RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

OPERATED BY UNION CARBIDE CORPORATION •

FOR THE U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

POST OFFICE BOX X •
OAK RIDGE, TENNESSEE 37831

No. 127 *June 1975*

One may go wrong in many different ways, but right only in one. ...Aristotle

ANS SHIELDING AND DOSIMETRY ELECTION RESULTS

The American Nuclear Society has announced the following results of the election of the Shielding and Dosimetry Division: Chairman: Edward A. Straker; Vice Chairman (Chairman-elect): Fred R. Mynatt; Secretary: Lawrence Harris; Treasurer: Charles M. Huddleston; Executive Committee: Thomas E. Todd, Charles Eisenhauer, and Richard E. Faw. The officers are elected for 1-year terms; the Executive Committee members for 3 years.

IF POSSIBLE, PLEASE WRITE—DON'T CALL!

Your frequent and continuing communication with us is essential to the effectiveness of our center. We receive approximately 11.8 requests each working day and actively seek to respond quickly and effectively to each inquiry. The telephone approach to receiving or answering inquiries, however, is becoming more and more difficult with the increasing usage of telephone lines nationwide. Staff members are currently spending considerable time in trying to return telephone calls. In order to reach our party, we must go through the local FTS line, often the area FTS operator, the area circuit, the establishment's switchboard, and then the specific extension—any of which are often busy.

Will you help us to give you a more effective service? You can do so by following certain very simple procedures in letting us know your needs and giving us enough information to fill them efficiently. Please accept the following suggestions as guidelines.

1. Unless you have an urgent situation, **write a letter** describing your information needs. If, in an initial letter, you will state the technical background of your problem, we can more effectively respond to your information needs.
2. If you **use the telephone**, please give to the receptionist your name, institution and city, phone number and extension, and then ask for the individual you are calling (if you know who can best handle your request). If you do not ask for a specific person, the receptionist will know from the information you give to whom to refer your call.
3. If the individual is not available, please state to the receptionist the details of your problem or request. If she feels that another person can be helpful during your call, she will ask him or her to speak with you. If the person you are calling can best respond to your need, she will have the information she has taken for his/her prior study before responding to your request.
4. Please state your urgency/time requirements when we must assemble further information. If your need is urgent, your call will be returned as soon as possible. Otherwise, a letter will be mailed with the information or items you have requested. Routine computer searches of the literature are performed once a week unless there is an urgent need.
5. When requesting code/data packages, please give enough hardware/software and tape format requirements (*e.g.*, 7- or 9-track) to enable us to transmit material you can most easily retrieve and use on your computer. If possible, please request by CCC, PSR, or DLC designation.

The above suggestions arise out of the necessity for making optimum use of RSIC manpower and other resources to handle an ever-increasing workload of requests with available personnel. Whatever our limitations, RSIC's philosophy remains that of assigning highest priority to giving a fast response to your

IF YOU CHANGE YOUR ADDRESS, please notify us (including Building and Room No. where needed). *Third Class Mail* is returned to us at our expense if the addressee has moved. If your mail is returned, your name will be deleted from our distributions until we hear from you.

request. We will continue to serve your information needs as fully and as effectively as we are able in the quickest possible time. Your continuing cooperation with our efforts to do so will be most appreciated.

OECD-NEA COMPUTER PROGRAM LIBRARY UNDERTAKES SECOND SECU STUDY

A Service on the Experience of Code Utilization for Nuclear Data File Processing Codes has been initiated by the OECD-NEA Computer Program Library, Ispra, Italy. From the list of codes proposed by NEACRP, the following five were considered appropriate for this exercise: AMPX (ORNL), GALAXY (AWRE), MC^2 (ANL), MICRAL (CEA), SUPERTOG (ORNL).

As most of the codes selected did not exist in the Library collection at the commencement of the study, author establishments were requested to co-operate with the CPL to assure that updated, well-documented and fully tested versions of the programs were made available. The response has been favorable.

UKAEA, Winfrith, offered their co-operation, and Dr. E. Sartori (IAEA/NEA) visted the Winfrith Laboratory last February where he worked in collaboration with the authors of the modular system GALAXY. CEA Saclay were also positive in their assistance, and a consultancy contract was extended to Drs. Kavenoky and Grandotto who visited the CPL to provide all necessary assistance with the program MICRAL.

