IEC - 137

CSEWG REPORT TO THE NEA WORKING PARTY ON EVALUATION COOPERATION MEETING

held at
Argonne National Laboratory
June 13-14, 1996

The 44th meeting of the Cross Section Evaluation Working Group was held at Brookhaven National Laboratory, October 17-19, 1995. Charles Dunford resumed the chairmanship from Bob Roussin who filled in as CSEWG Chairman during the past two years. The funding for the data evaluation and measurement components of the CSEWG activity continues to erode. The support from fusion which has been declining has been hard hit by funding cuts to the overall program in FY96. The most active areas of support for data evaluation presently appear to be nuclear criticality safety, accelerator production of tritium (and related accelerator projects) and weapons stockpile stewardship. The NNDC has committed to continue its secretarial and organizational support for CSEWG.

In light of the lower level of CSEWG activity, the organization has decided to streamline its structure. In the future, the Executive Committee will consist only of active participants. Membership will be changed as conditions require. A list of the current Executive Committee Members as Appendix A. The structure of four permanent Committees was retained but the subcommittee structure was abolished. In the future, Ad Hoc Task Forces will be established to deal with specific assignments for a fixed period of time.

The four permanent CSEWG Committees are:

Measurements and Basic Science	-	Don Smith (ANL) Chairman
Formats and Processing	-	Bob Roussin (ORNL) Chairman
Evaluations	-	Phil Young (LANL) Chairman
Data Validation	-	Dick McKnight (ANL) Chairman

The old Measurements Committee's responsibilities have been expanded to include the CSEWG standards activity and to provide a home for such areas as nuclear astrophysics and radioactive ion beam facility applications.

Committee Highlights

Evaluation:

Significant results were reported by KAPL and ORNL in the effort to improve the thermal and resonance region for 235-U. A new evaluation featuring a single resolved resonance region has been completed at ORNL. Testing of this new evaluation is underway.

ENDF/B-VI.4 will be released in the Fall of 1996. Summary documentation for ENDF/B-VI through version VI.4 will also be ready at the same time. Candidate evaluations for ENDF/B-VI.5 will be reviewed at the 1996 CSEWG Meeting. See Appendix B for material list.

Extensive discussions were held regarding the need for data for astrophysics, RIB facility design and nuclear criticality.

Methods and Formats:

The ENDF Formats and Procedures manual has now been migrated to WordPerfect. Release is expected in July. The document will be available electronically in PostScript format by chapters. See Appendix C for details. The benchmark document, ENDF-201 has also been migrated to WordPerfect. This document plus a "short guide" to ENDF should be available in the Fall.

Version 6.10 of the ENDF Utility Codes will be released in December 1995. This release primarily contains bug fixes.

The processing code, NJOY94 has been released. Work continues at ANL and ORNL on the MC2 and AMPEX processing code systems.

Data Validation:

A large amount of data testing information for ENDF/B-VI has been submitted. The final data testing report is now in preparation. In general it was found that version VI.3 performed significantly better than VI.2 except for 238-U worths. The calculated results for both U and Pu assemblies now are in better agreement with measurements.

ABB-CE reported significant improvement in version VI.3 primarily for thermal eta and epithermal alpha. 238-U capture still appears to be about 3.4% high for power reactors. ORNL reported that the new 235-U gives significant improvement in eigenvalue calculations for assemblies with a mean fission energy greater than 0.7 eV.

Three task forces were formed during the meeting to:

1) Update the Benchmark Specification Book;
2) Produce the ENDF/B-VI data testing report;
3) Coordinate the testing of the 235-U thermal and resonance region update.

Measurement:

The committee did not meet during the CSEWG meeting. The annual experimental data measurement activity report has been released. It is available electronically.

Appendix A

CSEWG Executive Committee COMMUNICATIONS DIRECTORY 10-JUN-96

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NOTE:
Please advise NNDC of any changes in your address or other information.

CSEWG Executive Committee COMMUNICATIONS DIRECTORY 10-JUN-96

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Appendix B

ENDF/B-VI Release 4	
Material	**Source**
Zr natural	ANL: A. Smith
Gd152	ORNL: R.Q. Wright
Gd154	ORNL: R.Q. Wright
Ir191	ORNL: R.Q. Wright
Ir193	ORNL: R.Q. Wright
Si isotopes	ORNL: D. Larson
Pb isotopes	LANL: P. Young
U237	LANL: P. Young
Pu236	ORNL: R.Q. Wright
Am243	LANL: P. Young
TSL (5 materials)	LANL: R. MacFarlane
Possible for Rel. 4	
Ti natural	LANL: R. MacFarlane
Pd isotopes	LANL: P. Young
U235	ORNL: L. Leal
Expected for Rel. 5	
12C,14N,16O,31P,Ca	LLNL: M. Chadwick (to 100 MeV)
Ca, Fe	ANL: A. Smith
Fe,C,W	LANL: P. Young (to 40 MeV)
Pu240	ORNL: H. Derrien, L. Leal
Photonuc.C,W,Pb	LLNL: M. Chadwick (to 100 MeV)
Proton C,N,O,P,Ca	LLNL: M. Chadwick (to 250 MeV)
Triton D	LANL: G. Hale (to 30 MeV)

