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INDC International Nuclear Data Committee

International Network of Nuclear Reaction Data Centres

Edited by

Naohiko Otuka
IAEA Nuclear Data Section, Vienna, Austria

May 2014

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Naohiko Otuka
IAEA Nuclear Data Section, Vienna, Austria

Abstract

The activities of thirteen nuclear data centres are summarized, and their cooperation under the auspices of the International Atomic Energy Agency is described. Each of the centres provides coverage for different geographical zones and/or specific types of nuclear data, thus together providing a complete service for users worldwide. The International Network of Nuclear Reaction Data Centres (NRDC) was established with the objective of providing nuclear physics databases that are required for nuclear technology (encompassing energy and non-energy applications) by coordinating the collection, compilation and dissemination of nuclear data on an international scale.

May 2014

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Preface

The objectives, goals and working arrangements of the International Network of Nuclear Reaction Data Centres (NRDC) are summarized, according to the conclusions of the IAEA Technical Meeting on the International Network of Nuclear Reaction Data Centres, 6-9 May 2014, Smolenice, Slovakia.

The purpose and mission of the Network are described in the introductory pages.

Contact addresses of the centres are given in Annex 1.

Lists of the complete activities of each centre are described in Annex 2. Note: only a part of each centre's overall work relates directly to their NRDC Network contribution.

Details of the working arrangements are given in Annex 3.

The contents of this "living" document will be revised as necessary:

Introductory material will be reviewed biennially at each Network meeting;

Annex 1 (Addresses) will be updated by the IAEA Nuclear Data Section (NDS) as required;

Overall activities of each centre are described in Annex 2, and will be revised on the initiative of the data centres, after review by the Network;

Annex 3 will be reviewed annually.

The first version of this document was drafted at an IAEA Consultants' Meeting dedicated to this purpose from 31 October - 1 November 1994, approved at the Technical Meeting of the Nuclear Reaction Data Centres, Vienna, 2-4 May 1995, and printed as report INDC(NDS)-324 in August 1995.

International Network of Nuclear Reaction Data Centres

1. Introduction

The International Network of Nuclear Reaction Data Centres (NRDC) constitutes a worldwide cooperation of nuclear data centres under the auspices of the International Atomic Energy Agency. The NRDC Network was established to coordinate the world-wide collection, compilation and dissemination of nuclear reaction data. This document has been produced jointly by the Heads of the cooperating Data Centres to describe the overall activities of each Centre and their commitments to the NRDC Network. The contents will be amended as necessary by the Data Centre Heads at their regular biennial meetings.

2. Nuclear Data

Nuclear data are essential to the development and application of all nuclear sciences and technologies. These data are conventionally separated into two types, namely properties of a nucleus interacting with radiation or another nucleus called *nuclear reaction data*, and properties of single nuclei called *nuclear structure and radioactive decay data*. As defined, the term "nuclear data" includes numerical and related bibliographic data, along with descriptive documentation.

Two international nuclear data networks operate under the auspices of the IAEA: the International Network of Nuclear Reaction Data Centres (NRDC), as described in the present document, and the International Network of Nuclear Structure and Decay Data (NSDD) Evaluators, see IAEA report INDC(NDS)-421.

The scope of the International Network of Nuclear Reaction Data Centres includes nuclear data required for both energy and non-energy applications, as well as for basic nuclear science. Applications of these nuclear data are numerous, and include nuclear energy development (both fission and fusion), nuclear medicine, process control in manufacturing, material identification using activation analysis, accelerator design and shielding, environmental monitoring, nuclear waste management, nuclear material disposal, space radiation shielding, basic science, and design of detectors and physics experiments.

3. The NRDC Network

Nuclear data centres provide the essential link between the producers and users of nuclear data. The International Network of Nuclear Reaction Data Centres (NRDC) has been established to organize these important preparative and communication activities on an international scale, with the objective of providing the desired nuclear data to users in a convenient and readily-available form. Customer services represent the cornerstone of this Network, which organizes the tasks of collecting, compiling, standardizing, storing, assessing and distributing the vast amounts of nuclear data that exist already and that will be produced and needed in the future. Only through the international cooperation of interested groups of scientists in different countries and organizations can the provision of recommended high-quality nuclear data be realized, avoiding duplication of effort and maximizing the use of specialized expertise at each of the cooperating centres.

The NRDC Network is coordinated through regular meetings organized by the IAEA Nuclear Data Section and through direct communication among the centres. Rules and procedures for the compilation and exchange of data files and agreements on work sharing, amongst the centres

associated with data acquisition and services to customers, are determined during these Network meetings.

The centres' activities and responsibilities are described in the various annexes. Each centre has agreed to assume responsibility for one or more tasks within the Network for which they have both unique expertise and resources. Information collected or produced in any participating centre will be available without restriction to any of the other centres that are party to the agreement. This information will be available cost-free to all customers of each centre in the Network.

4. Objectives and Tasks

The primary goal of the Network is the dissemination of nuclear reaction data and associated documentation to users. The following specific tasks must be carried out in order to accomplish this important aim:

- compilation of relevant bibliographic information;
- compilation of experimental nuclear reaction data;
- collection of evaluated nuclear reaction data;
- exchange of nuclear reaction data of all types;
- promotion of the development of special purpose evaluated data files;
- development of common formats for computerized exchange of nuclear data;
- coordinated development of computer software for managing and disseminating nuclear data;
- coordination of the development and dissemination of end-user software for both on-line and local access to nuclear data;
- documentation of current and future data needs in order to be able to meet changing user demands.

5. Data Evaluations

All members of the NRDC Network recognize the importance of separately coordinated nuclear data evaluation activities. Furthermore, the availability of evaluated nuclear data files is essential in order to fulfil the responsibilities of the Network to the world-wide user community. The Network members appreciate the efforts of the Working Party on International Nuclear Data Evaluation Co-operation (WPEC), a working group - hosted by the OECD Nuclear Energy Agency - involved in the coordination of many national and regional evaluation projects, whose activity is complementary to the Network's tasks on evaluated data as outlined above (Section 4).

6. Nuclear Reaction Data Centres

6.1 Core Centres

The resulting arrangements recognize the special status of the “Core” Centres:

- National Nuclear Data Center (NNDC), Brookhaven National Laboratory, Upton, USA (see Annex 2.1);
- OECD Nuclear Energy Agency Data Bank (NEA DB), Paris, France (see Annex 2.2);
- International Atomic Energy Agency Nuclear Data Section (NDS), Vienna, Austria (see Annex 2.3);
- Russia Nuclear Data Centre (CJD), Institute of Physics and Power Engineering, Obninsk, Russian Federation (see Annex 2.4);

that provide coordinated, world-wide customer services covering the entire range of nuclear data described herein. These Core Centres also provide comprehensive compilations of experimental neutron reaction data and related bibliographic information.

