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I N D C INTERNATIONAL NUCLEAR DATA COMMITTTEE

Report on the Consultants' Meeting on

CO-ORDINATION OF THE NUCLEAR REACTION DATA CENTRES (Technical Aspects)

IAEA Headquarters, Vienna, Austria
18-20 May 1999

Edited by

O. Schwerer, M. Lammer and V.G. Pronyaev

August 1999

IAEA NUCLEAR DATA SECTION, WAGRAMER STRASSE 5, A-1400 VIENNA

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Abstract

This report summarizes the 1999 Co-ordination Meeting on Technical Aspects of the Co-operation of the Nuclear Reaction Data Centres, hold at the IAEA Headquarters in Vienna, Austria, 18 to 20 May 1999. The meeting was attended by scientists from 11 Nuclear Data Centres from 7 Member States and 2 International Organizations. The present document contains a meeting summary, the conclusions and actions, and progress reports of the Participating Data Centres.

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THE NETWORK OF NUCLEAR REACTION DATA CENTRES

National, regional and specialized nuclear reaction data centres, coordinated by the International Atomic Energy Agency, cooperate in the compilation, exchange and dissemination of nuclear reaction data, in order to meet the requirements of nuclear data users in all countries. A brief summary of the data centres network is given below.

The nuclear reaction data centres:

NNDC	-	US National Nuclear Data Center, Brookhaven, USA
NEA-DB	-	OECD/NEA Nuclear Data Bank, Saclay, France
NDS	-	IAEA Nuclear Data Section
CJD	-	Centr Jadernykh Dannykh (= Nuclear Data Centre), Obninsk, Russia
CAJaD	-	Russian Nuclear Structure and Reaction Data Centre), Moscow, Russia
CDFE	-	Centr Dannykh Fotojadernykh Eksperimentov (= Centre for Photonuclear Experiments Data), Moscow, Russia
CNDC	-	China Nuclear Data Center, Beijing, China
ATOMKI	-	ATOMKI Charged-Particle Nuclear Reaction Data Group, Debrecen, Hungary
RIKEN	-	Nuclear Data Group, RIKEN Institute of Physical and Chemical Research, Wako-Shi, Japan
JCPRG	-	Japan Charged-Particle Nuclear Reaction Data Group, Hokkaido University, Sapporo, Japan
JAERI	-	Nuclear Data Center of the Japan Atomic Energy Research Institute, Tokai-Mura, Japan
CNPD	-	Center of Nuclear Physics Data, Russian Federal Nuclear Center, RFNC-VNIIEF, Sarov, Russia
UKRNDC		Ukrainian Nuclear Data Center, Institute for Nuclear Research, Kyiv, Ukraine
(KACHAPAG)	-	(Karlsruhe Charged Particle Group, Karlsruhe, Germany. Discontinued in 1982, its responsibilities were taken over by CAJaD)

1. Neutron Nuclear Data

1.a Bibliography and Data Index CINDA:
Input prepared by NNDC, NEA-DB, NDS, CJD, JAERI
Handbooks published by IAEA
Online services by NNDC, NEA-DB and NDS

1.b Experimental data exchanged in EXFOR format:
Input prepared by NNDC, NEA-DB, NDS, CJD, CNDC
Online services by NNDC, NEA-DB and NDS

1.c Data Handbooks based on EXFOR
published by NNDC (last issue in 1988)

1.d Evaluated data exchanged in ENDF format:
NNDC, NEA-DB, NDS, CJD, CNDC, JAERI and others. Main data libraries:

BROND-2 (Russia)	IRDF-90, Rev. 92(IAEA)
CENDL-2 (China)	JEF-2 (NEA)
ENDF/B-6 (USA)	JENDL-3 (Japan)

Online services by NNDC, NEA-DB and NDS

1.e Computer retrieval services upon request of customers:
NNDC, NEA-DB, NDS, CJD, CNDC

