Department of Defense Washington, D. C. 20305
GDFW	Western	DNA	G. T. Western	Nuclear Radiation Transport and Safety
060	01	201	Phone: 817-334-3011 Ask for: 732-4811 Ext-2895 or 2000	General Dynamics Fort Worth Division P. O. Box 748 Fort Worth, Texas 76101
			Others: Ernest Jones H. R. Dvorak	
GE	Snyder	DRDT	Thoma Snyder	General Electric Company
065	01	135	Phone: 408-286-2525 Ask for: 297-3000 Ext-2404 or 2292	Nuclear Energy Division Mail Code 581 175 Curtner Avenue San Jose, California 95125
GE	Hutchins	DRDT	Bruce Hutchins	General Electric Company BRDO
065	02	135	Phone: 408-275-7011 Ask for: 297-3000 Ext- 330	310 De Guigne Drive Sunnyvale, California 94086

<u>LAB</u>	<u>NAME</u>	<u>SPONSORING AND/OR REVIEWING AGENCY</u>	<u>FULL NAME OF CONTACT AND PHONE NUMBER</u>	<u>COMPLETE ADDRESS</u>
IRT	Bramblett	DNMS	Richard L. Bramblett	Intelcom Rad Tech
070	04	155	Phone: 714-293-5000 Ask for: 453-1000 Ext-17351	Technical Applications Department P. O. Box 80817 San Diego, California 92138
IRT	Preskitt	DRDT	C. A. Preskitt	Intelcom Rad Tech
070	01	135	Phone: 714-293-5000 Ask for: 453-1000 Ext- 278	Technical Applications Department P. O. Box 80817 San Diego, California 92138
GSFC	Reames	NASA	D. V. Reames	Goodard Space Flight Center
075	01	301	Phone: 301-982-4917	Greenbelt, Maryland 20771
HASL	O'Brien	DBER	Keran O'Brien	Health and Safety Laboratory
080	01	105	Phone: 212-620-3632	Radiation Physics Division U. S. Atomic Energy Commission 376 Hudson Street New York, New York 10014
ANC	Brugger	DRDT	Robert M. Brugger	Aerojet Nuclear Corporation
085	01	135	Phone: 208-526-4387]	P. O. Box 1845 Idaho Falls, Idaho 83401
ANC	Heath	DNMS	Russell Heath	Aerojet Nuclear Corporation
085	05	155	Phone: 208-526-4447	P. O. Box 1845 Idaho Falls, Idaho 83401
KAPL	Ehrlich	DNR	Richard Ehrlich	Knolls Atomic Power Laboratory
090	01	185	Phone: 518-393-4312	P. O. Box 1072 Schenectady, New York 12301

LAB	NAME	SPONSORING AND/OR REVIEWING AGENCY	FULL NAME OR CONTACT AND PHONE NUMBER	COMPLETE ADDRESS
LASL	Various	DMA	Michael S. Moore (Contact) Phone: 505-667-5951	Los Alamos Scientific Laboratory P. O. Box 1663 Los Alamos, New Mexico 87544
100	Barr 12 Bell 14 Bennett 16 Biggers 18 Cowan 19 Diven 20 Hansen 24 Moore 26 Motz 28 Walton 40	DMA 115 DMA 115 DMA 115 DMA 115 DMA 115 DMA 115 DMA 115 DMA 115 DMA 115 DNMS 155	Donald W. Barr - 505-667-5328 George I. Bell - 505-667-4401 Elbert W. Bennett - 505-667-4143 Wendell Biggers - 505-667-5201 George A. Cowan - 505-667-5201 Ben C. Diven - 505-667-4504 Gordon Hansen - 505-667-4610 Michael S. Moore - 505-667-5951 Henry T. Motz - 505-667-4117 Roddy B. Walton - 505-667-6141	
LMFB	Hemmig - AEC	DRDT	Philip B. Hemmig	Division of Reactor Development & Tech. U. S. Atomic Energy Commission Washington, D. C. 20545
105	01	135	Phone: 301-973-4181	
LRC	Westfall	DSNS	Robert M. Westfall	Reactor Section, Nuclear Systems Div. National Aeronautics and Space Admin. Lewis Research Center 21000 Brookpark Road Cleveland, Ohio 44135
110	01	165	Phone: 216-433-400 Ext- 394	
LLI	Howerton	DMA	Robert J. Howerton	Lawrence Livermore Laboratory P. O. Box 808 Livermore, California 94550
115	02	115	Phone: 415-447-3127	
NASA	Reetz	NASA	A. Reetz	National Aeronautics and Space Administration Headquarters Washington, D. C. 20546
120	12	301	Phone:	
NBS	Caswell	DPR	Randall S. Caswell	National Bureau of Standards Washington, D. C. 20234
125	01	145	Phone: 301-921-2551 or 2234	

