ATTACHMENT 23

ANP-3343NP, Nuclear Fuel Design Report Browns Ferry EPU (120% OLTP) Equilibrium Cycle ATRIUM 10XM Fuel (Non-Proprietary)

Nuclear Fuel Design Report
Browns Ferry EPU (120% OLTP)
Equilibrium Cycle ATRIUM 10XM Fuel

ANP-3343NP
Revision 0

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AREVA Inc.

Nature of Changes

Item	Page	Description and Justification
1.	All	This is the initial release.

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Figures

Nomenclature

BLEU	blended low-enriched uranium
BOL	beginning of life
BWR	boiling water reactor
CGU	commercial grade uranium
EVC	plenum region in a fuel pin modeled as an evacuated section
GWd/MTU	gigawatt days per metric ton of initial uranium
kg/MTU	kilograms per metric ton of initial uranium
LHGR	linear heat generation rate
LPF	local peaking factor
MCPR	minimum critical power ratio
MWd/MTU	megawatt days per metric ton of initial uranium
NRC	Nuclear Regulatory Commission, U. S.
PLFR	part-length fuel rod

1.0 Introduction

This report provides results of the neutronic design analyses performed by AREVA Inc. (AREVA) for the Browns Ferry EPU (120% OLTP) Equilibrium Cycle ATRIUM™* 10XM boiling water reactor (BWR) fuel assemblies. The mechanical design parameters for the ATRIUM 10XM fuel assemblies are summarized in Table 2.1.

Applicable neutronic design criteria are provided in the approved topical report ANF-89-98(P)(A) Revision 1 and Supplement 1 (Reference 1). Neutronic design analysis methodology used to determine conformance to design criteria has been reviewed and approved by the NRC in the topical report EMF-2158(P)(A) (Reference 2).

The fuel design includes AREVA advanced fuel channels. Mechanical design criteria applicable to the design of these channels have been reviewed and approved by the NRC in Reference 3.

The neutronic design for the Equilibrium Cycle batch includes axially-varying enrichment and gadolinia designs with natural UO_2 blankets at the top and bottom of the assembly. The Equilibrium Cycle batch consists of **[ ]**, **[ ]**, and **[ ]** assemblies. Pertinent fuel and reactor core design information associated with this Equilibrium Cycle batch is given in Section 2.0 and in Appendices A through D.

The Equilibrium Cycle batch utilizes both BLEU and CGU fuel types as shown with Figures 2.1 through 2.7. The BLEU fuel U-234/U-236 concentrations are assumed.

* ATRIUM is a trademark of AREVA Inc.

2.0 **Neutronic Design**

The results of the Browns Ferry Equilibrium Cycle ATRIUM 10XM neutronic design analyses are presented in this section. The fuel was designed to meet applicable design criteria, as well as reactivity and control requirements. Applicable neutronic design criteria outlined in Reference 1 are summarized below:

- **Power Distribution.** The local power distribution in the fuel assembly combined with the core power distribution shall result in Linear Heat Generation Rate (LHGR) and Minimum Critical Power Ratio (MCPR) values that are within the limits established for each fuel design.
- **Kinetics Parameters.** The moderator void reactivity coefficient due to boiling in the active channels and the Doppler fuel temperature reactivity coefficient shall be negative. The negative void and Doppler reactivity coefficients ensure a negative power coefficient during reactor operation. Additional calculations were performed to show that the assembly average Doppler and void reactivity coefficients remain negative for the life of the assembly. These results demonstrate that the Reference 1 kinetics criteria are met on a bundle average basis.
- **Control Blade Reactivity.** The design of the fuel assembly and the reactor core loading shall be such that the technical specification shutdown margin requirement is met for all reactor conditions.

2.1 ***Neutronic Design Description***

The neutronic design parameters for Equilibrium Cycle ATRIUM 10XM batch are presented in Table 2.1. The key ATRIUM 10XM reload assembly nuclear design characteristics are summarized below:

- The fuel assembly contains **[** **]**. The water channel also serves the function of the spacer capture rod.
- Each fuel assembly has top and bottom natural uranium blankets.
- The enrichments are designed to yield a local power distribution which results in a balanced design relative to MCPR, LHGR, and other reactor operating requirements, e.g., power peaking.
- Gadolinia (Gd_2O_3 blended with UO_2) rods are designed to control assembly reactivity in order to meet reactivity control requirements in the reactor, e.g. cold shutdown margin.
- The reload batch consists of 3 assembly designs which vary axially in enrichment and/or gadolinia. The axial distributions of the lattices in the assemblies are shown in Figures 2.1, 2.2, and 2.3. The fuel rod distribution and axial descriptions are presented in Figures 2.4 through 2.7. The enrichment and gadolinia distribution maps for each of the reload assembly lattices are displayed in Appendix D.

- The fuel assembly incorporates the AREVA advanced fuel channel which improves uranium utilization. For D-lattice plants, the fuel assembly is offset **[ ]** toward the control blade.

2.2 *Lattice Control Blade Worths and Kinetics Parameters*

Beginning of life (BOL) lattice reactivities (k_∞) have been calculated for moderator and fuel conditions ranging from cold to hot operating conditions. From these reactivities, BOL control blade worths and kinetics parameters have been determined based on ABB/Westinghouse Main Body and ABB/Westinghouse Hafnium Tip control blades. Kinetics parameters are calculated for fuel temperature (Doppler), moderator void, and moderator temperature. The Doppler reactivity was calculated over a fuel temperature range from hot standby to hot operating. The moderator void reactivity was evaluated between the 0% and 40% voided hot operating cases, and the moderator temperature reactivity was calculated from the cold to hot standby condition. The calculations neglect the spacer material and assume zero void in the coolant outside the fuel assembly channel as well as inside the internal water channel. The results of these calculations are presented in Tables 2.2 through 2.61.

2.3 *Enriched Lattice Uncontrolled Reactivities and Isotopic Data*

The enriched lattice exposure-dependent uncontrolled reactivities calculated at three void fractions are presented graphically in Appendix A, and in tabular format in Appendix B. The enriched lattice exposure-dependent isotopic data calculated at three void fractions are presented in Appendix C.

2.4 *Criticality Compliance*

The Browns Ferry Equilibrium Cycle ATRIUM 10XM fuel assemblies satisfy the fuel design critical safety limits established for spent fuel storage at the Browns Ferry Units 1, 2, and 3 facilities per Reference 4. Additionally, these reload assemblies conform to the nuclear criticality requirements as provided to the NRC with Reference 5 for the TN-B1 shipping container.

Table 2.1 Neutronic Design Parameters

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Table 2.1 Neutronic Design Parameters *(Continued)*

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Table 2.1 Neutronic Design Parameters *(Continued)*

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Table 2.1 Neutronic Design Parameters *(Continued)*

Parameter	Design Value
Core Data*	
Number of fuel assemblies in the core	764
Rated thermal power level, MWt	3952.0
Rated core flow, Mlbm/hr	102.5
Inlet subcooling, Btu/lbm	27.00
Dome pressure, psia	1050
Boron concentration, PPM	720.0
Intermediate temperature, °F	200.00
Warm temperature, °F	360.00

* Some values are representative of rated conditions and may vary depending on the core statepoint.

Table 2.2 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.65251	0.81345	-0.1978
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.64436	0.82100	-0.2152
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.61282	0.85838	-0.2861
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.60859	0.85312	-0.2866
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.60864	0.85312	-0.2866
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.58056	0.87636	-0.3375
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.52620	0.89292	-0.4107

Table 2.3 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.66855	0.81345	-0.1781
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.66170	0.82100	-0.1940
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.63777	0.85838	-0.2570
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.63338	0.85312	-0.2576
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.63338	0.85312	-0.2576
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.61185	0.87636	-0.3018
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.56611	0.89292	-0.3660

Table 2.4 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	0.85312	0.85838	-0.0061
Moderator$_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	0.87636	0.85312	0.0272
Moderator$_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	0.85838	0.81345	0.0552

Table 2.5 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.68299	0.84096	-0.1878
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.67431	0.84687	-0.2038
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.63921	0.87554	-0.2699
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.63510	0.87050	-0.2704
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.63515	0.87050	-0.2704
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.60408	0.88682	-0.3188
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.54741	0.89498	-0.3884

Table 2.6 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.69910	0.84096	-0.1687
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.69165	0.84687	-0.1833
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.66379	0.87554	-0.2419
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.65952	0.87050	-0.2424
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.65952	0.87050	-0.2424
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.63471	0.88682	-0.2843
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.58621	0.89498	-0.3450

Table 2.7 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	0.87050	0.87554	-0.0058
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	0.88682	0.87050	0.0187
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	0.87554	0.84096	0.0411

Table 2.8 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.93774	1.09878	-0.1466
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.92322	1.08895	-0.1522
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.86332	1.05214	-0.1795
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.85876	1.04657	-0.1794
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.85883	1.04657	-0.1794
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.81829	1.02744	-0.2036
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.76888	1.00273	-0.2332

Table 2.9 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.95723	1.09878	-0.1288
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.94341	1.08895	-0.1336
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.88859	1.05214	-0.1555
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.88384	1.04657	-0.1555
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.88384	1.04657	-0.1555
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.84852	1.02744	-0.1741
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.80591	1.00273	-0.1963

Table 2.10 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.04657	1.05214	-0.0053
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.02744	1.04657	-0.0183
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.05214	1.09878	-0.0425

Table 2.11 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.97454	1.13364	-0.1403
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.96084	1.12481	-0.1458
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.90019	1.08916	-0.1735
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.89542	1.08338	-0.1735
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.89550	1.08338	-0.1734
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.85125	1.06244	-0.1988
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.79664	1.03533	-0.2305

Table 2.12 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.99420	1.13364	-0.1230
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.98122	1.12481	-0.1277
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.92590	1.08916	-0.1499
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.92094	1.08338	-0.1499
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.92094	1.08338	-0.1499
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.88221	1.06244	-0.1696
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.83478	1.03533	-0.1937

Table 2.13 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.08338	1.08916	-0.0053
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.06244	1.08338	-0.0193
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.08916	1.13364	-0.0392

Table 2.14 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.92343	1.08129	-0.1460
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.91081	1.07377	-0.1518
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.85631	1.04502	-0.1806
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.85162	1.03925	-0.1805
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.85169	1.03925	-0.1805
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.81099	1.02284	-0.2071
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.75791	0.99921	-0.2415

Table 2.15 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.94218	1.08129	-0.1286
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.93033	1.07377	-0.1336
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.88127	1.04502	-0.1567
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.87638	1.03925	-0.1567
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.87638	1.03925	-0.1567
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.84137	1.02284	-0.1774
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.79592	0.99921	-0.2034

Table 2.16 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.03925	1.04502	-0.0055
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.02284	1.03925	-0.0158
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.04502	1.08129	-0.0335

Table 2.17 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.92936	1.08176	-0.1409
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.91711	1.07470	-0.1466
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.86436	1.04834	-0.1755
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.85976	1.04271	-0.1755
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.85983	1.04271	-0.1754
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.81924	1.02768	-0.2028
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.76404	1.00439	-0.2393

Table 2.18 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.94725	1.08176	-0.1243
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.93576	1.07470	-0.1293
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.88849	1.04834	-0.1525
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.88371	1.04271	-0.1525
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.88371	1.04271	-0.1525
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.84902	1.02768	-0.1739
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.80191	1.00439	-0.2016

Table 2.19 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.04271	1.04834	-0.0054
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.02768	1.04271	-0.0144
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.04834	1.08176	-0.0309

Table 2.20 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.94879	1.10401	-0.1406
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.93775	1.09864	-0.1464
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.89135	1.08158	-0.1759
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.88675	1.07596	-0.1759
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.88682	1.07596	-0.1758
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.84842	1.06564	-0.2038
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.79447	1.04829	-0.2421

Table 2.21 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.96729	1.10401	-0.1238
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.95708	1.09864	-0.1288
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.91661	1.08158	-0.1525
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.91182	1.07596	-0.1525
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.91182	1.07596	-0.1525
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.87980	1.06564	-0.1744
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.83479	1.04829	-0.2037

Table 2.22 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.07596	1.08158	-0.0052
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.06564	1.07596	-0.0096
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.08158	1.10401	-0.0203

Table 2.23 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.65075	0.80192	-0.1885
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.64390	0.81033	-0.2054
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.61806	0.85266	-0.2751
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.61397	0.84763	-0.2757
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.61401	0.84763	-0.2756
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.58880	0.87575	-0.3277
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.53338	0.89601	-0.4047

Table 2.24 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.66555	0.80192	-0.1701
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.65997	0.81033	-0.1855
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.64161	0.85266	-0.2475
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.63737	0.84763	-0.2481
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.63737	0.84763	-0.2481
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.61898	0.87575	-0.2932
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.57288	0.89601	-0.3606

Table 2.25 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	0.84763	0.85266	-0.0059
Moderator$_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	0.87575	0.84763	0.0332
Moderator$_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	0.85266	0.80192	0.0633

Table 2.26 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.65078	0.81183	-0.1984
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.64260	0.81939	-0.2158
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.61109	0.85709	-0.2870
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.60688	0.85185	-0.2876
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.60693	0.85185	-0.2875
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.57899	0.87547	-0.3387
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.52478	0.89257	-0.4121

Table 2.27 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.66681	0.81183	-0.1786
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.65993	0.81939	-0.1946
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.63605	0.85709	-0.2579
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.63168	0.85185	-0.2585
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.63168	0.85185	-0.2585
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.61030	0.87547	-0.3029
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.56474	0.89257	-0.3673

Table 2.28 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	0.85185	0.85709	-0.0061
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	0.87547	0.85185	0.0277
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	0.85709	0.81183	0.0558

Table 2.29 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.68139	0.83951	-0.1883
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.67268	0.84545	-0.2044
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.63762	0.87447	-0.2708
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.63354	0.86945	-0.2713
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.63359	0.86945	-0.2713
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.60266	0.88615	-0.3199
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.54615	0.89486	-0.3897

Table 2.30 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.69750	0.83951	-0.1692
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.69001	0.84545	-0.1839
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.66222	0.87447	-0.2427
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.65798	0.86945	-0.2432
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.65798	0.86945	-0.2432
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.63333	0.88615	-0.2853
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.58502	0.89486	-0.3462

Table 2.31 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	0.86945	0.87447	-0.0057
Moderator$_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	0.88615	0.86945	0.0192
Moderator$_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	0.87447	0.83951	0.0416

Table 2.32 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.97629	1.13810	-0.1422
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.96255	1.12919	-0.1476
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.90092	1.09172	-0.1748
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.89584	1.08558	-0.1748
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.89592	1.08558	-0.1747
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.85122	1.06355	-0.1996
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.79646	1.03528	-0.2307

Table 2.33 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.99627	1.13810	-0.1246
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.98325	1.12919	-0.1292
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.92686	1.09172	-0.1510
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.92158	1.08558	-0.1511
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.92158	1.08558	-0.1511
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.88227	1.06355	-0.1704
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.83445	1.03528	-0.1940

Table 2.34 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.08558	1.09172	-0.0056
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.06355	1.08558	-0.0203
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.09172	1.13810	-0.0408

Table 2.35 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.98569	1.15335	-0.1454
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.97215	1.14525	-0.1512
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.91080	1.10962	-0.1792
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.90564	1.10337	-0.1792
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.90572	1.10337	-0.1791
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.85995	1.08114	-0.2046
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.80356	1.05249	-0.2365

Table 2.36 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	1.00648	1.15335	-0.1273
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.99369	1.14525	-0.1323
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.93771	1.10962	-0.1549
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.93235	1.10337	-0.1550
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.93235	1.10337	-0.1550
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.89199	1.08114	-0.1749
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.84252	1.05249	-0.1995

Table 2.37 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.10337	1.10962	-0.0056
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.08114	1.10337	-0.0202
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.10962	1.15335	-0.0379

Table 2.38 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.93790	1.10504	-0.1512
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.92564	1.09860	-0.1574
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.87107	1.07088	-0.1866
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.86599	1.06463	-0.1866
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.86606	1.06463	-0.1865
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.82379	1.04709	-0.2133
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.76856	1.02180	-0.2478

Table 2.39 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.95784	1.10504	-0.1332
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.94640	1.09860	-0.1385
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.89738	1.07088	-0.1620
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.89208	1.06463	-0.1621
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.89208	1.06463	-0.1621
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.85544	1.04709	-0.1830
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.80763	1.02180	-0.2096

Table 2.40 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.06463	1.07088	-0.0058
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.04709	1.06463	-0.0165
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.07088	1.10504	-0.0309

Table 2.41 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.94390	1.10559	-0.1462
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.93205	1.09968	-0.1524
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.87943	1.07460	-0.1816
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.87445	1.06850	-0.1816
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.87452	1.06850	-0.1815
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.83237	1.05234	-0.2090
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.77483	1.02716	-0.2457

Table 2.42 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.96298	1.10559	-0.1290
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.95194	1.09968	-0.1343
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.90492	1.07460	-0.1579
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.89973	1.06850	-0.1580
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.89973	1.06850	-0.1580
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.86343	1.05234	-0.1795
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.81378	1.02716	-0.2077

Table 2.43 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.06850	1.07460	-0.0057
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.05234	1.06850	-0.0151
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.07460	1.10559	-0.0280

Table 2.44 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.95361	1.11617	-0.1456
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.94265	1.11149	-0.1519
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.89573	1.09474	-0.1818
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.89078	1.08869	-0.1818
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.89085	1.08869	-0.1817
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.85080	1.07684	-0.2099
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.79447	1.05716	-0.2485

Table 2.45 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.97302	1.11617	-0.1283
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.96293	1.11149	-0.1337
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.92197	1.09474	-0.1578
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.91681	1.08869	-0.1579
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.91681	1.08869	-0.1579
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.88301	1.07684	-0.1800
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.83531	1.05716	-0.2099

Table 2.46 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.08869	1.09474	-0.0055
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.07684	1.08869	-0.0109
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.09474	1.11617	-0.0192

Table 2.47 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.64897	0.80023	-0.1890
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.64209	0.80866	-0.2060
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.61627	0.85128	-0.2761
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.61221	0.84627	-0.2766
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.61225	0.84627	-0.2765
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.58719	0.87479	-0.3288
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.53195	0.89563	-0.4061

Table 2.48 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	Blade Worth ($\Delta k/k$)
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.66376	0.80023	-0.1705
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.65815	0.80866	-0.1861
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.63983	0.85128	-0.2484
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.63562	0.84627	-0.2489
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.63562	0.84627	-0.2489
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.61739	0.87479	-0.2942
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.57150	0.89563	-0.3619

Table 2.49 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter ($\Delta k/k$)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	0.84627	0.85128	-0.0059
Moderator$_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	0.87479	0.84627	0.0337
Moderator$_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	0.85128	0.80023	0.0638

Table 2.50 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.96136	1.13514	-0.1531
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.94692	1.12664	-0.1595
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.88647	1.09299	-0.1890
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.88171	1.08717	-0.1890
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.88179	1.08717	-0.1889
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.83759	1.06691	-0.2149
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.78217	1.04023	-0.2481

Table 2.51 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.98282	1.13514	-0.1342
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.96916	1.12664	-0.1398
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.91410	1.09299	-0.1637
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void, No xenon	0.90915	1.08717	-0.1638
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 0% Void	0.90915	1.08717	-0.1638
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 40% Void	0.87030	1.06691	-0.1843
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1018° F 80% Void	0.82177	1.04023	-0.2100

Table 2.52 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.08717	1.09299	-0.0053
Moderator$_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.06691	1.08717	-0.0186
Moderator$_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.09299	1.13514	-0.0371

Table 2.53 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.93509	1.10458	-0.1534
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.92253	1.09829	-0.1600
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.86875	1.07362	-0.1908
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.86395	1.06769	-0.1908
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.86403	1.06769	-0.1908
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.82150	1.05155	-0.2188
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.76476	1.02742	-0.2556

Table 2.54 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.95539	1.10458	-0.1351
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.94366	1.09829	-0.1408
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.89563	1.07362	-0.1658
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.89063	1.06769	-0.1658
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.89063	1.06769	-0.1658
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.85392	1.05155	-0.1879
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.80491	1.02742	-0.2166

Table 2.55 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.06769	1.07362	-0.0055
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.05155	1.06769	-0.0151
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.07362	1.10458	-0.0280

Table 2.56 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.94256	1.10696	-0.1485
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.93035	1.10114	-0.1551
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.87833	1.07884	-0.1859
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.87361	1.07305	-0.1859
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.87369	1.07305	-0.1858
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.83104	1.05800	-0.2145
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.77158	1.03349	-0.2534

Table 2.57 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.96206	1.10696	-0.1309
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.95069	1.10114	-0.1366
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.90446	1.07884	-0.1616
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.89954	1.07305	-0.1617
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.89954	1.07305	-0.1617
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.86291	1.05800	-0.1844
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.81163	1.03349	-0.2147

Table 2.58 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.07305	1.07884	-0.0054
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.05800	1.07305	-0.0140
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.07884	1.10696	-0.0254

Table 2.59 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Main Body

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth ($\Delta k/k$)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.95667	1.12281	-0.1480
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.94541	1.11828	-0.1546
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.89819	1.10303	-0.1857
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.89348	1.09724	-0.1857
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.89355	1.09724	-0.1856
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.85240	1.08559	-0.2148
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.79382	1.06552	-0.2550

Table 2.60 Lattice [ ] Control Blade Worths at BOL for Control Blade Type ABB/Westinghouse Hafnium Tip

Blade Worth = $\frac{k_{Controlled} - k_{Uncontrolled}}{k_{Uncontrolled}}$		$k_{Controlled}$	$k_{Uncontrolled}$	**Blade Worth (Δk/k)**
Cold	$T_{Moderator}$=68° F T_{Fuel}=68° F 0% Void, No xenon	0.97657	1.12281	-0.1302
Intermediate	$T_{Moderator}$=200° F T_{Fuel}=200° F 0% Void, No xenon	0.96620	1.11828	-0.1360
Hot Standby	$T_{Moderator}$=550° F T_{Fuel}=550° F 0% Void, No xenon	0.92510	1.10303	-0.1613
Hot Operating$_{NoXe}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void, No xenon	0.92019	1.09724	-0.1614
Hot Operating$_{0}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 0% Void	0.92019	1.09724	-0.1614
Hot Operating$_{40}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 40% Void	0.88541	1.08559	-0.1844
Hot Operating $_{80}$	$T_{Moderator}$=550° F T_{Fuel}=1091° F 80% Void	0.83564	1.06552	-0.2157

Table 2.61 Lattice [ ] Kinetics Parameters at BOL

Kinetics Parameter = $\frac{k_{\alpha} - k_{\beta}}{k_{\beta}}$	k_{α}	k_{β}	Kinetics Parameter (Δk/k)
Doppler = $\frac{k_{HotOperatingNoXe} - k_{HotStandby}}{k_{HotStandby}}$	1.09724	1.10303	-0.0053
$Moderator_{Void}$ = $\frac{k_{HotOperating40} - k_{HotOperating0}}{k_{HotOperating0}}$	1.08559	1.09724	-0.0106
$Moderator_{Temperature}$ = $\frac{k_{HotStandby} - k_{Cold}}{k_{Cold}}$	1.10303	1.12281	-0.0176

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Figure 2.1 Assembly Type [ ]

[

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Figure 2.2 Assembly Type [ ]

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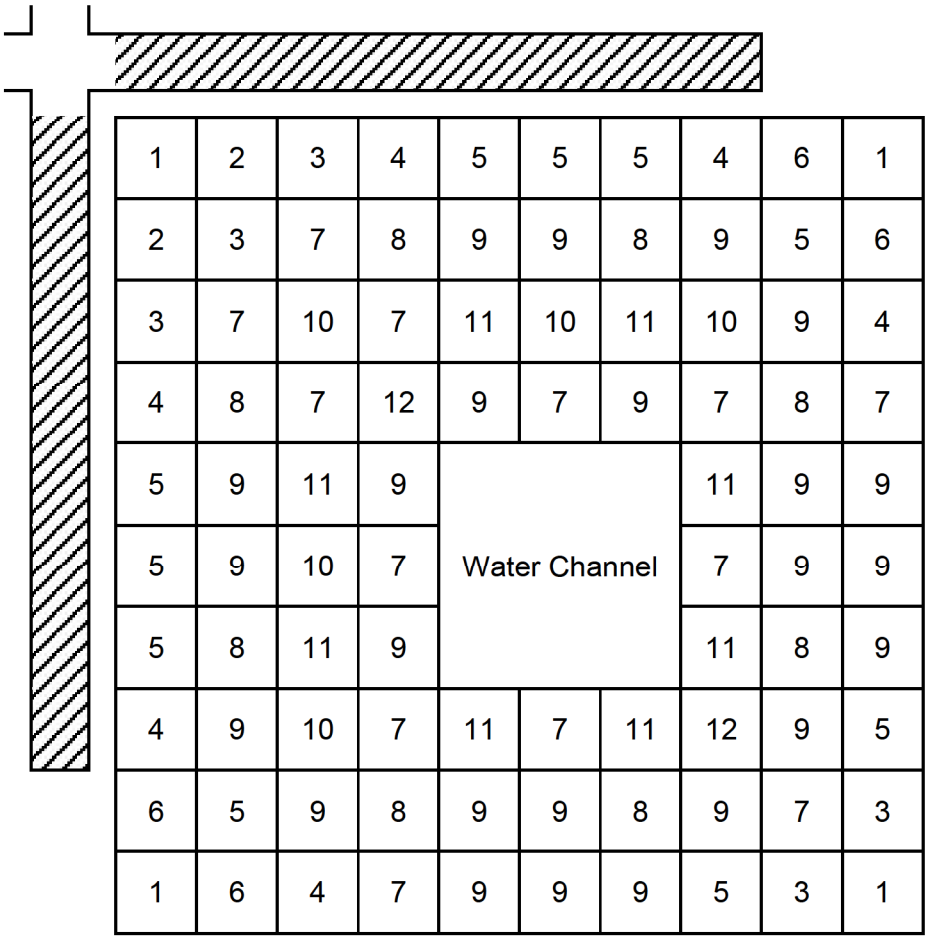
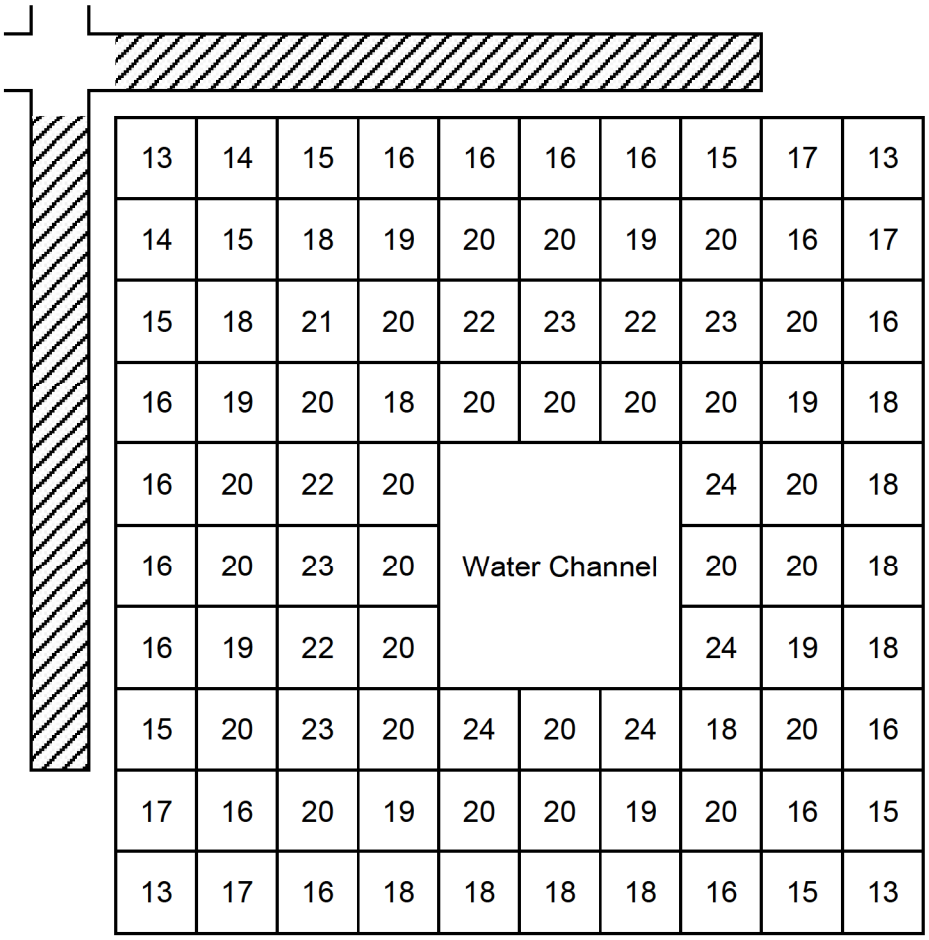
Figure 2.3 Assembly Type [ ]



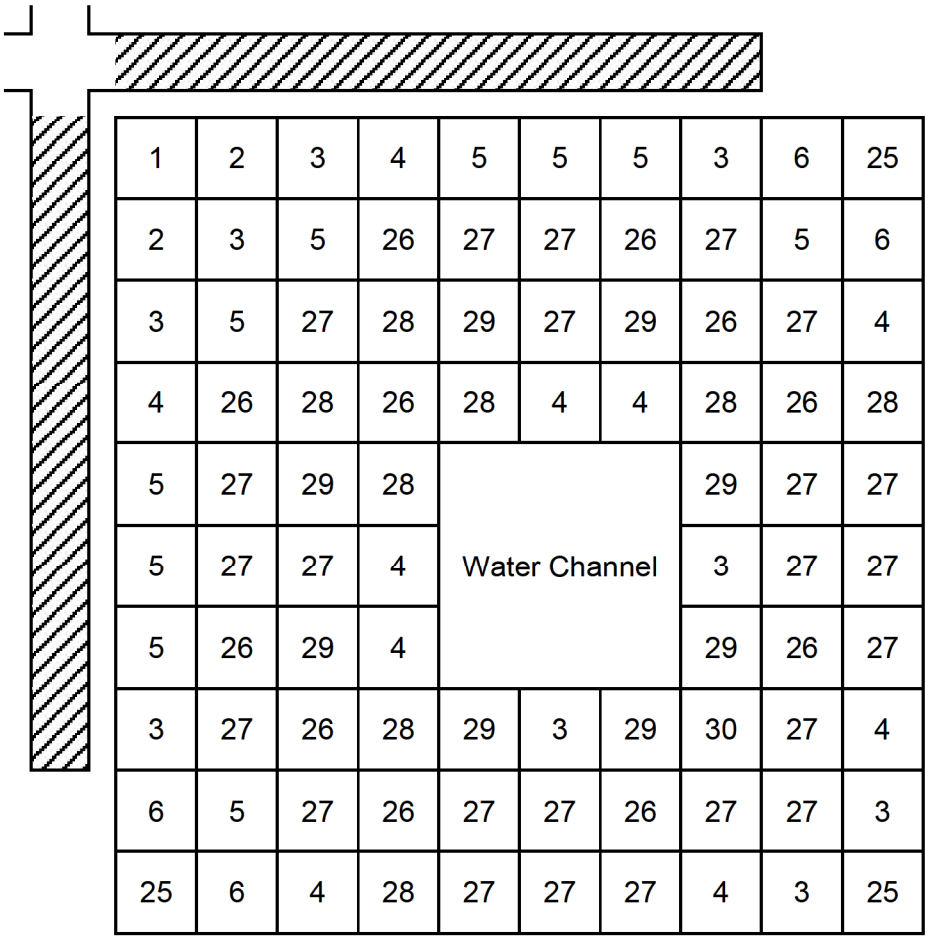
Fuel Rod Type	Quantity	Fuel Rod Type	Quantity
1	4	7	13
2	2	8	8
3	5	9	24
4	6	10	5
5	10	11	8
6	4	12	2

Figure 2.4 [ ] Fuel Rod Distribution



Fuel Rod Type	Quantity	Fuel Rod Type	Quantity
13	4	19	8
14	2	20	26
15	7	21	1
16	15	22	4
17	4	23	4
18	12	24	4

Figure 2.5 [ ] Fuel Rod Distribution



Fuel Rod Type	Quantity	Fuel Rod Type	Quantity
1	1	25	3
2	2	26	11
3	9	27	24
4	10	28	8
5	10	29	8
6	4	30	1

Figure 2.6 [ ] Fuel Rod Distribution

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Figure 2.7 Fuel Rod Axial Description

[

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Figure 2.7 Fuel Rod Axial Description *(Continued)*

[

]

Figure 2.7 Fuel Rod Axial Description *(Continued)*

3.0 References

1. ANF-89-98(P)(A) Revision 1 and Supplement 1, *Generic Mechanical Design Criteria for BWR Fuel Designs*, Advanced Nuclear Fuels Corporation, May 1995.

2. EMF-2158(P)(A) Revision 0, *Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2*, Siemens Power Corporation, October 1999.

3. EMF-93-177(P)(A) Revision 1, *Mechanical Design for BWR Fuel Channels,* Framatome ANP, August 2005.

4. ANP-3160(P) Revision 0, Browns Ferry Nuclear Plant Units 1, 2, and 3 Spent Fuel Storage Pool Criticality Safety Analysis for ATRIUM™ 10XM Fuel, AREVA NP, October 2012.

5. USNRC, “Certificate of Compliance No. 9372, Revision 0, for the Model No. TN-B1 Transportation Package, “Docket Number 71-9372, U.S. Nuclear Regulatory Commission, April 30, 2014.

Appendix A Enriched Lattice Hot Uncontrolled Reactivity and LPF Plots

The results in this appendix are based on hot operating and equilibrium xenon conditions.

