ORNL/TM-2020/1868

Nuclear Data and Cross Section Testing Using ENDF/B-VIII.0

T. M. Greene
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February 2021

OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE US DEPARTMENT OF ENERGY

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Reactor and Nuclear Systems Division

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ACRONYMS

C/E	calculated-to-expected
CE	continuous energy
COMP[1]	compound system (e.g., lattice in water)
CSAS	Criticality Safety Analysis Sequences
EALF	energy of average lethargy of neutrons causing fission
ENDF	Evaluated Nuclear Data File
FAST[1]	Fast system (≥50% of fissions above 100 keV)
HEU[1]	high enriched uranium ($^{235}U \geq 60$ wt %)
HMF[2]	HEU-MET-FAST
HST[2]	HEU-SOL-THERM
ICSBEP	International Criticality Safety Benchmark Evaluation Project
IEU[1]	intermediate or mixed enrichment uranium (60 wt % > ^{235}U > 10 wt %)
IMF[2]	IEU-MET-FAST
INTER[1]	intermediate system (≥50% of fissions from 0.625 eV to 100 keV)
LCT[2]	LEU-COMP-THERM
LEU[1]	low enriched, natural, or depleted uranium ($^{235}U \leq 10$ wt %)
LST	LEU-SOL-THERM
LWR	light-water reactor
MCF[2]	MIX-COMP-FAST
MCNP	Monte Carlo N-Particle Transport Code
MCT[2]	MIX-COMP-THERM
MET[1]	metal
MG	multigroup
MIX[1]	mixed uranium and plutonium
MIXED[1]	mixed energy system (>50% of fissions do not occur in any single energy range)
MST[2]	MIX-SOL-THERM
ORNL	Oak Ridge National Laboratory
PMF[2]	PU-MET-FAST
PST[2]	PU-SOL-THERM
PU[1]	plutonium
SDF	sensitivity data file
SOL[1]	solution
THERM[1]	thermal system (≥50% of fissions below 0.625 eV)
TSUNAMI	Tools for Sensitivity and Uncertainty Analysis Methodology Implementation (SCALE)
U233[1]	^{233}U
UCT[2]	U233-COMP-THERM
UMF[2]	U233-MET-FAST
USI[2]	U233-SOL-INTER
USM[2]	U233-SOL-MIXED
UST[2]	U233-SOL-THERM
VALID	Verified, Archived Library of Inputs and Data
WPEC	Working Party on International Nuclear Data Evaluation Co-operation

[1] ICSBEP abbreviations used
[2] Experiment categories used in this validation

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ABSTRACT

With the release of the Evaluated Nuclear Data File (ENDF)/B-VIII.0 library, nuclear criticality safety practitioners and engineers have access to the latest cross section sets available for their analyses. However, these cross sections must be rigorously tested and validated to ensure that the nuclear data are responsive to the needs of the individuals responsible for developing, implementing, and maintaining computational tools for criticality safety applications. Thus, the ENDF/B-VIII.0 library is tested and validated with a large collection of experiments that were vetted by the International Criticality Safety Benchmark Evaluation Project and made available in the *International Handbook of Evaluated Criticality Safety Benchmark Experiments*. A selection of benchmark experiments for use within the criticality safety community were prepared and reviewed within the Verified, Archived Library of Inputs and Data (VALID), which is maintained by the Nuclear Energy and Fuel Cycle Division at Oak Ridge National Laboratory. The performance of the ENDF/B-VIII.0 library is assessed by using VALID models of benchmark experiments with the beta 12 version of SCALE 6.3 KENO V.a and KENO-VI Monte Carlo codes. The performance is compared with the results obtained from with the ENDF/B-VII.1 library. This report considers multigroup (MG) and continuous energy (CE) formats of the ENDF/B-VIII.0 and -VII.1 libraries.

The benchmark experiments within VALID that validate the ENDF/B-VIII.0 library cover 15 broad system categories by using a range of fissile materials, uranium enrichments, plutonium isotopic vectors, and mixed uranium/plutonium systems. These forms are represented as metals, solutions, or various arrays of rods or plates that cover a variety of neutron energy spectra: thermal, fast, mixed, and intermediate. Over 600 cases were considered for use with the KENO V.a and KENO-VI codes with the ENDF/B-VIII.0 library.

The results of the Monte Carlo comparison of ENDF/B-VIII.0 to ENDF/B-VII.1 with both KENO V.a and KENO-VI indicate that there is a less than 0.53% Δk difference between the bias of calculated k_{eff} from the expected values. The CE ENDF/B-VIII.0 library results in smaller magnitude biases than the ENDF/B-VII.1 data for HEU-MET-FAST, HEU-SOL-THERM, IEU-MET-FAST, LEU-SOL-THERM, PU-SOL-THERM, and U233-MET-FAST systems, while the MG results yielded smaller magnitude biases for HEU-MET-FAST, HEU-SOL-THERM, IEU-MET-FAST, LEU-COMP-THERM, LEU-SOL-THERM, MIX-COMP-FAST, and U233-MET-FAST systems. Most notable are the adjustments to the plutonium and ^{233}U cross section data, which has resulted in noticeably lower biases in the ENDF/B-VIII.0 results for the mixed, plutonium, and ^{233}U systems.

Results of the sensitivity data file comparison generated from TSUNAMI-3D for selected VALID cases for the ENDF/B-VIII.0 library indicate a very high level of agreement with correlation coefficients of the effect of nuclear data uncertainty on k_{eff} (the c_k integral parameter) all above 0.99. This indicates that cases with the ENDF/B-VIII.0 library would see very similar responses to any nuclear data errors or change as those with the ENDF/B-VII.1 library.

1. INTRODUCTION

In February 2018, the Cross Section Evaluation Working Group (CSEWG) released the Evaluated Nuclear Data File (ENDF)/B-VIII.0 library, which uses new evaluated data from the Collaborative International Evaluation Library Organization (CIELO) project that focuses on neutron reactions of ^{1}H, ^{16}O, ^{56}Fe, ^{235}U, ^{238}U, and ^{239}Pu and includes improved thermal scattering data [1]. However, before this newest version of cross section data can be used in transport calculation programs, such as SCALE [2] or Monte Carlo N-Particle Transport Code (MCNP) [3], it must be processed by specific processing codes that generate cross section libraries. AMPX [4] and NJOY [11]—which are used exclusively with SCALE and MCNP, respectively—are code packages that process isotope and nuclide data into cross section libraries that can then be used for radiation transport evaluations. These generated libraries include continues energy (CE), multi-group (MG), and covariance data files.

This report focuses on the cross section libraries generated by AMPX from the ENDF/B-VIII.0 nuclear data library to be used with the SCALE code system package. The AMPX code includes several key functional processing capabilities, including the generation of temperature-dependent CE cross section data, the processing of thermal scattering law data ($S[\alpha,\beta]$), and the production of cross section covariance data files for sensitivity and uncertainty analyses, as well as others [4]. Therefore, the purpose of this report is to validate the cross section libraries generated through AMPX-processed ENDF/B-VIII.0 nuclear data through the set of critical experiments available in the Verified, Archived Library of Inputs and Data (VALID library) available through Oak Ridge National Laboratory (ORNL) [5].

VALID contains high-quality, independently reviewed, critical experiment models developed from the *International Handbook of Evaluated Criticality Safety Benchmark Experiments* (hereafter referred to as the *ICSBEP Handbook*) that can be used for analyses and validation [6]. VALID includes inputs, outputs, and other associated files, such as sensitivity data files (SDFs), which can be used for a range of applications, including criticality safety validation, cross section evaluations, and sensitivity and uncertainty analyses. The report includes rerunning all cases within the VALID system with ENDF/B-VIII.0 to compare them with the results generated by ENDF/B-VII.1 [7] with CE and MG libraries. Attention was also given not only to k_{eff} values but also to sensitivity data differences for specific cases to assess the similarity between the previous and newest versions of nuclear data. Thus, the project provides criticality safety practitioners with an assessment of current cross section data for analyses, supporting the mission and vision of the Nuclear Criticality Safety Program (NCSP).

2. BENCHMARK EXPERIMENTS

The benchmark experiments within VALID that were used for this validation report were taken from the ICSBEP Handbook. These experiments encompass differences in neutron energy, enrichment, composition, and fissile material. **Error! Reference source not found.** lists the different experiment classes, and their abbreviations are listed in Table 2. A brief description of each experiment can be found in the SCALE 6.2.2 validation report [8] or in the ICSBEP Handbook [6] and will not be included in this report.

Table 1. ICSBEP abbreviations used

Abbreviation	Meaning
	Fissile material
HEU	High enriched uranium ($^{235}U \geq 60$ wt %)
IEU	Intermediate or mixed enrichment uranium (60 wt % > ^{235}U > 10 wt %)
LEU	Low enriched, natural, or depleted uranium ($^{235}U \leq 10$ wt %)
MIX	Mixed uranium and plutonium
PU	Plutonium
U233	^{233}U
	Physical form of fissile material
MET	Metal
SOL	Solution
COMP	Compound system (e.g., lattice in water)
	Spectrum
FAST	Fast system (≥50% of fissions above 100 keV)
INTER	Intermediate system (≥50% of fissions from 0.625 eV to 100 keV)
THERM	Thermal system (≥50% of fissions below 0.625 eV)
MIXED	Mixed energy system (>50% of fissions do not occur in any single energy range)

Table 2. Experiment categories used in this validation

HMF	HEU-MET-FAST
HST	HEU-SOL-THERM
IMF	IEU-MET-FAST
LCT	LEU-COMP-THERM
LST	LEU-SOL-THERM
MCF	MIX-COMP-FAST
MCT	MIX-COMP-THERM
MST	MIX-SOL-THERM
PMF	PU-MET-FAST
PST	PU-SOL-THERM
UCT	U233-COMP-THERM
UMF	U233-MET-FAST
USI	U233-SOL-INTER
USM	U233-SOL-MIXED
UST	U233-SOL-THERM

3. METHODS

A general overview of the SCALE codes and data used in the calculations is not provided; only the calculational methods used to compare the model results from the ENDF/B-VIII.0 and -VII.1 libraries are described. Complete descriptions of the codes and data are available in the SCALE 6.2.3 manual [2].

3.1 KENO

As noted earlier, all benchmark experiment models used for comparison were generated and are maintained in VALID at ORNL. Table 3 summarizes the cases that were performed by using KENO V.a or KENO-VI. KENO V.a and -VI solve the *k*-effective (k_{eff}) eigenvalue problem using the Monte Carlo method; however, KENO-VI can represent systems of increasingly more complex geometric configurations than KENO V.a. All calculations performed for this report utilized the CE and 252-energy MG (252-group) libraries generated by AMPX from the ENDF/B-VIII.0 nuclear data library.

Table 3. Summary of cases in VALID

Sequence	Experiment class	ICSBEP experiment numbers	Number of configurations
Criticality Safety Analysis Sequences 5 (CSAS5)/KENO V.a	HEU-MET-FAST	15, 16, 17, 18, 19, 20, 21, 25, 30, 38, 40, 52, 65	19/23[a]
	HEU-SOL-THERM	1, 13, 14, 16, 28, 29, 30	52
	IEU-MET-FAST	2, 3, 4, 5, 6, 7, 8, 9	8/11[a]
	LEU-COMP-THERM	1, 2, 8, 10, 17, 42, 50, 78, 80	140
	LEU-SOL-THERM	2, 3, 4	19
	MIX-COMP-FAST	5, 6	2
	MIX-COMP-THERM	1, 2[b], 4	21
	MIX-SOL-THERM	2, 7	10
	PU-MET-FAST	1, 2, 5, 6, 8, 10, 18, 22, 23, 24, 25, 26	12
	PU-SOL-THERM	1, 2, 3, 4, 5, 6, 7, 11, 20	81
	U233-COMP-THERM	1	3
	U233-MET-FAST	1, 2, 3, 4, 5, 6	10
	U233-SOL-INTER	1	29
	U233-SOL-MIXED	1, 2	8
	U233-SOL-THERM	1, 2, 3, 4, 5, 8, 9, 11, 12, 13, 15, 16, 17	140
CSAS6/KENO-VI	HEU-MET-FAST	5, 8, 9, 10, 11, 13, 24, 80, 86, 92, 93, 94	27
	IEU-MET-FAST	19	2
	MIX-COMP-THERM	8	28

[a]The larger number includes simplified cases that are duplicate cases for which detailed models are also available in the library.
[b]Only simplified cases were used for models.

The performance of the ENDF/B-VIII.0 libraries with the codes is analyzed in terms of the calculated-to-expected (evaluated) (C/E) ratio. The ICSBEP evaluation provides an expected k_{eff} value and its estimated uncertainty for each benchmark model configuration. The C/E ratio and its uncertainty are calculated from the k_{eff} results obtained from KENO along with the evaluation values as shown in Eqs. (1) and (2):

$$\frac{C}{E} = \frac{k_{eff}^{calc}}{k_{eff}^{eval}}, \tag{1}$$

$$\boldsymbol{\sigma_{C/E}} = \frac{\boldsymbol{C}}{\boldsymbol{E}}\left(\sqrt{\left(\frac{\boldsymbol{\sigma_{calc}}}{\boldsymbol{k_{eff}^{calc}}}\right)^{2} + \left(\frac{\boldsymbol{\sigma_{eval}}}{\boldsymbol{k_{eff}^{eval}}}\right)^{2}}\right), \quad (2)$$

where:

$\boldsymbol{k_{eff}^{calc}}$ is the k_{eff} value calculated by KENO V.a or KENO-VI,

$\boldsymbol{k_{eff}^{eval}}$ is the expected k_{eff} value from the ICSBEP evaluation,
$\boldsymbol{\sigma_{C/E}}$ is the uncertainty in the C/E ratio,
$\boldsymbol{\sigma_{calc}}$ is the calculated uncertainty in the k_{eff} value from KENO V.a or KENO-VI, and
$\boldsymbol{\sigma_{eval}}$ is the uncertainty value reported in the ICSBEP evaluation of the configuration.

Additionally, an average C/E value was determined for each experiment category for each code. By using a simple unweighted arithmetic average of the individual C/E values, these were defined as specific combinations of fissile form, fissile species, and energy spectrum, as well as within whole categories of experiments, such as HEU-MET-FAST. Depending on the case or experiment, the Monte Carlo calculations were run to achieve a small uncertainty of approximately 0.00010 or 0.00049 $\boldsymbol{\Delta k_{eff}}$ **as noted in the SCALE 6.2.2 validation report [8]. The uncertainty in the average C/E value is shown in Eq. (3):**

$$\sigma_{C/E}^{Avg} = \frac{\sqrt{\sum_{i=1}^{N}\left(\sigma_{C/E}^{i}\right)^{2}}}{N}, \quad (3)$$

where:

$\boldsymbol{\sigma_{C/E}^{Avg}}$ is the uncertainty in the average C/E value,
$\boldsymbol{\sigma_{C/E}^{i}}$ is the uncertainty in a single C/E value, and
$\boldsymbol{N}$ is the total number of configurations included for the category of experiments.

The results for each case and experiment category are reported for each library, allowing for comparisons between ENDF/B-VIII.0 and -VII.1 for CE and MG libraries, respectively. These comparisons are made through the deviations from unity in C/E for each case and are the difference between the calculated C/E value and 1.0 or the absolute bias. C/E values obtained from the ENDF/B-VII.1 library are thus compared against those obtained from calculations with the ENDF/B-VIII.0 library.

3.2 TSUNAMI-3D

The TSUNAMI-3D sequence within the SCALE code package is used to generate cross section sensitivity data for sensitivity and uncertainty analyses. The sequence calculates sensitivities based on the fluxes determined by KENO and are written in SDFs, which contain nuclide-, energy-, and reaction-dependent k_{eff} sensitivity coefficients. The selection of whether to use MG or CE methods to generate these SDFs was determined by the inputs from the SCALE 6.2.2 validation report. Rather than generate SDFs for the entire VALID library, only specific cases from each category were selected for the generation of SDFs for this report. These selections were based on an experiment's energy of average lethargy of neutrons causing fission (EALF) or uniqueness in the model description to provide a general representation of each category, such as reflector material, neutron poison, and so forth. More details concerning the calculation methodologies for TSUNAMI-3D are found in the SCALE 6.2.3 manual [2].

3.3 TSUNAM-IP

The TSUNAMI-IP sequence is used to evaluate the similarities of the benchmark experiments and determine the uncertainties due to cross section covariance data. Two similarity metrics are used here: the integral parameter c_k and integral index E. The c_k value is a correlation coefficient of the effect of nuclear data uncertainty on k_{eff} between an experiment case and an application and is shown in Eq. (4):

$$c_k = \frac{\sigma^2_{AppExp}}{\sigma_{App}\sigma_{Exp}}, \tag{4}$$

where:

$\boldsymbol{c_k}$ is the similarity between an application (ENDF/B-VII.1 results) and an experiment (ENDF/B-VIII.0 results),
$\boldsymbol{\sigma^2_{AppExp}}$ is the covariance between the application and the experiment,
$\boldsymbol{\sigma_{App}}$ is the uncertainty in the application k_{eff} due to cross section covariances (uncertainties), and
$\boldsymbol{\sigma_{Exp}}$ is the uncertainty in the experiment k_{eff} due to cross section covariances (uncertainties).

A c_k value of 1 indicates that the two systems are positively correlated, meaning that comparing the k_{eff} values for both systems would be identically affected by any nuclear data errors. The 56-group covariance data based on the ENDF/B-VIII.0 library were used to determine the uncertainty contributions or c_k.

The integral index E is similar to the c_k value, except that it does not consider the uncertainties in the nuclear data but compares only the similarities in the sensitivity data generated in the SDFs. This means that all sensitivities produced by the TSUNAMI-3D results are given equal weight and help identify important isotopes with low uncertainties. The formula used to calculate the E integral index is shown in Eq. (5):

$$E = \frac{\boldsymbol{S}_A^T \boldsymbol{S}_E}{|\boldsymbol{S_A}||\boldsymbol{S}_E|}, \tag{5}$$

where:

$\boldsymbol{S_A}$ is the sensitivity vector for the application (ENDF/B-VII.1),
$\boldsymbol{S}_E$ is the sensitivity vector for the experiment (ENDF/B-VIII.0),
$\boldsymbol{S}_A^T$ is the transpose of the sensitivity vector for the application,
$|\boldsymbol{S_A}|$ is the magnitude of the sensitivity vector corresponding to the L2 norm for the application (see Eq. [6]), and
$|\boldsymbol{S}_E|$ is the magnitude of the sensitivity vector corresponding to the L2 norm for the experiment (see Eq. [6]),

$$|\boldsymbol{S_i}| = \sqrt{\boldsymbol{S}_i^T \boldsymbol{S}_i}. \tag{6}$$

An E value of 1, similar to the c_k value, indicates that the two systems are essentially identical [2].

4. RESULTS

This section presents the results of the comparisons between ENDF/B-VIII.0 and -VII.1 through KENO V.a, KENO-VI, TSUNAMI-3D, and TSUNAMI-IP. Section 4.1 presents KENO V.a results, Section 4.2 presents results for KENO-VI, and Section 4.3 presents sensitivity results with TSUNAMI-3D and -IP. Sections 4.1 and 4.2 present the average results for each category along with more detailed discussions of the results in each category. A complete list of the calculated k_{eff} values and their uncertainties and the benchmark model k_{eff} values and their uncertainties are presented in Appendix A for KENO V.a cases and in Appendix B for KENO-VI cases.

All model calculations were performed by using SCALE 6.3.b12 with the ENDF/B-VIII.0 and -VII.1 nuclear data libraries and were executed on the Apollo cluster at ORNL with each node consisting of two 12-core Intel Xeon 2.30 GHz 5,118 CPUs and 192 GB of memory. Only the library names were altered from the original VALID inputs to perform calculations in KENO and TSUNAMI for this report.

4.1 KENO V.A

The maximum reported uncertainty for all calculations is 0.00049 Δk with more than 75% of uncertainties reduced to 0.00010 Δk. The average C/E value and its uncertainty for each category are provided in Table 4 for MG libraries (252-group) based on ENDF/B-VIII.0 and -VII.1 and in Table 5 for CE libraries. Tables 4 and 5 provide differences in the C/E values from ENDF/B-VIII.0 to -VII.1. The average C/E bias (i.e., difference from unity) is shown in Figure 1 for each of the categories for all four libraries.

Table 4. Results by category for KENO V.a calculations with the 252-group ENDF/B-VIII.0 library

Category	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.	Std Dev.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.			
HMF	1.00295	0.00039	1.00310	0.00039	-0.00015	0.00055	0.27196
HST	0.99883	0.00072	0.99651	0.00072	0.00232	0.00102	2.27846
IMF	1.00266	0.00082	1.00572	0.00083	-0.00307	0.00117	2.62268
LCT	0.99949	0.00018	0.99891	0.00018	0.00058	0.00026	2.27846
LST	0.99844	0.00083	0.99774	0.00083	0.00070	0.00117	0.59636
MCF	1.00119	0.00158	1.00350	0.00158	-0.00231	0.00223	1.03381
MCT	0.99789	0.00087	0.99827	0.00087	-0.00038	0.00123	0.30885
MST	0.99329	0.00157	0.99783	0.00158	-0.00454	0.00223	2.03825
PMF	0.99950	0.00062	1.00003	0.00062	-0.00053	0.00088	0.60446
PST	0.99752	0.00055	1.00199	0.00056	-0.00447	0.00079	5.69485
UCT	0.99821	0.00140	1.00066	0.00141	-0.00245	0.00199	1.23303
UMF	0.99875	0.00051	0.99868	0.00051	0.00007	0.00072	0.09705
USI	0.97931	0.00123	0.98214	0.00123	-0.00283	0.00174	1.62692
USM	0.97528	0.00214	0.97830	0.00214	-0.00302	0.00303	0.99788
UST	0.99669	0.00052	0.99885	0.00052	-0.00216	0.00074	2.93721

Table 5. Results by category for KENO V.a calculations with CE ENDF/B-VIII.0 library

Category	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.	Std Dev.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.			
HMF	1.00179	0.00039	1.00198	0.00039	-0.00019	0.00055	0.34449
HST	0.99824	0.00074	0.99774	0.00072	0.00050	0.00103	0.48427
IMF	1.00061	0.00082	1.00289	0.00083	-0.00229	0.00117	1.95415
LCT	0.99921	0.00018	0.99960	0.00018	-0.00039	0.00026	1.53206
LST	0.99845	0.00083	0.99823	0.00083	0.00022	0.00118	0.18743
MCF	0.99797	0.00157	0.99890	0.00157	-0.00093	0.00222	0.41886
MCT	0.99811	0.00087	0.99916	0.00087	-0.00105	0.00123	0.85340
MST	0.99354	0.00157	0.99839	0.00158	-0.00485	0.00223	2.17743
PMF	0.99942	0.00062	0.99952	0.00062	-0.00010	0.00088	0.11405
PST	0.99772	0.00055	1.00301	0.00056	-0.00529	0.00079	6.73954
UCT	0.99818	0.00140	1.00080	0.00141	-0.00262	0.00199	1.31858
UMF	0.99860	0.00051	0.99845	0.00051	0.00015	0.00072	0.20797
USI	0.97945	0.00123	0.98275	0.00124	-0.00330	0.00174	1.88942
USM	0.97546	0.00214	0.97901	0.00215	-0.00355	0.00303	1.17027
UST	0.99750	0.00052	1.00016	0.00052	-0.00266	0.00074	3.61712

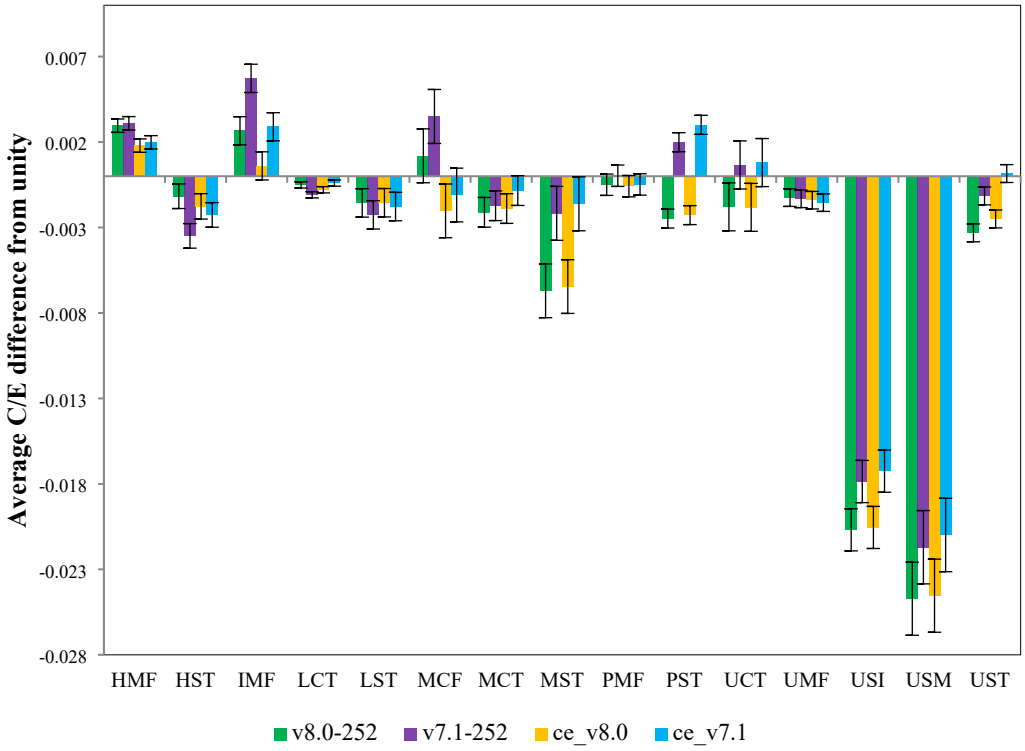

Figure 1. Absolute bias for all four libraries for each of the 15 categories of experiments.

For the 252-group ENDF/B-VIII.0 library, the largest absolute bias occurs for the USM systems and is -2.47% Δ*k*. The second largest bias is for the USI systems with a bias of -2.07% Δ*k*. The next largest bias is -0.67% Δ*k* for the MST systems. For the 252-group ENDF/B-VII.1 library, the largest absolute bias occurs for the USM systems and is -2.17% Δ*k*. The second largest bias is for the USI systems with a bias of -1.79% Δ*k*. The next largest bias is 0.57% Δ*k* for the IMF systems. The largest absolute difference between the ENDF/B-VIII.0 and -VII.1 results occurs for the MST systems and is -0.453% Δ*k*. The second largest difference is for the PST systems with a difference of -0.447% Δ*k*. The next largest

difference is -0.31% Δ*k* for the IMF systems. There is a decrease in the C/E values for all 252-group comparisons between ENDF/B-VIII.0 and -VII.1, except for HST, LCT, LST, and UMF in which the C/E values have increased. Of these differences, six—HST, IMF, LCT, MST, PST, and UST—are statistically significant and have differences greater than 2 σ with the C/E values moving closer to unity for HST, IMF, and LCT and further away for MST, PST, and UST. Three additional differences—MCF, UCT, and USI—were between 1 and 2 σ and all had C/E values moving further away from unity. The remaining six systems had differences of less than 1 σ. Of those, three— HMF, LST, and UMF—had C/E values moving closer to unity with the remaining three—MCT, PMF, and USM—moving further away. There are no cross section processing differences between ENDF/B-VIII.0 and -VII.1; the only differences are in the data.

For the CE ENDF/B-VIII.0 library, the largest absolute bias also occurs for the USM systems and is -2.45% Δ*k*. The second largest bias is for the USI systems with a bias of -2.06% Δ*k*. The next largest bias is -0.65% Δ*k* for the MST systems. For the CE ENDF/B-VII.1 library, the largest absolute bias also occurs for the USM systems and is -2.10% Δ*k*. The second largest bias is for the USI systems with a bias of -1.73% Δ*k*. The next largest bias is 0.30% Δ*k* for the PST systems. The largest absolute difference between the ENDF/B-VIII.0 and -VII.1 results occurs for the PST systems and is -0.53% Δ*k*. The second largest difference is for the MST systems with a difference of -0.48% Δ*k*. The next largest difference is -0.36% Δ*k* for the USM systems. Again, C/E values decrease in all CE comparisons between ENDF/B-VIII.0 and -VII.1, except for HST, LST, and UMF in which the C/E values have increased. Of these differences, only three—MST, PST, and UST—are statistically significant, resulting in C/E values moving further away from unity, and PST systems have the largest difference of any system for either MG or CE libraries. There are five additional differences— IMF, LCT, UCT, USI, and USM—between 1 and 2 σ, and only IMF has a difference moving closer to unity. The remaining seven systems— HMF, HST, LST, MCF, MCT, PMF, and UMF—had differences less than 2 σ, and only HMF, HST, LST, and UMF have C/E values moving closer to unity.

Generally, there is a trend for the C/E values to decrease between ENDF/B-VII.1 to -VIII.0. This indicates that there have been several adjustments to the cross sections between libraries, which are especially noticeable in the mixed, plutonium, and ^{233}U systems. These adjustments will become more noticeable in the following subsections in which each category details the C/E values and the benchmark k_{eff} uncertainty, as reported by the ICSBEP Handbook. In the C/E figures, the reported benchmark uncertainty for each case is shown as dotted lines.

4.1.1 HMF Systems

The C/E data for the HMF systems are presented in Figure 2 for the ENDF/B-VIII.0 and -VII.1 libraries. All four libraries are generally in good agreement with each other, except for HMF-021and -021S, which is a steel-reflected HEU sphere. The ENDF/B-VIII.0 changes to the ^{56}Fe cross sections have resulted in a positive bias for both CE and MG calculations, causing C/E values to move closer to unity for CE results and proportionally further away with the MG results. The new ENDF/B-VIII.0 evaluation indicates that several changes have occurred for ^{56}Fe cross sections in the resolved resonance region (EALF range for HMF systems ranging from 119.524 to 842.025 keV), including an adoption of the evaluated resonances from JENDL-4.0 [12] up to an incident energy of 850 keV, changing the 767.240 keV resonance to 766.724 keV, and reducing the background around 800 keV by 40% [1].

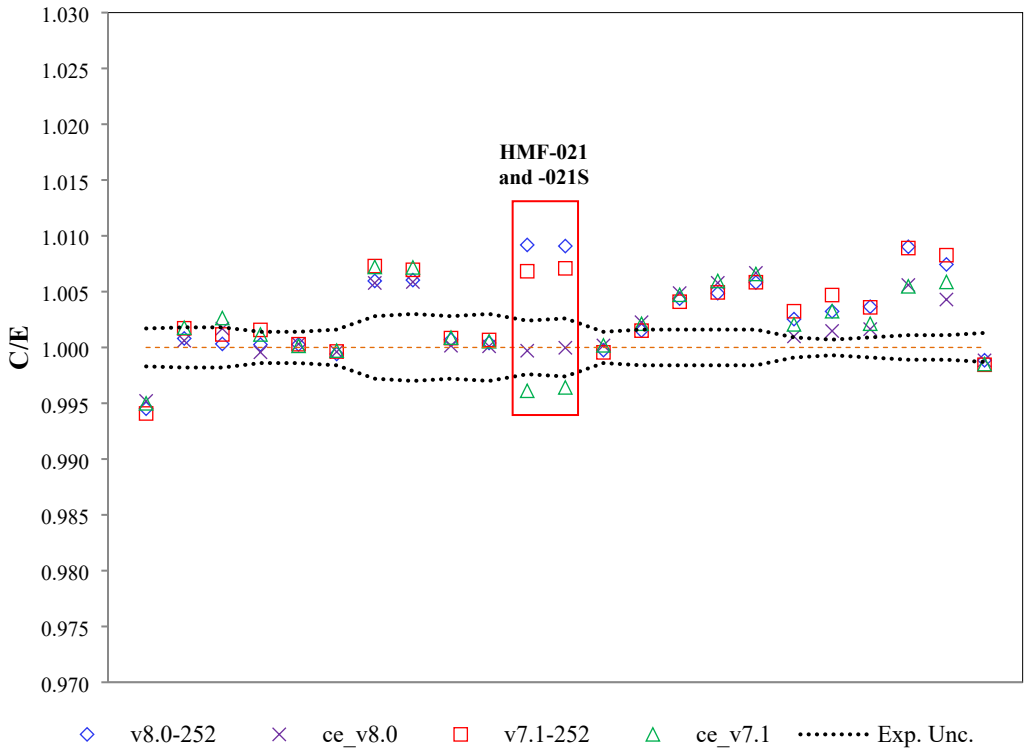

Figure 2. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the HMF systems.

The C/E data are also compared against the 1 σ experimental uncertainty bands with 47.8% of the ENDF/B-VIII.0 CE library results and 30.4% of the ENDF/B-VII.1 CE library results falling within the band. These results are similar for the MG libraries in which 44 and 35% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.2 HST Systems

The C/E data for the HST systems are shown in Figure 3 for the ENDF/B-VIII.0 and -VII.1 libraries. Agreement between all libraries is generally good; however, as noted in Tables 4 and 5, the ENDF/B-VIII.0 libraries are consistently higher than the ENDF/B-VII.1 libraries with the 252-group ENDF/B-VIII.0 library values being the highest. The HST-014 and -016 cases, which contain soluble gadolinium poison, continue to be outliers for this system group and are discussed in the SCALE 6.1 and 6.2.2 validation reports [8, 9].

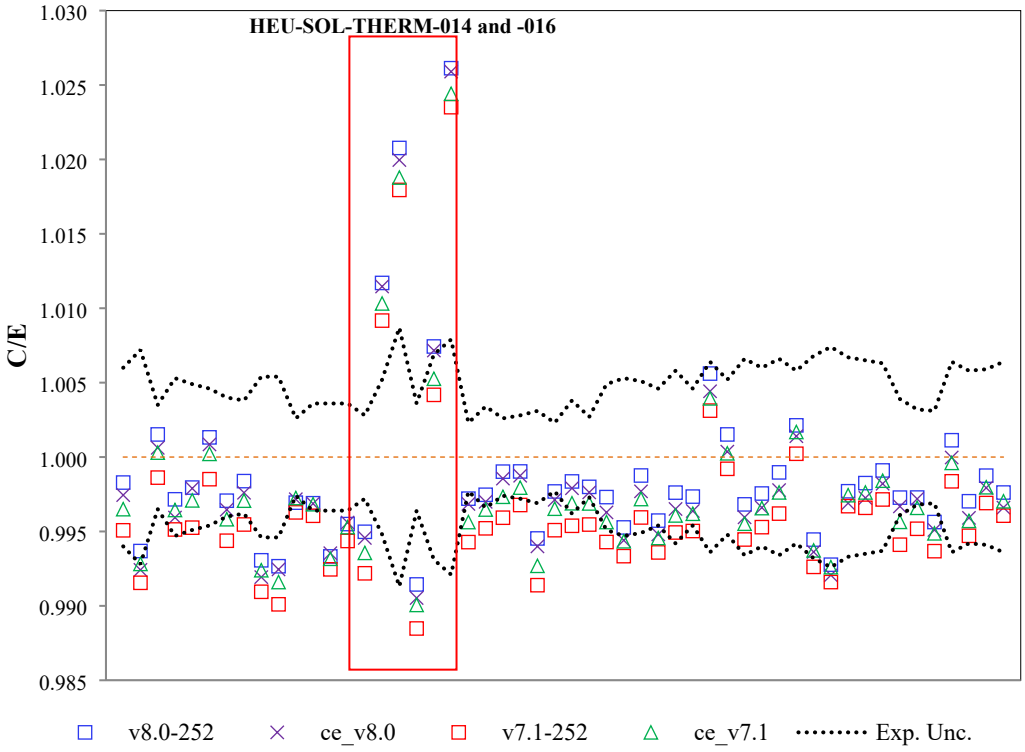

Figure 3. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the HST systems.

The C/E data for all HST cases are also compared against the experimental uncertainty bands with 66.0% of the ENDF/B-VIII.0 CE library results and 55.8% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 71 and 40% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.3 IMF Systems

The C/E data for the IMF systems are shown in Figure 4 for the ENDF/B-VIII.0 and -VII.1 libraries. The ENDF/B-VIII.0 values are consistently lower than the ENDF/B-VII.1 values with the largest differences for IMF-005 and -005S. This particular system has a thick steel reflector and provides similar results to those of HMF-021.

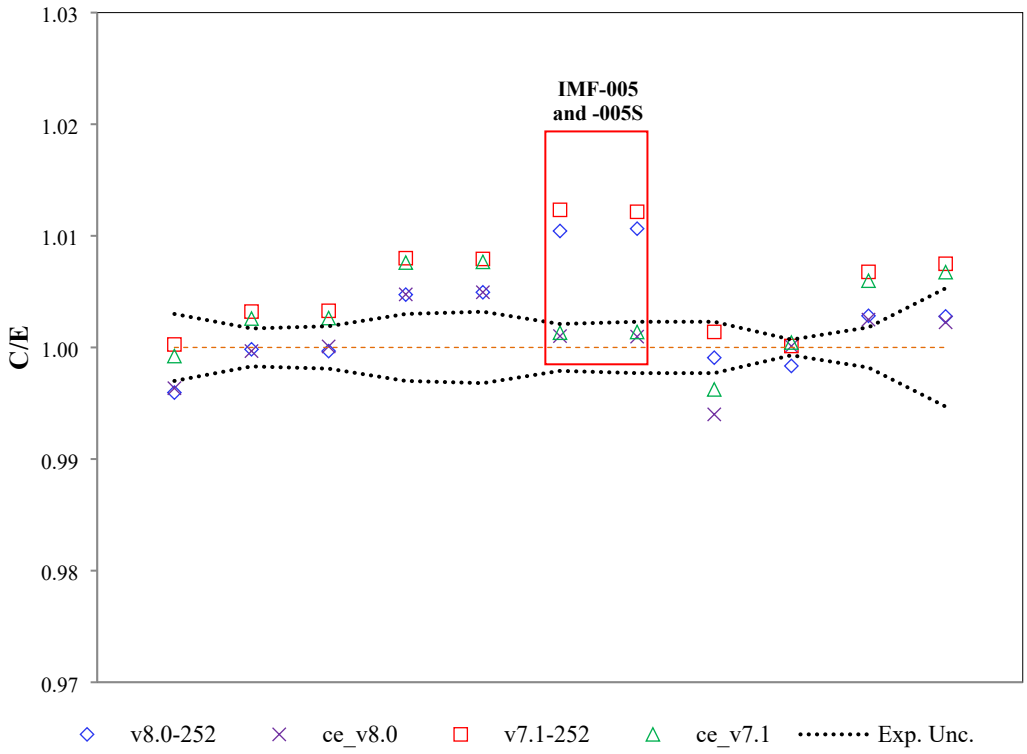

Figure 4. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the IMF systems.

The C/E data for all IMF cases are also compared against the experimental uncertainty bands with 54.5% of the ENDF/B-VIII.0 CE library results and 36.4% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 36 and 27% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.4 LCT Systems

The C/E data for the LCT systems are shown in Figure 5 for the ENDF/B-VIII.0 and -VII.1 libraries. The data generally demonstrate consistent performance between all libraries. However, as observed in Tables 4 and 5, the ENDF/B-VIII.0 CE values are generally lower than the ENDF/B-VII.1 CE values, and the ENDF/B-VIII.0 MG values are generally higher than the ENDF/B-VII.1 MG values. As noted in the SCALE 6.2.2 validation report, the cases from LCT-078 and -080 are the most consistent with all experiments completed with the same equipment at the same location [8]. There are two CE groups of experiments with largely noticeable differences between ENDF/B-VIII.0 and -VII: LCT-010-014 to -30 and LCT-078 and -080, as noted in Figure 5. Marshall notes that these differences could be attributed to a reduction of pitch between fuel rods that creates less moderation and shifts the neutron energy spectrum. This harder energy spectrum results in a more negative bias with ENDF/B-VIII.0 results as compared with -VII.1 [13]. Trkov also specifically indicates that the lower C/E values for LCT-078 and -080 could be caused by the changes in ^{16}O, as introduced in ENDF/B-VIII.0 [14].

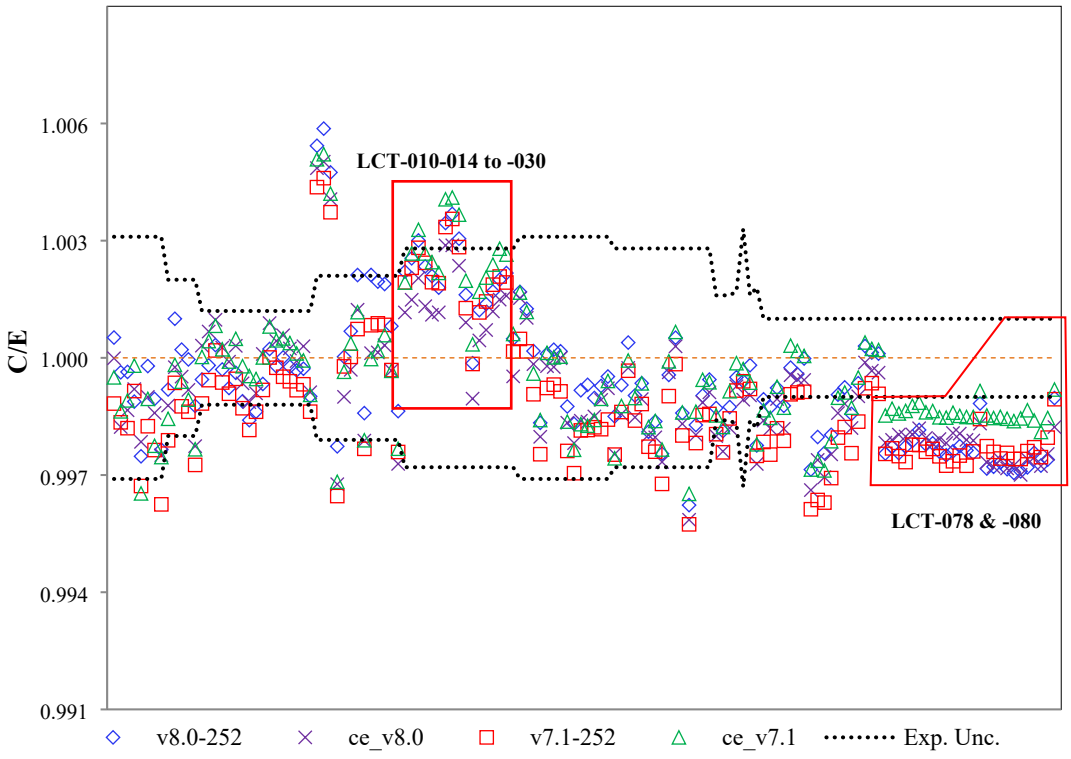

Figure 5. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the LCT systems.

The C/E data for all LCT cases are also compared against the experimental uncertainty bands with 65% of the ENDF/B-VIII.0 CE library results and 65.7% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 65 and 56% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.5 LST Systems

The C/E data for the LST systems are shown in **Error! Reference source not found.** for the ENDF/B-VIII.0 and -VII.1 libraries. The data show consistent performance between all libraries, and the ENDF/B-VIII.0 values tend to be higher than the ENDF/B-VII.1 values for CE and MG.

