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Memo CP-D/741

Date: 30 April 2012
To: Distribution
From: N. Otsuka

Subject: NRDC2012 - Meeting summary, Conclusions and Actions

Please find attached drafts of Meeting summary and Conclusions and Actions of the 2012 NRDC meeting. Major differences from the draft reviewed at the meeting are

A5: "coordinated by Zerkin" was added (coordinator of the working group).
A70: A new action to Zerkin was added (preparation of draft of covariance entries).

Please give your feedback about any mistakes or omissions by the end of May 2012. Especially your comments on the meeting summary The complete meeting summary will, as usual, then be published as an INDC report (INDC(NDS)-0618).

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Summary Report on
IAEA Technical Meeting on the
International Network of Nuclear Reaction Data Centres
OECD Nuclear Energy Agency, Issy-les-Moulineaux, France
16 – 19 April 2012

Abstract
This report summarizes the IAEA Technical Meeting on the International Network of Nuclear Reaction Data Centres was held at the OECD Nuclear Energy Agency (NEA) in Issy-les-Moulineaux, France from 16 to 19 April 2012. The meeting was attended by twenty-three participants representing thirteen cooperative centres from eight Member States and two International Organisations. A summary of the meeting is given in this report along with the conclusions and actions.

1. Introduction
The IAEA Technical Meeting on the International Network of Nuclear Reaction Data Centres was held at the OECD Nuclear Energy Agency (NEA) in Issy-les-Moulineaux, France from 16 to 19 April 2012. The meeting was attended by twenty-three participants (Appendix 1) representing thirteen cooperative centres from eight Member States (China, Hungary, India, Japan, Korea, Russia, Ukraine, USA) and two International Organisations (NEA, IAEA). Meetings of this network are held annually, with full meetings, involving Centre heads and technical staff, every two years.

Main topics of the present meeting were EXFOR transmission statistics, EXFOR coverage and quality control, needs of EXFOR users, update of manuals, NRDC Network Document and Protocol, EXFOR/CINDA dictionaries, EXFOR exchange and output formats as well as improved web tools and software (see Appendix 2).

Totally forty-one working papers were presented at the meeting. The results of the discussions were summarized in twenty Conclusions and seventy-three Actions (see Appendix 3).

2. Brief Summary
2.1 Opening
T. Dujardin, Deputy Director General of the OECD Nuclear Energy Agency, welcomed the participants of the meeting on behalf of the NEA. The objectives of the meeting

were outlined by R. Forrest, Head of the IAEA Nuclear Data Section.

E. Dupont was elected as the chairman, and the agenda was adopted without change. Progress reports from all thirteen attending centres were presented, highlighting the overall as well as the staffing situation of the centres, their compilation activities, data services, other nuclear data activities of interest to the network, and relevant publications. See also progress reports P2011-01 to P2011-11 for further details. Apology for absence was received from A. Blokhin and M. Mikhaylyukova (CJD, Obninsk, Russia).

2.2 EXFOR (General)

N. Otsuka reviewed the status of transmissions since the last meeting, currently scanned journals, compilation of articles published in the ND2010 Conference, and preliminary tape checking performed by centres on behalf of V. Semkova. He also reported his analysis on delay in compilation (= time of transmission – time of publication) for eight selected journals published in 2011. The delay is 5.7 months in average, which has been slightly reduced since the previous year. Finally he reported the current status of coding mistakes registered to the EXFOR Feedback List.

V. Zerkin presented updates of the EXFOR Compilation Control System. The first author of each article can be registered to the system, and compilers can search articles having the same author in the EXFOR database. This may help compilers to avoid creation of a new entry for which the same experimental work has been already compiled in another entry.

N. Otsuka introduced a new scanning responsibility proposed by CJD and NNDC. CJD proposed scanning of six Russian journals, and NNDC also proposed scanning of Astrophysical Journal and its Letters. These proposals were welcomed by participants.

R. Forrest reported two IAEA meetings - Technical Meeting (TM) on Long-term Needs for Nuclear Data Development, 2-4 November 2011, Vienna, and Consultant Meeting (CM) on Further Development of EXFOR, 6–9 March 2012, Vienna. Both meetings treated subjects strongly related to EXFOR compilation activity. The latter meeting discussed a possible new exchange format (e.g., XML), variety of output formats, web tools for visualisation, and editors which may isolate compilers from the exchange format, and he briefly summarized the conclusions and recommendations from the

meeting. The meeting participants of the CM concluded there is no crucial issue forcing a major change of the exchange format. Nevertheless the participants of the present meeting agreed to form a working group to discuss an opportunity to use XML as the new exchange format.

