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INDC INTERNATIONAL NUCLEAR DATA COMMITTEE

ELEVENTH 4C-MEETING

REPORT ON THE ELEVENTH FOUR-CENTRE MEETING

BROOKHAVEN NATIONAL LABORATORY, USA

10 - 14 March 1975

Written by: G. Thompson, Secretary

Assisted by: N. Holden

Vienna, August 1975

IAEA NUCLEAR DATA SECTION, KÄRNTNER RING 11, A-1010 VIENNA

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Contents

List of Appendices

I. Opening and Welcoming Address

Dr. W. E. Winsche, Chairman of the Department of Applied Science, opened the meeting with words of welcome on behalf of Brookhaven National Laboratory.

II. Organization, Selection of Chairman and Secretary, and Announcements

1. Election of Chairman and Secretary, List of Participants

S. Pearlstein (NNCSC) was chosen to act as Chairman of the meeting, and G. Thompson, with the aid of N. Holden (both of the NNCSC), was chosen to act as secretary. The other participants were C. L. Dunford and V. May, from NNCSC, A. Schofield (CCDN), J. J. Schmidt and H. Lemmel, from NDS, and V. Manokhin and V. Pronyaev, from CJD.

A number of other interested people also participated during various sessions of the meeting: H. Goldstein (COL), G. Rogosa, and E. Ritter (USERDA), and D. Garber, R. Kinsey, J. Stehn, R. Chrien, J. Weneser, M. Bhat, T. Burrows, W. Kropp, J. Burt, and F. Scheffel (all of BNL). Also present was S. Amoretty of BNL, who acted as interpreter for the CJD representatives.

2. Organization and Announcements

After a brief discussion of the proposed agenda (cf. Table of Contents), the program attached as Appendix A was adopted.

3. Review of Actions from the Tenth Four-Centre Meeting

Discussed the 34 actions from the last four-centre meeting with the following results:

Action #	Result
1	Done
2	Done, but will be continued
3, 4	Done
5	Done, to be continued
6 through 12	Done
13	Done, prepared and available at 11th meeting
14	Done, see 4-C memo 3/110
15	Done
16	Done, available at the 11th meeting
17, 18	Done
19	Completed by NDS and CJD, partially by NNCSC. To be continued by all
20	Being done, will continue action
21	Has not been done, to be continued
22	Done, see 4-C memo 3/99
23	Done
24	Done
25	Done, further discussions at 11th meeting
26	Done, to be continued
27, 28	Done
29, 30, 31	All are to be continued
32, 33	Done
34	NNCSC and NDS had displays set up at Washington Conference

All continuing actions are listed, with complete text in Appendix B.

III. Progress Reports from the Centres

Each centre presented their progress reports and statistics for 1974 (these are attached as Appendices C, D, E, and F). The following items were discussed following the progress reports:

The problem of a continuing backlog of Area 2 data not yet transmitted in EXFOR was brought up by both NNCSC and NDS.

SCHOFIELD responded to this problem by saying that a combination of problems at CCDN was responsible for the delay. CCDN is very short of manpower and they are now involved in filling several open positions. In the past all data has been compiled in NEUDADA format and then translated into EXFOR. Due to programming problems and a change in the computer system many data sets have not been translated into EXFOR. The programs to translate the NEUDADA files for transmission in EXFOR are now adapted to the new system. Also, CCDN will now compile new data directly into EXFOR to eliminate future systematic delays.

As a result of this discussion it was agreed that CCDN send to all other centres, a list of all Area 2 data (1970 +) that is in NEUDADA but not yet in EXFOR. If any centre has a preference for certain data, they are to inform CCDN, in order that these data will be translated as soon as possible.

(Action 1)

The use of computational formats (e.g., NEUDADA) was discussed by all centres. CCDN will extend the present NEUDADA form to include more information. Presently NEUDADA is the most complete computational format in use at any centre. It was agreed that all centres would develop and maintain individual computational formats, but would inform other centres as to the development progress and description of these formats.

(Action 2)

IV. Form of Presentation of Statistics

All centres discussed methods of keeping EXFOR and request statistics (cf. section II of 4-C memo 3/93). Each centre is to control the statistics in such a way as it is easiest for them, but a standard form for reporting these statistics is to be used (Appendix G). This form is to be used for the EXFOR statistics to be sent by all centres to NDS for submission at the next INDC meeting.

(Action 3)

V. Future Meetings and Publications

Future meetings and publications concerning each area were discussed. It was requested that all centres send copies of publications from their centre to the other centres.

(Action 4)

1. Publications

a) NNCSC: BNL-325 Volume I has been published, several ENDF publications and evaluation reports are in progress. Also BNL-325 Volume II, 3rd edition will be completed in late summer. Publications based on the Dosimetry and Fission Product files from ENDF are planned.

b) CCDN: no future publications are planned.

c) NDS: The Index to Evaluated Data, CINDU-11, is scheduled for publication and the talk given by H. Lemmel at the Washington Conference will be published in an INDC Report.

d) CJD: There are plans to publish a description of U.S.S.R. evaluated data and the proceedings of the Kiev Neutron Physics Conference.

2. Meetings

a) NNCSC: Seminar on U^{238} to be held week following Four-Centre meeting. Also June 1976 meeting at Lowell Technological Institute concerning neutron interactions with nuclei.

b) CCDN: Will co-sponsor the TND Panel, Karlsruhe, October, 1975 and the Specialists' Meeting on Shielding Data to be held in 1976.

c) NDS: cf. Appendix E, Page 3, Section 13 for description of future meetings in Area 3.

d) CJD: June 9-13, 1975: Kiev Neutron Physics Conference.

It was suggested that the proceedings of the Kiev Conference be keyworded and contain English abstracts. Other details of future publications were discussed during the sessions concerning them.

VI. Planned Improvements in Customer Service

1. NNCSC: Plans to continue improving all EXFOR data files. After July 1, 1975 efforts will be made to define a computational format and implement it. Also, efforts will be made to improve the plots generated for customers.

CINDA retrievals are available in several formats, including a user-oriented format.

ENDF will continue to be updated.

2. CCDN: The NEUDADA format will be continued as the computational format for customers. It is being expanded to include more information than before.

Requests for data from the centre will be centralized and now will be handled by one person.

3. NDS: No progress has been made to develop a computational format planned for the case of data as a function of incident energy only. There are no plans to expand due to limited manpower.

NDS encounters the need for the following procedure on requests for evaluated data: There trieval would include the evaluated data, any experimental data done after the evaluation, and a parallel CINDA retrieval. Due to limited manpower, this is not realizable in the near future.

4. CJD: Presently the computational format is used only for data versus incident energy. Plan to update this to include multi-dimensional and differential data. CJD would be willing to use expanded NEUDADA format if appropriate.

The evaluated data libraries are not yet easily accessible for users. Data can be extracted from KEDAK and UKNDL libraries, but not yet from ENDF. CJD is continuing work on an ENDF retrieval system, possibly to be ready by June, 1975.

VII. Description of CINDA Activities at Each Centre

Area 1: DUNFORD: CINDA activities transferred from TIC Oak Ridge to NNCSC on July 1, 1974 were fairly smooth with little loss of coverage. All missed reports, journals, etc. have been covered. A master file, similar to that at CCDN, is maintained with transmitted updates from CCDN. NNCSC has retrieval capability but cannot go from reader input to internal code. A reader format input checking program is in operation. NNCSC will exchange program specifications with CCDN and NDS to make checking programs compatible.

(Action 5)

CINDA new literature coverage and clean-up being done by N. E. Holden was discussed.

Area 2: SCHOFIELD: Due to extremely limited manpower, N. Tubbs is the only person working on CINDA programming. There have been problems due to the computer system changeover, particularly with CINDA updating programs.

Area 3: LEMMEL: CINDA work is done in two steps: (1) new CINDA entries are transmitted to CCDN as quickly as possible, while (2) clean-up and blocking efforts are done more slowly.

The feasibility of cross-links between CINDA and INIS was reviewed. It was generally agreed that INIS, while still improving, is not complete enough yet. Cross-checks with INIS Atom index are now done on a regular basis.

The LINOTRON processing of the CINDA file for the CINDA book will be transferred in the near future to the IAEA rather than being sent to Frankfurt.

Up-to-date copies of the NDS CINDA manual have been distributed.

Clean-up of CINDA is done with each EXFOR entry, but there is no manpower for additional systematic clean-up. NDS will continue efforts to find missing entries.

Discussion followed the presentation and it was decided to try and document user reactions to the new CINDA system.

(Action 6)

Area 4: MANOKHIN: CINDA completeness is being worked on, especially for Area 4 report series that have not been regularly covered. This will be completed in time for CINDA 75-supplement.

CJD plans to have the 75 Kiev Conference compiled for CINDA 75 supplement also.

CJD will try to implement better coverage control of Area 4.

The CINDA compiler is responsible for noting and preparing a list of CINDA entries which should also be in EXFOR. This will make the two files more compatible.

VIII. CINDA CLEAN-UP

The following topics were discussed concerning the clean-up of CINDA.

The subject of completeness, correction of old entries, and blocking were discussed first. The discussion started by LEMMEL was concerned with the repair of existing gaps and the avoiding of future gaps.

It was proposed to have an earlier deadline in advance of publication for submission of new entries so that a completeness check could be made on newer entries. It was decided that in order to try and prevent future gaps that each centre would send a copy of its coverage control lists (including references for which no data was found) to the other centres one month before book deadline.

(Action 7)

The use of memos to communicate any gaps found by the centres is to be continued. For an example see 4C- 3/118. Another proposal to improve coverage was to check the references listed in evaluations to be sure that they are included in CINDA.