Casaccia, Italy has also kindly collaborated in this study and has offered assistance with the latest version of the program MC^2. It is foreseen that Dr. Salvatores (Casaccia), who has been involved in the debugging of this version at Argonne, will visit the Library in the second half of the year. During this time he will collaborate with Library staff in its implementation, and, should conditions and manpower permit, comparative runs will be carried out on the programs MICRAL and/or GALAXY.

Version I of the AMPX System has been partially tested at the CPL and has been distributed to some requesters. At the time of writing, an updated version of this system has been announced by ORNL, and an accurate testing will be made at the Library.

The program SUPERTOG-3 was introduced into the Library collection some months ago. As this program has been dispatched to a large number of requesters, a similar procedure to that used in the SECU pilot study of shielding codes will be adopted for this code.

It is foreseen that efforts required for this study will be largely commensurate with the study devoted to shielding programs.

MEETING ON SENSITIVITY STUDIES AND BENCHMARKS

The OECD's Steering Committee for Nuclear Energy has approved co-sponsorship by NEA of a meeting on nuclear data for shielding to be held during the autumn of 1975. The title envisaged at present is **Sensitivity Studies and Benchmarks**. The meeting should last four days (October 7–10 have been suggested as convenient dates) and should be attended by 40 to 50 participants. The OECD (NEA) Headquarters at Paris has been proposed as a suitable place for this meeting.

IAEA RADIATION SYMPOSIUM IN CHICAGO NEXT NOVEMBER

A symposium, sponsored by the International Atomic Energy Agency, entitled *International Symposium on Biological Effects of Low Level Radiation Pertinent to the Protection of Man and his Environment,* is to be held in Chicago, November 3–7, 1975.

The symposium will review the current status of understanding of the biological effects of low level ionizing radiation from external and internal sources at cellular, whole organism and population levels.

Details of either conference are available from John H. Kane, Office of Public Affairs, ERDA, Washington, D.C. 20545.

IAEA SYMPOSIUM ON THE USE OF HIGH-LEVEL RADIATION IN WASTE TREATMENT—STATUS AND PROSPECTS

V. Herrnberger, Eidg. Institut fur Reaktorforchlung, Wurenlingen, Switzerland, has reported on the Munich meeting of March 17–21, 1975 as follows:

The introductory papers described the nature and types of domestic, municipal, and industrial wastes and the current technologies used for their treatment.

High level radiation treatment has two effects on waste: disinfection and physical and chemical modifications. Aqueous radiation chemistry explains these effects by radiation induced formations of radicals in aqueous pollutants.

Disinfection of sewage for reuse and the public health aspects of waste water treatment were of special interest. Destruction of Salmonella bacteria by irradiation was proved to be sufficient and economic. The radiosensitivity of parasite eggs and viruses were discussed. Disinfection by irradiation can be combined with heat or chemical treatment to achieve a considerable reduction in the necessary radiation dose.

Potential sources for high level radiation treatment of waste are electron accelerators and gamma-ray sources. The feasibility and costs of the following radiation sources were compared: low ($<$ 1 MeV) and high ($>$ 1 MeV) energy accelerators and ^{60}Co, ^{137}Cs, calcinated fission products and spent fuel elements from actual power reactors. The accelerators were only theoretically proved to be cheaper than the radioactive isotopes. No operating pilot plant exists to demonstrate the feasibility of the accelerators. However, good experience was reported for a pilot plant for the irradiation of sewage sludge by ^{60}Co.

A panel discussion summarized the results of the Symposium and recommended further research and development work, particularly in the field of industrial wastes.