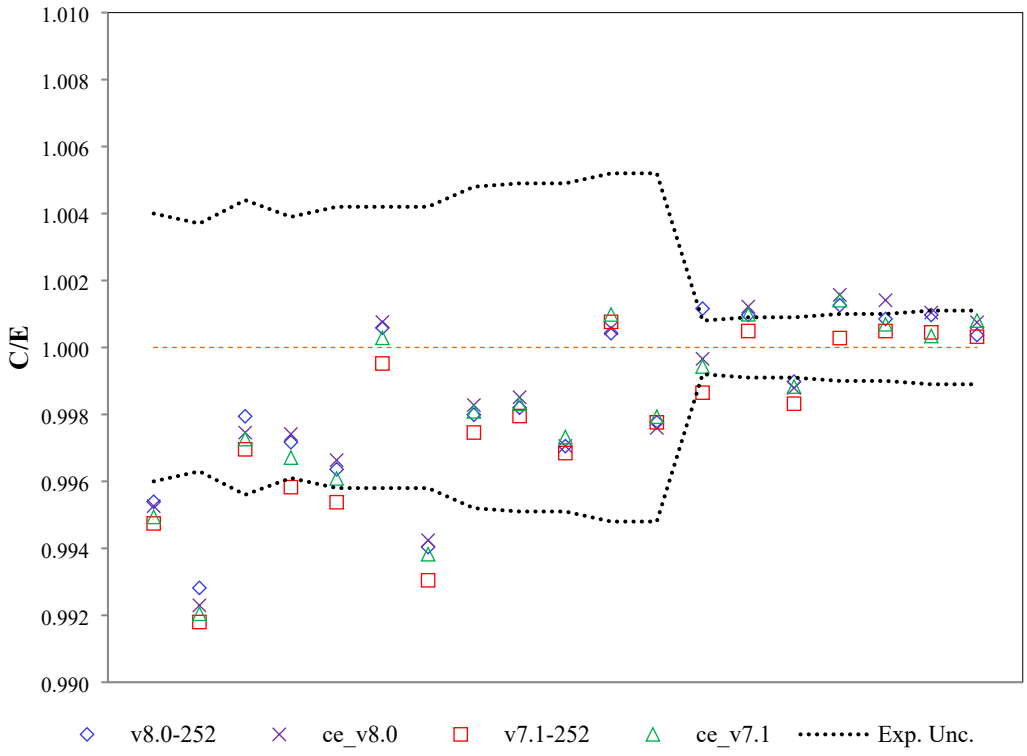

Figure 6. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the LST systems.

The C/E data for all LST cases are also compared against the experimental uncertainty bands with 63.2% of the ENDF/B-VIII.0 CE library results and 68.4% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 63% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries.

4.1.6 MCF Systems

The C/E data for the MCF systems are shown in Figure 7 for the ENDF/B-VIII.0 and -VII.1 libraries. With only two cases, generalizations on tendencies between libraries and comparisons with the experimental uncertainty data are not attempted.

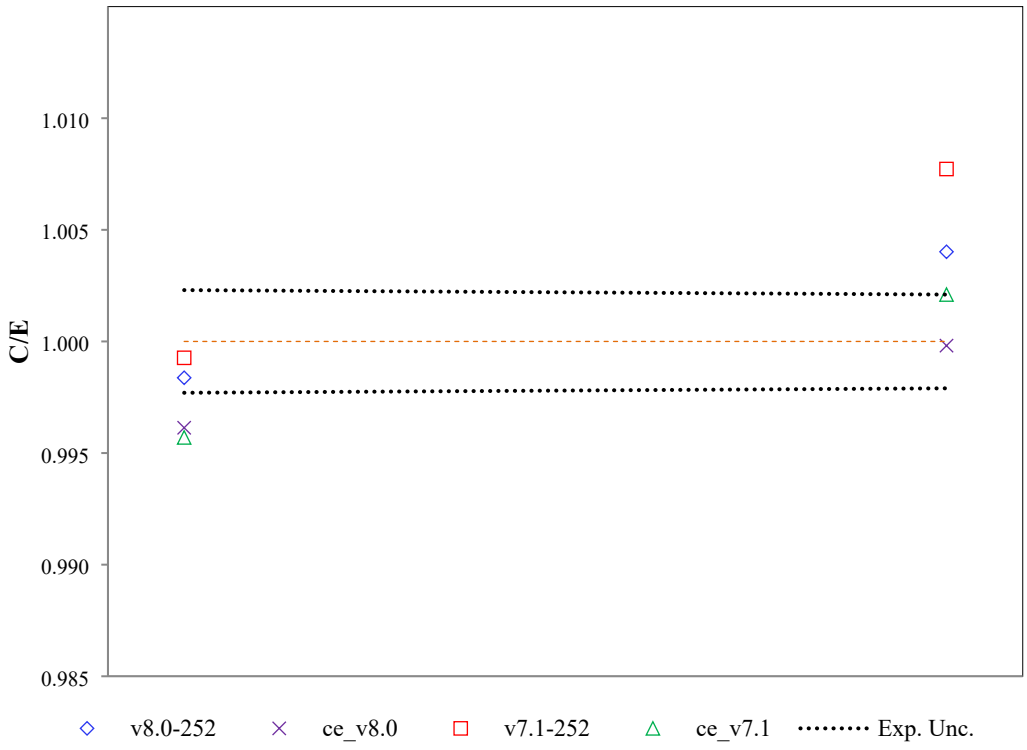

Figure 7. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the MCF systems.

4.1.7 MCT Systems

The C/E data for the MCT systems are shown in Figure 8 for the ENDF/B-VIII.0 and -VII.1 libraries. The agreement generally varies by experiment group between the two library sets. For MCT-002, as the fuel-rod pitch increases, the ENDF/B-VIII.0 C/E values change from larger than ENDF/B-VII.1 values to smaller. Although the MCT-004 ENDF/B-VII.1 values approach unity as the fuel-rod pitch increases from case 1 to 11, the ENDF/B-VIII.0 C/E values are noticeably lower and only slightly increase in C/E towards unity. This could be a function of the pitch increases or possible changes to the plutonium cross sections present in the ENDF/B-VIII.0 library. One goal of the new ENDF/B-VIII.0 evaluation was to correct the approximately 500 pcm (0.5% in k_{eff}) overprediction of thermal plutonium solution criticality. This resulted in the adoption of previous Nuclear Energy Agency Working Party on International Nuclear Data Evaluation Co-operation (WPEC) Subgroup 34 collaboration work on resonances and prompt nubar updates, as well as influences from the ^{16}O evaluation changes and new scattering kernels recommended by WPEC/Subgroup 42 [1]. As an unintended consequence, the poor performance of these systems, such as MCT-004, may be directly attributed to these changes in cross section data.

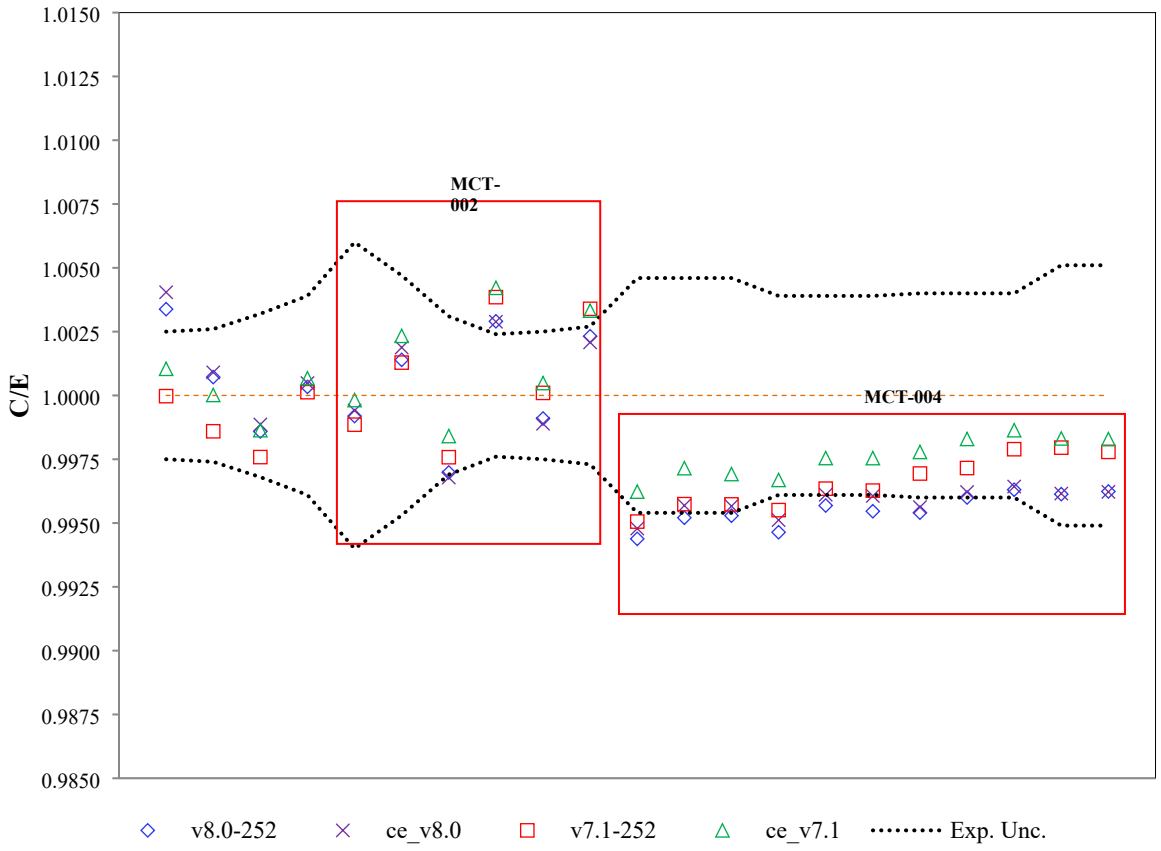

Figure 8. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the MCT systems.

The C/E data for all MCT cases are also compared against the experimental uncertainty bands with 66.7% of the ENDF/B-VIII.0 CE library results and 90.5% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 57 and 81% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively. This indicates that there was a clear alteration of the plutonium cross sections based on the minimal differences of the ^{235}U cross sections, as indicated in LEU categories (Figure 1, Tables 4 and 5), which lead to fewer ENDF/B-VIII.0 values falling within the experimental uncertainty bands.

4.1.8 MST Systems

The C/E data for the MST systems are shown in Figure 9 for the ENDF/B-VIII.0 and -VII.1 libraries. There is a clear trend that CE and MG ENDF/B-VIII.0 C/E values are noticeably lower than the ENDF/B-VII.1 C/E values. As noted subsection 4.1.7 (MCT Systems), the plutonium cross sections were adjusted to lower reactivity, and due to the high amounts of ^{239}Pu compared with ^{235}U in these systems, the lower C/E values are quite noticeable and were somewhat expected.

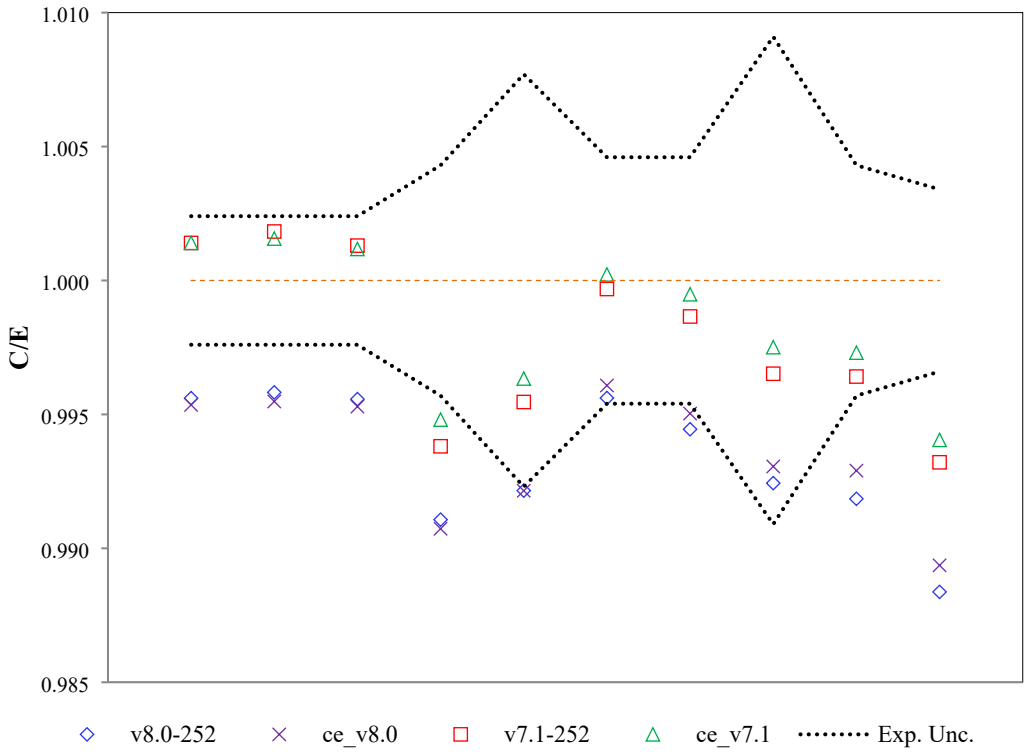

Figure 9. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the MST systems.

The C/E data for all MST cases are also compared against the experimental uncertainty bands with 20% of the ENDF/B-VIII.0 CE library results and 80% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 20 and 80% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively. As noted in Figure 9, the systematic changes in the nuclear data for ^{239}Pu negatively impacted the C/E values for these systems, which is consistent across all 10 cases.

4.1.9 PMF Systems

The C/E data for the PMF systems are shown in Figure 10 for the ENDF/B-VIII.0 and -VII.1 libraries. The ENDF/B-VIII.0 values are generally lower than the ENDF/B-VII.1 values for both libraries, except for PMF-002-001, -025-001, and -026-001. PMF-002-001 is a 20.1 wt% ^{240}Pu system, and the fission and capture cross sections for systems of this energy spectrum (EALF of approximately 1.3 MeV) were replaced by the Weston evaluation from ENDF/B-VI.8 [1], which has lowered the capture cross section by about 5% with an additional 2.5% reduction in the unresolved resonance range (above 42 keV). PMF-025-001 has a thin iron reflector that appears to have a much smaller impact on the C/E value of the system. PMF-026-001 has a thick steel reflector and a comparable large spread in C/E values with HMF-021. The trend of ENDF/B-VIII.0 plutonium cross section adjustments continues to be prevalent in these results; however, the differences are not as large as those for the mixed systems.

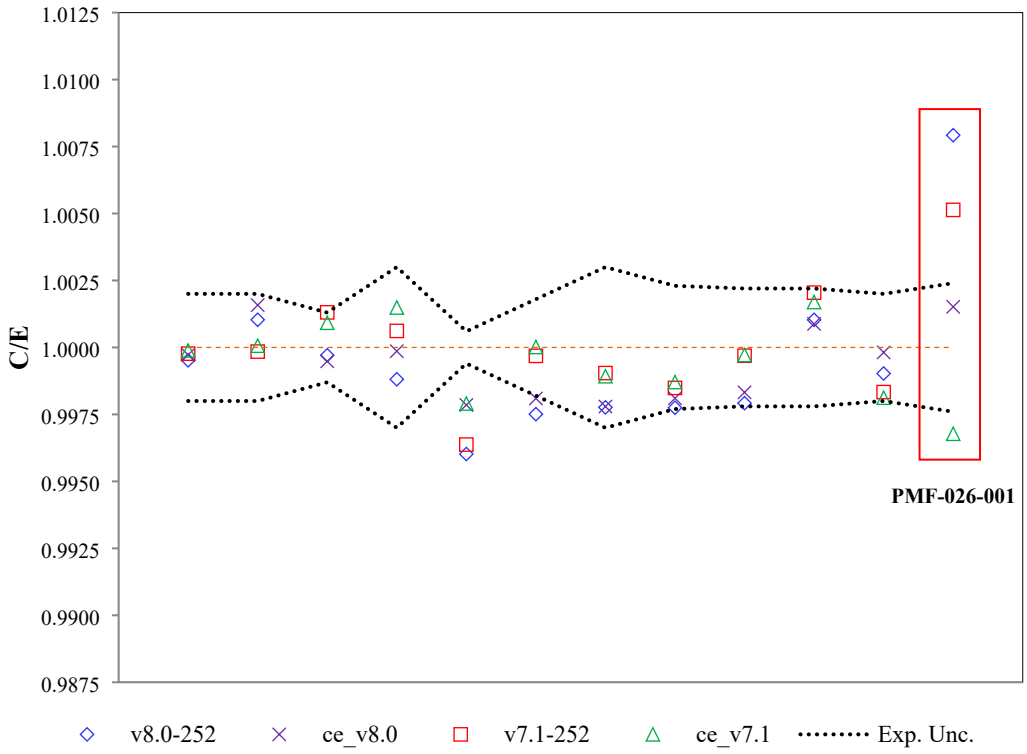

Figure 10. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the PMF systems.

The C/E data for all PMF cases are also compared against the experimental uncertainty bands with 83.3% of the ENDF/B-VIII.0 and -VII.1 CE library results falling within the band. For the MG libraries, approximately 75% of the points fall in the band for both the 252-group ENDF/B-VIII.0 and -VII.1 libraries.

4.1.10 PST Systems

The C/E data for the PST systems are shown in Figure 11 for the ENDF/B-VIII.0 and -VII.1 libraries. The data demonstrate consistent lower values for the ENDF/B-VIII.0 libraries compared with those with ENDF/B-VII.1. The average bias difference between the CE libraries is approximately 530 pcm and for the MG libraries is approximately 450 pcm. This is the largest bias difference between CE libraries observed in all system categories and the second largest for the MG libraries. The average bias has decreased from 301 to 228 pcm for CE cross sections (average C/E of 1.00301 for ENDF/B-VII.1 to 0.99772 for ENDF/B-VIII.0), and bias increased from 199 to 248 pcm for the MG cross sections (average C/E of 1.00199 for ENDF/B-VII.1 to 0.99752 for ENDF/B-VIII.0). Although both cross sections manifest a similar negative bias on the resulting C/E values, the CE values have moved slightly closer to unity, whereas the MG values moved further away.

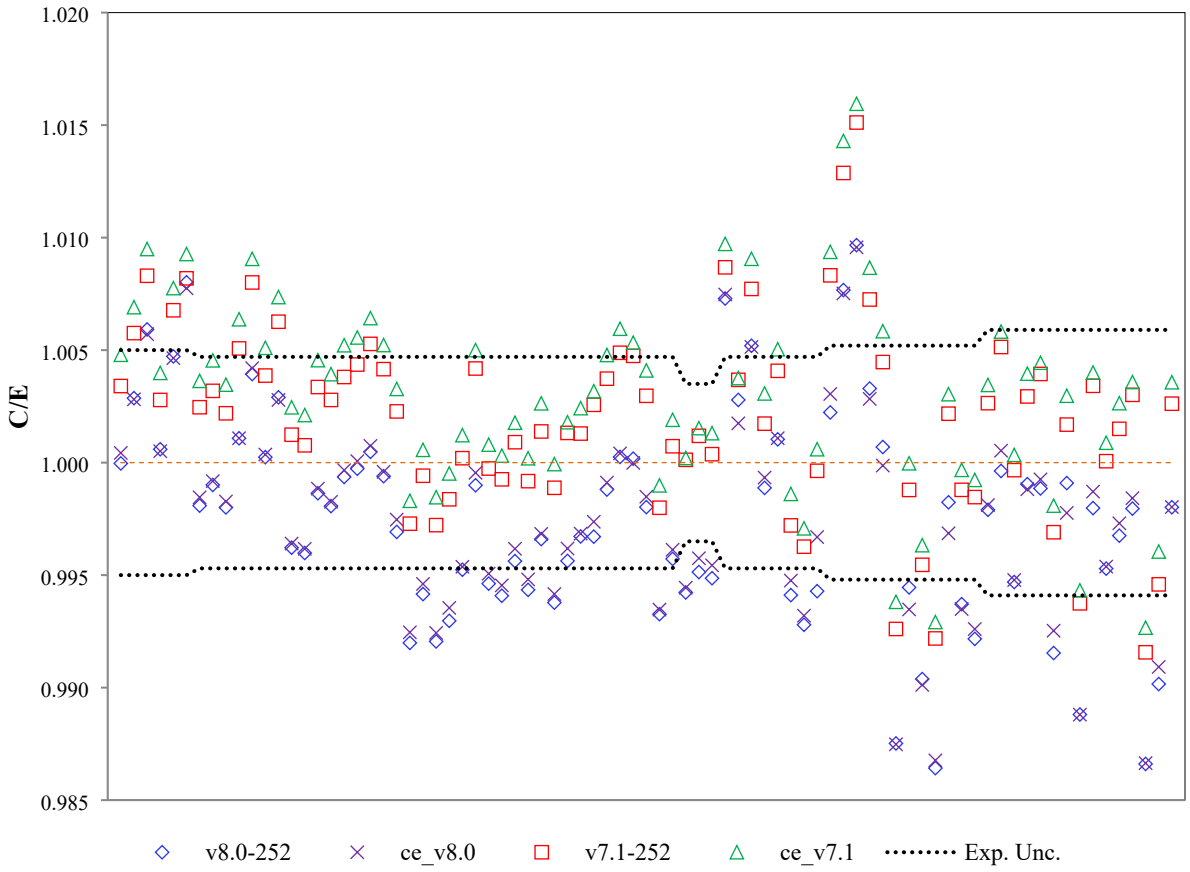

Figure 11. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the PST systems.

The C/E data for all PST cases are also compared against the experimental uncertainty bands with 63.0% of the ENDF/B-VIII.0 CE library results and 66.7% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 61 and 75% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.11 UCT Systems

The C/E data for the UCT systems are shown in Figure 12 for the ENDF/B-VIII.0 and -VII.1 libraries. Although there are only three benchmark evaluations to compare, the data demonstrate consistent lower C/E values for the ENDF/B-VIII.0 libraries compared with those with ENDF/B-VII.1. ENDF/B-VIII.0 ^{233}U cross sections were built from the JENDL-4.0 evaluation [12] with the gamma and fission widths adjusted to reproduce a thermal constant with the bound level of -1.7565 eV [1]. These adjustments resulted in increasing the fission cross section and lowering the inelastic and total nubar cross sections. The more negative bias shown in Figure 12 could be a result of these adjustments.

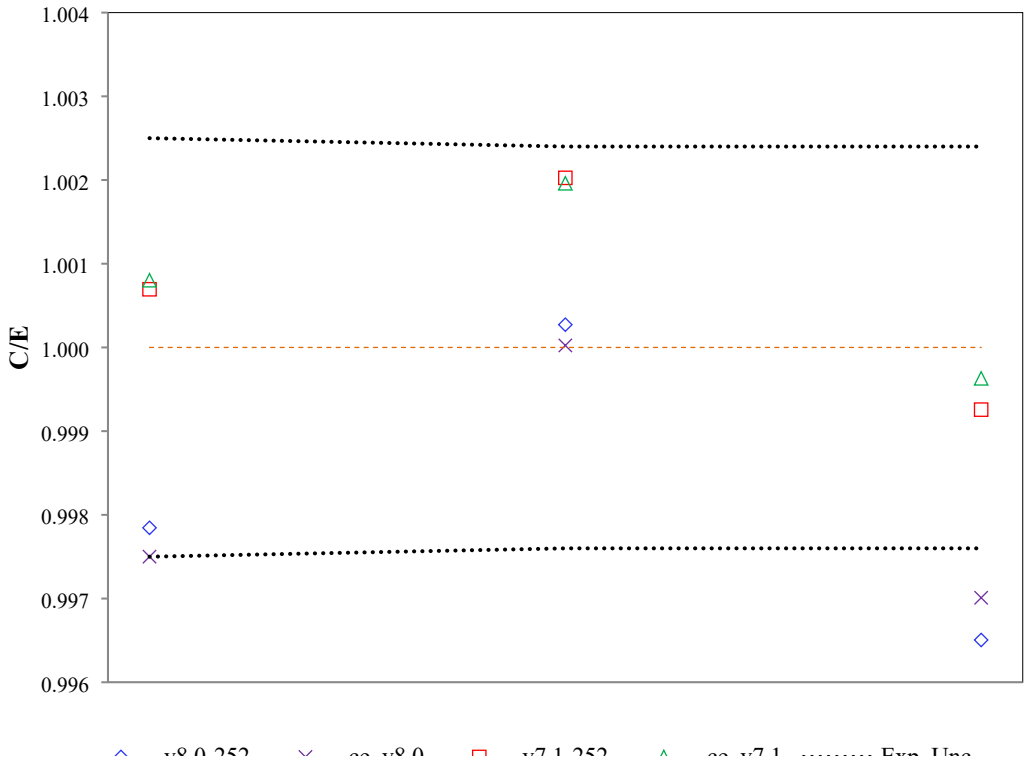

Figure 12. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the UCT systems.

4.1.12 UMF Systems

The C/E data for the UMF systems are shown in Figure 13 for the ENDF/B-VIII.0 and -VII.1 libraries. Although there is consistent behavior among all four libraries, there are no general trends as to the individual library results between the two. Four out of the 10 cases have lower ENDF/B-VIII.0 C/E values than ENDF/B-VII.1 values for CE, and four of the 10 cases have lower MG ENDF/B-VIII.0 C/E values than ENDF/B-VII.1 values. These bias differences are on the order of a 7 pcm average for MG libraries and a 14 pcm average for CE libraries—the smallest bias differences between all systems using KENO V.a. These fluctuations could result from various reflecting materials or other cross section adjustments present in ENDF/B-VIII.0.

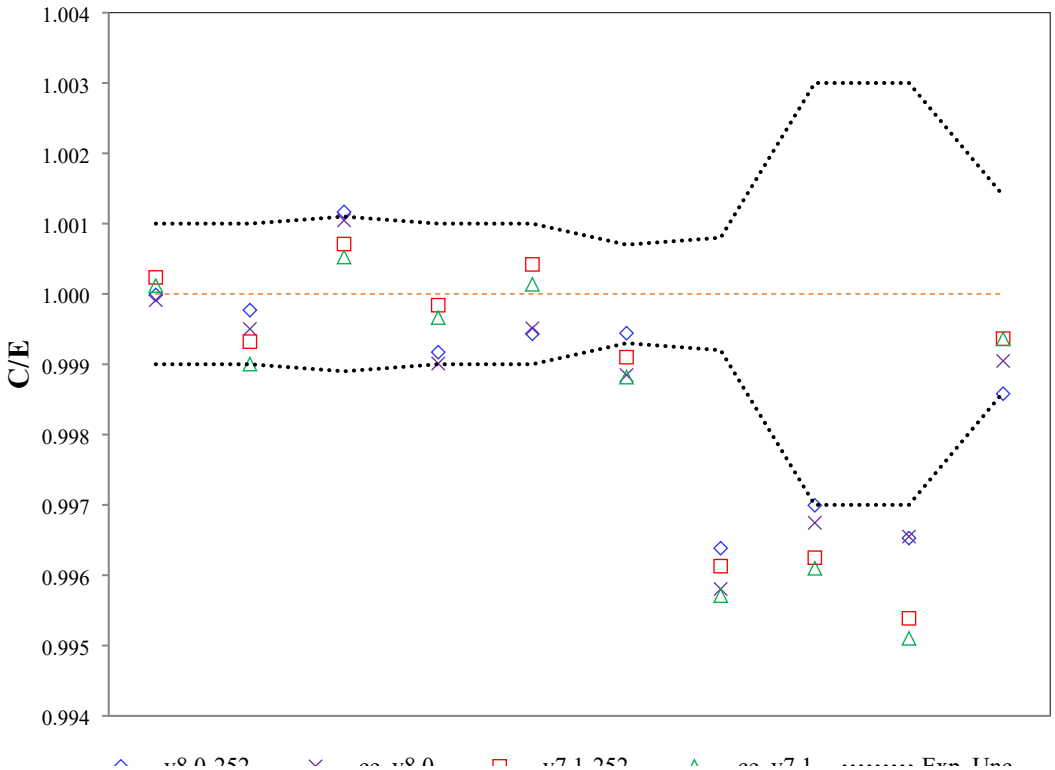

Figure 13. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the UMF systems.

The C/E data for all UMF cases are also compared against the experimental uncertainty bands with 60% of the ENDF/B-VIII.0 and -VII.1 CE library results falling within the band. For the MG libraries, approximately 50 and 60% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.13 USI Systems

The C/E data for the USI systems are shown in Figure 14 for the ENDF/B-VIII.0 and -VII.1 libraries. Again, although there is consistent behavior among all four libraries, the data demonstrate lower values for the ENDF/B-VIII.0 libraries as compared with those with ENDF/B-VII.1. There is an average bias difference between the two MG libraries of 280 pcm and an average of 330 pcm between the two CE libraries. All C/E values are less than 1.0, underpredicting k_{eff}, and the differences from unity are significantly larger than most other systems. As noted in the UCT systems, the ^{233}U cross sections have undergone several adjustments that could cause the resulting negative bias. The SCALE 6.2.2 validation report also indicates that there could be inadequacies with the nuclear data for intermediate range energy systems for ENDF/B-VIII.0 and ENDF/B-VII.1 and/or the experiment descriptions for these systems [8].

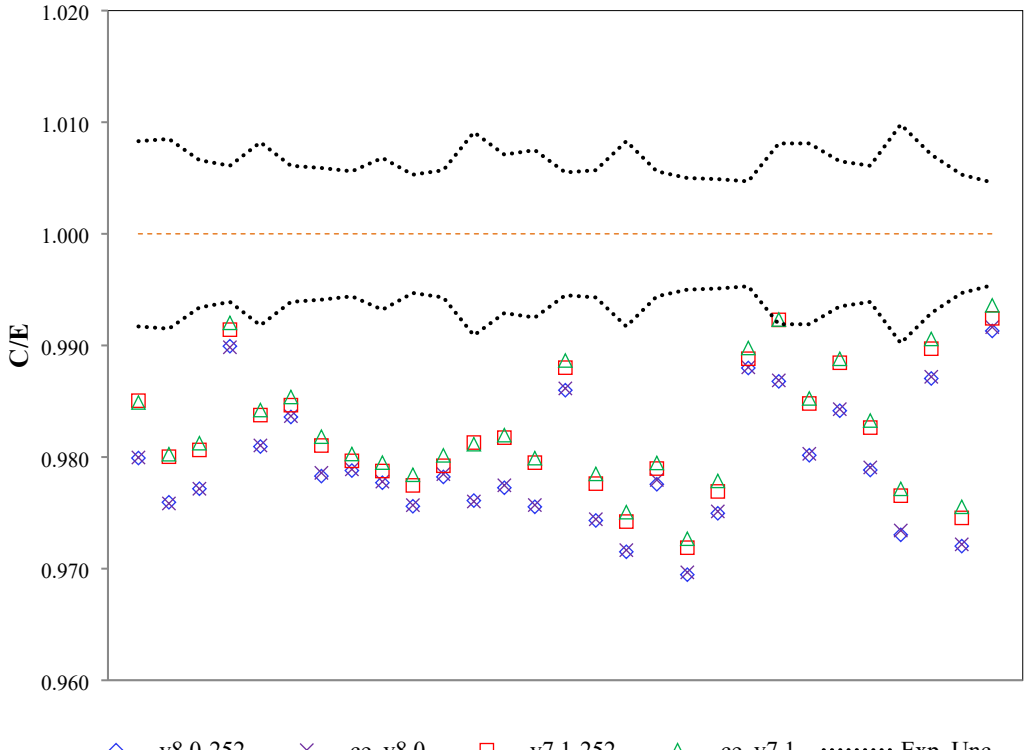

Figure 14. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the USI systems.

The C/E data for all USI cases are also compared against the experimental uncertainty bands with 0% of the ENDF/B-VIII.0 CE library results and 3.4% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 0 and 3% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.14 USM Systems

The C/E data for the USM systems are shown in Figure 15 for the ENDF/B-VII.0 and -VII.1 libraries. As with the USI data, there is consistent behavior among all four libraries; however, the data demonstrate lower values for the ENDF/B-VIII.0 libraries compared with those for ENDF/B-VII.1. There is an average bias difference between ENDF/B-VIII.0 and ENDF/B-VII.1 values for CE and MG of 360 and 300 pcm, respectively. All C/E values are less than 1.0, underpredicting k_{eff}, and the differences from unity are larger than most of the other systems, as was observed with the USI systems. The resulting increase in negative bias is most likely attributed to the changes in the ^{233}U cross sections, as mentioned in Section 4.1.11. The SCALE 6.2.2 report also indicates that there could be inadequacies with the nuclear data for mixed energy systems for both ENDF/B-VIII.0 and ENDF/B-VII.1 and/or the experiment descriptions for these systems.

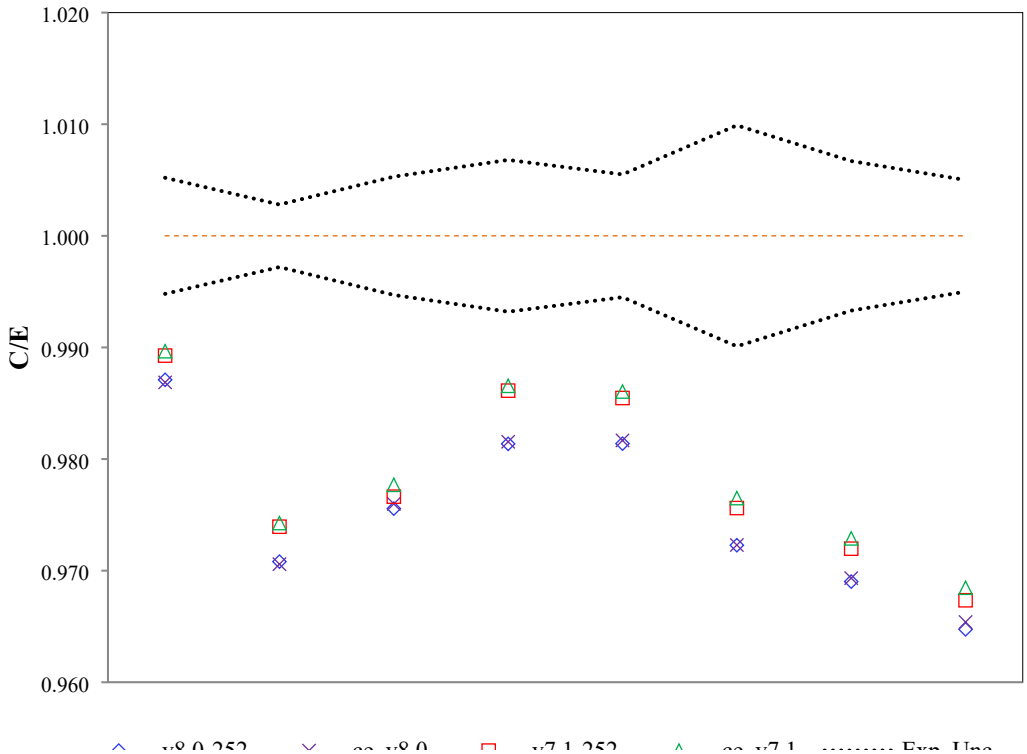

Figure 15. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the USM systems.

The C/E data for all USM cases are also compared against the experimental uncertainty bands, and no cases have a C/E value for any of the four libraries that fall within these bands.

4.1.15 UST Systems

The C/E data for the UST systems are shown in Figure 16 for the ENDF/B-VIII.0 and -VII.1 libraries. The data generally demonstrate consistent performance between all four libraries; however, the ENDF/B-VIII.0 C/E values are consistently lower than the ENDF/B-VII.1 C/E values for CE and MG. There is an average bias difference of approximately 270 pcm between the CE libraries and approximately 220 pcm between the MG libraries. These differences are in line with the other ^{233}U systems, excluding UMF, which has the smallest bias differences between ENDF/B-VIII.0 and ENDF/B-VII.1 for CE and MG libraries. As noted in the other ^{233}U systems, the changes to the cross sections as detailed in the Section 4.1.11 are most likely the cause of these significant negative bias differences.

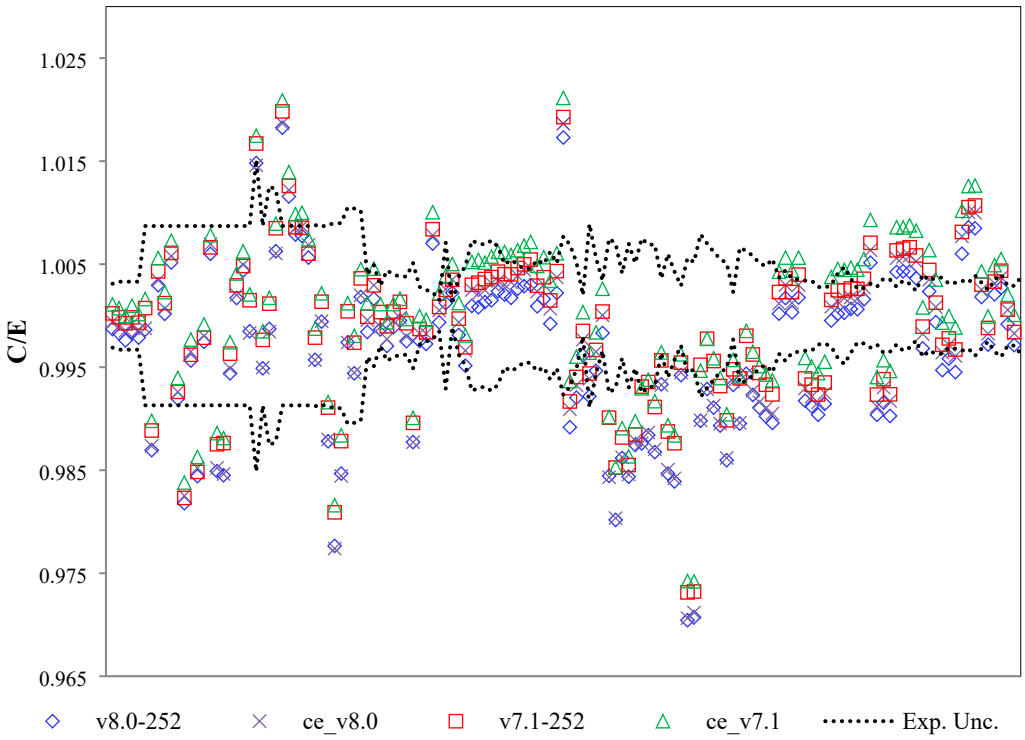

Figure 16. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the UST systems.

The C/E data for all UST cases are also compared against the experimental uncertainty bands with 56.4% of the ENDF/B-VIII.0 CE library results and 51.4% of the ENDF/B-VII.1 CE library results falling within the band. For the MG libraries, approximately 55% and 59% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.1.16 Pooled Results

The results for the different categories are pooled into similar larger groups to examine their performance over broader ranges of systems. For these comparisons, the data for each table are generated separately by combining the appropriate individual case results. The results for pooled categories of fissile material—HEU, IEU, LEU, mixed U/Pu, Pu, and U233 systems—are presented in Table 6, Table 7, and Figure 17. The IMF category is not pooled with other experiment categories because no other IEU systems are included in this report. The USI and USM results were removed from the U233* category. The results for pooled categories of fissile form—metal, solution, and compound systems—are presented in
Table 8, Table 9, and Figure 18. The USI and USM results were removed from the solution* category. The results for pooled categories of energy spectrum—fast, thermal, intermediate, and mixed spectrum systems—are presented in Table 10, Table 11, and Figure 19. The USI (i.e., intermediate energy spectrum) and USM (i.e., mixed energy spectrum) categories are only pooled with other ^{233}U-fueled solution experiments because no other intermediate or mixed energy systems are included in this report.

Table 6. Results by fissile material category for the 252-group ENDF/B-VIII.0 library

Fissile material	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.		
HEU	1.00009	0.00051	0.99853	0.00051	0.00156	0.00073
IEU	1.00266	0.00082	1.00572	0.00083	-0.00307	0.00117
LEU	0.99936	0.00019	0.99877	0.00019	0.00059	0.00026
MIXED	0.99670	0.00074	0.99845	0.00074	-0.00176	0.00104
Pu	0.99778	0.00049	1.00174	0.00049	-0.00396	0.00069
U233	0.99327	0.00044	0.99545	0.00044	-0.00219	0.00062
U233*	0.99685	0.00048	0.99887	0.00048	-0.00202	0.00068

Table 7. Results by fissile material category for the CE ENDF/B-VIII.0 library

Fissile material	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.		
HEU	0.99927	0.00051	0.99904	0.00051	0.00023	0.00073
IEU	1.00061	0.00082	1.00289	0.00083	-0.00229	0.00117
LEU	0.99912	0.00019	0.99943	0.00019	-0.00032	0.00027
MIXED	0.99672	0.00074	0.99891	0.00074	-0.00219	0.00104
Pu	0.99794	0.00049	1.00256	0.00049	-0.00461	0.00069
U233	0.99389	0.00044	0.99653	0.00044	-0.00264	0.00062
U233*	0.99758	0.00048	1.00006	0.00048	-0.00247	0.00068

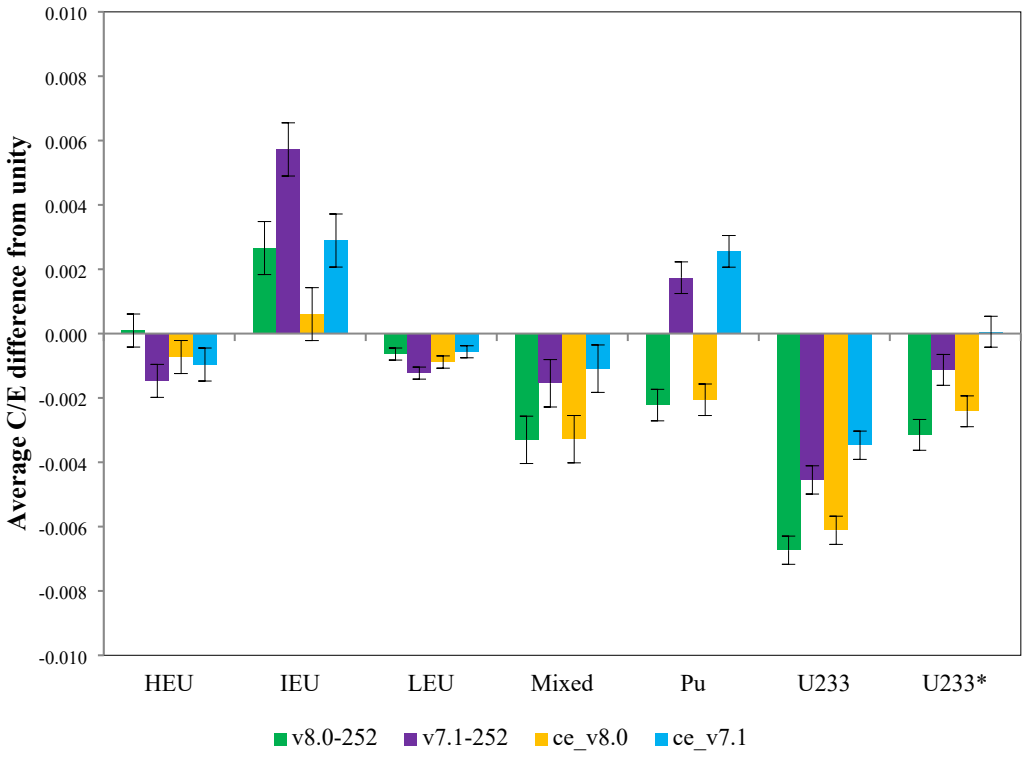

Figure 17. Absolute bias by fissile material category (USI and USM removed from U233*).