2.3 Manuals and Dictionaries

S. Hlavač proposed revision of the dictionary 25 (Units) to improve consistency in prefixes within the dictionary as well as consistency with the International Systems of Units (SI). He proposed modification of `-SQ` (squared) to `2`, and also `MICRO-` (micro) to `MU-` in the unit codes. He also proposed to change `FERMI` to `FM` and `MILLI-MU` to `NM`.

N. Otsuka proposed extension of the maximum character length of particle codes (Dictionary 33) from three to five for short nuclide codes. R. Forrest proposed to change it to six to allow an isomeric state flag (e.g., AM242M). N. Otsuka also introduced a new related reference type code `O` (e.g., `O,D4232001,F.Ditroi+,J,NIM/B,268,2571,2010`) to indicate articles which show experimental data sets relevant to the entry but that are not compiled in the same entry.

N. Soppera reviewed problems and possible improvements of the EXFOR/CINDA dictionary. He explained there are various formats in distributed dictionaries (archive, backup, trans) and also dictionaries not currently used. He also mentioned that more up-to-date dictionaries are necessary to reduce unnecessary error messages from checking codes and display software. He proposed assessment of current usages of the dictionaries (formats, contents) and dissemination of “preliminary up-to-date dictionaries”.

2.4 CINDA

V. Zerkin reported that update of the CINDA database maintained by NDS is currently done using the following three steps – (1) inclusion of lines from the manual CINDA compilation, (2) inclusion of lines from EXFOR, (3) inclusion of lines from NSR, and he also explained that only the lines from the first and second step are included into the CINDA Master File. NEA DB and JCPRG are maintaining their own CINDA databases, and they were asked to inform V. Zerkin whether they wish to receive the CINDA Master File including the CINDA lines from the third step. V. Zerkin also proposed not to use reader files for future CINDA transmission.

2.5 EXFOR Compilation

O. Gritzay proposed coding rules for compilation of neutron source spectra which are necessary to utilize spectrum averaged cross sections compiled in the EXFOR library.

N. Otsuka reviewed progress in compilation of neutron source spectra, nuclear resonance fluorescence data and proton-induced reaction cross sections. He also reported proton-induced isotope production cross section articles tabulated in Landolt - Börnstein compilation but missing in the EXFOR library, and asked centres to compile these articles. Finally he reviewed progress in corrections of two digit year and upper case entries, angular distribution without level energy, prompt fission neutron spectra, super heavy elements symbols and English translation of Atomnaya Energiya (AE) missing in the EXFOR library.

S. Babykina reported EXFOR entries where the English translation of Yadernaya Fizika (YF) is missing, and asked centres to add translation information to the EXFOR entries.

N. Otsuka introduced the JANIS Import Log created from every EXFOR Master File. He introduced various "error" and "warning" types listed by the JANIS Import Log, and explained that the number of errors has been decreased since the last NRDC meeting for all types. He proposed corrections of 11 subentries which are reported as an "error" (which does not allow further checking by JANIS).

M. Bossant explained erroneous citations found in coded information under the keywords TITLE, AUTHOR, REFERENCE, REL-REF and MONIT-REF. He recommended (unless absolutely necessary) not coding the issue number, month and day of publication in order to avoid mistakes.

V. Zerkin proposed to code some data in "free text format" to preserve various covariance information under the keyword COVARIANCE from his experience of covariance processing.

N. Otsuka proposed a change in the usage of the fourth field of the keyword ERR-ANALYS from correlation coefficients to correlation properties by introducing several flags (e.g., F for fully correlated, U for uncorrelated), and it was approved. He also proposed to replace "systematic" by "partial" in the expansions of the data headings ERR-1, ERR-2 etc. because these headings have been applied to both correlated and

uncorrelated uncertainties. V. Zerkin proposed to postpone this change because these uncertainties are treated as being fully correlated in his program to produce data in the C5 format. N. Otsuka agreed with his proposal.