CONFERENCE SCHEDULE OF INTEREST TO CTR PROGRAM

Date—1975	*Meeting*	*Place*	*Contact*
June 2–4	7th Conf. on Numerical Simulation of Plasmas	Courant Inst., NYU	C. Chu Columbia U.
June 8–13	ANS Annual Meeting	New Orleans, La.	ANS
June 16–18	8th Fluid & Plasmadynamics Conf.	Hartford, Conn.	AIAA
June 23–27	Energy & the Environment—Cost Benefit Analysis	Atlanta, GA	School of Nucl. Engr., Ga. Tech.
July 4–11	IAEA Tech. Committee on Large Tokamak Experiments (U.S. Delegation limited to 13 members)	Dubna,USSR	R. Bingham, ERDA-DCTR
July 14–17	10th International Shock Tube Symposium	Kyoto U., Japan	K. Furuda, Kyoto U.
July 15–18	Neutron Source Workshop*	ANL	K.Zwilsky, ERDA-DCTR P. Persiani, ANL
July 21–22	Computer Users Advisory Committee*	ERDA, Germantown	D. Priester, ERDA-DCTR
July 24–30	International Conf. on the Physics of Electronic & Atomic Collisions	Seattle, Wash.	Univ. of Washington
Aug. 18–20	ANS—*Nuclear Engineering Education* Topical Meeting	University Park, Pennsylvania	ANS
Aug. 18–22	12th International Conf. on Phenomena in Ionized Gases	Eindhoven, Netherlands	Tech. Hogeschool Eindhoven
Aug. 18–22	Laser Interaction with Matter – Gordon Research Conf.	Tilton, N.H.	A. M. Cruickshank Dir., Gordon Res. Conf., U. of Rhode Island, Kingston, R.I.

Date--1975	*Meeting*	*Place*	*Contact*
Aug. 27–29	HNL Thermonuclear Division Information Meeting	HNL, Oak Ridge	J. Clarke, HNL
Sept. 1–5	7th European Conf. on Controlled Fusion & Plasma Physics	Lausanne, Switzerland	E. S. Weibel Lausanne
Sept. 9–12	3rd Topical Conf. on Pulsed High-Beta Plasmas	Culham Laboratory	Conf. Secy., Culham
Sept. 22-24	Fusion Power Coordinating Committee*	LASL or HNL	G. Hess, Jr. ERDA-DCTR
Oct. 1–3	International Conf. on Radiation Effects & Tritium Technology for Fusion Reactors	Gatlinburg, TN	J. Scott, HNL
Oct. 5–10	International Conf. on Radiation Damage in Metals	Gatlinburg, TN	F. Young, HNL
Oct. 27–30	International Conf. on Heavy Ion Sources	Gatlinburg, TN	P. Miller, HNL
Nov. 10–13	APS Div. of Plasma Physics *Annual Meeting*	St. Petersburg, Florida	N. Oleson, U. of S. Fla, St. Petersburg
Nov. 16–21	ANS Winter Meeting	San Francisco, Calif.	W. Dodson, Kaiser Engrs., Oakland, CA
Nov. 18–21	6th Symposium on Engineering Problems of Fusion Research	San Diego, CA	A. Schupp, Gen. Atomic Co.
Dec. 1–3	Fusion Power Coordinating Committee*	GA, LASL, or HNL	G. Hess, Jr., ERDA-DCTR
1976			
Apr. 7–9	Annual Sherwood Theory Meeting	Madison, Wis.	J. Schohet, U. of Wisc.

*Meeting Sponsored by ERDA-DCTR

HAS ANYONE CONVERTED CCC-156/MECC-7 CODE PACKAGE FOR UNIVAC?

RSIC has had an inquiry about a working version for the UNIVAC system of the following programs from the Medium-Energy Intranuclear Cascade Code System (CCC-156/MECC-7): Conversion Code Program, Nuclear Configuration Code Program, MECC-7 Cascade Code Program, I4C Analysis Code Program.

If any of our readers have such information, please let us know.

RSIC ON-LINE LITERATURE SEARCHING UPGRADED

The RSIC information retrieval systems were recently upgraded significantly by reformatting and placing abstracts of shielding literature published in the last 3 years on the ORNL IBM 360 disk. Another data base, consisting of references to computer literature listed in the Newsletter since early 1972 and indexed by keywords, has also been updated. Both data bases are searchable on-line by the ORLOOK program using remote terminals. RSIC also has access to the RECON data bases (e.g., nearly 500,000 *Nuclear Science Abstracts* citations) for searches peripheral to the RSIC scope.

CHANGES TO THE CODE COLLECTION

CCC-184/TASK

The TASK code package has been updated to correct errors called to RSIC attention by the ORNL originators. TASK is a generalized one-dimensional radiation transport or diffusion kinetics code. Persons who received TASK before May 12 and who wish to correct their version may get details by contacting us. The error could affect the accuracy of solutions near the right boundary.