6.2 Regional, National and Specialized Centres

Regional, national and specialized centres:

- MSU SINP Centre for Photonuclear Experiments Data (CDFE), Moscow, Russian Federation (see Annex 2.5);
- China Nuclear Data Centre (CNDC), China Institute of Atomic Energy, Beijing, China (See Annex 2.6);
- Hokkaido University Nuclear Reaction Data Centre (JCPRG), Hokkaido University, Sapporo, Japan (see Annex 2.7);
- JAEA Nuclear Data Center (JAEA/NDC), Japan Atomic Energy Agency, Tokai-mura, Japan (see Annex 2.8);
- ATOMKI Charged-Particle Nuclear Reaction Data Group, Institute for Nuclear Research, Hungarian Academy of Science, Debrecen, Hungary (see Annex 2.9);
- Ukraine Nuclear Data Centre (UkrNDC), Institute for Nuclear Research, Kyiv, Ukraine (see Annex 2.10);
- Centre of Nuclear Physics Data (CNPD), RFNC-VNIIEF, Sarov, Russian Federation (see Annex 2.11);
- KAERI Nuclear Data Center (KNDC), Korea Atomic Energy Research Institute, Daejeon, Korea (see Annex 2.12);
- Nuclear Data Physics Centre of India (NDPCI), India (see Annex 2.13)

provide essential complementary functions to the Core Centres by assuming particular responsibility for the collection and dissemination of data of a specialized type or application.

7. Working Arrangements

The working arrangements for the compilation and exchange of nuclear reaction data are summarized in **Annex 3** (Summary of NRDC Protocol). As agreed in May 2002, the NDS assumes responsibility for the coordination of the NRDC Network compilation activities. Thus, the NDS will

(a) assign clear responsibilities for the creation and correction of data compilations, and drive these activities forward,

(b) ensure implementation of compilation rules,

(c) decide on all issues relating to dictionary codes,

(d) be responsible for CINDA and EXFOR distribution to the other data centres,

(e) be responsible for central EXFOR Web Service and EXFOR Master file central storage.

Annex 1

Addresses

1.1 National Nuclear Data Center (NNDC)

— **Contact person:** Michal Herman

— **Address:** National Nuclear Data Center
Bldg. 817
Brookhaven National Laboratory
P.O. Box 5000
Upton, NY 11973-5000
U.S.A.

— **Telephone:** +1 631-344-2802

— **Telefax:** +1 631-344-2806

— **E-mail:** mwherman@bnl.gov

— **Intercenter FTP file transfer:** ftp.nndc.bnl.gov
username: bnlndc
(No password required)

— **World Wide Web:** http://www.nndc.bnl.gov/

1.2 OECD Nuclear Energy Agency Data Bank (NEA DB)

— **Contact person:** Kiyoshi Matsumoto

— **Address:** Le Seine Saint-Germain
12, boulevard des Iles
F-92130 Issy-les-Moulineaux
France

— **Telephone:** +33 (1) 45 24 10 80

— **Telefax:** +33 (1) 45 24 11 10

— **E-mail:** kiyoshi.matsumoto@oecd.org

— **World Wide Web:** http://www.oecd-nea.org/databank/

1.3 IAEA Nuclear Data Section (NDS)

— **Contact person:** Robin A. Forrest

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Austria

— **Telephone:** +43 (1) 2600-21709

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— **E-mail:** R.Forrest@iaea.org

— **World Wide Web:** http://www-nds.iaea.org/

1.4 Russia Nuclear Data Centre (CJD)

— **Contact person:** Anatolij I. Blokhin

— **Address:** Leipunsky Institute of Physics and Power Engineering
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Ploschad Bondarenko, 1
249 033 Obninsk, Kaluga Region
Russian Federation

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— **Telefax:** +7 48439 68225

— **E-mail:** blokhin@ippe.ru

— **World Wide Web:** http://www.ippe.obninsk.ru/podr/cjd/

1.5 Centre for Photonuclear Experiments Data (CDFE)

(Centr Dannykh Fotoyadernykh Eksperimentov)

— **Contact person:** Vladimir V. Varlamov

— **Address:** Skobeltsyn Institute of Nuclear Physics
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— **E-mail:** varlamov@depni.sinp.msu.ru

VVVarlamov@gmail.com

— **World Wide Web:** http://cdfe.sinp.msu.ru/

1.6 China Nuclear Data Centre (CNDC)

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Peoples Republic of China

— **Telephone:** +86 10-6935-7275

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1.7 Hokkaido University Nuclear Reaction Data Centre (JCPRG)

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— **Telefax:** +81 (11) 706-3724

— **E-mail:** services@jcprg.org

— **World Wide Web:** http://www.jcprg.org/

1.8 Japan Atomic Energy Agency Nuclear Data Center (JAEA/NDC)

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Japan Atomic Energy Agency
2-4 Shirakata Shirane
Tokai-mura, Naka-gun
Ibaraki-ken 319-1195
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— **Telephone:** +81 29-282-5480

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— **E-mail:** jendl@jaea.go.jp

World Wide Web: http://wwwndc.jaea.go.jp/

1.9 ATOMKI Charged-Particle Nuclear Reaction Data Group

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Hungary

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— **Telefax:** +36-52-416-181

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1.10 Ukraine Nuclear Data Centre (UkrNDC)

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— **Address:** Ukraine Nuclear Data Centre
Neutron Physics Department
Institute for Nuclear Research
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— **Telefax:** +380-44-525-4463

— **E-mail:** ogritzay@kinr.kiev.ua

— **World Wide Web:** http://ukrndc.kinr.kiev.ua/

1.11 Centre of Nuclear Physics Data (CNPD)

— **Contact person:** Sophiya Taova

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Experimental Physics
Centre of Nuclear Physics Data
RFNC-VNIIEF
607 188 Sarov
Nizhnii Novgorod Region
Russian Federation

— **Telephone:** +7 831-30 27779

— **Telefax:** +7 831-304-5569

— **E-mail:** taova@expd.vniief.ru

1.12 KAERI Nuclear Data Center (KNDC)

— **Contact person:** Young-Ouk Lee

— **Address:** Nuclear Data Center
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Yuseong, Daejeon 305-600
Republic of Korea

— **Telephone:** +82 42-868-2964

— **Telefax:** +82 42-868-2636

— **E-mail:** yolee@kaeri.re.kr

— **Intercenter FTP file transfer:** atom.kaeri.re.kr
username: anonymous

— **World Wide Web:** http://atom.kaeri.re.kr/

1.13 Nuclear Data Physics Centre of India (NDPCI)

— **Contact person:** Alok Saxena

— **Address:** Nuclear Data Physics Divsion
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Trombay, Mumbai 400 085

India

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Annex 2

Activities

A brief description of each centre is given, including items such as background, staff, activities, responsibilities within the Network and other relevant items. Note: only a fraction of each centre's overall work relates directly to their contribution to the NRDC Network.

