ENDF-6 manual

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Problems with the current ENDF-6 manual

- MS Word
  - Poor quality
  - Lack of modern features (structuring, hyperlinks, automatic indexing and referencing)
  - Difficult to handle
    - Conversion to pdf takes 1.5 hours
    - Printing about 3 hours
- Recent format updates not included
- Some changes lost in 2005

Solution: go back to LaTeX!

Conversion to LaTeX

- Automatic MS Word to LaTeX conversion with software.
- Four sweeps of editing performed on each file
  - Correct LaTeX source to run through LaTeX
  - Remove redundant statements and clean-up the source files as much as possible
  - Go through the text and reproduce the layout of the original document
  - Perform editorial changes, reorganize or clarify the text where necessary, remove typing errors and consistency errors
- All these four editing stages were done on all files, but Chapters 2, 32 and Appendix D might need some additional "polishing".

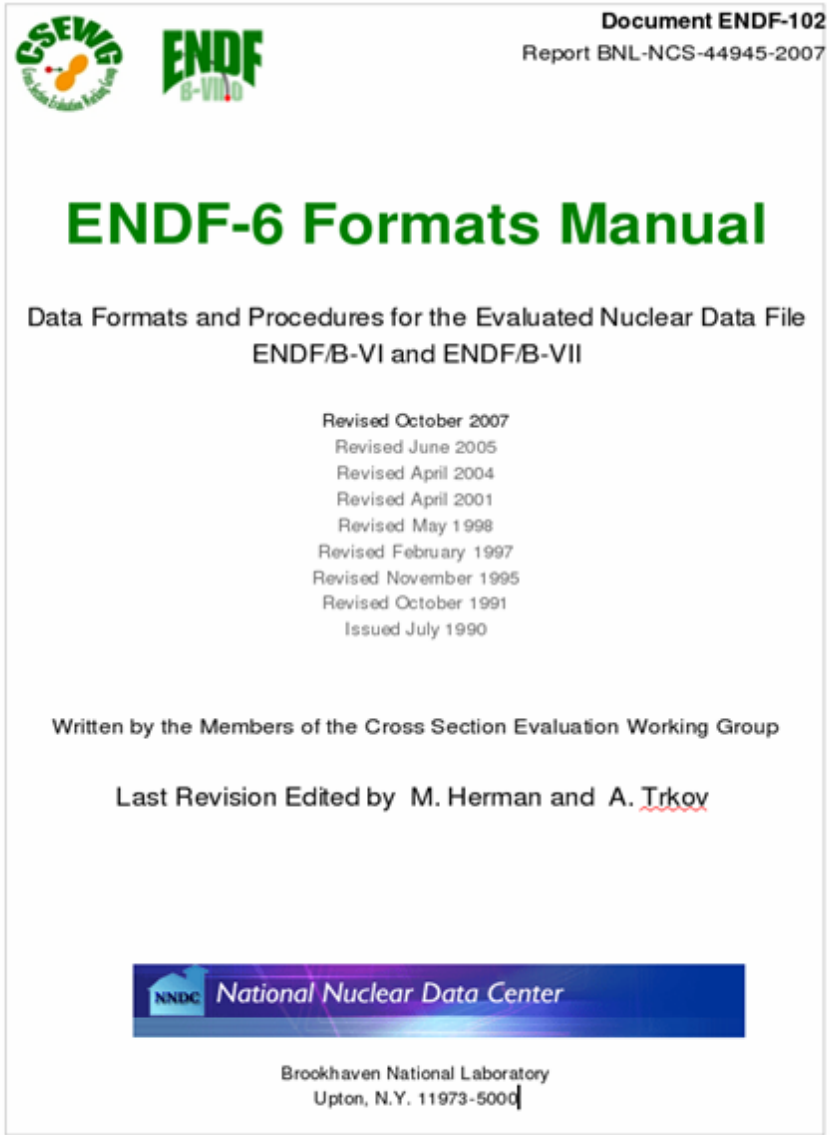
Summary of changes

- Inconsistency regarding LREL parameter in MF1/MT451 was removed.
- Obsolete references were replaced with new ones.
- Reaction summation tables in 0.5.12. were reviewed.
- Examples illustrating use of the sequence number were corrected.
- The equation defining the Wick's limit was ill-defined and was corrected.
- General comments on covariances were moved to a new Chapter 29.