N. Otsuka reviewed gamma spectra compiled in the EXFOR library. There are two groups of parameter codes, namely (1) SPC and (2) PY and MLT to define gamma yields coded with gamma energy (or the range), and he proposed to use (1) SPC for discrete gamma lines and (2) PY and MLT for continuous gamma spectra.

N. Otsuka reported the recent comparison of kT = 30 keV Maxwellian averaged cross section (MACS) accessible from the EXFOR database and Karlsruhe Astrophysical Database of Nuclear synthesis in Stars (KADoNiS) performed by V. Semkova, B. Pritychenko and him. He reported that some articles in KADoNiS are missing from the EXFOR library, but sometimes data in such articles are compiled in EXFOR entries for other articles. He proposed the addition of such missing articles to the EXFOR entries. M. Herman stressed that the MACS experimental data should be compiled even if they were complemented by other experimental and/or theoretical results. He also proposed compilation of MACS recommended by the Karlsruhe group. R. Forrest commented that the neutron spectrum must be well specified when the experimentally determined MACS are compiled in an EXFOR entry.

N. Otsuka introduced possible delayed neutron data compilation in the EXFOR library recently assessed by V. Semkova. The priority of compilation has been rather low for these data in the past, it could be due to the fact that they are on the boundary between reaction data and decay data. M. Herman mentioned these quantities are rather close to the scope of data in ENDF libraries from the view of their application, and supported the idea to compile them in the EXFOR library.

N. Otsuka introduced four working papers prepared by M. Mikhaylyukova. He informed that the “Short Guide for EXFOR Compilers” was revised by CJD following actions of the NRDC 2011 Meeting. Then he introduced Mikhaylyukova’s comments and proposals on information given under the keyword SAMPLE and INC-SOURCE. The participants recognized some entries shown in her working papers are obviously erroneous and should be corrected. It was also confirmed that the keyword INC-SOURCE will not be used for spontaneous fission data. Finally N. Otsuka introduced her proposal on automatic conversion of the journal code ND/B to NDS for articles published in

Nuclear Data Sheets. The meeting participants agreed inclusion of the special transmission tape (PRELIM.Y008) to the EXFOR library for corrected entries which were agreed with the originating centres.

2.6 Evaluated Data Libraries

N. Otsuka explained his recent experience on comparison of the $^{27}Al(n,\alpha)^{24}Na$ standard cross section evaluated and compiled in the ENDF/B-V and ENDF/B-VI libraries. Search and plotting of the ENDF/B-V library is not available in the web tools provided by centres, and he had to manipulate cross sections in the ENDF-5 format by himself. He also introduced comments from D.L. Smith (ANL), and proposed collection and exchange of old evaluated data libraries and inclusion of them to the database maintained by centres, especially for renormalization of old EXFOR data sets.

2.7 Software and Dissemination

R. Forrest explained that NDS collects the electronic articles as PDFs for references to data compiled in the EXFOR library. The PDFs are exclusively available for IAEA NDS staff and people working under contracts (such as CRPs and consultancies) with the IAEA, and are not generally available because of copyright limitations.

S. Taova introduced a proposed revision of the NRDC Protocol Chapter "EXFOR processing and retrieval codes". She explained the advantages of executable module exchange. The participants agreed to encourage free exchange of software and co-operation in software development between centres, and to describe it as a preamble of the NRDC Protocol Chapter without a detailed revision to the Protocol.

G. Pikulina explained recent development of the editor (EXFOR-Editor) developed at CNPD. She reported on EXFOR-Editor Ver. 1.11.1 which was released in December 2011, and mentioned that there will be no substantial upgrade of this version but they will maintain it by taking account of feedbacks from users. She also introduced possible simplification of compilation by extending the concepts of EXFOR-Wizard, a trial version of which is available on the NRDC Software webpage as "EXFOR-Editor Ver. 2.0".

M. Aikawa introduced the systems maintained by JCPRG for compilers and users. He explained that JCPRG maintains their EXFOR database by inclusion of finalized transmission tapes from the NDS open area one by one, while updating their CINDA

database based on the CINDA Master File distributed by NDS. He also introduced an e-mail archiving system “Stock” which automatically collects e-mails between compilers, authors and data. He also introduced GSYS 2.4.2, the latest version of the digitizer released in November 2011 with an updated English manual. He noted that R. Suzuki (Hokkaido Univ. Hospital) plans refactoring of the digitizer program to implement “undo” and “redo” functions.

