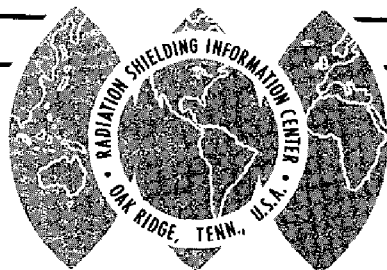


# RSIC Newsletter



RADIATION SHIELDING INFORMATION CENTER

## OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION • FOR THE U.S. ATOMIC ENERGY COMMISSION

POST OFFICE BOX X •  
OAK RIDGE, TENNESSEE 37830

No. 87

February 1972

*True scholarship consists in knowing not what things exist,  
but what they mean; it is not memory but judgment.*

*... James Russell Lowell*

### INTERNATIONAL SHIELDING CONFERENCE NEWS

In December 1971, Sigvard Eklund, Director General of the International Atomic Energy Agency (IAEA) in Vienna, issued an official invitation to scientists within IAEA and Organization for Economic Cooperation and Development (OECD) countries to participate in the Conference. The Fourth International Conference on Reactor Shielding will be convened jointly by the European Nuclear Energy Agency (ENEA) of the OECD and the French Atomic Energy Commission (CEA) in collaboration with the IAEA in Paris, October 9-13, 1972.

The Call for Papers for the Conference was printed in RSIC Newsletter No. 84, November 1971. A Booklet of "General Information" is available from RSIC on request. It contains forms to be used in submitting summaries of papers, and for registration and lodging information.

For those who plan to submit papers to the Conference, the Paper Submission Form with pertinent information must be sent to the Secretariat before March 15. For those who plan to attend but not submit a paper, the Participation Form should be sent in before June 30, 1972.

Requests for additional information and the above-mentioned forms should be addressed to:

Secretariat of the Fourth International Conference on Reactor Shielding  
c/o OECD European Nuclear Energy Agency  
38 Boulevard Suchet  
F-75 Paris 16e, France

Questions concerning the program may be addressed to F. C. Maienschein, ORNL, the U.S. member of the Program Committee, or to RSIC.

### DNA WORKING CROSS SECTION LIBRARY NOW AVAILABLE

The Defense Nuclear Agency (DNA) has established a comprehensive program to provide cross section data adequate to allow its contractors to make transport calculations to the degree of accuracy required on their projects. This means the evaluations will contain both neutron interaction and secondary gamma-ray production data. Two key features of the library are that it is in ENDF format and it is a working library - that is, a library that will change as rapidly as is necessitated by the availability of new information.

The main factor in the DNA program is the concept of a single evaluator responsible for a given material. He is funded and has complete responsibility for updating and seeing that the best information is inserted into the evaluated cross-section data.

RSIC's role is as a clearinghouse. We receive the data from evaluators, check for format conformity, process through syntax and physics checking codes, plot the data, coordinate reviews, correct errors, and package the data for distribution. We communicate with the evaluator about possible changes but update only when directed by the evaluator.

The present contents of the library are listed in the table. Note that each evaluation has a MAT number in the 4000 range. When any evaluation is approved both by CSEWG and DNA, the DNA MAT equals the CSEWG plus 3000. However, since the DNA library will be updated as directed by the evaluator, a MOD number is also assigned to identify significant modification to the evaluation. The description of these changes is included in the documentation provided by RSIC.

<u>MATERIAL</u>	<u>EVALUATORS</u>	<u>MAT</u>	<u>MOD</u>	<u>DATE</u>
Iron	Penny, Kinney, Wright, Perey - ORNL	4124	1	9-1-71
Nitrogen	Young, Foster - LASL	4133	2	7-30-71
Oxygen	Young, Foster - LASL	4134	0	8-13-71
Aluminum	Young, Foster - LASL	4135	1	7-30-71
Lead	Fu, Perey - ORNL	4136	0	9-1-71
Hydrogen	Stewart, LaBauve, Young - LASL	4148	0	3-22-71
Silicon	Kinsey, Drake - BNL	4151	0	9-1-71
Calcium	Perey, Fu, Kinney - ORNL	4152	0	9-1-71

The library is not restricted for use by DNA contractors but is generally available to the scientific community.

## RSIC SOLICITS USER ADVICE ON DATA LIBRARIES

The usefulness of the Radiation Shielding Information Center depends in large part on the cooperation of research scientists and engineers who serve and who are served by it. In particular, we are interested in including the needs and experience of those we serve in the selection, preparation, and packaging of data libraries (DLC's). With this motivation, a detailed user-survey was sent this month to the many RSIC customers who received DLC-2/99G, the 99 group,  $P_8$ , 1/E weighted neutron multigroup library generated by PSR-13/SUPERTOG from ENDF/B. A more general survey form is appended to this Newsletter to allow users of other RSIC-distributed data packages to document their experience and opinions.

RSIC makes no claim as to accuracy or completeness of the data packages we distribute. In all candor, we feel we must call attention to some pitfalls inherent in the use of a "standard" multigroup library. Experience demonstrates that in many cases a standard, fixed energy group library cannot be used to obtain accurate radiation energy spectra. Examples of this are deep transport calculations in materials such as air, iron, and sodium. Even using a complex weighting spectrum with a standard group structure (such as 100 groups) will not provide accurate results. In these cases the most important requirement is that the group structure must resolve energy ranges where cross sections vary rapidly. On the other hand, experience has shown that standard group structure libraries will work for hydrogenous systems and many complex mixtures where cross section details are not very important.

When the popularity of reference group cross-section libraries are considered in light of the pitfalls mentioned above, we feel we must evaluate the usefulness of providing such a service to all requesters. We hope that response to the survey will answer some of the questions.

Our philosophy has been that a gap existed between availability of modern computing methods and the availability of multigroup cross section data to implement those methods. Data libraries such as DLC-2 help to fill that gap, particularly for the smaller groups who do not have the resources to maintain a multigroup cross section generation effort. Considerable effort is expended by RSIC in developing documentation for the DLC libraries so that the user knows just what went into each library. Suggestions for improvement are eagerly solicited. In addition, in response to requests, methods of implementing the data in certain computer codes have been researched and as a result, manuals were written to assist users.

It has always been RSIC policy to discuss with users their needs and recommend codes and data libraries. Insofar as possible, we assist those who are implementing codes and data at their installations. In cases where we lack experience to advise in particular problem areas, we call upon other experienced personnel locally and elsewhere to help them. This takes the form of offering advice on solving particular problems, as well as helping to diagnose problems in implementing calculational procedures.