1.f International data evaluation cooperation coordinated by NEA-DB

2. Charged Particle Nuclear Data (including heavy-ion reaction data)

2.a Bibliography NSR published by NNDC
Online services by NNDC, NEA-DB and NDS

2.b Numerical data exchanged in EXFOR format:
Input prepared by CAJaD, RIKEN, CNDC, ATOMKI, NDS, NNDC, JCPRG, NEA-DB
Online services by NNDC, NEA-DB and NDS
Coordination of compilation: CAJaD

2.c Computer retrieval services upon request of customers:
NNDC, NEA-DB, NDS, CAJaD, CNDC

3. Photonuclear Data

3.a Numerical data exchanged in EXFOR format:
Input prepared by CDFE, occasional contributions from NNDC, NDS
Online services by NNDC, NEA-DB, NDS and CDFE

3.b Bibiliography published by CDFE and JAERI

3.c Computer retrieval services upon request of customers:
NNDC, NEA-DB, NDS, CDFE

PAST NRDC MEETINGS

Vienna, 18-20 May 1999	Technical	INDC(NDS)-407
Vienna, 11-15 May 1998	Centre Heads + Tech. = 14th NRDC Meeting	INDC(NDS)-383
Vienna, 26-28 May 1997	Technical	INDC(NDS)-374
Brookhaven, 3-7 June 1996	Center Heads + Tech. = 13th NRDC Meeting	INDC(NDS)-360
Vienna, 2-4 May 1995	Technical	INDC(NDS)-343
Paris, 25-27 April 1994	Center Heads + Tech. = 12th NRDC Meeting	INDC(NDS)-308
Vienna, 1-3 Sept 1992	Technical	INDC(NDS)-279
Obninsk, 7-11 Oct 1991	Center Heads + Tech. = 11th NRDC Meeting	INDC(NDS)-262
Vienna, 13-15 Nov 1990	Technical	Memo CP-D/210
Vienna, 2-4 Oct 1989	Centre Heads + Tech. = 10th NRDC Meeting	Memo CP-D/200
Vienna, 4-6 Oct 1988	Technical	Memo CP-D/190
Brookhaven, 27-29 Oct 1987	Center Heads + Tech. = 9th NRDC Meeting	INDC(NDS)-204
Vienna, 7-9 Oct 1986	Technical	Memo CP-D/159
Saclay, 9-11 Oct 1985	Center Heads + Tech. = 8th NRDC Meeting	INDC(NDS)-178
Vienna, 19-21 Sept 1984	Technical	Memo CP-D/131
Obninsk+ Moscow, 17-21 Oct 1983	7th NRDC Meeting	INDC(NDS)-154
Vienna, 3-7 May 1982	6th NRDC Meeting	INDC(NDS)-141
Brookhaven, 29.9 - 2.10.1980	5th NRDC Meeting	INDC(NDS)-125
Karlsruhe, 8-13 Oct 1979	4th NRDC Meeting	INDC(NDS)-110
Paris, 19-23 June 1978	3rd NRDC Meeting	NEA-NRDC-3 = INDC(NDS)-99
Kiev, 11-16 April 1977	2nd NRDC Meeting = 3rd CPND + 13th 4-C	INDC(NDS)-90
Vienna, 28-30 April 1976	2nd CPND Meeting	INDC(NDS)-77
Vienna, 26-27 April 1976	12th 4C-Meeting	INDC(NDS)-78
Vienna, 8-12 Sept 1975	CPND Meeting	INDC(NDS)-69+71
Brookhaven, 10-14 March 1975	11th 4C-Meeting	INDC(NDS)-68
Paris, 6-10 May 1974	10th 4C Meeting	INDC(NDS)-58
Vienna, 24-26 April 1974	CPND + PhotoND	INDC(NDS)-59+61
Moscow/Obninsk, 4-8 June 1973	9th 4C Meeting	INDC(NDS)-54
Vienna, 16-20 Oct 1972	8th 4C Meeting	INDC(NDS)-51
Brookhaven, 25-29 Oct 1971	7th 4C Meeting	INDC(NDS)-41
Paris, 5-9 Oct 1970	6th 4C Meeting	INDC(NDS)-28
Moscow, 17-21 Nov 1969	5th 4C Meeting	INDC(NDS)-16