It was also agreed that during the clean-up of CINDA entries that the author field be checked in order to be sure that it contains the + or . required.

The discussion of the blocking system resulted in no changes. At least all new entries and all references relating to data (since 1970) exchanged in EXFOR are to be blocked.

Discussion of the use of "no book" flags and data index lines followed.

The following conditions on the use of "no book" flags for CINDA entries were proposed and accepted:

1) Progress reports containing no data or data that have been superseded by a final laboratory report or journal article.

2) Abstracts for which a report or journal article now exists.

3) Duplicate information; enter only most easily accessible reference without "no book" flag.

It was decided to add "no book" flags to progress reports when they are compiled. They will appear in the book until another reference without a "no book" flag appears for that block.

The following conditions were accepted for the use of data index lines and data flags:

1) All information which has been transmitted in EXFOR tapes will have data index lines.

2) Data not containing full bibliographic information, specifically the SCISRS translations, will be given data flags only.

It was requested of CCDN to make an effort to increase supervision of individual CINDA readers and to provide better coverage control in order to avoid future gaps in CINDA.

(Action 8)

Discussion of clean-up efforts in each area was made with the recommendation that all centres involved would do the necessary blocking, adding of "no book flags" and data index lines for all data from 1970 and later that has been transmitted in EXFOR and on all entries entered after January 1, 1975.

(Action 9)

IX. Technical Details of CINDA Compilation

The following items were discussed concerning the compilation of CINDA entries:

It was proposed that CINDA should have the same philosophy as EXFOR concerning the coding of nearly monoisotopic elements (e.g., carbon 12 vs. carbon natural). No recommendation to make them compatible was made for the present. (See Action 41)

It was agreed that the nominal energy range of CINDA be extended to 100 MeV. This upper limit can be exceeded if the reference contains compilable information below 100 MeV.

NNCSC brought up the use of the underscore character to replace a field with blanks. To replace a 4-digit energy with NDG, the last character in the modify card for that field must contain the underscore character.

It was proposed that the ZZ Zero entry be renewed for entering articles, etc. that do not have CINDA entries. This would allow a computerized coverage control list to be made readily. It was however decided not to renew this form, but have each centre maintain its own coverage control lists, until CCDN can revise their programs to accept such coverage control entries in the CINDA file.

It was decided to formulate a change in the CINDA manual concerning derived resonance integrals from differential data. These are to be coded as experimental values with a lower and upper energy limit.

It was decided that 2200 m/s data extrapolated from experimental thermal Maxwellian average data should also be entered. It is to be entered as experimental data with appropriate comments. It is to be entered separately from the experimental portion of the data.

The possibility of joining the quantities RIA and RIG into one quantity was discussed. It was agreed that it was not a good idea to do this but to keep these RI quantities as is. A memo is to be issued clearly describing the definitions of each. The quantities ACT and RIR will no longer be used.

(Action 10)

A new quantity was proposed for inelastic scattering leading to a spontaneously fissioning metastable state. It was decided to leave as is and enter under both DIN and NF.

HOLDEN brought up the question of coding metastable targets. It was decided that it should be coded with the regular ZA but with an appropriate comment. This is to be added to the CINDA manual.

(Action 11)

It was decided that the convention of first author being listed in the author field is to be continued. This facilitates the finding of references by a user. If a group leader is to be mentioned, put it in the comment section.

Calculated cross sections like (n,αp) and (n,2p) do not have quantity codes. It was decided that rather than expand the quantity dictionary, these quantities are to be entered as follows: The lightest outgoing particle should be represented in the quantity code, (hence both (n,αp) and (n2p) will be entered as NP) and appropriate comments should be made.

The classification of the quantity TSL was discussed and a memo describing its use is to be written by H. Goldstein, H. Lemmel and N. Holden.

(Action 12)

It was proposed to make a study of CINDA entries listed under "disappearance" (REM) to determine if this quantity is necessary.

(Action 13)

It was also decided to review CINDA entries listed under "n-production" and "n-emission" to evaluate their usefulness.

(Action 14)

A new code for the nuclide "neutron" has been proposed for CINDA. CCDN and NDS are to review any difficulties that could arise if it is implemented. They will also decide for what entries it would be legal and propose the necessary manual updates.

(Action 15)

X. Future Publication of CINDA

1. Publication Cycle and Costs

The CINDA book is increasing in cost by a factor of two due to increased production cost (mainly paper cost increases) and the change in the exchange rate of the dollar. To reduce the cost, CINDA will go to a two year cycle in 1976/77 with three cumulative supplements. The size of the supplements will be monitored and a possible extension to a three year cycle will be discussed at future meetings. It was agreed to make use of "cosmetic" compiler codes to keep the supplements free of old data.

2. Book Sort

It was proposed in memo from NDS that the book sorting order be changed. SCHOFIELD reported that CCDN has complied with this and the ordering of the quantities has been changed.

XI. Summary and Conclusions Concerning CINDA

General discussion of CINDA efforts followed with several actions being decided upon.

It was decided that NNCSC would review the possibility of implementing the book publication program at NNCSC. NDS is to supply the specifications of that program to NNCSC.

(Action 16)

In an effort to reduce duplication and existing gaps in CINDA several items were proposed and undertaken concerning communication between centres relative to CINDA. It was requested that CCDN send periodic lists to each centre of any new entries for the centres area entered by another centre.

(Action 17)

CCDN will also send to NNCSC after the book deadline, a complete CINDA file. Thereafter monthly updates will be sent to NNCSC.

(Action 18)

CCDN will also send to both NNCSC and NDS a listing of CINDA LAB and REF sorts after each book publication.

(Action 19)

In order to increase awareness of CINDA it has been decided that each centre try and include a CINDA-type index in Conferences and Progress reports issued in their area.

(Action 20)

XII. WRENDA

Discussion of WRENDA was started by Schmidt of NDS. He reported that work on WRENDA-75 is complete and is scheduled for publication by the end of May, 1975. Work on WRENDA-76 is already in progress. The discussion was then directed to the WRENDA memo which is attached as Appendix H, in particular the sections concerning the transmission of WRENDA entries and modification and the future of the WRENDA status list.

Concerning the coding and transmission of requests, the NDS requested that all centres send new request in the proper WRENDA transmission format.

(Sction 21)

Individual centres transmissions were then discussed with the following results:

CCDN - CCDN now will forward new requests in the agreed format. NDS requested that modified requests also be sent in the proper format.

NNCSC - The NNCSC cannot presently change the USNDC format to be compatible with the WRENDA format. It was decided to implement the following method for a period of one year: The NDS will send to the NNCSC (after the publication of WRENDA-75), a complete file of the U.S. requests, sorted by Z-A-Q. The NNCSC will update and modify this file, keeping it in the agreed format, and retransmit to NDS this updated file in time for publication of WRENDA-76.

(Action 22)

This method will be reviewed after one year to decide whether it should be continued in the future. It was also decided that the responsibility for Canadian requests would remain with the NDS, rather than be assumed by NNCSC.

CJD - CJD has been sending new requests in the agreed format. It was requested that they also submit modified requests in the same format.

The WRENDA status file was also discussed. The NNCSC could transmit the U.S. status list in the prescribed WRENDA format with additional effort. However, since NDS must merge and edit the status comments submitted by each centre in any case, it was decided that each centre would send a listing of status comments to NDS. NDS would then merge and edit the list in order to make this file compatible with the WRENDA status list.

Other points were discussed from Appendix H, with the participants deciding to review the items listed upon return to the individual centres. After discussion of these items, each centre would be responsible for issuing a memo concerning any difficulties in implementing any particular item still in question.

(Action 23)

Among other items discussed, it was proposed by CCDN to increase the publication cycle from one year to two years. It was decided that, since the information included in WRENDA can change frequently, it would be in the best interest of users to keep the present annual publication cycle.

It was also decided that the NNCSC (C. Dunford) would review the U.S. request list format with the USNDC, in order to try and formulate a more compatible format with WRENDA.

(Action 24)

In the final discussions of WRENDA, the NDS proposed that separate request lists for Fusion Reactors, Fission Reactors, and Safeguards be maintained. It was decided that all requests be machine separable according to the different applications.

XIII. EXFOR Manuals and Protocol

MAY of the NNCSC opened the EXFOR discussion by reporting that the EXFOR and LEXFOR manuals had been updated and were sent to all the centres.

Concerning the manuals, it was proposed that an effort be made to have the checking program specifications be reflected by the proper sections in the EXFOR manual. This is to be reviewed and reported on by the individual centres.

(Action 25)

It was also proposed and agreed upon, that the development of user (e.g., experimentalists) manuals at each of the individual centres should be exchanged between the centres for comments and suggestions.

(Action 26)

CJD requested that NNCSC send them five (5) complete copies of the EXFOR manual.

(Action 27)

It was agreed that the following entry be made in the protocol section of the EXFOR manual and be implemented immediately:

Whenever decisions are made concerning the manual, the new updates are to be prepared and sent out at most by two months after a meeting. The proposed manual changes should be written in such a way that they can be inserted directly into the manual when they have been accepted.

It was proposed to investigate the possibility of restructuring the EXFOR/LEXFOR manuals in order to separate the format material from the procedures material. Since NNCSC is responsible for these manuals, an action to do this investigation was taken on them.

(Action 28)

XIV. EXFOR Data Exchange

A) Completeness

The discussion of the completeness of EXFOR was started by initiating the following action on all of the data centres. It would be desirable to send a status list of EXFOR entries whenever a Transmission Tape is sent. The status list is to include data sets compiled but not yet transmitted and data sets in the process of being compiled.