V. Zerkin introduced his recent developments of a web tool for covariance matrix construction from EXFOR uncertainties. He explained that users can (1) confirm and change uncertainties coded in an EXFOR entry, and also can introduce new uncertainties; (2) introduce a correlation type for each partial uncertainty; (3) obtain constructed covariance data (in the ENDF-6 and EXFOR formats), and plot with Fortran codes to read covariance data generated from the tool. V. Zerkin also reported progress in development of the EXFOR Data Correction System in 2011-2012. He introduced the syntax, variables, constants and operations defined by the system with several examples of corrections performed on the system. He reported that a coding error under the keyword `MONIT-REF` (e.g., `IAEA-1211` or `IAEA-NDS-1211` instead of `IAEA-TECDOC-1211`) may disturb his system. Finally V. Zerkin presented his recent development of various EXFOR output formats (X4+, XML and HTML). After brief introduction of X4+, he introduced a revised X4+ as well as X4+ created by a standalone program. He explained the X4+ output is suitable for author proof correction, and asked participants to send comments to him how to best utilize the output for this purpose. He also introduced EXFOR-XML output with some examples and solutions and also presented its XSL translation to HTML + Javascript interactive pages. He explained that the EXFOR-XML output format still requires users to have various knowledge of EXFOR (data file structure, dictionaries etc.) and proposed the EXFOR “Standard Output” which is equivalent to the EXFOR exchange format but much easier to read and to interpret information in the EXFOR library.

N. Soppera presented software to facilitate visualisation and manipulation of nuclear data, JANIS (Java-based Nuclear Information Software). He introduced various windows (browser window, renderer window), search tools and computation functions. He also explained some tools derived from JANIS (TRANS Checker, JANIS Books, automatic comparison tools EXFOR with EXFOR, EXFOR with ENDF). This presentation was followed by a demonstration by E. Dupont.

Guochang Chen requested to include EXFOR/MySQL database (part of EndVer/GUI CDROM) to be regularly distributed to the NRDC. V. Zerkin answered that it is a service provided by NDS, and he should request NDS directly.

2.7 Closing

M. Herman introduced the ND2013 Conference (New York, USA, March 4-8, 2013) and invited NRDC members to participate.

A. Makinaga introduced the Asian collaboration in nuclear data research.

N. Otsuka proposed the plans for the next full NRDC meeting (Smolenice, Slovakia, the 2nd quarter of 2014), technical NRDC meeting (Vienna, Austria, the week of 22-26 April, 2013) as well as EXFOR compilation workshop (Vienna, Austria, the 3rd quarter of 2013).

R. Forrest thanked NEA for hosting and congratulated participants on a very successful meeting. He then called an adjournment of the meeting.

Conclusions and Actions of the 2012 NRDC Meeting (Draft)

Conclusions

General

C1 The next full NRDC meeting will be held in Smolenice, Slovakia in the 2nd quarter of 2014.

C2 The next technical NRDC meeting will be held in Vienna, Austria in the week of 22 – 26 April 2013.

C3 The next EXFOR Compilation Workshop will be held in Vienna, Austria in the 3rd quarter of 2013.

EXFOR, General

C4 CJD will scan AE, ZET, ZEP, PTE, FCY and FCY/L, and report the result to Semkova for every issue on a regular basis.

C5 NNDC will scan AJ and AJ/L, and report the result to Semkova for every issue on a regular basis.

Manuals and Dictionaries

C6 Unification of prefixes in unit codes proposed in WP2012-09 and change of prefixes MICRO- to MU- in dictionary 25 were approved.

C7 The code length of particle codes (Dictionary 33) will be 6 or less for short nuclide codes (e.g., AM242M).

C8 LEXFOR entry “Nuclear resonance fluorescence” proposed in WP2012-11 was approved.

C9 A new related reference code O and its usage proposed in WP2012-12 was approved. The status code COREL will not be used for the purpose.

CINDA

C10 Only Exchange files will be used in future CINDA transmissions (i.e., Reader files will be no longer used).

EXFOR Compilation

C11 All centres are recommended to collect and archive entry by entry all communications between compilers, authors and centres as ASCII files (e-mails) or PDF files (documentation).