CCC-185/INREM-EXREM III

The INREM-EXREM III package of beta, positron, electron, and gamma radiation environmental dose codes has been extended by the addition of a data base for use in INREM. With this data base, 50-year inhalation and ingestion dose commitments for each of 259 radionuclides can be computed. It was contributed by the Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee. References: ORNL-5003; ORNL-TM-4322. IBM 360; FORTRAN IV.

CCC-213/ACRA II

The ACRA II code package has been updated to correct a programming error in subroutine SETUP and an error in documentation called to RSIC attention by the ORNL originators. This gamma-ray kernel integration code estimates radiation doses caused by a hypothetical reactor accident. Interested users who received the package before May 1 should contact RSIC for more details. Reference: ORNL-TM-4082.

CCC-235/INAP

INAP, improved neutron activation prediction code system, has been updated to include new routines provided by one of the original contributors, NASA/ Marshall Space Flight Center in Huntsville, Alabama.

CCC-257/1DX

The one-dimensional diffusion code 1DX, for producing energy-group—collapsed and self-shielded cross sections, was contributed by Battelle-Northwest Laboratories, Richland, Washington, through the Argonne Code Center (Abstract 374). Reference: BNWL-954. CDC 1108 and IBM 360; FORTRAN IV.

CCC-258/MORSE-E

MORSE-E, a new version of the general purpose Monte Carlo multigroup neutron and gamma-ray transport code, has been added to the RSIC collection through the OECD Nuclear Energy Agency Computer Programme Library, Ispra, Italy.

MORSE-E is a modified version of the ORNL MORSE code system packaged as CCC-127 and CCC-203. Written for the IBM 360 in FORTRAN IV by EURATOM's European Shielding Information Service (ESIS), MORSE-E is a flexible set of subprograms to be selected at the user's option to solve a variety of shielding problems without additional programming. It treats different geometrical shapes of source volumes, calculates the flux of particles as sum of the paths travelled within a given volume and provides the corresponding relative errors.

CCC-259/STRAINT

STRAINT, a one-dimensional multigroup neutron transport S_n code package, has been added to the RSIC collection. Written in FORTRAN IV for the IBM 7030, the code is also operable on the IBM 360. The Atomic Weapons Research Establishment, Aldermaston, England, is the contributor. Reference: AWRE 0-42/73. A reel of magnetic tape is required for transmittal.

CCC-262/VCS

The VCS code, coupled discrete ordinates-adjoint Monte Carlo calculations of radiation protection factors in vehicles, has been contributed by the Neutron Physics Division of Oak Ridge National Laboratory. References: ORNL-TM-4648; ORNL-TM-4664. IBM 360; FORTRAN IV.

PSR-42/DUFOLD

The DUFOLD derivative unfolding code, Determination of Neutron Spectra from NE-213 Pulse Height Data, contributed by the Dept. of Nuclear Engineering, Kansas State University, Manhattan, Kansas, has been updated with addition of two routines provided by Howard R. Elson, University of Cincinnati College of Medicine. The new routines NUDASBIN (a raw data shifting and binning code) and ANGEF (a detector efficiency code) are included in the PSR-42 code packages dispatched from RSIC after April 10, 1975.

CHANGES TO THE DATA LIBRARY COLLECTION (DLC)

DLC-37/EPR

A new coupled set of 100-group neutron and 21-group gamma-ray cross sections for EPR and other fusion reactor conceptual design calculations was contributed by the Oak Ridge National Laboratory, Oak Ridge, Tennessee. The library is based on ENDF/B-IV, and data are included for Ni, Cr, Fe, ^{55}Mn, ^{59}Co, Cu, ^{4}He, C, O, Al, Pb, ^{6}Li, ^{7}Li, ^{10}B, H, ^{9}Be, V, Nb, ^{11}B, Ti, ^{182}W, ^{183}W, ^{184}W , ^{186}W, W, F, Si, and Mg. Tritium and alpha production cross sections for ^{10}B, ^{11}B, ^{6}Li, and ^{7}Li are also included. Three tapes are required for 7-track, blocked tape transmittal; one tape required for unblocked transmittal. A data retrieval program (FORTRAN IV, IBM 360) is included in the data package. Reference: ORNL-TM-4872.