(Action 29)

Each centre reported on their progress in completing the data in their area:

1) NNCSC - Reported that they expect to have the data file for Area 1 complete in two to three months.

2) CCDN - CCDN has divided their completeness work into two sections, data before 1970 and data since 1970. SCHOFIELD reported that approximately 33% of the data available from Area 2, dated pre-1970, has been transmitted in EXFOR, and 49.5% of data of 1970 and later have been transmitted. CCDN has completed a program to translate from NEUDADA to EXFOR format and work on the remaining data sets to be transmitted will continue. All data in NEUDADA will be checked for correctness before transmitting in EXFOR. In the future, CCDN will code new data directly into EXFOR to avoid any delay in transmission of data in the future. In order to facilitate the translation of NEUDADA to EXFOR, any centres that have received data in NEUDADA and translated these to EXFOR should notify CCDN, so that they will not duplicate this effort.

(Action 30)

3) NDS - NDS reported that they are approximately 80% complete, with about 50 works known, but not completed, dating mainly from 1970 and up.

4) CJD - CJD reported that they are at least 90% complete for post 1968 data. They expect about 50 new entries from the 75 Kiev Conference and the progress on these entries will be dependent upon available manpower and author cooperation. They expect to be 100% complete on all works since 1970, including the 75 Kiev Conference by December, 1975.

All EXFOR completeness statistics are given in a table attached as Appendix I. Action 3 was brought up again to emphasize its importance.

B) SCISRS-I Translations

The SCISRS-I translations have been completed and transmitted to all centres by the NNCSC. Some errors have been noted and are being systematically corrected. Each Centre is asked to tidy up the translated SCISRS-I data from its area. It is desirable but not necessary that the tidy-up process include conversion of the accession numbers from the 50000-89999 series to the 10000- 49999 series. It was decided that each centre compare the SCISRS-I file with their present EXFOR files and issue a memo listing the following: It was decided that each centre compare the SCISRS-I file with their present EXFOR files and issue a memo listing the following:

1) Which ones have been transmitted in EXFOR in the 10000-49999 series.

2) Which ones will be transmitted in EXFOR in the 10000-49999 series.

3) Which ones are found correct in the SCISRS-I/EXFOR file and will therefore...not be transmitted in EXFOR in the 10000-49999 series in the near future.

(Action 31)

It was also agreed that CCDN would include in the EXFOR exchange statistics, the statistics for the 50000-80000 series.

(Action 32)

C) Compilation of Fission Product Yields, Capture Gamma Ray Spectra and Other Data

The problems of compiling both fission product yields and capture gamma ray spectra were discussed by the participants. The final decision was that none of the centres have the manpower to devote to these data yet.

In the discussion of coding of fission product yields several ideas were mentioned. It was pointed out by MAY of NNCSC that the inclusion of the keyword HALF-LIFE presents a problem: It is very probable that the units for the half-lives will vary and often many columns are required to include this keyword. The NNCSC reported that it has computerized some fission product yield compilations, but they were not easy to translate into EXFOR due to a lack of bibliographic information and the authors often chose values that they felt were "best" rather than present strictly experimental data. The NDS presented a memo prepared for the meeting by K. Okamoto concerning the possible ways to code both fission product yield data and delayed neutron data. Since it was proposed to include delayed neutron data, it was decided to have K. Okamoto issue this report as a normal 4-C memo for discussion and review at the individual centres.

(Action 33)

The normal one-month limit for responding to the memo will be suspended.

There were several reports on the compilation of capture gamma ray spectra. SCHOFIELD of CCDN reported that they cannot compile this type of data yet, due mainly to extremely limited manpower. CCDN has circulated the BHAT proposal concerning the compilation of gamma spectra, but they have received very little feedback so far. While NNCSC feels that they do not have the manpower to devote to this type of data, if large compilations are available on tape, they would make an effort to translate them by computer. The possibility of coding the gamma ray spectra data of the Nuclear Data Project was investigated by the NNCSC. It proved to be

somewhat difficult because only data from journals were included and the data included evaluated data as well as experimental data. The other centres requested that this data be put into EXFOR format as soon as possible. NNCSC agreed to continue the investigation concerning this request.

(Action 34)

The NDS mentioned that there are several gamma ray compilations being done at several laboratories. It was requested by the other centres that NDS provide a list of these compilations being done in all areas.

(Action 35)

D) Resonance Parameter Library for BNL-325

The participating centres requested that NNCSC make an effort to put the complete Resonance Parameter library for BNL-325 into EXFOR. The NNCSC agreed and reported that they can begin to enter the experimental data of BNL-325 Resonance Parameters in about one year.

(Action 36)

XV. EXFOR Details

A) Implementation Schedules for 2-D Table Features (Feature 1 of new EXFOR features listed below.)

Feature 1. Multidimensional tables with all independent variables in data-section columns .

Feature 2. Multiple Iso-quants with pointers.

Feature 3. Multi-dimensional tables with one of the independent variables given in COMMON, with pointers ("vector-common data).

Feature 4. Variable Z and/or A.

Feature 5. Extension to more than 10 columns.

After introduction by MAY and a brief discussion of feature 1, it was found that all centres had implemented this feature without difficulty.

This discussion was extended to review the other features listed in the minutes of the 10th Four-Centre meeting (cf., page 11).

All centres have implemented Feature 2 for resonance parameters only. It was decided to extend the use this feature for two cases.

1) To include multiple representations of the same data in one subentry (cf., 4-C memo 1/49).

2) To review the use of pointers in Subentry 1.

(Action 37)

After a brief discussion of Feature 3, it was agreed that since the NNCSC could not implement this feature, it would be postponed for another year. However, NDS would like to see this feature implemented sooner. It was taken as an action on the NNCSC to study the feasibility of implementing this feature as soon as possible.

(Action 38)

All centres agreed to postpone the implementation of Feature 4 for another year.

Feature 5 has also been implemented by all data centres.

B) Retention of Place Significance in Data Tables

After a brief presentation by DUNFORD of the NNCSC on the problem of the difference between place significance in the transmitted

EXFOR tapes and the NNCSC binary library, the other centres agreed that this did not affect them severely.

C) Incident Particle in the EXFOR Iso-quant

Three possibilities for extending the present EXFOR system to include incident particles other than neutrons were introduced at this meeting.

LEMMEL proposed the method started by the Karlsruhe group (cf., 4-C memo 3/121).

DUNFORD proposed a method previously outlined by him in 4-C memo 3/93.

Also considered was an expansion of the quantity dictionary to include other incident particles (discarded as not being general enough).

All centres agreed that there is a need to generalize the EXFOR Iso-quants to include non-neutron data, and it must be done as soon as possible.

Since DUNFORD of the NNCSC was the only author of a proposal at the meeting, it was taken as an action that he also review the Karlsruhe proposal and prepare a memo regarding its application.

(Action 39)

It was requested that this memo be prepared for review before a Technical Charged Particle and Neutron Compilers meeting proposed by NDS.

It was decided to keep the neutron data and charged particle data in separate libraries until the charged particle data has proven

its usefulness and compatibility. Insertion of the charged particle data into present neutron data libraries would require massive re-writing of computer programs to handle this data.

D) Additional Topics

1) It was brought up by MAY that the coding of resonance integrals over a restricted energy range was not clear. An action resulted on MAY to add to the EXFOR manual the specific uses of the modifier PAR.

(Action 40)

2) MAY also proposed that for the keyword RESID-NUC, the use of coded information (isotope) be reinstated and be available for optional use. This is to be added to the EXFOR manual as well.

(cf., Action 40)

3) LEMMEL brought up some apparent error in data set 10331 from Area 1, which will be checked by MAY.

4) The need to have CINDA and EXFOR be more compatible concerning the use of mono-isotopic entries was discussed. It was agreed that the NNCSC would review the uses of mono-isotopic entries (e.g., carbon-12 versus natural carbon), to determine how CINDA and EXFOR can be made more compatible.

(Action 41)

5) It was reported that quantity dictionary updates were needed for multi-level resonance parameters. An action was taken on the NNCSC to update this.

(Action 42)

XVI. Evaluated Data

DUNFORD reported that the NNCSC has not received some evaluations listed by CCDN. SCHOFIELD agreed to send them immediately.

SCHMIDT of NDS requested that the Dosimetry file be released by USERDA. In order to precipitate any possible release of this data, PEARLSTEIN requested that the other centres give formal response to other evaluations they have received from the U.S.

PEARLSTEIN also requested that the data centres respond concerning the usefulness of the standards file in order to aid in the upgrading of these files.

(Action 43)

All centres gave brief reports concerning evaluations being done in their area. An action was taken on all data centres to keep other data centres informed on evaluations that are in progress.

(Action 44)

XVII. Non-Neutron Data

A) Compilations in Existing Formats

1) Photoneutron Library in EXFOR Format

DUNFORD described the NNCSC effort to put Livermore's photoneutron data library into EXFOR format. The data are described in UCRL-75694, "Atlas of Photoneutron Cross Sections obtained with Monoenergetic Photons" by B. L. Berman. This library has not been run through the EXFOR processing codes. The Centers requested NNCSC to send a tape of the Berman data in EXFOR format to other centers following approval by Berman.

(Action 45)

2) Charged Particle Data Library in ENDF Format

PEARLSTEIN described the NNCSC effort to generate a data library of charged particle reactions from systematics based on the work of Munzel into ENDF format. Data is included for 305 nuclides with energies from 0-20 MeV with reactions (p,n), (p,2n), (p,3n), (d,n), (d,2n), (d,3n), (d,p), (α,n), (α,2n), (α,3n), (α,p), and (α,np). It is considered a "starter" library. The Centers requested NNCSC to send a tape of the data in the "starter" charged particle library in ENDF format to other centers.