Annex 2.1

National Nuclear Data Center (NNDC)

Background

The National Nuclear Data Center (NNDC) collects, evaluates, and disseminates nuclear physics data for basic nuclear research and for applied nuclear technologies. The NNDC is a worldwide resource for nuclear data and the focal point for US nuclear data activities. At a national level, NNDC coordinates the United States Nuclear Data Program (USNDP) and Cross Section Evaluation Working Group (CSEWG). On an international level, the centre plays an important role in all major nuclear data networks, including Nuclear Reaction Data Centers (NRDC), Nuclear Structure and Decay Data (NSDD) and Working Party on International Nuclear Data Evaluation and Co-operation (WPEC).

Status

— **Type of Institute** National organization

— **Participating countries** U.S.A. and Canada

Staff and Programmes

— **Total staff** 8 scientists, 2 postdocs, 3 support staff, 1 secretary

— **Allocated to nuclear data activities** 8 scientists, 2 postdocs, 3 support staff, of which one equivalent man year is dedicated to NRDC Network activities

— **Fiscal year and budget cycle** Yearly Budget cycle 1 October to 30 September of the next year.

Activities

A. Within the Network

Nuclear Reaction Data

- Compile experimental reaction data measured in the U.S.A. and Canada, and exchange data in the Exchange Format (EXFOR) with other data centres.
- Provide link between the NNDC coordinated CSEWG and the Network.

B. Unique responsibilities within the Network

- Compile and exchange EXFOR entries originating from the U.S.A. and Canada.
- Maintain and distribute documentation on compilation of nuclear reaction data.
- Provide nuclear data services to users in the U.S.A. and Canada.

C. Outside the scope of the Network

1. Services

   - Maintain and distribute nuclear databases, compilations and evaluations of nuclear data. These services cover both reaction data, and nuclear structure and decay data.
   - Providing remote electronic access to its databases and other resources, and operate the most widely used nuclear data website (http://www.nndc.bnl.gov).

2. Nuclear Reaction Data

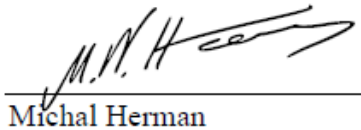
   - Coordinate CSEWG activities, carry out neutron reaction evaluations and maintain the Evaluated Nuclear Data File (ENDF/B) for distribution to other data centres.
   - Maintain computer codes used in generating, processing, storing and retrieving nuclear reaction data and ENDF checking codes.
   - Advance nuclear reaction evaluation methodology by improving reaction modelling.

3. Nuclear Structure and Decay Data

   - Coordinate USNDP nuclear structure activities and provide appropriate support services.
   - Carry out mass-chain evaluations for nuclear structure and decay data and maintain and distribute Evaluated Nuclear Structure Data File (ENSDF) and publications (Nuclear Wallet Cards). Maintain, upgrade, and distribute ENSDF physics processing codes.
   - Process, check, correct and publish the peer-reviewed journal Nuclear Data Sheets predominantly devoted to mass-chain evaluations for A = 1-299 produced by the NSDD network (with one issue per year dedicated to nuclear reaction data)

4. Nuclear Bibliography

   - Compile, maintain, and distribute the Nuclear Science References (NSR) file containing bibliographic references to nuclear physics publications.

Signature  **Date** 24 March 2014

Michal Herman

Annex 2.2

OECD Nuclear Energy Agency Data Bank (NEA DB)

Background

The coordination of nuclear data compilation within the OECD countries was initiated in 1964, with the creation of the Neutron Data Compilation Centre (CCDN) at Saclay close to Paris, France. This centre participated from the start in the 4-centre network. The NEA Data Bank was established at Saclay in 1978, by merging the CCDN and the Computer Program Library (CPL), Ispra, Italy.

NEA Data Bank activities have evolved beyond nuclear data and computer programs, and now also include projects such as the coordination of the Joint Evaluated Fission and Fusion (JEFF) library of nuclear data, the compilation and critical review of chemical thermodynamic data for waste management applications, and the compilation of information relevant to computer code validation in the areas of: integral experiments, shielding, criticality safety, fuel behaviour, reactor physics and reactor safety.

The Executive Group of the NEA Nuclear Science Committee manages the work programme of the NEA Data Bank.

Status

— **Type of institute**	International organisation. Division within the Nuclear Energy Agency (NEA) of the Organisation for Economic Cooperation and Development (OECD)
— **Participating countries**	Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Japan, Korea, Mexico, Netherlands, Norway, Portugal, Russian Federation, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom.

Staff and Programmes

— **Total staff**	8 professional, 7 support staff
— **Allocated to nuclear data activities**	2 professional, 1 support staff and external consultants, of which one equivalent man year is dedicated to NRDC Network activities
— **Fiscal year and Budget cycle**	Calendar year, with a 2-year work programme and budget cycle.

Activities

A. Within the Network

1 Services

- Nuclear data services to Member countries, including direct on-line services, developing JANIS code, as well as data provided free of charge on CD-ROM (whether generic or user-specified).

2. Reaction data

- Compilation of numerical data and summary abstracts (EXFOR) for almost all neutron-induced reaction measurements and charge-particle induced reaction measurements performed in NEA Data Bank member countries (not covered by other centres).
- Coordination of the Joint Evaluated Fission and Fusion (JEFF) project for the production of a complete evaluated neutron data library for use in neutronics calculations covering many different applications.

B. Unique responsibilities within the Network

- Compilation and exchange of EXFOR entries originating from the NEA Data Bank member countries (not covered by other centres).
- Development, maintenance and distribution of the JANIS-TRANS Checker code for EXFOR exchange file checking.
- Distribution of comments on new EXFOR exchange files based on codes developed by the NEA Data Bank.
- Provide nuclear data services to Member countries of the NEA Data Bank.