There is always the chance that a computer code or data library obtained from RSIC will be improperly used. We have always felt that the benefit to industry far outweighs the risk.

Please examine, complete, and return to RSIC the appended questionnaire to convey your ideas about data libraries to us.

Realizing that any discussion of cross sections evokes a certain amount of controversy and that our readers will react to this feature with varying degrees of emotion, we invite your written response. If it seems to serve the purpose of advancing the state of the art, we will publish any comments you may send for that purpose. So, write!

### CHANGES TO THE DATA LIBRARY COLLECTION

The designation of Bertini's Medium-Energy Intranuclear Cascade data has been changed to DLC-3/MEP. This data library is identical to the one announced in the September 1971 Newsletter as DLC-17/MECC-7.

A new 99 group,  $P_3$ , neutron cross section library is available as DLC-6/GAMLIB. It is designed for use in the GAM portion of the PSR-12/GGC code package. The data were taken from the ORNL GAM library and is based, in part, on ENDF/B data processed through PSR-13/SUPERTOG.

The library contains data for 2-H, He, 6-Li, 7-Li, 9-Be, 10-B, 12-C, 14-N, 16-O, 23-Na\*, Mg, 27-Al, Ti, V, Cr, 55-Mn\*, Fe, Ni, Cu, 63-Cu\*, 65-Cu\*, 81-Br, 82-Kr, 83-Kr, 84-Kr, 85-Kr, 86-Kr, Rb, 88-Sr, 90-Sr, 93-Nb\*, Mo, 100-Ru, 105-Rh, 104-Pd, 126-Te, 132-Xe, 133-Xe, 134-Xe, 135-Xe, 134-Cs, 134-Ba, 139-La, 140-Ce, 142-Ce, 144-Nd, 148-Sm, 149-Sm\*, 151-Eu\*, 153-Eu\*, Gd, 164-Dy\*, 175-Lu\*, 176-Lu\*, 181-Ta\*, 182-W\*, 183-W\*, 184-W\*, 186-W\*, 185-Re\*, 187-Re\*, 197-Au\*, 207-Pb, 232-Th\*, 233-U\*\*, 234-U\*, 235-U\*, 236-U\*, 238-U\*, 237-Np\*, 238-Pu\*, 239-Pu\*, 240-Pu\*, 241-Pu\*, 242-Pu\*, 241-Am\*, 243-Am\*, 244-Cm\*, NSFP\*\*\*, SSFP\*\*\*.

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\*Two data sets, one with resonance parameters, one for infinite dilution.

\*\*Resonance nuclide only.

\*\*\*NSFP - non-saturating fission product pseudo element.

SSFP - slowly saturating fission product pseudo element.

Ref. J. L. Lucius, J. D. Jenkins, and R. Q. Wright, "The INDEX Data System: An Index of Nuclear Data Libraries Available at ORNL," ORNL-3334. Request should be accompanied by nine full reels of magnetic tape to be written 7 track, unblocked, or by a single tape to be written 9 track, blocked.

### CURRENT WORK AND PROBLEMS

The following reports-in-brief of work in progress continues the *CURRENT WORK AND PROBLEMS* feature. The names in parentheses identify reporters for each installation. We welcome contributions to this feature from those who have not yet responded, from those whose work has significantly changed, and from those who wish to call attention to new problem areas.

At the Jet Propulsion Laboratory, Pasadena, California (W. Price), measurements were made of the radiation field from a gamma spectra simulated radioisotope thermoelectric generator placed on a model of the TOPS (Thermoelectric Outer Planets Spacecraft). This was done to determine the agreement with Monte Carlo calculations using a mockup of a spacecraft with its shielding and scattering characteristics.

At CKSS, Geesthacht - Tesperhude, W. Germany (R. Fiebig, F. Frisius) theoretical and experimental work is being done on ship reactor shielding and shielding of fission product contamination.

### UNIVAC VERSION OF LAPHANO AVAILABLE

Martin P. Fricke, Nuclear Technology Branch of Gulf Radiation Technology, has recently sent to RSIC a version of PSR-20/LAPHANO which is operable on the UNIVAC 1108 computer. The source card deck, input and output for a sample problem are now packaged as PSR-20-D. Versions are also available for the CDC-6600 (PSR-20-B) and for the IBM 360 (PSR-20-C). A  $P_0$  multigroup photon production matrix and source vector code for ENDF data developed at LASL, LAPHANO replaces the original LAPH (PSR-20-A). Any request for the code package should be accompanied by one reel of magnetic tape. The exact version desired should be indicated. References: LA-4337 and LA-4750-MS.

### PERSONAL ITEMS

*John Lilley* is leaving McDonnell Douglas Astronautics Company for an assignment in the Theoretical Design (TD) Division of Los Alamos Scientific Laboratories.

RSIC has received notice of the following changes of address: *Donald R. Ekberg*, from General Electric Company in Philadelphia to General Electric A&GS, Mississippi Test Facility, where he will be manager of the Scientific Laboratory in Bay Saint Louis, Mississippi; *A. O. Burford* and *F. T. Bly* from Lockheed-Georgia to the Lockheed Missiles and Space Company at Sunnyvale, California.

## Second Notice and Call for Abstracts

# Sixth International Cyclotron Conference

University of British Columbia, Vancouver, B.C., Canada

July 18 - 21, 1972

Organized by TRIUMF, the Meson Facility of the University of Alberta, the University of British Columbia, Simon Fraser University, and the University of Victoria.

Sponsored by the International Union of Pure and Applied Physics, the National Research Council of Canada, the Canadian Association of Physicists and Atomic Energy of Canada Ltd.

### Aim

The aim of this International Conference is to discuss recent developments in the design and operation of cyclotrons, including both isochronous machines and synchrocyclotrons. It is the sixth of a series started at Sea Island, Georgia, in 1958, of which the most recent was held in Oxford, England, in 1968. Holding the 1972 Conference in Vancouver will enable participants to inspect the TRIUMF 500 MeV H<sup>+</sup> isochronous cyclotron at a time when assembly of the major components will be substantially complete.

### Closing Dates

Abstracts must be received at TRIUMF by April 14, 1972 and full texts will be required on the opening day of the Conference, July 18, 1972.