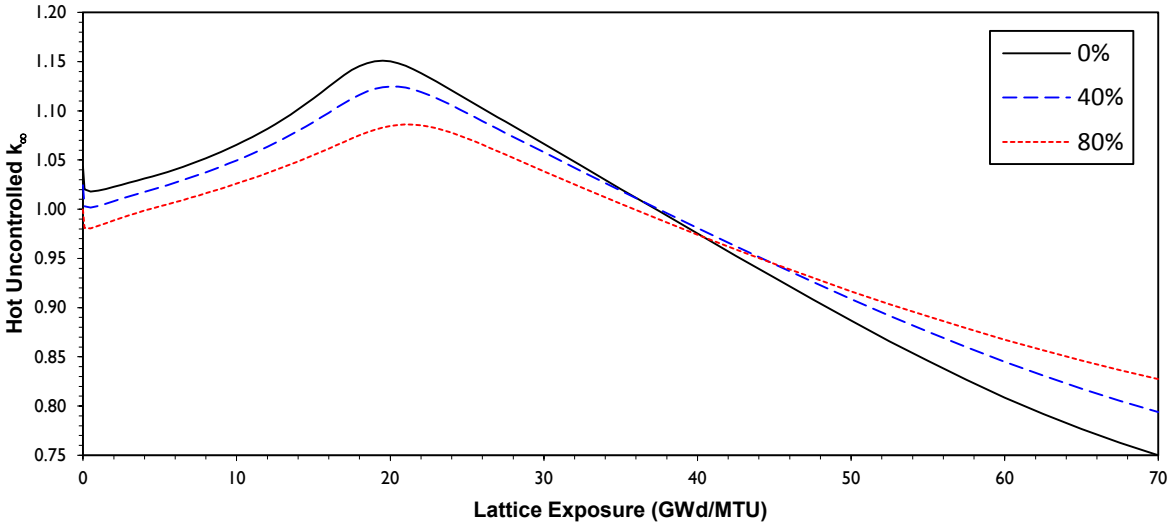

Figure A.1 [ ] Hot Uncontrolled k_∞

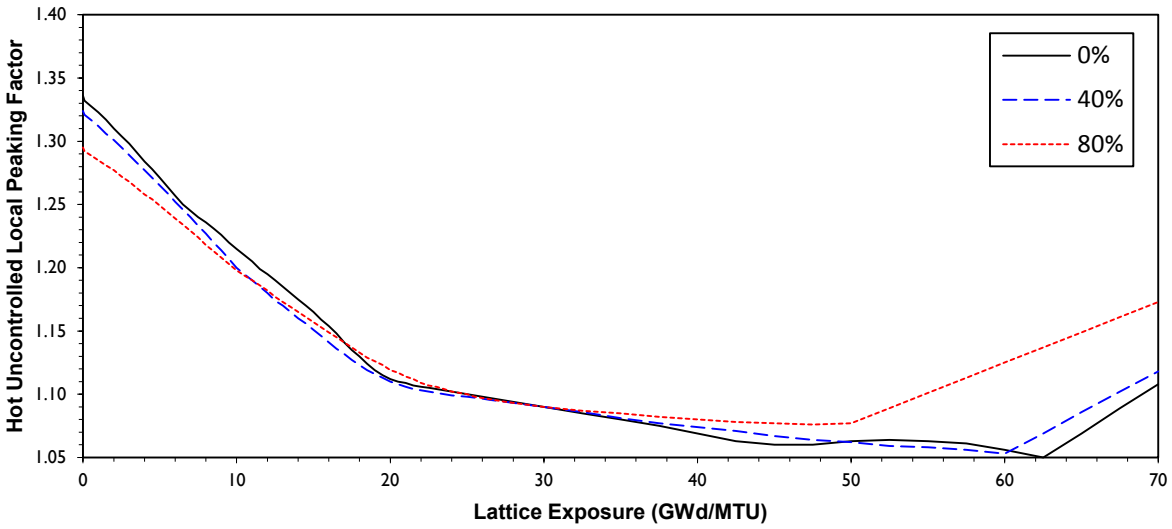

Figure A.2 [ ] Hot Uncontrolled LPF

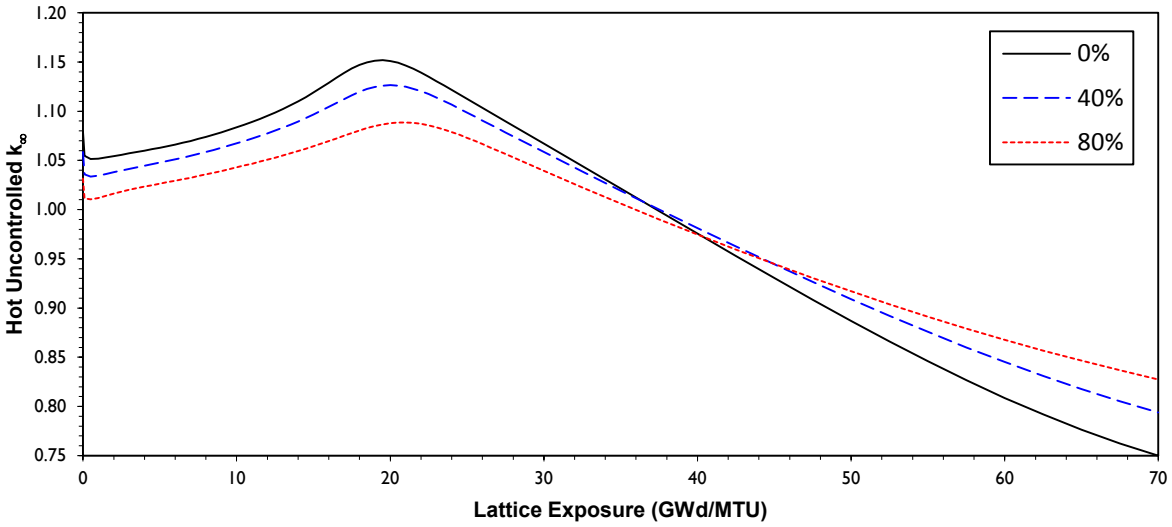

Figure A.3 [ ] Hot Uncontrolled k_∞

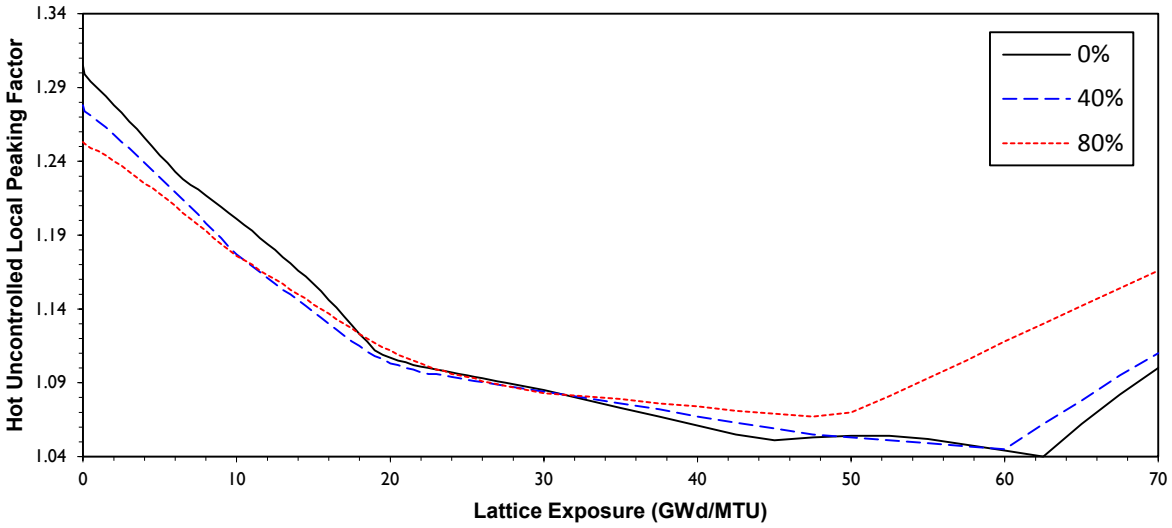

Figure A.4 [ ] Hot Uncontrolled LPF

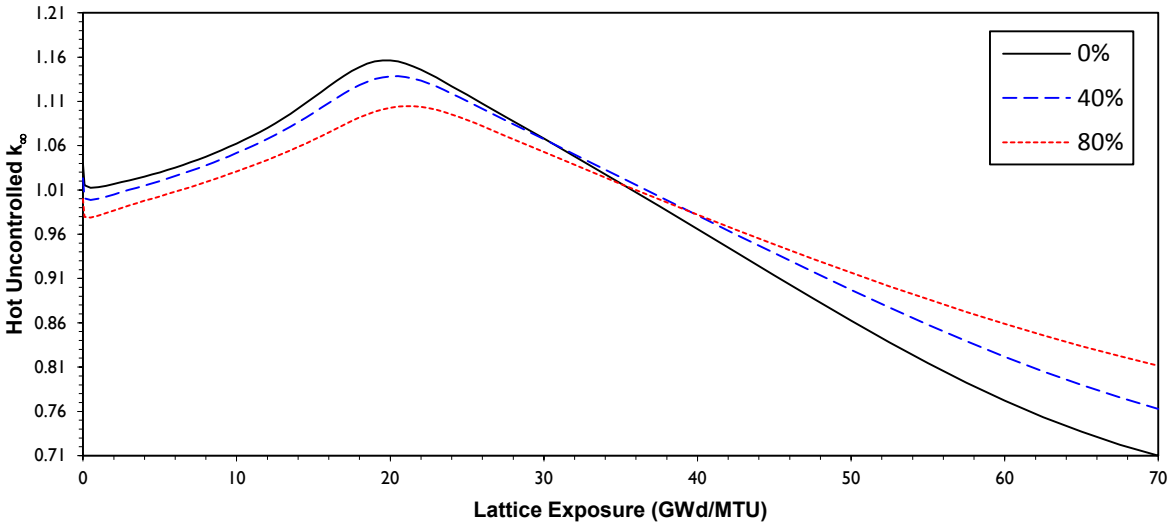

Figure A.5 [ ] Hot Uncontrolled k_∞

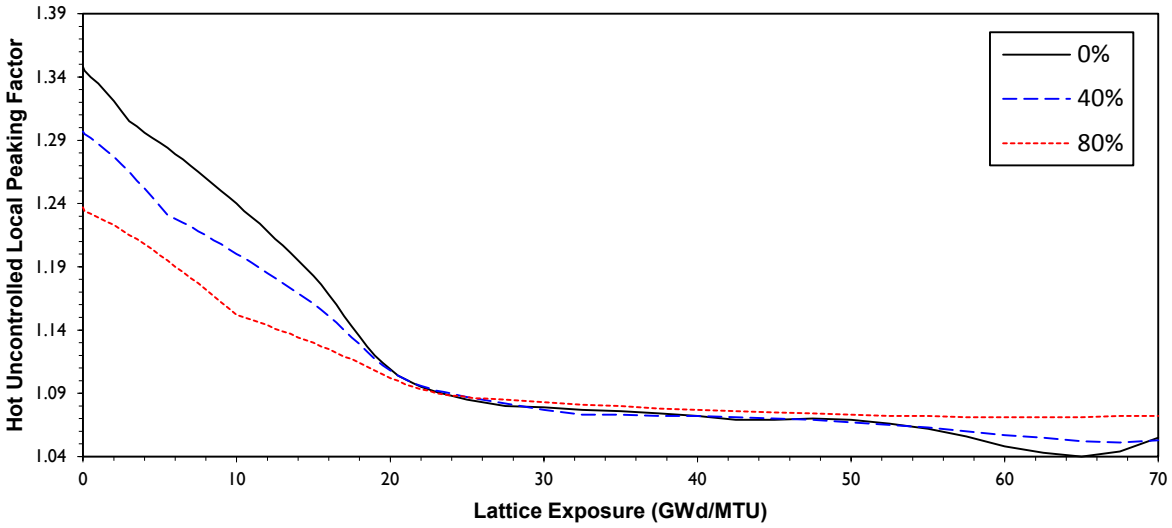

Figure A.6 [ ] Hot Uncontrolled LPF

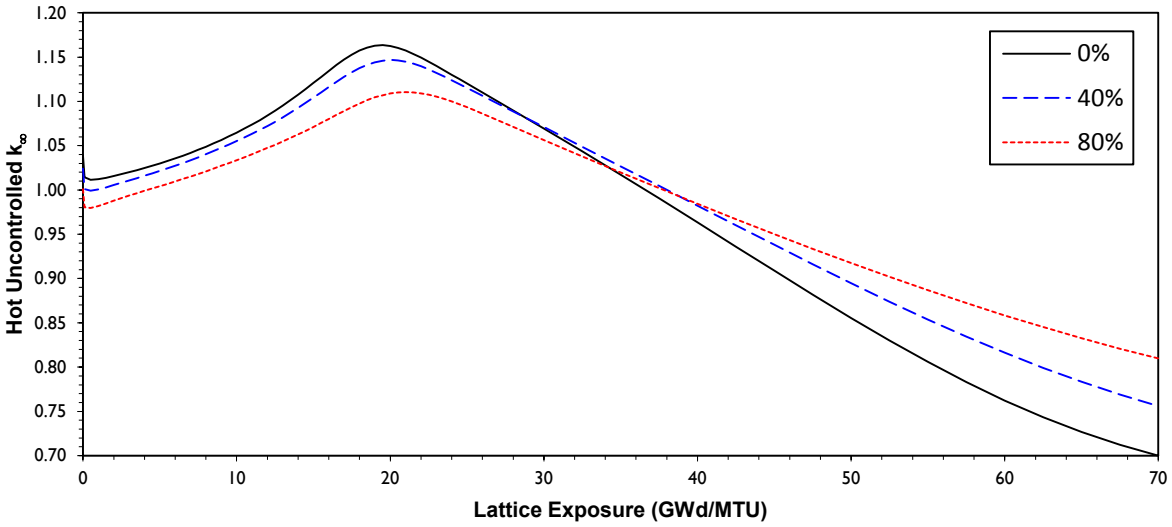

Figure A.7 [ ] Hot Uncontrolled k_∞

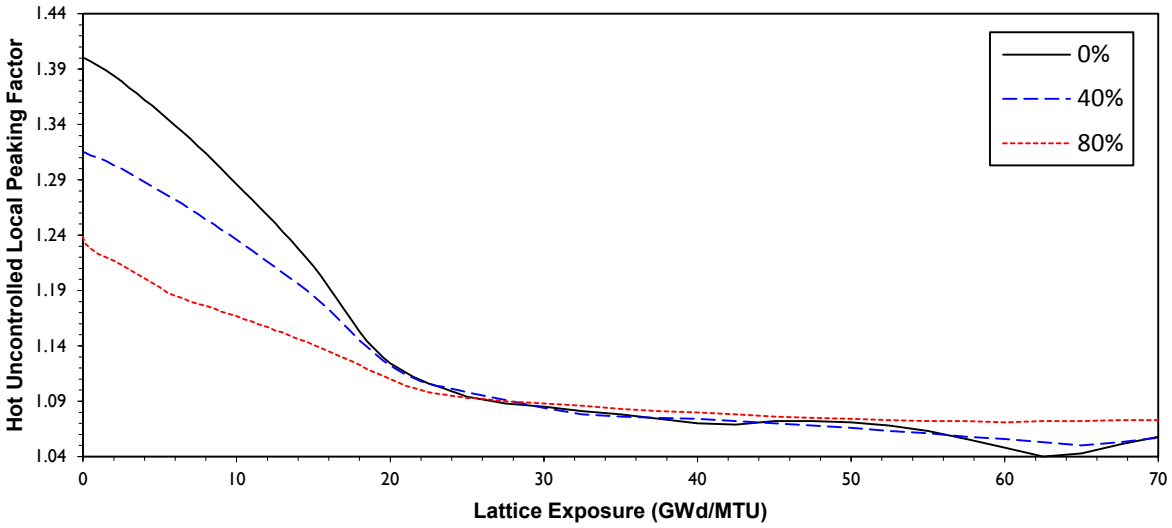

Figure A.8 [ ] Hot Uncontrolled LPF

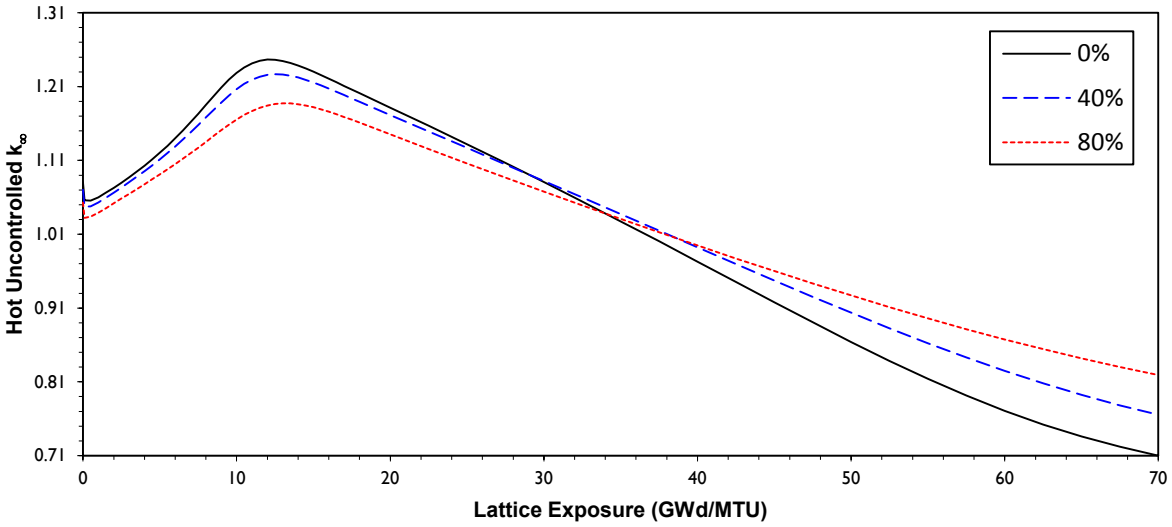

Figure A.9 [ ] Hot Uncontrolled k_∞

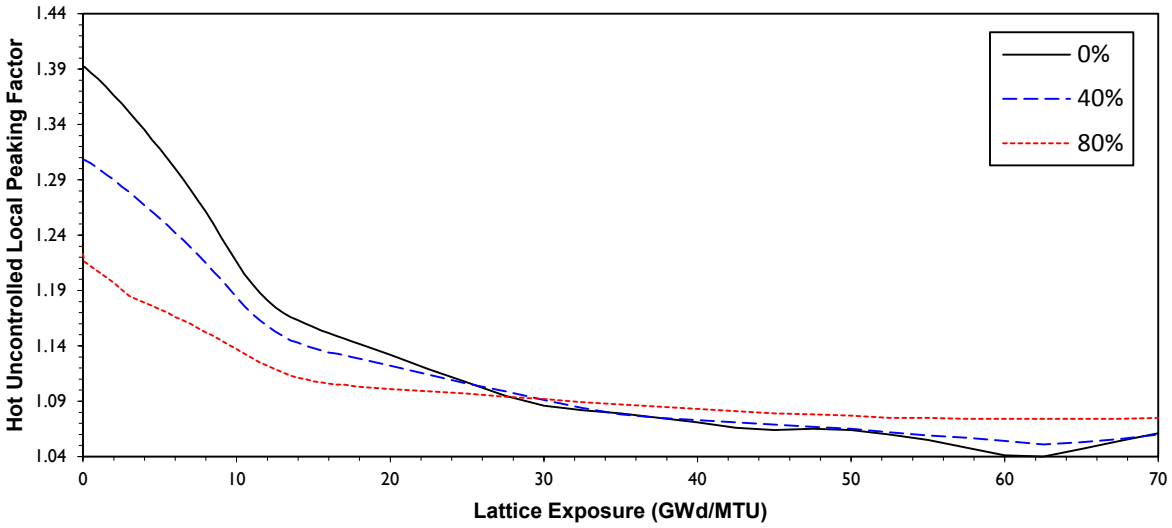

Figure A.10 [ ] Hot Uncontrolled LPF

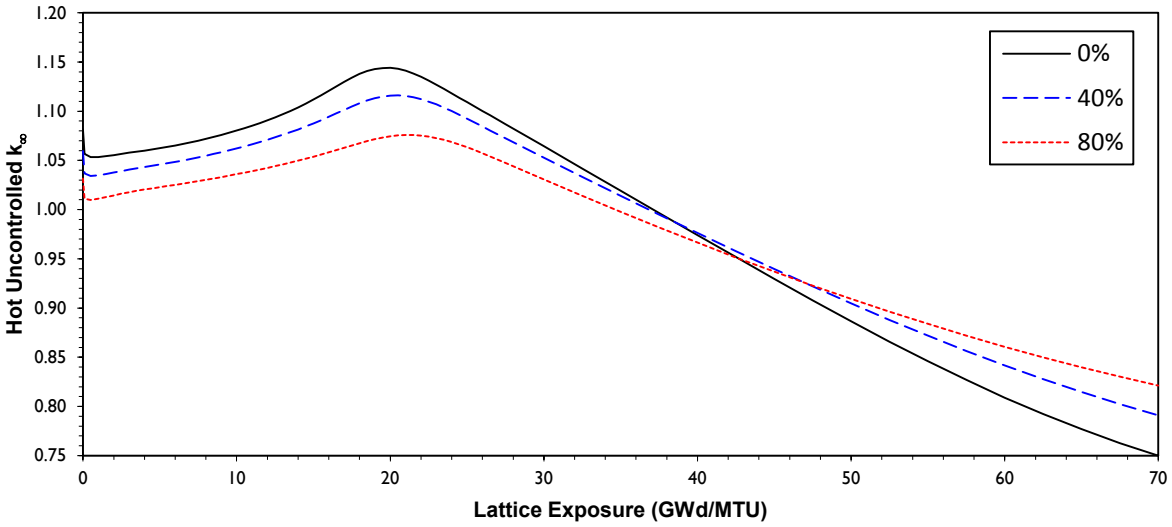

Figure A.11 [ ] Hot Uncontrolled k_∞

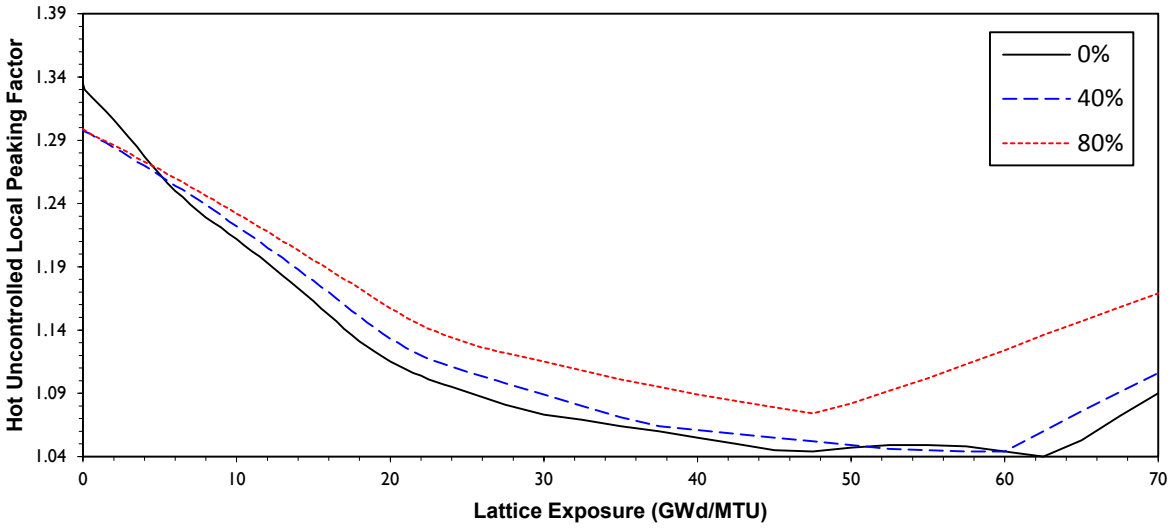

Figure A.12 [ ] Hot Uncontrolled LPF

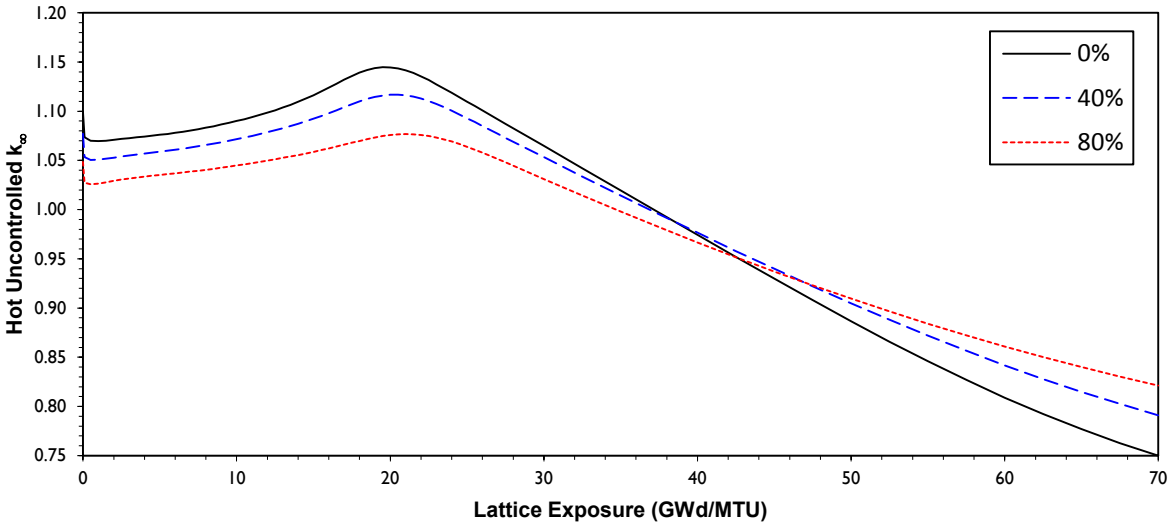

Figure A.13 [ ] Hot Uncontrolled k_∞

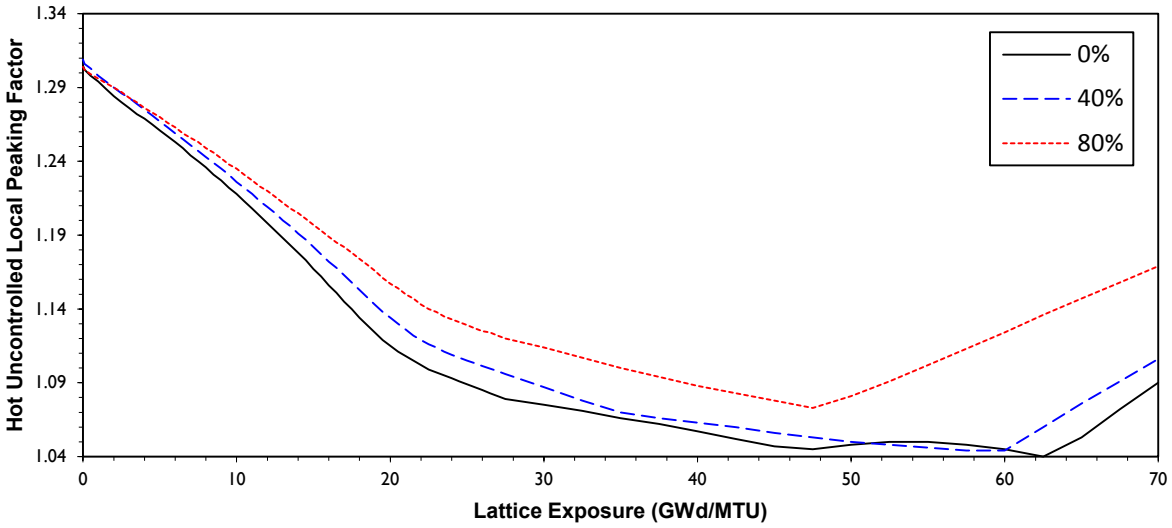

Figure A.14 [ ] Hot Uncontrolled LPF

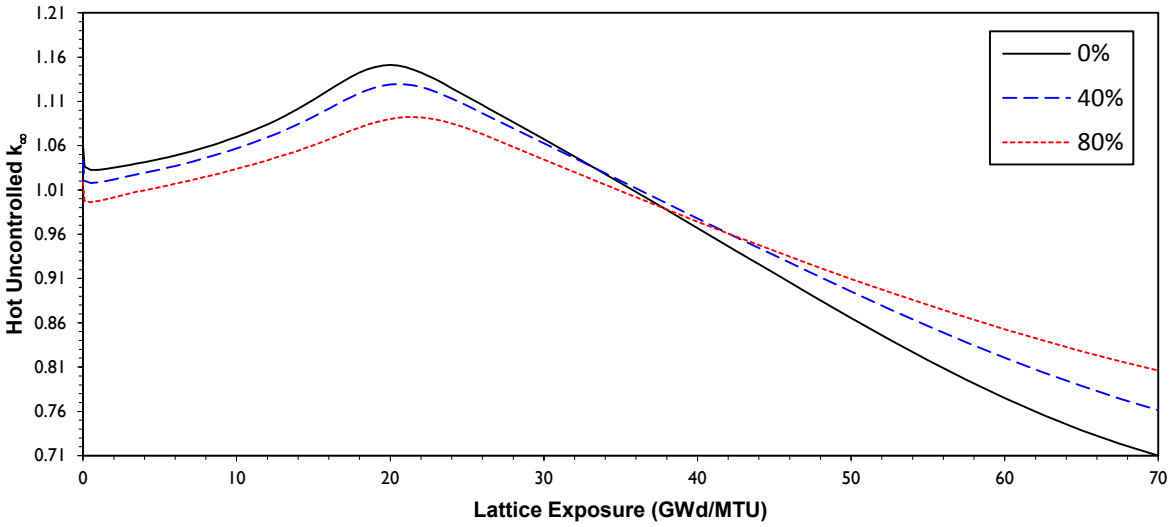

Figure A.15 [ ] Hot Uncontrolled k_∞

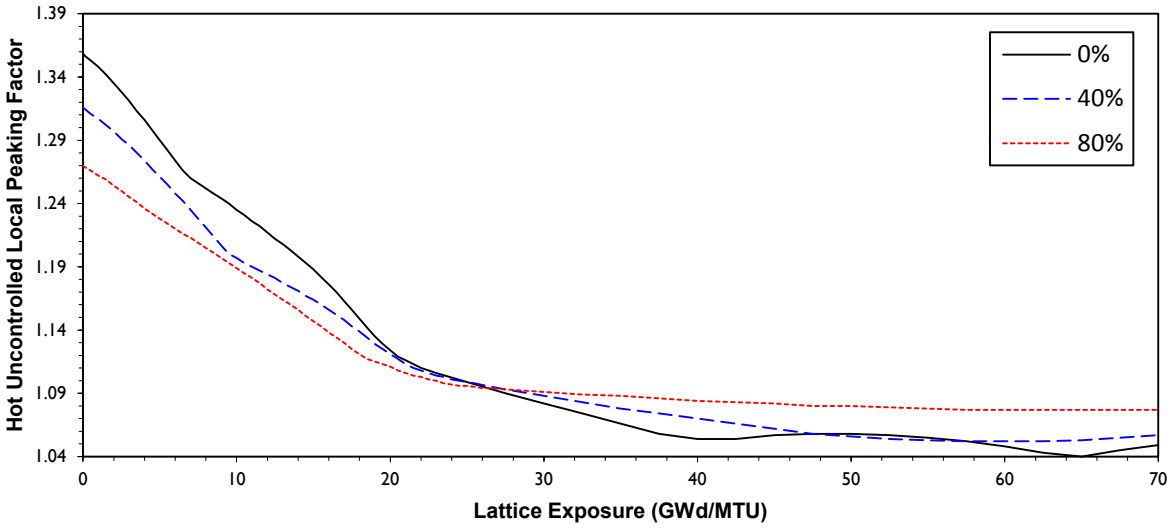

Figure A.16 [ ] Hot Uncontrolled LPF

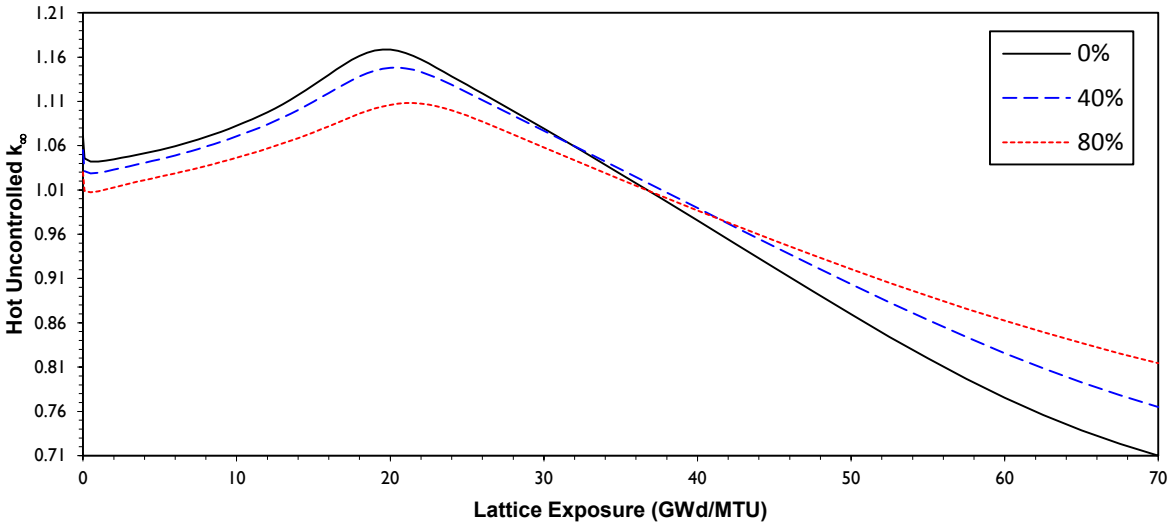

Figure A.17 [ ] Hot Uncontrolled k_∞

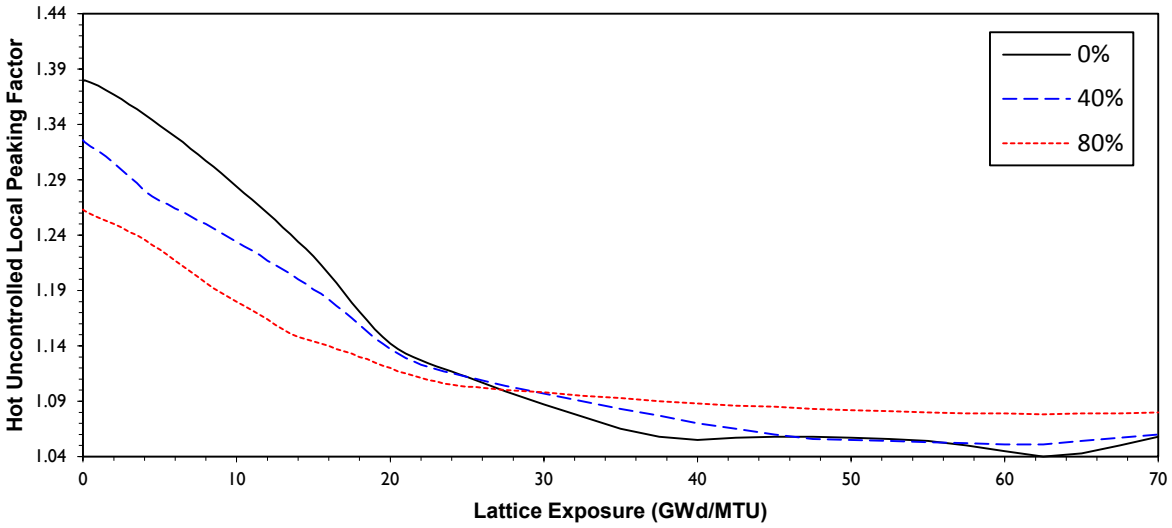

Figure A.18 [ ] Hot Uncontrolled LPF

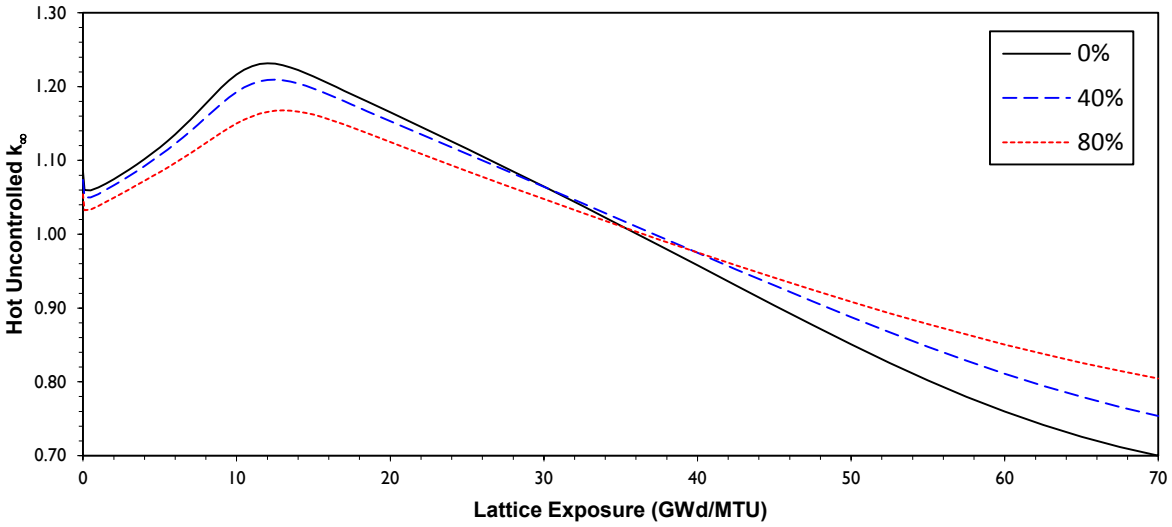

Figure A.19 [ ] Hot Uncontrolled k_∞

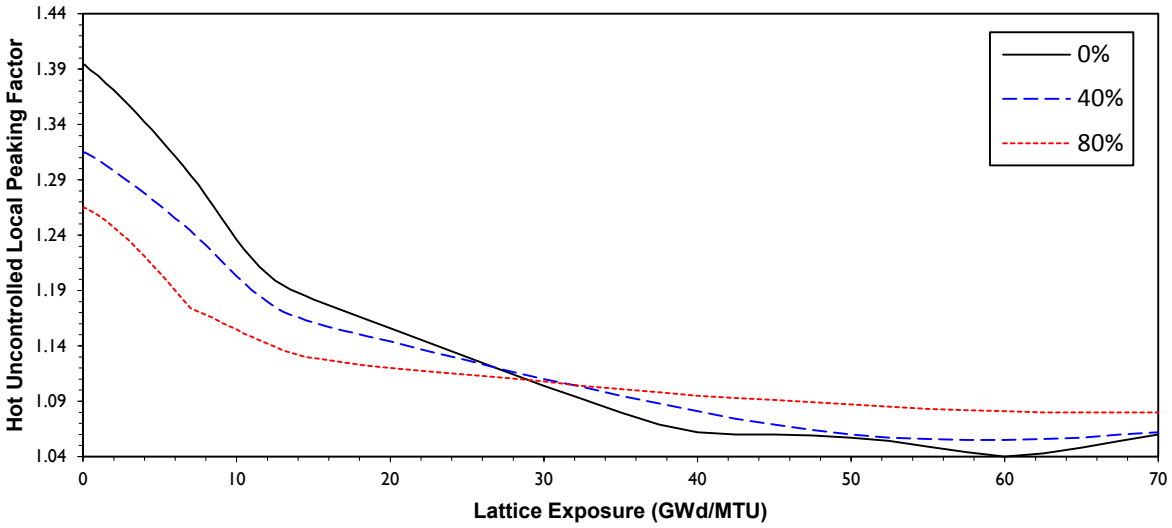

Figure A.20 [ ] Hot Uncontrolled LPF

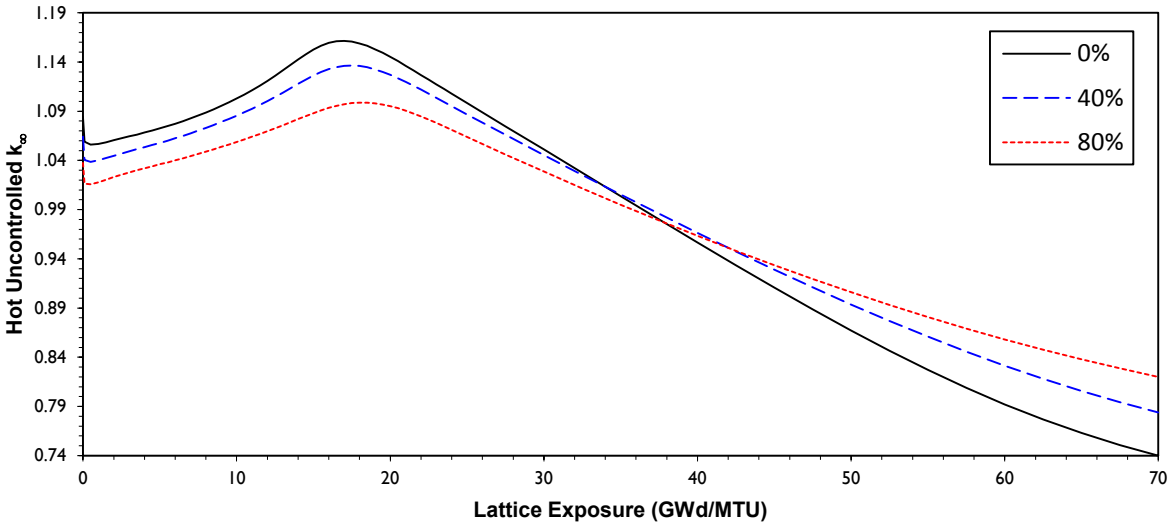

Figure A.21 [ ] Hot Uncontrolled k_∞

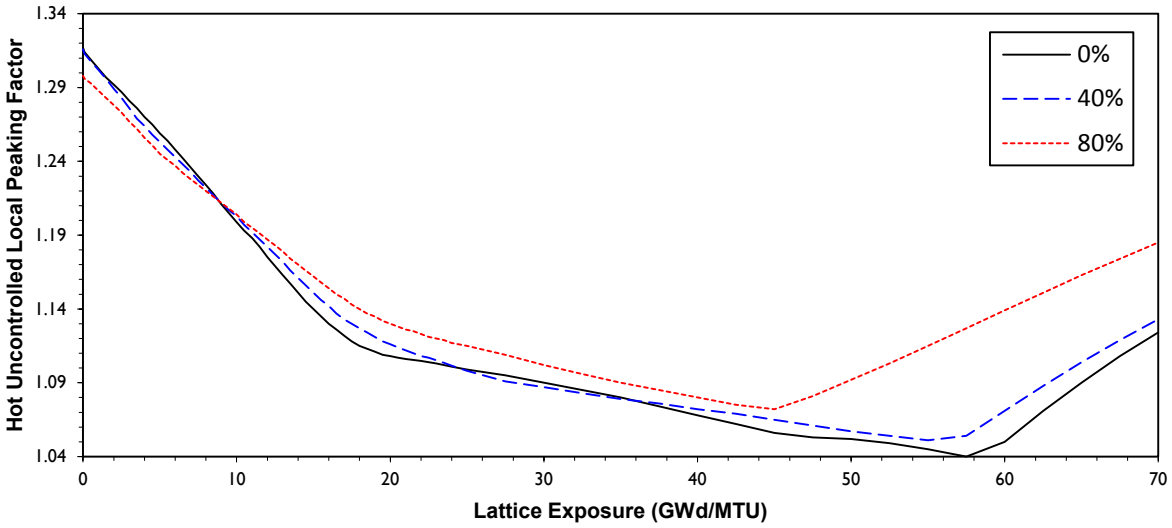

Figure A.22 [ ] Hot Uncontrolled LPF

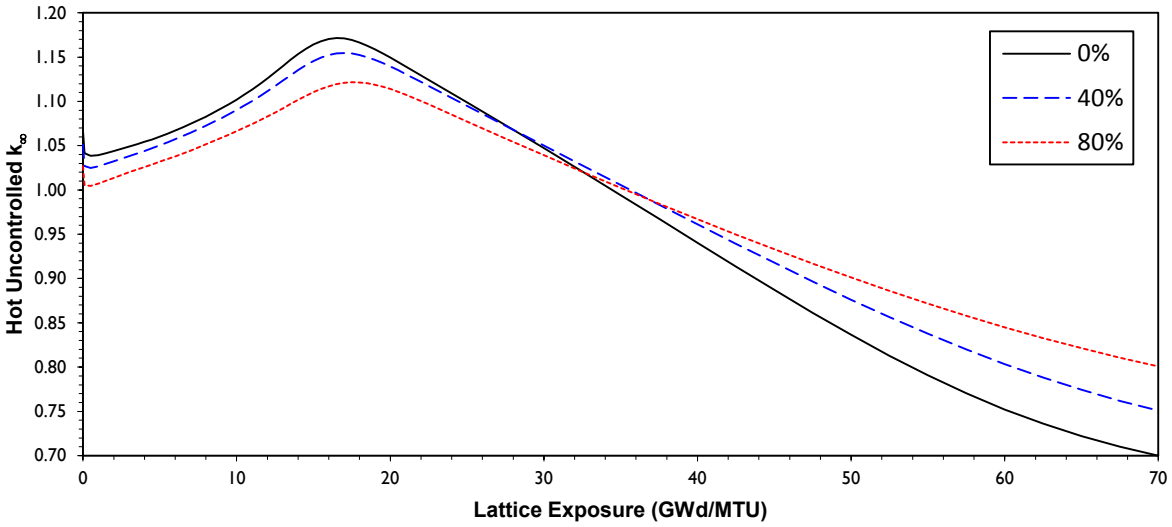

Figure A.23 [ ] Hot Uncontrolled k_∞

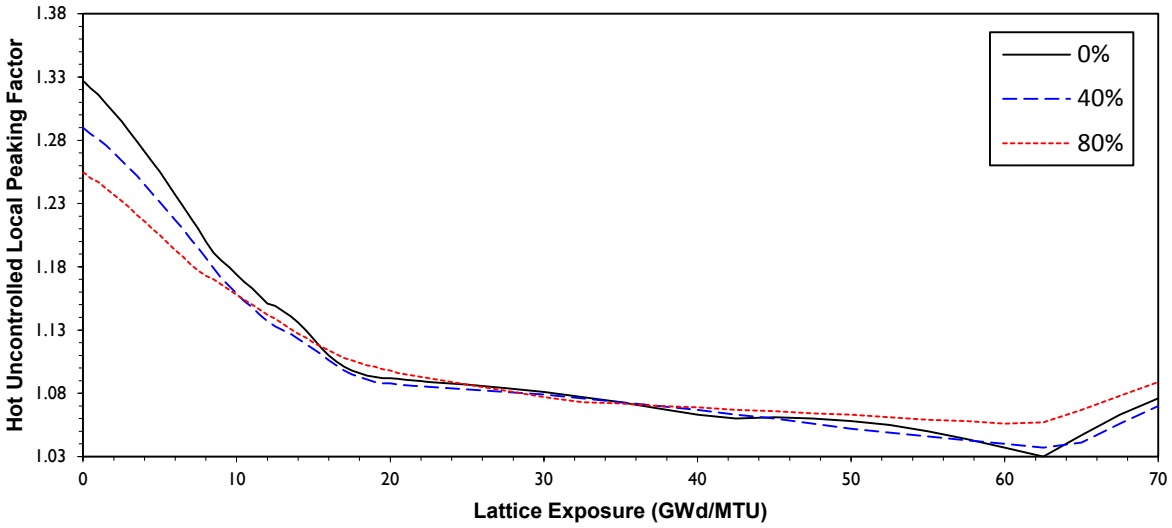

Figure A.24 [ ] Hot Uncontrolled LPF

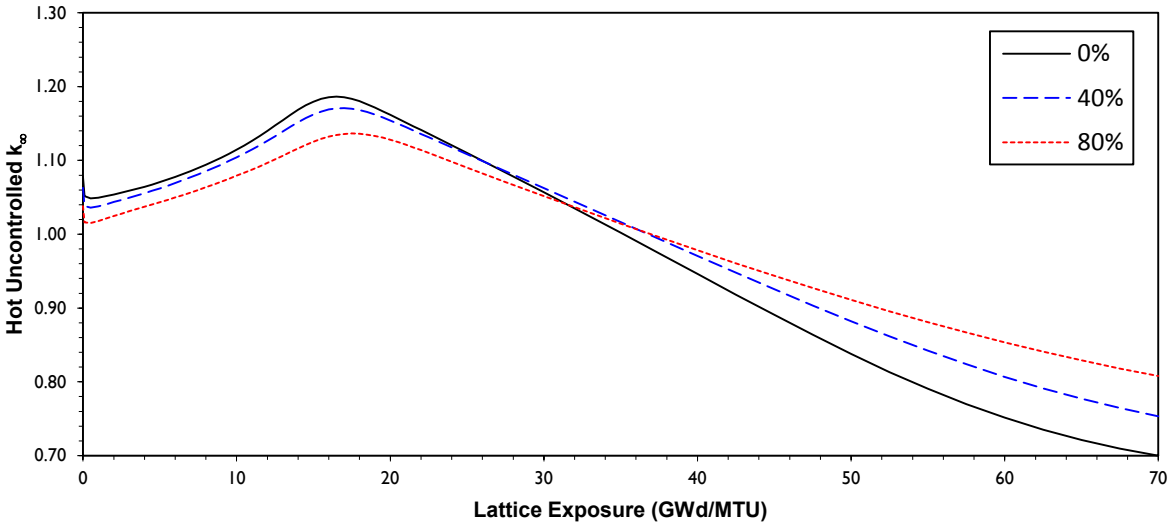

Figure A.25 [ ] Hot Uncontrolled k_∞

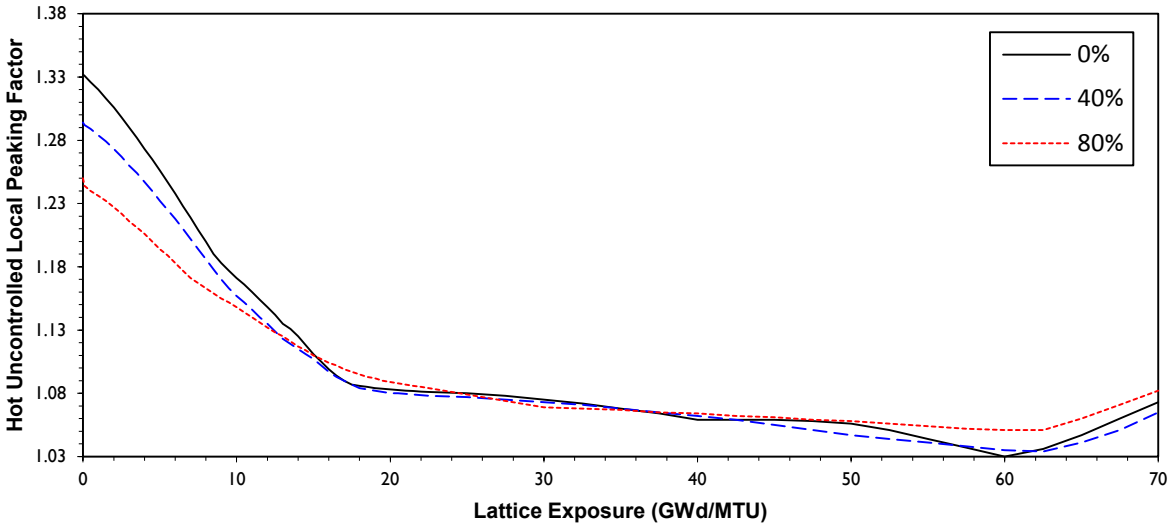

Figure A.26 [ ] Hot Uncontrolled LPF

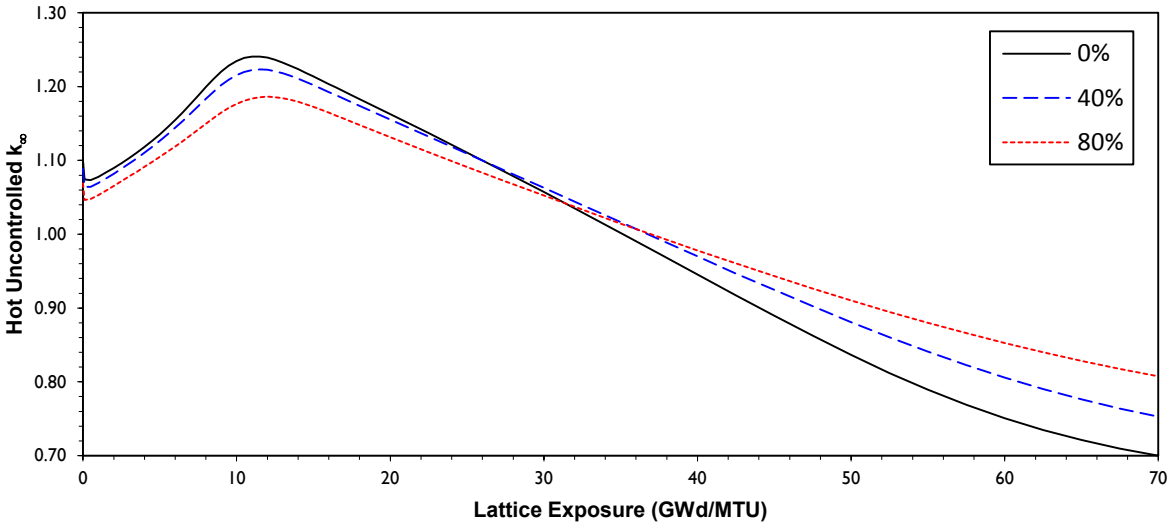

Figure A.27 [ ] Hot Uncontrolled k_∞

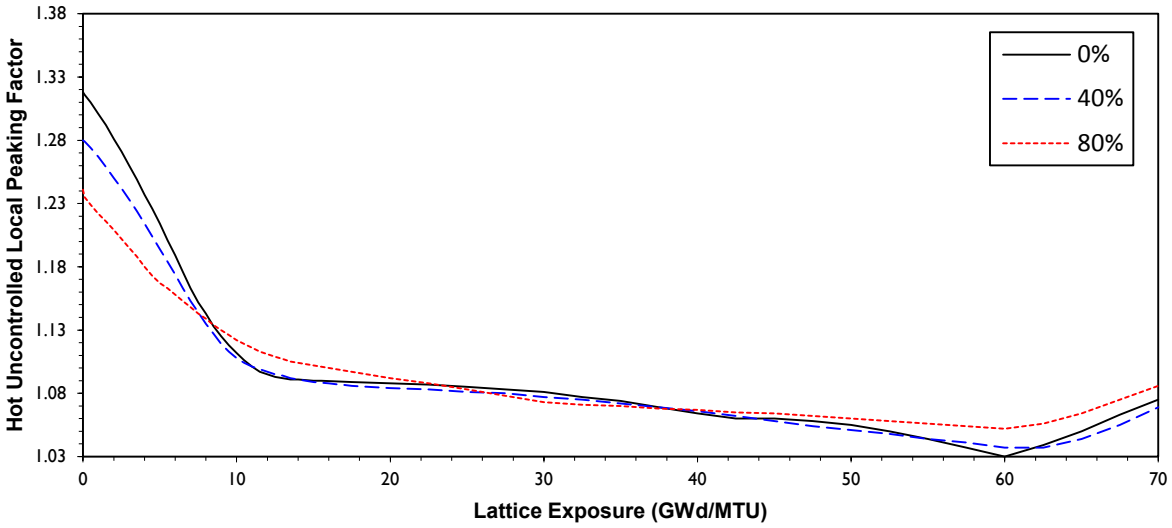

Figure A.28 [ ] Hot Uncontrolled LPF

Appendix B Enriched Lattice Hot Uncontrolled Reactivity and LPF Tables

The results in this appendix are based on hot operating and equilibrium xenon conditions.

Table B.1 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.04657	1.02744	1.00273
100.	1.02319	1.00595	0.98391
500.	1.02084	1.00457	0.98366
1000.	1.02178	1.00627	0.98608
1500.	1.02364	1.00867	0.98893
2000.	1.02575	1.01121	0.99176
2500.	1.02789	1.01371	0.99444
3000.	1.02999	1.01610	0.99695
3500.	1.03206	1.01840	0.99931
4000.	1.03417	1.02066	1.00156
4500.	1.03633	1.02292	1.00374
5000.	1.03858	1.02520	1.00588
5500.	1.04094	1.02755	1.00801
6000.	1.04343	1.02997	1.01016
6500.	1.04607	1.03247	1.01234
7000.	1.04884	1.03507	1.01456
7500.	1.05175	1.03776	1.01685
8000.	1.05479	1.04054	1.01919
8500.	1.05797	1.04341	1.02159
9000.	1.06128	1.04638	1.02404
9500.	1.06474	1.04944	1.02653
10000.	1.06837	1.05261	1.02908
10500.	1.07218	1.05590	1.03168
11000.	1.07617	1.05931	1.03433
11500.	1.08035	1.06285	1.03704
12000.	1.08472	1.06653	1.03981
12500.	1.08931	1.07034	1.04264
13000.	1.09410	1.07429	1.04554
13500.	1.09913	1.07839	1.04852
14000.	1.10438	1.08263	1.05158
14500.	1.10988	1.08703	1.05473
15000.	1.11560	1.09158	1.05795
15500.	1.12153	1.09628	1.06126
16000.	1.12762	1.10110	1.06463
16500.	1.13365	1.10597	1.06805
17000.	1.13933	1.11078	1.07149
17500.	1.14435	1.11530	1.07488
18000.	1.14847	1.11930	1.07815
18500.	1.15153	1.12264	1.08116
19000.	1.15338	1.12519	1.08381
19500.	1.15394	1.12688	1.08598
20000.	1.15321	1.12766	1.08760
20500.	1.15136	1.12751	1.08864
21000.	1.14861	1.12648	1.08907
21500.	1.14522	1.12466	1.08892
22000.	1.14138	1.12220	1.08821
22500.	1.13716	1.11924	1.08696
23000.	1.13266	1.11592	1.08525
23500.	1.12816	1.11235	1.08312
24000.	1.12366	1.10861	1.08066
24500.	1.11916	1.10464	1.07792
25000.	1.11466	1.10066	1.07497
25500.	1.11013	1.09665	1.07186
26000.	1.10559	1.09265	1.06864
26500.	1.10106	1.08864	1.06534
27000.	1.09652	1.08464	1.06199
27500.	1.09199	1.08063	1.05857
30000.	1.06927	1.06082	1.04149
32500.	1.04652	1.04121	1.02479
35000.	1.02374	1.02183	1.00847
37500.	1.00096	1.00268	0.99255
40000.	0.97825	0.98380	0.97706
42500.	0.95567	0.96521	0.96200
45000.	0.93330	0.94697	0.94739
47500.	0.91129	0.92912	0.93327
50000.	0.88975	0.91172	0.91964
52500.	0.86886	0.89484	0.90653
55000.	0.84876	0.87855	0.89396
57500.	0.82963	0.86293	0.88195
60000.	0.81162	0.84803	0.87049
62500.	0.79486	0.83392	0.85961
65000.	0.77947	0.82066	0.84931
67500.	0.76551	0.80828	0.83959
70000.	0.75300	0.79681	0.83046

Table B.2 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.332	1.320	1.291
100.	1.328	1.317	1.288
500.	1.324	1.313	1.285
1000.	1.319	1.308	1.281
1500.	1.313	1.302	1.277
2000.	1.306	1.297	1.273
2500.	1.300	1.291	1.268
3000.	1.294	1.285	1.264
3500.	1.287	1.279	1.259
4000.	1.280	1.273	1.254
4500.	1.274	1.267	1.250
5000.	1.267	1.261	1.245
5500.	1.260	1.255	1.240
6000.	1.253	1.248	1.235
6500.	1.246	1.242	1.230
7000.	1.241	1.236	1.225
7500.	1.236	1.229	1.220
8000.	1.232	1.223	1.214
8500.	1.227	1.216	1.209
9000.	1.222	1.210	1.204
9500.	1.216	1.203	1.199
10000.	1.211	1.196	1.194
10500.	1.206	1.191	1.190
11000.	1.201	1.186	1.186
11500.	1.195	1.181	1.182
12000.	1.191	1.176	1.178
12500.	1.186	1.170	1.173
13000.	1.181	1.166	1.169
13500.	1.176	1.161	1.165
14000.	1.171	1.156	1.161
14500.	1.166	1.152	1.157
15000.	1.161	1.147	1.153
15500.	1.155	1.142	1.149
16000.	1.150	1.137	1.145
16500.	1.144	1.132	1.141
17000.	1.137	1.128	1.137
17500.	1.131	1.123	1.133
18000.	1.126	1.119	1.129
18500.	1.120	1.115	1.125
19000.	1.115	1.112	1.122
19500.	1.111	1.109	1.119
20000.	1.108	1.106	1.115
20500.	1.106	1.104	1.113
21000.	1.105	1.102	1.110
21500.	1.103	1.100	1.108
22000.	1.102	1.099	1.105
22500.	1.101	1.098	1.103
23000.	1.100	1.097	1.102
23500.	1.099	1.096	1.100
24000.	1.098	1.095	1.098
24500.	1.097	1.095	1.097
25000.	1.096	1.094	1.096
25500.	1.095	1.093	1.094
26000.	1.094	1.092	1.093
26500.	1.093	1.092	1.092
27000.	1.092	1.091	1.091
27500.	1.091	1.090	1.090
30000.	1.086	1.086	1.086
32500.	1.081	1.082	1.083
35000.	1.076	1.077	1.081
37500.	1.071	1.073	1.078
40000.	1.065	1.070	1.076
42500.	1.059	1.067	1.074
45000.	1.056	1.063	1.073
47500.	1.056	1.060	1.072
50000.	1.059	1.058	1.073
52500.	1.060	1.055	1.085
55000.	1.059	1.054	1.097
57500.	1.057	1.052	1.109
60000.	1.052	1.049	1.121
62500.	1.046	1.065	1.133
65000.	1.065	1.082	1.145
67500.	1.085	1.098	1.157
70000.	1.104	1.114	1.169

Table B.3 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.08338	1.06244	1.03533
100.	1.05840	1.03940	1.01503
500.	1.05532	1.03727	1.01400
1000.	1.05552	1.03819	1.01563
1500.	1.05668	1.03989	1.01777
2000.	1.05809	1.04174	1.01992
2500.	1.05952	1.04354	1.02193
3000.	1.06091	1.04524	1.02378
3500.	1.06226	1.04684	1.02549
4000.	1.06363	1.04839	1.02708
4500.	1.06505	1.04994	1.02860
5000.	1.06653	1.05151	1.03009
5500.	1.06811	1.05312	1.03156
6000.	1.06979	1.05480	1.03305
6500.	1.07158	1.05656	1.03457
7000.	1.07349	1.05838	1.03613
7500.	1.07550	1.06029	1.03775
8000.	1.07762	1.06227	1.03942
8500.	1.07985	1.06432	1.04114
9000.	1.08218	1.06645	1.04291
9500.	1.08464	1.06866	1.04472
10000.	1.08722	1.07095	1.04658
10500.	1.08994	1.07335	1.04848
11000.	1.09280	1.07584	1.05042
11500.	1.09580	1.07843	1.05241
12000.	1.09896	1.08114	1.05445
12500.	1.10231	1.08396	1.05654
13000.	1.10586	1.08691	1.05869
13500.	1.10965	1.08999	1.06091
14000.	1.11371	1.09324	1.06320
14500.	1.11805	1.09666	1.06558
15000.	1.12268	1.10028	1.06805
15500.	1.12755	1.10409	1.07061
16000.	1.13265	1.10805	1.07326
16500.	1.13778	1.11210	1.07598
17000.	1.14270	1.11613	1.07875
17500.	1.14714	1.11995	1.08149
18000.	1.15079	1.12334	1.08413
18500.	1.15347	1.12617	1.08656
19000.	1.15507	1.12828	1.08866
19500.	1.15552	1.12959	1.09033
20000.	1.15477	1.13007	1.09150
20500.	1.15294	1.12968	1.09213
21000.	1.15024	1.12848	1.09222
21500.	1.14687	1.12655	1.09176
22000.	1.14305	1.12401	1.09078
22500.	1.13883	1.12100	1.08932
23000.	1.13432	1.11764	1.08743
23500.	1.12981	1.11403	1.08516
24000.	1.12531	1.11027	1.08258
24500.	1.12080	1.10628	1.07975
25000.	1.11629	1.10228	1.07673
25500.	1.11174	1.09826	1.07357
26000.	1.10719	1.09424	1.07030
26500.	1.10265	1.09022	1.06697
27000.	1.09810	1.08620	1.06359
27500.	1.09355	1.08218	1.06015
30000.	1.07075	1.06229	1.04299
32500.	1.04792	1.04261	1.02622
35000.	1.02506	1.02315	1.00983
37500.	1.00220	1.00394	0.99385
40000.	0.97940	0.98498	0.97830
42500.	0.95674	0.96632	0.96318
45000.	0.93430	0.94801	0.94851
47500.	0.91221	0.93010	0.93433
50000.	0.89060	0.91264	0.92066
52500.	0.86965	0.89570	0.90750
55000.	0.84950	0.87936	0.89489
57500.	0.83033	0.86369	0.88283
60000.	0.81229	0.84876	0.87135
62500.	0.79551	0.83463	0.86044
65000.	0.78011	0.82134	0.85011
67500.	0.76615	0.80895	0.84038
70000.	0.75365	0.79748	0.83123

Table B.4 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.308	1.281	1.256
100.	1.302	1.277	1.255
500.	1.297	1.274	1.252
1000.	1.292	1.270	1.250
1500.	1.287	1.266	1.247
2000.	1.281	1.261	1.243
2500.	1.276	1.256	1.240
3000.	1.270	1.252	1.236
3500.	1.265	1.247	1.232
4000.	1.259	1.242	1.228
4500.	1.253	1.237	1.225
5000.	1.247	1.232	1.221
5500.	1.242	1.227	1.217
6000.	1.236	1.222	1.213
6500.	1.231	1.217	1.208
7000.	1.227	1.212	1.204
7500.	1.224	1.207	1.200
8000.	1.220	1.201	1.196
8500.	1.216	1.196	1.191
9000.	1.212	1.191	1.187
9500.	1.208	1.185	1.183
10000.	1.204	1.180	1.179
10500.	1.200	1.176	1.176
11000.	1.196	1.172	1.173
11500.	1.191	1.168	1.169
12000.	1.187	1.164	1.166
12500.	1.183	1.160	1.163
13000.	1.178	1.156	1.160
13500.	1.174	1.153	1.156
14000.	1.169	1.149	1.153
14500.	1.165	1.145	1.150
15000.	1.160	1.141	1.146
15500.	1.155	1.137	1.143
16000.	1.149	1.133	1.140
16500.	1.144	1.129	1.136
17000.	1.138	1.125	1.133
17500.	1.132	1.121	1.130
18000.	1.126	1.118	1.126
18500.	1.121	1.114	1.123
19000.	1.115	1.111	1.120
19500.	1.112	1.109	1.117
20000.	1.110	1.106	1.115
20500.	1.108	1.105	1.112
21000.	1.107	1.103	1.110
21500.	1.105	1.102	1.108
22000.	1.104	1.100	1.106
22500.	1.103	1.099	1.104
23000.	1.102	1.099	1.102
23500.	1.101	1.098	1.101
24000.	1.100	1.097	1.099
24500.	1.099	1.096	1.098
25000.	1.098	1.095	1.097
25500.	1.097	1.094	1.096
26000.	1.096	1.093	1.094
26500.	1.095	1.093	1.093
27000.	1.094	1.092	1.092
27500.	1.093	1.091	1.091
30000.	1.088	1.087	1.086
32500.	1.082	1.083	1.084
35000.	1.076	1.079	1.082
37500.	1.070	1.075	1.079
40000.	1.064	1.070	1.077
42500.	1.058	1.066	1.074
45000.	1.054	1.062	1.072
47500.	1.056	1.058	1.070
50000.	1.057	1.056	1.073
52500.	1.057	1.054	1.084
55000.	1.055	1.052	1.096
57500.	1.051	1.050	1.108
60000.	1.047	1.048	1.121
62500.	1.043	1.065	1.133
65000.	1.065	1.081	1.145
67500.	1.085	1.098	1.157
70000.	1.103	1.113	1.169

Table B.5 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.03925	1.02284	0.99921
100.	1.01474	1.00008	0.97904
500.	1.01192	0.99822	0.97832
1000.	1.01247	0.99958	0.98051
1500.	1.01415	1.00191	0.98339
2000.	1.01616	1.00447	0.98638
2500.	1.01826	1.00706	0.98929
3000.	1.02036	1.00957	0.99206
3500.	1.02248	1.01204	0.99471
4000.	1.02469	1.01451	0.99728
4500.	1.02700	1.01703	0.99982
5000.	1.02944	1.01962	1.00234
5500.	1.03203	1.02231	1.00488
6000.	1.03477	1.02510	1.00747
6500.	1.03765	1.02799	1.01011
7000.	1.04068	1.03100	1.01281
7500.	1.04384	1.03409	1.01558
8000.	1.04714	1.03729	1.01842
8500.	1.05060	1.04058	1.02132
9000.	1.05421	1.04399	1.02428
9500.	1.05797	1.04752	1.02731
10000.	1.06190	1.05117	1.03041
10500.	1.06599	1.05495	1.03358
11000.	1.07028	1.05885	1.03682
11500.	1.07479	1.06290	1.04013
12000.	1.07956	1.06712	1.04351
12500.	1.08460	1.07152	1.04697
13000.	1.08994	1.07613	1.05053
13500.	1.09555	1.08096	1.05421
14000.	1.10143	1.08600	1.05801
14500.	1.10751	1.09123	1.06195
15000.	1.11372	1.09664	1.06603
15500.	1.12000	1.10214	1.07024
16000.	1.12632	1.10767	1.07455
16500.	1.13249	1.11318	1.07891
17000.	1.13836	1.11850	1.08322
17500.	1.14366	1.12346	1.08739
18000.	1.14829	1.12788	1.09129
18500.	1.15201	1.13165	1.09483
19000.	1.15458	1.13466	1.09792
19500.	1.15588	1.13674	1.10047
20000.	1.15582	1.13782	1.10240
20500.	1.15451	1.13791	1.10365
21000.	1.15212	1.13705	1.10419
21500.	1.14891	1.13533	1.10402
22000.	1.14509	1.13287	1.10320
22500.	1.14087	1.12983	1.10180
23000.	1.13639	1.12634	1.09988
23500.	1.13151	1.12255	1.09754
24000.	1.12662	1.11832	1.09482
24500.	1.12173	1.11410	1.09181
25000.	1.11685	1.10987	1.08859
25500.	1.11195	1.10556	1.08521
26000.	1.10704	1.10126	1.08171
27500.	1.09233	1.08834	1.07064
30000.	1.06754	1.06682	1.05229
32500.	1.04241	1.04528	1.03418
35000.	1.01693	1.02374	1.01634
37500.	0.99116	1.00220	0.99877
40000.	0.96516	0.98071	0.98149
42500.	0.93905	0.95932	0.96454
45000.	0.91299	0.93811	0.94794
47500.	0.88719	0.91717	0.93174
50000.	0.86189	0.89662	0.91599
52500.	0.83738	0.87659	0.90072
55000.	0.81395	0.85722	0.88600
57500.	0.79191	0.83867	0.87184
60000.	0.77151	0.82106	0.85831
62500.	0.75297	0.80454	0.84543
65000.	0.73643	0.78920	0.83324
67500.	0.72195	0.77512	0.82178
70000.	0.70946	0.76236	0.81106

Table B.6 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.348	1.297	1.237
100.	1.345	1.295	1.234
500.	1.340	1.292	1.232
1000.	1.335	1.287	1.229
1500.	1.328	1.282	1.226
2000.	1.321	1.277	1.223
2500.	1.313	1.271	1.219
3000.	1.305	1.265	1.215
3500.	1.301	1.258	1.212
4000.	1.296	1.252	1.208
4500.	1.292	1.245	1.204
5000.	1.288	1.238	1.199
5500.	1.284	1.231	1.195
6000.	1.279	1.228	1.190
6500.	1.275	1.225	1.186
7000.	1.270	1.222	1.181
7500.	1.265	1.218	1.177
8000.	1.260	1.215	1.172
8500.	1.255	1.211	1.167
9000.	1.250	1.208	1.162
9500.	1.245	1.204	1.157
10000.	1.240	1.200	1.152
10500.	1.234	1.197	1.150
11000.	1.229	1.193	1.148
11500.	1.224	1.189	1.146
12000.	1.218	1.185	1.144
12500.	1.212	1.181	1.141
13000.	1.207	1.177	1.139
13500.	1.201	1.173	1.137
14000.	1.195	1.169	1.134
14500.	1.189	1.165	1.132
15000.	1.183	1.161	1.130
15500.	1.176	1.156	1.127
16000.	1.168	1.151	1.125
16500.	1.160	1.146	1.122
17000.	1.151	1.140	1.119
17500.	1.143	1.134	1.117
18000.	1.135	1.129	1.114
18500.	1.127	1.123	1.111
19000.	1.120	1.117	1.108
19500.	1.114	1.112	1.105
20000.	1.109	1.108	1.102
20500.	1.104	1.104	1.100
21000.	1.101	1.101	1.097
21500.	1.098	1.098	1.095
22000.	1.095	1.096	1.093
22500.	1.093	1.094	1.092
23000.	1.091	1.092	1.090
23500.	1.089	1.091	1.089
24000.	1.088	1.090	1.088
24500.	1.087	1.088	1.088
25000.	1.085	1.087	1.087
25500.	1.084	1.086	1.086
26000.	1.083	1.085	1.086
27500.	1.080	1.082	1.085
30000.	1.079	1.077	1.083
32500.	1.077	1.073	1.081
35000.	1.076	1.073	1.080
37500.	1.074	1.072	1.078
40000.	1.072	1.072	1.077
42500.	1.069	1.071	1.076
45000.	1.069	1.070	1.075
47500.	1.070	1.069	1.074
50000.	1.069	1.067	1.073
52500.	1.066	1.065	1.072
55000.	1.062	1.063	1.072
57500.	1.056	1.060	1.071
60000.	1.048	1.057	1.071
62500.	1.043	1.055	1.071
65000.	1.040	1.052	1.071
67500.	1.044	1.051	1.072
70000.	1.055	1.053	1.072

Table B.7 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.04271	1.02768	1.00439
100.	1.01798	1.00468	0.98401
500.	1.01509	1.00276	0.98326
1000.	1.01562	1.00412	0.98545
1500.	1.01734	1.00650	0.98837
2000.	1.01942	1.00913	0.99141
2500.	1.02160	1.01180	0.99439
3000.	1.02378	1.01441	0.99724
3500.	1.02602	1.01699	0.99997
4000.	1.02835	1.01960	1.00262
4500.	1.03081	1.02225	1.00524
5000.	1.03342	1.02500	1.00787
5500.	1.03619	1.02786	1.01051
6000.	1.03913	1.03083	1.01321
6500.	1.04222	1.03392	1.01596
7000.	1.04547	1.03712	1.01879
7500.	1.04886	1.04043	1.02168
8000.	1.05242	1.04385	1.02465
8500.	1.05614	1.04738	1.02768
9000.	1.06003	1.05104	1.03079
9500.	1.06408	1.05482	1.03396
10000.	1.06831	1.05873	1.03721
10500.	1.07273	1.06278	1.04054
11000.	1.07738	1.06698	1.04393
11500.	1.08227	1.07134	1.04741
12000.	1.08746	1.07589	1.05096
12500.	1.09297	1.08065	1.05460
13000.	1.09877	1.08564	1.05836
13500.	1.10487	1.09086	1.06223
14000.	1.11123	1.09631	1.06625
14500.	1.11779	1.10197	1.07041
15000.	1.12447	1.10778	1.07472
15500.	1.13122	1.11369	1.07917
16000.	1.13804	1.11965	1.08371
16500.	1.14468	1.12555	1.08829
17000.	1.15083	1.13126	1.09281
17500.	1.15630	1.13649	1.09716
18000.	1.16087	1.14111	1.10123
18500.	1.16433	1.14493	1.10490
19000.	1.16642	1.14782	1.10807
19500.	1.16699	1.14965	1.11065
20000.	1.16610	1.15037	1.11254
20500.	1.16399	1.14997	1.11369
21000.	1.16093	1.14854	1.11408
21500.	1.15720	1.14624	1.11374
22000.	1.15301	1.14326	1.11274
22500.	1.14851	1.13977	1.11114
23000.	1.14381	1.13594	1.10901
23500.	1.13878	1.13188	1.10645
24000.	1.13374	1.12748	1.10354
24500.	1.12871	1.12308	1.10037
25000.	1.12368	1.11868	1.09699
25500.	1.11865	1.11426	1.09348
27500.	1.09852	1.09659	1.07852
30000.	1.07302	1.07454	1.05993
32500.	1.04708	1.05243	1.04155
35000.	1.02072	1.03024	1.02341
37500.	0.99397	1.00801	1.00554
40000.	0.96692	0.98578	0.98794
42500.	0.93969	0.96359	0.97064
45000.	0.91249	0.94156	0.95369
47500.	0.88554	0.91976	0.93713
50000.	0.85914	0.89836	0.92101
52500.	0.83360	0.87748	0.90538
55000.	0.80928	0.85731	0.89028
57500.	0.78652	0.83801	0.87576
60000.	0.76562	0.81975	0.86187
62500.	0.74681	0.80268	0.84866
65000.	0.73020	0.78691	0.83617
67500.	0.71584	0.77253	0.82443
70000.	0.70363	0.75959	0.81346

Table B.8 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.402	1.316	1.241
100.	1.402	1.317	1.235
500.	1.399	1.314	1.230
1000.	1.395	1.312	1.225
1500.	1.391	1.309	1.222
2000.	1.386	1.305	1.219
2500.	1.381	1.302	1.215
3000.	1.375	1.298	1.211
3500.	1.370	1.294	1.207
4000.	1.364	1.290	1.203
4500.	1.359	1.286	1.199
5000.	1.353	1.282	1.195
5500.	1.347	1.278	1.190
6000.	1.341	1.274	1.187
6500.	1.335	1.270	1.185
7000.	1.329	1.265	1.182
7500.	1.322	1.261	1.180
8000.	1.316	1.256	1.178
8500.	1.309	1.252	1.176
9000.	1.302	1.247	1.173
9500.	1.295	1.243	1.171
10000.	1.288	1.238	1.169
10500.	1.281	1.233	1.166
11000.	1.274	1.228	1.164
11500.	1.267	1.223	1.161
12000.	1.260	1.218	1.159
12500.	1.253	1.213	1.156
13000.	1.245	1.208	1.154
13500.	1.238	1.203	1.151
14000.	1.230	1.198	1.148
14500.	1.222	1.193	1.146
15000.	1.214	1.187	1.143
15500.	1.205	1.181	1.140
16000.	1.195	1.175	1.137
16500.	1.185	1.168	1.134
17000.	1.175	1.161	1.131
17500.	1.165	1.154	1.128
18000.	1.155	1.147	1.125
18500.	1.146	1.141	1.121
19000.	1.139	1.135	1.118
19500.	1.132	1.129	1.115
20000.	1.126	1.124	1.112
20500.	1.122	1.120	1.109
21000.	1.118	1.116	1.106
21500.	1.114	1.113	1.104
22000.	1.111	1.110	1.102
22500.	1.108	1.108	1.100
23000.	1.106	1.106	1.099
23500.	1.103	1.105	1.098
24000.	1.101	1.103	1.097
24500.	1.099	1.102	1.096
25000.	1.096	1.100	1.095
25500.	1.095	1.099	1.095
27500.	1.090	1.093	1.092
30000.	1.087	1.086	1.090
32500.	1.083	1.080	1.088
35000.	1.080	1.078	1.085
37500.	1.076	1.077	1.083
40000.	1.072	1.076	1.082
42500.	1.071	1.074	1.080
45000.	1.074	1.072	1.078
47500.	1.074	1.070	1.077
50000.	1.073	1.068	1.076
52500.	1.070	1.065	1.075
55000.	1.065	1.063	1.074
57500.	1.058	1.060	1.074
60000.	1.050	1.058	1.073
62500.	1.042	1.055	1.074
65000.	1.045	1.052	1.074
67500.	1.053	1.055	1.075
70000.	1.060	1.059	1.075

Table B.9 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.07596	1.06564	1.04829
100.	1.05110	1.04243	1.02759
500.	1.05088	1.04303	1.02897
1000.	1.05544	1.04815	1.03428
1500.	1.06161	1.05466	1.04061
2000.	1.06827	1.06154	1.04715
2500.	1.07524	1.06858	1.05365
3000.	1.08254	1.07577	1.06010
3500.	1.09021	1.08317	1.06657
4000.	1.09829	1.09079	1.07309
4500.	1.10679	1.09869	1.07971
5000.	1.11575	1.10688	1.08643
5500.	1.12522	1.11540	1.09328
6000.	1.13521	1.12427	1.10031
6500.	1.14576	1.13352	1.10753
7000.	1.15690	1.14314	1.11495
7500.	1.16854	1.15313	1.12258
8000.	1.18047	1.16336	1.13038
8500.	1.19241	1.17365	1.13827
9000.	1.20400	1.18372	1.14610
9500.	1.21472	1.19321	1.15366
10000.	1.22397	1.20174	1.16070
10500.	1.23140	1.20893	1.16696
11000.	1.23688	1.21459	1.17227
11500.	1.24037	1.21865	1.17651
12000.	1.24193	1.22112	1.17962
12500.	1.24173	1.22209	1.18161
13000.	1.24008	1.22168	1.18252
13500.	1.23733	1.22011	1.18245
14000.	1.23382	1.21761	1.18149
14500.	1.22978	1.21444	1.17977
15000.	1.22543	1.21078	1.17742
15500.	1.22086	1.20681	1.17458
16000.	1.21597	1.20263	1.17136
16500.	1.21108	1.19832	1.16787
17000.	1.20619	1.19381	1.16419
17500.	1.20130	1.18931	1.16038
18000.	1.19641	1.18480	1.15648
20000.	1.17683	1.16676	1.14039
22500.	1.15218	1.14445	1.12059
25000.	1.12717	1.12216	1.10113
27500.	1.10176	1.09985	1.08197
30000.	1.07591	1.07748	1.06308
32500.	1.04960	1.05504	1.04445
35000.	1.02284	1.03253	1.02605
37500.	0.99569	1.00997	1.00791
40000.	0.96825	0.98740	0.99005
42500.	0.94067	0.96491	0.97251
45000.	0.91314	0.94259	0.95534
47500.	0.88592	0.92054	0.93858
50000.	0.85932	0.89893	0.92230
52500.	0.83368	0.87791	0.90652
55000.	0.80936	0.85765	0.89132
57500.	0.78670	0.83834	0.87673
60000.	0.76600	0.82013	0.86281
62500.	0.74746	0.80317	0.84959
65000.	0.73118	0.78758	0.83714
67500.	0.71718	0.77343	0.82546
70000.	0.70533	0.76074	0.81460

