

ENDF-6 Format Manual Status

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U.S. DEPARTMENT OF
ENERGY

Office of
Science

Where to find the in-dev manual

The screenshot shows the National Nuclear Data Center (NNDC) website. A red arrow points to the URL www.nndc.bnl.gov in the browser's address bar. Another red arrow points to the 'Reactions' tab in the navigation menu. A third red arrow points to the 'In-development ENDF-6 Format Manual' link in the 'Reactions' section.

www.nndc.bnl.gov

Reactions tab

The link

Reactions

- Experimental data
 - EXFOR Experimental nuclear reaction data
 - The EXFOR project
 - EXFOR Basics Short guide
- Codes
 - Checking & utility codes
 - Reaction codes
 - EMPIRE Nuclear Reaction Model Code

Reactions

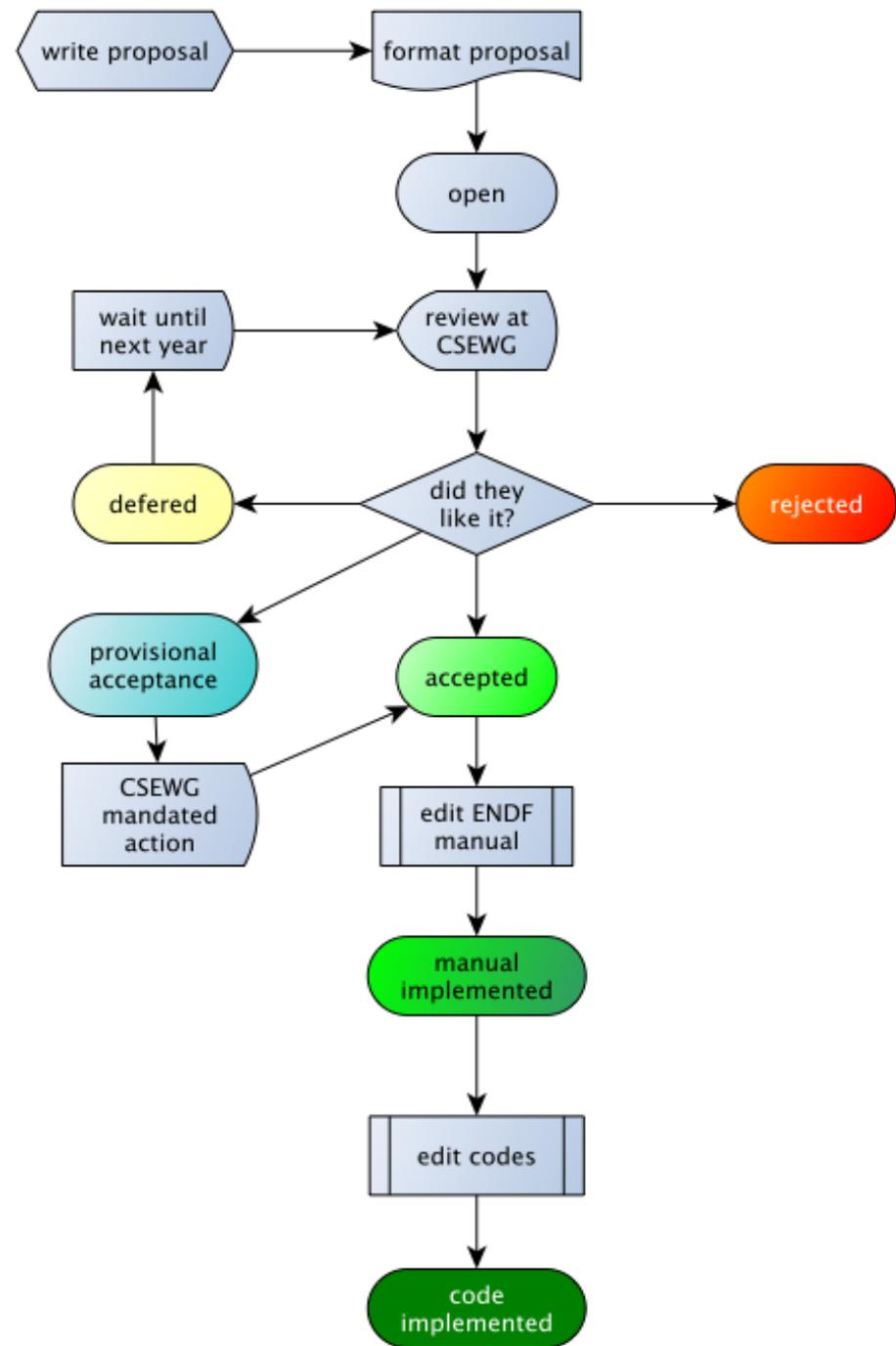
- Evaluated ENDF data
 - ENDF/B-VII.1 Current ENDF release
 - ENDF/B-VIII.0 In-development ENDF library
 - The ENDF project
 - Sigma ENDF Retrieval & Plotting
 - Current ENDF-6 Format Manual
 - In-development ENDF-6 Format Manual
 - Introduction to ENDF Formats
 - ADVANCE ENDF continuous integration system
- Other evaluated data
 - Atlas of Neutron Resonances Parameters & thermal values
 - Atomic Mass Evaluation
 - IRDF International Reactor Dosimetry File
 - Monitor Reactions IAEA recommended charged-particle cross sections
 - RIPL-3 Reference Input Parameter Library
- Tools
 - CapGam Thermal neutron capture γ -rays
 - Gamma Ray Atlas Following Inelastic Scattering of Fast Neutrons Downloadable software platform
 - EXFOR/ENDF Plotting
 - NucRates MACS and astrophysical reaction rates
 - MyENDF Integrated web tool for evaluators
 - Q-value Calculator
 - USNDP/CSEWG GForge Collaboration server