C12 The neutron source spectra format proposed in WP2012-15 was approved with correction of ,DE to ,PY/DE.

C13 Compilers are not recommended to put the issue, day and month under the keyword REFERENCE, MONIT-REF and REL-REF unless they are essential to identify the article.

C14 The covariance data format proposed in WP2012-27 was approved. Compilers and programmers are encouraged to use the new format.

C15 The ERR-ANALYS format and the usage of headings ERR-1, ERR-2 etc. proposed in WP2012-28 were approved .The 4th field of ERR-ANALYS will be used to indicate correlation property of the source of uncertainties in future transmissions.

C16 The parameter code SPC will be used for yield of discrete gamma line(s) while PAR,MLT and PAR,PY will be used for yield of continuous gamma (WP2012-29).

C17 The following coding rule about the keyword SAMPLE were approved: (a) only abundances normalized to 1 (within uncertainties) will be coded in the isotopic abundance field; (b) embedded blanks will be permitted only at the beginning of a field; (c) only fixed (not ranges) abundances given by the authors are allowed as coded information (number) in the isotopic abundance field. Abundance ranges may be given in free text.

C18 The keyword INC-SOURCE will not be permitted when the data set is for spontaneous fission.

Evaluated Data Libraries

C19 Centres are recommended to collect and make available through their nuclear data services old evaluated libraries, especially standard data used to derive experimental data compiled in EXFOR (WP2012-37).

Software and Dissemination

C20 NRDC encourages free exchange of software and co-operation in software development between Centres.

Actions

EXFOR General

A1	All	(Standing Action) Give highest priority to compiling new publications.
A2	Aikawa Dupont Hlavač Pritychenko Semkova Yang	(Continuing action) Give high priority to compilation of articles published in the ND2010 conference (Jeju, Korea) and listed in WP2012-05.
A3	All	(Continuing action) Correct erroneous entries listed on the EXFOR Feedback List on the NRDC web page according to the indicated priorities. All urgent corrections must be done by the next meeting.

A4	Semkova	(Continuing Action) (1) Remove transmission number from the compiler name field of the EXFOR Compilation Control System; (2) Add the first author name to the EXFOR Compilation Control System, as time/resources permit.
A5	Centre Heads	Nominate participants from the centre to the EXFOR working group coordinated by Zerkin, which will discuss the opportunity to use XML as a new EXchange FORmat and could participate in the related proposed WPEC subgroup on the evaluated Generalized Nuclear Data (GND) format.
A6	NDS	Prepare a list of questions to ask centres about the usages of compilation tools, output formats etc., and send it to centres.
A7	All	Respond to the questions mentioned above.
A8	Otsuka	Coordinate submission of an abstract to the ND2013 conference.

Manuals and Dictionaries

A9	Centre Heads	Send comments on the Network document to Otsuka to prepare the next update to be reviewed and signed at the next Centre Heads meeting in 2014.
A10	Otsuka	Update the Network document following the comments by Centre Heads.
A11	Otsuka	Update the NRDC Protocol Appendix B following the new scanning responsibilities of NNDC and CJD. (Conclusion 4 and 5).
A12	Otsuka	Revise LEXFOR for (a) TOF covariance (WP2011-27); (b) new branch code ISP (WP2011-29); (c) specific temperatures for prompt fission neutron spectrum averaged quantities (WP2011-30); (d) compilation of prompt fission neutron quantities (WP2011-31); (e) nuclear resonance fluorescence (WP2012-11); (f) additional reference compiled in another entry (WP2012-12).
A13	Otsuka	Revise the EXFOR Formats Manual for (a) short nuclide codes in REACTION SF7 (WP2011-28); (b) the keyword ERR-ANALYS (Conclusion 15); (c) the keyword SAMPLE (Conclusion 17).
A14	Zerkin	Submit an update of the EXFOR Formats Manual (Appendix B) for the new covariance format (WP2012-27).