VISITORS TO RSIC

Visitors to RSIC during the month of May were: Richard Oehlberg, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C.; Geoffrey C. Walker, McDonnell Douglas Automation Co., Bricktown, New Jersey; John Ridihalgh, Ridihalgh & Associates, Columbus, Ohio; William B. Gardner, IBM, Knoxville, Tenn.; Bob Morford, NL Industries, Wilmington, Delaware; Bob Paylor, 3M Company, Knoxville, Tenn.; Henry T. Chen, Atomic Energy Council, Lung Tan, Republic of China (temporarily at ORNL Health Physics Division); Ralph J. Cerbone and Michael Nagel, General Atomic, San Diego, California; Geoffrey Bishop (on lease from Liverpool University, England) and David N. Bryant, University of Kentucky, Lexington, Kentucky; J. A. Bucholz, Carnegie-Mellon University, Pittsburgh, Pennsylvania; Richard H. Johnson and Bernard W. Wehring, University of Illinois, Urbana, Illinois; Bert W. Rust, Union Carbide Corporation, Oak Ridge, Tennessee; and Moshe Siman-tov, Robert L. Ferguson and Uri Gat, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

MAY 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 of out-of-print reports may be 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 selected computer-printed abstracts of the literature in the RSIC system are available upon request. The Selective Dissemination of Information (SDI) Service is available by submitting a list of subject categories defining the recipient's interests.

THIS LITERATURE IS ON ORDER. IT IS NOT IN OUR SYSTEM. PLEASE ORDER FROM NTIS OR OTHER AVAILABLE SOURCE AS INDICATED.

REACTOR AND WEAPONS RADIATION SHIELDING LITERATURE

ACF-411-270
NRX-A4/EST Privy Roof Mounted Shield and Support Test Report.
Arnold, C.E.
November 29, 1965
Dep., NTIS $5.00

BRL-1717; AD-785521
Experimental Comparison of Buried and Mixed Source Ground Roughness Residual Radiation Models. Final Report.
Maloney, J.C.
May 1974
NTIS $5.00

CEA-CONF-2854; CONF-740320-6
Evaluation of the (n,xn) and (n,xnf) Cross Sections for Heavy Nuclei with the Statistical Model.
Jary, J.
1973
Dep., NTIS (U.S. Sales Only) $4.00

CEA-CONF-2856; CONF-740320-5
Calculation of (n,n'gamma) Cross Sections from 2 to 7 MeV Neutron Energy for Light Nuclei.
Duchemin, B.
1973
Dep., NTIS (U.S. Sales Only) $4.00

CONF-741109-2
Computer Codes and Data Available from the Radiation Shielding Information Center.
From International Symposium on Radiation Physics; Calcutta, India (30 November 1974)
Trubey, D.K.; Maskewitz, B.F.; Roussin, R.W.
November 1974
Dep., NTIS $4.00

CONF-741109-3
Development of Radiation Shielding Standards in the USA.
Trubey, D.K.
1974
Dep., NTIS $4.00

CONF-750413,Vol.I
Proceedings of the Conference on Computational Methods in Nuclear Engineering, April 15-17, 1975, Charleston, S.C.
Stacey, W.M.,Jr. (Ch.)
1975
NTIS $10.60

CONF-750413,Vol.II
Proceedings of the Conference on Computational Methods in Nuclear Engineering, April 15-17, 1975, Charleston, S.C.
Stacey, W.M.,Jr. (Ch.)
1975
NTIS $10.60

CONF-750413,Vol.II, pp.III-1–III-14
Monte Carlo, Finite Element and S_N Methods.
Gelbard, E.M.
1975
NTIS

CONF-750413,Vol.II, pp.III-15–III-30
Collision Probabilities and Response Matrices: An Overview.
Leonard, A.
1975
NTIS

CONF-750413,Vol.II, pp.III-31–III-47
Stationary Functionals and Monte Carlo.
Raghev, M.M.H.; Maynard, C.W.; Conn, R.W.
1975
NTIS

CONF-750413,Vol.II, pp.III-49–III-65
A New Technique for Evaluating, Direction Dependent Fluxes near Power Reactor Pressure Vessels.
Almenas, K.; De Gangi, N.; Hopkins, W.; Dixheimer, D.
1975
NTIS