Table B.10 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.388	1.305	1.220
100.	1.389	1.305	1.213
500.	1.384	1.302	1.209
1000.	1.378	1.297	1.204
1500.	1.371	1.292	1.199
2000.	1.363	1.287	1.194
2500.	1.356	1.281	1.188
3000.	1.348	1.276	1.182
3500.	1.340	1.270	1.179
4000.	1.332	1.264	1.176
4500.	1.323	1.258	1.173
5000.	1.315	1.252	1.170
5500.	1.306	1.246	1.167
6000.	1.297	1.239	1.163
6500.	1.288	1.233	1.160
7000.	1.278	1.226	1.157
7500.	1.268	1.219	1.153
8000.	1.258	1.212	1.149
8500.	1.247	1.204	1.146
9000.	1.235	1.197	1.142
9500.	1.224	1.189	1.138
10000.	1.213	1.181	1.134
10500.	1.202	1.173	1.130
11000.	1.193	1.166	1.126
11500.	1.185	1.160	1.122
12000.	1.178	1.155	1.119
12500.	1.172	1.150	1.116
13000.	1.167	1.146	1.113
13500.	1.163	1.142	1.110
14000.	1.160	1.140	1.108
14500.	1.157	1.137	1.107
15000.	1.154	1.135	1.105
15500.	1.151	1.133	1.104
16000.	1.148	1.131	1.103
16500.	1.146	1.130	1.102
17000.	1.144	1.128	1.102
17500.	1.141	1.127	1.101
18000.	1.139	1.125	1.100
20000.	1.129	1.119	1.098
22500.	1.116	1.111	1.096
25000.	1.104	1.103	1.094
27500.	1.092	1.096	1.091
30000.	1.083	1.088	1.089
32500.	1.079	1.081	1.086
35000.	1.076	1.075	1.084
37500.	1.072	1.072	1.082
40000.	1.068	1.070	1.080
42500.	1.063	1.068	1.078
45000.	1.061	1.066	1.076
47500.	1.062	1.064	1.075
50000.	1.061	1.062	1.074
52500.	1.057	1.059	1.072
55000.	1.052	1.056	1.072
57500.	1.045	1.054	1.071
60000.	1.038	1.051	1.071
62500.	1.037	1.048	1.071
65000.	1.044	1.050	1.071
67500.	1.051	1.053	1.071
70000.	1.058	1.057	1.072

Table B.11 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.08558	1.06355	1.03528
100.	1.06060	1.04054	1.01504
500.	1.05732	1.03814	1.01370
1000.	1.05718	1.03867	1.01487
1500.	1.05806	1.04002	1.01660
2000.	1.05921	1.04153	1.01834
2500.	1.06041	1.04303	1.02000
3000.	1.06157	1.04444	1.02151
3500.	1.06270	1.04577	1.02290
4000.	1.06384	1.04704	1.02418
4500.	1.06501	1.04831	1.02540
5000.	1.06625	1.04959	1.02658
5500.	1.06757	1.05090	1.02775
6000.	1.06899	1.05228	1.02894
6500.	1.07051	1.05372	1.03014
7000.	1.07213	1.05523	1.03138
7500.	1.07387	1.05683	1.03266
8000.	1.07571	1.05851	1.03399
8500.	1.07766	1.06026	1.03537
9000.	1.07971	1.06208	1.03679
9500.	1.08187	1.06399	1.03826
10000.	1.08415	1.06596	1.03976
10500.	1.08656	1.06802	1.04132
11000.	1.08910	1.07017	1.04291
11500.	1.09178	1.07241	1.04456
12000.	1.09460	1.07476	1.04625
12500.	1.09759	1.07722	1.04799
13000.	1.10076	1.07978	1.04979
13500.	1.10414	1.08247	1.05165
14000.	1.10774	1.08530	1.05358
14500.	1.11159	1.08826	1.05557
15000.	1.11568	1.09139	1.05764
15500.	1.11999	1.09467	1.05978
16000.	1.12447	1.09808	1.06198
16500.	1.12905	1.10159	1.06424
17000.	1.13358	1.10512	1.06654
17500.	1.13783	1.10860	1.06885
18000.	1.14158	1.11184	1.07112
18500.	1.14456	1.11470	1.07330
19000.	1.14662	1.11702	1.07528
19500.	1.14773	1.11869	1.07698
20000.	1.14780	1.11965	1.07830
20500.	1.14682	1.11986	1.07918
21000.	1.14489	1.11931	1.07960
21500.	1.14215	1.11804	1.07952
22000.	1.13880	1.11611	1.07897
22500.	1.13503	1.11361	1.07795
23000.	1.13065	1.11066	1.07650
23500.	1.12626	1.10738	1.07465
24000.	1.12188	1.10385	1.07245
24500.	1.11749	1.10015	1.06996
25000.	1.11311	1.09627	1.06721
25500.	1.10863	1.09230	1.06427
26000.	1.10414	1.08832	1.06119
26500.	1.09966	1.08435	1.05800
27000.	1.09517	1.08037	1.05473
27500.	1.09069	1.07640	1.05141
30000.	1.06816	1.05668	1.03446
32500.	1.04559	1.03714	1.01781
35000.	1.02301	1.01784	1.00153
37500.	1.00043	0.99877	0.98566
40000.	0.97792	0.97999	0.97022
42500.	0.95555	0.96152	0.95522
45000.	0.93340	0.94340	0.94069
47500.	0.91160	0.92570	0.92665
50000.	0.89029	0.90846	0.91312
52500.	0.86959	0.89176	0.90012
55000.	0.84967	0.87565	0.88766
57500.	0.83068	0.86021	0.87577
60000.	0.81274	0.84549	0.86445
62500.	0.79600	0.83156	0.85370
65000.	0.78056	0.81845	0.84355
67500.	0.76647	0.80620	0.83398
70000.	0.75376	0.79484	0.82500

Table B.12 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.335	1.298	1.299
100.	1.330	1.297	1.298
500.	1.325	1.295	1.295
1000.	1.319	1.291	1.292
1500.	1.313	1.288	1.289
2000.	1.306	1.284	1.286
2500.	1.299	1.281	1.283
3000.	1.292	1.277	1.280
3500.	1.285	1.273	1.276
4000.	1.277	1.270	1.273
4500.	1.270	1.266	1.270
5000.	1.263	1.262	1.267
5500.	1.256	1.258	1.263
6000.	1.250	1.254	1.260
6500.	1.245	1.251	1.257
7000.	1.239	1.247	1.253
7500.	1.234	1.243	1.250
8000.	1.229	1.239	1.246
8500.	1.225	1.235	1.243
9000.	1.221	1.231	1.239
9500.	1.216	1.226	1.236
10000.	1.212	1.222	1.232
10500.	1.207	1.218	1.229
11000.	1.202	1.214	1.225
11500.	1.198	1.210	1.221
12000.	1.193	1.205	1.218
12500.	1.188	1.201	1.214
13000.	1.183	1.197	1.210
13500.	1.178	1.192	1.207
14000.	1.173	1.188	1.203
14500.	1.168	1.183	1.199
15000.	1.163	1.179	1.195
15500.	1.157	1.174	1.192
16000.	1.152	1.170	1.188
16500.	1.147	1.165	1.184
17000.	1.141	1.160	1.180
17500.	1.136	1.155	1.177
18000.	1.131	1.151	1.173
18500.	1.127	1.146	1.169
19000.	1.123	1.142	1.165
19500.	1.119	1.137	1.161
20000.	1.115	1.133	1.157
20500.	1.112	1.130	1.154
21000.	1.109	1.126	1.150
21500.	1.106	1.123	1.147
22000.	1.104	1.120	1.144
22500.	1.101	1.117	1.141
23000.	1.099	1.115	1.139
23500.	1.097	1.113	1.136
24000.	1.095	1.111	1.134
24500.	1.093	1.109	1.132
25000.	1.091	1.107	1.130
25500.	1.089	1.105	1.128
26000.	1.087	1.103	1.126
26500.	1.085	1.102	1.125
27000.	1.083	1.100	1.123
27500.	1.081	1.098	1.122
30000.	1.073	1.089	1.115
32500.	1.069	1.080	1.108
35000.	1.064	1.071	1.101
37500.	1.060	1.064	1.095
40000.	1.055	1.061	1.089
42500.	1.050	1.058	1.084
45000.	1.045	1.055	1.079
47500.	1.044	1.052	1.074
50000.	1.047	1.049	1.082
52500.	1.049	1.046	1.092
55000.	1.049	1.045	1.102
57500.	1.048	1.044	1.113
60000.	1.044	1.044	1.124
62500.	1.040	1.060	1.136
65000.	1.053	1.076	1.147
67500.	1.072	1.091	1.158
70000.	1.090	1.106	1.169

Table B.13 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.10337	1.08114	1.05249
100.	1.07757	1.05727	1.03137
500.	1.07394	1.05449	1.02960
1000.	1.07346	1.05463	1.03034
1500.	1.07403	1.05564	1.03169
2000.	1.07487	1.05682	1.03307
2500.	1.07576	1.05798	1.03436
3000.	1.07659	1.05904	1.03551
3500.	1.07738	1.06002	1.03653
4000.	1.07817	1.06093	1.03744
4500.	1.07899	1.06183	1.03828
5000.	1.07987	1.06274	1.03910
5500.	1.08083	1.06370	1.03990
6000.	1.08188	1.06471	1.04073
6500.	1.08303	1.06579	1.04158
7000.	1.08429	1.06694	1.04247
7500.	1.08565	1.06817	1.04340
8000.	1.08711	1.06947	1.04437
8500.	1.08865	1.07084	1.04539
9000.	1.09028	1.07228	1.04645
9500.	1.09202	1.07378	1.04755
10000.	1.09387	1.07536	1.04869
10500.	1.09583	1.07701	1.04988
11000.	1.09792	1.07875	1.05111
11500.	1.10013	1.08057	1.05238
12000.	1.10246	1.08248	1.05369
12500.	1.10494	1.08448	1.05505
13000.	1.10757	1.08658	1.05645
13500.	1.11039	1.08879	1.05790
14000.	1.11341	1.09111	1.05942
14500.	1.11666	1.09358	1.06099
15000.	1.12016	1.09620	1.06263
15500.	1.12387	1.09897	1.06435
16000.	1.12780	1.10188	1.06614
16500.	1.13187	1.10491	1.06799
17000.	1.13591	1.10799	1.06990
17500.	1.13971	1.11102	1.07183
18000.	1.14309	1.11386	1.07373
18500.	1.14579	1.11637	1.07556
19000.	1.14763	1.11840	1.07722
19500.	1.14856	1.11984	1.07864
20000.	1.14849	1.12060	1.07973
20500.	1.14744	1.12066	1.08041
21000.	1.14547	1.12001	1.08065
21500.	1.14272	1.11867	1.08044
22000.	1.13938	1.11671	1.07978
22500.	1.13562	1.11420	1.07868
23000.	1.13123	1.11125	1.07718
23500.	1.12685	1.10796	1.07530
24000.	1.12246	1.10443	1.07307
24500.	1.11808	1.10073	1.07056
25000.	1.11369	1.09684	1.06781
25500.	1.10920	1.09286	1.06486
26000.	1.10471	1.08888	1.06177
26500.	1.10021	1.08491	1.05857
27000.	1.09572	1.08093	1.05529
27500.	1.09123	1.07695	1.05197
30000.	1.06866	1.05719	1.03499
32500.	1.04605	1.03761	1.01831
35000.	1.02342	1.01826	1.00199
37500.	1.00080	0.99917	0.98609
40000.	0.97824	0.98035	0.97062
42500.	0.95583	0.96184	0.95559
45000.	0.93364	0.94369	0.94104
47500.	0.91181	0.92595	0.92697
50000.	0.89046	0.90869	0.91342
52500.	0.86973	0.89196	0.90040
55000.	0.84979	0.87583	0.88792
57500.	0.83078	0.86038	0.87602
60000.	0.81283	0.84565	0.86469
62500.	0.79610	0.83171	0.85394
65000.	0.78065	0.81860	0.84378
67500.	0.76658	0.80636	0.83421
70000.	0.75389	0.79500	0.82523

Table B.14 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.305	1.309	1.304
100.	1.302	1.306	1.302
500.	1.298	1.303	1.299
1000.	1.294	1.298	1.296
1500.	1.289	1.294	1.293
2000.	1.284	1.290	1.290
2500.	1.280	1.286	1.287
3000.	1.276	1.283	1.283
3500.	1.272	1.279	1.280
4000.	1.269	1.275	1.276
4500.	1.265	1.271	1.273
5000.	1.261	1.267	1.270
5500.	1.257	1.263	1.266
6000.	1.253	1.259	1.263
6500.	1.249	1.255	1.259
7000.	1.244	1.251	1.256
7500.	1.240	1.247	1.253
8000.	1.236	1.243	1.249
8500.	1.231	1.239	1.246
9000.	1.227	1.235	1.242
9500.	1.222	1.231	1.238
10000.	1.218	1.226	1.235
10500.	1.213	1.222	1.231
11000.	1.208	1.218	1.227
11500.	1.203	1.213	1.223
12000.	1.198	1.209	1.220
12500.	1.193	1.205	1.216
13000.	1.188	1.200	1.212
13500.	1.183	1.196	1.208
14000.	1.178	1.191	1.205
14500.	1.173	1.187	1.201
15000.	1.167	1.182	1.197
15500.	1.162	1.177	1.193
16000.	1.156	1.172	1.189
16500.	1.151	1.168	1.185
17000.	1.145	1.163	1.182
17500.	1.140	1.158	1.178
18000.	1.134	1.153	1.174
18500.	1.129	1.148	1.170
19000.	1.124	1.143	1.166
19500.	1.119	1.138	1.161
20000.	1.115	1.134	1.157
20500.	1.111	1.130	1.154
21000.	1.108	1.126	1.150
21500.	1.105	1.122	1.147
22000.	1.102	1.119	1.143
22500.	1.099	1.116	1.140
23000.	1.097	1.114	1.138
23500.	1.095	1.111	1.135
24000.	1.093	1.109	1.133
24500.	1.091	1.107	1.131
25000.	1.089	1.105	1.129
25500.	1.087	1.103	1.127
26000.	1.085	1.101	1.125
26500.	1.083	1.100	1.124
27000.	1.081	1.098	1.122
27500.	1.079	1.096	1.120
30000.	1.075	1.087	1.114
32500.	1.071	1.078	1.107
35000.	1.066	1.070	1.100
37500.	1.062	1.066	1.094
40000.	1.057	1.063	1.088
42500.	1.052	1.060	1.083
45000.	1.047	1.056	1.078
47500.	1.045	1.053	1.073
50000.	1.048	1.050	1.081
52500.	1.050	1.048	1.091
55000.	1.050	1.046	1.102
57500.	1.048	1.044	1.113
60000.	1.045	1.044	1.124
62500.	1.040	1.060	1.136
65000.	1.053	1.076	1.147
67500.	1.072	1.091	1.158
70000.	1.090	1.106	1.169

Table B.15 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.06463	1.04709	1.02180
100.	1.03913	1.02333	1.00065
500.	1.03578	1.02085	0.99921
1000.	1.03565	1.02143	1.00049
1500.	1.03673	1.02305	1.00254
2000.	1.03818	1.02493	1.00474
2500.	1.03972	1.02685	1.00689
3000.	1.04125	1.02871	1.00893
3500.	1.04278	1.03052	1.01086
4000.	1.04438	1.03232	1.01270
4500.	1.04606	1.03415	1.01451
5000.	1.04785	1.03603	1.01630
5500.	1.04976	1.03799	1.01811
6000.	1.05181	1.04004	1.01996
6500.	1.05400	1.04219	1.02186
7000.	1.05631	1.04444	1.02381
7500.	1.05875	1.04680	1.02582
8000.	1.06131	1.04924	1.02789
8500.	1.06401	1.05178	1.03001
9000.	1.06684	1.05441	1.03219
9500.	1.06981	1.05714	1.03443
10000.	1.07293	1.05998	1.03673
10500.	1.07619	1.06293	1.03909
11000.	1.07961	1.06599	1.04151
11500.	1.08320	1.06916	1.04400
12000.	1.08697	1.07245	1.04655
12500.	1.09098	1.07589	1.04917
13000.	1.09524	1.07949	1.05186
13500.	1.09976	1.08327	1.05464
14000.	1.10454	1.08725	1.05751
14500.	1.10958	1.09141	1.06050
15000.	1.11480	1.09576	1.06360
15500.	1.12013	1.10024	1.06682
16000.	1.12549	1.10481	1.07013
16500.	1.13091	1.10939	1.07353
17000.	1.13619	1.11389	1.07694
17500.	1.14107	1.11823	1.08030
18000.	1.14540	1.12221	1.08350
18500.	1.14900	1.12568	1.08647
19000.	1.15174	1.12854	1.08911
19500.	1.15345	1.13070	1.09137
20000.	1.15400	1.13205	1.09317
20500.	1.15336	1.13254	1.09446
21000.	1.15161	1.13219	1.09519
21500.	1.14894	1.13101	1.09532
22000.	1.14555	1.12910	1.09486
22500.	1.14165	1.12656	1.09385
23000.	1.13741	1.12350	1.09234
23500.	1.13268	1.12005	1.09039
24000.	1.12794	1.11631	1.08806
24500.	1.12320	1.11221	1.08540
25000.	1.11847	1.10811	1.08247
25500.	1.11367	1.10387	1.07933
26000.	1.10887	1.09964	1.07602
26500.	1.10407	1.09540	1.07260
27500.	1.09447	1.08693	1.06540
30000.	1.07021	1.06573	1.04728
32500.	1.04561	1.04451	1.02937
35000.	1.02068	1.02329	1.01172
37500.	0.99545	1.00208	0.99434
40000.	0.96999	0.98094	0.97725
42500.	0.94440	0.95990	0.96050
45000.	0.91882	0.93904	0.94410
47500.	0.89342	0.91845	0.92811
50000.	0.86845	0.89822	0.91257
52500.	0.84414	0.87847	0.89751
55000.	0.82075	0.85935	0.88298
57500.	0.79858	0.84097	0.86902
60000.	0.77787	0.82348	0.85566
62500.	0.75883	0.80697	0.84295
65000.	0.74164	0.79157	0.83091
67500.	0.72637	0.77734	0.81957
70000.	0.71303	0.76434	0.80895

Table B.16 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.361	1.318	1.272
100.	1.359	1.317	1.271
500.	1.355	1.313	1.268
1000.	1.350	1.309	1.264
1500.	1.344	1.304	1.261
2000.	1.337	1.299	1.256
2500.	1.330	1.293	1.252
3000.	1.323	1.288	1.247
3500.	1.315	1.282	1.243
4000.	1.308	1.276	1.238
4500.	1.300	1.269	1.234
5000.	1.292	1.263	1.230
5500.	1.284	1.257	1.226
6000.	1.276	1.250	1.222
6500.	1.268	1.244	1.218
7000.	1.262	1.237	1.215
7500.	1.258	1.230	1.211
8000.	1.254	1.223	1.207
8500.	1.250	1.216	1.203
9000.	1.246	1.209	1.199
9500.	1.242	1.202	1.195
10000.	1.237	1.199	1.191
10500.	1.233	1.195	1.187
11000.	1.228	1.192	1.183
11500.	1.224	1.189	1.179
12000.	1.219	1.186	1.174
12500.	1.214	1.183	1.170
13000.	1.210	1.179	1.166
13500.	1.205	1.176	1.162
14000.	1.200	1.173	1.158
14500.	1.195	1.169	1.153
15000.	1.190	1.166	1.149
15500.	1.184	1.162	1.145
16000.	1.178	1.158	1.140
16500.	1.172	1.154	1.136
17000.	1.165	1.150	1.132
17500.	1.158	1.145	1.127
18000.	1.151	1.141	1.123
18500.	1.144	1.136	1.119
19000.	1.137	1.131	1.117
19500.	1.131	1.127	1.115
20000.	1.126	1.123	1.113
20500.	1.121	1.119	1.110
21000.	1.118	1.115	1.108
21500.	1.115	1.112	1.106
22000.	1.112	1.110	1.105
22500.	1.110	1.108	1.103
23000.	1.108	1.106	1.102
23500.	1.106	1.105	1.100
24000.	1.105	1.103	1.099
24500.	1.103	1.102	1.098
25000.	1.101	1.101	1.098
25500.	1.099	1.100	1.097
26000.	1.097	1.099	1.096
26500.	1.096	1.097	1.096
27500.	1.092	1.095	1.095
30000.	1.084	1.090	1.093
32500.	1.076	1.085	1.091
35000.	1.068	1.080	1.090
37500.	1.060	1.076	1.088
40000.	1.056	1.072	1.086
42500.	1.056	1.068	1.085
45000.	1.059	1.064	1.084
47500.	1.060	1.060	1.082
50000.	1.060	1.058	1.082
52500.	1.059	1.056	1.081
55000.	1.057	1.055	1.080
57500.	1.054	1.054	1.079
60000.	1.050	1.054	1.079
62500.	1.045	1.054	1.079
65000.	1.042	1.055	1.079
67500.	1.047	1.057	1.079
70000.	1.051	1.059	1.079

Table B.17 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.06850	1.05234	1.02716
100.	1.04273	1.02831	1.00580
500.	1.03932	1.02577	1.00432
1000.	1.03919	1.02635	1.00560
1500.	1.04031	1.02801	1.00770
2000.	1.04183	1.02997	1.00994
2500.	1.04345	1.03197	1.01216
3000.	1.04506	1.03393	1.01427
3500.	1.04671	1.03584	1.01627
4000.	1.04842	1.03776	1.01819
4500.	1.05024	1.03972	1.02008
5000.	1.05218	1.04174	1.02196
5500.	1.05426	1.04385	1.02387
6000.	1.05650	1.04607	1.02582
6500.	1.05888	1.04840	1.02782
7000.	1.06140	1.05084	1.02988
7500.	1.06406	1.05339	1.03201
8000.	1.06686	1.05603	1.03419
8500.	1.06980	1.05878	1.03644
9000.	1.07290	1.06164	1.03874
9500.	1.07614	1.06461	1.04111
10000.	1.07954	1.06769	1.04354
10500.	1.08309	1.07089	1.04604
11000.	1.08683	1.07420	1.04861
11500.	1.09075	1.07765	1.05124
12000.	1.09490	1.08123	1.05394
12500.	1.09931	1.08497	1.05672
13000.	1.10401	1.08891	1.05957
13500.	1.10897	1.09305	1.06252
14000.	1.11423	1.09739	1.06558
14500.	1.11974	1.10194	1.06876
15000.	1.12544	1.10668	1.07206
15500.	1.13127	1.11156	1.07549
16000.	1.13717	1.11650	1.07902
16500.	1.14307	1.12149	1.08263
17000.	1.14878	1.12640	1.08624
17500.	1.15396	1.13109	1.08978
18000.	1.15840	1.13533	1.09316
18500.	1.16195	1.13895	1.09627
19000.	1.16445	1.14186	1.09903
19500.	1.16568	1.14392	1.10136
20000.	1.16556	1.14504	1.10320
20500.	1.16414	1.14522	1.10446
21000.	1.16162	1.14442	1.10511
21500.	1.15827	1.14274	1.10512
22000.	1.15434	1.14029	1.10451
22500.	1.14991	1.13725	1.10333
23000.	1.14509	1.13375	1.10164
23500.	1.14026	1.12994	1.09951
24000.	1.13544	1.12570	1.09698
24500.	1.13061	1.12146	1.09413
25000.	1.12579	1.11722	1.09103
25500.	1.12089	1.11289	1.08774
26000.	1.11599	1.10856	1.08431
27500.	1.10128	1.09557	1.07333
30000.	1.07634	1.07387	1.05496
32500.	1.05099	1.05211	1.03679
35000.	1.02523	1.03029	1.01886
37500.	0.99908	1.00843	1.00119
40000.	0.97262	0.98658	0.98380
42500.	0.94596	0.96479	0.96672
45000.	0.91926	0.94313	0.94999
47500.	0.89275	0.92171	0.93365
50000.	0.86665	0.90065	0.91775
52500.	0.84128	0.88007	0.90234
55000.	0.81693	0.86014	0.88745
57500.	0.79393	0.84101	0.87314
60000.	0.77257	0.82282	0.85944
62500.	0.75309	0.80571	0.84640
65000.	0.73566	0.78980	0.83406
67500.	0.72035	0.77518	0.82243
70000.	0.70713	0.76190	0.81155

Table B.18 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.382	1.329	1.266
100.	1.383	1.327	1.265
500.	1.381	1.323	1.262
1000.	1.378	1.319	1.259
1500.	1.374	1.314	1.256
2000.	1.370	1.308	1.253
2500.	1.366	1.302	1.250
3000.	1.361	1.296	1.246
3500.	1.357	1.290	1.243
4000.	1.352	1.283	1.239
4500.	1.347	1.278	1.234
5000.	1.342	1.274	1.230
5500.	1.337	1.271	1.225
6000.	1.332	1.267	1.220
6500.	1.327	1.264	1.215
7000.	1.321	1.260	1.210
7500.	1.316	1.256	1.205
8000.	1.310	1.253	1.200
8500.	1.305	1.249	1.195
9000.	1.299	1.245	1.191
9500.	1.293	1.241	1.187
10000.	1.287	1.237	1.183
10500.	1.281	1.233	1.179
11000.	1.275	1.229	1.175
11500.	1.269	1.225	1.171
12000.	1.263	1.220	1.167
12500.	1.257	1.216	1.162
13000.	1.250	1.212	1.158
13500.	1.244	1.208	1.154
14000.	1.237	1.203	1.151
14500.	1.231	1.199	1.149
15000.	1.224	1.194	1.147
15500.	1.216	1.190	1.145
16000.	1.208	1.185	1.143
16500.	1.200	1.179	1.140
17000.	1.191	1.174	1.138
17500.	1.182	1.168	1.136
18000.	1.174	1.162	1.133
18500.	1.166	1.156	1.131
19000.	1.158	1.150	1.128
19500.	1.151	1.145	1.125
20000.	1.145	1.140	1.123
20500.	1.140	1.136	1.120
21000.	1.136	1.132	1.118
21500.	1.133	1.129	1.116
22000.	1.130	1.126	1.114
22500.	1.127	1.124	1.112
23000.	1.125	1.122	1.111
23500.	1.122	1.120	1.109
24000.	1.120	1.118	1.108
24500.	1.117	1.117	1.107
25000.	1.115	1.115	1.106
25500.	1.112	1.113	1.106
26000.	1.110	1.112	1.105
27500.	1.102	1.107	1.103
30000.	1.090	1.100	1.101
32500.	1.079	1.093	1.098
35000.	1.068	1.086	1.096
37500.	1.061	1.080	1.093
40000.	1.058	1.073	1.091
42500.	1.060	1.068	1.089
45000.	1.061	1.063	1.088
47500.	1.061	1.059	1.086
50000.	1.060	1.058	1.085
52500.	1.059	1.057	1.084
55000.	1.057	1.056	1.083
57500.	1.053	1.055	1.082
60000.	1.048	1.054	1.082
62500.	1.043	1.054	1.081
65000.	1.046	1.057	1.082
67500.	1.053	1.060	1.082
70000.	1.061	1.063	1.083

Table B.19 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.08869	1.07684	1.05716
100.	1.06302	1.05281	1.03565
500.	1.06229	1.05284	1.03642
1000.	1.06619	1.05725	1.04099
1500.	1.07172	1.06307	1.04661
2000.	1.07774	1.06925	1.05243
2500.	1.08402	1.07557	1.05820
3000.	1.09059	1.08202	1.06393
3500.	1.09753	1.08865	1.06966
4000.	1.10484	1.09551	1.07544
4500.	1.11256	1.10263	1.08132
5000.	1.12070	1.11002	1.08730
5500.	1.12931	1.11771	1.09341
6000.	1.13842	1.12573	1.09967
6500.	1.14806	1.13409	1.10611
7000.	1.15822	1.14279	1.11272
7500.	1.16887	1.15183	1.11950
8000.	1.17982	1.16110	1.12641
8500.	1.19077	1.17042	1.13338
9000.	1.20136	1.17949	1.14026
9500.	1.21110	1.18799	1.14686
10000.	1.21943	1.19555	1.15296
10500.	1.22601	1.20186	1.15832
11000.	1.23073	1.20672	1.16281
11500.	1.23359	1.21010	1.16634
12000.	1.23462	1.21201	1.16884
12500.	1.23401	1.21253	1.17033
13000.	1.23204	1.21179	1.17084
13500.	1.22907	1.20998	1.17045
14000.	1.22540	1.20731	1.16927
14500.	1.22126	1.20403	1.16739
15000.	1.21684	1.20031	1.16495
15500.	1.21199	1.19630	1.16206
16000.	1.20714	1.19210	1.15881
16500.	1.20229	1.18763	1.15531
17000.	1.19744	1.18315	1.15163
17500.	1.19259	1.17868	1.14782
18000.	1.18772	1.17420	1.14393
18500.	1.18285	1.16973	1.13999
20000.	1.16825	1.15630	1.12789
22500.	1.14365	1.13405	1.10807
25000.	1.11871	1.11182	1.08862
27500.	1.09338	1.08956	1.06948
30000.	1.06764	1.06725	1.05065
32500.	1.04147	1.04488	1.03209
35000.	1.01489	1.02248	1.01380
37500.	0.98797	1.00007	0.99580
40000.	0.96082	0.97772	0.97811
42500.	0.93360	0.95549	0.96078
45000.	0.90649	0.93349	0.94386
47500.	0.87977	0.91184	0.92740
50000.	0.85372	0.89069	0.91144
52500.	0.82865	0.87017	0.89603
55000.	0.80492	0.85046	0.88122
57500.	0.78281	0.83172	0.86706
60000.	0.76261	0.81408	0.85359
62500.	0.74448	0.79768	0.84085
65000.	0.72851	0.78261	0.82887
67500.	0.71472	0.76892	0.81767
70000.	0.70298	0.75664	0.80726

Table B.20 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.397	1.318	1.268
100.	1.398	1.319	1.269
500.	1.393	1.316	1.266
1000.	1.388	1.312	1.262
1500.	1.381	1.307	1.257
2000.	1.375	1.302	1.251
2500.	1.368	1.297	1.245
3000.	1.361	1.292	1.239
3500.	1.354	1.287	1.232
4000.	1.346	1.282	1.225
4500.	1.339	1.276	1.217
5000.	1.331	1.271	1.210
5500.	1.323	1.265	1.202
6000.	1.315	1.259	1.194
6500.	1.307	1.254	1.186
7000.	1.298	1.248	1.178
7500.	1.290	1.241	1.175
8000.	1.280	1.235	1.172
8500.	1.270	1.228	1.169
9000.	1.260	1.221	1.165
9500.	1.250	1.214	1.162
10000.	1.240	1.207	1.159
10500.	1.231	1.201	1.155
11000.	1.223	1.194	1.152
11500.	1.215	1.189	1.149
12000.	1.209	1.184	1.146
12500.	1.203	1.179	1.143
13000.	1.199	1.175	1.140
13500.	1.195	1.172	1.138
14000.	1.192	1.170	1.136
14500.	1.189	1.167	1.134
15000.	1.186	1.165	1.133
15500.	1.183	1.163	1.132
16000.	1.181	1.161	1.131
16500.	1.178	1.159	1.130
17000.	1.176	1.158	1.129
17500.	1.173	1.156	1.128
18000.	1.170	1.154	1.127
18500.	1.168	1.153	1.126
20000.	1.160	1.148	1.124
22500.	1.147	1.139	1.121
25000.	1.134	1.131	1.118
27500.	1.121	1.122	1.115
30000.	1.108	1.114	1.112
32500.	1.096	1.107	1.108
35000.	1.084	1.099	1.105
37500.	1.073	1.092	1.102
40000.	1.066	1.085	1.099
42500.	1.064	1.078	1.097
45000.	1.064	1.073	1.095
47500.	1.063	1.068	1.093
50000.	1.061	1.064	1.091
52500.	1.058	1.061	1.089
55000.	1.053	1.060	1.087
57500.	1.048	1.059	1.086
60000.	1.044	1.059	1.085
62500.	1.047	1.060	1.084
65000.	1.052	1.061	1.084
67500.	1.058	1.064	1.084
70000.	1.064	1.066	1.084

Table B.21 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.08717	1.06691	1.04023
100.	1.06163	1.04320	1.01916
500.	1.05877	1.04129	1.01836
1000.	1.05948	1.04271	1.02048
1500.	1.06123	1.04497	1.02315
2000.	1.06320	1.04736	1.02580
2500.	1.06517	1.04970	1.02829
3000.	1.06711	1.05192	1.03058
3500.	1.06904	1.05406	1.03272
4000.	1.07101	1.05617	1.03477
4500.	1.07306	1.05831	1.03677
5000.	1.07522	1.06050	1.03875
5500.	1.07754	1.06279	1.04074
6000.	1.08000	1.06518	1.04278
6500.	1.08263	1.06767	1.04487
7000.	1.08542	1.07028	1.04703
7500.	1.08835	1.07300	1.04926
8000.	1.09145	1.07582	1.05157
8500.	1.09470	1.07874	1.05395
9000.	1.09813	1.08177	1.05639
9500.	1.10174	1.08493	1.05889
10000.	1.10555	1.08821	1.06145
10500.	1.10960	1.09166	1.06407
11000.	1.11391	1.09527	1.06676
11500.	1.11851	1.09906	1.06954
12000.	1.12341	1.10305	1.07242
12500.	1.12861	1.10723	1.07538
13000.	1.13407	1.11158	1.07844
13500.	1.13971	1.11607	1.08156
14000.	1.14532	1.12056	1.08470
14500.	1.15063	1.12493	1.08782
15000.	1.15532	1.12898	1.09082
15500.	1.15919	1.13252	1.09361
16000.	1.16205	1.13541	1.09609
16500.	1.16374	1.13756	1.09819
17000.	1.16417	1.13885	1.09982
17500.	1.16341	1.13922	1.10091
18000.	1.16165	1.13870	1.10142
18500.	1.15906	1.13738	1.10134
19000.	1.15582	1.13535	1.10068
19500.	1.15207	1.13274	1.09948
20000.	1.14796	1.12966	1.09779
20500.	1.14360	1.12622	1.09568
21000.	1.13889	1.12251	1.09319
21500.	1.13417	1.11862	1.09040
22000.	1.12945	1.11460	1.08737
22500.	1.12474	1.11043	1.08415
23000.	1.12001	1.10623	1.08080
23500.	1.11528	1.10203	1.07735
24000.	1.11055	1.09782	1.07384
25000.	1.10109	1.08942	1.06663
27500.	1.07744	1.06870	1.04880
30000.	1.05376	1.04822	1.03134
32500.	1.03006	1.02801	1.01432
35000.	1.00637	1.00807	0.99775
37500.	0.98276	0.98842	0.98163
40000.	0.95931	0.96910	0.96600
42500.	0.93613	0.95017	0.95087
45000.	0.91336	0.93168	0.93625
47500.	0.89116	0.91370	0.92218
50000.	0.86970	0.89631	0.90867
52500.	0.84917	0.87959	0.89576
55000.	0.82973	0.86362	0.88344
57500.	0.81154	0.84846	0.87175
60000.	0.79475	0.83418	0.86068
62500.	0.77945	0.82083	0.85024
65000.	0.76568	0.80845	0.84044
67500.	0.75345	0.79705	0.83127
70000.	0.74271	0.78664	0.82271

Table B.22 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.318	1.317	1.299
100.	1.315	1.314	1.297
500.	1.310	1.309	1.294
1000.	1.304	1.303	1.289
1500.	1.298	1.297	1.284
2000.	1.293	1.290	1.279
2500.	1.288	1.284	1.274
3000.	1.282	1.277	1.268
3500.	1.277	1.270	1.263
4000.	1.271	1.265	1.257
4500.	1.266	1.259	1.252
5000.	1.260	1.254	1.246
5500.	1.255	1.249	1.242
6000.	1.249	1.244	1.238
6500.	1.243	1.239	1.233
7000.	1.237	1.234	1.229
7500.	1.231	1.228	1.225
8000.	1.225	1.223	1.221
8500.	1.219	1.218	1.217
9000.	1.212	1.213	1.213
9500.	1.206	1.208	1.209
10000.	1.200	1.204	1.205
10500.	1.194	1.198	1.200
11000.	1.189	1.193	1.196
11500.	1.183	1.188	1.192
12000.	1.176	1.183	1.188
12500.	1.170	1.178	1.184
13000.	1.164	1.173	1.180
13500.	1.158	1.167	1.175
14000.	1.152	1.162	1.171
14500.	1.146	1.157	1.167
15000.	1.141	1.152	1.163
15500.	1.136	1.147	1.159
16000.	1.131	1.143	1.155
16500.	1.127	1.138	1.151
17000.	1.123	1.134	1.148
17500.	1.119	1.131	1.144
18000.	1.116	1.128	1.141
18500.	1.114	1.125	1.138
19000.	1.112	1.122	1.136
19500.	1.110	1.119	1.133
20000.	1.109	1.117	1.131
20500.	1.108	1.115	1.129
21000.	1.107	1.113	1.127
21500.	1.107	1.111	1.126
22000.	1.106	1.109	1.124
22500.	1.105	1.108	1.122
23000.	1.104	1.106	1.121
23500.	1.103	1.104	1.120
24000.	1.102	1.103	1.118
25000.	1.100	1.099	1.116
27500.	1.096	1.092	1.110
30000.	1.091	1.088	1.103
32500.	1.086	1.084	1.097
35000.	1.081	1.080	1.091
37500.	1.075	1.077	1.086
40000.	1.069	1.073	1.081
42500.	1.063	1.070	1.076
45000.	1.057	1.066	1.073
47500.	1.054	1.062	1.082
50000.	1.053	1.058	1.093
52500.	1.050	1.055	1.104
55000.	1.046	1.052	1.116
57500.	1.041	1.055	1.128
60000.	1.051	1.072	1.140
62500.	1.072	1.089	1.152
65000.	1.091	1.105	1.164
67500.	1.109	1.120	1.175
70000.	1.125	1.134	1.186

Table B.23 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.06769	1.05155	1.02742
100.	1.04166	1.02716	1.00554
500.	1.03881	1.02524	1.00477
1000.	1.03970	1.02693	1.00727
1500.	1.04184	1.02969	1.01056
2000.	1.04428	1.03268	1.01395
2500.	1.04676	1.03566	1.01722
3000.	1.04927	1.03858	1.02032
3500.	1.05186	1.04149	1.02331
4000.	1.05457	1.04444	1.02626
4500.	1.05744	1.04750	1.02920
5000.	1.06051	1.05068	1.03217
5500.	1.06378	1.05401	1.03521
6000.	1.06726	1.05749	1.03833
6500.	1.07092	1.06112	1.04153
7000.	1.07478	1.06489	1.04482
7500.	1.07882	1.06879	1.04822
8000.	1.08306	1.07282	1.05171
8500.	1.08750	1.07699	1.05528
9000.	1.09216	1.08131	1.05895
9500.	1.09706	1.08580	1.06270
10000.	1.10225	1.09049	1.06656
10500.	1.10778	1.09541	1.07053
11000.	1.11366	1.10058	1.07464
11500.	1.11989	1.10601	1.07889
12000.	1.12645	1.11169	1.08329
12500.	1.13327	1.11759	1.08784
13000.	1.14021	1.12367	1.09251
13500.	1.14710	1.12974	1.09726
14000.	1.15370	1.13563	1.10198
14500.	1.15959	1.14110	1.10653
15000.	1.16451	1.14586	1.11072
15500.	1.16830	1.14974	1.11438
16000.	1.17075	1.15259	1.11741
16500.	1.17176	1.15430	1.11972
17000.	1.17133	1.15485	1.12122
17500.	1.16961	1.15428	1.12186
18000.	1.16680	1.15272	1.12167
18500.	1.16319	1.15032	1.12070
19000.	1.15903	1.14725	1.11907
19500.	1.15451	1.14369	1.11686
20000.	1.14965	1.13977	1.11419
20500.	1.14460	1.13562	1.11115
21000.	1.13955	1.13113	1.10784
21500.	1.13450	1.12665	1.10432
22000.	1.12945	1.12216	1.10066
22500.	1.12440	1.11768	1.09690
25000.	1.09907	1.09525	1.07746
27500.	1.07341	1.07285	1.05833
30000.	1.04741	1.05048	1.03949
32500.	1.02106	1.02812	1.02094
35000.	0.99442	1.00579	1.00270
37500.	0.96757	0.98354	0.98479
40000.	0.94065	0.96142	0.96724
42500.	0.91385	0.93952	0.95009
45000.	0.88740	0.91796	0.93339
47500.	0.86156	0.89687	0.91718
50000.	0.83667	0.87639	0.90152
52500.	0.81302	0.85669	0.88645
55000.	0.79094	0.83791	0.87202
57500.	0.77067	0.82021	0.85828
60000.	0.75243	0.80371	0.84527
62500.	0.73629	0.78851	0.83302
65000.	0.72230	0.77468	0.82157
67500.	0.71034	0.76224	0.81092
70000.	0.70027	0.75117	0.80108

Table B.24 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.323	1.286	1.250
100.	1.322	1.285	1.250
500.	1.317	1.281	1.246
1000.	1.312	1.277	1.243
1500.	1.305	1.272	1.238
2000.	1.298	1.266	1.233
2500.	1.291	1.260	1.228
3000.	1.283	1.254	1.223
3500.	1.275	1.248	1.217
4000.	1.267	1.241	1.212
4500.	1.259	1.234	1.206
5000.	1.251	1.227	1.201
5500.	1.242	1.220	1.195
6000.	1.233	1.213	1.189
6500.	1.224	1.206	1.184
7000.	1.215	1.198	1.178
7500.	1.206	1.191	1.173
8000.	1.196	1.183	1.169
8500.	1.187	1.175	1.166
9000.	1.181	1.167	1.162
9500.	1.176	1.161	1.158
10000.	1.170	1.155	1.154
10500.	1.164	1.149	1.150
11000.	1.159	1.144	1.146
11500.	1.153	1.138	1.142
12000.	1.147	1.133	1.138
12500.	1.145	1.129	1.135
13000.	1.141	1.126	1.131
13500.	1.137	1.123	1.127
14000.	1.132	1.119	1.123
14500.	1.126	1.115	1.120
15000.	1.119	1.111	1.116
15500.	1.112	1.107	1.113
16000.	1.106	1.102	1.110
16500.	1.101	1.098	1.107
17000.	1.097	1.094	1.104
17500.	1.094	1.091	1.102
18000.	1.092	1.089	1.100
18500.	1.090	1.087	1.098
19000.	1.089	1.085	1.097
19500.	1.088	1.084	1.095
20000.	1.088	1.084	1.094
20500.	1.087	1.083	1.092
21000.	1.087	1.082	1.091
21500.	1.086	1.082	1.090
22000.	1.086	1.081	1.089
22500.	1.085	1.081	1.088
25000.	1.083	1.079	1.083
27500.	1.080	1.077	1.078
30000.	1.077	1.075	1.073
32500.	1.073	1.072	1.069
35000.	1.069	1.069	1.068
37500.	1.064	1.066	1.066
40000.	1.059	1.063	1.065
42500.	1.056	1.059	1.063
45000.	1.057	1.056	1.062
47500.	1.056	1.052	1.060
50000.	1.054	1.048	1.059
52500.	1.051	1.045	1.057
55000.	1.046	1.042	1.055
57500.	1.040	1.039	1.054
60000.	1.033	1.036	1.052
62500.	1.026	1.033	1.053
65000.	1.043	1.037	1.063
67500.	1.059	1.052	1.074
70000.	1.072	1.066	1.085

Table B.25 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.07305	1.05800	1.03349
100.	1.04672	1.03329	1.01135
500.	1.04375	1.03128	1.01054
1000.	1.04458	1.03294	1.01304
1500.	1.04671	1.03572	1.01638
2000.	1.04915	1.03875	1.01983
2500.	1.05165	1.04178	1.02315
3000.	1.05419	1.04476	1.02633
3500.	1.05684	1.04776	1.02940
4000.	1.05963	1.05082	1.03243
4500.	1.06260	1.05399	1.03547
5000.	1.06579	1.05731	1.03855
5500.	1.06921	1.06080	1.04170
6000.	1.07284	1.06445	1.04494
6500.	1.07668	1.06826	1.04827
7000.	1.08071	1.07222	1.05170
7500.	1.08495	1.07632	1.05524
8000.	1.08940	1.08057	1.05887
8500.	1.09407	1.08496	1.06259
9000.	1.09898	1.08953	1.06641
9500.	1.10416	1.09428	1.07033
10000.	1.10968	1.09926	1.07436
10500.	1.11554	1.10448	1.07851
11000.	1.12179	1.10998	1.08281
11500.	1.12839	1.11575	1.08727
12000.	1.13535	1.12179	1.09189
12500.	1.14253	1.12805	1.09666
13000.	1.14981	1.13448	1.10156
13500.	1.15702	1.14087	1.10653
14000.	1.16384	1.14704	1.11146
14500.	1.16989	1.15271	1.11618
15000.	1.17487	1.15761	1.12049
15500.	1.17858	1.16152	1.12425
16000.	1.18086	1.16429	1.12733
16500.	1.18159	1.16584	1.12962
17000.	1.18079	1.16615	1.13105
17500.	1.17861	1.16529	1.13158
18000.	1.17537	1.16340	1.13125
18500.	1.17138	1.16066	1.13013
19000.	1.16692	1.15728	1.12833
19500.	1.16193	1.15345	1.12597
20000.	1.15695	1.14931	1.12314
20500.	1.15180	1.14498	1.11996
21000.	1.14665	1.14037	1.11652
21500.	1.14151	1.13575	1.11289
22000.	1.13636	1.13113	1.10913
22500.	1.13121	1.12652	1.10530
25000.	1.10525	1.10358	1.08552
27500.	1.07887	1.08064	1.06612
30000.	1.05207	1.05768	1.04699
32500.	1.02484	1.03467	1.02814
35000.	0.99722	1.01164	1.00957
37500.	0.96932	0.98862	0.99132
40000.	0.94129	0.96569	0.97342
42500.	0.91336	0.94296	0.95590
45000.	0.88578	0.92054	0.93882
47500.	0.85887	0.89858	0.92223
50000.	0.83299	0.87727	0.90619
52500.	0.80851	0.85678	0.89074
55000.	0.78577	0.83729	0.87594
57500.	0.76507	0.81896	0.86185
60000.	0.74660	0.80196	0.84850
62500.	0.73045	0.78637	0.83595
65000.	0.71661	0.77228	0.82423
67500.	0.70493	0.75970	0.81334
70000.	0.69523	0.74860	0.80329

Table B.26 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.332	1.294	1.250
100.	1.331	1.292	1.244
500.	1.326	1.289	1.240
1000.	1.320	1.284	1.236
1500.	1.313	1.279	1.232
2000.	1.306	1.273	1.227
2500.	1.298	1.267	1.222
3000.	1.290	1.260	1.216
3500.	1.282	1.254	1.211
4000.	1.273	1.247	1.206
4500.	1.265	1.240	1.200
5000.	1.256	1.232	1.194
5500.	1.247	1.225	1.189
6000.	1.238	1.218	1.183
6500.	1.228	1.210	1.177
7000.	1.219	1.202	1.171
7500.	1.209	1.194	1.167
8000.	1.200	1.186	1.163
8500.	1.190	1.178	1.159
9000.	1.183	1.170	1.155
9500.	1.177	1.163	1.152
10000.	1.171	1.157	1.148
10500.	1.166	1.152	1.144
11000.	1.160	1.146	1.140
11500.	1.154	1.140	1.136
12000.	1.148	1.135	1.132
12500.	1.142	1.129	1.128
13000.	1.135	1.123	1.125
13500.	1.131	1.119	1.121
14000.	1.125	1.115	1.117
14500.	1.118	1.111	1.114
15000.	1.111	1.107	1.110
15500.	1.105	1.102	1.107
16000.	1.099	1.097	1.104
16500.	1.094	1.093	1.102
17000.	1.090	1.090	1.099
17500.	1.087	1.087	1.097
18000.	1.086	1.084	1.095
18500.	1.085	1.083	1.093
19000.	1.084	1.082	1.092
19500.	1.083	1.081	1.090
20000.	1.083	1.080	1.089
20500.	1.083	1.080	1.088
21000.	1.082	1.079	1.087
21500.	1.082	1.079	1.086
22000.	1.081	1.079	1.085
22500.	1.081	1.078	1.084
25000.	1.080	1.077	1.079
27500.	1.078	1.075	1.074
30000.	1.075	1.073	1.069
32500.	1.072	1.071	1.068
35000.	1.068	1.068	1.067
37500.	1.064	1.065	1.065
40000.	1.059	1.062	1.064
42500.	1.059	1.059	1.062
45000.	1.059	1.055	1.061
47500.	1.058	1.051	1.059
50000.	1.056	1.047	1.058
52500.	1.051	1.044	1.056
55000.	1.044	1.041	1.054
57500.	1.037	1.038	1.052
60000.	1.030	1.035	1.051
62500.	1.036	1.034	1.051
65000.	1.047	1.041	1.060
67500.	1.060	1.051	1.071
70000.	1.073	1.065	1.082

Table B.27 [ ] Hot Uncontrolled k_∞

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.09724	1.08559	1.06552
100.	1.07083	1.06074	1.04313
500.	1.07010	1.06089	1.04417
1000.	1.07429	1.06577	1.04938
1500.	1.08008	1.07205	1.05566
2000.	1.08631	1.07866	1.06211
2500.	1.09285	1.08544	1.06851
3000.	1.09977	1.09241	1.07489
3500.	1.10715	1.09964	1.08133
4000.	1.11498	1.10718	1.08788
4500.	1.12329	1.11505	1.09457
5000.	1.13209	1.12324	1.10141
5500.	1.14142	1.13180	1.10842
6000.	1.15135	1.14075	1.11562
6500.	1.16191	1.15011	1.12304
7000.	1.17303	1.15988	1.13067
7500.	1.18453	1.16993	1.13848
8000.	1.19603	1.18000	1.14634
8500.	1.20704	1.18970	1.15406
9000.	1.21696	1.19856	1.16134
9500.	1.22518	1.20614	1.16782
10000.	1.23136	1.21215	1.17327
10500.	1.23542	1.21643	1.17752
11000.	1.23740	1.21898	1.18054
11500.	1.23743	1.21989	1.18232
12000.	1.23582	1.21931	1.18291
12500.	1.23296	1.21749	1.18242
13000.	1.22923	1.21472	1.18100
13500.	1.22495	1.21125	1.17879
14000.	1.22033	1.20732	1.17598
14500.	1.21532	1.20307	1.17271
15000.	1.21032	1.19864	1.16911
15500.	1.20522	1.19395	1.16528
16000.	1.20012	1.18926	1.16130
16500.	1.19501	1.18458	1.15723
17000.	1.18991	1.17989	1.15310
17500.	1.18481	1.17520	1.14890
20000.	1.15931	1.15199	1.12807
22500.	1.13352	1.12884	1.10776
25000.	1.10734	1.10571	1.08782
27500.	1.08073	1.08256	1.06822
30000.	1.05367	1.05936	1.04891
32500.	1.02617	1.03611	1.02987
35000.	0.99828	1.01285	1.01112
37500.	0.97012	0.98961	0.99269
40000.	0.94186	0.96648	0.97462
42500.	0.91371	0.94355	0.95696
45000.	0.88597	0.92097	0.93975
47500.	0.85895	0.89889	0.92304
50000.	0.83301	0.87749	0.90691
52500.	0.80855	0.85696	0.89140
55000.	0.78591	0.83748	0.87656
57500.	0.76535	0.81921	0.86245
60000.	0.74709	0.80230	0.84912
62500.	0.73117	0.78685	0.83661
65000.	0.71757	0.77292	0.82494
67500.	0.70613	0.76052	0.81413
70000.	0.69664	0.74961	0.80417

Table B.28 [ ] Hot Uncontrolled LPF

Exposure MWd/MTU	0.00 Void History	0.40 Void History	0.80 Void History
0.	1.314	1.276	1.237
100.	1.312	1.275	1.231
500.	1.306	1.270	1.225
1000.	1.297	1.263	1.218
1500.	1.288	1.255	1.212
2000.	1.277	1.246	1.205
2500.	1.267	1.238	1.198
3000.	1.256	1.229	1.191
3500.	1.245	1.220	1.184
4000.	1.233	1.210	1.176
4500.	1.222	1.200	1.169
5000.	1.210	1.190	1.163
5500.	1.197	1.180	1.159
6000.	1.185	1.170	1.154
6500.	1.172	1.159	1.149
7000.	1.159	1.149	1.144
7500.	1.148	1.140	1.139
8000.	1.139	1.131	1.135
8500.	1.129	1.123	1.130
9000.	1.121	1.115	1.126
9500.	1.114	1.109	1.122
10000.	1.108	1.104	1.118
10500.	1.102	1.100	1.115
11000.	1.097	1.097	1.112
11500.	1.093	1.095	1.109
12000.	1.091	1.093	1.107
12500.	1.089	1.091	1.105
13000.	1.088	1.090	1.103
13500.	1.087	1.088	1.101
14000.	1.087	1.087	1.100
14500.	1.086	1.086	1.099
15000.	1.086	1.085	1.098
15500.	1.086	1.084	1.097
16000.	1.086	1.084	1.096
16500.	1.085	1.083	1.095
17000.	1.085	1.083	1.094
17500.	1.085	1.082	1.093
20000.	1.084	1.080	1.088
22500.	1.083	1.079	1.084
25000.	1.081	1.077	1.079
27500.	1.079	1.076	1.074
30000.	1.077	1.073	1.069
32500.	1.073	1.071	1.067
35000.	1.070	1.068	1.066
37500.	1.065	1.065	1.064
40000.	1.060	1.062	1.063
42500.	1.056	1.058	1.061
45000.	1.056	1.054	1.060
47500.	1.054	1.050	1.058
50000.	1.051	1.047	1.056
52500.	1.046	1.044	1.054
55000.	1.040	1.040	1.052
57500.	1.033	1.037	1.050
60000.	1.026	1.033	1.048
62500.	1.035	1.033	1.052
65000.	1.046	1.040	1.060
67500.	1.059	1.051	1.071
70000.	1.071	1.065	1.082

Appendix C Enriched Lattice Isotopic Data Tables

The results in this appendix are based on hot operating and equilibrium xenon conditions.