LIST OF ACRONYMS

ATOMKI	Nuclear Research Institute, Debrecen, Hungary
BNL	Brookhaven National Laboratory, Upton, N.Y., USA
BROND-2	Russian evaluated neutron reaction data library, version 2
CAJaD	Center for Nuclear Structure and Reaction Data, Kurchatov Institute, Moscow, Russia
CDFE	Centr Dannykh Fotojad. Eksp., Moscow State University, Russia
CENDL-2	Chinese evaluated neutron reaction data library, version 2
CENPL	Chinese evaluated nuclear parameter library
CINDA	A specialized bibliography and data index on neutron nuclear data operated jointly by NNDC, NEA-DB, NDS and CJD
CJD	Russian Nuclear Data Center at F.E.I., Obninsk, Russia
CNDC	Chinese Nuclear Data Center, Beijing, China
CNPD	Center of Nuclear Physics Data at RFNC-VNIIEF, Sarov, Russia
CP...	Numbering code for memos exchanged among the NRDC
CPND	Charged-particle nuclear reaction data
CRP	Coordinated Research Programme of the IAEA Nuclear Data Section
CSEWG	US Cross-Section Evaluation Working Group
CSISRS	Cross-Section Information Storage and Retrieval System, the EXFOR-compatible internal system of NNDC
EFF	European evaluated nuclear data file for fusion applications
ENDF-6	International format for evaluated data exchange, version 6
ENDF/B-6	US Evaluated Nuclear Data File, version 6
ENSDF	Evaluated Nuclear Structure Data File
EXFOR	Format for the international exchange of nuclear reaction data
FEI	Fiziko-Energeticheskij Institut, Obninsk, Russia
FENDL	Evaluated nuclear data file for fusion applications, developed by IAEA-NDS
IAEA	International Atomic Energy Agency
IFRC	International Fusion Research Council
INDC	International Nuclear Data Committee
INIS	International Nuclear Information System, a bibliographic system
IRDF	The International Reactor Dosimetry File, maintained by the IAEA-NDS
ITER	International Thermonuclear Experimental Reactor
JAERI	Japan Atomic Energy Research Institute

JCPRG	Japan Charged-Particle Nuclear Reaction Data Group, Sapporo, Japan (previously Study Group for Information Processing)
JEF	The Joint Evaluated File of neutron data, a collaboration of European NEA member countries and Japan
JENDL-3	Japanese Evaluated Nuclear Data Library, version 3
KAERI	Korea Atomic Energy Research Institute
KINR	Kiev Institute of Nuclear Research
LEXFOR	Part of the EXFOR manual containing physics information for compilers
NDS	IAEA Nuclear Data Section, Vienna, Austria
NDS	The journal Nuclear Data Sheets
NEA	Nuclear Energy Agency of the OECD, Paris, France
NEA-DB	NEA Data Bank, Paris, France
NEANDC	NEA Nuclear Data Committee
NND	Neutron Nuclear Data
NNDC	National Nuclear Data Center, Brookhaven National Laboratory, USA
NNDEN	Neutron Nuclear Data Evaluation Newsletter
NRDC	The Nuclear Reaction Data Centers
NRDF	Japanese Nuclear Reaction Data File
NSDD	Nuclear structure and decay data
NSC	Nuclear Science Committee of the NEA
NSR	Nuclear structure references, a bibliographic system
OECD	Organization for Economic Cooperation and Development, Paris, France
PC	Personal Computer
PhND	Photonuclear data
RIKEN	Nuclear Data Group, RIKEN Inst. of Phys, and Chem. Res., Wako-Shi, Saitama, Japan
TRANS	Name of transmission tapes for data exchange in the EXFOR system
UKRNDC	Ukrainian Nuclear Data Center at KINR, Kyiv, Ukraine
USDOE	U.S. Department of Energy
VNIIEF	Russian Federal Nuclear Center, Sarov, Russia
4C...	Numbering code of memos exchanged among the four Neutron Data Centers

CONSULTANTS' MEETING ON
THE CO-ORDINATION OF NUCLEAR REACTION DATA CENTRES
(Technical Aspects), Vienna, 18-20 May 1999