### International Organizing Committee

J. P. Bleaser	E.T.H., Zurich
H. G. Blosser	Michigan State University
A. Cabreapine	Laboratoire Joliot-Curie, Orsay
M. K. Craddock	University of British Columbia
V. P. Dmitrievsky	J.I.N.R., Dubna
H. L. Hagedoorn	Technische Hogeschool, Eindhoven
D. L. Judd	Lawrence Berkeley Laboratory
R. Livingston	Oak Ridge National Laboratory
R. W. McIlroy	A.E.R.E., Harwell
W. B. Powell	Birmingham University
M. Relsar	University of Maryland
J. R. Richardson	U.C.L.A. & TRIUMF
G. Schatz	Kernforschungszentrum, Karlsruhe
K. Standing	University of Manitoba
K. Tagliaferri	Istituto di Scienze Fisiche, Milan
N. Vogt-Nilsen	CERN, Geneva
J. B. Warren	(Chairman) University of British Columbia

### Conference Secretary

Mr. M. Brearley  
TRIUMF  
at the University of British Columbia  
Vancouver 8, B.C., Canada

### Provisional Program

#### Technical Sessions

It is intended to include the design and operating characteristics of AVF cyclotrons and synchrocyclotron conversions, but not to cover synchrotrons or linear accelerators. Topics of interest are:

- (a) Production and acceleration of heavy ions and negative ions
- (b) External ion injection
- (c) Injection and acceleration of polarized particles
- (d) Factors determining beam quality, energy resolution and time structure
- (e) Beam diagnostics
- (f) New developments in extraction

- (g) Separated sector cyclotrons
- (h) Performance of synchrocyclotron conversions
- (i) Compact cyclotrons
- (j) Computer control
- (k) Applications, including medical applications
- (l) Shielding and safety.

Technical sessions will be held on the mornings and afternoons of July 18, 19, and 21, and on the morning only of July 20. The afternoon and evening of this day will be left free for delegates to do as they see fit. Tours of the TRIUMF cyclotron facility will be scheduled.

### Social Functions

An informal reception will be held in the Residences on the arrival evening, July 17. There will be a cocktail party at Cecil Green Park, University of British Columbia, on the evening of Tuesday, July 18. On Wednesday, July 19, there will be a Conference dinner, preceded by a cocktail hour, at the Faculty Club, University of British Columbia.

### General Information

#### Location

The Conference will be held at the University of British Columbia, Vancouver, B.C., Canada. All sessions will be held in the Lecture Theatre, Hebb Building (Physics Department). There will be no parallel sessions.

#### Registration

Advance registration may be made by returning the attached form to the Conference Secretary. Advance payment is not essential. Registration may also be made upon arrival at the Conference. A registration desk will be set up in the foyer of the Hebb Building, and will be manned throughout the Conference. Accommodation cannot be guaranteed to participants who fail to register by May 15, 1972.

#### Conference Fee

The fee is \$30 (Canadian or U.S. funds) and will cover the supply of a copy of the Proceedings, an abstract booklet and refreshments. No registration fee will be charged to wives accompanying delegates. A Conference dinner, preceded by cocktails (cash bar), will be held on the Wednesday evening. The cost of the dinner will be \$6.00 per person. Cheques should be made payable to The University of British Columbia.

#### Contributions

About 50 contributed papers will be accepted for presentation at the Conference, in addition to 18 invited papers. Some papers may be accepted for publication only. All papers presented will be included in the Proceedings, to be published in the American Institute of Physics Conference Proceedings Series. The official language of the Conference will be English. Those wishing to contribute a paper should submit an abstract (definitive rather than indicative) to the Conference Secretary as soon as possible, but no later than April 14, 1972. Abstracts will be reviewed by the Papers Committee, and authors will be advised soon after this date if they are accepted. The abstract must not exceed one page (8 1/2 x 11 in.) in length.

Full texts of accepted papers are required not later than the opening date of the Conference (July 18, 1972). Papers not delivered on time will not be included in the Proceedings. Instructions for the preparation of papers will be sent by May 15, 1972 to all authors whose contributions are accepted. No preprints will be distributed by the Conference organizers, but an abstract booklet will be available on the opening date. Speakers are strongly urged to plan on using 5x5 cm (2x2 in.) slides. Overhead projectors will be available.

### Accommodation

A block of rooms has been reserved in the Walter H. Gage Residences on the University of British Columbia Campus. The Residences, opening in 1972, are an easy walk from the Hebb Building. Accommodation is in single rooms. Linens and maid service are provided. The rooms do not have private baths, communal bathrooms are located on each floor. There are a number of pantries equipped for making light snacks and hot drinks, and there are ice machines and soft drink dispensers on each floor. Coin-operated laundry facilities are available.

The daily rate will be \$12 per person (plus 60 cents tax). This rate includes three meals per day. Delegates will pay their bills to the Residence Supervisor on checking out.

Hotel or motel accommodation, if desired, can be reserved by the Conference organizers. The daily rate at the hotel with which arrangements have been made (no meals included) is expected to be \$17.00 for one person, and \$21.00 for two persons sharing a room. If demand warrants, buses will be arranged to transport delegates from downtown hotels to the University.

### Tourist Information

Delegates who wish to combine attendance at the Conference with a vacation in British Columbia may write for information to:

Department of Travel Industry  
Parliament Buildings  
Victoria, B.C., Canada

or:

Canadian Government Travel Bureau  
150 Kent Street  
Ottawa, Ontario, Canada

### Travel

Vancouver is easily accessible by air from all parts of North America; it also has direct international air connections with South America, Australia, and the South Pacific, Japan, Hong Kong, and Europe. The average daily high/low temperatures in July are 23°C (74°F) and 12°C (54°F).

### Final Arrangements

A booklet will be mailed to all registered participants to arrive about a month before the Conference.

## DECEMBER ACCESSION OF LITERATURE

The following literature cited has been ordered for review, and that selected as suitable will be placed in the RSIC Information Storage and Retrieval Information System (SARIS). This early announcement is made as a service to the shielding community. Copies of the literature are not distributed by RSIC. They may generally be obtained from the author or from a documentation center such as the National Technical Information Service (NTIS), Department of Commerce, Springfield, Virginia 22151.

RSIC maintains a microfiche file of the literature entered into SARIS, and duplicate copies are available on request. Naturally, we cannot fill requests for literature which is copyrighted (such as books or journal articles) or whose distribution is restricted.

Special bibliographies and abstracts of the literature in the RSIC system may be requested through the Selective Dissemination of Information (SDI) Service, which is available to all.