(Action 46)

3) Radioactive decay mode publication for ENDF/B fission products

BURROWS described the NNCSC effort to produce a decay mode publication for the 824 fission product nuclides on 100 mass chains in ENDF/B-IV. This general decay scheme information would be useful for users not familiar with nuclear data.

4) Other non-neutron data compilation efforts in existing formats

LEMMEL described the Karlsruhe effort to compile energy dependent charge particle data library in EXFOR format

SCHMIDT described a Japanese effort to compile a charged particle angular distribution library in an EXFOR type format.

MANOKHIN stated that non-neutron data centers in the USSR are investigating formats for putting data on magnetic tape but have no experience as yet.

MANOKHIN will investigate setting up a meeting of Schmidt and the heads of non-neutron centers after the Kiev conference to discuss these problems.

5) International activities on neutron and non-neutron data

SCHOFIELD: Karlsruhe and Harwell have received the Bhat proposal on neutron capture gamma ray spectrum from CCDN but have made no reply as yet.

SCHMIDT discussed other data activities including work in Australia on neutron capture gamma ray spectra, in India on the ^{232}Th, ^{233}U cycle, at Julich, on light element 14 MeV reactions in cooperation with Hungary and Yugoslavia, Rumanian work on a heavy water cooled and moderated thorium reactor, as well as the systematics of 14 MeV neutrons, and a dosimetry group working on threshold reaction cross sections which includes Brazil, Euratom at Geel, IAEA, Hungary, South Africa and Yugoslavia.

It was mentioned that Japan and Korea are cooperating on measurement and evaluation of fission product cross sections, Taiwan has an interest in evaluated data on concrete materials, and Iran has an interest in all evaluated data.

B) Referencing Systems

1) CINDA and Recent References

DUNFORD indicated that NNCSC was investigating the adoption of keywording neutron data.

(Action 47)

It is felt that at present CINDA adequately serves the needs of the neutron community in comparison to Recent References. The USNDC has rejected the idea of a photo-neutron CINDA.

CINDA attempts to compile all neutron data whether journal articles, reports or private communications, while Recent References

do not. Also CINDA is cumulative in its publication.

2) CINDA, INIS and NSA

SCHMIDT: The target for INIS is to replace NSA in about one year, when abstracts will be added to the references in a manner similar to NSA. INIS will insure that NSA will be completely superseded, before the US stops publication of NSA. INIS will never be as useful to the nuclear data community as CINDA. For obscure report series, NDS uses the INIS compilation. For other items, INIS is too slow, so the CINDA compiler has data recorded before the INIS publication.

XVIII. International Intercenter Cooperation

A) Non-neutron Data

PEARLSTEIN: The U.S. does not have a geographical center for non-neutron data such as NDS in Vienna. In 1971, a meeting of the low energy data centers in the U.S. was held and they could meet again should intercenter communication in the future require it.

The Nuclear Data Project has taken steps to provide a computerized format for evaluated non-neutron data. As a first step toward international cooperation, a format should be settled on from which various publications can be produced, eg. level schemes, Table of Isotopes and BNL's radioactive decay mode information for fission products as discussed previously.

The question of whether the computerized file should include evaluated data, or experimental data, was discussed. Computerizing the results of evaluations would involve the least work and provide information for applications. However, the nuclear structure physicist would not be satisfied and prefer his own evaluation of the data.

It was suggested that a survey of nuclear data chart projects would be useful to attempt to gain uniformity in the values published worldwide. Even if various charts listed different types of data, the numerical values for a given quantity would agree with other evaluations.

SCHMIDT: The worldwide needs for non-neutron data will greatly increase in the next decade. The data centers should be made aware of the users needs, compile and exchange data.

PEARLSTEIN: The amount of international cooperation between data centers in the non-neutron area will depend upon what the countries are willing to contribute. The more countries willing to carry the load of evaluation, economic hardship will be less and the incentive for exchange will be increased.

SCHMIDT: NDS will convene a meeting between charged-particle data compilers and evaluators later this year to discuss formats for possible exchange. After a discussion with the Russian non-neutron data centers, on cooperation in data evaluations, NDS would consider hosting a meeting in 1976 for non-neutron data evaluators.

ROGOSA: The traditional breakup of mass chain evaluations should be reconsidered and the type of output of evaluations should reflect the future needs of users.

New groups should be encouraged to cooperate in evaluating data before the next specialists meeting. Quality evaluations are not a prerequisite for the first data set but iterations in the evaluations in important areas will upgrade the data file subsequently.

XIX. Summary and Conclusions

SCHMIDT on behalf of NDS offered to host the Twelfth Four Centre Meeting at Vienna and the meeting was provisionally scheduled for 26-30 April 1976.

A: Agenda

Provisional Agenda

Eleventh Four-Centres Meeting

Brookhaven National Laboratory
Upton, N.Y. 11973

10-14 March 1975

Monday March 10th

9:30 A.M.	Opening and Welcoming Address*
9:45 A.M.	Organization, Selection of Chairman and Secretary, and Announcements
10:15 A.M.	Progress Reports from the Centers
11:45 A.M.	Form of Presentation of Statistics
12:15 P.M.	Lunch
1:30 P.M.	Future Meetings and Publications
3:30 P.M.	Planned improvements in Customer Services

*Dr. W. Winsche will give the welcoming address.

Tuesday March 11th *

9:00 A.M.	Description of CINDA Activities at Each Center
10:00 A.M.	CINDA Clean up 1) Completeness 2) Correction and Blocking of Old Entries 3) No book flags
11:30 A.M.	Data Index Lines
12:15 P.M.	Lunch
1:30 P.M.	Technical Details of Compilation 1) Blocking System 2) Author Check of retrievals 3) include CINDA index in reports & proceedings
2:30 P.M.	Future Publication 1) Multi-year cycle 2) Costs 3) Book sort 4) Should NNCSC maintain duplicate Master System
5:00 P.M.	Summary and Conclusions
5:30 P.M.	Adjournment

*Prof. H. Goldstein will participate.

Wednesday March 12th

9:00 A.M.	WRENDA
10:30 A.M.	Tour of NNCSC Facilities
12:30 P.M.	Lunch

Afternoon Free

Thursday March 13th

9:00 A.M.	EXFOR Manuals and Protocol
10:00 A.M.	EXFOR Data Exchange 1) Completeness 2) Timeliness 3) SCISRS-I Translations 4) Compilation of fission product yields, capture gamma ray spectra and other data 5) Resonance parameter library for BNL-325
12:15 P.M.	Lunch
1:30 P.M.	EXFOR Details 1) Implementation schedules for 2-D table features 2) Retention of place significance in data tables 3) Incident particle in the EXFOR isoquant. 4) Leg Coef flagging-agreed to. 5) Standards - agreed to more than one stand/subentry try to distinguish over energy. 6) Resid. Nuc. 7) Integ. Data. 8) ERRØRS in transmission. 9) Mono-nuclidic elements.
3:30 P.M.	Evaluated Data
5:30 P.M.	Adjournment

Friday March 14th *

9:00 A.M.	Non-Neutron Data 1) Compilation in existing formats 2) Referencing systems
10:00 A.M.	International Intercenter Cooperation
12:15 P.M.	Lunch
1:30 P.M.	International Intercenter Cooperation (Cont'd)
2:30 P.M.	Summary and Conclusions
3:30 P.M.	Adjournment

*Dr. G. Rogosa will participate.

B: Actions to be continued from 10th 4/C Meeting

Action #	On	Text
2	ALL	(a) Centres having received specialized compilations in any format should signal their existance to other centres. (b) Inform interested centres of any significant changes in EXFOR
19	ALL	Check the completeness of: (a) EXFOR vs CINDA for important reactor material iso-quants. (b) EXFOR and CINDA
20	ALL	Circulate Bhat's proposal for gamma-ray spectrum quantities to experts. Give examples of coding such data using extended EXFOR possibilities.
21	CCDN	Revise warning and error messages in CINDA feedback listings, and ensure that no undue rejection of input occurs.
26	CCDN (N. Tubbs)	Issue an up-to-date version of the CINDA manual.
29	ALL	Requests from other centres should be acknowledged within a few days of receipt, giving a detailed status for each request, including "no data available" if applicable.

Action #	On	Text
30	ALL	Inform the other centres when initiating a data review or special-purpose compilation, so that appropriate data may be transmitted with preference.
31	ALL	Each centre is to undertake proper measures to persue delinquent experimenters. "Delinquency Lists" should be prepared containing all authors who, after repeated requests, do not submit their data. These lists can then be presented to the appropriate national or international committees.

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C: Progress Report

of

National Neutron Cross Section Center

to

the Eleventh Four Centres Meeting

March 10-14, 1975

1. Data Libraries

The organization and implementation of the CINDA system at NNCSC has been completed. Entries for the neutron literature produced in the USA and Canada are routinely prepared and transmitted to the CCDN at Saclay. Work has been started to upgrade the CINDA entries from the NNCSC area as to correctness and completeness. At the same time, entries relating to the same experiment are blocked together in the CINDA book.

A CINDA storage and retrieval system has been completed. The CCDN master file or updates to that file can be entered directly into the NNCSC data base. Retrievals for both customer and center use are made on a routine basis on request.

In connection with the production of the new edition of BNL-325, Vol. II, an effort is being made to improve the completeness and the correctness of the CSISRS experimental data library. In the past year, new data from 129 references have been compiled and entered into the experimental data files.

