RSIC Newsletter

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The secret of knowledge is to know that you know nothing.—Socrates

COOPERATION NEEDED FOR USER SURVEYS

RSIC has always had a good two-way relationship with its user community, and we use the monthly newsletter as a vehicle for distributing forms to provide feedback on a variety of subjects. This newsletter sets a record for the most forms in a single issue. *They are all important and we ask your cooperation in completing and returning them.*

RSIC Distribution Query

Appended to this issue is our Periodic Distribution Query by which we determine if you want to continue to receive the newsletter and gather information about your current research and development interests and support. We use this query to assure the newsletter distribution is kept to a manageable level. We also depend on the information contained in the response to evaluate our usefulness to you and to our sponsors.

We ask that you detach the query, complete it, and mail immediately. **October 1, 1985**, is the final deadline; do not delay in returning your response.

ORNL Evaluation of TIACs

This issue also contains a survey form the Oak Ridge National Laboratory (ORNL) will use to evaluate the performance of the Technical Information Analysis Centers (TIAC) operated here. The responses will help ORNL and the Dept. of Energy (DOE) judge the effectiveness of TIAC activities. This is an opportunity for RSIC user/contributors to provide *direct* input to ORNL management about the usefulness of RSIC products and services. We trust we can count on your cooperation. Please locate, read, and complete the form and *mail directly to* ***Bruce Ewbank*** *at the address indicated.* Your participation will be appreciated.

Help RSIC Plan SCALE Workshop

A great deal of interest has been demonstrated in the SCALE modular code system for criticality, shielding, and heat transfer analyses. This code system, developed by the Computing and Telecommunications Division at ORNL, Martin Marietta Energy Systems, Inc., under Nuclear Regulatory Commission (NRC) sponsorship, has been given wide distribution throughout the world. A workshop, tentatively planned for April 1986, will feature the current version, CCC-466/SCALE-3.

A survey form intended to ascertain interest in attending the workshop is attached to this newsletter. Further information will be sent by direct mail to those who return the form.

Please return the form as soon as possible if you are interested in attending the workshop. A nominal registration fee will be required. The RSIC staff will assist with local lodging and transportation arrangements.

R. W. Roussin
RSIC Director

RSIC-13, I-III Available

The publication, ORNL/RSIC-13, Volumes I–III Revised, is now available upon request. This new publication resulted from an internal audit of the first 168 packages of computing technology in the Computer Codes Collection (CCC) of RSIC. It replaces the earlier three documents published as a single volume between 1966–1972. A significant number of the early code packages were considered to be obsolete and were removed from the collection during the audit, and the CCC numbers were not reassigned. Other code packages not currently being used by the nuclear R&D community were retained in the collection to preserve technology not replaced by newer methods or considered potentially valuable for reference purposes. Much of the early technology, however, has improved through developer/RSIC/user interaction and continues at the forefront of the advancing state of the art.

The earlier volumes (I–III) of RSIC-13 were published in loose-leaf binders for the user's convenience. This revision is bound in soft covers for economy.

Volume IV of ORNL/RSIC-13 contains abstracts for code packages CCC-169 through CCC-263 and is available from RSIC. Volume V (CCC-264 through CCC-414) is in the process of being published.

Optional Change for CCC-363/LADTAP II

Edward Bradley, Sacramento Municipal Utility District, California, has suggested optional changes for the CCC-363/LADTAP II package which simplify the treatment of specific nuclide variables and for ease in including the nuclide in reports and other enhancements. Although RSIC has not changed the basic master, we are making this information available to the users who inquire.

CHANGES TO THE COMPUTER CODES COLLECTION

During the month two new code packages were added to the collection.

CCC-474/MORSE-CGA

The Oak Ridge National Laboratory contributed this MORSE-CG computer code system which has been revised to add a new geometry module, MARS (PSR-117), the combinatorial geometry package that allows multiple arrays for specifying geometries. The new code system is known as MORSE-CGA where CGA indicates Combinatorial Geometry Array. The PICTURE code, which makes printer plots of 2-D slices through a combinatorial geometry mock-up, has also been revised to handle the MARS array capability. All new users should request CCC-474/MORSE-CGA rather than CCC-203/MORSE-CG. Reference: ORNL-6174 and ORNL-4972/R1. FORTRAN IV; IBM-3033 (C) and CRAY (E).