C. Outside the scope of the Network

- Coordination of the Working Party on International Nuclear Data Evaluation Cooperation (WPEC), established to promote exchange of information concerning nuclear data evaluations, validations, and related topics, and with the aim to assess and improve the quality and completeness of evaluated data.
- Collection, verification and validation of computer programs used in all areas of nuclear power production. Dissemination of these computer codes to all countries, apart from the U.S.A. and Canada.
- Collection and critical review of Chemical Thermodynamic Data for key elements required for geo-chemical modelling in waste management applications, and on-line computer services for these data.
- Compilation of information relevant for computer code validation in the areas of: integral experiments, shielding, criticality safety, fuel behaviour, reactor physics and reactor safety.

Signature Kiyoshi Matsumoto **Date** 06 May 2014

Annex 2.3

IAEA Nuclear Data Section (NDS)

Background

The Nuclear Data Section (NDS) of the International Atomic Energy Agency was formed in 1964 to provide nuclear data to IAEA Member States. NDS along with three other neutron reaction data centres formed the 4-centre network in 1964. This network was designed to coordinate the compilation and distribution of neutron reaction data on a world-wide basis in order to provide high-quality customer services at lower cost by avoiding duplication and adopting common compilation formats and procedures for easier data exchange.

NDS initiated a network of charged-particle and photonuclear data centres in 1975 to compile nuclear reaction data types not covered by the existing 4-centre network. These two networks were merged in 1979 to form the Nuclear Reaction Data Centres Network which covers all nuclear reaction data.

Separately, the NDS established the Nuclear Structure and Decay Data Network in 1975 to coordinate internationally the evaluation and dissemination of nuclear structure and radioactive decay data. The Atomic and Molecular (A+M) Data Unit was also constituted within the Nuclear Data Section in 1977 to coordinate the evaluation and dissemination of atomic and molecular data.

The nuclear data programme of the IAEA is guided by the International Nuclear Data Committee, while the A+M Subcommittee of the International Fusion Research Council advises on the atomic and molecular data programme.

Status

— **Type of institute**	International organization. Section within the Division of Physical and Chemical Sciences, Department of Nuclear Sciences and Applications, International Atomic Energy Agency
— **Participating countries**	162

Staff and Programmes

— **Total staff**	12 professional, 4.25 general service staff members
— **Allocated to nuclear data activities**	10 professional, 4 general service staff members, of which 4 equivalent man years per annum are dedicated to NRDC Network activities (provision and development of relevant databases, plus support service functions)
— **Fiscal year**	Calendar year
— **Budget cycle**	Two-year budget cycle (for example, 2014/2015)

Activities

A. Within the Network

1. Service

- Nuclear data services to those Member countries that are not directly served by one of the other service centres, including direct on-line computer services.
- Documentation of data libraries in the IAEA-NDS series, and announcements in the IAEA Nuclear Data Newsletter.

2. Reaction Data

- Coordination of the nuclear reaction data centres network, including
  - neutron-induced reactions,
  - charged-particle and heavy-ion induced reactions,
  - photonuclear reactions.
- Compilation of numerical data and related information (EXFOR) for nuclear reaction data measurements performed in those Member countries that are not directly served by one of the other compilation centres.
- Production of bibliographic references for microscopic neutron reaction data and related data (CINDA), published in those Member countries that are not directly served by one of the other compilation centres.
- Assign responsibilities for the creation and correction of data compilations as coordinator of these activities, and drive this work forward.
- Maintain and distribute EXFOR dictionaries and EXFOR and CINDA master file to other network data centres.
- Development and maintenance of various output files, e.g., C4, X4+, and web-based retrieval / visualization tools.

B. Unique responsibilities within the Network

- Data centre coordination by organizing Network meetings, and reporting resulting activities.
- Assessment of the need for undertaking both trivial and non-trivial compilation corrections, and notification to responsible Centres.
- Development, maintenance and distribution of the EXFOR exchange file checking code (ZCHEX).
- Publication of reports and technical documents - Network meeting reports and relevant technical data (also made available through the Internet and on CD-ROM).

C. Outside the main scope of the Network

- Coordination of nuclear data generation activities, including experiments, theory, evaluations and validations, primarily through the mechanism of IAEA Coordinated

Research Projects (CRPs).

- Participation in activities organized by the NEA Nuclear Science Committee to coordinate major nuclear data evaluation projects.
- Coordination of the International Network of Nuclear Structure and Decay Data Evaluators.
- Coordination of the production of specialized evaluated data libraries such as FENDL.
- Development of interacting tools, e.g., Live Chart to provide nuclide structure data (ENSDF) to users.
- Secretariat of the International Nuclear Data Committee and A+M Subcommittee of the International Fusion Research Council; establish and oversee recommended IAEA nuclear data programmes.
- Support nuclear data activities in developing countries by appropriate means, such as training, research contracts, Technical Cooperation projects, *etc.*
- Data centre and research coordination activities in the field of atomic and molecular data for fusion.

Signature  **Date** 2014-05-06

Robin A. Forrest

Annex 2.4

RUSSIA NUCLEAR DATA CENTRE (CJD)

Background

CJD was formed in 1963, participated from the start in the 4-centre network and was responsible for the compilation of neutron data within the former USSR. The CJD works under the Nuclear Data Commission of the Russian Federation Ministry of Atomic Energy, and compiles neutron data published in Russia and the states of the CIS.

Status

— **Type of institute**	Laboratory within the Department of Nuclear Physics of the Leipunsky Institute of Physics and Power Engineering
— **Member countries**	Russian Federation

Staff and Programmes

— **Total staff**	9 professional, 3 supporting staff
— **Allocated to nuclear data activities**	8 professional, 1 supporting staff, of which 4 equivalent man years are dedicated to NRDC Network activities.
— **Fiscal year**	Calendar year
— **Budget cycle**	One year

Activities

A. Within the Network

1. Services

    - Providing neutron data services to institutes and other organizations in the Russian Federation.

2. Reaction Data

    - Compilation of bibliographic references for measurements, calculations, reviews and evaluations of microscopic neutron reactions (CINDA) in Russia and the states of the CIS.
    - Compilation of numerical data and related information for neutron reaction data measurements (EXFOR) in Russia and the states of the CIS.
    - Make evaluations from the BROND project available to the Network.

B. Unique responsibilities within the Network

- Compilation and exchange of CINDA and neutron EXFOR entries originating from Russia and the states of the CIS.

C. Outside the scope of the Network

- Determination of nuclear data requirements for various applications in the Russian Federation.
- Coordination of neutron data evaluations, and development of national evaluated neutron data libraries for general purposes and special applications.
- Publication of the journal "VANT, Ser. Yadernye Konstanty".
- Selected nuclear reactor calculations for nuclear data testing.