ENDF/B, Version IV has been completed. The library consists of 90 materials in the General Purpose File, 27 materials in the Dosimetry File and 770 materials in the Fission Product File. Planning for ENDF/B, Version V has been started with an estimated completion date of mid 1977.

A data file of "Requests for Nuclear Data" and related status comments has been implemented. Extensive revisions to the request and status file were made in the last half of 1974 upon completion of the USNDC review. The center supplied retrievals to the USNDC subcommittees to aid the status reviews and transmitted changes to the IAEA for WRENDA 75.

Two special purpose libraries were prepared in the past year. These are a charged particle library in ENDF format for CTR purposes and a conversion into CSISRS format of the LLL photoneutron experimental data library.

Statistics for data requested from NNCSC between January 1, 1974 and Dec. 31, 1974 are attached.

2. Data Evaluation and Data Testing

Evaluation of 12 fission product nuclei ^{141}Pr, $^{143,145,148,150}Nd$, ^{147}Pm, $^{147,149,151,152}Sn$ and ^{155}Eu have been completed. In addition the neutron cross sections of Au were evaluated to provide general purpose files as well as the capture cross section as a standard.

A series of benchmark calculations for fast reactors and for shielding applications have been completed using the ENDF/B Version IV General Purpose File. Several thermal reactor benchmarks have been analyzed using ENDF/B-IV in an attempt to understand the present discrepancy between experiment and calculation. A seminar on U-238 resonance capture was held in March where these discrepancies will be analyzed. Extensive tests have been made on the new ENDF/B Dosimetry File and the results published.

3. Publications

BNL-325, Neutron Cross Sections, Third Edition Volume 2 is now being produced from our experimental data files and will be completed in the summer of 1975. This second volume will contain graphical displays of selected experimental data sets for the integral cross sections for all elements and isotopes where such data exists. Also contained will be a more complete bibliography to the available data.

The Formats and Procedures Manual for ENDF (ENDF-102) is passing through a final editing before printing in April. The book of curves for ENDF (ENDF-200) and the summary documentation (ENDF-201) are now being printed.

Request Statistics

TABLE Ia

1 Jan. 1974 to 31 Dec. 1974

Area 1

Country Origin	Number of requests for data				
	Experimental	Evaluated	Bibliographic	Codes Documents	Total
USA	88	269		87	444
Canada	1			2	3
Total	89	269		89	447

Request Statistics

TABLE Ib

1 Jan. 1974 to 31 Dec. 1974

Area 1

Originating Organization	Number of requests for data: Experimental	Evaluated	Bibliographic	Codes Documents	Total	Total Previous Year
Government Lab.	32	101		25	158	-
University	24	57		18	99	
Industry	21	36		22	79	
Other	12	75		24	111	
Total	89	269		89	447	

Request Statistics

TABLE Ic

1 Jan. 1974 to 31 Dec. 1974

Area 1

Request Disposition	Number of requests for data: Experimental	Evaluated	Bibliographic	Codes Documents	Total	Total Previous Year
Fulfilled	88	269		89	446	
Partially Fulfilled	1	0		0	1	
Unfulfilled						
Standing						
Total	89	269		89	447	

Data Dissemination

Table II

1 Jan. 1974 to 31 Dec. 1974

Area 1

Data Type	Amount			
Experimental	17,884	Data Sets	containing	1,089,853 Data Points
Evaluated(Total)	~ 2,409	Data Files		
KEDAK	0	Data Files		
UKNDL	45	Data Files		
ENDF	~ 2,310	Data Files		
SOKRATOR	9	Data Files		
OTHER	55	Data Files		
Bibliographic		CINDA Entries		
Codes and Documents	273 codes 75 documents			

Table III

ZAQ Request Statistics expt.

1 Jan. 1974 to 31 Dec. 1974

Area 1

Element	A	TOT	EL	INL	NG	NF	NX	RES	OTHER
H		1							
He		1							
Li		1	1	1	1		9		4
Be		3	4	3			2		
B					5		5		
C		3	5	4			12		3
N		1	2	5			12	1	4
O		3	4	7	1		30	1	12
F		1	2	5	3		29		14
Na		2	3	6	8		19		
Mg		1	1	1	2		21		12
Al		2	1	5	8		72		10
Si		4	3	11	3		32		
P		1		4	4		19		
S		1	2	5	4		15		
Ar					1		8		
K							1		1
Sc		3	3	3	1		7	1	6
Ti		1	1	6	5		46		12
V		1	3	7	5		39		12
Cr		7	13	17	3		43	3	30
Mn		1		5	6		23		
Fe		5	8	17	8		54		16
Co				6	3		20		1
Ni		7	19	16	8		73	5	48
Cu		2	1	8	6		57		12
Zn		1		5	1		25		1
Ga				1			13		1
Ge			3	6	3		16		1
As				1					
Br				1					1
Y		3	4	2	4		3		
Zr		3	4	7	4		31		2
Nb		1	3	8	4		20		2
Mo		5	9	12	2		19		4
Tc					2				
Ru		1							
Rh				1			12		1
Ag		1			4		18		11
Cd		3	1						10

Table III (Cont'd)

Element	A	TOT	EL	INL	NG	NF	NX	RES	OTHER
In		4	4	5	7		16	2	13
Sn		3	4	4			13		3
I				5	4		2		1
Pr					2				
Eu			1		3		2		2
Ho				1	2		4		
Tm		1	2		5		2		1
Lu							4		
Hf							1		1
Ta				4	4		24		
W		2	1						1
Ir					3		2		
Au		4	5	5	12		63	2	26
Pb		3	5	5					1
Bi		2	1	2					
Tn					8	17	1		1
U		1							
U-233			1	1	11	33	5		
U-234					10	25	5		
U-235		2	7	8	12	43	10		
U-236					8	22	4		
U-238		2	6	7	9	26	6		1
U-239						1			
Np					8	15	4		1
Pu-239		1	7	8	9	30	4		
Pu-240					8	26	4		
Pu-241					8	26	4		
Pu-242		1				2			2
Cf						2			

D: CCDN REPORT TO THE 11TH 4-CENTRES MEETING

(May, 1974 - February, 1975)

1. INTRODUCTION

The main features of the Centre's life during the review period have been :

- a higher than expected turnover of staff which confined the CCDN's activities to the very basic functions of compilation and service to customers;
- the computer replacement which also resulted in an extra work-load;
- the identification of the problem with the CINDA coverage situation and with the exchange of data under EXFOR.

2. EXPERIMENTAL DATA

Following the staff changes, the Centre was only able to assure the coverage of the items traditionally belonging to its mandate. The broadening of the compilation activity to data types such as Fission Product Nuclear Data, gamma-rays from neutron reactions for reactor applications and actinide nuclear data, recommended by the CCDN Committee, had to be postponed.

Up to the present time, only an analysis of the literature referenced in the compilations by C. Meixner (gamma-rays) and E.A.C. Crouch (fission yields) have been performed. This has resulted in the decision that publications such as the Journal of Inorganic and Nuclear Chemistry, Radiochimica Acta, Journal of Radioanalytical Chemistry and Helvetica Chimica Acta which were only occasionally consulted in the past, are likely to contain data of the types listed above and will, therefore, be regularly scanned.

The adoption of a new input format for the compilation of the experimental data has proved necessary. The writing of the corresponding conversion program will take a couple of months : the choice of format has, in fact, been dictated by the decision to reduce new coding to a strict minimum by using, to the greatest extent possible, modules already in existence.

The main purpose of these new procedures is to prepare, in one run, a file in NEUDADA format for service to customers and one in EXFOR format for exchange with the other Centres. Thanks to this approach, there should be no delay in future in the preparation of EXFOR tapes.

The data which have been published after the enforcement of the EXFOR agreement (July, 1970), and which have not yet been exchanged, will be treated in an ad hoc manner with first priority. One consultant is expected to help with this work.

During the past year, the CCDN has compiled about 220 new data sets stemming from the Centre's service area. In addition, the following specialised compilations have been received :

- a compilation (not computerized) of gamma-rays from Fission Product decay and capture for some 390 nuclides by V. Sangiust (Milan).

- a compilation (on magnetic tape) of gamma-ray spectra from 15 reactions for about 550 nuclides by C. Meixner (Juelich);
- a revised version of E.A.C. Crouch's (Harwell) fission yield library.

A compilation of neutron resonance capture gamma-rays has been offered to the CCDN by Messrs B.W. Thomas and T.J. Haste, Harwell, but has not yet arrived.

Finally, a collection of s- and p-wave neutron strength functions by A.R. Musgrove (Australia) for some 230 isotopes with $9 \leq Z \leq 96$ has been forwarded to the CCDN by NDS.

3. EVALUATED DATA

The following evaluated data were received :

1. the complete ENDF/B-IV library (18 tapes);
2. a revised version of the UKNDL-2 containing Cook's evaluations for 192 Fission Products : the revision concerns the atomic masses;
3. the ENDL (Livermore Evaluated Data Library) with 38 materials in ENDF/B format;
4. the USSR evaluation, in SOKRATOR format, for the fission cross-section of U-235 and elastic scattering cross-sections, angular and energy distributions of some 42 nuclides;
5. the Israeli evaluation, in KEDAK format for (Pu-238), Pu-241 and Pu-242;
6. a re-evaluation for natural copper and for Cu-63 and Cu-65 by Benzi et al.;
7. an evaluation for Cr(n,gamma) in UK format by Bluet (Cadarache);
8. an evaluation of the (n,2n) cross-section for Y, Nb and Tm in ENDF format by C.A. Philis (Bruyeres-le-Chatel).