Table 8. Results by fissile form category for the 252-group ENDF/B-VIII.0 library

Fissile material	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.		
Metal	1.00141	0.00028	1.00217	0.00028	-0.00076	0.00040
Compound	0.99928	0.00019	0.99892	0.00019	0.00037	0.00027
Solution	0.99522	0.00031	0.99723	0.00031	-0.00201	0.00043
Solution*	0.99728	0.00032	0.99918	0.00032	-0.00191	0.00045

Table 9. Results by fissile form category for the CE ENDF/B-VIII.0 library

Fissile material	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.		
Metal	1.00048	0.00028	1.00100	0.00028	-0.00052	0.00040
Compound	0.99903	0.00019	0.99956	0.00019	-0.00052	0.00027
Solution	0.99552	0.00031	0.99832	0.00031	-0.00279	0.00044
Solution*	0.99761	0.00032	1.00032	0.00032	-0.00271	0.00045

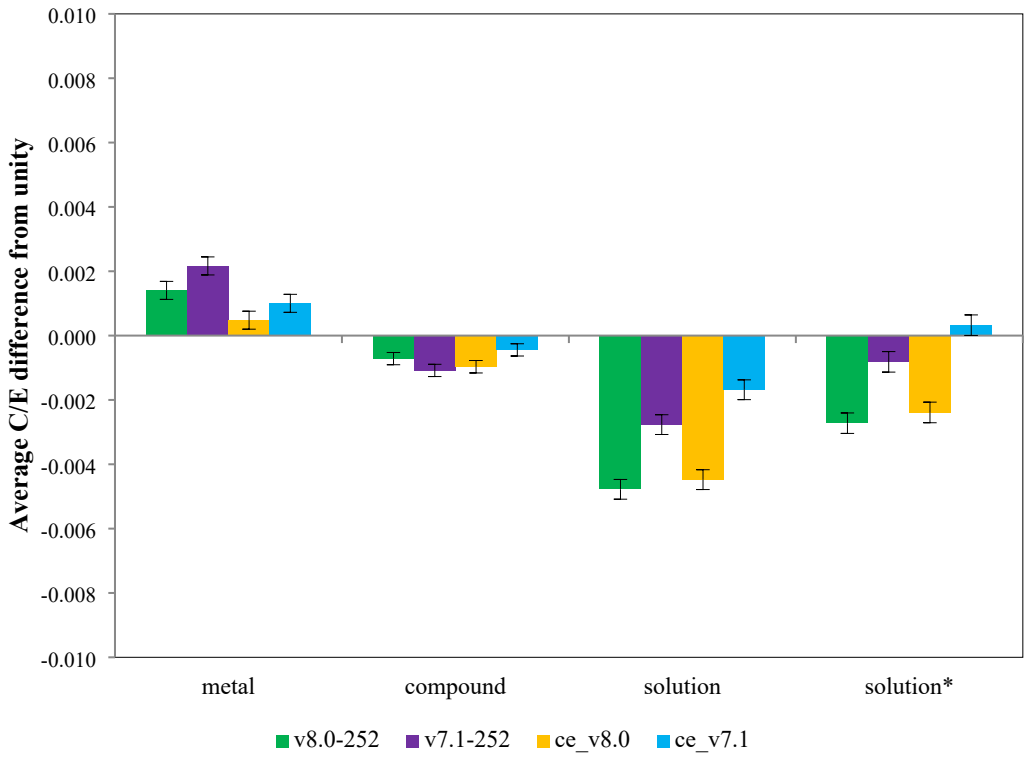

Figure 18. Absolute bias by fissile form category (USI and USM removed from solution*).

Table 10. Results by neutron energy spectrum category for the 252-group ENDF/B-VIII.0 library

Fissile material	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.		
Fast	1.00140	0.00028	1.00221	0.00028	-0.00081	0.00039
Intermediate	0.97931	0.00123	0.98214	0.00123	-0.00283	0.00174
Mixed energy	0.97528	0.00214	0.97830	0.00214	-0.00302	0.00303
Thermal	0.99798	0.00022	0.99907	0.00022	-0.00110	0.00031

Table 11. Results by neutron energy spectrum category for the CE ENDF/B-VIII.0 library

Fissile material	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.		
Fast	1.00039	0.00028	1.00093	0.00028	-0.00054	0.00039
Intermediate	0.97945	0.00123	0.98275	0.00124	-0.00330	0.00174
Mixed energy	0.97546	0.00214	0.97901	0.00215	-0.00355	0.00303
Thermal	0.99811	0.00022	1.00006	0.00022	-0.00194	0.00031

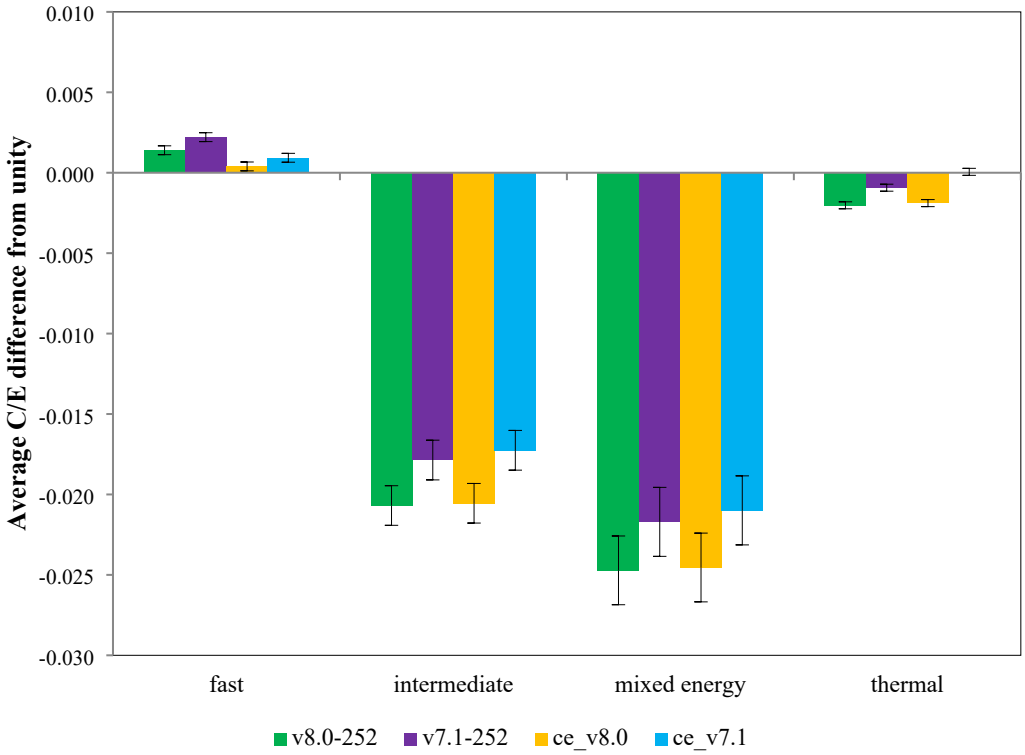

Figure 19. Absolute bias by energy spectrum category.

The results from Tables 6–7 and Figure 17 show that most HEU and LEU materials are treated accurately in KENO V.a. Between the ENDF/B-VIII.0 and ENDF/B-VII.1 MG libraries, the C/E values were reduced for all forms except HEU and LEU materials, which had small increases. As noted previously, these reductions or increases bring some material C/E values closer to unity and others further away. The enriched uranium systems have moved closer to unity, whereas the mixed, plutonium, and ^{233}U materials have moved further away. The CE differences show reductions in C/E values except for HEU materials, which have increased slightly from ENDF/B-VIII.0 to ENDF/B-VII.1. The HEU and IEU material systems have moved closer to unity, whereas all other material systems have moved further away. The

largest differences for CE and MG libraries occur in the plutonium systems in which C/E values are reduced by over 400 pcm, indicating significant changes in the ENDF/B-VIII.0 cross sections.

The results from Tables 8–9 and Figure 18 demonstrate that between the ENDF/B-VIII.0 and ENDF/B-VII.1 MG and CE libraries, C/E values decreased for all fissile forms, except for MG compounds, which increased slightly. For the MG forms, metals and compounds have moved closer to unity, whereas solutions and solutions* have moved further away. For the CE libraries, only the metal forms have moved closer to unity; all others moved further away. The negative bias observed in solution* is mostly being driven by the many solutions with ^{239}Pu.

The results from Tables 10–11 and Figure 19 demonstrate that between the ENDF/B-VIII.0 and ENDF/B-VII.1 MG and CE libraries, C/E values decreased for all neutron energy spectrum systems. For both MG and CE systems, only the fast systems have moved closer to unity, and all others have moved further away.

4.1.17 Outlier Cases

The results were analyzed to determine the greatest difference from a C/E of unity for each category in each library. The case with the largest absolute bias for each category is reported in Table 12, and the bolded cases indicate that the case is different from ENDF/B-VIII.0 to ENDF/B-VII.1.

Table 12. Maximum individual case absolute differences for KENO V.a for all libraries

Category	252-group ENDF/B-VIII.0		252-group ENDF/B-VII.1		CE ENDF/B-VIII.0		CE ENDF/B-VII.1	
	Maximum difference (C/E from unity)	Case	Maximum difference (C/E from unity)	Case	Maximum difference (C/E from unity)	Case	Maximum difference (C/E from unity)	Case
HMF	1.00918	**021-001**	1.00890	040-001	1.00668	**025-005**	1.00721	019-001
HST	1.02613	016-003	1.02351	016-003	1.02590	016-003	1.02441	016-003
IMF	1.01064	**005-001S**	1.01233	005-001	1.00495	004-001S	1.00767	004-001S
LCT	1.00587	010-002	1.00460	010-002	1.00502	010-002	1.00521	010-002
LST	0.99282	002-002	0.99180	002-002	0.99230	002-002	0.99204	002-002
MCF	1.00402	006-001	1.00772	006-001	0.99981	006-001	1.00210	006-001
MCT	0.99438	004-001	0.99506	004-001	0.99479	**004-001**	1.00421	002-004S
MST	0.98837	007-007	0.99321	007-007	0.98937	007-007	0.99405	007-007
PMF	1.00792	026-001	1.00514	026-001	0.99779	**018-001**	0.99678	026-001
PST	0.98642	**011-009**	1.01512	011-003	0.98665	**020-013**	1.01595	011-003
UCT	0.99651	**001-004**	1.00203	001-003	0.99701	**001-004**	1.00196	001-003
UMF	0.99638	**004-002**	0.99539	005-002	0.99580	**004-002**	0.99510	005-002
USI	0.96946	001-021	0.97188	001-021	0.96967	001-021	0.97268	001-021
USM	0.96474	002-009	0.96735	002-009	0.96540	002-009	0.96847	002-009
UST	0.97044	015-018	0.97314	015-018	0.97064	**015-018**	0.97421	015-019

4.2 KENO-VI

All KENO-VI cases executed for this validation were run until the Monte Carlo uncertainty was reduced to less than or equal to 0.00010 Δk. The average C/E value and its uncertainty is provided in Table 13 and Table 14 for all four libraries. The results show that the average C/E values have decreased for both MG and CE libraries for all KENO-VI categories between ENDF/B-VIII.0 and ENDF/B-VII.1. Of these differences, none are statistically significant (i.e., greater than 2 σ) with all three less than 1 σ. However,

these small decreases have only brought the IMF systems closer to unity, whereas the HMF and MCT systems have moved further away. The average C/E bias (i.e., difference from unity) is shown in Figure 20 for each of the categories for all four libraries.

Table 13. Results by category for KENO-VI calculations with 252-group ENDF/B-VIII.0 library

Category	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.	Std Dev.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.			
HMF	0.99816	0.00044	0.99855	0.00044	-0.00039	0.00062	0.62675
IMF	1.00300	0.00274	1.00552	0.00275	-0.00252	0.00388	0.64915
MCT	0.99325	0.00078	0.99387	0.00078	-0.00062	0.00110	0.56206

Table 14. Results by category for KENO-VI calculations with CE ENDF/B-VIII.0 library

Category	ENDF/B-VIII.0		ENDF/B-VII.1		Difference	Unc.	Std Dev.
	Avg. C/E	Avg. C/E unc.	Avg. C/E	Avg. C/E unc.			
HMF	0.99814	0.00044	0.99872	0.00044	-0.00024	0.00062	0.93210
IMF	1.00407	0.00274	1.00589	0.00275	-0.00165	0.00388	0.46883
MCT	0.99362	0.00078	0.99417	0.00078	-0.00058	0.00110	0.49860

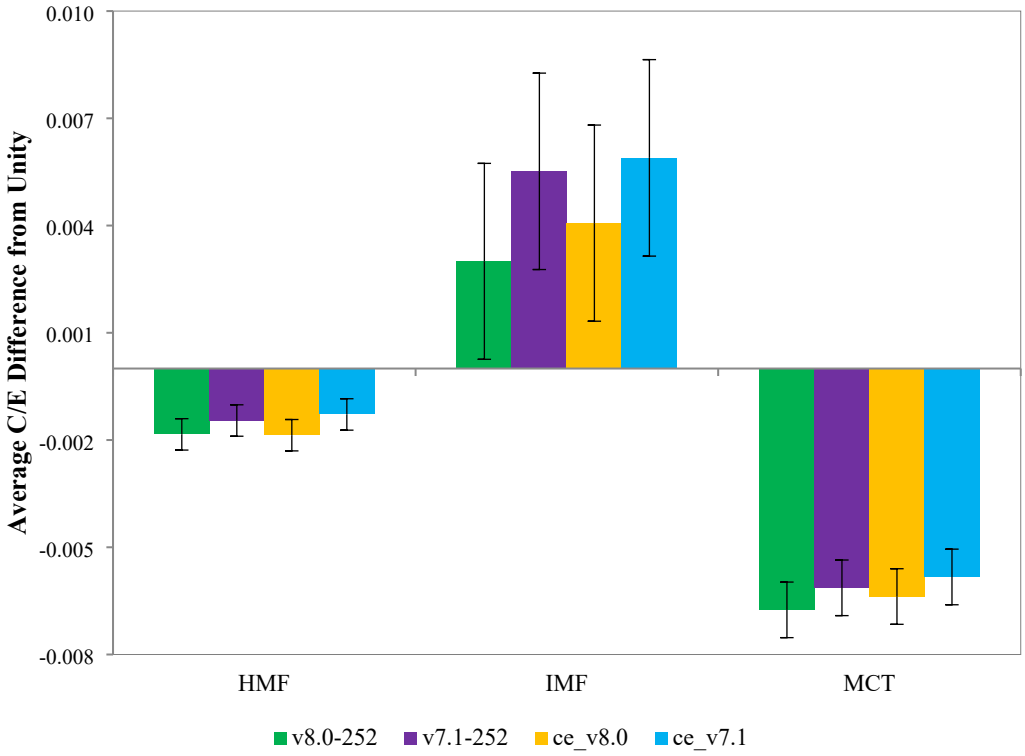

Figure 20. Absolute bias for all four libraries for each of the three categories of experiments, KENO-VI.

The largest absolute bias for the 252-group ENDF/B-VIII.0 and -VII.1 libraries occurs for the MCT systems and is approximately -0.68 and -0.61% Δk, respectively. The largest absolute bias for the CE ENDF/B-VIII.0 and -VII.1 libraries occurs for the MCT and IMF systems and is approximately -0.64 and -0.59% Δk, respectively. The largest absolute difference between the 252-group and CE ENDF/B-VIII.0 and -VII.1 results occurs for the IMF systems and is -0.25 and -0.18% Δ*k*, respectively. However, as

noted previously, all the differences are statistically insignificant. The following sections detail the C/E values and the benchmark k_{eff} uncertainty, as reported in the ICSBEP Handbook.

4.2.1 HMF Systems

The C/E data for the HMF systems are shown in Figure 21 for the ENDF/B-VIII.0 and -VII.1 libraries. The data generally demonstrate consistent performance between all libraries. However, there is no clear pattern for the MG or CE libraries between ENDF/B-VIII.0 and ENDF/B-VII.1 because some C/E values have increased and while others have decreased.

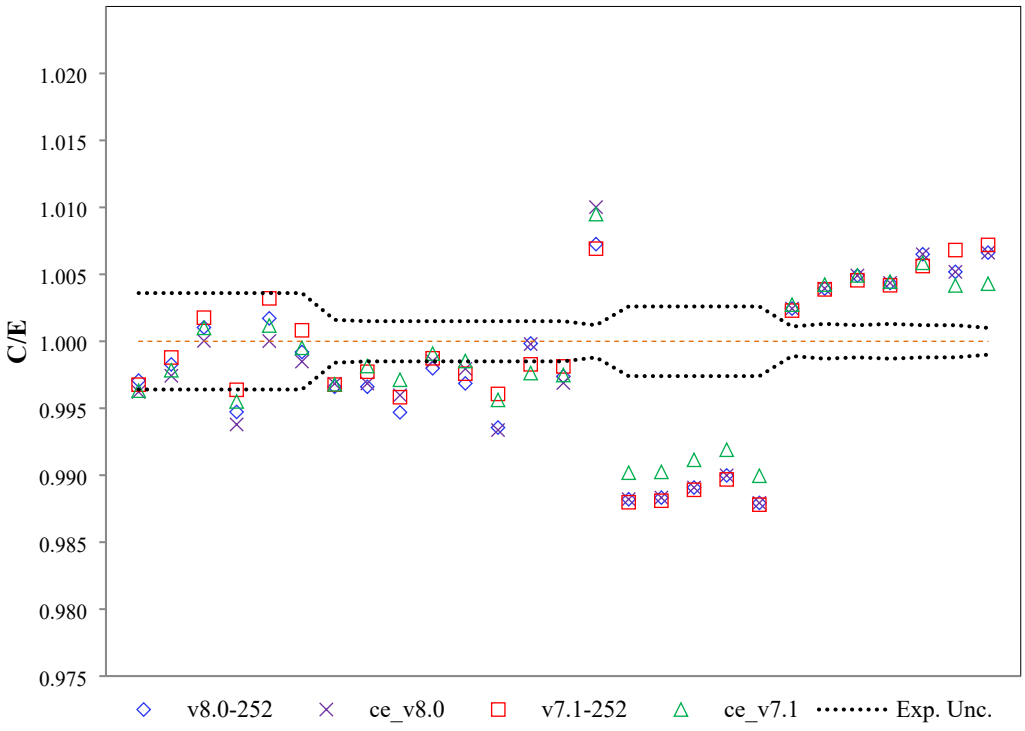

Figure 21. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the HMF systems, KENO-VI.

The C/E data for all HMF cases are also compared against the experimental uncertainty bands with 22.2% of the ENDF/B-VIII.0 and -VII.1 CE library results falling within the band. For the MG libraries, approximately 22% of the points are in the band for the ENDF/B-VIII.0 and -VII.1 libraries.

4.2.2 IMF Systems

The C/E data for the IMF systems are shown in Figure 22 for the ENDF/B-VIII.0 and -VII.1 libraries. The dataset presented here only contains two data points, making it difficult to develop generalizations about the tendencies of the different libraries. However, the MG and CE data for the ENDF/B-VIII.0 library are below their respective values from the ENDF/B-VII.1 library, moving closer to unity.

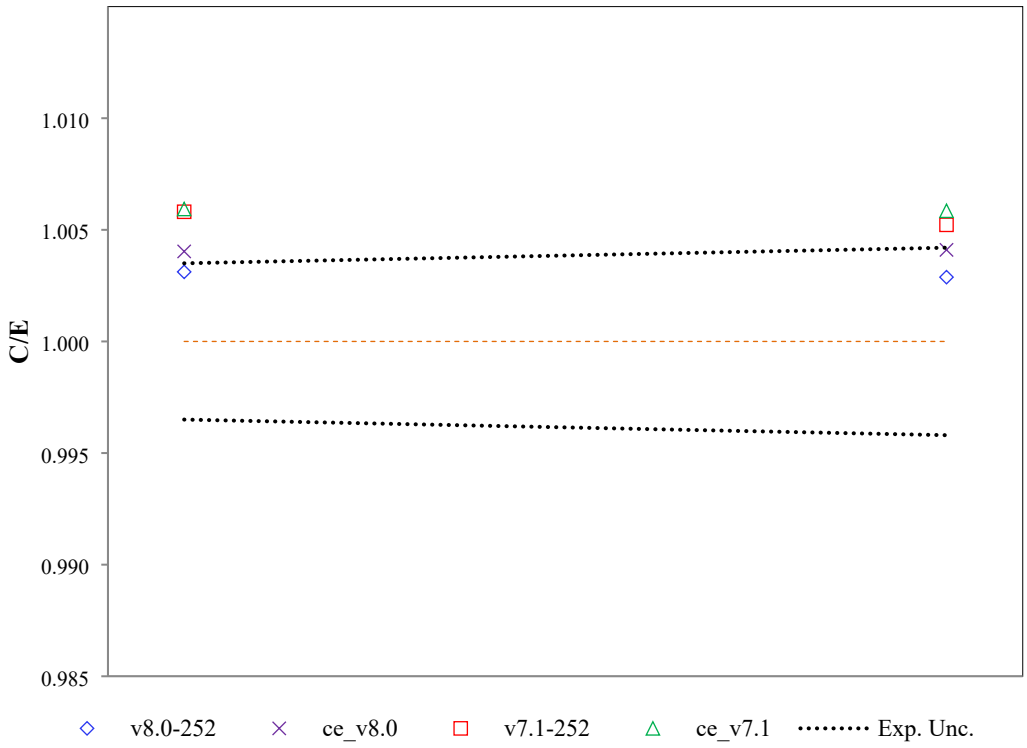

Figure 22. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the IMF systems, KENO-VI.

4.2.3 MCT Systems

The C/E data for the MCT systems are shown in Figure 23 for the ENDF/B-VIII.0 and -VII.1 libraries. The data generally demonstrate consistent performance between all libraries. However, the ENDF/B-VIII.0 MG and CE libraries are generally below the comparative ENDF/B-VII.1 values, except for MCT-008-001, which is higher than the ENDF/B-VII.1 values. The continued trend of mixed systems with plutonium having lower C/E values from ENDF/B-VIII.0 to ENDF/B-VII.1 is evident, further validating the updated cross section values for plutonium in ENDF/B-VIII.0.

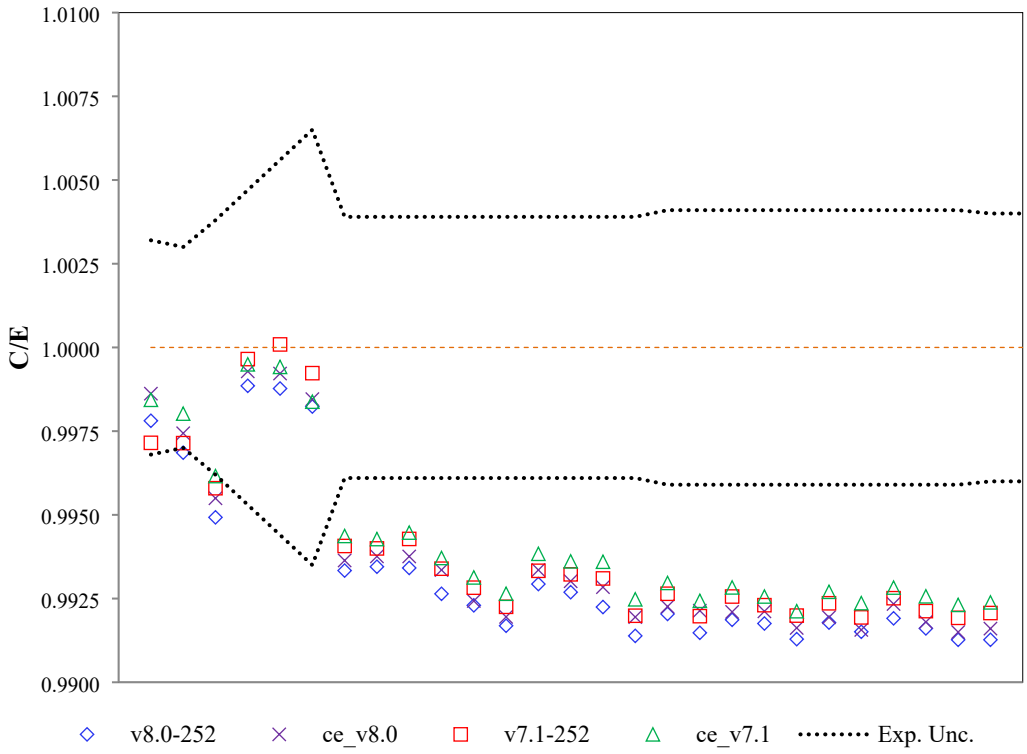

Figure 23. C/E results for libraries based on ENDF/B-VII.1 and -VIII.0 for the MCT systems, KENO-VI.

The C/E data for all MCT cases are also compared against the experimental uncertainty bands with 17.9% of the ENDF/B-VIII.0 and -VII.1 CE library results within the band. For the MG libraries, approximately 14 and 18% of the points are in the band for the 252-group ENDF/B-VIII.0 and -VII.1 libraries, respectively.

4.2.4 Outlier Cases

The results were analyzed to determine the greatest difference from a C/E of unity for each category in each library. The case with the largest absolute bias for each category is reported in Table 15, and the bolded cases indicate that the case is different from ENDF/B-VIII.0 to ENDF/B-VII.1.

Table 15. Maximum individual case absolute differences for KENO-VI for all libraries

Category	252-group ENDF/B-VIII.0		252-group ENDF/B-VII.1		CE ENDF/B-VIII.0		CE ENDF/B-VII.1	
	Maximum difference (C/E from unity)	Case	Maximum difference (C/E from unity)	Case	Maximum difference (C/E from unity)	Maximum difference (C/E from unity)	Case	Maximum difference (C/E from unity)
HMF	0.98793	086-005	0.98780	086-005	0.98793	086-005	0.98996	086-005
IMF	1.00312	019-001	1.00581	019-001	1.00410	**019-002**	1.00593	019-001
MCT	0.99127	008-026	0.99192	008-026	0.99150	**008-026**	0.99212	008-021

4.3 SENSITIVITY DATA GENERATION

This section focuses on the generation of the sensitivity data used for comparisons between the two libraries. As noted previously, instead of using the TSUNAMI-3D sequence to generate sensitivity files for each VALID case with the ENDF/B-VIII.0 library, only SDFs from selected cases were generated. The inputs for the TSUNAMI-3D sequences were taken directly from the VALID inputs generated from the SCALE 6.1 or SCALE 6.2.2 validation with the libraries updated to the MG or CE version of ENDF/B-VIII.0. Table 16 shows the complete list of selected cases used for the sensitivity comparison.

Table 16. Selected cases used for TSUNAMI-3D SDF generation

KENO V.a						KENO-VI	
System	Case	System	Case	System	Case	System	Case
HMF	015-001	LCT	008-010	UCT*	001-002	HMF	005-001
	016-001		017-018	UMF	001-001		005-002
	016-002		050-008		002-001		008-001
	017-001		080-007		003-001		009-001
	019-001	LST	002-001		004-001		009-002
	020-001		003-009		005-002		010-001
	021-001	MCF	005-001	USI	001-003		010-002
	025-001		006-001		001-006		011-001
	030-001	MCT	001-001		001-010		013-001
	038-002		002-001S		001-019		024-001
	065-001		004-011		001-024		086-005
HST	001-009	MST	002-001		001-033		092-002
	013-001		007-007	USM	001-014		093-001
	013-004	PMF	002-001		001-030		094-001
	016-002		005-001		002-009		094-002
	028-006		006-001	UST	009-004	IMF	019-001
	030-004		008-001		015-007	MCT	008-001
IMF	002-001		018-001		015-011		008-006
	003-001		023-001				008-008
	004-001		024-001				008-013
	005-001		025-001				008-017
	006-001	PST	001-006				008-018
	007-001		011-006				008-023
	009-001		020-007				

*Not confirmed by direct perturbation.

Except for the UCT system, the SDFs generated with ENDF/B-VII.1 from SCALE 6.1 or 6.2.2, were validated with direct perturbations and were deemed suitable for use in sensitivity analyses. Although the SDFs for the ^{233}U systems were not formally added to VALID, they help provide additional data for library comparisons. The comparisons between the two libraries are performed with TSUNAMI-IP to gauge the similarity or lack thereof. As noted previously, these comparisons are made by using the integral parameters c_k and E.

4.3.1 Comparison of Sensitivities

The results of the c_k and E calculations from TSUNAMI-IP are provided in Table 17 and Table 18 using the ENDF/B-VIII.0 and -VII.1 56-group covariance data. For the ENDF/B-VIII.0 56-group covariance data, all c_k values are in excess of 0.97, except for PMF-006-001 which had a c_k of 0.9795 and is explained in more detail below; all E values are in excess of 0.99. The ENDF/B-VII.1 c_k and E values are provided as a reference. These results indicate excellent agreement between the two libraries for the same application systems. The higher values for E over c_k likely indicate that any differences between the

SDFs occur in the isotopes and reactions with large uncertainties. The larger uncertainty reactions are given higher weight in calculating c_k; however, these reactions also generally have low sensitivities.

Table 17. Integral parameters comparing ENDF/B-VIII.0 and ENDF/B-VII.1 TSUNAMI-3D, KENO V.a

System	Case	ENDF/B-VIII.0 56-group covariance		ENDF/B-VII.1 56-group covariance		System	Case	ENDF/B-VIII.0 56-group covariance		ENDF/B-VII.1 56-group covariance	
		c_k	E	c_k	E			c_k	E	c_k	E
HMF	015-001	0.9998	0.9997	0.9992	0.9997	MST	002-001	1.0000	0.9999	1.0000	0.9999
	016-001	0.9999	0.9998	0.9996	0.9998		007-007	1.0000	0.9999	1.0000	0.9999
	016-002	0.9999	0.9998	0.9996	0.9998	PMF	002-001	0.9998	1.0000	0.9994	1.0000
	017-001	0.9999	0.9998	0.9998	0.9998		005-001	0.9999	1.0000	0.9993	1.0000
	019-001	0.9974	0.9877	0.9974	0.9877		**006-001***	**0.9996**	**0.9998**	**0.9919**	**0.9998**
	020-001	0.9996	0.9988	0.9993	0.9988		008-001	0.9996	0.9999	0.9988	0.9999
	021-001	0.9996	0.9997	0.9992	0.9997		018-001	0.9999	1.0000	0.9996	1.0000
	025-001	0.9998	0.9997	0.9994	0.9997		023-001	0.9982	0.9912	0.9881	0.9912
	030-001	0.9999	0.9998	0.9998	0.9998		024-001	0.9997	0.9989	0.9987	0.9989
	038-002	0.9997	0.9990	0.9995	0.9990		025-001	0.9998	0.9999	0.9992	0.9999
	065-001	0.9998	0.9997	0.9993	0.9997	PST	001-006	1.0000	0.9997	1.0000	0.9997
HST	001-009	1.0000	1.0000	1.0000	1.0000		011-006	1.0000	0.9996	1.0000	0.9996
	013-001	1.0000	1.0000	1.0000	1.0000		020-007	1.0000	0.9997	1.0000	0.9997
	013-004	1.0000	1.0000	1.0000	1.0000	UCT	001-002	0.9998	0.9999	0.9999	0.9999
	016-002	1.0000	1.0000	1.0000	1.0000	UMF	001-001	0.9987	0.9996	0.9994	0.9996
	028-006	1.0000	1.0000	1.0000	1.0000		002-001	0.9987	0.9996	0.9991	0.9996
	030-004	1.0000	1.0000	1.0000	1.0000		003-001	0.9987	0.9996	0.9988	0.9996
IMF	002-001	0.9998	0.9994	0.9995	0.9994		004-001	0.9990	0.9996	0.9994	0.9996
	003-001	0.9999	0.9998	0.9989	0.9998		005-002	0.9987	0.9996	0.9992	0.9996
	004-001	0.9987	0.9927	0.9986	0.9927	USI	001-003	0.9998	0.9999	0.9998	0.9999
	005-001	0.9996	0.9998	0.9996	0.9998		001-006	0.9993	0.9963	0.9992	0.9963
	006-001	0.9999	0.9998	0.9995	0.9998		001-010	0.9998	0.9999	0.9998	0.9999
	007-001	0.9987	0.9969	0.9963	0.9969		001-019	0.9998	0.9999	0.9999	0.9999
	009-001	0.9990	0.9942	0.9988	0.9942		001-024	0.9999	0.9999	0.9999	0.9999
LCT	008-010	0.9999	0.9999	0.9994	0.9999		001-033	0.9997	0.9987	0.9997	0.9987
	017-018	0.9995	0.9999	0.9968	0.9999	USM	001-014	0.9993	0.9967	0.9993	0.9967
	050-008	0.9999	0.9999	0.9997	0.9999		001-030	0.9993	0.9961	0.9993	0.9961
	080-007	0.9999	0.9999	0.9999	0.9999		002-009	0.9999	0.9999	0.9999	0.9999
LST	002-001	0.9999	0.9999	0.9999	0.9999	UST	009-004	1.0000	1.0000	1.0000	1.0000
	003-009	0.9999	0.9999	0.9999	0.9999		015-007	0.9993	0.9959	0.9992	0.9959
MCF	005-001	0.9987	0.9974	0.9979	0.9974		015-011	0.9999	0.9999	0.9999	0.9999
	006-001	0.9972	0.9980	0.9864	0.9980						
MCT	001-001	0.9999	0.9995	0.9999	0.9995						
	002-001S	0.9999	0.9999	0.9999	0.9999						
	004-011	1.0000	0.9999	1.0000	0.9999						

*SDFs generated with SCALE 6.3.b12.

Originally, PMF-006-001 had c_k and E values of 0.9795 and 0.9947 with the ENDF/B-VIII.0 covariance data and -0.0054 and 0.9947 with the ENDF/B-VII.1 covariance data. This uncorrelated difference was further examined to investigated given the extreme values in c_k. PMF-006-001 is a plutonium sphere reflected by natural uranium, and so the lowest individual c_k value contributing to the highest overall c_k contribution in the covariance matrix was found to be the inelastic (n, n') scattering reaction of ^{238}U. Figure 24 compares the sensitivity profile for the ^{238}U inelastic scattering reaction calculated using the ENDF/B-VIII.0 and the SCALE 6.2.2-generated profile. As noted in the Figure 24, there is a large discrepancy between the two sensitivity profiles in the higher energy regions.

Table 18. Integral parameters comparing ENDF/B-VIII.0 and ENDF/B-VII.1 TSUNAMI-3D, KENO-VI

System	Case	ENDF/B-VIII.0 56-group covariance		ENDF/B-VII.1 56-group covariance		System	Case	ENDF/B-VIII.0 56-group covariance		ENDF/B-VII.1 56-group covariance	
		c_k	E	c_k	E			c_k	E	c_k	E
HMF	005-001	0.9999	0.9998	0.9998	0.9998	IMF	019-001	0.9999	0.9998	0.9991	0.9998
	005-002	0.9999	0.9998	0.9998	0.9998	MCT	008-001	0.9999	0.9999	0.9999	0.9999
	008-001	0.9998	0.9997	0.9993	0.9997		008-006	1.0000	0.9999	1.0000	0.9999
	009-001	0.9998	0.9998	0.9996	0.9998		008-008	1.0000	0.9999	0.9999	0.9999
	009-002	0.9998	0.9998	0.9996	0.9998		008-013	1.0000	0.9999	0.9999	0.9999
	010-001	0.9998	0.9997	0.9996	0.9997		008-017	1.0000	0.9999	0.9999	0.9999
	010-002	0.9999	0.9997	0.9996	0.9997		008-018	1.0000	0.9999	0.9999	0.9999
	011-001	0.9988	0.9946	0.9988	0.9946		008-023	1.0000	0.9999	0.9999	0.9999
	013-001	0.9998	0.9997	0.9993	0.9997						
	024-001	0.9993	0.9971	0.9992	0.9971						
	086-005	0.9998	0.9997	0.9993	0.9997						
	092-002	0.9999	0.9997	0.9995	0.9997						
	093-001	0.9999	0.9998	0.9997	0.9998						
	094-001	0.9991	0.9982	0.9941	0.9982						
	094-002	0.9985	0.9975	0.9929	0.9975						

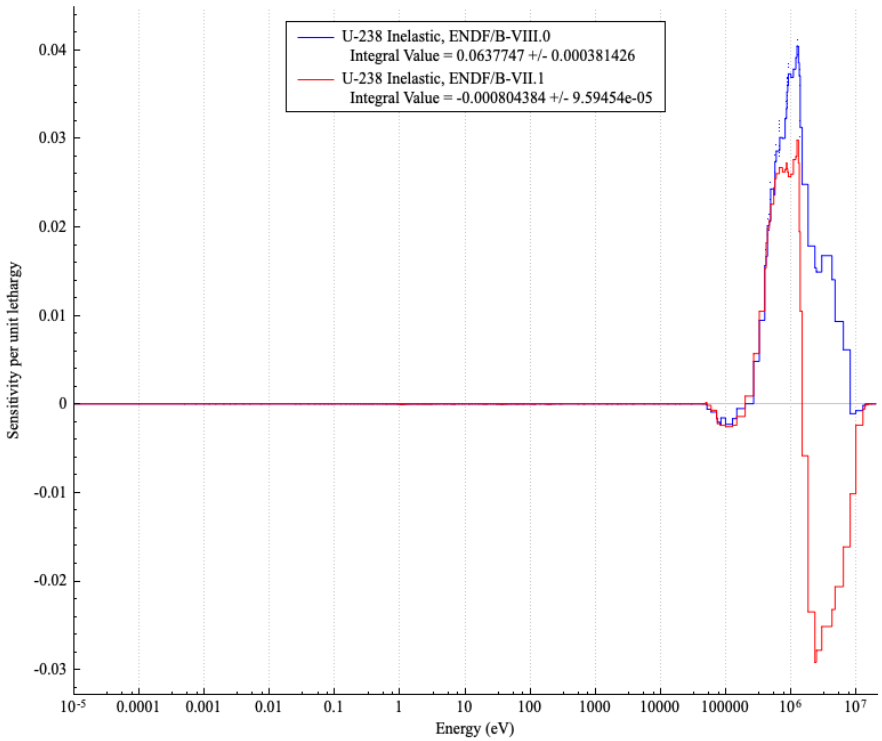

Figure 24. ^{238}U inelastic scattering profiles from the ENDF/B-VIII.0 and ENDF/B-VII.1 libraries with TSUNAMI-3D.

The SDF for the ENDF/B-VII.1 library was generated by using SCALE 6.2.2 and the SDF for the ENDF/B-VIII.0 library was generated by using SCALE 6.3.b12. For the unresolved resonance region, SCALE 6.2.2 does not recalculate the total cross section after sampling the flux for inelastic scattering from this region. However, SCALE 6.3.b12 does recalculate the total cross section and thus results in a different sensitivity profile for inelastic scattering. A second SDF was then generated with SCALE 6.3.b12 and ENDF/B-VII.1 and compared with the one from the ENDF/B-VIII.0 library, as shown in Figure 25. The overall integral values are much more in line with each other, and the c_k and E values increase to 0.9996 and 0.9998, respectively with the ENDF/B-VIII.0 56-group covariance library. These values are thus reported in Table 17 along with the c_k and E values for the ENDF/B-VII.1 56-group covariance library results with SDFs generated with SCALE 6.3.b12.

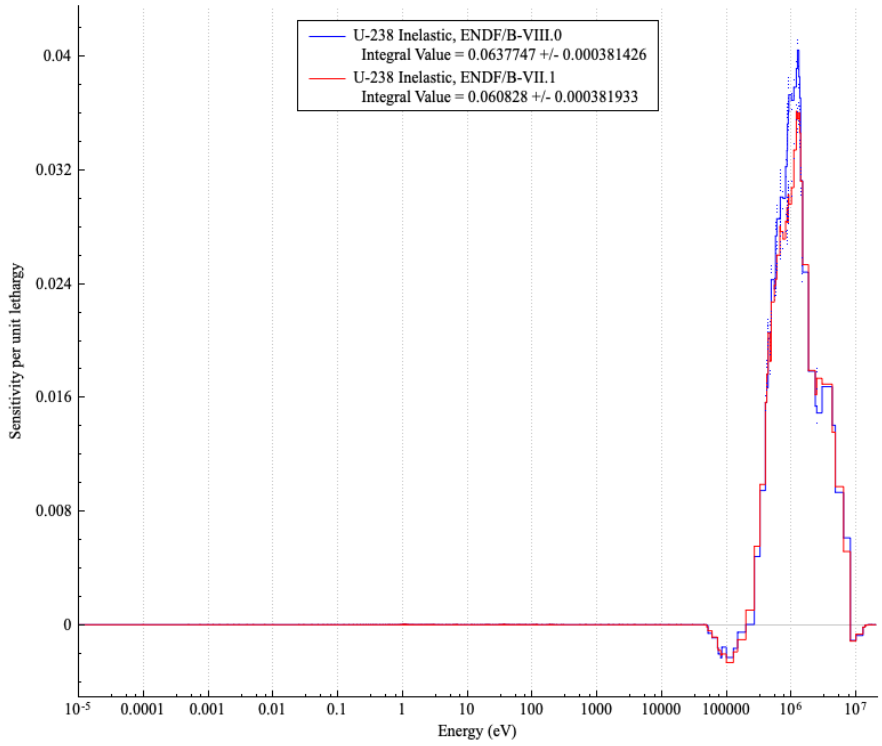

Figure 25. 238U inelastic scattering profiles from the ENDF/B-VIII.0 and ENDF/B-VII.1 libraries with TSUNAMI-3D and SCALE 6.3.b12.

5. SUMMARY AND CONCLUSIONS

The results presented in this report provide the foundation for several conclusions regarding the comparison of the ENDF/B-VIII.0 and ENDF/B-VII.1 libraries via VALID. The average C/E values presented in Tables 4, 5, 13, and 14 indicate that the bias differences between the two libraries for all VALID cases are relatively small (less than 0.53% Δk). The largest comparison bias difference between ENDF/B-VIII.0 and -VII.1 for the 252-group library and KENO V.a was -0.45% Δk for MST. For the CE libraries and KENO V.a, the largest bias difference was with PST at -0.53% Δk. The largest bias differences between the MG and CE libraries for KENO-VI were found in IMF at -0.25 and 0.18% Δk, respectively. However, if the two IMF cases are removed, then the largest difference for the MG and CE libraries is found in MCT at 0.06% Δk and HMF at 0.06% Δk, respectively.