Summary of changes

- The definition of ABN in Appendix A was corrected (it is NOT weight fraction)!
- The definitions of constants in Appendix H were inconsistent with the usage in the equations. Numerous changes to Table 1 and Table 5 were made.
- The triton mass in Table 2 in Appendix H was corrected.
- By symmetry, the "square" was missing on $X_{cc}^{'i}$ in equation (15) and was added.
- Numerous small editorial changes and corrections for consistency were made.

The result



Document ENDF-102
Report BNL-NCS-44945-2007

ENDF-6 Formats Manual

Data Formats and Procedures for the Evaluated Nuclear Data File
ENDF/B-VI and ENDF/B-VII

Revised October 2007
Revised June 2005
Revised April 2004
Revised April 2001
Revised May 1998
Revised February 1997
Revised November 1995
Revised October 1991
Issued July 1990

Written by the Members of the Cross Section Evaluation Working Group

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HEAD Records

The HEAD record is the first in a section and has the same form as CONT, except that the C1 and C2 fields always contain ZA and AWR, respectively.

END Records

The SEND, FEND, MEND, and TEND records use only the three control integers, which signal the end of a section, file, material, or tape, respectively. In binary mode, the six standard fields are all zero. In character mode, the six are all zero as follows

```
[MAT,MF, 0/  0.0,  0.0,   0,   0,   0,   0] SEND
[MAT, 0, 0/  0.0,  0.0,   0,   0,   0,   0] FEND
[  0, 0, 0/  0.0,  0.0,   0,   0,   0,   0] MEND
[ -1, 0, 0/  0.0,  0.0,   0,   0,   0,   0] TEND
```

hyperlink

DIR Records

The DIR records are described in more detail in Section 1.1.1. The only difference between a DIR record and a standard CONT record is that the first two fields in the DIR record are blank in character mode.

0.7.6 LIST Records

This type of record is used to list a series of numbers B1, B2, B3, *etc.* The values are given in an array B(n), and there are NPL of them. The shorthand notation for the LIST record is

```
[MAT,MF,MT/ C1, C2, L1, L2, NPL, N2/ B_n] LIST
```

The LIST record can be read with the following FORTRAN statements

```
      READ(LIB,10)C1,C2,L1,L2,NPL,N2,MAT,MF,MT,NS
10    FORMAT(2E11.0,4I11,I4,I2,I3,I5)
      READ(LIB,20)(B(N),N=1,NPL)
20    FORMAT(6E11.0)
```

hyperlink

The maximum for NPL varies with use (see Appendix G).

0.7.7 TAB1 Records

These records are used for one-dimensional tabulated functions such as $y(x)$. The data needed to specify a one-dimensional tabulated function are the interpolation tables NBT(N) and INT(N) for each of the NR ranges, and the NP tabulated pairs of $x(n)$ and $y(n)$. The shorthand representation is:

```
[MAT,MF,MT/ C1, C2, L1, L2, NR, NP/x_int/y(x)]TAB1
```

The TAB1 record can be read with the following FORTRAN statements

To do

- Stage I
  - Inclusion of Figures
  - Minor improvements to Chapters 2, 32 and Appendix D
  - Proof-reading of the whole document
- Stage II (June 2008)
  - Tracking of updates lost some time between 2003 and 2005
  - Implementation of CSEWG approved updates and extensions from 2005 onwards
- Stage III
  - Add annotated examples, more plots
  - Reformat format descriptions
  - Hyperlinks to real files in the electronic version