4. DISSEMINATION OF INFORMATION

During 1974, the CCDN fulfilled some 298 requests :

- 120 for experimental data;
- 30 for both experimental and evaluated data;
- 90 for evaluated data only, and
- 58 for CINDA (of which 20 were for external users, 38 for readers).

As displayed in the following table which compares the percentage of requests fulfilled during the last two years, sorted according to the requester's main field of activity, the neutron data evaluators still constitute the main category of the CCDN's customers :

Percentage of requests sorted by customer categories		
Category of Requester	1973	1974
Evaluation	52	46
Application	20	26
Experiment	18	18
Research	7	7
Compilation	3	3

As far as the data types are concerned, the great majority of requests still refer to the fissile and fertile nuclides, and to structural materials; to a lesser extent, to data for fission products.

Request Statistics

Area 2

1 Jan. 1974 to 31 Dec. 1974

Experimental	Exp't. + Eval.	Evaluated	CINDA	Total
120	30	90	58	298

Breakdown of CINDA Requests

20	external users requests
38	reader requests
58	total

2. Possible Extensions of CCDN Activities

The Centre's normal activities together with the points mentioned under 1. are likely to absorb all available effort in the near future. In the more distant future, when the basic work load is expected to permit this, some extension of the Centre's activities may be envisaged provided that :

- clearly established applied needs exist, documented for example by recommendations of national and international data committees such as NEANDC and NEACRP;
- other compilation groups cannot satisfy these needs;
- sufficient effort and expertise are available at the CCDN.

The Committee suggests that the following list be considered as a basis for extensions :

- level schemes for fission products and other nuclides as required for reactor physics and similar applied purposes;
- charged-particle data restricted to fusion data, data on neutron source reactions, special data of importance for fission reactor development;
- data for activation analysis and isotope production;
- photonuclear data below about 15 to 20 MeV photon energy;
- special-purpose compilations for non-energy applications.

3. Activities Not to be Considered at Present

Following the recommendations of the 17th meeting of the NEACRP (Cadarache, June 1974) integral data should not be considered for compilation by the CCDN except for those which are compiled already, e.g., average cross sections or resonance integrals for infinite dilution.

Active participation in purely bibliographic information exchange projects by providing SDI (Selective Dissemination of Information) or current-awareness services was not judged to be a task appropriate to the CCDN at present.

Brief NDS Report to the 1975 4C-Meeting

1. STAFF

1.1 Since the last 4C-Meeting C. Dunford and E. Kiovsky, and M. Lammer left the Section.

1.2 New staff are: Munib Khalil, who will work on data requests; Koichi Okamoto, who will mainly do Exfor compilation; Gertraud Lammer who prepares the Cinda input; Ruben Yaghubian, who indexes incoming Exfor tapes as a temporary consultant; and Ulrike Leidolf, secretary.

1.3 Alain Calamand and Jim Lemley will leave the Section in summer 1975.

1.4 In the beginning of 1975 the staff was, for the first time since several years, complete.

2. CHANGE OF PREMISES

2.1 In the first days of March 1975 the Nuclear Data Section was moved three kilometers away from the IAEA main building. This means initially a serious loss of efficiency in the staff's work. A computer terminal linked by a telefone line has been ordered but will not be available for several months.

2.2 Due to this most unfortunate decision it is likely that NDS will not be able to fulfill all its obligations in the Four Centers' exchange.

3. CINDA

3.1 CINDA74 and its Supplement were published. The Supplement was distributed with several weeks delay due to restoration of the IAEA printing shop.

3.2 NDS performed a rather thorough completeness check of Cinda, the results of which were communicated in 4C-3/116. Consequences will be discussed at this meeting.

3.3 The status of Cinda coverage in area 3 was distributed as memo 4C-3/120. Gaps exist almost exclusively in a number of less important series which contain Cinda relevant information only occasionally.

3.4 Serious cost increase in the Cinda production and the change in the currency exchange rates raised the question whether an annual publication schedule of Cinda can still be afforded. This will be discussed at this meeting.

3.5 The NDS Cinda Manual has been kept up-to-date in agreement with the NDCC input rules.

3.6 Area 3 + 4 Exfor entries and the Australian fission-product cross section library were indexed in Cinda.

4. EXFOR

4.1 Compilation of Exfor data continued. However, NDS has still some backlog, details of which can be found in 4C-3/119. An unusually large data set from East Germany (14 MeV differential neutron emission cross-sections) caused some bottle-neck in keypunching.

4.2 Computer programs have partly been adapted to the new table formats. The customer's "pretty" output format has been improved.

4.3 The SCISRS-1 1/2 Exfor tapes from NNCSC are gradually worked into our files.

4.4 The Exfor/Cinda dictionaries were frequently updated, without delay, whenever a new code was introduced.

4.5 The NDS Exfor Manual has been kept up-to-date in agreement with the decisions from the last 4C-Meeting and the recent Manual update by NNCSC.

4.6 There was not sufficient manpower available to document the errors encountered in incoming EXFOR tapes.

5. EVALUATED DATA

5.1 Some new evaluated data were received from the three other Centers and are gratefully acknowledged.

5.2 An index of evaluated data presently available at NDS is being prepared ("CINDU-11"), and will be sent out to customers in area 3. This will no longer include a detailed index of experimental data.

5.3 Computer programs to retrieve from and update the evaluated data libraries have been improved.

6. CUSTOMER SERVICES

6.1 The NDS statistics for the calendar year 1974 have been distributed as memo 4C-3/119.

7. TRANSLATIONS

7.1 Translations of USSR progress reports (YFI-) and of occasional interesting reports were prepared. Translations of other documents such as Jadernye Konstanty had to be discontinued.

7.2 Some USSR publications have now English abstracts.

8. DATA REVIEWS

8.1 A Handbook on Nuclear Activation Cross-Sections has been published as IAEA Technical Report Nr. 156.

8.2 The proceedings of the 1972 meeting on Neutron Standard Reference Data have been published. (IAEA Panel Proceedings Series)

8.3 The proceedings of the Bologna Fission-Product Nuclear Data Panel have been published and are available on microfiches. (Report IAEA-169)

8.4 The third IAEA evaluation of the 2200 m/s and thermal Maxwellian neutron data of the main fissile isotopes has been finished. A summary was presented at the March 1975 Nuclear Data Conference in Washington. The full report will soon be available as INDC(NDS)-64.

8.5 The work on the review of threshold reactions for reactor neutron dosimetry continues.

9. WRENDA

9.1 WRENDA74 has been published. WRENDA75 is being prepared.

9.2 An improvement in the continuation between the centers in input and status review would be desirable.

10. RESEARCH SUPPORT AND DATA ACTIVITIES IN AREA 3 AND JAPAN

10.1 The target-and-sample program continues.

10.2 A regional cooperation on fission product nuclear data measurement and evaluation between Japan and Korea (JAERI and KAERI) will shortly be discussed on the level of the Scientific Ministers of both countries.

10.3 Trombay, India, is starting a nuclear data measurement and evaluation program needed for the Th-232/U-233 nuclear fuel cycle.

10.4 Discussions are underway which may lead to setting up three regional nuclear data centers in Australia, Japan and India.

11. NON-NEUTRON DATA

11.1 A questionnaire on the use of non-neutron nuclear data will be sent out during the first half of the year. Distribution lists for most countries have been prepared.

11.2 The IFRC (International Fusion Research Council) requested that the IAEA perform a survey of existing compilation activities in the field of atomic and molecular data for fusion.

11.3 A Non-Neutron Nuclear Data Reference File (Compilation of compilations) was started.

12. PAST MEETINGS

12.1 A Lorenz attended the CODATA Meeting 24-27 June 1974 in Erevan, USSR.

12.2 The 7th INDC-Meeting took place 7-11 October 1974 in Luca-Heights, Australia. It was attended by J.J. Schmidt.

12.3 In Petten, September 1974, the second international Symposium on Neutron Capture Gamma Ray Spectroscopy was attended by J. Lemley.

12.4 In Smolenice, CSSR, September 1974, an International Symposium on Neutron-induced Reactions was attended by A. Calamand

13. FUTURE MEETINGS

13.1 Beginning of March 1975 the 37th Meeting of the Euratom Working Group on Reactor Dosimetry takes place. It is dealing with the preparation of the First ASTM/Euratom Symposium on Reactor Dosimetry, Petten, September 1975. This will be attended by M. Vlasov.

13.2 The 5th International Conference on Atomic Masses and Fundamental Constants will be attended by A. Lorenz. The Conference will take place in Paris in June 1975.

13.3 A Consultants Meeting on charged particle nuclear data compilation to be organized by A. Calamand and K. Okamoto will probably be held during the latter half of the year.

13.4 The next INDC Meeting is scheduled to take place in Vienna 6–10 October 1975.

13.5 A consultants' Meeting on the Use of Nuclear Theory in Neutron Nuclear Data Evaluation will be convened at the International Centre for Theoretical Physics, Trieste, from 8–12 December 1975.

13.6 An Advisory Group Meeting on Transactinium Isotope Nuclear Data will be held very probably at Karlsruhe from 3–7 November 1975.