Table C.1 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.350	43.771	0.000	955.879	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.350	43.651	0.023	955.825	0.000	0.000	0.018	0.000	0.000	0.000
500.0	0.348	43.174	0.113	955.609	0.002	0.000	0.191	0.001	0.000	0.000
1000.0	0.346	42.586	0.223	955.339	0.004	0.000	0.415	0.007	0.000	0.000
1500.0	0.344	42.007	0.332	955.069	0.006	0.000	0.628	0.015	0.001	0.000
2000.0	0.342	41.436	0.439	954.798	0.008	0.000	0.832	0.027	0.002	0.000
2500.0	0.340	40.873	0.544	954.528	0.011	0.000	1.025	0.041	0.005	0.000
3000.0	0.338	40.318	0.648	954.257	0.013	0.000	1.210	0.057	0.008	0.000
3500.0	0.336	39.769	0.750	953.986	0.016	0.001	1.386	0.076	0.012	0.000
4000.0	0.334	39.228	0.850	953.715	0.020	0.001	1.554	0.096	0.017	0.000
4500.0	0.332	38.693	0.949	953.443	0.023	0.001	1.715	0.117	0.023	0.001
5000.0	0.331	38.165	1.047	953.172	0.027	0.001	1.868	0.140	0.030	0.001
5500.0	0.329	37.643	1.143	952.901	0.030	0.001	2.014	0.164	0.038	0.001
6000.0	0.327	37.126	1.238	952.629	0.034	0.002	2.153	0.190	0.047	0.002
6500.0	0.325	36.616	1.331	952.357	0.038	0.002	2.286	0.216	0.056	0.003
7000.0	0.323	36.111	1.423	952.086	0.042	0.002	2.413	0.242	0.067	0.003
7500.0	0.321	35.611	1.514	951.814	0.046	0.003	2.534	0.270	0.079	0.004
8000.0	0.319	35.117	1.604	951.542	0.051	0.003	2.649	0.298	0.091	0.005
8500.0	0.317	34.628	1.692	951.270	0.055	0.004	2.759	0.327	0.104	0.007
9000.0	0.316	34.144	1.780	950.998	0.060	0.004	2.863	0.357	0.117	0.008
9500.0	0.314	33.665	1.866	950.727	0.064	0.005	2.962	0.387	0.131	0.009
10000.0	0.312	33.190	1.951	950.455	0.069	0.006	3.057	0.417	0.146	0.011
10500.0	0.310	32.720	2.034	950.183	0.074	0.006	3.147	0.448	0.161	0.013
11000.0	0.308	32.254	2.117	949.912	0.079	0.007	3.232	0.479	0.177	0.015
11500.0	0.306	31.793	2.199	949.640	0.085	0.008	3.313	0.510	0.193	0.017
12000.0	0.305	31.336	2.279	949.369	0.090	0.009	3.389	0.541	0.209	0.020
12500.0	0.303	30.884	2.359	949.098	0.095	0.010	3.462	0.573	0.225	0.022
13000.0	0.301	30.435	2.437	948.827	0.101	0.011	3.530	0.605	0.242	0.025
13500.0	0.299	29.990	2.515	948.556	0.106	0.012	3.594	0.638	0.259	0.028
14000.0	0.298	29.549	2.591	948.286	0.112	0.013	3.655	0.670	0.277	0.031
14500.0	0.296	29.112	2.667	948.016	0.117	0.014	3.712	0.703	0.294	0.034
15000.0	0.294	28.678	2.742	947.745	0.123	0.015	3.766	0.735	0.311	0.038
15500.0	0.292	28.248	2.815	947.476	0.129	0.016	3.816	0.768	0.329	0.042
16000.0	0.291	27.822	2.888	947.207	0.134	0.017	3.863	0.801	0.346	0.046
16500.0	0.289	27.399	2.960	946.938	0.140	0.019	3.907	0.834	0.364	0.050
17000.0	0.287	26.979	3.031	946.669	0.146	0.020	3.948	0.866	0.381	0.054
17500.0	0.286	26.562	3.101	946.401	0.152	0.021	3.986	0.899	0.399	0.059
18000.0	0.284	26.149	3.171	946.132	0.158	0.023	4.021	0.932	0.416	0.064
18500.0	0.282	25.738	3.239	945.864	0.163	0.024	4.054	0.965	0.433	0.068
19000.0	0.281	25.331	3.307	945.595	0.169	0.026	4.084	0.997	0.450	0.074
19500.0	0.279	24.927	3.374	945.326	0.175	0.027	4.113	1.030	0.467	0.079
20000.0	0.277	24.527	3.440	945.056	0.181	0.029	4.139	1.062	0.484	0.085
20500.0	0.276	24.129	3.506	944.785	0.188	0.031	4.164	1.094	0.501	0.090
21000.0	0.274	23.735	3.570	944.513	0.194	0.032	4.187	1.127	0.518	0.096
21500.0	0.273	23.344	3.634	944.240	0.200	0.034	4.208	1.158	0.535	0.103
22000.0	0.271	22.957	3.697	943.966	0.206	0.036	4.229	1.190	0.552	0.109
22500.0	0.269	22.573	3.759	943.691	0.212	0.038	4.247	1.222	0.569	0.116
25000.0	0.261	20.703	4.059	942.291	0.245	0.049	4.323	1.376	0.653	0.152
27500.0	0.253	18.917	4.338	940.854	0.278	0.061	4.371	1.524	0.733	0.194
30000.0	0.245	17.217	4.598	939.377	0.313	0.076	4.394	1.666	0.808	0.242
32500.0	0.237	15.601	4.839	937.858	0.348	0.092	4.397	1.802	0.878	0.295
35000.0	0.229	14.070	5.060	936.296	0.383	0.110	4.383	1.930	0.941	0.354
37500.0	0.221	12.626	5.262	934.687	0.419	0.129	4.355	2.051	0.998	0.419
40000.0	0.213	11.267	5.445	933.029	0.455	0.150	4.315	2.163	1.048	0.488
42500.0	0.205	9.997	5.608	931.320	0.490	0.173	4.266	2.267	1.091	0.562
45000.0	0.197	8.814	5.752	929.557	0.524	0.196	4.210	2.362	1.127	0.641
47500.0	0.189	7.720	5.876	927.738	0.558	0.221	4.149	2.448	1.157	0.725
50000.0	0.182	6.716	5.982	925.861	0.590	0.246	4.085	2.525	1.180	0.812
52500.0	0.174	5.800	6.068	923.925	0.621	0.272	4.019	2.593	1.198	0.903
55000.0	0.166	4.971	6.136	921.928	0.650	0.298	3.955	2.652	1.211	0.997
57500.0	0.159	4.229	6.187	919.872	0.678	0.324	3.891	2.703	1.219	1.093
60000.0	0.152	3.571	6.219	917.755	0.704	0.349	3.831	2.745	1.224	1.192
62500.0	0.145	2.993	6.236	915.580	0.727	0.373	3.774	2.779	1.225	1.292
65000.0	0.138	2.490	6.237	913.349	0.749	0.396	3.721	2.806	1.224	1.393
67500.0	0.131	2.058	6.224	911.065	0.768	0.418	3.672	2.827	1.221	1.494
70000.0	0.124	1.690	6.199	908.732	0.785	0.438	3.629	2.843	1.216	1.595

Table C.2 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.350	43.771	0.000	955.879	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.350	43.651	0.023	955.818	0.000	0.000	0.021	0.000	0.000	0.000
500.0	0.348	43.176	0.117	955.573	0.002	0.000	0.216	0.002	0.000	0.000
1000.0	0.346	42.592	0.232	955.265	0.004	0.000	0.469	0.008	0.000	0.000
1500.0	0.343	42.017	0.344	954.958	0.007	0.000	0.709	0.017	0.001	0.000
2000.0	0.341	41.452	0.454	954.651	0.010	0.000	0.939	0.030	0.003	0.000
2500.0	0.339	40.895	0.563	954.344	0.013	0.000	1.157	0.046	0.006	0.000
3000.0	0.337	40.346	0.670	954.038	0.016	0.000	1.366	0.064	0.010	0.000
3500.0	0.335	39.806	0.774	953.731	0.019	0.001	1.564	0.084	0.015	0.000
4000.0	0.332	39.273	0.877	953.424	0.023	0.001	1.754	0.105	0.021	0.001
4500.0	0.330	38.747	0.979	953.117	0.027	0.001	1.936	0.128	0.029	0.001
5000.0	0.328	38.228	1.078	952.810	0.031	0.002	2.109	0.153	0.037	0.001
5500.0	0.326	37.716	1.177	952.504	0.036	0.002	2.275	0.179	0.047	0.002
6000.0	0.324	37.210	1.273	952.197	0.040	0.002	2.433	0.205	0.058	0.002
6500.0	0.322	36.711	1.368	951.890	0.045	0.003	2.584	0.233	0.070	0.003
7000.0	0.320	36.218	1.462	951.583	0.050	0.003	2.728	0.262	0.083	0.004
7500.0	0.318	35.730	1.554	951.276	0.055	0.004	2.867	0.291	0.096	0.005
8000.0	0.316	35.248	1.645	950.969	0.060	0.004	2.998	0.321	0.111	0.006
8500.0	0.314	34.772	1.735	950.663	0.065	0.005	3.124	0.351	0.126	0.008
9000.0	0.312	34.301	1.823	950.356	0.071	0.006	3.245	0.382	0.142	0.009
9500.0	0.310	33.836	1.909	950.050	0.076	0.007	3.359	0.414	0.159	0.011
10000.0	0.308	33.375	1.995	949.744	0.082	0.007	3.469	0.446	0.176	0.013
10500.0	0.306	32.919	2.079	949.438	0.088	0.008	3.573	0.478	0.194	0.015
11000.0	0.304	32.468	2.162	949.132	0.094	0.009	3.672	0.511	0.212	0.017
11500.0	0.302	32.022	2.244	948.826	0.100	0.010	3.767	0.544	0.230	0.020
12000.0	0.300	31.581	2.325	948.521	0.106	0.011	3.857	0.577	0.249	0.022
12500.0	0.298	31.143	2.405	948.216	0.112	0.013	3.943	0.610	0.269	0.025
13000.0	0.296	30.710	2.483	947.911	0.119	0.014	4.024	0.644	0.288	0.028
13500.0	0.294	30.282	2.561	947.606	0.125	0.015	4.101	0.678	0.308	0.032
14000.0	0.292	29.857	2.637	947.302	0.132	0.016	4.174	0.712	0.328	0.035
14500.0	0.290	29.437	2.712	946.997	0.138	0.018	4.243	0.746	0.348	0.039
15000.0	0.288	29.020	2.787	946.694	0.145	0.019	4.308	0.780	0.368	0.043
15500.0	0.287	28.607	2.860	946.390	0.151	0.021	4.370	0.815	0.388	0.047
16000.0	0.285	28.198	2.932	946.087	0.158	0.022	4.428	0.849	0.408	0.051
16500.0	0.283	27.792	3.004	945.785	0.165	0.024	4.483	0.884	0.428	0.056
17000.0	0.281	27.390	3.074	945.483	0.171	0.026	4.534	0.918	0.449	0.060
17500.0	0.279	26.992	3.143	945.181	0.178	0.028	4.582	0.953	0.469	0.065
18000.0	0.278	26.597	3.212	944.880	0.185	0.029	4.627	0.987	0.489	0.070
18500.0	0.276	26.205	3.280	944.578	0.192	0.031	4.670	1.022	0.508	0.076
19000.0	0.274	25.816	3.347	944.277	0.199	0.033	4.710	1.056	0.528	0.081
19500.0	0.272	25.431	3.412	943.976	0.205	0.035	4.747	1.091	0.548	0.087
20000.0	0.271	25.049	3.478	943.674	0.212	0.038	4.782	1.125	0.567	0.093
20500.0	0.269	24.670	3.542	943.372	0.219	0.040	4.815	1.159	0.587	0.099
21000.0	0.267	24.294	3.605	943.069	0.226	0.042	4.846	1.193	0.606	0.105
21500.0	0.265	23.922	3.668	942.765	0.234	0.044	4.875	1.227	0.625	0.112
22000.0	0.264	23.553	3.730	942.460	0.241	0.047	4.903	1.260	0.645	0.118
22500.0	0.262	23.188	3.790	942.155	0.248	0.049	4.929	1.294	0.664	0.125
23000.0	0.260	22.825	3.851	941.848	0.255	0.052	4.953	1.327	0.683	0.132
23500.0	0.259	22.466	3.910	941.540	0.262	0.054	4.977	1.360	0.702	0.140
24000.0	0.257	22.111	3.968	941.231	0.270	0.057	4.998	1.392	0.721	0.147
25000.0	0.253	21.410	4.083	940.608	0.284	0.063	5.038	1.457	0.758	0.163
27500.0	0.245	19.715	4.355	939.027	0.322	0.078	5.118	1.614	0.850	0.206
30000.0	0.237	18.103	4.608	937.410	0.361	0.096	5.172	1.765	0.937	0.254
32500.0	0.229	16.572	4.841	935.757	0.399	0.116	5.204	1.909	1.019	0.307
35000.0	0.221	15.122	5.055	934.066	0.438	0.137	5.216	2.046	1.095	0.364
37500.0	0.213	13.753	5.250	932.336	0.477	0.161	5.212	2.176	1.164	0.426
40000.0	0.205	12.462	5.426	930.566	0.515	0.186	5.194	2.297	1.226	0.493
42500.0	0.197	11.250	5.584	928.755	0.552	0.213	5.164	2.411	1.282	0.563
45000.0	0.190	10.116	5.724	926.901	0.589	0.242	5.126	2.516	1.330	0.637
47500.0	0.182	9.059	5.847	925.005	0.625	0.271	5.079	2.613	1.373	0.715
50000.0	0.175	8.078	5.952	923.064	0.659	0.302	5.028	2.702	1.409	0.795
52500.0	0.168	7.171	6.041	921.079	0.692	0.333	4.972	2.782	1.439	0.879
55000.0	0.161	6.338	6.113	919.050	0.724	0.365	4.914	2.855	1.463	0.964
57500.0	0.154	5.577	6.169	916.975	0.754	0.396	4.854	2.918	1.483	1.052
60000.0	0.148	4.884	6.210	914.857	0.781	0.428	4.795	2.975	1.497	1.141
62500.0	0.141	4.258	6.236	912.696	0.808	0.459	4.736	3.023	1.508	1.231
65000.0	0.135	3.696	6.249	910.492	0.832	0.489	4.680	3.065	1.515	1.323
67500.0	0.129	3.195	6.249	908.249	0.853	0.518	4.625	3.100	1.520	1.414
70000.0	0.124	2.750	6.237	905.966	0.873	0.545	4.573	3.129	1.521	1.506

Table C.3 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.350	43.771	0.000	955.879	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.350	43.652	0.025	955.808	0.000	0.000	0.024	0.000	0.000	0.000
500.0	0.348	43.181	0.122	955.524	0.002	0.000	0.247	0.002	0.000	0.000
1000.0	0.345	42.602	0.242	955.169	0.005	0.000	0.537	0.009	0.001	0.000
1500.0	0.342	42.033	0.360	954.815	0.008	0.000	0.812	0.019	0.002	0.000
2000.0	0.340	41.475	0.475	954.460	0.012	0.000	1.075	0.033	0.004	0.000
2500.0	0.337	40.927	0.588	954.106	0.015	0.000	1.326	0.050	0.008	0.000
3000.0	0.335	40.388	0.698	953.752	0.019	0.001	1.566	0.069	0.013	0.000
3500.0	0.332	39.857	0.807	953.398	0.024	0.001	1.795	0.091	0.019	0.000
4000.0	0.330	39.334	0.914	953.045	0.028	0.001	2.014	0.114	0.027	0.001
4500.0	0.327	38.820	1.018	952.691	0.033	0.002	2.224	0.138	0.037	0.001
5000.0	0.325	38.313	1.121	952.338	0.038	0.002	2.426	0.164	0.047	0.002
5500.0	0.323	37.813	1.223	951.984	0.043	0.003	2.619	0.191	0.059	0.002
6000.0	0.320	37.320	1.322	951.631	0.049	0.003	2.804	0.220	0.072	0.003
6500.0	0.318	36.833	1.420	951.278	0.055	0.004	2.981	0.249	0.086	0.004
7000.0	0.315	36.354	1.516	950.925	0.061	0.005	3.151	0.278	0.101	0.005
7500.0	0.313	35.880	1.610	950.572	0.067	0.005	3.314	0.309	0.118	0.006
8000.0	0.311	35.412	1.703	950.220	0.073	0.006	3.471	0.340	0.135	0.007
8500.0	0.309	34.951	1.794	949.867	0.080	0.007	3.621	0.372	0.152	0.009
9000.0	0.306	34.495	1.884	949.515	0.086	0.008	3.765	0.405	0.171	0.010
9500.0	0.304	34.045	1.973	949.163	0.093	0.009	3.904	0.438	0.190	0.012
10000.0	0.302	33.600	2.060	948.811	0.100	0.010	4.036	0.472	0.210	0.014
10500.0	0.300	33.160	2.146	948.459	0.107	0.012	4.163	0.506	0.230	0.017
11000.0	0.297	32.725	2.230	948.108	0.114	0.013	4.285	0.540	0.251	0.019
11500.0	0.295	32.296	2.314	947.757	0.121	0.014	4.402	0.575	0.272	0.022
12000.0	0.293	31.871	2.395	947.406	0.129	0.016	4.514	0.610	0.294	0.025
12500.0	0.291	31.451	2.476	947.055	0.136	0.018	4.621	0.645	0.316	0.028
13000.0	0.289	31.035	2.556	946.705	0.144	0.019	4.723	0.681	0.338	0.031
13500.0	0.287	30.624	2.634	946.355	0.151	0.021	4.821	0.717	0.360	0.034
14000.0	0.285	30.217	2.711	946.005	0.159	0.023	4.914	0.753	0.383	0.038
14500.0	0.283	29.815	2.787	945.656	0.167	0.025	5.004	0.789	0.406	0.042
15000.0	0.281	29.417	2.861	945.307	0.174	0.027	5.089	0.826	0.429	0.046
15500.0	0.279	29.023	2.935	944.958	0.182	0.029	5.171	0.863	0.451	0.050
16000.0	0.277	28.633	3.008	944.610	0.190	0.031	5.248	0.900	0.474	0.054
16500.0	0.275	28.246	3.079	944.262	0.198	0.033	5.322	0.937	0.497	0.059
17000.0	0.273	27.864	3.150	943.914	0.206	0.036	5.392	0.974	0.520	0.064
17500.0	0.271	27.485	3.219	943.567	0.214	0.038	5.459	1.011	0.543	0.069
18000.0	0.269	27.110	3.287	943.220	0.222	0.041	5.523	1.048	0.566	0.074
18500.0	0.267	26.738	3.355	942.874	0.230	0.043	5.583	1.085	0.588	0.079
19000.0	0.265	26.370	3.421	942.528	0.238	0.046	5.640	1.123	0.611	0.085
19500.0	0.263	26.006	3.487	942.182	0.246	0.049	5.695	1.160	0.633	0.090
20000.0	0.261	25.644	3.551	941.836	0.254	0.052	5.746	1.197	0.655	0.096
20500.0	0.259	25.286	3.615	941.490	0.263	0.055	5.796	1.234	0.678	0.102
21000.0	0.257	24.932	3.678	941.143	0.271	0.058	5.843	1.271	0.700	0.109
21500.0	0.255	24.580	3.740	940.797	0.279	0.061	5.887	1.308	0.722	0.115
22000.0	0.254	24.232	3.801	940.449	0.287	0.064	5.930	1.345	0.744	0.122
22500.0	0.252	23.888	3.861	940.102	0.295	0.067	5.971	1.381	0.765	0.128
23000.0	0.250	23.546	3.920	939.753	0.303	0.071	6.009	1.418	0.787	0.135
23500.0	0.248	23.208	3.979	939.403	0.311	0.074	6.047	1.454	0.809	0.142
24000.0	0.246	22.873	4.036	939.053	0.320	0.078	6.082	1.490	0.830	0.150
24500.0	0.245	22.542	4.093	938.702	0.328	0.081	6.116	1.526	0.851	0.157
25000.0	0.243	22.213	4.149	938.349	0.336	0.085	6.149	1.562	0.873	0.165
25500.0	0.241	21.888	4.204	937.996	0.344	0.089	6.180	1.598	0.894	0.173
26000.0	0.239	21.566	4.259	937.641	0.353	0.093	6.210	1.633	0.915	0.181
26500.0	0.238	21.248	4.312	937.285	0.361	0.097	6.239	1.668	0.936	0.189
27000.0	0.236	20.932	4.365	936.928	0.369	0.101	6.266	1.703	0.956	0.197
27500.0	0.234	20.620	4.417	936.570	0.378	0.106	6.293	1.738	0.977	0.206
30000.0	0.226	19.107	4.664	934.758	0.420	0.128	6.408	1.907	1.079	0.251
32500.0	0.217	17.672	4.892	932.915	0.462	0.154	6.499	2.070	1.176	0.300
35000.0	0.209	16.313	5.100	931.040	0.504	0.181	6.567	2.227	1.268	0.353
37500.0	0.201	15.029	5.290	929.132	0.545	0.211	6.617	2.376	1.355	0.409
40000.0	0.193	13.818	5.462	927.192	0.587	0.243	6.649	2.519	1.436	0.469
42500.0	0.186	12.677	5.616	925.220	0.627	0.276	6.668	2.655	1.511	0.532
45000.0	0.179	11.607	5.753	923.215	0.666	0.312	6.673	2.784	1.579	0.597
47500.0	0.172	10.603	5.873	921.177	0.704	0.349	6.669	2.905	1.642	0.666
50000.0	0.165	9.665	5.977	919.107	0.741	0.387	6.655	3.018	1.700	0.736
52500.0	0.159	8.791	6.065	917.005	0.776	0.427	6.634	3.124	1.751	0.809
55000.0	0.152	7.978	6.139	914.872	0.810	0.467	6.607	3.223	1.798	0.884
57500.0	0.146	7.225	6.198	912.708	0.842	0.507	6.575	3.314	1.839	0.961
60000.0	0.140	6.528	6.245	910.514	0.872	0.548	6.540	3.398	1.875	1.039
62500.0	0.135	5.886	6.278	908.292	0.900	0.589	6.502	3.475	1.908	1.119
65000.0	0.130	5.295	6.299	906.041	0.926	0.630	6.462	3.545	1.935	1.200
67500.0	0.125	4.755	6.309	903.763	0.950	0.669	6.422	3.609	1.959	1.282
70000.0	0.120	4.261	6.309	901.460	0.972	0.709	6.381	3.667	1.980	1.365

Table C.4 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.351	43.838	0.000	955.811	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.350	43.718	0.022	955.759	0.000	0.000	0.018	0.000	0.000	0.000
500.0	0.349	43.241	0.112	955.547	0.002	0.000	0.187	0.001	0.000	0.000
1000.0	0.347	42.653	0.222	955.283	0.003	0.000	0.407	0.007	0.000	0.000
1500.0	0.345	42.073	0.331	955.018	0.006	0.000	0.616	0.015	0.001	0.000
2000.0	0.343	41.501	0.437	954.752	0.008	0.000	0.815	0.026	0.002	0.000
2500.0	0.341	40.937	0.542	954.487	0.010	0.000	1.006	0.040	0.004	0.000
3000.0	0.339	40.380	0.646	954.221	0.013	0.000	1.187	0.056	0.007	0.000
3500.0	0.337	39.830	0.748	953.955	0.016	0.000	1.361	0.074	0.011	0.000
4000.0	0.335	39.287	0.848	953.689	0.019	0.001	1.526	0.094	0.016	0.000
4500.0	0.333	38.751	0.947	953.423	0.022	0.001	1.684	0.115	0.022	0.001
5000.0	0.331	38.221	1.044	953.156	0.026	0.001	1.835	0.137	0.029	0.001
5500.0	0.329	37.697	1.140	952.889	0.029	0.001	1.979	0.161	0.036	0.001
6000.0	0.328	37.179	1.235	952.621	0.033	0.002	2.117	0.186	0.045	0.002
6500.0	0.326	36.666	1.329	952.354	0.037	0.002	2.248	0.211	0.054	0.003
7000.0	0.324	36.159	1.421	952.086	0.041	0.002	2.374	0.238	0.065	0.003
7500.0	0.322	35.657	1.512	951.818	0.045	0.003	2.494	0.265	0.076	0.004
8000.0	0.320	35.161	1.602	951.550	0.050	0.003	2.608	0.293	0.088	0.005
8500.0	0.318	34.670	1.690	951.282	0.054	0.004	2.717	0.322	0.100	0.006
9000.0	0.316	34.183	1.778	951.013	0.059	0.004	2.821	0.351	0.113	0.008
9500.0	0.315	33.702	1.864	950.745	0.063	0.005	2.920	0.380	0.127	0.009
10000.0	0.313	33.225	1.949	950.476	0.068	0.006	3.014	0.410	0.142	0.011
10500.0	0.311	32.753	2.033	950.207	0.073	0.006	3.103	0.441	0.157	0.012
11000.0	0.309	32.285	2.116	949.938	0.078	0.007	3.189	0.471	0.172	0.014
11500.0	0.307	31.822	2.198	949.669	0.083	0.008	3.270	0.502	0.188	0.016
12000.0	0.306	31.363	2.278	949.400	0.088	0.008	3.346	0.534	0.204	0.019
12500.0	0.304	30.908	2.358	949.131	0.093	0.009	3.419	0.565	0.220	0.021
13000.0	0.302	30.457	2.437	948.862	0.099	0.010	3.488	0.597	0.237	0.024
13500.0	0.300	30.010	2.515	948.593	0.104	0.011	3.553	0.629	0.254	0.027
14000.0	0.299	29.567	2.591	948.323	0.110	0.012	3.615	0.661	0.271	0.030
14500.0	0.297	29.128	2.667	948.054	0.115	0.013	3.673	0.694	0.288	0.033
15000.0	0.295	28.693	2.742	947.785	0.121	0.014	3.728	0.726	0.305	0.037
15500.0	0.293	28.261	2.816	947.516	0.127	0.016	3.779	0.759	0.323	0.040
16000.0	0.292	27.833	2.889	947.248	0.133	0.017	3.827	0.791	0.340	0.044
16500.0	0.290	27.408	2.961	946.979	0.138	0.018	3.872	0.824	0.358	0.048
17000.0	0.288	26.987	3.033	946.711	0.144	0.019	3.914	0.856	0.375	0.053
17500.0	0.287	26.569	3.103	946.443	0.150	0.021	3.953	0.889	0.392	0.057
18000.0	0.285	26.154	3.173	946.174	0.156	0.022	3.989	0.922	0.410	0.062
18500.0	0.283	25.743	3.241	945.906	0.162	0.024	4.023	0.954	0.427	0.067
19000.0	0.282	25.334	3.309	945.637	0.168	0.025	4.055	0.987	0.444	0.072
19500.0	0.280	24.929	3.376	945.368	0.174	0.027	4.085	1.019	0.461	0.077
20000.0	0.278	24.528	3.443	945.098	0.180	0.028	4.112	1.052	0.478	0.083
20500.0	0.277	24.129	3.508	944.827	0.186	0.030	4.138	1.084	0.495	0.088
21000.0	0.275	23.734	3.573	944.555	0.192	0.032	4.162	1.116	0.512	0.094
21500.0	0.273	23.342	3.637	944.282	0.198	0.034	4.184	1.148	0.529	0.100
22000.0	0.272	22.954	3.700	944.008	0.205	0.036	4.205	1.179	0.546	0.107
22500.0	0.270	22.569	3.763	943.733	0.211	0.038	4.225	1.211	0.563	0.113
25000.0	0.262	20.694	4.063	942.333	0.243	0.048	4.304	1.365	0.647	0.150
27500.0	0.254	18.905	4.343	940.895	0.277	0.061	4.355	1.514	0.727	0.191
30000.0	0.246	17.202	4.603	939.418	0.312	0.075	4.382	1.656	0.803	0.239
32500.0	0.238	15.583	4.844	937.899	0.347	0.091	4.387	1.792	0.873	0.292
35000.0	0.230	14.050	5.066	936.336	0.383	0.109	4.375	1.921	0.937	0.351
37500.0	0.221	12.604	5.268	934.726	0.418	0.128	4.348	2.042	0.994	0.415
40000.0	0.213	11.245	5.450	933.067	0.454	0.149	4.309	2.155	1.044	0.484
42500.0	0.206	9.973	5.614	931.357	0.489	0.172	4.260	2.260	1.087	0.559
45000.0	0.198	8.790	5.757	929.593	0.524	0.196	4.205	2.356	1.124	0.637
47500.0	0.190	7.697	5.882	927.773	0.557	0.220	4.145	2.443	1.154	0.721
50000.0	0.182	6.692	5.987	925.895	0.590	0.246	4.081	2.520	1.177	0.808
52500.0	0.174	5.777	6.073	923.957	0.621	0.272	4.016	2.589	1.196	0.899
55000.0	0.167	4.950	6.141	921.959	0.650	0.298	3.952	2.648	1.209	0.993
57500.0	0.159	4.209	6.191	919.900	0.678	0.324	3.888	2.699	1.217	1.090
60000.0	0.152	3.552	6.223	917.781	0.704	0.349	3.828	2.742	1.222	1.188
62500.0	0.145	2.976	6.239	915.604	0.727	0.373	3.771	2.777	1.223	1.288
65000.0	0.138	2.475	6.240	913.370	0.749	0.396	3.719	2.804	1.222	1.389
67500.0	0.131	2.044	6.227	911.085	0.768	0.418	3.671	2.825	1.219	1.491
70000.0	0.125	1.678	6.201	908.750	0.785	0.438	3.627	2.841	1.215	1.592

Table C.5 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.351	43.838	0.000	955.811	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.350	43.719	0.023	955.751	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.348	43.243	0.116	955.511	0.002	0.000	0.211	0.002	0.000	0.000
1000.0	0.346	42.658	0.230	955.210	0.004	0.000	0.459	0.007	0.000	0.000
1500.0	0.344	42.083	0.343	954.909	0.007	0.000	0.695	0.017	0.001	0.000
2000.0	0.342	41.516	0.453	954.608	0.009	0.000	0.920	0.029	0.003	0.000
2500.0	0.340	40.958	0.561	954.307	0.012	0.000	1.135	0.045	0.006	0.000
3000.0	0.338	40.409	0.667	954.006	0.016	0.000	1.339	0.062	0.009	0.000
3500.0	0.335	39.867	0.772	953.705	0.019	0.001	1.535	0.082	0.014	0.000
4000.0	0.333	39.332	0.875	953.403	0.023	0.001	1.722	0.103	0.020	0.001
4500.0	0.331	38.804	0.976	953.102	0.027	0.001	1.900	0.126	0.028	0.001
5000.0	0.329	38.284	1.075	952.800	0.031	0.001	2.071	0.150	0.036	0.001
5500.0	0.327	37.770	1.173	952.498	0.035	0.002	2.235	0.175	0.045	0.002
6000.0	0.325	37.262	1.270	952.196	0.039	0.002	2.391	0.202	0.056	0.002
6500.0	0.323	36.761	1.365	951.894	0.044	0.003	2.540	0.229	0.067	0.003
7000.0	0.321	36.265	1.459	951.591	0.049	0.003	2.683	0.257	0.080	0.004
7500.0	0.319	35.776	1.551	951.289	0.054	0.004	2.820	0.286	0.093	0.005
8000.0	0.317	35.292	1.642	950.986	0.059	0.004	2.950	0.316	0.107	0.006
8500.0	0.315	34.813	1.732	950.684	0.064	0.005	3.075	0.346	0.122	0.007
9000.0	0.313	34.340	1.820	950.381	0.069	0.006	3.194	0.377	0.138	0.009
9500.0	0.311	33.872	1.907	950.078	0.075	0.006	3.308	0.408	0.154	0.011
10000.0	0.309	33.409	1.993	949.775	0.081	0.007	3.417	0.439	0.171	0.012
10500.0	0.307	32.951	2.077	949.473	0.086	0.008	3.521	0.471	0.189	0.014
11000.0	0.305	32.498	2.160	949.170	0.092	0.009	3.620	0.504	0.206	0.017
11500.0	0.303	32.050	2.242	948.867	0.098	0.010	3.715	0.536	0.225	0.019
12000.0	0.301	31.606	2.323	948.564	0.104	0.011	3.805	0.569	0.243	0.022
12500.0	0.299	31.167	2.403	948.261	0.111	0.012	3.891	0.602	0.263	0.024
13000.0	0.297	30.731	2.482	947.958	0.117	0.013	3.972	0.636	0.282	0.027
13500.0	0.295	30.301	2.559	947.656	0.123	0.015	4.050	0.669	0.301	0.031
14000.0	0.293	29.874	2.636	947.353	0.130	0.016	4.123	0.703	0.321	0.034
14500.0	0.291	29.451	2.712	947.050	0.136	0.017	4.193	0.737	0.341	0.038
15000.0	0.290	29.033	2.786	946.748	0.143	0.019	4.259	0.771	0.361	0.041
15500.0	0.288	28.618	2.860	946.446	0.149	0.020	4.322	0.805	0.381	0.045
16000.0	0.286	28.207	2.932	946.144	0.156	0.022	4.381	0.840	0.401	0.050
16500.0	0.284	27.800	3.004	945.843	0.163	0.024	4.436	0.874	0.421	0.054
17000.0	0.282	27.396	3.075	945.541	0.169	0.025	4.489	0.908	0.441	0.059
17500.0	0.280	26.996	3.144	945.240	0.176	0.027	4.538	0.943	0.461	0.063
18000.0	0.279	26.599	3.213	944.939	0.183	0.029	4.585	0.977	0.481	0.068
18500.0	0.277	26.206	3.281	944.638	0.190	0.031	4.628	1.012	0.501	0.074
19000.0	0.275	25.816	3.348	944.337	0.197	0.033	4.669	1.046	0.521	0.079
19500.0	0.273	25.429	3.414	944.035	0.204	0.035	4.708	1.080	0.540	0.085
20000.0	0.272	25.045	3.480	943.734	0.211	0.037	4.744	1.114	0.560	0.091
20500.0	0.270	24.666	3.544	943.432	0.218	0.039	4.778	1.148	0.579	0.097
21000.0	0.268	24.289	3.608	943.128	0.225	0.041	4.810	1.182	0.599	0.103
21500.0	0.266	23.915	3.670	942.825	0.232	0.044	4.841	1.215	0.618	0.109
22000.0	0.265	23.545	3.732	942.520	0.239	0.046	4.869	1.249	0.637	0.116
22500.0	0.263	23.179	3.793	942.214	0.246	0.048	4.896	1.282	0.657	0.123
23000.0	0.261	22.815	3.854	941.908	0.253	0.051	4.922	1.315	0.676	0.130
23500.0	0.259	22.455	3.913	941.599	0.261	0.054	4.946	1.348	0.695	0.137
24000.0	0.258	22.099	3.972	941.290	0.268	0.056	4.969	1.381	0.714	0.145
25000.0	0.254	21.396	4.087	940.667	0.283	0.062	5.011	1.446	0.751	0.160
27500.0	0.246	19.697	4.359	939.086	0.321	0.077	5.094	1.603	0.843	0.203
30000.0	0.238	18.081	4.612	937.468	0.359	0.095	5.152	1.754	0.931	0.251
32500.0	0.229	16.548	4.846	935.814	0.398	0.115	5.186	1.898	1.013	0.303
35000.0	0.221	15.096	5.060	934.123	0.437	0.136	5.201	2.036	1.089	0.361
37500.0	0.213	13.724	5.255	932.392	0.476	0.160	5.199	2.166	1.158	0.423
40000.0	0.205	12.433	5.431	930.621	0.514	0.185	5.182	2.288	1.221	0.489
42500.0	0.198	11.220	5.590	928.808	0.552	0.212	5.154	2.402	1.276	0.559
45000.0	0.190	10.086	5.730	926.953	0.589	0.241	5.116	2.509	1.325	0.633
47500.0	0.183	9.028	5.852	925.055	0.624	0.270	5.071	2.606	1.368	0.711
50000.0	0.175	8.047	5.957	923.113	0.659	0.301	5.020	2.696	1.404	0.791
52500.0	0.168	7.141	6.046	921.126	0.692	0.332	4.965	2.776	1.435	0.875
55000.0	0.161	6.309	6.117	919.094	0.724	0.364	4.907	2.849	1.459	0.960
57500.0	0.155	5.549	6.173	917.018	0.753	0.396	4.848	2.914	1.479	1.048
60000.0	0.148	4.858	6.214	914.898	0.781	0.427	4.789	2.970	1.494	1.137
62500.0	0.142	4.233	6.240	912.734	0.808	0.458	4.731	3.019	1.505	1.228
65000.0	0.136	3.673	6.252	910.528	0.832	0.488	4.675	3.061	1.512	1.319
67500.0	0.130	3.173	6.251	908.282	0.854	0.517	4.621	3.097	1.517	1.411
70000.0	0.124	2.730	6.239	905.998	0.873	0.545	4.570	3.126	1.518	1.503

Table C.6 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.351	43.838	0.000	955.811	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.350	43.719	0.024	955.742	0.000	0.000	0.023	0.000	0.000	0.000
500.0	0.348	43.248	0.122	955.464	0.002	0.000	0.242	0.002	0.000	0.000
1000.0	0.346	42.668	0.241	955.116	0.005	0.000	0.526	0.008	0.001	0.000
1500.0	0.343	42.099	0.358	954.768	0.008	0.000	0.796	0.019	0.002	0.000
2000.0	0.340	41.540	0.473	954.420	0.011	0.000	1.054	0.033	0.004	0.000
2500.0	0.338	40.991	0.585	954.072	0.015	0.000	1.300	0.049	0.008	0.000
3000.0	0.336	40.450	0.696	953.725	0.019	0.001	1.536	0.068	0.012	0.000
3500.0	0.333	39.918	0.804	953.377	0.023	0.001	1.761	0.089	0.019	0.000
4000.0	0.331	39.394	0.910	953.029	0.028	0.001	1.977	0.112	0.026	0.001
4500.0	0.328	38.878	1.015	952.681	0.032	0.002	2.184	0.136	0.035	0.001
5000.0	0.326	38.369	1.118	952.333	0.037	0.002	2.382	0.162	0.046	0.001
5500.0	0.323	37.867	1.219	951.985	0.043	0.003	2.572	0.189	0.057	0.002
6000.0	0.321	37.372	1.318	951.638	0.048	0.003	2.754	0.216	0.070	0.003
6500.0	0.319	36.884	1.416	951.290	0.054	0.004	2.929	0.245	0.084	0.004
7000.0	0.316	36.402	1.512	950.941	0.060	0.004	3.097	0.275	0.099	0.005
7500.0	0.314	35.927	1.606	950.593	0.066	0.005	3.259	0.305	0.114	0.006
8000.0	0.312	35.457	1.699	950.245	0.072	0.006	3.414	0.336	0.131	0.007
8500.0	0.310	34.993	1.790	949.897	0.078	0.007	3.562	0.368	0.148	0.008
9000.0	0.307	34.535	1.880	949.549	0.085	0.008	3.705	0.400	0.167	0.010
9500.0	0.305	34.083	1.969	949.201	0.092	0.009	3.842	0.433	0.186	0.012
10000.0	0.303	33.635	2.056	948.853	0.098	0.010	3.973	0.466	0.205	0.014
10500.0	0.301	33.194	2.142	948.505	0.105	0.011	4.100	0.500	0.225	0.016
11000.0	0.299	32.757	2.227	948.157	0.112	0.013	4.221	0.534	0.245	0.019
11500.0	0.296	32.325	2.310	947.809	0.119	0.014	4.337	0.568	0.266	0.021
12000.0	0.294	31.898	2.393	947.462	0.127	0.016	4.448	0.603	0.288	0.024
12500.0	0.292	31.475	2.473	947.114	0.134	0.017	4.555	0.638	0.309	0.027
13000.0	0.290	31.058	2.553	946.766	0.142	0.019	4.657	0.674	0.331	0.030
13500.0	0.288	30.644	2.631	946.419	0.149	0.020	4.755	0.709	0.353	0.033
14000.0	0.286	30.236	2.709	946.072	0.157	0.022	4.849	0.745	0.376	0.037
14500.0	0.284	29.831	2.785	945.724	0.164	0.024	4.939	0.781	0.398	0.041
15000.0	0.282	29.431	2.860	945.377	0.172	0.026	5.024	0.818	0.421	0.044
15500.0	0.280	29.035	2.934	945.030	0.180	0.028	5.106	0.854	0.444	0.049
16000.0	0.278	28.643	3.007	944.684	0.188	0.030	5.184	0.891	0.466	0.053
16500.0	0.276	28.254	3.078	944.337	0.196	0.033	5.259	0.927	0.489	0.057
17000.0	0.274	27.870	3.149	943.991	0.204	0.035	5.330	0.964	0.512	0.062
17500.0	0.272	27.490	3.219	943.645	0.212	0.037	5.398	1.001	0.535	0.067
18000.0	0.270	27.113	3.287	943.299	0.220	0.040	5.462	1.038	0.557	0.072
18500.0	0.268	26.739	3.355	942.953	0.228	0.042	5.524	1.075	0.580	0.077
19000.0	0.266	26.370	3.422	942.608	0.236	0.045	5.582	1.112	0.602	0.083
19500.0	0.264	26.003	3.487	942.262	0.244	0.048	5.638	1.149	0.625	0.089
20000.0	0.262	25.641	3.552	941.917	0.252	0.051	5.690	1.186	0.647	0.094
20500.0	0.260	25.281	3.616	941.571	0.260	0.054	5.741	1.223	0.669	0.100
21000.0	0.258	24.925	3.679	941.225	0.268	0.057	5.789	1.260	0.691	0.107
21500.0	0.257	24.573	3.741	940.878	0.276	0.060	5.835	1.297	0.713	0.113
22000.0	0.255	24.223	3.802	940.531	0.285	0.063	5.879	1.333	0.735	0.120
22500.0	0.253	23.877	3.863	940.183	0.293	0.066	5.920	1.370	0.757	0.126
23000.0	0.251	23.535	3.922	939.835	0.301	0.070	5.960	1.406	0.778	0.133
23500.0	0.249	23.195	3.981	939.485	0.309	0.073	5.999	1.442	0.800	0.140
24000.0	0.247	22.859	4.039	939.135	0.318	0.077	6.036	1.478	0.822	0.148
24500.0	0.246	22.527	4.096	938.783	0.326	0.080	6.071	1.514	0.843	0.155
25000.0	0.244	22.197	4.152	938.431	0.334	0.084	6.104	1.550	0.864	0.163
25500.0	0.242	21.871	4.207	938.077	0.342	0.088	6.137	1.586	0.885	0.170
26000.0	0.240	21.548	4.262	937.722	0.351	0.092	6.168	1.621	0.906	0.178
26500.0	0.239	21.229	4.315	937.366	0.359	0.096	6.197	1.656	0.927	0.187
27000.0	0.237	20.912	4.368	937.009	0.368	0.100	6.226	1.691	0.948	0.195
27500.0	0.235	20.599	4.420	936.650	0.376	0.104	6.253	1.725	0.969	0.203
30000.0	0.226	19.082	4.668	934.838	0.418	0.127	6.373	1.895	1.071	0.248
32500.0	0.218	17.644	4.896	932.994	0.460	0.152	6.467	2.058	1.168	0.297
35000.0	0.210	16.282	5.105	931.118	0.502	0.180	6.539	2.215	1.261	0.350
37500.0	0.202	14.996	5.295	929.209	0.544	0.209	6.591	2.365	1.347	0.406
40000.0	0.194	13.783	5.467	927.268	0.585	0.241	6.626	2.508	1.428	0.466
42500.0	0.187	12.642	5.621	925.294	0.626	0.275	6.647	2.645	1.503	0.528
45000.0	0.179	11.570	5.758	923.287	0.665	0.311	6.654	2.774	1.572	0.594
47500.0	0.172	10.567	5.878	921.248	0.704	0.348	6.651	2.895	1.636	0.662
50000.0	0.166	9.629	5.981	919.176	0.741	0.386	6.638	3.009	1.693	0.733
52500.0	0.159	8.755	6.070	917.072	0.776	0.425	6.618	3.116	1.745	0.806
55000.0	0.153	7.943	6.143	914.937	0.810	0.466	6.592	3.215	1.791	0.881
57500.0	0.147	7.190	6.202	912.772	0.842	0.506	6.561	3.307	1.833	0.957
60000.0	0.141	6.494	6.248	910.576	0.872	0.547	6.527	3.391	1.870	1.036
62500.0	0.135	5.853	6.281	908.351	0.900	0.588	6.490	3.469	1.902	1.116
65000.0	0.130	5.264	6.302	906.097	0.926	0.629	6.451	3.539	1.930	1.197
67500.0	0.125	4.725	6.312	903.817	0.950	0.669	6.411	3.604	1.954	1.279
70000.0	0.120	4.232	6.310	901.512	0.972	0.708	6.370	3.662	1.975	1.362

Table C.7 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.322	0.000	955.323	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.202	0.022	955.275	0.000	0.000	0.015	0.000	0.000	0.000
500.0	0.353	43.724	0.111	955.078	0.001	0.000	0.169	0.001	0.000	0.000
1000.0	0.351	43.133	0.220	954.832	0.003	0.000	0.374	0.006	0.000	0.000
1500.0	0.349	42.550	0.327	954.585	0.005	0.000	0.570	0.013	0.001	0.000
2000.0	0.347	41.974	0.433	954.339	0.007	0.000	0.757	0.023	0.002	0.000
2500.0	0.345	41.405	0.537	954.092	0.010	0.000	0.935	0.036	0.004	0.000
3000.0	0.343	40.843	0.640	953.845	0.012	0.000	1.106	0.051	0.006	0.000
3500.0	0.342	40.288	0.741	953.598	0.015	0.000	1.269	0.067	0.009	0.000
4000.0	0.340	39.738	0.841	953.350	0.018	0.001	1.425	0.085	0.013	0.000
4500.0	0.338	39.195	0.939	953.103	0.021	0.001	1.573	0.105	0.018	0.001
5000.0	0.336	38.658	1.036	952.855	0.024	0.001	1.715	0.126	0.024	0.001
5500.0	0.334	38.126	1.132	952.607	0.027	0.001	1.851	0.148	0.031	0.001
6000.0	0.332	37.600	1.227	952.359	0.031	0.001	1.980	0.171	0.038	0.002
6500.0	0.331	37.079	1.320	952.111	0.034	0.002	2.103	0.195	0.047	0.002
7000.0	0.329	36.563	1.413	951.863	0.038	0.002	2.221	0.220	0.056	0.003
7500.0	0.327	36.052	1.504	951.615	0.042	0.002	2.333	0.246	0.066	0.003
8000.0	0.325	35.546	1.594	951.367	0.046	0.003	2.440	0.273	0.076	0.004
8500.0	0.324	35.045	1.683	951.119	0.050	0.003	2.542	0.300	0.087	0.005
9000.0	0.322	34.549	1.770	950.870	0.054	0.004	2.638	0.327	0.099	0.006
9500.0	0.320	34.057	1.857	950.622	0.058	0.004	2.730	0.356	0.111	0.008
10000.0	0.318	33.569	1.942	950.374	0.062	0.005	2.818	0.384	0.124	0.009
10500.0	0.317	33.086	2.027	950.125	0.067	0.005	2.901	0.413	0.138	0.010
11000.0	0.315	32.607	2.110	949.877	0.071	0.006	2.979	0.443	0.151	0.012
11500.0	0.313	32.132	2.193	949.629	0.076	0.007	3.054	0.472	0.166	0.014
12000.0	0.312	31.661	2.274	949.381	0.081	0.007	3.124	0.502	0.180	0.016
12500.0	0.310	31.194	2.355	949.133	0.086	0.008	3.191	0.533	0.195	0.018
13000.0	0.308	30.731	2.434	948.885	0.091	0.009	3.253	0.563	0.210	0.021
13500.0	0.306	30.271	2.513	948.638	0.096	0.010	3.312	0.594	0.225	0.023
14000.0	0.305	29.816	2.591	948.390	0.101	0.011	3.368	0.625	0.241	0.026
14500.0	0.303	29.364	2.668	948.143	0.106	0.011	3.420	0.656	0.256	0.029
15000.0	0.301	28.915	2.743	947.896	0.111	0.012	3.468	0.688	0.272	0.032
15500.0	0.300	28.470	2.819	947.649	0.116	0.013	3.513	0.719	0.288	0.035
16000.0	0.298	28.028	2.893	947.402	0.121	0.014	3.556	0.751	0.304	0.038
16500.0	0.297	27.589	2.966	947.156	0.127	0.016	3.595	0.782	0.319	0.042
17000.0	0.295	27.153	3.039	946.910	0.132	0.017	3.631	0.814	0.335	0.046
17500.0	0.293	26.721	3.110	946.664	0.137	0.018	3.665	0.846	0.351	0.050
18000.0	0.292	26.292	3.181	946.417	0.143	0.019	3.696	0.878	0.367	0.054
18500.0	0.290	25.865	3.251	946.171	0.148	0.020	3.725	0.909	0.383	0.059
19000.0	0.289	25.442	3.321	945.924	0.153	0.022	3.751	0.941	0.398	0.063
19500.0	0.287	25.022	3.389	945.677	0.159	0.023	3.776	0.972	0.414	0.068
20000.0	0.285	24.605	3.457	945.429	0.164	0.024	3.798	1.004	0.429	0.073
20500.0	0.284	24.191	3.524	945.181	0.170	0.026	3.819	1.035	0.445	0.078
21000.0	0.282	23.781	3.591	944.931	0.176	0.027	3.839	1.066	0.460	0.084
21500.0	0.281	23.373	3.656	944.681	0.181	0.029	3.856	1.098	0.476	0.089
22000.0	0.279	22.969	3.721	944.429	0.187	0.030	3.873	1.128	0.491	0.095
22500.0	0.277	22.568	3.785	944.175	0.193	0.032	3.888	1.159	0.507	0.101
23000.0	0.276	22.170	3.849	943.921	0.199	0.034	3.901	1.190	0.522	0.107
25000.0	0.269	20.613	4.095	942.887	0.222	0.041	3.945	1.310	0.583	0.135
27500.0	0.261	18.741	4.385	941.559	0.253	0.052	3.977	1.456	0.657	0.174
30000.0	0.253	16.954	4.656	940.188	0.285	0.064	3.986	1.596	0.726	0.219
32500.0	0.245	15.253	4.907	938.774	0.318	0.078	3.975	1.729	0.790	0.270
35000.0	0.237	13.640	5.139	937.311	0.352	0.093	3.949	1.856	0.847	0.327
37500.0	0.229	12.117	5.351	935.796	0.385	0.110	3.909	1.975	0.898	0.390
40000.0	0.221	10.687	5.543	934.225	0.419	0.128	3.859	2.086	0.942	0.459
42500.0	0.213	9.351	5.715	932.595	0.452	0.148	3.801	2.188	0.980	0.534
45000.0	0.204	8.113	5.866	930.901	0.485	0.168	3.738	2.281	1.010	0.614
47500.0	0.196	6.976	5.996	929.139	0.517	0.190	3.671	2.365	1.034	0.700
50000.0	0.188	5.939	6.105	927.307	0.548	0.213	3.603	2.439	1.052	0.790
52500.0	0.180	5.006	6.193	925.402	0.578	0.235	3.536	2.503	1.065	0.885
55000.0	0.171	4.175	6.259	923.421	0.606	0.258	3.471	2.558	1.073	0.984
57500.0	0.163	3.445	6.306	921.365	0.632	0.281	3.409	2.603	1.077	1.087
60000.0	0.155	2.813	6.333	919.235	0.656	0.302	3.352	2.640	1.078	1.192
62500.0	0.147	2.274	6.342	917.032	0.678	0.323	3.300	2.668	1.076	1.299
65000.0	0.139	1.820	6.334	914.763	0.698	0.343	3.253	2.690	1.072	1.407
67500.0	0.132	1.445	6.311	912.432	0.715	0.361	3.212	2.705	1.067	1.515
70000.0	0.125	1.138	6.274	910.047	0.730	0.377	3.177	2.715	1.061	1.623

Table C.8 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.322	0.000	955.323	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.202	0.023	955.268	0.000	0.000	0.017	0.000	0.000	0.000
500.0	0.352	43.725	0.115	955.043	0.002	0.000	0.192	0.001	0.000	0.000
1000.0	0.350	43.137	0.228	954.761	0.004	0.000	0.425	0.007	0.000	0.000
1500.0	0.348	42.558	0.339	954.479	0.006	0.000	0.648	0.015	0.001	0.000
2000.0	0.346	41.987	0.448	954.197	0.009	0.000	0.860	0.026	0.003	0.000
2500.0	0.344	41.424	0.555	953.916	0.011	0.000	1.063	0.041	0.005	0.000
3000.0	0.342	40.869	0.661	953.634	0.014	0.000	1.256	0.057	0.008	0.000
3500.0	0.340	40.321	0.765	953.353	0.018	0.001	1.441	0.075	0.012	0.000
4000.0	0.338	39.779	0.867	953.071	0.021	0.001	1.618	0.095	0.018	0.000
4500.0	0.336	39.244	0.968	952.789	0.025	0.001	1.786	0.116	0.024	0.001
5000.0	0.334	38.716	1.068	952.507	0.028	0.001	1.947	0.139	0.031	0.001
5500.0	0.332	38.194	1.165	952.226	0.032	0.002	2.101	0.163	0.040	0.001
6000.0	0.330	37.678	1.262	951.944	0.036	0.002	2.249	0.188	0.049	0.002
6500.0	0.328	37.168	1.357	951.662	0.041	0.002	2.389	0.214	0.059	0.003
7000.0	0.326	36.664	1.451	951.380	0.045	0.003	2.523	0.241	0.070	0.003
7500.0	0.324	36.165	1.543	951.099	0.050	0.003	2.651	0.268	0.082	0.004
8000.0	0.322	35.671	1.634	950.817	0.054	0.004	2.774	0.296	0.095	0.005
8500.0	0.320	35.182	1.724	950.536	0.059	0.004	2.890	0.325	0.109	0.006
9000.0	0.318	34.699	1.812	950.255	0.064	0.005	3.001	0.355	0.123	0.008
9500.0	0.316	34.221	1.900	949.973	0.069	0.006	3.107	0.384	0.138	0.009
10000.0	0.314	33.747	1.986	949.692	0.074	0.006	3.208	0.415	0.153	0.011
10500.0	0.312	33.278	2.071	949.411	0.080	0.007	3.304	0.446	0.169	0.012
11000.0	0.311	32.813	2.155	949.131	0.085	0.008	3.395	0.477	0.186	0.014
11500.0	0.309	32.353	2.237	948.850	0.091	0.009	3.482	0.508	0.202	0.016
12000.0	0.307	31.897	2.319	948.570	0.096	0.010	3.564	0.540	0.220	0.019
12500.0	0.305	31.446	2.399	948.290	0.102	0.011	3.642	0.572	0.237	0.021
13000.0	0.303	30.998	2.479	948.010	0.108	0.012	3.715	0.604	0.255	0.024
13500.0	0.301	30.555	2.557	947.730	0.114	0.013	3.785	0.637	0.273	0.027
14000.0	0.300	30.116	2.634	947.451	0.120	0.014	3.851	0.670	0.291	0.030
14500.0	0.298	29.680	2.711	947.172	0.126	0.015	3.913	0.702	0.309	0.033
15000.0	0.296	29.248	2.786	946.893	0.132	0.016	3.971	0.735	0.328	0.037
15500.0	0.294	28.820	2.861	946.615	0.138	0.018	4.025	0.769	0.346	0.040
16000.0	0.292	28.395	2.935	946.337	0.144	0.019	4.077	0.802	0.365	0.044
16500.0	0.291	27.974	3.007	946.060	0.150	0.020	4.125	0.835	0.383	0.048
17000.0	0.289	27.556	3.079	945.783	0.156	0.022	4.169	0.869	0.401	0.052
17500.0	0.287	27.142	3.150	945.506	0.162	0.023	4.211	0.902	0.420	0.057
18000.0	0.285	26.731	3.220	945.229	0.168	0.025	4.250	0.935	0.438	0.061
18500.0	0.284	26.323	3.289	944.953	0.175	0.026	4.286	0.969	0.456	0.066
19000.0	0.282	25.918	3.357	944.676	0.181	0.028	4.320	1.002	0.475	0.071
19500.0	0.280	25.516	3.425	944.399	0.187	0.030	4.351	1.035	0.493	0.076
20000.0	0.279	25.118	3.492	944.122	0.194	0.032	4.381	1.069	0.511	0.082
20500.0	0.277	24.722	3.558	943.844	0.200	0.034	4.408	1.102	0.529	0.088
21000.0	0.275	24.330	3.623	943.566	0.207	0.035	4.433	1.135	0.547	0.093
21500.0	0.274	23.941	3.687	943.287	0.213	0.037	4.457	1.167	0.564	0.099
22000.0	0.272	23.556	3.750	943.007	0.220	0.039	4.478	1.200	0.582	0.106
22500.0	0.270	23.173	3.813	942.725	0.226	0.042	4.499	1.232	0.600	0.112
23000.0	0.269	22.794	3.875	942.443	0.233	0.044	4.518	1.265	0.617	0.119
23500.0	0.267	22.418	3.936	942.159	0.240	0.046	4.535	1.297	0.635	0.126
25000.0	0.262	21.310	4.115	941.300	0.260	0.053	4.581	1.392	0.687	0.148
27500.0	0.254	19.530	4.396	939.839	0.296	0.066	4.636	1.544	0.771	0.188
30000.0	0.246	17.833	4.659	938.341	0.332	0.081	4.666	1.691	0.852	0.235
32500.0	0.237	16.218	4.902	936.804	0.368	0.098	4.674	1.832	0.926	0.286
35000.0	0.229	14.686	5.125	935.225	0.405	0.117	4.665	1.965	0.994	0.343
37500.0	0.221	13.239	5.330	933.604	0.441	0.138	4.640	2.091	1.056	0.405
40000.0	0.213	11.874	5.515	931.936	0.478	0.160	4.602	2.208	1.110	0.472
42500.0	0.205	10.594	5.682	930.222	0.514	0.183	4.555	2.317	1.158	0.543
45000.0	0.197	9.399	5.829	928.457	0.549	0.208	4.500	2.418	1.198	0.620
47500.0	0.190	8.290	5.958	926.641	0.583	0.234	4.439	2.510	1.232	0.700
50000.0	0.182	7.266	6.067	924.772	0.617	0.261	4.374	2.592	1.259	0.784
52500.0	0.174	6.327	6.158	922.847	0.648	0.288	4.307	2.666	1.280	0.871
55000.0	0.167	5.472	6.231	920.866	0.679	0.316	4.239	2.730	1.296	0.962
57500.0	0.159	4.701	6.286	918.829	0.707	0.343	4.172	2.786	1.307	1.055
60000.0	0.152	4.010	6.324	916.736	0.734	0.370	4.108	2.833	1.314	1.151
62500.0	0.145	3.398	6.346	914.587	0.758	0.397	4.046	2.872	1.317	1.248
65000.0	0.138	2.860	6.352	912.385	0.781	0.422	3.988	2.904	1.317	1.346
67500.0	0.132	2.392	6.344	910.132	0.801	0.446	3.934	2.929	1.315	1.444
70000.0	0.125	1.988	6.323	907.831	0.818	0.469	3.885	2.948	1.311	1.543