## REACTOR AND WEAPONS SHIELDING

AAEC-E-215

March 1971

Collision Probability Calculations Including Axial Leakage  
G. Doherty

AD-724600 Vol. I

June 1971

Radiation Effects, Volume I of II Volumes. A DDC Bibliography  
January 1965 - December 1970  
Defense Documentation Center

AD-726900

July 1971

Radiation Hazards. A DDC Bibliography April 1952 - March 1971.  
Defense Documentation Center

AD-728198

May 1971

Neutron Dose Transmission Factors Through an F-102 Aircraft  
Jerald N. Jensen and Joseph F. Janni  
Air Force Academy, Colo.  
Avail.: NTIS

AE-416

April 1971

Quantitative Assay of  $^{239}\text{Pu}$  and  $^{240}\text{Pu}$  by Neutron Transmission  
Measurements  
Erik Johansson  
Avail.: NTIS (U.S. sales only)

AEC-tr-7268 (CONF-680733)

Radioactivity of the Atmosphere  
K. P. Makhon'ko (ed.)  
Avail.: Dep.; NTIS

AECL-3795

October 1971

Radiation Dosimetry in WR-1 Reactor. Part 1. Calorimetry  
K. K. Mehta, A. M. Stadnyk  
Avail.: Dep.; NTIS (U.S. sales only). AECL \$1.50.

AI-AEC-12990 (ENDF-150)

September 1971

An Evaluation of  $^{181}\text{Ta}$  and  $^{182}\text{Ta}$  for the ENDF/B Data File  
E. H. Ottewitte, J. M. Otter, P. F. Rose, C. L. Dunford  
Avail.: Dep.; NTIS

AI-AEC-13001 (ENDF-149)

1971

Evaluation of Several ENDF/B-2 Cross-Section Sets Using Monte Carlo Slowing-Down Age Calculations  
H. Alter  
(Not cleared for publ. pending patent review)

AI-AEC-Memo-12639

January 1968

Availability of ENDF/B Neutron Cross Section Data  
H. Alter  
Avail.: Dep.; NTIS

ARL-71-0246

October 1971

On Generalized Exponential Integrals and Related Functions  
C. Kaplan

BARC-549

1971

Fallout Studies on the Chinese and French Nuclear Tests During 1964-69  
K. G. Vohra, U. C. Mishra, S. Sadasivan  
Avail.: Dep.; NTIS (U.S. sales only)

CEA-CONF-1795 (CONF-710525-1) (In French)

June 1971

Investigation of Gamma-Ray Energies of Fission Products with a Ge(Li) Detector  
Avail.: Dep.; NTIS (U.S. sales only)

CEA-R-3799 (Thesis)

December 1970

Fast Neutron Spectrum in the Reflector of a Swimming Pool Reactor Behind Metallic Slabs  
J. Brousse  
Avail.: NTIS (U.S. Sales only)

CONF-710922-4

1970

Basic Problems of the Development of Fast Breeder Reactors  
W. Haefele  
Avail.: Dep.; NTIS (U.S. sales only)



C00-2049-10

August 31, 1971

Fast Neutron Transmission Measurements for Reactor Core and Shielding Materials. Final Report  
W. Meyer, J. O. Mingle, D. H. Timmons, P. G. Kirmser, K. K. Hu, T. R. Hill, J. W. Thiesing  
Avail.: Dep.; NTIS

CRC-1217

May 1971

A Radiometer Method for Determining the Thickness of Sea Ice  
T. R. Hartz  
(Communications Research Centre, Ottawa)

DNA 2433F (Formerly DASA-2433)  
Vol. I, Rev. 1 (KN-71-431(R))

X-Ray Cross Section Compilation from 0.1 keV to 1 MeV  
W. J. Veigele, E. Briggs, L. Bates, E. M. Henry, B. Bracewell  
Avail.: Defense Documentation Center, Cameron Station, Alexandria, Va.  
22314 Attn: TC  
(This report supersedes KN-798-69-2(R)"X-Ray Cross Section Compilation", Oct. 6, 1969)

EUR-4678

1971

Monte Carlo Simulation of the Adjoint Transport Equation  
W. Matthes  
Avail.: Dep.; NTIS (U.S. sales only)

EURFNR-899 (KFK-1361 in German)

January 1971

Strategies for Accelerating Two-Dimensional  $S_n$  Methods by Coarse Lattice Technique  
W. Kinnebrock  
Avail.: Dep.; NTIS

GULF-RT-10,486, Vol. I

May 27, 1971

Numerical and Experimental Studies of Spectral Unfolding, Volume I  
H. Kendrick, L. Harris, Jr.

GULF-RT-10,486, Vol. II

May 27, 1971

Numerical and Experimental Studies of Spectra Unfolding, Volume II  
S. M. Perling, H. Kendrick

IEA-196 (In Portuguese)

December 1969

Final Study of a Gamma Shield  
G. Picciotti, J.deS.C. Filho, F. Nigro, W. D. A. Gannam  
Avail.: Dep.; NTIS (U.S. sales only)

K-L-6252

March 10, 1970

Activity Determination for Uranium Hexafluoride Shipping Cylinders  
C. E. Newlon, R. G. Taylor  
Avail.: Dep.; NTIS

LA-4769

November 1971

Triangular Mesh Difference Schemes for the Transport Equation  
W. H. Reed  
Avail.: NTIS

LA-4796

November 1971

The Graphical Representation of Two-Variable Data  
N. J. Nagy, III  
Avail.: NTIS

LBL-501 (CONF-711111-26)

September 1971

Survey of Radiation Damage in Semiconductor Detectors  
F. S. Goulding, R. H. Pehl  
Avail.: Dep.; NTIS

LCA-NT-171-ET (In French)

March 31, 1971

Evaluation of Neutron Spectra in Water Using the Monte Carlo Method  
A. Fiegel  
Avail.: Dep.; NTIS (U.S. sales only)

Gulf-RT-A10743 (DNA 2736F)

July 1971

Gamma-Ray Production Cross Sections for Iron and Aluminum  
V. J. Orphan, C. G. Hoot  
(Gulf Radiation Technology, P.O. Box 608, San Diego, Calif. 92112)

NP-19062 (THESIS)

October 1970

Multigroup Neutron Transport Theory in Plane Geometry  
B. E. Clancy  
Avail.: Dep.; NTIS

ORNL-TM-2905

November 1971

LMFBR Spent Fuel Transport: Descriptions and Cost Estimates of  
Stationary Facilities and Their Operations  
B. B. Klima, A. R. Irvine, et al.