The most noticeable differences between the two libraries are the treatment of mixed, plutonium, and ^{233}U systems. As noted previously, ^{239}Pu and ^{233}U cross sections have undergone adjustments that resulted in new evaluated data for both isotopes. For the mixed and plutonium solution systems, the overprediction of ^{239}Pu cross sections from the ENDF/B-VII.1 library was corrected, resulting in lower C/E values for these systems; however, this has resulted in a significant underprediction or negative bias of other thermal systems. ^{233}U cross sections were also adjusted to improve performance in the ICSBEP fast benchmarks, which have impacted all C/E values for ^{233}U systems. The MG and CE ENDF/B-VIII.0 libraries generally result in noticeably lower C/E values compared with ENDF/B-VII.1. This same trend was observed by Brown et al. in the summary of C/E values with the same ICSBEP benchmarks and ENDF/B-VIII.0 and MCNP6 [1].

The selected c_k and E comparison results between the SDFs generated by TSUNAMI-3D indicate a high level of agreement between the two libraries with all values exceeding 0.99 after regenerating the sensitivity data for PMF-006-001 to account for a change in the physics treatment in TSUNAMI-3D. This demonstrates that systems analyzed with ENDF/B-VIII.0 libraries would be similarly affected by any nuclear data errors (i.e., cross section uncertainties) as the results generated with ENDF/B-VII.1 libraries.

Overall, although there are noticeable differences in C/E values between ENDF/B-VIII.0 and -VII.1 libraries, the magnitude of those differences is generally small when comparing both libraries across a range of systems commonly encountered in nuclear criticality safety applications. The thermal systems fueled with plutonium or a mixture of plutonium and uranium manifest a larger difference as a result of deliberate evaluation changes to lower the reactivity of plutonium solution systems. The results of the selected sensitivity comparisons also indicate a high degree of similarity between the same application system with different libraries as indicated by the high c_k and E values. The data presented here are valuable because the results are based on models that are contained within VALID and have undergone extensive quality checks for validity, as described by Marshall and Reed [10].

6. RECOMMENDATIONS FOR FUTURE WORK

Recommendations for future work are summarized here, in no particular order.

- All VALID cases should be run with TSUNAMI-3D and the ENDF/B-VIII.0 library to acquire a complete picture of the sensitivity comparisons between ENDF/B-VIII.0 and -VII.1.
- The nuclear data uncertainty bands should be generated with the appropriate covariance data to examine the uncertainty in k_{eff} associated with each experimental model due to cross section uncertainty.
- c_k and E values below 0.99 should be further examined to identify whether other cases are affected by the calculational differences between SCALE 6.2.2 and 6.3.b12 when dealing with the unresolved resonance range of specific cross sections.
- As noted in the SCALE 6.2.2 validation report, additional cases should be added for KENO V.a and KENO-VI in VALID, as well as adding additional moderating materials, such as heavy water and graphite for advanced reactor concepts.

7. REFERENCES

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APPENDIX A. DETAILED RESULTS FOR KENO V.A

APPENDIX A. DETAILED RESULTS FOR KENO V.A

All uncertainties reported in this appendix are at the 1 σ level. The Monte Carlo experimental uncertainty values are absolute uncertainties and are reported in Δk_{eff} units. The cross section uncertainty values are relative uncertainties and are reported in $\Delta k_{eff}/k_{eff}$ units.

Table A-1. Detailed ENDF/B-VIII.0 252-group results for KENO V.a HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
015-001	0.9996	0.0017	0.99411	0.00010	0.99451	0.00169
016-001	0.9996	0.0018	1.00041	0.00010	1.00081	0.00180
016-002	0.9996	0.0018	0.99992	0.00010	1.00032	0.00180
017-001	0.9993	0.0014	0.99956	0.00010	1.00026	0.00140
018-001	1.0000	0.0014	1.00027	0.00010	1.00027	0.00140
018-001S	1.0000	0.0016	0.99941	0.00010	0.99941	0.00160
019-001	1.0000	0.0028	1.00596	0.00010	1.00596	0.00282
019-001S	1.0000	0.0030	1.00604	0.00010	1.00604	0.00302
020-001	1.0000	0.0028	1.00068	0.00010	1.00068	0.00280
020-001S	1.0000	0.0030	1.00040	0.00010	1.00040	0.00300
021-001	1.0000	0.0024	1.00918	0.00010	1.00918	0.00242
021-001S	1.0000	0.0026	1.00908	0.00010	1.00908	0.00263
025-001	0.9987	0.0014	0.99846	0.00010	0.99976	0.00140
025-002	0.9990	0.0016	1.00051	0.00010	1.00151	0.00161
025-003	0.9991	0.0016	1.00347	0.00010	1.00437	0.00161
025-004	0.9995	0.0016	1.00436	0.00010	1.00486	0.00161
025-005	0.9991	0.0016	1.00491	0.00010	1.00582	0.00161
030-001	1.0000	0.0009	1.00254	0.00009	1.00254	0.00091
038-001	0.9999	0.0007	1.00313	0.00009	1.00323	0.00071
038-002	0.9999	0.0009	1.00355	0.00009	1.00365	0.00091
040-001	0.9991	0.0011	1.00811	0.00010	1.00902	0.00112
052-001	0.9993	0.0011	1.00673	0.00010	1.00744	0.00111
065-001	0.9995	0.0013	0.99835	0.00010	0.99885	0.00130

Table A-2. Detailed ENDF/B-VII.1 252-group results for KENO V.a HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
015-001	0.9996	0.0017	0.99369	0.00010	0.99408	0.00169
016-001	0.9996	0.0018	1.00132	0.00010	1.00172	0.00181
016-002	0.9996	0.0018	1.00076	0.00010	1.00116	0.00181
017-001	0.9993	0.0014	1.00087	0.00010	1.00157	0.00141
018-001	1.0000	0.0014	1.00029	0.00010	1.00029	0.00140
018-001S	1.0000	0.0016	0.99964	0.00010	0.99964	0.00160
019-001	1.0000	0.0028	1.00729	0.00010	1.00729	0.00282
019-001S	1.0000	0.0030	1.00696	0.00010	1.00696	0.00302
020-001	1.0000	0.0028	1.00084	0.00010	1.00084	0.00280
020-001S	1.0000	0.0030	1.00067	0.00010	1.00067	0.00300
021-001	1.0000	0.0024	1.00683	0.00010	1.00683	0.00242
021-001S	1.0000	0.0026	1.00709	0.00010	1.00709	0.00262
025-001	0.9987	0.0014	0.99826	0.00010	0.99956	0.00140
025-002	0.9990	0.0016	1.00050	0.00010	1.00151	0.00161
025-003	0.9991	0.0016	1.00319	0.00010	1.00410	0.00161
025-004	0.9995	0.0016	1.00443	0.00010	1.00493	0.00161
025-005	0.9991	0.0016	1.00494	0.00010	1.00584	0.00161
030-001	1.0000	0.0009	1.00325	0.00009	1.00325	0.00091
038-001	0.9999	0.0007	1.00459	0.00009	1.00469	0.00071
038-002	0.9999	0.0009	1.00349	0.00009	1.00359	0.00091
040-001	0.9991	0.0011	1.00800	0.00010	1.00890	0.00112
052-001	0.9993	0.0011	1.00756	0.00010	1.00827	0.00111
065-001	0.9995	0.0013	0.99795	0.00010	0.99845	0.00130

Table A-3. Detailed ENDF/B-VIII.0 CE results for KENO V.a HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
015-001	0.9996	0.0017	0.99481	0.00010	0.99521	0.00170
016-001	0.9996	0.0018	1.00021	0.00010	1.00061	0.00180
016-002	0.9996	0.0018	1.00129	0.00010	1.00169	0.00181
017-001	0.9993	0.0014	0.99887	0.00010	0.99957	0.00140
018-001	1.0000	0.0014	1.00031	0.00010	1.00031	0.00140
018-001S	1.0000	0.0016	0.99961	0.00010	0.99961	0.00160
019-001	1.0000	0.0028	1.00578	0.00010	1.00578	0.00282
019-001S	1.0000	0.0030	1.00587	0.00010	1.00587	0.00302
020-001	1.0000	0.0028	1.00016	0.00010	1.00016	0.00280
020-001S	1.0000	0.0030	1.00010	0.00010	1.00010	0.00300
021-001	1.0000	0.0024	0.99971	0.00010	0.99971	0.00240
021-001S	1.0000	0.0026	0.99997	0.00010	0.99997	0.00260
025-001	0.9987	0.0014	0.99888	0.00010	1.00018	0.00141
025-002	0.9990	0.0016	1.00126	0.00010	1.00226	0.00161
025-003	0.9991	0.0016	1.00396	0.00010	1.00487	0.00161
025-004	0.9995	0.0016	1.00528	0.00010	1.00578	0.00161
025-005	0.9991	0.0016	1.00577	0.00010	1.00668	0.00162
030-001	1.0000	0.0009	1.00099	0.00008	1.00099	0.00090
038-001	0.9999	0.0007	1.00138	0.00009	1.00148	0.00071
038-002	0.9999	0.0009	1.00154	0.00009	1.00164	0.00091
040-001	0.9991	0.0011	1.00469	0.00010	1.00559	0.00111
052-001	0.9993	0.0011	1.00359	0.00010	1.00429	0.00111
065-001	0.9995	0.0013	0.99834	0.00010	0.99884	0.00130

Table A-4. Detailed ENDF/B-VII.1 CE results for KENO V.a HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
015-001	0.9996	0.0017	0.99459	0.00010	0.99499	0.00170
016-001	0.9996	0.0018	1.00137	0.00010	1.00177	0.00181
016-002	0.9996	0.0018	1.00223	0.00010	1.00263	0.00181
017-001	0.9993	0.0014	1.00046	0.00010	1.00116	0.00141
018-001	1.0000	0.0014	1.00014	0.00010	1.00014	0.00140
018-001S	1.0000	0.0016	0.99971	0.00010	0.99971	0.00160
019-001	1.0000	0.0028	1.00721	0.00010	1.00721	0.00282
019-001S	1.0000	0.0030	1.00717	0.00010	1.00717	0.00302
020-001	1.0000	0.0028	1.00088	0.00010	1.00088	0.00280
020-001S	1.0000	0.0030	1.00055	0.00010	1.00055	0.00300
021-001	1.0000	0.0024	0.99611	0.00010	0.99611	0.00239
021-001S	1.0000	0.0026	0.99642	0.00010	0.99642	0.00259
025-001	0.9987	0.0014	0.99889	0.00010	1.00019	0.00141
025-002	0.9990	0.0016	1.00112	0.00010	1.00212	0.00161
025-003	0.9991	0.0016	1.00381	0.00010	1.00472	0.00161
025-004	0.9995	0.0016	1.00545	0.00010	1.00596	0.00161
025-005	0.9991	0.0016	1.00568	0.00010	1.00658	0.00162
030-001	1.0000	0.0009	1.00207	0.00009	1.00207	0.00091
038-001	0.9999	0.0007	1.00314	0.00009	1.00324	0.00071
038-002	0.9999	0.0009	1.00202	0.00008	1.00212	0.00091
040-001	0.9991	0.0011	1.00457	0.00010	1.00547	0.00111
052-001	0.9993	0.0011	1.00516	0.00010	1.00587	0.00111
065-001	0.9995	0.0013	0.99801	0.00010	0.99851	0.00130

Table A-5. Detailed ENDF/B-VIII.0 252-group results for KENO V.a HST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0004	0.0060	0.99869	0.00010	0.99829	0.00599
001-002	1.0021	0.0072	0.99577	0.00010	0.99368	0.00714
001-003	1.0003	0.0035	1.00182	0.00010	1.00152	0.00351
001-004	1.0008	0.0053	0.99796	0.00010	0.99716	0.00528
001-005	1.0001	0.0049	0.99805	0.00010	0.99795	0.00489
001-006	1.0002	0.0046	1.00152	0.00010	1.00132	0.00461
001-007	1.0008	0.0040	0.99787	0.00010	0.99707	0.00399
001-008	0.9998	0.0038	0.99818	0.00010	0.99838	0.00380
001-009	1.0008	0.0054	0.99386	0.00010	0.99306	0.00536
001-010	0.9993	0.0054	0.99197	0.00010	0.99266	0.00537
013-001	1.0012	0.0026	0.99813	0.00010	0.99694	0.00259
013-002	1.0007	0.0036	0.99760	0.00010	0.99690	0.00359
013-003	1.0009	0.0036	0.99422	0.00010	0.99332	0.00357
013-004	1.0003	0.0036	0.99580	0.00010	0.99550	0.00358
014-001	1.0000	0.0028	0.99498	0.00010	0.99498	0.00279
014-002	1.0000	0.0052	1.01170	0.00019	1.01170	0.00526
014-003	1.0000	0.0087	1.02077	0.00019	1.02077	0.00888
016-001	1.0000	0.0036	0.99144	0.00019	0.99144	0.00357
016-002	1.0000	0.0069	1.00743	0.00019	1.00743	0.00695
016-003	1.0000	0.0079	1.02613	0.00019	1.02613	0.00811
028-001	1.0000	0.0023	0.99721	0.00010	0.99721	0.00230
028-002	1.0000	0.0034	0.99747	0.00009	0.99747	0.00339
028-003	1.0000	0.0026	0.99902	0.00010	0.99902	0.00260
028-004	1.0000	0.0028	0.99903	0.00009	0.99903	0.00280
028-005	1.0000	0.0031	0.99453	0.00010	0.99453	0.00308
028-006	1.0000	0.0023	0.99769	0.00010	0.99769	0.00230
028-007	1.0000	0.0038	0.99836	0.00010	0.99836	0.00380
028-008	1.0000	0.0027	0.99800	0.00010	0.99800	0.00270
028-009	1.0000	0.0049	0.99731	0.00010	0.99731	0.00489
028-010	1.0000	0.0053	0.99527	0.00010	0.99527	0.00528
028-011	1.0000	0.0051	0.99876	0.00010	0.99876	0.00509
028-012	1.0000	0.0046	0.99573	0.00010	0.99573	0.00458
028-013	1.0000	0.0058	0.99761	0.00010	0.99761	0.00579
028-014	1.0000	0.0046	0.99734	0.00010	0.99734	0.00459
028-015	1.0000	0.0064	1.00561	0.00010	1.00561	0.00644
028-016	1.0000	0.0052	1.00152	0.00010	1.00152	0.00521
028-017	1.0000	0.0066	0.99682	0.00010	0.99682	0.00658
028-018	1.0000	0.0060	0.99755	0.00010	0.99755	0.00599
029-001	1.0000	0.0066	0.99897	0.00010	0.99897	0.00659
029-002	1.0000	0.0058	1.00213	0.00010	1.00213	0.00581
029-003	1.0000	0.0068	0.99445	0.00010	0.99445	0.00676
029-004	1.0000	0.0074	0.99277	0.00010	0.99277	0.00735
029-005	1.0000	0.0067	0.99770	0.00010	0.99770	0.00669
029-006	1.0000	0.0065	0.99825	0.00010	0.99825	0.00649
029-007	1.0000	0.0063	0.99910	0.00010	0.99910	0.00630
030-001	1.0000	0.0039	0.99728	0.00010	0.99728	0.00389
030-002	1.0000	0.0032	0.99728	0.00010	0.99728	0.00319
030-003	1.0000	0.0031	0.99563	0.00009	0.99563	0.00309
030-004	1.0000	0.0064	1.00113	0.00010	1.00113	0.00641
030-005	1.0000	0.0058	0.99703	0.00010	0.99703	0.00578
030-006	1.0000	0.0059	0.99875	0.00010	0.99875	0.00589
030-007	1.0000	0.0064	0.99762	0.00010	0.99762	0.00639

Table A-6. Detailed ENDF/B-VII.1 252-group results for KENO V.a HST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0004	0.0060	0.99548	0.00010	0.99508	0.00597
001-002	1.0021	0.0072	0.99363	0.00010	0.99155	0.00712
001-003	1.0003	0.0035	0.99892	0.00010	0.99862	0.00350
001-004	1.0008	0.0053	0.99593	0.00010	0.99513	0.00527
001-005	1.0001	0.0049	0.99536	0.00010	0.99526	0.00488
001-006	1.0002	0.0046	0.99871	0.00010	0.99851	0.00459
001-007	1.0008	0.0040	0.99517	0.00010	0.99438	0.00398
001-008	0.9998	0.0038	0.99527	0.00010	0.99547	0.00378
001-009	1.0008	0.0054	0.99174	0.00010	0.99095	0.00535
001-010	0.9993	0.0054	0.98941	0.00010	0.99010	0.00535
013-001	1.0012	0.0026	0.99748	0.00009	0.99628	0.00259
013-002	1.0007	0.0036	0.99675	0.00010	0.99605	0.00358
013-003	1.0009	0.0036	0.99335	0.00010	0.99245	0.00357
013-004	1.0003	0.0036	0.99466	0.00010	0.99436	0.00358
014-001	1.0000	0.0028	0.99219	0.00010	0.99219	0.00278
014-002	1.0000	0.0052	1.00917	0.00019	1.00917	0.00525
014-003	1.0000	0.0087	1.01795	0.00019	1.01795	0.00886
016-001	1.0000	0.0036	0.98848	0.00019	0.98848	0.00356
016-002	1.0000	0.0069	1.00418	0.00019	1.00418	0.00693
016-003	1.0000	0.0079	1.02351	0.00019	1.02351	0.00809
028-001	1.0000	0.0023	0.99429	0.00010	0.99429	0.00229
028-002	1.0000	0.0034	0.99521	0.00009	0.99521	0.00338
028-003	1.0000	0.0026	0.99592	0.00010	0.99592	0.00259
028-004	1.0000	0.0028	0.99678	0.00010	0.99678	0.00279
028-005	1.0000	0.0031	0.99139	0.00010	0.99139	0.00307
028-006	1.0000	0.0023	0.99509	0.00009	0.99509	0.00229
028-007	1.0000	0.0038	0.99538	0.00010	0.99538	0.00378
028-008	1.0000	0.0027	0.99547	0.00009	0.99547	0.00269
028-009	1.0000	0.0049	0.99429	0.00010	0.99429	0.00487
028-010	1.0000	0.0053	0.99334	0.00010	0.99334	0.00527
028-011	1.0000	0.0051	0.99594	0.00010	0.99594	0.00508
028-012	1.0000	0.0046	0.99359	0.00010	0.99359	0.00457
028-013	1.0000	0.0058	0.99493	0.00010	0.99493	0.00577
028-014	1.0000	0.0046	0.99503	0.00010	0.99503	0.00458
028-015	1.0000	0.0064	1.00312	0.00010	1.00312	0.00642
028-016	1.0000	0.0052	0.99921	0.00010	0.99921	0.00520
028-017	1.0000	0.0066	0.99446	0.00010	0.99446	0.00656
028-018	1.0000	0.0060	0.99529	0.00010	0.99529	0.00597
029-001	1.0000	0.0066	0.99620	0.00010	0.99620	0.00658
029-002	1.0000	0.0058	1.00022	0.00010	1.00022	0.00580
029-003	1.0000	0.0068	0.99262	0.00010	0.99262	0.00675
029-004	1.0000	0.0074	0.99160	0.00010	0.99160	0.00734
029-005	1.0000	0.0067	0.99670	0.00010	0.99670	0.00668
029-006	1.0000	0.0065	0.99659	0.00010	0.99659	0.00648
029-007	1.0000	0.0063	0.99715	0.00010	0.99715	0.00628
030-001	1.0000	0.0039	0.99411	0.00010	0.99411	0.00388
030-002	1.0000	0.0032	0.99518	0.00010	0.99518	0.00319
030-003	1.0000	0.0031	0.99368	0.00009	0.99368	0.00308
030-004	1.0000	0.0064	0.99837	0.00010	0.99837	0.00639
030-005	1.0000	0.0058	0.99471	0.00010	0.99471	0.00577
030-006	1.0000	0.0059	0.99691	0.00010	0.99691	0.00588
030-007	1.0000	0.0064	0.99606	0.00010	0.99606	0.00638

Table A-7. Detailed ENDF/B-VIII.0 CE results for KENO V.a HST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0004	0.0060	0.99784	0.00010	0.99744	0.00598
001-002	1.0021	0.0072	0.99450	0.00010	0.99242	0.00713
001-003	1.0003	0.0035	1.00092	0.00010	1.00062	0.00350
001-004	1.0008	0.0053	0.99673	0.00010	0.99594	0.00528
001-005	1.0001	0.0049	0.99799	0.00010	0.99789	0.00489
001-006	1.0002	0.0046	1.00105	0.00010	1.00085	0.00460
001-007	1.0008	0.0040	0.99726	0.00010	0.99646	0.00398
001-008	0.9998	0.0038	0.99740	0.00010	0.99760	0.00379
001-009	1.0008	0.0054	0.99273	0.00010	0.99193	0.00535
001-010	0.9993	0.0054	0.99176	0.00010	0.99245	0.00536
013-001	1.0012	0.0026	0.99836	0.00010	0.99717	0.00259
013-002	1.0007	0.0036	0.99757	0.00010	0.99687	0.00359
013-003	1.0009	0.0036	0.99443	0.00010	0.99354	0.00357
013-004	1.0003	0.0036	0.99590	0.00010	0.99560	0.00358
014-001	1.0000	0.0028	0.99457	0.00009	0.99457	0.00279
014-002	1.0000	0.0052	1.01146	0.00019	1.01146	0.00526
014-003	1.0000	0.0087	1.01996	0.00019	1.01996	0.00888
016-001	1.0000	0.0036	0.99053	0.00019	0.99053	0.00357
016-002	1.0000	0.0069	1.00716	0.00019	1.00716	0.00695
016-003	1.0000	0.0079	1.02590	0.00019	1.02590	0.00811
028-001	1.0000	0.0023	0.99685	0.00009	0.99685	0.00229
028-002	1.0000	0.0034	0.99699	0.00009	0.99699	0.00339
028-003	1.0000	0.0026	0.99855	0.00009	0.99855	0.00260
028-004	1.0000	0.0028	0.99875	0.00009	0.99875	0.00280
028-005	1.0000	0.0031	0.99400	0.00010	0.99400	0.00308
028-006	1.0000	0.0023	0.99713	0.00009	0.99713	0.00230
028-007	1.0000	0.0038	0.99791	0.00009	0.99791	0.00379
028-008	1.0000	0.0027	0.99763	0.00009	0.99763	0.00270
028-009	1.0000	0.0049	0.99628	0.00010	0.99628	0.00488
028-010	1.0000	0.0053	0.99440	0.00009	0.99440	0.00527
028-011	1.0000	0.0051	0.99770	0.00010	0.99770	0.00509
028-012	1.0000	0.0046	0.99480	0.00010	0.99480	0.00458
028-013	1.0000	0.0058	0.99651	0.00010	0.99651	0.00578
028-014	1.0000	0.0046	0.99638	0.00010	0.99638	0.00458
028-015	1.0000	0.0064	1.00442	0.00010	1.00442	0.00643
028-016	1.0000	0.0052	1.00036	0.00010	1.00036	0.00520
028-017	1.0000	0.0066	0.99595	0.00010	0.99595	0.00657
028-018	1.0000	0.0060	0.99660	0.00010	0.99660	0.00598
029-001	1.0000	0.0066	0.99778	0.00010	0.99778	0.00659
029-002	1.0000	0.0058	1.00140	0.00010	1.00140	0.00581
029-003	1.0000	0.0068	0.99362	0.00010	0.99362	0.00676
029-004	1.0000	0.0074	0.99206	0.00010	0.99206	0.00734
029-005	1.0000	0.0067	0.99690	0.00010	0.99690	0.00668
029-006	1.0000	0.0065	0.99725	0.00010	0.99725	0.00648
029-007	1.0000	0.0063	0.99821	0.00010	0.99821	0.00629
030-001	1.0000	0.0039	0.99668	0.00010	0.99668	0.00389
030-002	1.0000	0.0032	0.99719	0.00009	0.99719	0.00319
030-003	1.0000	0.0031	0.99510	0.00009	0.99510	0.00309
030-004	1.0000	0.0064	0.99997	0.00010	0.99997	0.00640
030-005	1.0000	0.0058	0.99591	0.00010	0.99591	0.00578
030-006	1.0000	0.0059	0.99793	0.00010	0.99793	0.00589
030-007	1.0000	0.0064	0.99661	0.00009	0.99661	0.00638

Table A-8. Detailed ENDF/B-VII.1 CE results for KENO V.a HST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0004	0.0060	0.99690	0.00010	0.99650	0.00598
001-002	1.0021	0.0072	0.99490	0.00010	0.99282	0.00713
001-003	1.0003	0.0035	1.00060	0.00010	1.00030	0.00350
001-004	1.0008	0.0053	0.99724	0.00010	0.99644	0.00528
001-005	1.0001	0.0049	0.99719	0.00010	0.99709	0.00489
001-006	1.0002	0.0046	1.00041	0.00010	1.00021	0.00460
001-007	1.0008	0.0040	0.99662	0.00010	0.99582	0.00398
001-008	0.9998	0.0038	0.99687	0.00010	0.99707	0.00379
001-009	1.0008	0.0054	0.99319	0.00010	0.99239	0.00536
001-010	0.9993	0.0054	0.99090	0.00010	0.99160	0.00536
013-001	1.0012	0.0026	0.99844	0.00010	0.99725	0.00259
013-002	1.0007	0.0036	0.99753	0.00009	0.99683	0.00359
013-003	1.0009	0.0036	0.99406	0.00010	0.99316	0.00357
013-004	1.0003	0.0036	0.99559	0.00010	0.99529	0.00358
014-001	1.0000	0.0028	0.99356	0.00009	0.99356	0.00278
014-002	1.0000	0.0052	1.01032	0.00019	1.01032	0.00526
014-003	1.0000	0.0087	1.01878	0.00019	1.01878	0.00887
016-001	1.0000	0.0036	0.99006	0.00019	0.99006	0.00357
016-002	1.0000	0.0069	1.00526	0.00019	1.00526	0.00694
016-003	1.0000	0.0079	1.02441	0.00019	1.02441	0.00810
028-001	1.0000	0.0023	0.99563	0.00009	0.99563	0.00229
028-002	1.0000	0.0034	0.99647	0.00009	0.99647	0.00339
028-003	1.0000	0.0026	0.99733	0.00010	0.99733	0.00259
028-004	1.0000	0.0028	0.99794	0.00009	0.99794	0.00280
028-005	1.0000	0.0031	0.99269	0.00009	0.99269	0.00308
028-006	1.0000	0.0023	0.99653	0.00009	0.99653	0.00229
028-007	1.0000	0.0038	0.99689	0.00010	0.99689	0.00379
028-008	1.0000	0.0027	0.99688	0.00009	0.99688	0.00269
028-009	1.0000	0.0049	0.99563	0.00010	0.99563	0.00488
028-010	1.0000	0.0053	0.99434	0.00010	0.99434	0.00527
028-011	1.0000	0.0051	0.99718	0.00010	0.99718	0.00509
028-012	1.0000	0.0046	0.99456	0.00010	0.99456	0.00458
028-013	1.0000	0.0058	0.99607	0.00010	0.99607	0.00578
028-014	1.0000	0.0046	0.99619	0.00010	0.99619	0.00458
028-015	1.0000	0.0064	1.00394	0.00010	1.00394	0.00643
028-016	1.0000	0.0052	1.00025	0.00010	1.00025	0.00520
028-017	1.0000	0.0066	0.99552	0.00010	0.99552	0.00657
028-018	1.0000	0.0060	0.99657	0.00010	0.99657	0.00598
029-001	1.0000	0.0066	0.99762	0.00010	0.99762	0.00659
029-002	1.0000	0.0058	1.00168	0.00010	1.00168	0.00581
029-003	1.0000	0.0068	0.99373	0.00010	0.99373	0.00676
029-004	1.0000	0.0074	0.99260	0.00010	0.99260	0.00735
029-005	1.0000	0.0067	0.99744	0.00010	0.99744	0.00668
029-006	1.0000	0.0065	0.99762	0.00010	0.99762	0.00649
029-007	1.0000	0.0063	0.99841	0.00010	0.99841	0.00629
030-001	1.0000	0.0039	0.99564	0.00010	0.99564	0.00388
030-002	1.0000	0.0032	0.99659	0.00009	0.99659	0.00319
030-003	1.0000	0.0031	0.99487	0.00009	0.99487	0.00309
030-004	1.0000	0.0064	0.99961	0.00010	0.99961	0.00640
030-005	1.0000	0.0058	0.99571	0.00010	0.99571	0.00578
030-006	1.0000	0.0059	0.99797	0.00010	0.99797	0.00589
030-007	1.0000	0.0064	0.99703	0.00010	0.99703	0.00638

Table A-9. Detailed ENDF/B-VIII.0 252-group results for KENO V.a IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0030	0.99595	0.00010	0.99595	0.00299
003-001	1.0000	0.0017	0.99983	0.00010	0.99983	0.00170
003-001S	1.0000	0.0019	0.99967	0.00010	0.99967	0.00190
004-001	1.0000	0.0030	1.00473	0.00010	1.00473	0.00302
004-001S	1.0000	0.0032	1.00494	0.00010	1.00494	0.00322
005-001	1.0000	0.0021	1.01044	0.00010	1.01044	0.00212
005-001S	1.0000	0.0023	1.01064	0.00010	1.01064	0.00233
006-001	1.0000	0.0023	0.99908	0.00010	0.99908	0.00230
007-001	1.0045	0.0007	1.00283	0.00010	0.99834	0.00070
008-001	1.0000	0.0018	1.00283	0.00010	1.00283	0.00181
009-001	1.0000	0.0053	1.00278	0.00010	1.00278	0.00532

Table A-10. Detailed ENDF/B-VII.1 252-group results for KENO V.a IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0030	1.00027	0.00010	1.00027	0.00300
003-001	1.0000	0.0017	1.00321	0.00010	1.00321	0.00171
003-001S	1.0000	0.0019	1.00328	0.00010	1.00328	0.00191
004-001	1.0000	0.0030	1.00800	0.00010	1.00800	0.00303
004-001S	1.0000	0.0032	1.00793	0.00010	1.00793	0.00323
005-001	1.0000	0.0021	1.01233	0.00010	1.01233	0.00213
005-001S	1.0000	0.0023	1.01216	0.00010	1.01216	0.00233
006-001	1.0000	0.0023	1.00139	0.00010	1.00139	0.00231
007-001	1.0045	0.0007	1.00463	0.00010	1.00013	0.00070
008-001	1.0000	0.0018	1.00677	0.00010	1.00677	0.00181
009-001	1.0000	0.0053	1.00750	0.00010	1.00750	0.00534

Table A-11. Detailed ENDF/B-VIII.0 CE results for KENO V.a IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0030	0.99635	0.00010	0.99635	0.00299
003-001	1.0000	0.0017	0.99967	0.00010	0.99967	0.00170
003-001S	1.0000	0.0019	1.00009	0.00010	1.00009	0.00190
004-001	1.0000	0.0030	1.00475	0.00010	1.00475	0.00302
004-001S	1.0000	0.0032	1.00495	0.00010	1.00495	0.00322
005-001	1.0000	0.0021	1.00102	0.00010	1.00102	0.00210
005-001S	1.0000	0.0023	1.00097	0.00010	1.00097	0.00230
006-001	1.0000	0.0023	0.99400	0.00010	0.99400	0.00229
007-001	1.0045	0.0007	1.00462	0.00010	1.00012	0.00070
008-001	1.0000	0.0018	1.00249	0.00010	1.00249	0.00181
009-001	1.0000	0.0053	1.00225	0.00010	1.00225	0.00531

Table A-12. Detailed ENDF/B-VII.1 CE results for KENO V.a IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0030	0.99923	0.00010	0.99923	0.00300
003-001	1.0000	0.0017	1.00259	0.00010	1.00259	0.00171
003-001S	1.0000	0.0019	1.00263	0.00010	1.00263	0.00191
004-001	1.0000	0.0030	1.00760	0.00010	1.00760	0.00302
004-001S	1.0000	0.0032	1.00767	0.00010	1.00767	0.00323
005-001	1.0000	0.0021	1.00132	0.00010	1.00132	0.00211
005-001S	1.0000	0.0023	1.00138	0.00010	1.00138	0.00231
006-001	1.0000	0.0023	0.99624	0.00010	0.99624	0.00229
007-001	1.0045	0.0007	1.00494	0.00010	1.00044	0.00070
008-001	1.0000	0.0018	1.00598	0.00010	1.00598	0.00181
009-001	1.0000	0.0053	1.00675	0.00010	1.00675	0.00534

Table A-13. Detailed ENDF/B-VIII.0 252-group results for KENO V.a LCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	0.9998	0.0031	1.00032	0.00048	1.00052	0.00314
001-002	0.9998	0.0031	0.99943	0.00036	0.99963	0.00312
001-003	0.9998	0.0031	0.99944	0.00048	0.99964	0.00314
001-004	0.9998	0.0031	0.99868	0.00044	0.99888	0.00313
001-005	0.9998	0.0031	0.99728	0.00045	0.99748	0.00313
001-006	0.9998	0.0031	0.99959	0.00039	0.99979	0.00312
001-007	0.9998	0.0031	0.99875	0.00043	0.99895	0.00313
001-008	0.9998	0.0031	0.99745	0.00047	0.99765	0.00313
002-001	0.9997	0.0020	0.99889	0.00011	0.99919	0.00200
002-002	0.9997	0.0020	1.00070	0.00010	1.00100	0.00201
002-003	0.9997	0.0020	0.99991	0.00012	1.00021	0.00200
002-004	0.9997	0.0020	0.99966	0.00011	0.99996	0.00200
002-005	0.9997	0.0020	0.99847	0.00011	0.99877	0.00200
008-001	1.0007	0.0012	1.00015	0.00010	0.99945	0.00120
008-002	1.0007	0.0012	1.00051	0.00010	0.99981	0.00120
008-003	1.0007	0.0012	1.00103	0.00010	1.00033	0.00120
008-004	1.0007	0.0012	1.00040	0.00010	0.99970	0.00120
008-005	1.0007	0.0012	0.99993	0.00010	0.99923	0.00120
008-006	1.0007	0.0012	1.00032	0.00010	0.99962	0.00120
008-007	1.0007	0.0012	0.99959	0.00010	0.99889	0.00120
008-008	1.0007	0.0012	0.99910	0.00010	0.99841	0.00120
008-009	1.0007	0.0012	0.99932	0.00010	0.99862	0.00120
008-010	1.0007	0.0012	1.00003	0.00010	0.99933	0.00120
008-011	1.0007	0.0012	1.00093	0.00010	1.00023	0.00120
008-012	1.0007	0.0012	1.00048	0.00009	0.99978	0.00120
008-013	1.0007	0.0012	1.00071	0.00010	1.00001	0.00120
008-014	1.0007	0.0012	1.00047	0.00010	0.99977	0.00120
008-015	1.0007	0.0012	1.00038	0.00010	0.99968	0.00120
008-016	1.0007	0.0012	1.00042	0.00010	0.99972	0.00120
008-017	1.0007	0.0012	0.99971	0.00010	0.99901	0.00120
010-001	1.0000	0.0021	1.00543	0.00009	1.00543	0.00211
010-002	1.0000	0.0021	1.00587	0.00009	1.00587	0.00211
010-003	1.0000	0.0021	1.00475	0.00010	1.00475	0.00211
010-004	1.0000	0.0021	0.99773	0.00009	0.99773	0.00210
010-005	1.0000	0.0021	1.00003	0.00009	1.00003	0.00210
010-006	1.0000	0.0021	1.00068	0.00010	1.00068	0.00210
010-007	1.0000	0.0021	1.00212	0.00010	1.00212	0.00211
010-008	1.0000	0.0021	0.99859	0.00010	0.99859	0.00210
010-009	1.0000	0.0021	1.00212	0.00009	1.00212	0.00211
010-010	1.0000	0.0021	1.00195	0.00010	1.00195	0.00211
010-011	1.0000	0.0021	1.00189	0.00010	1.00189	0.00211
010-012	1.0000	0.0021	1.00081	0.00009	1.00081	0.00210

Table A-13. Detailed ENDF/B-VIII.0 252-group results for KENO V.a LCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
010-013	1.0000	0.0021	0.99864	0.00010	0.99864	0.00210
010-014	1.0000	0.0028	1.00221	0.00010	1.00221	0.00281
010-015	1.0000	0.0028	1.00255	0.00010	1.00255	0.00281
010-016	1.0000	0.0028	1.00301	0.00010	1.00301	0.00281
010-017	1.0000	0.0028	1.00234	0.00010	1.00234	0.00281
010-018	1.0000	0.0028	1.00209	0.00010	1.00209	0.00281
010-019	1.0000	0.0028	1.00180	0.00009	1.00180	0.00281
010-020	1.0000	0.0028	1.00345	0.00010	1.00345	0.00281
010-021	1.0000	0.0028	1.00369	0.00010	1.00369	0.00281
010-022	1.0000	0.0028	1.00305	0.00009	1.00305	0.00281
010-023	1.0000	0.0028	1.00162	0.00007	1.00162	0.00281
010-024	1.0000	0.0028	0.99986	0.00010	0.99986	0.00280
010-025	1.0000	0.0028	1.00122	0.00009	1.00122	0.00280
010-026	1.0000	0.0028	1.00138	0.00010	1.00138	0.00281
010-027	1.0000	0.0028	1.00170	0.00010	1.00170	0.00281
010-028	1.0000	0.0028	1.00200	0.00010	1.00200	0.00281
010-029	1.0000	0.0028	1.00217	0.00007	1.00217	0.00281
010-030	1.0000	0.0028	1.00049	0.00009	1.00049	0.00280
017-001	1.0000	0.0031	1.00169	0.00010	1.00169	0.00311
017-002	1.0000	0.0031	1.00126	0.00010	1.00126	0.00311
017-003	1.0000	0.0031	1.00017	0.00010	1.00017	0.00310
017-004	1.0000	0.0031	0.99834	0.00010	0.99834	0.00310
017-005	1.0000	0.0031	1.00010	0.00009	1.00010	0.00310
017-006	1.0000	0.0031	1.00021	0.00010	1.00021	0.00310
017-007	1.0000	0.0031	1.00017	0.00010	1.00017	0.00310
017-008	1.0000	0.0031	0.99876	0.00007	0.99876	0.00310
017-009	1.0000	0.0031	0.99831	0.00008	0.99831	0.00310
017-010	1.0000	0.0031	0.99917	0.00007	0.99917	0.00310
017-011	1.0000	0.0031	0.99931	0.00009	0.99931	0.00310
017-012	1.0000	0.0031	0.99897	0.00010	0.99897	0.00310
017-013	1.0000	0.0031	0.99928	0.00009	0.99928	0.00310
017-014	1.0000	0.0031	0.99952	0.00010	0.99952	0.00310
017-015	1.0000	0.0028	0.99850	0.00008	0.99850	0.00280
017-016	1.0000	0.0028	0.99930	0.00008	0.99930	0.00280
017-017	1.0000	0.0028	1.00039	0.00006	1.00039	0.00280
017-018	1.0000	0.0028	0.99904	0.00008	0.99904	0.00280
017-019	1.0000	0.0028	0.99935	0.00007	0.99935	0.00280
017-020	1.0000	0.0028	0.99811	0.00007	0.99811	0.00280
017-021	1.0000	0.0028	0.99837	0.00006	0.99837	0.00280
017-022	1.0000	0.0028	0.99755	0.00008	0.99755	0.00279
017-023	1.0000	0.0028	0.99956	0.00009	0.99956	0.00280
017-024	1.0000	0.0028	1.00052	0.00009	1.00052	0.00280
017-025	1.0000	0.0028	0.99859	0.00008	0.99859	0.00280
017-026	1.0000	0.0028	0.99623	0.00009	0.99623	0.00279
017-027	1.0000	0.0028	0.99828	0.00008	0.99828	0.00280
017-028	1.0000	0.0028	0.99903	0.00007	0.99903	0.00280
017-029	1.0000	0.0028	0.99945	0.00007	0.99945	0.00280
042-001	1.0000	0.0016	0.99872	0.00008	0.99872	0.00160
042-002	1.0000	0.0016	0.99813	0.00010	0.99813	0.00160
042-003	1.0000	0.0016	0.99874	0.00009	0.99874	0.00160
042-004	1.0000	0.0017	0.99950	0.00010	0.99950	0.00170
042-005	1.0000	0.0033	0.99940	0.00010	0.99940	0.00330
042-006	1.0000	0.0016	0.99981	0.00009	0.99981	0.00160
042-007	1.0000	0.0018	0.99776	0.00010	0.99776	0.00180
050-001	1.0004	0.0010	0.99934	0.00010	0.99894	0.00100
050-002	1.0004	0.0010	0.99914	0.00010	0.99874	0.00100
050-003	1.0004	0.0010	0.99963	0.00010	0.99923	0.00100
050-004	1.0004	0.0010	0.99917	0.00010	0.99877	0.00100
050-005	1.0004	0.0010	1.00015	0.00010	0.99975	0.00100

Table A-13. Detailed ENDF/B-VIII.0 252-group results for KENO V.a LCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
050-006	1.0004	0.0010	0.99998	0.00010	0.99958	0.00100
050-007	1.0004	0.0010	1.00038	0.00010	0.99998	0.00100
050-008	1.0004	0.0010	0.99754	0.00010	0.99714	0.00100
050-009	1.0004	0.0010	0.99837	0.00010	0.99797	0.00100
050-010	1.0004	0.0010	0.99797	0.00010	0.99757	0.00100
050-011	1.0004	0.0010	0.99843	0.00010	0.99803	0.00100
050-012	1.0004	0.0010	0.99946	0.00010	0.99906	0.00100
050-013	1.0004	0.0010	0.99964	0.00010	0.99924	0.00100
050-014	1.0004	0.0010	0.99897	0.00010	0.99857	0.00100
050-015	1.0004	0.0010	0.99975	0.00010	0.99935	0.00100
050-016	1.0004	0.0010	1.00070	0.00010	1.00030	0.00100
050-017	1.0004	0.0010	1.00054	0.00010	1.00014	0.00100
050-018	1.0004	0.0010	1.00051	0.00010	1.00011	0.00100
078-001	0.9995	0.0010	0.99705	0.00010	0.99755	0.00100
078-002	0.9999	0.0010	0.99762	0.00010	0.99772	0.00100
078-003	0.9990	0.0010	0.99656	0.00010	0.99756	0.00100
078-004	0.9986	0.0010	0.99633	0.00010	0.99773	0.00100
078-005	0.9980	0.0010	0.99588	0.00010	0.99787	0.00100
078-006	0.9974	0.0010	0.99556	0.00010	0.99815	0.00101
078-007	0.9994	0.0010	0.99719	0.00010	0.99778	0.00100
078-008	0.9987	0.0010	0.99652	0.00009	0.99781	0.00100
078-009	0.9978	0.0010	0.99540	0.00010	0.99760	0.00100
078-010	0.9969	0.0010	0.99441	0.00010	0.99751	0.00101
078-011	0.9994	0.0010	0.99701	0.00010	0.99761	0.00100
078-012	0.9993	0.0010	0.99704	0.00010	0.99774	0.00100
078-013	0.9993	0.0010	0.99693	0.00010	0.99763	0.00100
078-014	0.9991	0.0010	0.99667	0.00010	0.99757	0.00100
078-015	0.9996	0.0010	0.99843	0.00010	0.99883	0.00100
080-001	0.9976	0.0010	0.99477	0.00010	0.99717	0.00100
080-002	0.9982	0.0010	0.99542	0.00010	0.99721	0.00100
080-003	0.9984	0.0010	0.99573	0.00010	0.99733	0.00100
080-004	0.9981	0.0010	0.99526	0.00010	0.99715	0.00100
080-005	0.9979	0.0010	0.99496	0.00010	0.99705	0.00100
080-006	0.9975	0.0010	0.99460	0.00010	0.99709	0.00100
080-007	0.9993	0.0010	0.99650	0.00010	0.99720	0.00100
080-008	0.9987	0.0010	0.99627	0.00010	0.99757	0.00100
080-009	0.9982	0.0010	0.99545	0.00010	0.99724	0.00100
080-010	0.9972	0.0010	0.99460	0.00010	0.99739	0.00101
080-011	0.9984	0.0010	0.99737	0.00010	0.99897	0.00101