CCC-475/SCALIAS-77

This collection of modules contributed by ORNL is a subset of CCC-466/SCALE 3. The following programs which run in stand-alone mode have been converted to FORTRAN-77 and are included: AIM-S, BONAMI-S, NITAWL-S, XSDRNPM-S, KENO-V.a. The SCALE System Subroutine Library is also included. Converting to FORTRAN-77 will greatly enhance the transportability of the codes. FORTRAN 77; IBM 3033 (A).

CHANGES TO THE DATA LIBRARY COLLECTION

During the month three changes were made to the data library collection, including a contribution from Italy and France. A new data library was added to the RSIC data library collection, additional documentation was added to an existing data library, and documentation for one data library was replaced with a new document.

DLC-68/FIPDOR

This package of 126-neutron-group cross sections in AMPX format was updated to replace its documentation with a new report. The new package illustrates using the 126-group data in FIPDOR to make ORIGEN LMFBR libraries. Reference: ORNL/TM-7176/R1. FORTRAN IV; IBM 360/91.

DLC-75/BUGLE-80

The document for this coupled 47-neutron, 20-gamma-ray, P_3 cross section data library for LWR shielding calculations by the ANS-6.1.2 working group

on multigroup cross sections was updated to add a table of nuclide densities for materials used in the LWR benchmark. The update was contributed by the Oak Ridge National Laboratory.

DLC-104/BABEL

This multipurpose neutron and gamma-ray cross section library for fast reactor shielding design was contributed by CNEN, Casaccia, Italy, and CEA, Cadarache, France, through the NEA Data Bank, Gif-sur-Yvette, France. The neutron multigroup scheme has been optimized to meet the needs of the deep penetration of neutrons in thick shields, steel/sodium mixtures, or in thick layers of sodium. All the major features of the minima in the steel and sodium cross sections are represented. The library includes a response function file which has activation data, neutron energy release data (kerma factors), gas production data, and design and experiment oriented response functions. Reference: Informal Document Notes. IBM 3033.

Nuclear Standards Notes

ANS Approves 3 Charters

In the June 11, 1985, American Nuclear Society (ANS) Standards Steering Committee meeting held in Boston, three radiation protection charters were approved. The main intent of the standards effort is to use lessons learned from TMI-2 and apply them to radiation protection in the aftermath of a nuclear power plant accident. The three charters are: ANS-5.6.1, "Radiation Protection Design Criteria for Post-Accident Shielding"; ANS-5.7.1, "Radiological Design Criteria for Post-Accident Sampling"; and ANS-5.7.2, "Radiological Design Criteria for Post-Accident Monitoring." Bill Hopkins, chairman of ANS-5.5 and -6.9, explained that members of several subgroups of his committee were either at TMI during the accident period or participated in the NRC "Lessons Learned" exercises which followed. Workshops sponsored by the Nuclear Safety Analysis Center (NSAC) of the Electric Power Research Institute provided additional information and allowed the participating utilities to discuss common problems.

A systematic review by G. Lahti (Sargent & Lundy) of comments submitted by utilities to NUREG 578 and 737, the published results of "Lessons Learned," was also sponsored by the NSAC. The resulting design recommendations for post-accident radiological conditions are presented in NSAC 17. The new group of proposed standards are expected to cover the whole spectrum of design problems and fill in the gaps not covered in NSAC 17. This standards effort is expected to receive support from utilities, NRC, architect-engineers, EPRI, and several companies directly involved with TMI recovery. Contact will be maintained with the Health Physics Society with several health physicists placed on groups working on these standards.

HPS Accepts N43

The Health Physics Society is now responsible for N43 standards, assumed from the National Bureau of Standards. N43 covers Equipment for Nonmedical Radiation Applications.