ORNL-TM-3135

October 1971

Preliminary Systems Analysis Model of Radioactivity Transfer to Man  
From Deposition in a Terrestrial Environment  
R. S. Booth, S. V. Kaye  
Avail.: Dep.; NTIS

- ORNL-TM-3505 November 1971  
The TRU Ten-Ton Californium Shipping Container  
B. B. Klima, L. B. Shappert
- ORNL-TM-3530 December 8, 1971  
Methods of Biasing Secondary Gamma-Ray Production in Coupled Neutron  
Gamma-Ray Monte Carlo Calculations  
M. Solomito, P. N. Stevens, E. A. Straker, C. E. Burgart, S. N. Cramer  
Avail.: Dep.; NTIS
- ORNL-TM-3531 January 1972  
Analysis of the SRP 25-Ton Target Tube Cask  
L. B. Shappert, J. H. Evans
- ORNL-TM-3635 December 16, 1971  
A Calculation of Gamma-Ray Production and Transport in Liquid  
Nitrogen  
E. A. Straker, B. J. McGregor
- ORNL-TM-3659 December 1971  
Shielding Against Neutrons in the Energy Range 15 to 75 MeV  
R. W. Roussin, R. G. Alsmiller, Jr., J. Barish
- ORNL-TM-3662 December 17, 1971  
Capabilities of the MORSE Multigroup Monte Carlo Code in Solving  
Reactor Eigenvalue Problems  
C. E. Burgart
- ORNL-TR-2526 1969  
Mechanized Shield Construction of the Kinki Namba Double Track.  
Design and Description of Construction  
T. Kame  
Avail.: Dep.; NTIS
- PB-202112 June 1971  
Storage and Handling Devices for Radium  
Bureau of Radiological Health, Rockville, Md., Div. of Medical  
Radiation Exposure  
Avail.: GPO \$0.30 as SN1715-0019 (paper copy); NTIS \$0.95 (mf)
- RD/B/N-2073 September 1971  
Propagation of Gamma Radiation Along a Labyrinth: Experimental  
Results  
A. J. Fraser, F. M. Gayton  
Avail.: Dep.; NTIS (U. S. sales only)

RFP-1286

June 23, 1971

Drybox Gloves: Evaluation and Procurement  
R. E. Giebel, R. L. Reigel  
Avail.: NTIS

RT FI-(71)7

February 16, 1971

Comparison of Fuel Temperature Coefficients as Calculated by  
Different Codes  
M. Petilli

SC-RR 71 0507

December 1971

Analytical Approximations for X-Ray Cross Sections II  
F. Biggs, R. Lighthill  
(Sandia Lab., Albuquerque, N. M. 87115)

SC-RR-710212

September 1971

Numerical Solutions of Integral Equations and Curve Fitting  
F. Biggs, D. E. Amos  
Avail.: Dep.; NTIS

STI/DOC-10/127

1971

Determination of Absorbed Dose in Reactors  
International Atomic Energy Agency, Vienna, Austria  
Avail.: IAEA \$7.00

TID-24860

Radiation Environment of Reactors for Nuclear Rocket Propulsion  
G. A. Graves  
Avail.: Dep.; NTIS

TID-25736(Suppl.1)

June 1, 1971

CINDA 71: An Index to the Literature on Microscopic Neutron Data.  
Supplement 1.  
Avail.: Dep.; NTIS, IAEA

TKK-F-A-152

August 11, 1971

Interference of Different Elements in Neutron Moisture Measurement  
S. S. H. Kasi  
Avail.: Dep.; NTIS (U.S. sales only)

UARAEE-91

1970

Measurement of Continuous Fast Neutron Spectra by Scintillation  
Technique  
R. Megahid, A. S. Makarious, S. Belov, and I Hamouda  
Avail.: NTIS (U.S. sales only)

UCRL-50400, Vol. 10

June 15, 1971

Tabulated Experimental Data for Neutron-Induced Reactions  
S. T. Perkins, R. J. Howerton

UCRL-51086

August 1971

Analysis of Fuel Rods by Gamma-Ray Spectroscopy  
R. Gunnink, J. F. Tinney  
Avail.: Dep.; NTIS

UUIP-737

March 1971

Reduction of the Background in a NAI (TL) Scintillation Spectrometer  
by the Use of Geiger Anticoincidence and Massive Shielding  
A. Stenberg  
Avail.: NTIS (U.S. sales only)

*Isotopes Rad. Tech.*, 9(2), 209-214 (Winter 71-72)

Recent Developments in Radioisotope Neutron Sources  
R. W. Tolmie

*Nucl. Eng. Design*, 15(3), 209-231 (April 1971)

Biased Angle Selection in Monte Carlo Shielding Calculations  
F. A. R. Schmidt

*Nucl. Eng. Design*, 15(3), 232-236 (April 1971) (ORNL-TM-3157)

Heat Generation by Neutrons in Some Moderating and Shielding Materials  
H. C. Claiborne, M. Solomito, J. J. Ritts

*Nucl. Eng. Design*, 15(3), 237-240 (April 1971)

On the Theory of the Gamma-Ray Transmission, Dual-Distance Principle  
of Determining Thickness  
R. L. Ely, R. P. Gardner

*Nucl. Eng. Design*, 15(3), 265-272 (April 1971)

On a Gauss Based Integration Formula for the Secant Integral Function  
C. Farmer, D. S. Gooden, J. Hogarth

*Nucl. Eng. Design*, 15(3), 273-293 (April 1971)  
(ORNL-TM-2879; AD-706331)

The Adjoint Boltzmann Equation and Its Simulation by Monte Carlo  
D. C. Irving

*Nucl. Eng. Design*, 15(3), 319-343 (April 1971)

Adjoint  $S_n$  Calculations of Coupled Neutron and Gamma-Ray Transport  
Through Concrete Slabs  
R. W. Roussin, F. A. R. Schmidt

*Nucl. Eng. Design*, 17(2), 247-280 (Oct. 1971)

The Use of Plastics and Elastomers in Nuclear Radiation  
W. W. Parkinson, O. Sisman

*Nucl. Instrum. Methods*, 85, p. 143(1970)  
(ORNL-TM-2958)

A Monoenergetic 6130-keV Gamma-Ray Source for Detector Calibration  
J. K. Dickens, R. D. Baybarz

*Nucl. Instrum. Methods*, 96(4), 605- (1971)

Calculation of Escape Peak for Ge-Li and NAI Radiation Detectors  
M. P. Fioratti, S. R. Piermattei

*Nucl. Sci. Eng.*, 46(3), 334-355 (Dec. 1971)

The Effect of the Ground on the Steady-State and Time-Dependent  
Transport of Neutrons and Secondary Gamma Rays in the Atmosphere  
E. A. Straker

*Nucl. Sci. Eng.*, 46(3), 421-425 (Dec. 1971)

Evaluation of Space-Energy Factorization for Two-Dimensional  
Diffusion Theory Problems in the Liquid Metal Fast Breeder Reactor  
(Tech. Note)  
W. M. Stacey, Jr.