Table A-14. Detailed ENDF/B-VII.1 252-group results for KENO V.a LCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	0.9998	0.0031	0.99863	0.00049	0.99883	0.00314
001-002	0.9998	0.0031	0.99815	0.00039	0.99835	0.00312
001-003	0.9998	0.0031	0.99800	0.00047	0.99820	0.00313
001-004	0.9998	0.0031	0.99895	0.00045	0.99915	0.00313
001-005	0.9998	0.0031	0.99652	0.00038	0.99672	0.00311
001-006	0.9998	0.0031	0.99805	0.00049	0.99825	0.00313
001-007	0.9998	0.0031	0.99744	0.00049	0.99764	0.00313
001-008	0.9998	0.0031	0.99605	0.00047	0.99625	0.00312
002-001	0.9997	0.0020	0.99759	0.00012	0.99789	0.00200
002-002	0.9997	0.0020	0.99906	0.00010	0.99936	0.00200
002-003	0.9997	0.0020	0.99846	0.00011	0.99876	0.00200
002-004	0.9997	0.0020	0.99832	0.00010	0.99862	0.00200
002-005	0.9997	0.0020	0.99696	0.00011	0.99726	0.00200
008-001	1.0007	0.0012	0.99953	0.00010	0.99883	0.00120
008-002	1.0007	0.0012	1.00013	0.00010	0.99943	0.00120
008-003	1.0007	0.0012	1.00089	0.00010	1.00019	0.00120
008-004	1.0007	0.0012	1.00007	0.00010	0.99937	0.00120
008-005	1.0007	0.0012	0.99978	0.00010	0.99908	0.00120
008-006	1.0007	0.0012	1.00016	0.00010	0.99946	0.00120
008-007	1.0007	0.0012	0.99941	0.00010	0.99871	0.00120
008-008	1.0007	0.0012	0.99885	0.00010	0.99815	0.00120
008-009	1.0007	0.0012	0.99932	0.00010	0.99862	0.00120
008-010	1.0007	0.0012	0.99988	0.00010	0.99918	0.00120
008-011	1.0007	0.0012	1.00071	0.00010	1.00001	0.00120
008-012	1.0007	0.0012	1.00045	0.00010	0.99975	0.00120
008-013	1.0007	0.0012	1.00022	0.00010	0.99952	0.00120
008-014	1.0007	0.0012	1.00010	0.00010	0.99940	0.00120
008-015	1.0007	0.0012	0.99987	0.00010	0.99917	0.00120
008-016	1.0007	0.0012	1.00002	0.00010	0.99932	0.00120
008-017	1.0007	0.0012	0.99932	0.00010	0.99862	0.00120
010-001	1.0000	0.0021	1.00437	0.00009	1.00437	0.00211
010-002	1.0000	0.0021	1.00460	0.00010	1.00460	0.00211
010-003	1.0000	0.0021	1.00373	0.00009	1.00373	0.00211
010-004	1.0000	0.0021	0.99646	0.00009	0.99646	0.00209
010-005	1.0000	0.0021	0.99978	0.00010	0.99978	0.00210
010-006	1.0000	0.0021	1.00003	0.00010	1.00003	0.00210
010-007	1.0000	0.0021	1.00074	0.00010	1.00074	0.00210
010-008	1.0000	0.0021	0.99767	0.00009	0.99767	0.00210
010-009	1.0000	0.0021	1.00084	0.00009	1.00084	0.00210
010-010	1.0000	0.0021	1.00088	0.00010	1.00088	0.00210
010-011	1.0000	0.0021	1.00084	0.00010	1.00084	0.00210
010-012	1.0000	0.0021	0.99969	0.00010	0.99969	0.00210
010-013	1.0000	0.0021	0.99759	0.00009	0.99759	0.00210
010-014	1.0000	0.0028	1.00193	0.00010	1.00193	0.00281
010-015	1.0000	0.0028	1.00231	0.00010	1.00231	0.00281
010-016	1.0000	0.0028	1.00282	0.00010	1.00282	0.00281
010-017	1.0000	0.0028	1.00243	0.00010	1.00243	0.00281
010-018	1.0000	0.0028	1.00194	0.00010	1.00194	0.00281
010-019	1.0000	0.0028	1.00191	0.00010	1.00191	0.00281
010-020	1.0000	0.0028	1.00335	0.00010	1.00335	0.00281
010-021	1.0000	0.0028	1.00356	0.00010	1.00356	0.00281
010-022	1.0000	0.0028	1.00284	0.00009	1.00284	0.00281
010-023	1.0000	0.0028	1.00127	0.00007	1.00127	0.00280
010-024	1.0000	0.0028	0.99984	0.00009	0.99984	0.00280
010-025	1.0000	0.0028	1.00116	0.00010	1.00116	0.00280
010-026	1.0000	0.0028	1.00144	0.00010	1.00144	0.00281
010-027	1.0000	0.0028	1.00187	0.00010	1.00187	0.00281

Table A-14. Detailed ENDF/B-VII.1 252-group results for KENO V.a LCT systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
010-028	1.0000	0.0028	1.00208	0.00010	1.00208	0.00281
010-029	1.0000	0.0028	1.00193	0.00007	1.00193	0.00281
010-030	1.0000	0.0028	1.00016	0.00010	1.00016	0.00280
017-001	1.0000	0.0031	1.00048	0.00010	1.00048	0.00310
017-002	1.0000	0.0031	1.00017	0.00009	1.00017	0.00310
017-003	1.0000	0.0031	0.99907	0.00009	0.99907	0.00310
017-004	1.0000	0.0031	0.99753	0.00009	0.99753	0.00309
017-005	1.0000	0.0031	0.99923	0.00010	0.99923	0.00310
017-006	1.0000	0.0031	0.99932	0.00009	0.99932	0.00310
017-007	1.0000	0.0031	0.99914	0.00009	0.99914	0.00310
017-008	1.0000	0.0031	0.99762	0.00007	0.99762	0.00309
017-009	1.0000	0.0031	0.99705	0.00010	0.99705	0.00309
017-010	1.0000	0.0031	0.99814	0.00007	0.99814	0.00310
017-011	1.0000	0.0031	0.99815	0.00010	0.99815	0.00310
017-012	1.0000	0.0031	0.99822	0.00009	0.99822	0.00310
017-013	1.0000	0.0031	0.99817	0.00010	0.99817	0.00310
017-014	1.0000	0.0031	0.99842	0.00009	0.99842	0.00310
017-015	1.0000	0.0028	0.99752	0.00008	0.99752	0.00279
017-016	1.0000	0.0028	0.99861	0.00008	0.99861	0.00280
017-017	1.0000	0.0028	0.99967	0.00008	0.99967	0.00280
017-018	1.0000	0.0028	0.99840	0.00008	0.99840	0.00280
017-019	1.0000	0.0028	0.99882	0.00007	0.99882	0.00280
017-020	1.0000	0.0028	0.99773	0.00007	0.99773	0.00279
017-021	1.0000	0.0028	0.99760	0.00006	0.99760	0.00279
017-022	1.0000	0.0028	0.99677	0.00008	0.99677	0.00279
017-023	1.0000	0.0028	0.99902	0.00009	0.99902	0.00280
017-024	1.0000	0.0028	0.99984	0.00008	0.99984	0.00280
017-025	1.0000	0.0028	0.99801	0.00009	0.99801	0.00280
017-026	1.0000	0.0028	0.99574	0.00009	0.99574	0.00279
017-027	1.0000	0.0028	0.99782	0.00008	0.99782	0.00280
017-028	1.0000	0.0028	0.99854	0.00006	0.99854	0.00280
017-029	1.0000	0.0028	0.99856	0.00007	0.99856	0.00280
042-001	1.0000	0.0016	0.99805	0.00008	0.99805	0.00160
042-002	1.0000	0.0016	0.99758	0.00010	0.99758	0.00160
042-003	1.0000	0.0016	0.99845	0.00010	0.99845	0.00160
042-004	1.0000	0.0017	0.99916	0.00010	0.99916	0.00170
042-005	1.0000	0.0033	0.99940	0.00010	0.99940	0.00330
042-006	1.0000	0.0016	0.99920	0.00009	0.99920	0.00160
042-007	1.0000	0.0018	0.99749	0.00009	0.99749	0.00180
050-001	1.0004	0.0010	0.99825	0.00010	0.99785	0.00100
050-002	1.0004	0.0010	0.99792	0.00010	0.99752	0.00100
050-003	1.0004	0.0010	0.99860	0.00010	0.99820	0.00100
050-004	1.0004	0.0010	0.99828	0.00010	0.99788	0.00100
050-005	1.0004	0.0010	0.99947	0.00010	0.99907	0.00100
050-006	1.0004	0.0010	0.99951	0.00010	0.99911	0.00100
050-007	1.0004	0.0010	0.99953	0.00010	0.99913	0.00100
050-008	1.0004	0.0010	0.99652	0.00010	0.99612	0.00100
050-009	1.0004	0.0010	0.99676	0.00010	0.99636	0.00100
050-010	1.0004	0.0010	0.99669	0.00010	0.99629	0.00100
050-011	1.0004	0.0010	0.99732	0.00010	0.99692	0.00100
050-012	1.0004	0.0010	0.99836	0.00010	0.99796	0.00100
050-013	1.0004	0.0010	0.99863	0.00010	0.99823	0.00100
050-014	1.0004	0.0010	0.99796	0.00010	0.99756	0.00100
050-015	1.0004	0.0010	0.99877	0.00010	0.99837	0.00100
050-016	1.0004	0.0010	0.99962	0.00010	0.99922	0.00100
050-017	1.0004	0.0010	0.99975	0.00010	0.99935	0.00100
050-018	1.0004	0.0010	0.99948	0.00010	0.99908	0.00100
078-001	0.9995	0.0010	0.99704	0.00010	0.99754	0.00100

Table A-14. Detailed ENDF/B-VII.1 252-group results for KENO V.a LCT systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
078-002	0.9999	0.0010	0.99758	0.00010	0.99768	0.00100
078-003	0.9990	0.0010	0.99649	0.00010	0.99748	0.00100
078-004	0.9986	0.0010	0.99594	0.00010	0.99733	0.00100
078-005	0.9980	0.0010	0.99578	0.00010	0.99778	0.00100
078-006	0.9974	0.0010	0.99517	0.00010	0.99777	0.00101
078-007	0.9994	0.0010	0.99700	0.00010	0.99760	0.00100
078-008	0.9987	0.0010	0.99637	0.00010	0.99767	0.00100
078-009	0.9978	0.0010	0.99529	0.00010	0.99748	0.00100
078-010	0.9969	0.0010	0.99415	0.00010	0.99724	0.00101
078-011	0.9994	0.0010	0.99675	0.00010	0.99735	0.00100
078-012	0.9993	0.0010	0.99680	0.00010	0.99750	0.00100
078-013	0.9993	0.0010	0.99654	0.00010	0.99724	0.00100
078-014	0.9991	0.0010	0.99671	0.00010	0.99760	0.00100
078-015	0.9996	0.0010	0.99803	0.00010	0.99843	0.00100
080-001	0.9976	0.0010	0.99534	0.00010	0.99774	0.00101
080-002	0.9982	0.0010	0.99580	0.00010	0.99759	0.00100
080-003	0.9984	0.0010	0.99583	0.00010	0.99742	0.00100
080-004	0.9981	0.0010	0.99567	0.00010	0.99757	0.00100
080-005	0.9979	0.0010	0.99532	0.00009	0.99741	0.00100
080-006	0.9975	0.0010	0.99492	0.00010	0.99741	0.00100
080-007	0.9993	0.0010	0.99692	0.00010	0.99761	0.00100
080-008	0.9987	0.0010	0.99641	0.00010	0.99771	0.00100
080-009	0.9982	0.0010	0.99566	0.00010	0.99746	0.00100
080-010	0.9972	0.0010	0.99516	0.00010	0.99796	0.00101
080-011	0.9984	0.0010	0.99734	0.00010	0.99894	0.00101

Table A-15. Detailed ENDF/B-VIII.0 CE results for KENO V.a LCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	0.9998	0.0031	0.99979	0.00043	0.99999	0.00313
001-002	0.9998	0.0031	0.99803	0.00049	0.99823	0.00313
001-003	0.9998	0.0031	0.99846	0.00048	0.99866	0.00313
001-004	0.9998	0.0031	0.99900	0.00046	0.99920	0.00313
001-005	0.9998	0.0031	0.99765	0.00049	0.99785	0.00313
001-006	0.9998	0.0031	0.99880	0.00046	0.99900	0.00313
001-007	0.9998	0.0031	0.99839	0.00044	0.99859	0.00313
001-008	0.9998	0.0031	0.99731	0.00041	0.99751	0.00312
002-001	0.9997	0.0020	0.99848	0.00012	0.99878	0.00200
002-002	0.9997	0.0020	0.99946	0.00010	0.99976	0.00200
002-003	0.9997	0.0020	0.99922	0.00011	0.99952	0.00200
002-004	0.9997	0.0020	0.99888	0.00011	0.99918	0.00200
002-005	0.9997	0.0020	0.99744	0.00012	0.99774	0.00200
008-001	1.0007	0.0012	1.00101	0.00010	1.00031	0.00120
008-002	1.0007	0.0012	1.00137	0.00010	1.00067	0.00120
008-003	1.0007	0.0012	1.00168	0.00010	1.00097	0.00120
008-004	1.0007	0.0012	1.00096	0.00010	1.00026	0.00120
008-005	1.0007	0.0012	1.00060	0.00010	0.99990	0.00120
008-006	1.0007	0.0012	1.00101	0.00010	1.00031	0.00120
008-007	1.0007	0.0012	1.00005	0.00010	0.99935	0.00120
008-008	1.0007	0.0012	0.99957	0.00010	0.99887	0.00120
008-009	1.0007	0.0012	0.99979	0.00010	0.99909	0.00120
008-010	1.0007	0.0012	1.00080	0.00010	1.00010	0.00120
008-011	1.0007	0.0012	1.00159	0.00010	1.00089	0.00120
008-012	1.0007	0.0012	1.00113	0.00010	1.00043	0.00120
008-013	1.0007	0.0012	1.00128	0.00010	1.00058	0.00120
008-014	1.0007	0.0012	1.00094	0.00010	1.00024	0.00120
008-015	1.0007	0.0012	1.00062	0.00010	0.99992	0.00120
008-016	1.0007	0.0012	1.00100	0.00010	1.00030	0.00120
008-017	1.0007	0.0012	0.99982	0.00009	0.99912	0.00120
010-001	1.0000	0.0021	1.00486	0.00009	1.00486	0.00211
010-002	1.0000	0.0021	1.00502	0.00010	1.00502	0.00211
010-003	1.0000	0.0021	1.00406	0.00010	1.00406	0.00211
010-004	1.0000	0.0021	0.99677	0.00009	0.99677	0.00210
010-005	1.0000	0.0021	0.99900	0.00009	0.99900	0.00210
010-006	1.0000	0.0021	0.99969	0.00010	0.99969	0.00210
010-007	1.0000	0.0021	1.00123	0.00010	1.00123	0.00210
010-008	1.0000	0.0021	0.99788	0.00010	0.99788	0.00210
010-009	1.0000	0.0021	1.00012	0.00009	1.00012	0.00210
010-010	1.0000	0.0021	1.00014	0.00010	1.00014	0.00210
010-011	1.0000	0.0021	1.00032	0.00010	1.00032	0.00210
010-012	1.0000	0.0021	0.99967	0.00010	0.99967	0.00210
010-013	1.0000	0.0021	0.99729	0.00010	0.99729	0.00210
010-014	1.0000	0.0028	1.00116	0.00008	1.00116	0.00280
010-015	1.0000	0.0028	1.00149	0.00010	1.00149	0.00281
010-016	1.0000	0.0028	1.00204	0.00010	1.00204	0.00281
010-017	1.0000	0.0028	1.00132	0.00009	1.00132	0.00281
010-018	1.0000	0.0028	1.00110	0.00010	1.00110	0.00280
010-019	1.0000	0.0028	1.00117	0.00010	1.00117	0.00281
010-020	1.0000	0.0028	1.00288	0.00010	1.00288	0.00281
010-021	1.0000	0.0028	1.00288	0.00009	1.00288	0.00281
010-022	1.0000	0.0028	1.00236	0.00009	1.00236	0.00281
010-023	1.0000	0.0028	1.00091	0.00007	1.00091	0.00280
010-024	1.0000	0.0028	0.99896	0.00010	0.99896	0.00280
010-025	1.0000	0.0028	1.00045	0.00009	1.00045	0.00280
010-026	1.0000	0.0028	1.00071	0.00010	1.00071	0.00280
010-027	1.0000	0.0028	1.00119	0.00010	1.00119	0.00280

Table A-15. Detailed ENDF/B-VIII.0 CE results for KENO V.a LCT systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
010-028	1.0000	0.0028	1.00149	0.00010	1.00149	0.00281
010-029	1.0000	0.0028	1.00159	0.00007	1.00159	0.00281
010-030	1.0000	0.0028	0.99953	0.00010	0.99953	0.00280
017-001	1.0000	0.0031	1.00153	0.00010	1.00153	0.00311
017-002	1.0000	0.0031	1.00102	0.00010	1.00102	0.00310
017-003	1.0000	0.0031	0.99984	0.00010	0.99984	0.00310
017-004	1.0000	0.0031	0.99798	0.00010	0.99798	0.00310
017-005	1.0000	0.0031	0.99979	0.00010	0.99979	0.00310
017-006	1.0000	0.0031	0.99977	0.00010	0.99977	0.00310
017-007	1.0000	0.0031	0.99999	0.00010	0.99999	0.00310
017-008	1.0000	0.0031	0.99834	0.00007	0.99834	0.00310
017-009	1.0000	0.0031	0.99782	0.00009	0.99782	0.00309
017-010	1.0000	0.0031	0.99839	0.00007	0.99839	0.00310
017-011	1.0000	0.0031	0.99837	0.00010	0.99837	0.00310
017-012	1.0000	0.0031	0.99850	0.00010	0.99850	0.00310
017-013	1.0000	0.0031	0.99892	0.00009	0.99892	0.00310
017-014	1.0000	0.0031	0.99922	0.00009	0.99922	0.00310
017-015	1.0000	0.0028	0.99753	0.00009	0.99753	0.00279
017-016	1.0000	0.0028	0.99856	0.00006	0.99856	0.00280
017-017	1.0000	0.0028	0.99974	0.00007	0.99974	0.00280
017-018	1.0000	0.0028	0.99848	0.00007	0.99848	0.00280
017-019	1.0000	0.0028	0.99894	0.00008	0.99894	0.00280
017-020	1.0000	0.0028	0.99803	0.00008	0.99803	0.00280
017-021	1.0000	0.0028	0.99797	0.00005	0.99797	0.00279
017-022	1.0000	0.0028	0.99733	0.00009	0.99733	0.00279
017-023	1.0000	0.0028	0.99963	0.00009	0.99963	0.00280
017-024	1.0000	0.0028	1.00030	0.00009	1.00030	0.00280
017-025	1.0000	0.0028	0.99831	0.00009	0.99831	0.00280
017-026	1.0000	0.0028	0.99585	0.00010	0.99585	0.00279
017-027	1.0000	0.0028	0.99803	0.00009	0.99803	0.00280
017-028	1.0000	0.0028	0.99886	0.00008	0.99886	0.00280
017-029	1.0000	0.0028	0.99912	0.00008	0.99912	0.00280
042-001	1.0000	0.0016	0.99800	0.00008	0.99800	0.00160
042-002	1.0000	0.0016	0.99761	0.00009	0.99761	0.00160
042-003	1.0000	0.0016	0.99820	0.00010	0.99820	0.00160
042-004	1.0000	0.0017	0.99927	0.00009	0.99927	0.00170
042-005	1.0000	0.0033	0.99893	0.00009	0.99893	0.00330
042-006	1.0000	0.0016	0.99904	0.00009	0.99904	0.00160
042-007	1.0000	0.0018	0.99729	0.00009	0.99729	0.00180
050-001	1.0004	0.0010	0.99879	0.00010	0.99839	0.00100
050-002	1.0004	0.0010	0.99859	0.00010	0.99819	0.00100
050-003	1.0004	0.0010	0.99935	0.00010	0.99895	0.00100
050-004	1.0004	0.0010	0.99858	0.00010	0.99818	0.00100
050-005	1.0004	0.0010	0.99996	0.00010	0.99956	0.00100
050-006	1.0004	0.0010	0.99985	0.00010	0.99945	0.00100
050-007	1.0004	0.0010	0.99983	0.00010	0.99943	0.00100
050-008	1.0004	0.0010	0.99701	0.00010	0.99662	0.00100
050-009	1.0004	0.0010	0.99779	0.00010	0.99739	0.00100
050-010	1.0004	0.0010	0.99734	0.00010	0.99694	0.00100
050-011	1.0004	0.0010	0.99793	0.00010	0.99753	0.00100
050-012	1.0004	0.0010	0.99899	0.00010	0.99859	0.00100
050-013	1.0004	0.0010	0.99922	0.00010	0.99882	0.00100
050-014	1.0004	0.0010	0.99860	0.00010	0.99820	0.00100
050-015	1.0004	0.0010	0.99942	0.00010	0.99902	0.00100
050-016	1.0004	0.0010	1.00028	0.00010	0.99988	0.00100
050-017	1.0004	0.0010	1.00007	0.00010	0.99967	0.00100
050-018	1.0004	0.0010	1.00002	0.00010	0.99962	0.00100
078-001	0.9995	0.0010	0.99733	0.00010	0.99783	0.00100

Table A-15. Detailed ENDF/B-VIII.0 CE results for KENO V.a LCT systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
078-002	0.9999	0.0010	0.99780	0.00010	0.99790	0.00100
078-003	0.9990	0.0010	0.99704	0.00010	0.99804	0.00100
078-004	0.9986	0.0010	0.99659	0.00010	0.99799	0.00100
078-005	0.9980	0.0010	0.99604	0.00010	0.99804	0.00100
078-006	0.9974	0.0010	0.99560	0.00010	0.99820	0.00101
078-007	0.9994	0.0010	0.99735	0.00010	0.99795	0.00100
078-008	0.9987	0.0010	0.99651	0.00010	0.99781	0.00100
078-009	0.9978	0.0010	0.99573	0.00010	0.99792	0.00101
078-010	0.9969	0.0010	0.99473	0.00010	0.99782	0.00101
078-011	0.9994	0.0010	0.99748	0.00010	0.99807	0.00100
078-012	0.9993	0.0010	0.99736	0.00010	0.99806	0.00100
078-013	0.9993	0.0010	0.99720	0.00010	0.99790	0.00100
078-014	0.9991	0.0010	0.99699	0.00010	0.99788	0.00100
078-015	0.9996	0.0010	0.99792	0.00010	0.99832	0.00100
080-001	0.9976	0.0010	0.99493	0.00010	0.99732	0.00100
080-002	0.9982	0.0010	0.99542	0.00010	0.99721	0.00100
080-003	0.9984	0.0010	0.99580	0.00010	0.99739	0.00100
080-004	0.9981	0.0010	0.99528	0.00010	0.99717	0.00100
080-005	0.9979	0.0010	0.99515	0.00010	0.99725	0.00100
080-006	0.9975	0.0010	0.99451	0.00010	0.99700	0.00100
080-007	0.9993	0.0010	0.99671	0.00010	0.99741	0.00100
080-008	0.9987	0.0010	0.99616	0.00009	0.99745	0.00100
080-009	0.9982	0.0010	0.99544	0.00009	0.99723	0.00100
080-010	0.9972	0.0010	0.99475	0.00010	0.99754	0.00101
080-011	0.9984	0.0010	0.99663	0.00010	0.99823	0.00100

Table A-16. Detailed ENDF/B-VII.1 CE results for KENO V.a LCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	0.9998	0.0031	0.99930	0.00048	0.99950	0.00314
001-002	0.9998	0.0031	0.99843	0.00046	0.99863	0.00313
001-003	0.9998	0.0031	0.99871	0.00048	0.99891	0.00313
001-004	0.9998	0.0031	0.99960	0.00049	0.99980	0.00314
001-005	0.9998	0.0031	0.99633	0.00047	0.99653	0.00313
001-006	0.9998	0.0031	0.99875	0.00049	0.99895	0.00314
001-007	0.9998	0.0031	0.99755	0.00044	0.99775	0.00312
001-008	0.9998	0.0031	0.99726	0.00043	0.99746	0.00312
002-001	0.9997	0.0020	0.99814	0.00011	0.99844	0.00200
002-002	0.9997	0.0020	0.99952	0.00010	0.99982	0.00200
002-003	0.9997	0.0020	0.99909	0.00012	0.99939	0.00200
002-004	0.9997	0.0020	0.99863	0.00010	0.99893	0.00200
002-005	0.9997	0.0020	0.99736	0.00011	0.99766	0.00200
008-001	1.0007	0.0012	1.00072	0.00010	1.00002	0.00120
008-002	1.0007	0.0012	1.00113	0.00010	1.00043	0.00120
008-003	1.0007	0.0012	1.00152	0.00010	1.00082	0.00120
008-004	1.0007	0.0012	1.00092	0.00010	1.00022	0.00120
008-005	1.0007	0.0012	1.00060	0.00010	0.99990	0.00120
008-006	1.0007	0.0012	1.00119	0.00010	1.00049	0.00120
008-007	1.0007	0.0012	1.00049	0.00010	0.99979	0.00120
008-008	1.0007	0.0012	1.00024	0.00010	0.99954	0.00120
008-009	1.0007	0.0012	1.00016	0.00010	0.99946	0.00120
008-010	1.0007	0.0012	1.00071	0.00010	1.00001	0.00120
008-011	1.0007	0.0012	1.00150	0.00010	1.00080	0.00120
008-012	1.0007	0.0012	1.00115	0.00010	1.00045	0.00120
008-013	1.0007	0.0012	1.00120	0.00010	1.00050	0.00120
008-014	1.0007	0.0012	1.00108	0.00010	1.00038	0.00120
008-015	1.0007	0.0012	1.00081	0.00010	1.00011	0.00120
008-016	1.0007	0.0012	1.00063	0.00010	0.99993	0.00120
008-017	1.0007	0.0012	0.99975	0.00010	0.99905	0.00120
010-001	1.0000	0.0021	1.00508	0.00009	1.00508	0.00211
010-002	1.0000	0.0021	1.00521	0.00010	1.00521	0.00211
010-003	1.0000	0.0021	1.00420	0.00010	1.00420	0.00211
010-004	1.0000	0.0021	0.99683	0.00008	0.99683	0.00209
010-005	1.0000	0.0021	0.99964	0.00010	0.99964	0.00210
010-006	1.0000	0.0021	1.00037	0.00009	1.00037	0.00210
010-007	1.0000	0.0021	1.00117	0.00010	1.00117	0.00210
010-008	1.0000	0.0021	0.99789	0.00010	0.99789	0.00210
010-009	1.0000	0.0021	0.99997	0.00009	0.99997	0.00210
010-010	1.0000	0.0021	1.00018	0.00010	1.00018	0.00210
010-011	1.0000	0.0021	1.00058	0.00010	1.00058	0.00210
010-012	1.0000	0.0021	0.99967	0.00010	0.99967	0.00210
010-013	1.0000	0.0021	0.99767	0.00010	0.99767	0.00210
010-014	1.0000	0.0028	1.00193	0.00010	1.00193	0.00281
010-015	1.0000	0.0028	1.00267	0.00010	1.00267	0.00281
010-016	1.0000	0.0028	1.00328	0.00010	1.00328	0.00281
010-017	1.0000	0.0028	1.00267	0.00009	1.00267	0.00281
010-018	1.0000	0.0028	1.00245	0.00009	1.00245	0.00281
010-019	1.0000	0.0028	1.00217	0.00010	1.00217	0.00281
010-020	1.0000	0.0028	1.00406	0.00010	1.00406	0.00281
010-021	1.0000	0.0028	1.00410	0.00010	1.00410	0.00281
010-022	1.0000	0.0028	1.00367	0.00009	1.00367	0.00281
010-023	1.0000	0.0028	1.00198	0.00007	1.00198	0.00281
010-024	1.0000	0.0028	1.00035	0.00010	1.00035	0.00280
010-025	1.0000	0.0028	1.00169	0.00010	1.00169	0.00281
010-026	1.0000	0.0028	1.00205	0.00010	1.00205	0.00281
010-027	1.0000	0.0028	1.00239	0.00010	1.00239	0.00281

Table A-16. Detailed ENDF/B-VII.1 CE results for KENO V.a LCT systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
010-028	1.0000	0.0028	1.00279	0.00010	1.00279	0.00281
010-029	1.0000	0.0028	1.00264	0.00007	1.00264	0.00281
010-030	1.0000	0.0028	1.00061	0.00010	1.00061	0.00280
017-001	1.0000	0.0031	1.00167	0.00010	1.00167	0.00311
017-002	1.0000	0.0031	1.00118	0.00010	1.00118	0.00311
017-003	1.0000	0.0031	0.99960	0.00010	0.99960	0.00310
017-004	1.0000	0.0031	0.99841	0.00009	0.99841	0.00310
017-005	1.0000	0.0031	1.00013	0.00010	1.00013	0.00310
017-006	1.0000	0.0031	1.00001	0.00010	1.00001	0.00310
017-007	1.0000	0.0031	1.00003	0.00010	1.00003	0.00310
017-008	1.0000	0.0031	0.99837	0.00006	0.99837	0.00310
017-009	1.0000	0.0031	0.99765	0.00010	0.99765	0.00309
017-010	1.0000	0.0031	0.99830	0.00007	0.99830	0.00310
017-011	1.0000	0.0031	0.99826	0.00010	0.99826	0.00310
017-012	1.0000	0.0031	0.99841	0.00010	0.99841	0.00310
017-013	1.0000	0.0031	0.99895	0.00009	0.99895	0.00310
017-014	1.0000	0.0031	0.99941	0.00010	0.99941	0.00310
017-015	1.0000	0.0028	0.99743	0.00008	0.99743	0.00279
017-016	1.0000	0.0028	0.99877	0.00008	0.99877	0.00280
017-017	1.0000	0.0028	0.99993	0.00007	0.99993	0.00280
017-018	1.0000	0.0028	0.99897	0.00006	0.99897	0.00280
017-019	1.0000	0.0028	0.99935	0.00007	0.99935	0.00280
017-020	1.0000	0.0028	0.99823	0.00008	0.99823	0.00280
017-021	1.0000	0.0028	0.99838	0.00006	0.99838	0.00280
017-022	1.0000	0.0028	0.99765	0.00007	0.99765	0.00279
017-023	1.0000	0.0028	0.99991	0.00010	0.99991	0.00280
017-024	1.0000	0.0028	1.00066	0.00008	1.00066	0.00280
017-025	1.0000	0.0028	0.99860	0.00008	0.99860	0.00280
017-026	1.0000	0.0028	0.99652	0.00008	0.99652	0.00279
017-027	1.0000	0.0028	0.99862	0.00008	0.99862	0.00280
017-028	1.0000	0.0028	0.99944	0.00008	0.99944	0.00280
017-029	1.0000	0.0028	0.99938	0.00009	0.99938	0.00280
042-001	1.0000	0.0016	0.99853	0.00008	0.99853	0.00160
042-002	1.0000	0.0016	0.99823	0.00010	0.99823	0.00160
042-003	1.0000	0.0016	0.99915	0.00010	0.99915	0.00160
042-004	1.0000	0.0017	0.99986	0.00009	0.99986	0.00170
042-005	1.0000	0.0033	0.99971	0.00009	0.99971	0.00330
042-006	1.0000	0.0016	0.99936	0.00008	0.99936	0.00160
042-007	1.0000	0.0018	0.99779	0.00009	0.99779	0.00180
050-001	1.0004	0.0010	0.99906	0.00010	0.99866	0.00100
050-002	1.0004	0.0010	0.99886	0.00010	0.99846	0.00100
050-003	1.0004	0.0010	0.99966	0.00010	0.99926	0.00100
050-004	1.0004	0.0010	0.99912	0.00010	0.99872	0.00100
050-005	1.0004	0.0010	1.00071	0.00010	1.00031	0.00100
050-006	1.0004	0.0010	1.00058	0.00010	1.00018	0.00100
050-007	1.0004	0.0010	1.00045	0.00010	1.00005	0.00100
050-008	1.0004	0.0010	0.99754	0.00010	0.99714	0.00100
050-009	1.0004	0.0010	0.99776	0.00010	0.99737	0.00100
050-010	1.0004	0.0010	0.99752	0.00010	0.99712	0.00100
050-011	1.0004	0.0010	0.99827	0.00010	0.99787	0.00100
050-012	1.0004	0.0010	0.99938	0.00010	0.99898	0.00100
050-013	1.0004	0.0010	0.99951	0.00010	0.99911	0.00100
050-014	1.0004	0.0010	0.99912	0.00010	0.99872	0.00100
050-015	1.0004	0.0010	0.99990	0.00010	0.99950	0.00100
050-016	1.0004	0.0010	1.00079	0.00010	1.00039	0.00100
050-017	1.0004	0.0010	1.00063	0.00010	1.00023	0.00100
050-018	1.0004	0.0010	1.00060	0.00010	1.00020	0.00100
078-001	0.9995	0.0010	0.99803	0.00010	0.99852	0.00100

Table A-16. Detailed ENDF/B-VII.1 CE results for KENO V.a LCT systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
078-002	0.9999	0.0010	0.99860	0.00010	0.99870	0.00100
078-003	0.9990	0.0010	0.99758	0.00010	0.99858	0.00100
078-004	0.9986	0.0010	0.99724	0.00010	0.99864	0.00100
078-005	0.9980	0.0010	0.99677	0.00010	0.99877	0.00101
078-006	0.9974	0.0010	0.99626	0.00010	0.99885	0.00101
078-007	0.9994	0.0010	0.99801	0.00010	0.99861	0.00100
078-008	0.9987	0.0010	0.99734	0.00010	0.99864	0.00100
078-009	0.9978	0.0010	0.99628	0.00010	0.99848	0.00101
078-010	0.9969	0.0010	0.99537	0.00010	0.99847	0.00101
078-011	0.9994	0.0010	0.99800	0.00010	0.99860	0.00100
078-012	0.9993	0.0010	0.99782	0.00010	0.99851	0.00100
078-013	0.9993	0.0010	0.99779	0.00010	0.99848	0.00100
078-014	0.9991	0.0010	0.99759	0.00010	0.99849	0.00100
078-015	0.9996	0.0010	0.99875	0.00010	0.99915	0.00100
080-001	0.9976	0.0010	0.99613	0.00010	0.99853	0.00101
080-002	0.9982	0.0010	0.99666	0.00010	0.99846	0.00101
080-003	0.9984	0.0010	0.99689	0.00010	0.99849	0.00100
080-004	0.9981	0.0010	0.99654	0.00010	0.99844	0.00101
080-005	0.9979	0.0010	0.99628	0.00010	0.99838	0.00101
080-006	0.9975	0.0010	0.99595	0.00010	0.99845	0.00101
080-007	0.9993	0.0010	0.99796	0.00010	0.99866	0.00100
080-008	0.9987	0.0010	0.99710	0.00010	0.99840	0.00100
080-009	0.9982	0.0010	0.99631	0.00010	0.99810	0.00100
080-010	0.9972	0.0010	0.99566	0.00010	0.99846	0.00101
080-011	0.9984	0.0010	0.99759	0.00010	0.99919	0.00101

Table A-17. Detailed ENDF/B-VIII.0 252-group results for KENO V.a LST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0038	0.0040	0.99918	0.00010	0.99539	0.00397
002-002	1.0024	0.0037	0.99520	0.00010	0.99282	0.00367
002-003	1.0024	0.0044	1.00034	0.00010	0.99794	0.00438
003-001	0.9997	0.0039	0.99687	0.00010	0.99717	0.00389
003-002	0.9993	0.0042	0.99566	0.00010	0.99636	0.00419
003-003	0.9995	0.0042	1.00009	0.00010	1.00059	0.00421
003-004	0.9995	0.0042	0.99354	0.00010	0.99404	0.00418
003-005	0.9997	0.0048	0.99769	0.00010	0.99799	0.00479
003-006	0.9999	0.0049	0.99810	0.00010	0.99820	0.00489
003-007	0.9994	0.0049	0.99645	0.00010	0.99705	0.00489
003-008	0.9993	0.0052	0.99972	0.00010	1.00042	0.00521
003-009	0.9996	0.0052	0.99736	0.00010	0.99776	0.00519
004-001	0.9994	0.0008	1.00056	0.00048	1.00116	0.00093
004-002	0.9999	0.0009	1.00087	0.00048	1.00097	0.00102
004-003	0.9999	0.0009	0.99888	0.00044	0.99898	0.00100
004-004	0.9999	0.0010	1.00116	0.00044	1.00126	0.00109
004-005	0.9999	0.0010	1.00075	0.00042	1.00085	0.00109
004-006	0.9994	0.0011	1.00037	0.00040	1.00097	0.00117
004-007	0.9996	0.0011	0.99997	0.00038	1.00037	0.00116

Table A-18. Detailed ENDF/B-VII.1 252-group results for KENO V.a LST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0038	0.0040	0.99852	0.00010	0.99474	0.00397
002-002	1.0024	0.0037	0.99418	0.00010	0.99180	0.00366
002-003	1.0024	0.0044	0.99935	0.00010	0.99696	0.00438
003-001	0.9997	0.0039	0.99553	0.00010	0.99583	0.00389
003-002	0.9993	0.0042	0.99468	0.00009	0.99538	0.00418
003-003	0.9995	0.0042	0.99902	0.00010	0.99952	0.00420
003-004	0.9995	0.0042	0.99255	0.00010	0.99305	0.00417
003-005	0.9997	0.0048	0.99716	0.00010	0.99746	0.00479
003-006	0.9999	0.0049	0.99785	0.00010	0.99795	0.00489
003-007	0.9994	0.0049	0.99625	0.00010	0.99685	0.00489
003-008	0.9993	0.0052	1.00006	0.00010	1.00076	0.00521
003-009	0.9996	0.0052	0.99736	0.00010	0.99776	0.00519
004-001	0.9994	0.0008	0.99805	0.00049	0.99865	0.00094
004-002	0.9999	0.0009	1.00039	0.00042	1.00049	0.00099
004-003	0.9999	0.0009	0.99822	0.00047	0.99832	0.00101
004-004	0.9999	0.0010	1.00018	0.00039	1.00028	0.00107
004-005	0.9999	0.0010	1.00039	0.00046	1.00049	0.00110
004-006	0.9994	0.0011	0.99985	0.00043	1.00045	0.00118
004-007	0.9996	0.0011	0.99992	0.00034	1.00032	0.00115

Table A-19. Detailed ENDF/B-VIII.0 CE results for KENO V.a LST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0038	0.0040	0.99904	0.00010	0.99526	0.00397
002-002	1.0024	0.0037	0.99468	0.00010	0.99230	0.00366
002-003	1.0024	0.0044	0.99985	0.00010	0.99746	0.00438
003-001	0.9997	0.0039	0.99711	0.00010	0.99741	0.00389
003-002	0.9993	0.0042	0.99594	0.00010	0.99663	0.00419
003-003	0.9995	0.0042	1.00026	0.00010	1.00076	0.00421
003-004	0.9995	0.0042	0.99375	0.00010	0.99424	0.00418
003-005	0.9997	0.0048	0.99798	0.00010	0.99828	0.00479
003-006	0.9999	0.0049	0.99841	0.00010	0.99851	0.00489
003-007	0.9994	0.0049	0.99646	0.00010	0.99706	0.00489
003-008	0.9993	0.0052	0.99987	0.00010	1.00057	0.00521
003-009	0.9996	0.0052	0.99720	0.00010	0.99760	0.00519
004-001	0.9994	0.0008	0.99906	0.00047	0.99966	0.00093
004-002	0.9999	0.0009	1.00112	0.00046	1.00122	0.00101
004-003	0.9999	0.0009	0.99869	0.00048	0.99879	0.00102
004-004	0.9999	0.0010	1.00147	0.00045	1.00157	0.00110
004-005	0.9999	0.0010	1.00131	0.00046	1.00141	0.00110
004-006	0.9994	0.0011	1.00044	0.00048	1.00104	0.00120
004-007	0.9996	0.0011	1.00035	0.00045	1.00075	0.00119

Table A-20. Detailed ENDF/B-VII.1 CE results for KENO V.a LST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0038	0.0040	0.99872	0.00010	0.99494	0.00397
002-002	1.0024	0.0037	0.99442	0.00010	0.99204	0.00366
002-003	1.0024	0.0044	0.99966	0.00010	0.99726	0.00438
003-001	0.9997	0.0039	0.99641	0.00010	0.99671	0.00389
003-002	0.9993	0.0042	0.99539	0.00009	0.99609	0.00419
003-003	0.9995	0.0042	0.99979	0.00010	1.00029	0.00420
003-004	0.9995	0.0042	0.99333	0.00008	0.99382	0.00418
003-005	0.9997	0.0048	0.99779	0.00010	0.99809	0.00479
003-006	0.9999	0.0049	0.99821	0.00010	0.99831	0.00489
003-007	0.9994	0.0049	0.99673	0.00010	0.99732	0.00489
003-008	0.9993	0.0052	1.00028	0.00010	1.00098	0.00521
003-009	0.9996	0.0052	0.99753	0.00010	0.99793	0.00519
004-001	0.9994	0.0008	0.99883	0.00048	0.99943	0.00093
004-002	0.9999	0.0009	1.00089	0.00037	1.00099	0.00097
004-003	0.9999	0.0009	0.99873	0.00048	0.99883	0.00102
004-004	0.9999	0.0010	1.00131	0.00046	1.00141	0.00110
004-005	0.9999	0.0010	1.00059	0.00045	1.00069	0.00110
004-006	0.9994	0.0011	0.99974	0.00047	1.00034	0.00120
004-007	0.9996	0.0011	1.00040	0.00044	1.00080	0.00119