D. K. Trubey, chairman of ANS-6, Radiation Protection and Shielding, has resigned as ANS liaison to N13, Radiation Protection, on becoming a member of Committee N17, Research Reactors, Reactor Physics, and Radiation Shielding. **Joyce Davis**, his alternate on N13, was approved by the ANS Standards Steering Committee as his replacement.

Letter to the Editor

The following letter came in response to the G. P. Lahti paper printed in the June issue of the newsletter.

I was surprised to read in the June Newsletter that G. Lahti's stirring defense of the present state of shielding had not been included in the Proceedings of the Sept. '84 Topical. Jerry had very kindly sent me a copy of his remarks before the publication of the Proceedings and I had thought automatically that they were printed, without carefully looking through the volumes. I'm glad to see that they will now get wide distribution and to the right readership.

Your readers may be interested to know that Jerry and I are in complete agreement as to the state of affairs in shielding now. To quote Jerry's words: "Granted, the pioneering efforts in methods development are presently at their nadir due to lack of funding" — which is all that I said. And for my part, I wholeheartedly agree that the engineering discipline of shielding and radiation protection is strong and flourishing, and demanding of the best intellectual effort we can provide.

Herbert Goldstein
Columbia University

PERSONAL ITEMS

In serving a specialized area of scientific endeavor, it seems important that we take note of the movement of people concerned with radiation protection, transport, and shielding in the nuclear industry. We, therefore, continue to carry personal items as they are brought to our attention. During the past month we have been informed of the following changes.

William Arcieri has left NUS Corp. to join the staff of ENSA, Inc., Rockville, Maryland.

Rolf D. Neef, Inst. f. Reaktorentwicklung, Jülich, Fed. Rep. of Germany, has taken a temporary assignment with Los Alamos National Laboratory, New Mexico.

Richard E. Malenfant has left Los Alamos National Laboratory to take a position with the U.S. Dept. of Energy in Washington.

E. P. Lippincott, formerly with Hanford Engineering Development Laboratory, Richland, Washington, is now on the staff of the Westinghouse Electric Corp., Monroeville Nuclear Center, Pittsburgh, Pennsylvania.

Leo Levitt has left Rockwell International, Canoga Park, California, to join the staff of Ralph M. Parsons Co., Pasadena.

Visitors to RSIC

During the month the following persons came for an orientation visit and/or to use RSIC facilities: *Masayuki Nakagawa,* Japan Atomic Energy Research Inst.; *Hajimu Yamana,* Power Reactor and Nuclear Fuel Development Corp., Tokyo, on temporary assignment to ORNL; and *Myrna Steele,* Nuclear Regulatory Commission, Washington.

CONFERENCES, COURSES, SYMPOSIA

RSIC attempts to keep its users/contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers to RSIC.

Call for Papers

The Organization for Economic Cooperation and Development Nuclear Energy Agency Nuclear Data Committee has planned a *Specialists' Meeting on the Use of the Optical Model for the Calculation of Neutron Cross Sections Below 20 MeV.* The meeting will be held November 13–15, 1985, at OECD Headquarters, Paris. It is a follow-up to a meeting held in Paris in November 1981 on "Fast Neutron Scattering on Actinide Nuclei." The second meeting is intended as a broad assessment of the current status of the practical aspects of the optical model.

The provisional program topics are: Fundamental Aspects of the Optical Model; Conventional Models and Calculational Tools; Parameterization of the Optical Model; and Calculations of Neutron-Induced Cross-Sections With Special Emphasis on the Role of the Optical Model. In addition, two workshops will also be held; they are "Tools used in neutron cross-section calculations" and "Specific optical model parameterizations for the calculation of structural materials, fission products, and actinides."

Nominations to attend must be channelled through the NEANDC members in OECD countries or through the Nuclear Data Section of IAEA, Vienna, for non-OECD countries. Details about contributed papers (deadline September 15, 1985) and participation may be obtained from C. Nordborg, NEA Data Bank, 91191 Gif-sur-Yvette CEDEX, France, or from J. Salvy, Service Physique Nucleaire, Centre d'Études de Bruyeres-le-Chatel, B.P. 561, 92541 Montrouge CEDEX, France.