AGENDA

1. General
1.1 Opening, Adoption of the agenda, announcements
1.2 Brief status reports of the centers
1.3 Brief report on the 1999 INDC Meeting
1.4 Review of General Actions from the 1998 NRDC Meeting (A1-A14) ***WP1***

2. PC Databases
2.1 CD-CINDA
2.2 CD-EXFOR
2.3 Others

3. CINDA
3.1 Review of Actions (A23-A39; see also Conclusions C13-C14) ***WP1***
3.2 Proposed new quantities ***WP5***
3.3 Proposal on CINDA-EXFOR coding rules ***WP6***
3.4 CINDA-2000 ***WP3***

4. EXFOR/CINDA Dictionary System
4.1 Review of Actions (A18-A22; see also Conclusions C1-C2) ***WP1***
4.2 New dictionary formats (Y2K-related) and programs
4.3 Next dictionary transmissions

5. General EXFOR matters
5.1 Review of general Actions on EXFOR (A40-A56; see also Conclusions C3-C6) ***WP1***
5.2 Conversion of master file to new date format ***WP10***
5.3 Revised CSISRS programs
5.4 List of TRANS files exchanged since last meeting ***WP2***
5.5 Pending proposals for coding rules and dictionary codes
    5.5.1 Review of Actions on coding rules and dictionary codes
    (A57-A74, see also Conclusions C7-C12) ***WP1, WP11***
    5.5.2 New quantities for fission data (Report of Working Group)
    5.5.3 Pending proposals on other new quantities ***WP7, WP8***
    5.5.4 Other proposed new dictionary codes ***WP9***
5.6 Remarks on recent TRANS files
    5.6.1 Criteria for adding imperfect entries to master file

6. Neutron data
6.1 Review of Actions (A75-A76) ***WP1***
6.2 Compilation situation

7. CPND compilation
7.1 Review of Actions (A77-A81) ***WP1***
7.2 Comparison of Landolt-Börnstein compilation with EXFOR
7.3 Compilation situation

7.4 New EXFOR series T ***WP4***
7.5 Duplications ***WP13***
7.6 List of publications missing in EXFOR ***WP17***

8. Photonuclear data
8.1 Review of Actions (A82-A83) ***WP1***
8.2 Compilation situation

9. Evaluated reaction data libraries
9.1 Review of Actions (A84-A87) ***WP1***

10. Program development and user services

11. Graphics and other software demonstrations
11.1 DINAMO+ZVVIEW (V. Zerkin)
11.2 SABA (S. Dunaeva)
11.3 BNL-325 type plotting (B. Kinsey)
11.4 Intelligent Pad (Y. Ohbayashi)

12. Closing items
12.1 Review of Actions and Conclusions of this meeting
12.2 Next meetings (2000 full meeting, 2001 technical meeting)

Issue No. 3
18 May 1999

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"THE CO-ORDINATION OF NUCLEAR REACTION DATA CENTRES"

IAEA Headquarters in Vienna, from 18 to 20 May 1999

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MEETING SUMMARY

Introduction

The IAEA Consultants' Meeting on the Technical Aspects of the Co-ordination of the Nuclear Reaction Data Centres was held at the IAEA Headquarters in Vienna from 18 to 20 May 1999 and was attended by 15 participants representing 11 data centres from China, Hungary, Japan, the Republic of Korea, Russia, USA, NEA and IAEA. These co-ordination meetings are convened annually; the last meeting, with both centre heads and technical staff present, was held in Vienna from 11 to 15 May 1998 and is summarized in the report INDC(NDS)-383.

The present meeting concentrated on the technical aspects of data exchange between the co-operating centres, with main emphasis on the EXFOR and CINDA databases, adjustments related to the Y2K problem, databases on CD-ROM, CINDA-2000, the EXFOR/CINDA dictionary system, new EXFOR quantities and dictionary codes, and new software tools and common graphics software. The main results of the technical discussions are summarized in the list of conclusions and actions (see p. 21).