Signature _____ **Date** _____

Anatolij I. Blokhin

Annex 2.5

MSU SINP Centre for Photonuclear Experiments Data (CDFE)

Background

The Centre for Photonuclear Experiments Data (Centr Dannykh Fotoyadernykh Eksperimentov - CDFE) of the Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, was formed to provide photonuclear data for scientific and educational institutes and for organization of Russian Academy of Science..

CDFE became a member of the IAEA Nuclear Reaction Data Centres Network in 1980, with the tasks of compilation and international exchange of experimental nuclear data (primarily photonuclear) using the EXFOR system, evaluation of photonuclear data and compilation of relevant bibliographic information. The centre was the lead organization of the Russia Committee of Education (RCE) Nuclear Data Centres Network from 1983 to 1991, dedicated to the compilation, evaluation, and dissemination of nuclear data (primarily to universities and institutes of RCE).

Status

— **Type of organization** Laboratory within the Skobeltsyn Institute of Nuclear Physics of the Lomonosov Moscow State University

— **Participating countries** Russian Federation

Staff and Programmes

— **Total staff** 5 professional, 2 general service

— **Allocated to nuclear data activities** 4 professional, 2 general service, of which 3 equivalent man years are dedicated to NRDC Network activities.

— **Fiscal year** Calendar year

— **Budget cycle** One year

Activities

A. Within the Network

1. Services

- Photonuclear data services to universities, institutes and other organizations of the Russian Federation.
- Web-site (http://cdfe.sinp.msu.ru/) maintenance of Nuclear Reaction Database (EXFOR).

2. Reaction Data

- Compilation of numerical data and related information (EXFOR) for photon-induced reaction measurements.
- Coordination of other NRDC member activity in photonuclear data compilation.
- International exchange of nuclear data as EXFOR entries.

B. Unique responsibilities within the Network

- CDFE is main centre for photonuclear data within the Network.
- Development of methods for evaluation of photonuclear data obtained in various kinds of experiments.
- Evaluation of photonuclear data for Nuclear Reaction Database (EXFOR).

C. Outside the scope of the Network

1. Related to Photonuclear Data

- Development and maintenance of relational database of Giant Dipole Resonance main parameters (http://cdfe.sinp.msu.ru/saladin/gdrmain.html).
- Experimental measurement of photonuclear data using various facilities (race-track microtrons).
- Theoretical calculations of photonuclear data, and development of models for the description of photonuclear data.
- Support of nuclear, primarily photonuclear, data activities in Russian Federation.

2. Nuclear Structure and Decay Data

- Development and maintenance of complete relational nuclear structure database ("Relational ENSDF") using as a source of information database prepared and maintained by the USA NNDC and NSDD.
- Support of nuclear structure data activities in Russian Federation.

3. Web-site

- Development and maintenance of Web-site (http://cdfe.sinp.msu.ru/) in terms of the various nuclear reaction and nuclear structure relational databases.
- Nuclear data services to Russian organizations, primarily to universities and other educational institutes, and to the Russian Academy of Science organizations.
-

Signature  **Date** 06.05.2014

Vladimir V. Varlamov

Annex 2.6

China Nuclear Data Centre (CNDC)

Background

The China Nuclear Data Centre (CNDC) was founded in 1975 as the national centre for the generation, collection, processing and dissemination of nuclear data, and provision of services to all nuclear data users in China. The China Nuclear Data Coordination Network (CNDCN) is composed of specific institutes and universities in China that undertake nuclear data measurements and evaluation. At present, the network has about 10 members, and is coordinated by the CNDC.

Status

— **Type of institute**	Within the Nuclear Physics Division of the China Institute of Atomic Energy
— **Members of CNDCN**	About 19 institutes and universities in China

Staff and Programmes

— **Total staff**	21 professional, 3 general service
— **Allocated to nuclear data activities**	21 professional, 3 general service, of which 2 equivalent man years are dedicated to NRDC Network activities.
— **Fiscal year**	Calendar year
— **Budget cycle**	Five years (for example, 2001/2005)

Activities

A. Within the Network

1. Service

   - Provision of nuclear data to all users in China and some countries in Asia.
   - Documentation, mainly published in "Communication of Nuclear Data Progress" (CNDP).

2. Reaction Data

   - Liaise between the Chinese Nuclear Data Coordination Network, and NRDC Network concerning:
     - nuclear data measurements;
     - nuclear data evaluations;
     - model program development and computation;

- group constant generation and benchmark testing;
- charged-particle nuclear reaction data;
- fission product yield data;
- photonuclear data;
- nuclear parameters library.

- Compilation of numerical data and related information (EXFOR) for nuclear reaction measurements performed in China.
- Compilation of bibliographic references (CINDA) to microscopic neutron reaction data and related data published in Chinese.
- Construction and management of Chinese Evaluated Nuclear Data Library (CENDL). Contribute to the nuclear data evaluation efforts coordinated by IAEA-NDS.

B. Unique responsibilities within the Network

- Coordination of meetings and resulting activities that involve nuclear data measurements, theoretical calculations, evaluations and benchmark testing in China.

C. Outside the scope of the Network

Nuclear Structure and Decay Data

Undertake the following tasks under IAEA-NDS coordination:

- evaluation and update of NSDD for A = 51 to 56 and 195 to 198;
- high spin data evaluations for some nuclides;
- evaluation of specific data for specialized libraries, including International Nuclear Decay Database, Chart of Nuclides and Table of Isotopes.

Cooperate and exchange nuclear data with other national and international nuclear data organizations.

Signature 葛智刚 Ge Zhigang **Date** 06 May 2014

Annex 2.7

Hokkaido University Nuclear Reaction Data Centre (JCPRG)

Background

The Hokkaido University Nuclear Reaction Data Centre was established in 2011 as the successor to the Japan Charged-Particle Nuclear Reaction Data Group (JCPRG) founded in 1974. JCPRG started to compile charged-particle nuclear reaction data obtained in Japan under the approvals of the Theoretical Nuclear Physics Society and the Experimental Nuclear Physics Society in Japan. In addition, a mutual agreement with the Nuclear Data Centre of the Japan Atomic Energy Research Institute (JAERI) was concluded that JCPRG and JAERI would be responsible for compilation of charged-particle nuclear reaction data and neutron nuclear reaction data, respectively.

In 1987, JCPRG joined the International Network of Nuclear Reaction Data Centres (NRDC). On 1 April 2007, JCPRG was reorganized as the Nuclear Reaction Data Centre, Faculty of Science, Hokkaido University and a research field for graduate students, Nuclear Data Science, was established in the Department of Cosmosciences, Graduate School of Science under the cooperation of Japan Atomic Energy Agency (JAEA, formerly JAERI). JCPRG also established a collaborative research contract with the RIKEN Nishina Center in 2010, to increase the availability of the nuclear reaction data produced at the RIBF.