Calendar

Your attention is directed to the following additional events of interest to the radiation shielding and protection community.

October 1985

Meeting on Nuclear Data, Cross Section Libraries and Application in Nuclear Energy, October 1–2, 1985, Bonn, Fed. Rep. of Germany, sponsored by the German Nuclear Technology Society and the European Nuclear Society. Contact: Dieter Emendörfer, Stuttgart University (IKE), Pfaffenwaldring 31, D-7000 Stuttgart 80, Fed. Rep. of Germany.

Advanced Management of Radiation Accidents, a course sponsored by the University of New Mexico, October 3–5, 1985, in Albuquerque. Contact: Univ. of New Mexico, School of Medicine, School of Continuing Medical Education, North Campus, 815 Vassar NE, Albuquerque, NM 87131.

18th Annual Meeting of the Radiation Protection Association: Population Radiation Exposure, October 6–10, 1985, Luebeck-Travemuende, Fed. Rep. of Germany. Contact: Dipl.-Phys. K. Henning, GKSS-Forschungszentrum, Geesthacht GmbH, Postfach 1160, D-2054 Geesthacht, Fed. Rep. of Germany.

Scientific Seminar on the Application of Distribution Coefficients to Radiological Assessment Models, October 7–11, 1985, Louvain-la-Neuve, Belgium, sponsored by the Commission of the European Communities. Contact: T. H. Sibley, Seminar Secretariat, Unité de Physiologie Végétale, Université Catholique de Louvain, Place Croix du Sud 4, B-1348 Louvain-la-Neuve, Belgium (phone 010/43.34.68).

TMI-2: A Learning Experience, ANS Executive Conference, October 13–16, 1985, Hershey, Pennsylvania. Contact Franklin Coffman, General Chairman, IT Corp., Federal State Remedial Div., 600 Maryland Ave., SW, Suite 302, Washington, DC 20024 (phone 202-484-7100).

Technical Committee on the Assessment of the Radiological Impact from the Transport of Radioactive Materials, October 21–25, 1985, Vienna, Austria, sponsored by the International Atomic Energy Agency. Contact: R. B. Pope, Division of Nuclear Safety, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

Symposium on Organ Dosimetry for External Gamma and Neutron Radiations, October 22–24, 1985, Knoxville, Tennessee, sponsored by Oak Ridge National Laboratory. Contact: R. O. Chester, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, TN 37831 USA.

Computer Aided Methods in Radiation Protection, October 22–25, 1985, Budapest, Hungary. Contact: L. Koblinger, Central Research Institute for Physics, P.O. Box 49, H-1525 Budapest, Hungary (phone 699-499 ext. 15-95).

International Symposium on Source Term Evaluation for Accident Conditions, October 28–November 1, 1985, Columbus, Ohio. Participation must be through designation by the Government of a Member State of the IAEA or by an organization invited to participate. Contact: Secretariat, c/o International Atomic Energy Agency, Vienna International Centre, P.O. Box 100, A-1400, Vienna, Austria.

November 1985

Joint Meeting of the American Nuclear Society and the Atomic Industrial Forum, November 11–15, 1985, San Francisco. Contact: Meetings Dept., ANS, 555 North Kensington Ave., La Grange Park, IL 60525, or James R. Sasso, General Electric–MC-871, San Jose, CA 95125 (phone 408-925-1195).

Assessment of Occupational Intake of Radioactive Materials, November 11–15, 1985, Vienna, sponsored by IAEA. Contact: F. N. Flakus, Division of Nuclear Safety, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

2nd Symposium on Progress in Individual Dosimetry for External Exposure to Radiation, November 12–15, 1985, Berlin, German Dem. Rep., sponsored by Council for Mutual Economic Assistance.