REQUEST STATISTICS

TABLE Ia

1 Jan. 1974 to 31 Dec. 1974

AREA 3

Country origin	Experimental	Evaluated	CINDA retrievals	RENDA retrievals	Documents	Total (74)	Total previous year (73)
AREA 1							
NNCSC	1				1	2	9
Canada					2	2	1
USA	1				12	13	11
AREA 2							
NDCC	5		9		2	16	16
AUS	1	2			2	5	1
BLG					1	1	4
FR					8	8	6
GER					3	3	10
ITY	-	-	-		-	-	2
NED					1	1	1
NOR	-	-	-		-	-	1
SAC					1	1	
SWD	1				1	2	1
SWT		2			2	4	3
UK					3	3	2
AREA 3							
ARG	1				1	2	1
AUL	1		1			2	0
BAN	1	1				2	1
BZL	1	1				2	3
CHL	1						1
CSR	3	2	1		1	7	4
DDR	3	3			2	8	6
HUN		2			3	5	8
IAE		1				1	0
IND	3	3		1	7	14	13
ISL	2	1			4	7	2
KOR		1				1	3
PAK							1
POL	2	1			1	4	2
RUM	1				3	4	2
SAF	2	1				3	4
UAR	1	1				2	0
VEN					1	1	0
YUG	2			1	1	4	1
AREA 4							
CJD	1	2				3	3
CCP					1	1	5
DUB					1	1	
	33	24	11	2	65	135	128

REQUEST STATISTICS

TABLE Ic

1 Jan. 1974 to 31 Dec. 1974

AREA 3

Request Disposition	Number of requests for data					Total	Total Previous Year
	Experimental	Evaluated	CINDA retrievals	RENDA retrievals	Documents		
Fulfilled	27	21	11	2	58	119	101
Partially Fulfilled	1	2			4	7	15
Unfulfilled					2	2	10
Pending	5	1			1	7	2
Total	33	24	11	2	65	135	128

D I S S E M I N A T I O N S T A T I S T I C S

TABLE II

1 Jan. 1974 to 31 Dec. 1974

AREA 3

Data Type	Amount		
	Data Sets	containing	Data Points
Experimental (total)	1690		118.657
Exfor 1-4	1101		107.717
Exfor 5-8	345		6.271
Dastar (Areas 1,2,4)	244		4.669
Evaluated (total)	2583	Data Files	
KEDAK	168	"	"
UKNDL	327	"	"
ENDF	3	"	"
AUL & BOL	1103	"	"
BOYAD	2	"	"
DASTAR	771	"	"
LLLENDL	10	"	"
MUSGROVE	199	"	"
Bibliographic	Only Requests for Cinda retrievals were counted (see table Ic), not the number of Cinda entries per request.		
Documents (total)	16 946		
individual requests	109		
Distribution of INDC docs.	15 283		
Distribution of other docs.	1 554		

TABLE 3

Z A Q R E Q U E S T S T A T I S T I C S

1 Jan. 1974 to 31 Dec. 1974

AREA 3

Element	A	All	TOT	SEL DEL	SIN DIN	NG SNG	NF	N2N NA ND NT	RES	other
ALL						I				
MANY								IIIII	I	IIII
H		I								
Li		III	II	IIII				I		
Be			II	III	I			III	I	
B			II	IIII						
C			I	II						
N			I	II						
F		I								
Ca		IIIIII								
Ti								I		
Ni					IIIIII					IIIIIIII
Se								III		
Nb		I			II					III
Rh			I	IIII	I				II	
Cd		IIII	IIII		II					
In		I			I					
Sn					I					
Sb										I
Nd								III		
Dy			I							
Au		I								
Th				III	I					
U	235			II	II					I
U	238		I	II	II					
Pu	239			II	II					

Development by year

	1970	1971	1972	1973	1974
Number of Cinda entries, cumulative (T = thousand)	65 T	73 T	87 T	98 T	108 T
Number of Exfor subentries, series 1-4					
a) exchanged per year, new ones	304	1837	3070	2810	2655
b) exchanged per year, revised	0	8	462	336	173
c) total library, cumulative (Source: H.Potters, 75-1-20)	304	2141	5211	8021	10676
Number of data sets disseminated in area 3					
a) experimental, per year	127	353	1099	7671 *	1690
b) evaluated, per year	201	1494	3186	1948	2695
c) total, per year	328	1847	4285	9619 *	4385
* including distribtution of $\bar{\nu}$ compilation, etc.					
Number of data lines disseminated in area 3					
a) experimental, per year	20 T	73 T	142 T	174 T	119 T
b) evaluated, per year	316 T	1023 T	821 T	368 T	1053 T
c) total, per year (T = thousand)	336 T	1095 T	963 T	542 T	1171 T

F: CJD PROGRESS REPORT

EXFOR. From June 1974 the tapes 4017-4021 containing 60 works have been transmitted. The tape 4021 contains works converted from DASTAR. Thus, by this time 210 works have been put on magnetic tapes in the EXFOR format and transmitted to other centres. 20 works are put on tapes, and compilation of 30 works is under way now. The EXFOR coverage for the works published in 1968-1973 years is 60%. For the works published in 1970-1972 the coverage is about 80%. By the end of 1975 the CJD expects the EXFOR coverage to be above 90% for the works of 1968-1973 period. The work on programmes connected with the EXFOR library is in progress.

EVALUATED DATA. The evaluation of natural iron has been completed in the CJD. The data have been put on a magnetic tape in the SOCRATOR format. The evaluation of all cross-sections of Ni and Cr is in progress. Recently evaluated full files of Pu-239, U-235, D, He-3, He-4 isotopes of Er and cross sections of Pu-238, Am-243 and Cm-244 have been put on magnetic tapes. The detailed description of these files is in the CJD. Full texts or brief description will be published in the "Nuclear Constants".

THE REQUIREMENT DETERMINATION. The CJD has determined requirements in nuclear data accuracy for WRENDA-75 for main reactor materials using the CJD system of programmes, the experiment planning and constant adjustment.

THE CJD EDITIONS. During the period after 10 th Four Centre Meeting the following editions have been published: the "Nuclear Constants" No.12, part 2 (compilation "The results of investigation of photoneutron reactions near the threshold"), No.13 and the supplement to No.13, No.14 (compilation "The radiactive decay and nuclear level scheme of heavy elements" ($Z \geqslant 90$)), the supplement to 14 (compilation "The constants and decay schemes of gamma emmiting isotopes"), No.15 and No.16. The collections "Nuclear Constants" No.17 and 18 are in the process of publication. Collection No.16 contains English abstracts. Except No.17, all the collections will be published with Englich abstracts. During the reporting period the collec-

tions of the abstracts "Nuclear physics investigation in the USSR" No.17,18,19 have been also published.

THE REQUESTS. The Nuclear Data Centre have received from the Institutes of the USSR 88 requests:

on documents - 37 requests
on evaluated data - 27 requests
on experimental data - 24 requests

45 documents have been sent in answer to these requests. From 51 requests on nuclear data 46 requests have been completely fulfilled and 5 - in part.

Request Statistics

Area 4

1 Jan. 1974 to 31 Dec. 1974

Experimental	Evaluated	Documents	Total
24	27	37	88

G: Forms for Statistics

1. Request Statistics: see 4C-memo-3/93, section II.

2. Exfor Statistics*:

Area	No. of sets transmitted	No. of sets in process	No. of known works	No. of sets waiting for data

* Exfor Statistics presented at the time of the Eleventh 4-Centre meeting are given in Appendix I. They are to be updated and sent to NDS using the above format by September 1st for presentation at the next INDC meeting.

H: 11 th 4C-Meeting

- WRENDA -

A. Because of competing priorities NDS must reduce the number of man-hours required to produce the WRENDA request lists. We therefore ask that all centers implement immediately the procedures agreed at the 8 th 4C Meeting. The relevant sections of the Minutes of that Meeting are attached; note especially Paragraph 59 on p. 51 INDC(NDS)-51.

The following items have become unnecessarily time consuming at NDS:

1. Coding: In order to meet deadlines NDS had volunteered to code modifications to requests and even to code new requests. Because of limited manpower and other expanding responsibilities it is likely that NDS can no longer continue to code requests from outside its service area.

   a) CCDN: We understand that CCDN now intends to code all new requests from its service area and to submit them to NDS in the agreed format. We request that modified requests also be submitted in the agreed format.

   b) NNCSC: We request that all new and modified requests be submitted in the agreed format. The points mentioned in Items 3 and 4 have been particularly time consuming in the case of requests submitted by NNCSC. Will NNCSC be able to assume responsibility for requests from Canada ?

   c) CJD: New requests have been submitted on coding sheets and could be processed reasonably conveniently. We request that modified requests also be submitted in coded form.

2. Status File: There seems to be no consensus among the nuclear data communities about the usefulness, contents and review policy of the status file. The present status file reflects the lack of consensus. The contents of the status file are the responsibilities of the originating countries and Centers. NDS cannot continue to devote time to editing and reviewing the status file.

3. Request identification numbers and modification history: It has been extremely time consuming to modify requests correctly and to trace identification numbers from one modification to the next because the agreed procedures have not been carefully followed by all Centers.

4. The allowed character set for WRENDA is the same as for EXFOR !

   ↑ → NNCSC !!?←↑

B. We propose that special request lists such as those for safeguards and fusion also be handled according to the procedures previously agree for fission reactor requests.

Reprint from INDC(NDS)-51
(8th 4C-Meeting)

V. RENDA in Detail

V.a Policy for the regular production of a world-wide RENDA within the context of 4-Centre Cooperation.

56. The Four Centres agreed to cooperate in the production of RENDA which will be called WRENDA, on a world-wide basis as summarized below based on the detailed proposal submitted for consideration by Attree and Dunford (Memo 4C-3/62).

57. The request list will consist of officially screened nuclear data requests submitted by responsible authorities. These data requests will be maintained as a single file of information including all types of nuclear data and application fields. The system is designed to be open ended to permit

extensions of the system to new application fields and new nuclear data types not currently allowed in the present RENDA.