Big things are coming

- Revised manual must be released with ENDF/B-VIII. This is the last chance to modify the format before the release.
- Both ENDF-6 manual and GND specifications due with ENDF/B-VIII.

Life cycle of a format change (as understood by GForge)

- Now is on main manual GForge page



Format changes

ID	Summary
945	Update tables of physical constants in Appendix H
982	Reword the INT=6 charged particle interpolation rule
983	Clearly define legal characters in an ENDF TEXT field
984	Clearly define legal numbers in ENDF format
997	Allow MF=4/5 for incident gamma evaluations
1008	'LCT' option for specifying product frames in MF 6
1033	Clarify the allowed floating point number formats
1034	ZAID for TSL evaluations
1035	Revise MAT number assignments in light of new evaluations
1045	Use atomic masses rather than nuclear masses to compute Q values
1061	format change in MF6/MT18 to accommodate P(Mg) and multiplicity-dependent PFGS.

Format changes

ID	Summary
945	Update tables of physical constants in Appendix H
952	Reword the INT=6 charged particle interpolation rule
953	Clearly define legal characters in an ENDF TEXT field
954	Clearly
997	Allow M
1008	'LCT' c
1033	Clarify
1034	ZAID f
1035	Revise MAT number assignments in light of new evaluations
1045	Use atomic masses rather than nuclear masses to compute Q values
1061	format change in MF6/MT18 to accommodate P(Mg) and multiplicity-dependent PFGS.

All are moved to “manual implemented”, must check codes to close out

Typos

ID	Summary
✓ 950	Incoherent scattering in chapter 27
✓ 1000	Equation reference for scattering radius in File 2
✓ 006	Allowed float format not specific/clear enough

Improvements

ID	Summary
834	Add MLBW angular distribution discussion
939	"Codes and Formats Subcommittee Leadership" list needs updating
941 ✓	Clarify kinematics discussion in appendix E
942	Need new preface for upcoming format manual release to go with new ENDF release
945 ✓	Explain the 80 column punchcard format and the ENDF manual notation describing how to populate it
1052 ✓	Legendre moment coefficient definitions differ between Chap. 4 and Appendix B
1062	Clarify differential cross section notation

So what's left before ENDF/B-VIII?

- Preface
- “Changelog” appendix
- Codes and formats committee leadership
- The two format changes
- Proofreading, volunteers?
- Anything else?

What about the manual for GND?

- **“New management”**
 - CSEWG active participants in all stages of format development
 - LLNL chaired WPEC SG-38, format development
 - BNL to chair SG-B, format governance
 - LLNL/LANL to chair SG-43, API development
- **De-facto reference implementation:**
 - FUDGE-4.2.1 Released Mar. 2016
 - GND-1.7 Released Mar. 2016
- **Documentation:**
 - Requirements BNL report BNL-112394-2016-IR
 - Complete format specifications due 2017
- **ENDF/B-VIII to be released in both ENDF/B-6 and GND formats**



GND Highlighted in LLNL's
Sep. 2016 issue of Science &
Technology Review