Summary of presentations and discussions

The Meeting was opened by D.W. Muir, Head of the Nuclear Data Section. He welcomed the participants and gave a brief overview of the directions of the development of the services which may be provided by the NRDC network, especially to the users with a poor access to Internet. After self-introduction of the participants (see p. 15), V.G. Pronyaev was elected as the meeting chairman. The agenda was adopted with minor changes (see final Agenda on p. 13). Recommendations of the International Nuclear Data Committee Meeting (11 to 14 May 1999, IAEA, Vienna) were presented by D.W. Muir and participants' reports about activities in the co-operating Nuclear Data Centres were presented (see p. 29). It was admitted that, though the DEC Alpha computer continues to be the platform for on-line access to the major network databases, PC user oriented programming work is going to be more and more important.

General actions from last 1998 NRDC Meeting were reviewed.

The development of CINDA database on CD-ROM was presented by M. Kellett. It was decided, that because no drawbacks on trial version were reported, it can be distributed to the users. The December 1998 version of EXFOR database on CD-ROM was presented by O. Schwerer. Some deficiencies found in the previous (January 1998) version were removed. The need for a freely available ENDF database on CD-ROM with a user interface comparable to the present Web version was recognized by participants.

CINDA related matters were discussed. The implementation of actions of last meeting was reviewed (see WP 1). New theoretical quantities for CINDA (see WP 5) were considered. It was decided, that because NSR database is under complete revision and better flexibility in the search of nuclear structure related theoretical quantities will be achieved, compilation of bibliographical data for these quantities will be done under NSR. The report of an ad-hoc working group on CINDA-2000 was endorsed (see WP12 Rev.). A new working group will

work out the format details of the new CINDA (now called CINDA 2001) and submit a progress report to the NRDC Meeting in 2000.

Technical matters of EXFOR/CINDA dictionary system and general EXFOR topics were discussed (see WP 1, 2, 7, 8, 9 and 10). It was admitted that mainly due to different criteria for adding imperfect entries to the master file, these files differ from each other in different centres. The convergence to identical master files is desirable. Report of Working Group on new quantities for fission yield data (see WP 16 Rev.) was endorsed by participants. Big work done by V. McLane on revision of EXFOR Manual and EXFOR Basics manual was highly appreciated by participants. A complete revision of the 'LEXFOR' part of the manual (containing the physics definitions for the compiled quantities) will follow.

The activity in compilation of neutron, charged particle and photonuclear reaction data in different centres was considered. Some centres had not contributed in the EXFOR compilation work since the last Meeting mainly due to the changes in the staff. The efforts to renew this work in the CNDC and NEA-DB were welcomed by participants.

The work on development of evaluated data libraries was briefly reviewed. It was reported that JEF-3 Library is in the checking and testing phase, preparation of CENDL-3 Library is in the progress since 1996, Release 5 of ENDF/B-VI Library was disseminated in September 1998, new package of pre-processing programs PREPRO99 was released by D.E. Cullen in February 1999. There are large ongoing activities on the evaluation of neutron cross sections for JENDL in JAERI and for BROND-3 in CJD, Obninsk.

Big attention of the participants was devoted to the common program development and user services. The presentation started with a demonstration session where V. Zerkin showed his multiplatform graphical package DINAMO+ZVVIEW which allows to use interactive graphics of reaction cross section data retrieved from ENDF and EXFOR with polynomial fit of the experimental data. S. Dunaeva presented the Windows NT platform package SABA which is used as a tool for evaluation and graphical presentation of charged particle reaction cross sections of light isotopes. B. Kinsey demonstrated the extended interactive possibilities of the BNL-325 type plotting available now through Web access to the EXFOR database. Y. Ohbayashi demonstrated the possibility to use a visualized object oriented 'Intelligent Pad' system for presentation and treatment of nuclear data. After discussions participants agreed that co-ordination of program development work should be improved by regular information exchange on results of the work planned in different centres. The proposal for regular electronic publication of the Nuclear Data Program Development Newsletter was supported by the participants.

The list of Conclusions and Actions of the Meeting was reviewed and approved by the participants (see p. 21).

It was decided that the next full NRDC Meeting will be hosted by the CJD, Institute of Physics and Power Engineering, Obninsk, Russia, 15 to 19 May 2000 (date tentative).

CONCLUSIONS

General

C1 The meeting agrees on Word7/95 as exchange format for text documents.