CONF-750413,Vol.II, pp.III-67–III-83
The C_N Method in Cylindrical Geometry and One-Velocity Theory.
Kavenoky, A.
1975
NTIS

CONF-750413,Vol.II, pp.III-85–II-100
Iterative Solutions Methods for Two-Dimensional Finite Element Approximations in Neutron Transport.
Yuan, Y.C.; Lewis, E.E.; Miller, W.F.,Jr.
1975
NTIS

CONF-750413,Vol.II, pp.III-101–III-125
Discrete Ordinate-to-Special Harmonic Conversions for Ray Effect Mitigation in X-Y Geometry.
Miller, W.F.,Jr.; Reed, W.H.
1975
NTIS

CONF-750413,Vol.II, pp.IV-77–IV-92
Mathematical Aspects of the Year 2000 Radiological Study.
Dotson, W.L.; Fletcher, J.F.
1975
NTIS

FOA-C-20017-A2
Collision Probability Method for Time-Dependent Neutron Transport.
Lefvert, T.
November 1974
Dep., NTIS (U.S. Sales Only) $5.00

HEDL-SA-317; CONF-720604-3
Materials Performance Prediction from Irradiation Test Data.
Yoshikawa, H.H.
June 1972
Dep., NTIS

HEDL-SA-654; CONF-740651-1
Spectral Effects in Neutron and Charged Particle Irradiations.
Doran, D.G.; Simons, R.L.; McElroy, W.N.
April 1974
Dep., NTIS $4.75

HEDL-SA-657; CONF-740651-2
Reactor Materials Performance Predictions: A Critique of Damage Functions Analysis.
Odette, G.R.; Simons, R.L.; McElroy, W.N.
April 1974
Dep., NTIS $4.50

IKE-6-85 (In German)
Neutron Streaming Along Coolant Ducts.
Amin, E.H.A.
July 1973
INIS

INDC(CCP)-38/U, pp.1-8
Providing Nuclear Data for Fast Reactor Calculations.

In Nuclear Constants, No.8.
Nikolaev, M.N.
July 1974
IAEA, Vienna

JAPFNR-168; PNC-N-251-73-08
Experimental Study on Radiation Shielding Concrete Under High Temperature Conditions for Fast Breeder Reactor.
Yamamura, T.; Hozumi, Y.; Isimi, K.; Sugawara, S.
September 1974
Dep., NTIS (U.S. Sales Only) $4.00

JUL-1147-RG
Treatment of Anisotropic Neutron Scattering in Numerical Reactor Physics.
Brockmann, H.
December 1974
Dep., NTIS (U.S. Sales Only)

LA-5687
PENDF: A Library of Nuclear Data for Monte Carlo Calculations Derived from Data in the ENDF/B Format.
LaBauve, R.J.; Weisbin, C.R.; Seamon, R.E.; Battat, M.E.; Harris, D.R.; Young, P.G.; Klein, M.M.
July 1974
Dep., NTIS $7.60

LA-5903-MS; ANL-75-2, pp.53-63; NEA-CRP-L-118, pp.53-63; LA-UR-74-891
Monte Carlo Code Development in Los Alamos.
Carter, L.L.; Cashwell, E.D.; Everett, C.J.; Forest, C.A.; Schrandt, R.G.; Taylor, W.M.; Thompson, W.L.; Turner, G.D.
July 1974
Dep., NTIS

LA-UR-75-582
A Quantitative Assessment of CTR Cross Section Needs.
Gerstl, S.A.W.; Dudziak, D.J.; Muir, D.W.
1975
Los Alamos Scientific Lab., Univ. of Calif., Los Alamos, New Mexico 87544

N.E.A.-CPL Newsletter No.17
Pilot Study on Shielding Programs.
Devillers, C.; Ponti, C.; Rexer, G.; Hehn, G.; Amin, E.; Sartori, E.; Pfister, G.; Burgart, C.E.; Bernnat, W.; Hofmann, K.; Wahsweiler, H.G.; Weicht, U.; Travaglini, N.; Nicks, R.; Canali, U.; Bignami, A.; Vogt, H.G.
September 1974
NEA Computer Program Library, Casella Postale N.15, 21027 - Ispra (Varese), Italy