Table C.9 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.322	0.000	955.323	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.203	0.024	955.258	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.352	43.729	0.121	954.995	0.002	0.000	0.222	0.002	0.000	0.000
1000.0	0.350	43.146	0.239	954.665	0.005	0.000	0.492	0.007	0.000	0.000
1500.0	0.347	42.573	0.355	954.336	0.008	0.000	0.750	0.017	0.001	0.000
2000.0	0.345	42.009	0.469	954.007	0.011	0.000	0.996	0.030	0.003	0.000
2500.0	0.342	41.454	0.581	953.678	0.014	0.000	1.231	0.045	0.007	0.000
3000.0	0.340	40.907	0.691	953.349	0.018	0.001	1.456	0.063	0.011	0.000
3500.0	0.338	40.369	0.799	953.021	0.022	0.001	1.670	0.083	0.016	0.000
4000.0	0.335	39.838	0.905	952.693	0.026	0.001	1.876	0.105	0.023	0.001
4500.0	0.333	39.314	1.010	952.365	0.030	0.001	2.072	0.128	0.031	0.001
5000.0	0.331	38.798	1.112	952.036	0.035	0.002	2.261	0.152	0.041	0.001
5500.0	0.328	38.288	1.213	951.709	0.040	0.002	2.441	0.178	0.051	0.002
6000.0	0.326	37.785	1.313	951.381	0.045	0.003	2.614	0.204	0.063	0.002
6500.0	0.324	37.288	1.410	951.053	0.050	0.003	2.779	0.232	0.076	0.003
7000.0	0.321	36.798	1.506	950.726	0.056	0.004	2.938	0.260	0.090	0.004
7500.0	0.319	36.313	1.601	950.399	0.062	0.005	3.090	0.290	0.104	0.005
8000.0	0.317	35.834	1.694	950.072	0.068	0.005	3.235	0.319	0.120	0.006
8500.0	0.315	35.361	1.786	949.745	0.074	0.006	3.374	0.350	0.136	0.007
9000.0	0.313	34.894	1.876	949.419	0.080	0.007	3.508	0.381	0.153	0.009
9500.0	0.310	34.431	1.965	949.092	0.086	0.008	3.635	0.413	0.171	0.011
10000.0	0.308	33.974	2.053	948.766	0.092	0.009	3.757	0.445	0.190	0.012
10500.0	0.306	33.521	2.139	948.441	0.099	0.010	3.874	0.478	0.208	0.014
11000.0	0.304	33.074	2.225	948.115	0.105	0.011	3.985	0.511	0.228	0.017
11500.0	0.302	32.632	2.308	947.790	0.112	0.013	4.092	0.544	0.248	0.019
12000.0	0.300	32.194	2.391	947.465	0.119	0.014	4.193	0.578	0.268	0.021
12500.0	0.298	31.760	2.473	947.141	0.126	0.015	4.290	0.612	0.288	0.024
13000.0	0.296	31.331	2.553	946.816	0.133	0.017	4.383	0.646	0.309	0.027
13500.0	0.294	30.907	2.632	946.492	0.140	0.018	4.471	0.681	0.330	0.030
14000.0	0.292	30.487	2.710	946.169	0.147	0.020	4.554	0.716	0.351	0.034
14500.0	0.290	30.070	2.787	945.845	0.154	0.021	4.634	0.751	0.372	0.037
15000.0	0.288	29.658	2.862	945.523	0.162	0.023	4.709	0.786	0.394	0.041
15500.0	0.286	29.250	2.937	945.200	0.169	0.025	4.781	0.822	0.415	0.045
16000.0	0.284	28.846	3.011	944.879	0.176	0.027	4.849	0.858	0.437	0.049
16500.0	0.282	28.445	3.083	944.557	0.184	0.029	4.913	0.893	0.458	0.053
17000.0	0.280	28.048	3.155	944.236	0.191	0.031	4.974	0.929	0.480	0.057
17500.0	0.278	27.655	3.225	943.916	0.199	0.033	5.031	0.965	0.501	0.062
18000.0	0.276	27.265	3.295	943.596	0.206	0.035	5.085	1.001	0.523	0.067
18500.0	0.274	26.879	3.364	943.276	0.214	0.037	5.136	1.037	0.544	0.072
19000.0	0.273	26.496	3.431	942.956	0.221	0.040	5.184	1.073	0.565	0.077
19500.0	0.271	26.116	3.498	942.637	0.229	0.042	5.229	1.110	0.586	0.083
20000.0	0.269	25.740	3.564	942.317	0.236	0.045	5.272	1.146	0.607	0.088
20500.0	0.267	25.367	3.629	941.997	0.244	0.047	5.312	1.181	0.628	0.094
21000.0	0.265	24.997	3.693	941.677	0.252	0.050	5.350	1.217	0.649	0.100
21500.0	0.263	24.631	3.757	941.357	0.259	0.053	5.386	1.253	0.669	0.106
22000.0	0.262	24.267	3.819	941.036	0.267	0.055	5.420	1.289	0.690	0.113
22500.0	0.260	23.907	3.881	940.714	0.275	0.058	5.452	1.324	0.710	0.119
23000.0	0.258	23.551	3.941	940.392	0.282	0.061	5.483	1.359	0.730	0.126
23500.0	0.256	23.197	4.001	940.068	0.290	0.064	5.511	1.395	0.751	0.133
24000.0	0.255	22.847	4.060	939.744	0.298	0.067	5.539	1.430	0.771	0.140
24500.0	0.253	22.500	4.119	939.418	0.306	0.071	5.564	1.464	0.791	0.147
25000.0	0.251	22.156	4.176	939.092	0.314	0.074	5.589	1.499	0.811	0.155
25500.0	0.249	21.815	4.233	938.764	0.321	0.077	5.612	1.533	0.830	0.162
26000.0	0.248	21.478	4.289	938.435	0.329	0.081	5.634	1.567	0.850	0.170
27500.0	0.242	20.486	4.452	937.440	0.353	0.092	5.693	1.669	0.908	0.195
30000.0	0.234	18.896	4.707	935.755	0.393	0.112	5.770	1.832	1.003	0.239
32500.0	0.226	17.385	4.943	934.036	0.433	0.134	5.823	1.988	1.093	0.288
35000.0	0.217	15.953	5.160	932.284	0.474	0.158	5.855	2.138	1.178	0.342
37500.0	0.209	14.597	5.357	930.496	0.514	0.184	5.869	2.281	1.256	0.399
40000.0	0.201	13.318	5.536	928.672	0.554	0.213	5.868	2.417	1.328	0.461
42500.0	0.194	12.115	5.696	926.811	0.593	0.243	5.853	2.545	1.394	0.526
45000.0	0.186	10.985	5.839	924.913	0.631	0.274	5.828	2.665	1.453	0.594
47500.0	0.179	9.929	5.964	922.977	0.669	0.307	5.793	2.777	1.505	0.666
50000.0	0.172	8.944	6.072	921.003	0.705	0.341	5.750	2.880	1.552	0.740
52500.0	0.165	8.029	6.163	918.990	0.739	0.376	5.703	2.975	1.592	0.817
55000.0	0.158	7.183	6.238	916.939	0.772	0.412	5.651	3.063	1.627	0.897
57500.0	0.152	6.403	6.298	914.850	0.804	0.448	5.596	3.141	1.656	0.979
60000.0	0.145	5.688	6.343	912.723	0.833	0.484	5.539	3.212	1.680	1.062
62500.0	0.139	5.035	6.374	910.560	0.860	0.520	5.482	3.275	1.700	1.148
65000.0	0.133	4.441	6.392	908.360	0.885	0.555	5.426	3.331	1.716	1.234
67500.0	0.127	3.904	6.397	906.125	0.908	0.589	5.370	3.380	1.728	1.322
70000.0	0.122	3.421	6.390	903.858	0.929	0.623	5.316	3.422	1.736	1.411

Table C.10 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.322	0.000	955.323	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.202	0.022	955.276	0.000	0.000	0.015	0.000	0.000	0.000
500.0	0.353	43.724	0.110	955.084	0.001	0.000	0.164	0.001	0.000	0.000
1000.0	0.351	43.133	0.218	954.844	0.003	0.000	0.364	0.006	0.000	0.000
1500.0	0.349	42.549	0.325	954.603	0.005	0.000	0.555	0.013	0.001	0.000
2000.0	0.347	41.973	0.430	954.363	0.007	0.000	0.738	0.023	0.002	0.000
2500.0	0.345	41.403	0.534	954.122	0.009	0.000	0.912	0.035	0.003	0.000
3000.0	0.344	40.841	0.636	953.881	0.012	0.000	1.078	0.049	0.006	0.000
3500.0	0.342	40.284	0.737	953.640	0.015	0.000	1.237	0.066	0.009	0.000
4000.0	0.340	39.734	0.836	953.398	0.017	0.001	1.389	0.083	0.013	0.000
4500.0	0.338	39.189	0.935	953.157	0.020	0.001	1.534	0.103	0.018	0.001
5000.0	0.336	38.650	1.031	952.915	0.023	0.001	1.672	0.123	0.023	0.001
5500.0	0.335	38.117	1.127	952.673	0.027	0.001	1.804	0.145	0.030	0.001
6000.0	0.333	37.589	1.221	952.432	0.030	0.001	1.930	0.168	0.037	0.001
6500.0	0.331	37.066	1.315	952.189	0.033	0.002	2.050	0.192	0.045	0.002
7000.0	0.329	36.549	1.407	951.947	0.037	0.002	2.165	0.216	0.053	0.003
7500.0	0.328	36.036	1.498	951.705	0.041	0.002	2.274	0.242	0.063	0.003
8000.0	0.326	35.528	1.587	951.463	0.044	0.003	2.378	0.268	0.073	0.004
8500.0	0.324	35.025	1.676	951.221	0.048	0.003	2.477	0.294	0.084	0.005
9000.0	0.322	34.526	1.764	950.979	0.052	0.004	2.571	0.322	0.095	0.006
9500.0	0.321	34.032	1.850	950.736	0.057	0.004	2.660	0.349	0.107	0.007
10000.0	0.319	33.542	1.936	950.494	0.061	0.005	2.745	0.378	0.119	0.009
10500.0	0.317	33.056	2.020	950.252	0.065	0.005	2.825	0.406	0.132	0.010
11000.0	0.316	32.574	2.104	950.010	0.070	0.006	2.901	0.435	0.145	0.012
11500.0	0.314	32.096	2.186	949.768	0.074	0.006	2.974	0.465	0.159	0.013
12000.0	0.312	31.623	2.268	949.526	0.079	0.007	3.042	0.494	0.173	0.015
12500.0	0.311	31.153	2.348	949.284	0.083	0.008	3.106	0.524	0.187	0.018
13000.0	0.309	30.687	2.428	949.042	0.088	0.008	3.166	0.555	0.202	0.020
13500.0	0.307	30.224	2.507	948.801	0.093	0.009	3.223	0.585	0.216	0.022
14000.0	0.306	29.765	2.584	948.560	0.098	0.010	3.277	0.616	0.231	0.025
14500.0	0.304	29.310	2.661	948.319	0.103	0.011	3.326	0.647	0.246	0.028
15000.0	0.302	28.858	2.737	948.078	0.108	0.012	3.373	0.678	0.261	0.031
15500.0	0.301	28.409	2.813	947.837	0.113	0.013	3.417	0.709	0.277	0.034
16000.0	0.299	27.964	2.887	947.597	0.118	0.014	3.457	0.740	0.292	0.037
16500.0	0.298	27.521	2.961	947.357	0.123	0.015	3.494	0.771	0.307	0.041
17000.0	0.296	27.082	3.033	947.117	0.128	0.016	3.529	0.803	0.322	0.044
17500.0	0.294	26.646	3.105	946.877	0.133	0.017	3.561	0.834	0.337	0.048
18000.0	0.293	26.213	3.177	946.637	0.139	0.018	3.591	0.865	0.353	0.052
18500.0	0.291	25.783	3.247	946.397	0.144	0.019	3.618	0.897	0.368	0.057
19000.0	0.290	25.356	3.317	946.156	0.149	0.021	3.643	0.928	0.383	0.061
19500.0	0.288	24.932	3.386	945.915	0.154	0.022	3.667	0.959	0.398	0.066
20000.0	0.286	24.512	3.454	945.673	0.160	0.023	3.688	0.990	0.413	0.071
20500.0	0.285	24.094	3.521	945.430	0.165	0.025	3.708	1.021	0.428	0.076
21000.0	0.283	23.680	3.588	945.186	0.171	0.026	3.726	1.052	0.443	0.081
21500.0	0.282	23.268	3.654	944.940	0.176	0.027	3.743	1.083	0.458	0.087
22000.0	0.280	22.860	3.719	944.694	0.182	0.029	3.758	1.114	0.473	0.092
22500.0	0.279	22.455	3.784	944.446	0.187	0.031	3.773	1.144	0.488	0.098
23000.0	0.277	22.054	3.847	944.196	0.193	0.032	3.785	1.175	0.503	0.104
25000.0	0.271	20.481	4.095	943.183	0.216	0.039	3.827	1.294	0.562	0.131
27500.0	0.263	18.590	4.387	941.881	0.247	0.050	3.855	1.439	0.633	0.170
30000.0	0.255	16.784	4.660	940.535	0.278	0.061	3.861	1.578	0.700	0.214
32500.0	0.247	15.065	4.914	939.144	0.310	0.074	3.848	1.711	0.762	0.265
35000.0	0.239	13.435	5.148	937.703	0.343	0.089	3.819	1.837	0.817	0.322
37500.0	0.230	11.896	5.362	936.208	0.376	0.105	3.777	1.955	0.866	0.385
40000.0	0.222	10.452	5.556	934.655	0.409	0.123	3.726	2.066	0.909	0.453
42500.0	0.214	9.105	5.729	933.040	0.441	0.142	3.666	2.168	0.944	0.528
45000.0	0.206	7.859	5.881	931.358	0.474	0.162	3.602	2.260	0.973	0.609
47500.0	0.197	6.716	6.011	929.604	0.505	0.183	3.535	2.343	0.996	0.695
50000.0	0.189	5.678	6.120	927.776	0.536	0.205	3.468	2.417	1.012	0.787
52500.0	0.180	4.748	6.207	925.871	0.565	0.227	3.401	2.480	1.024	0.883
55000.0	0.172	3.925	6.273	923.885	0.592	0.249	3.337	2.534	1.031	0.983
57500.0	0.164	3.207	6.317	921.820	0.618	0.270	3.277	2.578	1.034	1.088
60000.0	0.155	2.591	6.342	919.677	0.641	0.291	3.222	2.614	1.034	1.195
62500.0	0.147	2.070	6.347	917.458	0.663	0.311	3.173	2.641	1.032	1.304
65000.0	0.139	1.637	6.336	915.170	0.682	0.329	3.129	2.661	1.028	1.414
67500.0	0.131	1.284	6.310	912.819	0.698	0.346	3.091	2.675	1.023	1.524
70000.0	0.124	0.999	6.271	910.414	0.712	0.361	3.059	2.684	1.018	1.634

Table C.11 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.322	0.000	955.323	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.202	0.023	955.269	0.000	0.000	0.017	0.000	0.000	0.000
500.0	0.352	43.725	0.114	955.048	0.002	0.000	0.188	0.001	0.000	0.000
1000.0	0.350	43.137	0.227	954.772	0.004	0.000	0.416	0.006	0.000	0.000
1500.0	0.348	42.558	0.337	954.496	0.006	0.000	0.634	0.015	0.001	0.000
2000.0	0.346	41.987	0.446	954.220	0.009	0.000	0.842	0.026	0.002	0.000
2500.0	0.344	41.423	0.553	953.944	0.011	0.000	1.041	0.040	0.005	0.000
3000.0	0.342	40.867	0.658	953.667	0.014	0.000	1.230	0.056	0.008	0.000
3500.0	0.340	40.318	0.761	953.391	0.017	0.001	1.411	0.074	0.012	0.000
4000.0	0.338	39.775	0.863	953.115	0.021	0.001	1.584	0.093	0.017	0.000
4500.0	0.336	39.240	0.964	952.839	0.024	0.001	1.749	0.114	0.023	0.001
5000.0	0.334	38.710	1.063	952.563	0.028	0.001	1.907	0.137	0.030	0.001
5500.0	0.332	38.187	1.160	952.287	0.032	0.002	2.058	0.160	0.038	0.001
6000.0	0.330	37.670	1.257	952.010	0.036	0.002	2.202	0.185	0.047	0.002
6500.0	0.328	37.158	1.351	951.734	0.040	0.002	2.339	0.211	0.057	0.002
7000.0	0.326	36.652	1.445	951.458	0.044	0.003	2.470	0.237	0.068	0.003
7500.0	0.324	36.151	1.537	951.182	0.049	0.003	2.595	0.264	0.080	0.004
8000.0	0.322	35.656	1.628	950.907	0.053	0.004	2.715	0.292	0.092	0.005
8500.0	0.321	35.165	1.718	950.631	0.058	0.004	2.828	0.321	0.105	0.006
9000.0	0.319	34.680	1.806	950.355	0.063	0.005	2.937	0.350	0.119	0.007
9500.0	0.317	34.200	1.893	950.080	0.068	0.005	3.040	0.379	0.133	0.009
10000.0	0.315	33.724	1.979	949.804	0.073	0.006	3.138	0.409	0.148	0.010
10500.0	0.313	33.253	2.064	949.529	0.078	0.007	3.231	0.440	0.164	0.012
11000.0	0.311	32.786	2.148	949.254	0.084	0.008	3.320	0.471	0.180	0.014
11500.0	0.309	32.324	2.230	948.979	0.089	0.008	3.404	0.502	0.196	0.016
12000.0	0.308	31.865	2.312	948.705	0.095	0.009	3.484	0.533	0.213	0.018
12500.0	0.306	31.411	2.392	948.430	0.100	0.010	3.559	0.565	0.230	0.021
13000.0	0.304	30.961	2.472	948.156	0.106	0.011	3.630	0.597	0.247	0.023
13500.0	0.302	30.516	2.550	947.883	0.111	0.012	3.698	0.629	0.265	0.026
14000.0	0.300	30.073	2.628	947.609	0.117	0.013	3.761	0.662	0.282	0.029
14500.0	0.299	29.635	2.704	947.336	0.123	0.015	3.821	0.694	0.300	0.032
15000.0	0.297	29.200	2.780	947.064	0.129	0.016	3.877	0.727	0.318	0.036
15500.0	0.295	28.769	2.854	946.791	0.135	0.017	3.929	0.760	0.336	0.039
16000.0	0.293	28.342	2.928	946.519	0.141	0.018	3.978	0.793	0.354	0.043
16500.0	0.292	27.918	3.001	946.248	0.147	0.020	4.024	0.826	0.372	0.047
17000.0	0.290	27.497	3.073	945.977	0.153	0.021	4.067	0.859	0.390	0.051
17500.0	0.288	27.079	3.144	945.706	0.159	0.022	4.107	0.892	0.407	0.055
18000.0	0.286	26.665	3.214	945.435	0.165	0.024	4.144	0.925	0.425	0.060
18500.0	0.285	26.253	3.283	945.165	0.171	0.026	4.178	0.958	0.443	0.065
19000.0	0.283	25.845	3.352	944.894	0.177	0.027	4.210	0.991	0.461	0.070
19500.0	0.281	25.441	3.420	944.623	0.183	0.029	4.240	1.024	0.478	0.075
20000.0	0.280	25.039	3.487	944.351	0.190	0.031	4.268	1.057	0.496	0.080
20500.0	0.278	24.640	3.553	944.079	0.196	0.032	4.293	1.090	0.513	0.086
21000.0	0.276	24.245	3.618	943.807	0.202	0.034	4.317	1.122	0.530	0.091
21500.0	0.275	23.852	3.683	943.533	0.209	0.036	4.339	1.155	0.548	0.097
22000.0	0.273	23.463	3.746	943.258	0.215	0.038	4.360	1.187	0.565	0.104
22500.0	0.271	23.078	3.809	942.982	0.221	0.040	4.379	1.219	0.582	0.110
23000.0	0.270	22.695	3.872	942.705	0.228	0.042	4.397	1.251	0.599	0.117
23500.0	0.268	22.316	3.933	942.426	0.235	0.044	4.414	1.283	0.616	0.123
25000.0	0.263	21.198	4.112	941.582	0.255	0.051	4.456	1.377	0.667	0.145
27500.0	0.255	19.401	4.396	940.147	0.289	0.064	4.506	1.528	0.749	0.185
30000.0	0.247	17.688	4.660	938.673	0.325	0.079	4.531	1.674	0.827	0.231
32500.0	0.239	16.057	4.905	937.159	0.361	0.095	4.535	1.813	0.900	0.283
35000.0	0.230	14.510	5.130	935.603	0.397	0.113	4.522	1.945	0.966	0.339
37500.0	0.222	13.048	5.336	934.003	0.433	0.133	4.493	2.069	1.025	0.401
40000.0	0.214	11.670	5.523	932.356	0.469	0.154	4.453	2.186	1.077	0.468
42500.0	0.206	10.379	5.691	930.659	0.504	0.177	4.402	2.294	1.122	0.540
45000.0	0.198	9.174	5.839	928.911	0.539	0.201	4.344	2.393	1.161	0.617
47500.0	0.191	8.057	5.968	927.108	0.573	0.227	4.281	2.484	1.192	0.698
50000.0	0.183	7.028	6.079	925.250	0.606	0.253	4.214	2.565	1.218	0.782
52500.0	0.175	6.086	6.170	923.333	0.637	0.279	4.146	2.637	1.237	0.871
55000.0	0.168	5.232	6.242	921.358	0.667	0.306	4.078	2.699	1.251	0.963
57500.0	0.160	4.465	6.296	919.323	0.695	0.332	4.011	2.753	1.260	1.057
60000.0	0.153	3.781	6.333	917.228	0.721	0.359	3.947	2.798	1.265	1.154
62500.0	0.146	3.178	6.352	915.075	0.745	0.384	3.886	2.836	1.267	1.253
65000.0	0.139	2.652	6.357	912.866	0.767	0.408	3.829	2.865	1.266	1.352
67500.0	0.132	2.198	6.346	910.603	0.786	0.431	3.777	2.888	1.263	1.453
70000.0	0.125	1.810	6.323	908.291	0.803	0.452	3.729	2.905	1.258	1.553

Table C.12 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.322	0.000	955.323	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.203	0.024	955.259	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.352	43.729	0.120	954.998	0.002	0.000	0.220	0.002	0.000	0.000
1000.0	0.350	43.146	0.238	954.672	0.005	0.000	0.487	0.007	0.000	0.000
1500.0	0.347	42.573	0.354	954.346	0.008	0.000	0.742	0.017	0.001	0.000
2000.0	0.345	42.009	0.468	954.020	0.011	0.000	0.985	0.030	0.003	0.000
2500.0	0.342	41.454	0.579	953.694	0.014	0.000	1.217	0.045	0.006	0.000
3000.0	0.340	40.908	0.689	953.369	0.018	0.001	1.439	0.063	0.011	0.000
3500.0	0.338	40.369	0.796	953.044	0.022	0.001	1.651	0.082	0.016	0.000
4000.0	0.335	39.838	0.902	952.719	0.026	0.001	1.854	0.104	0.023	0.001
4500.0	0.333	39.314	1.006	952.394	0.030	0.001	2.049	0.127	0.031	0.001
5000.0	0.331	38.797	1.109	952.070	0.035	0.002	2.235	0.151	0.040	0.001
5500.0	0.328	38.287	1.210	951.745	0.040	0.002	2.413	0.176	0.051	0.002
6000.0	0.326	37.783	1.309	951.421	0.045	0.003	2.583	0.203	0.062	0.002
6500.0	0.324	37.286	1.406	951.097	0.050	0.003	2.747	0.230	0.075	0.003
7000.0	0.322	36.795	1.502	950.773	0.056	0.004	2.903	0.259	0.088	0.004
7500.0	0.320	36.309	1.597	950.449	0.061	0.005	3.053	0.288	0.103	0.005
8000.0	0.317	35.830	1.690	950.126	0.067	0.005	3.196	0.317	0.118	0.006
8500.0	0.315	35.355	1.781	949.802	0.073	0.006	3.333	0.348	0.134	0.007
9000.0	0.313	34.887	1.871	949.479	0.079	0.007	3.465	0.379	0.151	0.009
9500.0	0.311	34.424	1.960	949.156	0.085	0.008	3.590	0.410	0.169	0.010
10000.0	0.309	33.965	2.048	948.834	0.092	0.009	3.710	0.442	0.187	0.012
10500.0	0.307	33.512	2.134	948.512	0.098	0.010	3.825	0.474	0.205	0.014
11000.0	0.305	33.064	2.219	948.190	0.105	0.011	3.934	0.507	0.224	0.016
11500.0	0.302	32.620	2.303	947.868	0.111	0.012	4.039	0.541	0.244	0.019
12000.0	0.300	32.181	2.385	947.546	0.118	0.014	4.139	0.574	0.264	0.021
12500.0	0.298	31.747	2.467	947.225	0.125	0.015	4.234	0.608	0.284	0.024
13000.0	0.296	31.317	2.547	946.905	0.132	0.016	4.324	0.642	0.305	0.027
13500.0	0.294	30.891	2.626	946.585	0.139	0.018	4.411	0.677	0.325	0.030
14000.0	0.292	30.469	2.704	946.264	0.146	0.019	4.493	0.711	0.346	0.033
14500.0	0.290	30.052	2.781	945.945	0.153	0.021	4.570	0.746	0.367	0.037
15000.0	0.288	29.639	2.857	945.626	0.160	0.023	4.644	0.782	0.388	0.040
15500.0	0.286	29.229	2.931	945.307	0.167	0.025	4.714	0.817	0.410	0.044
16000.0	0.285	28.823	3.005	944.989	0.175	0.026	4.780	0.852	0.431	0.048
16500.0	0.283	28.421	3.077	944.671	0.182	0.028	4.843	0.888	0.452	0.052
17000.0	0.281	28.023	3.149	944.354	0.189	0.030	4.902	0.924	0.473	0.057
17500.0	0.279	27.628	3.220	944.037	0.197	0.032	4.957	0.959	0.494	0.062
18000.0	0.277	27.237	3.289	943.721	0.204	0.035	5.010	0.995	0.515	0.066
18500.0	0.275	26.849	3.358	943.405	0.212	0.037	5.059	1.031	0.536	0.071
19000.0	0.273	26.464	3.426	943.089	0.219	0.039	5.106	1.067	0.557	0.077
19500.0	0.271	26.083	3.492	942.774	0.227	0.041	5.150	1.103	0.578	0.082
20000.0	0.270	25.705	3.558	942.458	0.234	0.044	5.191	1.139	0.599	0.088
20500.0	0.268	25.330	3.623	942.142	0.242	0.046	5.230	1.174	0.619	0.093
21000.0	0.266	24.959	3.688	941.825	0.249	0.049	5.266	1.210	0.640	0.099
21500.0	0.264	24.591	3.751	941.509	0.257	0.052	5.301	1.245	0.660	0.105
22000.0	0.262	24.226	3.814	941.191	0.265	0.054	5.333	1.281	0.680	0.112
22500.0	0.261	23.864	3.875	940.873	0.272	0.057	5.364	1.316	0.700	0.118
23000.0	0.259	23.505	3.936	940.554	0.280	0.060	5.393	1.351	0.720	0.125
23500.0	0.257	23.150	3.996	940.234	0.287	0.063	5.421	1.386	0.740	0.132
24000.0	0.255	22.798	4.056	939.913	0.295	0.066	5.447	1.420	0.760	0.139
24500.0	0.254	22.449	4.114	939.591	0.303	0.069	5.472	1.455	0.780	0.146
25000.0	0.252	22.104	4.172	939.268	0.311	0.073	5.495	1.489	0.799	0.154
25500.0	0.250	21.762	4.228	938.943	0.318	0.076	5.517	1.523	0.819	0.161
27500.0	0.243	20.425	4.448	937.632	0.350	0.090	5.594	1.657	0.896	0.194
30000.0	0.235	18.826	4.704	935.963	0.390	0.110	5.667	1.819	0.990	0.238
32500.0	0.226	17.307	4.940	934.260	0.430	0.131	5.715	1.974	1.078	0.287
35000.0	0.218	15.867	5.158	932.523	0.470	0.155	5.743	2.123	1.161	0.341
37500.0	0.210	14.504	5.356	930.750	0.510	0.181	5.753	2.264	1.238	0.399
40000.0	0.202	13.218	5.535	928.941	0.550	0.209	5.748	2.398	1.308	0.460
42500.0	0.195	12.007	5.697	927.094	0.589	0.238	5.729	2.525	1.372	0.526
45000.0	0.187	10.871	5.840	925.209	0.627	0.270	5.700	2.643	1.429	0.594
47500.0	0.180	9.809	5.965	923.285	0.664	0.302	5.662	2.753	1.480	0.666
50000.0	0.172	8.820	6.073	921.322	0.700	0.336	5.617	2.855	1.525	0.741
52500.0	0.165	7.901	6.165	919.320	0.734	0.370	5.566	2.949	1.564	0.819
55000.0	0.159	7.052	6.240	917.279	0.767	0.405	5.512	3.034	1.596	0.899
57500.0	0.152	6.271	6.300	915.198	0.798	0.441	5.455	3.111	1.624	0.982
60000.0	0.146	5.555	6.345	913.078	0.827	0.476	5.396	3.180	1.646	1.066
62500.0	0.140	4.902	6.375	910.920	0.854	0.511	5.337	3.241	1.664	1.152
65000.0	0.134	4.311	6.392	908.725	0.879	0.546	5.279	3.294	1.678	1.240
67500.0	0.128	3.777	6.397	906.494	0.902	0.579	5.222	3.341	1.689	1.328
70000.0	0.122	3.297	6.389	904.228	0.923	0.611	5.167	3.381	1.696	1.418

Table C.13 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.319	0.000	955.326	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.199	0.022	955.279	0.000	0.000	0.015	0.000	0.000	0.000
500.0	0.353	43.720	0.110	955.090	0.001	0.000	0.163	0.001	0.000	0.000
1000.0	0.351	43.129	0.218	954.854	0.003	0.000	0.359	0.006	0.000	0.000
1500.0	0.349	42.545	0.325	954.618	0.005	0.000	0.547	0.013	0.001	0.000
2000.0	0.347	41.968	0.430	954.383	0.007	0.000	0.725	0.023	0.002	0.000
2500.0	0.346	41.398	0.533	954.148	0.009	0.000	0.895	0.035	0.003	0.000
3000.0	0.344	40.834	0.635	953.913	0.012	0.000	1.056	0.049	0.006	0.000
3500.0	0.342	40.277	0.735	953.679	0.014	0.000	1.209	0.065	0.009	0.000
4000.0	0.340	39.725	0.835	953.446	0.017	0.001	1.355	0.083	0.012	0.000
4500.0	0.338	39.179	0.932	953.213	0.020	0.001	1.494	0.102	0.017	0.000
5000.0	0.337	38.638	1.029	952.980	0.022	0.001	1.626	0.122	0.022	0.001
5500.0	0.335	38.102	1.124	952.749	0.025	0.001	1.751	0.144	0.028	0.001
6000.0	0.333	37.572	1.218	952.518	0.029	0.001	1.870	0.166	0.035	0.001
6500.0	0.332	37.046	1.311	952.288	0.032	0.002	1.982	0.190	0.042	0.002
7000.0	0.330	36.525	1.403	952.059	0.035	0.002	2.089	0.214	0.051	0.002
7500.0	0.328	36.008	1.494	951.831	0.039	0.002	2.190	0.239	0.059	0.003
8000.0	0.327	35.496	1.583	951.603	0.042	0.003	2.286	0.264	0.069	0.004
8500.0	0.325	34.987	1.671	951.377	0.046	0.003	2.376	0.290	0.078	0.005
9000.0	0.323	34.483	1.759	951.151	0.049	0.003	2.462	0.317	0.089	0.006
9500.0	0.322	33.982	1.845	950.926	0.053	0.004	2.543	0.344	0.099	0.007
10000.0	0.320	33.486	1.931	950.702	0.057	0.004	2.619	0.371	0.110	0.008
10500.0	0.319	32.993	2.015	950.477	0.061	0.005	2.691	0.399	0.122	0.009
11000.0	0.317	32.503	2.099	950.254	0.065	0.005	2.760	0.427	0.134	0.011
11500.0	0.315	32.017	2.181	950.029	0.069	0.006	2.825	0.456	0.146	0.012
12000.0	0.314	31.535	2.263	949.805	0.073	0.006	2.887	0.484	0.159	0.014
12500.0	0.312	31.056	2.344	949.580	0.077	0.007	2.945	0.513	0.171	0.016
13000.0	0.311	30.581	2.424	949.354	0.082	0.008	3.001	0.542	0.185	0.018
13500.0	0.309	30.109	2.503	949.128	0.086	0.008	3.055	0.571	0.198	0.020
14000.0	0.307	29.641	2.581	948.901	0.091	0.009	3.105	0.601	0.212	0.022
14500.0	0.306	29.177	2.659	948.672	0.095	0.010	3.153	0.630	0.226	0.025
15000.0	0.304	28.716	2.736	948.442	0.100	0.011	3.199	0.660	0.240	0.028
15500.0	0.303	28.259	2.812	948.212	0.105	0.011	3.243	0.690	0.254	0.030
17500.0	0.296	26.466	3.107	947.276	0.125	0.015	3.398	0.810	0.314	0.044
20000.0	0.288	24.304	3.459	946.077	0.151	0.021	3.549	0.960	0.391	0.065
22500.0	0.280	22.229	3.791	944.843	0.180	0.028	3.659	1.110	0.468	0.091
25000.0	0.272	20.241	4.104	943.572	0.209	0.037	3.735	1.257	0.543	0.124
27500.0	0.264	18.340	4.397	942.261	0.240	0.047	3.779	1.402	0.615	0.162
30000.0	0.256	16.529	4.671	940.907	0.272	0.058	3.799	1.542	0.683	0.206
32500.0	0.248	14.807	4.924	939.505	0.305	0.072	3.796	1.677	0.745	0.256
35000.0	0.240	13.177	5.158	938.053	0.338	0.086	3.776	1.805	0.801	0.312
37500.0	0.231	11.642	5.371	936.547	0.371	0.103	3.741	1.926	0.851	0.375
40000.0	0.223	10.203	5.563	934.981	0.405	0.120	3.694	2.040	0.894	0.443
42500.0	0.215	8.865	5.734	933.352	0.438	0.140	3.639	2.144	0.930	0.518
45000.0	0.206	7.630	5.883	931.654	0.471	0.160	3.578	2.240	0.960	0.599
47500.0	0.198	6.500	6.010	929.884	0.503	0.181	3.513	2.326	0.983	0.686
50000.0	0.189	5.479	6.116	928.038	0.533	0.203	3.447	2.401	1.001	0.777
52500.0	0.180	4.566	6.199	926.113	0.563	0.225	3.383	2.467	1.014	0.874
55000.0	0.172	3.761	6.261	924.108	0.590	0.247	3.320	2.523	1.021	0.975
57500.0	0.163	3.062	6.302	922.022	0.616	0.269	3.262	2.569	1.025	1.080
60000.0	0.155	2.465	6.322	919.858	0.640	0.290	3.209	2.605	1.026	1.188
62500.0	0.147	1.963	6.325	917.621	0.661	0.310	3.161	2.634	1.025	1.297
65000.0	0.139	1.548	6.310	915.314	0.680	0.328	3.119	2.655	1.022	1.408
67500.0	0.131	1.210	6.281	912.947	0.696	0.345	3.083	2.671	1.018	1.519
70000.0	0.124	0.939	6.240	910.526	0.710	0.360	3.052	2.680	1.013	1.629

Table C.14 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.319	0.000	955.326	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.199	0.023	955.272	0.000	0.000	0.017	0.000	0.000	0.000
500.0	0.352	43.722	0.114	955.056	0.002	0.000	0.185	0.001	0.000	0.000
1000.0	0.350	43.134	0.226	954.785	0.004	0.000	0.409	0.006	0.000	0.000
1500.0	0.348	42.554	0.336	954.515	0.006	0.000	0.622	0.015	0.001	0.000
2000.0	0.346	41.982	0.445	954.246	0.008	0.000	0.824	0.026	0.002	0.000
2500.0	0.344	41.417	0.551	953.977	0.011	0.000	1.017	0.040	0.005	0.000
3000.0	0.342	40.860	0.656	953.709	0.014	0.000	1.200	0.055	0.008	0.000
3500.0	0.340	40.310	0.759	953.442	0.017	0.001	1.374	0.073	0.011	0.000
4000.0	0.338	39.766	0.861	953.176	0.020	0.001	1.539	0.093	0.016	0.000
4500.0	0.336	39.228	0.961	952.910	0.023	0.001	1.697	0.114	0.022	0.001
5000.0	0.335	38.697	1.059	952.645	0.027	0.001	1.846	0.136	0.029	0.001
5500.0	0.333	38.171	1.156	952.381	0.030	0.001	1.989	0.159	0.037	0.001
6000.0	0.331	37.651	1.252	952.118	0.034	0.002	2.124	0.184	0.045	0.002
6500.0	0.329	37.136	1.346	951.856	0.038	0.002	2.252	0.209	0.054	0.002
7000.0	0.327	36.627	1.439	951.595	0.042	0.002	2.374	0.235	0.065	0.003
7500.0	0.325	36.122	1.531	951.334	0.046	0.003	2.489	0.262	0.075	0.004
8000.0	0.323	35.622	1.622	951.075	0.050	0.003	2.598	0.289	0.087	0.005
8500.0	0.322	35.126	1.711	950.817	0.055	0.004	2.702	0.317	0.099	0.006
9000.0	0.320	34.635	1.799	950.560	0.059	0.004	2.800	0.346	0.112	0.007
9500.0	0.318	34.149	1.886	950.303	0.064	0.005	2.893	0.375	0.125	0.008
10000.0	0.316	33.666	1.971	950.048	0.068	0.006	2.981	0.404	0.138	0.010
10500.0	0.314	33.187	2.056	949.792	0.073	0.006	3.065	0.434	0.152	0.011
11000.0	0.313	32.713	2.140	949.538	0.078	0.007	3.144	0.464	0.167	0.013
11500.0	0.311	32.242	2.222	949.283	0.083	0.008	3.220	0.494	0.181	0.015
12000.0	0.309	31.775	2.304	949.029	0.088	0.008	3.291	0.524	0.196	0.017
12500.0	0.307	31.312	2.385	948.774	0.093	0.009	3.359	0.555	0.212	0.019
13000.0	0.306	30.852	2.464	948.518	0.098	0.010	3.424	0.586	0.227	0.021
13500.0	0.304	30.397	2.543	948.262	0.104	0.011	3.486	0.617	0.243	0.024
14000.0	0.302	29.945	2.621	948.005	0.109	0.012	3.546	0.648	0.259	0.027
14500.0	0.301	29.497	2.698	947.747	0.114	0.013	3.602	0.679	0.276	0.029
15000.0	0.299	29.053	2.774	947.488	0.120	0.014	3.656	0.711	0.293	0.032
15500.0	0.297	28.612	2.850	947.229	0.125	0.015	3.708	0.742	0.309	0.036
16000.0	0.296	28.176	2.924	946.968	0.131	0.016	3.757	0.774	0.326	0.039
16500.0	0.294	27.743	2.998	946.705	0.137	0.018	3.804	0.805	0.344	0.043
17500.0	0.290	26.888	3.142	946.177	0.149	0.020	3.892	0.868	0.379	0.051
20000.0	0.282	24.814	3.489	944.835	0.179	0.028	4.078	1.026	0.468	0.074
22500.0	0.274	22.829	3.815	943.460	0.212	0.037	4.219	1.182	0.556	0.103
25000.0	0.265	20.933	4.120	942.050	0.246	0.048	4.323	1.336	0.643	0.137
27500.0	0.257	19.125	4.405	940.604	0.281	0.060	4.393	1.486	0.726	0.177
30000.0	0.248	17.403	4.669	939.120	0.317	0.075	4.436	1.632	0.805	0.222
32500.0	0.240	15.769	4.914	937.595	0.354	0.091	4.454	1.773	0.877	0.273
35000.0	0.232	14.221	5.138	936.028	0.391	0.109	4.452	1.906	0.944	0.329
37500.0	0.224	12.760	5.343	934.415	0.427	0.129	4.433	2.033	1.004	0.391
40000.0	0.215	11.387	5.529	932.754	0.464	0.151	4.400	2.152	1.056	0.458
42500.0	0.207	10.103	5.694	931.043	0.500	0.174	4.356	2.263	1.102	0.530
45000.0	0.199	8.908	5.840	929.279	0.535	0.198	4.303	2.365	1.142	0.606
47500.0	0.191	7.802	5.967	927.460	0.569	0.224	4.243	2.458	1.174	0.687
50000.0	0.183	6.786	6.073	925.584	0.602	0.250	4.180	2.542	1.200	0.773
52500.0	0.176	5.860	6.161	923.648	0.634	0.276	4.115	2.616	1.221	0.861
55000.0	0.168	5.023	6.230	921.654	0.664	0.303	4.049	2.681	1.236	0.954
57500.0	0.160	4.273	6.280	919.599	0.692	0.330	3.985	2.737	1.246	1.049
60000.0	0.153	3.608	6.313	917.484	0.718	0.356	3.923	2.784	1.252	1.146
62500.0	0.145	3.023	6.329	915.311	0.742	0.382	3.864	2.823	1.254	1.245
65000.0	0.138	2.515	6.330	913.083	0.764	0.406	3.809	2.854	1.254	1.345
67500.0	0.132	2.079	6.316	910.801	0.783	0.429	3.759	2.878	1.252	1.446
70000.0	0.125	1.707	6.289	908.471	0.800	0.450	3.714	2.896	1.248	1.546

Table C.15 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.355	44.319	0.000	955.326	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.354	44.200	0.024	955.263	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.352	43.726	0.120	955.008	0.002	0.000	0.216	0.002	0.000	0.000
1000.0	0.350	43.143	0.237	954.689	0.005	0.000	0.476	0.007	0.000	0.000
1500.0	0.347	42.569	0.353	954.372	0.007	0.000	0.724	0.017	0.001	0.000
2000.0	0.345	42.004	0.466	954.055	0.010	0.000	0.959	0.030	0.003	0.000
2500.0	0.343	41.448	0.577	953.739	0.014	0.000	1.183	0.045	0.006	0.000
3000.0	0.340	40.901	0.686	953.425	0.017	0.001	1.397	0.063	0.010	0.000
3500.0	0.338	40.361	0.793	953.111	0.021	0.001	1.600	0.082	0.016	0.000
4000.0	0.336	39.828	0.898	952.798	0.025	0.001	1.793	0.104	0.022	0.001
4500.0	0.333	39.302	1.001	952.486	0.029	0.001	1.978	0.126	0.030	0.001
5000.0	0.331	38.784	1.103	952.175	0.034	0.002	2.153	0.151	0.039	0.001
5500.0	0.329	38.271	1.203	951.865	0.038	0.002	2.321	0.176	0.049	0.002
6000.0	0.327	37.765	1.302	951.556	0.043	0.003	2.481	0.202	0.060	0.002
6500.0	0.325	37.264	1.398	951.248	0.048	0.003	2.633	0.230	0.072	0.003
7000.0	0.323	36.770	1.494	950.940	0.053	0.004	2.778	0.258	0.084	0.004
7500.0	0.320	36.281	1.587	950.634	0.058	0.004	2.916	0.286	0.098	0.005
8000.0	0.318	35.797	1.680	950.329	0.064	0.005	3.047	0.316	0.112	0.006
8500.0	0.316	35.318	1.771	950.025	0.069	0.006	3.172	0.346	0.127	0.007
9000.0	0.314	34.845	1.860	949.722	0.075	0.006	3.291	0.377	0.143	0.008
9500.0	0.312	34.375	1.949	949.420	0.081	0.007	3.404	0.408	0.159	0.010
10000.0	0.310	33.911	2.036	949.119	0.086	0.008	3.512	0.439	0.176	0.012
10500.0	0.308	33.451	2.122	948.819	0.092	0.009	3.615	0.471	0.193	0.013
11000.0	0.306	32.995	2.206	948.519	0.098	0.010	3.713	0.503	0.210	0.015
11500.0	0.304	32.544	2.290	948.219	0.104	0.011	3.806	0.536	0.228	0.018
12000.0	0.302	32.097	2.372	947.920	0.111	0.012	3.895	0.569	0.246	0.020
12500.0	0.300	31.653	2.454	947.621	0.117	0.014	3.981	0.602	0.264	0.022
13000.0	0.298	31.214	2.534	947.322	0.123	0.015	4.062	0.635	0.283	0.025
13500.0	0.297	30.779	2.613	947.022	0.130	0.016	4.140	0.668	0.302	0.028
14000.0	0.295	30.348	2.691	946.722	0.136	0.017	4.215	0.702	0.321	0.031
14500.0	0.293	29.921	2.769	946.421	0.143	0.019	4.287	0.736	0.341	0.034
15000.0	0.291	29.497	2.845	946.120	0.150	0.020	4.356	0.769	0.360	0.038
15500.0	0.289	29.078	2.920	945.817	0.157	0.022	4.422	0.803	0.380	0.041
16000.0	0.287	28.663	2.994	945.514	0.163	0.024	4.486	0.837	0.400	0.045
16500.0	0.285	28.251	3.067	945.209	0.170	0.025	4.548	0.871	0.420	0.049
17000.0	0.283	27.844	3.140	944.903	0.178	0.027	4.606	0.905	0.440	0.053
17500.0	0.281	27.440	3.211	944.597	0.185	0.029	4.663	0.940	0.460	0.057
18000.0	0.280	27.040	3.281	944.289	0.192	0.031	4.717	0.974	0.481	0.062
20000.0	0.272	25.477	3.554	943.045	0.222	0.040	4.915	1.110	0.563	0.082
22500.0	0.263	23.606	3.875	941.462	0.260	0.053	5.119	1.279	0.667	0.112
25000.0	0.254	21.825	4.174	939.848	0.299	0.068	5.282	1.447	0.768	0.146
27500.0	0.245	20.130	4.451	938.200	0.340	0.085	5.409	1.611	0.866	0.186
30000.0	0.237	18.521	4.709	936.520	0.380	0.104	5.505	1.771	0.960	0.230
32500.0	0.228	16.994	4.945	934.805	0.421	0.126	5.573	1.926	1.049	0.279
35000.0	0.220	15.550	5.162	933.055	0.462	0.150	5.618	2.075	1.132	0.332
37500.0	0.212	14.186	5.360	931.268	0.502	0.176	5.641	2.218	1.209	0.389
40000.0	0.204	12.902	5.538	929.445	0.543	0.203	5.648	2.354	1.279	0.451
42500.0	0.196	11.696	5.697	927.583	0.582	0.233	5.639	2.482	1.343	0.516
45000.0	0.188	10.567	5.838	925.682	0.621	0.264	5.618	2.603	1.401	0.585
47500.0	0.181	9.513	5.960	923.742	0.659	0.297	5.587	2.715	1.453	0.657
50000.0	0.173	8.534	6.066	921.763	0.695	0.331	5.548	2.820	1.498	0.732
52500.0	0.166	7.628	6.154	919.743	0.730	0.365	5.503	2.915	1.537	0.810
55000.0	0.159	6.792	6.226	917.684	0.763	0.401	5.453	3.003	1.571	0.890
57500.0	0.152	6.025	6.282	915.584	0.794	0.436	5.400	3.082	1.599	0.973
60000.0	0.146	5.324	6.324	913.446	0.823	0.472	5.346	3.153	1.623	1.057
62500.0	0.140	4.687	6.350	911.270	0.850	0.507	5.290	3.216	1.642	1.144
65000.0	0.134	4.112	6.364	909.056	0.875	0.541	5.236	3.271	1.657	1.231
67500.0	0.128	3.594	6.365	906.806	0.898	0.575	5.182	3.320	1.668	1.320
70000.0	0.122	3.130	6.354	904.523	0.919	0.607	5.130	3.361	1.676	1.410

Table C.16 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.681	45.338	9.459	944.522	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.680	45.218	9.479	944.471	0.003	0.000	0.017	0.000	0.000	0.000
500.0	0.677	44.742	9.557	944.266	0.015	0.000	0.181	0.001	0.000	0.000
1000.0	0.674	44.154	9.653	944.010	0.031	0.000	0.394	0.006	0.000	0.000
1500.0	0.670	43.575	9.747	943.753	0.046	0.001	0.598	0.014	0.001	0.000
2000.0	0.666	43.002	9.840	943.495	0.061	0.001	0.793	0.024	0.002	0.000
2500.0	0.663	42.437	9.932	943.237	0.076	0.002	0.980	0.037	0.004	0.000
3000.0	0.659	41.879	10.022	942.980	0.092	0.003	1.158	0.052	0.007	0.000
3500.0	0.655	41.328	10.111	942.721	0.107	0.004	1.328	0.069	0.010	0.000
4000.0	0.652	40.783	10.198	942.463	0.122	0.005	1.491	0.088	0.015	0.000
4500.0	0.648	40.244	10.285	942.204	0.137	0.006	1.647	0.108	0.020	0.001
5000.0	0.644	39.711	10.370	941.945	0.152	0.007	1.797	0.129	0.026	0.001
5500.0	0.641	39.184	10.453	941.685	0.167	0.009	1.940	0.151	0.033	0.001
6000.0	0.637	38.662	10.536	941.426	0.182	0.010	2.076	0.175	0.041	0.002
6500.0	0.634	38.146	10.617	941.166	0.197	0.012	2.207	0.199	0.050	0.002
7000.0	0.630	37.635	10.697	940.905	0.212	0.014	2.333	0.225	0.060	0.003
7500.0	0.627	37.129	10.776	940.645	0.226	0.016	2.452	0.251	0.070	0.004
8000.0	0.623	36.628	10.854	940.384	0.241	0.018	2.567	0.277	0.082	0.004
8500.0	0.620	36.132	10.931	940.124	0.256	0.021	2.676	0.305	0.094	0.005
9000.0	0.616	35.641	11.007	939.862	0.270	0.023	2.781	0.332	0.106	0.007
9500.0	0.613	35.155	11.082	939.601	0.285	0.025	2.880	0.361	0.119	0.008
10000.0	0.609	34.673	11.156	939.340	0.299	0.028	2.976	0.389	0.133	0.009
10500.0	0.606	34.196	11.229	939.078	0.313	0.031	3.067	0.419	0.147	0.011
11000.0	0.603	33.722	11.301	938.816	0.327	0.034	3.153	0.448	0.162	0.013
11500.0	0.599	33.254	11.372	938.555	0.341	0.037	3.235	0.478	0.177	0.015
12000.0	0.596	32.789	11.442	938.293	0.355	0.040	3.314	0.508	0.192	0.017
12500.0	0.592	32.328	11.511	938.030	0.369	0.043	3.388	0.539	0.208	0.019
13000.0	0.589	31.872	11.579	937.768	0.383	0.046	3.459	0.570	0.224	0.021
13500.0	0.586	31.419	11.646	937.506	0.397	0.050	3.526	0.600	0.241	0.024
14000.0	0.582	30.970	11.713	937.244	0.411	0.053	3.590	0.632	0.257	0.027
14500.0	0.579	30.525	11.779	936.982	0.424	0.057	3.650	0.663	0.274	0.030
15000.0	0.576	30.083	11.843	936.720	0.438	0.060	3.707	0.694	0.291	0.033
15500.0	0.573	29.646	11.907	936.458	0.451	0.064	3.761	0.726	0.308	0.036
16000.0	0.569	29.211	11.970	936.196	0.464	0.068	3.811	0.758	0.325	0.040
16500.0	0.566	28.780	12.033	935.934	0.477	0.072	3.858	0.789	0.342	0.044
17000.0	0.563	28.352	12.094	935.672	0.490	0.076	3.903	0.821	0.360	0.048
17500.0	0.560	27.928	12.155	935.410	0.503	0.080	3.945	0.853	0.377	0.052
18000.0	0.557	27.507	12.215	935.148	0.516	0.084	3.984	0.885	0.394	0.056
18500.0	0.553	27.089	12.274	934.887	0.529	0.089	4.020	0.917	0.411	0.061
19000.0	0.550	26.674	12.333	934.624	0.541	0.093	4.054	0.949	0.428	0.065
19500.0	0.547	26.262	12.391	934.362	0.554	0.098	4.086	0.980	0.445	0.070
20000.0	0.544	25.854	12.448	934.099	0.566	0.102	4.116	1.012	0.462	0.075
20500.0	0.541	25.449	12.504	933.835	0.579	0.107	4.144	1.044	0.479	0.081
21000.0	0.538	25.047	12.559	933.571	0.591	0.111	4.171	1.075	0.496	0.086
21500.0	0.535	24.648	12.614	933.305	0.604	0.116	4.195	1.106	0.513	0.092
22000.0	0.532	24.252	12.668	933.039	0.616	0.121	4.219	1.138	0.529	0.098
22500.0	0.529	23.860	12.721	932.771	0.628	0.126	4.240	1.169	0.546	0.104
25000.0	0.513	21.948	12.975	931.411	0.689	0.153	4.331	1.321	0.630	0.138
27500.0	0.498	20.120	13.209	930.015	0.749	0.182	4.393	1.468	0.711	0.177
30000.0	0.482	18.375	13.424	928.581	0.808	0.213	4.431	1.610	0.788	0.222
32500.0	0.467	16.715	13.619	927.108	0.865	0.247	4.448	1.746	0.859	0.272
35000.0	0.452	15.138	13.794	925.593	0.922	0.282	4.447	1.876	0.925	0.327
37500.0	0.437	13.646	13.950	924.033	0.976	0.319	4.431	1.998	0.985	0.388
40000.0	0.422	12.239	14.085	922.428	1.029	0.358	4.403	2.114	1.038	0.454
42500.0	0.407	10.919	14.200	920.773	1.080	0.398	4.366	2.222	1.084	0.525
45000.0	0.392	9.687	14.295	919.068	1.129	0.440	4.321	2.321	1.124	0.600
47500.0	0.377	8.543	14.370	917.310	1.176	0.481	4.270	2.413	1.158	0.680
50000.0	0.362	7.487	14.425	915.498	1.220	0.523	4.216	2.496	1.186	0.764
52500.0	0.347	6.519	14.459	913.630	1.261	0.565	4.160	2.570	1.208	0.851
55000.0	0.333	5.639	14.474	911.705	1.300	0.606	4.104	2.636	1.226	0.942
57500.0	0.319	4.845	14.469	909.723	1.335	0.646	4.048	2.694	1.238	1.035
60000.0	0.305	4.136	14.445	907.684	1.367	0.685	3.994	2.744	1.247	1.131
62500.0	0.291	3.507	14.404	905.591	1.397	0.721	3.943	2.786	1.252	1.228
65000.0	0.278	2.955	14.346	903.444	1.423	0.755	3.895	2.822	1.255	1.327
67500.0	0.265	2.475	14.272	901.246	1.445	0.787	3.851	2.850	1.255	1.426
70000.0	0.252	2.062	14.184	899.002	1.465	0.817	3.810	2.873	1.254	1.525

Table C.17 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.681	45.338	9.459	944.522	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.680	45.218	9.479	944.464	0.003	0.000	0.020	0.000	0.000	0.000
500.0	0.677	44.744	9.559	944.231	0.018	0.000	0.205	0.001	0.000	0.000
1000.0	0.673	44.160	9.657	943.939	0.035	0.000	0.446	0.007	0.000	0.000
1500.0	0.669	43.585	9.753	943.646	0.053	0.001	0.676	0.016	0.001	0.000
2000.0	0.665	43.018	9.848	943.354	0.070	0.002	0.896	0.027	0.003	0.000
2500.0	0.660	42.459	9.941	943.061	0.087	0.002	1.107	0.042	0.005	0.000
3000.0	0.656	41.908	10.032	942.768	0.105	0.003	1.308	0.058	0.009	0.000
3500.0	0.652	41.364	10.122	942.475	0.122	0.005	1.500	0.077	0.013	0.000
4000.0	0.648	40.827	10.210	942.182	0.139	0.006	1.685	0.097	0.019	0.000
4500.0	0.644	40.298	10.297	941.889	0.156	0.008	1.861	0.118	0.025	0.001
5000.0	0.640	39.774	10.382	941.595	0.173	0.009	2.031	0.141	0.033	0.001
5500.0	0.636	39.257	10.466	941.301	0.190	0.011	2.193	0.165	0.042	0.001
6000.0	0.632	38.746	10.549	941.007	0.207	0.013	2.348	0.191	0.052	0.002
6500.0	0.629	38.240	10.630	940.713	0.223	0.015	2.497	0.217	0.063	0.003
7000.0	0.625	37.741	10.710	940.418	0.240	0.018	2.640	0.244	0.074	0.003
7500.0	0.621	37.247	10.789	940.123	0.256	0.020	2.776	0.271	0.087	0.004
8000.0	0.617	36.759	10.867	939.828	0.273	0.023	2.907	0.299	0.100	0.005
8500.0	0.613	36.276	10.943	939.534	0.289	0.026	3.033	0.328	0.114	0.007
9000.0	0.609	35.798	11.019	939.238	0.306	0.029	3.153	0.358	0.129	0.008
9500.0	0.606	35.325	11.093	938.943	0.322	0.032	3.268	0.388	0.145	0.009
10000.0	0.602	34.857	11.166	938.648	0.338	0.035	3.378	0.418	0.161	0.011
10500.0	0.598	34.393	11.238	938.353	0.354	0.039	3.483	0.449	0.178	0.013
11000.0	0.594	33.935	11.309	938.057	0.370	0.042	3.584	0.480	0.195	0.015
11500.0	0.591	33.481	11.379	937.761	0.385	0.046	3.680	0.512	0.213	0.017
12000.0	0.587	33.031	11.448	937.466	0.401	0.050	3.772	0.544	0.231	0.019
12500.0	0.583	32.586	11.516	937.170	0.417	0.054	3.860	0.576	0.249	0.022
13000.0	0.580	32.145	11.583	936.875	0.432	0.058	3.943	0.608	0.268	0.025
13500.0	0.576	31.708	11.649	936.579	0.447	0.062	4.023	0.641	0.287	0.028
14000.0	0.573	31.275	11.714	936.283	0.463	0.066	4.099	0.673	0.306	0.031
14500.0	0.569	30.847	11.778	935.988	0.478	0.071	4.171	0.706	0.326	0.034
15000.0	0.566	30.422	11.841	935.693	0.493	0.075	4.240	0.739	0.345	0.037
15500.0	0.562	30.001	11.903	935.397	0.507	0.080	4.305	0.773	0.365	0.041
16000.0	0.559	29.583	11.964	935.102	0.522	0.085	4.367	0.806	0.384	0.045
16500.0	0.555	29.170	12.025	934.807	0.537	0.090	4.425	0.840	0.404	0.049
17000.0	0.552	28.760	12.084	934.512	0.551	0.095	4.481	0.873	0.424	0.053
17500.0	0.548	28.353	12.143	934.217	0.566	0.100	4.533	0.907	0.444	0.058
18000.0	0.545	27.950	12.201	933.923	0.580	0.105	4.582	0.940	0.464	0.063
18500.0	0.542	27.550	12.258	933.628	0.594	0.111	4.629	0.974	0.483	0.067
19000.0	0.538	27.153	12.315	933.333	0.608	0.116	4.673	1.007	0.503	0.072
19500.0	0.535	26.760	12.370	933.039	0.622	0.121	4.714	1.041	0.522	0.078
20000.0	0.532	26.370	12.425	932.744	0.636	0.127	4.753	1.074	0.542	0.083
20500.0	0.528	25.984	12.479	932.448	0.649	0.133	4.790	1.108	0.561	0.089
21000.0	0.525	25.600	12.532	932.152	0.663	0.139	4.825	1.141	0.581	0.095
21500.0	0.522	25.220	12.584	931.856	0.676	0.145	4.858	1.174	0.600	0.101
22000.0	0.518	24.843	12.636	931.558	0.690	0.151	4.889	1.207	0.619	0.107
22500.0	0.515	24.469	12.687	931.260	0.703	0.157	4.919	1.240	0.638	0.113
23000.0	0.512	24.099	12.737	930.960	0.717	0.163	4.947	1.273	0.657	0.120
23500.0	0.509	23.732	12.786	930.660	0.730	0.169	4.974	1.305	0.676	0.127
24000.0	0.506	23.368	12.834	930.358	0.743	0.176	4.999	1.338	0.695	0.134
24500.0	0.502	23.007	12.882	930.055	0.756	0.183	5.023	1.370	0.714	0.141
25000.0	0.499	22.650	12.929	929.751	0.769	0.189	5.046	1.402	0.733	0.148
27500.0	0.483	20.914	13.150	928.209	0.834	0.224	5.142	1.558	0.825	0.189
30000.0	0.467	19.259	13.352	926.633	0.898	0.262	5.213	1.708	0.914	0.234
32500.0	0.452	17.686	13.534	925.022	0.960	0.302	5.260	1.853	0.998	0.284
35000.0	0.437	16.193	13.697	923.374	1.020	0.345	5.288	1.991	1.076	0.338
37500.0	0.421	14.780	13.840	921.689	1.078	0.389	5.300	2.123	1.148	0.397
40000.0	0.407	13.446	13.964	919.966	1.134	0.436	5.296	2.248	1.213	0.461
42500.0	0.392	12.191	14.069	918.203	1.188	0.483	5.282	2.365	1.273	0.528
45000.0	0.378	11.013	14.155	916.399	1.240	0.532	5.257	2.475	1.326	0.599
47500.0	0.363	9.912	14.223	914.554	1.289	0.582	5.224	2.577	1.372	0.673
50000.0	0.350	8.887	14.273	912.668	1.335	0.632	5.186	2.672	1.413	0.751
52500.0	0.336	7.937	14.305	910.739	1.379	0.683	5.143	2.758	1.448	0.831
55000.0	0.323	7.061	14.319	908.767	1.420	0.732	5.097	2.837	1.477	0.914
57500.0	0.310	6.256	14.317	906.754	1.458	0.782	5.049	2.908	1.502	0.998
60000.0	0.297	5.521	14.299	904.699	1.493	0.830	5.000	2.972	1.522	1.085
62500.0	0.285	4.853	14.265	902.603	1.525	0.876	4.952	3.029	1.538	1.173
65000.0	0.273	4.250	14.216	900.467	1.554	0.921	4.904	3.079	1.550	1.262
67500.0	0.261	3.708	14.153	898.294	1.581	0.964	4.859	3.122	1.559	1.351
70000.0	0.250	3.224	14.078	896.084	1.604	1.004	4.815	3.159	1.565	1.441