The primary aims of JCPRG are to compile all charged-particle and photo nuclear reaction data produced in Japanese accelerators and to construct and provide an academic-oriented database. JCPRG is also responsible for translation of the data to the EXFOR format. The data are available on the online search system at the JCPRG website for the benefit of nuclear data users.

Status

— **Type of institute** Centre within Faculty of Science, Hokkaido University

— **Member countries** Japan

Staff and Programmes

— **Members of Executive Committee** 9 nuclear physicists, 1 information scientist

— **Allocated to JCPRG Office** 2 nuclear physicists

— **Allocated to JCPRG activities** 3 nuclear physicists, of which one equivalent man year is dedicated to NRDC Network activities. 4 nuclear physicists as part timers.

— **Fiscal year** Yearly from 1 April to 31 March

— **Budget cycle** One year

Activities

A. Within the Network

1. Service

- Online service of nuclear data to Japanese users.
- Distribution, maintenance and development of digitization software GSYS and editor HENDEL.

2. Reaction Data

- Compilation of all charged-particle and photo-nuclear reaction data produced in Japan.

B. Unique responsibilities within the Network

- Compilation of all charged-particle and photo-nuclear reaction data produced in Japan, and conversion into EXFOR.
- Distribution, maintenance and development of digitization software GSYS and editor HENDEL.

C. Outside the scope of the Network

- Publication of "JCPRG Annual Report" to coordinate and promote nuclear data.
- Software development for compilation, management and dissemination of nuclear data.

Signature 合川 正幸
Masayuki Aikawa

Date 6 MAY 2014

Annex 2.8

JAEA Nuclear Data Center (JAEA/NDC)

Background

JAEA Nuclear Data Center (JAEA/NDC) was established in 2005 after the merger of JAERI and JNC. JAEA/NDC has taken over the works performed by JAERI/NDC. JAERI/NDC was established in 1968, with the support of Japanese Nuclear Data Committee (JNDC) which was formed in 1963 within the Atomic Energy Society of Japan. A part of Research Group for Applied Nuclear Physics of JAEA, which had activities of nuclear data measurements, joined in JAEA/NDC in 2014.

Main efforts of JAEA/NDC (JAERI/NDC) have been devoted to the development of the Japanese Evaluated Nuclear Data Library (JENDL) in cooperation with JNDC. JENDL-1 was completed in 1977, JENDL-2 in 1984, JENDL-3 in 1989 (the latest version of JENDL-3 (JENDL-3.3) in 2002) and the latest version of JENDL (JENDL-4.0) was released in 2010. Efforts have also focused on the development of the JENDL special purpose files: latest version of JENDL Fission Product Decay Data File was released in 2011, JENDL Dosimetry File 99 in 2001 and JENDL High Energy File 2007 in 2007. JAEA/NDC (JAERI/NDC) has published a Chart of the Nuclides since 1976, and joined the international mass chain evaluation for ENSDF in 1977.

As the national nuclear data centre, JAEA/NDC disseminates both experimental and evaluated nuclear data to users in Japan, and functions as the communications channel to foreign and international nuclear data centres.

Status

— **Type of institute**	Laboratory within Nuclear Science and Engineering Center, JAEA
— **Member countries**	Japan

Staff and Programmes

— **Total staff**	8 physicists, 3 postdocs, 1 supporting staff, 2 secretaries
— **Allocated to nuclear data activities**	8 physicists, 3 postdocs, 1 supporting staff, 2 secretaries, of which 1 equivalent man year is dedicated to NRDC Network activities.
— **Fiscal year and Budget cycle**	Yearly from 1 April to 31 March

Activities

A. Within the Network

1. Service

- Nuclear data services to domestic users.
- Communications channel to foreign and international centres for data and information exchange.

2. Reaction Data

- Evaluation, validation and dissemination of JENDL General Purpose File (JENDL-1, 2, 3, 4) and JENDL Special Purpose Files (Dosimetry, Activation, Gas-Production, (α,n), Fusion, Actinides, Covariance, Photo-reaction, PKA/KERMA, High Energy etc.).
- Contribute CINDA search for entries from Japanese journals and reports.

B. Unique responsibilities within the Network

- Provide large-scale nuclear data library produced in Japan to all centres (e.g., JENDL).

C. Outside the scope of the Network

Nuclear Structure and Decay Data

- Publish Chart of the Nuclides (latest version, 2010).
- Contribute mass chain evaluations of ENSDF (A = 120 to 129).

Member of NEA/NSC Working Party on International Nuclear Data Evaluation Cooperation (WPEC), and various IAEA Coordinated Research Programmes.

Signature 岩本 修 **Date** 6 May 2014

Osamu Iwamoto

Annex 2.9

ATOMKI Charged-Particle Nuclear Reaction Data Group

Background

The ATOMKI Charged-Particle Nuclear Reaction Data Project started in 1992 within the Institute for Nuclear Research of the Hungarian Academy of Sciences (ATOMKI), Debrecen, following an invitation from IAEA-NDS to join the international network for the compilation and evaluation of integral data from charged-particle induced nuclear reactions.

Compilation work was initially based on cross section measurements and practical applications. The existing database of charged-particle nuclear reactions was found to be inadequate, with increasing demands for more precise data. Therefore, a comprehensive charged-particle data programme has started, covering the establishment of a computerized database, the (re)measurement of the most important reaction data, and a critical evaluation of the compiled data. Integral reaction data were also measured and used in medical isotope production, activation analysis, thin-layer activation technique, accelerator technology, and other fields using cyclotrons, in collaborative studies with a number of foreign institutes.

Status

— **Type of institute** Team within the Cyclotron Application Department of the Institute for Nuclear Research, Hungarian Academy of Sciences

— **Participating country** Hungary

Staff and Programmes

— **Total staff** 5 nuclear physicists (all part time), of which 0.25 equivalent man years are dedicated to NRDC Network activities.

— **Fiscal year** Calendar year

— **Budget cycle** One year

Activities

A. Within the Network

1. Service

- Charged-particle reaction data for Hungarian users. International services also include the provision of compiled and recommended data for monitor reactions, reactions for the production of medical radioisotopes, and reactions for thin-layer activation analysis.

2. Reaction Data

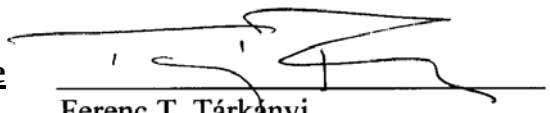
- Compilation of new cross-section data for nuclear reactions induced by charged particles, as performed at Forschungszentrum Jülich (Germany), Vrije Universiteit Brussel (Belgium), and in Hungary.
- Compilation of older data when required.
- Review and evaluation of low- and intermediate-energy charged-particle data used in various applications.