11th Symposium on Engineering Problems in Fusion Research, November 18–22, 1985, Austin, Texas. Contact: Ward Harris, Fusion Research Center, Univ. of Texas at Austin, RLM 11.1222, Austin, TX 78712 (phone 512-471-4576 or 4698).

Technical Committee on Procedures for Assessing the Reliability of Transfer Models, November 18–22, 1985, Vienna, Austria, sponsored by the International Atomic Energy Agency. Contact: I. Savolainen, Division of Nuclear Fuel Cycle, IAEA, P.O. Box 100, A-1400 Vienna, Austria.

1st International Conference on Fusion Reactor Materials, November 19–22, 1985, Tokyo, Japan. Contact: R. R. Hasiguti, Science University of Tokyo, Kagurazaka, Shinjuku-ku, Tokyo, Japan 162.

JULY 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 22161.

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.

This Literature is on order. It is not in our system. Please order from NTIS or other available source as indicated.

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RADIATION SHIELDING INFORMATION CENTER

Survey for Workshop on the SCALE Code System

April 1986, at Oak Ridge, Tennessee

Name: _____

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Full Mailing Address: _____

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Please indicate your level of experience/background in the following areas:

	Criticality safety	Shielding analysis	Heat transfer analysis and/or theory	Computer operating systems	Multigroup x-sect processing and use
little/none					
some					
substantial					

Code Systems Experience/Background

	SCALE	AMPX	XSDRNPM	MORSE	KENO	ORIGEN	HEATING
little/none							
some							
substantial							

Indicate the areas of application and the amount you use, or will potentially use, SCALE.

	Criticality analysis	Shielding analysis	Heat transfer analysis
Little/none			
some			
substantial			

Provide below the areas or modules of SCALE that you would like specifically covered in the workshop.

RADIATION SHIELDING INFORMATION CENTER
PART I
RSIC Periodic Distribution Query

The *RSIC Newsletter* carries information about RSIC products and services. Do you wish to receive it? ____. If so, please fill out the form below as completely as possible and mail it immediately. Please print or type the name and mailing address. Use additional paper as necessary.

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B. Organization/institution type: (USA)_____(Other Nation) _____

Utility	___	Industrial Laboratory	___	Health Care Agency	___
Consultant	___	Industrial Vendor	___	Government Lab.	___
Architect-Engineer	___	University	___	Hospital	___
Government Contractor	___	International Agency	___	Software Service	___
Power Reactor	___	Other _____			

C. What are the project areas in which you are engaged?

Breeder/LM Reactor	___%	Waste Management	___%
Gas Cooled Reactor	___%	Reactor Safety	___%
Light Water Reactor	___%	Criticality Safety	___%
Heavy Water Reactor	___%	Shipping Casks	___%
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Fusion - Inertial	___%	Health Physics Research	___%
Fusion - Hybrid	___%	Occupational Exposure	___%
Weapons	___%	Environmental Exposure	___%
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Space Shielding	___%	Activation and Heating	___%
Well Logging	___%	Space Nuclear Systems	___%
Other			

D. Please indicate your source of financial support; **if more than one sponsor, indicate proportionate fraction of time spent on each.**

DOE - Breeder	___%	Defense Nuclear Agency	___%	NRC	___%
DOE - Fusion	___%	Army	___%	NASA	___%
DOE - Military	___%	Navy	___%	Utility	___%
DOE - LWR	___%	Air Force	___%	EPRI	___%
DOE - Navy	___%	Strategic Def. Initiative	___%	State	___%
DOE - Waste Mgmt.	___%	Defense - Other	___%	Private	___%
DOE - Other	___%	Civil Defense	___%	University	___%
Other					

PART II

SURVEY OF RADIATION PROTECTION, SHIELDING AND TRANSPORT COMPUTING TECHNOLOGY
(Please answer each question, using additional paper as needed)

1. Do you compute radiation exposures or perform radiation transport calculations, (e.g., in-plant exposures, environmental studies, shield design)? Please describe.