LAB	NAME	SPONSORING AND/OR REVIEWING AGENCY	FULL NAME OF CONTACT AND PHONE NUMBER	COMPLETE ADDRESS
NDC	Caswell	DPR	Randall S. Caswell	National Bureau of Standards Washington, D. C. 20234
130	02	145	Phone: 301-921-2551 or 2234	
NEL	Eccleshall	DNA	Donald Eccleshall	Deputy Chief, Nuclear Effects Laboratory U. S. Army Ballistic Research Lab. Aberdeen Proving Ground Maryland 21005
135	01	205	Phone: 301-597-3311 Ask for: 676-1000	
ORNL	Maienschein	DNA	F. C. Maienschein	Oak Ridge National Laboratory P. O. Box X Oak Ridge, Tennessee 37830
145	05	205	Phone: 615-483-6601	
ORNL	Alsmiller	DPR	R. G. Alsmiller	Oak Ridge National Laboratory P. O. Box X Oak Ridge, Tennessee 37830
145	09	144	Phone: 615-483-1126	
ORNL	Perry	DRDT	A. M. Perry	Oak Ridge National Laboratory P. O. Box X Oak Ridge, Tennessee 37830
145	01	135	Phone: 615-483-5640	
ORNL	Clifford	DRDT	C. E. Clifford	Oak Ridge National Laboratory P. O. Box X Oak Ridge, Tennessee 37830
145	02	135	Phone: 615-483-6881	
ORNL	Macklin	DPR	R. L. Macklin	Oak Ridge National Laboratory P. O. Box X Oak Ridge, Tennessee 37830
145	04	145	Phone: 615-483-1967	
BNW	Leonard	DPMM	Bowen R. Leonard, Jr.	Battelle Northwest P. O. Box 999 Richland, Washington 99352
150	01	125	Phone: 509-942-7411 Ask for: 946-2558	
HEDL	McElroy	DRDT	W. N. McElroy	Hanford Engineering Development Lab. Westinghouse Hanford Company P. O. Box 1970 Richland, Washington 99352
150	02	135	Phone: 509-942-3791	

<u>LAB</u>	<u>NAME</u>	<u>SPONSORING AND/OR REVIEWING AGENCY</u>	<u>FULL NAME OF CONTACT AND PHONE NUMBER</u>	<u>COMPLETE ADDRESS</u>
SNS	McCallum	DSNS	Charles P. McCallum	Division of Space Nuclear Systems U. S. Atomic Energy Commission Washington, D. C. 20545
155	01	165	Phone: 301-973-4558	
SNS	Beard	DSNS	Donald S. Beard	Division of Space Nuclear Systems U. S. Atomic Energy Commission Washington, D. C. 20545
155	02	165	Phone: 301-973-4558	
SNPO	Fleishman	DSNS	Morton R. Fleisch	Space Nuclear Propulsion Office Cleveland Extension NASA 2100 Brookpark Road Cleveland, Ohio 44135
156	01	165	Phone: 216-443-6677	
SRL	Dessauer	DPMM	Gerhard Dessauer	Savannah River Laboratory E. I. du Pont de Nemours and Company Aiken, South Carolina 29801
160	01	125	Phone: 803-642-2195	
WAL	Drawbaugh	DSNS	Donald W. Drawbaugh	Westinghouse Astronuclear Laboratory P. O. Box 10864 Pittsburgh, Pennsylvania 15236
165	01	165	Phone: 412-384-6520	
<u>WARD</u>	Pitterle	DRDT	Thomas A. Pitterle	Westinghouse Electric Corporation Advanced Reactor Division Waltz Mill Site, P. O. Box 158 Madison, Pennsylvania 15663
170	01	135	Phone: 412-722-5338	