B. Unique responsibilities within the Network

- Compilation of all charged-particle nuclear data produced, as specified above.

C. Outside the scope of the Network

- Provision of charged-particle reaction data to Hungarian users.
- Measurement of the most important reaction data used for monitoring beam parameters, for medical radioisotope production, for accelerator technology, and for thin-layer activation technique.
- Systematic study of deuteron induced activation data up to 50 MeV.
- Systematic comparison of the experimental and theoretical charged particle induced activation data.

Signature  **Date** 09. Dec. 2014

Ferenc T. Tárkányi

Annex 2.10

Ukraine Nuclear Data Centre (UkrNDC)

Background

UkrNDC was formed in 1996, with initial responsibility for the compilation of neutron data published in the Ukraine. Both the products and services have expanded over the years, and current activities are listed below.

Status

— **Type of institute** Subdivision within the Department of Neutron Physics, Institute for Nuclear Research of National Academy of Science of Ukraine

— **Participating country** Ukraine

Staff and Programmes

— **Total staff** 4 professionals

— **Allocated to nuclear data activities** 4 professionals, of which 2 equivalent man years are dedicated to NRDC Network activities.

— **Fiscal year** Calendar year

— **Budget cycle** 5 years

Activities

A. Within the Network

1. Service

    - Nuclear data services for users in Ukraine, including Web service.

2. Reaction Data

    - Compilation of numerical data and related information for neutron, charged-particle reaction and photonuclear data measurements (EXFOR) in Ukraine.

3. Web-site

    - Development of Web-site with various nuclear reaction data and computer codes to facilitate customer work with nuclear data in Ukraine.

B. Unique responsibilities within the Network

Responsibilities mentioned above.

C. <u>Outside the scope of the Network</u>

- Experimental measurements of neutron data using the neutron filter beam technique.
- Creation of task-oriented databases and preparation of multigroup cross-section libraries for nuclear technology needs in Ukraine.
- Dissemination of free world-wide computer codes for basic and applied calculations.
- Development of compute r codes for specific applications.
- Educational support of senior course students at the Kyiv State University (provision of lecturers for teaching course on "Nuclear Data and Processing Codes").

Signature _____ **Date** May 6, 2014

Olena O. Gritzay

Annex 2.11

Centre of Nuclear Physics Data (CNPD)

Background

CNPD evolved from compilation activities dedicated to charged-particle reaction data, which started at RFNC-VNIIEF in 1977. Officially, the data centre was formed in 1997 to provide nuclear services to users.

Status

— **Type of institute**	Research Group within the Institute of Nuclear and Radiation Physics, Russian Federal Nuclear Centre – All-Russia Research Institute of Experimental Physics
— **Member countries**	Russian Federation

Staff and Programmes

— **Total staff**	7 professional, 1 support staff
— **Allocated to nuclear data activities**	7 professional, 1 support staff, of which 1.5 equivalent man year is dedicated to NRDC Network activities.
— **Fiscal year**	Calendar year
— **Budget cycle**	One year

Activities

A. Within the Network

1. Services

- Provide nuclear data services to users in Russia and the republics of the former USSR.
- Development, maintenance and distribution of the Russian EXFOR input system (EXFOR-Editor).
- Development, maintenance and distribution of the Russian digitizing code (InpGraph).

2. Reaction Data
   - Compilation of numerical data and related information for charged-particle reaction data
     - from former Soviet Union countries (except Ukraine);
     - from the rest of the world (coordinated with other centres).

- International exchange of data as EXFOR entries.
- Compilation of numerical data and related information for various nuclear reaction data measurements performed in RFNC-VNIIEF with the co-operation of CJD.
- Development of methods for the evaluation of charged-particle reaction data.
- Production of an evaluated reaction cross-section library.

B. <u>Unique responsibilities within the Network</u>

Responsibilities mentioned above.

C. <u>Outside the scope of the Network</u>

- Research and development of measurements, calculations and compilations of nuclear data.
- Determination of nuclear requirements for applications at RFNC-VNIIEF.
- Provision of computer codes for specific applications, for example:
  - Maxwellian and non-Maxwellian reaction rate calculations of main thermonuclear reactions;
  - Cross-section evaluations of charged-particle reactions on light nuclei;
  - Development of algorithms for extrapolation of nuclear data into the lower energy region (of interest in astrophysics);
  - Creation of task-oriented databases.
- Experimental measurements of neutrons, charged particles and photonuclear data using various facilities (linear accelerator, tandem Van de Graaf, neutron generator, *etc*).

<u>Signature</u> _____ **<u>Date</u>** 6.05.2014

Sophiya Taova

Annex 2.12

KAERI Nuclear Data Center (KNDC)

Background

The Nuclear Data Center of the Korea Atomic Energy Research Institute was established in 1996. KNDC has devoted considerable effort to ensure the supply of processed and evaluated nuclear data for national nuclear research and development projects.

Status

- **Type of institute** Division under the Senior Vice President of Korea Atomic Energy Research Institute

- **Member country** Republic of Korea

Staff

- **Total staff** 12 scientists, 1 technician, of which 5 equivalent man years are dedicated to NRDC Network activities

- **Fiscal year** Calendar year

- **Budget cycle** One year

Activities

A. Within the Network

1. Service

    - Nuclear data services to domestic users.
    - Communications channel to foreign and international centres for data and information exchange.

2. Reaction Data

    - Compilation of numerical data and related information for nuclear reaction data (for EXFOR) measured in Korea.
    - Compilation of bibliographic references to microscopic nuclear reaction data and related data (CINDA), as published by Korean scientists.

B. Unique responsibilities with in the Network

- Provision of nuclear data services to Korean users.

C. Outside the scope of the Network

- Research and development in the evaluation of nuclear data.
- Preparation of multigroup libraries for neutron transport codes.