Table C.18 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.681	45.338	9.459	944.522	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.680	45.219	9.480	944.455	0.004	0.000	0.023	0.000	0.000	0.000
500.0	0.676	44.749	9.562	944.184	0.020	0.000	0.235	0.002	0.000	0.000
1000.0	0.672	44.171	9.663	943.846	0.040	0.001	0.511	0.008	0.000	0.000
1500.0	0.667	43.603	9.761	943.507	0.060	0.001	0.776	0.018	0.002	0.000
2000.0	0.662	43.043	9.858	943.168	0.080	0.002	1.028	0.030	0.004	0.000
2500.0	0.658	42.493	9.953	942.830	0.100	0.003	1.270	0.046	0.007	0.000
3000.0	0.653	41.952	10.046	942.491	0.120	0.004	1.502	0.064	0.011	0.000
3500.0	0.648	41.418	10.137	942.152	0.139	0.006	1.724	0.084	0.017	0.000
4000.0	0.644	40.892	10.227	941.813	0.159	0.008	1.937	0.105	0.024	0.001
4500.0	0.639	40.373	10.315	941.474	0.178	0.010	2.141	0.129	0.032	0.001
5000.0	0.635	39.861	10.401	941.135	0.198	0.012	2.338	0.153	0.042	0.001
5500.0	0.630	39.357	10.486	940.796	0.217	0.015	2.527	0.178	0.053	0.002
6000.0	0.626	38.858	10.570	940.457	0.236	0.017	2.708	0.205	0.065	0.002
6500.0	0.622	38.366	10.652	940.117	0.255	0.020	2.883	0.232	0.078	0.003
7000.0	0.617	37.880	10.733	939.777	0.274	0.023	3.050	0.261	0.092	0.004
7500.0	0.613	37.401	10.812	939.438	0.292	0.027	3.212	0.290	0.107	0.005
8000.0	0.609	36.927	10.890	939.098	0.311	0.030	3.367	0.320	0.123	0.006
8500.0	0.604	36.458	10.967	938.758	0.329	0.034	3.516	0.350	0.139	0.008
9000.0	0.600	35.995	11.042	938.418	0.348	0.038	3.660	0.381	0.157	0.009
9500.0	0.596	35.538	11.116	938.078	0.366	0.042	3.798	0.413	0.175	0.011
10000.0	0.592	35.085	11.189	937.738	0.384	0.046	3.930	0.445	0.193	0.012
10500.0	0.588	34.638	11.261	937.397	0.402	0.050	4.058	0.477	0.213	0.014
11000.0	0.584	34.196	11.332	937.057	0.420	0.055	4.181	0.510	0.232	0.017
11500.0	0.579	33.758	11.401	936.717	0.437	0.060	4.299	0.544	0.253	0.019
12000.0	0.575	33.326	11.469	936.377	0.455	0.065	4.412	0.577	0.273	0.021
12500.0	0.571	32.897	11.537	936.037	0.472	0.070	4.521	0.611	0.294	0.024
13000.0	0.567	32.474	11.603	935.696	0.490	0.075	4.625	0.646	0.316	0.027
13500.0	0.563	32.055	11.668	935.356	0.507	0.081	4.726	0.680	0.337	0.030
14000.0	0.560	31.640	11.732	935.016	0.524	0.086	4.822	0.715	0.359	0.033
14500.0	0.556	31.229	11.795	934.676	0.541	0.092	4.914	0.750	0.381	0.037
15000.0	0.552	30.823	11.857	934.336	0.558	0.098	5.003	0.785	0.403	0.040
15500.0	0.548	30.420	11.918	933.996	0.574	0.104	5.088	0.821	0.425	0.044
16000.0	0.544	30.022	11.978	933.656	0.591	0.110	5.169	0.857	0.448	0.048
16500.0	0.540	29.628	12.037	933.317	0.607	0.117	5.247	0.892	0.470	0.052
17000.0	0.537	29.237	12.095	932.977	0.623	0.123	5.321	0.928	0.492	0.057
17500.0	0.533	28.850	12.152	932.638	0.639	0.130	5.392	0.964	0.515	0.061
18000.0	0.529	28.467	12.208	932.298	0.655	0.137	5.460	1.001	0.537	0.066
18500.0	0.526	28.087	12.264	931.959	0.671	0.144	5.525	1.037	0.560	0.071
19000.0	0.522	27.711	12.318	931.620	0.686	0.151	5.586	1.073	0.582	0.076
19500.0	0.518	27.338	12.372	931.281	0.702	0.158	5.645	1.109	0.604	0.081
20000.0	0.515	26.969	12.424	930.942	0.717	0.165	5.702	1.146	0.627	0.087
20500.0	0.511	26.603	12.476	930.602	0.732	0.173	5.755	1.182	0.649	0.093
21000.0	0.508	26.240	12.527	930.263	0.747	0.180	5.807	1.218	0.671	0.098
21500.0	0.504	25.881	12.577	929.923	0.762	0.188	5.856	1.254	0.693	0.104
22000.0	0.501	25.525	12.627	929.582	0.777	0.195	5.903	1.291	0.714	0.111
22500.0	0.497	25.173	12.675	929.242	0.792	0.203	5.948	1.327	0.736	0.117
23000.0	0.494	24.823	12.723	928.900	0.806	0.211	5.991	1.363	0.758	0.123
23500.0	0.490	24.477	12.770	928.558	0.821	0.219	6.033	1.398	0.779	0.130
24000.0	0.487	24.134	12.816	928.214	0.835	0.228	6.073	1.434	0.801	0.137
24500.0	0.484	23.795	12.861	927.870	0.850	0.236	6.111	1.469	0.822	0.144
25000.0	0.480	23.458	12.905	927.525	0.864	0.245	6.148	1.505	0.843	0.151
25500.0	0.477	23.125	12.948	927.179	0.878	0.253	6.183	1.540	0.865	0.158
26000.0	0.474	22.795	12.991	926.832	0.892	0.262	6.217	1.575	0.886	0.166
26500.0	0.470	22.469	13.033	926.483	0.906	0.271	6.250	1.610	0.907	0.174
27000.0	0.467	22.145	13.074	926.133	0.920	0.280	6.281	1.645	0.928	0.182
27500.0	0.464	21.825	13.114	925.783	0.934	0.289	6.312	1.679	0.948	0.190
30000.0	0.447	20.271	13.304	924.010	1.002	0.337	6.447	1.848	1.051	0.232
32500.0	0.432	18.796	13.473	922.206	1.068	0.387	6.557	2.011	1.150	0.279
35000.0	0.416	17.396	13.623	920.371	1.132	0.440	6.645	2.169	1.244	0.329
37500.0	0.401	16.072	13.754	918.504	1.193	0.495	6.713	2.321	1.333	0.383
40000.0	0.386	14.821	13.867	916.606	1.252	0.553	6.765	2.466	1.417	0.440
42500.0	0.372	13.641	13.961	914.676	1.309	0.612	6.802	2.605	1.495	0.500
45000.0	0.358	12.531	14.038	912.714	1.362	0.673	6.826	2.738	1.567	0.563
47500.0	0.344	11.488	14.097	910.720	1.413	0.735	6.839	2.863	1.634	0.628
50000.0	0.331	10.512	14.141	908.696	1.462	0.797	6.844	2.982	1.696	0.696
52500.0	0.319	9.601	14.168	906.640	1.507	0.860	6.840	3.094	1.753	0.766
55000.0	0.307	8.751	14.179	904.554	1.550	0.923	6.831	3.199	1.804	0.839
57500.0	0.295	7.961	14.176	902.439	1.589	0.986	6.816	3.297	1.850	0.913
60000.0	0.283	7.228	14.159	900.295	1.626	1.048	6.797	3.389	1.892	0.988
62500.0	0.272	6.551	14.129	898.123	1.660	1.110	6.775	3.474	1.930	1.065
65000.0	0.262	5.927	14.086	895.924	1.691	1.170	6.751	3.552	1.963	1.143
67500.0	0.252	5.353	14.030	893.700	1.719	1.228	6.726	3.624	1.993	1.223
70000.0	0.242	4.827	13.964	891.451	1.745	1.285	6.699	3.691	2.019	1.303

Table C.19 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.681	45.336	9.451	944.532	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.680	45.217	9.470	944.482	0.003	0.000	0.017	0.000	0.000	0.000
500.0	0.677	44.741	9.548	944.279	0.015	0.000	0.179	0.001	0.000	0.000
1000.0	0.673	44.153	9.644	944.025	0.030	0.000	0.391	0.006	0.000	0.000
1500.0	0.670	43.573	9.739	943.770	0.045	0.001	0.593	0.014	0.001	0.000
2000.0	0.666	43.000	9.832	943.515	0.060	0.001	0.786	0.024	0.002	0.000
2500.0	0.662	42.435	9.924	943.259	0.076	0.002	0.971	0.037	0.004	0.000
3000.0	0.659	41.876	10.014	943.003	0.091	0.003	1.148	0.052	0.007	0.000
3500.0	0.655	41.324	10.102	942.747	0.106	0.004	1.317	0.069	0.010	0.000
4000.0	0.652	40.779	10.190	942.491	0.121	0.005	1.479	0.087	0.014	0.000
4500.0	0.648	40.239	10.276	942.234	0.135	0.006	1.634	0.107	0.020	0.001
5000.0	0.644	39.705	10.361	941.977	0.150	0.007	1.782	0.128	0.026	0.001
5500.0	0.641	39.177	10.445	941.720	0.165	0.009	1.924	0.150	0.033	0.001
6000.0	0.637	38.655	10.528	941.462	0.180	0.010	2.060	0.173	0.041	0.002
6500.0	0.634	38.138	10.609	941.204	0.195	0.012	2.190	0.198	0.049	0.002
7000.0	0.630	37.626	10.689	940.945	0.209	0.014	2.315	0.223	0.059	0.003
7500.0	0.627	37.120	10.768	940.686	0.224	0.016	2.434	0.249	0.069	0.004
8000.0	0.623	36.618	10.847	940.427	0.238	0.018	2.548	0.275	0.080	0.004
8500.0	0.620	36.121	10.924	940.168	0.253	0.020	2.657	0.302	0.092	0.005
9000.0	0.616	35.629	11.000	939.909	0.267	0.023	2.761	0.330	0.105	0.006
9500.0	0.613	35.142	11.075	939.649	0.282	0.025	2.860	0.358	0.118	0.008
10000.0	0.610	34.659	11.149	939.389	0.296	0.028	2.955	0.387	0.131	0.009
10500.0	0.606	34.181	11.222	939.128	0.310	0.030	3.046	0.416	0.145	0.011
11000.0	0.603	33.707	11.294	938.868	0.324	0.033	3.132	0.445	0.160	0.012
11500.0	0.599	33.237	11.365	938.607	0.338	0.036	3.215	0.475	0.175	0.014
12000.0	0.596	32.772	11.435	938.346	0.352	0.039	3.293	0.505	0.190	0.016
12500.0	0.593	32.310	11.504	938.085	0.366	0.042	3.368	0.536	0.206	0.019
13000.0	0.589	31.853	11.573	937.824	0.380	0.045	3.439	0.566	0.222	0.021
13500.0	0.586	31.399	11.640	937.563	0.394	0.049	3.506	0.597	0.238	0.024
14000.0	0.583	30.949	11.707	937.301	0.407	0.052	3.570	0.628	0.255	0.026
14500.0	0.579	30.503	11.773	937.040	0.421	0.056	3.630	0.659	0.271	0.029
15000.0	0.576	30.061	11.837	936.778	0.434	0.060	3.687	0.691	0.288	0.033
15500.0	0.573	29.622	11.901	936.516	0.448	0.063	3.741	0.722	0.305	0.036
16000.0	0.570	29.187	11.965	936.255	0.461	0.067	3.792	0.754	0.322	0.039
16500.0	0.566	28.756	12.027	935.993	0.474	0.071	3.840	0.785	0.339	0.043
17000.0	0.563	28.327	12.089	935.731	0.487	0.075	3.885	0.817	0.357	0.047
17500.0	0.560	27.902	12.150	935.470	0.500	0.079	3.927	0.849	0.374	0.051
18000.0	0.557	27.480	12.210	935.208	0.513	0.083	3.967	0.881	0.391	0.055
18500.0	0.554	27.062	12.269	934.946	0.526	0.088	4.004	0.913	0.408	0.060
19000.0	0.551	26.647	12.328	934.684	0.538	0.092	4.039	0.944	0.425	0.065
19500.0	0.548	26.235	12.385	934.421	0.551	0.096	4.071	0.976	0.442	0.070
20000.0	0.544	25.826	12.443	934.158	0.563	0.101	4.102	1.008	0.459	0.075
20500.0	0.541	25.420	12.499	933.895	0.576	0.106	4.130	1.039	0.476	0.080
21000.0	0.538	25.018	12.554	933.630	0.588	0.110	4.157	1.071	0.493	0.085
21500.0	0.535	24.618	12.609	933.364	0.601	0.115	4.182	1.102	0.510	0.091
22000.0	0.532	24.223	12.663	933.097	0.613	0.120	4.206	1.133	0.527	0.097
22500.0	0.529	23.830	12.716	932.829	0.625	0.125	4.228	1.164	0.543	0.103
25000.0	0.513	21.917	12.970	931.469	0.686	0.152	4.321	1.316	0.627	0.137
27500.0	0.498	20.088	13.205	930.072	0.746	0.181	4.384	1.463	0.708	0.176
30000.0	0.483	18.342	13.420	928.637	0.805	0.212	4.423	1.606	0.785	0.221
32500.0	0.467	16.681	13.615	927.163	0.863	0.245	4.441	1.742	0.857	0.271
35000.0	0.452	15.104	13.790	925.647	0.920	0.281	4.441	1.872	0.923	0.326
37500.0	0.437	13.612	13.945	924.087	0.974	0.318	4.426	1.995	0.983	0.387
40000.0	0.422	12.206	14.080	922.480	1.028	0.357	4.399	2.111	1.036	0.453
42500.0	0.407	10.886	14.195	920.824	1.079	0.397	4.361	2.219	1.082	0.524
45000.0	0.392	9.655	14.290	919.118	1.128	0.438	4.317	2.319	1.123	0.599
47500.0	0.377	8.512	14.365	917.358	1.174	0.480	4.267	2.411	1.157	0.679
50000.0	0.362	7.457	14.419	915.545	1.218	0.522	4.213	2.494	1.185	0.763
52500.0	0.347	6.491	14.453	913.674	1.260	0.564	4.157	2.569	1.207	0.850
55000.0	0.333	5.613	14.467	911.748	1.298	0.605	4.100	2.635	1.224	0.941
57500.0	0.319	4.821	14.461	909.764	1.334	0.645	4.045	2.693	1.237	1.034
60000.0	0.305	4.113	14.437	907.723	1.366	0.684	3.991	2.743	1.246	1.130
62500.0	0.291	3.486	14.396	905.628	1.395	0.720	3.940	2.785	1.251	1.227
65000.0	0.277	2.936	14.337	903.478	1.421	0.755	3.892	2.821	1.254	1.326
67500.0	0.264	2.458	14.263	901.279	1.444	0.786	3.848	2.849	1.254	1.425
70000.0	0.252	2.047	14.174	899.033	1.464	0.816	3.808	2.872	1.253	1.524

Table C.20 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.681	45.336	9.451	944.532	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.680	45.217	9.471	944.475	0.003	0.000	0.019	0.000	0.000	0.000
500.0	0.677	44.743	9.550	944.244	0.017	0.000	0.203	0.001	0.000	0.000
1000.0	0.673	44.159	9.648	943.954	0.035	0.000	0.441	0.007	0.000	0.000
1500.0	0.669	43.583	9.745	943.665	0.052	0.001	0.670	0.015	0.001	0.000
2000.0	0.664	43.016	9.839	943.375	0.069	0.001	0.888	0.027	0.003	0.000
2500.0	0.660	42.457	9.932	943.085	0.086	0.002	1.096	0.041	0.005	0.000
3000.0	0.656	41.905	10.023	942.795	0.103	0.003	1.296	0.058	0.008	0.000
3500.0	0.652	41.361	10.113	942.504	0.120	0.004	1.487	0.076	0.013	0.000
4000.0	0.648	40.823	10.201	942.214	0.137	0.006	1.670	0.096	0.018	0.000
4500.0	0.644	40.292	10.288	941.922	0.154	0.007	1.845	0.117	0.025	0.001
5000.0	0.640	39.768	10.374	941.631	0.171	0.009	2.013	0.140	0.032	0.001
5500.0	0.637	39.250	10.458	941.339	0.188	0.011	2.174	0.164	0.041	0.001
6000.0	0.633	38.738	10.541	941.047	0.204	0.013	2.328	0.189	0.051	0.002
6500.0	0.629	38.232	10.622	940.755	0.221	0.015	2.476	0.215	0.061	0.003
7000.0	0.625	37.732	10.702	940.463	0.237	0.017	2.618	0.242	0.073	0.003
7500.0	0.621	37.237	10.781	940.170	0.254	0.020	2.754	0.269	0.085	0.004
8000.0	0.617	36.748	10.859	939.877	0.270	0.023	2.884	0.297	0.099	0.005
8500.0	0.613	36.264	10.936	939.584	0.286	0.025	3.009	0.326	0.113	0.006
9000.0	0.610	35.785	11.011	939.291	0.303	0.028	3.129	0.356	0.128	0.008
9500.0	0.606	35.311	11.085	938.997	0.319	0.031	3.243	0.385	0.143	0.009
10000.0	0.602	34.842	11.159	938.703	0.335	0.035	3.353	0.416	0.159	0.011
10500.0	0.598	34.378	11.231	938.409	0.351	0.038	3.458	0.446	0.176	0.013
11000.0	0.595	33.918	11.302	938.115	0.366	0.042	3.558	0.477	0.193	0.015
11500.0	0.591	33.463	11.372	937.821	0.382	0.045	3.654	0.509	0.210	0.017
12000.0	0.587	33.013	11.441	937.527	0.398	0.049	3.746	0.541	0.228	0.019
12500.0	0.584	32.566	11.509	937.232	0.413	0.053	3.834	0.573	0.246	0.022
13000.0	0.580	32.125	11.576	936.938	0.429	0.057	3.918	0.605	0.265	0.024
13500.0	0.577	31.687	11.642	936.643	0.444	0.061	3.997	0.637	0.284	0.027
14000.0	0.573	31.253	11.707	936.348	0.459	0.065	4.074	0.670	0.303	0.030
14500.0	0.569	30.823	11.771	936.054	0.474	0.070	4.146	0.703	0.322	0.033
15000.0	0.566	30.398	11.835	935.759	0.489	0.074	4.215	0.736	0.342	0.037
15500.0	0.562	29.976	11.897	935.464	0.504	0.079	4.280	0.769	0.361	0.041
16000.0	0.559	29.558	11.958	935.170	0.519	0.084	4.342	0.802	0.381	0.044
16500.0	0.555	29.143	12.019	934.875	0.533	0.089	4.401	0.835	0.401	0.048
17000.0	0.552	28.733	12.079	934.580	0.548	0.094	4.457	0.869	0.421	0.053
17500.0	0.549	28.325	12.138	934.286	0.562	0.099	4.510	0.902	0.440	0.057
18000.0	0.545	27.922	12.196	933.991	0.576	0.104	4.560	0.936	0.460	0.062
18500.0	0.542	27.521	12.253	933.697	0.590	0.109	4.607	0.969	0.480	0.067
19000.0	0.539	27.124	12.309	933.402	0.604	0.115	4.651	1.003	0.499	0.072
19500.0	0.535	26.730	12.365	933.108	0.618	0.120	4.693	1.036	0.519	0.077
20000.0	0.532	26.340	12.420	932.812	0.632	0.126	4.733	1.070	0.538	0.082
20500.0	0.529	25.952	12.474	932.517	0.646	0.132	4.771	1.103	0.558	0.088
21000.0	0.525	25.569	12.527	932.221	0.660	0.137	4.806	1.136	0.577	0.094
21500.0	0.522	25.188	12.579	931.924	0.673	0.143	4.840	1.169	0.596	0.100
22000.0	0.519	24.811	12.631	931.626	0.687	0.149	4.871	1.202	0.616	0.106
22500.0	0.516	24.437	12.682	931.328	0.700	0.155	4.902	1.235	0.635	0.112
23000.0	0.512	24.066	12.732	931.028	0.713	0.162	4.930	1.268	0.654	0.119
23500.0	0.509	23.698	12.781	930.727	0.727	0.168	4.957	1.300	0.673	0.126
24000.0	0.506	23.334	12.830	930.425	0.740	0.174	4.983	1.333	0.692	0.133
24500.0	0.503	22.974	12.877	930.122	0.753	0.181	5.007	1.365	0.711	0.140
25000.0	0.499	22.616	12.924	929.818	0.766	0.188	5.031	1.397	0.729	0.147
27500.0	0.483	20.878	13.146	928.275	0.831	0.223	5.129	1.553	0.822	0.187
30000.0	0.468	19.223	13.348	926.699	0.895	0.260	5.201	1.704	0.911	0.232
32500.0	0.452	17.649	13.530	925.086	0.957	0.301	5.250	1.849	0.995	0.282
35000.0	0.437	16.156	13.692	923.438	1.017	0.343	5.279	1.987	1.073	0.337
37500.0	0.422	14.743	13.835	921.751	1.076	0.388	5.291	2.119	1.145	0.396
40000.0	0.407	13.409	13.959	920.026	1.132	0.434	5.289	2.244	1.211	0.459
42500.0	0.392	12.154	14.064	918.262	1.186	0.482	5.274	2.362	1.270	0.527
45000.0	0.378	10.977	14.150	916.457	1.238	0.531	5.250	2.472	1.323	0.598
47500.0	0.363	9.877	14.217	914.611	1.287	0.581	5.218	2.574	1.370	0.672
50000.0	0.350	8.853	14.267	912.722	1.334	0.631	5.180	2.669	1.411	0.749
52500.0	0.336	7.905	14.298	910.792	1.378	0.681	5.137	2.756	1.446	0.830
55000.0	0.323	7.030	14.313	908.819	1.419	0.731	5.092	2.835	1.475	0.912
57500.0	0.310	6.227	14.310	906.804	1.457	0.780	5.044	2.906	1.500	0.997
60000.0	0.297	5.494	14.291	904.747	1.492	0.828	4.996	2.970	1.520	1.084
62500.0	0.285	4.828	14.257	902.649	1.524	0.875	4.947	3.027	1.536	1.172
65000.0	0.273	4.227	14.208	900.511	1.553	0.920	4.900	3.077	1.548	1.261
67500.0	0.261	3.687	14.145	898.336	1.579	0.963	4.855	3.120	1.557	1.350
70000.0	0.250	3.204	14.069	896.124	1.602	1.003	4.811	3.158	1.563	1.441

Table C.21 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.681	45.336	9.451	944.532	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.680	45.218	9.471	944.466	0.004	0.000	0.022	0.000	0.000	0.000
500.0	0.676	44.748	9.553	944.198	0.020	0.000	0.233	0.002	0.000	0.000
1000.0	0.671	44.169	9.654	943.863	0.040	0.000	0.506	0.008	0.000	0.000
1500.0	0.667	43.601	9.753	943.527	0.060	0.001	0.768	0.017	0.002	0.000
2000.0	0.662	43.041	9.849	943.192	0.079	0.002	1.018	0.030	0.004	0.000
2500.0	0.657	42.491	9.944	942.856	0.099	0.003	1.258	0.046	0.007	0.000
3000.0	0.653	41.948	10.037	942.520	0.118	0.004	1.487	0.063	0.011	0.000
3500.0	0.648	41.414	10.128	942.184	0.138	0.006	1.707	0.083	0.017	0.000
4000.0	0.644	40.887	10.218	941.848	0.157	0.008	1.918	0.105	0.024	0.001
4500.0	0.639	40.368	10.306	941.512	0.176	0.010	2.121	0.128	0.032	0.001
5000.0	0.635	39.855	10.393	941.176	0.196	0.012	2.316	0.152	0.041	0.001
5500.0	0.630	39.350	10.478	940.839	0.215	0.014	2.504	0.177	0.052	0.002
6000.0	0.626	38.851	10.561	940.502	0.233	0.017	2.684	0.204	0.064	0.002
6500.0	0.622	38.358	10.644	940.165	0.252	0.020	2.857	0.231	0.077	0.003
7000.0	0.617	37.871	10.724	939.828	0.271	0.023	3.024	0.259	0.090	0.004
7500.0	0.613	37.390	10.804	939.490	0.289	0.026	3.184	0.288	0.105	0.005
8000.0	0.609	36.916	10.882	939.153	0.308	0.030	3.338	0.318	0.121	0.006
8500.0	0.605	36.446	10.959	938.815	0.326	0.033	3.487	0.348	0.137	0.007
9000.0	0.600	35.982	11.034	938.477	0.344	0.037	3.629	0.379	0.155	0.009
9500.0	0.596	35.524	11.108	938.138	0.363	0.041	3.767	0.410	0.173	0.010
10000.0	0.592	35.070	11.182	937.800	0.381	0.045	3.899	0.442	0.191	0.012
10500.0	0.588	34.622	11.253	937.462	0.398	0.050	4.026	0.475	0.210	0.014
11000.0	0.584	34.179	11.324	937.123	0.416	0.054	4.148	0.507	0.230	0.016
11500.0	0.580	33.741	11.394	936.785	0.434	0.059	4.266	0.541	0.250	0.019
12000.0	0.576	33.307	11.462	936.446	0.451	0.064	4.379	0.574	0.270	0.021
12500.0	0.572	32.878	11.530	936.107	0.469	0.069	4.488	0.608	0.291	0.024
13000.0	0.568	32.453	11.596	935.768	0.486	0.074	4.592	0.642	0.312	0.027
13500.0	0.564	32.033	11.661	935.429	0.503	0.080	4.693	0.677	0.334	0.030
14000.0	0.560	31.617	11.725	935.090	0.520	0.085	4.789	0.712	0.355	0.033
14500.0	0.556	31.206	11.789	934.751	0.537	0.091	4.881	0.747	0.377	0.036
15000.0	0.552	30.799	11.851	934.412	0.554	0.097	4.970	0.782	0.399	0.040
15500.0	0.548	30.395	11.912	934.073	0.570	0.103	5.055	0.817	0.421	0.044
16000.0	0.545	29.996	11.972	933.733	0.587	0.109	5.137	0.853	0.444	0.048
16500.0	0.541	29.601	12.031	933.394	0.603	0.115	5.215	0.888	0.466	0.052
17000.0	0.537	29.209	12.089	933.055	0.619	0.122	5.289	0.924	0.488	0.056
17500.0	0.533	28.821	12.146	932.716	0.635	0.128	5.361	0.960	0.511	0.061
18000.0	0.530	28.438	12.203	932.377	0.651	0.135	5.429	0.996	0.533	0.065
18500.0	0.526	28.057	12.258	932.038	0.667	0.142	5.494	1.032	0.556	0.070
19000.0	0.522	27.680	12.313	931.699	0.682	0.149	5.557	1.069	0.578	0.075
19500.0	0.519	27.307	12.366	931.360	0.698	0.156	5.616	1.105	0.600	0.081
20000.0	0.515	26.937	12.419	931.021	0.713	0.163	5.673	1.141	0.622	0.086
20500.0	0.512	26.571	12.471	930.682	0.728	0.171	5.728	1.177	0.644	0.092
21000.0	0.508	26.208	12.522	930.342	0.743	0.178	5.780	1.213	0.666	0.098
21500.0	0.505	25.848	12.572	930.002	0.758	0.186	5.829	1.249	0.688	0.104
22000.0	0.501	25.492	12.622	929.662	0.773	0.194	5.877	1.286	0.710	0.110
22500.0	0.498	25.138	12.670	929.321	0.788	0.201	5.923	1.321	0.732	0.116
23000.0	0.494	24.789	12.718	928.979	0.803	0.209	5.967	1.357	0.754	0.122
23500.0	0.491	24.442	12.765	928.636	0.817	0.218	6.009	1.393	0.775	0.129
24000.0	0.487	24.099	12.811	928.293	0.832	0.226	6.049	1.429	0.797	0.136
24500.0	0.484	23.759	12.856	927.949	0.846	0.234	6.088	1.464	0.818	0.143
25000.0	0.481	23.422	12.900	927.603	0.860	0.243	6.125	1.500	0.839	0.150
25500.0	0.477	23.089	12.944	927.257	0.875	0.251	6.161	1.535	0.861	0.158
26000.0	0.474	22.759	12.986	926.909	0.889	0.260	6.195	1.570	0.882	0.165
26500.0	0.471	22.432	13.028	926.561	0.903	0.269	6.229	1.605	0.903	0.173
27000.0	0.467	22.108	13.069	926.211	0.917	0.278	6.260	1.639	0.924	0.181
27500.0	0.464	21.787	13.110	925.860	0.931	0.287	6.291	1.674	0.944	0.189
30000.0	0.448	20.233	13.299	924.086	0.999	0.334	6.428	1.843	1.047	0.231
32500.0	0.432	18.756	13.469	922.281	1.065	0.385	6.540	2.006	1.146	0.278
35000.0	0.416	17.357	13.618	920.445	1.129	0.438	6.629	2.164	1.240	0.328
37500.0	0.401	16.032	13.749	918.577	1.191	0.493	6.699	2.316	1.329	0.381
40000.0	0.386	14.781	13.862	916.677	1.250	0.551	6.751	2.461	1.413	0.439
42500.0	0.372	13.602	13.956	914.745	1.306	0.610	6.789	2.601	1.491	0.499
45000.0	0.358	12.492	14.033	912.782	1.360	0.671	6.814	2.734	1.564	0.562
47500.0	0.345	11.451	14.092	910.787	1.411	0.732	6.828	2.859	1.631	0.627
50000.0	0.331	10.476	14.135	908.761	1.460	0.795	6.833	2.979	1.693	0.695
52500.0	0.319	9.565	14.161	906.704	1.505	0.858	6.830	3.091	1.749	0.765
55000.0	0.307	8.716	14.173	904.616	1.548	0.921	6.821	3.196	1.801	0.838
57500.0	0.295	7.928	14.170	902.499	1.588	0.984	6.807	3.294	1.847	0.912
60000.0	0.283	7.197	14.152	900.353	1.625	1.046	6.789	3.386	1.889	0.987
62500.0	0.272	6.521	14.121	898.179	1.658	1.108	6.767	3.471	1.927	1.064
65000.0	0.262	5.899	14.077	895.979	1.690	1.168	6.743	3.549	1.960	1.143
67500.0	0.252	5.326	14.022	893.752	1.718	1.226	6.718	3.622	1.990	1.222
70000.0	0.242	4.802	13.955	891.502	1.743	1.283	6.692	3.688	2.016	1.303

Table C.22 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.688	46.136	9.471	943.705	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.687	46.016	9.491	943.659	0.003	0.000	0.014	0.000	0.000	0.000
500.0	0.684	45.538	9.568	943.471	0.014	0.000	0.161	0.001	0.000	0.000
1000.0	0.681	44.948	9.664	943.235	0.028	0.000	0.358	0.005	0.000	0.000
1500.0	0.677	44.364	9.759	942.999	0.042	0.001	0.546	0.012	0.001	0.000
2000.0	0.674	43.788	9.852	942.763	0.056	0.001	0.727	0.021	0.002	0.000
2500.0	0.670	43.218	9.944	942.526	0.070	0.002	0.899	0.033	0.003	0.000
3000.0	0.667	42.654	10.034	942.290	0.084	0.002	1.065	0.046	0.005	0.000
3500.0	0.664	42.096	10.124	942.053	0.098	0.003	1.223	0.062	0.008	0.000
4000.0	0.660	41.543	10.212	941.815	0.112	0.004	1.375	0.079	0.012	0.000
4500.0	0.657	40.997	10.299	941.578	0.126	0.005	1.520	0.097	0.016	0.000
5000.0	0.653	40.456	10.384	941.340	0.140	0.006	1.659	0.116	0.022	0.001
5500.0	0.650	39.920	10.469	941.102	0.153	0.008	1.792	0.137	0.028	0.001
6000.0	0.647	39.389	10.553	940.864	0.167	0.009	1.920	0.159	0.034	0.001
6500.0	0.643	38.864	10.635	940.626	0.181	0.011	2.041	0.181	0.042	0.002
7000.0	0.640	38.343	10.716	940.387	0.194	0.012	2.158	0.205	0.050	0.002
7500.0	0.636	37.827	10.797	940.149	0.208	0.014	2.269	0.229	0.059	0.003
8000.0	0.633	37.315	10.876	939.910	0.221	0.016	2.376	0.254	0.069	0.004
8500.0	0.630	36.808	10.955	939.671	0.235	0.018	2.477	0.280	0.079	0.004
9000.0	0.627	36.306	11.032	939.432	0.248	0.020	2.574	0.306	0.090	0.005
9500.0	0.623	35.807	11.108	939.193	0.261	0.022	2.667	0.333	0.102	0.006
10000.0	0.620	35.313	11.184	938.953	0.274	0.024	2.755	0.360	0.114	0.008
10500.0	0.617	34.824	11.259	938.714	0.288	0.027	2.839	0.387	0.126	0.009
11000.0	0.613	34.338	11.333	938.474	0.301	0.029	2.919	0.415	0.139	0.010
11500.0	0.610	33.856	11.405	938.235	0.314	0.032	2.995	0.444	0.153	0.012
12000.0	0.607	33.378	11.477	937.995	0.327	0.034	3.067	0.472	0.166	0.014
12500.0	0.604	32.904	11.549	937.756	0.339	0.037	3.135	0.501	0.181	0.016
13000.0	0.601	32.434	11.619	937.516	0.352	0.040	3.200	0.531	0.195	0.018
13500.0	0.597	31.967	11.688	937.277	0.365	0.043	3.261	0.560	0.210	0.020
14000.0	0.594	31.503	11.757	937.037	0.377	0.046	3.319	0.590	0.224	0.022
14500.0	0.591	31.044	11.825	936.797	0.390	0.049	3.374	0.620	0.239	0.025
15000.0	0.588	30.587	11.892	936.558	0.402	0.052	3.425	0.650	0.255	0.028
15500.0	0.585	30.134	11.958	936.319	0.414	0.055	3.473	0.680	0.270	0.031
16000.0	0.582	29.685	12.024	936.080	0.427	0.059	3.519	0.711	0.285	0.034
16500.0	0.579	29.238	12.089	935.841	0.439	0.062	3.561	0.741	0.301	0.037
17000.0	0.576	28.795	12.153	935.602	0.451	0.065	3.600	0.772	0.316	0.041
17500.0	0.573	28.355	12.216	935.363	0.462	0.069	3.637	0.802	0.332	0.044
18000.0	0.570	27.917	12.279	935.124	0.474	0.073	3.671	0.833	0.347	0.048
18500.0	0.567	27.483	12.341	934.885	0.486	0.076	3.703	0.864	0.363	0.052
19000.0	0.564	27.052	12.402	934.646	0.498	0.080	3.733	0.894	0.378	0.056
19500.0	0.561	26.624	12.463	934.406	0.509	0.084	3.760	0.925	0.394	0.060
20000.0	0.558	26.199	12.522	934.166	0.521	0.088	3.786	0.956	0.409	0.065
20500.0	0.555	25.777	12.582	933.925	0.532	0.092	3.810	0.986	0.424	0.070
21000.0	0.552	25.358	12.640	933.683	0.543	0.096	3.832	1.017	0.440	0.075
21500.0	0.549	24.942	12.698	933.440	0.555	0.100	3.853	1.047	0.455	0.080
22000.0	0.546	24.529	12.754	933.196	0.566	0.104	3.872	1.077	0.470	0.085
22500.0	0.543	24.120	12.811	932.951	0.577	0.109	3.890	1.107	0.486	0.091
23000.0	0.540	23.713	12.866	932.705	0.589	0.113	3.906	1.137	0.501	0.096
25000.0	0.528	22.120	13.080	931.705	0.634	0.131	3.962	1.255	0.562	0.122
27500.0	0.513	20.200	13.331	930.423	0.690	0.157	4.007	1.399	0.636	0.158
30000.0	0.498	18.363	13.562	929.101	0.745	0.184	4.029	1.538	0.707	0.200
32500.0	0.482	16.610	13.774	927.738	0.799	0.213	4.031	1.671	0.772	0.247
35000.0	0.467	14.942	13.966	926.329	0.852	0.244	4.017	1.799	0.832	0.300
37500.0	0.452	13.361	14.138	924.873	0.904	0.276	3.989	1.919	0.886	0.359
40000.0	0.437	11.870	14.290	923.365	0.954	0.310	3.950	2.033	0.933	0.424
42500.0	0.421	10.471	14.421	921.803	1.003	0.346	3.902	2.139	0.974	0.494
45000.0	0.406	9.167	14.530	920.181	1.050	0.382	3.849	2.236	1.009	0.570
47500.0	0.390	7.961	14.616	918.498	1.095	0.419	3.791	2.325	1.037	0.650
50000.0	0.374	6.853	14.681	916.749	1.137	0.456	3.730	2.405	1.059	0.736
52500.0	0.359	5.847	14.723	914.932	1.177	0.493	3.670	2.477	1.076	0.827
55000.0	0.343	4.941	14.743	913.045	1.214	0.529	3.610	2.539	1.088	0.921
57500.0	0.328	4.136	14.741	911.087	1.248	0.564	3.553	2.593	1.096	1.019
60000.0	0.312	3.430	14.717	909.059	1.278	0.597	3.499	2.638	1.100	1.121
62500.0	0.297	2.818	14.673	906.962	1.306	0.629	3.449	2.674	1.102	1.224
65000.0	0.282	2.295	14.609	904.800	1.330	0.658	3.405	2.704	1.101	1.329
67500.0	0.268	1.855	14.529	902.577	1.351	0.684	3.365	2.727	1.098	1.435
70000.0	0.254	1.489	14.433	900.298	1.368	0.708	3.330	2.744	1.095	1.541

Table C.23 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.688	46.136	9.471	943.705	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.687	46.016	9.491	943.652	0.003	0.000	0.016	0.000	0.000	0.000
500.0	0.684	45.540	9.571	943.437	0.016	0.000	0.183	0.001	0.000	0.000
1000.0	0.680	44.953	9.668	943.167	0.032	0.000	0.407	0.006	0.000	0.000
1500.0	0.676	44.373	9.765	942.897	0.049	0.001	0.621	0.014	0.001	0.000
2000.0	0.672	43.801	9.859	942.627	0.065	0.001	0.826	0.024	0.002	0.000
2500.0	0.668	43.237	9.952	942.357	0.081	0.002	1.022	0.037	0.004	0.000
3000.0	0.665	42.679	10.044	942.086	0.097	0.003	1.210	0.052	0.007	0.000
3500.0	0.661	42.128	10.134	941.816	0.113	0.004	1.390	0.069	0.011	0.000
4000.0	0.657	41.584	10.223	941.545	0.129	0.005	1.562	0.088	0.016	0.000
4500.0	0.653	41.046	10.311	941.274	0.144	0.007	1.727	0.108	0.021	0.001
5000.0	0.649	40.513	10.397	941.004	0.160	0.008	1.885	0.129	0.028	0.001
5500.0	0.646	39.987	10.482	940.733	0.176	0.010	2.037	0.151	0.035	0.001
6000.0	0.642	39.466	10.566	940.462	0.191	0.011	2.182	0.175	0.044	0.002
6500.0	0.638	38.951	10.648	940.190	0.207	0.013	2.320	0.199	0.053	0.002
7000.0	0.634	38.441	10.730	939.919	0.222	0.015	2.453	0.224	0.064	0.003
7500.0	0.631	37.937	10.810	939.648	0.238	0.018	2.581	0.250	0.075	0.003
8000.0	0.627	37.437	10.889	939.376	0.253	0.020	2.702	0.277	0.086	0.004
8500.0	0.623	36.943	10.967	939.105	0.268	0.023	2.819	0.304	0.099	0.005
9000.0	0.620	36.453	11.044	938.833	0.283	0.025	2.930	0.332	0.112	0.006
9500.0	0.616	35.968	11.119	938.562	0.298	0.028	3.037	0.361	0.126	0.008
10000.0	0.613	35.487	11.194	938.290	0.313	0.031	3.138	0.390	0.141	0.009
10500.0	0.609	35.011	11.268	938.019	0.328	0.034	3.236	0.419	0.156	0.011
11000.0	0.606	34.540	11.341	937.747	0.343	0.037	3.328	0.449	0.171	0.012
11500.0	0.602	34.072	11.412	937.476	0.358	0.040	3.416	0.479	0.187	0.014
12000.0	0.599	33.609	11.483	937.204	0.372	0.043	3.500	0.509	0.204	0.016
12500.0	0.595	33.150	11.553	936.933	0.387	0.047	3.580	0.540	0.220	0.019
13000.0	0.592	32.695	11.622	936.662	0.401	0.050	3.656	0.571	0.237	0.021
13500.0	0.588	32.244	11.690	936.390	0.415	0.054	3.729	0.602	0.255	0.023
14000.0	0.585	31.797	11.757	936.119	0.429	0.058	3.797	0.634	0.272	0.026
14500.0	0.581	31.354	11.823	935.849	0.443	0.062	3.862	0.665	0.290	0.029
15000.0	0.578	30.914	11.889	935.578	0.457	0.066	3.923	0.697	0.308	0.032
15500.0	0.575	30.478	11.953	935.307	0.471	0.070	3.981	0.729	0.326	0.035
16000.0	0.571	30.045	12.017	935.037	0.485	0.074	4.036	0.761	0.344	0.039
16500.0	0.568	29.616	12.080	934.767	0.498	0.078	4.087	0.793	0.362	0.043
17000.0	0.565	29.190	12.142	934.497	0.512	0.083	4.135	0.826	0.380	0.046
17500.0	0.561	28.767	12.203	934.228	0.525	0.087	4.181	0.858	0.398	0.050
18000.0	0.558	28.348	12.264	933.958	0.538	0.092	4.223	0.890	0.416	0.055
18500.0	0.555	27.932	12.323	933.689	0.551	0.096	4.263	0.923	0.434	0.059
19000.0	0.552	27.519	12.382	933.419	0.564	0.101	4.300	0.955	0.452	0.064
19500.0	0.549	27.109	12.441	933.150	0.577	0.106	4.335	0.987	0.470	0.068
20000.0	0.545	26.703	12.498	932.880	0.590	0.111	4.368	1.020	0.488	0.073
20500.0	0.542	26.299	12.555	932.609	0.603	0.116	4.399	1.052	0.506	0.079
21000.0	0.539	25.899	12.611	932.338	0.615	0.121	4.428	1.084	0.523	0.084
21500.0	0.536	25.501	12.666	932.067	0.628	0.126	4.455	1.116	0.541	0.089
22000.0	0.533	25.107	12.720	931.794	0.641	0.131	4.480	1.148	0.559	0.095
22500.0	0.530	24.716	12.774	931.521	0.653	0.136	4.504	1.180	0.576	0.101
23000.0	0.526	24.329	12.827	931.247	0.666	0.142	4.526	1.212	0.594	0.107
23500.0	0.523	23.944	12.879	930.971	0.678	0.147	4.547	1.243	0.611	0.114
24000.0	0.520	23.563	12.930	930.694	0.690	0.153	4.566	1.275	0.629	0.120
25000.0	0.514	22.809	13.031	930.137	0.715	0.164	4.602	1.337	0.663	0.134
27500.0	0.498	20.983	13.268	928.719	0.776	0.195	4.672	1.488	0.748	0.172
30000.0	0.483	19.238	13.486	927.266	0.836	0.228	4.717	1.634	0.830	0.215
32500.0	0.468	17.574	13.684	925.777	0.894	0.263	4.741	1.774	0.906	0.263
35000.0	0.452	15.991	13.863	924.248	0.952	0.300	4.746	1.909	0.977	0.316
37500.0	0.437	14.490	14.022	922.679	1.007	0.339	4.735	2.036	1.042	0.375
40000.0	0.422	13.072	14.161	921.067	1.061	0.380	4.711	2.157	1.100	0.438
42500.0	0.407	11.736	14.281	919.411	1.113	0.422	4.677	2.269	1.151	0.506
45000.0	0.392	10.484	14.381	917.708	1.163	0.465	4.634	2.375	1.196	0.578
47500.0	0.377	9.316	14.461	915.957	1.210	0.509	4.585	2.471	1.234	0.654
50000.0	0.363	8.232	14.522	914.157	1.255	0.553	4.531	2.560	1.267	0.734
52500.0	0.348	7.232	14.563	912.304	1.298	0.597	4.474	2.641	1.293	0.818
55000.0	0.334	6.317	14.584	910.400	1.337	0.641	4.416	2.712	1.314	0.904
57500.0	0.320	5.483	14.587	908.443	1.374	0.684	4.357	2.776	1.330	0.994
60000.0	0.306	4.731	14.571	906.433	1.407	0.726	4.300	2.832	1.341	1.086
62500.0	0.293	4.058	14.537	904.371	1.438	0.765	4.245	2.880	1.349	1.180
65000.0	0.279	3.460	14.487	902.259	1.465	0.803	4.192	2.920	1.353	1.275
67500.0	0.267	2.934	14.421	900.097	1.489	0.839	4.143	2.954	1.355	1.371
70000.0	0.254	2.474	14.340	897.890	1.510	0.872	4.097	2.981	1.355	1.467

Table C.24 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.688	46.136	9.471	943.705	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.687	46.017	9.492	943.643	0.004	0.000	0.019	0.000	0.000	0.000
500.0	0.683	45.544	9.574	943.390	0.019	0.000	0.213	0.001	0.000	0.000
1000.0	0.679	44.962	9.674	943.074	0.038	0.000	0.472	0.007	0.000	0.000
1500.0	0.674	44.389	9.773	942.758	0.057	0.001	0.720	0.016	0.001	0.000
2000.0	0.670	43.824	9.870	942.442	0.076	0.002	0.958	0.028	0.003	0.000
2500.0	0.665	43.268	9.965	942.126	0.094	0.003	1.186	0.042	0.006	0.000
3000.0	0.661	42.719	10.058	941.810	0.113	0.004	1.404	0.059	0.010	0.000
3500.0	0.657	42.178	10.150	941.494	0.132	0.005	1.613	0.077	0.015	0.000
4000.0	0.652	41.644	10.241	941.178	0.150	0.007	1.813	0.097	0.021	0.000
4500.0	0.648	41.117	10.329	940.862	0.168	0.009	2.006	0.119	0.028	0.001
5000.0	0.644	40.597	10.417	940.546	0.187	0.011	2.191	0.142	0.037	0.001
5500.0	0.639	40.083	10.503	940.230	0.205	0.013	2.368	0.166	0.046	0.001
6000.0	0.635	39.575	10.587	939.914	0.223	0.015	2.538	0.191	0.057	0.002
6500.0	0.631	39.073	10.670	939.598	0.241	0.018	2.702	0.217	0.069	0.003
7000.0	0.627	38.577	10.752	939.282	0.258	0.021	2.859	0.244	0.081	0.003
7500.0	0.623	38.087	10.833	938.966	0.276	0.024	3.010	0.272	0.095	0.004
8000.0	0.618	37.602	10.912	938.650	0.294	0.027	3.154	0.300	0.110	0.005
8500.0	0.614	37.122	10.990	938.334	0.311	0.030	3.293	0.329	0.125	0.006
9000.0	0.610	36.648	11.067	938.018	0.328	0.034	3.427	0.359	0.141	0.008
9500.0	0.606	36.179	11.143	937.702	0.346	0.037	3.555	0.389	0.158	0.009
10000.0	0.602	35.715	11.217	937.386	0.363	0.041	3.677	0.420	0.175	0.011
10500.0	0.598	35.255	11.291	937.070	0.380	0.045	3.795	0.451	0.193	0.013
11000.0	0.594	34.801	11.363	936.755	0.397	0.049	3.908	0.482	0.211	0.014
11500.0	0.590	34.351	11.434	936.439	0.413	0.054	4.016	0.514	0.230	0.017
12000.0	0.587	33.905	11.504	936.124	0.430	0.058	4.120	0.547	0.249	0.019
12500.0	0.583	33.464	11.573	935.808	0.447	0.063	4.219	0.580	0.269	0.021
13000.0	0.579	33.028	11.641	935.493	0.463	0.067	4.314	0.613	0.289	0.024
13500.0	0.575	32.595	11.708	935.178	0.479	0.072	4.405	0.646	0.309	0.027
14000.0	0.571	32.167	11.774	934.864	0.495	0.077	4.491	0.679	0.329	0.030
14500.0	0.568	31.743	11.839	934.549	0.511	0.082	4.574	0.713	0.350	0.033
15000.0	0.564	31.322	11.903	934.235	0.527	0.088	4.653	0.747	0.371	0.036
15500.0	0.560	30.906	11.966	933.921	0.543	0.093	4.728	0.782	0.392	0.040
16000.0	0.556	30.493	12.028	933.607	0.558	0.099	4.800	0.816	0.413	0.043
16500.0	0.553	30.085	12.089	933.293	0.574	0.104	4.868	0.851	0.434	0.047
17000.0	0.549	29.680	12.150	932.980	0.589	0.110	4.932	0.885	0.455	0.051
17500.0	0.546	29.278	12.209	932.666	0.604	0.116	4.994	0.920	0.476	0.056
18000.0	0.542	28.880	12.267	932.354	0.619	0.122	5.052	0.955	0.497	0.060
18500.0	0.539	28.486	12.325	932.041	0.634	0.128	5.107	0.990	0.518	0.065
19000.0	0.535	28.094	12.382	931.728	0.649	0.134	5.159	1.025	0.539	0.069
19500.0	0.532	27.706	12.438	931.416	0.663	0.141	5.209	1.061	0.560	0.074
20000.0	0.528	27.322	12.493	931.103	0.678	0.147	5.256	1.096	0.581	0.080
20500.0	0.525	26.941	12.547	930.790	0.692	0.154	5.301	1.131	0.601	0.085
21000.0	0.521	26.563	12.601	930.477	0.707	0.160	5.343	1.166	0.622	0.090
21500.0	0.518	26.188	12.653	930.164	0.721	0.167	5.383	1.201	0.642	0.096
22000.0	0.514	25.816	12.705	929.850	0.735	0.174	5.421	1.236	0.663	0.102
22500.0	0.511	25.448	12.756	929.536	0.749	0.181	5.457	1.270	0.683	0.108
23000.0	0.508	25.083	12.806	929.221	0.763	0.188	5.492	1.305	0.704	0.114
23500.0	0.504	24.720	12.855	928.905	0.777	0.195	5.525	1.340	0.724	0.121
24000.0	0.501	24.362	12.904	928.588	0.790	0.203	5.556	1.374	0.744	0.127
24500.0	0.498	24.006	12.952	928.271	0.804	0.210	5.585	1.409	0.764	0.134
25000.0	0.494	23.653	12.999	927.952	0.818	0.218	5.614	1.443	0.784	0.141
25500.0	0.491	23.304	13.045	927.632	0.831	0.225	5.641	1.477	0.804	0.148
26000.0	0.488	22.958	13.090	927.311	0.845	0.233	5.666	1.511	0.823	0.156
26500.0	0.485	22.615	13.135	926.989	0.858	0.241	5.691	1.544	0.843	0.163
27500.0	0.478	21.939	13.221	926.341	0.885	0.257	5.736	1.611	0.882	0.179
30000.0	0.462	20.304	13.424	924.698	0.950	0.299	5.832	1.773	0.978	0.220
32500.0	0.446	18.747	13.607	923.024	1.014	0.344	5.903	1.930	1.070	0.267
35000.0	0.431	17.267	13.771	921.316	1.076	0.392	5.953	2.081	1.157	0.317
37500.0	0.416	15.864	13.916	919.575	1.136	0.441	5.985	2.226	1.238	0.371
40000.0	0.401	14.536	14.041	917.799	1.193	0.493	6.001	2.364	1.313	0.429
42500.0	0.386	13.283	14.148	915.988	1.248	0.546	6.004	2.495	1.383	0.491
45000.0	0.372	12.104	14.236	914.142	1.301	0.601	5.995	2.620	1.446	0.556
47500.0	0.358	10.998	14.306	912.259	1.351	0.656	5.977	2.736	1.503	0.624
50000.0	0.344	9.963	14.359	910.340	1.398	0.712	5.951	2.846	1.555	0.696
52500.0	0.331	8.998	14.394	908.385	1.443	0.769	5.918	2.948	1.600	0.769
55000.0	0.318	8.102	14.413	906.394	1.485	0.825	5.881	3.042	1.641	0.846
57500.0	0.305	7.273	14.415	904.366	1.524	0.881	5.840	3.129	1.676	0.924
60000.0	0.293	6.508	14.402	902.303	1.560	0.936	5.797	3.208	1.706	1.004
62500.0	0.281	5.806	14.374	900.205	1.593	0.990	5.753	3.280	1.731	1.086
65000.0	0.269	5.165	14.331	898.073	1.623	1.042	5.708	3.345	1.753	1.170
67500.0	0.258	4.581	14.275	895.908	1.650	1.093	5.663	3.403	1.771	1.255
70000.0	0.247	4.051	14.207	893.712	1.675	1.141	5.619	3.455	1.785	1.341

Table C.25 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.688	46.136	9.471	943.705	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.687	46.016	9.491	943.660	0.003	0.000	0.014	0.000	0.000	0.000
500.0	0.684	45.538	9.568	943.477	0.014	0.000	0.157	0.001	0.000	0.000
1000.0	0.681	44.948	9.664	943.247	0.027	0.000	0.349	0.005	0.000	0.000
1500.0	0.678	44.364	9.758	943.017	0.041	0.001	0.532	0.012	0.001	0.000
2000.0	0.674	43.787	9.851	942.786	0.055	0.001	0.708	0.021	0.002	0.000
2500.0	0.671	43.216	9.943	942.555	0.068	0.002	0.877	0.032	0.003	0.000
3000.0	0.667	42.651	10.033	942.324	0.082	0.002	1.038	0.045	0.005	0.000
3500.0	0.664	42.092	10.122	942.093	0.095	0.003	1.192	0.060	0.008	0.000
4000.0	0.661	41.539	10.210	941.862	0.109	0.004	1.340	0.077	0.011	0.000
4500.0	0.657	40.991	10.297	941.630	0.122	0.005	1.482	0.095	0.016	0.000
5000.0	0.654	40.449	10.383	941.398	0.136	0.006	1.617	0.114	0.021	0.001
5500.0	0.651	39.911	10.468	941.166	0.149	0.007	1.747	0.134	0.026	0.001
6000.0	0.647	39.379	10.551	940.934	0.162	0.009	1.871	0.155	0.033	0.001
6500.0	0.644	38.852	10.634	940.701	0.176	0.010	1.990	0.178	0.040	0.002
7000.0	0.641	38.329	10.715	940.469	0.189	0.012	2.103	0.201	0.048	0.002
7500.0	0.637	37.811	10.796	940.236	0.202	0.013	2.212	0.225	0.057	0.003
8000.0	0.634	37.298	10.875	940.003	0.215	0.015	2.315	0.249	0.066	0.003
8500.0	0.631	36.789	10.954	939.770	0.228	0.017	2.414	0.275	0.076	0.004
9000.0	0.628	36.284	11.032	939.537	0.241	0.019	2.508	0.300	0.086	0.005
9500.0	0.624	35.784	11.108	939.303	0.254	0.021	2.598	0.327	0.097	0.006
10000.0	0.621	35.287	11.184	939.070	0.267	0.023	2.684	0.353	0.109	0.007
10500.0	0.618	34.795	11.259	938.836	0.280	0.025	2.765	0.381	0.121	0.009
11000.0	0.615	34.307	11.333	938.603	0.292	0.028	2.842	0.408	0.134	0.010
11500.0	0.612	33.822	11.406	938.369	0.305	0.030	2.916	0.436	0.146	0.012
12000.0	0.608	33.342	11.479	938.136	0.318	0.033	2.986	0.465	0.160	0.013
12500.0	0.605	32.865	11.550	937.902	0.330	0.035	3.052	0.493	0.173	0.015
13000.0	0.602	32.391	11.621	937.668	0.343	0.038	3.115	0.522	0.187	0.017
13500.0	0.599	31.922	11.691	937.435	0.355	0.041	3.174	0.551	0.201	0.019
14000.0	0.596	31.455	11.760	937.201	0.367	0.044	3.229	0.581	0.215	0.022
14500.0	0.593	30.993	11.828	936.968	0.379	0.047	3.282	0.610	0.230	0.024
15000.0	0.590	30.533	11.896	936.735	0.391	0.050	3.331	0.640	0.245	0.027
15500.0	0.587	30.077	11.962	936.502	0.403	0.053	3.377	0.670	0.259	0.030
16000.0	0.584	29.624	12.029	936.269	0.415	0.056	3.421	0.700	0.274	0.033
16500.0	0.581	29.174	12.094	936.036	0.427	0.059	3.461	0.730	0.289	0.036
17000.0	0.578	28.727	12.159	935.803	0.438	0.063	3.499	0.760	0.304	0.039
17500.0	0.575	28.283	12.222	935.570	0.450	0.066	3.534	0.791	0.319	0.043
18000.0	0.572	27.843	12.286	935.338	0.461	0.069	3.567	0.821	0.334	0.046
18500.0	0.569	27.405	12.348	935.105	0.473	0.073	3.597	0.852	0.349	0.050
19000.0	0.566	26.970	12.410	934.871	0.484	0.076	3.625	0.882	0.363	0.054
19500.0	0.563	26.538	12.471	934.638	0.495	0.080	3.651	0.912	0.378	0.059
20000.0	0.560	26.109	12.531	934.403	0.506	0.084	3.676	0.942	0.393	0.063
20500.0	0.557	25.684	12.591	934.168	0.517	0.088	3.698	0.973	0.408	0.068
21000.0	0.554	25.261	12.650	933.932	0.529	0.092	3.719	1.003	0.423	0.072
21500.0	0.551	24.841	12.708	933.694	0.540	0.096	3.739	1.033	0.438	0.077
22000.0	0.548	24.424	12.766	933.456	0.551	0.100	3.757	1.063	0.453	0.083
22500.0	0.545	24.011	12.823	933.216	0.562	0.104	3.774	1.093	0.467	0.088
25000.0	0.530	21.992	13.095	931.996	0.617	0.126	3.842	1.239	0.542	0.118
27500.0	0.515	20.054	13.349	930.739	0.671	0.150	3.883	1.381	0.613	0.154
30000.0	0.500	18.198	13.584	929.442	0.725	0.176	3.902	1.519	0.682	0.195
32500.0	0.485	16.426	13.799	928.103	0.779	0.204	3.901	1.652	0.745	0.242
35000.0	0.470	14.740	13.995	926.717	0.831	0.233	3.884	1.779	0.802	0.295
37500.0	0.455	13.142	14.170	925.283	0.882	0.265	3.854	1.899	0.854	0.353
40000.0	0.439	11.636	14.325	923.794	0.931	0.298	3.813	2.012	0.900	0.418
42500.0	0.424	10.224	14.458	922.248	0.979	0.332	3.764	2.117	0.939	0.488
45000.0	0.408	8.910	14.569	920.641	1.025	0.367	3.709	2.215	0.971	0.564
47500.0	0.392	7.696	14.658	918.969	1.069	0.403	3.650	2.303	0.998	0.645
50000.0	0.376	6.584	14.724	917.227	1.111	0.439	3.589	2.383	1.019	0.732
52500.0	0.360	5.578	14.767	915.413	1.150	0.474	3.528	2.453	1.034	0.823
55000.0	0.344	4.677	14.786	913.526	1.186	0.509	3.469	2.515	1.045	0.919
57500.0	0.329	3.881	14.783	911.563	1.220	0.542	3.413	2.567	1.052	1.019
60000.0	0.313	3.187	14.757	909.526	1.250	0.574	3.361	2.611	1.055	1.122
62500.0	0.297	2.591	14.711	907.416	1.276	0.604	3.313	2.646	1.056	1.227
65000.0	0.282	2.088	14.645	905.238	1.299	0.632	3.270	2.675	1.055	1.334
67500.0	0.267	1.668	14.562	902.998	1.319	0.656	3.233	2.696	1.052	1.442
70000.0	0.253	1.323	14.463	900.701	1.336	0.678	3.200	2.712	1.049	1.550