A15	Otsuka	Revise NRDC Protocol according to the Conclusion 20.
A16	Otsuka	Consider revision of the NRDC Protocol for submission of transmission tapes specialized for corrections.
A17	Otsuka	Update dictionary 25 (Unit codes) for agreed change (Conclusion 6).
A18	Otsuka	Assess the current use of various dictionaries and their types (archive, backup, trans) by compilers and computer programs maintained by data centres for possible simplification (WP2012-13).
A19	Otsuka	(Continuing Action) Consider to make available preliminary up-to-date dictionaries to suppress unnecessary error messages from checking programs (WP2012-13).
A20	Otsuka	(Continuing Action) Update Dictionaries every four months.

CINDA

A21	Dupont	(Continuing Action) Correct errors detected during CINDA loading procedure, as described in WP2008-36.
A22	Dupont	(Continuing Action) Correct all CINDA lines, as described in WP2009-30.
A23	Zerkin	(Continuing Action) Periodically export EXFOR and NSR to CINDA.
A24	Zerkin	(Continuing Action) Periodically update the CINDA Master File and distribute it to other Centres.
A25	Aikawa Dupont	Inform Zerkin whether the Centres want to receive the NSR exportation part in the CINDA Master File.

EXFOR Compilation

A26	Aikawa Dupont Hlavač Pritychenko Semkova Taova	(Continuing Action) Compile neutron source spectra listed in WP2012-16.

A27	Otsuka	Compile Mannhart's ^{252}Cf standard neutron spectrum.
A28	Hlavač	Compile proton-induced reaction cross section (R.D. Albert et al.) in WP2012-18.
A29	Babykina Dupont Otsuka Takács	Compile proton-induced isotope production cross sections listed in the 1st table of WP2012-19. Also consider to compile cross sections listed in the 2nd table of WP2012-19 if possible.
A30	Otsuka Babykina	Continue comparison between Landolt-Börnstein compilation and EXFOR for light charged-particle induced isotope production cross sections.
A31	All	(Continuing Action) According to the list of Entries with `NODATA` one of the following corrections has to be made (see "Guide for EXFOR Compilers"): (a) restore numerical data from old EXFOR backup in retransmission if data were not superseded before in this Entry; (b) delete Subentry, or the whole Entry, if it is real duplication in reference and data, as well as adding a comment in `HISTORY`; (c) Add `SPSDD` under `STATUS` when it is applicable; (d) Digitize numerical data if the quality of the figures is enough for digitization, if `SPSDD` not applicable, and if the article was published before 2000; (e) add `UNOBT` and comment if it is impossible to digitize the data and the article was published before 2000; (f) try to find numerical data if the article was published later than 2000.
A32	All	(Continuing Action) Revise remaining upper case entries and other necessary corrections as time permits. (WP2011-05)
A33	Dupont Pritychenko	Revise entries listed in the WPEC SG30 list (WP2012-21, also registered to the EXFOR Feedback List).
A34	Otsuka	Merge WPEC SG30 list to the EXFOR Feedback List.
A35	Aikawa Babykina Dupont Mikhaylyukova Otsuka Pritychenko Taova Varlamov	Correct entries for data sets which are partial for secondary energies listed in WP2012-22 (also registered to the EXFOR Feedback System).

A36	Aikawa	(Continuing Action) Replace element symbols of asterisk in REACTION SF4 in Entry E2054 (WP2012-23).
A37	Dupont Mikhaylyukova Varlamov	(Continuing Action) Add English translation information of Atomnaya Energiya under the keyword REFERENCE as listed in WP2011-26 (also registered to the EXFOR Feedback List).
A38	Babykina Dupont Mikhaylyukova Otsuka Taova Varlamov	Add English translation information of Yadernaya Fizika under the keyword REFERENCE as listed in WP2012-24 (also registered to the EXFOR Feedback System).
A39	Babykina	(Continuing Action) Provide a list of English translation information of Russian journals, e.g., IZV.
A40	Otsuka	Update the feedback list with information from WP2012-24 and WP2012-35.
A41	Soppera	Provide JANIS Import Log created from the EXFOR Master File to Otsuka on a regular basis.
A42	Otsuka	Assess the JANIS Import Log provided by Soppera as above, and register important errors to the EXFOR Feedback System.
A43	Dupont Mikhaylyukva Pritychenko	Correct errors listed in WP2012-25.
A44	Dupont Hlavač Pritychenko Semkova	(Continuing Action) Assess neutron cross section data useful for standard evaluation listed in WP2011-15 and compile them when appropriate.
A45	Dupont	(Continuing Action) Provide NDS a list of erroneous and suspicious outliers by using the new statistical approach being developed when available (WP2011-17).
A46	Dupont	(Continuing Action) Provide JANIS–TRANS Checker Log list on every preliminary TRANS-file.