Conclusions and informational statements on CINDA

Info 1 New version of CD-CINDA will be released by NEA-DB approx. September 1999. It will include the updated database with the current software (no new feedback was received).

Info 2 Since the new version of CINDA format and programs will not be ready in 2000, it was decided to use from now on the term "CINDA-2001" instead of "CINDA-2000".

C2 (Reference: WP 6, items 1, 2). Decisions, to permit in CINDA additional (low Z) targets for fission reactions and natural elements as targets for 'nearly monoisotopic' elements, are postponed to CINDA-2001.

C3 (Reference: WP 6, item 3) for data obtained via Internet, the reference type W (= private communication) should be used (see manual).

C4 (Reference: WP 6, item 5). New abbreviations to be used for CINDA comments will not be added to Table 5 of the CINDA book, but most of them may be used anyway.

C5 The proposals of the Working Group on CINDA-2001 were approved with minor amendments (see WP 12 Rev.). (See also Action A9.).

Info 3 CINDA-2001 format proposal (WP 3): the following major changes are considered: no reader code; allow 2 work types; second comment record; allow range of subentry numbers for EXFOR index lines.

EXFOR

Conclusions on general EXFOR items

C6 (Reference: WP 6, item 4). The addition of '@' to the list of allowed characters in EXFOR is approved.

C7 From now on all TRANS files will be put as preliminary files in the NDS open area, subdirectory [TRANS.PRELIM]. All centres should be notified by e-mail of any new TRANS tape. All centres are encouraged to submit their comments to the originating centre within 3 weeks. The originating centre should then transmit the corrected version as soon as possible to the [TRANS] directory.

Conclusions on items related to the Y2K conversion

C8 Not the whole library will be retransmitted with the 4 digit year code. However, all future transmissions have to have the year coded in 4 digits throughout the EXFOR entry. All centres are strongly encouraged to modify their retrieval codes to always display 4 digit year so as not to confuse users. Furthermore, the centres are encouraged to gradually retransmit their complete area in the new date format.

C9 It is agreed that in references it is not necessary to pad by zeros if month and/or day are not known.

Conclusion on EXFOR programs

C10 It would be useful to have a stand alone version of the computation format program. McLane will do it when time allows.

Conclusions on the dictionary system, new dictionary codes and coding rules

C11 We are allowing the introduction of upper and lower case in future dictionary additions.

C12 The author names may be coded in upper and lower case.

C13 The pending proposals for new EXFOR quantities collected in WP 8 were approved with the following exceptions / modifications:

- Item 1 (CP-C/246): See conclusion C 17, WP 16 Rev.
- Item 3 (CP-C/249): Quantity PRE,AKE,LF/HF is replaced by PRE,KE/CRL,LF/HF (see WP 16 Rev.)
- Item 5 (CP-D/301, 4C-4/83): Not approved, see Action A43/
- Item 7 (4C-4/87): The quantity EM,DA/DE,,LEG/RSL is approved; the formula in the code expansion is modified to contain the secondary energy **E'**:
  4PI/SIG(E)*D2-SIG/D-OMEGA/D**E'** = (1+SUM(2L+1)A(**E'**,L)P(L)))
- Item 8 (4C-4/91): For the alternative proposals for Dict. 36, the codes given in the reply by V. McLane are approved: PAR,DA,G,LEG/RS and PAR,POL,G and DA,FF,LEG/RS. Consequently, the codes ,DA/DE,G,LEG/RS and ,POL/DE,G and ,DA,FF,LEG/FCT/RES were not approved.
- Item 10: No change of rules needed because the proposed use of derived headings is possible already within the current rules.
- Item 11: See conclusion C15.
- Item 12: The code, POL/DA,,AZI is not approved because (according to V. McLane) the proposal was withdrawn prior to the meeting.

C14 The "straightforward" dictionary updates collected in WP 9 were noted including the following deviations from the original proposals:

- Dict. 3, 1USADAL not introduced, replaced by 1USADLS
- Dict. 22, PGAG replaced by PGAC (typographical error)
- Dict. 27, 21-SC-45: The new code needed is 21-SC-41.