Signature _____ **Date** 06 May 2014

Young-Ouk Lee

Annex 2.13

Nuclear Data Physics Centre of India (NDPCI)

Background

The NDPCI has been successful in pursuing all aspects of nuclear data viz, measurements, analysis, compilation and evaluation involving national laboratories and universities in India. It has been operating successfully since April, 2011 with funding from Board of Research of Nuclear Sciences, Department of Atomic Energy. The NDPCI is evolving a streamlined and coherent activities of all nuclear data activities in India. The NDPCI has been very successful to bring people in various fields (e.g., Nuclear Physics, Reactor and Radiochemistry Divisions of Bhabha Atomic Research Centre, Mumbai, Indira Gandhi Centre of Atomic Research, Kalapakkam, Variable Energy Cyclotron, Calcutta, etc.) and students and staff from various Universities across India covering both experimentalists and theoreticians. It is working through two committees namely Program review committee (PRC) and Program implementation committee (PIC) to implement and coordinate the program related to nuclear data. The committees meet at regular interval to co-ordinate the nuclear data activities. The various projects are sanctioned to different universities to involve them under nuclear data related programs. The experiments are carried out using 14 MeV neutron generator, 14UD pelletron accelerator, Variable Energy Cyclotron and Folded Tandem Ion Accelerator related to nuclear reactions induced by neutrons and charged particles. A programme to generate covariances for our experimental data is in progress. There are collaborative experimental programs with CERN related to neutron time of flight studies and South Korean experimental facilities where our scientists participate. Moreover nuclear data theory and simulations are carried out for our advanced reactor programs which include long burnup, multiple fuel cycles (U-Pu and Th-U) and closed fuel cycles. Further international criticality benchmarking studies of ICSBEP standards are being carried out for Indian experimental critical facilities. The ENSDF compilation activities are also being pursued.

Status

— **Type of institute**	Virtual centre coordinating nuclear data related activities under Board of Research in Nuclear Sciences, Department of Atomic Energy, Government of India. Efforts are on to make a physical centre with office space being located in Nuclear Physics Division of Bhabha Atomic Research Centre. The website of NDPCI is ready to be launched after security audit.
— **Member countries**	India

Staff and Programmes

— **Total staff**	about 20 Physicists, Radio-chemists working in the two committees (PRC) and (PIC) of NDPCI from various national laboratories and universities
— **Allocated to nuclear data activities**	Working part-time (15-50%) on nuclear data activities
— **Fiscal year and Budget cycle**	Yearly from 1 April to 31 March

Activities

A. Within the Network

1. Service

- Nuclear data services to domestic users.
- Communications channel to foreign and international centres for data and information exchange.

2. Reaction Data
   - Generation and compilation of Neutron and Charged particle induced reaction data

B. Unique responsibilities within the Network

- Provide large-scale nuclear data compilation of experimental data measured in Indian facilities and published to the IAEA EXFOR database.

C. Outside the scope of the Network

Nuclear Structure and Decay Data

- Evaluated data for A=95,150, 222, Atlas of Nuclear Isomers

Signature Alok Saxena **Date** 06/05/2014

Alok Saxena

Annex 3

Summary of NRDC Protocol (2014)

Approved at 2002 NRDC Meeting held at NEA DB, Paris, 27-30 May 2002.

Reviewed and amended at the 2003 NRDC Meeting held at Vienna, 17-19 June 2003.

Reviewed and amended at the 2010 NRDC Meeting held at Sapporo, 20-23 April 2010.

Reviewed and amended at the 2014 NRDC Meeting held at Smolenice, 6-9 May 2014.

The Nuclear Data Section (NDS) will assume a more pro-active role coordinating all Nuclear Reaction Data Centres (NRDC). NDS staff will be responsible in this extended role for ensuring that data compilations are undertaken and completed in an efficient, productive and timely manner. Thus, the role of NDS will be as follows:

(a) assign clear responsibilities for the creation and correction of data compilations, and drive these activities forward;

(b) ensure implementation of compilation rules;

(c) decide on all issues relating to dictionary codes;

(d) be responsible for CINDA and EXFOR distribution to the other data centres;

(e) be responsible for central EXFOR Web Service and EXFOR Master file central storage.

1. Compilation responsibilities

NDS will assign areas of responsibility for data compilation. If a centre assigned a particular area of compilation (e.g., neutron data from a country or countries) [1] does not carry out their responsibilities (i.e., compile all new data for that area in a timely manner), the NDS coordinator will re-assign all or part of those responsibilities to another volunteer centre.

A centre responsible for an area of compilation may agree with another network centre to share the compilation work for that area on a regular basis. However, the responsibility for coverage and quality of the compilation remains with the responsible centre.

Compilation responsibilities as assigned by NDS are given in NRDC Protocol, **Appendix C** (IAEA-NDS-215 Rev.2014/05, May 2014).

2. Decisions concerning compilation rules and new quantities

Final decisions on proposals concerning compilation rules and new quantities can be made with Core Centre[2] agreement after discussions among all centres. NDS will be the final arbiter in case the Core Centres are unable to reach a decision.

3. Decisions concerning dictionary codes

NDS will be the final arbiter for all decisions concerning dictionary codes (see also Section 2, above).

[1] An area may be defined in terms of a given projectile or set of projectiles, for a given country or group of countries, for a given data type or data types, or for any combination of these.

[2] Core centres will be defined by NDS, based on contributions to the network and user service capabilities.

4. EXFOR/CINDA transmissions

All preliminary and final EXFOR and CINDA transmissions will be sent to NDS, who will be responsible for distributing all final transmissions.

5. Corrections to EXFOR/CINDA entries

NDS may correct or assign volunteers to correct preliminary transmissions, that have not been corrected and resubmitted as final transmissions in a timely manner.

6. Urgent compilation needs

If a centre requires a particular data set to be compiled immediately, the centre should send a request to the responsible centre with a copy to NDS. If the responsible centre cannot compile the data to the timetable requested, the requesting centre may compile the data as an area Z entry. This entry will be sent to both the original responsible centre and NDS. If the responsible centre does not intend entering the data in a timely fashion, the NDS may transmit the new Z entry to all centres. The responsible centre can subsequently delete the Z entry, if they are able to replace the earlier compilation with their own entry for their area.

7. Corrections to entries compiled at another centre

Notification of errors found in entries originating from another centre should be communicated to all centres. The NDS should make sure corrections are undertaken in a timely manner. If they are not, the coordinator will request one of the other centres to submit the corrected entries.

8. Maintenance of the Master File

NDS will maintain and distribute the EXFOR and CINDA Master file.

9. Problematic entries

Problematic entries which had to be removed from a preliminary transmission can be put into a special subdirectory of the NDS open area. These entries will be reviewed by the other centres and can be finalized at the next NRDC meeting.

10. NDS staff

Naohiko Otsuka (NDS) has been appointed coordinator of the NRDC Network.

Notes

a) As a consequence of the above, the link between the geographical area of the Institute and the accession number, which has been in place for all neutron data, is no longer obligatory and may be lifted in certain cases. Similarly, for corrections to entries of another centre according to Section 7 above, entries of different accession number areas can be transmitted on the same TRANS file.

b) This protocol will be reviewed at each NRDC meeting.

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