Appendix C

The following documentation consists of chapters of the BNL report, ENDF-102 Data Formats and Procedures for the Evaluated Nuclear Data File ENDF-6, BNL-NCS-44945, Rev. 5/95 (November 1995).

All files are in PostScript format and may be output on any PostScript Laser printer. These files are also available via a anonymous ftp to account (BNLND2.DNE.BNL.GOV) and the World Wide Web (http://www.dne.bnl.gov/html/nndc.html).

AAREAD	28-May-1996	ACSII description including file sizes	AAREADME.TXT
TOC	28-May-1996	The cover and table of contents	FORMATTC.PS
CHAPTER00	28-May-1996	ENDF-6 Preface	FORMAT00.PS
CHAPTER01	28-May-1996	File 1. General Information	FORMAT01.PS
CHAPTER02	28-May-1996	File 2. Resonance Parameters	FORMAT02.PS
CHAPTER03	28-May-1996	File 3. Neutron Cross Sections	FORMAT03.PS
CHAPTER04	28-May-1996	File 4. Angular distributions of Sec. Part.	FORMAT04.PS
CHAPTER05	28-May-1996	File 5. Energy Distributions of Sec. Part.	FORMAT05.PS
CHAPTER06	28-May-1996	File 6. Product Energy-Angle Distributions	FORMAT06.PS
CHAPTER07	28-May-1996	File 7. Thermal Neutron Scattering Law Data	FORMAT07.PS
CHAPTER08	28-May-1996	File 8. Radioactive Decay Data	FORMAT08.PS
CHAPTER09	28-May-1996	File 9. Multiplicities for Rad.Elem.Prod.	FORMAT09.PS
CHAPTER10	28-May-1996	File 10. Cross Sections for Rad.Nucl.Prod.	FORMAT10.PS
CHAPTER11	28-May-1996	General Comments on Photon Production	FORMAT11.PS
CHAPTER12	28-May-1996	File 12. Photon Prod.Multipl. & Trans.Prob.	FORMAT12.PS
CHAPTER13	28-May-1996	File 13. Photon Production Cross Sections	FORMAT13.PS
CHAPTER14	28-May-1996	File 14. Photon Angular Distributions	FORMAT14.PS
CHAPTER15	28-May-1996	File 15. Continuous Photon Energy Spectra	FORMAT15.PS
CHAPTER23	28-May-1996	File 23. Smooth Photon Interact.Cross Sect.	FORMAT23.PS
CHAPTER27	28-May-1996	File 27. Atomic Form Factors or Scat.Fns.	FORMAT27.PS
CHAPTER30	28-May-1996	Introduction to Covariance Files	FORMAT30.PS
CHAPTER31	28-May-1996	File 31. Covar. of Avg.Num.Neutrons/Fission	FORMAT31.PS
CHAPTER32	28-May-1996	File 32. Covar. of Resonance Parameters	FORMAT32.PS
CHAPTER33	28-May-1996	File 33. Covar. of Neutron Cross Sections	FORMAT33.PS
CHAPTER34	28-May-1996	File 34. Covar.for Ang.Distr.of Sec.Part.	FORMAT34.PS
CHAPTER35	28-May-1996	File 35. Covar.for Energy Distr.of Sec.Part	FORMAT35.PS
CHAPTER40	28-May-1996	File 40. Covar.for Prod.of Radioact.Nucl.	FORMAT40.PS
APPENDIXA	28-May-1996	Appendix A. Glossary	FORMATA.PS
APPENDIXB	28-May-1996	Appendix B. Definitions of Reaction Types	FORMATB.PS
APPENDIXC	28-May-1996	Appendix C. ZA Designations of Materials	FORMATC.PS
APPENDIXD	28-May-1996	Appendix D. Resonance Region Formulae	FORMATD.PS
APPENDIXE	28-May-1996	Appendix E. Kinematic Formulas	FORMATE.PS
APPENDIXF	28-May-1996	Appendix F. Important ENDF Parameters	FORMATF.PS
APPENDIXG	28-May-1996	Appendix G. Maximum Dimensions of Param.	FORMATG.PS