Table C.26 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.688	46.136	9.471	943.705	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.687	46.016	9.491	943.653	0.003	0.000	0.016	0.000	0.000	0.000
500.0	0.684	45.540	9.570	943.442	0.016	0.000	0.180	0.001	0.000	0.000
1000.0	0.680	44.953	9.668	943.178	0.032	0.000	0.398	0.006	0.000	0.000
1500.0	0.676	44.373	9.764	942.913	0.048	0.001	0.608	0.013	0.001	0.000
2000.0	0.672	43.801	9.858	942.648	0.063	0.001	0.809	0.024	0.002	0.000
2500.0	0.669	43.236	9.951	942.383	0.079	0.002	1.001	0.036	0.004	0.000
3000.0	0.665	42.677	10.043	942.118	0.095	0.003	1.185	0.051	0.007	0.000
3500.0	0.661	42.126	10.133	941.853	0.110	0.004	1.361	0.068	0.010	0.000
4000.0	0.657	41.580	10.222	941.588	0.126	0.005	1.530	0.086	0.015	0.000
4500.0	0.654	41.041	10.309	941.323	0.141	0.006	1.691	0.106	0.020	0.001
5000.0	0.650	40.508	10.395	941.057	0.157	0.008	1.846	0.127	0.027	0.001
5500.0	0.646	39.980	10.480	940.792	0.172	0.009	1.994	0.149	0.034	0.001
6000.0	0.643	39.458	10.564	940.526	0.188	0.011	2.136	0.172	0.042	0.002
6500.0	0.639	38.941	10.647	940.260	0.203	0.013	2.272	0.196	0.051	0.002
7000.0	0.635	38.430	10.728	939.994	0.218	0.015	2.402	0.221	0.061	0.003
7500.0	0.632	37.924	10.808	939.728	0.233	0.017	2.526	0.247	0.072	0.003
8000.0	0.628	37.423	10.887	939.462	0.248	0.019	2.645	0.273	0.084	0.004
8500.0	0.624	36.926	10.965	939.196	0.263	0.022	2.758	0.300	0.096	0.005
9000.0	0.621	36.435	11.042	938.930	0.278	0.024	2.867	0.328	0.109	0.006
9500.0	0.617	35.948	11.118	938.664	0.292	0.027	2.971	0.356	0.122	0.007
10000.0	0.614	35.465	11.193	938.398	0.307	0.030	3.070	0.384	0.136	0.009
10500.0	0.610	34.987	11.267	938.132	0.322	0.033	3.164	0.413	0.151	0.010
11000.0	0.607	34.513	11.340	937.867	0.336	0.036	3.254	0.443	0.166	0.012
11500.0	0.603	34.044	11.412	937.601	0.350	0.039	3.340	0.473	0.181	0.014
12000.0	0.600	33.579	11.483	937.335	0.365	0.042	3.422	0.503	0.197	0.016
12500.0	0.596	33.117	11.553	937.069	0.379	0.045	3.499	0.533	0.214	0.018
13000.0	0.593	32.660	11.623	936.804	0.393	0.049	3.573	0.564	0.230	0.020
13500.0	0.590	32.206	11.691	936.538	0.407	0.052	3.643	0.595	0.247	0.023
14000.0	0.586	31.757	11.758	936.273	0.421	0.056	3.709	0.626	0.264	0.026
14500.0	0.583	31.311	11.825	936.008	0.434	0.060	3.771	0.657	0.281	0.028
15000.0	0.580	30.868	11.890	935.743	0.448	0.063	3.830	0.689	0.298	0.031
15500.0	0.576	30.429	11.955	935.478	0.461	0.067	3.886	0.720	0.316	0.035
16000.0	0.573	29.994	12.019	935.214	0.475	0.071	3.939	0.752	0.333	0.038
16500.0	0.570	29.562	12.083	934.950	0.488	0.075	3.988	0.784	0.351	0.042
17000.0	0.566	29.133	12.145	934.686	0.501	0.080	4.034	0.816	0.368	0.045
17500.0	0.563	28.708	12.207	934.422	0.514	0.084	4.078	0.848	0.386	0.049
18000.0	0.560	28.285	12.268	934.158	0.527	0.088	4.118	0.880	0.404	0.053
18500.0	0.557	27.866	12.328	933.895	0.540	0.093	4.156	0.912	0.421	0.058
19000.0	0.554	27.450	12.387	933.631	0.553	0.097	4.192	0.944	0.439	0.062
19500.0	0.550	27.037	12.446	933.367	0.565	0.102	4.225	0.976	0.456	0.067
20000.0	0.547	26.627	12.504	933.103	0.578	0.107	4.256	1.008	0.473	0.072
20500.0	0.544	26.220	12.561	932.838	0.590	0.111	4.285	1.040	0.491	0.077
21000.0	0.541	25.816	12.618	932.573	0.603	0.116	4.312	1.072	0.508	0.082
21500.0	0.538	25.416	12.674	932.307	0.615	0.121	4.338	1.104	0.525	0.088
22000.0	0.535	25.018	12.728	932.040	0.627	0.126	4.362	1.136	0.542	0.093
22500.0	0.532	24.624	12.783	931.772	0.640	0.131	4.384	1.167	0.559	0.099
23000.0	0.529	24.233	12.836	931.503	0.652	0.137	4.405	1.198	0.576	0.105
23500.0	0.525	23.845	12.889	931.232	0.664	0.142	4.425	1.230	0.593	0.112
25000.0	0.516	22.701	13.042	930.413	0.700	0.158	4.477	1.322	0.644	0.132
27500.0	0.501	20.858	13.282	929.021	0.760	0.188	4.542	1.472	0.727	0.169
30000.0	0.485	19.096	13.503	927.592	0.819	0.220	4.582	1.616	0.807	0.212
32500.0	0.470	17.416	13.704	926.126	0.877	0.254	4.600	1.755	0.881	0.260
35000.0	0.455	15.818	13.885	924.621	0.934	0.290	4.601	1.888	0.949	0.313
37500.0	0.439	14.302	14.047	923.074	0.989	0.328	4.586	2.015	1.011	0.371
40000.0	0.424	12.870	14.189	921.483	1.042	0.367	4.559	2.134	1.067	0.434
42500.0	0.409	11.521	14.311	919.846	1.093	0.408	4.521	2.246	1.116	0.502
45000.0	0.394	10.258	14.413	918.161	1.142	0.450	4.475	2.350	1.159	0.575
47500.0	0.379	9.081	14.495	916.426	1.189	0.492	4.423	2.445	1.195	0.651
50000.0	0.365	7.990	14.557	914.638	1.234	0.535	4.367	2.532	1.225	0.732
52500.0	0.350	6.986	14.599	912.797	1.275	0.578	4.308	2.611	1.249	0.817
55000.0	0.336	6.069	14.621	910.900	1.314	0.620	4.248	2.681	1.268	0.905
57500.0	0.321	5.237	14.624	908.948	1.350	0.662	4.189	2.743	1.282	0.995
60000.0	0.307	4.489	14.607	906.941	1.383	0.702	4.131	2.797	1.292	1.089
62500.0	0.293	3.823	14.573	904.878	1.413	0.740	4.076	2.843	1.298	1.184
65000.0	0.280	3.234	14.521	902.762	1.440	0.776	4.023	2.881	1.301	1.280
67500.0	0.267	2.720	14.453	900.595	1.463	0.810	3.975	2.913	1.302	1.378
70000.0	0.254	2.274	14.370	898.380	1.483	0.841	3.930	2.938	1.300	1.476

Table C.27 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.688	46.136	9.471	943.705	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.687	46.017	9.492	943.643	0.004	0.000	0.019	0.000	0.000	0.000
500.0	0.683	45.544	9.573	943.393	0.019	0.000	0.210	0.001	0.000	0.000
1000.0	0.679	44.962	9.674	943.080	0.038	0.000	0.467	0.007	0.000	0.000
1500.0	0.674	44.389	9.772	942.767	0.056	0.001	0.712	0.016	0.001	0.000
2000.0	0.670	43.825	9.869	942.454	0.075	0.002	0.947	0.027	0.003	0.000
2500.0	0.666	43.268	9.964	942.142	0.094	0.003	1.172	0.042	0.006	0.000
3000.0	0.661	42.719	10.057	941.829	0.112	0.004	1.388	0.058	0.009	0.000
3500.0	0.657	42.178	10.149	941.516	0.130	0.005	1.595	0.076	0.014	0.000
4000.0	0.653	41.644	10.239	941.203	0.149	0.007	1.793	0.096	0.020	0.000
4500.0	0.648	41.116	10.328	940.890	0.167	0.009	1.983	0.118	0.028	0.001
5000.0	0.644	40.596	10.415	940.578	0.185	0.011	2.166	0.141	0.036	0.001
5500.0	0.640	40.081	10.501	940.265	0.203	0.013	2.341	0.165	0.045	0.001
6000.0	0.636	39.573	10.585	939.952	0.221	0.015	2.509	0.190	0.056	0.002
6500.0	0.631	39.070	10.668	939.639	0.238	0.018	2.670	0.215	0.068	0.003
7000.0	0.627	38.574	10.750	939.326	0.256	0.020	2.825	0.242	0.080	0.003
7500.0	0.623	38.083	10.831	939.014	0.274	0.023	2.974	0.270	0.094	0.004
8000.0	0.619	37.597	10.910	938.701	0.291	0.026	3.117	0.298	0.108	0.005
8500.0	0.615	37.117	10.988	938.388	0.308	0.030	3.254	0.327	0.123	0.006
9000.0	0.611	36.642	11.065	938.076	0.326	0.033	3.385	0.356	0.139	0.008
9500.0	0.607	36.172	11.141	937.763	0.343	0.037	3.511	0.386	0.155	0.009
10000.0	0.603	35.707	11.215	937.451	0.360	0.040	3.632	0.417	0.172	0.011
10500.0	0.599	35.246	11.289	937.138	0.376	0.044	3.748	0.448	0.190	0.012
11000.0	0.595	34.791	11.361	936.826	0.393	0.048	3.859	0.479	0.208	0.014
11500.0	0.591	34.340	11.432	936.514	0.410	0.053	3.965	0.511	0.227	0.016
12000.0	0.587	33.893	11.502	936.202	0.426	0.057	4.067	0.543	0.246	0.019
12500.0	0.584	33.451	11.571	935.890	0.443	0.061	4.164	0.576	0.265	0.021
13000.0	0.580	33.014	11.639	935.578	0.459	0.066	4.257	0.609	0.285	0.024
13500.0	0.576	32.580	11.707	935.267	0.475	0.071	4.346	0.642	0.305	0.026
14000.0	0.572	32.151	11.773	934.956	0.491	0.076	4.431	0.675	0.325	0.029
14500.0	0.568	31.725	11.838	934.645	0.507	0.081	4.512	0.709	0.345	0.032
15000.0	0.565	31.304	11.902	934.334	0.522	0.086	4.589	0.743	0.366	0.036
15500.0	0.561	30.886	11.965	934.023	0.538	0.091	4.663	0.777	0.386	0.039
16000.0	0.557	30.472	12.027	933.713	0.553	0.097	4.733	0.811	0.407	0.043
16500.0	0.554	30.062	12.088	933.403	0.569	0.102	4.799	0.845	0.428	0.047
17000.0	0.550	29.656	12.149	933.093	0.584	0.108	4.862	0.880	0.449	0.051
17500.0	0.547	29.253	12.208	932.784	0.599	0.114	4.922	0.915	0.469	0.055
18000.0	0.543	28.853	12.267	932.474	0.614	0.120	4.978	0.949	0.490	0.059
18500.0	0.540	28.457	12.325	932.165	0.629	0.126	5.032	0.984	0.511	0.064
19000.0	0.536	28.064	12.382	931.856	0.643	0.132	5.083	1.019	0.531	0.069
19500.0	0.533	27.675	12.438	931.548	0.658	0.138	5.131	1.054	0.552	0.074
20000.0	0.529	27.289	12.493	931.239	0.672	0.144	5.176	1.089	0.573	0.079
20500.0	0.526	26.906	12.548	930.930	0.686	0.151	5.219	1.124	0.593	0.084
21000.0	0.522	26.526	12.601	930.620	0.700	0.157	5.260	1.159	0.613	0.090
21500.0	0.519	26.150	12.654	930.311	0.714	0.164	5.299	1.193	0.634	0.095
22000.0	0.516	25.777	12.706	930.000	0.728	0.171	5.336	1.228	0.654	0.101
22500.0	0.512	25.406	12.757	929.690	0.742	0.178	5.371	1.263	0.674	0.107
23000.0	0.509	25.040	12.808	929.378	0.756	0.185	5.404	1.297	0.694	0.114
23500.0	0.506	24.676	12.857	929.066	0.770	0.192	5.435	1.331	0.714	0.120
24000.0	0.502	24.315	12.906	928.752	0.783	0.199	5.465	1.365	0.734	0.126
24500.0	0.499	23.958	12.954	928.438	0.797	0.206	5.494	1.399	0.753	0.133
25000.0	0.496	23.604	13.001	928.122	0.811	0.214	5.521	1.433	0.773	0.140
25500.0	0.493	23.253	13.048	927.806	0.824	0.221	5.547	1.467	0.793	0.147
26000.0	0.489	22.905	13.093	927.488	0.837	0.229	5.571	1.501	0.812	0.155
27500.0	0.480	21.881	13.225	926.528	0.877	0.252	5.638	1.600	0.870	0.178
30000.0	0.464	20.237	13.429	924.901	0.942	0.294	5.729	1.761	0.965	0.219
32500.0	0.448	18.672	13.614	923.242	1.006	0.338	5.795	1.916	1.055	0.266
35000.0	0.432	17.184	13.779	921.550	1.067	0.385	5.841	2.066	1.140	0.316
37500.0	0.417	15.773	13.925	919.824	1.127	0.434	5.868	2.209	1.220	0.370
40000.0	0.402	14.437	14.051	918.063	1.184	0.484	5.880	2.346	1.294	0.429
42500.0	0.387	13.177	14.159	916.266	1.239	0.537	5.879	2.476	1.362	0.491
45000.0	0.373	11.992	14.249	914.433	1.291	0.590	5.866	2.598	1.423	0.556
47500.0	0.359	10.880	14.320	912.564	1.341	0.645	5.844	2.714	1.479	0.625
50000.0	0.345	9.840	14.374	910.657	1.389	0.700	5.815	2.821	1.529	0.696
52500.0	0.332	8.870	14.410	908.713	1.433	0.756	5.779	2.922	1.573	0.771
55000.0	0.319	7.971	14.429	906.732	1.475	0.811	5.739	3.014	1.611	0.848
57500.0	0.306	7.139	14.432	904.714	1.514	0.866	5.696	3.099	1.644	0.927
60000.0	0.294	6.373	14.419	902.659	1.550	0.920	5.650	3.176	1.673	1.008
62500.0	0.282	5.671	14.390	900.568	1.583	0.973	5.604	3.246	1.697	1.090
65000.0	0.270	5.030	14.348	898.442	1.612	1.024	5.557	3.309	1.716	1.175
67500.0	0.259	4.448	14.292	896.282	1.639	1.073	5.511	3.365	1.732	1.260
70000.0	0.248	3.921	14.222	894.090	1.664	1.120	5.466	3.414	1.745	1.347

Table C.28 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.662	44.804	9.024	945.510	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.662	44.684	9.043	945.464	0.003	0.000	0.014	0.000	0.000	0.000
500.0	0.659	44.207	9.121	945.280	0.013	0.000	0.158	0.001	0.000	0.000
1000.0	0.656	43.617	9.216	945.050	0.026	0.000	0.350	0.005	0.000	0.000
1500.0	0.652	43.034	9.310	944.820	0.039	0.001	0.533	0.012	0.001	0.000
2000.0	0.649	42.458	9.403	944.590	0.053	0.001	0.708	0.022	0.002	0.000
2500.0	0.646	41.889	9.495	944.361	0.066	0.001	0.874	0.033	0.003	0.000
3000.0	0.642	41.325	9.585	944.131	0.078	0.002	1.032	0.047	0.005	0.000
3500.0	0.639	40.767	9.674	943.903	0.091	0.003	1.183	0.063	0.008	0.000
4000.0	0.636	40.216	9.761	943.675	0.104	0.004	1.327	0.080	0.012	0.000
4500.0	0.633	39.669	9.848	943.447	0.117	0.005	1.464	0.098	0.016	0.000
5000.0	0.629	39.128	9.933	943.220	0.129	0.006	1.594	0.118	0.021	0.001
5500.0	0.626	38.592	10.018	942.993	0.142	0.007	1.718	0.139	0.027	0.001
6000.0	0.623	38.061	10.101	942.767	0.154	0.008	1.835	0.160	0.033	0.001
6500.0	0.620	37.534	10.183	942.542	0.166	0.010	1.947	0.183	0.040	0.002
7000.0	0.617	37.012	10.265	942.317	0.179	0.011	2.053	0.207	0.048	0.002
7500.0	0.614	36.494	10.345	942.093	0.191	0.012	2.154	0.231	0.056	0.003
8000.0	0.611	35.980	10.424	941.870	0.203	0.014	2.249	0.256	0.065	0.003
8500.0	0.608	35.471	10.503	941.647	0.215	0.016	2.339	0.281	0.075	0.004
9000.0	0.605	34.965	10.580	941.426	0.226	0.018	2.425	0.307	0.085	0.005
9500.0	0.602	34.463	10.657	941.204	0.238	0.019	2.506	0.334	0.095	0.006
10000.0	0.599	33.965	10.733	940.984	0.249	0.021	2.582	0.360	0.106	0.007
10500.0	0.596	33.471	10.808	940.763	0.261	0.023	2.655	0.388	0.117	0.008
11000.0	0.593	32.980	10.882	940.543	0.272	0.025	2.724	0.415	0.129	0.010
11500.0	0.590	32.492	10.955	940.322	0.284	0.028	2.790	0.443	0.140	0.011
12000.0	0.587	32.008	11.028	940.101	0.295	0.030	2.852	0.471	0.153	0.013
12500.0	0.584	31.528	11.100	939.880	0.306	0.032	2.912	0.499	0.165	0.015
13000.0	0.581	31.052	11.171	939.658	0.317	0.034	2.968	0.528	0.178	0.017
13500.0	0.578	30.578	11.241	939.435	0.329	0.037	3.022	0.557	0.191	0.019
14000.0	0.576	30.109	11.310	939.211	0.340	0.039	3.074	0.586	0.205	0.021
14500.0	0.573	29.643	11.379	938.985	0.351	0.042	3.123	0.615	0.219	0.023
15000.0	0.570	29.180	11.447	938.759	0.362	0.045	3.170	0.644	0.233	0.026
17500.0	0.555	26.921	11.774	937.610	0.418	0.060	3.374	0.791	0.306	0.042
20000.0	0.541	24.749	12.081	936.428	0.475	0.077	3.530	0.940	0.382	0.062
22500.0	0.526	22.664	12.368	935.213	0.531	0.096	3.646	1.088	0.459	0.087
25000.0	0.511	20.666	12.636	933.961	0.586	0.118	3.727	1.234	0.534	0.119
27500.0	0.496	18.754	12.884	932.671	0.642	0.142	3.779	1.378	0.606	0.155
30000.0	0.481	16.931	13.112	931.337	0.696	0.167	3.805	1.518	0.674	0.198
32500.0	0.466	15.197	13.320	929.959	0.750	0.195	3.810	1.652	0.737	0.247
35000.0	0.451	13.555	13.507	928.531	0.802	0.225	3.797	1.781	0.794	0.302
37500.0	0.436	12.007	13.672	927.049	0.853	0.256	3.770	1.903	0.845	0.363
40000.0	0.420	10.555	13.816	925.511	0.903	0.289	3.731	2.018	0.890	0.430
42500.0	0.405	9.204	13.938	923.911	0.951	0.323	3.684	2.124	0.928	0.503
45000.0	0.389	7.954	14.037	922.246	0.997	0.358	3.631	2.222	0.959	0.582
47500.0	0.373	6.810	14.113	920.512	1.040	0.394	3.575	2.311	0.985	0.667
50000.0	0.358	5.773	14.165	918.706	1.081	0.429	3.517	2.390	1.005	0.757
52500.0	0.342	4.843	14.194	916.824	1.120	0.464	3.460	2.460	1.020	0.851
55000.0	0.326	4.020	14.199	914.867	1.155	0.498	3.405	2.520	1.030	0.950
57500.0	0.311	3.303	14.182	912.834	1.187	0.531	3.353	2.570	1.037	1.053
60000.0	0.295	2.686	14.144	910.728	1.216	0.562	3.306	2.612	1.040	1.158
62500.0	0.280	2.164	14.086	908.551	1.241	0.591	3.263	2.646	1.042	1.266
65000.0	0.265	1.728	14.009	906.311	1.263	0.617	3.226	2.672	1.041	1.375
67500.0	0.251	1.370	13.917	904.012	1.281	0.640	3.193	2.693	1.039	1.484
70000.0	0.237	1.080	13.811	901.663	1.297	0.661	3.166	2.707	1.036	1.593

Table C.29 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.662	44.804	9.024	945.510	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.661	44.685	9.044	945.458	0.003	0.000	0.016	0.000	0.000	0.000
500.0	0.658	44.209	9.123	945.246	0.015	0.000	0.180	0.001	0.000	0.000
1000.0	0.655	43.622	9.220	944.982	0.031	0.000	0.398	0.006	0.000	0.000
1500.0	0.651	43.044	9.316	944.719	0.046	0.001	0.607	0.014	0.001	0.000
2000.0	0.647	42.473	9.410	944.456	0.061	0.001	0.805	0.025	0.002	0.000
2500.0	0.644	41.909	9.503	944.193	0.076	0.002	0.994	0.038	0.004	0.000
3000.0	0.640	41.352	9.594	943.931	0.091	0.003	1.174	0.053	0.007	0.000
3500.0	0.636	40.802	9.683	943.670	0.106	0.004	1.345	0.070	0.011	0.000
4000.0	0.633	40.258	9.772	943.410	0.120	0.005	1.508	0.089	0.015	0.000
4500.0	0.629	39.721	9.859	943.150	0.135	0.006	1.663	0.110	0.021	0.001
5000.0	0.626	39.189	9.944	942.890	0.150	0.007	1.811	0.131	0.027	0.001
5500.0	0.622	38.662	10.029	942.632	0.164	0.009	1.952	0.154	0.035	0.001
6000.0	0.619	38.142	10.112	942.374	0.178	0.011	2.085	0.178	0.043	0.002
6500.0	0.615	37.626	10.194	942.117	0.192	0.012	2.213	0.202	0.052	0.002
7000.0	0.612	37.115	10.275	941.860	0.206	0.014	2.333	0.228	0.061	0.003
7500.0	0.608	36.610	10.355	941.605	0.220	0.016	2.448	0.254	0.072	0.003
8000.0	0.605	36.109	10.434	941.350	0.234	0.018	2.557	0.281	0.083	0.004
8500.0	0.602	35.612	10.512	941.096	0.248	0.020	2.661	0.308	0.095	0.005
9000.0	0.598	35.120	10.588	940.843	0.261	0.023	2.759	0.336	0.107	0.006
9500.0	0.595	34.632	10.664	940.591	0.274	0.025	2.852	0.364	0.120	0.008
10000.0	0.592	34.147	10.739	940.339	0.288	0.027	2.941	0.393	0.133	0.009
10500.0	0.589	33.667	10.813	940.088	0.301	0.030	3.025	0.422	0.146	0.010
11000.0	0.586	33.191	10.886	939.837	0.314	0.033	3.105	0.451	0.160	0.012
11500.0	0.582	32.719	10.958	939.586	0.327	0.035	3.181	0.481	0.175	0.014
12000.0	0.579	32.251	11.029	939.335	0.339	0.038	3.253	0.511	0.189	0.016
12500.0	0.576	31.786	11.099	939.084	0.352	0.041	3.322	0.541	0.205	0.018
13000.0	0.573	31.325	11.169	938.832	0.365	0.044	3.388	0.571	0.220	0.020
13500.0	0.570	30.868	11.237	938.579	0.378	0.047	3.451	0.602	0.236	0.022
14000.0	0.567	30.415	11.305	938.326	0.391	0.051	3.512	0.633	0.252	0.025
14500.0	0.563	29.965	11.372	938.071	0.403	0.054	3.569	0.663	0.268	0.028
15000.0	0.560	29.520	11.438	937.816	0.416	0.057	3.624	0.694	0.284	0.031
15500.0	0.557	29.077	11.503	937.560	0.429	0.061	3.677	0.725	0.301	0.034
16000.0	0.554	28.639	11.567	937.302	0.441	0.065	3.728	0.756	0.318	0.037
17500.0	0.545	27.346	11.754	936.522	0.479	0.076	3.866	0.850	0.369	0.048
20000.0	0.529	25.263	12.050	935.198	0.542	0.098	4.058	1.006	0.458	0.071
22500.0	0.514	23.269	12.326	933.841	0.604	0.122	4.206	1.160	0.546	0.099
25000.0	0.498	21.363	12.581	932.450	0.666	0.148	4.317	1.313	0.633	0.132
27500.0	0.483	19.544	12.815	931.024	0.726	0.177	4.396	1.463	0.716	0.170
30000.0	0.467	17.812	13.029	929.560	0.786	0.209	4.446	1.608	0.795	0.215
32500.0	0.452	16.167	13.222	928.057	0.844	0.243	4.473	1.749	0.869	0.264
35000.0	0.437	14.608	13.396	926.511	0.900	0.278	4.480	1.883	0.936	0.319
37500.0	0.422	13.137	13.548	924.921	0.956	0.316	4.471	2.011	0.997	0.379
40000.0	0.407	11.753	13.680	923.285	1.009	0.355	4.447	2.131	1.052	0.445
42500.0	0.392	10.458	13.792	921.601	1.060	0.396	4.413	2.244	1.100	0.515
45000.0	0.377	9.251	13.883	919.865	1.109	0.437	4.370	2.349	1.141	0.590
47500.0	0.362	8.134	13.954	918.076	1.155	0.480	4.321	2.445	1.176	0.670
50000.0	0.348	7.107	14.004	916.233	1.199	0.522	4.268	2.532	1.205	0.753
52500.0	0.333	6.168	14.034	914.334	1.240	0.564	4.212	2.610	1.229	0.840
55000.0	0.319	5.318	14.044	912.379	1.278	0.606	4.157	2.680	1.247	0.930
57500.0	0.305	4.554	14.034	910.367	1.313	0.646	4.102	2.740	1.260	1.023
60000.0	0.291	3.874	14.006	908.299	1.345	0.685	4.048	2.793	1.270	1.119
62500.0	0.277	3.274	13.960	906.177	1.373	0.722	3.998	2.837	1.276	1.216
65000.0	0.264	2.750	13.898	904.002	1.398	0.757	3.951	2.874	1.279	1.314
67500.0	0.251	2.296	13.821	901.779	1.420	0.789	3.908	2.904	1.280	1.413
70000.0	0.239	1.907	13.730	899.511	1.439	0.818	3.868	2.928	1.279	1.512

Table C.30 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.662	44.804	9.024	945.510	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.661	44.685	9.044	945.448	0.004	0.000	0.019	0.000	0.000	0.000
500.0	0.658	44.213	9.126	945.199	0.018	0.000	0.210	0.002	0.000	0.000
1000.0	0.653	43.632	9.226	944.888	0.036	0.000	0.464	0.007	0.000	0.000
1500.0	0.649	43.060	9.324	944.578	0.054	0.001	0.707	0.016	0.001	0.000
2000.0	0.645	42.497	9.420	944.268	0.072	0.002	0.938	0.029	0.003	0.000
2500.0	0.641	41.942	9.515	943.959	0.090	0.003	1.158	0.043	0.006	0.000
3000.0	0.636	41.395	9.608	943.651	0.107	0.004	1.367	0.060	0.010	0.000
3500.0	0.632	40.856	9.699	943.344	0.125	0.005	1.567	0.079	0.015	0.000
4000.0	0.628	40.323	9.788	943.037	0.142	0.007	1.758	0.100	0.021	0.000
4500.0	0.624	39.798	9.876	942.731	0.159	0.008	1.940	0.122	0.028	0.001
5000.0	0.620	39.279	9.963	942.426	0.176	0.010	2.114	0.146	0.037	0.001
5500.0	0.616	38.766	10.048	942.122	0.193	0.012	2.280	0.171	0.046	0.002
6000.0	0.612	38.259	10.132	941.819	0.210	0.014	2.438	0.196	0.057	0.002
6500.0	0.608	37.759	10.215	941.516	0.226	0.017	2.589	0.223	0.068	0.003
7000.0	0.604	37.263	10.296	941.214	0.243	0.019	2.733	0.250	0.081	0.003
7500.0	0.600	36.773	10.376	940.913	0.259	0.022	2.870	0.278	0.094	0.004
8000.0	0.597	36.289	10.455	940.613	0.275	0.025	3.001	0.307	0.108	0.005
8500.0	0.593	35.809	10.532	940.314	0.291	0.028	3.126	0.337	0.122	0.006
9000.0	0.589	35.334	10.608	940.016	0.307	0.031	3.245	0.367	0.137	0.008
9500.0	0.585	34.864	10.684	939.718	0.322	0.034	3.358	0.397	0.153	0.009
10000.0	0.582	34.398	10.758	939.421	0.338	0.038	3.466	0.428	0.169	0.011
10500.0	0.578	33.937	10.831	939.125	0.353	0.041	3.570	0.459	0.186	0.013
11000.0	0.574	33.480	10.903	938.829	0.368	0.045	3.668	0.491	0.203	0.014
11500.0	0.571	33.027	10.974	938.534	0.383	0.049	3.763	0.523	0.220	0.017
12000.0	0.567	32.579	11.044	938.238	0.398	0.052	3.853	0.555	0.238	0.019
12500.0	0.564	32.134	11.113	937.943	0.413	0.056	3.939	0.588	0.256	0.021
13000.0	0.560	31.694	11.181	937.647	0.428	0.061	4.022	0.620	0.275	0.024
13500.0	0.557	31.257	11.248	937.351	0.443	0.065	4.101	0.653	0.293	0.026
14000.0	0.553	30.825	11.314	937.055	0.457	0.069	4.177	0.686	0.312	0.029
14500.0	0.550	30.396	11.379	936.757	0.472	0.074	4.250	0.720	0.331	0.032
15000.0	0.546	29.971	11.443	936.459	0.487	0.078	4.321	0.753	0.351	0.036
15500.0	0.543	29.551	11.507	936.160	0.501	0.083	4.388	0.786	0.370	0.039
16000.0	0.539	29.134	11.569	935.860	0.516	0.088	4.454	0.820	0.390	0.043
16500.0	0.536	28.721	11.630	935.559	0.530	0.093	4.516	0.854	0.410	0.047
17000.0	0.533	28.312	11.691	935.257	0.544	0.098	4.577	0.887	0.430	0.051
17500.0	0.529	27.906	11.750	934.954	0.559	0.104	4.635	0.921	0.450	0.055
18000.0	0.526	27.505	11.809	934.649	0.573	0.109	4.691	0.955	0.470	0.059
18500.0	0.522	27.107	11.867	934.344	0.587	0.115	4.744	0.989	0.491	0.064
20000.0	0.512	25.936	12.035	933.420	0.630	0.132	4.894	1.090	0.552	0.079
22500.0	0.496	24.057	12.297	931.855	0.700	0.164	5.107	1.258	0.655	0.107
25000.0	0.479	22.267	12.537	930.259	0.769	0.199	5.279	1.424	0.756	0.141
27500.0	0.463	20.563	12.756	928.631	0.836	0.237	5.416	1.588	0.855	0.179
30000.0	0.447	18.945	12.954	926.970	0.901	0.278	5.522	1.747	0.949	0.222
32500.0	0.431	17.410	13.132	925.275	0.965	0.322	5.601	1.902	1.039	0.270
35000.0	0.416	15.957	13.289	923.545	1.026	0.368	5.656	2.052	1.123	0.322
37500.0	0.401	14.584	13.427	921.780	1.086	0.416	5.692	2.196	1.201	0.378
40000.0	0.386	13.291	13.545	919.978	1.143	0.466	5.711	2.333	1.274	0.438
42500.0	0.372	12.076	13.644	918.139	1.197	0.518	5.715	2.464	1.340	0.502
45000.0	0.357	10.938	13.724	916.263	1.249	0.571	5.708	2.587	1.400	0.569
47500.0	0.343	9.876	13.785	914.349	1.299	0.625	5.690	2.703	1.455	0.640
50000.0	0.330	8.888	13.829	912.396	1.345	0.680	5.665	2.810	1.503	0.713
52500.0	0.317	7.972	13.855	910.405	1.389	0.734	5.633	2.910	1.545	0.790
55000.0	0.304	7.127	13.864	908.376	1.430	0.789	5.597	3.002	1.583	0.868
57500.0	0.291	6.350	13.857	906.310	1.468	0.842	5.558	3.086	1.615	0.949
60000.0	0.279	5.639	13.834	904.207	1.503	0.895	5.517	3.162	1.642	1.032
62500.0	0.267	4.992	13.797	902.068	1.534	0.946	5.475	3.231	1.665	1.116
65000.0	0.256	4.405	13.745	899.894	1.563	0.996	5.433	3.293	1.685	1.202
67500.0	0.245	3.875	13.681	897.687	1.589	1.044	5.392	3.347	1.700	1.289
70000.0	0.235	3.400	13.604	895.448	1.611	1.089	5.352	3.396	1.713	1.377

Table C.31 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.331	41.424	0.000	958.245	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.331	41.304	0.022	958.192	0.000	0.000	0.018	0.000	0.000	0.000
500.0	0.329	40.828	0.111	957.978	0.002	0.000	0.190	0.001	0.000	0.000
1000.0	0.328	40.241	0.220	957.710	0.003	0.000	0.412	0.007	0.000	0.000
1500.0	0.326	39.663	0.327	957.441	0.006	0.000	0.623	0.016	0.001	0.000
2000.0	0.324	39.094	0.433	957.173	0.008	0.000	0.824	0.027	0.002	0.000
2500.0	0.322	38.533	0.536	956.904	0.010	0.000	1.015	0.042	0.005	0.000
3000.0	0.320	37.979	0.638	956.636	0.013	0.000	1.197	0.059	0.008	0.000
3500.0	0.318	37.433	0.738	956.367	0.016	0.001	1.371	0.077	0.012	0.000
4000.0	0.316	36.893	0.837	956.097	0.019	0.001	1.536	0.098	0.017	0.000
4500.0	0.314	36.361	0.935	955.828	0.022	0.001	1.694	0.120	0.023	0.001
5000.0	0.313	35.835	1.030	955.558	0.026	0.001	1.844	0.143	0.030	0.001
5500.0	0.311	35.315	1.125	955.289	0.029	0.001	1.986	0.168	0.038	0.002
6000.0	0.309	34.801	1.218	955.019	0.033	0.002	2.123	0.194	0.047	0.002
6500.0	0.307	34.293	1.310	954.749	0.037	0.002	2.252	0.220	0.057	0.003
7000.0	0.305	33.791	1.400	954.479	0.041	0.002	2.376	0.248	0.068	0.003
7500.0	0.304	33.295	1.489	954.208	0.045	0.003	2.493	0.276	0.079	0.004
8000.0	0.302	32.804	1.577	953.938	0.049	0.003	2.605	0.305	0.091	0.005
8500.0	0.300	32.318	1.664	953.667	0.054	0.004	2.711	0.335	0.104	0.007
9000.0	0.298	31.837	1.750	953.397	0.058	0.004	2.812	0.365	0.118	0.008
9500.0	0.297	31.361	1.834	953.126	0.063	0.005	2.907	0.395	0.132	0.010
10000.0	0.295	30.890	1.917	952.856	0.067	0.006	2.998	0.426	0.147	0.011
10500.0	0.293	30.423	1.999	952.585	0.072	0.006	3.084	0.458	0.162	0.013
11000.0	0.291	29.961	2.080	952.315	0.077	0.007	3.166	0.490	0.178	0.015
11500.0	0.290	29.504	2.160	952.045	0.082	0.008	3.243	0.522	0.194	0.018
12000.0	0.288	29.051	2.239	951.774	0.087	0.009	3.315	0.554	0.210	0.020
12500.0	0.286	28.602	2.317	951.504	0.092	0.009	3.384	0.587	0.226	0.023
13000.0	0.285	28.157	2.393	951.235	0.098	0.010	3.448	0.620	0.243	0.026
13500.0	0.283	27.716	2.469	950.965	0.103	0.011	3.509	0.653	0.260	0.029
14000.0	0.281	27.279	2.544	950.695	0.108	0.012	3.566	0.686	0.277	0.032
14500.0	0.280	26.846	2.617	950.426	0.114	0.013	3.619	0.719	0.294	0.035
15000.0	0.278	26.417	2.690	950.157	0.119	0.014	3.669	0.752	0.312	0.039
15500.0	0.276	25.991	2.762	949.888	0.125	0.016	3.716	0.786	0.329	0.043
16000.0	0.275	25.569	2.833	949.618	0.130	0.017	3.760	0.819	0.346	0.047
16500.0	0.273	25.151	2.903	949.349	0.136	0.018	3.801	0.853	0.364	0.051
17000.0	0.271	24.736	2.972	949.078	0.142	0.019	3.840	0.886	0.381	0.056
17500.0	0.270	24.324	3.041	948.807	0.147	0.021	3.876	0.919	0.398	0.060
18000.0	0.268	23.917	3.108	948.536	0.153	0.022	3.910	0.952	0.416	0.065
18500.0	0.266	23.513	3.175	948.263	0.159	0.024	3.942	0.986	0.433	0.071
19000.0	0.265	23.112	3.241	947.989	0.165	0.025	3.972	1.019	0.451	0.076
19500.0	0.263	22.716	3.306	947.713	0.171	0.027	4.000	1.052	0.468	0.082
20000.0	0.262	22.323	3.370	947.437	0.177	0.029	4.027	1.084	0.486	0.087
20500.0	0.260	21.933	3.433	947.159	0.183	0.030	4.051	1.117	0.503	0.094
22500.0	0.254	20.412	3.678	946.032	0.208	0.038	4.136	1.246	0.573	0.120
25000.0	0.246	18.594	3.965	944.587	0.241	0.049	4.211	1.402	0.657	0.159
27500.0	0.238	16.866	4.232	943.102	0.274	0.062	4.257	1.552	0.738	0.204
30000.0	0.230	15.229	4.478	941.573	0.309	0.076	4.278	1.696	0.813	0.255
32500.0	0.222	13.684	4.703	939.999	0.344	0.093	4.278	1.834	0.881	0.312
35000.0	0.214	12.229	4.909	938.376	0.379	0.111	4.261	1.963	0.942	0.375
37500.0	0.206	10.867	5.094	936.702	0.414	0.130	4.230	2.084	0.997	0.443
40000.0	0.198	9.597	5.258	934.974	0.449	0.152	4.188	2.195	1.044	0.517
42500.0	0.190	8.421	5.403	933.190	0.484	0.174	4.137	2.298	1.084	0.596
45000.0	0.183	7.337	5.527	931.348	0.517	0.198	4.081	2.391	1.117	0.680
47500.0	0.175	6.347	5.632	929.445	0.550	0.223	4.020	2.475	1.144	0.769
50000.0	0.167	5.449	5.717	927.481	0.581	0.248	3.959	2.548	1.165	0.861
52500.0	0.160	4.642	5.784	925.455	0.610	0.273	3.897	2.612	1.180	0.956
55000.0	0.153	3.924	5.832	923.366	0.638	0.299	3.837	2.667	1.191	1.054
57500.0	0.145	3.292	5.862	921.216	0.664	0.323	3.779	2.713	1.197	1.155
60000.0	0.138	2.741	5.876	919.007	0.687	0.347	3.726	2.750	1.201	1.257
62500.0	0.132	2.266	5.875	916.742	0.709	0.370	3.676	2.780	1.201	1.359
65000.0	0.125	1.861	5.860	914.424	0.728	0.391	3.631	2.804	1.200	1.462
67500.0	0.119	1.519	5.833	912.059	0.745	0.411	3.591	2.821	1.197	1.565
70000.0	0.113	1.234	5.796	909.652	0.759	0.429	3.555	2.834	1.193	1.667

Table C.32 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.331	41.424	0.000	958.245	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.331	41.304	0.023	958.185	0.000	0.000	0.021	0.000	0.000	0.000
500.0	0.329	40.830	0.115	957.941	0.002	0.000	0.214	0.002	0.000	0.000
1000.0	0.327	40.247	0.228	957.637	0.004	0.000	0.464	0.008	0.000	0.000
1500.0	0.325	39.674	0.338	957.333	0.007	0.000	0.702	0.018	0.001	0.000
2000.0	0.323	39.110	0.447	957.028	0.009	0.000	0.929	0.031	0.003	0.000
2500.0	0.321	38.556	0.554	956.724	0.012	0.000	1.144	0.047	0.006	0.000
3000.0	0.319	38.009	0.658	956.420	0.016	0.000	1.349	0.065	0.010	0.000
3500.0	0.317	37.471	0.761	956.115	0.019	0.001	1.545	0.086	0.015	0.000
4000.0	0.315	36.941	0.862	955.811	0.023	0.001	1.731	0.108	0.022	0.001
4500.0	0.312	36.418	0.962	955.506	0.026	0.001	1.909	0.132	0.029	0.001
5000.0	0.310	35.902	1.059	955.201	0.031	0.001	2.078	0.157	0.038	0.001
5500.0	0.308	35.393	1.155	954.897	0.035	0.002	2.240	0.183	0.048	0.002
6000.0	0.306	34.890	1.250	954.592	0.039	0.002	2.394	0.211	0.059	0.002
6500.0	0.304	34.394	1.343	954.287	0.044	0.003	2.541	0.239	0.071	0.003
7000.0	0.302	33.904	1.435	953.982	0.048	0.003	2.681	0.268	0.084	0.004
7500.0	0.300	33.420	1.525	953.677	0.053	0.004	2.815	0.298	0.097	0.005
8000.0	0.299	32.942	1.614	953.372	0.058	0.004	2.943	0.329	0.112	0.007
8500.0	0.297	32.470	1.701	953.068	0.063	0.005	3.064	0.360	0.128	0.008
9000.0	0.295	32.003	1.788	952.763	0.069	0.006	3.180	0.392	0.144	0.010
9500.0	0.293	31.541	1.872	952.458	0.074	0.007	3.290	0.424	0.160	0.011
10000.0	0.291	31.084	1.956	952.154	0.080	0.007	3.395	0.457	0.178	0.013
10500.0	0.289	30.633	2.038	951.850	0.086	0.008	3.495	0.490	0.195	0.015
11000.0	0.287	30.186	2.119	951.545	0.091	0.009	3.589	0.523	0.214	0.018
11500.0	0.285	29.744	2.199	951.241	0.097	0.010	3.679	0.557	0.232	0.020
12000.0	0.283	29.307	2.278	950.937	0.103	0.011	3.765	0.591	0.251	0.023
12500.0	0.282	28.874	2.355	950.634	0.109	0.012	3.846	0.625	0.270	0.026
13000.0	0.280	28.445	2.432	950.330	0.116	0.014	3.922	0.660	0.290	0.029
13500.0	0.278	28.021	2.507	950.027	0.122	0.015	3.995	0.694	0.309	0.033
14000.0	0.276	27.601	2.582	949.724	0.128	0.016	4.063	0.729	0.329	0.036
14500.0	0.274	27.185	2.655	949.422	0.134	0.017	4.128	0.764	0.349	0.040
15000.0	0.272	26.773	2.727	949.120	0.141	0.019	4.189	0.799	0.369	0.044
15500.0	0.271	26.365	2.798	948.817	0.147	0.020	4.246	0.834	0.389	0.048
16000.0	0.269	25.960	2.869	948.515	0.154	0.022	4.300	0.869	0.409	0.053
16500.0	0.267	25.560	2.938	948.213	0.160	0.024	4.352	0.904	0.429	0.057
17000.0	0.265	25.163	3.007	947.910	0.167	0.025	4.400	0.939	0.449	0.062
17500.0	0.264	24.769	3.074	947.607	0.173	0.027	4.445	0.974	0.469	0.067
18000.0	0.262	24.380	3.141	947.304	0.180	0.029	4.488	1.009	0.488	0.073
18500.0	0.260	23.994	3.206	947.000	0.187	0.031	4.529	1.044	0.508	0.078
19000.0	0.259	23.612	3.271	946.695	0.193	0.033	4.568	1.079	0.528	0.084
19500.0	0.257	23.233	3.335	946.388	0.200	0.035	4.604	1.113	0.548	0.090
20000.0	0.255	22.858	3.398	946.081	0.207	0.037	4.639	1.148	0.568	0.096
20500.0	0.254	22.487	3.460	945.773	0.214	0.039	4.672	1.182	0.588	0.102
21000.0	0.252	22.120	3.521	945.463	0.221	0.041	4.703	1.216	0.607	0.109
21500.0	0.250	21.756	3.582	945.152	0.228	0.044	4.732	1.250	0.627	0.116
22000.0	0.248	21.396	3.641	944.840	0.235	0.046	4.760	1.284	0.646	0.123
22500.0	0.247	21.039	3.700	944.526	0.243	0.049	4.786	1.318	0.666	0.130
25000.0	0.238	19.311	3.980	942.936	0.279	0.062	4.897	1.482	0.762	0.170
27500.0	0.230	17.672	4.239	941.308	0.317	0.078	4.977	1.640	0.855	0.216
30000.0	0.222	16.121	4.477	939.642	0.355	0.096	5.029	1.792	0.941	0.266
32500.0	0.214	14.656	4.695	937.937	0.394	0.116	5.058	1.937	1.022	0.323
35000.0	0.206	13.278	4.893	936.191	0.432	0.138	5.068	2.075	1.096	0.384
37500.0	0.198	11.983	5.071	934.403	0.470	0.162	5.061	2.204	1.162	0.449
40000.0	0.191	10.772	5.231	932.572	0.508	0.188	5.041	2.326	1.222	0.520
42500.0	0.183	9.643	5.371	930.697	0.545	0.215	5.010	2.438	1.275	0.594
45000.0	0.176	8.595	5.494	928.777	0.581	0.243	4.970	2.542	1.320	0.672
47500.0	0.169	7.627	5.598	926.811	0.615	0.273	4.924	2.636	1.359	0.753
50000.0	0.162	6.737	5.686	924.799	0.648	0.303	4.873	2.722	1.392	0.838
52500.0	0.155	5.923	5.756	922.741	0.680	0.334	4.819	2.799	1.419	0.924
55000.0	0.148	5.183	5.810	920.636	0.710	0.365	4.764	2.868	1.441	1.014
57500.0	0.142	4.515	5.849	918.486	0.738	0.395	4.708	2.928	1.458	1.104
60000.0	0.136	3.915	5.873	916.293	0.764	0.426	4.653	2.980	1.471	1.196
62500.0	0.130	3.379	5.883	914.056	0.788	0.455	4.601	3.024	1.480	1.289
65000.0	0.124	2.904	5.881	911.779	0.809	0.484	4.550	3.062	1.486	1.383
67500.0	0.118	2.486	5.867	909.464	0.829	0.511	4.502	3.093	1.489	1.476
70000.0	0.113	2.120	5.842	907.114	0.846	0.536	4.458	3.118	1.490	1.570

Table C.33 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.331	41.424	0.000	958.245	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.331	41.305	0.024	958.175	0.000	0.000	0.024	0.000	0.000	0.000
500.0	0.329	40.835	0.121	957.894	0.002	0.000	0.245	0.002	0.000	0.000
1000.0	0.326	40.257	0.238	957.542	0.005	0.000	0.532	0.009	0.001	0.000
1500.0	0.324	39.691	0.354	957.190	0.008	0.000	0.804	0.020	0.002	0.000
2000.0	0.321	39.135	0.467	956.838	0.011	0.000	1.063	0.034	0.004	0.000
2500.0	0.319	38.589	0.578	956.487	0.015	0.000	1.310	0.052	0.008	0.000
3000.0	0.317	38.053	0.686	956.136	0.019	0.001	1.546	0.072	0.013	0.000
3500.0	0.314	37.525	0.793	955.784	0.023	0.001	1.771	0.094	0.020	0.000
4000.0	0.312	37.006	0.897	955.433	0.028	0.001	1.986	0.117	0.028	0.001
4500.0	0.310	36.494	1.000	955.082	0.032	0.002	2.191	0.143	0.037	0.001
5000.0	0.307	35.991	1.100	954.731	0.037	0.002	2.388	0.169	0.048	0.002
5500.0	0.305	35.494	1.199	954.380	0.043	0.003	2.576	0.197	0.060	0.002
6000.0	0.303	35.005	1.296	954.029	0.048	0.003	2.756	0.226	0.074	0.003
6500.0	0.300	34.523	1.392	953.679	0.054	0.004	2.928	0.256	0.088	0.004
7000.0	0.298	34.048	1.486	953.328	0.059	0.005	3.093	0.287	0.103	0.005
7500.0	0.296	33.578	1.578	952.977	0.065	0.005	3.251	0.318	0.120	0.006
8000.0	0.294	33.115	1.668	952.627	0.072	0.006	3.402	0.350	0.137	0.008
8500.0	0.292	32.658	1.758	952.276	0.078	0.007	3.547	0.383	0.155	0.009
9000.0	0.290	32.207	1.845	951.926	0.084	0.008	3.686	0.417	0.174	0.011
9500.0	0.287	31.762	1.932	951.576	0.091	0.009	3.819	0.450	0.193	0.013
10000.0	0.285	31.321	2.016	951.226	0.098	0.010	3.946	0.485	0.213	0.015
10500.0	0.283	30.887	2.100	950.876	0.105	0.012	4.067	0.520	0.234	0.017
11000.0	0.281	30.457	2.182	950.526	0.112	0.013	4.183	0.555	0.255	0.020
11500.0	0.279	30.033	2.263	950.177	0.119	0.014	4.295	0.591	0.276	0.023
12000.0	0.277	29.613	2.342	949.828	0.126	0.016	4.401	0.627	0.298	0.026
12500.0	0.275	29.199	2.421	949.479	0.133	0.017	4.502	0.663	0.319	0.029
13000.0	0.273	28.788	2.498	949.130	0.140	0.019	4.599	0.700	0.342	0.032
13500.0	0.271	28.383	2.574	948.782	0.148	0.021	4.692	0.736	0.364	0.036
14000.0	0.269	27.982	2.648	948.433	0.155	0.022	4.780	0.773	0.386	0.039
14500.0	0.267	27.585	2.722	948.085	0.163	0.024	4.864	0.811	0.409	0.043
15000.0	0.265	27.192	2.794	947.738	0.170	0.026	4.944	0.848	0.432	0.047
15500.0	0.263	26.804	2.866	947.391	0.178	0.028	5.020	0.886	0.454	0.052
16000.0	0.261	26.419	2.936	947.043	0.185	0.031	5.092	0.923	0.477	0.056
16500.0	0.259	26.039	3.005	946.696	0.193	0.033	5.162	0.961	0.500	0.061
17000.0	0.257	25.662	3.073	946.349	0.201	0.035	5.227	0.998	0.522	0.066
17500.0	0.255	25.290	3.140	946.002	0.209	0.038	5.290	1.036	0.545	0.071
18000.0	0.254	24.921	3.206	945.654	0.217	0.040	5.350	1.074	0.567	0.077
18500.0	0.252	24.555	3.271	945.307	0.224	0.043	5.407	1.112	0.590	0.082
19000.0	0.250	24.194	3.335	944.958	0.232	0.045	5.462	1.149	0.612	0.088
19500.0	0.248	23.836	3.399	944.609	0.240	0.048	5.514	1.187	0.635	0.094
20000.0	0.246	23.482	3.461	944.260	0.248	0.051	5.564	1.224	0.657	0.100
20500.0	0.244	23.132	3.522	943.909	0.256	0.054	5.612	1.261	0.680	0.107
21000.0	0.243	22.785	3.583	943.557	0.264	0.057	5.658	1.299	0.702	0.113
21500.0	0.241	22.441	3.642	943.205	0.273	0.060	5.702	1.336	0.724	0.120
22000.0	0.239	22.102	3.701	942.851	0.281	0.063	5.745	1.373	0.746	0.127
22500.0	0.237	21.766	3.758	942.496	0.289	0.067	5.785	1.409	0.768	0.134
23000.0	0.235	21.433	3.815	942.140	0.297	0.070	5.824	1.446	0.790	0.141
23500.0	0.234	21.105	3.871	941.783	0.305	0.074	5.862	1.482	0.812	0.149
24000.0	0.232	20.779	3.926	941.424	0.313	0.077	5.897	1.519	0.834	0.157
25000.0	0.228	20.139	4.034	940.704	0.330	0.085	5.965	1.591	0.877	0.173
27500.0	0.220	18.600	4.287	938.878	0.372	0.105	6.110	1.766	0.983	0.216
30000.0	0.212	17.145	4.520	937.019	0.413	0.128	6.226	1.936	1.085	0.263
32500.0	0.203	15.772	4.733	935.126	0.455	0.154	6.315	2.099	1.182	0.315
35000.0	0.196	14.479	4.926	933.200	0.497	0.182	6.382	2.256	1.272	0.371
37500.0	0.188	13.264	5.100	931.240	0.538	0.212	6.430	2.406	1.357	0.430
40000.0	0.180	12.125	5.255	929.246	0.578	0.244	6.461	2.548	1.436	0.493
42500.0	0.173	11.059	5.393	927.218	0.617	0.278	6.478	2.683	1.508	0.559
45000.0	0.166	10.064	5.513	925.156	0.655	0.313	6.482	2.810	1.574	0.628
47500.0	0.159	9.137	5.616	923.060	0.692	0.350	6.476	2.929	1.635	0.699
50000.0	0.153	8.277	5.704	920.932	0.727	0.388	6.463	3.040	1.689	0.773
52500.0	0.147	7.481	5.776	918.771	0.761	0.427	6.442	3.143	1.738	0.849
55000.0	0.141	6.746	5.834	916.579	0.793	0.467	6.416	3.239	1.781	0.926
57500.0	0.135	6.070	5.879	914.356	0.823	0.507	6.386	3.327	1.820	1.006
60000.0	0.129	5.449	5.910	912.103	0.851	0.546	6.354	3.407	1.853	1.087
62500.0	0.124	4.882	5.929	909.822	0.877	0.586	6.319	3.481	1.883	1.169
65000.0	0.119	4.365	5.937	907.513	0.901	0.625	6.284	3.547	1.908	1.252
67500.0	0.114	3.895	5.934	905.179	0.923	0.663	6.247	3.607	1.930	1.337
70000.0	0.110	3.469	5.921	902.821	0.943	0.700	6.211	3.661	1.949	1.422