*Nucl. Sci. Eng.*, 46(3), 428-431 (Dec. 1971)

On a Possible Resolution of the Nitrogen Nonelastic Neutron Cross-  
Section Discrepancy Below 9 MeV. (Tech. Note)  
F. G. Perey, W. E. Kinney

*Nucl. Sci. Eng.*, 47(1), 1-7 (January 1972)

Gamma-Ray Albedo Calculations Using Moments Method  
C. V. Smith, N. E. Scofield

*Nucl. Sci. Eng.*, 47(1), 8-18 (Jan. 1972)

A Comparison of Calculated and Measured Yields of Neutron-Energy-  
Dependent Capture Gamma Rays from Uranium-238  
R. S. Booth, J. E. White, S. K. Penny, K. J. Yost

*Nucl. Sci. Eng.*, 47(1), 29-39 (January 1972)

The Effect of Wide Scattering Resonances on Neutron Multigroup  
Cross Sections  
W. M. Stacey, Jr.

*Nucl. Sci. Eng.*, 47(1), 66-82 (January 1972)

Improvements to Neutron Slowing Down Theory for Fast Reactors  
F. E. Dunn, M. Becker

Nucl. Technology, 13(1), 83-94 (January 1972)

In-Phantom Dosimetry of Plutonium-238 Circulatory Support Heat Sources

F. T. Cross, J. C. Sheppard

Nucl. Technology, 13(2), 185-193 (Feb. 1972)

Elevated-Temperature Damage Functions for Neutron Embrittlement in Pressure Vessel Steels

C. Z. Serpan, Jr., W. N. McElroy

Nucl. Technology, 13(2), 209-215 (Feb. 1972)  
(ORNL-TM-3462)

Bracketing the Peak Primary Gamma-Ray Dose Rate from Nuclear Devices by Steady-State Transport Calculations

H. C. Claiborne, W. W. Engle, Jr.

BOOK

1971

*DIRECTORY OF INFORMATION RESOURCES IN THE UNITED STATES - PHYSICAL SCIENCES, ENGINEERING*

Washington, Library of Congress

(For sale by GPO)

BOOK

1971

*AN INTRODUCTION TO THE THEORY OF THE BOLTZMANN EQUATION*

S. Harris

New York, Holt, Rinehart and Winston

BOOK

1971

*BOOK OF ASTM STANDARDS. PT. 10. CONCRETE AND MINERAL AGGREGATES (INCLUDING CONCRETE TESTING MANUAL)*

American Society for Testing and Materials

Philadelphia, Pa.

BOOK (EUR 4612 D-F-E)

1971

*RADIATION PROTECTION PROBLEMS RELATING TO TRANSURANIUM ELEMENTS, PROCEEDINGS (OF A) SEMINAR (HELD FROM 21st to 25th SEPTEMBER 1970 at the EUROPEAN INSTITUTE FOR TRANSURANIUM ELEMENTS, KARLSRUHE)*

Luxembourg, Directorate General for Dissemination of Information, Centre for Information and Documentation - CID, 1971

SPACE AND ACCELERATOR SHIELDING

- INR-P-1256 (N71-34693) 1971  
Emission of Deuterons in Interactions of 9 GeV Protons with Lead Nuclei  
P. Ciok (Institute of Nuclear Research, Warsaw, Poland)  
Avail.: Dep.
- BNL-16173 (CONF-701137-1) September 1971  
Scaling Laws in High Energy Physics  
G. Preparata  
Avail.: Dep.; NTIS
- CERN 71-16 (Vol. 1) July 1, 1971  
International Congress on Protection Against Accelerator and Space Radiation. CERN, Geneva, Switzerland, April 26-30, 1971.  
(Proceedings)  
J. Baarli, J. Dutrannois (eds.)
- CERN 71-16 (Vol. 2) July 1, 1971  
International Congress on Protection Against Accelerator and Space Radiation. CERN, Geneva, Switzerland, April 26-30, 1971.  
(Proceedings)  
J. Baarli, J. Dutrannois (eds.)
- CERN/HERA-70-7 (N71-35883) October 1970  
Compilation of Cross Sections. 6: Negative Pion Induced Reactions  
E. Flaminio, J. D. Hansen, D. R. O. Morrison, N. Tovey  
Avail.: Dep.
- CONF-710107 (N71-34775) April 1971  
Second Conference on Transport Theory  
Sponsored by AEC  
Avail.: NTIS
- ITJ-6 December 1970  
Monte Carlo Simulation of the Nuclear-Electromagnetic Cascade  
Developing in an Ionization Spectrometer  
J. Massalski, L. Suszycki, J. Warczewski  
Avail.: NTIS (U.S. sales only)
- NASA-CR-119939 (N71-35899) September 1, 1971  
Penetration of High Energy Radiation  
National Bureau of Standards, Washington, D.C.
- NASA-CR-121629 (N71-34952) June 1971  
Measurements of the Neutron Intensity in Space. Final Report  
J. A. Lockwood  
Avail.: NTIS



NASA-TM-X-58075, pp. 227-272 (N72-10874) *September 1971*

Experiment D008: Radiation in the Spacecraft  
M. F. Schneider, J. F. Janni, G. E. Radke  
Avail.: NTIS (HC \$6.00/MF \$0.95)

NP-18776 (N71-34828) (In Russian with English summary) 1970

Methods for Monitoring Proton Incidence on the Internal Targets of  
High Energy Accelerators  
Yu. M. Horyachev, V. P. Kanavets, B. V. Morozov, N. A. Nikiforov,  
A. S. Starostin  
Avail.: Dep.