C15 ‘q’ (lower case) is adopted as the data heading for the wave number of transferred momentum.

C16 Whenever a non-trivial addition is proposed for Dict. 36, a corresponding LEXFOR entry should be submitted. This LEXFOR entry should mention the independent variables and (class of) units to be used. NDS should reject proposals without LEXFOR entries.

C17 The report of the working group on fission yields (WP 16 Rev.) with the amendments is approved.

C18 The proposal of WP 7 on self-indication is adopted with the following change: The new code SIF goes to SF6 rather than SF8. (See also Action A40.)

C19 Nuclear temperature (kT) must be given in energy units.

CPND

C20 The new T-series is introduced following the proposal in WP 4 (= Memo CP-C/248) and the responsible centre is NNDC.

ACTIONS

General Actions

A1	Pronyaev	Send official letter to KAERI and Sarov inviting them to join network.
A2	NDS	(Old A3 continuing). Send CINDA DBMS backups to VNIIEF, and the same for ENDF (DBMS backup and text libraries).
A3	Lammer	Investigate the possibility to include the program package for calculation of fission yield distributions by A.C.Wahl, respectively the PC version of it, in the NDS data collection.
A4	NEA-DB	(Old A36 continuing). Send ORACLE design specification developed at NEA for CINDA and EXFOR to NNDC, NDS, CJD and CDFE.
A5	all	Send their progress reports and some working papers (if inclusion is desired) in Word to Schwerer within one month after this NRDC meeting.

CINDA

A6	NEA-DB, Manokhin	(Old A38 continuing). Specify to NDS the number of copies needed for CINDA99 by 14 June 1999.
A7	Manokhin	(Old A39 continuing). Send addresses of recipients of CINDA books to NDS by 14 June 1999 (so that part of the books and questionnaires can be mailed directly from Vienna).
A8	NNDC	Investigate whether appropriate descriptors for optical model parameters, deformation parameters and other theoretical quantities already covered in CINDA, can be added as searchable descriptors in NSR. (Replacing proposal of WP 5.)
A9	Lammer	(From WP 12, last paragraph). Look at the old CINDA quantity codes and the EXFOR reaction codes that will be used for CINDA2001 and check for a 1:1 correspondence for the conversion. Look also into the possibility of the automatic addition of a quantity code in the conversion process.
A10	Lammer	Update page I.8 of CINDA book (on online access) and send proposal to CINDA centres for checking.

EXFOR/CINDA Dictionary System

A11	Schwerer	(Old A19 continuing). Check old actions 7-13 of the 1997 NRDC meeting after receipt of the new dictionaries and programs from NNDC.
A12	McLane	(Old A21 continuing). Submit proposal for modification of Dict. 27 use flags before the next meeting. *(Compare also the following Action.)*
A13	all	Consider radical reform of current Dictionary 27.
A14	Schwerer	(Old A22 continuing). When adding new dictionary codes, take care of flags and numerical equivalents in consultation with V. McLane.
A15	McLane	Send new DAN2X4 and new DANIEL dictionary memos to NDS.
A16	Schwerer	Make dictionary transmission as soon as possible after receiving DAN2X4.
A17	Schwerer	Make dictionary transmissions 4 times per year.
A18	all	Think about using archive dictionaries instead of EXFOR (TRANS) dictionaries.

EXFOR, general

A19	McLane Pronyaev	(Reference: WP 6, item 6). Add list of EXFOR areas to EXFOR Manual, Appendix P and the network document.
A20	all	Proof-read the EXFOR Basics Manual and send corrections back to McLane by e-mail.
A21	McLane	(Old A42 continuing). Add example entries (or one brief complete entry) to the EXFOR Basics Manual.
A22	NDS	(Old A47 continuing). Send incremental EXFOR updates (TRANS) to CNDC.
A23	McLane	Send Schwerer a list of the last transmission files on the library sent to CNDC.
A24	McLane	(Old A48 continuing). Make a benchmark test of TEST-EXF.
A25	McLane	(Old A49 continuing). If time becomes available, investigate the possibility of including separate index lines for the ELEM/MASS formalism.
A26	McLane	(Old A50 continuing). Correct EXFOR processing codes to properly treat cases where KT is given instead of an average incident particle energy (factor 3/2).