2. Do you use computerized numerical data bases or cross section libraries?

3. What computing technology do you need (e.g., accurate, fast code to perform neutron streaming studies)?

4. What data libraries do you need? (e.g., radioactive decay nuclide data base, albedo data for MORSE for concrete elements)?

5. Describe your computer environment. What computers do you use?

6. What trends do you see — more computation on mini- and microcomputers, in-house or centralized computing facilities via remote terminal?

7. Do you have any outstanding shielding problem areas that should be addressed through additional R & D?

8. Have you obtained, and do you use, computer codes and data from RSIC? List; comment.

9. Have you developed computer codes and data libraries that you are willing to share through RSIC? Please list and cite documentation, if any exists.

10. Have you already placed your work in RSIC? ____. If yes, indicate below if it is time for an update. Do you have publications which you wish to contribute? Please comment:

_____

_____

_____

Please make any additional comments or suggestions.

PLEASE RETURN TO: *Radiation Shielding Information Center*
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August 1, 1985

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Your responses will be valuable. Please base your response on your own firsthand experience. Make additional comments at the end of each section if you wish.

We will appreciate a prompt reply to the address below. It may be anonymous or signed, but, in either case, it will remain confidential. I thank you very much for your help and look forward to hearing from you within a couple of weeks.

W. Bruce Ewbank

W. Bruce Ewbank
Information Resources, Bldg. 2001
Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, TN 37831

Survey Assessment of Information Center Performance

Center Name: Radiation Shielding Information Center

Location: Oak Ridge National Laboratory

Contact: R. W. Roussin

Date of survey: 8/1/85

I. OVERALL ASSESSMENT (Circle desired response or responses):

a. Frequency of Use - more than 50 uses per year; 10-50 uses per year; 2-10 uses per year; once a year or less

b. Means of Access - Publication(s); Computer link to ORNL; Telephone/Personal Contact; Other_____

c. Quality of Service - Requirements were: Exceeded; Met; Not met

d. Timeliness of Service - Requirements were: Exceeded; Met; Not met

e. Charges for Service - Direct charge; Paid by funder/related agency; No charge

f. Services are cost-effective - Yes; No; Unsure

Additional comments:

II. MANAGEMENT & OPERATIONS [Circle desired response]:

a. Available products and services are well documented:	Yes	No	Unsure
b. Available information is thoroughly described in documentation:	Yes	No	Unsure
c. The Center is easily reached:	Yes	No	Unsure
d. The Center is available when needed:	Yes	No	Unsure
e. Information is easily requested and obtained:	Yes	No	Unsure
f. The response time is satisfactory:	Yes	No	Unsure
g. Reporting formats are satisfactory:	Yes	No	Unsure
h. Database updates are performed as scheduled:	Yes	No	Unsure

Additional comments:

III. DOCUMENTATION [Circle desired response]:

a. Services are clearly defined and explained:	Yes	No	Unsure
b. Access limitations are clearly defined:	Yes	No	Unsure
c. Access methods are stated and explained:	Yes	No	Unsure
d. The Center's scope is clearly stated:	Yes	No	Unsure
e. Sources used by the Center are defined:	Yes	No	Unsure
f. Dates of coverage are given for any Center information:	Yes	No	Unsure
g. The level of data selection or evaluation is clearly stated:	Yes	No	Unsure
h. Abbreviations and conventions used in reports and databases are fully explained:	Yes	No	Unsure

Additional comments:

IV. INFORMATION CONTENT [Circle desired response]:

a. Information provided is correct or the best available:	Yes	No	Unsure
b. Information provided is complete within the Center scope:	Yes	No	Unsure
c. Information source coverage corresponds to the documentation:	Yes	No	Unsure
d. Abbreviations and conventions are adequately explained:	Yes	No	Unsure
e. Units of measure are stated when needed:	Yes	No	Unsure
f. Standards used in measurements are stated:	Yes	No	Unsure
g. Database products contain indicators giving data reliability when appropriate:	Yes	No	Unsure
h. References to supplementary information are given:	Yes	No	Unsure
i. Each report or service includes an issue date:	Yes	No	Unsure

Additional comments: