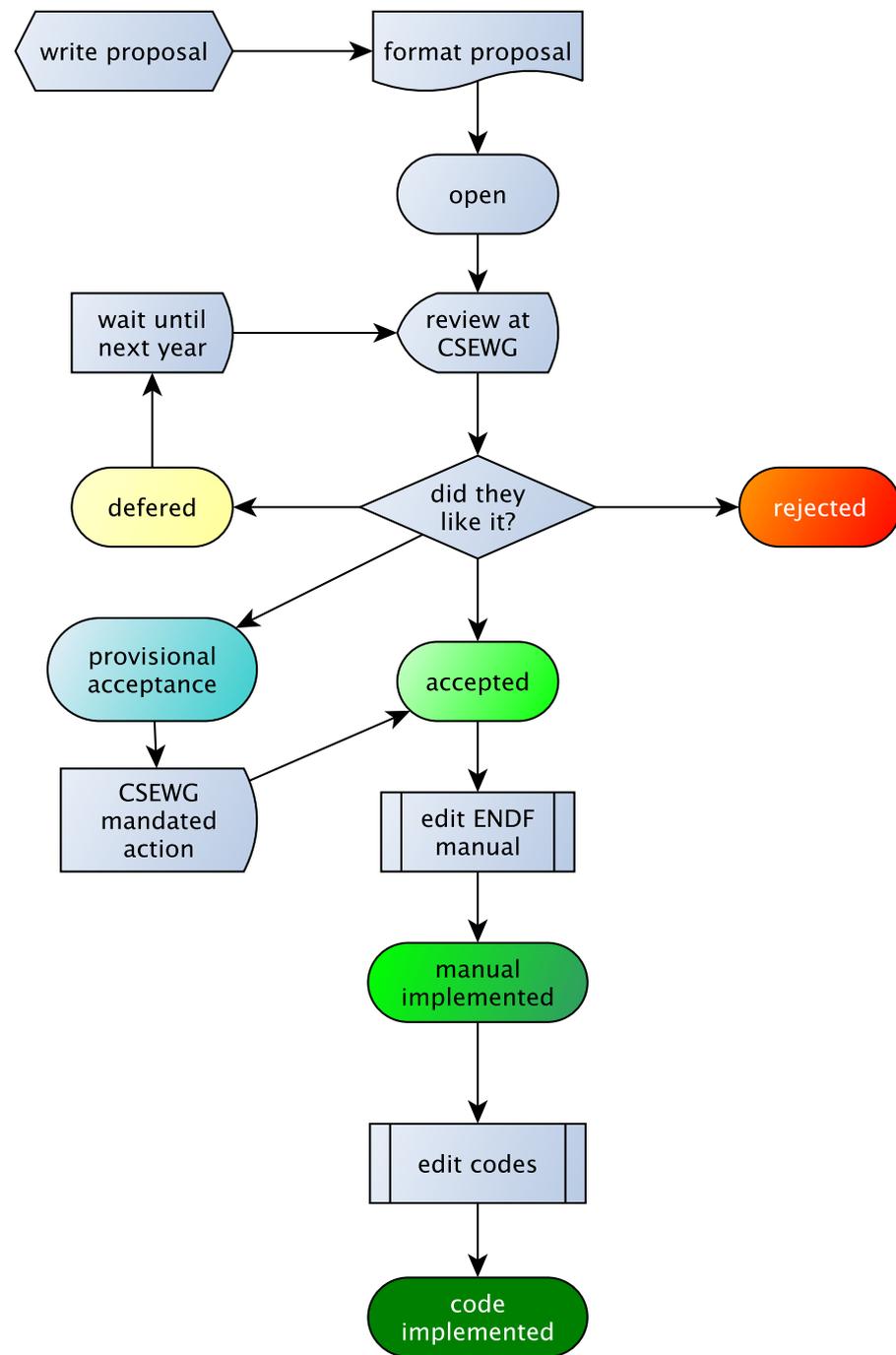# BNL Activities Related to Formats and Processing and ENDF-102 Manual

D. Brown

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

- How long may things orbit in a "deferred" state?

- Can you ever resubmit a "rejected" idea?

- Rules for provisional acceptance?

- Which codes must the format be implemented in to get "code implemented" and close the tracker?

write proposal → format proposal → open → review at CSEWG → did they like it?

did they like it? → rejected

did they like it? → defered → wait until next year → review at CSEWG

did they like it? → provisional acceptance → CSEWG mandated action → accepted

did they like it? → accepted → edit ENDF manual → manual implemented → edit codes → code implemented

Status of Format Changes

ID	Summary	rejected or deferred	approved	manual impl.	code impl.
520	MF32 format proposal by F. Froehner	⚠️			
521	MT numbers for high energy activation files.		✔	✔	✔
666	Add IZAP field to MF=40		✔	✔	✔
701	MF2 Scattering Radius: To AP or not to AP?		✔	✔	
705	New sublibrary designators for ENDF		✔	✔	✔
706	STYP for anti-neutrinos		✔	✔	✔
707	ENDF line numbering		✔	✔	
824	New NLIB designator for TENDL library		✔	✔	✔
825	ENDF-6 format for the evaluated covariances of discrete radiation spectrum data		✔	✔	

Status of Format Changes

ID	Summary	rejected or deferred	approved	manual impl.	code impl.
830	In MF=26, AWI and AWR fields are used		✔	✔	✔
832	Ditch E-less ENDF	✘	✘	✘	✘
859	Proposal to make all the File 2 CONT records consistent by Chuck Wemple	✘	✘	✘	✘
898	Fission neutron P(nu|E) and chi(nu,E)		✔		
900	Introduce a flag for lognormal distribution of inherently positive parameters	⚠			
901	Break out shape and compound elastic reactions	✘	✘	✘	✘
902	Introduce a flag for fictitious statistically places resonances in the resolved resonance energy region	✘	✘	✘	✘
945	Update tables of physical constants in Appendix H		✔		
946	Add new beta and electron capture transition TYPE		✔	✔	✔

[#701] MF=2 scattering radius: To AP or not to AP?

- **We decided to AP**
  - Implemented in manual in 2013
- **What is status in codes?**

[#707] Line number removal

- **Implemented in the manual 4/2015**
- **Have scheme to fix diffing in GForge and to reject evaluations differing only in line numbering**
  - Ramon implementing scheme on test server currently
- **What is status in other codes?**
  - STAN should work, but I am fighting with it
  - STANEF, PSYCHE, CHECKR untested (I am lazy)
  - PREPRO untested (again, I am lazy)
  - Fudge is fine with change
  - NJOY?
  - AMPX?

[#825] Covariances for discrete radiation in MF=7

- **Implemented on 4/24/2015**
  - Rewrote some of the section to make it clearer
- **Format proposal was not specific enough about how to use LB=5 covariance data for discrete spectra**
  - LB=5 meant for histograms
    This means for N bins, there are N+1 bin boundaries
  - For N discrete lines, there are N energies
  - Had to pad the energy list to make it fit
- **Can you code implementers please check what I've written to see if it works for you?**

[#946] New electron/beta decay type

- **Implemented 8:53 AM, 5/8/2015**
  - *That's called fast turnaround, cuz I'm good!*
- **No changes to codes needed**

Status of bug fixes (since 2013 CSEWG)

ID	Summary	Status
697	Deficiencies reported by Risto Vanhanen	**[CLOSED]** fixed
780	In MF40, NL possibly described incorrectly	**[CLOSED]** fixed
781	RRR Fixes From C. Lubitz	**[CLOSED]** fixed
792	LCT flag for MF=6 data	**[CLOSED]** clarified wording
850	Explanation of TPID format/expectation	**[CLOSED]** clarified wording
856	Hyperlink in Appendix B.1	**[CLOSED]** fixed
863	Unused definition in radioactive decay spectra	**[CLOSED]** removed extra definition
866	Typo in format for MF=6, LAW=7	**[CLOSED]** fixed
893	Transition types in decay spectra	**[CLOSED]** new format proposal
903	Typo in foonote for section 8.3.2	**[CLOSED]** fixed
936	Recommend value of e	**[CLOSED]** new format proposal

Status of manual improvements
(since 2013 CSEWG)

ID	Summary	Status
834	Add MLBW angular distribution discussion	
853	Check MF=32, LRF=7 LCOMP=1 wording	**[CLOSED]** nothing to fix, STAN was confused
897	Need solution for W high energy fission	**[CLOSED]** clarified wording
899	Clarify legal formats for floats & ints in ENDF format	**[CLOSED]** clarified wording
904	Add new element names	**[CLOSED]** fixed in CHECKR, not needed in manual
939	"Codes and Formats Subcommittee Leadership" list needs updating	
941	Clarify kinematics discussion in appendix E	**[IN PROGRESS]** Gerry Hedstrom is working on it
942	Need new preface for upcoming format manual release to go with new ENDF release	
944	Update constants in Appendix H to CODATA 2010	**[CLOSED]** new format proposal

Gerry Hedstrom's improvements

- **Gerry is LLNL retiree who makes us all look bad**
  - Significant contributor to Fete and Fudge
- **Provided major edits to manual**
  - Phase space distributions (MF=6, LAW=6)
  - Kalbach systematics (MF=6, LAW=1, LANG=2)
  - Rewriting appendix E (kinematics) to include relativistic treatment
    - numerically sound
    - mathematically correct
    - non-relativistic limit
  - Preparing work on interpolation in 3+ dimensions
- **I move we make him an official editor of the manual**