Table A-21. Detailed ENDF/B-VIII.0 252-group results for KENO V.a MCF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	0.9913	0.0023	0.98969	0.00010	0.99837	0.00232
006-001	0.9889	0.0021	0.99287	0.00010	1.00402	0.00213

Table A-22. Detailed ENDF/B-VII.1 252-group results for KENO V.a MCF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	0.9913	0.0023	0.99057	0.00010	0.99927	0.00232
006-001	0.9889	0.0021	0.99654	0.00010	1.00772	0.00214

Table A-23. Detailed ENDF/B-VIII.0 CE results for KENO V.a MCF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	0.9913	0.0023	0.98747	0.00010	0.99613	0.00231
006-001	0.9889	0.0021	0.98871	0.00010	0.99981	0.00213

Table A-24. Detailed ENDF/B-VII.1 CE results for KENO V.a MCF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	0.9913	0.0023	0.98704	0.00010	0.99570	0.00231
006-001	0.9889	0.0021	0.99098	0.00010	1.00210	0.00213

Table A-25. Detailed ENDF/B-VIII.0 252-group results for KENO V.a MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0025	1.00338	0.00010	1.00338	0.00251
001-002	1.0000	0.0026	1.00072	0.00010	1.00072	0.00260
001-003	1.0000	0.0032	0.99859	0.00010	0.99859	0.00320
001-004	1.0000	0.0039	1.00034	0.00010	1.00034	0.00390
002-001S	1.0024	0.0060	1.00159	0.00010	0.99919	0.00598
002-002S	1.0009	0.0047	1.00230	0.00010	1.00139	0.00470
002-003S	1.0042	0.0031	1.00117	0.00010	0.99698	0.00308
002-004S	1.0024	0.0024	1.00531	0.00010	1.00291	0.00240
002-005S	1.0038	0.0025	1.00289	0.00010	0.99910	0.00249
002-006S	1.0029	0.0027	1.00523	0.00010	1.00232	0.00270
004-001	1.0000	0.0046	0.99438	0.00010	0.99438	0.00458
004-002	1.0000	0.0046	0.99521	0.00010	0.99521	0.00458
004-003	1.0000	0.0046	0.99529	0.00010	0.99529	0.00458
004-004	1.0000	0.0039	0.99464	0.00010	0.99464	0.00388
004-005	1.0000	0.0039	0.99569	0.00010	0.99569	0.00388
004-006	1.0000	0.0039	0.99546	0.00010	0.99546	0.00388
004-007	1.0000	0.0040	0.99541	0.00010	0.99541	0.00398
004-008	1.0000	0.0040	0.99600	0.00010	0.99600	0.00399
004-009	1.0000	0.0040	0.99631	0.00010	0.99631	0.00399
004-010	1.0000	0.0051	0.99613	0.00010	0.99613	0.00508
004-011	1.0000	0.0051	0.99624	0.00010	0.99624	0.00508

Table A-26. Detailed ENDF/B-VII.1 252-group results for KENO V.a MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0025	0.99997	0.00010	0.99997	0.00250
001-002	1.0000	0.0026	0.99860	0.00010	0.99860	0.00260
001-003	1.0000	0.0032	0.99759	0.00010	0.99759	0.00319
001-004	1.0000	0.0039	1.00013	0.00010	1.00013	0.00390
002-001S	1.0024	0.0060	1.00125	0.00010	0.99885	0.00598
002-002S	1.0009	0.0047	1.00219	0.00010	1.00129	0.00470
002-003S	1.0042	0.0031	1.00177	0.00010	0.99758	0.00308
002-004S	1.0024	0.0024	1.00626	0.00010	1.00385	0.00241
002-005S	1.0038	0.0025	1.00390	0.00010	1.00010	0.00249
002-006S	1.0029	0.0027	1.00630	0.00010	1.00339	0.00270
004-001	1.0000	0.0046	0.99506	0.00010	0.99506	0.00458
004-002	1.0000	0.0046	0.99574	0.00010	0.99574	0.00458
004-003	1.0000	0.0046	0.99573	0.00010	0.99573	0.00458
004-004	1.0000	0.0039	0.99551	0.00010	0.99551	0.00388
004-005	1.0000	0.0039	0.99635	0.00010	0.99635	0.00389
004-006	1.0000	0.0039	0.99627	0.00010	0.99627	0.00389
004-007	1.0000	0.0040	0.99694	0.00010	0.99694	0.00399
004-008	1.0000	0.0040	0.99716	0.00010	0.99716	0.00399
004-009	1.0000	0.0040	0.99789	0.00010	0.99789	0.00399
004-010	1.0000	0.0051	0.99796	0.00010	0.99796	0.00509
004-011	1.0000	0.0051	0.99779	0.00010	0.99779	0.00509

Table A-27. Detailed ENDF/B-VIII.0 CE results for KENO V.a MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0025	1.00404	0.00010	1.00404	0.00251
001-002	1.0000	0.0026	1.00090	0.00010	1.00090	0.00260
001-003	1.0000	0.0032	0.99886	0.00010	0.99886	0.00320
001-004	1.0000	0.0039	1.00048	0.00010	1.00048	0.00390
002-001S	1.0024	0.0060	1.00181	0.00010	0.99941	0.00598
002-002S	1.0009	0.0047	1.00278	0.00010	1.00188	0.00471
002-003S	1.0042	0.0031	1.00097	0.00010	0.99678	0.00308
002-004S	1.0024	0.0024	1.00529	0.00010	1.00289	0.00240
002-005S	1.0038	0.0025	1.00269	0.00010	0.99889	0.00249
002-006S	1.0029	0.0027	1.00499	0.00010	1.00208	0.00270
004-001	1.0000	0.0046	0.99479	0.00010	0.99479	0.00458
004-002	1.0000	0.0046	0.99569	0.00010	0.99569	0.00458
004-003	1.0000	0.0046	0.99566	0.00010	0.99566	0.00458
004-004	1.0000	0.0039	0.99512	0.00010	0.99512	0.00388
004-005	1.0000	0.0039	0.99611	0.00010	0.99611	0.00389
004-006	1.0000	0.0039	0.99606	0.00010	0.99606	0.00389
004-007	1.0000	0.0040	0.99562	0.00010	0.99562	0.00398
004-008	1.0000	0.0040	0.99622	0.00010	0.99622	0.00399
004-009	1.0000	0.0040	0.99643	0.00010	0.99643	0.00399
004-010	1.0000	0.0051	0.99616	0.00010	0.99616	0.00508
004-011	1.0000	0.0051	0.99622	0.00010	0.99622	0.00508

Table A-28. Detailed ENDF/B-VII.1 CE results for KENO V.a MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0025	1.00104	0.00010	1.00104	0.00250
001-002	1.0000	0.0026	1.00002	0.00010	1.00002	0.00260
001-003	1.0000	0.0032	0.99864	0.00010	0.99864	0.00320
001-004	1.0000	0.0039	1.00067	0.00010	1.00067	0.00390
002-001S	1.0024	0.0060	1.00222	0.00010	0.99982	0.00599
002-002S	1.0009	0.0047	1.00324	0.00010	1.00233	0.00471
002-003S	1.0042	0.0031	1.00260	0.00010	0.99841	0.00308
002-004S	1.0024	0.0024	1.00663	0.00010	1.00421	0.00241
002-005S	1.0038	0.0025	1.00429	0.00010	1.00048	0.00249
002-006S	1.0029	0.0027	1.00623	0.00010	1.00332	0.00270
004-001	1.0000	0.0046	0.99623	0.00010	0.99623	0.00458
004-002	1.0000	0.0046	0.99715	0.00010	0.99715	0.00459
004-003	1.0000	0.0046	0.99692	0.00010	0.99692	0.00459
004-004	1.0000	0.0039	0.99669	0.00010	0.99669	0.00389
004-005	1.0000	0.0039	0.99755	0.00010	0.99755	0.00389
004-006	1.0000	0.0039	0.99754	0.00010	0.99754	0.00389
004-007	1.0000	0.0040	0.99779	0.00010	0.99779	0.00399
004-008	1.0000	0.0040	0.99829	0.00010	0.99829	0.00399
004-009	1.0000	0.0040	0.99864	0.00010	0.99864	0.00400
004-010	1.0000	0.0051	0.99831	0.00010	0.99831	0.00509
004-011	1.0000	0.0051	0.99829	0.00010	0.99829	0.00509

Table A-29. Detailed ENDF/B-VIII.0 252-group results for KENO V.a MST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0024	0.99561	0.00010	0.99561	0.00239
002-002	1.0000	0.0024	0.99582	0.00010	0.99582	0.00239
002-003	1.0000	0.0024	0.99557	0.00010	0.99557	0.00239
007-001	1.0000	0.0043	0.99107	0.00010	0.99107	0.00426
007-002	1.0000	0.0077	0.99216	0.00010	0.99216	0.00764
007-003	1.0000	0.0046	0.99561	0.00010	0.99561	0.00458
007-004	1.0000	0.0046	0.99445	0.00010	0.99445	0.00458
007-005	1.0000	0.0091	0.99243	0.00010	0.99243	0.00903
007-006	1.0000	0.0043	0.99185	0.00010	0.99185	0.00427
007-007	1.0000	0.0034	0.98837	0.00010	0.98837	0.00336

Table A-30. Detailed ENDF/B-VII.1 252-group results for KENO V.a MST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0024	1.00140	0.00010	1.00140	0.00241
002-002	1.0000	0.0024	1.00183	0.00010	1.00183	0.00241
002-003	1.0000	0.0024	1.00130	0.00010	1.00130	0.00241
007-001	1.0000	0.0043	0.99381	0.00010	0.99381	0.00427
007-002	1.0000	0.0077	0.99546	0.00010	0.99546	0.00767
007-003	1.0000	0.0046	0.99968	0.00010	0.99968	0.00460
007-004	1.0000	0.0046	0.99866	0.00010	0.99866	0.00459
007-005	1.0000	0.0091	0.99652	0.00010	0.99652	0.00907
007-006	1.0000	0.0043	0.99641	0.00010	0.99641	0.00429
007-007	1.0000	0.0034	0.99321	0.00010	0.99321	0.00338

Table A-31. Detailed ENDF/B-VIII.0 CE results for KENO V.a MST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0024	0.99535	0.00010	0.99535	0.00239
002-002	1.0000	0.0024	0.99548	0.00010	0.99548	0.00239
002-003	1.0000	0.0024	0.99529	0.00010	0.99529	0.00239
007-001	1.0000	0.0043	0.99073	0.00010	0.99073	0.00426
007-002	1.0000	0.0077	0.99215	0.00010	0.99215	0.00764
007-003	1.0000	0.0046	0.99608	0.00010	0.99608	0.00458
007-004	1.0000	0.0046	0.99503	0.00010	0.99503	0.00458
007-005	1.0000	0.0091	0.99306	0.00010	0.99306	0.00904
007-006	1.0000	0.0043	0.99290	0.00010	0.99290	0.00427
007-007	1.0000	0.0034	0.98937	0.00010	0.98937	0.00337

Table A-32. Detailed ENDF/B-VII.1 CE results for KENO V.a MST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
002-001	1.0000	0.0024	1.00140	0.00010	1.00140	0.00241
002-002	1.0000	0.0024	1.00156	0.00010	1.00156	0.00241
002-003	1.0000	0.0024	1.00118	0.00010	1.00118	0.00240
007-001	1.0000	0.0043	0.99481	0.00010	0.99481	0.00428
007-002	1.0000	0.0077	0.99634	0.00010	0.99634	0.00767
007-003	1.0000	0.0046	1.00023	0.00010	1.00023	0.00460
007-004	1.0000	0.0046	0.99948	0.00010	0.99948	0.00460
007-005	1.0000	0.0091	0.99751	0.00010	0.99751	0.00908
007-006	1.0000	0.0043	0.99731	0.00010	0.99731	0.00429
007-007	1.0000	0.0034	0.99405	0.00010	0.99405	0.00338

Table A-33. Detailed ENDF/B-VIII.0 252-group results for KENO V.a PMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0020	0.99952	0.00010	0.99952	0.00200
002-001	1.0000	0.0020	1.00103	0.00010	1.00103	0.00200
005-001	1.0000	0.0013	0.99971	0.00010	0.99971	0.00130
006-001	1.0000	0.0030	0.99881	0.00010	0.99881	0.00300
008-001	1.0000	0.0006	0.99602	0.00010	0.99602	0.00061
010-001	1.0000	0.0018	0.99751	0.00010	0.99751	0.00180
018-001	1.0000	0.0030	0.99776	0.00010	0.99776	0.00299
022-001	1.0000	0.0023	0.99775	0.00010	0.99775	0.00230
023-001	1.0000	0.0022	0.99792	0.00010	0.99792	0.00220
024-001	1.0000	0.0022	1.00103	0.00010	1.00103	0.00220
025-001	1.0000	0.0020	0.99903	0.00010	0.99903	0.00200
026-001	1.0000	0.0024	1.00792	0.00010	1.00792	0.00242

Table A-34. Detailed ENDF/B-VII.1 252-group results for KENO V.a PMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0020	0.99977	0.00010	0.99977	0.00200
002-001	1.0000	0.0020	0.99984	0.00010	0.99984	0.00200
005-001	1.0000	0.0013	1.00131	0.00010	1.00131	0.00131
006-001	1.0000	0.0030	1.00062	0.00010	1.00062	0.00300
008-001	1.0000	0.0006	0.99637	0.00010	0.99637	0.00061
010-001	1.0000	0.0018	0.99969	0.00010	0.99969	0.00180
018-001	1.0000	0.0030	0.99904	0.00010	0.99904	0.00300
022-001	1.0000	0.0023	0.99849	0.00010	0.99849	0.00230
023-001	1.0000	0.0022	0.99969	0.00010	0.99969	0.00220
024-001	1.0000	0.0022	1.00205	0.00010	1.00205	0.00221
025-001	1.0000	0.0020	0.99833	0.00010	0.99833	0.00200
026-001	1.0000	0.0024	1.00514	0.00010	1.00514	0.00241

Table A-35. Detailed ENDF/B-VIII.0 CE results for KENO V.a PMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0020	0.99972	0.00010	0.99972	0.00200
002-001	1.0000	0.0020	1.00158	0.00010	1.00158	0.00201
005-001	1.0000	0.0013	0.99948	0.00010	0.99948	0.00130
006-001	1.0000	0.0030	0.99986	0.00010	0.99986	0.00300
008-001	1.0000	0.0006	0.99785	0.00010	0.99785	0.00061
010-001	1.0000	0.0018	0.99810	0.00010	0.99810	0.00180
018-001	1.0000	0.0030	0.99779	0.00010	0.99779	0.00300
022-001	1.0000	0.0023	0.99810	0.00010	0.99810	0.00230
023-001	1.0000	0.0022	0.99832	0.00010	0.99832	0.00220
024-001	1.0000	0.0022	1.00088	0.00010	1.00088	0.00220
025-001	1.0000	0.0020	0.99981	0.00010	0.99981	0.00200
026-001	1.0000	0.0024	1.00152	0.00010	1.00152	0.00241

Table A-36. Detailed ENDF/B-VII.1 CE results for KENO V.a PMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0020	0.99989	0.00010	0.99989	0.00200
002-001	1.0000	0.0020	1.00007	0.00010	1.00007	0.00200
005-001	1.0000	0.0013	1.00092	0.00010	1.00092	0.00131
006-001	1.0000	0.0030	1.00149	0.00010	1.00149	0.00301
008-001	1.0000	0.0006	0.99791	0.00010	0.99791	0.00061
010-001	1.0000	0.0018	1.00002	0.00010	1.00002	0.00180
018-001	1.0000	0.0030	0.99893	0.00010	0.99893	0.00300
022-001	1.0000	0.0023	0.99871	0.00010	0.99871	0.00230
023-001	1.0000	0.0022	0.99972	0.00010	0.99972	0.00220
024-001	1.0000	0.0022	1.00169	0.00010	1.00169	0.00221
025-001	1.0000	0.0020	0.99812	0.00010	0.99812	0.00200
026-001	1.0000	0.0024	0.99678	0.00010	0.99678	0.00239

Table A-37. Detailed ENDF/B-VIII.0 252-group results for KENO V.a PST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0050	0.99997	0.00010	0.99997	0.00500
001-002	1.0000	0.0050	1.00287	0.00010	1.00287	0.00502
001-003	1.0000	0.0050	1.00592	0.00010	1.00592	0.00503
001-004	1.0000	0.0050	1.00059	0.00010	1.00059	0.00500
001-005	1.0000	0.0050	1.00472	0.00010	1.00472	0.00502
001-006	1.0000	0.0050	1.00802	0.00010	1.00802	0.00504
002-001	1.0000	0.0047	0.99809	0.00010	0.99809	0.00469
002-002	1.0000	0.0047	0.99901	0.00010	0.99901	0.00470
002-003	1.0000	0.0047	0.99801	0.00009	0.99801	0.00469
002-004	1.0000	0.0047	1.00108	0.00010	1.00108	0.00471
002-005	1.0000	0.0047	1.00394	0.00010	1.00394	0.00472
002-006	1.0000	0.0047	1.00024	0.00010	1.00024	0.00470
002-007	1.0000	0.0047	1.00290	0.00010	1.00290	0.00471
003-001	1.0000	0.0047	0.99622	0.00010	0.99622	0.00468
003-002	1.0000	0.0047	0.99598	0.00010	0.99598	0.00468
003-003	1.0000	0.0047	0.99864	0.00010	0.99864	0.00469
003-004	1.0000	0.0047	0.99807	0.00010	0.99807	0.00469
003-005	1.0000	0.0047	0.99936	0.00010	0.99936	0.00470
003-006	1.0000	0.0047	0.99973	0.00010	0.99973	0.00470
003-007	1.0000	0.0047	1.00048	0.00010	1.00048	0.00470
003-008	1.0000	0.0047	0.99940	0.00010	0.99940	0.00470
004-001	1.0000	0.0047	0.99692	0.00009	0.99692	0.00469
004-002	1.0000	0.0047	0.99199	0.00010	0.99199	0.00466
004-003	1.0000	0.0047	0.99416	0.00010	0.99416	0.00467
004-004	1.0000	0.0047	0.99205	0.00010	0.99205	0.00466
004-005	1.0000	0.0047	0.99297	0.00010	0.99297	0.00467
004-006	1.0000	0.0047	0.99524	0.00010	0.99524	0.00468
004-007	1.0000	0.0047	0.99899	0.00010	0.99899	0.00470
004-008	1.0000	0.0047	0.99462	0.00010	0.99462	0.00468
004-009	1.0000	0.0047	0.99408	0.00010	0.99408	0.00467
004-010	1.0000	0.0047	0.99562	0.00010	0.99562	0.00468
004-011	1.0000	0.0047	0.99435	0.00010	0.99435	0.00467
004-012	1.0000	0.0047	0.99660	0.00010	0.99660	0.00469
004-013	1.0000	0.0047	0.99378	0.00010	0.99378	0.00467
005-001	1.0000	0.0047	0.99563	0.00010	0.99563	0.00468
005-002	1.0000	0.0047	0.99672	0.00010	0.99672	0.00469
005-003	1.0000	0.0047	0.99671	0.00010	0.99671	0.00469
005-004	1.0000	0.0047	0.99880	0.00010	0.99880	0.00470
005-005	1.0000	0.0047	1.00025	0.00010	1.00025	0.00470
005-006	1.0000	0.0047	1.00018	0.00010	1.00018	0.00470
005-007	1.0000	0.0047	0.99802	0.00010	0.99802	0.00469
005-008	1.0000	0.0047	0.99327	0.00010	0.99327	0.00467

Table A-37. Detailed ENDF/B-VIII.0 252-group results for KENO V.a PST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-009	1.0000	0.0047	0.99572	0.00010	0.99572	0.00468
006-001	1.0000	0.0035	0.99423	0.00010	0.99423	0.00348
006-002	1.0000	0.0035	0.99514	0.00010	0.99514	0.00348
006-003	1.0000	0.0035	0.99486	0.00010	0.99486	0.00348
007-001	1.0000	0.0047	1.00729	0.00010	1.00729	0.00474
007-002	1.0000	0.0047	1.00279	0.00010	1.00279	0.00471
007-003	1.0000	0.0047	1.00519	0.00010	1.00519	0.00473
007-004	1.0000	0.0047	0.99888	0.00010	0.99888	0.00470
007-005	1.0000	0.0047	1.00104	0.00010	1.00104	0.00471
007-006	1.0000	0.0047	0.99411	0.00010	0.99411	0.00467
007-007	1.0000	0.0047	0.99279	0.00010	0.99279	0.00467
007-008	1.0000	0.0047	0.99429	0.00010	0.99429	0.00467
011-001	1.0000	0.0052	1.00223	0.00010	1.00223	0.00521
011-002	1.0000	0.0052	1.00767	0.00010	1.00767	0.00524
011-003	1.0000	0.0052	1.00967	0.00010	1.00967	0.00525
011-004	1.0000	0.0052	1.00329	0.00010	1.00329	0.00522
011-005	1.0000	0.0052	1.00069	0.00010	1.00069	0.00520
011-006	1.0000	0.0052	0.98752	0.00010	0.98752	0.00514
011-007	1.0000	0.0052	0.99445	0.00010	0.99445	0.00517
011-008	1.0000	0.0052	0.99038	0.00010	0.99038	0.00515
011-009	1.0000	0.0052	0.98642	0.00010	0.98642	0.00513
011-010	1.0000	0.0052	0.99824	0.00010	0.99824	0.00519
011-011	1.0000	0.0052	0.99371	0.00010	0.99371	0.00517
011-012	1.0000	0.0052	0.99217	0.00010	0.99217	0.00516
020-001	1.0000	0.0059	0.99790	0.00010	0.99790	0.00589
020-002	1.0000	0.0059	0.99963	0.00010	0.99963	0.00590
020-003	1.0000	0.0059	0.99469	0.00010	0.99469	0.00587
020-004	1.0000	0.0059	0.99904	0.00010	0.99904	0.00590
020-005	1.0000	0.0059	0.99885	0.00010	0.99885	0.00589
020-006	1.0000	0.0059	0.99154	0.00010	0.99154	0.00585
020-007	1.0000	0.0059	0.99909	0.00010	0.99909	0.00590
020-008	1.0000	0.0059	0.98881	0.00010	0.98881	0.00583
020-009	1.0000	0.0059	0.99798	0.00010	0.99798	0.00589
020-010	1.0000	0.0059	0.99529	0.00010	0.99529	0.00587
020-011	1.0000	0.0059	0.99676	0.00010	0.99676	0.00588
020-012	1.0000	0.0059	0.99796	0.00010	0.99796	0.00589
020-013	1.0000	0.0059	0.98661	0.00010	0.98661	0.00582
020-014	1.0000	0.0059	0.99016	0.00010	0.99016	0.00584
020-015	1.0000	0.0059	0.99802	0.00010	0.99802	0.00589

Table A-38. Detailed ENDF/B-VII.1 252-group results for KENO V.a PST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0050	1.00340	0.00010	1.00340	0.00502
001-002	1.0000	0.0050	1.00576	0.00010	1.00576	0.00503
001-003	1.0000	0.0050	1.00831	0.00010	1.00831	0.00504
001-004	1.0000	0.0050	1.00279	0.00010	1.00279	0.00501
001-005	1.0000	0.0050	1.00677	0.00010	1.00677	0.00503
001-006	1.0000	0.0050	1.00819	0.00010	1.00819	0.00504
002-001	1.0000	0.0047	1.00246	0.00010	1.00246	0.00471
002-002	1.0000	0.0047	1.00319	0.00010	1.00319	0.00472
002-003	1.0000	0.0047	1.00219	0.00010	1.00219	0.00471
002-004	1.0000	0.0047	1.00508	0.00010	1.00508	0.00472
002-005	1.0000	0.0047	1.00801	0.00010	1.00801	0.00474
002-006	1.0000	0.0047	1.00387	0.00010	1.00387	0.00472
002-007	1.0000	0.0047	1.00626	0.00010	1.00626	0.00473
003-001	1.0000	0.0047	1.00124	0.00010	1.00124	0.00471
003-002	1.0000	0.0047	1.00077	0.00010	1.00077	0.00470
003-003	1.0000	0.0047	1.00336	0.00010	1.00336	0.00472
003-004	1.0000	0.0047	1.00279	0.00010	1.00279	0.00471
003-005	1.0000	0.0047	1.00381	0.00010	1.00381	0.00472
003-006	1.0000	0.0047	1.00436	0.00010	1.00436	0.00472
003-007	1.0000	0.0047	1.00528	0.00010	1.00528	0.00473
003-008	1.0000	0.0047	1.00416	0.00010	1.00416	0.00472
004-001	1.0000	0.0047	1.00228	0.00010	1.00228	0.00471
004-002	1.0000	0.0047	0.99729	0.00010	0.99729	0.00469
004-003	1.0000	0.0047	0.99942	0.00010	0.99942	0.00470
004-004	1.0000	0.0047	0.99722	0.00010	0.99722	0.00469
004-005	1.0000	0.0047	0.99837	0.00010	0.99837	0.00469
004-006	1.0000	0.0047	1.00020	0.00010	1.00020	0.00470
004-007	1.0000	0.0047	1.00418	0.00010	1.00418	0.00472
004-008	1.0000	0.0047	0.99974	0.00010	0.99974	0.00470
004-009	1.0000	0.0047	0.99926	0.00010	0.99926	0.00470
004-010	1.0000	0.0047	1.00091	0.00010	1.00091	0.00471
004-011	1.0000	0.0047	0.99918	0.00010	0.99918	0.00470
004-012	1.0000	0.0047	1.00139	0.00010	1.00139	0.00471
004-013	1.0000	0.0047	0.99888	0.00010	0.99888	0.00470
005-001	1.0000	0.0047	1.00132	0.00010	1.00132	0.00471
005-002	1.0000	0.0047	1.00129	0.00010	1.00129	0.00471
005-003	1.0000	0.0047	1.00257	0.00010	1.00257	0.00471
005-004	1.0000	0.0047	1.00373	0.00010	1.00373	0.00472
005-005	1.0000	0.0047	1.00488	0.00010	1.00488	0.00472
005-006	1.0000	0.0047	1.00475	0.00010	1.00475	0.00472
005-007	1.0000	0.0047	1.00297	0.00010	1.00297	0.00471
005-008	1.0000	0.0047	0.99800	0.00010	0.99800	0.00469
005-009	1.0000	0.0047	1.00073	0.00010	1.00073	0.00470
006-001	1.0000	0.0035	1.00013	0.00010	1.00013	0.00350
006-002	1.0000	0.0035	1.00119	0.00010	1.00119	0.00351
006-003	1.0000	0.0035	1.00038	0.00010	1.00038	0.00350
007-001	1.0000	0.0047	1.00868	0.00010	1.00868	0.00474
007-002	1.0000	0.0047	1.00368	0.00010	1.00368	0.00472
007-003	1.0000	0.0047	1.00772	0.00010	1.00772	0.00474
007-004	1.0000	0.0047	1.00173	0.00010	1.00173	0.00471
007-005	1.0000	0.0047	1.00408	0.00010	1.00408	0.00472
007-006	1.0000	0.0047	0.99721	0.00010	0.99721	0.00469
007-007	1.0000	0.0047	0.99627	0.00010	0.99627	0.00468
007-008	1.0000	0.0047	0.99964	0.00010	0.99964	0.00470
011-001	1.0000	0.0052	1.00832	0.00010	1.00832	0.00524
011-002	1.0000	0.0052	1.01287	0.00010	1.01287	0.00527
011-003	1.0000	0.0052	1.01512	0.00010	1.01512	0.00528
011-004	1.0000	0.0052	1.00725	0.00010	1.00725	0.00524
011-005	1.0000	0.0052	1.00447	0.00010	1.00447	0.00522

Table A-38. Detailed ENDF/B-VII.1 252-group results for KENO V.a PST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
011-006	1.0000	0.0052	0.99261	0.00010	0.99261	0.00516
011-007	1.0000	0.0052	0.99879	0.00010	0.99879	0.00519
011-008	1.0000	0.0052	0.99546	0.00010	0.99546	0.00518
011-009	1.0000	0.0052	0.99219	0.00010	0.99219	0.00516
011-010	1.0000	0.0052	1.00218	0.00010	1.00218	0.00521
011-011	1.0000	0.0052	0.99879	0.00010	0.99879	0.00519
011-012	1.0000	0.0052	0.99847	0.00010	0.99847	0.00519
020-001	1.0000	0.0059	1.00264	0.00010	1.00264	0.00592
020-002	1.0000	0.0059	1.00514	0.00010	1.00514	0.00593
020-003	1.0000	0.0059	0.99967	0.00010	0.99967	0.00590
020-004	1.0000	0.0059	1.00294	0.00010	1.00294	0.00592
020-005	1.0000	0.0059	1.00394	0.00010	1.00394	0.00592
020-006	1.0000	0.0059	0.99691	0.00010	0.99691	0.00588
020-007	1.0000	0.0059	1.00169	0.00010	1.00169	0.00591
020-008	1.0000	0.0059	0.99375	0.00010	0.99375	0.00586
020-009	1.0000	0.0059	1.00341	0.00010	1.00341	0.00592
020-010	1.0000	0.0059	1.00006	0.00010	1.00006	0.00590
020-011	1.0000	0.0059	1.00150	0.00010	1.00150	0.00591
020-012	1.0000	0.0059	1.00301	0.00010	1.00301	0.00592
020-013	1.0000	0.0059	0.99157	0.00010	0.99157	0.00585
020-014	1.0000	0.0059	0.99459	0.00010	0.99459	0.00587
020-015	1.0000	0.0059	1.00262	0.00010	1.00262	0.00592

Table A-39. Detailed ENDF/B-VIII.0 CE results for KENO V.a PST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0050	1.00043	0.00010	1.00043	0.00500
001-002	1.0000	0.0050	1.00281	0.00010	1.00281	0.00502
001-003	1.0000	0.0050	1.00571	0.00010	1.00571	0.00503
001-004	1.0000	0.0050	1.00051	0.00010	1.00051	0.00500
001-005	1.0000	0.0050	1.00465	0.00010	1.00465	0.00502
001-006	1.0000	0.0050	1.00775	0.00010	1.00775	0.00504
002-001	1.0000	0.0047	0.99846	0.00010	0.99846	0.00469
002-002	1.0000	0.0047	0.99918	0.00010	0.99918	0.00470
002-003	1.0000	0.0047	0.99827	0.00010	0.99827	0.00469
002-004	1.0000	0.0047	1.00109	0.00010	1.00109	0.00471
002-005	1.0000	0.0047	1.00420	0.00010	1.00420	0.00472
002-006	1.0000	0.0047	1.00036	0.00010	1.00036	0.00470
002-007	1.0000	0.0047	1.00279	0.00010	1.00279	0.00471
003-001	1.0000	0.0047	0.99640	0.00010	0.99640	0.00468
003-002	1.0000	0.0047	0.99617	0.00010	0.99617	0.00468
003-003	1.0000	0.0047	0.99884	0.00010	0.99884	0.00470
003-004	1.0000	0.0047	0.99826	0.00010	0.99826	0.00469
003-005	1.0000	0.0047	0.99967	0.00010	0.99967	0.00470
003-006	1.0000	0.0047	1.00007	0.00010	1.00007	0.00470
003-007	1.0000	0.0047	1.00074	0.00010	1.00074	0.00470
003-008	1.0000	0.0047	0.99959	0.00010	0.99959	0.00470
004-001	1.0000	0.0047	0.99747	0.00010	0.99747	0.00469
004-002	1.0000	0.0047	0.99246	0.00010	0.99246	0.00467
004-003	1.0000	0.0047	0.99461	0.00010	0.99461	0.00468
004-004	1.0000	0.0047	0.99243	0.00010	0.99243	0.00467
004-005	1.0000	0.0047	0.99354	0.00010	0.99354	0.00467
004-006	1.0000	0.0047	0.99537	0.00010	0.99537	0.00468
004-007	1.0000	0.0047	0.99955	0.00010	0.99955	0.00470
004-008	1.0000	0.0047	0.99507	0.00010	0.99507	0.00468
004-009	1.0000	0.0047	0.99455	0.00010	0.99455	0.00468
004-010	1.0000	0.0047	0.99617	0.00010	0.99617	0.00468
004-011	1.0000	0.0047	0.99481	0.00010	0.99481	0.00468
004-012	1.0000	0.0047	0.99683	0.00010	0.99683	0.00469
004-013	1.0000	0.0047	0.99416	0.00010	0.99416	0.00467
005-001	1.0000	0.0047	0.99618	0.00010	0.99618	0.00468
005-002	1.0000	0.0047	0.99684	0.00010	0.99684	0.00469
005-003	1.0000	0.0047	0.99737	0.00010	0.99737	0.00469
005-004	1.0000	0.0047	0.99911	0.00010	0.99911	0.00470
005-005	1.0000	0.0047	1.00041	0.00010	1.00041	0.00470
005-006	1.0000	0.0047	0.99999	0.00010	0.99999	0.00470
005-007	1.0000	0.0047	0.99849	0.00010	0.99849	0.00469
005-008	1.0000	0.0047	0.99347	0.00010	0.99347	0.00467
005-009	1.0000	0.0047	0.99613	0.00010	0.99613	0.00468
006-001	1.0000	0.0035	0.99444	0.00010	0.99444	0.00348
006-002	1.0000	0.0035	0.99575	0.00010	0.99575	0.00349
006-003	1.0000	0.0035	0.99544	0.00010	0.99544	0.00349
007-001	1.0000	0.0047	1.00747	0.00010	1.00747	0.00474
007-002	1.0000	0.0047	1.00175	0.00010	1.00175	0.00471
007-003	1.0000	0.0047	1.00514	0.00010	1.00514	0.00473
007-004	1.0000	0.0047	0.99934	0.00010	0.99934	0.00470
007-005	1.0000	0.0047	1.00109	0.00010	1.00109	0.00471
007-006	1.0000	0.0047	0.99476	0.00010	0.99476	0.00468
007-007	1.0000	0.0047	0.99320	0.00010	0.99320	0.00467
007-008	1.0000	0.0047	0.99669	0.00010	0.99669	0.00469
011-001	1.0000	0.0052	1.00305	0.00010	1.00305	0.00522
011-002	1.0000	0.0052	1.00752	0.00010	1.00752	0.00524
011-003	1.0000	0.0052	1.00957	0.00010	1.00957	0.00525

Table A-39. Detailed ENDF/B-VIII.0 CE results for KENO V.a PST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
011-004	1.0000	0.0052	1.00283	0.00010	1.00283	0.00522
011-005	1.0000	0.0052	0.99987	0.00010	0.99987	0.00520
011-006	1.0000	0.0052	0.98748	0.00010	0.98748	0.00514
011-007	1.0000	0.0052	0.99348	0.00010	0.99348	0.00517
011-008	1.0000	0.0052	0.99012	0.00010	0.99012	0.00515
011-009	1.0000	0.0052	0.98677	0.00010	0.98677	0.00513
011-010	1.0000	0.0052	0.99686	0.00010	0.99686	0.00518
011-011	1.0000	0.0052	0.99349	0.00010	0.99349	0.00517
011-012	1.0000	0.0052	0.99260	0.00010	0.99260	0.00516
020-001	1.0000	0.0059	0.99811	0.00010	0.99811	0.00589
020-002	1.0000	0.0059	1.00053	0.00010	1.00053	0.00590
020-003	1.0000	0.0059	0.99478	0.00010	0.99478	0.00587
020-004	1.0000	0.0059	0.99882	0.00010	0.99882	0.00589
020-005	1.0000	0.0059	0.99926	0.00010	0.99926	0.00590
020-006	1.0000	0.0059	0.99253	0.00010	0.99253	0.00586
020-007	1.0000	0.0059	0.99776	0.00010	0.99776	0.00589
020-008	1.0000	0.0059	0.98880	0.00010	0.98880	0.00583
020-009	1.0000	0.0059	0.99871	0.00010	0.99871	0.00589
020-010	1.0000	0.0059	0.99538	0.00010	0.99538	0.00587
020-011	1.0000	0.0059	0.99731	0.00010	0.99731	0.00588
020-012	1.0000	0.0059	0.99842	0.00010	0.99842	0.00589
020-013	1.0000	0.0059	0.98665	0.00010	0.98665	0.00582
020-014	1.0000	0.0059	0.99092	0.00010	0.99092	0.00585
020-015	1.0000	0.0059	0.99803	0.00010	0.99803	0.00589

Table A-40. Detailed ENDF/B-VII.1 CE results for KENO V.a PST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0050	1.00479	0.00010	1.00479	0.00502
001-002	1.0000	0.0050	1.00691	0.00010	1.00691	0.00504
001-003	1.0000	0.0050	1.00949	0.00010	1.00949	0.00505
001-004	1.0000	0.0050	1.00399	0.00010	1.00399	0.00502
001-005	1.0000	0.0050	1.00776	0.00010	1.00776	0.00504
001-006	1.0000	0.0050	1.00927	0.00010	1.00927	0.00505
002-001	1.0000	0.0047	1.00363	0.00010	1.00363	0.00472
002-002	1.0000	0.0047	1.00455	0.00010	1.00455	0.00472
002-003	1.0000	0.0047	1.00346	0.00010	1.00346	0.00472
002-004	1.0000	0.0047	1.00637	0.00010	1.00637	0.00473
002-005	1.0000	0.0047	1.00905	0.00009	1.00905	0.00474
002-006	1.0000	0.0047	1.00510	0.00010	1.00510	0.00473
002-007	1.0000	0.0047	1.00736	0.00010	1.00736	0.00474
003-001	1.0000	0.0047	1.00246	0.00010	1.00246	0.00471
003-002	1.0000	0.0047	1.00211	0.00010	1.00211	0.00471
003-003	1.0000	0.0047	1.00455	0.00010	1.00455	0.00472
003-004	1.0000	0.0047	1.00393	0.00010	1.00393	0.00472
003-005	1.0000	0.0047	1.00522	0.00010	1.00522	0.00473
003-006	1.0000	0.0047	1.00556	0.00010	1.00556	0.00473
003-007	1.0000	0.0047	1.00642	0.00010	1.00642	0.00473
003-008	1.0000	0.0047	1.00522	0.00010	1.00522	0.00473
004-001	1.0000	0.0047	1.00327	0.00010	1.00327	0.00472
004-002	1.0000	0.0047	0.99830	0.00010	0.99830	0.00469
004-003	1.0000	0.0047	1.00057	0.00010	1.00057	0.00470
004-004	1.0000	0.0047	0.99846	0.00010	0.99846	0.00469
004-005	1.0000	0.0047	0.99952	0.00010	0.99952	0.00470
004-006	1.0000	0.0047	1.00122	0.00010	1.00122	0.00471

Table A-40. Detailed ENDF/B-VII.1 CE results for KENO V.a PST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
004-007	1.0000	0.0047	1.00500	0.00010	1.00500	0.00472
004-008	1.0000	0.0047	1.00080	0.00010	1.00080	0.00470
004-009	1.0000	0.0047	1.00031	0.00009	1.00031	0.00470
004-010	1.0000	0.0047	1.00177	0.00010	1.00177	0.00471
004-011	1.0000	0.0047	1.00019	0.00010	1.00019	0.00470
004-012	1.0000	0.0047	1.00264	0.00010	1.00264	0.00471
004-013	1.0000	0.0047	0.99993	0.00010	0.99993	0.00470
005-001	1.0000	0.0047	1.00180	0.00010	1.00180	0.00471
005-002	1.0000	0.0047	1.00242	0.00010	1.00242	0.00471
005-003	1.0000	0.0047	1.00317	0.00010	1.00317	0.00472
005-004	1.0000	0.0047	1.00478	0.00010	1.00478	0.00472
005-005	1.0000	0.0047	1.00595	0.00010	1.00595	0.00473
005-006	1.0000	0.0047	1.00533	0.00010	1.00533	0.00473
005-007	1.0000	0.0047	1.00410	0.00010	1.00410	0.00472
005-008	1.0000	0.0047	0.99899	0.00010	0.99899	0.00470
005-009	1.0000	0.0047	1.00190	0.00010	1.00190	0.00471
006-001	1.0000	0.0035	1.00021	0.00010	1.00021	0.00350
006-002	1.0000	0.0035	1.00153	0.00010	1.00153	0.00351
006-003	1.0000	0.0035	1.00131	0.00010	1.00131	0.00351
007-001	1.0000	0.0047	1.00972	0.00010	1.00972	0.00475
007-002	1.0000	0.0047	1.00376	0.00010	1.00376	0.00472
007-003	1.0000	0.0047	1.00906	0.00010	1.00906	0.00474
007-004	1.0000	0.0047	1.00307	0.00010	1.00307	0.00472
007-005	1.0000	0.0047	1.00504	0.00010	1.00504	0.00472
007-006	1.0000	0.0047	0.99861	0.00010	0.99861	0.00469
007-007	1.0000	0.0047	0.99708	0.00010	0.99708	0.00469
007-008	1.0000	0.0047	1.00060	0.00010	1.00060	0.00470
011-001	1.0000	0.0052	1.00937	0.00010	1.00937	0.00525
011-002	1.0000	0.0052	1.01430	0.00010	1.01430	0.00528
011-003	1.0000	0.0052	1.01595	0.00010	1.01595	0.00528
011-004	1.0000	0.0052	1.00866	0.00010	1.00866	0.00525
011-005	1.0000	0.0052	1.00584	0.00010	1.00584	0.00523
011-006	1.0000	0.0052	0.99381	0.00010	0.99381	0.00517
011-007	1.0000	0.0052	0.99997	0.00010	0.99997	0.00520
011-008	1.0000	0.0052	0.99633	0.00010	0.99633	0.00518
011-009	1.0000	0.0052	0.99291	0.00010	0.99291	0.00516
011-010	1.0000	0.0052	1.00304	0.00010	1.00304	0.00522
011-011	1.0000	0.0052	0.99968	0.00010	0.99968	0.00520
011-012	1.0000	0.0052	0.99923	0.00010	0.99923	0.00520
020-001	1.0000	0.0059	1.00345	0.00010	1.00345	0.00592
020-002	1.0000	0.0059	1.00582	0.00010	1.00582	0.00594
020-003	1.0000	0.0059	1.00034	0.00010	1.00034	0.00590
020-004	1.0000	0.0059	1.00395	0.00010	1.00395	0.00592
020-005	1.0000	0.0059	1.00444	0.00010	1.00444	0.00593
020-006	1.0000	0.0059	0.99809	0.00010	0.99809	0.00589
020-007	1.0000	0.0059	1.00297	0.00010	1.00297	0.00592
020-008	1.0000	0.0059	0.99433	0.00010	0.99433	0.00587
020-009	1.0000	0.0059	1.00401	0.00010	1.00401	0.00592
020-010	1.0000	0.0059	1.00088	0.00010	1.00088	0.00591
020-011	1.0000	0.0059	1.00264	0.00010	1.00264	0.00592
020-012	1.0000	0.0059	1.00358	0.00010	1.00358	0.00592
020-013	1.0000	0.0059	0.99267	0.00010	0.99267	0.00586
020-014	1.0000	0.0059	0.99605	0.00010	0.99605	0.00588
020-015	1.0000	0.0059	1.00357	0.00010	1.00357	0.00592