ORNL-4564 (N71-37213) *May 1971*

Instructions for the Operation of Codes Associated with MECC-3,  
A Preliminary Version of an Intranuclear Cascade Calculation for  
Nuclear Reactions  
H. W. Bertini, M. P. Guthrie, O. W. Hermann  
Avail.: NTIS

ORNL-TR-2563 (JINR-P2-5991 - in Russian) 1971

Intranuclear Cascades in Light Nuclei  
O. B. Abdinov, V. S. Barashenkov

UCRL-20262 (CONF-710710-9) *June 1971*

Measurement of Induced Activity to Estimate Personnel Radiation  
Exposures Received from Accelerator Beams  
A. J. Miller, H. W. Patterson  
Avail.: Dep.; NTIS

*Eur. J. Cancer*, 7 (No. 2-3), 105-14 (May 1971)

Production and Shielding of 15 MeV Neutrons  
J. J. Broerse, A. C. Engels, J. S. Groen

*Eur. J. Cancer*, 7(2-3), 121-7 (May 1971)

Collimation of 14 MeV Neutron Beams  
D. Greene, D. Major

*New Sci. Sci. J.*, 51(767), 508-10 (Sept. 2, 1971)

Next Generation of High Energy Physics  
F. T. Cole

THESIS (N71-34966) (In German) *February 1970*

Description and Some Results from an Experimental Study on Primary  
Cosmic Radiation and Its Effect on Nuclear Exchanges Above 10 GeV/  
Nucleon  
Udo Polivogt  
Avail.: NTIS

COMPUTER CODES LITERATURE

- AD-731 350 July 1971 PURR  
A Pulse Reactor Radiation Detection System Using An  
On-Line Computer  
by Leonard, B.E.; Pfeiffer, W.F.; Hughes, D.A., Armed  
Forces Radiobiology Research Institute, Bethesda, Md.  
SDS 920
- AD-731 500 June 1971 BUDDHA, COMPARE  
BUDDHA, COMPARE, And Other EMP Environment Data  
Reduction Codes  
by Jones, D.L.; Stump, D.H., Braddock Dunn and McDonald  
Inc., Mclean, Va.
- AI-AEC-13001 (ENDF-149) TYCHE IV  
Evaluation of Several ENDF/B-2 Cross Section Sets Using  
Monte Carlo Slowing-Down Age Calculations  
by Alter, H., Atomics International, North American  
Rockwell
- BMVg-FBWT-71-9 (In German) November 1970 TONAGRID  
TONAGRID: A Monte Carlo Program for Calculation of  
Neutron and Photon Transport in Ducts  
by Zimmermann, H.; Platthaus, D.; Dietrich, R., Brown  
Boveri/Krupp Reaktorbau G.m.b.H., Koeln, W. Germany  
Avail.: NTIS
- BNL-50296 (ENDF-148) June 1971 ENDF/B PROCESSING CODES  
ENDF/B Processing Codes for the Resonance Region  
by Bhat, M.R., Brookhaven National Laboratory, Upton, N.Y.  
Avail.: Dep.; NTIS
- BNL-50300 (ENDF-110) June 1971 ENDF/B PROCESSING CODES  
Description of the ENDF/B Processing Codes and Retrieval  
Subroutines  
Ozer, O. (ed.)  
Avail.: Dep.; NTIS
- EURFNR-927 (Translation) DTK  
The DTK One-Dimensional Transport Program  
by Guenther, C.; Kinnebrock, W., Kernforschungszentrum,  
Karlsruhe, West Germany, Institut fuer Neutronenphysik  
und Reaktortechnik  
FORTRAN IV  
Avail.: Dep.; NTIS

- GULF-RT-10577                      March 1971                      DUCT, DASH  
Development and Verification of Design Methods for Ducts  
In a Space Nuclear Shield. Phases 4 and 5. Final Report  
by Cerbone, R.J.; Read, P.A., Gulf Radiation Technology,  
San Diego, Calif.  
Avail.: Dep.; NTIS
- IAE-1969 (In Russian)                      1970                      URS  
URS Program for Calculating Slow Neutron Spectra by  
Differential Equations  
by Fedulov, M.V., Institut Atomnoi Energii, Moscow, USSR  
ALGOL-60  
Avail.: Dep.; NTIS (U.S. Sales Only)
- INR-1276                      1971                      STRUMGAMMA  
An ALGOL Program for Computing Gamma Flux Distribution  
in and Around the Reactor Core  
by Pytel, K.; Strupczewski, A., Institute of Nuclear  
Research, Warsaw, Poland  
ALGOL; GIER  
Avail.: Dep., NTIS (U.S. Sales Only)
- INR-1296                      1971                      S-III-THERMOS  
The S-III-THERMOS Code For the GIER Computer  
by Bogumil, S.; Kowalska, K., Institute of Nuclear  
Research, Warsaw, Poland  
ALGOL; GIER  
Avail.: Dep.; NTIS (U.S. Sales Only)
- J. Food. Sci.; 36: No. 5, 747-49, Jul-Aug. 1971                      IPCC  
Computer Evaluation of Irradiation Processes in Cylindrical  
Containers with Gamma Sources  
by Purohit, K.S.; Manson, J.E.; Zahradnik, J.W., Univer-  
sity of Massachusetts, Amherst, Mass.
- JAERI-1216                      April 1971                      BOB 70  
BOB 70: The Programme Code for Analysis of the Gamma-Ray  
Spectrum From the Ge(Li) Detector  
by Baba, S.; Baba, H.; Okashita, H., Japan Atomic Energy  
Research Institute, Tokyo, Japan  
Avail.: Dep.; NTIS (U.S. Sales Only)
- LA-4796                      November 1971                      GRAF3D  
The Graphical Representation of Two-Variable Data  
by Nagy, N.J., Los Alamos Scientific Laboratory, Los  
Alamos, New Mexico  
FORTRAN; CDC 6600

- LUNP-7101                      January 1971                      ANNLIIS  
ANNLIIS: A Computer Program for the Automatic Analysis  
of Gamma-Ray Spectra  
by Ekstroem, P.; Mauritzson, I.; Tillman, J., Lund  
University, Sweden  
FORTRAN V; UNIVAC 1108  
Avail.: Dep.; NTIS (U.S. Sales Only)
- MIT-3944-2                      August 1968                      GAMANL  
GAMANL: A Computer Program Applying Fourier Transforms to  
The Analysis of Gamma Spectral Data  
by Harper, T.; Inouye, T.; Rasmussen, N.C., Massachusetts  
Institute of Technology, Cambridge, Mass.  
FORTRAN IV; IBM 360/65 and GE 635  
Avail.: Dep.; NTIS
- MLM-1848                      September 1971                      ANAD  
Computer Program for the Analysis of Neutron Activation  
Data: Gamma Spectrum Smoothing and Sample Calculation  
by Gillette, R.K., Mound Laboratory, Miamisburg, Ohio  
FORTRAN IV; IBM 360/50  
Avail.: Dep.; NTIS
- NASA-CR-119939                      September 1971                      POHER  
Penetration of High Energy Radiation  
National Bureau of Standards, Washington, D.C.  
Avail.: NTIS
- NASA-TM-X-2181                      February 1971                      PREJUD  
PREJUD- A Computer Code for the Preliminary Analysis  
of Two-Dimensional Pulse Height Analyzer Data  
by Semler, T.T., NASA, Lewis Research Center, Cleveland,  
Ohio  
FORTRAN  
Avail.: NTIS
- NASA-TM-X-2414                      November 1971                      UNAMIT  
Effect of Shield Weight of Adding A Fixed Position  
Containment Vessel in the Unit Shield of a 250-Megawatt  
Mobile Reactor  
by Wohl, M.L.; Spielberg, D., NASA, Lewis Research  
Center, Cleveland, Ohio  
Avail.: NTIS