ORNL-TM-4814
Neutron Flux Computational Model of the Oak Ridge Research Reactor.
Allen, E.J.; Kerr, H.T.
April 1975
Dep., NTIS

ORNL-TM-4868
Fission Rate Determination of Simulated FTR Stored Fuel for the Fast Reactor Experimental Shielding Program.
Clifford, C.E.; Muckenthaler, F.J.; Stevens, P.N.
April 1975
ERDA(TIC), P.O. Box 62, Oak Ridge, Tenn. 37830 $5.45

RISO-303
Computer Modeling of Terrestrial Gamma-Radiation Fields.
Kirkegaard, P.; Lovborg, L.
September 1974
Danish Atomic Energy Commission Research Establishment, Riso

RN-PA-0021
Review of NERVA Radiation and Shielding Studies.
Warman, E.A.; Lindstrom, D.G.
September 30, 1969
Dep., NTIS $5.25

TID/SNA-735
Flight Safety Contingency Analysis Report. Volume II. Nonnuclear Subsystems Contingency Analysis.
Kennedy, A.J.
September 1971
Dep., NTIS $21.50

TID/SNW-15
ETS-1 Engine Compartment Radiation Shields. End Item Report.
Marine Div., Westinghouse Electric Corp., Sunnyvale, Calif.
1966
Dep., NTIS $22.75

UCID-16163
Assorted Means of Multi-Group Photon Absorption Coefficients.
Stone, S.; Tarter, C.B.
November 22, 1974
Dep., NTIS $4.00

UCID-16682
Does MORSE-L Really Work.
Wilcox, T.
September 14, 1972
Dep., NTIS $5.50

UCID-16683
MORSE Cross Section Library Tapes.
Wilcox, T.
July 9, 1973
Dep., NTIS $6.50

UCID-16727
The Lawrence Livermore Laboratory Evaluated Nuclear Data Library (ENDL) Translated into the ENDF/B Format.
Howerton, R.J.
March 1975
Dep., NTIS $4.00

UCRL-50400,Vol.3,Rev.1
An Integrated System for Production of Neutronics and Photonics Calculational Constants. Vol.3 - Rev.1. An Index of the Experimental Data of Neutron-Induced Interactions.
Perkins, S.T.; Cullen, D.E.; Haight, R.C.; Howerton, R.J.; MacGregor, M.H.
March 1974
Lawrence Livermore Lab., Univ. of Calif., Livermore, California 94550

UCRL-51306,Rev.1
An Evaluated Data Set for Tantalum.
Howerton, R.J.; Haight, R.C.; MacGregor, M.H.; Perkins, S.T.
February 27, 1975
NTIS

UCRL-51726
A Mathematical Theory of Modeling.
Corynen, G.C.
December 1974
NTIS

UCRL-76318; CONF-750109-8
Estimating Atmospheric Transport, Diffusion, and Deposition of Radioactivity from Peaceful Nuclear Explosives. Progress Since 1971.
Knox, J.B.; Peterson, K.R.
January 1975
Dep., NTIS $7.00

WANL-TME-527
The Design of Neutron Detectors for NERVA.
Austin, W.E.
September 1963
Dep., NTIS $6.00

WANL-TME-794
Effect of Mist Flow on Cool-Down Temperatures and Cool-Down Time.
Chi, J.W.H.
May 22, 1964
Dep., NTIS $4.50

Atomic Data and Nucl. Data Tables, 15(1), 57-84
Neutron Production Cross Sections and Energies for the Reactions 7-Li(p,n)7-Be and 7-Li(p,n)7-Be*.
Liskien, H.; Paulsen, A.
January 1975

Atomkernenergie, 24(1), 36-42 (In German)
Internal Dose Calculations.
Kaul, A.; Roedler, H.D.
1974

Health Phys., 27(4), 404-405
Comments on "Spectra and Dose Fractions of Monoenergetic Neutrons Passed Through Different Shields and Their Application for Dose-Meter Evaluation".
Heinzelmann, M.
October 1974

Health Phys., 28(3), 189-196
Notes on Low Radioactivity Lead for Very Low Background Shields.
Bartels, O.G.
March 1975

Health Phys., 28(3), 197-204
Monte Carlo Calculation of the Response of the Portable Neutron Monitor SNOOPY.
Tessler, G.; Glickstein, S.S.
March 1975

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