Table A-41. Detailed ENDF/B-VIII.0 252-group results for KENO V.a UCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-002	1.0015	0.0025	0.99934	0.00010	0.99785	0.00249
001-003	1.0000	0.0024	1.00027	0.00010	1.00027	0.00240
001-004	1.0015	0.0024	0.99800	0.00010	0.99651	0.00239

Table A-42. Detailed ENDF/B-VII.1 252-group results for KENO V.a UCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-002	1.0015	0.0025	1.00220	0.00010	1.00069	0.00250
001-003	1.0000	0.0024	1.00203	0.00010	1.00203	0.00241
001-004	1.0015	0.0024	1.00076	0.00010	0.99926	0.00240

Table A-43. Detailed ENDF/B-VIII.0 252-group results for KENO V.a UCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-002	1.0015	0.0025	0.99900	0.00010	0.99750	0.00249
001-003	1.0000	0.0024	1.00002	0.00010	1.00002	0.00240
001-004	1.0015	0.0024	0.99851	0.00010	0.99701	0.00239

Table A-44. Detailed ENDF/B-VII.1 252-group results for KENO V.a UCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-002	1.0015	0.0025	1.00230	0.00010	1.00080	0.00250
001-003	1.0000	0.0024	1.00196	0.00010	1.00196	0.00241
001-004	1.0015	0.0024	1.00113	0.00010	0.99963	0.00240

Table A-45. Detailed ENDF/B-VIII.0 252-group results for KENO V.a UMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0010	0.99999	0.00010	0.99999	0.00100
002-001	1.0000	0.0010	0.99977	0.00010	0.99977	0.00100
002-002	1.0000	0.0011	1.00117	0.00010	1.00117	0.00111
003-001	1.0000	0.0010	0.99917	0.00010	0.99917	0.00100
003-002	1.0000	0.0010	0.99943	0.00010	0.99943	0.00100
004-001	1.0000	0.0007	0.99944	0.00010	0.99944	0.00071
004-002	1.0000	0.0008	0.99638	0.00010	0.99638	0.00080
005-001	1.0000	0.0030	0.99699	0.00010	0.99699	0.00299
005-002	1.0000	0.0030	0.99653	0.00010	0.99653	0.00299
006-001	1.0000	0.0014	0.99858	0.00010	0.99858	0.00140

Table A-46. Detailed ENDF/B-VII.1 252-group results for KENO V.a UMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0010	1.00024	0.00010	1.00024	0.00101
002-001	1.0000	0.0010	0.99932	0.00010	0.99932	0.00100
002-002	1.0000	0.0011	1.00071	0.00010	1.00071	0.00111
003-001	1.0000	0.0010	0.99984	0.00010	0.99984	0.00100
003-002	1.0000	0.0010	1.00042	0.00010	1.00042	0.00101
004-001	1.0000	0.0007	0.99910	0.00010	0.99910	0.00071
004-002	1.0000	0.0008	0.99613	0.00010	0.99613	0.00080
005-001	1.0000	0.0030	0.99625	0.00010	0.99625	0.00299
005-002	1.0000	0.0030	0.99539	0.00010	0.99539	0.00299
006-001	1.0000	0.0014	0.99936	0.00010	0.99936	0.00140

Table A-47. Detailed ENDF/B-VIII.0 CE results for KENO V.a UMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0010	0.99991	0.00010	0.99991	0.00100
002-001	1.0000	0.0010	0.99950	0.00010	0.99950	0.00100
002-002	1.0000	0.0011	1.00105	0.00010	1.00105	0.00111
003-001	1.0000	0.0010	0.99901	0.00010	0.99901	0.00100
003-002	1.0000	0.0010	0.99951	0.00010	0.99951	0.00100
004-001	1.0000	0.0007	0.99885	0.00010	0.99885	0.00071
004-002	1.0000	0.0008	0.99580	0.00010	0.99580	0.00080
005-001	1.0000	0.0030	0.99675	0.00010	0.99675	0.00299
005-002	1.0000	0.0030	0.99655	0.00010	0.99655	0.00299
006-001	1.0000	0.0014	0.99905	0.00010	0.99905	0.00140

Table A-48. Detailed ENDF/B-VII.1 CE results for KENO V.a UMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0010	1.00012	0.00010	1.00012	0.00101
002-001	1.0000	0.0010	0.99900	0.00010	0.99900	0.00100
002-002	1.0000	0.0011	1.00053	0.00010	1.00053	0.00111
003-001	1.0000	0.0010	0.99966	0.00010	0.99966	0.00100
003-002	1.0000	0.0010	1.00014	0.00010	1.00014	0.00101
004-001	1.0000	0.0007	0.99882	0.00010	0.99882	0.00071
004-002	1.0000	0.0008	0.99571	0.00010	0.99571	0.00080
005-001	1.0000	0.0030	0.99610	0.00010	0.99610	0.00299
005-002	1.0000	0.0030	0.99510	0.00010	0.99510	0.00299
006-001	1.0000	0.0014	0.99936	0.00010	0.99936	0.00140

Table A-49. Detailed ENDF/B-VIII.0 252-group results for KENO V.a USI systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0083	0.97991	0.00010	0.97991	0.00813
001-002	1.0000	0.0085	0.97595	0.00010	0.97595	0.00830
001-003	1.0000	0.0066	0.97716	0.00010	0.97716	0.00645
001-004	1.0000	0.0061	0.98993	0.00010	0.98993	0.00604
001-005	1.0000	0.0082	0.98094	0.00011	0.98094	0.00804
001-006	1.0000	0.0061	0.98359	0.00011	0.98359	0.00600
001-007	1.0000	0.0059	0.97829	0.00010	0.97829	0.00577
001-008	1.0000	0.0056	0.97879	0.00011	0.97879	0.00548
001-009	1.0000	0.0068	0.97770	0.00011	0.97770	0.00665
001-010	1.0000	0.0053	0.97559	0.00012	0.97559	0.00517
001-011	1.0000	0.0057	0.97822	0.00012	0.97822	0.00558
001-012	1.0000	0.0091	0.97610	0.00011	0.97610	0.00888
001-013	1.0000	0.0071	0.97725	0.00011	0.97725	0.00694
001-015	1.0000	0.0075	0.97554	0.00011	0.97554	0.00732
001-017	1.0000	0.0055	0.98599	0.00010	0.98599	0.00542
001-018	1.0000	0.0057	0.97432	0.00011	0.97432	0.00555
001-019	1.0000	0.0083	0.97151	0.00011	0.97151	0.00806
001-020	1.0000	0.0056	0.97756	0.00011	0.97756	0.00548
001-021	1.0000	0.0050	0.96946	0.00011	0.96946	0.00485
001-022	1.0000	0.0049	0.97496	0.00012	0.97496	0.00478
001-023	1.0000	0.0047	0.98798	0.00011	0.98798	0.00464
001-024	1.0000	0.0081	0.98678	0.00011	0.98678	0.00799
001-025	1.0000	0.0081	0.98016	0.00011	0.98016	0.00794
001-026	1.0000	0.0065	0.98415	0.00011	0.98415	0.00640
001-028	1.0000	0.0061	0.97884	0.00011	0.97884	0.00597
001-029	1.0000	0.0098	0.97303	0.00011	0.97303	0.00954
001-031	1.0000	0.0071	0.98704	0.00011	0.98704	0.00701
001-032	1.0000	0.0053	0.97202	0.00011	0.97202	0.00515
001-033	1.0000	0.0046	0.99130	0.00011	0.99130	0.00456

Table A-50. Detailed ENDF/B-VII.1 252-group results for KENO V.a USI systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0083	0.98505	0.00010	0.98505	0.00818
001-002	1.0000	0.0085	0.98003	0.00010	0.98003	0.00833
001-003	1.0000	0.0066	0.98064	0.00011	0.98064	0.00647
001-004	1.0000	0.0061	0.99142	0.00010	0.99142	0.00605
001-005	1.0000	0.0082	0.98376	0.00011	0.98376	0.00807
001-006	1.0000	0.0061	0.98465	0.00011	0.98465	0.00601
001-007	1.0000	0.0059	0.98103	0.00010	0.98103	0.00579
001-008	1.0000	0.0056	0.97966	0.00011	0.97966	0.00549
001-009	1.0000	0.0068	0.97875	0.00011	0.97875	0.00666
001-010	1.0000	0.0053	0.97746	0.00011	0.97746	0.00518
001-011	1.0000	0.0057	0.97922	0.00011	0.97922	0.00558
001-012	1.0000	0.0091	0.98130	0.00011	0.98130	0.00893
001-013	1.0000	0.0071	0.98174	0.00011	0.98174	0.00697
001-015	1.0000	0.0075	0.97950	0.00011	0.97950	0.00735
001-017	1.0000	0.0055	0.98801	0.00011	0.98801	0.00544
001-018	1.0000	0.0057	0.97762	0.00011	0.97762	0.00557
001-019	1.0000	0.0083	0.97422	0.00011	0.97422	0.00809
001-020	1.0000	0.0056	0.97897	0.00011	0.97897	0.00548
001-021	1.0000	0.0050	0.97188	0.00011	0.97188	0.00486
001-022	1.0000	0.0049	0.97692	0.00012	0.97692	0.00479
001-023	1.0000	0.0047	0.98881	0.00012	0.98881	0.00465
001-024	1.0000	0.0081	0.99229	0.00011	0.99229	0.00804
001-025	1.0000	0.0081	0.98480	0.00011	0.98480	0.00798
001-026	1.0000	0.0065	0.98845	0.00011	0.98845	0.00643
001-028	1.0000	0.0061	0.98264	0.00011	0.98264	0.00600
001-029	1.0000	0.0098	0.97654	0.00011	0.97654	0.00957
001-031	1.0000	0.0071	0.98971	0.00011	0.98971	0.00703
001-032	1.0000	0.0053	0.97455	0.00011	0.97455	0.00517
001-033	1.0000	0.0046	0.99243	0.00011	0.99243	0.00457

Table A-51. Detailed ENDF/B-VIII.0 CE results for KENO V.a USI systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0083	0.97996	0.00010	0.97996	0.00813
001-002	1.0000	0.0085	0.97584	0.00010	0.97584	0.00830
001-003	1.0000	0.0066	0.97716	0.00010	0.97716	0.00645
001-004	1.0000	0.0061	0.98984	0.00010	0.98984	0.00604
001-005	1.0000	0.0082	0.98104	0.00010	0.98104	0.00805
001-006	1.0000	0.0061	0.98367	0.00011	0.98367	0.00600
001-007	1.0000	0.0059	0.97858	0.00010	0.97858	0.00577
001-008	1.0000	0.0056	0.97890	0.00011	0.97890	0.00548
001-009	1.0000	0.0068	0.97780	0.00011	0.97780	0.00665
001-010	1.0000	0.0053	0.97569	0.00011	0.97569	0.00517
001-011	1.0000	0.0057	0.97847	0.00011	0.97847	0.00558
001-012	1.0000	0.0091	0.97602	0.00011	0.97602	0.00888
001-013	1.0000	0.0071	0.97747	0.00010	0.97747	0.00694
001-015	1.0000	0.0075	0.97570	0.00010	0.97570	0.00732
001-017	1.0000	0.0055	0.98615	0.00010	0.98615	0.00542
001-018	1.0000	0.0057	0.97443	0.00010	0.97443	0.00556
001-019	1.0000	0.0083	0.97166	0.00011	0.97166	0.00807
001-020	1.0000	0.0056	0.97795	0.00011	0.97795	0.00548
001-021	1.0000	0.0050	0.96967	0.00011	0.96967	0.00485
001-022	1.0000	0.0049	0.97513	0.00011	0.97513	0.00478
001-023	1.0000	0.0047	0.98804	0.00011	0.98804	0.00465
001-024	1.0000	0.0081	0.98687	0.00010	0.98687	0.00799
001-025	1.0000	0.0081	0.98029	0.00010	0.98029	0.00794
001-026	1.0000	0.0065	0.98429	0.00011	0.98429	0.00640
001-028	1.0000	0.0061	0.97907	0.00011	0.97907	0.00597
001-029	1.0000	0.0098	0.97342	0.00011	0.97342	0.00954
001-031	1.0000	0.0071	0.98719	0.00011	0.98719	0.00701
001-032	1.0000	0.0053	0.97218	0.00011	0.97218	0.00515
001-033	1.0000	0.0046	0.99164	0.00011	0.99164	0.00456

Table A-52. Detailed ENDF/B-VII.1 CE results for KENO V.a USI systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0083	0.98489	0.00010	0.98489	0.00818
001-002	1.0000	0.0085	0.98025	0.00010	0.98025	0.00833
001-003	1.0000	0.0066	0.98124	0.00010	0.98124	0.00648
001-004	1.0000	0.0061	0.99202	0.00010	0.99202	0.00605
001-005	1.0000	0.0082	0.98421	0.00011	0.98421	0.00807
001-006	1.0000	0.0061	0.98538	0.00010	0.98538	0.00601
001-007	1.0000	0.0059	0.98182	0.00010	0.98182	0.00579
001-008	1.0000	0.0056	0.98027	0.00010	0.98027	0.00549
001-009	1.0000	0.0068	0.97950	0.00011	0.97950	0.00666
001-010	1.0000	0.0053	0.97841	0.00011	0.97841	0.00519
001-011	1.0000	0.0057	0.98015	0.00011	0.98015	0.00559
001-012	1.0000	0.0091	0.98115	0.00011	0.98115	0.00893
001-013	1.0000	0.0071	0.98196	0.00011	0.98196	0.00697
001-015	1.0000	0.0075	0.97990	0.00011	0.97990	0.00735
001-017	1.0000	0.0055	0.98865	0.00010	0.98865	0.00544
001-018	1.0000	0.0057	0.97849	0.00010	0.97849	0.00558
001-019	1.0000	0.0083	0.97506	0.00011	0.97506	0.00809
001-020	1.0000	0.0056	0.97947	0.00011	0.97947	0.00549
001-021	1.0000	0.0050	0.97268	0.00011	0.97268	0.00486
001-022	1.0000	0.0049	0.97786	0.00011	0.97786	0.00479
001-023	1.0000	0.0047	0.98977	0.00011	0.98977	0.00465
001-024	1.0000	0.0081	0.99232	0.00011	0.99232	0.00804
001-025	1.0000	0.0081	0.98525	0.00010	0.98525	0.00798
001-026	1.0000	0.0065	0.98880	0.00011	0.98880	0.00643
001-028	1.0000	0.0061	0.98327	0.00011	0.98327	0.00600

Table A-52. Detailed ENDF/B-VII.1 CE results for KENO V.a USI systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-029	1.0000	0.0098	0.97715	0.00011	0.97715	0.00958
001-031	1.0000	0.0071	0.99058	0.00011	0.99058	0.00703
001-032	1.0000	0.0053	0.97554	0.00011	0.97554	0.00517
001-033	1.0000	0.0046	0.99359	0.00011	0.99359	0.00457

Table A-53. Detailed ENDF/B-VIII.0 252-group results for KENO V.a USM systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-014	1.0000	0.0052	0.98710	0.00011	0.98710	0.00513
001-016	1.0000	0.0028	0.97081	0.00011	0.97081	0.00272
001-030	1.0000	0.0053	0.97556	0.00011	0.97556	0.00517
002-003	1.0000	0.0068	0.98136	0.00011	0.98136	0.00667
002-005	1.0000	0.0055	0.98138	0.00011	0.98138	0.00540
002-006	1.0000	0.0099	0.97228	0.00011	0.97228	0.00963
002-008	1.0000	0.0067	0.96902	0.00011	0.96902	0.00649
002-009	1.0000	0.0050	0.96474	0.00010	0.96474	0.00482

Table 19. Detailed ENDF/B-VII.1 252-group results for KENO V.a USM systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-014	1.0000	0.0052	0.98927	0.00011	0.98927	0.00515
001-016	1.0000	0.0028	0.97394	0.00010	0.97394	0.00273
001-030	1.0000	0.0053	0.97663	0.00011	0.97663	0.00518
002-003	1.0000	0.0068	0.98613	0.00011	0.98613	0.00671
002-005	1.0000	0.0055	0.98547	0.00011	0.98547	0.00542
002-006	1.0000	0.0099	0.97561	0.00011	0.97561	0.00966
002-008	1.0000	0.0067	0.97197	0.00011	0.97197	0.00651
002-009	1.0000	0.0050	0.96735	0.00010	0.96735	0.00484

Table A-55. Detailed ENDF/B-VIII.0 CE results for KENO V.a USM systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-014	1.0000	0.0052	0.98687	0.00010	0.98687	0.00513
001-016	1.0000	0.0028	0.97058	0.00010	0.97058	0.00272
001-030	1.0000	0.0053	0.97598	0.00011	0.97598	0.00517
002-003	1.0000	0.0068	0.98155	0.00011	0.98155	0.00668
002-005	1.0000	0.0055	0.98167	0.00011	0.98167	0.00540
002-006	1.0000	0.0099	0.97230	0.00011	0.97230	0.00963
002-008	1.0000	0.0067	0.96933	0.00011	0.96933	0.00650
002-009	1.0000	0.0050	0.96540	0.00010	0.96540	0.00483

Table A-56. Detailed ENDF/B-VII.1 CE results for KENO V.a USM systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-014	1.0000	0.0052	0.98966	0.00010	0.98966	0.00515
001-016	1.0000	0.0028	0.97426	0.00010	0.97426	0.00273
001-030	1.0000	0.0053	0.97769	0.00011	0.97769	0.00518
002-003	1.0000	0.0068	0.98656	0.00011	0.98656	0.00671
002-005	1.0000	0.0055	0.98605	0.00011	0.98605	0.00542
002-006	1.0000	0.0099	0.97650	0.00011	0.97650	0.00967
002-008	1.0000	0.0067	0.97289	0.00011	0.97289	0.00652
002-009	1.0000	0.0050	0.96847	0.00010	0.96847	0.00484

Table A-57. Detailed ENDF/B-VIII.0 252-group results for KENO V.a UST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0031	0.99870	0.00010	0.99870	0.00310
001-002	1.0005	0.0033	0.99879	0.00010	0.99829	0.00329
001-003	1.0006	0.0033	0.99820	0.00010	0.99760	0.00329
001-004	0.9998	0.0033	0.99816	0.00010	0.99836	0.00330
001-005	0.9999	0.0033	0.99777	0.00010	0.99787	0.00329
002-001	1.0040	0.0087	1.00263	0.00011	0.99864	0.00865
002-002	1.0040	0.0087	0.99090	0.00011	0.98695	0.00855
002-003	1.0040	0.0087	1.00697	0.00011	1.00296	0.00869
002-004	1.0040	0.0087	1.00418	0.00011	1.00018	0.00867
002-005	1.0040	0.0087	1.00918	0.00010	1.00516	0.00871
002-006	1.0040	0.0087	0.99590	0.00010	0.99193	0.00860
002-007	1.0040	0.0087	0.98572	0.00010	0.98179	0.00851
002-008	1.0040	0.0087	0.99963	0.00010	0.99565	0.00863
002-009	1.0040	0.0087	0.98836	0.00010	0.98443	0.00853
002-010	1.0040	0.0087	1.00145	0.00010	0.99746	0.00864
002-011	1.0040	0.0087	1.01003	0.00010	1.00600	0.00872
002-012	1.0040	0.0087	0.98885	0.00011	0.98491	0.00854
002-013	1.0040	0.0087	0.98845	0.00011	0.98451	0.00853
002-014	1.0040	0.0087	0.99838	0.00010	0.99440	0.00862
002-015	1.0040	0.0087	1.00572	0.00010	1.00171	0.00868
002-017	1.0040	0.00870	1.00841	0.00010	1.00439	0.00870
003-001	0.9995	0.00871	0.99799	0.00011	0.99849	0.00870
003-002	0.9991	0.01513	1.01390	0.00011	1.01481	0.01537
003-003	1.0007	0.00871	0.99559	0.00011	0.99489	0.00866
003-004	1.0015	0.01258	1.00022	0.00011	0.99872	0.01255
003-005	1.0006	0.01222	1.00686	0.00011	1.00626	0.01229
003-006	1.0012	0.00871	1.01947	0.00011	1.01825	0.00886
003-007	1.0016	0.00871	1.01319	0.00010	1.01157	0.00880
003-008	1.0016	0.00871	1.00949	0.00010	1.00788	0.00877
003-009	1.0018	0.00871	1.00956	0.00010	1.00775	0.00876
003-010	1.0008	0.00871	1.00645	0.00010	1.00564	0.00875
004-001	1.0039	0.0088	0.99960	0.00010	0.99572	0.00873
004-002	1.0034	0.0086	1.00282	0.00011	0.99942	0.00857
004-003	1.0041	0.0089	0.99186	0.00011	0.98781	0.00876
004-004	1.0051	0.0089	0.98264	0.00011	0.97765	0.00866
004-005	1.0037	0.0090	0.98832	0.00011	0.98468	0.00883
004-006	1.0020	0.0105	0.99941	0.00011	0.99742	0.01045
004-007	1.0020	0.0104	0.99639	0.00011	0.99440	0.01032
004-008	1.0020	0.0102	1.00382	0.00011	1.00182	0.01020
005-001	1.0000	0.0040	0.99842	0.00011	0.99842	0.00400
005-002	1.0000	0.0049	1.00165	0.00010	1.00165	0.00491
008-001	1.0006	0.0029	0.99926	0.00010	0.99866	0.00290
009-001	0.9966	0.0044	0.99367	0.00010	0.99706	0.00440
009-002	0.9981	0.0040	0.99697	0.00010	0.99887	0.00400
009-003	0.9989	0.0038	0.99843	0.00010	0.99953	0.00380
009-004	0.9998	0.0038	0.99733	0.00010	0.99753	0.00379
011-027	1.0000	0.0051	0.98773	0.00011	0.98773	0.00504
012-001	0.9990	0.0028	0.99655	0.00010	0.99755	0.00280
012-002	0.9993	0.0025	0.99656	0.00010	0.99726	0.00250
012-003	0.9994	0.0023	1.00640	0.00010	1.00700	0.00232
012-004	1.0000	0.0015	0.99936	0.00010	0.99936	0.00150
012-005	1.0000	0.0071	1.00122	0.00010	1.00122	0.00711
012-006	0.9987	0.0011	1.00092	0.00010	1.00222	0.00111
012-007	1.0000	0.0038	0.99813	0.00010	0.99813	0.00379
012-008	1.0000	0.0048	0.99515	0.00010	0.99515	0.00478
013-001	0.9992	0.0073	1.00015	0.00012	1.00095	0.00731
013-002	0.9992	0.0070	1.00002	0.00012	1.00082	0.00701

Table A-57. Detailed ENDF/B-VIII.0 252-group results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
013-003	0.9992	0.0069	1.00052	0.00012	1.00132	0.00692
013-004	0.9992	0.0073	1.00069	0.00012	1.00149	0.00732
013-005	0.9992	0.0067	1.00157	0.00012	1.00237	0.00672
013-006	0.9992	0.0050	1.00124	0.00011	1.00204	0.00502
013-007	0.9992	0.0054	1.00093	0.00011	1.00173	0.00541
013-008	0.9992	0.0050	1.00180	0.00011	1.00260	0.00502
013-009	0.9992	0.0045	1.00206	0.00012	1.00286	0.00452
013-010	0.9992	0.0046	1.00217	0.00010	1.00297	0.00462
013-011	0.9992	0.0054	1.00011	0.00010	1.00091	0.00541
013-012	0.9992	0.0050	1.00081	0.00012	1.00161	0.00501
013-013	0.9992	0.0062	0.99842	0.00010	0.99922	0.00620
013-014	0.9992	0.0051	1.00140	0.00012	1.00220	0.00512
013-015	0.9992	0.0077	1.01648	0.00011	1.01729	0.00784
013-016	0.9992	0.0069	0.98838	0.00011	0.98917	0.00683
013-017	0.9992	0.0052	0.99125	0.00010	0.99204	0.00516
013-018	0.9992	0.0020	0.99536	0.00010	0.99616	0.00200
013-019	0.9992	0.0089	0.99138	0.00011	0.99217	0.00884
013-020	0.9992	0.0056	0.99386	0.00011	0.99466	0.00558
013-021	0.9992	0.0034	0.99752	0.00010	0.99832	0.00340
015-001	1.0000	0.0075	0.98445	0.00011	0.98445	0.00738
015-002	1.0000	0.0070	0.98018	0.00011	0.98018	0.00686
015-004	1.0000	0.0041	0.98619	0.00010	0.98619	0.00404
015-007	1.0000	0.0070	0.98437	0.00010	0.98437	0.00689
015-010	1.0000	0.0051	0.98745	0.00010	0.98745	0.00504
015-011	1.0000	0.0075	0.98760	0.00011	0.98760	0.00741
015-012	1.0000	0.0069	0.98840	0.00011	0.98840	0.00682
015-013	1.0000	0.0069	0.98676	0.00011	0.98676	0.00681
015-014	1.0000	0.0036	0.99334	0.00010	0.99334	0.00358
015-015	1.0000	0.0060	0.98467	0.00011	0.98467	0.00591
015-016	1.0000	0.0043	0.98391	0.00011	0.98391	0.00423
015-017	1.0000	0.0029	0.99422	0.00010	0.99422	0.00288
015-018	1.0000	0.0056	0.97044	0.00012	0.97044	0.00544
015-019	1.0000	0.0052	0.97074	0.00011	0.97074	0.00505
015-020	1.0000	0.0079	0.98980	0.00010	0.98980	0.00782
015-021	1.0000	0.0070	0.99288	0.00010	0.99288	0.00695
015-022	1.0000	0.0062	0.99107	0.00011	0.99107	0.00615
015-023	1.0000	0.0055	0.98933	0.00011	0.98933	0.00544
015-024	1.0000	0.0051	0.98597	0.00011	0.98597	0.00503
015-025	1.0000	0.0023	0.99328	0.00010	0.99328	0.00229
015-026	1.0000	0.0066	0.98953	0.00010	0.98953	0.00653
015-027	1.0000	0.0063	0.99437	0.00011	0.99437	0.00627
015-028	1.0000	0.0058	0.99231	0.00010	0.99231	0.00576
015-029	1.0000	0.0051	0.99108	0.00010	0.99108	0.00506
015-030	1.0000	0.0048	0.99023	0.00010	0.99023	0.00475
015-031	1.0000	0.0055	0.98959	0.00011	0.98959	0.00544
016-001	0.9987	0.0037	0.99889	0.00011	1.00019	0.00371
016-002	0.9983	0.0044	1.00001	0.00010	1.00171	0.00442
016-003	0.9992	0.0036	0.99952	0.00012	1.00032	0.00361
016-004	0.9992	0.0035	1.00096	0.00012	1.00176	0.00351
016-006	0.9993	0.0034	0.99105	0.00012	0.99174	0.00338
016-007	1.0008	0.0034	0.99201	0.00012	0.99122	0.00337
016-008	1.0011	0.0028	0.99147	0.00010	0.99038	0.00277
016-009	1.0000	0.0027	0.99144	0.00012	0.99144	0.00268
016-010	1.0000	0.0030	0.99953	0.00010	0.99953	0.00300
016-011	0.9992	0.0041	0.99937	0.00012	1.00017	0.00411
016-012	0.9992	0.0047	0.99948	0.00012	1.00028	0.00471
016-013	0.9993	0.0036	0.99995	0.00012	1.00065	0.00361
016-014	1.0000	0.0026	1.00062	0.00012	1.00062	0.00260

Table A-57. Detailed ENDF/B-VIII.0 252-group results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
016-015	1.0000	0.0027	1.00158	0.00012	1.00158	0.00271
016-016	0.9994	0.0031	1.00454	0.00012	1.00514	0.00312
016-017	1.0000	0.0028	0.99038	0.00012	0.99038	0.00278
016-018	0.9988	0.0036	0.99038	0.00012	0.99157	0.00358
016-019	1.0000	0.0035	0.99027	0.00012	0.99027	0.00347
016-021	1.0000	0.0028	1.00424	0.00012	1.00424	0.00281
016-022	1.0000	0.0034	1.00431	0.00011	1.00431	0.00342
016-023	1.0000	0.0031	1.00428	0.00012	1.00428	0.00312
016-024	1.0012	0.0024	1.00484	0.00011	1.00364	0.00241
016-025	0.9981	0.0040	0.99493	0.00010	0.99682	0.00400
016-026	0.9980	0.0034	1.00034	0.00011	1.00234	0.00342
016-027	0.9988	0.0037	0.99817	0.00011	0.99937	0.00370
016-028	0.9986	0.0037	0.99332	0.00012	0.99471	0.00369
016-029	0.9985	0.0031	0.99434	0.00011	0.99583	0.00309
016-030	0.9993	0.0032	0.99382	0.00012	0.99452	0.00319
016-031	0.9990	0.0034	1.00501	0.00010	1.00601	0.00343
016-032	0.9985	0.0032	1.00706	0.00010	1.00857	0.00323
016-033	0.9986	0.0039	1.00707	0.00010	1.00848	0.00394
017-001	0.9997	0.0032	1.00151	0.00011	1.00181	0.00321
017-002	1.0000	0.0025	0.99719	0.00011	0.99719	0.00250
017-003	1.0001	0.0035	1.00217	0.00011	1.00207	0.00351
017-004	0.9994	0.0040	1.00211	0.00011	1.00271	0.00401
017-005	1.0000	0.0029	0.99917	0.00010	0.99917	0.00290
017-006	1.0000	0.0029	0.99714	0.00010	0.99714	0.00289
017-007	1.0000	0.0037	0.99654	0.00010	0.99654	0.00369

Table A-58. Detailed ENDF/B-VII.1 252-group results for KENO V.a UST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0031	1.00023	0.00010	1.00023	0.00310
001-002	1.0005	0.0033	1.00035	0.00010	0.99985	0.00330
001-003	1.0006	0.0033	0.99986	0.00010	0.99926	0.00330
001-004	0.9998	0.0033	0.99964	0.00010	0.99984	0.00330
001-005	0.9999	0.0033	0.99922	0.00010	0.99932	0.00330
002-001	1.0040	0.0087	1.00474	0.00011	1.00074	0.00867
002-002	1.0040	0.0087	0.99281	0.00011	0.98885	0.00857
002-003	1.0040	0.0087	1.00832	0.00011	1.00430	0.00870
002-004	1.0040	0.0087	1.00522	0.00011	1.00122	0.00868
002-005	1.0040	0.0087	1.01012	0.00011	1.00610	0.00872
002-006	1.0040	0.0087	0.99658	0.00010	0.99261	0.00860
002-007	1.0040	0.0087	0.98624	0.00010	0.98231	0.00851
002-008	1.0040	0.0087	1.00019	0.00010	0.99621	0.00863
002-009	1.0040	0.0087	0.98877	0.00010	0.98483	0.00853
002-010	1.0040	0.0087	1.00185	0.00010	0.99786	0.00865
002-011	1.0040	0.0087	1.01066	0.00010	1.00663	0.00872
002-012	1.0040	0.0087	0.99147	0.00011	0.98752	0.00856
002-013	1.0040	0.0087	0.99159	0.00011	0.98764	0.00856
002-014	1.0040	0.0087	1.00030	0.00011	0.99631	0.00863
002-015	1.0040	0.0087	1.00695	0.00010	1.00294	0.00869
002-017	1.0040	0.00870	1.00884	0.00010	1.00482	0.00871
003-001	0.9995	0.00871	1.00100	0.00011	1.00150	0.00873
003-002	0.9991	0.01513	1.01580	0.00011	1.01672	0.01540
003-003	1.0007	0.00871	0.99835	0.00011	0.99765	0.00868
003-004	1.0015	0.01258	1.00267	0.00011	1.00117	0.01258
003-005	1.0006	0.01222	1.00909	0.00011	1.00848	0.01232
003-006	1.0012	0.00871	1.02105	0.00011	1.01983	0.00887

Table A-58. Detailed ENDF/B-VII.1 252-group results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
003-007	1.0016	0.00871	1.01422	0.00010	1.01260	0.00881
003-008	1.0016	0.00871	1.01020	0.00010	1.00859	0.00877
003-009	1.0018	0.00871	1.01034	0.00010	1.00852	0.00877
003-010	1.0008	0.00871	1.00682	0.00010	1.00602	0.00876
004-001	1.0039	0.0088	1.00177	0.00010	0.99787	0.00875
004-002	1.0034	0.0086	1.00476	0.00011	1.00136	0.00858
004-003	1.0041	0.0089	0.99514	0.00011	0.99108	0.00879
004-004	1.0051	0.0089	0.98592	0.00011	0.98092	0.00869
004-005	1.0037	0.0090	0.99148	0.00012	0.98783	0.00886
004-006	1.0020	0.0105	1.00243	0.00011	1.00043	0.01048
004-007	1.0020	0.0104	0.99937	0.00011	0.99738	0.01035
004-008	1.0020	0.0102	1.00563	0.00011	1.00362	0.01022
005-001	1.0000	0.0040	0.99989	0.00010	0.99989	0.00400
005-002	1.0000	0.0049	1.00295	0.00010	1.00295	0.00492
008-001	1.0006	0.0029	1.00095	0.00010	1.00035	0.00290
009-001	0.9966	0.0044	0.99557	0.00010	0.99897	0.00441
009-002	0.9981	0.0040	0.99850	0.00010	1.00040	0.00401
009-003	0.9989	0.0038	1.00024	0.00010	1.00134	0.00381
009-004	0.9998	0.0038	0.99907	0.00010	0.99927	0.00380
011-027	1.0000	0.0051	0.98960	0.00011	0.98960	0.00505
012-001	0.9990	0.0028	0.99771	0.00010	0.99871	0.00280
012-002	0.9993	0.0025	0.99768	0.00010	0.99838	0.00250
012-003	0.9994	0.0023	1.00779	0.00010	1.00839	0.00232
012-004	1.0000	0.0015	1.00084	0.00010	1.00084	0.00150
012-005	1.0000	0.0071	1.00251	0.00010	1.00251	0.00712
012-006	0.9987	0.0011	1.00217	0.00010	1.00348	0.00111
012-007	1.0000	0.0038	0.99971	0.00010	0.99971	0.00380
012-008	1.0000	0.0048	0.99693	0.00010	0.99693	0.00479
013-001	0.9992	0.0073	1.00220	0.00012	1.00300	0.00733
013-002	0.9992	0.0070	1.00240	0.00012	1.00320	0.00703
013-003	0.9992	0.0069	1.00275	0.00012	1.00355	0.00693
013-004	0.9992	0.0073	1.00294	0.00012	1.00374	0.00733
013-005	0.9992	0.0067	1.00347	0.00012	1.00427	0.00674
013-006	0.9992	0.0050	1.00323	0.00012	1.00403	0.00503
013-007	0.9992	0.0054	1.00321	0.00012	1.00401	0.00543
013-008	0.9992	0.0050	1.00382	0.00012	1.00462	0.00503
013-009	0.9992	0.0045	1.00418	0.00012	1.00498	0.00453
013-010	0.9992	0.0046	1.00464	0.00010	1.00544	0.00463
013-011	0.9992	0.0054	1.00211	0.00010	1.00291	0.00542
013-012	0.9992	0.0050	1.00293	0.00012	1.00373	0.00502
013-013	0.9992	0.0062	1.00068	0.00010	1.00148	0.00621
013-014	0.9992	0.0051	1.00352	0.00012	1.00432	0.00513
013-015	0.9992	0.0077	1.01846	0.00011	1.01928	0.00786
013-016	0.9992	0.0069	0.99088	0.00011	0.99167	0.00685
013-017	0.9992	0.0052	0.99326	0.00010	0.99405	0.00517
013-018	0.9992	0.0020	0.99772	0.00010	0.99852	0.00200
013-019	0.9992	0.0089	0.99359	0.00011	0.99439	0.00886
013-020	0.9992	0.0056	0.99588	0.00010	0.99668	0.00559
013-021	0.9992	0.0034	0.99960	0.00010	1.00040	0.00341
015-001	1.0000	0.0075	0.99010	0.00011	0.99010	0.00743
015-002	1.0000	0.0070	0.98526	0.00011	0.98526	0.00690
015-004	1.0000	0.0041	0.98818	0.00010	0.98818	0.00405
015-007	1.0000	0.0070	0.98550	0.00010	0.98550	0.00690
015-010	1.0000	0.0051	0.98846	0.00010	0.98846	0.00504
015-011	1.0000	0.0075	0.99312	0.00011	0.99312	0.00745
015-012	1.0000	0.0069	0.99356	0.00011	0.99356	0.00686
015-013	1.0000	0.0069	0.99114	0.00011	0.99114	0.00684
015-014	1.0000	0.0036	0.99566	0.00010	0.99566	0.00359

Table A-58. Detailed ENDF/B-VII.1 252-group results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
015-015	1.0000	0.0060	0.98876	0.00011	0.98876	0.00593
015-016	1.0000	0.0043	0.98762	0.00011	0.98762	0.00425
015-017	1.0000	0.0029	0.99545	0.00010	0.99545	0.00289
015-018	1.0000	0.0056	0.97314	0.00011	0.97314	0.00545
015-019	1.0000	0.0052	0.97323	0.00011	0.97323	0.00506
015-020	1.0000	0.0079	0.99523	0.00010	0.99523	0.00786
015-021	1.0000	0.0070	0.99776	0.00011	0.99776	0.00699
015-022	1.0000	0.0062	0.99560	0.00011	0.99560	0.00617
015-023	1.0000	0.0055	0.99317	0.00011	0.99317	0.00546
015-024	1.0000	0.0051	0.98984	0.00011	0.98984	0.00505
015-025	1.0000	0.0023	0.99480	0.00010	0.99480	0.00229
015-026	1.0000	0.0066	0.99392	0.00010	0.99392	0.00656
015-027	1.0000	0.0063	0.99805	0.00010	0.99805	0.00629
015-028	1.0000	0.0058	0.99623	0.00010	0.99623	0.00578
015-029	1.0000	0.0051	0.99445	0.00010	0.99445	0.00507
015-030	1.0000	0.0048	0.99330	0.00010	0.99330	0.00477
015-031	1.0000	0.0055	0.99236	0.00011	0.99236	0.00546
016-001	0.9987	0.0037	1.00099	0.00012	1.00229	0.00372
016-002	0.9983	0.0044	1.00192	0.00010	1.00363	0.00442
016-003	0.9992	0.0036	1.00149	0.00012	1.00229	0.00361
016-004	0.9992	0.0035	1.00318	0.00012	1.00398	0.00352
016-006	0.9993	0.0034	0.99321	0.00012	0.99391	0.00338
016-007	1.0008	0.0034	0.99409	0.00012	0.99330	0.00338
016-008	1.0011	0.0028	0.99344	0.00010	0.99235	0.00278
016-009	1.0000	0.0027	0.99351	0.00012	0.99351	0.00269
016-010	1.0000	0.0030	1.00153	0.00010	1.00153	0.00301
016-011	0.9992	0.0041	1.00167	0.00012	1.00247	0.00412
016-012	0.9992	0.0047	1.00164	0.00012	1.00244	0.00472
016-013	0.9993	0.0036	1.00194	0.00012	1.00264	0.00361
016-014	1.0000	0.0026	1.00260	0.00012	1.00260	0.00261
016-015	1.0000	0.0027	1.00358	0.00012	1.00358	0.00271
016-016	0.9994	0.0031	1.00647	0.00012	1.00707	0.00313
016-017	1.0000	0.0028	0.99234	0.00012	0.99234	0.00278
016-018	0.9988	0.0036	0.99264	0.00012	0.99383	0.00358
016-019	1.0000	0.0035	0.99237	0.00012	0.99237	0.00348
016-021	1.0000	0.0028	1.00634	0.00012	1.00634	0.00282
016-022	1.0000	0.0034	1.00650	0.00012	1.00650	0.00342
016-023	1.0000	0.0031	1.00664	0.00012	1.00664	0.00312
016-024	1.0012	0.0024	1.00705	0.00012	1.00584	0.00241
016-025	0.9981	0.0040	0.99704	0.00010	0.99894	0.00400
016-026	0.9980	0.0034	1.00243	0.00011	1.00444	0.00342
016-027	0.9988	0.0037	1.00006	0.00011	1.00126	0.00371
016-028	0.9986	0.0037	0.99578	0.00011	0.99718	0.00370
016-029	0.9985	0.0031	0.99630	0.00011	0.99780	0.00310
016-030	0.9993	0.0032	0.99602	0.00011	0.99672	0.00319
016-031	0.9990	0.0034	1.00712	0.00010	1.00813	0.00343
016-032	0.9985	0.0032	1.00902	0.00010	1.01054	0.00324
016-033	0.9986	0.0039	1.00928	0.00010	1.01069	0.00395
017-001	0.9997	0.0032	1.00271	0.00010	1.00301	0.00321
017-002	1.0000	0.0025	0.99881	0.00011	0.99881	0.00250
017-003	1.0001	0.0035	1.00341	0.00010	1.00331	0.00351
017-004	0.9994	0.0040	1.00376	0.00011	1.00436	0.00402
017-005	1.0000	0.0029	1.00059	0.00010	1.00059	0.00290
017-006	1.0000	0.0029	0.99841	0.00010	0.99841	0.00290
017-007	1.0000	0.0037	0.99810	0.00010	0.99810	0.00369