- Nippon Gensh. Gakka. 13: 201-8, April 1971 JAPAN  
Available Computer Codes for Radiation Shielding Calculations in Japan  
by Takeuchi, K., Ship Research Institute, Tokyo, Japan
- Nucl. Instrum. Methods; 93: No.3, 461-72 (1971) HIRE-GASP  
Automatic Analysis of High-Resolution Gamma Spectra  
by Grosswendt, B., Physikalisch-Technische, Brunswick, Germany
- N.S.&E., Vol 46, No. 1, 1-11, (October 1971) PUGT 1, PUGT 11  
A Three Dimensional Stochastic Gamma Ray Transport Method for Shielding Calculations  
by Razani, A.; Hungerford, H.E., Purdue University  
CDC 6500
- ORNL-4687 September 1971 PICA  
Instructions for the Operation of the Program Package PICA  
An Intranuclear-Cascade Calculation for High-Energy (30-400 MeV) Photon-Induced Nuclear Reactions  
by Gabriel, T.A.; Guthrie, M.P.; Hermann, O.W., Oak Ridge National Laboratory, Oak Ridge, Tennessee  
FORTRAN IV; IBM 360/75/91  
Avail.: Dep.; NTIS
- ORNL-TM-3367 April 1971 POPOP4  
POPOP4 Library and Codes for Preparing Secondary Gamma-Ray Production Cross Sections  
by Ford, W.E., Oak Ridge National Laboratory, Oak Ridge, Tennessee  
Avail.: NTIS
- ORNL-TM-3518 August 1971 XCHEKR  
XCHEKR: Multigroup Cross Section Editing and Checking Code  
by Burgart, C.E., Straker, E.A., Oak Ridge National Laboratory, Oak Ridge, Tenn.  
Avail.: NTIS
- ORNL-TM-3662 December 1971 MORSE  
Capabilities of the MORSE Multigroup Monte Carlo Code in Solving Reactor Eigenvalue Problems  
by Burgart, C.E., Oak Ridge National Laboratory, Oak Ridge Tennessee  
FORTRAN; IBM 360/91
- ORNL-TR-2419 December 1970 ANISN  
ANISN System: Description and Service Instructions for the ANISN Discrete Ordinates Program and Subroutines  
by Devillers, C., CEA-CEN-FAR, France  
Avail.: NTIS

- ORNL-TR-2404 (Denki Shik. Iho, 34, 126-40 (1970) PET  
Monte Carlo Program for Photon and Electron Transport  
by Sugiyama, H., Japan  
Avail.: NTIS
- PEL-204 August 1970 GAMSPEC  
Investigation into the Different Computer Techniques  
Available for the Analysis of Gamma-Ray Spectra Obtained  
With a Lithium-Drifted Germanium Detector  
by Turkstra, J.; van Rensburg, M.C.J.; de Wet, W.J.,  
Atomic Energy Board, South Africa  
Avail.: Dep.; NTIS (U.S. Sales Only)
- TRI-71-2 April 1971 REVMOC  
REVMOC: A Monte Carlo Program for Calculating Charged  
Particle Transmission Through Spectrometers and Beam  
Lines  
by Kitching, P., TRI-Univ. Meson Facility, Vancouver,  
British Columbia  
FORTRAN IV  
Avail.: NTIS (U.S. Sales Only)
- WCAP-7363 (ENDF-146) March 1971 ETOT  
ETOT: A FORTRAN IV Program to Process Data From the  
ENDF/B File to Thermal Library Format  
by Beard, C.L.; Dannels, R.A., Westinghouse, Nuclear  
Energy Systems, Pittsburgh, Pa.  
FORTRAN

#### SPECIAL NOTE ON CODES LITERATURE ACCESSION LIST

The above list of computer codes literature was typed on a computer terminal and listed for publication. We are experimenting with new methods of storing data on the computer for later retrieval. Input to our information system has been by punched cards or tapes written by Magnetic Tape Selectric Typewriter. We are now able to keyboard to disk storage and edit on-line, using the ORNL IBM 360/75.

RSIC DLC USER SURVEY

Name \_\_\_\_\_ Date \_\_\_\_\_

Installation \_\_\_\_\_

Computer \_\_\_\_\_ Memory (words) \_\_\_\_\_

I. Data Library Used (DLC-7, etc.) \_\_\_\_\_

II. Obtaining the Data Library

1. Were you able to easily retrieve the data from tape? \_\_\_\_\_
2. Did you utilize the retrieval program (if supplied)? \_\_\_\_\_  
If not, did you write your own retrieval program? \_\_\_\_\_
3. Was the retrieval program output format (ANISN, DTF-IV, etc.)  
adequate? \_\_\_\_\_. If not, what additional format would be  
useful? \_\_\_\_\_

III. Utilizing DLC-2

1. Was the documentation adequate? \_\_\_\_\_  
If not, what suggestions do you have for improvement? \_\_\_\_\_  
\_\_\_\_\_
2. Did you discover any "bugs" in the data? \_\_\_\_\_. If so, please  
itemize \_\_\_\_\_  
\_\_\_\_\_
3. Did you write any special purpose programs for manipulating the  
data? \_\_\_\_\_. If so, please describe \_\_\_\_\_  
\_\_\_\_\_

IV. Calculations with the data

1. What kinds of calculations did you make with the data? Please  
describe in detail. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. What accuracy do you require for various quantities you calculate?  
Differential (spectra, etc.) \_\_\_\_\_. Integral absorbed dose, etc.)  
\_\_\_\_\_. Other (specify) \_\_\_\_\_.

3. How do you verify accuracy of results obtained using the data?
- a. Have you compared your results with experiment or other calculations? \_\_\_\_\_. If so, please describe the results obtained \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- b. Have you published results of calculations using the data? \_\_\_\_\_. If so, please give references (report numbers, titles, etc.) \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

V. Improvements to the Data Library

1. Please suggest changes which you feel would improve the library.

TO: Radiation Shielding Information Center  
Oak Ridge National Laboratory  
P. O. Box X  
Oak Ridge, Tennessee 37830