A47	Dupont Hlavač Mikhaylyukova Otsuka Pritychenko	Assess the articles reporting keV neutron capture cross section entries listed in WP2012-31, and made necessary corrections and additions.
A48	Otsuka	Consider compilation of kT = 30 keV Maxwellian Averaged Cross Section compiled in KADoNiS as an EXFOR entry.
A49	Otsuka	Extract serious errors (e.g., opening parenthesis in column 12, `ENR=0.`) from WP2012-34, and distribute a list to centres as a memo for corrections with addition of the entries to the EXFOR Feedback List.
A50	Dupont Hlavač Mikhaylyukova Pritychenko Semkova	Correct entries using the keyword `INC-SOURCE` for spontaneous fission as listed in WP2012-35, and move information to another keyword or subentry when necessary.
A51	Otsuka	Check if each centre agrees with entries included in `PRELIM.Y008`.
A52	Semkova Otsuka	Check and finalize `PRELIM.Y008` (after trivial corrections if necessary).
A53	Zerkin	Assess the technical feasibility to automatically update the entries affected by the change of prefixes in the unit code (Conclusion 6), and prepare a draft of a preliminary area Y transmission tape.
A54	Semkova	Submit the preliminary tape mentioned above to the NDS open area (after trivial corrections if necessary).
A55	Otsuka	Check if each centre agrees with the entries included in the area Y preliminary tape mentioned above.
A56	Otsuka	Assess the correlation properties of uncertainties given under the heading `ERR-1`, `ERR-2` etc. in the existing entries.

Software and Dissemination

A57	NEA DB	(Continuing Action) Continue development and testing of the JANIS –TRANS Checker in cooperation with NDS and the other centres.

A58	Otsuka	(Continuing Action) Provide EXFOR News for every EXFOR Master File.
A59	Zerkin	(Continuing Action) Continue development of EXFOR+ (interpreted / extended EXFOR format).
A60	All	Consider to use the EXFOR+ format for author approval, and also send feedback to Zerkin.
A61	Zerkin	(Continuing Action) Every four months produce an EXFOR distribution with (a) full Dictionary distribution; (b) EXFOR in C4 and XC4 format; (c) Dictionaries in MS Access; (d) X4Map and X4Archive.
A62	Zerkin	(Continuing Action) Generate and distribute list of errors to NRDC after every new EXFOR Master File creation.
A63	Zerkin	(Continuing Action) Development of a new database encompassing correction factors and relevant comments for suspect/erroneous data (X4-evaluated) presented in WP2010-19; keep NRDC informed about conclusions of discussions on new database.
A64	Zerkin	(Continuing Action) Develop the program to generate EXFOR+ from a standalone EXFOR entry.
A65	Pikulina, Zerkin	Implement the X4+ converter code into the EXFOR-Editor in a form of independent executable module.
A66	NDS	Assess the current status of NDS EXFOR checking codes (ZCHEX, Zerkin's upload system) and to prepare a consolidated proposal on which checking code should be maintained / developed as the NRDC checking code that must be used by compilers.
A67	Zerkin	(Continuing Action) Update ZCHEX based on comments from compilers (e.g., WP2011-36) as time permits.
A68	All	(Continuing Action) Provide feedback to NDS on the existing ZCHEX version (on bugs as well as desired additions.).
A69	Zerkin	(Continuing Action) Continue development of the EXFOR upload web tool.
A70	Zerkin	Prepare coding of covariance data for all EXFOR Entries having authors' covariances, and offer them to compilers according to Areas for finalizing and submitting to the database.

A71	JCPRG	(Continuing Action) Continue development and testing of the digitizing software GSYS in cooperation with NDS and other centres.
A72	CNPD	Provide more detailed information on future development of the EXFOR-Editor.
A73	All	Provide feedback on the current version of the EXFOR-Editor and requests for the development of the next version.
A74	CNPD	(Continuing Action) Continue development and testing of the EXFOR-Editor and digitizer in cooperation with NDS and other data Centres, taking into account compilers' remarks.