58. A major new feature of this proposal is a "blocking system" for similar nuclear data requests. The "blocking" criteria are the following : 1) Target (Z and A), 2) Projectile, 3) Reaction. Data grouped in this manner represent a "measurement request" in the sense of the users of a request list. In general status comments apply equally to all the requests within a block. It is strongly felt that a logical grouping of the data such as proposed here will improve the comprehension and credibility of the WRENDA publication and ease the workload for the subject reviewers.

59. The operation of the WRENDA system will be carried out within the Four Centre framework. Each centre will be responsible for the communication with the screening authorities within its service area and for preparing coded entries (new or revised) for the nuclear data requests from its service area. These data will be forwarded to the NDS in the WRENDA transmission format described in the appendices of this document. The Nuclear Data Section will maintain the WRENDA master file and publish the WRENDA document from this file.

60. NDS provides the four centres with country retrievals which can be forwarded by the Centres to the appropriate reviewing authorities. New and Revised requests will be encoded by the Four Centres as well as any changes to the Status Comments and forwarded to NDS. Specialist review activities will be handled entirely by NDS. Specialists will no longer be requested to review individual requests but only the data groups or "blocks" previously described. Specialist comments will be encoded by NDS and integrated into the Status file.

61. The conversion of the present RENDA file held by CCDN will be done by NDS by the time the first "country" retrievals are scheduled for the initial review by the local screening authorities. This initial review of WRENDA will also be used to validate the converted entries.

62. Extensive discussion of an operational schedule and details of the WRENDA transmission format followed. This discussion included an alternative format presented by Fröhner (Memo 4C-2/33). A revised transmission format was adopted and appears in Appendix 4CM/VIII/16. It contains the technical details, revised entry forms and dictionary modifications which were agreed upon at the meeting. The annual production of WRENDA after 1975 appears feasible if new requests are submitted in parallel with the status reviews. The NDS is to contact the INDC for advice on this matter.

63. It was agreed that the meaning of requested accuracies should be discussed further by the Centres and by the INDC. Until a common understanding is reached, WRENDA must include necessary qualifying and explanatory information. [Note: It was recommended at the EANDC Meeting, November 1972, to eliminate reviews by subject specialists. Details to be supplied separately.]

I: POST 1970 EXFOR STATISTICS

AREA	NO. SETS TRANSMITTED	NO. SETS IN PROCESS	NO. KNOWN WORKS	NO. WAITING FOR DATA
1	341	96	472	35
2	158	164*		
3	300	5		45
44	210	70	354+	74

* includes no. of sets waiting for data.

\+ includes post 1968 works.

These numbers indicate that some data centres have difficulties in carrying out their task in the field of international exchange. It was felt that all necessary man power should be made available by the responsible international organizations to enable the centres to fulfill their mission.

J. New Actions

Action #	On	Text
1	CCDN	Send a copy of the list of all area 2 data (1970 +) that is in NEUDADA but not yet in EXFOR to all other centres.
2	ALL	A description of each centres computational format, including plans and preliminary formats, is to be sent to all other centres.
3	ALL	By 1 Sept. 1975, all centres must send to NDS up-to-date EXFOR statistics in agreed upon format for submission to INDC meeting. (see attached sample table)
4	ALL	A nominal number (at least 2) of copies of publications by any centre should be forwarded to the other centres.
5	CCDN NDS NNCSC	To exchange information on CINDA checking programs in order to make them compatible. Exchange CINDA input cards to be tested by each center with their checking program.
6	ALL	Document in a 4-C memo user reactions to CINDA (e.g. usefulness of blocking system) for use in evaluating the present CINDA system.
7	NNCSC CCDN NDS	Exchange CINDA coverage control information 1 month before entry deadlines for each publication.

Action #	On	Text
8	CCDN	To make an effort to increase supervision of individual CINDA readers and provide better coverage control.
9	ALL	On the completeness of CINDA: effort should be made to have entries relating to post 1970 data that has been transmitted in EXFOR and to have all CINDA entries made after 1 Jan. 1975 completely blocked and corrected. For these blocks "no book" flags should be added using the criteria agreed to at this meeting and data index lines should be included (this action is to be completed by 12 Dec. 1975).
10	NDS	To issue a memo clearly describing the differences between and the uses of the quantities concerning Resonance Integrals (RIA, RIF, RIG, and RIR).
11	NDS	Add to the CINDA manual the method for coding metastable targets.
12	H. Goldstein H. Lemmel N. Holden	Issue a memo concerning the legal usage of the quantity Thermal Scattering Law (TSL).
13	NDS	Scan CINDA entries listed under "disappearance" to determine if this quantity is necessary.
14	NDS	Review CINDA entries listed under "n-production" and "n-emission" to evaluate the usefulness of these two different quantities.

Action #	On	Text
15	CCDN NDS	To inform other centres of any problems in including the nuclide "neutron" in CINDA. Also inform other centres for what cases this entry would be legal. (to be included in CINDA manual)
16	NDS	Supply specifications for the input format of the CINDA book program to NNCSC for review of usefulness of initiating this capability at NNCSC.
17	CCDN	Send periodic lists to each centre of new entries made in CINDA relating to work performed in that centres area.
18	CCDN	To send to NNCSC after CINDA book deadline a complete CINDA file and to send to NNCSC monthly updates to the CINDA file. These updates should not be cumulative.
19	CCDN	To send to NNCSC and NDS, CINDA LAB and REF sorts after each publication.
20	ALL	To try to include CINDA-type indices in conferences and progress reports issued in their area.
21	ALL	Investigate the feasibility of transmitting future WRENDA requests in the prescribed format. (cf. 4CM/VIII/MIN)

Action #	On	Text
22	NDS	After completion of WRENDA-75- NDS to retrieve from WRENDA the US request list in a single Z-A-Q sort for all applications. NNCSC to revise this list and return revised list to NDS in WRENDA format for publication of WRENDA 76. (to be reviewed after 1 year)
23	ALL	All items concerning WRENDA in 4CM/VIII/MIN are to be discussed at the individual centres. If any difficulties in implementing these items, memos are to be issued within one month.
24	NNCSC (C. Dunford)	To discuss at next USNDC meeting the problems of discerning why a request was modified or withdrawn (e.g. satisfied vs withdrawn).
25	ALL	Review EXFOR manuals in order to make them more compatible with checking program specifications.
26	ALL	EXFOR user (e.g. experimentalists) manuals prepared at each centre should be exchanged between centres for comments and suggestions.
27	NNCSC	To send 5 complete copies of the EXFOR manual to CJD.
28	NNCSC	To investigate the possibility of restructuring EXFOR/LEXFOR manuals so as to separate the format material from the procedures material.

Action #	On	Text
29	ALL	It would be desirable for all centres to send a status list of EXFOR entries when sending a Trans-tape. (status list to include: data sets compiled but not yet transmitted and data sets being compiled)
30	ALL	Inform CCDN of any data sets translated from NEUDADA to EXFOR by other centres so as not to duplicate this effort.
31	ALL	Compare the translated SCISRS-I data (50000 and 80000 series tapes) with present EXFOR files. Send a memo listing separately: (a) which ones have been transmitted in regular EXFOR (b) which ones will be transmitted in regular EXFOR (c) which ones will not be transmitted in regular EXFOR. (regular EXFOR is the 10000-49999 series)
32	CCDN	To continue to send EXFOR exchange statistics but including the
33	NDS (K. Okamoto)	To write a 4/C memo concerning the compilation of delayed neutron yield data in EXFOR format. (The 1 month limit will be extended for discussion and response.)
34	NNCSC	Investigate the feasibility of translation of the Nuclear Data Project capture gamma-ray computerized data file into an EXFOR-like format.
35	NDS	To provide to each centre a listing of capture gamma-ray compilations being done in all areas.

Action #	On	Text
36	NNCSC	Send to all centres the evaluated resonance parameters from BNL-325, Volume I, 3rd edition, on tape, including format description.
37	CJD NDS	Review situation for implementation of pointers in subentry 1.
38	NNCSC	To review the possibility of implementing the "Vector Common Data" in the EXFOR format. (feature 3 listed in 10th 4/C Meeting minutes, page 11)
39	NNCSC (C. Dunford)	Write a 4/C memo concerning generalized ISO-QUANT proposals and practices, including a critique of Kronenberg's proposal.
40	NNCSC (V. May)	To prepare additions to EXFOR manual concerning uses of modifier "PAR" for resonance integrals and the optional use for coded information of the keyword "RESID-NUC".
41	NNCSC	Review the differences in mono-nuclidic elements in CINDA and EXFOR to determine how to make them more compatible.
42	NNCSC	Transmit updates to EXFOR Quantity dictionary relating to multi-level resonance parameters.
43	ALL	All centres are to encourage users of the Standard files to supply feedback information to the centres and originators of evaluations (Action #15 from 7th INDC meeting).

Action #	On	Text
44	ALL	Evaluations and/or comparisons of available evaluations going on within the centres area should be reported to the other data centres as soon as possible. Also inform other centres about documentation of evaluations.
45	NNCSC	To send a tape to all centres, after agreement by Berman, his photoneutron data library translated into EXFOR format.
46	NNCSC	To send a tape to all centres the data in the "starter" charged particle library in ENDF format.
47	NNCSC (N. Holden)	To investigate the adequacy of the keyword system for neutron data.

Distribution:

S. Pearlstein, NNCSC	15
L. Lesca, NDCC	15
V. Manokhin, CJD	15
J. Schmidt, NDS	15
INDC G distribution	$\approx$ 30