Table A-59. Detailed ENDF/B-VIII.0 CE results for KENO V.a UST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0031	0.99942	0.00010	0.99942	0.00310
001-002	1.0005	0.0033	0.99946	0.00010	0.99896	0.00330
001-003	1.0006	0.0033	0.99914	0.00010	0.99854	0.00329
001-004	0.9998	0.0033	0.99900	0.00010	0.99920	0.00330
001-005	0.9999	0.0033	0.99850	0.00010	0.99859	0.00330
002-001	1.0040	0.0087	1.00276	0.00010	0.99876	0.00866
002-002	1.0040	0.0087	0.99131	0.00010	0.98736	0.00856
002-003	1.0040	0.0087	1.00745	0.00010	1.00344	0.00870
002-004	1.0040	0.0087	1.00471	0.00010	1.00071	0.00867
002-005	1.0040	0.0087	1.00980	0.00010	1.00578	0.00872
002-006	1.0040	0.0087	0.99658	0.00010	0.99261	0.00860
002-007	1.0040	0.0087	0.98645	0.00010	0.98252	0.00851
002-008	1.0040	0.0087	1.00049	0.00010	0.99650	0.00864
002-009	1.0040	0.0087	0.98917	0.00010	0.98523	0.00854
002-010	1.0040	0.0087	1.00202	0.00010	0.99803	0.00865
002-011	1.0040	0.0087	1.01097	0.00010	1.00695	0.00873
002-012	1.0040	0.0087	0.98916	0.00010	0.98522	0.00854
002-013	1.0040	0.0087	0.98857	0.00010	0.98463	0.00853
002-014	1.0040	0.0087	0.99887	0.00010	0.99489	0.00862
002-015	1.0040	0.0087	1.00602	0.00010	1.00201	0.00868
002-017	1.0040	0.00870	1.00896	0.00010	1.00494	0.00871
003-001	0.9995	0.00871	0.99782	0.00010	0.99832	0.00870
003-002	0.9991	0.01513	1.01369	0.00010	1.01460	0.01537
003-003	1.0007	0.00871	0.99566	0.00010	0.99496	0.00866
003-004	1.0015	0.01258	0.99995	0.00010	0.99845	0.01254
003-005	1.0006	0.01222	1.00664	0.00011	1.00604	0.01229
003-006	1.0012	0.00871	1.01989	0.00010	1.01867	0.00886
003-007	1.0016	0.00871	1.01382	0.00010	1.01220	0.00880
003-008	1.0016	0.00871	1.01011	0.00010	1.00850	0.00877
003-009	1.0018	0.00871	1.01049	0.00010	1.00867	0.00877
003-010	1.0008	0.00871	1.00768	0.00010	1.00687	0.00876
004-001	1.0039	0.0088	0.99958	0.00010	0.99570	0.00873
004-002	1.0034	0.0086	1.00287	0.00010	0.99947	0.00857
004-003	1.0041	0.0089	0.99204	0.00010	0.98799	0.00876
004-004	1.0051	0.0089	0.98238	0.00010	0.97740	0.00866
004-005	1.0037	0.0090	0.98809	0.00010	0.98445	0.00883
004-006	1.0020	0.0105	0.99939	0.00011	0.99740	0.01045
004-007	1.0020	0.0104	0.99646	0.00010	0.99447	0.01032
004-008	1.0020	0.0102	1.00398	0.00010	1.00198	0.01020
005-001	1.0000	0.0040	0.99956	0.00010	0.99956	0.00400
005-002	1.0000	0.0049	1.00295	0.00010	1.00295	0.00492
008-001	1.0006	0.0029	0.99952	0.00010	0.99892	0.00290
009-001	0.9966	0.0044	0.99434	0.00010	0.99773	0.00441
009-002	0.9981	0.0040	0.99758	0.00010	0.99948	0.00401
009-003	0.9989	0.0038	0.99871	0.00010	0.99981	0.00380
009-004	0.9998	0.0038	0.99779	0.00010	0.99799	0.00379
011-027	1.0000	0.0051	0.98772	0.00010	0.98772	0.00504
012-001	0.9990	0.0028	0.99727	0.00010	0.99826	0.00280
012-002	0.9993	0.0025	0.99756	0.00010	0.99825	0.00250
012-003	0.9994	0.0023	1.00719	0.00010	1.00779	0.00232
012-004	1.0000	0.0015	1.00051	0.00010	1.00051	0.00150
012-005	1.0000	0.0071	1.00256	0.00010	1.00256	0.00712
012-006	0.9987	0.0011	1.00220	0.00010	1.00351	0.00111
012-007	1.0000	0.0038	0.99936	0.00010	0.99936	0.00380
012-008	1.0000	0.0048	0.99661	0.00010	0.99661	0.00478
013-001	0.9992	0.0073	1.00169	0.00011	1.00249	0.00732
013-002	0.9992	0.0070	1.00136	0.00011	1.00216	0.00702

Table A-59. Detailed ENDF/B-VIII.0 CE results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
013-003	0.9992	0.0069	1.00168	0.00011	1.00248	0.00692
013-004	0.9992	0.0073	1.00233	0.00011	1.00313	0.00733
013-005	0.9992	0.0067	1.00257	0.00011	1.00337	0.00673
013-006	0.9992	0.0050	1.00221	0.00011	1.00301	0.00502
013-007	0.9992	0.0054	1.00245	0.00011	1.00325	0.00542
013-008	0.9992	0.0050	1.00307	0.00011	1.00387	0.00502
013-009	0.9992	0.0045	1.00365	0.00011	1.00445	0.00452
013-010	0.9992	0.0046	1.00382	0.00010	1.00462	0.00463
013-011	0.9992	0.0054	1.00153	0.00010	1.00233	0.00542
013-012	0.9992	0.0050	1.00220	0.00011	1.00300	0.00502
013-013	0.9992	0.0062	0.99987	0.00010	1.00067	0.00621
013-014	0.9992	0.0051	1.00292	0.00011	1.00372	0.00512
013-015	0.9992	0.0077	1.01782	0.00011	1.01863	0.00785
013-016	0.9992	0.0069	0.99013	0.00011	0.99092	0.00684
013-017	0.9992	0.0052	0.99246	0.00010	0.99325	0.00517
013-018	0.9992	0.0020	0.99688	0.00010	0.99768	0.00200
013-019	0.9992	0.0089	0.99308	0.00010	0.99388	0.00885
013-020	0.9992	0.0056	0.99570	0.00010	0.99650	0.00559
013-021	0.9992	0.0034	0.99924	0.00010	1.00004	0.00340
015-001	1.0000	0.0075	0.98432	0.00010	0.98432	0.00738
015-002	1.0000	0.0070	0.98035	0.00011	0.98035	0.00686
015-004	1.0000	0.0041	0.98626	0.00010	0.98626	0.00404
015-007	1.0000	0.0070	0.98459	0.00010	0.98459	0.00689
015-010	1.0000	0.0051	0.98789	0.00010	0.98789	0.00504
015-011	1.0000	0.0075	0.98760	0.00011	0.98760	0.00741
015-012	1.0000	0.0069	0.98866	0.00010	0.98866	0.00682
015-013	1.0000	0.0069	0.98703	0.00011	0.98703	0.00681
015-014	1.0000	0.0036	0.99328	0.00010	0.99328	0.00358
015-015	1.0000	0.0060	0.98505	0.00011	0.98505	0.00591
015-016	1.0000	0.0043	0.98420	0.00011	0.98420	0.00423
015-017	1.0000	0.0029	0.99448	0.00010	0.99448	0.00289
015-018	1.0000	0.0056	0.97064	0.00011	0.97064	0.00544
015-019	1.0000	0.0052	0.97118	0.00011	0.97118	0.00505
015-020	1.0000	0.0079	0.98985	0.00010	0.98985	0.00782
015-021	1.0000	0.0070	0.99287	0.00011	0.99287	0.00695
015-022	1.0000	0.0062	0.99127	0.00011	0.99127	0.00615
015-023	1.0000	0.0055	0.98952	0.00011	0.98952	0.00544
015-024	1.0000	0.0051	0.98619	0.00010	0.98619	0.00503
015-025	1.0000	0.0023	0.99360	0.00010	0.99360	0.00229
015-026	1.0000	0.0066	0.98960	0.00010	0.98960	0.00653
015-027	1.0000	0.0063	0.99435	0.00010	0.99435	0.00627
015-028	1.0000	0.0058	0.99272	0.00010	0.99272	0.00576
015-029	1.0000	0.0051	0.99160	0.00010	0.99160	0.00506
015-030	1.0000	0.0048	0.99101	0.00010	0.99101	0.00476
015-031	1.0000	0.0055	0.99050	0.00011	0.99050	0.00545
016-001	0.9987	0.0037	0.99988	0.00011	1.00118	0.00371
016-002	0.9983	0.0044	1.00128	0.00010	1.00299	0.00442
016-003	0.9992	0.0036	1.00043	0.00011	1.00123	0.00361
016-004	0.9992	0.0035	1.00218	0.00011	1.00298	0.00351
016-006	0.9993	0.0034	0.99226	0.00011	0.99296	0.00338
016-007	1.0008	0.0034	0.99294	0.00011	0.99215	0.00337
016-008	1.0011	0.0028	0.99266	0.00010	0.99157	0.00278
016-009	1.0000	0.0027	0.99248	0.00011	0.99248	0.00268
016-010	1.0000	0.0030	1.00087	0.00010	1.00087	0.00300
016-011	0.9992	0.0041	1.00056	0.00011	1.00136	0.00411
016-012	0.9992	0.0047	1.00092	0.00011	1.00172	0.00471
016-013	0.9993	0.0036	1.00108	0.00011	1.00178	0.00361
016-014	1.0000	0.0026	1.00166	0.00011	1.00166	0.00261

Table A-59. Detailed ENDF/B-VIII.0 CE results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
016-015	1.0000	0.0027	1.00275	0.00011	1.00275	0.00271
016-016	0.9994	0.0031	1.00575	0.00011	1.00635	0.00312
016-017	1.0000	0.0028	0.99119	0.00011	0.99119	0.00278
016-018	0.9988	0.0036	0.99184	0.00011	0.99303	0.00358
016-019	1.0000	0.0035	0.99173	0.00011	0.99173	0.00347
016-021	1.0000	0.0028	1.00558	0.00011	1.00558	0.00282
016-022	1.0000	0.0034	1.00571	0.00011	1.00571	0.00342
016-023	1.0000	0.0031	1.00584	0.00011	1.00584	0.00312
016-024	1.0012	0.0024	1.00648	0.00011	1.00527	0.00241
016-025	0.9981	0.0040	0.99632	0.00010	0.99822	0.00400
016-026	0.9980	0.0034	1.00149	0.00010	1.00350	0.00342
016-027	0.9988	0.0037	0.99964	0.00010	1.00084	0.00371
016-028	0.9986	0.0037	0.99503	0.00011	0.99642	0.00369
016-029	0.9985	0.0031	0.99567	0.00010	0.99717	0.00310
016-030	0.9993	0.0032	0.99539	0.00011	0.99609	0.00319
016-031	0.9990	0.0034	1.00670	0.00010	1.00770	0.00343
016-032	0.9985	0.0032	1.00852	0.00010	1.01004	0.00324
016-033	0.9986	0.0039	1.00858	0.00010	1.00999	0.00395
017-001	0.9997	0.0032	1.00222	0.00010	1.00252	0.00321
017-002	1.0000	0.0025	0.99825	0.00010	0.99825	0.00250
017-003	1.0001	0.0035	1.00322	0.00010	1.00312	0.00351
017-004	0.9994	0.0040	1.00311	0.00010	1.00371	0.00402
017-005	1.0000	0.0029	1.00055	0.00010	1.00055	0.00290
017-006	1.0000	0.0029	0.99827	0.00010	0.99827	0.00290
017-007	1.0000	0.0037	0.99762	0.00010	0.99762	0.00369

Table A-60. Detailed ENDF/B-VII.1 CE results for KENO V.a UST systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
001-001	1.0000	0.0031	1.00109	0.00010	1.00109	0.00310
001-002	1.0005	0.0033	1.00123	0.00010	1.00072	0.00330
001-003	1.0006	0.0033	1.00057	0.00010	0.99997	0.00330
001-004	0.9998	0.0033	1.00078	0.00010	1.00098	0.00331
001-005	0.9999	0.0033	1.00005	0.00010	1.00015	0.00330
002-001	1.0040	0.0087	1.00562	0.00010	1.00161	0.00868
002-002	1.0040	0.0087	0.99375	0.00010	0.98979	0.00858
002-003	1.0040	0.0087	1.00962	0.00010	1.00560	0.00871
002-004	1.0040	0.0087	1.00629	0.00010	1.00228	0.00869
002-005	1.0040	0.0087	1.01130	0.00010	1.00727	0.00873
002-006	1.0040	0.0087	0.99794	0.00010	0.99396	0.00861
002-007	1.0040	0.0087	0.98774	0.00010	0.98380	0.00853
002-008	1.0040	0.0087	1.00167	0.00010	0.99768	0.00865
002-009	1.0040	0.0087	0.99023	0.00010	0.98628	0.00855
002-010	1.0040	0.0087	1.00315	0.00010	0.99915	0.00866
002-011	1.0040	0.0087	1.01184	0.00010	1.00781	0.00873
002-012	1.0040	0.0087	0.99255	0.00010	0.98860	0.00857
002-013	1.0040	0.0087	0.99207	0.00011	0.98812	0.00856
002-014	1.0040	0.0087	1.00141	0.00010	0.99742	0.00864
002-015	1.0040	0.0087	1.00811	0.00010	1.00409	0.00870
002-017	1.0040	0.00870	1.01027	0.00010	1.00625	0.00872
003-001	0.9995	0.00871	1.00156	0.00011	1.00206	0.00873
003-002	0.9991	0.01513	1.01655	0.00010	1.01747	0.01541
003-003	1.0007	0.00871	0.99918	0.00011	0.99848	0.00869
003-004	1.0015	0.01258	1.00324	0.00010	1.00174	0.01258
003-005	1.0006	0.01222	1.00954	0.00010	1.00893	0.01232
003-006	1.0012	0.00871	1.02212	0.00010	1.02089	0.00888

Table A-60. Detailed ENDF/B-VII.1 CE results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
003-007	1.0016	0.00871	1.01555	0.00010	1.01393	0.00882
003-008	1.0016	0.00871	1.01147	0.00010	1.00985	0.00878
003-009	1.0018	0.00871	1.01181	0.00010	1.00999	0.00878
003-010	1.0008	0.00871	1.00823	0.00010	1.00743	0.00877
004-001	1.0039	0.0088	1.00264	0.00010	0.99874	0.00876
004-002	1.0034	0.0086	1.00558	0.00010	1.00217	0.00859
004-003	1.0041	0.0089	0.99567	0.00010	0.99160	0.00879
004-004	1.0051	0.0089	0.98661	0.00010	0.98160	0.00869
004-005	1.0037	0.0090	0.99204	0.00010	0.98838	0.00886
004-006	1.0020	0.0105	1.00321	0.00011	1.00121	0.01049
004-007	1.0020	0.0104	1.00004	0.00010	0.99804	0.01036
004-008	1.0020	0.0102	1.00652	0.00010	1.00451	0.01023
005-001	1.0000	0.0040	1.00120	0.00010	1.00120	0.00401
005-002	1.0000	0.0049	1.00456	0.00010	1.00456	0.00492
008-001	1.0006	0.0029	1.00172	0.00010	1.00112	0.00290
009-001	0.9966	0.0044	0.99596	0.00010	0.99936	0.00441
009-002	0.9981	0.0040	0.99922	0.00010	1.00112	0.00401
009-003	0.9989	0.0038	1.00054	0.00010	1.00164	0.00381
009-004	0.9998	0.0038	0.99947	0.00010	0.99967	0.00380
011-027	1.0000	0.0051	0.99008	0.00011	0.99008	0.00505
012-001	0.9990	0.0028	0.99895	0.00010	0.99995	0.00280
012-002	0.9993	0.0025	0.99890	0.00010	0.99960	0.00250
012-003	0.9994	0.0023	1.00944	0.00010	1.01004	0.00233
012-004	1.0000	0.0015	1.00219	0.00010	1.00219	0.00151
012-005	1.0000	0.0071	1.00388	0.00010	1.00388	0.00713
012-006	0.9987	0.0011	1.00370	0.00010	1.00501	0.00111
012-007	1.0000	0.0038	1.00123	0.00010	1.00123	0.00381
012-008	1.0000	0.0048	0.99808	0.00010	0.99808	0.00479
013-001	0.9992	0.0073	1.00441	0.00011	1.00521	0.00734
013-002	0.9992	0.0070	1.00461	0.00011	1.00541	0.00704
013-003	0.9992	0.0069	1.00434	0.00011	1.00514	0.00694
013-004	0.9992	0.0073	1.00493	0.00011	1.00573	0.00735
013-005	0.9992	0.0067	1.00539	0.00011	1.00619	0.00675
013-006	0.9992	0.0050	1.00537	0.00011	1.00617	0.00504
013-007	0.9992	0.0054	1.00508	0.00011	1.00588	0.00544
013-008	0.9992	0.0050	1.00555	0.00011	1.00636	0.00504
013-009	0.9992	0.0045	1.00599	0.00011	1.00680	0.00454
013-010	0.9992	0.0046	1.00635	0.00010	1.00716	0.00464
013-011	0.9992	0.0054	1.00402	0.00010	1.00482	0.00543
013-012	0.9992	0.0050	1.00487	0.00011	1.00567	0.00503
013-013	0.9992	0.0062	1.00258	0.00010	1.00338	0.00623
013-014	0.9992	0.0051	1.00525	0.00011	1.00605	0.00514
013-015	0.9992	0.0077	1.02032	0.00010	1.02114	0.00787
013-016	0.9992	0.0069	0.99285	0.00010	0.99364	0.00686
013-017	0.9992	0.0052	0.99523	0.00010	0.99603	0.00518
013-018	0.9992	0.0020	0.99954	0.00010	1.00034	0.00200
013-019	0.9992	0.0089	0.99560	0.00010	0.99640	0.00888
013-020	0.9992	0.0056	0.99758	0.00010	0.99838	0.00560
013-021	0.9992	0.0034	1.00181	0.00010	1.00261	0.00341
015-001	1.0000	0.0075	0.99016	0.00010	0.99016	0.00743
015-002	1.0000	0.0070	0.98529	0.00011	0.98529	0.00690
015-004	1.0000	0.0041	0.98908	0.00010	0.98908	0.00406
015-007	1.0000	0.0070	0.98635	0.00010	0.98635	0.00691
015-010	1.0000	0.0051	0.98975	0.00010	0.98975	0.00505
015-011	1.0000	0.0075	0.99295	0.00010	0.99295	0.00745
015-012	1.0000	0.0069	0.99378	0.00011	0.99378	0.00686
015-013	1.0000	0.0069	0.99170	0.00011	0.99170	0.00684
015-014	1.0000	0.0036	0.99643	0.00010	0.99643	0.00359

Table A-60. Detailed ENDF/B-VII.1 CE results for KENO V.a UST systems (continued)

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
015-015	1.0000	0.0060	0.98936	0.000011	0.98936	0.00594
015-016	1.0000	0.0043	0.98838	0.00011	0.98838	0.00425
015-017	1.0000	0.0029	0.99625	0.00010	0.99625	0.00289
015-018	1.0000	0.0056	0.97424	0.00011	0.97424	0.00546
015-019	1.0000	0.0052	0.97421	0.00011	0.97421	0.00507
015-020	1.0000	0.0079	0.99466	0.00010	0.99466	0.00786
015-021	1.0000	0.0070	0.99776	0.00011	0.99776	0.00699
015-022	1.0000	0.0062	0.99586	0.00011	0.99586	0.00618
015-023	1.0000	0.0055	0.99394	0.00010	0.99394	0.00547
015-024	1.0000	0.0051	0.99043	0.00010	0.99043	0.00505
015-025	1.0000	0.0023	0.99570	0.00010	0.99570	0.00229
015-026	1.0000	0.0066	0.99410	0.00010	0.99410	0.00656
015-027	1.0000	0.0063	0.99852	0.00010	0.99852	0.00629
015-028	1.0000	0.0058	0.99650	0.00010	0.99650	0.00578
015-029	1.0000	0.0051	0.99510	0.00010	0.99510	0.00508
015-030	1.0000	0.0048	0.99428	0.00010	0.99428	0.00477
015-031	1.0000	0.0055	0.99373	0.00011	0.99373	0.00547
016-001	0.9987	0.0037	1.00295	0.00011	1.00426	0.00372
016-002	0.9983	0.0044	1.00393	0.00010	1.00564	0.00443
016-003	0.9992	0.0036	1.00357	0.00011	1.00437	0.00362
016-004	0.9992	0.0035	1.00483	0.00011	1.00563	0.00352
016-006	0.9993	0.0034	0.99520	0.00011	0.99590	0.00339
016-007	1.0008	0.0034	0.99587	0.00011	0.99507	0.00338
016-008	1.0011	0.0028	0.99552	0.00010	0.99443	0.00278
016-009	1.0000	0.0027	0.99553	0.00011	0.99553	0.00269
016-010	1.0000	0.0030	1.00375	0.00010	1.00375	0.00301
016-011	0.9992	0.0041	1.00373	0.00012	1.00453	0.00412
016-012	0.9992	0.0047	1.00364	0.00011	1.00444	0.00473
016-013	0.9993	0.0036	1.00396	0.00011	1.00466	0.00362
016-014	1.0000	0.0026	1.00446	0.00011	1.00446	0.00261
016-015	1.0000	0.0027	1.00550	0.00011	1.00550	0.00272
016-016	0.9994	0.0031	1.00869	0.00011	1.00930	0.00313
016-017	1.0000	0.0028	0.99404	0.00011	0.99404	0.00279
016-018	0.9988	0.0036	0.99448	0.00011	0.99567	0.00359
016-019	1.0000	0.0035	0.99463	0.00011	0.99463	0.00348
016-021	1.0000	0.0028	1.00858	0.00011	1.00858	0.00283
016-022	1.0000	0.0034	1.00856	0.00012	1.00856	0.00343
016-023	1.0000	0.0031	1.00877	0.00011	1.00877	0.00313
016-024	1.0012	0.0024	1.00945	0.00011	1.00824	0.00242
016-025	0.9981	0.0040	0.99890	0.00010	1.00080	0.00401
016-026	0.9980	0.0034	1.00435	0.00011	1.00636	0.00343
016-027	0.9988	0.0037	1.00230	0.00010	1.00350	0.00372
016-028	0.9986	0.0037	0.99792	0.00010	0.99932	0.00370
016-029	0.9985	0.0031	0.99846	0.00010	0.99996	0.00311
016-030	0.9993	0.0032	0.99815	0.00010	0.99885	0.00320
016-031	0.9990	0.0034	1.00917	0.00010	1.01018	0.00344
016-032	0.9985	0.0032	1.01106	0.00010	1.01258	0.00325
016-033	0.9986	0.0039	1.01122	0.00010	1.01264	0.00396
017-001	0.9997	0.0032	1.00401	0.00010	1.00431	0.00322
017-002	1.0000	0.0025	0.99992	0.00010	0.99992	0.00250
017-003	1.0001	0.0035	1.00501	0.00010	1.00491	0.00352
017-004	0.9994	0.0040	1.00489	0.00010	1.00549	0.00403
017-005	1.0000	0.0029	1.00203	0.00010	1.00203	0.00291
017-006	1.0000	0.0029	1.00009	0.00010	1.00009	0.00290
017-007	1.0000	0.0037	0.99948	0.00010	0.99948	0.00370

APPENDIX B. DETAILED RESULTS FOR KENO-VI

APPENDIX B. DETAILED RESULTS FOR KENO-VI

All uncertainties reported in this appendix are at the 1 σ level. The Monte Carlo experimental uncertainty values are absolute uncertainties and are reported in Δk_{eff} units. The cross section uncertainty values are relative uncertainties and are reported in $\Delta k_{eff}/k_{eff}$ units.

Table B-1. Detailed ENDF/B-VIII.0 252-group results for KENO-VI HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	1.0000	0.0036	0.99707	0.00010	0.99707	0.00359
005-002	1.0007	0.0036	0.99897	0.00010	0.99827	0.00359
005-003	0.9996	0.0036	1.00063	0.00010	1.00103	0.00361
005-004	0.9989	0.0036	0.99363	0.00010	0.99473	0.00359
005-005	0.9980	0.0036	0.99971	0.00010	1.00171	0.00361
005-006	0.9987	0.0036	0.99790	0.00010	0.99920	0.00360
008-001	0.9989	0.0016	0.99551	0.00010	0.99660	0.00160
009-001	0.9992	0.0015	0.99581	0.00010	0.99660	0.00150
009-002	0.9992	0.0015	0.99390	0.00010	0.99470	0.00150
010-001	0.9992	0.0015	0.99719	0.00010	0.99799	0.00150
010-002	0.9992	0.0015	0.99606	0.00010	0.99686	0.00150
011-001	0.9989	0.0015	0.99247	0.00010	0.99356	0.00150
013-001	0.9990	0.0015	0.99884	0.00010	0.99984	0.00150
024-001	0.9990	0.0015	0.99639	0.00010	0.99738	0.00150
080-001	1.0000	0.0012	1.00725	0.00010	1.00725	0.00121
086-001	0.9986	0.0026	0.98682	0.00005	0.98821	0.00257
086-002	0.9986	0.0026	0.98694	0.00005	0.98833	0.00257
086-003	0.9986	0.0026	0.98770	0.00005	0.98908	0.00258
086-004	0.9986	0.0026	0.98860	0.00005	0.98999	0.00258
086-005	1.0056	0.0026	0.99347	0.00005	0.98793	0.00255
092-001	0.9986	0.0011	1.00104	0.00010	1.00244	0.00111
092-002	0.9989	0.0013	1.00284	0.00010	1.00394	0.00131
092-003	0.9993	0.0012	1.00420	0.00010	1.00491	0.00121
092-004	0.9993	0.0013	1.00365	0.00010	1.00436	0.00131
093-001	0.9978	0.0012	1.00428	0.00010	1.00650	0.00121
094-001	0.9994	0.0012	1.00458	0.00010	1.00519	0.00121
094-002	0.9993	0.0010	1.00592	0.00010	1.00662	0.00101

Table B-2. Detailed ENDF/B-VII.1 252-group results for KENO-VI HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	1.0000	0.0036	0.99676	0.00010	0.99676	0.00359
005-002	1.0007	0.0036	0.99949	0.00010	0.99879	0.00359
005-003	0.9996	0.0036	1.00136	0.00010	1.00176	0.00361
005-004	0.9989	0.0036	0.99528	0.00010	0.99638	0.00359
005-005	0.9980	0.0036	1.00120	0.00010	1.00321	0.00362
005-006	0.9987	0.0036	0.99952	0.00010	1.00082	0.00361
008-001	0.9989	0.0016	0.99567	0.00010	0.99677	0.00160
009-001	0.9992	0.0015	0.99693	0.00010	0.99773	0.00150
009-002	0.9992	0.0015	0.99503	0.00010	0.99582	0.00150
010-001	0.9992	0.0015	0.99793	0.00010	0.99873	0.00150
010-002	0.9992	0.0015	0.99678	0.00010	0.99758	0.00150
011-001	0.9989	0.0015	0.99497	0.00010	0.99607	0.00150
013-001	0.9990	0.0015	0.99728	0.00010	0.99828	0.00150
024-001	0.9990	0.0015	0.99713	0.00010	0.99812	0.00150
080-001	1.0000	0.0012	1.00692	0.00010	1.00692	0.00121
086-001	0.9986	0.0026	0.98660	0.00005	0.98798	0.00257
086-002	0.9986	0.0026	0.98671	0.00005z	0.98810	0.00257

Table B-2. Detailed ENDF/B-VII.1 252-group results for KENO-VI HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
086-003	0.9986	0.0026	0.98753	0.00005	0.98891	0.00258
086-004	0.9986	0.0026	0.98830	0.00005	0.98969	0.00258
086-005	1.0056	0.0026	0.99333	0.00005	0.98780	0.00255
092-001	0.9986	0.0011	1.00089	0.00010	1.00229	0.00111
092-002	0.9989	0.0013	1.00277	0.00010	1.00387	0.00131
092-003	0.9993	0.0012	1.00385	0.00010	1.00456	0.00121
092-004	0.9993	0.0013	1.00348	0.00010	1.00418	0.00131
093-001	0.9978	0.0012	1.00341	0.00010	1.00562	0.00121
094-001	0.9994	0.0012	1.00621	0.00010	1.00681	0.00121
094-002	0.9993	0.0010	1.00649	0.00010	1.00720	0.00101

Table B-3. Detailed ENDF/B-VIII.0 CE results for KENO-VI HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	1.0000	0.0036	0.99622	0.00010	0.99622	0.00359
005-002	1.0007	0.0036	0.99812	0.00010	0.99742	0.00359
005-003	0.9996	0.0036	0.99963	0.00010	1.00003	0.00360
005-004	0.9989	0.0036	0.99270	0.00010	0.99379	0.00358
005-005	0.9980	0.0036	0.99802	0.00010	1.00002	0.00361
005-006	0.9987	0.0036	0.99719	0.00010	0.99849	0.00360
008-001	0.9989	0.0016	0.99574	0.00010	0.99683	0.00160
009-001	0.9992	0.0015	0.99606	0.00010	0.99685	0.00150
009-002	0.9992	0.0015	0.99518	0.00010	0.99597	0.00150
010-001	0.9992	0.0015	0.99772	0.00010	0.99852	0.00150
010-002	0.9992	0.0015	0.99714	0.00010	0.99794	0.00150
011-001	0.9989	0.0015	0.99228	0.00010	0.99337	0.00149
013-001	0.9990	0.0015	0.99879	0.00010	0.99979	0.00150
024-001	0.9990	0.0015	0.99589	0.00010	0.99689	0.00150
080-001	1.0000	0.0012	1.01002	0.00010	1.01002	0.00122
086-001	0.9986	0.0026	0.98682	0.00005	0.98821	0.00257
086-002	0.9986	0.0026	0.98694	0.00005	0.98833	0.00257
086-003	0.9986	0.0026	0.98770	0.00005	0.98908	0.00258
086-004	0.9986	0.0026	0.98860	0.00005	0.98999	0.00258
086-005	1.0056	0.0026	0.99347	0.00005	0.98793	0.00255
092-001	0.9986	0.0011	1.00104	0.00010	1.00244	0.00111
092-002	0.9989	0.0013	1.00284	0.00010	1.00394	0.00131
092-003	0.9993	0.0012	1.00420	0.00010	1.00491	0.00121
092-004	0.9993	0.0013	1.00365	0.00010	1.00436	0.00131
093-001	0.9978	0.0012	1.00428	0.00010	1.00650	0.00121
094-001	0.9994	0.0012	1.00458	0.00010	1.00519	0.00121
094-002	0.9993	0.0010	1.00592	0.00010	1.00662	0.00101

Table B-4. Detailed ENDF/B-VII.1 CE results for KENO-VI HMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
005-001	1.0000	0.0036	0.99631	0.00010	0.99631	0.00359
005-002	1.0007	0.0036	0.99853	0.00010	0.99784	0.00359
005-003	0.9996	0.0036	1.00060	0.00010	1.00100	0.00361
005-004	0.9989	0.0036	0.99441	0.00010	0.99551	0.00359
005-005	0.9980	0.0036	0.99917	0.00010	1.00118	0.00361
005-006	0.9987	0.0036	0.99821	0.00010	0.99951	0.00360
008-001	0.9989	0.0016	0.99569	0.00010	0.99679	0.00160
009-001	0.9992	0.0015	0.99735	0.00010	0.99815	0.00150
009-002	0.9992	0.0015	0.99633	0.00010	0.99712	0.00150
010-001	0.9992	0.0015	0.99828	0.00010	0.99908	0.00150
010-002	0.9992	0.0015	0.99773	0.00010	0.99852	0.00150
011-001	0.9989	0.0015	0.99453	0.00010	0.99562	0.00150

Table B-4. Detailed ENDF/B-VII.1 CE results for KENO-VI HMF systems

013-001	0.9990	0.0015	0.99663	0.00010	0.99762	0.00150
024-001	0.9990	0.0015	0.99648	0.00010	0.99748	0.00150
080-001	1.0000	0.0012	1.00949	0.00010	1.00949	0.00122
086-001	0.9986	0.0026	0.98880	0.00005	0.99019	0.00258
086-002	0.9986	0.0026	0.98886	0.00005	0.99025	0.00258
086-003	0.9986	0.0026	0.98976	0.00005	0.99115	0.00258
086-004	0.9986	0.0026	0.99051	0.00005	0.99190	0.00258
086-005	1.0056	0.0026	0.99550	0.00005	0.98996	0.00256
092-001	0.9986	0.0011	1.00133	0.00010	1.00273	0.00111
092-002	0.9989	0.0013	1.00313	0.00010	1.00423	0.00131
092-003	0.9993	0.0012	1.00422	0.00010	1.00492	0.00121
092-004	0.9993	0.0013	1.00375	0.00010	1.00446	0.00131
093-001	0.9978	0.0012	1.00364	0.00010	1.00586	0.00121
094-001	0.9994	0.0012	1.00357	0.00010	1.00417	0.00121
094-002	0.9993	0.0010	1.00360	0.00010	1.00430	0.00101

Table B-5. Detailed ENDF/B-VIII.0 252-group results for KENO-VI IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
019-001	1.0008	0.0035	1.00392	0.00010	1.00312	0.00351
019-002	1.0007	0.0042	1.00358	0.00010	1.00288	0.00421

Table B-6. Detailed ENDF/B-VII1.1 252-group results for KENO-VI IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
019-001	1.0008	0.0035	1.00661	0.00010	1.00581	0.00352
019-002	1.0007	0.0042	1.00593	0.00010	1.00522	0.00422

Table B-7. Detailed ENDF/B-VIII.0 CE results for KENO-VI IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
019-001	1.0008	0.0035	1.00484	0.00010	1.00403	0.00351
019-002	1.0007	0.0042	1.00481	0.00010	1.00410	0.00422

Table B-8. Detailed ENDF/B-VII.1 CE results for KENO-VI IMF systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
019-001	1.0008	0.0035	1.00674	0.00010	1.00593	0.00352
019-002	1.0007	0.0042	1.00656	0.00010	1.00585	0.00422

Table B-9. Detailed ENDF/B-VIII.0 252-group results for KENO-VI MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
008-001	0.9997	0.0032	0.99751	0.00007	0.99781	0.00319
008-002	1.0008	0.0030	0.99766	0.00010	0.99686	0.00299
008-003	1.0023	0.0038	0.99721	0.00010	0.99493	0.00377
008-004	1.0015	0.0047	1.00035	0.00010	0.99885	0.00469
008-005	1.0022	0.0056	1.00097	0.00010	0.99877	0.00558
008-006	1.0028	0.0065	1.00103	0.00010	0.99823	0.00647
008-007	1.0023	0.0039	0.99562	0.00010	0.99334	0.00387
008-008	1.0023	0.0039	0.99574	0.00010	0.99345	0.00387
008-009	1.0023	0.0039	0.99570	0.00010	0.99341	0.00387
008-010	1.0023	0.0039	0.99493	0.00010	0.99264	0.00386
008-011	1.0023	0.0039	0.99458	0.00009	0.99230	0.00386

Table B-9. Detailed ENDF/B-VIII.0 252-group results for KENO-VI MCT systems

008-012	1.0023	0.0039	0.99397	0.00010	0.99169	0.00386
008-013	1.0023	0.0039	0.99522	0.00009	0.99293	0.00386
008-014	1.0023	0.0039	0.99497	0.00010	0.99269	0.00386
008-015	1.0023	0.0039	0.99453	0.00010	0.99225	0.00386
008-016	1.0023	0.0039	0.99367	0.00010	0.99139	0.00386
008-017	1.0023	0.0041	0.99432	0.00010	0.99204	0.00406
008-018	1.0023	0.0041	0.99376	0.00010	0.99148	0.00406
008-019	1.0023	0.0041	0.99415	0.00010	0.99187	0.00406
008-020	1.0023	0.0041	0.99404	0.00010	0.99175	0.00406
008-021	1.0023	0.0041	0.99357	0.00010	0.99129	0.00406
008-022	1.0023	0.0041	0.99406	0.00010	0.99178	0.00406
008-023	1.0023	0.0041	0.99379	0.00009	0.99151	0.00406
008-024	1.0023	0.0041	0.99419	0.00010	0.99191	0.00406
008-025	1.0023	0.0041	0.99389	0.00009	0.99161	0.00406
008-026	1.0023	0.0041	0.99355	0.00010	0.99127	0.00406
008-027	1.0023	0.0040	0.99355	0.00010	0.99127	0.00396
008-028	1.0023	0.0040	0.99393	0.00010	0.99165	0.00396

Table B-10. Detailed ENDF/B-VII.1 252-group results for KENO-VI MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
008-001	0.9997	0.0032	0.99685	0.00007	0.99715	0.00319
008-002	1.0008	0.0030	0.99794	0.00010	0.99714	0.00299
008-003	1.0023	0.0038	0.99809	0.00010	0.99580	0.00378
008-004	1.0015	0.0047	1.00115	0.00010	0.99965	0.00469
008-005	1.0022	0.0056	1.00229	0.00010	1.00009	0.00559
008-006	1.0028	0.0065	1.00203	0.00010	0.99923	0.00648
008-007	1.0023	0.0039	0.99636	0.00010	0.99407	0.00387
008-008	1.0023	0.0039	0.99628	0.00010	0.99400	0.00387
008-009	1.0023	0.0039	0.99657	0.00010	0.99428	0.00387
008-010	1.0023	0.0039	0.99568	0.00010	0.99339	0.00387
008-011	1.0023	0.0039	0.99511	0.00010	0.99283	0.00386
008-012	1.0023	0.0039	0.99454	0.00009	0.99225	0.00386
008-013	1.0023	0.0039	0.99561	0.00010	0.99333	0.00387
008-014	1.0023	0.0039	0.99551	0.00010	0.99322	0.00387
008-015	1.0023	0.0039	0.99539	0.00009	0.99310	0.00387
008-016	1.0023	0.0039	0.99427	0.00010	0.99199	0.00386
008-017	1.0023	0.0041	0.99493	0.00010	0.99264	0.00406
008-018	1.0023	0.0041	0.99426	0.00008	0.99197	0.00406
008-019	1.0023	0.0041	0.99484	0.00010	0.99256	0.00406
008-020	1.0023	0.0041	0.99459	0.00010	0.99230	0.00406
008-021	1.0023	0.0041	0.99427	0.00010	0.99199	0.00406
008-022	1.0023	0.0041	0.99464	0.00010	0.99236	0.00406
008-023	1.0023	0.0041	0.99422	0.00010	0.99194	0.00406
008-024	1.0023	0.0041	0.99479	0.00009	0.99251	0.00406
008-025	1.0023	0.0041	0.99441	0.00010	0.99213	0.00406
008-026	1.0023	0.0041	0.99421	0.00010	0.99192	0.00406
008-027	1.0023	0.0040	0.99435	0.00009	0.99207	0.00396
008-028	1.0023	0.0040	0.99459	0.00009	0.99231	0.00396

Table B-11. Detailed ENDF/B-VIII.0 CE results for KENO-VI MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
008-001	0.9997	0.0032	0.99832	0.00007	0.99862	0.00320
008-002	1.0008	0.0030	0.99824	0.00010	0.99744	0.00299
008-003	1.0023	0.0038	0.99779	0.00010	0.99550	0.00378
008-004	1.0015	0.0047	1.00078	0.00010	0.99929	0.00469
008-005	1.0022	0.0056	1.00142	0.00010	0.99922	0.00558
008-006	1.0028	0.0065	1.00125	0.00010	0.99846	0.00647
008-007	1.0023	0.0039	0.99592	0.00010	0.99364	0.00387
008-008	1.0023	0.0039	0.99605	0.00010	0.99376	0.00387
008-009	1.0023	0.0039	0.99604	0.00010	0.99376	0.00387
008-010	1.0023	0.0039	0.99564	0.00010	0.99335	0.00387
008-011	1.0023	0.0039	0.99471	0.00010	0.99243	0.00386
008-012	1.0023	0.0039	0.99423	0.00010	0.99195	0.00386
008-013	1.0023	0.0039	0.99564	0.00010	0.99335	0.00387
008-014	1.0023	0.0039	0.99530	0.00010	0.99302	0.00387
008-015	1.0023	0.0039	0.99513	0.00010	0.99284	0.00386
008-016	1.0023	0.0039	0.99423	0.00010	0.99195	0.00386
008-017	1.0023	0.0041	0.99454	0.00010	0.99226	0.00406
008-018	1.0023	0.0041	0.99442	0.00010	0.99214	0.00406
008-019	1.0023	0.0041	0.99438	0.00010	0.99210	0.00406
008-020	1.0023	0.0041	0.99440	0.00009	0.99212	0.00406
008-021	1.0023	0.0041	0.99390	0.00010	0.99162	0.00406
008-022	1.0023	0.0041	0.99422	0.00010	0.99194	0.00406
008-023	1.0023	0.0041	0.99385	0.00010	0.99156	0.00406
008-024	1.0023	0.0041	0.99462	0.00010	0.99234	0.00406
008-025	1.0023	0.0041	0.99408	0.00010	0.99180	0.00406
008-026	1.0023	0.0041	0.99378	0.00010	0.99150	0.00406
008-027	1.0023	0.0040	0.99388	0.00010	0.99160	0.00396
008-028	1.0023	0.0040	0.99415	0.00010	0.99187	0.00396

Table B-12. Detailed ENDF/B-VII.1 CE results for KENO-VI MCT systems

Case	Expected k_{eff}	Experimental uncertainty	k_{eff}	Uncertainty	C/E	C/E uncertainty
008-001	0.9997	0.0032	0.99814	0.00007	0.99844	0.00320
008-002	1.0008	0.0030	0.99882	0.00010	0.99802	0.00299
008-003	1.0023	0.0038	0.99845	0.00010	0.99616	0.00378
008-004	1.0015	0.0047	1.00099	0.00010	0.99949	0.00469
008-005	1.0022	0.0056	1.00162	0.00010	0.99942	0.00559
008-006	1.0028	0.0065	1.00118	0.00010	0.99838	0.00647
008-007	1.0023	0.0039	0.99666	0.00010	0.99437	0.00387
008-008	1.0023	0.0039	0.99656	0.00010	0.99428	0.00387
008-009	1.0023	0.0039	0.99676	0.00010	0.99447	0.00387
008-010	1.0023	0.0039	0.99600	0.00010	0.99371	0.00387
008-011	1.0023	0.0039	0.99542	0.00010	0.99313	0.00387
008-012	1.0023	0.0039	0.99493	0.00010	0.99264	0.00386
008-013	1.0023	0.0039	0.99612	0.00009	0.99384	0.00387
008-014	1.0023	0.0039	0.99590	0.00010	0.99361	0.00387
008-015	1.0023	0.0039	0.99589	0.00010	0.99360	0.00387
008-016	1.0023	0.0039	0.99476	0.00010	0.99248	0.00386
008-017	1.0023	0.0041	0.99525	0.00010	0.99297	0.00406
008-018	1.0023	0.0041	0.99472	0.00010	0.99243	0.00406
008-019	1.0023	0.0041	0.99512	0.00010	0.99283	0.00406
008-020	1.0023	0.0041	0.99484	0.00010	0.99256	0.00406
008-021	1.0023	0.0041	0.99440	0.00010	0.99212	0.00406
008-022	1.0023	0.0041	0.99499	0.00010	0.99270	0.00406
008-023	1.0023	0.0041	0.99465	0.00009	0.99236	0.00406
008-024	1.0023	0.0041	0.99511	0.00010	0.99283	0.00406
008-025	1.0023	0.0041	0.99485	0.00010	0.99257	0.00406
008-026	1.0023	0.0041	0.99459	0.00009	0.99231	0.00406
008-027	1.0023	0.0040	0.99467	0.00010	0.99239	0.00396
008-028	1.0023	0.0040	0.99493	0.00010	0.99264	0.00396