Table C.34 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.795	0.000	957.870	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.675	0.022	957.821	0.000	0.000	0.015	0.000	0.000	0.000
500.0	0.333	41.198	0.109	957.625	0.001	0.000	0.169	0.001	0.000	0.000
1000.0	0.331	40.609	0.217	957.378	0.003	0.000	0.375	0.006	0.000	0.000
1500.0	0.329	40.027	0.323	957.131	0.005	0.000	0.571	0.014	0.001	0.000
2000.0	0.327	39.454	0.427	956.883	0.007	0.000	0.757	0.024	0.002	0.000
2500.0	0.325	38.887	0.529	956.636	0.009	0.000	0.935	0.038	0.004	0.000
3000.0	0.324	38.328	0.630	956.389	0.012	0.000	1.104	0.053	0.006	0.000
3500.0	0.322	37.775	0.730	956.141	0.015	0.000	1.265	0.070	0.010	0.000
4000.0	0.320	37.229	0.828	955.893	0.017	0.001	1.419	0.089	0.014	0.000
4500.0	0.318	36.689	0.925	955.645	0.020	0.001	1.565	0.109	0.019	0.001
5000.0	0.317	36.155	1.021	955.397	0.023	0.001	1.705	0.131	0.025	0.001
5500.0	0.315	35.627	1.115	955.149	0.027	0.001	1.838	0.154	0.032	0.001
6000.0	0.313	35.105	1.208	954.901	0.030	0.001	1.964	0.178	0.040	0.002
6500.0	0.312	34.588	1.299	954.653	0.033	0.002	2.084	0.203	0.048	0.002
7000.0	0.310	34.076	1.390	954.405	0.037	0.002	2.199	0.229	0.057	0.003
7500.0	0.308	33.569	1.479	954.157	0.041	0.002	2.307	0.256	0.068	0.004
8000.0	0.306	33.068	1.567	953.908	0.045	0.003	2.410	0.283	0.078	0.004
8500.0	0.305	32.571	1.654	953.660	0.048	0.003	2.508	0.311	0.090	0.005
9000.0	0.303	32.079	1.740	953.412	0.053	0.004	2.601	0.340	0.102	0.007
9500.0	0.301	31.592	1.825	953.164	0.057	0.004	2.689	0.369	0.114	0.008
10000.0	0.300	31.109	1.908	952.916	0.061	0.005	2.772	0.399	0.127	0.009
10500.0	0.298	30.631	1.991	952.668	0.065	0.005	2.851	0.429	0.141	0.011
11000.0	0.296	30.156	2.073	952.420	0.070	0.006	2.925	0.459	0.154	0.013
11500.0	0.295	29.686	2.153	952.173	0.074	0.007	2.995	0.490	0.169	0.015
12000.0	0.293	29.220	2.233	951.926	0.079	0.007	3.061	0.521	0.183	0.017
12500.0	0.292	28.758	2.311	951.679	0.083	0.008	3.122	0.552	0.198	0.019
13000.0	0.290	28.300	2.389	951.432	0.088	0.009	3.180	0.584	0.213	0.022
13500.0	0.288	27.845	2.466	951.185	0.093	0.010	3.234	0.616	0.228	0.024
14000.0	0.287	27.395	2.541	950.939	0.098	0.010	3.285	0.648	0.243	0.027
14500.0	0.285	26.947	2.616	950.693	0.103	0.011	3.332	0.680	0.259	0.030
15000.0	0.284	26.503	2.690	950.446	0.108	0.012	3.377	0.712	0.274	0.033
15500.0	0.282	26.063	2.763	950.200	0.113	0.013	3.418	0.744	0.290	0.037
16000.0	0.281	25.626	2.836	949.953	0.118	0.014	3.456	0.776	0.305	0.040
16500.0	0.279	25.193	2.907	949.706	0.123	0.015	3.493	0.809	0.321	0.044
17000.0	0.277	24.763	2.978	949.458	0.128	0.016	3.526	0.841	0.337	0.048
17500.0	0.276	24.337	3.047	949.209	0.133	0.017	3.558	0.873	0.352	0.053
18000.0	0.274	23.914	3.116	948.959	0.138	0.019	3.587	0.905	0.368	0.057
18500.0	0.273	23.495	3.184	948.708	0.144	0.020	3.615	0.937	0.384	0.062
19000.0	0.271	23.079	3.252	948.456	0.149	0.021	3.641	0.969	0.400	0.067
19500.0	0.270	22.667	3.318	948.202	0.155	0.023	3.665	1.001	0.416	0.072
20000.0	0.268	22.258	3.384	947.947	0.160	0.024	3.687	1.033	0.432	0.077
22500.0	0.260	20.270	3.701	946.647	0.189	0.032	3.779	1.190	0.512	0.107
25000.0	0.252	18.372	3.997	945.307	0.219	0.041	3.837	1.343	0.590	0.143
27500.0	0.244	16.565	4.273	943.923	0.250	0.052	3.867	1.491	0.664	0.186
30000.0	0.237	14.850	4.529	942.493	0.282	0.064	3.874	1.633	0.732	0.235
32500.0	0.229	13.229	4.764	941.013	0.314	0.079	3.860	1.768	0.794	0.290
35000.0	0.221	11.704	4.978	939.479	0.347	0.094	3.831	1.896	0.850	0.352
37500.0	0.213	10.276	5.172	937.887	0.381	0.111	3.789	2.015	0.898	0.420
40000.0	0.204	8.948	5.344	936.233	0.414	0.130	3.738	2.125	0.939	0.495
42500.0	0.196	7.723	5.495	934.512	0.447	0.150	3.679	2.226	0.973	0.575
45000.0	0.188	6.603	5.624	932.722	0.479	0.171	3.617	2.316	1.001	0.661
47500.0	0.180	5.588	5.731	930.858	0.510	0.193	3.553	2.396	1.022	0.753
50000.0	0.172	4.680	5.816	928.918	0.539	0.215	3.489	2.466	1.037	0.849
52500.0	0.164	3.878	5.880	926.901	0.567	0.237	3.427	2.525	1.048	0.950
55000.0	0.156	3.178	5.924	924.807	0.594	0.259	3.368	2.575	1.054	1.054
57500.0	0.148	2.577	5.949	922.639	0.618	0.280	3.314	2.615	1.057	1.161
60000.0	0.140	2.069	5.955	920.399	0.640	0.301	3.266	2.647	1.057	1.270
62500.0	0.133	1.646	5.945	918.093	0.659	0.320	3.223	2.671	1.055	1.380
65000.0	0.125	1.298	5.920	915.727	0.676	0.338	3.185	2.688	1.052	1.490
67500.0	0.118	1.017	5.883	913.310	0.691	0.354	3.153	2.700	1.048	1.600
70000.0	0.112	0.792	5.836	910.847	0.704	0.368	3.126	2.708	1.043	1.708

Table C.35 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.795	0.000	957.870	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.676	0.023	957.814	0.000	0.000	0.017	0.000	0.000	0.000
500.0	0.332	41.200	0.113	957.589	0.002	0.000	0.192	0.001	0.000	0.000
1000.0	0.330	40.614	0.224	957.308	0.004	0.000	0.425	0.007	0.000	0.000
1500.0	0.328	40.037	0.334	957.026	0.006	0.000	0.647	0.016	0.001	0.000
2000.0	0.326	39.468	0.441	956.744	0.008	0.000	0.858	0.028	0.003	0.000
2500.0	0.324	38.908	0.546	956.462	0.011	0.000	1.059	0.042	0.005	0.000
3000.0	0.322	38.356	0.650	956.181	0.014	0.000	1.251	0.059	0.008	0.000
3500.0	0.320	37.811	0.752	955.899	0.017	0.001	1.433	0.078	0.013	0.000
4000.0	0.318	37.273	0.853	955.618	0.021	0.001	1.607	0.099	0.018	0.000
4500.0	0.316	36.742	0.952	955.336	0.024	0.001	1.773	0.121	0.025	0.001
5000.0	0.315	36.218	1.049	955.055	0.028	0.001	1.931	0.145	0.032	0.001
5500.0	0.313	35.700	1.145	954.773	0.032	0.002	2.081	0.170	0.041	0.001
6000.0	0.311	35.188	1.239	954.492	0.036	0.002	2.224	0.196	0.051	0.002
6500.0	0.309	34.683	1.332	954.210	0.040	0.002	2.361	0.222	0.061	0.003
7000.0	0.307	34.183	1.424	953.929	0.044	0.003	2.491	0.250	0.073	0.003
7500.0	0.305	33.689	1.514	953.648	0.048	0.003	2.614	0.279	0.085	0.004
8000.0	0.303	33.200	1.603	953.367	0.053	0.004	2.732	0.308	0.098	0.005
8500.0	0.301	32.716	1.690	953.087	0.058	0.004	2.844	0.338	0.112	0.007
9000.0	0.300	32.238	1.777	952.806	0.062	0.005	2.950	0.368	0.126	0.008
9500.0	0.298	31.764	1.862	952.526	0.067	0.006	3.051	0.399	0.141	0.010
10000.0	0.296	31.296	1.946	952.246	0.073	0.006	3.146	0.430	0.157	0.011
10500.0	0.294	30.832	2.029	951.966	0.078	0.007	3.237	0.462	0.173	0.013
11000.0	0.292	30.373	2.110	951.687	0.083	0.008	3.323	0.494	0.189	0.015
11500.0	0.291	29.918	2.191	951.408	0.088	0.009	3.404	0.527	0.206	0.017
12000.0	0.289	29.468	2.270	951.129	0.094	0.010	3.480	0.560	0.223	0.020
12500.0	0.287	29.021	2.348	950.851	0.099	0.010	3.552	0.593	0.240	0.022
13000.0	0.285	28.579	2.426	950.573	0.105	0.011	3.620	0.626	0.258	0.025
13500.0	0.284	28.141	2.502	950.295	0.111	0.013	3.684	0.659	0.276	0.028
14000.0	0.282	27.707	2.577	950.018	0.116	0.014	3.744	0.693	0.294	0.032
14500.0	0.280	27.276	2.651	949.741	0.122	0.015	3.801	0.727	0.312	0.035
15000.0	0.278	26.850	2.725	949.464	0.128	0.016	3.854	0.760	0.330	0.039
15500.0	0.277	26.427	2.797	949.188	0.134	0.017	3.903	0.794	0.348	0.042
16000.0	0.275	26.007	2.868	948.911	0.139	0.019	3.950	0.828	0.366	0.046
16500.0	0.273	25.591	2.939	948.634	0.145	0.020	3.994	0.862	0.384	0.051
17000.0	0.272	25.179	3.009	948.356	0.151	0.021	4.035	0.896	0.402	0.055
17500.0	0.270	24.771	3.077	948.078	0.157	0.023	4.074	0.930	0.421	0.060
18000.0	0.268	24.366	3.145	947.799	0.163	0.024	4.110	0.964	0.439	0.065
18500.0	0.267	23.964	3.212	947.520	0.169	0.026	4.144	0.998	0.457	0.070
19000.0	0.265	23.566	3.279	947.239	0.176	0.028	4.177	1.031	0.476	0.075
19500.0	0.264	23.172	3.344	946.957	0.182	0.029	4.207	1.065	0.494	0.081
20000.0	0.262	22.782	3.409	946.673	0.188	0.031	4.236	1.098	0.512	0.086
20500.0	0.260	22.395	3.472	946.389	0.195	0.033	4.263	1.131	0.530	0.092
22500.0	0.254	20.883	3.718	945.236	0.221	0.041	4.356	1.263	0.603	0.119
25000.0	0.246	19.075	4.007	943.761	0.255	0.053	4.441	1.422	0.692	0.156
27500.0	0.237	17.357	4.274	942.247	0.290	0.066	4.495	1.576	0.777	0.200
30000.0	0.229	15.728	4.521	940.693	0.326	0.082	4.524	1.725	0.856	0.250
32500.0	0.221	14.188	4.748	939.096	0.362	0.099	4.531	1.866	0.929	0.305
35000.0	0.213	12.737	4.955	937.454	0.399	0.118	4.519	1.999	0.995	0.366
37500.0	0.205	11.375	5.141	935.764	0.435	0.139	4.492	2.125	1.054	0.433
40000.0	0.198	10.102	5.308	934.025	0.471	0.161	4.453	2.242	1.105	0.504
42500.0	0.190	8.919	5.455	932.234	0.506	0.185	4.405	2.349	1.149	0.581
45000.0	0.182	7.825	5.582	930.388	0.541	0.210	4.350	2.448	1.186	0.662
47500.0	0.175	6.821	5.690	928.487	0.574	0.236	4.290	2.536	1.217	0.747
50000.0	0.167	5.906	5.779	926.530	0.606	0.262	4.227	2.615	1.241	0.835
52500.0	0.160	5.078	5.849	924.514	0.636	0.289	4.164	2.684	1.259	0.927
55000.0	0.152	4.335	5.901	922.440	0.664	0.316	4.101	2.744	1.273	1.022
57500.0	0.145	3.675	5.936	920.309	0.691	0.343	4.041	2.795	1.281	1.119
60000.0	0.138	3.094	5.955	918.122	0.715	0.368	3.983	2.837	1.287	1.218
62500.0	0.132	2.588	5.959	915.882	0.737	0.393	3.929	2.872	1.289	1.318
65000.0	0.125	2.151	5.948	913.591	0.757	0.417	3.880	2.899	1.288	1.418
67500.0	0.119	1.778	5.925	911.254	0.775	0.439	3.835	2.920	1.286	1.519
70000.0	0.113	1.461	5.891	908.874	0.790	0.459	3.794	2.936	1.282	1.618

Table C.36 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.795	0.000	957.870	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.676	0.024	957.805	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.332	41.204	0.119	957.542	0.002	0.000	0.223	0.002	0.000	0.000
1000.0	0.330	40.623	0.235	957.212	0.005	0.000	0.492	0.008	0.000	0.000
1500.0	0.327	40.052	0.350	956.883	0.007	0.000	0.748	0.018	0.002	0.000
2000.0	0.325	39.491	0.462	956.555	0.011	0.000	0.992	0.031	0.004	0.000
2500.0	0.323	38.939	0.571	956.226	0.014	0.000	1.225	0.048	0.007	0.000
3000.0	0.320	38.396	0.679	955.898	0.018	0.001	1.446	0.066	0.011	0.000
3500.0	0.318	37.861	0.785	955.570	0.021	0.001	1.658	0.087	0.017	0.000
4000.0	0.316	37.335	0.889	955.243	0.026	0.001	1.859	0.109	0.024	0.001
4500.0	0.314	36.816	0.991	954.915	0.030	0.001	2.052	0.133	0.033	0.001
5000.0	0.311	36.304	1.091	954.588	0.034	0.002	2.236	0.159	0.043	0.001
5500.0	0.309	35.799	1.190	954.261	0.039	0.002	2.412	0.185	0.054	0.002
6000.0	0.307	35.301	1.287	953.934	0.044	0.003	2.580	0.213	0.066	0.003
6500.0	0.305	34.809	1.382	953.607	0.049	0.003	2.740	0.242	0.079	0.003
7000.0	0.303	34.324	1.476	953.281	0.055	0.004	2.893	0.271	0.093	0.004
7500.0	0.301	33.845	1.568	952.955	0.060	0.005	3.039	0.302	0.108	0.005
8000.0	0.299	33.372	1.659	952.629	0.066	0.005	3.179	0.333	0.124	0.007
8500.0	0.296	32.904	1.748	952.304	0.072	0.006	3.312	0.364	0.141	0.008
9000.0	0.294	32.443	1.836	951.979	0.078	0.007	3.439	0.396	0.158	0.010
9500.0	0.292	31.986	1.923	951.654	0.084	0.008	3.561	0.429	0.176	0.011
10000.0	0.290	31.535	2.008	951.329	0.090	0.009	3.676	0.462	0.194	0.013
10500.0	0.288	31.089	2.092	951.005	0.097	0.010	3.786	0.496	0.214	0.015
11000.0	0.286	30.647	2.174	950.682	0.103	0.011	3.891	0.530	0.233	0.018
11500.0	0.284	30.211	2.256	950.358	0.109	0.012	3.991	0.565	0.253	0.020
12000.0	0.282	29.779	2.336	950.035	0.116	0.014	4.086	0.600	0.273	0.023
12500.0	0.280	29.352	2.415	949.713	0.123	0.015	4.176	0.635	0.293	0.026
13000.0	0.278	28.929	2.492	949.391	0.129	0.016	4.262	0.670	0.314	0.029
13500.0	0.276	28.511	2.569	949.069	0.136	0.018	4.343	0.706	0.335	0.032
14000.0	0.275	28.097	2.644	948.748	0.143	0.019	4.420	0.742	0.356	0.036
14500.0	0.273	27.687	2.718	948.428	0.150	0.021	4.492	0.778	0.377	0.039
15000.0	0.271	27.281	2.792	948.108	0.157	0.023	4.561	0.814	0.398	0.043
15500.0	0.269	26.879	2.864	947.788	0.164	0.025	4.627	0.851	0.419	0.047
16000.0	0.267	26.481	2.935	947.468	0.171	0.026	4.688	0.887	0.440	0.052
16500.0	0.265	26.086	3.005	947.149	0.178	0.028	4.747	0.924	0.461	0.056
17000.0	0.263	25.695	3.074	946.829	0.185	0.030	4.802	0.960	0.482	0.061
17500.0	0.262	25.308	3.142	946.509	0.193	0.032	4.855	0.997	0.503	0.066
18000.0	0.260	24.925	3.209	946.189	0.200	0.035	4.905	1.033	0.524	0.071
18500.0	0.258	24.545	3.275	945.867	0.207	0.037	4.952	1.069	0.545	0.076
19000.0	0.256	24.169	3.341	945.546	0.215	0.039	4.998	1.106	0.566	0.082
19500.0	0.254	23.797	3.405	945.223	0.222	0.041	5.041	1.142	0.587	0.087
20000.0	0.253	23.428	3.469	944.899	0.230	0.044	5.082	1.178	0.608	0.093
20500.0	0.251	23.063	3.531	944.575	0.237	0.046	5.121	1.214	0.629	0.099
21000.0	0.249	22.702	3.593	944.249	0.245	0.049	5.158	1.250	0.650	0.106
21500.0	0.247	22.344	3.654	943.922	0.252	0.052	5.193	1.286	0.671	0.112
22000.0	0.246	21.990	3.713	943.593	0.260	0.055	5.227	1.322	0.692	0.119
22500.0	0.244	21.640	3.772	943.264	0.268	0.057	5.260	1.357	0.712	0.126
25000.0	0.235	19.940	4.055	941.595	0.307	0.073	5.399	1.531	0.815	0.164
27500.0	0.227	18.329	4.316	939.893	0.346	0.091	5.506	1.700	0.915	0.207
30000.0	0.219	16.803	4.556	938.155	0.386	0.112	5.583	1.863	1.009	0.254
32500.0	0.210	15.362	4.776	936.381	0.426	0.134	5.636	2.020	1.098	0.307
35000.0	0.202	14.003	4.975	934.571	0.466	0.159	5.667	2.170	1.180	0.363
37500.0	0.195	12.725	5.156	932.723	0.506	0.185	5.680	2.313	1.256	0.424
40000.0	0.187	11.528	5.317	930.837	0.545	0.214	5.677	2.447	1.325	0.490
42500.0	0.180	10.408	5.459	928.912	0.583	0.244	5.661	2.574	1.387	0.558
45000.0	0.172	9.366	5.583	926.947	0.620	0.275	5.635	2.692	1.443	0.630
47500.0	0.165	8.398	5.690	924.943	0.656	0.308	5.600	2.801	1.492	0.706
50000.0	0.158	7.503	5.780	922.899	0.690	0.342	5.559	2.901	1.535	0.784
52500.0	0.152	6.680	5.853	920.815	0.723	0.376	5.513	2.993	1.572	0.865
55000.0	0.145	5.925	5.910	918.693	0.754	0.411	5.464	3.076	1.603	0.948
57500.0	0.139	5.237	5.953	916.531	0.783	0.446	5.413	3.151	1.630	1.033
60000.0	0.133	4.612	5.981	914.332	0.810	0.481	5.361	3.217	1.651	1.119
62500.0	0.127	4.047	5.996	912.096	0.835	0.515	5.310	3.276	1.669	1.208
65000.0	0.121	3.540	5.999	909.826	0.858	0.548	5.259	3.327	1.682	1.297
67500.0	0.116	3.086	5.990	907.522	0.879	0.581	5.210	3.371	1.693	1.387
70000.0	0.111	2.682	5.970	905.188	0.897	0.612	5.163	3.409	1.700	1.478

Table C.37 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.795	0.000	957.870	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.675	0.022	957.823	0.000	0.000	0.015	0.000	0.000	0.000
500.0	0.333	41.198	0.109	957.631	0.001	0.000	0.165	0.001	0.000	0.000
1000.0	0.331	40.608	0.215	957.390	0.003	0.000	0.365	0.006	0.000	0.000
1500.0	0.329	40.027	0.321	957.149	0.005	0.000	0.556	0.013	0.001	0.000
2000.0	0.327	39.452	0.424	956.908	0.007	0.000	0.738	0.024	0.002	0.000
2500.0	0.326	38.885	0.527	956.667	0.009	0.000	0.911	0.037	0.004	0.000
3000.0	0.324	38.325	0.627	956.425	0.012	0.000	1.076	0.052	0.006	0.000
3500.0	0.322	37.771	0.726	956.184	0.014	0.000	1.233	0.068	0.009	0.000
4000.0	0.320	37.224	0.824	955.942	0.017	0.001	1.383	0.087	0.013	0.000
4500.0	0.319	36.683	0.921	955.700	0.020	0.001	1.526	0.107	0.018	0.001
5000.0	0.317	36.147	1.016	955.458	0.023	0.001	1.662	0.128	0.024	0.001
5500.0	0.315	35.617	1.110	955.216	0.026	0.001	1.791	0.151	0.030	0.001
6000.0	0.314	35.093	1.203	954.974	0.029	0.001	1.914	0.175	0.038	0.002
6500.0	0.312	34.574	1.294	954.732	0.033	0.002	2.031	0.199	0.046	0.002
7000.0	0.310	34.061	1.384	954.490	0.036	0.002	2.143	0.225	0.055	0.003
7500.0	0.309	33.552	1.473	954.248	0.040	0.002	2.248	0.251	0.064	0.003
8000.0	0.307	33.048	1.561	954.005	0.043	0.003	2.349	0.278	0.075	0.004
8500.0	0.305	32.549	1.648	953.763	0.047	0.003	2.444	0.306	0.086	0.005
9000.0	0.304	32.055	1.734	953.521	0.051	0.004	2.534	0.334	0.097	0.006
9500.0	0.302	31.565	1.819	953.279	0.055	0.004	2.620	0.363	0.109	0.008
10000.0	0.300	31.080	1.902	953.037	0.059	0.005	2.700	0.392	0.122	0.009
10500.0	0.299	30.599	1.985	952.795	0.063	0.005	2.777	0.422	0.135	0.011
11000.0	0.297	30.122	2.067	952.553	0.068	0.006	2.849	0.452	0.148	0.012
11500.0	0.296	29.649	2.147	952.312	0.072	0.006	2.916	0.482	0.162	0.014
12000.0	0.294	29.180	2.227	952.071	0.077	0.007	2.980	0.513	0.176	0.016
12500.0	0.292	28.715	2.306	951.829	0.081	0.008	3.040	0.544	0.190	0.018
13000.0	0.291	28.254	2.383	951.589	0.086	0.008	3.096	0.575	0.204	0.021
13500.0	0.289	27.796	2.460	951.348	0.090	0.009	3.148	0.606	0.219	0.023
14000.0	0.288	27.342	2.536	951.107	0.095	0.010	3.197	0.638	0.233	0.026
14500.0	0.286	26.891	2.611	950.867	0.100	0.011	3.242	0.670	0.248	0.029
15000.0	0.285	26.444	2.685	950.627	0.105	0.012	3.285	0.701	0.263	0.032
15500.0	0.283	26.001	2.758	950.386	0.109	0.013	3.325	0.733	0.278	0.036
16000.0	0.281	25.560	2.831	950.145	0.114	0.014	3.362	0.765	0.293	0.039
16500.0	0.280	25.124	2.903	949.903	0.119	0.015	3.396	0.797	0.308	0.043
17000.0	0.278	24.690	2.973	949.661	0.124	0.016	3.429	0.829	0.324	0.047
17500.0	0.277	24.260	3.043	949.418	0.129	0.017	3.459	0.861	0.339	0.051
18000.0	0.275	23.834	3.113	949.173	0.134	0.018	3.487	0.893	0.354	0.055
18500.0	0.274	23.411	3.181	948.928	0.140	0.019	3.514	0.925	0.370	0.060
19000.0	0.272	22.992	3.249	948.681	0.145	0.020	3.539	0.957	0.385	0.065
20000.0	0.269	22.164	3.382	948.182	0.156	0.023	3.583	1.020	0.416	0.075
22500.0	0.261	20.158	3.700	946.908	0.183	0.030	3.670	1.176	0.494	0.104
25000.0	0.254	18.242	3.998	945.593	0.213	0.039	3.724	1.328	0.569	0.140
27500.0	0.246	16.417	4.276	944.234	0.243	0.050	3.750	1.475	0.641	0.182
30000.0	0.238	14.684	4.534	942.828	0.274	0.062	3.754	1.616	0.707	0.230
32500.0	0.230	13.047	4.771	941.370	0.306	0.075	3.738	1.751	0.767	0.285
35000.0	0.222	11.506	4.988	939.856	0.339	0.091	3.706	1.878	0.820	0.347
37500.0	0.214	10.065	5.183	938.281	0.371	0.107	3.662	1.997	0.867	0.415
40000.0	0.205	8.726	5.357	936.642	0.404	0.125	3.609	2.107	0.906	0.490
42500.0	0.197	7.493	5.508	934.934	0.436	0.144	3.549	2.207	0.939	0.571
45000.0	0.189	6.368	5.638	933.151	0.468	0.165	3.487	2.297	0.965	0.657
47500.0	0.181	5.352	5.745	931.291	0.498	0.186	3.422	2.376	0.984	0.750
50000.0	0.172	4.447	5.830	929.351	0.527	0.207	3.359	2.445	0.998	0.848
52500.0	0.164	3.652	5.893	927.330	0.555	0.229	3.298	2.504	1.008	0.950
55000.0	0.156	2.964	5.934	925.227	0.580	0.250	3.241	2.552	1.013	1.056
57500.0	0.148	2.379	5.956	923.046	0.604	0.270	3.189	2.591	1.015	1.165
60000.0	0.140	1.888	5.960	920.791	0.625	0.290	3.143	2.621	1.015	1.275
62500.0	0.132	1.484	5.947	918.467	0.644	0.308	3.103	2.644	1.013	1.387
65000.0	0.125	1.157	5.920	916.083	0.660	0.324	3.068	2.660	1.010	1.499
67500.0	0.118	0.896	5.881	913.647	0.675	0.339	3.039	2.671	1.006	1.611
70000.0	0.111	0.690	5.831	911.167	0.686	0.353	3.014	2.678	1.002	1.720

Table C.38 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.795	0.000	957.870	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.676	0.023	957.816	0.000	0.000	0.017	0.000	0.000	0.000
500.0	0.332	41.200	0.113	957.595	0.002	0.000	0.188	0.001	0.000	0.000
1000.0	0.330	40.614	0.223	957.319	0.004	0.000	0.416	0.007	0.000	0.000
1500.0	0.328	40.036	0.332	957.043	0.006	0.000	0.633	0.015	0.001	0.000
2000.0	0.326	39.467	0.439	956.767	0.008	0.000	0.840	0.027	0.003	0.000
2500.0	0.324	38.906	0.544	956.491	0.011	0.000	1.037	0.041	0.005	0.000
3000.0	0.323	38.353	0.647	956.215	0.014	0.000	1.225	0.058	0.008	0.000
3500.0	0.321	37.807	0.749	955.939	0.017	0.001	1.403	0.077	0.012	0.000
4000.0	0.319	37.269	0.849	955.663	0.020	0.001	1.573	0.097	0.017	0.000
4500.0	0.317	36.736	0.947	955.387	0.024	0.001	1.735	0.119	0.024	0.001
5000.0	0.315	36.211	1.044	955.111	0.027	0.001	1.890	0.142	0.031	0.001
5500.0	0.313	35.692	1.140	954.836	0.031	0.002	2.037	0.167	0.039	0.001
6000.0	0.311	35.179	1.234	954.560	0.035	0.002	2.177	0.192	0.049	0.002
6500.0	0.309	34.671	1.327	954.284	0.039	0.002	2.310	0.219	0.059	0.003
7000.0	0.307	34.170	1.418	954.009	0.043	0.003	2.437	0.246	0.070	0.003
7500.0	0.306	33.674	1.508	953.733	0.048	0.003	2.558	0.275	0.082	0.004
8000.0	0.304	33.183	1.597	953.458	0.052	0.004	2.673	0.303	0.095	0.005
8500.0	0.302	32.698	1.684	953.183	0.057	0.004	2.782	0.333	0.108	0.006
9000.0	0.300	32.217	1.771	952.908	0.061	0.005	2.885	0.363	0.122	0.008
9500.0	0.298	31.742	1.856	952.634	0.066	0.005	2.983	0.394	0.136	0.009
10000.0	0.297	31.271	1.940	952.360	0.071	0.006	3.077	0.425	0.152	0.011
10500.0	0.295	30.805	2.022	952.086	0.076	0.007	3.165	0.456	0.167	0.013
11000.0	0.293	30.343	2.104	951.812	0.081	0.008	3.248	0.488	0.183	0.015
11500.0	0.291	29.886	2.184	951.538	0.087	0.008	3.327	0.520	0.199	0.017
12000.0	0.289	29.433	2.264	951.265	0.092	0.009	3.401	0.552	0.216	0.019
12500.0	0.288	28.984	2.342	950.993	0.097	0.010	3.471	0.585	0.233	0.022
13000.0	0.286	28.540	2.419	950.721	0.103	0.011	3.537	0.618	0.250	0.025
13500.0	0.284	28.099	2.496	950.449	0.108	0.012	3.598	0.651	0.267	0.028
14000.0	0.283	27.662	2.571	950.177	0.114	0.013	3.657	0.685	0.285	0.031
14500.0	0.281	27.228	2.645	949.906	0.119	0.014	3.711	0.718	0.302	0.034
15000.0	0.279	26.799	2.719	949.635	0.125	0.015	3.762	0.752	0.320	0.038
15500.0	0.278	26.373	2.791	949.364	0.131	0.017	3.810	0.785	0.337	0.041
16000.0	0.276	25.951	2.863	949.093	0.136	0.018	3.854	0.819	0.355	0.045
16500.0	0.274	25.532	2.934	948.821	0.142	0.019	3.897	0.852	0.373	0.049
17000.0	0.273	25.116	3.004	948.550	0.148	0.021	3.936	0.886	0.390	0.054
17500.0	0.271	24.705	3.073	948.277	0.154	0.022	3.973	0.919	0.408	0.058
18000.0	0.269	24.297	3.141	948.004	0.160	0.023	4.008	0.953	0.426	0.063
18500.0	0.268	23.892	3.208	947.729	0.166	0.025	4.041	0.986	0.444	0.068
19000.0	0.266	23.491	3.274	947.453	0.172	0.027	4.072	1.020	0.461	0.073
19500.0	0.264	23.094	3.340	947.177	0.178	0.028	4.101	1.053	0.479	0.079
20000.0	0.263	22.700	3.405	946.899	0.184	0.030	4.128	1.086	0.497	0.085
20500.0	0.261	22.310	3.469	946.619	0.190	0.032	4.154	1.119	0.515	0.090
22500.0	0.255	20.786	3.716	945.486	0.216	0.040	4.242	1.249	0.586	0.116
25000.0	0.247	18.962	4.006	944.037	0.250	0.051	4.321	1.407	0.673	0.154
27500.0	0.239	17.228	4.275	942.547	0.284	0.064	4.371	1.560	0.755	0.197
30000.0	0.230	15.584	4.524	941.017	0.320	0.079	4.394	1.708	0.832	0.247
32500.0	0.222	14.029	4.752	939.442	0.355	0.096	4.396	1.848	0.903	0.302
35000.0	0.215	12.564	4.960	937.822	0.391	0.114	4.380	1.980	0.966	0.363
37500.0	0.207	11.189	5.148	936.152	0.427	0.134	4.350	2.105	1.023	0.429
40000.0	0.199	9.905	5.316	934.431	0.462	0.156	4.308	2.220	1.072	0.501
42500.0	0.191	8.712	5.464	932.656	0.497	0.179	4.256	2.327	1.114	0.578
45000.0	0.183	7.612	5.592	930.824	0.531	0.203	4.199	2.424	1.149	0.660
47500.0	0.175	6.603	5.701	928.934	0.564	0.229	4.137	2.511	1.177	0.746
50000.0	0.168	5.685	5.789	926.984	0.595	0.254	4.073	2.588	1.199	0.835
52500.0	0.160	4.859	5.859	924.973	0.625	0.280	4.009	2.656	1.216	0.929
55000.0	0.153	4.120	5.911	922.901	0.653	0.306	3.946	2.714	1.228	1.025
57500.0	0.146	3.467	5.944	920.768	0.679	0.332	3.885	2.762	1.235	1.123
60000.0	0.139	2.896	5.961	918.577	0.702	0.356	3.828	2.803	1.239	1.224
62500.0	0.132	2.401	5.963	916.330	0.724	0.380	3.776	2.835	1.239	1.325
65000.0	0.125	1.978	5.950	914.030	0.743	0.402	3.728	2.860	1.238	1.427
67500.0	0.119	1.619	5.925	911.682	0.760	0.423	3.684	2.879	1.235	1.529
70000.0	0.113	1.318	5.888	909.290	0.775	0.442	3.646	2.893	1.231	1.630

Table C.39 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.795	0.000	957.870	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.676	0.024	957.806	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.332	41.204	0.118	957.545	0.002	0.000	0.220	0.002	0.000	0.000
1000.0	0.330	40.623	0.235	957.219	0.005	0.000	0.486	0.008	0.000	0.000
1500.0	0.327	40.052	0.348	956.894	0.007	0.000	0.739	0.018	0.002	0.000
2000.0	0.325	39.491	0.460	956.569	0.010	0.000	0.981	0.031	0.004	0.000
2500.0	0.323	38.939	0.569	956.244	0.014	0.000	1.210	0.047	0.007	0.000
3000.0	0.320	38.396	0.677	955.919	0.017	0.001	1.429	0.066	0.011	0.000
3500.0	0.318	37.861	0.782	955.595	0.021	0.001	1.638	0.086	0.017	0.000
4000.0	0.316	37.334	0.886	955.270	0.025	0.001	1.838	0.108	0.024	0.001
4500.0	0.314	36.814	0.988	954.946	0.030	0.001	2.028	0.132	0.032	0.001
5000.0	0.312	36.302	1.088	954.622	0.034	0.002	2.210	0.158	0.042	0.001
5500.0	0.309	35.797	1.186	954.299	0.039	0.002	2.383	0.184	0.053	0.002
6000.0	0.307	35.298	1.283	953.975	0.044	0.003	2.549	0.211	0.064	0.002
6500.0	0.305	34.806	1.378	953.652	0.049	0.003	2.707	0.240	0.077	0.003
7000.0	0.303	34.320	1.472	953.329	0.054	0.004	2.858	0.269	0.091	0.004
7500.0	0.301	33.840	1.564	953.007	0.060	0.005	3.002	0.299	0.106	0.005
8000.0	0.299	33.366	1.654	952.685	0.066	0.005	3.140	0.330	0.122	0.006
8500.0	0.297	32.897	1.744	952.363	0.071	0.006	3.271	0.362	0.138	0.008
9000.0	0.295	32.434	1.831	952.041	0.077	0.007	3.396	0.394	0.155	0.009
9500.0	0.293	31.977	1.918	951.720	0.083	0.008	3.515	0.426	0.173	0.011
10000.0	0.291	31.525	2.003	951.399	0.090	0.009	3.629	0.459	0.191	0.013
10500.0	0.289	31.077	2.086	951.079	0.096	0.010	3.737	0.493	0.210	0.015
11000.0	0.287	30.635	2.169	950.758	0.102	0.011	3.840	0.527	0.229	0.017
11500.0	0.285	30.198	2.250	950.439	0.109	0.012	3.938	0.561	0.249	0.020
12000.0	0.283	29.765	2.330	950.119	0.115	0.013	4.031	0.596	0.269	0.023
12500.0	0.281	29.336	2.409	949.801	0.122	0.015	4.120	0.631	0.289	0.025
13000.0	0.279	28.912	2.487	949.482	0.128	0.016	4.203	0.666	0.309	0.029
13500.0	0.277	28.493	2.563	949.165	0.135	0.018	4.283	0.701	0.330	0.032
14000.0	0.275	28.077	2.639	948.847	0.142	0.019	4.358	0.737	0.350	0.035
14500.0	0.273	27.666	2.713	948.531	0.149	0.021	4.429	0.773	0.371	0.039
15000.0	0.271	27.258	2.786	948.214	0.156	0.022	4.496	0.809	0.392	0.043
15500.0	0.269	26.854	2.858	947.898	0.163	0.024	4.560	0.845	0.413	0.047
16000.0	0.268	26.455	2.930	947.582	0.170	0.026	4.620	0.881	0.433	0.051
16500.0	0.266	26.059	3.000	947.266	0.177	0.028	4.677	0.918	0.454	0.056
17000.0	0.264	25.667	3.069	946.950	0.184	0.030	4.731	0.954	0.475	0.060
17500.0	0.262	25.278	3.137	946.634	0.191	0.032	4.782	0.990	0.496	0.065
18000.0	0.260	24.893	3.204	946.317	0.198	0.034	4.831	1.026	0.517	0.070
18500.0	0.259	24.512	3.270	945.999	0.205	0.036	4.877	1.063	0.537	0.076
19000.0	0.257	24.134	3.336	945.681	0.213	0.038	4.921	1.099	0.558	0.081
19500.0	0.255	23.760	3.400	945.362	0.220	0.041	4.962	1.135	0.579	0.087
20000.0	0.253	23.390	3.464	945.042	0.228	0.043	5.002	1.171	0.600	0.093
20500.0	0.252	23.023	3.526	944.720	0.235	0.046	5.040	1.206	0.620	0.099
21000.0	0.250	22.660	3.588	944.398	0.242	0.048	5.076	1.242	0.641	0.105
21500.0	0.248	22.301	3.649	944.074	0.250	0.051	5.111	1.278	0.661	0.112
22000.0	0.246	21.945	3.709	943.749	0.258	0.054	5.143	1.313	0.682	0.118
22500.0	0.245	21.593	3.768	943.423	0.265	0.056	5.174	1.348	0.702	0.125
25000.0	0.236	19.885	4.051	941.771	0.304	0.072	5.309	1.521	0.804	0.163
27500.0	0.228	18.265	4.312	940.085	0.343	0.090	5.410	1.689	0.902	0.206
30000.0	0.219	16.731	4.553	938.363	0.383	0.110	5.483	1.850	0.995	0.253
32500.0	0.211	15.282	4.774	936.605	0.423	0.132	5.530	2.006	1.082	0.306
35000.0	0.203	13.915	4.974	934.810	0.462	0.156	5.557	2.155	1.163	0.363
37500.0	0.195	12.630	5.155	932.977	0.502	0.182	5.565	2.296	1.237	0.424
40000.0	0.188	11.426	5.317	931.105	0.540	0.210	5.559	2.429	1.304	0.489
42500.0	0.180	10.301	5.460	929.193	0.578	0.240	5.539	2.554	1.365	0.558
45000.0	0.173	9.253	5.585	927.240	0.615	0.271	5.509	2.670	1.419	0.631
47500.0	0.166	8.281	5.692	925.247	0.651	0.303	5.472	2.777	1.466	0.707
50000.0	0.159	7.383	5.781	923.214	0.685	0.336	5.427	2.876	1.507	0.786
52500.0	0.152	6.557	5.855	921.139	0.718	0.370	5.379	2.966	1.543	0.867
55000.0	0.146	5.801	5.912	919.025	0.749	0.405	5.327	3.047	1.572	0.951
57500.0	0.139	5.112	5.954	916.870	0.778	0.439	5.274	3.120	1.597	1.036
60000.0	0.133	4.488	5.982	914.676	0.804	0.473	5.220	3.184	1.617	1.124
62500.0	0.127	3.926	5.997	912.445	0.829	0.506	5.167	3.240	1.632	1.213
65000.0	0.122	3.421	5.998	910.177	0.852	0.539	5.115	3.290	1.644	1.303
67500.0	0.116	2.971	5.988	907.876	0.873	0.570	5.066	3.332	1.653	1.394
70000.0	0.111	2.572	5.968	905.542	0.891	0.600	5.018	3.367	1.659	1.486

Table C.40 [ ] Exposure-Dependent 0% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.785	0.000	957.880	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.665	0.022	957.833	0.000	0.000	0.015	0.000	0.000	0.000
500.0	0.333	41.188	0.108	957.643	0.001	0.000	0.164	0.001	0.000	0.000
1000.0	0.331	40.598	0.215	957.405	0.003	0.000	0.361	0.006	0.000	0.000
1500.0	0.329	40.016	0.320	957.168	0.005	0.000	0.549	0.013	0.001	0.000
2000.0	0.327	39.441	0.424	956.931	0.007	0.000	0.728	0.024	0.002	0.000
2500.0	0.326	38.874	0.526	956.694	0.009	0.000	0.898	0.036	0.004	0.000
3000.0	0.324	38.313	0.626	956.457	0.011	0.000	1.059	0.051	0.006	0.000
3500.0	0.322	37.758	0.725	956.221	0.014	0.000	1.213	0.068	0.009	0.000
4000.0	0.321	37.209	0.823	955.986	0.017	0.001	1.358	0.086	0.013	0.000
4500.0	0.319	36.667	0.919	955.751	0.019	0.001	1.496	0.106	0.018	0.001
5000.0	0.317	36.130	1.014	955.516	0.022	0.001	1.627	0.128	0.023	0.001
5500.0	0.316	35.598	1.108	955.282	0.025	0.001	1.751	0.150	0.029	0.001
6000.0	0.314	35.072	1.200	955.049	0.028	0.001	1.869	0.173	0.036	0.001
6500.0	0.312	34.550	1.291	954.816	0.031	0.002	1.980	0.198	0.044	0.002
7000.0	0.311	34.034	1.381	954.585	0.035	0.002	2.085	0.223	0.052	0.003
7500.0	0.309	33.522	1.470	954.354	0.038	0.002	2.185	0.249	0.061	0.003
8000.0	0.307	33.014	1.558	954.123	0.042	0.003	2.279	0.275	0.071	0.004
8500.0	0.306	32.511	1.645	953.894	0.045	0.003	2.367	0.302	0.081	0.005
9000.0	0.304	32.012	1.730	953.665	0.049	0.003	2.451	0.330	0.092	0.006
9500.0	0.303	31.517	1.815	953.436	0.052	0.004	2.530	0.358	0.103	0.007
10000.0	0.301	31.026	1.899	953.207	0.056	0.004	2.605	0.386	0.114	0.008
10500.0	0.300	30.539	1.981	952.979	0.060	0.005	2.676	0.415	0.126	0.010
11000.0	0.298	30.056	2.063	952.750	0.064	0.005	2.743	0.444	0.138	0.011
11500.0	0.297	29.576	2.144	952.521	0.068	0.006	2.807	0.474	0.151	0.013
12000.0	0.295	29.101	2.224	952.290	0.072	0.006	2.868	0.504	0.164	0.015
12500.0	0.293	28.630	2.303	952.059	0.076	0.007	2.925	0.534	0.177	0.017
13000.0	0.292	28.162	2.381	951.827	0.081	0.008	2.980	0.564	0.191	0.019
13500.0	0.290	27.698	2.458	951.594	0.085	0.008	3.032	0.594	0.205	0.022
14000.0	0.289	27.239	2.535	951.360	0.090	0.009	3.082	0.625	0.219	0.024
15000.0	0.286	26.330	2.685	950.887	0.099	0.011	3.174	0.686	0.248	0.030
17500.0	0.278	24.127	3.046	949.682	0.124	0.016	3.366	0.841	0.325	0.048
20000.0	0.270	22.018	3.385	948.441	0.151	0.022	3.508	0.997	0.404	0.071
22500.0	0.262	20.002	3.705	947.161	0.179	0.029	3.609	1.152	0.482	0.100
25000.0	0.254	18.080	4.004	945.841	0.209	0.038	3.675	1.303	0.558	0.135
27500.0	0.246	16.251	4.282	944.476	0.239	0.048	3.710	1.451	0.629	0.177
30000.0	0.238	14.517	4.540	943.063	0.271	0.060	3.720	1.594	0.696	0.225
32500.0	0.230	12.880	4.776	941.597	0.303	0.074	3.710	1.731	0.756	0.280
35000.0	0.222	11.341	4.992	940.075	0.336	0.089	3.682	1.860	0.810	0.341
37500.0	0.214	9.904	5.186	938.492	0.369	0.106	3.642	1.981	0.857	0.409
40000.0	0.206	8.572	5.358	936.843	0.402	0.124	3.591	2.092	0.897	0.484
42500.0	0.198	7.346	5.508	935.124	0.434	0.143	3.534	2.194	0.930	0.565
45000.0	0.189	6.230	5.636	933.330	0.466	0.163	3.472	2.286	0.957	0.652
47500.0	0.181	5.226	5.740	931.458	0.497	0.185	3.409	2.367	0.977	0.744
50000.0	0.173	4.332	5.823	929.505	0.526	0.206	3.347	2.437	0.992	0.842
52500.0	0.164	3.550	5.883	927.470	0.554	0.228	3.287	2.497	1.002	0.945
55000.0	0.156	2.874	5.923	925.354	0.579	0.249	3.232	2.546	1.008	1.051
57500.0	0.148	2.301	5.942	923.160	0.603	0.269	3.181	2.586	1.011	1.161
60000.0	0.140	1.823	5.944	920.892	0.624	0.289	3.136	2.617	1.011	1.272
62500.0	0.132	1.430	5.929	918.557	0.643	0.307	3.097	2.641	1.009	1.384
65000.0	0.125	1.113	5.900	916.163	0.659	0.324	3.063	2.658	1.007	1.496
67500.0	0.117	0.860	5.859	913.717	0.673	0.339	3.035	2.669	1.003	1.608
70000.0	0.111	0.661	5.808	911.229	0.685	0.352	3.011	2.676	1.000	1.718

Table C.41 [ ] Exposure-Dependent 40% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.785	0.000	957.880	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.666	0.023	957.826	0.000	0.000	0.017	0.000	0.000	0.000
500.0	0.332	41.190	0.112	957.609	0.002	0.000	0.186	0.001	0.000	0.000
1000.0	0.330	40.603	0.223	957.337	0.004	0.000	0.411	0.007	0.000	0.000
1500.0	0.328	40.025	0.331	957.065	0.006	0.000	0.624	0.015	0.001	0.000
2000.0	0.326	39.456	0.438	956.794	0.008	0.000	0.827	0.027	0.002	0.000
2500.0	0.325	38.894	0.543	956.524	0.011	0.000	1.019	0.041	0.005	0.000
3000.0	0.323	38.340	0.646	956.254	0.014	0.000	1.202	0.058	0.008	0.000
3500.0	0.321	37.793	0.747	955.985	0.017	0.001	1.375	0.076	0.012	0.000
4000.0	0.319	37.253	0.847	955.717	0.020	0.001	1.540	0.097	0.017	0.000
4500.0	0.317	36.720	0.945	955.449	0.023	0.001	1.696	0.118	0.023	0.001
5000.0	0.315	36.193	1.041	955.182	0.026	0.001	1.844	0.142	0.030	0.001
5500.0	0.313	35.672	1.137	954.916	0.030	0.001	1.985	0.166	0.038	0.001
6000.0	0.311	35.156	1.230	954.651	0.034	0.002	2.118	0.191	0.047	0.002
6500.0	0.310	34.646	1.323	954.386	0.038	0.002	2.244	0.217	0.057	0.002
7000.0	0.308	34.141	1.414	954.123	0.042	0.003	2.364	0.245	0.067	0.003
7500.0	0.306	33.642	1.504	953.860	0.046	0.003	2.477	0.272	0.078	0.004
8000.0	0.304	33.147	1.592	953.598	0.050	0.003	2.584	0.301	0.090	0.005
8500.0	0.303	32.657	1.679	953.338	0.054	0.004	2.685	0.330	0.102	0.006
9000.0	0.301	32.172	1.765	953.077	0.058	0.004	2.781	0.359	0.115	0.007
9500.0	0.299	31.691	1.850	952.818	0.063	0.005	2.872	0.389	0.129	0.009
10000.0	0.297	31.215	1.934	952.559	0.067	0.006	2.958	0.420	0.143	0.010
10500.0	0.296	30.742	2.017	952.300	0.072	0.006	3.040	0.450	0.157	0.012
11000.0	0.294	30.274	2.098	952.041	0.077	0.007	3.117	0.481	0.172	0.014
11500.0	0.292	29.810	2.179	951.781	0.082	0.008	3.191	0.513	0.187	0.016
12000.0	0.291	29.350	2.259	951.522	0.087	0.008	3.261	0.544	0.202	0.018
12500.0	0.289	28.895	2.337	951.261	0.092	0.009	3.328	0.576	0.218	0.020
13000.0	0.287	28.443	2.415	950.999	0.097	0.010	3.391	0.608	0.234	0.023
13500.0	0.286	27.996	2.492	950.737	0.102	0.011	3.452	0.640	0.251	0.026
14000.0	0.284	27.552	2.567	950.473	0.108	0.012	3.510	0.672	0.268	0.029
14500.0	0.282	27.113	2.642	950.209	0.113	0.013	3.565	0.704	0.285	0.032
15000.0	0.281	26.677	2.716	949.942	0.119	0.014	3.618	0.737	0.302	0.035
17500.0	0.272	24.560	3.073	948.593	0.148	0.020	3.847	0.899	0.391	0.055
20000.0	0.264	22.540	3.407	947.209	0.178	0.028	4.024	1.061	0.481	0.080
22500.0	0.256	20.614	3.719	945.790	0.211	0.038	4.156	1.222	0.571	0.112
25000.0	0.248	18.783	4.010	944.334	0.245	0.049	4.249	1.380	0.658	0.149
27500.0	0.240	17.043	4.280	942.838	0.280	0.062	4.310	1.533	0.741	0.192
30000.0	0.231	15.396	4.528	941.300	0.315	0.077	4.343	1.681	0.818	0.241
32500.0	0.223	13.841	4.756	939.717	0.352	0.093	4.352	1.823	0.889	0.296
35000.0	0.215	12.377	4.963	938.088	0.388	0.112	4.342	1.957	0.953	0.357
37500.0	0.207	11.006	5.150	936.409	0.424	0.132	4.317	2.083	1.010	0.423
40000.0	0.199	9.727	5.317	934.678	0.460	0.154	4.278	2.201	1.059	0.495
42500.0	0.191	8.541	5.463	932.892	0.495	0.177	4.230	2.309	1.102	0.572
45000.0	0.183	7.448	5.589	931.049	0.529	0.202	4.175	2.408	1.137	0.653
47500.0	0.176	6.449	5.696	929.147	0.562	0.227	4.115	2.497	1.166	0.739
50000.0	0.168	5.542	5.782	927.184	0.593	0.253	4.053	2.576	1.189	0.830
52500.0	0.160	4.727	5.849	925.161	0.623	0.279	3.991	2.645	1.206	0.923
55000.0	0.153	4.000	5.898	923.075	0.651	0.305	3.929	2.704	1.219	1.020
57500.0	0.146	3.359	5.930	920.930	0.677	0.330	3.870	2.754	1.226	1.118
60000.0	0.139	2.800	5.944	918.725	0.701	0.355	3.815	2.795	1.231	1.219
62500.0	0.132	2.317	5.943	916.465	0.722	0.379	3.764	2.828	1.232	1.321
65000.0	0.125	1.905	5.929	914.153	0.742	0.401	3.717	2.854	1.231	1.423
67500.0	0.119	1.557	5.901	911.794	0.758	0.422	3.675	2.874	1.229	1.525
70000.0	0.112	1.266	5.863	909.391	0.773	0.441	3.638	2.889	1.225	1.627

Table C.42 [ ] Exposure-Dependent 80% Void Isotopics (kg/MTU Initial)

Exposure MWd/MTU	U-234	U-235	U-236	U-238	NP-237	PU-238	PU-239	PU-240	PU-241	PU-242
0.0	0.334	41.785	0.000	957.880	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.334	41.666	0.024	957.817	0.000	0.000	0.020	0.000	0.000	0.000
500.0	0.332	41.194	0.118	957.560	0.002	0.000	0.217	0.002	0.000	0.000
1000.0	0.330	40.612	0.234	957.240	0.004	0.000	0.478	0.008	0.000	0.000
1500.0	0.327	40.041	0.347	956.921	0.007	0.000	0.726	0.018	0.002	0.000
2000.0	0.325	39.480	0.458	956.603	0.010	0.000	0.962	0.031	0.004	0.000
2500.0	0.323	38.927	0.567	956.285	0.014	0.000	1.185	0.047	0.007	0.000
3000.0	0.321	38.383	0.674	955.969	0.017	0.001	1.398	0.066	0.011	0.000
3500.0	0.318	37.847	0.779	955.653	0.021	0.001	1.600	0.086	0.017	0.000
4000.0	0.316	37.319	0.883	955.338	0.025	0.001	1.792	0.108	0.023	0.001
4500.0	0.314	36.798	0.984	955.024	0.029	0.001	1.974	0.132	0.031	0.001
5000.0	0.312	36.284	1.084	954.711	0.033	0.002	2.148	0.157	0.041	0.001
5500.0	0.310	35.776	1.181	954.399	0.038	0.002	2.313	0.183	0.051	0.002
6000.0	0.308	35.275	1.278	954.088	0.042	0.003	2.470	0.211	0.062	0.002
6500.0	0.306	34.780	1.372	953.777	0.047	0.003	2.620	0.239	0.075	0.003
7000.0	0.304	34.292	1.465	953.468	0.052	0.004	2.762	0.268	0.088	0.004
7500.0	0.302	33.808	1.557	953.160	0.058	0.004	2.897	0.298	0.102	0.005
8000.0	0.300	33.330	1.647	952.852	0.063	0.005	3.025	0.329	0.117	0.006
8500.0	0.298	32.858	1.736	952.546	0.068	0.006	3.147	0.360	0.132	0.008
9000.0	0.296	32.390	1.823	952.240	0.074	0.006	3.263	0.392	0.148	0.009
9500.0	0.294	31.928	1.909	951.936	0.080	0.007	3.373	0.424	0.165	0.011
10000.0	0.292	31.470	1.994	951.632	0.085	0.008	3.478	0.456	0.182	0.012
10500.0	0.290	31.017	2.078	951.328	0.091	0.009	3.578	0.489	0.199	0.014
11000.0	0.288	30.568	2.160	951.025	0.097	0.010	3.673	0.522	0.217	0.017
11500.0	0.286	30.124	2.241	950.721	0.103	0.011	3.764	0.556	0.235	0.019
12000.0	0.284	29.684	2.321	950.417	0.109	0.012	3.851	0.590	0.254	0.021
12500.0	0.282	29.249	2.400	950.113	0.116	0.014	3.934	0.624	0.272	0.024
13000.0	0.280	28.818	2.478	949.808	0.122	0.015	4.014	0.658	0.292	0.027
13500.0	0.279	28.391	2.555	949.503	0.128	0.016	4.091	0.692	0.311	0.030
14000.0	0.277	27.969	2.631	949.196	0.135	0.018	4.164	0.727	0.331	0.033
14500.0	0.275	27.550	2.705	948.889	0.141	0.019	4.234	0.761	0.350	0.037
15000.0	0.273	27.136	2.779	948.580	0.148	0.021	4.302	0.796	0.371	0.041
15500.0	0.271	26.726	2.852	948.270	0.155	0.022	4.366	0.831	0.391	0.044
16000.0	0.269	26.321	2.924	947.959	0.162	0.024	4.429	0.866	0.411	0.049
16500.0	0.268	25.919	2.994	947.647	0.169	0.026	4.488	0.901	0.432	0.053
17000.0	0.266	25.521	3.064	947.334	0.176	0.028	4.546	0.936	0.453	0.057
17500.0	0.264	25.128	3.133	947.019	0.183	0.030	4.601	0.971	0.473	0.062
20000.0	0.255	23.220	3.462	945.426	0.220	0.041	4.844	1.146	0.578	0.089
22500.0	0.246	21.409	3.768	943.800	0.258	0.054	5.039	1.319	0.683	0.121
25000.0	0.237	19.691	4.052	942.141	0.298	0.069	5.192	1.490	0.785	0.158
27500.0	0.229	18.063	4.314	940.446	0.337	0.087	5.308	1.657	0.883	0.200
30000.0	0.220	16.525	4.555	938.716	0.377	0.106	5.394	1.819	0.976	0.248
32500.0	0.212	15.073	4.776	936.950	0.418	0.128	5.452	1.975	1.063	0.300
35000.0	0.204	13.707	4.975	935.145	0.458	0.152	5.488	2.125	1.144	0.357
37500.0	0.196	12.424	5.155	933.303	0.497	0.179	5.503	2.267	1.218	0.418
40000.0	0.188	11.223	5.316	931.420	0.536	0.207	5.503	2.402	1.286	0.483
42500.0	0.181	10.102	5.457	929.498	0.575	0.236	5.488	2.528	1.347	0.552
45000.0	0.173	9.061	5.580	927.534	0.612	0.268	5.463	2.646	1.402	0.625
47500.0	0.166	8.096	5.685	925.530	0.648	0.300	5.429	2.756	1.449	0.701
50000.0	0.159	7.207	5.773	923.484	0.682	0.333	5.388	2.856	1.491	0.780
52500.0	0.152	6.390	5.844	921.398	0.715	0.368	5.342	2.947	1.527	0.861
55000.0	0.146	5.644	5.899	919.271	0.746	0.402	5.293	3.030	1.557	0.945
57500.0	0.139	4.966	5.939	917.103	0.775	0.436	5.242	3.104	1.582	1.031
60000.0	0.133	4.353	5.964	914.897	0.802	0.470	5.191	3.169	1.603	1.119
62500.0	0.127	3.801	5.976	912.654	0.827	0.504	5.140	3.227	1.619	1.208
65000.0	0.122	3.307	5.975	910.374	0.849	0.536	5.090	3.277	1.632	1.298
67500.0	0.116	2.868	5.963	908.060	0.870	0.568	5.042	3.320	1.641	1.389
70000.0	0.111	2.479	5.940	905.715	0.888	0.598	4.997	3.356	1.648	1.481

Appendix D Lattice Enrichment Distribution Maps

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Figure D.1 [ ] Enrichment Distribution

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Figure D.2 [ ] Enrichment Distribution

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Figure D.3 [ ] Enrichment Distribution

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Figure D.4 [ ] Enrichment Distribution

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Figure D.5 [ ] Enrichment Distribution

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Figure D.6 [ ] Enrichment Distribution

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Figure D.7 [ ] Enrichment Distribution

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Figure D.8 [ ] Enrichment Distribution

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Figure D.9 [ ] Enrichment Distribution

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Figure D.10 [ ] Enrichment Distribution

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Figure D.11 [ ] Enrichment Distribution

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Figure D.12 [ ] Enrichment Distribution

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Figure D.13 [ ] Enrichment Distribution

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Figure D.14 [ ] Enrichment Distribution

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Figure D.15 [ ] Enrichment Distribution

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Figure D.16 [ ] Enrichment Distribution

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Figure D.17 [ ] Enrichment Distribution

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Figure D.18 [ ] Enrichment Distribution

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Figure D.19 [ ] Enrichment Distribution

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Figure D.20 [ ] Enrichment Distribution

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Figure D.21 [ ] Enrichment Distribution

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Figure D.22 [ ] Enrichment Distribution

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Figure D.23 [ ] Enrichment Distribution