A27	all	Check and retransmit all entries included in the list of pending retransmissions by V. McLane.

EXFOR coding rules and new dictionary codes

A28	all	Review entries of their area given in WP11 for legal or illegal use of He-5 as reaction product.
A29	McLane	(Old A57 modified). Provide LEXFOR entry for particle correlation measurements.
A30	McLane	(Old A58 continuing). Update LEXFOR page on thick target yields taking into account the conclusion #29 of the 1997 NRDC meeting (Memos CP-C/224 and CP-C/233 with the modification that "thick target yield per unit time" is coded TTY,,DT instead of TTT).
A31	McLane	(Old A59 continuing). Check existing codes for fission quantities for possible overlap with the case of Memo CP-C/209 and existing EXFOR entries for necessary revisions.
A32	Lammer	(Old A62 modified). Review the LEXFOR entry on fission yields and send proposals for revisions to McLane.
A33	McLane	Update the LEXFOR entry on fission yields according to Lammer's proposals.
A34	McLane	(Old A66 continuing). Submit LEXFOR entry on the use of RCL and RSD in SF7.
A35	Kellett	(Old A68 continuing). Retransmit subentry 20220.007 using the new REACTION (PAR,DA/CRL,G/N) introduced at the 1998 NRDC meeting and check whether correction of DATA headings is necessary.
A36	McLane	(Old A69 continuing). Provide more information on the proposal containing "PN" (prompt neutrons) in SF7 (Memo CP-C/235).
A37	Kellett	(Old A70 continuing). Check the incorrect report code mentioned in 4C-3/389 and retransmit entry 22357.
A38	McLane	(Old A71 continuing). Propose clarification of the definition of gamma-ray abundance in LEXFOR.
A39	Maev	Prepare a LEXFOR entry and a new proposal for coding rules for the data to be compiled in EXFOR entry 41303.
A40	Maev	To send a modified LEXFOR entry on self-indication to McLane.
A41	McLane	Add the statement of conclusion C19 (on units for nuclear temperature kT) to the corresponding LEXFOR entry.

A42	McLane	Check all references concerning particle correlations and propose codes and coding rules.
A43	NDS+CJD	Reconsider the coding proposals of Memos CP-D/301 and 4C-4/83.

Neutron data

A44	NEA-DB	(Old A76 continuing). Look into the status of the EXFOR 6000 series.

CPND

A45	CAJaD	(Old A78 continuing). Investigate whether the Landolt-Börnstein CPND compilation can be made available to the CPND centres in computerized form.
A46	NDS	(Old A80 continuing). Distribute the corrected area B file after completion of the corrections by CAJaD.
A47	NDS	Communicate with centres which have not sent any input to CPND EXFOR for more than one year.
A48	all concerned	Study Chukreev's list of duplications (WP 13) and take necessary actions.
A49	all CPND	Go through the list in WP 17 and compile publications of their responsibility with high priority and communicate the accession number to ATOMKI.

Software development

A50	all concerned	All centres using NNDC programs should check the NNDC open area 'FOURCS' for program updates.
A51	all	Send information on planned or ongoing new developments in the area of program development and user services in WORD format to NDS. NDS will collate this information and distribute it as a quarterly NRDC user services and software development report.

Graphics software

A52	Zerkin, NNDC	Investigate various options for including graphics on the EXFOR CD-ROM.
A53	NDS	Investigate possibility to organize a workshop on nuclear reaction data plotting.
A54	Zerkin+NNDC	Investigate the possibility of coupling Zerkin's 'ZV VIEW' with the NNDC web retrieval system.

Evaluated data libraries

A55	all concerned	(Old A85 modified): Compile and maintain a list of known errors and deficiencies in the evaluated data libraries for which they are responsible and make this list available to the users of the online service.
A56	all concerned	(Old A86 continuing). Document the parameters being used for producing pointwise cross sections including the code name, version number and input deck.
A57	all concerned	(Old A87 continuing). All centres responsible for evaluated data libraries should try to make the documentation available online.